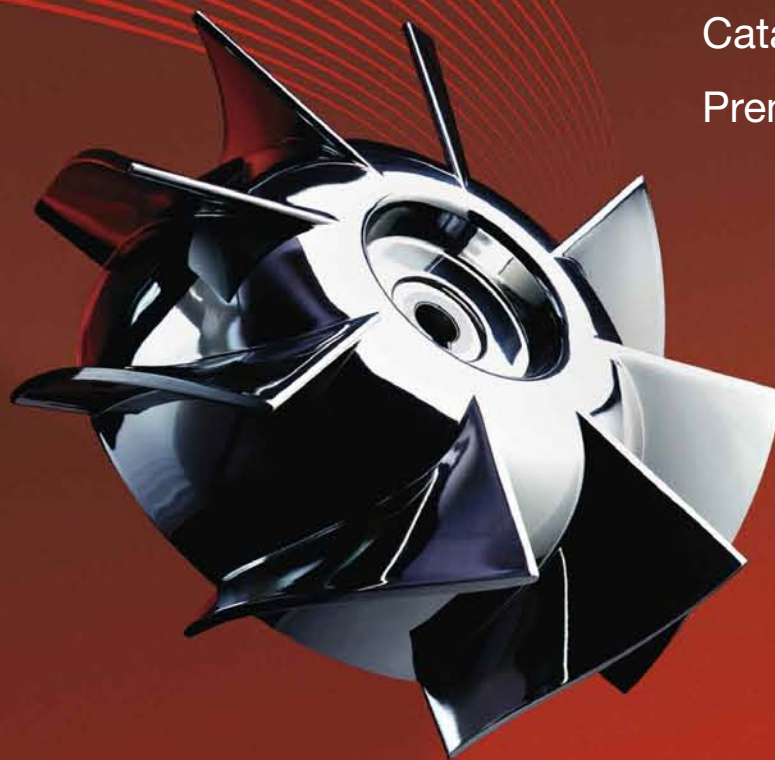


Standard Range
Catalogue
Premium Products 2.0



The professionals choice

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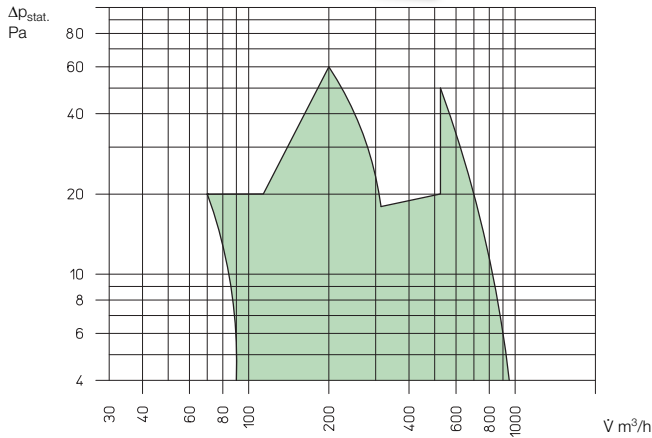
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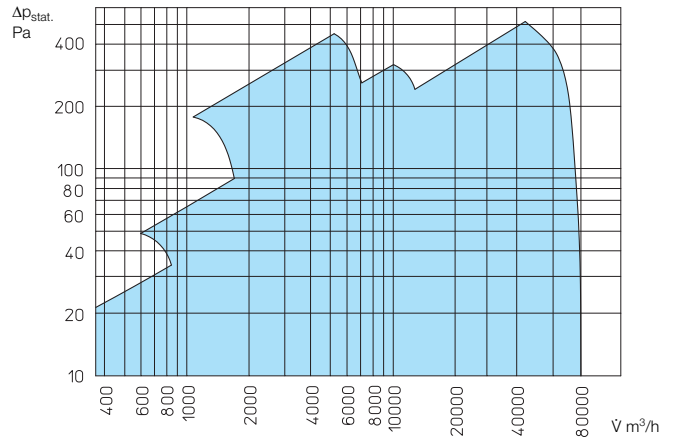
Axial fans for smaller duties

Models MiniVent® M1, HR 90 K, HV, REW, GX



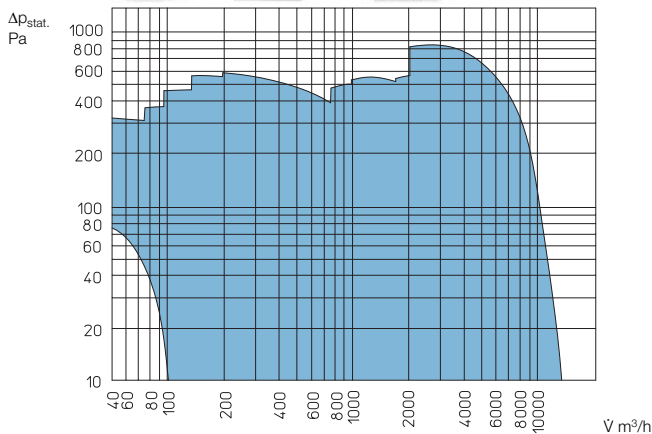
Axial high performance fans

Low-pressure, from 200 – 1000 mm Ø, models HQ, HW, HS, HRF, AVD



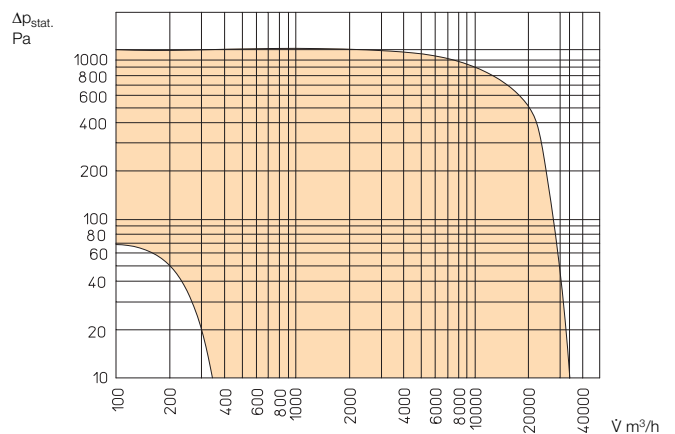
Centrifugal circular and rectangular fans, fresh air boxes

Models ALB., AV., DX, MV., RR., SB, SV., KV., KR., SKR..



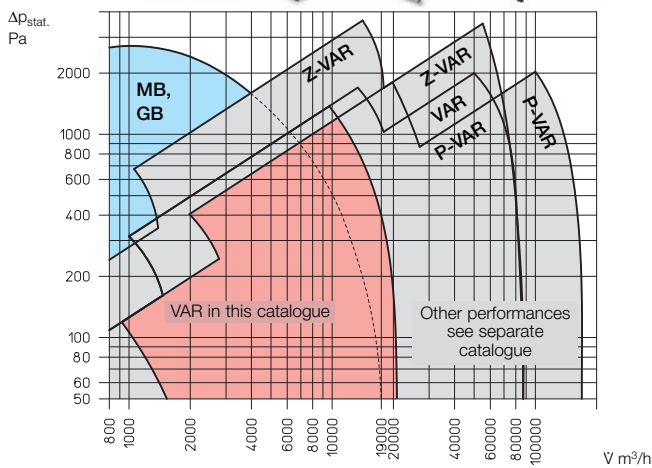
Centrifugal roof fans

Models VC, VD, VDR, RC, RD, DVEC



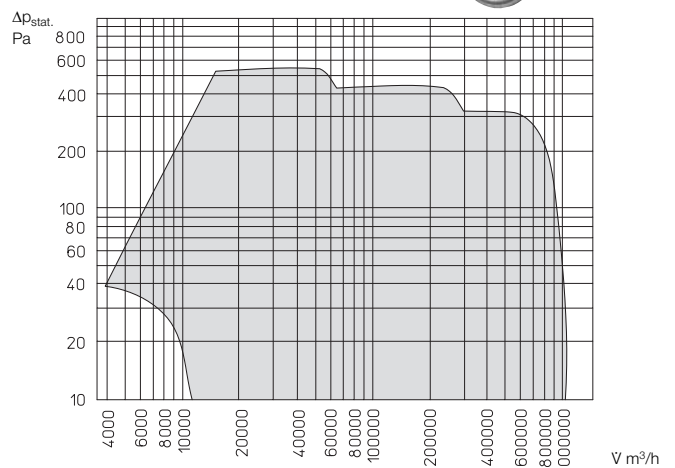
High pressure mixed flow in-line and centrifugal fans

Models VAR, MegaBox and GigaBox



Large axial fans from 1000 – 7100 mm impeller-Ø

Please ask for special catalogue.



GigaBox centrifugal fan plus new series GB.. T120

Compact frame construction with matching accessories and a variable outlet option by simply repositioning the casing panels to suit the site conditions.

The GigaBox centrifugal fans are ideal for medium to higher air flow volumes against high resistances. Furthermore, the new series GB.. T120 is suited for extraction of dirty hot air up to 120° C.

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SlimVent centrifugal fan SV

The new very slim and ultra silent centrifugal fan box SlimVent, is ideal for where space is restricted. SlimVent is inserted directly in-line e.g. in false ceilings. Installation in any position.

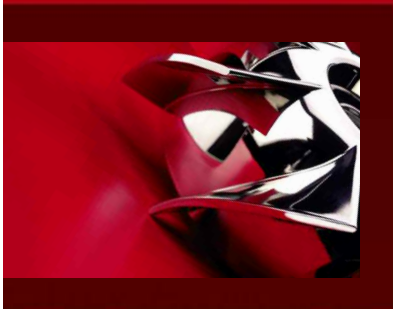
Suitable for ventilation in industrial, commercial and domestic applications, in new buildings and in the renovation of existing buildings. The sound absorbing SVS-types are acoustically lined with 50 mm thick mineral wool for very low sound levels.

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External wall fan AV

External wall fans are the simple solution for a comfortable, extremely low-noise ventilation of any room. The powerful, energy-saving centrifugal fans are fitted in robust, powder coated casings made from sheet steel. Suitable for the exterior mounting in domestic, commercial and industrial applications.

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**Design, Power and Efficiency.
Brand Expertise from Helios.**

MiniVent® M1 – Mini fan

The new M1 has been awarded many design awards. The fascia of the new MiniVent, conceals unique features behind its attractive fascia:

All M1 models are supplied with two speeds as standard.

Extremely quiet and powerful due to the new ultraSilence® technology.

M1 achieves maximum energy efficiency and consumes 33 % less power when compared to conventional fans.

ultraSilence® ELS**Mono tube ventilation system**

Experience a whole new level of silence from the new ELS range. The design meets DIN 18017-3.

- Only 26 dB(A)* for trickle ventilation at 35 m³/h and 35 dB(A) for general ventilation at 60 m³/h.
- 260 Pa at 60 m³/h for smallest pipe cross sections.
- ELS-GU (flush mounted casing) with only 98 mm installation depth. This solves many space problems.

Ventilation systems with heat recovery

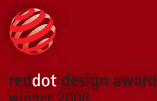
KWL®-program from Helios covers a large range of applications for single rooms through to large whole houses and flats.

KWL EC 270 and EC 370 with high energy efficiency are ideal for passive houses. New EC-units with enthalpy exchanger offer a combined humidity and heat recovery.

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**ECgreenVent® by Helios**

Energy-efficient ventilation units with advanced EC-technology for energy-saving consumption and the conservation of valuable environmental resources.

ultraSilence® by Helios

Innovative products in excellent premium design for home ventilation. Newest technology with minimum noise level.

Acoustic Line by Helios

Powerful and at the same time energy-efficient ventilation solution with sound absorption for residential, commercial and industrial applications.



Helios is a forward-looking family business and is one of Europe's leading fan manufacturers.

The modern factory has a floor area exceeding 100 000 m² of which 50 000 m² is production area. The plant is equipped with the latest production machinery resulting in high quality products. Helios has over 5 decades of designing and manufacturing fans and components for the ventilation industry.

In addition to about 25 sales offices in Germany Helios operates with agencies and subsidiaries in more than 20 countries in Europe and worldwide.

The philosophy is the same everywhere: competent consultation, training and problem solution for the customer, support when planning a reliable safe delivery of continuous high quality products manufactured in Villingen-Schwenningen.



In the ventilation training centre "LCC" you learn all about "ventilation engineering". No matter whether you would like to know more about trend-setting solutions or be trained to special topics such as ventilation with heat recovery, you can find solutions with Helios.

Benefit from ventilation training in theory and practice. A pleasant ambience, modern media technology and a well equipped show-room awaits you.



**Premium Products.
For the whole world of ventilation.**

The efficient logistics centre organises the order processing of Helios customers and keeping a working amount of products to be able to efficiently supply 98 % of orders from stock.



The automated capacity permits the consignment sale of approximately 15000 orders per month in a one-shift operation. Additionally, 20 regional warehouses guarantee a unique delivery service within Germany.

36 000 bulk containers, 12 000 euro-pallets with over 10 000 final products and 25 000 components are permanently available in stock.

The brand name Helios stands for innovation, quality and an unsurpassed product range. The range extends from mini fans and complete system solutions with heat recovery

for industrial, commercial and domestic applications up to customised solutions with an air flow rate of more than 2.2 million m³/h. Customers worldwide trust Helios fans in venti-

lation, heating, cooling, climate and drying applications.

Ventilation and moving air in all its aspects is our passion.

This passion has affected and fascinated us at Helios for over 5 decades.

The visions which inspired us once are now well established as market leading products.

As one of the leading manufacturers of fans and ventilation systems, Helios sets pioneering landmarks over and over again. The comprehensive product range offers individual and specific solutions for each technical ventilation application.

The brand name Helios stands for integrated over-all solutions in almost all ventilation ranges. The unique extensive standard program offers a wide, range for a variety of applications with different power

characteristics. Additionally, a range of accessories precisely matched to applications are available for every fan.

This guarantees a cost effective system from a single supplier. The low-cost solution works, saves time and trouble and is available in all dimensions and capacities.

Comfortable climate by Helios.



Air. Our passion.

Healthy.

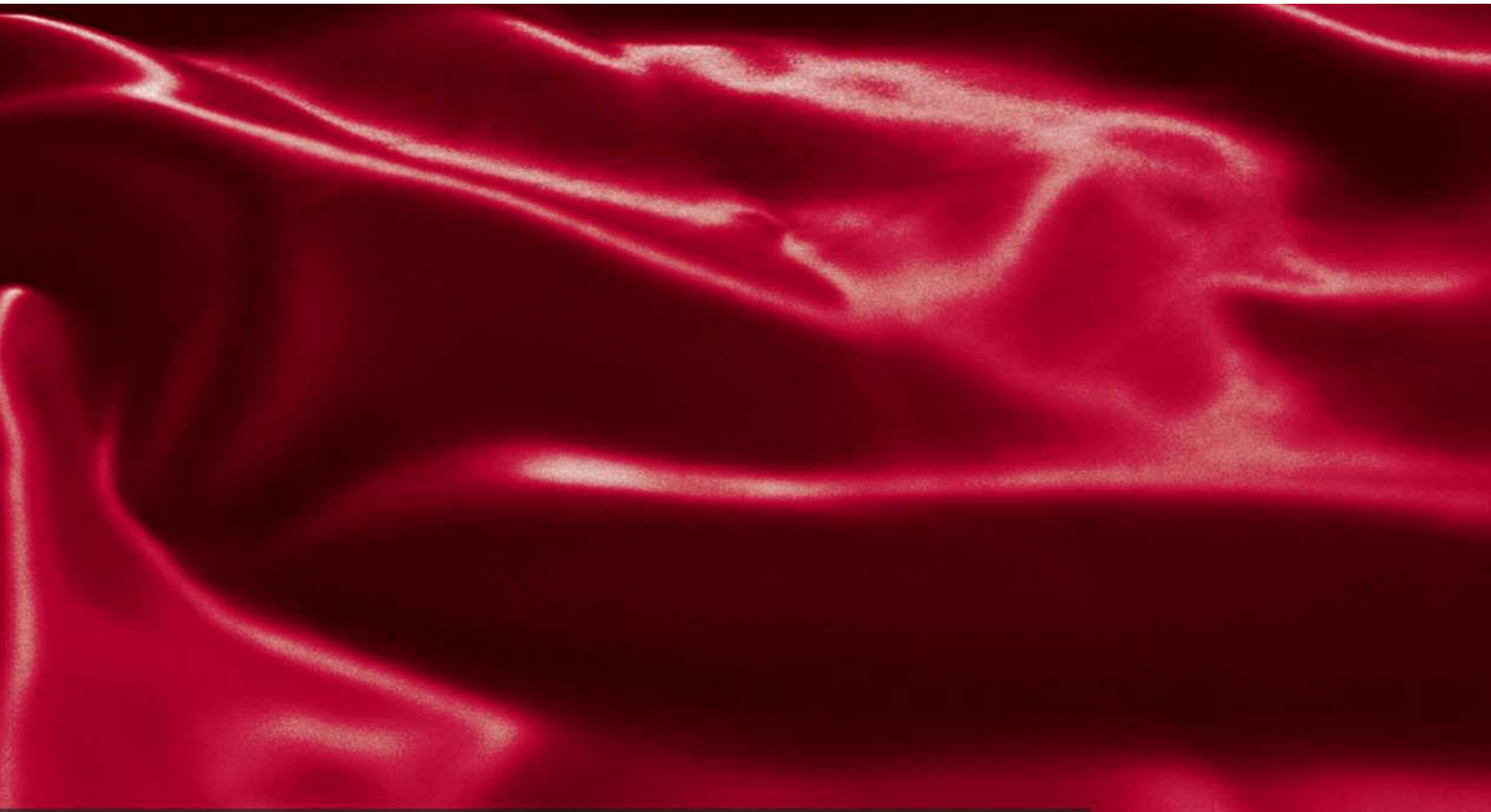
Controlled. Energy-saving.

The origin of the company Helios Ventilatoren goes back to the foundation of the company named Fernwellen Apparatbau AG in 1923 in Schwenningen a.N. The company manufactured earphones, horn loudspeakers as well as detector elements and employed 30 staff members after only a short time.



In the early 1930's production starts with bicycle lights (dynamos, headlights, rear lights) which, following the sun-god of the Greek mythology – were successfully sold under the brand name "Helios".

In 1951 the company starts the production of fans. At the beginning table, ceiling and pedestal fans are manufactured. By the beginning of the 1960's the Helios program covered axial fans in three series with impeller diameter from 200 to 950 mm. The following decades are characterised by the successful and continuous development of the core business.



Clean.



Silent.



Perfect fit.

The required extract or intake air volume of a room depends on the use and the contamination or odours that are created within it. A critical factor may also be the amount of heat that needs to be extracted.

The calculation of the air flow volume may be done using various criteria with the following equations and tables. In some cases, several ways of calculating should be used and the higher figure taken (e.g. restaurant: no of people – air changes per hour).

■ Calculation of air flow volume using air change rate

Air change rates (see table 1) are based on past experience and do not take into account special pollutants.

$$\dot{V} = V_R \cdot A_c/h \text{ [m}^3\text{/h]}$$

V_R : Room volume m^3
 A_c : Air changes per hour (from table 1)

■ Calculation of air flow volume using the number of people in a room (DIN 1946, Pt. 2)

In rooms with additional pollutants (e. g. tobacco smoke) the air flow per person has to be increased by 20 m^3/h .

$$\dot{V} = P \cdot A_{CP} \text{ [m}^3\text{/h]}$$

P : Number of people
 A_{CP} : Air change rate per person (from table 2)

■ Calculation of air flow volume using maximum pollutant concentration levels.

To limit the level of pollutant to a specific value.

$$\dot{V} = \frac{M}{k_{AGW} - k_a} \text{ [m}^3\text{/h]}$$

M : Hourly absorption of toxic agent mg/h
 k_{AGW} : Max. permitted toxic agent concentration mg/m^3 (see AGW-table 3)
 k_a : Concentration of toxins in replacement air mg/m^3 (AGW-table v. C. Hermanns Verlag, Cologne)

■ Calculation of air flow volume using the amount of humidity

To limit the moisture level in the air to a specific value.

$$\dot{V} = \frac{G}{(x_2 - x_1) \cdot \rho} \text{ [m}^3\text{/h]}$$

G : Amount of water gram/hour
 x_2 : Water content of extracted air g water / kg air
 x_1 : Water content of replacement air g water / kg air
 ρ : Air density kg/m^3 (at 20 °C, 1013 mbar = 1.2 kg/m^3)

■ Calculation of air flow volume using the heat to be extracted

To limit the room temperature by removing the heat generated.

$$\dot{V} = \frac{\dot{Q} \cdot 3600}{\rho \cdot c_p \cdot \Delta T} \text{ [m}^3\text{/h]}$$

\dot{Q} : Required heat extraction kW
 c_p : Specific heat capacity of air $kJ/(kg \cdot K)$ (Air at 20 °C: $c_p \approx 1$)
 ΔT : Temperature difference between intake and extract air °C
 ρ : Air density kg/m^3 (at 20 °C, 1013 mbar = 1.2 kg/m^3 (1 kWh = 3600 kJ))

■ Calculation of required heat to temper intake air

To establish the heater rise for the air flow selected.

$$\dot{Q}_L = \frac{\dot{V} \cdot \rho \cdot c_p \cdot \Delta T}{3600} \text{ [kW]}$$

\dot{Q}_L : Heater output kW
 \dot{V} : Air flow volume m^3/h
 ρ : Air density 1.2 kg/m^3 (20 °C)
 c_p : Spec. heat capacity $kJ/(kg \cdot K)$
 ΔT : Temperature difference (K) between ϑ_i Room temperature and ϑ_a Outdoor temperature

$$\Delta T = \vartheta_i - \vartheta_a \text{ [K]}$$

Table 1 Air changes per hour and (recommended) noise levels

Room type	A _c /h	Max. sound power level dB(A)	Suggested method of ventilation
Assembly plants	4 – 8	60 – 70	
Auditoriums	6 – 8	35 – 40	Intake and extract
Bathrooms	5 – 7	45	
Battery rooms	5 – 10	70	Explosion proof
Car parks	5	70	Extract
Changing rooms	6 – 8	60	Extract
Cinemas and theatres	5 – 8	35 / 25	Intake and extract
Classrooms	5 – 7	40	
Cloakrooms	4 – 6	50	
Conference rooms	6 – 8	45	
Dye rooms	5 – 15	70	Explosion proof, acid proof
Foundries	8 – 15	80	Extract, energy balance
Gymnasiums	4 – 6	50	
Kitchens – Domestic	15 – 25	45 – 50	Extract
– Commercial	15 – 30	50 – 60	Extract
Laboratories	8 – 15	60	Extract, Explosion+, acid proof
Laundrettes	10 – 20	60 – 70	Energy balance
Libraries	4 – 5	35 – 40	
Living rooms	3 – 6	day 40/night 30	
Meeting rooms	5 – 10	45	
Metal hardening plants	up to 80	80	Extract, energy balance
Offices	4 – 8	45	
Paint rooms	10 – 20	70	Explosion proof
Photographic printing	10 – 15	60	Extract
Plant rooms	10 – 40	60 – 80	Energy balance
Restaurants, casinos	8 – 12	45 – 55	Intake and extract
Retail shops	4 – 8	50 – 60	
Safes	3 – 6	60	
Sheet metal shops	8 – 12	60	Extract, energy balance
Shower rooms	15 – 25	65 – 70	Pre heated intake air
Spray booths	25 – 50	70	Explosion proof
Swimming pools	3 – 4	50	Pre heated intake air
Tanneries	5 – 15	70	Acid protection
Toilets – Domestic	4 – 5	40	Extract
– Commercial/public	8 – 15	50	Extract
Waiting rooms	4 – 6	45	
Welding shops	20 – 30	70 – 80	Spot extract systems
Workshops – with low pollution	3 – 6	60 – 70	
– with high pollution	10 – 20	60 – 70	

Table 2 Air exchange rate per person and room type

Type of room	$\frac{m^3}{h \times persons}$	Type of room	$\frac{m^3}{h \times persons}$
Auditoriums	30	Museums	20
Canteens	30	Offices (open plan)	50
Cinemas	20	Offices (small)	30
Classrooms	30	Party rooms	20
Common rooms	30	Reading rooms	20
Conference rooms	30	Restaurants	40
Exhibition halls	20	Rest rooms	30
Gymnasiums	20	Shops	20
Hotel rooms	30	Theatres, concert halls	20

Table 3 Extract from AGW-table (max. permitted toxic agent)

Toxic	$\frac{cm^3}{m^3}$	$\frac{mg}{m^3}$	Toxic	$\frac{cm^3}{m^3}$	$\frac{mg}{m^3}$
Acetone	1000	2400	Hydrazine	0.1	0.13
Aniline	2	8	Iodine	0.1	1
Ammonia	50	35	Methanole	200	260
Asbestos dust	–	2	Nicotine	0.07	0.5
Lead	–	0.1	NO ₂	5	9
Butane	1000	2350	Ozone	0.1	0.2
Chloride	0.5	1.5	Propane	1000	1800
Chromate	–	0.1	PVC	3	8
Carbon monox.	30	33	Quicksilver	0.01	0.1
CO ₂	5000	9000	Saltpeter	10	25
Formaldehyde	0.1	1.2	SO ₂ (H ₂ SO ₄)	2 (–)	5 (1)
Hydro chloride	5	7	Zinc oxide	–	5

The noise level of a fan must be taken into consideration when designing a ventilation system. The affect of a sound source (fan) on the rooms that need ventilation and the neighbourhood can be estimated using the following information:

The noise is primarily created by the fan, possibly also by ducting, and other components like filters, heaters, shutters etc. If the air flow speed is too high this will result in whistling noises. A maximum air flow speed of 7 m/s is recommended and at the same time noise transmission by fan or other components must be reduced as much as possible when installing. The maximum noise emission recommendations should not be exceeded. Reduction in noise can be achieved by installing the noise source as far away as possible from inhabited area or by use of attenuators. Generally the noise level should be kept as low as possible at its source, that means selecting low noise fans.

Room absorption (Figure 8)

Each room has a specific attenuation characteristic. It depends on the state of the walls, floor, ceiling, furniture and of course the size. The sound pressure level L_{PA} is different at each position of a room. The figure is always lower than the sound power level L_{WA} of the noise source. With room size and average absorption coefficient the average room absorption can be calculated (in m^2 Sabine).

Directivity factor Q

The directivity factor takes into account at what position the noise source and the listener are with in a room.
Noise angle 45° , $Q = 4$
Noise angle 0° , $Q = 8$

Room attenuation ΔL

Is the difference between sound power and sound pressure level (VDI 2081).

Sound pressure level in room
 $L_{PA} = L_{WA} - \Delta L$ [dB]

Example classroom
Room volume: $72 m^3$
average absorption coefficient: $0.1 \alpha \cdot m$
average absorption area: Sabine $14 m^2$
Room position 1, grille in the middle of the room
Noise angle 0° , $Q = 8$
Distance $1.8 m$
 $\Delta L = 2.5$ (dB)
Room position 2, grille in room corner
Noise angle 45° , $Q = 4$
Distance $4 m$
 $\Delta L = 5$ (dB)

To adapt a sound power level figure to what the human ear hears it can be converted into a sound pressure level. Stated with spherical sound level propagation (freefield conditions) the reduction can be calculated in relation to the distance from the noise source (figure 4). For an exact noise figure within a room the absorption capacity of the room is of much higher importance.

Sound emission levels affecting the neighbourhood.

The following recommended sound levels for neighbourhoods should not be exceeded.

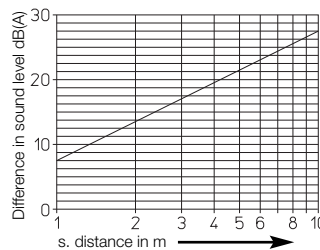
Area	Emission dB(A) day/night	
Industrial (100%)	70	70
Industrial (mainly)	65	50
Industrial/residential	60	45
Residential (mainly)	55	40
Residential (100%)	55	30
Hospitals etc.	45	35

Noise levels for working environments

The following recommended sound levels should not be exceeded permanently:

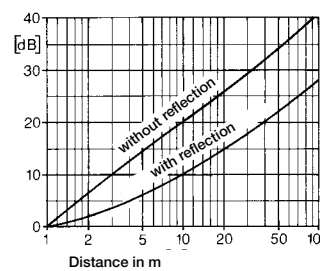
Activity	dB(A)
Intellectual concentration	55
Computer and office work	70
Other areas (Maximum deviation 5 dB)	85
First aid, rest and recovery rooms	55

Figure 4
Difference between sound power and pressure level at a distance:



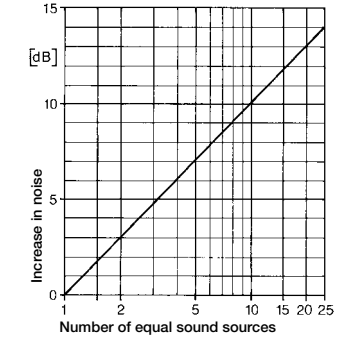
Example:
Sound power level of fan = 70 dB(A)
Sound pressure level at 1 m (freefield cond.) = 70 dB(A) less 8 = 62 dB(A)

Figure 5
Sound pressure level drop in relation to distance



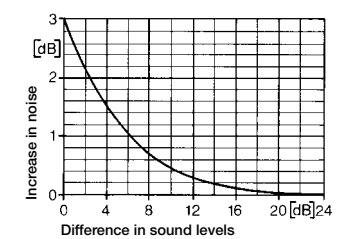
Example:
Sound pressure level at 1 m = 60 dB(A)
Sound pressure level in 5 m distance without reflection (freefield): less 15 = 45 dB(A)
with part reflection: less 5 = 55 dB(A)

Figure 6
Addition of several noise sources of equal intensity

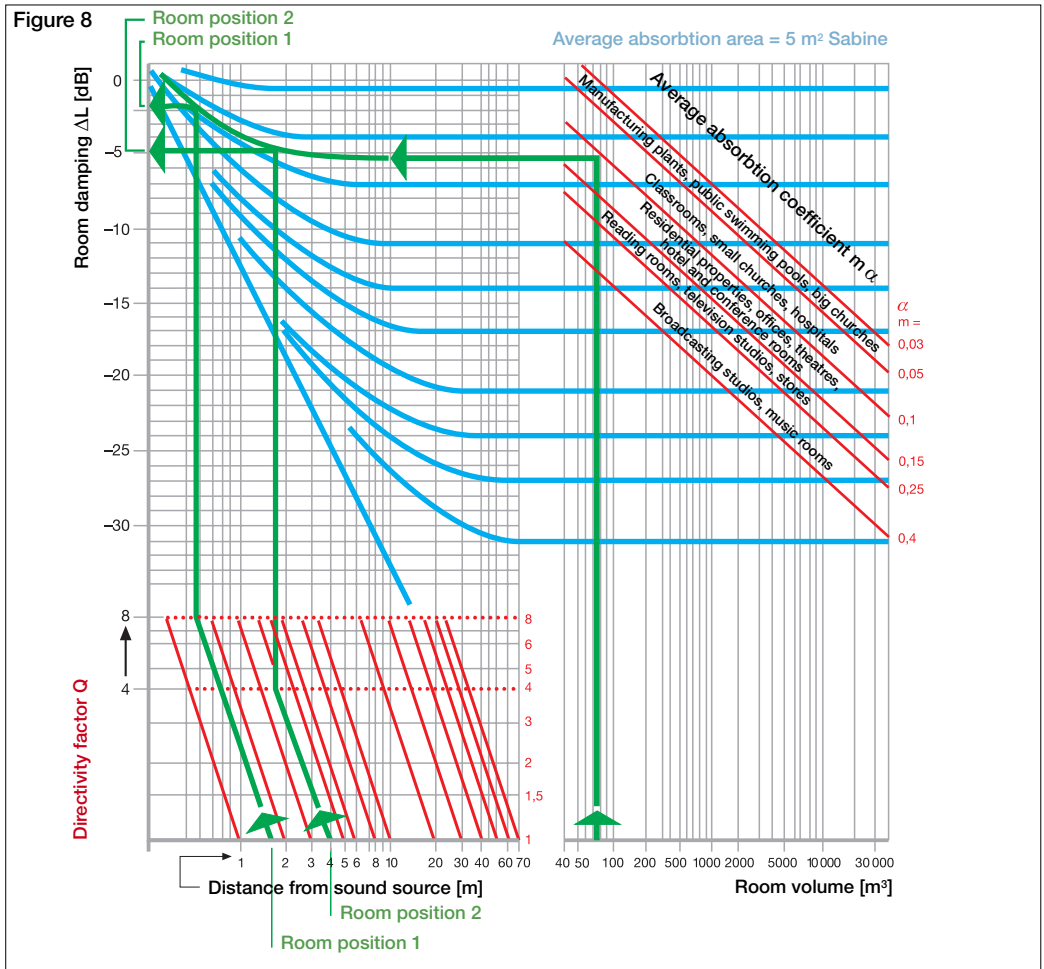


Example: 10 noise sources of 60 dB(A)
Total noise level:
60 dB(A) + 10 dB = 70 dB(A)

Figure 7
Addition of several noise sources with different intensity



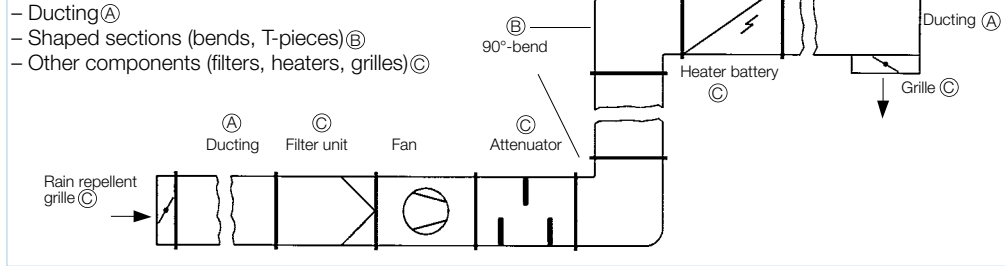
Example: 2 noise sources with 60 dB(A) and 64 dB(A)
Total noise level:
64 dB(A) + 1.5 dB = 65.5 dB(A)



Pressure losses

Ventilation systems consist of various different components like: fan, bends, grilles, heat exchangers, filters e.t.c. All these components have a resistance which needs to be considered to select a suitable fan. The pressure loss Δp_{stat} . (static pressure) of the total system is calculated by adding all individual resistances (see figure 9).

Figure 9 Pressure losses in a ventilation system



Pressure drop in circular or rectangular ducting

$$\Delta p = \Delta p_1/L \cdot L_1 + \Delta p_2/L \cdot L_2 + \dots \text{ [Pa]}$$

$\Delta p/L_{1,2, \dots}$: from table in figure 10 [Pa/m]
L: Length of ducting [m]
Equivalent diameter d_h

Equivalent diameter d_h

$$d_h = \frac{2 \cdot b \cdot h}{b + h} \text{ [mm]}$$

w: Width of ducting [mm]
h: Height of ducting [mm]
Equivalent diameter d_h

d_h for rectangular fans

b x h [cm]	d_h [mm]
30 x 15	200
40 x 20	260
50 x 25	330
60 x 30	375
60 x 35	400
70 x 40	500
80 x 50	600
100 x 50	650

Correction factor ϵ

$$\Delta p_R = \Delta p_{\epsilon=0} \cdot \text{Correction factor}$$

Pressure drop in shaped sections like bends, T-pieces, change in cross section area

$$\Sigma \Delta p_F = \Delta p_{F1} + \Delta p_{F2} + \dots \text{ [Pa]}$$

$$\Delta p_F = \zeta \cdot \frac{\rho}{2} \cdot c^2 \text{ [Pa]}$$

$\Delta p_{F1,2, \dots}$: from tables in figure 12-15 [Pa]
Equivalent diameter c: air flow velocity [m/s]
 ζ : pressure loss coefficient

Resistances of components

$$\Sigma P_{Agg} = \Delta p_{Agg1} + \Delta p_{Agg2} + \dots \text{ [Pa]}$$

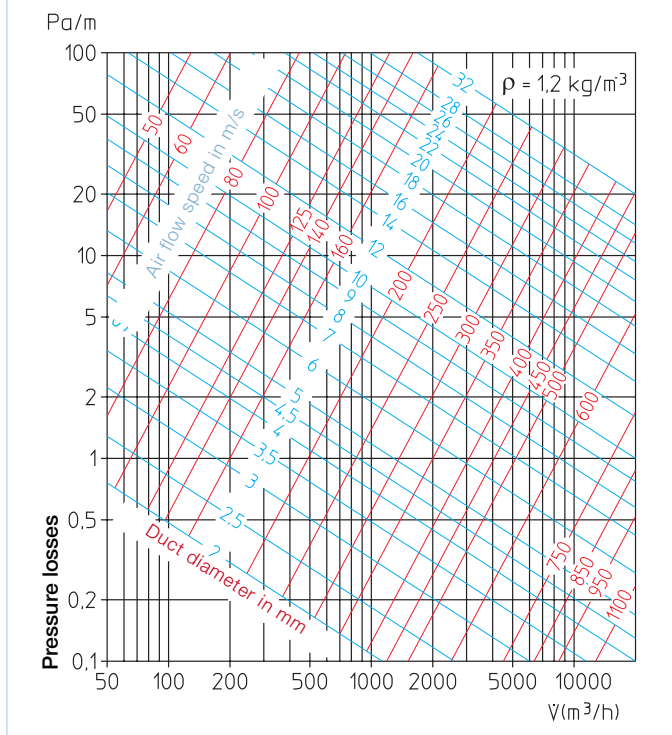
$\Delta p_{Com1,2, \dots}$: from table 11 or diagramm

Velocity pressure at exhaust

$$\Delta p_d = \frac{\rho}{2} \cdot c^2 \text{ [Pa]}$$

ρ : Density [kg/m³]
(air at 20 °C, 1013 mbar = 1.2 kg/m³)
c: Air flow velocity [m/s]

Figure 10 Pressure losses Δp [Pa/m] (roughness $\epsilon = 0$)
 \dot{V} [m³/h], c [m/s], d [mm]



Correction factor for roughness ϵ of different materials

Metal ducting	1.5	Wooden ducting	1.5
Flexible ducting	7.0	Concrete ducting	2.0
Fibred concrete ducting	1.5	Bricked ducting	3.0

Figure 11 Resistances of components

(as a calculation guide)

Component	Resistance Δp component [Pa]
Grilles, gravity shutters, louvres*	20 – 40
Helios VK-shutters*	10 – 20
Heater batteries, heat exchangers*	100 – 150
Filter clean*	40 – 60
dirty	250 – 300
Attenuators*	40 – 80
Valves*	10 – 200
Cyclone	500 – 750

*more accurate figures see product page

Total resistance calculation

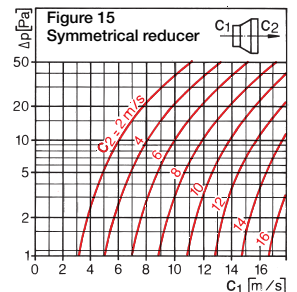
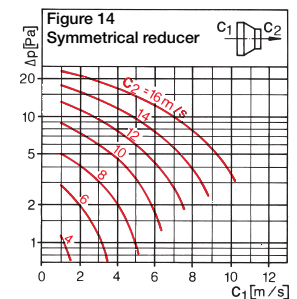
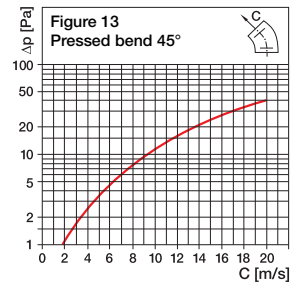
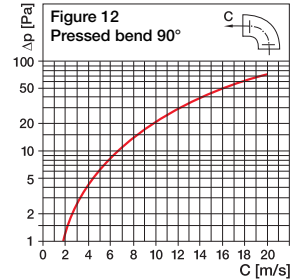
$$\Delta p_{total} = \text{A} + \text{B} + \text{C} + \text{D} \text{ [Pa]}$$

Air flow speed

$$c = \frac{\dot{V}}{A \cdot 3600} \text{ [m/s]}$$

A: Air flow cross section area [m²]
 \dot{V} : Air flow volume [m³/h]

Resistances of shaped sections



Fan performance units

Air flow volume \dot{V} [m³/h, m³/s]
 Total pressure $\Delta p_{\text{total}} = \Delta p_{\text{stat.}} + p_{\text{dyn.}}$ [Pa]
 Static pressure $\Delta p_{\text{stat.}} = \Delta p_{\text{total}} - p_{\text{dyn.}}$ [Pa]
 Dynamic pressure $p_{\text{dyn.}} = \rho/2 \cdot c^2$ [Pa]
 Shaft power P_w [W, kW]
 Nominal motor power P [W, kW]
 Sound power/pressure level L_{wA}, L_{pA} [dB(A)]

All figures were measured on a test chamber stand to DIN 24163 Pt. 2. The noise figures were measured in an acoustic room simulating spherical sound level propagation conforming to DIN 45635 Pt. 1. 2.

Performance curves

The characteristic of a fan is shown in form of a performance curve. In a performance curve the air flow volume is given in relation to a static pressure ($\Delta p_{\text{stat.}}$) or a total pressure ($\Delta p_{\text{tot.}}$). The working point (WP) is the meeting point between the fan's performance curve and the system's resistance curve ($\Delta p_{\text{stat.}}$). The air flow volume can be determined by drawing a vertical line downwards.

System resistance curve

The pressure of a system changes as a square of the changing air flow volume.

System's resistance

$$\Delta p = k \cdot \dot{V}^2$$

To be considered when selecting a fan:

$$\Delta p_{\text{stat.}} = \Delta p_{\text{tot}} - p_d \text{ [Pa]}$$

The static pressure $\Delta p_{\text{stat.}}$ is the pressure drop of the system (ducting, bends, filters and other components).

Figure 16

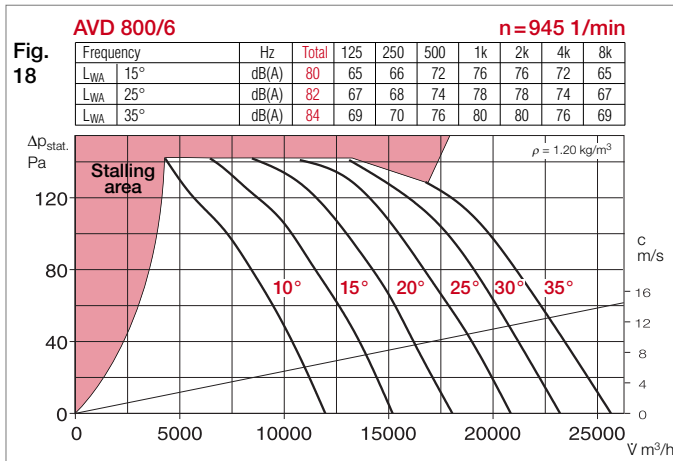
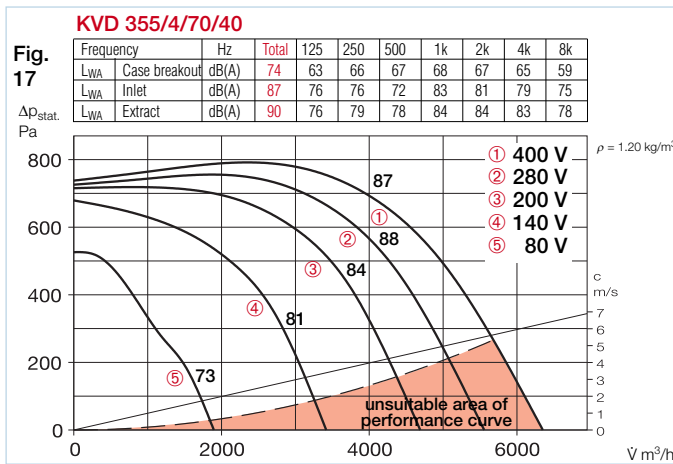
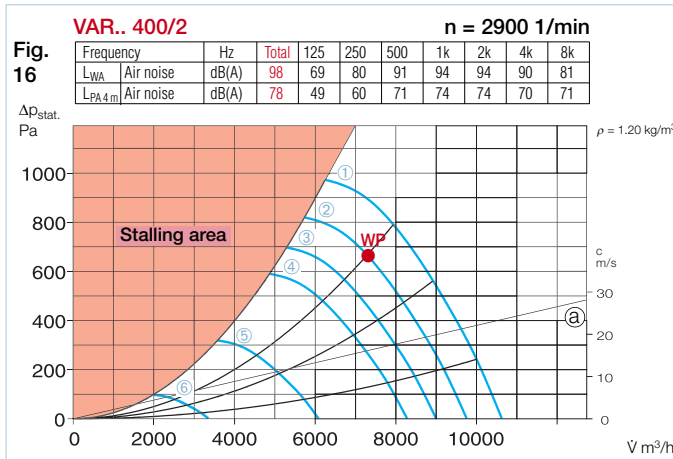
In the performance curve of speed controllable axial high performance fans H... and types of model range VAR the performance for 1 ph.- (green) and 3 ph.-fans (blue) are shown. The static pressure can be read off. Line @ shows the airflow velocity through the fan at a certain air flow volume. The working point (WP) is, where the fan curve and the system resistance curve cross.

Figure 17

The performance curve of a speed controllable fan shows the performance curves for the various speed steps (transformer voltages).

Figure 18

For HELIOS AVD... models (above $\phi > 710$ mm), the fan's performance can be adjusted to the required duty by changing the pitch angle (at standstill).



Altitude above sea level in m	0	500	1000	2000	3000
Atmospheric pressure in mbar	1013	955	899	795	701

Calculation of the required shaft power of a fan

$$P_{W1} = \frac{\dot{V} \cdot \Delta p_{\text{tot.}}}{1000 \cdot \eta} \text{ [kW]}$$

$\Delta p_{\text{tot.}}$ = Total pressure increase [Pa]
 η = Efficiency of the fan
 \dot{V} = Air flow volume in [m³/s]

When using a pole-switching motor

Pole figure	Air flow volume	Pressure	Power
n_1/n_2	$\frac{\dot{V}_2}{\dot{V}_1}$	$\frac{\Delta p_2}{\Delta p_1}$	$\frac{P_{W2}}{P_{W1}}$
4/2	2	4	8
8/4			
12/6			
6/4	1.5	2.25	3.38
8/6	1.33	1.78	2.37

Fan laws

The performances of geometrically similar fan ranges can be calculated using the relations between fan speed, diameter and density.

Change in speed (R.P.M.):

$$V_2 = V_1 \cdot \frac{n_2}{n_1}; \Delta p_2 = \Delta p_1 \cdot \left(\frac{n_2}{n_1}\right)^2;$$

$$P_{W2} = P_{W1} \cdot \left(\frac{n_2}{n_1}\right)^3$$

If you half the speed, you half the air flow and quarter the pressure.

Change in diameter:

$$V_2 = V_1 \cdot \left(\frac{D_2}{D_1}\right)^3; \Delta p_2 = \Delta p_1 \cdot \left(\frac{D_2}{D_1}\right)^2;$$

$$P_{W2} = P_{W1} \cdot \left(\frac{D_2}{D_1}\right)^5$$

If you double the diameter, the air flow grows by power 3 and the pressure in square.

Change in temperature / density:

$$V_1 = V_2 = \text{const.}$$

$$\frac{\Delta p_2}{\Delta p_1} = \frac{\rho_2}{\rho_1} = \frac{T_1}{T_2}$$

$$\Delta p_2 = \Delta p_1 \cdot \frac{\rho_2}{\rho_1} = \Delta p_1 \cdot \frac{T_1}{T_2} \text{ [Pa]}$$

$$P_{W2} = P_{W1} \cdot \frac{\rho_2}{\rho_1} = P_{W1} \cdot \frac{T_1}{T_2} \text{ [kW]}$$

T: Ambient temperature (T = 273+t) [°C]

t: Air flow temperature [°C]

Index 1: Original condition

Index 2: Modified condition

Use of a fan in different altitudes

Calculation of density:

$$\rho = \frac{p_a \text{ [hPa]} \cdot 100}{R_i \cdot T} \text{ [kg/m}^3\text{]}$$

p_a : Air pressure [hPa, mbar] figure 19

R_i : Gas constant (air: 287 J/(kgK))

Explosion proof to regulation 94/9/EC (ATEX)

- Helios explosion proof fans for operation in or to move potentially hazardous atmospheres or substances must be in accordance with the regulation 94/9/EC (ATEX).
- For that purpose the fans have a classification ☉.

Zone definition, Product group, Product categories ①

- Zone definition**
Explosion proof zones will normally be determined according to the implementation of the 94/92/EC and operation reliability regulation. The definition of the zones is to be determined by the operator and is his responsibility. If in doubt or for special applications, the local authorities should be consulted. Different zones have been allocated to take into account of the different degrees of risk from the concentration of flammable gas or vapour that may arise in an installation. It considers the frequency and duration of the hazardous atmosphere on each occasion.

Product groups

- Product group I:** Products for use in the underground part of mines and those parts of surface installations of such mines those are likely to become endangered by firedamp and/or combustible dust.

- Product group II:** For use in other places likely to become hazardous by explosive atmospheres.

Types of explosion gas group II

- 1 – Very high level of protection.
 - 2 – High level of protection.
 - 3 – Normal level of protection
- The explosive atmospheres are either Gas vapour (G) or Dust (D) and need one of the following categories of protection

- HELIOS explosion proof fans are suitable for product II category 2G or 3G (see product specific information) for operation in zone 1 and 2 and fulfil with professional installation the fundamental safety and health requirements.

- All certified information is stated on motor type plate. Also the tripping period t_E for the motor protection unit according to DIN EN 60079-0 / VDE 0170 / 0171 or DIN EN 60079-10 / VDE 0165-101.

- During connection all relevant safety and installation regulations must be observed.

- Special execution, abnormal voltages, protection to class “d” (flameproof enclosure) are possible on request.

- For some types a vibration monitoring is to be carried out according to DIN EN 14986 (please see respective product catalogue page).

Types of protection (motors and terminal boxes) ②

- Classification:

- „e“ – increased safety
- „d“ – flameproof enclosure
- „de“ – flameproof enclosure with increased safety

At fan motors with terminal boxes ignition protection type „e“ is normally applied as a sub-category.

Explosion groups for enclosures ②

- additionally it is separated in I = electrical apparatus for mines susceptible to firedamp.
II = electrical apparatus for places with a potentially explosive atmosphere, other than mines susceptible to firedamp.
- Protection class “e” corresponds to explosion group II; “d” classification is required for explosion group IIA, IIB and IIC.

- The degree of danger increases from explosion group IIA to IIC. If an apparatus is suitable for group IIB it can automatically be used for group IIA.

Ignition-, surface temperature and temperature class ②, ③

- The ignition temperature is the temperature at which an ignition may occur e.g. through contact with a hot motor surface. It depends on the nature of the gases and steams. The maximum surface temperature of an electrical appliance must always be lower than the ignition temperature of the substance used (DIN EN 60079-0 or DIN EN 60079-10).

- The gases are divided into 6 different temperature classes (T1-T6) with a decreasing ignition temperature for classes. The gas will be put into the lowest class where its ignition temperature is still higher than the one of the temperature class. Apparatus with a higher temperature (e.g. T5) can also be used for substances classified with a lower class (e.g. T2 or T3).

- The temperature class, the maximum surface temperature and ignition temperature are given in table ② in relation to specific gas and table ③ for the ignition temperature.

- The temperature class of each fan is stated on the individual catalogue page; for certified data see motor rating plate.

Operation

- Explosion proof motors (protection “e” increased safety) do not have thermal contacts. Rectangular explosion proof fans (type KVD.. Ex), roof fans RD.. Ex and Axial / VAR fans with high power are fitted with PTC thermistors (positive temperature coefficient).
- Speed control is permissible only with rectangular explosion proof fans (type KVD.. Ex) and roof fans (type RD.. Ex) as shown.

Selection of apparatus and system according to zone and risk

Flammable substances	Zones to IEC 60079-10	Description	Product-group	Product-category
Gases, vapour, fog	Zone 0	Zone in which an explosive atmosphere is continuously present, or present for long periods.	II	1G
	Zone 1	Zone in which an explosive atmosphere is likely to occur in normal operation.	II	1G or 2G
	Zone 2	Zone in which an explosive atmosphere is not likely to occur in normal operation, and if it occurs it will exist only for a short time.	II	3G, 2G or 1G
Dust	Zone 20	Zone in which an explosive atmosphere is continuously present, or present for long periods.	II	1D
	Zone 21	Zone in which an explosive atmosphere is likely to occur for a short period due to the presence of dust in the atmosphere.	II	2D or 1D
	Zone 22	Zone in which an explosive atmosphere in the form of a cloud of combustible dust in the air is not likely to occur in normal operation and if it occurs it will exist only for a short time.	II	3D

Data for flammable gases and vapours ignition temperature, temperature class, explosion class

Flammable material	Ignition temperature °C	Temperature class			Explosion class		
Acetaldehyde	155	T 1		T 4	II A II A		II C
Acetone	535						
Acetylene	305		T 2				
Ethane	515				II A II A		
Ethyl acetate	470	T 1			II A	II B	II B
Ethyl aether	175		T 2				
Ethyl alcohol	400			T 4			
Ethyl chloride	510	T 1			II A		
Ethylene	440		T 2				II B
Ethylene oxide	435		T 2				II B
Self disaggregation	235						
Ethyl glykol	630	T 1		T 3		II B	
Ammonia	630						
i-Amylacetat	380		T 2		II A II A II A		
Benzines, fuels	220 to 300			T 3			
Boiling inception < 135 °C							
Special benzines	220 to 300			T 3	II A		
Boiling inception > 135 °C							
Benzene(pure)	555	T 1			II A II A		
n-Butae	365		T 2				II B
n-Butylalcohol	325		T 2				
Cyclohexanone	430		T 2		II A II A		
1.2-Dichloroethane	440		T 2		II A		
Diesel fuels	220 to 300			T 3			
DIN 51601/04.78							
Jet fuels	220 to 300			T 3	II A II A II A		
Acetic acid	485	T 1			II A II A		
Acetic anhydride	330		T 2				
Heating oil EL	220 to 300			T 3	II A II A		
DIN 51603 Pt. 1/12.81							
Heating oil L	220 to 300			T 3	II A		
DIN 51603 Pt. 2/10.76							
Heating oil M and S	220 to 300			T 3	II A		
DIN 51603 Pt. 2/10.76							
n-Hexane	230			T 3	II A II A		
Carbonic oxide	605	T 1			II A		
Methane	595	T 1			II A		
Methanol	440		T 2				II A
Methyl chloride	625	T 1			II A II A		
Naphthalene	540	T 1					
Oleic acid	250			T 3			→•
Self disaggregation	595	T 1			II A II A		
Phenol	470	T 1					
Propane	385		T 2				II B
n-Propylalcohol	95			T 6			II C
Carbon disulphide	270						
Hydrogen sulphide	560	T 1		T 3			II B II B
Town gas (illuminating gas)	390		T 2		→•		
Tetralin (Tetrahydronaphthalin)							
Toluene	535	T 1			II A		
Hydrogen	560	T 1					II C

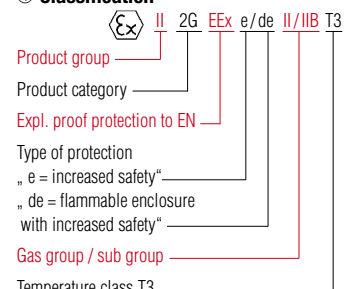
* Summary from the book “Sicherheitstechnische Kenngrößen”, Band 1: Brennbare Flüssigkeiten und Gase, Physikalisch-Technische Bundesanstalt, Braunschweig, von E. Brandes/W. Möller. ISBN 3-89701-745-8

→• Explosion group not identified yet for this material.

Temp. class, surface and Ignition temperature

Temp. class	Maximum surface temp. of machine	Ignition temp. of flammable substance
T 1	450 °C	> 450 °C
T 2	300 °C	> 300 °C
T 3	200 °C	> 200 °C
T 4	135 °C	> 135 °C
T 5	100 °C	> 100 °C
T 6	85 °C	> 85 °C

Classification



- The perfect technical solution is of highest priority for HELIOS. Experience and consistent development of ideas and methods has resulted in world wide acceptance of HELIOS products.

Research and development are reflected in an extensive product range which offers the technical solution for most applications. HELIOS is also your partner if more sophisticated specials are required. The combination of the latest technology with the highest quality and design lead to many product advantages like:

- Economical operation through high efficiency products. Impellers and motors were developed in house and are perfectly tuned for each other.
- Highest reliability even under toughest working conditions is gained by use of immersion impregnated windings, sealed for life ball bearings, quality checks etc.
- Economic adjustment of performance through speed controllable motors using transformer or electronic speed controllers.
- Innovative aerodynamical design of parts and components.
- Low noise levels make HELIOS fans some of the most quiet available.
- Easy installation and maintenance free operation in combination with highest electrical and mechanical safety standards are beneficial for installer and user.

■ Operation of fans

Factors which are individual to each installation have an influence on the fan's performance as well as the electrical and mechanical safety. Before installation/use of fan and accessories, the operation and requirements of the fan system must be clarified. The equipment must not be used for purposes for which it is not intended.

■ Motors

Fans make special demands on motors. Therefore HELIOS develop and manufacture many of their own motors, especially the speed controllable models. This guarantees optimal matching to the fan's needs. This results in a range of specialised drives serving the individual fan's requirement. This guarantees for example:

- Superb speed control
- Low consumption
- Low maintenance
- Trouble free operation even under difficult conditions.
- Conformance to all relevant regulations like DIN EN 60034 / VDE 0530 and DIN EN 60335-1 / VDE 0700.

□ Design of HELIOS motors

- Casing made of aluminium or cast iron, totally enclosed with cooling fins. Protection class: see individual model.
- Bearings: maintenance free (sealed for life) and dust proof through double lip sealing. Lubrication graded from -40 to +140 °C.
- Full immersion, tropical moisture protection to windings, insulation class B.

- All other motors used by HELIOS are manufactured to IEC standard and conform with all relevant regulations. Their specification may vary. Specials are available on request.

■ Performance curves

Technical data (power, noise figures, etc.) are stated in accordance with DIN 24166 'Technical conditions of sale', tolerance classes 2 or 3, DIN 44974, Pt. 1-3 'electrical domestic appliances', DIN EN 60335-1 / VDE 0700.

□ Air performance

Available pressure and air flow volume are stated in performance curves on the individual product pages.

- All performance data is determined on test stands to DIN 24163, Pt. 2 and Pt. 3. **Air flow volume V** and **static pressure Δp_{stat}** for air flow direction A (at free intake and extract) are measured. The **total pressure Δp_{tot}** is calculated by adding the dynamic pressure p_{dyn} (from the cross sectional area).

- Ducted fans are measured with a bell mouth on the intake and ducting of 1 diameter of the fan in length attached on the outlet. If the installation varies from this (obstructions, bends, etc.) a reduction in performance must be taken into account.

- The **performance curves** relate to an air density of $\rho = 1.2 \text{ kg/m}^3$ and to the given nominal R.P.M. figure. The actual speed of the individual fans may vary and are stated in the related tables. The air flow velocity c and the dynamic pressure p_{dyn} relate to the extract cross sectional area (casing cross sectional area).

□ Electrical data

Voltage, frequency, current, absorbed or nominal motor power, protection class and the wiring diagram number for the fan can be found in the fan's data table.

The figures relate to normal operating conditions (density $r = 1.2 \text{ kg/m}^3$, temperature $T = 20 \text{ °C}$, 50 Hz).

The actual figures may vary depending on the installation conditions. When installing the equipment the electrical figures stated on the rating plate must be observed. For other environmental conditions, in particular at low temperatures, an increase in the current and power figures can be expected. This needs to be considered when sizing the electrical supply (wires, contactors, circuit breakers). If in doubt consult HELIOS.

□ Noise levels

Noise figures are given as A rated sound power levels and/or sound pressure levels at a distance of 1 or 4 metres. The levels are illustrated in the performance curves and fan data tables.

The sound pressure levels are for freefield conditions and may be affected by reflections of walls etc. The figures relate to the details given in chapter 'performance data' and are in accordance with DIN 24166. Installation conditions may increase noise levels, in some cases substantially.

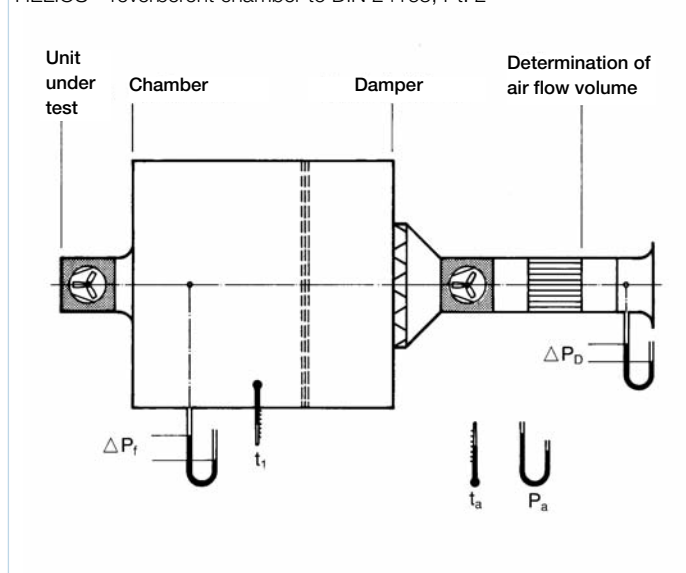
If no other references are made, the noise levels represent the air noise on the intake. All figures were measured in accordance with DIN 45635, Part 38.

The **sound power level** is the sound energy at source. The **sound pressure level** is what we hear and depends on the distance from the source and any reflections.

■ Electrical connection

For each electrical item there is a wiring diagram number shown in the data table which must be used when connection is made. All relevant regulations must be observed during installation and electrical connection. The fans must be protected against overload of the motor (for each phase, e.g. if one phase fails) by a circuit breaker or via the built-in thermal contacts connected to a motor protection unit. The protection must be provided for all phases and fan speeds (pole-switching models). For selection of the circuit breaker the electrical figures stated on the motor rating plate must be used. If not it might malfunction and invalidate any guarantee claim.

HELIOS – reverberent chamber to DIN 24163, Pt. 2



Motor protection

All 1 ph. motors are fitted with thermal contacts (TK) as standard. For some models they are wired in series with the motor windings on others they are wired to the terminal block.

The majority of **speed controllable 3 ph. motors** (except explosion proof) have thermal contacts wired to the terminal block.

Motors with thermal contacts wired to the terminal block

must be connected to a motor protection unit (see accessories). The ports marked 'TK' have to be connected in accordance with the wiring diagram. If temperatures in the motor windings are too high (e.g. caused by bearing problems, obstructed impeller, inefficient cooling, too high air flow temperature, 2-phase connection) the thermal contact trips and the motor protection device isolates the fan from the supply. The fan must be restarted manually. If this happens frequently there is a fault in the system which must be remedied. This protection offers a full protection of the motor even if speed controlled. Most HELIOS 1 ph. and 3 ph. fans have built-in thermal contacts as standard (see fan data table). For other models they can be supplied as an extra.

Motors with thermal contacts wired in series with the motor windings.

The majority of HELIOS 1 ph. fans with smaller performances have thermal contacts wired in series with the motor windings (see fan data table). They trip if the motor temperature is too high and open the electrical circuit. After having cooled down the fan will restart automatically. If thermal contacts trip this indicates a fault (e.g. stiff running, obstructions, too high air flow temperatures) which must be removed before continuing operation.

Motors with built in PTC thermistors (positive temperature coefficient)

are used for higher performances where temperatures rise quickly (e.g. under difficult working conditions). To offer a full protection each winding should be fitted with a PTC thermistor (available at special order; as standard for explosion proof rectangular fans and RD roof fans as well as Axial and mixed-flow fans VAR with large motor powers (see product page). The thermistors are temperature sensitive elements. If a certain temperature is exceeded the electrical resistance jumps up. The thermistors must be connected to a special circuit breaker (type MSA, see accessories).

Motors without thermal protection

should be protected by a conventional circuit breaker (MCB miniature circuit breaker or RCD residual current device), which is to be wired between fan and supply (each phase must be protected). This option does not offer protection against exceedingly high air flow temperatures, insufficient motor cooling or if the fan is speed controlled. For pole-switching motors each speed should be protected separately.

Air flow temperatures

The standard fan range is suitable for operation in ambients from -30 to at least +40 °C, or higher for a short period (except explosion proof fans). The maximum permanent temperature for each model is stated in the fan data table. Specials are available on request.

Speed control

Speed control causes an increase in motor temperature. The max. temperature figures stated in the fan data table should be reduced by 10 °C when using a speed controller.

Flow medium

The standard models are suitable for normally dirty, humid, slightly aggressive air. For differing operation conditions please consult Helios.

Protection against accidental contact

Some fans come with a protection guard to DIN EN 60335-1 / VDE 0700 respectively DIN EN ISO 13857. Depending on the installation, additional protection may be required. The installer as well as the user is responsible to ensure that sufficient protection is given.

All safety regulations must be followed and a protection against accidental contact to DIN EN ISO 13857 guaranteed. Contact with rotating parts must be avoided. Ensure that there are not any items near the intake which could be pulled into the fan (e.g. curtains etc.). Fans which are installed within a ducted system might not need further protection guards if the system provides the required protection. We emphasise that the installer is liable for accidents due to insufficient safety measures. A large range of guards is available as accessories.

Explosion proof to regulation 94/9 EC (ATEX)

Since 01.07.2003 Helios explosion proof fans are manufactured according to regulation 94/9 EC.

They have the European Building Regulation approval.

Helios explosion proof fans are designed:

- to operate in explosion proof areas.
- to move potentially hazardous atmospheres and substances.

The declaration of conformity to regulation 94/9 EC confirms the accordance of the product as well as the requirements and assessment procedures. It is enclosed with each unit.

The Helios quality control system is certified according to 94/9 EC, pt. IV.

The explosion proof fans fulfil protection type "e" increased safety. They are suitable for operation within zone 1 or 2. Product group II, product category 2G and 3G.

The mechanical parts are manufactured to DIN EN 14986.

Connection according to all relevant regulations.

The reaction time t_E (cut off time) is stated on the certificate of the motor and must be observed when selecting the motor protection device (circuit breaker) which must conform to VDE 0165, DIN EN 60079-0 or DIN EN 60079-10.

Speed control is only permitted for models with fitted PTC thermistors in combination with a motor protection unit MSA (accessory).

Depending on the selected motor brand, the electrical data can differ from data stated in the catalogue. For the selection of possible controllers the data on the motor rating plate are to be requested.

Special execution, abnormal voltages, protection to class "d" (flameproof enclosure) are possible on request.

IP-ratings

An IP rating describes the amount of protection against solid and liquid objects entering a motor and consists of two digits. The first digit describes the protection against solid objects, the second against liquids. The two most common classes for dust and liquids are described as follows:

- IP X4 – Motor enclosure protected against the harmful ingress of splashing water.
- IP X5 – Motor enclosure protected against the harmful ingress of water, when water is sprayed against the motor (weather-proof).
- IP 4X – Motor enclosure protected against the harmful ingress of solid objects greater than 1.0 mm.
- IP 5X – Protected against the harmful ingress of dust.

Approvals

Helios fans have a high quality standard and conform with national and international regulations. When correctly installed they comply with the machinery directive.

Various products undergo a process of periodical testing by independent bodies like TÜV, VDE and the Forschungs- und Materialprüfungsanstalt des Landes Baden-Württemberg, Otto-Graf-Institut. All products carry at least one of the following harmonized approvals:

VDE- and GS (approved safety)

SEV-Safety certificate of the 'Eidgenössischen Starkstrominspektorat, Zürich'

Certificate of the Austrian federation of Electronics

DEMKO Safety approval of Danmarks Elektriske Materielkontrol

SEMKO Safety approval of Svenska Elektriska

NEMKO Safety approval of Norges Elektriske Materielkontrol

M.E.E.I. Safety approval of MAGYAR ELEKTROTECHNIKAI ELLENŐRZŐ INTÉZET, Hungary

Safety approval of STAVEBNÍHO INŽENÝRSTVI Czech Republic

Safety approval of DRŽAVNI ZAVOD ZA NORMIZACIJU I MJERITELJSTVO Republic of Croatia

Safety approval of UKRMETRTST-STANDARD, Ukraine

Safety approval of 'Bundesverband der landwirtschaftlichen Berufsgenossenschaften'

Independent product quality control by the Materialprüfungsanstalt Baden-Württemberg and by the TÜV Bayern

Approval from the Deutsche Institut für Bautechnik

Explosion proof classes EN 50014/50019

EU – Declaration of conformity

Protection class IP X4

Protection class IP X5

Insulation class II

Design

Innovative and functional product design of Helios fans were acknowledged in various design competitions.

product design award 2008

reddot design award winner 2008

Designpreis Deutschland 2010 NOMINEE

Performance adjustment by speed control

The requirement to control the performance of a fan system is based on various factors.

- To increase comfort.
- To adapt the system to the changing requirements within building (number of people, air quality, temperature etc.).
- To ensure an economical operation.

Controlling fans by speed controlling is the best way of adapting the performance with regards to energy consumption and noise. The required shaft power is reduced by the cube of the speeds change. If the speed is halved the shaft power drops to one eighth of the full speed figure.

$$\frac{P_L}{P_{L0}} = \left(\frac{n}{n_0}\right)^3$$

How much of this reduced shaft power results in energy savings depends on the characteristic of the used motor and controller.

HELIOS motors are specially designed to match the impeller's power requirements. This guarantees optimal efficiency at full speed and when controlled.

Controllers

The controllers offered by HELIOS can control a number of fans within their rating. When selecting a controller it should be noted that in some cases using a control increases the current above the Full Load Current (see product pages). In case of doubt a 20% buffer should be given.

Frequency inverter

An operation of 1ph., 230 V motors with frequency converter is not possible. When a 3 ph. motor is speed controlled using a frequency inverter it must be observed, that peak voltage passed to the motor terminals are below ≤ 1000 V and the peak voltage rise is below ≤ 500 V/ μ s (according to DIN IEC / TS 60034-1 / VDE 0530-1). If the false inductive current exceeds 3,5 mA during normal operation, the appliance must be earthed according to DIN EN 50178 / VDE 0160. In case of long distances between inverter and motor, an external filter must be used on the inverter. The use of an inverter for several different motors is only possible if an all pole sinus filter is installed between inverter and motors (to be supplied by others). It must offer protection for phases between each other and each phase and earth.

The use of other brand controllers might result in malfunction or defective motors. Controllers not offered or recommended by HELIOS invalidate the fan's guarantee.

Electronic speed controllers

Working on the principle of voltage reduction by cutting the phase may create electro-magnetic noise (humming) in the motor at low speed which could be disturbing. For noise critical (sensitive) installations the use of a transformer is recommended.

Comparison of different control methods

1. Speed control
2. Bypass
3. On/off operation
4. Adjustment of impeller's pitch angle

The graph shows the advantages of speed control in comparison to other methods used in practice.

HELIOS fans are speed controllable by voltage reduction, by use of frequency inverters or by pole-switching motors (2 speed). The suitable controller range is offered on the accessory pages.

Noise of speed controlled fans

An additional advantage of speed control is the substantial reduction in noise levels. The sound level may be reduced by up to

$$\Delta L \approx 50 Lg \left(\frac{n}{n_0}\right) \text{ dB}$$

(n_0 : Nominal speed)

and therefore is ideal for operation of fan systems at night.

Example: If the speed is halved the noise level drops by up to 15 dB.

The graph shows systematically the relation of air flow volume, pressure drop, power and noise level when a fan is speed controlled.

Speed controllable fans

are marked as such on the product page. Suitable speed controllers are shown in the data table. Models which don't have a controller shown must only be used at full speed.

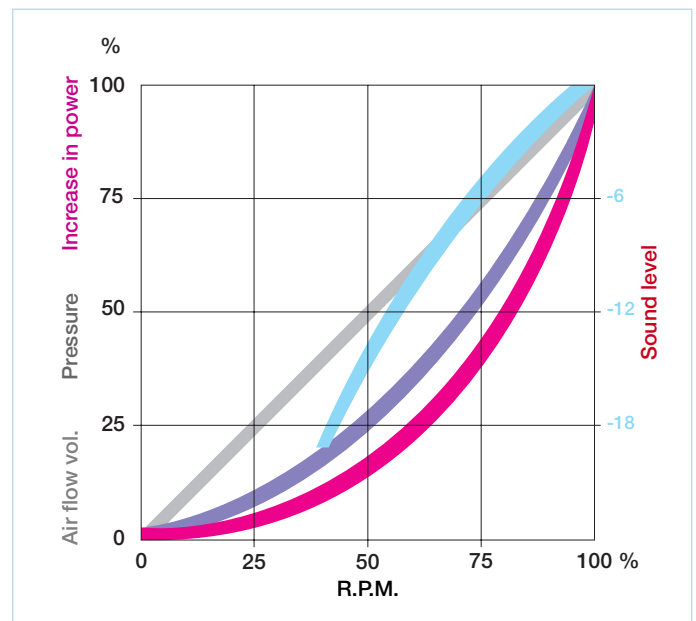
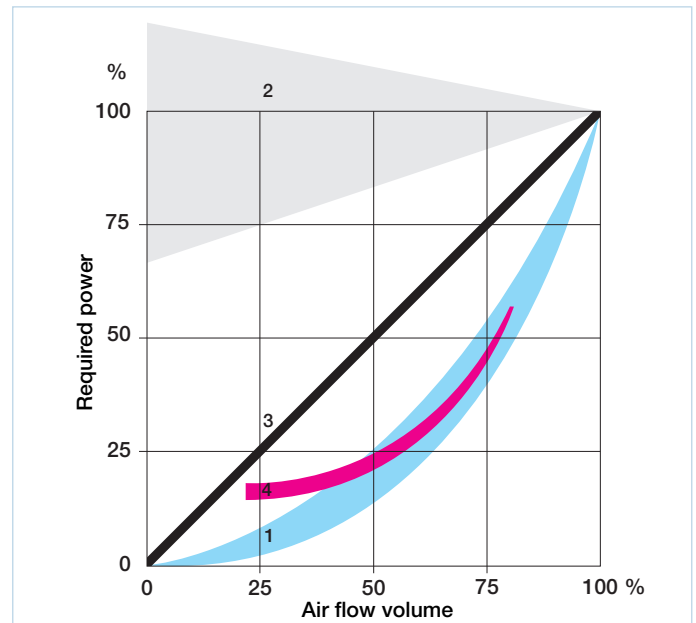
Conditions of sale, guarantee

All sales are only made upon HELIOS's Conditions of Sale, a copy of which is available on request.

The guarantee on HELIOS products within the UK is 12 months from delivery and is only applicable if:

- the units are used for their intended purpose,
- all instructions given by HELIOS were followed,
- the unit has not been modified or repaired.

The warranty is limited to the material and workmanship of the product. As a part of continuous product development HELIOS reserve the right to alter the specification without prior notice.



**Small fans from 75 to 1650 m³/h
for duct, wall and ceiling installation**

Sealed buildings and environmental pollution make mechanical ventilation indispensable today. The traditional ventilation of rooms and working places through opening the window is no longer an option and has not been so for some time.

The new small fans MiniVent[®] M1 achieve high pressure capacity, maximum energy efficiency and are extremely quiet. Two speeds, protection to IP X5 and high quality long-term ball bearings are standard features. Due to Helios ultra-Silence[®] technology the MiniVent[®] operates almost silently and uses approximately one third less energy than conventional small fans.

The excellent design of the MiniVent[®] blends in beautifully, even in the most demanding

room designs.

Development and manufacturing of the M1 originates entirely from Germany and guarantees the adherence to highest quality standards.



M1[®]

MiniVent[®]



**Top class, small fans.
Premium design combined with highest
energy efficiency.**

Helios offers a wide range of fans for ventilation and extraction of domestic and commercial rooms. The units are produced with an innovative design and satisfy even the most demanding requirements.

	Page
Fans for wall-, ceiling- and window installation	22
Centrifugal fans with spigot ø 100 mm	28
Axial in-duct fans	29
External wall fans	31
Window fans	34
Ceiling fans	36
Fan heaters	37
Controlled ventilation systems	40



ultra[®]Silence
Technology by Helios

■ Mini fans of highest quality. Design and performance of the MiniVent® M1 sets the standard of the Mini fans range.

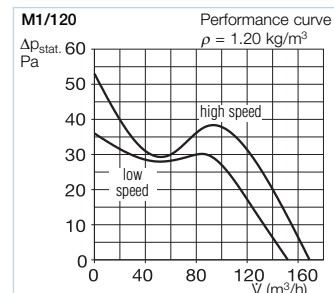
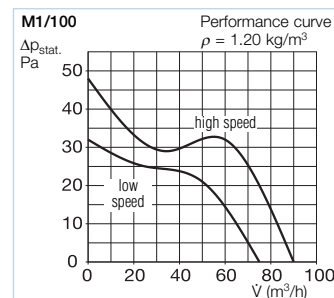
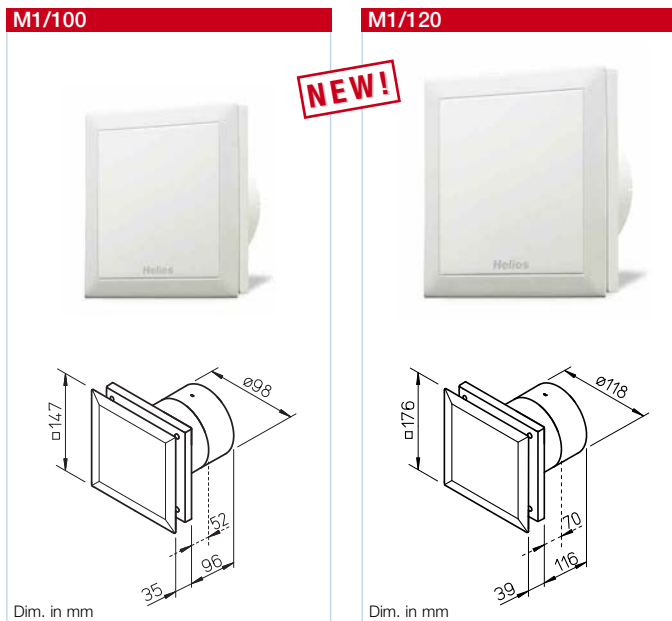
The excellent design of the MiniVent® M1 blends in everywhere beautifully, even in the most demanding room designs. The compact and attractively designed fascia shields the view of the fan interior completely.

All M1- models are supplied with 2 speeds (90/75 m³/h) and with airtight back draught shutter as standard.

The noise level is extremely low due to ultraSilence® technology.

Available with interval function, overrun timer or automatic function like motion sensor or humidity controlled operation. This responds with intelligent electronics and prevents development of mildew effectively.

Suitable for all ventilation applications in bathrooms, toilets and other small rooms.



■ Features M1/100

- Lowest power consumption of only 5 Watt (at vol. = 75 m³/h).
- Extremely quiet due to the new ultraSilence® technology; just 25 dB(A)* (at vol. = 75 m³/h).
- Achieves a volume/pressure of 60 m³/h air flow at 31 Pa. Maximum air flow 90 m³/h, maximum pressure 45 Pa.
- Where space is limited the guide vane of M1 can be simply removed. Thus reducing the installation depth to 52 from 96 mm.
- Compact dimensions for flush mounted installation in walls, shafts or ceilings with nominal dia. 100 mm.

■ Features M1/120

- Lowest power consumption of only 10 Watt (at vol. = 150 m³/h).
- Extremely quiet due to the new ultraSilence® technology; just 32 dB(A)* (at vol. = 150 m³/h).
- Achieves a volume/pressure of 120 m³/h air flow at 31 Pa. Maximum air flow 170 m³/h, maximum pressure 53 Pa.
- Where space is limited the guide vane of M1 can be simply removed. Thus reducing the installation depth to 70 from 116 mm.
- Compact dimensions for flush mounted installation in walls, shafts or ceilings with nominal dia. 120/125 mm.

■ Similarities

- All components made from high quality white polymers.
- The motor design and ball bearings are selected for long-term durability, steady performance and lifelong operational reliability.
- Motor supplied with thermal overload protection, providing maintenance and trouble-free, continuous operation.
- Suitable for use in zone 1 of bathrooms according to DIN EN 0100, part 701-A1 and BS7671.
- The electrical supply cables to the unit may be recessed or surface mounted.
- Practical quick assembly using the push on cable connectors for the electrical connection.

Type	M1/100	M1/100 N	M 1/100 NC	M1/100 F	M 1/100 P	M1/120	M1/120 N	M 1/120 NC	M1/120 F	M 1/120 P
Ref. No.	6171	6172	6173	6175	6174	6360	6361	6362	6364	6363
Model	Standard model equipped with two speeds	As M1/100, with overrun timer ¹⁾	As M1/100, with adjustable overrun and interval timer ¹⁾	As M1/100, with automatic humidity control ¹⁾⁴⁾	As M1/100, with PIR motion sensor ¹⁾	Standard model equipped with two speeds	As M1/120, with overrun timer ¹⁾	As M1/120, with adjustable overrun and interval timer ¹⁾	As M1/120, with automatic humidity control ¹⁾⁴⁾	As M1/120, with PIR motion sensor ¹⁾
Run on time, min. optionally on high or low speed	–	6	6, 12, 18, 24 adjustable	6, 12, 18, 24 adjustable ³⁾	6	–	6	6, 12, 18, 24 adjustable	6, 12, 18, 24 adjustable ³⁾	6
Interval operation, hrs. optionally on high or low speed	–	–	4, 8, 12, 24 adjustable	–	–	–	–	4, 8, 12, 24 adjustable	–	–
Delayed start, approx. sec.	–	45	0 or 45	0 or 45 ³⁾	–	–	45	0 or 45	0 or 45 ³⁾	–
Back draught shutter, mech., remov.	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Air flow volume (FID) m³/h	90 / 75	90 / 75	90 / 75	90 / 75	90 / 75	170 / 150	170 / 150	170 / 150	170 / 150	170 / 150
Impeller-Ø mm	92	92	92	92	92	111	111	111	111	111
R.P.M. min ⁻¹	2650 / 2250	2650 / 2250	2650 / 2250	2650 / 2250	2650 / 2250	2350 / 2050	2350 / 2050	2350 / 2050	2350 / 2050	2350 / 2050
Voltage/Frequency 50/60 Hz	230 V	230 V	230 V	230 V	230 V	230 V	230 V	230 V	230 V	230 V
Power consumption W	9 / 5	9 / 5	9 / 5	9 / 5	9 / 5	13 / 10	13 / 10	13 / 10	13 / 10	13 / 10
Rated current A	0.06 / 0.04	0.06 / 0.04	0.06 / 0.04	0.06 / 0.04	0.06 / 0.04	0.09 / 0.08	0.09 / 0.08	0.09 / 0.08	0.09 / 0.08	0.09 / 0.08
Sound pressure level dB(A) at 3 m ²⁾	30 / 25	30 / 25	30 / 25	30 / 25	30 / 25	36 / 32	36 / 32	36 / 32	36 / 32	36 / 32
Wiring diagram No.	SS-915	SS-917	SS-917	SS-919	SS-918	SS-915	SS-917	SS-917	SS-919	SS-918
Electrical power supply NYM-O in mm ²	3 x 1.5	4 x 1.5	4 x 1.5	4 x 1.5	3 x 1.5	3 x 1.5	4 x 1.5	4 x 1.5	4 x 1.5	3 x 1.5
Protection class II, protection	IP 45	IP 45	IP 45	IP 45	IP 45	IP 45	IP 45	IP 45	IP 45	IP 45
Max. air flow temperature	+40 °C	+40 °C	+40 °C	+40 °C	+40 °C	+40 °C	+40 °C	+40 °C	+40 °C	+40 °C
Weight ca. kg	0.80	0.80	0.80	0.80	0.80	1.05	1.05	1.05	1.05	1.05

¹⁾ All electronic functions optionally on high or low speed - adjustable. ²⁾ Freefield. ³⁾ With manual operation. ⁴⁾ Limit value 60, 70, 80, 90 % adjustable.

Nice and clean

Since every fan gets dirty sooner or later, the M1 fascia was designed in a way that air flows in on all sides. The design of the fascia elegantly avoids the internal view of the fan opening, even when dirty.



Intelligent humidity control

The humidity control of the M1.. F type starts the fan automatically with increase of humidity. The fan operates until the humidity is reduced below the set point. With constantly high humidity the fan changes into a defined interval operation.



Connected at lightning speed

A generously dimensioned, circular cable storage space, the simple rotatability of the casing and the push on cable connectors assist the electrical connection enormously. Ball bearings (approx. 40 000 hours running) allow the installation in any position, also directly in the ceiling.



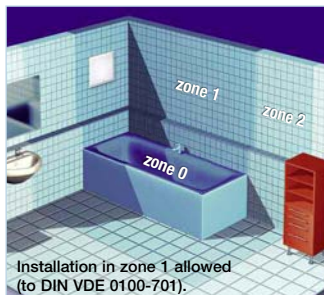
Flexible installation depth

Removable guide vane reduces installation depth from 96 to 52 mm respectively with types M1/120.. from 116 to 70 mm. Can be installed with or without back draught shutter.



Suitable for use in zone 1

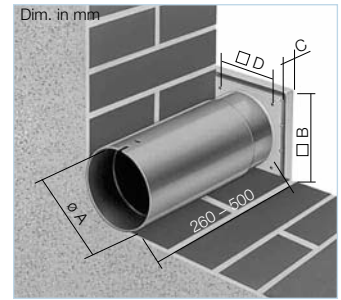
MiniVent® M1 provides protection to IP 45, insulation class II and may be used in accordance with DIN VDE 0100-701 in zone 1 of bathrooms.



Wall mounting kit

- WES 100** Ref. No. 0717
- WES 120** Ref. No. 0486

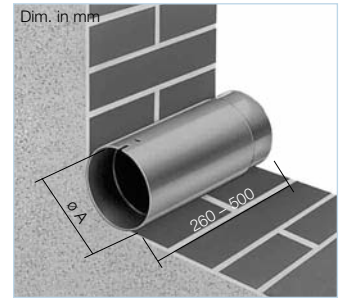
Two telescopic polymer sleeves guide the air through cavity walls and serve as wall liners. Outside wall termination is carried out by application of three bladed automatic back draught louvre shutter. In addition a fixed grille can be used with WES 100.



Telescopic wall sleeve

- TWH 100** Ref. No. 6352
- TWH 120** Ref. No. 6353

As WES, however without back draught louvre shutter and grille.



Type WES/TWH..	Dimensions in mm			
	ø A	□ B	C	□ D
..100	110	140	15	91
..120	130	160	20	110

Operation switch 0-1-2 for standard models M1/100 and 120

- MVB** Ref. No. 6091

Two speed and on/off switch.

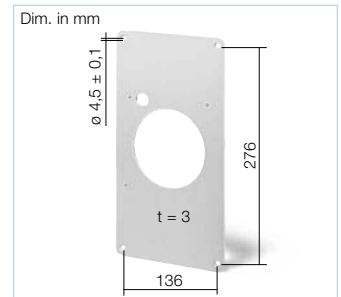
Current 3 A (ind.)
Voltage 230 V / 1 ph. / 50/60 Hz
Protection to IP 30
Installation in standard gang boxes
Dimensions W 80 x H 80 x D 15
Weight approx. 0.1 kg



Mounting plate for M1/100

- MBR 90/160/300** Ref. No. 0281

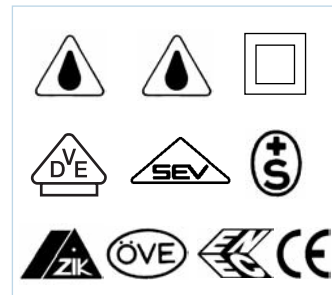
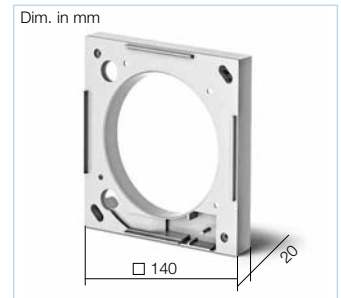
Made from high quality, impact resistant polymer. Colour: white. Ideal for refurbishment of old housing. Easy installation of all M1-models in existing rectangular shaft openings. To make the plate almost invisible it can be painted or wallpapered.



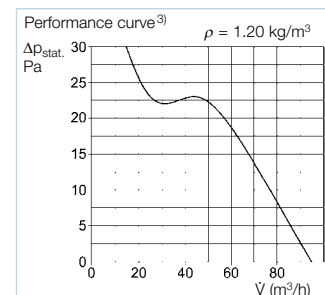
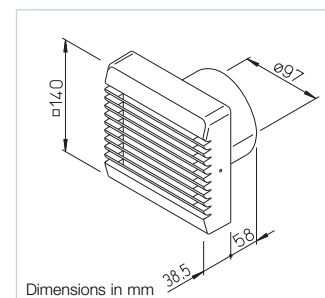
Spacer frame for M1/100

- MF 100** Ref. No. 6188

To reduce the installation depth in thin walls, narrow duct and tight 90° bends. Also suitable for the assembly of a pull cord switch (accessories). More MF 100 can be put on top of each other, if necessary.



Other accessories	Pages
Flexible ducting, roof outlets and grilles	361 on
Air intakes	384 on



■ **Mini fans of high quality.** Equipped with ball bearings provides maintenance free operation, silent run and makes installation in any position possible. HR 90 KE.. models are fitted with electric shutter. The electric shutter behind the fascia opens and closes tightly and quietly. The shutter operates automatically with fan operation; therefore there is no air transference when fan is not in operation.

■ **Similarities of HR 90 K and .. 12 V-models**

■ **Advantages of ball bearings**

- Quiet and reliable performance under continuous operation.
- Acoustically tested long life ball bearings are greased for life (approx. 30 000 hours running). Maintenance, re-greasing and cleaning of bearings are not required, saving time and money.
- Even under harshest conditions the fans will perform quietly for life.
- Ball bearings and motor are designed for long-term durability, constant performance and life-long operational safety.

■ **Features HR 90 K**

- Universal in application to ventilate bathrooms, toilets or other small rooms.
- Suitable for use in zone 1 of bathrooms according to DIN VDE 0100-701.
- Optional built-in thermal electric shutter and/or overrun timer.
- Flush mounting in ø 100 mm ducting or shafts.
- Very compact design.
- All components made from impact resistant polymers.
- Contact safety to DIN EN ISO 13857.
- Motor protected by automatically resetting thermal contact. Maintenance-free and radio suppressed. Suitable for continuous operation.
- Cable entry can be flush or on the surface.
- Easy electrical connection through screwless clamps.
- Spring clips for fixing into ø 100 mm ducting.

■ **Features HR 90 K 12 V**

- HR 90 K 12 V with safety low voltage SELV.
- HR 90 K.. 12 V models are applicable in zones in which according to VDE 0140-1 and VDE 0100-410 a safety extra low voltage SELV is necessary.
- For installation in the spray area of bath or shower.
- Run on time installation by connection of a overrun timer ZT, ZNE or ZNI ahead of the transformer.
- Operation of HR 90 K 12 V models only with safety low voltage transformer SELV 12 V (accessories, Ref. No. 0723) permitted.

AVAILABLE IN THE UK ONLY!

AVAILABLE IN THE UK ONLY!

Type	HR 90 K	HR 90 KZ	HR 90 KE	HR 90 KEZ	HR 90 K 12 V	HR 90 KE 12 V
Ref. No.	0332	0333	0334	0335	0721	0722
Built-in overrun timer 2 - 8 minutes ¹⁾	yes ²⁾	yes ²⁾			run on time ²⁾ by ZT, ZNE, ZNI (acc.)	run on time ²⁾ by ZT, ZNE, ZNI (acc.)
Electric shutter			yes	yes		yes
Air flow volume (FID) in m ³ /h ³⁾	95	95	95	95	95	95
Impeller diameter ø mm	93	93	93	93	93	93
R.P.M.	2550	2550	2550	2550	2550	2550
Voltage/Frequency 50/60 Hz	230 V	230 V	230 V	230 V	12 V	12 V
Power Watts	14	17	17	20	14	18
Current Amps.	0.10	0.12	0.12	0.14	1.6	1.8
Sound pressure level dB(A) at 1 m	44	44	44	44	44	44
Wiring diagram No.	SS-483	SS-484	SS-483	SS-484	SS-820	SS-820
Protection	IP 45	IP 45	IP 45	IP 45	IP 45	IP 45
Maximum air flow temperature	+50 °C	+50 °C	+50 °C	+50 °C	+50 °C	+50 °C
Weight in kg	0.55	0.56	0.60	0.62	0.55	0.60

¹⁾ delayed start of approximately 1 minute

²⁾ 3 core cable required

³⁾ determined with duct on exhaust, length 2 x diameter

■ **Mini fan HR 90 K for ceiling installation**

Fans with ball bearings are ideally suited for ceiling installation. Spacer frame MF 90 (accessory) prevents condensation from ducting entering the fan.



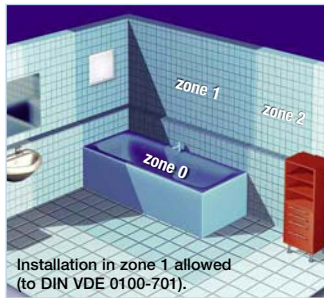
■ **Screwless installation**

HR 90 K fans have screwless clamps for electrical connection. The fascia is fixed quickly and easily through a click in mechanism. Spring clips on the sides simplify installation into \varnothing 100 mm ductings.



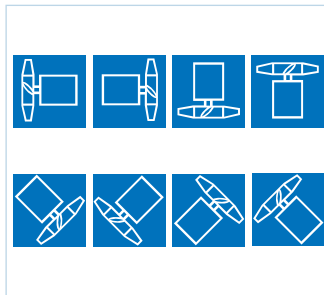
■ **Suitable for use in zone 1**

HR 90 K models provide protection to IP X5 and may be used in accordance with DIN VDE 0100-701 in zone 1 of bathrooms.



■ **Installation in any position**

HR 90 K is equipped with electric shutter and high quality long life ball bearings. This ensures a wall and ceiling installation in any position – vertical, horizontal or any position in between.



■ **Approvals**



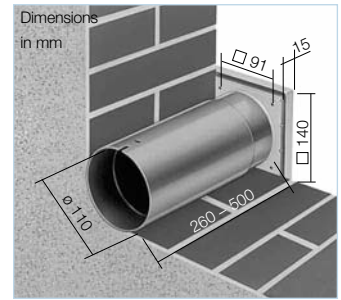
Wall mounting kit

WES 90 Ref. No. 0717

Two telescopic sleeves guide air through cavity walls and serve as wall liners; for flush mounted installation.

There are two possibilities for wall termination:

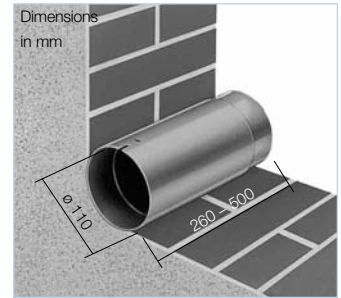
- a) Three bladed automatic backdraught shutter.
- b) Fixed grille. All parts from high-quality polymer.



Telescopic wall sleeve

TWH 90 Ref. No. 6352

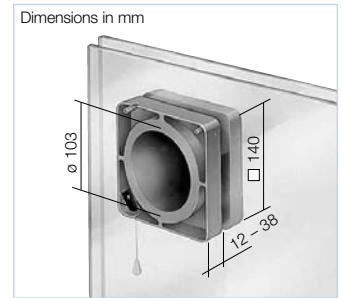
As WES, however without back draught louvre shutter and grille.



Window kit

FES 90 Ref. No. 0462

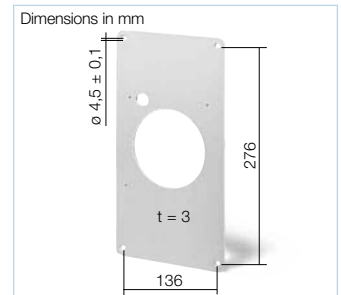
For installation of HR 90 K models are suitable for single and double glazed windows as well as panels from 1 mm up to 40 mm thick. Outside cover only 29 mm through flat rain repellent grille. Pull cord operation.



Mounting plate

MBR 90/160/300 Ref. No. 0281

From high quality, impact resistant polymer. Colour: white. Ideal for refurbishment of old housing. Easy installation of HR 90 K models in existing rectangular shaft openings. To make the plate invisible it can be painted or wall-papered.

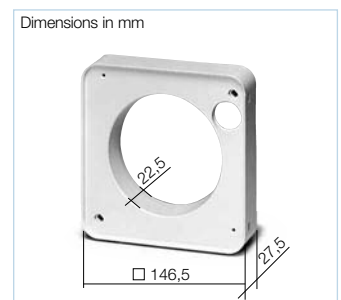


Spacer frame

MF 90 Ref. No. 0819

Use:

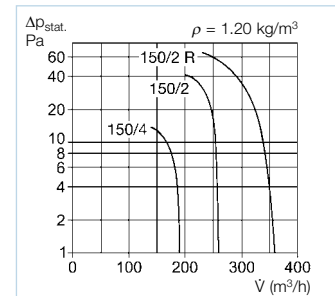
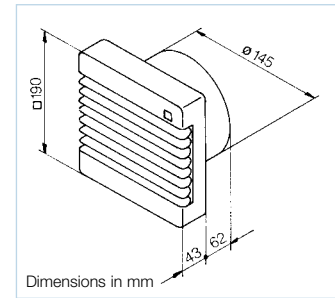
1. Required for ceiling installation. MF prevents condensation entering the fan from vertical ductings.
2. For easy installation of awkwardly placed electrical cables because the fan will be lifted about 23 mm from the wall.
3. For easy installation of the fan in tight shafts. MF reduces fan spigot protrusion e.g. tight 90° bends.
4. For installation in thin walls the fan spigot protrusion can be reduced as follows:
With 1 spacer frame to 35 mm.
With 2 spacer frames to 7 mm.
Colour: white.



■ **Other accessories** Pages

Flexible ducting, roof outlets and grilles	361 on
Air intakes	384 on
Speed controllers, switches and run-on timer	397 on

HVR 150



■ The HelioVent® fans are designed to ventilate smaller to mid-sized domestic, commercial and industrial rooms.

■ The fan with ball bearings as standard guarantees

- Installation in any position.
- Quiet and reliable performance under continuous operation.
- Maintenance free for life.

■ Features

- Front grille can be removed and easily cleaned in soapy water.
- Small depth avoids possible installation difficulties.
- Suitable for wall, window and ceiling installation in any position.
- 100% speed controllable.
- Motor protection through built-in thermal contacts.

■ Specification

The traditional design blends well in any room. All parts, including fan casing and impeller are made from high quality polymer. White facia. Built-in neon light indicates operation. High volume and pressure characteristic using a 8 bladed impeller and guide vanes.

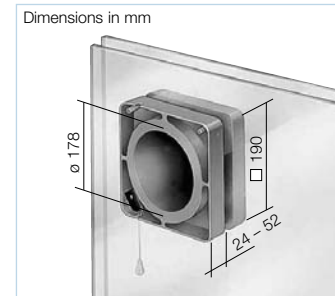
Totally enclosed, maintenance free running low noise ball bearing motor, sealed for life, radio suppression, suitable for continuous operation. Installation in any position. Contact safety to DIN EN ISO 13857. The electrical supply cables to the unit may be recessed or surface mounted.

Other accessories	Page
Roof outlets and grilles	361 on
Air intake	384 on
Speed controllers, switches and run-out timer	397 on

■ Window mounting kit

FES 150 Ref. No. 0463

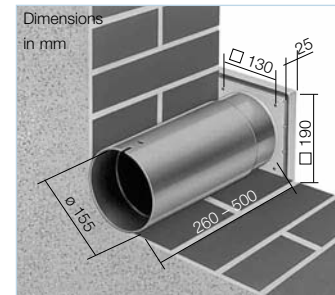
For installation with all models, preferably models with electrical internal shutter. Suitable for single and double glazed windows as well as thin walls and panels. Wall termination through flat rain repellent grille with fixed blades. Controllable with pull cord supplied, or by a remote switch, to be installed on site.



■ Wall mounting kit

WES 150 Ref. No. 0537

For flush mounted wall installation; contents: Two telescopic polymer sleeves adjustable on wall thickness and wall termination that can either be mounted with a gravity shutter or on the HVR.. E models with a rain repellent grille. Supplied with both elements as standard.



■ Telescopic wall sleeve

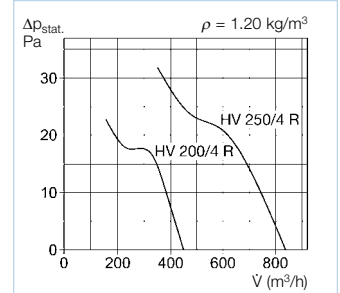
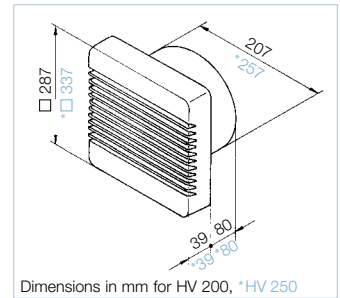
TWH 150 Ref. No. 6354

As WES, however without back draught louvre shutter and grille.

Type	HVR 150/4	HVR 150/4 E	HVR 150/2	HVR 150/2 E	HVR 150/2 RE
Ref. No.	0282	0283	0284	0285	0286
Built-in electric shutter		yes		yes	yes
Air flow reversible					DSEL 2¹⁾ Ref. No. 1306
Air flow volume (FID) in m ³ /h	180	180	260	260	360
Impeller-ø mm	140	140	140	140	140
R.P.M.	1300	1300	1800	1800	2600
Voltage/Frequency	230 V / 1 ph. / 50 Hz	230 V / 1 ph. / 50 Hz	230 V / 1 ph. / 50 Hz	230 V / 1 ph. / 50 Hz	230 V / 1 ph. / 50 Hz
Power Watts	24	30	30	35	50
Current Amps	0.18	0.20	0.14	0.15	0.25
Sound pressure level dB(A) at 1 m	46	46	58	58	64
Wiring diagram No.	SS-283	SS-283	SS-283	SS-283	SS-284.1
Protection class II, protection to	IP 44	IP 44	IP 44	IP 44	IP 44
Maximum air flow temperature	+40 °C	+40 °C	+40 °C	+40 °C	+40 °C
Weight in kg	1.2	1.2	1.4	1.4	1.5

¹⁾ 3 core cable required for reverse operation

HV 200 and HV 250



- **HelioVent®. The traditional design blends well in any stylish room: In living and dining room, in offices and conference rooms, restaurants or foyers.**
Universal in operation. Reversible for ventilation and extraction. Installation in wall, ceiling or any angle.

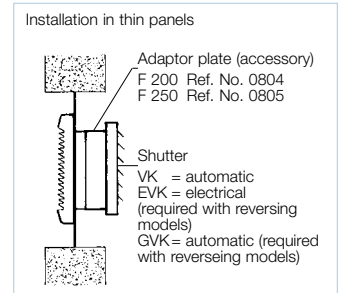
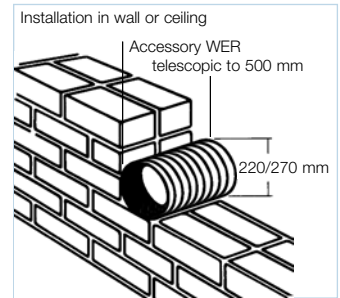
- **HelioVent® at a glance**
Compact, quiet fan unit. These are the 4 essential advantages of the new innovative shape:
 - HelioVent® matches every location inconspicuously.
 - No view of the fan interior if it gets dirty.
 - High air flow and low air noise through low resistances.
 - Easy to care for. Facia is removable with one hand to be cleaned easily in soapy water.

- **Installation – Electrical connection**
The installation is simple and done within minutes. Easy electrical connection through well-tried screwless clamps and large cable storage reduce effort to a minimum. Cable can be inserted flush or on the surface.

- **Speed control**
Speed controllable from 0 – 100% through voltage reduction with an electronic or transformer controller.

Other accessories	Page
Roof outlets and grilles	361 on
Air intake	384 on
Speed controllers, switches and run-out timer	397 on

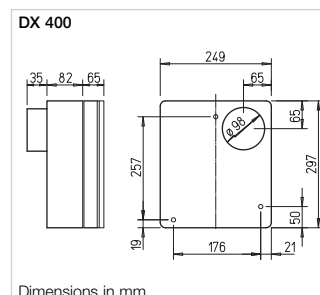
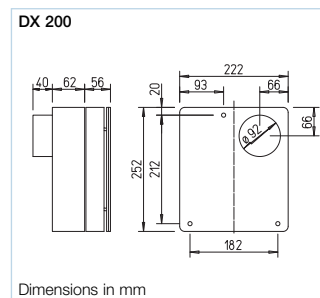
- **Specification**
 - Facia and fan casing from high quality, impact resistant white polymer.
 - Totally enclosed, powerful motor with high efficiency. Corrosion-resistant in an aluminium die-cast casing, protected against dust and water (protection to IP 54). With tropical protection of windings and insulation to ISO class B.
 - Overload protection through built-in thermal contacts (self resetting)
 - Noise resistant ball bearings ensure quiet operation.
 - Large terminals (protection to IP 55) and extra cable storage make installation easier.
 - Impeller specifically designed for high performance with high efficiency and quiet operation.
 - Maintenance free and radio suppressed.
 - Contact safety to DIN EN ISO 13857 through facia.
 - Easy installation and service.



Type	HV 200/4 R	HV 250/4 R
Ref. No.	0957	0958
Air flow reversible	yes	yes
Air flow volume (FID) in m³/h	450	840
Impeller-Ø mm	200	250
R.P.M.	1360	1380
Voltage/Frequency	230 V / 1 ph. / 50 Hz	230 V / 1 ph. / 50 Hz
Power Watts	30	40
Current Amps	0.13	0.20
Sound pressure level dB(A) at 15 Pa at 1 m (freefield condition)	52	55
Sound power dB(A)	60	63
Wiring diagram No.	SS-439	SS-439
Protection to	IP 54	IP 54
Maximum air flow temperature	+40 °C	+40 °C
Weight in kg	2.1	2.6

Accessories Specification	Fan-type	HV 200	HV 250
Wall sleeve for flush mounted wall installation	Type Ref. No.	WER 200 0368	WER 250/225 0369
Air stream operated shutter for extraction only	Type Ref. No.	VK 200 0758	VK 250 0759
Twin swing shutter ventilation and extraction	Type Ref. No.	GVK 200 0370	GVK 250 0371
Reversing switch (for ventilation and extraction)	Type Ref. No.	DSEL 2¹⁾ 1306	DSEL 2¹⁾ 1306
Reversing speed controller for stepless variable speed	Type Ref. No.	BSX 0240	BSX 0240
Electronic speed controller Flush mounting in mm Ø 57; D 34	Type Ref. No.	ESU 1 0236	ESU 1 0236
Electronic speed controller Surface mounting	Type Ref. No.	ESA 1 0238	ESA 1 0238

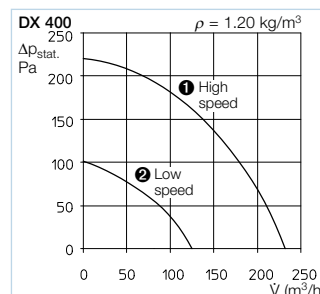
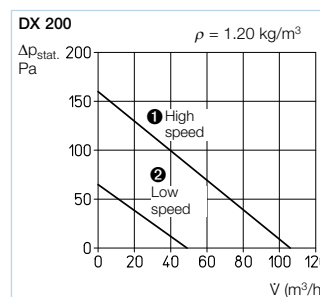
¹⁾ 4 core cable required for reverse operation



■ **Attractive design with the concealed intake opening characterises the universal models DX...**
This range is powerful, easy to install and suitable for ventilation of rooms in both private and commercial applications.

- **Specification**
- User friendly controls allow the unit to meet individual requirements for room conditions.
 - Easy installation in any position. Flush installation possible by removing the outer casing.
 - Exhaust spigot suitable for connection to ø 100 mm ducting.
 - Easily removable front for cleaning and maintenance.
 - All models with integrated back-draught shutter.
 - Maintenance free motor with thermal overload protection.

Other accessories	Page
Flexible ducting roof outlets and grilles	361 on
Intake air element	384 on
Speed controllers, switches and overrun timers	397 on



Technical information				
Type	DX 200		DX 400	
Ref. No.	1703		1706	
Operation	Two speed operation possible using operation switch MVB, Ref. No. 6091.		Two speed operation possible using operation switch MVB, Ref. No. 6091.	
Air flow volume on level static m³/h¹⁾	1	2	1	2
	110	50	230	125
R.P.M.	2400		1500	
Voltage/frequency	230 V / 1 ph. / 50 Hz		230 V / 1 ph. / 50 Hz	
Power watts	34		78	
Current Amps	0.14		0.29	
Sound pressure level at 1 m dB(A) ¹⁾	55	39	59	46
Wiring diagram No.	SS-693.1		SS-696.1	
Protection class	IP X5		IP 25	
Maximum air flow temperature	+40 °C		+40 °C	
Weight in kg	1.7		2.6	

¹⁾ data depending on speed levels.

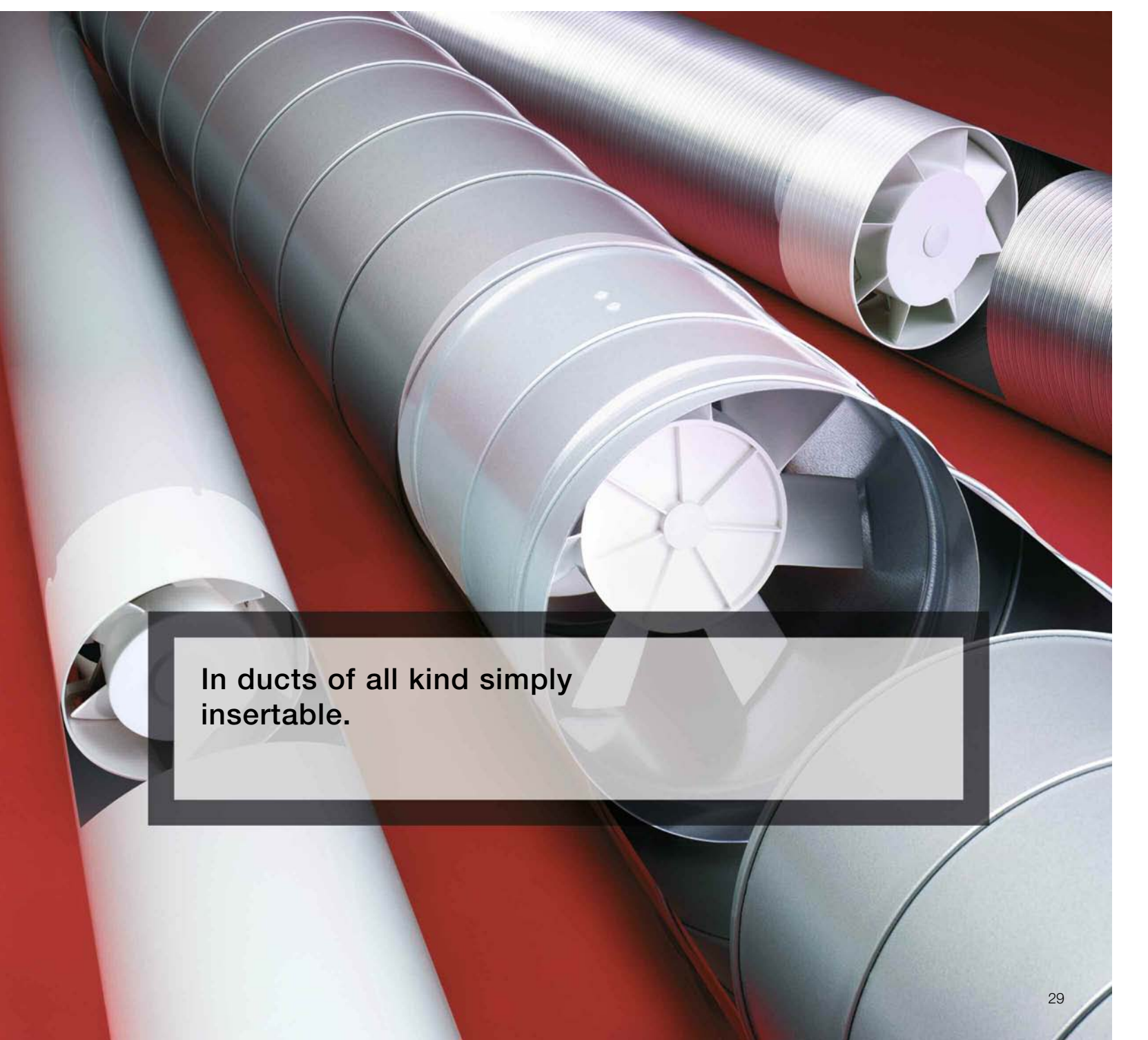
Axial in-duct fans are a space saving solution for smaller to medium air flows against low resistances. They can be installed in any position and are suitable for insertion in ducting. Suitable for many applications like room ventilation, cooling, drying etc.

The use of axial in-duct fans is perfect, if smaller to medium air flows against low resistances are required and an installation in the room is not suitable. The sound levels are reduced through installation outside of the room.

The time and effort for installation is remarkably low: REW is simply inserted into the ducting. Ensure that the fan is accessible for service.

The Helios axial in-duct fans are supplied with high quality long running ball bearings which guarantee a maintenance-free continuous operation and make the installation in any position possible.

Available for duct diameter from 100 to 200 mm and air flow rates up to 930 m³/h.



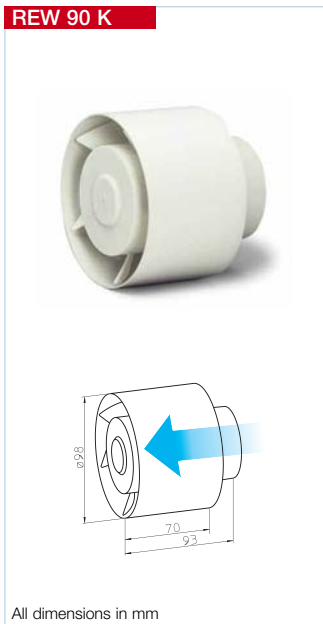
In ducts of all kind simply insertable.

■ Operation

Axial fans for smaller to medium air flows against low resistances. Suitable for many applications like room ventilation, cooling, drying etc.

■ Installation

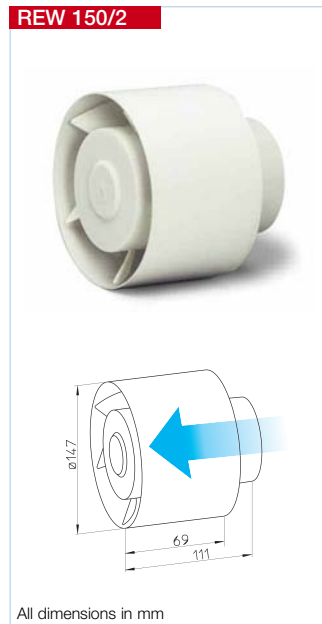
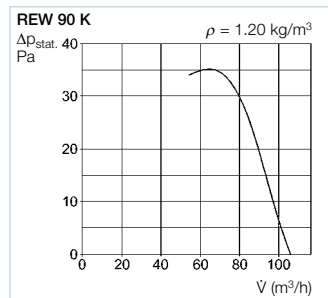
Installation in any position. Air flow direction depending on installation. Suitable for insertion in ducting. Please note that pressure drops and resistances of ducting must be considered. For higher resistances centrifugal fans should be considered. Electrical connection on motor end cap. Ensure that fan is accessible for service.



All dimensions in mm

■ Specification

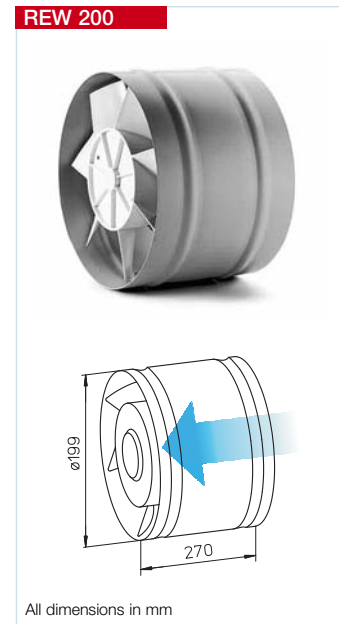
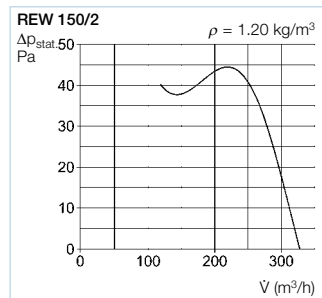
To be installed into ducting with nominal size \varnothing 100 mm. Casing of impact resistant polymer incorporating guide vanes. High pressure profiled 5 blade impeller of polymer. Ball bearing motor with thermal overload protection, maintenance free and suitable for continuous operation. Terminals in motor cap.



All dimensions in mm

■ Specification

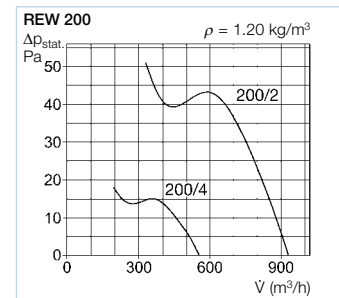
To be installed into ducting with nominal size \varnothing 150 mm. Casing of impact resistant polymer incorporating guide vanes. High pressure profiled 8 blade impeller of polymer. Reversible ball bearing motor with thermal overload protection, maintenance free and suitable for continuous operation. Terminals in motor cap.



All dimensions in mm

■ Specification

To be installed into ducting with nominal size \varnothing 200 mm. Casing with two stiffening rings made from galvanised steel. High pressure profiled 7 blade impeller of polymer. Enclosed reversible ball bearing motor with thermal overload protection, tropical protection of windings and radio suppression, maintenance free and suitable for continuous operation with aluminium die-cast casing. Terminals in motor cap.



Type	REW 90 K	REW 150/2	REW 200/4	REW 200/2
Ref. No.	0441	0440	7504	7505
Air flow reversible	no	DSEL 2¹⁾ Ref. No. 1306	DSEL 2²⁾ Ref. No. 1306	DSEL 2²⁾ Ref. No. 1306
Air flow volume (FID) in m ³ /h	105	330	550	930
Impeller- \varnothing in mm	93	140	200	200
R.P.M.	2320	2100	1350	2280
Voltage/Frequency	230 V / 1 ph. / 50 Hz	230 V / 1 ph. / 50 Hz	230 V / 1 ph. / 50 Hz	230 V / 1 ph. / 50 Hz
Power Watts	15	29	40	70
Current Amps	0.10	0.13	0.28	0.33
Sound pressure level dB(A) at 1 m	45	56	44	57
Wiring diagram No.	SS-479	SS-478	SS-439	SS-439
Protection to	IP 55	IP 44	IP 54	IP 54
Max. air flow temperature	+40 °C	+40 °C	+50 °C	+50 °C
Weight in kg	0.46	1.1	2.0	2.5

¹⁾ 3 core cable required for reverse operation ²⁾ 4 core cable required for reverse operation

■ Accessories

Speed controller with reversing switch (not available for REW 90 K)
BSX Ref. No. 0240

Other accessories	Pages
Flexible ducting, roof outlets and grilles	361 on
Air intake and extract elements, valves	374 on
Speed controllers, switches and run-on timer	397 on

Fans to suit all applications. These Helios products are a well designed range to solve the most demanding applications. Whether there is a limited space, a critical noise level to meet or simply effective ventilation or cooling required. In this section you will find the product for the job.

External wall fan
When refurbishing buildings there is often little or no space inside the property for a fan. The AV fans fit on the outside of the wall providing effective energy-efficient high pressure extract
Page 32

Window fans
Attractively designed and quiet window fans with air flow volumes from 80 – 1600 m³/h including accessories for operation in domestic, commercial and industrial applications.
Page 34

Ceiling fans
For a perfect solution recirculating air for cooling in summer and energy saving in winter. There are a choice of designs available.
Page 36

Window fans with air flow volumes from 80–1600 m³/h.



Ceiling fans for versatile operation and energy saving.

External wall fan to ventilate smaller to mid-sized rooms.



Energy-efficient backward curved centrifugal impeller.

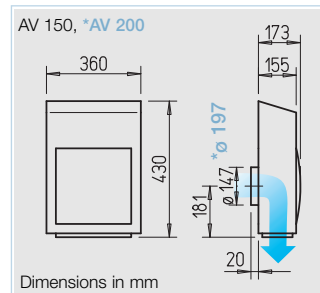
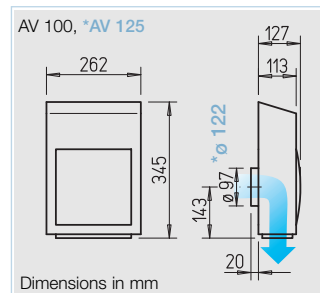
Totally enclosed motor. Ball bearings sealed for life, approximately 30 000 hours running.

Weather proof outer cover in white-powder coated galvanised sheet steel. Robust design.

**External wall fan,
window and ceiling fans:
Designed for today's projects.**



On the outlet: a bird guard and two close fitting, air operated louvers with spring mechanism for closing.



Application
 Designed for the external wall installation to ventilate smaller to medium-sized rooms. Suitable for use in industrial, commercial and domestic rooms.

High pressure, efficient centrifugal fans allow the connection to circular ducting and to overcome resistances of filters and system components. Perfect solution to ventilate apartment kitchens, since there is no noise of kitchen hoods. This also applies with other applications ducting, since the fan noise is transferred to the outside. Perfect for additional installation with renovation and rebuilding.

- **Special features**
 - No disturbing fan noises indoors through external wall installation.
 - Simple and economic assembly by bolting in place of operative unit.
 - Weather-proof casing. Tight closing air steam-operated shutters with spring reset
 - Connecting spigot according to standard duct diameter for connection to wall duct or ducting.
 - Solid base plate from polymer makes an assembly on uneven surfaces possible.
 - Electrical supply cables to the unit may be recessed or surface mounted.
- **Casing**
 - Weather-proof casing made from galvanised sheet steel, powder coated in white.
 - Bird guard and two air operated louvers with spring mechanism for closing at the extract point.

- **Speed control**
 Two speed operation as standard via remote operation switch MVB (accessories). In addition, stepless by the use of electronic controller or 5-stepped by transformer controller.
- **Motor**
 Totally enclosed motor with ball bearings, impregnated windings, insulation class F, designed for continuous operation, maintenance free and radio suppressed.
- **Motor protection**
 Thermal contacts fitted as standard.
- **Impeller**
 Energy-saving centrifugal impeller with backward curved blades from polymer, dynamically balanced.
- **Information**
 Start-up of the fan is only permitted, if protection against accidental contact of impeller is given according to DIN EN ISO 13857.

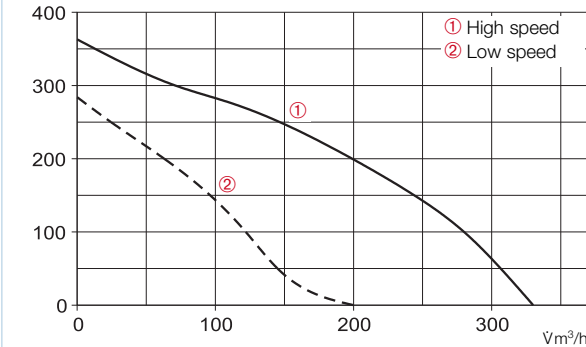
■ **Sound level**
 Total sound power levels and the spectrum figures in dB(A) for low and high speed are given above the performance curves. The case breakout figure is given as a sound pressure level at 3 m distance (freefield conditions) in the technical data table.

Notice	Page
Speed controller, controller and overrun timer	397 on

Type	Ref. No.	Connection spigot Ø	Air flow volume min./max.	R.P.M min./max.	Sound press level case breakout min./max.	Voltage 50 Hz	Power Watts min./max.	Current Amps min./max.	Wiring diagram	Maximum air flow temperature	Nominal weight	5 step transformer controll		Electronical speed controller, stepless	
												Type	Ref. No.	Type	Ref. No.
AV 100	2654	100	200/330	1600/2380	38/50	230	60/80	0.26/0.35	937	60	5	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
AV 125	2655	125	215/380	1400/2325	36/50	230	60/80	0.26/0.35	937	60	5	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
AV 150	2656	150	545/750	1470/1860	43/51	230	110/155	0.48/0.67	937	50	8.5	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
AV 200	2657	200	570/785	1600/2075	43/51	230	110/155	0.48/0.67	937	50	8.5	TSW 1.5	1495	ESU 1/ESA 1	0236/0238

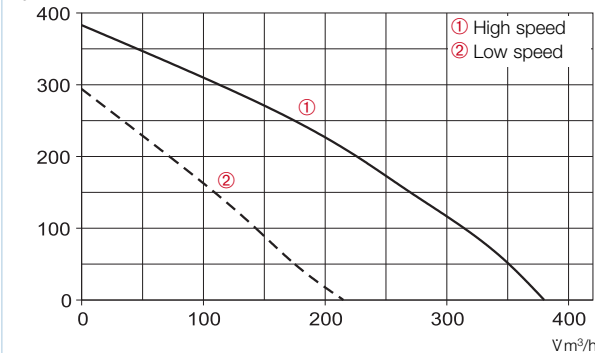
AV 100

Step	Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
①	L _{WA} Air noise	dB(A)	68	62	66	62	62	61	59	50
②	L _{WA} Air noise	dB(A)	56	53	56	52	51	48	44	33



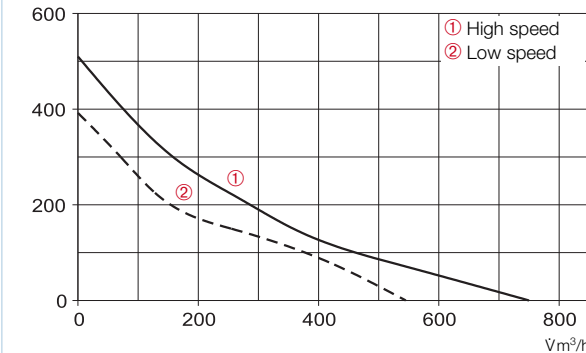
AV 125

Step	Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
①	L _{WA} Air noise	dB(A)	67	60	64	62	62	61	58	50
②	L _{WA} Air noise	dB(A)	54	49	55	51	50	45	39	26



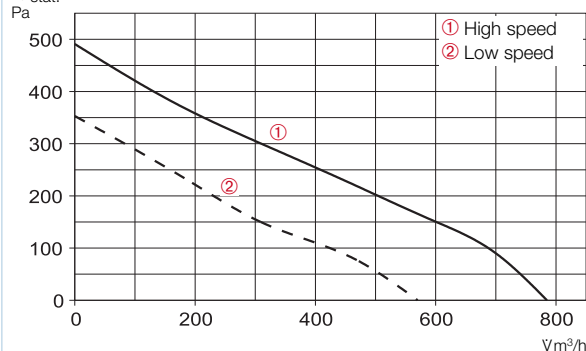
AV 150

Step	Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
①	L _{WA} Air noise	dB(A)	69	68	67	65	62	64	57	50
②	L _{WA} Air noise	dB(A)	61	64	63	57	54	54	46	38



AV 200

Step	Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
①	L _{WA} Air noise	dB(A)	69	69	66	66	61	63	59	50
②	L _{WA} Air noise	dB(A)	61	62	62	58	54	55	47	39



Accessories

Operation switch 0-1-2

MVB Ref. No. 6091

Operation: On/Off,
Low and high speed
Current 3 A (ind.)
Voltage 230 V, 1 ph., 50/60 Hz
Protection to IP 30
Installation in standard gang
box behind switch
Dimensions mm W 80 x H 80 x D 15
Weight approx. 0.1 kg



Transformer controller

TSW 1.5 Ref. No. 1495

Five step transformer speed
controller for surface mounting.
1 ph., 230 V.
Max. current 1.5 A
Wiring diagram No. SS-437.1
Dimensions mm W 154 x H 200 x D 79



Electronic speed controller

ESU 1 Ref. No. 0236

For flush mounting.
White polymer casing and ring.
Installation in standard gang box
behind switch. Operation display
via illuminated ring in control knob.
Max. current 1 A.
Min. current 0.15 A
Protection to (when flush mounted) IP 30
Wiring diagram No. SS-556.1
flush mounting in mm ø 57; D 34



Electronic speed controller

ESA 1 Ref. No. 0238

For surface mounting.
White polymer casing. Operation
display via illuminated ring in control
knob.
Max. current 1 A.
Min. current 0.15 A
Protection IP 40
Wiring diagram No. SS-556.1
Dimensions in mm W 80 x H 80 x D 65



Attractively designed small window fans with air flow volumes from 80–360 m³/h.

Operation

In rooms and windows of all kinds in domestic applications as well as in small to mid-sized commercial rooms.

Special specifications and common details

Universal operation

Single pane, insulation and double glazed windows. Even suitable for installation in thin paneling walls or solid walls. The fitting design guarantees a time saving installation.

Electrical internal shutter

Quietly closes tight when fan is off; maintenance free. Automatic operation together with fan.

Casing

Made from high quality, impact resistant polymer. Fan casing and outside grille in white.

Motor

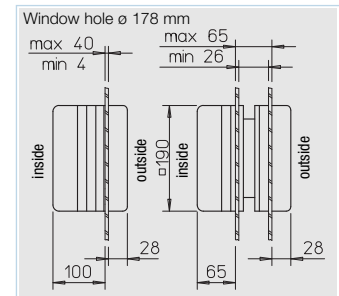
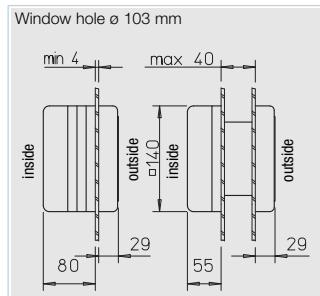
Totally enclosed motor in a splash proof casing. Maintenance free and radio suppressed. Maximum air flow temperature +40 °C.

Installation

Unit construction allows a fast installation with only a few fixings giving quick installation and easy servicing.

Other accessories Page

Speed controllers, controllers and run-on timer 397 on



Specification R 90 E/FES

- Elegant, small window fan for all rooms. The innovative design effectively prevents the view of the interior zone of the fan and suits all rooms no matter what the decor.
- For installation in single panes and double glazed windows with a thickness of 4–40 mm. The variable distances can be compensated for using a combination of the supplied frames.
- Wall termination through a flat rain repellent grille.
- Controlled by built-in pull cord or by on/off switch installed locally.
- Integrated operation display.
- Protection to IP 45.

Specification HVR 150/FES

- Powerful window fans for small to mid-sized private and commercial rooms.
- For installation in single pane and double glazed windows (double glazed windows can be opened unhindered) as well as thin panellings with a thickness of 4–40 mm. The variable distances can be compensated for using a combination of the supplied frames.
- Wall termination through a flat rain repellent grille.
- Controlled by built-in pull cord or by on/off switch installed locally.
- Optical operation display.
- Protection to IP 44.
- Complies with current Building Regulations, Document F for England and Wales and document K for Scotland and Ireland.

Delivery range			
Technical data	HR 90 KE/FES	HVR 150/2 E/FES	HVR 150/2 RE/FES
Ref. No.	0334 / 0462	0285 / 0463	0286 / 0463
Built-in electric shutter	Yes	Yes	Yes
Air flow reversible	No	No	DSEL 2 ³⁾ Ref. No. 1306
Window hole-ø mm	103 mm	178 mm	178 mm
Air flow volume (FID) in m ³ /h	80	260	360
Impeller diameter in mm	93 mm	140 mm	140 mm
Voltage 230 V / 1 ph. / 50 Hz, Power Watts	17	35	50
Current Amps	0.12	0.15	0.25
R.P.M.	2550	1800	2600
Sound pressure/sound power level in dB(A) ¹⁾	44 / 51	58 / 65	64 / 71
Weight in kg	1.0	1.9	2.0
Wiring diagram No.	SS-483	SS-283	SS-284
Accessories			
Double glazed installation for separable windows	included ²⁾	included	included
Ref. No.	—	—	—
Wall installation, using wall tube 260 – 500 mm	WES 90	WES 150	WES 150
Ref. No.	0717	0537	0537
Electronic speed controller	—	ESU 1 / ESA 1	ESU 1 / ESA 1
Flush mounting in mm ø 57; D 34	Ref. No. —	0236 / 0238	0236 / 0238
Speed controller with included reversing switch	—	—	BSX
for intake and extraction	Ref. No. —	—	0240

¹⁾ Distance at 1 m in freefield conditions ²⁾ For single pane and non separable double glazed windows ³⁾ 4 core cable required for reverse operation

Quiet window fans for operation in domestic, commercial and industrial applications. The GX range with quiet performance and safe for continuous operation. Fan and grille in white. Pleasant design, for use in every room of the house.

■ Operation

For ventilation of mid-sized to large rooms of every kind in temperature ranges from -40 °C to +40 °C.

■ Special specifications

□ Universal operation

For installation in single pane, insulation and double glazing windows. Even suitable for installation in thin panel walls or solid walls.

The fitting accessories guarantee a time saving installation.

□ Shutter operation

The shutter behind the fascia closes tightly and is quiet in operation. With an option that allows a permanent opening (passive ventilation in summer) even when fan is switched off. Shutter operates automatically with fan operation.

□ Casing

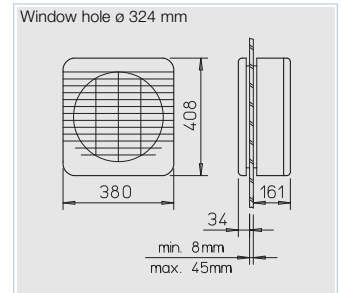
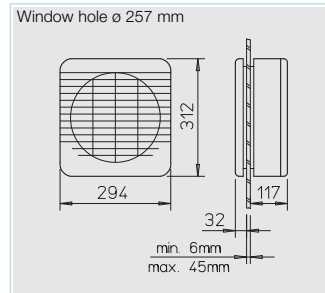
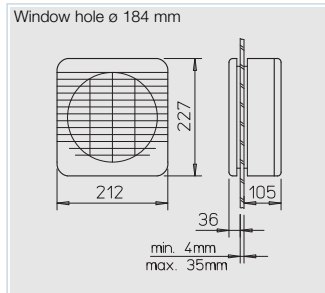
Made from high quality, white impact resistant polymer in a pleasant design. Fascia and impeller can be removed for cleaning (using soapy water) easily with one hand. The power supply will cut off automatically.

□ Motor

Totally enclosed, splash proof motor (IP 44) with thermal overload protection. Maintenance free and radio suppressed. Maximum air flow temperature +40 °C. Speed controllable by speed controller (accessory).

□ Installation

Unit construction, with only a few fixings giving quick installation and easy servicing.



■ Specification GX 150

- Sophisticated fan for smaller sized rooms.
- For installation in single pane and double glazed windows, using an accessory for fixed and separable double glazed windows.
- Service and installation friendly. Casing parts on the room side can be removed for cleaning without tools.
- Shutter function can be switched on for passive ventilation (without fan operation).
- Speed controllable by speed controller (accessory).

■ Specification GX 225

- Fan for medium sized rooms with integrated switch that allows following operations:
 - Extraction
 - Input ventilation or
 - Reversed operation through external on/off switch/speed controller (accessory).
- Easy installation in windows of every kind, for double glazed windows with appropriate accessory.
- Shutter function can be switched on for passive ventilation (without fan operation).
- Controllable by on/off switch (to be installed on site) or by on/off switch/speed controller (accessory). Automatic shutter operation with fan operation.
- Outside rain repellent grille.
- Unit construction, with only a few fixings giving quick installation and easy servicing.

■ Specification GX 300

- Powerful fan for ventilation and extraction of larger rooms in an attractive soft line design. Suits any room in the house.
- Integrated switch that allows following operations without changing the wiring:
 - Extraction
 - Input ventilation or
 - Reversed operation through external on/off switch/speed controller (accessory).
- Controllable by on/off switch (to be installed on site) or by on/off switch/speed controller (accessory). Automatic shutter operation with fan operation.
- Shutter function can be switched on for passive ventilation (without fan operation).
- Unit construction, with only a few fixings giving quick installation and easy servicing.

Other accessories	Page
Speed controllers, controllers and run-on timer	397 on



Model range	GX 150	GX 225	GX 300
Technical data			
Ref. No.	1483	1484	1485
Built-in electric shutter	Yes	Yes	Yes
Reversed operation	No	Yes	Yes
Window hole diameter in mm	184 mm	257 mm	324 mm
Air flow volume (FID) m ³ /h	250	670	1650
Impeller diameter mm	150	225	300
Power Watts	37	45	130
Voltage, 50 Hz	230 V	230 V	230 V
Current Amps	0.3	0.3	0.7
R.P.M.	1250	1250	1250
Sound pressure/power level in dB(A) ¹⁾	45/52	54/61	61/68
Weight in kg	2.5	4	7
Wiring diagram No.	SS-508	SS-538	SS-538

¹⁾ at 1 m in freefield conditions

²⁾ with reversing switch

³⁾ with 2 speeds and reversing switch

Window fan accessories			
Type	GX 150	GX 225	GX 300
Installation kit - double glazed windows			
- for separable windows	DW 150 ⁴⁾	DW 225 ⁴⁾	DW 300 ⁴⁾
Ref. No.	5088	5089	5090
- for fixed windows	DR 150 ⁵⁾	DR 225 ⁵⁾	DR 300 ⁵⁾
Ref. No.	5114	5115	5116
Wall kit			
- worm drive clips, 50 cm long	SB 50/2	SB 50/3	SB 50/4
Ref. No.	1385	1386	1387
- using wall tube	KR 150 ⁶⁾	WER 225/250 ⁷⁾	WER 300 ⁸⁾
Ref. No.	5091	0369	0469
Darkroom hood against light incidence		DC 225	
Ref. No.	—	1442	—
Electronic speed controller	ESU 1/ESA 1	ESU 1/ESA 1	ESU 1/ESA 1
Flush mount. mm ø 57; D 34	0236/0238	0236/0238	0236/0238
Ref. No.	—	BSX	BSX
Ref. No.	—	0240	0240
On/off switch ³⁾	—	DSEL 2	DSEL 2
Ref. No.	—	1306	1306
On/off switch ³⁾	—	FR 22/30	FR 22/30
Ref. No.	—	0998	0998

⁴⁾ Spacer up to max. 102 mm

⁵⁾ Lined spacers from 2 – 35 mm (content 10 pcs.)

⁶⁾ Length 330 mm

⁷⁾ Length 170 – 500 mm

⁸⁾ Length 170 – 450 mm

■ Ceiling fans

– for cooling in summer
 – for energy saving in winter
 For versatile use e.g. to move air for cooling or energy saving in mid size to large rooms as well as reception and waiting halls, restaurants, disco's, boutiques, wholesale retail outlets, assembly plants, warehouses, tennis and sport halls as well as for industrial drying applications.

Traditionally ceiling fans are used during summer for cooling. Where there are rooms without windows and high heat emission of lamps, ceiling fans solve ventilation problems in many areas. Decorative replicas in "Casablanca" design make Helios ceiling fans an attractive addition to any room.

During the heating period, ceiling fans can be used for energy saving by returning the hot air at the top of the room to the occupied space. In high rooms like sport halls, tennis halls and other industrial halls, slow spinning ceiling fans provide a draft free equal distribution of warm air within the room. This achieves an increase in temperature at the floor level areas of approx. 25% without any additional heating. The energy consumption is negligible. Reference projects for many years achieved an average temperature increase of 4 °C at the floor level.



■ Ceiling fans DVW range

- Classic 3 blade design, robust casing fan made from steel, finished in white.
- Totally enclosed motor in a white powder paint finish. Maintenance free and radio suppressed, suitable for continuous operation.
 - Resilient mounting ensures low vibration.
 - Simple installation, pre-assembled motor and fixings. Only blades need to be fixed.
 - Two down rod lengths offer optional fixing height.
 - Speed controllable via 5 speed transformer TSW 0.3 (accessory).
 - Reversible air flow direction. Air flow direction to floor or to ceiling by wiring connection or through reversing switch (accessory DSEL 2).

■ Ceiling fans DVA range

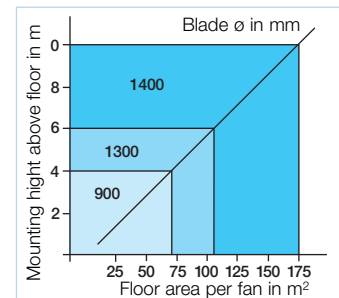
- In typical "Casablanca" design for installation in more decorative areas.
- Casing made from brass, finished in antique brown or white. Five wooden blades with a wicker finished in nut brown or white. Maintenance free, long life, slot-vented motor with ball bearings for permanent operation.
 - Resilient mounting ensures low vibration.
 - Simple installation with different down rod lengths:
 - Direct on ceiling (no down rod).
 - Short down rod.
 - Pull cord for three speed on of/off operation. Suitable for connection to remote speed controllers (accessory).

■ Selection of a fan

Impeller diameter, position and mounting height are important parameters during design to allow equal coverage of air flow within the room. The room height less the down rod equals the mounting height of the fan. In relation to height and impeller diameter the diagram below shows the area covered by each fan in m². The distance of the fan's centre to the wall should equal approximately 6 times the impeller diameter. We recommend operation at high speed during summer (cooling) and at low speed in winter (energy conservation).

■ Accessories for DVW and DVA
Speed controller
TSW 0.3 Ref. No. 3608
 Five step transformer with on/off function for surface installation.

Energy saving automatic controller EDTW Ref. No. 1613
 Varies fan speed automatically in accordance to the temperature difference between high level and low level sensor. Specially for operation in winter for energy saving.



■ Important installation restriction

Safety regulations ask for a minimum distance of 2.3 m from the bottom of the blades to the floor. Fans should be installed so that they do not interfere with other equipment.

Order and technical information				
Type	DVW 90	DVW 140	DVAW 130	DVAM 130
Ref. No.	8648	8649	8650	8651
Impeller diameter in mm	900	1400	1300	1300
Number of blades	3	3	5	5
Voltage / Frequency	230 V / 1 ph. / 50 Hz	230 V / 1 ph. / 50 Hz	230 V / 1 ph. / 50 Hz	230 V / 1 ph. / 50 Hz
Current Amps	0.26	0.30	0.29	0.29
Power Watts	50	65	66	66
Maximum R.P.M.	340	270	220	220
Down rods min./max. mm	440/565	460/585	220/360/510	220/360/510
Sound pressure level in dB(A) in 4m	35	44	29	29
Weight in kg	4.8	6.8	6.7	6.7

The Helios heater range includes product solutions for portable and fixed installation to match many heating and ventilation applications. The use of STH/TH and SH heaters is almost unrestricted and even permitted in humid and wet rooms.

The advantages of the electric heaters

- Favourable in price.
- Economic operation.
- Easy installation.
- Instantly ready to run.
- Very efficient.

- Odourless and emission-free.
- No connection to a chimney is necessary.

Operating conditions

1. Transitional or additional heating in rooms of every kind e.g. in workshops, stores, offices.
2. Full heating for large rooms which are only used periodically e.g. in assembly rooms, churches, gyms, exhibition halls and others.
3. Site heating for room heating as well as space drying.
4. Frost protection heating to prevent freezing temperatures in frost sensitive rooms e.g. stores, water utility companies, pump and slide gate valve stations.
5. Drying and condensation prevention of rooms of every kind in commercial and industrial applications.

Desired temperature increase	Required heat power kW					
	3 kW		5 kW		10 kW	
	Room vol. m ³	Room vol. m ³	Room vol. m ³	Room vol. m ³	Room vol. m ³	Room vol. m ³
40 °C	75*- 100	125*- 175	250*- 350	375*- 500	575*- 800	850*- 1200
35 °C	90*- 120	150*- 200	300*- 400	450*- 600	690*- 900	1000*- 1300
30 °C	100*- 150	175*- 250	350*- 500	500*- 750	800*- 1150	1200*- 1700
25 °C	120*- 180	200*- 300	400*- 600	600*- 900	920*- 1380	1550*- 2000
20 °C	150*- 210	250*- 350	500*- 700	750*- 1050	1150*- 1600	1750*- 2400
15 °C	200*- 280	340*- 470	680*- 940	1000*- 1400	1550*- 2150	2300*- 3200
10 °C	300*- 420	500*- 700	1000*- 1400	1500*- 2100	2300*- 3200	3500*- 4800
5 °C	600*- 800	1000*- 1400	2000*- 2800	3000*- 4200	4600*- 6400	6900*- 9600

* The figures with * are valid for poor room insulation. Approximately double the heating power is required for fast heating on occasional operation thus the warm up time is reduced.

Calculation of heat requirement and selection

Accompanying table is based on experiences for the room heating. The required heating power is dependent on:

1. Desired room temperature or difference to outside temperature.
2. Room size in m³.
3. Quality of room or building insulation.
4. Use of the unit as full or additional heating.

Example: Main heating

Room volume: 600 m³.
Desired temperature: +20 °C.
Lowest outside temperature: -15 °C.
Insulation: good.
This results in a temperature increase of 35 °C (see 1. column).
Depending on the room volume and the insulation the result is the required heating power of 15 kW.



Electric fan heaters from Helios.
High class in design and quality.

STH / TH – Transportable and stationary operation



The compact, powerful STH fan heaters are robust and well equipped.

They can operate to heat and dry for stationary and transportable use on the building site, in production plants, stores, workshops, offices, garages, churches, meeting rooms and others.

- Model range with heating power of 3.3 kW: 1 ph., 230 V as well as 5, 9, 15, 22 kW: 3 ph., 400 V.
- Easy handling with compact dimensions.
- Attractive design.
- Easy to lift, transport and hang up through ergonomically designed transportation frame.

■ High quality

- Suitable for operation under roughest conditions even in wet areas as well as for permanent operation.
- Corrosion resistant casing, made from galvanised steel, white powder coated.
- Red powder coated tripod, protecting all sides. Models STH with holes for wall installation.
- Stable front protection grille, powder coated in grey.
- Clearly arranged control board, protected against damage through recessed position.
- Maintenance free and radio suppressed.
- All models with protection to IP 44. Suitable for operation in wet areas.
- Contact safety to DIN EN ISO 13857.
- Enclosed heater element made from high-grade stainless steel with low surface temperature.
- Heater is accessible, from outside overheat protection. (STH 3 – self resetting after cooling down).

■ Individual timer

All models from 9 kW on have a digital timer for preprogrammed operation up to 24 hours to given room temperature as standard.

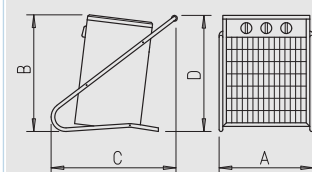
■ Control

- Via built-in operation switch with following functions.
- Optional fan operation without heating, from 9 kW on two fan speeds available.
- Heating element for models with 3, 5, 15 kW in two steps; models with 9 and 22 kW in three steps.
- Heating operation through built-in room temperature thermostat, adjustable from +5 °C to +35 °. Fan keeps operating for a better heat distribution when heating is switched off.

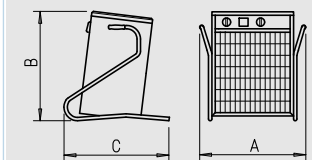
Dimensions mm

Type	A	B	C	D
STH 3 / STH 5	290	390	475	440
STH 9 T	335	425	450	435
STH 15 T	430	535	550	560
TH 22 T	570	615	535	

STH..



TH..

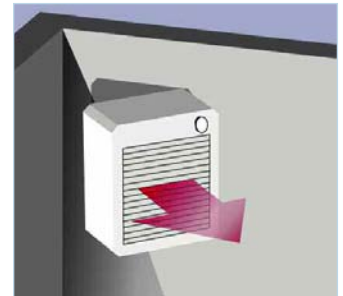
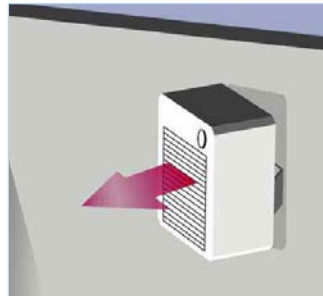
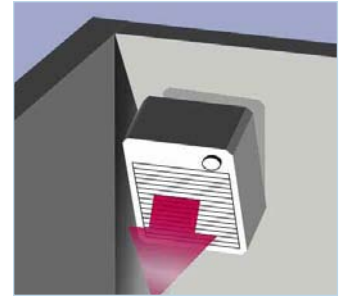


Dimensions in mm

Technical data

Type	STH 3	STH 5	STH 9 T	STH 15 T	TH 22 T
Ref. No.	2520	2521	2522	2523	2524
Heat power kW	3.3	5.0	9.0	15.0	22
Controllable heat power kW	0 - 1.6 - 3.3	0 - 2.5 - 5	0 - 3 - 6 - 9	0 - 7.5 - 15	0 - 7 - 15 - 22
Max. temperature increase K	25	37	38	35	27
Max. surrounding temperature °C	40	40	40	40	40
Air flow volume m³/h	400	400	400 / 700	800 / 1300	1800 / 2400
R.P.M. min ⁻¹	1300	1300	900 / 1300	900 / 1300	850 / 1180
Sound press. in dB(A) at 4 m (free field.)	40	40	43	58	65
Voltage, 50 Hz	230 V / 1 ph.	400 V / 3 ph.	400 V / 3 ph.	400 V / 3 ph.	400 V / 3 ph.
Current Amps	14.5	7.5	13.5	21.7	31.5
Regular 3 pin ¹⁾ / CEE ²⁾ socket required	1)	16 A	16 A	32 A	32 A
Weight in kg	8.0	8.0	12.0	18.0	24.0
Digital timer (24 h preprogramming)	—	—	yes	yes	yes

¹⁾ with approx. 1.5 m long lead and plug



■ The SH models can be used everywhere: in garages, warehouses, gyms, entrance halls, production plants, stores, workshops, churches, meeting rooms as well as wet rooms. Model range with heating power of 6, 9, 12 or 15 kW.

■ Significant features

- Special designed impeller ensures quiet operation.
- Corrosion resistant casing, made from galvanised steel, white powder coated.
- Stable front protection grille, powder coated in grey.
- Maintenance free and radio suppressed.
- Service friendly: All elements are easily accessible by removing a few screws.
- Enclosed heater element made from high-grade stainless steel with low surface temperature.

■ Specification

- Easy setting of air flow volume required for the room conditions via 3 fan speeds.
- Single step capillary tube thermostat (setting range +5 to +40 °C) controls via temperature sensor. The heat output is the amount required to raise the temperature from the incoming to the desired value.
- Operation switch to control fan speed and heat power as standard for surface installation.

■ Installation

SH is to be fixed individually on the wall. The air flow can be directed alternatively to the front, diagonally to the left, right or downward through the assembly-friendly suspension device fixed to the unit.

■ Operation switch

delivered as standard – with the functions: On, Off, 3 fan speeds, 100% and 50% heating power.

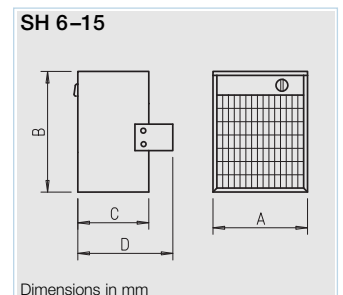
■ High operation safety

- Thermal overheat protection with manual reset.
- Enclosed heater element with low surface temperature.
- All models with protection to IP 44. Suitable for operation in wet areas.
- Fan motor with thermal overload protection.
- Protection against contact to DIN EN ISO 13857.



Technical data				
Type	SH 6	SH 9	SH 12	SH 15
Ref. No.	5225	5226	5227	5228
Heat power kW	6	9	12	15
Controllable heat power kW	0 – 3 – 6	0 – 4.5 – 9	0 – 6 – 12	0 – 7.5 – 15
Temperature increase K				
– at maximum speed (step 3)	7 – 14	11 – 21	11 – 22	13 – 26
– at medium speed (step 2)	10 – 20	15 – 30	12 – 24	15 – 30
– at low speed (step 1)	14 – 29	22 – 44	15 – 30	11 – 37
Air flow volume m ³ /h				
– Speed step 3	1300	1300	1700	1700
– Speed step 2	900	900	1550	1550
– Speed step 1	630	630	1220	1220
Sound press. in dB(A) at 4 m (free field.)				
– at high speed	46	46	51	51
– at low speed	32	32	44	44
Voltage, 50 Hz	400 V / 3 ph.	400 V / 3 ph.	400 V / 3 ph.	400 V / 3 ph.
Current Amps	9	14	18	22
Required supply mm ²	4 x 2.5	4 x 2.5	4 x 6.0	4 x 6.0
CEE socket required	16 A	16 A	32 A	32 A
Control lead	6 x 0.75	6 x 0.75	6 x 0.75	6 x 0.75
Wiring diagram No.	858	858	858	858
Weight in kg	19	19	26	26

Dimensions in mm				
Type	A	B	C	D
SH 6	400	490	310	460
SH 9	400	490	310	460
SH 12	450	560	415	585
SH 15	450	560	415	585



Controlled room ventilation

Traditional ventilation of domestic properties is no longer recommended for many of today's well insulated and energy efficient buildings. It's no longer practical to ventilate rooms with open windows.

Research shows that in 80% of all cases the ventilation is incorrect and uncontrolled.

Energy savings from extensively insulating the building can be lost, also increasing environmental pollution. Sealed buildings make controlled ventilation indispensable.

For a comfortable, healthy room climate smells have to be extracted from the kitchen, bathroom and toilet as well as harmful substances from detergents, textiles and others. The humidity from cooking, drying, showering (average 10-15 litre a day in a 4 person household) must be extracted to the outside to prevent mould, damp and wet cold walls. A permanent air exchange without noise and dust is required. Helios offers optimal systems for all applications in the controlled room ventilation. Whether with

or without heat recovery, for new buildings or redevelopment, in multi-storey buildings or houses, as central or decentral ventilation system, we can supply a unit to suit your requirements.

A comprehensive matched range of accessories complete the Helios package covering the energy saving regulations and noise and fire protection requirements.



Conforms to the requirements of document F of the building regulations 2010. With models to suit continuous ventilation with boost or for intermittent use as specified with in document F.



Award winning, powerful and also ultra quiet residential fans.

Controlled room ventilation

Innovative Solutions.
With and without
heat recovery.



For multi-storey buildings

pages

1. Mono tube system ultraSilence® ELS
with single units according to DIN 18017-3 42 on

2. Central ventilation system ZLS
with energy-saving EC roof fans
to DIN 18017-3

61 on



For single family houses and apartments

3. Central ventilation box ZEB 68 on

4. KWL®-ventilation centres
with heat recovery 74 on

„KWL-periphery“ 100 on

Accessories for the controlled room ventilation

Air underfloor heat exchanger,

Air distribution systems,

Air intake and outlets

Wall and roof terminations



The building regulations stipulate the ventilation of bathrooms and toilets located in houses, hotels and other buildings. The mono tube system ultra-Silence® ELS from Helios has convincing advantages.



Space-saving and low-priced
One central main riser for more than 20 floors and smallest cross-sections save money and useable living space. The fan design reduces duct sizes leading to reduced material and labour costs. Keeping on site expenditure to a minimum.

Energy saving

ultraSilence® ELS-units reduce the ventilation heat demand and contribute consequently an essential saving of heating energy.

Easy designing

This unit is certified by the Institute for Bautechnik which ensures fan performance through the monotube system, the fans are capable of overcoming the riser resistances.



**The new ELS-dimension.
Ventilation of bathrooms and apartment
kitchens to DIN 18017-3.**

Helios ●



With the Helios ELS software system design is easy with a simple keystroke.

ELS-Soft is simple to use and automatically calculates the diameter of the main riser and secondary pipe and generates the graphic pipe section scheme.

ELS-Soft is available for download at www.heliosventilatoren.de

ultraSilence® ELS Mono tube ventilation system with single units for toilet, bathroom and apartment kitchens

Extract air

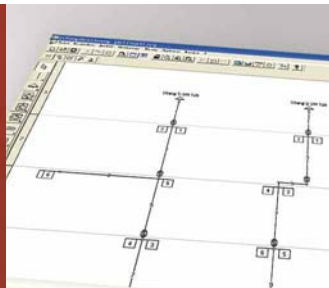
Wonderfully quiet ELS units that are controlled as required, carry used air from kitchens, bathrooms and toilets via the central main duct. Using a single rising duct for more than 20 floors or 40 single units, without the need for a central fan. ELS guarantees efficient ventilation at low energy costs.

Outside air

Outside air intake grilles and valves bring in fresh air to the bedrooms and living rooms. Helios offer grilles and valves for wall and window installation, manual or temperature controlled, with automatic air flow and acoustic lining.

Fire protection

To prevent fire transfer to other floor levels we offer the following solutions on page 51 corresponding to the circumstances on the site.



Facilitates planning and material selection: ELS-Soft, free software-tool for the mono tube ventilation system ultraSilence® ELS.



Outside air element ALEF

ELS-unit

Fire protection damper



Advantage through Helios:

- Steep performance curve with highest pressure capacity.
- Over 20 floors can be connected to one single main riser.



Revolutionary and intelligent: ELS-VF.-types with automatic humidity control with a minimum of energy use for a comfortable room climate without mould. More on page 49.



Barrier-free and automatic operation. ELS-VP. with PIR sensor for automatic ventilation as required when entering the room. Optimum fan control ideal for toilets and sanitary facilities of hotels, offices, hostels, etc. More on page 49.



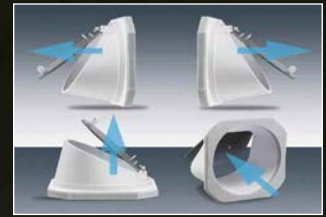
Unique: Filter change display indicates when filter needs cleaning. Permanent, long life, washable filter with large cross section area. Saves the purchase of expensive disposable filters.



Flexibility without limits: Casing types ELS-GU and -GUBA for one-, two room ventilation with connection left, right, to the bottom or for toilet adaptation. Discharge spigot to the top, rotatable to the left, right or to the back.

The Helios ELS Silent, Strong, Slim and Beautiful.





Clever: Airtight back draught shutter in the discharge spigot, can be turned by 90°. Permits casing positioning with discharge to the left, right, to the top or to the back.



Intelligent electronic system for wide variety of operating modes like interval function, overrun timer, humidity controlled operation, automatic PIR sensor etc. Circuit board with pins for electrical connection placed in splash proof casing.



Efficient energy-saving motor. Acoustically tested, long life ball bearings are greased for life (approx. 40 000 hours running). Maintenance free, totally enclosed in an aluminium die-cast casing.



Optimal solution for every demand. More than 20 different ELS fan units can be assembled in the standard surface or flush mounted casing without using tools.



2008



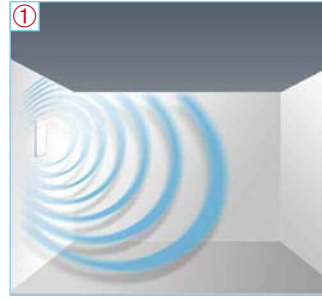
NOMINEE



2008



- Only 26 dB(A) *.
Wonderfully quiet.



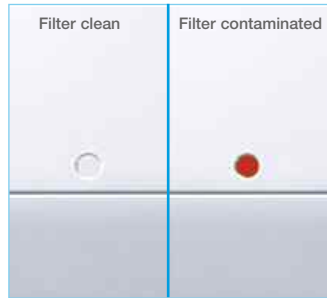
Above all in bathrooms the ventilation must be nearly noiseless. This is achieved with the single ventilation units ultraSilence® ELS. With 26 dB(A)* at V=35 m³/h for trickle ventilation and 35 dB (A)* at V= 60 m³/h for boost ventilation and $A_L = 10 \text{ m}^2$ the ultraSilence ELS is dreamlike quiet.

The sound levels are to DIN 18017, Pt. 3 as follows and are guaranteed by HELIOS:
– sound power level, A-rated (L_{WA}) in dB(A) or
– sound pressure level, A-rated (L_{PA}) in dB(A) related on an absorption surface $A_L = 4 \text{ m}^2$. When related to $A_L = 10 \text{ m}^2$ the sound levels will be 4 dB(A) lower.

① The sound power level L_{WA} shows the real emitted sound power, independent from the distance and room conditions, and is the sound at source.
② The sound pressure level L_A is the sound received by our ear and independence on the absorption of the room, or the ability of the room to absorb noise.

* To DIN 18017-3: 2009-09, digit. 7.2.4. footnote 5.

- Exclusive permanent filter and filter change display



All ELS fan units have **permanent filters as standard**. This ensures trouble free quiet installation. They prevent the fan and sound insulation from becoming clogged, resulting in satisfied tenants, landlords and owners.

User friendly – the retractable facia with hinge.
For filter removal flip up facia by hand. To close simply let it retract

Completely airtight.
The all round flexible sealing prevents air inlet and dirt deposit along the wall/ceiling surface.

The filter change display (red dot) indicates when the filter needs cleaning which prevents a drop in performance.

Unique – The permanent filter.
Large filter cross-section area, with high dirt holding capacity for long cleaning intervals. To clean the filter, simply put it in the dishwasher: This eliminates the regular purchase of expensive disposable filters.

- Excellent design.
Good-looking. Flat. Clean.



Perfectly designed with multiple awards. The ultraSilence ELS fits everywhere:

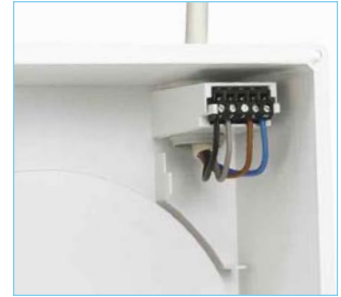
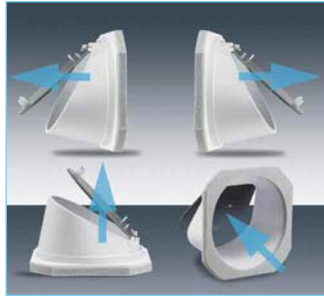
The facia complements every tile, wallpaper or marble- and thus satisfies the highest demands of designers.

The minimalist-designed ultra flat facia with classy look covers the fan unit. The air flows in on all sides so that dirt deposits are

prevented. The ultra flat Premium Design of the facade impresses in every room design with unobtrusive elegance. The extremely flat-built flush mounted casing has an installation depth of only 89 mm. That way it integrates completely – also in small rooms, on walls or ceilings. The ideal solution, also in narrow installation shafts.



■ Lightning fast installation.



Clever. The airtight back draught shutter, which is integrated in the discharge spigot, can be turned by 90°. This makes a positioning of the casing with discharge to the left, right, top or back possible.

Unlimited possibilities. ELS-GU and -GUBA are the universal casings for one or two room ventilation with connection to the left, right or bottom as well as toilet seat adaptation via flushing pipe. The discharge spigot can be positioned to the top, left or to the back. Everything with the same casing!

So very simple – the electric quick plug connection. For trouble-free connection, removable from its fixture. Cable entry and connector connecting takes place with casing assembly. Insertion of fan unit and facia on final fix.

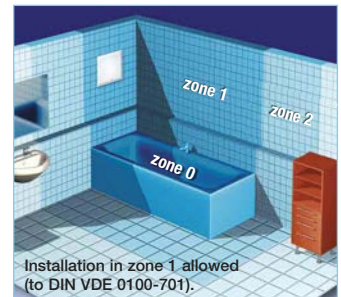
■ Approved and certified



All casings and fan units approved by the DIBt with approval No. Z-51.1-193.

The ultraSilence® ELS units have the approval of the Institute for Bautechnik, Berlin. In addition there are international certificates and conformities with the relevant standards and regulations. There are also the following certificates:

- TÜV approved performance.
- Certificate of the Bundesanstalt for Materialprüfung (BAM) for noise transmission regulations in buildings (DIN 4109).
- TÜV approved leakage rate of backdraught shutter.
- Outside inspection of production by TÜV Bayern-Sachsen.
- Fire protection tests of back draught shutter and casing with fire protection, carried out by the Institute for Material Testing of the Institute for Baustoffe, Mas-sivbau and Brandschutz (IBMB), Braunschweig, swiss fire protection code Z 5491.



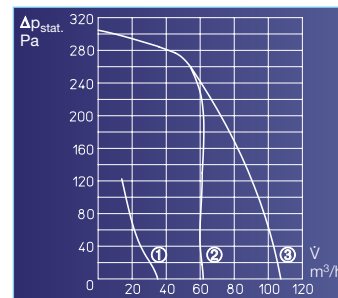
Installation in zone 1 allowed (to DIN VDE 0100-701).

■ Various operations.



ELS units are available in approx. 100 variants and 3 airflows for ventilation of kitchen, bathroom and toilet in the apartment sector.

User-friendly controls with overrun timer and interval timer function, automatic motion sensor or humidity controlled operation (in trickle and boost ventilation) for barrier-free automatic operations are optional units.



- ① Trickle ventilation
V = 35 m³/h
- ② Boost ventilation
V = 60 m³/h respectively
trickle ventilation wit
ELS-V 100/..
- ③ Boost ventilation with
ELS-V 100/..

■ Information

Further information about ELS types for barrier-free automatic operation

- with humidity control
- or PIR detector

- High humidity in buildings causes poor health and mould growth. Continuous ventilation uses energy when not always required.

So to preserve the air quality, hygiene and the fabric of a building, “optimised ventilation” together in harmony with energy saving targets, is the aim.

- The Helios VF-AL system humidity ventilation control is one for the today’s state optimised solution.
Can be used to ventilate the whole living area. The rooms with polluted air (bathroom, toilet, kitchen) are to be ventilated. Fresh outside air flows in through temperature or pressure controlled air intakes into the living and sleeping rooms.

- The system components

- ELS-VF..
Humidity controlled waste air fan in the bathroom guarantees a minimum air change. Turns on to maximum power when the humidity rises and after reaching the rated value then returns to normal again. Fan comes complete with overrun timer.

- Air intake elements

Air intake elements for steady and efficient intake airflow. Model ALEF.. or ZL for wall or window frame installation. Extract air systems without suitable air intake elements are non-functional and do not conform to the technical standards.



- Energy saving matched controllers for the ELS fans are part of the range.

Clever design allows the required and efficient ventilation of the room to suit its needs.

- Barrier-free automatic operation
controlled with PIR sensor or on humidity controlled function. See on the right or on the page opposite.

- What and when is the optimum?

- General ventilation with run on timer
Typical use: For ventilation of bathrooms and toilets (overrun time regulated to DIN 18017) with normal user frequency, e.g. in apartment sectors.
Suitable units: Models ELS-VN.. -VNC or standard units with separate overrun timer.
Control: Manually, possibly via the light switch.

- Boost ventilation without run on timer
Typical use: For ventilation of kitchens as well as rooms with windows. With high user frequency in apartment houses, hotels, hostels and others.
Suitable units: All standard models ELS-V..
Control: Manually, by a switch or via light switch or automatically with a timer.

- Boost ventilation with run on time, PIR or humidity controlled
Typical use: For barrier-free automatic operation in bathrooms, toilets and kitchens as well as in rooms with windows.

- Suitable units:**
ELS-VF.. and -VP.. models

Control:
Automatic, PIR or humidity controlled ventilation without using a switch. See on page opposite for detailed information.

- Interval ventilation
Use: For ventilation of bathrooms and toilets with periodical low user frequency as for example in hotel rooms, holiday apartments and students' hostels. The adjustable interval and operation times ensure a periodical economic room ventilation when absent. Musty rooms and damage due to humidity are avoided.

Suitable units: ELS-VNC or standard models in combination with accessory ZNI.
Function: If room is not used, operation to the chosen preset time.
When operated manually (possibly switched parallel to the light) run on time takes place irrespective of chosen time.

- Time controlled ventilation

Use: Ventilation of toilets, showers, bathrooms and other applications in office and administration sector, in hostels, hospitals etc.
Control: In intervals or depending on use, via a time switch.

- Trickle and boost ventilation

Use: For ventilation of showers, bathrooms, toilets with high polluted air (e.g. in restaurants, offices).
The continuous, quiet trickle operation prevents smells, mould and too high humidity. When using the room it switches manually to high speed (general ventilation). This can also be controlled automatically by a timer during certain daytimes.
Suitable units: All models with 2 or 3 speed levels.
Control: For manual operation DSEL 2 or DSEL 3 required. For automatic operation we recommend suitable components.

■ The top solution for barrier-free automatic operation: Integrated PIR sensor.

Optimum fan control in toilets and sanitary facilities with industrial and private use for example, in hostels, hotels, offices etc.

- Helios offers the ideal solution: ELS-VP.. is fitted with a PIR as standard; the fan starts automatically when a person enters the room. The electrical connection is direct to the power supply without need for a switch.

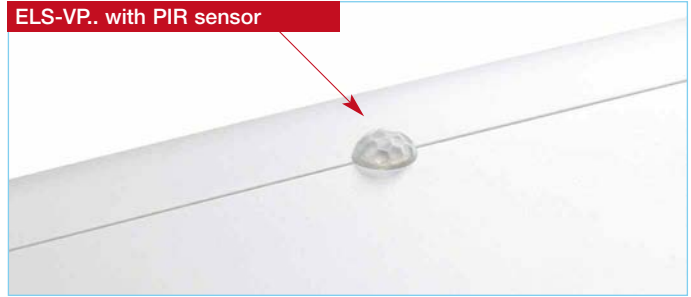
- ELS-VP.. with motion sensor ventilates automatically as required when entering the room.

- An integrated PIR sensor registers the presence of people and switches on the unit. The unit operates for 15 minutes. If a movement in the room is detected within that time, the operation time prolongs respectively.

- When leaving the room, there is a run on time of 15 minutes.

- Ideally the fan should be fitted so the movement in the room is always detected, so position is important.

Typical use: Automatic ventilation without using a switch.
Control: PIR controlled.



■ Steamed up mirrors are an indication of too high humidity, unhealthy room climate and the risk of expensive structural damage.

In a 4-person household, approx. 10-15 litres of water are created daily in the room air. This has to be extracted through ventilation.

The efficient and economical solution for this purpose is the humidity controlled units ELS-VF..

■ Progressive electronics

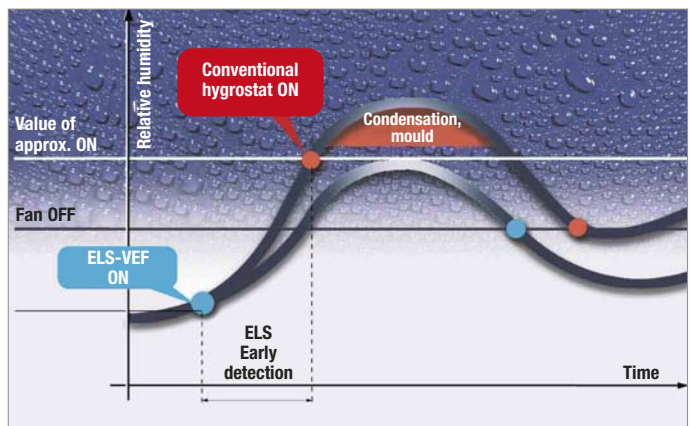
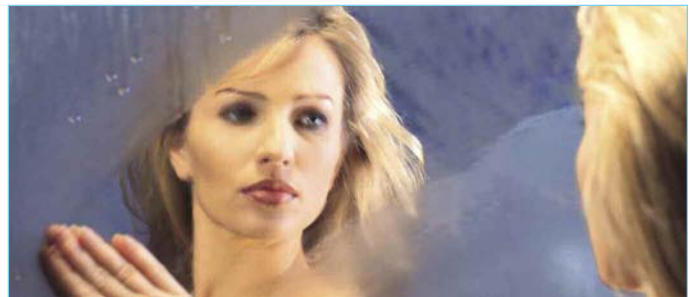
ELS-VF.. are equipped with a fully automatic, humidity dependent regulator. The microprocessor controlled electronics detect two different types of increase in humidity:

- With normal increase of the humidity (e.g. caused by washing, drying of textiles, decrease of temperature) the fan starts automatically when the limiting value of 70% relative humidity is achieved. The unit operates until the relative humidity is lowered by about 10%, at least however for 15 minutes.
- With fast increase of the humidity (e.g. caused from showering, bathing) the fan starts before the usual limiting value is achieved, to remove the excessive moisture in the room as effectively and

quickly as possible. That's how steamed up mirrors and walls are avoided. The comfortable zone in the room (40-70% rel. humidity) is quickly restored. As soon as the relative humidity is lowered by about 10%, at the earliest however after 15 minutes, the fan turns off automatically.

- With longer excessive moisture production (e.g., thunderstorm in summer, wet laundry in the room) or with inadequate air change by too small dimensioned or closed intake air openings, the fan turns off automatically after 7 hours of operation. After a rest period of 9 hours each time, the fan is periodically switched on for 10 min, until the humidity is lowered by about 10%.

- The automatic humidity control of the ELS-VF.. models are head and shoulders above a conventional hygrostat and prevent steaming up on walls, ceilings and equipment efficiently. They guarantee a comfortable climate without mould and annoying smells with a minimum of energy use.



- **Typical use:** For ventilation of humidity polluted rooms (e.g. bathroom, kitchen)
- **Control:** Barrier-free automatic operation, on the humidity levels.

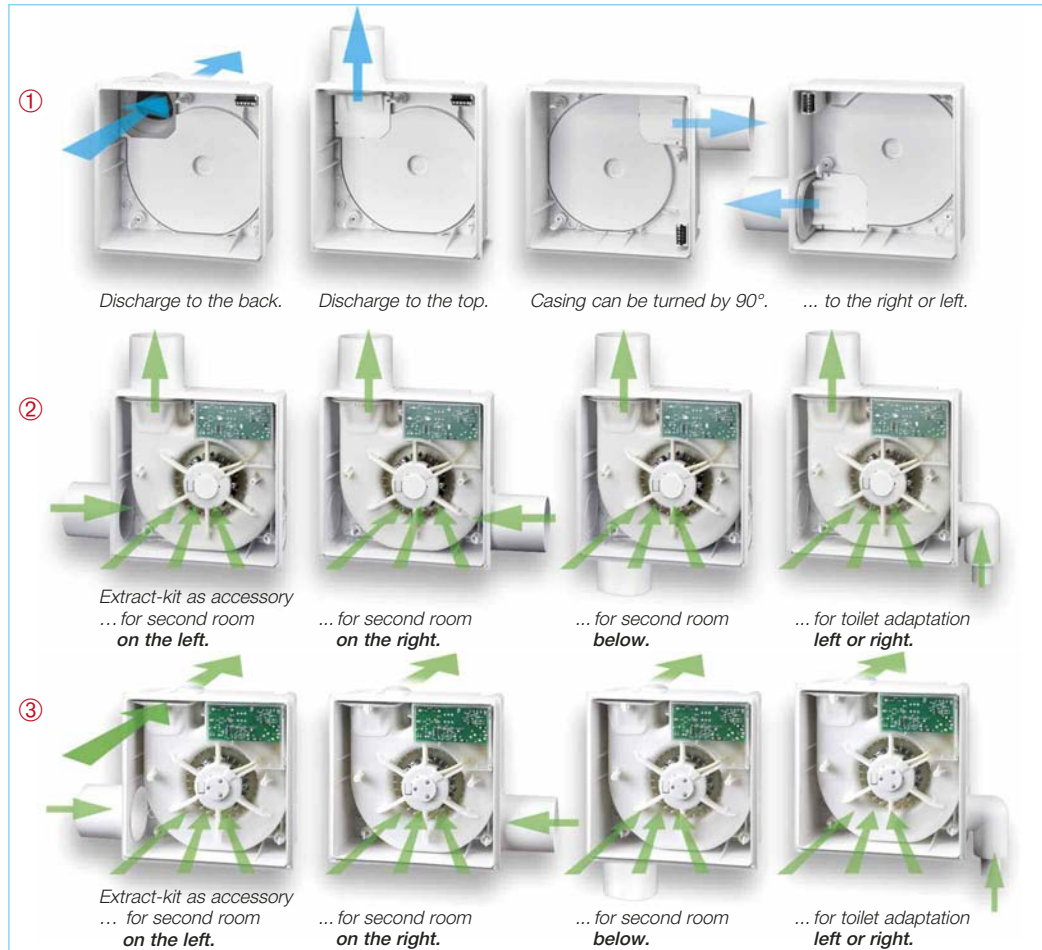
- Replacement air is necessary so that humid air can be extracted by the fan.

■ **The flush mounted casings ELS-GU and -GUBA are totally adaptable in terms of installation position and range of use.**

- The standard flush mounted casing ELS-GU and -GUBA, the flush mounted casing with fire protection shutter, is the ideal solution for many different applications.
- Whether for one and two room ventilation or for toilet seat adaptation via flushing pipe. The flush mounted installation is suitable for wall, shaft, plasterboard or ceiling.
- The discharge spigot can be positioned alternatively to the back or on top, also the casing, can be turned by 90° to the left or to the right. Simple and without tools.
- **One casing type for every installation form and every ventilation demand. This is not only practical at the building site but also makes stock keeping extremely economical.**

See accompanying examples:

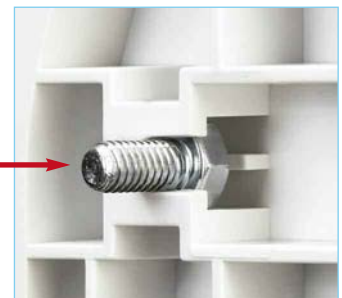
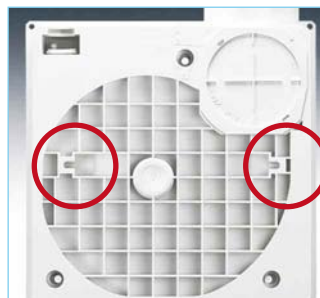
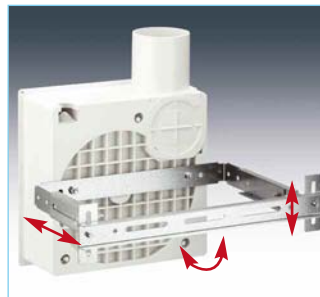
- ① **One room ventilation**
Extraction via facia
- ② **Two room ventilation or toilet seat adaptation via flushing pipe**
Discharge to the top
- ③ **Two room ventilation or toilet seat adaptation via flushing pipe**
Discharge to the back



■ **During the construction of the mono tube ventilation system from Helios professionals were at work. This can be seen above all in many clever assembly details.**

■ **Trouble-free quick installation**

- The universal mounting bracket ELS-MHU brings the necessary flexibility with installation in shafts and false ceilings.
- All flush mounted casings can be easily positioned vertically, in height or perpendicular in a few minutes. ELS-MHU is suitable for the installation of flush mounted casings with and without fire protection encasement.
- On the rear of the casing types ELS-GU and -GUBA embedded turn lock slots for hexagon or square head screws take up the mounting holder which is vertically adjustable as well as in height and depth. Alternatively there are two predetermined breaking points for direct screw connection with elements provided by customer.
- For plasterboard system integration the ELS-MB forms the ideal combination with system elements.



■ **Plasterboard adapter ELS-VA**


- Simplifies the installation of casing -GU, -GUBA in covered shafts and plasterboards. Make penetration. Mark the square opening with press pins at casing and cut it out. Connect flexible duct with discharge spigot. Make electrical connection. Insert casing with plasterboard adapter room-sided and screw in place. Everything fits in a few minutes!



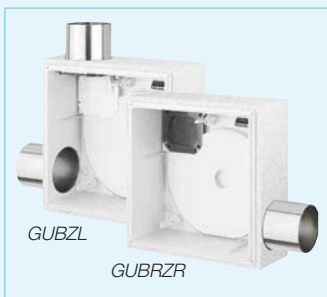
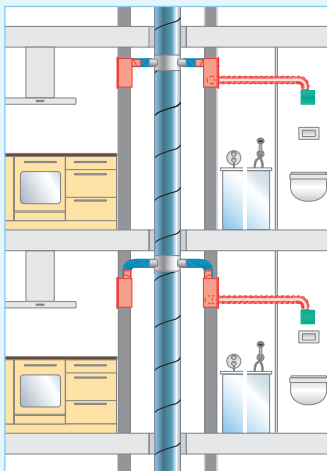
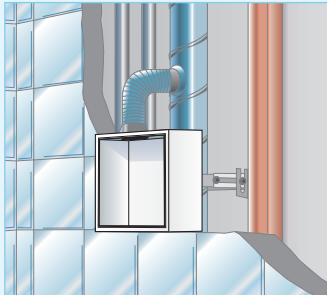
■ Information about fire protection in buildings


Planning and execution of ventilation systems has to comply with national fire protection requirements. Usually buildings with more than two storeys are subject to such requirements.

Depending on the circumstances on site, the following can be used:

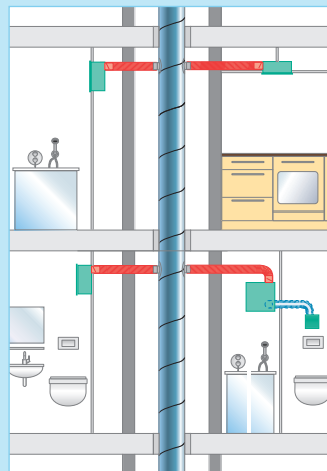
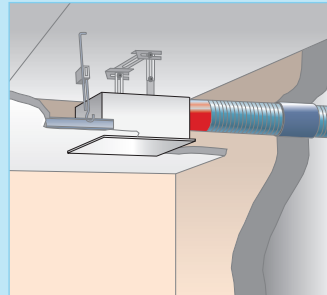
 **Flush mounted installation in fire resistant shaft (F90) or L90-ventilation duct.**

Applicable casings: every ELS-GUB.. -casing with fire protection encasement and -metal discharge spigot and automatic back draught shutter K90-18017




 **Flush- or surface mounted installation outside of fire resistant shafts (F90) or L90-ventilation ducts.**

Applicable casings: -GUBA (flush) or -GAPB (surface) with metal discharge spigot and automatic back draught shutter K90-18017. Flexible steel ducting to the main riser.

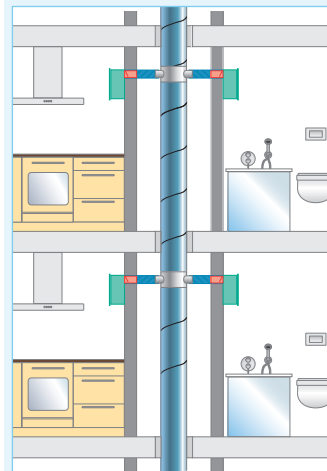
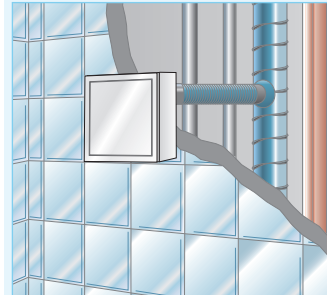


□ GUBA

The casing ELS-GUBA can be installed in any position (vertical, horizontal) or turned by 90° to the left or right by changing discharge spigot position. Also a discharge to the rear, second room connection or toilet seat adaptation is possible by means of accessories kit.


 **Surface mounted installation on walls of fire resistant shafts (F90) or L90-ventilation ducts.**

Applicable casings: ELS-GAPB casing with metal discharge spigot and automatic back draught shutter K90-18017.

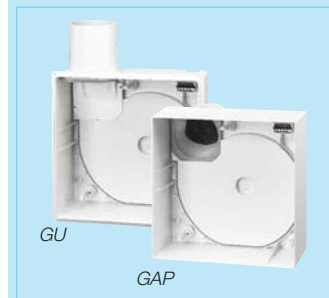
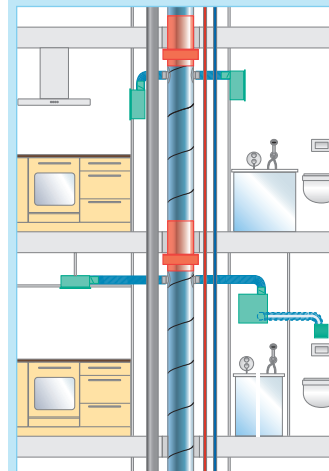
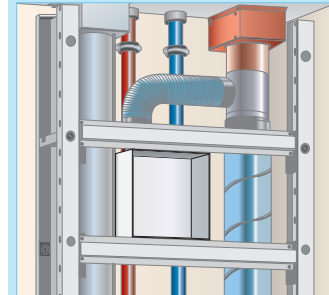


□ GAPB

The casing ELS-GAPB can be mounted by turning the discharge spigot around 360°, so that the air discharge can be positioned on top left or right and below left or right.

 **Fire protection solution with fire damper ELS-D**

Applicable casings: Universal casing without fire protection ELS-GU for flush mounted or ELS-GAP for surface mounted installation.








□ Flush mounted casing ELS-GU

ELS-GU can be used like type -GUBA and shown in detail on the page 50 in universal variety.






□ Surface mounted installation ELS-GAP

Installation and positioning like ELS-GAPB, see left.

■ ELS-casings without fire protection, for flush and surface mounted installation

with / without fire protection	Casing	Type / Specification	Application	Accessory ¹⁾	Discharge lateral, to the top, left or right	Discharge to the back by means of accessory ¹⁾	One room ventilation	Two room ventilation by means of accessory ¹⁾
 For buildings with up to 2 floors without fire protection.	 	Flush mounted casing without fire protection , with airtight backdraught shutter. Spigot lateral, to the top (as supplied), rotatable to the left or right. Changeable by means of an accessory set (-ARS, ref. no. 8185) for discharge to the back in any position. Quick plug connector for electrical connection which is removable. Made from flame retardant polymer, fire class B 2. Reinsertable cover plate. Spigot diameter 80 mm. Generally approved by the DIBt with approval No. Z-51.1-193.	For ventilation of kitchen*, bathroom or toilet, by means of accessory set also for two room ventilation of bathroom and toilet*. Flush mounted installation in wall, ceiling or shafts. Connection of up to 3 casings per floor is possible. For connection to main duct up to 2 floors without fire protection requirement. With fire protection by the use of fire damper in main duct for more than 20 floors is possible.	•	•	•	•	ELS-ZS ²⁾ Ref. No. 8186
	 	Surface mounted casing without fire protection , with airtight backdraught shutter installed in the discharge spigot, for any mounting position by 90° rotatable. With quick plug connector for electrical connection. Made from polymer in white. Discharge spigot diameter 80 mm. Generally approved by the DIBt with approval No. Z-51.1-193.	For ventilation of kitchen*, bathroom or toilet. Surface mounted installation in wall or ceiling. Connection of up to 3 casings per floor possible. For connection to main duct up to 2 floors without fire protection requirement. With fire protection by the use of fire damper in main duct for more than 20 floors is possible.	—	•	•	—	—

■ ELS-casings with fire protection shutter, for flush and surface mounted installation

Fire protection	Casings	Type / Specification	Application	Accessory ¹⁾	Discharge lateral, to the top, left or right	Discharge to the back by means of accessory ¹⁾	One room ventilation	Two room ventilation by means of accessory ¹⁾
 for positioning outside of F90 ventilation shaft	 	Flush mounted casing with fire protection shutter K 90, metal discharge spigot (to be connected to fire rated ducting) with automatic backdraught shutter and shut-off with release of fusible link . Discharge spigot lateral to the top (as supplied), rotatable to the left or right. Changeable by means of an accessory set (-ARS, ref. no. 8185) for discharge to the back in any position. Reinsertable cover plate. Spigot diameter 80 mm. Gen. approved by the DIBt with approval No. Z-51.1-193.	For ventilation of kitchens*, bathroom or toilet. By means of accessory set (-ZS, ref. no. 8186) also for two room ventilation of bathroom and toilet*. Flush mounted installation in ceiling or wall, as well as outside of K 90-shafts suitably fire rated. Connection of up to 3 casings per floor on more than 20 floors possible.	•	•	•	•	ELS-ZS ²⁾ Ref. No. 8186
	 	Surface mounted casing with fire protection shutter K 90, metal discharge spigot with automatic backdraught shutter and shut-off with release of fusible link . For any mounting position by 90° rotatable. With quick plug connector for electrical connection. Made from flame retardant polymer, fire class B 2. Discharge spigot diameter 80 mm.	For ventilation of apartment kitchens*, bathroom or toilet. Surface mounted wall or ceiling installation. Connection of up to 3 casings per floor on more than 20 floors possible. Fan unit with 100 m³/h recommended.	—	•	•	—	—

* For apartment kitchens and two room ventilation of bathroom and toilet use of fan unit with 100 m³/h recommended.



¹⁾ Details and specifications to ELS-accessories see page 56.

²⁾ Consisting of second room plenum box and spigot for second room connection, see page 56.

■ ELS flush mounted casings <u>with</u> fire protection <u>encasement</u> , for one room ventilation				Discharge to the back by means of accessory ¹⁾	Discharge to the back	One room ventilation	Extraction set for second room (accessory ¹⁾)
Fire protection	Casings	Type / Specification	Application				
<p>Casing installation in F90 ventilation shaft</p>		<p>Flush mounted casing with fire protection encasement K 90. For fitting into fire rated wall, ceilings or partitions. Metal discharge spigot with automatic backdraught shutter and shut-off with release of fusible link. Discharge spigot lateral to the top (as delivered), turnable to the left or right. Quick plug connector for electrical connection removable. Reinsertable cover for protection when plastering. Spigot diameter 80 mm. Generally app. by the DIBt with approval No. Z-51.1-193. ELS-GUB Ref. No. 8112</p>	<p>For ventilation of kitchen*, bathroom or toilet. Flush mounted installation in wall, ceiling or F90 qualified shafts suitably fire rated. Connection of up to 3 casings per floor on more than 20 floors possible.</p>	•	—	•	—
		<p>As ELS-GUB, however discharge spigot to the back, rotatable by 90° into any position. For the shortest connection to the main line. Generally approved by the DIBt with approval No. Z-51.1-193. ELS-GUBR Ref. No. 8113</p>	<p>As type ELS-GUB.</p>	—	•	•	—
■ ELS flush mounted casings <u>with</u> fire protection <u>encasement</u> , for two room ventilation							
<p>Casing installation in F90 ventilation shaft</p>		<p>Flush mounted casing with fire protection encasement K 90 and spigot for second room on the left. Discharge spigot for main room lateral, to the top (as delivered), rotatable to the left or right. Metal discharge spigot with automatic backdraught shutter and shut-off with release of fusible link. Quick plug connector for electrical connection removable. Reinsertable cover plate for protection when plastering. Spigot diameter 80 mm. Generally approved by the DIBt with approval No. Z-51.1-193. ELS-GUBZL Ref. No. 8115</p>	<p>Two room ventilation of bathroom and toilet*. Installation in wall, ceiling and F90 shafts suitably fire rated. Connection of up to 3 casings per floor on more than 20 floors possible.</p>	•	—	—	ELS-ZS Ref. No. 8186
		<p>As ELS-GUBZL, however spigot for second room on the right. Generally approved by the DIBt with approval No. Z-51.1-193. ELS-GUBZR Ref. No. 8117</p>	<p>As type ELS-GUBZL.</p>	•	—	—	ELS-ZS Ref. No. 8186
		<p>As ELS-GUBZL, however discharge spigot to the back and rotatable by 90° into any position. Generally approved by the DIBt with approval No. Z-51.1-193. ELS-GUBRZL Ref. No. 8116</p>	<p>As type ELS-GUBZL.</p>	—	•	—	ELS-ZS Ref. No. 8186
		<p>As ELS-GUBZR, however discharge spigot to the back and rotatable by 90° into any position ELS-GUBRZR Ref. No. 8118</p>	<p>As type ELS-GUBZL.</p>	—	•	—	ELS-ZS Ref. No. 8186

* For apartment kitchens and two room ventilation of bathroom and toilet use of fan unit with 100 m³/h recommended.

¹⁾ Details and specifications to ELS-accessories see page 56.

60 m ³ /h		60 m ³ /h air flow volume For bathroom or toilet					
Type	Description	Application	Accessories	DSEL 2 No. 1306 2 speed on/off switch	ZT No. 1277 Overrun timer with variable run on time	ZNE No. 0342 ZNI No. 0343 Overrun timer	ZV Nr. 1279 Electronic overrun timer
ELS-V 60 Ref. No. 8131 	Fan units with 60 m³/h air flow volume . Delivered complete with flat facia (white) and ultraSilence® technology. With permanent filter and filter control as standard. Integrated quick plug connector for electrical connection. Insulation class II, protection to IP 55, for installation in zone 1 of bathrooms. Maintenance free, energy saving ball bearing motor 230 V / 1 ph. / 50 Hz / 18 W. Sound levels: sound power 39 dB(A) ¹⁾ , sound pressure 35 dB(A) ^{*1)} . Generally approved by the DIBT with approval No. Z-51.1-193.	For ventilation of shower, bathroom or toilet. Control manually via the light switch. The overrun which is necessary in windowless rooms is to be provided by means of an overrun timer (accessory).	—	•	•	•	
ELS-VN 60 Ref. No. 8137	As ELS-V 60, with added built-in overrun timer , run on time approx. 15 min., delayed start approx. 45 sec. (or none by manual adjustment).	For ventilation of rooms as previously mentioned. With overrun function for windowless rooms. Control via the light switch.	—	—	—	—	
ELS-VNC 60 Ref. No. 8143	As ELS-V 60, with added adjustable overrun and interval operation . Delayed start of 0 or 45 sec., run on time 6, 10, 15 or 21 min. and intervals of 4, 8, 12 or 24 hours manually adjustable.	Automatic, periodical ventilation of rooms with low user frequency (hotel, holiday homes). Individually adjustable run over times increase the comfort in the private area.	—	—	—	—	
ELS-VP 60 Ref. No. 8149	As ELS-V 60, with added integrated motion sensor PIR , ventilates automatically when entering the room. Run on time approx. 15 min. Electrical connection is direct to the power supply without need for a switch.	Automatic, PIR controlled ventilation without the need of a switch. Automatically switches on with room occupancy. See page 49 for details.	—	—	—	—	
ELS-VF 60 Ref. No. 8161	As ELS-V 60, with added built-in electronic dynamic humidity sensor . With manual adjustable set point humidity level, the fan runs automatically until the humidity is back to normal. Run on time approx. 15 min. and delayed start approx. 45 sec. when switched on/off manually.	Ideally for the prevention of damage to the building due to humidity and mould in small, high humidity rooms. Automatically switches on with raised humidity. See page 49 for details.	—	—	—	—	
60/35 m ³ /h		2 speeds 60/35 m ³ /h For bathroom or toilet					
ELS-V 60/35 Ref. No. 8133 	Fan units with 2 speeds (60/35 m³/h) for general and trickle and boost ventilation . Delivered complete with flat facia (white) and ultraSilence® technology. With permanent filter and dirty filter indicator as standard. Integrated quick plug connector for electrical connection. 230 V / 1 ph. / 50 Hz / 18/9 W. Sound levels: sound power 39/30 dB(A) ¹⁾ , sound pressure 35/26 dB(A) ^{*1)} . Otherwise as ELS-V 60.	For ventilation of small rooms (shower, bathroom, toilet) with high polluted air. The low speed can be connected for continuous trickle operation. The high speed is then controlled manually via the light switch. Manual control of both speed steps with switch DSEL 2 possible. Run on time by using available accessory.	•	•	—	•	
ELS-VN 60/35 Ref. No. 8139	As ELS-V 60/35, with added built-in overrun timer , run on time approx. 15 min., delayed start approx. 45 sec. (or none by mechanical adjustment).	As ELS-V 60/35. The built-in overrun timer causes extended operation on high performance level after manual switching off.	•	—	—	—	
ELS-VF 60/35 Ref. No. 8163	As ELS-V 60/35, however with built-in electronic dynamic humidity sensor . Trickle ventilation at continuous operation. With achievement of the adjusted humidity level, the fan runs automatically on high speed until the room humidity is back to normal. High air flow with run on time approx. 15 min., delayed start approx. 45 sec. when switched on/off manually.	Ideally for the prevention of damage caused by humidity and mould in small, high humidity rooms. Automatic operation with raised humidity. See p. 49. Continuous trickle operation on low speed. High speed is activated with raised humidity.	•	—	—	—	

* with A_L = 10 m² equivalent absorption surface in combination with casing type ELS-GU, discharge lateral. To DIN 18017-3:2009-09, digit 7.2.4 footnote 5.

100 m ³ /h		100 m³/h air flow volume For bathroom and toilet or kitchen		Accessory	DSEL 2 No. 1306 2 speed on/off switch	ZT No. 1277 Overrun timer with variable run on timer	ZNE No. 0342 ZNI No. 0343 Overrun timer	ZV Nr. 1279 Electronic overrun timer
Type		Description	Application					
ELS-V 100	Ref. No. 8132	<p>Fan units with 100 m³/h air flow volume. Delivered complete with flat facia (white) and ultraSilence® technology. With permanent filter and dirty filter indicator as standard. Integrated quick plug connector for electrical connection. Insulation class II, protection to IP 55, for installation in zone 1 of bathrooms. Maintenance free, energy saving ball bearing motor 230 V / 1 ph. / 50 Hz / 34 W. Sound levels: sound power 51 dB(A)¹⁾, sound pressure 47 dB(A)^{*1)}. Generally approved by the DIBt with approval No. Z-51.1-193.</p>	Simultaneous ventilation of bathroom and toilet (flush mounted). Ventilation of kitchen apartments. Overrun function by accessories possible.	—	•	•	•	
ELS-VN 100	Ref. No. 8138	As ELS-V 100, with added built-in overrun timer , run on time approx. 15 min., delayed start approx. 45 sec. (or none by manual adjustment).	Simultaneous ventilation of bathroom and toilet. Ventilation of kitchen apartments.	—	—	—	—	
ELS-VNC 100	Ref. No. 8144	As ELS-V 100, with added adjustable overrun and interval operation . Delayed start of 0 or 45 sec., run on time 6, 10, 15 or 21 min. and intervals of 4, 8, 12 or 24 hours manually adjustable.	Automatic, periodical ventilation of rooms (also covering 2 room ventilation) with low user frequency (hotel, holiday homes). Individually adjustable run over times increase the comfort in the private area.	—	—	—	—	
ELS-VP 100	Ref. No. 8150	As ELS-V 100, with added integrated motion sensor ventilates automatically when entering the room. Run on time approx. 15 min. Electrical connection is direct to the power supply without need for a switch.	Automatic, PIR controlled ventilation without the need of a switch. Automatically switched on with room occupancy. See page 49 for details.	—	—	—	—	
100/60/35 m ³ /h		2, 3 speeds 100/60 m³/h, 100/60/35 m³/h For bathroom and toilet or kitchen						
ELS-VN 100/60	No. 8141	<p>Fan units with 2 speeds (100/60 m³/h) for trickle and boost ventilation and built-in overrun timer. Run on time approx. 15 min., delayed start approx. 45 sec. (or none by mechanical adjustment). Delivered complete with flat facia (white) and ultraSilence® technology. With permanent filter and dirty filter indicator as standard. 230 V / 1 ph. / 50 Hz / 18/9 W. Sound levels: sound power 51/39 dB(A)¹⁾, sound pressure 47/35 dB(A)^{*1)}. Otherwise as ELS-V 100.</p>	Simultaneous ventilation of bathroom and toilet (flush mounted). Ventilation of kitchen apartments. The low speed can be connected for continuous trickle operation. The high speed is controlled manually via the light switch. Manual controlling of both speed steps with switch DSEL 2 (accessory) possible.	•	—	—	—	
ELS-V 100/60/35	No. 8136	As ELS-V 100, with 3 speeds (100/60/35 m³/h) for trickle and boost ventilation . 230 V / 1 ph. / 50 Hz / 34/18/9 W. Sound levels: sound power 51/39/30 dB(A) ¹⁾ , sound pressure 47/35/26 dB(A) ^{*1)} .	The slow and medium speed can be connected for continuous operation and be switched by means of DSEL 2. Manual operation by means of DSEL 3.	• or DSEL 3 Ref. No. 1611	•	—	•	
ELS-VF 100/60/35	No. 8166	Fan units with 3 speeds (100/60/35 m³/h) for trickle and boost ventilation and with built-in electronic dynamic humidity sensor . 230 V / 1 ph. / 50 Hz / 34/18/9 W. Sound levels: sound power 51/39/30 dB(A) ¹⁾ , sound pressure 47/35/26 dB(A) ^{*1)} . Otherwise as ELS-VF 60/35.	Ideal for the prevention of mould damage. For continuous operation the low or middle speed can be switched with DSEL 2. High speed is automatically activated with raised humidity. Manual controlling of 3 speed steps with DSEL 3.	• or DSEL 3 Ref. No. 1611	—	—	—	

* with A₁ = 10 m² equivalent absorption surface in combination with casing type ELS-GU, discharge lateral. To DIN 18017-3:2009-09, digit 7.2.4 footnote 5.

Adaption kit for discharge to the rear

ELS-ARS Ref. No. 8185

For discharge to the rear with all flush mounted casings ELS-GU and -GUBA without fire protection encasement. Simply fit the diverter into the discharge of the fan unit to ensure a proper air guide.

ELS-ARS

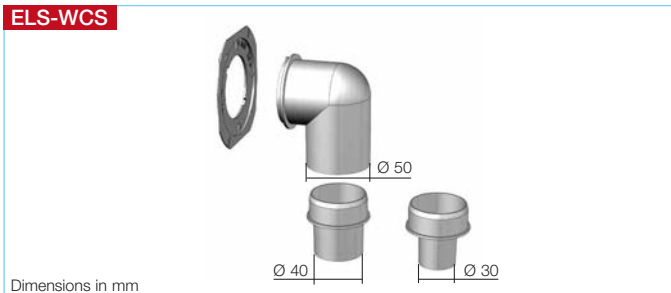


Toilet extraction kit

ELS-WCS Ref. No. 8191

WC-Kit for connection of toilet seat extraction system in combination with room ventilation; for casing types ELS-GU, -GUBA. The connection between casing and flushing tank tube is carried out with customary plastic tubes. Scope of delivery: Cap, bend 90°, stepped spigot \varnothing 40 and 30 mm.

ELS-WCS



Dimensions in mm

Second room kit

ELS-ZS Ref. No. 8186

Inlet air plenum box for flush mounted installation for connection with all casings for second room connection ELS-GU... Design awarded fascia in white, with covered front and air inlet on all sides. Integrated, easy accessible air filter. Including second room spigot for casing ELS-GU and -GUBA.

ELS-ZS



Dimensions in mm

ELS-ZAS



Dimensions in mm

Second room spigot

ELS-ZAS Ref. No. 8184

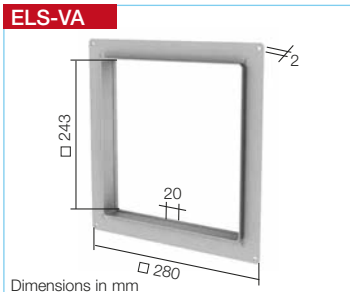
Inserting spigot for casing types ELS-GU and -GUBA. For connection of a second room ventilation on site. Nom. dia. 75/80 mm.

Plasterboard adapter

ELS-VA Ref. No. 8189

Makes room-sided casing insertion and installation for flush mounted ELS casings in covered shafts and plasterboards possible. The adapter is bolted with the casing and its frame is fastened with screws to the plasterboard.

ELS-VA



Dimensions in mm

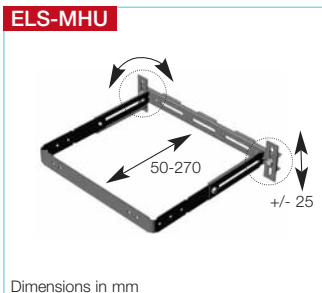


Universal mounting bracket

ELS-MHU Ref. No. 8187

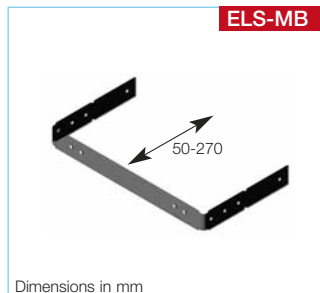
Principally for flush mounted casing installation in shafts, especially with casings with fire protection encasement. For fixing on ceilings or walls. Adjustable vertically, in height and perpendicular. Suitable for all flush mounted casings.

ELS-MHU



Dimensions in mm

ELS-MB



Dimensions in mm

Mounting holder

ELS-MB Ref. No. 8188

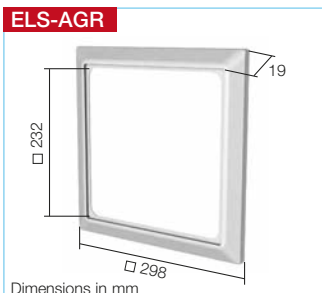
For integration of flush mounted casings in plasterboard systems in connection with system elements of plasterboard supplier. The mounting holder is simply fixed with hexagon or square head screws to the embedded turn lock slots on the back side of the ELS casing.

Spacer frame

ELS-AGR Ref. No. 8193

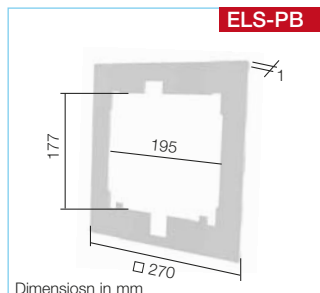
To be fixed between wall and ELS fascia, if the flush mounted casing protrudes past the plaster. Covers up to 15 mm.

ELS-AGR



Dimensions in mm

ELS-PB



Dimensions in mm

Plasterboard cover

ELS-PB Ref. No. 8194

To cover gaps of unclean plastered, tiled or oversized casing openings, which are not completely covered by the ELS fascia. The plasterboard cover is simply fixed between wall/ceiling and ELS fascia.

Fire protection

The transfer of fire and smoke to other floor levels must be prevented when buildings are higher than two storeys with certified fire protection elements, classification K 90-18017.

Depending on the circumstances on site, the following can be used:

- ELS-casing with fire protection in fire resistant shaft (F90) or L90 ventilation duct
- ELS-GUBA, -GAPB casing with integrated fire protection shutter for casing positioning outside of fire resistant shaft (F90) or L90 ventilation duct. Connection to main duct with flexible steel duct.

- Fire damper ELS-D. For installation in ventilation main duct Approved for use in ventilation shafts and within mixed service shafts (even with flammable services), only needs to be covered with a 12.5 mm plasterboard. All ELS fans, connected with flexible aluminium ducting do not need any fire protection classifications.

ELS-D Z-41.3-368



Fire damper ELS-D

When using this barrier all other component parts do not need any fire protection classification. The universal applicable casing types ELS-GU and -GAP can be connected. The low cost and

assembly-friendly flexible aluminium ducting can be used for the connections. Detailed information see page 394.

ND mm main duct	100	125	140	160	180	200
Type	ELS-D.. 100	125	140	160	180	200
Ref. No.	0270	0185	0186	0187	0188	0271

Air intake elements

- Installation in wall openings



Passive ventilation units and thermostatic supply valves for universal use. For the required replacement air. Detailed information see product pages air intake elements.

		ø 80		ø 100		ø 160	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Automatic passive ventilation unit – Automatically temperature controlled, using a thermostatic valve, built-in attenuator and outside grille as standard							
ZLA 80	0214	ZLA 100	0215	ZLA 160	0216		
Manual passive ventilation unit – Manually adjustable by a four step ratchet mechanism using a pull cord, built-in attenuator and outside grille as standard							
		ZLE 100	0079				
Thermostatic supply valves – For installation in existing ventilation openings							
ZTV 80	0078	ZTV 100	0073	ZTV 160	0074		

- Installation in window frames or in roller blind cabinets



Air intake element with air flow controller and limiter. Ideal for refit applications as well as new buildings.

V̇					
m³/h	Type	Ref. No.	Type	Ref. No.	Type
Air intake element to install in window frames – with air flow controller and limiter					
30	ALEF 30	2100	ALEFS 30	2102	As ALEF, but additionally acoustically lined
45	ALEF 45	2101	ALEFS 45	2103	
Air intake element for installation in window frame – humidity controlled, with air flow controller and limiter					
7/40	ALEF Hygro 6/45	2056	ALEFS Hygro 6/45	2057	As ALEF Hygro, but additionally acoustically lined

Door grilles



Door grilles

Discreet, non vision door transfer grille made from impact resistant polymer, to be installed into doors. Detailed information see product page air grilles.

LTGW Ref. No. 0246
Made from white polymer.

LTGB Ref. No. 0247
Made from brown polymer.

Spare filter



Spare filter

From regenerable synthetic fibre.

ELF/ELS Ref. No. 8190
Permanent filter (dishwasher resistant) for fan units ELS-V.., contents: 2 pieces

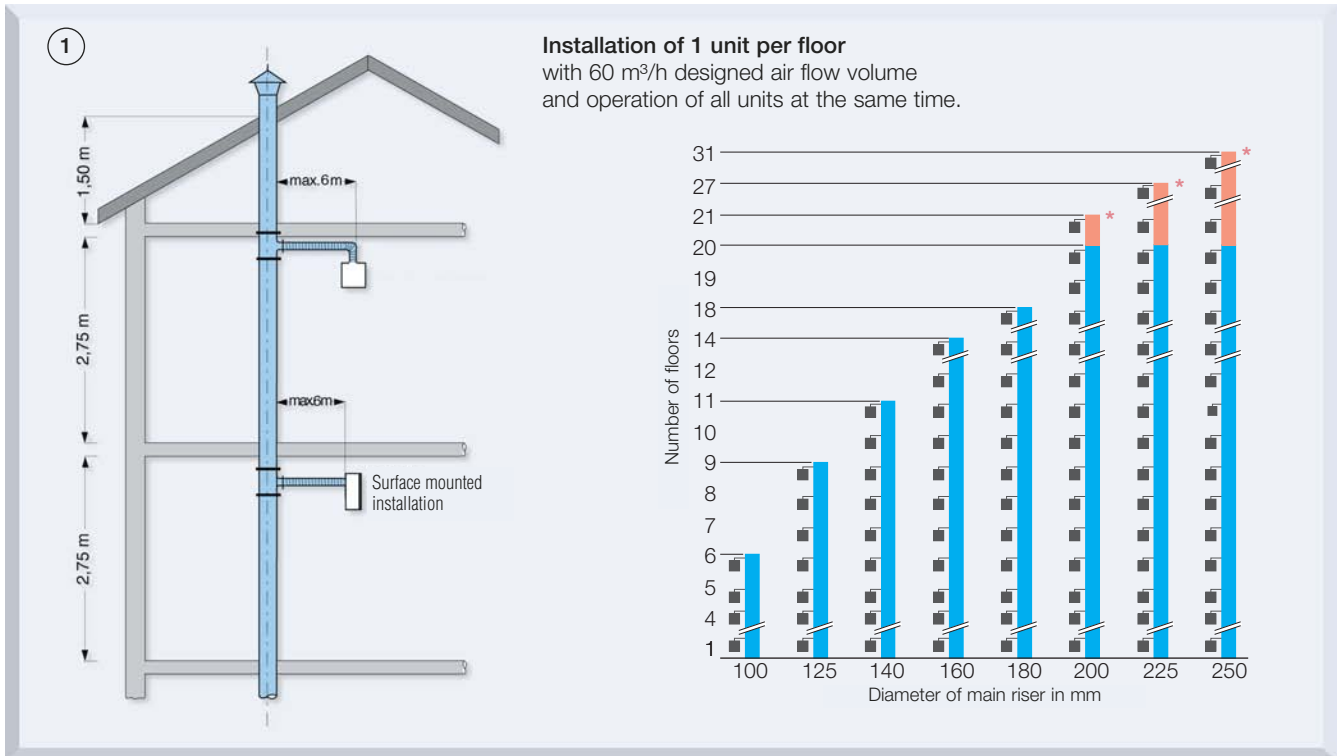
ELF-ZS Ref. No. 0557
For second room plenum box ELS-ZS, contents: 5 pieces

Information	Page
Dimensions, detailed technical information as well as further sizes:	
Air grilles	361 on
Air intake elements	384 on
Fire prot. elements for use in multi-storey constr.	388 on
Controller and switches	397 on

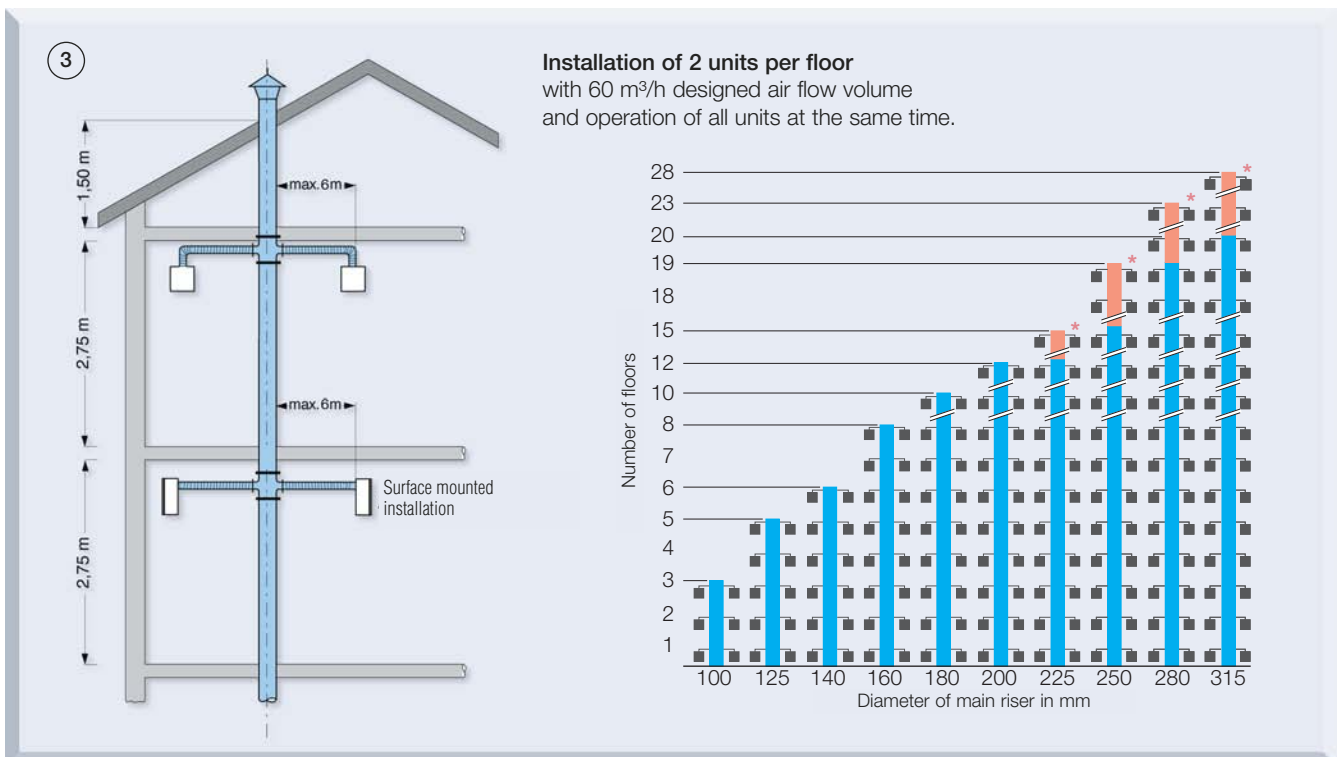
For easy design, the regulations from DIN 18017-3 have been integrated in the diagrams below.

60 m³/h Bathroom or toilets

1 unit per floor



2 units per floor



Assuming a room height of 2.75 m, a straight ducting without bends, a ducting length of max. 1.5 m from last unit to air extract above the roof as well as max. 60 Pa between ventilated room and exhaust opening, the required main riser diameter can be read from above' diagram.

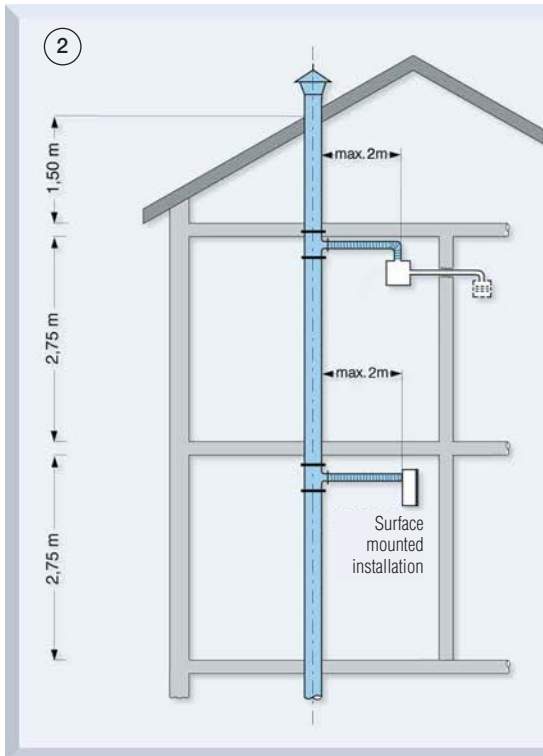
Copies of approvals are available on request.
 Approval No. Z-51.1-193.

* if all fans operate the same time some noise increase may be observed when operating in the red zone

They are valid for a designed air flow volume of 60 or 100 m³/h per unit and operation of all units at the same time.

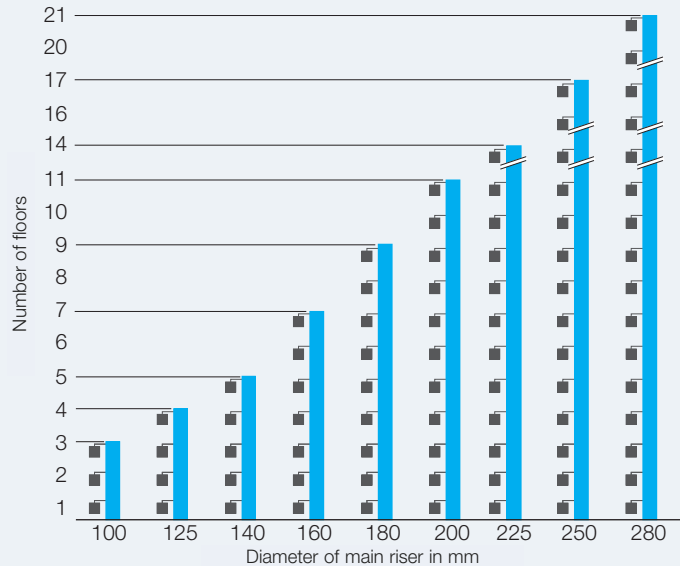
100 m³/h One and two room ventilation

1 unit per floor (possibly with extraction for second room)

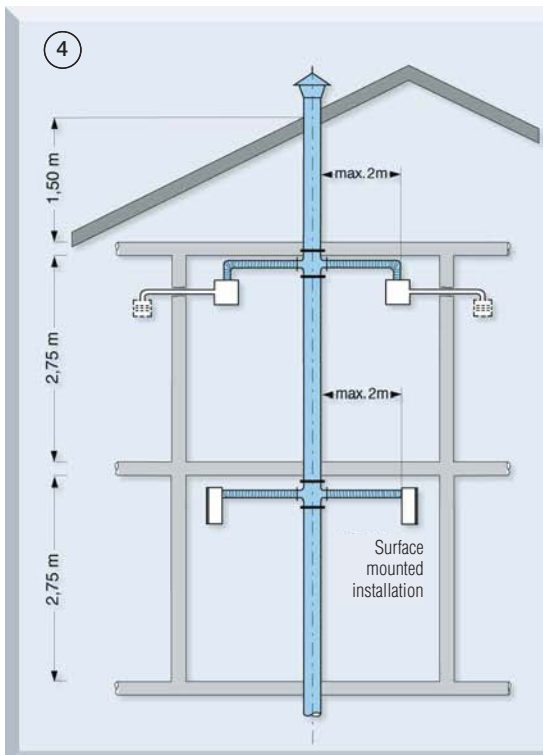


Installation of 1 unit per floor

with 100 m³/h designed air flow volume and operation of all units at the same time. (Volume e.g. = 100 m³/h. Second room ventilation with one unit = bathroom 60 m³/h, toilet 40 m³/h).

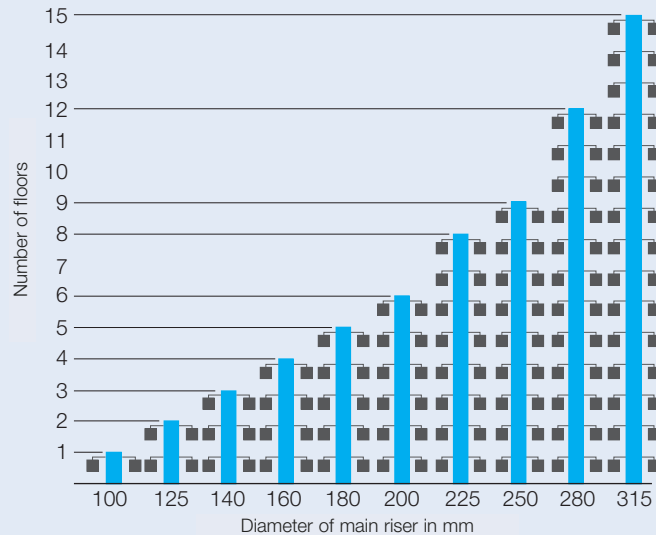


2 units per floor (possibly with extraction for second room)



Installation of 2 units per floor

with 100 m³/h designed air flow volume and operation of all units at the same time. (Volume e.g. = 100 m³/h. Second room ventilation with one unit = bathroom 60 m³/h, toilet 40 m³/h).



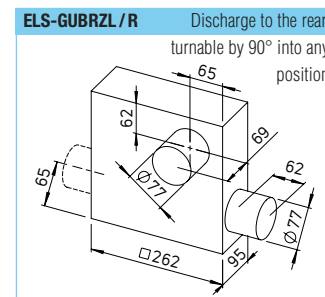
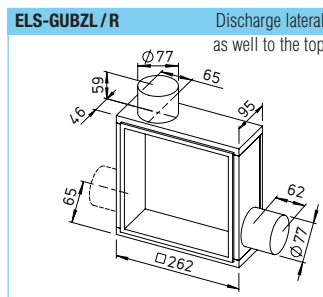
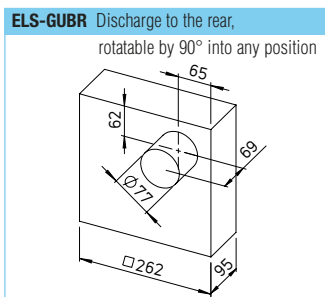
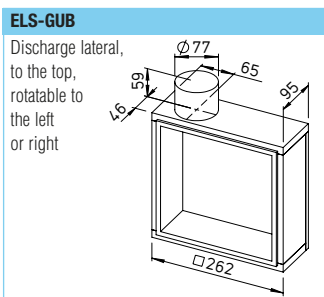
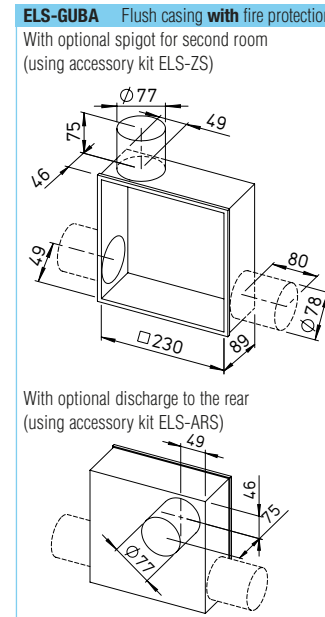
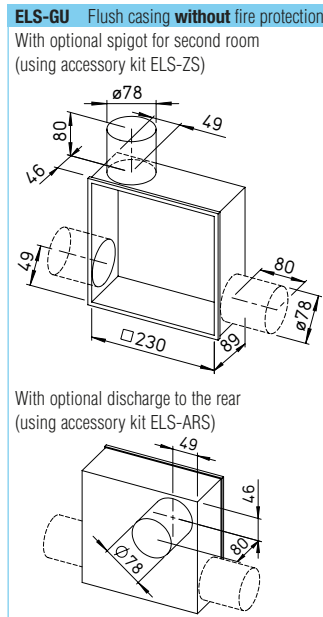
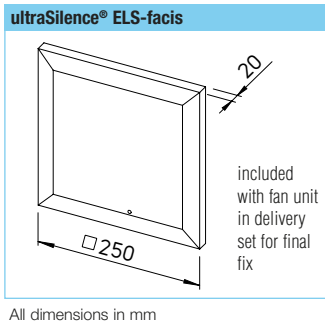
Example 1:
 Type of room: bathroom/toilet
 $\dot{V} = 60 \text{ m}^3/\text{h}$
 Units per floor: 1
 Floor levels: 9
 Main riser diameter: ?

 According to diagram ②
 Main riser diameter: 125 mm

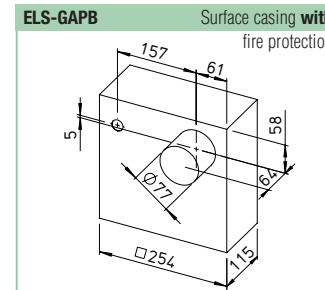
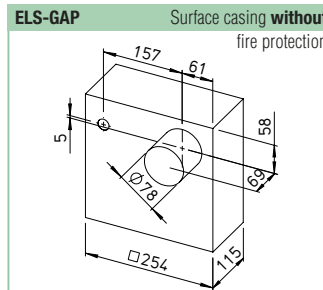
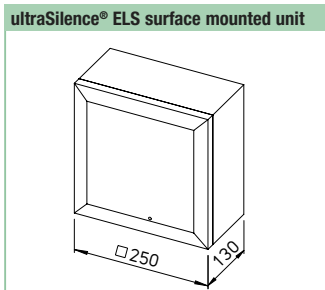
Example 2:
 Type of room: bathroom separated toilet with one unit or kitchen ventilation
 $\dot{V} = 100 \text{ m}^3/\text{h}$ (bathroom 60 m³/h and toilet 40 m³/h)
 Units per floor: 2
 Floor levels: 6
 Main riser diameter: ?

 According to diagram ④
 Main riser diameter: 200 mm

ELS-facia and flush mounted casing



Surface mounted unit and surface mounted casing



Technical data	Fan units													
	ELS	-V 60	-VN 60	-VNC 60	-VP 60	-VF 60	-V 60/35	-VN 60/35	-VF 60/35	-V 100	-VN 100	-VNC 100	-VP 100	-VN 100/60
Ref. No.	8131	8137	8143	8149	8161	8133	8139	8163	8132	8138	8144	8150	8141	8136
Run on time, min.	—	15	6, 10, 15, 21	15	15	—	15	15	—	15	6, 10, 15, 21	15	15	—
Interval operation, hrs.	—	—	4, 8, 12, 24	—	—	—	—	—	—	—	4, 8, 12, 24	—	—	—
Air flow volume (FID) m³/h	60	60	60	60	60	60/35	60/35	60/35	100	100	100	100	100/60	100/60/35
Power consumption W	18	18	18	18	18	18/9	18/9	18/9	34	34	34	34	34/18	34/18/9
Sound pressure level dB(A) at 10 m² equivalent absorption														
flush mounted ¹⁾	35	35	35	35	35	35/26	35/26	35/26	47	47	47	47	47/35	47/35/26
surface mounted	39	39	39	39	39	39/30	39/30	39/30	51	51	51	51	51/39	51/39/30
Sound pressure level L _{wa} ca. dB(A)														
flush mounted ¹⁾	39	39	39	39	39	39/30	39/30	39/30	51	51	51	51	51/39	51/39/30
surface mounted	43	43	43	43	43	43/34	43/34	43/34	55	55	55	55	55/43	55/43/34
Electric. connection: 230 V, 1 ph., 50 Hz	NYM-O	NYM-O	NYM-O	NYM-O	NYM-O	NYM-O	NYM-O	NYM-O	NYM-O	NYM-O	NYM-O	NYM-O	NYM-O	NYM-O
Electrical power supply NYM-O in mm²	2 x 1.5	3 x 1.5	3 x 1.5	2 x 1.5	3 x 1.5	3 x 1.5	4 x 1.5	4 x 1.5	2 x 1.5	3 x 1.5	3 x 1.5	2 x 1.5	4 x 1.5	4 x 1.5
Protection class II without PE			4 x 1.5*		4 x 1.5*			5 x 1.5*			4 x 1.5*			
Wiring diagram No.	SS-869	SS-875	SS-881	SS-887	SS-881	SS-871	SS-877	SS-883	SS-870	SS-876	SS-882	SS-887	SS-879	SS-874

All power and sound levels statements to DIN 24163, DIN 24166, DIN 45635, DIN 44974:

¹⁾ in combination with casing type ELS-GU, discharge on the side.

* for deactivation of automatic function.

Central Ventilation System to DIN 18017-3.

The unique Heliös conception eliminates all disadvantages, which were associated so far with central ventilation systems in multi-storey building.

- Humid, polluted air is extracted -adjusted on individual user requirements. At the same time the pressure-controlled regulation integrated in the fan guarantees that a given negative pressure is continually maintained, so that the scheduled air flow volume remains unchanged in all other rooms.

- Energy-saving EC-technology with highest efficiency, also at controlled operation, and up to 50% saving of energy in comparison with conventional motors.

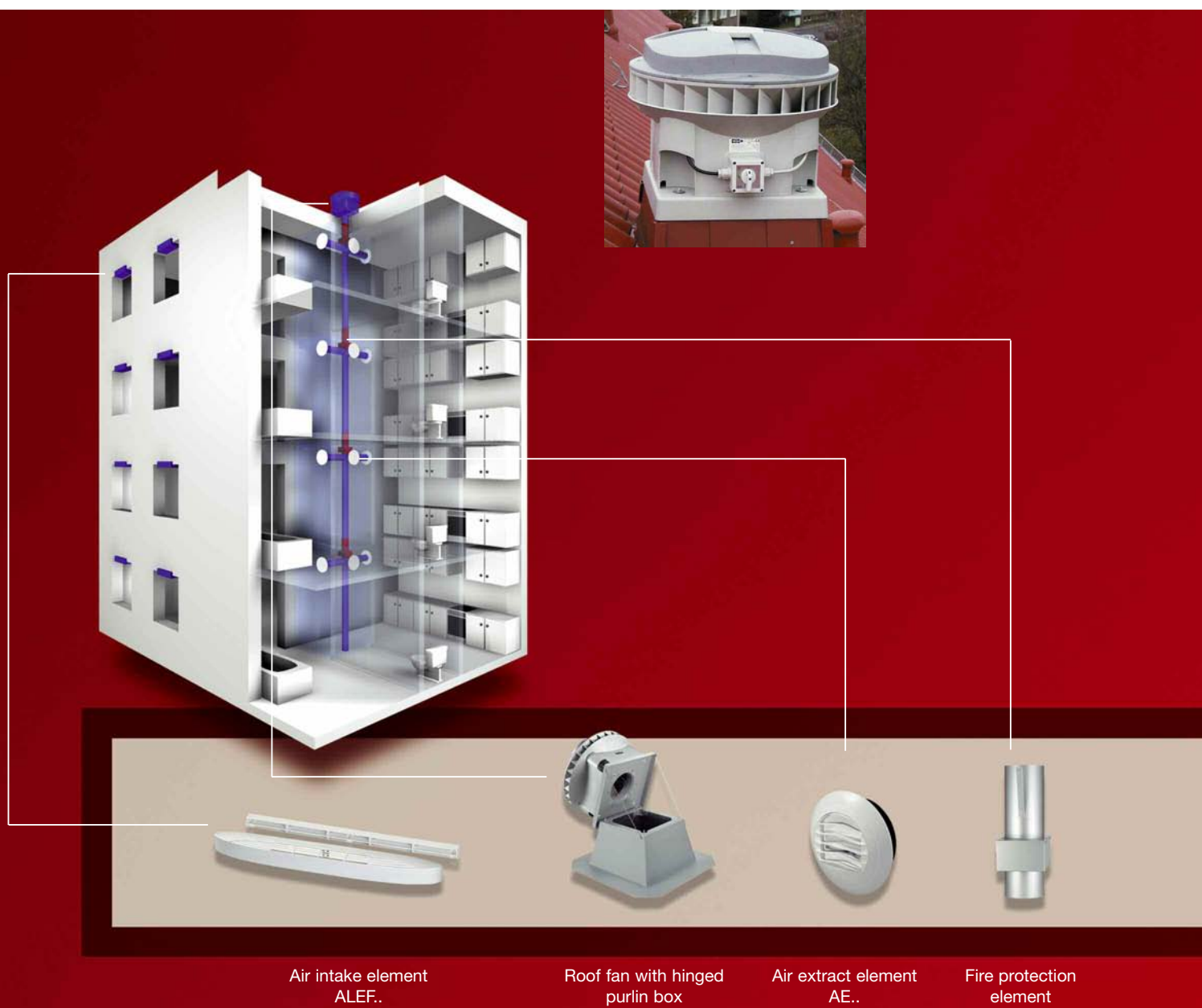
System description

Extract air via central fan, which is connected to the central ventilation shaft. The ventilation of used air from bathrooms and kitchen takes place via extract elements AE with demand-oriented function (see extract elements, page 394, 395)

Draught-free outside air is supplied to living- and bedrooms via automatic operated elements for window or wall installation (see page 384 on).

Control – automatic, stepless power adjustment through integrated pressure sensor.

Fire protection – to prevent the spread of fire between floors the fire protection element should be used. See product page 378.



Air intake element
ALEF..

Roof fan with hinged
purlin box

Air extract element
AE..

Fire protection
element

■ Central Ventilation System ZLS (multi-storey)

Central ventilation systems in multi-storey buildings have a roof fan which extracts air by a shared air discharge duct (main duct) and special air extract elements from the connected rooms of the apartments (generally kitchen, bathroom/toilet).

Basically central ventilation systems work with negative pressure in the extraction duct system.

The extract air flow rate is usually implemented as a function of the time or other set-points (e.g. room humidity). By the differential pressure produced in the system outside air flows in via outside air elements into the apartments.

According to DIN 1946-6 central ventilation systems are to be constantly operated.

In DIN 18017 it is differentiated between two basic central ventilation systems:

1. Central Ventilation Systems with fixed air flow rates which are only adjustable together.

Ventilation systems, which are predominantly operated with a constant total air flow rate at the same time, i.e. with trickle ventilation and during load peaks (in the morning, at noon, in the evening) with increased boost ventilation, in all connected apartments. This is carried out through fans with two speeds. This solution does not offer a possibility to adjust the air flow rate to the individual needs of the users.

2. Central Ventilation Systems with adjustable air flow rates of each apartment

The boost ventilation occurs coordinated with individual needs of the user or room requirements. Innovative air extract elements make a trickle-/boost ventilation possible e.g. in combination with the light switch or room humidity as reference. To avoid interaction with other users with the switching of trickle to boost ventilation and vice versa, it is controlled with steady differential pressure by these systems.

■ Functional principle (pic.1)

The air flow rate of the complete system increases during boost ventilation. Thus the working point shifts on the performance curve of the fan from B1 to B1'. By accompanying pressure drop the pressure sensor releases an electrical signal, which increases the operating voltage and thus the speed of the fan until the pressure setpoint is reached again (B2).

The pressure measuring point should normally be placed in the main duct, however can lie also directly below the central fan in simplified terms.

ZLS-DVEC was tested as airflow controlled extract air system for the multi-storey building on ventilation parameters and the electrical power requirement by IEMB¹⁾.

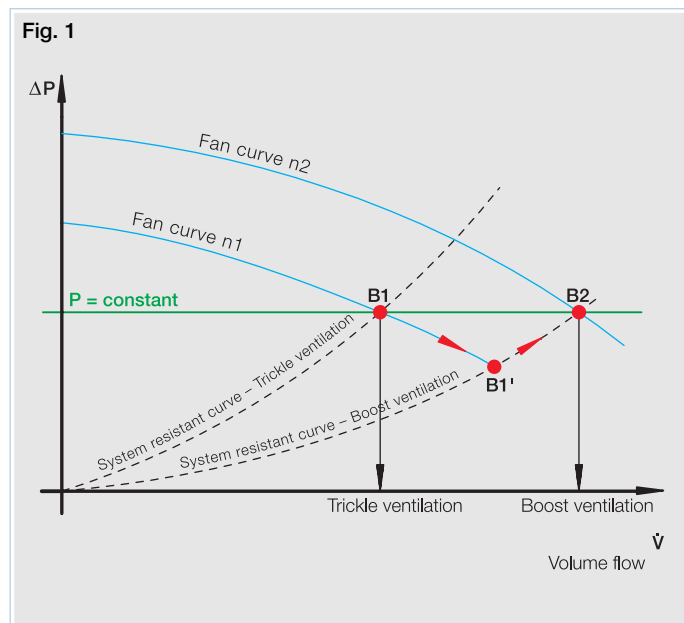
The result was a specific power consumption of the complete system of $p_v = 0.12$ to 0.16 W/(m³/h). Also, the best values were achieved in most frequently operating set-up 100%-trickle ventilation with 50% trickle-/boost ventilation. The realizable target was determined with 0,1 to 0.15 W/(m³/h).

■ ZLS-DVEC System components

The saving of energy is the main feature.

The most important part is the roof fan (Type DVEC) with EC-technology. This fan is equipped with a DC motor, which also shows a very high efficiency in the control mode (see diagram on page 63). The current consumption reduces up to 50 % in comparison with conventional motors. Also, the EC motor has a perfect, stepless control characteristic. This leads to a substantial saving, which quickly pays off during a continuous 24 h operation (the whole year).

The fan with the integrated pressure control adjusts optimally balancing negative pressure to the varying air flow rates of the system. Also weather-related influences (e.g. wind load) are equalized by the central ventilation system ZLS from Helios.



■ Operating state of the system

The operating state of the system can be inspected or changed if necessary via PC or operating terminal.

ZLS-DVEC can be integrated in current building control systems which brings crucial advantages during the control of operation

- The integrated electronics allows an exact programming and through this a perfect adjustment of the working point to the interests of system characteristics.

Highlights of the ZLS-system:

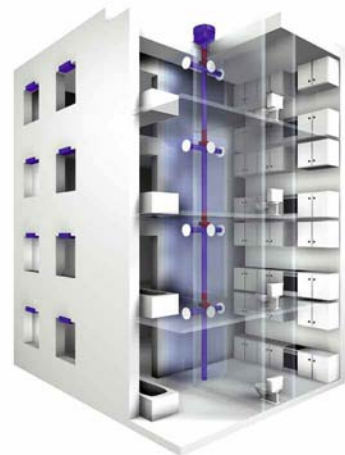
- Air flow rates as needed..
- Trickle-, boost-, and humidity controlled ventilation.
- Complete system with minimised operating expenses.
- Simple adjustment and adaptation to the system.
- Protection of the building fabric through controlled ventilation.
- Thermal insulation is achieved.
- Capable of being integrated in building control systems.

Intelligent system accessories round the program off.

Special designed air extract elements permit the functions trickle- and boost ventilation as well as humidity controlled air flow rate. Through this the specifications are optimally fulfilled with heat insulation, comfort and building fabric as described in point 2.

Without supply air no extract air

Air intake elements guarantee that enough fresh air can flow in through the building shell.



¹⁾ Institute for preservation and modernization of buildings TU Berlin, department of energy conservation and emission prevention / building physics.

■ The EC motor – electronic commutated

The EC motor was specifically designed for operation in ventilation and air conditioning systems. On account of the high efficiency and the reduced operating expenses involved, the EC motor is particularly suitable for installations with long periods of operation.

■ Basic principle of the EC motor

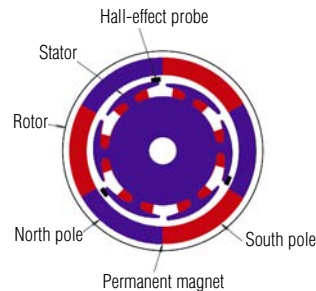
EC-motors are brushless DC motors with shunt characteristics. The mains voltage 230 V is converted directly in the EC motor into a DC voltage. The slip-page losses with conventional motors are avoided to a large extent, so that an efficiency of up to 80% can be reached, and never drops below 60% even in the controlled operation. EC motors operate without wear and are maintenance free because of electronic commutation. In addition, they are characterised by noiseless running. The traditional a/c motor magnet hum during regulation is avoided. The intelligent control unit transmits signals about the operating state of the fan, which can be further processed by the control.

■ Advantages of the EC technology

- High efficiency, also with controlled operation.
- Up to 50% energy saving is possible in practice.
- Speed stepless adjustment via analog or digital inputs.
- Control, which can be implemented simply against temperature and pressure.
- Networking of several units possible. Integration with building control systems.
- Protective functions like lock-up protection, overheat control, protection against wrong direction of rotation or incorrect polarity.
- Longer life span compared to conventional motor, since more thermally efficient.

■ Structure

The following picture shows the principal structure of an EC external rotor motor. The commutation is taken over by two permanent magnets, which are positioned in the rotor. The Hall-effect probe prevents operation with the wrong direction of rotation.



■ Control / Start-up of fan – On-site adjustment of operating data

The integrated control unit in the fan has one serial gateway (RS-485) as well as 4 potentiometers, which permit an adjustment to the operating data. The desired operating point of the fan can thus be set directly on site and/or be adapted afterwards to the requirements of the system. In addition, the operating state indicator informs of possible disturbances and their causes.

The gateway is used by connection of a PC/laptop in combination with an interface (accessories). All settings can be saved in one data file.

- **Connection of PC / laptop**
Using a PC or laptop a direct connection to the fan can be made by the Helios software and RS 232/485 converter (interface ZLS-IF).

■ System accessories

- **Timer ZLS-ZU 31**
Electronic timer module for day/night regulation.

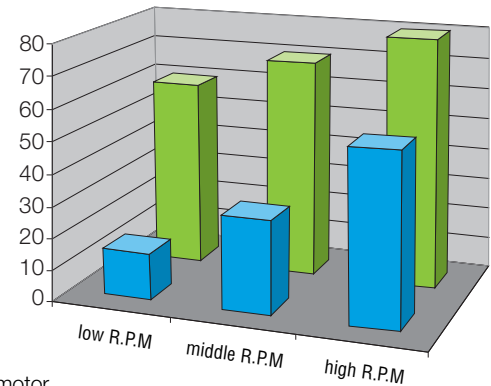
■ Networks from fans

The DVEC fans can be connected to one network and be served by means of the RS-485 gateway from one terminal. Each fan carries one him/it unequivocally identifying address.

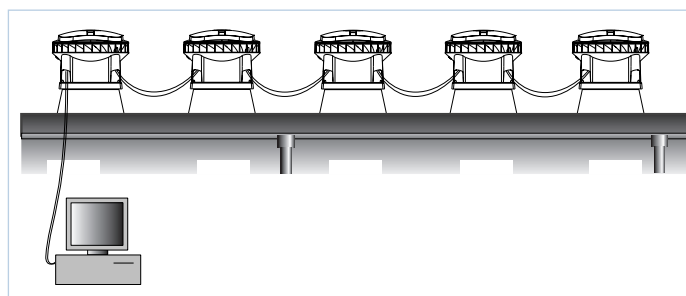
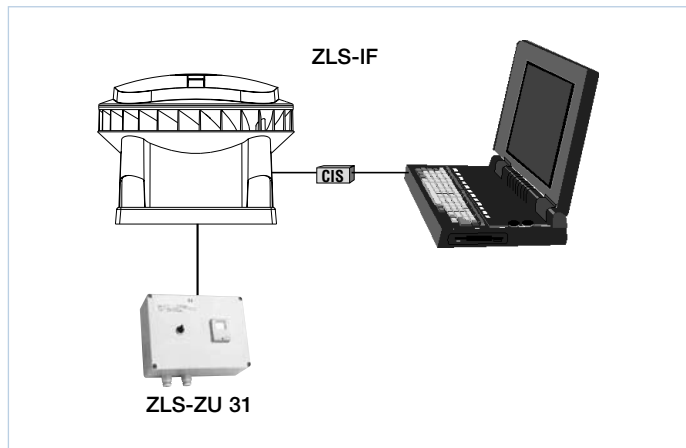
Efficiency

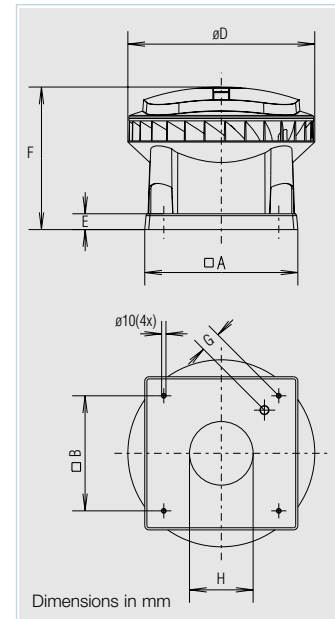
EC motor in comparison with conventional motor

Efficiency (in %)



Roof fan DVEC





Dimensions in mm

Dimensions in mm			
Type	DVEC 200	DVEC 250	DVEC 400
□ A	460	580	665
□ B	330	450	535
ø D	575	708	863
E	60	60	60
F	473	540	601
G	44	48	64
H	196	241	302

Accessories	Page
Overview	66

Details	Page
Roof mounting accessories	359
Air grilles	361 on
Air extract elements	374 on
Air intake elements	384 on
Fire protection elements	388 on

- **Ideally as central exhaust air fan for multi-storey building.**
- **Highest efficiencies, with controlled operation and thus lowest current consumption through electronic commutated DC motor.**
- **Integrated pressure control for pressure stabilisation during ventilation with alternatively variable air flow rates.**
- **Short pay back time by high-energy conservation.**

■ **Description**
 Diagonal exhausting roof fan from polymer with energy saving electronic commutated DC motor. Optimal efficiency, also with controlled operation.

□ **Casing**
 Aerodynamically designed casing from high-quality polypropylene in grey. Operating range from -30 to +60 °C. Integrated guide vanes for optimal efficiency.

□ **Impeller**
 Mixed-flow impeller from aluminium. Motor-impeller-unit dynamically balanced.

□ **Motor**
 DC motor, electronic commutated, high efficiency also with controlled operation. Motor and electronics located outside of the main airflow. Connection voltage single-phase, 230 V, 50 Hz. Maintenance free and radio suppressed.

□ **Motor protection**
 Takes place via integrated thermocouple, which supervises the winding temperature in cooperation with the electronics.

□ **Electrical connection**
 Standard external terminal box (protection to IP 66) on the casing. Connection voltage single-phase, 230 V, 50 Hz.

□ **Speed control**
 The unit comes with an integrated pressure sensor (0 – 300 Pa), which is connected to the electronics. This makes an adjustment of the system with steady pressure possible. The speed is adjusted to the operating point and/or the system characteristics automatically by specification of the pressure value. Also, the high efficiency remains steady over the whole controlled operation.

The electronics permit other control possibilities, e.g., as a function of time or temperature.

□ **Direction of rotation**
 All types are equipped with a Hall effect sensor, which controls the direction of rotation.

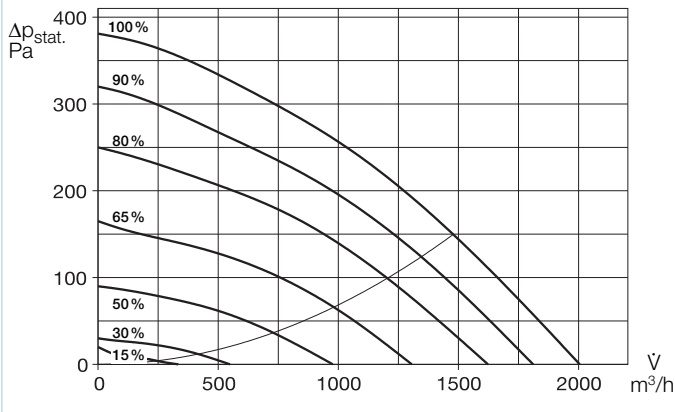
□ **Installation**
 The roof fan must be installed horizontally. With pitched roofs a suitable upstand must be constructed, to prevent water entry.

□ **Noise level**
 See table next to performance curve family. Stated is the sound power level at the suction side as well as the sound pressure at the discharge at 4 m distance under freefield conditions.

□ **Performance curve**
 In accompanying performance curves the flow rate is shown independently of the pressure. Within the performance curves every working point is adjustable at will between 0 and 100%. some example performance curves are marked.

Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level case breakout	Power consumption at maximum speed		Wiring diagram	Nominal weight (net)	Timer to the control of maximum 31 fans	
					W	A			Type	Ref. No.
		min ⁻¹	∛m ³ /h	dB(A) in 4 m	W	A	No.	kg		
Electronic commutated motor 230 V, 50 Hz, protection to IP 54										
DVEC 200 A	8385	1810	2000	52	180	1.38	863	17	ZLS-ZU 31	8388
DVEC 250 A	8386	1640	3600	60	412	1.78	863	23	ZLS-ZU 31	8388
DVEC 400 A	8387	1020	4000	51	303	1.33	863	33	ZLS-ZU 31	8388
DVEC 400 B	8389	1425	5600	65	755	3.32	863	35	ZLS-ZU 31	8388

DVEC 200 A

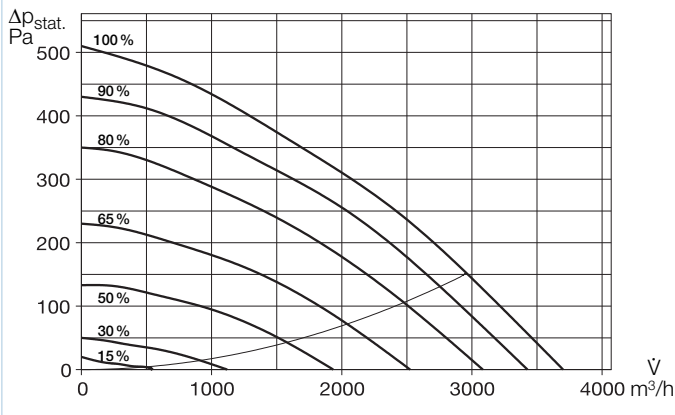


DVEC 200 A – current and sound level values, performance-related

Set point / performance	Current draw	Power input	Sound pressure level case breakout	Sound power level input
%	A	W	dB(A) in 4 m	dB(A)
100	1.38	180	52	70
90	1.15	130	50	68
80	0.90	106	47	66
65	0.57	70	42	62
50	0.31	41	35	55
30	0.13	10	24	44
15	0.09	5	22	42

The sound power level reduces by about 15 dB (A) with application of a base attenuator.

DVEC 250 A

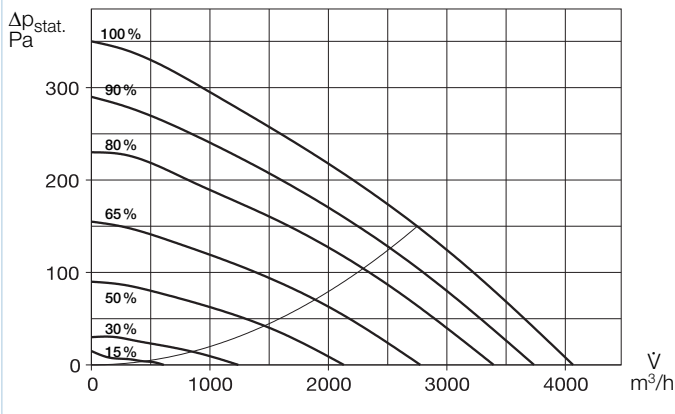


DVEC 250 A – current and sound level values, performance-related

Set point / performance	Current draw	Power input	Sound pressure level case breakout	Sound power level input
%	A	W	dB(A) in 4 m	dB(A)
100	1.78	412	60	75
90	1.54	354	58	73
80	1.14	264	55	70
65	0.67	154	50	66
50	0.36	78	43	61
30	0.16	24	35	49
15	0.10	11	24	43

The sound power level reduces by about 15 dB (A) with application of a base attenuator.

DVEC 400 A

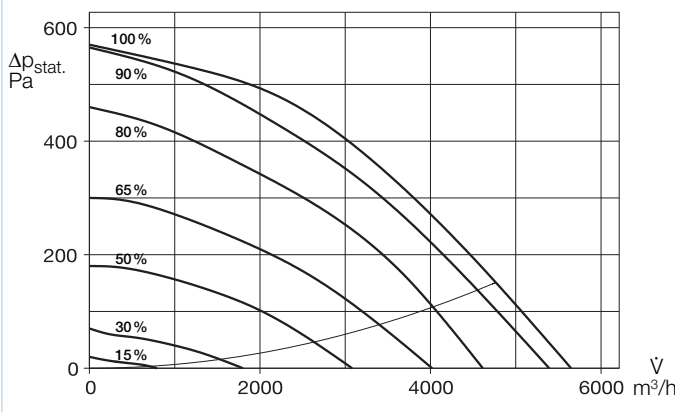


DVEC 400 A – current and sound level values, performance-related

Set point / performance	Current draw	Power input	Sound pressure level case breakout	Sound power level input
%	A	W	dB(A) in 4 m	dB(A)
100	1.33	303	51	68
90	1.01	232	49	66
80	0.77	176	46	64
65	0.47	103	41	61
50	0.26	53	34	54
30	0.14	18	25	54
15	0.10	9	22	42

The sound power level reduces by about 15 dB (A) with application of a base attenuator.

DVEC 400 B



DVEC 400 B – current and sound level values, performance-related

Set point / performance	Current draw	Power input	Sound pressure level case breakout	Sound power level input
%	A	W	dB(A) in 4 m	dB(A)
100	3.32	755	65	80
90	2.90	660	64	79
80	2.10	485	60	76
65	1.25	285	55	71
50	0.70	156	48	64
30	0.27	48	34	53
15	0.17	21	23	43

The sound power level reduces by about 15 dB (A) with application of a base attenuator.

Air extract elements

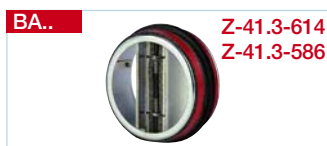


Air extract element with mounting ring made of polymer, ready to install.

To be inserted into ducting with diam. 125 mm. With general and trickle ventilation, electrical, humidity and time controlled for universal operation. Models AE and AE GB keep air flow constant, self controlled. For kitchen and bathrooms AE Hygro with humidity control or AE FV with filter and volume setting is to be used.

Adapter filter element VFE
For installation in front of AE., if room air is polluted and greasy. Details see product page.

– Fire protection shutter for air extract element AE..



Z-41.3-614
Z-41.3-586

– Cold smoke shutter KAK



– Noise reduction element SVE (also suitable for supply air)



Air intake elements



Air intake elements

– Installation in wall openings



Universal air intake unit and thermostat-valve for controlled air intake. Detailed specification see product page air intake elements.

– Installation in window frames



Air intake element with air flow controller and limiter. Ideal for refit applications as well as new buildings.

Bathroom		Toilet		Kitchen	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Air extract element keeps air volume constant, self controlled * Air flow volume in m ³ /h					
AE 45*	2031	AE 30*	2030	AE 75*	2033
As above , but with two air flow volumes (trickle and boost ventilation)					
AE GB 20/75*	2036	AE GB 15/30*	2035	AE GB 45/120*	2038
As AE GB , but with additional electrical timer (does not keep air volume constant)					
AE GBE 30/60*	2047	AE GBE 15/30*	2044	AE GBE 45/120*	2048
As AE GBE , but with additional PIR-Sensor					
		AE B 15/30*	2055		
Humidity controlled extract element with variable, controlled air flow volume					
AE Hygro 10/45*	2049				
As AE Hygro , additionally with electrically controlled general ventilation					
AE Hygro GBE 5/40/75*	2053			AE Hygro GBE 10/45/120*	2054
Air extract element FV , combined with filter and air flow volume control					
AE FV 125	9478			AE FV 125	9478
Adapter filter element VFE					
– for AE.. / AE GBE., AE Hygro., prevents pollution of the air extract element and ducting system					
				VFE 70/VFE 90	2552/2553

Shutter to prevent fire and smoke transmission. Suitable for insertion into spiral ducting without additional mounting frame or wall installation with mounting sleeve EH (accessories).

Cold smoke shutter with magnetic closure. Prevents in central ventilation systems backflow of cold smoke into other fire areas.

* ND 125, suitable to above AE. Further ND and detailed description see product pages.

Type	Ref. No.
Fire protection shutter K 90-18017	
BAE 125*	2626 (Z-41.3-614)
Fire protection shutter K 30-4102	
BAK 125*	2621 (Z-41.3-586)
Mounting sleeve (accessories for both types)	
EH 125*	2640
Cold smoke shutter	
KAK 125*	4098

Noise reduction elements for simple noise-absorption and air volume regulation in central ventilation systems by duct insertion. Furthermore suitable for pressure regulation.

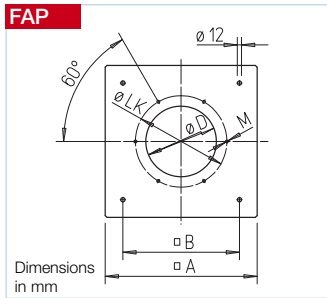
Door grilles
Discreet, non vision door transfer grille made from impact resistant polymer, to be installed into doors. Detailed information see product page grilles.

SVE 100	Ref. No. 8310
ND 100 mm	
SVE 125*	Ref. No. 8311
ND 125 mm	
LTGW	Ref. No. 0246
Made from white polymer.	
LTGB	Ref. No. 0247
from brown polymer.	

ø 80		ø 100		ø 160	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Air intake unit – automatic temperature controlled including thermostatic valve, acoustic lining and outside grille					
ZLA 80	0214	ZLA 100	0215	ZLA 160	0216
Air intake element – manually controllable in four steps including ratchet mechanism using a pull cord, acoustic lining and outside grille					
		ZLE 100	0079		
Thermostatic valve – for installation in existing supply openings					
ZTV 80	0078	ZTV 100	0073	ZTV 160	0074

V					
m ³ /h	Type	Ref. No.	Type	Ref. No.	Type
Air intake element to install in window frames with air flow controller and limiter					
30	ALEF 30	2100		ALEFS 30	2102
45	ALEF 45	2101		ALEFS 45	2103
Air intake element to install in window frames – humidity controlled, with air flow controller and limiter					
6/45	ALEF Hygro 6/45	2056		ALEFS Hygro 6/45	2057

Flange connecting plate



Flange connecting plate FAP
Made from galvanised sheet steel. Makes the connection of the duct system plus accessories to the roof fans DVEC possible, if no base attenuator SSD is used.

Type	FAP 200	FAP 250	FAP 400
Ref. No.	8382	8383	8384
□ A mm	430	550	635
□ B mm	330	450	535
Ø D mm	200	250	400
Ø LK mm	259	286	438
M	M 6	M 6	M 8
Weight kg	1.8	3.0	3.3

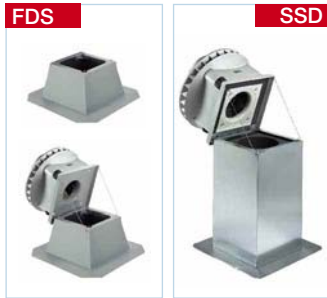
Flange, flanged flexible connector



Suitable to roof fan:					
DVEC 200 A		DVEC 250 A		DVEC 400 ..	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Flange connecting plate – necessary for duct connection					
FAP 200	8382	FAP 250	8383	FAP 400	8384
Flange					
DFR 200	1201	FR 250	1203	FR 400	1206
Flanged flexible connector					
DSTS 200	1218	STS 250	1220	STS 400	1223

Detailed descriptions see product pages.

Purlin box



Base attenuator

Suitable to roof fan:					
DVEC 200 A		DVEC 250 A		DVEC 400 ..	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Purlin box – with hinge mechanism for easy maintenance					
FDS 200	1378	FDS 250	1379	FDS 400	1380
Base attenuator – with hinge mechanism for easy maintenance					
SSD 200	5290	SSD 250	5292	SSD 400	5291

Detailed descriptions see product pages.

Fire protection



Fire damper ELS-D prevents spread of fire to other floors.
Installation in ventilation main duct to DIN 18017 K90. Maintenance free. Approved for use in ventilation shafts or mixed service shafts (even with flammable services), only needs to be covered with

12.5 mm plasterboard cover. All other parts (valves etc.) do not need fire protection classification. Flexible aluminium ducting can be used for the connections. Shutters KAK are to be provided to avoid backflow of cold smoke (see left page).

ND mm in main duct	100	125	140	160	180	200	
Type	ELS-D..	100	125	140	160	180	200
Ref. No.	0270	0185	0186	0187	0188	0271	

Control



Interface
Interface for the start-up and/or control of the fan in connection with a PC/Laptop. Power supply unit, adaptor cable and software included.
ZLS-IF Ref. No. 8391

Information	Page
Dimensions, more technical details plus further sizes:	
Roof mounting accessories	359
Air grilles	361 on
Air extract elements	374 on
Air intake elements	384 on
Fire protection elements – Fire damper	388 on



Electronic timer module with day/night regulator
Allows parallel operation of max. 31 DVEC roof fans. The rocker main switch activates the timer module. The day and night regulation is carried out by adjustment in the display. Main switch 230 V, 50 Hz included.
ZLS-ZU 31 Ref. No. 8388

Central ventilation box ZEB

ZEB EC. Energy saving unit with power – ideal in houses or in multi-storey buildings.

Low energy and passive houses are setting new standards with reference to sealing and insulation of buildings.

To fulfil the energy saving regulation (EnEV) ventilation units have to be used with highest efficiency in full and controlled operation. The consequence of the EnEV is a controlled ventilation with a power consumption of max. $0.20 \text{ W/m}^3/\text{h}^{-1}$. The Helios ZEB EC is clearly below the limit value.



Compact and versatile central ventilation unit for energy-saving operation in domestic and commercial buildings.

Ventilation designed to achieve a comfortable room climate and the preservation of a healthy fabric of the building with extraction of humidity, smells and harmful substances as well as being draught free.

The ZEB-system achieves this perfectly. It doesn't matter whether it is in houses, in apartments that are to be ventilated per storey with one central shaft (DIN 18017, Pt. 3) or in commercial applications.

System description ZEB.. as an air extraction unit in the roof void or in an adjoining room. Operated manually or automatically for trickle, normal or boost ventilation.

The foul air is extracted from polluted rooms such as kitchen, bathroom and toilet. Innovative air extraction elements allow constant or required air flow – adjusted by individual user or room requirements. E.g. AE Hygro humidity element in the bathroom to monitor and adjust humidity.

On the humidity level, models AE GB.. to be used ideally dependent on room use in the toilet. The duct made from commercial spiral duct or flexible aluminium duct. The waste air is extracted to the outside through a wall or roof termination.

The outside fresh air flows in through temperature or pressure difference controlled air intake elements that are to be placed in walls and windows of living and bed rooms. Door grilles ensure the air circulation between rooms.



Air intake element
ALEF..

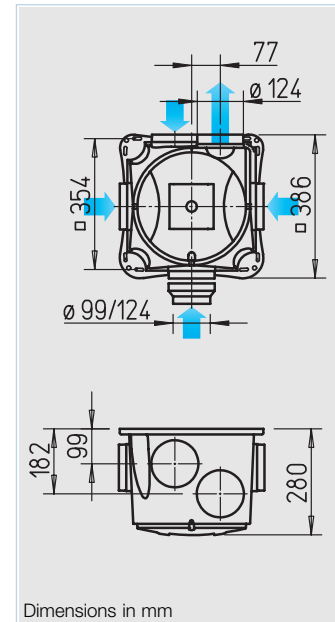
Roof termination
DDF

Central ventilation box
ZEB

Air extract element
AE..



Accessories		Page
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Air grille		
Ducts, duct components		
Roof terminations		361 on
Air extract elements		374 on
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■ **Compact fan design incorporating 4 intake spigots and 1 extract spigot take \varnothing 100 or 125 mm ducting. For various operation in private, commercial and industrial applications.**

■ **Operation**

- As central extraction unit for several rooms or areas.
- For apartment ventilation according to DIN 18017. Extraction of e.g. kitchen, bathroom, toilets of several apartments each with central main duct.
- To extract several rooms (e.g. living room, kitchen, bathroom, toilet) of an apartment. Easy installation (in any position) in storerooms or below the roof.
- For commercial and industrial applications to ventilate humid rooms, extract vapor from working place, and many others.

■ **Casing**

- Robust casing made from impact resistant polymer, light-grey.
- All 4 intake spigots and the extract spigot take ducting of diameter 100 and 125 mm.

■ **Impeller**

- Low noise forward curved centrifugal impeller made from polymer with aerodynamically optimised scroll. Inlet via bell mouth.

■ **Motor**

- Totally enclosed maintenance free external rotor motor with ball bearings, protection to IP 44, with tropicalized protection, insulation class B, suitable for continuous operation, radio suppressed.
- Motor/impeller unit removable for cleaning and service with one grip.

■ **Motor protection**

- Motor protection by built-in, automatic resetting thermal contacts wired in series with the motor windings.

■ **Electrical connection**

- Service and installation friendly. Delivered ready to operate with cable pre-wired terminal box.
- For 3 speed operation a 5 core cable (NYM-J 5x1,5 mm²) is required between fan and switch.

■ **Speed control**

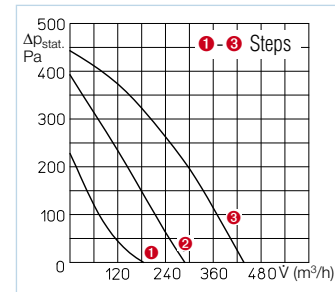
- Variable power adjustments through 3 speeds to be controlled by DSEL 3 speed controller (accessory).

■ **Installation**

Without restriction in any position. To reduce noise levels in ventilated rooms install unit as remote as possible.

■ **Ducting**

The ducting used may be rigid or flexible and made from aluminium, galvanised steel or plastic. Where required, the fire protection regulations must be considered.



■ **Accessories**

■ **Three speed operation and on/off operation switch**

Comfortable flush mounted speed controller. Wiring in parallel to light is not possible. Fits into single gang box using clamps fitted.

Dim. in mm (WxHxD) 80 x 80 x 23
DSEL 3 Ref. No. 1611



■ **Digital week timer**

Digital clock timer with LC-display for automatic control of operation at general ventilation (step 2 or 3 to be chosen). Programmable for all days of the week. For flush and surface mounting.

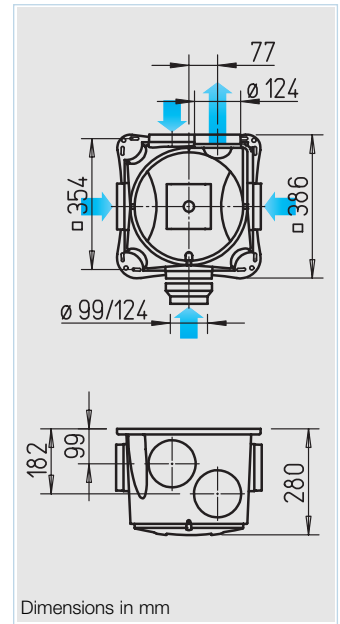
Dim. in mm (WxHxD) 85 x 85 x 52
WSUP Ref. No. 9990



Type	ZEB 380
Ref. No.	1456
Air flow volume in m³/h *	430/300/180
R.P.M. approx.	max. 2700
Voltage/Frequency	230 V / 1 ph. / 50 Hz
Maximum power Watts*	70/40/20
Maximum current Amps*	0.26/0.24/0.18
Sound pressure level, case breakout at 4 m	33/26/19
L _{WA} intake in dB(A)*	62/57/45
L _{WA} extract in dB(A)*	69/63/52
Wiring diagram No.	SS-908
Allowed maximum temperature °C	+40
Weight in kg	4.0

* Values are related to the 3 speeds (see performance diagram)

NEW!



■ ZEB with EC-technology – through DC-motors the EC-version of the ZEB is the energy saving central ventilation box that is adjusted perfectly for operation in the low energy house.

DC-motors operate with extremely low losses and thus even on controlled operation with higher efficiency than conventional motors.

Advantages of the ZEB EC:

- Short pay back period through high energy savings.
- The ZEB EC with an average of 12 W/100 m³/h is already better than the requirements set for the future of the energy saving regulation (EnEV).
- Easy and comfortable speed control in 9 power steps.

■ **Operation**

- For controlled ventilation to DIN 18017, Pt. 3 and DIN 1946, Pt. 6.
- Ideal in low energy houses.
- In houses as well as in apartments and multi-storey buildings to ventilate with a single common duct.

■ **Casing**

- Robust casing made from impact resistant polymer, light-grey.
- All 4 intake spigots and also the extract spigot take ducting of 100 and 125 mm diameter.

■ **Impeller**

- Low noise forward curved centrifugal impeller made from polymer with aerodynamically optimised scroll.

■ **Motor**

- DC motor, electronic commutated with high efficiency even when controlled. Maintenance free external rotor motor with ball bearings, protection to IP 44 suitable for continuous operation, radio suppressed.
- Motor/impeller unit removable for cleaning and service.

■ **Motor protection**

- An integrated thermal element monitors the temperature of the windings in conjunction with the built-in electronic circuit.

■ **Electrical connection**

- Service and installation friendly.
- To be connected directly to a 230 V supply.
- For 3 speed operation a 5 core cable (NYM-J 5x1,5 mm²) is required between fan and switch.

■ **Speed control**

- Fan can be operated on 3 speeds to be controlled by speed controller (accessory). For an individual power adjustment there are 9 speeds through Dip-Switches on the electronic drive.

■ **Installation**

- Without restriction in any position. To reduce noise levels in ventilated rooms install unit as remote as possible.

■ **Ducting**

The ducting used may be rigid or flexible and made from aluminium, galvanised steel or plastic. Where required, the fire protection regulations must be considered.

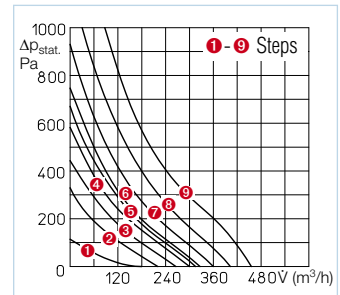
■ **Accessories**

Three speed operation switch and on/off operation switch

Comfortable flush mounted speed controller. Wiring in parallel to light is not possible. Fits into single gang box using clamps fitted (minimum depth 55 mm).
Dim. in mm (WxHxD) 80 x 80 x 23
DSZ Ref. No. 1598

Digital week timer

Digital clock timer with LC-display for automatic control of operation at general ventilation (step 2 or 3 to be chosen). Programmable for all days of the week. For flush and surface mounting.
Dim. in mm (WxHxD) 85 x 85 x 52
WSUP Ref. No. 9990



Type	ZEB EC
Ref. No.	1457
Air flow volume in m ³ /h *	460/400/360/340/320/300/280/230/180
R.P.M. approx.	max. 3500
Voltage/Frequency	230 V / 1 ph. / 50 Hz
Maximum power Watts*	72/52/38/30/27/25/20/15/7
Maximum current Amps*	0.44/0.30/0.22/0.18/0.17/0.14/0.12/0.08/0.05
Sound pressure level, case breakout at 4 m *	40/38/35/33/34/33/29/26/18
L _{WA} intake dB(A)*	65/62/60/58/58/59/55/50/41
L _{WA} extract dB(A)*	74/71/68/65/66/64/61/57/48
Wiring diagram No.	SS-909
Allowed maximum temperature °C	+40
Weight in kg	4.0

* Values are related to the 9 speeds (see performance diagram)

Air extract elements



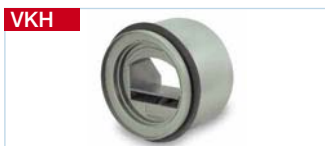
Air extract element with mounting ring made of polymer, ready to install.

To be inserted into ducting with diam. 125 mm. With general and trickle ventilation, electrical, humidity and time controlled for universal operation. Models AE and AE GB keep air flow constant, self controlled. For kitchen and bathrooms AE Hygro with humidity control or AE FV with filter and volume setting is to be used.

Adapter filter element VFE
For installation in front of AE.., if room air is polluted and greasy. Details see product page.

Bathroom		Toilet		Kitchen	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Air extract element keeps air volume constant, self controlled * Air flow volume in m³/h					
AE 45*	2031	AE 30*	2030	AE 75*	2033
As above , but with two air flow volumes (trickle and boost ventilation)					
AE GB 20/75*	2036	AE GB 15/30*	2035	AE GB 45/120*	2038
As AE GB , but with additional electrical timer (does not keep air volume constant)					
AE GBE 30/60*	2047	AE GBE 15/30*	2044	AE GBE 45/120*	2048
As AE GBE , but with additional PIR-Sensor					
		AE B 15/30*	2055		
Humidity controlled extract element with variable, controlled air flow volume					
AE Hygro 10/45*	2049				
As AE Hygro , additionally with electrically controlled general ventilation					
AE Hygro GBE 5/40/75*	2053			AE Hygro GBE 10/45/120*	2054
Air extract element FV , combined with filter and air flow volume control					
AE FV 125	9478			AE FV 125	9478
Adapter filter element VFE					
– for AE.. / AE GBE.., AE Hygro.., prevents pollution of the air extract element and ducting system					
				VFE 70/VFE 90	2552/2553

Extract (alternative for AE)



Automatic constant air flow controller to be inserted into ducting and duct components. For constant air flow with a differential pressure range of approx. 50 – 200 Pa.

V m³/h	ø 80		ø 100		ø 125	
	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
15	VKH 80/15	2060	VKH 100/15	2063	VKH 125/15	2069
30	VKH 80/30	2061	VKH 100/30	2064	VKH 125/30	2070
45	VKH 80/45	2062	VKH 100/45	2065	VKH 125/45	2071
60			VKH 100/60	2066	VKH 125/60	2072
75			VKH 100/75	2067	VKH 125/75	2073
90			VKH 100/90	2068	VKH 125/90	2074
120					VKH 125/120	2075



Insert element SVE. Simple solution to control the air flow volume and reduce sound in ventilation systems. Also for pressure adjustments.
Ventilation grilles and valves, sleek, especially for living spaces.

	ø 80		ø 100		ø 125	
	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Insert element SVE						
	SVE 80	8309	SVE 100	8310	SVE 125	8311
Ventilation grilles (to put before/cover models VKH and SVE)						
	LGK 80	0259	LGM 100	0254	LGM 125	0258
Polymer valve for extraction						
	KTVA 75/80	0940	KTVA 100	0941	KTVA 125	0942

Air intake elements

– Installation in wall openings



Universal air intake unit and thermostat-valve for controlled air intake. Detailed specification see product page air intake elements.

	ø 80		ø 100		ø 160	
	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Air intake unit – automatic temperature controlled including thermostatic valve, acoustical lining and outside grille						
	ZLA 80	0214	ZLA 100	0215	ZLA 160	0216
Air intake element – manually controllable in four steps including ratchet mechanism using a pull cord, acoustical lining and outside grille						
			ZLE 100	0079		
Thermostatic valve – for installation in existing supply openings						
	ZTV 80	0078	ZTV 100	0073	ZTV 160	0074

– Installation in window frames



Air intake element with air flow controller and limiter. Ideal for refit applications as well as new buildings.

V m³/h	ø 80		ø 100		ø 160	
	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Air intake element to install in window frames with air flow controller and limiter						
	ALEF 30	2100			ALEFS 30	2102
	ALEF 45	2101			ALEFS 45	2103
Air intake element to install in window frames – humidity controlled, with air flow controller and limiter						
6/45	ALEF Hygro 6/45	2056			ALEFS Hygro 6/45	2057

Ducts, duct components

Ducts, duct components



ø 80		ø 100		ø 125	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Flexible ducting					
ALF 80	5711	ALF 100	5712	ALF 125	5713
Duct connector – made from galvanised steel.					
RVB 80	5993	RVB 100	5994	RVB 125	5995
Worm drive clips – a steel band with a snap on tension lock. Contents = 10 pieces.					
SCH 80	5722	SCH 100	5722	SCH 125	5723
T-pieces – made from galvanised steel.					
		TS 100	1479	TS 125	5720

Reducers



ø 80		ø 100		ø 125	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Duct reducers – made from polymer.					
		RZ 100/80	5223	RZ 125/100	5222

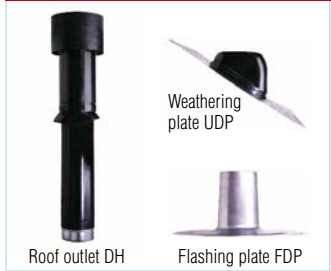
Flexible attenuator, Backdraught shutter



		FSD 100	0676	FSD 125	0677
Backdraught shutter – automatic, made from polymer.					
		RSKK 100	5106	RSKK 125	5107
Cold smoke in-duct back draught shutter – airtight, for duct insertion.					
RVE 80	2584	RVE 100	2587	RVE 125	2588

Wall and roof terminations

DH, UDP, FDP



ø 80		ø 100		ø 125	
Wall mounting kit – to put air intakes and outlets through walls.					
		TMK 100	0844	TMK 125/150	0845
Universal-Roof termination* DDF – adaptable to all kind of roof tiles, for ridged roofs and flat roofs.					
				DDF 125	1964
Roof outlet, plates for ridged roof/flat roofs and connector (see picture on the left)					
– Roof outlet*		DH 100 S	2015	DH 125 S	2017
– Universal weathering plate*		UDP 100 S	2021	UDP 125 S	2021
– Flashing plate		FDP 100	2024	FDP 125	2013
– Connector		STV 100	2026	STV 125	2027

Air intake elements

LTG..



Door grilles
Discreet, non vision door transfer grille made from impact resistant polymer, to be installed into doors. Detailed information see product page grilles.

LTGW Ref. No. 0246
Made from white polymer.

LTGB Ref. No. 0247
Made from brown polymer.

Information	Page
Dimensions, more technical details plus further sizes:	
Air grille	
Ducts, duct components	
Roof terminations	361 on
Air extract elements	374 on
Intake air elements	384 on
Fire protection elements for application in sublevel stoping	388 on
Controllers	397 on

Tight building shell

The energy saving regulation EnEV 2009 intensifies the minimum requirements to the building energy efficiency, so that the building shell becomes increasingly tight. The proof of a ventilation concept according to DIN 1946-6 is unavoidable. For the development of the concept Helios provides the software KWLeasyPlan. The program can be downloaded under www.KWLeasyPlan.de and allows the layout of complete KWL® systems in conformity with DIN and the creation of bill of quantities.

KWL® ventilation systems for all applications

With air flow volumes from 60 to 4000 m³/h the KWL®-units are suitable for central or local use, for multi-storey buildings, one-family houses or commercial applications. There are units with high-efficient enthalpy, rotating and counter crossover heat exchangers available. The later comes with electric – or alternatively hot water – heater battery for vertical, horizontal or hanging installation

	Page
KWL®-units with humidity <u>and</u> heat recovery	76
Wall installed unit with heat recovery for single rooms	78
Compact units with EC technology for wall mounting	82 on
Central ventilation units, vertical or horizontal version	92 on



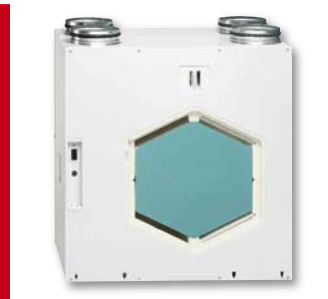
KWL EC 60, the energy saving solution in single rooms and to bring buildings up to modern standards in the course of renovation.

Page 78



KWL®-units with enthalpy exchanger for combined heat and humidity recovery.

Page 76 on



Ideal for passive house. Highest energy efficiency, with constant air flow volume.

Page 84, 88



**Indoor comfort – energy saving.
In low energy and passive houses, multi-storey buildings, commercial and industrial applications.**

KWL® from Helios preserves the energy savings achieved by insulating measures. The units constantly renew the air and heat recovery leads to a further improvement of the energy efficiency. Even more important, KWL® from Helios creates a healthy and comfortable climate in otherwise airtight and well-insulated buildings.

Extract Air: The used air spoiled, with humidity, toxins and smells is extracted from kitchen, bathroom and toilet. The innovative Helios air extract elements AE.. allow a constant

or demand oriented air flow volume – matched to the user's individual needs or room demands. The heat of the extracted air is retained by the exchanger and transferred to the incoming fresh external air.

The outside air is feed through built-in heat exchanger of the unit and takes up the heat energy from the extracted air with efficiency up to 90%. This process can be further optimized energetically, if an upstream undersoil heat exchanger (laying of duct in the soil) is added. Fresh, warmed air flows

through well-designed supply air valves or air inlets into living and bedrooms. Overflow elements ensure air circulation within the property. The exhaust air is released outside passing through a roof or wall outlet.

KWL®-“Periphery“
Versatile accessories, innovative air ducting systems and under-soil heat exchangers complete the KWL®-units perfectly
Page 100 on



Flexible air ducting system
Helios FlexPipe®



KWL®-ventilation unit
with heat recovery



Air extract and air
supply elements



Heat and humidity recovery for a comfortable climate.

KWL® units with combined heat and humidity recovery by enthalpy exchanger provide for a comfortable, healthy room air climate, without additional energy consumption and without use of an atmospheric humidifier.

Ideal room climate provides a healthy environment

In living quarters the relative room humidity should lie between 30 – 60%. With too low humidity mucous membranes dry dust and electrostatic charge increase.

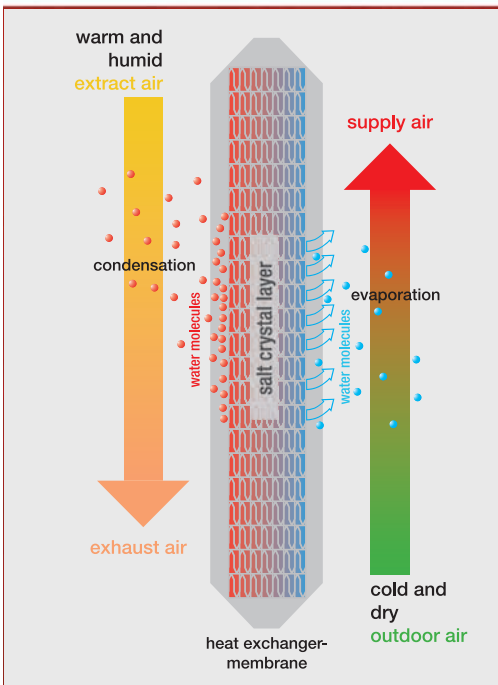
These effects become apparent, in the cold season, if the outside air has a high saturation level so that when warming, the relative air humidity decreases inside the room. For example: With -5° outside temperature and 21° inside the room the humidity of originally 100% drops to less than 17%.

In this range it becomes uncomfortable.

Ventilation units with enthalpy heat exchanger recover, in addition to the heat, up to 65% of humidity from the extract air. This is used to warm the outside air, which flows into the living and reception rooms with a comfortable, healthy moisture content.



Ventilation units with enthalpy heat exchanger from Helios achieve a total efficiency of more than 100%.



Operating mode of enthalpy heat exchanger

The water molecules of the extracted room air condense on contact with surfaces of the enthalpy heat exchanger. They move the water in a similar way to plants, through the membrane. At the membrane surface of the supply airside the water molecules are absorbed by dry outside air. A salt-crystalline layer on the membrane of the enthalpy heat exchanger guarantees the hygiene and efficiency with the humidity transmission process. It ensures the water retains its molecular configuration to enter the supply air flow. Extract and supply air flows are hermetically separated from each other, so that an overall transfer of organic particles or odors is excluded.



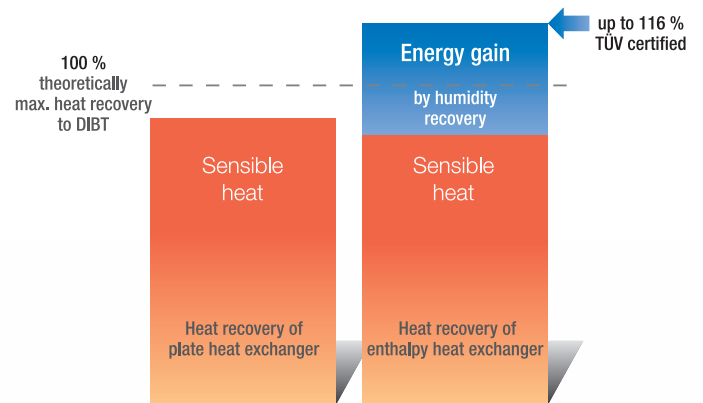
KWL® ventilation units with enthalpy heat exchanger: Highest efficiency, ideal interior air humidity and increase in comfort.

Ventilation units with enthalpy heat exchanger offer convincing advantages:

- Energy saving heat recovery and humidity recovery in the cold season.
- Humidity recovery from the extract air up to 65 %, depending on the interior air humidity.
- Additional humidifiers are unnecessary.

Helios KWL® systems with enthalpy combine the advantages of heat recovery with those of a healthy interior air humidity in an optimal way.

The energy stored in the molecules help retain an improved energetic total balance of the heat recovery in comparison to heat exchangers without enthalpy. Enthalpy heat exchangers from Helios thereby achieve heat recovery efficiencies of more than 100 %.



The enthalpy exchanger program offers 5 units with different performance levels.

Compact units with 200, 300, 500 m³/h



Ventilation units with combined humidity and heat recovery with highly efficient enthalpy exchanger. TÜV- certified heat recovery efficiencies according to DIBt of up to 116%. Compact wall units for ventilation of houses and apartments with air flow rates of 200, 300 and 500 m³/h. Latest EC ventilation technology for energy saving operation.

Including extensive control equipment:

User-friendly 8-speed remote controller with LCD display for ventilation regulation and optional connection of CO₂- and humidity sensor. Automatic bypass function for summer operation. An electric pre-heater prevents the heat exchanger from icing up.

KWL EC/ET 200 Pro R	200 m³/h	Ref. No. 5895
Technical details see KWL EC 200 Pro R		page 82
KWL EC/ET 300 Pro R	300 m³/h	Ref. No. 5903
Technical details see KWL EC 300 Pro R		page 86
KWL EC/ET 500 Pro R	500 m³/h	Ref. No. 5911
Technical details see KWL EC 500 Pro R		page 90

Units with constant air flow volume



Ventilation units with combined humidity and heat recovery. Highly efficient enthalpy exchanger with heat recovery efficiency of more than 100 %.

Compact units for central ventilation of houses and apartments with air flow rates of 270 und 370 m³/h. Latest EC ventilation technology for energy saving operation. Innovative constant flow rate regulation for continuous capacity, regardless of changing resistances.

Standard comfort equipment:

Manufactured from high quality expanded polystyrene (EPS) for maximum heat insulation, fully automated frost protection, bypass function for summer operation. Comfort controller with user-friendly menu navigation.

KWL EC/ET 270 Pro R	270 m³/h	Ref. No. 5899
Technical details see KWL EC 270 Pro R		page 84
KWL EC/ET 370 Pro R	370 m³/h	Ref. No. 5907
Technical details see KWL EC 370 Pro R		page 88

Enthalpy heat exchanger KWL-ET for additional changeover of KWL EC.. ventilation units see pages 82 on.

Compact wall installed unit for single rooms.
KWL EC 60 is the proven solution for comfortable indoor climate and energy saving in single rooms. Ideal to bring existing buildings up to modern standards in the course of a renovation and to EnEV standard. KWL EC 60 supplies small and larger single rooms. For a medium-sized flat the installation of several units is recommended.

Installed in no time – ideal for renovation

KWL EC 60 is the optimal renovation solution, since a subsequent and time-consuming installation of a ventilation system is no longer required. The access to the outside air is simply made by a core drilling in the outer wall in which the wall sleeve is inserted. This can be done simply during the facade renovation. Two protection cover plates close the openings.

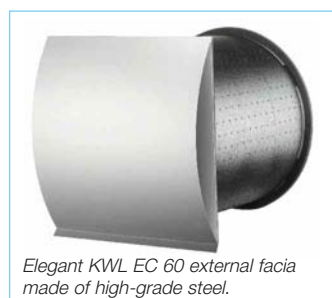


The installation of the elegantly designed external fascia which is made from high grade-steel takes place with the final plastering works. During the interior work the unit is inserted into the wall sleeve and connected electrically. Only the elegant fascia is seen inside the room. Therefore the KWL EC 60 blends in everywhere beautifully and the fascia shields the view of the fan interior completely. Aluminium plate heat exchanger with efficiency of more than 70 %.

Intelligent way of energy saving
Expensive heating energy is saved with KWL EC 60 and its efficient large heat transfer area aluminium plate heat exchanger with efficiency of more than 70 %.

ECgreenVent® by Helios
Efficient energy-saving ventilation units with EC-technology including the Helios KWL EC 60 are given the GreenTec label. KWL EC 60 allows the demand ventilation with heat recovery of individual rooms; several units can be controlled independently. Regulating is not necessary.

Operating mode of the KWL EC 60 Ventilation with heat recovery
Two high efficient fans with energy-saving EC-motors move the supply and extract air. Smells and stale room air are extracted outside, fresh and preheated air is supplied into the room. The heat of the extracted air is recovered by the large heat transfer area aluminium plate heat exchanger and transferred through the plates to the incoming fresh external air, so both air flows remain separated.



Elegant KWL EC 60 external fascia made of high-grade steel.

KWL EC 60

NEW!



- **Ordering and delivery**
Coordinated with the assembly steps the following elements are packed separately and have to be ordered individually:
- **First fix set**, consisting of wall sleeve (length 349 mm), two protection cover plates and external fascia made from high-grade steel.

KWL 60 RS Ref. No. 0708

- **Ventilation unit, optionally in Eco- or Pro- execution. See description on the right.**

- **Similarities**
- **Heat exchanger**
□ Large heat transfer area aluminium plate heat exchanger with efficiency of more than 70 %.

- **Fans**
Two high efficient fans with energy-saving EC-motors move the supply and extract air with minimum power consumption.

- **Condensation spigot**
Condensation is led directly to the outside via the external fascia.

- **Air filter**
□ Two efficient air filters from micro structured electrostatically charged material of the class G4 in the supply and extract air stream guarantee the best air purity. A pollen filter (class F7) is available for the supply air as an accessory.

- **KWL EC 60 Eco**
The energy saving solution with favourable price /performance ratio for all applications.

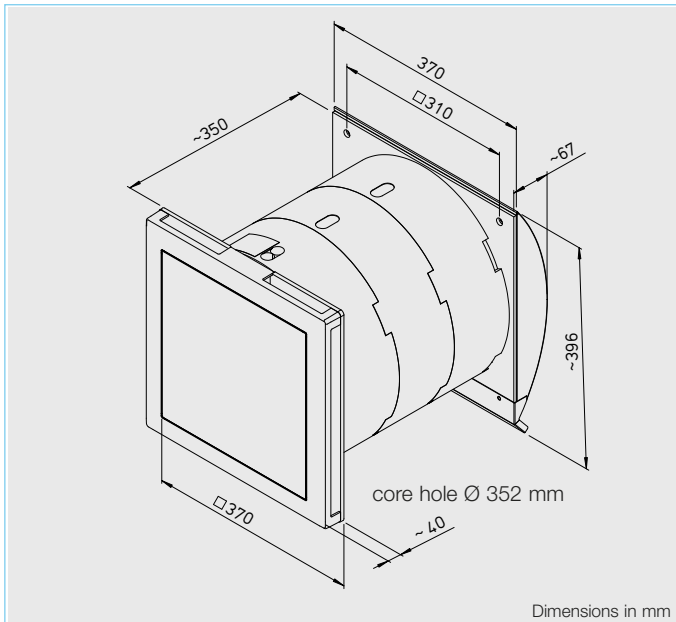
- **Ventilation unit Eco**, consisting of indoor fascia from high quality polymer with integrated 3-speed controller.

KWL EC 60 Eco Ref. No. 9950

- **Speed control**
Three-speed operation via controller, integrated in the indoor fascia (alternatively on top or below placeable by 180 ° rotation of the fascia). Disconnection via on/off switch on site.

- **Electrical connection**
Via screwless terminals.

Technical data			
	KWL EC 60 Eco		Ref. No. 9950
Air flow volume on speed step	③	②	①
Supply/Extract V m ³ /h	60	30	17
Sound level dB(A)			
Case breakout L _{PA} in 3 m	30	22	18
Power fan 2xW	4	2	1
Noise protection D _{NE} dB(A)	39-41		
Voltage/Frequency	230 V, 1 ph., 50 Hz		
Nominal current A	0.05		
Protection to IP	X4		
Electrical connection	NYM-J 3 x 1.5 mm ²		
Wiring diagram no.	949		
Temperature operating range	- 20 °C to + 40 °C		
Weight approx. kg	12		



KWL EC 60 Pro / Pro FF
Fulfills even highest demands in comfort, with many useful functions.

Ventilation unit Pro, consisting of indoor facia from high quality polymer and comfort controller (KWL-BCU, 1 pc. incl. in delivery). See details on the right.
KWL EC 60 Pro No. 9951

Ventilation unit Pro FF, like KWL EC 60 Pro, however with additional integrated humidity sensor for ventilation as needed. Adjustable humidity level.
KWL EC 60 Pro FF No. 9957

Power control
The comfort controller with graphic display and user-friendly menu navigation (included in delivery) makes the following functions possible:
– Four-speed manual operation or with digital timer.
– Control via intelligent CO₂- and humidity sensors (accessories, in each case up to 4 controllers can be installed).

- Supply/extract air operation separately adjustable.
- Boost ventilation, intensive ventilation.
- Display of required filter change, operating state, operating hours, error messages.
- Several units can be controlled with one comfort controller.
- Several comfort controllers can be connected to one unit.

Shutters
Two shutters seal airtight to the outside when the unit is off (holiday or downtimes), one shutter seals individually with supply or extract air operation.

Electrical connection
Via plug-in connector (incl. in delivery).

Similar accessories

Extension sleeve length 111 mm, can be shortened to any length, with partition element. For wall thickness > 349 mm.

KWL 60 WV Ref. No. 0884



A **compensation ring** from high-grade steel (w/o fig.) for the outside wall is available for wall thickness < 350 mm.

KWL 60 DR Ref. No. 0888



Ordering and delivery

Coordinated with the assembly steps the following elements are packed separately and have to be ordered individually:

First fix set, as described on the left page.
KWL 60 RS No. 0708

Ventilation unit, optionally in Eco- or Pro- execution. See description on the below.

Accessories for Pro.. Comfort controller (additional)
Display and function as described on the left. One piece KWL-BCU included in delivery. Up to 4 controllers can be connected. 3 m connecting cable included in delivery. Dim. mm (WxHxD) for flush mounting 81 x 81 x 20
KWL-BCU No. 9955
Dim. mm (WxHxD) for surface mounting 84 x 84 x 20
KWL-BCA No. 9956



CO₂-sensor
Measures CO₂ concentration and transfers data to the ventilation unit to arrange for an optimal CO₂ level in all 4 speeds. Up to 4 sensors can be plugged in. In this case, the sensor with the highest measurement is used for setting the unit. Dim. mm (WxHxD) 95 x 97 x 30
KWL-CO₂ Ref. No. 9958



Connecting cable
For distances > 3 m, with 2 RJ 12 plugs. For connection between controller and KWL EC 60 Pro.. and/or between several ventilation units.

KWL-AL 10 (length 10 m) No. 9444
KWL-AL 20 (length 20 m) No. 9959

Wye junction board
To connect units, controllers and accessory components.
KWL-ALA Ref. No. 9960

Technical data				
Incl. humidity	KWL EC 60 Pro	Ref. No. 9951		
	KWL EC 60 Pro FF	Ref. No. 9957		
Air flow volume on speed step	4	3	2	1
Supply/Extract V m ³ /h	60	45	30	17
Sound level dB(A)				
Case breakout L _{PA} in 3 m	30	29	22	18
Power fan 2xW	4	3	2	1
Noise protection D _{NE} dB(A)	39-41			
Voltage/Frequency	230 V, 1 ph., 50 Hz			
Nominal current A	0.06			
Protection to IP	X4			
Electric supply	NYM-J 3 x 1.5 mm ²			
Wiring diagram no.	950			
Temperature operating range	– 20 °C to + 40 °C			
Weight approx. kg	12.5			

Additional accessories pg.
Spare filter 113

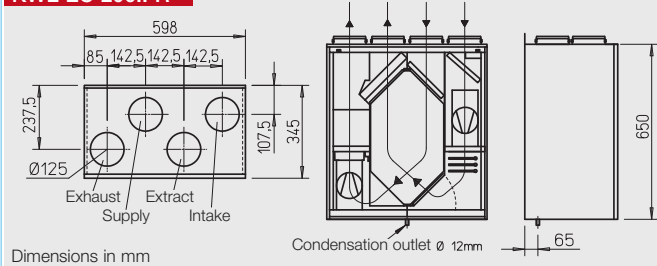
KWL EC 200 Eco and KWL EC 200 Pro



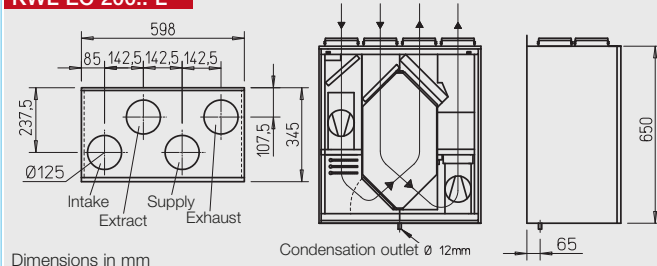
(Photo shows KWL EC 200 Pro R with pollen filter class F7 (accessory))



KWL EC 200.. R



KWL EC 200.. L



Compact unit with heat recovery for central ventilation of houses and apartments.

High efficient counter crossover heat exchanger with efficiency of up to 90%. State-of-the-art EC-motor technology for extremely low power consumption.

Similarities

Casing

- Made from galvanised steel, white powder coated, double walled, heat and noise insulated (12 mm) on all sides.
- Easy to install and maintain. The removable front panel allows full access.

Heat Exchanger

Due to its large surface area the exchanger provides an exceptionally high efficiency. Made from aluminium to ensure durability and high quality. Easy to remove for cleaning purposes.

Fans

Two silent and energy saving centrifugal fans with energy saving EC-motors move the supply air and extract air. They are maintenance free and easy to remove for cleaning.

Ducting

R or L handing ensures easy and crossover-free connection of the ducting for supply and extract air using ducts with nominal diameter of 125 mm. Spigots for connection located on top of the unit.

Condensation outlet

The condensation outlet is located at the bottom of the unit. Trap delivered as standard. To be connected to the drain pipe by installer.

KWL EC 200 Eco

The economical solution for a wide range of application with an excellent cost/performance ratio.

Air filter

- Supply of cleaned outside air using a G4 filter. Superfine pollen filter (filter class F7) is also available. Extract air passes through a G4 filter before entering the heat exchanger.

Frost protection

- An adjustable thermostat stops the supply air in case of frost to prevent the heat exchanger from icing up.

Speed control

- The speed control supplied, has a 4-step operation switch which can be mounted at a distance up to 100 m. Power levels can be chosen from 5 speeds according to the air flow volume (see diagram).

- The operation switch can be combined with a clock timer, available as accessory.

WSUP Ref. No. 9990

- Combined with the differential pressure switch (accessory) the condition of the filter is displayed with a red LED.

DDS Ref. No. 0445

Summer operation

The unit comes with a manually operated bypass function as standard. In this case the outside air goes through the KWL without passing the heat exchanger to prevent the heat recovery function.

Electrical connection

Delivered ready to plug in. Free accessible and external terminal box with connections for operation switch and clock timer.

KWL EC 200 Pro meets even the highest comfort requirements. Equipped with an electric pre-heater, F7 pollen filter and an automatic bypass function as standard. An easy-to-use LCD controller is included.

Special features of KWL EC 200 Pro

Air filter

- Supply of cleaned outside air using a G4 filter. Superfine pollen filter (filter class F7) is also available. Extract air passes a G4 filter before entering the heat exchanger. All filters are easy to clean and replace.

Frost protection/pre-heater

- KWL EC 200 Pro units delivered as standard with an electric pre-heater which heats the intake air when the temperature is too low. This prevents ice from building up in the heat exchanger and ensures optimal heat recovery even during the winter months. Adjustable from -6 to +15 °C.

Speed control

- Automatic control of ventilation operation via LCD controller which is delivered as standard. Additional controllers (up to 3) and intelligent sensors (up to 5 CO₂ and 2 humidity sensors) can be connected.
- 8 speed steps for ideal ventilation and on/off via one or more remote controllers.
- Ventilation can be controlled via EIB or LON BMS (accessory) or via the external voltage signal (0-10 V or 4-20 mA).

LCD controller

- Programming of basic and max. ventilation level as well as humidity and CO₂-limits, etc.
- LCD-Display for temperature, maintenance and menu.
- Optical filter display with adjustable time period.
- Maximum ventilation function or open fire function via switch (switch has to be provided by customers). This prevents drawing smoke into the room from open fires.
- Integrated digital week timer.
- Adjustable speed proportion of the supply air and extract air fans.
- Settings for frost protection.
- Settings for summer operation.

Summer operation

Comes with automatic bypass function as standard. If summer function is selected on the controller - according to the defined settings - the heat exchanger is bypassed.

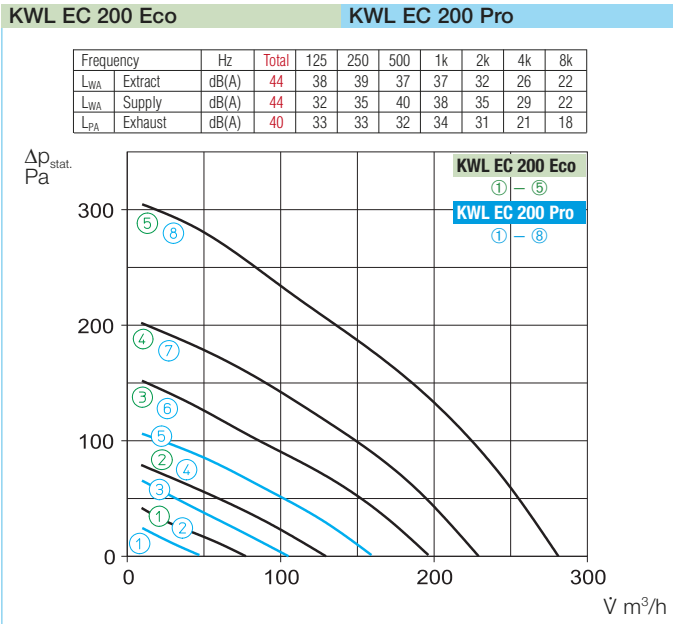
Electrical connection

Delivered ready to plug in. Easily accessible external terminal box with connections for further LCD controllers, sensors etc. The supplied LCD controller is already connected.

Other accessories	Pages
KWL®-"Periphery"	100 on
- Undersoil heat exchangers	102 on
- Air distribution systems	106 on
- Insulated duct system	111
- Further overview	112
- Spare filters	113

Accessories-Details

Grilles, ducting, duct components, wall and roof terminations	361 on
Intake/extract elements	374 on



Accessories KWL EC 200 Eco

Clock timer

Digital clock timer with LCD-display to control operation automatically. Clock timer adjustable for each day of the week. Suitable for flush and surface installation.

Dim. in mm (WxHxD) 85 x 85 x 52
WSUP Ref. No. 9990



Differential pressure switch

Adjustable pressure switch to indicate when the pressure across the filter exceeds set pressure. Adjustable set pressure. Delivered as a complete set.

DDS Ref. No. 0445



Accessories KWL EC 200 Pro

Controller (additional)

User friendly LCD controller; details see "speed control" on the left page. One controller included. Additional ones can be ordered separately. Up to three controllers can be installed.

Dim. mm (WxHxD) 90 x 107 x 21
KWL-FB Ref. No. 9417



CO₂-sensor

Measures CO₂ concentration and transfers data to the ventilation unit to arrange for an optimal CO₂ level. Up to five sensors can be plugged in. In this case, the sensor with the highest measurement is used for setting the unit.

Dim. mm (WxHxD) 81 x 130 x 32
KWL-KDF Ref. No. 9413



Humidity sensor

Measures the relative humidity. The limit can be set automatically or manually. Up to two sensors can be plugged in.

Dim. mm (WxHxD) 81 x 130 x 32
KWL-FF Ref. No. 9414



BMS-modules

Allow the connection of KWL EC 200 to a LON or EIB-BMS-Network to control it from a central station and check its data.

Dim mm (WxHxD) 120 x 158 x 75

EIB-BMS-module

KWL-EB Ref. No. 9416

LON-BMS-module

KWL-LB Ref. No. 9415

Technical Data	KWL EC 200 Eco for wall mounting				
Right-hand version	KWL EC 200 Eco R Ref. No. 0945				
Left-hand version	KWL EC 200 Eco L Ref. No. 0946				
Air flow volume on speed step	5	4	3	2	1
Supply-/Extract air flow vol. V m ³ /h	285	235	200	130	80
Sound levels in dB(A)					
Supply L _{WA} (sound power level)	44	40	37	31	28
Extract L _{WA} (sound power level)	44	39	36	31	28
Case breakout L _{PA} in 1 m	40	35	32	26	21
Power fan 2 x W	49	31	21	11	7
Voltage/Frequency	230 V, 1 ph., 50 Hz				
Nominal power max. Amps	0.7				
Summer Bypass	manually, with heat exchanger cover				
Wiring Diagram no.	857.1				
Temperature operation range	-20 °C to +40 °C				
Weight approx. in kg	40				

Note

Ventilation units with enthalpy heat exchanger for combined heat and humidity recovery page 76
Enthalpy heat exchanger (accessories) for additional refitting
KWL-ET 200 Ref. No. 0896

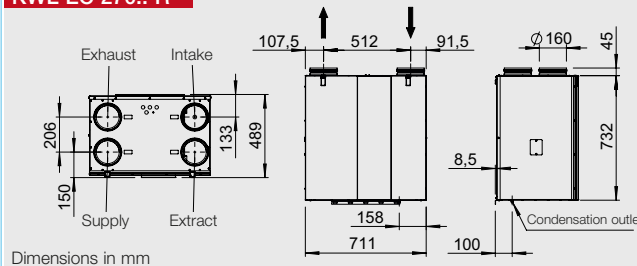
Technical Data	KWL EC 200 Pro for wall mounting							
Right-hand version	KWL EC 200 Pro R Ref. No. 0947							
Left-hand version	KWL EC 200 Pro L Ref. No. 0950							
Air flow volume on speed step	8	7	6	5	4	3	2	1
Supply-/Extract air flow vol. V m ³ /h	285	235	200	160	130	105	80	55
Sound levels in dB(A)								
Supply L _{WA} (sound power level)	44	40	37	34	31	29	28	27
Extract L _{WA} (sound power level)	44	39	36	33	31	30	28	28
Case breakout L _{PA} in 1 m	40	35	32	29	26	23	21	20
Power fan 2 x W	49	31	21	16	11	9	7	5
Voltage/Frequency	230 V, 1 ph., 50 Hz							
Max. Amps – ventilation	0.7							
– pre-heater	4.4							
– max. total	5.1							
Electric pre-heater kW	1.0							
Summer Bypass	Auto., adjustable from, with heat exchanger cover							
Wiring Diagram no.	817							
Temperature operation range	-20 °C to +40 °C							
Weight approx. in kg	41							

KWL EC 270 Eco and KWL EC 270 Pro

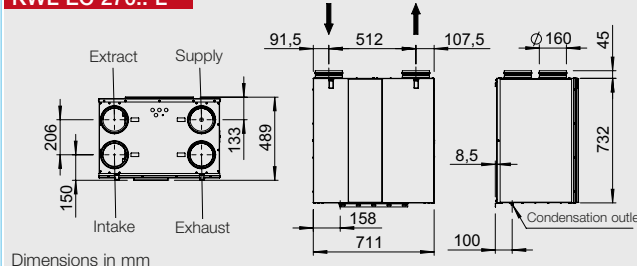
NEW!



KWL EC 270.. R



KWL EC 270.. L



Compact unit with heat recovery for central ventilation of houses and apartments built upon passive-house standards. High efficient cross counterflow heat exchanger with an efficiency of more than 90%. Latest EC motor technology with constant air flow regulation. This ensures that the adjusted air flow rate is preserved regardless of changing resistances (e.g., dirty filters) on each operating level.

- **Similarities**
- **Casing**
 - Made from galvanised sheet steel, white powder coated.
 - Interior from high quality expanded polystyrene (EPS) for maximum heat insulation.
 - Easy to install and maintain. The removable front panel allows full access.

- **Heat exchanger**
Due to its larger surface the cross counterflow heat exchanger provides an exceptionally high efficiency. Made from polymer. Easy to remove for cleaning purposes.

- **Fans**
Two silent high efficient centrifugal fans with energy-saving EC motors and constant flow rate regulation move the supply air and extract air continuously also on change of the pressure in the system. They are maintenance free and easily accessible through the front.

- **Ducting**
R or L handing ensures easy and crossover-free connection of the ducting for supply and extract air using ducts with nominal diameter of 160 mm. Spigots for connection located on top of the unit.

- **Condensation outlet**
The condensation outlet is located at the bottom of the unit. Trap and drain pipe to be connected by installer.

- **Air filter**
Supply of cleaned outside air using a G4 filter. Superfine pollen filter F7 (always necessary for passive-houses) is also available. Extract air passes through a G4 filter before entering the heat exchanger. A G4 bypass filter is included as standard, optional F7.

- **Frost protection**
By reduction of the supply air flow rate or by the integrated regulation of an upstream pre-heater battery (accessories)
EHR-R 1,2/160 No. 9434

An air filter is to be pre-connected to the pre-heater battery in G4 execution (accessories).
LFBR 160 G4 No. 8578

- **Electrical connection**
Free accessible, external terminal box (IP 44) at implemented cable, approx. 1.5 m long.

KWL EC 270 Eco
The economical solution for a wide range of application with an excellent cost/performance ratio.

- **Speed control**
 - Three speed operation via controller, integrated in the front panel.
 - Three freely definable operating levels individually controllable via potentiometers. Adjustable speed ratio of supply/extract air.
 - Disconnection via on/off switch on site or potentiometer adjustment.
 - An LED signals operating condition, filter change, frost protection, supply air temperature lower than 5° C and error message.
 - Activation of intensive ventilation level by additional external switch on site.
- **Summer operation**
Using exchanger cover plate, adjustable switching temperature and can be deactivated.

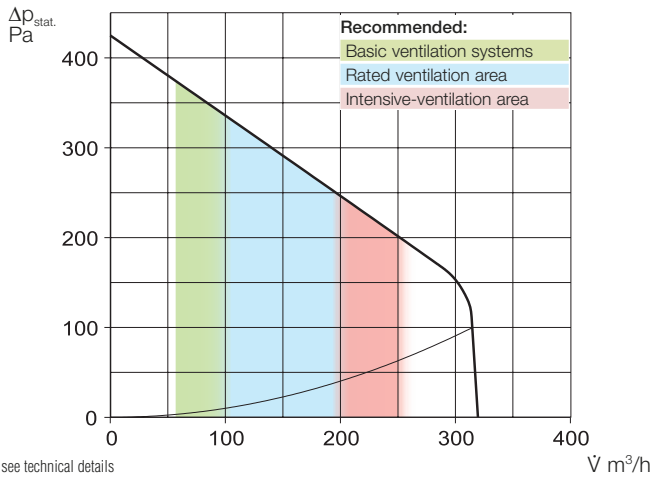


Technical Data	KWL EC 270 Eco for wall mounting		
Right-hand version	KWL EC 270 Eco R		
Left-hand version	KWL EC 270 Eco L		
	③	②	①
Air flow volume on speed step** Supply-/Extract air flow vol. V m ³ /h	285	170	110
Sound levels dB(A) at 100 Pa *			
Supply L _{WA} (sound power level)	63	52	46
Extract L _{WA} (sound power level)	49	38	32
Case breakout L _{pA} in 1 m	43	32	27
Power fan 2 x W	68	19	10
Standby-losses	< 1 W		
Voltage/Frequency	230 V, 1 ph., 50 Hz		
Max. Amps – ventilation	1.0		
Pre-heating battery (Output) kW	1.0		
Sommer Bypass	Auto., adjustable from, with heat exchanger cover		
Wiring Diagram no.	942		
Temperature operation range	-20 °C to +40 °C		
Weight approx. in kg	32		

* Sound levels raise with increasing system pressure ** Speed steps adjustable at will.

KWL EC 270..

Frequency*	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Extract	dB(A)	49	29	43	46	36	38	33	22
L _{WA} Supply	dB(A)	63	49	56	59	57	54	48	41
L _{PA} Exhaust	dB(A)	43	30	35	41	36	33	29	25



* see technical details

KWL EC 270 Pro
Meets even the highest comfort demands in functionality and operator convenience. Fully automated control, power-controlled electric heater battery (accessories) and automatic bypass function. User-friendly remote controller with graphic display included.

Speed control

- The comfort controller with graphic display (included in delivery) and user-friendly menu navigation makes the following functions possible:
 - Four-speed manual operation or with digital timer.
 - Freely definable operating levels within the performance curve values
 - Boost ventilation, intensive ventilation in addition also with external switch

- Control via intelligent CO₂- and humidity sensors (accessories, in each case up to 4 controllers can be installed)
- Display of required filter change, operating state, operating hours, error messages.
 - Several units can be controlled with one comfort controller.
 - Several comfort controllers can be connected to one unit.
 - The supply air temperature can be warmed up additionally by regulation of a power-controlled, external heater battery (EHR-R, accessories). Duct sensor (LTK 40, Ref. No. 1324) necessary.

Summer operation

Using exchanger cover plate, adjustable switching temperature and can be deactivated via controller.

EHR-R 2,4/160 No. 9435

Accessories for Pro..

Comfort controller (additional)

Display and function as described on the left. One piece KWL-BCU included in delivery. Up to 4 controllers can be connected. 3 m connecting cable included in delivery. Dim. mm (W x H x D) for flush mounting 81 x 81 x 20

KWL-BCU No. 9955

Dim. mm (W x H x D) for surface mounting 84x84x20

KWL-BCA No. 9956

CO₂-sensor

Measures CO₂ concentration and transfers data to the ventilation unit to arrange for an optimal CO₂ level in all 4 speeds. Up to 4 sensors can be plugged in. In this case, the sensor with the highest measurement is used for setting the unit.

Dim. mm (W x H x D) 95 x 97 x 30

KWL-CO₂ Ref. No. 9958

Humidity sensor

Measures the relative humidity and transfers data to the ventilation unit to arrange for optimal interior air humidity in all 4 speeds. Up to 4 sensors can be plugged in. In this case, the sensor with the highest measurement is used for setting the unit.

Dim. mm (W x H x D) 95 x 97 x 30

KWL-FF 270 Ref. No. 9953

Connecting cable

For distances > 3 m, with 2 RJ 12 plugs. For connection between controller and KWL EC.. Pro and/or between several ventilation units.

KWL-AL 10 (length 10 m) No. 9444

KWL-AL 20 (length 20 m) No. 9959

Wye junction board

To connect units, controllers and accessory components.

KWL-ALA Ref. No. 9960



Technical Data	KWL EC 270 Pro for wall mounting			
Right-hand version	KWL EC 270 Pro R		Ref. No. 9600	
Left-hand version	KWL EC 270 Pro L		Ref. No. 9608	
Air flow volume on speed step**	④	③	②	①
Supply-/Extract air flow vol. V m ³ /h	285	230	170	110
Sound levels dB(A) at 100 Pa*				
Supply L _{WA} (sound power level)	63	58	52	46
Extract L _{WA} (sound power level)	49	43	38	32
Case breakout L _{PA} in 1 m	43	39	32	27
Power fan 2 x W	68	35	19	10
Standby-losses	< 1 W			
Voltage/Frequency	230 V, 1 ph., 50 Hz			
Max. Amps - ventilation	1.0			
Pre-heating battery (Output) kW	1.0			
Heating battery (Output) kW	2.0			
Summer Bypass	Auto., adjustable from, with heat exchanger cover			
Wiring Diagram no.	943			
Temperature operation range	-20 °C to +40 °C			
Weight approx. in kg	32			

* Sound levels raise with increasing system pressure ** Speed steps adjustable at will.

Other accessories Pages

KWL®-“Periphery“	100 on
- Undersoil heat exchangers	102 on
- Air distribution systems	106 on
- Insulated duct system	111
- Further overview	112
- Spare filters	113

Accessories-Details

Grilles, ducting, duct components, wall and roof terminations	361 on
Intake/extract elements	374 on

Notes

Ventilation units with enthalpy heat exchanger
 for combined heat and humidity recovery page 76

Enthalpy heat exchanger (accessories) for additional refitting
 KWL-ET 270 Ref. No. 5912

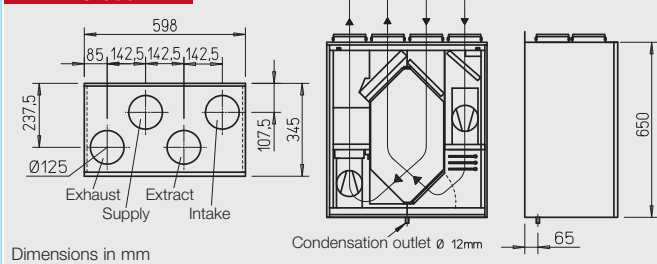
KWL EC 300 Eco and KWL EC 300 Pro



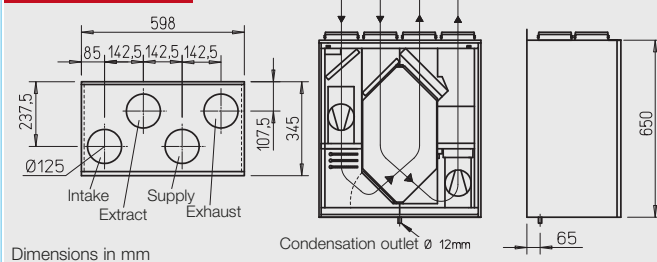
(Figure: KWL EC 300 Pro R)



KWL EC 300.. R



KWL EC 300.. L



Compact unit with heat recovery for central ventilation of houses and apartments.

High efficient counter crossover heat exchanger with efficiency of up to 90 %. State-of-the-art EC-motor technology.

Similarities

Casing

- Made from galvanised steel, white powder coated, double walled, heat and noise insulated (12 mm) on all sides.
- Easy to install and maintain. The removable front panel allows full access.

Heat Exchanger

Due to its large surface of 12 m² the exchanger provides exceptionally high efficiency. Made from aluminium to ensure durability and high quality. Easy to remove for cleaning purposes.

Fans

Two silent and energy saving centrifugal fans, with energy saving EC-motors, move the supply air and extract air. They are maintenance free and easy to remove for cleaning.

Ducting

R or L handing ensures easy and crossover-free connection of the ducting for supply and extract air using ducts with nominal diameter of 125 mm. Spigots for connection located on top of the unit.

Condensation outlet

The condensation outlet is located at the bottom of the unit. Trap delivered as standard. To be connected to the drain pipe by installer.

KWL EC 300 Eco

The economical solution for a wide range of application with an excellent cost/performance ratio.

Air filter

- Supply of cleaned outside air using a G4 filter. Superfine pollen filter (filter class F7) is also available. Extract air passes through a G4 filter before entering the heat exchanger.

Frost protection

- An adjustable thermostat stops the supply air in case of frost to prevent the heat exchanger from icing up.

Speed control

- The speed control supplied, has a 4-step operation switch which can be mounted at a distance up to 100 m. Power levels can be chosen from 5 speeds according to the air flow volume (see diagram).
- The operation switch can be combined with a clock timer, available as accessory.

WSUP Ref. No. 9990

- Combined with the differential pressure switch (accessory) the condition of the filter is displayed with a red LED.

DDS Ref. No. 0445

Summer operation

The unit comes with a manually operated bypass function as standard. In this case the outside air goes through the KWL without passing the heat exchanger to prevent the heat recovery function.

Electrical connection

Delivered ready to plug in. Free accessible and external terminal box with connections for operation switch and clock timer.

KWL EC 300 Pro meets even the highest comfort requirements. Equipped with an electric pre-heater, F7 pollen filter and an automatic bypass function as standard. An easy-to-use LCD controller is included.

Special features of KWL EC 300 Pro

Air filter

- Supply of cleaned air with double-filtering: Prefilter G4 and pollen filter F7. The extract air passes through filter G4 before entering the heat exchanger. All filters are easy to clean and replace.

Frost protection/pre-heater

- KWL EC 300 Pro units delivered as standard with an electric pre-heater which heats the intake air when the temperature is too low. This prevents ice from building up in the heat exchanger and ensures optimal heat recovery even during the winter months. Adjustable from -6 to +15 °C.

Speed control

- Automatic control of ventilation operation via LCD controller which is delivered as standard. Additional controllers (up to 3) and intelligent sensors (up to 5 CO₂ and 2 humidity sensors) can be connected.
- 8 speed steps for ideal ventilation and on/off via one or more remote controllers.
- Ventilation can be controlled via EIB or LON BMS (accessory) or via the external voltage signal (0-10 V or 4-20 mA).

□ LCD controller

- Programming of basic and maximum ventilation level as well as humidity and CO₂-limits, etc.
- LCD-Display for temperature,

maintenance and menu.

- Optical filter display with adjustable time period.
- Maximum ventilation function or open fire function via switch (switch has to be provided by customers). This prevents drawing smoke into the room from open fires.
- Integrated digital week timer.
- Adjustable speed proportion of the supply air and extract air fans.
- Settings for frost protection.
- Settings for summer operation.

Summer operation

Comes with automatic bypass function as standard. If summer function is selected on the controller – according to the defined settings – the heat exchanger is bypassed

Electrical connection

Delivered ready to plug in. Easily accessible external terminal box with connections for further LCD controllers, sensors etc. The supplied LCD controller is already connected.

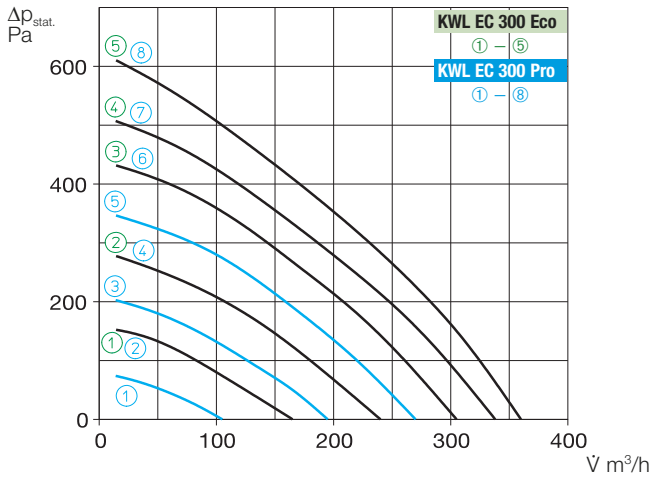
Other accessories	Pages
KWL®-“Periphery“	100 on
- Undersoil	
heat exchangers	102 on
- Air distribution systems	106 on
- Insulated duct system	111
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- Spare filters	113

Accessories-Details

Grilles, ducting, duct components, wall and roof terminations	361 on
Intake/extract elements	374 on

KWL EC 300 Eco **KWL EC 300 Pro**

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Extract		dB(A)	49	38	44	44	42	39	32
L _{WA} Supply		dB(A)	49	38	44	45	42	41	35
L _{PA} Exhaust		dB(A)	46	38	40	41	39	37	28



Accessories KWL EC 200 Eco

Clock timer

Digital clock timer with LCD-display to control operation automatically. Clock timer adjustable for each day of the week. Suitable for flush and surface installation.

Dim. in mm (WxHxD) 85 x 85 x 52
WSUP Ref. No. 9990



Differential pressure switch

Adjustable pressure switch to indicate when the pressure across the filter exceeds set pressure. Adjustable set pressure. Delivered as a complete set.

DDS Ref. No. 0445



Accessories KWL EC 300 Pro

Controller (additional)

User friendly LCD controller; details see "speed control" on the left page. One controller included. Additional ones can be ordered separately. Up to three controllers can be installed.

Dim. mm (WxHxD) 90 x 107 x 21
KWL-FB Ref. No. 9417



CO₂-sensor

Measures CO₂ concentration and transfers data to the ventilation unit to arrange for an optimal CO₂ level. Up to five sensors can be plugged in. In this case, the sensor with the highest measurement is used for setting the unit.

Dim. mm (WxHxD) 81 x 130 x 32
KWL-KDF Ref. No. 9413



Humidity sensor

Measures the relative humidity. The limit can be set automatically or manually. Up to two sensors can be plugged in.

Dim. mm (WxHxD) 81 x 130 x 32
KWL-FF Ref. No. 9414



BMS-modules

Allow the connection of KWL EC 200 to a LON or EIB-BMS-Network to control it from a central station and check its data.

Dim mm (WxHxD) 120 x 158 x 75

EIB-BMS-module

KWL-EB Ref. No. 9416

LON-BMS-module

KWL-LB Ref. No. 9415

Technical Data	KWL EC 300 Eco for wall mounting				
Right-hand version	KWL EC 300 Eco R		Ref. No. 0802		
Left-hand version	KWL EC 300 Eco L		Ref. No. 0803		
Air flow volume on speed step	5	4	3	2	1
Supply-/Extract air flow vol. V m ³ /h	360	335	305	240	165
Sound levels in dB(A)					
Supply L _{WA} (sound power level)	49	47	44	40	35
Extract L _{WA} (sound power level)	49	47	45	40	35
Case breakout L _{PA} in 1 m	46	44	42	37	30
Power fan 2 x W	97	80	65	36	18
Voltage/Frequency	230 V, 1 ph., 50 Hz				
Nominal power max. Amps	1.3				
Summer Bypass	manually, with heat exchanger cover				
Wiring Diagram no.	857.1				
Temperature operation range	-20 °C to +40 °C				
Weight approx. in kg	41				

Note

Ventilation units with enthalpy heat exchanger for combined heat and humidity recovery page 76
Enthalpy heat exchanger (accessories) for additional refitting
KWL-ET 300 Ref. No. 0896

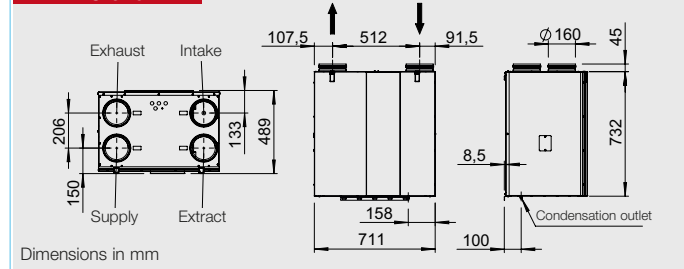
Technical Data	KWL EC 300 Pro for wall mounting							
Right-hand version	KWL EC 300 Pro R				Ref. No. 0812			
Left-hand version	KWL EC 300 Pro L				Ref. No. 0814			
Air flow volume on speed step	8	7	6	5	4	3	2	1
Supply-/Extract air flow vol. V m ³ /h	360	335	305	270	240	195	165	105
Sound levels in dB(A)								
Supply L _{WA} (sound power level)	49	47	44	42	40	37	35	32
Extract L _{WA} (sound power level)	49	47	45	42	40	37	35	33
Case breakout L _{PA} in 1 m	46	44	42	39	37	33	30	26
Power fan 2 x W	97	80	65	46	36	25	18	10
Voltage/Frequency	230 V, 1 ph., 50 Hz							
Max. Amps	- ventilation 1.3							
	- pre-heater 4.4							
	- max. total 5.7							
Electric pre-heater kW	1.0							
Summer Bypass	Auto., adjustable from, with heat exchanger cover							
Wiring Diagram no.	817							
Temperature operation range	-20 °C to +40 °C							
Weight approx. in kg	42							

KWL EC 370 Eco and KWL EC 370 Pro

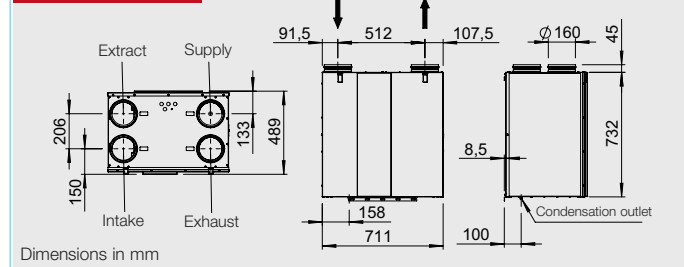
NEW!



KWL EC 370.. R



KWL EC 370.. L



Compact unit with heat recovery for central ventilation of houses and apartments built upon passive-house standards. High efficient cross counterflow heat exchanger with an efficiency of more than 90 %. Latest EC motor technology with constant air flow regulation. This ensures that the adjusted air flow rate is preserved regardless of changing resistances (e.g., dirty filters) on each operating level.

- **Similarities**
- **Casing**
 - Made from galvanised sheet steel, white powder coated.
 - Interior from high quality expanded polystyrene (EPS) for maximum heat insulation.
 - Easy to install and maintain. The removable front panel allows full access.

- **Heat exchanger**
Due to its larger surface area the cross counterflow heat exchanger provides exceptionally high efficiency. Made from polymer. Easy to remove for cleaning purposes.

- **Fans**
Two silent high efficient centrifugal fans, with energy-saving EC motors and constant flow rate regulation, move the supply air and extract air continuously also on change of the pressure in the system. They are maintenance free and easily accessible through the front.

- **Ducting**
R or L handing ensures easy and crossover-free connection of the ducting for supply and extract air using ducts with nominal diameter of 160 mm. Spigots for connection located on top of the unit.

- **Condensation outlet**
The condensation outlet is located at the bottom of the unit. Trap and drain pipe to be connected by installer.

- **Air filter**
Supply of cleaned outside air using a G4 filter. Superfine pollen filter F7 (always necessary for passive-houses) is available as an accessory. Extract air passes through a G4 filter before entering the heat exchanger. A G4 bypass filter is included as standard, optional F7.

- **Frost protection**
By reduction of the supply air flow rate or by the integrated regulation of an upstream pre-heater battery (accessories)
EHR-R 1,2/160 No. 9434
An air filter is to be pre-connected to the pre-heater battery in G4 execution (accessories).
LFBR 160 G4 No. 8578

- **Electrical connection**
Free accessible, external terminal box (IP 44) at implemented cable, approx. 1.5 m long.

KWL EC 370 Eco
The economical solution for a wide range of application with an excellent cost/performance ratio.

- **Speed control**
 - Three speed operation via controller, integrated in the front panel.
 - Three freely definable operating levels individually controllable via potentiometers. Adjustable speed ratio of supply/extract air.
 - Disconnection via on/off switch on site or potentiometer adjustment.
 - A LED signals operating condition, filter change, frost protection, supply air temperature lower than 5° C and error message.
 - Activation of intensive ventilation level by additional external switch on site.
- **Summer operation**
Using exchanger cover plate, adjustable switching temperature and can be deactivated.

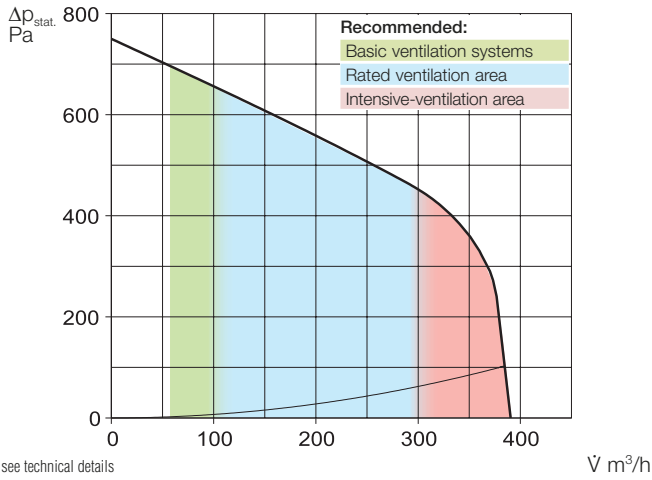


Technical Data	KWL EC 370 Eco for wall mounting		
Right-hand version	KWL EC 370 Eco R		
Left-hand version	KWL EC 370 Eco L		
	Ref. No. 9609		Ref. No. 9610
Air flow volume on speed step**	③	②	①
Supply-/Extract air flow vol. V m ³ /h	350	200	140
Sound levels dB(A) at 100 Pa*			
Supply L _{WA} (sound power level)	71	58	52
Extract L _{WA} (sound power level)	56	44	37
Case breakout L _{pA} in 1 m	51	41	34
Power fan 2 x W	111	25	14
Standby-losses	< 1 W		
Voltage/Frequency	230 V, 1 ph., 50 Hz		
Max. Amps – ventilation	2.2		
Pre-heating battery (output) kW	1.0		
Sommer Bypass	Auto., adjustable from, with heat exchanger cover		
Wiring Diagram no.	942		
Temperature operation range	–20 °C to +40 °C		
Weight approx. in kg	34		

* Sound levels raise with increasing system pressure ** Speed steps adjustable at will.

KWL EC 370..

Frequency*	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Extract	dB(A)	56	41	53	52	38	40	33	23
L _{WA} Supply	dB(A)	70	60	64	66	63	64	59	53
L _{PA} Exhaust	dB(A)	51	43	44	44	44	43	39	34



KWL EC 370 Pro Meets even the highest comfort demands in functionality and operator convenience. Fully automated control, power-controlled electric heater battery (accessories) and automatic bypass function. User-friendly remote controller with graphic display included.

Speed control

- The comfort controller with graphic display (included in delivery) and user-friendly menu navigation makes the following functions possible:
 - Four-speed manual operation or with digital timer.
 - Freely definable operating levels within the performance curve values
 - Boost ventilation, intensive ventilation in addition also with external switch

- Control via intelligent CO₂- and humidity sensors (accessories, in each case up to 4 controllers can be installed)
- Display of required filter change, operating state, operating hours, error messages.

- Several units can be controlled with one comfort controller.
- Several comfort controllers can be connected to one unit.
- The supply air temperature can be warmed up additionally by regulation of a power-controlled, external heater battery (EHR-R, accessories). Duct sensor (LTK 40, Ref. No. 1324) necessary.

Summer operation

Using exchanger cover plate, adjustable switching temperature and can be deactivated via controller.

Accessories for Pro..

Comfort controller (additional)

Display and function as described on the left. One piece KWL-BCU included in delivery. Up to 4 controllers can be connected. 3 m connecting cable included in delivery. Dim. mm (W x H x D) for flush mounting 81 x 81 x 20

KWL-BCU No. 9955

Dim. mm (W x H x D) for surface mounting 84 x 84 x 20

KWL-BCA No. 9956

CO₂-sensor

Measures CO₂ concentration and transfers data to the ventilation unit to arrange for an optimal CO₂ level in all 4 speeds. Up to 4 sensors can be plugged in. In this case, the sensor with the highest measurement is used for setting the unit.

Dim. mm (W x H x D) 95 x 97 x 30
KWL-CO₂ Ref. No. 9958

Humidity sensor

Measures the relative humidity and transfers data to the ventilation unit to arrange for optimal interior air humidity in all 4 speeds. Up to 4 sensors can be plugged in. In this case, the sensor with the highest measurement is used for setting the unit.

Dim. mm (W x H x D) 95 x 97 x 30
KWL-FF 270 Ref. No. 9953

Connecting cable

For distances > 3 m, with 2 RJ 12 plugs. For connection between controller and KWL EC.. Pro and/or between several ventilation units.

KWL-AL 10 (length 10 m) No. 9444

KWL-AL 20 (length 20 m) No. 9959

Wye junction board

To connect units, controllers and accessory components.

KWL-ALA Ref. No. 9960



Technical Data	KWL EC 370 Pro for wall mounting			
Right-hand version	KWL EC 370 Pro R Ref. No. 9611			
Left-hand version	KWL EC 370 Pro L Ref. No. 9612			
Air flow volume on speed step**	④	③	②	①
Supply-/Extract air flow vol. V m ³ /h	350	280	200	140
Sound levels dB(A) at 100 Pa*				
Supply L _{WA} (sound power level)	71	64	58	52
Extract L _{WA} (sound power level)	56	50	44	37
Case breakout L _{PA} in 1 m	51	46	41	34
Power fan 2 x W	111	62	25	14
Standby-losses	< 1 W			
Voltage/Frequency	230 V, 1 ph., 50 Hz			
Max. Amps - ventilation	2.2			
Pre-heating battery (output) kW	1.0			
Heating battery (output) kW	2.0			
Summer Bypass	Auto., adjustable from, with heat exchanger cover			
Wiring Diagram no.	943			
Temperature operation range	-20 °C to +40 °C			
Weight approx. in kg	34			

* Sound levels raise with increasing system pressure ** Speed steps adjustable at will.

Other accessories	Pages
KWL®-“Periphery“	100 on
- Undersoil heat exchangers	102 on
- Air distribution systems	106 on
- Insulated duct system	111
- Further overview	112
- Spare filters	113

Accessories-Details

Grilles, ducting, duct components, wall and roof terminations	361 on
Intake/extract elements	374 on

Notes
Ventilation units with enthalpy heat exchanger for combined heat and humidity recovery page 76
Enthalpy heat exchanger (accessories) for additional refitting KWL-ET 370 Ref. No. 5912

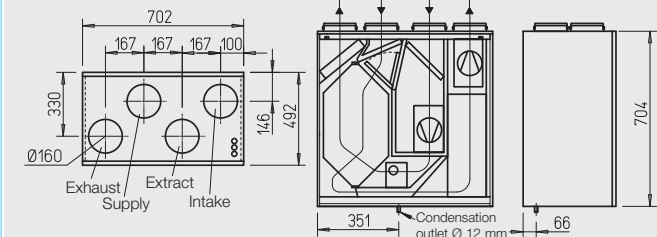
KWL EC 500 Eco and KWL EC 500 Pro



Photo shows KWL EC 500 Pro R with pollen filter class F7 (accessory)

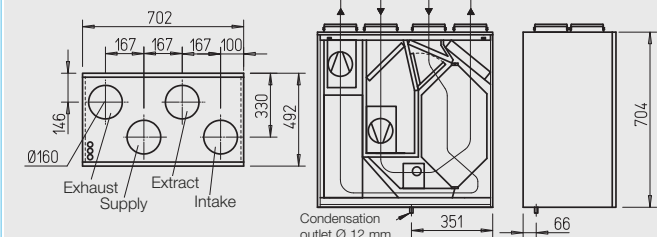


KWL EC 500.. R



Dimensions in mm

KWL EC 500.. L



Dimensions in mm

Compact unit with heat recovery for central ventilation of houses and apartments.

High efficient counter crossover heat exchanger with efficiency of up to 90%. State-of-the-art EC-motor technology.

Similarities

Casing

- Made from galvanised steel, white powder coated, double walled, heat and noise insulated on all sides.
- Easy to install and maintain. The removable front panel allows full access.

Heat Exchanger

Due to its large surface of 26 m² the exchanger provides an exceptionally high efficiency. Made from aluminium to ensure durability and high quality. Easy to remove for cleaning purposes.

Fans

Two silent and energy saving centrifugal fans with energy saving EC-motors move the supply air and extract air. They are maintenance free and easy to remove for cleaning.

Ducting

R or L handing ensure easy and crossover-free connection of the ducting for supply and extract air using ducts with nominal diameter of 160 mm. Spigots for connection located on top of the unit.

Condensation outlet

The condensation outlet is located at the bottom of the unit. Trap delivered as standard. To be connected to the drain pipe by installer.

KWL EC 500 Eco

The economical solution for a wide range of application with an excellent cost/performance ratio.

Air filter

- Supply of cleaned outside air using a G4 filter. Superfine filter (filter class F7) against pollen is available as an accessory. Extract air passes a G4 filter before entering the heat exchanger.

Frost protection

- An adjustable thermostat stops the supply air in case of frost to prevent the heat exchanger from icing up.

Speed control

- The speed control supplied has a 4-step operation switch which can be mounted in a distance up to 100 m. Power levels can be chosen from 5 speeds according to the air flow volume (see diagram).

- The operation switch can be combined with a clock timer, available as accessory.

WSUP Ref. No. 9990

- Combined with the differential pressure switch (accessory) the condition of the filter is displayed with a red LED.

DDS Ref. No. 0445

Summer operation

The unit comes with a manually operated bypass function as standard. In this case the outside air goes through the KWL without passing the heat exchanger to prevent the heat recovery function.

Electrical connection

Delivered ready to plug in. Free accessible and external terminal box with connections for operation switch and clock timer.

KWL EC 500 Pro meets even the highest comfort requirements. Equipped with an electric pre-heater, and an automatic bypass function as standard. An easy-to-use LCD controller is included.

Special features of KWL EC 500 Pro

Air filter

- Supply of cleaned air via prefilter G4, a pollen filter F7 can optionally be added. The extract air passes filter G4 before entering the heat exchanger. All filters are easy to clean and replace.

Frost protection/pre heater

- KWL EC 500 Pro units delivered as standard with an electric pre-heater which heats the intake air when the temperature is too low. This prevents ice from building up in the heat exchanger and ensures optimal heat recovery even during the winter months. Adjustable from -6 to +15 °C.

Speed control

- Automatic control of ventilation operation via LCD controller which is delivered as standard. Additional controllers (up to 3) and intelligent sensors (up to 5 CO₂ and 2 humidity sensors) can be connected.
- 8 speed steps for ideal ventilation and on/off via one or more remote controllers.
- Ventilation can be controlled via EIB or LON BMS (accessory) or via the external voltage signal (0-10 V or 4-20 mA).

□ LCD controller

- Programming of basic and maximum ventilation level as well as humidity- and CO₂-limits, etc.
- LCD-Display for temperature, maintenance and menu.

- Optical filter display with adjustable time segments.
- Maximum ventilation function or open fire function via switch (switch has to be provided by customers). This prevents drawing smoke into the room from open fires.
- Integrated digital week timer.
- Adjustable speed proportion of the supply air and extract air fans.
- Settings for frost protection.
- Settings for summer operation.

Summer operation

Comes with automatic bypass function as standard. If summer function is selected via the controller - according to the defined settings - the heat exchanger is bypassed

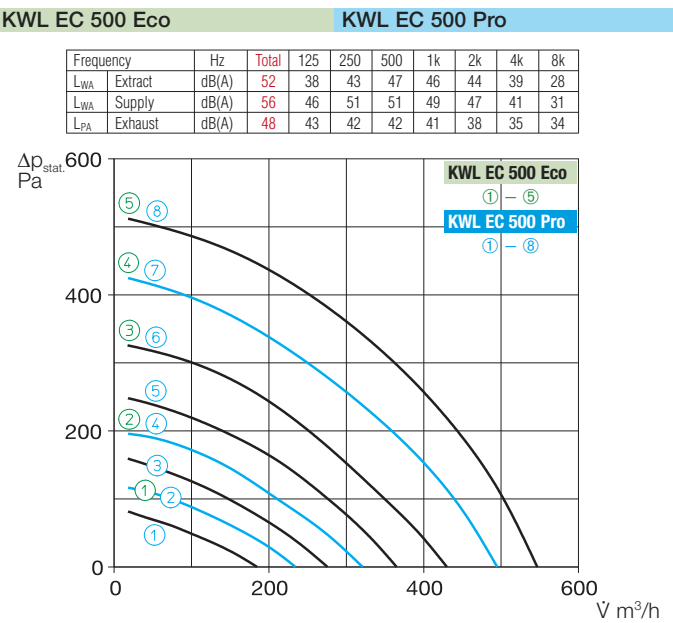
Electrical connection

Delivered ready to plug in. Easily accessible external terminal box with connections for further LCD controllers, sensors etc. The supplied LCD controller is already connected.

Other accessories	Pages
KWL®-“Periphery“	100 on
- Undersoil heat exchangers	102 on
- Air distribution systems	106 on
- Insulated duct system	111
- Further overview	112
- Spare filters	113

Accessories-Details

Grilles, ducting, duct components, wall and roof terminations	361 on
Intake/extract elements	374 on



■ Accessories KWL EC 500 Eco

Clock timer

Digital clock timer with LCD-display to control operation automatically. Clock timer adjustable for each day of the week. Suitable for flush and surface installation.

Dim. in mm (WxHxD) 85 x 85 x 52

WSUP Ref. No. 9990



Differential pressure switch

Adjustable pressure switch to indicate when the pressure across the filter exceeds set pressure. Adjustable set pressure. Delivered as a complete set.

DDS Ref. No. 0445



Technical data	KWL EC 500 Eco for wall mounting				
Right-hand version	KWL EC 500 Eco R Ref. No. 0785				
Left-hand version	KWL EC 500 Eco L Ref. No. 0786				
Air flow volume on speed step	5	4	3	2	1
Supply-/Extract air flow vol. V m³/h	550	430	365	275	190
Sound levels dB(A)*					
Supply L _{WA} (sound power level)	56	50	46	41	35
Extract L _{WA} (sound power level)	52	46	44	39	35
Case breakout L _{PA} in 1 m	48	43	40	35	30
Power fan 2 x W	143	79	50	30	16
Voltage/Frequency	230 V / 1 ph. / 50 Hz				
Nominal power max. Amps	1.8				
Summer Bypass	manually, with heat exchanger cover				
Wiring Diagram no.	857.1				
Temperature operation range	-20 °C to +40 °C				
Weight approx. in kg	65				

■ Note

Ventilation units with enthalpy heat exchanger for combined heat and humidity recovery page 76
Enthalpy heat exchanger (accessories) for additional refitting
 KWL-ET 500 Ref. No. 0897

■ Accessory KWL EC 500 Pro

Controller (additional)

User friendly LCD controller; details see "speed control" on the left page. One controller included. Additional ones can be ordered separately. Up to three controllers can be installed.

Dim. mm (WxHxD) 90 x 107 x 21

KWL-FB Ref. No. 9417



CO₂-sensor

Measures CO₂ concentration and transfers data to the ventilation unit to arrange for an optimal CO₂ level. Up to five sensors can be plugged in. In this case, the sensor with the highest measurement is used for setting the unit.

Dim. mm (WxHxD) 57 x 171 x 43

KWL-KDF Ref. No. 9413



Humidity sensor

Measures the relative humidity. The limit can be set automatically or manually. Up to two sensors can be plugged in.

Dim. mm (WxHxD) 57 x 171 x 43

KWL-FF Ref. No. 9414



BMS-modules

Allow the connection of KWL EC 500 to a LON or EIB-BMS-Net-work to control it from a central station and check its data.

Dim. mm (WxHxD) 120 x 158 x 75

EIB-BMS-module

KWL-EB Ref. No. 9416

LON-BMS-module

KWL-LB Ref. No. 9415

Technical data	KWL EC 500 Pro for wall mounting								
Right-hand version	KWL EC 500 Pro R Ref. No. 0787								
Left-hand version	KWL EC 500 Pro L Ref. No. 0788								
Air flow volume on speed step	5	7	6	5	4	3	2	1	
Supply-/Extract air flow vol. V m³/h	550	495	430	365	320	275	235	190	
Sound levels dB(A)*									
Supply L _{WA} (sound power level)	56	53	50	46	44	41	39	35	
Extract L _{WA} (sound power level)	52	49	46	44	42	39	38	35	
Case breakout L _{PA} in 1 m	48	46	43	40	38	35	33	30	
Power fan 2 x W	143	110	79	50	42	30	22	16	
Voltage/Frequency	230 V / 1 ph. / 50 Hz								
Max. Amps	- ventilation 1.8								
	- pre-heater 4.4								
	- max. total 6.2								
Electric pre-heater kW	1.0								
Summer Bypass	Auto., adjustable from 0 to +25 °C, with heat exchanger cover								
Wiring Diagram no.	817								
Temperature operation range	-20 °C to +40 °C								
Weight approx. in kg	66								

KWLC 350 and KWL EC 350



Photo shows type for vertical installation

Slim units for universal installation for ventilation with heat recovery. To be installed vertically or horizontally. Suitable as central unit for controlled ventilation of residential buildings. Also suitable as decentral solutions for commercial and industrial applications.

Energetically tested on ability by the TÜV. General approved by the DIBt.

Special characteristics

- High efficient heat exchanger.
- Easy duct installation. The unit can be installed either way round as the easily removable access panels are on both sides. Duct spigots on each end with an additional exhaust spigot on the top of the unit. Thus these options reduce the duct runs and bends to reduce losses and increase efficiency.
- Double skinned casing for excellent heat and noise insulation.

Specification

Casing

- Made from galvanised steel. Double skinned with 50 mm thick heat and noise insulating mineral wool.
- Side panels are easily removable without tools through opening the clamps for free access to all elements. Perfect for cleaning, filter change and service.
- Anti vibration feet supplied with a slope towards condensation spigot, for vertical units.
- KWL EC 350 models with combi casing that can be installed vertically and horizontally.

Cross flow heat exchanger

Large cross section with high efficiency. Robust design, made from aluminium. Simple to remove and thus easy to clean.

Fans

Two silent and energy saving centrifugal fans arrange for the transport of the supply air and extract air. They are maintenance free and easy to clean.

Air filter

- see description of KWLC 650, page 94.

Frost protection/pre-heating

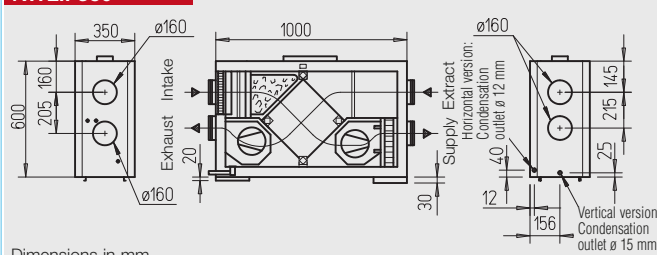
An electrical pre-heater prevents the heat exchanger from icing up. KWL EC 350: The thermo-controlled supply air fan turns off when the outside temperature is too low.

Speed control – KWLC 350..

- The three-speed controller supplied as standard. One of five speeds can be selected as medium speed ② (as per the required capacity, see performance curve).
- For more details, LED-display and differential pressure switch DDS (accessory) see description of KWLC 650, pages 94 and 95.
- The controller comes with 12 mtrs. of cable and can be installed surface or flush mounted.
- The controller can be combined with a clock timer (WSU, accessory) for automatic operation.

KWL-WSU Ref. No. 0856

KWL.. 350



Other accessories Pages

KWL®-“Periphery”	100 on
– Undersoil heat exch.	102 on
– Air distribution systems	106 on
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Accessories-Details

Grilles, ducting, duct components, wall and roof terminations	361 on
Intake/extract elements	374 on

Speed control – with KWL EC 350..

- The three speed controller is included with the unit which can be installed at any distance up to 200 m from the KWL unit. The medium speed step ② can be chosen from five speeds (as per your desired capacity).
- An automatic remote controller (AFS, accessory) for automatic or manual control with weekly timer.

AFS Ref. No. 0053

- Filter condition is indicated in combination with differential pressure switch DDS (accessory).

DDS Ref. No. 0445

Heater battery

With very low temperatures the intake air can be warmed up additionally with a heater battery:

- Electric heater battery (..EH) to be controlled by built-in adjustable thermostat.
- Water heater battery (..WW), for temperature control use WHST 300 T38 (accessory).

WHST 300 T38 Ref. No. 8817

Summer operation

To supply cool outside air in warmer periods the unit is equipped with a summer kit as standard.

Electrical connection

Large terminal box with easy access on the upper side of the casing.

Condensation connection

The condensation outlet ø 15 mm is located at the bottom of the unit. Trap delivered as standard. To be connected with the drain pipe by installer.

KWL EC – with energy saving EC motor technology and highly efficient heat exchangers.

The special characteristics

EC motor technology

Electronically commutated DC motors run on low energy consumption and with high efficiency even if controlled.

- The power of the KWL EC ventilation units with heat recovery can be adjusted nearly stepless without loss to the required capacity on site. The user can choose any three speeds used for operation from 15 performances.

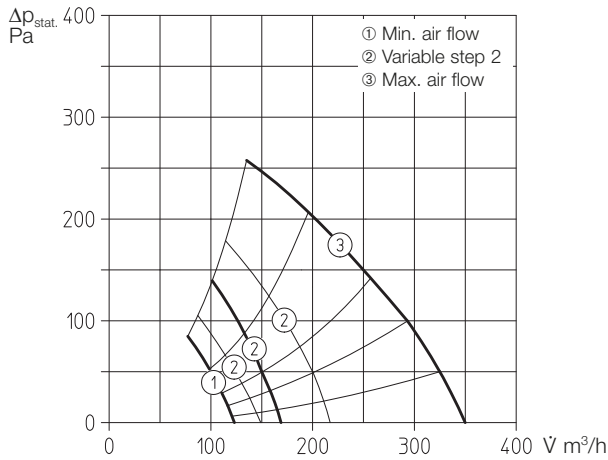
- The innovative constant air flow controller ensures that the setted air flow volume stays constant on every speed, independent from changing resistances (e.g. soiled filters).

- The efficient and generously sized aluminium heat exchanger produces together with the energy saving EC fans an extraordinary high efficiency. The ducting can be designed perfectly, so that a superb efficiency is achieved.



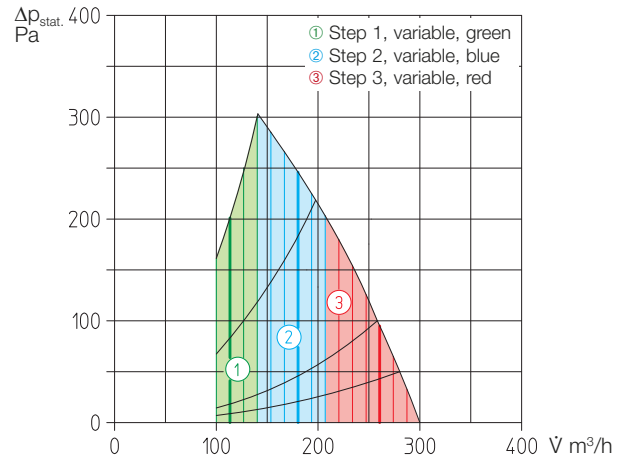
KWLC 350

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Extract		dB(A) 50	41	45	43	43	42	38	31
L _{WA} Supply		dB(A) 64	49	55	53	54	61	57	52
L _{PA} Case breakout		dB(A) 47	36	41	43	41	38	32	24



KWL EC 350 with EC technology

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Extract		dB(A) 50	41	45	43	43	42	38	31
L _{WA} Supply		dB(A) 64	49	55	53	54	61	57	52
L _{PA} Case breakout		dB(A) 47	36	41	43	41	38	32	24



Accessory

Clock timer (for KWLC 350..)

Digital clock timer with LCD-display to control operation automatically. Clock timer adjustable for each day of the week. Suitable for flush and surface installation.



KWL-WSU Ref. No. 0856
Dim. in mm (WxHxD) 85 x 85 x 52

Automatic timer/remote controller (for KWL EC 350..)

Adjustable daily programming or weekly programming with individual settings for single days. Features: on/off, automatic and manual operation, filter control (via DDS, accessory), heater on/off manually.



AFS Ref. No. 0053
Dim. in mm (WxHxD) 162 x 80 x 44
Terminal box 125 x 125 x 75

Additional module ZMPA (for KWLC 350..)

To allow the user to override the control panel, if fans are used in MIN or MAX mode.

Dim. mm (WxHxD) 110 x 110 x 60
KWL-ZMPA Ref. No. 1430



Additional module ZMEA (for KWLC 350..)

This module allows the control of the unit via external control signals. There is a volt free contact to indicate the 3 operating conditions.

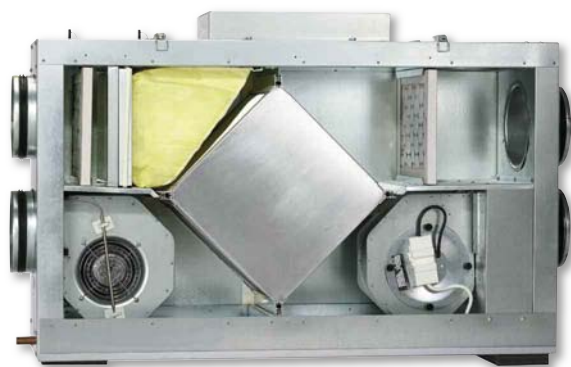
Dim. mm (WxHxD) 110 x 110 x 60
KWL-ZMEA Ref. No. 1431



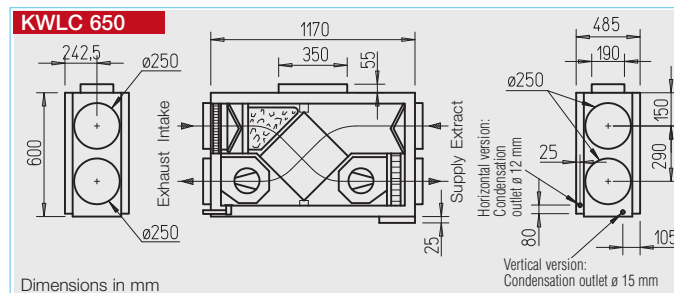
Technical data	KWLC 350			KWL EC 350 with EC technology		
	With electric heater battery			With water heater battery (PWW)		
	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
For vertical installation	KWLC 350 SEH	0076	KWLC 350 SWW	0174	KWL EC 350 EH	0848
For horizontal installation	KWLC 350 LEH	0077	KWLC 350 LWW	0175	KWL EC 350 WW	0849
Air flow volume on speed step*	3	2	1	3	2	1
Supply/extract air flow volume Vm³/h	350	170	120	350	170	120
Sound levels in dB(A)*						
Intake L _{WA} (sound power level)	64	58	49	64	58	49
Exhaust L _{WA} (sound power level)	50	44	35	50	44	35
Case breakout L _{PA} at 1 m	47	41	32	47	41	32
Power fan 2 x W*	120	60	25	120	60	25
Voltage/Frequency	230 V / 1 ph. / 50 Hz			230 V / 1 ph. / 50 Hz		
Max. Amps	- ventilation 1.1			- ventilation 1.1		
	- pre-heater/heater battery 4.2/4.3			- pre-heater/heater battery 4.2/—		
	- max. overall 9.6			- max. overall 5.3		
Heat power/heater battery kW	1 (electric)			1 ¹⁾		
Electric heater kW	0.975			0.975		
Wiring	NYM-J 3 x 1.5 mm ²			NYM-J 3 x 1.5 mm ²		
Wiring diagram	832			832		
- Principle wiring	—			—		
Temperature operation range	-20 °C to +40 °C			-20 °C to +40 °C		
Connection of PWW-heater battery in mm	—			ø 12		
Weight approx. in kg	50			50		

* Figures relate to the three performances with the thick lines in the diagram. ¹⁾ At supply air temperature (before heater) 0 °C and water temperature of 60 °C.

KWLC 650



(Figures shows vertical type)



Slim units for universal installation for ventilation with heat recovery. KWLC 650 for vertical or horizontal installation.

Suitable as central or decentralised solution for rooms in commercial or industrial applications.

The units are according to EN 60 335-1

Special characteristic

- Easy duct installation. The unit can be installed either way round as the easily removable access panels are on both sides. Duct spigots on each end with an additional exhaust spigot on the top of the unit. Thus these options reduce the duct runs and bends to reduce losses and increase efficiency.
- Casing made from galvanised steel. Double skinned with 50 mm thick heat and noise insulating mineral wool.

Specification

Casing

- Made from galvanised steel. Double skinned with 50 mm thick heat and noise insulating mineral wool.
- Side panels are easily removable without tools through opening the clamps for free access to all elements. Perfect for cleaning, filter change and service.
- Supplied with anti vibration feet and is inclined towards the condensation outlet (vertical units only).

Cross flow heat exchanger

Large cross section with high efficiency. Robust design, made from aluminium. Simple to remove and thus easy to clean.

Fans

Two low noise and energy saving centrifugal fans provide extract and supply, maintenance free and easily removable for cleaning if necessary.

Filters

- Supplied as standard: Clean intake air from two filters. The supply air is filtered by a pre filter G3 and fine filter F5 before entering the heat recovery section. Another filter (G3) cleans the extract air before entering the heat exchanger.
- Pollen filter class F7 (accessory) available for people with allergies.
- All filters can be removed easily for cleaning and changing.

Frost protection/pre-heater

An electric pre-heater prevents the heat exchanger from icing up.

Speed control

- The three speed controller is included with the unit. The medium speed step ② can be chosen from five speeds (as shown in the performance curve).
- The controller includes two push switches with the following functions:
 - Control of the ventilation power: “min., medium, max.”
 - Off/automatic switch for the electric heater. The settings are displayed with 6 LEDs: 3 ventilation steps, heater “auto/off” and heater “active”, “failure” (red).
- The controller comes with 12 metres of cable and can be installed surface or flush mounted.
- Combined with the differential pressure switch (DDS, accessory) the condition of the filter is displayed with the red LED.

DDS Ref. No. 0445

- The controller can be combined with a clock timer (WSU, accessory) for automatic night set back.

KWL-WSU Ref. No. 0856

Heater battery

With very low temperatures the intake air can be warmed up additionally with a heater battery:

- Electric heater battery (..EH) is controlled by built-in adjustable thermostat.
- Water heater battery For temperature control of ..WW model use WHST 300 T38 (accessory).

WHST 300 T38 Ref. No. 8817

Summer operation

To supply cool outside air in warmer periods the unit is equipped with a summer kit as standard. Can be changed easily in place of the heat exchanger.

Electrical connection

Ready to plug in by shock-proof plug.

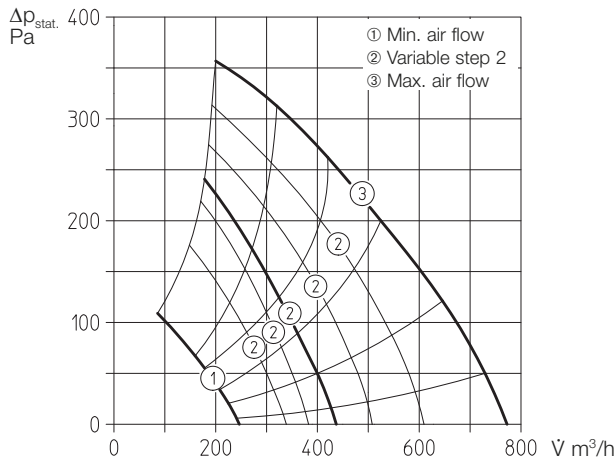
Condensation connection

The condensation outlet ø 15 mm is located at the bottom of the unit. Trap delivered as standard. To be connected with the drain pipe by installer.

Other accessories	Pages
KWL®-“Periphery“	100 on
– Undersoil	
– heat exchangers	102 on
– Air distribution systems	106 on
– Insulated duct system	111
– Further overview	112
– Spare filters	113
Accessories-Details	
Grilles, ducting, duct components, wall and roof terminations	361 on
Intake/extract elements	374 on

KWLC 650

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Extract	dB(A)	55	46	50	48	48	47	43	36
L _{WA} Supply	dB(A)	68	53	59	57	60	65	61	56
L _{PA} Case breakout	dB(A)	50	39	44	46	44	42	35	28


Additional module ZMPA

To allow the user to override the control panel, if fans are used in MIN or MAX mode.
 Dim. mm (WxHxD) 110 x 110 x 60
KWL-ZMPA Ref. No. 1430


Additional module ZMEA

This module allows the control of the unit via external control signals. There is a volt free contact to indicate the 3 operating conditions.
 Dim. mm (WxHxD) 110 x 110 x 60
KWL-ZMEA Ref. No. 1431

Accessory
Clock timer

Digital clock timer with LCD-display to control operation automatically. Clock timer adjustable for each day of the week. Suitable for flush and surface installation.
 Dim mm (WxHxD) 85 x 85 x 52
KWL-WSU Ref. No. 0856


Differential pressure switch

Adjustable pressure switch to indicate when the pressure across the filter exceeds set pressure. Adjustable set pressure. Delivered as a complete set.
DDS Ref. No. 0445


Air temperature control

For air temperature control of integrated PWW water heater battery. Consisting of thermostat with remote controller and remote sensor. Delivery as complete set incl. thermostat for room installation, gate valve, set piston, capillary tube remote sensor and mounting material.
WHST 300 T38 Ref. No. 8817


Technical data

	KWLC 650 With electric heater battery			KWLC 650 With water heater battery (PWW-)		
	Type	Ref. No.		Type	Ref. No.	
For vertical installation	KWLC 650 SEH	0176		KWLC 650 SWW	0167	
For horizontal installation	KWLC 650 LEH	0178		KWLC 650 LWW	0170	
Air flow volume on speed step*	③	②	①	③	②	①
Supply/extract air flow volume Vm ³ /h ca.	650	450	240	650	450	240
Sound levels in dB(A)*						
Intake L _{WA} (sound power level)	68	61	45	68	61	45
Exhaust L _{WA} (sound power level)	55	48	38	55	48	38
Case breakout L _{PA} at 1 m	50	44	35	50	44	35
Power fan 2 x Watts*	200	115	75	200	115	75
Voltage/Frequency	230 V, 1 ph., 50 Hz			230 V, 1 ph., 50 Hz		
Max. Amps	— ventilation 2.5			— ventilation 2.5		
— pre-heater/heater battery	4.3/8.7			4.3/—		
— max. total	15.5			6.8		
Heat power/heater battery kW	2			4 ¹⁾		
Electric heater kW	1			1		
Electrical connection	NYM-J 3 x 2.5 mm ²			NYM-J 3 x 1.5 mm ²		
Wiring diagram no.	— with remote switch 833			— with remote switch 833		
— with remote automatic switch AFS	—			—		
— Principle wiring	—			—		
Temperature operation range	-20 °C to +40 °C			-20 °C to +40 °C		
Connection of PWW heater battery in mm	—			∅ 12		
Weight approx. in kg	72			72		

* Figures relate to the three performances with the thick lines, achieved either through a stepped controller or the automatic controller AFS (accessory).
 1) at intake air temperature (before heater) 0 °C and water temperature of 60 °C.

Helios offers “a good deal” in the field of controlled ventilation of the living space. To ensure the most efficient use of the heat recovery system the ducting intake and extract elements are critical. The Helios “all from a single source” solutions ensure the ideal design is achievable.

Undersoil heat exchangers raise the incoming air temperature without any additional energy input for your heat recovery system. The SEWT and LEWT use the relatively constant undersoil temperature throughout the year providing pre-heating in winter and refreshing cooler air in summer. It is a complete package as an ideal supplement for all KWL® ventilation units. Page 102 ff.



Installation of hydraulic unit for connection of ground-to-brine heat exchanger system

Air distribution box

FlexPipe® duct



“All from a single source“ for a perfect heat recovery system from Helios.

Ceiling-intake/outlet

Air distribution systems

for extract- and supply air distribution in buildings. Three styles to suit all types of laying systems and requirements. No matter whether it is used for new buildings or renovations.

FK.. Flat duct systems made from galvanised steel, for laying below the floor screed. Page 108

F.. Flat duct systems made from plastics, for surface and flush mounted laying in existing buildings, in wood constructions and prefabricated buildings. Page 110

FlexPipe® pipe ducting system FRS

Flexible endless laying from the roll, direct in or on the concrete ceiling. The simplest solution for extract air and supply air distribution in new buildings or building stocks.

Our system technology with a smooth inner pipe has a minimal resistance to flow, 50% less component parts and saves approximately $\frac{2}{3}$ of time during the installation. Small bending radius (approx. 0.20 m) provides the maximum installation freedom on site.

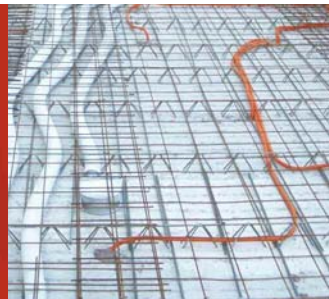
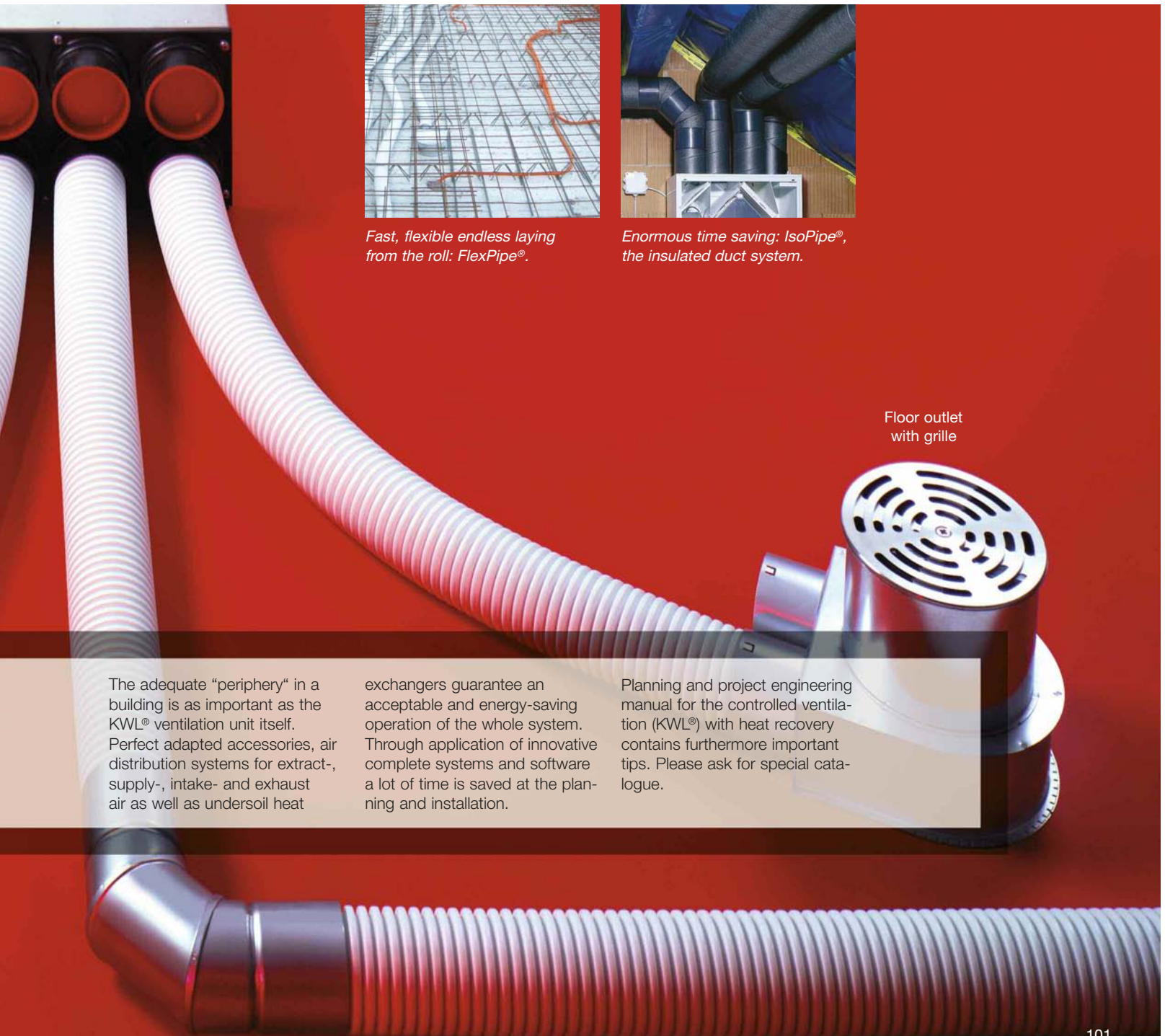
Page 106

Insulated ducting system**IsoPipe®**

A clever alternative to the conventional spiral duct with supplementary thermal insulation. It is already completely insulated.

The IsoPipe® is ideally suited for supply and exhaust air duct to the KWL® as well as for the supply and or extract air pipe in lofts, basements or cool areas. IsoPipe® prevents condensate accumulation and offers up to 70% time saving. It has a smooth, sound-absorbing inner surface and is easy to clean, in DN 125 and DN 150.

Page 111



Fast, flexible endless laying from the roll: FlexPipe®.



Enormous time saving: IsoPipe®, the insulated duct system.

Floor outlet with grille

The adequate “periphery“ in a building is as important as the KWL® ventilation unit itself. Perfect adapted accessories, air distribution systems for extract-, supply-, intake- and exhaust air as well as undersoil heat

exchangers guarantee an acceptable and energy-saving operation of the whole system. Through application of innovative complete systems and software a lot of time is saved at the planning and installation.

Planning and project engineering manual for the controlled ventilation (KWL®) with heat recovery contains furthermore important tips. Please ask for special catalogue.



The ground-to brine heat exchanger increases the efficiency of the ventilation units. SEWT saves even more energy and reduces costs of heating to a minimum. The optimal add-on for ventilation systems with heat recovery.

- Provides additional pre-heating during winter.
- Pleasant cooling on hot days.
- Comes as a complete kit with perfectly fitting components.

■ Operation

SEWT uses the fact that the temperature below the ground is relatively constant over the year. The under-soil-collector-hose is laid 1.2 m deep. The hydraulic unit circulates the brine-liquid according to the temperature outside. The brine-liquid serves as heat transfer medium and delivers the heat to the the supply air via the heat exchanger unit.

■ Effects:

- During winter SEWT achieves a pre-heating of the cool outside air up to 14 K. This results in the intake air flowing into the ventilation unit with usually more than 0 °C and therefore prevents the heat exchanger from icing up. The benefits are a higher heat recovery factor and a higher supply air temperature. An additional heater battery is only needed on extremely cold days.
- On hot summer days the SEWT arranges for a cooling of the intake air which leads to a noticeable cooling-effect on the room temperature.
- During transition periods the circulation of the brine-liquid is provided by the hydraulic unit as a function of the outside temperature. Therefore the outside air always arrives at the ventilation unit energetically optimised. Saving energy and always provides comfortable room climate.

■ Information on planning

- To ensure the highest possible heat transfer, the under-soil collector hose should be laid in at least 1.2 m depth as there is a constant temperature of about 8-12 °C throughout the year. The soil temperature increases the deeper the ducts are laid and becomes constant.
- To increase the heat exchange the hose should be laid directly under the soil in a sand filled tranche. Furthermore, a minimum space of 0.5 m from one hose to the other should be observed for two parallel tubes.
- Alternatively to laying the hose horizontally in a zigzag arrangement under the soil a vertical bore hole can be used.

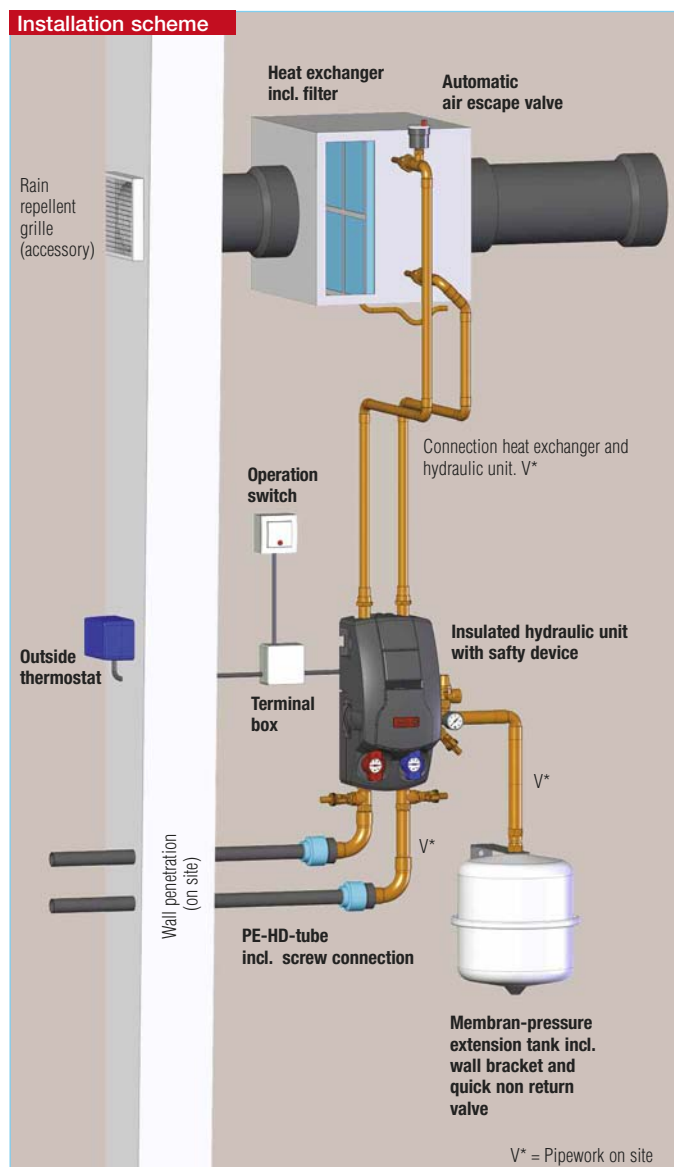
■ Delivery

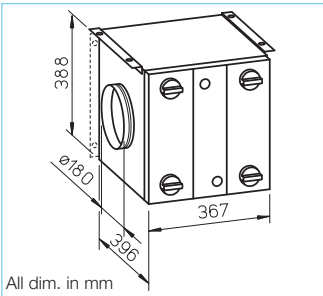
- According to the installation order on the building site and to ensure an optimised transport the SEWT is delivered as kit. The SEWT-kit ensures full functionality and perfect fitting accuracy. It consists of three delivery-sets as described on the right page.

SEWT-Kit **Ref. No. 2564**

■ Basic scheme for the installation

The ducting should be done with Helios IsoPipe® to avoid condensation creation. Additionally insulated spiral ducting can be used alternatively.





Brine-to-air heat exchanger

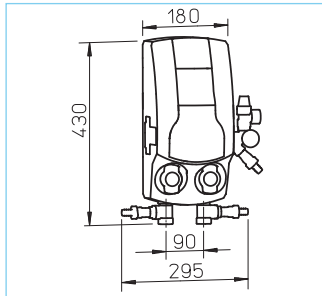
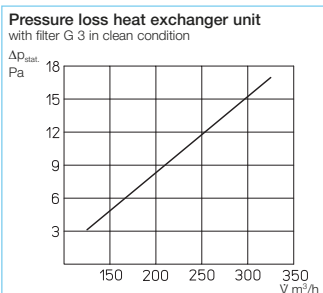
■ Specification

- High efficient brine-to-air heat exchanger with fins made from aluminium to ensure the best transfer to the intake air. Connection pipes made of copper Ø 12 mm.
- Double walled, completely insulated casing (20 mm insulation) made of steel, powder coated in grey. With mounting brackets for wall- and ceiling installation.
- Ø 180 mm spigots with twin-seal rubber gaskets.
- With integrated G 3 filter. Prevents dust, insects etc. from accessing the duct system.
- Easy accessible panel can be opened without tools and allows simple access to the filter.
- Air flow direction is variable as the filter can easily be placed for both directions.
- Condensation outlet incl. condensation trap, Ø 1/2".

■ Accessory

Replacement filter (Set = 3 pcs.)
ELF-SEWT-F Ref. No. 2568

Technical data SEWT-W



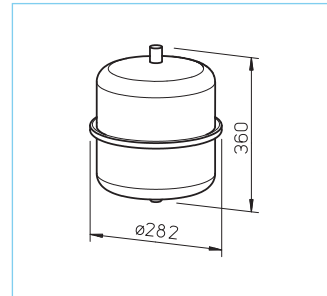
Hydraulic unit and control unit

■ Specification

- Complete hydraulic-set with all components needed to connect the brine-to-air heat exchanger unit. Delivered as standard with control unit for automatic and manual operation.

■ Delivery

- Brine-pump unit (230 V), completely premounted in a foamed housing incl. safety device.
- Automatic protection against reverse flow.
- Temperature gauges for flow and return.
- Pressure expansion tank – 12 litres, connection 3/4", incl. wall bracket and stop valve for maintenance.



Undersoil hose set with screw connections and ethylene glycol

■ Specification

- Flexible PE-HD undersoil hose (PE-HD = polyethylene high pressure hose), wall thickness 2.9 mm, outer-Ø 32 mm. Delivered as bundle with 100 running mtrs.
- Especially designed for undersoil laying.
- Screw connection set made from high class polymer (PP) to connect the undersoil hose to the hydraulic unit.
- Screw connection set (32-1" with active sealing system.
- 20 l canister with ethylene glycol, free of amine und nitrite. Adequate for one complete filling of the system with a 25 % glycol-water mix.

- Thermostat module with 2 setpoints for automatic control of the closed brine loop in summer/winter operation.
- Control unit to change from automatic (thermostat operation) a manual operation of the closed brine loop. (incl. separate terminal box).



Technical data thermostat

Current	16 A (4 A ind.)
Voltage	230 V, 50/60 Hz
Protection to	IP 54
Wiring diagram no.	SS-906
Temperature range (adjustable)	2 x 0 – 40 °C

Technical data brine pump

Current max.	0.2 A
Voltage	230 V, 50 Hz
Power, 3 steps	25, 35, 45 W
Protection to	IP 44

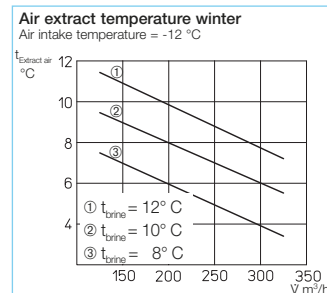
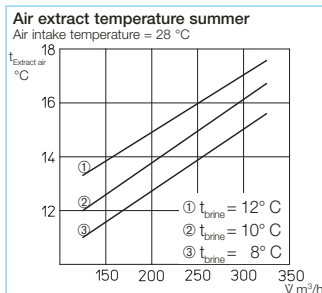
■ Information

The SEWT-kit with the advantage of the package price ensures full functionality and perfect fitting accuracy:

Type SEWT-kit **Ref. No.** 2564

The single parts of the SEWT-kit can also be ordered separately:

Type SEWT-E **Ref. No.** 2567
 SEWT-W **Ref. No.** 2565
 SEWT-H **Ref. No.** 2566





The undersoil air heat exchanger LEWT substantially increases the efficiency of the ventilation units with heat recovery – without any requirements for additional energy! LEWT saves even more energy and reduces costs for heating to a minimum. The optimal add-on for ventilation systems with heat recovery.

Advantages

- Provides additional pre-heating during winter without any further energy requirements.
- Prevents the heat exchanger from icing up.
- Pleasant cooling on hot days.
- Additional heating of the supply air is only necessary when outside temperature is very low.
- Comes as a complete kit with perfectly fitting components.

Functional principle

LEWT uses the fact that the temperature below the ground is relatively constant all year. The outside air is not taken in directly but passes through the under-soil-collector-duct installed in at least 1.2 m deep.

Effects:

- During winter LEWT achieves a pre-heating of the cool outside air up to 14 K. This results in the intake air flowing into the ventilation unit at more than 0 °C usually and therefore prevents the heat exchanger from icing up. The benefits are a higher heat recovery factor and a higher supply air temperature. The heater battery is only needed on very cold days.
- On hot summer days the LEWT provides cooling of the intake air which leads to a noticeable cooling-effect on the room temperature.
- During transition periods the intake is by either the air passing through the under-soil collector or the direct intake opening depending on the outside temperature detected by the sensor. The electric bypass shutter controls the air intake automatically. The outside air reaches the ven-

tilation unit energetically optimised which additionally saves energy and provides a comfortable climate within the rooms.

Delivery

- According to the installation order on the building site and to ensure an optimised transport the LEWT is delivered as a kit. It consists of three delivery-sets as described on the right hand page.
- The single components perfectly fit together as a sophisticated system. This ensures easy, quick and precise mounting with a high installation reliability.

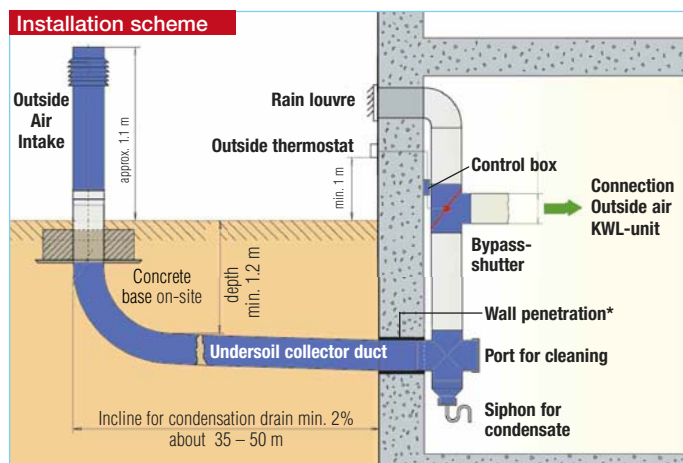
LEWT-kit **Ref. No. 2977**

Information on planning

- To ensure the highest possible heat transfer, the undersoil air collector duct should be laid in at least 1.2 m depth as there is a constant temperature of about 8 °C throughout the year. The soil temperature increases the deeper the ducts are laid and becomes constant.
- When installing it is important to consider that the condensation drain requires an incline of at least 2%.
- To increase the heat exchange the duct should be laid directly under the soil and not e. g. in a sandbed. Furthermore, a space of 1 m from one duct to the other should be maintained when laying two ducts parallel.
- To keep the downstream pressure loss minimised a bending radius of at least 1 m is recommended.

Basic scheme for the laying: Buildings with basements

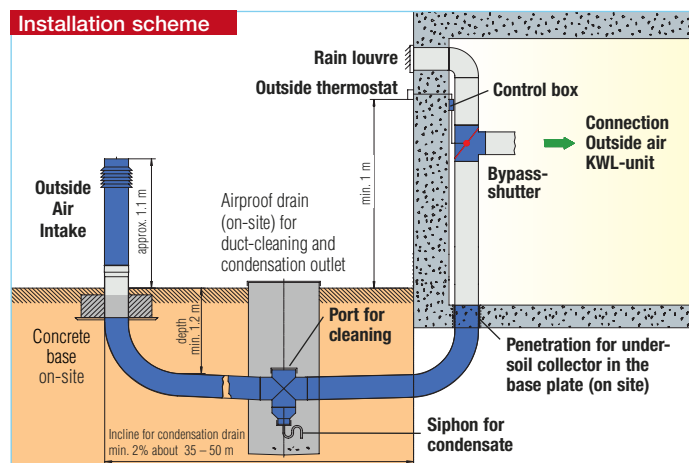
The undersoil collector reaches the building subsurface through a wall penetration.

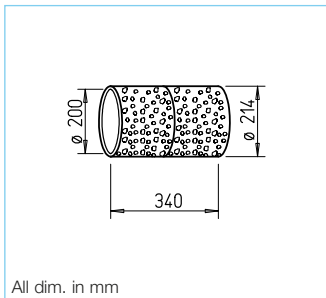


* not suitable for water pressure

Basic scheme for the laying: Buildings without basements

The undersoil collector reaches the building subsurface through the base plate. For revision purposes a drain is required by customer.

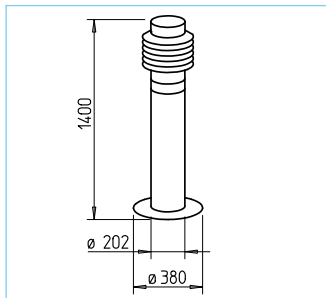




Undersoil collector duct and wall penetration LEWT-E+M

Description

- Flexible undersoil collector duct, ribbed on the outside, smooth inner surface to ensure a very low air resistance, Ø 200 mm.
- Co-extruded compound duct made of polyethylen. Developed specifically for undersoil laying.
- Antibacterial and antistatic material with smooth surface.
- Easy to clean.
- 100 % non-porous, odourless. The material PE-HD achieves a 2-times higher conductivity than PP with comparable wall thicknesses / duct cross sections. Even at 2.5 x better heat conduction performance a rises compared to PVC.
- Supplied as set with 2 x 25 running meters including connectors and seals. The undersoil collector duct can be directly laid in the excavation. The total duct length should be at least 40 m.
- Wall liner nom. dia. 200 made from polyethylen, bonding surface.
- Profile seals are included as standard to seal to the outside-air-intake.
- Undersoil collector, wall penetration and seals comply with IP 67, assuming accurate installation.



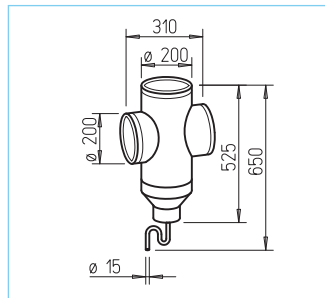
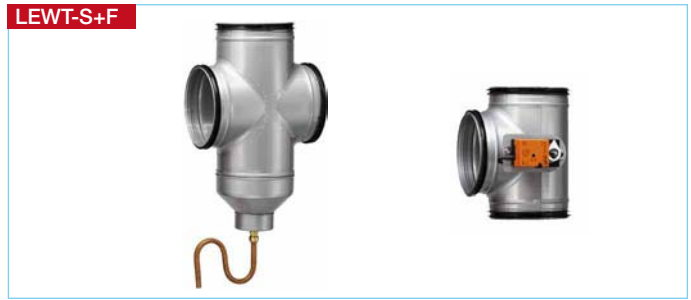
Outside-air-intake LEWT-A with filter

Description

- Outside-air-intake in modern and timeless stainless-steel design.
- To be secured on site by setting in concrete.
- With integrated cone air filter, class G3. Prevents dust and insects from accessing the duct system.
- Cone filter easily be released by hand for cleaning and changing.
- The connection between the outside-air-intake and undersoil-duct is done by just clipping.
- All parts are made of stainless steel.

Accessory

Replacement filter (Set = 3 pcs.)
ELF-LEWT-A Ref. No. 2975



Controller and duct form parts LEWT-S+F

Description

- Automatic controlling of the outside air intake via the undersoil collector duct or directly via the outside area as per the detected outside temperature.
- Temperature range for direct intake can be adjusted individually.
- Manual selection of the operation mode is possible.
- Rain enclosure RAG (without pic.) suitable as coverage of the direct air intake. Prevents rain and insects from entering.

Contents

- Bypass shutter NW 200 with servo motor 230 V; for vertical mounting above the cross piece.
- Cross piece for connection with the wall penetration. Including port for cleaning, condensation collector, siphon and cover.

- Control knob and thermostat for automatic and manual control of the bypass shutter. To be mounted in a weather-protected place on the north-side of the building at 1 mtr height. Dimensions in mm W 200 x H 90 x D 70



- Control box with double switch. Modes:
 - Thermostat mode, automatic
 - Undersoil heat, manual
 - Outside air, manual
 Dimensions in mm W 110 x H 180 x D 100



Technical data thermostat

Current	16 A (4 A ind.)
Voltage	230 V, 50/60 Hz
Protection to	IP 54
Wiring diagram no.	SS-798.1
Temperature range (adjustable)	2 x 0 – 40 °C

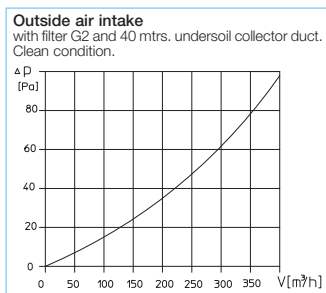
Technical data servo motor

Voltage	230 V, 50/60 Hz
Power	1.5 W
Protection to	IP 54

Information

The single parts of the LEWT-kit can also be ordered separately:

Type	Ref. No.
LEWT-E+M	2991
LEWT-S+F	2990
LEWT-A	2992



Flexible ducting system FRS



The flexible ducting system FRS is directly laid into or on the concrete. Even the most difficult outlets of ducts are easily feasible. FRS is convenient and reasonably priced.

- Simple to plan.
- Easy to install through star shaped laying.
- Fast initiation as the adjustments are reduced to a minimum.
- Constant air distribution.
- Easy to clean, hygienically perfect.

Available in two sizes

- FRS.. 75
Outer-Ø: 75 mm, inner-Ø: 63 mm for air flow vol. up to 30 m³/h,
- FRS.. 63
Outer-Ø: 63 mm, inner-Ø: 52 mm for air flow vol. up to 20 m³/h.

Laying

- The FRS polymer pipe is very flexible and therefore easy to install.
Resilience: (S_{R24} > 8 kN/m²).

Characteristics and advantages

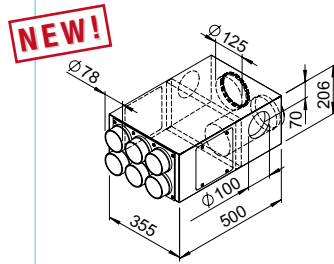
- The pipe consists of quality-assured PE-HD made of new raw material and is treated to be non-porous, odourless and antistatic.
- The outside is ribbed where as the inner surface is absolutely smooth and antistatically coated. This provides substantial advantages:

- very low air flow resistance and high sound absorption
- minimal dirt deposits
- easy to clean
- easy handling-designed to be light and easy to use.

Laying-conception/installation

- One air distribution box for the supply air and one for the extract air main duct is to be installed.
- Larger rooms require two ducts to improve the required air flow.
- Many different components ensure the perfect solution for nearly every request. There are ceiling outlets available for all kind of valves with ND 125 as well as wall and floor outlets, delivered with grilles as standard.
- The connections between the form parts and duct connectors are build as sleeves. The ends of the pipe are to be plugged with seal rings.

Compact distribution box



Compact distribution box²⁾

Type	Ref. No.	Ø NW mm
FRS-KVK 6-75/125	9419	125

Compact distribution box, perfect next to adjacent exhaust air rooms. 2 x DN 100 for extraction with extract air valves DLV (see page 112). Supply air distribution via connection of up to 6 flexible ducts FRS-R 75. Assembly as straight-way distributor. Acoustically lined in the inside and with large inspection opening.

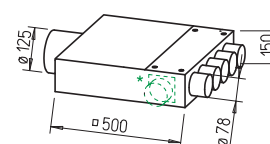
Flexible duct



Flexible duct (bundle = 50 running mtrs)

Type	Ref. No.	Dim. in mm	
		Outer-Ø	Inner-Ø
Ø 63 mm			
FRS-R 63	9327	63	52
Ø 75 mm			
FRS-R 75	2913	75	63

Distribution box 5-75, 5+1-75



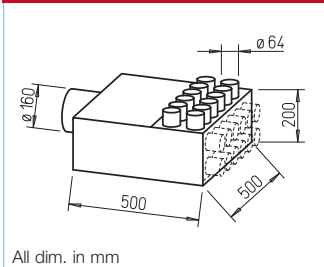
* With FRS-VK 5+1-75/125 additional spigot on the side, alternatively applicable on the left or right.

Distribution box 5-75, 5+1-75²⁾

Type	Ref. No.	Ø NW mm
FRS-VK 5-75/125	9477	125
FRS-VK 5+1-75/125	9365	125

To connect up to 5 or 6 flexible ducts FRS-R 75; FRS-VK 5+1-75/125 with additional spigot on the side. As the box is noise-absorbing it is also suitable as silencer element. The connecting plate with the pipe spigots is not interchangeable with the inspection door. 2 caps delivered as standard.

Distribution box 12-63



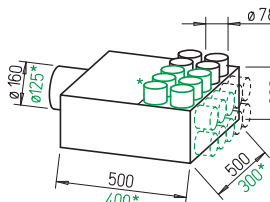
All dim. in mm

Distribution box 12-63¹⁾

Type	Ref. No.	Ø NW mm
Ø 63 mm		
FRS-VK 12-63/160	9336	160

To connect up to 10 flexible ducts FRS-R 63. As the box is noise-absorbing it is also suitable as silencer element. Choice of manifold position, the cover of the access opening. Therefore the distribution box can be used for vertical and horizontal positioning.

Distribution box 6-75, 10-75



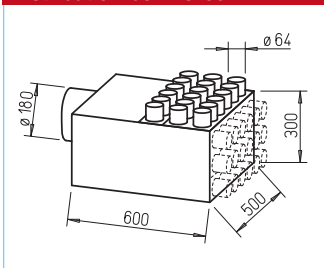
* FRS-VK 6-75/125

Distribution box 6-75, 10-75³⁾

Type	Ref. No.	Ø NW mm
Ø 75 mm		
FRS-VK 6-75/125	9370	125
FRS-VK 10-75/160	2985	160

To connect up to 6 or 10 flexible ducts. As the box is noise-absorbing it is also suitable as silencer element. The connecting plate with the pipe spigots is interchangeable with the inspection door and can therefore be shifted by 90°. Therefore the box can be used for vertical and horizontal positioning.

Distribution box 18-63

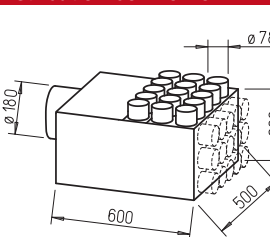


Distribution box 18-63¹⁾

Type	Ref. No.	Ø NW mm
Ø 63 mm		
FRS-VK 18-63/180	9364	180

To connect up to 18 flexible ducts FRS-R 63. As the box is noise-absorbing it is also suitable as silencer element. Choice of manifold position, the cover of the access opening. Therefore the distribution box can be used for vertical and horizontal positioning.

Distribution box 15-75



Distribution box 15-75³⁾

Type	Ref. No.	Ø NW mm
Ø 75 mm		
FRS-VK 15-75/180	9363	180

To connect up to 15 flexible ducts FRS-R 75. As the box is noise-absorbing it is also suitable as silencer element. The connecting plate with the pipe spigots is interchangeable with the inspection door and can be shifted by 90°. Therefore the box can be used for vertical and horizontal positioning.

¹⁾ incl. 6 pcs. caps. ²⁾ incl. 2 pcs. caps. ³⁾ incl. 5 pcs. caps.

Elbow 90°

All dim. in mm

Elbow 90°		
Type	Ref. No.	ø D mm
ø 63 mm		
FRS-B 63	9348	64
ø 75 mm		
FRS-B 75	2994	78

Elbow 90° for bend radius < 2 x duct outer diameter.

Grille with box

Grille with box, straight*		
Type	Ref. No.	ø D mm
ø 63 mm		
FRS-WDS 2-63	9993	64
ø 75 mm		
FRS-WDS 2-75	9994	78

Grille with box:
 – outlet box with sliding type fitting
 – grille white (FK-WA 200 W), 250x113 mm

Adapting elbow 90°

Adapting elbow 90°		
Type	Ref. No.	ø D mm
ø 63 mm		
FRS-B 75/2-63	9341	64
ø 75 mm		
FRS-B 75/2-63	9341	64

Adapting elbow 90° as adaptor from 1 x 75 mm to 2 flexible ducts nom. dia. 63 mm.

Grille with elbow box

Grille with elbow box, 90°*		
Type	Ref. No.	ø D mm
ø 63 mm		
FRS-WBS 2-63	9995	64
ø 75 mm		
FRS-WBS 2-75	9996	78

Grille with elbow box
 – elbow box with sliding type fitting
 – grille white (FK-WA 200 W), 250x113 mm

Adaptor

Adaptor		
Type	Ref. No.	ø D mm
ø 75 mm		
FK-Ü 75/150	2948	78

Adaptor from flexible duct system nom. dia. 75 mm to flat duct system FK 100 x 50 mm (see page 108).

Connection sleeve

Cap

Connection sleeve / Cap		
Type	Ref. No.	A / ø D mm
ø 63 mm		
FRS-VM 63	9329	120 / 64
FRS-VD 63	9330	- / 53
ø 75 mm		
FRS-VM 75	2914	150 / 78
FRS-VD 75	2915	- / 63

Cap (Set = 10 pcs)

Ceiling outlet

Ceiling outlet* for valves DN 125		
Type	Ref. No.	ø D mm
ø 63 mm		
FRS-DKV 2-63/125	9430	64
ø 75 mm		
FRS-DKV 2-75/125	9431	78

Ceiling outlet incl. cover to avoid soil in the system during construction work. For intake and extract valves nom. dia. 125 (Accessory, see page 112).

Seal ring

Information: To ensure protection to IP 66 a seal ring is to be used on each connection (duct to duct and duct to all other parts). Seal rings must be ordered separately. For an easy installation it is recommended to use lubricant.

Seal ring		
Type	Ref. No.	ø D mm
ø 63 mm		
FRS-DR 63	9331	63
ø 75 mm		
FRS-DR 75	2916	75

Seal ring (Set = 10 pcs)

Wall mounting kit

* FRS-WDV 2-75/100

Wall mounting kit* for valve connection		
Type	Ref. No.	ø D mm
ø 75 mm		
FRS-WDV 2-75/100	9621	100
FRS-WDV 2-75/125	9622	125

Wall mounting kit including plaster cover plate. For connection of supply or extract air valves DN 100 and/or DN 125.

Basic site package

Basic site package		
Type	Ref. No.	ø D mm
ø 75 mm		
FRS-RP 75	9397	75

Flexible duct system basic site package:
 – 3 pcs FRS-R 75 (Ref. No. 2913)
 – 2 pcs FRS-VK 10-75/160 (Ref. No. 2985)
 – 8 pcs FRS-DKV 2-75/125 (Ref. No. 9431)
 – 7 pcs FRS-B 75 (Ref. No. 2994)
 – 7 pcs FRS-VM 75 (Ref. No. 2914)
 – 4 sets FRS-DR 75 (Ref. No. 2916)
 – 1 set FRS-VD 75 (Ref. No. 2915)
 – 1 pc Cold shrinking strip KSB (Ref. No. 9343)

Choosing the Helios basic site package, saves – money as you will benefit from the package-price.
 – time because everything you need is already included. That way you can start right away.

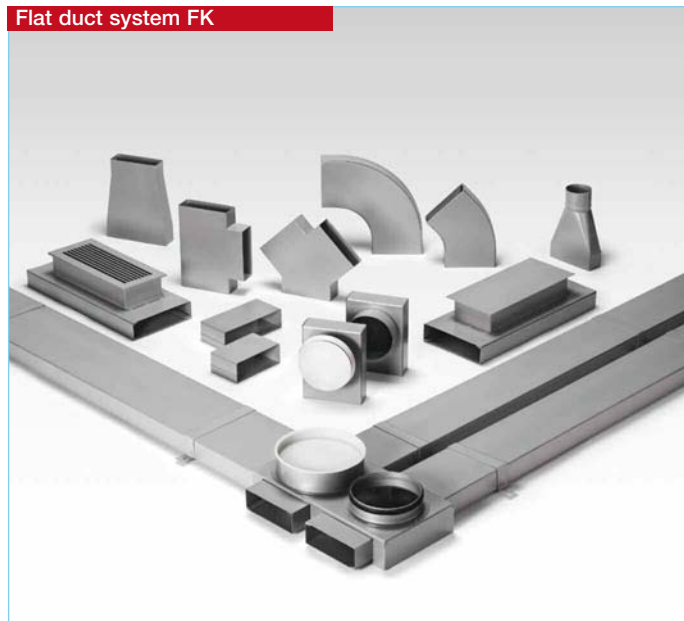
Floor outlet with grille

Floor outlet with grille*		
Type	Ref. No.	ø D mm
ø 63 mm		
FRS-BKGS 2-63	9991	64
ø 75 mm		
FRS-BKGS 2-75	9992	78

Floor outlet with grille:
 – 1 floor outlet for grilles nom. dia. 160 and
 – 1 floor grille made of stainless steel with adjustable air flow.

* incl. 1 cap.

Flat duct system FK



Underfloor-system made of galvanised steel; especially developed for room ventilation. The optimum solution for hidden air ducts, therefore perfectly suitable for new buildings.

■ Characteristics

□ All parts made of galvanised steel, noncorrosive and non inflammable.

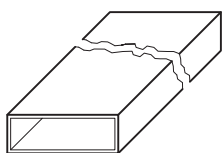
■ Available in two sizes

□ FK.. 150 x 50 mm for air flow volume up to 90 m³/h
□ FK.. 200 x 50 mm for air flow volume up to 140 m³/h

■ Ducts conception and mounting

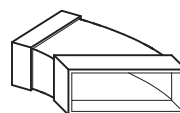
- Flat design and rigid construction allow a trouble-free laying below the floor screed. The substantial range of fittings allows nearly every course of the ducting.
- Connection via external connectors. Fittings with sockets (35 mm insertion). Therefore, the absolutely smooth inner surface ensures low air flow resistance and no barriers for dirt. However, disinfection is possible, if desired.
- The junction box for the supply air and extract air routing is installed on each floor which simplifies the duct routing.
- Special flat sound absorbers can be installed within the duct route to protect (e. g. bedrooms) from noise (FK-SD).

Flat duct



Type	Ref. No.	Dim. in mm		
		Width	Height	Length
150 x 50 mm				
FK 150	2905	150	50	1500
200 x 50 mm				
FK 200	2906	200	50	1500

Bend, horizontal 45°



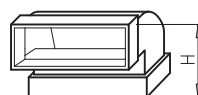
Type	Ref. No.	Dim. in mm		
		Width	Height	Radius
150 x 50 mm				
FK-BH 150/45	2910	153	53	45°
200 x 50 mm				
FK-BH 200/45	2912	203	53	45°

Flat duct connector



Type	Ref. No.	Dim. in mm		
		Width	Height	Length
150 x 50 mm				
FK-V 150	2941	153	53	200
200 x 50 mm				
FK-V 200	2942	203	53	200

Elbow, vertical 90°



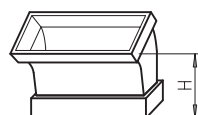
Type	Ref. No.	Dim. in mm		
		Width	Height	Radius
150 x 50 mm				
FK-BV 150/90	2919	153	103	90°
200 x 50 mm				
FK-BV 200/90	2920	203	103	90°

Mounting Bracket



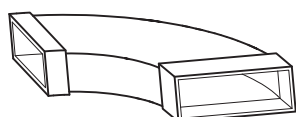
Type	Ref. No.	Dim. in mm		
		Width	Height	Length
150 x 50 mm				
FK-B 150	2907	151	52	30
200 x 50 mm				
FK-B 200	2908	201	52	30

Elbow, vertical 45°



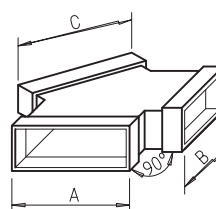
Type	Ref. No.	Dim. in mm		
		Width	Height	Radius
150 x 50 mm				
FK-BV 150/45	2917	153	73	45°
200 x 50 mm				
FK-BV 200/45	2918	203	73	45°

Elbow, horizontal 90°

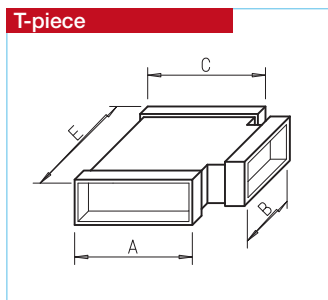


Type	Ref. No.	Dim. in mm		
		Width	Height	Radius
150 x 50 mm				
FK-BH 150/90	2909	153	53	90°
200 x 50 mm				
FK-BH 200/90	2911	203	53	90°

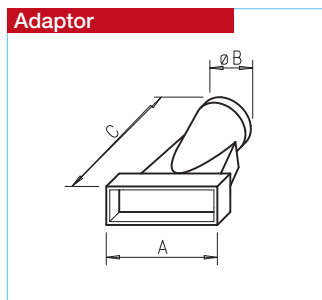
Y-Branch



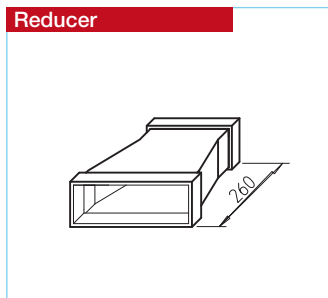
Type	Ref. No.	Dim. in mm		
		A	B	C
150 x 50 mm				
FK-Y 150/150/150	2927	153	153	153
200 x 50 mm				
FK-Y 200/150/150	2929	153	153	203



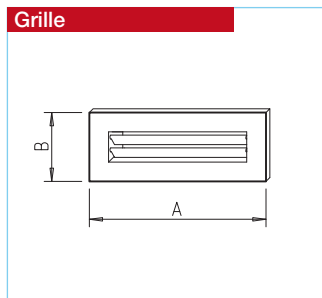
Type	Ref. No.	Dim. in mm			
		A	B	C	E
FK-T 150/150/150	2921	153	153	153	250
FK-T 150/150/200	2923	153	153	203	390
FK-T 150/200/150	2926	153	203	153	300
FK-T 200/150/200	2925	203	153	203	250
FK-T 150/200/200	2924	153	203	203	440
FK-T 200/200/200	2922	203	203	203	300



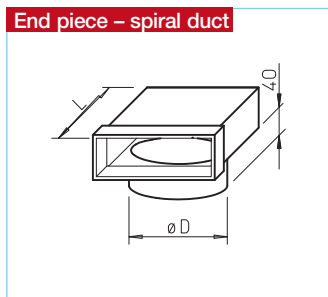
Type	Ref. No.	Dim. in mm		
		A	ø B	C
150 x 50 mm				
FK-Ü 75/150	2948	153	78	260
FK-Ü 100/150	2996	153	103	260
200 x 50 mm				
FK-Ü 100/200	2997	203	103	260
FK-Ü 125/200	2998	203	128	260



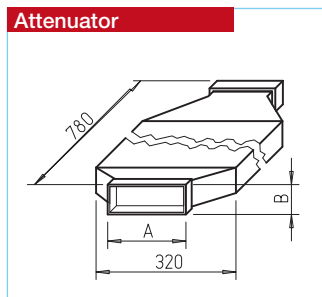
Type	Ref. No.	Dim. in mm	
		Length	Hight
Reducer symmetric			
FK-RS 200/150	2932	260	53
Reducer asymmetric			
FK-RA 200/150	2933	260	53



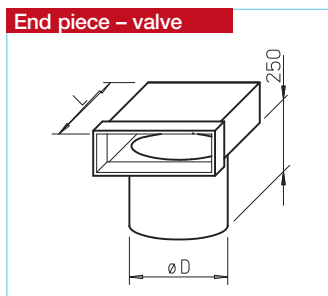
Type	Ref. No.	colour	Dim. in mm	
			A	B
200 x 50 mm				
FK-WA 200 W	9350	white	250	113
FK-WA 200 AL	9351	alu	250	113



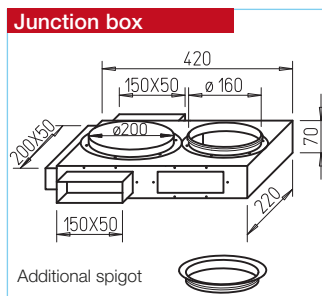
Type	Ref. No.	Dim. in mm	
		ø D	L
150 x 50 mm			
FK-ER 150/100	2934	99	200
FK-ER 150/125	2935	124	200
200 x 50 mm			
FK-ER 200/160	2936	159	220



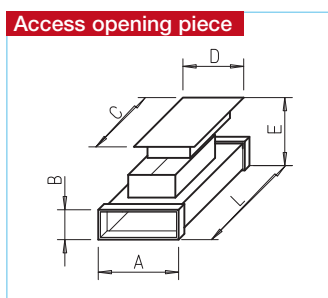
Type	Ref. No.	Dim. in mm	
		A	B
150 x 50 mm			
FK-SD 150	2945	153	53
200 x 50 mm			
FK-SD 200	2946	203	53



Type	Ref. No.	Dim. in mm	
		ø D	L
150 x 50 mm			
FK-EV 150/100	2937	102	200
FK-EV 150/125	2938	127	200
200 x 50 mm			
FK-EV 200/100	2939	102	200
FK-EV 200/125	2940	127	200

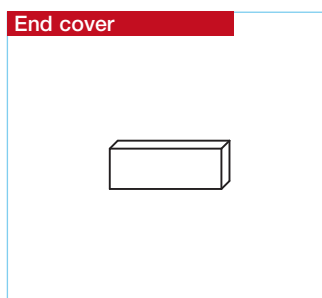


Type	Ref. No.
FK-VK	2987
Scope of delivery FK-VK	
4 spigots 150 x 50 (2 fixed, 2 loose)	
1 spigot 200 x 50	
1 revision shutter	
Additional spigots for pass junction box	
FK-ZS	2947

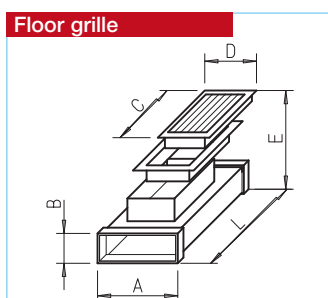


Type	Ref. No.	Dim. in mm				
		A	B	C	D	L
150 x 50 mm						
FK-RZ 150	2930	153	53	347	137	500
200 x 50 mm						
FK-RZ 200	2931	203	53	347	137	500

E can be adapted from 105-130 mm.

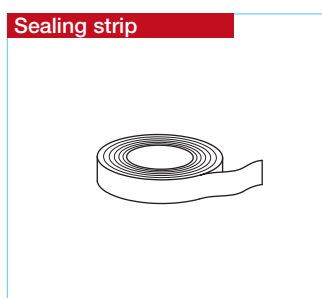


Type	Ref. No.
150 x 50 mm	
FK-ED 150	2943
200 x 50 mm	
FK-ED 200	2944



Type	Ref. No.	Dim. in mm				
		A	B	C	D	L
Aluminium floor grille with casing						
150 x 50 mm						
FK-BA 150	2986	153	53	348	152	500

E can be adapted from 112-152 mm.



Type	Ref. No.
Textile sealing strip	
Cold shrinking strip aluminium	
KSB	9343 50 mm width, 15 mtrs
Cold shrinking strip	
KSB ALU	9344 50 mm width, 15 mtrs
Strip	
KLB	0619 50 mm width, 20 mtrs

Flat polymer duct system F



Easy and fast to lay air distribution system. Prior used for renovation of existing buildings and prefabricated houses.

Laying

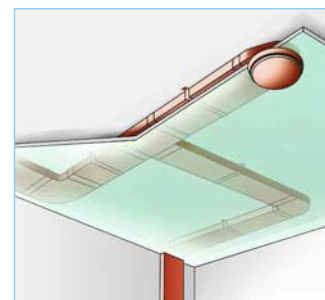
Easy and fast laying due to the low weight. Joining sections of all kinds ensure nearly unlimited possibilities. Space-saving and universal.

Characteristics

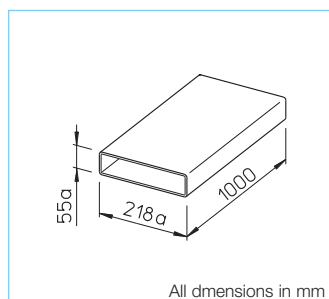
All sections of white, antistatic polymer. Hardly inflammable B1, DIN 4102. Max. temperature +50 °C. Max. outside dimension: 218,5 x 55,5 mm.

Duct-concept and mounting

Specially shaped duct alignment starting at the ventilation unit or the on-site-inserted distributor to the air intakes and outlets of the rooms. Branch connection ensured by T-pieces.

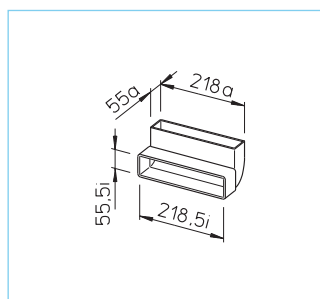


- Cross-section surface for air flow volume of up to 150 m³/h.
- The connections of the form parts are built as slip-in sleeve; duct connection is done by outside-connection sleeves.
- Requires air-tight connection achieved by using duct tape (accessory).
- Fixation of the pieces using FB.

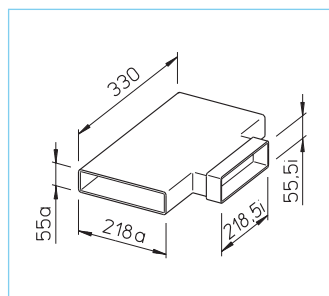


Flat duct w/o sleeve, length 1 m
FOM **Ref. No. 0624**

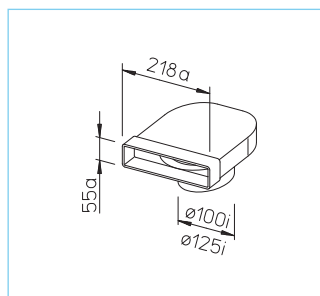
All dimensions in mm



90°-bend vertical
FBV 90 **Ref. No. 0630**

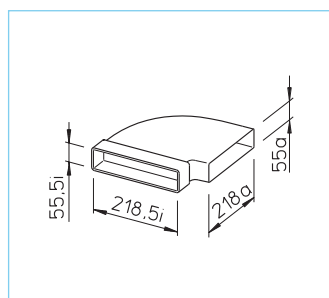


Flat duct T-piece
FTS **Ref. No. 0631**

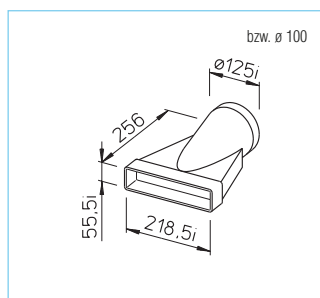


End piece
with connection from \varnothing to \square
FE 100 **Ref. No. 0621**
FE 125 **Ref. No. 0622**

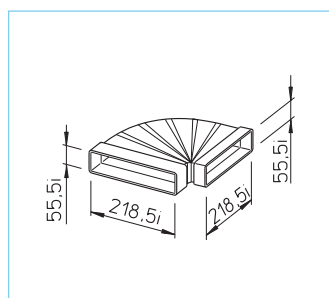
End piece
with connection from \varnothing to \square
with 1 mtr. tube and 2 brackets
FU 90/100 **Ref. No. 0627**
FU 90/125 **Ref. No. 0638**



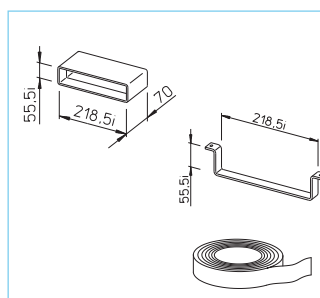
90°-bend horizontal
FBH 90 **Ref. No. 0629**



Connection
from \varnothing to \square
FUE 100 **Ref. No. 0628**
FUE 125 **Ref. No. 0639**



Flexible bend
FBO **Ref. No. 0632**



Flat duct connector
FV **Ref. No. 0625**

Mounting bracket
FB **Ref. No. 0626**

Strip
KLB **Ref. No. 0619**
PVC-Strip, width 50 mm
Reel with 20 metres length



The innovative alternative to spiral ducting that must be insulated additionally to avoid condensation.

The insulated duct system IsoPipe®

- avoids condensation build-up,
- is provided with a smooth, sound absorbing inner surface and is easy to clean,
- saves assembly time,
- is the perfect solution for intake and extract ducting.

■ Specification

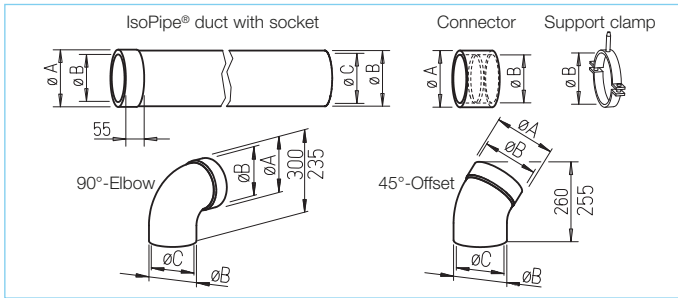
All parts are completely insulated and are made of water-vapour-tight and antistatic EPP or EPE. Normally inflammable to class B2. Suitable for air flow temperatures from -25 to +80 °C.

■ Laying-conception and installation

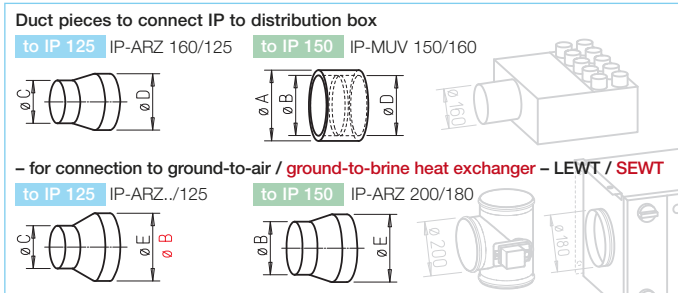
- IsoPipe® is especially applicable for intake and exhaust ducting in basements and cold surroundings.
- Suitable for air flow volumes up to 450 m³/h.
- All bends have slip-in sockets; the duct connections are made with sockets on the outside.
- IsoPipe® is impact resistant, very lightweight and can easily be shortened to the required length with a knife.

■ Laying

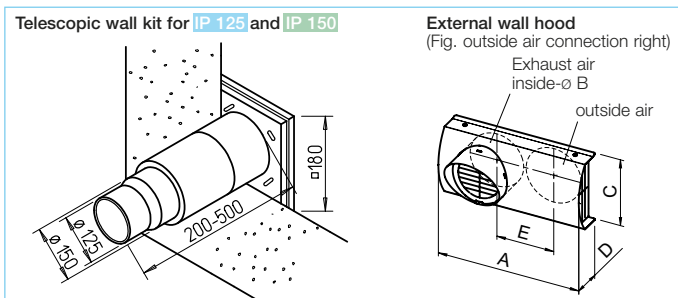
- All IsoPipe® parts, bends, wall and roof outlets are designed to fit together perfectly and fit into each other easily. IsoPipe® is mounted quickly; it saves up to 70% assembly time compared to a spiral ducting installation with additional insulation.



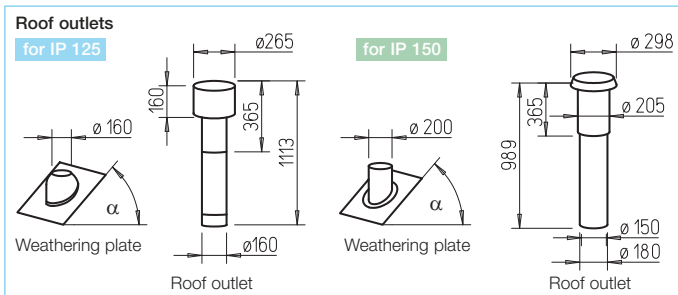
Description	Nominal-Ø 125 mm				Nominal-Ø 150 mm			
	Type	Ref. No.	Set ¹⁾		Type	Ref. No.	Set ¹⁾	
IsoPipe® duct with socket	IP 125/2000	9406	8x2m		IP 150/1000	9376	6x1m	
Connector (additional)	IP-MU 125	9394	1 pc		IP-MU 150	9381	1 pc	
Support clamp	IP-S 125	9395	1 pc		IP-S 150	9392	1 pc	
90°-Elbow	IP-B 125/90	9398	1 pc		IP-B 150/90	9378	1 pc	
45°-Offset	IP-B 125/45	9399	1 pc		IP-B 150/45	9379	1 pc	
Dimensions in mm	A	B	C	D E	A	B	C	D E
	165	155	125	- -	205	180	150	- -



Description	Nominal-Ø 125 mm				Nominal-Ø 150 mm			
	Type	Ref. No.	Set ¹⁾		Type	Ref. No.	Set ¹⁾	
Duct pieces to connect to distribution box + KWL®-units								
with spigot nom. dia. 125					IP-RZB 150/125	9393	4 pc ²⁾	
with spigot nom. dia. 160	IP-ARZ 160/125	9358	1 pc		IP-MUV 150/160	9387	1 pc	
with spigot nom. dia. 180					IP-MU 150	9381	1 pc	
to LEWT with spigot ND 200	IP-ARZ 200/125	9359	1 pc		IP-ARZ 200/180	9354	1 pc	
to SEWT with spigot ND 200	IP-ARZ 180/125	9360	1 pc					
Dimensions in mm	A	B	C	D E	A	B	C	D E
	-	180	125	160 200	205	180	150	160 200



Description	Nominal-Ø 125 mm				Nominal-Ø 150 mm			
	Type	Ref. No.	Set ¹⁾		Type	Ref. No.	Set ¹⁾	
Telescopic wall kit								
contains telescopic duct, outdoor shutter and spigot. All parts made of white high-grade polymer	TMK 125/150	0845	1 pc		TMK 125/150	0845	1 pc	
External wall hood	from high-grade steel				from high-grade steel			
Outside air connection right	IP-FKB 125 R	2689	1 pc		IP-FKB 150 R	2691	1 pc	
Outside air connection left	IP-FKB 125 L	2690	1 pc		IP-FKB 150 L	2692	1 pc	
Dimensions in mm	A	B	C	D E	A	B	C	D E
	420	155	200	99 170	450	180	240	118 190



Description	Nominal-Ø 125 mm				Nominal-Ø 150 mm			
	Type	Ref. No.	Set ¹⁾		Type	Ref. No.	Set ¹⁾	
Roof termination								
consisting of 2 elements, which must be ordered separately:								
a) Roof outlet								
black with ducting	DH 160 S ³⁾	2019	1 pc		IP-DHS 150	9382	1 pc	
terracotta					IP-DHR 150	9383	1 pc	
b) Weathering plate								
with leaded sheet	UDP 160 S ³⁾	2023	1 pc		IP-BP 150/25	9384	1 pc	
25° - 45°					IP-BP 150/35	9385	1 pc	
20° - 30°					IP-BP 150/45	9386	1 pc	
30° - 40°								
40° - 50°								
Flashing plate	FDP 160 ³⁾	2025	1 pc					

¹⁾ packing unit ²⁾ set = 4 pcs ³⁾ IsoPipe® is inserted directly into the tube.

⁴⁾ Seal ring IP-DR 125 (Ref. No. 9338, accessory) required for installation.

Air extract elements

DLV **KTVA / MTVA**

See also extract air elements AE.. page 375 on.

NEW!



Design valves for air extract with higher and lower air flow speeds and/or resistances. DLV with compact and attractively designed fascia and integrated filter.

ø 80		ø 100		ø 125		ø 160	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Polymer valve for extraction KTVA / Design valve DLV¹⁾ for air extract							
KTVA 75/80	0940	KTVA 100	0941	KTVA 125	0942	KTVA 160	0943
		DLV 100	3039				
		ELF-DLV 100	3042	(replacement air filter for DLV 100, unit = 5 pcs.)			
Metal valve for extraction²⁾							
MTVA 75/80	8868	MTVA 100	8869	MTVA 125	8870	MTVA 160	8871

¹⁾ With integrated filter. ²⁾ Especially for areas, in which inflammable components are not prescribed.

Attachement filter element

VFE



Attachement filter element VFE covering air extract elements AE.. or valves. Prevents fat and dust deposits on extract elements, valves and connected ducting system. Casing made from galvanised steel, white powder coated. Filter made from aluminium with 324 cm² filter surface and aluminium frame.

VFE 70 Ref. No. 2552

VFE 90 Ref. No. 2553

ELF/VFE Ref. No. 2554

replacement air filters, unit = 2 pcs.

Supply

DLVZ **KTVZ / MTVZ**

NEW!



Design valves for air intake with higher and lower air flow speeds and/or resistances. DLVZ with compact and attractively designed fascia and integrated filter.

ø 80		ø 100		ø 125		ø 160	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Polymer valve for supply KTVZ / Design valve DLVZ¹⁾ for air intake							
KTVZ 80	2762	KTVZ 100	2736	KTVZ 125	2737	KTVZ 160	2738
		DLVZ 100	3040				
		ELF-DLVZ 100	3043	(replacement air filter for DLVZ 100, unit = 3 pcs.)			
Metal valve for supply²⁾							
MTVZ 75/80	9603	MTVZ 100	9604	MTVZ 125	9605	MTVZ 160	9606

¹⁾ With integrated filter. ²⁾ Especially for areas, in which inflammable components are not prescribed.

Air intake elements

LTG



Door grilles Unobstructive overflow grille made from impact resistant polymer, to be installed into doors. Detailed information see product page grilles.

LTGW Ref. No. 0246
Made from white polymer.

LTGB Ref. No. 0247
Made from brown polymer.

For full details see product page.

Cleaning kit

KWL-RS

NEW!



Cleaning kit for air distribution systems FlexPipe® and RenoPipe
The universal cleaning kit is perfect for cleaning of the flexible ducting system FlexPipe® (DN 75, DN 63) as well as the RenoPipe air distribution system (DN 100, see separate leaflet, Ref. No. 86643). Application is optionally under pressure (with short ways) or tension possible. With longer ducting distances or narrow elbows the nylon wheel brush is pulled simply toward the distribution box, at which the 90° elbow is used for the vacuum connection.

Via this, the dust particles dislodged by the nylon wheel brush are vacuumed without problems with a commercial vacuum cleaner.

KWL-RS Ref. No. 2797

Delivery in practical transportation bag.
Scope of delivery: 1 piece of each
– Hand reel with flexible glass fibre reinforced wire (20 running mtrs)
– Wheel brush DN 63, 75, 100
– 90° elbow and sealing for vacuum connection DN 56
– Adapter DN 56/40, DN 56/32

Shutters



Attenuators



Wall and roof terminations



ø 80	ø 100	ø 125	ø 160	ø 200	ø 250	ø 315
Backdraught shutter – automatic, in-line installation, casing made from galvanised steel or polymer*, flaps made from aluminium						
	RSKK* 100 5106	RSKK* 125 5107	RSK 160 5669	RSK 200 5074	RSK 250 5673	RSK 315 5674
Lock cold smoke valves – For mains common in multi-storeyed						
KAK 80 4096	KAK 100 4097	KAK 125 4098	KAK 160 4099	KAK 200 4100		
Flexible attenuator bzw. elastic silencer (SDE) – made from flexible aluminum duct						
	FSD 100 0676	SDE 125 0789	SDE 160 0790	FSD 200 0679	FSD 250 0680	FSD 315 0681

ø 80		ø 100		ø 125		ø 160		ø 200		ø 250		ø 315	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Telescopic wall mounting kit – to put air intakes and outlets through walls													
	TMK 100 0844	TMK 125/150 0845											
Universal-roof termination – adaptable to all kind of roof tiles, for ridged roofs and flat roofs													
		DDF 125 1964	DDF 160 1965	DDF 200 1966	DDF 250 1967	DDF 315 1968							
Roof outlet DH¹⁾, weathering plate UDP¹⁾, flashing plate FDP, connector STV²⁾ – to be ordered separately.													
	DH 100 S 2015	DH 125 S 2017	DH 160 S 2019										
	UDP 100 S 2021	UDP 125 S 2021	UDP 160 S 2023										
	FDP 100 2024	FDP 125 2013	FDP 160 2025										

Water heater batteries



Type	Ref. No.	suitable for pipe ø mm	Air-side data					Water-data ¹⁾		Weight approx. kg	Suitable temperature control system Type Ref. No.	
			Heat		Δ T Air		at V	Pressure drop Δp _w kPa	in water volume l/h			
WHR 100	9479	100	1.9	0.9	35	17	150	1	84	3.2	WHST 300 T50	8820
WHR 125	9480	125	2.6	1.1	29	13	250	2	115	3.2	WHST 300 T50	8820
WHR 160	9481	160	5.5	3.1	38	22	400	11	245	4.9	WHST 300 T50	8820
WHR 200	9482	200	7.2	4.1	33	19	600	17	317	4.9	WHST 300 T50	8820
WHR 250	9483	250	10.7	6	37	21	800	8	470	6.9	–	–
WHR 315	9484	315	18.3	10.4	36.2	21	1400	9	810	9.0	–	–

The above values apply for an intake air temp. of 0° C and flow/return water temperatures: ¹⁾ 90/70 °C, ²⁾ 60/40 °C

Air temperature control

NEW!



Air temperature control system for warm water battery WHR

Ideal for the application as supply air heating.

Consisting of thermostat incl. 2 duct temperature sensors (with 2 m capillary tube) and valve. Enables a constant supply air temperature. Simple, low-cost and quick assembly solution. Temperature range 20 – 50° C.

WHST 300 T50 Ref. No. 8820

Air temperature control system



Air temperature control for KWL®- units with integrated water heater battery.

For air temperature control of KWL.. WW types with integrated PWW water heater battery. Consisting of thermostat with remote control and remote sensor. Simple, low-cost and quick assembly solution. Temperature range 8 – 38° C.

WHST 300 T38 Ref. No. 8817

Spare and pollen filters



Set of filters:	2 pc G4 and 1 pc F7 (../4/7)		1 pc pollen filter F 7 (../7)	
for KWL-unit	Type	Ref. No.	Type	Ref. No.
KWL EC 60	ELF-KWL 60/4/4	9445	ELF-KWL 60/7/7 ³⁾	9446
KWL EC 200 Eco/Pro	ELF-KWL 200/4/4 Eco	0021	ELF-KWL 200/7 ³⁾	0038
KWL EC 270/370	ELF-KWL 270/370/4/4	9613	ELF-KWL 270/370/7	9614
KWL EC 270/370..	ELF-KWL 270/370/4/4 BP ⁴⁾	9617	ELF-KWL 270/370/7 BP ⁴⁾	9618
KWL EC 300 Eco	ELF-KWL 300/4/4 Eco	0021	ELF-KWL 300/7 ³⁾	0038
KWL EC 300 Pro	ELF-KWL 300/4/4/7 Pro	0020	—	—
KWL EC 500 Eco/Pro	ELF-KWL 500/4/4	0039	ELF-KWL 500/7 ³⁾	0042

Set of filters:	2 pc G 3 + 1 pc fine filter F 5		2 St. G 3 + 1 pc pollen filter F 7	
KWL-unit	Type	Ref. No.	Type	Ref. No.
KWL 350	ELF-KWL 350/3/3/5	0024	ELF-KWL 350/3/3/7 ³⁾	0025
KWL EC 350	ELF-KWL EC 350/3/3/5	0034	ELF-KWL EC 350/3/3/7 ³⁾	0035
KWL 650	ELF-KWL 650/3/3/5	0026	ELF-KWL 650/3/3/7 ³⁾	0027

¹⁾ For other colours see product pages.

²⁾ Connector to avoid condensation emission on the connection: STV 100 (Ref. No. 2026), STV 125 (Ref. No. 2027), STV 160 (Ref. No. 2028).

³⁾ Allow a volume reduction of about 10 % when using an F7 filter.

⁴⁾ Bypass-filter.

Accessories – Details	Page
Dimensions, further technical information as well as other sizes:	
Temperature control system for PWW-neater battery	315 on
Grilles, ducts, duct components	
Roof terminations	361 on
Air extract elements	374 on
Valves	380 on
Information	Page
– Ventilation units enthalpy heat exchanger	76
– Duct system for earth heat exchanger for intake air	102 on
– Air distribution systems in buildings	106 on
– Fire protection elements for central shafts with main ductings for air intake and extraction in multi-storey buildings	388 on

Axial high performance fans

Being one of the leading European fan producers Helios always impress their customers anew with their extraordinary standard range of axial fans covering all pressure and volume ranges.

Worldwide well-known users trust Helios axial fans for ventilation, heating, cooling and drying applications. Large fans have been used successfully over decades e.g. in cooling towers and condensers.

Some short facts:

- Axial fans in four styles \varnothing 200 to 1000 mm, \dot{V} = 500 to 60 000 m³/h.

See following pages.

- Types for fire gases and smoke extraction according to DIN 12101 Pt. 3 in temperature classes F 300 (60 min.), F 400 (120 min.) and F 600 (120 min.).

See special catalogue, or get in touch with local rep for details.

- Axial fans for technical building industry \varnothing 710 to 1800 mm, \dot{V} = 11 000 to 240 000 m³/h.

- Large axial fans for special applications \varnothing 2000 to 7100 mm, \dot{V} to 2.2 Mio. m³/h. Are constructed for customised demands within the standard range. **See "AxialSoft".**



"Balancing act" at EXPO in Hannover. One main fan with \varnothing 2800 mm and as well as 40 further fans, arranged in a spiral shaped have been used to achieve the biggest artificial tornado in the world with a height of 22 m.



Axial fan with air flow volume up to 150 000 m³/h and upstream guide vane. Application: Realistic simulation of different air flow situations.



Axial fans of the type range AVD DL.. with an impeller diameter of 3150 mm, complete output: circa 3 Mio. m³/h. Use: in cooling towers of two papermills.

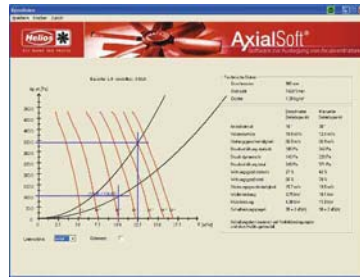


**Helios's flair in aerodynamics:
Axial fans without limits.**

The software for selection of large axial fans

With AxialSoft the specification and selection of large axial fans is really simple. After input of operating point and design the software determines the suitable models. Other optional inputs like impeller type and performance limit the further specification. The result is performance curves, sound values and printable project lists are issued.

AxialSoft can be downloaded under www.heliosventilatoren.de.



Really simple selection of large axial fans with intuitively applicable software: AxialSoft.



The following information completes the sector 'general information'.

Types

- HELIOS offer a wide range of products and therefore are able to supply fans for almost any application.
- High efficiency axial fans are available in over 20 standard sizes and include more than 1 000 different models; many of which are shown in this catalogue.
- Closely matched air flow volume and pressure can be achieved on larger fans with a maximum diameter of 7 100 mm through adjustable pitch angle. Four standard casing types are available.

Models

Shown in this catalogue

- 1. Wall fan HQ – square plate axial fan with inlet cone**
Casing made from galvanised steel. Motor with terminal box and motor side guard.
- 2. Wall fan HW, AVD DK – circular plate axial with inlet cone**
Casing made from galvanised steel. Motor with terminal box and motor side guard.
- 3. In wall fan HS**
Cylindrical duct case with spigot ends
For flush, wall or in-line duct installation. Casing made from galvanised steel with circular stiffening rings.
- 4. Cased axials**
HRF, AVD RK
Cylindrical duct with flanges on both ends
For direct in-line installation in ducting. Flanges made to DIN 24155, PT. 3. Casing made from galvanised steel, additional terminal box (IP 55) on outer casing.

Motor form

- Depending on the motor specification e.g. protection class, power, fan diameter and installation – motors of the forms B 0, B 5, B 14 or V... are used.

Impeller

- Depending on the performance requirements the impellers are made from various materials; see product pages. The standard design is made from reinforced polymers. Other materials, aluminium or steel, are available on special order.
- All impellers feature:
 - Low noise characteristics.
 - High efficiency.

- Vibration free operation.
- Dynamically balanced to DIN ISO 1940 Pt. 1 – class 6.3.
- Profiled metal impellers made from cast aluminium (made to order) are available in all sizes.
- The standard models are suitable for air flow temperature from -30° to +60 °C. For higher temperatures metal impellers are available to order. See information on the product pages.

Angle

- The standard products till ø 630 mm equipped with fixed impeller blades.
- Starting from nominal size 710 mm (except HQW 710/6) the impeller blades are available with order related pitch angle.
- The installation size ø 800/4, 900/4 and ../6 as well as ø 1 000 mm have adjustable blades at standstill. This enables the fan to provide the exact duty required. The pitch angle is factory set (must be stated when ordering). The motors are selected using their maximum performance (see table on product page). The maximum pitch angle shown must not be exceeded as the motor will be overloaded.

Air flow direction

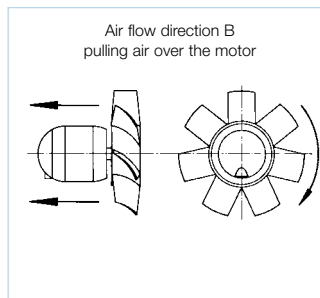
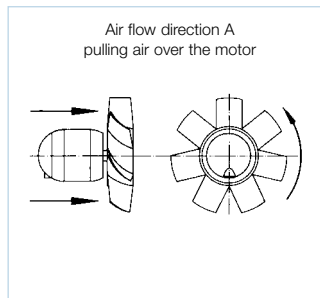
If not ordered differently, the fans (except HRF and AVD.. RK) come in air flow direction **A = pulling air over the motor. Air flow direction B = pushing air over the motor** is available for most models at a modest charge. HRF and AVD.. RK come in air flow direction B as standard.

- With most fans, the air flow direction can be changed after supply, should it be required. To do so you have to:
 1. Change the direction of rotation of the motor by changing the terminals on the terminal board.
 2. Remove impeller and put it the opposite way round on the shaft (only possible up to Ø 500 mm). Models HQ and HW allow for a 1/3 drop in performance.

Protection /guard

All relevant safety instructions and regulations must be followed when the fans are installed. A protection against accidental contact to VDE 0700 and/or DIN EN ISO 13857 must be guaranteed. The contact with rotating parts must be avoided. Make sure that there are no items near the inlet which could be pulled into the fan.

Fans which are connected to ducting systems do not need



guards if the ducting system offers protection to DIN EN ISO 13857.

We emphasise that the installer is responsible for the safety of the installation by fitting appropriate protection devices. Suitable guards are available as accessories. The responsibility that all relevant regulations have been observed remains with the installer.

Installation

Drainage holes

- Axial fans are suitable for installation in any position. If condensation is to be expected, (e.g. for intermittent operation, high humidity air flow or rapidly changing temperatures) the fan must be installed with the motor drainage holes facing downwards and they must be open.
- If installed outdoors, or in wet conditions or if installed with the motor shaft facing vertically upwards, this must be stated when ordering. Please make sure that the fan is fixed securely and the casing is not squeezed or distorted.

Reverse operation

Most axial fans are reversible (see product page). Using a suitable reversing switch. The fan can be used for intake or extract. In abnormal direction of flow the capacity decreases by approx. 1/3.

Air flow temperatures

The standard models are suitable for temperature from -30° to at least +40 °C. The maximum temperatures can be found on the specific product tables. Apart from explosion proof fans,

higher temperatures are possible for a short time. For permanently higher temperatures special models are available on request.

Built-in thermal contacts

- Standard for 1 phase models
- 3 phase motors: Standard for most models, see product page.

Explosion proof

The ex-proofed models conform to cluster II, category 2G for the operation in zone 1 or 2. According to EC-guidelines 94/9/EG bigger air gaps are specified which lead to a capacity reduction from up to 10 %.

Extra equipment, additional charge on demand

- Aluminium cast impeller
- Alternative voltage
- Alternative frequency
- Two pack coating for protection against diluted acids and lime solutions
- Alternative air flow direction
- Extra equipment for higher air flow temperatures
- Flameproof motor (standard with 1 phase explosion proof models)

Anti vibration insulation

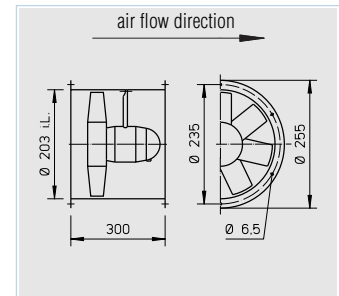
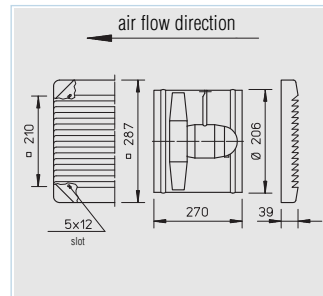
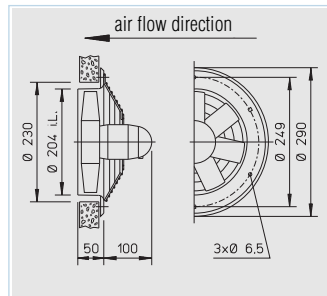
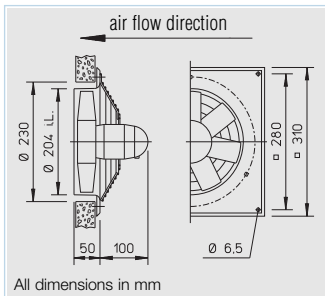
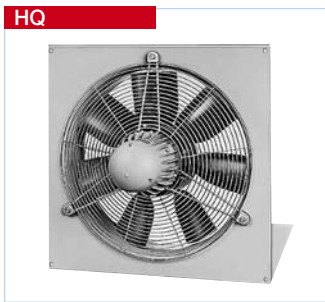
To avoid vibration transmission to building and ducting the use of anti vibration mounts (accessory SDD, SDZ) is highly recommended. Larger frame size motors may protrude out of the casing and might move the centre of gravity within the fan. To avoid an uneven load on the anti vibration mounts, an extension duct is recommended (accessory VR...).

Information	Pages
Design of ventilation systems, acoustic, explosion proof	12
General technical information, speed control	17

Through a combination of diameter, static pressure ΔP_{static} , air flow volume, R.P.M. min^{-1} , sound pressure level dB(A) and impeller diameter in mm the following table easily allows the selection of axial-high

performance fans from 200 \varnothing to 1000 mm \varnothing . Further sizes up to 1800 mm \varnothing are shown in a separate catalogue which is available on request.

Diameter mm	R.P.M. min^{-1}	Sound pressure level – intake L _{PA} dB(A) at 4 meters	Air flow volume in Vm^3/s against static pressure (ΔP_{stat}) in Pa																
			0	10	20	30	40	50	60	80	100	120	140	160	200	250	300	350	400
200	2300	55 ¹⁾	0.253	0.239	0.225	0.211	0.197	0.136	0.117	0.092	0.061								
200	1360	42 ¹⁾	0.144	0.114	0.058	0.047													
250	2800	63	0.572	0.564	0.558	0.550	0.542	0.533	0.525	0.503	0.481	0.458	0.428	0.383					
250	1450	44	0.294	0.278	0.258	0.236	0.203												
250	1450	35	0.025	0.225	0.156	0.117	0.081	0.036											
250	950	31	0.189	0.158	0.117														
315	2800	70	1.144	1.136	1.128	1.119	1.108	1.100	1.089	1.067	1.044	1.019	0.992	0.964	0.900	0.789			
315	1450	51	0.589	0.572	0.553	0.528	0.500	0.472	0.433										
315	950	38	0.381	0.35	0.308	0.233													
315	725	30	0.286	0.236															
355	2800	74	1.642	1.631	1.619	1.611	1.600	1.589	1.578	1.556	1.531	1.505	1.478	1.447	1.386	1.300	1.186	0.992	
355	1450	55	0.844	0.825	0.803	0.781	0.750	0.722	0.689	0.606									
355	950	42	0.047	0.514	0.472	0.416	0.333												
355	725	34	0.414	0.364	0.269														
400	2800	78	2.347	2.336	2.325	2.314	2.303	2.292	2.278	2.253	2.228	2.200	2.172	2.142	2.078	1.992	1.897	1.786	1.633
400	1450	59	1.211	1.189	1.167	1.139	1.111	1.081	1.047	0.975	0.881	0.728							
400	950	45	0.789	0.753	0.706	0.656	0.589	0.478											
400	725	37	0.594	0.542	0.469	0.364													
450	2800	78	3.069	3.044	3.019	2.992	2.967	2.942	2.917	2.864	2.814	2.764	2.714	2.661	2.558	2.414	2.236	1.925	1.255
450	1450	62	1.725	1.700	1.675	1.647	1.619	1.589	1.553	1.478	1.397	1.300	1.150						
450	950	49	1.125	1.086	1.039	0.983	0.922	0.85	0.725										
450	725	51	0.853	0.794	0.722	0.622													
500	2800	81	3.653	3.622	0.536	0.506	0.478	3.503	3.472	3.414	3.353	3.294	3.234	3.178	3.058	2.883	2.667	2.394	1.497
500	1450	65	2.369	0.233	2.314	2.283	2.256	2.222	2.186	2.025	1.936	1.836	1.703	1.667					
500	950	52	1.544	1.503	1.453	1.397	1.336	1.267	1.189	0.933									
500	725	44	1.172	1.114	1.036	0.947	0.811												
560	1450	62	3.586	3.522	3.486	3.433	3.372	3.319	3.269	3.144	3.028	2.931	2.778	2.639	2.297				
560	950	52	2.250	2.133	2.047	1.967	1.856	1.744	1.619	1.269									
560	725	46	1.792	1.686	1.567	1.453	1.319	1.150											
630	1450	65	4.964	4.903	4.839	4.778	4.714	4.653	4.589	4.447	4.306	4.167	4.028	3.889	3.611	3.139			
630	950	55	2.922	2.819	2.717	2.614	2.511	2.408	2.283	2.017									
630	725	49	2.222	2.106	1.947	1.814	1.642	1.472											
710	1450	71	6.594	6.525	6.456	6.383	6.314	6.242	6.167	6.017	5.858	5.694	5.528	5.358	5.003	4.511	3.889	3.072	
710	935	61	4.236	4.128	4.014	3.900	3.775	3.650	3.500	3.247	2.947	2.578	2.067						
710	700	54	3.153	3.003	2.847	2.675	2.497	2.306	2.083	1.483									
800	1435	73	8.986	8.900	8.811	8.722	8.636	8.547	8.469	8.294	8.119	7.947	7.775	7.592	7.206	6.672	6.133		
800	945	62	5.756	5.633	5.508	5.375	5.236	5.080	4.919	4.592	4.258	3.844	2.983						
800	705	55	4.272	4.106	3.922	3.717	3.494	3.275	3.028										
800	480	45	2.869	2.600	2.281	1.886													
900	1435	76	12.794	12.694	12.608	12.508	12.408	12.308	12.222	12.022	11.833	11.633	11.436	11.333	10.850	10.308	9.706	9.111	8.428
900	950	66	8.472	8.361	8.194	8.083	7.917	7.750	7.611	7.306	6.972	6.642	6.308	5.919					
900	725	59	5.878	5.669	5.456	5.236	5.003	4.756	4.481	4.167									
900	480	49	4.281	4.001	3.694	3.383	3.019												
1000	1440	80	17.617	17.508	17.403	17.294	17.186	17.081	16.975	16.758	16.544	16.331	16.114	15.900	15.472	14.919	14.331	13.683	13.008
1000	950	69	11.594	11.431	11.269	11.108	10.944	10.781	10.619	10.294	9.964	9.614	9.239	8.836	8.022				
1000	725	62	8.822	8.608	8.394	8.183	7.969	7.758	7.536	7.058	6.528	5.983							
1000	480	52	5.786	5.464	5.144	4.800	4.408	4.003											



All dimensions in mm

■ Specification

□ Casing

Manufactured in galvanised sheet steel. Models HQ and HW have the additional protection of two coats of light grey paint.

□ Impeller

Highly efficient, profiled 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

□ Motor

Totally enclosed, reversible motor with a die-cast aluminium casing, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. For maximum air flow temperature see table below.

□ Motor protection

All models have automatic resetting thermal contacts wired in series with the motor windings.

□ Electrical connection

Terminals in motor cap (IP 55). HRF models are pre wired to an additional terminal box (IP 55) fitted externally on the casing.

□ Guard

HQ and HW models have powder coated motor side wire guard. HS models have robust, impact resistant white polymer grilles. All grilles to DIN EN ISO 13857.

□ Speed control

All models are speed controllable by voltage reduction (transformer controller or electronic controller). For according air flow volume see performance curve.

□ Reversed operation

All models are reversible when wired to a DSEL reversing switch. For reverse air flow direction allow for 1/3 drop in performance.

□ Installation

Installation in any position. Ensure that motor drainage holes face downwards.

□ Sound levels

Both sound power and sound pressure levels are shown on each performance curve. Sound pressure levels are measured at 1 meter in freefield conditions and are the calculated average between the inlet and exhaust data. Further acoustical information see page 13.

■ Information Pages

Technical description	116
Selection chart	117
Design of systems	12 on

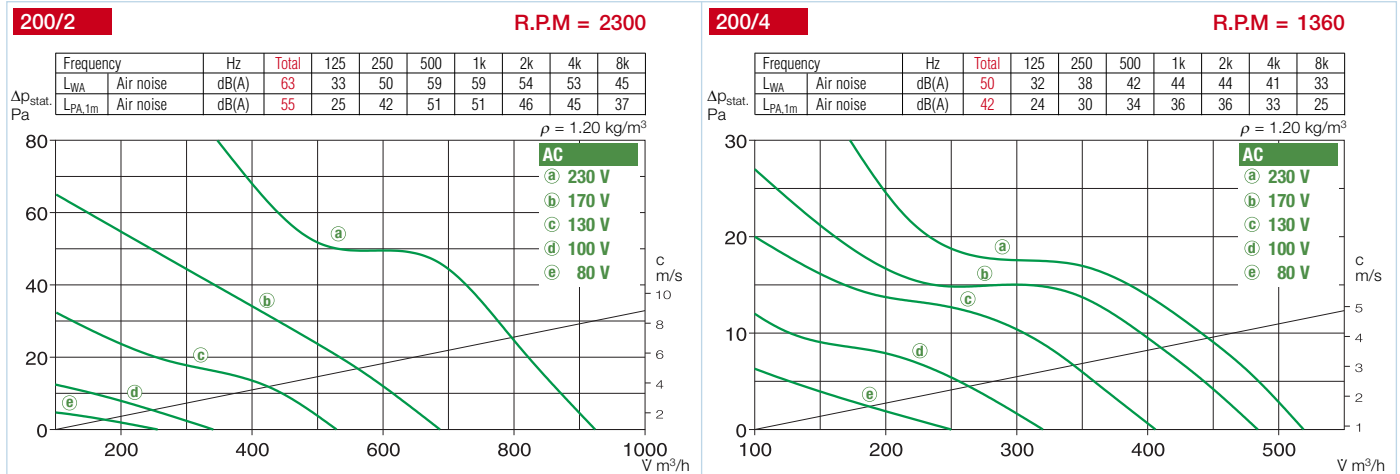
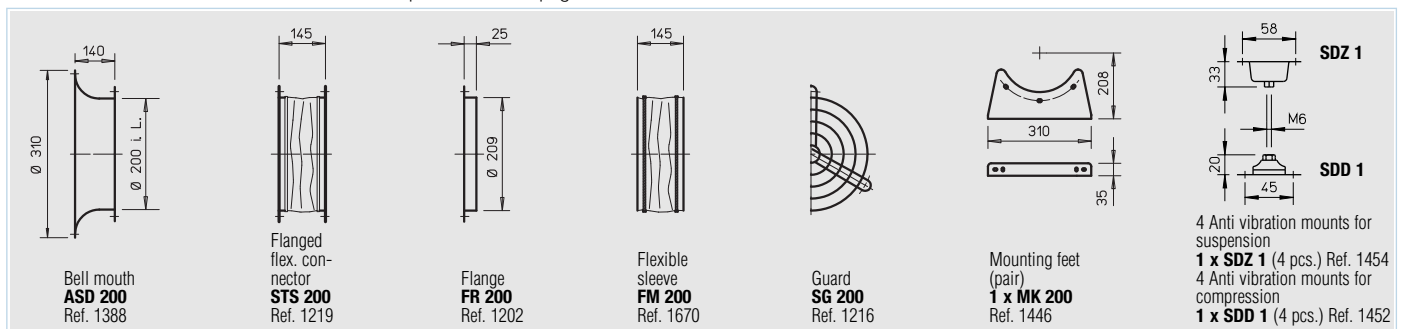
Made to order designs

Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction B, cast aluminium impeller etc. are available on request.

For safety and correct use note the technical information on pages 17 on.

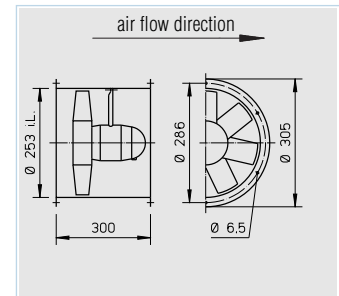
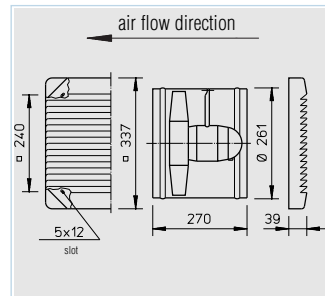
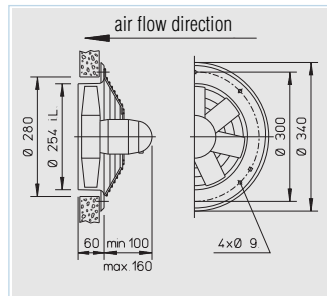
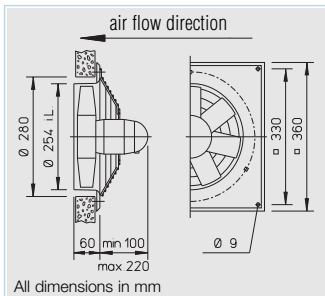
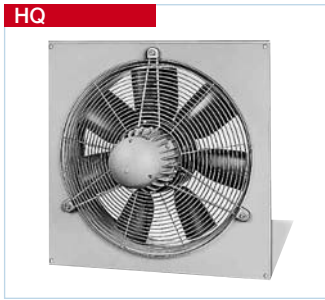
R.P.M.	Air flow volume (FID)	Motor power (nominal)	Current full load	Current speed controlled	Wiring diagram No.	Maximum standard supply	air flow temp speed controlled	Nominal weight (net.)	Fan type							
									HQ incl. guard	Ref. No.	HW incl. guard	Ref. No.	HS incl. grille	Ref. No.	HRF	Ref. No.
min ⁻¹	V m ³ /h	W	A	A	No.	+°C	+°C	kg								
1 Phase motor, 230 V / 1ph. / 50 Hz, protection to IP 54																
1360	520	30	0.13	0.13	439 ¹⁾	60	40	2.7	HQW 200/4	7537	HW 200/4	7538	HSW 200/4	7502	HRFW 200/4 ¹⁾	7540
2300	930	70	0.26	0.26	439 ¹⁾	60	40	2.7	HQW 200/2	0960	—	—	HSW 200/2	7503	HRFW 200/2 ¹⁾	0199

¹⁾ Type HRFW: connect using wiring diagram No. SS-962


Accessories for cased axial fans HRF – Specification see pages 170 on.


Other accessories	Pages
Extension tube for HS VH 200 Cylindrical duct, galvanised steel, length: 150 mm.	Ref. No. 1349
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on

Transformer controller for 5 speed control	Electronic controller for stepless control	Reversing switch	Electronic controller with reversing switch
Type	Type	Type	Type
TSW 0.3	ESU 1/ESA 1	DSEL 2	BSX
3608	0236/0238	1306	0240
TSW 0.3	ESU 1/ESA 1	DSEL 2	BSX
3608	0236/0238	1306	0240



■ Specification

□ Casing

Manufactured in galvanised sheet steel. Models HQ and HW have the additional protection of two coats of light grey paint.

□ Impeller

Highly efficient, profiled 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

□ Motor

Totally enclosed, reversible motor with a die-cast aluminium casing, protected to IP 54/IP 55. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. For maximum air flow temperature see table below.

□ Motor protection

All models (except explosion proof) have thermal contacts as standard which must be connected to a motor protection unit (see below). The models H..W 250/6, H..W 250/4 and all 1 ph. ex-proof fans have automatic resetting thermal contacts wired in series with the motor windings.

□ Electrical connection

Terminals in motor cap (IP 55). HRF models are pre wired to an additional terminal box (IP 55) fitted externally on the casing. Explosion proof models may vary.

□ Guard

HQ and HW models have powder coated motor side wire guard (HQ.. Ex zinc plated). HS models have robust, impact resistant white polymer grilles. All grilles to DIN EN ISO 13857.

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. The air flow rates are shown in the performance curve family.

□ Reversed operation

All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 drop in performance.

□ Installation

Installation in any position. Ensure that motor drainage holes face downwards.

□ Dimensions

Dimensions are shown above. Pole-switching and explosion proof models may vary.

□ Sound levels

Both sound power and sound pressure levels are shown on each performance curve.

□ Sound pressure levels

are measured at 4 meters in freefield conditions and are the calculated average between the inlet and exhaust data. Further acoustical information see page 13.

Information Pages

Technical description	116
Selection chart	117
Design of systems	12 on

Made to order designs

Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction B, cast aluminium impeller etc. are available on request.

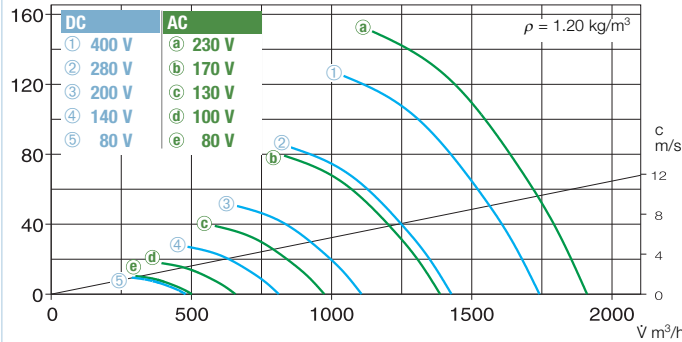
For safety and correct use note the technical information on pages 17 on.

R.P.M.	Air flow volume (FID)	Motor power (nominal)*	Current*		Wiring diagram	Maximum air flow temp		Nominal weight (net)	Fan type							
			full load	speed controlled		standard supply	speed controlled		HQ incl. guard	Ref. No.	HW incl. guard	Ref. No.	HS incl. guard	Ref. No.	HRF	Ref. No.
min ⁻¹	V m ³ /h	W	A	A	No.	+°C	+°C	kg								
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55																
950	700	33	0.20	0.20	317	60	40	6.5	HQW 250/6	1102	—	—	HSW 250/6	0139	—	—
1380	960	44	0.20	0.20	439 ²⁾	60	40	7.5	HQW 250/4 ¹⁾	1103	HWW 250/4 ¹⁾	1001	HSW 250/4 ¹⁾	0140	HRFW 250/4 ¹⁾²⁾	0200
2590	1910	230	1.10	1.10	317 ³⁾	60	40	6.5	HQW 250/2	1104	HWW 250/2	1002	HSW 250/2	0141	HRFW 250/2 ³⁾	0201
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 55																
980	720	62	0.27	0.27	469	60	40	6.5	HQD 250/6	1114	—	—	—	—	—	—
1410	1040	55	0.20	0.20	469	60	40	6.5	HQD 250/4	1115	HWD 250/4	1016	HSD 250/4	0155	HRFD 250/4	0220
2360	1740	205	0.40	0.40	469	60	40	6.5	HQD 250/2	1116	HWD 250/2	1017	—	—	HRFD 250/2	0221
2 speed motor, pole-switching, Dahlander windings, 400 V / 3 ph. / 50 Hz, protection to IP 55																
1400/2700	1030/2000	45/180	0.20/0.40		472	60	—	8.5	HQD 250/4/2	1128	—	—	—	—	HRFD 250/4/2	0390
Explosion proof E Ex de II B, 230 V / 1 ph. / 50 Hz, protection to IP 55, temperature class T1-T3																
1400	1030	60	0.70		757	40	—	6.5	HQW 250/4 Ex	0438	—	—	—	—	HRFW 250/4 Ex	0437
2650	1950	180	1.23		757	40	—	7.5	HQW 250/2 Ex	1094	—	—	—	—	HRFW 250/2 Ex	1095
Explosion proof E Exe II, 400 V / 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3																
1400	1070	120	0.41		470	40	—	6.5	HQD 250/4 Ex	1144	—	—	—	—	HRFD 250/4 Ex	0470
2850	2070	250	0.72		470	40	—	6.5	HQD 250/2 Ex	1145	—	—	—	—	HRFD 250/2 Ex	0471

* Ex-models: Motor nominal value, for information see page 18 ¹⁾ Special design not possible ²⁾ Type HRFW../4: connect using wiring diagram No. SS-962 ³⁾ Type HRFW../2: connect using wiring diagram No. SS-963

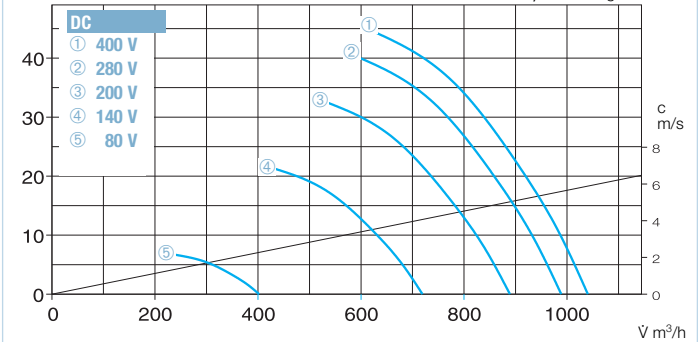
250/2 R.P.M. = 2800

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA}	Air noise	dB(A)	83	58	74	76	81	75	72	64
L _{PA,4m}	Air noise	dB(A)	63	38	54	56	61	55	52	44



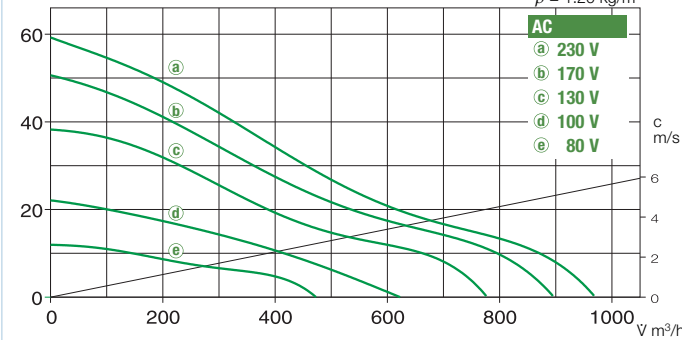
250/4 DC R.P.M. = 1450

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA}	Air noise	dB(A)	64	50	54	61	58	56	51	42
L _{PA,4m}	Air noise	dB(A)	44	30	34	41	38	36	31	22



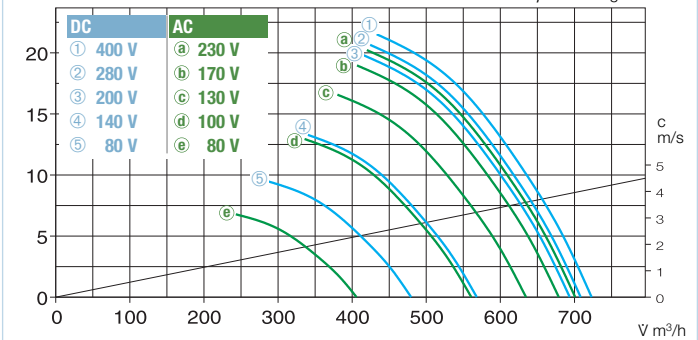
250/4 AC R.P.M. = 1400

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA}	Air noise	dB(A)	55	37	43	47	49	49	46	38
L _{PA,4m}	Air noise	dB(A)	35	17	23	27	29	29	26	18



250/6 R.P.M. = 950

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA}	Air noise	dB(A)	51	39	46	46	46	43	36	29
L _{PA,4m}	Air noise	dB(A)	31	19	29	26	26	23	-	-



Accessories for cased axial fans HRF – Specification see pages 170 on.

Bell mouth + guard ASD-SGD 250 Ref. 1414
Extension duct VR 250 Ref. 1402
Circular attenuators RSD 250/..
Automatic back-draught shutter RVS 250 a) Ref. 2592
Flanged flex. connector STS 250 b) Ref. 1220
Flange FR 250 Ref. 1203
Flexible sleeve FM 250 b) Ref. 1672
Guard SG 250 Ref. 1236
Mounting feet (pair) 1 x MK 250 Ref. 1447
4 Anti vibration mounts for suspension 1 x SDZ 1 (4 pcs.) Ref. 1454
4 Anti vibration mounts for compression 1 x SDD 1 (4 pcs.) Ref. 1452

a) For motorised shutters see accessory pages b) Models for ex-proof fans see below

Transformer controller for 5 speed control Pole switch		Electronic controller for stepless control		Full motor protection starter using the motor thermal contacts		Reversing switch	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
TSW 0.3	3608	ESU 1/ESA 1	0236/0238	—	—	WS	1271
TSW 0.3	3608	ESU 1/ESA 1	0236/0238	—	—	DSEL 2	1306
TSW 1.5	1495	ESU 3/ESA 3	0237/0239	MW	1579	WS	1271
RDS 1 ⁴⁾	1314	—	—	MD	5849	WS	1271
RDS 1 ⁴⁾	1314	—	—	MD	5849	WS	1271
RDS 1 ⁴⁾	1314	—	—	MD	5849	WS	1271
Pole switch							
PDA 12 ⁵⁾	5081	—	—	M 3 ⁶⁾	1293	PWDA	1282
not permitted	not permitted	not permitted	not permitted	—	—	—	—
not permitted	not permitted	not permitted	not permitted	—	—	—	—
not permitted	not permitted	not permitted	not permitted	—	—	—	—
not permitted	not permitted	not permitted	not permitted	—	—	—	—

4) Incl. full motor protection 5) Incl. pole switch 6) see product page for flush mounted version

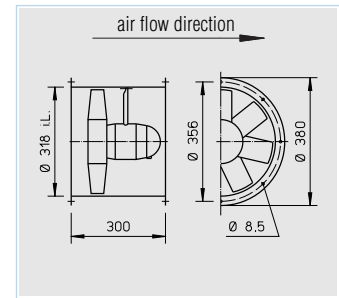
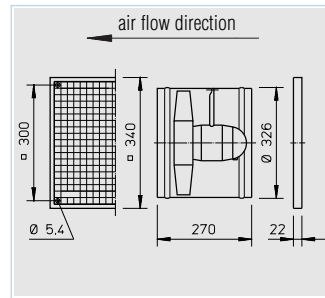
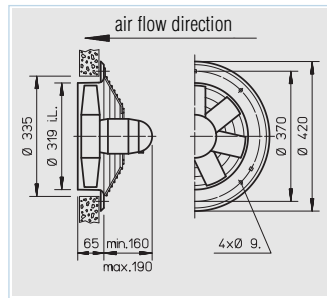
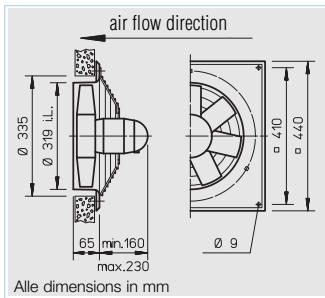
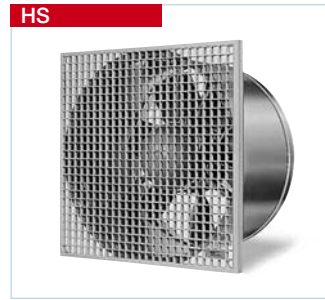
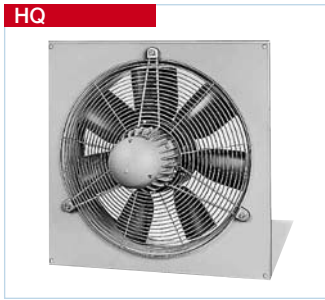
Other accessories Pages

b) Accessories for explosion proof fans

- Flanged flexible connector**
- STS 250 Ex Ref. No. 2501
- Flexible sleeve**
- FM 250 Ex Ref. No. 1688

- Extension tube for HS**
- VH 250 Ref. No. 1343
- Cylindrical duct, galvanised steel, length: 150 mm.

- Filters and attenuators 305 on
- Shutters, grilles and louvres 361 on
- Speed controllers and switches 397 on



■ Specification

□ Casing

Manufactured in galvanised sheet steel. Models HQ and HW have the additional protection of two coats of light grey paint.

□ Impeller

Highly efficient, profiled 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

□ Motor

Totally enclosed, reversible motor with a die-cast aluminium casing, protected to IP 54/IP 55. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. For maximum air flow temperature see table below.

□ Motor protection

All models (except 3 ph. explosion proof) have thermal contacts as standard which must be connected to a motor protection unit (see below). Models H..W 315/6 and all 1 ph. ex-proof fans have automatic resetting thermal contacts wired in series with the motor windings.

□ Electrical connection

Terminals in motor cap (IP 55). HRF models are pre wired to an additional terminal box (IP 55) fitted externally on the casing. Explosion proof models may vary.

□ Guard

HQ and HW models have powder coated motor side wire guard (HQ.. Ex zinc plated). HS models have robust, impact resistant white polymer grilles. All grilles to DIN EN ISO 13857.

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. The air flow rates are shown in the performance curve family.

□ Reversed operation

All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 drop in performance.

□ Installation

Installation in any position. Ensure that motor drainage holes face downwards.

□ Dimensions

Dimensions are shown above. Pole-switching and explosion proof models may vary.

□ Sound levels

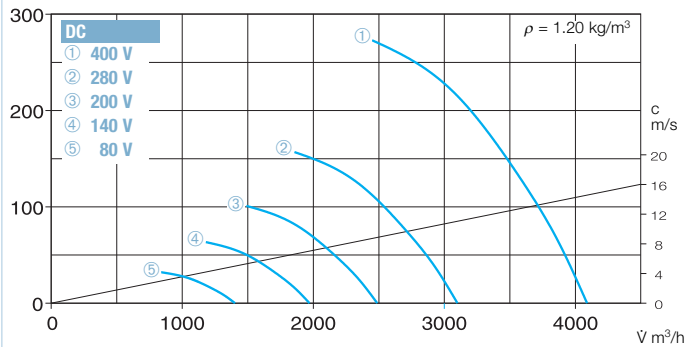
Both sound power and sound pressure levels are shown on each performance curve. Sound pressure levels are measured at 4 meters in freefield conditions and are the calculated average between the inlet and exhaust data. Further acoustical information see page 13.

R.P.M.	Air flow volume (FID)	Motor power (nominal)*	full load	Current* speed controlled	Wiring diagram	Maximum air flow temp standard supply	Nominal speed controlled	Nominal weight (net)	Fan type							
									HQ incl. guard	Ref. No.	HW incl. guard	Ref. No.	HS incl. guard	Ref. No.	HRF	Ref. No.
min ⁻¹	V m ³ /h	W	A	A	No.	+°C	+°C	kg								
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55																
915	1350	55	0.25	0.25	317 ¹⁾	60	40	8.0	HQW 315/6	1105	—	—	HSW 315/6	0142	HRFW 315/6 ¹⁾	0202
1405	2070	132	0.60	0.60	475 ²⁾	60	40	8.0	HQW 315/4	1106	HWW 315/4	1004	HSW 315/4	0143	HRFW 315/4 ²⁾	0203
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 55																
955	1410	67	0.27	0.27	469	60	40	8.0	HQD 315/6	1117	—	—	—	—	—	—
1360	2010	96	0.25	0.25	469	60	40	8.0	HQD 315/4	1118	HWD 315/4	1019	HSD 315/4	0158	HRFD 315/4	0223
2700	3990	510	1.00	1.00	469	50	40	8.0	HQD 315/2	1119	HWD 315/2	1020	—	—	HRFD 315/2	0224
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																
1060/1360	1560/2000	65/100	0.12/0.24	—	520	60	—	8.0	HQD 315/4/4	1460	—	—	—	—	HRFD 315/4/4	1462
2 speed motor, pole-switching, Dahlander windings, 400 V / 3 ph. / 50 Hz, protection to IP 55																
725/1450	1070/2140	66/165	0.30/0.70	—	472	60	—	10.0	HQD 315/8/4	1129	—	—	HSD 315/8/4	0346	HRFD 315/8/4	0391
1420/2720	2100/4010	90/610	0.25/1.20	—	472	50	—	10.0	HQD 315/4/2	1131	—	—	HSD 315/4/2	0348	HRFD 315/4/2	0393
Explosion proof E Ex de II B, 230 V / 1 ph. / 50 Hz, protection to IP 55, temperature class T1-T3																
1400	2070	60	0.70	—	757	40	—	8.0	HQW 315/4 Ex	0442	—	—	—	—	HRFW 315/4 Ex	0439
Explosion proof E Exe II, 400 V / 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3																
900	1400	180	0.71	—	470	40	—	8.0	HQD 315/6 Ex	1146	—	—	—	—	—	—
1400	2140	120	0.41	—	470	40	—	8.0	HQD 315/4 Ex	1147	—	—	—	—	HRFD 315/4 Ex	0473
2900	4130	550	1.31	—	470	40	—	8.0	HQD 315/2 Ex	1148	—	—	—	—	HRFD 315/2 Ex	0474

* Ex-models: Motor nominal value, for information see page 18 ¹⁾ Type HRFW../6: connect using wiring diagram No. SS-963 ²⁾ Type HRFW../4: connect using wiring diagram No. SS-965 ³⁾ Incl. full motor protection

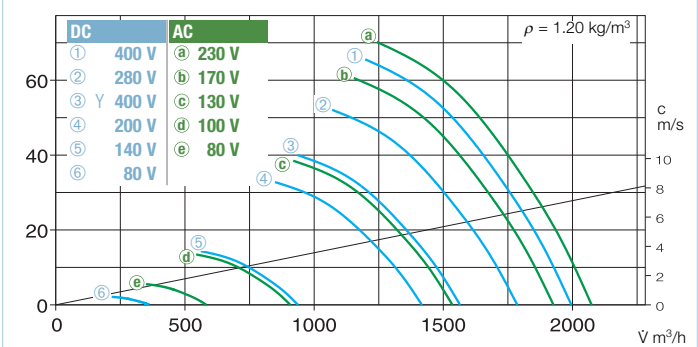
315/2 R.P.M. = 2800

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA}	Air noise	dB(A)	90	65	81	83	88	82	79	72
L _{PA,4m}	Air noise	dB(A)	70	45	61	63	68	62	59	52



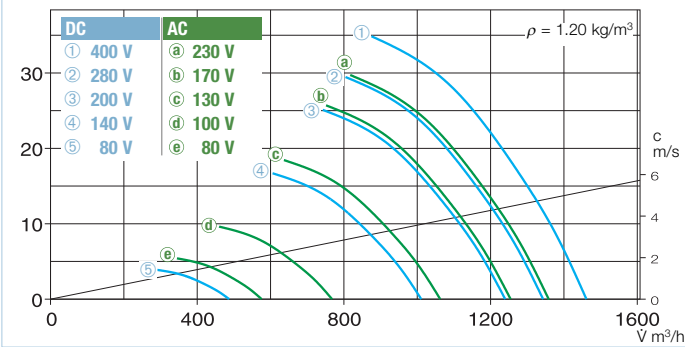
315/4 R.P.M. = 1450

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA}	Air noise	dB(A)	71	57	61	68	65	63	58	49
L _{PA,4m}	Air noise	dB(A)	51	37	41	48	45	43	38	29



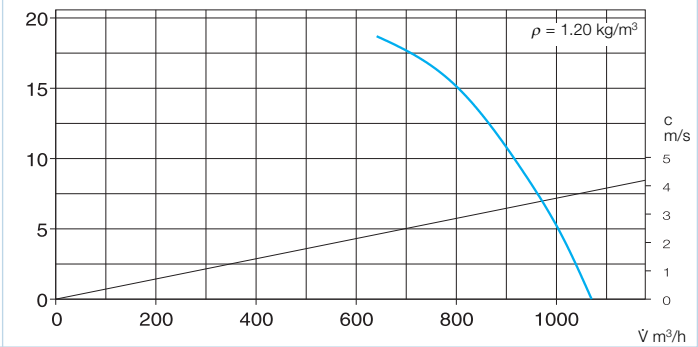
315/6 R.P.M. = 950

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA}	Air noise	dB(A)	58	46	53	53	53	50	43	36
L _{PA,4m}	Air noise	dB(A)	38	26	33	33	33	30	23	16

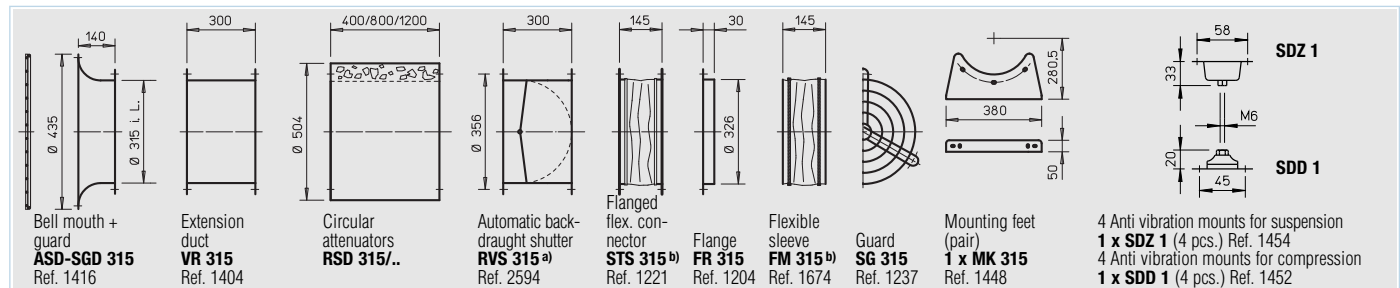


315/8 R.P.M. = 725

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA}	Air noise	dB(A)	50	37	46	45	45	41	34	29
L _{PA,4m}	Air noise	dB(A)	30	17	26	25	25	21	14	9



Accessories for cased axial fans HRF – Specification see pages 170 on.



Transformer controller for 5 speed control, speed/ pole switch		Electronic controller for stepless control		Full motor protection starter using the motor thermal contacts		Reversing switch	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
TSW 0.3	3608	ESU 1/ESA 1	0236/0238	—	—	WS	1271
MWS 1.5 ³⁾	1947	ESU 1/ESA 1	0236/0238	MW	1579	WS	1271
RDS 1 ³⁾	1314	—	—	MD	5849	WS	1271
RDS 1 ³⁾	1314	—	—	MD	5849	WS	1271
RDS 2 ³⁾	1315	—	—	MD	5849	WS	1271
Star/delta switch							
DS 2	1351	—	—	M 4 ⁴⁾	1571	WS	1271
Pole switch							
PDA 12 ⁵⁾	5081	—	—	M 3 ⁴⁾	1293	PWDA	1282
PDA 12 ⁵⁾	5081	—	—	M 3 ⁴⁾	1293	PWDA	1282
not permitted	not permitted	not permitted	not permitted	—	—	—	—
not permitted	not permitted	not permitted	not permitted	—	—	—	—
not permitted	not permitted	not permitted	not permitted	—	—	—	—
not permitted	not permitted	not permitted	not permitted	—	—	—	—

⁴⁾ Incl. pole switch ⁵⁾ see product page for flush mounted version

Information	Pages
Technical description	116
Selection chart	117
Design of systems	12 on

Made to order designs
Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction B, cast aluminium impeller etc. are available on request.

For safety and correct use note the technical information on pages 17.

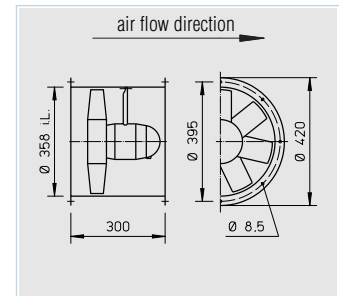
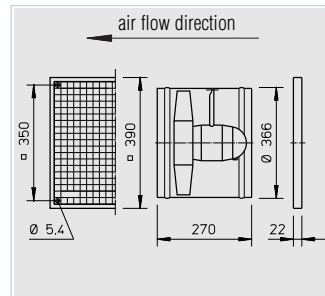
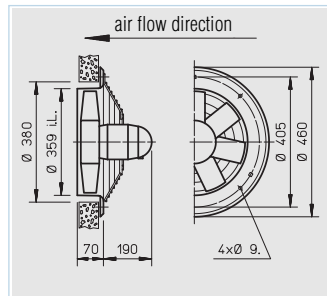
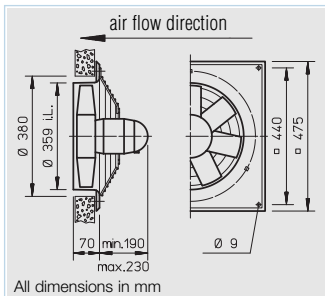
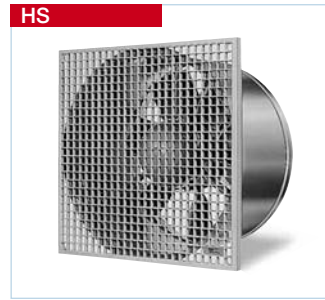
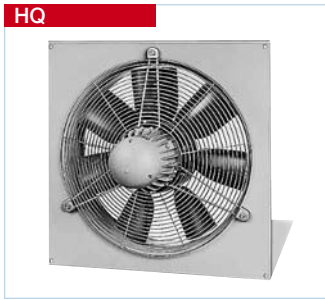
Other accessories	Pages
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Accessories for explosion proof fans

Flanged flexible connector
STS 315 Ex Ref. No. 2503
Flexible sleeve
FM 315 Ex Ref. No. 1690

Extension tube for HS
VH 315 Ref. No. 1344
Cylindrical duct, galvanised steel, length: 150 mm.

Filters and attenuators 305 on
Shutters, grilles and louvres 361 on
Speed controllers and switches 365 on



■ Specification

□ Casing

Manufactured in galvanised sheet steel. Models HQ and HW have the additional protection of two coats of light grey paint.

□ Impeller

Highly efficient, profiled 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

□ Motor

Totally enclosed, reversible motor with a die-cast aluminium casing, protected to IP 54/IP 55. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. For maximum air flow temperature see table below.

□ Motor protection

All models (except 3 ph. explo - sion proof) have thermal contacts as standard which must be connected to a motor protection unit (see below). 1 ph. ex-proof fans have automatic resetting thermal contacts wired in series with the motor windings.

□ Electrical connection

Terminals in motor cap (IP 55). HRF models are pre wired to an additional terminal box (IP 55) fitted externally on the casing. Explosion proof models may vary.

□ Guard

HQ and HW models have powder coated motor side wire guard (HQ.. Ex zinc plated). HS models have robust, impact resistant white polymer grilles. All grilles to DIN EN ISO 13857.

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. The air flow rates are shown in the performance curve family.

□ Reversed operation

All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 drop in performance.

□ Installation

Installation in any position. Ensure that motor drainage holes face downwards.

□ Dimensions

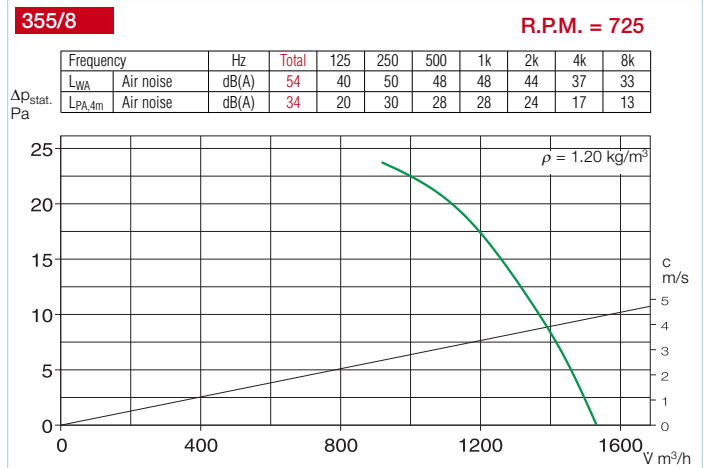
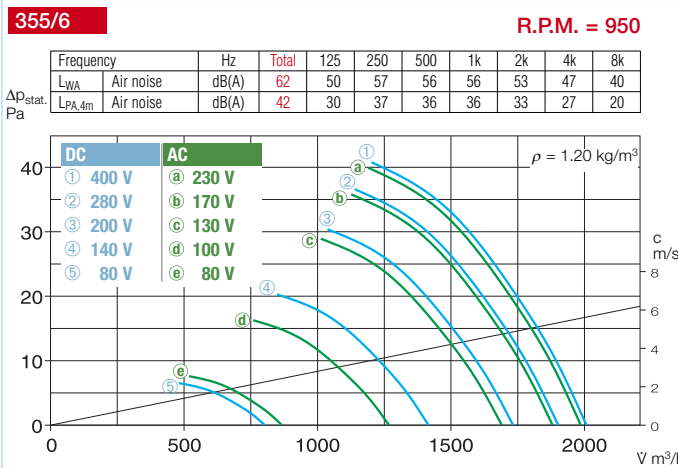
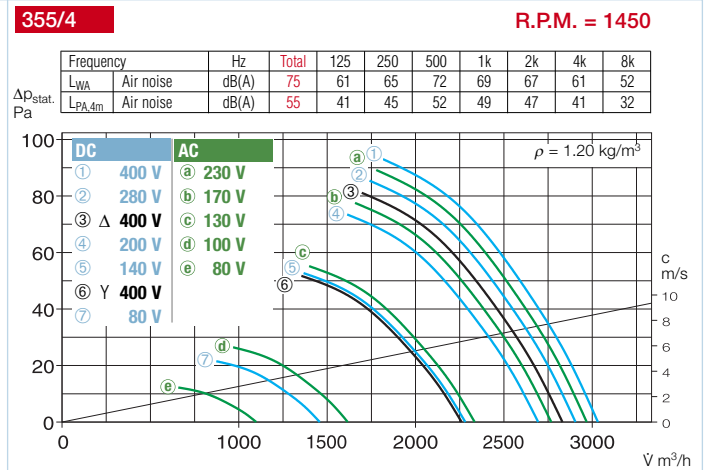
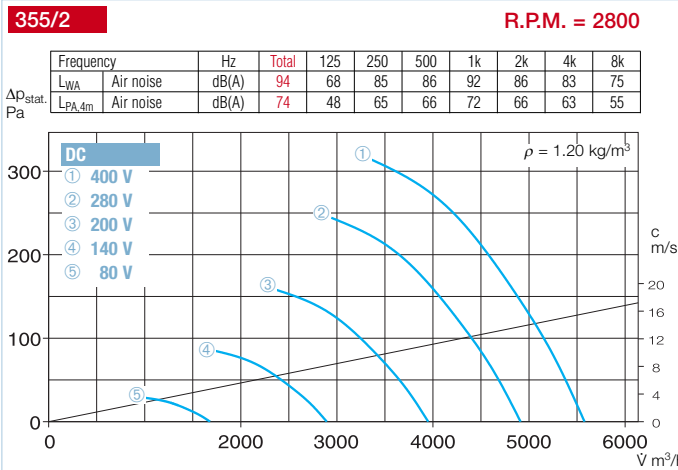
Dimensions are shown above. Pole-switching and explosion proof models may vary.

□ Sound levels

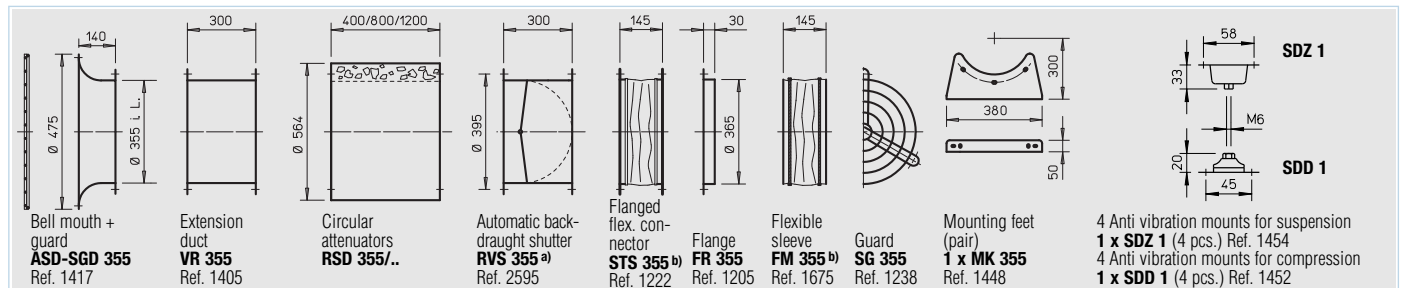
Both sound power and sound pressure levels are shown on each performance curve. Sound pressure levels are measured at 4 meters in freefield conditions and are the calculated average between the inlet and exhaust data. Further acoustical information see page 13.

R.P.M.	Air flow volume (FID)	Motor power (nominal)*	full load	Current* speed controlled	Wiring diagram	Maximum air flow temp standard supply	Nominal speed speed controlled	Nominal weight (net)	Fan type							
									HQ incl. guard	Ref. No.	HW incl. guard	Ref. No.	HS incl. guard	Ref. No.	HRF	Ref. No.
min ⁻¹	V m ³ /h	W	A	A	No.	+°C	+°C	kg								
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55																
940	1990	82	0.40	0.40	475 ¹⁾	60	40	9.5	HQW 355/6	1107	—	—	HSW 355/6	0144	HRFW 355/6¹⁾	0204
1405	2970	190	0.95	0.95	475 ¹⁾	60	40	9.5	HQW 355/4	1108	HWW 355/4	1006	HSW 355/4	0145	HRFW 355/4¹⁾	0205
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 55																
950	2010	74	0.28	0.28	469	60	40	9.5	HQD 355/6	1120	—	—	—	—	—	—
1420	3000	290	1.12	1.12	469	60	40	9.5	HQD 355/4	1121	HWD 355/4	1022	HSD 355/4	0161	HRFD 355/4	0226
2650	5600	880	1.60	1.70	469	50	40	14.0	HQD 355/2	1122	HWD 355/2	1023	—	—	HRFD 355/2	0227
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																
1070/1340	2260/2830	90/130	0.16/0.28	—	520	60	—	9.5	HQD 355/4/4	1463	—	—	—	—	HRFD 355/4/4	1464
2 speed motor, pole-switching, Dahlander windings, 400 V / 3 ph. / 50 Hz, protection to IP 55																
710/1420	1500/3000	75/210	0.30/0.70	—	472	60	—	11.0	HQD 355/8/4	1132	—	—	HSD 355/8/4	0349	HRFD 355/8/4	0394
1400/2680	2950/5660	170/1100	0.55/2.00	—	472	50	—	13.5	HQD 355/4/2	1134	—	—	—	—	HRFD 355/4/2	0396
Explosion proof E Ex de II B, 230 V / 1 ph. / 50 Hz, protection to IP 55, temperature class T1-T3																
1450	2940	180	1.90	—	757	40	—	9.5	HQW 355/4 Ex	0444	—	—	—	—	HRFW 355/4 Ex	0443
Explosion proof E Exe II, 400 V / 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3																
900	2010	180	0.71	—	470	40	—	9.5	HQD 355/6 Ex	1149	—	—	—	—	—	—
1400	3060	120	0.41	—	470	40	—	9.5	HQD 355/4 Ex	1150	—	—	—	—	HRFD 355/4 Ex	0476
2900	5910	550	1.31	—	470	40	—	9.5	HQD 355/2 Ex	1151	—	—	—	—	HRFD 355/2 Ex	0477

* Ex-models: Motor nominal value, for information see page 18 ¹⁾ Type HRFW: connect using wiring diagram No. SS-965 ²⁾ Incl. full motor protection ³⁾ Incl. pole switch



Accessories for cased axial fans HRF – Specification see pages 170 on.



a) For motorised shutters see accessory page b) Models for ex-proof fans see below

Transformer controller for 5 speed control, speed/ pole switch		Electronic controller for stepless control		Full motor protection starter using the motor thermal contacts		Reversing switch	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
MWS 1.5 ²⁾	1947	ESU 1/ESA 1	0236/0238	MW	1579	WS	1271
MWS 1.5 ²⁾	1947	ESU 1/ESA 1	0236/0238	MW	1579	WS	1271
RDS 1 ²⁾	1314	—	—	MD	5849	WS	1271
RDS 2 ²⁾	1315	—	—	MD	5849	WS	1271
RDS 2 ²⁾	1315	—	—	MD	5849	WS	1271
Star/delta switch							
DS 2	1351	—	—	M 4 ³⁾	1571	WS	1271
Pole switch							
PDA 12 ⁴⁾	5081	—	—	M 3 ³⁾	1293	PWDA	1282
PDA 12 ⁴⁾	5081	—	—	M 3 ³⁾	1293	PWDA	1282
not permitted	not permitted	not permitted	not permitted	—	—	—	—
not permitted	not permitted	not permitted	not permitted	—	—	—	—
not permitted	not permitted	not permitted	not permitted	—	—	—	—
not permitted	not permitted	not permitted	not permitted	—	—	—	—

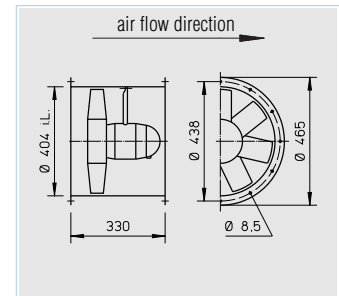
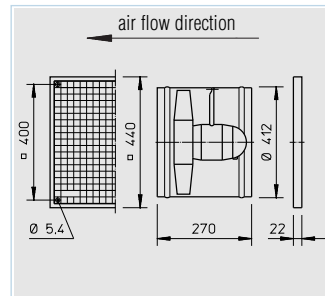
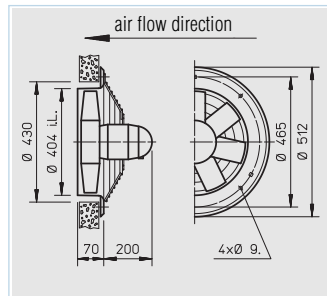
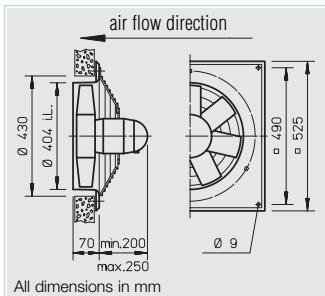
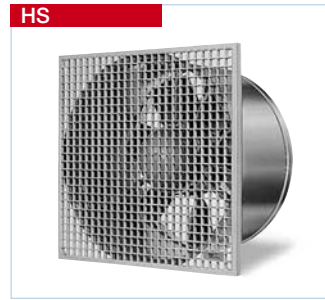
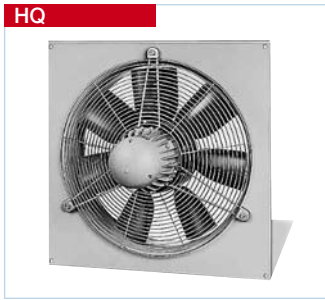
⁴⁾ see product page for flush mounted version

Information	Pages
Technical description	116
Selection chart	117
Design of systems	12 on

Made to order designs
 Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction B, cast aluminium impeller etc. are available on request.

For safety and correct use note the technical information on pages 17 on.

Other accessories	Pages
b) Accessories for explosion proof fans	
Flanged flexible connector STS 355 Ex	Ref. No. 2504
Flexible sleeve FM 355 Ex	Ref. No. 1691
Extension tube for HS VH 355	
Cylindrical duct, galvanised steel, length: 150 mm.	Ref. No. 1345
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on



■ Specification

□ Casing

Manufactured in galvanised sheet steel. Models HQ and HW have the additional protection of two coats of light grey paint.

□ Impeller

Highly efficient, profiled 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

□ Motor

Totally enclosed, reversible motor with a die-cast aluminium casing, protected to IP 54/IP 55. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. For maximum air flow temperature see table below.

□ Motor protection

All models (except explosion proof) have thermal contacts as standard which must be connected to a motor protection unit (see below).

□ Electrical connection

Terminals in motor cap (IP 55). HRF models are pre wired to an additional terminal box (IP 55) fitted externally on the casing. Explosion proof models may vary.

□ Guard

HQ and HW models have powder coated motor side wire guard (HQ.. Ex zinc plated). HS models have robust, impact resistant white polymer grilles. All grilles to DIN EN ISO 13857.

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be speed controlled by a frequency inverter this must be stated when ordering. The air flow rates are shown in the performance curve family.

□ Reversed operation

All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 drop in performance.

□ Installation

Installation in any position. Ensure that motor drainage holes face downwards.

□ Dimensions

Dimensions are shown above. Pole-switching and explosion proof models may vary.

□ Sound levels

Both sound power and sound pressure levels are shown on each performance curve. Sound pressure levels are measured at 4 meters in freefield conditions and are the calculated average between the inlet and exhaust data. Further acoustical information see page 12.

■ Information Pages

Technical description	116
Selection chart	117
Design of systems	12 on

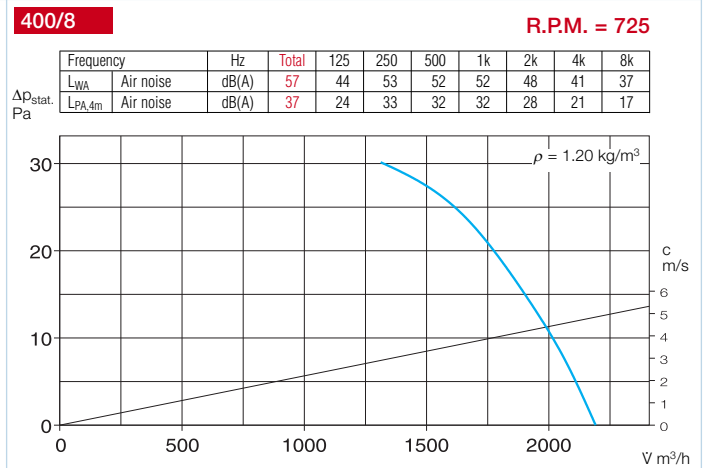
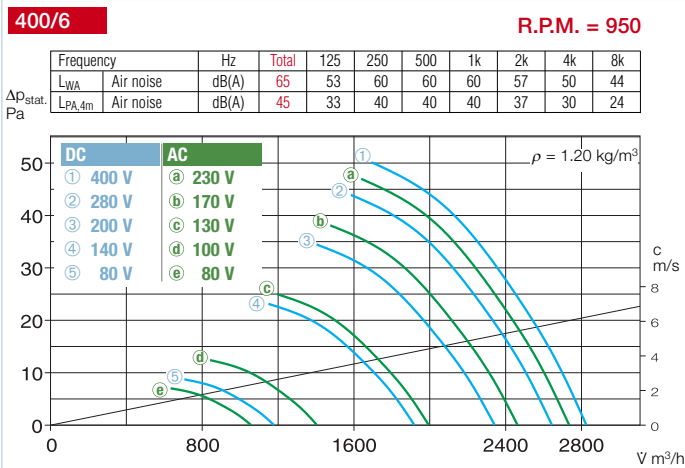
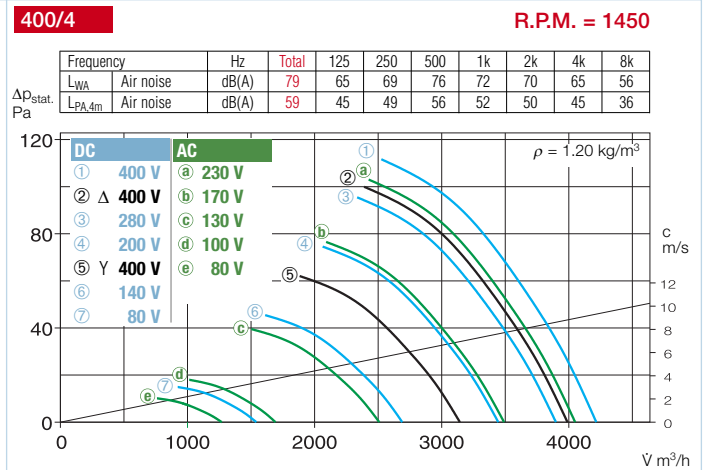
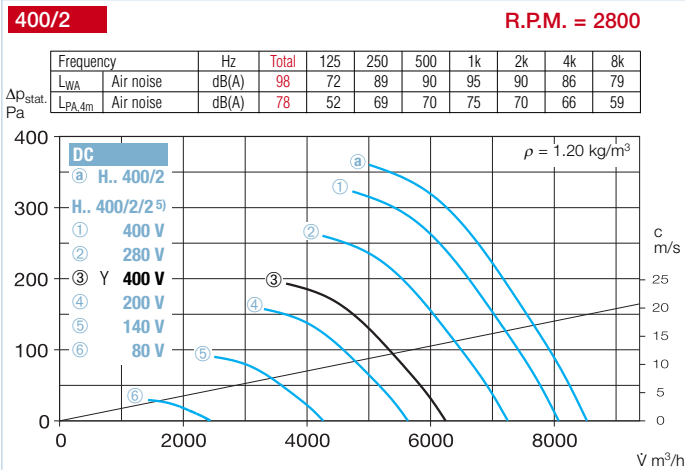
Made to order designs

Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction B, cast aluminium impeller etc. are available on request.

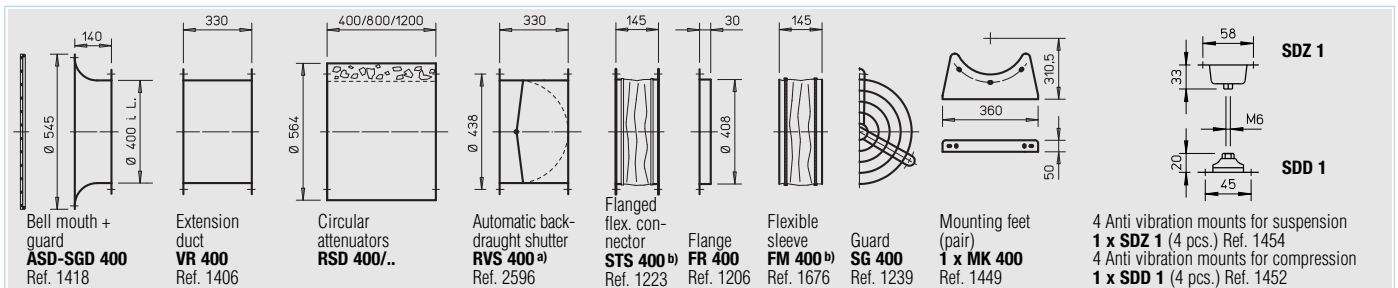
For safety and correct use note the technical information on pages 17 on.

R.P.M.	Air flow volume (FID)	Motor power (nominal)*	Current* full load	speed controlled	Wiring diagram No.	Maximum air flow temp standard supply +°C	Nominal weight (net) kg	Fan type								
								HQ incl. guard	Ref. No.	HW incl. guard	Ref. No.	HS incl. guard	Ref. No.	HRF	Ref. No.	
min ⁻¹	V m ³ /h	W	A	A	No.	+°C	+°C	kg								
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55																
900	2720	95	0.50	0.50	475 ¹⁾	60	40	13.0	HQW 400/6	1110	—	—	HSW 400/6	0146	HRFW 400/6¹⁾	0206
1320	3990	250	1.30	1.30	475 ¹⁾	60	40	13.0	HQW 400/4	1111	HWW 400/4	1008	HSW 400/4	0147	HRFW 400/4¹⁾	0207
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 55																
935	2820	95	0.30	0.30	469	60	40	13.0	HQD 400/6	1123	—	—	—	—	—	—
1380	4170	300	0.85	0.85	469	60	40	13.0	HQD 400/4	1124	HWD 400/4	1025	HSD 400/4	0164	HRFD 400/4	0229
2800	8460	1400	2.80	—	469	40	40	17.5	HQD 400/2	1125	—	—	—	—	HRFD 400/2	0249
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																
1030/1320	3100/3990	140/220	0.25/0.45	—	520	60	—	13.0	HQD 400/4/4	1465	—	—	—	—	HRFD 400/4/4	1466
2 speed motor, pole-switching, Dahlander windings, 400 V / 3 ph. / 50 Hz, protection to IP 55																
660/1320	1990/3990	55/230	0.20/0.50	—	472	60	—	13.0	HQD 400/8/4	1137	—	—	HSD 400/8/4	0354	HRFD 400/8/4	0399
1470/2920	4440/8820	230/1450	0.75/2.85	—	472	40	—	17.5	HQD 400/4/2	1139	—	—	—	—	HRFD 400/4/2	0401
Explosion proof E Exe II, 400 V / 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3																
900	2870	180	0.71	—	470	40	—	13.0	HQD 400/6 Ex	1152	—	—	—	—	—	—
1420	4380	370	1.14	—	470	40	—	13.0	HQD 400/4 Ex	1153	—	—	—	—	HRFD 400/4 Ex	0479

* Ex-models: Motor nominal value, for information see page 18 ¹⁾ Type HRFW: connect using wiring diagram No. SS-965 ²⁾ Incl. full motor protection ³⁾ Incl. pole switch



Accessories for cased axial fans HRF – Specification see pages 170 on.

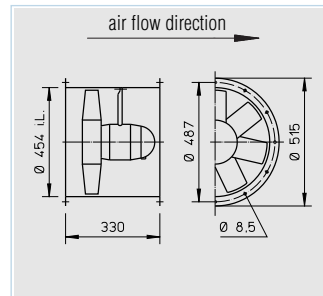
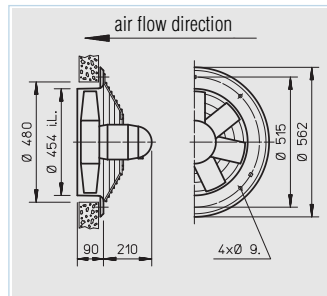
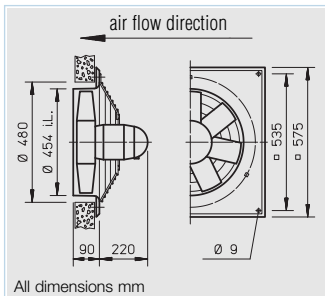
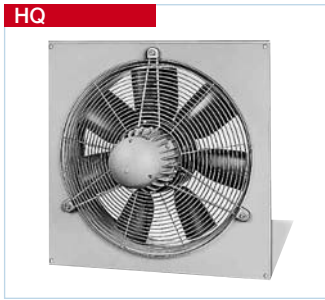


^{a)} For motorised shutters see accessory page ^{b)} Models for ex-proof fans see below

Transformer controller for 5 speed control, speed/pole switch	Electronic controller for stepless control frequency inverter	Full motor protection starter using the motor thermal contacts	Reversing switch				
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
MWS 1.5 ²⁾	1947	ESU 1/ESA 1	0236/0238	MW	1579	WS	1271
MWS 1.5 ²⁾	1947	ESU 3/ESA 3	0237/0239	MW	1579	WS	1271
RDS 1 ²⁾	1314	—	—	MD	5849	WS	1271
RDS 1 ²⁾	1314	—	—	MD	5849	WS	1271
— ⁵⁾	— ⁵⁾	FUS 3.7 ²⁾	6093	MD	5849	WS	1271
Star/delta switch							
DS 2	1351	—	—	M 4 ³⁾	1571	WS	1271
Pole switch							
PDA 12 ⁴⁾	5081	—	—	M 3 ³⁾	1293	PWDA	1282
PDA 12 ⁴⁾	5081	—	—	M 3 ³⁾	1293	PWDA	1282
not permitted	not permitted	—	—	—	—	—	—
not permitted	not permitted	—	—	—	—	—	—

⁴⁾ see product page for flush mounted version ⁵⁾ Controllable types ..2/2 on request.

Other accessories	Pages
b) Accessories for explosion proof fans	
Flanged flexible connector STS 400 Ex	Ref. No. 2505
Flexible sleeve FM 400 Ex	Ref. No. 1692
Extension tube for HS VH 400	Ref. No. 1346
Cylindrical duct, galvanised steel, length: 150 mm.	
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on



■ Specification

□ Casing

Manufactured in galvanised sheet steel. Models HQ and HW have the additional protection of two coats of light grey paint.

□ Impeller

Highly efficient, profiled 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

□ Motor

Totally enclosed, reversible motor with a die-cast aluminium casing, protected to IP 54/IP 55. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. For maximum air flow temperature see table below.

□ Motor protection

All models (except explosion proof) have thermal contacts as standard which must be connected to a motor protection unit (see below).

□ Electrical connection

Terminals in motor cap (IP 55). HRF models are pre wired to an additional terminal box (IP 55) fitted externally on the casing. Explosion proof models may vary.

□ Guard

HQ and HW models have powder coated motor side wire guard. (HQ.. Ex zinc plated). All grilles to DIN EN ISO 13857.

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. The air flow rates are shown in the performance curve family.

□ Reversed operation

All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 drop in performance.

□ Installation

Installation in any position. Ensure that motor drainage holes face downwards.

□ Dimensions

Dimensions are shown above. Pole-switching and explosion proof models may vary.

□ Sound levels

Both sound power and sound pressure levels are shown on each performance curve. Sound pressure levels are measured at 4 meters in freefield conditions and are the calculated average between the inlet and exhaust data. Further acoustical information see page 13.

Information	Pages
Technical description	116
Selection chart	117
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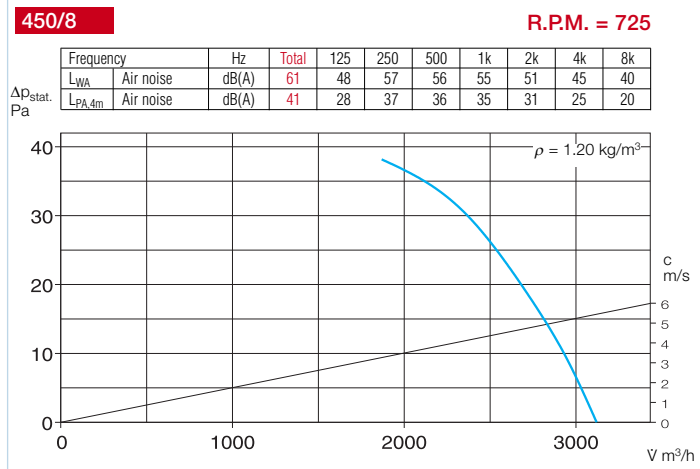
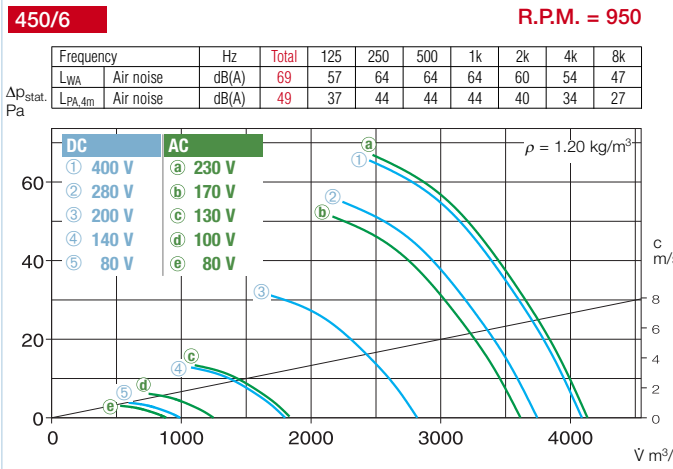
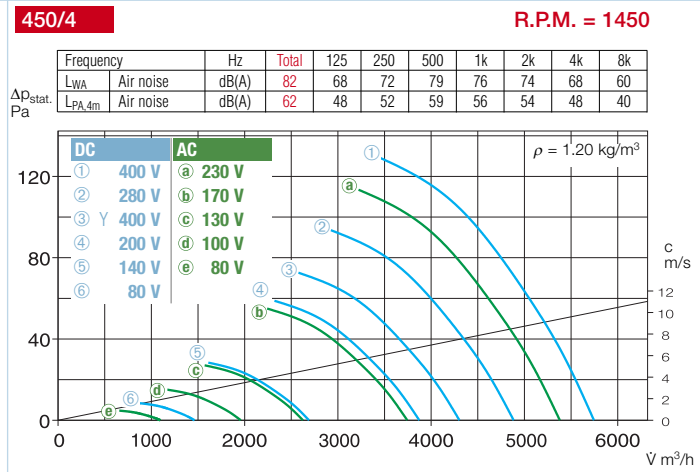
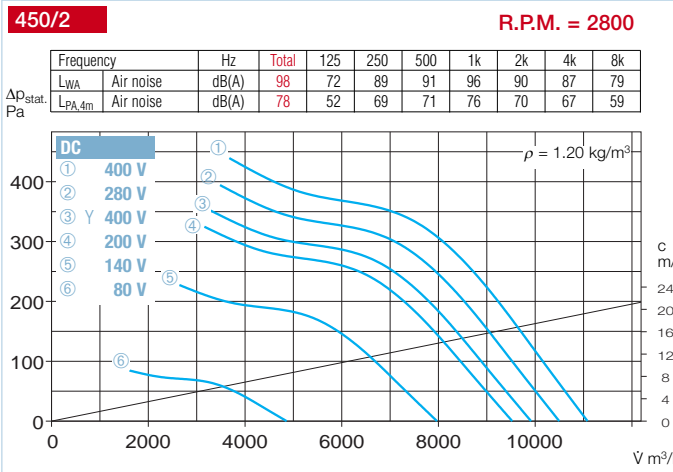
Made to order designs

Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction B, cast aluminium impeller etc. are available on request.

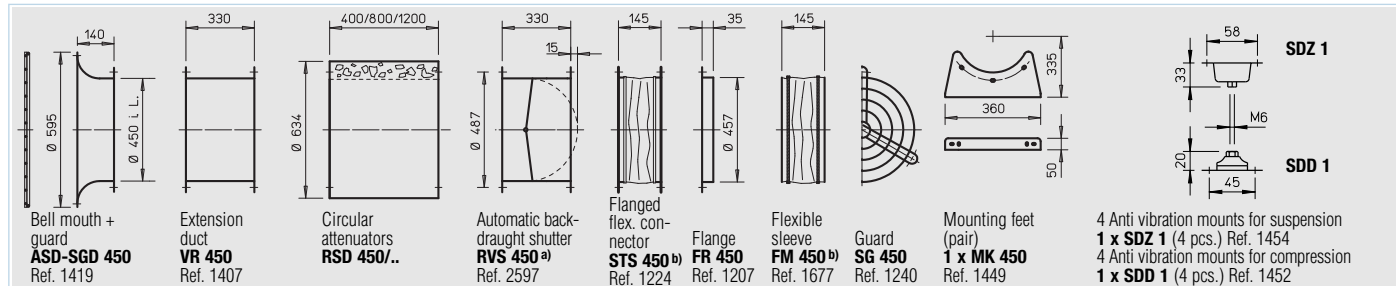
For safety and correct use note the technical information on pages 17 on.

R.P.M.	Air flow volume (FID)	Motor power (nominal)*	Current* full load	Current* speed controlled	Wiring diagram	Maximum air flow temp standard supply	Nominal weight (net)	Fan type				Transformer controller for 5 speed control Pole switch				
								HQ incl. guard	Ref. No.	HW incl. guard	Ref. No.	HRF	Ref. No.	Type	Ref. No.	
min ⁻¹	V m ³ /h	W	A	A	No.	+°C	+°C	kg								
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55																
960	4130	182	0.90	1.00	475 ¹⁾	60	40	15.5	HQW 450/6	0991	—	—	HRFW 450/6 ¹⁾	0208	MWS 1.5 ²⁾	1947
1250	5380	488	2.10	2.10	475 ¹⁾	60	40	15.5	HQW 450/4	0992	HWW 450/4	1010	HRFW 450/4 ¹⁾	0209	MWS 3 ²⁾	1948
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 55																
950	4090	166	0.40	0.45	469	60	40	15.5	HQD 450/6	0993	—	—	HRFD 450/6	0230	RDS 1 ²⁾	1314
1350	5800	480	0.90	1.10	469	50	40	15.5	HQD 450/4	0994	HWD 450/4	1028	HRFD 450/4	0231	RDS 2 ²⁾	1315
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ - motor, protection to IP 55																
1000/1330	4300/5740	300/480	0.56/0.94	—	520	60	—	15.5	HQD 450/4/4	1467	—	—	HRFD 450/4/4	1468	DS 2 ³⁾	1351
2550/2850	9900/11050	1500/1750	2.30/4.10	4.50	520	60	40	17.5	—	—	—	—	HRFD 450/2/2	0484	RDS 7 ²⁾	1578
2 speed motor, pole-switching, Dahlander windings, 400 V / 3 ph. / 50 Hz, protection to IP 55																
475/960	2050/4130	70/210	0.22/0.50	—	472	60	—	17.5	HQD 450/12/6	0995	—	—	—	—	PDA 12 ³⁾	5081
690/1360	2970/5850	102/515	0.36/1.00	—	472	50	—	17.5	HQD 450/8/4	0996	—	—	HRFD 450/8/4	0403	PDA 12 ³⁾	5081
Explosion proof E Exe II, 400 V / 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3																
900	4090	180	0.71	—	470	40	—	15.5	HQD 450/6 Ex	1155	—	—	—	—	not permitted	
1420	6240	370	1.14	—	470	40	—	15.5	HQD 450/4 Ex	1154	—	—	HRFD 450/4 Ex	0481	not permitted	

* Ex-models: Motor nominal value, for information see page 18 ¹⁾ Type HRFW: connect using wiring diagram No. SS-965 ²⁾ Incl. full motor protection ³⁾ see product page for flush mounted version



Accessories for cased axial fans HRF – Specification see pages 170 on.

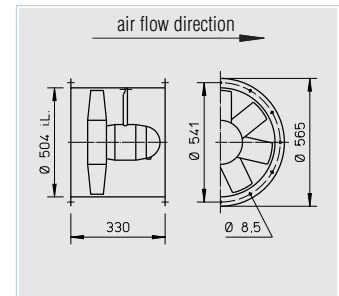
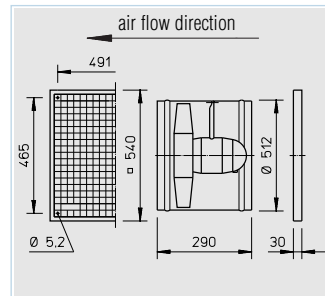
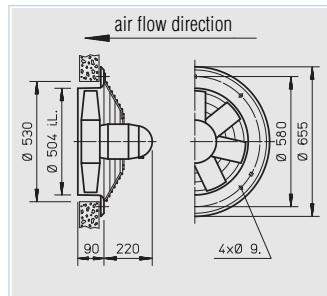
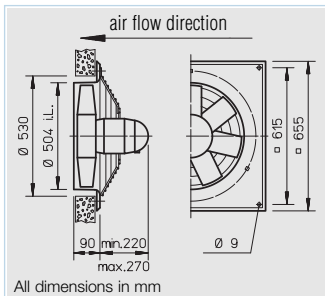
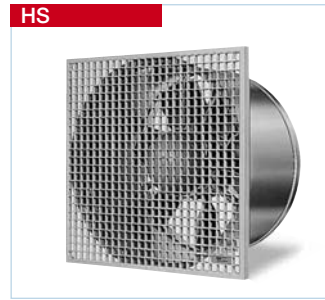
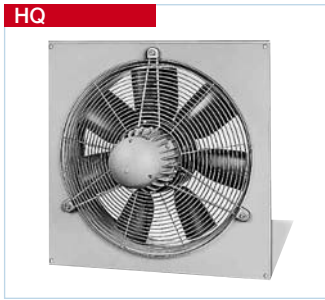


^{a)} For motorised shutters see accessory page ^{b)} Models for ex-proof fans see below

Electronic controller for stepless control		Full motor protection starter using the motor thermal contacts		Reversing switch	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
ESU 3/ESA 3	0237/0239	MW	1579	WS	1271
ESU 3/ESA 3	0237/0239	MW	1579	WS	1271
—	—	MD	5849	WS	1271
—	—	MD	5849	WS	1271
—	—	M 4⁴⁾	1571	WS	1271
ESD 11.5²⁾	0502	M 4⁴⁾	1571	WS	1271
—	—	M 3⁴⁾	1293	PWDA	1282
—	—	M 3⁴⁾	1293	PWDA	1282
not permitted	not permitted	—	—	—	—
not permitted	not permitted	—	—	—	—

⁴⁾ Incl. pole switch ⁴⁾ Speed switch

Other accessories	Pages
^{b)} Accessories for explosion proof fans	
Flanged flexible connector STS 450 Ex	Ref. No. 2506
Flexible sleeve FM 450 Ex	Ref. No. 1693
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on



■ Specification

□ Casing

Manufactured in galvanised sheet steel. Models HQ and HW have the additional protection of two coats of light grey paint.

□ Impeller

Highly efficient, profiled 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

□ Motor

Totally enclosed, reversible motor with a die-cast aluminium casing, protected to IP 54/55. Sealed for life ball bearings with tropical protection of windings and radio suppression. For maximum air flow temperature see table below.

□ Motor protection

All models (except explosion proof) have thermal contacts as standard which must be connected to a motor protection unit (see below).

□ Electrical connection

Terminals in motor cap (IP 55). HRF models are pre wired to an additional terminal box (IP 55) fitted externally on the casing. Explosion proof models may vary.

□ Guard

HQ and HW models have powder coated motor side wire guard, HS painted steel (HQ.. Ex zinc plated). All grilles to DIN EN ISO 13857.

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. The air flow rates are shown in the performance curve family.

□ Reversed operation

All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 loss in performance.

□ Installation

Installation in any position. Ensure that the motor drainage holes face downwards.

□ Dimensions

Dimensions are shown above. Pole-switching and explosion proof models may vary.

□ Sound levels

Both sound power and sound pressure levels are shown on each performance curve. Sound pressure levels are measured at 4 metres in freefield conditions and are the calculated average between the inlet and exhaust data. Further acoustic information see page 13.

Information	Pages
Technical description	116
Selection chart	117
Design of systems	12 on

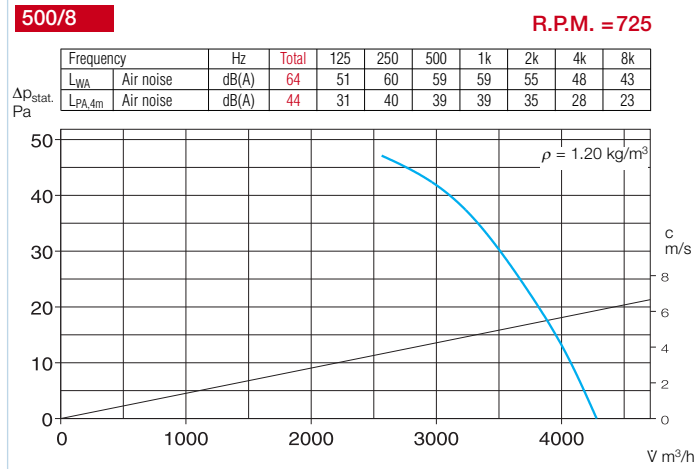
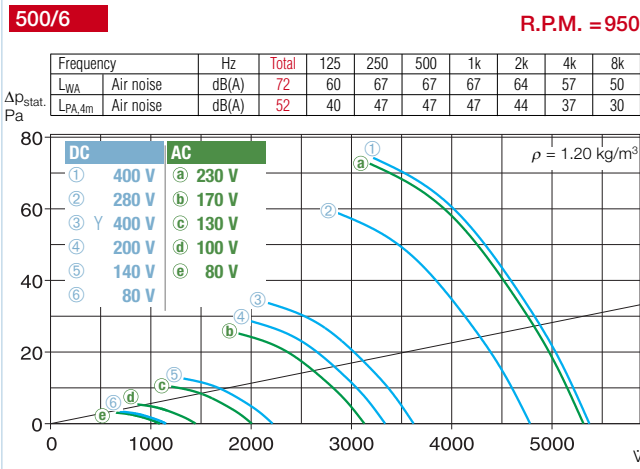
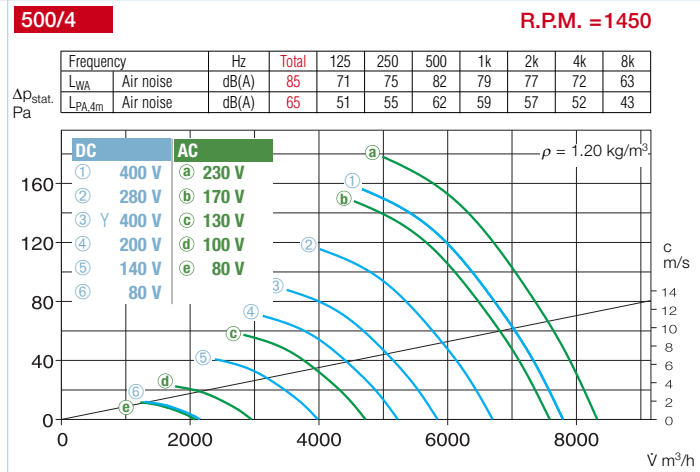
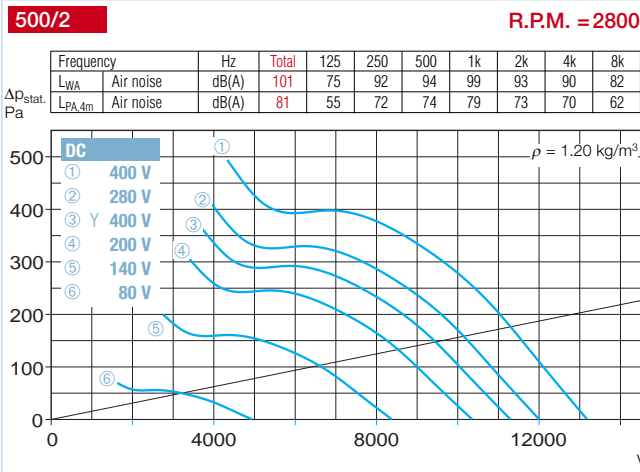
Made to order designs

Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction, cast aluminium impeller etc. are available on request.

For safety and correct use note the technical information on pages 17 on.

R.P.M.	Air flow volume (FID)	Motor power (nominal)*	Current * full load	speed controlled	Wiring diagram No.	Maximum air flow temp. standard supply	speed controlled	Nominal weight (net)	Model							
									HQ incl. guard	Ref. No.	HW incl. guard	Ref. No.	HS incl. grille	Ref. No.	HRF	Ref. No.
min ⁻¹	V m ³ /h	W	A	A	No.	+°C	+°C	kg								
1 Phase motor, 230 Volt / 1 ph. / 50 Hz, protection to IP 55																
910	5370	220	1.10	1.20	475 ¹⁾	60	40	17.3	HQW 500/6	1112	—	—	HSW 500/6	0148	HRFW 500/6 ¹⁾	0210
1410	8320	550	2.30	2.60	475 ¹⁾	40	40	17.3	HQW 500/4	1113	—	—	HSW 500/4	0149	HRFW 500/4 ¹⁾	0211
3 Phase motor, 400 Volt / 3 ph. / 50 Hz, protection to IP 55																
910	5370	200	0.50	0.50	469	60	40	17.2	HQD 500/6	1126	—	—	—	—	HRFD 500/6	0232
1320	7790	610	1.25	1.25	469	40	40	17.2	HQD 500/4	1127	HWD 500/4	1030	HSD 500/4	0166	HRFD 500/4	0233
2 speed motor, 400 Volt / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																
620/910	3660/5370	142/235	0.30/0.50	—	520	60	—	17.2	HQD 500/6/6	1471	—	—	—	—	—	—
1000/1330	5900/7850	420/670	0.74/1.22	—	520	60	—	17.2	HQD 500/4/4	1469	—	—	—	—	HRFD 500/4/4	1470
2400/2800	11260/13170	1800/2400	2.90/5.00	5.00	520	60	40	21.0	—	—	—	—	—	—	HRFD 500/2/2	0485
2 speed motor, pole-switching, Dahlander windings, 400 Volt / 3 ph. / 50 Hz, protection to IP 55																
460/940	2710/5550	75/290	0.25/0.60	—	472	60	—	18.2	HQD 500/12/6	1140	—	—	HSD 500/12/6	0357	—	—
690/1380	4070/8140	150/810	0.55/1.60	—	472	40	—	18.2	HQD 500/8/4	1142	—	—	HSD 500/8/4	0359	HRFD 500/8/4	0407
Explosion proof E Exe II, 400 Volt / 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3																
900	5610	180	0.71	—	470	40	—	17.2	HQD 500/6 Ex	1156	—	—	—	—	HRFD 500/6 Ex	0482
1400	8560	550	1.51	—	470	40	—	17.2	HQD 500/4 Ex	1157	—	—	—	—	HRFD 500/4 Ex	0483

* Ex-models: for nominal value of motor see information on page 18 ¹⁾ Type HRFW: connect using wiring diagram No. SS-965 ²⁾ Incl. full motor protection ³⁾ Incl. pole switch



Accessories for cased axial fans HRF – Specification see pages 170 on.

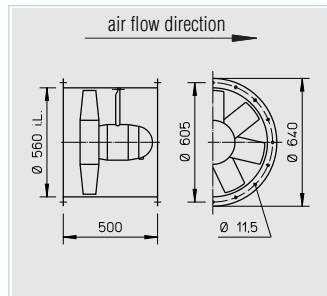
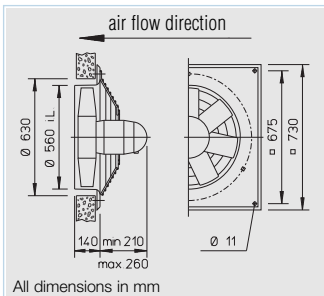
Bell mouth + guard ASD-SGD 500 Ref. 1420
Extension duct VR 500 Ref. 1408
Circular attenuator RSD 500/..
Automatic back-draught shutter RVS 500^{a)} Ref. 2598
Flanged flex. connector STS 500^{b)} Ref. 1225
Flange FR 500 Ref. 1208
Flexible sleeve FM 500^{b)} Ref. 1678
Guard SG 500 Ref. 1241
2 Mounting feet (pair) 1 x MK 500 Ref. 1450
SDZ 1
SDD 1
 Anti vibration mounts for suspension (set of 4) **1 x SDZ 1** (4 pcs.) Ref. 1454
 Anti vibration mounts for compression (set of 4) **1 x SDD 1** (4 pcs.) Ref. 1452

^{a)} For motorised shutters see accessory pages ^{b)} Models for ex-proof fans see below

Transformer controller or pole switch		Electronic controller for stepless control		Full motor protection starter using the motor thermal contacts		Reversing switch	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
MWS 1.5 ²⁾	1947	ESU 3/ESA 3	0237/0239	MW	1579	WS	1271
MWS 3 ²⁾	1948	ESU 5/ESA 5	1296/1299	MW	1579	WS	1271
RDS 1 ²⁾	1314	—	—	MD	5849	WS	1271
RDS 2 ²⁾	1315	—	—	MD	5849	WS	1271
Star/delta switch							
DS 2 ⁵⁾	1351	—	—	M 4 ³⁾	1571	WS	1271
DS 2 ⁵⁾	1351	—	—	M 4 ³⁾	1571	WS	1271
RDS 7 ²⁾	1578	ESD 11.5 ²⁾	0502	M 4 ³⁾	1571	WS	1271
Pole switch							
PDA 12 ⁴⁾	5081	—	—	M 3 ³⁾	1293	PWDA	1282
PDA 12 ⁴⁾	5081	—	—	M 3 ³⁾	1293	PWDA	1282
not permitted	not permitted	not permitted	not permitted	—	—	—	—
not permitted	not permitted	not permitted	not permitted	—	—	—	—

⁴⁾ see product page for flush mounted version ⁵⁾ Speed switch

Other accessories	Pages
Accessories for explosion proof fans	
Flanged flexible connector STS 500 Ex	Ref. No. 2507
Flexible sleeve FM 500 Ex	Ref. No. 1694
Extension tube for HS VH 500	Ref. No. 1348
Cylindrical duct, galvanised steel, length: 150 mm	
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on



■ Specification

- **Casing**
Manufactured in galvanised sheet steel. Model HQ have an additional two-layer finishing in papyrus-white.
- **Impeller**
Highly efficient, profiled 5 or 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.
- **Motor**
Totally enclosed motor with a die-cast aluminium casing, protected to IP 54/IP 55. Sealed for life ball bearings with tropical protection of windings and radio suppression. For maximum air flow temperature see table below.

- **Motor protection**
All models (except explosion proof) have thermal contacts as standard which must be connected to a motor protection unit (see below).
- **Electrical connection**
Terminals in motor cap (IP 55). HRF models are pre wired to an additional terminal box (IP 55) fitted externally on the casing. Explosion proof models may vary.
- **Guard**
HQ models have powder coated motor side wire guard (Ex-models zinc plated). All grilles to DIN EN ISO 13857.

- **Speed control**
For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. The air flow rates are shown in the performance curve family.
- **Reversed operation**
All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 loss in performance.
- **Installation**
Installation in any position. Ensure that the motor drainage holes face downwards.
- **Dimensions**
Dimensions are shown above. Pole-switching and explosion proof models may vary.

- **Sound levels**
Both sound power and sound pressure levels are shown on each performance curve. Sound pressure levels are measured at 4 metres in freefield conditions and are the calculated average between the inlet and exhaust data. Further acoustic information see page 13.

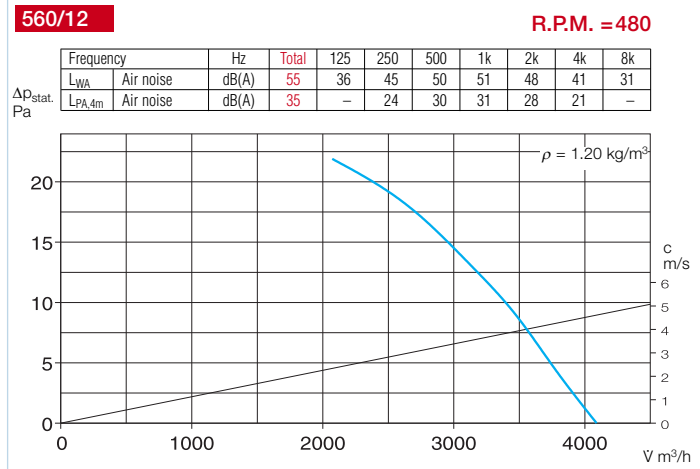
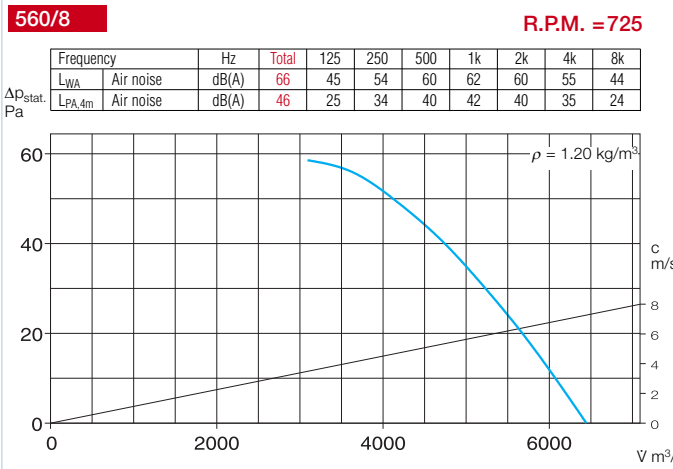
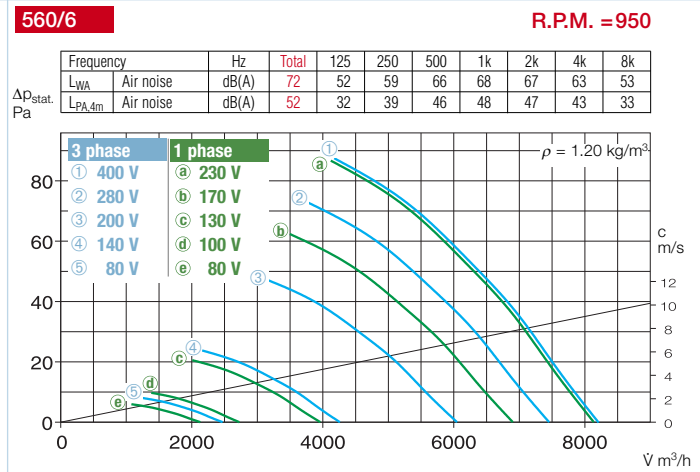
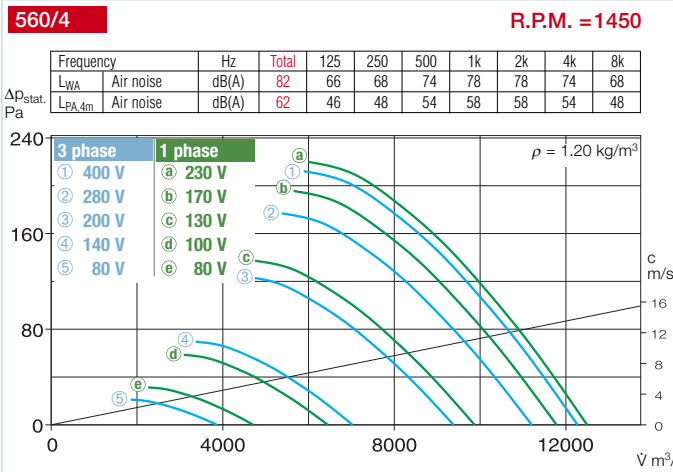
Information	Pages
Technical description	116
Selection chart	117
Design of systems	12 on

Made to order designs
Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction, cast aluminium impeller etc. are available on request.

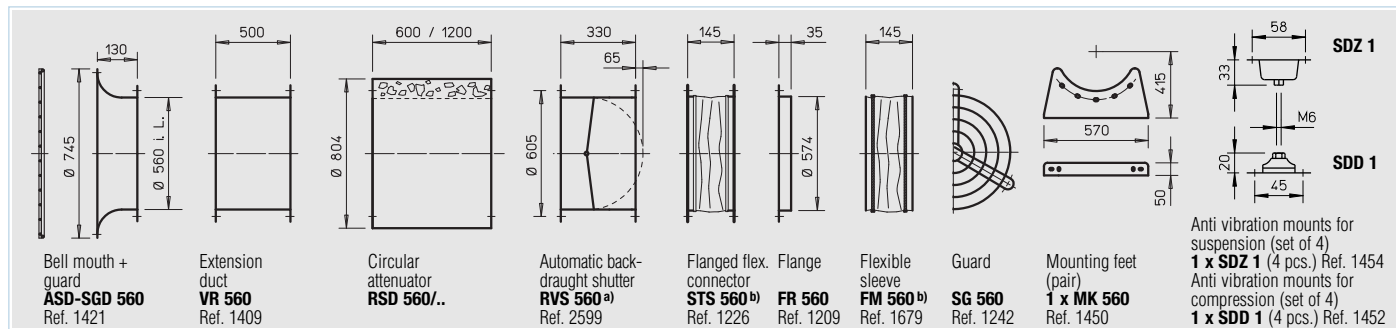
For safety and correct use note the technical information on pages 17 on.

R.P.M.	Air flow volume (FID)	Motor power (nominal)*	Current *		Wiring diagram	Maximum air flow temp.		Nominal weight (net)	Fan type				Transformer controller for 5 speed control		Electronic controller for stepless control	
			full load	speed controlled		standard supply	speed controlled		HQ incl. guard	Ref. No.	HRF	Ref. No.	Type	Ref. No.	Type	Ref. No.
min ⁻¹	Vol m ³ /h	kW	A	A	No.	+°C	+°C	kg								
1 Phase motor, 230 Volt / 1 ph. / 50 Hz, protection to IP 55																
955	8130	0.35	1.80	2.10	475 ¹⁾	60	40	22.0	HQW 560/6	0385	HRFW 560/6 ¹⁾	0380	MWS 3 ²⁾	1948	ESU 3/ESA 3	0237/0239
1405	12490	0.90	4.50	5.60	475 ¹⁾	40	40	25.0	HQW 560/4 ¹⁾	5054	HRFW 560/4 ¹⁾	5055	MWS 7.5 ²⁾	1950	—	—
3 Phase motor, 400 Volt / 3 ph. / 50 Hz, protection to IP 55																
960	8180	0.35	0.90	1.00	469	60	40	22.0	HQD 560/6	0386	HRFD 560/6	0381	RDS 2 ²⁾	1315	ESD 5 ²⁾	0501
1380	12250	0.80	1.75	1.80	469	40	40	23.0	HQD 560/4	0387	HRFD 560/4	0382	RDS 2 ²⁾	1315	ESD 5 ²⁾	0501
2 speed motor, pole-switching, Dahlander windings, 400 Volt / 3 ph. / 50 Hz, protection to IP 55																
480/950	4090/8090	0.12/0.38	0.55/1.20	—	472	60	—	24.0	HQD 560/12/6	0389	HRFD 560/12/6	0384	PDA 12 ³⁾	5081	—	—
725/1450	6450/12890	0.20/0.92	0.80/2.00	—	472	40	—	25.0	HQD 560/8/4	0388	HRFD 560/8/4	0383	PDA 12 ³⁾	5081	—	—
Explosion proof E Exe II, 400 Volt / 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3																
900	8090	0.25	0.99	—	470	40	—	23.0	HQD 560/6 Ex	0378	HRFD 560/6 Ex	0376	not permitted	—	not permitted	—
1420	12890	0.75	2.00	—	470	40	—	24.0	HQD 560/4 Ex	0379	HRFD 560/4 Ex	0377	not permitted	—	not permitted	—

* Ex-models: for nominal value of motor see information on page 18 ¹⁾ Type HRFW and HQW./4: connect using wiring diagram No. SS-965 ²⁾ Incl. full motor protection ³⁾ see product page for flush mounted version



Accessories for cased axial fans HRF – Specification see pages 170 on.

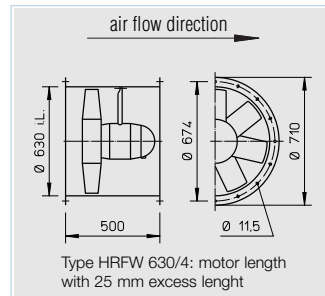
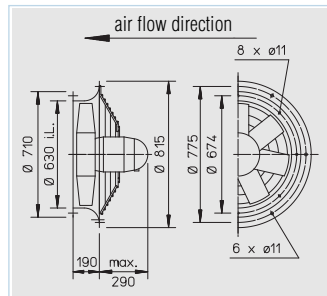
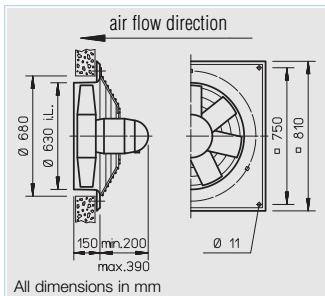


^{a)} For motorised shutters see accessory pages ^{b)} Models for ex-proof fans see below

Full motor protection starter using the motor thermal contacts		Reversing switch	
Type	Ref. No.	Type	Ref. No.
MW	1579	WS	1271
MW	1579	WS	1271
MD	5849	WS	1271
MD	5849	WS	1271
M 3 ⁴⁾	1293	PWDA	1282
M 3 ⁴⁾	1293	PWDA	1282
—	—	—	—
—	—	—	—

⁴⁾ Incl. pole switch

Other accessories	Pages
^{b)} Accessories for explosion proof fans	
Flanged flexible connector STS 560 Ex	Ref. No. 2508
Flexible sleeve FM 560 Ex	Ref. No. 1695
Filters and attenuators	318 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on



Type HRFW 630/4: motor length with 25 mm excess length

■ Specification

□ Casing

Manufactured in galvanised sheet steel.

□ Impeller

Highly efficient, profiled 5 or 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

□ Motor

Totally enclosed motor with a die-cast aluminium casing, protected to IP 54/IP 55. Sealed for life ball bearings with tropical protection of windings and radio suppression. For maximum air flow temperature see table below.

□ Motor protection

All models (except.../8/4 and explosion proof) have thermal contacts as standard which must be connected to a motor protection unit (see below).

Motors without thermal contacts must be protected by a conventional circuit breaker (MCB/RCD).

□ Electrical connection

Terminals in motor cap (IP 55). HRF models are pre wired to an additional terminal box (IP 55) fitted externally on the casing. Explosion proof models may vary.

□ Guard

HQ and HW models have powder coated motor side wire guard (HQ.. Ex zinc plated). All grilles to DIN EN ISO 13857.

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. The flow rates are given in the performance curve family.

□ Reversed operation

All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 loss in performance.

□ Installation

Installation in any position. Ensure that the motor drainage holes face downwards.

□ Dimensions

Dimensions are shown above. Pole-switching and explosion proof models may vary.

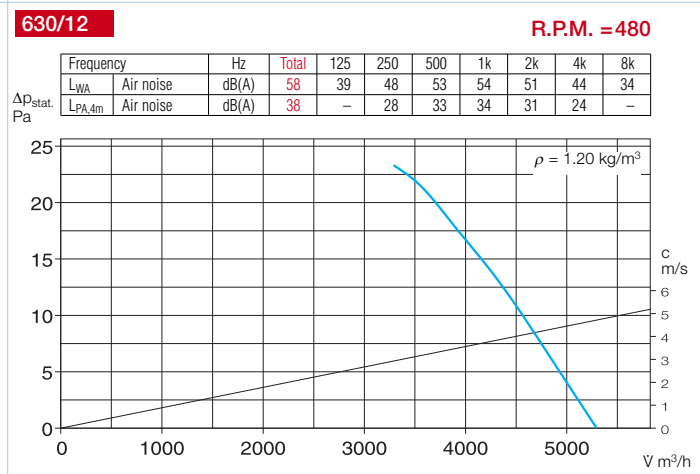
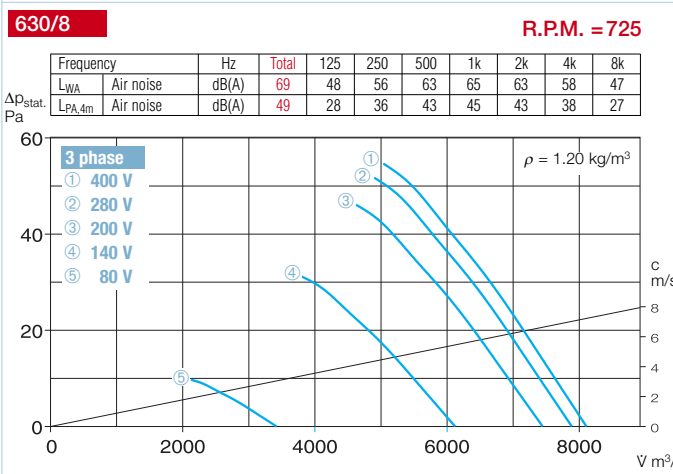
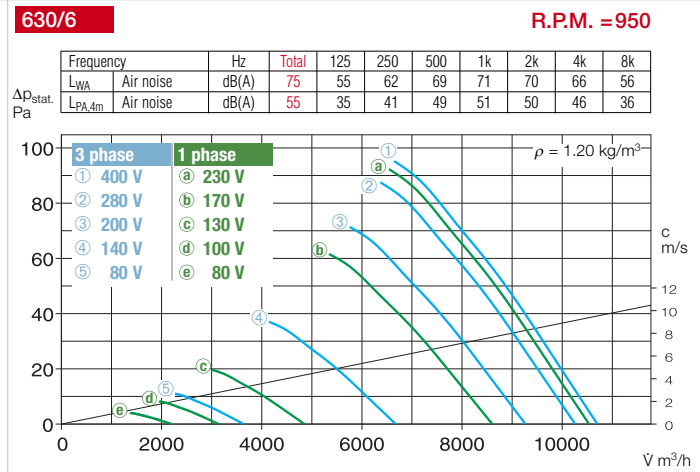
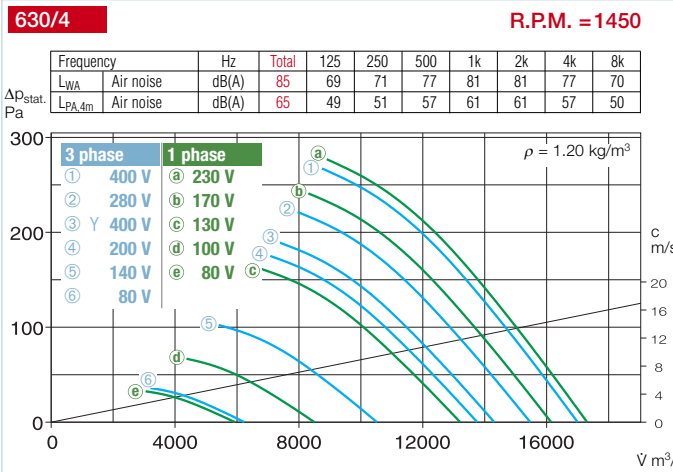
□ Sound levels

Both sound power and sound pressure levels are shown on each performance curve. Sound pressure levels are measured at 4 metres in freefield conditions and are the calculated average between the inlet and exhaust data. Further acoustic information see page 12.

Information	Pages
Technical description	116
Selection chart	117
Design of systems	12 on
Made to order designs	
Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction, cast aluminium impeller etc. are available on request.	
For safety and correct use note the technical information on pages 17 on.	

R.P.M.	Air flow volume (FID)	Motor power (nominal)*	Current * full load	Current * speed controlled	Wiring diagram	Maximum air flow temp. standard supply	Nominal weight (net)	Fan type				Transformer controller for 5 speed control				
								HQ incl. guard	Ref. No.	HW incl. guard	Ref. No.	HRF	Ref. No.	Type	Ref. No.	
1 Phase motor, 230 Volt / 50 Hz, protection to IP 55																
955	10530	0.45	2.50	3.20	475	60	40	25.0	HQW 630/6	5037	—	—	—	—	MWS 5 ²⁾	1949
1415	17310	1.25	6.60	7.00	475 ¹⁾	40	40	35.0	HQW 630/4 ¹⁾	5056	—	—	HRFW 630/4 ¹⁾	5057	MWS 7.5 ²⁾	1950
3 Phase motor, 400 Volt / 50 Hz, protection to IP 55																
735	8110	0.27	1.50	1.50	469	60	40	27.0	HQD 630/8	5029	—	—	—	—	RDS 2 ²⁾	1315
970	10700	0.45	1.80	1.80	469	60	40	28.0	HQD 630/6	5027	HWD 630/6	1032	HRFD 630/6	0244	RDS 2 ²⁾	1315
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																
1170/1390	14310/17000	0.90/1.33	2.0/3.8	—	520	40	40	35.0	HQD 630/4/4	5030	HWD 630/4/4	1033	HRFD 630/4/4	0245	RDS 4 ²⁾	1316
2 speed motor, pole-switching, Dahlander windings, 400 Volt / 3 ph. / 50 Hz, protection to IP 55																
440/900	4850/9930	0.14/0.62	0.60/1.30	—	472	60	—	35.0	HQD 630/12/6	5031	—	—	HRFD 630/12/6	0410	PDA 12 ³⁾	5081
725/1450	8870/17730	0.24/1.50	1.10/3.40	—	471	40	—	42.0	HQD 630/8/4	5032	—	—	HRFD 630/8/4	0411	PDA 12 ³⁾	5081
Explosion proof E Exe II, 400 Volt / 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3																
930	10480	0.55	1.83	—	470	40	—	30.0	HQD 630/6 Ex	5035	—	—	HRFD 630/6 Ex	0494	not permitted	—
1400	17730	1.50	3.40	—	470	40	—	34.5	HQD 630/4 Ex	5036	—	—	HRFD 630/4 Ex	0495	not permitted	—

* Ex-models: for nominal value of motor see information on page 18 ¹⁾ Type HRFW and HQW../4: connect using wiring diagram No. SS-965 ²⁾ Incl. full motor protection ³⁾ see product page for flush mounted version



Accessories for cased axial fans HRF – Specification see pages 170 on.

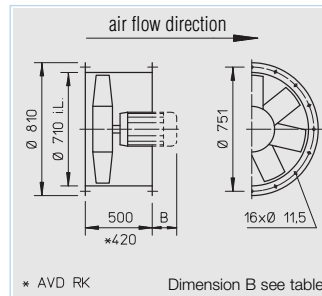
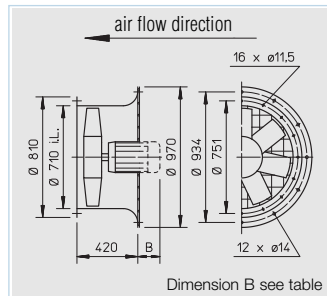
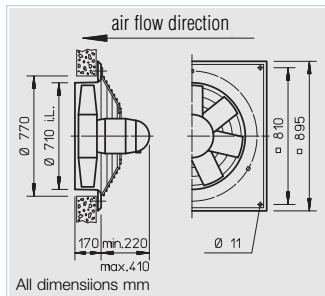
- Bell mouth + guard **ASD-SGD 630** Ref. 1422
- Extension duct **VR 630** Ref. 1410
- Circular attenuator **RSD 630/..**
- Automatic back-draught shutter **RVS 630^{a)}** Ref. 2600
- Flanged flex. connector **STS 630^{b)}** Ref. 1228
- Flange **FR 630** Ref. 1211
- Flexible sleeve **FM 630^{b)}** Ref. 1680
- Guard **SG 630** Ref. 1243
- Mounting feet (pair) **1 x MK 630** Ref. 1333
- Anti vibration mounts for suspension (set of 4) **1 x SDZ 1** (4 pcs.) Ref. 1454
- Anti vibration mounts for compression (set of 4) **1 x SDD 1** (4 pcs.) Ref. 1452

^{a)} For motorised shutters see accessory pages ^{b)} Models for ex-proof fans see below

Electronic controller for stepless control		Full motor protection starter using the motor thermal contacts		Reversing switch	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
ESU 5/ESA 5	1296/1299	MW	1579	WS	1271
—	—	MW	1579	WS	1271
ESD 5²⁾	0501	MD	5849	WS	1271
ESD 5²⁾	0501	MD	5849	WS	1271
ESD 5²⁾	0501	M 4⁴⁾	1571	WS	1271
—	—	M 3⁴⁾	1293	PWDA	1282
—	—	—	—	PWDA	1282
not permitted	—	—	—	—	—
not permitted	—	—	—	—	—

⁴⁾ Incl. pole switch

Other accessories	Pages
^{b)} Accessories for explosion proof fans	
Flanged flexible connector	
STS 630 Ex	Ref. No. 2509
Flexible sleeve	
FM 630 Ex	Ref. No. 1696
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on



■ Specification

□ Casing

With motor support manufactured from galvanised sheet steel.

□ Impeller

Highly efficient, profiled 5 or 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

□ Pitch angle

The pitch angle is adjustable at standstill (except HQW 710/6 and explosion proof) and has to be stated when ordering. The max. pitch shown for each motor must not be exceeded.

□ Motor

Totally enclosed motor, protected to IP 54/ IP 55. Sealed for life ball bearings with tropical protection of windings and radio suppression.

□ Motor protection

All models (except pole switching and explosion proof) have thermal contacts or PTC resistors and according to footnotes in the table to guard through following full motor protection units:
¹⁾MW/MD, Ref. No. 1579/5849
²⁾MSA, Ref. No. 1289 (for PTC resistor)
³⁾M4, Ref. No. 1571

All other models have to be protected by a conventional circuit breaker on site.

□ Guard

HQ and AVD RK models have galvanised or power coated motor side wire guard to DIN EN ISO 13857.

□ Electrical connection

Terminals in motor cap (IP 54). HRF and AVD DK models are pre wired to an additional terminal box (IP 54) fitted externally on the casing. Explosion proof models may vary.

□ Speed control

Some models are controllable by transformer controller (see table). All models (except explosion proof) are speed controllable by frequency inverter.

□ Reversed operation

All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 loss in performance.

□ Installation

Installation in any position. Ensure that the motor drainage holes face downwards.

□ Dimensions

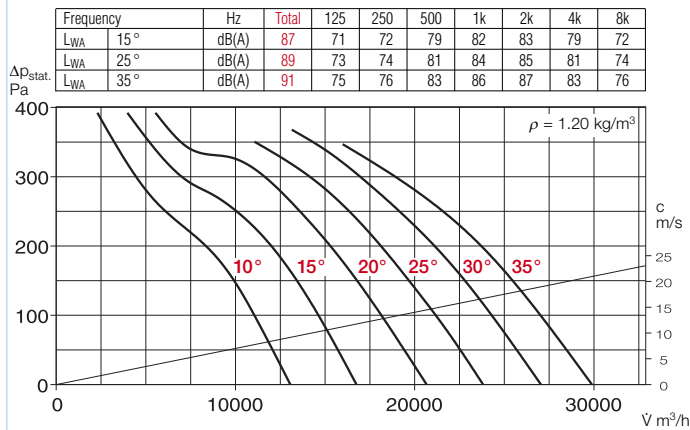
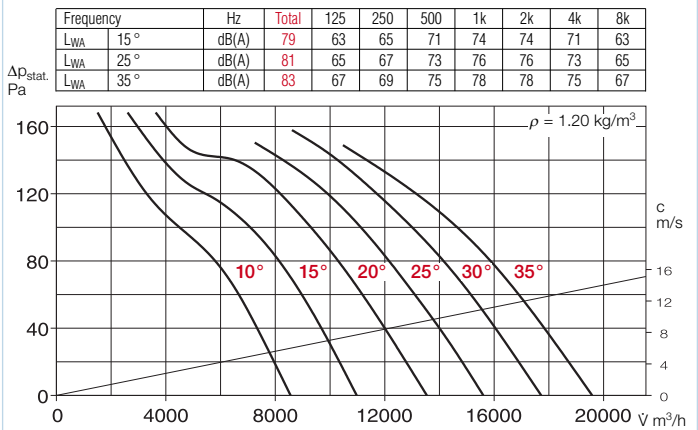
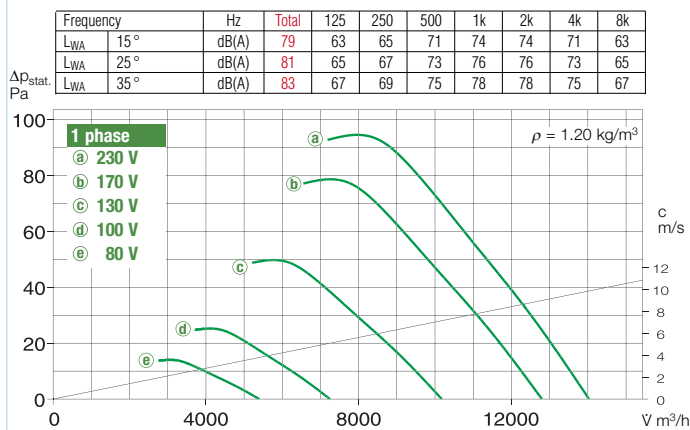
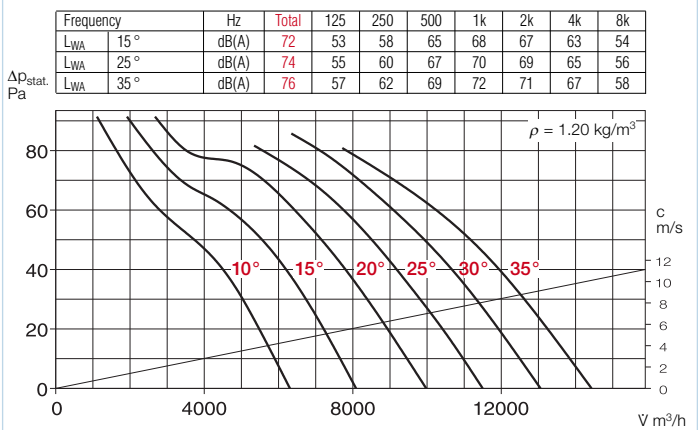
Dimensions are shown above. Pole-switching and explosion proof models may vary. Note dimension B in table below.

□ Sound levels

Sound power levels in dB(A) (spectrum and totals) are given above the performance curves.

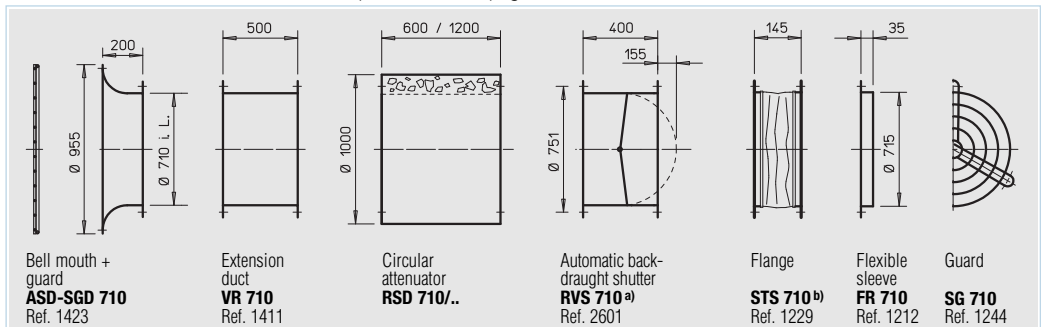
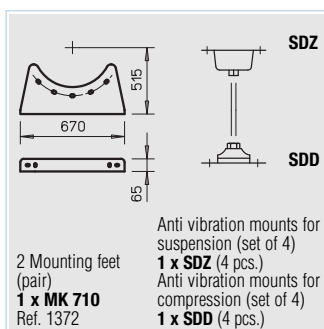
R.P.M.	Air flow volume (FID)	Motor power (nominal)	Voltage	Current at full load	Max. pitch angle	Wiring diagram	Max. air flow temp.	Nominal weight (net)*	Fan type						Dim. B Flange/ Foot motor	Transformer controller for 5 speed control	
									HQ incl. guard	Ref. No.	AVD DK incl. guard	Ref. No.	HRFD, AVD RK	Ref. No.		Type	Ref. No.
min ⁻¹	V m ³ /h	kW	V	A	°	No.	+°C	kg						mm			
1 Phase motor, 230 Volt / 50 Hz, protection to IP 55																	
925	14200	0.50	230	2.5/(3.0)	25	475	40	60.0	HQW 710/6/.. ¹⁾	5047	—	—	—	—	MWS 5 ⁴⁾	1949	
3 Phase motor, 400/690 Volt / 50 Hz, protection to IP 54																	
700	13330	0.37	400	1.6/(1.6)	31	469	40	57.0	HQD 710/8/.. ¹⁾	5599	AVD DK 710/8/.. ¹⁾	5251	HRFD 710/8/.. ¹⁾	6930	RDS 2 ⁴⁾	1315	
1435	26420	3.00	400/690	6.7	30	776	40	88.0	HQD 710/4/.. ²⁾	5606	AVD DK 710/4/.. ²⁾	5258	HRFD 710/4/.. ²⁾	6937	—	—	
2 speed motor, 3 Phase, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																	
775/920	13550/16090	0.43/0.75	400Y/Δ	1.2/2.2	28	520	40	55.0	HQD 710/6/6/.. ³⁾	5602	AVD DK 710/6/6/.. ³⁾	5254	HRFD 710/6/6/.. ³⁾	6933	RDS 4 ⁴⁾	1316	
775/930	15560/19170	0.71/1.30	400Y/Δ	2.1/3.5	35	520	40	60.0	HQD 710/6/6/.. ³⁾	5603	AVD DK 710/6/6/.. ³⁾	5255	HRFD 710/6/6/.. ³⁾	6934	RDS 4 ⁴⁾	1316	
1120/1365	16140/19670	0.95/1.55	400Y/Δ	2.1/3.7	20	520	40	60.0	HQD 710/4/4/.. ³⁾	5604	AVD DK 710/4/4/.. ³⁾	5256	HRFD 710/4/4/.. ³⁾	6935	RDS 7 ⁴⁾	1578	
1140/1370	19370/23280	1.5/2.2	400Y/Δ	3.5/5.9	26	520	40	75.0	HQD 710/4/4/.. ³⁾	5605	AVD DK 710/4/4/.. ³⁾	5257	HRFD 710/4/4/.. ³⁾	6936	RDS 7 ⁴⁾	1578	
2 speed motor, pole-switching, Dahlander-windings, 400 Volt / 3 ph. / 50 Hz, protection to IP 54																	
450/915	7800/16250	0.15/0.75	400/400	0.85/2.15	28	471	40	70.0	HQD 710/12/6/..	5608	AVD DK 710/12/6/..	5260	HRFD 710/12/6/..	6939	PDA 12 ⁵⁾	5081	
455/940	9375/19370	0.25/1.10	400/400	1.2/2.9	35	471	40	75.0	HQD 710/12/6/..	5609	AVD DK 710/12/6/..	5261	HRFD 710/12/6/..	6940	PDA 12 ⁵⁾	5081	
695/1420	10810/22090	0.50/2.00	400/400	1.6/4.8	23	471	40	82.0	HQD 710/8/4/..	5611	AVD DK 710/8/4/..	5263	HRFD 710/8/4/..	6942	PDA 12 ⁵⁾	5081	
700/1435	14155/29020	0.90/3.60	400/400	2.6/7.7	34	471	40	108.0	HQD 710/8/4/..	5612	AVD DK 710/8/4/..	5264	AVD RK 710/8/4/..	6943	PDA 12 ⁵⁾	5081	
Explosion proof E Exe II, 400/690 Volt / 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3																	
700	10450	0.55	400	2.15	35	470	40	68.0	HQD 710/8 Ex/..	5618	AVD DK 710/8 Ex/..	5270	HRFD 710/8 Ex/..	6948	125	not permitted	
930	13480	0.55	400	1.83	25	470	40	67.0	HQD 710/6 Ex/..	5620	AVD DK 710/6 Ex/..	5272	HRFD 710/6 Ex/..	6949	95	not permitted	
930	16770	0.95	400	2.70	35	470	40	77.0	HQD 710/6 Ex/..	5621	AVD DK 710/6 Ex/..	5273	HRFD 710/6 Ex/..	6950	135	not permitted	
1420	20540	2.00	400	4.65	25	470	40	82.0	HQD 710/4 Ex/..	5623	AVD DK 710/4 Ex/..	5275	AVD RK 710/4 Ex/..	6951	180	not permitted	
1420	26160	3.60	400/690	8.10	35	498	40	102.0	HQD 710/4 Ex/..	5624	AVD DK 710/4 Ex/..	5276	AVD RK 710/4 Ex/..	6952	200	not permitted	

¹⁾ to ³⁾ full motor protection unit, see description motor protection *Nominal weights for types ...DK and ...RK. For types HRF and HQ less 15 kg ⁴⁾ Incl. full motor protection

710/4 R.P.M. = 1450

710/6 DC R.P.M. = 950

710/6 AC R.P.M. = 925

710/8 R.P.M. = 700


Electronic controller for stepless control		Anti vibration mounts nominal size	
Type	Ref. No.	Type	Ref. No.
—	—	..1/.1	1452/1454
ESD 5 ⁴⁾	0501	..1/.1	1452/1454
FUS 7.2 ⁴⁾	6095	..2/.2	1453/1455
ESD 5 ⁴⁾	0501	..1/.1	1452/1454
ESD 5 ⁴⁾	0501	..1/.1	1452/1454
ESD 5 ⁴⁾	0501	..1/.1	1452/1454
ESD 11.5 ⁴⁾	0502	..1/.2	1452/1455
—	—	..1/.2	1452/1455
—	—	..1/.2	1452/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
not permitted	—	..1/.2	1452/1455
not permitted	—	..1/.2	1452/1455
not permitted	—	..1/.2	1452/1455
not permitted	—	..2/.2	1453/1455
not permitted	—	..2/.2	1453/1455

⁵⁾ see product page for flush mounted version

Accessories for cased axial fans – Specification see pages 170 on.

^{a)} For motorised shutters see accessory pages ^{b)} Models for ex-proof fans see below


2 Mounting feet (pair)
1 x MK 710
 Ref. 1372

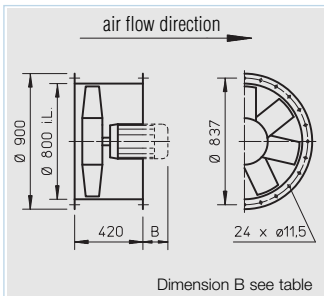
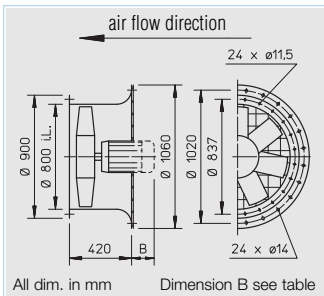
Anti vibration mounts for suspension (set of 4)
1 x SDZ (4 pcs.)
 Anti vibration mounts for compression (set of 4)
1 x SDD (4 pcs.)

Information	Pages	Other accessories	Pages
Technical description	116	^{b)} Accessory for explosion proof fans	
Selection chart	117	Flanged flexible connector STS 710 Ex	Ref. No. 2510
Design of systems	12 on	Filters and attenuators	305 on
Made to order designs		Shutters, grilles and louvres	361 on
Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction, aluminium cast impeller etc. are available on request.		Speed controllers and switches	397 on
For safety and correct use note the technical information on pages 17 on.			

AVD DK



AVD RK



■ Specification

- Casing**
With motor support manufactured from galvanised sheet steel.
- Impeller**
Highly efficient, profiled 5 or 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

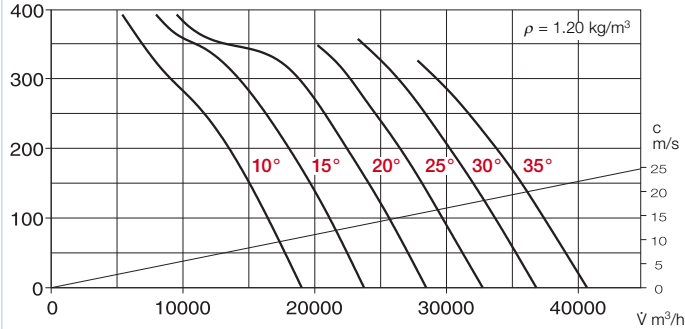
- Pitch angle**
To achieve the optimum operating point a choice of pitch angles are available (except explosion proof models). Pitch angle is set during manufacture (to order). The matching motor is supplied and the maximum pitch angle shown must not be exceeded (see table below).
- Motor**
Totally enclosed motor, protected to IP 54/IP 55. Sealed for life ball bearings with tropical protection of windings and radio suppression.
- Motor protection**
All models (except pole switching and explosion proof) have thermal contacts or PTC resistors and according to footnotes in the table to guard through following full motor protection units:
 - ⁴⁾MSA, Ref. No. 1289 (for PTC resistor)
 - ⁵⁾M4, Ref. No. 1571
 All other models have to be protected by a conventional circuit breaker on site.
- Electrical connection**
Terminals in motor cap (IP 54).
- Guard**
AVD DK models have hot dipped zinc plated motor side wire guard to DIN EN ISO 13857 as standard.
- Speed control**
Some models are controllable by a transformer control (see table). All models (except explosion proof and pole switching) are speed controllable by frequency inverter.
- Reversed operation**
All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 loss in performance.
- Installation**
Installation in any position. Ensure that the motor drainage holes face downwards.
- Dimensions**
Dimensions are shown above. Pole-switching and explosion proof models may vary. Note dimension B in table below.
- Sound levels**
Sound power levels in dB(A) (spectrum and totals) are given above the performance curves.

R.P.M.	Air flow volume (FID)	Motor power (nominal)	Voltage	Current at full load	Max. pitch angle	Wiring diagram	Max. air flow temp.	Nominal weight (net)	Fan type				Dim. B Flange/ Foot motor	Transformer controller for 5 speed control		
									AVD DK incl. guard	Ref. No.	AVD RK	Ref. No.		Type	Ref. No.	
min ⁻¹	V m ³ /h	kW	V	A	°	No.	+°C	kg					mm			
3 Phase motor, 400/690 V / 50 Hz, protection to IP 54																
695	17780	0.55	400	2.0	32	776	40	73	AVD DK 800/8/.. ⁴⁾	5305	AVD RK 800/8/.. ⁴⁾	6954	135	—	—	
1445	33450	4.00	400/690	8.9	26	776	40	101	AVD DK 800/4/.. ⁴⁾	5311	AVD RK 800/4/.. ⁴⁾	6960	210	—	—	
1450	39190	5.50	400/690	11.5	33	776	40	115	AVD DK 800/4/.. ⁴⁾	5312	AVD RK 800/4/.. ⁴⁾	6961	290	—	—	
2 speed motor, 3 Phase, 400 V / 50 Hz, Y/Δ-motor, protection to IP 55																
580/685	15740/18590	0.40/0.67	400Y/Δ	1.0/2.9	35	520	40	86	AVD DK 800/8/8/.. ⁵⁾	5306	AVD RK 800/8/8/.. ⁵⁾	6955	180	RDS 4 ⁶⁾	1316	
775/920	15720/18670	0.43/0.75	400Y/Δ	1.2/2.2	22	520	40	70	AVD DK 800/6/6/.. ⁵⁾	5307	AVD RK 800/6/6/.. ⁵⁾	6956	125	RDS 4 ⁶⁾	1316	
755/930	19430/23930	0.71/1.32	400Y/Δ	2.1/3.5	32	520	40	98	AVD DK 800/6/6/.. ⁵⁾	5309	AVD RK 800/6/6/.. ⁵⁾	6958	180	RDS 4 ⁶⁾	1316	
2 speed motor, pole-switching, 400 V / 3 ph. / 50 Hz, protection to IP 54																
450/900	8595/17190	0.12/0.55	400/400	0.6/1.6	20	471	40	80	AVD DK 800/12/6/.. ¹⁾	5316	AVD RK 800/12/6/.. ¹⁾	6965	135	PDA 12 ³⁾	5081	
455/940	10945/22610	0.25/1.10	400/400	1.2/2.9	29	471	40	88	AVD DK 800/12/6/.. ¹⁾	5317	AVD RK 800/12/6/.. ¹⁾	6966	180	PDA 12 ³⁾	5081	
455/950	12350/25780	0.33/2.00	400/400	1.9/5.0	35	471	40	98	AVD DK 800/12/6/.. ¹⁾	5318	AVD RK 800/12/6/.. ¹⁾	6967	290	PDA 12 ³⁾	5081	
695/1400	10020/20180	0.37/1.50	400/400	1.4/3.7	12	471	40	95	AVD DK 800/8/4/.. ¹⁾	5319	AVD RK 800/8/4/.. ¹⁾	6968	135	PDA 12 ³⁾	5081	
700/1435	15810/32410	0.90/3.60	400/400	3.4/8.0	25	471	40	103	AVD DK 800/8/4/.. ¹⁾	5320	AVD RK 800/8/4/.. ¹⁾	6969	210	PDA 12 ³⁾	5081	
715/1450	20110/40780	1.80/6.50	400/400	5.7/14.5	35	471	40	121	AVD DK 800/8/4/.. ¹⁾	5321	AVD RK 800/8/4/.. ¹⁾	6970	325	PDA 25	5060	
970/1440	15880/23580	0.75/2.10	400/400	2.3/4.6	15	473	40	95	AVD DK 800/6/4/.. ²⁾	5322	AVD RK 800/6/4/.. ²⁾	6971	180	PGWA 12 ³⁾	5083	
965/1435	19515/29020	1.00/3.00	400/400	2.9/6.6	21	473	40	116	AVD DK 800/6/4/.. ²⁾	5323	AVD RK 800/6/4/.. ²⁾	6972	210	PGWA 12 ³⁾	5083	
970/1450	27280/40780	2.20/6.00	400/400	5.6/12.5	35	473	40	128	AVD DK 800/6/4/.. ²⁾	5324	AVD RK 800/6/4/.. ²⁾	6973	325	PGWA 25	5061	
Explosion proof E Exe II, 400/690 V / 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3																
700	17190	0.55	400	2.15	32	470	40	81	AVD DK 800/8 Ex/..	5326	AVD RK 800/8 Ex/..	6974	135	not permitted		
930	20340	0.95	400	2.70	23	470	40	90	AVD DK 800/6 Ex/..	5329	AVD RK 800/6 Ex/..	6976	135	not permitted		
950	26710	1.90	400	4.70	35	470	40	118	AVD DK 800/6 Ex/..	5330	AVD RK 800/6 Ex/..	6977	210	not permitted		
1420	31900	3.60	400/690	8.10	24	498	40	115	AVD DK 800/4 Ex/..	5332	AVD RK 800/4 Ex/..	6978	210	not permitted		
1450	36820	5.00	400/690	10.00	30	498	40	143	AVD DK 800/4 Ex/..	5333	AVD RK 800/4 Ex/..	6979	290	not permitted		

¹⁾ Dahlander-windings ²⁾ Separate windings ³⁾ see product page for flush mounted version ⁴⁾ and ⁵⁾ full motor protection unit, see description motor protection ⁶⁾ incl. full motor protection

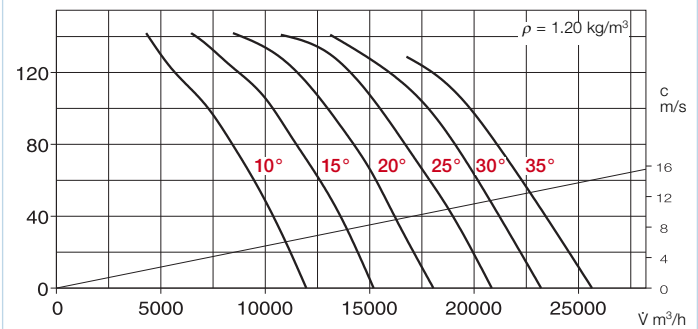
800/4 R.P.M. = 1450

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} 15°		dB(A) 91	75	76	82	86	86	83	76
L _{WA} 25°		dB(A) 93	77	78	84	88	88	85	78
L _{WA} 35°		dB(A) 95	79	80	86	90	90	87	80



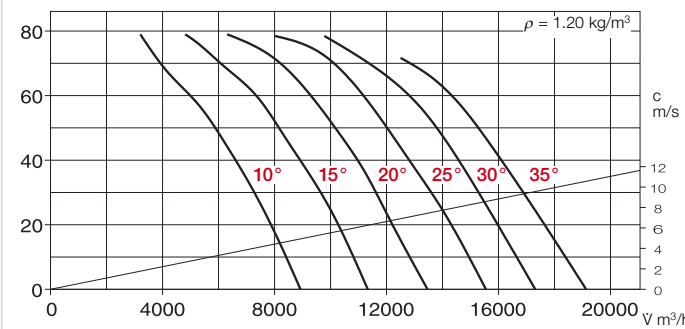
800/6 R.P.M. = 945

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} 15°		dB(A) 80	65	66	72	76	76	72	65
L _{WA} 25°		dB(A) 82	67	68	74	78	78	74	67
L _{WA} 35°		dB(A) 84	69	70	76	80	80	76	69



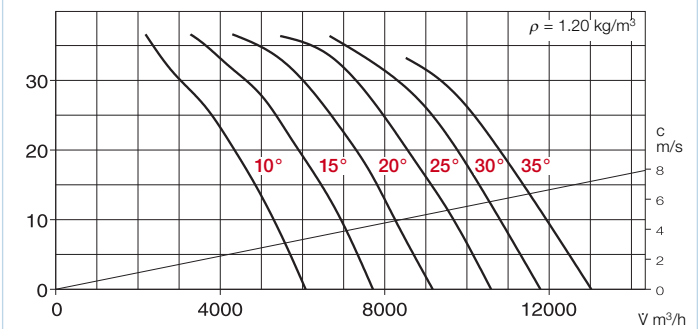
800/8 R.P.M. = 705

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} 15°		dB(A) 73	55	60	67	69	68	65	65
L _{WA} 25°		dB(A) 75	57	62	69	71	70	67	67
L _{WA} 35°		dB(A) 77	59	64	71	73	72	69	69



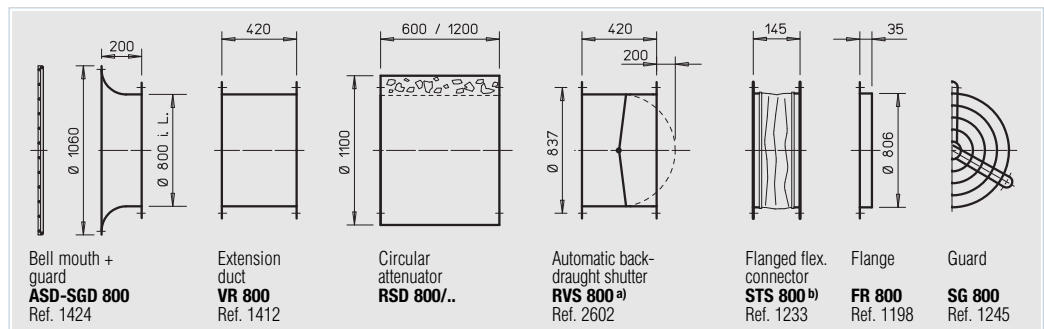
800/12 R.P.M. = 480

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} 15°		dB(A) 63	44	52	58	59	58	52	41
L _{WA} 25°		dB(A) 65	46	54	60	61	60	54	43
L _{WA} 35°		dB(A) 67	48	56	62	63	62	56	45

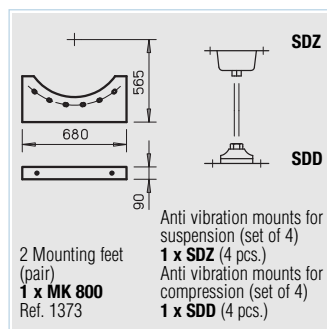


Electronic controller for stepless control		Oscillation attenuator nominal size	
Type	Ref. No.	Type	Ref. No.
FUS 3.7 ⁶⁾	6093	..1/.2	1452/1455
FUS 12 ⁵⁾	6097	..2/.2	1453/1455
FUS 16 ⁶⁾	6098	..2/.2	1453/1455
ESD 5 ⁶⁾	0501	..2/.2	1453/1455
ESD 5 ⁶⁾	0501	..1/.2	1452/1455
ESD 5 ⁶⁾	0501	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
not permitted	..2/.2	1453/1455	
not permitted	..2/.2	1453/1455	
not permitted	..2/.2	1453/1455	
not permitted	..2/.2	1453/1455	
not permitted	..2/.2	1453/1455	

Accessories for cased axial fans – Specification see pages 170 on.



a) For motorised shutters see accessory pages b) Models for ex-proof fans see below

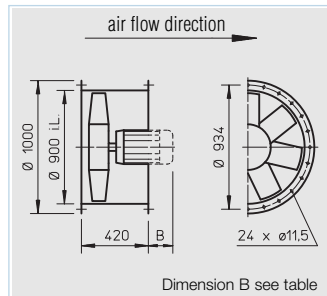
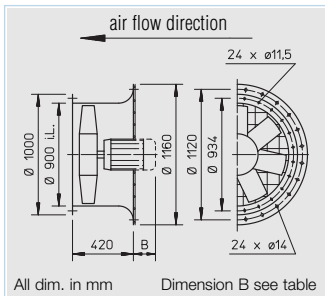


Information	Pages	Other accessories	Pages
Technical description	116	b) Accessory for explosion proof fans	
Selection chart	117	Flanged flexible connector	
Design of systems	12 on	STS 800 Ex	Ref. No. 2511
Made to order designs		Filters and attenuators	318 on
Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction, aluminium cast impeller etc. are available on request.		Shutters, grilles and louvres	361 on
		Speed controllers and switches	397 on
For safety and correct use note the technical information on pages 17 on.			

AVD DK



AVD RK



■ **Specification**

□ **Casing**

With motor support manufactured from galvanised sheet steel.

□ **Impeller**

Highly efficient, profiled 5 or 7 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

□ **Pitch angle**

To achieve the optimum operating point a choice of pitch angles are available (except explosion proof models). Pitch angle is set during manufacture (to order). The matching motor is supplied and the maximum pitch angle shown must not be exceeded (see table below).

□ **Motor**

Totally enclosed motor, protected to IP 54/ IP 55. Sealed for life ball bearings with tropical protection of windings and radio suppression.

□ **Motor protection**

All models (except pole switching and explosion proof) have thermal contacts or PTC resistors and according to footnotes in the table to guard through following full motor protection units:

⁴⁾MSA, Ref. No. 1289

(for PTC resistor)

⁵⁾M4, Ref. No. 1571

All other models have to be protected by a conventional circuit breaker on site.

□ **Electrical connection**

Terminals in motor cap (IP 54).

□ **Guard**

AVD DK models have hot dipped zinc plated motor side wire guard to DIN EN ISO 13857 as standard.

□ **Speed control**

Some models are controllable by a transformer control (see table). All models (except explosion proof and pole switching) are speed controllable by frequency inverter.

□ **Reversed operation**

All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 loss in performance.

□ **Installation**

Installation in any position. Ensure that the motor drainage holes face downwards.

□ **Dimensions**

Dimensions are shown above. Pole-switching and explosion proof models may vary. Note dimension B in table below.

□ **Sound levels**

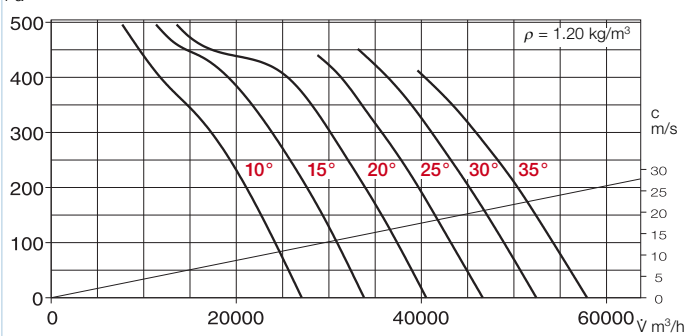
Sound power levels in dB(A) (spectrum and totals) are given above the performance curves.

R.P.M.	Air flow volume (FID)	Motor power (nominal)	Voltage	Current at full load	Max. pitch angle	Wiring diagram	Max. air flow temp.	Nominal weight (net)	Fan type				Dim. B Flange/ Foot motor	Transformer controller for 5 speed control		
									AVD DK incl. guard	Ref. No.	AVD RK	Ref. No.		Type	Ref. No.	
min ⁻¹	V m ³ /h	kW	V	A	° Grad	No.	+°C	kg					mm			
3 Phase motor, 400/690 V / 50 Hz, protection to IP 54																
695	19970	0.55	400	2.0	23	776	40	90	AVD DK 900/8/.. ⁴⁾	5364	AVD RK 900/8/.. ⁴⁾	6980	135	—	—	
950	37300	3.00	400/690	7.5	34	776	40	130	AVD DK 900/6/.. ⁴⁾	5369	AVD RK 900/6/.. ⁴⁾	6985	290	—	—	
1445	35030	4.00	400/690	8.9	16	776	40	118	AVD DK 900/4/.. ⁴⁾	5370	AVD RK 900/4/.. ⁴⁾	6986	210	—	—	
1450	48995	7.50	400/690	15.5	27	776	40	142	AVD DK 900/4/.. ⁴⁾	5371	AVD RK 900/4/.. ⁴⁾	6987	325	—	—	
1470	57720	11.00	400/690	22.0	34	776	40	186	AVD DK 900/4/.. ⁴⁾	5372	AVD RK 900/4/.. ⁴⁾	6988	385	—	—	
2 speed motor, 400 V / 50 Hz, Y/Δ-motor, protection to IP 55																
580/685	18465/21810	0.40/0.67	400Y/Δ	1.0/2.9	27	520	40	105	AVD DK 900/8/8/.. ⁵⁾	5365	AVD RK 900/8/8/.. ⁵⁾	6981	180	RDS 4 ⁶⁾	1316	
605/695	22400/25730	0.60/1.22	400Y/Δ	2.2/4.3	35	520	40	115	AVD DK 900/8/8/.. ⁵⁾	5366	AVD RK 900/8/8/.. ⁵⁾	6982	210	RDS 7 ⁶⁾	1578	
755/930	18390/22660	0.71/1.32	400Y/Δ	2.1/3.5	19	520	40	90	AVD DK 900/6/6/.. ⁵⁾	5367	AVD RK 900/6/6/.. ⁵⁾	6983	180	RDS 4 ⁶⁾	1316	
770/920	25990/31060	1.6/2.37	400Y/Δ	3.9/7.1	27	520	40	115	AVD DK 900/6/6/.. ⁵⁾	5368	AVD RK 900/6/6/.. ⁵⁾	6984	210	RDS 11 ⁶⁾	1332	
2 speed motor, pole-switching, 400 V / 3 ph. / 50 Hz, protection to IP 54																
455/940	11030/22790	0.25/1.10	400/400	1.2/2.9	16	471	40	105	AVD DK 900/12/6/.. ¹⁾	5376	AVD RK 900/12/6/.. ¹⁾	6992	180	PDA 12 ³⁾	5081	
455/940	14995/30980	0.33/2.00	400/400	1.9/5.0	26	471	40	115	AVD DK 900/12/6/.. ¹⁾	5377	AVD RK 900/12/6/.. ¹⁾	6993	325	PDA 12 ³⁾	5081	
455/950	18220/38040	0.70/3.20	400/400	2.5/6.7	35	471	40	140	AVD DK 900/12/6/.. ¹⁾	5378	AVD RK 900/12/6/.. ¹⁾	6994	325	PDA 12 ³⁾	5081	
700/1435	18270/37450	1.10/4.50	400/400	3.8/10.5	18	471	40	120	AVD DK 900/8/4/.. ¹⁾	5379	AVD RK 900/8/4/.. ¹⁾	6995	290	PDA 12 ³⁾	5081	
715/1450	22390/45410	1.80/6.50	400/400	5.7/14.5	24	471	40	148	AVD DK 900/8/4/.. ¹⁾	5380	AVD RK 900/8/4/.. ¹⁾	6996	325	PDA 25	5060	
725/1440	29030/58660	3.50/12.50	400/400	9.1/25.5	35	471	40	191	AVD DK 900/8/4/.. ¹⁾	5381	AVD RK 900/8/4/.. ¹⁾	6997	430	—	—	
950/1435	22145/33450	1.50/3.70	400/400	4.0/7.8	15	473	40	133	AVD DK 900/6/4/.. ²⁾	5382	AVD RK 900/6/4/.. ²⁾	6998	290	PGWA 12 ³⁾	5083	
970/1450	28745/42970	2.20/6.00	400/400	5.6/12.5	22	473	40	190	AVD DK 900/6/4/.. ²⁾	5383	AVD RK 900/6/4/.. ²⁾	6999	325	PGWA 25	5061	
975/1440	34470/50910	3.00/8.20	400/400	7.3/16.5	29	473	40	210	AVD DK 900/6/4/.. ²⁾	5384	AVD RK 900/6/4/.. ²⁾	6998	385	PGWA 25	5061	
Explosion proof E Exe II, 400/690 V / 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3																
700	24470	0.95	400	2.75	27	470	40	110	AVD DK 900/8 Ex/..	5386	AVD RK 900/8 Ex/..	6899	180	not permitted		
725	28470	1.30	400	3.70	34	470	40	130	AVD DK 900/8 Ex/..	5387	AVD RK 900/8 Ex/..	6900	210	not permitted		
950	30550	1.90	400	4.70	25	470	40	135	AVD DK 900/6 Ex/..	5389	AVD RK 900/6 Ex/..	6901	210	not permitted		
950	38040	3.50	400/690	8.50	35	498	40	160	AVD DK 900/6 Ex/..	5390	AVD RK 900/6 Ex/..	6902	290	not permitted		
1450	46630	6.80	400/690	13.30	25	498	40	175	AVD DK 900/4 Ex/..	5392	AVD RK 900/4 Ex/..	6903	325	not permitted		
1465	55240	10.00	400/690	19.30	32	498	40	235	AVD DK 900/4 Ex/..	5393	AVD RK 900/4 Ex/..	6904	385	not permitted		

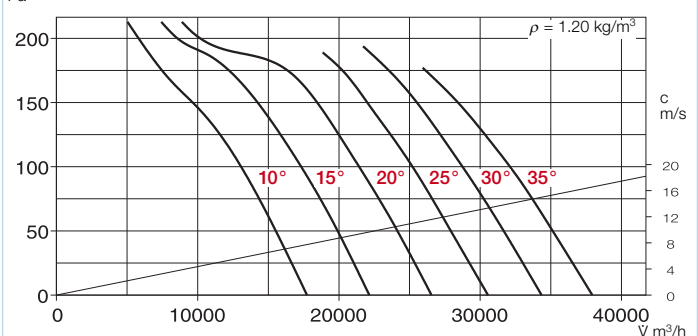
¹⁾ Dahlander-windings ²⁾ Separate windings ³⁾ see product page for flush mounted version ⁴⁾ and ⁵⁾ full motor protection units, see description "motor protection"

900/4 R.P.M. = 1450

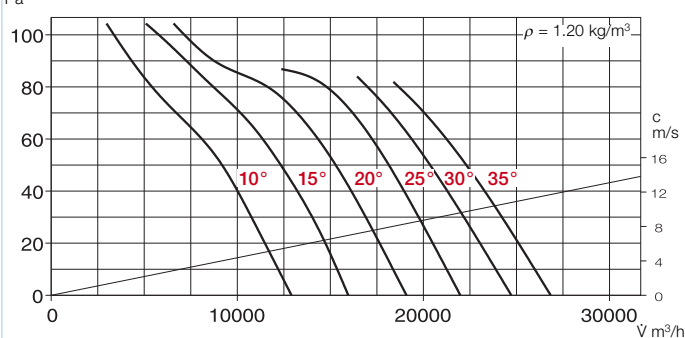
Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} 15°	dB(A)	94	78	80	86	90	90	86	79
L _{WA} 25°	dB(A)	96	80	82	88	92	92	88	81
L _{WA} 35°	dB(A)	98	82	84	90	94	94	90	83


900/6 R.P.M. = 945

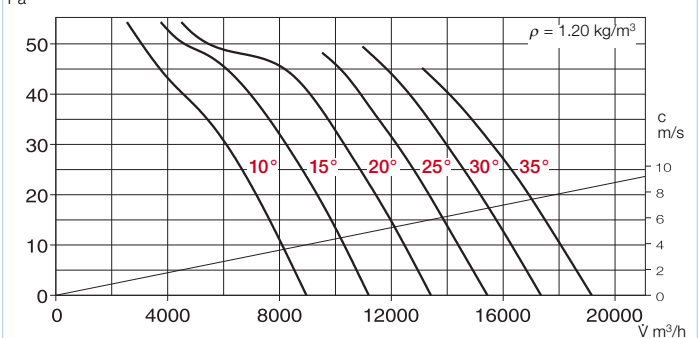
Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} 15°	dB(A)	84	69	70	76	79	79	76	68
L _{WA} 25°	dB(A)	86	71	72	78	81	81	78	70
L _{WA} 35°	dB(A)	88	73	74	80	83	83	80	72


900/8 R.P.M. = 705

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} 15°	dB(A)	77	58	64	71	73	72	68	59
L _{WA} 25°	dB(A)	79	60	66	73	75	74	70	61
L _{WA} 35°	dB(A)	81	62	68	75	77	76	72	63

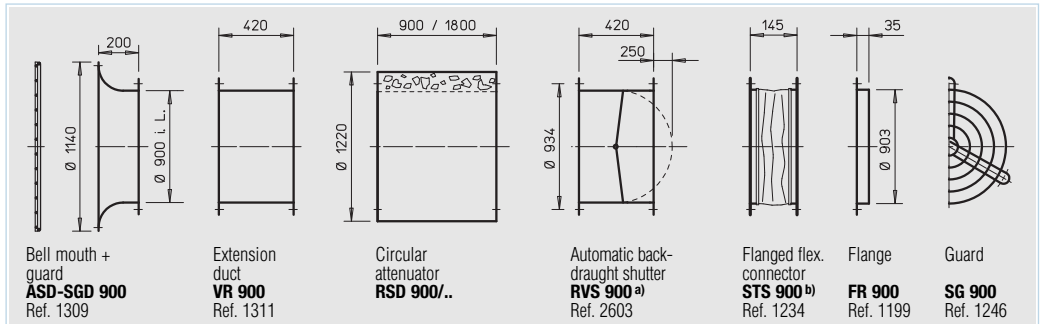
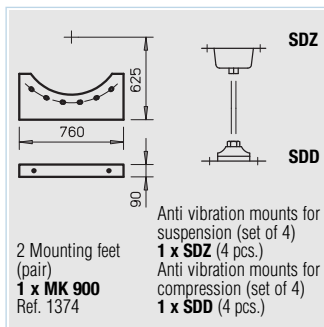

900/12 R.P.M. = 480

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} 15°	dB(A)	67	47	56	61	63	61	56	45
L _{WA} 25°	dB(A)	69	49	58	63	65	63	58	47
L _{WA} 35°	dB(A)	71	51	60	65	67	65	60	49

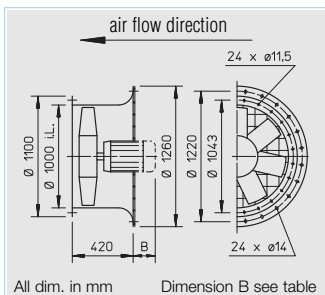


Electronic controller for stepless control		Anti vibration mounts nominal size	
Type	Ref. No.	Type	Ref. No.
FUS 3.7 ⁶⁾	6093	..2/.2	1453/1455
FUS 12 ⁶⁾	6097	..2/.2	1453/1455
FUS 12 ⁶⁾	6097	..2/.2	1453/1455
FUS 22.5 ⁶⁾	6099	..2/.2	1453/1455
FUS 30.5 ⁶⁾	6100	..3/.3	1367/1366
ESD 5 ⁶⁾	0501	..2/.2	1453/1455
ESD 5 ⁶⁾	0501	..2/.2	1453/1455
ESD 5 ⁶⁾	0501	..2/.2	1453/1455
ESD 11.5 ⁶⁾	0502	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..3/.3	1367/1366
—	—	..2/.2	1453/1455
—	—	..3/.3	1367/1366
—	—	..3/.3	1367/1366
not permitted	..2/.2	1453/1455	
not permitted	..2/.2	1453/1455	
not permitted	..2/.2	1453/1455	
not permitted	..2/.2	1453/1455	
not permitted	..2/.2	1453/1455	
not permitted	..3/.3	1367/1366	

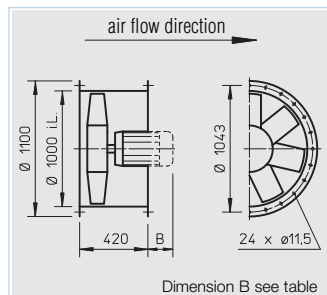
⁶⁾ Incl. full motor protection

Accessories for cased axial fans – Specification see pages 170

^{a)} For motorised shutters see accessory pages ^{b)} Models for ex-proof fans see below

 2 Mounting feet (pair)
1 x MK 900
 Ref. 1374
 Anti vibration mounts for suspension (set of 4)
1 x SDZ (4 pcs.)
 Anti vibration mounts for compression (set of 4)
1 x SDD (4 pcs.)

Information	Pages	Other accessories	Pages
Technical description	116	^{b)} Accessory for explosion proof fans	
Selection chart	117	Flanged flexible connector STS 900 Ex	Ref. No. 2512
Design of systems	12 on	Filters and attenuators	318 on
Made to order designs		Shutters, grilles and louvres	361 on
Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction, aluminium cast impeller etc. are available on request.		Speed controllers and switches	397 on
For safety and correct use note the technical information on pages 17 on.			



All dim. in mm Dimension B see table



Dimension B see table

■ Specification

□ Casing

With motor support manufactured from galvanised sheet steel.

□ Impeller

Highly efficient, profiled 5 blade impeller, dynamically balanced and manufactured from impact resistant polymers. Suitable for -30 to +60 °C.

□ Pitch angle

To achieve the optimum operating point a choice of pitch angles are available (except explosion proof models). Pitch angle is set during manufacture (to order). The matching motor is supplied and the maximum pitch angle shown must not be exceeded (see table below).

□ Motor

Totally enclosed motor, protected to IP 54/ IP 55. Sealed for life ball bearings with tropical protection of windings and radio suppression.

□ Motor protection

All models (except pole switching and explosion proof) have thermal contacts or PTC resistors and according to footnotes in the table to guard through following full motor protection units: ⁴MSA, Ref. No. 1289 (for PTC resistor) ⁵M4, Ref. No. 1571 All other models have to be protected by a conventional circuit breaker on site.

□ Electrical connection

Terminals in motor cap (IP 54).

□ Guard

AVD DK models have hot dipped zinc plated motor side wire guard to DIN EN ISO 13857 as standard.

□ Speed control

Some models are controllable by a transformer control (see table). All models (except explosion proof and pole switching) are speed controllable by frequency inverter.

□ Reversed operation

All models are reversible when wired to a reversing switch. For reverse air flow direction allow for 1/3 loss in performance.

□ Installation

Installation in any position. Ensure that the motor drainage holes face downwards.

□ Dimensions

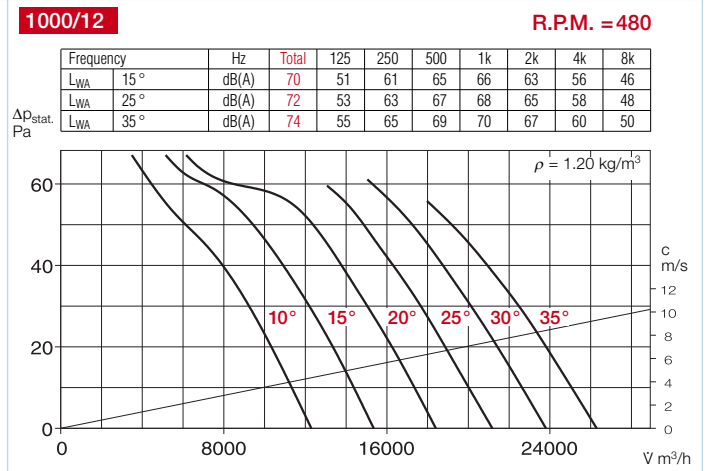
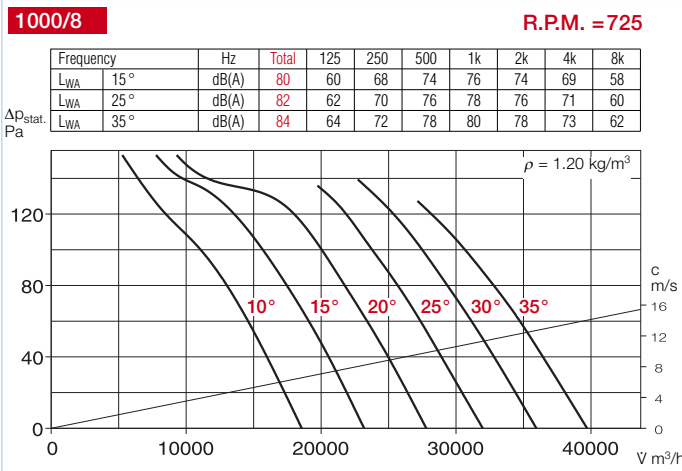
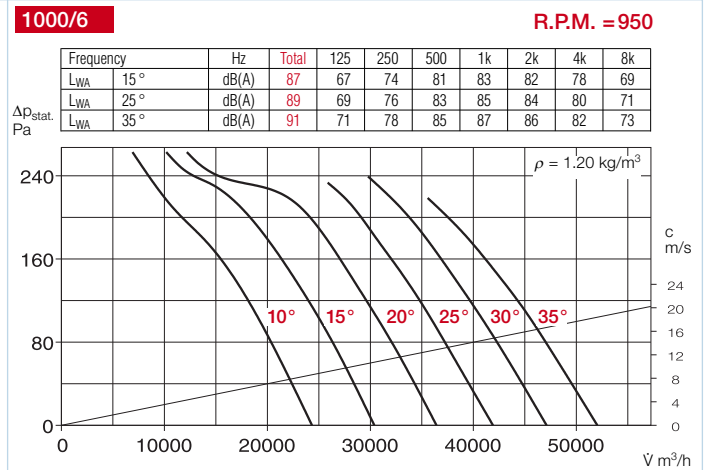
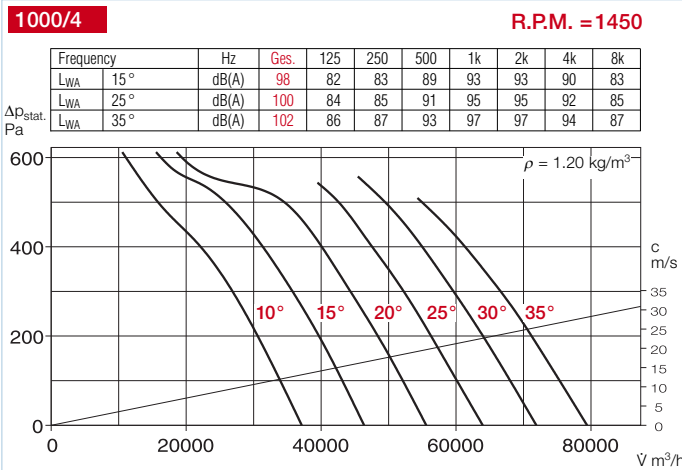
Dimensions are shown above. Pole-switching and explosion proof models may vary. Note dimension B in table below.

□ Sound levels

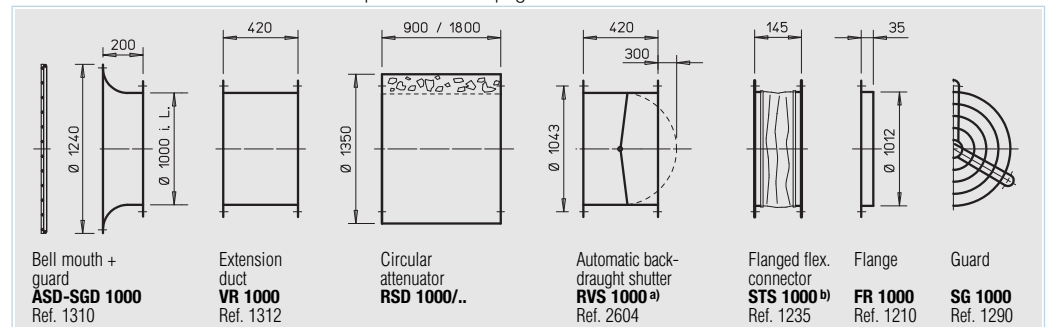
Sound power levels in dB(A) (spectrum and totals) are given above the performance curves.

R.P.M.	Air flow volume (FID)	Motor power (nominal)	Voltage	Current at full load	Max. pitch angle	Wiring diagram	Max. air flow temp.	Nominal weight (net)	Fan type				Dim. B Flange/Foot motor	Transformer controller for 5 speed control	
									AVD DK incl. guard	Ref. No.	AVD RK	Ref. No.		Type	Ref. No.
min ⁻¹	V m ³ /h	kW	V	A	°	No.	+°C	kg					mm		
3 Phase motor, 400/690 V / 50 Hz, protection to IP 54															
705	32650	1.50	400	4.6	27	776	40	108	AVD DK 1000/8/.. ⁴⁾	5396	AVD RK 1000/8/.. ⁴⁾	5571	210	—	—
710	39000	2.20	400	5.7	35	776	40	120	AVD DK 1000/8/.. ⁴⁾	5397	AVD RK 1000/8/.. ⁴⁾	5572	290	—	—
950	39720	3.00	400/690	7.5	23	776	40	120	AVD DK 1000/6/.. ⁴⁾	5398	AVD RK 1000/6/.. ⁴⁾	5573	290	—	—
955	46320	4.00	400/690	9.5	29	776	40	127	AVD DK 1000/6/.. ⁴⁾	5399	AVD RK 1000/6/.. ⁴⁾	5574	325	—	—
955	52450	5.50	400/690	13.5	35	776	40	145	AVD DK 1000/6/.. ⁴⁾	5400	AVD RK 1000/6/.. ⁴⁾	5575	325	—	—
1470	61460	11.00	400/690	22.0	23	776	40	160	AVD DK 1000/4/.. ⁴⁾	5401	AVD RK 1000/4/.. ⁴⁾	5576	385	—	—
1470	71290	15.00	400/690	30.0	29	776	40	195	AVD DK 1000/4/.. ⁴⁾	5402	AVD RK 1000/4/.. ⁴⁾	5577	430	—	—
1475	79440	18.50	400/690	36.0	34	776	40	210	AVD DK 1000/4/.. ⁴⁾	5403	AVD RK 1000/4/.. ⁴⁾	5578	465	—	—
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55															
605/695	23700/27440	0.6/1.22	400Y/Δ	2.2/4.3	21	520	40	102	AVD DK 1000/8/8/.. ⁵⁾	5395	AVD RK 1000/8/8/.. ⁵⁾	5570	180	RDS 7 ⁶⁾	1578
2 speed motor, pole-switching, 400 V / 3 ph. / 50 Hz, protection to IP 54															
455/950	19020/39720	0.7/3.0	400/400	2.5/6.7	23	471	40	130	AVD DK 1000/12/6/.. ¹⁾	5404	AVD RK 1000/12/6/.. ¹⁾	5579	320	PDA 12 ³⁾	5081
455/950	22065/46070	0.9/4.0	400/400	3.1/8.8	29	471	40	140	AVD DK 1000/12/6/.. ¹⁾	5405	AVD RK 1000/12/6/.. ¹⁾	5580	355	PDA 12 ³⁾	5081
450/950	24715/52180	1.3/5.5	400/400	4.3/11.7	35	471	40	160	AVD DK 1000/12/6/.. ¹⁾	5406	AVD RK 1000/12/6/.. ¹⁾	5581	375	PDA 12 ³⁾	5081
715/1440	27410/55210	2.2/9.0	400/400	5.3/18.0	20	471	40	165	AVD DK 1000/8/4/.. ¹⁾	5407	AVD RK 1000/8/4/.. ¹⁾	5582	385	PDA 25	5060
715/1445	32325/65330	3.0/12.0	400/400	6.8/23.2	26	471	40	190	AVD DK 1000/8/4/.. ¹⁾	5408	AVD RK 1000/8/4/.. ¹⁾	5583	415	—	—
720/1450	39545/79640	5.0/18.5	400/400	11.0/35.0	35	471	40	225	AVD DK 1000/8/4/.. ¹⁾	5409	AVD RK 1000/8/4/.. ¹⁾	5584	450	—	—
975/1440	36140/53380	3.0/8.2	400/400	7.3/16.5	19	473	40	170	AVD DK 1000/6/4/.. ²⁾	5410	AVD RK 1000/6/4/.. ²⁾	5585	385	PGWA 25	5061
975/1450	45150/67150	4.4/13.0	400/400	10.0/25.5	27	473	40	195	AVD DK 1000/6/4/.. ²⁾	5411	AVD RK 1000/6/4/.. ²⁾	5586	435	—	—
980/1470	53825/80740	6.7/20.0	400/400	14.5/38.5	35	473	40	230	AVD DK 1000/6/4/.. ²⁾	5412	AVD RK 1000/6/4/.. ²⁾	5587	470	—	—
Explosion proof E Exe II, 3 ph. / 50 Hz, protection to IP 54, temperature class T1-T3															
700	30880	1.3	400	3.9	25	470	40	110	AVD DK 1000/8 Ex/..	5413	AVD RK 1000/8 Ex/..	5588	210	not permitted	
700	38450	2.6	400	6.5	35	470	40	125	AVD DK 1000/8 Ex/..	5414	AVD RK 1000/8 Ex/..	5589	290	not permitted	
955	43180	3.5	400/690	7.6	26	498	40	130	AVD DK 1000/6 Ex/..	5415	AVD RK 1000/6 Ex/..	5590	325	not permitted	
960	52730	6.6	400/690	13.8	35	498	40	155	AVD DK 1000/6 Ex/..	5416	AVD RK 1000/6 Ex/..	5591	400	not permitted	
1480	70160	15.0	400/690	27.5	28	498	40	200	AVD DK 1000/4 Ex/..	5417	AVD RK 1000/4 Ex/..	5592	430	not permitted	
1470	77600	17.5	400/690	34.0	33	498	40	225	AVD DK 1000/4 Ex/..	5418	AVD RK 1000/4 Ex/..	5593	470	not permitted	

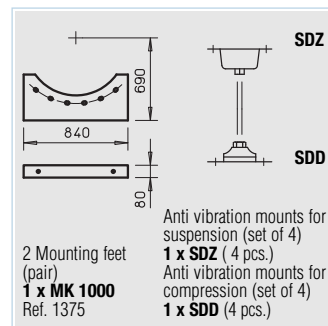
¹⁾ Dahlander-winding ²⁾ Separate winding ³⁾ see product page for flush mounted version ⁴⁾ and ⁵⁾ full motor protection units. see description „ motor protection“ ⁶⁾ Incl. full motor protection



Electronic controller for stepless control		Anti vibration mounts nominal size	
Type	Ref. No.	Type	Ref. No.
FUS 5.1 ⁶⁾	6094	..2/.2	1453/1455
FUS 7.2 ⁶⁾	6095	..2/.2	1453/1455
FUS 12 ⁶⁾	6097	..2/.2	1453/1455
FUS 12 ⁵⁾	6097	..2/.2	1453/1455
FUS 16 ⁶⁾	6098	..2/.2	1453/1455
FUS 30.5 ⁶⁾	6100	..2/.2	1453/1455
FUS 37 ⁶⁾	6101	..3/.3	1367/1366
FUS 43.5 ⁶⁾	6102	..3/.3	1367/1366
ESD 5 ⁶⁾	0501	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..2/.2	1453/1455
—	—	..3/.3	1367/1366
—	—	..3/.3	1367/1366
—	—	..2/.2	1453/1455
—	—	..3/.3	1367/1366
—	—	..3/.3	1367/1366
not permitted	—	..2/.2	1453/1455
not permitted	—	..2/.2	1453/1455
not permitted	—	..2/.2	1453/1455
not permitted	—	..2/.2	1453/1455
not permitted	—	..3/.3	1367/1366
not permitted	—	..3/.3	1367/1366

Accessories for cased axial fans – Specification see pages 170 on.


a) For motorised shutters see accessory pages b) Models for ex-proof fans see below



Information	Pages	Other accessories	Pages
Technical description	116	b) Accessory for explosion proof fans	
Selection chart	117	Flanged flexible connector STS 1000 Ex	Ref. No. 2512
Design of systems	12 on	Filters and attenuators	318 on
Made to order designs		Shutters, grilles and louvres	361 on
Alternative voltages, frequencies, protection classes, acid protection, high temperatures, air flow direction, aluminium cast impeller etc. are available on request.		Speed controllers and switches	397 on
For safety and correct use note the technical information on pages 17 on.			

High pressure in-line mixed-flow fans VAR

The following ranges for various applications are available:

Single stage unit VAR

- Sizes 225 to 630 mm

see following pages

- For other sizes up to \varnothing 1000 mm

see separate catalogue

Parallel units P-VAR

Large volumes and high pressures in a compact design. Especially suitable for ventilation of underground car parks. (car enactment and VDI 2053).

see separate catalogue

Twin unit TwinVent® Z-VAR

Highly efficient units with high pressure characteristics in a compact design. Flexible in application.

see separate catalogue

Smoke extract according to

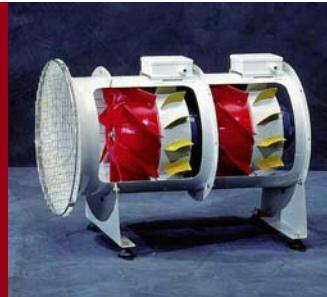
DIN 12101 T.3 F 300

300 °C/60 minutes

All VAR-models from \varnothing 280 mm and are available for smoke extraction temperature ranges F 300.

Further models are available in F 400 and F 600.

see separate catalogue



Advanced technology for today's systems.

The Helios strategy of developing practical solutions to customers applications has resulted in many exciting fan designs. The RADAX® VAR-system is one of the best examples, being highly respected and well received in the market.

The success of the VAR-high pressure fans is in the combination of the pressure characteristics of centrifugal fans with axial air flow.

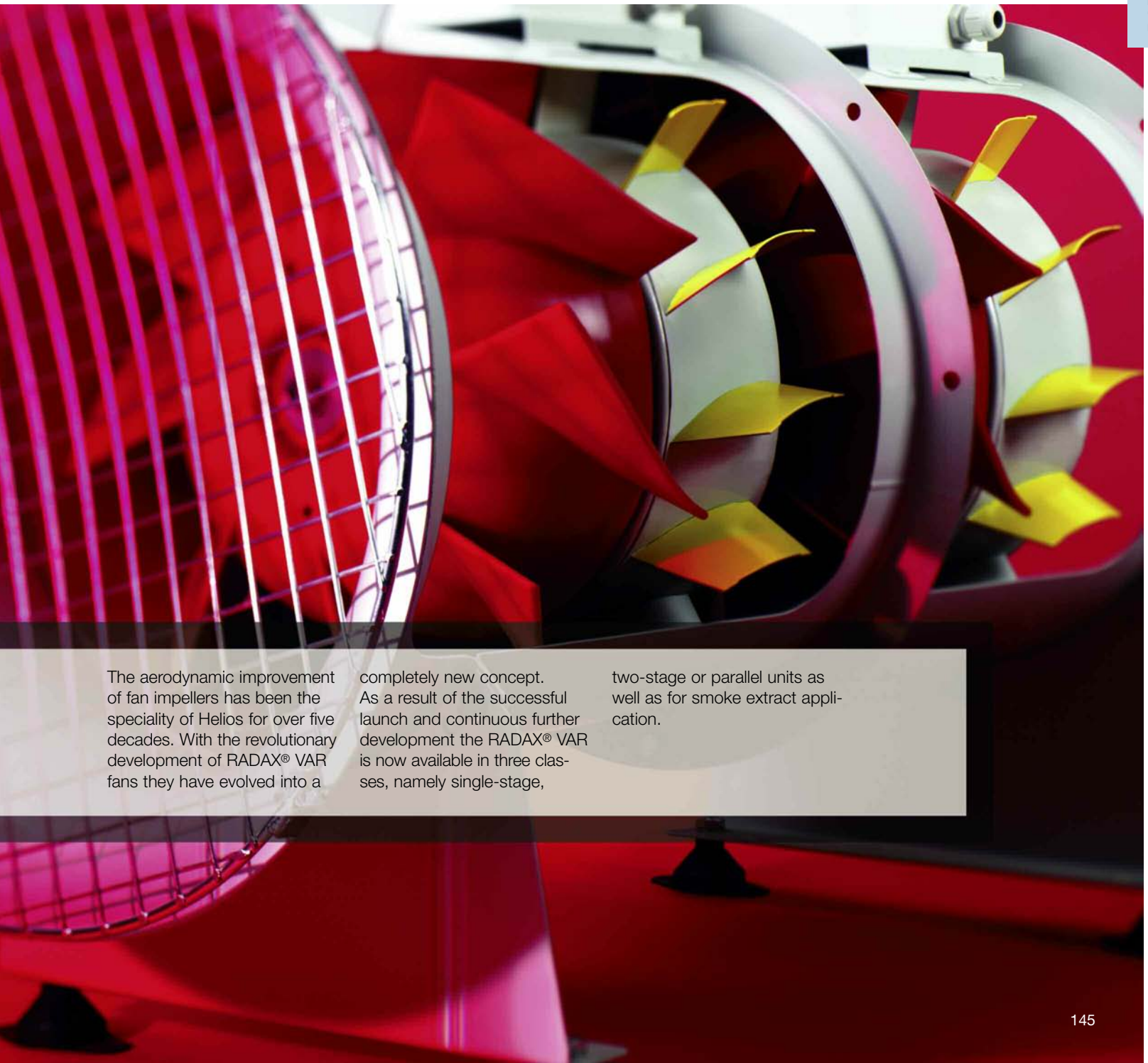
The benefits are:

- Maximum power at minimal energy costs.
- Low sound levels.
- High pressure and airflow within small dimensions.

The VAR-system fills the gap between axial-low pressure and high pressure centrifugal fans. The in-line airflow improves the efficiency of the total system and offers a considerable reduction of the required installation space and ducting compared to conventional solutions.

The effect:

- A wider range of applications.
- Increases options at design stage.
- Complicated ducting, bends etc. and associated pressure drop are reduced to a minimum, compared to centrifugal fans.
- Lower installation cost.
- Energy conservation.



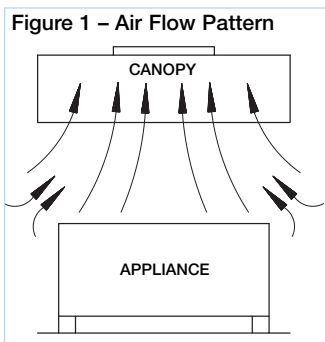
The aerodynamic improvement of fan impellers has been the speciality of Helios for over five decades. With the revolutionary development of RADAX® VAR fans they have evolved into a

completely new concept. As a result of the successful launch and continuous further development the RADAX® VAR is now available in three classes, namely single-stage,

two-stage or parallel units as well as for smoke extract application.

■ Introduction

Whilst systems extracting from equipment producing effluent, such as dust, depend upon air streams of sufficient velocity being created to enable capture to take place, this concept cannot be applied to heat producing process e.g. cooking. All cooking processes create approximately 35% radiant and 65% convected heat which, in the absence of cross-draughts, rises vertically in a thermal up-draught called a 'plume'. This is shown in figure 1. Most of the effluent released from the food and heat source is entrained with additional air which causes the plume to enlarge and the average temperature and velocity to decrease. The rate of exhaust from the hood must equal or slightly exceed the flow rate of the plume, and additional air will be required to resist the cross-draughts that would otherwise carry the plume away from the canopy.



The calculation of the optimum extract flow rate is the most important element of canopy design, as too much air will cause as many problems as too little. Whilst the size of the cooking appliances determine the size of the canopy supplied, it is the type of appliance that determines the volume of air to be extracted. The following methods of calculation are included for information.

■ Method 1 – Thermal Convection Method

This method follows the procedure covered in the CIBSE Guide but has been expanded to include a wider range of equipment. When details of the equipment to be ventilated are known, then each cooking appliance is allocated a thermal convection coefficient, which is the recommended volume of air to be extracted in m³/s per m² of surface area of the appliance. The area of each appliance is multiplied by the factor for that appliance, and the total value for each item of equipment under the canopy

Table 1 – Appliance, Coefficient and Temperature Schedule

Appliance	Coefficient (m³/s of appliance area)		Surface Temp. °C
	Gas	Electric	
MISCELLANEOUS			
Benches, Spreaders and worktops	0.03	0.03	25
Sink	0.15	0.15	25
Pass Through Dishwasher *	0.30	0.30	61
Pan Wash, Utensil Wash	0.40	0.40	42
Rack and Flight Dishwasher		see manufacturers literature	58
* NB – the figures quoted are for the machine only; the room in which they are located needs to be treated separately.			
HEATING / WATER			
Coffee Maker	—	0.03	25
Microwave Oven, Toaster	—	0.03	25
Bains Marie, Hot Cupboard	0.20	0.15	57
Servery Counter - Hot Food	0.24	0.24	73
Water Boiler, Still, Beverage Unit	0.25	0.20	78
Light Duty Boiling Pan, Tilting Kettle	0.25	0.20	78
Refrigeration Unit		see manufacturers literature	
GENERAL COOKING			
Induction Hob, Ceramic Stove	—	0.10	30
Pantry and High Output Bakery Oven	0.25	0.20	86
Steamer / Pressure Cooker	0.30	0.20	125
Bratt Pan, Tilt Skillet	0.32	0.32	190
Boiling Table, Hot Top, Stock Pot Stove	0.35	0.25	190
Heavy Duty Boiling Pan	0.35	0.25	146
Open Top Range and Oven	0.35	0.25	190
Steaming and Roasting Oven	0.35	0.35	98
Fan Assisted Convection Oven	0.38	0.30	86
Pizza Oven	0.38	0.30	92
Low/Medium Duty Deep Fat Fryer	0.45	0.35	190
Low Medium Duty Grill	0.50	0.30	220
FLAME COOKING			
Griddle	0.30	0.25	190
Deep Fat Bratt Pan	0.40	0.35	190
Conveyer Pizza Oven	0.45	0.40	90
High Duty Deep Fat Fryer	0.45	0.40	190
Solid Top Oven range	0.60	0.51	420
Upright or Chain Broiler	0.75	0.55	190
Salamander or Steakhouse Grille	0.75	0.55	260
Chargrille. Broiler	0.95	0.52	350
Chinese Wok Range	1.10	—	280
Mesquite grille	1.20	—	420

is added together to determine the total volume to be extracted. The factor will vary depending on whether the appliance is fired by gas or electricity, and these are shown in Table 1. In the absence of complete information about the proposed equipment to be installed in a kitchen, there are a number of approximate methods that may be used to assess the amount of air to be removed. These are listed here for information, but should only be used for preliminary purposes and *not* for the final air flow calculation.

■ Method 2 – Quick calculation method

Face Velocity Method

When there is insufficient information on the type of cooking appliance available, the volume of air to be extracted may be determined by selecting a velocity across the face area of the canopy that is appropriate for the type of appliances expected to be used. The capture velocity is multiplied by the canopy area to determine the volume of air to be extracted.

The capture velocity should be selected to ensure an even distribution of air across the canopy face, and this velocity will vary according to the cooking application.

- Light loading – 0.25 m/s
Applies to steaming ovens, boiling pans, bains marie and stock-pot stoves.
- Medium loading – 0.35 m/s
Applies to deep fat fryers, bratt pans, solid and open ranges and griddles.
- Heavy loading – 0.5 m/s
Applies to chargrills, mesquite and specialist broiler units.

	Recommended Duct Velocities	
	Supply	Extract
Mains Runs	6 - 8 m/s	6 - 9 m/s
Branch Runs	4 - 6 m/s	5 - 7 m/s
Spigots	3 - 5 m/s	5 - 7 m/s

Table 2 – Types of Grease Filter and Their Main Properties

Type	Recommended Face Velocity Efficiency	Typical	Advantages	Disadvantages
Mesh	2.0 - 5.0 m/s	40 - 50 %	<ul style="list-style-type: none"> Inexpensive Low Pressure drop when clean 	<ul style="list-style-type: none"> Grease held in air stream Variable pressure drop Potential fire hazard
Baffle	4.5 - 5.5 m/s (at slot)	65 - 80 %	<ul style="list-style-type: none"> Inexpensive Has Non-overloading pressure drop 	<ul style="list-style-type: none"> Higher pressure drop than mesh filters
Cartridge	4.5 - 5.5 m/s (at entry)	90 - 95 %	<ul style="list-style-type: none"> Higher Efficiency Non-overloading pressure drop 	<ul style="list-style-type: none"> High pressure drop Special plenum fabrication required
Water Wash	4.5 - 5.5 m/s (at entry)	90 - 95 %	<ul style="list-style-type: none"> Higher Efficiency Non-overloading Low maintenance 	<ul style="list-style-type: none"> Expensive Very high pressure drop Hot water supply and drains required
Water Mist	4.5 - 5.5 m/s (at entry)	90 - 98 %	<ul style="list-style-type: none"> Very efficient Non-overloading Low maintenance 	<ul style="list-style-type: none"> Expensive Very high pressure drop Hot & Cold water supplies & drains required.

Table 3 – Types of Fans

Type	Advantages	Disadvantages
Axial Fans	<ul style="list-style-type: none"> Compact with an extensive duty range especially when operating in series Easily removed for maintenance cleaning A cheaper option 	<ul style="list-style-type: none"> The temperature limitations are greater but will serve for most general kitchen vent systems Unable to deal with some pressure requirements
'In-Line' Centrifugal and Mixed flow	<ul style="list-style-type: none"> Compact with a good duty range which can serve many kitchen vent systems Generally less expensive than some options Easily removed for maintenance and cleaning 	<ul style="list-style-type: none"> The temperature limitations are greater but will generally serve the the majority of kitchen systems Forward curved fans should only be used for supply systems
Roof Extract Fans (vertical jet discharge with Centrifugal impellers)	<ul style="list-style-type: none"> Compact and, where the motor is encased outside the air stream, has a good temperature range Easily removed for maintenance and cleaning No space restrictions Good external appearance 	<ul style="list-style-type: none"> The temperature limitations are greater but will generally serve the majority of kitchen vent systems With poor roof access this type of fan can be a problem to maintain More expensive than in-line/axial fans but dispenses with necessity of discharge ductwork.

■ Make-Up Air

In order for the kitchen extract system to function correctly, it is essential that an allowance is made for the provision of replacement air. This can be achieved either by introducing mechanically supplied air, or by making provision for natural infiltration.

The fan powered system provides an option because the lack of control with infiltration may create the following problems:

- Unfiltered air will enter the kitchen.
- Air could be drawn from dirty areas.

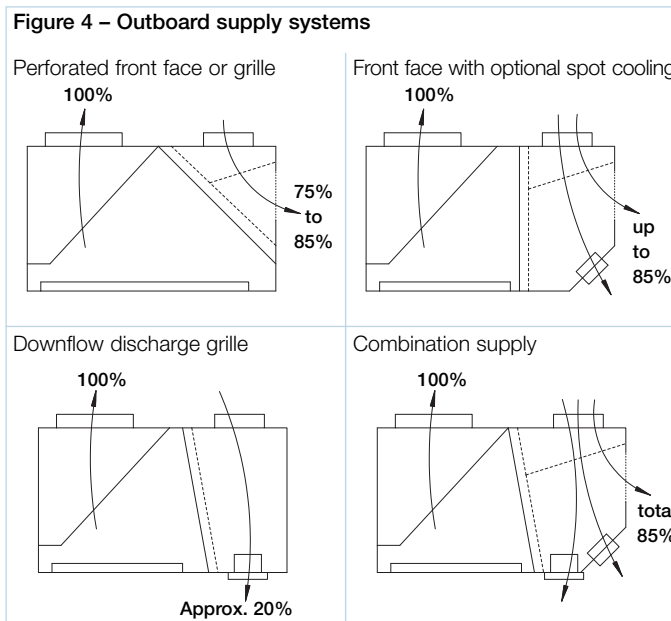
- Uncontrolled air movement may affect the cooking process.
- Draughts and discomfort can be caused in cold weather.
- 'Cooling' cannot be provided to adjacent areas.

■ Acknowledgment

The information shown here is taken from HVCA's DW/171 Standard for Kitchen Ventilation Systems. For a full copy of DW/171 please contact HVCA Publications, Penrith – Telephone 01768 860405.

Where mechanical input is selected the system should provide 85% of the total extracted volume with the remaining 15% infiltrating naturally into the kitchen from surrounding areas. The mechanical or 'fan assisted' method ensures that the kitchen remains under negative pressure thus minimising the potential transfer of kitchen odours to areas outside the kitchen.

Make-up air can be introduced into the kitchen by means of the canopy or ventilated ceiling or through the HVAC system or by a combination of both. Where air is introduced through the canopy, the various options are shown in figs 4.



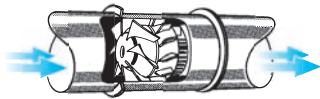
These pages provide some additional information to complete the general technical information in the front of the catalogue.

Features

RADAX® VAR is a range of high pressure cased fans combining the advantages of axial and centrifugal fans. The mixed flow impeller combined with the fixed guide vanes are designed to provide high air flows and pressures very efficiently.

Air flow

The axial air flow pattern allows operation without loss, guide vanes improve and straighten the air and increase the efficiency of the fan. The VAR in-line installation eliminates the need for bulky bends, transformation pieces etc. including their resistances. This saves installation and energy costs.



Casing

Casing flanges on both sides to DIN 24155, Pt.3 with guide vanes and motor support made from galvanised steel. Models with $n = 2800 \text{ min}^{-1}$ of size 400, 450, 500 as well as all models of size 630 welded casing, hot-dip galvanised. Terminal box to IP 55 fixed to the outer casing.

Impeller

Mixed flow impeller with 8 spacious curved blades. Up to size 355 made from polymer. Models with $n = 2800 \text{ min}^{-1}$ of size 355 as well as all models of size 400 to 630 made from hot-dip galvanised steel. Aluminium is available (additional charge) on demand.

VAR fans offer high efficiency, low operation noise, high corrosion resistance and low vibration operation through dynamical balance to DIN ISO 1940 Pt.1 – quality grade 6.3.

Air flow temperature

The standard models are suitable for ambients from $-30 \text{ }^\circ\text{C}$ to at least $+40 \text{ }^\circ\text{C}$. See also information on product pages. Higher temperature models are available on request.

Explosion proof

The ex-proof models conform to cluster II, category 2G for the operation in zone 1 or 2. According to EC guideline 94/9/EG bigger air gaps are specified which lead to a power reduction of up to 10%.

Air flow direction

The air flow of the fan cannot be reversed, however the fan is suitable for installation in any position. The correct direction of rotation and air flow are marked on the fan.

Installation position, mounting, condensation opening

To achieve the performance figures shown, a straight duct of 2 times the diameter in length downstream of the fan is required (and installed in ducting ideally the same upstream) (figure 1).

RADAX®-VAR can be installed in any position. Where motor condensate drainage is used, ensure the drain holes face downwards.

When installing the fan for vertical airflow as well as in an outside position or in a permanently humid or wet atmosphere, this must be specified at time of ordering. On site assembly and mounting must be carried in such a way that the vertically fitted fan is distortion-free and safe.

Transmission of vibration

To avoid transmission of vibration between fan and building the use of anti vibration mounts is recommended (accessory SDD..., SDZ...).

For fans with larger motors the motor may protrude beyond the flange. In this case an extension duct (accessory VR...) is recommended to ensure the anti vibration mounts are equally loaded.

Installation-examples

Horizontal installation

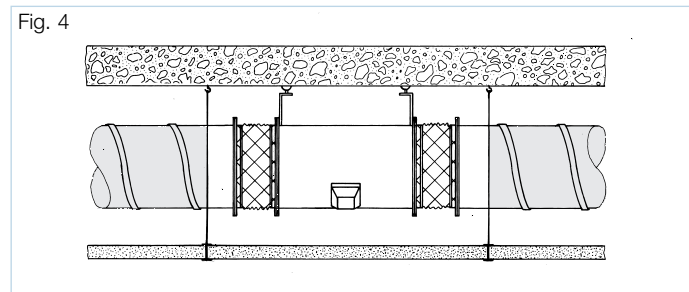
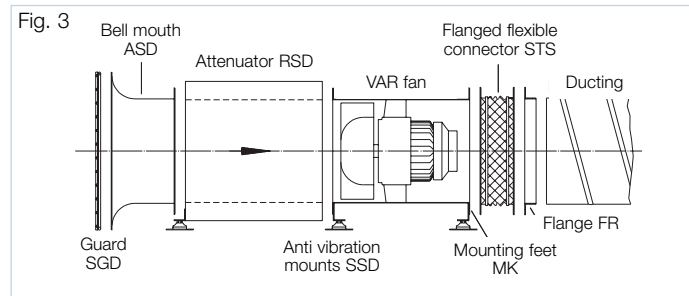
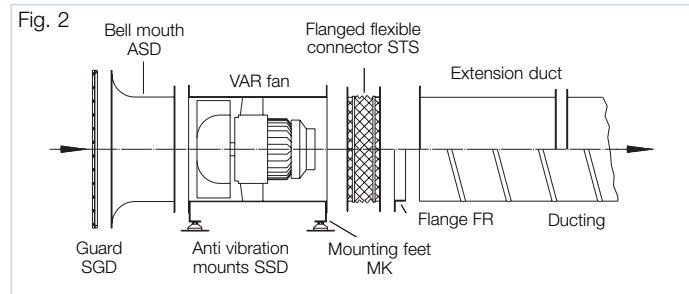
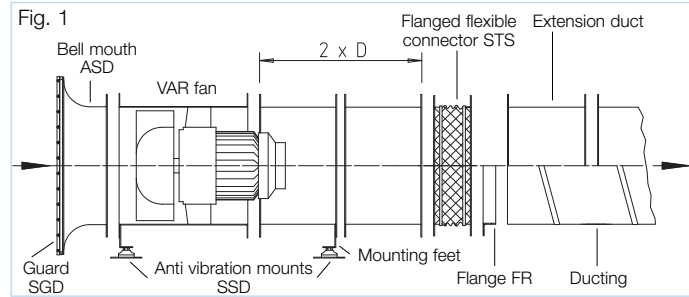
– Figure 2

Free intake, ducted on exhaust. Mounted on ceiling, wall or floor.

– Figure 3

Free intake with attenuator, ducted on exhaust.

To reduce inlet and exhaust noise levels, attenuators can be fitted to both ends of the fan.



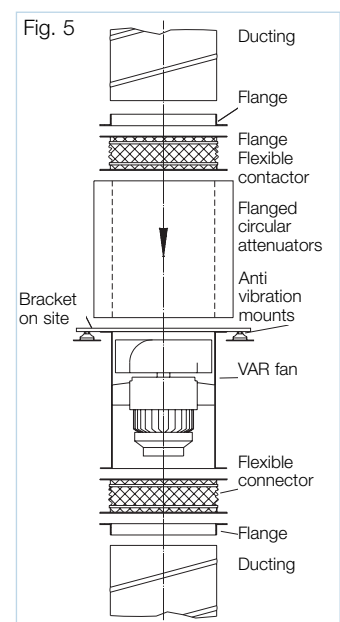
– Figure 4 Ceiling void installation

Figure 4 shows an in-line duct installation. VAR fans can be mounted direct in the ceiling above the void. The casing is designed for straight in-line installation using the flanged ends (to DIN 24155 Pt. 3).

Vertical installation

– Figure 5

In-line wall mounted installation with attenuator on intake. The accessories should be fixed separately to ensure that the fan may be easily removed for maintenance.



Information	Pages
Design of systems.	
Acoustic, explosion proof	12 on
General technical information	
Speed control	17 on

To use this quick selection table for RADAX®-VAR mixed flow fans:
Select the nearest static pressure Δp_{stat} (Pa.) and follow the column down until you reach the nearest air flow volume V (m³/s). N.B. More than one selection may be possible. The sound pressure level dB(A), R.P.M. and

impeller diameter in mm are given on the table, horizontally to the left.

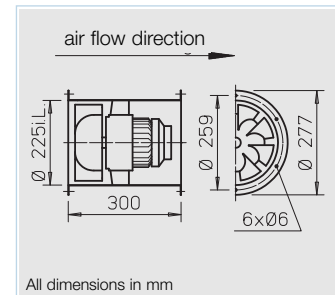
Sizes from \varnothing 710 mm as well as twin and parallel VAR-units are shown in the HELIOS separate catalogue a copy of which is available on request.

Diameter mm	R.P.M. min ⁻¹	Sound pressure level - intake L _{PA} dB(A) at 4 meters	Air flow volume V m ³ /s against static pressure = N / m^2 = free available pressure (Δp_{stat}) in Pa													
			0	50	100	150	200	300	400	500	600	700	800	900	1000	
			225	2800	61	0.525	0.503	0.478	0.450	0.417						
225	1450	46	0.269	0.217												
250	2800	64	0.719	0.694	0.669	0.639	0.606	0.525								
250	1450	49	0.369	0.317												
280	2800	68	1.011	0.983	0.955	0.925	0.892	0.814	0.711							
280	1450	52	0.519	0.464	0.381											
315	2800	71	1.439	1.411	1.383	1.353	1.319	1.244	1.161	1.058	0.842					
315	1450	56	0.742	0.686	0.611	0.494										
355	2800	75	2.058	2.028	1.997	1.967	1.931	1.850	1.764	1.669	1.561	1.417				
355	1450	60	1.064	1.003	0.922	0.828	0.650									
400	2800	78	2.947	2.914	2.878	2.843	2.803	2.722	2.633	2.533	2.431	2.314	2.181	2.006		
400	1450	63	1.522	1.453	1.372	1.278	1.164									
400	930	52	0.972	0.85	0.636											
450	2800	83	4.347	4.308	4.272	4.233	4.193	4.114	4.022	3.928	3.822	3.714	3.600	3.481	3.347	
450	1400	67	2.169	2.094	2.008	1.906	1.794	1.494								
450	930	56	1.386	1.256	1.075											

Diameter mm	R.P.M. min ⁻¹	Sound pressure level - intake L _{PA} dB(A) at 4 meters	Air flow volume V m ³ /s against static pressure = N / m^2 = free available pressure (Δp_{stat}) in Pa													
			0	150	300	450	600	750	900	1050	1200	1550	1800			
			500	2900	86	5.964	5.769	5.661	5.608	5.472	5.317	5.161	4.994	4.814	4.400	3.550
500	1450	70	2.978	2.731	2.403	1.742										
500	930	59	1.906	1.431												
560	1450	73	4.186	3.919	3.575	3.156										
560	950	63	2.736	2.253												
560	725	56	2.086													
630	1450	77	5.961	5.669	5.308	4.892	4.378									
630	950	67	3.900	3.386	2.428											
630	725	60	2.969	2.169												

The following sizes are shown in a see separate catalogue a copy of which is available on request.

710	1480	81	8.708	8.392	8.033	7.603	7.133	6.586	5.775							
710	950	70	5.586	5.033	4.275											
710	725	64	4.258	3.438												
800	1480	85	12.464	12.106	11.725	11.281	10.781	10.253	9.661	8.925	7.408					
800	950	74	7.992	7.400	6.625	5.547										
800	725	67	6.094	5.225												
900	1480	88	17.747	17.347	16.928	16.472	15.956	15.392	14.808	14.164	13.450	11.003				
900	950	78	11.386	10.736	9.919	8.958	7.453									
900	725	71	8.683	7.753	6.433											
1000	1480	92	24.344	23.903	23.447	22.942	22.436	21.847	21.222	20.586	19.903	18.358	15.958			
1000	950	81	15.617	14.914	14.075	13.078	11.933	10.014								
1000	725	74	11.911	10.925	9.608	6.969										



■ Specification

□ Casing

Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

□ Impeller

Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from impact resistant polymers.

□ Motor

Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering. Explosion proof fans are not controllable.

□ Electrical connection

Terminal box fitted externally on the casing as standard (IP 55).

□ Installation

Installation in any position. Ensure that motor drainage holes (where used) face downwards.

□ Motor protection

All models (except ex proof) have thermal contacts as standard which must be connected to a full motor protection unit (see table below). With the 1 ph. ex-proof models thermal contacts are wired in series with the winding which automatically resets. Models without thermal contacts must be protected by a conventional circuit breaker.

□ Sound levels

Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

■ Information Pages

Technical description	148
Selection chart	149
Design of systems	12 on

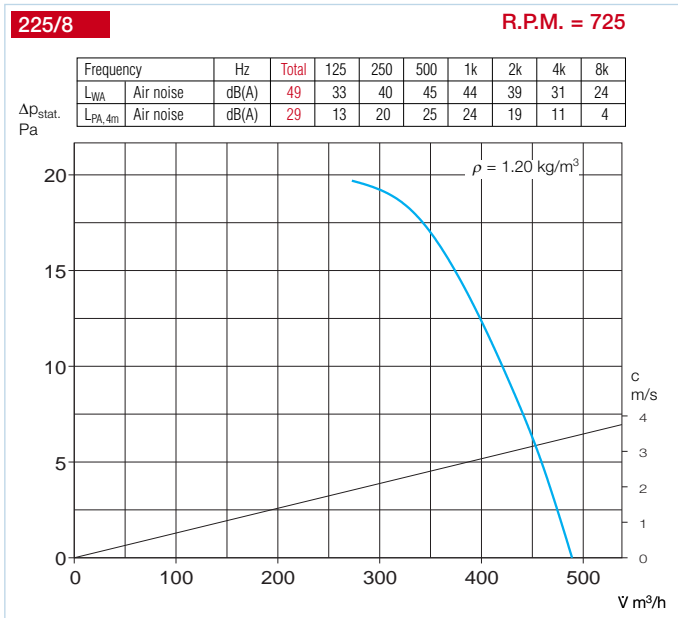
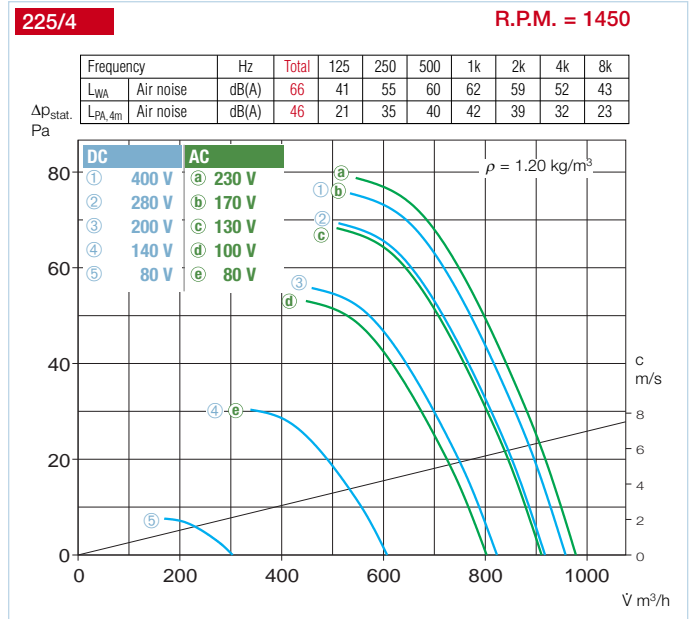
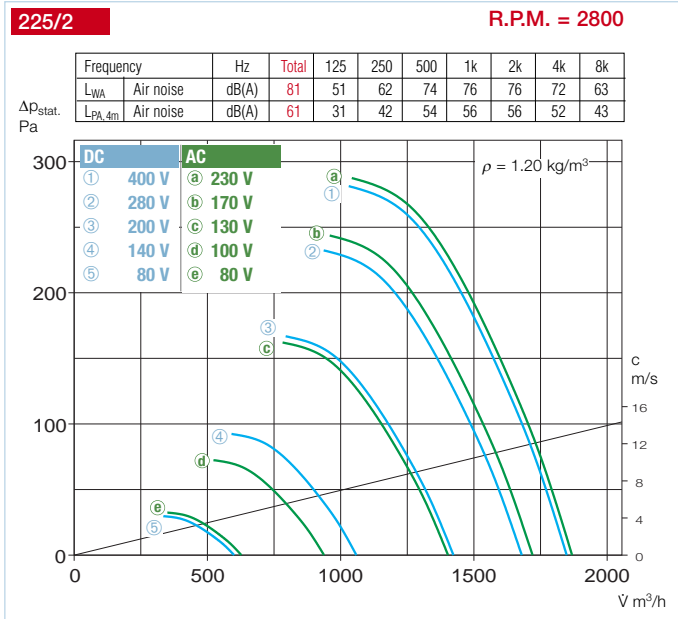
Made to order designs

Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

For safety and correct use note the technical information on pages 17 on.

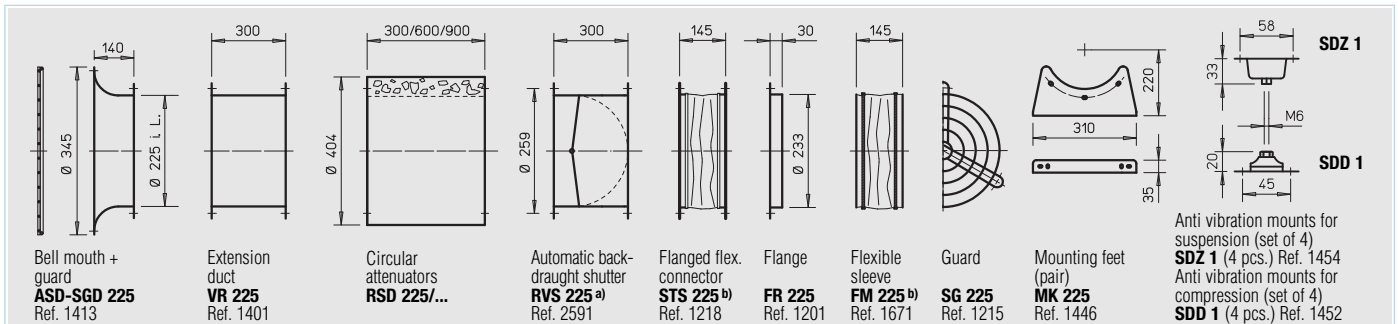
Type	Ref. No.	R.P.M. min ⁻¹	Air flow volume (FID) Vm ³ /h	Motor power (nominal)* kW	Voltage V	Current* full load A	speed controlled A	Wiring diagram No.	Maximum air flow temp. standard supply +°C	air flow temp. speed controlled +°C	Nominal weight (net) kg	5 step transformer controller Pole switch		Full motor protection starter using the motor thermal contacts		Anti vibration mounts comp. susp.	
												Type	Ref. No.	Type	Ref. No.	Type	Type
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54																	
VARW 225/4	6660	1450	980	0.10	230	0.50	0.55	966	60	40	10.5	MWS 1.5 ¹⁾	1947	MW	1579	SDD 1	SDZ 1
VARW 225/2	6661	2770	1870	0.35	230	1.90	2.50	966	60	40	10.5	MWS 3 ¹⁾	1948	MW	1579	SDD 1	SDZ 1
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54																	
VARD 225/4	6662	1420	960	0.10	400Y	0.20	0.20	469	60	40	10.5	RDS 1 ¹⁾	1314	MD	5849	SDD 1	SDZ 1
VARD 225/2	6663	2720	1830	0.28	400Y	0.60	0.60	469	60	40	10.5	RDS 1 ¹⁾	1314	MD	5849	SDD 1	SDZ 1
Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54																	
VARD 225/8/4	6770	725/1450	490/980	0.03/0.07	400	0.10/0.22	—	472	60	—	10.5	PDA 12 ³⁾	5081	M 3 ²⁾	1293	SDD 1	SDZ 1
VARW 225/4/2	6771	1450/2800	980/1890	0.07/0.30	400	0.25/0.70	—	472	60	—	10.5	PDA 12 ³⁾	5081	M 3 ²⁾	1293	SDD 1	SDZ 1
Explosion proof, E Ex de II B, 230 V / 1 ph. / 50 Hz, temperature class T1-T3, protection to IP 55																	
VARW 225/4 Ex	6733	1400	950	0.06	230	0.70	—	757	40	—	12.0	not permitted	—	—	SDD 1	SDZ 1	
VARW 225/2 Ex	6734	2650	1780	0.18	230	1.23	—	757	40	—	12.5	not permitted	—	—	SDD 1	SDZ 1	
Explosion proof, E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protected to IP 54																	
VARD 225/4 Ex	6664	1400	940	0.12	400Y	0.41	—	470	40	—	12.5	not permitted	not permitted	SDD 1	SDZ 1		
VARD 225/2 Ex	6665	2850	1930	0.25	400Y	0.72	—	470	40	—	12.5	not permitted	not permitted	SDD 1	SDZ 1		

* Ex models: for nominal value of motor see information on page 18 ¹⁾ includes full motor protection unit ²⁾ includes operation and speed switch ³⁾ see product page for flush mounted version

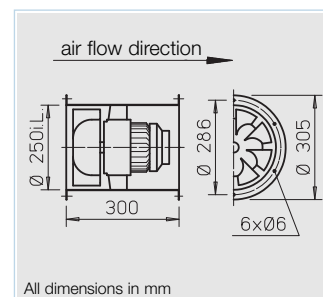


Other accessories	Pages
b) Accessories for explosion proof fans	
Flanged flexible connector	
STS 225 Ex	Ref. 2500
Flexible sleeve	
FM 225 Ex	Ref. 1687
Attenuators	318 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on

Accessories – Specification see pages 170 on.



^{a)} For motorised shutters see accessory pages ^{b)} Types for explosion proof fans see above



■ Specification

□ Casing

Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

□ Impeller

Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from impact resistant polymers.

□ Motor

Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering. Explosion proof fans are not controllable.

□ Electrical connection

Terminal box fitted externally on the casing as standard (IP 55).

□ Installation

Installation in any position. Ensure that motor drainage holes (where used) face downwards.

□ Motor protection

All models (except ex proof) have thermal contacts as standard which must be connected to a full motor protection unit (see table below). With the 1 ph. ex-proof models thermal contacts are wired in series with the winding which automatically resets. Models without thermal contacts must be protected by a conventional circuit breaker.

□ Sound levels

Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

■ Information Pages

Technical description	148
Selection chart	149
Design of systems	12 on

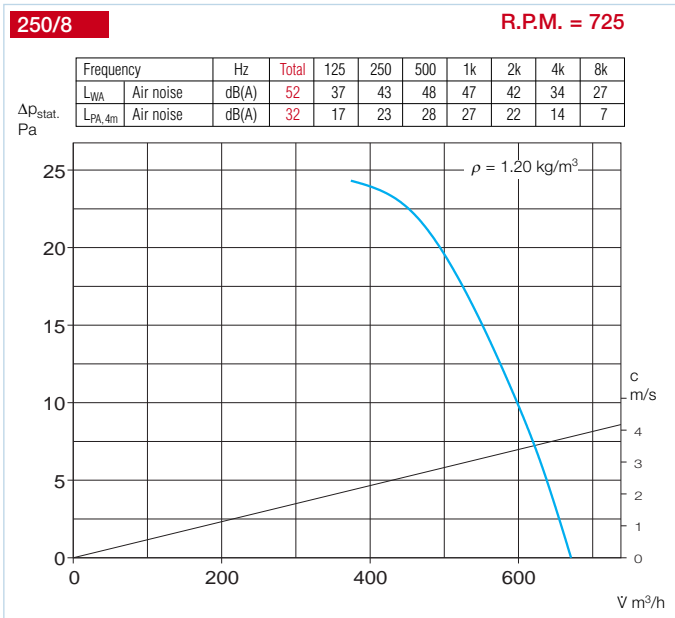
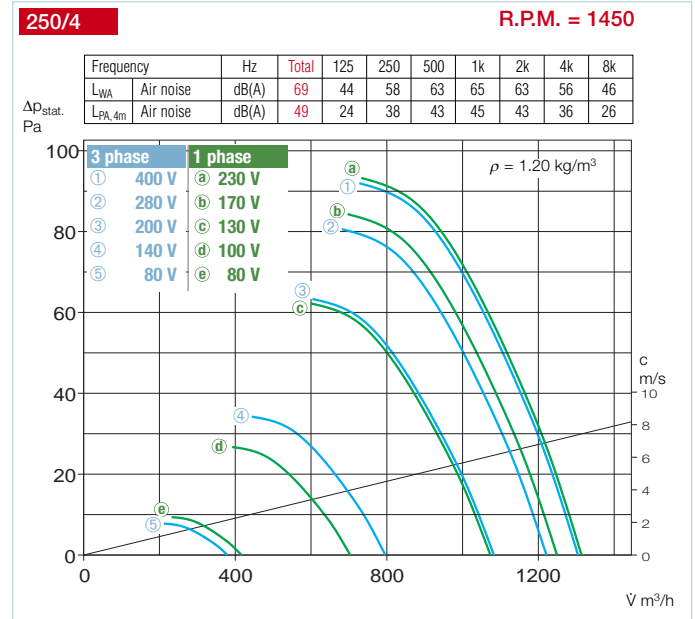
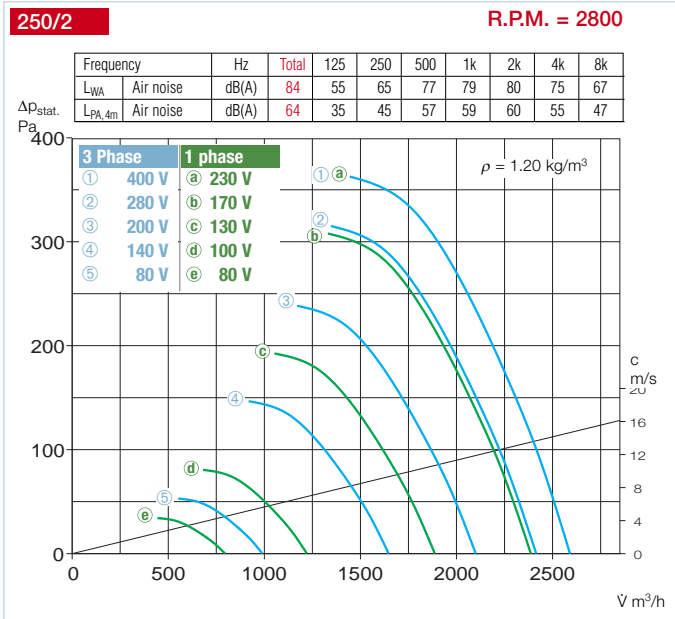
Made to order designs

Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

For safety and correct use note the technical information on pages 17 on.

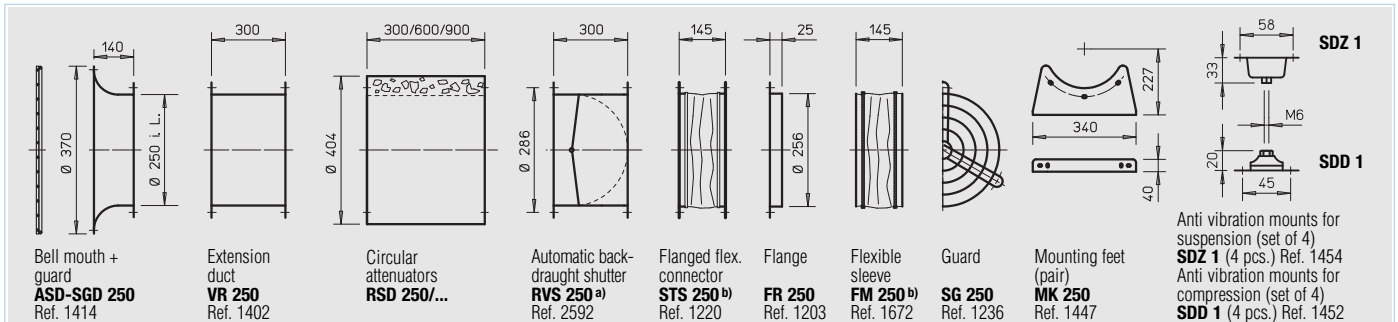
Type	Ref. No.	R.P.M. min ⁻¹	Air flow volume (FID) Vm ³ /h	Motor power (nominal)* kW	Voltage V	Current* full load A	speed controlled A	Wiring diagram No.	Maximum air flow temp. standard supply +°C	speed controlled +°C	Nominal weight (net) kg	5 step transformer controller Pole switch Type Ref. No.	Full motor protection starter using the motor thermal contacts Type Ref. No.	Anti vibration mounts comp. Type	susp. Type
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54															
VARW 250/4	6666	1420	1310	0.12	230	0.46	0.60	966	60	40	11.5	MWS 1.5 ¹⁾ 1947	MW 1579	SDD 1	SDZ 1
VARW 250/2	6667	2800	2590	0.55	230	2.40	3.00	966	60	40	13.0	MWS 5 ¹⁾ 1949	MW 1579	SDD 1	SDZ 1
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54															
VARD 250/4	6668	1410	1300	0.09	400Y	0.30	0.30	469	60	40	11.5	RDS 1 ¹⁾ 1314	MD 5849	SDD 1	SDZ 1
VARD 250/2	6669	2800	2590	0.47	400Y	1.10	1.10	469	60	40	11.5	RDS 2 ¹⁾ 1315	MD 5849	SDD 1	SDZ 1
Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54															
VARD 250/8/4	6772	725/1450	670/1340	0.04/0.09	400	0.12/0.25	—	472	60	—	11.5	PDA 12 ³⁾ 5081	M 3 ²⁾ 1293	SDD 1	SDZ 1
VARD 250/4/2	6773	1450/2800	1340/2590	0.10/0.53	400	0.30/1.10	—	472	60	—	13.0	PDA 12 ³⁾ 5081	M 3 ²⁾ 1293	SDD 1	SDZ 1
Explosion-proof, E Ex de II B, 230 V / 1 ph. / 50 Hz, temperature class T1-T3, protection to IP 55															
VARW 250/4 Ex	6735	1400	1290	0.06	230	0.70	—	757	40	—	13.0	not permitted	—	SDD 1	SDZ 1
Explosion-proof, E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54															
VARD 250/4 Ex	6670	1400	1300	0.12	400Y	0.41	—	470	40	—	13.0	not permitted	not permitted	SDD 1	SDZ 1
VARD 250/2 Ex	6671	2825	2590	0.37	400Y	0.95	—	470	40	—	15.5	not permitted	not permitted	SDD 1	SDZ 1

* Ex models: for nominal value of motor see information on page 18 ¹⁾ includes full motor protection unit ²⁾ includes operation and speed switch ³⁾ see product page for flush mounted version

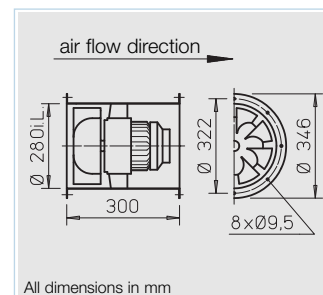


Other accessories	Pages
b) Accessories for explosion proof fans	
Flanged flexible connector	
STS 250 Ex	Ref. 2501
Flexible sleeve	
FM 250 Ex	Ref. 1688
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on

Accessories – Specification see pages 170 on.



a) For motorised shutters see accessory pages b) Types for explosion proof fans see above



■ Specification

□ Casing

Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

□ Impeller

Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from impact resistant polymers.

□ Motor

Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering. Explosion proof fans are not controllable.

□ Electrical connection

Terminal box fitted externally on the casing as standard (IP 55).

□ Installation

Installation in any position. Ensure that motor drainage holes (where used) face downwards.

□ Motor protection

All models (except ex proof) have thermal contacts as standard which must be connected to a full motor protection unit (see table below). With the 1 ph. ex-proof models thermal contacts are wired in series with the winding which automatically resets. Models without thermal contacts must be protected by a conventional circuit breaker.

□ Sound levels

Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

■ Information Pages

Technical description	148
Selection chart	149
Design of systems	12 on

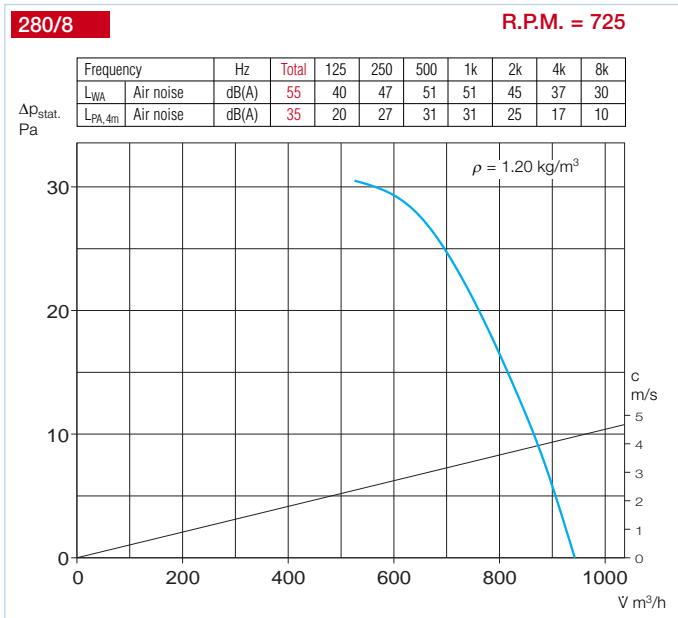
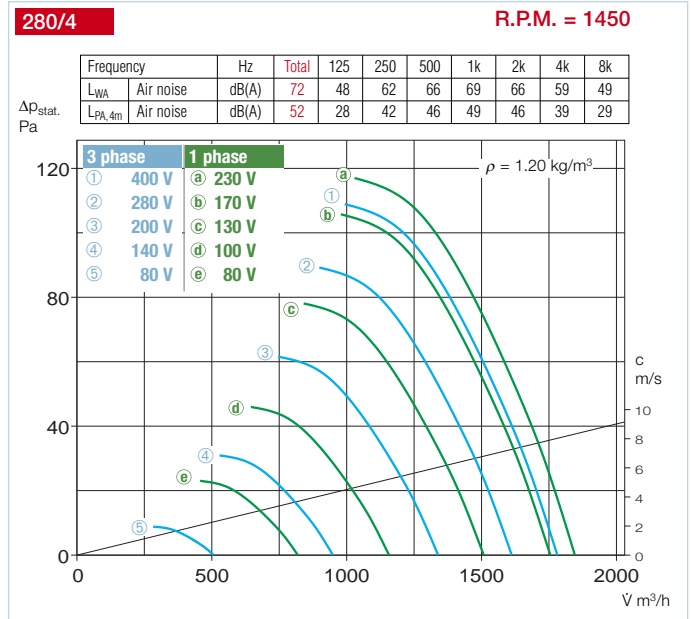
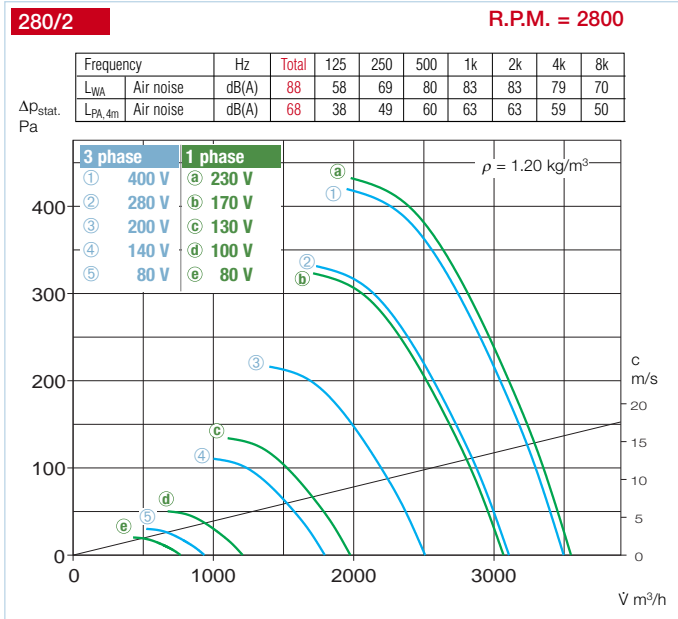
Made to order designs

Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

For safety and correct use note the technical information on pages 17 on.

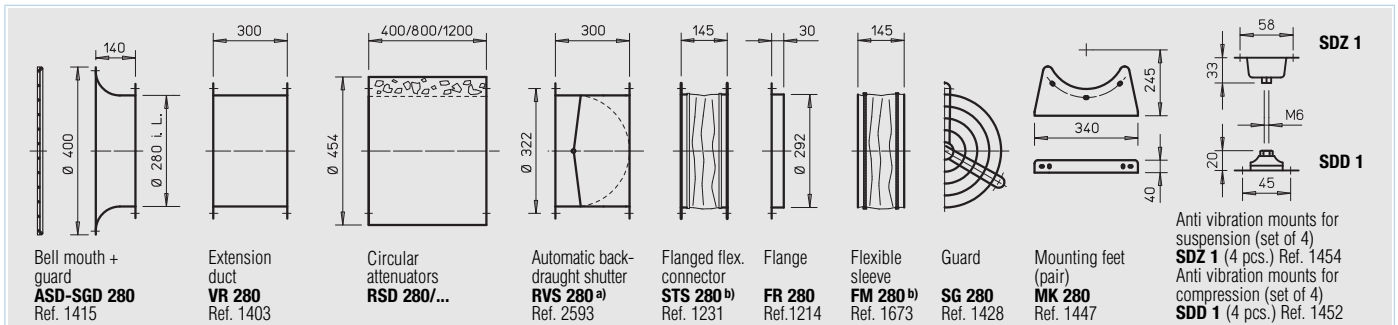
Type	Ref. No.	R.P.M. min ⁻¹	Air flow volume (FID) Vm ³ /h	Motor power (nominal)* kW	Voltage V	Current*		Wiring diagram No.	Maximum air flow temp.		Nominal weight (net) kg	5 step transformer controller Pole switch		Full motor protection starter using the motor thermal contacts		Anti vibration mounts comp. susp.		
						full load A	speed controlled A		+°C	speed controlled +°C		Type	Ref. No.	Type	Ref. No.	Type	Type	
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54																		
VARW 280/4	6672	1420	1840	0.14	230	0.75	0.85	966	60	40	12.0	MWS 1,5 ¹⁾	1947	MW	1579	SDD 1	SDZ 1	
VARW 280/2	6659	2730	3550	0.79	230	4.00	4.50	967	60	40	14.0	MWS 5 ¹⁾	1949	MW	1579	SDD 1	SDZ 1	
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54																		
VARD 280/4	6673	1370	1780	0.12	400Y	0.35	0.35	469	60	40	12.0	RDS 1 ¹⁾	1314	MD	5849	SDD 1	SDZ 1	
VARD 280/2	6674	2690	3490	0.77	400Y	1.60	1.80	469	60	40	13.5	RDS 2 ¹⁾	1315	MD	5849	SDD 1	SDZ 1	
Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54																		
VARD 280/8/4	6774	725/1450	940/1880	0.04/0.13	400	0.15/0.35	—	472	60	—	12.0	PDA 12 ³⁾	5081	M 3 ²⁾	1293	SDD 1	SDZ 1	
VARD 280/4/2	6775	1450/2800	1880/3640	0.13/0.90	400	0.65/1.95	—	472	60	—	13.5	PDA 12 ³⁾	5081	M 3 ²⁾	1293	SDD 1	SDZ 1	
Explosion proof, E Ex de II B, 230 V / 1 ph. / 50 Hz, temperature class T1-T3, protection to IP 55																		
VARW 280/4 Ex	6737	1330	1720	0.09	230	1.15	—	757	40	—	14.0	not permitted	—	—	—	SDD 1	SDZ 1	
Explosion proof, E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54																		
VARD 280/4 Ex	6675	1400	1820	0.12	400Y	0.41	—	470	40	—	16.0	not permitted	not permitted	—	—	SDD 1	SDZ 1	
VARD 280/2 Ex	6676	2860	3720	0.75	400Y	1.65	—	470	40	—	18.0	not permitted	not permitted	—	—	SDD 1	SDZ 1	

* Ex models: for nominal value of motor see information on page 18 ¹⁾ includes full motor protection unit ²⁾ includes operation and speed switch ³⁾ see product page for flush mounted version

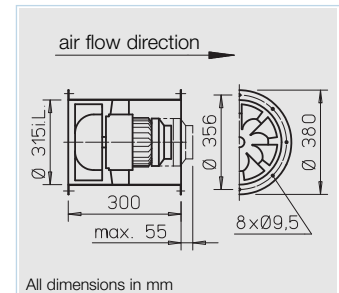


Other accessories	Pages
b) Accessories for explosion proof fans	
Flanged flexible connector	
STS 280 Ex	Ref. 2502
Flexible sleeve	
FM 280 Ex	Ref. 1689
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on

Accessories – Specification see pages 170 on.



^{a)} For motorised shutters see accessory pages ^{b)} Types for explosion proof fans see above



■ Specification

□ Casing

Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

□ Impeller

Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from impact resistant polymers.

□ Motor

Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering. Explosion proof fans are not controllable.

□ Electrical connection

Terminal box fitted externally on the casing as standard (IP 55).

□ Installation

Installation in any position. Ensure that motor drainage holes (where used) face downwards.

□ Motor protection

All models (except ex proof) have thermal contacts as standard which must be connected to a full motor protection unit (see table below). With the 1 ph. ex-proof models thermal contacts are wired in series with the winding which automatically resets. Models without thermal contacts must be protected by a conventional circuit breaker.

□ Sound levels

Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

■ Information Pages

Technical description	148
Selection chart	149
Design of systems	12 on

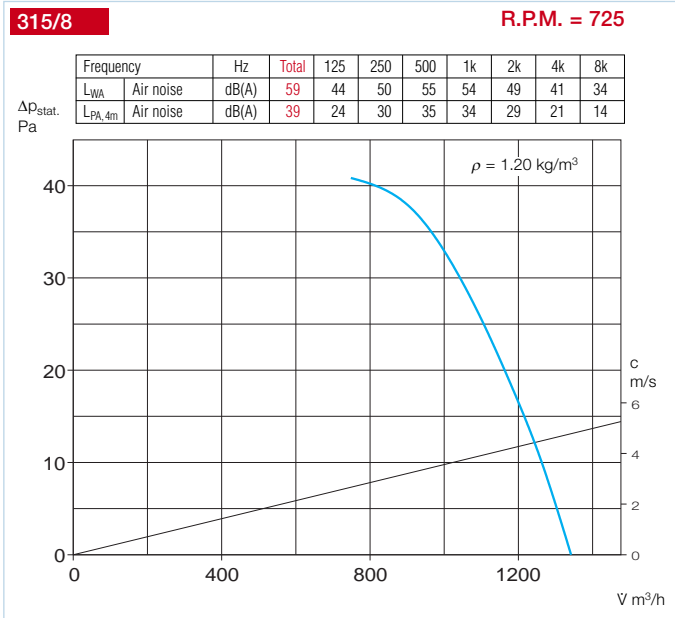
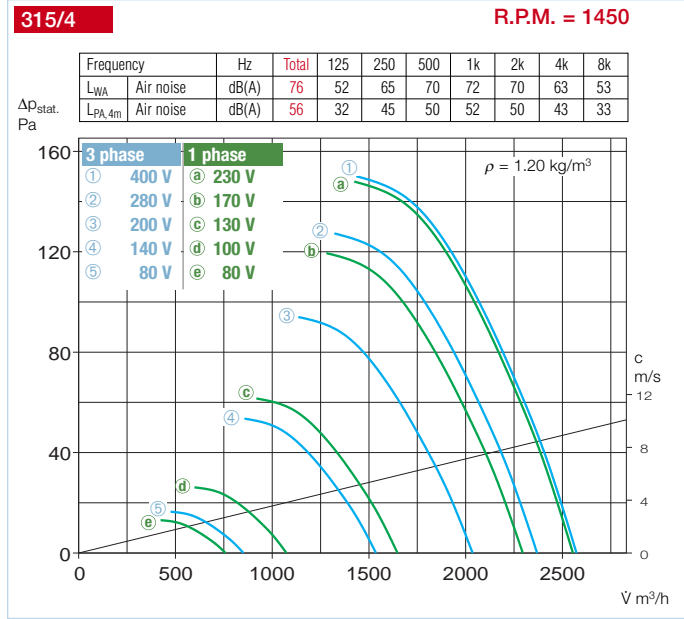
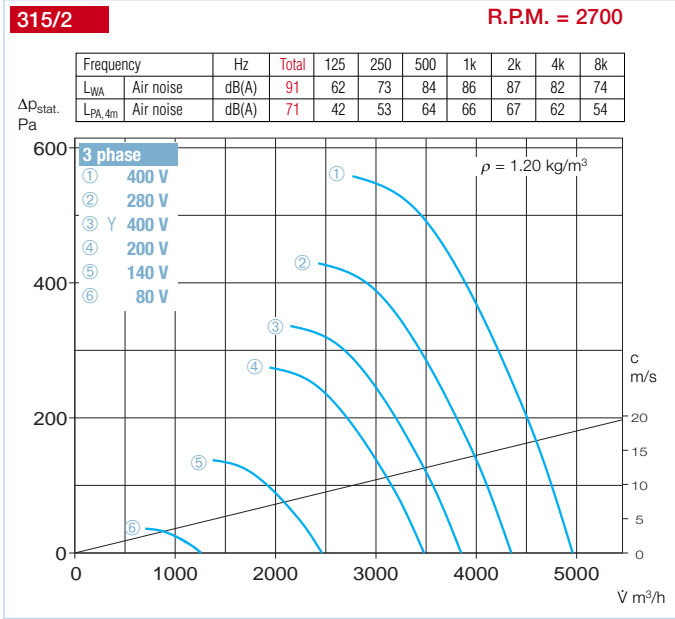
Made to order designs

Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

For safety and correct use note the technical information on pages 17 on.

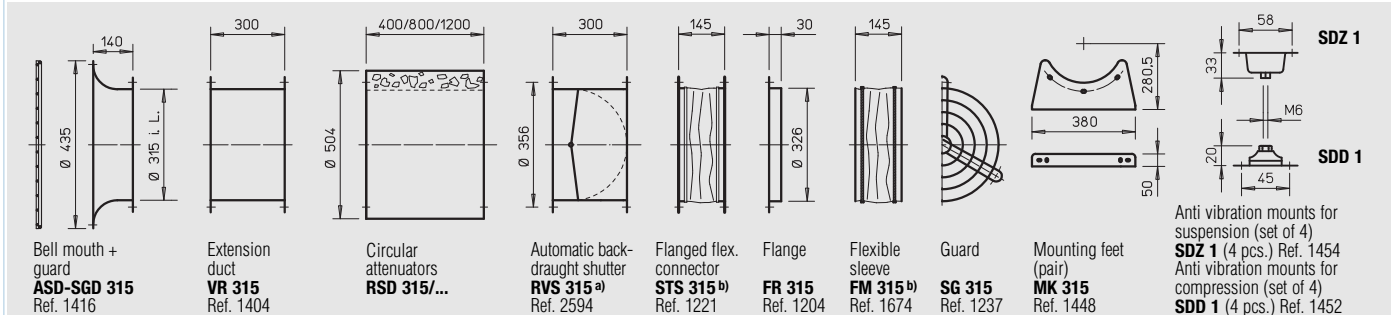
Type	Ref. No.	R.P.M. min ⁻¹	Air flow volume (FID) Vm ³ /h	Motor power (nominal)* kW	Voltage V	Current* full load A	speed controlled A	Wiring diagram No	Maximum air flow temp. standard supply +°C	speed controlled +°C	Nominal weight (net) kg	5 step transformer controller Pole switch		Full motor protection starter using the motor thermal contacts		Anti vibration mounts comp. susp.	
												Type	Ref. No.	Type	Ref. No.	Type	Type
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54																	
VARW 315/4	6677	1380	2550	0.23	230	1.10	1.30	966	60	40	13.0	MWS 3 ¹⁾	1948	MW	1579	SDD 1	SDZ 1
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54																	
VARD 315/4	6678	1390	2570	0.23	400Y	0.70	0.70	469	60	40	13.0	RDS 1 ¹⁾	1314	MD	5849	SDD 1	SDZ 1
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 54																	
VARD 315/2/2	6679	2080/2680	3850/5000	1.00/1.40	400Y/Δ	1.6/2.5	2.8	520	60	40	20.5	RDS 4 ¹⁾	1316	M 4 ²⁾	1571	SDD 1	SDZ 1
Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54																	
VARD 315/8/4	6776	725/1450	1340/2680	0.07/0.23	400	0.25/0.55	—	472	60	—	14.5	PDA 12 ³⁾	5081	M 3 ²⁾	1293	SDD 1	SDZ 1
VARD 315/4/2	6777	1450/2800	2680/5180	0.25/1.65	400	0.70/2.90	—	472	60	—	20.5	PDA 12 ³⁾	5081	M 3 ²⁾	1293	SDD 1	SDZ 1
Explosion proof, E Ex de II B, 230 V / 1 ph. / 50 Hz, temperature class T1-T3, protection to IP 55																	
VARW 315/4 Ex	6738	1450	2680	0.18	230	1.90	—	757	40	—	15.0	not permitted	—	—	—	SDD 1	SDZ 1
Explosion proof, E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54																	
VARD 315/4 Ex	6680	1420	2610	0.37	400Y	1.14	—	470	40	—	17.0	not permitted	not permitted	—	—	SDD 1	SDZ 1
VARD 315/2 Ex	6681	2860	5260	1.50	400Y	3.15	—	470	40	—	23.0	not permitted	not permitted	—	—	SDD 1	SDZ 1

* Ex models: for nominal value of motor see information on page 18 ¹⁾ includes full motor protection unit ²⁾ includes operation and speed switch ³⁾ see product page for flush mounted version

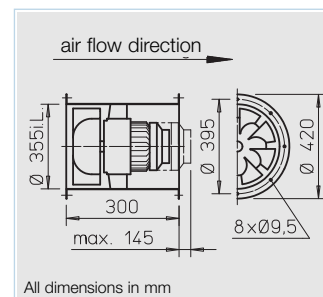


- Other accessories Pages**
- b) Accessories for explosion proof fans**
- Flanged flexible connector**
 - STS 315 Ex** Ref. 2503
 - Flexible sleeve**
 - FM 315 Ex** Ref. 1690
 - Filters and attenuators 305 on
 - Shutters, grilles and louvres 361 on
 - Speed controllers and switches 397 on

Accessories – Specification see pages 170 on.



a) For motorised shutters see accessory pages b) Types for explosion proof fans see above



■ **Specification**

□ **Casing**

Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

□ **Impeller**

Specially developed mixed-flow curved impeller, dynamically balanced manufactured from impact resistant polymers (models with R.P.M. = 2800 min⁻¹ from hot dipped galvanised steel).

□ **Motor**

Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

□ **Speed control**

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering. Explosion proof fans are not controllable.

□ **Electrical connection**

Terminal box fitted externally on the casing as standard (IP 55).

□ **Installation**

Installation in any position. Ensure that motor drainage holes (where used) face downwards.

□ **Motor protection**

All models (except explosion proof as well as models VARD 355/4/2) have thermal contacts as standard which must be connected to a motor protection unit (see table below). Models without thermal contacts must be protected by a conventional circuit breaker (MCB/RCD).

□ **Sound levels**

Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

■ **Information** Pages

Technical description	148
Selection chart	149
Design of systems	12 on

■ **Made to order designs**

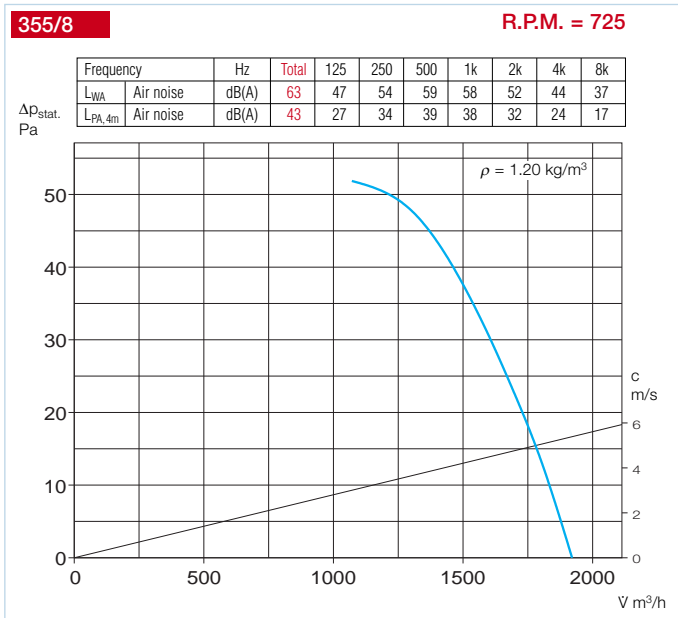
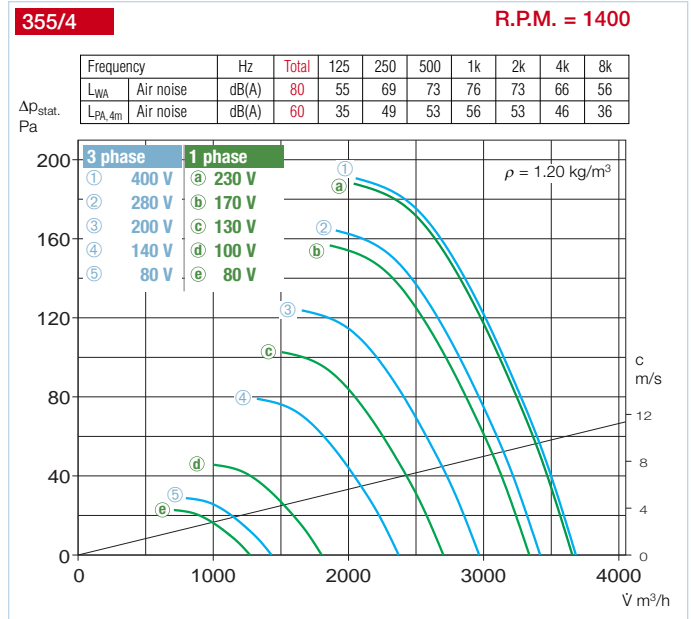
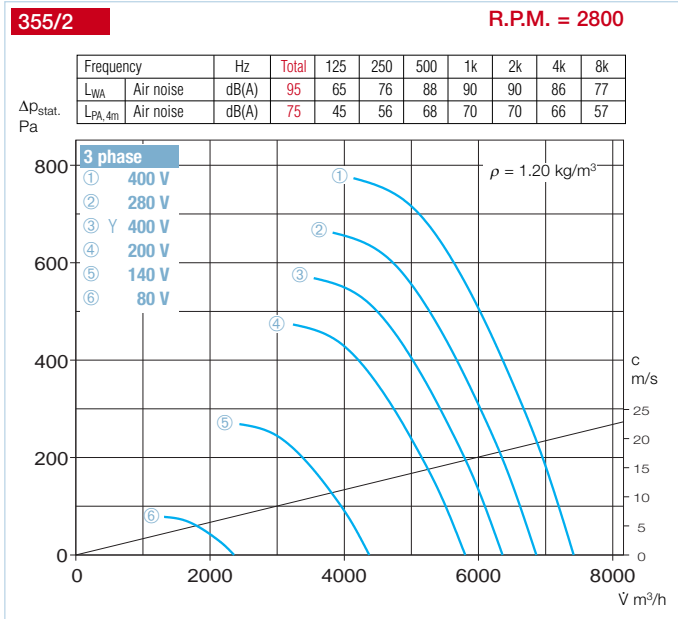
Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

For safety and correct use note the technical information on pages 17 on.

Type	Ref. No.	R.P.M.	Air flow volume (FID)	Motor power (nominal)*	Voltage	Current* full load	Current* speed controlled	Wiring diagram	Maximum air flow temp. standard supply	Maximum air flow temp. speed controlled	Nominal weight (net)	5 step transformer controller Pole switch		Full motor protection starter using the motor thermal contacts		Anti vibration mounts comp. susp.	
		min ⁻¹	Vm ³ /h	kW								V	A	A	No.	°C	°C
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54																	
VARD 355/4	6682	1380	3680	0.35	230	1.70	2.00	966	60	40	15.5	MWS 3 ¹⁾	1948	MW	1579	SDD 1	SDZ 1
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54																	
VARD 355/4	6683	1390	3650	0.36	400Y	0.90	0.90	469	60	40	15.5	RDS 1 ¹⁾	1314	MD	5849	SDD 1	SDZ 1
Double motor, 3 Phase motor, 50 Hz, Y/Δ-motor, protection to IP 54																	
VARD 355/2/2	6684	2400/2800	6320/7370	2.09/2.66	400Y/Δ	3.40/4.60	5.60	520	60	30	21.5	RDS 7 ¹⁾	1578	M 4 ²⁾	1571	SDD 1	SDZ 1
Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54																	
												Pole switch					
VARD 355/8/4	6778	725/1450	1920/3840	0.10/0.39	400	0.40/1.10	—	472	60	—	15.5	PDA 12 ³⁾	5081	M 3 ²⁾	1293	SDD 1	SDZ 1
VARD 355/4/2	6779	1440/2880	3820/7630	0.65/2.60	400	1.50/5.70	—	471	40	—	29.0	PDA 12 ³⁾	5081	—	—	SDD 1	SDZ 1
Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54																	
VARD 355/4 Ex	6685	1420	3740	0.37	400Y	1.14	—	470	40	—	19.0	not permitted	not permitted	SDD 1	SDZ 1		
VARD 355/2 Ex ⁴⁾	6686	2860	7580	2.50	400/690	4.85/2.77	—	498	40	—	33.0	not permitted	not permitted	SDD 1	SDZ 1		

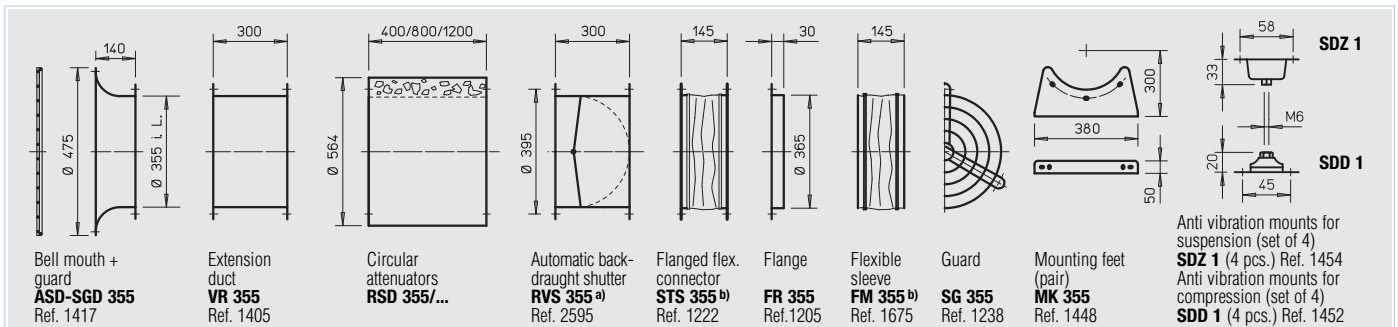
* Ex models: for nominal value of motor see information on page 18 ¹⁾ includes full motor protection unit ²⁾ includes operation and speed switch ³⁾ see product page for flush mounted version

⁴⁾ According to draft standard prEN 14986 an oscillation control (on site) has to be provided.

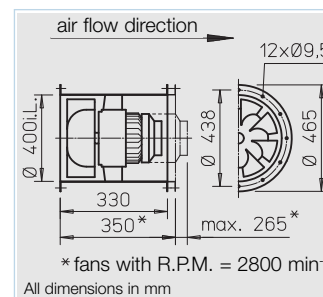


Other accessories	Pages
b) Accessories for explosion proof fans	
Flanged flexible connector	
STS 355 Ex	Ref. 2504
Flexible sleeve	
FM 355 Ex	Ref. 1691
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on

Accessories – Specification see pages 170 on.



a) For motorised shutters see accessory pages b) Types for explosion proof fans see above



■ **Specification**

□ **Casing**

Manufactured in galvanised steel with flanges on both sides to DIN 24155, Pt. 3, vanes and fixed motor support. Models with R.P.M. = 2800 min⁻¹ with welded casing made from hot dipped galvanised steel.

□ **Impeller**

Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from hot dipped galvanised steel.

□ **Motor**

Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

□ **Speed control**

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering. Explosion proof fans are not controllable.

□ **Electrical connection**

Terminal box fitted externally on the casing as standard (IP 55).

□ **Installation**

Installation in any position. Ensure that motor drainage holes (where used) face downwards.

□ **Motor protection**

All models (except explosion proof as well as models VARD 400/4/2) have thermal contacts as standard which must be connected to a motor protection unit (see table below). Models without thermal contacts must be protected by a conventional circuit breaker.

□ **Sound levels**

Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

■ **Information** Pages

Technical description	148
Selection chart	149
Design of systems	12 on

■ **Made to order designs**

Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

For safety and correct use note the technical information on pages 17 on.

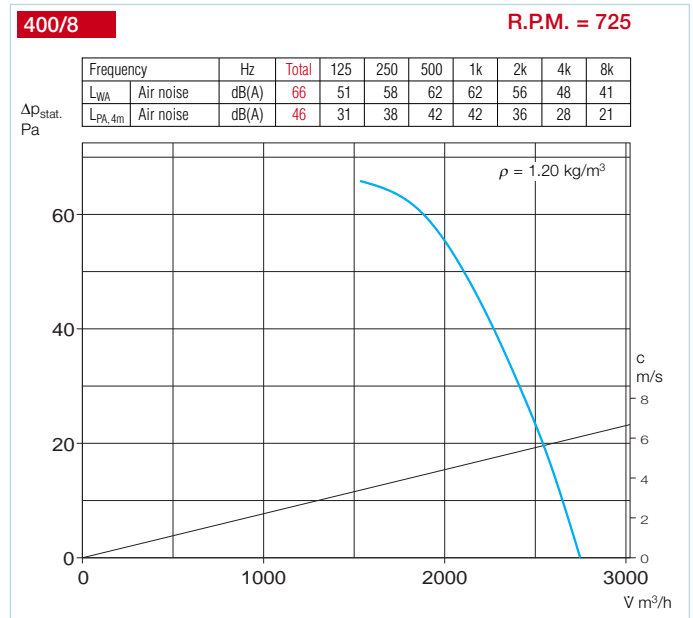
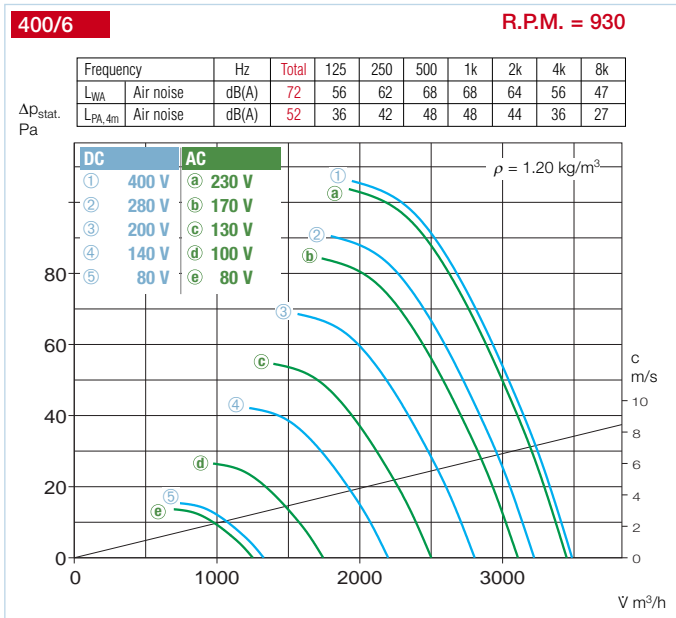
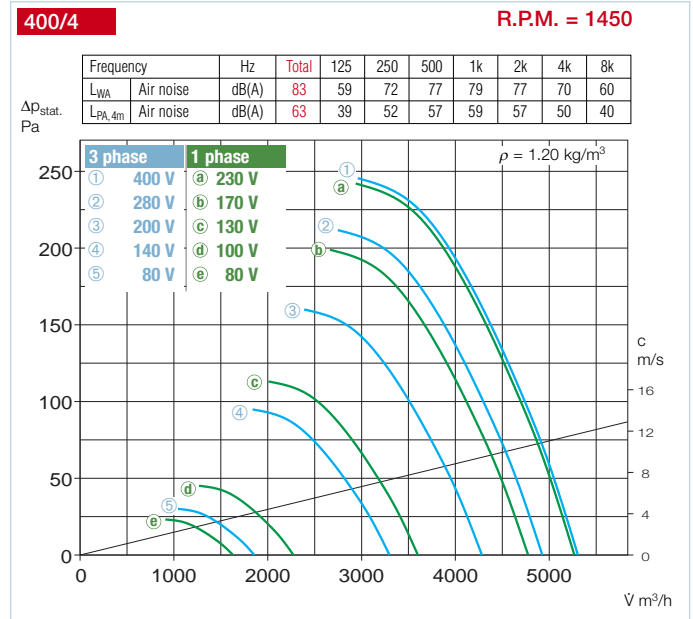
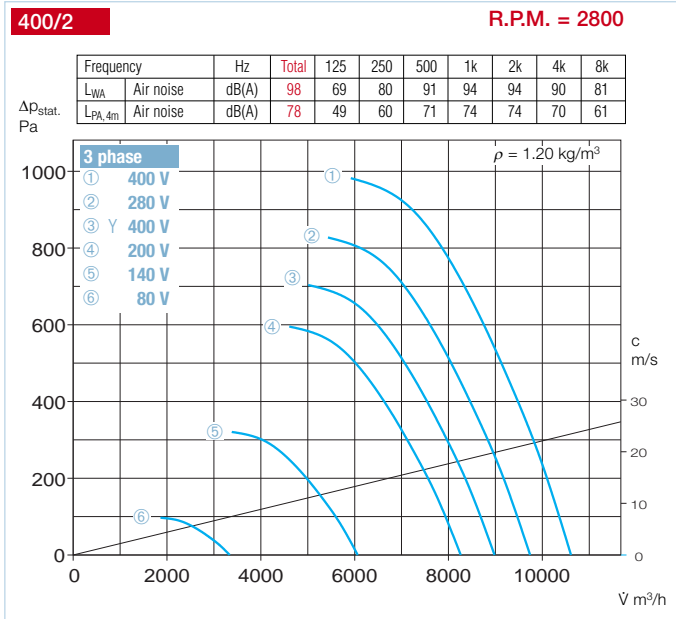
■ **Other accessories** Pages

Accessories for explosion proof fans	
Flanged flexible connector STS 400 Ex	Ref. 2505
Flexible sleeve FM 400 Ex	Ref. 1692
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on

Type	Ref. No.	R.P.M. min ⁻¹	Air flow volume (FID) Vm ³ /h	Motor power (nominal)* kW	Voltage V	Current* full load A	speed controlled A	Wiring diagram No.	Maximum air flow temp. standard supply +°C	speed controlled +°C	Nominal weight (net) kg	5 step transformer controller Pole switch		Full motor protection starter using the motor thermal contacts		Anti vibration mounts comp. susp.	
												Type	Ref. No.	Type	Ref. No.	Type	Type
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54																	
VARW 400/6	6687	910	3440	0.28	230	1.20	1.25	967	60	40	19.5	MWS 3 ¹⁾	1948	MW	1579	SDD 1	SDZ 1
VARW 400/4	6688	1390	5270	0.73	230	3.20	3.70	967	60	40	22.5	MWS 5 ¹⁾	1949	MW	1579	SDD 1	SDZ 1
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54																	
VARD 400/6	6689	920	3480	0.25	400Y	0.75	0.75	469	60	40	19.5	RDS 1 ¹⁾	1314	MD	5849	SDD 1	SDZ 1
VARD 400/4	6690	1400	5300	0.73	400Y	2.00	2.00	469	60	40	22.5	RDS 4 ¹⁾	1316	MD	5849	SDD 1	SDZ 1
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 54																	
VARD 400/2/2	6691	2370/2800	8980/10610	3.70/4.90	400Y/Δ	5.9/8.0	10.00	520	60	40	74.0	RDS 11 ¹⁾	1332	M 4 ²⁾	1571	SDD 1	SDZ 2
Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54																	
VARD 400/8/4	6781	710/1420	2690/5380	0.22/0.78	400	1.00/2.00	—	472	60	—	22.5	PDA 12 ³⁾	5081	M 3 ²⁾	1293	SDD 1	SDZ 1
VARD 400/4/2	6782	1460/2890	5530/10950	1.20/4.80	400	2.60/10.0	—	471	40	—	74.0	PDA 12 ³⁾	5081	—	—	SDD 1	SDZ 2
Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54																	
VARD 400/6 Ex	6692	900	3390	0.18	400Y	0.71	—	470	40	—	21.0	not permitted	not permitted	not permitted	not permitted	SDD 1	SDZ 1
VARD 400/4 Ex	6693	1400	5360	0.55	400Y	1.51	—	470	40	—	25.0	not permitted	not permitted	not permitted	not permitted	SDD 1	SDZ 1
VARD 400/2 Ex ⁴⁾	6694	2895	10950	4.60	400/690	8.20	—	498	40	—	83.0	not permitted	not permitted	not permitted	not permitted	SDD 2	SDZ 2

* Ex models: for nominal value of motor see information on page 18 ¹⁾ includes full motor protection unit ²⁾ includes operation and speed switch ³⁾ see product page for flush mounted version

⁴⁾ According to draft standard prEN 14986 an oscillation control (on site) has to be provided.

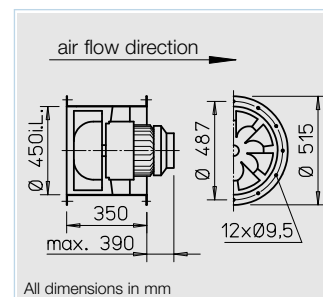


Accessories – Specification see pages 170 on.

Bell mouth + guard ASD-SGD 400 Ref. 1418
Extension duct VR 400 Ref. 1406
Circular attenuators RSD 400/...
Automatic back-draught shutter RVS 400^{a)} Ref. 2596
Flanged flex. connector STS 400^{b)} Ref. 1223
Flange FR 400 Ref. 1206
Flexible sleeve FM 400^{b)} Ref. 1676
Guard SG 400 Ref. 1239
Mounting feet (pair) MK 400 Ref. 1449
SDZ
SDD

Anti vibration mounts for suspension (set of 4) **SDZ**[ⓐ] (4 pcs.)
 Anti vibration mounts for compression (set of 4) **SDD**[ⓐ] (4 pcs.)

^{a)} For motorised shutters see accessory pages ^{b)} Types for explosion proof fans see left page ^{c)} Suitable model see last column of data table



■ Specification

□ Casing

Manufactured in galvanised steel with flanges on both sides to DIN 24155, Pt. 3, vanes and fixed motor support. Models with $n = 2800 \text{ min}^{-1}$ with welded casing made from hot dipped galvanised steel.

□ Impeller

Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from hot dipped galvanised steel.

□ Motor

Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering. Explosion proof fans are not controllable.

□ Electrical connection

Terminal box fitted externally on the casing as standard (IP 55).

□ Installation

Installation in any position. Ensure that motor drainage holes (where used) face downwards.

□ Motor protection

All models (except explosion proof and dual-speed models) have thermal contacts or PTC resistors which must be connected to a motor protection unit (see table below). Models without thermal contacts must be protected by a conventional circuit breaker.

□ Sound levels

Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

■ Information Pages

Technical description	148
Selection chart	149
Design of systems	12 on

Made to order designs

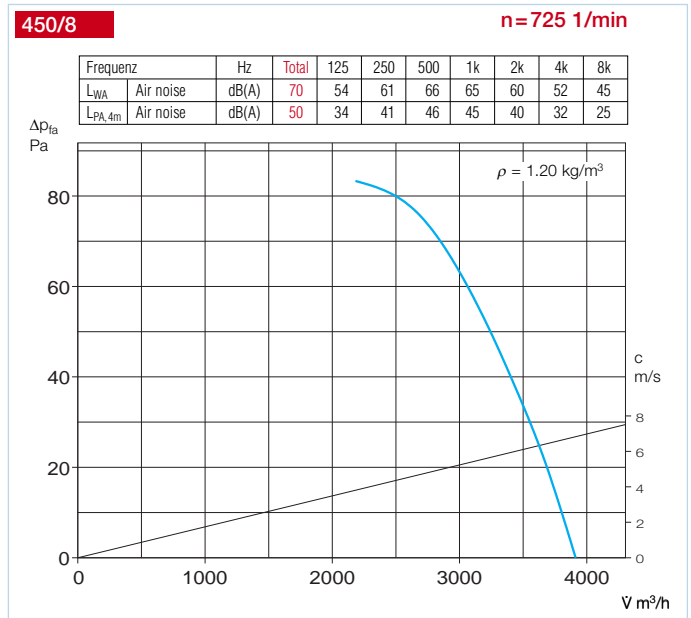
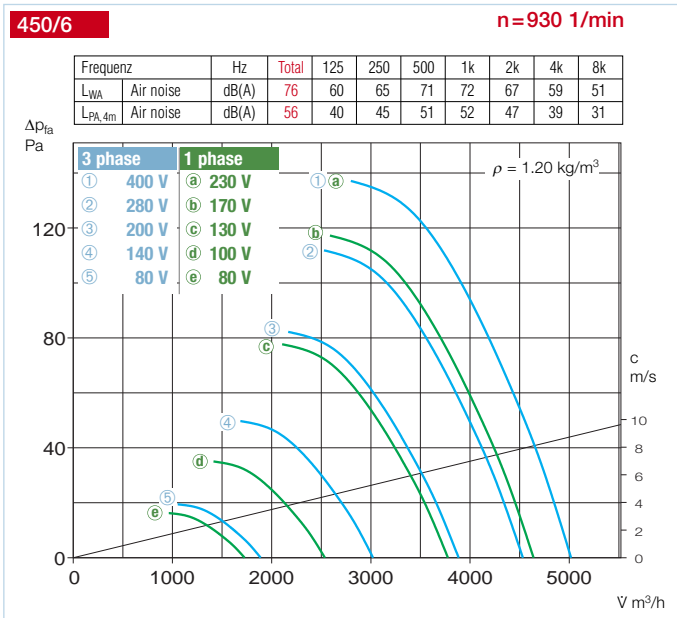
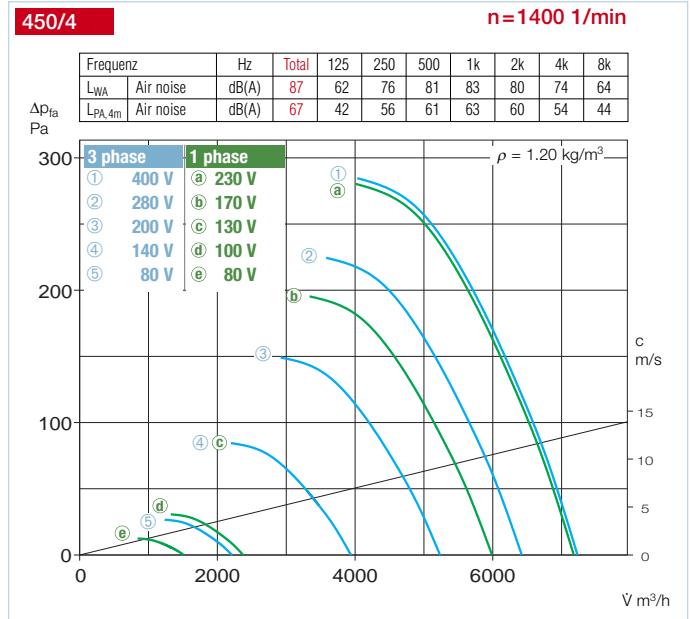
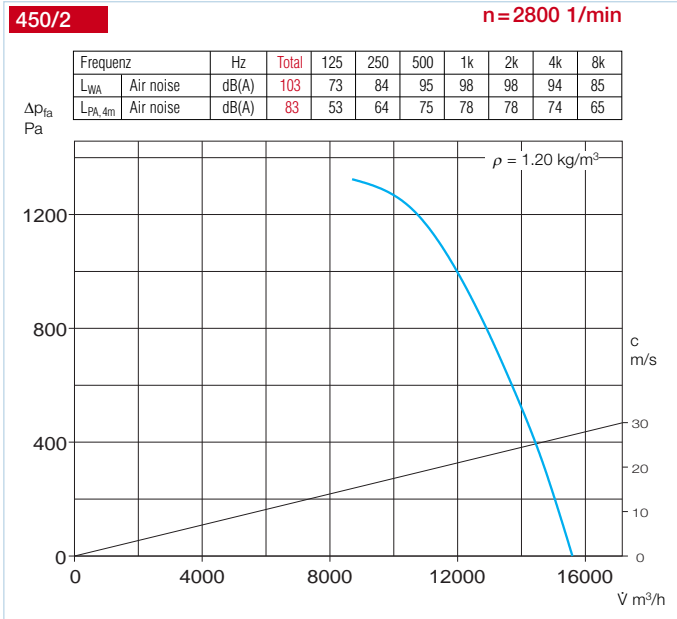
Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request. For safety and correct use note the technical information on pages 17 on.

■ Other Accessories Page

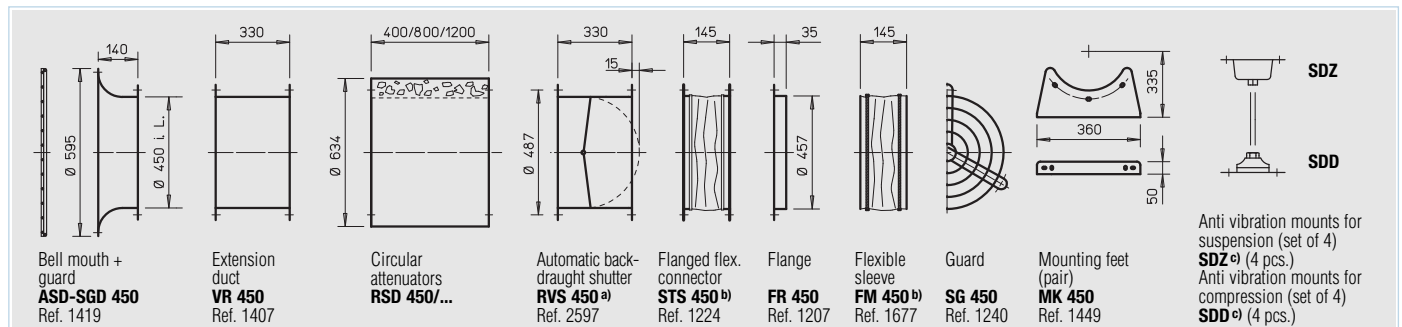
Accessories for explosion proof fans	
Flanged flexible connector STS 450 Ex	Ref. 2506
Flexible sleeve FM 450 Ex	Ref. 1693
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on

Type	Ref. No.	R.P.M. min ⁻¹	Air flow volume (FID) Vm ³ /h	Motor power (nominal)* kW	Voltage V	Current*		Wiring diagram No.	Maximum air flow temp. standard supply +°C	speed controlled +°C	Nominal weight (net) kg	5 step transformer controller Pole switch		Full motor protection starter using the motor thermal contacts		Anti vibration mounts comp. susp.		
						full load A	speed controlled A					Type	Ref. No.	Type	Ref. No.	Type	Type	
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54																		
VARW 450/6	6695	930	5020	0.53	230	2.40	2.60	967	60	40	45.0	MWS 3 ¹⁾	1948	MW	1579	SDD 1	SDZ 1	
VARW 450/4	6736	1330	7180	1.47	230	6.50	7.00	968	60	40	45.0	MWS 7.5 ¹⁾	1950	MW	1579	SDD 1	SDZ 1	
3 Phase motor, 400/690 V / 3 ph. / 50 Hz, protection to IP 54																		
VARD 450/6	6696	930	5020	0.43	400Y	1.15	1.15	469	60	40	45.0	RDS 2 ¹⁾	1315	MD	5849	SDD 1	SDZ 1	
VARD 450/2	6698	2890	15590	8.00	400/690	15.0	—	776	60	—	95.0	FUS 16 ¹⁾	6098	MSA ⁴⁾	1289	SDD 2	SDZ 2	
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 54																		
VARD 450/4/4	6697	1100/1370	5930/7390	0.74/1.00	400Y/Δ	1.2/2.3	2.3	520	60	40	45.0	RDS 4 ¹⁾	1316	M 4 ²⁾	1571	SDD 1	SDZ 1	
Pole-switching, 2 speed motor (Dahlander winding Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54																		
VARD 450/8/4	6784	710/1420	3830/7660	0.25/1.10	400	1.1/2.6	—	471	60	—	50.0	PDA 12 ³⁾	5081	—	—	SDD 1	SDZ 1	
VARD 450/4/2	6785	1460/2920	7880/15760	1.20/8.00	400	4.20/16.5	—	471	60	—	105.0	PDA 25	5060	—	—	SDD 2	SDZ 2	
Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54																		
VARD 450/6 Ex	6699	900	5020	0.25	400Y	0.99	—	470	40	—	48.0	not permitted	—	not permitted	—	SDD 1	SDZ 1	
VARD 450/4 Ex	6700	1425	7640	1.10	400Y	2.55	—	470	40	—	51.0	not permitted	—	not permitted	—	SDD 1	SDZ 1	
VARD 450/2 Ex ³⁾	6701	2930	15810	7.50	400/690	14.10	—	498	40	—	155.0	not permitted	—	not permitted	—	SDD 2	SDZ 3	

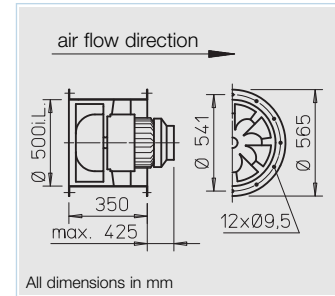
* Ex models: for nominal value of motor see information on page 18 ¹⁾ includes full motor protection unit ²⁾ includes operation and speed switch ³⁾ see product page for flush mounted version ⁴⁾ for PTC resistor ⁵⁾ a vibration monitoring shall be provided (on site) according to DIN EN 14986.



Accessories – Specification see pages 170 on.



^{a)} For motorised shutters see accessory pages ^{b)} Types for explosion proof fans see left page ^{c)} Suitable model see last column of data table



■ Specification

□ Casing

Manufactured in galvanised steel with flanges on both sides to DIN 24155, Pt. 3, vanes and fixed motor support. Models with $n = 2800 \text{ min}^{-1}$ with welded casing made from hot dipped galvanised steel.

□ Impeller

Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from hot dipped galvanised steel.

□ Motor

Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering. Explosion proof fans are not controllable.

□ Electrical connection

Terminal box fitted externally on the casing as standard (IP 55).

□ Installation

Installation in any position. Ensure that motor drainage holes (where used) face downwards.

□ Motor protection

All models (except explosion proof and dual-speed models) have thermal contacts or PTC

resistors which must be connected to a motor protection unit (see table below). Models without thermal contacts must be protected by a conventional circuit breaker.

□ Sound levels

Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

■ Information Pages

Technical description	148
Selection chart	149
Design of systems	12 on

Made to order designs

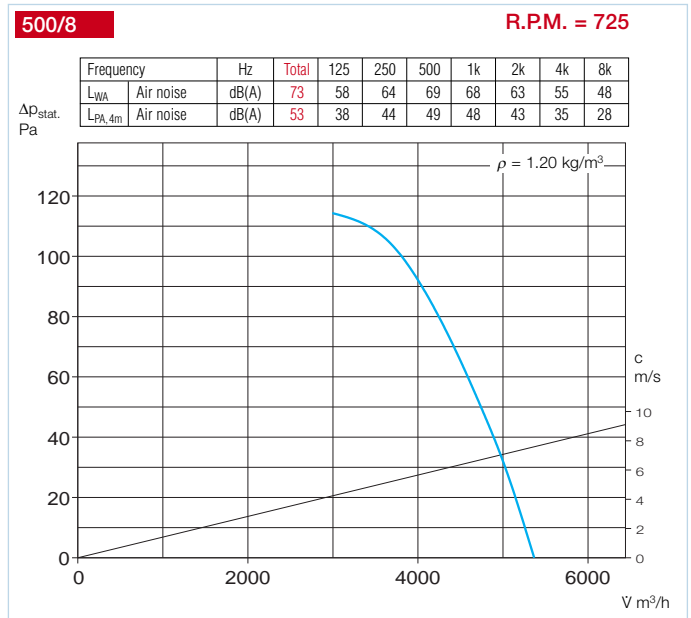
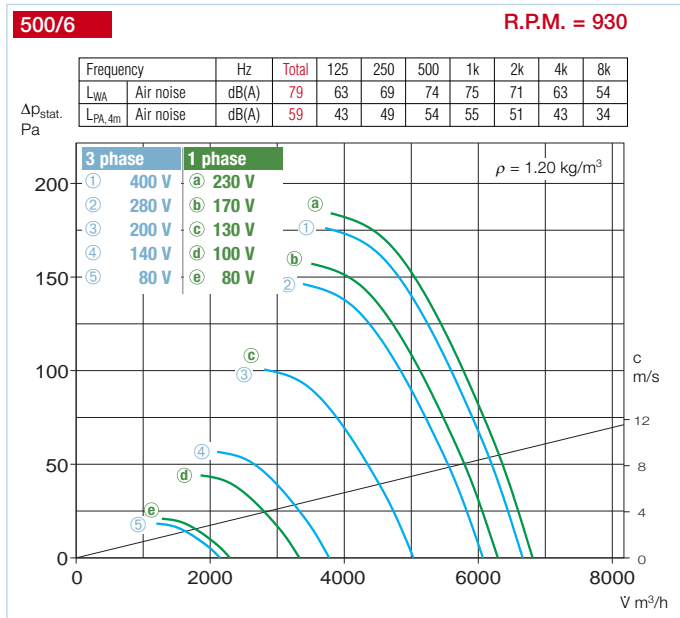
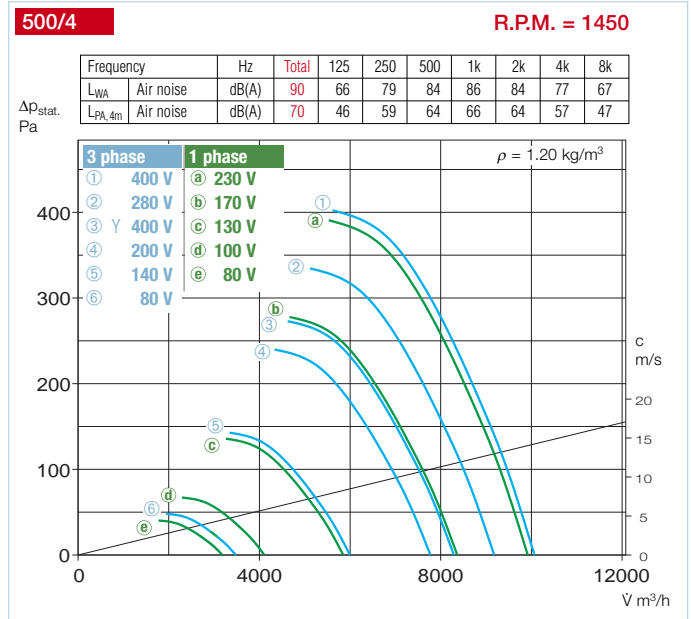
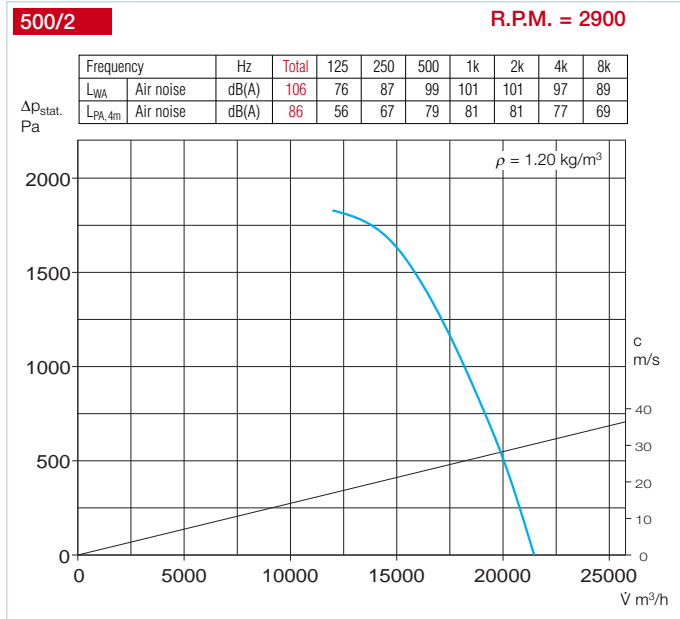
Alternative voltages, frequencies, protection classes, acid protection, high temperatures available on request. For safety and correct use note the technical information on pages 17 on.

■ Other accessories Pages

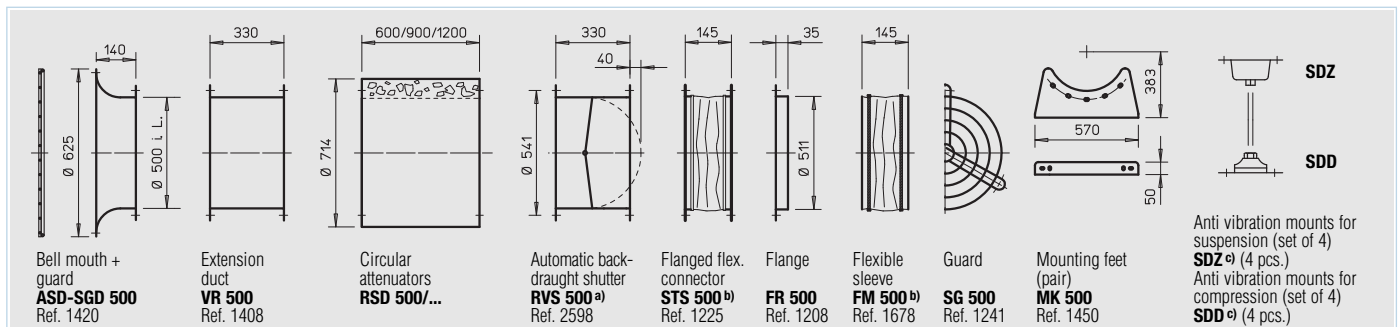
b) Accessories for explosion proof fans	
Flanged flexible connector STS 500 Ex	Ref. 2507
Flexible sleeve FM 500 Ex	Ref. 1694
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on

Type	Ref. No.	R.P.M. min ⁻¹	Air flow volume (FID) Vm ³ /h	Motor power (nominal)* kW	Voltage V	Current*		Wiring diagram No.	Maximum air flow temp.		Nominal weight (net) kg	5 step transformer controller Pole switch		Full motor protection starter using the motor thermal contacts		Anti vibration mounts		
						full load A	speed controlled A		+°C	+°C		Type	Ref. No.	Type	Ref. No.	Type	Type	
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54																		
VARV 500/6	6702	920	6810	0.63	230	3.00	3.90	967	60	40	70.0	MWS 5¹⁾	1949	MW	1579	SDD 2	SDZ 2	
VARV 500/4	6739	1340	9920	2.02	230	9.10	9.10	968	60	40	70.0	MWS 10¹⁾	1946	MW	1579	SDD 2	SDZ 2	
3 Phase motor, 400/690 V / 3 ph. / 50 Hz, protection to IP 54																		
VARD 500/6	6703	900	6660	0.62	400Y	1.70	1.70	469	60	40	70.0	RDS 2¹⁾	1315	MD	5849	SDD 2	SDZ 2	
VARD 500/2	6705	2935	21730	15.00	400/690	29/16.7	—	776	60	—	170.0	FUS 37¹⁾	6101	MSA⁴⁾	1289	SDD 2	SDZ 3	
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 54																		
VARD 500/4/4	6704	1120/1370	8360/10070	1.2/1.8	400Y/Δ	2.1/3.9	3.9	520	60	40	70.0	RDS 7¹⁾	1578	M 4²⁾	1571	SDD 2	SDZ 2	
Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54																		
VARD 500/8/4	6787	690/1400	5110/10360	0.55/2.20	400	1.7/5.1	—	471	60	—	75.0	PDA 12³⁾	5081	—	—	SDD 2	SDZ 2	
VARD 500/4/2	6788	1475/2935	10920/21730	2.50/15.00	400	6.0/23.5	—	471	60	—	165.0	PDA 25	5060	—	—	SDD 2	SDZ 3	
Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz temperature class T1-T3, protection to IP 54																		
VARV 500/6 Ex	6706	930	6810	0.55	400Y	1.83	—	470	40	—	70.0	not permitted	—	not permitted	—	SDD 2	SDZ 2	
VARV 500/4 Ex	6707	1400	10470	1.50	400Y	3.40	—	470	40	—	75.0	not permitted	—	not permitted	—	SDD 2	SDZ 2	
VARV 500/2 Ex⁵⁾	6708	2930	21760	12.50	400/690	23.50	—	498	40	—	215.0	not permitted	—	not permitted	—	SDD 3	SDZ 3	

* Ex models: for nominal value of motor see information on page 18 ¹⁾ includes full motor protection unit ²⁾ includes operation and speed switch ³⁾ see product page for flush mounted version ⁴⁾ for PTC resistor ⁵⁾ a vibration monitoring shall be provided (on site) according to DIN EN 14986.



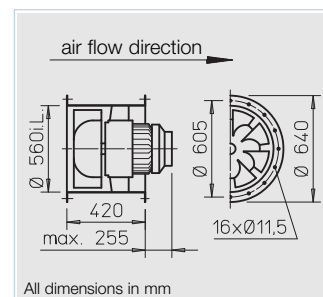
Accessories – Specification see pages 170 on.



^{a)} For motorised shutters see accessory pages

^{b)} Types for explosion proof fans see left page

^{c)} Suitable model see last column of data table



■ Specification

□ Casing

Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

□ Impeller

Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from hot dipped galvanised steel.

□ Motor

Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering. Explosion proof fans are not controllable.

□ Electrical connection

Terminal box fitted externally on the casing as standard (IP 55).

□ Installation

Installation in any position. Ensure that motor drainage holes (where used) face downwards.

□ Motor protection

All models (except explosion proof and dual-speed models) have thermal contacts or PTC resistors which must be connected to a motor protection unit (see table below). Models without thermal contacts must be protected by a conventional circuit breaker.

□ Sound levels

Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

Information Pages

Technical description	148
Selection chart	149
Design of systems	12 on

Made to order designs

Alternative voltages, frequencies, protection classes, acid protection, high temperatures available on request. For safety and correct use note the technical information on pages 17-19.

Other accessories Pages

Accessories for explosion proof fans	
Flanged flexible connector STS 560 Ex	Ref. 2508
Flexible sleeve FM 560 Ex	Ref. 1695
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on

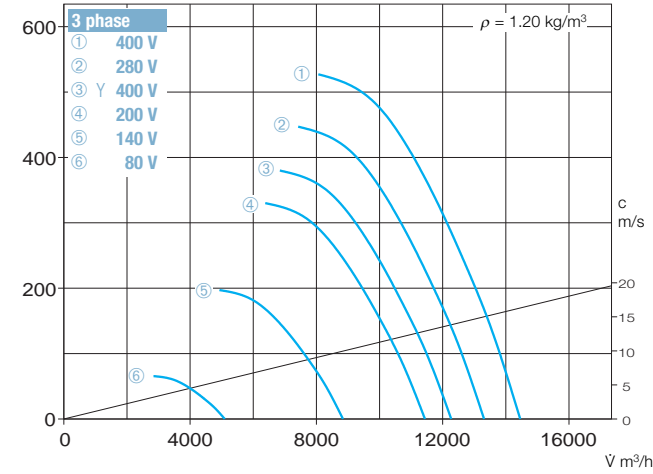
Type	Ref. No.	R.P.M. min ⁻¹	Air flow volume (FID) m ³ /h	Motor power (nominal)* kW	Voltage V	Current* full load A	speed controlled A	Wiring diagram No.	Maximum air flow temp. supply +°C	temp. speed controlled +°C	Nominal weight (net) ap. kg	5 step transformer controller Pole switch		Full motor protection starter using the motor thermal contacts		Anti vibration mounts comp. susp.	
												Type	Ref. No.	Type	Ref. No.	Type	Type
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54																	
VARD 560/8	6709	700	7280	0.53	400Y	1.30	1.40	469	60	40	95.0	RDS 2¹⁾	1315	MD	5849	SDD 2	SDZ 2
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 54																	
VARD 560/6/6	6710	770/910	7890/9320	0.70/0.98	400Y/Δ	1.2/2.4	2.4	520	60	40	85.0	RDS 4¹⁾	1316	M 4²⁾	1571	SDD 2	SDZ 2
VARD 560/4/4	6711	1180/1390	12090/14240	2.10/3.00	400Y/Δ	3.5/5.9	6.5	520	60	40	95.0	RDS 7¹⁾	1578	M 4²⁾	1571	SDD 2	SDZ 2
Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54																	
VARD 560/8/4	6790	705/1430	7330/14870	0.90/3.60	400	3.0/8.1	—	471	60	—	100.0	PDA 12³⁾	5081	—	—	SDD 2	SDZ 2
Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54																	
VARD 560/8 Ex	6712	700	7120	0.37	400Y	1.61	—	470	40	—	85.0	not permitted	—	not permitted	—	SDD 2	SDZ 2
VARD 560/6 Ex	6713	900	9360	1.10	400Y	3.10	—	470	40	—	90.0	not permitted	—	not permitted	—	SDD 2	SDZ 2
VARD 560/4 Ex⁴⁾	6714	1440	14980	3.60	400/690	7.70	—	498	40	—	105.0	not permitted	—	not permitted	—	SDD 2	SDZ 2

* Ex models: for nominal value of motor see information on page 18 ¹⁾ includes full motor protection unit ²⁾ includes operation and speed switch ³⁾ see product page for flush mounted version

⁴⁾ According to draft standard prEN 14986 an oscillation control (on site) has to be provided.

560/4

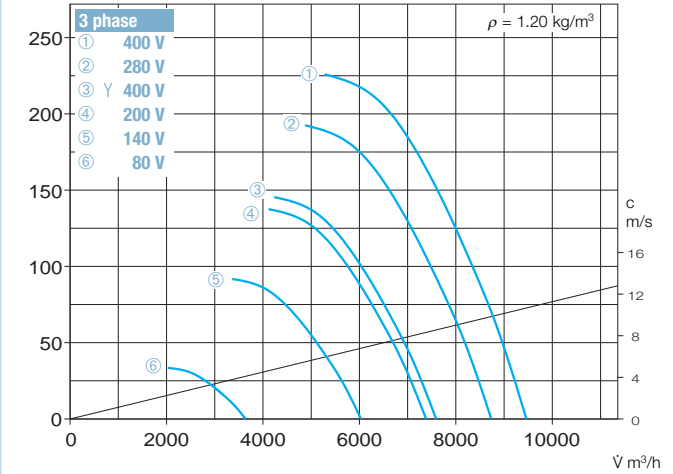
Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Air noise	dB(A)	93	69	83	87	90	87	80	70
L _{PA,4m} Air noise	dB(A)	73	49	63	67	70	67	60	50



560/6

R.P.M. = 950

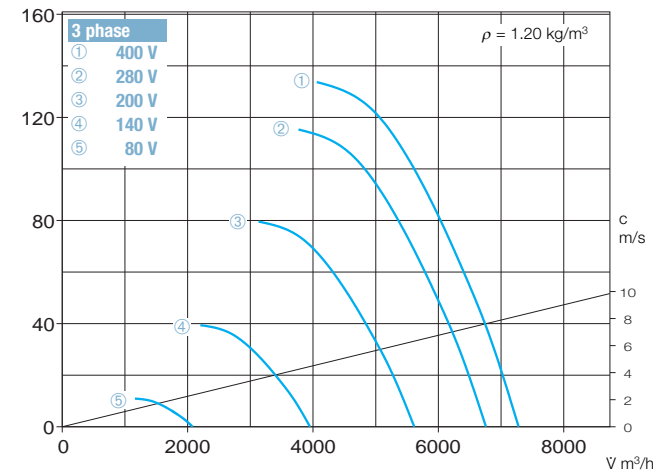
Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Air noise	dB(A)	83	67	72	78	79	75	67	58
L _{PA,4m} Air noise	dB(A)	63	47	52	58	59	55	47	38



560/8

R.P.M. = 725

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Air noise	dB(A)	76	61	68	72	72	66	58	51
L _{PA,4m} Air noise	dB(A)	56	41	48	52	52	46	38	31



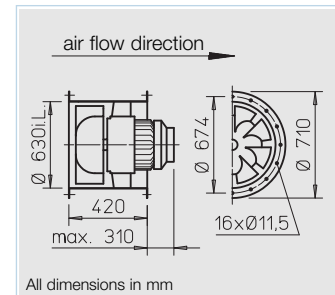
Accessories – Specification see pages 170 on.

Bell mouth + guard ASD-SGD 560 Ref. 1421
Extension duct VR 560 Ref. 1409
Circular attenuators RSD 560/...
Automatic backdraught shutter RVS 560^{a)} Ref. 2599
Flanged flex. connector STS 560^{b)} Ref. 1226
Flange FR 560 Ref. 1209
Flexible sleeve FM 560^{b)} Ref. 1679
Guard SG 560 Ref. 1242
Mounting feet (pair) MK 560 Ref. 1450
SDZ 2
SDD 2

Anti vibration mounts for suspension (set of 4) **SDZ 2** (4 pcs.) Ref. 1455
 Anti vibration mounts for compression (set of 4) **SDD 2** (4 pcs.) Ref. 1453

^{a)} For motorised shutters see accessory pages ^{b)} Types for explosion proof fans see left page

RADAX® VAR



■ Specification

□ Casing

Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

□ Impeller

Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from hot dipped galvanised steel.

□ Motor

Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

□ Speed control

For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering. Explosion proof fans are not controllable.

□ Electrical connection

Terminal box fitted externally on the casing as standard (IP 55).

□ Installation

Installation in any position. Ensure that condensation motor drainage holes (where used) face downwards.

□ Motor protection

All models (except explosion proof and dual-speed models) have thermal contacts or PTC resistors which must be connected to a motor protection unit (see table below). Models without thermal contacts must be protected by a conventional circuit breaker.

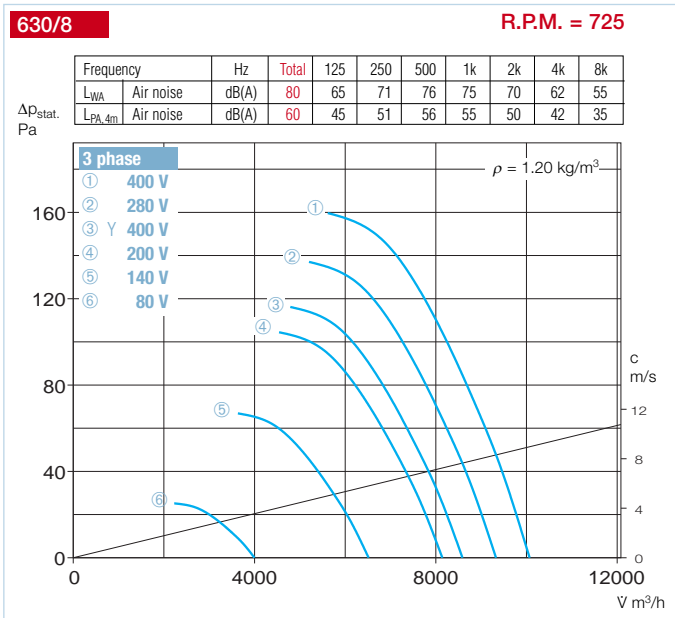
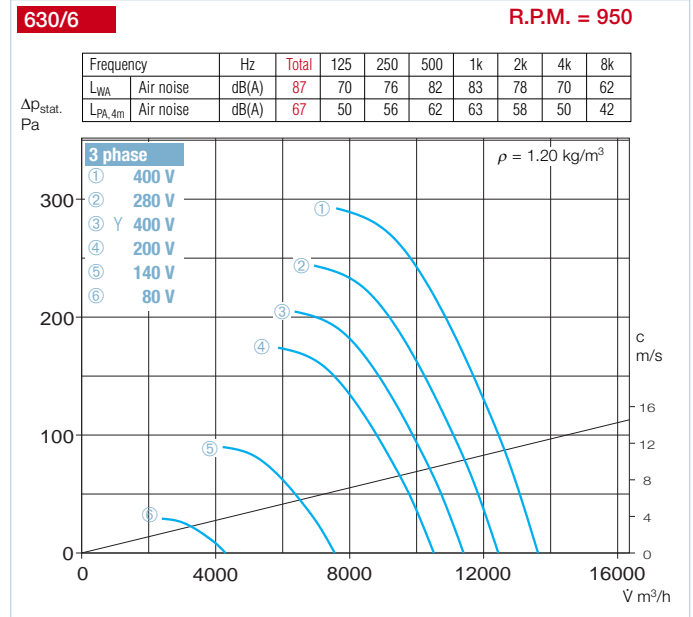
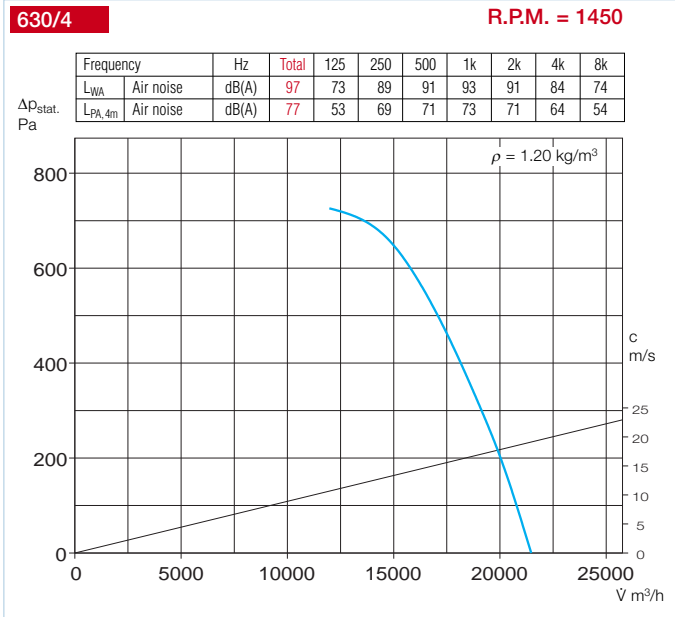
□ Sound levels

Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustical information on page 13.

Information	Pages
Technical description	148
Selection chart	149
Design of systems	12 on
Made to order designs	
Alternative voltages, frequencies, protection classes, acid protection, high temperatures available on request.	
For safety and correct use note the technical information on pages 17 on.	
Other accessories	Pages
Accessories for explosion proof fans	
Flanged flexible connector	
STS 630 Ex	Ref. 2509
Flexible sleeve	
FM 630 Ex	Ref. 1696
Filters and attenuators	305 on
Shutters, grilles and louvres	361 on
Speed controllers and switches	397 on

Type	Ref. No.	R.P.M. min ⁻¹	Air flow volume (FID) m ³ /h	Motor power (nominal)* kW	Voltage V	Current* full load A	speed controlled A	Wiring diagram No.	Maximum air flow temp. standard supply +°C	speed controlled +°C	Nominal weight (net) ap. kg	5 step transformer controller Pole switch Type	Ref. No.	Full motor protection starter using the motor thermal contacts Type	Ref. No.	Anti vibration mounts comp. Type	susp. Type
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54																	
VARD 630/4	6717	1440	21320	6.20	400/690	12.0/6.9	—	776	60	—	145.0	FUS 16¹⁾	6098	MSA⁴⁾	1289	SDD 2	SDZ 2
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 54																	
VARD 630/8/8	6715	580/680	8590/10070	0.50/0.88	400Y/Δ	1.9/3.1	3.1	520	60	40	110.0	RDS 4¹⁾	1316	M 4²⁾	1571	SDD 2	SDZ 2
VARD 630/6/6	6716	770/920	11180/13630	1.10/1.56	400Y/Δ	2.0/3.9	3.9	520	60	40	110.0	RDS 7¹⁾	1578	M 4²⁾	1571	SDD 2	SDZ 2
Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54																	
VARD 630/8/4	6792	715/1430	10590/21170	1.40/5.50	400	5.0/12.0	—	471	60	—	145.0	PDA 12³⁾	5081	—	—	SDD 2	SDZ 2
Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54																	
VARD 630/8 Ex	6718	700	10220	0.95	400Y	2.75	—	470	40	—	110.0	not permitted	—	not permitted	—	SDD 2	SDZ 2
VARD 630/6 Ex	6719	950	13990	1.90	400Y	4.70	—	470	40	—	130.0	not permitted	—	not permitted	—	SDD 2	SDZ 2
VARD 630/4 Ex⁵⁾	6720	1435	21400	6.80	400/690	13.1	—	498	40	—	165.0	not permitted	—	not permitted	—	SDD 2	SDZ 3

* Ex models: for nominal value of motor see information on page 18 ¹⁾ includes full motor protection unit ²⁾ includes operation and speed switch ³⁾ see product page for flush mounted version
⁴⁾ for PTC resistor ⁵⁾ a vibration monitoring shall be provided (on site) according to DIN EN 14986.



Accessories – Specification see pages 170 on

Bell mouth + guard ASD-SGD 630 Ref. 1422	Extension duct VR 630 Ref. 1410	Circular attenuators RSD 630/...	Automatic back-draught shutter RVS 630^{a)} Ref. 2600	Flanged flex. connector STS 630^{b)} Ref. 1228	Flange FR 630 Ref. 1211	Flexible sleeve FM 630^{b)} Ref. 1680	Guard SG 630 Ref. 1243	Mounting feet (pair) MK 630 Ref. 1333	Anti vibration mounts for suspension (set of 4) SDZ^{c)} (4 pcs.) Anti vibration mounts for compression (set of 4) SDD^{c)} (4 pcs.)
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^{a)} For motorised shutters see accessory pages ^{b)} Types for explosion proof fans see left page ^{c)} Suitable model see last column of data table

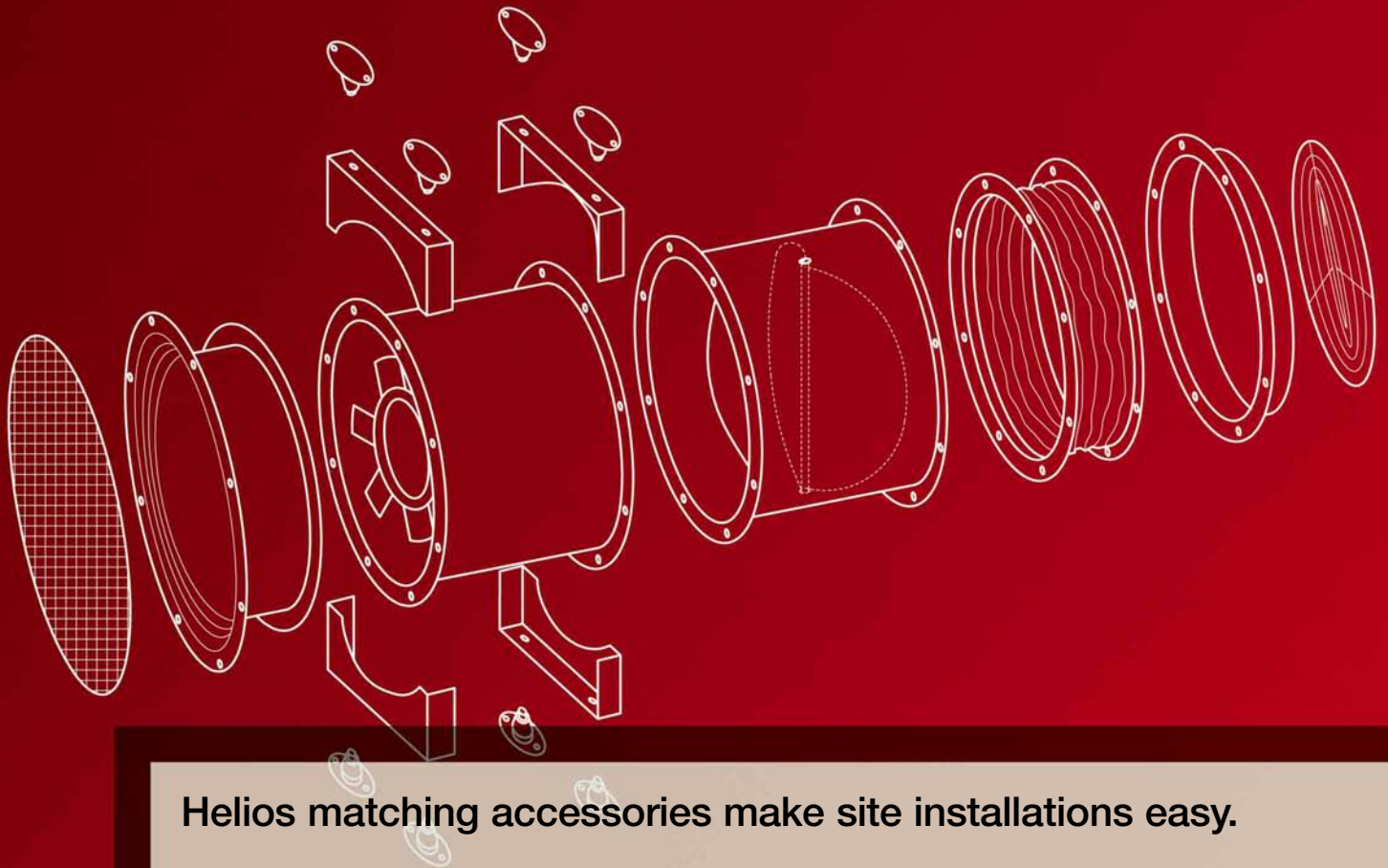
Helios supply a range of matching ancillaries, for all in-line fans, to suit your installation. From bell mouth inlets, electric backdraught shutters, anti vibration mounts and many more.

Simple installation with matched Helios accessories that reduce on site time and costs.

Our comprehensive range of accessories ensure that all installation needs are catered for.

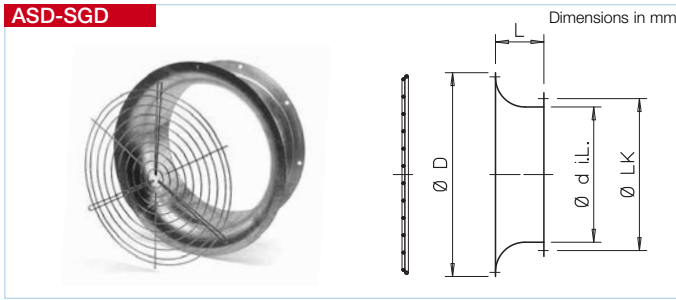
In addition to the mounting accessories for in-line fans there are further system components on the following pages.

- Attenuators, filters and heater batteries 305 on
- Shutters and grilles 361 on
- Speed controllers and switches 397 on



Helios matching accessories make site installations easy.

ASD-SGD



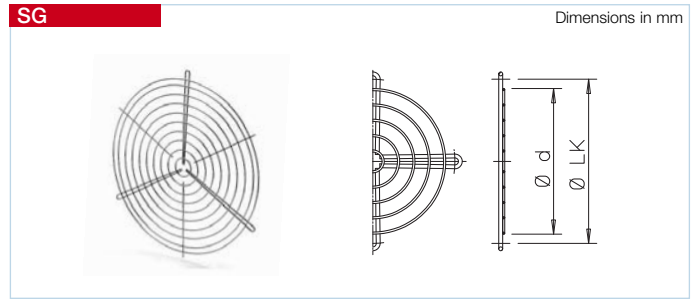
Bell mouth + guard in optimum shape, with large inlet radius made from hot dipped galvanised steel. Dimensions and holes to match

fans and accessories to DIN 24155-2. Powder coated wire guard (zinc plated from Ø 800) giving protection to DIN EN ISO 13857.

Type	Ref. No.	Ø D	L	Ø d i.L.	Ø LK	Weight in kg
ASD 200*	1388	310	140	203	235	0.9
ASD-SGD 225	1413	345	140	225	259	2.5
ASD-SGD 250	1414	370	140	250	286	2.8
ASD-SGD 280	1415	400	140	280	322	3.2
ASD-SGD 315	1416	435	140	315	356	3.5
ASD-SGD 355	1417	475	140	355	395	4.0
ASD-SGD 400	1418	545	140	400	438	4.5
ASD-SGD 450	1419	595	140	450	487	5.7
ASD-SGD 500	1420	625	140	500	541	6.3
ASD-SGD 560	1421	745	130	560	605	7.0
ASD-SGD 630	1422	815	130	630	674	7.6
ASD-SGD 710	1423	955	200	710	751	19.5
ASD-SGD 800	1424	1060	200	800	837	22.3
ASD-SGD 900	1309	1140	200	900	934	25.0
ASD-SGD 1000	1310	1240	200	1000	1043	28.5

* without guard

SG

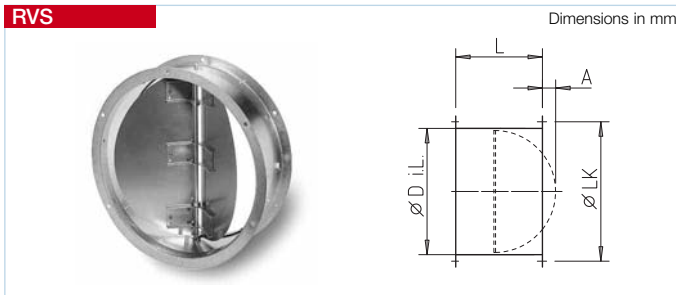


Guard to cover impeller opening. Powder coated in silvermetallic (zinc plated from Ø 800). Dimensions and accessories to

DIN 24155-2. Giving protection to DIN EN ISO 13857.

Type	Ref. No.	Ø d	Ø LK	Weight in kg	Number of fixing points
SG 200	1216	190	235	0.1	3
SG 225	1215	224	259	0.2	3
SG 250	1236	241	286	0.2	3
SG 280	1428	270	322	0.3	4
SG 315	1237	310	356	0.4	4
SG 355	1238	350	395	0.4	4
SG 400	1239	390	438	0.5	3
SG 450	1240	450	487	0.6	3
SG 500	1241	490	541	0.7	3
SG 560	1242	550	605	0.9	4
SG 630	1243	630	674	1.5	4
SG 710	1244	710	751	1.8	4
SG 800	1245	790	837	2,2	4
SG 900	1246	890	934	2.7	4
SG 1000	1290	990	1043	3.5	4

RVS



Automatic backdraught shutter with spring closing¹⁾

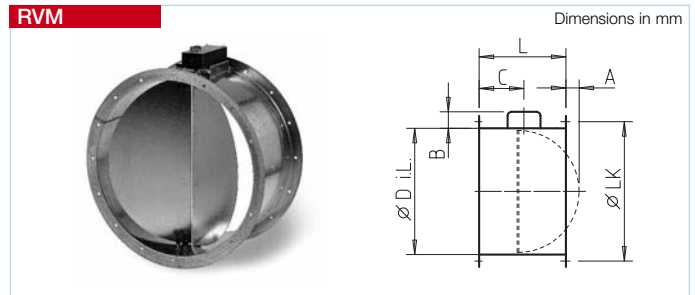
Horizontal installation for air flow in any direction. Vertical for with air flow direction going upwards. Automatic opening on fan operation. Spring mechanism for closing. Closing force adjustable to suit fan

power and installation position. Spring mechanism outside the air flow. Shutters and casing manufactured from galvanised steel. ND 225-560 shutters made from aluminium. Flanges on both sides, drillings to DIN 24155, Pt. 2.

Type ²⁾	Ref. No.	Ø D i.L.	L	A	Ø LK	Weight in kg
RVS 225	2591	225	300	-	259	3.0
RVS 250	2592	250	300	-	286	3.4
RVS 280	2593	280	300	-	322	3.9
RVS 315	2594	315	300	-	356	4.3
RVS 355	2595	355	300	-	395	5.0
RVS 400	2596	400	330	-	438	7.2
RVS 450	2597	454	330	15	487	10.4
RVS 500	2598	504	330	40	541	11.7
RVS 560	2599	560	330	65	605	16.1
RVS 630	2600	630	400	115	674	19.5
RVS 710	2601	710	400	155	751	26.5
RVS 800	2602	800	420	200	837	37.3
RVS 900	2603	900	420	250	934	41.8
RVS 1000	2604	1000	420	300	1043	47.3

¹⁾ For pressure loss see chart on page 364 ²⁾ Surrounding temperature -30 to +100 °C

RVM



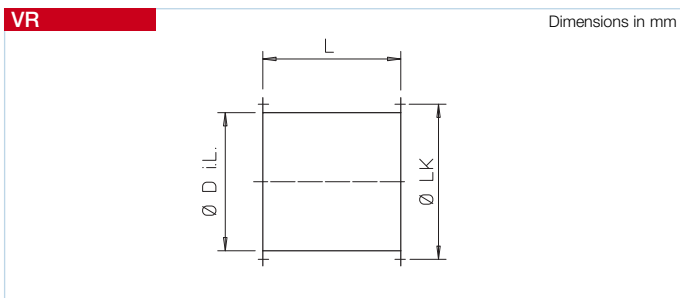
Motorised backdraught shutter¹⁾

As RVS, but with spring reversing motor (outside the air flow). Installation in any position vertically and horizontally. Recommended electrical connection in parallel to fan. Connection with 0.9 m long lead.

Ambient temperature -30 to +60 °C
Protection class IP 54
Voltage/Frequency 230 V AC, 50/60 Hz
Power
- from Ø 560/from Ø 630 14 W/8.5 W
Opening time approx.
- up to Ø 560/from Ø 630 75 Sec./150 Sec.
Wiring diagram No. SS-380.1

Type ³⁾	Ref. No.	Ø D i.L.	B	C	L	A	Ø LK	Weight in kg
RVM 225	2575	225	95	130	300	-	259	3.3
RVM 250	2576	250	95	130	300	-	286	3.7
RVM 280	2577	280	95	130	300	-	322	4.2
RVM 315	2578	315	95	130	300	-	356	4.6
RVM 355	2579	355	95	130	300	-	395	5.3
RVM 400	2580	400	95	130	330	-	438	7.5
RVM 450	2581	454	95	130	330	15	487	10.7
RVM 500	2582	504	95	130	330	40	541	12.0
RVM 560	2583	560	95	130	330	65	605	16.4
RVM 630	2609	630	150	225	400	115	674	21.0
RVM 710	2610	710	150	225	400	155	751	28.0
RVM 800	2614	800	150	225	420	200	837	37.8
RVM 900	2615	900	150	225	420	250	934	42.3
RVM 1000*	2616	1000	150	225	420	300	1043	47.8

³⁾ RVM.. not for use in explosion proof areas. * RVM 1000 only for horizontal air stream

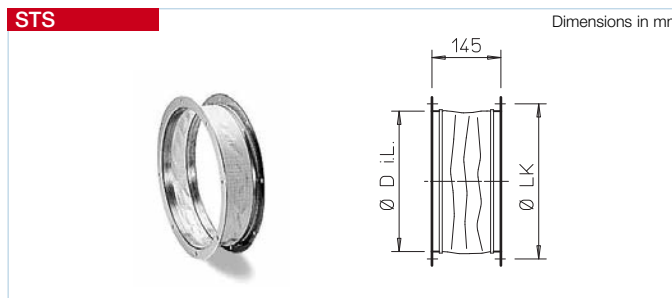


Extension duct

Ducting with flanges on both sides and holes to DIN 24155, Pt. 2. Manufactured from galvanised steel, to elongate the fan casing.

For models where the motor protrudes from the casing when installed into ducting. Avoids drops in performance at free extract.

Type	Ref. No.	Ø D i.L.	L	Ø LK	Weight in kg
VR 225	1401	225	300	259	2.5
VR 250	1402	250	300	286	2.8
VR 280	1403	280	300	322	3.2
VR 315	1404	315	300	356	3.5
VR 355	1405	355	300	395	4.0
VR 400	1406	400	330	438	6.0
VR 450	1407	454	330	487	9.0
VR 500	1408	504	330	541	10.0
VR 560	1409	560	500	605	14.0
VR 630	1410	630	500	674	15.5
VR 710	1411	710	500	751	21.5
VR 800	1412	800	420	837	31.0
VR 900	1311	900	420	934	34.0
VR 1000	1312	1000	420	1043	37.6



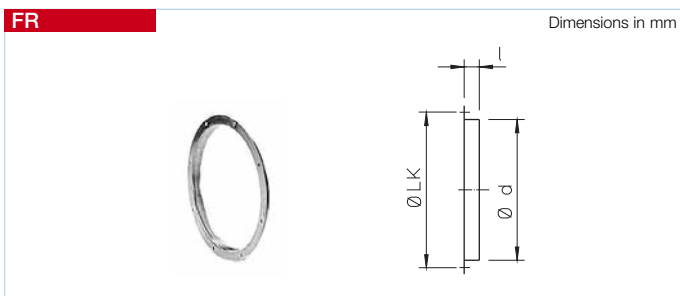
Flanged flexible connector

Flexible connector to be fitted between fan and ducting to reduce vibration transmission and to correct small site misalignments.

Flexible sleeve consists of a silicon free polymer fabric cloth and has zinc plated metal flanges fitted at both ends (max. +80 °C). Dimensions to DIN 24155, Pt. 2.

Type	Ref. No.	Type*	Ref. No.	Ø D i.L.	Ø LK	Weight in kg
STS 200	1219	-	-	205	235	1.3
STS 225	1218	STS 225 Ex	2500	229	259	1.1
STS 250	1220	STS 250 Ex	2501	252	286	1.3
STS 280	1231	STS 280 Ex	2502	288	322	1.5
STS 315	1221	STS 315 Ex	2503	322	356	1.8
STS 355	1222	STS 355 Ex	2504	361	395	2.3
STS 400	1223	STS 400 Ex	2505	404	438	2.5
STS 450	1224	STS 450 Ex	2506	453	487	3.8
STS 500	1225	STS 500 Ex	2507	507	541	3.4
STS 560	1226	STS 560 Ex	2508	570	605	4.5
STS 630	1228	STS 630 Ex	2509	638	674	4.6
STS 710	1229	STS 710 Ex	2510	711	751	7.0
STS 800	1233	STS 800 Ex	2511	801	837	7.5
STS 900	1234	STS 900 Ex	2512	898	934	7.5
STS 1000	1235	STS 1000 Ex	2513	1004	1043	15.0

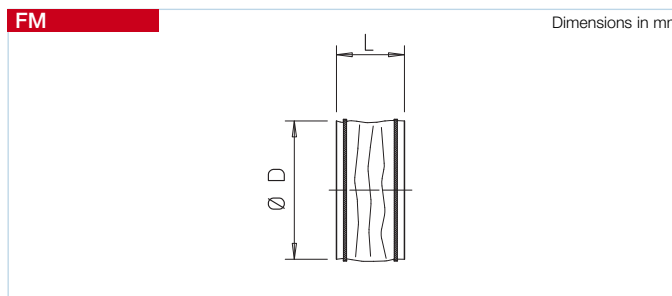
* for explosion proof fans



Flange

Made of galvanised steel. Dimensions and holes to match the fans and accessories to DIN 24155, Pt. 2.

Type	Ref. No.	Ø LK	l	Ø d	Weight in kg
FR 200	1202	235	25	209	0.5
FR 225	1201	259	30	233	0.5
FR 250	1203	286	25	256	0.6
FR 280	1214	322	30	292	0.8
FR 315	1204	356	30	326	0.9
FR 355	1205	395	30	365	1.2
FR 400	1206	438	30	408	1.2
FR 450	1207	487	35	457	1.8
FR 500	1208	541	35	511	1.8
FR 560	1209	605	35	574	2.0
FR 630	1211	674	35	642	2.2
FR 710	1212	751	35	715	3.3
FR 800	1198	837	35	806	3.2
FR 900	1199	934	35	903	3.7
FR 1000	1210	1043	35	1012	4.0



Flexible sleeve

Flexible connector incl. 2 worm drive clips to be fitted between fan and ducting to reduce vibration transmission and to correct small site

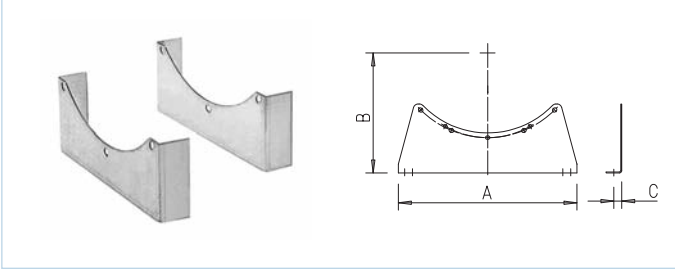
misalignments. Designed to fit nominal duct sizes and FR.. flanges. Flexible sleeve consists of a silicon free polymer fabric cloth (max. +80 °C). Dimensions to DIN 24155, Pt. 2.

Type	Ref. No.	Type*	Ref. No.	Ø D	L	Weight in kg
FM 200	1670	FM 200 Ex	1686	213	145	0.2
FM 225	1671	FM 225 Ex	1687	235	145	0.2
FM 250	1672	FM 250 Ex	1688	260	145	0.2
FM 280	1673	FM 280 Ex	1689	296	145	0.2
FM 315	1674	FM 315 Ex	1690	330	145	0.2
FM 355	1675	FM 355 Ex	1691	369	145	0.3
FM 400	1676	FM 400 Ex	1692	412	145	0.3
FM 450	1677	FM 450 Ex	1693	461	145	0.3
FM 500	1678	FM 500 Ex	1694	515	145	0.4
FM 560	1679	FM 560 Ex	1695	577	145	0.4
FM 630	1680	FM 630 Ex	1696	646	145	0.4
FM 710	1666	-	-	720	145	0.5

* for explosion proof fans

MK

Dimensions in mm



Mounting feet

To fix Axial/VAR cased fans on ceiling, wall or floor. Made from galvanised sheet steel or hot dipped galvanised steel. Fixing holes fit casing flanges. Set includes a pair of feet, nuts and bolts.

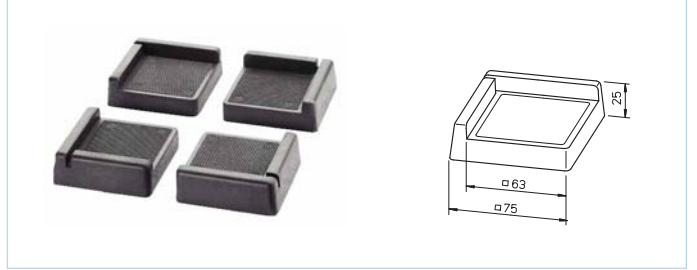
Note:

If motors of high weight are installed, an extension duct (VR...) is recommended to move the centre of gravity within the mounting feet. Mount feet on the outer flange.

Type	Ref. No.	A	B	C	Weight in kg
MK 200-225	1446	310	208/220	20	1.5
MK 250-280	1447	340	227/245	20	1.7
MK 315-355	1448	380	281/300	25	2.2
MK 400-450	1449	360	311/335	25	2.6
MK 500-560	1450	570	383/415	25	5.3
MK 630	1333	600	465	30	8.5
MK 710	1372	670	515	35	10.5
MK 800	1373	680	565	35	15.5
MK 900	1374	760	625	35	18.0
MK 1000	1375	840	690	35	19.5

SDD-U

Dimensions in mm



Anti vibration pads

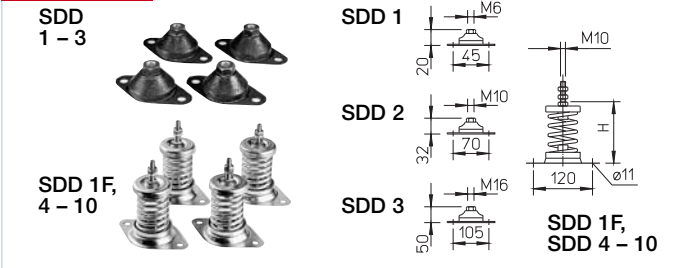
The rubber mounting pads SDD-U are suitable as a base for installation of fans on flat, horizontal surfaces. They reduce the direct noise and vibration transmission to the building structure.

One set consists of 4 elements, which are positioned individually under the corners of the fan unit. Maximum compression: 40 kg/pad = total 160 kg.

SDD-U Ref. No. 5627

SDD

Dimensions in mm



Anti vibration mounts for compression

To reduce noise and vibration transmission of fans installed on horizontal surfaces. Simple installation in combination with feet MK (accessory). Select size according to fan weight (see table).

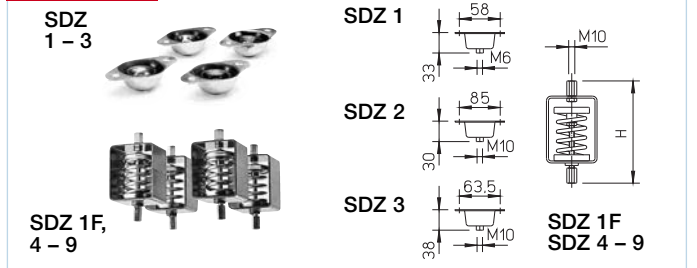
Rubber elements are suitable for small to middle weights and ambients up to +60 °C. Spring elements are suitable for higher temperatures above +60 °C (e.g. smoke extraction).

Type	Ref. No.	Maximum fan weight in kg	H Height in mm	Spring element	Contents 1 set = 4 pieces
SDD 1	1452	80	*		
SDD 1F	1942	70	112 - 82	●	
SDD 2	1453	180	*		
SDD 3	1367	750	*		
SDD 4	1944	130	112 - 86	●	
SDD 5	1924	210	112 - 86	●	
SDD 6	1926	400	112 - 80	●	
SDD 7	1928	580	112 - 82	●	
SDD 8	1930	900	112 - 82	●	
SDD 9	1934	1300	112 - 85	●	
SDD 10	1951	1800	112 - 88	●	

* shown in dimensional drawing

SDZ

Dimensions in mm



Anti vibration mounts for suspension

To reduce noise and vibration transmission of fans installed hanging from ceilings. Specification as model SDD.

Important note for installation! Make sure that fan system is well balanced (centre of gravity of heavy motor may cause uneven loading of mounts).

Type	Ref. No.	Maximum fan weight in kg	H Height in mm	Spring element	Contents 1 set = 4 pieces
SDZ 1	1454	60	*		
SDZ 1F	1943	70	190 - 220	●	
SDZ 2	1455	160	*		
SDZ 3	1366	300	*		
SDZ 4	1945	130	190 - 216	●	
SDZ 5	1925	210	190 - 216	●	
SDZ 6	1927	400	190 - 221	●	
SDZ 7	1929	580	190 - 220	●	
SDZ 8	1931	900	190 - 220	●	
SDZ 9	1935	1300	190 - 217	●	

* shown in dimensional drawing

GigaBoxes are real multi-functional options that offer almost unlimited flexibility in various applications.

Compact frame construction and assembly-friendly accessories make a variable and thus optimal adaptation possible by simply repositioning the casing panels to the structural conditions. With five or (with series T120) three possible discharge directions this gives design flexibility to suit all site conditions. All types have integrated crane hooks for easier positioning as standard.

They are particularly suitable for medium to higher air flow volumes against high resistances in ventilation systems of every type. Furthermore, the new series GB.. T120 is suited for extraction of dirty, hot air up to 120° C. Altogether, 26 models are available with air flow volumes from 1400 to 19 000 m³/h for duct diameters 250 to 710 mm.

GigaBoxes from Helios are delivered complete with:

- Discharge adapter from square to circular ducted system for low-loss discharge

- Flexible sleeves to reduce vibration transmission and for the connection to ducts in the usual standard diameters.

Backward curved high output centrifugal impeller guarantees an energy-efficient operation at low noise emission.



Outdoor installation with wall bracket (accessories).



Roof installation with outdoor cover hood and external weather louvers (accessories).



Installation in the attic with anti vibration mounts (accessories).



GigaBox for air flow temperatures up to max. 120° C.



GB.. T120: The motor which is located outside of the air flow is separated from the impeller through a temperature insulated partition panel. The motor-impeller-unit is removable without disassembly of the ducting.



Assembly of the discharge adapter for GB.. T120 with centrifugal discharge direction to the top or to the side.



GB.. T120 with simply removable inspection cover.

The double-walled, removeable 20 mm thick side panels are noise and temperature insulated with flame-retardant mineral wool.

This allows for a variable installation and simple inspection access. Extensive accessories like wall bracket, condensate collector incl. condensate spigot (for GB.. T120 included in delivery), external weather louvers to cover the exhaust opening, outdoor cover hood for protected outdoor installation ensure for the necessary flexibility on site.

The T120 model impresses with outstanding benefits:

- Air flow temperature up to max. 120° C.
- Motor located outside of air flow.
- Temperature insulated partition panel between motor and impeller, lined with 20 mm thick, flame-retardant mineral wool.
- Easily accessible motor-impeller-unit, removable without disassembling the system components.
- Inspection cover with handle, simply remove for cleaning and maintenance.

- Condensate collector with condensate spigot included in delivery.
- Accessory components suitable for use to max. 120° C.

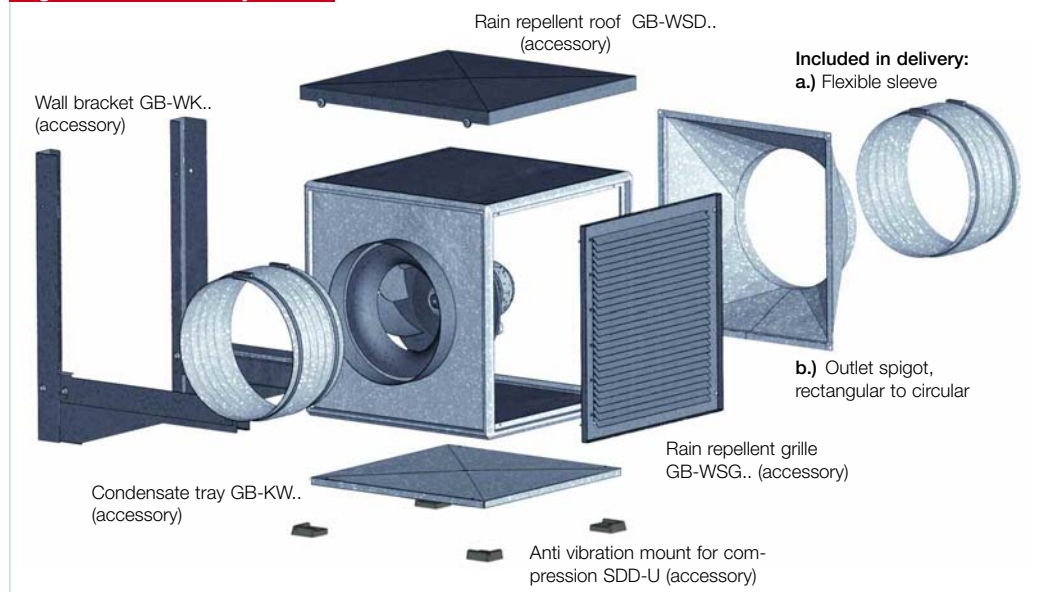
For applications with high air flow temperatures and/or steam/humidity present in the exhaust air, the GigaBox T120 is ideally suitable.

Ideal for application in exhaust air systems of process technology or in commercial kitchens.



The powerful and adaptable GigaBox from Helios.

GigaBox and accessory



■ Application

Multifunctional fan box, suitable for medium to higher air flow volumes against high resistances in every type of ventilation system. The compact frame construction offers easy conversion of the outlet position. Together with a choice of ideal accessories make these units ideal for all applications.

The GB.. T120 types are suitable for the extraction of dirty, humid and hot air up to max. 120° C, i.e. as extract air fan in commercial kitchens and many applications of process technology.

■ Casing

Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool.

Intake cone for ideal airflow, spigot and flexible connector for duct connection. With outlet adapter (from square to circular) on the exhaust side for low-loss discharge and flexible connector to reduce vibration transmission. The flexible connectors are supplied as standard and correspond to the max. permissible air flow temperature of +70 °C and/or +120 °C with the types GB.. T120. Lifting lugs are standard for using crane hooks.

With GB.. T120 the motor is located outside of the air flow. The thermally insulated partition panel is also the support plate for the motor and impeller unit and can be removed completely for inspection without removing the complete fan from the system.

■ Speed control

All types (except GBD 630/4 T120) are speed controllable by voltage reduction using a 5-step transformer controller or an electronic controller. The 3-phase models can also be 2 speed controlled by star/delta switch (accessories DS 2 or full motor protection unit M 4). The performances of the speeds are given in the performance curve. 3-phase models are controllable with frequency inverters by installation of a sinusoidal filter (accessories) between inverter and motor. Type GBD 630/4 is only controllable by frequency inverter.

■ Assembly

□ Assembly of types GB..

Adaptable installation position and flexible assembly using the five possible discharge directions via the discharge adapter. Removable panels allow inspection access on all sides.

□ Assembly of types GB.. T120

Installation must be carried out with condensation discharge showing downward. Flexible assembly by three possible centrifugal discharge directions via the discharge adapter. Inspection cover with handle, for cleaning and maintenance simply remove. Lifting lugs are standard for using crane hooks. Vibration transmission to the building is minimised by anti vibration mounts (type SDD-U, accessories). Vibration transmission to the ducting is prevented by using the standard flexible connector supplied.

■ Impeller

Smooth running centrifugal impeller with backward curved polymer blades (size 250 from steel) on a galvanised steel back plate, direct driven. Size 500 and all GB.. T120 types with impellers from aluminium. These energy efficient impellers are low noise. Dynamically balanced assembled with the motor to DIN ISO 1940 Pt.1 – class 6.3 or 2.5.

■ Motor

IEC-standard motor or maintenance-free external rotor motor protected to IP 54 or 44. Thermal overload protection through built-in thermal contacts. Suitable for continuous operation S1. Insulation class F. Ball bearings are lubricated for life.

■ Electrical connection

Terminal box protection to IP 54.

■ Air flow direction

The air flow direction of centrifugal fans is not reversible, but can be set by positioning the fan to the required air flow direction. Furthermore the position can be set individually to constructional conditions through conversion of discharge adapter and panels. The correct motor rotation direction is marked through rotation arrows on the motor and has to be checked at start-up.

■ Incorrect direction of rotation

If the fan is operated in the incorrect direction of rotation the motor will overheat and the thermal contact will trip. Typical indication for this is a very low air flow combined with high noise levels and vibration.

■ Ambient temperature

The maximum permitted air flow temperature is given in the individual fan chart.

■ Surrounding temperature

From – 40° C to + 40° C.

Information	Pages
Design of systems, acoustic	12 on
General techn. information, speed control	17 on

Type GB..	Sound press. Case breakout	Sound press. Intake	Air flow volume \dot{V} m ³ /s against static pressure												
	L _{PA} dB(A)	L _{PA} dB(A)	$(\Delta P_{stat.})$ in Pa												
	at 4 m	at 4 m	0	50	100	150	200	250	300	350	400	500	600	700	800
GBW 250/4	27	39	0.389	0.319	0.244	0.147									
GBW 315/4	29	41	0.414	0.361	0.300	0.236	0.153	0.042							
GBW 355/4	34	46	0.817	0.747	0.675	0.594	0.505	0.400	0.258						
GBD 355/4/4	34	46	0.836	0.772	0.711	0.638	0.577	0.492	0.367	0.089					
GBW 400/4	38	50	1.142	1.092	1.036	0.975	0.917	0.85	0.764	0.656	0.511				
GBD 400/4/4	38	50	1.097	1.031	0.961	0.889	0.811	0.725	0.628	0.469	0.114				
GBW 450/4	40	52	1.514	1.433	1.361	1.292	1.217	1.122	1.006	0.867	0.692	0.083			
GBD 450/4/4	40	52	1.514	1.431	1.344	1.256	1.161	1.061	0.947	0.822	0.664	0.083			
GBW 500/4	45	57	2.333	2.236	2.139	2.042	1.947	1.85	1.744	1.628	1.506	1.219	0.778	0.042	
GBD 500/4/4	44	57	2.458	2.367	2.278	2.189	2.097	2.006	1.903	1.789	1.664	1.369	0.947	0.014	
GBW 500/6	35	46	1.600	1.478	1.347	1.189	0.978	0.678	0.144						
GBD 560/4/4	44	57	3.497	3.397	3.300	3.203	3.106	3.011	2.911	2.811	2.706	2.461	2.142	1.731	1.144
GBD 560/6/6	35	48	2.400	2.261	2.114	1.953	1.767	1.539	1.239	0.767					
GBD 630/4/4	48	61	4.153	4.058	3.961	3.869	3.775	3.683	3.592	3.500	3.403	3.194	2.953	2.675	2.333
GBD 630/6/6	43	56	3.192	2.992	2.794	2.597	2.375	2.103	1.767	1.356	0.792				
GBD 710/6/6	46	59	5.194	4.989	4.783	4.564	4.333	4.083	3.811	3.511	3.178	2.333	0.753		
Type GB.. T120	L _{PA} dB(A)	L _{PA} dB(A)	$(\Delta P_{stat.})$ in Pa												
	at 4 m	at 4 m	0	50	100	150	200	250	300	350	400	500	600	700	800
GBW 355/4 T120	36	49	0.961	0.894	0.831	0.767	0.683	0.567	0.418	0.201					
GBD 355/4/4 T120	36	49	0.964	0.908	0.846	0.778	0.697	0.594	0.469	0.192					
GBW 400/4 T120	40	53	1.369	1.293	1.217	1.136	1.053	0.942	0.806	0.622	0.439				
GBD 400/4/4 T120	40	53	1.353	1.275	1.193	1.106	1.014	0.900	0.761	0.581	0.381				
GBW 450/4 T120	45	57	1.975	1.887	1.800	1.700	1.625	1.525	1.426	1.317	1.208	0.917	0.528		
GBD 450/4/4 T120	45	57	1.994	1.914	1.833	1.750	1.653	1.556	1.450	1.336	1.206	0.897	0.372		
GBW 500/4 T120	45	59	2.318	2.244	2.158	2.075	1.989	1.903	1.800	1.696	1.575	1.300	0.975	0.511	
GBD 500/4/4 T120	45	59	2.319	2.239	2.157	2.081	1.994	1.911	1.833	1.739	1.642	1.381	1.061	0.533	
GBD 560/4/4 T120	48	62	3.417	3.322	3.247	3.164	3.078	2.994	2.910	2.817	2.722	2.533	2.336	2.064	1.671
GBD 630/4 T120	53	67	3.928	3.867	3.803	3.742	3.667	3.594	3.533	3.469	3.397	3.242	3.097	2.908	2.703

Special application for GigaBox T120 – commercial kitchens

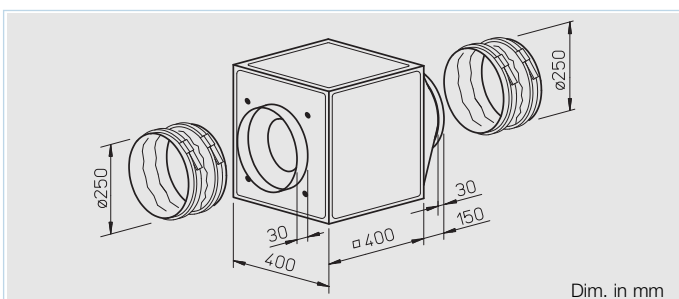
For the design of exhaust air systems in commercial kitchens the VDI 2052 (2006) “Ventilation equipment for kitchens – design, layout, approval” is applied. This follows for extract air fan:

- Fans of exhaust air systems must be designed and installed in such a way that they are easily accessible, can be easily controlled and cleaned.
They must be able to be switched off from the kitchen.
The motors must be located outside of the extract air flow.
Connected kitchen extraction hoods must separate solid and liquid components, if possible.
A backdraft into following units is to be prevented.

These specific requirements from the GigaBoxes GB.. T120 are fulfilled in an outstanding manner. Easily accessible casing and double-walled side panels make cleaning simple with grease dissolving agents and steam possible.

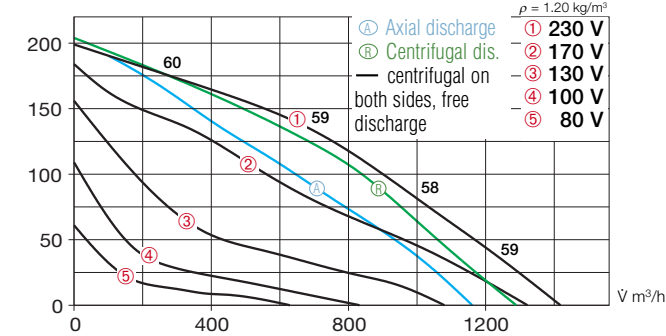
Requirements in excess thereof of kitchen extract air units and the appropriate fire protection can deviate country-specifically; these special requirements of the respective country, in which the unit is to be used, must be considered.

Models GB..



GBW 250/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	47	37	45	40	33	30	22	19
L _{WA} Intake	dB(A)	59	41	49	52	54	55	49	39
L _{WA} Extract	dB(A)	62	42	53	56	57	54	53	44



■ Specification

■ Casing

Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal airflow, spigot and flexible connector for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

□ Impeller

Smooth running backward curved centrifugal impeller highly efficient with blades from steel on galvanised steel disc, direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

□ Motor

Maintenance-free and speed controllable external rotor motor, protection to IP 44. With ball bearings and radio suppressed as standard.

□ Electrical connection

Terminal box fitted on the motor as standard, protection to IP 54.

□ Motor protection

Motors have thermal contacts wired in series with the windings which automatically reset.

□ Speed control

Speed controllable through voltage reduction by 5 step transformer controller or electronic speed controller. The duties at different speeds are given in the performance curve.

□ Assembly

Arbitrary installation position and flexible assembly by five possible discharge directions via the discharge adapter.

For wall mounting the wall bracket (accessories) has to be used. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

■ Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:
– sound level case breakout
– sound level intake
– sound level exhaust in the tables above the performance curve. Beside, the sound power level (on intake) is stated over the rated characteristic curve. In the table below you can also find the
– case breakout level at 4 m (freefield conditions).

■ Accessories

Anti vibration mounts for installation indoors. Set of 4.

SDD-U Ref. No. 5627

Wall bracket for wall mounting.

GB-WK 250 Ref. No. 5625

External weather louvers to cover exhaust opening.

GB-WSG 250 Ref. No. 5637

Outdoor cover hood for outdoor installation.

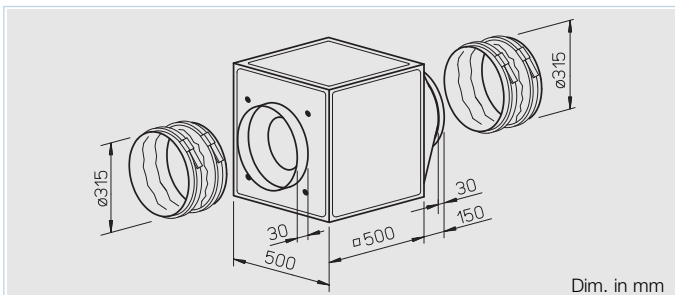
GB-WSD 250 Ref. No. 5746

Condensate collector with condensate spigot for pipe connection.

GB-KW 250 Ref. No. 5642

Information	Pages
Design of systems, acoustic	12 on
General techn. information, speed control	17 on
Accessory-Details	Pages
Speed controller and full motor protection unit	397 on

Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)	Current full load	speed controlled	Wiring diagram	Maximum air flow temperature full load	Nominal weight (net)	5 step transformer controller without motor protect. unit	
		V m ³ /h	min ⁻¹	dB(A) at 4 m	kW	A	A	No.	+°C	+°C	kg	
											Type Ref. No.	
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 44												
GBW 250/4	5509	1400	1290	27	0.11	0.44	0.48	923	65	65	20	TSW 1.5 1495

Models GB..

■ Specification
■ Casing

Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulation and flame-retardant mineral wool. Intake cone for ideal airflow, spigot and flexible connector for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

□ Impeller

Smooth running centrifugal highly efficient impeller with backward curved blades from steel on galvanised steel disc, direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

□ Motor

Maintenance-free and speed controllable external rotor motor, protection to IP 44. With ball bearings and radio suppressed as standard.

□ Electrical connection

Terminal box fitted on the motor as standard, protection to IP 54.

□ Motor protection

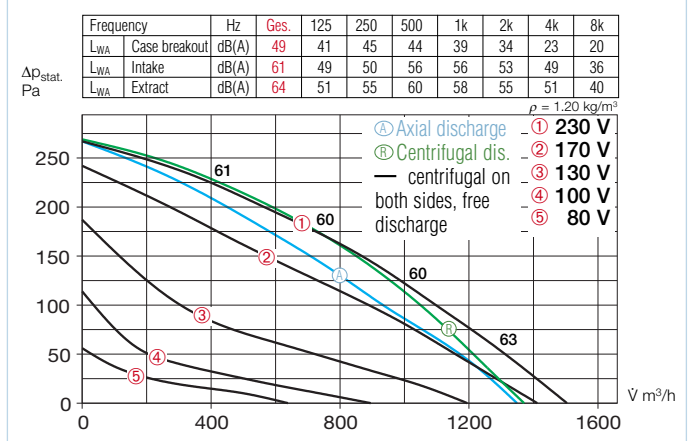
Motors have thermal contacts wired in series with the windings which automatically reset.

□ Speed control

Speed controllable through voltage reduction by 5 step transformer controller or electronic speed controller. Duties at different speeds are given in the performance curve.

□ Assembly

Arbitrary installation position and flexible assembly by five possible discharge directions via the

GBW 315/4

discharge adapter.

For wall mounting the wall bracket (accessories) has to be used. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

■ Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:

- sound level case breakout
- sound level intake
- sound level exhaust in the tables above the performance curve. Beside, the sound power level (on intake) is stated over the rated characteristic curve. In the table below you can also find the
- case breakout level at 4 m (freefield conditions).

■ Accessories

Anti vibration mounts for installation indoors. Set of 4.

SDD-U Ref. No. 5627

Wall bracket for wall mounting.

GB-WK 315 Ref. No. 5625

External weather louvers to cover exhaust opening

GB-WSG 315 Ref. No. 5638

Outdoor cover hood for outdoor installation.

GB-WSD 315 Ref. No. 5747

Condensate collector with condensate spigot for pipe connection.

GB-KW 315 Ref. No. 5643

Information	Pages
Design of systems, acoustic	12 on
General techn. information, speed control	17 on
Accessory-Details	Pages
Speed controller and full motor protection unit	397 on

Type	Ref. No.	Air flow volume (FID) V m³/h	R.P.M. min⁻¹	Sound press. level case breakout dB(A) at 4 m	Motor power (nominal) kW	Current full load A	Current speed controlled A	Wiring diagram No.	Maximum air flow temperature full load +°C	Nominal weight (net) kg	5 step transformer controller without motor protect. unit Type	Ref. No.
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 44												
GBW 315/4	5510	1490	1325	29	0.135	0.58	0.60	923	55	55	31	TSW 1.5 1495

NEW!

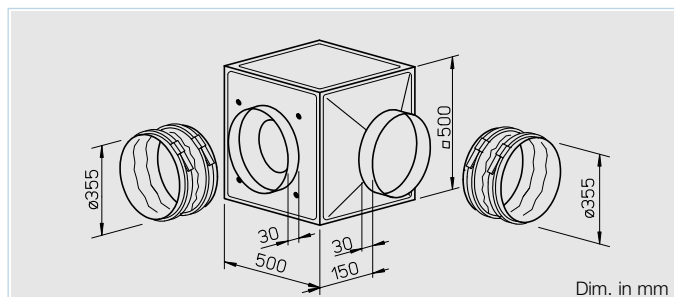
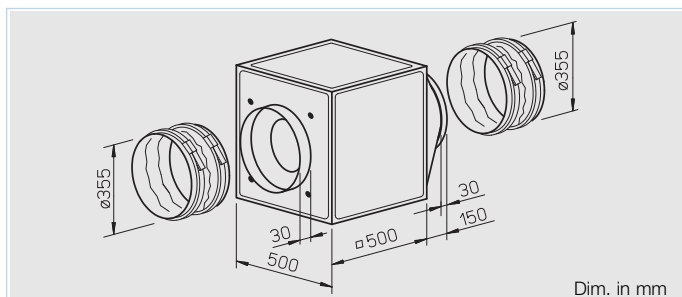
Models GB..

Arbitrary installation position and flexible assembly by five possible discharge directions.



Models GB.. T120

Designed for moving dirty, humid and hot air up to max. 120° C.



Special features of type GB.. T120

- Designed for moving dirty, humid and hot air volumes up to max. 120° C.
- Motor located outside of air flow.
- Temperature insulated partition panel between motor and impeller, lined with 20 mm thick, flame-retardant mineral wool.
- Easily accessible motor and impeller unit, removable without disassembling the system components.
- Inspection cover with handle, simply remove for cleaning and maintenance.
- Condensate collector with condensate spigot included in delivery. Drill hole for rain drainage (accessories) for outdoor installation is prepared.

Assembly of types GB.. T120

Installation must be carried out with condensation discharge showing downward. Flexible assembly by three possible centrifugal discharge directions via the discharge adapter. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Feature

Assembly of types GB..
Arbitrary installation position and flexible assembly by five possible discharge directions via the discharge adapter. For wall mounting the wall bracket (accessories) have to be used. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Specification of both types

Casing
Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal inflow as well as spigot and flexible sleeve (for the respective max. permissible air flow temperature) for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

Impeller

Smooth running backward curved centrifugal impeller highly efficient with polymer blades on galvanised steel disc (with GB.. T120 aluminium impeller), direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

Motor

Maintenance-free external rotor motor or IEC-standard motor protected to IP 44 or 54. With ball bearings and radio suppressed as standard.

Electrical connection

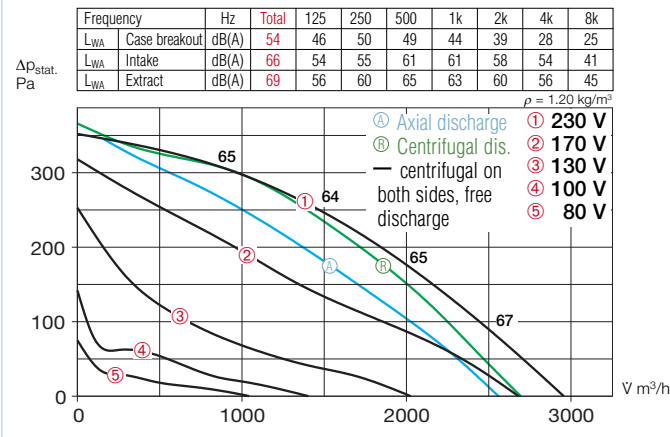
Standard terminal box (IP 54) fitted on the motor; with GB.. T120 fitted on the motor support plate.

Type	Ref. No.	Air flow volume (FID) V m³/h	R.P.M. min⁻¹	Sound press. level case breakout dB(A) at 4 m	Motor power (nominal) kW	full load A	Current speed controlled A	Wiring diagram Nr.	Maximum air flow temperature full load +°C	Nominal weight (net) kg	5 step transformer controller with motor protect. unit Type Ref. No.	Full motor protection unit using the thermal contacts Type Ref. No.
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54												
GBW 355/4	5511	2940	1325	34	0.29	1.30	1.40	864	60	60	MWS 1.5 1947	TSW 1.5 1495 MW ¹⁾ 1579
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54												
GBD 355/4/4	5512	2700/3010	1115/1355	34	0.20/0.30	0.35/0.70	0.70	867	55	55	RDS 1 1314	TSD 0.8 1500 M4 ²⁾ 1571
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54												
GBW 355/4 T120	5770	3460	1340	36	0.32	1.60	1.80	935	120	120	MWS 3 1948	TSW 3.0 1496 MW ¹⁾ 1579
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54												
GBD 355/4/4 T120	5771	2990/3470	1100/1360	36	0.22/0.33	0.40/0.80	0.80	947	120	120	RDS 1 1314	TSD 0.8 1500 M4 ²⁾ 1571

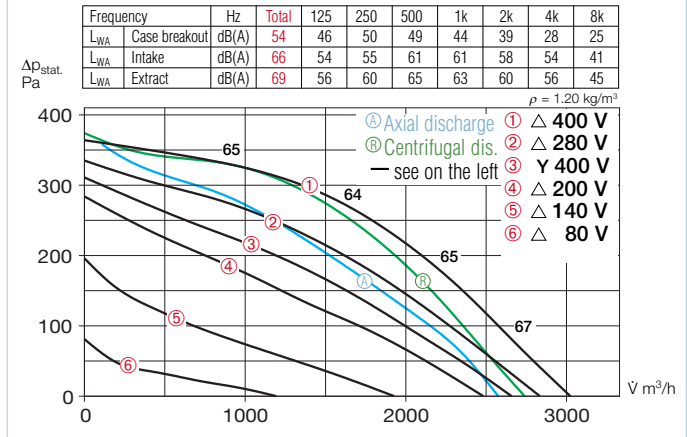
¹⁾ incl. operation switch

²⁾ incl. operation and 2 speed switch

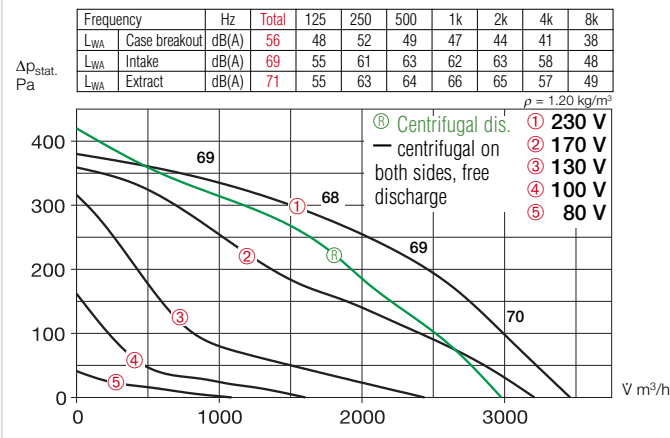
GBW 355/4



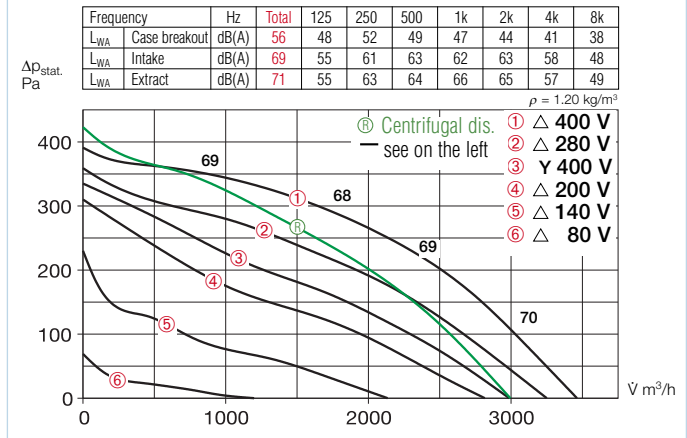
GBD 355/4/4



GBW 355/4 T120



GBD 355/4/4 T120



Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

All types are speed controllable by voltage reduction using a transformer controller. The 3-phase models can also be 2 speed controlled by star/delta switch (accessories DS 2 or full motor protection unit M 4). The duties at different speeds are given in the performance curve.

Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:
 - sound level case breakout
 - sound level intake
 - sound level extract
 in the tables above the performance curve. Beside, the sound power level (on intake) is stated over the rated characteristic curve. In the table below you can also find the case breakout level at 4 m (freefield conditions).

Accessories of both types

Anti vibration mounts for installation indoors. Set of 4.
SDD-U Ref. No. 5627

Wall bracket for wall mounting.
GB-WK 355 Ref. No. 5625

External weather louvers to cover exhaust opening.
GB-WSG 355 Ref. No. 5638

Outdoor cover hood for outdoor installation.
GB-WSD 355 Ref. No. 5747

On/Off and 2-speed switch for 3-phase star/delta motors.
DS 2³⁾ Ref. No. 1351

³⁾ full motor protection unit recommended: MD Ref. No. 5849

Specific accessories

for types GB..
Condensate collector with condensate spigot for pipe connection.
GB-KW 355 Ref. No. 5643
 (Condensate collector with condensate spigot included in delivery with GB.. T120).

for types GB.. T120
Rain drainage for outdoor installation (drill holes for rain drainage is already prepared).
GB-RA Ref. No. 9418

Information	Pages
Design of systems, acoustic	12 on
General techn. information, speed control	17 on
Accessory-Details	Pages
Speed controller and full motor protection unit	397 on

NEW!

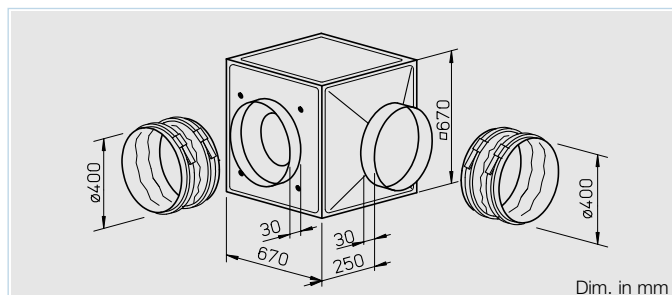
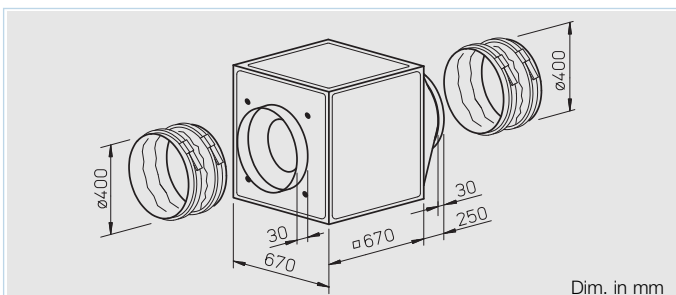
Models GB..

Arbitrary installation position and flexible assembly by five possible discharge directions.



Models GB.. T120

Designed for moving dirty, humid and hot air up to max. 120° C.



Special features of type GB.. T120

- Designed for moving dirty, humid and hot air volumes up to max. 120° C.
- Motor located outside of air flow.
- Temperature insulated partition panel between motor and impeller, lined with 20 mm thick, flame-retardant mineral wool.
- Easily accessible motor and impeller unit, removable without disassembling the system components.
- Inspection cover with handle, simply remove for cleaning and maintenance.
- Condensate collector with condensate spigot included in delivery. Drill hole for rain drainage (accessories) for outdoor installation is prepared.

Assembly of types GB.. T120

Installation must be carried out with condensation discharge showing downward. Flexible assembly by three possible centrifugal discharge directions via the discharge adapter. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Feature

Assembly of types GB..
Arbitrary installation position and flexible assembly by five possible discharge directions via the discharge adapter. For wall mounting the wall bracket (accessories) has to be used. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Specification of both types

Casing
Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal inflow as well as spigot and flexible sleeve (for the respective max. permissible air flow temperature) for duct connection. With discharge adapter (from square into circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

Impeller

Smooth running backward curved centrifugal impeller highly efficient with polymer blades on galvanised steel disc (with GB.. T120 aluminium impeller), direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

Motor

Maintenance-free external rotor motor or IEC-standard motor protected to IP 44 or 54. With ball bearings and radio suppressed as standard.

Electrical connection

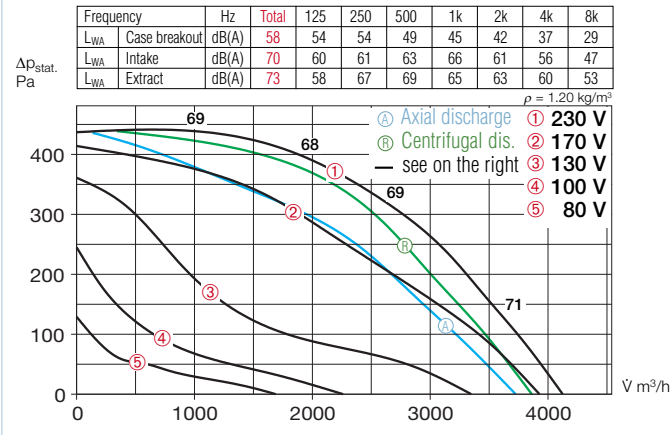
Standard terminal box (IP 54) fitted on the motor; with GB.. T120 fitted on the motor support plate.

Type	Ref. No.	Air flow volume (FID) V m³/h	R.P.M. min⁻¹	Sound press. level case breakout dB(A) at 4 m	Motor power (nominal) kW	full load A	Current speed controlled A	Wiring diagram Nr.	Maximum air flow temperature full load +°C	Nominal weight (net) kg	5 step transformer controller with motor protect. unit Type Ref. No.	Full motor protection unit using the thermal contacts Type Ref. No.
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54												
GBW 400/4	5513	4110	1360	38	0.53	2.40	2.80	864	50	50	MWS 3 1948	TSW 3.0 1496 MW ¹⁾ 1579
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54												
GBD 400/4/4	5514	3300/3950	910/1270	38	0.29/0.46	0.50/0.78	0.92	867	50	45	RDS 1 1314	TSD 1.5 1501 M4 ²⁾ 1571
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54												
GBW 400/4 T120	5772	4930	1280	40	0.54	2.50	2.50	935	120	100	MWS 3 1948	TSW 3.0 1496 MW ¹⁾ 1579
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54												
GBD 400/4/4 T120	5773	4010/4870	975/1255	40	0.29/0.48	0.50/1.10	1.10	947	120	120	RDS 2 1315	TSD 1.5 1501 M4 ²⁾ 1571

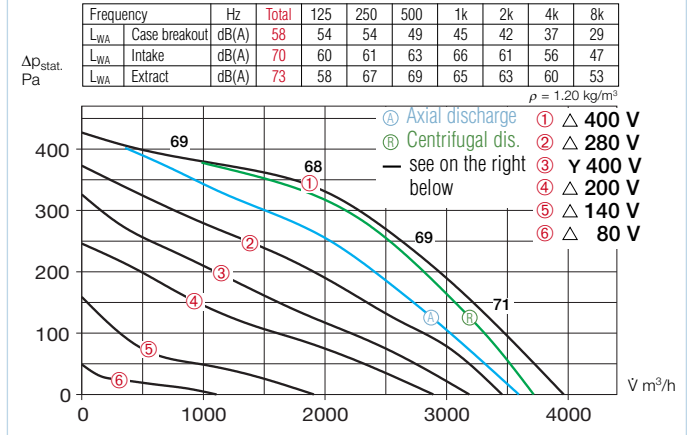
¹⁾ incl. operation switch

²⁾ incl. operation and 2 speed switch

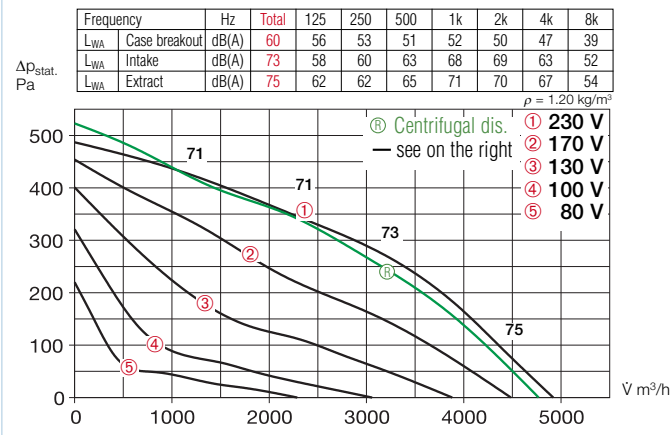
GBW 400/4



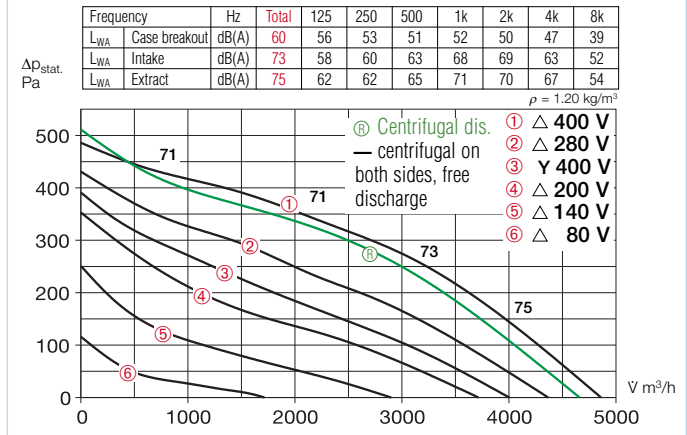
GBD 400/4/4



GBW 400/4 T120



GBD 400/4/4 T120



Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

All types are speed controllable by voltage reduction using a transformer controller. The 3-phase models can also be 2 speed controlled by star/delta switch (accessories DS 2 or full motor protection unit M 4). The duties at different speeds are given in the performance curve.

Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:
 - sound level case breakout
 - sound level intake
 - sound level extract
 in the tables above the performance curve. Beside, the sound power level (on intake) is stated over the rated characteristic curve. In the table below you can also find the case breakout level at 4 m (freefield conditions).

Accessories of both types

Anti vibration mounts for installation indoors. Set of 4.
SDD-U Ref. No. 5627

Wall bracket for wall mounting.
GB-WK 400 Ref. No. 5626

External weather louvers to cover exhaust opening.
GB-WSG 400 Ref. No. 5639

Outdoor cover hood for outdoor installation.
GB-WSD 400 Ref. No. 5748

On/Off and 2-speed switch for 3-phase star/delta motors.
DS 2³⁾ Ref. No. 1351

³⁾ full motor protection unit recommended: MD Ref. No. 5849

Specific accessories

for types GB..
Condensate collector with condensate spigot for pipe connection.
GB-KW 400 Ref. No. 5644
 (Condensate collector with condensate spigot included in delivery with GB.. T120).

for types GB.. T120
Rain drainage for outdoor installation (drill holes for rain drainage is already prepared).
GB-RA Ref. No. 9418

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Models GB..

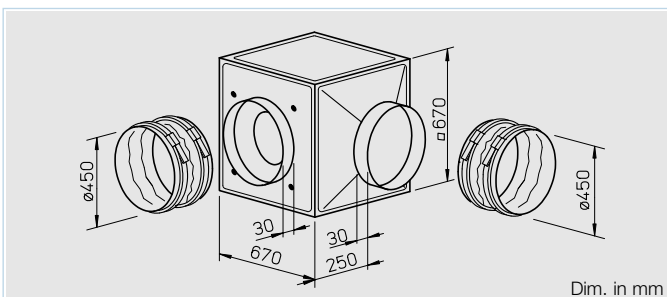
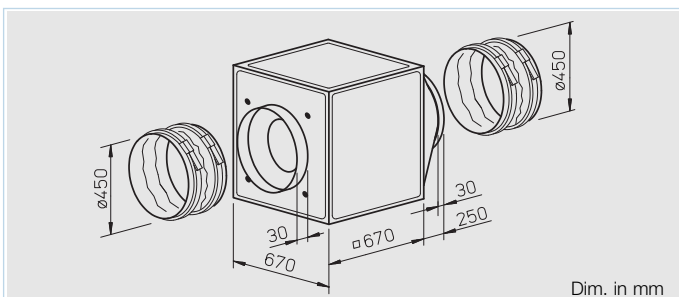
Arbitrary installation position and flexible assembly by five possible discharge directions.



Models GB.. T120

NEW!

Designed for moving dirty, humid and hot air up to max. 120° C.



Special features of type GB.. T120

- Designed for moving dirty, humid and hot air volumes up to max. 120° C.
- Motor located outside of air flow.
- Temperature insulated partition panel between motor and impeller, lined with 20 mm thick, flame-retardant mineral wool.
- Easily accessible motor and impeller unit, removable without disassembling the system components.
- Inspection cover with handle, simply remove for cleaning and maintenance.
- Condensate collector with condensate spigot included in delivery. Drill hole for rain drainage (accessories) for outdoor installation is prepared.

Assembly of types GB.. T120

Installation must be carried out with condensation discharge showing downward. Flexible assembly by three possible centrifugal discharge directions via the discharge adapter. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Feature

Assembly of types GB..
Arbitrary installation position and flexible assembly by five possible discharge directions via the discharge adapter. For wall mounting the wall bracket (accessories) has to be used. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Specification of both types

Casing
Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature consulting and flame-retardant mineral wool. Intake cone for ideal inflow as well as spigot and flexible sleeve (for the respective max. permissible air flow temperature) for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

Impeller

Smooth running backward curved centrifugal impeller highly efficient with polymer blades on galvanised steel disc (with GB.. T120 aluminium impeller), direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

Motor

Maintenance-free external rotor motor or IEC-standard motor protected to IP 44 or 54. With ball bearings and radio suppressed as standard.

Electrical connection

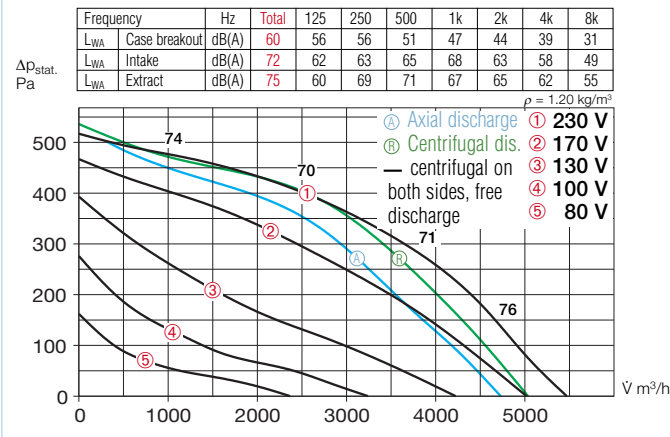
Standard terminal box (IP 54) fitted on the motor; with GB.. T120 fitted on the motor support plate.

Type	Ref. No.	Air flow volume (FID) V m³/h	R.P.M. min⁻¹	Sound press. level case breakout dB(A) at 4 m	Motor power (nominal) kW	full load A	Current speed controlled A	Wiring diagram Nr.	Maximum air flow temperature full load °C	Nominal weight (net) kg	5 step transformer controller with motor protect. unit Type Ref. No.	Full motor protection unit using the thermal contacts Type Ref. No.	
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54													
GBW 450/4	5515	5450	1270	40	0.76	3.50	3.50	864	45	45	MWS 5 1949	TSW 5.0 1497	MW ¹⁾ 1579
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54													
GBD 450/4/4	5516	4350/5450	880/1240	40	0.36/0.67	0.70/1.30	1.30	867	55	55	RDS 2 1315	TSD 1.5 1501	M4 ²⁾ 1571
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54													
GBW 450/4 T120	5774	7110	1370	45	1.00	4.60	5.50	935	120	100	MWS 7.5 1950	TSW 7.5 1596	MW ¹⁾ 1579
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54													
GBD 450/4/4 T120	5775	6210/7180	1100/1350	45	0.65/0.90	1.10/1.60	1.80	947	120	110	RDS 2 1315	TSD 3.0 1502	M4 ²⁾ 1571

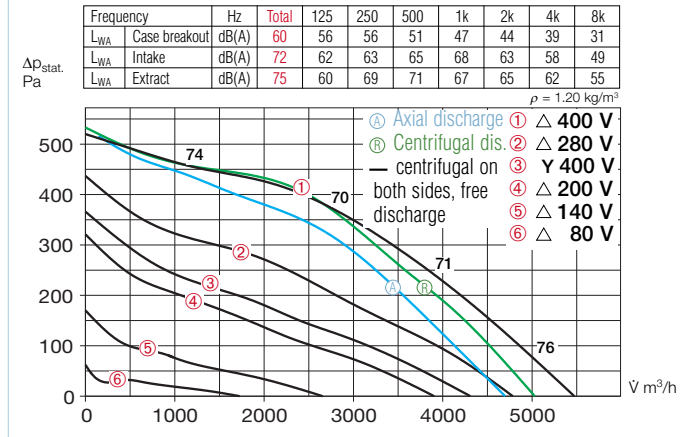
¹⁾ incl. operation switch

²⁾ incl. operation and 2 speed switch

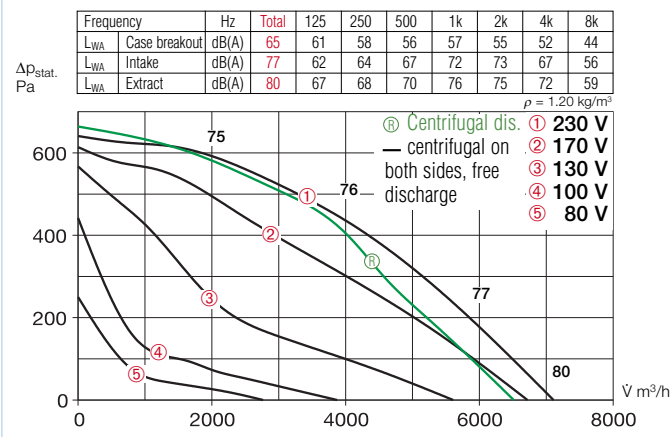
GBW 450/4



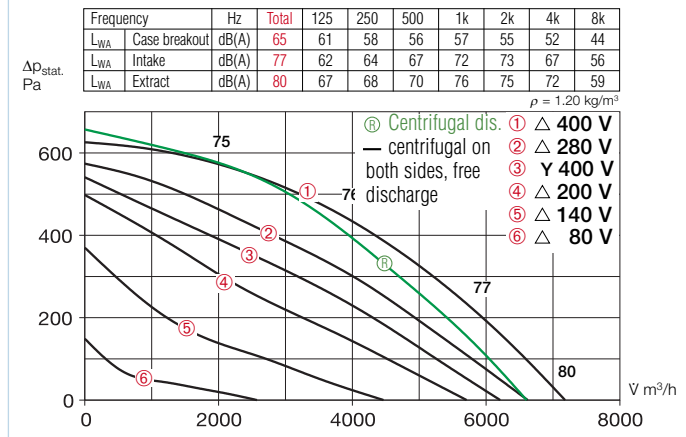
GBD 450/4/4



GBW 450/4 T120



GBD 450/4/4 T120



Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

All types are speed controllable by voltage reduction using a transformer controller. The 3-phase models can also be 2 speed controlled by star/delta switch (accessories DS 2 or full motor protection unit M 4). The duties at different speeds are given in the performance curve.

Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:
 – sound level case breakout
 – sound level intake
 – sound level extract
 in the tables above the performance curve. Beside, the sound power level (on intake) is stated over the rated characteristic curve. In the table below you can also find the
 – case breakout level at 4 m (freefield conditions).

Accessories of both types

Anti vibration mounts for installation indoors. Set of 4.
SDD-U Ref. No. 5627

Wall bracket for wall mounting.
GB-WK 450 Ref. No. 5626

External weather louvers to cover exhaust opening.
GB-WSG 450 Ref. No. 5639

Outdoor cover hood for outdoor installation.
GB-WSD 450 Ref. No. 5748

On/Off and 2-speed switch for 3-phase star/delta motors.
DS 2³⁾ Ref. No. 1351

³⁾ full motor protection unit recommended: MD Ref. No. 5849

Specific accessories

for types GB..
Condensate collector with condensate spigot for pipe connection.
GB-KW 450 Ref. No. 5644
 (Condensate collector with condensate spigot included in delivery with GB.. T120).

for types GB.. T120
Rain drainage for outdoor installation (drill holes for rain drainage is already prepared).
GB-RA Ref. No. 9418

Information	Pages
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NEW!

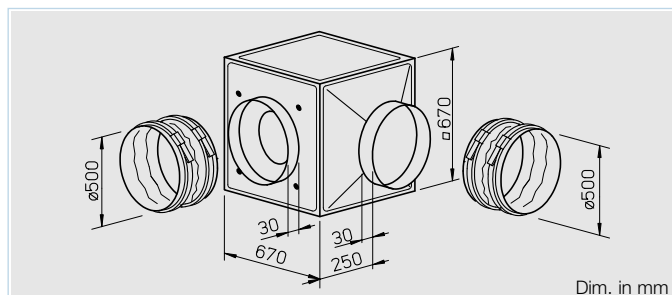
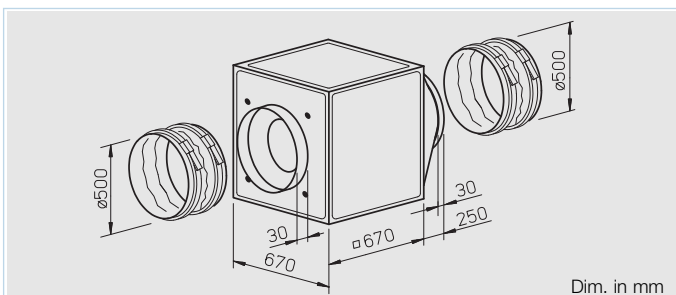
Models GB..

Arbitrary installation position and flexible assembly by five possible discharge directions.



Models GB.. T120

Designed for moving dirty, humid and hot air up to max. 120° C.



Special features of type GB.. T120

- Designed for moving dirty, humid and hot air volumes up to max. 120° C.
- Motor located outside of air flow.
- Temperature insulated partition panel between motor and impeller, lined with 20 mm thick, flame-retardant mineral wool.
- Easily accessible motor and impeller unit, removable without disassembling the system components.
- Inspection cover with handle, simply remove for cleaning and maintenance.
- Condensate collector with condensate spigot included in delivery. Drill hole for rain drainage (accessories) for outdoor installation is prepared.

Assembly of types GB.. T120

Installation must be carried out with condensation discharge showing downward. Flexible assembly by three possible centrifugal discharge directions via the discharge adapter. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Feature

Assembly of types GB..

Arbitrary installation position and flexible assembly by five possible discharge directions via the discharge adapter. For wall mounting the wall bracket (accessories) has to be used. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Specification of both types

Casing

Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal inflow as well as spigot and flexible sleeve (for the respective max. permissible air flow temperature) for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

Impeller

Smooth running backward curved aluminium centrifugal impeller highly efficient and direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

Motor

Maintenance-free external rotor motor or IEC-standard motor protected to IP 44 or 54. With ball bearings and radio suppressed as standard.

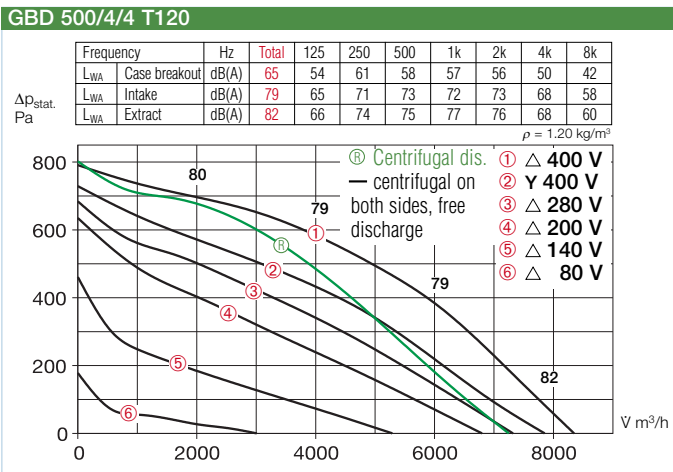
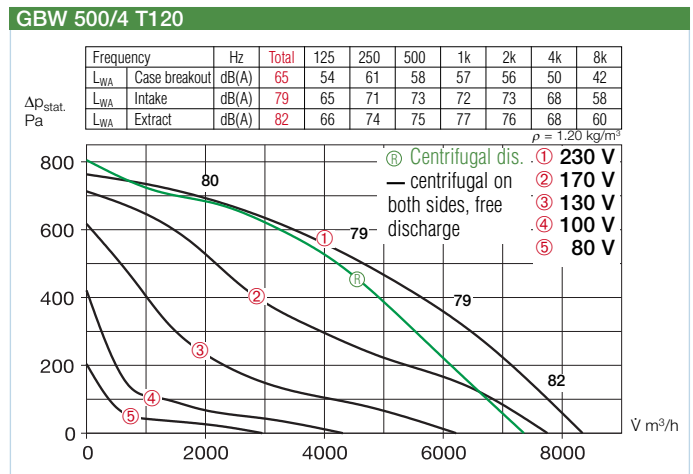
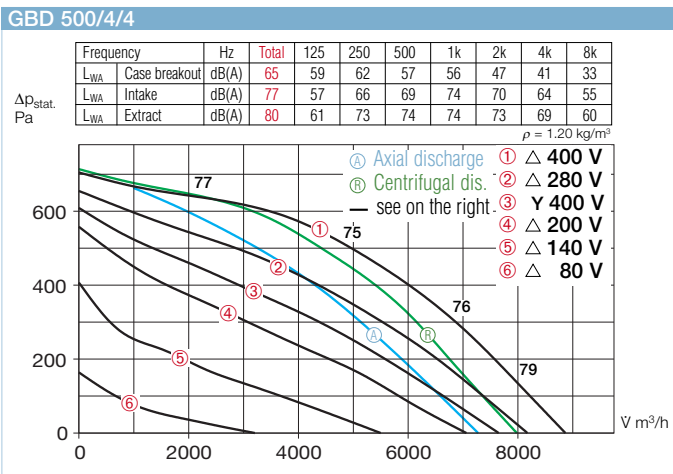
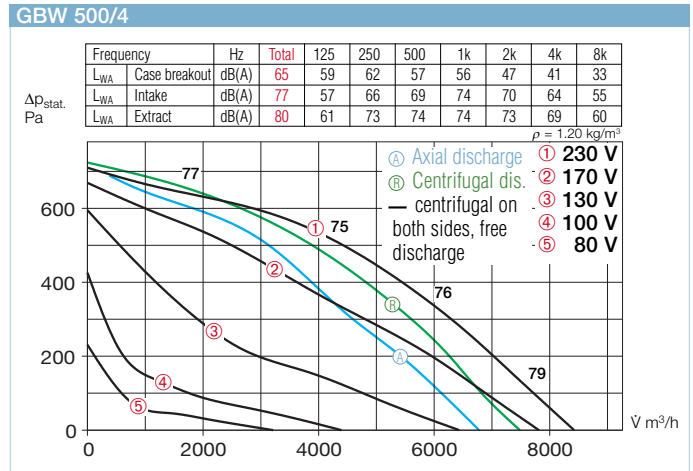
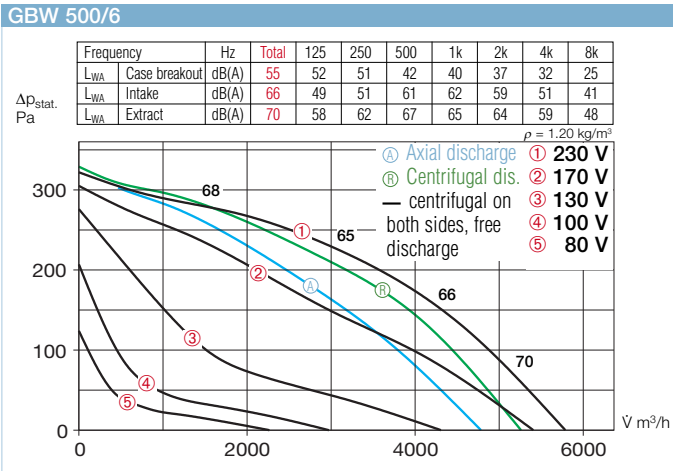
Electrical connection

Standard terminal box (IP 54) fitted on the motor; with GB.. T120 fitted on the motor support plate.

Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)	Current full load	Current speed controlled	Wiring diagram	Maximum air flow temperature full load	Nominal weight (net)	5 step transformer controller with motor protect. unit		Full motor protection unit using the thermal contacts				
		∇ m ³ /h	min ⁻¹	dB(A) at 4 m	kW	A	A	Nr.	+°C	+°C	kg	Type	Ref. No.	Type	Ref. No.		
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54																	
GBW 500/6	5519	5760	880	35	0.52	2.30	2.60	864	45	45	47	MWS 3	1948	TSW 3.0	1496	MW ¹⁾	1579
GBW 500/4	5517	8400	1350	45	1.38	6.40	8.20	865	65	55	61	MWS 10	1946	-	-	-	-
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54																	
GBD 500/4/4	5518	8000/8850	1075/1340	45	0.97/1.45	1.60/2.80	2.90	867	50	50	57	RDS 7	1578	TSD 5.5	1503	M4 ²⁾	1571
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54																	
GBW 500/4 T120	5776	8345	1340	45	1.40	6.1	7.0	301	120	100	75	MWS 10	1946	-	-	MW ¹⁾	1579
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54																	
GBD 500/4/4 T120	5777	7320/8350	1070/1365	45	1.07/1.50	1.80/3.00	3.0	947	120	110	75	RDS 4	1316	TSD 3.0	1502	M4 ²⁾	1571

¹⁾ incl. operation switch

²⁾ incl. operation and 2 speed switch



Information	Pages
Design of systems, acoustic	12 on
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Speed controller and full motor protection unit	397 on

Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

All types are speed controllable by voltage reduction using a transformer controller. The 3-phase models can also be 2 speed controlled by star/delta switch (accessories DS 2 or full motor protection unit M 4). The duties at different speeds are given in the performance curve.

Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:

- sound level case breakout
- sound level intake
- sound level extract
- in the tables above the performance curve. Beside, the sound power level (on intake) is stated over the rated characteristic curve. In the table below you can also find the
- case breakout level at 4 m (freefield conditions).

Accessories of both types

Anti vibration mounts for installation indoors. Set of 4.

SDD-U Ref. No. 5627

Wall bracket for wall mounting.

GB-WK 500 Ref. No. 5626

External weather louvers to over exhaust opening.

GB-WSG 500 Ref. No. 5639

Outdoor cover hood for outdoor installation.

GB-WSD 500 Ref. No. 5748

On/Off and 2-speed switch for 3-phase star/delta motors.

DS 2 ³⁾ Ref. No. 1351

Specific accessories

for types GB..

Condensate collector with condensate spigot for pipe connection. **GB-KW 500** Ref. No. 5644

(Condensate collector with condensate spigot included in delivery with GB.. T120).

for types GB.. T120

Rain drainage for outdoor installation (drill holes for rain drainage is already prepared).

GB-RA Ref. No. 9418

³⁾ full motor protection unit recommended: MD Ref. No. 5849

Models GB..

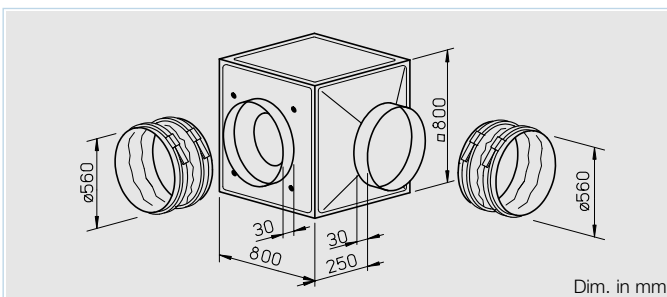
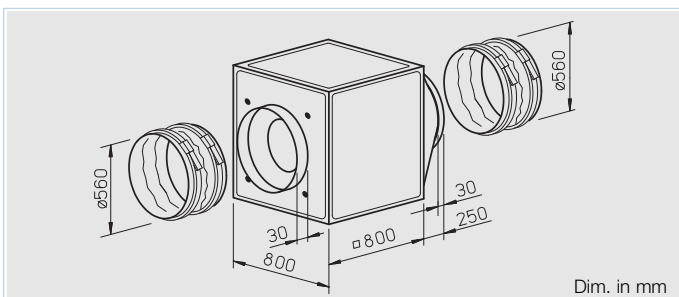
Arbitrary installation position and flexible assembly by five possible discharge directions.



Models GB.. T120

NEW!

Designed for moving dirty, humid and hot air up to max. 120° C.



Special features of type GB.. T120

- Designed for moving dirty, humid and hot air volumes up to max. 120° C.
- Motor located outside of air flow.
- Temperature insulated partition panel between motor and impeller, lined with 20 mm thick, flame-retardant mineral wool.
- Easily accessible motor and impeller unit, removable without disassembling the system components.
- Inspection cover with handle, simply remove for cleaning and maintenance.
- Condensate collector with condensate spigot included in delivery. Drill hole for rain drainage (accessories) for outdoor installation is prepared.

Assembly of types GB.. T120

Installation must be carried out with condensation discharge showing downward. Flexible assembly by three possible centrifugal discharge directions via the discharge adapter. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Feature

Assembly of types GB..

Arbitrary installation position and flexible assembly by five possible discharge directions via the discharge adapter. For wall mounting the wall bracket (accessories) has to be used. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Specification of both types

Casing

Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal inflow as well as spigot and flexible sleeve (for the respective max. permissible air flow temperature) for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

Impeller

Smooth running backward curved aluminium centrifugal impeller highly efficient and direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

Motor

Maintenance-free external rotor motor or IEC-standard motor protected to IP 44 or 54. With ball bearings and radio suppressed as standard.

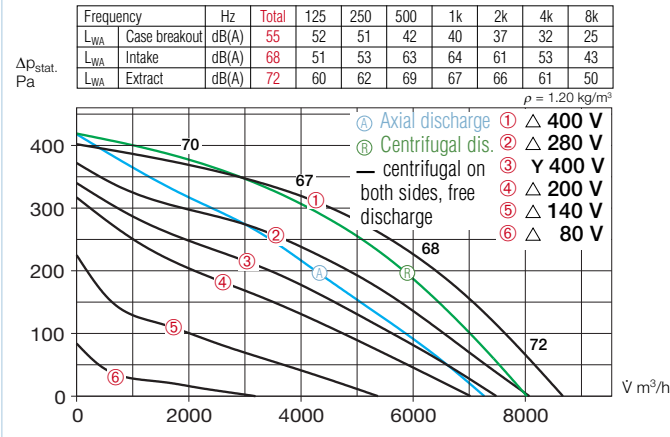
Electrical connection

Standard terminal box (IP 54) fitted on the motor; with GB.. T120 fitted on the motor support plate.

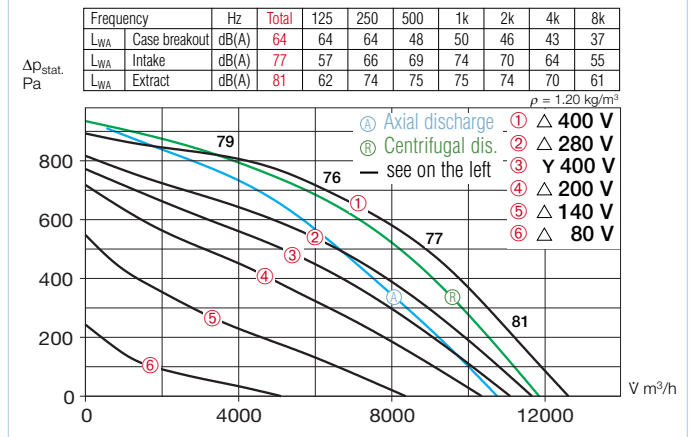
Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)	Current		Wiring diagram	Maximum air flow temperature		Nominal weight (net)	5 step transformer controller		Full motor protection unit using the thermal contacts		
						full load	speed controlled		full load	controlled		with motor protect. unit	without motor protect. unit	Type	Ref. No.	Type
		m³/h	min⁻¹	dB(A) at 4 m	kW	A	A	Nr.	+°C	+°C	kg	Type	Ref. No.	Type	Ref. No.	
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54																
GBD 560/6/6	5522	7800/8640	690/870	35	0.51/0.80	0.90/1.90	1.90	867	60	60	80	RDS 4	1316	TSD 3.0	1502	M4 ¹⁾ 1571
GBD 560/4/4	5521	11500/12590	1110/1350	44	1.70/2.50	2.80/4.80	4.90	867	55	45	90	RDS 7	1578	TSD 7.0	1504	M4 ¹⁾ 1571
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54																
GBD 560/4/4 T120	5778	11520/12300	1250/1400	48	1.85/2.50	3.20/6.80	6.80	520	120	120	105	RDS 7	1578	TSD 7.0	1504	M4 ¹⁾ 1571

¹⁾ incl. operation and 2 speed switch

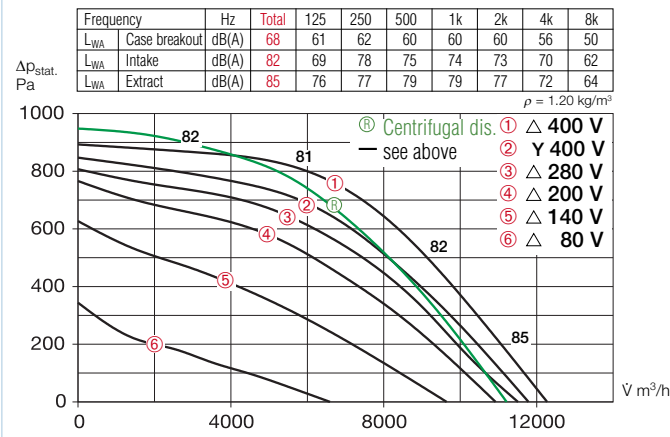
GBD 560/6/6



GBD 560/4/4



GBD 560/4/4 T120



Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

All types are speed controllable by voltage reduction using a transformer controller. The 3-phase models can also be 2 speed controlled by star/delta switch (accessories DS 2 or full motor protection unit M 4). The duties at different speeds are given in the performance curve.

Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:
 – sound level case breakout
 – sound level intake
 – sound level extract
 in the tables above the performance curve. Beside, the sound power level (on intake) is stated over the rated characteristic curve. In the table below you can also find the
 – case breakout level at 4 m (freefield conditions).

Accessories of both types

Anti vibration mounts for installation indoors. Set of 4.

SDD-U Ref. No. 5627

Wall bracket for wall mounting.

GB-WK 560 Ref. No. 5626

External weather louvers to cover exhaust opening.

GB-WSG 560 Ref. No. 5640

Outdoor cover hood for outdoor installation.

GB-WSD 560 Ref. No. 5749

On/Off and 2-speed switch for 3-phase star/delta motors.

DS 2²⁾ Ref. No. 1351

²⁾ full motor protection unit recommended: MD Ref. No. 5849

Specific accessories

for types GB..

Condensate collector with condensate spigot for pipe connection.
GB-KW 560 Ref. No. 5645
 (Condensate collector with condensate spigot included in delivery with GB.. T120).

for types GB.. T120

Rain drainage for outdoor installation (drill holes for rain drainage is already prepared).

GB-RA Ref. No. 9418

Information	Pages
Design of systems, acoustic	12 on
General techn. information, speed control	17 on
Accessory-Details	Pages
Speed controller and full motor protection unit	397 on

Models GB..

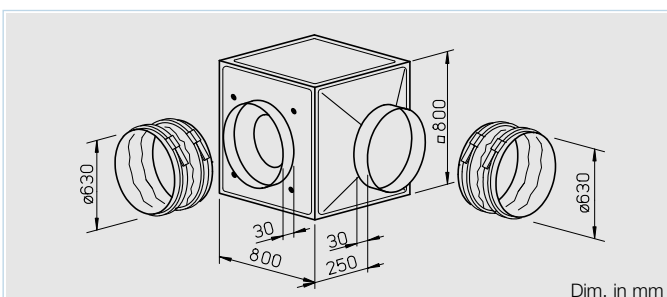
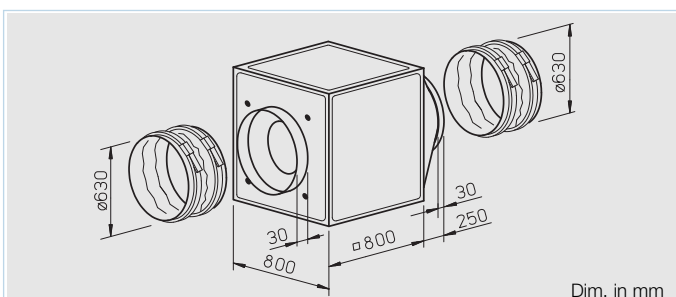
Arbitrary installation position and flexible assembly by five possible discharge directions.



Models GB.. T120

NEW!

Designed for moving dirty, humid and hot air up to max. 120° C.



Special features of type GB.. T120

- Designed for moving dirty, humid and hot air volumes up to max. 120° C.
- Motor located outside of air flow.
- Temperature insulated partition panel between motor and impeller, lined with 20 mm thick, flame-retardant mineral wool.
- Easily accessible motor and impeller unit, removable without disassembling the system components.
- Inspection cover with handle, simply remove for cleaning and maintenance.
- Condensate collector with condensate spigot included in delivery. Drill hole for rain drainage (accessories) for outdoor installation is prepared.

Assembly of types GB.. T120

Installation must be carried out with condensation discharge showing downward. Flexible assembly by three possible centrifugal discharge directions via the discharge adapter. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Feature

Assembly of types GB..

Arbitrary installation position and flexible assembly by five possible discharge directions via the discharge adapter. For wall mounting the wall bracket (accessories) has to be used. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Specification of both types

Casing

Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal inflow as well as spigot and flexible sleeve (for the respective max. permissible air flow temperature) for duct connection. With discharge adapter (from square into circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

Impeller

Smooth running backward curved aluminium centrifugal impeller highly efficient and direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

Motor

Maintenance-free external rotor motor or IEC-standard motor protected to IP 44 or 54. With ball bearings and radio suppressed as standard.

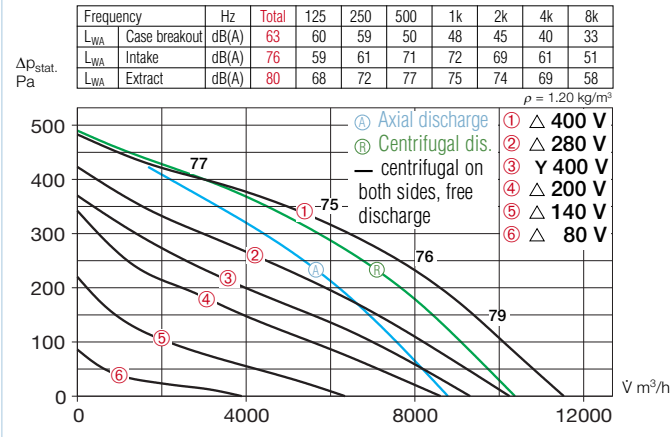
Electrical connection

Standard terminal box (IP 54) fitted on the motor; with GB.. T120 fitted on the motor support plate.

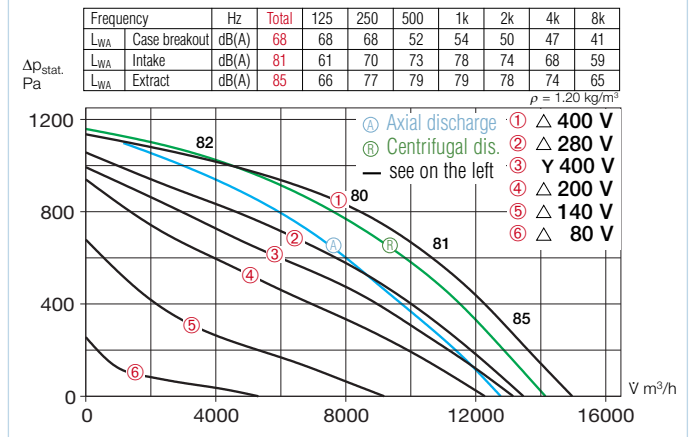
Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)	Current full load	Current speed controlled	Wiring diagram	Maximum air flow temperature full load controlled	Nominal weight (net)	5 step transformer controller with motor protect. unit	5 step transformer controller without motor protect. unit	Full motor protection unit using the thermal contacts				
		V m ³ /h	min ⁻¹	dB(A) at 4 m	kW	A	A	Nr.	+°C	+°C	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54																	
GBD 630/6/6	5524	9700/11490	630/820	43	0.76/1.35	1.50/2.40	2.40	867	60	60	103	RDS 4	1316	TSD 5.5	1503	M4 ¹⁾	1571
GBD 630/4/4	5523	13500/14950	1120/1380	48	2.55/3.65	4.50/6.60	7.90	867	75	50	105	RDS 11	1332	TSD 11.0	1513	M4 ¹⁾	1571
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54																	
											frequency inverter / sinusoidal filter						
GBD 630/4 T120	5779	14000	1445	53	4.40	8.10	–	776	120	120	131	FUG 12	6109 / FU-SF 16	6117	–	–	–

¹⁾ incl. operation and 2 speed switch

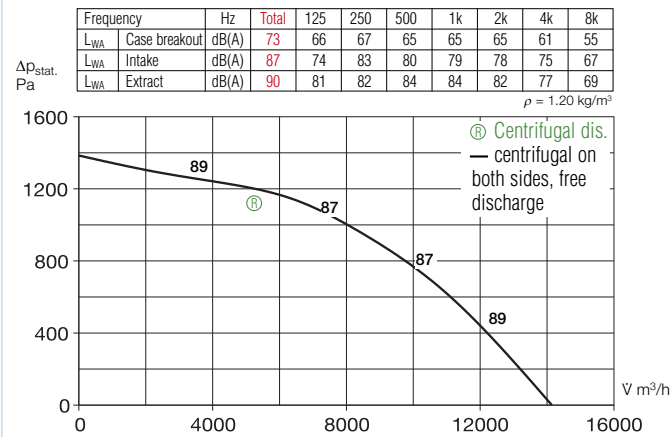
GBD 630/6/6



GBD 630/4/4



GBD 630/4 T120



Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

All types (except GB 630/4 T120) are speed controllable by voltage reduction using a transformer controller. The 3-phase models can also be 2 speed controlled by star/delta switch (accessories DS 2 or full motor protection unit M 4). The duties at different speeds are given in the performance curve. Type GBD 630/4 T120 is exclusively controllable by frequency inverter

Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:
 - sound level case breakout
 - sound level intake
 - sound level extract
 in the tables above the performance curve. Beside, the sound power level (on intake) is stated over the rated characteristic curve. In the table below you can also find the
 - case breakout level at 4 m (freefield conditions).

Accessories of both types

Anti vibration mounts for installation indoors. Set of 4.
SDD-U Ref. No. 5627

Wall bracket for wall mounting.
GB-WK 630 Ref. No. 5626

External weather louvers to cover exhaust opening.
GB-WSG 630 Ref. No. 5640

Outdoor cover hood for outdoor installation.
GB-WSD 630 Ref. No. 5749

Information	Pages
Design of systems, acoustic	12 on
General techn. information, speed control	17 on
Accessory-Details	Pages
Speed controller and full motor protection unit	397 on

Specific accessories

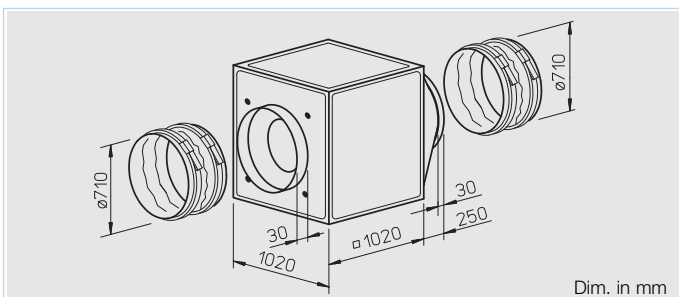
for types GB..
Condensate collector with condensate spigot for pipe connection.
GB-KW 630 Ref. No. 5645
 (Condensate collector with condensate spigot included in delivery with GB.. T120).

On/Off and 2-speed switch for 3-phase star/delta motors.
DS 2 ²⁾ Ref. No. 1351

for types GB.. T120
Rain drainage for outdoor installation (drill holes for rain drainage is already prepared).
GB-RA Ref. No. 9418

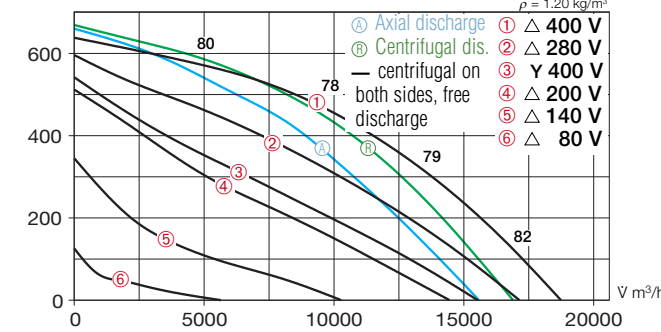
²⁾ full motor protection unit recommended: MD Ref. No. 5849

Models GB..



GBD 710/6/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 66	63	62	53	51	48	43	36
L _{WA} Intake		dB(A) 79	62	64	74	75	72	64	54
L _{WA} Extract		dB(A) 83	71	75	80	78	77	72	61



Information	Pages
Design of systems, acoustic	12 on
General techn. information, speed control	17 on
Accessory-Details	Pages
Speed controller and full motor protection unit	397 on

■ Specification

■ Casing

Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal inflow as well as spigot and flexible sleeve for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

□ Impeller

Smooth running backward curved aluminium centrifugal impeller highly efficient and direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

□ Motor

Maintenance-free and speed controllable external rotor motor, protection to IP 44. With ball bearings and radio suppressed as standard.

□ Electrical connection

Terminal box fitted on the motor as standard, protection to IP 54.

□ Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

□ Speed control

All models are speed controllable using a transformer controller for voltage reduction. The 3 ph.-models can also be operated on two speeds using a Y/Δ switch DS 2 or a full motor protection unit M4. The voltage steps are given in the performance curve.

□ Assembly

Arbitrary installation position and flexible assembly by five possible discharge directions of the discharge adapter. For wall mounting the wall bracket (accessories) has to be used. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

■ Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:
 – sound level case breakout
 – sound level intake
 – sound level extract
 in the tables above the performance curve. Beside, the sound power level (on intake) is stated over the rated characteristic curve. In the table below you can also find the
 – case breakout level at 4 m (freefield conditions).

■ Accessories

Anti vibration mounts for installation indoors. Set of 4.

SDD-U Ref. No. 5627

External weather louvers to cover exhaust opening.

GB-WSG 710 Ref. No. 5641

Outdoor cover hood for outdoor installation.

GB-WSD 710 Ref. No. 5750

Condensate collector with condensate spigot for pipe connection.

GB-KW 710 Ref. No. 5646

On/Off and 2-speed switch for 3-phase star/delta motors.

DS 2²⁾ Ref. No. 1351

Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)	Current full load	Current speed controlled	Wiring diagram	Maximum air flow temperature full load	Nominal weight (net)	5 step transformer controller with motor protect. unit	5 step transformer controller without motor protect. unit	Full motor protection unit using the thermal contacts	
		V m ³ /h	min ⁻¹	dB(A) at 4 m	kW	A	A	Nr.	+°C	+°C	kg	Type Ref. No.	Type Ref. No.	Type Ref. No.
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ-wiring, protection to IP 54														
GBD 710/6/6	5525	16500/18700	690/890	46	1.55/2.45	2.90/4.70	4.70	867	50	50	157	RDS 7 1578	TSD 7.0 1504	M4¹⁾ 1571

¹⁾ incl. operation and 2 speed switch ²⁾ required full motor protection unit: model MD, Ref. No. 5849

Special features of the MegaBox models are:

- Acoustically insulated high performance centrifugal fan.
- Swing out ventilator unit for easy cleaning and maintenance.
- Speed controllable IEC flange mounted motor out of the air stream with thermal overload protection.
- High total efficiency, small energy consumption and low sound levels using high performance-centrifugal impellers.
- Low cost speed control.

The optimized design of the centrifugal impeller, casing and motor provides the properties mentioned above and offers efficient operation with easy installation reducing costs.

The MegaBox meets the highest specifications. Typical applications are handling dirty, greasy, hot (up to 100 °C) and humid air, against high resistances in a variety of commercial and industrial applications.

For commercial kitchen applications DW 172 requires that centrifugal fans have backward

curved impellers and the MegaBox sizes 315 to 400 mm meet that requirement. The ability of the fan to open for cleaning is particularly useful in kitchen applications.

E Exe II 2G according to 94/9 EG

For areas in which an explosive atmosphere is likely to occur in normal operation, explosion proof models are available from 1 000 to 5 000 m³/h. Approved for operation in Zone 1 or 2 according to DIN EN 60079-10 and 94/9 (ATEX).

Excellent, sound and thermal insulation. All of the casing is double skinned and manufactured from galvanised sheet steel, acoustically lined with 50 mm thick mineral fibreboard. Non-flammable to DIN 4102.

Inner fan surface is made entirely from galvanised sheet steel and allows fast and efficient cleaning e.g. with a steam cleaner.

Powerful centrifugal fans for easy cleaning for high pressure systems. For commercial kitchen extract systems to DW 172.

Stable mounting rails supplied with 4 anti vibration mounts for effective vibration insulation and a quiet operation.





■ Operation

Acoustically insulated centrifugal fan with swing out motor and impeller unit, with motor out of the air stream. Suitable for handling dust laden, greasy, hot (up to +100 °C) and humid air against high resistances. An ideal exhaust fan for commercial kitchen systems.

■ Casing

Acoustically lined double skinned galvanised steel casing with 50 mm thick mineral fibreboard. Swing out motor and impeller unit, fixed with robust die-cast hinges. Intake and exhaust spigots with twin-seal rubber gasket. Easy installation with 2 sturdy mounting rails, manufactured from galvanised steel complete with anti vibration mounts.

■ Impeller

High efficiency, low noise level, aerodynamically optimised scroll. Up to size 280 forward curved centrifugal-impellers manufactured from galvanised steel; from size 315 onwards backwards curved centrifugal impellers manufactured in aluminium. Dynamically balanced to DIN ISO 1940 Pt.1 – G .3.

■ Motor

Maintenance free squirrel cage motor in IEC-dimensions, mounted out of the air stream. Conforming to VDE 0530, DIN EN 60034 and DIN EN 60335-1/VDE 0700-1 and suitable for most applications. Motor, flange mounted and self cooling. Thermal overload protection through built-in thermal contacts. Approved for continuous operation S1. Insulation class F. Enclosed casing, protection to IP 55.

■ Speed control

All models are speed controllable using transformer controllers. The 3 phase models may be 2 speed using star/delta connection with a switch or M 4 full motor protection unit. Therefore the performance can be matched to suit the system requirements. Our speed controllers are suitable to control various fans up to their maximum nominal output. When selecting a controller not shown allow for a 10% safety margin.

■ Electrical connection

The terminal box is fitted externally on the motor as standard (IP 55). Note the flexible cable needed for the swing out motor and impeller unit when connecting the power.

■ Explosion proof

The explosion proof models relate to product group II, class 2G for operation in Zone 1 or 2 according to 94/9/EG.

■ Air flow direction

The air flow direction of centrifugal fans is fixed and can not be reversed. The correct direction of rotation and the direction of air flow are marked on the units and must be checked when installing.

■ Incorrect direction of rotation

If the fan is operated in the wrong direction of rotation the motor will overheat and the thermal contact will trip. Typical indication for this is a very low air flow combined with high noise levels and vibration.

■ Air flow temperature

Standard operation –40 °C to +100 °C.

■ Ambient temperature

From –40 °C to +40 °C.

■ Installation

Can be mounted in any position. Please note swinging area and weight of the motor impeller unit as well as free access when positioning.

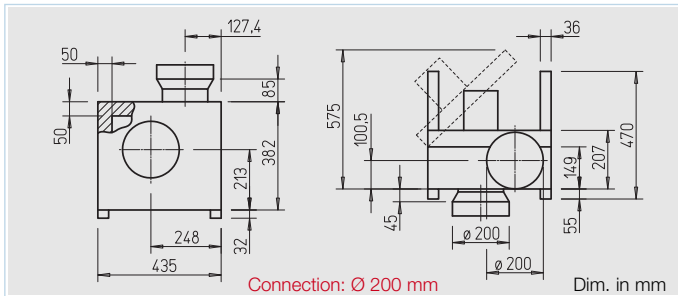
■ Noise/vibration transmission

To avoid noise and vibration transmission from the fan to the ducting and the building use anti vibration mounts (accessory: SDD) and flexible connectors (accessory: FM).

Information	Pages
Design of systems, acoustic	12 on
General technical information, speed control	17 on
Accessory-Details	Pages
Flexible sleeve	172
Speed controller and full motor protection unit	397 on

Type	Sound press. lvl. -breakout	Sound press. lvl. -intake	Air flow volume in Vol m³/s against static pressure															
	L _{PA} dB(A)	L _{PA} dB(A)	(ΔP _{stat.}) in Pa															
	at 1 metre	at 1 metre	0	50	100	200	300	400	500	600	700	800	1000	1500	2000			
MBW 160/4	48	64	0.226	0.200	0.172													
MBD 160/4/4	48	64	0.231	0.204	0.174	0.134												
MBD 160/2/2	63	79	*	*	0.494	0.469	0.438	0.406	0.370	0.330	0.278							
MBD 160/4 Ex	48	64	0.267	0.236	0.203													
MBD 160/2 Ex	63	79	0.561	0.547	0.533	0.506	0.472	0.436	0.394	0.353	0.308							
MBW 180/4	51	67	0.358	0.331	0.303	0.219												
MBD 180/4/4	51	67	0.358	0.331	0.303	0.219												
MBD 180/2/2	66	82	0.781	0.770	0.758	0.729	0.698	0.666	0.628	0.590	0.549	0.500						
MBD 180/4 Ex	51	67	0.386	0.358	0.328	0.239												
MBW 200/6	45	61	0.300	0.261	0.194													
MBW 200/4	54	70	*	*	0.447	0.367												
MBD 200/4/4	54	70	0.492	0.467	0.436	0.356												
MBD 200/4 Ex	54	70	*	*	0.511	0.425	0.300											
MBW 225/6	48	64	0.478	0.422	0.361													
MBW 225/4	56	74	*	*	0.686	0.606	0.508											
MBD 225/4/4	56	74	0.714	0.733	0.650	0.575	0.475											
MBD 225/4 Ex	56	74	*	0.756	0.714	0.625	0.511	0.261										
MBW 250/6	52	68	0.769	0.708	0.642	0.417												
MBW 250/4	62	78	*	*	1.025	0.942	0.847	0.728										
MBD 250/4/4	62	78	*	*	*	0.967	0.869	0.747	0.486									
MBD 250/4 Ex	62	78	1.147	1.108	1.067	0.978	0.875	0.742	0.542									
MBW 280/6	56	72	*	*	0.900	0.761												
MBD 280/6/6	56	72	*	*	0.872	0.700												
MBD 280/4/4	65	81	*	*	*	*	*	1.175	1.033	0.833								
MBD 280/4 Ex	65	81	*	*	*	*	1.333	0.1225	1.083	0.875								
MBW 315/6	34	50	0.375	0.303	0.217													
MBW 315/4	46	62	0.535	0.494	0.425	0.300												
MBD 315/4/4	46	62	0.569	0.533	0.478	0.356	0.258	0.174										
MBD 315/2/2	64	80	1.106	1.086	1.061	1.017	0.958	0.972	0.847	0.764	0.731	0.678	0.581	0.222				
MBW 355/6	37	53	*	0.447	0.336	0.097												
MBW 355/4	49	65	*	0.719	0.656	0.369	0.419	0.283										
MBD 355/4/4	49	65	0.783	0.739	0.733	0.547	0.431	0.294										
MBD 355/2/2	68	84	1.611	1.603	1.578	1.522	1.467	1.397	1.333	1.269	1.129	1.156	1.028	0.750				
MBW 400/6	39	55	0.614	0.525	0.447	0.256												
MBW 400/4	52	68	0.992	0.931	0.881	0.778	0.678	0.569	0.375	0.183								
MBD 400/4/4	52	68	0.978	0.919	0.864	0.769	0.667	0.564	0.417									
MBD 400/2/2	74	90	2.083	2.050	2.019	1.964	1.897	1.850	1.800	1.753	1.703	1.664	1.558	1.314	0.972			

* Do not use at this pressure, minimum system resistance needed.



Casing

See "general information", page 194.

Impeller

Forward curved high output centrifugal-impeller, made from galvanised sheet steel, mounted directly to the motor shaft. High efficiency, low noise level, aerodynamically optimised scroll. Dynamically balanced to DIN ISO 1940 Pt. 1 – class G 6.3.

Motor

Maintenance free, speed controllable IEC-flange motor, out of the air stream, protected to IP 55. With ball bearings and radio suppression.

Electrical connection

Terminal box fitted externally on the motor as standard (IP 55).

Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

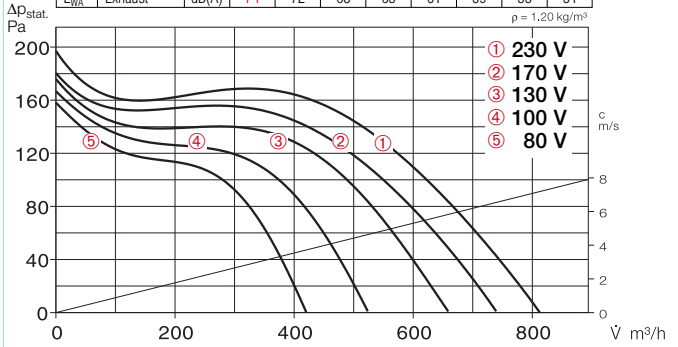
All models are speed controllable through transformer controllers (accessory). The 3 phase models can be 2 speed controlled by star/delta switch or full motor protection unit M4. The sound power levels are shown with the performance curves.

Accessories

- Wall bracket**, from galv. steel
MB-WK 160 Ref. No. 5526
- Rain repellent roof**, from galv. sheet steel, mounting above the motor.
MB-WSD Ref. No. 1856

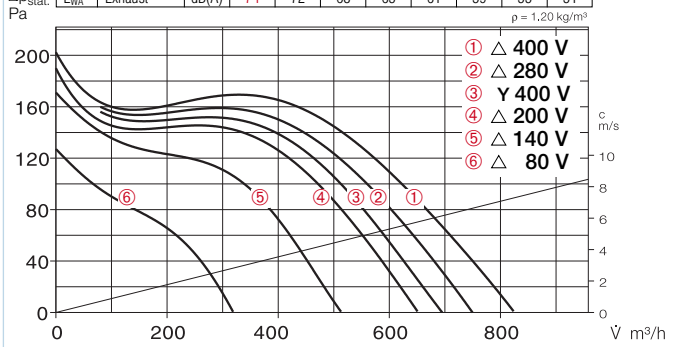
MBW 160/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	54	52	48	45	41	39	35	31
L _{WA} Intake	dB(A)	72	70	66	63	59	57	53	49
L _{WA} Exhaust	dB(A)	74	72	68	65	61	59	55	51



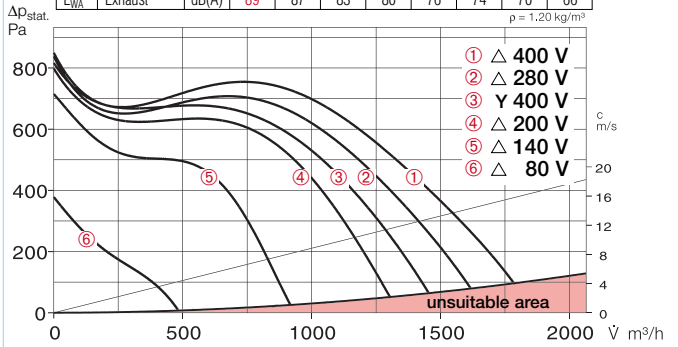
MBD 160/4/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	54	52	48	45	41	39	35	31
L _{WA} Intake	dB(A)	72	70	66	63	59	57	53	49
L _{WA} Exhaust	dB(A)	74	72	68	65	61	59	55	51



MBD 160/2/2

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	69	67	63	60	56	54	50	46
L _{WA} Intake	dB(A)	87	85	81	78	74	72	68	64
L _{WA} Exhaust	dB(A)	89	87	83	80	76	74	70	66



Flexible sleeve for installation between fan and ducting.

- FM 200** Ref. No. 1670
- FM 200 Ex** Ref. No. 1686

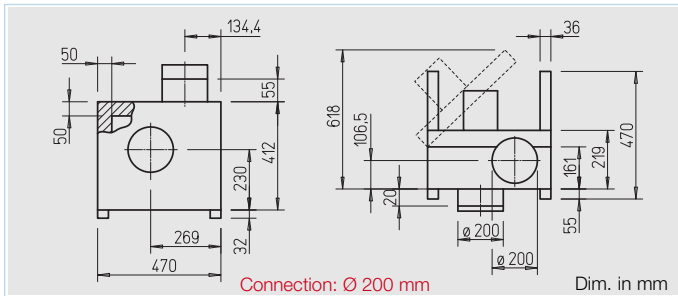
On/off switch for 2 speed Y/Δ-motor 3 phase fans

- DS 2⁴⁾** Ref. No. 1351

Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)*	Current*		Wiring diagram	Maximum air flow temperature controlled		Nominal weight (net)	5 step transformer controller with motor protect. unit		Full motor protection unit			
						full load	speed controlled		+°C	+°C		Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55																	
MBW 160/4	5930	815	1350	48	0.18	0.90	1.10	751	100	60	25	MWS 1.5	1947	TSW 1.5	1495	MW¹⁾	1579
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																	
MBD 160/4/4	5931	720/830	1200/1390	45/48	0.13/0.19	0.25/0.65	0.65	520	100	60	24	RDS 1	1314	TSD 0.8⁴⁾	1500	M4²⁾	1571
MBD 160/2/2	5932	1420/1770	2250/2800	58/63	0.90/1.10	1.60/2.20	2.50	520	100	60	34	RDS 4	1316	TSD 3.0⁴⁾	1502	M4²⁾	1571
Explosion proof E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54																	
MBD 160/4 Ex³⁾	6001	970	1420	48	0.37	1.14	—	470	40	—	25	not permitted	—	not permitted	—	—	—
MBD 160/2 Ex³⁾	6002	2020	2840	63	1.50	3.15	—	470	40	—	34	not permitted	—	not permitted	—	—	—

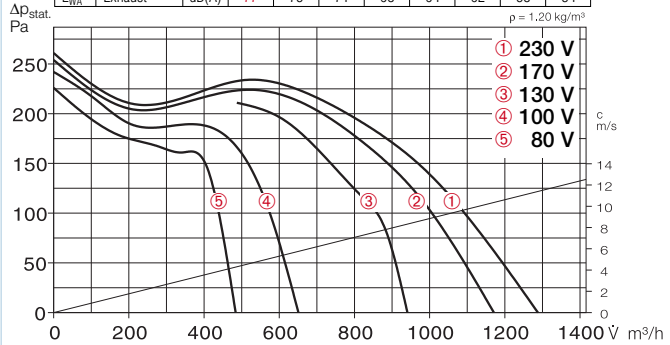
* Ex-Models: for nominal value of motor see information on page 18. ¹⁾ incl. operation switch ²⁾ incl. operation and speed switch ³⁾ Performance curve on request

⁴⁾ required full motor protection unit: model MD, Ref. No. 5849



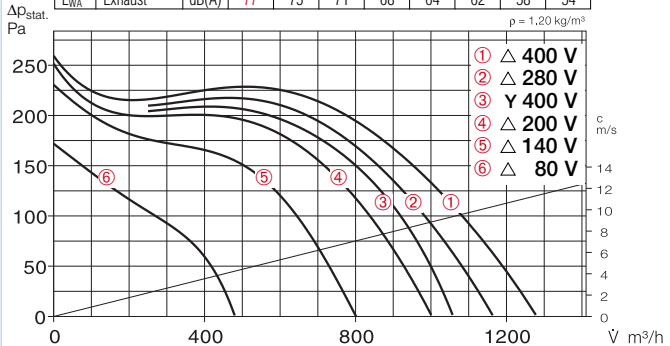
MBW 180/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	57	55	51	48	44	42	38	34
L _{WA} Intake	dB(A)	75	73	69	66	62	60	56	52
L _{WA} Exhaust	dB(A)	77	75	71	68	64	62	58	54



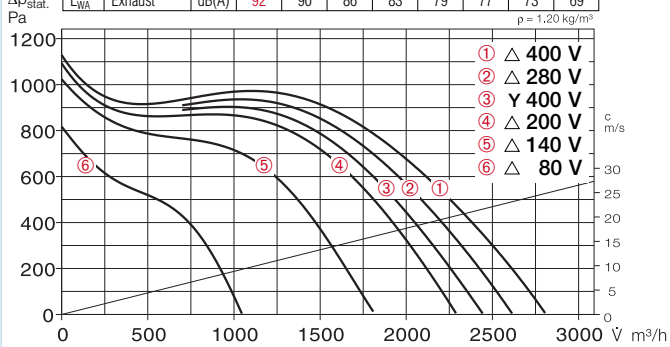
MBD 180/4/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	57	55	51	58	44	42	38	34
L _{WA} Intake	dB(A)	75	73	69	66	62	60	56	52
L _{WA} Exhaust	dB(A)	77	75	71	68	64	62	58	54



MBD 180/2/2

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	72	70	68	63	59	57	53	49
L _{WA} Intake	dB(A)	90	88	84	81	77	75	71	67
L _{WA} Exhaust	dB(A)	92	90	86	83	79	77	73	69



Casing

See "general information", page 194.

Impeller

Forward curved high output centrifugal-impeller, made from galvanised sheet steel, mounted directly to the motor shaft. High efficiency, low noise level, aerodynamically optimised scroll. Dynamically balanced to DIN ISO 1940 Pt. 1 – class G 6.3.

Motor

Maintenance free, speed controllable IEC-flange motor, out of the air stream, protected to IP 55. With ball bearings and radio suppression.

Electrical connection

Terminal box fitted externally on the motor as standard (IP 55).

Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

All models are speed controllable through transformer controllers (accessory). The 3 phase models can be 2 speed controlled by star/delta switch or full motor protection unit M4. The sound power levels are shown with the performance curves.

Accessories

- Wall bracket**, from galv. steel
MB-WK 180 Ref. No. 5526
- Rain repellent roof**, from galv. sheet steel, mounting over the motor.
MB-WSD Ref. No. 1856

Flexible Connector for installation between fan and ducting.
FM 200 Ref. No. 1670

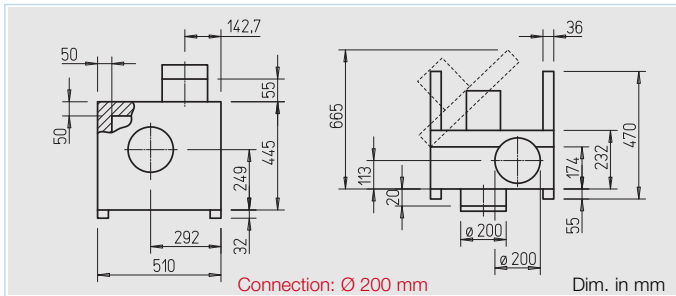
FM 200 Ex Ref. No. 1686

On/off switch for 2 speed Y/Δ-motor 3 phase fans DS 2⁴⁾ Ref. No. 1351

Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)*	Current* full load	Current* speed controlled	Wiring diagram	Maximum air flow temperature full load controlled	Nominal weight (net)	5 step transformer controller with motor protect. unit	5 step transformer controller without motor protect. unit	Full motor protection unit
		V m³/h	min ⁻¹	dB(A) in 1 m	KW	A	A	No.	+°C	kg	Type Ref. No.	Type Ref. No.	Type Ref. No.
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55													
MBW 180/4	5933	1290	1380	51	0.34	1.80	1.80	751	100	60	MWS 3 1948	TSW 3.0 1496	MW ¹⁾ 1579
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55													
MBD 180/4/4	5934	1170/1290	1250/1380	49/51	0.20/0.31	0.60/0.90	0.90	520	100	60	RDS 1 1314	TSD 1.5 ⁴⁾ 1501	M4 ²⁾ 1571
MBD 180/2/2	5925	2410/2810	2450/2850	63/66	1.90/2.46	3.00/5.10	5.50	520	100	60	RDS 7 1578	TSD 7.0 ⁴⁾ 1504	M4 ²⁾ 1571
Explosion proof E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54													
MBD 180/4 Ex ³⁾	6004	1400	1420	51	0.37	1.14	—	470	40	—	not permitted	not permitted	—

* Ex-Models: for nominal value of motor see information on page 18. ¹⁾ incl. operation switch ²⁾ incl. operation and speed switch ³⁾ Performance curve on request

⁴⁾ required full motor protection unit: model MD, Ref. No. 5849



Casing

See "general information", page 194.

Impeller

Forward curved high output centrifugal-impeller, made from galvanised sheet steel, mounted directly to the motor shaft. High efficiency, low noise level, aerodynamically optimised scroll. Dynamically balanced to DIN ISO 1940 Pt. 1 – class G 6.3.

Motor

Maintenance free, speed controllable IEC-flange motor, out of the air stream, protected to IP 55. With ball bearings and radio suppression.

Electrical connection

Terminal box fitted externally on the motor as standard (IP 55).

Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

All models are speed controllable through transformer controllers (accessory). The 3 phase models can be 2 speed controlled by star/delta switch or full motor protection unit M4. The sound power levels are shown with the performance curves.

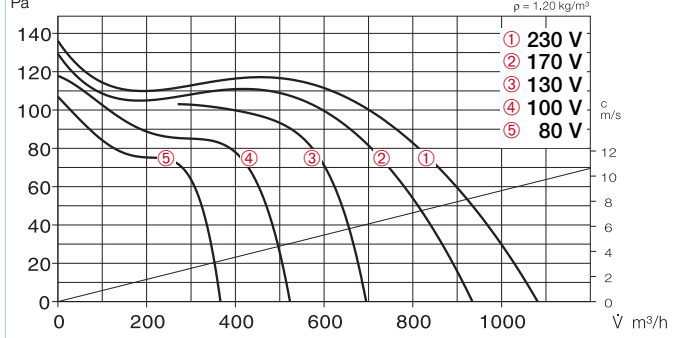
Accessories

Wall bracket, from galv. steel
MB-WK 200 Ref. No. 5526

Rain repellent roof, from galv. sheet steel, mounting over the motor.
MB-WSD Ref. No. 1856

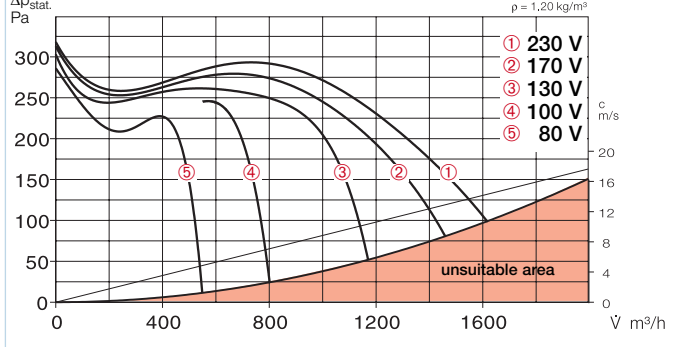
MBW 200/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	51	49	45	42	38	36	32	28
L _{WA} Intake	dB(A)	69	67	63	60	56	54	50	46
L _{WA} Exhaust	dB(A)	71	69	65	62	58	56	52	48



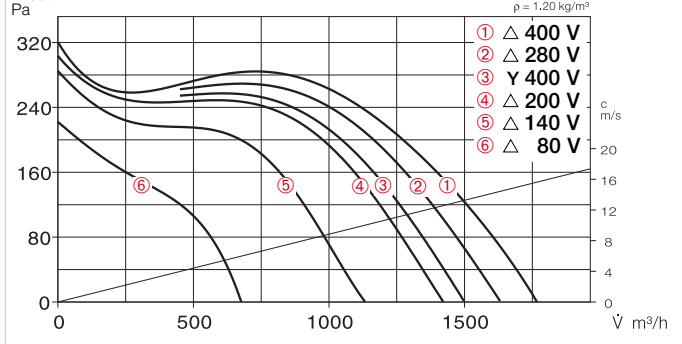
MBW 200/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	60	58	54	51	47	45	41	37
L _{WA} Intake	dB(A)	78	76	72	69	65	63	59	55
L _{WA} Exhaust	dB(A)	80	78	74	71	67	65	61	57



MBD 200/4/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	60	58	54	51	47	45	41	37
L _{WA} Intake	dB(A)	78	76	72	69	65	63	59	55
L _{WA} Exhaust	dB(A)	80	78	74	71	67	65	61	57



Flexible connector for installation between fan and ducting.
FM 200 Ref. No. 1670

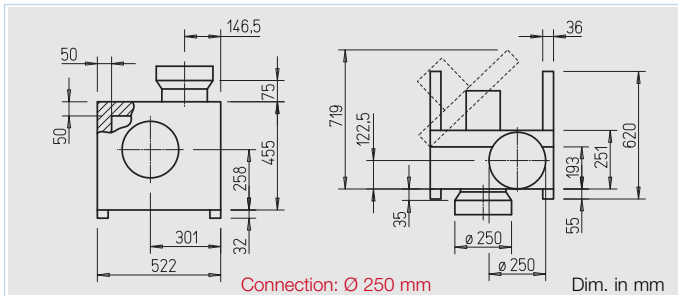
FM 200 Ex Ref. No. 1686

On/off switch for 2 speed Y/Δ-motor 3 phase fans DS 2⁴⁾ Ref. No. 1351

Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)*	Current*		Wiring diagram	Maximum air flow temperature controlled		Nominal weight (net)	5 step transformer controller with motor protect. unit		Full motor protection unit			
		Vol m³/h	min ⁻¹	dB(A) in 1 m	kW	full load	speed controlled		No.	+°C		+°C	kg	Type	Ref. No.	Type	Ref. No.
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55																	
MBW 200/6	5935	1080	870	45	0.18	0.92	0.92	751	100	60	35	MWS 1.5	1947	TSW 1.5	1495	MW ¹⁾	1579
MBW 200/4	5936	1600	1380	54	0.54	2.40	2.80	751	100	60	35	MWS 5	1949	TSW 5.0	1497	MW ¹⁾	1579
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																	
MBD 200/4/4	5938	1510/1770	1160/1360	51/54	0.34/0.55	0.65/1.70	1.70	520	100	60	38	RDS 2	1315	TSD 3.0 ⁴⁾	1502	M4 ²⁾	1571
Explosion proof E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54																	
MBD 200/4 Ex ³⁾	6008	1840	1415	54	0.55	1.51	—	470	40	—	35	not permitted	—	not permitted	—	—	—

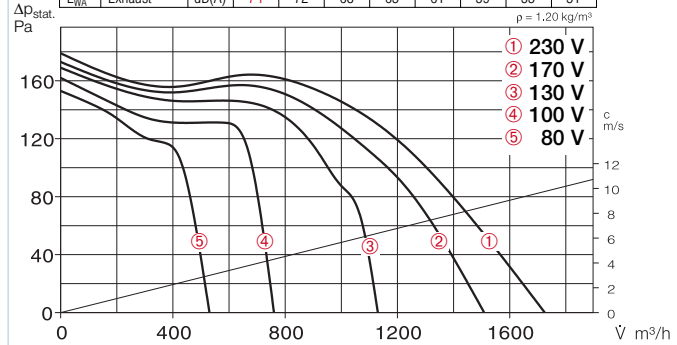
* Ex-Models: for nominal value of motor see information on page 18. ¹⁾ incl. operation switch ²⁾ incl. operation and speed switch ³⁾ Performance curve on request

⁴⁾ required full motor protection unit: model MD, Ref. No. 5849



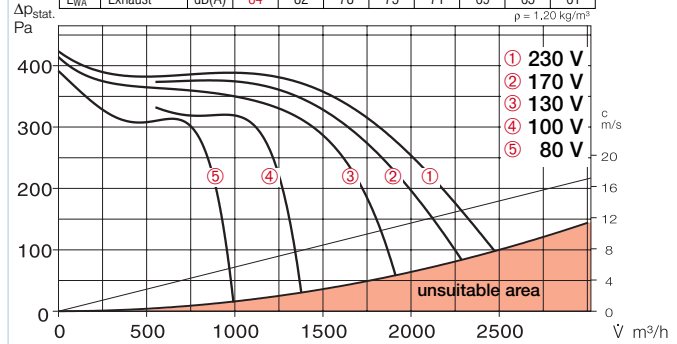
MBW 225/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	54	52	48	45	41	39	35	31
L _{WA} Intake	dB(A)	72	70	66	63	59	57	53	49
L _{WA} Exhaust	dB(A)	74	72	68	65	61	59	55	51



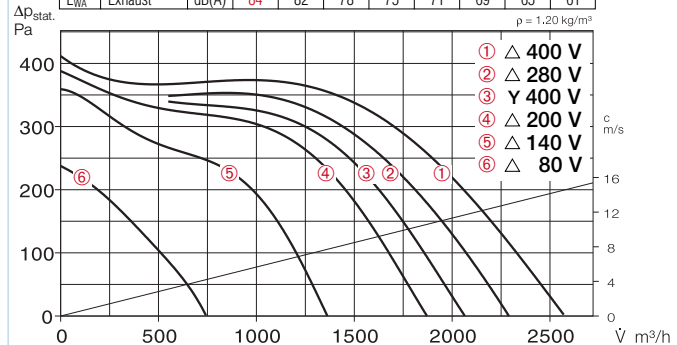
MBW 225/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	64	62	58	55	51	49	45	41
L _{WA} Intake	dB(A)	82	80	76	73	69	67	63	59
L _{WA} Exhaust	dB(A)	84	82	78	75	71	69	65	61



MBD 225/4/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	64	62	58	55	51	49	45	41
L _{WA} Intake	dB(A)	82	80	76	73	69	67	63	59
L _{WA} Exhaust	dB(A)	84	82	78	75	71	69	65	61



Casing

See "general information", page 194.

Impeller

Forward curved high output centrifugal-impeller, made from galvanised sheet steel, mounted directly to the motor shaft. High efficiency, low noise level, aerodynamically optimised scroll. Dynamically balanced to DIN ISO 1940 Pt. 1 – class G 6.3.

Motor

Maintenance free, speed controllable IEC-flange motor, out of the air stream, protected to IP 55. With ball bearings and radio suppression.

Electrical connection

Terminal box fitted externally on the motor as standard (IP 55).

Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

All models are speed controllable through transformer controllers (accessory). The 3 phase models can be 2 speed controlled by star/delta switch or full motor protection unit M4. The sound power levels are shown with the performance curves.

Accessories

- Wall bracket, from galv. steel
MB-WK 225 Ref. No. 5527
- Rain repellent roof, from galv. sheet steel, mounting over the motor.
MB-WSD Ref. No. 1856

Flexible connector for installation between fan and ducting.

- FM 250** Ref. No. 1672
- FM 250 Ex** Ref. No. 1688

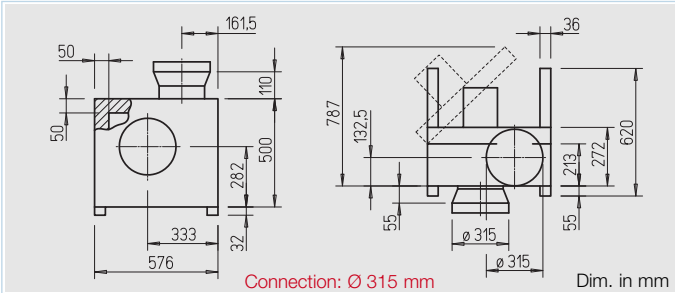
On/off switch for 2 speed Y/Δ-motor 3 phase fans

- DS 2⁴⁾** Ref. No. 1351

Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)*	Current*		Wiring diagram	Maximum air flow temperature		Nominal weight (net)	5 step transformer controller with motor protect. unit		Full motor protection unit			
		V m³/h	min ⁻¹	dB(A) in 1 m	kW	A	A		No.	+°C		+°C	kg	Type	Ref. No.	Type	Ref. No.
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55																	
MBW 225/6	5926	1720	890	48	0.33	1.80	1.90	751	100	60	35	MWS 3	1948	TSW 3.0	1496	MW¹⁾	1579
MBW 225/4	5939	2470	1400	56	0.85	4.50	5.50	751	100	60	40	MWS 7.5	1950	TSW 7.5	1596	MW¹⁾	1579
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																	
MBD 225/4/4	5940	2040/2570	1070/1350	51/56	0.59/0.88	0.95/1.80	1.80	520	100	60	38	RDS 2	1315	TSD 3.0⁴⁾	1502	M4²⁾	1571
Explosion proof E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54																	
MBD 225/4 Ex³⁾	6011	2770	1390	56	0.75	2.00	—	470	40	—	40	not permitted	—	not permitted	—	—	—

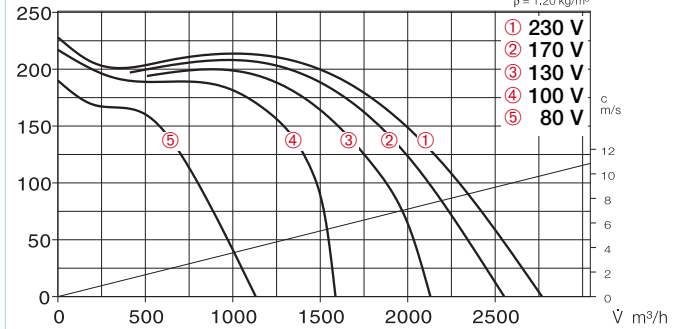
* Ex-Models: for nominal value of motor see information on page 18. ¹⁾ incl. operation switch ²⁾ incl. operation and speed switch ³⁾ Performance curve on request

⁴⁾ required full motor protection unit: model MD, Ref. No. 5849



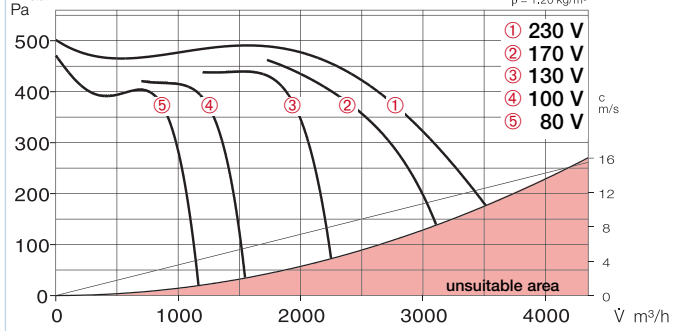
MBW 250/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	58	56	52	49	45	43	39	35
L _{WA} Intake	dB(A)	76	74	70	67	63	61	57	53
L _{WA} Exhaust	dB(A)	78	76	72	69	65	63	59	55



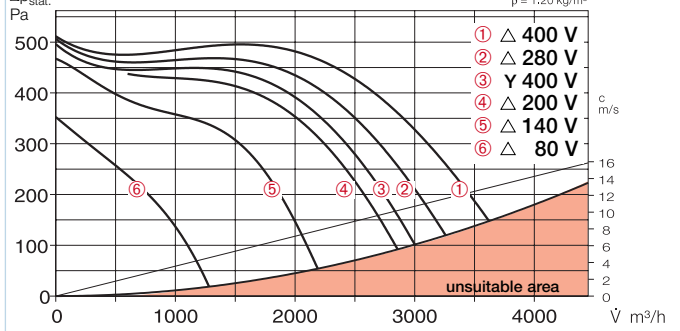
MBW 250/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	68	66	62	59	55	53	49	45
L _{WA} Intake	dB(A)	86	84	80	77	73	71	67	63
L _{WA} Exhaust	dB(A)	88	86	82	79	75	73	69	65



MBD 250/4/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	68	66	62	59	55	53	49	45
L _{WA} Intake	dB(A)	86	84	80	77	73	71	67	63
L _{WA} Exhaust	dB(A)	88	86	82	79	75	73	69	65



□ Casing

See "general information", page 194.

□ Impeller

Forward curved high output centrifugal-impeller, made from galvanised sheet steel, mounted directly to the motor shaft. High efficiency, low noise level, aerodynamically optimised scroll. Dynamically balanced to DIN ISO 1940 Pt. 1 – class G 6.3.

□ Motor

Maintenance free, speed controllable IEC-flange motor, out of the air stream, protected to IP 55. With ball bearings and radio suppression.

□ Electrical connection

Terminal box fitted externally on the motor as standard (IP 55).

□ Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

□ Speed control

All models are speed controllable through transformer controllers (accessory). The 3 phase models can be 2 speed controlled by star/delta switch or full motor protection unit M4. The sound power levels are shown with the performance curves.

■ Accessories

Wall bracket, from galv. steel

MB-WK 250 Ref. No. 5527

Rain repellent roof, from galv. sheet steel, mounting over the motor.

MB-WSD Ref. No. 1856

Flexible connector for installation between fan and ducting.

FM 315 Ref. No. 1674

FM 315 Ex Ref. No. 1690

On/off switch for 2 speed

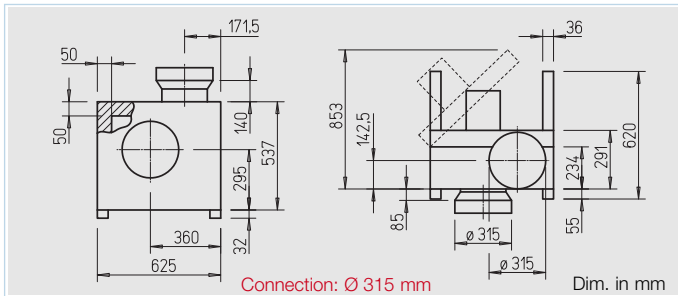
Y/Δ-motor 3 phase fans

DS 2⁴⁾ Ref. No. 1351

Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)*	Current* full load	Current* speed controlled	Wiring diagram	Maximum air flow temperature full load	Nominal weight (net)	5 step transformer controller with motor protect. unit	5 step transformer controller without motor protect. unit	Full motor protection unit
		Vol m³/h	min ⁻¹	dB(A) in 1 m	kW	A	A	No.	+°C	kg	Type Ref. No.	Type Ref. No.	Type Ref. No.
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55													
MBW 250/6	5927	2770	915	52	0.76	3.90	3.90	751	100	60	MWS 5 1949	TSW 5.0 1497	MW ¹⁾ 1579
MBW 250/4	5941	3500	1370	62	1.78	8.20	8.20	751	100	60	MWS 10 1946	TSW 10 1498	MW ¹⁾ 1579
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55													
MBD 250/4/4	5942	2740/3620	1030/1360	56/62	1.10/1.50	2.00/3.20	3.20	520	100	60	RDS 4 1316	TSD 5.5 ⁴⁾ 1503	M4 ²⁾ 1571
Explosion proof E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54													
MBD 250/4 Ex ³⁾	6014	4140	1405	62	1.50	3.35	—	470	40	—	not permitted	not permitted	—

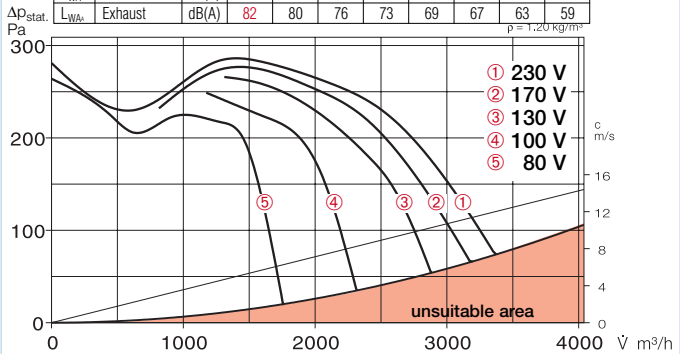
* Ex-Models: for nominal value of motor see information on page 18. ¹⁾ incl. operation switch ²⁾ incl. operation and speed switch ³⁾ Performance curve on request

⁴⁾ required full motor protection unit: model MD, Ref. No. 5849



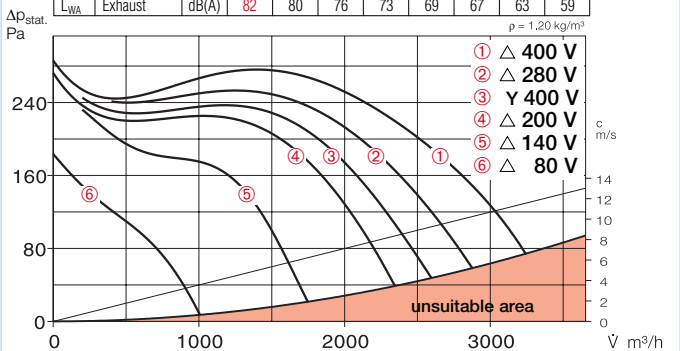
MBW 280/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	62	60	56	53	49	47	43	39
L _{WA} Intake	dB(A)	80	78	74	71	67	65	61	57
L _{WA} Exhaust	dB(A)	82	80	76	73	69	67	63	59



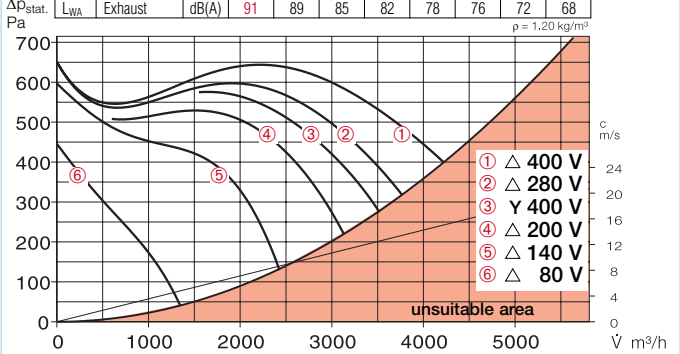
MBD 280/6/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	62	60	56	53	49	47	43	39
L _{WA} Intake	dB(A)	80	78	74	71	67	65	61	57
L _{WA} Exhaust	dB(A)	82	80	76	73	69	67	63	59



MBD 280/4/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	71	69	65	62	58	56	52	48
L _{WA} Intake	dB(A)	89	87	83	80	76	74	70	66
L _{WA} Exhaust	dB(A)	91	89	85	82	78	76	72	68



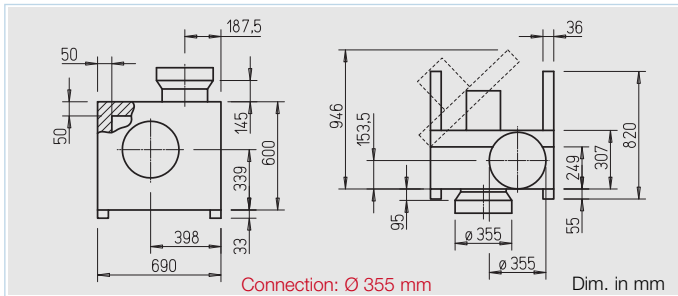
- Casing**
See "general information", page 194.
- Impeller**
Forward curved high output centrifugal-impeller, made from galvanised sheet steel, mounted directly to the motor shaft. High efficiency, low noise level, aerodynamically optimised scroll. Dynamically balanced to DIN ISO 1940 Pt. 1 – class G 6.3.
- Motor**
Maintenance free, speed controllable IEC-flange motor, out of the air stream, protected to IP 55. With ball bearings and radio suppression.
- Electrical connection**
Terminal box fitted externally on the motor as standard (IP 55).
- Motor protection**
Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.
- Speed control**
All models are speed controllable through transformer controllers (accessory). The 3 phase models can be 2 speed controlled by star/delta switch or full motor protection unit M4. The sound power levels are shown with the performance curves.
- Accessories**
 - Wall bracket**, from galv. steel **MB-WK 280** Ref. No. 5527
 - Rain repellent roof**, from galv. sheet steel, mounting over the motor. **MB-WSD** Ref. No. 1856

- Flexible connector** for installation between fan and ducting. **FM 315** Ref. No. 1674
- FM 315 Ex** Ref. No. 1690
- On/off switch for 2 speed Y/Δ-motor 3 phase fans DS 2⁴⁾** Ref. No. 1351

Type	Ref. No.	Air flow volume (FID)	Nenn-drehzahl	Sound press. level case breakout	Motor power (nominal)*	Current* full load	Current* speed controlled	Wiring diagram	Maximum air flow temperature full load	Nominal weight (net)	5 step transformer controller with motor protect. unit	5 step transformer controller without motor protect. unit	Full motor protection unit			
		̄ m³/h	min ⁻¹	dB(A) in 1 m	kW	A	A	No.	+°C	+°C	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55																
MBW 280/6	5928	3370	920	56	1.25	6.80	6.80	751	100	60	60	MWS 7.5 1950	TSW 7.5 1596	MW¹⁾		1579
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																
MBD 280/6/6	5943	2590/3250	695/870	51/56	0.53/0.89	1.00/2.00	2.00	520	100	60	60	RDS 4 1316	TSD 3.0⁴⁾ 1502	M4²⁾		1571
MBD 280/4/4	5944	3650/4270	1170/1370	62/65	1.60/2.10	2.50/4.00	4.00	520	100	60	68	RDS 7 1578	TSD 5.5⁴⁾ 1503	M4²⁾		1571
Explosion proof E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54																
MBD 280/6 Ex³⁾	6016	2960	925	56	0.95	2.70	—	498	40	—	60	not permitted	not permitted	—		—
MBD 280/4 Ex³⁾	6017	4960	1420	65	2.00	4.65	—	498	40	—	68	not permitted	not permitted	—		—

* Ex-Models: for nominal value of motor see information on page 18. ¹⁾ incl. operation switch ²⁾ incl. operation and speed switch ³⁾ Performance curve on request

⁴⁾ required full motor protection unit: model MD, Ref. No. 5849

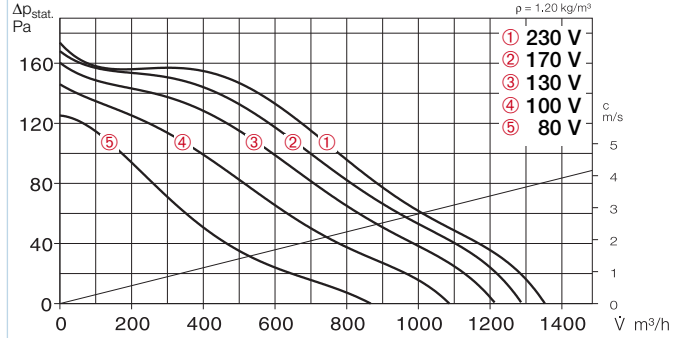


- Casing**
See "general information", page 194.
- Impeller**
Backward curved high output centrifugal-impeller, made from aluminium, mounted directly to the motor shaft.
High efficiency, low noise level, aerodynamically optimised scroll. Dynamically balanced to DIN ISO 1940 Pt. 1 – class G 6.3.
- Motor**
Maintenance free, speed controllable IEC-flange motor, out of the air stream, protected to IP 55. With ball bearings and radio suppression.
- Electrical connection**
Terminal box fitted externally on the motor as standard (IP 55).

- Motor protection**
Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.
- Speed control**
All models are speed controllable through transformer controllers (accessory). The 3 phase models can be 2 speed controlled by star/delta switch or full motor protection unit M4. The sound power levels are shown with the performance curves.
- Accessories**
 - Wall bracket**, from galv. steel
MB-WK 315 Ref. No. 5528
 - Rain repellent roof**, from galv. sheet steel, mounting over the motor.
MB-WSD Ref. No. 1856

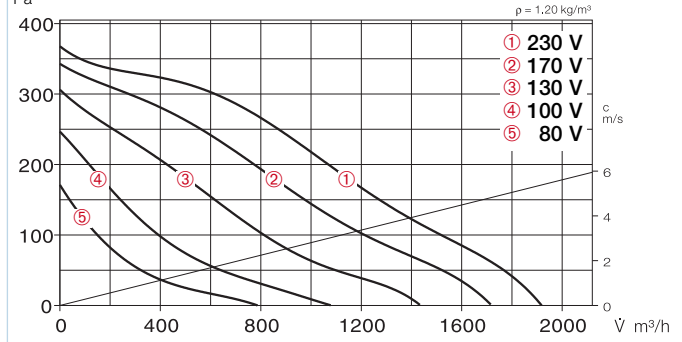
MBW 315/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	40	33	30	34	35	33	28	21
L _{WA} Intake	dB(A)	58	51	48	52	53	51	46	39
L _{WA} Exhaust	dB(A)	60	53	50	54	55	53	48	41



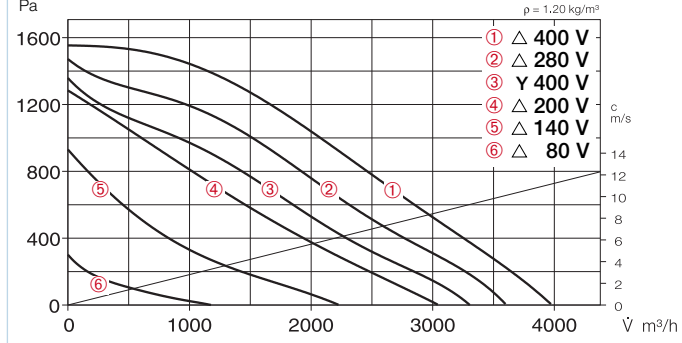
MBW 315/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	52	37	48	44	45	44	40	33
L _{WA} Intake	dB(A)	70	55	66	62	63	62	58	51
L _{WA} Exhaust	dB(A)	72	57	68	64	65	64	60	53



MBD 315/2/2

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	70	44	60	68	62	61	59	52
L _{WA} Intake	dB(A)	88	62	78	86	80	79	77	70
L _{WA} Exhaust	dB(A)	90	64	80	88	82	81	79	72

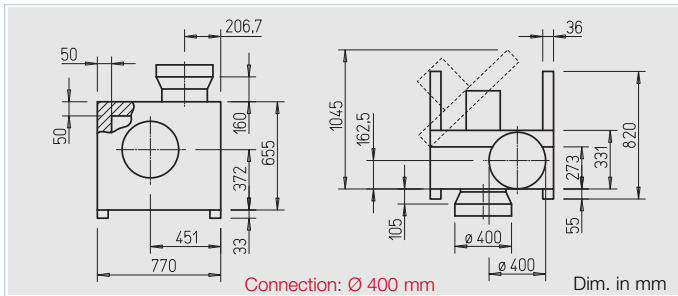


- Flexible Connector**
FM 355 Ref. No. 1675
- On/off switch for 2 speed**
Y/Δ-motor 3 phase fans
DS 2⁴⁾ Ref. No. 1351

Information	Pages
Technical description, selection chart	194
Other accessories	Pages
Speed controller and full motor protection unit	397 on

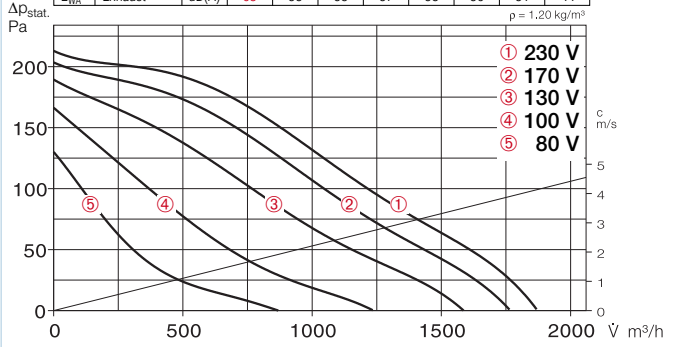
Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)	Current full load	Current speed controlled	Wiring diagram	Maximum air flow temperature controlled	Nominal weight (net)	5 step transformer controller with motor protect. unit	5 step transformer controller without motor protect. unit	Full motor protection unit				
		Vol m³/h	min ⁻¹	dB(A) in 1 m	kW	A	A	No.	+°C	+°C	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55																	
MBW 315/6	5950	1350	940	34	0.14	0.80	0.80	751	100	60	71	MWS 1.5	1947	TSW 1.5	1495	MW ¹⁾	1579
MBW 315/4	5929	1920	1420	46	0.25	1.50	1.50	751	100	60	72	MWS 3	1948	TSW 3.0	1496	MW ¹⁾	1579
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																	
MBD 315/4/4 ³⁾	5945	1880/2050	1305/1425	44/46	0.15/0.22	0.34/0.90	0.90	520	100	60	72	RDS 2	1315	TSD 1.5 ⁴⁾	1501	M4 ²⁾	1571
MBD 315/2/2	5946	3300/3980	2270/2780	60/64	0.86/1.16	1.40/2.20	2.40	520	100	60	75	RDS 4	1316	TSD 3.0 ⁴⁾	1502	M4 ²⁾	1571

¹⁾ incl. operation switch ²⁾ incl. operation and speed switch ³⁾ Performance curve on request ⁴⁾ required full motor protection unit: model MD, Ref. No. 5849



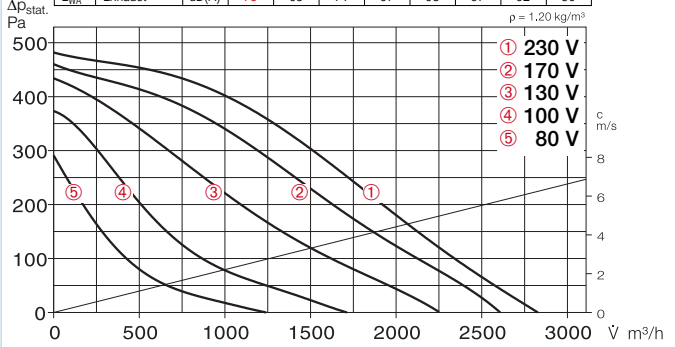
MBW 355/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 43	35	33	37	38	36	31	34
L _{WA} Intake		dB(A) 61	53	51	55	56	54	49	42
L _{WA} Exhaust		dB(A) 63	55	53	57	58	56	51	44



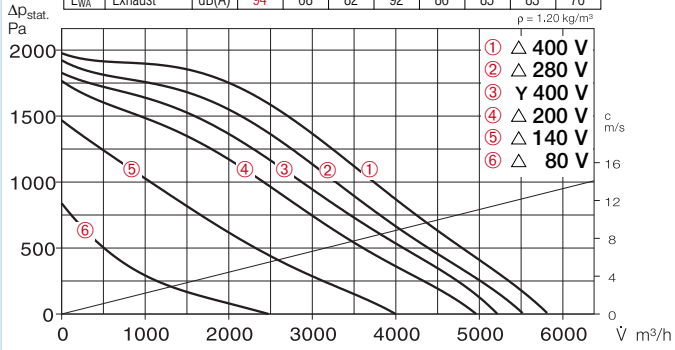
MBW 355/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 55	43	47	48	47	42	36	36
L _{WA} Intake		dB(A) 73	61	69	65	66	65	60	54
L _{WA} Exhaust		dB(A) 75	63	71	67	68	67	62	56



MBD 355/2/2

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 74	46	62	72	66	65	63	56
L _{WA} Intake		dB(A) 92	66	80	90	84	83	81	74
L _{WA} Exhaust		dB(A) 94	68	82	92	86	85	83	76



Casing

See "general information", page 194.

Impeller

Backward curved high output centrifugal-impeller, made from aluminium, mounted directly to the motor shaft. High efficiency, low noise level, aerodynamically optimised scroll. Dynamically balanced to DIN ISO 1940 Pt. 1 – class G 6.3.

Motor

Maintenance free, speed controllable IEC-flange motor, out of the air stream, protected to IP 55. With ball bearings and radio suppression.

Electrical connection

Terminal box fitted externally on the motor as standard (IP 55).

Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

All models are speed controllable through transformer controllers (accessory). The 3 phase models can be 2 speed controlled by star/delta switch or full motor protection unit M4. The sound power levels are shown with the performance curves.

Accessories

Wall bracket, from galv. steel
MB-WK 355 Ref. No. 5528

Rain repellent roof, from galv. sheet steel, mounting over the motor.
MB-WSD Ref. No. 1856

Flexible connector

FM 400 Ref. No. 1676

On/off switch for 2 speed

Y/Δ-motor 3 phase fans

DS 2⁴⁾ Ref. No. 1351

Information Pages

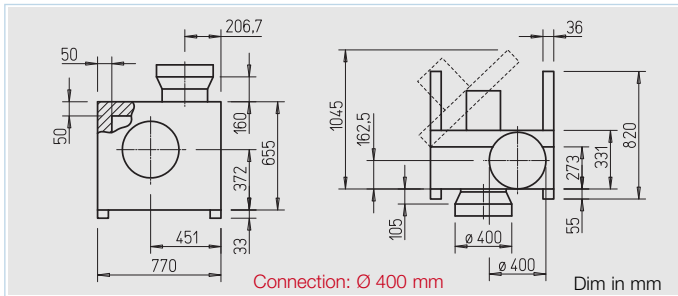
Technical description, selection chart 194

Other accessories Pages

Speed controller and full motor protection unit 394 on

Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)	Current full load	Current speed controlled	Wiring diagram	Maximum air flow full load	Maximum temperature full load	Nominal weight (net)	5 step transformer controller with motor protect. unit	5 step transformer controller without motor protect. unit	Full motor protection unit	
		m³/h	min ⁻¹	dB(A) in 1 m	kW	A	A	No.	+°C	+°C	kg	Type Ref. No.	Type Ref. No.	Type Ref. No.	
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55															
MBW 355/6	5952	1880	910	37	0.16	0.84	0.84	751	100	60	79	MWS 1.5 1947	TSW 1.5 1495	MW ¹⁾ 1579	
MBW 355/4	5951	2830	1370	49	0.33	1.75	1.75	751	100	60	81	MWS 3 1948	TSW 3.0 1496	MW ¹⁾ 1579	
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55															
MBD 355/4/4 ³⁾	5947	2430/2820	1175/1370	46/49	0.20/0.32	0.40/0.95	0.95	520	100	60	81	RDS 2 1315	TSD 1.5 ⁴⁾ 1501	M4 ²⁾ 1571	
MBD 355/2/2	5948	5210/5800	2510/2840	65/68	1.65/2.20	2.90/5.00	5.50	520	100	60	100	RDS 7 1578	TSD 7.0 ⁴⁾ 1504	M4 ²⁾ 1571	

¹⁾ incl. operation switch ²⁾ incl. operation and speed switch ³⁾ Performance curve on request ⁴⁾ required full motor protection unit: model MD, Ref. No. 5849



- Casing**
See "general information", page 194.
- Impeller**
Backward curved high output centrifugal-impeller, made from aluminium, mounted directly to the motor shaft.
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- Electrical connection**
Terminal box fitted externally on the motor as standard (IP 55).

- Motor protection**
Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

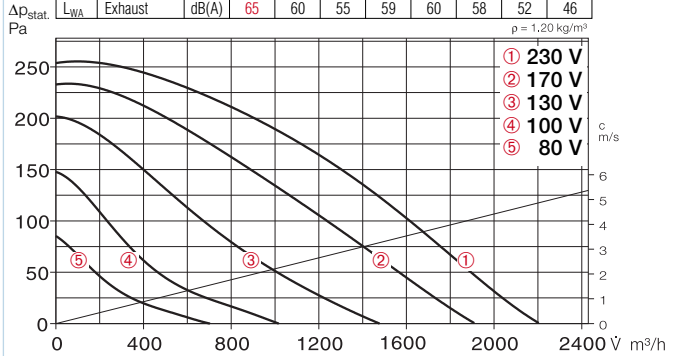
- Speed control**
All models are speed controllable through transformer controllers (accessory). The 3 phase models can be 2 speed controlled by star/delta switch or full motor protection unit M4. The sound power levels are shown with the performance curves.

Accessories

- Wall bracket**, from galv. steel
MB-WK 400 Ref. No. 5528
- Rain repellent roof**, from galv. sheet steel, mounting over the motor.
MB-WSD Ref. No. 1856

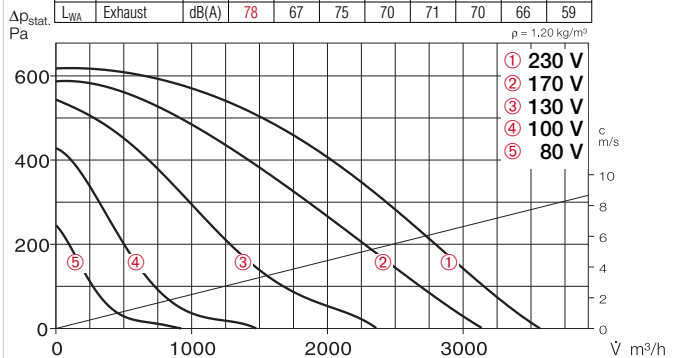
MBW 400/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	45	40	35	39	40	38	32	26
L _{WA} Intake	dB(A)	63	58	53	57	58	56	50	44
L _{WA} Exhaust	dB(A)	65	60	55	59	60	58	52	46



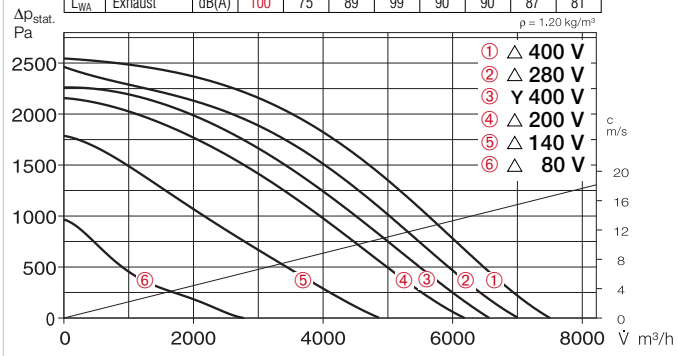
MBW 400/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	58	47	55	50	51	50	46	39
L _{WA} Intake	dB(A)	76	65	73	68	69	68	64	57
L _{WA} Exhaust	dB(A)	78	67	75	70	71	70	66	59



MBD 400/2/2

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	80	55	69	79	70	70	67	61
L _{WA} Intake	dB(A)	98	73	87	97	88	88	85	79
L _{WA} Exhaust	dB(A)	100	75	89	99	90	90	87	81



- Flexible connector**
FM 400 Ref. No. 1676
- On/off switch for 2 speed**
Y/Δ-motor 3 phase fans
DS 2⁴⁾ Ref. No. 1351

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Other accessories	Pages
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Type	Ref. No.	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power (nominal)	Current full load	Current speed controlled	Wiring diagram	Maximum air flow temperature controlled	Nominal weight (net)	5 step transformer controller with motor protect. unit	5 step transformer controller without motor protect. unit	Full motor protection unit			
		Vol m³/h	min ⁻¹	dB(A) in 1 m	kW	A	A	No.	+°C	+°C	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55																
MBW 400/6	5954	2210	850	39	0.19	0.95	0.95	751	100	60	82	MWS 1.5 1947	TSW 1.5 1495	MM ¹⁾		1579
MBW 400/4	5953	3570	1360	52	0.50	2.30	3.00	751	100	60	85	MWS 5 1949	TSW 5.0 1497	MM ¹⁾		1579
2 speed motor, 400 V / 3 ph. / 50 Hz, Y/Δ-motor, protection to IP 55																
MBD 400/4/4 ³⁾	5955	3000/3520	1160/1370	48/52	0.30/0.52	0.61/1.74	1.74	520	100	60	82	RDS 2 1315	TSD 3.0 ⁴⁾ 1502	M4 ²⁾		1571
MBD 400/2/2	5949	6570/7500	2510/2840	71/74	3.07/3.75	4.80/6.10	9.00	520	100	60	110	RDS 11 1332	TSD 11 ⁴⁾ 1513	M4 ²⁾		1571

¹⁾ incl. operation switch ²⁾ incl. operation and speed switch ³⁾ Performance curve on request ⁴⁾ required full motor protection unit: model MD, Ref. No. 5849

Fresh air unit ALB

ALB – it's simple and so easy!
Air supplied through a heater
and filter in a single unit.

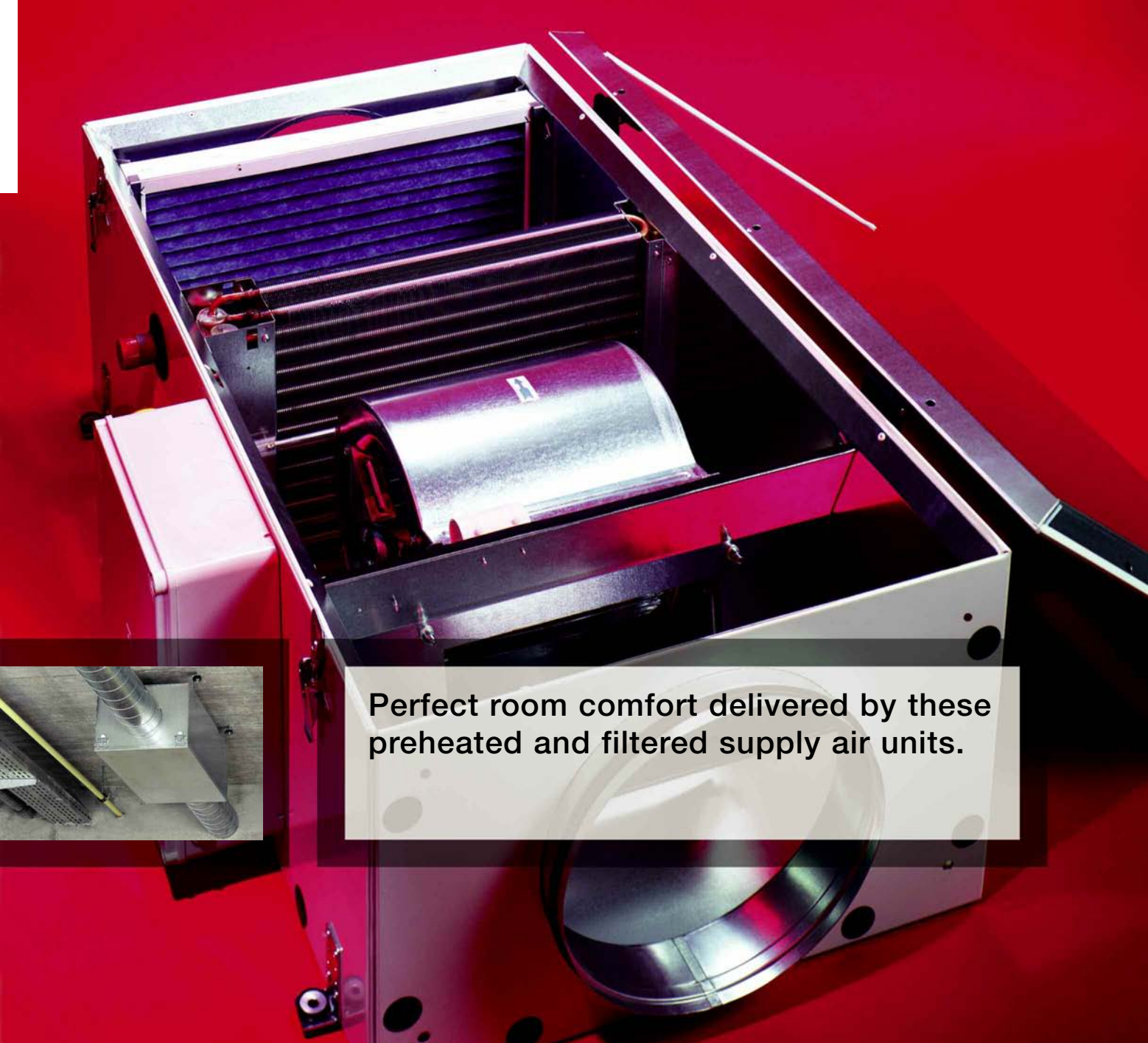
The ALB fresh air units from
Helios provide comfortable
room temperatures. Fresh out-
side air is supplied filtered and
preheated to the required set
temperature.

Fresh air units, ALB, are ideal
for all rooms where clean pre-
heated fresh air is required.
Whether in a bistro, boutique,
bar or other commercial areas.

A specially designed sound
absorbing casing with a low-
noise centrifugal fan result in
a very quiet unit with low
breakout sound levels. Large
bag filters reduce maintenance
to a minimum.

Efficient energy saving control-
lers are included as standard
or available as accessories.

- For inline duct mounting.
- **ALB.. EH**
With electric heater battery and air
filter. Integral smooth stepless control
of heating power.
Sizes 125 and 200 mm.
- **ALB.. WW**
With water heater battery and air filter.
Supplied ready to plug in, including
controller, room and duct sensor.
Sizes 315 and 355 mm.



Perfect room comfort delivered by these
preheated and filtered supply air units.

- ALB fresh air units from Helios are designed for direct mounting in to the ducting and to ensure controlled supply of filtered and preheated air in bistros, boutiques, bars or other commercial areas.

Vol. = 350 m³/h to 5 000 m³/h.
Options available are:

- **ALB.. EH**
With electric heater battery and air filter.
- **ALB.. WW**
With water heater battery and air filter.

Delivery

Delivered ready to plug in. Fan, heater and filter are already integrated in a single compact unit.

Planning

ALB is delivered as a complete set including heater battery and air filter that offers many advantages for planning and installation. Follow these simple steps.

- Decide on the required amount of supply air.
- Decide on the dimensions and position of the supply duct (resistance).
- Decide on the heat required comparing the temperature of the outside air and the indoor temperature (then use diagrams on the product pages).
- Choose the suitable ALB (size and control) according to point 1, 2 and 3.
- Select the control functions and the accessories.

Operation

- Fresh air units are used everywhere to supply controlled, filtered and preheated air at a required set temperature for comfort.
- Reduces drafts in properties and provides.
- Tempered fresh air for any room.
- Provides the clean fresh air in bars, bistros, meeting places and offices improving the comfort and the well being of all the occupants.
- For really clean air a filter, class F7, must be used as well as a filter control system (differential pressure switch DDS available as an accessory) if only one filter is used.
- The result is a targeted, temperature controlled quiet fresh air supply to the required areas. An attenuator (accessory) can be used when an even lower sound level is required.

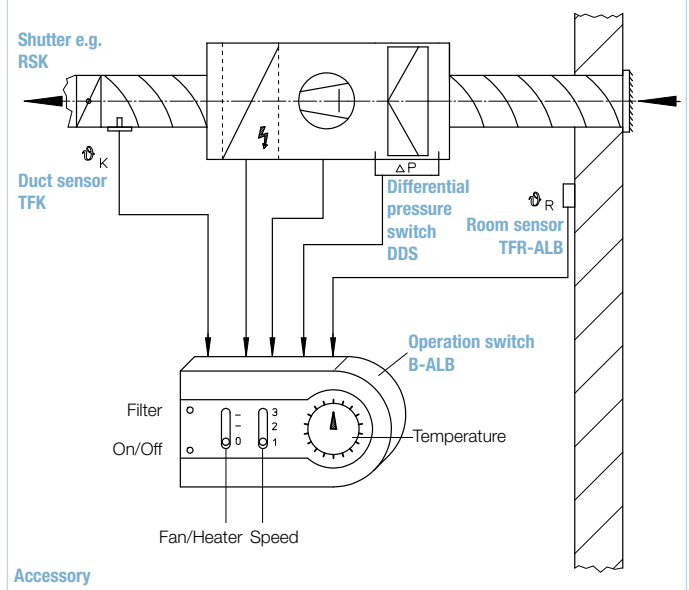
Installation

- Can be installed in to almost any position (see operation and maintenance instructions).
- An attenuator (accessory) can be fitted if required.
- Air stream or motor operated backdraught shutters may be used to prevent draughts when the ALB unit is off.
- We recommend using vibration isolation when securing the unit.
- The controller should be fitted within the ventilated space.
- Easy access to the unit should be provided for cleaning and replacement of the filter.

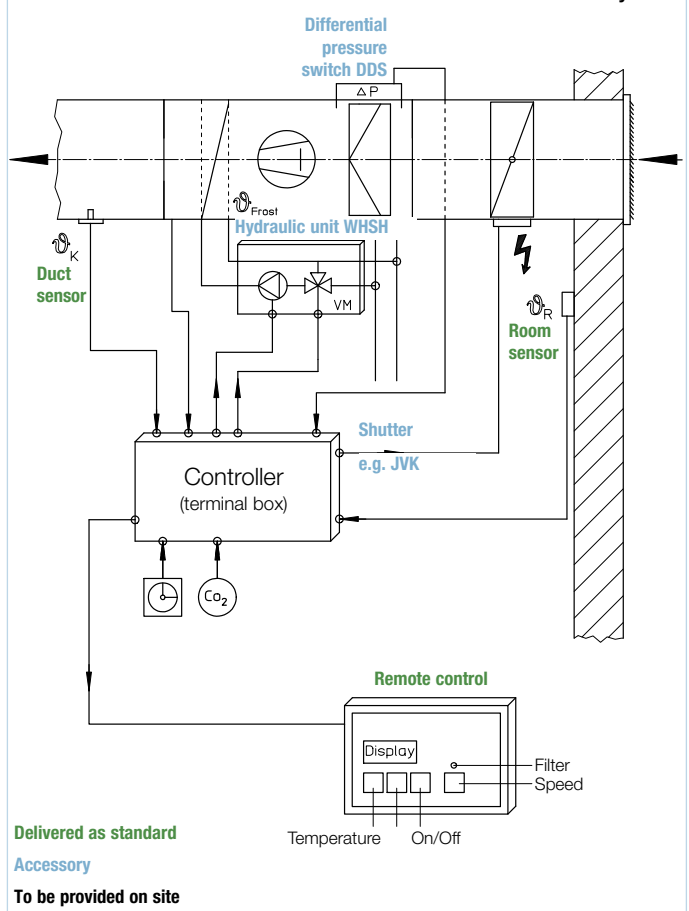
Control options

- Easy to control, the ALB offers the highest comfort for an efficient and energy saving operation.
- The ALB.. EH models are delivered with a stepless electronic heater controller as standard which is controlled via the operation switch B-ALB (accessory – see pic. 1). The electronic modulation gives stepless control of the heater output by continuously adjusting the amount of heat output against the set temperature compare to the room or duct sensor (TFR-ALB and TFK, accessory) measured temperature.
- Models ALB.. WW are delivered as standard with an external control unit (see fig. 2). There is a constant adjustment of the coil output to maintain the set point using the room or duct sensor (delivered as standard) measured temperature. In addition the control unit can receive an input for clock timers (e.g. night set back) as well as for a connection of air quality sensors, so that if it falls below a given limit value an optical or audible alarm signal occurs.
- To control one or several extract fans according to the speed of the fresh air unit ALB.. the control unit ALB-AS.. (accessory) can be used. This affords synchronised operation of the unit as required (supply- and extract air) with three/five speed levels.

Pic. 1: Functional scheme ALB.. EH with electric heater battery



Pic. 2: Functional scheme ALB.. WW with water heater battery



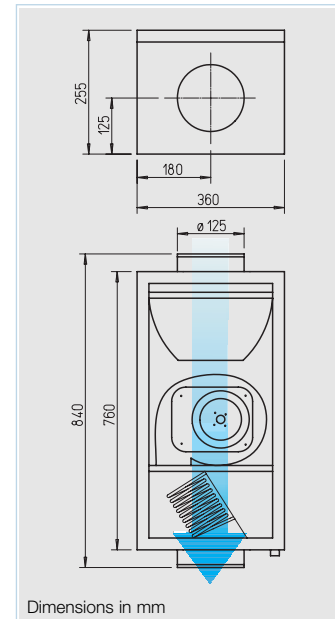
Picture 1 ALB-EH.. with electric heater battery

- Accessory:
 - Operation switch B-ALB
 - Backdraught shutter RSK
 - Differential pressure switch DDS
 - Room temp. sensor TFR-ALB
 - Duct temp. sensor TFK
 - Attenuator, e.g. FSD

Picture 2 ALB-WW.. with water heater battery

- Delivered as standard:
 - External control unit
 - 1 Duct temperature sensor
 - 1 Room temperature sensor
- Accessory:
 - Hydraulic unit WSH
 - Differential pressure switch DDS
 - Shutter, e.g. JVK
 - Attenuator, e.g. KSD

**125 mm ø fresh air unit ALB.. EH
with electric heater battery and air filter**



■ Operation

A comfortable indoor climate through the supply of external fresh air, filtered and automatically warmed to the desired temperature.

Designed to be installed within a ducted system.
For all commercial applications.

■ Specification

Compact shallow casing, thermally and acoustically insulated, with an integral air filter, fan, heater with controller and terminal box. Delivered ready for installation. Includes a stepless controller for the heater battery. Operation switch B-ALB is required for remote control. B-ALB allows for three-step ventilation and connection to a room or duct temperature sensor to control the set temperature. These elements need to be ordered separately (see accessories).

□ Casing

Made from galvanised steel, filled with 50 mm mineral wool on all sides, faced with glass woven fabric. The casing cover is easy to release using the four spring fasteners. Intake and extract duct spigots with air tight rubber gaskets for standard duct diameters.

□ Filter

The large surface filter reduces required maintenance. The casing cover provides good access. The filter supplied is G 4 - F 5 and F 7 are available as an accessory. With F-7 filters, a reduction of the air flow volume (see performance curve) must be considered. Regular filter cleaning is necessary. Automatic monitoring with DDS (accessory) is recommended to indicate when to clean. The casing of the ALB is supplied with fixing holes.

□ Fan

A silent and powerful centrifugal fan, installed within a spiral casing made from galvanised steel. The motor and impeller swing out to allow full access for servicing. Powered by a maintenance free external rotor motor, with protection to IP 44. The air flow volume can be controlled with a 3-step switch.

□ Heater battery

Enclosed heater elements made from stainless steel and of low surface temperature heat the outside air to the desired set temperature. The heating level depends on the set temperature and the actual temperature detected by the sensors.

□ Safety switch

The heater battery can only be operated if the fan is on and there is a minimum air-flow. If the air-flow falls below that limit, a thermostat disconnects the heater from the power supply as soon as the temperature rises to 80 °C. Additionally, two independent, thermostats can be reset manually if the heater is stopped when the heater temperature rises to 120 °C.

□ Overrun timer

The ALB comes with an overrun timer of approx. 1 minute, even if the heater is not in operation.

□ Electrical Connection

A large terminal box on the casing. Cable entry points at the front through four connection glands.

□ Motor protection

Motor protection by thermal contacts wired in series with the motor windings. To reset the thermal contacts the main supply must be switched off and on.

□ Sound levels

Total sound power levels and the spectrum figures in db(A) are given for
– case breakout
– intake and extract
in the tables above the performance curves. In addition, the case breakout figure is given as a sound pressure level at 1 m (freefield conditions) in the technical data table.

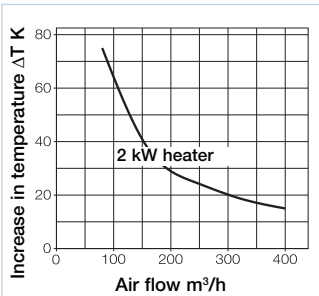
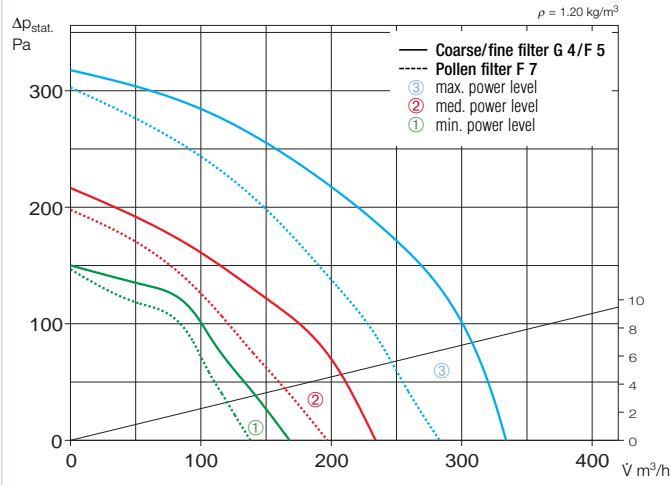
Cross talk attenuators are available (accessory) for further acoustic reduction.

Type	Ref.No.	Spigot dia.	Air flow volume*	R.P.M.	Sound pressure level		Voltage 50 Hz	Power consumption		Power input max. total	Wiring diagram	Maximum supply air temperature		Nominal weight
					case breakout	supply air noise		Motor	Heater			with heater	without heater	
		mm	m ³ /h (max.)	min ⁻¹	dB(A) at 1 m	dB(A) at 1 m	Volt	kW	kW	A	No.	+°C	+°C	kg
ALB 125 C EH 2	2701	125	340	1850	44	61	230, 1 ph.	0.110	2	9.2	795.3	20	40	20

* with standard filter, class G 4

ALB 125 C EH 2

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA}	Case breakout	dB(A)	48	38	44	45	39	36	32	32
L _{WA}	Extract	dB(A)	65	60	56	56	58	57	49	45
L _{WA}	Intake	dB(A)	54	43	51	43	42	43	42	32



Information

Fresh air ventilation systems with ELF-ALB.. F7 (see right) and differential pressure switch DDS (Ref. No. 0445) are according to VDI 6022.

Information	Pages
Technical description	205
Design of systems	12 on

Other accessories	Pages
Attenuator	318
Flexible ducts, grilles, circular spigots and roof outlets	361 on
Supply air valve	382

Accessories

Operation switch

B-ALB Ref. No. 2734

Functions:

- Ventilation operation 3-step and on/off
- Heater battery with adjustable temperature when sensors are connected.
- Overrun operation of the fan.
- Filter monitoring (accessory DDS)
- Operation display (LED).

Protection to IP 30
 Wiring diagram No. SS-795.3
 Dimensions mm W 145 x H 80 x D 30



Room temperature sensor

TFR-ALB Ref. No. 2761

Room temperature sensor surface mounted for connection to operation switch B-ALB.

Made from polymer.
 Temperature range 0 - 30 °C
 Protection to IP 20
 Dimensions mm W 85 x H 85 x D 30
 Weight 0.1 kg



Duct temperature sensor

TFK Ref. No. 5005

Temperature sensor to be installed within the duct for connection to operation switch B-ALB.

Temperature range 0 - 30 °C
 Protection to IP 20
 Length inside/outside 130/50 mm, Ø 10 mm
 Weight 0.1 kg



Spare and pollen filters

ELF-ALB 125 G4 Ref. No. 2704

ELF-ALB 125 F5 Ref. No. 2705

ELF-ALB 125 F7 Ref. No. 2706

Large surface filter Set = 3 pcs



Differential pressure switch

DDS Ref. No. 0445

A complete kit to monitor filters and system pressure with n/o or n/c terminals.



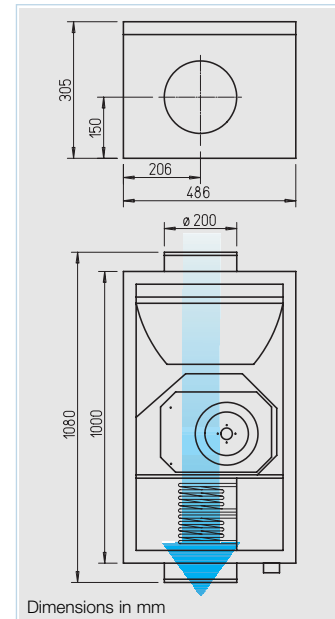
Extract air control

ALB-AS 125 Ref. No. 2696

A control unit for the regulation of an extract air fan (max. 1.5 A) at the same rate as the speed of the supply air fan. Allows synchronised operation of the unit (supply and extract air) with three (from 5 selectable) speed steps (factory setting 80, 130, 230 V). The control unit is connected with the supply system through a cable, the setting takes place directly at the operating switch B-ALB (accessories, Ref. No. 2734). ALB-AS.. allows the connection of one or many speed controllable fans up to nominal load. Additionally an extract and supply air shutter can be operated each, which open with switching on the fan.



Voltage/Frequency 230 V 1 ph., 50 Hz/400 V 2 ph., 50 Hz
 Load max. 13.3 A
 Protection class IP 54
 Dim. mm W 236 x H 316 x D 128
 Weight approx. 4.3 kg
 Wiring diagram no. SS-900



■ Operation

A comfortable indoor climate through the supply of external fresh air, filtered and automatically warmed to the desired temperature.

Designed to be installed within a ducted system.
For all commercial applications

■ Specification

Compact shallow casing, thermally and acoustically insulated, with an integral air filter, fan, heater with controller and terminal box. Delivered ready for installation. Includes a stepless controller for the heater battery. Operation switch B-ALB is required for remote control. B-ALB allows for three-step ventilation and connection to a room or duct temperature sensor to control the set temperature. These elements need to be ordered separately (see accessories).

□ Casing

Made from galvanised steel, filled with 50 mm mineral wool on all sides, faced with glass woven fabric. The casing cover is easy to release using the four spring fasteners. Intake and extract duct spigots with air tight rubber gaskets for standard duct diameters.

□ Filter

The large surface filter reduces required maintenance. The casing cover provides good access. The filter supplied is G 4 - F 5 and F 7 are available as an accessory. With F-7 filters, a reduction of the air flow volume (see performance curve) must be considered. Regular filter cleaning is necessary. Automatic monitoring with DDS (accessory) is recommended to indicate when to clean. The casing of the ALB is supplied with fixing holes.

□ Fan

A silent and powerful centrifugal fan, installed within a spiral casing made from galvanised steel. The motor and impeller swing out to allow full access for servicing. Powered by a maintenance free external rotor motor, with protection to IP 44. The air flow volume can be controlled with a 3-step switch.

□ Heater battery

Enclosed heater elements made from stainless steel and of low surface temperature heat the outside air to the desired set temperature. The heating level depends on the set temperature and the actual temperature detected by the sensors.

□ Safety switch

The heater battery can only be operated if the fan is on and there is a minimum air-flow. If the air-flow falls below that limit, a thermostat disconnects the heater from the power supply as soon as the temperature rises to 80 °C. Additionally, two independent, thermostats can be reset manually if the heater is stopped when the heater temperature rises to 120 °C.

□ Overrun timer

The ALB comes with an overrun timer of approx. 1 minute, even if the heater is not in operation.

□ Electrical Connection

A large terminal box on the casing. Cable entry points at the front through four connection glands.

□ Motor protection

Motor protection by thermal contacts wired in series with the motor windings. To reset the thermal contacts the main supply must be switched off and on.

□ Sound levels

Total sound power levels and the spectrum figures in db(A) are given for
– case breakout
– intake and extract
in the tables above the performance curves. In addition, the case breakout figure is given as a sound pressure level at 1 m (freefield conditions) in the technical data table.

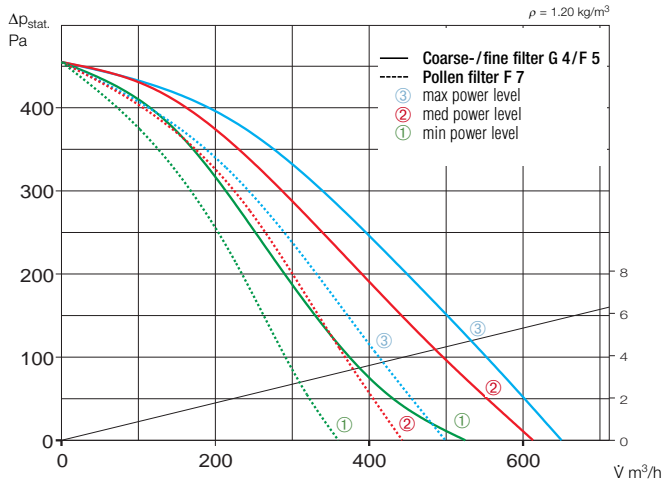
Cross talk attenuators are available (accessory) for further acoustic reduction.

Type	Ref. No.	Spigot dia. mm	Air flow volume* V m³/h (max.)	R.P.M. min ⁻¹	Sound pressure level		Voltage 50 Hz Volt	Power consumption		Power input max. total A	Wiring diagram No.	Maximum supply air temperature		Nominal weight kg
					case breakout dB(A) at 1 m	supply air noise dB(A) at 1 m		Motor kW	Heater kW			with heater +°C	without heater +°C	
ALB 200 B EH 5	2702	200	650	2500	47	66	400, 2 N-	0.105	4.4	11.6	795.3	20	40	33
ALB 200 C EH 5	2703	200	790	2500	49	68	400, 2 N-	0.160	4.4	11.7	795.3	20	40	35

* with standard filter, class G 4

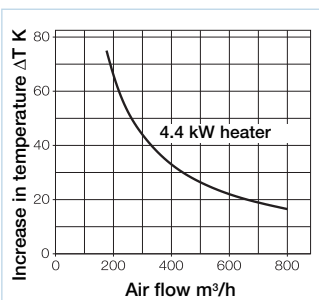
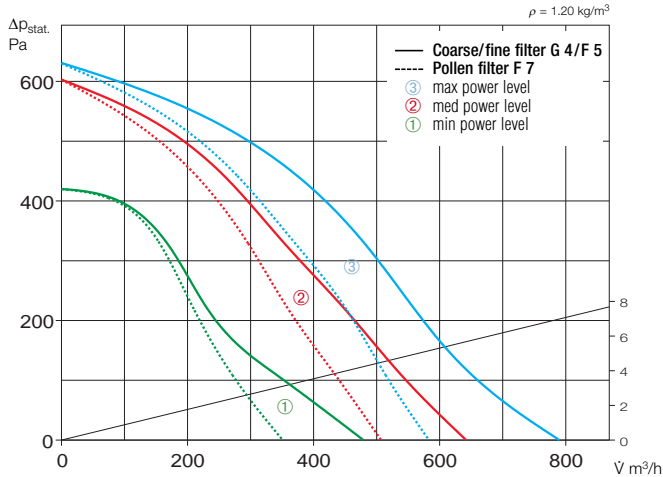
ALB 200 B EH 5

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA}	Case breakout	dB(A)	51	38	43	49	42	39	34	31
L _{WA}	Extract	dB(A)	67	47	57	65	60	57	54	44
L _{WA}	Intake	dB(A)	53	44	48	50	42	39	35	28



ALB 200 C EH 5

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA}	Case breakout	dB(A)	53	41	47	49	44	41	37	33
L _{WA}	Extract	dB(A)	68	47	58	65	62	59	56	48
L _{WA}	Intake	dB(A)	54	46	49	51	44	42	41	34



Information

Fresh air ventilation systems with ELF-ALB.. F7 (see right) and differential pressure switch DDS (Ref. No. 0445) are according to VDI 6022.

Information	Pages	Other accessories	Pages
Technical description	205	Attenuator	318
Design of systems	12 on	Flexible ducts, grilles, circular spigots and roof outlets	361 on
		Supply air valve	382

Accessory

Operation switch

B-ALB Ref. No. 2734

Functions:

- Ventilation operation 3-step and on/off
- Heater battery, adjustable temperature when sensors are connected.
- Overrun operation of the fan.
- Filter monitoring (accessory DDS)
- Operation display (LED).

Protection to IP 30
 Wiring diagram No. SS-795.3
 Dimensions mm W 145 x H 80 x D 30



Room temperature sensor

TFR-ALB Ref. No. 2761

Room temperature sensor for surface mounted for connection to operation switch B-ALB.

Made from polymer.
 Temperature range 0 - 30 °C
 Protection to IP 20
 Dimensions mm W 85 x H 85 x D 30
 Weight 0.1 kg



Duct temperature sensor

TFK Ref. No. 5005

Temperature sensor to be installed within the duct for connection to operation switch B-ALB.

Temperature range 0 - 30 °C
 Protection to IP 20
 Length inside/outside 130/50 mm, Ø 10 mm
 Weight 0.1 kg



Spare and pollen filters

ELF-ALB 200 G4 Ref. No. 2707

ELF-ALB 200 F5 Ref. No. 2708

ELF-ALB 200 F7 Ref. No. 2709

Large surface filter Set = 3 pcs



Differential pressure switch

DDS Ref. No. 0445

A complete kit to monitor filters and system pressure with n/o or n/c terminals.



Extract air control

ALB-AS 200 Ref. No. 2696

A control unit for the regulation of an extract air fan (max. 1.5 A) at the same rate as the speed of the supply air fan. Allows synchronised operation of the unit (supply and extract air) with three (from 5 selectable) speed steps (factory setting 80, 130, 230 V). The control unit is connected with the supply system through a cable, the setting takes place directly at the operating switch B-ALB (accessories, Ref. No. 2734). ALB-AS.. allows the connection of one or many speed controllable fans up to nominal load. Additionally an extract and supply air shutter can be operated each, which open with switching on the fan.



Voltage/Frequency 230 V 1 ph., 50 Hz/400 V 2 ph., 50 Hz
 Load max. 13.3 A
 Protection class IP 54
 Dim. mm W 236 x H 316 x D 128
 Weight approx. 4.3 kg
 Wiring diagram no. SS-900



■ Operation

A comfortable indoor climate through the supply of external fresh air, filtered and automatically warmed to the desired temperature.

Designed to be installed within a ducted system.
For all commercial applications.

■ Specification

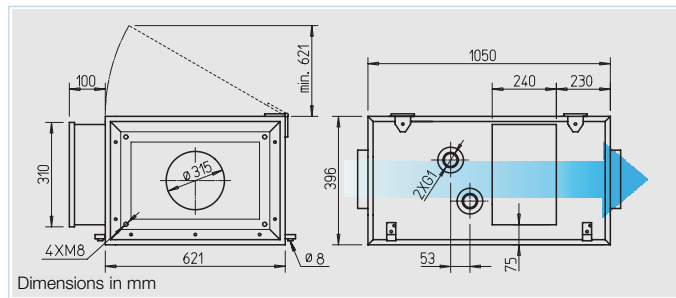
Compact shallow casing, thermally and acoustically insulated, with an integral air filter, fan, heater with controller and terminal box. Delivered ready for connection with an external control box for operation of the unit, including an 8 metre long connecting lead, to connect the electronic system in the terminal box to the room or duct temperature sensors. These can be connected optionally to control the set temperature.

■ Casing

Robust construction made from coated steel plate, double-skin and filled with 30 mm mineral wool on all sides, faced with woven glass fabric. The hinged casing cover is easy to open undoing the securing screws. Intake and extract duct spigots with air tight rubber gaskets for standard duct diameters. No thermal bridge, smooth surface for an easy cleaning. Integrated mounting panel with damper.

■ Filter

The large surface filter reduces required maintenance. The casing cover provides good access. The filter supplied is G 4 - F 5 and F 7 are available as an accessory. With F-7 filters, a reduction of the air flow volume (see performance curve) must be considered. Regular filter cleaning is necessary. Automatic monitoring with DDS (accessory) is recommended to indicate when to clean. The casing of the ALB is supplied with fixing holes.



■ Fan

A silent and powerful centrifugal fan, installed within a spiral casing made from galvanised steel. The motor and impeller can be easily accessed for service. Powered by a maintenance free external rotor motor. The air flow volume can be controlled with a 3-step switch.

■ Heater battery

A heater with aluminium fins and copper tubes heats up the outside air to the given set temperature. The regulation takes place at connection to a hydraulic unit (accessory) via the integrated control board. There is a continuous adjustment between pre-setting and the room or duct sensor measured temperature. A frost protection control is integral as standard. Max. working pressure is 1.6 MPa. Water connection pipe has a male thread.

■ Electrical connection

A terminal box is fitted externally on the unit as standard (IP 55).

■ Motor protection

Motor protection is by thermal contacts wired in series with the motor windings. After cooling down, automatic reconnection takes place.

■ Sound levels

Total sound power levels and the spectrum figures in db(A) are given for
– case breakout
– intake and extract
in the tables above the performance curves. In addition, the case breakout figure is given as a sound pressure level at 1 metre (freefield conditions) in the technical data table.

Cross talk attenuators are available (accessory) for further acoustic reduction.

Information	Pages
Techn. description	205
Design of systems	12 on

■ Control

- The remote control is included in delivery and offers:
 - 5-stage operation.
 - Temperature control with connection from room and/or duct temperature sensor (included in delivery).
 - Anti-freeze protection.
 - Control of the hydraulic unit (accessory) for regulation of the WW-heater battery. Presetting from min.- / max.-temperature.
 - Operation of the extract air control ALB-ASW (accessory) for speed control of the extract fans at the same speed steps.
 - Indication of surrounding temperature, fan speed and filter contamination (via differential pressure switch, accessory).

■ Further options:

- connection for time switch (night mode).
- connection for air quality sensor.
- Output for e.g. damper control.
- Indication of the cause of malfunction, alert.



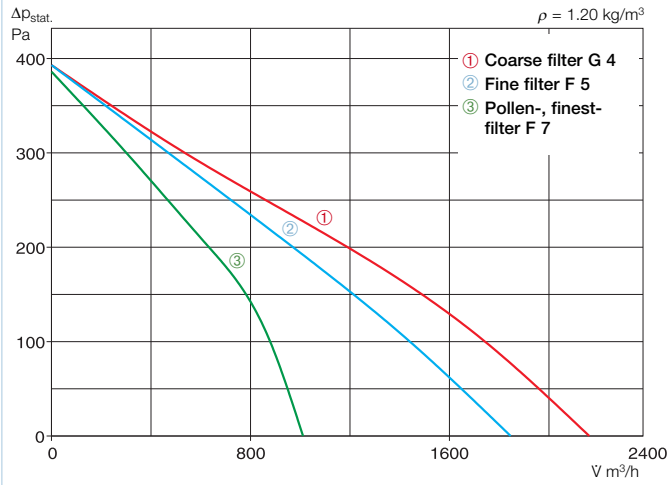
Remote control with connection cable (12 metre) included in delivery.

Type	Ref. No.	Spigot dia.	Air flow volume*	R.P.M.	Sound pressure level		Voltage 50 Hz	Power consumption		Power input max. total	Wiring diagram	Maximum supply air temperature		Nominal weight
					case breakout	supply air noise		Motor	Heater			with heater	without heater	
		mm	V m³/h (max.)	min ⁻¹	dB(A) at 1 m	dB(A) at 1 m	Volt	kW	kW	A	No.	+°C	+°C	kg
ALB 315 WW	2699	315	2100	1250	62	69	230, 1~	0.420	—	3.8	812	20	40	73

* standard with filter class G 4

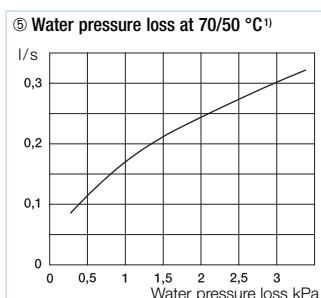
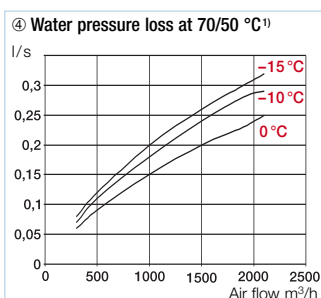
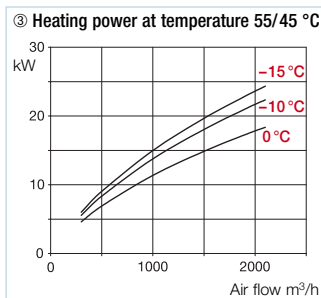
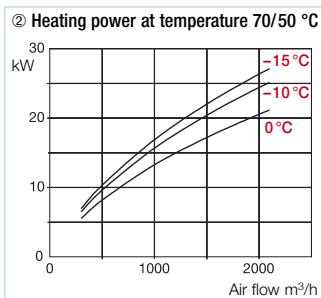
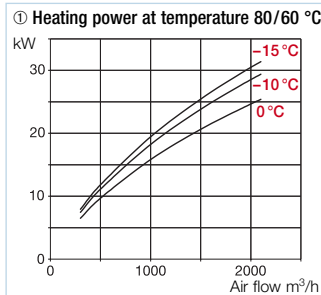
ALB 315 WW

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout	dB(A)	70	55	63	63	65	63	57	52
L _{WA} Extract	dB(A)	77	62	66	68	72	70	69	63
L _{WA} Intake	dB(A)	72	60	65	65	65	64	61	53



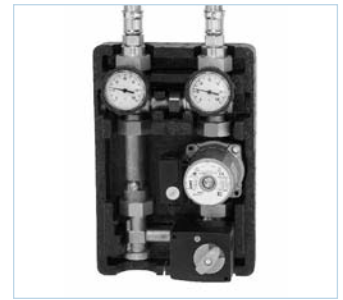
Other accessory	Pages	Information
Attenuator	318	Outside ventilation systems with ELF-ALB.. F7 (see right) and differential pressure switch DDS (Ref. No. 0445) are according to VDI 6022.
Details for hydraulic unit	316	
Flexible ventilation ducts, grilles, circular spigots	361 on	
Supply valve	382	

- **Heating power WW-Register**
①-③ The diagrams ①-③ show the heating power against the flow/ return and outdoor temperature via air flow.
- **Water quantity WW-Register** ④
④ shows the water flow against the V-/R- and outdoor temperature via air flow.
- **Pressure loss WW-Register** ⑤
⑤ shows the water pressure loss kPa via water flow.



1) Correction factor for 80/50 °C: 1.16; for 55/45 °C: 1.81

■ **Accessory**
Hydraulic unit
– max. flow 1100 l/h
WHS 1100, 230 V Ref. No. 2515
– max. flow 2200 l/h
WHS 2200, 230 V Ref. No. 2516
For regulation of the heating output of the water heater battery in connection with room/ duct sensor. Inclusive VL- /RL-temperature display, pump, servo motor, mixing valve, ball valve with integrated non-return valve, thermal casing and flexible connection hose.



■ **Spare and pollen filters**
Large surface filter for extended cleaning periods. Set = 3 pcs.
– Filter class G 4
ELF-ALB 315 G4 Ref. No. 2763
– Filter class F 5
ELF-ALB 315 F5 Ref. No. 2764
– Filter class F 7
ELF-ALB 315 F7 Ref. No. 2760



■ **Differential pressure switch**
DDS Ref. No. 0445
Complete kit to monitor filters and system pressure with n/o or n/c terminals.



■ **Connection cable (extra long)**
– 30 meter long
ALB-SK 30 Ref. No. 2517
– 50 meter long
ALB-SK 50 Ref. No. 2518
Connection between remote control and ALB; ALB and ALB-AS; with RJ-connector.

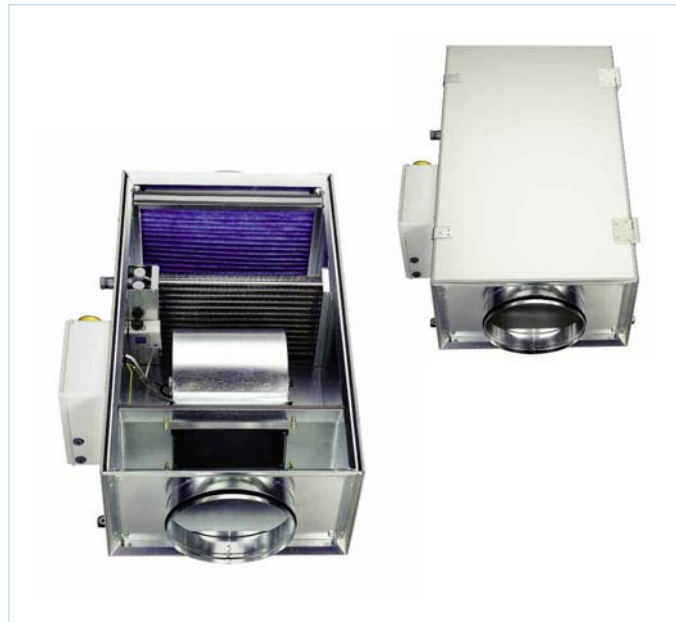


■ **Backdraught shutter**
RSK 315 Ref. No. 5674
For installation in the inlet duct to prevent cold air entry when the fan is off.

■ **Extract air control**
ALB-ASW 315 Ref. No. 2697
A control unit for the regulation of an extract air fan at the same rate as the 5 speeds of the supply air fan. Allows synchronised operation of the unit (supply and extract air) with five speed steps. The control unit is connected with the supply systems through a control cable. The programming takes place in few steps directly to the ALB-remote control.



ALB-ASW is mountable in any position and allows the connection of one or many speed controllable 1 ph. fans up to nominal load.
Technical datas
Voltage 230 V / 1 ph. / 50 Hz
Load max. 4 A
Protection to IP 55
Dim in mm W 255 x H 330 x D 120
Weight approx. 6.0 kg
Wiring diagram No. SS-868



■ Operation

A comfortable indoor climate through the supply of external fresh air, filtered and automatically warmed to the desired temperature.

Designed to be installed within a ducted system.
For all commercial applications.

■ Specification

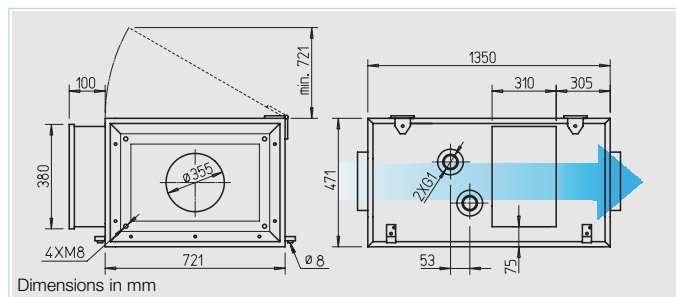
Compact shallow casing, thermally and acoustically insulated, with an integral air filter, fan, heater with controller and terminal box.
Delivered ready for connection with an external control box for operation of the unit, including an 8 metre long connecting lead, to connect the electronic system in the terminal box the room or duct temperature sensors. These can be connected optionally to control the set temperature.

■ Casing

Robust construction made from coated steel plate, double-skin and filled with 30 mm mineral wool on all sides, faced with woven glass fabric. The hinged casing cover is easy to open undoing the securing screws. Intake and extract duct spigots with air tight rubber gaskets for standard duct diameters.
No thermal bridge, smooth surface for an easy cleaning. Integrated mounting panel with damped panel.

■ Filter

The large surface filter reduces required maintenance. The casing cover provides good access. Filter supplied is G 4 - F 5 and F 7, are available as an accessory. With F-7 filters a reduction of the air flow volume (see performance curve) must be considered. Regular filter cleaning is necessary. Automatic monitoring with DDS (accessory) will indicate when to clean the filter. The casing of the ALB is supplied with fixing holes.



■ Fan

■ Fan

A silent and powerful centrifugal fan, installed within a spiral casing made from galvanised steel. The motor and impeller can be easily accessed for service. Powered by a maintenance free external rotor motor. The air flow volume can be controlled with a 3-step switch.

■ Electrical connection

A terminal box is fitted externally on the unit as standard (IP 55).

■ Motor protection

Motor protection is by thermal contacts wired in series with the motor windings. After cooling down, automatic reconnection takes place.

■ Sound levels

Total sound power levels and the spectrum figures in db(A) are given for – case breakout – intake and extract in the tables above the performance curves. In addition, the case breakout figure is given as a sound pressure level at 1 metre (freefield conditions) in the technical data table.

■ Heater battery

Air heater with aluminium fins and copper tubes heats up the outside air to the given set temperature. The regulation of the coil temperature requires the hydraulic unit (accessory) via the integrated control board. There is a continuous adjustment between presetting and the room or duct sensor measured temperature. Frost protection control is integral as standard. Max. working pressure is 1.6 MPa. The water connection pipe has a male thread.

Cross talk attenuators are available (accessory) for further acoustic reduction.

Information	Pages
Techn. description	205
Design of systems	12 on

■ Control

- The remote control is included in delivery and offers:
 - 5-stage operation.
 - Temperature control with connection from room and/or duct temperature sensor (included in delivery).
 - Anti-freeze protection.
 - Control of the hydraulic unit (accessory) for regulation of the WW-heater battery. Presetting from min.- / max.-temperature.
 - Operation of the extract air control ALB-ASD (accessory) for speed control of the extract fans at the same speed steps.
 - Indication of surrounding temperature, fan speed and filter contamination (via differential pressure switch, accessory).

■ Further options:

- connection for time switch (night mode).
- connection for air quality sensor.
- Output for e.g. damper control.
- Indication of the cause of malfunction, alert.

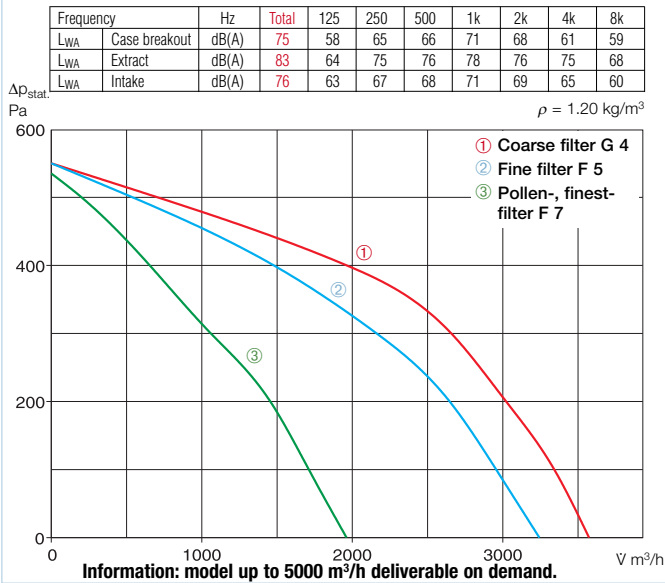


Remote control with connection cable (12 metre) included in delivery.

Type	Ref. No.	Spigot dia.	Air flow volume*	R.P.M.	Sound pressure level		Voltage 50 Hz	Power consumption		Power input max. total	Wiring diagram	Maximum supply air temperature		Nominal weight
					case breakout	supply air noise		Motor	Heater			with heater	without heater	
		mm	V m³/h (max.)	min ⁻¹	dB(A) at 1 m	dB(A) at 1 m	Volt	kW	kW	A	No.	+°C	+°C	kg
ALB 355 WW	2700	355	3600	1400	67	68	400, 3N~	2.050	—	3.6	812	20	40	117

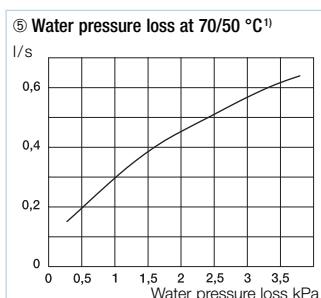
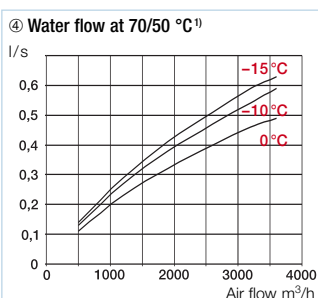
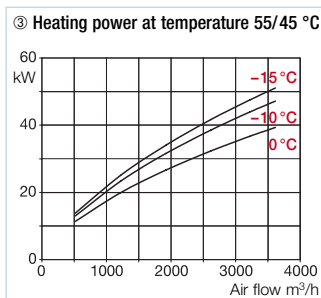
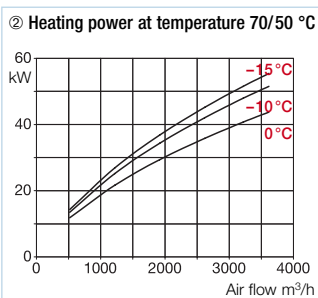
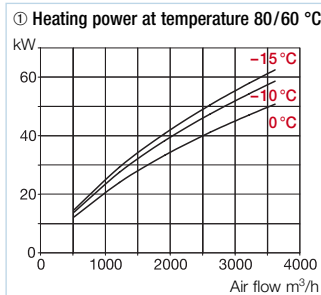
* with standard filter, class G 4

ALB 355 WW



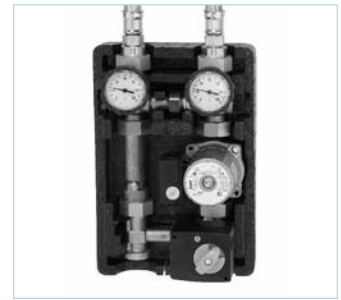
Other accessory	Pages	Information
Attenuator	318	Outside ventilation systems with ELF-ALB.. F7 (see right) and differential pressure switch DDS (Ref. No. 0445) are according to VDI 6022.
Details for hydraulic unit	316	
Flexible ventilation ducts, grilles, circular spigots	361 on	
Supply valve	382	

- **Heating power WW-Register**
①-③ The diagrams ①-③ show the heating power against the flow/ return and outdoor temperature via air flow.
- **Water quantity WW-Register** ④
④ shows the water flow against the V-/R- and outdoor temperature via air flow.
- **Pressure loss WW-Register** ⑤
⑤ shows the water pressure loss kPa via water flow.



¹⁾ Correction factor for 80/50 °C: 1.16; for 55/45 °C: 1.81

■ **Accessory Hydraulic unit**
– max. flow 2200 l/h
WHSH 2200, 230 V Ref. No. 2516
For regulation of the heating output of the water heater battery in connection with room/ duct sensor. Inclusive VL- /RL-temperature display, pump, servo motor, mixing valve, gravity valve, thermal casing and flexible connection hose.



■ **Spare and pollen filters**
Large surface filter for extended cleaning periods Set = 3 pcs
– Filter class G 4
ELF-ALB 355 G4 Ref. No. 2765
– Filter class F 5
ELF-ALB 355 F5 Ref. No. 2768
– Filter class F 7
ELF-ALB 355 F7 Ref. No. 2769



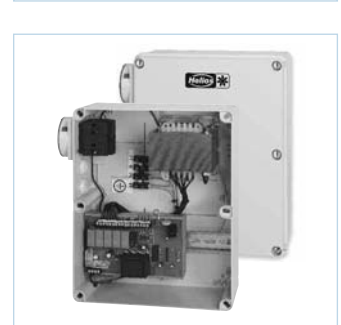
■ **Differential pressure switch DDS** Ref. No. 0445
Complete kit to monitor filters and system pressure.



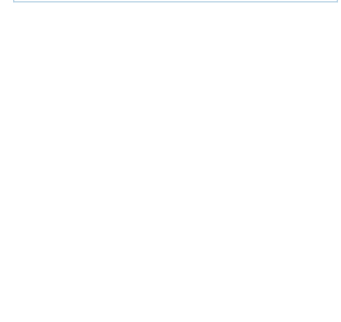
■ **Connection cable (extra long)**
– 30 meter long **ALB-SK 30** Ref. No. 2517
– 50 meter long **ALB-SK 50** Ref. No. 2518
Connection between remote control and ALB; ALB and ALB-AS; with RJ-connector.



■ **Backdraught shutter RSK 355** Ref. No. 5650
For installation in the inlet duct to prevent cold air entry when the fan is off.



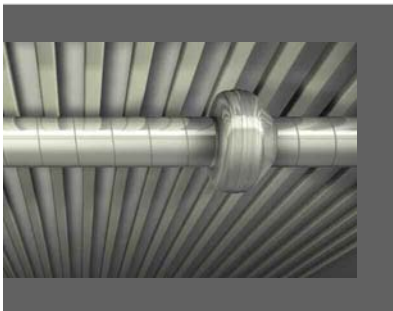
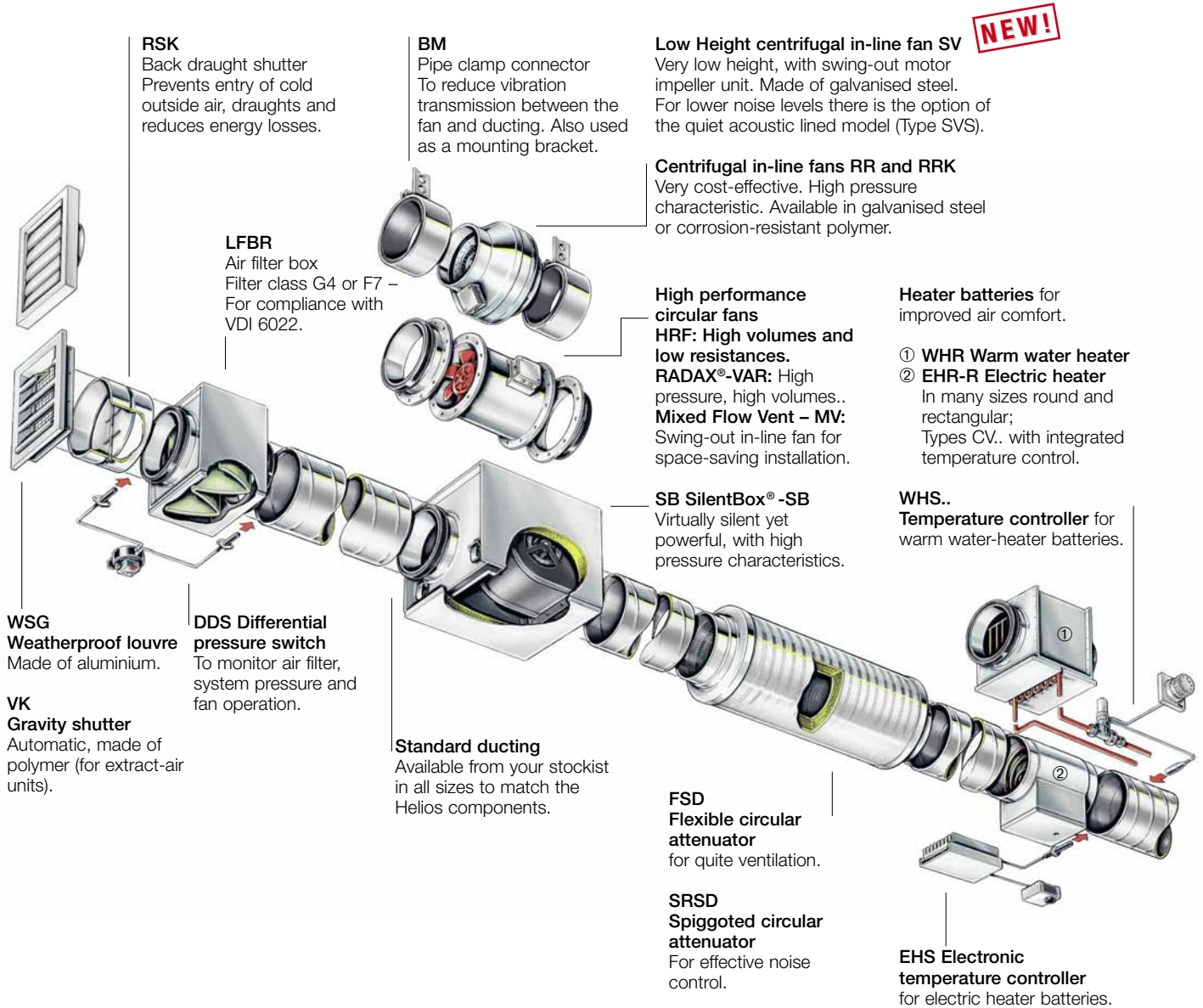
■ **Extract air control ALB-ASD 355** Ref. No. 2698
A control unit for the regulation of an extract air fan at the same rate as the 5 speeds of the supply air fan. Allows synchronised operation of the unit (supply and extract air) with five speed steps. The control unit is connected with the supply systems through a control cable. The programming takes place in few steps directly to the ALB-remote control.



ALB-ASD is mountable in any position and allows the connection of one or many speed controllable 3 ph. fans up to nominal load.
Technical datas
Voltage 400 V / 3 ph. / 50 Hz
Load max. 5 A
Protection to IP 55
Dim in mm W 396 x H 473 x D 130
Weight approx. 15.0 kg
Wiring diagram No. SS-868

Advantages:

- The components are available in every size and every performance level.
- All the components are compatible with each other and fit exactly together.
- Short installation time, simple design and matched accessories.



Effective system solutions from your leading supplier.

In-Line Mixed flow fan MV.
High pressure characteristics and high air flow volumes in space saving design.
 $V = 200 - 2500 \text{ m}^3/\text{h}$

In-line fans with plug in fan section in one or two-stage options as well as in parallel models. 21 types in 7 diameters from 100 up to 315 mm. In a plastic case with an easy fastening system. With two speed motors as standard.

InlineVent® RR, RRK..., SV.
For effective performance of medium and lower air volumes against high resistances.
 $V = 100 - 1600 \text{ m}^3/\text{h}$

Market leading in line centrifugal range RR..., with the option of galvanised steel, corrosion resistant polymer or as explosionproof small fans. Model RR with additional energy saving speed as standard.
Low height SlimVent model SV..., with swing-out motor impeller unit. Compact design, ideal for the installation in false ceilings or other restricted spaces.

NEW!

NEW!

Quite range SB, SVS
Sound absorbent units for specific noise levels
 $V = 230 - 2650 \text{ m}^3/\text{h}$

Helios SilentBox® SB..
 Almost silent, with high air flow volume and high pressure characteristic. Unit casing is designed for sound absorption.
SlimVent SVS Low height and ultra quiet extract unit. Unit casing with sound absorbent mineral wool lining. Energy saving centrifugal fan with a swing-out motor impeller unit.



from page 218



from page 234



from page 250



Duct fans

■ **Specifications**

InlineVent® and Mixed Flow Vent circular fans provide the advantages of axial fans such as the straight in-line air flow design, and the benefit of a simple and cost effective installation with the advantage of the high pressure characteristic of a centrifugal fan.

There are many advantages of this range:

- Less space required.
- Complete speed controllability.
- Quick installation.
- Cost effective mounting.
- Low noise level.
- High pressure development.

■ **Ranges – Overview**

□ **Model Mixed Flow Vent MV..**

High pressure and air flow volume characteristic in a space saving design.

From 200 to 2500 m³/h developing up to 1000 Pa this versatile range is suitable for the ventilation of most small and medium size rooms.

There are 21 types in nominal diameters from 100 up to 315 mm with one or two-stage configurations plus parallel models to give a wide range of performance.

□ **Model RR..**

Market leading design that is a very cost effective solution. Centrifugal in-line fans for smaller and medium sized ducted systems in nominal diameters 100 – 315 mm.

□ **Model RRK**

An alternative range in corrosive and impact-resistant polymer casing. For smaller and medium sized ducted systems in nominal diameters 100 – 315 mm.

□ **Model SV..**

SlimVent® compact, flat in-line fans from 80 – 200 mm. With an energy efficient centrifugal impeller for effective performance from low to higher air flow volumes.

□ **Model RRK Ex**

Atex certified explosion proof small fans for 230 V, 1 phase 50 Hertz current. For ventilation of chemical, pharmaceutical laboratories, workshops, battery rooms etc. For in-line installation, approved for operation in group II category 2G for operation in zones 1, 2 and according to DIN EN 60079/VDE 0165.

□ **Acoustic Line SB..**

Helios SilentBox® - the virtually noise free solution for high performance centrifugal fans with duct connection in diameters from 125 up to 400 mm.

□ **Acoustic Line SVS**

Fully insulated with sound absorbent mineral wool. Extremely compact design, ideal for false ceilings and restricted spaces. Duct connection in nominal diameters from 125 up to 200 mm.

■ **For complete information see the “general technical information” and descriptions on the product pages.**

□ **Installation position, mounting and drainage holes**

All models can be installed in any position. For the SV.. models please ensure that the Swing-out areas are kept clear to provide easy access for service and maintenance .

If condensation may occur (e.g. intermittent operation, high humidity or varying temperatures) the fan must be installed in a manner that allows the condensation to drain off unhindered. If required additional holes may have to be drilled into the casing at the appropriate positions to allow condensate drainage. In models RR.. condensate drains are mounted on the impeller plate and motor casing. Alternatively the duct system may have to be insulated to avoid condensation.

□ **Noise/vibration transmission**

must be avoided from the ducting and building. Therefore the fan should not be connected directly to the ducting. Suitable mounting sleeves (BM.. pipe clamps) are available as an accessory.

□ **Explosion proof models**

With regards to regulations and requirements please refer to chapter “Design of ventilation systems – explosion proof” and to the Local Health and Safety Executive. The ex-proof models RRK.. Ex corresponds to the unit group II, category 2G for operation in zone 1 and 2.

□ **Motor - Impeller**

All models incorporate an external rotor motor, protected to IP 44 within the air flow. They conform to DIN EN 60034/VDE 0530 and DIN EN 60335-1/VDE 0700 with an insulation class F, plus moisture protection. They are maintenance free, radio-suppressed, speed controllable and suitable for continuous operation. The ball bearings are greased for life. The centrifugal impellers are pressed onto the motor body and dynamically balanced to DIN ISO 1940 T.1 – class 6.3 as one unit.

□ **Speed control**

All InlineVent®-, Mixed Flow Vent and Acoustic Line-fans are speed controllable via voltage reduction of 10–100%. Thus the performance can be adjusted to the required air flow volumes.

Model SVV 80 is speed controllable with three-step switch and the models SVR, SVS and RR are controllable with a five-step transformer or electronic speed controller or two speed with an optional two-step switch.

Mixed Flow Vent MV can be controlled either with two-speed switch or five-step transformer controller.

Our speed controllers are suitable to control a range of Helios fans (one or more) up to their maximum nominal output. When selecting a controller not shown on the tables, allow for a 10% safety margin.

□ **Air flow direction**

The air flow direction of centrifugal fans is fixed and cannot be reversed; but the units are suitable for installation in any position and can be installed for supply or extract airflow. The direction of rotation and the direction of air flow are marked on the unit with arrows and must be checked when installing.

□ **Incorrect direction of rotation**

If the fan is operated in the reverse direction of rotation the motor will overheat and the thermal contact will trip. Typical indication of this is a very low air flow combined with high noise levels and vibration.

□ **Air flow temperature**

All models are suitable for ambient temperatures between –40 °C up to a minimum of +40 °C. The maximum temperature varies between models and can be found at the tables on the individual product page.

■ **Note**

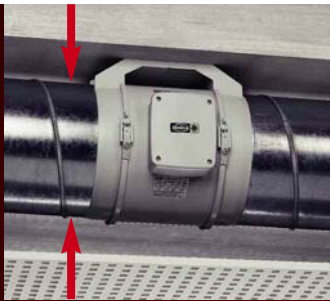
The integration of F7 air filters and differential pressure switch DDS (Ref. No. 0445) in outside air units comply with the requirements of VDI 6022.

Note	Page
Design of systems, acoustics, explosion protection	12 on
General techn. information, speed control	17 on

In-Line Mixed flow fan

With air flow volumes of 200 to 2500 m³/h and up to 1000 Pa pressure (as a two-stage fan), the Helios Mixed Flow Vent is suitable for the ventilation of most small and medium size rooms.

These fans are a very compact design resulting in a powerful fan range with slim dimensions. The casing diameter is only just slightly larger than the ducting making it ideal for restricted spaces. With the ability to be fitted in any position: horizontal, vertical or diagonal, makes these fans very versatile.



Fits directly into the ducting. The perfect solution for any place with restricted space, e.g. behind false ceilings. The real advantage of the Helios Mixed Flow Vent is space saving and it is easy to install.



The terminal box with the central fan section can be rotated inside the frame to any position. Thus local obstructions can easily be avoided.



Maintenance and cleaning? No problem with Mixed Flow Vent. Open the clips and pull out the fan unit. Everything is freely accessible, it's so easy!

**In-Line Mixed flow fan.
Slim by design powerful in performance.**

Within the very compact casing of Mixed Flow Vent In-line fans are the built in guide vanes and combined with the powerful impellers produce high pressures and high air flow volumes. The units have a two speed operation as standard and the high speed is fully variable through a speed controller (accessory).

The casing with integral fixing brackets can be mounted in any position. The central fan section with terminal box can be rotated to any direction. By releasing the clamps, the central fan section can be removed easily. The unit concept provides the easiest in-duct installation and simplifies maintenance and cleaning. The unit concept complies with the requirements of VDI 6022.

The energy saving condenser motors (protection class IP 44) are equipped with ball bearings for smooth running and an operation period of at least 30.000 hours and they are totally enclosed. Thus, they are suitable for every application and can even be used handling polluted and dusty air.



The powerful Mixed Flow Vent impellers produce high pressures and high air flow volumes.

The new Helios in-line fans Mixed Flow Vent extend the VAR success story to smaller fans and lower air flow volumes. Helios Mixed Flow Vent has many advantages over

conventional solutions in many respects and suits most applications. A leading-edge product for modern innovative installations in ventilation systems.

High air flow volume and high pressure characteristic in a space saving design.

Specifically made for in-duct installation. Versatile for use in most commercial, industrial and domestic applications.

Special features

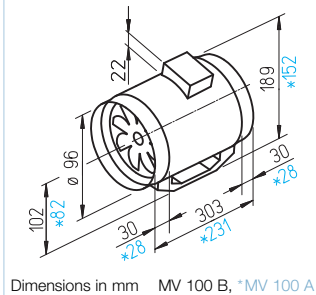
- Less space required and simple site installation of the compact in line design.
- Its simplicity reduces site costs
- Supply and exhaust air spigots fit all standard circular duct sizes.
- Two speeds, as standard; plus fully controllable motor speed.
- Installation in any position.
- Long life ball bearings, designed for 30.000 operating hours.
- Trouble-free maintenance and cleaning by removing the core of the unit from its frame without disassembling the ducting.
- Fan unit with terminal box can be rotated to any position.
- Integral mounting bracket for easy installation on floor, wall and ceiling.

Common features

- Casing**
By loosening the clips the fan section can be removed from the casing leaving the mounting bracket. All components are manufactured from impact resistant and corrosion resistant polymer. Colour: light grey.
- Speed control**
Standard two-speed control with external operating switch MVB (accessory). Full speed control with an electronic controller or five-step transformer.
- Motor**
Totally enclosed ball bearing motor made for continuous operation with insulation class F and moisture protection. Maintenance-free and radio suppressed.
- Motor protection**
Thermal overload protection fitted in the winding as standard.
- Sound level**
See explanations on page 223.

MV – Single-stage

Swing-out in-line fan for space-saving in-duct installation.

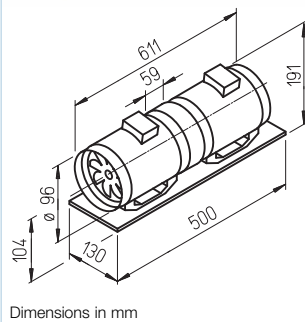


Specification MV

- Impeller**
Mixed flow for high volume flow and high pressure performance. Made of high-grade polymer.
- Electrical connection**
The spacious terminal box (IP 44) is mounted on the casing; rotatable to any position.
- Installation**
Can be mounted in any position – horizontal, vertical or diagonal – suitable for supply and extract ventilation by correct installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVZ – Two-stage

For higher pressure performance: two in-line fans mounted in series.

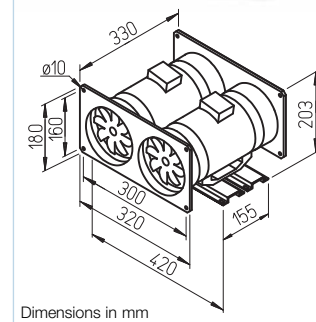


Specification MVZ

- Impeller**
Two MV fans are connected in series using a connecting sleeve and assembled on a common base plate. Delivered as ready-to-assemble kits. Series operation doubles the pressure output at the same volume.
- Impeller**
As described on the left.
- Electrical connection**
Each fan has a separate terminal box on the outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a coupling relay has to be used as shown in the wiring diagram. When using a speed controller, the high speed amps have to be allowed for.
- Installation**
Can be mounted in any position – horizontal, vertical or diagonal – suitable for supply and extract ventilation by correct installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVP – Parallel

For higher volume output in a compact parallel design.



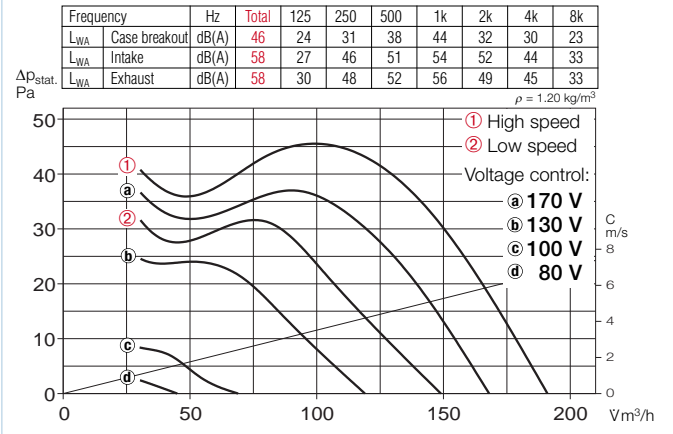
Specification MVP

- Impeller**
The two parallel MV fans are mounted on common mounting rails and have a connector plate fitted to both the intake and exhaust. Delivered as ready-to-assemble kits. Parallel operation (both fans running) doubles the air volume at the same pressure.
- Impeller**
As described on the left.
- Speed control / Connection**
Each fan is located with a separate terminal box on the outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a pair of relays have to be used as shown in the wiring diagram. When using a speed controller, the high speed amps have to be allowed for. Each fan can also be operated separately or together when necessary. To prevent the re-circulation, two exhaust back draught shutters are required (RSK, accessory).

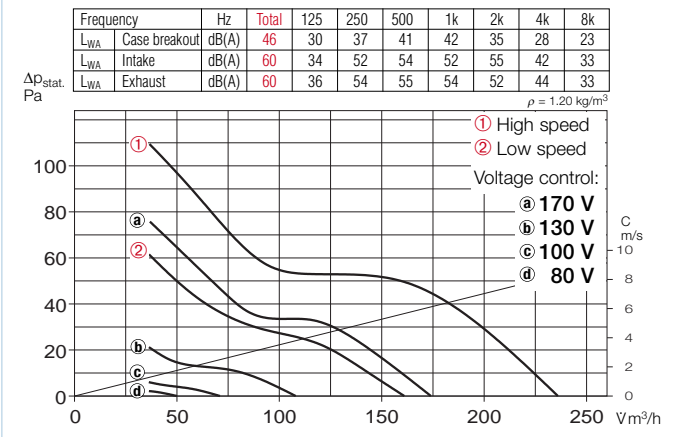
Type	Ref. No.	Spigot dia.	Air flow volume min./max.	R.P.M. min./max.	Sound pressure level at 1m case breakout	Sound pressure level at 1m air noise min./max.	Power consumption min./max.	Current min./max.	Wiring diagram	Max. air flow temperature	Nominal weight (net)	Transformer-speed controller 5-step	Electronic* speed controller, stepless surface mounted		
		mm	m³/h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Single-stage in-line fan, 230 V, 50 Hz, capacitor motor, IP 44															
MV 100 A	6050	100	150/190	2070/2620	34/38	45/50	12/15	0.05/0.07	844.1	60	1.2	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
MV 100 B	6051	100	170/240	1590/2170	32/38	46/52	20/23	0.09/0.11	844.1	60	1.7	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
Two-stage in-line fan, 230 V, 50 Hz, capacitor motor, IP 44															
MVZ 100 B	6058	100	170/240	1590/2170	37/43	49/55	40/46	0.18/0.22	845.1	60	4.5	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
Parallel-twin-unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVP 100 B	6065	–	340/480	1590/2170	35/41	49/55	40/46	0.18/0.22	845.1	60	5.7	TSW 0.3	3608	ESU 1/ESA 1	0236/0238

* In noise sensitive cases, transformer-control devices should be used. Electronic phase angle control may generate disturbing increase in motor noise.

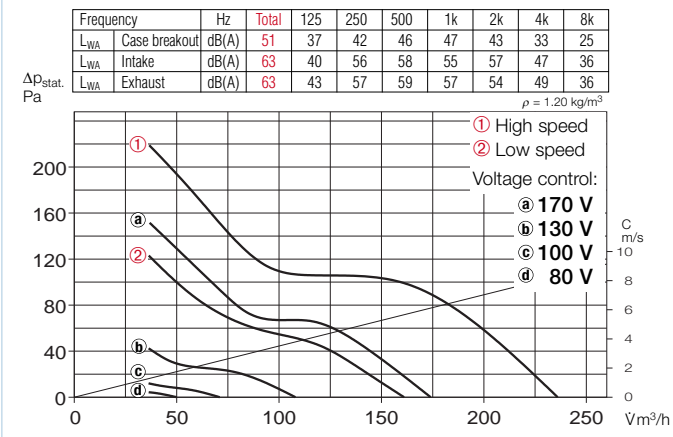
MV 100 A – Single-stage



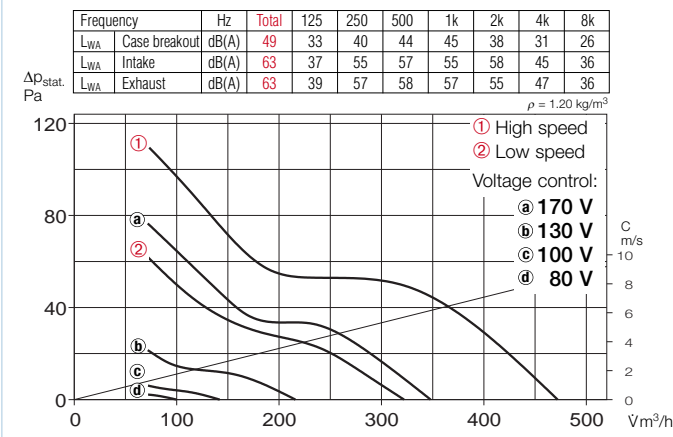
MV 100 B – Single-stage



MVZ 100 B – Two-stage



MVP 100 B – Parallel



Accessories for MV and MVZ

Flexible connector

FM 100 Ref. No.1681
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission and compensates small misalignments on site. Two sleeves are needed for intake and exhaust operation.



Gravity shutter

VK 100 Ref. No. 0757
Wall mounted, automatic pressure control shutter for the air outlet. Made of polymer; colour: light grey.



External wall grille

G 100 Ref. No. 0796
To cover or insert into circular ventilation holes. Made of impact resistant, white polymer.



Guard for spigot connection

MVS 100 Ref. No. 6071
For intake and exhaust installation on the ventilation unit.



Spigotted attenuator with 50 mm insulation.

FSD 100 Ref. No. 0676 flexible, from aluminium, length 1 m.
SRSD 100/... see page 319 circular, from galvanised steel, length 300–1200 mm.



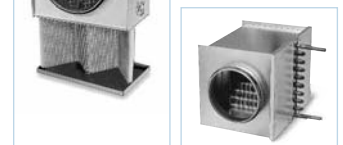
Air filter box

LFBR 100 G4 Ref. No. 8576
With a large cross section area, for in-duct installation.



Electric heater batteries

EHR-R 0,4/100 0,4 kW No. 8708
In circular casing, made of galvanised steel.



Warm-water heater batteries

WHR 100 Ref. No. 9479
For in-duct installation.



Accessories for all types

Back draught shutter

RSKK 100 Ref. No. 5106
Automatic, made of polymer. For in-duct installation.



Operating switch 0-1-2

MVB Ref. No. 6091
With on/off, low and high speed functions.



Transformer speed controller

TSW see table
Five-step transformer speed controller for surface mounting.



Electronic speed controller

ESU/ESA see table
For flush-/surface mounting.

Electronic run-on switch

ZNE Ref. No. 0342
With continuously adjustable follow-up time.



Duct fans

High air flow volume and high pressure characteristic in a space saving design.

Specifically made for in-duct installation. Versatile for use in most commercial, industrial and domestic applications.

Special features

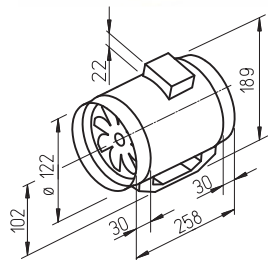
- Less space required and simple site installation of the compact in line design.
- Its simplicity reduces site costs
- Supply and exhaust air spigots fit all standard circular duct sizes.
- Two speeds, as standard; plus fully controllable motor speed.
- Installation in any position.
- Long life ball bearings, designed for 30.000 operating hours.
- Trouble-free maintenance and cleaning by removing the core of the unit from its frame without disassembling the ducting.
- Fan unit with terminal box can be rotated to any position.
- Integral mounting bracket for easy installation on floor, wall and ceiling.

Common features

- Casing**
By loosening the clips the fan section can be removed from the casing leaving the mounting bracket. All components are manufactured from impact resistant and corrosion resistant polymer. Colour: light grey.
- Speed control**
Standard two-speed control with external operating switch MVB (accessory). Full speed control with an electronic controller or five-step transformer.
- Motor**
Totally enclosed ball bearing motor made for continuous operation with insulation class F and moisture protection. Maintenance-free and radio suppressed.
- Motor protection**
Thermal overload protection fitted in the winding.

MV – Single-stage

Swing-out in-line fan for space-saving in-duct installation.



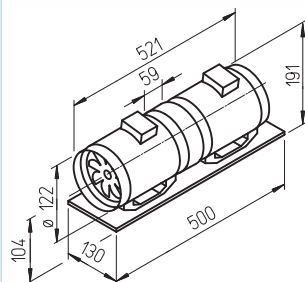
Dimensions in mm

Specification MV

- Impeller**
Mixed flow for high volume flow and high pressure performance. Made of high-grade polymer.
- Electrical connection**
The spacious terminal box (IP 44) is mounted on the casing; rotatable to any position.
- Installation**
Can be mounted in any position – horizontal, vertical or diagonal – suitable for supply and extract ventilation by correct installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVZ – Two-stage

For higher pressure performance: two in-line fans mounted in series.



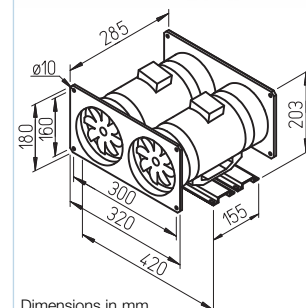
Dimensions in mm

Specification MVZ

- Impeller**
Two MV fans are connected in series using a connecting sleeve and assembled on a common base plate. Delivered as ready-to-assemble kits. Series operation doubles the pressure output at the same volume.
- Impeller**
As described on the left.
- Electrical connection**
Each fan has a separate terminal box on the outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a coupling relay has to be used as shown in the wiring diagram. When using a speed controller, the high speed amps have to be allowed for.
- Installation**
Can be mounted in any position – horizontal, vertical or diagonal – suitable for supply and extract ventilation by correct installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVP – Parallel

For higher volume output in a compact parallel design.



Dimensions in mm

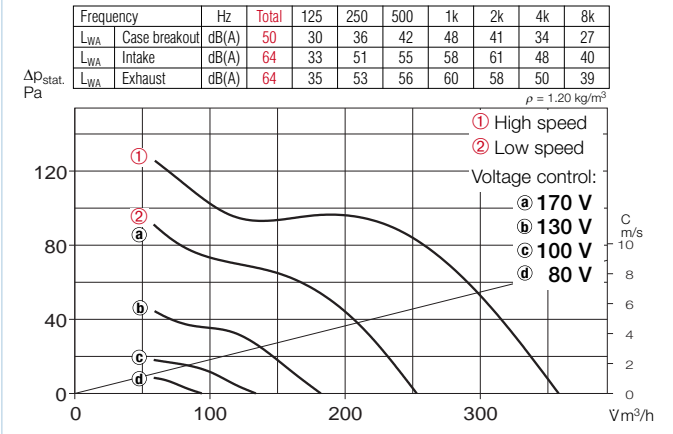
Specification MVP

- Impeller**
The two parallel MV fans are mounted on common mounting rails and have a connector plate fitted to both the intake and exhaust. Delivered as ready-to-assemble kits. Parallel operation (both fans running) doubles the air volume at the same pressure.
- Impeller**
As described on the left.
- Speed control / Connection**
Each fan is located with a separate terminal box on the outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a pair of relays have to be used as shown in the wiring diagram. When using a speed controller, the high speed amps have to be allowed for. Each fan can also be operated separately or together when necessary. To prevent the re-circulation, two exhaust back draught shutters are required (RSK, accessory).

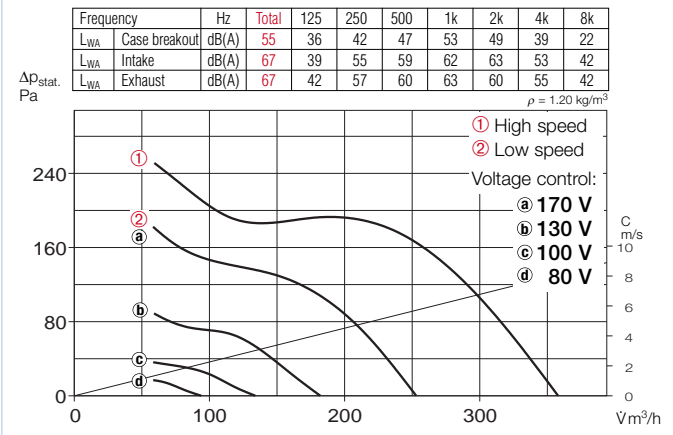
Type	Ref. No.	Spigot dia.	Air flow volume min./max.	R.P.M. min./max.	Sound pressure level in 1 m case breakout	Sound pressure level in 1 m air noise min./max.	Power consumption min./max.	Current usage min./max.	Connection by wiring diagram	Max. air flow temperature	Nominal weight (net)	Transformer-speed controller 5-step	Electronic* speed controller, stepless surface mounted		
		mm	V m³/h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Single-stage in-line fan, 230 V, 50 Hz, capacitor motor, IP 44															
MV 125	6052	125	250/360	1670/2300	35/42	49/56	25/33	0.11/0.15	844.1	60	1.7	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
Two-stage ventilation unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVZ 125	6059	125	250/360	1670/2300	40/47	52/59	50/66	0.22/0.30	845.1	60	4.6	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
Parallel-twin-unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVP 125	6066	–	500/720	1670/2300	38/45	52/59	50/66	0.22/0.30	845.1	60	5.8	TSW 0.3	3608	ESU 1/ESA 1	0236/0238

* In noise relevant cases, transformer-control devices shall be provided. Electronic phase angle control may generate disturbing increase in motor noise.

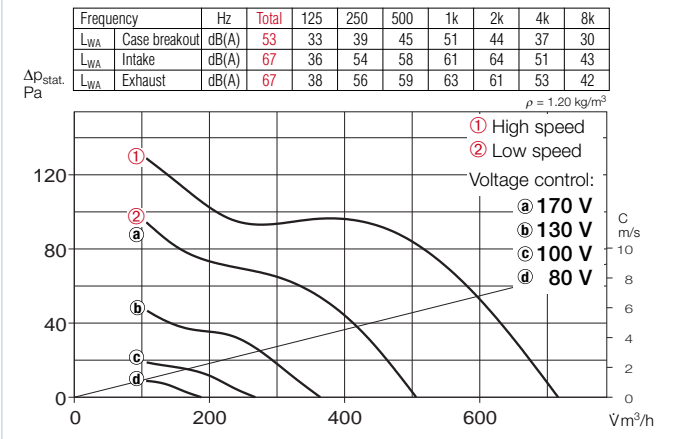
MV 125 – Single-stage



MVZ 125 – Two-stage



MVP 125 – Parallel



Sound levels

The total values and the spectrum figures are given above the performance curves for

- Sound levels at case breakout.
- Sound levels of intake and exhaust air in dB(A). On the table (see left page)
- The case breakout figures and the intake/exhaust air noise levels are additionally given as sound pressure level at 1 m (free-field conditions).

The Helios figures have to be reduced by 8 dB(A) if compared to sound pressure levels at 3 m.

Info Accessories Page

Filters, heater batteries and silencers	305 on
Temperature controllers for heater batteries	311, 315
Flexible ventilation pipes, ventilation grilles, fittings, roof ducts	361 on
Ceiling valves	380 on
Speed controllers, control units and switches	397 on

Accessories for MV and MVZ

Flexible connector

FM 125 Ref. No. 1682
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission and compensates small misalignments on site. Two sleeves are needed for intake and exhaust operation.



Gravity shutter

VK 125 Ref. No. 0857
Wall mounted, automatic pressure control shutter for the air outlet. Made of polymer; colour: light grey.



External wall grille

G 160 Ref. No. 0893
To cover or insert into circular ventilation holes. Made of impact resistant, white polymer.



Guard for spigot connection

MVS 125 Ref. No. 6072
For intake and exhaust installation on the ventilation unit.



Spigotted attenuator with 50 mm insulation.

FSD 125 Ref. No. 0677 flexible, from aluminium, length 1 m.
SRSD 125/... see page 319 circular, from galvanised steel, length 300–1200 mm.



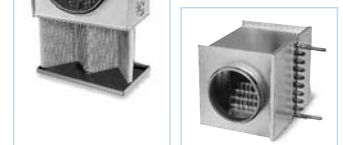
Air filter box

LFBR 125 G4 Ref. No. 8577
With a large cross section area, for in-duct installation.



Electric heater batteries

EHR-R 0.8/125 0.8 kW No. 8709
In circular casing, made of galvanised steel.



Warm-water heater batteries

WHR 125 Ref. No. 9480
For in-duct installation.



Accessories for all types

Back draught shutter

RSKK 125 Ref. No. 5107
Automatic, made of polymer. For in-duct installation.



Operating switch 0-1-2

MVB Ref. No. 6091
With on/off, low and high speed functions.



Transformer speed controller

TSW see table
Five-step transformer speed controller for surface mounting.



Electronic speed controller

ESU/ESA see table
For flush-/surface mounting.



Electronic run-on switch

ZNE Ref. No. 0342
With continuously adjustable follow-up time.

High air flow volume and high pressure characteristic in a space saving design.
Specifically made for in-duct installation. Versatile for use in most commercial, industrial and domestic applications.

Special features

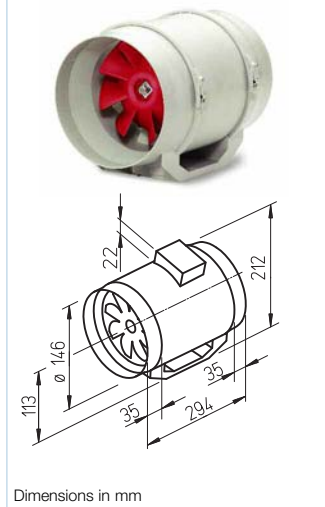
- Less space required and simple site installation of the compact in line design.
- Its simplicity reduces site costs
- Supply and exhaust air spigots fit all standard circular duct sizes.
- Two speeds, as standard; plus fully controllable motor speed.
- Installation in any position.
- Long life ball bearings, designed for 30.000 operating hours.
- Trouble-free maintenance and cleaning by removing the core of the unit from its frame without disassembling the ducting.
- Fan unit with terminal box can be rotated to any position.
- Integral mounting bracket for easy installation on floor, wall and ceiling.

Common features

- Casing**
By loosening the clips the fan section can be removed from the casing leaving the mounting bracket. All components are manufactured from impact resistant and corrosion resistant polymer. Colour: light grey.
- Speed control**
Standard two-speed control with external operating switch MVB (accessory). Full speed control with an electronic controller or five-step transformer.
- Motor**
Totally enclosed ball bearing motor made for continuous operation with insulation class F and moisture protection. Maintenance-free and radio suppressed.
- Motor protection**
Thermal overload protection fitted in the winding.

MV – Single-stage

Swing-out in-line fan for space-saving in-duct installation.



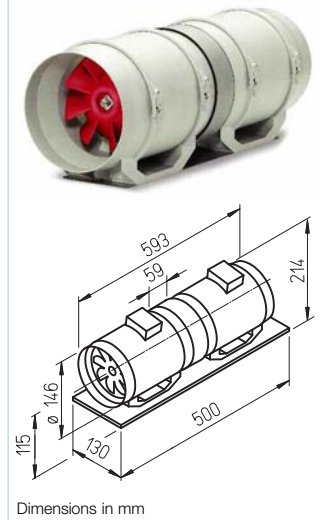
Dimensions in mm

Specification MV

- Impeller**
Mixed flow for high volume flow and high pressure performance. Made of high-grade polymer.
- Electrical connection**
The spacious terminal box (IP 44) is mounted on the casing; rotatable to any position.
- Installation**
Can be mounted in any position – horizontal, vertical or diagonal – suitable for supply and extract ventilation by correct installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVZ – Two-stage

For higher pressure performance: two in-line fans mounted in series.



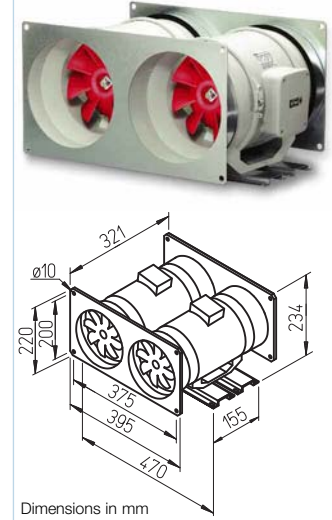
Dimensions in mm

Specification MVZ

- Impeller**
Two MV fans are connected in series using a connecting sleeve and assembled on a common base plate. Delivered as ready-to-assemble kits. Series operation doubles the pressure output at the same volume.
- Impeller**
As described on the left.
- Electrical connection**
Each fan has a separate terminal box on the outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a coupling relay has to be used as shown in the wiring diagram. When using a speed controller, the high speed amps have to be allowed for.
- Installation**
Can be mounted in any position – horizontal, vertical or diagonal – suitable for supply and extract ventilation by correct installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVP – Parallel

For higher volume output in a compact parallel design.



Dimensions in mm

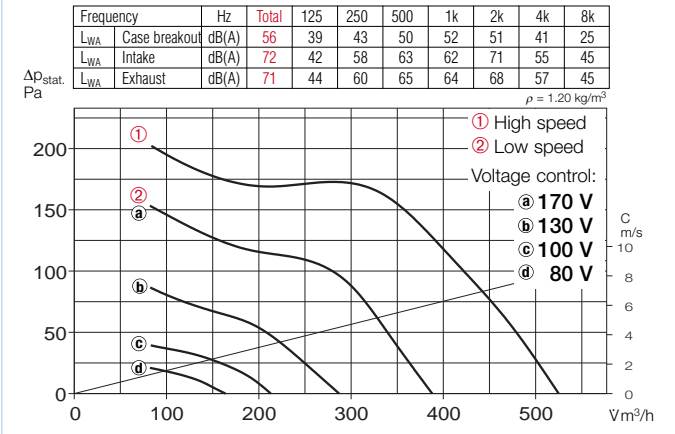
Specification MVP

- Impeller**
The two parallel MV fans are mounted on common mounting rails and have a connector plate fitted to both the intake and exhaust. Delivered as ready-to-assemble kits. Parallel operation (both fans running) doubles the air volume at the same pressure.
- Impeller**
As described on the left.
- Speed control / Connection**
Each fan is located with a separate terminal box on the outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a pair of relays have to be used as shown in the wiring diagram. When using a speed controller, the high speed amps have to be allowed for. Each fan can also be operated separately or together when necessary. To prevent the re-circulation, two exhaust back draught shutters are required (RSK, accessory).

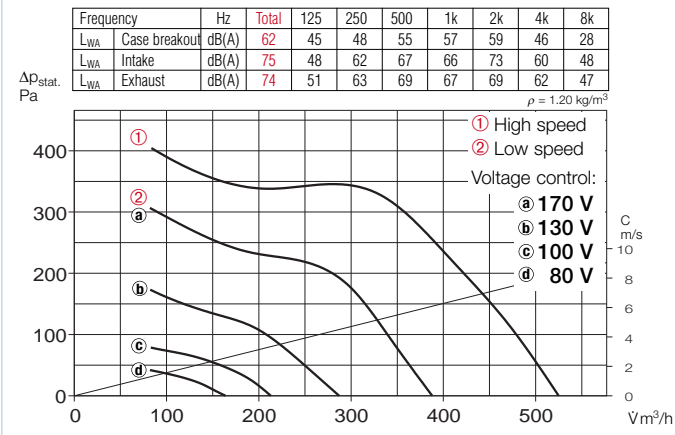
Type	Ref. No.	Spigot dia.	Air flow volume min./max.	R.P.M. min./max.	Sound pressure level in 1 m case breakout	Sound pressure level in 1 m air noise min./max.	Power consumption min./max.	Current usage min./max.	Connection by wiring diagram	Max. air flow temperature	Nominal weight (net)	Transformer-speed controller 5-step	Electronic* speed controller, stepless surface mounted		
		mm	V m³/h	min⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Single-stage in-line fan, 230 V, 50 Hz, capacitor motor, IP 44															
MV 150	6053	150	380/520	1520/2290	40/48	56/64	40/58	0.18/0.26	844.1	60	2.3	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
Two-stage ventilation unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVZ 150	6060	150	380/520	1520/2290	46/54	59/67	80/116	0.36/0.52	845.1	60	5.8	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
Parallel-twin-unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVP 150	6067	–	760/1040	1520/2290	43/51	59/67	80/116	0.36/0.52	845.1	60	8.0	TSW 1.5	1495	ESU 1/ESA 1	0236/0238

* In noise relevant cases, transformer-control devices shall be provided. Electronic phase angle control may generate disturbing increase in motor noise.

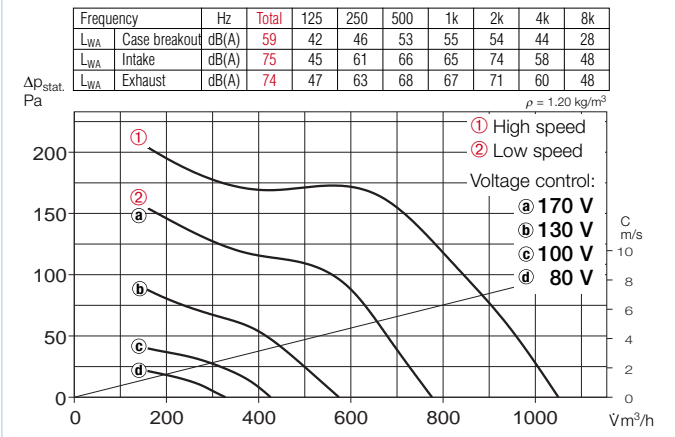
MV 150 – Single-stage



MVZ 150 – Two-stage



MVP 150 – Parallel



■ Sound levels

The total values and the spectrum figures are given above the performance curves for

- Sound levels at case breakout.
- Sound levels of intake and exhaust air in dB(A). On the table (see left page)
- The case breakout figures and the intake/exhaust air noise levels are additionally given as sound pressure level at 1 m (free-field conditions).

The Helios figures have to be reduced by 8 dB(A) if compared to sound pressure levels at 3 m.

■ Accessories Page

Filters, heater batteries and silencers	305
Temperature controllers for heater batteries	311, 315
Flexible ventilation pipes, ventilation grilles, fittings, roof ducts	361
Ceiling valves	380
Speed controllers, control units and switches	397

■ Accessories for MV and MVZ

Flexible connector

FM 150 Ref. No. 1683
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission and compensates small misalignments on site. Two sleeves are needed for intake and exhaust operation.



Gravity shutter

VK 160 Ref. No. 0892
Wall mounted, automatic pressure control shutter for the air outlet. Made of polymer; colour: light grey.



External wall grille

G 160 Ref. No. 0893
To cover or insert into circular ventilation holes. Made of impact resistant, white polymer.



Guard for spigot connection

MVS 150 Ref. No. 6073
For intake and exhaust installation on the ventilation unit.



Spigotted attenuator
with 50 mm insulation.

FSD 160¹⁾ Ref. No. 0678
flexible, from aluminium, length 1 m.
SRSD 160/... see page 319
circular, from galvanised steel, length 300–1200 mm.



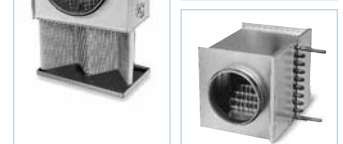
Air filter box

LFBR 160 G4¹⁾ Ref. No. 8578
With a large cross section area, for in-duct installation.



Electric heater batteries

EHR-R 1.2/160¹⁾ 1.2 kW No. 9434
In circular casing, made of galvanised steel.



Warm-water heater batteries

WHR 160¹⁾ Ref. No. 9481
For in-duct installation.



■ Accessories for all types

Back draught shutter

RSK 150 Ref. No. 5073
Automatic, made of metal. For in-duct installation.



Operating switch 0-1-2

MVB Ref. No. 6091
With on/off, low and high speed functions.



Transformer speed controller

TSW see table
Five-step transformer speed controller for surface mounting.



Electronic speed controller

ESU/ESA see table
For flush-/surface mounting.



Electronic run-on switch

ZNE Ref. No. 0342
With continuously adjustable follow-up time.



¹⁾ This accessory with ND 160 mm is applicable for ø 150 mm ducting by use of foam rubber.

High air flow volume and high pressure characteristic in a space saving design.

Specifically made for in-duct installation. Versatile for use in most commercial, industrial and domestic applications.

Special features

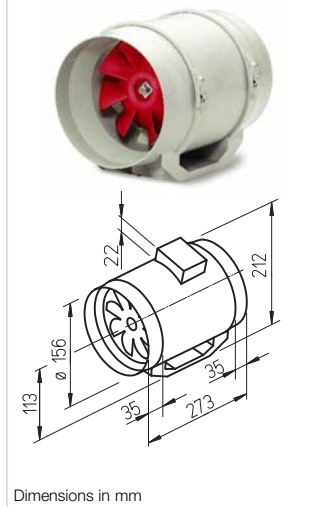
- Less space required and simple site installation of the compact in line design.
- Its simplicity reduces site costs
- Supply and exhaust air spigots fit all standard circular duct sizes.
- Two speeds, as standard; plus fully controllable motor speed.
- Installation in any position.
- Long life ball bearings, designed for 30.000 operating hours.
- Trouble-free maintenance and cleaning by removing the core of the unit from its frame without disassembling the ducting.
- Fan unit with terminal box can be rotated to any position.
- Integral mounting bracket for easy installation on floor, wall and ceiling.

Common features

- Casing**
By loosening the clips the fan section can be removed from the casing leaving the mounting bracket. All components are manufactured from impact resistant and corrosion resistant polymer. Colour: light grey.
- Speed control**
Standard two-speed control with external operating switch MVB (accessory). Full speed control with an electronic controller or five-step transformer.
- Motor**
Totally enclosed ball bearing motor made for continuous operation with insulation class F and moisture protection. Maintenance-free and radio suppressed.
- Motor protection**
Thermal overload protection fitted in the winding.

MV – Single-stage

Swing-out in-line fan for space-saving in-duct installation.

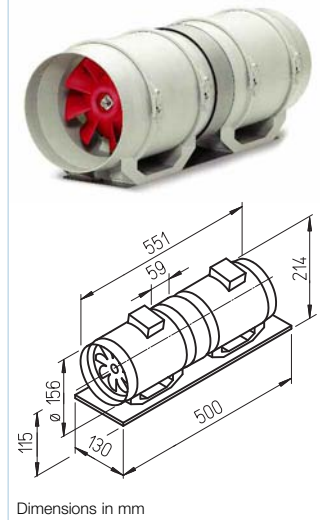


Specification MV

- Impeller**
Optimised for high volume flow and high pressure performance. Made of high-grade polymer.
- Electrical connection**
The spacious terminal box (IP 44) is mounted on the casing; rotatable to any position.
- Installation**
Suitable in any position – horizontal – without restrictions for intake and extract ventilation by appropriate installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVZ – Two-stage

For higher pressure performance: two in-line fans mounted in series.

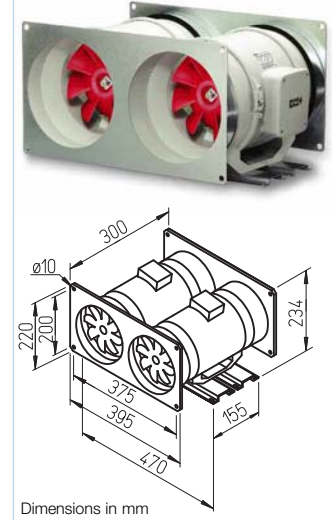


Specification MVZ

- Impeller**
Two MV fans are connected in series by means of a sleeve and assembled on a common base plate. Delivered as ready-to-assemble kits. Series operation doubles the pressure output at the same volume.
- Impeller**
As described on the left.
- Electrical connection**
Each fan is located with separate terminal box on outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a coupling relay has to be used as shown in the wiring diagram. By using a speed controller, the high speed amps have to be used.
- Installation**
Suitable in any position – horizontal, vertical or diagonal – without restrictions for intake and extract ventilation by appropriate installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVP – Parallel

For higher volume output in a compact parallel design.



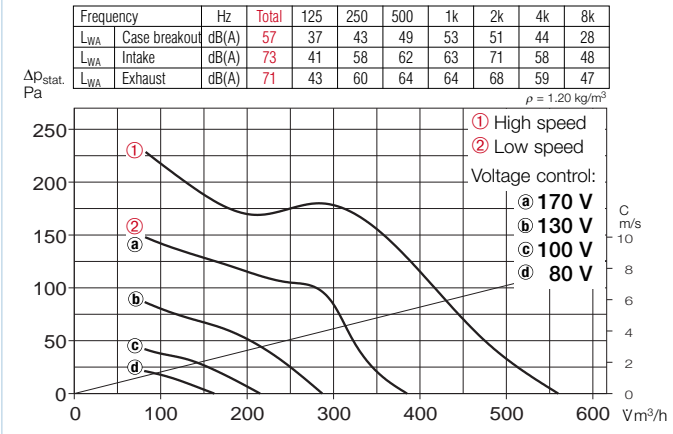
Specification MVP

- Impeller**
Two parallel MV fans are connected by square channel-connection plates, which are placed on the intake and exhaust air side, and screwed together with mounting rails. Delivered as ready-to-assemble kits. Parallel operation (joint control) doubles the volume at the same pressure.
- Impeller**
As described on the left.
- Speed control / Connection**
Each fan is located with separate terminal box on outer casing. When operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a pair of relays has to be used as shown in the wiring diagram. By using a speed controller, the high speed amps have to be used. Each fan can also be operated separately or together when necessary. To prevent the recirculation, two exhaust back draught flaps are required (RSK, accessory).

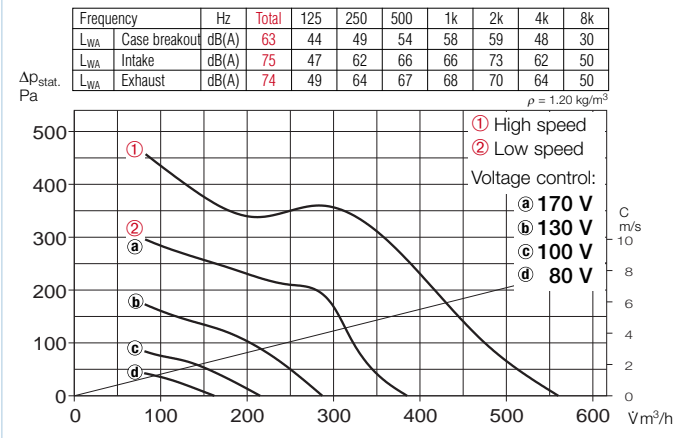
Type	Ref. No.	Connection- Ø	Air flow volume min./max.	R.P.M. min./max.	Sound pressure level in 1 m case breakout	Sound pressure level in 1 m air noise min./max.	Power consumption min./max.	Current usage min./max.	Connection by wiring diagram	Max. air flow temperature	Nominal weight (net)	Transformer- speed controller 5-step	Electronic* speed controller, stepless flush / surface mounting		
		mm	V m³/h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Single-stage in-line fan, 230 V, 50 Hz, capacitor motor, IP 44															
MV 160	6054	160	390/550	1520/2290	41/49	57/65	40/58	0.18/0.26	844.1	60	2.3	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
Two-stage ventilation unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVZ 160	6061	160	390/550	1520/2290	47/55	59/67	80/116	0.36/0.52	845.1	60	5.8	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
Parallel-twin-unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVP 160	6068	–	780/1100	1520/2290	44/52	60/68	80/116	0.36/0.52	845.1	60	7.7	TSW 1.5	1495	ESU 1/ESA 1	0236/0238

* In noise relevant cases, transformer-control devices shall be provided. Electronic phase angle control may generate disturbing magnetisation buzzing noise.

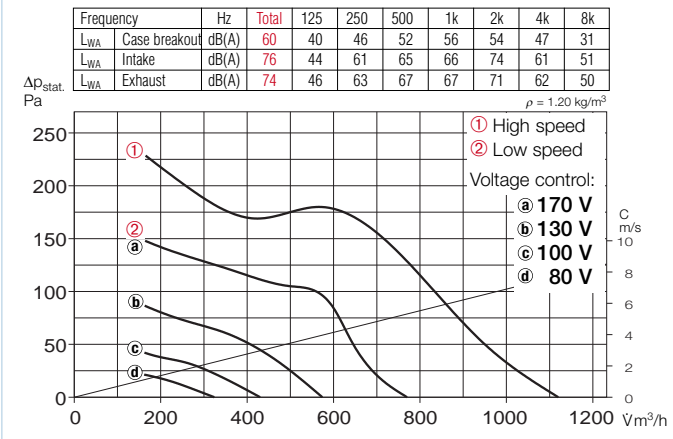
MV 160 – Single-stage



MVZ 160 – Two-stage



MVP 160 – Parallel



Sound levels

The total values and the spectrum figures are given above the performance curves for

- Sound levels at case breakout.
- Sound levels of intake and exhaust air in dB(A). On the table (see left page)
- The case breakout figures and the intake/exhaust air noise levels are additionally given as sound pressure level at 1 m (free-field conditions).

The Helios figures have to be reduced by 8 dB(A) if compared to sound pressure levels at 3 m.

Accessories Page

Filters, heater batteries and silencers	305
Temperature controllers for heater batteries	311, 315
Flexible ventilation pipes, ventilation grilles, fittings, roof ducts	361
Ceiling valves	380
Speed controllers, control units and switches	397

Accessories for MV and MVZ

Flexible connector

FM 160 Ref. No. 1684
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission and compensates small misalignments on site. Two sleeves are needed for intake and exhaust operation.



Gravity shutter

VK 160 Ref. No. 0892
Wall mounted, automatic pressure control shutter for the air outlet. Made of polymer; colour: light grey.



External wall grille

G 160 Ref. No. 0893
To cover or insert into circular vent holes. Made of impact resistant, white polymer.



Guard for spigot connection

MVS 160 Ref. No. 6074
For intake and exhaust installation on the ventilation unit.



Spigotted attenuator with 50 mm insulation.

FSD 160 Ref. No. 0678 flexible, from aluminium, length 1 m.
SRSD 160/... see page 319 circular, from galvanised steel, length 300–1200 mm.



Air filter box

LFBR 160 G4 Ref. No. 8578
With a large cross section area, for in-duct installation.



Electric heater batteries

EHR-R 1.2/160 1.2 kW No. 9434
In circular casing, made of galvanised steel.



Warm-water heater batteries

WHR 160 Ref. No. 9481
For in-duct installation.



Accessories for all types

Back draught shutter

RSK 160 Ref. No. 5669
Automatic, made of metal. For in-duct installation.



Operating switch 0-1-2

MVB Ref. No. 6091
With on/off, low and high speed functions.



Transformer speed controller

TSW see table
Five-step transformer speed controller for surface mounting.



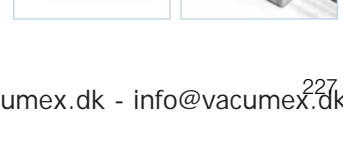
Electronic speed controller

ESU/ESA see table
For flush-/surface mounting.



Electronic run-on switch

ZNE Ref. No. 0342
With continuously adjustable follow-up time.



Duct fans

High air flow volume and high pressure characteristic in a space saving design.

Specifically made for in-duct installation. Versatile for use in most commercial, industrial and domestic applications.

Special features

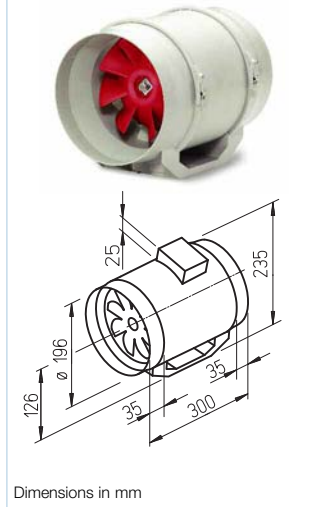
- Less space required and simple site installation of the compact in line design.
- Its simplicity reduces site costs
- Supply and exhaust air spigots fit all standard circular duct sizes.
- Two speeds, as standard; plus fully controllable motor speed.
- Installation in any position.
- Long life ball bearings, designed for 30.000 operating hours.
- Trouble-free maintenance and cleaning by removing the core of the unit from its frame without disassembling the ducting.
- Fan unit with terminal box can be rotated to any position.
- Integral mounting bracket for easy installation on floor, wall and ceiling.

Common features

- Casing**
By loosening the clips the fan section can be removed from the casing leaving the mounting bracket. All components are manufactured from impact resistant and corrosion resistant polymer. Colour: light grey.
- Speed control**
Standard two-speed control with external operating switch MVB (accessory). Full speed control with an electronic controller or five-step transformer.
- Motor**
Totally enclosed ball bearing motor made for continuous operation with insulation class F and moisture protection. Maintenance-free and radio suppressed.
- Motor protection**
Thermal overload protection fitted in the winding as standard.

MV – Single-stage

Swing-out in-line fan for space-saving in-duct installation.

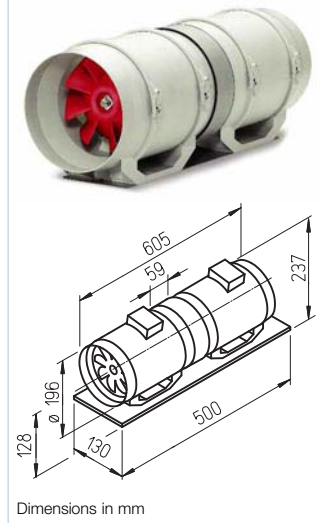


Specification MV

- Impeller**
Optimised for high volume flow and high pressure performance. Made of high-grade polymer.
- Electrical connection**
The spacious terminal box (IP 44) is mounted on the casing; rotatable to any position.
- Installation**
Suitable in any position – horizontal, vertical or diagonal – without restrictions for intake and extract ventilation by appropriate installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVZ – Two-stage

For higher pressure performance: two in-line fans mounted in series.

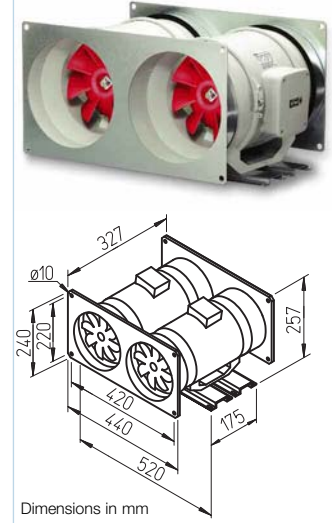


Specification MVZ

- Impeller**
Two MV fans are connected in series using a connecting sleeve and assembled on a common base plate. Delivered as ready-to-assemble kits. Series operation doubles the pressure output at the same volume.
- Impeller**
As described on the left.
- Electrical connection**
Each fan has a separate terminal box on the outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a coupling relay has to be used as shown in the wiring diagram. When using a speed controller, the high speed amps have to be allowed for.
- Installation**
Can be mounted in any position – horizontal, vertical or diagonal – suitable for supply and extract ventilation by correct installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVP – Parallel

For higher volume output in a compact parallel design.



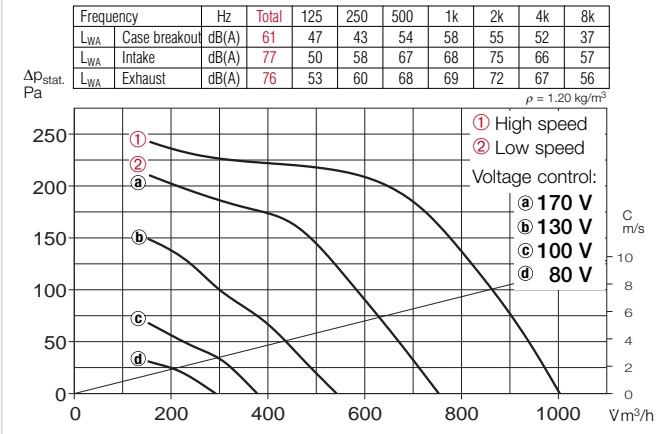
Specification MVP

- Impeller**
The two parallel MV fans are mounted on common mounting rails and have a connector plate fitted to both the intake and exhaust. Delivered as ready-to-assemble kits. Parallel operation (both fans running) doubles the air volume at the same pressure.
- Impeller**
As described on the left.
- Speed control / Connection**
Each fan is located with a separate terminal box on the outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a pair of relays have to be used as shown in the wiring diagram. When using a speed controller, the high speed amps have to be allowed for. Each fan can also be operated separately or together when necessary. To prevent the re-circulation, two exhaust back draught shutters are required (RSK, accessory).

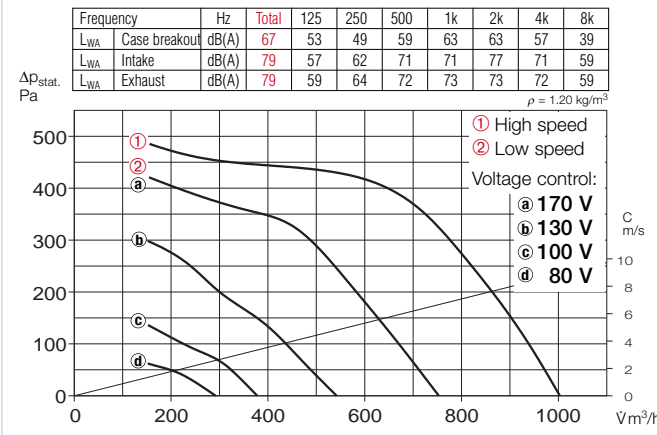
Type	Ref. No.	Spigot dia.	Air flow volume min./max.	R.P.M. min./max.	Sound pressure level in 1 m case breakout	Sound pressure level in 1 m air noise min./max.	Power consumption min./max.	Current usage min./max.	Connection by wiring diagram	Max. air flow temperature	Nominal weight (net)	Transformer-speed controller 5-step	Electronic* speed controller, stepless surface mounted		
		mm	V m³/h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Single-stage in-line fan, 230 V, 50 Hz, capacitor motor, IP 44															
MV 200	6055	200	750/1000	1900/2390	48/53	64/69	98/145	0.43/0.64	844.1	60	3.7	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
Two-stage ventilation unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVZ 200	6062	200	750/1000	1900/2390	54/59	66/71	196/290	0.86/1.28	845.1	60	8.5	TSW 1.5	1495	ESU 3/ESA 3	0237/0239
Parallel-twin-unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVP 200	6069	–	1500/2000	1900/2390	51/56	67/72	196/290	0.86/1.28	845.1	60	11.2	TSW 1.5	1495	ESU 3/ESA 3	0237/0239

* In noise relevant cases, transformer-control devices shall be provided. Electronic phase angle control may generate disturbing increase in motor noise.

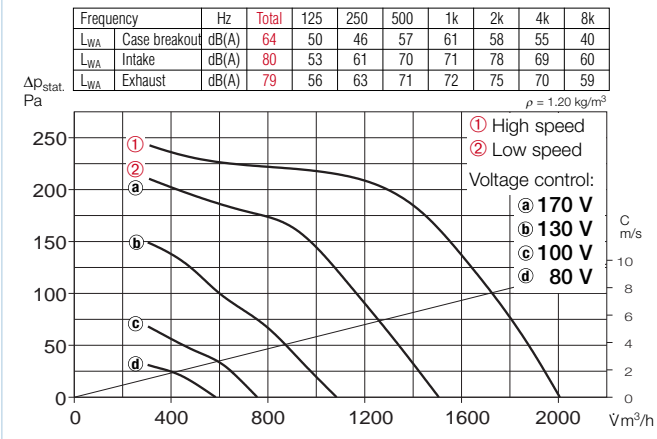
MV 200 – Single-stage



MVZ 200 – Two-stage



MVP 200 – Parallel



Sound levels

The total values and the spectrum figures are given above the performance curves for

- Sound levels at case breakout.
- Sound levels of intake and exhaust air in dB(A). On the table (see left page)
- The case breakout figures and the intake/exhaust air noise levels are additionally given as sound pressure level at 1 m (free-field conditions).

The Helios figures have to be reduced by 8 dB(A) if compared to sound pressure levels at 3 m.

Accessories Page

Filters, heater batteries and silencers	305
Temperature controllers for heater batteries	311, 315
Flexible ventilation pipes, ventilation grilles, fittings, roof ducts	361
Ceiling valves	380
Speed controllers, control units and switches	397

Accessories for MV and MVZ

Flexible connector

FM 200 Ref. No. 1670
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission and compensates small misalignments on site. Two sleeves are needed for intake and exhaust operation.



Gravity shutter

VK 200 Ref. No. 0758
Wall mounted, automatic pressure control shutter for the air outlet. Made of polymer; colour: light grey.



External wall grille

RAG 200 Ref. No. 0750
To position in front of air inlets and outlets in facades. Made of polymer; colour: light grey



Guard for spigot connection

MVS 200 Ref. No. 6075
For intake and exhaust installation on the ventilation unit.



Spigotted attenuator
with 50 mm insulation.

FSD 200 Ref. No. 0679
flexible, from aluminium, length 1 m.
SRSD 200/... see page 319
circular, from galvanised steel, length 300–1200 mm.



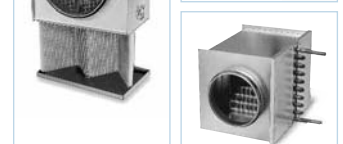
Air filter box

LFBR 200 G4 Ref. No. 8579
With a large cross section area, for in-duct installation.



Electric heater batteries

EHR-R 1.2/200 1.2 kW No. 9436
In circular casing, made of galvanised steel.



Warm-water heater batteries

WHR 200 Ref. No. 9482
For in-duct installation.



Accessories for all types

Back draught shutter

RSK 200 Ref. No. 5074
Automatic, made of metal. For in-duct installation.



Operating switch 0-1-2

MVB Ref. No. 6091
With on/off, low and high speed functions.



Transformer speed controller

TSW see table
Five-step transformer speed controller for surface mounting.



Electronic speed controller

ESU/ESA see table



Electronic run-on switch

– for MV
ZNE Ref. No. 0342
– for MVZ and MVP
ZT Ref. No. 1277



Duct fans

High air flow volume and high pressure characteristic in a space saving design.

Specifically made for in-duct installation. Versatile for use in most commercial, industrial and domestic applications.

Special features

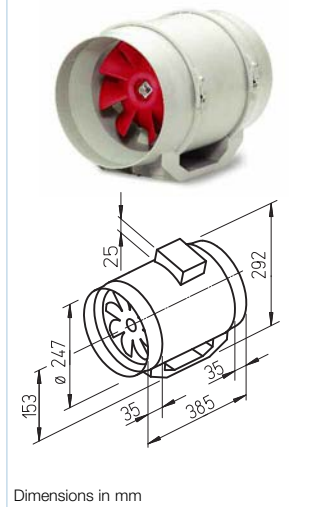
- Less space required and simple site installation of the compact in line design.
- Its simplicity reduces site costs
- Supply and exhaust air spigots fit all standard circular duct sizes.
- Two speeds, as standard; plus fully controllable motor speed.
- Installation in any position.
- Long life ball bearings, designed for 30.000 operating hours.
- Trouble-free maintenance and cleaning by removing the core of the unit from its frame without disassembling the ducting.
- Fan unit with terminal box can be rotated to any position.
- Integral mounting bracket for easy installation on floor, wall and ceiling.

Common features

- Casing**
By loosening the clips the fan section can be removed from the casing leaving the mounting bracket. All components are manufactured from impact resistant and corrosion resistant polymer. Colour: light grey.
- Speed control**
Standard two-speed control with external operating switch MVB (accessory). Full speed control with an electronic controller or five-step transformer.
- Motor**
Totally enclosed ball bearing motor made for continuous operation with insulation class F and moisture protection. Maintenance-free and radio suppressed.
- Motor protection**
Through a thermal contact that is connected in series with the winding and Turns the motor off at elevated temperatures to prevent motor damage. Resets after cooling and motor restart.

MV – Single-stage

Swing-out in-line fan for space-saving in-duct installation.

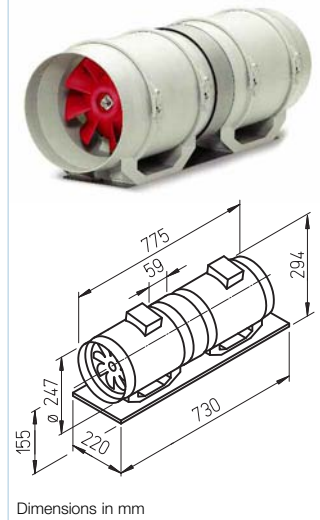


Specification MV

- Impeller**
Mixed flow for high volume flow and high pressure performance. Made of high-grade polymer.
- Electrical connection**
The spacious terminal box (IP 44) is mounted on the casing; rotatable to any position.
- Installation**
Can be mounted in any position – horizontal, vertical or diagonal – suitable for supply and extract ventilation by correct installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVZ – Two-stage

For higher pressure performance: two in-line fans mounted in series.

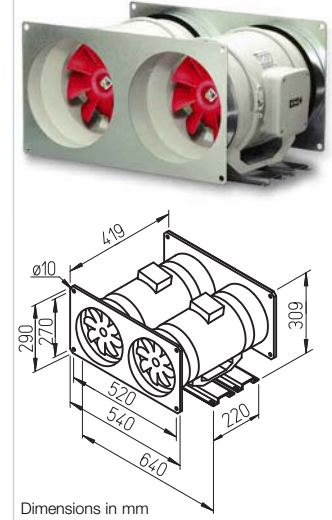


Specification MVZ

- Impeller**
Two MV fans are connected in series using a connecting sleeve and assembled on a common base plate. Delivered as ready-to-assemble kits. Series operation doubles the pressure output at the same volume.
- Impeller**
As described on the left.
- Electrical connection**
Each fan has a separate terminal box on the outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a coupling relay has to be used as shown in the wiring diagram. When using a speed controller, the high speed amps have to be allowed for.
- Installation**
Can be mounted in any position – horizontal, vertical or diagonal – suitable for supply and extract ventilation by correct installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVP – Parallel

For higher volume output in a compact parallel design.



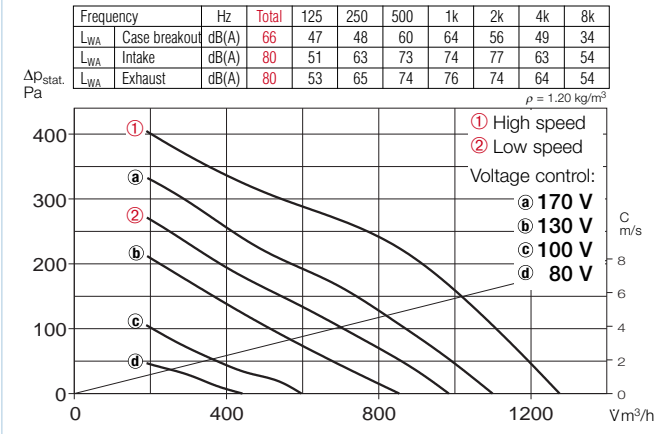
Specification MVP

- Impeller**
The two parallel MV fans are mounted on common mounting rails and have a connector plate fitted to both the intake and exhaust. Delivered as ready-to-assemble kits. Parallel operation (both fans running) doubles the air volume at the same pressure.
- Impeller**
As described on the left.
- Speed control / Connection**
Each fan is located with a separate terminal box on the outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a pair of relays have to be used as shown in the wiring diagram. When using a speed controller, the high speed amps have to be allowed for. Each fan can also be operated separately or together when necessary. To prevent the re-circulation, two exhaust back draught shutters are required (RSK, accessory).

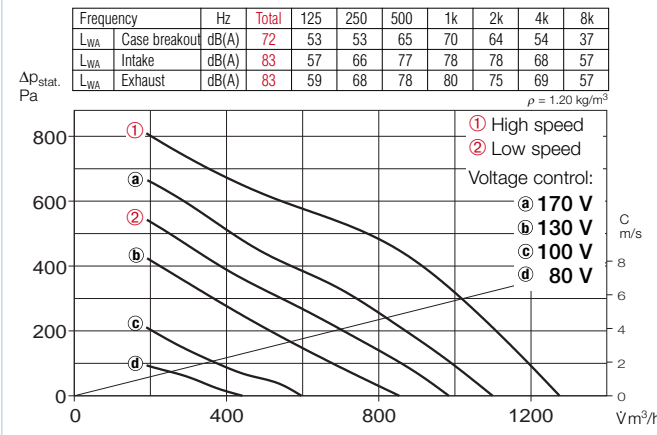
Type	Ref. No.	Spigot dia.	Air flow volume min./max.	R.P.M. min./max.	Sound pressure level in 1m case breakout	Sound pressure level in 1m air noise min./max	Power consumption min./max.	Current usage min./max.	Connection by wiring diagram	Max. air flow temperature	Nominal weight (net)	Transformer-speed controller 5-step	Electronic* speed controller, stepless surface mounted		
		mm	∇ m³/h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Single-stage in-line fan, 230 V, 50 Hz, capacitor motor, IP 44															
MV 250	6056	250	980/1270	1950/2640	52/58	66/72	110/180	0.48/0.78	844.1	60	7.0	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
Two-stage ventilation unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVZ 250	6063	250	980/1270	1950/2640	58/64	69/75	220/360	0.96/1.56	845.1	60	17.6	TSW 3.0	1496	ESU 3/ESA 3	0237/0239
Parallel-twin-unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVP 250	6070	–	1860/2540	1950/2640	55/61	69/75	220/360	0.96/1.56	845.1	60	18.7	TSW 3.0	1496	ESU 3/ESA 3	0237/0239

* In noise relevant cases, transformer-control devices shall be provided. Electronic phase angle control may generate disturbing increase in motor noise.

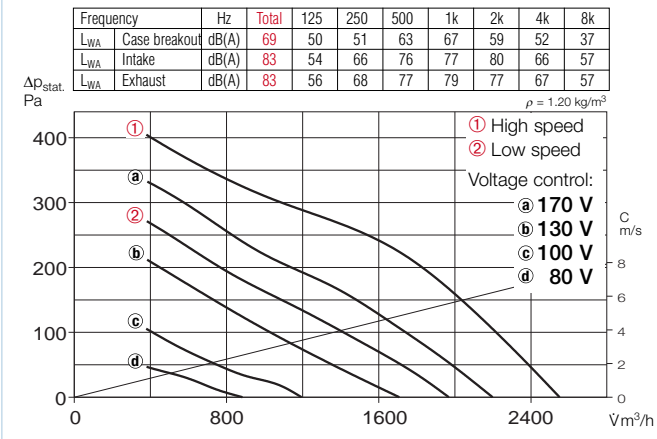
MV 250 – Single-stage



MVZ 250 – Two-stage



MVP 250 – Parallel



Sound levels

The total values and the spectrum figures are given above the performance curves for

- Sound levels at case breakout.
- Sound levels of intake and exhaust air in dB(A). On the table (see left page)
- The case breakout figures and the intake/exhaust air noise levels are additionally given as sound pressure level at 1 m (free-field conditions).

The Helios figures have to be reduced by 8 dB(A) if compared to sound pressure levels at 3 m.

Accessories Page

Filters, heater batteries and silencers	305
Temperature controllers for heater batteries	311, 315
Flexible ventilation pipes, ventilation grilles, fittings, roof ducts	361
Ceiling valves	380
Speed controllers, control units and switches	397

Accessories for MV and MVZ

Flexible connector

FM 250 Ref. No. 1672
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission and compensates small misalignments on site. Two sleeves are needed for intake and exhaust operation.



Gravity shutter

VK 250 Ref. No. 0759
Wall mounted, automatic pressure control shutter for the air outlet. Made of polymer; colour: light grey.



External wall grille

RAG 250 Ref. No. 0751
To position in front of air inlets and outlets in facades. Made of polymer; colour: light grey



Guard for spigot connection

MVS 250 Ref. No. 6076
For intake and exhaust installation on the ventilation unit.



Spigotted attenuator

with 50 mm insulation.
FSD 250 Ref. No. 0680 flexible, from aluminium, length 1 m.
SRSD 250/... see page 319 circular, from galvanised steel, length 300–1200 mm.



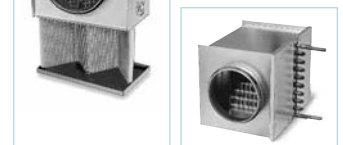
Air filter box

LFBR 250 G4 Ref. No. 8580
With a large cross section area, for in-duct installation.



Electric heater batteries

EHR-R 6/250 6.0 kW No. 8712
In circular casing, made of galvanised steel.



Warm-water heater batteries

WHR 250 Ref. No. 9483
For in-duct installation.



Accessories for all types

Back draught shutter

RSK 250 Ref. No. 5673
Automatic, made of metal. For in-duct installation.



Operating switch 0-1-2

MVB Ref. No. 6091
With on/off, low and high speed functions.



Transformer speed controller

TSW see table
Five-step transformer speed controller for surface mounting.



Electronic speed controller

ESU/ESA see table
For flush-/surface mounting.



Thermoelectric run-on switch

ZT Ref. No. 1277
With variable follow-up time.



High air flow volume and high pressure characteristic in a space saving design.

Specifically made for in-duct installation. Versatile for use in most commercial, industrial and domestic applications.

Special features

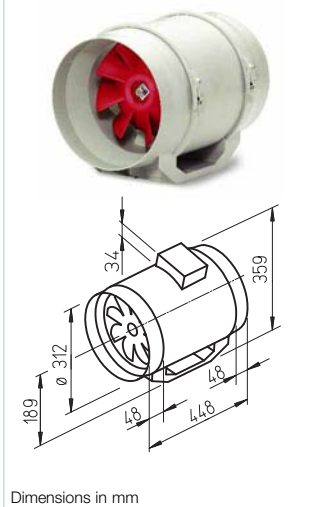
- Less space required and simple site installation of the compact in line design.
- Its simplicity reduces site costs
- Supply and exhaust air spigots fit all standard circular duct sizes.
- Two speeds, as standard; plus fully controllable motor speed.
- Installation in any position.
- Long life ball bearings, designed for 30.000 operating hours.
- Trouble-free maintenance and cleaning by removing the core of the unit from its frame without disassembling the ducting.
- Fan unit with terminal box can be rotated to any position.
- Integral mounting bracket for easy installation on floor, wall and ceiling.

Common features

- Casing**
By loosening the clips the fan section can be removed from the casing leaving the mounting bracket. All components are manufactured from impact resistant and corrosion resistant polymer. Colour: light grey.
- Speed control**
Standard two-speed control with external operating switch MVB (accessory). Full speed control with an electronic controller or five-step transformer.
- Motor**
Totally enclosed ball bearing motor made for continuous operation with insulation class F and moisture protection. Maintenance-free and radio suppressed.
- Motor protection**
Through a thermal contact that is connected in series with the winding and Turns the motor off at elevated temperatures to prevent motor damage. Resets after cooling and motor restart.

MV – Single-stage

Swing-out in-line fan for space-saving in-duct installation.

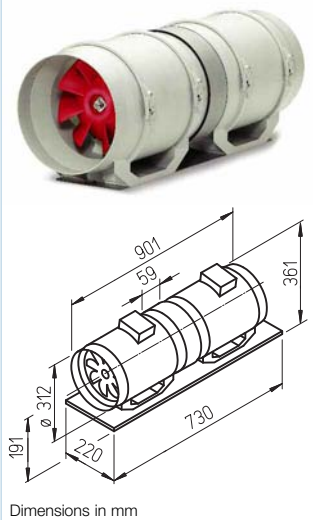


Specification MV

- Impeller**
Mixed flow for high volume flow and high pressure performance. Made of high-grade polymer.
- Electrical connection**
The spacious terminal box (IP 44) is mounted on the casing; rotatable to any position.
- Installation**
Can be mounted in any position – horizontal, vertical or diagonal – suitable for supply and extract ventilation by correct installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

MVZ – Two-stage

For higher pressure performance: two in-line fans mounted in series.



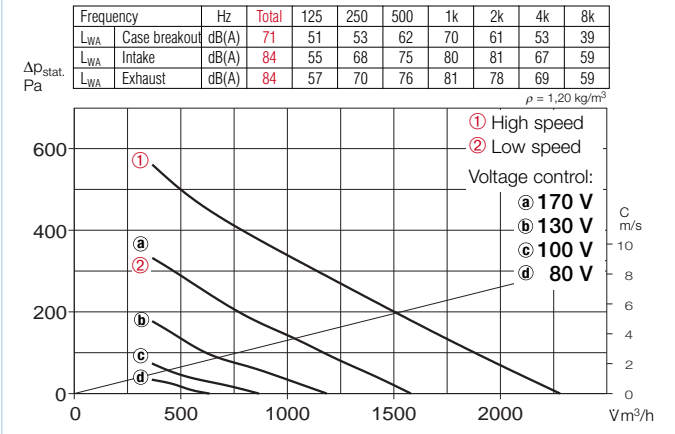
Specification MVZ

- Impeller**
Two MV fans are connected in series using a connecting sleeve and assembled on a common base plate. Delivered as ready-to-assemble kits. Series operation doubles the pressure output at the same volume.
- Impeller**
As described on the left.
- Electrical connection**
Each fan has a separate terminal box on the outer casing. By operating the two fans on two speeds using an operation switch MVB (accessory) or a change-over switch (on site) a coupling relay has to be used as shown in the wiring diagram. When using a speed controller, the high speed amps have to be allowed for.
- Installation**
Can be mounted in any position – horizontal, vertical or diagonal – suitable for supply and extract ventilation by correct installation. To minimise the effective noise level it is recommended that the fan is installed as remote as possible from the ventilated space.

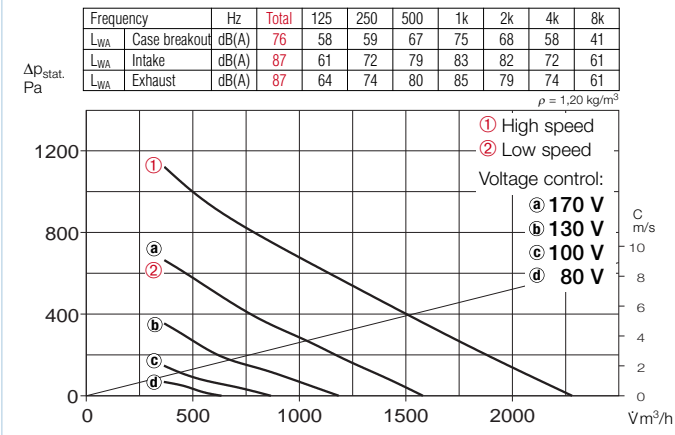
Type	Ref. No.	Spigot dia. mm	Air flow volume min./max. m^3/h	R.P.M. min./max. min^{-1}	Sound pressure level in 1m case breakout		Power consumption min./max. W	Current usage min./max. A	Connection by wiring diagram No.	Max. air flow temperature $^{\circ}\text{C}$	Nominal weight (net) kg	Transformer-speed controller 5-step		Electronic* speed controller, stepless surface mounted	
					dB (A)	dB (A)						Type	Ref. No.	Type	Ref. No.
Single-stage in-line fan, 230 V, 50 Hz, capacitor motor, IP 44															
MV 315	6057	315	1580/2270	1820/2500	56/63	69/76	200/300	0.90/1.32	844.1	60	11.5	TSW 1.5	1495	ESU 3/ESA 3	0237/0239
Two-stage ventilation unit, 230 V, 50 Hz, capacitor motor, IP 44															
MVZ 315	6064	315	1580/2270	1820/2500	60/68	72/79	400/600	1.80/2.64	845.1	60	26.8	TSW 3.0	1496	ESU 5/ESA 5	1296/1299

* In noise relevant cases, transformer-control devices shall be provided. Electronic phase angle control may generate disturbing increase in motor noise.

MV 315 – Single-stage



MVZ 315 – Two-stage



Sound levels

The total values and the spectrum figures are given above the performance curves for

- Sound levels at case breakout.
- Sound levels of intake and exhaust air in dB(A). On the table (see left page)
- The case breakout figures and the intake/exhaust air noise levels are additionally given as sound pressure level at **1 m** (free-field conditions). **The Helios figures have to be reduced by 8 dB(A) if compared to sound pressure levels at 3 m.**

Accessories Page

Filters, heater batteries and silencers	305
Temperature controllers for heater batteries	311, 315
Flexible ventilation pipes, ventilation grilles, fittings, roof ducts	361
Ceiling valves	380
Speed controllers, control units and switches	397

Accessories for all types

Flexible connector

FM 315 Ref. No. 1674
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission and compensates small misalignments on site. Two sleeves are needed for intake and exhaust operation.



Gravity shutter

VK 315 Ref. No. 0760
Wall mounted, automatic pressure control shutter for the air outlet. Made of polymer; colour: light grey.



External wall grille

RAG 315 Ref. No. 0752
To position in front of air inlets and outlets in facades. Made of polymer; colour: light grey



Guard for spigot connection

MVS 315 Ref. No. 6077
For intake and exhaust installation on the ventilation unit.



Spigotted attenuator

with 50 mm insulation.
FSD 315 Ref. No. 0681 flexible, from aluminium, length 1 m.
SRSD 315/... see page 319 circular, from galvanised steel, length 300–1200 mm.



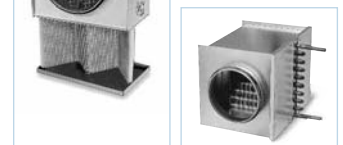
Air filter box

LFBR 315 G4 Ref. No. 8581
With a large cross section area, for in-duct installation.



Electric heater batteries

EHR-R 6/315 6.0 kW No. 8713
In circular casing, made of galvanised steel.



Warm-water heater batteries

WHR 315 Ref. No. 9484
For in-duct installation.



Back draught shutter

RSK 315 Ref. No. 5674
Automatic, made of metal. For in-duct installation.



Operating switch 0-1-2

MVB Ref. No. 6091
With on/off, low and high speed functions.



Transformer speed controller

TSW see table
Five-step transformer speed controller for surface mounting.



Electronic speed controller

ESU/ESA see table
For flush-/surface mounting.



Thermoelectric run-on switch

ZT Ref. No. 1277
With variable follow-up time.

Duct fans

Explosion proof fans 230 V / 1 ph. InlineVent® RRK Ex e II 2G

The requirements for facilities and utilities, from which an ignition hazard can occur, were European-wide harmonized and specified in the ATEX guideline 94/9/EG, dated 1.7.2003.

This contains the fundamental health and safety requirements for explosion proof products and describes the conformity evaluation process for devices, which are used in potentially hazardous atmospheres or substances.

The in-line explosion proof fans RRK.. Ex for operation in or to move potentially hazardous atmospheres or substances must be in accordance with the guideline 94/9/EG.

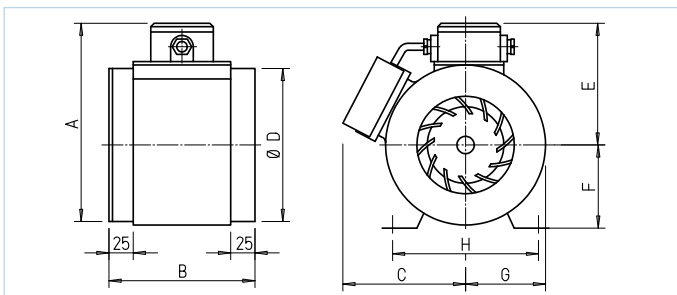
They are protected to class "e" (= increased safety). Thus they are suitable for product group II, product category 2G for operation in zone 1 and 2. In these zones explosive atmosphere can be likely but rarely occur, if so they will exist for a for a short time only.

With professional installation RRK.. Ex fulfills all fundamental health and safety requirements.

RRK.. Ex are designed to ventilate small rooms and work places in commercial and industrial applications.
Ø 180 – 250 mm
V = 300 – 1 000 m³/h



**Explosion proof in-line fan certified to
ATEX guideline 94/9/EG.**



Type	RRK 180 Ex	200 Ex	250 Ex
Dimensions in mm			
A	231	278	304
B	164	267	205
C	160	195	210
D	Ø 178	Ø 198 ¹⁾	Ø 248
E	142	166	180
F	120	140	160
G	92	115	128
H	275	299	311

¹⁾ with reducers mounted on intake and exhaust

Designed to ventilate small rooms and working places in commercial and industrial applications where a hazardous atmosphere can occur. Suitable for in-line duct installation.

Approved for installation in zones 1, 2 to DIN EN 60079-10.

Specially designed for ventilating chemical and pharmaceutical laboratories, warehouses, dye works, battery rooms etc.

Ex e II 2G

Special features

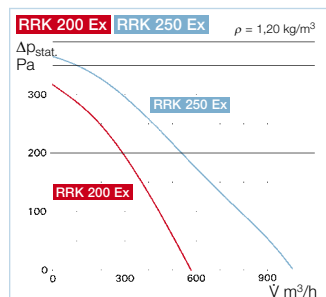
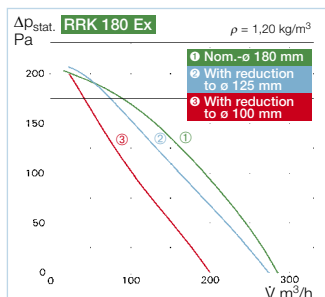
- EC-Type Examination Certificate according to guidelines 94/9 EG.
- Explosion proof E Exe II 2G, increased safety to DIN EN 60079-0, 60079-7, 1127-1, 14986.
- Single phase 230 V, 50 Hz.
- Ideally to be installed in-line with ducting. Three performances for model RRK 180 Ex by use of reducers (see perf. curve).
- Very compact in design and low installation cost through straight air flow.
- Installation in any position.

Specification

- Casing and impeller**
Made from impact resistant, anti static polymers offering an electrical resistance of less than 10⁹Ω.
- Motor** Totally enclosed, IP 54, suitable for continuous operation. Maintenance free ball bearing motor with tropical protection of windings and radio suppression.
- Electrical connection** terminal box made from polymer, IP 54, ex-proofed, mounted on the fan casing.
- Installation** in any position. Suitable for intake and extract.

Installation notes

The regulations of DIN EN 60079-10 apply. The motor must be protected by a circuit breaker which isolates the equipment in case of a short circuit within the time shown on the explosion proof certificate. The inlet and exhaust must be protected by guards or other devices to prevent items bigger than 12 mm from entering the fan. Admitted operation mode according to VDE 0530 / DIN EN 60034-1 = S1 (continuous operation). Speed control is not allowed.



Accessories for RRK 180 Ex Reducers

- RZ 180/125** Ref. No. 5876
- RZ 180/100** Ref. No. 5877

Accessory for all models Mounting feet

- MK 4** Ref. No. 5824

Flexible sleeve

For installation between fan and ducting.

- FM 180 Ex** Ref. No. 1685
- FM 200 Ex** Ref. No. 1686
- FM 250 Ex** Ref. No. 1688

Guards

- SGR 180 Ex** Ref. No. 5051
- SGR 200 Ex** Ref. No. 5049
- SGR 250 Ex** Ref. No. 5052

Backdraught shutter

- RSK 180** Ref. No. 5662
- RSK 200** Ref. No. 5074
- RSK 250** Ref. No. 5673



Type	Ref. No.	Impeller-Ø	Air flow volume (FID)	R.P.M.	Sound power level L _{WA}	Sound press. level 1 m	Power Watts	Current Amps	Wiring diagram	Maximum air flow temperatur	Nominal weight
		mm	V m ³ /h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg
Explosion proof Ex e II, 1 phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54											
RRK 180 Ex ¹⁾	5889	170	310	2780	66	58	50	0.25	453	50	3.0
RRK 200 Ex ²⁾	5890	215	560	2860	73	65	200	0.92	453	50	5.5
RRK 250 Ex ²⁾	5891	240	970	2860	77	69	300	1.40	453	50	7.0

¹⁾ Temperature class T1-T4 ²⁾ Temperature class T1-T3

Other accessories Pages

Filters and attenuators	305 on
Flexible ventilation ducts, grilles, circular spigots and roof outlets	361 on
Valves	380 on

Information Pages

Explosionproof	
- danger area,	
- zoning	16, 18

Duct fans

Centrifugal in-line fan InlineVent® RR, RRK.. and Slim centrifugal fan box SV

The Helios InlineVent is the first choice for medium to smaller air flow volumes against high resistances.

They combine the pressure characteristic of centrifugal fans with the advantages of axial fans. The straight in-line air flow makes a simple, cost effective installation in circular ducting possible.

Type SlimVent SV.

The exceptionally flat SlimVent centrifugal fans are ideal for spatially limited installation situations in applications for domestic, commercial and industrial purposes. The casings are only a little higher than the pipe diameter, so that an easy installation is possible in false ceilings, panelling or above and in built-in cupboards.

$V = 100 - 850 \text{ m}^3/\text{h}$.

NEW!

Type RR and RRK

For medium to smaller air flow volumes against high resistances. Universal in application for domestic, commercial and industrial purposes. Optionally made from galvanised sheet steel or corrosion resistant polymers.

$V = 200 - 1600 \text{ m}^3/\text{h}$.

NEW!

AcousticLine

Centrifugal in-line fans especially for silent operation.

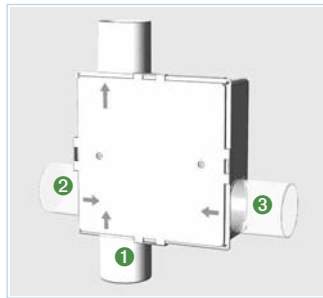
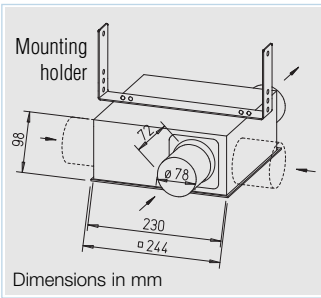
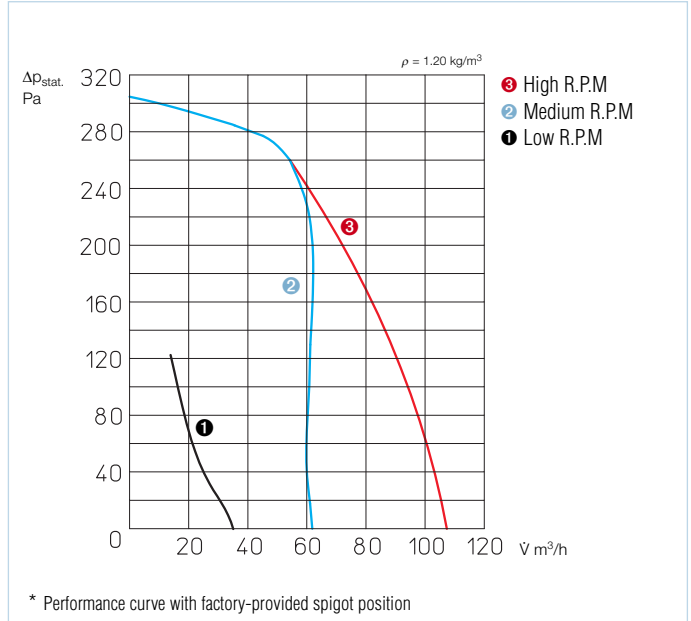
page 250



Well-proven technology and brand new design: Robust, super flat centrifugal in-line fans.

SVV 80

NEW!



spigot position			Total Power
No. 1	No. 2	No. 3	V m³/h
35	45	45	125
65	zu	60	125
zu	45	75	120
50	60	close	110
110*	close*	close*	110*
close	close	110	110
close	100	zu	100

■ Explanation of chart: The air flow volume varies with the number and position of the extract spigots

■ Description

□ Exceptionally flat and robust unit from impact resistant polymer. Suitable for ventilation of bathrooms, toilets, etc. in industrial, commercial and domestic applications. Delivered complete with extract and supply connection spigot for standard pipe diameter. For the ventilation of several rooms one or two further intake air spigots can be attached to the casing by removing the blanking covers.

□ Simply take off cover plate to remove fan unit, leaving the casing in situ.

□ Impeller

Highly efficient forward curved centrifugal impeller made from high quality polymer.

□ Motor

Totally enclosed, maintenance-free and energy saving ball bearing motor.

□ Motor protection

Thermal contacts fitted as standard.

□ Speed control

Three speeds are available low, medium and high. The DSEL speed controller (accessory) provides switching between speeds and on/off.

□ Electrical connection

Terminal box (IP 55) located on outer casing.

□ Installation

May be fitted in any position. The removing of the fan unit from its casing allows change or cleaning without removing the casing from the ducting.

□ Protection

When connected to a ducted system protection to IP 54.

■ Scope of delivery and accessories

SlimVent is supplied with mounting holder. One intake and extract spigot. One or two further intake spigots (accessories Ø 75/80) can be assembled to the casing by removing the blanking cover.

ELS-ZAS Ref. No. 8184

■ Three speed operation and on/off operation switch

Cannot be used with light switch operation. Fits into single gang box using clamps fitted (minimum depth 55 mm).

Dim. mm (WxHxD) 80 x 80 x 23
DSEL 3 Ref. No. 1611



Duct fans

Type	Ref. No.	Connection-Ø	Free inlet discharge*	R.P.M.*	Sound pressure level case breakout*	Sound pressure level intake*	Power*	Current*	Connection to wiring diagram ¹⁾	max. air flow temperature	Weight approx.
		mm	V m³/h	min ⁻¹	dB(A) in 3m/1m	dB(A) in 3m/1m	W	A	No.	+ °C	kg
Single-phase a.c. motor 230 V, 50 Hz, IP 45											
SVV 80	2660	80	110 / 65 / 35	2710 / 1200 / 650	29/37 18/26 16/24	35/43 24/32 17/25	34 / 19 / 10	0.16 / 0.13 / 0.09	913	40	2.0

* Values are related to the 3 speeds (see performance diagram).

¹⁾ With three speed operation switch DSEL 3: Connection according to wiring diagram no. 914.

For medium to smaller air flow volumes against high resistances.

Specially designed to be installed in-line in circular ducting. High pressure characteristic to overcome resistances of bends, filters etc. Universal in application for domestic, commercial and industrial purposes.

Special features

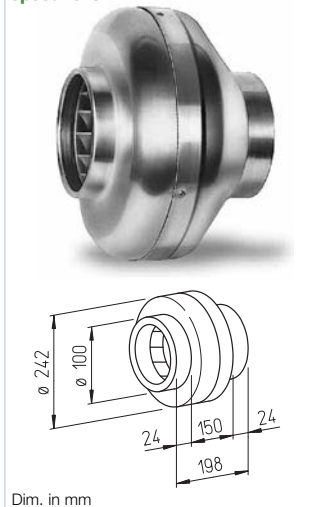
- Compact design to minimise space and cost using in-line installation.
- Intake and exhaust spigot fit standard duct sizes.
- 100 % speed controllable to achieve any required duty.
- Installation in any position.
- Extensive accessory range.
- Optimised aerodynamic casing design.

Features of both models

- Motor**
Low noise external rotor motor with ball bearings, impregnated windings, insulation class B, designed for continuous operation, maintenance free and radio suppressed.
- Motor protection**
Motors have thermal contacts wired in series with the windings which automatically reset.
- Installation**
Installation in any position without restriction:
– horizontally, vertically or pitched – suitable for intake or extract according on installation position. To keep sound levels inside the ventilated rooms as low as possible we recommend the fan is installed as remote as possible.
- Sound level**
see page 241.

Models RR

Market leading range offering an excellent value for money. **Now with energy-saving second speed level.**



Specification RR

- Casing**
Made from robust galvanised steel for harsh working conditions. Spigots on intake and exhaust fit standard ducts.
- Speed control**
With type RR 100 A stepless 0 – 100 % by use of electronic controller or 5 stepped by transformer possible (see technical data table). Additional two speed operation with type RR 100 C by using external operation switch DS 2/2 (accessories). **DS 2/2** Ref. No. 1267
- Electrical connection**
Terminal box (IP 55) located on outer casing.
- Impeller**
Backward curved centrifugal impeller made from polymers. Directly fitted on motor and dynamically balanced as a unit providing low noise levels and high efficiency.
- Protection class**
When installed in ducting the fan is rated IP 44.

Models RRK

Alternative version made from impact resistant polymers.

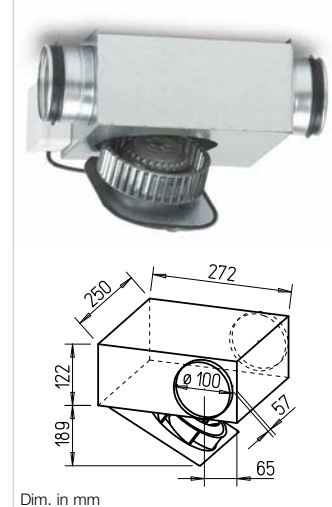


Specification RRK

- Casing**
All components are made from corrosion and impact resistant polymers. Six guide vanes increase the fan's efficiency. Colour: lightgrey.
- Speed control**
Stepless 0 – 100 % by use of electronic controller or 5 stepped by low noise transformer.
- Electrical connection**
Terminal box (IP 44) located on outer casing.
- Impeller**
Backward curved centrifugal impeller made from polymers. Directly fitted on the motor and dynamically balanced as a unit providing low noise levels and high efficiency.
- Protection**
Splashproof to IP 44.

Models SV

SlimVent – New exceptionally flat space saving miracle with swing out motor and impeller unit.



Specification SV

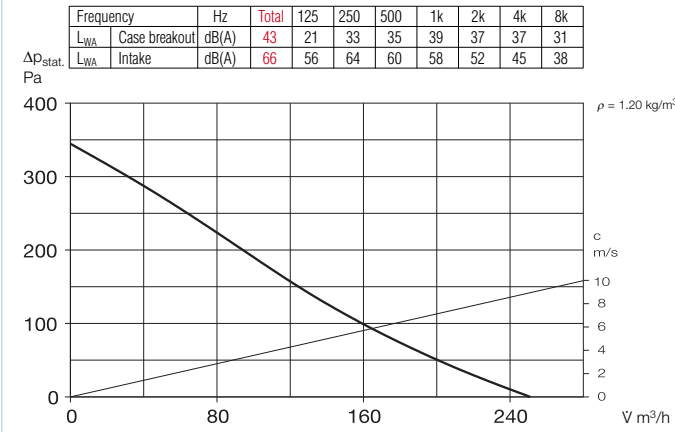
- Casing**
Flat and robust casing from galvanised sheet steel. Spigots on intake and extract with twin-seal rubber gaskets fit into standard ducts. Particularly service friendly (cleaning) through swing out motor and impeller unit without disassembly of system components. Space for the swing out facility must be considered.
- Speed control**
Stepless 0 – 100 % by use of electronic controller or transformer controller (see table).
- Electrical connection**
Terminal box (IP 55) located on outer casing.
- Impeller**
Energy-saving centrifugal impeller with forward curved blades. Dynamically balanced for low noise operation.
- Protection**
When installed in ducting the fan is rated IP 54.

Type	Ref. No.	Connection spigot ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m		Power Watts	Current Amps	Wiring diagram	Maximum air flow temperature	Nominal weight in	5 step transformer controller		Electronical* speed controller, stepless	
					Case - breakout	Air noise on intake						Type	Ref. No.	Type	Ref. No.
		mm	l/s	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Type RR.., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RR 100 A	5653	100	250	1730	36	59	41	0.18	508	80	2.9	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
RR 100 C ¹⁾	5654	100	330 ¹⁾ /220	2530 ¹⁾ /1265	42	61	62 ¹⁾ /49	0.27 ¹⁾ /0.22	934.1	70	2.9	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
Type RRK.., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RRK 100	5973	100	230	2200	45	54	34	0.15	508	60	2.4	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
Type SVV.., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SVV 100 B	2670	100	275	1800	51	54	77	0.34	508	50	3.5	TSW 1.5	1495	ESU 1/ESA 1	0236/0238

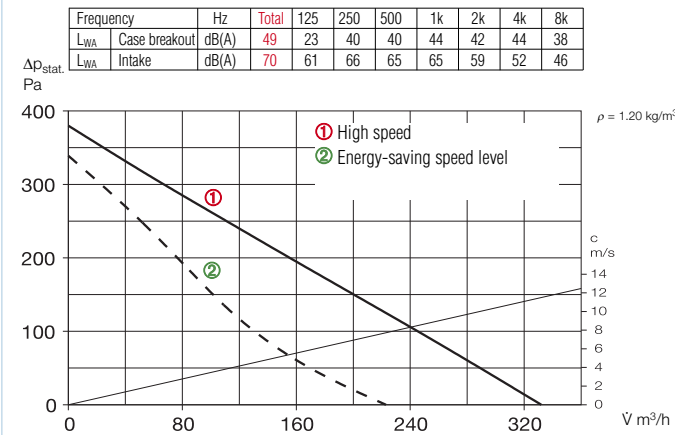
¹⁾ Type with high speed; standard with additional energy-saving speed level (see performance diagram).

* In noise relevant cases transformer controller must be provided. An electronic controller can trigger a distracting magnetisation noise.

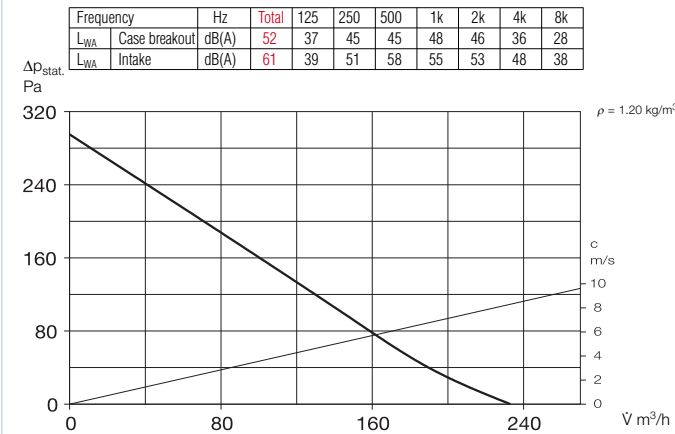
RR 100 A



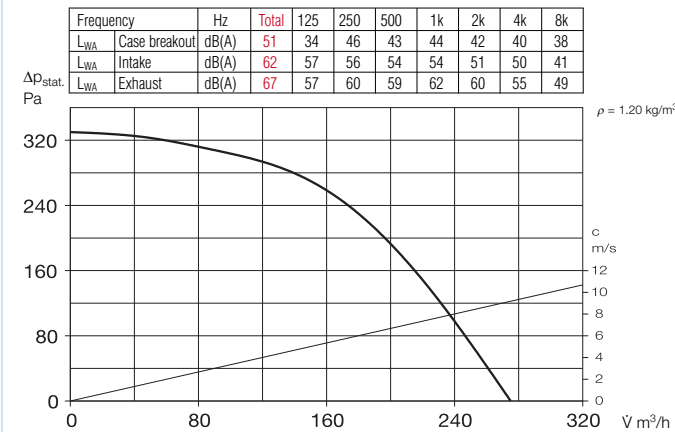
RR 100 C



RRK 100



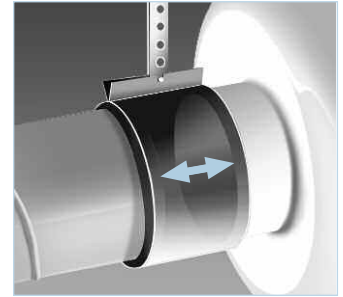
SVV 100 B



Accessories

Pipe clamp connectors

BM 100 Ref. No. 5075
A quick-fix method for connecting fans to ducting, reducing vibration transmission (1 kit = 2 pieces). When installing leave a little gap between fan and ducting. Supplied in pairs.



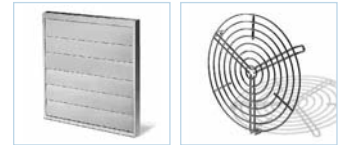
Mounting feet for RR

MK 4 Ref. No. 5824
Mounting feet for RRK
MK 1 Ref. No. 5821
Made from galvanised steel.



Gravity shutter (automatic)

VK 100 Ref. No. 0757
Made from polymers, white.



Fixed grille

G 100 Ref. No. 0796
Made from polymers, white.

Guards

SGR 100 Ref. No. 5063
For intake and exhaust installation on fan, made from galvanised steel.



Backdraught shutter

RSKK 100 Ref. No. 5106
Automatic, made from polymer.



Flexible attenuator

FSD 100 Ref. No. 0676
Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.



Spigotted circular attenuator

SRSD 100/... see page 319
Spigotted attenuator from galvanised steel with 50 mm insulation. Length 300 – 1200 mm.

Air filter box

LFBR 100 G4 Ref. No. 8576
LFBR 100 F7 Ref. No. 8530
Air filter with large cross sectional area to be installed in-line with ducting.



Electric heater battery

EHR-R 0,4/100 0,4 kW No. 8708
In duct casing made from galvanised sheet steel, for in-line installation.
CV 10-04-1 0,4 kW No. S582
Room or duct sensor (TFK/TFR, accessory) is necessary.

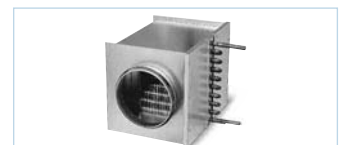


Temperature regulating system for electro heater battery

EHS Ref. No. 5002

Water heater battery

WHR 100 Ref. No. 9479
Compact unit for in-line installation.



Temperature regulating system for water heater battery

WHST 300 T38 Ref. No. 8817

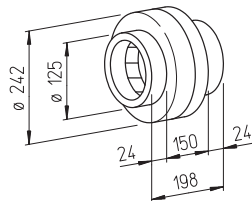


Duct fans

NEW!

Models RR

Market leading range offering an excellent value for money.
Now with energy-saving second speed level.



Dim. in mm

■ Specification RR

□ Casing
Made from robust galvanised steel for harsh working conditions. Spigots on intake and exhaust fit standard ducts.

□ Speed control
Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table) or 2 speed operation with DS 2/2 (accessories).
DS 2/2 Ref. No. 1267

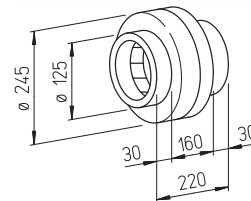
□ Electrical connection
Terminal box (IP 55) located on outer casing.

□ Impeller
Backward curved centrifugal impeller made from polymers. Directly fitted on motor and dynamically balanced as a unit providing low noise levels and high efficiency.

□ Protection class
When installed in ducting the fan is rated IP 44.

Models RRK

Alternative version made from impact resistant polymers.



Dim. in mm

■ Specification RRK

□ Casing
All components are made from corrosion and impact resistant polymers. Six guide vanes increase the fan's efficiency. Colour: lightgrey.

□ Speed control
Stepless 0 – 100 % by use of electronic controller or 5 stepped by low noise transformer.

□ Electrical connection
Terminal box (IP 44) located on outer casing.

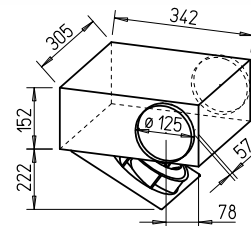
□ Impeller
Backward curved centrifugal impeller made from polymers. Directly fitted on the motor and dynamically balanced as a unit providing low noise levels and high efficiency.

□ Protection
Splashproof to IP 44.

NEW!

Models SV

SlimVent – New exceptionally flat space saving miracle with swing out motor and impeller unit.



Dim. in mm

■ Specification SV

□ Casing
Flat and robust casing from galvanised sheet steel. Spigots on intake and extract with twin-seal rubber gaskets fit into standard ducts. Particularly service friendly (cleaning) through swing out motor and impeller unit without disassembly of system components. Space for the swing out facility must be considered.

□ Speed control
Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table) or 2 speed operation with DS 2/2 (accessories).
DS 2/2 Ref. No. 1267

□ Electrical connection
Terminal box (IP 55) located on outer casing.

□ Impeller
Energy-saving centrifugal impeller with backward curved blades from high quality polymer. Dynamically balanced for low noise operation.

□ Protection
When installed in ducting the fan is rated IP 54.

For medium to smaller air flow volumes against high resistances.

Specially designed to be installed in-line in circular ducting. High pressure characteristic to overcome resistances of bends, filters etc.
Universal in application for domestic, commercial and industrial purposes.

■ Special features

- Compact design to minimise space and cost using in-line installation.
- Intake and exhaust spigot fit standard duct sizes.
- 100 % speed controllable to achieve any required duty.
- Installation in any position.
- Extensive accessory range.
- Optimised aerodynamic casing design.

■ Features of both models

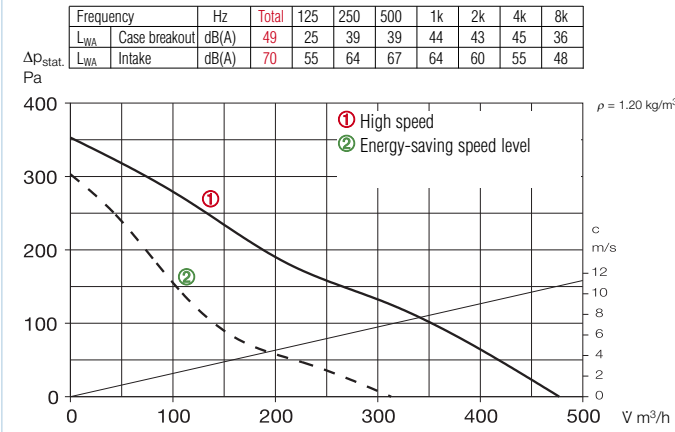
- Motor**
Low noise external rotor motor with ball bearings, impregnated windings, insulation class B, designed for continuous operation, maintenance free and radio suppressed.
- Motor protection**
Motors have thermal contacts wired in series with the windings which automatically reset.
- Installation**
Installation in any position without restriction:
– horizontally, vertically or pitched – suitable for intake or extract according to installation position. To keep sound levels inside the ventilated rooms as low as possible we recommend the fan is installed as remote as possible.

Type	Ref. No.	Connection spigot ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m		Power Watts	Current Amps	Wiring diagram	Maximum air flow temperature	Nominal weight in	5 step transformer controller		Electronical* speed controller, stepless	
					Case - breakout	Air noise on intake						Type	Ref. No.	Type	Ref. No.
Type RR..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RR 125 C ¹⁾	5655	125	480 ¹⁾ /310	2480 ¹⁾ /1240	42	61	62 ¹⁾ /47	0.27 ¹⁾ /0.21	934.1	70	2.9	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
Type RRK..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RRK 125	5974	125	330	2420	48	54	68	0.30	508	50	3.1	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
Type SVR..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SVR 125 B	2671	125	430/310 ²⁾	2550/1830 ²⁾	51/42 ²⁾	61/52 ²⁾	57/39 ²⁾	0.25/0.18 ²⁾	934.1	80	6.5	TSW 0.3	3608	ESU 1/ESA 1	0236/0238

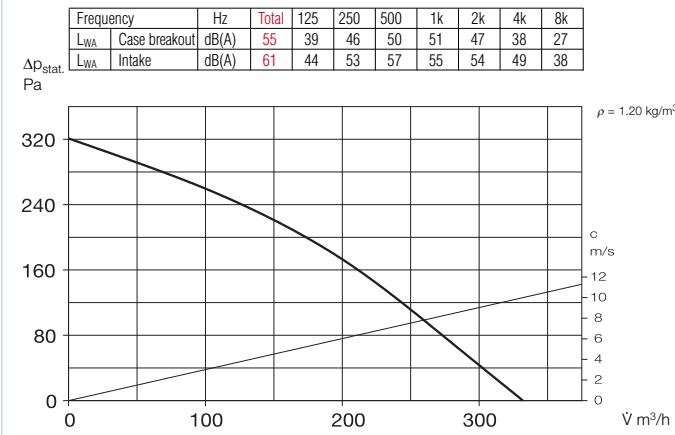
¹⁾ Type with high speed; standard with additional energy-saving speed level (see performance diagram). ²⁾ Values are related to the 2 speeds (see performance diagram).

* In noise relevant cases transformer controller must be provided. An electronic controller can trigger a distracting magnetisation noise.

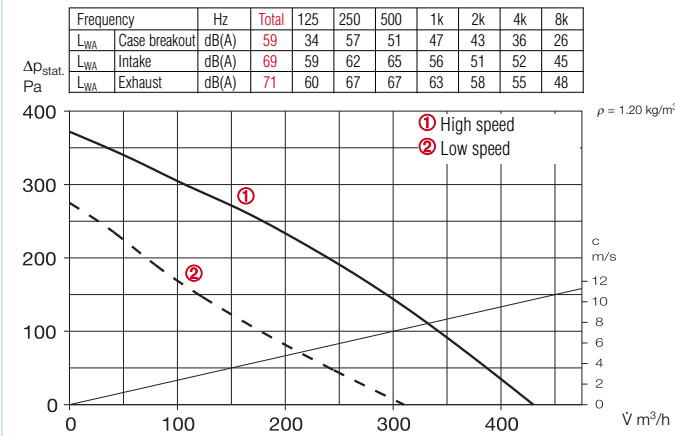
RR 125 C



RRK 125



SVR 125 B



Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for
 - case breakout
 - intake and exhaust in the tables above the performance curves.
 In addition the case breakout figure is given as a sound pressure level at 1 metre (free-field conditions) in the technical data table (see facing page).

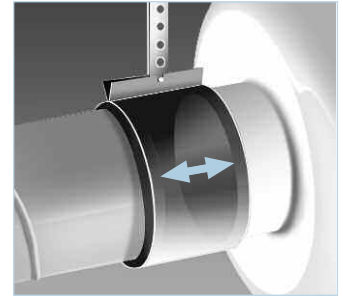
Information	Pages
Technical description	216
Selection chart	217
Design of systems	12 on
Modular comp. system	214

Other accessories	Pages
Filters, heater batteries and attenuators	305 on
Temp. regulating systems for heater batteries	311, 315
Flexible ducting, grilles, spigots and roof outlets	361 on
Valves	380 on
Speed controllers and switches	397 on

Accessories

Pipe clamp connectors

BM 125 Ref. No. 5076
 A quick-fix method for connecting fans to ducting, reducing vibration transmission (1 kit = 2 pieces). When installing leave a little gap between fan and ducting. Supplied in pairs.



Mounting feet for RR

MK 4 Ref. No. 5824
Mounting feet for RRK
MK 1 Ref. No. 5821
 Made from galvanised steel.



Gravity shutter

VK 125 Ref. No. 0857
 Air stream operated, polymer, white.



Fixed grille

G 160 Ref. No. 0893
 Made from polymer, white.

Protection guard

SGR 125 Ref. No. 5064
 For intake and exhaust installation on fan, made from galvanised steel.



Backdraught shutter

RSKK 125 Ref. No. 5107
 Air stream operated, polymer.



Flexible attenuator

FSD 125 Ref. No. 0677
 Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.



Spigotted circular attenuator

SRSD 125/... see page 319
 Spigotted attenuator from galvanised steel with 50 mm insulation. Length 300 – 1200 mm.



In-line air filter box

LFBR 125 G4 Ref. No. 8577
LFBR 125 F7 Ref. No. 8531
 Air filter with big cross sectional area to be installed in-line with ducting.



Electric heater battery

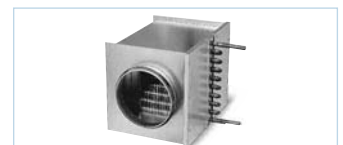
EHR-R 0.8/125 0.8 kW No. 8709
EHR-R 1.2/125 1.2 kW No. 9433
 - with integrated temp. controller
CV 12-12-1 1.2 kW No. S588
 Room or duct sensor (TFK/TFR, accessory) is necessary.



Temp. regulating system for electric heater batteries EHR-R..
EHS Ref. No. 5002

Water heater battery

WHR 125 Ref. No. 9480
 Compact heat exchanger for installation in the ducting system.



Temperature regulating system for water heater batteries
WHST 300 T38 Ref. No. 8817

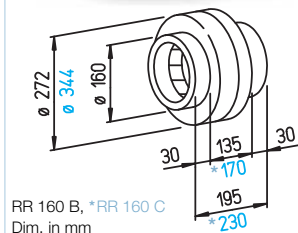


Duct fans

NEW!

Models RR

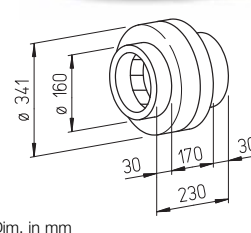
Market leading range offering an excellent value for money.
Now with energy-saving second speed level.



RR 160 B, *RR 160 C
Dim. in mm

Models RRK

Alternative version made from impact resistant polymers.

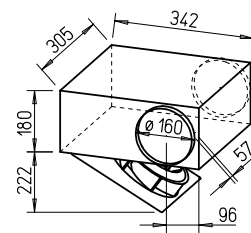


Dim. in mm

NEW!

Models SV

SlimVent – New exceptionally flat space saving miracle with swing out motor and impeller unit.



Dim. in mm

For medium to smaller air flow volumes against high resistances.

Specially designed to be installed in-line in circular ducting. High pressure characteristic to overcome resistances of bends, filters etc. Universal in application for domestic, commercial and industrial purposes.

Special features

- Compact design to minimise space and cost using in-line installation.
- Intake and exhaust spigot fit standard duct sizes.
- 100 % speed controllable to achieve any required duty.
- Installation in any position.
- Extensive accessory range.
- Optimised aerodynamic casing design.

Features of both models

Motor

Low noise external rotor motor with ball bearings, impregnated windings, insulation class B, designed for continuous operation, maintenance free and radio suppressed.

Motor protection

Motors have thermal contacts wired in series with the windings which automatically reset.

Installation

Installation in any position without restriction:
– horizontally, vertically or pitched – suitable for intake or extract according on installation position. To keep sound levels inside the ventilated rooms as low as possible we recommend the fan is installed as remote as possible.

Sound level

see page 241.

Specification RR

Casing

Made from robust galvanised steel for harsh working conditions. Spigots on intake and exhaust fit standard ducts.

Speed control

Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table) or 2 speed operation with DS 2/2 (accessories).

DS 2/2 Ref. No. 1267

Electrical connection

Terminal box (IP 55) located on outer casing.

Impeller

Backward curved centrifugal impeller made from polymers. Directly fitted on motor and dynamically balanced as a unit providing low noise levels and high efficiency.

Protection class

When installed in ducting the fan is rated IP 44.

Specification RRK

Casing

All components are made from corrosion and impact resistant polymers. Six guide vanes increase the fan's efficiency. Colour: lightgrey.

Speed control

Stepless 0 – 100 % by use of electronic controller or 5 stepped by low noise transformer.

Electrical connection

Terminal box (IP 44) located on outer casing.

Impeller

Backward curved centrifugal impeller made from polymers. Directly fitted on the motor and dynamically balanced as a unit providing low noise levels and high efficiency.

Protection

Splashproof to IP 44.

Specification SV

Casing

Flat and robust casing from galvanised sheet steel. Spigots on intake and extract with twin-seal rubber gaskets fit into standard ducts. Particularly service friendly (cleaning) through swing out motor and impeller unit without disassembly of system components. Space for the swing out facility must be considered.

Speed control

Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table) or 2 speed operation with DS 2/2 (accessories).

DS 2/2 Ref. No. 1267

Electrical connection

Terminal box (IP 55) located on outer casing.

Impeller

Energy-saving centrifugal impeller with backward curved blades from high quality polymer. Dynamically balanced for low noise operation.

Protection

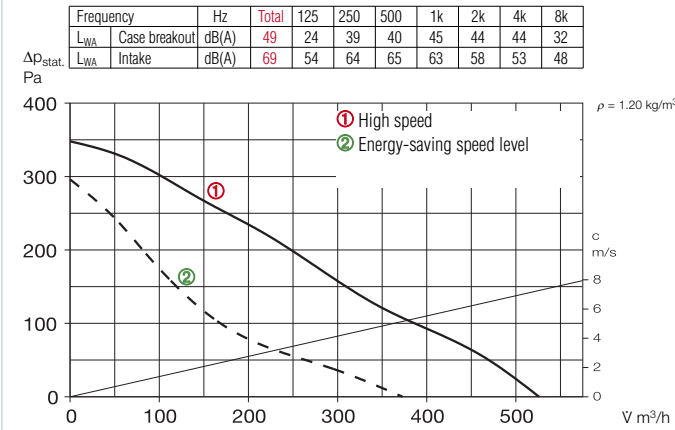
When installed in ducting the fan is rated IP 54.

Type	Ref. No.	Connection spigot ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m		Power Watts	Current Amps	Wiring diagram	Maximum air flow temperature	Nominal weight in	5 step transformer controller		Electronical* speed controller, stepless	
					Case - breakout	Air noise on intake						Type	Ref. No.	Type	Ref. No.
Type RR..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RR 160 B ¹⁾	5656	160	530 ¹⁾ /370	2540 ¹⁾ /1270	42	62	62 ¹⁾ /49	0.27 ¹⁾ /0.22	934.1	70	3.2	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
RR 160 C ¹⁾	5657	160	870 ¹⁾ /610	2480 ¹⁾ /1240	49	66	101 ¹⁾ /66	0.44 ¹⁾ /0.29	934.1	65	4.3	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
Type RRK..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RRK 160	5976	160	430	2400	46	52	70	0.31	508	50	3.4	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
Type SVR..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SVR 160 K	2672	160	460/330 ²⁾	2540/1790 ²⁾	48/37 ²⁾	61/50 ²⁾	58/40 ²⁾	0.25/0.18 ²⁾	934.1	80	7.5	TSW 0.3	3608	ESU 1/ESA 1	0236/0238

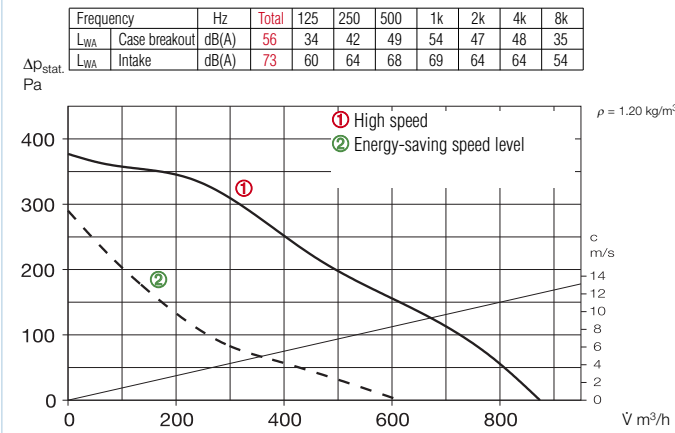
¹⁾ Type with high speed; standard with additional energy-saving speed level (see performance diagram). ²⁾ Values are related to the 2 speeds (see performance diagram).

* In noise relevant cases transformer controller must be provided. An electronic controller can trigger a distracting magnetisation noise.

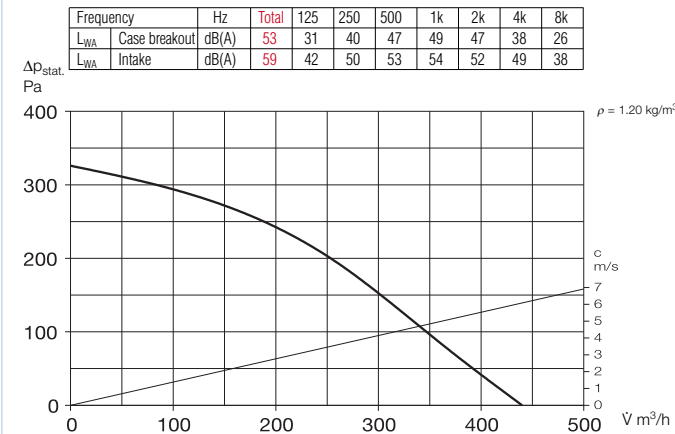
RR 160 B



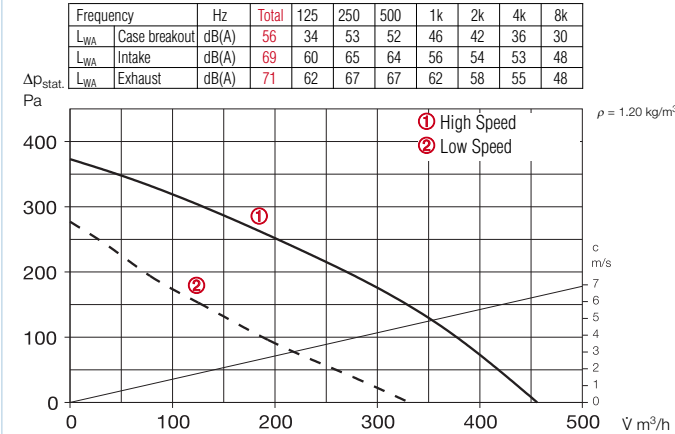
RR 160 C



RRK 160



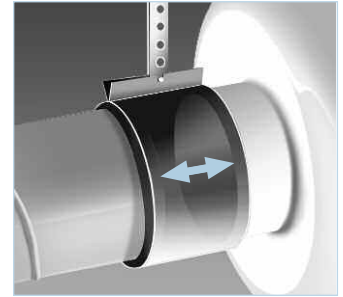
SVR 160 K



Accessories

Pipe clamp connectors

BM 160 Ref. No. 5077
A quick-fix method for connecting fans to ducting, reducing vibration transmission (1 kit = 2 pieces). When installing leave a little gap between fan and ducting.



Mounting feet for RR

MK 4 Ref. No. 5824

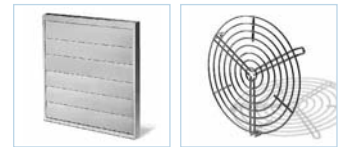
Mounting feet for RRK

MK 2 Ref. No. 5822
Made from galvanised steel.



Gravity shutter

VK 160 Ref. No. 0892
Made from polymer, light-grey.

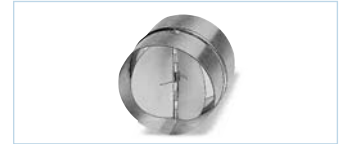


Fixed grille

G 160 Ref. No. 0893
Made from polymer, white.

Guard for spigot protection

SGR 160 Ref. No. 5069
For intake and exhaust installation on fan, made from galvanised steel.



Backdraught shutter

RSK 160 Ref. No. 5669
Automatic, made from metal.



Flexible attenuator

FSD 160 Ref. No. 0678
Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.



Spigotted circular attenuator

SRSD 160/... see page 319
Spigotted attenuator from galvanised steel with 50 mm insulation. Length 300 – 1200 mm.



In-line air filter box

LFBR 160 G4 Ref. No. 8578
LFBR 160 F7 Ref. No. 8532
Air filter with big cross sectional area to be installed in-line with ducting.



Electric heater battery

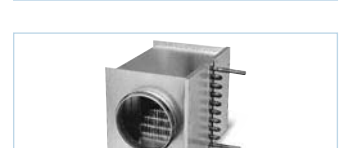
EHR-R 1.2/160 1.2 kW No. 9434
EHR-R 2.4/160 2.4 kW No. 9435
EHR-R 5/160 5.0 kW No. 8710
– with integrated temp. controller
CV 16-24-1 2.4 kW No. 5294
Room or duct sensor (TFK/TFR, accessory) is necessary.



Temp. regulating system for electric heater batteries EHR-R..
EHS Ref. No. 5002

Water heater battery

WHR 160 Ref. No. 9481
Compact heat exchanger for installation in the ducting system.



Temperature regulating system for water heater battery
WHST 300 T38 Ref. No. 8817

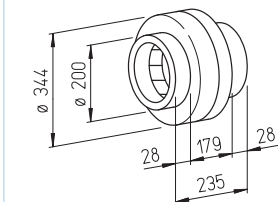


Duct fans

NEW!

Models RR

Market leading range offering an excellent value for money.
Now with energy-saving second speed level.



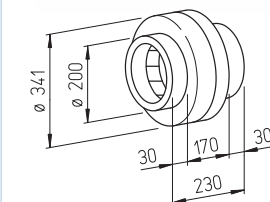
Dim. in mm

Specification RR

- Casing**
Made from robust galvanised steel for harsh working conditions. Spigots on intake and exhaust fit standard ducts.
- Speed control**
Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table) or 2 speed operation with DS 2/2 (accessories).
DS 2/2 Ref. No. 1267
- Electrical connection**
Terminal box (IP 55) located on outer casing.
- Impeller**
Backward curved centrifugal impeller made from polymers (Type RR 200 B from galvanised sheet steel.) Directly fitted on motor and dynamically balanced as a unit providing low noise levels and high efficiency.
- Protection class**
When installed in ducting the fan is rated IP 44.

Models RRK

Alternative version made from impact resistant polymers.



Dim. in mm

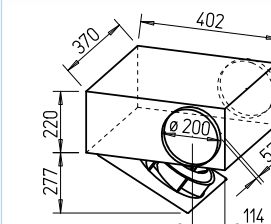
Specification RRK

- Casing**
All components are made from corrosion and impact resistant polymers. Six guide vanes increase the fan's efficiency. Colour: lightgrey.
- Speed control**
Stepless 0 – 100 % by use of electronic controller or 5 stepped by low noise transformer.
- Electrical connection**
Terminal box (IP 44) located on outer casing.
- Impeller**
Backward curved centrifugal impeller made from polymers. Directly fitted on the motor and dynamically balanced as a unit providing low noise levels and high efficiency.
- Protection**
Splashproof to IP 44.

NEW!

Models SV

SlimVent – New exceptionally flat space saving miracle with swing out motor and impeller unit.



Dim. in mm

Specification SV

- Casing**
Flat and robust casing from galvanised sheet steel. Spigots on intake and extract with twin-seal rubber gaskets fit into standard ducts. Particularly service friendly (cleaning) through swing out motor and impeller unit without disassembly of system components. Space for the swing out facility must be considered.
- Speed control**
Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table) or 2 speed operation with DS 2/2 (accessories).
DS 2/2 Ref. No. 1267
- Electrical connection**
Terminal box (IP 55) located on outer casing.
- Impeller**
Energy-saving centrifugal impeller with backward curved blades from high quality polymer. Dynamically balanced for low noise operation.
- Protection**
When installed in ducting the fan is rated IP 54.

For medium to smaller air flow volumes against high resistances.

Specially designed to be installed in-line in circular ducting. High pressure characteristic to overcome resistances of bends, filters etc. Universal in application for domestic, commercial and industrial purposes.

Special features

- Compact design to minimise space and cost using in-line installation.
- Intake and exhaust spigot fit standard duct sizes.
- 100 % speed controllable to achieve any required duty.
- Installation in any position.
- Extensive accessory range.
- Optimised aerodynamic casing design.

Features of both models

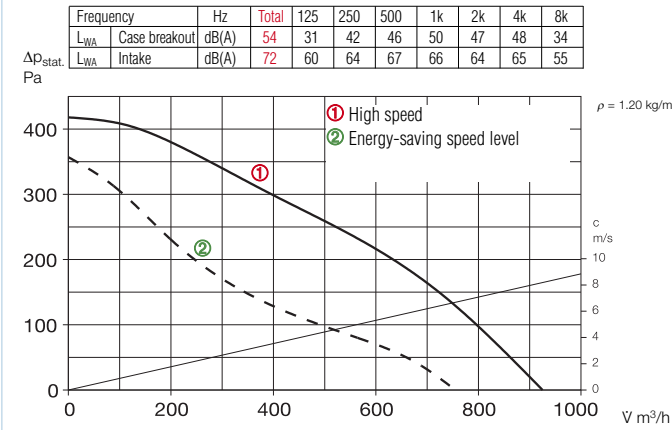
- Motor**
Low noise external rotor motor with ball bearings, impregnated windings, insulation class B, designed for continuous operation, maintenance free and radio suppressed.
- Motor protection**
Motors have thermal contacts wired in series with the windings which automatically reset.
- Installation**
Installation in any position without restriction:
– horizontally, vertically or pitched – suitable for intake or extract according on installation position. To keep sound levels inside the ventilated rooms as low as possible we recommend the fan is installed as remote as possible.
- Sound level**
see page 241.

Type	Ref. No.	Connection spigot ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m		Power Watts	Current Amps	Wiring diagram	Maximum air flow temperatur	Nominal weight in	5 step transformer controller		Electronical* speed controller, stepless	
					Case - breakout	Air noise on intake						Type	Ref. No.	Type	Ref. No.
mm															
V m³/h															
min ⁻¹															
dB (A)															
dB (A)															
W															
A															
No.															
+ °C															
kg															
Type															
Ref. No.															
Type															
Ref. No.															
Type RR..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RR 200 A ¹⁾	5658	200	930 ¹⁾ /760	2580 ¹⁾ /1290	47	65	115 ¹⁾ /94	0.51 ¹⁾ /0.44	934.1	60	4.6	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
RR 200 B ¹⁾	5659	200	1060 ¹⁾ /750	2500 ¹⁾ /1250	48	66	165 ¹⁾ /105	0.71 ¹⁾ /0.48	934.1	60	5.1	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
Type RRK..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RRK 200	5977	200	780	2395	56	66	115	0.50	508	45	3.6	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
Type SVR..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SVR 200 K	2673	200	830/540 ²⁾	2420/1620 ²⁾	54/47 ²⁾	66/59 ²⁾	139/98 ²⁾	0.60/0.45 ²⁾	934.1	55	8.5	TSW 1.5	1495	ESU 1/ESA 1	0236/0238

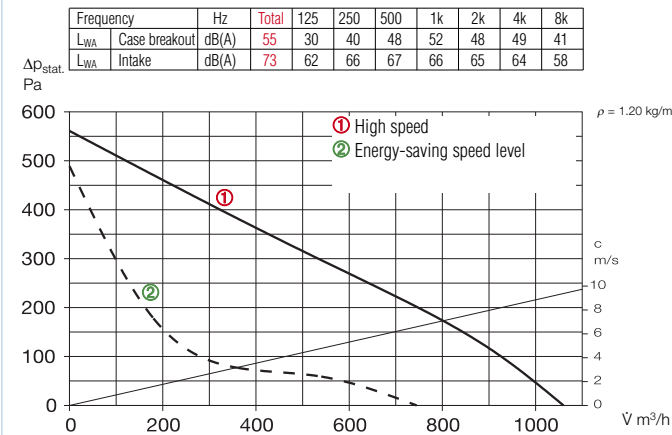
¹⁾ Type with high speed; standard with additional energy-saving speed level (see performance diagram). ²⁾ Values are related to the 2 speeds (see performance diagram).

* In noise relevant cases transformer controller must be provided. An electronic controller can trigger a distracting magnetisation noise.

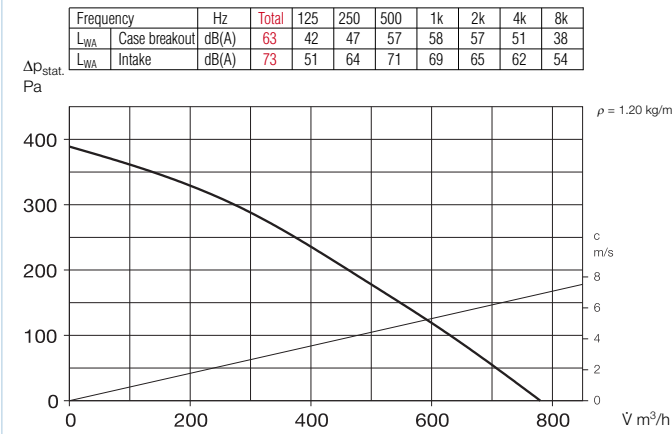
RR 200 A



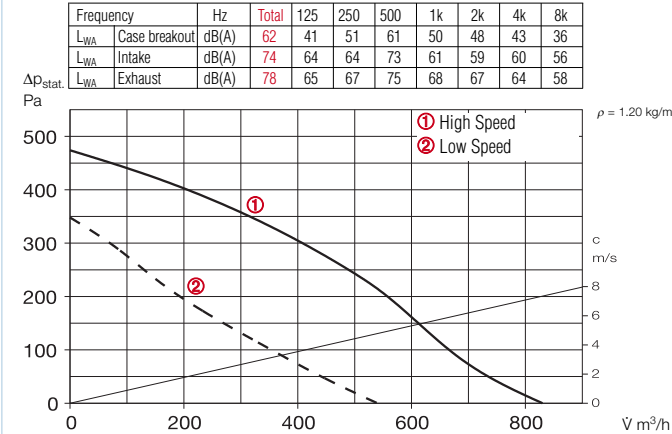
RR 200 B



RRK 200



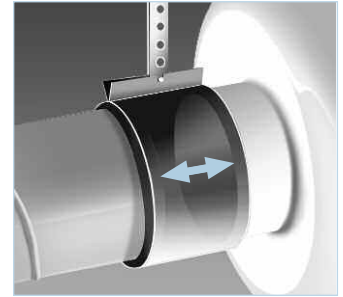
SVR 200 K



Accessories

Pipe clamp connectors

BM 200 Ref. No. 5078
A quick-fix method for connecting fans to ducting, reducing vibration transmission (1 kit = 2 pieces). When installing leave a little gap between fan and ducting.



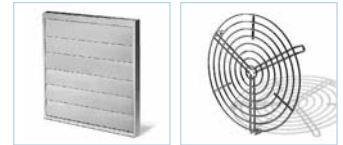
Mounting feet for RR

MK 4 Ref. No. 5824
Mounting feet for RRK
MK 2 Ref. No. 5822
Made from galvanised steel.



Gravity shutter

VK 200 Ref. No. 0758
Made from polymer, light-grey.



Rain repellent grille

RAG 200 Ref. No. 0750
Made from polymer, light-grey.

Guard for spigot protection

SGR 200 Ref. No. 5066
For intake and exhaust installation on fan, made from galvanised steel.



Backdraught shutter

RSK 200 Ref. No. 5074
Automatic, made from metal.



Flexible attenuator

FSD 200 Ref. No. 0679
Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.



Spigotted circular attenuator

SRSD 200/... see page 319
Spigotted attenuator from galvanised steel with 50 mm insulation. Length 300 – 1200 mm.



In-line air filter box

LFBR 200 G4 Ref. No. 8579
LFBR 200 F7 Ref. No. 8533
Air filter with big cross sectional area to be installed in-line with ducting.



Electric heater battery

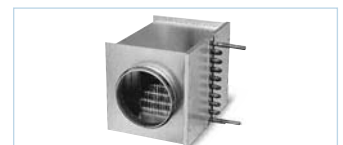
EHR-R 1.2/200 1.2 kW No. 9436
EHR-R 2/200 2.0 kW No. 9437
EHR-R 5/200 5.0 kW No. 8711
– with integrated temp. controller
CV 20-21-1 2.1 kW No. S579
Room or duct sensor (TFK/TFR, accessory) is necessary.



Temp. regulating system for electric heater batteries EHR-R..
EHS Ref. No. 5002

Water heater battery

WHR 200 Ref. No. 9482
Compact heat exchanger for installation in the ducting system.



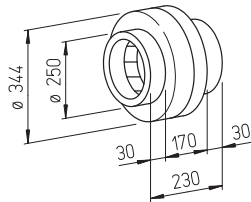
Temperature regulating system for water heater battery
WHST 300 T38 Ref. No. 8817



NEW!

Models RR

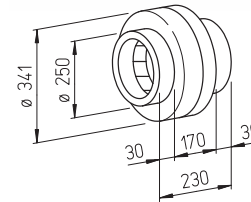
Market leading range offering an excellent value for money.
Now with energy-saving second speed level.



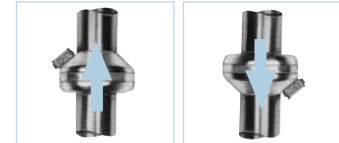
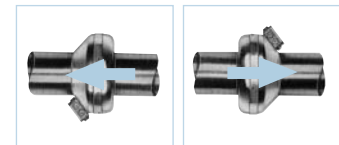
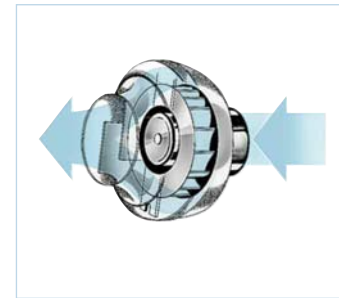
Dim. in mm

Models RRK

Alternative version made from impact resistant polymers.



Dim. in mm



For medium to smaller air flow volumes against high resistances.

Specially designed to be installed in-line in circular ducting. High pressure characteristic to overcome resistances of bends, filters etc.

Universal in application for domestic, commercial and industrial purposes.

Special features

- Compact design to minimise space and cost using in-line installation.
- Intake and exhaust spigot fit standard duct sizes.
- 100 % speed controllable to achieve any required duty.
- Installation in any position.
- Extensive accessory range.
- Optimised aerodynamic casing design.

Features of both models

- Motor**
Low noise external rotor motor with ball bearings, impregnated windings, insulation class B, designed for continuous operation, maintenance free and radio suppressed.
- Motor protection**
Motors have thermal contacts wired in series with the windings which automatically reset.

Specification RR

- Casing**
Made from robust galvanised steel for harsh working conditions. Spigots on intake and exhaust fit standard ducts.
- Speed control**
Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table) or 2 speed operation with DS 2/2 (accessories).
DS 2/2 Ref. No. 1267
- Electrical connection**
Terminal box (IP 55) located on outer casing.
- Impeller**
Backward curved centrifugal impeller made from polymers. Directly fitted on motor and dynamically balanced as a unit providing low noise levels and high efficiency.
- Protection class**
When installed in ducting the fan is rated IP 44.

Specification RRK

- Casing**
All components are made from corrosion and impact resistant polymers. Six guide vanes increase the fan's efficiency. Colour: lightgrey.
- Speed control**
Stepless 0 – 100 % by use of electronic controller or 5 stepped by low noise transformer.
- Electrical connection**
Terminal box (IP 44) located on outer casing.
- Impeller**
Backward curved centrifugal impeller made from polymers. Directly fitted on the motor and dynamically balanced as a unit providing low noise levels and high efficiency.
- Protection**
Splashproof to IP 44.

Installation

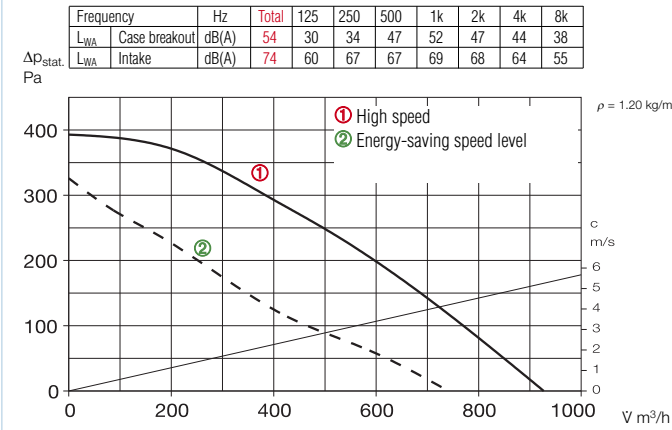
Installation in any position without restriction:
– horizontally, vertically or pitched – suitable for intake or extract according to installation position. To keep sound levels inside the ventilated rooms as low as possible we recommend the fan is installed as remote as possible.

Type	Ref. No.	Connection spigot ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m		Power Watts	Current Amps	Wiring diagram	Maximum air flow temperature	Nominal weight in	5 step transformer controller		Electronical* speed controller, stepless	
					Case - breakout	Air noise on intake						Type	Ref. No.	Type	Ref. No.
		mm	∇ m³/h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Type RR..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RR 250 A ¹⁾	5652	250	930 ¹⁾ /740	2580 ¹⁾ /1290	47	67	115 ¹⁾ /95	0.50 ¹⁾ /0.44	934.1	60	4.6	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
RR 250 C ¹⁾	5660	250	1130 ¹⁾ /890	2420 ¹⁾ /1210	49	67	185 ¹⁾ /130	0.81 ¹⁾ /0.59	934.1	55	5.3	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
Type RRK..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RRK 250	5978	250	840	2450	53	61	115	0.50	508	50	3.9	TSW 1.5	1495	ESU 1/ESA 1	0236/0238

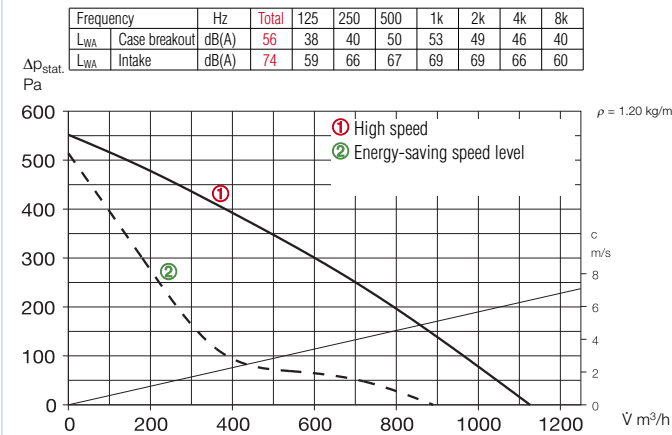
¹⁾ Type with high speed; standard with additional energy-saving speed level (see performance diagram).

* In noise relevant cases transformer controller must be provided. An electronic controller can trigger a distracting magnetisation noise.

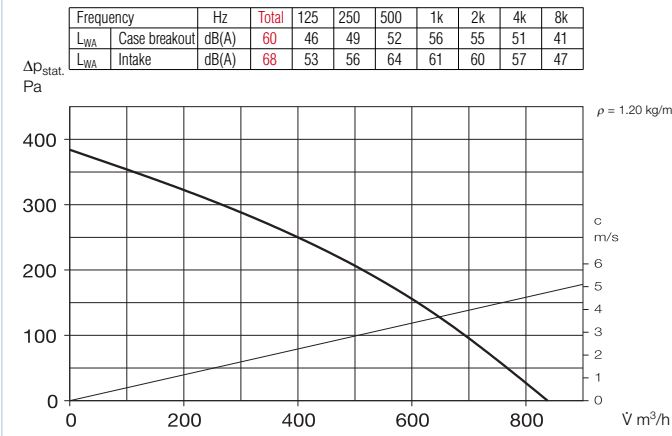
RR 250 A



RR 250 C



RRK 250



Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for

- case breakout
- intake and exhaust in the tables above the performance curves.

In addition the case breakout figure is given as a sound pressure level at 1 metre (free-field conditions) in the technical data table (see facing page).

Information Pages

Technical description	216
Selection chart	217
Design of systems	12 on
Modular comp. system	214

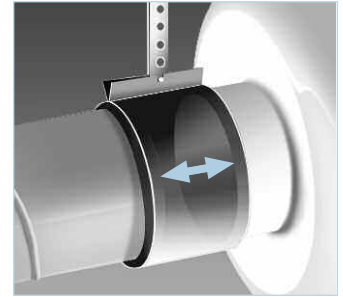
Other accessories Pages

Filters, heater batteries and attenuators	305 on
Temp. regulating systems for heater batteries	311, 316
Flexible ducting, grilles, spigots and roof outlets	361 on
Valves	380 on
Speed controllers and switches	397 on

Accessories

Pipe clamp connectors

BM 250 Ref. No. 5079
A quick-fix method for connecting fans to ducting, reducing vibration transmission (1 kit = 2 pieces). When installing leave a little gap between fan and ducting.



Mounting feet for RR

MK 4 Ref. No. 5824

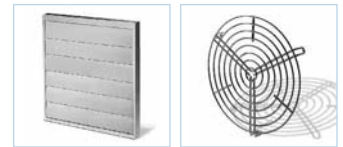
Mounting feet for RRK

MK 2 Ref. No. 5822
Made from galvanised steel.



Gravity shutter (automatic)

VK 250 Ref. No. 0759
Made from polymer, light-grey.



Rain repellent grille

RAG 250 Ref. No. 0751
Made from polymer, light-grey.



Guard for spigot protection

SGR 250 Ref. No. 5067
For intake and exhaust installation on fan, made from galvanised steel.



Backdraught shutter

RSK 250 Ref. No. 5673
Automatic, made from metal.



Flexible attenuator

FSD 250 Ref. No. 0680
Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.



Spigotted circular attenuator

SRSD 250/... see page 319
Spigotted attenuator from galvanised steel with 50 mm insulation. Length 300 – 1200 mm.



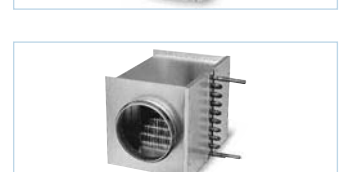
In-line air filter box

LFBR 250 G4 Ref. No. 8580
LFBR 250 F7 Ref. No. 8534
Air filter with big cross sectional area to be installed in-line with ducting.



Electric heater battery

EHR-R 6/250 6.0 kW No. 8712
– with integrated temp. controller
CV 25-60-3 6.0 kW No. 5296
Room or duct sensor (TFK/TFR, accessory) is necessary.



Temperature regulating system for electric heater battery EHR-R..
EHS Ref. No. 5002

Water heater battery

WHR 250 Ref. No. 9483
Compact heat exchanger for installation in the ducting system.

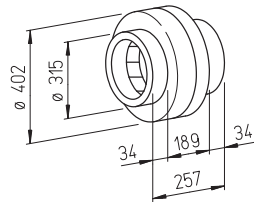


Temperature regulating system for water heater battery
WHS 1100 Ref. No. 8815

NEW!

Models RR

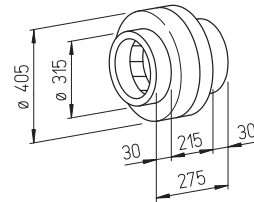
Market leading range offering an excellent value for money.
Now with energy-saving second speed level.



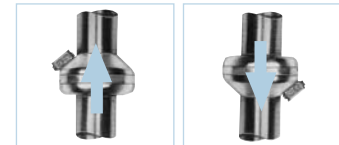
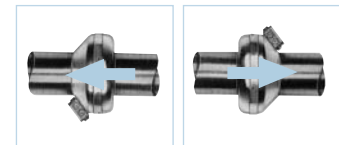
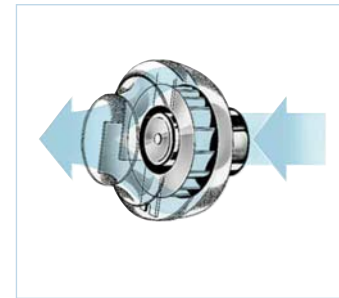
Dim. in mm

Models RRK

Alternative version made from impact resistant polymers.



Dim. in mm



For medium to smaller air flow volumes against high resistances.

Specially designed to be installed in-line in circular ducting. High pressure characteristic to overcome resistances of bends, filters etc. Universal in application for domestic, commercial and industrial purposes.

Special features

- Compact design to minimise space and cost using in-line installation.
- Intake and exhaust spigot fit standard duct sizes.
- 100 % speed controllable to achieve any required duty.
- Installation in any position.
- Extensive accessory range.
- Optimised aerodynamic casing design.

Features of both models

- Motor**
Low noise external rotor motor with ball bearings, impregnated windings, insulation class B, designed for continuous operation, maintenance free and radio suppressed.
- Motor protection**
Motors have thermal contacts wired in series with the windings which automatically reset.

Specification RR

- Casing**
Made from robust galvanised steel for harsh working conditions. Spigots on intake and exhaust fit standard ducts.
- Speed control**
Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table) or 2 speed operation with DS 2/2 (accessories).
DS 2/2 Ref. No. 1267
- Electrical connection**
Terminal box (IP 55) located on outer casing.
- Impeller**
Backward curved centrifugal impeller made from polymers. Directly fitted on motor and dynamically balanced as a unit providing low noise levels and high efficiency.
- Protection class**
When installed in ducting the fan is rated IP 44.

Specification RRK

- Casing**
All components are made from corrosion and impact resistant polymers. Six guide vanes increase the fan's efficiency. Colour: lightgrey.
- Speed control**
Stepless 0 – 100 % by use of electronic controller or 5 stepped by low noise transformer.
- Electrical connection**
Terminal box (IP 44) located on outer casing.
- Impeller**
Backward curved centrifugal impeller made from polymers. Directly fitted on the motor and dynamically balanced as a unit providing low noise levels and high efficiency.
- Protection**
Splashproof to IP 44.

Installation

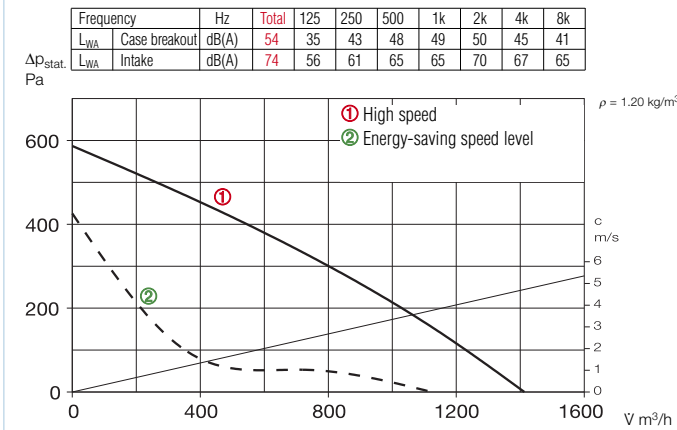
Installation in any position without restriction:
– horizontally, vertically or pitched – suitable for intake or extract according to installation position. To keep sound levels inside the ventilated rooms as low as possible we recommend the fan is installed as remote as possible.

Type	Ref. No.	Connection spigot Ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m		Power Watts	Current Amps	Wiring diagram	Maximum air flow temperature	Nominal weight in	5 step transformer controller		Electronical* speed controller, stepless	
					Case - breakout	Air noise on intake						Type	Ref. No.	Type	Ref. No.
		mm	∑ m³/h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Type RR..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RR 315 B ¹⁾	5661	315	1410 ¹⁾ /1120	2465 ¹⁾ /1233	47	67	190 ¹⁾ /129	0.84 ¹⁾ /0.59	934.1	50	6.1	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
RR 315 C ¹⁾	5920	315	1630 ¹⁾ /1320	2500 ¹⁾ /1250	50	68	274 ¹⁾ /200	1.19 ¹⁾ /0.91	934.1	50	6.5	TSW 1.5	1495	ESU 3/ESA 3	0237/0239
Type RRK..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
RRK 315	5979	315	1280	2540	57	66	220	0.98	508	70	5.6	TSW 1.5	1495	ESU 3/ESA 3	0237/0239

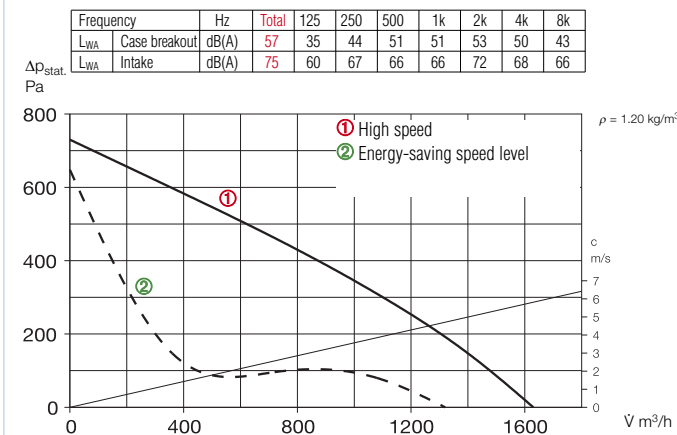
¹⁾ Type with high speed; standard with additional energy-saving speed level (see performance diagram).

* In noise relevant cases transformer controller must be provided. An electronic controller can trigger a distracting magnetisation noise.

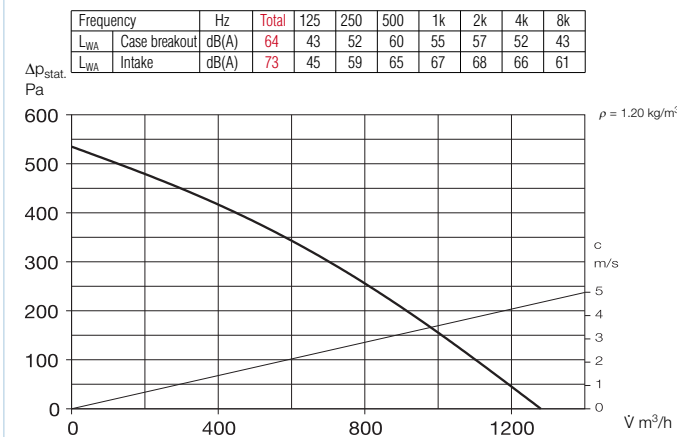
RR 315 B



RR 315 C



RRK 315



Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for
 - case breakout
 - intake and exhaust in the tables above the performance curves.
 In addition the case breakout figure is given as a sound pressure level at 1 metre (free-field conditions) in the technical data table (see facing page).

Information Pages

Technical description	216
Selection chart	217
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Modular comp. system	214

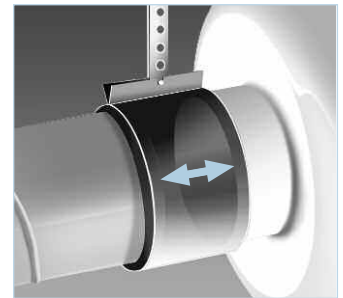
Other accessories Pages

Filters, heater batteries and attenuators	305 on
Temp. regulating systems for heater batteries	311, 316
Flexible ducting, grilles, spigots and roof outlets	361 on
Valves	380 on
Speed controllers and switches	397 on

Accessories

Pipe clamp connectors

BM 315 Ref. No. 5080
 A quick-fix method for connecting fans to ducting, reducing vibration transmission (1 kit = 2 pieces). When installing leave a little gap between fan and ducting.



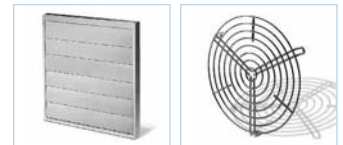
Mounting feet for RR

MK 4 Ref. No. 5824
Mounting feet for RRRK
MK 3 Ref. No. 5823
 Made from galvanised steel.



Gravity shutter (automatic)

VK 315 Ref. No. 0760
 Made from polymer, light-grey.



Rain repellent grille

RAG 315 Ref. No. 0752
 Made from polymer, light-grey.

Guard for spigot protection

SGR 315 Ref. No. 5068
 For intake and exhaust installation on fan, made from galvanised steel.



Backdraught shutter

RSK 315 Ref. No. 5674
 Automatic, made from metal.



Flexible attenuator

FSD 315 Ref. No. 0681
 Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.

Spigotted circular attenuator

SRSD 315/... see page 319
 Spigotted attenuator from galvanised steel with 50 mm insulation. Length 300 – 1200 mm.



In-line air filter box

LFBR 315 G4 Ref. No. 8581
LFBR 315 F7 Ref. No. 8535
 Air filter with big cross sectional area to be installed in-line with ducting.



Electric heater battery

EHR-R 6/315 6.0 kW No. 8713
- with integrated temp. controller
CV 31-60-3 6.0 kW No. S589
 Room or duct sensor (TFK/TFR, accessory) is necessary.



Temperature regulating system for electric heater battery EHR-R..

EHS Ref. No. 5002

Water heater battery

WHR 315 Ref. No. 9484
 Compact heat exchanger for installation in the ducting system.



Temperature regulating system for water heater battery

WHS 1100 Ref. No. 8815



Acoustic Line – Acoustically insulated centrifugal in-line fans SilentBox® and SlimVent SVS

Up to five million employees in Britain are exposed to damaging and concentration diminishing noise at their working place. Helios is specialized in the development of smooth running fans and offers solutions for exceptionally noise-sensitive operational environments across the whole range of products.

The AcousticLine in-line fans guarantee lowest noise levels for intake and case breakout. Universal in application for domestic, commercial and industrial purposes they are equipped with highly efficient and at the same time energy-efficient low noise impellers. Casing is like an internal attenuator. Lined with 50 mm thick mineral wool fibreboard and furthermore guarantees a functionality with lowest noise level.



**Acoustic Line from Helios.
Ventilation cannot be more silent.**

Acoustic Line – Acoustically insulated centrifugal in-line fans SilentBox® and SlimVent SVS

NEW!
Helios SilentBox®
Ø 125 – 400 mm
V̇ = 230 – 2650 m³/h

The professional solution for extract and outdoor air systems with special requirements for noise levels. With sound insulated casing for an almost noise free operation. Ideal for maintenance and cleaning through removable casing cover and fan unit.

NEW!
Helios SlimVent
Ø 125 – 200 mm
V̇ = 400 – 850 m³/h

The flat SlimVent is only a little higher than the duct diameter and permits a simple and space-saving assembly in any position. The high pressure characteristic permits longer duct sections and overcomes further system resistances. Due to complete mineral wool lining the lowest noise levels are obtained.

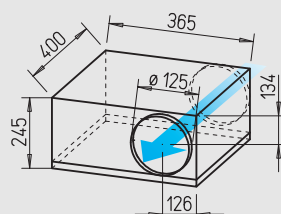


Models SilentBox® SB..



Virtually noise free with high air flow volumes against high resistances. Ideal for maintenance and cleaning.

NEW!



Dim. in mm

■ **Similarities SB and SVS**

□ **Installation**

Installation in any position without restriction – horizontally, vertically or pitched – suitable for intake or extract.

□ **Motor**

Totally enclosed external rotor motor with ball bearings, impregnated windings insulation class F, designed for continuous operation, maintenance free and radio suppressed.

■ **Specification SilentBox®**

□ **Casing**

Like an internal attenuator. Acoustically lined with abrasive resistant 50 mm thick mineral fibreboard. Four quick release clamps permit easy access to motor scroll and impeller set. Swing out motor and impeller. Spigots on intake and exhaust twin-seal rubber gaskets fit

standard ducts. All parts manufactured from galvanised sheet steel.

□ **Impeller**

Low noise forward curved centrifugal impeller, housed within an aero dynamically shaped scroll from galvanised steel. Bell mouth shaped inlet ring to achieve optimum air flow.

□ **Electrical connection**

Terminal box (IP 55) is supplied with a 60 cm long electric cable.

□ **Motor protection**

With thermal contacts wired in series with the windings. To reset the thermal contacts the main supply must be switched off and on.

□ **Speed control**

Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table).

□ **Protection**

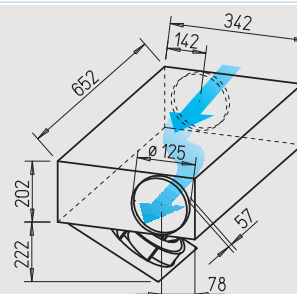
IP 44

Models SlimVent SVS



Ultra low profile. Ideal for applications with limited installation space. With sound-insulating mineral wool lining for particularly noise free operation.

NEW!



Dim. in mm

■ **Specification SlimVent SVS**

□ **Casing**

Extremely flat casing in longer design with more than 50 mm thick sound-absorbing mineral wool lining and glass fibre surface. The acoustic box which is placed in front of the fan reduces the sound level for the intake significantly. The sound level of the case breakout is reduced to a smaller extent (see sound levels in the tables above the performance curves).

□ The swing out motor and impeller unit permits maintenance and cleaning without disassembly of system components.

□ **Impeller**

Energy-saving centrifugal impeller with backward curved blades from high quality polymer. Dynamically balanced for low noise operation.

□ **Electrical connection**

Terminal box (IP 54) located on outer casing.

□ **Motor protection**

With thermal contacts wired in series with the windings which automatically reset.

□ **Speed control**

Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table) or 2 speed operation with DS 2/2 (accessories).

DS 2/2 Ref. No. 1267

□ **Protection**

When installed in ducting the fan is rated IP 54.

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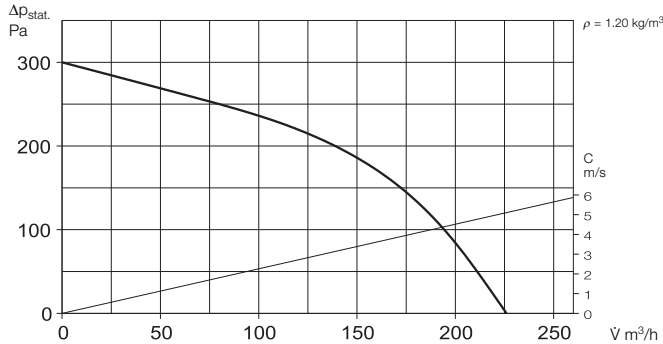
Type	Ref. No.	Connection spigot ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m		Power Watts	Current Amps	Wiring diagram	Maximum air flow temperatur	Nominal weight in	5 step transformer controller		Electronical* speed controller, stepless	
					Case - breakout	Air noise on intake						Type	Ref. No.	Type	Ref. No.
		mm	m³/h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Type SilentBox® SB.., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SB 125 A	9506	125	230	1130	28	46	61	0.27	508	80	12.0	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
SB 125 C	9562	125	440	1850	37	55	122	0.53	508	65	12.0	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
Type SVS.., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SVS 125 B	2674	125	395/270 ¹⁾	2550/1810 ¹⁾	46/35 ¹⁾	46/37 ¹⁾	58/40 ¹⁾	0.25/0.18 ¹⁾	934.1	80	8.5	TSW 0.3	3608	ESU 1/ESA 1	0236/0238

¹⁾ Values are related to the 2 speeds (see performance diagram).

* In noise relevant cases transformer controller must be provided. An electronic controller can trigger a distracting magnetisation noise.

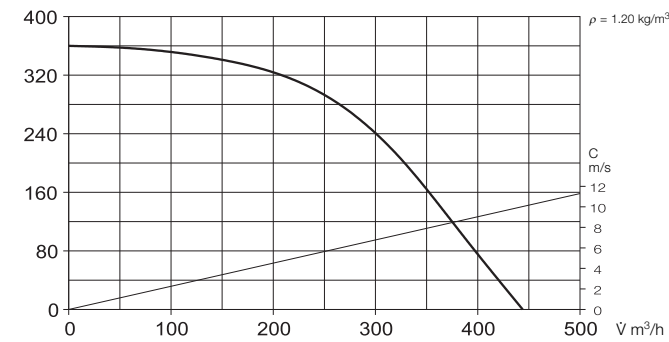
SB 125 A

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 35	28	28	27	27	25	26	27
L _{WA} Intake		dB(A) 53	51	48	43	38	33	29	17
L _{WA} Exhaust		dB(A) 61	53	54	55	56	50	43	30



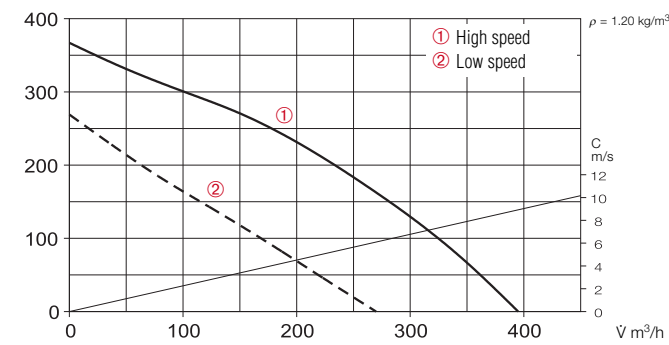
SB 125 C

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 44	35	42	36	33	29	28	28
L _{WA} Intake		dB(A) 62	59	57	54	46	44	40	30
L _{WA} Exhaust		dB(A) 70	62	63	65	64	62	55	46



SVS 125 B

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 52	26	48	48	42	39	32	28
L _{WA} Intake		dB(A) 54	51	49	39	27	23	23	25
L _{WA} Exhaust		dB(A) 71	60	67	67	63	58	55	48



Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for

- case breakout
- intake and exhaust

in the tables above the performances curves.

In addition the case breakout figure and air noise on intake are given as a sound pressure level at 1 m (freefield conditions) in the technical data table.

Note: For SilentBox the sound level on intake is lower than on exhaust.

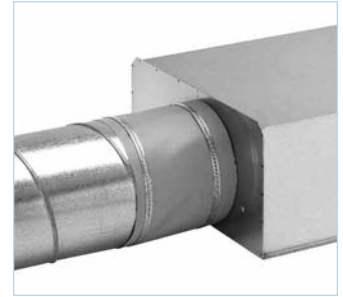
Other accessories Page

Filters, heater batteries and attenuators	305 on
Temp. regulating systems for heater batteries	311, 315
Flexible ducting, grilles, spigots and roof outlets	361 on
Valves	380 on
Speed controllers and switches	397 on

Accessories

Flexible sleeve

FM 125 Ref. No. 1682
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission to ducting and corrects small site misalignments. For intake or extract two sleeves are needed for complete isolation.



Louvre shutter

VK 125 Ref. No. 0857
Wall mounted air steam operated shutter for the outlet. Made from white polymer.



Fixed grille

G 160 Ref. No. 0893
To cover or insert into circular openings of duct systems. Made from high quality impact resistant polymer.



Guard

SGR 125 Ref. No. 5064
For intake and extract installation. Made from powder-coated steel wire.



Back draught shutter

RSKK 125 Ref. No. 5107
Air stream operated, made from polymer. For in-duct installation.



Flexible circular attenuator

FSD 125 Ref. No. 0677
Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.



Spigotted circular attenuator

SRSD 125/... see page 319
Spigotted attenuator from galvanized steel with 50 mm insulation. Length 300 – 1200 mm.

Air filter box

LFBR 125 G4 Ref. No. 8577
LFBR 125 F7 Ref. No. 8531
Air filter with large surface filter area to be installed in-line with ducting.



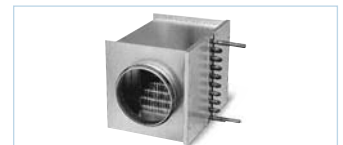
Electric heater battery

EHR-R 0,8/125 0,8 kW No. 8709
EHR-R 1,2/125 1,2 kW No. 9433
– with integrated temp. controller
CV 12-12-1 1,2 kW No. S588
Room and/or duct sensor (TFK/TFR, accessories) necessary.



Temperature control system for electric heater battery EHR-R..

EHS Ref. No. 5002



Water heater battery

WHR 125 Ref. No. 9480
Compact unit for in-line installation.



Temperature control system for water heater battery

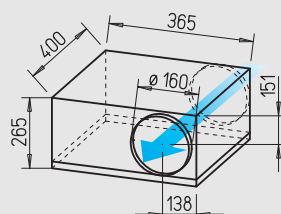
WHST 300 T38 Ref. No. 8817

Models SilentBox® SB..



Virtually noise free with high air flow volumes against high resistances. Ideal for maintenance and cleaning.

NEW!



Dim. in mm

■ **Similarities SB and SVS**

□ **Installation**

Installation in any position without restriction – horizontally, vertically or pitched – suitable for intake or extract.

□ **Motor**

Totally enclosed external rotor motor with ball bearings, impregnated windings insulation class F, designed for continuous operation, maintenance free and radio suppressed.

■ **Specification SilentBox®**

□ **Casing**

Like an internal attenuator. Acoustically lined with abrasive resistant 50 mm thick mineral fibreboard. Four quick release clamps permit easy access to motor scroll and impeller set. Swing out motor and impeller. Spigots on intake and exhaust twin-seal rubber gaskets fit

standard ducts. All parts manufactured from galvanised sheet steel.

□ **Impeller**

Low noise forward curved centrifugal impeller, housed within an aero dynamically shaped scroll from galvanised steel. Bell mouth shaped inlet ring to achieve optimum air flow.

□ **Electrical connection**

Terminal box (IP 55) is supplied with a 60 cm long electric cable.

□ **Motor protection**

With thermal contacts wired in series with the windings. To reset the thermal contacts the main supply must be switched off and on.

□ **Speed control**

Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table).

□ **Protection**

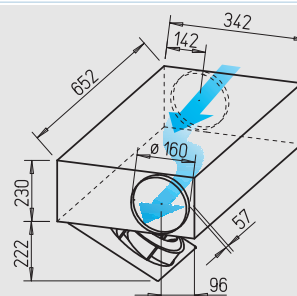
IP 44

Models SlimVent SVS



Ultra low profile. Ideal for applications with limited installation space. With sound-insulating mineral wool lining for particularly noise free operation.

NEW!



Dim. in mm

■ **Specification SlimVent SVS**

□ **Casing**

Extremely flat casing in longer design with more than 50 mm thick sound-absorbing mineral wool lining and glass fibre surface. The acoustic box which is placed in front of the fan reduces the sound level for the intake significantly. The sound level of the case breakout is reduced to a smaller extent (see sound levels in the tables above the performance curves).

□ The swing out motor and impeller unit permits maintenance and cleaning without disassembly of system components.

□ **Impeller**

Energy-saving centrifugal impeller with backward curved blades from high quality polymer. Dynamically balanced for low noise operation.

□ **Electrical connection**

Terminal box (IP 54) located on outer casing.

□ **Motor protection**

With thermal contacts wired in series with the windings which automatically reset.

□ **Speed control**

Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table) or 2 speed operation with DS 2/2 (accessories).

DS 2/2 Ref. No. 1267

□ **Protection**

When installed in ducting the fan is rated IP 54.

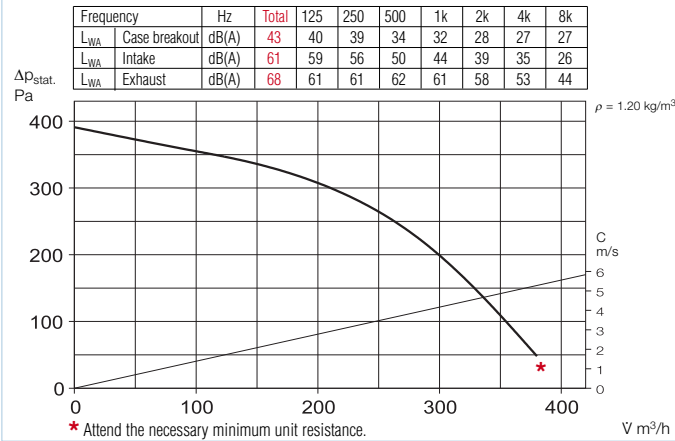
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Type	Ref. No.	Connection spigot ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m		Power Watts	Current Amps	Wiring diagram	Maximum air flow temperatur	Nominal weight in	5 step transformer controller		Electronical* speed controller, stepless	
					Case - breakout	Air noise on intake						Type	Ref. No.	Type	Ref. No.
		mm	m³/h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Type SilentBox® SB.., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SB 160 B	9508	160	380	1650	36	54	105	0.46	508	65	13.0	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
SB 160 D	9563	160	500	2200	39	58	157	0.68	508	55	13.0	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
Type SVS.., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SVS 160 K	2675	160	460/320 ¹⁾	2520/1730 ¹⁾	44/33 ¹⁾	49/38 ¹⁾	58/40 ¹⁾	0.25/0.18 ¹⁾	934.1	70	9.0	TSW 0.3	3608	ESU 1/ESA 1	0236/0238

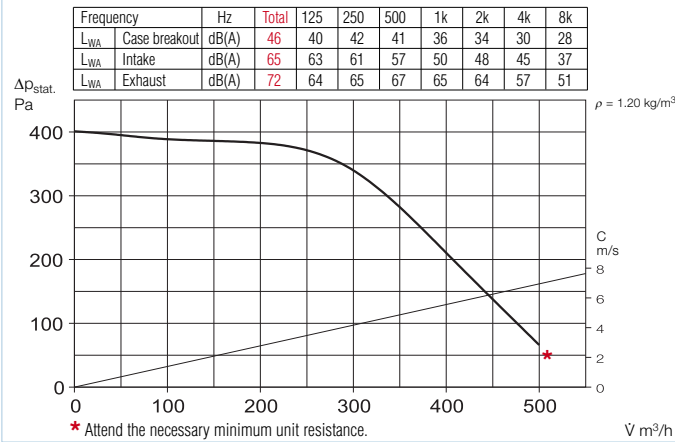
¹⁾ Values are related to the 2 speeds (see performance diagram).

* In noise relevant cases transformer controller must be provided. An electronic controller can trigger a distracting magnetisation noise.

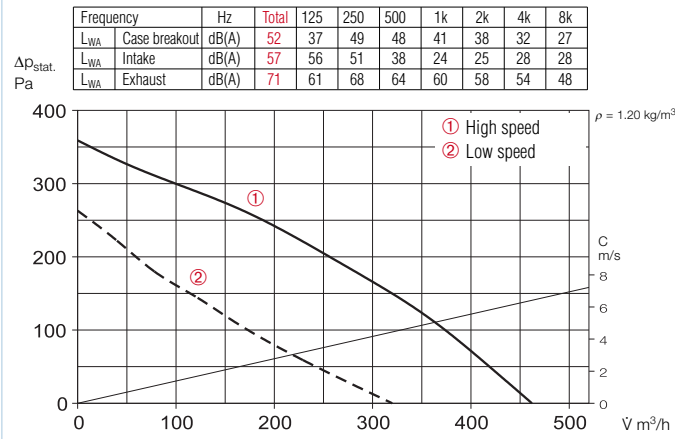
SB 160 B



SB 160 D



SVS 160 K



Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for

- case breakout
- intake and exhaust

in the tables above the performance curves. In addition the case breakout figure and air noise on intake are given as a sound pressure level at 1 m (freefield conditions) in the technical data table. Note: For SilentBox the sound level on intake is lower than on exhaust.

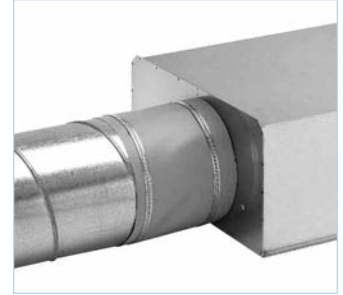
Other accessories Page

Filters, heater batteries and attenuators	305 on
Temp. regulating systems for heater batteries	311, 315
Flexible ducting, grilles, spigots and roof outlets	361 on
Valves	380 on
Speed controllers and switches	397 on

Accessories

Flexible sleeve

FM 160 Ref. No. 1684
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission to ducting and corrects small site misalignments. For intake or extract two sleeves are needed for complete isolation.



Louvre shutter

VK 160 Ref. No. 0892
Wall mounted air steam operated shutter for the outlet. Made from white polymer.



Fixed grille

G 160 Ref. No. 0893
To cover or insert into circular openings of duct systems. Made from high quality impact resistant polymer.



Guard

SGR 160 Ref. No. 5069
For intake and extract installation. Made from powder-coated steel wire.



Back draught shutter

RSK 160 Ref. No. 5669
Air stream operated, made from polymer. For in-duct installation.



Flexible circular attenuator

FSD 160 Ref. No. 0678
Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.



Spigotted circular attenuator

SRSD 160/... see page 319
Spigotted attenuator from galvanized steel with 50 mm insulation. Length 300 – 1200 mm.

Air filter box

LFBR 160 G4 Ref. No. 8578
LFBR 160 F7 Ref. No. 8532
Air filter with large surface filter area to be installed in-line with ducting.



Electric heater battery

EHR-R 1,2/160 1,2 kW No. 9434
EHR-R 2,4/160 2,4 kW No. 9435
EHR-R 5/160 5,0 kW No. 8710
– with integrated temp. controller
CV 16-24-1 2,4 kW No. 5294
Room and/or duct sensor (TFK/TFR, accessories) necessary.



Temperature control system for electric heater battery EHR-R.. EHS

Ref. No. 5002



Water heater battery

WHR 160 Ref. No. 9481
Compact unit for in-line installation.



Temperature control system for water heater battery

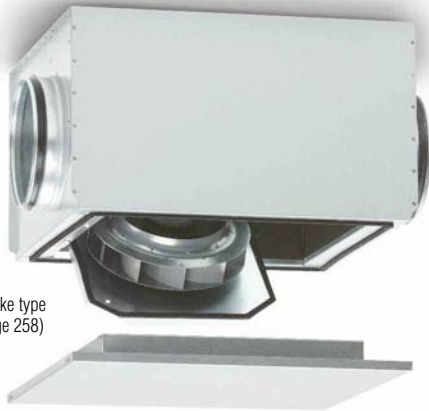
WHST 300 T38 Ref. No. 8817

Models SilentBox® SB..

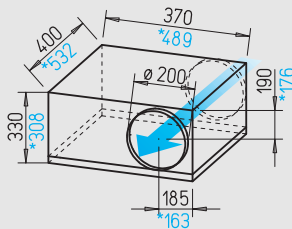


Virtually noise free with high air flow volumes against high resistances. Ideal for maintenance and cleaning.

NEW!



(Fig. SB 200 C like type
SB 250 C on page 258)



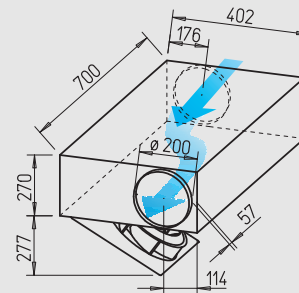
Dim. in mm SB 200 C, *SB 200 D

Models SlimVent SVS



Ultra low profile. Ideal for applications with limited installation space. With sound-insulating mineral wool lining for particularly noise free operation.

NEW!



Dim. in mm

■ **Similarities SB and SVS**

□ **Installation**

Installation in any position without restriction – horizontally, vertically or pitched – suitable for intake or extract.

□ **Motor**

Totally enclosed external rotor motor with ball bearings, impregnated windings insulation class F, designed for continuous operation, maintenance free and radio suppressed.

■ **Specification SilentBox®**

□ **Casing**

Like an internal attenuator. Acoustically lined with abrasive resistant 50 mm thick mineral fibreboard. Four quick release clamps permit easy access to motor scroll and impeller set. Swing out motor and impeller. Spigots on intake and exhaust twin-seal rubber gaskets fit

standard ducts. All parts manufactured from galvanised sheet steel.

□ **Impeller**

Low noise forward curved centrifugal impeller, housed within an aero dynamically shaped scroll from galvanised steel. Bell mouth shaped inlet ring to achieve optimum air flow.

□ **Electrical connection**

Terminal box (IP 55) is supplied with a 60 cm long electric cable.

□ **Motor protection**

With thermal contacts wired in series with the windings. To reset the thermal contacts the main supply must be switched off and on.

□ **Speed control**

Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table).

□ **Protection**

IP 44

■ **Specification SlimVent SVS**

□ **Casing**

Extremely flat casing in longer design with more than 50 mm thick sound-absorbing mineral wool lining and glass fibre surface. The acoustic box which is placed in front of the fan reduces the sound level for the intake significantly. The sound level of the case breakout is reduced to a smaller extent (see sound levels in the tables above the performance curves).

□ The swing out motor and impeller unit permits maintenance and cleaning without disassembly of system components.

□ **Impeller**

Energy-saving centrifugal impeller with backward curved blades from high quality polymer. Dynamically balanced for low noise operation.

□ **Electrical connection**

Terminal box (IP 54) located on outer casing.

□ **Motor protection**

With thermal contacts wired in series with the windings which automatically reset.

□ **Speed control**

Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table) or 2 speed operation with DS 2/2 (accessories).

DS 2/2 Ref. No. 1267

□ **Protection**

When installed in ducting the fan is rated IP 54.

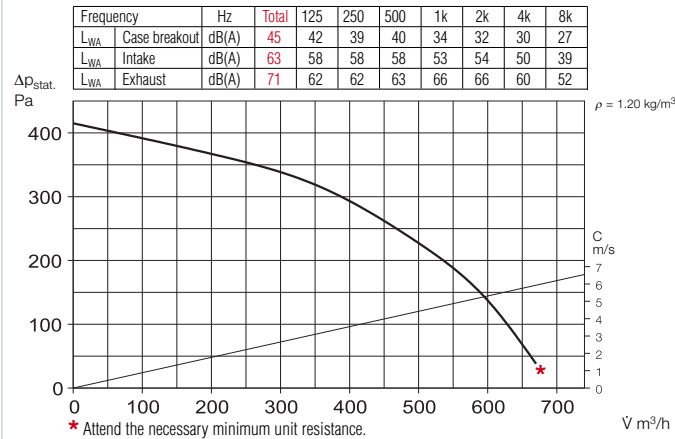
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Type	Ref. No.	Connection spigot ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m		Power Watts	Current Amps	Wiring diagram	Maximum air flow temperatur	Nominal weight in	5 step transformer controller		Electronical* speed controller, stepless	
					Case - breakout	Air noise on intake						Type	Ref. No.	Type	Ref. No.
		mm	∇ m³/h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Type SilentBox® SB.., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SB 200 C	9510	200	680	1800	41	56	188	0.83	508	55	14.0	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
SB 200 D	9564	200	820	2600	42	55	157	0.69	508	75	22.0	TSW 1.5	1495	ESU 1/ESA 1	0236/0238
Type SVS.., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SVS 200 K	2676	200	840/560 ¹⁾	2410/1600 ¹⁾	51/44 ¹⁾	55/48 ¹⁾	140/100 ¹⁾	0.60/0.45 ¹⁾	934.1	55	11.0	TSW 1.5	1495	ESU 1/ESA 1	0236/0238

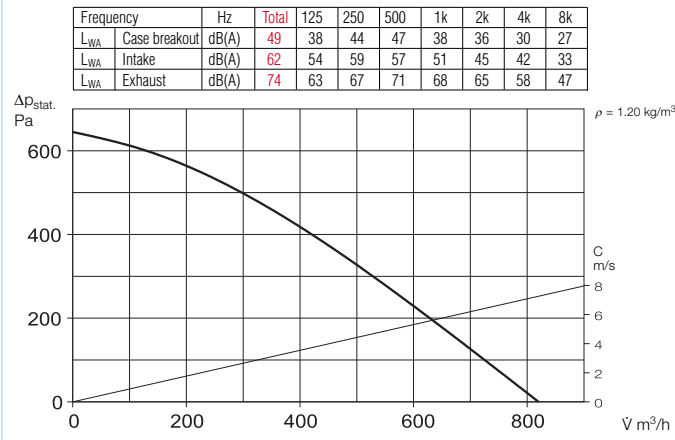
¹⁾ Values are related to the 2 speeds (see performance diagram).

* In noise relevant cases transformer controller must be provided. An electronic controller can trigger a distracting magnetisation noise.

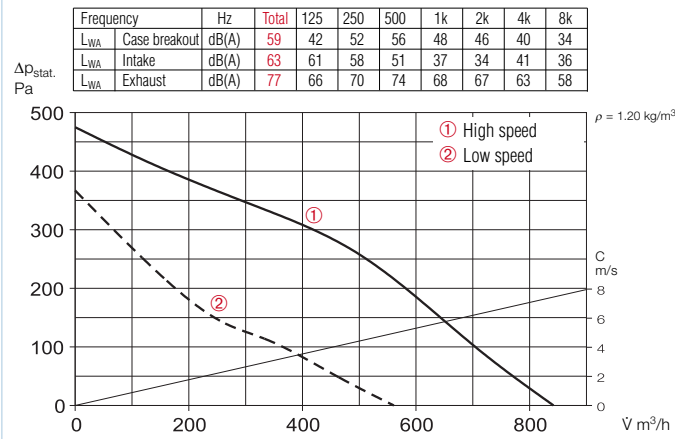
SB 200 C



SB 200 D



SVS 200 K



Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for

- case breakout
- intake and exhaust

in the tables above the performances curves. In addition the case breakout figure and air noise on intake are given as a sound pressure level at 1 m (freefield conditions) in the technical data table. Note: For SilentBox the sound level on intake is lower than on exhaust.

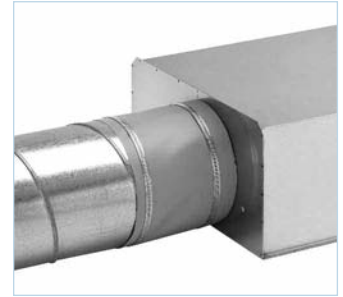
Other accessories Page

Filters, heater batteries, attenuators	305 on
Temperature control for heater batteries	311, 315
Flexible ducting, guards, duct components and roof outlets	361 on
Valves	380 on
Speed controllers and switches	397 on

Accessories

Flexible sleeve

FM 200 Ref. No. 1670
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission to ducting and corrects small site misalignments. For intake or extract two sleeves are needed for complete isolation.



Louvre shutter

VK 200 Ref. No. 0758
Wall mounted air stream operated shutter for the outlet. Made from white polymer.



Rain repellent grille

RAG 200 Ref. No. 0750
Made from polymer, light-grey.



Guard

SGR 200 Ref. No. 5066
For intake and extract installation. Made from powder-coated steel wire.



Back draught shutter

RSK 200 Ref. No. 5074
Air stream operated, made from polymer. For in-duct installation.



Flexible circular attenuator

FSD 200 Ref. No. 0679
Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.



Spigotted circular attenuator

SRSD 200/... see page 319
Spigotted attenuator from galvanized steel with 50 mm insulation. Length 300 – 1200 mm.

Air filter box

LFBR 200 G4 Ref. No. 8579
LFBR 200 F7 Ref. No. 8533
Air filter with large surface filter area to be installed in-line with ducting.



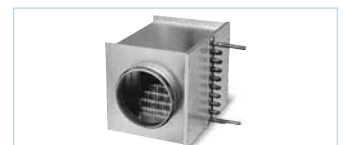
Electric heater battery

EHR-R 1,2/200 1.2 kW No. 9436
EHR-R 2/200 2.0 kW No. 9437
EHR-R 5/200 5.0 kW No. 8711
– with integrated temp. controller
CV 20-21-1 2.1 kW No. S579
Room and/or duct sensor (TFK/TFR, accessories) necessary.



Temperature control system for electric heater battery EHR-R.. EHS

Ref. No. 5002



Water heater battery

WHR 200 Ref. No. 9482
Compact unit for in-line installation.



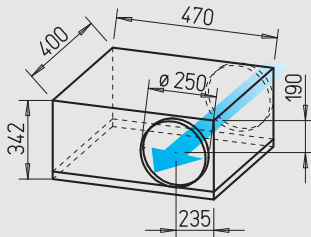
Temperature control system for water heater battery

WHST 300 T38 Ref. No. 8817

SilentBox® SB 250 C



Virtually noise free with high air flow volumes against high resistances. Ideal for maintenance and cleaning.



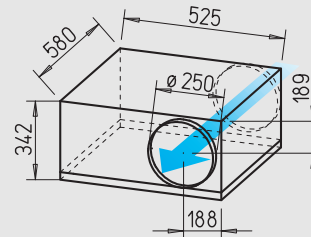
Dim. in mm

SilentBox® SB 250 E



Virtually noise free with high air flow volumes against high resistances. Ideal for maintenance and cleaning.

NEW!



Dim. in mm

■ **Similarities**
SB 250 C and E

□ **Installation**

Installation in any position without restriction – horizontally, vertically or pitched – suitable for intake or extract.

□ **Motor**

Totally enclosed external rotor motor with ball bearings, impregnated windings insulation class F, designed for continuous operation, maintenance free and radio suppressed.

□ **Motor protection**

With thermal contacts wired in series with the windings. To reset the thermal contacts the main supply must be switch off and on.

□ **Speed control**

Stepless 0 – 100 % by use of electronic controller or 5 step transformer controller (see table).

□ **Electrical connection**

Terminal box (IP 55) is supplied with a 60 cm long electric cable.

□ **Protection**

IP 44

■ **Specification SB 250 C**

□ **Casing**

Like an internal attenuator. Acoustically lined with abrasive resistant 50 mm thick mineral fibreboard. For quick release clamps permit easy access to motor scroll and impeller set. Extractable motor and impeller unit. Spigots on intake and exhaust twin-seal rubber gaskets fit standard ducts. All parts manufactured from galvanised sheet steel.

□ **Impeller**

Low noise forward curved centrifugal impeller, housed within an aero dynamically shaped scroll from galvanised steel. Bell mouth shaped inlet ring to achieve optimum air flow.

■ **Specification SB 250 E**

□ **Casing**

Like an internal attenuator. Acoustically lined with abrasive resistant 50 mm thick mineral fibreboard. Four quick release clamps permit easy access to motor scroll and impeller set. Swing out motor and impeller unit. Spigots on intake and exhaust twin-seal rubber gaskets fit standard ducts. All parts manufactured from galvanised sheet steel.

□ **Impeller**

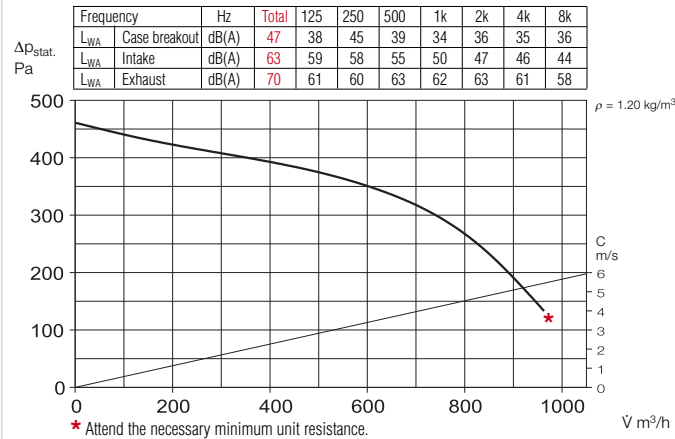
Low noise forward curved centrifugal impeller, housed within an aero dynamically shaped scroll from galvanised steel. Bell mouth shaped inlet ring to achieve optimum air flow.

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Technical description	216
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Design of systems	12 on
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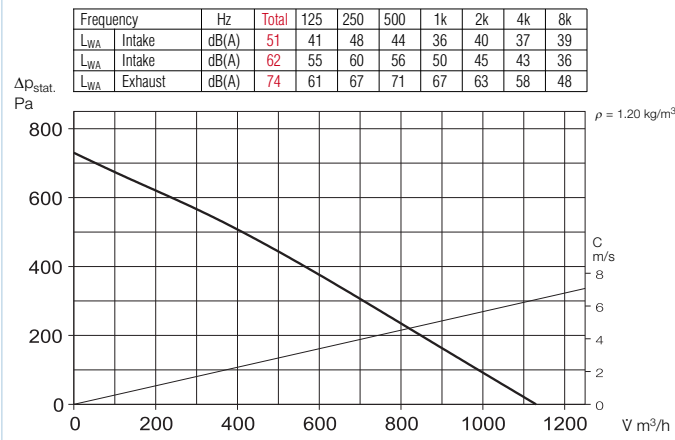
Type	Ref. No.	Connection spigot ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m Case - breakout	Air noise on intake	Power Watts	Current Amps	Wiring diagram	Maximum air flow temperatur	Nominal weight in	5 step transformer controller	Electronical* speed controller, stepless		
		mm	∑ m³/h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Type SilentBox® SB... 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SB 250 C	9512	250	960	2120	43	56	255	1.13	508	50	18.0	TSW 1.5	1495	ESU 3/ESA 3	0237/0239
SB 250 E	9565	250	1130	2420	44	55	201	0.89	508	50	27.0	TSW 1.5	1495	ESU 3/ESA 3	0237/0239

* In noise relevant cases transformer controller must be provided. An electronic controller can trigger a distracting magnetisation noise.

SB 250 C



SB 250 E



Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for

- case breakout
- intake and exhaust

in the tables above the performances curves.

In addition the case breakout figure and air noise on intake are given as a sound pressure level at 1 m (freefield conditions) in the technical data table.

Note: The sound level on intake is lower than on exhaust.

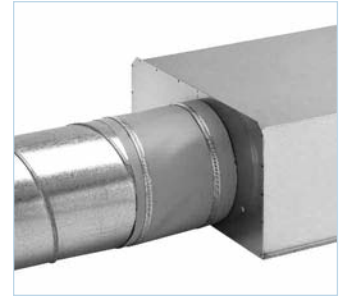
Other accessories Page

Filters, heater batteries, attenuators	305 on
Temperature control for heater batteries	311, 316
Flexible ducting, guards, duct components and roof outlets	361 on
Valves	380 on
Speed controllers and switches	397 on

Accessories

Flexible sleeve

FM 250 Ref. No. 1672
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission to ducting and corrects small site misalignments. For intake or extract two sleeves are needed for complete isolation.



Louvre shutter

VK 250 Ref. No. 0759
Wall mounted air steam operated shutter for the outlet. Made from white polymer.



Rain repellent grille

RAG 250 Ref. No. 0751
Made from polymer, light-grey.



Guard

SGR 250 Ref. No. 5067
For intake and extract installation. Made from powder-coated steel wire.



Back draught shutter

RSK 250 Ref. No. 5673
Air stream operated, made from polymer. For in-duct installation.



Flexible circular attenuator

FSD 250 Ref. No. 0680
Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.



Spigotted circular attenuator

SRSD 250/... see page 319
Spigotted attenuator from galvanized steel with 50 mm insulation. Length 300 – 1200 mm.

Air filter box

LFBR 250 G4 Ref. No. 8580
LFBR 250 F7 Ref. No. 8534
Air filter with large surface filter area to be installed in-line with ducting.



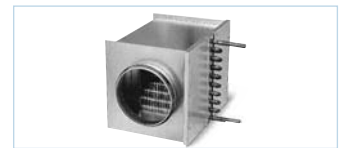
Electric heater battery

EHR-R 6/250 6.0 kW No. 8712
– with integrated temp. controller
CV 25-60-3 6.0 kW No. 5296
Room and/or duct sensor (TFK/TFR, accessories) necessary.



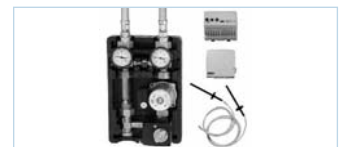
Temperature control system for electric heater battery EHR-R..

EHS Ref. No. 5002



Water heater battery

WHR 250 Ref. No. 9483
Compact unit for in-line installation.



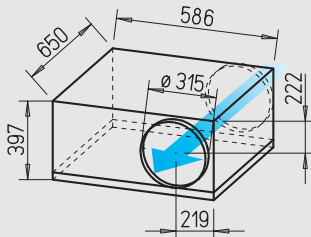
Temperature control system for water heater battery

WHS 1100 Ref. No. 8815

SilentBox® SB 315 B



Virtually noise free with high air flow volumes against high resistances. Ideal for maintenance and cleaning.

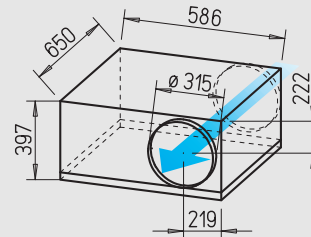


Dim. in mm

SilentBox® SB 315 C



Virtually noise free with high air flow volumes against high resistances. Ideal for maintenance and cleaning.



Dim. in mm

■ **Similarities**
SB 315 B and C

□ **Installation**

Installation in any position without restriction – horizontally, vertically or pitched – suitable for intake or extract.

□ **Motor**

Totally enclosed external rotor motor with ball bearings, impregnated windings insulation class F, designed for continuous operation, maintenance free and radio suppressed.

□ **Electrical connection**

Terminal box (IP 55) is supplied with a 60 cm long electric cable.

□ **Speed control**

Speed controllable with transformer speed controller.

□ **Impeller**

Low noise forward curved centrifugal impeller, housed within an aero dynamically shaped scroll from galvanised steel. Bell mouth shaped inlet ring to achieve optimum air flow.

□ **Protection**
IP 44

■ **Specification SB 315 B**

□ **Casing**

Like an internal attenuator. Acoustically lined with abrasive resistant 50 mm thick mineral fibreboard. For quick release clamps permit easy access to motor scroll and impeller set. Extractable motor and impeller unit. Spigots on intake and exhaust twin-seal rubber gaskets fit standard ducts. All parts manufactured from galvanised sheet steel.

□ **Motor protection**

With thermal contacts wired to the terminal block and must be connected to a motor protection unit (see type table).

■ **Specification SB 315 C**

□ **Casing**

Like an internal attenuator. Acoustically lined with abrasive resistant 50 mm thick mineral fibreboard. Four quick release clamps permit easy access to motor scroll and impeller set. Extractable motor and impeller unit. Equipped with two parallel wired, double inlet centrifugal fan units. Spigots on intake and exhaust twin-seal rubber gaskets fit standard ducts. All parts manufactured from galvanised sheet steel.

□ **Motor protection**

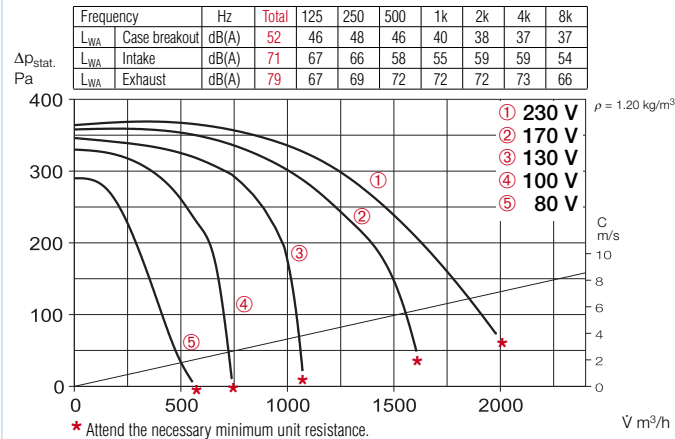
With thermal contacts wired in series with the windings. To reset the thermal contacts the main supply must be switched off and on.

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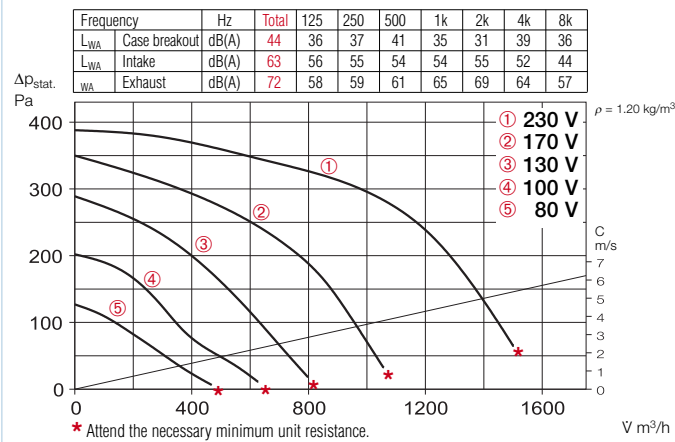
Type	Ref. No.	Connection spigot ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m Case - breakout	Air noise on intake	Power Watts	Current Amps	Wiring diagram	Maximum air flow temperatur	Nominal weight in	5 step transformer controller	Motor protection unit* for connection with built-in thermal contacts		
		mm	V m ³ /h	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Type SilentBox® SB..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SB 315 B	9515	315	1970	1350	45	64	620	3.0	536.1	50	40.0	TSW 5.0	1497	MW	1579
SB 315 C	9514	315	1460	1450	37	56	390	1.7	508	55	30.0	TSW 3.0	1496	—	—

* In noise relevant cases transformer controller must be provided. An electronic controller can trigger a distracting magnetisation noise.

SB 315 B



SB 315 C



Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for

- case breakout
- intake and exhaust

in the tables above the performances curves. In addition the case breakout figure and air noise on intake are given as a sound pressure level at 1 m (freefield conditions) in the technical data table. Note: The sound level on intake is lower than on exhaust.

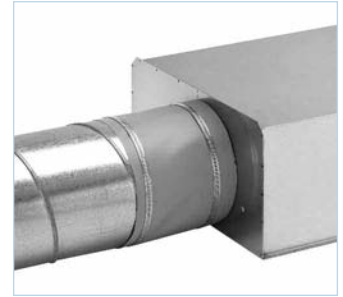
Other accessories Page

Filters, heater batteries, attenuators	305 on
Temperature control for heater batteries	311, 316
Flexible ducting, guards, duct components and roof outlets	361 on
Valves	380 on
Speed controllers and switches	397 on

Accessories

Flexible sleeve

FM 315 Ref. No. 1674
Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission to ducting and corrects small site misalignments. For intake or extract two sleeves are needed for complete isolation.



Louvre shutter

VK 315 Ref. No. 0760
Wall mounted air stream operated shutter for the outlet. Made from white polymer.



Rain repellent grille

RAG 315 Ref. No. 0752
Made from polymer, light-grey.



Guard

SGR 315 Ref. No. 5068
For intake and extract installation. Made from powder-coated steel wire.



Back draught shutter

RSK 315 Ref. No. 5674
Air stream operated, made from polymer. For in-duct installation.



Flexible circular attenuator

FSD 315 Ref. No. 0681
Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.



Spigotted circular attenuator

SRSD 315/... see page 319
Spigotted attenuator from galvanized steel with 50 mm insulation. Length 300 – 1200 mm.

Air filter box

LFBR 315 G4 Ref. No. 8581
LFBR 315 F7 Ref. No. 8535
Air filter with large surface filter area to be installed in-line with ducting.



Electric heater battery

EHR-R 6/315 6.0 kW No. 8713
– with integrated temp. controller
CV 31-60-3 6.0 kW No. S589
Room and/or duct sensor (TFK/TFR, accessories) necessary.

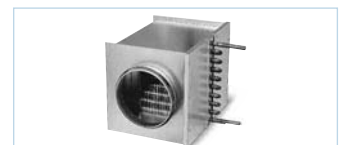


Temperature control system for electric heater battery EHR-R..

EHS Ref. No. 5002

Water heater battery

WHR 315 Ref. No. 9484
Compact unit for in-line installation.



Temperature control system for water heater battery

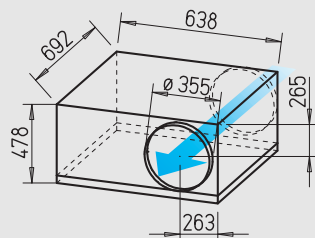
WHS 1100 Ref. No. 8815



SilentBox® SB 355 C



Virtually noise free with high air flow volumes against high resistances. Ideal for maintenance and cleaning.

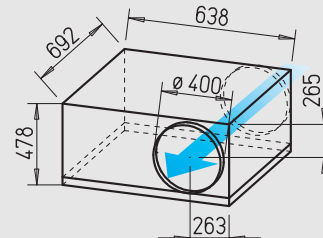


Dim. in mm

SilentBox® SB 400 F



Virtually noise free with high air flow volumes against high resistances. Ideal for maintenance and cleaning.



Dim. in mm

■ **Similarities**
SB 355 C and SB 400 F

□ **Installation**

Installation in any position without restriction – horizontally, vertically or pitched – suitable for intake or extract. Make sure that there is free accessibility to the cover. To keep sound levels inside the ventilated rooms as low as possible we recommend the fan is installed as remote as possible.

□ **Motor**

Totally enclosed external rotor motor with ball bearings, impregnated windings insulation class F, designed for continuous operation, maintenance free and radio suppressed.

□ **Electrical connection**

Terminal box (IP 55) is supplied with a 60 cm long electric cable.

□ **Speed control**

Speed controllable with transformer speed controller.

□ **Impeller**

Low noise forward curved centrifugal impeller, housed within an aero dynamically shaped scroll from galvanised steel. Bell mouth shaped inlet ring to achieve optimum air flow.

□ **Protection**

IP 44

■ **Specification SB 355 C**

□ **Casing**

Like an internal attenuator. Acoustically lined with abrasive resistant 50 mm thick mineral fibreboard. For quick release clamps permit easy access to motor scroll and impeller set. Extractable motor and impeller unit. Spigots on intake and exhaust twin-seal rubber gaskets

fit standard ducts. All parts manufactured from galvanised sheet steel.

□ **Motor protection**

With thermal contacts wired in series with the windings. To reset the thermal contacts the main supply must be switched off and on.

■ **Specification SB 400 F**

□ **Casing**

Like an internal attenuator. Acoustically lined with abrasive resistant 50 mm thick mineral fibreboard. Four quick release clamps permit easy access to motor scroll and impeller set. Extractable motor and impeller unit. Spigots on intake and exhaust twin-seal rubber gaskets fit standard ducts. All parts manufactured from galvanised sheet steel.

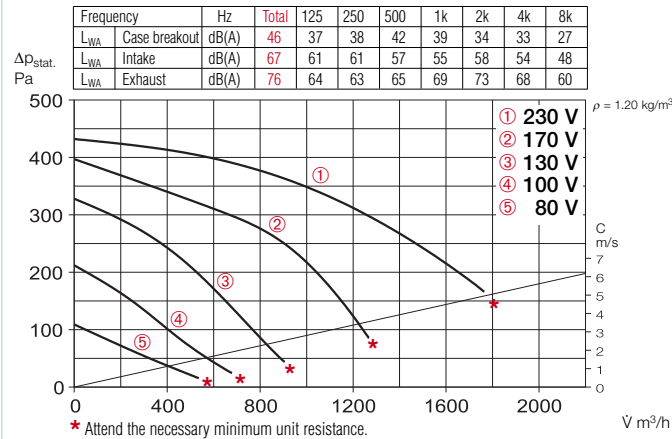
□ **Motor protection**

With thermal contacts wired to the terminal block and must be connected to a motor protection unit (see type table).

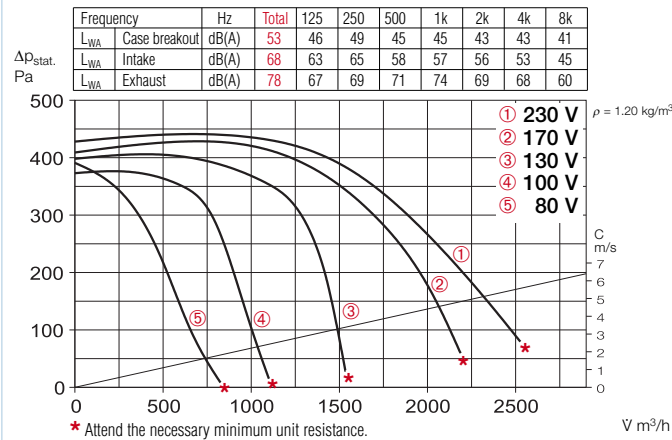
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Type	Ref. No.	Connection spigot Ø	Air flow volume (FID)	R.P.M.	Sound pressure level at 1 m		Power Watts	Current Amps	Wiring diagram	Maximum air flow temperatur	Nominal weight in	5 step transformer controller		Motor protection unit for connection with built-in thermal contacts	
					Case - breakout	Air noise on intake						Type	Ref. No.	Type	Ref. No.
		mm	l/s	min ⁻¹	dB (A)	dB (A)	W	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.
Type SilentBox® SB..., 1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, IP 44															
SB 355 C	9516	355	1780	1850	39	60	540	2.3	508	45	31.0	TSW 3.0	1496	—	—
SB 400 F	9517	400	2650	1200	46	61	1000	4.7	536.1	70	50.0	TSW 7.5	1596	MW	1579

SB 355 C



SB 400 F



Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for case breakout intake and exhaust in the tables above the performances curves. In addition the case breakout figure and air noise on intake are given as a sound pressure level at 1 m (freefield conditions) in the technical data table. Note: The sound level on intake is lower than on exhaust.

Other accessories Page

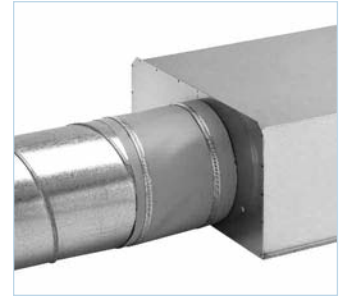
Filters, heater batteries, attenuators	305 on
Temperature control for heater batteries	311, 316
Flexible ducting, guards, duct components and roof outlets	361 on
Valves	380 on
Speed controllers and switches	397 on

Accessories

Flexible sleeve

- FM 355** Ref. No. 1675
- FM 400** Ref. No. 1676

Supplied with two hose clips as standard; for installation between fan and duct system. Prevents sound and vibration transmission to ducting and corrects small site misalignments. For intake or extract two sleeves are needed for complete isolation.



Louvre shutter

- VK 355** Ref. No. 0761
- VK 400** Ref. No. 0762

Wall mounted air steam operated shutter for the outlet. Made from white polymer.



Rain repellent grille

- RAG 355** Ref. No. 0753
- RAG 400** Ref. No. 0754

Made from polymer, light-grey.



Back draught shutter

- RSK 355** Ref. No. 5650
- RSK 400** Ref. No. 5651

Air stream operated, made from polymer. For in-duct installation.



Flexible circular attenuator

- FSD 355** Ref. No. 0682
- FSD 400** Ref. No. 0683

Spigotted aluminium attenuator with 50 mm insulation. Length 1 m.



Spigotted circular attenuator

- SRSD 400/...** see page 319
- Spigotted attenuator from galvanised steel with 50 mm insulation. Length 300 – 1200 mm.



Air filter box

- LFBR 355 G4** Ref. No. 8583
- LFBR 355 F7** Ref. No. 8536
- LFBR 400 G4** Ref. No. 8582
- LFBR 400 F7** Ref. No. 8537

Air filter with large surface filter area to be installed in-line with ducting.



Electric heater battery

- EHR-R 9/355** 9.0 kW No. 8656
 - EHR-R 9/400** 9.0 kW No. 8657
- with integrated temp. controller
- CV 35-90-3** 9.0 kW No. 5297
 - CV 40-120-3** 9.0 kW No. S591

Room and/or duct sensor (TFK/TFR, accessories) necessary.

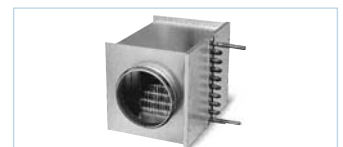


Temperature control system for electric heater battery EHR-R..

- EHSD 16** Ref. No. 5003

Water heater battery

- WHR 355** Ref. No. 8790
- WHR 400** Ref. No. 9524



Temperature control system for water heater battery

- WHS 1100** Ref. No. 8815



**AVAILABLE IN
THE UK ONLY!**

For commercial buildings with internal toilets or toilets that have no opening windows it is recommended that continuous ventilation is provided. In addition to ensure that the continuous ventilation maintained even in the event of a fan failure that a standby fan takes over automatically.

The Helios Twin duct and roof fans have been specifically designed to meet the needs of this application. All units in the range have two direct drive centrifugal fans with an individual back draught shutter and separate electrical connections to the terminal box. Each centrifugal fan will achieve the specified unit performance when running, thus ensuring 100% standby. The casings of the duct fans TFD.. & TFDA.. are manufactured in galvanised steel with an easy access cover. For noise sensitive applications the

acoustically lined units TFDA.. provide the ideal solution. The casing of the roof fans TFR.. & TFRA.. are aluminium with a spigot or louvre outlet and an easy access cover. For noise sensitive applications the acoustically lined units TFRA.. provide the ideal solution. The automatic changeover panel ACSW 2 provides immediate switching from one fan to the other in the event of one fan failing. The panel also provides over current protection and duty share. Fan failure options are current monitoring or flow sensing.

Type	Air flow volume in m ³ /s against static pressure (ΔP_{static}) in Pa								
	0	50	100	150	200	250	300	350	400
TF.. 125	0.08	0.077	0.067	0.057	0.037				
TF.. 150/160	0.16	0.132	0.083						
TF.. 200	0.269	0.26	0.245	0.19	0.035				
TF.. 250	0.38	0.375	0.37	0.36	0.335	0.275	0.15		
TF.. 315	0.48	0.47	0.46	0.438	0.40	0.33	0.22	0.08	
TF.. 355 A	¹⁾	0.419	0.41	0.395	0.37	0.32	0.20		
TF.. 355 B	¹⁾	¹⁾	0.55	0.534	0.50	0.45	0.40		
TF.. 355 C	¹⁾	0.65	0.62	0.60	0.56	0.50	0.32		
TF.. 400 A	¹⁾	¹⁾	0.73	0.696	0.65	0.60	0.52	0.40	
TF.. 400 B	¹⁾	¹⁾	0.787	0.772	0.73	0.66	0.40		
TF.. 450	¹⁾	¹⁾	0.956	0.93	0.875	0.80	0.70	0.40	
TF.. 500	¹⁾	¹⁾	1.101	1.09	1.07	1.04	1.00	0.93	0.80

¹⁾ No free air figure available as fan needs a minimum resistance.



Twin duct fans and roof fans TFD & TFDA / TFR & TFRA

**AVAILABLE IN
THE UK ONLY!**

Duct mounted fans TFD...

The duct mounted models TFD.. are designed for internal mounting in the building with easy access via the removable lid. The access can be either from above or below the unit, depending on the mounting arrangement. The acoustically lined units offer lower sound levels and case break-out levels, for noise sensitive areas.

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Roof mounted fans TFR...

The roof mounted models TFR.. offer a weather protected unit with outlet louvres and a rear mounted inlet spigot for circular ducting. The acoustically lined units offer lower sound levels and case break-out levels, for noise sensitive areas.

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To monitor and change over the fans the Helios automatic change over panels are available to match the fans. There is a choice of models including manual duty sharing with a variable change over time.

- High pressure capabilities.
- 100 % stand-by.
- Top or bottom access on duct mounted units.
- Duties up to 1.1 m³/s.
- Pressure up to 400 Pa.
- Matching range of ancillaries.
- Speed controllable with auto change over.
- Automatic change over via Helios panel (accessory).

*In-line duct fans TFD & TFDA
Robust corrosion resistant casing
in galvanised steel. Access panel
offers either top or bottom access
on duct mounted units.*



*Roof fans TFR & TFRA
Fully weatherproof units in robust,
corrosion resistant casings. Inlet
spigot in the rear or bottom inlet
(state when ordering).*

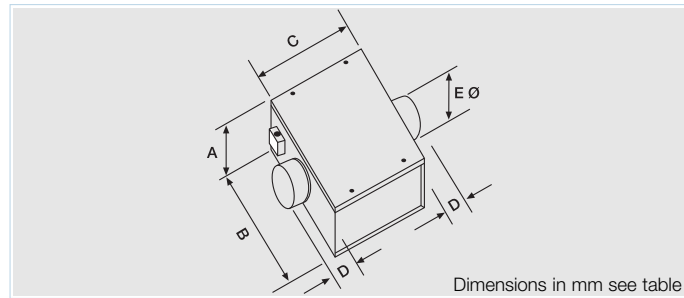
Where ventilation has to be maintained continuously, run and 100% stand-by fans are required. With two powerful centrifugal fans in a single casing the Helios units TFD

and TFR offer single inlet and outlet connections.

Both lines are speed controllable using the automatic change over panel ACSW 2

and industrial speed controller. Furthermore, factory fitted acoustic linings (TFDA and TFRA) are available as an option.

TFD(A)



Dimensions in mm						
Type	Nom. size	A	B	C	D	ø E
TFD(A)	125	238	575	400	55	125
TFD(A)	150/160	275	800	450	55	150/160
TFD(A)	200	360	800	550	55	200
TFD(A)	250/315	425	1000	650	55	250/315
TFD(A)	355/400 A	475	1050	650	55	355/400
TFD(A)	400 B/450	475	1150	650	55	400/450
TFD(A)	500	525	1250	700	55	500

■ Features

- Run and 100% stand-by.
- Robust corrosion resistant casing in galvanised steel.
- Access panel offers either top or bottom access on duct mounted units.
- Standard change over panels including duty sharing option.
- Simple wiring from a common terminal box and change over panel.
- Acoustically lined option for quiet operation and reduced breakout.
- Speed controllable using the Helios ACSW 2 change over panel and industrial speed controller.
- Suitable for vertical extract. This must be stated when ordering.
- Terminal box**
IP 55 terminal box fitted to casing providing connection to both fans.

■ Specification

- Fans**
All units are fitted with two independent forward curved centrifugal fans, powered by direct driven motors. Each fan has a non-return damper on its outlet, within a common plenum.
- Speed controls**
Stepless speed control 20% to 100% when using the Helios electronic controller.
- Change over panels**
Standard change over panels with manual and timed duty sharing and fan failure indicator light are suitable for use with electronic speed control. Options include automatic timed duty sharing, audible alarms and Building Management System (B.M.S.) interface.
- Noise levels**
Sound levels in dB(A). Spectrum and totals shown opposite.

■ In-line duct fans TFD & TFDA

- Casings**
Standard units of galvanised sheet steel with access panel and spigot connections. Fixing holes provided in the casing.
- Access**
Standard access is from above. The unit can easily be converted on site to bottom access.
- Acoustic lining**
Factory fitted acoustic lining is available as an option. Lining is fire retardant, class "O", 25 mm material.
- Spigots**
Twin fans are fitted with circular inlet and outlet spigots as standard. Other options are available on request.

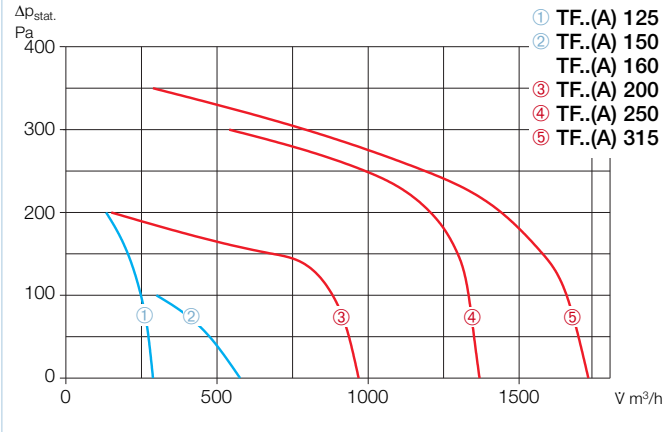
■ Information ducting system

All Helios components fit standard nominal duct diameters. The ducting used may be rigid or flexible and made from aluminium, galvanised steel or plastic.

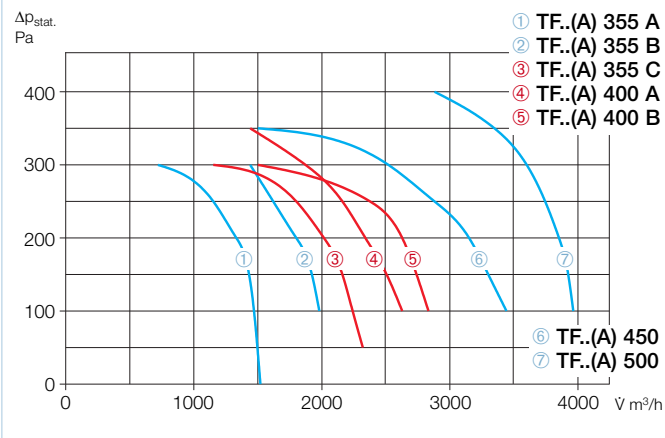
Type	Ref. No.	Type	Ref. No.	R.P.M.	Air flow volume (FID)	Motor power	Voltage	Current		Max. air flow temp.	Nominal weight (net)	Auto change over panel with duty sharing		Electronic speed controller	
								F.L.C.	S.T.C.			Type	Ref. No.	Type	Ref. No.
				min ⁻¹	m ³ /h	kW	Volt	Amps.	Amps.	+°C	kg	Type	Ref. No.	Type	Ref. No.
In-line duct fans TFD & TFDA															
TFD 125	7690	TFD(A) 125	7712	2800	288	0.015	230	0.75	2.63	40	20	ACSW 2	7750	ESA 3 I	7806
TFD 150	7681	TFD(A) 150	7732	1400	576	0.022	230	0.64	2.24	40	20	ACSW 2	7750	ESA 3 I	7806
TFD 160	7691	TFD(A) 160	7713	1400	576	0.022	230	0.64	2.24	40	20	ACSW 2	7750	ESA 3 I	7806
TFD 200	7692	TFD(A) 200	7715	1400	936	0.073	230	1.82	6.37	40	22	ACSW 2	7750	ESA 3 I	7806
TFD 250	7694	TFD(A) 250	7716	1400	1368	0.150	230	1.50	5.25	40	40	ACSW 2	7750	ESA 3 I	7806
TFD 315	7696	TFD(A) 315	7718	1400	1728	0.150	230	2.00	7.00	40	46	ACSW 2	7750	ESA 3 I	7806
TFD 355 A	7697	TFD(A) 355 A	7719	1200	¹⁾	0.373	230	2.00	7.00	40	70	ACSW 2	7750	ESA 3 I	7806
TFD 355 B	7698	TFD(A) 355 B	7720	1300	¹⁾	0.373	230	2.85	9.98	40	70	ACSW 2	7750	ESA 3 I	7806
TFD 355 C	7699	TFD(A) 355 C	7721	1400	¹⁾	0.373	230	3.85	13.48	40	70	ACSW 2	7750	ESA 6 I	7807
TFD 400 A	7700	TFD(A) 400 A	7722	1310	¹⁾	0.550	230	3.00	10.50	40	72	ACSW 2	7750	ESA 3 I	7806
TFD 400 B	7701	TFD(A) 400 B	7723	1400	¹⁾	0.550	230	3.80	13.30	40	72	ACSW 2	7750	ESA 6 I	7807
TFD 450	7703	TFD(A) 450	7725	1400	¹⁾	0.550	230	4.90	17.15	40	78	ACSW 2	7750	ESA 6 I	7807
TFD 500	7709	TFD(A) 500	7731	1400	¹⁾	0.550	230	6.80	23.80	40	85	ACSW 2	7750	ESA 10 I	7808

¹⁾ No free air figure available as fan requires minimum resistance, see performance table.

TF..(A) 125 – 315



TF..(A) 355 A – 500



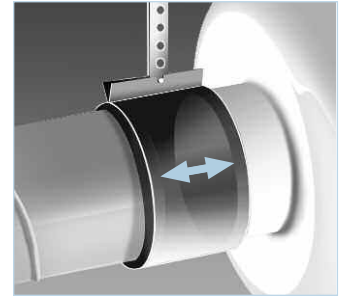
Model	Sound level on intake dB(A) 4 m	Inlet-induct sound power level spectrum							
		63	125	250	500	1K	2K	4K	8K
TFD 125	42	44	52	56	54	56	48	46	38
TFD 150/160	38	43	48	49	53	53	45	42	32
TFD 200	45	49	55	53	55	61	55	52	43
TFD 250	53	51	59	60	64	67	67	65	54
TFD 315	54	51	59	62	64	70	67	64	57
TFD 355 A	61	34	58	71	74	77	75	70	61
TFD 355 B	62	41	59	72	75	78	76	71	62
TFD 355 C	65	44	62	75	78	81	79	74	65
TFD 400 A	59	38	56	69	72	75	73	68	59
TFD 400 B	60	39	57	70	73	76	74	69	60
TFD 450	66	45	63	76	79	82	80	75	66
TFD 500	67	46	64	77	80	83	81	76	77
TFDA 125	36	44	52	53	44	39	36	33	25
TFDA 150/160	35	43	53	46	43	36	66	29	19
TFDA 200	38	49	55	50	45	43	43	39	30
TFDA 250	44	51	59	57	54	50	55	52	41
TFDA 315	44	51	59	59	54	53	55	51	44
TFDA 355 A	51	34	58	68	64	60	62	57	48
TFDA 355 B	52	41	59	69	65	61	63	58	49
TFDA 355 C	55	44	62	72	68	64	66	61	52
TFDA 400 A	49	38	56	66	62	58	60	55	46
TFDA 400 B	50	39	57	67	63	59	61	56	47
TFDA 450	56	45	63	73	69	65	67	62	53
TFDA 500	57	46	64	74	70	66	68	63	64

Accessories

Pipe clamp connectors

- BM 125 Ref. No. 5076
- BM 150 Ref. No. 6164
- BM 160 Ref. No. 5077
- BM 200 Ref. No. 5078
- BM 250 Ref. No. 5079
- BM 315 Ref. No. 5080

A quick-fix method for connecting fans to ducting, reducing vibration transmission. When installing leave a small gap between fan spigot and ducting. Supplied in pairs.



Spigotted attenuators

- SRSD 125/600 Ref. No. 8906
- SRSD 150/600 Ref. No. 8910
- SRSD 160/600 Ref. No. 8914
- SRSD 200/600 Ref. No. 8918
- SRSD 250/600 Ref. No. 8922
- SRSD 315/600 Ref. No. 8926
- SRSD 355/600 Ref. No. 8928
- SRSD 400/600 Ref. No. 8930

Spigotted attenuator with 50 mm insulation. Fits nominal size ducting or to be fixed with pipe clamp connectors. Various sizes see page 319.



Automatic changeover panel

- ACSW 2 Ref. No. 7750

For automatic change over of twin fans using current sensing or via a flow switch. Duty sharing (8 selections from 3 to 24 hours), manual selection, variable overloads, visual and audible alarm and alarm output for BMS.

Protection IP 40
Current Max. 8 Amps
Dim. mm W 180 x H 120 x D 60



Electronic speed controller

- ESA.. IND for surface mounting

Voltage 220/240 V, 1 ph.
Frequency 50/60 Hz
Protection IP 65
Wiring Diagram No. SS-710

- ESA 3 IND Ref. No. 7806

Current Max. 3 Amps
Dim. mm W 111 x H 99 x D 54

- ESA 6 IND Ref. No. 7807

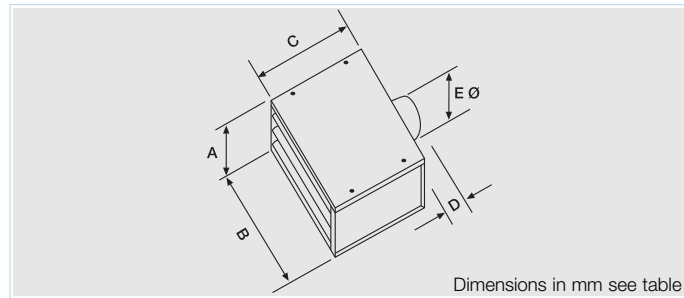
Current Max. 6 Amps
Dim. mm W 145 x H 97 x D 64

- ESA 10 IND Ref. No. 7808

Current Max. 10 Amps
Dim. mm W 104 x H 146 x D 83



TFR(A)



Dimensions in mm						
Type	Nom. size	A	B	C	D	ø E
TFR(A)	125-200	375	750	450	55	125/160/200
TFR(A)	250-315	425	950	550	55	250/315
TFR(A)	355 A/B/C	475	1050	600	55	355
TFR(A)	400 A-450	475	1050	600	55	400/450
TFR(A)	500	525	1200	850	55	500

■ Features

- Run and 100% stand-by.
- Robust corrosion resistant casing.
- Inlet spigot in the rear or bottom inlet (state when ordering) of the casing.
- Roof mounted units are fully weatherproof.
- Standard change over panels include duty sharing and over current setting.
- Simple wiring from a common terminal box and change over panel.
- Acoustically lined option for quiet operation and reduced breakout.
- Speed controllable using the Helios ACSW 2 change over panel and industrial speed controller.
- Terminal box**
IP 55 terminal box fitted internally on the fan plate providing connection to both fans.

■ Specification

- Fans**
All units are fitted with two independent forward curved centrifugal fans, powered by direct driven motors. Each fan has a non-return damper on its outlet, within a common plenum.
- Speed controls**
Stepless speed control 20% to 100% when using the Helios electronic controller.
- Change over panels**
Standard change over panels with manual and timed duty sharing and fan failure indicator light are suitable for use with electronic speed control. Options include automatic timed duty sharing, audible alarms and Building Management System (B.M.S.) interface.
- Noise levels**
Sound levels in dB(A). Spectrum and totals shown opposite.

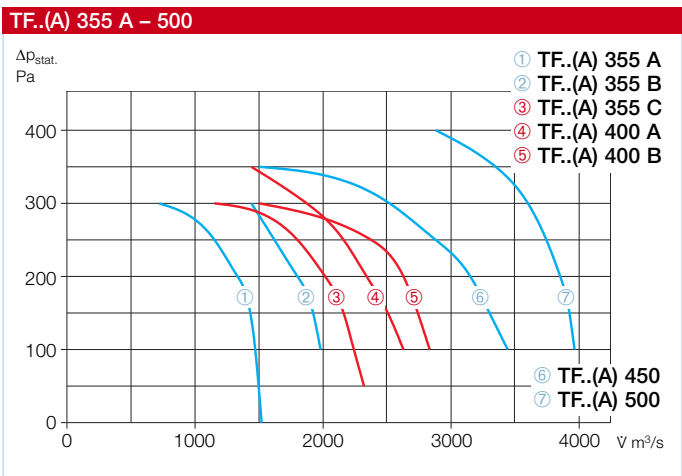
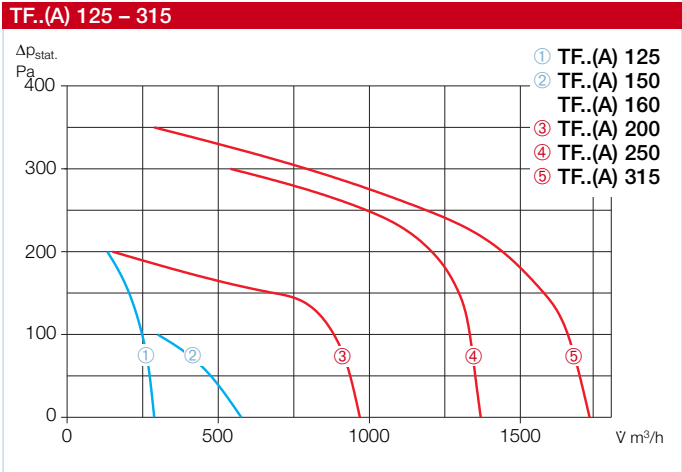
■ Roof fans TFR & TFRA

- Casings**
Standard units of sheet aluminium with top access panel, spigot inlet connection and louvered outlet.
- Access**
Standard access is from above.
- Acoustic lining**
Factory fitted acoustic lining is available as an option. Lining is fire retardent, class "O", 25 mm material.
- Spigots**
Twin roof fans are fitted with circular inlet on the rear of the casing and a louvered grille on the outlet. Alternative bottom inlet and other spigots are available on request.

■ Information ducting system
All Helios components fit standard nominal duct diameters. The ducting used may be rigid or flexible and made from aluminium, galvanised steel or plastic.

Type	Ref. No.	Type	Ref. No.	R.P.M.	Air flow volume (FID)	Motor power	Voltage	Current		Max. air flow temp.	Nominal weight (net)	Auto change over panel with duty sharing		Electronic speed controller	
								F.L.C.	S.T.C.			Type	Ref. No.	Type	Ref. No.
				min ⁻¹	m ³ /h	kW	Volt	Amps.	Amps.	+°C	kg	Type	Ref. No.	Type	Ref. No.
Roof fans TFR & TFR(A)															
TFR 125	7757	TFR(A) 125	7769	2800	288	0.015	230	0.75	2.63	40	21	ACSW 2	7750	ESA 3 I	7806
TFR 150	7733	TFR(A) 150	7805	1400	576	0.022	230	0.64	2.24	40	21	ACSW 2	7750	ESA 3 I	7806
TFR 160	7758	TFR(A) 160	7770	1400	576	0.022	230	0.64	2.24	40	21	ACSW 2	7750	ESA 3 I	7806
TFR 200	7759	TFR(A) 200	7771	1400	936	0.073	230	1.82	6.87	40	23	ACSW 2	7750	ESA 3 I	7806
TFR 250	7760	TFR(A) 250	7772	1400	1368	0.150	230	1.50	5.25	40	41	ACSW 2	7750	ESA 3 I	7806
TFR 315	7761	TFR(A) 315	7773	1400	1728	0.150	230	2.00	7.00	40	47	ACSW 2	7750	ESA 3 I	7806
TFR 355 A	7762	TFR(A) 355 A	7774	1200	¹⁾	0.373	230	2.00	7.00	40	71	ACSW 2	7750	ESA 3 I	7806
TFR 355 B	7763	TFR(A) 355 B	7775	1300	¹⁾	0.373	230	2.85	9.98	40	71	ACSW 2	7750	ESA 3 I	7806
TFR 355 C	7764	TFR(A) 355 C	7776	1400	¹⁾	0.373	230	3.85	13.48	40	71	ACSW 2	7750	ESA 6 I	7807
TFR 400 A	7765	TFR(A) 400 A	7777	1310	¹⁾	0.550	230	3.00	10.80	40	73	ACSW 2	7750	ESA 3 I	7806
TFR 400 B	7766	TFR(A) 400 B	7778	1400	¹⁾	0.550	230	3.80	13.80	40	73	ACSW 2	7750	ESA 6 I	7807
TFR 450	7767	TFR(A) 450	7779	1400	¹⁾	0.550	230	4.90	17.15	40	77	ACSW 2	7750	ESA 6 I	7807
TFR 500	7768	TFR(A) 500	7780	1400	¹⁾	0.550	230	6.80	23.80	40	86	ACSW 2	7750	ESA 10 I	7808

¹⁾ No free air figure available as fan requires minimum resistance, see performance table.



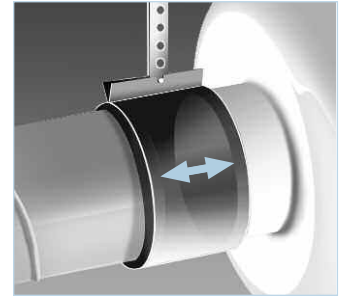
Model	Sound level on intake dB(A) 4 m	Roof mounted sound pressure level spectrum							
		63	125	250	500	1K	2K	4K	8K
TFR 125	40	41	49	53	54	56	48	46	38
TFR 150/160	37	40	45	46	53	53	45	42	32
TFR 200	44	46	52	50	55	61	55	52	43
TFR 250	52	48	56	57	64	67	67	65	54
TFR 315	53	48	56	59	64	70	67	64	57
TFR 355 A	61	31	56	68	74	77	75	70	61
TFR 355 B	62	38	56	69	75	78	76	71	62
TFR 355 C	65	41	59	72	78	81	79	74	65
TFR 400 A	59	35	53	66	72	75	73	68	59
TFR 400 B	60	36	54	67	73	76	74	69	60
TFR 450	66	42	60	73	79	82	80	75	66
TFR 500	67	43	61	74	80	83	81	76	77

Accessories

Pipe clamp connectors

- BM 125 Ref. No. 5076
- BM 150 Ref. No. 6164
- BM 160 Ref. No. 5077
- BM 200 Ref. No. 5078
- BM 250 Ref. No. 5079
- BM 315 Ref. No. 5080

A quick-fix method for connecting fans to ducting, reducing vibration transmission. When installing leave a small gap between fan spigot and ducting. Supplied in pairs.



Spigotted attenuators

- SRSD 125/600 Ref. No. 8906
- SRSD 150/600 Ref. No. 8910
- SRSD 160/600 Ref. No. 8914
- SRSD 200/600 Ref. No. 8918
- SRSD 250/600 Ref. No. 8922
- SRSD 315/600 Ref. No. 8926
- SRSD 355/600 Ref. No. 8928
- SRSD 400/600 Ref. No. 8930

Spigotted attenuator with 50 mm insulation. Fits nominal size ducting or to be fixed with pipe clamp connectors. Various sizes see page 319.



Automatic changeover panel

- ACSW 2 Ref. No. 7750
- For automatic change over of twin fans using current sensing or via a flow switch. Duty sharing (8 selections from 3 to 24 hours), manual selection, variable overloads, visual and audible alarm and alarm output for BMS.
- Protection IP 40
Current Max. 8 Amps
Dim. mm W 180 x H 120 x D 60



Electronic speed controller

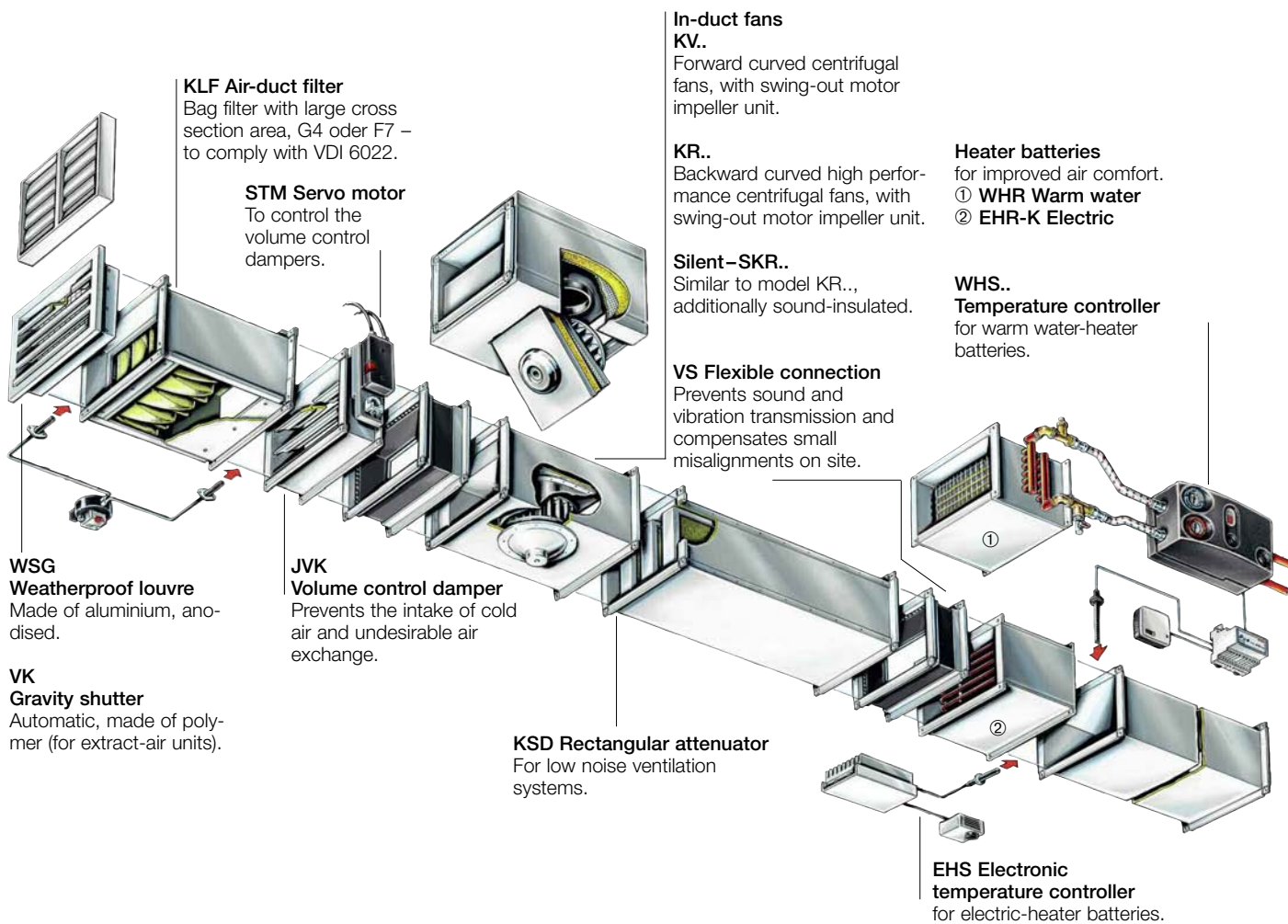
- ESA...IND for surface mounting
- Voltage 220/240 V, 1 ph.
- Frequency 50/60 Hz
- Protection IP 65
- Wiring Diagram No. SS-710
- ESA 3 IND Ref. No. 7806
Current Max. 3 Amps
Dim. mm W 111 x H 99 x D 54
- ESA 6 IND Ref. No. 7807
Current Max. 6 Amps
Dim. mm W 145 x H 97 x D 64
- ESA 10 IND Ref. No. 7808
Current Max. 10 Amps
Dim. mm W 104 x H 146 x D 83



Duct fans

Concrete Advantages:

- The components are available in every size and every performance level.
- All the components are compatible with each other and fit exactly together.
- Short installation time, simple design und rational procurement.



Perfectly convenient system solutions from the leading supplier.

Three models:

All with swing-out motor impeller unit.
Simplifies maintenance and cleaning.
Complies with the hygiene requirements of VDI 6022.

Model KV..
With forward curved centrifugal impeller.
 $\dot{V} = 1\ 000 - 8\ 000\ \text{m}^3/\text{h}$

Advanced models of market leading centrifugal impeller version with additional types. With the fold-out motor impeller unit for easy cleaning and maintenance.

Model KR..
With backward curved centrifugal impeller.
 $\dot{V} = 500 - 12\ 000\ \text{m}^3/\text{h}$

Expanded product range of the proven swing-out version. High performance centrifugal impellers with high efficiency. Uncritical in extraction of polluted air. For universal use in commercial and industrial applications.

Model SKR..
Sound insulated for noise-critical applications.
 $\dot{V} = 4\ 000 - 12\ 000\ \text{m}^3/\text{h}$

Silent rectangular fans for applications with specific noise level requirements. Extensive product range. Extremely low noise levels with 50 mm thick case insulation by rock wool. Abrasion resistant lining.



from page 274



from page 290



from page 296



■ Specifications

InlineVent® rectangular fans combine the advantages of axial fans such as the straight in-line air flow design, and provide a simple and cost effective installation with the high pressure characteristic of centrifugal fans. There are many advantages of this range:

- Very compact design.
 - Full speed controllability.
 - Quick installation.
 - Cost effective mounting.
 - Low noise level.
 - High pressure capacity.
- All the KV-, KR- and SKR-in-line fans are compatible with the components of "Helios Ventilation Construction Set".

For complete information see the "general technical information" and descriptions on the product pages.

□ Installation and drainage holes

All models can be installed in any position. The swing-out areas need to be cleared and accessed easily for service and maintenance. If condensation occurs (e.g. intermittent operation, high humidity or varying temperatures) the fan must be installed in a way that the condensation can drain off unhindered. Additional holes may have to be drilled into the casing at the appropriate positions. Alternatively, the duct system may have to be insulated to avoid condensation.

□ Noise/vibration transmission

To be prevented from ducting and building. Therefore, the fan should be secured with sound insulation and connected flexibly to the ducting. For this, see VS.. accessories.

□ Explosion proof models

With regards to operating conditions and norms please refer to chapter "Design of ventilation systems – explosion proof". The ex-protected types correspond to unit group II, category 2G for operation in zone 1 and 2. The motors of the KVD.. Ex range are equipped with positive temperature coefficient (PTC) thermistors (to monitor the temperature of windings) as standard. They are prewired to the terminal board and must be connected to the motor protection tripping unit MSA. This makes the KVD.. Ex fans suitable for speed control that can be carried out via TSD or TSSD transformer controllers. The minimum voltage should not drop below 100 V.

□ Motor - Impeller

All models incorporate a motor with external rotor motor protected to IP 44 within the air

flow. They conform to DIN EN 60034/VDE 0530 and DIN EN 60335-1/VDE 0700-1 with an insulation class F, plus moisture protection. They are maintenance free, radio suppressed, speed controllable and suitable for continuous operation.

The ball bearings are greased for life. The centrifugal impellers are pressed onto the rotating part of the motor body and dynamically balanced to DIN ISO 1940 T.1 – class 6.3 as one unit.

□ Speed control

All InlineVent® rectangular fans are speed controllable via voltage reduction of 0 – 100%. Thereby the operating level can be adapted to the required air flow volume. Our speed controllers are suitable to control various fans (one or more) up to their maximum nominal output. When selecting a controller not shown on the chart, allow for a 10% safety margin. It is possible to control 3 ph.-fans through frequency inverter by on-site installation of sinus filters between inverter and motor.

□ Air flow direction

The air flow direction of centrifugal fans is fixed and cannot be reversed; but it can be specified in all units through the installation method. The rotational direction and the direction of air flow are marked with arrows on the units and must be checked when installing.

□ Wrong direction of rotation

If the fan is operated in the wrong direction of rotation the motor will be overloaded and the thermal contacts will trip. Typical indication of this is a virtually low fan efficiency combined with high noise levels and vibration.

□ Air flow temperature

All models are applicable in the range of –40 °C up to at least +60 °C, Model KV.. Ex from –20 °C up to +40 °C. The upper temperature threshold value varies between the models and can be found at the related charts on the individual product page.

Note	Page
Design of systems, acoustic, explosion protection	12 on
General technical information, speed control	17 on

The unit ranges and their specifications

■ Model KV..

Centrifugal rectangular fans with forward curved impeller paddles and swing-out motor impeller unit. Low-noise centrifugal impellers in volute casing for high pressure levels.

23 types in 8 different sizes. $V = 1\ 000 - 8\ 000\ \text{m}^3/\text{h}$. Compact and flat design for versatile usage in exhaust and fresh air systems in commercial and industrial applications.



■ Model KR..

Rectangular fans with backward curved impeller paddles. High performance centrifugal impellers with high efficiency. Swing-out motor impeller unit.

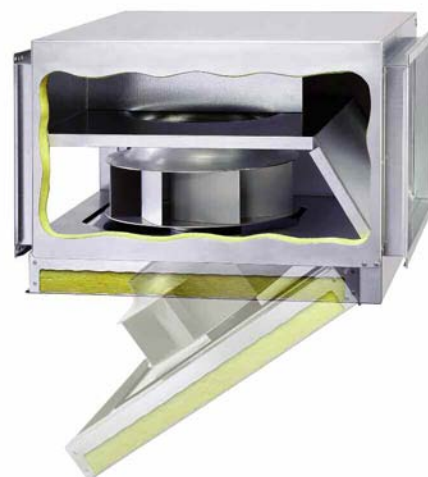
11 types in 7 different sizes. $V = 500 - 12\ 000\ \text{m}^3/\text{h}$. For conveying higher volume flow rates in extract and fresh air systems. Uncritical in extraction of polluted air.



■ Model SKR..

High performance centrifugal impellers (backward curved) in sound insulated casing with good damping characteristics for noise-critical applications. Performance figures similar to KR.. $V = 4\ 000 - 12\ 000\ \text{m}^3/\text{h}$. For lower air volume flow rates, see Helios SilentBoxes®.

For further reduction of intake and exhaust air noise levels, rectangular attenuators (KSD, accessory) are recommended. Exhaust and fresh air fans for applications with specific noise level requirements.



Model KV..



Rectangular centrifugal fan with forward curved impeller blades and swing-out motor impeller unit.

- Low-noise centrifugal impellers in aerodynamic galvanised steel casing for high pressure levels.
- Compact and flat design for use in extract and fresh air systems in commercial and industrial applications.

■ Specification

□ Casing

Made of galvanised steel and flanged on both ends. Space saving, compact design.

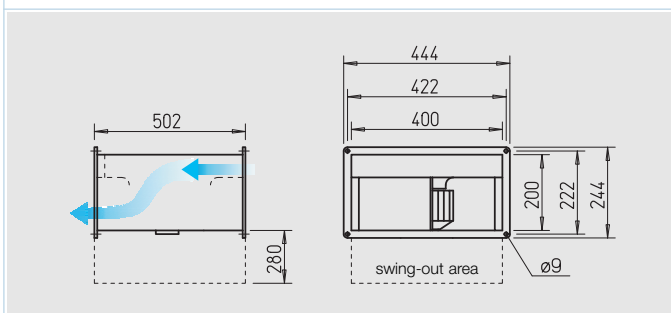
- Easy to clean and service thanks to the swing-out motor impeller unit.

□ Impeller

Forward curved centrifugal impeller made of galvanised steel, highly efficient with low noise levels. Aerodynamically optimised casing; intake air flow by means of an inlet nozzle.

□ Motor

Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings with protection against moisture. Ball bearing mounted and radio suppressed. Dynamically balanced with resilient motor mounting bracket for low vibration and low noise operation.



□ Electrical connection

Terminal box (IP 55 for 3 ph.- or IP 44 for 1 ph.-types) is mounted with a permanently attached cable.

□ Motor protection

Model KVV.. through thermal contacts which are connected in series with winding and automatically resets. Model KVD.. through built-in thermal contacts which must be connected to a motor full protection device.

□ Speed control

By voltage reduction using a 5 speed transformer controller (recommended) or an electronic controller (stepless). The performance figures at corresponding voltages are given in the performance curve.

□ Sound Levels

Above the performance curve, total values and spectrum are given for:

- Sound power case breakout
 - Sound power intake
 - Sound power exhaust
- The sound power level (on intake) is additionally shown within the performance curve for corresponding control voltages. In the table below you can also find:
- Case breakout sound level at 4 m (free field conditions).

□ Installation

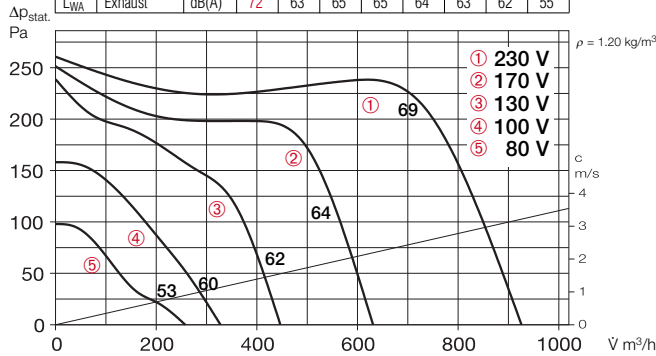
Possible in any position. Attention should be paid to accessibility of swing out motor/impeller assembly.

Note	Page
Selection chart	272
Technical description	273
Design guidelines	12 on
Modul. system components	270

Type	Ref. No.	Air flow volume V m³/h	Nominal R.P.M. min⁻¹	Sound pressure case breakout dB(A) in 4 m	Power consumption		Connection by wiring diagram No.	Max. air flow temperature by Nom. vol. Control		Nominal weight (net) kg	Speed controller 5-step				
					kW	A		+°C	+°C		motor full protection Type	Ref. No.	motor full protection Type	Ref. No.	Motor full protection device to connect built-in thermal contacts Type
1-phase motor, 230 V, 50 Hz, capacitor motor, protection to IP 44															
KVV 200/4/40/20	5675	925	810	37	0.21	0.95	508	60	50	11	TSW 1.5	1495	—	—	—
3-phase motor, 230/400 V, 50 Hz, protected to IP 44															
KVD 200/4/40/20	5676	1500	1180	42	0.37	1.1/0.65	860	65	60	13	TSD 0.8	1500	RDS 1	1314	MD 5849

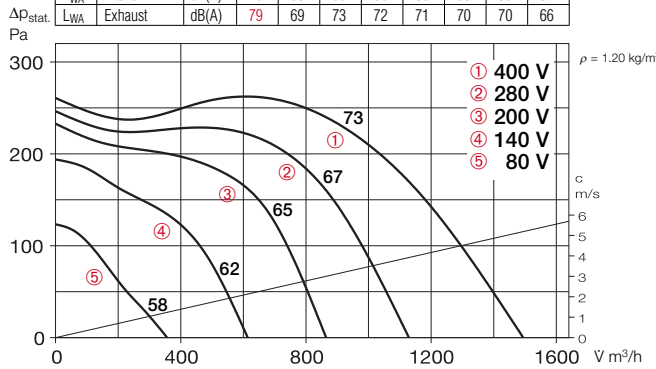
KVV 200/4/40/20

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 57	46	52	50	52	45	40	32
L _{WA} Intake		dB(A) 69	64	64	61	55	56	54	47
L _{WA} Exhaust		dB(A) 72	63	65	65	64	63	62	55



KVD 200/4/40/20

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 62	52	54	56	56	51	46	39
L _{WA} Intake		dB(A) 73	68	69	66	60	60	59	54
L _{WA} Exhaust		dB(A) 79	69	73	72	71	70	70	66



Accessory details	Page
Shutters, grilles and louvres	304, 361 on
Filters, heaters and attenuators	305 on
Temperature control systems for heaters	311, 316
Speed controllers and motor full protection devices	397 on

Accessories

Gravity shutter

VK 40/20 Ref. No. 0874
External airflow operated gravity shutter made of polymer, light grey.



External louvres

WSG 40/20 Ref. No. 0109
Robust construction made of aluminium extrusion profile, natural colour anodised.



Volume control damper for ducting

JVK 40/20 Ref. No. 6910
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.



Circular spigot

FSK 40/20 Ref. No. 0832
For cost effective adaption of rectangular fans into circular ducting systems with ø 200 mm.



Flexible connectors

VS 40/20 Ref. No. 5694
Flexible in-duct connector with flanges on both sides.



Matching flange

GF 40/20 Ref. No. 6919
Flange frames made of galvanised steel for connection to ducting.



Rectangular attenuator

KSD 40/20 Ref. No. 8728
For in-duct installation on intake or exhaust side.



Air-duct filter

KLF 40/20 G4 Ref. No. 8720
KLF 40/20 F7 Ref. No. 8644
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.



Electric heater battery

EHR-K 6/40/20 Ref. No. 8702
EHR-K 15/40/20 Ref. No. 8703
Heating elements enclosed in a galvanised steel casing with connecting flanges on both sides.



Temperature control system for electric heater battery

EHSD 16 Ref. No. 5003



Warm water heater battery

WHR 2/40/20 Ref. No. 8782
WHR 4/40/20 Ref. No. 8783
For in-duct installation.



Temperature control system for warm water heater battery

WHS 1100 Ref. No. 8815



Model KV..



Rectangular centrifugal fan with forward curved impeller blades and swing-out motor impeller unit.

- Low-noise centrifugal impellers in aerodynamic galvanised steel casing for high pressure levels.
- Compact and flat design for use in extract and fresh air systems in commercial and industrial applications.

■ Specification

□ Casing

Made of galvanised steel and flanged on both ends. Space saving, compact design.

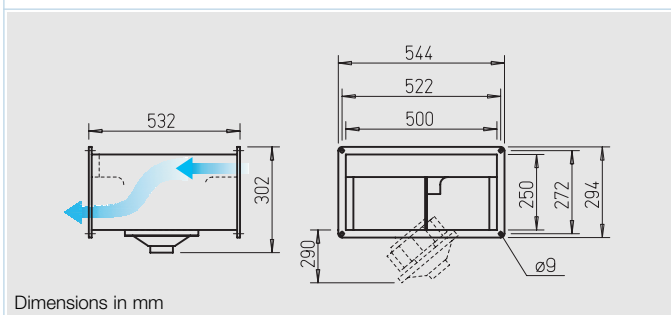
- Easy to clean and service thanks to the swing-out motor impeller unit.

□ Impeller

Forward curved centrifugal impeller made of galvanised steel, highly efficient with low noise levels. Aerodynamically optimised casing; intake air flow by means of an inlet nozzle.

□ Motor

Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings with protection against moisture. Ball bearing mounted and radio suppressed. Dynamically balanced with resilient motor mounting bracket for low vibration and low noise operation.



□ Electrical connection

Terminal box (IP 55 for 3 ph., IP 44 for 1 ph., IP 65 for explosionproof types) is mounted with permanently attached cable.

□ Motor protection

Through built-in thermal contacts which must be connected to a motor full protection device.

□ Speed control

By voltage reduction using a 5 speed transformer controller (recommended) or an electronic controller (stepless). The performance figures at corresponding voltages are given in the performance curve.

□ Sound levels

Above the performance curve, total values and spectrum are given for:

- Sound power case breakout
 - Sound power intake
 - Sound power exhaust
- The sound power level (on intake) is additionally shown within the performance curve for corresponding control voltages. In the table below you can also find:
- Case breakout sound level at 4 m (free field conditions).

□ Installation

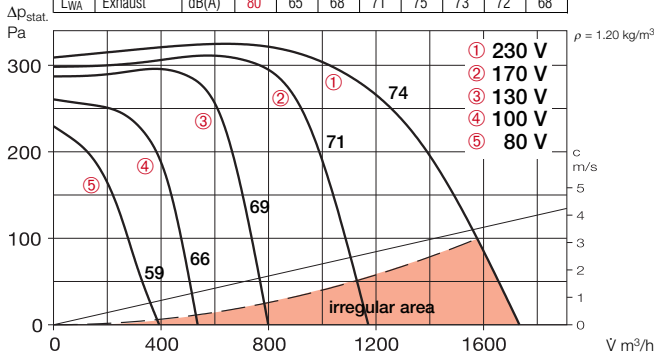
Possible in any position. Attention should be paid to accessibility of swingout motor/impeller assembly

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Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption	Connection by wiring diagram	Max. air flow temperature by	Nominal weight (net)	Speed controller 5-step without motor full protection	Motor full protection device to connect built-in thermal contacts			
		V m ³ /h	min ⁻¹	dB(A) in 4 m	kW	A	Nom. vol. °C	Control °C	kg	Type Ref. No.	Type Ref. No.	Type Ref. No.	
Alternating current, 230 V, 50 Hz, capacitor motor, protection to IP 44													
KVW 225/4/50/25	5677	1590	1110	43	0.52	2.4	536.1	70	70	17	TSW 3.0 1496	MWS 3.0 1948	MW 1579
3-phase motor, 230/400 V, 50 Hz, protected to IP 44													
KVD 225/4/50/25	5679	1950	1270	43	0.54	1.6/0.93	860	65	60	17	TSD 1.5 1501	RDS 2 1315	MD 5849
Explosionproof Ex e II, temperature class T1 – T3, 3-phase alternating current 400 V, 50 Hz, protection to IP 44													
KVD 225/4/50/25 Ex	6810	1900	1280	43	0.53	0.92	899	40	40	17	TSD 1.5 1501	—	MSA 1289

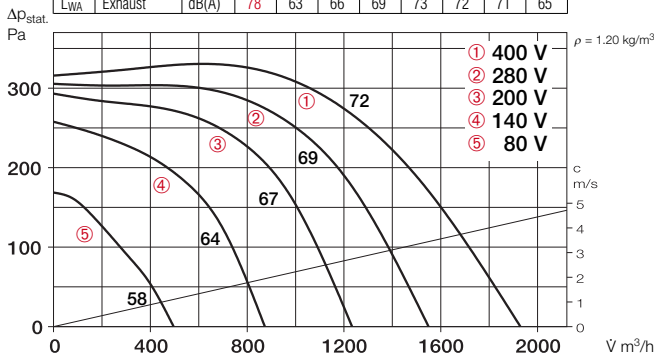
KVV 225/4/50/25

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 63	48	57	55	57	54	51	48
L _{WA} Intake		dB(A) 74	68	67	61	63	66	64	59
L _{WA} Exhaust		dB(A) 80	65	68	71	75	73	72	68



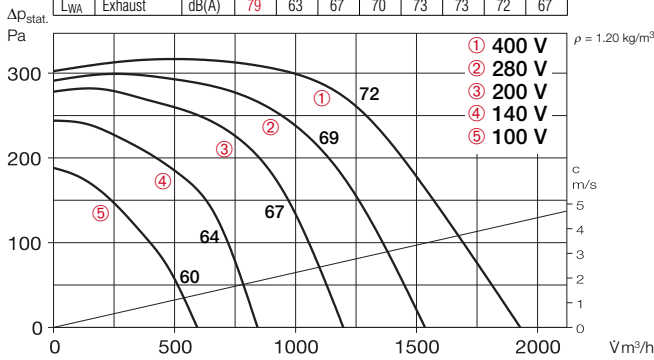
KVD 225/4/50/25

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 63	47	56	56	57	55	51	44
L _{WA} Intake		dB(A) 72	64	66	62	63	65	64	58
L _{WA} Exhaust		dB(A) 78	63	66	69	73	72	71	65



KVD 225/4/50/25 Ex

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 63	43	56	57	58	54	49	43
L _{WA} Intake		dB(A) 73	65	66	62	63	65	65	60
L _{WA} Exhaust		dB(A) 79	63	67	70	73	73	72	67



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Temperature control systems for heaters	311, 316
Speed controllers and motor full protection devices	397 on

Accessories

Gravity shutter

VK 50/25 Ref. No. 0875
External airflow operated gravity shutter made of polymer, light grey.

External louvres

WSG 50/25 Ref. No. 0110
Robust construction made of aluminium extrusion profile, natural colour anodised.

Vol. control damper for ducting

JVK 50/25 Ref. No. 6911
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.

Circular spigot

FSK 50/25 Ref. No. 0833
For cost effective adaption of rectangular fans into circular ducting systems with ø 250 mm.

Flexible connectors

VS 50/25 Ref. No. 5695
Flexible in-duct connector with flanges on both sides.

- for Ex-proof fans

VS 50/25 Ex Ref. No. 0265

Mating flange

GF 50/25 Ref. No. 6920
Flange frames made of galvanised steel for connection to ducting.

Rectangular attenuator

KSD 50/25-30 Ref. No. 8729
For in-duct installation on intake or exhaust side.

Air-duct filter

KLF 50/25-30 G4 Ref. No. 8721
KLF 50/25-30 F7 Ref. No. 8645
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.

Electric heater battery

EHR-K 8/50/25-30 Ref. No. 8704
EHR-K 24/50/25-30 Ref. No. 8705
Heating elements enclosed in a galvanised steel casing with connecting flanges on both sides.

Temperature control system for electric heater battery

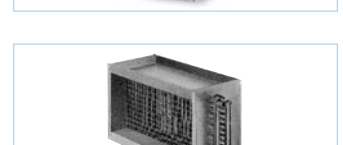
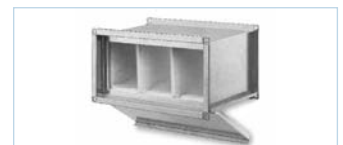
EHSD 16 Ref. No. 5003

Warm water heater battery

WHR 2/50/25-30 Ref. No. 8784
WHR 4/50/25-30 Ref. No. 8785
For in-duct installation.

Temperature control system for warm water heater battery

WHS 1100 Ref. No. 8815
WHS 2200 Ref. No. 8816



Model KV..

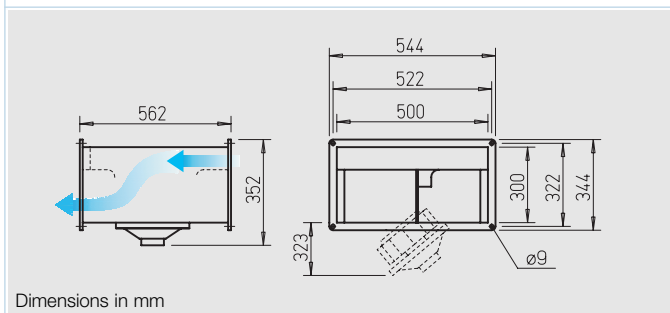


Rectangular centrifugal fan with forward curved impeller blades and swing-out motor impeller unit.

- Low-noise centrifugal impellers in aerodynamic galvanised steel casing for high pressure levels.
- Compact and flat design for use in extract and fresh air systems in commercial and industrial applications.

■ Specification

- Casing
Made of galvanised steel and flanged on both ends. Space saving, compact design.
- Easy to clean and service thanks to the swing-out motor impeller unit.
- Impeller
Forward curved centrifugal impeller made of galvanised steel, highly efficient with low noise levels. Aerodynamically optimised casing; intake air flow by means of an inlet nozzle.
- Motor
Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44.



- Windings with protection against moisture. Ball bearing mounted and radio suppressed. Dynamically balanced with resilient motor mounting bracket for low vibration and low noise operation.
- Electrical connection
Terminal box (IP 55 for 3 ph., IP 44 for 1 ph., IP 65 for explosionproof types) is mounted with permanently attached cable.
- Motor protection
Through built-in thermal contacts which must be connected to a motor full protection device.
- Speed control
By voltage reduction using a 5 speed transformer controller (recommended) or an electronic controller (stepless). The performance figures at corresponding

- voltages are given in the performance curve.
- Sound Levels
Above the performance curve, total values and spectrum are given for:
 - Sound power case breakout
 - Sound power intake
 - Sound power exhaust
 The sound power level (on intake) is additionally shown within the performance curve for corresponding control voltages. In the table below you can also find:
 - Case breakout sound level at 4 m (free field conditions).
- Installation
Possible in any position. Attention should be paid to accessibility of swingout motor/impeller assembly

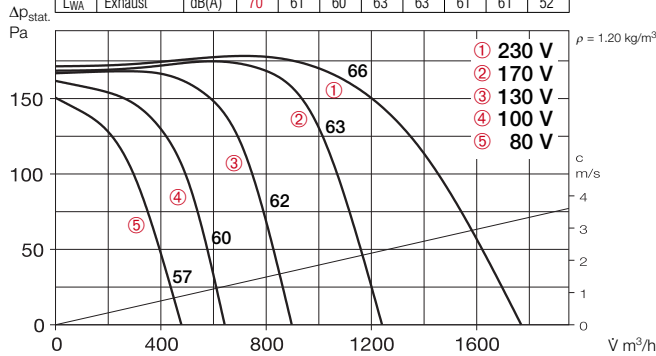
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Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption		Connection by wiring diagram	Max. air flow temperature by		Nominal weight (net)	Speed controller 5-step		Motor full protection device to connect			
					kW	A		Nom. vol.	Control		kg	Type	Ref. No.	Type	Ref. No.	Type
Alternating current, 230 V, 50 Hz, capacitor motor, protection to IP 44																
KVW 250/6/50/30	5702	1800	760	36	0.32	1.5	536.1	70	70	19	TSW 3.0	1496	MWS 3.0	1948	MW	1579
KVW 250/4/50/30	5680	2100	1270	42	0.63	3.0	536.1	65	50	21	TSW 5.0	1497	MWS 5.0	1949	MW	1579
3-phase motor, 230/400 V, 50 Hz, protected to IP 44																
KVD 250/4/50/30	5682	2200	1260	42	0.72	2.5/1.5	860	60	60	21	TSD 1.5	1501	RDS 2	1315	MD	5849
Explosionproof Ex e II, temperature class T1 – T3, 3-phase alternating current 400 V, 50 Hz, protection to IP 44																
KVD 250/4/50/30 Ex	6811	2300	1240	42	0.74	1.5	899	40	40	21	TSD 1.5	1501	—	—	MSA	1289

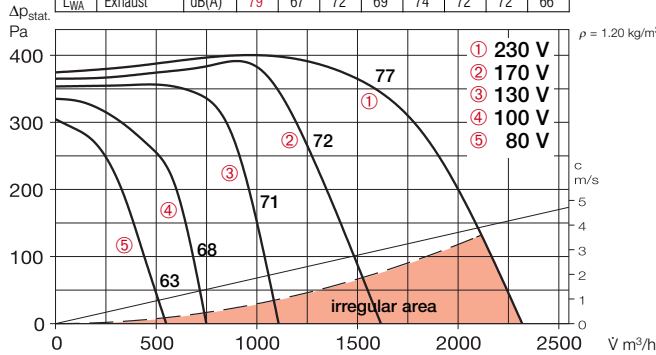
KVV 250/6/50/30

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 56	48	53	48	43	39	37	30
L _{WA} Intake		dB(A) 66	59	59	55	56	59	57	48
L _{WA} Exhaust		dB(A) 70	61	60	63	63	61	61	52



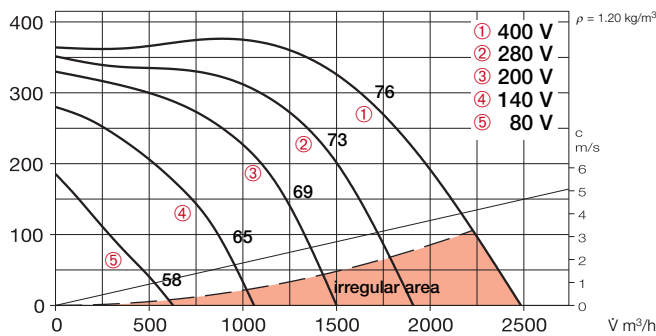
KVV 250/4/50/30

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 62	47	58	57	56	51	46	38
L _{WA} Intake		dB(A) 77	70	73	61	65	68	66	61
L _{WA} Exhaust		dB(A) 79	67	72	69	74	72	72	66



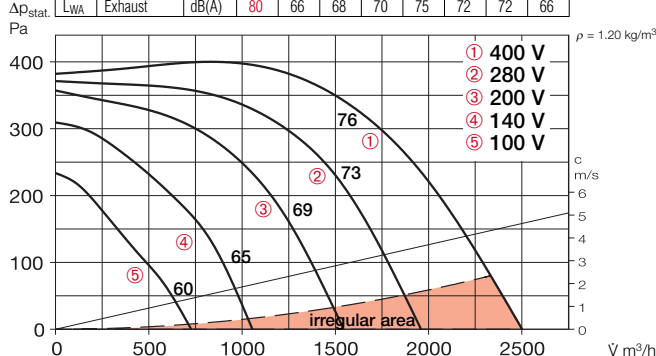
KVD 250/4/50/30

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 62	48	56	54	57	54	52	45
L _{WA} Intake		dB(A) 76	69	68	63	67	70	68	63
L _{WA} Exhaust		dB(A) 81	68	71	72	76	74	74	69



KVD 250/4/50/30 Ex

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 62	46	56	53	59	52	51	45
L _{WA} Intake		dB(A) 73	68	66	59	64	65	64	58
L _{WA} Exhaust		dB(A) 80	66	68	70	75	72	72	66



Accessories

Gravity shutter

VK 50/30 Ref. No. 0876
External airflow operated gravity shutter made of polymer, light grey.



External louvres

WSG 50/30 Ref. No. 0111
Robust construction made of aluminium extrusion profile, natural colour anodised.



Vol. control damper for ducting

JVK 50/30 Ref. No. 6912
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.



Circular spigot

FSK 50/30 Ref. No. 0837
For cost effective adaption of rectangular fans into circular ducting systems with ø 315 mm.



Flexible connectors

VS 50/30 Ref. No. 5696
Flexible in-duct connector with flanges on both sides.
- for ex-proof fans
VS 50/30 Ex Ref. No. 0266



Matching flange

GF 50/30 Ref. No. 6921
Flange frames made of galvanised steel for connection to ducting.



Rectangular attenuator

KSD 50/25-30 Ref. No. 8729
For in-duct installation on intake or exhaust side.



Air-duct filter

KLF 50/25-30 G4 Ref. No. 8721
KLF 50/25-30 F7 Ref. No. 8645
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.



Electric heater battery

EHR-K 8/50/25-30 Ref. No. 8704
EHR-K 24/50/25-30 Ref. No. 8705
Heating elements enclosed in a galvanised steel casing with connecting flanges on both sides.



Temperature control system for electric heater battery

EHSD 16 Ref. No. 5003



Warm water heater battery

WHR 2/50/25-30 Ref. No. 8784
WHR 4/50/25-30 Ref. No. 8785
For in-duct installation.



Temperature control system for warm water heater battery

WHS 1100 Ref. No. 8815
WHS 2200 Ref. No. 8816



Model KV..



Rectangular centrifugal fan with forward curved impeller blades and swing-out motor impeller unit.

- Low-noise centrifugal impellers in aerodynamic galvanised steel casing for high pressure levels.
- Compact and flat design for use in extract and fresh air systems in commercial and industrial applications.

■ Specification

□ Casing

Galvanised steel casing flanged on both ends. Space saving, compact design.

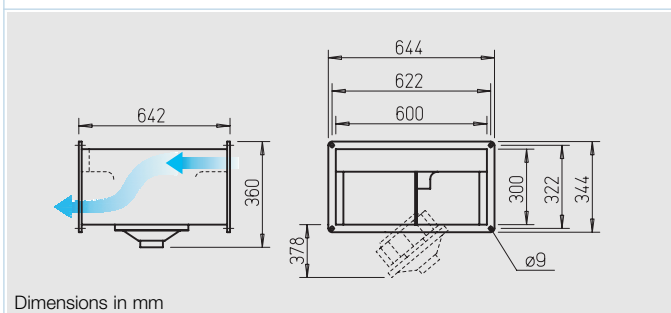
- Easy to clean and service thanks to the swing-out motor impeller unit.

□ Impeller

Forward curved centrifugal impeller made of galv. steel, highly efficient with low noise levels. Aerodynamically optimised casing; intake air flow by an inlet nozzle.

□ Motor

Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings with protection against moisture. Ball bearing mounted and radio suppressed. Dynamically balanced with resilient motor mounting bracket for low vibration, low noise operation.



□ Electrical connection

Terminal box (IP 55 for 3 ph., IP 44 for 1 ph., IP 65 for explosion-proof types) is mounted with permanently attached cable.

□ Motor protection

From built-in thermal contacts which must be connected to a full motor protection device.

□ Speed control

By voltage reduction using a 5 speed transformer controller or an electronic controller (stepless). The performance figures at corresponding voltages are given in the performance curve.

□ Sound Levels

Above the performance curve, total values and spectrum are given for:

- Sound power case breakout
 - Sound power intake
 - Sound power exhaust
- The sound power level (on intake) is additionally shown within the performance curve for corresponding control voltages. In the table below you can also find:
- Case breakout sound level at 4 m (free field conditions).

□ Installation

Possible in any position. Attention should be paid to accessibility of swing out motor/impeller assembly.

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□ Explosion-proof models

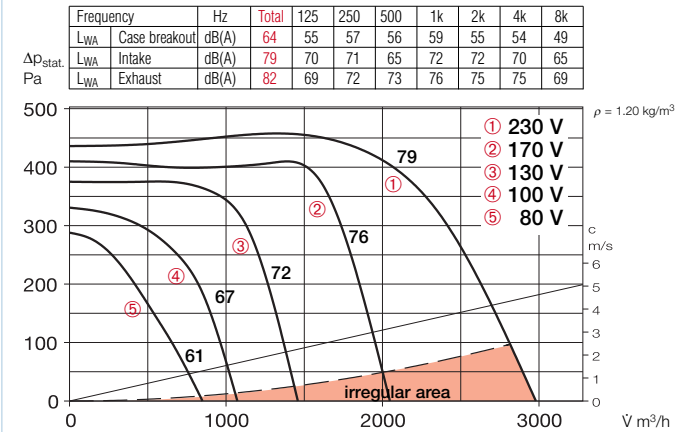
Thermal motor protection through built-in PTC (positive temperature coefficient) thermistors which must be connected to a tripping unit MSA. Using this motor protection enables the speed control where a minimum voltage of 100 V must be maintained.

Accessory details	Page
Shutters, grilles and louvres	304, 361 on
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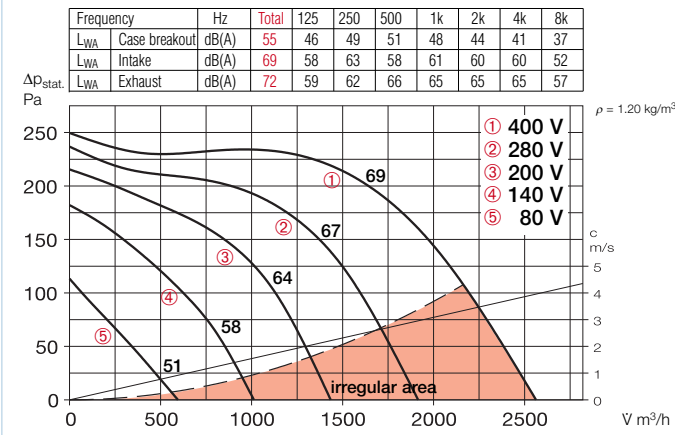
Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption		Connection by wiring diagram	Max. air flow temperature by		Nominal weight (net)	Speed controller 5-step		Motor full protection device to connect			
		V m ³ /h			kW	A		Nom. vol.	Control		kg	Type	Ref. No.	Type	Ref. No.	Type
1-phase Motor, 230 V, 50 Hz, capacitor motor, protection to IP 44																
KVV 280/6/60/30 ¹⁾	5703	2300	750	37	0.53	2.4	536.1	60	50	30	TSW 3.0	1496	MWS 3.0	1948	MW	1579
KVV 280/4/60/30	5745	2800	1090	44	1.13	5.3	536.1	70	70	32	TSW 7.5	1596	MWS 7.5	1950	MW	1579
3-phase motor, 230/400 V, 50 Hz, protected to IP 44																
KVD 280/6/60/30	5683	2200	810	35	0.43	1.4/0.78	860	60	55	30	TSD 1.5	1501	RDS 1	1314	MD	5849
KVD 280/4/60/30	5684	3950	1300	45	1.67	5.4/3.1	860	65	60	32	TSD 5.5	1503	RDS 7	1578	MD	5849
Explosionproof Ex e II, temperature class T1 – T3, 3-phase alternating current 230/400 V, 50 Hz, protection to IP 44																
KVD 280/4/60/30 Ex	6812	3450	1340	47	1.45	5.0/2.9	899	40	40	34	TSD 5.5	1503	—	—	MSA	1289

¹⁾In this model deviant performance curve; available on request.

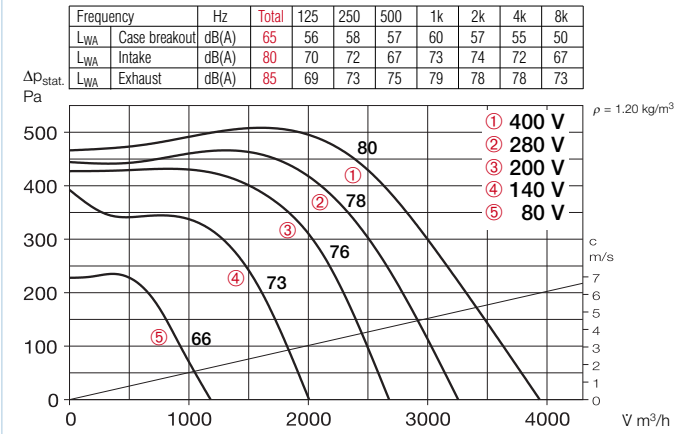
KVV 280/4/60/30



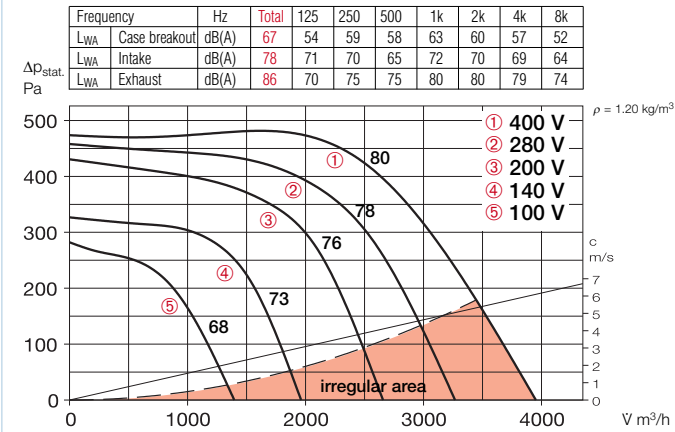
KVD 280/6/60/30



KVD 280/4/60/30



KVD 280/4/60/30 Ex



Accessories

Gravity shutter

VK 60/30 Ref. No. 0877
External airflow operated gravity shutter made of polymer, light grey.

External louvres

WSG 60/30 Ref. No. 0112
Robust construction made of aluminium extrusion profile, natural colour anodised.

Vol. control damper for ducting

JVK 60/30 Ref. No. 6913
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.

Circular spigot

FSK 60/30 Ref. No. 0834
For cost effective adaption of rectangular fans into circular ducting systems with ø 315 mm.

Flexible connectors

VS 60/30 Ref. No. 5697
Flexible in-duct connector with flanges on both sides.
- for Ex-proof fans
VS 60/30 Ex Ref. No. 0267

Matching flange

GF 60/30 Ref. No. 6922
Flange frames made of galvanised steel for connection to ducting.

Rectangular attenuator

KSD 60/30-35 Ref. No. 8730
For in-duct installation on intake or exhaust side.

Air-duct filter

KLF 60/30-35 G4 Ref. No. 8722
KLF 60/30-35 F7 Ref. No. 8646
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.

Electric heater battery

EHR-K 15/60/30-35 Ref. No. 8706
EHR-K 30/60/30-35 Ref. No. 8707
Heating elements enclosed in a galvanised steel casing with connecting flanges on both sides.

Temperature control system for electric heater battery

EHSD 16 Ref. No. 5003

Warm water heater battery

WHR 2/60/30-35 Ref. No. 8786
WHR 4/60/30-35 Ref. No. 8787
For in-duct installation.

Temperature control system for warm water heater battery

WHS 2200¹⁾ Ref. No. 8816

¹⁾ In model WHR 4/60/30-35 the heat output is reduced to 2200 l/h.



Rect. fans

Model KV..



Rectangular centrifugal fan with forward curved impeller blades and swing-out motor impeller unit.

- Low-noise centrifugal impellers in aerodynamic galvanised steel casing for high pressure levels.
- Compact and flat design for use in extract and fresh air systems in commercial and industrial applications.

■ Specification

□ Casing

Made of galvanised steel and flanged on both ends. Space saving, compact design.

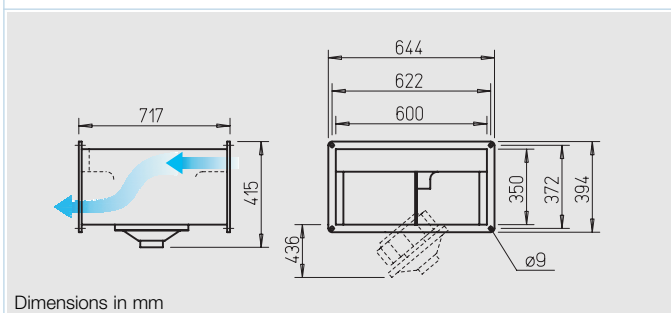
- Easy to clean and service thanks to the swing-out motor impeller unit.

□ Impeller

Forward curved centrifugal impeller made of galvanised steel, highly efficient with low noise levels. Aerodynamically optimised casing; intake air flow by means of an inlet nozzle.

□ Motor

Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings with protection against moisture. Ball bearing mounted and radio suppressed. Dynamically balanced with resilient motor mounting bracket for low vibration and low noise operation.



□ Electrical connection

Terminal box (IP 55 for 3 ph., IP 44 for 1 ph., IP 65 for explosion-proof types) is mounted with a permanently attached cable.

□ Motor protection

From built-in thermal contacts which must be connected to a motor full protection device.

□ Speed control

By voltage reduction using a 5 speed transformer controller or an electronic controller (stepless). The performance figures at corresponding voltages are given in the performance curve.

□ Sound Levels

Above the performance curve, total values and spectrum are given for:

- Sound power case breakout
 - Sound power intake
 - Sound power exhaust
- The sound power level (on intake) is additionally shown within the performance curve for corresponding control voltages. In the table below you can also find:
- Case breakout sound level at 4 m (free field conditions).

□ Installation

Possible in any position. Attention should be paid to accessibility of swingout motor/impeller assembly.

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□ Explosion-proof models

Thermal motor protection through built-in PTC (positive temperature coefficient) thermistors which must be connected to a tripping unit MSA. Using this motor protection enables the speed control where a minimum voltage of 100 V must be maintained.

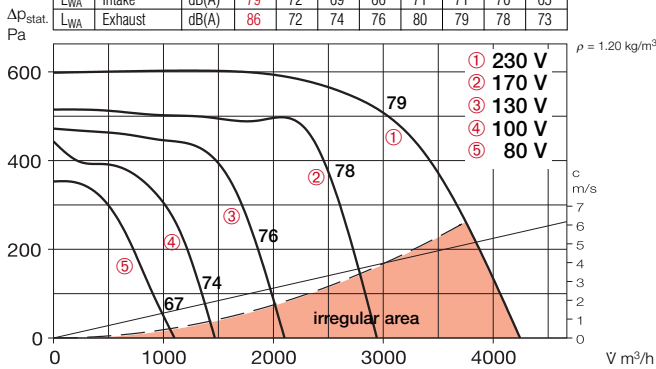
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Speed controllers and motor full protection devices	397 on

Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption		Connection by wiring diagram	Max. air flow temperature by		Nominal weight (net)	Speed controller 5-step		Motor full protection device to connect			
		V m ³ /h			min ⁻¹	kW		A	Nom. vol.		Control	kg	Type	Ref. No.	Type	Ref. No.
1-phase Motor, 230 V, 50 Hz, capacitor motor, protection to IP 44																
KVV 315/6/60/35 ¹⁾	5704	3550	770	43	0.89	4.1	536.1	70	70	38	TSW 5.0	1497	MWS 5	1949	MW	1579
KVV 315/4/60/35	5705	3750	1240	47	1.8	8.5	536.1	70	50	42	—	—	MWS 10	1946	—	—
3-phase motor, 230/400 V, 50 Hz, protection to IP 44																
KVD 315/6/60/35	5685	3850	840	40	0.97	3.6/2.1	860	65	60	38	TSD 3.0	1502	RDS 4	1316	MD	5849
KVD 315/4/60/35	5686	4500	1350	48	2.06	6.8/3.9	860	60	55	42	TSD 5.5	1503	RDS 7	1578	MD	5849
Explosionproof Ex e II, temperature class T1 – T3, 3-phase alternating current 230/400 V, 50 Hz, protection to IP 44																
KVD 315/4/60/35 Ex	6813	4200	1370	48	2.0	6.9/4.0	899	40	40	42	TSD 5.5	1503	—	—	MSA	1289

¹⁾In this model deviant performance curve; available on request.

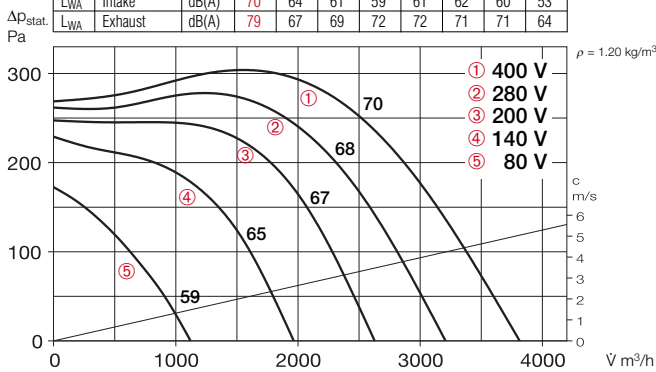
KVV 315/4/60/35

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 67	57	62	57	62	57	56	51
L _{WA} Intake		dB(A) 79	72	69	66	71	71	70	65
L _{WA} Exhaust		dB(A) 86	72	74	76	80	79	78	73



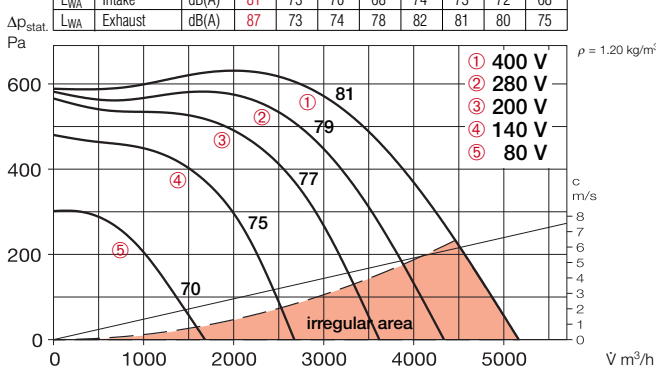
KVD 315/6/60/35

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 60	47	53	55	54	51	48	42
L _{WA} Intake		dB(A) 70	64	61	59	61	62	60	53
L _{WA} Exhaust		dB(A) 79	67	69	72	72	71	71	64



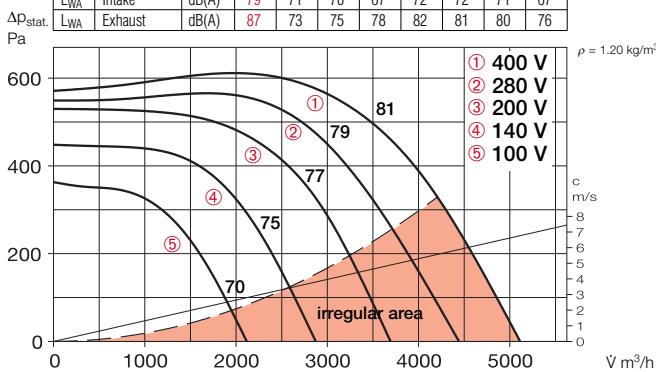
KVD 315/4/60/35

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 68	55	60	60	63	62	58	54
L _{WA} Intake		dB(A) 81	73	70	68	74	73	72	68
L _{WA} Exhaust		dB(A) 87	73	74	78	82	81	80	75



KVD 315/4/60/35 Ex

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 68	56	60	58	64	61	60	56
L _{WA} Intake		dB(A) 79	71	70	67	72	72	71	67
L _{WA} Exhaust		dB(A) 87	73	75	78	82	81	80	76



Accessories

Gravity shutter

VK 60/35 Ref. No. 0878
External airflow operated gravity shutter made of polymer, light grey.

External louvres

WSG 60/35 Ref. No. 0113
Robust construction made of aluminium extrusion profile, natural colour anodised.

Vol. control damper for ducting

JVK 60/35 Ref. No. 6914
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.

Circular spigot

FSK 60/35 Ref. No. 0835
For cost effective adaption of rectangular fans into circular ducting systems with ø 355 mm.

Flexible connectors

VS 60/35 Ref. No. 5698
Flexible in-duct connector with flanges on both sides.

- for Ex-proof fans

VS 60/35 Ex Ref. No. 0268

Matching flange

GF 60/35 Ref. No. 6923
Flange frames made of galvanised steel for connection to ducting.

Rectangular attenuator

KSD 60/30-35 Ref. No. 8730
For in-duct installation on intake or exhaust side.

Air-duct filter

KLF 60/30-35 G4 Ref. No. 8722
KLF 60/30-35 F7 Ref. No. 8646
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.

Electric heater battery

EHR-K 15/60/30-35 Ref. No. 8706
EHR-K 30/60/30-35 Ref. No. 8707
Heating elements enclosed in a galvanised steel casing with connecting flanges on both sides.

Temperature control system for electric heater battery

EHSD 16 Ref. No. 5003

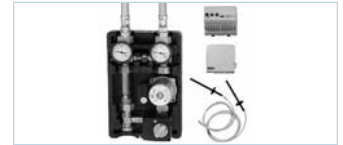
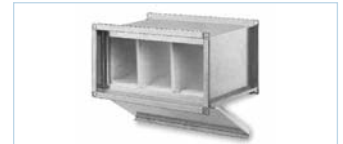
Warm water heater battery

WHR 2/60/30-35 Ref. No. 8786
WHR 4/60/30-35 Ref. No. 8787
For in-duct installation.

Temperature control system for warm water heater battery

WHS 2200¹⁾ Ref. No. 8816

¹⁾ In model WHR 4/60/30-35 the heat output is reduced to 2200 l/h.



Model KV..



Rectangular centrifugal fan with forward curved impeller blades and swing-out motor impeller unit.

- Low-noise centrifugal impellers in aerodynamic galvanised steel casing for high pressure levels.
- Compact and flat design for use in extract and fresh air systems in commercial and industrial applications.

■ Specification

□ Casing

Galvanised steel flanged on both ends. Space saving, compact design.

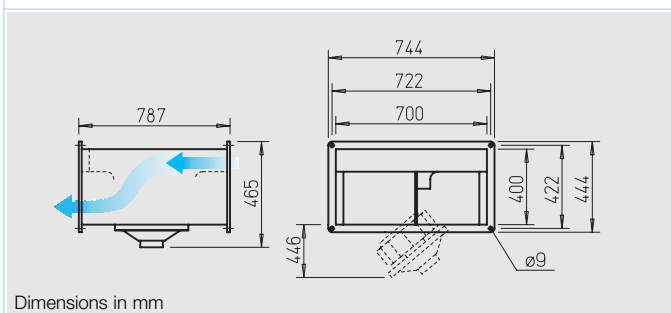
- Easy to clean and service thanks to the swing-out motor impeller unit.

□ Impeller

Forward curved centrifugal impeller made of galvanised steel, highly efficient with low noise levels. Aerodynamically optimised casing; intake air flow by means of an inlet nozzle.

□ Motor

Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings with protection against moisture. Ball bearing mounted and radio suppressed.



Dynamically balanced with resilient motor mounting bracket for low vibration and low noise operation.

□ Electrical connection

Terminal box (IP 55 for 3 ph. or IP 65 for explosionproof types) is mounted with a permanently attached cable.

□ Motor protection

Through built-in thermal contacts which must be connected to a motor full protection device.

□ Speed control

By voltage reduction using a 5 speed transformer controller or an electronic controller (stepless). The performance figures at corresponding voltages are given in the performance curve.

□ Sound Levels

Above the performance curve, total values and spectrum are given for:

- Sound power case breakout
 - Sound power intake
 - Sound power exhaust
- The sound power level (on intake) is additionally shown within the performance curve for corresponding control voltages. In the table below you can also find:
- Case breakout sound level at 4 m (free field conditions).

□ Installation

Possible in any position. Attention should be paid to accessibility of swingout motor/impeller assembly.

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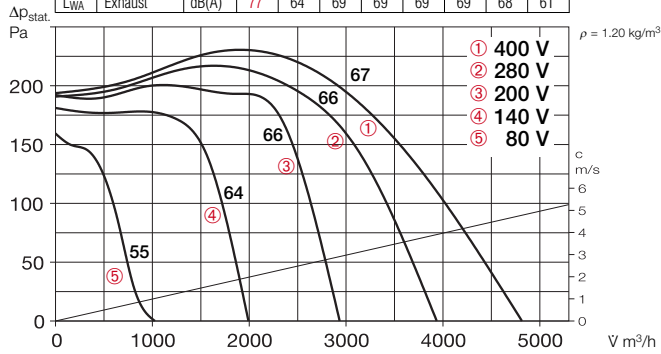
□ Explosion-proof models

Thermal motor protection through built-in PTC (positive temperature coefficient) thermistors which must be connected to a tripping unit MSA. Using this motor protection enables the speed control where a minimum voltage of 100 V must be maintained.

Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption		Connection by wiring diagram	Max. air flow temperature by		Nominal weight (net)	Speed controller 5-step		Motor full protection device to connect			
					kW	A		Nom. vol.	Control		kg	Type	Ref. No.	Type	Ref. No.	Type
3-phase motor, 230/400 V, 50 Hz, protection to IP 44																
KVD 355/8/70/40	5687	4850	680	35	1.02	3.9/2.3	860	70	70	47	TSD 5.5	1503	RDS 4	1316	MD	5849
KVD 355/6/70/40	5688	5000	830	42	1.53	5.5/3.2	860	60	60	54	TSD 5.5	1503	RDS 4	1316	MD	5849
KVD 355/4/70/40	5689	5800	1400	54	3.48	10.4/6.0	860	70	50	60	TSD 11	1513	RDS 11	1332	MD	5849
Explosionproof Ex e II, temperature class T1 – T3, 3-phase alternating current 230/400 V, 50 Hz, protection to IP 44																
KVD 355/6/70/40 Ex	6814	4800	800	48	1.40	4.2/2.4	899	40	40	49	TSD 3.0	1502	—	—	MSA	1289

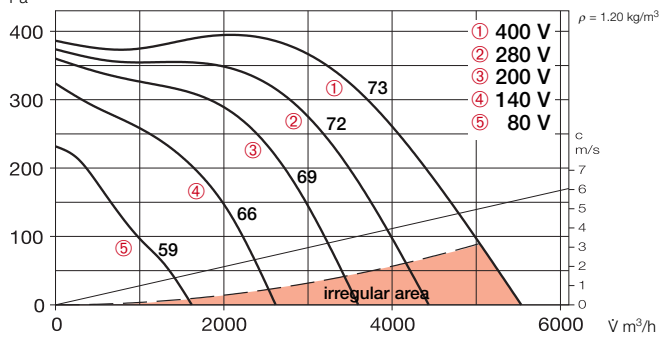
KVD 355/8/70/40

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 55	46	50	50	48	45	40	32
L _{WA} Intake		dB(A) 67	58	59	57	62	60	57	48
L _{WA} Exhaust		dB(A) 77	64	69	69	69	69	68	61



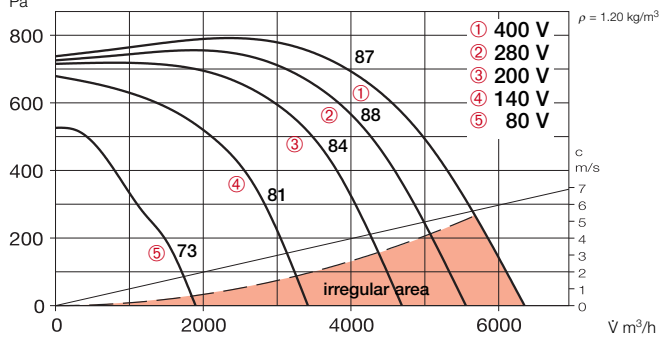
KVD 355/6/70/40

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 62	52	52	55	56	53	51	46
L _{WA} Intake		dB(A) 73	65	64	61	67	65	64	58
L _{WA} Exhaust		dB(A) 81	69	72	73	74	74	73	67



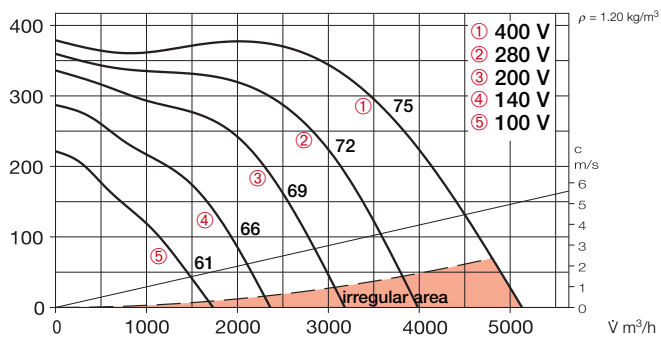
KVD 355/4/70/40

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 74	63	66	67	68	67	65	59
L _{WA} Intake		dB(A) 87	76	76	72	83	81	79	75
L _{WA} Exhaust		dB(A) 90	76	79	78	84	84	83	78



KVD 355/6/70/40 Ex

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		dB(A) 68	51	56	57	62	64	61	52
L _{WA} Intake		dB(A) 75	65	65	63	68	68	66	60
L _{WA} Exhaust		dB(A) 79	66	69	70	73	72	72	65



Accessories

Gravity shutter

VK 70/40 Ref. No. 0879
Excess pressure dampers, automatic, made of polymer, light grey.



External louvres

WSG 70/40 Ref. No. 0114
Robust construction made of aluminium extrusion profile, natural colour anodised.



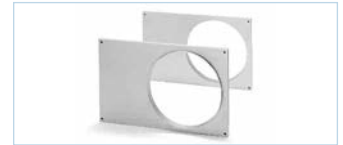
Vol. control damper for ducting

JVK 70/40 Ref. No. 6915
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.



Circular spigot

FSK 70/40 Ref. No. 0840
For cost effective adaption of rectangular fans into circular ducting systems with ø 400 mm.



Flexible connectors

VS 70/40 Ref. No. 5699
Flexible in-duct connector with flanges on both sides.



- for Ex-proof fans

VS 70/40 Ex Ref. No. 0269



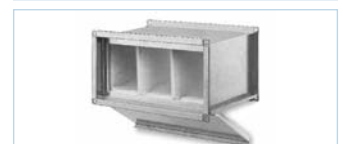
Matching flange

GF 70/40 Ref. No. 6924
Flange frames made of galvanised steel for connection to ducting.



Rectangular attenuator

KSD 70/40 Ref. No. 8731
For in-duct installation on intake or exhaust side.



Air-duct filter

KLF 70/40 G4 Ref. No. 8723
KLF 70/40 F7 Ref. No. 8647
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.



Warm water heater battery

WHR 2/70/40 Ref. No. 8788
WHR 4/70/40 Ref. No. 8789
For in-duct installation.



Temperature control system for warm water heater battery

WHS 2200¹⁾ Ref. No. 8816

¹⁾ In model WHR 4/70/40 the heat output is reduced to 2200 l/h.

Accessory details Page

Shutters, grilles and louvres	304, 361 on
Filters, heaters and attenuators	305 on
Temperature control systems for heaters	311, 316
Speed controllers and motor full protection devices	397 on

Model KV..



Rectangular centrifugal fan with forward curved impeller blades and swing-out motor impeller unit.

- Low-noise centrifugal impellers in optimised volute casing for high pressure levels.
- Compact and flat design for versatile usage in extract and fresh air systems in commercial and industrial applications.

■ **Specification**

□ **Casing**

Made of galvanised steel and flanged on both ends. Space saving, compact design.

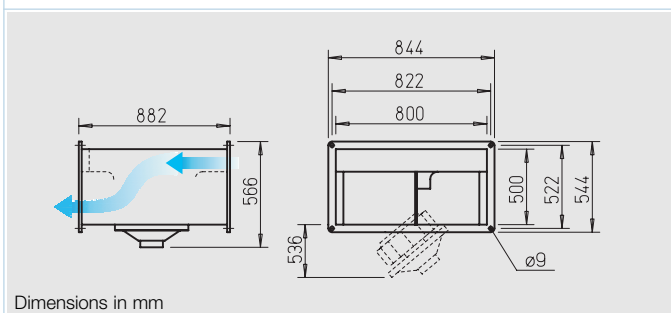
- Particular ease of service (cleaning) thanks to the swing-out motor impeller unit.

□ **Impeller**

Forward curved centrifugal impeller made of galvanised steel, highly efficient with low noise levels. Aerodynamically optimised volute casing; intake air flow by means of an inlet nozzle.

□ **Motor**

Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44.



Windings with protection against moisture. Ball bearing mounted and radio suppressed. Dynamically balanced with resilient motor mounting bracket for low vibration and low noise operation.

□ **Electrical connection**

Terminal box (IP 55) is mounted with a permanently attached cable.

□ **Motor protection**

Through built-in thermal contacts which must be connected to a motor full protection device.

□ **Speed control**

By voltage reduction using a 5 speed transformer controller or an electronic controller (stepless). The performance figures at corresponding voltages are given in the performance curve.

□ **Sound Levels**

Above the performance curve, total values and spectrum are given for:

- Sound power case breakout
- Sound power intake
- Sound power exhaust

The sound power level (on intake) is additionally shown within the performance curve for corresponding control voltages. In the table below you can also find:

- Case breakout sound level at 4 m (free field conditions).

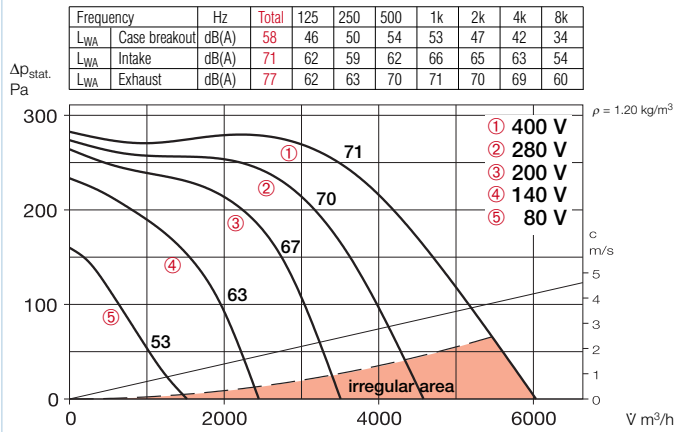
□ **Installation**

Possible in any position. Attention should be paid to accessibility/swing-out.

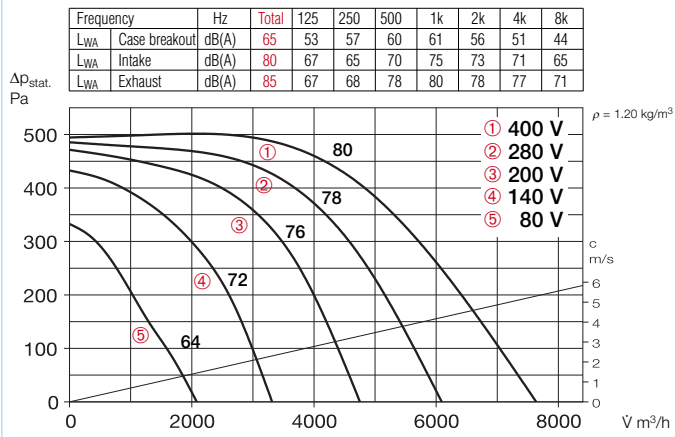
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Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption		Connection by wiring diagram	Max. air flow temperature by		Nominal weight (net)	Speed controller 5-step					
					kW	A		Nom. vol.	Control		motor full protection	motor full protection	motor full protection	Motor full protection device to connect built-in thermal contacts		
		∑ m³/h	min ⁻¹	dB(A) in 4 m			No.	+°C	+°C	kg	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
3-phase motor, 230/400 V, 50 Hz, protection to IP 44																
KVD 400/8/80/50	5690	5400	640	38	1.29	5.1/2.9	860	70	70	70	TSD 5.5	1503	RDS 4	1316	MD	5849
KVD 400/6/80/50	5691	7600	860	45	2.81	9.1/5.3	860	70	50	78	TSD 7.0	1504	RDS 7	1578	MD	5849
KVD 400/4/80/50	5708	6200	1380	55	5.63	17.0/9.8	860	60	50	81	TSD 11	1513	RDS 11	1332	MD	5849

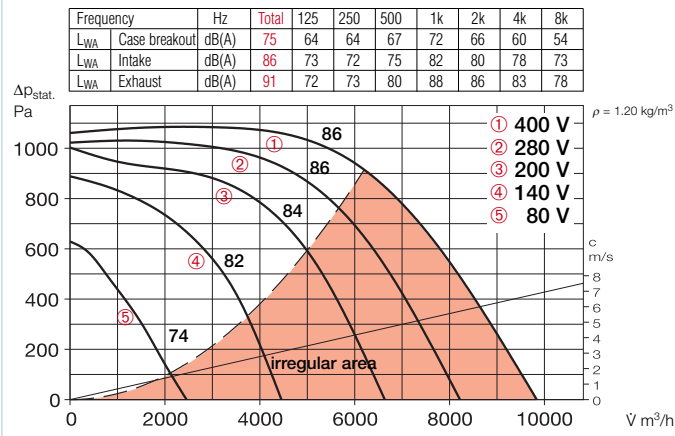
KVD 400/8/80/50



KVD 400/6/80/50



KVD 400/4/80/50



Accessories

Gravity shutter

VK 80/50 Ref. No. 0880
External airflow operated gravity shutter made of polymer, light grey.



External louvres

WSG 80/50 Ref. No. 0115
Robust construction made of aluminium extrusion profile, natural colour anodised.



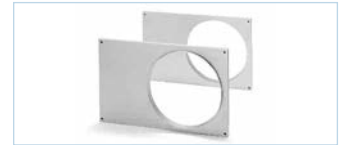
Vol. control damper for ducting

JVK 80/50 Ref. No. 6916
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.



Circular spigot

FSK 80/50 Ref. No. 0842
For cost effective adaption of rectangular fans into circular ducting systems with ø 500 mm.



Flexible connectors

VS 80/50 Ref. No. 5700
Flexible in-duct connector with flanges on both sides.



Matching flange

GF 80/50 Ref. No. 6925
Flange frames made of galvanised steel for connection to ducting.



Rectangular attenuator

KSD 80/50 Ref. No. 8732
For in-duct installation on intake or exhaust side.



Air-duct filter

KLF 80/50 G4 Ref. No. 8670
KLF 80/50 F7 Ref. No. 8654
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.



Warm water heater battery

WHR 2/80/50 Ref. No. 8795
WHR 4/80/50 Ref. No. 8796
For in-duct installation.



Accessory details Page

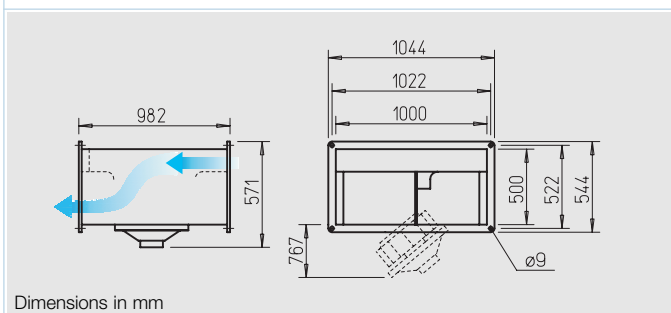
Shutters, grilles and louvres	304, 361 on
Filters, heaters and attenuators	305 on
Speed controllers and motor full protection devices	397 on

Model KV..



Rectangular centrifugal fan with forward curved impeller blades and swing-out motor impeller unit.

- Low-noise centrifugal impellers in aerodynamic galvanised steel casing for high pressure levels.
- Compact and flat design for use in extract and fresh air systems in commercial and industrial applications.



Note	Page
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■ **Specification**

□ **Casing**

Galvanised steel and flanged on both ends. Space saving, compact design.

- Easy to clean and service thanks to the swing-out motor impeller unit.

□ **Impeller**

Forward curved centrifugal impeller made of galvanised steel, highly efficient with low noise levels. Aerodynamically optimised casing; intake air flow by means of an inlet nozzle.

□ **Motor**

Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings with protection against moisture. Ball bearing mounted and radio suppressed. Dynamically balanced with resilient motor mounting bracket for low vibration and low noise operation.

□ **Electrical connection**

Terminal box (IP 55) is mounted with a permanently attached cable.

□ **Motor protection**

Through built-in thermal contacts which must be connected to a motor full protection device.

□ **Speed control**

By voltage reduction using a 5 speed transformer controller (recommended) or an electronic controller (stepless). The performance figures at corresponding voltages are given in the performance curve.

□ **Sound Levels**

Above the performance curve, total values and spectrum are given for:

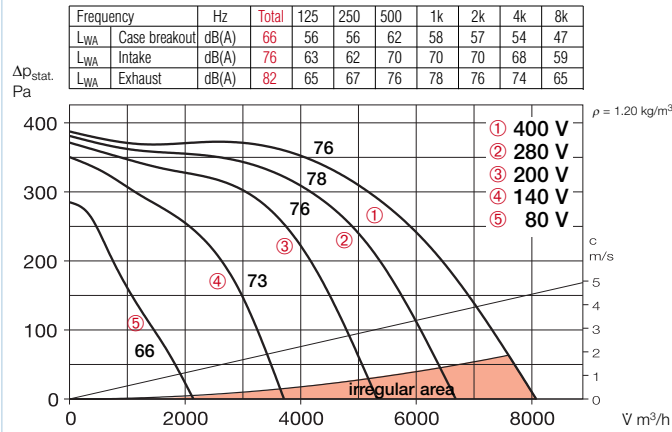
- Sound power case breakout
 - Sound power intake
 - Sound power exhaust
- The sound power level (on intake) is additionally shown within the performance curve for corresponding control voltages. In the table below you can also find:
- Case breakout sound level at 4 m (free field conditions).

□ **Installation**

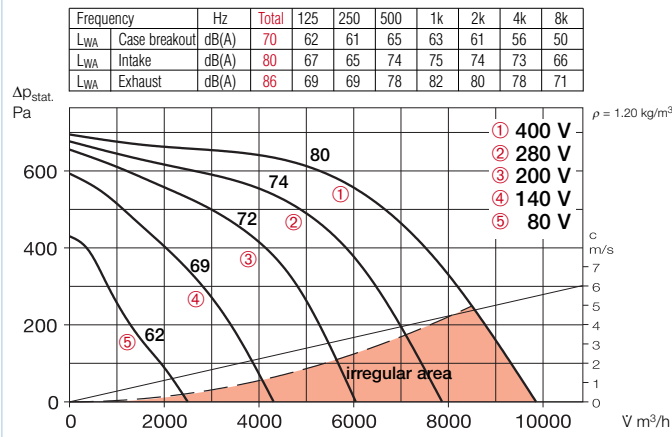
Possible in any position. Attention should be paid to accessibility of swingout motor/impeller assembly.

Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption		Connection by wiring diagram	Max. air flow temperature by Control		Nominal weight (net)	Speed controller 5-step				Motor full protection device to connect built-in thermal contacts	
		V m³/h	min ⁻¹	dB(A) in 4 m	kW	A	No.	+°C	+°C	kg	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
3-phase motor, 230/400 V, 50 Hz, protection to IP 44																
KVD 450/8/100/50	5692	7600	690	46	2.26	8.6/5.0	860	60	50	90	TSD 7.0	1504	RDS 7	1578	MD	5849
KVD 450/6/100/50	5693	8500	870	50	3.65	11.6/6.7	860	70	50	90	TSD 11	1513	RDS 11	1332	MD	5849

KVD 450/8/100/50



KVD 450/6/100/50



Accessories

Gravity shutter

VK 100/50 Ref. No. 0881
External airflow operated gravity shutter made of polymer, light grey.



External louvres

WSG 100/50 Ref. No. 0116
Robust construction made of aluminium extrusion profile, natural colour anodised.



Vol. control damper for ducting

JVK 100/50 Ref. No. 6917
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.



Circular spigot

FSK 100/50 Ref. No. 0843
For cost effective adaption of rectangular fans into circular ducting systems with ø 500 mm.



Flexible connectors

VS 100/50 Ref. No. 5701
Flexible in-duct connector with flanges on both sides.



Matching flange

GF 100/50 Ref. No. 6926
Flange frames made of galvanised steel for connection to ducting.



Rectangular attenuator

KSD 100/50 Ref. No. 8733
For in-duct installation on intake or exhaust side.



Air-duct filter

KLF 100/50 G4 Ref. No. 8671
KLF 100/50 F7 Ref. No. 8655
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.



Warm water heater battery

WHR 2/100/50 Ref. No. 8797
WHR 4/100/50 Ref. No. 8798
For in-duct installation.



Accessory details Page

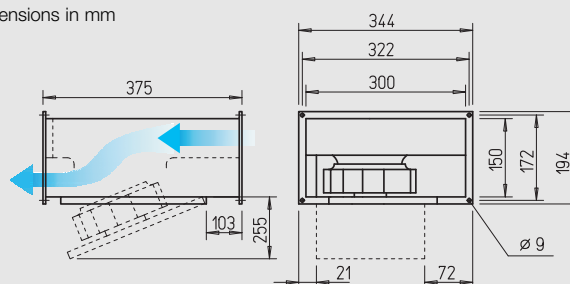
Shutters, grilles and louvres	304, 361 on
Filters, heaters and attenuators	305 on
Speed controllers and motor full protection devices	397 on

Model KR..

Suitable for polluted air.



Dimensions in mm



Rectangular centrifugal fan with backward curved impeller and swing-out motor impeller unit.

- High performance with high efficiency impellers.
- Use in extract and fresh air systems for conveying higher air flow volume.
- Suitable for extraction of polluted air.

Special features

- High pressure and high volume specific centrifugal fan with high efficiency.
- Particular easy to service (cleaning) thanks to the swing-out motor impeller unit.
- For cleaning, easy access and therefore suitable for extraction of polluted air.
- Compact design, less space requirement and straight through-flow.

Specification

- Casing**
Made of galvanised steel. Flanged (20 mm) on both ends for in-duct installation.
- Impeller**
Centrifugal, backward curved impeller made of polymer and galvanised steel. Aerodynamically optimised, intake air flow by means of an inlet nozzle.
- Motor**
Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44 for protection against moisture. Ball bearing mounted and radio suppressed. Motor and impeller are dynamically balanced.

Motor protection

By built-in thermal contacts which are connected in series with winding, automatic reset.

Speed control

By voltage reduction using a 5 speed transformer controller or an electronic controller (stepless). The performances at corresponding voltages are given in the performance curve.

Electrical connection

Terminal box (IP 44) fitted to flying lead.

Installation

Installation in any position. Allowance must be made for the Motor swing out access.

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Sound level

Above the performance curve, the total value and spectrum are given for:

- Sound level case breakout
- Sound level intake
- Sound level exhaust

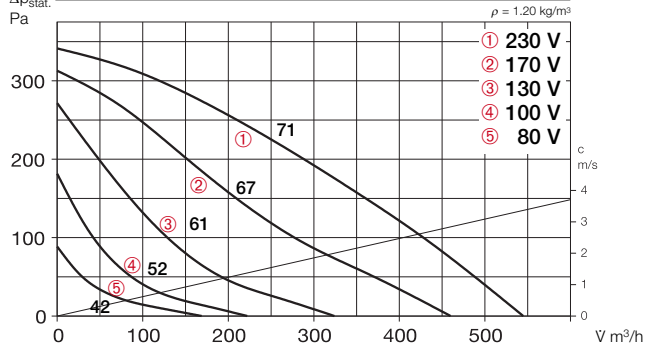
The sound level (on intake) is additionally shown within the performance curve for corresponding control voltages. On the chart below you can also find:

- Case breakout sound level at 4 m (free-field conditions).

Type	Ref. No.	Air flow volume V m³/h	Nominal R.P.M. min⁻¹	Sound pressure case breakout dB(A) in 4 m	Power consumption		Connection by wiring diagram No.	Max. air flow temperature by Nom. vol. Control		Nominal weight (net) kg	Suitable speed controller					
					kW	A		+°C	+°C		Transformer 5-step		surface-m., electronic		flush-m., electronic	
											Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Single phase - alternating current, capacitor motor, 230 V, 50 Hz, protection to IP 44																
KRW 180/2/30/15	8885	540	2460	37	0.08	0.35	508	70	70	5.5	TSW 1.5	1495	ESA 1	0238	ESU 1	0236

KRW 180/2/30/15

Frequency	Case breakout	Hz	Total	125	250	500	1k	2k	4k	8k
LWA	Case breakout		57	36	52	56	47	44	38	34
LWA	Intake		71	56	65	69	59	55	50	45
LWA	Exhaust		72	55	65	68	66	61	56	47



Accessory details Page

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Speed controllers and motor full protection devices	397 on

Accessories

Gravity shutter

VK 30/15 Ref. No. 0735
Air stream operated louvres, light grey polymer.



External louvre

WSG 30/15 Ref. No. 0108
Heavy duty construction made from profile anodised aluminium extrusion.



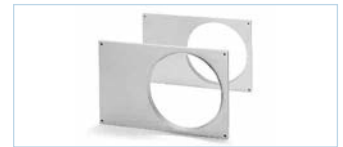
Vol. control damper for ducting

JVK 30/15 Ref. No. 6927
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.



Circular spigot

FSK 30/15 Ref. No. 0831
For cost effective adaption of rectangular fans into circular ducting systems with ø 160 mm.



Flexible connectors

VS 30/15 Ref. No. 6928
Flexible in-duct connector with flanges on both sides.



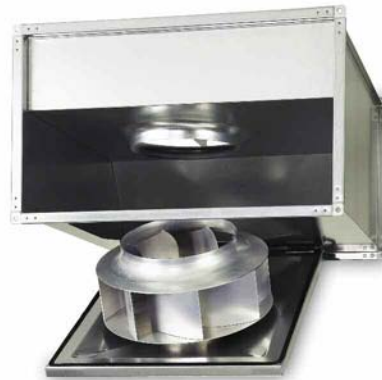
Matching flange

GF 30/15 Ref. No. 6918
Flange frames made of galvanised steel for connection to ducting.

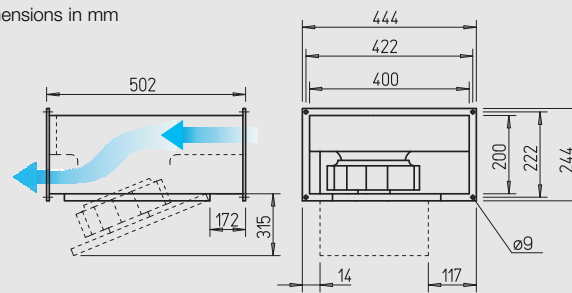


Model KR..

Suitable for polluted air.



Dimensions in mm



Rectangular centrifugal fan with backward curved impeller and swing-out motor impeller unit.

- High performance with high efficiency impellers.
- Use in extract and fresh air systems for conveying higher air flow volume.
- Suitable for extraction of polluted air.

Special features

- High pressure and high volume specific centrifugal fan with high efficiency.
- Particular easy to service (cleaning) thanks to the swing-out motor impeller unit.
- For cleaning, easy access and therefore suitable for extraction of polluted air.
- Compact design, less space requirement and straight through-flow.

Specification

- **Casing**
Made of galvanised steel. Flanged (20 mm) on both ends for in-duct installation.
- **Impeller**
Centrifugal, backward curved impeller made of polymer and galvanised steel. Aerodynamically optimised, intake air flow by means of an inlet nozzle.
- **Motor**
Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings for protection against moisture. Ball bearing mounted and radio suppressed. Motor and impeller are dynamically balanced.

□ **Motor protection**

By built-in thermal contacts which are connected in series with winding, with automatic reset.

□ **Speed control**

By voltage reduction using a 5 speed transformer controller or an electronic controller (stepless). The performances at corresponding voltages are given in the performance curve.

□ **Electrical connection**

Terminal box (IP 44 fitted to flying lead).

□ **Installation**

Installation in any position. The accessibility/swing-out need to be taken into account.

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□ **Sound level**

Above the performance curve, the total value and spectrum are given for:

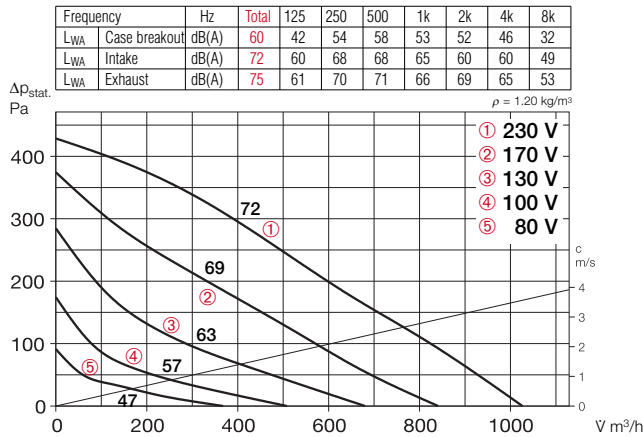
- Sound level case breakout
- Sound level intake
- Sound level exhaust

The sound level (on intake) is additionally shown within the performance curve for corresponding control voltages. On the chart below you can also find:

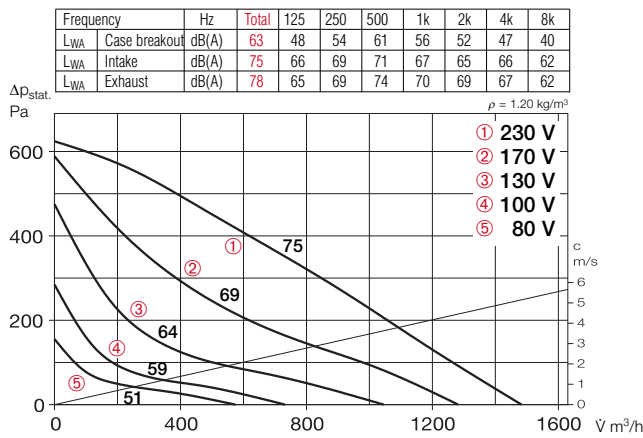
- Case breakout sound level at 4 m (free-field conditions).

Type	Ref. No.	Air flow volume V m³/h	Nominal R.P.M. min⁻¹	Sound pressure case breakout dB(A) in 4 m	Power consumption		Connection by wiring diagram No.	Max. air flow temperature by Nom. vol. Control		Nominal weight (net) kg	Suitable speed controller						
					kW	A		+°C	+°C		Transformer 5-step		surface-m., electronic		flush-m., electronic		
Single phase - alternating current, capacitor motor, 230 V, 50 Hz, protection to IP 44												Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
KRW 225/2/40/20	8886	1020	2530	40	0.10	0.46	508	70	70	9	TSW 1.5	1495	ESA 1	0238	ESU 1	0236	
KRW 250/2/40/20	8887	1480	2400	43	0.20	0.91	508	60	60	11	TSW 1.5	1495	ESA 3	0239	ESU 3	0237	

KRW 225/2/40/20



KRW 250/2/40/20



Accessory details	Page
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Accessories

Gravity shutter

VK 40/20 Ref. No. 0874
Air stream operated louvres, light grey polymer.

External louvre

WSG 40/20 Ref. No. 0109
Heavy duty construction made from profile anodised aluminium.

Vol. control damper for ducting

JVK 40/20 Ref. No. 6910
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.

Circular spigot

FSK 40/20 Ref. No. 0832
For cost effective adaption of rectangular fans into circular ducting systems with ø 200 mm.

Flexible connectors

VS 40/20 Ref. No. 5694
Flexible in-duct connector with flanges on both sides.

Matching flange

GF 40/20 Ref. No. 6919
Flange frames made of galvanised steel for connection to ducting.

Rectangular attenuator

KSD 40/20 Ref. No. 8728
For in-duct installation on intake or exhaust side.

Air-duct filter

KLF 40/20 G4 Ref. No. 8720
KLF 40/20 F7 Ref. No. 8644
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.

Electric heater battery

EHR-K 6/40/20 Ref. No. 8702
EHR-K 15/40/20 Ref. No. 8703
Heating elements enclosed in a galvanised steel casing with connecting flanges on both sides.

Temperature control system for electric heater battery

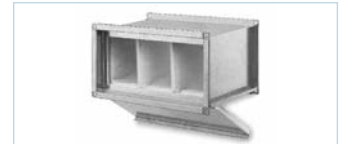
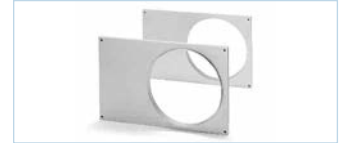
EHSD 16 Ref. No. 5003

LPHW heater battery

WHR 2/40/20 Ref. No. 8782
WHR 4/40/20 Ref. No. 8783
For in-duct installation.

Temperature control system for LPHW heater battery

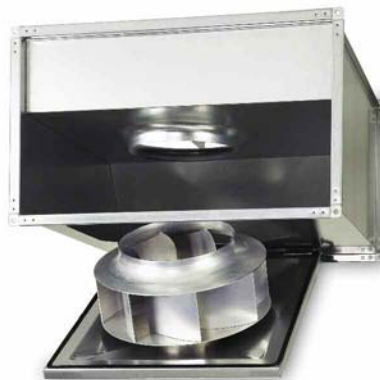
WHS 1100 Ref. No. 8815



Model KR..

Suitable for polluted air.

NEW!

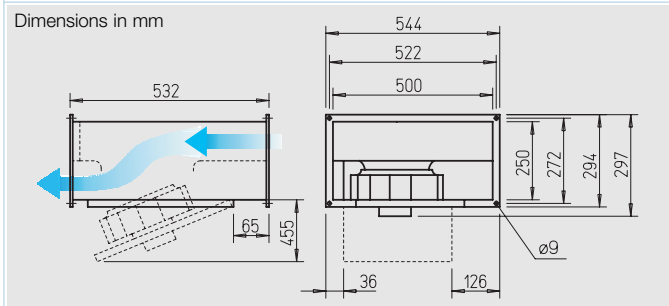


Rectangular centrifugal fan with backward curved impeller and swing-out motor impeller unit.

- High performance with high efficiency impellers.
- Use in extract and fresh air systems for conveying higher air flow volume.
- Suitable for extraction of polluted air.

Special features

- High pressure and high volume specific centrifugal fan with high efficiency.
- Particularly easy to service (cleaning) thanks to the swing-out motor impeller unit.
- For cleaning, easy access and therefore suitable for extraction of polluted air.
- Compact design, less space requirement and straight through-flow.



Specification

- **Casing**
Made of galvanised steel. Flanged (20 mm) on both ends for in-duct installation.
- **Impeller**
Centrifugal, backward curved impeller made of polymer and galvanised steel. Aerodynamically optimised, intake air flow by means of inlet nozzle.
- **Motor**
Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings for protection against moisture. Ball bearing mounted and radio suppressed. Motor and impeller are dynamically balanced.

Motor protection

By built-in thermal contacts which are connected in series with winding, automatic reset.

Speed control

By voltage reduction using a 5 speed transformer controller or an electronic controller (stepless). The performances at corresponding voltages are given in the performance curve.

Electrical connection

Terminal box (IP 44) fitted to flying lead

Installation

Installation in any position. The accessibility/swing-out need to be taken into account.

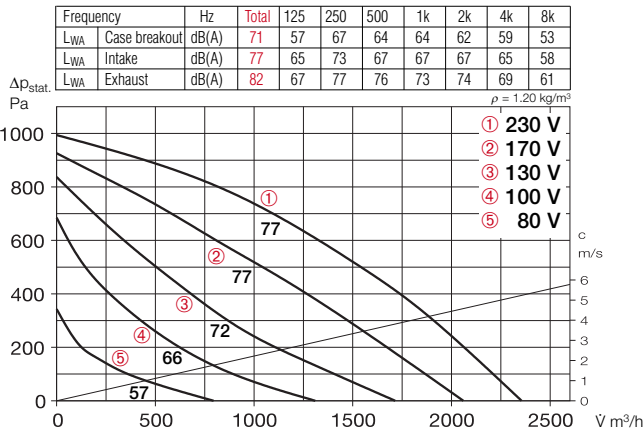
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Sound level

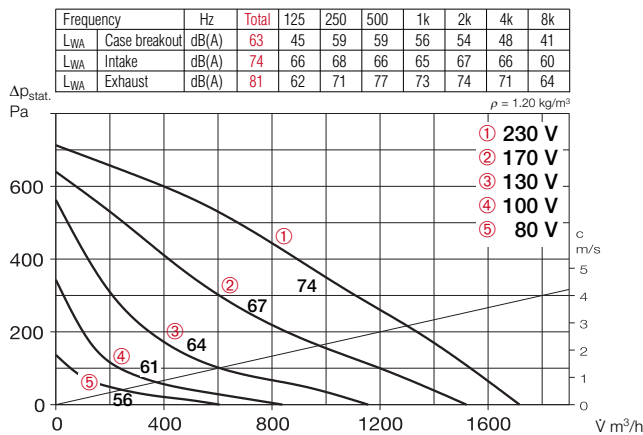
- Above the performance curve, the total value and spectrum are given for:
 - Sound level case breakout
 - Sound level intake
 - Sound level exhaust
- The sound level (on intake) is additionally shown within the performance curve for corresponding control voltages. On the chart below you can also find:
 - Case breakout sound level at 4 m (free-field conditions).

Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption		Connection by wiring diagram	Max. air flow temperature by		Nominal weight (net)	Suitable speed controller					
					V m ³ /h	min ⁻¹		dB(A) in 4 m	kW		A	Nom. vol.	Control	kg	Transformer 5-step	surface-m., electronic
							No.	+°C	+°C		Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Single phase - alternating current, capacitor motor, 230 V, 50 Hz, protection to IP 44																
KRW 280/2/50/25	8658	2400	2570	53	0.68	3.00	508	70	60	21	TSW 5.0	1497	ESA 5	1299	ESU 5	1296
KRW 315/2/50/25	8677	1720	2450	43	0.27	1.20	508	70	60	15	TSW 1.5	1495	ESA 3	0239	ESU 3	0237
KRW 355/4/50/25	8697	2250	1330	43	0.25	1.10	508	60	50	17	TSW 1.5	1495	ESA 3	0239	ESU 3	0237

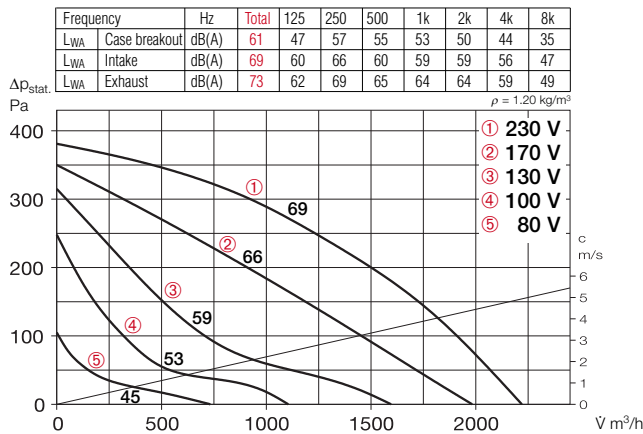
KRW 280/2/50/25



KRW 315/2/50/25



KRW 355/4/50/25



Accessory details	Page
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Temperature control systems for heaters	311, 316
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Accessories

Gravity shutter
VK 50/25 Ref. No. 0875
 Air stream operated louvres, light grey polymer.

External louvre
WSG 50/25 Ref. No. 0110
 Heavy duty construction made from profile anodised aluminium.

Vol. control damper for ducting
JVK 50/25 Ref. No. 6911
 Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.

Circular spigot
FSK 50/25 Ref. No. 0833
 For cost effective adaption of rectangular fans into circular ducting systems with ø 250 mm.

Flexible connectors
VS 50/25 Ref. No. 5695
 Flexible in-duct connector with flanges on both sides.

Matching flange
GF 50/25 Ref. No. 6920
 Flange frames made of galvanised steel for connection to ducting.

Rectangular attenuator
KSD 50/25-30 Ref. No. 8729
 For in-duct installation on intake or exhaust side.

Air-duct filter
KLF 50/25-30 G4 Ref. No. 8721
KLF 50/25-30 F7 Ref. No. 8645
 Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.

Electric heater battery
EHR-K 8/50/25-30 Ref. No. 8704
EHR-K 24/50/25-30 Ref. No. 8705
 Heating elements enclosed in a galvanised steel casing with connecting flanges on both sides.

Temperature control system for electric heater battery
EHSD 16 Ref. No. 5003

LPHW heater battery
WHR 2/50/25-30 Ref. No. 8784
WHR 4/50/25-30 Ref. No. 8785
 For in-duct installation.

Temperature control system for LPHW heater battery
WHS 1100 Ref. No. 8815
WHS 2200 Ref. No. 8816

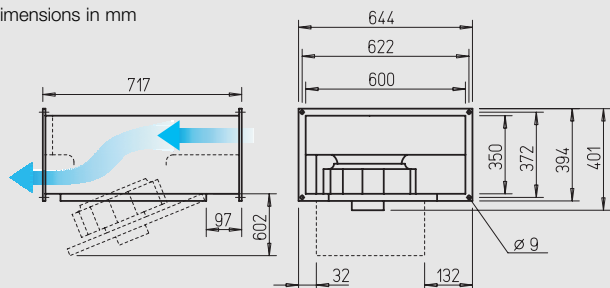


Model KR..

Suitable for polluted air.



Dimensions in mm

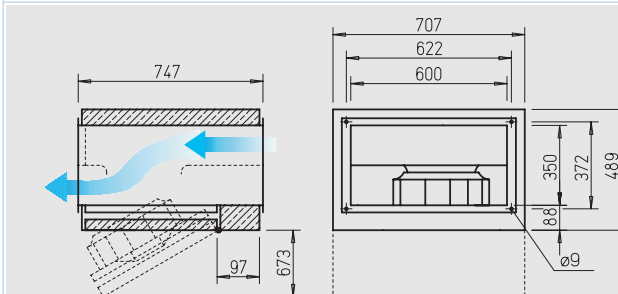


Sound insulated model SKR..



Lowest sound levels for intake and case breakout at higher power density.

Use in extract and fresh air systems with specific requirements for low noise levels.



Features of model KR.. and model SKR..

- High pressure and high volume with high efficiency centrifugal fan.
- Particularly easy to service (cleaning) thanks to the swing-out motor impeller unit.
- For cleaning, easy access and therefore suitable for extraction of polluted air.
- Straight through-flow.
- Compact design, convenient installation.

Special features of model SKR..

- Lowest sound levels for intake and case breakout at higher power density.

Specification

- Casing KR..**
Made of galvanised steel. Flanged (20 mm) on both ends for in-duct installation.
- Casing SKR..**
As above, but with additional sound insulation with 50 mm thick mineral fibre board, inside lined with a sound deadening perforated plate.

Common features of model KR.. and model SKR..

- Impeller**
Centrifugal, backward curved impeller made of polymer and galvanised steel. Aerodynamically optimised, intake air flow by means of an inlet nozzle.

Motor

Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings with protection against moisture. Ball bearing mounted and radio suppressed. Motor and impeller are dynamically balanced.

Motor protection

By built-in thermal contacts through tripping unit (accessory).

Speed control

By voltage reduction using a 5 speed transformer controller or an electronic controller (stepless). The performances at corresponding voltages are given in the performance curve.

Electrical connection

Terminal box (IP 44) fitted to flying lead.

Installation

Installation in any position. The accessibility/swing-out need to be taken into account.

Sound level

Above the performance curve, the total value and spectrum are given for:

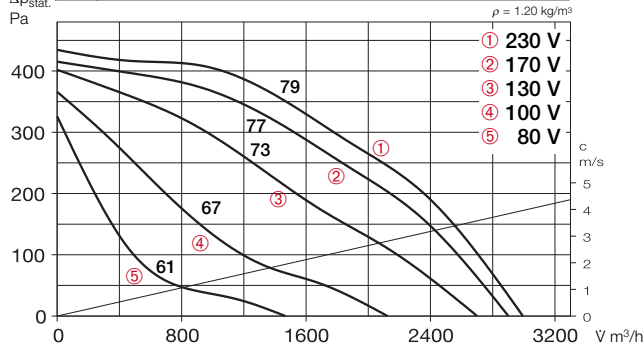
- Sound level case breakout
 - Sound level intake
 - Sound level exhaust
- The sound level (on intake) is additionally shown within the performance curve for corresponding control voltages. On the chart below you can also find:
- Case breakout sound level at 4 m (free-field conditions).

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Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption		Connection by wiring diagram	Max. air flow temperature by		Nominal weight (net)	Speed controller 5-step with motor full protection		Motor full protection device to connect built-in thermal contacts	
					kW	A		Nom. vol.	+°C		Type	Ref. No.	Type	Ref. No.
Single phase - alternating current, 230 V, 50 Hz, capacitor motor, thermal contacts, protection to IP 44														
KRW 355/4/60/35	8692	3000	1400	44	0.41	2.1	536.1	60	50	30	MWS 3	1948	MW	1579
KRW 400/4/60/35	8693	3950	1370	42	0.51	2.5	536.1	60	50	31	MWS 5	1949	MW	1579
Sound insulated model SKR.. - Single phase - alternating current, 230 V, 50 Hz, capacitor motor, protection to IP 44														
SKRW 355/4/60/35	8681	3000	1400	38	0.41	2.1	536.1	60	50	51	MWS 3	1948	MW	1579
SKRW 400/4/60/35	8686	3950	1370	36	0.51	2.5	536.1	60	50	56	MWS 5	1949	MW	1579

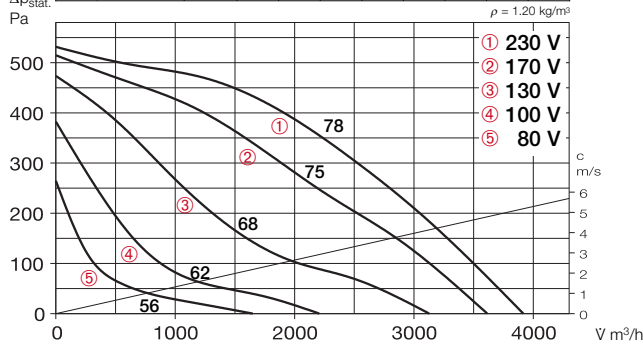
KRW 355/4/60/35

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		64	63	57	53	54	50	45	34
L _{WA} Intake		77	74	73	60	62	66	64	53
L _{WA} Exhaust		79	69	75	67	70	71	69	58



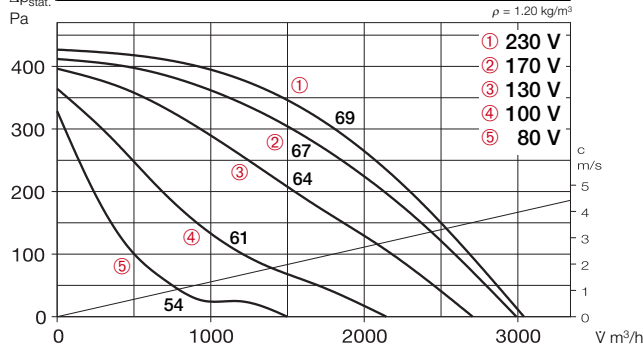
KRW 400/4/60/35

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		62	52	58	56	56	54	49	41
L _{WA} Intake		78	69	77	65	66	68	62	56
L _{WA} Exhaust		82	70	80	72	75	73	67	61



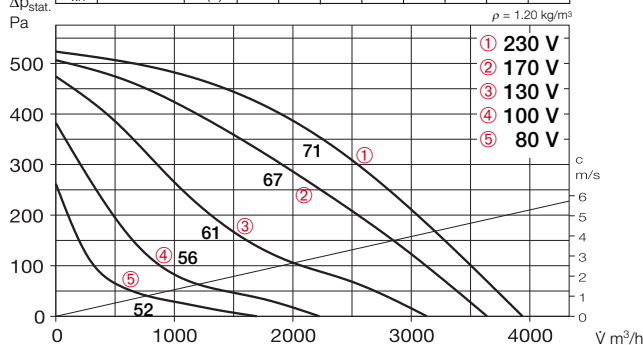
Sound insulated model SKRW 355/4/60/35

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		58	54	55	43	45	35	32	29
L _{WA} Intake		69	65	66	49	45	46	43	39
L _{WA} Exhaust		75	68	73	60	63	61	56	52



Sound insulated model SKRW 400/4/60/35

Frequency	Hz	Total	125	250	500	1k	2k	4k	8k
L _{WA} Case breakout		56	53	53	46	44	39	36	36
L _{WA} Intake		71	65	68	55	50	53	48	42
L _{WA} Exhaust		80	69	78	66	68	67	62	56



Accessories

Gravity shutter

VK 60/35 Ref. No. 0878
Air stream operated louvres, light grey polymer.



External louver

WSG 60/35 Ref. No. 0113
Heavy duty construction made from anodised aluminium profile section.



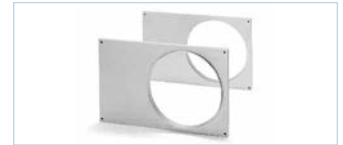
Vol. control damper for ducting

JVK 60/35 Ref. No. 6914
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.



Circular spigot

FSK 60/35 Ref. No. 0835
For cost effective adaption of rectangular fans into circular ducting systems with ø 355 mm.



Flexible connectors

VS 60/35 Ref. No. 5698
Flexible in-duct connector with flanges on both sides.



Matching flange

GF 60/35 Ref. No. 6923
Flange frames made of galvanised steel for connection to ducting.



Rectangular attenuator

KSD 60/30-35 Ref. No. 8730
For in-duct installation on intake or exhaust side.



Air-duct filter

KLF 60/30-35 G4 Ref. No. 8722
KLF 60/30-35 F7 Ref. No. 8646
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.



Electric heater battery

EHR-K 15/60/30-35 Ref. No. 8706
EHR-K 30/60/30-35 Ref. No. 8707
Heating elements enclosed in a galvanised steel casing with connecting flanges on both sides.



Temperature control system for electric heater battery

EHSD 16 Ref. No. 5003



LPHW heater battery

WHR 2/60/30-35 Ref. No. 8786
WHR 4/60/30-35 Ref. No. 8787
For in-duct installation.



Temperature control system for LPHW heater battery

WHS 2200¹⁾ Ref. No. 8816

¹⁾ In model WHR 4/60/30-35 the heat output is reduced to 2200 l/h.

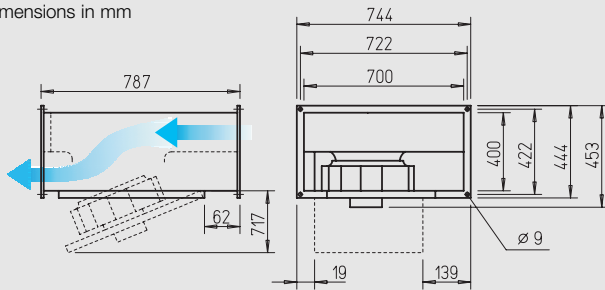


Model KR..

Suitable for polluted air.



Dimensions in mm

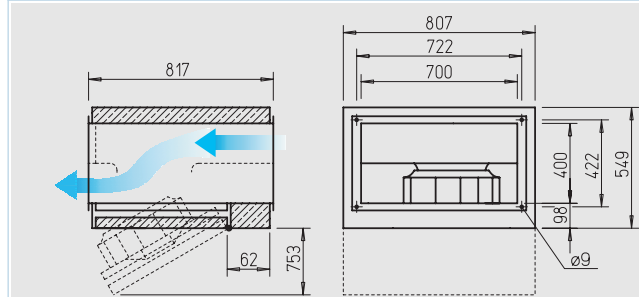


Sound insulated model SKR..



Lowest sound levels for intake and case breakout at higher power density.

Use in extract and fresh air systems with specific requirements for low noise levels.



Features of model KR.. and model SKR..

- High pressure and high volume with high efficiency centrifugal fan.
- Particularly easy to service (cleaning) thanks to the swing-out motor impeller unit.
- For cleaning, easy access and therefore suitable for extraction of polluted air.
- Straight through-flow.
- Compact design, convenient installation.

Special features of model SKR..

- Lowest sound levels for intake and case breakout at higher power density.

Specification

- Casing KR..**
Made of galvanised steel. Flanged (20 mm) on both ends for in-duct installation.

- Casing SKR..**
As above, but with additional sound insulation with 50 mm thick mineral fibre board, inside lined with a sound deadening perforated plate.

Common features of model KR.. and model SKR..

- Impeller**
Centrifugal, backward curved impeller made from polymer and galvanised steel. Aerodynamically optimised, intake air flow by means of an inlet nozzle.

Motor

Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings with protection against moisture. Ball bearing mounted and radio suppressed. Motor and impeller are dynamically balanced.

Motor protection

By built-in thermal contacts through tripping unit (accessory).

Speed control

By voltage reduction using a 5 speed transformer controller or an electronic controller (stepless). The performances at corresponding voltages are given in the performance curve.

Electrical connection

Terminal box (IP 55 in 3 ph.- or IP 44 in 1 ph.-types) fitted to flying lead.

Installation

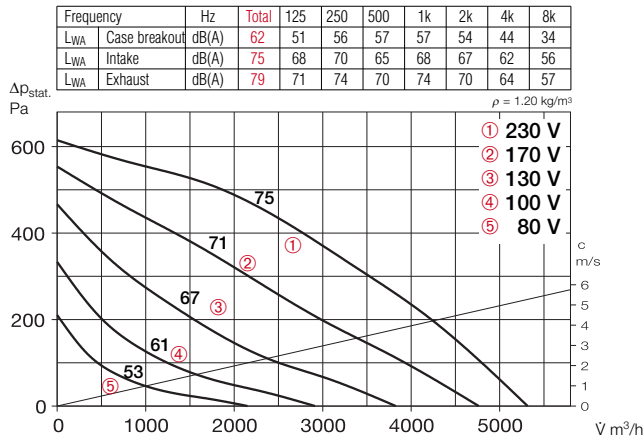
Installation in any position. The accessibility/swing-out need to be taken into account.

Sound level

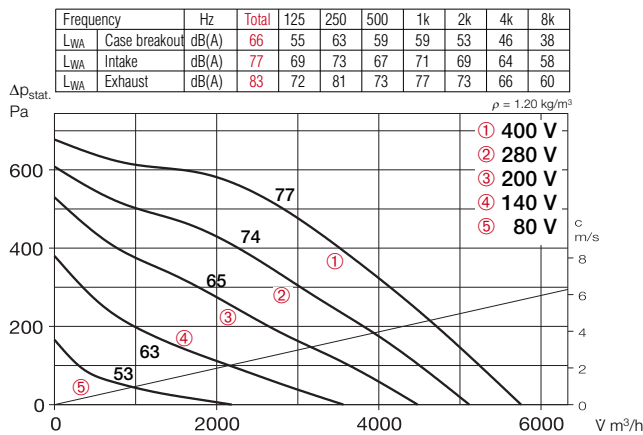
Above the performance curve, the total value and spectrum are given for:
 - Sound level case breakout
 - Sound level intake
 - Sound level exhaust
 The sound level (on intake) is additionally shown within the performance curve for corresponding control voltages. On the chart below you can also find:
 - Case breakout sound level at 4 m (free-field conditions).

Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption		Connection by wiring diagram	Max. air flow temperature by		Nominal weight (net)	Speed controller 5-step with motor full protection		Motor full protection device to connect built-in thermal contacts	
		V m ³ /h	min ⁻¹	dB(A) in 4 m	kW	A		+°C	+°C		kg	Type	Ref. No.	Type
Single phase - alternating current, capacitor motor, 230 V, 50 Hz, protection to IP 44														
KRW 450/4/70/40	8641	5350	1250	42	0.73	3.3	536.1	65	65	39	MWS 5	1949	MW	1579
3-phase alternating current motor, 230/400 V, 50 Hz, thermal contacts, protection to IP 44														
KRD 450/4/70/40	8694	5750	1360	46	0.78	2.7/1.6	499	70	70	39	RDS 2	1315	MD	5849
Sound insulated model SKR.. - Single phase - alternating current, capacitor motor, 230 V, 50 Hz, protection to IP 44														
SKRW 450/4/70/40	8640	5350	1250	36	0.73	3.3	536.1	65	65	63	MWS 5	1949	MW	1579
Sound insulated model SKR.. - 3-phase alternating current motor, 230/400 V, 50 Hz, thermal contacts, protection to IP 44														
SKRD 450/4/70/40	8687	5750	1350	38	0.78	2.7/1.6	499	70	70	63	RDS 2	1315	MD	5849

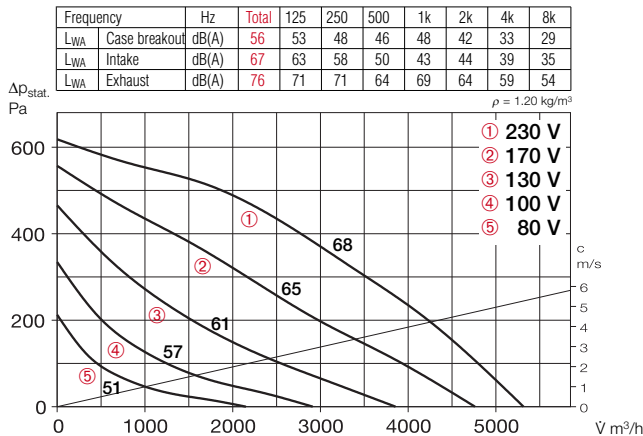
KRW 450/4/70/40



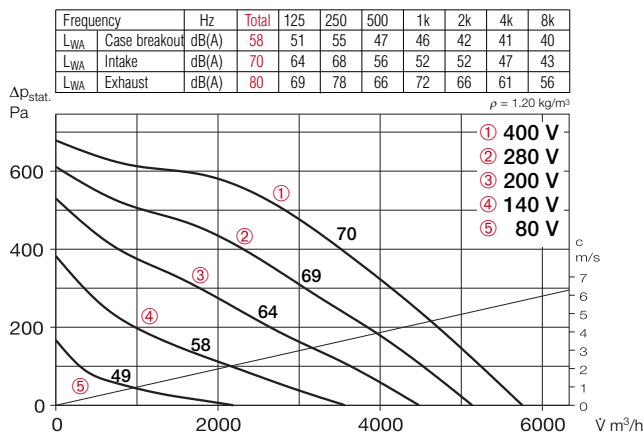
KRD 450/4/70/40



Sound insulated model SKRW 450/4/70/40



Sound insulated model SKRD 450/4/70/40



Accessories

Gravity shutter

VK 70/40 Ref. No. 0879
Air stream operated louvres, light grey polymer.



External louver

WSG 70/40 Ref. No. 0114
Heavy duty construction made from anodised aluminium profile section.



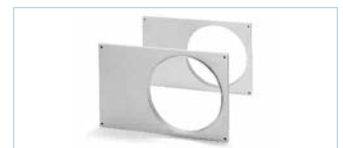
Vol. control damper for ducting

JVK 70/40 Ref. No. 6915
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.



Circular spigot

FSK 70/40 Ref. No. 0840
For cost effective adaption of rectangular fans into circular ducting systems with ø 400 mm.



Flexible connectors

VS 70/40 Ref. No. 5699
Flexible in-duct connector with flanges on both sides.



Matching flange

GF 70/40 Ref. No. 6924
Flange frames made of galvanised steel for connection to ducting.



Rectangular attenuator

KSD 70/40 Ref. No. 8731
For in-duct installation on intake or exhaust side.



Air-duct filter

KLF 70/40 G4 Ref. No. 8723
KLF 70/40 F7 Ref. No. 8647
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.



LPHW heater battery

WHR 2/70/40 Ref. No. 8788
WHR 4/70/40 Ref. No. 8789
For in-duct installation.



Temperature control system for LPHW heater battery

WHS 2200¹⁾ Ref. No. 8816
¹⁾ In model WHR 4/70/40 the heat output is reduced to 2200 l/h.



Accessory details Page

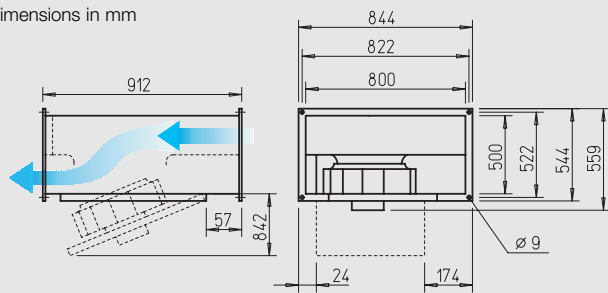
Shutters, grilles and louvres	304, 361 on
Filters, heaters and attenuators	305 on
Temperature control systems for heaters	311, 316
Speed controllers and motor full protection devices	397 on

Model KR..

Suitable for polluted air.



Dimensions in mm

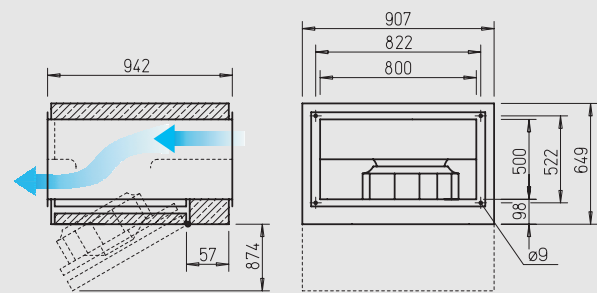


Sound insulated model SKR..



Lowest sound levels for intake and case breakout at higher power density.

Use in extract and fresh air systems with specific requirements for low noise levels.



■ **Features of model KR.. and model SKR..**

- High pressure and high volume with high efficiency centrifugal fan.
- Particularly easy to service (cleaning) thanks to the swing-out motor impeller unit.
- For cleaning, easy access and therefore suitable for extraction of polluted air.
- Straight through-flow.
- Compact design, convenient installation.

■ **Special features of model SKR..**

- Lowest sound levels for intake and case breakout at higher power density.

■ **Specification**

Casing KR..
Made of galvanised steel. Flanged (20 mm) on both ends for in-duct installation.

Casing SKR..
As above, but with additional sound insulation with 50 mm thick mineral fibre board, inside lined with a sound deadening perforated plate.

Common features of model KR.. and model SKR..

Impeller
Centrifugal, backward curved impeller made of polymer and galvanised steel. Aerodynamically optimised, intake air flow by means of an inlet nozzle.

Motor

Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings with protection against moisture. Ball bearing mounted and radio suppressed. Motor and impeller are dynamically balanced.

Motor protection

By built-in thermal contacts through tripping unit (accessory).

Speed control

By voltage reduction using a 5 speed transformer controller or an electronic controller (stepless). The performances at corresponding voltages are given in the performance curve.

Electrical connection

Terminal box (IP 55 in 3 ph.- or IP 44 in 1 ph.-types) is mounted with the attached cable.

Installation

Installation in any position. The accessibility/swing-out need to be taken into account.

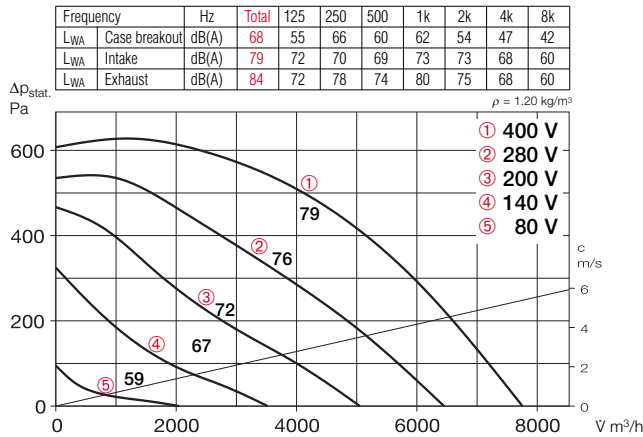
Sound level

Above the performance curve, the total value and spectrum are given for:
 - Sound level case breakout
 - Sound level intake
 - Sound level exhaust
 The sound level (on intake) is additionally shown within the performance curve for corresponding control voltages. On the chart below you can also find:
 - Case breakout sound level at 4 m (free-field conditions).

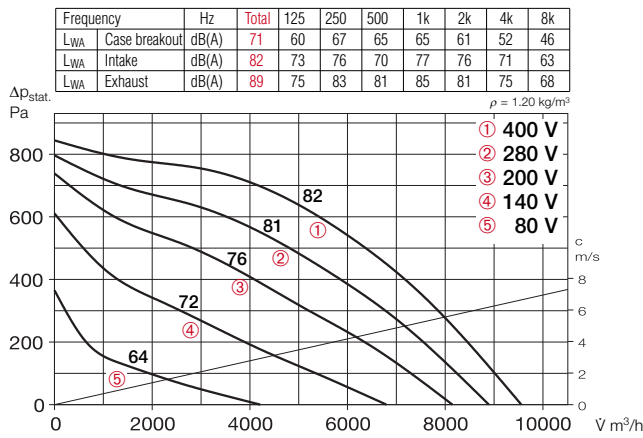
Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption		Connection by wiring diagram	Max. air flow temperature by		Nominal weight (net)	Speed controller 5-step with motor full protection		Motor full protection device to connect built-in thermal contacts	
					kW	A		+°C	+°C		Type	Ref. No.	Type	Ref. No.
Single phase - alternating current, capacitor motor, 230 V, 50 Hz, protection to IP 44														
KRW 500/6/80/50 ¹⁾	8678	7800	870	44	0.86	4.4	536.1	60	60	64	MWS 7.5	1950	—	—
3-phase alternating current motor, 230/400 V, 50 Hz, thermal contacts, protection to IP 44														
KRD 500/4/80/50 A	8643	7850	1310	48	1.19	3.6/2.1	499	70	70	61	RDS 4	1316	MD	5849
KRD 500/4/80/50 B	8695	9600	1400	51	1.71	6.4/3.7	499	70	70	58	RDS 7	1578	MD	5849
Sound insulated model SKR.. – Single phase - alternating current, capacitor motor, 230 V, 50 Hz, protection to IP 44														
SKRW 500/6/80/50 ¹⁾	8682	7800	870	38	0.86	4.4	536.1	60	60	87	MWS 7.5	1950	—	—
Sound insulated model SKR.. – 3-phase alternating current motor, 230/400 V, 50 Hz, thermal contacts, protection to IP 44														
SKRD 500/4/80/50 A	8642	7850	1310	42	1.19	3.6/2.1	499	70	70	84	RDS 4	1316	MD	5849
SKRD 500/4/80/50 B	8688	9600	1400	44	1.71	6.4/3.7	499	70	70	87	RDS 7	1578	MD	5849

¹⁾ In this model deviant performance curve; available on request.

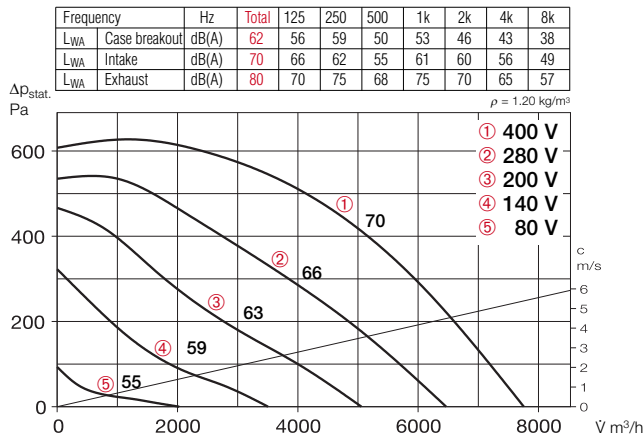
KRD 500/4/80/50 A



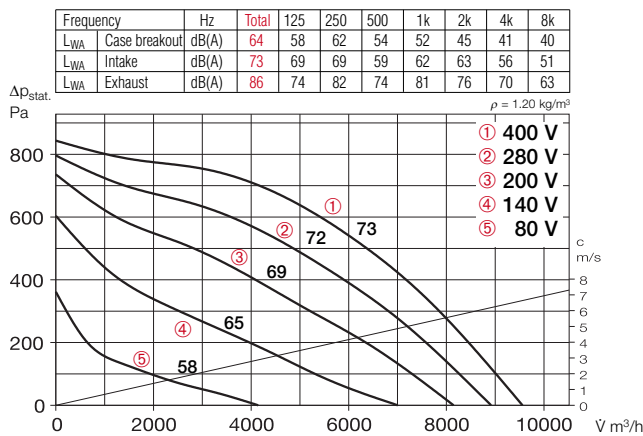
KRD 500/4/80/50 B



Sound insulated model SKRD 500/4/80/50 A



Sound insulated model SKRD 500/4/80/50 B



Accessories

Gravity shutter

VK 80/50 Ref. No. 0880
Air stream operated louvres, light grey polymer



External louver

WSG 80/50 Ref. No. 0115
Heavy duty construction made from anodised aluminium profile section.



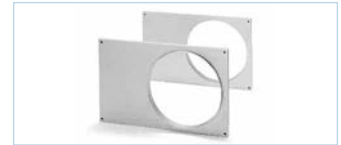
Vol. control damper for ducting

JVK 80/50 Ref. No. 6916
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.



Circular spigot

FSK 80/50 Ref. No. 0842
For cost effective adaption of rectangular fans into circular ducting systems with ø 500 mm.



Flexible connectors

VS 80/50 Ref. No. 5700
Flexible in-duct connector with flanges on both sides.



Matching flange

GF 80/50 Ref. No. 6925
Flange frames made of galvanised steel for connection to ducting.



Rectangular attenuator

KSD 80/50 Ref. No. 8732
For in-duct installation on intake or exhaust side.



Air-duct filter

KLF 80/50 G4 Ref. No. 8670
KLF 80/50 F7 Ref. No. 8654
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.



LPHW heater battery

WHR 2/80/50 Ref. No. 8795
WHR 4/80/50 Ref. No. 8796
For in-duct installation.



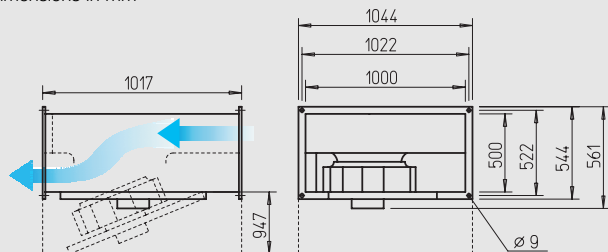
Accessory details	Page
Shutters, grilles and louvres	304, 361 on
Filters, heaters and attenuators	305 on
Speed controllers and motor full protection devices	397 on

Model KR..

Suitable for polluted air.



Dimensions in mm

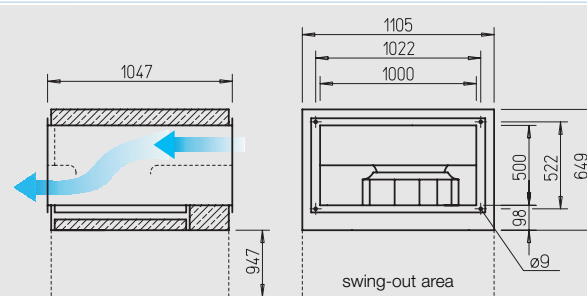


Sound insulated model SKR..



Lowest sound levels for intake and case breakout at higher power density.

Use in extract and fresh air systems with specific requirements at the noise level.



■ Features of model KR.. and model SKR..

- High pressure and high volume with high efficiency centrifugal fan.
- Particular ease of service (cleaning) thanks to the swing-out motor impeller unit.
- For cleaning, easy access and therefore suitable for extraction of polluted air.
- Straight through-flow.
- Compact design, convenient installation.

■ Special features of model SKR..

- Lowest sound levels for intake and case breakout at higher power density.

■ Specification

□ Casing KR..
Made of galvanised steel. Flanged (20 mm) on both ends for in-duct installation.

□ Casing SKR..
As above, but with additional sound insulation with 50 mm thick mineral fibre board, inside lined with a sound deadening perforated plate.

□ Common features of model KR.. and model SKR..

□ Impeller
Centrifugal, backward curved impeller made of polymer and galvanised steel. Aerodynamically optimised, intake air flow by means of an inlet nozzle.

□ Motor

Totally enclosed, maintenance-free external rotor motor with directly fitted impeller, protected to IP 44. Windings with protection against moisture. Ball bearing mounted and radio suppressed. Motor and impeller are dynamically balanced.

□ Motor protection

By built-in thermal contacts through tripping unit (accessory).

□ Speed control

By voltage reduction using a 5 speed transformer controller or an electronic controller (stepless). The performances at corresponding voltages are given in the performance curve.

□ Electrical connection

Terminal box (IP 55 in 3 ph.- or IP 44 in 1 ph.-types) fitted to flying lead.

□ Installation

Installation in any position. The accessibility/swing-out need to be taken into account.

□ Sound level

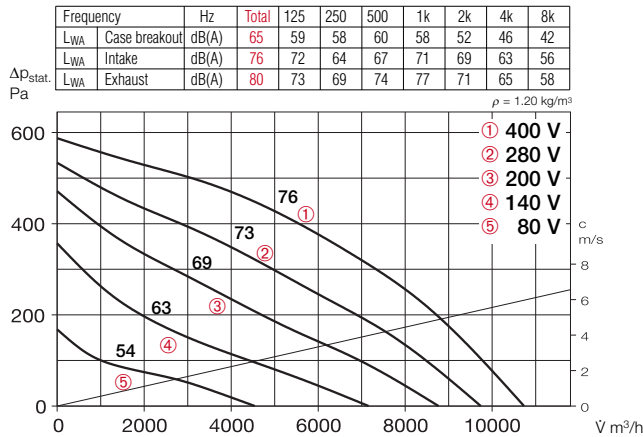
Above the performance curve, the total value and spectrum are given for:

- Sound level case breakout
 - Sound level intake
 - Sound level exhaust
- The sound level (on intake) is additionally shown within the performance curve for corresponding control voltages. On the chart below you can also find:
- Case breakout sound level at 4 m (free-field conditions).

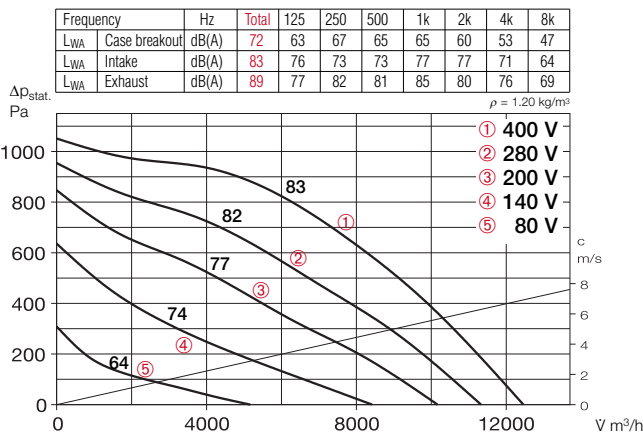
Type	Ref. No.	Air flow volume	Nominal R.P.M.	Sound pressure case breakout	Power consumption		Connection by wiring diagram	Max. air flow temperature by		Nominal weight (net)	Speed controller 5-step with motor full protection		Motor full protection device to connect built-in thermal contacts	
					kW	A		Nom. vol.	Control		Type	Ref. No.	Type	Ref. No.
		V m ³ /h	min ⁻¹	dB(A) in 4 m			No.	+°C	+°C	kg				
Single phase - alternating current, capacitor motor, 230 V, 50 Hz, protection to IP 44														
KRW 560/6/100/50 ¹⁾	8679	10 850	870	46	1.31	6.4	536.1	65	60	88	MWS 7.5	1950	—	—
3-phase alternating current motor, 230/400 V, 50 Hz, thermal contacts, protection to IP 44														
KRD 560/6/100/50	8672	10 800	890	45	1.28	6.0/3.4	499	60	60	88	RDS 7	1578	MD	5849
KRD 560/4/100/50	8696	12 500	1340	52	2.54	8.7/5.0	499	70	70	80	RDS 7	1578	MD	5849
Sound insulated model SKR.. – Single phase - alternating current, capacitor motor, 230 V, 50 Hz, protection to IP 44														
SKRW 560/6/100/50 ¹⁾	8683	10 850	870	40	1.31	6.4	536.1	65	60	132	MWS 7.5	1950	—	—
Sound insulated motor SKR.. – 3-phase alternating current motor, 230/400 V, 50 Hz, thermal contacts, protection to IP 44														
SKRD 560/6/100/50	8680	10 800	890	40	1.28	6.0/3.4	499	60	60	132	RDS 7	1578	MD	5849
SKRD 560/4/100/50	8689	12 500	1340	45	2.54	8.7/5.0	499	70	70	124	RDS 7	1578	MD	5849

¹⁾In this model deviant performance curve; available on request.

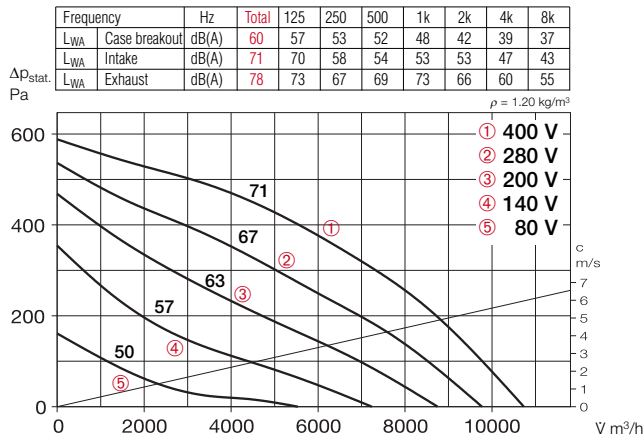
KRD 560/6/100/50



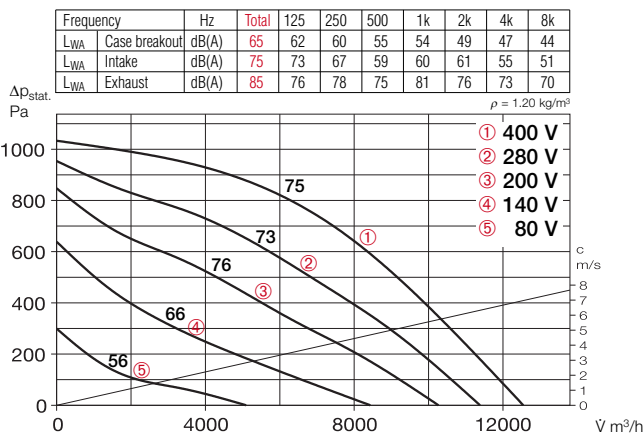
KRD 560/4/100/50



Sound insulated model SKRD 560/6/100/50



Sound insulated model SKRD 560/4/100/50



Accessories

Gravity shutter

VK 100/50 Ref. No. 0881
Air stream operated louvres, light grey polymer.



External louver

WSG 100/50 Ref. No. 0116
Heavy duty construction made from anodised aluminium profile section.



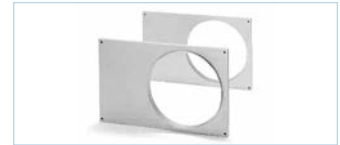
Vol. control damper for ducting

JVK 100/50 Ref. No. 6917
Casing made of galvanised steel with flanges on both sides. The control mechanism is outside the airstream. For electrical drive, see STM, accessory.



Circular spigot

FSK 100/50 Ref. No. 0843
For cost effective adaption of rectangular fans into circular ducting systems with ø 500 mm.



Flexible connectors

VS 100/50 Ref. No. 5701
Flexible in-duct connector with flanges on both sides.



Matching flange

GF 100/50 Ref. No. 6926
Flange frames made of galvanised steel for connection to ducting.



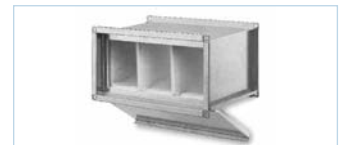
Rectangular attenuator

KSD 100/50 Ref. No. 8733
For in-duct installation on intake or exhaust side.



Air-duct filter

KLF 100/50 G4 Ref. No. 8671
KLF 100/50 F7 Ref. No. 8655
Bag filter with a large cross section area. Galvanised steel casing with flanges on both sides.



LPHW heater battery

WHR 2/100/50 Ref. No. 8797
WHR 4/100/50 Ref. No. 8798
For in-duct installation.



Accessory details	Page
Shutters, grilles and louvres	304, 361 on
Filters, heaters and attenuators	305 on
Speed controllers and motor full protection devices	397 on

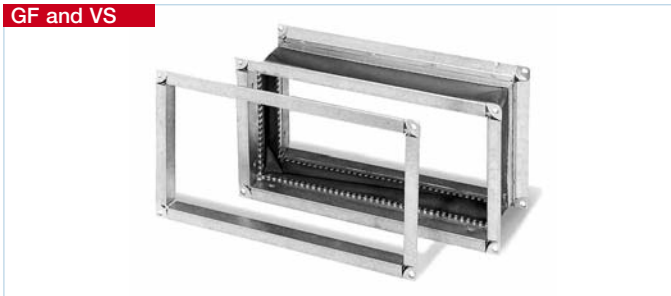
Matching flange GF

Designed for connecting rectangular fans and accessories to ducting where the flange frames are made of galvanised steel.

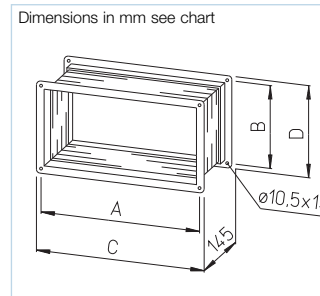
Connectors VS

Flexible ducting connector with flange frames on both ends, made of galvanised steel, with sealing lip all around; leak proof to VDI 3803, temperature resistance from -10 °C to +80 °C. The elastic sleeve at the middle section is made of plastic fibre bonded material. Designed to fit into rectangular fans. In order to prevent the vibration transmission and compensate small misalignments on site, the flexible connectors are fitted between ducting and fan on intake and exhaust side. For explosion proof rectangular fans use VS.. Ex (explosion-proof) models.

GF and VS



Dimensions in mm see chart



Matching flange GF		Connectors VS		Connector for explosionproof fans		Fits fan nominal size	Dimensions in mm				Nominal weight in kg	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.		A	B	C	D	GF..	VS..
GF 30/15	6918	VS 30/15	6928	—	—	300 x 150	320	170	340	190	0.7	1.8
GF 40/20	6919	VS 40/20	5694	—	—	400 x 200	420	220	440	240	0.8	2.3
GF 50/25	6920	VS 50/25	5695	VS 50/25 Ex	0265	500 x 250	520	270	540	290	0.9	2.8
GF 50/30	6921	VS 50/30	5696	VS 50/30 Ex	0266	500 x 300	520	320	540	340	1.0	2.9
GF 60/30	6922	VS 60/30	5697	VS 60/30 Ex	0267	600 x 300	620	320	640	340	1.1	3.2
GF 60/35	6923	VS 60/35	5698	VS 60/35 Ex	0268	600 x 350	620	370	640	390	1.1	3.4
GF 70/40	6924	VS 70/40	5699	VS 70/40 Ex	0269	700 x 400	720	420	740	440	1.2	3.7
GF 80/50	6925	VS 80/50	5700	—	—	800 x 500	820	520	840	540	1.5	4.5
GF 100/50	6926	VS 100/50	5701	—	—	1000 x 500	1020	520	1040	540	1.7	5.0

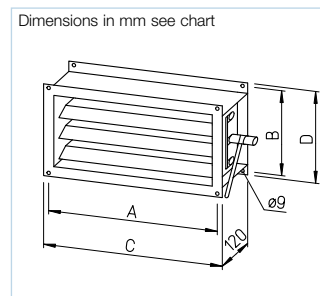
Volume control damper JVK

Flanged casing on both sides, made of galvanised steel, designed to fit into rectangular fans. The blades are hollow and their shafts run embedded in polymer guides. The external control lever adjusts all blades equally. The control mechanism is also outside the airstream and secured against operational interruptions therefore unaffected by airborne contamination. The blades create an additional pressure drop (shown in the diagram alongside) which must be considered when designing.

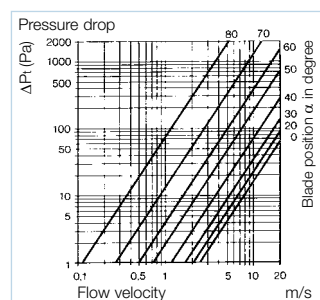
JVK



Dimensions in mm see chart



Type	Ref. No.	Fits fan nominal size	Impeller ø mm	Dimensions in mm				Nominal weight in kg
				A	B	C	D	
JVK 30/15	6927	300 x 150	180	320	170	340	190	3.5
JVK 40/20	6910	400 x 200	200-250	420	220	440	240	4.0
JVK 50/25	6911	500 x 250	315	520	270	540	290	5.0
JVK 50/30	6912	500 x 300	250	520	320	540	340	6.0
JVK 60/30	6913	600 x 300	285	620	320	640	340	7.0
JVK 60/35	6914	600 x 350	315-400	620	370	640	390	7.2
JVK 70/40	6915	700 x 400	355-450	720	420	740	440	9.0
JVK 80/50	6916	800 x 500	400-500	820	520	840	540	11.7
JVK 100/50	6917	1000 x 500	450-560	1020	520	1040	540	13.5



Accessory – servo motor

STM 10 Ref. No. 8698
Electric drive for opening and closing of volume control dampers JVK. Installation in any position by using fixing clamp (for ø 8–16 or ø 8–12 mm) and fixing with the attached anti-rotation locking bracket. Adjustment of shutter position by using the gear unlock button. Output signal available to indicate “open” or “close”. Visible indication of shutter position (0–90°).

STM



Technical information STM 10

Supply voltage 230 V, 50/60 Hz
Torque 10 Nm
Rotation angle 0 to 90°
Switched output AC 3 0.5 A
Running time (open/close) 100 s
Left/right motor rotation available
Ambient temp. -20 to +50 °C
Protection IP 54
Insulation class II
Dimension mm W 76x H 140x D 58
Weight appr. 0.7 kg
Wiring diagram-No. SS-705

Other accessories for rectangular fans Page

Shutters, grilles and louvres	361 on
Filters, heaters and attenuators	305 on
Speed controllers and motor full protection devices	397 on

Clean, warm and quiet air systems can be obtained by using the air handling components provided by Helios.

Regardless of whether for circular or rectangular ducting; the complete range includes all sizes and performance levels, perfectly designed to operate with Helios fans. This gives the essential flexibility for design and installation.

Air filters

For wall and ceiling installation with G4 and F7 filter classes. With flanges on both sides for in-duct installation as well as air filter boxes in nominal duct diameters.

Page 306 on

Heater batteries

For comfortable, tempered intake air in finely adjusted performance levels just as with integrated temperature control system.

Page 309 on

Temperature control systems

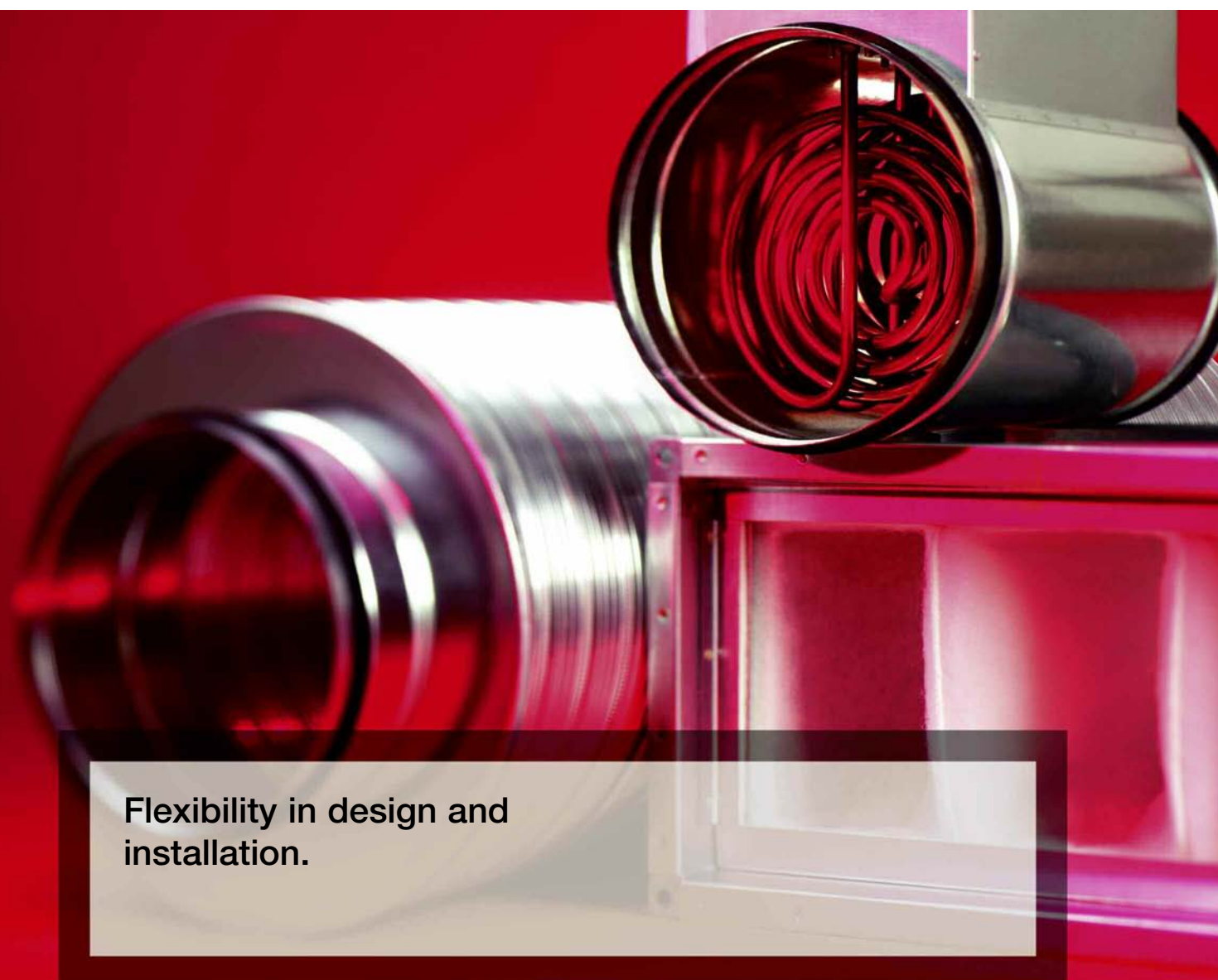
For electric and warm water heater batteries.

Page 311, 315 on

Attenuators

In all sizes and model designs for installation in rectangular or circular ducting, made of galvanised steel or flexible aluminium.

Page 318 on



Flexibility in design and installation.

■ **Simple to install components for effective solutions**

The controlled intake of outside air is essential for creating a good ventilation system and meeting the regulations in most cases. The purification of supply air is a must nowadays. For this purpose, HELIOS offer simple and effective components for various installation conditions.

■ **Accessories for air filters**

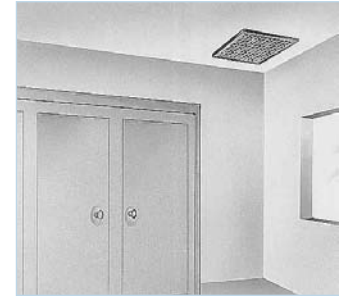
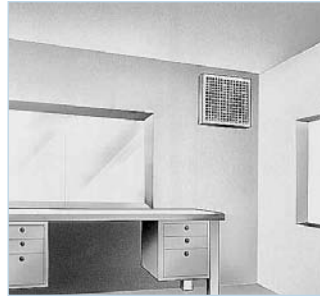
Complete kit to monitor the pressure drop and thus the contamination of air filters. The gold coated connector makes it suitable for BMS applications. Pressure range 50–500 Pa, ambient temperature from –20 to + 85 °C and air flow temperature from –20 to 85 °C.

Differential pressure switch

DDS Ref. No. 0445

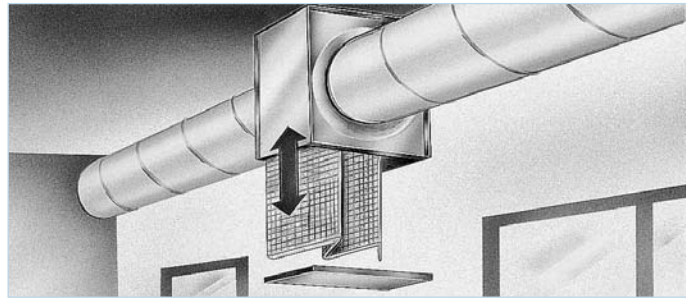
■ **Model LF.., for wall and ceiling installation**

Stylish design to cover ventilation openings. Air flow volumes from 200 to 4000 m³/h.



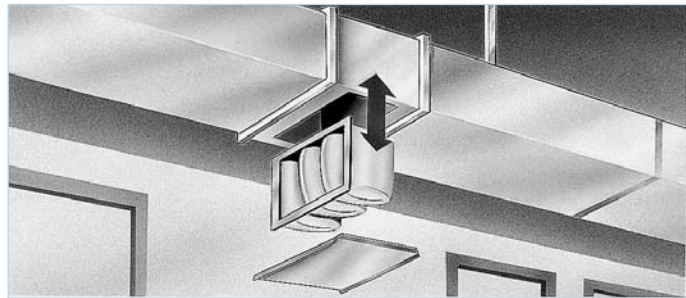
■ **LFB.., Filter box for duct connection**

For in-line installation of circular ducting with dimensions from 100 to 400 mm ø and air flow volumes from 100 to 4000 m³/h.



■ **KLF.., Rectangular air filter**

for direct installation into ducting. Dimensions fit rectangular fan range. Air flow volumes up to 5000 m³/h.



■ **Air filter LF for wall and ceiling installation**

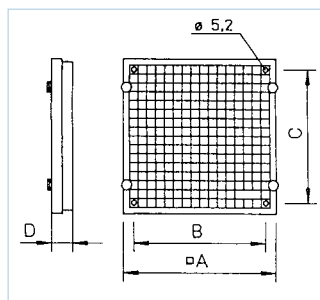
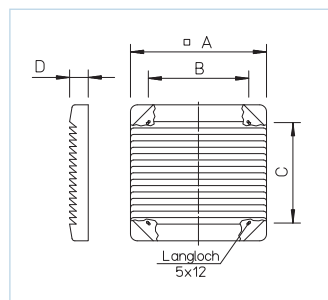
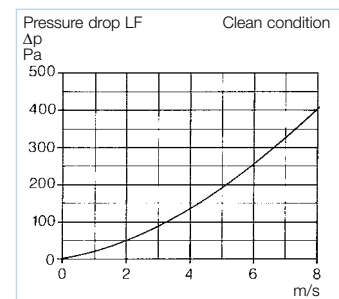
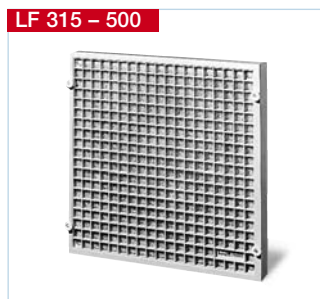
Specifically designed to cover internal ventilation and duct openings on the wall and ceiling. Egg crate grilles superimposed on frames are made of high quality, light grey polymer. Complete flow through of filter mat. Large cross section area of filter reduces the pressure drop and increases the dust storing capacity.

□ **Filter mat** made of washable synthetic fibre, class G 2, thermally bonded, 100 g/m², fire resistant to DIN 53438: F1. 67% particle separation, dust storage capacity: 380 g/m².

□ **Installation** via four concealed holes in the frame, can be doweled in any position.

□ **Cleaning** Depending on the system a filter replacement is necessary if the pressure drop exceeds approximately 1, 5-2 times of the original value. Remove the filter mat after loosening the egg crate grille and clean both parts in soapy water. Afterwards reinsert it and fix with the four plastic nuts.

□ **Spare filter mats** Due to decay, the mat may need to be replaced after several times of cleaning. See the chart for ordering information of spare filters. Contents: 5 pieces.



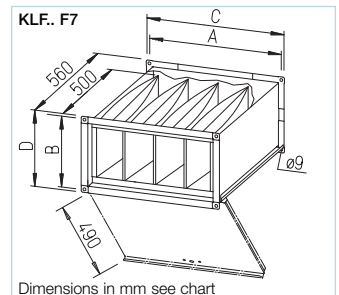
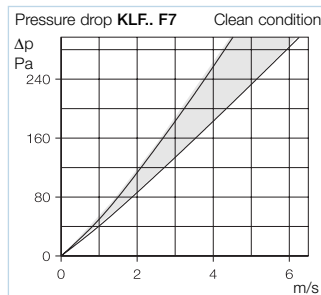
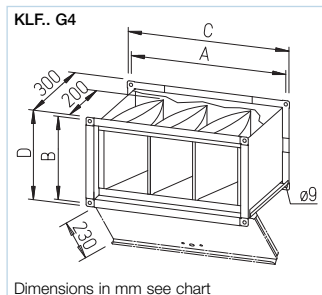
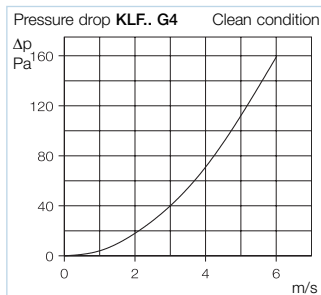
□ **Pressure drop**
Air filters generate a resistance, as shown on the curve above, which must be considered when designing the system.

Type	Ref. No.	Fits fan nominal size	Maximum dimensions of opening	Dimensions				Nominal weight	Spare filter mats (Contents = 5 pieces)	
				A	B	C	D		Type	Ref. No.
LF 200	0743	200	ø 200	287	210	210	39.0	0.80	ELF 200	0737
LF 250	0744	250/280	ø 300	337	240	240	39.0	1.00	ELF 250	0738
LF 315	0745	315	330 x 300	390	343	317	39.0	0.85	ELF 315	0739
LF 355	0746	355	380 x 350	440	393	367	39.0	0.95	ELF 355	0740
LF 400	0747	400	355 x 400	490	443	417	31.5	1.85	ELF 400	0741
LF 500	0748	450/500	475 x 450	540	493	467	31.5	2.25	ELF 500	0742

KLF.. G4, filter class G4



KLF.. F7, filter class F7



■ Rectangular air filter KLF..

Air filter with flanges at both ends for in-duct installation.

□ Casing

Made of galvanised steel. The cover is detachable in order to remove filters by means of quick release fasteners.

□ Bag filter cassette

Held in a frame that is made of galvanised steel. Filter bags with a large cross section area for high dust storage capacity.

Models KLF.. G4 with filter class G4, made of washable synthetic fibre, highly strengthened, 190 g/m². DIN 53438 F1, self extinguishing. 91,3% particle separation, dust storage capacity: 354 g/m².

Models KLF.. F7 with filter class F7, made of synthetic fibre, DIN 53438 F1, self extinguishing. Particle separation rate: ca. 98%. Dust storage capacity: 88.6 g/m².

■ Note

The integration of the filter with F7 filter class and differential pressure switch DDS (Ref. No. 0445) in external air systems comply with the requirements of VDI 6022.

□ Installation

Horizontal and vertical (top-down air flow direction) in-duct installation. A free space must be allowed for easy removal of the filter. For areas with restricted space the cover can be detached without tools by an opening angle of more than 45°.

□ Cleaning

Depending on the system a filter replacement is necessary if the pressure drop exceeds approximately 1.5 – 2 times of the original value.

The filter cassette can be easily removed through the opening on the casing cover. After cleaning or replacement, the filter cassette should be reinserted; by closing the cover the filter cassette is pinched automatically to the casing gaskets.

□ Spare filter cassettes

Due to decay, the filter cassette may need to be replaced after several times of cleaning. See the chart for ordering information.

□ Pressure drop

Air filters generate a resistance as shown on the curve above; the grey coloured area demonstrates the air filter resistance of different sizes that must be considered when designing the system.

■ Accessories

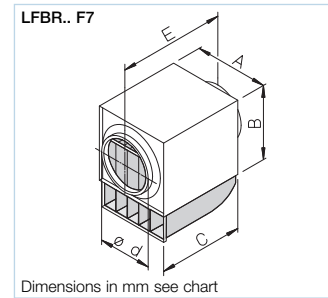
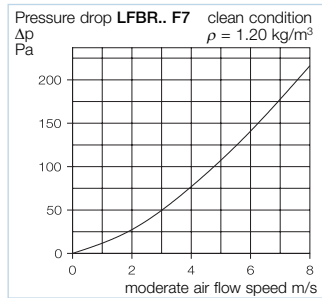
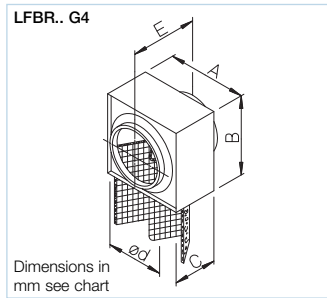
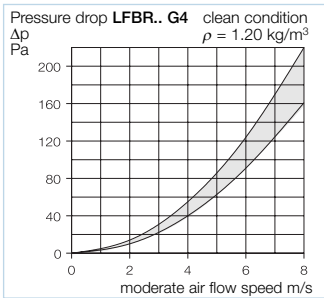
Differential pressure switch DDS Ref. No. 0445
Complete kit to monitor air filters. Pressure range: 50 – 500 Pa.

Type	Ref. No.	Fits fan nominal size NG cm	Dimensions in mm				Nominal weight ca. kg	Spare filter mats (Contents = 2 pieces) Ref. No.	
			A	B	C	D		Type	Ref. No.
Rectangular air filter KLF.. G4, filter class G4									
KLF 40/20 G4	8720	40/20	420	220	440	240	4.5	EKLF 40/20 G4	8724
KLF 50/25-30 G4	8721	50/25-30	520	270/320	540	340	6.0	EKLF 50/25-30 G4	8725
KLF 60/30-35 G4	8722	60/30-35	620	320/370	640	390	7.0	EKLF 60/30-35 G4	8726
KLF 70/40 G4	8723	70/40	720	420	740	440	8.5	EKLF 70/40 G4	8727
KLF 80/50 G4	8670	80/50	820	520	840	540	13.0	EKLF 80/50 G4	8673
KLF 100/50 G4	8671	100/50	1020	520	1040	540	15.0	EKLF 100/50 G4	8674
Rectangular air filter KLF.. F7, filter class F7									
KLF 40/20 F7	8644	40/20	420	220	440	240	6.5	EKLF 40/20 F7	8635
KLF 50/25-30 F7	8645	50/25-30	520	270/320	540	340	8.5	EKLF 50/25-30 F7	8636
KLF 60/30-35 F7	8646	60/30-35	620	320/370	640	390	10.5	EKLF 60/30-35 F7	8637
KLF 70/40 F7	8647	70/40	720	420	740	440	13.5	EKLF 70/40 F7	8638
KLF 80/50 F7	8654	80/50	820	520	840	540	20.5	EKLF 80/50 F7	8639
KLF 100/50 F7	8655	100/50	1020	520	1040	540	24.0	EKLF 100/50 F7	8659

LFBR.. G4, filter class G4



LFBR.. F7, filter class F7



- Air filter box LFBR..**
For in-line installation with circular ducting. Spigots on both ends are fitted with double lip rubber seals, matching nominal size ducting.
- Casing**
Made of galvanised steel. Access panel fitted with clamp for easy filter change.
- Filter**
Models LFBR.. G4 made of

washable plastic fibre, class G4. Temperature resistant up to +100°C. Fire resistant to DIN 53438 F1, self extinguishing, can be regenerated 10-15 times. 93,8% particle separation, dust storage capacity: 122 g/m².

Models LFBR.. F7 bag filter, class F7, made of synthetic polymer, 64 g/m². 98% particle separation, dust storage capacity: 88.6 g/m².

- Installation**
Suitable for installation in any position. A free space for a size of B must be allowed for easy removal of the filter.
- Cleaning**
Depending on the system a filter replacement is necessary if the pressure drop exceeds approximately 1.5 – 2 times of the original value. After removing the casing-cover pull out the filter element.

- Spare filter mats**
Due to decay, the mat may need to be replaced after several times of cleaning.
- Pressure drop**
Air filters generate a resistance as shown on the curve above; the grey coloured area demonstrates the air filter resistance of different sizes that must be considered when designing the system.

- Accessories**
Differential pressure switch DDS Ref. No. 0445
Complete kit to monitor air filters. Pressure range: 50 – 500 Pa.

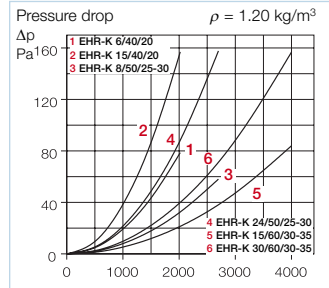
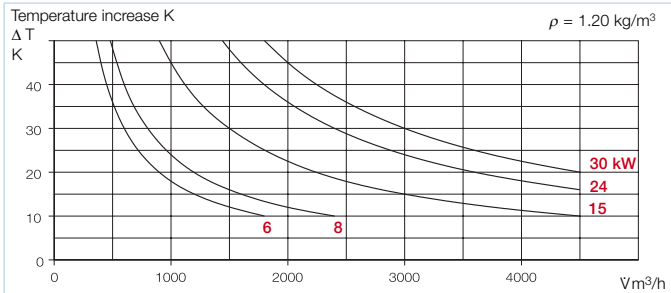
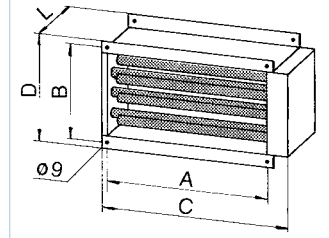
Type	Ref. No.	Connection- ø d	Dimensions in mm				Nominal weight ca. kg	Spare filter (Contents = 5 pieces)	
			A	B	C	E		Type	Ref. No.
Air filter box LFBR.. G4, filter class G4									
LFBR 100 G4	8576	100	205	170	120	227	1.5	ELFBR 100 G4	8585
LFBR 125 G4	8577	125	215	205	140	252	1.8	ELFBR 125 G4	8586
LFBR 160 G4	8578	160	265	235	155	267	2.4	ELFBR 160 G4	8587
LFBR 200 G4	8579	200	315	275	180	302	3.0	ELFBR 200 G4	8588
LFBR 250 G4	8580	250	365	325	230	352	4.2	ELFBR 250 G4	8589
LFBR 315 G4	8581	315	425	390	330	452	7.5	ELFBR 315 G4	8590
LFBR 355 G4	8583	355	515	495	455	587	12.0	ELFBR 355 G4	8592
LFBR 400 G4	8582	400	515	495	455	587	12.0	ELFBR 400 G4	8591
Air filter box LFBR.. F7, filter class F7									
(Contents = 5 pieces)									
LFBR 100 F7	8530	100	204	204	400	480	3.5	ELFBR 100 F7	8300
LFBR 125 F7	8531	125	204	204	400	480	3.5	ELFBR 125 F7	8301
LFBR 160 F7	8532	160	294	295	400	480	4.3	ELFBR 160 F7	8302
LFBR 200 F7	8533	200	294	295	400	480	4.3	ELFBR 200 F7	8303
LFBR 250 F7	8534	250	424	385	480	600	5.2	ELFBR 250 F7	8304
LFBR 315 F7	8535	315	424	385	480	600	5.2	ELFBR 315 F7	8305
LFBR 355 F7	8536	355	504	505	600	720	6.6	ELFBR 355 F7	8306
LFBR 400 F7	8537	400	504	505	600	720	6.6	ELFBR 400 F7	8307

Note
The integration of the filter with F7 filter class and differential pressure switch DDS (Ref. No. 0445) in external air systems comply with the requirements of VDI 6022.

EHR-K



Dimensions in mm see chart



Electric heater battery EHR-K
Heating elements enclosed in a galvanised casing with MEZ flanges on both sides for in-duct installation.

Heating elements with low surface temperature are individually wired to the outer terminal box and coils can be wired in several groups.

Equipped with a thermal switch which opens at 90 °C and re-sets itself after cooling down. The other thermal switch opens at 120 °C and must be reset manually.

Note

DIN VDE 0100-420 must be observed on site; a proper air flow monitoring and electrical interlocking shall be provided.

Installation

The heater must be installed downstream of the fan. If installing it before the fan, make sure that the air flow temperature at the fan does not exceed the fan's maximum temperature. A rectangular duct with a length of at least 1 metre must be installed between fan and heater. The heater should not be used below the minimum air flow volume of the heater battery. The electrical connection must be interlocked so that the heater cannot operate if the fan is not running. If the thermal switch releases, the heater battery must cut off automatically. The coils can be wired in groups so that the heat output can be reduced arbitrarily.

Selection and operation

The heater batteries generate an additional resistance that must be considered when designing the system. The temperature increase depends on air flow volume and heat output (see diagrams above). In order to prevent an unwanted thermal cut out, the air flow volume must be higher than the minimum figure shown in the chart.

Accessories

Electronic temperature controller EHS.. see model chart
Controls the heat output of the heating element by monitoring difference between the supply air temperature and the required temperature.

Duct sensor (Accessory for EHS..)

TFK Ref. No. 5005
Temperature sensor for detecting the air temperature in ducting.

Room sensor (Accessory for EHS..)

TFR Ref. No. 5006
Temperature sensor with integrated "desired value encoder" for surface mounting. Can also be used as temperature sensor or as desired value encoder only.

Accessories	Page
Electronic temperature controller EHS..	311

Type	Ref. No.	Power kW	Drives x kW	Current A	Minimum air flow volume m³/h	Fits fan nominal size NG cm	Wiring diagram ¹⁾ Nr.	Dimensions in mm					Nominal weight kg	Suitable temperature controller		
								A	B	C	D	L		Type	Ref. No.	
3-phase motor, 400																
EHR-K	6/40/20	8702	6	2 x 3	8.7	430	40/20	361.4	423	223	550	250	200	7.3	EHSD 16	5003
EHR-K	15/40/20	8703	15	5 x 3	21.7	430	40/20	366.4	423	223	550	250	320	13.3	EHSD 16	5003
EHR-K	8/50/25-30	8704	8	2 x 4	11.3	680	50/25-30	362.4	523	273/323	650	350	200	9.2	EHSD 16	5003
EHR-K	24/50/25-30	8705	24	6 x 4	33.9	680	50/25-30	364.4	523	273/323	650	350	250	17.2	EHSD 30	5004
EHR-K	15/60/30-35	8706	15	3 x 5	20.9	980	60/30-35	365.4	623	323/373	750	400	200	12.9	EHSD 16	5003
EHR-K	30/60/30-35	8707	30	6 x 5	41.7	980	60/30-35	363.4	623	323/373	750	400	200	19.3	EHSD 30	5004

¹⁾ Principal wiring for all models use wiring diagram No. SS-476.2

Electric heater battery EHR-R

Heating elements with low surface temperature made of stainless high-grade steel and are totally enclosed in a galvanized casing with terminal box for commercial in-duct installations.

Equipped with a thermal switch which opens at 50 °C and resets itself after cooling down. The other thermal switch opens at 120 °C and must be reset manually.

Accessories

Electronic temperature controller EHS.. see model chart

Controls the heat output of the heating element by monitoring the difference between the supply air temperature and the required temperature.

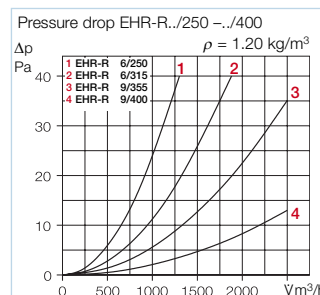
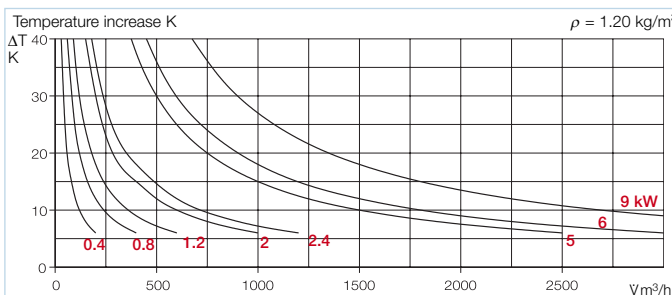
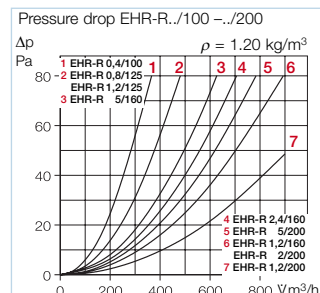
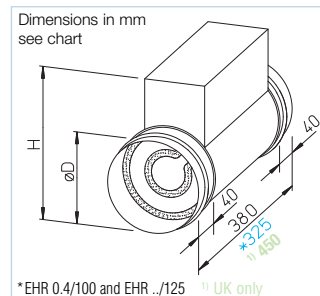
Duct sensor (for EHS..)

TFK Ref. No. 5005
Temperature sensor for detecting the air temperature in ducting.

Room sensor (for EHS..)

TFR Ref. No. 5006
Temperature sensor with integrated "desired value encoder" for surface mounting. Can also be used as temperature sensor or as "desired value encoder" only.

EHR-R



Type	Ref. No.	Power kW	Drives x kW	Current A	Minimum airflow volume m³/h	Fits fan nominal size NG mm	Wiring diagram ¹⁾ No.	Dimensions			Nominal weight kg	Suitable temperature controller	
								ø D mm	H mm	L mm		Type	Ref. No.
1-phase, 230 V													
EHR-R 0.4/100	8708	0.4	1 x 0.4	1.7	45	100	813	100	185	325	2.0	EHS	5002
EHR-R 0.8/125	8709	0.8	1 x 0.8	3.5	70	125	813	125	225	325	2.3	EHS	5002
EHR-R 1.2/125	9433	1.2	1 x 1.2	5.2	70	125	813	125	225	325	2.4	EHS	5002
EHR-R 1.2/160	9434	1.2	1 x 1.2	5.2	110	160	813	160	260	380	2.6	EHS	5002
EHR-R 2.4/160	9435	2.4	1 x 2.4	10.4	110	160	814	160	260	380	3.0	EHS	5002
EHR-R 1.2/200	9436	1.2	1 x 1.2	5.2	180	200	813	200	300	380	2.8	EHS	5002
EHR-R 2/200	9437	2.0	1 x 2.0	8.7	180	200	813	200	300	380	3.2	EHS	5002
2-phase, 400 V													
EHR-R 5/160	8710	5.0	1 x 5.0 parallel	12.5	110	160	815	160	260	380	4.0	EHS	5002
EHR-R 5/200	8711	5.0	1 x 5.0 parallel	12.5	180	200	815	200	300	380	4.6	EHS	5002
EHR-R 6/250	8712	6.0	1 x 6.0 parallel	15.0	270	250	815	250	350	380	7.3	EHS	5002
EHR-R 6/315	8713	6.0	1 x 6.0 parallel	15.0	420	315	815	315	415	380	9.2	EHS	5002
3-phase, 400 V													
EHR-R 9/355	8656	9.0	1 x 9.0 in Δ	13.0	550	355	816	355	455	380	12.5	EHSD 16	5003
EHR-R 9/400	8657	9.0	1 x 9.0 in Δ	13.0	680	400	816	400	500	380	13.1	EHSD 16	5003

¹⁾ Principal wiring for all models use wiring diagram No. SS-476.2

Notes

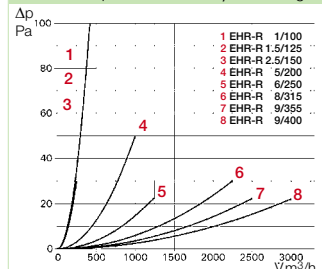
Information on installation, selection and operation see EHR-K on page 309.

DIN VDE 0100-420 must be observed on site; a proper air flow monitoring and electrical interlocking shall be provided.

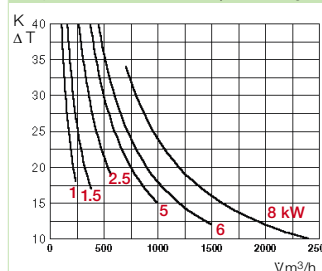
Accessories Page

Electronic temperature controller EHS.. 311

Pressure drop ρ = 1.20 kg/m³



Temperature increase K ρ = 1.20 kg/m³



AVAILABLE IN THE UK ONLY!

Power kW	Drives x kW	Current A	Minimum airflow volume m³/h	Fits fan nominal size NG mm	Wiring diagram ¹⁾ No.	Dimensions			Nominal weight kg	Suitable temperature controller			
						ø D mm	H mm	L mm		Type	Ref. No.		
1-phase, 230 V / 1 ph. / 50 Hz													
EHR-R 1/100	7620	1.0	1 x 1.0	4.2	71	100	802	98	170	450	2.2	EHS	5002
EHR-R 1.5/125	7621	1.5	1 x 1.5	6.3	110	125	802	123	190	450	2.2	EHS	5002
EHR-R 2.5/150	7622	2.5	1 x 2.5	10.5	159	150	802	148	220	450	3.2	EHS	5002
EHR-R 5/200	7623	5.0	2 x 2.5	21.0	283	200	802	198	270	450	4.2	EHS	5002
EHR-R 6/250	7624	6.0	2 x 3.0	25.4	440	250	802	248	320	450	5.3	EHS	5002
EHR-R 8/315	7625	8.0	4 x 2.0	33.6	700	315	802	313	313	450	6.7	EHS	5002

¹⁾ Principal wiring for all models use wiring diagram No. SS-476.2

■ Electronic temperature controller EHS for electric heater batteries

□ Electronic controller for electric heater batteries installed in circular or rectangular ventilation systems. Controls the heat output of heating element by monitoring the supply air temperature against the required temperature.

■ Continuous control is achieved by a proportional timer which allocates power in time intervals. The relation between on and off time periods is adjusted to the required heat. Switching sequence in compliance with electricity boards can be obtained even with high switching power.

■ Power regulation without contacts through electronic power switch.

■ Control via desired value encoder (internal or external, room sensor TFR) or via remote signal 0 – 10 V DC (only in EHSD models).

■ Application

□ The controllers are designed to maintain a constant supply air temperature and a constant room temperature. With rapid change in supply air temperature the unit first gives a considered response whilst checking whether the change is going to be sustained and then goes to full proportional response. All models feature a night set-back facility which can be activated using a time clock (to be supplied on site externally).

□ For safety reasons an additional air flow sensor is required to monitor the air flow.

Air flow sensor, – electronic
SWE Ref. No. 0065
 – mechanic, from NW 315
SWT Ref. No. 0080
 see product page.

EHS



Electronic temperature controller for electric heater batteries up to 3.5 kW (230 V)/6.4 kW (400 V) **EHS** Ref. No. 5002

Temperature sensitive semi conductor controller. Attractive white polymer casing suitable for wall mounting. Constant supply air or room air control via built-in temperature sensor for temperature detection on installation site. Switchable on remote duct sensor or room sensor (TFK or TFR, accessory). Automatic detection of supply voltage 230 V 1 ph. or 400 V 2 ph. g.

Voltage 230 V, 1 ph. / 400 V, 2 ph. (automatic detection)
 Loading capacity (current) 16 A
 Protection to IP 30
 Dim. in mm H 153 x W 93 x D 40
 Weight ca. 0.3 kg
 Wiring diagram No. SS-531

EHSD



Electronic temperature controller for electric heater batteries up to 17 kW **EHSD 16** Ref. No. 5003

Temperature sensitive semi conductor controller. Robust aluminium casing suitable for wall and switchboard mounting. Constant supply air or room air control via external duct sensor or room sensor (TFK/TFKB or TFR, accessory). Remote control via external desired value encoder TFR or external control voltage 0 - 10 V DC.
 Voltage 400 V, 3 ph.
 Loading capacity (current) 25 A
 Protection to IP 40
 Dim in mm H 207xW 160xD 95
 Weight ca. 1.7 kg
 Wiring diagram No. SS-550.2

■ Other accessories for EHSD

In-duct temperature sensor for limiting functions.
TFKB Ref. No. 5009

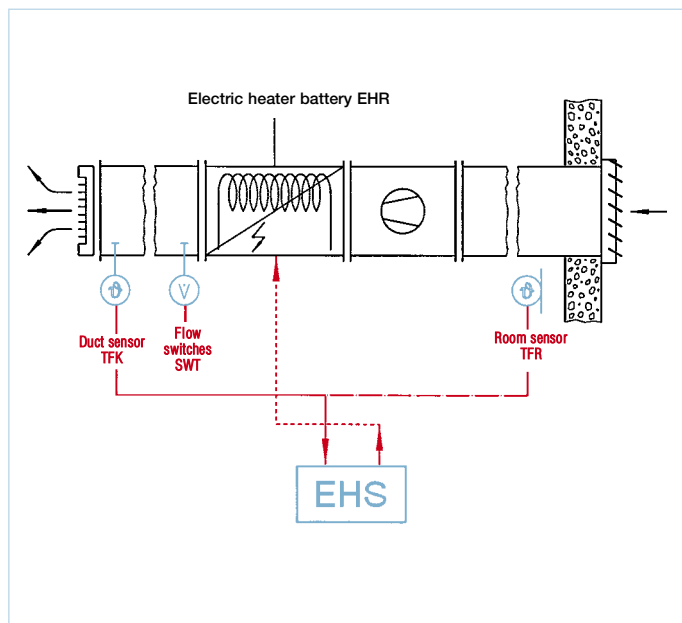
Note

The on site required system control which is consequential to wiring diagrams shall be provided.

Electronic temperature controller for electric heater batteries up to 34 kW **EHSD 30** Ref. No. 5004

As EHSD 16 but with a maximum output of 34 kW. The total output is split into a controlled output (max. 17 kW) and an uncontrolled basic output (17 kW). If the required power exceeds approx. 17 kW the basic output of 17 kW will be activated permanently via an internal contactor. The remaining output will be temperature controlled.

Voltage 400 V, 3 ph.
 Loading capacity (current) 25 A
 Protection to IP 40
 Dim in mm H 207xW 160xD 95
 Weight ca. 1.7 kg
 Relay voltage 230 V, 1 ph.
 Current max. 5 A
 Contactor voltage 400 V, 3 ph.
 Current max. 25 A
 Wiring diagram No. SS-550.2



Duct sensor (Accessory for EHS.)

TFK Ref. No. 5005

Temperature sensor to detect the airflow temperature in ducting. Includes mounting plate to fit on duct wall.

Temperature range 0 – 30 °C
 Protection to IP 20
 Protrusion into duct. 130 / 50 mm
 Dia. of sensor element ø 10 mm
 Weight ca. 0.1 kg

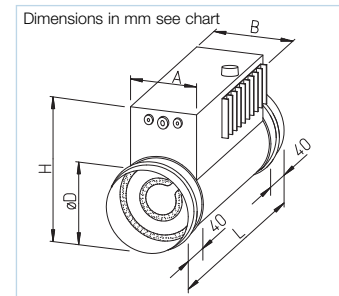


Room sensor (Accessory for EHS.)

TFR Ref. No. 5006

Temperature sensor with desired value encoder for surface mounting. Also suitable as desired value encoder or sensor only. Attractive casing made of polymer.

Temperature range 0 – 30 °C
 Protection to IP 20
 Dim in mm H 85 x W 85 x D 30
 Weight ca. 0.1 kg



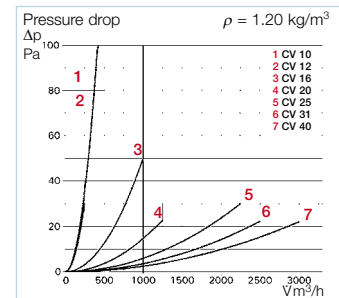
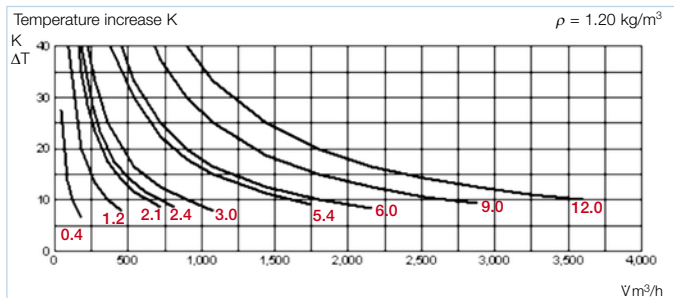
The CV Electric Heater battery with integrated temperature control. An easy to install solution for all areas where a constant room or air supply temperature is required. The CV Electric Heater battery is equipped with an integrated temperature controller and can be mounted in the ducting in any position. The installation is simple, easy and space saving.

Heater battery

Low surface temperature high-grade steel heating elements enclosed in a galvanised steel casing with integrated temperature control, fitting nominal duct sizes for in-line installation. Equipped with an automatic temperature cut-out (operating temperature 60 °C) and a manual resetting temperature cut out (operating temperature 120 °C). resets itself after cooling down.

Temperature control

- Constant supply air control by connecting a duct sensor (TFK, accessory). Desired temperature to be set using the heater setting knob, located outside the unit. Room temperature control by connecting a room sensor (TFR, accessory); desired temperature to be controlled either via the room sensor TFR or via the setting knob on the unit. Supply voltage 230 V or 400 V.
- Stepless control is achieved by pulse/pause technology, which allocates power in time intervals. The relation between on and off time periods is adjusted to the required heat (switching sequence in compliance with IEE regulation even with high switching power).



Application

- The CV heaters are suitable for constant supply air temperature or for constant room temperature. With rapid change in temperature the unit first gives a considered response whilst checking whether the change is going to be sustained and then goes to full proportional response.
- For safety reasons air flow monitoring is required. The DDS pressure switch, when fitted across the fan, will not allow the unit to heat when there is no pressure and thus no airflow in the system.

Installation

The heater is to be installed after the fan and at least one duct diameter away from the fan.

Selection and operation

The heater will add an additional resistance to the system that must be considered when designing the system. The temperature increase depends on power output and air flow volume (see diagram above). The prevent the thermal cut-out from tripping the air flow volume must be higher than the minimum figure shown in the table.

Accessories

- Duct sensor**
TFK Ref. No. 5005
Temperature sensor for detecting the air temperature in ducting.
- Room sensor**
TFR Ref. No. 5006
Temperature sensor with setting dial, to achieve room requirements.
- Pressure sensor**
DDS Ref. No. 0445
Sensor to monitor pressure to ensure air flow.

Type	Ref. No.	Power kW	Current A	Minimum air flow volume m³/s	Fits fan nominal size NG	Dimensions					Nominal weight kg
						ø D mm	H mm	L mm	A mm	B mm	
1-phase, 230 V											
CV 10-04-1	S582	0.8	1.6	0.012	100	100	171	375	100	120	2.4
CV 12-12-1	S588	1.2	5.0	0.018	125	125	196	375	125	145	2.7
CV 16-24-1	5294	2.4	10.4	0.030	160	160	260	380	150	170	3.4
CV 20-21-1	S579	2.1	8.75	0.037	200	200	271	375	160	180	4.4
CV 25-30-1	S577	3.0	3.0	0.074	250	250	321	375	200	220	4.8
CV 31-54-1	S585	5.4	22.5	0.117	315	315	386	375	250	270	6.4
CV 40-54-1	S590	5.4	22.5	0.188	400	400	471	375	315	335	6.9
3-phase, 400 V											
CV 25-60-3	5296	6.0	15.0	0.075	250	250	350	380	150	170	4.8
CV 31-60-3	S589	6.0	8.67	0.117	315	315	386	375	315	335	6.9
CV 31-90-3	S584	9.0	13.0	0.117	315	315	386	375	315	335	6.9
CV 35-90-3	5297	9.0	13.0	0.152	355	355	455	380	150	182	8.5
CV 40-90-3	5299	9.0	13.0	0.189	400	400	500	380	150	182	8.9
CV 40-120-3	S591	12.0	12.0	0.188	400	400	471	375	400	420	8.9

Warm water heater battery for rectangular duct connection.

Casing made of galvanised steel with flanges on both sides to fit the HELIOS rectangular fan range. Heating elements made of copper with aluminium fins. Max. operating temp.: t_{max} 120 °C. Max. operating pressure: 8 bar. Water pipes with male thread. Equipped with water and air outlets.

Installation

The heater must be installed downstream of the fan. If installing it before the fan, make sure that the air flow temperature at the fan does not exceed the fan's max. temperature.

To protect the heater from dirt and to prevent it from being clogged (reducing air flow and heat output) we recommend the use of the air filter KLF..

A rectangular duct with a length of at least 1 metre must be installed between fan and heater in order to ensure a balanced air flow. An air bleed valve and a water drain valve must be provided for releasing air and water from the unit.

Note: In order to avoid water freezing in the pipes, frost protection shall be provided onsite.

Selection

The actual temperature increase depends on the air flow volume, heater output and inlet water temperature.

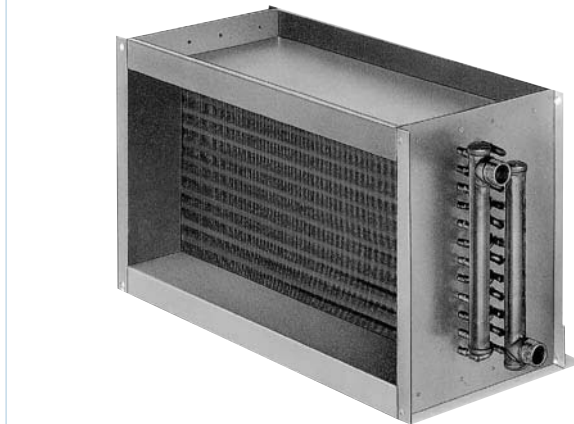
Follow steps a - c to determine the required heater.

When selecting a fan (air flow volume decision) the resistance of the heater (pressure drop) must be (chart d) considered.

a) Temperature increase

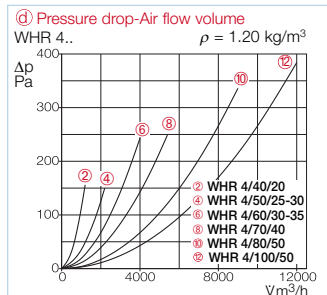
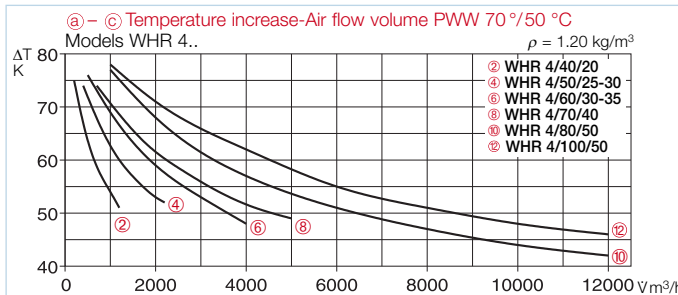
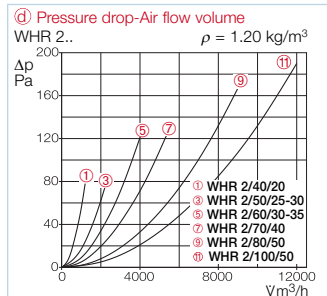
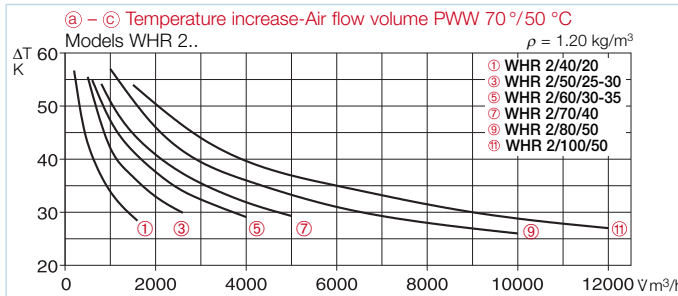
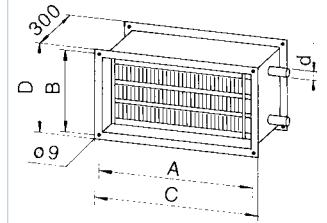
Definition: $\Delta T = \vartheta_1 - \vartheta_a$ [K]
 ΔT : Temperature difference of air [K]
 ϑ_1 : Air temp., off air heater [°C]
 ϑ_a : Air temp., on air heater [°C]

WHR Duct



Accessories	Page
Temperature controller WHS	316

Dimensions in mm see chart



b) Air flow volume

Shown on the performance curve whereby the total resistance of the system and heater (see chart d) (pressure drop) must be taken into account.

c) Determination of required air

$$Q_H = \frac{V \cdot \Delta T \cdot c_{PL} \cdot \rho_L}{3600} \text{ [kW]}$$

V: Air flow volume [m³/h]
 ΔT : Temperature difference of air [K]
 c_{PL} : Specific heat capacity of air (1,0) [KJ/kg K]
 ρ_L : Air density (1.2) [kg/m³]

d) Determination of pressure drop

The pressure drop of the heaters at air flow volumes is illustrated in the above charts.

Type	Ref. No.	Fits fan nominal size	Air Data				Water data ¹⁾		Dimensions				Connection d ³⁾	Nominal weight	Suitable temperature controller	
			heat output	ΔT air	at V	pressure drop	at water flow rate	A	B	C	D	Type			Ref. No.	
		NG cm	kW ¹⁾	kW ²⁾	K ¹⁾	K ²⁾	m ³ /h	Δp_w kPa	l/h	mm	mm	mm	mm	kg		
WHR 2/40/20	8782	40/20	14	7.7	32	18	1200	10	610	420	220	450	250	3/4	7.0	WHS 1100 8815
WHR 4/40/20	8783	40/20	22	12.6	51	29	1200	7	980	420	220	450	250	3/4	7.3	WHS 1100 8815
WHR 2/50/25-30	8784	50/25-30	24	14	33	18	2200	7	1050	520	270/320	550	350	3/4	9.3	WHS 1100 8815
WHR 4/50/25-30	8785	50/25-30	38	21	52	28	2200	5	1680	520	270/320	550	350	1	11.1	WHS 2200 8816
WHR 2/60/30-35	8786	60/30-35	32	18	34	19	2600	8	1420	620	320/370	650	400	3/4	11.2	WHS 2200 8816
WHR 4/60/30-35	8787	60/30-35	51	30	55	32	2600	7	2270	620	320/370	650	400	1	14.0	WHS 2200 ⁴⁾ 8816
WHR 2/70/40	8788	70/40	50	28	30	17	4500	6	2200	720	420	750	450	1	17.0	WHS 2200 8816
WHR 4/70/40	8789	70/40	81	44	50	27	4500	4	3570	720	420	750	450	1	17.0	— —
WHR 2/80/50	8795	80/50	82	46	28	16	8000	11	3630	820	520	850	550	1	15.0	— —
WHR 4/80/50	8796	80/50	138	80	48	28	8000	15	6110	820	520	850	550	1	20.0	— —
WHR 2/100/50	8797	100/50	104	59	29	18	10000	19	4630	1020	520	1050	550	1	18.0	— —
WHR 4/100/50	8798	100/50	172	99	48	28	10000	14	7640	1020	520	1050	550	1	24.0	— —

The values apply for an intake air temp. of 0 °C and flow/return water temp: ¹⁾ 90/70 °C, ²⁾ 60/40 °C ³⁾ 3/4" = 19.05 mm, 1" = 25.4 mm, male thread ⁴⁾ under reduced heat output at ca. 2200 l/h

■ Warm water heater battery for circular in-duct installation.

Casing made of galvanised steel, fits the HELIOS fan range. Spigots have double lip rubber seals on both sides to fit the nominal duct size. Heating elements made of copper with aluminium fins. Max. operating temp.: t_{max} 100 °C. Max. operating pressure: 8 bar. Water pipes with male thread. Two access valves for water and air outlet for easy cleaning.

■ Installation

The heater must be installed downstream of the fan. If installing it before the fan, make sure that the air flow temperature at the fan does not exceed the fan's max. temperature.

To protect the heater from dirt and to prevent it from being clogged (reducing air flow and heat output) we recommend the use of the air filter LFBR..

A circular duct with a length of at least 1 metre must be installed between fan and heater in order to ensure a balanced air flow. An air bleed valve and a water drain valve must be provided for releasing air and water from the unit.

Note: In order to avoid water freezing in the pipes, frost protection shall be provided onsite.

■ Selection

The actual temperature increase depends on the air flow volume, heater output and inlet water temperature.

Follow steps a) - c) to determine the required heater.

The heat output for several volumes is also given in the chart. When selecting a fan (air flow volume decision) the resistance of the heater (pressure drop) must be considered.

a) Temperature increase

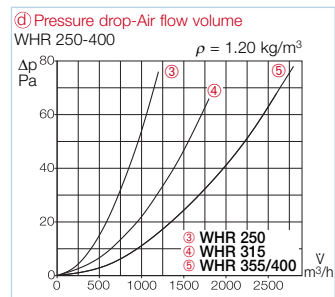
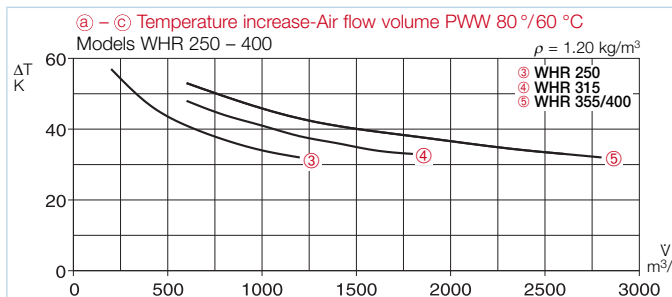
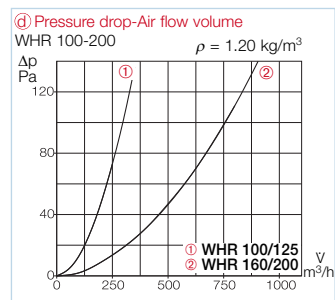
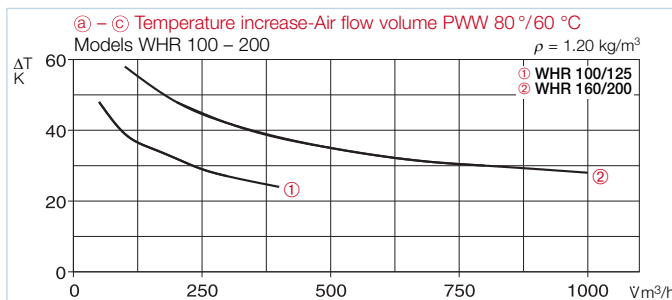
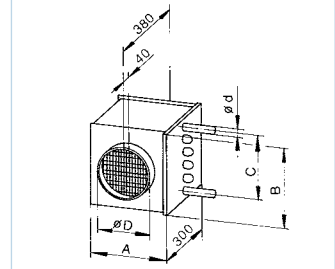
Definition: $\Delta T = \vartheta_i - \vartheta_a$ [K]
 ΔT : Temperature difference of air [K]
 ϑ_i : Air temp., off air heater [°C]
 ϑ_a : Air temp., on air heater [°C]

WHR Circular



Accessories	Page
Temperature controller WHS	315 on

Dimensions in mm see chart



b) Air flow volume

Shown on the performance curve whereby the total resistance of the system and heater (see chart d)) (pressure drop) must be taken into account.

c) Determination of required air

$$Q_H = \frac{V \cdot \Delta T \cdot c_{PL} \cdot \rho_L}{3600} \text{ [kW]}$$

V: Air flow volume [m³/h]
 ΔT : Temperature difference of air [K]
 c_{PL} : Specific heat capacity of air (1.0) [kJ/kg K]
 ρ_L : Air density (1.2) [kg/m³]

d) Determination of pressure drop

The pressure drop of the heaters at air flow volumes is illustrated in the above charts.

Type	Ref. No.	Fits duct diameters	Air data						Water data ¹⁾		Dimensions				Nominal weight ca. kg	Suitable temperature controller	
			Heat output kW ¹⁾ kW ²⁾	ΔT air K ¹⁾ K ²⁾	at V m³/h	pressure drop Δp_w kPa	at water flow rate l/h	A	B	C	D	Connection d" ³⁾	Type	Ref. No.			
WHR 100	9479	100	1.9 0.9	35 17	150	1	84	165	180	140	100	3/4	3.2	WHST 300 T38 ⁴⁾	8817		
WHR 125	9480	125	2.6 1.1	29 13	250	2	115	165	180	140	125	3/4	3.2	WHST 300 T38 ⁴⁾	8817		
WHR 160	9481	160	5.5 3.1	38 22	400	11	245	240	255	215	160	3/4	4.9	WHST 300 T38 ⁴⁾	8817		
WHR 200	9482	200	7.2 4.1	33 19	600	17	317	245	255	215	200	3/4	4.9	WHST 300 T38 ⁴⁾	8817		
WHR 250	9483	250	10.7 6	37 21	800	8	470	315	330	290	250	3/4	6.9	WHS 1100	8815		
WHR 315	9484	315	18.3 10.4	36.2 21	1400	9	810	400	405	365	315	3/4	9.0	WHS 1100	8815		
WHR 355	8790	355	24.5 14	38 21.6	1800	9	1080	465	480	420	355	3/4	12.5	WHS 1100	8815		
WHR 400	9524	400	26.2 15	36 21	2000	11	1060	465	480	420	400	3/4	12.5	WHS 1100	8815		

The values apply for an intake temp. 0 °C and flow/return temperatures: 1) 90/70 °C 2) 60/40 °C 3) 3/4" = 19.05 mm, 1" = 25.4 mm, male thread 4) alternative WHST 300 T50, s. page 113 (Ref. No. 8820)

WHST 300 T38



Note

Air temperature control for warm water heater batteries WHR. For constant supply air temperature between 20 – 50 °C, we recommend **WHST 300 T50** see page 113 Ref. No. 8820

■ Air temperature control WHST 300 T38 for warm water heater batteries

- To control air heating of the warm water heater batteries for lower output to 5.5 kW and flow rate to 300 l/h.
- An ideal supplement for ventilation units with heat recovery and integrated PWW after heating (Helios models KWL.. WW) as well as for warm water heater batteries WHR 100 to WHR 200.
- A simple, cost effective and easy-to-install solution.

■ Specification / Application

WHST 300 T38 consists of a thermostat with remote control and remote sensor and is suitable for systems in which the water pressure of heating circuit can provide this application. The proportional controller, which operates as a conventional heating valve without electrical supply energy, is continuously adjustable and changes the temperature through diversification of hot water flows.

■ Control options

Control options through modification of the hot water flow:

- **Constant supply air temperature control** via positioning the capillary tube sensor in the air flow.

□ Constant room temperature control

via positioning the capillary tube sensor in the room.

- **Arbitrary limitation of the temperature range** through the definition of minimum and maximum values.

- **Frost protection** is activated at +8 °C.

■ Product contents

- Complete set, inclusive
- Thermostat for room installation,
 - Straight way valve
 - Set piston
 - Capillary tube - remote sensor
 - Fittings

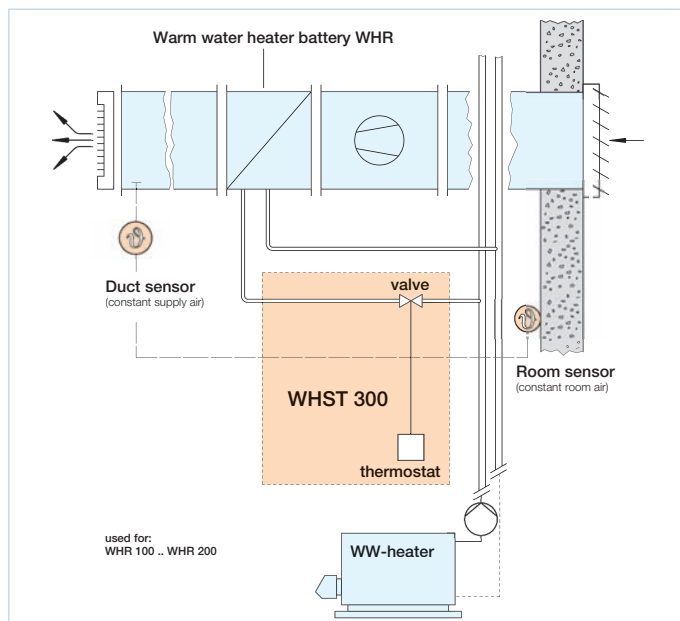
■ Installation

The capillary tube must be located in a position so that it is not buckled or flattened.

To keep the room temperature constant the remote sensor should be installed in the room where the predetermined temperature conditions are present.

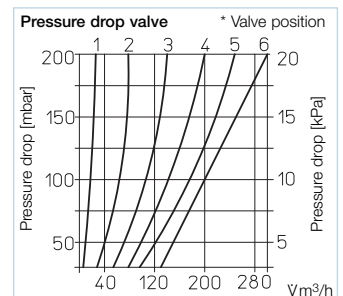
■ Design

The WHST 300 T38 control can be used in heater batteries up to 300 l/h water flow rate. The pressure drop, which must be overcome by an on site pump, appears as the sum of Δp heater battery, Δp valve (see diagram) and Δp ducting.



■ Technical data

Type	WHST 300 T38
Ref. No.	8817
Max. operating pressure	10 bar
Max. operating temperature	120 °C
Connection DN 20	3/4"
Max. air flow	300 l/h
Differential pressure	0.1–0.7 K / 0.5 bar
Desired value range (Thermostat)	8–38 °C
Dimensions in mm	
– Thermostat	W 80 x H 80 x D 50
– Remote sensor	W 35 x H 85 x D 30
Mounting thread DN 20	G 3/4"
Capillary tube length	5 m
Weight (complete)	0.5 kg



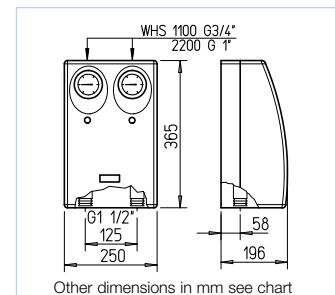
* Note: The valve is factory-adjusted in the position 6. For lower volumes of water it can be adjusted between 1 and 6 in order to optimise the control mode.

Air temperature controller WHS for warm water heater batteries

- To control air heating of the warm water heater batteries for a maximum output of 70 kW and a flow rate of between 200 and 2200 l/h.
- Fits to HELIOS heater batteries WHR-R 250-400 and WHR-K up to 2200 l/h.
- Complete system with diverse control options where all the components are compatible with each other.

Application

- Connection on existing heating circuit to supply e.g. a separate cord. A separate heating circuit creation is achieved by means of an integrated pump.
- WHS controls the air flow of the warm water heater batteries by means of three-point valve actuators and in this way also the thermal output which is conveyed to the air. The control is achieved by an impulse/pause signal where its relation is proportional to control deviation that means the difference between the actual and desired value.
- Delivered as a fully wired and easy-to-install set with preinstalled, thermally insulated hydraulic unit. It also includes a pump in order to avoid the upstream pressure drop.



Control options

- Constant supply air temperature control by means of duct sensor TFK.
- Constant room temperature control by means of external room sensor TFR.
- Constant room temperature control with minimum limitation of the supply temperature by using room and duct sensors.
- Frost protection for all the three versions by using a second duct sensor TFK.
- Additionally, WHS offers desired value control e.g. for the night and weekend cutout as well as the connection of other sensors or desired value encoders.

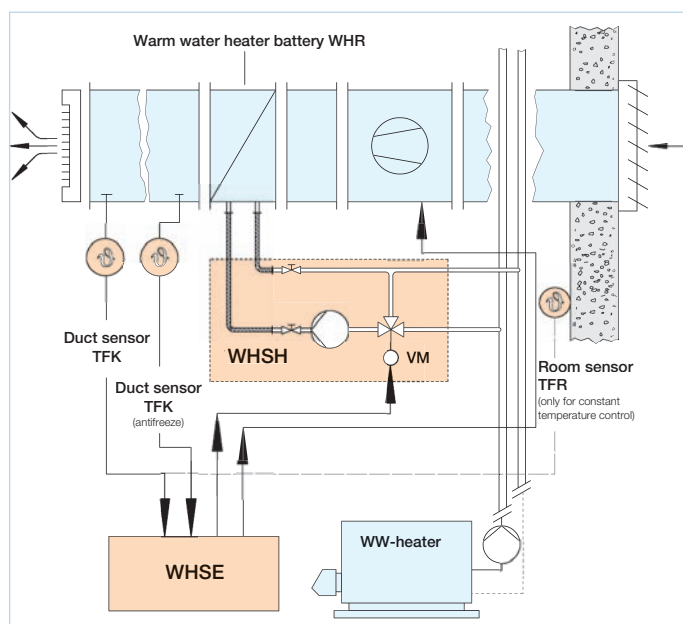
Product content/Specification

- Hydraulic unit WHSH with
 - Pump with 3 power stages, on site connection cable.

- Flow/response temperature display, concurrent cut-off valves.
- 24 V-servo motor with limit switch and three-point mixing valve. Manual operation possible, connection cable 2.2 m.
- Thermal jacket made of EPP-foam.
- Gasket set and two flexible hoses (50 cm long) for connection.

- Adjustment/selection of the control mode.
- Operation display.
- Frost protection: Alarm and reset.
- Operation display servo motor.
- Potentialfree output for 24 V alarm and 230 V electric circuit.
- Two temperature sensors TFK for in-duct installation.
- Single room temperature sensor TFR.

- Electronic control unit WHSE, for positioning in switchboard. Functions:
 - Preset temperature guidance for operation with constant supply air temperature.
 - Adjustment to cascade factors.
 - Minimum limitation.



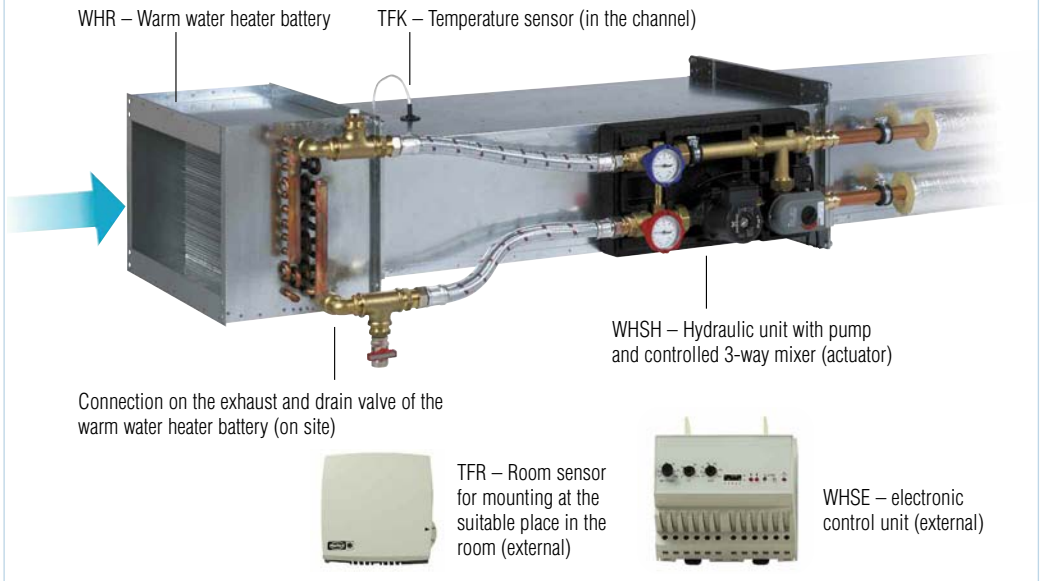
Type	WHS 1100	WHS 2200
Ref. No.	8815	8816
Max. operating pressure / operating temperature	10 bar / 110 °C	10 bar / 110 °C
Max. operating temperature	110 °C	110 °C
Connection DN 20 (Pump)	3/4"	1"
Min. / Max. air flow	200 ¹⁾ - 1100 l/h	400 ¹⁾ - 2200 l/h
Differential pressure	0.1 – 0.7 K/0.5 bar	0.1 – 0.7 K/0.5 bar
Desired value range (Thermostat)	7 – 28 °C	7 – 28 °C
Ambient temperature (electronic control system)	0 – 50 °C	0 – 50 °C
Protection to (electronic control system)	IP 20	IP 20
Power consumption		
– Pump (3 steps)	30/46/65 W	46/67/93 W
– Servo motor	2.5 W	2.5 W
– Electronic control system	5 W	5 W
Voltage		
– Pump / el. control system	230 V, 1 ph. / 50 Hz	230 V, 1 ph. / 50 Hz
– Servo motor	24 V, 1 ph. / 50/60 Hz	24 V, 1 ph. / 50/60 Hz
Connection to wiring diagram No.	SS-953	SS-953
Dimensions in mm		
– Hydraulic unit ³⁾	see drawing	see drawing
– El. control system WHSE ³⁾	H 80 x W 100 x D 85	H 80 x W 100 x D 85
– Room sensor TFR	H 80 x W 85 x D 30	H 80 x W 85 x D 30
– Duct sensor TFK	130/50 ²⁾ , Ø 10	130/50 ²⁾ , Ø 10
Weight approx. kg	9	10

¹⁾ In lower water flow volumes, control problems may occur ²⁾ Length inside/outside
³⁾ Single order of WHS system components by request.

Installation

The heater battery WHR and the duct sensor TFK must be installed downstream of the fan in ducting.
The hydraulic unit WSH must be fixed independently and safely. The expansion forces or the dead weight of ducting must not burden the connections.
The exhaust valve shall be installed at the highest position whereas the drain valve shall be installed at the lowest position of the circuit.
The electronic control unit WHSE (IP 20) can be mounted on the DIN-profile rail in the switchboard.

Application



Design and calculation

- ① Selection of the requested PWW heater batteries based on the air flow volume, design (duct dimensions) and heat output.
 - WHR-R, circular p. 314
 - WHR-K, rectangular p. 313
- ② Determination of pressure drop of the grid facilities which are provided on site (diagram 1).
- ③ Sum of the pressure losses of all components:
 $\Delta P_{\text{Total}} = \Delta P_{\text{Heater battery}} + \Delta P_{\text{Ducting}}$
- ④ Selection of WHS-unit and the required pumping level

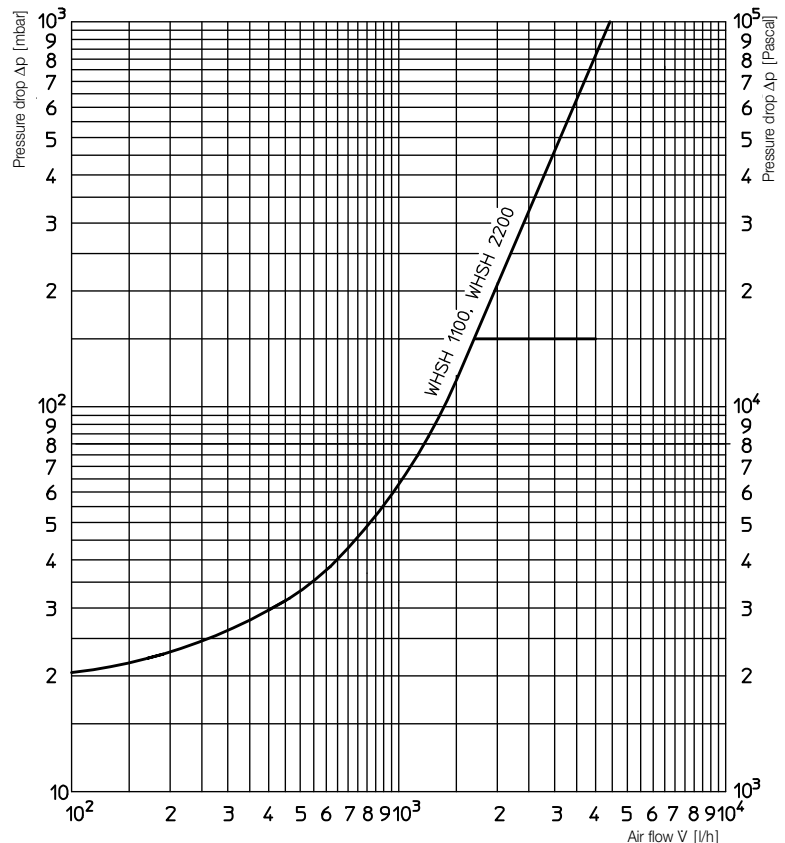
Example:

Internal diameter 22 x 1.2
 Current of water $\dot{m}_h = 600 \text{ kg/h}$
 Velocity $v = 0.54 \text{ m/s}$
 Pressure gradient $R = 170 \text{ Pa/m}$

Diagram

Total pressure drop in WHS incl. Flexduct

Design of the copper pipe, water temperature 80 °C



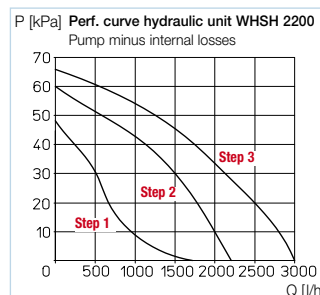
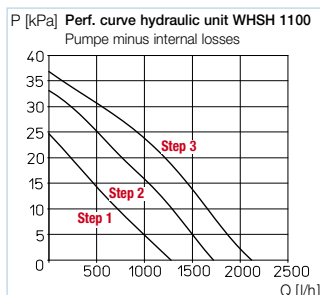
* Shown is the copper pipe with an inclemency of $k = 0.0015 \text{ mm}$. For water with 110 °C is the R at 2% smaller whereas it is 6% bigger with 50 °C.

Information Page

Other WSH hydraulic units for ALB.. WW		210 on
WSH 1100	230V	No. 2515
WSH 2200	230V	No. 2516

Adjusting the pumping level

The recirculation pump in WSH can be operated in three power stages. The pumping level should be selected depending on the warm water heater battery and ducting (see the opposite performance curves).



General

If the noise level of a fan exceeds the required level, additional measures can be taken to reduce it. The use of attenuators, working on the principle of absorption, is a very effective method. This type of attenuator offers high damping figures creating only low additional resistances.

HELIOS offer attenuators that are optimal to the HELIOS fan range. Circular and rectangular attenuators are available in virtually any size. All attenuators can of course be used together with fans by others.

HELIOS attenuators are made from galvanised steel, fitted with high quality mineral wool, covered against air flow with scrim to prevent erosion.

Technical information
Attenuation

The amount of attenuation is determined using the principle of comparison. It compares the noise reduction within a pipe or ducting with and without the attenuator.

When measuring without an attenuator, it is replaced by a straight piece of rigid, noise hard ducting. The attenuation is calculated to:

$$D_e = L_o - L_m \text{ dB}$$

L_o : Sound level without attenuator

L_m : Sound level with attenuator

The efficiency of an attenuator is largely dependent on the frequency of the sound source, therefore the attenuation is stated over the octave spectrum. Low frequency noise is more difficult to attenuate than high frequency. Therefore a larger or more resistive attenuator is required.

It is necessary to know the noise spectrum of a fan (octave or tierce spectrum) to choose an attenuator. When selecting an attenuator for a system the attenuating effect of other components like bends, transformation pieces etc. must be considered in addition to the noise level of the fan.

To avoid regeneration of noise through the air speed over the duct surface the air velocity should be minimised.

Fast selection of an attenuator

For easy estimating of a rectangular or circular attenuator the average attenuation figure is given in the red underlined column (right hand column) of the attenuator's table. This figure is to be deducted from the sound power level (L_{WA} total) of the fan.

The result is the sound power level (L_{WA} reduced) of the fan, reduced by attenuation. The difference with this selection method (if compared to the frequency band calculation) it is an approximation. More exactly values can be reached using the calculation to the octave band.

Example:

Given:
Fan model VARD 225/2
Chosen: Circular attenuator RSD 225/600 (length = 600 mm)

Sound power level of fan
 L_{WA} total = 81 dB(A)
Average attenuation figure for attenuator
reduction = 15 dB(A)
= reduced sound power level
 L_{WA} reduced = 66 dB(A)

Key

L_{WA} total = Sound power level of the fan in dB(A) (from table above fan's performance curve).

Average attenuation = calculated attenuation figure of the attenuator in dB(A) (red column in the attenuator's table).

L_{WA} reduced = reduced sound level in dB(A) using an attenuator.

Sound level calculation

To calculate the relevant sound level the attenuator sound reduction must be subtracted from the fan sound level. This should be done in frequency bands. For better attenuation several attenuators of the same diameter can be installed one after another.

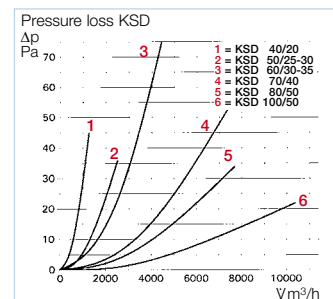
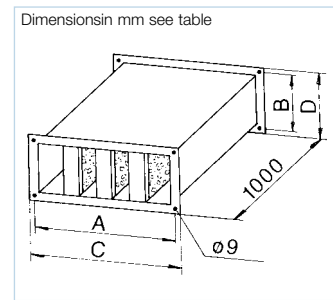
Rectangular attenuator KSD

Specification – Installation

Casing made from galvanised steel with flanges to fit the fan's dimensions. To be installed in-line with ducting on inlet or exhaust. To reduce vibration transmission from the fan, a flexible connector (accessories VS or VS... Ex) should be installed between fan/attenuator and ducting.

Pressure drop

The attenuator will add an additional resistance to the duct system (see chart), which must be considered when selecting a fan. The figures shown refer to an equal inlet into the attenuator. Turbulences from the fan's exhaust can be reduced if 1 metre of straight ducting is fitted between fan and attenuator. Otherwise allow for a higher resistance.



Type	Ref. No.	Duct size in mm	Dimensions in mm				Nominal weight kg	Attenuation D_e dB							Average attenuation
			A	B	C	D		125	250	500	1000	2000	4000	8000	
KSD 400/200	8728	400/200	420	220	443	240	13	8	11	23	31	31	26	18	<u>17</u>
KSD 500/250..	8729	500/250-300	520	270/320	540	340	16.5	6	9	19	25	25	20	15	<u>14</u>
KSD 600/300..	8730	600/300-350	620	320/370	640	390	20	7	10	21	28	28	23	16	<u>12</u>
KSD 700/400	8731	700/400	720	420	740	440	25	6	8	18	24	24	20	14	<u>12</u>
KSD 800/500	8732	800/500	820	520	840	540	31	7	9	19	26	26	21	15	<u>14</u>
KSD 1000/500	8733	1000/500	1020	520	1040	540	35	5	7	16	21	21	17	12	<u>11</u>

■ Flexible circular attenuator FSD

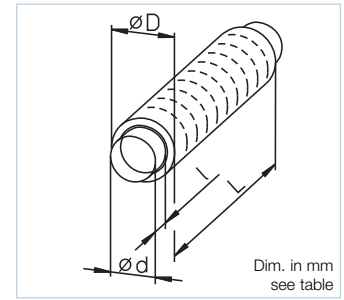
□ Specification – Installation

Robust flexible aluminium ducting with inner perforated face retaining the resin bounded attenuation packing of 50 mm thickness. Spigotted on both ends to fit into nominal size ducting or to be fixed with pipe clamp connectors BM on fan or ducting. The flexible body allows an easier installation.

□ Pressure drop

The pressure drop is 4 times the equivalent normal rigid ducting value.

FSD



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Selection noise assessment	318

Type	Ref. No.	L	Dimensions in mm			Attenuation in dB at Hz				Nominal weight kg	Average attenuation
			ø D	ø d	l	250	500	1000	2000		
FSD 100	0676	1000	210	99.5	60	17	33	48	40	1.1	25
FSD 125	0677	1000	240	124.5	60	13	27	47	22	1.5	20
FSD 160	0678	1000	262	159.5	60	12	26	45	20	2.0	19
FSD 200	0679	1000	313	199.5	60	10	22	31	10	2.5	16
FSD 250	0680	1000	363	249.5	85	8	15	26	8	3.2	12
FSD 315	0681	1000	418	314.5	85	7	15	25	8	4.2	11
FSD 355	0682	1000	464	354.5	85	5	13	19	8	4.7	9
FSD 400	0683	1000	514	399.5	90	5	13	19	8	5.3	9

■ Spigotted circular attenuator SRSD

□ Specification – installation

Robust casing made from galvanised steel with inner perforated face retaining the 50 mm thick mineral wool lining. Spigotted on both ends to fit into nominal size ducting or to be fixed with pipe clamp connectors (accessory BM).

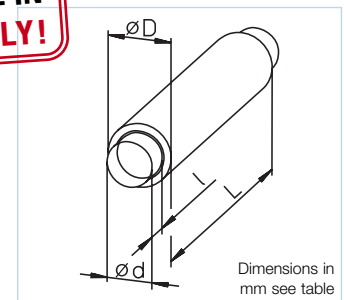
□ Pressure drop

The pressure drop is twice the normal rigid ducting value.

SRSD



AVAILABLE IN THE UK ONLY!



Type	Ref. No.	L	Dimensions in mm			Attenuation in dB at Hz						Nominal weight kg	Average attenuation
			D	d	l	250	500	1000	2000	4000	8000		
SRSD 100/ 300	8901	300	202	98	40	8	13	20	23	20	12	2.6	11
SRSD 100/ 600	8902	600	202	98	40	12	20	37	47	36	17	4.7	18
SRSD 100/ 900	8903	900	202	98	40	15	29	44	50	42	25	6.7	27
SRSD 100/1200	8904	1200	202	98	40	20	33	42	46	44	29	8.8	31
SRSD 125/ 300	8905	300	227	123	40	7	13	20	21	19	12	2.9	11
SRSD 125/ 600	8906	600	227	123	40	12	22	36	44	32	26	5.3	20
SRSD 125/ 900	8907	900	227	123	40	14	26	44	46	35	22	7.7	24
SRSD 125/1200	8908	1200	227	123	40	16	33	47	53	46	29	10.1	31
SRSD 150/ 300	8909	300	252	148	40	5	10	15	22	16	9	3.3	8
SRSD 150/ 600	8910	600	252	148	40	8	15	31	34	22	12	6.0	13
SRSD 150/ 900	8911	900	252	148	40	10	25	43	49	26	18	8.7	23
SRSD 150/1200	8912	1200	252	148	40	13	29	49	52	30	18	11.4	27
SRSD 160/ 300	8913	300	262	158	40	5	10	15	22	16	9	3.4	8
SRSD 160/ 600	8914	600	262	158	40	8	15	31	34	22	12	6.2	13
SRSD 160/ 900	8915	900	262	158	40	10	25	43	49	26	18	9.1	23
SRSD 160/1200	8916	1200	262	158	40	13	29	49	52	30	18	11.9	27
SRSD 200/ 300	8917	300	302	198	40	3	7	15	16	10	6	3.9	5
SRSD 200/ 600	8918	600	302	198	40	7	14	30	26	15	11	7.3	12
SRSD 200/ 900	8919	900	302	198	40	8	20	42	41	18	15	10.6	18
SRSD 200/1200	8920	1200	302	198	40	10	26	48	51	22	16	14.0	24
SRSD 250/ 300	8921	300	327	223	40	2	6	15	13	10	4	4.6	4
SRSD 250/ 600	8922	600	327	223	40	6	12	25	18	10	7	8.6	10
SRSD 250/ 900	8923	900	327	223	40	8	16	30	27	12	9	12.6	14
SRSD 250/1200	8924	1200	327	223	40	11	22	36	38	18	12	16.6	20
SRSD 315/ 300	8925	300	417	313	40	2	5	14	12	8	4	5.5	3
SRSD 315/ 600	8926	600	417	313	40	6	10	18	13	10	6	10.3	8
SRSD 315/ 900	8927	900	417	313	40	7	15	22	17	12	9	15.2	13
SRSD 315/1200	8928	1200	417	313	40	9	20	29	21	15	12	20.0	18
SRSD 400/ 300	8929	300	502	398	40	6	4	11	10	6	4	6.6	2
SRSD 400/ 600	8930	600	502	398	40	5	10	14	11	8	6	12.6	8
SRSD 400/ 900	8931	900	502	398	40	7	13	19	14	10	8	18.5	11
SRSD 400/1200	8932	1200	502	398	40	8	18	24	20	14	7	24.5	16

■ Specification – Installation

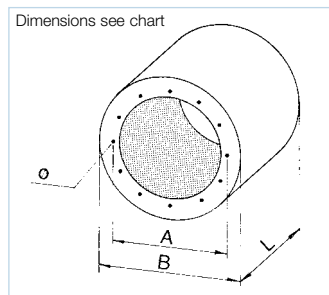
Casing made of galvanised steel, acoustically lined with high quality mineral wool covered with cloth to prevent erosion. Acoustic lining retained by perforated steel sheet. Dimensions and tapped flange holes of all sizes fit fan's nominal diameter (R 20). Tapped holes in accordance to DIN 24155, Pt. 2.

■ Pressure drop

The resistance of the RSD attenuators is very low. When designing the system consider twice the pressure drop of rigid ducting.

■ Isolation standard

To increase the attenuation, several attenuators can be installed in-line.



RSD



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Type Nominal-ø	Ref. No.	Basic length	L	Dimensions in mm			Hole ø	Nominal weight kg	Isolation standard D _e dB								Average attenuation
				A	B				125	250	500	1000	2000	4000	8000		
RSD 225/ 300	8734	1	300	259	404		6 x M 6	7	2	5	9	14	13	8	6	8	
RSD 225/ 600	8735	2	600	259	404		6 x M 6	12	4	10	17	27	25	17	14	15	
RSD 225/ 900	8736	3	900	259	404		6 x M 6	17	7	13	25	33	31	20	16	20	
RSD 250/ 300	8737	1	300	286	404		6 x M 6	7	3	5	8	8	9	7	5	8	
RSD 250/ 600	8738	2	600	286	404		6 x M 6	12	5	10	16	24	19	14	10	15	
RSD 250/ 900	8739	3	900	286	404		6 x M 6	16	6	12	22	28	21	15	11	18	
RSD 280/ 400	8740	1	400	322	454		8 x M 8	10	4	5	8	14	9	8	6	8	
RSD 280/ 800	8741	2	800	322	454		8 x M 8	18	7	9	16	28	18	17	14	14	
RSD 280/1200	8742	3	1200	322	454		8 x M 8	25	9	12	23	37	23	20	16	18	
RSD 315/ 400	8743	1	400	356	504		8 x M 8	11	3	3	7	13	8	7	5	5	
RSD 315/ 800	8744	2	800	356	504		8 x M 8	19	6	8	14	26	16	12	9	12	
RSD 315/1200	8745	3	1200	356	504		8 x M 8	28	9	12	21	36	18	17	14	18	
RSD 355/ 400	8746	1	400	395	564		8 x M 8	13	3	4	7	11	7	6	4	6	
RSD 355/ 800	8747	2	800	395	564		8 x M 8	23	6	7	13	22	14	12	8	11	
RSD 355/1200	8748	3	1200	395	564		8 x M 8	33	8	11	17	29	18	15	10	17	
RSD 400/ 400	8749	1	400	438	564		12 x M 8	12	3	4	6	9	7	5	3	6	
RSD 400/ 800	8750	2	800	438	564		12 x M 8	21	6	6	12	18	13	12	8	9	
RSD 400/1200	8751	3	1200	438	564		12 x M 8	30	7	10	14	22	18	13	9	15	
RSD 450/ 400	8752	1	400	487	634		12 x M 8	17	4	5	8	10	8	7	5	8	
RSD 450/ 800	8753	2	800	487	634		12 x M 8	27	6	7	13	18	13	12	9	11	
RSD 450/1200	8754	3	1200	487	634		12 x M 8	38	8	10	18	23	17	14	10	15	
RSD 500/ 600	8755	1	600	541	714		12 x M 8	27	4	5	9	11	9	9	6	8	
RSD 500/ 900	8756	2	900	541	714		12 x M 8	36	6	8	14	16	13	13	9	12	
RSD 500/1200	8757	3	1200	541	714		12 x M 8	45	8	11	22	24	17	16	12	17	
RSD 560/ 600	8758	1	600	605	804		8 x M 10	32	3	5	9	9	8	8	6	8	
RSD 560/1200	8759	2	1200	605	804		8 x M 10	52	6	10	19	19	16	13	10	15	
RSD 630/ 600	8760	1	600	674	900		8 x M 10	44	3	5	8	8	8	7	5	8	
RSD 630/1200	8761	2	1200	674	900		8 x M 10	68	5	10	16	15	15	11	8	15	
RSD 710/ 600	8762	1	600	751	1000		8 x M 10	51	3	5	7	7	7	6	4	8	
RSD 710/1200	8763	2	1200	751	1000		8 x M 10	80	5	10	14	13	13	10	7	15	
RSD 800/ 600	8764	1	600	837	1100		12 x M 10	57	2	5	7	6	6	5	4	8	
RSD 800/1200	8765	2	1200	837	1100		12 x M 10	88	5	9	13	11	11	9	6	14	
RSD 900/ 900	8766	1	900	934	1220		12 x M 10	82	2	4	10	9	6	5	4	6	
RSD 900/1800	8767	2	1800	934	1220		12 x M 10	135	4	9	21	17	13	9	8	14	
RSD 1000/ 900	8768	1	900	1043	1350		12 x M 10	96	2	4	8	7	5	4	3	6	
RSD 1000/1800	8769	2	1800	1043	1350		12 x M 10	157	4	7	16	14	10	7	6	11	
RSD 1120/ 900	8770	1	900	1174	1350		12 x M 10	81	2	3	7	6	4	3	3	5	
RSD 1120/1800	8771	2	1800	1174	1350		12 x M 10	136	3	6	14	11	8	6	5	9	
RSD 1250/ 900	8772	1	900	1311	1460		12 x M 10	86	1	2	5	4	3	2	2	3	
RSD 1250/1800	8773	2	1800	1311	1460		12 x M 10	146	2	4	11	9	7	5	4	6	

The wide range of Helios roof fans with an extensive accessory range offers the optimum solution for every application.

From 300 to 30 000 m³/h air flow volume, with motors which stand inside or outside of the air stream, vertical or horizontal discharge, in metal or glass fibre construction, for air flow temperatures from +40 °C, +100 °C as well as in temperature class F 400 (120 min.) according DIN 12101-3. Helios has it.

The Helios accessory is perfectly matched to the roof fans and completes the integrated total solution.

The optional purlin boxes and attenuators ø 180 to 450 mm have a hinge mechanism that results in advantages for cleaning and fitting.

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– Product specific note	332
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The energy saving solution	61 on



For vertical and horizontal discharge.



The following information completes the sector 'general information' and the information of the product pages.



■ **Models RC.. and VC..**

Designed as part of a modular roof fan kit consisting of roof cowl (RC) fan (HQ...) purlin box and soaker sheet. The RC roof cowl can be used alone to provide an easy to use roof termination. The RC unit has a horizontal air outlet and the VC has a vertical air outlet.

■ **Specification**

The RC and VC roof fans are a mix and match design using the Helios range of plate fans. The cowl designation specifies the plate fan size it matches e.g. RC 355 uses 355 plate fans. Some roof cowls cover two plate fan sizes. There is a selection of fans available for each roof cowl to make the roof fan. These include the standard single and three phase models as well as the two speed pole switching and Dahlander models. The cowls provide weather protection for the fans. The RC cowls can be used for either supply or extract ventilation. They are suitable for all roof styles and most roof profiles.

Manufactured from glass reinforced polyester resin (G.R.P.) the cowls are of a strong and lightweight construction. The cowls are corrosion resistant and the UV stabilised outer gel coat provides a weather resistant finish.

■ **Contact safety**

RC cowls are fitted as standard with a bird guard of corrosion resistant mesh. Backdraught shutters are an optional extra. VC cowls with backdraught shutters as standard.

■ **Fans**

Any Helios plate fan of the matching size can be used with the roof cowl (with the exception of the explosion proof fans) the fan is fixed between the base of the roof cowl and the roof curb or purlin box.

■ **Purlin Boxes**

Manufactured from glass reinforced polyester resin (G.R.P.) the purlin boxes are designed to fit on trimmers fixed to the roof purlins, to support the weight of

the roof cowl, fan and purlin box. Thus the roof sheeting does not support the weight of the roof fan.

■ **Soaker Sheets**

Manufactured from glass reinforced polyester resin (G.R.P.) the soaker sheets can be made specifically to match most roof profiles. The upstand in the centre is designed to provide weather resistance and is not designed to carry the weight of the roof fan. The upstand fits over the purlin box to complete the installation.

■ **On site roof curb**

Where the roof unit is to be mounted on a solid roof a roof curb or upstand can be made on site using a timber or metal construction (dimensions shown on the product pages).

To ensure a waterproof finish the curb should be sealed on to the roof using flashing. The top surface of the curb must be flat to ensure the fan and cowl sit firmly in place (note – on some models of fan the curb may need easing to accommodate the fan guard).

■ **Fixing Fan, Cowl etc.**

Where the fan and cowl are fixed to a roof curb the cowl base should be drilled to match the chosen plate fan four fixing holes. The cowl and plate fan are held together with nuts and bolts. The unit is secured to the curb by fixing through the sides of the base. Packing may be required to avoid damage to the cowl base. When the roof fan is fitted to purlin box and trimmers, first fit the trimmers purlin box and soaker sheet. The cowl base and purlin box should be drilled to match the chosen plate fan four fixing holes. The cowl and plate fan are held in position with nuts and bolts through the base, plate and purlin box.

Information	Pages
Design of ventilation systems, acoustic, explosion proof	12 on
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For quick selection of roof fans. Select the pressure from the top of the table and follow column downwards until you reach the volume (in m³/s)

that you require. Read the model and diameter by following the row to the left hand columns.

Type	Diameter mm	Max. pitch	Poles	R.P.M. min ⁻¹	Air flow volume in V m ³ /s in dependence to static pressure = N/m ² = freely available pressure (ΔP _{stat.}) in Pa															
					0	25	50	75	100	125	150	175	200	225	250	275	300			
Horizontal discharge																				
RC + HQ..	250		4	1400	0.200	0.125	0.044													
RC + HQ..	250		2	2590	0.456	0.431	0.408	0.375	0.336											
RC + HQ..	315		6	915	0.314	0.222														
RC + HQ..	315		4	1405	0.489	0.433	0.344													
RC + HQ..	355		6	940	0.464	0.353														
RC + HQ..	355		4	1405	0.703	0.642	0.561													
RC + HQ..	400		6	905	0.642	0.511														
RC + HQ..	400		4	1340	0.961	0.889	0.803	0.689												
RC + HQ..	450		6	960	0.975	0.872	0.686													
RC + HQ..	450		4	1250	1.278	1.194	1.111	0.969												
RC + HQ..	500		6	910	1.269	1.133	0.964													
RC + HQ..	500		4	1410	1.981	1.900	1.814	1.711	1.586	1.442										
RC + HQ..	560		6	955	1.764	1.567	1.319													
RC + HQ..	560		4	1405	2.786	2.675	2.556	2.428	2.286	2.136	1.983	1.722								
RC + HQD	630		8	735	1.803	1.556														
RC + HQ..	630		6	955	2.358	2.150	1.953													
RC + HQW	630		4	1415	3.883	3.761	3.639	3.508	3.369	3.217	3.050	2.862	2.642	2.436						
RC + HQD	710	31	8	700	2.839	2.511	2.114													
RC + HQD	710	28	6	920	3.536	3.331	3.033	2.733	2.386											
RC + HQD	710	35	6	930	4.003	3.735	3.475	3.139	2.794											
RC + HQW	710	25	6	925	3.042	2.817	2.558	1.847												
RC + HQD	710	20	4	1365	4.519	4.369	4.214	4.047	3.914	3.776	3.525	3.336	3.131	2.889	2.508	1.986	1.708			
RC + HQD	710	26	4	1370	5.033	4.883	4.728	4.567	4.394	4.214	4.019	3.808	3.575	3.311	3.033					
RC + HQD	710	30	4	1435	5.803	5.647	5.486	5.317	5.144	4.967	4.781	4.594	4.394	4.181	3.944	3.689				
Vertical discharge																				
VC + HQ..	355		6	940	0.497	0.394														
VC + HQ..	355		4	1405	0.739	0.678	0.614	0.489												
VC + HQ..	400		6	905	0.675	0.572														
VC + HQ..	400		4	1340	1.011	0.936	0.881	0.750												
VC + HQ..	450		6	960	1.036	0.925	0.744													
VC + HQ..	450		4	1250	1.342	1.272	1.144	1.019												
VC + HQ..	500		6	910	1.336	1.200	1.031													
VC + HQ..	500		4	1410	2.083	2.000	1.914	1.814	1.703	1.547	1.378									
VC + HQ..	560		6	955	1.903	1.678	1.433	1.128												
VC + HQ..	560		4	1405	2.964	2.847	2.725	2.597	2.453	2.294	2.119	1.931								
VC + HQD	630		8	735	1.914	1.653														
VC + HQ..	630		6	955	2.472	2.289	2.078	1.756												
VC + HQW	630		4	1415	4.119	3.994	3.864	3.728	3.586	3.436	3.319	3.081	2.867	2.633						
VC + HQD	710	31	8	700	3.000	2.672	2.289	1.747												
VC + HQD	710	28	6	920	3.750	3.503	3.236	2.933	2.575	2.125										
VC + HQD	710	35	6	930	4.342	4.069	3.758	3.394	3.058											
VC + HQW	710	25	6	925	3.314	3.022	2.750	2.389												
VC + HQD	710	20	4	1365	4.739	4.586	4.428	4.264	4.092	3.911	3.719	3.517	3.303	3.064	2.756	2.250	1.764			
VC + HQD	710	26	4	1370	5.356	5.192	5.025	4.850	4.675	4.486	4.289	4.072	3.836	3.567	3.319	3.000				
VC + HQD	710	30	4	1435	6.139	5.978	5.819	5.656	5.486	5.311	5.128	4.936	4.733	4.511	4.292	4.042	3.722			

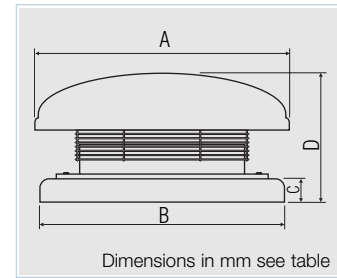
■ Specification

The range of HELIOS horizontal RC roof cowls are designed to be aerodynamically stable. The cowls provide weather protection to fans, when used and may also be used to screen roof openings or duct terminations. Manufactured from glass reinforced polyester resin (G.R.P.), reinforced with coremat to provide additional strength with light weight. Units are finished in a hard gloss, UV stabilised, gel coat, giving an attractive weather proof finish.

■ Fans

Cowls accept any HELIOS plate axial fan and must be ordered separately. **Note:** Cowls are not suitable for use in combination with explosion proof fans. For further fan specification please see axial fan pages.

Horizontal discharge roof fan



Dimensions in mm see table

Type	Dimensions in mm			
	A	B	C	D
RC 200/250	490	500	85	270
RC 315	545	555	95	340
RC 355	670	685	100	380
RC 400/450	765	790	100	460

Type	Ref. No.	Nominal weight kg
RC 200/250	5127	4.3
RC 315	5128	6.5
RC 355	5129	8.5
RC 400/450	5130	12

■ Speed control

Most models are speed controllable via voltage reduction.

■ Delivery

Cowls and fans are supplied as separate items.

■ Reverse operation

Horizontal roof fans without back draught shutter are reversible when wired to a reversing switch. For intake allow a drop in performance.

■ Backdraught shutter

Backdraught shutters for horizontal models are available as an optional extra.

■ Bird guard

Bird guards are fitted as standard.

■ Electrical connection

Terminals in motor end cap (IP 55).

■ Roof cowls for horizontal discharge

Manufactured from glass reinforced polyester resin (G.R.P) and supplied complete with bird guard, neoprene sealing strip and fixings. Optional backdraught shutters see facing page.

■ Colours

Units may be supplied in any BS or RAL colour. 8 standard colours are available as a no cost option. Other colours may incur a minimal surcharge.

■ The following colours are available as standard:

- BS 00 A 05 (Silver Grey) Standard
- BS 10 A 05 (Goose Wing Grey)
- BS 18 B 25 (Merlin Grey)
- BS 08 B 29 (Dark Brown)
- BS 10 B 19 (Mushroom)
- BS 12 B 27 (Olive Green)
- BS 12 B 21 (Moorland Green)
- HELIOS Bright Red

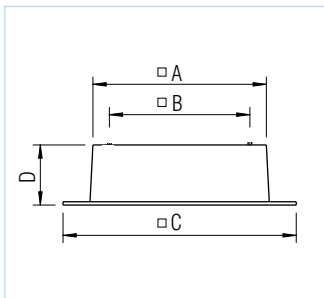
Information	Pages
Controllers and motor protection units	397 on
The full range of axial fans shown on pages 114 on may also be used with the cowls.	

Roof cowl horizontal discharge	Fan Type	Ref. No.	R.P.M.	Air flow volume (FID)	Power	Current	Wiring diagram	Maximum air flow temperature		Nominal fan weight	Controllers				
								full load +°C	controlled +°C		kg	5 step transformer	Electronic controller		
Type	Ref. No.		min ⁻¹	m ³ /h	kW	Amps	No.				Type	Ref. No.	Type	Ref. No.	
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55															
RC 200/250	5127	HQW 250/4	1103	1400	720	0.04	0.20	439	60	40	7.5	TSW 0.3	3608	ESA 1	0238
RC 200/250	5127	HQW 250/2	1104	2590	1640	0.11	0.80	317	60	40	6.5	TSW 1.5	1495	ESA 1	0238
RC 315	5128	HQW 315/6	1105	915	1130	0.04	0.21	317	60	40	8.0	TSW 0.3	3608	ESA 1	0238
RC 315	5128	HQW 315/4	1106	1405	1760	0.06	0.50	475	60	40	8.0	TSW 1.5	1947	ESA 1	0238
RC 355	5129	HQW 355/6	1107	940	1670	0.05	0.33	475	60	40	9.5	TSW 1.5	1947	ESA 1	0238
RC 355	5129	HQW 355/4	1108	1405	2530	0.12	0.90	475	60	40	9.5	TSW 1.5	1947	ESA 1	0238
RC 400/450	5130	HQW 400/6	1110	905	2310	0.06	0.45	475	60	40	13.0	TSW 1.5	1947	ESA 1	0238
RC 400/450	5130	HQW 400/4	1111	1340	3460	0.16	1.30	475	60	40	13.0	TSW 1.5	1947	ESA 3	0239
RC 400/450	5130	HQW 450/6	0991	960	3510	0.12	1.00	475	60	40	15.5	TSW 1.5	1947	ESA 3	0239
RC 400/450	5130	HQW 450/4	0992	1250	4600	0.33	2.10	475	60	40	15.5	TSW 3.0	1948	ESA 3	0239
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 55															
RC 200/250	5127	HQD 250/4	1115	1410	880	0.05	0.20	469	60	40	6.5	RDS 1 ¹⁾	1314	—	—
RC 200/250	5127	HQD 250/2	1116	2360	1490	0.11	0.35	469	60	40	6.5	RDS 1 ¹⁾	1314	—	—
RC 315	5128	HQD 315/6	1117	990	1230	0.04	0.25	469	60	40	8.0	RDS 1 ¹⁾	1314	—	—
RC 315	5128	HQD 315/4	1118	1360	1710	0.06	0.25	469	60	40	8.0	RDS 1 ¹⁾	1314	—	—
RC 355	5129	HQD 355/6	1120	950	1690	0.05	0.30	469	60	40	9.5	RDS 1 ¹⁾	1314	—	—
RC 355	5129	HQD 355/4	1121	1435	2590	0.12	0.85	469	60	40	9.5	RDS 1 ¹⁾	1314	—	—
RC 400/450	5130	HQD 400/6	1123	935	2390	0.06	0.30	469	60	40	13.0	RDS 1 ¹⁾	1314	—	—
RC 400/450	5130	HQD 400/4	1124	1395	3600	0.16	0.85	469	60	40	13.0	RDS 1 ¹⁾	1314	—	—
RC 400/450	5130	HQD 450/6	0993	950	3470	0.12	0.45	469	60	40	15.5	RDS 1 ¹⁾	1314	—	—
RC 400/450	5130	HQD 450/4	0994	1335	4910	0.33	1.00	469	50	40	15.5	RDS 2 ¹⁾	1315	—	—

¹⁾ Includes full motor protection unit; alternative: TSW/TSD; 5 step transformer controllers without motor protection unit.

■ Selection chart

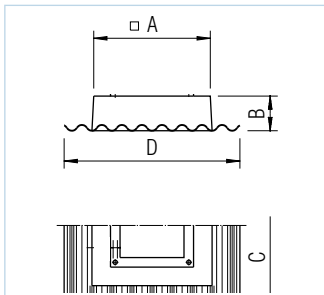
Type	Diameter mm	Max. pitch	Poles	R.P.M. min ⁻¹	Air flow volume in V m ³ /s in dependence to static pressure = N / m ² = freely available pressure ($\Delta p_{stat.}$) in Pa													
					0	25	50	75	100	125	150	175	200	225	250	275	300	
RC + HQ..	250		4	1400	0.200	0.125	0.044											
RC + HQ..	250		2	2590	0.456	0.431	0.408	0.375	0.336									
RC + HQ..	315		6	915	0.314	0.222												
RC + HQ..	315		4	1405	0.489	0.433	0.344											
RC + HQ..	355		6	940	0.464	0.353												
RC + HQ..	355		4	1405	0.703	0.642	0.561											
RC + HQ..	400		6	905	0.642	0.511												
RC + HQ..	400		4	1340	0.961	0.889	0.803	0.689										
RC + HQ..	450		6	960	0.975	0.872	0.686											
RC + HQ..	450		4	1250	1.278	1.194	1.111	0.969										



■ Purlin box for horizontal roof cowls

Manufactured from glass reinforced polyester resin (G.R.P.). Corrosion resistant and thermally efficient, finished in goose wing grey to match most building applications. The units are designed to give load bearing support to the range of HELIOS fans and cowls and may be fitted in pitched or flat roof applications.

Type	Ref. No.	Dimensions in mm				Nominal weight kg
		A	B	C	D	
PB 200/250	7656	425	300	595	225	2.0
PB 315	7657	445	350	615	220	2.5
PB 355	7658	625	400	780	240	4.0
PB 400/450	7659	730	510	880	240	6.0

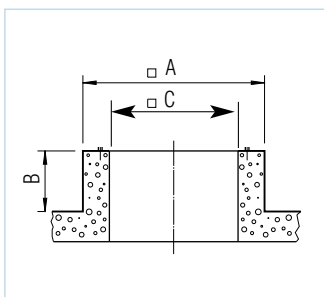


■ Soaker sheets

Available in an extensive range of profiles and colours to match HELIOS roof cowls. Standard colour is grey. Manufactured from glass reinforced polyester resin (G.R.P) with chamfered profiles around the upstand to stop water build-up.

Type	Ref. No.	Dimensions in mm			
		A	B	C	D
SS 200/250	7662	400	150	1800	¹⁾
SS 315	7663	500	150	1800	¹⁾
SS 355	7664	650	150	1800	¹⁾
SS 400/450	7665	750	150	1800	¹⁾

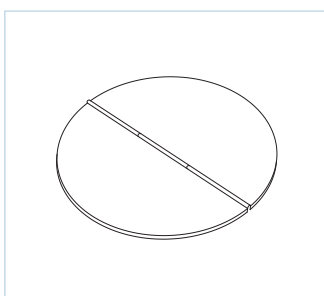
¹⁾ Dimension D and weight vary for different profiles.



■ Curb dimensions

Curbs should be manufactured from hardwood, treated soft-wood or a similar material. All dimensions include any flashing covering the curb. On some models the fan guard is close to the edge of the fan plate, so on it may be necessary on site to make provision for this in the curb.

Cowl size	A	B	C
	Max.	Min.	Min.
200/250	425	150	230/280
315	445	150	345
355	625	150	390
400/450	730	150	440/490



■ Backdraught shutter

Backdraught shutters are available as an optional extra. They are manufactured from glass reinforced polyester resin (G.R.P) and reduce unwanted draughts and heat loss when the roof fan is not in use.

Type	Ref. No.
BS 200/250	7650
BS 315	7651
BS 355	7652
BS 400/450	7653

■ Specification

The range of HELIOS horizontal RC roof cowls are designed to be aerodynamically stable. The cowls provide weather protection to fans, when used and may also be used to screen roof openings or duct terminations. Manufactured from glass reinforced polyester resin (G.R.P), reinforced with coremat to provide additional strength with light weight. Units are finished in a hard gloss, UV stabilised, gel coat, giving an attractive weather proof finish.

■ Fans

Cowls accept any HELIOS plate axial fan and must be ordered separately. Note: Cowls are not suitable for use in combination with explosion proof fans. For further specification please see axial fan pages.

■ Speed control

Most models are speed controllable via voltage reduction.

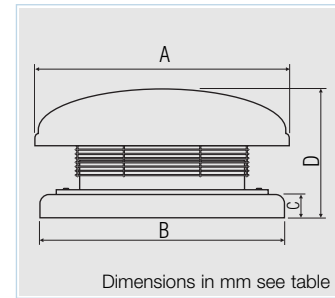
■ Delivery

Cowls and fans are supplied as separate items.

■ Reverse operation

Horizontal roof fans without back draught shutter are reversible when wired to a reversing switch. For intake allow a drop in performance.

Horizontal discharge roof fan



Type	Dimensions in mm			
	A	B	C	D
RC 500/560	1000	925	110	550
RC 630/710	1115	1045	110	650

Type	Ref. No.	Nominal weight kg
RC 500/560	5131	21
RC 630/710	5132	27

■ Backdraught shutter

Backdraught shutters for horizontal models are available as an optional extra.

■ Bird guard

Bird guards are fitted as standard.

■ Electrical connection

Terminals in motor end cap (IP 55).

■ Roof cowls for horizontal discharge

Manufactured from glass reinforced polyester resin (G.R.P) and supplied complete with bird guard, neoprene sealing strip and fixings. Optional backdraught shutters see facing page.

■ Colours

Units may be supplied in any BS or RAL colour. 8 standard colours are available as a no cost option. Other colours may incur a minimal surcharge.

■ The following colours are available as standard:

- BS 00 A 05 (Silver Grey) Standard
- BS 10 A 05 (Goose Wing Grey)
- BS 18 B 25 (Merlin Grey)
- BS 08 B 29 (Dark Brown)
- BS 10 B 19 (Mushroom)
- BS 12 B 27 (Olive Green)
- BS 12 B 21 (Moorland Green)
- HELIOS Bright Red

Information	Pages
Controllers and motor protection units	397 on
The full range of axial fans shown on pages 114 on may also be used with the cowls.	

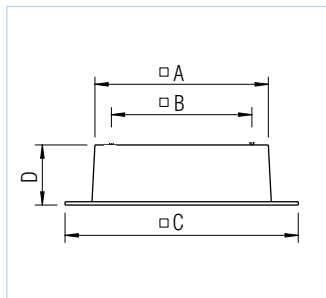
Roof cowl horizontal discharge	Fan Type	Ref. No.	R.P.M.	Air flow volume (FID)	Power	Current	Wiring diagram	Maximum air flow temperature		Nominal fan weight	Controllers				
								full load	controlled		5 step transformer	Electronic controller			
Type	Ref. No.		min ⁻¹	m ³ /h	kW	Amps	No.	+°C	+°C	kg	Type	Ref. No.	Type	Ref. No.	
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55															
RC 500/560	5131	HQW 500/6	1112	910	4570	0.14	1.20	475	60	40	17.3	TSW 1.5	1947	ESA 3	0239
RC 500/560	5131	HQW 500/4	1113	1410	7130	0.45	2.60	475	60	40	17.3	TSW 3.0	1948	ESA 3 i	7806
RC 500/560	5131	HQW 560/6	0385	955	6350	0.25	2.10	475	60	40	22.0	TSW 3.0	1948	ESA 3	0239
RC 500/560	5131	HQW 560/4	5054	1405	10030	0.75	5.60	475	40	40	25.0	TSW 7.5	1950	ESA 6 i	7807
RC 630/710	5132	HQW 630/6	5037	955	8490	0.45	3.20	475	60	40	25.0	TSW 5.0	1949	ESA 6 i	7807
RC 630/710	5132	HQW 630/4	5056	1415	13980	1.50	7.00	475	40	40	35.0	TSW 7.5	1950	ESA 10 i	7808
RC 630/710	5132	HQW 710/6/..	5047	925	10950	0.50	2.50/(3.00)	475	25*	40	60.0	TSW 5.0	1949	ESA 6 i	7807
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 55															
RC 500/560	5131	HQD 500/6	1126	910	4570	0.14	0.50	469	60	40	17.2	RDS 1 ¹⁾	1314	—	—
RC 500/560	5131	HQD 500/4	1127	1320	6670	0.45	1.25	469	40	40	17.2	RDS 2 ¹⁾	1315	—	—
RC 500/560	5131	HQD 560/6	0386	960	6380	0.25	1.00	469	60	40	22.0	RDS 2 ¹⁾	1315	FUR 3 ¹⁾	9485
RC 500/560	5131	HQD 560/4	0387	1380	9850	0.75	1.75	469	40	40	23.0	RDS 2 ¹⁾	1315	FUR 3 ¹⁾	9485
RC 630/710	5132	HQD 630/8	5029	735	6490	0.25	1.50	469	60	40	27.0	RDS 2 ¹⁾	1315	FUR 3 ¹⁾	9485
RC 630/710	5132	HQD 630/6	5027	970	8620	0.55	1.80	469	60	40	28.0	RDS 2 ¹⁾	1315	FUR 3 ¹⁾	9485
RC 630/710	5132	HQD 710/8/..	5599	700	10220	0.37	1.60/(1.60)	469	31*	40	57.0	RDS 2 ¹⁾	1315	FUR 3 ¹⁾	9485
RC 630/710	5132	HQD 710/6/6..	5602	920	12730	0.43/0.75	1.2/2.2	520	28*	40	55.0	RDS 4 ¹⁾	1316	FUR 3 ¹⁾	9485
RC 630/710	5132	HQD 710/6/6..	5603	930	14410	0.71/1.30	2.10/3.50	520	35*	40	60.0	RDS 4 ¹⁾	1316	FUR 4 ¹⁾	9487
RC 630/710	5132	HQD 710/4/4..	5604	1365	16270	0.95/1.55	2.10/3.70	520	20*	40	60.0	RDS 7 ¹⁾	1578	FUR 4 ¹⁾	9487
RC 630/710	5132	HQD 710/4/4..	5605	1370	18120	1.5/2.2	3.50/5.90	520	26*	40	75.0	RDS 7 ¹⁾	1578	FUR 6 ¹⁾	9489
RC 630/710	5132	HQD 710/4/..	5606	1435	20890	3.00	6.7	776	30*	40	88.0	—	—	FUR 6 ¹⁾	9489

¹⁾ Includes full motor protection unit; alternative: TSW/TSD; 5 step transformer controllers without motor protection unit.

* Max. pitch angle [°]

■ Selection chart

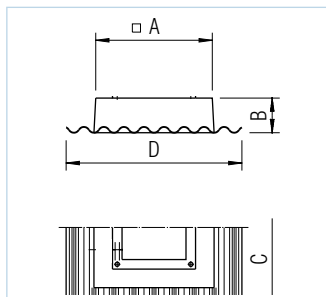
Type	Diameter mm	Max. pitch	Poles	R.P.M. min ⁻¹	Air flow volume in V m ³ /s in dependence to static pressure = N / m ² = freely available pressure ($\Delta p_{stat.}$) in Pa															
					0	25	50	75	100	125	150	175	200	225	250	275	300			
RC + HQ..	500		6	910	1.269	1.133	0.964													
RC + HQ..	500		4	1410	1.981	1.900	1.814	1.711	1.586	1.442										
RC + HQ..	560		6	955	1.764	1.567	1.319													
RC + HQ..	560		4	1405	2.786	2.675	2.556	2.428	2.286	2.136	1.983	1.722								
RC + HQD	630		8	735	1.803	1.556														
RC + HQ..	630		6	955	2.358	2.150	1.953													
RC + HQW	630		4	1415	3.883	3.761	3.639	3.508	3.369	3.217	3.050	2.862	2.642	2.436						
RC + HQD	710	31°	8	700	2.839	2.511	2.114													
RC + HQD	710	28°	6	920	3.536	3.331	3.033	2.733	2.386											
RC + HQD	710	35°	6	930	4.003	3.735	3.475	3.139	2.794											
RC + HQW	710	25°	6	925	3.042	2.817	2.558	1.847												
RC + HQD	710	20°	4	1365	4.519	4.369	4.214	4.047	3.914	3.776	3.525	3.336	3.131	2.889	2.508	1.986	1.708			
RC + HQD	710	26°	4	1370	5.033	4.883	4.728	4.567	4.394	4.214	4.019	3.808	3.575	3.311	3.033					
RC + HQD	710	30°	4	1435	5.803	5.647	5.486	5.317	5.144	4.967	4.781	4.594	4.394	4.181	3.944	3.689				



■ Purlin box for horizontal roof cowls

Manufactured from glass reinforced polyester resin (G.R.P.). Corrosion resistant and thermally efficient, finished in goose wing grey to match most building applications. The units are designed to give load bearing support to the range of HELIOS fans and cowls and may be fitted in pitched or flat roof applications.

Type	Ref. No.	Dimensions in mm				Nominal weight kg
		A	B	C	D	
PB 500/560	7660	865	620	1050	250	8.0
PB 630/710	7661	900	780	1080	260	10

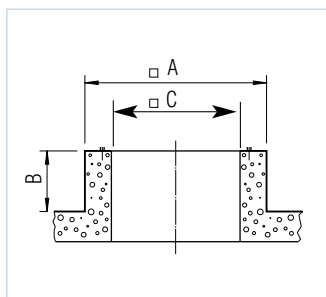


■ Soaker sheets

Available in an extensive range of profiles and colours to match HELIOS roof cowls. Standard colour is grey. Manufactured from glass reinforced polyester resin (G.R.P) with chamfered profiles around the upstand to stop water build-up.

Type	Ref. No.	Dimensions in mm			
		A	B	C	D
SS 500/560	7666	870	150	1800	¹⁾
SS 630/710	7667	1000	150	1800	¹⁾

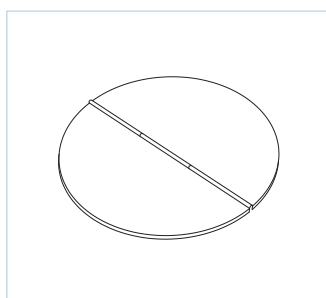
¹⁾ Dimension D and weight vary for different profiles.



■ Curb dimensions

Curbs should be manufactured from hardwood, treated soft-wood or a similar material. All dimensions include any flashing covering the curb. On some models the fan guard is close to the edge of the fan plate, so on it may be necessary on site to make provision for this in the curb.

Cowl size	A	B	C
	Max.	Min.	Min.
500/560	865	150	550/630
630/710	900	150	700/810



■ Backdraught shutter

Backdraught shutters are available as an optional extra. They are manufactured from glass reinforced polyester resin (G.R.P) and reduce unwanted draughts and heat loss when the roof fan is not in use.

Type	Ref. No.
BS 500/560	7654
BS 630/710	7655

■ Specification

The range of HELIOS vertical VC roof cowls are designed to be aerodynamically stable. The cowls provide weather protection to fans, when used and may also be used to screen roof openings or duct terminations. Manufactured from glass reinforced polyester resin (G.R.P.), reinforced with coremat to provide additional strength with light weight. Units are finished in a hard gloss, UV stabilised, gel coat, giving an attractive weather proof finish.

■ Fans

Cowls accept any HELIOS plate axial fan and must be ordered separately. Note: Cowls are not suitable for use in combination with explosion proof fans. For further specification please see axial fan pages.

■ Speed control

Most models are speed controllable via voltage reduction.

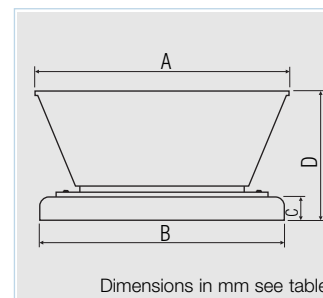
■ Delivery

Cowls and fans are supplied as separate items.

■ Reverse operation

Vertical roof fans are not reversible.

Vertical discharge roof fan



Type	Dimensions in mm			
	A	B	C	D
VC 355	690	685	100	475
VC 400/450	790	790	100	585

Type	Ref. No.	Nominal weight kg
VC 355	7695	8.5
VC 400/450	7696	12

■ Backdraught shutter

Vertical extract models have backdraught shutters fitted as standard.

■ Bird guard

Bird guards are fitted as standard.

■ Electrical connection

Terminals in motor end cap (IP 55).

■ Roof cowls for vertical discharge

Manufactured from glass reinforced polyester resin (G.R.P) and supplied complete with bird guard, neoprene sealing strip and fixings.

■ Colours

Units may be supplied in any BS or RAL colour. 8 standard colours are available as a no cost option. Other colours may incur a minimal surcharge.

■ The following colours are available as standard:

- BS 00 A 05 (Silver Grey) Standard
- BS 10 A 05 (Goose Wing Grey)
- BS 18 B 25 (Merlin Grey)
- BS 08 B 29 (Dark Brown)
- BS 10 B 19 (Mushroom)
- BS 12 B 27 (Olive Green)
- BS 12 B 21 (Moorland Green)
- HELIOS Bright Red

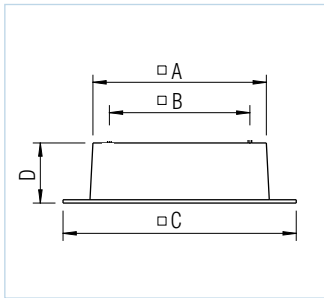
Information	Pages
Controllers and motor protection units	397 on
The full range of axial fans shown on pages 114 on may also be used with the cowls.	

Roof cowl vertical discharge	Fan Type	Ref. No.	R.P.M.	Air flow volume (FID)	Power	Current	Wiring diagram	Maximum air flow temperature		Nominal fan weight	Controllers				
								full load	controlled		5 step transformer		Electronic controller		
Type	Ref. No.		min ⁻¹	m ³ /h	kW	Amps	No.	+°C	+°C	kg	Type	Ref. No.	Type	Ref. No.	
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55															
VC 355	7695	HQW 355/6	1107	940	0.05	0.33	475	60	40	9.5	TSW 1.5	1947	ESA 1	0238	
VC 355	7695	HQW 355/4	1108	1405	0.12	0.90	475	60	40	9.5	TSW 1.5	1947	ESA 1	0238	
VC 400/450	7696	HQW 400/6	1110	905	0.06	0.45	475	60	40	13.0	TSW 1.5	1947	ESA 1	0238	
VC 400/450	7696	HQW 400/4	1111	1340	0.16	1.30	475	60	40	13.0	TSW 1.5	1947	ESA 3	0239	
VC 400/450	7696	HQW 450/6	0991	960	0.12	1.00	475	60	40	15.5	TSW 1.5	1947	ESA 3	0239	
VC 400/450	7696	HQW 450/4	0992	1250	0.33	2.10	475	60	40	15.5	TSW 3.0	1948	ESA 3	0239	
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 55															
VC 355	7695	HQD 355/6	1120	950	0.05	0.30	469	60	40	9.5	RDS 1 ¹⁾	1314	—	—	
VC 355	7695	HQD 355/4	1121	1435	0.12	0.85	469	60	40	9.5	RDS 1 ¹⁾	1314	—	—	
VC 400/450	7696	HQD 400/6	1123	935	0.06	0.30	469	60	40	13.0	RDS 1 ¹⁾	1314	—	—	
VC 400/450	7696	HQD 400/4	1124	1395	0.16	0.85	469	60	40	13.0	RDS 1 ¹⁾	1314	—	—	
VC 400/450	7696	HQD 450/6	0993	950	0.12	0.45	469	60	40	15.5	RDS 1 ¹⁾	1314	—	—	
VC 400/450	7696	HQD 450/4	0994	1335	0.33	1.00	469	50	40	15.5	RDS 2 ¹⁾	1315	—	—	

¹⁾ Includes full motor protection unit; alternative: TSW/TSD; 5 step transformer controllers without motor protection unit.

■ Selection chart

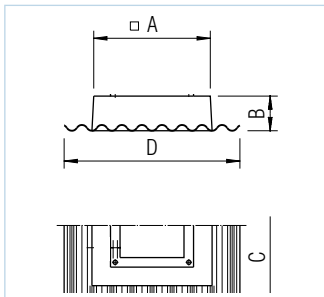
Type	Diameter mm	Max. pitch	Poles	R.P.M. min ⁻¹	Air flow volume in V m ³ /s in dependence to static pressure = N / m ² = freely available pressure ($\Delta p_{stat.}$) in Pa														
					0	25	50	75	100	125	150	175	200	225	250	275	300		
VC + HQ..	355		6	940	0.497	0.394													
VC + HQ..	355		4	1405	0.739	0.678	0.614	0.489											
VC + HQ..	400		6	905	0.675	0.572													
VC + HQ..	400		4	1340	1.011	0.936	0.881	0.750											
VC + HQ..	450		6	960	1.036	0.925	0.744												
VC + HQ..	450		4	1250	1.342	1.272	1.144	1.019											



■ Purlin box for vertical roof cowls

Manufactured from glass reinforced polyester resin (G.R.P.). Corrosion resistant and thermally efficient, finished in goose wing grey to match most building applications. The units are designed to give load bearing support to the range of HELIOS fans and cowls and may be fitted in pitched or flat roof applications.

Type	Ref. No.	Dimensions in mm				Nominal weight kg
		A	B	C	D	
PB 355	7658	625	400	780	240	4.0
PB 400/450	7659	730	510	880	240	6.0

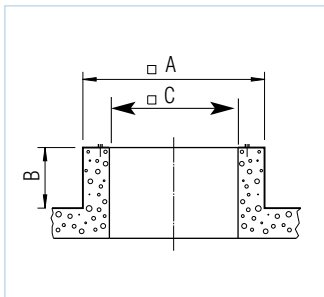


■ Soaker sheets

Available in an extensive range of profiles and colours to match HELIOS roof cowls. Standard colour is grey. Manufactured from glass reinforced polyester resin (G.R.P) with chamfered profiles around the upstand to stop water build-up.

Type	Ref. No.	Dimensions in mm			
		A	B	C	D
SS 355	7664	650	150	1800	¹⁾
SS 400/450	7665	750	150	1800	¹⁾

¹⁾ Dimension D and weight vary for different profiles.



■ Curb dimensions

Curbs should be manufactured from hardwood, treated soft-wood or a similar material. All dimensions include any flashing covering the curb.

On some models the fan guard is close to the edge of the fan plate, so on it may be necessary on site to make provision for this in the curb.

Cowl size	A	B	C
	Max.	Min.	Min.
355	625	150	390
400/450	730	150	440/490

Specification

The range of HELIOS vertical VC roof cowls are designed to be aerodynamically stable. The cowls provide weather protection to fans, when used and may also be used to screen roof openings or duct terminations. Manufactured from glass reinforced polyester resin (G.R.P.), reinforced with coremat to provide additional strength with light weight. Units are finished in a hard gloss, UV stabilised, gel coat, giving an attractive weather proof finish.

Fans

Cowls accept any HELIOS plate axial fan and must be ordered separately. Note: Cowls are not suitable for use in combination with explosion proof fans. For further specification please see axial fan pages.

Speed control

Most models are speed controllable via voltage reduction.

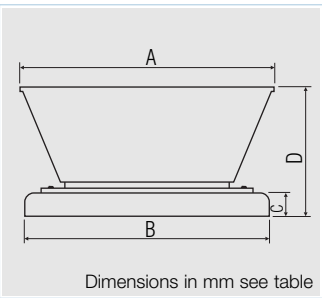
Delivery

Cowls and fans are supplied as separate items.

Reverse operation

Vertical roof fans are not reversible.

Vertical discharge roof fan



Type	Dimensions in mm			
	A	B	C	D
VC 500/560	950	925	110	700
VC 630/710	1030	1045	110	800

Type	Ref. No.	Nominal weight kg
VC 500/560	7697	21
VC 630/710	7698	27

Backdraught shutter

Vertical extract models have backdraught shutters fitted as standard.

Bird guard

Bird guards are fitted as standard.

Electrical connection

Terminals in motor end cap (IP 55).

Roof cowls for vertical discharge

Manufactured from glass reinforced polyester resin (G.R.P) and supplied complete with bird guard, neoprene sealing strip and fixings.

Colours

Units may be supplied in any BS or RAL colour. 8 standard colours are available as a no cost option. Other colours may incur a minimal surcharge.

The following colours are available as standard:
 BS 00 A 05 (Silver Grey) Standard
 BS 10 A 05 (Goose Wing Grey)
 BS 18 B 25 (Merlin Grey)
 BS 08 B 29 (Dark Brown)
 BS 10 B 19 (Mushroom)
 BS 12 B 27 (Olive Green)
 BS 12 B 21 (Moorland Green)
 HELIOS Bright Red

Information	Pages
Controllers and motor protection units	397 on
The full range of axial fans shown on pages 114 on may also be used with the cowls.	

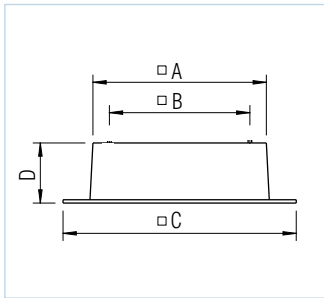
Roof cowl horizontal discharge	Fan Type	Ref. No.	R.P.M.	Air flow volume (FID)	Power	Current	Wiring diagram	Maximum air flow temperature		Nominal fan weight	Controllers				
								full load	controlled		5 step transformer	Electronic controller			
Type	Ref. No.		min ⁻¹	m ³ /h	kW	Amps	No.	+°C	+°C	kg	Type	Ref. No.	Type	Ref. No.	
1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 55															
VC 500/560	7697	HQW 500/6	1112	910	4810	0.14	1.20	475	60	40	17.3	TSW 1.5	1947	ESA 3	0239
VC 500/560	7697	HQW 500/4	1113	1410	7500	0.45	2.60	475	60	40	17.3	TSW 3.0	1948	ESA 3 i	7806
VC 500/560	7697	HQW 560/6	0385	955	6850	0.25	2.10	475	60	40	22.0	TSW 3.0	1948	ESA 3	0239
VC 500/560	7697	HQW 560/4	5054	1405	10670	0.75	5.60	475	40	40	25.0	TSW 7.5	1950	ESA 6 i	7807
VC 630/710	7698	HQW 630/6	5037	955	8900	0.45	3.20	475	60	40	25.0	TSW 5.0	1949	ESA 6 i	7807
VC 630/710	7698	HQW 630/4	5056	1415	14830	1.50	7.00	475	40	40	35.0	TSW 7.5	1950	ESA 10 i	7808
VC 630/710	7698	HQW 710/6/..	5047	925	11930	0.50	2.50/(3.00)	475	25*	40	60.0	TSW 5.0	1949	ESA 6 i	7807
3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 55															
VC 500/560	7697	HQD 500/6	1126	910	4810	0.14	0.50	469	60	40	17.2	RDS 1 ¹⁾	1314	—	—
VC 500/560	7697	HQD 500/4	1127	1320	7010	0.45	1.25	469	40	40	17.2	RDS 2 ¹⁾	1315	—	—
VC 500/560	7697	HQD 560/6	0386	960	6970	0.25	1.00	469	60	40	22.0	RDS 2 ¹⁾	1315	FUR 3 ¹⁾	9485
VC 500/560	7697	HQD 560/4	0387	1380	10480	0.75	1.75	469	40	40	23.0	RDS 2 ¹⁾	1315	FUR 3 ¹⁾	9485
VC 630/710	7698	HQD 630/8	5029	735	6890	0.25	1.50	469	60	40	27.0	RDS 2 ¹⁾	1315	FUR 3 ¹⁾	9485
VC 630/710	7698	HQD 630/6	5027	970	9100	0.55	1.80	469	60	40	28.0	RDS 2 ¹⁾	1315	FUR 3 ¹⁾	9485
VC 630/710	7698	HQD 710/8/..	5599	700	10800	0.37	1.60/(1.60)	469	31*	40	57.0	RDS 2 ¹⁾	1315	FUR 3 ¹⁾	9485
VC 630/710	7698	HQD 710/6/..	5602	920	13500	0.43/0.75	1.2/2.2	520	28*	40	55.0	RDS 4 ¹⁾	1316	FUR 3 ¹⁾	9485
VC 630/710	7698	HQD 710/6/..	5603	930	15630	0.71/1.30	2.10/3.50	520	35*	40	60.0	RDS 4 ¹⁾	1316	FUR 4 ¹⁾	9487
VC 630/710	7698	HQD 710/4/..	5604	1365	17060	0.95/1.55	2.10/3.70	520	20*	40	60.0	RDS 7 ¹⁾	1578	FUR 4 ¹⁾	9487
VC 630/710	7698	HQD 710/4/..	5605	1370	19280	1.5/2.2	3.50/5.90	520	26*	40	75.0	RDS 7 ¹⁾	1578	FUR 6 ¹⁾	9489
VC 630/710	7698	HQD 710/4/..	5606	1435	22100	3.00	6.7	776	30*	40	88.0	—	—	FUR 6 ¹⁾	9489

¹⁾ Includes full motor protection unit; alternative: TSW/TSD; 5 step transformer controllers without motor protection unit.

* Max. pitch angle [°]

■ Selection chart

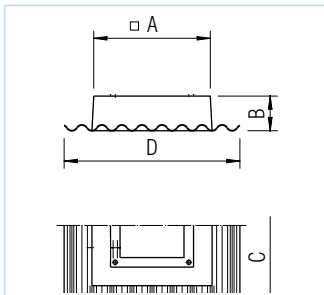
Type	Diameter mm	Max. pitch	Poles	R.P.M. min ⁻¹	Air flow volume in V m ³ /s in dependence to static pressure = N / m ² = freely available pressure ($\Delta p_{stat.}$) in Pa														
					0	25	50	75	100	125	150	175	200	225	250	275	300		
VC + HQ..	500		6	910	1.336	1.200	1.031												
VC + HQ..	500		4	1410	2.083	2.000	1.914	1.814	1.703	1.547	1.378								
VC + HQ..	560		6	955	1.903	1.678	1.433	1.128											
VC + HQ..	560		4	1405	2.964	2.847	2.725	2.597	2.453	2.294	2.119	1.931							
VC + HQD	630		8	735	1.914	1.653													
VC + HQ..	630		6	955	2.472	2.289	2.078	1.756											
VC + HQW	630		4	1415	4.119	3.994	3.864	3.728	3.586	3.436	3.319	3.081	2.867	2.633					
VC + HQD	710	31°	8	700	3.000	2.672	2.289	1.747											
VC + HQD	710	28°	6	920	3.750	3.503	3.236	2.933	2.575	2.125									
VC + HQD	710	35°	6	930	4.342	4.069	3.758	3.394	3.058										
VC + HQW	710	25°	6	925	3.314	3.022	2.750	2.389											
VC + HQD	710	20°	4	1365	4.739	4.586	4.428	4.264	4.092	3.911	3.719	3.517	3.303	3.064	2.756	2.250	1.764		
VC + HQD	710	26°	4	1370	5.356	5.192	5.025	4.850	4.675	4.486	4.289	4.072	3.836	3.567	3.319	3.000			
VC + HQD	710	30°	4	1435	6.139	5.978	5.819	5.656	5.486	5.311	5.128	4.936	4.733	4.511	4.292	4.042	3.722		



■ Purlin box for vertical roof cowls

Manufactured from glass reinforced polyester resin (G.R.P.). Corrosion resistant and thermally efficient, finished in goose wing grey to match most building applications. The units are designed to give load bearing support to the range of HELIOS fans and cowls and may be fitted in pitched or flat roof applications.

Type	Ref. No.	Dimensions in mm				Nominal weight kg
		A	B	C	D	
PB 500/560	7660	865	620	1050	250	8.0
PB 630/710	7661	900	780	1080	260	10

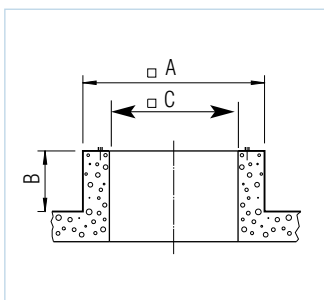


■ Soaker sheets

Available in an extensive range of profiles and colours to match HELIOS roof cowls. Standard colour is grey. Manufactured from glass reinforced polyester resin (G.R.P) with chamfered profiles around the upstand to stop water build-up.

Type	Ref. No.	Dimensions in mm			
		A	B	C	D
SS 500/560	7666	870	150	1800	¹⁾
SS 630/710	7667	1000	150	1800	¹⁾

¹⁾ Dimension D and weight vary for different profiles.



■ Curb dimensions

Curbs should be manufactured from hardwood, treated soft-wood or a similar material. All dimensions include any flashing covering the curb. On some models the fan guard is close to the edge of the fan plate, so on it may be necessary on site to make provision for this in the curb.

Cowl size	A	B	C
	Max.	Min.	Min.
500/560	865	150	550/630
630/710	900	150	700/810

This section covers the general technical information and product information.

Common features of the vertical discharge models - VD.. and VDR..

Features

Because of the vertical discharge air flow, these units have the following advantages:

- Less impact to the environment through pollution.
- Minimising the effect of the exhaust air on the roofs, roof lights and light domes of adjacent buildings.
- By discharging the exhaust fumes higher into the atmosphere disturbing factors (such as odours, vapours) do not enter adjacent buildings. So open windows, hatches or chimneys within the surrounding area or other supply or exhaust air roof fans are un affected.

Speed control

The information regarding this can be found on product pages and "general technical product information".

Electrical connection

The supply cable can enter the unit from the under side via a cable gland in the base plate or directly over the roof. The connection must be carried out without dismantling other parts in the external terminal box and following the attached wiring diagram.

Motor protection

The information on motor protection is given in the specific product page.

Sound levels

The information on sound levels is given in the specific product page.

Incorrect direction of rotation

The VD..- and VDR..- units are suitable for exhaust air operation only. If the fan is operated in the incorrect direction of rotation the motor will overheat and the built-in thermal contacts will trip. Typical indication for this is a very low air flow combined with high noise levels and vibration.

Installation

Vertical discharge roof fans must be mounted horizontally. On sloping roofs this can be achieved by using an appropriate base construction. This is to prevent the ingress of water. Installation of the RD.. horizontal discharge units is given on the product pages.



Design VDR..

Vertical discharge centrifugal roof fan with isolation switch on the casing. Casing and base plate made of galvanised steel. The fans are factory-wired with the isolation switch. The base plate of casing is supplied with drilled holes (hole pattern to DIN 24155, Bl. 3) in order to connect the supply air accessories.

Motor

The units are operated by totally enclosed external rotor motors (IP 44), in the air stream. Their design complies with DIN EN 60034 / VDE 0530 and DIN EN 60335-1 / VDE 0700-1, of the insulation class B and protection class I. They are equipped with maintenance free ball bearings, which are suitable for up to 30.000 operating hours.

Impellers

Highly efficient, backward curved centrifugal impellers made of polymer. Low vibration operation through dynamic balancing according to DIN ISO 1940 T.1 – grade 6.3.

Air flow temperature

The units can be used in the range of -40 °C to +60 °C. The upper limit is type-specific and can be obtained from the product page. If the fan is speed-controlled, this value must be reduced by approx. 10 °C.



Design VD..

The casing is made of glass fibre polyester by using the latest techniques to ensure the optimally smooth surface. Thus the unit externally is totally corrosion proof and resistant to chemical substances and UV, also ensuring unit weighs less. The motor is outside of the air stream (except VD.. 180) beneath a GRP-cowl. A cooling fan and vents in the motor cover ensure a recooling through the atmospheric air. Starting from VD 200 the motor mountings and other fixing elements are made of stainless steel. The impeller is direct driven by the motor. Easy to assemble / disassemble for servicing. Simple electrical connection through an external terminal box protected to IP 65. The base plate of casing is supplied with drilled holes (hole pattern to DIN 24155, Bl. 3) or with threaded bolts in order to connect the supply air accessories.

Motor

Starting from the VD 200, maintenance free IEC-squirrel cage motors are used. These motors are designed for continuous operation and are rated to cover the full range of the unit. They are equipped with maintenance free ball bearings, which are suitable for up to 30.000 operating hours. The motors comply with DIN EN 60034 / VDE 0530 and DIN EN 60335-1 / VDE 0700-1 as well as other national regulations. They have the insulation class B or F and are protected to IP 44 or 54 (see product page).

Impellers

Starting from VD 200.. the mixed-flow impellers made of aluminium are specially developed for this specific application. The air flow pattern that is achieved provides the optimal vertical outlet airflow pattern. The VD.. 180 is equipped with highly efficient backward curved centrifugal impellers made of galvanised steel. Dynamically balanced in accordance with DIN ISO 1940 T.1 – grade 6.3. to ensure low vibration in operation.

Contact protection

All units come with a bird guard made of galvanised steel according to DIN EN ISO 13857 on the outlet as standard. If there is no protection for safety against rotating parts on the intake, a guard must be installed as well (available as accessory).

Air flow temperature

Starting from VD 200 the units can be used in the range of -40 °C to +90 °C because the motors are outside of the air stream. The maximum limit can be seen on the corresponding product page. If the fan is speed-controlled, this value is reduced generally by 10-20 °C. Explosion proof models are rated at max. +40 °C.

Explosion proof

All the polymer components of these models have a electroconductive, black coating. The ex-proof models corresponding the unit group II, category 2 G for applications in zone 1 and 2 according to directive 94/9/EG. The EG-declaration of conformity which is attached to every unit details the design according to DIN EN 60079-0 / VDE 0170-1 and DIN EN 60079-7 / VDE 0170-6. It is protected to Ex e 2G. The temperature class is given on the product page. The external terminal box is also protected to Ex e 2G. All units have a KEMA declaration of conformity. For further information see "design of ventilation systems explosion proof fans" and "general technical information".

Chemical endurance

Starting from VD.. 200 all the case parts such as base plate with inlet nozzle, top and base cover as well as motor encapsulation are made of glass fibre polyester and are therefore resistant to many substances. The self-ventilated motor is outside of the air stream; its mountings are made of stainless steel. The aluminium impeller and the hot-dip galvanised safety guard can be damaged by some substances. For aggressive air an acrylic polymer coating of impeller is recommended (on order at extra cost).

Information	Page
Design of ventilation systems, acoustic, explosion proof	12 on
General technical information, speed control	17 on



- RD**
- **Model RD**
Horizontal discharging centrifugal fans for extraction.
 - **Specification**
Robust, corrosion and weather resistant construction. Base plate made of galvanised steel. Cowl and protection grille made of galvanised steel, nominal sizes 225 – 400 mm made of aluminium. Nominal size 710 mm with cowl made of glass fibre reinforced polyester. All explosion proof models with base plate made of galvanised steel. Quiet operation through resiliently mounted motor. Compact design with excellent weather protection.
 - **Motor**
Totally enclosed external rotor motor with ball bearings, protected to IP 44 or IP 54 and to insulation class B or F according to DIN EN 60034 / VDE 0530 and DIN EN 60335-1 / VDE 0700-1. The windings are additionally impregnated to protect against high humidity. The ball bearings are greased for a running time of up to 30.000 running hours and are thus maintenance free. Motor and impeller are balanced as the unit according to DIN ISO 1940 T. 1 – class 6.3 to ensure a low vibration operation..
 - **Impellers**
High performance, efficiency optimised backward curved centrifugal impellers, made of galvanised steel. Pressed on motor and balanced as unit.
 - **Contact safety**
All units come with a bird guard to DIN EN ISO 13857 on the outlet as standard. If there is no ducting connected, then for safety protection against rotating parts on the intake, a guard must be installed as well (available as accessory).
 - **Air flow temperature**
The operating range is between – 40 to + 60 °C. Thermal contacts protect against higher temperatures. For higher air flow temperatures the vertical discharge model VD can be used.
 - **Speed control**
All single speed RD fans (except RDD 225/6 Ex and RDD 710/6) are 100% speed controllable. For suitable controllers see chart on individual fan page. Further information see “general technical information”.
 - **Electric wiring**
The supply cable can enter the unit from the under side via cable gland in the base plate or directly over the roof. Connect following the the wiring diagram in the terminal box (protection to IP 55) located below the cowl.
 - **Full motor protection**
All models (except explosion proof) are equipped with thermal contacts, wired to the terminal box. For motor overheat protection connect the thermal contacts to the protection units as shown in the fan chart. The motors of RD.. Ex are equipped with positive temperature coefficient thermistors (PTC) of winding (for direct temperature monitoring) as standard. To provide the required motor overheat protection a suitable motor tripping unit must be fitted e.g the MSA unit (accessory).
 - **Explosion proof**
The ex-proof models corresponding to unit group II, category 3 G for applications in zone 2 according to directive 94/9/EG. Designed according to DIN EN 60079-0 / VDE 0530 and DIN EN 60079-7 / VDE 0170-6. Protected to Ex e 3G. The temperature class is given in the fan chart. The material conforms to DIN EN 14986 as shown in the fan chart. The motors of RD.. Ex are equipped with positive temperature coefficient thermistors (PTC) of winding (for direct temperature monitoring) as standard. To provide the required motor overheat protection a suitable motor tripping unit must be fitted e.g the MSA unit (accessory). With these features the speed of RD.. Ex fans can be controlled (except RDD 225/6 Ex models) where transformer control units TSD, TSSD can be used. A minimum voltage of 115 V must be observed. The electrical connection is by a 80 cm long flying lead which is attached to the motor. (A separate explosion proof terminal box can be supplied as an accessory). Installation and operation must be in compliance with the relevant regulations. For further information see “design of ventilation systems explosion proof fans” and “general technical information”.
 - **Sound levels**
Data is given on product pages and under “general product specific information”.
 - **Incorrect direction of rotation**
If the fan is operated in the incorrect direction of rotation the motor will overheat and the motor protection will trip. Typical indication for this is a very low air flow combined with high noise levels and vibration.
 - **Base construction, mounting and delivery**
Supplied as ready to install units. The fans can be installed quickly and easily; suitable for installation on all of roof constructions. The roof curb or purlin should be horizontal. With the models RD.. a slope of max. 25° is allowed. We recommend the use of the purlin boxes and soaker sheets offered in the accessory range. Using these components minimises the cost of designing, completion and installation. The roof curb can also be produced on site in concrete, wood, brick or similar. A flat surface is necessary as a perfect sealing with the roof. After mounting the unit, the fan base plate is secured by 4 screws to the base. Helios purlin box and base attenuator with sizes 180–450 mm have a hinged mechanism and offer advantages for cleaning and maintenance. With bases built on the site packing should be used to level any flatness imperfection. Any resulting gap between the fan’s base plate and the roof’s base must be sealed with a sealant. After tightening the screws evenly, check if impeller rotates freely.

Information	Page
Design of ventilation systems, acoustic, explosion proof	12 on
General technical information, speed control	17 on

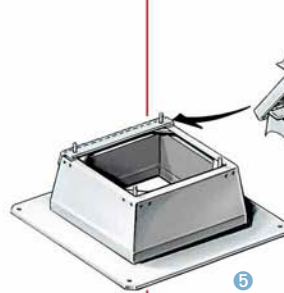
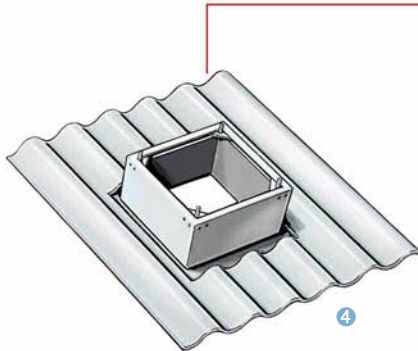
1
Centrifugal roof fan RD
Horizontal discharge
 Cost effective.
 A compact, low profile design with rain protection hood.



2
Centrifugal roof fan VD
Vertical discharge
 Motor located outside the air stream. All the casing parts are made of glass fibre polyester, thus fully corrosion proof and UV-resistant.



3
Centrifugal roof fan VDR
Vertical discharge
 Cost effective for smaller air flow volumes.
 Built-on isolation switch as standard.

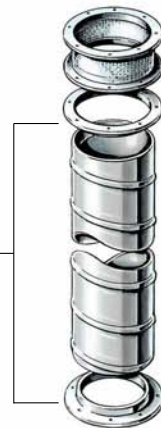


Backdraught shutter
 Prevents backdraughts, loss of energy and prevents draughts. **Automatic RVS**



Motorised RVM
 With built-on spring reversing motor (outside the air stream).

Flange FR
 Made of galvanised steel. For connection to ducting.



Flanged flexible sleeve STS
 Prevents vibration transmission to the ducting.

Commercial ducts
 Standard duct sizes to suit Helios components available from various stockists.

Inlet bell mouth with guard ASD-SGD
 Optimal design with large intake diameter and flange.



Guard SG
 Spot welded zinc plated wire mesh (8 mm).



4
Soaker sheet WDS
 For roof fans and roof cowls on profiled roofs. Weather resistant and corrosion-free made of glass fibre reinforced polyester.
Slanting roof base SDS (Page 360)
 For roof fans and roof cowls on slanting and sloped roofs. Inner surface of the upstand is lined with sound and thermal insulation.

5
Purlin box FDS
 For low priced and efficient mounting of roof fans and roof cowls on flat roofs. Made of corrosion resistant glass fibre reinforced polyester or galvanised steel. Sizes 180 to 450 mm are with hinged mechanism for simple inspection and cleaning.

6
Base attenuator SSD
 For sound insulation on intake of the fan. All metal parts made of galvanised steel. Incl. fixing screws, profile rubber and sealing between base and base plate. Sizes 180 to 450 mm with hinged mechanism and foamed material core. Allows access to ducting or ventilation shaft.

Vertical plastic VD

■ Specification

Roof fan with vertical discharge made of glass-fibre reinforced polymer.

■ Casing

The upper and lower shell, motor protection cover and base plate with inlet cone are made of glass-fibre polyester. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of galvanised steel, dynamically balanced with the motor unit.

■ Motor

Totally enclosed external rotor motor with ball bearings, protected to IP 44, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

Through built-in thermal contacts connected in series with windings. Deactivated automatically at higher motor temperature and activated again after cooling down.

■ Electrical connection

In external terminal box, which is located beneath rain cowl.

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

Adjustable between 0 – 100 % available with stepless electronic or five step control units. For selection see the model chart.

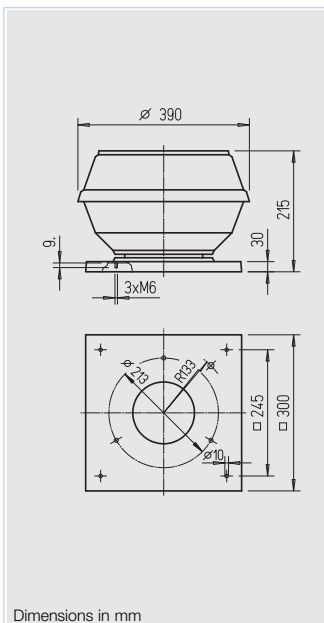
■ Sound level

Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

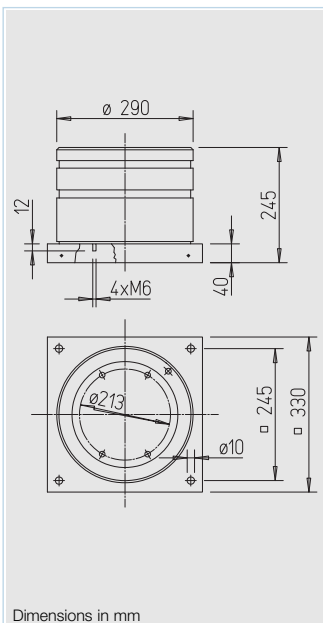
Fully assembled, ready to connect units.

Model VD



Dimensions in mm

Model VDR



Dimensions in mm

Vertical metal VDR

■ Specification

Centrifugal roof fan with vertical discharge.

■ Casing

The base plate, casing and other parts made of galvanised steel. Base plate with tapped holes for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of polymer, dynamically balanced with the motor unit.

■ Motor

Totally enclosed external rotor motor with ball bearings, protected to IP 44, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

Through built-in thermal contacts connected in series with windings. Deactivated automatically at higher motor temperature and activated again after cooling down.

■ Electrical connection

Isolation switch on the casing as standard, factory-wired.

■ Speed control

Adjustable between 0 – 100 % available with stepless electronic or five step control units. For selection see the model chart.

■ Sound level

Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

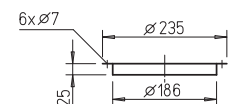
■ Delivery

Fully assembled, ready to connect units.

Accessories for VD

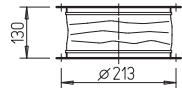
Flange rings
FR 180

Ref. No. 1200



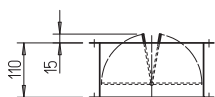
Flanged canvas connector
STS 180

Ref. No. 1217



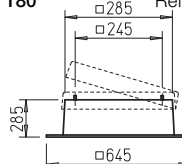
Automatic backdraught shutter
DVS 180

Ref. No. 1247



Hinged flat roof base
FDS 180

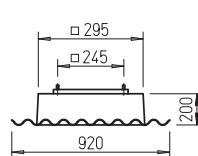
Ref. No. 1377



and VDRW

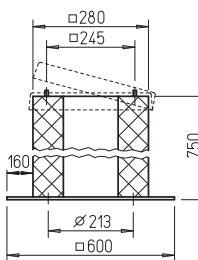
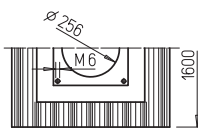
Corrugated roof base, profile 5
WDS 180

Ref. No. 1559



Hinged base attenuator
SSD 180

Ref. No. 5289

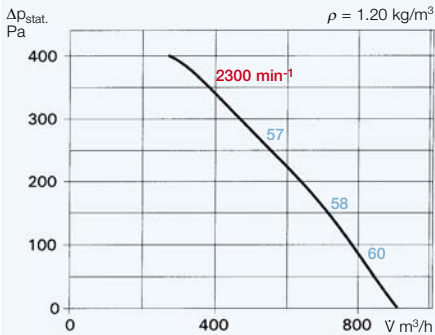


Dimensions in mm

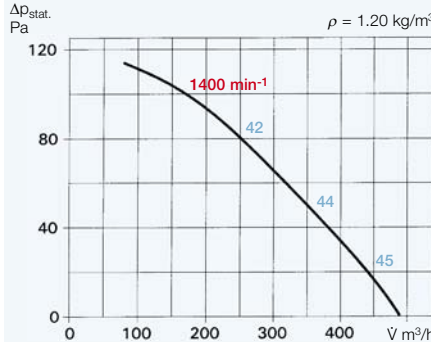
Information	Page
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Accessories, details	359
Speed controllers, controllers and switches	397 on

VDW 180/2

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout	dB(A)	60	34	47	53	54	52	53
L _{WA} Intake	dB(A)	72	49	61	68	65	66	64


VDW 180/4

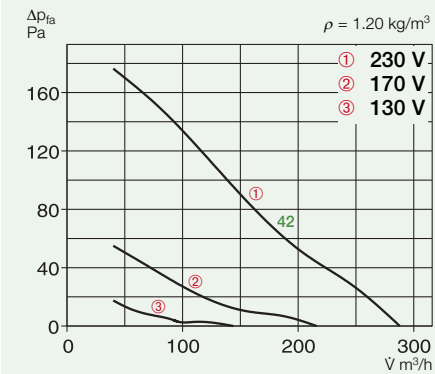
Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout	dB(A)	45	23	35	38	41	37	30
L _{WA} Intake	dB(A)	57	49	53	50	51	41	32



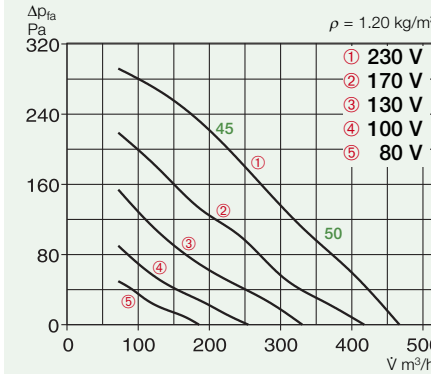
Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption		Wiring diagram	Max. air flow temperature	Nominal weight	Transformer controller 5-step		Electronic speed controller flush m. / surface m.	
					min ⁻¹	V m ³ /h				dB(A) in 4 m	kW	A	No.
Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 44													
VDW 180/4	5135	1300	490	45	0.04	0.18	508	40	5.5	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
VDW 180/2	5136	2310	910	60	0.17	0.76	508	40	5.5	TSW 1.5	1495	ESU 1/ESA 1	0236/0238

VDRW 180/2 A

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout	dB(A)	42	17	32	34	38	35	32
L _{WA} Intake	dB(A)	62	46	48	53	57	59	45


VDRW 180/2 C

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout	dB(A)	50	27	40	42	46	43	40
L _{WA} Intake	dB(A)	70	54	56	61	65	67	53



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption		Wiring diagram	Max. air flow temperature	Nominal weight	Transformer controller 5-step		Electronic speed controller flush m. / surface m.	
					min ⁻¹	V m ³ /h				dB(A) in 4 m	kW	A	No.
Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 44													
VDRW 180/2 A	2793	1700	290	42	0.035	0.14	826	50	5.5	TSW 0.3	3608	ESU 1/ESA 1	0236/0238
VDRW 180/2 C	2794	2500	470	50	0.058	0.26	826	50	5.5	TSW 0.3	3608	ESU 1/ESA 1	0236/0238

Vertical plastic VD

■ Specification

Roof fan with vertical discharge made of polymer with the motor out of the air stream. Engine mountings made of stainless steel.

■ Casing

The upper and lower shell, motor protection cover and base plate with inlet cone made of glass-fibre polyester. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of aluminium, dynamically balanced.

■ Motor

Totally enclosed IEC-motor with surface cooling protected to IP 54, ball bearing mounted, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

All variable models (except models with pole switch) have built-in thermal contacts which must be connected to the motor full protection unit (see model chart) in order to protect the motor effectively.

■ Electrical connection

Directly from the roof in to the external terminal box protected to IP 65.

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

All models where a speed controller is shown on the table are speed controllable via voltage reduction (1 ph. models electronically as well). Also two speed models are available.

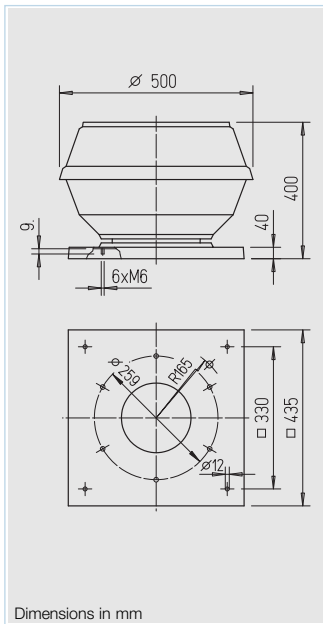
■ Sound level

Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

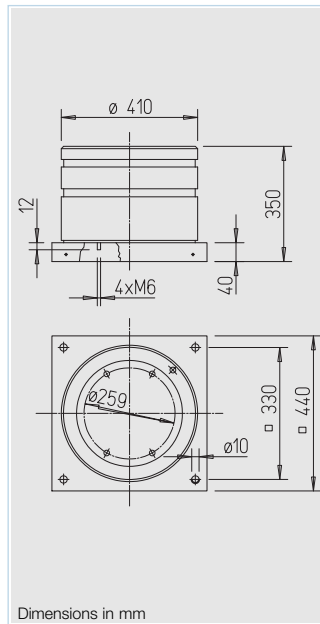
■ Delivery

Fully assembled, ready to connect units.

Model VD



Model VDR



Vertical metal VDR

■ Specification

Centrifugal roof fan with vertical discharge.

■ Casing

The base plate, casing and other parts made of galvanised steel. Base plate with tapped holes for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of polymer, dynamically balanced with the motor unit.

■ Motor

Totally enclosed external rotor motor with ball bearings, protected to IP 44, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

Through built-in thermal contacts connected in series with windings. Deactivated automatically at higher motor temperature and activated again after cooling down.

■ Electrical connection

Isolation switch on the casing as standard, factory-wired.

■ Speed control

Adjustable between 0 – 100 % available with stepless electronic or five step control units. For selection see the model chart.

■ Sound level

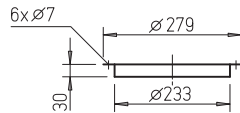
Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

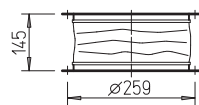
Fully assembled, ready to connect units.

Accessories for VD

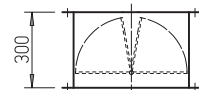
Flange rings
DFR 200 Ref. No. 1201



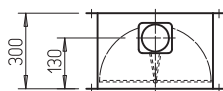
Flanged canvas connector
DSTS 200 Ref. No. 1218
For explosion proof fans
DSTS 200 Ex Ref. No. 2500



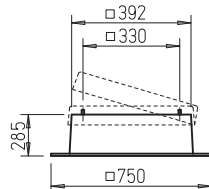
Automatic backdraught shutter
DRVS 200 Ref. No. 2591



Motorised backdraught shutter
DRVM 200 Ref. No. 2575

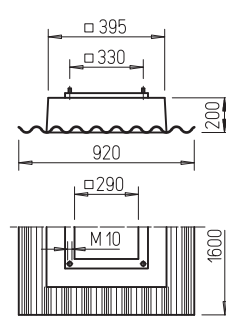


Hinged flat roof base
FDS 200 Ref. No. 1378

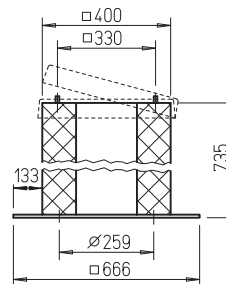


and VDRW

Corrugated roof base, profile 5
WDS 200 Ref. No. 1560



Hinged base attenuator
SSD 200 Ref. No. 5290

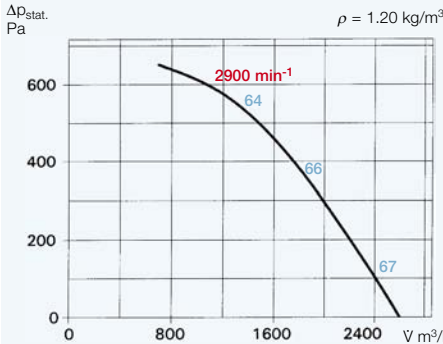


Dimensions in mm

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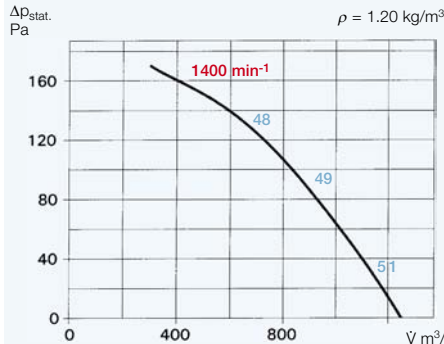
VD 200/2

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout		dB(A)	67	48	58	59	61	58
L _{WA} Intake		dB(A)	81	62	72	74	75	71



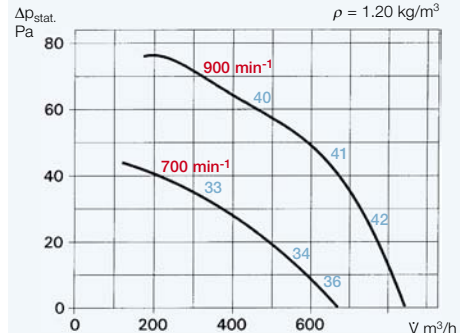
VD 200/4

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout		dB(A)	51	37	40	44	47	43
L _{WA} Intake		dB(A)	63	51	54	59	56	50



VD 200/6 and 200/8

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout		dB(A)	42	27	33	37	39	31
L _{WA} Intake		dB(A)	54	41	47	52	44	38
L _{PA, 4m} Case breakout		dB(A)	36	22	25	29	32	28
L _{WA} Intake		dB(A)	48	36	39	44	41	35



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption	Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit	Transformer controller
		min ⁻¹	V m ³ /h	dB(A) in 4 m	kW	A	No.	°C	kg	Type Ref. No.

Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 54

VDW 200/6	5137	940	845	42	0.060	0.30	563	90	11.0	MW 1579	MWS 1.5³⁾ 1947
VDW 200/4	5138	1380	1250	51	0.085	0.45	563	90	11.0	MW 1579	MWS 1.5³⁾ 1947
VDW 200/2	5139	2730	2600	67	0.530	2.35	508	90	12.0	w/o thermal contacts	not variable

Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54

VDD 200/6	5140	930	845	42	0.046	0.19	469	90	11.0	MD 5849	RDS 1³⁾ 1314
VDD 200/4	5141	1390	1250	51	0.085	0.26	469	90	11.0	MD 5849	RDS 1³⁾ 1314
VDD 200/2	5142	2880	2600	67	0.620	1.20	470	90	12.0	w/o thermal contacts	not variable

Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54

VDD 200/8/4¹⁾	5143	740 / 1490	670 / 1250	36 / 51	0.075 / 0.170	0.39 / 0.90	471	90	15.0	w/o thermal contacts	PDA 12⁴⁾ 5081
VDD 200/6/4²⁾	5144	990 / 1490	845 / 1250	42 / 51	0.095 / 0.150	0.34 / 0.70	473	90	15.0	w/o thermal contacts	PGWA 12⁴⁾ 5083

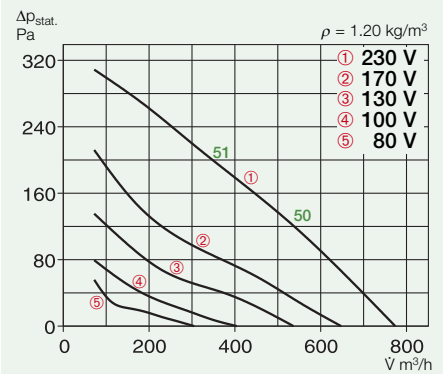
Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 54

VDD 200/4 Ex	5145	1400	1250	51	0.120	0.41	470	40	12.0	w/o thermal contacts	not variable
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¹⁾ Dahlander-winding ²⁾ Separate winding ³⁾ Includes motor full protection unit ⁴⁾ For the flush-mounted version see the product page - switches

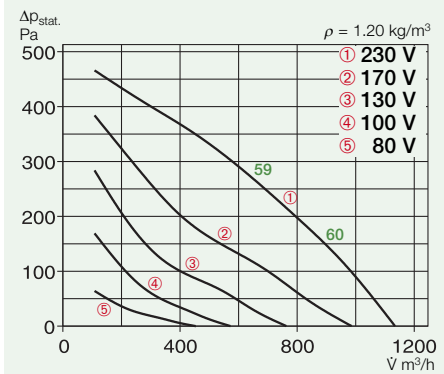
VDRW 200/2 B

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout		dB(A)	50	19	31	42	46	45
L _{WA} Intake		dB(A)	69	49	53	63	66	58



VDRW 200/2 D

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout		dB(A)	60	31	42	55	53	47
L _{WA} Intake		dB(A)	79	62	63	72	77	61



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption	Wiring diagram	Max. air flow temperature	Nominal weight	Transformer controller 5-step	Electronic speed controller flush m. / surface m.
		min ⁻¹	V m ³ /h	dB(A) in 4 m	kW	A	No.	°C	kg	Type Ref. No.

Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 44

VDRW 200/2 B	2795	2600	770	50	0.085	0.38	826	40	9.5	TSW 1.5 1495	ESU 1/ESA 1 0236/0238
VDRW 200/2 D	2796	2650	1130	60	0.135	0.60	826	60	10.5	TSW 1.5 1495	ESU 1/ESA 1 0236/0238

Vertical discharge VD

■ Specification

Roof fan with vertical discharge made of polymer with the motor out of the air stream. Engine mountings made of stainless steel.

■ Casing

The upper and lower shell, motor protection cover and base plate with inlet cone are made of glass-fibre polyester. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of aluminium, dynamically balanced.

■ Motor

Totally enclosed IEC-motor with surface cooling protected to IP 54, ball bearing mounted, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

All variable models (except models with pole switch) have built-in thermal contacts which must be connected to the motor full protection unit (see model chart) in order to protect the motor effectively.

■ Electrical connection

Directly from the roof in to the external terminal box protected to IP 65.

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

All models where a speed controller is shown on the table are speed controllable via voltage reduction (1 ph. models electronically as well). Also two speed models are available.

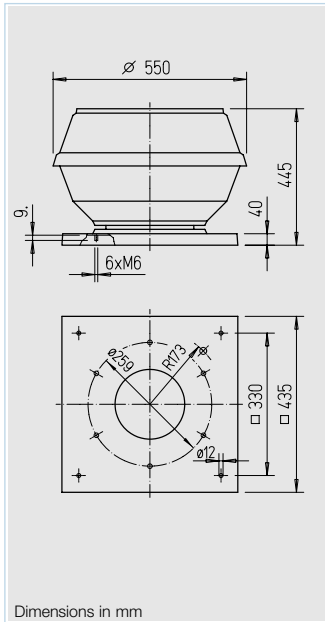
■ Sound level

Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

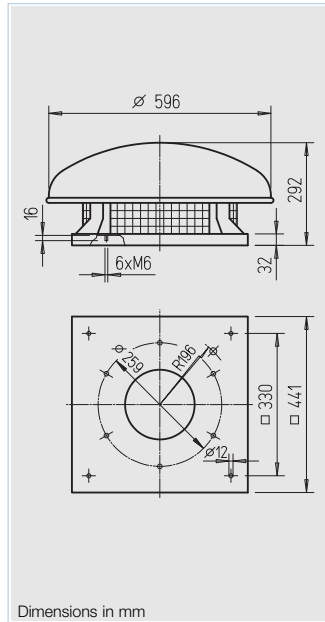
■ Delivery

Fully assembled, ready to connect units.

Vertical discharge VD



Horizontal discharge RD



Horizontal discharge RD

■ Specification

Centrifugal roof fan with horizontal discharge. Flat design with large overlying rain cowl.

■ Casing

Base plate (with inlet cone) and other parts made of galvanised steel. Rain cowl and protection grille made of aluminium. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of galvanised steel, dynamically balanced with the motor unit.

■ Motor

Totally enclosed external rotor motor with ball bearings, protected to IP 44, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

Through built-in thermal contacts which must be connected to the motor full protection unit. Explosion proof models are equipped with thermal motor protection through built-in PTC thermistor which is connected to the tripping unit MSA. Hereby speed control is allowed where the minimum voltage must not be less than 115 V.

■ Electrical connection

Terminal box (protection to IP 55) located beneath rain cowl as standard. The explosion proof models are supplied with a 80 cm long connection lead. Explosion proof terminal box is available as accessory (KK Ex, Ref. No. 6862).

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

All models where a speed controller is shown on the table are speed controllable via voltage reduction (1 ph. models electronically as well). Also two speed models are available.

■ Sound level

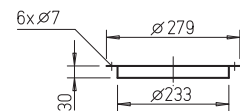
Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

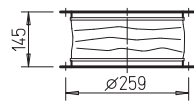
Fully assembled, ready to connect units.

Accessories for VD

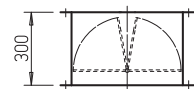
Flange rings
FR 225 Ref. No. 1201



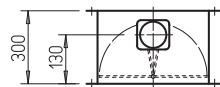
Flanged canvas connector
STS 225 Ref. No. 1218
For explosion proof fans
STS 225 Ex Ref. No. 2500



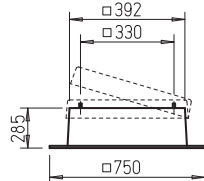
Automatic backdraught shutter
RVS 225 Ref. No. 2591



Motorised backdraught shutter
RVM 225 Ref. No. 2575

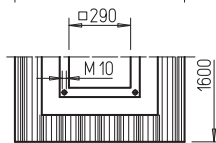
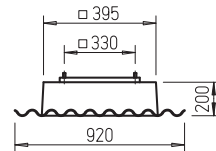


Hinged flat roof base
FDS 225 Ref. No. 1378

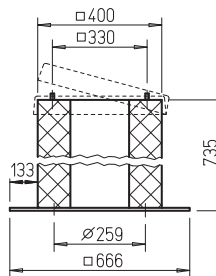


and RD

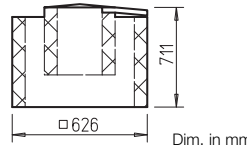
Corrugated roof base, profile 5
WDS 225 Ref. No. 1560



Hinged base attenuator
SSD 225 Ref. No. 5290



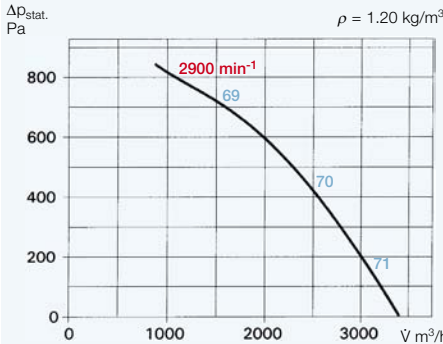
Roof fan attenuator
HSDV 225 Ref. No. 6757
only for RD..



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Accessories, details	359
Speed controllers, controllers and switches	397 on

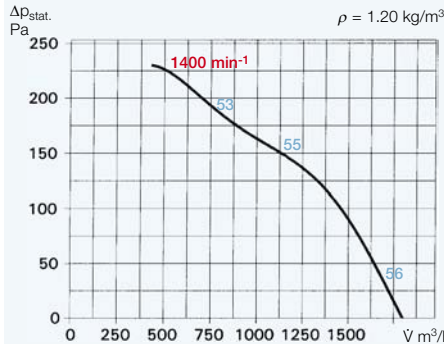
VD 225/2

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m} Case breakout		dB(A)	71	53	63	64	66	64	63
L _{WA} Intake		dB(A)	84	68	77	79	77	78	74



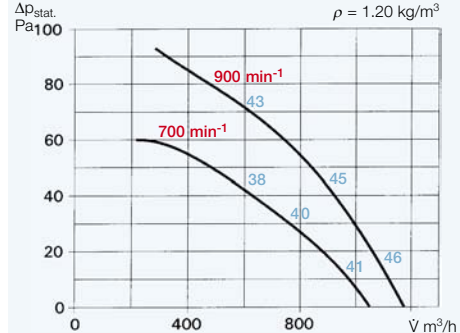
VD 225/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m} Case breakout		dB(A)	56	40	46	50	51	48	43
L _{WA} Intake		dB(A)	69	55	60	65	61	62	54



VD 225/6 and 225/8

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m} Case breakout		dB(A)	46	31	38	40	41	37	31
L _{WA} Intake		dB(A)	59	46	52	55	50	51	42
L _{PA, 4m} Case breakout		dB(A)	41	25	31	35	36	33	28
L _{WA} Intake		dB(A)	54	40	45	50	46	47	39

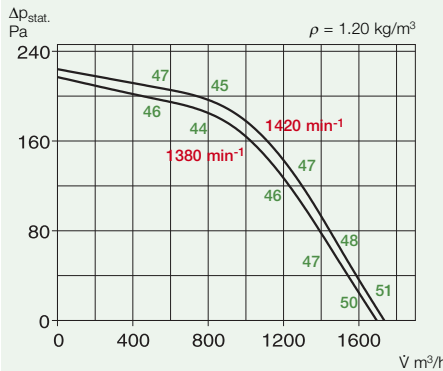


Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption	Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit	Transformer controller
		min ⁻¹	V m ³ /h	dB(A) in 4 m	kW	A	°C	kg	Type Ref. No.	Type Ref. No.
Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 54										
VDW 225/6	5146	900	1175	46	0.07	0.34	90	12.5	MW 1579	MWS 1.5 ³⁾ 1947
VDW 225/4	5147	1320	1800	56	0.15	0.77	90	12.5	MW 1579	MWS 1.5 ³⁾ 1947
Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54										
VDD 225/6	5148	890	1175	46	0.06	0.19	90	12.5	MD 5849	RDS 1 ³⁾ 1314
VDD 225/4	5149	1330	1800	56	0.17	0.40	90	12.5	MD 5849	RDS 1 ³⁾ 1314
VDD 225/2	5150	2880	3410	71	1.00	2.00	90	15.0	w/o thermal contacts	not variable
Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54										
VDD 225/8/4 ¹⁾	5151	730 / 1470	1050 / 1800	41 / 56	0.085 / 0.220	0.35 / 0.80	90	16.0	w/o thermal contacts	PDA 12 ⁴⁾ 5081
VDD 225/6/4 ²⁾	5152	980 / 1480	1175 / 1800	46 / 56	0.100 / 0.200	0.33 / 0.75	90	16.0	w/o thermal contacts	PGWA 12 ⁴⁾ 5083
Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 54										
VDD 225/6 Ex	5153	850	1175	46	0.25	0.81	40	14.0	w/o thermal contacts	not variable
VDD 225/4 Ex	5154	1400	1800	56	0.12	0.41	40	13.0	w/o thermal contacts	not variable

¹⁾ Dahlander-winding ²⁾ Separate winding ³⁾ Includes motor full protection unit ⁴⁾ For the flush-mounted version see the product page - switches

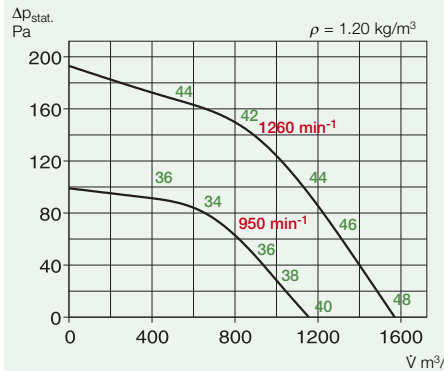
RD.. n=1420 / 1380 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k	
1420 min ⁻¹ L _{WA} Intake		dB(A)	68	63	58	60	61	59	52
1380 min ⁻¹ L _{WA} Intake		dB(A)	67	62	57	59	60	58	51



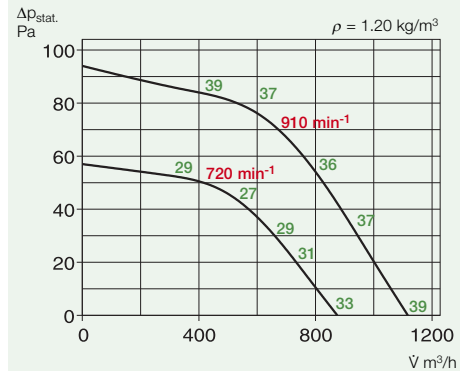
RD.. n=1260 / 950 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k	
1260 min ⁻¹ L _{WA} Intake		dB(A)	66	61	56	58	59	57	50
950 min ⁻¹ L _{WA} Intake		dB(A)	58	53	48	50	51	48	42



RD.. n=910 / 720 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k	
910 min ⁻¹ L _{WA} Intake		dB(A)	57	52	47	49	50	47	41
720 min ⁻¹ L _{WA} Intake		dB(A)	51	46	41	43	44	42	35



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption	Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit	Transformer controller
		min ⁻¹	V m ³ /h	dB(A) in 4 m	kW	A	°C	kg	Type Ref. No.	Type Ref. No.
Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 44										
RDW 225/6	1508	910	1120	37	0.08	0.34	60	12.0	MW 1579	MWS 1.5 ²⁾ 1947
RDW 225/4	1507	1380	1690	48	0.16	0.76	55	12.0	MW 1579	MWS 1.5 ²⁾ 1947
Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 44										
RDD 225/6	1164	950	1160	38	0.08	0.28	60	12.0	MD 5849	RDS 1 ²⁾ 1314
Two speed, three phase alternating current 400 V, 50 Hz, Y/Δ-switching, protection to IP 44										
RDD 225/4/4	1515	1260 / 1420	1570 / 1730	46 / 48	0.09 / 0.13	0.16 / 0.40	60	13.0	M 4 ³⁾ 1571	RDS 1 ²⁾ 1314
Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 44										
RDD 225/8/4 ¹⁾	1517	720 / 1430	880 / 1740	31 / 48	0.05 / 0.16	0.15 / 0.37	60	13.0	M 3 ³⁾ 1293	PDA 12 ⁴⁾ 5081
Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 44										
RDD 225/6 Ex ⁵⁾	1519	990	1015	41	0.14	0.89	40	13.0	MSA 1289	not variable
RDD 225/4 Ex	1167	1390	1700	50	0.13	0.37	40	13.0	MSA 1289	TSD 0.8 1500

¹⁾ Dahlander-winding ²⁾ Includes motor full protection unit ³⁾ Includes speed control and pole switch ⁴⁾ Flush-mounted version see the product page, switches ⁵⁾ Perf. curves on request

Vertical discharge VD



■ Specification

Roof fan with vertical discharge made of polymer with the motor out of the air stream. Engine mountings made of stainless steel.

■ Casing

The upper and lower shell, motor protection cover and base plate with inlet cone made of glass-fibre polyester. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of aluminium, dynamically balanced.

■ Motor

Totally enclosed IEC-motor with surface cooling protected to IP 54, ball bearing mounted, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

All variable models (except models with pole switch) have built-in thermal contacts which must be connected to the motor full protection unit (see model chart) in order to protect the motor effectively.

■ Electrical connection

Directly from the roof in to the external terminal box protected to IP 65.

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

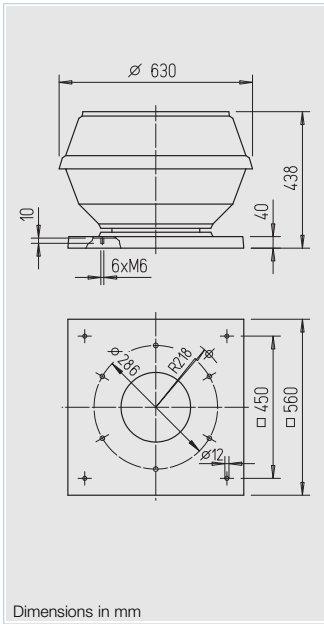
All models where a speed controller is shown on the table are speed controllable via voltage reduction (1 ph. models electronically as well). Two speed models are also available.

■ Sound level

Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

Fully assembled, ready to connect units.

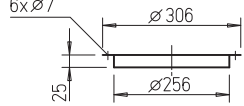


Dimensions in mm

Accessories for VD

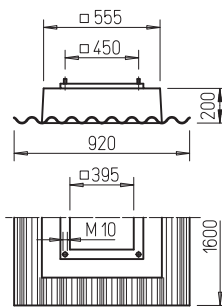
Flange rings

FR 250 Ref. No. 1203



Corrugated roof base, profile 5

WDS 250 Ref. No. 1561



Flanged canvas connector

STS 250 Ref. No. 1220

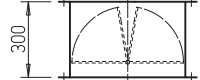
For explosion proof fans

STS 250 Ex Ref. No. 2501



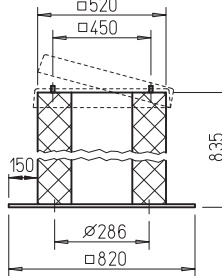
Automatic backdraught shutter

RVS 250 Ref. No. 2592



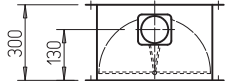
Hinged base attenuator

SSD 250 Ref. No. 5292



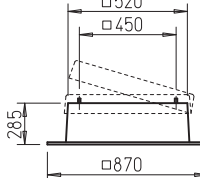
Motorised backdraught shutter

RVM 250 Ref. No. 2576



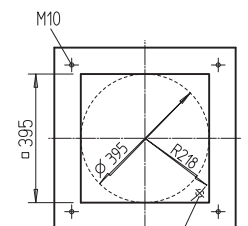
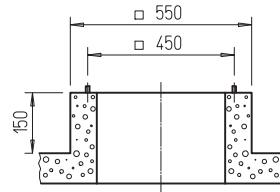
Hinged flat roof base

FDS 250 Ref. No. 1379



Dimensions in mm

Dimensions for the base on site



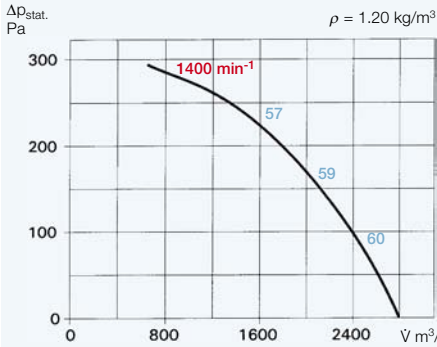
hole for electrical connection

Dimensions in mm

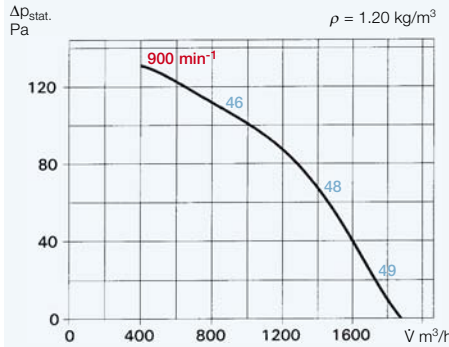
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VD 250/4

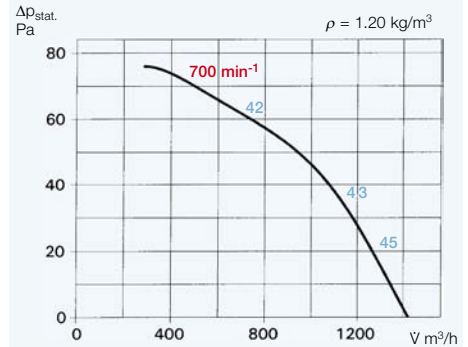
Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m}	Case breakout	dB(A)	60	44	50	54	55	63	49
L _{WA}	Intake	dB(A)	74	60	63	69	67	68	60


VD 250/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m}	Case breakout	dB(A)	49	32	40	43	45	40	34
L _{WA}	Intake	dB(A)	62	48	53	58	54	55	45


VD 250/8

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m}	Case breakout	dB(A)	45	28	37	41	39	33	26
L _{WA}	Intake	dB(A)	58	44	50	56	47	48	37



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption		Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit		Transformer controller	
					kW	A				Type	Ref. No.	Type	Ref. No.

Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 54

VDW 250/6	5155	920	1880	49	0.11	0.61	563	90	16.0	MW	1579	MWS 1.5³⁾	1947
VDW 250/4	5156	1320	2800	60	0.23	1.06	563	90	14.5	MW	1579	MWS 1.5³⁾	1947

Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54

VDD 250/6	5158	940	1880	49	0.11	0.35	469	90	14.5	MD	5849	RDS 1³⁾	1314
VDD 250/4	5159	1390	2800	60	0.28	0.63	469	90	14.5	MD	5849	RDS 1³⁾	1314

Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54

VDD 250/8/6²⁾	5160	730 / 960	1420 / 1880	45 / 49	0.120 / 0.120	0.32 / 0.28	473	90	19.5	w/o thermal contacts		PGWA 12⁴⁾	5083
VDD 250/8/4¹⁾	5161	740 / 1470	1420 / 2800	45 / 60	0.095 / 0.330	0.39 / 0.90	471	90	17.0	w/o thermal contacts		PDA 12⁴⁾	5081
VDD 250/6/4²⁾	5162	970 / 1470	1880 / 2800	49 / 60	0.130 / 0.280	0.34 / 0.77	473	90	17.0	w/o thermal contacts		PGWA 12⁴⁾	5083

Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 54

VDD 250/6 Ex	5163	850	1880	49	0.25	0.81	470	40	15.5	w/o thermal contacts			not variable
VDD 250/4 Ex	5164	1355	2800	60	0.37	1.10	470	40	15.5	w/o thermal contacts			not variable

¹⁾ Dahlander-winding

²⁾ Separate winding

³⁾ Includes motor full protection unit

⁴⁾ For the flush-mounted version see the product page - switches

Vertical discharge VD

■ Specification

Roof fan with vertical discharge made of polymer with the motor out of the air stream. Engine mountings made of stainless steel.

■ Casing

The upper and lower shell, motor protection cover and base plate with inlet cone are made of glass-fibre polyester. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of aluminium, dynamically balanced.

■ Motor

Totally enclosed IEC-motor with surface cooling protected to IP 54, ball bearing mounted, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

All variable models (except models with pole switch) have built-in thermal contacts which must be connected to the motor full protection unit (see model chart) in order to protect the motor effectively.

■ Electrical connection

Directly from the roof in to the external terminal box protected to IP 65.

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

All models where a speed controller is shown on the table are speed controllable via voltage reduction (1 ph. models electronically as well). Two speed models are also available.

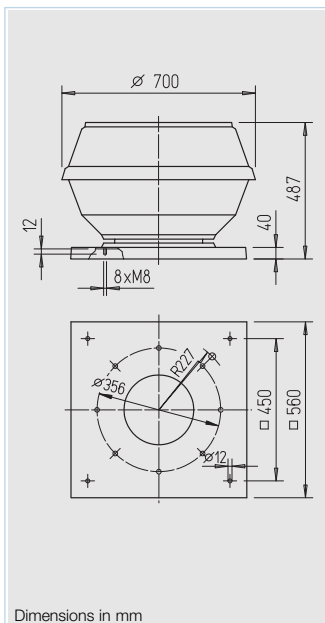
■ Sound level

Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

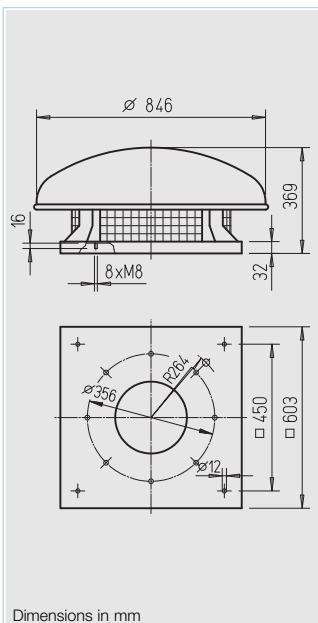
■ Delivery

Fully assembled, ready to connect units.

Vertical discharge VD



Horizontal discharge RD



Horizontal discharge RD

■ Specification

Centrifugal roof fan with horizontal discharge. Flat design with large overlying rain cowl.

■ Casing

Base plate (with inlet cone) and other parts made of galvanised steel. Rain cowl and protection grille made of aluminium. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of galvanised steel, dynamically balanced with the motor unit.

■ Motor

Totally enclosed external rotor motor with ball bearings, protected to IP 44, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

Through built-in thermal contacts which must be connected to the motor full protection unit. Explosion proof models are equipped with thermal motor protection through built-in PTC thermistor which is connected to the tripping unit MSA. Hereby speed control is allowed where the minimum voltage must not be less than 115 V.

■ Electrical connection

Terminal box (protection to IP 55) located beneath rain cowl as standard. The explosion proof models are supplied with a 80 cm long connection lead. Explosion proof terminal box is available as accessory (KK Ex, Ref. No. 6862).

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

All models where a speed controller is shown on the table are speed controllable via voltage reduction (1 ph. models electronically as well). Two speed models are also available.

■ Sound level

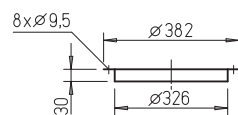
Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

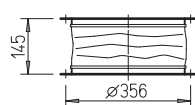
Fully assembled, ready to connect units.

Accessories for VD

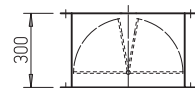
Flange rings
FR 315 Ref. No. 1204



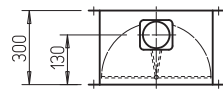
Flanged canvas connector
STS 315 Ref. No. 1221
For explosion proof fans
STS 315 Ex Ref. No. 2503



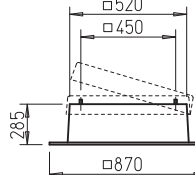
Automatic backdraught shutter
RVS 315 Ref. No. 2594



Motorised backdraught shutter
RVM 315 Ref. No. 2578

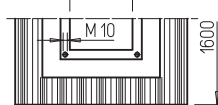
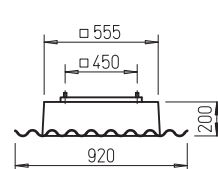


Hinged flat roof base
FDS 315 Ref. No. 1379

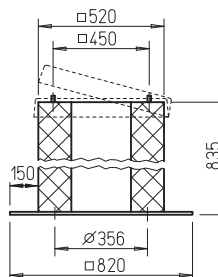


and RD

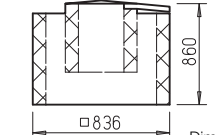
Corrugated roof base, profile 5
WDS 315 Ref. No. 1561



Hinged base attenuator
SSD 315 Ref. No. 5292



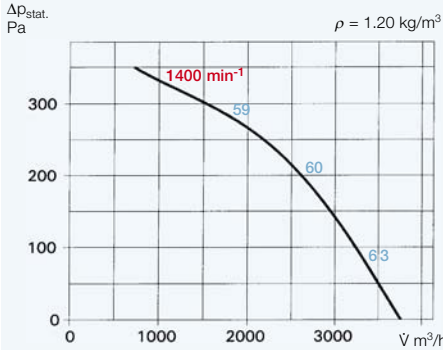
Roof fan attenuator
HSDV 315 Ref. No. 6758
only for RD..



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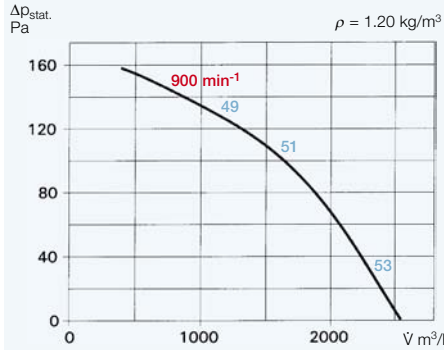
VD 315/4

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout		dB(A) 63	45	53	58	58	54	50
L _{WA} Intake		dB(A) 76	63	67	72	69	70	61



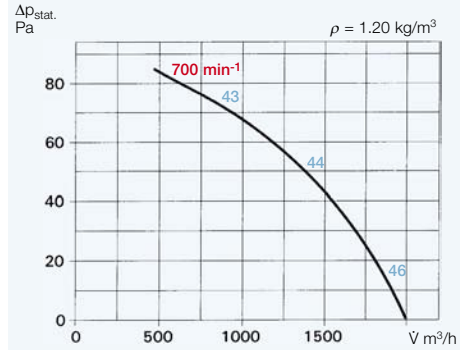
VD 315/6

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout		dB(A) 53	36	45	48	48	43	38
L _{WA} Intake		dB(A) 66	54	59	62	58	59	49



VD 315/8

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout		dB(A) 46	29	38	42	41	37	32
L _{WA} Intake		dB(A) 60	47	52	56	52	53	43



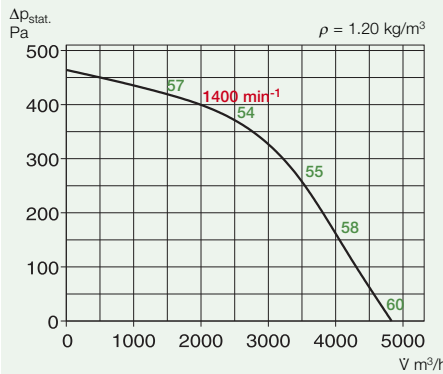
Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption		Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit		Transformer controller	
					kW	A				Type	Ref. No.	Type	Ref. No.
Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 54													
VDW 315/6	5166	890	2550	53	0.15	0.85	563	80	18.5	MW	1579	MWS 1.5 ³⁾	1947
VDW 315/4	5167	1370	3760	63	0.41	1.97	563	80	18.5	MW	1579	MWS 3 ³⁾	1948
Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54													
VDD 315/6	5169	890	2550	53	0.18	0.47	469	80	18.5	MD	5849	RDS 1 ³⁾	1314
VDD 315/4	5170	1390	3760	63	0.45	1.05	469	80	18.5	MD	5849	RDS 2 ³⁾	1315
Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54													
VDD 315/8/6 ²⁾	5172	710 / 920	2000 / 2550	46 / 53	0.13 / 0.18	0.32 / 0.32	473	80	21.5	w/o thermal contacts		PGWA 12 ⁴⁾	5083
VDD 315/8/4 ¹⁾	5173	720 / 1420	2000 / 3760	46 / 63	0.12 / 0.54	0.40 / 1.03	471	80	19.5	w/o thermal contacts		PDA 12 ⁴⁾	5081
VDD 315/6/4 ²⁾	5174	920 / 1420	2550 / 3760	53 / 63	0.20 / 0.49	0.38 / 0.95	473	80	19.5	w/o thermal contacts		PGWA 12 ⁴⁾	5083
Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 54													
VDD 315/6 Ex	5175	850	2550	53	0.25	0.81	470	40	18.5	w/o thermal contacts			not variable
VDD 315/4 Ex	5176	1355	3760	63	0.37	1.10	470	40	21.0	w/o thermal contacts			not variable

¹⁾ Dahlander-winding ²⁾ Separate winding ³⁾ Includes motor full protection unit ⁴⁾ For the flush-mounted version see the product page - switches

RD..

n=1400 min⁻¹

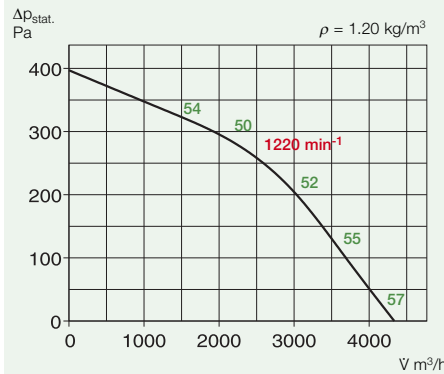
Frequency	Hz	Total	125	250	500	1k	2k	4k
1400 min ⁻¹ L _{WA} Intake		dB(A) 78	72	70	72	70	67	60



RD..

n=1220 min⁻¹

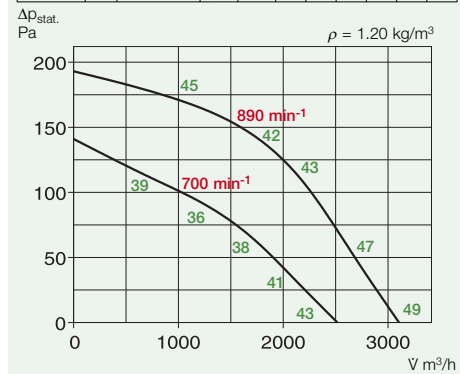
Frequency	Hz	Total	125	250	500	1k	2k	4k
1220 min ⁻¹ L _{WA} Intake		dB(A) 75	69	67	69	67	54	57



RD..

n=890 / 700 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k
890 min ⁻¹ L _{WA} Intake		dB(A) 67	61	59	61	59	56	49
700 min ⁻¹ L _{WA} Intake		dB(A) 61	55	53	55	53	50	43



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption		Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit		Transformer controller	
					kW	A				Type	Ref. No.	Type	Ref. No.
Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 44													
RDW 315/6	1510	890	3100	47	0.20	0.91	467	60	22.0	MW	1579	MWS 1.5 ²⁾	1947
RDW 315/4	1509	1220	4340	55	0.52	2.30	468	55	25.0	MW	1579	MWS 3 ²⁾	1948
Single speed, three phase alternating current 400 V, 50 Hz, Y/Δ-switching, protection to IP 44													
RDD 315/6/6	1521	690 / 890	2520 / 3100	41 / 47	0.13 / 0.22	0.23 / 0.55	520	60	22.0	M 4 ³⁾	1571	RDS 1 ²⁾	1314
RDD 315/4/4	1520	1190 / 1400	4250 / 4830	55 / 58	0.44 / 0.58	0.74 / 1.35	520	60	25.0	M 4 ³⁾	1571	RDS 2 ²⁾	1315
Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54													
RDD 315/8/4 ¹⁾	1522	700 / 1380	2520 / 4780	41 / 58	0.12 / 0.62	0.38 / 1.20	472	60	27.0	M 3 ³⁾	1293	PDA 12 ⁴⁾	5081
Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 44													
RDD 315/6 Ex	1173	960	3290	50	0.25	0.91	838	40	27.0	MSA	1289	TSD 1.5	1501
RDD 315/4 Ex	1174	1290	4540	58	0.49	0.92	838	40	27.0	MSA	1289	TSD 1.5	1501

¹⁾ Dahlander-winding ²⁾ Includes motor full protection unit ³⁾ Includes speed control and pole switch ⁴⁾ For the flush-mounted version see the product page - switches

Vertical discharge VD

■ Specification

Roof fan with vertical discharge made of polymer with the motor out of the air stream. Engine mountings made of stainless steel.

■ Casing

The upper and lower shell, motor protection cover and base plate with inlet cone made of glass-fibre polyester. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of aluminium, dynamically balanced.

■ Motor

Totally enclosed IEC-motor with surface cooling protected to IP 54, ball bearing mounted, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

All variable models (except models with pole switch) have built-in thermal contacts which must be connected to the motor full protection unit (see model chart) in order to protect the motor effectively.

■ Electrical connection

Directly from the roof in to the external terminal box protected to IP 65.

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

All models where a speed controller is shown on the table are speed controllable via voltage reduction (1 ph. models electronically as well). Two speed models are also available.

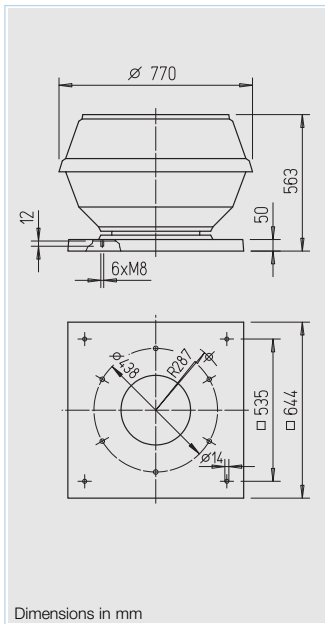
■ Sound level

Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

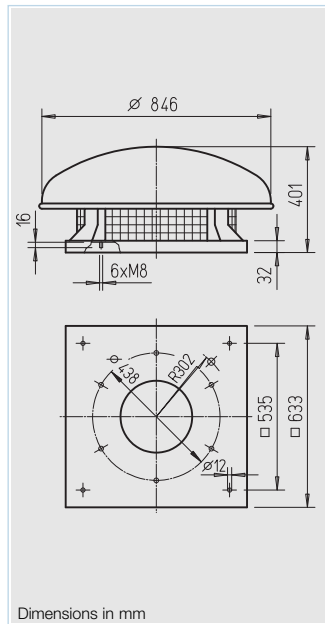
■ Delivery

Fully assembled, ready to connect units.

Vertical discharge VD



Horizontal discharge RD



Horizontal discharge RD

■ Specification

Centrifugal roof fan with horizontal discharge. Flat design with large overlying rain cowl.

■ Casing

Base plate (with inlet cone) and other parts made of galvanised steel. Rain cowl and protection grille made of aluminium. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of galvanised steel, dynamically balanced with the motor unit.

■ Motor

Totally enclosed external rotor motor with ball bearings, protected to IP 44, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

Through built-in thermal contacts which must be connected to the motor full protection unit. Explosion proof models are equipped with thermal motor protection through built-in PTC thermistor which is connected to the tripping unit MSA. Hereby speed control is allowed where the minimum voltage must not be less than 115 V.

■ Electrical connection

Terminal box (protection to IP 55) located beneath rain cowl as standard. The explosion proof models are supplied with a 80 cm long connection lead. Explosion proof terminal box is available as accessory (KK Ex, Ref. No. 6862).

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

All models where a speed controller is shown on the table are speed controllable via voltage reduction (1 ph. models electronically as well). Two speed models are also available.

■ Sound level

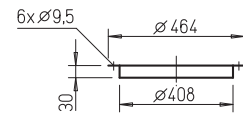
Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

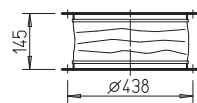
Fully assembled, ready to connect units.

Accessories for VD

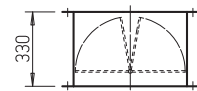
Flange rings FR 400 Ref. No. 1206



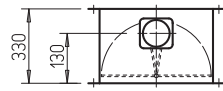
Flanged canvas connector STS 400 Ref. No. 1223
For explosion proof fans
STS 400 Ex Ref. No. 2505



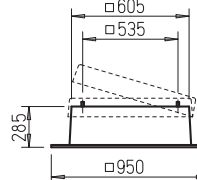
Automatic backdraught shutter RVS 400 Ref. No. 2596



Motorised backdraught shutter RVM 400 Ref. No. 2580

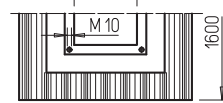
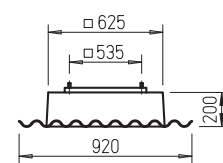


Hinged flat roof base FDS 400 Ref. No. 1380

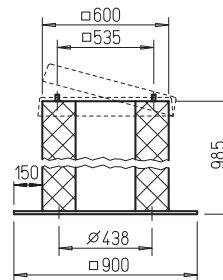


and RD

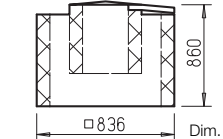
Corrugated roof base, profile 5 WDS 400 Ref. No. 1562



Hinged base attenuator SSD 400 Ref. No. 5291



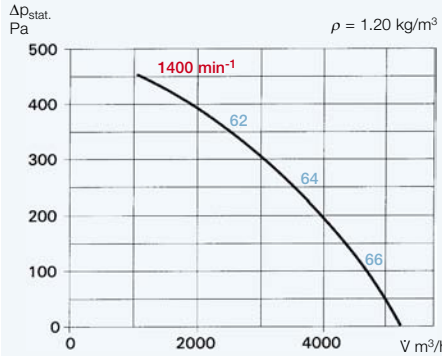
Roof fan attenuator HSDV 400 Ref. No. 6758
only for RD..



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Accessories, details	359
Speed controllers, controllers and switches	397 on

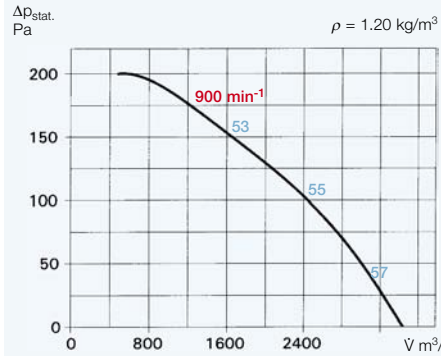
VD 400/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA,4m} Case breakout		dB(A)	66	54	58	61	62	57	54
L _{WA} Intake		dB(A)	80	70	72	75	72	73	67



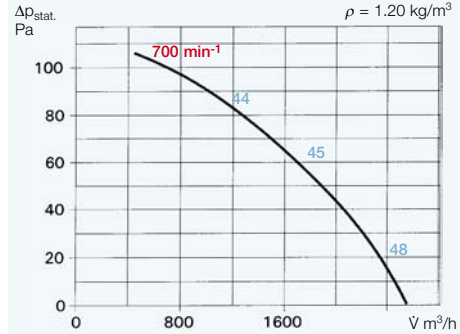
VD 400/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA,4m} Case breakout		dB(A)	57	46	50	52	53	45	41
L _{WA} Intake		dB(A)	70	62	64	66	60	61	54



VD 400/8

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA,4m} Case breakout		dB(A)	48	35	40	44	43	35	30
L _{WA} Intake		dB(A)	61	51	54	58	50	51	43
L _{PA,4m} Case breakout		dB(A)	42	31	35	37	38	30	26
L _{WA} Intake		dB(A)	55	47	49	51	45	46	39



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption	Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit	Transformer controller
		min⁻¹	V m³/h	dB(A) in 4 m	kW	A	°C	kg	Type Ref. No.	Type Ref. No.

Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 54

VDW 400/6	5178	850	3440	57	0.30	1.41	563	75	21.0	MW	1579	MWS 1.5 ³⁾	1947
VDW 400/4	5179	1350	5250	66	0.89	4.28	508	75	23.0	w/o thermal contacts		not variable	

Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54

VDD 400/8	5180	680	2560	48	0.14	0.37	469	75	21.0	MD	5849	RDS 1 ³⁾	1314
VDD 400/6	5181	900	3440	57	0.35	1.00	469	75	21.0	MD	5849	RDS 2 ³⁾	1315
VDD 400/4	5182	1340	5250	66	0.75	1.50	469	75	23.0	MD	5849	RDS 2 ³⁾	1315

Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54

VDD 400/8/6 ²⁾	5185	720 / 970	2560 / 3440	48 / 57	0.30 / 0.39	0.78 / 0.97	473	75	24.5	w/o thermal contacts		PGWA 12 ⁴⁾	5083
VDD 400/8/4 ¹⁾	5186	720 / 1360	2560 / 5250	48 / 66	0.21 / 0.96	0.68 / 1.82	471	75	24.0	w/o thermal contacts		PDA 12 ⁴⁾	5081
VDD 400/6/4 ²⁾	5187	960 / 1400	3440 / 5250	57 / 66	0.40 / 1.04	0.78 / 2.13	473	75	24.0	w/o thermal contacts		PGWA 12 ⁴⁾	5083

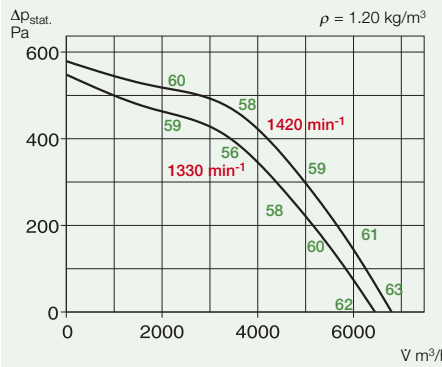
Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 54

VDD 400/6 Ex	5188	850	3440	57	0.25	0.81	470	40	21.0	w/o thermal contacts		not variable	
VDD 400/4 Ex	5189	1420	5250	66	1.00	2.50	470	40	23.0	w/o thermal contacts		not variable	

¹⁾ Dahlander-winding ²⁾ Separate winding ³⁾ Includes motor full protection unit ⁴⁾ For the flush-mounted version see the product page - switches

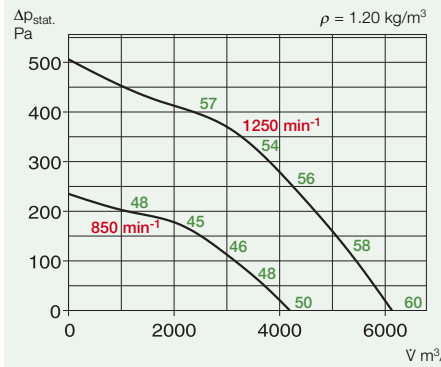
RD.. n=1420 / 1330 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k	
1420 min⁻¹ L _{WA} Intake		dB(A)	81	78	72	73	70	68	63
1330 min⁻¹ L _{WA} Intake		dB(A)	80	77	71	72	69	67	62



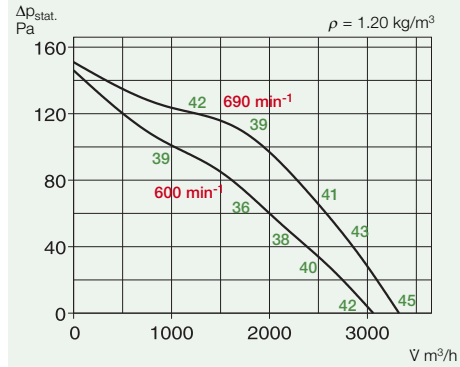
RD.. n=1250 / 850 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k	
1250 min⁻¹ L _{WA} Intake		dB(A)	78	75	69	70	67	65	60
850 min⁻¹ L _{WA} Intake		dB(A)	68	65	59	60	57	56	50



RD.. n=690 / 600 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k	
690 min⁻¹ L _{WA} Intake		dB(A)	63	60	54	55	52	50	45
600 min⁻¹ L _{WA} Intake		dB(A)	60	57	51	52	49	47	42



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption	Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit	Transformer controller
		min⁻¹	V m³/h	dB(A) in 4 m	kW	A	°C	kg	Type Ref. No.	Type Ref. No.

Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 44

RDW 400/6	1512	850	4150	48	0.31	1.40	467	60	29.0	MW	1579	MWS 3 ²⁾	1948
RDW 400/4	1511	1330	6450	60	0.95	4.40	468	55	29.0	MW	1579	MWS 5 ²⁾	1949

Two speed, three phase alternating current 400 V, 50 Hz, Y/Δ-switching, protection to IP 44

RDD 400/6/6	1528	600 / 860	3060 / 4190	40 / 48	0.17 / 0.30	0.32 / 0.67	520	60	29.0	M 4 ³⁾	1571	RDS 1 ²⁾	1314
RDD 400/4/4	1526	1250 / 1420	6130 / 6800	58 / 61	0.76 / 0.95	1.30 / 2.30	520	60	29.0	M 4 ³⁾	1571	RDS 4 ²⁾	1316

Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54

RDD 400/8/4 ¹⁾	1180	690 / 1380	3320 / 6650	43 / 61	0.15 / 1.00	0.54 / 2.00	472	60	34.0	M 3 ³⁾	1293	PDA 12 ⁴⁾	5081
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Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 44

RDD 400/6 Ex ⁵⁾	1181	920	4450	52	0.35	0.93	838	40	34.0	MSA	1289	TSD 1.5	1501
RDD 400/4 Ex	1530	1400	6730	63	0.98	2.50	838	40	34.0	MSA	1289	TSD 3.0	1502

¹⁾ Dahlander-winding ²⁾ Includes motor full protection unit ³⁾ Includes speed control and pole switch ⁴⁾ Flush-mounted version see the product page, switches ⁵⁾ Perf. curves on request

Vertical discharge VD

■ Specification

Roof fan with vertical discharge made of polymer with the motor out of the air stream. Engine mountings made of stainless steel.

■ Casing

The upper and lower shell, motor protection cover and base plate with inlet cone made of glass-fibre polyester. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of aluminium, dynamically balanced.

■ Motor

Totally enclosed IEC-motor with surface cooling protected to IP 54, ball bearing mounted, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

All variable models (except models with pole switch) have built-in thermal contacts which must be connected to the motor full protection unit (see model chart) in order to protect the motor effectively.

■ Electrical connection

Directly from the roof in to the external terminal box protected to IP 65.

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

All models where a speed controller is shown on the table are speed controllable via voltage reduction (1 ph. models electronically as well). Two speed models are also available.

■ Sound level

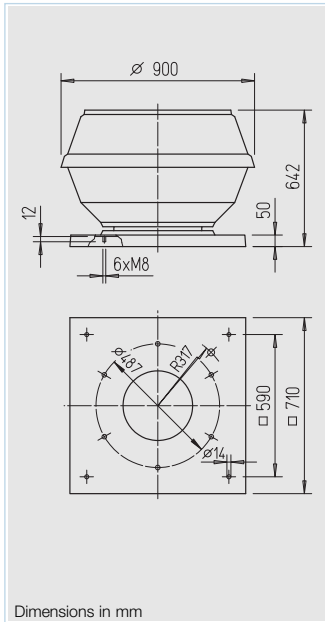
Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

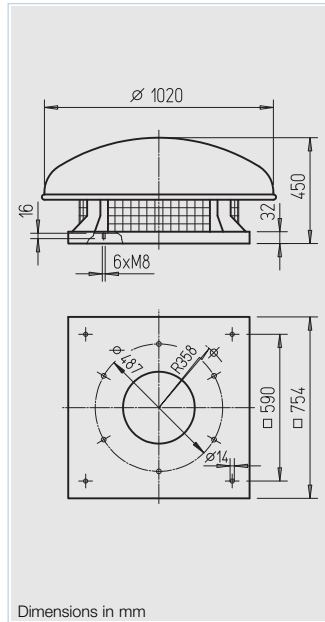
Fully assembled, ready to connect units.

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Vertical discharge VD



Horizontal discharge RD



Horizontal discharge RD

■ Specification

Centrifugal roof fan with horizontal discharge. Flat design with large overlying rain cowl.

■ Casing

Base plate (with inlet cone), rain cowl and other parts made of galvanised steel. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of galvanised steel, dynamically balanced with the motor unit.

■ Motor

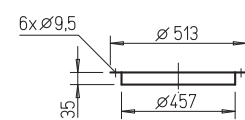
Totally enclosed external rotor motor with ball bearings, protected to IP 44, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

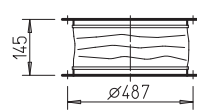
Through built-in thermal contacts which must be connected to the motor full protection unit. Explosion proof models are equipped with thermal motor protection through built-in PTC thermistor which is connected to the tripping unit MSA. Hereby speed control is allowed where the minimum voltage must not be less than 115 V.

Accessories for VD

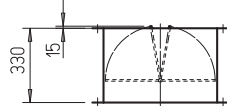
Flange rings
FR 450 Ref. No. 1207



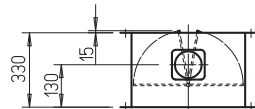
Flanged canvas connector
STS 450 Ref. No. 1224
For explosion proof fans
STS 450 Ex Ref. No. 2506



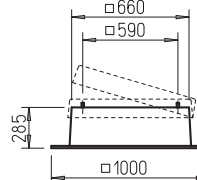
Automatic backdraught shutter
RVS 450 Ref. No. 2597



Motorised backdraught shutter
RVM 450 Ref. No. 2581

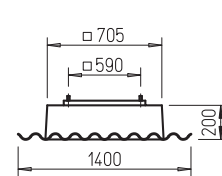


Hinged flat roof base
FDS 450 Ref. No. 1381

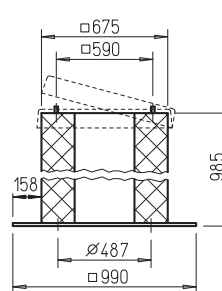


and RD

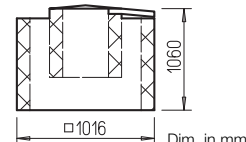
Corrugated roof base, profile 5
WDS 450 Ref. No. 1563



Hinged base attenuator
SSD 450 Ref. No. 5288



Roof fan attenuator
HSDV 450 Ref. No. 6760
only for RD..



■ Electrical connection

Terminal box (protection to IP 55) located beneath rain cowl as standard. The explosion proof models are supplied with a 80 cm long connection lead. Explosion proof terminal box is available as accessory (KK Ex, Ref. No. 6862).

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

All models where a speed controller is shown on the table are speed controllable via voltage reduction (1 ph. models electronically as well). Two speed models are also available.

■ Sound level

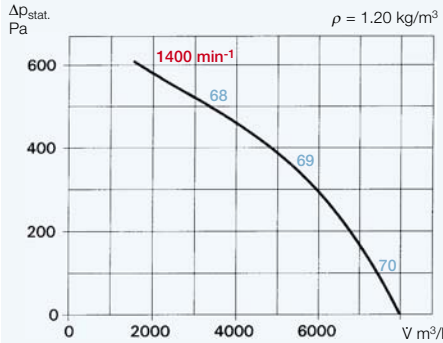
Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

Fully assembled, ready to connect units.

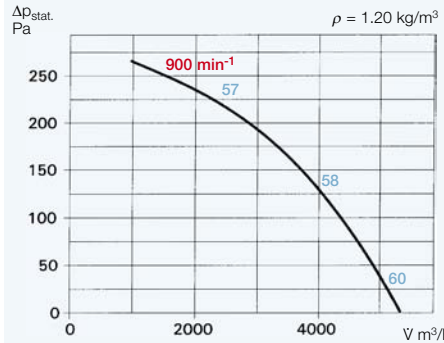
VD 450/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m} Case breakout		dB(A)	70	55	64	66	64	59	57
L _{WA} Intake		dB(A)	84	73	77	80	74	75	70



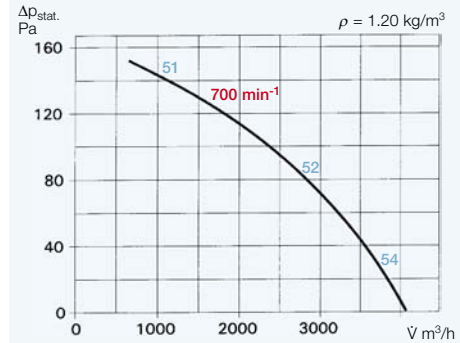
VD 450/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m} Case breakout		dB(A)	60	46	55	55	54	48	45
L _{WA} Intake		dB(A)	74	64	68	69	63	64	58



VD 450/8

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m} Case breakout		dB(A)	54	40	49	49	48	43	39
L _{WA} Intake		dB(A)	68	58	62	63	58	59	52



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption	Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit	Transformer controller
		min ⁻¹	V m ³ /h	dB(A) in 4 m	kW	A	°C	kg	Type Ref. No.	Type Ref. No.

Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 54

VDW 450/6	5190	880	5350	60	0.52	2.55	563	65	27.0	MW 1579	MWS 3³⁾ 1948
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Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54

VDD 450/6	5193	910	5350	60	0.45	1.15	469	65	28.0	MD 5849	RDS 2²⁾ 1315
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VDD 450/4	5194	1430	8000	70	1.62	2.72	470	65	27.0	w/o thermal contacts	not variable ⁴⁾
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Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54

VDD 450/8/6²⁾	5198	720 / 960	4075 / 5350	54 / 60	0.35 / 0.61	0.88 / 1.28	473	65	31.0	w/o thermal contacts	PGWA 12⁴⁾ 5083
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VDD 450/8/4¹⁾	5197	730 / 1420	4075 / 8000	54 / 70	0.35 / 1.58	1.16 / 2.85	471	65	28.0	w/o thermal contacts	PDA 12⁵⁾ 5081
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VDD 450/6/4²⁾	5199	960 / 1430	5350 / 8000	60 / 70	0.59 / 1.69	1.21 / 3.22	473	65	34.0	w/o thermal contacts	PGWA 12⁴⁾ 5083
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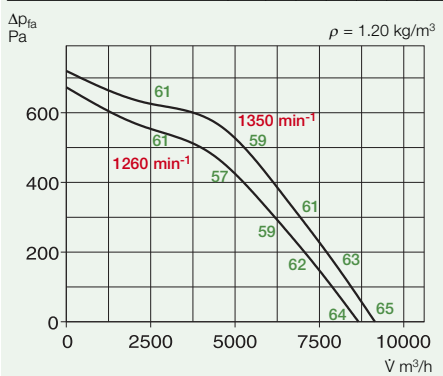
Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 54

VDD 450/6 Ex	5201	930	5350	60	0.55	1.83	470	40	28.0	w/o thermal contacts	not variable
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¹⁾ Dahlander-winding ²⁾ Separate winding ³⁾ Includes motor full protection unit ⁴⁾ In special design supplied with speed controllable motor ⁵⁾ Flush-mounted version see product page, switches

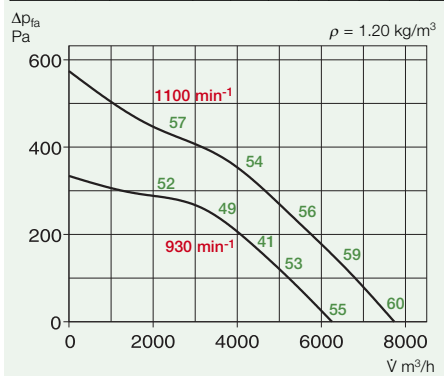
RD.. n=1350 / 1260 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k	
1350 min ⁻¹ L _{WA} Intake		dB(A)	83	73	75	77	75	72	74
1260 min ⁻¹ L _{WA} Intake		dB(A)	82	72	74	76	74	71	73



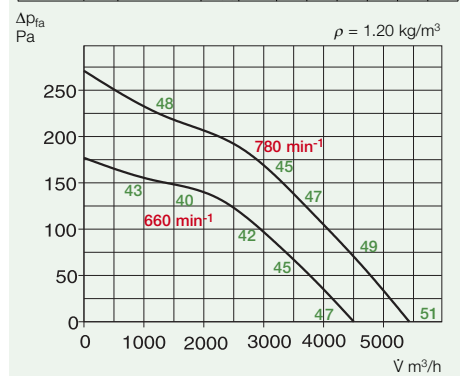
RD.. n=1100 / 930 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k	
1100 min ⁻¹ L _{WA} Intake		dB(A)	79	69	71	73	71	68	70
930 min ⁻¹ L _{WA} Intake		dB(A)	73	63	65	67	65	62	64



RD.. n=780 / 660 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k	
780 min ⁻¹ L _{WA} Intake		dB(A)	69	59	61	63	61	58	60
660 min ⁻¹ L _{WA} Intake		dB(A)	65	55	57	59	57	54	56



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption	Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit	Transformer controller
		min ⁻¹	V m ³ /h	dB(A) in 4 m	kW	A	°C	kg	Type Ref. No.	Type Ref. No.

Single speed, 230 V, 50 Hz, 1ph capacitor motor, protection to IP 44

RDW 450/6	1505	900	6100	53	0.54	2.60	468	45	44.0	MW 1579	MWS 3²⁾ 1948
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RDW 450/4	1514	1260	8660	63	1.45	6.70	468	60	52.0	MW 1579	MWS 7,5²⁾ 1950
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Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54

RDD 450/8	1182	660	4500	45	0.28	0.69	499	55	43.0	MD 5849	RDS 1²⁾ 1314
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Two speed, three phase alternating current 400 V, 50 Hz, Y/Δ-switching, protection to IP 44

RDD 450/6/6	1536	780 / 930	5430 / 6250	49 / 53	0.38 / 0.52	0.69 / 1.30	520	60	44.0	M 4³⁾ 1571	RDS 2²⁾ 1315
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RDD 450/4/4	1533	1100 / 1350	7740 / 9150	59 / 63	1.05 / 1.60	1.80 / 3.20	520	60	53.0	M 4³⁾ 1571	RDS 4²⁾ 1316
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Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54

RDD 450/8/4¹⁾	1535	670 / 1320	4530 / 8960	45 / 63	0.25 / 1.62	0.77 / 2.90	472	50	59.0	M 3³⁾ 1293	PDA 12⁴⁾ 5081
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Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 44

RDD 450/6 Ex	1187	900	6100	54	0.54	1.25	838	40	43.0	MSA 1289	TSD 1.5 1501
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RDD 450/4 Ex	1538	1380	9280	66	1.60	3.40	838	40	59.0	MSA 1289	TSD 5.5 1503
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¹⁾ Dahlander-winding ²⁾ Includes motor full protection unit ³⁾ Includes speed control and pole switch ⁴⁾ For the flush-mounted version see the product page - switches

Vertical discharge VD



■ Specification

Roof fan with vertical discharge made of polymer with the motor out of the air stream. Engine mountings made of stainless steel.

■ Casing

The upper and lower shell, motor protection cover and base plate with inlet cone made of glass-fibre polyester. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of aluminium, dynamically balanced.

■ Motor

Totally enclosed IEC-motor with surface cooling protected to IP 54, ball bearing mounted, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

Ensured via on site motor protection switch.

■ Electrical connection

Directly from the roof in to the external terminal box protected to IP 65.

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

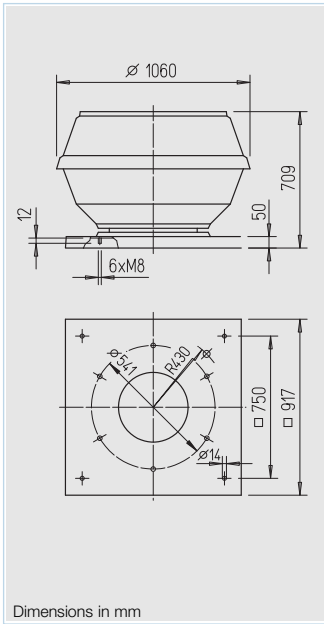
Ensured by using the models with pole switches.

■ Sound level

Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

Fully assembled, ready to connect units.



Dimensions in mm

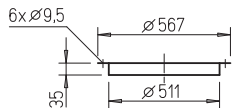
Accessories for VD

Flange rings
FR 500

Ref. No. 1208

Corrugated roof base, profile 5
WDS 500

Ref. No. 1564



Flanged canvas connector

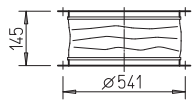
STS 500

Ref. No. 1225

For explosion proof fans

STS 500 Ex

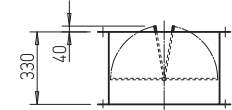
Ref. No. 2507



Automatic backdraught shutter

RVS 500

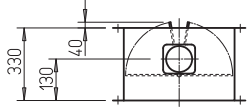
Ref. No. 2598



Motorised backdraught shutter

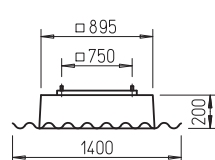
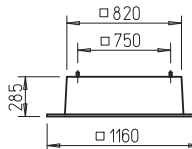
RVM 500

Ref. No. 2582



Flat roof base
FDS 500

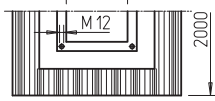
Ref. No. 1382



Hinged base attenuator

SSD 500

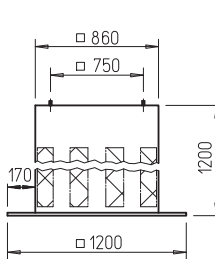
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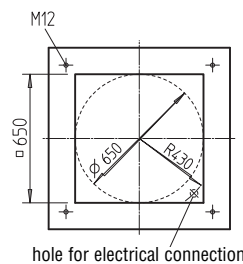
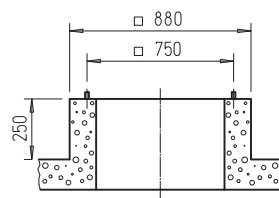
Hinged base attenuator

SSD 500

Ref. No. 5017



Dimensions for the base on site

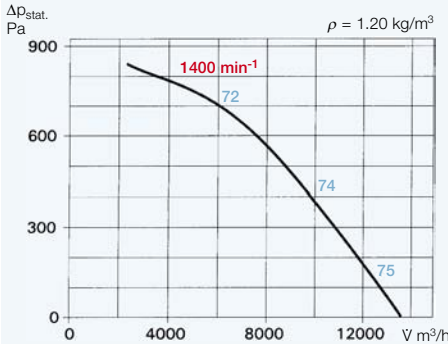


All dimensions in mm

Information	Page
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Accessories, details	359
Speed controllers, controllers and switches	397 on

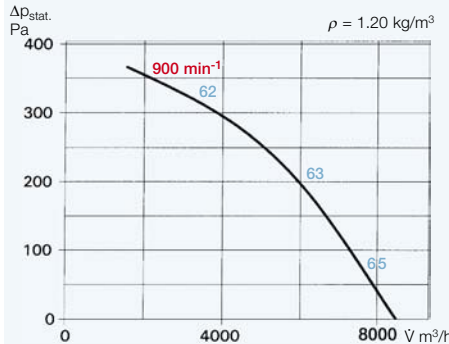
VD 500/4

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m}	Case breakout	dB(A)	75	60	70	71	68	62	59
L _{WA}	Intake	dB(A)	88	78	83	85	77	78	72



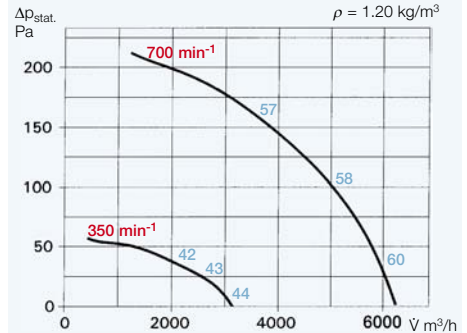
VD 500/6

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m}	Case breakout	dB(A)	65	50	60	61	57	52	47
L _{WA}	Intake	dB(A)	78	68	73	75	67	68	60



VD 500/8 and 500/16

Frequency	Hz	Total	125	250	500	1k	2k	4k	
L _{PA, 4m}	Case breakout	dB(A)	60	44	54	56	52	46	40
L _{WA}	Intake	dB(A)	73	62	67	70	61	62	53
L _{PA, 4m}	Case breakout	dB(A)	44	29	39	41	37	31	25
L _{WA}	Intake	dB(A)	58	47	52	55	46	47	38



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption		Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit		Pole switch	
					kW	A				Type	Ref. No.	Type	Ref. No.
Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54													
VDD 500/8	5203	720	6520	60	0.47	1,90	470	60	38.0	w/o thermal contacts	not variable ³⁾		
VDD 500/6	5204	940	8500	65	0.96	2,09	470	60	39.0	w/o thermal contacts	not variable ³⁾		
Single speed, three phase alternating current 400/690 V, 50 Hz, squirrel-cage motor, protection to IP 55													
VDD 500/4	5205	1450	13600	75	3.08	5,80	498	60	51.0	w/o thermal contacts	not variable		
Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 55													
VDD 500/16/8 ¹⁾	5206	360 / 720	3140 / 6520	44 / 60	0.23 / 0.60	0.62 / 1.42	471	60	38.5	w/o thermal contacts	PDA 12 ⁴⁾	5081	
VDD 500/8/6 ²⁾	5209	730 / 970	6520 / 8500	60 / 65	0.72 / 1.12	2.20 / 2.60	473	60	43.0	w/o thermal contacts	PGWA 12 ⁴⁾	5083	
VDD 500/8/4 ¹⁾	5208	740 / 1460	6520 / 13600	60 / 75	0.57 / 3.15	2.10 / 5.75	471	60	52.5	w/o thermal contacts	PDA 12 ⁴⁾	5081	
VDD 500/6/4 ²⁾	5210	970 / 1440	8500 / 13600	65 / 75	1.31 / 3.36	3.05 / 5.95	473	60	52.5	w/o thermal contacts	PGWA 12 ⁴⁾	5083	
Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 54													
VDD 500/6 Ex	5212	910	8500	65	0.950	2.60	470	40	42.0	w/o thermal contacts	not variable		

¹⁾ Dahlander-winding

²⁾ Separate winding

³⁾ In special design supplied with speed controllable motor

⁴⁾ For the flush-mounted version see the product page - switches

Vertical discharge VD

■ Specification

Roof fan with vertical discharge made of polymer with the motor out of the air stream. Engine mountings made of stainless steel.

■ Casing

The upper and lower shell, motor protection cover and base plate with inlet cone made of glass-fibre polyester. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of aluminium, dynamically balanced.

■ Motor

Totally enclosed IEC-motor with surface cooling protected to IP 54, ball bearing mounted, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

Ensured via on site motor protection switch.

■ Electrical connection

Directly from the roof in to the external terminal box protected to IP 65.

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

Ensured by using the models with pole switches.

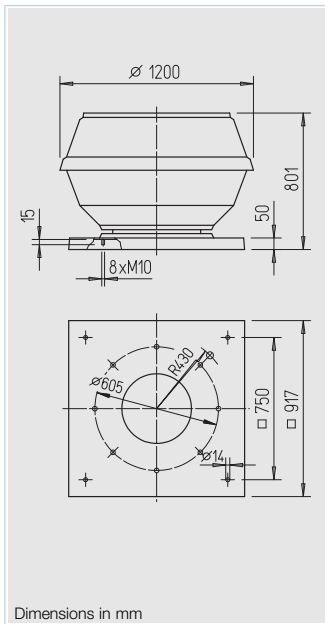
■ Sound level

Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

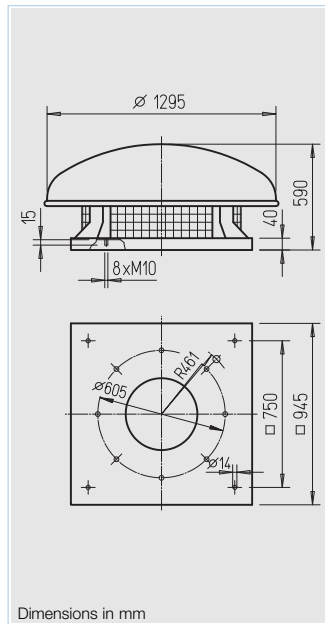
Fully assembled, ready to connect units.

Vertical discharge VD



Dimensions in mm

Horizontal discharge RD



Dimensions in mm

Horizontal discharge RD

■ Specification

Centrifugal roof fan with horizontal discharge. Flat design with large overlying rain cowl.

■ Casing

Base plate (with inlet cone), rain cowl and other parts made of galvanised steel. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of galvanised steel, dynamically balanced with the motor unit.

■ Motor

Totally enclosed external rotor motor with ball bearings, protected to IP 44, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

Through built-in thermal contacts which must be connected to the motor full protection unit. Explosion proof models are equipped with thermal motor protection through built-in PTC thermistor which is connected to the tripping unit MSA. Hereby speed control is allowed where the minimum voltage must not be less than 115 V.

■ Electrical connection

Terminal box (protection to IP 55) located beneath rain cowl as standard. The explosion proof models are supplied with a 80 cm long connection lead. Explosion proof terminal box is available as accessory (KK Ex, Ref. No. 6862).

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

All models where a speed controller is shown on the table are speed controllable via voltage reduction. Two speed models are also available.

■ Sound level

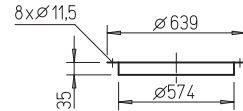
Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

Fully assembled, ready to connect units.

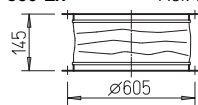
Accessories for VD

Flange rings
FR 560 Ref. No. 1209

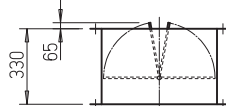


Flanged canvas connector
STS 560 Ref. No. 1226

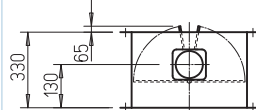
For explosion proof fans
STS 560 Ex Ref. No. 2508



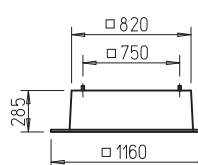
Automatic backdraught shutter
RVS 560 Ref. No. 2599



Motorised backdraught shutter
RVM 560 Ref. No. 2583

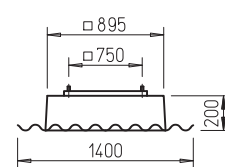


Flat roof base
FDS 560 Ref. No. 1382

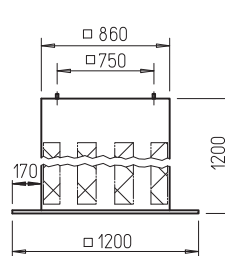


and RD

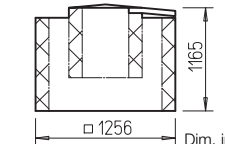
Corrugated roof base, profile 5
WDS 560 Ref. No. 1564



Hinged base attenuator
SSD 560 Ref. No. 5017



Roof fan attenuator
HSDV 560 Ref. No. 6761
only for RD..

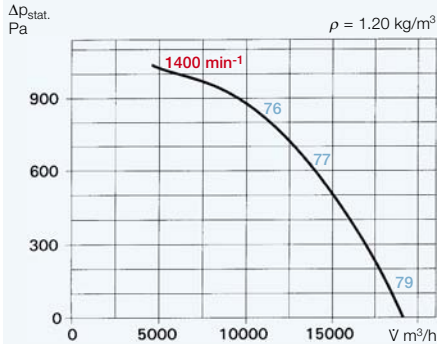


Dim. in mm

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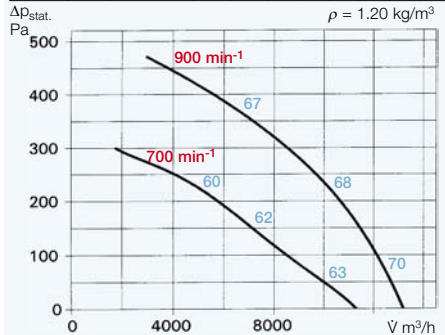
VD 560/4

Frequency	Hz	Total	125	250	500	1k	2k	4k
L _{PA, 4m} Case breakout		dB(A) 79	65	72	74	74	65	63
L _{WA} Intake		dB(A) 92	83	85	88	80	81	76



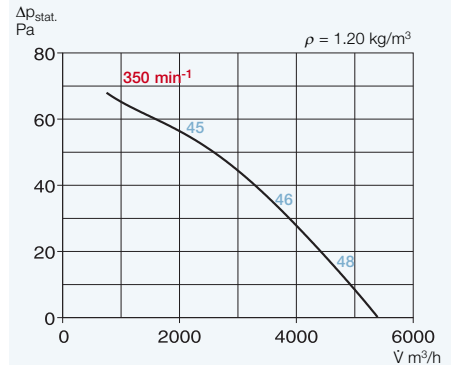
VD 560/6 and 560/8

Frequency	Hz	Total	125	250	500	1k	2k	4k
900 min ⁻¹ L _{PA, 4m} Case breakout		dB(A) 70	56	64	65	64	54	51
L _{WA} Intake		dB(A) 82	74	77	79	69	70	64
700 min ⁻¹ L _{PA, 4m} Case breakout		dB(A) 63	49	58	59	57	47	44
L _{WA} Intake		dB(A) 76	67	71	73	62	63	57



VD 560/16

Frequency	Hz	Total	125	250	500	1k	2k	4k
350 min ⁻¹ L _{PA, 4m} Case breakout		dB(A) 48	34	43	44	42	32	30
L _{WA} Intake		dB(A) 61	52	56	58	47	48	42

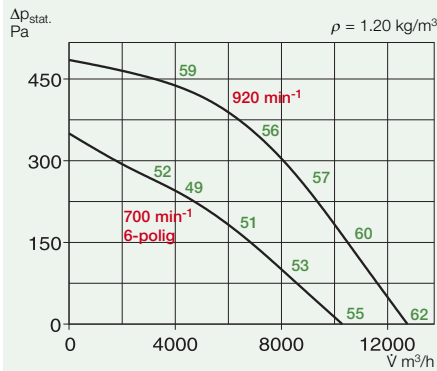


Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption		Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit		Pole switch	
					kW	A				Type	Ref. No.	Type	Ref. No.
Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54													
VDD 560/8	5214	720	11300	63	0.81	1.90	470	60	51.0	w/o thermal contacts	not variable ³⁾		
VDD 560/6	5215	920	13200	70	1.89	4.03	470	60	54.0	w/o thermal contacts	not variable ³⁾		
Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 55													
VDD 560/16/8 ¹⁾	5216	360 / 710	5400 / 11300	48 / 63	0.29 / 0.91	0.98 / 2.30	471	60	52.5	w/o thermal contacts	PDA 12 ⁴⁾	5081	
VDD 560/8/4 ¹⁾	5217	740 / 1470	11300 / 19100	63 / 80	1.04 / 6.07	4.15 / 10.75	471	60	81.0	w/o thermal contacts	PDA 12 ⁴⁾	5081	
VDD 560/6/4 ²⁾	5218	990 / 1470	13200 / 19100	70 / 80	2.09 / 5.78	4.60 / 10.10	473	60	81.0	w/o thermal contacts	PGWA 12 ⁴⁾	5083	
Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 54													
VDD 560/6 Ex	5220	940	13200	70	1.90	4.70	470	40	72.0	w/o thermal contacts	not variable		

¹⁾ Dahlander-winding ²⁾ Separate winding ³⁾ In special design supplied with speed controllable motor ⁴⁾ For the flush-mounted version see the product page - switches

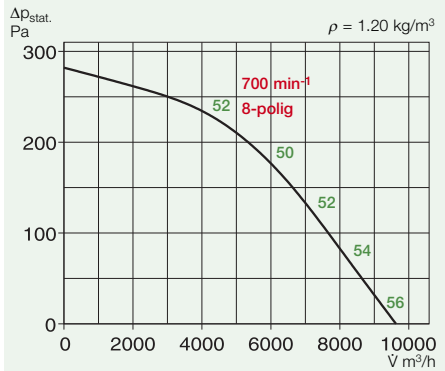
RD.. n=920 / 700 min⁻¹, 6-polig

Frequency	Hz	Total	125	250	500	1k	2k	4k
920 min ⁻¹ L _{WA} Intake		dB(A) 80	72	74	74	72	69	70
700 min ⁻¹ L _{WA} Intake		dB(A) 74	66	68	68	66	63	64



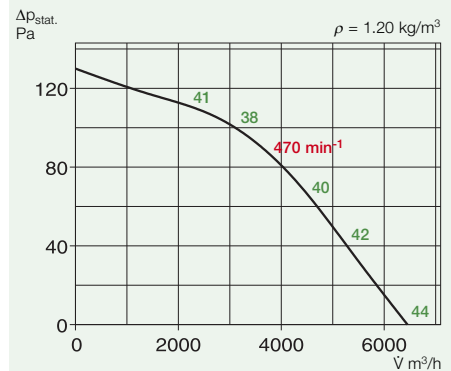
RD.. n=700 min⁻¹, 8-polig

Frequency	Hz	Total	125	250	500	1k	2k	4k
700 min ⁻¹ L _{WA} Intake		dB(A) 73	65	67	67	65	62	63



RD.. n=470 min⁻¹

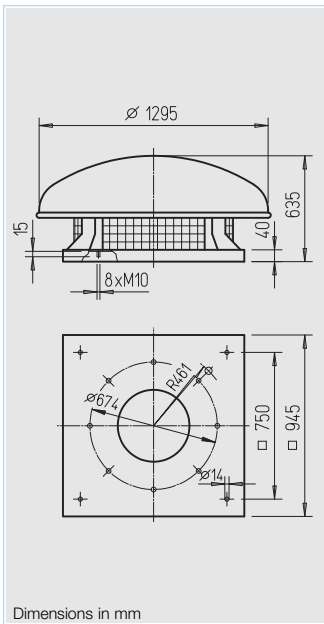
Frequency	Hz	Total	125	250	500	1k	2k	4k
470 min ⁻¹ L _{WA} Intake		dB(A) 62	54	56	56	54	51	52



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption		Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit		Transformer controller Speed-/ Pole switch	
					kW	A				Type	Ref. No.	Type	Ref. No.
Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54													
RDD 560/8	1188	700	9630	54	0.76	1.80	499	55	89.0	MD	5849	RDS 2 ²⁾	1315
Two speed, three phase alternating current 400 V, 50 Hz, Y/Δ-switching, protection to IP 44													
RDD 560/6/6	1544	700 / 900	10300 / 12500	54 / 59	0.88 / 1.30	1.70 / 2.90	520	60	87.0	M 4 ³⁾	1571	RDS 4 ²⁾	1316
Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54													
RDD 560/12/6 ¹⁾	1545	470 / 920	6450 / 12750	42 / 60	0.29 / 1.73	0.93 / 3.10	472	55	104.0	M 3 ³⁾	1293	PDA 12 ⁴⁾	5081
Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 44													
RDD 560/6 Ex	1192	790	11300	58	1.14	2.2	838	40	89.0	MSA	1289	TSD 3.0	1502

¹⁾ Dahlander-winding ²⁾ Includes motor full protection unit ³⁾ Includes speed control and pole switch ⁴⁾ For the flush-mounted version see the product page - switches

Horizontal discharge RD



Dimensions in mm

■ Specification

Centrifugal roof fan with horizontal discharge. Flat design with large overlying rain cowl.

■ Casing

Base plate (with inlet cone), rain cowl and other parts made of galvanised steel. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of galvanised steel, dynamically balanced with the motor unit.

■ Motor

Totally enclosed external rotor motor with ball bearings, protected to IP 44, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

Through built-in thermal contacts which must be connected to the motor full protection unit. Explosion proof models are equipped with thermal motor protection through built-in PTC thermistor which is connected to the tripping unit MSA. Hereby speed control is allowed where the minimum voltage must not be less than 115 V.

■ Electrical connection

Terminal box (protection to IP 55) located beneath rain cowl as standard. The explosion proof models are supplied with a 80 cm long connection lead. Explosion proof terminal box is available as accessory (KK Ex, Ref. No. 6862).

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

All models where a speed controller is shown on the table are speed controllable via voltage reduction. Two speed models are also available.

■ Sound level

Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

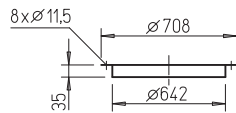
■ Delivery

Fully assembled, ready to connect units.

Accessories for RD

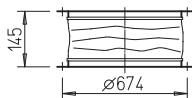
Flange rings
FR 630

Ref. No. 1211



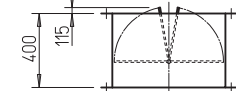
Flanged canvas connector
STS 630

Ref. No. 1228
STS 630 Ex Ref. No. 2509



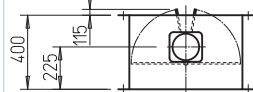
Automatic backdraught shutter
RVS 630

Ref. No. 2600



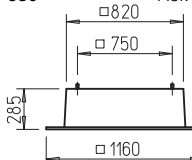
Motorised backdraught shutter
RVM 630

Ref. No. 2609



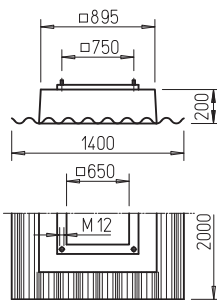
Flat roof base
FDS 630

Ref. No. 1382



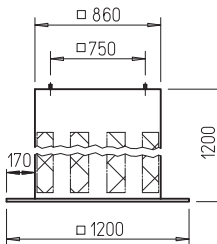
Corrugated roof base, profile 5
WDS 630

Ref. No. 1564



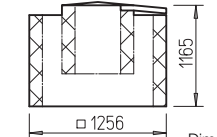
Hinged base attenuator
SSD 630

Ref. No. 5017



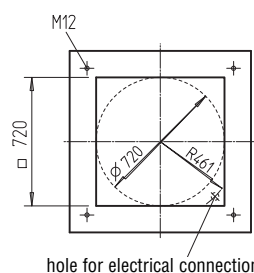
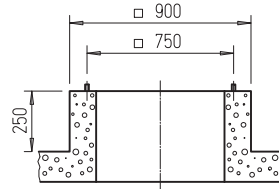
Roof fan attenuator
HSDV 630

Ref. No. 6761



Dim. in mm

Dimensions for the base on site

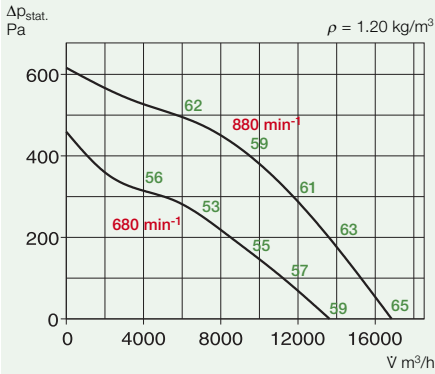


All dimensions in mm

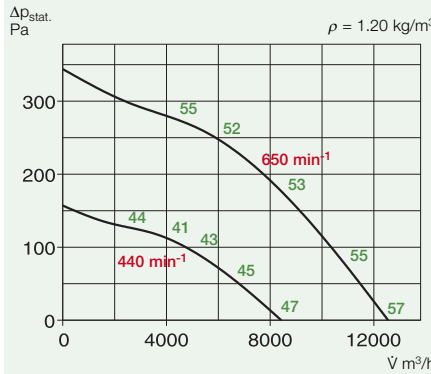
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Speed controllers, controllers and switches	397 on

RD.. n=880 / 680 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k
880 min ⁻¹	L _{WA} Intake	dB(A) 83	74	78	76	75	73	74
680 min ⁻¹	L _{WA} Intake	dB(A) 77	68	72	70	69	67	68


RD.. n=650 / 440 min⁻¹

Frequency	Hz	Total	125	250	500	1k	2k	4k
650 min ⁻¹	L _{WA} Intake	dB(A) 75	66	70	68	67	65	66
440 min ⁻¹	L _{WA} Intake	dB(A) 65	56	60	58	57	55	56



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption		Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit		Transformer controller	
					kW	A				Type	Ref. No.	Type	Ref. No.
Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54													
RDD 630/8	1194	650	12250	55	1.20	2.7	499	55	101	MD	5849	RDS 4 ²⁾	1316
Single speed, three phase alternating current 400 V, 50 Hz, Y/Δ-switching, protection to IP 54													
RDD 630/6/6	1195	680/880	13640 / 16850	57 / 63	1.50 / 2.50	2.8 / 5.0	520	45	107	M 4 ³⁾	1571	RDS 7 ²⁾	1578
Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54													
RDD 630/12/6 ¹⁾	1197	440/880	8430 / 16850	45 / 63	0.39 / 2.60	1.5 / 4.9	472	50	112	M 3 ³⁾	1293	PDA 12 ⁴⁾	5081
Explosion proof, temperature class T1 – T3, three phase alternating current 400 V, 50 Hz, protection to IP 54													
RDD 630/6 Ex	1551	910	17300	66	2.60	5.6	838	40	101	MSA	1289	TSD 7.0	1504

¹⁾ Dahlander-winding

²⁾ Includes motor full protection unit

³⁾ Includes speed control and pole switch

⁴⁾ For the flush-mounted version see the product page - switches

Horizontal discharge RD



■ Specification

Centrifugal roof fan with horizontal discharge. Flat design with large overlying rain cowl.

■ Casing

Base plate (with inlet cone) and other parts made of galvanised steel. Rain cowl made of glass fibre polyester. Base plate with threaded bolt for connection of intake air accessories.

■ Impeller

High performance backward curved centrifugal impeller made of galvanised steel, dynamically balanced with the motor unit.

■ Motor

Totally enclosed external rotor motor with ball bearings, protected to IP 44, insulated for protection against moisture. Maintenance free and radio suppressed.

■ Motor protection

All models have built-in thermal contacts which must be connected to the motor full protection unit (see model chart) in order to protect the motor effectively.

■ Electrical connection

Terminal box (protection to IP 55) located beneath rain cowl as standard.

■ Protection grille

On the outlet as standard, compliant with DIN EN ISO 13857.

■ Speed control

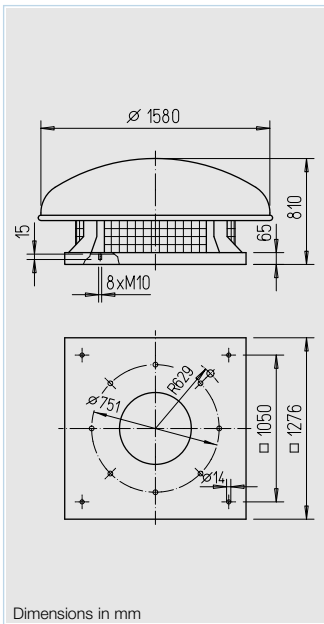
Ensured by using the models with pole switches.

■ Sound level

Shown on the performance curves the sound pressure level is given in dB(A) at 4 metres. The total level and spectrum for sound pressure and sound power are given above the performance curves.

■ Delivery

Fully assembled, ready to connect units.

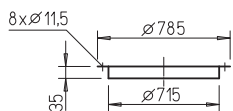


Dimensions in mm

Accessories for RD

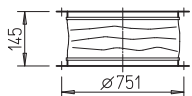
Flange rings
FR 710

Ref. No. 1212



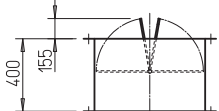
Flanged canvas connector
STS 710

Ref. No. 1229



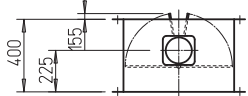
Automatic backdraught shutter
RVS 710

Ref. No. 2601



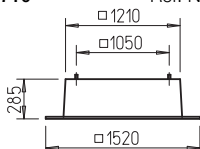
Motorised backdraught shutter
RVM 710

Ref. No. 2610



Flat roof base
FDS 710

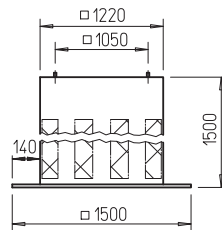
Ref. No. 6658



Dimensions in mm

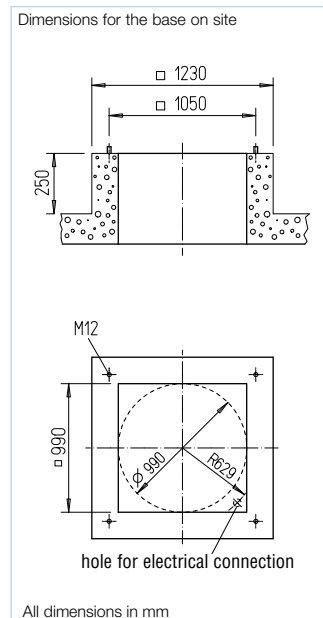
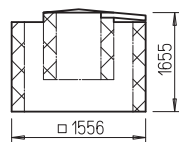
Hinged base attenuator
SSD 710

Ref. No. 5287



Roof fan attenuator
HSDV 710

Ref. No. 6763

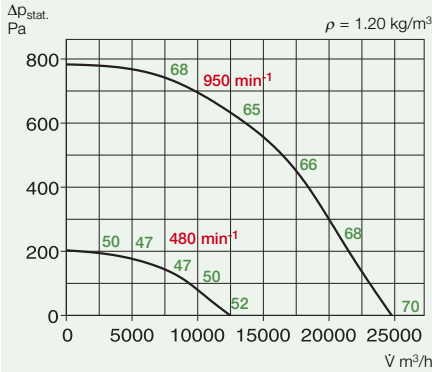


All dimensions in mm

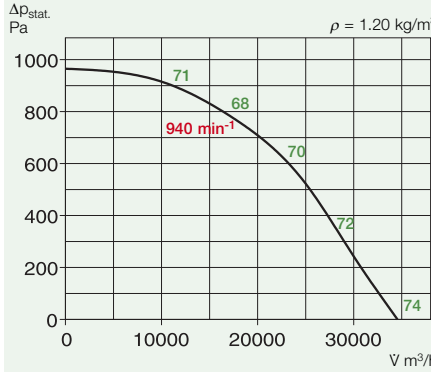
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RD 710/12/6 **n=950 / 480 min⁻¹**

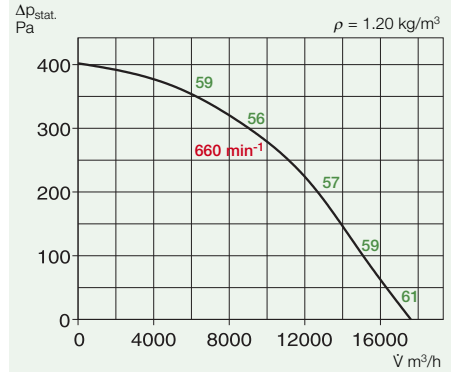
Frequency	Hz	Total	125	250	500	1k	2k	4k		
950 min ⁻¹	L _{WA}	Intake	dB(A)	88	79	83	81	80	78	79
480 min ⁻¹	L _{WA}	Intake	dB(A)	70	61	65	63	62	60	61


RD 710/6 **n=940 min⁻¹**

Frequency	Hz	Total	125	250	500	1k	2k	4k		
940 min ⁻¹	L _{WA}	Intake	dB(A)	92	83	87	85	84	82	83


RD 710/8 **n=660 min⁻¹**

Frequency	Hz	Total	125	250	500	1k	2k	4k		
660 min ⁻¹	L _{WA}	Intake	dB(A)	79	70	74	72	71	69	70



Type	Ref. No.	R.P.M.	Air flow volume (FID)	Sound pressure level	Power consumption		Wiring diagram	Max. air flow temperature	Nominal weight	Motor full protection unit		Pole switch	
					kW	A				Type	Ref. No.	Type	Ref. No.

Single speed, three phase alternating current 400 V, 50 Hz, squirrel-cage motor, protection to IP 54

RDD 710/8	1554	660	17600	59	2.00	4.4	469	40	158	MD	5849	RDS 7²⁾	1578
RDD 710/6	1553	940	34550	72	8.60	15.8	499	40	190	MD	5849		not variable

Pole-changeable, with 2 speed motor, three phase alternating current 400 V, 50 Hz, protection to IP 54

RDD 710/12/6¹⁾	1556	480 / 950	12470 / 24800	50 / 68	0.70 / 4.50	2.4 / 8.5	472	55	167	M 3³⁾	1293	PDA 12⁴⁾	5081
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¹⁾ Dahlander-winding

²⁾ Includes motor full protection unit

³⁾ Includes speed control and pole switch

⁴⁾ For the flush-mounted version see the product page - switches

Roof cowls VDH

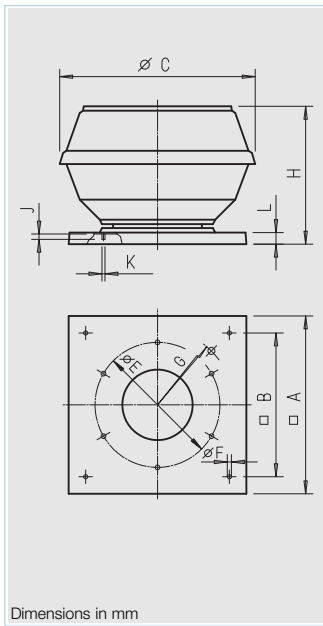
■ Specification

For covering the convection and supply air vents on the roof. Same design as vertical discharge roof fans VD.. and provides uniformity of appearance for systems with supply and extract.
When using in mechanical ventilation systems the emerging system losses must be considered (see diagram). Accessories as in roof fans.

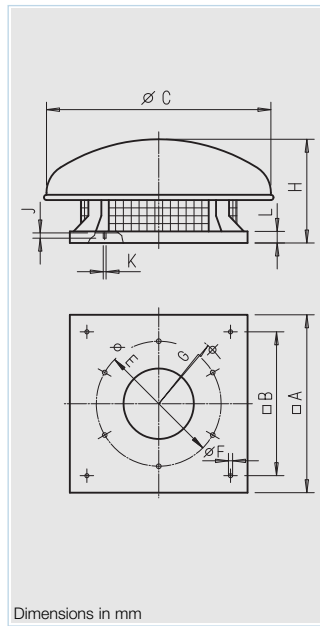
■ Model range

Type	Ref. No.	Nominal size in mm
VDH 200	5126	200
VDH 225	5127	225
VDH 250	5120	250
VDH 315	5121	315
VDH 400	5125	400
VDH 450	5122	450
VDH 500	5123	500

Roof cowls VDH



Roof cowls HDH



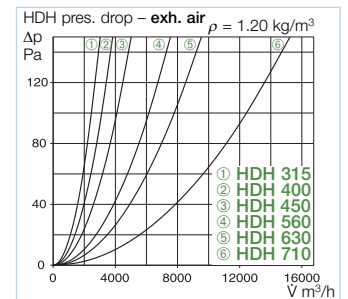
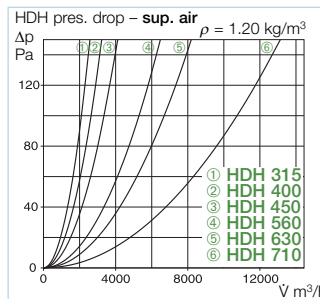
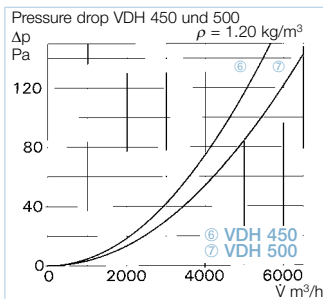
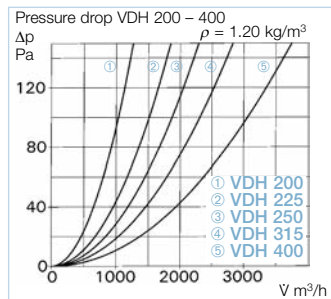
Roof cowls HDH

■ Specification

For covering the convection and supply air vents on the roof. Same design as horizontal discharge roof fans VD.. and provides uniformity of appearance for systems with supply and extract.
When using in mechanical ventilation systems the emerging system losses must be considered (see diagram). Accessories as in roof fans.

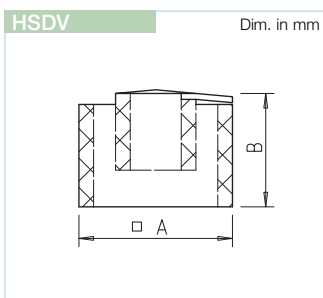
■ Model range

Type	Ref. No.	Nominal size in mm
HDH 315	5128	315
HDH 400	5129	400
HDH 450	5130	450
HDH 560	5132	560
HDH 630	5133	630
HDH 710	5231	710



Type	□ A	□ B	Ø C	Ø E	Ø F	G	H	J	K	L
200	435	330	544	259	12	173	449	12	6 x M6	40
225	435	330	629	259	12	173	425	12	6 x M6	40
250	560	450	695	286	12	218	488	11	6 x M6	40
315	560	450	770	356	12	227	535	19	8 x M8	40
400	644	535	900	438	12	287	615	19	8 x M8	50
450	710	590	1060	487	14	317	628	18	8 x M8	50
500	917	750	1200	541	14	430	788	18	8 x M8	50

Type	□ A	□ B	Ø C	Ø E	Ø F	G	H	J	K	L
315	603	450	846	356	12	264	369	16	8 x M8	32
400	633	535	846	438	12	302	401	16	6 x M8	32
450	754	590	1020	487	14	358	450	16	6 x M8	32
560	945	750	1295	605	14	461	590	15	8 x M10	40
630	945	750	1295	674	14	461	635	15	8 x M10	40
710	1276	1050	1580	751	14	670	810	15	8 x M10	65

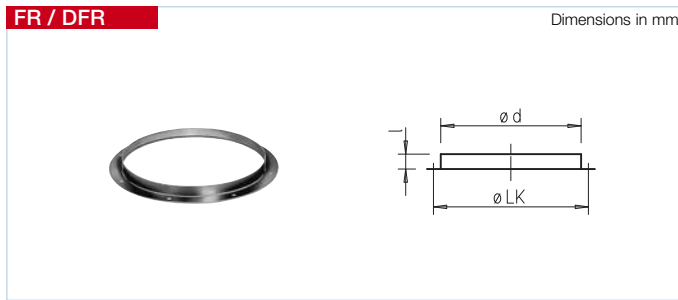


Roof fan attenuator HSDV for noise attenuation on discharge

Average attenuation value 11 dB. Available for models RD, nominal sizes 225 – 710.
The construction encloses the roof fan and can be subsequently mounted without any structural alterations. Can only be mounted on RD.. models.

■ Model range

Type	Ref. No.	A in mm	B in mm
HSDV 225	6757	626	711
HSDV 315	6758	836	860
HSDV 400	6758	836	860
HSDV 450	6760	1016	1060
HSDV 560	6761	1256	1165
HSDV 630	6761	1256	1165
HSDV 710	6763	1556	1655

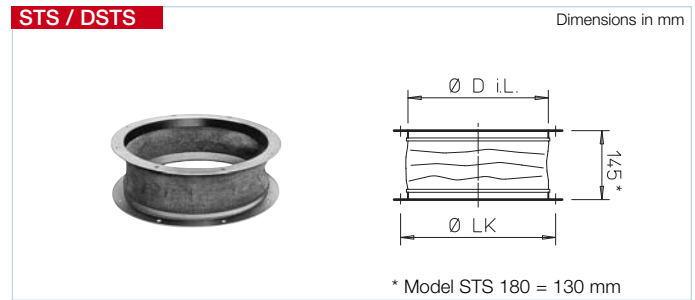


Flange rings FR

Made of galvanised steel, for intake duct connections. Can be screwed directly on the fan base plate.

Dimensions according to DIN 24 155, Pt. 2.

Type	Ref. No.	$\varnothing LK$	l	$\varnothing d$	Weight in kg
FR 180	1200	213	25	186	0.4
DFR 200	1201	259	30	233	0.5
FR 225	1201	259	30	233	0.5
FR 250	1203	286	25	256	0.6
FR 315	1204	356	30	326	0.9
FR 400	1206	438	30	408	1.2
FR 450	1207	487	35	457	1.8
FR 500	1208	541	35	511	1.8
FR 560	1209	605	35	574	2.0
FR 630	1211	674	35	642	2.2
FR 710	1212	751	35	715	3.3



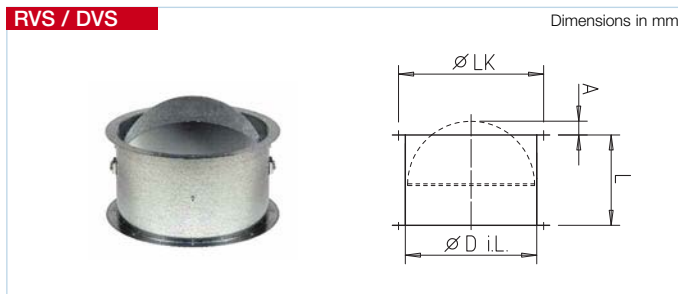
Flanged canvas connector STS

To reduce vibration transmission in intake air ducting. Flanges made of galvanised steel. Flexible sleeve made of a polymer fabric cloth. For explosion proof fans, model

STS.. Ex must be used. To be mounted directly on the fan base plate. Flange dimensions according to DIN 24 155, Pt. 2.

Type	Ref. No.	Type*	Ref. No.	$\varnothing D i.L.$	$\varnothing LK$	Weight in kg
STS 180	1217	–	–	183	213	0.9
DSTS 200	1218	DSTS 200 Ex	2500	229	259	1.1
STS 225	1218	STS 225 Ex	2500	229	259	1.1
STS 250	1220	STS 250 Ex	2501	252	286	1.3
STS 315	1221	STS 315 Ex	2503	322	356	1.8
STS 400	1223	STS 400 Ex	2505	404	438	2.5
STS 450	1224	STS 450 Ex	2506	453	487	3.8
STS 500	1225	STS 500 Ex	2507	507	541	3.4
STS 560	1226	STS 560 Ex	2508	570	605	4.5
STS 630	1228	STS 630 Ex	2509	638	674	4.6
STS 710	1229	–	–	711	751	7.0

* for explosion proof fans



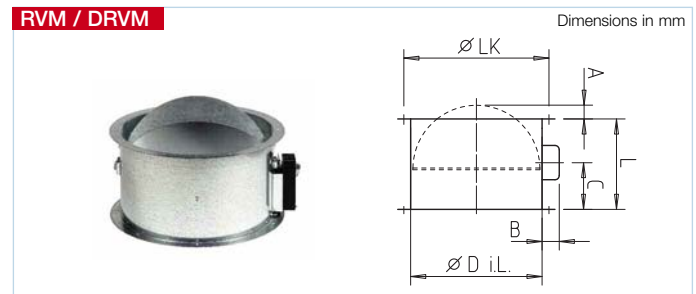
Automatic backdraught shutter with spring reverse RVS¹⁾

To prevent cold air backdraught when the fan is not in use. For vertical air flow bottom-up position (otherwise model RVM to be used). Automatic opening function when the fan is in use. Spring mechanism outside the airflow. Holding force adjustable to fan power and

installation position. Flaps and casing made of galvanised steel, flaps with nominal sizes 225-560 mm made of aluminium. Can be screwed directly on the fan's base plate. With flange holes on both sides according to DIN 24155, Pt. 2. Ambient temperature –30 to +100 °C

Type	Ref. No.	$\varnothing D i.L.$	L	A	$\varnothing LK$	Weight in kg
DVS 180	1247	180	110	15	213	1.2
DRVS 200	2591	225	300	–	259	3.0
RVS 225	2591	225	300	–	259	3.0
RVS 250	2592	250	300	–	286	3.4
RVS 315	2594	315	300	–	356	4.3
RVS 400	2596	400	330	–	438	7.2
RVS 450	2597	454	330	15	487	10.4
RVS 500	2598	504	330	40	541	11.7
RVS 560	2599	560	330	65	605	16.1
RVS 630	2600	630	400	115	674	19.5
RVS 710	2601	710	400	155	751	26.5

¹⁾ For pressure drop diagram see page 364.



Motorised backdraught shutter RVM^{1) 2)}

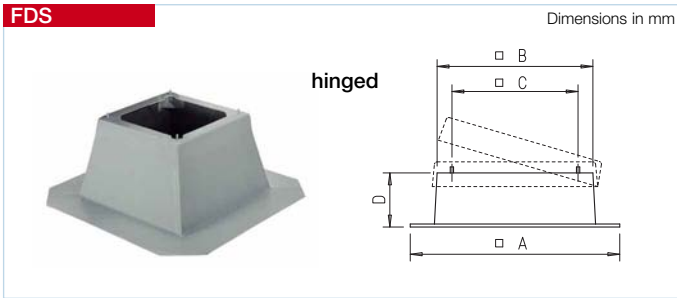
As RVS, but with spring reversing motor, mounted outside the air flow and for vertical air flow in any direction. Allows natural ventilation when the fan is not in use. Control of air flow in combination with a roof cowl. To be electrically operated together with the fan.

Connect with a 0,9 m long lead.
Ambient temperature –30 to +60 °C
Protection to IP 54
Voltage/Frequency 230 V AC, 50/60 Hz
Power consumption 14 W/8,5 W
Valve opening time, ca. 75 sec./150 sec.
Wiring diagram-No. SS-380.1

Type	Ref. No.	$\varnothing D i.L.$	B	C	L	A	$\varnothing LK$	Weight in kg
DRVM 200	2575	225	95	130	300	–	259	3.3
RVM 225	2575	225	95	130	300	–	259	3.3
RVM 250	2576	250	95	130	300	–	286	3.7
RVM 315	2578	315	95	130	300	–	356	4.6
RVM 400	2580	400	95	130	330	–	438	7.5
RVM 450	2581	454	95	130	330	15	487	10.7
RVM 500	2582	504	95	130	330	40	541	12.0
RVM 560	2583	560	95	130	330	65	605	16.4
RVM 630	2609	630	150	225	400	115	674	21.0
RVM 710	2610	710	150	225	400	155	751	28.0

²⁾ DRVM../RVM.. are not suitable for explosion proof areas.

FDS



Flat roof base FDS

For roof fans and roof cowls on flat roofs. Horizontal installation. Slope of up to 25° is allowed with RD.. roof fans. Offering reduced cost and installation time compared to crafted designs. Made of corrosion resistant glass reinforced polyester resin (size 710 made of galvanised steel) with abrasion proof, sound and heat absorbing insulation. Provides a raised height off the roof good for areas of high snow fall.

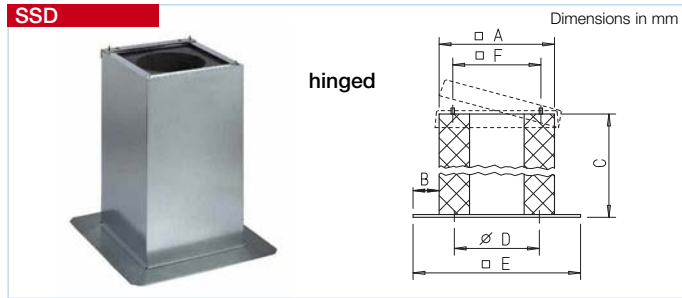
Installation

To be installed above the ceiling opening (roof). Roof coating to be covered completely with felt and to be sealed with tar. Includes mounting screws, profile rubber and sealing between base and base plate.

Type	Ref. No.	A in mm	B in mm	C in mm	D in mm
FDS 180*	1377	645	285	245	285
FDS 200*	1378	750	392	330	285
FDS 225*	1378	750	392	330	285
FDS 250*	1379	870	520	450	285
FDS 315*	1379	870	520	450	285
FDS 400*	1380	950	605	535	285
FDS 450*	1381	1000	660	590	285
FDS 500	1382	1160	820	750	285
FDS 560	1382	1160	820	750	285
FDS 630	1382	1160	820	750	285
FDS 710	6658	1550	1190	1050	285

* With folding mechanism for easy access and cleaning.

SSD



Hinged base attenuator SSD for intake attenuation

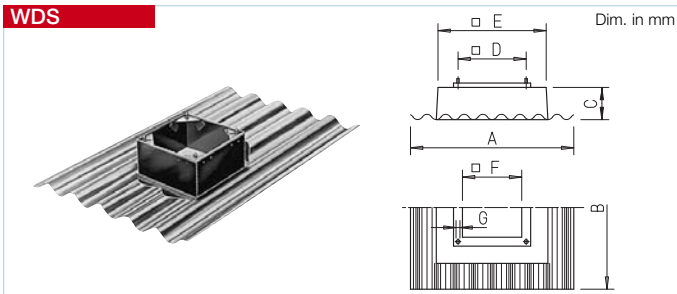
Average attenuation is 15 dB. All metal parts made of galvanised steel. For installation on flat roofs used like a flat roof base. Delivery includes mounting screws, profile rubber and sealing between base and base plate. NG 500–710: Acoustically lined with nonflammable material, class A2, covered on both sides with glass fibre.

NG 180–450: Equipped with hinges to fold the fan for maintenance purposes. Foamed material with free cross-section allows access to ducting or shaft system. Base plate is equipped with threaded holes (to DIN 24155, Bl. 2) to install the supply air accessories.

Type	Ref. No.	A	B	C	D	E	F
SSD 180*	5289	280	160	750	213	600	245
SSD 200*	5290	400	133	735	259	666	330
SSD 225*	5290	400	133	735	259	666	330
SSD 250*	5292	520	150	835	286	820	450
SSD 315*	5292	520	150	835	356	820	450
SSD 400*	5291	600	150	985	438	900	535
SSD 450*	5288	675	158	985	487	990	590
SSD 500	5017	860	170	1200	–	1200	750
SSD 560	5017	860	170	1200	–	1200	750
SSD 630	5017	860	170	1200	–	1200	750
SSD 710	5287	1220	140	1500	–	1500	1050

* With folding mechanism for easy access and cleaning.

WDS



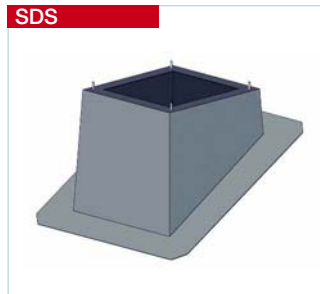
Corrugated roof base WDS

For roof fans and roof cowls on corrugated roof. Slope to 25° allowed with RD.. roof fans. Made of weather proof and corrosion resistant glass reinforced polyester resin, low on weight, low risk of breakage on shipment and on site. Low heat transfer. Profile distance 177 mm (profile No. 5). Reduces costs and installation efforts to minimum, Rain drains on the front

and rear valley between the square base and the corrugated plate ensure an installation of roof slab independent of the ceiling direction. Includes screws, washers and profile rubber for mounting and sealing of the fan base plate.

Type	Ref. No.	A	B	C	D	E	F	G
WDS 180	1559	920	1600	200	245	295	∅ 256	M 6
WDS 200/225	1560	920	1600	200	330	395	290	M 10
WDS 250/315	1561	920	1600	200	450	555	395	M 10
WDS 400	1562	920	1600	200	535	625	475	M 10
WDS 450	1563	1400	2000	200	590	705	525	M 12
WDS 500/560	1564	1400	2000	200	750	895	650	M 12
WDS 630	1564	1400	2000	200	750	895	650	M 12

SDS



Sloping roof base SDS

For roof fans and roof cowls on sloping roofs with a slope up to 45°. Made of galvanised steel, with sound and thermal insulation, 50 mm thick lining inner side.

All SDS models are available on request. When ordering please specify the fan type or the nominal size of roof cowl, the roof pitch angle, the type of brick or the profile shape and height (for profile roofs), if necessary.

Installation

To be installed on the roof construction. The enclosing collar made of lead to be sealed. Includes mounting screws, plates and sealing between base and base plate.

Note	Page
All centrifugal roof fans delivered without guard on intake. If there is no duct connected directly to the unit, a guard (model ASD-SGD or SG) must be used.	171
Other accessories	Page
Speed controllers, controllers and switches	397 on.


Helios has a long tradition of experience in designing and manufacturing accessories to complete the fan range. This enabled Helios approximately 50 years ago to develop the world's first polymer shutter range.

Designed to suit today's architectural requirements, the latest techniques combined with practical installation are characteristic advantages of the Helios shutters, louvres, rain

repellent grilles, backdraught shutters (page 371) as well as wall and roof terminations.

Sound insulation and air volume elements SVE (page 372) combine the air flow adjustment and the sound level reduction in a cost-effective and space saving way. SVE are installed simply in the ducting and they can be adjusted in series, one after another for further noise reduction.

The automatic air flow volume stabiliser VKH (page 372) is a low cost solution to provide a constant air flow volume in ducting as well as in air inlet and outlets. Made of flame retardant polymer, class B1 DIN 4102-1.



Accessory components that
simplify system design.



Special characteristics

- Made of non-corrosive, weather proof, long life and ultra-violet stable polymers, colour light grey (VK 160 in white).
- Resists most harmful atmospheres.
- External building cladding stays clean longer as air flow channelled straight through the shutter.
- Easy and quick installation.
- Flat design.
- Attractive appearance.

Automatic

- Air stream operated louvres in a compact flat design to cover exhaust air openings in walls.
- Automatic operation; opens and closes when the fan is switched on and off.
- Fixed to wall by means of four concealed holes in corners.
- Supplied in individual boxes including mounting materials.
- Maximum air flow velocity = 8 m/s.
- Sizes 630 and 710 have an additional centre mullion to increase overall stability and sizes 800 and 900 have two mullions resulting in several louvre panels.

Manually adjustable

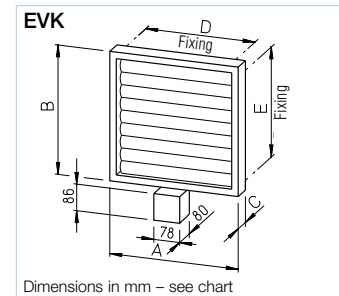
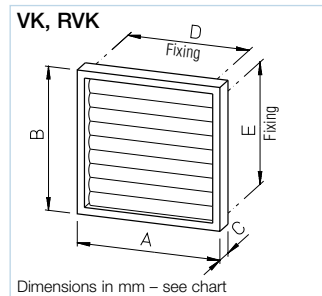
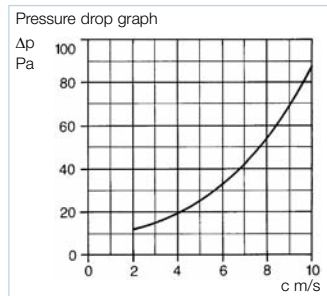
- To cover intake and exhaust air openings in external walls. Compact flat design. Suitable for reversible axial fans (intake and extract) as air flow in either direction is possible.
- Rattle-free and tight insulated, as the louvres are closed by spring force via mullions.
- Manual operation by means of pull cord via guide roller.
- Supplied with pull cord protection, guide roller, fixing hook and mounting materials.
- Frames, louvres with axis and adjusting parts made of UV resistant, impact resistant polymer in light grey.
- Up to nominal size 500 the louvre has one centre mullion. For larger sizes (see "custom sizes") the models have an additional centre mullion to increase overall stability and result in several louvre panels. Each part has a separate pull cord.

Electrically adjustable

- External shutters to cover intake and exhaust air openings.
- Automatic operation linked with fan controller. It can be wired so that the fan start is delayed until the shutter is fully opened.
- Control of fan and shutter via remote switch to be installed on site. The limit switch in servo motor connects the fan circuit when the shutter is fully opened. Max. current 1 A (ind.). With higher currents or 3 phase fans an auxiliary relay is required (contactor, Ref.-No. 99611).
- If the fan is operated by a speed controller the shutter must be controlled via a relay installed on site.
- Ready for installation with a lead (5 x 1,5 mm², approx. 1,5 m long). Connection according to wiring diagram-No. SS-39 and 73.
- Water proof motor housing, protected to IP 55, made of polymer; includes maintenance free gear box motor 230 V~, 50 Hz.
- Made of light grey polymer, rattle free operation and tight closing.

Pressure drop

When selecting a fan the pressure drop of all components of the system like ducting and shutters must be considered. The diagram shows the resistance subject to air velocity.



Model ranges

Automatic Type	Ref. No.	Manually adjustable Type	Ref. No.	Electric control Type	Ref. No.	Fits fan nominal size mm	Dimensions				
							A mm	B mm	C mm	D mm	E mm
VK 160 ¹⁾	0892	-	-	1)	1)	150/160	190	190	25	131	131
VK 200	0758	RVK 200	0766	EVK 200	0774	180/200	240	240	28	193	167
VK 250	0759	RVK 250	0767	EVK 250	0775	225/250	290	290	28	243	217
VK 315	0760	RVK 315	0768	EVK 315	0776	280/315	340	340	28	293	267
VK 355	0761	RVK 355	0769	EVK 355	0777	355	390	390	28	343	317
VK 400	0762	RVK 400	0770	EVK 400	0778	400	440	440	28	393	367
VK 450	0763	RVK 450	0771	EVK 450	0779	450	490	490	30	443	417
VK 500	0764	RVK 500	0772	EVK 500	0780	500	540	540	30	493	467
VK 630	0836			EVK 630	0781	560/630	686	690	40	520	630
VK 710	0838			EVK 710	0784	710	785	785	40	771	685
VK 800	0839					800	876	885	40	862	785
VK 900	0841					900	1026	985	40	1012	885

Larger sizes are available on request, also see custom models.

¹⁾ For specification, design and dimensions of smaller shutters see following page.

Accessories

Adapter F.. allows installation of these shutters (up to nominal diameter 710) on circular ducting. For selection and specification see page 370.

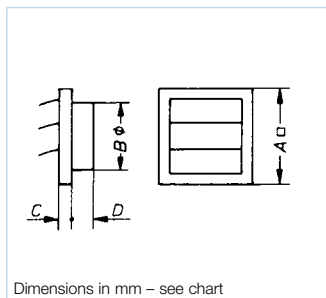


- **Small automatic shutters made of polymer for \varnothing 100, 125 and 160 mm**
Airstream operated louvres to cover exhaust air openings.
- Suitable as extract outlet of small fans, cooker hoods, tumble dryers and others.
- Made of UV-resistant and impact resistant polymer.
- Fixing via spigot or masonry plugs. Sealing foam strip included in contents.

■ Model range

Type	Ref. No.	Colour	Spigot \varnothing mm	Qty
VK 100	0757	white	100	1
VK 100 B	0765	brown	100	1
VK 100 VE*	0885	white	100	24
VK 125	0857	white	125	1
VK 125 B	0705	brown	125	1
VK 160	0892	white	150/160	1

* low price quantity pack



Dimensions in mm – see chart

Type	Dimensions in mm			
	A	\varnothing B	C	D
VK 100	140	98	15	28
VK 125	160	120-125	20	30
VK 160	190	145	25	35



- **Small electric shutter**
To cover intake and exhaust air openings in all types of rooms.
- Attractive design blends into any decor. The view into the duct is obscured even when the shutter is open.
- Maximum air flow velocity approx. 6 m/s.
- Noise free operation with a 60 second opening delay.
- Control via on/off switch, wired in parallel by preference.

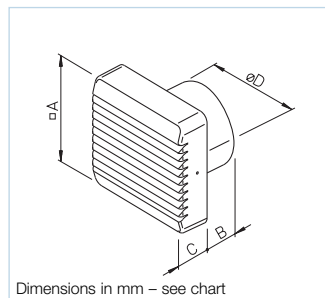
■ Model range

Type	Ref. No.	Spigot \varnothing mm	Weight kg
EVK 100	0453	100	0.26
EVK 150	0251	150	0.44

Impact resistant polymer, alpine-white.
Connection to wiring diagram-No. SS-479
Voltage/Frequency 230 V-, 50/60 Hz
Power consumption approx. 6 W

■ Information

Operation temperature EVK 100, EVK 150: 0 to +40 °C, for all other polymer shutters: -30 to +60 °C.



Dimensions in mm – see chart

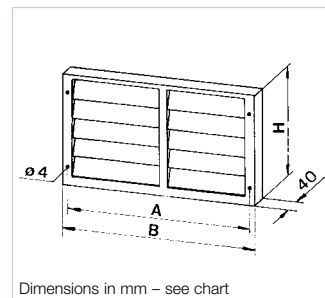
Type	Dimensions in mm			
	\square A	B	C	\varnothing D
EVK 100	140	58	38,5	97
EVK 150	190	62	43	145



- **Rectangular shutter**
In landscape format, to cover exhaust air openings in external walls.
- Dimensions fit Helios rectangular fan range.
- Automatic operation.
- All parts made of high quality, light grey polymer.
- Fixing via dowels.
- Maximum air flow velocity = 10 m/s.

■ Model range

Type	Ref. No.	Duct nominal size cm
VK 30/15	0735	30 x 15
VK 40/20	0874	40 x 20
VK 50/25	0875	50 x 25
VK 50/30	0876	50 x 30
VK 60/30	0877	60 x 30
VK 60/35	0878	60 x 35
VK 70/40	0879	70 x 40
VK 80/50	0880	80 x 50
VK 100/50	0881	100 x 50



Dimensions in mm – see chart

Type	Dimensions in mm			Weight kg
	A	B	H	
VK 30/15	381	395	235	1.0
VK 40/20	473	485	285	1.3
VK 50/25	574	585	335	2.0
VK 50/30	574	585	385	2.2
VK 60/30	674	685	385	2.4
VK 60/35	674	685	435	2.6
VK 70/40	774	785	485	3.1
VK 80/50	864	876	585	4.4
VK 100/50	1162	1176	585	5.5



- **Custom sizes**
The shutter ranges
- automatic (airstream operated)
- manually adjustable
- electrical control
- are available in project specific custom sizes.
- The dimensions can be varied within steps of 50 mm. Any rectangular portrait, landscape or square dimensions are available.
- The shutters are manufactured to order and are non exchangeable or returnable. Therefore the dimensions must be defined accurately.
- For more stability, an additional vertical centre mullion is fitted over 40 cm louvre length and a horizontal centre mullion over 100 cm louvre length. Large shutters are supplied in segments for stability and transport reasons and have to be assembled on frames.
- The maximum air flow velocity for standard models is 10 m/s.
- All parts (frames, shutters and their stocks) made of light grey, high quality, UV resistant polymer.



■ Air tight in-duct backdraught shutter RVE

- Designed to prevent the spread of cold smoke in ducted systems also ideal as a back draught damper. In-duct mounted, ideal for retro-fit installation.
- Polymer ring with surrounding double lip seal and tight adjacent rubber membrane, which opens at low and high pressure.
- Supplied with two membranes for air flow velocity up to approx. 3.5 m/s or 6 m/s.
- At horizontal air flow the rotation axis must be in vertical position.
- Temperature range -20 to +90 °C.

■ Backdraught shutters RSK

- Automatic shutters for in-duct installation.
- Prevents back draughts (extract of warm air or intake of cold air) when the fan is switched off.
- Automatic operation at low and high pressure (rotatable mounting position) through spring blades. At horizontal air flow the rotation axis must be in vertical position. If installed vertically it only operates with rising air flow. To cover further requests and severe conditions use RVS or RVM.

Automatic backdraught shutter with spring release

For all horizontal ducting and vertical with the air flow upwards i.e. blades opening upwards. Blades open in air flow direction automatically by the airflow (fan operation). The spring mechanism is outside the air flow. Closing force, fan power and installation position can be adjusted. Blades and casing made of galvanised steel, at dia. 225 – 560 mm blades are made of aluminium. Flanged on both ends. Fixing holes DIN 24155, Pt. 2. Ambient temperature -30 to +100 °C

Motorised backdraught shutter¹⁾

As RVS, but with built-on spring release motor (outside the air flow), can be installed horizontally and vertically in any direction. Electrical control wired in parallel with the fan; for installation supplied with a 0.9 m long lead. Ambient temperature -30 to +60 °C Protection to IP 54 Voltage/Frequency 230 V AC, 50/60 Hz Power consumption - to Ø 560 14 W - from Ø 630 8.5 W Opening time of flaps, approx. - to Ø 560 75 sec. - from Ø 630 150 sec. Wiring diagram-No. SS-380.1

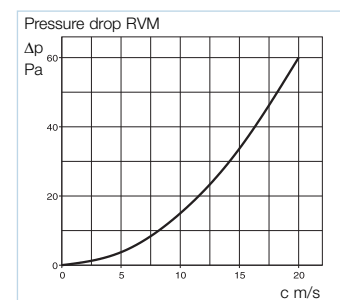
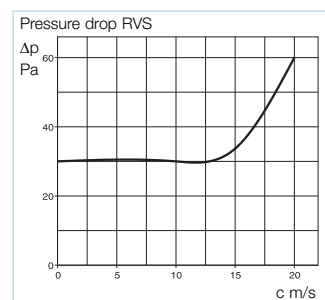
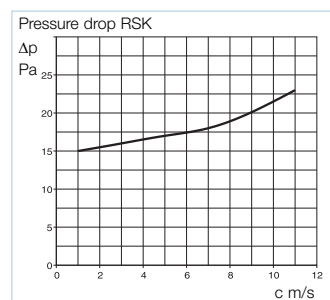
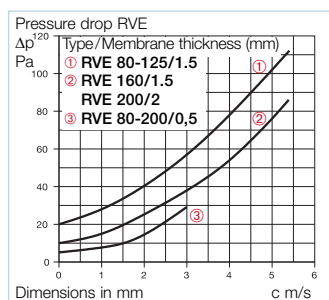
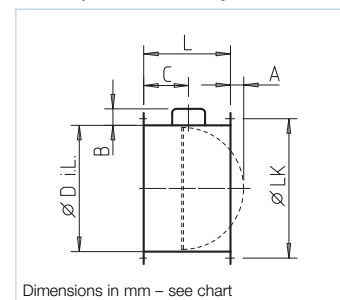
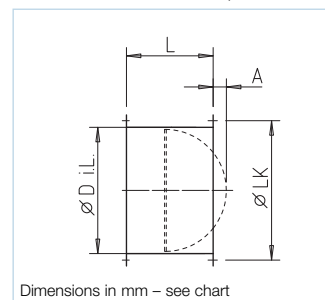
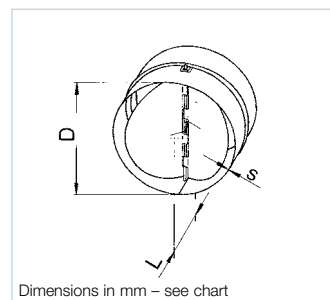
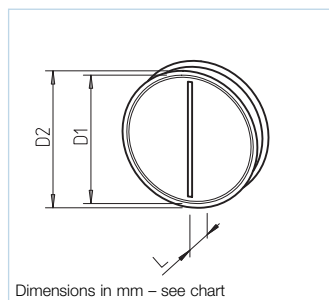
Type	Ref. No.	Dimensions in mm			Weight kg
		ø D1	ø D2	L	
RVE 80	2584	75	83	20	0.1
RVE 100	2587	95	103	20	0.1
RVE 125	2588	120	128	20	0.1
RVE 160	2589	155	163	20	0.2
RVE 200	2618	195	203	20	0.2

Type	Ref. No.	Dimensions in mm			Weight kg
		ø D	L	S	
RSKK 100*	5106	97	57	2.0	0.1
RSKK 125*	5107	121	57	2.0	0.1
RSK 150	5073	149	100	1.25	0.5
RSK 160	5669	159	100	1.25	0.5
RSK 180	5662	170	70	0.5	0.3
RSK 200	5074	199	140	1.25	1.0
RSK 250	5673	248,5	140	1.25	1.2
RSK 315	5674	312,5	140	1.25	1.5
RSK 355	5650	352	160	0.75	1.3
RSK 400	5651	397	160	0.75	1.4

* made of polymer (temp. max. +70 °C). Remaining models made of galvanised steel, flaps made of aluminium and springs made of stainless steel.

Automatic		Motorised ¹⁾		Dimensions in mm						Weight
Type	Ref. No.	Type	Ref. No.	ø D i.L.	A	B	C	L	ø LK	kg
RVS 225	2591	RVM 225	2575	225	-	95	130	300	259	3.3
RVS 250	2592	RVM 250	2576	250	-	95	130	300	286	3.7
RVS 280	2593	RVM 280	2577	280	-	95	130	300	322	4.2
RVS 315	2594	RVM 315	2578	315	-	95	130	300	356	4.6
RVS 355	2595	RVM 355	2579	355	-	95	130	300	395	5.3
RVS 400	2596	RVM 400	2580	400	-	95	130	330	438	7.5
RVS 450	2597	RVM 450	2581	454	15	95	130	330	487	10.7
RVS 500	2598	RVM 500	2582	504	40	95	130	330	541	12.0
RVS 560	2599	RVM 560	2583	560	65	95	130	330	605	16.4
RVS 630	2600	RVM 630	2609	630	115	150	225	400	674	21.0
RVS 710	2601	RVM 710	2610	710	155	150	225	400	751	28.0
RVS 800	2602	RVM 800	2614	800	200	150	225	420	837	37.8
RVS 900	2603	RVM 900	2615	900	250	150	225	420	934	42.3
RVS 1000	2604	RVM 1000*	2616	1000	300	150	225	420	1043	47.8

¹⁾RVM.. not suitable for explosion proof areas. * RVM 1000 only for horizontal through flow.



RAG



■ Rain repellent grille RAG

To cover intake and exhaust air openings in facades, made of polymer.

- Attractive, corrosion and weather resistant finish in light grey colour prevents rain, snow and insects from entering the system.
- Frame with louvres made of UV-resistant, impact resistant polymer. Mesh guard made of galvanised steel and coated with polymer. Mesh size 8 mm.
- Simple (also available as surface mounted or integrated in cladding) installation via dowels (mounting materials included). With adapter F.. (accessory see on product page 386) also suitable for circular ducting.

WSG



■ Weather proof grille WSG

In square or rectangular landscape format; to cover intake or exhaust air openings in facades.

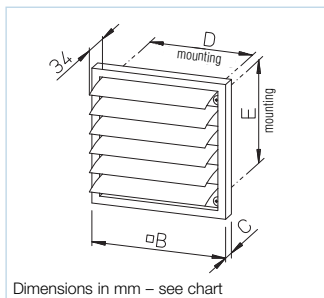
- Attractive finish protecting against rain, snow and vermin from entering the ducting. Suitable for square, rectangular and circular ducts.
- Solid construction made of aluminium extrusion profile, natural colour, anodised.
- Installation: Flush mounted or integrated in cladding.
- Fixed louvres with a pitch of 65 mm and mesh guard behind made of galvanised steel. Mesh size: 16 mm.

■ The rectangular models

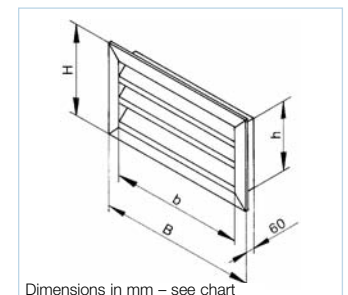
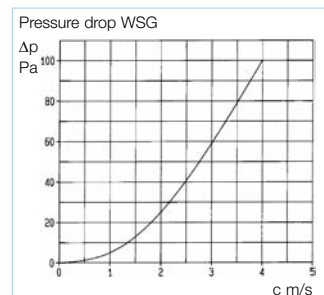
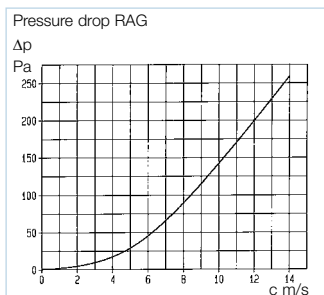
fit the Helios rectangular fan range and therefore can be fitted to rectangular ducting.

Type	Ref. No.	to fan nominal size mm	Dimensions in mm				Weight kg
			B	C	D	E	
RAG 200	0750	180/200	240	28	193	167	0.35
RAG 250	0751	225/250	290	28	243	217	0.45
RAG 315	0752	280/315	340	28	293	267	0.60
RAG 355	0753	355	390	28	343	317	0.75
RAG 400	0754	400	440	28	393	367	1.00
RAG 450	0755	450	490	30	443	417	1.35
RAG 500	0756	500	540	30	493	467	1.60

Type	Ref. No.	Fits to		Dimensions in mm		Weight kg
		fan nom. size	spigot in mm	□ b	□ B	
WSG 200	0117	180/200	□ 200	195	271	0.8
WSG 250	0118	225/250	□ 250	245	321	1.0
WSG 315	0119	280/315	□ 315	310	386	1.5
WSG 355	0120	355	□ 355	350	426	2.0
WSG 400	0121	400	□ 400	395	471	2.5
WSG 450	0122	450	□ 450	445	521	3.0
WSG 500	0123	500	□ 500	495	571	3.5
WSG 630	0124	600/630	□ 630	625	701	4.0
WSG 710	0125	710	□ 710	705	781	4.5



Type	Ref. No.	Fits to nominal size duct in mm	Dimensions in mm				Weight kg
			b	B	h	H	
WSG 30/15	0108	300 x 150	296	370	146	220	0.9
WSG 40/20	0109	400 x 200	396	470	196	270	1.2
WSG 50/25	0110	500 x 250	496	570	246	320	1.9
WSG 50/30	0111	500 x 300	496	570	296	370	2.0
WSG 60/30	0112	600 x 300	596	670	296	370	2.2
WSG 60/35	0113	600 x 350	596	670	346	420	2.4
WSG 70/40	0114	700 x 400	696	770	396	470	2.9
WSG 80/50	0115	800 x 500	796	870	496	570	4.0
WSG 100/50	0116	1000 x 500	996	1070	496	570	5.0



LGR



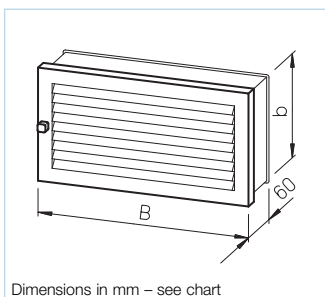
■ Grilles LGR

Rectangular with adjustable louvres.

- To cover rectangular intake or exhaust air openings especially for flat ducting.
- Centrally adjustable louvres allow the adjustment of air flow volume.
- Corrosion resistant design made of galvanised steel in a white epoxy finish.
- Includes mounting frame which allows universal installation. When installing in thin walled ducts it must be fixed with 4 screws.

■ Model range

Type	Ref. No.	Fits nominal duct openings in mm
LGR 250/150	0927	228 x 128
LGR 450/150	0928	428 x 128
LGR 350/230	0929	328 x 208
LGR 450/230	0930	428 x 208



Dimensions in mm – see chart

Type	Free cross section cm ²	Size in mm B	b	Wt. kg
LGR 250/150	160	250	150	0.6
LGR 450/150	320	450	150	1.0
LGR 350/230	430	350	230	1.2
LGR 450/230	575	450	230	1.5

QVK



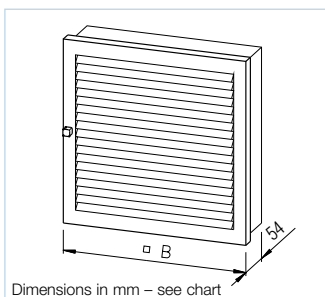
■ Grilles QVK

Square, with adjustable louvres.

- To cover intake or exhaust air openings with a square cross section.
- Centrally adjustable louvres allow the adjustment of air flow volume.
- Corrosion resistant design made of galvanised steel in a white epoxy finish.
- Includes mounting frame. Thereby suitable for flush mounted wall installation and without frame suitable for fixing via screws.

■ Model range

Type	Ref. No.	Fits up to fan nominal size mm
QVK 200	0791	200
QVK 250	0792	250
QVK 315	0793	315
QVK 355	0794	355
QVK 400	0795	400



Dimensions in mm – see chart

Type	Free cross section cm ²	Size in mm B	Weight kg
QVK 200	320	□ 250	0.8
QVK 250	490	□ 300	1.0
QVK 315	680	□ 350	1.3
QVK 355	920	□ 400	1.8
QVK 400	1190	□ 450	3.2

G 200–500



■ Grilles G fixed

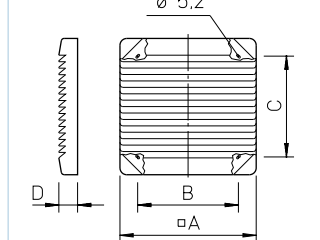
To cover vents on walls and ceilings.

- Made of high quality, UV-resistant and impact resistant polymer.
- Compact flat design. Simple fixing via mounting materials which are included.
- Some models obscure view into ducting when installed.

■ Model range

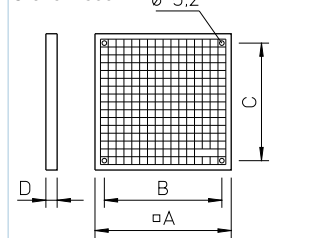
Type	Ref. No.	Colour	Fits to fan size in mm
G 200	0255	white	200
G 250	0256	white	250/280
G 315	0798	white	315
G 355	0799	white	355
G 400	0800	white	400
G 500	0801	grey	450/500

G 200 and 250



Dimensions in mm – see chart

G 315 – 500



Dimensions in mm – see chart

Type	Dimensions in mm					Weight kg
	□A	B	C	D	ø	
G 200	287	210	210	39	5.2	0.7
G 250	337	240	240	39	5.2	0.9
G 315	340	300	300	22	5.2	0.4
G 355	390	350	350	22	5.2	0.4
G 400	440	400	400	22	5.2	0.6
G 500	540	490	465	30	5.2	1.8

G 100, 160



■ Grilles G fixed

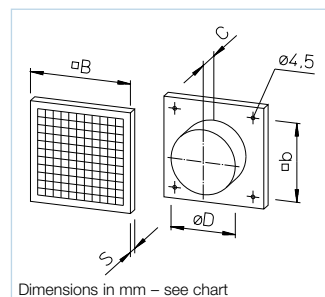
To cover and insert in circular vent openings.

- Made of high quality and impact resistant polymer. Corrosion resistant and therefore suitable for indoor and outdoor applications.
- Simple installation using rear connecting sockets with conical shape. Foam strip for air tight connection is included. Fixed installation is ensured via four corner holes. Egg grille inserts can easily be removed for cleaning even when fixed.

■ Model range

Type	Ref. No.	Nom. size in mm	Colour	Qty
G 100	0796	90/100	white	1
G 100 B	0782	90/100	brown	1
G 100 VE*	0828	90/100	white	12
G 160	0893	150/160	white	1

* low cost quantity pack



Dimensions in mm – see chart

Type	Dimensions in mm					Weight kg
	□b	□B	C	S	ø D	
G 100	90	140	28	15	100	0.8
G 160	130	190	40	24	150	0.3

LG..



■ **Supply/extract air grilles LG..**

- With pitched louvres to cover circular vent openings of \varnothing 80, 100, 125 and 160 mm.
- High quality and attractively designed cover.
- Pitched louvres obscure the view into ducting when installed.
- Made of corrosion resistant die casting aluminium, powder coated. Colour: white. LGK 80 made of high quality and impact resistant polymer, Colour: white.
- Simple installation in ducting using rear spigots fixing springs and sealing tape.

LTG



■ **Door grilles LTG**

- Fixed air transfer grilles for installation into door leaves.
- Attractive and unobtrusive design, made of high quality and impact resistant polymer in light grey or brown.
- With wide surroundings and pitched louvres to obscure view. Only 3 mm visible thickness.
- Two telescopic parts. Installation: One element of the grille to be pushed in from either side of the door. Pulled together and tightened by the fixing screws.

■ **Model range**

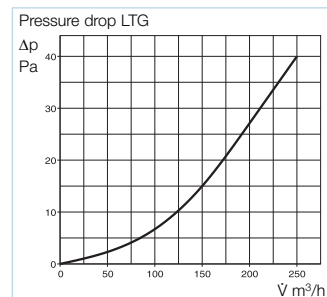
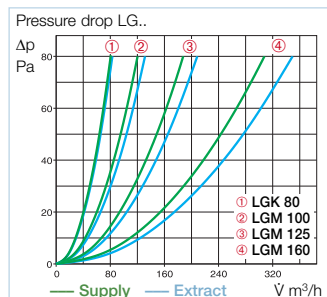
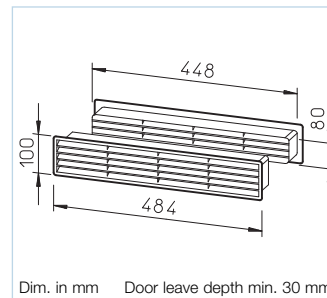
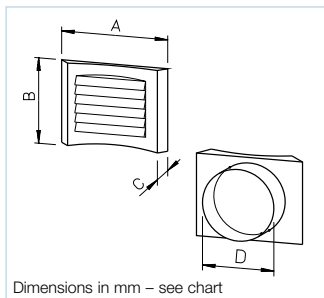
Type	Ref. No.	Weight in gram
LGK 80*	0259	120
LGM 100	0254	300
LGM 125	0258	450
LGM 160	0261	750

* made of polymer

Type	Dimensions in mm			
	A	B	C	D
LGK 80*	135	105	14	80
LGM 100	155	127	16	95
LGM 125	195	150	25	120
LGM 160	252	190	25	155

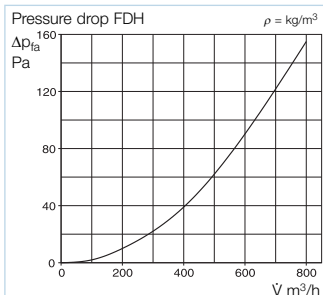
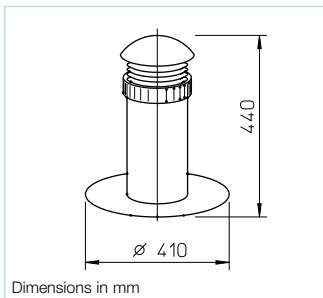
■ **Model range**

Type	Ref. No.	Colour
LTGW	0246	white
LTGB	0247	brown



Roof appliances

FDH

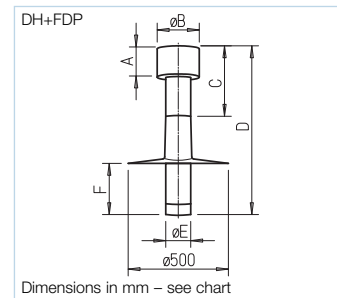
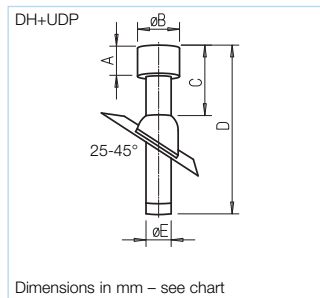
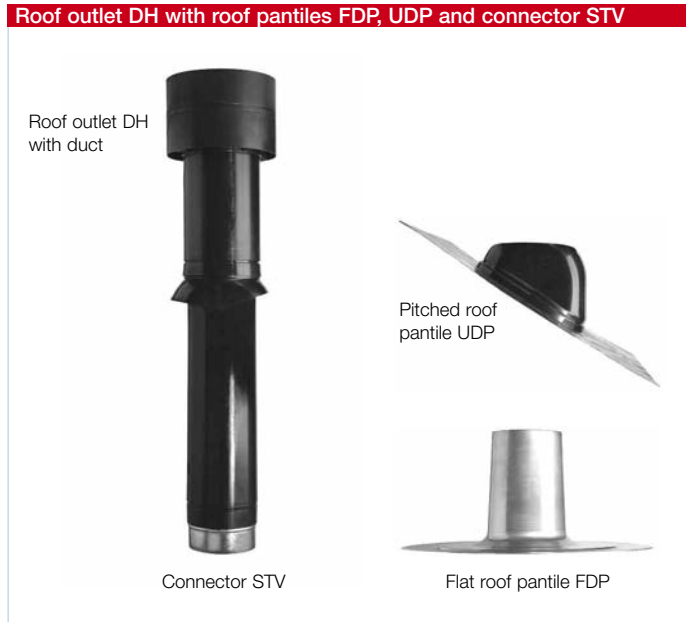


FDH Ref. No. 1477

Flat roof outlet

For connection of vent openings, up to 160 mm diameter, via the roof. Made of weather resistant polymer with a wide frame for fixing. Cold and heat resistant up to +200 °C. Cowl can be removed by insertion of a supplied ladder strip or insulation material (on site) to prevent the occurrence of condensation.

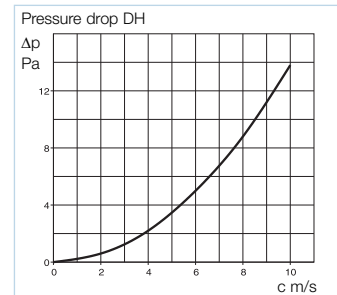
Roof outlet DH with roof pantiles FDP, UDP and connector STV



Roof outlet DH

The ideal solution for ventilation system, without static pressure drop. Made of weather resistant polypropylene, removable exhaust outlet with protection against driving rain. Connection with ducting by means of the connector STV (accessory), which obstructs the escape of condensation at the juncture. For the installation of the roof outlet, the following roof pantiles should be used:

- **Roof pantile UDP**, fits almost to every brick model, in black or brick-red. For roofs with inclinations of 25–45°.
- **Flat roof pantile FDP** made of aluminium for flat roofs.



Model range: Outlet, pantile, connector to be ordered separately.

ND mm	Roof outlet*		Roof pantile*, lead		Roof pantile for flat roof, alu.		Connector	
	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
100	DH 100 R	2014	UDP 100 R	2020	FDP 100	2024	STV 100	2026
	DH 100 S	2015	UDP 100 S	2021				
125	DH 125 R	2016	UDP 125 R	2020	FDP 125	2013	STV 125	2027
	DH 125 S	2017	UDP 125 S	2021				
160	DH 160 S	2019	UDP 160 S	2023	FDP 160	2025	STV 160	2028

* R = Brick-red, S = Black

Dimensions: Roof outlet DH with roof pantile UDP or FDP

ND mm	Dimensions in mm					
	A	ø B	C	D	ø E	F
100	120	170	320	785	100	225
125	140	210	335	825	125	255
160	180	265	365	1113	160	345

Roof and wall appliances

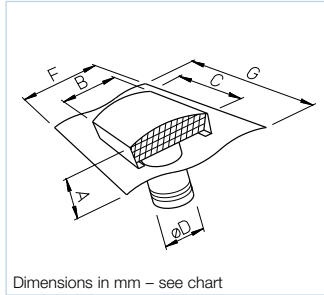
DDF

SDH

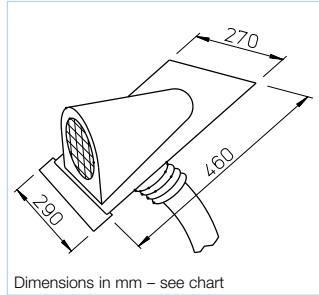
TMK

Universal roof appliances

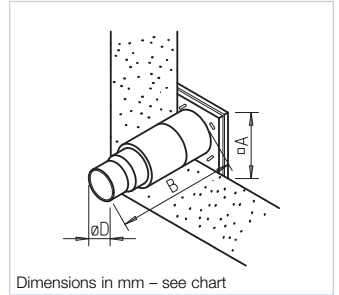
For air inlet/outlet or for connection to ducting of \varnothing 125–400 mm. Cowl brick-red or slate grey as optional. A large leaded sheet allows adaptation to all tile profiles on pitched roofs. Also suitable for flat roofs. Carrier plate for fixing. All remaining parts made of galvanised steel.



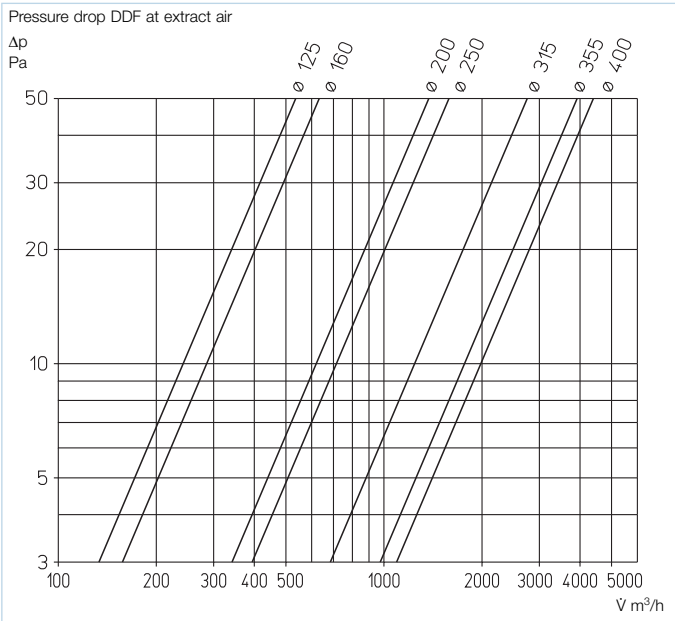
Dimensions in mm – see chart



Dimensions in mm – see chart



Dimensions in mm – see chart


SDH

Ref. No. 1476

Pitched roof outlet

Universal design, suitable for most tile profiles. The large leaded sheet allows adaptation to different tile profiles. Cowl and mounting plate made of galvanised steel. Flexible polymer tube with stepped spigot for connection of all duct diameters from 70 – 115 mm. Duct fixing via supplied hose clamp.

Telescopic wall sleeve

For wall applications of supply and extract air ducting. Two telescopic polymer sleeves can be adapted to suit the wall thickness with air stream operated outdoor shutter or grille. Internal spigot suitable for connection of ducting. TMK 125/150 with stepped spigot in \varnothing 125, 150 and 160 mm. TMK 100 for duct \varnothing 100 mm.

Model range and dimensions

Type	TMK 100	TMK 125 / 150
Ref. No.	0844	0845
Dim. A mm	140 □	190 □
B max.	500	500
\varnothing D	100	125/150/160

Model range and dimensions DDF

Type ¹⁾	Ref. No.	Type ²⁾	Ref. No.	Dimensions in mm						Weight kg
				A	B	C	\varnothing D	F	G	
DDF 125	1964	DDF 125 G	1848	124	200	328	125	500	400	4
DDF 160	1965	DDF 160 G	1849	135	248	396	160	500	400	4
DDF 200	1966	DDF 200 G	1850	185	333	495	200	600	600	8
DDF 250	1967	DDF 250 G	1851	185	333	495	250	600	600	8
DDF 315	1968	DDF 315 G	1852	197	420	666	315	600	600	9
DDF 355	1969	DDF 355 G	1853	350	550	900	355	900	750	17
DDF 400	1970	DDF 400 G	1854	350	550	900	400	900	750	17

¹⁾ Outlet brick-red painted (RAL 8012)

²⁾ Outlet slate grey painted (RAL 7024)



TS

T-pieces
made of galvanised steel.

Type	Ref. No.	Nominal \varnothing mm
TS 100	1479	100
TS 125	5720	125
TS 160	5805	160



RVB

Duct connector
made of galvanised steel.

Type	Ref. No.	Nominal \varnothing mm
RVB 80	5993	80
RVB 100	5994	100
RVB 125	5995	125
RVB 160	5987	160
RVB 200	5997	200
RVB 250	5998	250
RVB 315	5999	315
RVB 355	5991	355
RVB 400	5992	400



RZ

Reducers
made of galvanised steel or polymer.*

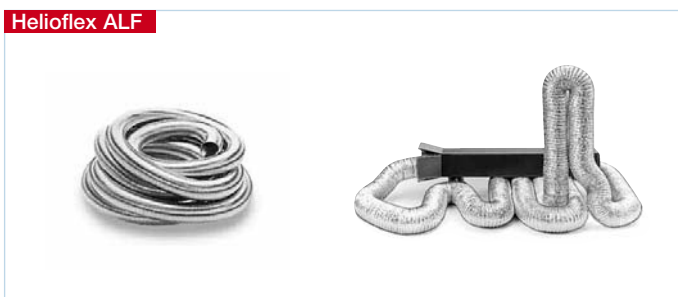
Type	Ref. No.	Nominal \varnothing mm	Reduced \varnothing mm
RZ 100/80*	5223	100	80
RZ 125/100*	5222	125	100
RZ 160/125	5729	160	125
RZ 160/150*	7684	160	150
RZ 200/160	5710	200	160



SCH

Hose clamps
A steel band with a snap on tension lock. Supplied in quantities of 10 pieces.

Type	Ref. No.	Nominal \varnothing mm
SCH 80/100	5722	80 – 115
SCH 125/160	5723	115 – 165
SCH 200	5724	165 – 215
SCH 250	5725	215 – 265
SCH 315/355	5727	265 – 375
SCH 400	5728	375 – 425



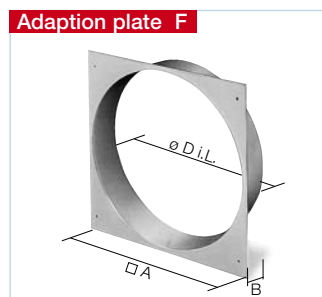
Helioflex ALF

■ **Flexible ducting for universal use in the most industrial, commercial and domestic applications such as general ventilation and air-conditioning technology, outlets of cooker hoods and tumble dryers etc.**

- **Special characteristics**
 - Avoids storage, transportation and capacity issues.
 - A carton of approx. 60 cm length incorporates 10 m ducting.
 - Optimal in handling and finish.
 - Forming almost any bend.
 - Super elastic, can be bent repeatedly with no fatigue of material or leakage.
 - Self extinguishing in the event of fire.

- **Specification**
 - Two layers of polyester foil, aluminium coated.
 - Incorporated spring steel spiral for rigidity.
 - No toxic fumes in event of fire.
 - Temperature range from -20 to $+100$ °C.
 - Maximum pressure: 2500 Pa
 - Maximum allowed air flow speed: 20 m/s.

Type	Ref. No.	Nominal \varnothing mm	Inner \varnothing mm	Weight for 10 m	Contents per unit
ALF 80	5711	80	80	1.2	10 m
ALF 100	5712	100	102	1.4	10 m
ALF 125	5713	125	127	1.9	10 m
ALF 160	5757	160	160	2.5	10 m
ALF 200	5715	200	203	4.8	10 m
ALF 250	5716	250	254	5.3	10 m
ALF 315	5717	315	315	9.3	10 m
ALF 355	5758	355	356	9.7	10 m
ALF 400	5759	400	406	11.2	10 m



Adaption plate F

- **Adaption plate F to square shutters for circular ducting/fans.**
 - Use: By using this adaptor, the shutter ranges VK, RVK, EVK and RAG can be mounted directly to circular ducting or fan spigots (HQ../HW..).
 - Installation: The four holes in the corners match the fixing points of the shutters. The circular spigot fits over the fan's casing and is fixed with screws.
 - Material: Made of galvanised steel.

Model range

Type	Ref. No.	Shutter size cm	Dimensions in mm		
			\square A	B	\varnothing D
F 200	0804	20	240	55	210
F 250	0805	25	290	55	259
F 315	0807	30	340	55	324
F 355	0808	35	390	55	364
F 400	0809	40	440	55	409
F 450	0810	45	490	55	460
F 500	0811	50	540	55	510
F 560/630	0257	63	685	55	570
F 630 ¹⁾	0813	63	685	55	640
F 630 ²⁾	0826	63	685	55	630
F 710 ¹⁾	0824	71	785	55	717
F 710 ³⁾	0825	71	785	55	710

¹⁾ For HQ ²⁾ For HW ³⁾ For AVD DK



AS

AS 100 Ref. No. 5224
Connection spigot
square flange plate with circular spigots, made of polymer. To connect ducting (ND 100 mm) on flat surfaces.

The innovative SVE elements have low cost solutions for:

- Air flow volume adjustment and optimised distribution in ducting system of centralised ventilation units.
- Sound level reduction through absorption of air flow and fan noises.

In order to increase the sound level reduction, several elements can be mounted in series, one after the other. Two elements virtually doubling the insertion loss.

Performance figures and insulation standards

The diagrams give an overview about air flow volumes and pressure levels according to the number of vent holes. The red lines and dB(A) values show the noise levels of elements (L_{WA}). The sound power levels for the related frequency (noise level of SVE elements) are available as sum levels in the installation manuals and operating instructions. The values on the table give the insulation standard D_e for the corresponding frequency.

Material

- Fire retardant foam material with protection against mould.
- Meets the requirements of the emission category M1.
- No harmful toxic fumes in event of fire.
- Complies with fire class B.

Advantages

- Cost effective solution for prevention of noise transfer in ventilation ducting systems.
- Simple installation through insertion into the ducting.
- Simple adjustment thanks to pre-punched holes.
- Minimises the system costs by using low cost ducting.
- Can be used with all types of dampers, grilles and valves.
- Can be easily cleaned by a vacuum cleaner.

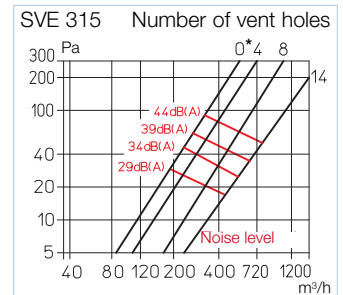
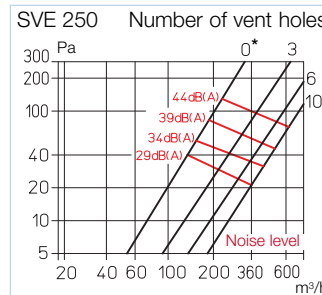
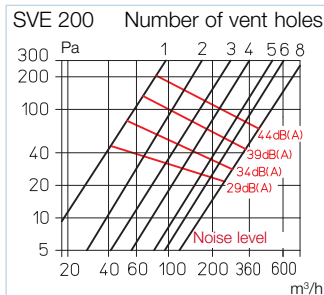
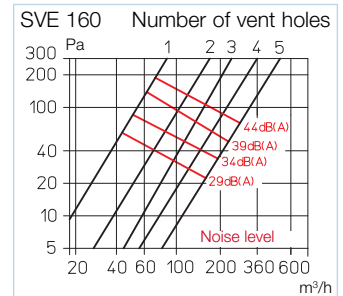
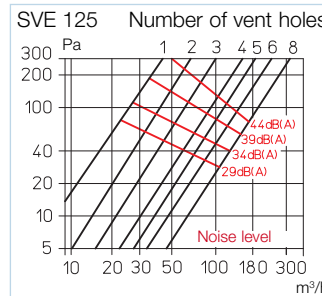
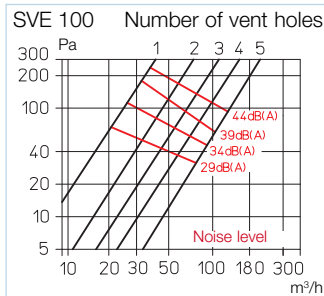
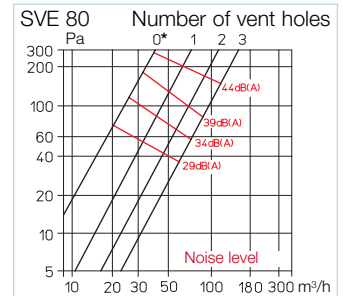
Delivery

Each element is delivered in a separate poly-bag.

Installation

SVE to be inserted into the ducting and a valve grille or exhaust element can be used as wall termination. By removing the elliptical plugs, the air flow can be adjusted to the desired volume in accordance with the diagrams above.

SVE



Ordering data						Insulation standard D_e dB in Hz							
Type	Ref. No.	for NW (mm)	Thick. in mm	Weight in g	Vent holes	125	250	500	1000	2000	4000	8000	
SVE 80	8309	80	50	32	0	9.0	5.0	11.5	14.5	18.0	20.0	24.0	
					1	4.5	3.5	7.5	11.5	10.5	17.5	21.0	
					3	4.5	2.5	5.0	8.0	9.5	13.0	15.5	
SVE 100	8310	100	50	60	1	7.0	4.0	9.5	12.5	16.0	17.5	22.0	
					3	3.5	2.5	5.5	8.5	8.5	14.5	19.0	
					5	2.5	1.5	3.5	6.0	6.5	12.0	16.5	
SVE 125	8311	125	50	70	2	6.0	5.0	5.0	12.0	12.5	19.0	21.0	
					5	2.0	2.5	3.0	8.5	8.0	13.5	19.0	
					8	1.5	1.5	2.5	6.0	5.0	11.0	17.5	
SVE 160	8312	160	50	140	1	7.0	4.0	9.5	12.5	16.0	17.5	22.0	
					3	3.5	2.5	5.5	8.5	8.5	14.5	19.5	
					5	2.5	1.5	3.5	6.0	6.0	12.0	16.5	
SVE 200	8313	200	50	190	2	6.5	2.5	5.5	13.0	14.0	18.0	15.5	
					5	3.0	1.5	2.5	9.5	8.5	14.0	14.5	
					8	2.0	1.0	1.5	7.0	7.0	13.0	13.5	
SVE 250	8314	250	75	480	0*	4.0	3.0	7.0	13.0	18.0	18.0	17.0	
					5	2.0	2.0	5.0	9.0	13.0	15.0	15.0	
					10	2.0	1.0	3.0	7.0	11.0	14.0	13.0	
SVE 315	8315	315	75	690	0*	5.0	3.0	6.0	12.0	15.0	16.0	18.0	
					8	3.0	2.0	3.0	8.0	12.0	13.0	15.0	
					14	1.0	1.0	2.0	7.0	8.0	10.0	13.0	

* Minimum air flow volume ensured by lateral recesses



Automatically achieving constant air flow volume the VKH is an easy and low cost solution that ensures a constant air flow volume desired for a wide range of pressures.

■ Operation

Simply insert the automatic volume stabiliser in the duct or duct components, either supply or extract. The VKH gives the preset air volume over a differential pressure range of approx. 50–200 Pa.

■ Advantages

- Measuring and balancing on building site omitted; thereby the system can be commissioned faster.
- Secure and simple design.
- Ensuring a constant air flow volume, even at low counter pressure.

- Easy change of air flow volume for each diameter of VKH. Thereby the other system inlets and outlets are not affected.

- Automatic adjustment to give constant air flow volume over a wide pressure range.

- Quick installation.

- Made of flame retardant polymer, class B1 DIN 4102-1.

■ Function

- With an increasing pressure level the air flow velocity increases. The pressure against the butterfly valve decreases the opening cross section and keeps the air flow volume constant.

- At the minimum static pressure level the butterfly valve opens the cross section completely.

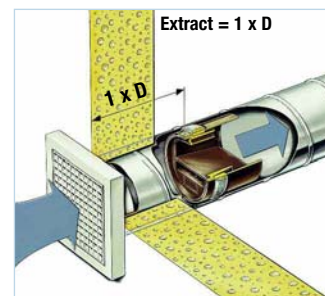
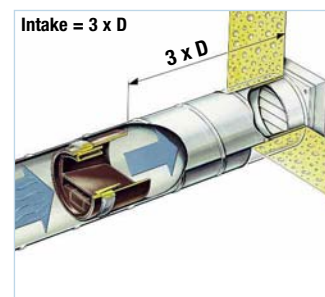
- The guiding cylinder is responsible for an equal movement of flaps and controls therefore the relation between pressure and air flow volume.

■ Installation

- Simple insertion in vertical or horizontal ducts, matching nominal duct diameter.

- The direction shown for the air flow must be considered.

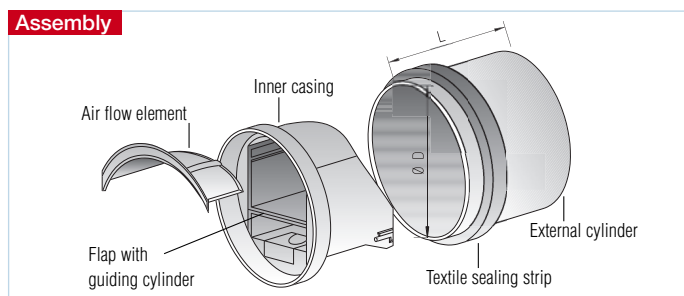
- Perfect fitting and tightness is ensured due to textile sealing strip.



Model range – Type	Dimensions in mm			Air flow range
	ø nom. duct	ø D	L	m³/h
VKH 80/..	80	76	60	15–45
VKH 100/..	100	96	60	15–90
VKH 125/..	125	120	60*	15–120
VKH 160/..	160	155	120	120–300
VKH 200/..	200	195	120	210–500

*VKH 125/120: 90 mm

Assembly



Selection chart – VKH models

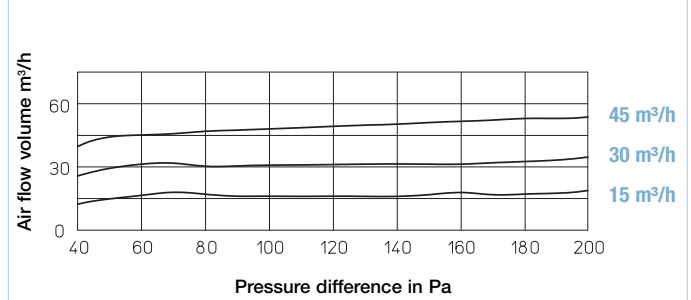
Air flow vol. m³/h	Duct diameter mm				
	80	100	125	160	200
15	VKH 80/15	VKH 100/15	VKH 125/15		
30	VKH 80/30	VKH 100/30	VKH 125/30		
45	VKH 80/45	VKH 100/45	VKH 125/45		
60		VKH 100/60	VKH 125/60		
75		VKH 100/75	VKH 125/75		
90		VKH 100/90	VKH 125/90		
120			VKH 125/120	VKH 160/120	
150				VKH 160/150	
180				VKH 160/180	
210				VKH 160/210	VKH 200/210
240				VKH 160/240	VKH 200/240
270				VKH 160/270	VKH 200/270
300				VKH 160/300	VKH 200/300
350					VKH 200/350
400					VKH 200/400
450					VKH 200/450
500					VKH 200/500

ø 80 mm nominal duct diameter

Ref. No.	Type	Air flow volume* m³/h	Noise level L _w in dB(A)			
			50 Pa	100 Pa	150 Pa	200 Pa
2060	VKH 80/15	15	25	29	32	35
2061	VKH 80/30	30	26	31	35	38
2062	VKH 80/45	45	27	33	36	39

* Tolerance range (50–200 Pa) for nominal air flow volume +/- 10%.

VKH 80/..

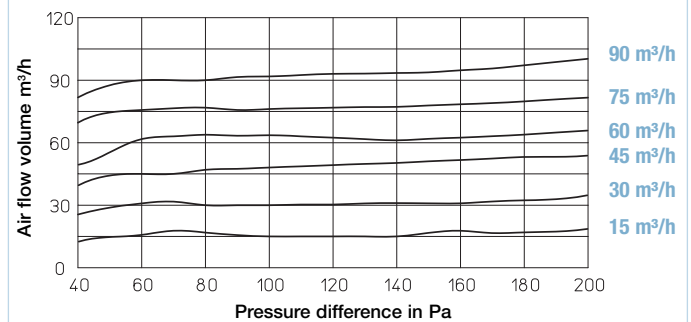


ø 100 mm nominal duct diameter

Ref. No.	Type	Air flow volume* m³/h	Noise level L _w in dB(A)			
			50 Pa	100 Pa	150 Pa	200 Pa
2063	VKH 100/15	15	25	29	32	35
2064	VKH 100/30	30	26	31	35	38
2065	VKH 100/45	45	27	33	36	39
2066	VKH 100/60	60	32	37	39	42
2067	VKH 100/75	75	32	37	40	42
2068	VKH 100/90	90	32	38	41	44

* Tolerance range (50–200 Pa) for nominal air flow volume +/- 10%.

VKH 100/..

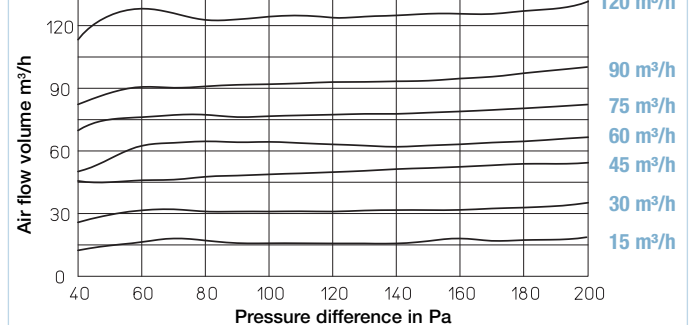


ø 125 mm nominal duct diameter

Ref. No.	Type	Air flow volume* m³/h	Noise level L _w in dB(A)			
			50 Pa	100 Pa	150 Pa	200 Pa
2069	VKH 125/15	15	25	29	32	35
2070	VKH 125/30	30	26	31	35	38
2071	VKH 125/45	45	27	33	36	39
2072	VKH 125/60	60	32	37	39	42
2073	VKH 125/75	75	32	37	40	42
2074	VKH 125/90	90	32	38	41	44
2075	VKH 125/120	120	30	34	39	42

* Tolerance range (50–200 Pa) for nominal air flow volume +/- 10%.

VKH 125/..

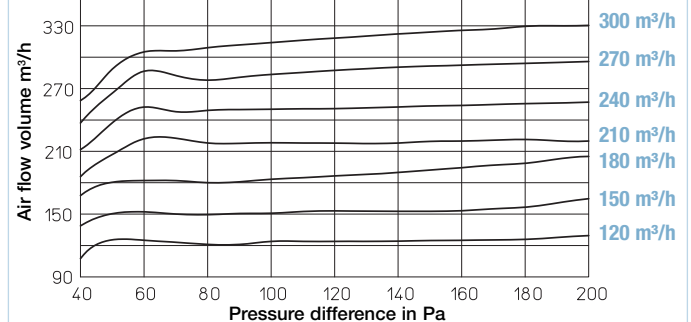


ø 160 mm nominal duct diameter

Ref. No.	Type	Air flow volume* m³/h	Noise level L _w in dB(A)			
			50 Pa	100 Pa	150 Pa	200 Pa
2078	VKH 160/120	120	30	34	39	42
2079	VKH 160/150	150	33	37	41	45
2080	VKH 160/180	180	34	40	44	47
2081	VKH 160/210	210	34	40	42	44
2082	VKH 160/240	240	35	41	44	47
2083	VKH 160/270	270	37	43	45	49
2084	VKH 160/300	300	38	45	48	51

* Tolerance range (50–200 Pa) for nominal air flow volume +/- 10%.

VKH 160/..

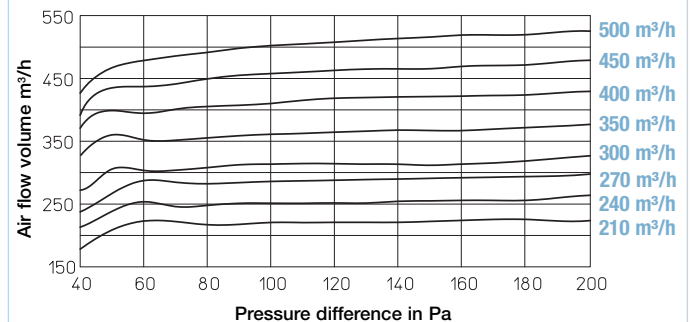


ø 200 mm nominal duct diameter

Ref. No.	Type	Air flow volume* m³/h	Noise level L _w in dB(A)			
			50 Pa	100 Pa	150 Pa	200 Pa
2085	VKH 200/210	210	34	40	42	44
2086	VKH 200/240	240	35	41	44	47
2087	VKH 200/270	270	37	43	45	49
2088	VKH 200/300	300	33	37	42	45
2089	VKH 200/350	350	35	40	44	47
2090	VKH 200/400	400	37	42	45	50
2091	VKH 200/450	450	38	44	46	51
2092	VKH 200/500	500	39	46	48	53

* Tolerance range (50–200 Pa) for nominal air flow volume +/- 10%.

VKH 200/..



Extract, supply air elements and valves

Extract air elements have an important position in modern central ventilation systems. Together with the fan they create the base for operation of the extraction system. The new generation of the innovative Helios extract elements AE meet this need with variable air flow volumes or with time, motion and humidity control. Page 375 on

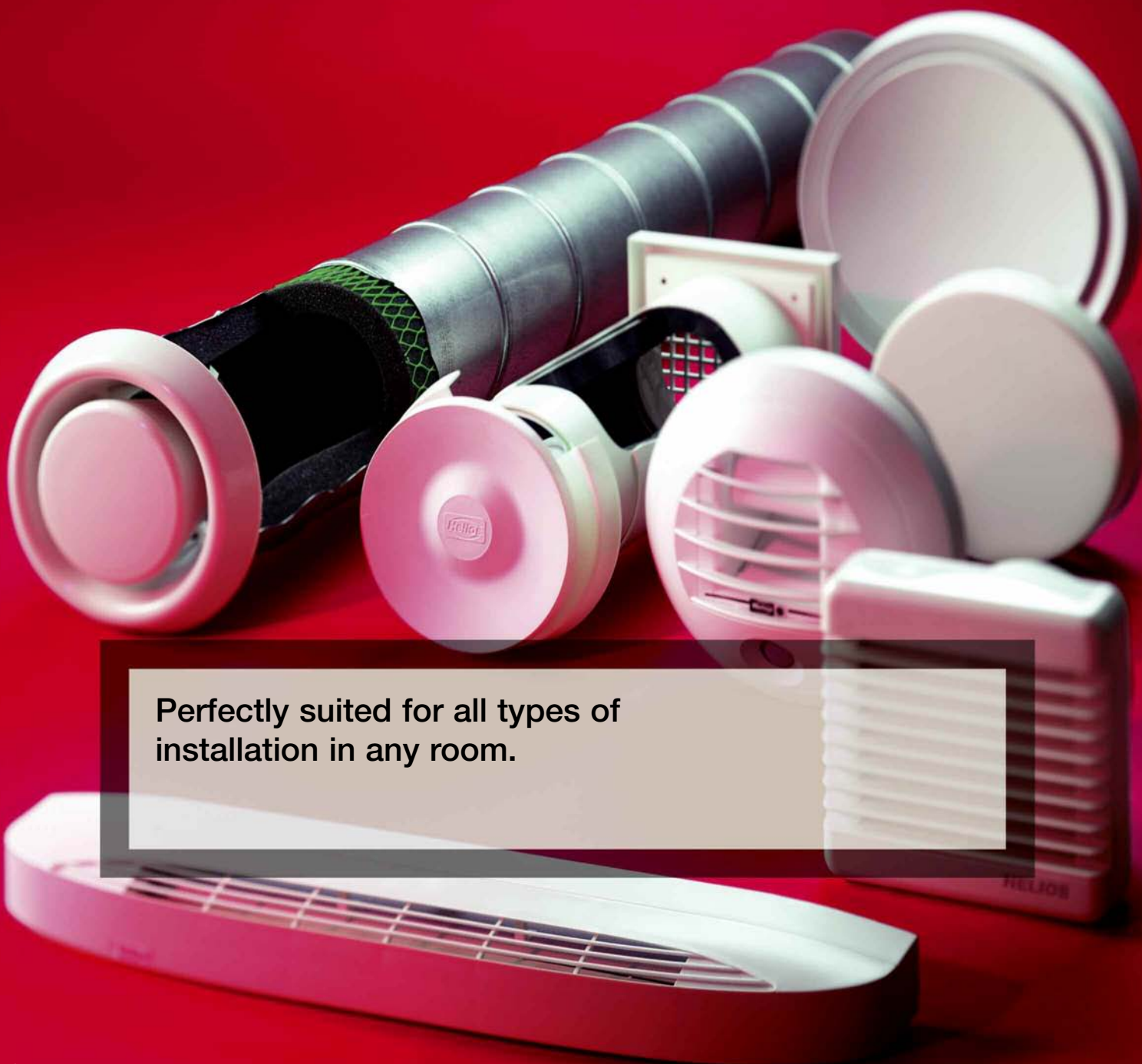
Filter elements collect grease and dust deposits on extract air elements and valves as well as in ducting. Simple and cost effective. Page 378

The ETS attenuators reduce the sound transmission of ducting and can be used as cross talk attenuators. Page 379

Conventional extract and supply valves are suitable for simple commercial and industrial applications. Page 380

Outside air flow elements
The controlled input of outside air is vital for ventilation systems, that comply with the energy conservation regulations (EnEV) or DIN 18017-3.

An ideal air extract system termination outside the building can be achieved effectively using the outside air elements (page 384). The quantity of elements, their size and the position may be specified to suit the required air flow volume without back-draught. In accordance with DIN 1946-6, the size of the outside air elements must be such that the pressure difference level between the room and outside air must not be less than 8 Pa.



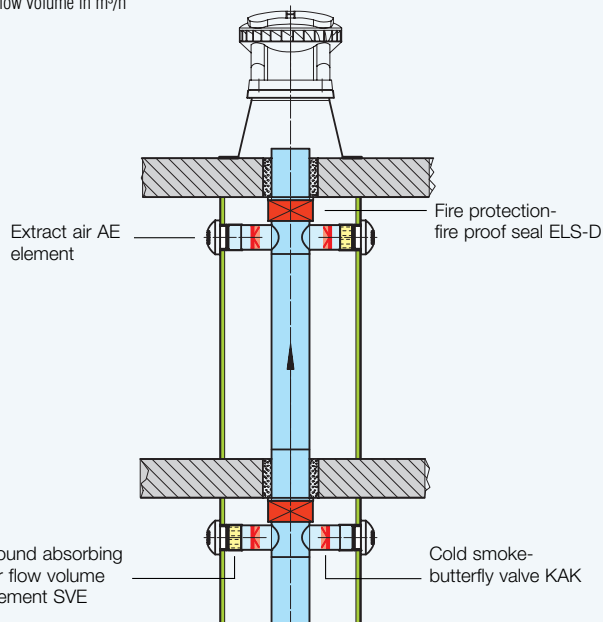
Perfectly suited for all types of installation in any room.

Selection

Use the chart below to select the correct extract element where the selection depends on volume and application. There is a choice of element designs, with constant air flow volume with and without on demand ventilation, with timer, motion or humidity controlled operation.

Bathroom		WC		Kitchen	
Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
Constant air flow volume controller, self adjusting					
AE 45*	2031	AE 30*	2030	AE 75*	2033
Two air flow volumes (trickle and boost ventilation), constant air flow control, self adjusting					
AE GB 20/75*	2036	AE GB 15/30*	2035	AE GB 45/120*	2038
Two air flow volumes with electrical timer (without constant air flow volume control)					
AE GBE 30/60*	2047	AE GBE 15/30*	2044	AE GBE 45/120*	2048
Two air flow volumes with electrical timer and motion sensor, page 377					
		AE B 15/30*	2055	(without constant air flow control)	
Humidity controlled with variable, limited air flow volume, page 377					
AE Hygro 10/45*	2049				
Humidity controlled with electrically controlled on demand ventilation, page 377					
AE Hygro GBE 5/40/75*	2053			AE Hygro GBE 10/45/120*	2054
With filter and air flow volume adjustment					
AE FV 125	9478			AE FV 125	9478

* Air flow volume in m³/h



Acoustic data for extract air elements of models AE..

Following sound levels are relevant for the extract air elements:
 – Sound levels by continuous air flow (L_w in dB (A))
 – Sound absorption between ducting system and ventilated room ($D_{n,e}$ in dB (A)).

This sound data is given in the model chart. Measured according to the regulation EN 13141.

Sound absorption can be increased by using attenuators "AESD" or "AESE" (accessory). To be positioned and simply inserted behind the extract air element.

Cross talk attenuators are available for further noise reduction (page 379).

Operation

Extract air elements with self adjusting constant air flow volume controller are the ideal components for extraction of kitchen, bathroom and toilet for central ventilation systems in houses.

Advantages

- Constant air flow volume between 40 and 160 Pa.
- No need for adjustment or balancing of the system.
- Attractive design.
- High quality construction in an aerodynamic shape with low sound levels.
- The cover and optimised height of the inlet nozzle offer an airtight seal against the wall.
- Easy cleaning without a risk of air flow volume change.

Design

Extract air element with mounting ring, ready to install, made of white polymer to be inserted in ducts with a nominal diameter of 125 mm. A rubber seal on the mounting ring to avoid leakage. As a result, the discolouration of decor is minimised.

Function

Effects constant air flow volume under different pressure conditions between 40 and 160 Pa.

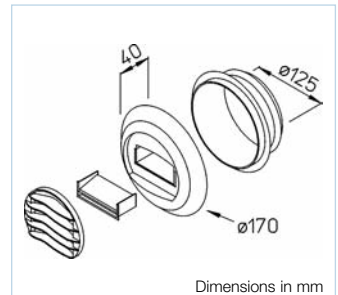
Delivery

Supplied as one element incl. mounting ring in separate Polybag.

Accessory

- Attenuator AESD to be inserted behind the element. (No. 2059)
- Filter element VFE 70 (No. 2552).

AE

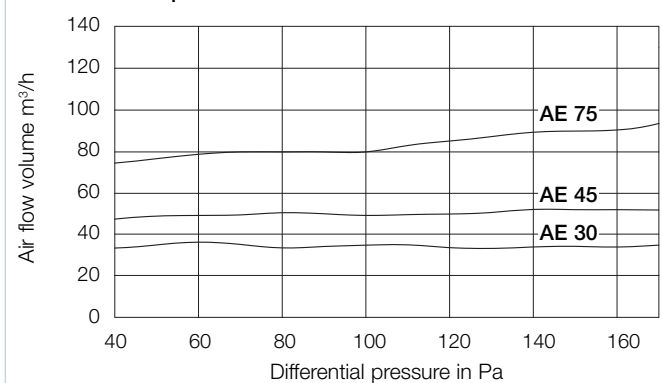


Dimensions in mm

Installation

Suitable for wall and ceiling installation. The mounting ring, to be fixed via screws on duct or wall openings and the extract air element to be inserted. For an equal inlet and outlet air flow a straight duct of at least 300 mm is required.

Air flow volume performance curve AE..



Ordering data		Sound level L_w in dB (A)			Attenuation $D_{n,e}$ in dB (A)	
Type	Ref. No.	100 Pa	130 Pa	160 Pa	without AESD	with AESD
AE 30*	2030	30	33	36	60	64 ¹⁾
AE 45*	2031	33	34	37	56	63 ¹⁾
AE 75*	2033	35	36	39	57	64 ¹⁾

¹⁾ Equipped with attenuator AESD (accessory) * Air flow volume in m³/h

■ Operation

Extract air elements with two air flow volumes (trickle and boost) with self adjusting constant air flow volume controller are the ideal components for extraction of kitchen, bathroom and toilet for central ventilation systems in houses.

■ Advantages

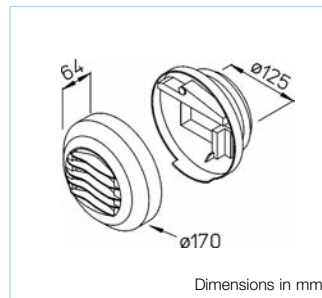
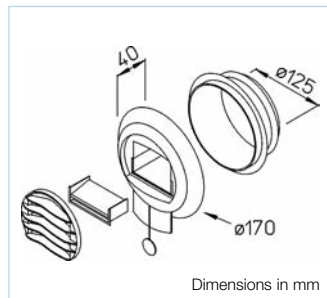
- Two air flow volumes for trickle and boost ventilation.
- Constant air flow volume between 40 and 160 Pa.
- Adjusting and balancing of the system is not necessary.
- Attractive design.
- High quality construction in an aerodynamic shape with low sound levels.
- The cover and optimised height of the inlet nozzle offer an airtight seal against the wall.
- Easy cleaning without a risk of air flow volume change.

■ Function AE GB

The self adjusting air flow volume limiter keeps the adjusted nominal air flow volume (between 40 and 160 Pa) constant (see performance curve). Two control steps allow for trickle and boost ventilation. On/off switching of high air flow volumes manually via pull cord.

■ Design (AE GB, AE GBE)

Extract air element with mounting ring, ready to install, made of white polymer to be inserted in ducts with nominal diameter of 125 mm. The rubber seal on the mounting ring avoids leakage of air. As a result, dis-colouration of the decor is minimised.



■ Installation (AE GB, AE GBE)

AE GB for wall, AE GBE also suitable for ceiling installation. The mounting ring, to be fixed via screws on duct or wall openings and the extract air element to be inserted. For an equal inlet and outlet air flow a straight duct of at least 300 mm is required.

■ Accessory

- Attenuator:
AE GB: AESD, Ref. No. 2059
AE GBE: AESE, Ref. No. 2058
- Filter element
AE GBE: VFE 90, Ref. No. 2553 obstructs grease and dust deposits on extract air elements and in ducting.

■ Operation

Extract air device with electric timer for two air flows (trickle and boost ventilation). Ideal for extraction of kitchen, bathroom and toilet for central ventilation systems in houses.

■ Advantages

- Two air flow volumes for trickle and boost ventilation e.g. via on site switch.
- Adjusting and balancing of the system is not necessary.
- Attractive design.
- High quality construction in an aerodynamic shape with low sound levels.
- The cover and optimised height of the inlet nozzle offer an airtight seal against the wall.
- Easy cleaning without a risk of air flow volume change.

■ Function AE GBE

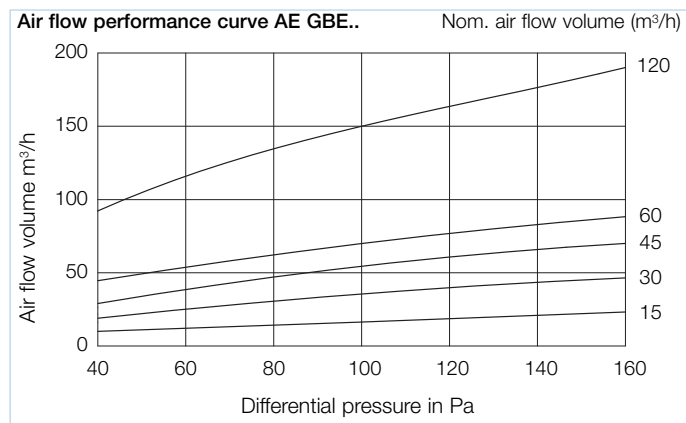
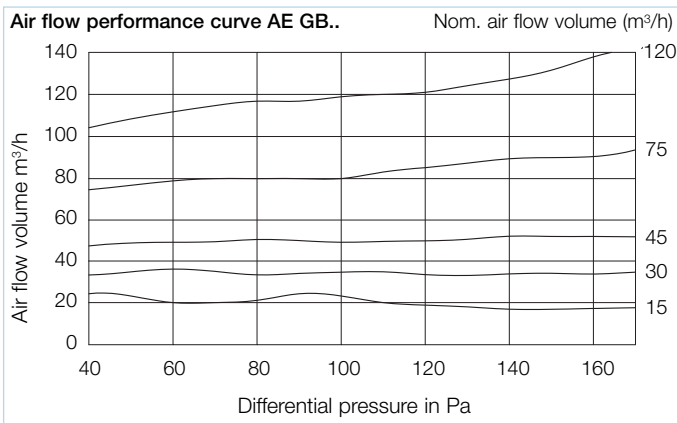
The trickle air flow is increased to the higher level of air flow via a switch on-site (by others). After 30 minutes – regardless of the position of the switch on-site - it automatically returns to “trickle ventilation”.
230 V, AC 0,5 / 3 W, IP X1

■ Delivery

Supplied as one element incl. mounting ring in separate Poly-bag.

■ On request

Type AE FV 125
Extract air element filter and air flow volume adjustment
Ref. No. 9478



Ordering data		Sound level ²⁾ L _w in dB (A)			Attenuation D _{n,e} in dB (A)	
Type	Ref. No.	100 Pa	130 Pa	160 Pa	without AESD	with AESD
AE GB 15/30*	2035	27	31	34	60	64 ¹⁾
AE GB 20/75*	2036	27	30	33	57	64 ¹⁾
AE GB 45/120*	2038	33	34	37	56	63 ¹⁾

¹⁾ Equipped with attenuator AESD (accessory) ²⁾ Values are valid for trickle ventilation
* Air flow volume in m³/h

Ordering data		Sound level ²⁾ L _w in dB (A)			Attenuation D _{n,e} in dB (A)	
Type	Ref. No.	100 Pa	130 Pa	160 Pa	without AESE	with AESE
AE GBE 15/30*	2044	30	33	36	60	64 ¹⁾
AE GBE 30/60*	2047	27	30	33	57	64 ¹⁾
AE GBE 45/120*	2048	29	32	35	57	62 ¹⁾

¹⁾ Equipped with attenuator AESE (accessory) ²⁾ Values are valid for trickle ventilation

Operation

Extract air device with motion sensor and timer for two air flows (trickle and boost ventilation). Ideal for extraction of kitchen, bathroom and toilet for central ventilation systems in houses.

Advantages

- Two air flow volumes for trickle and boost ventilation via integrated motion sensor.
- Adjusting and balancing of the system is not necessary.
- Attractive design.
- High quality construction in an aerodynamic shape with low sound levels.
- The cover and optimised height of the inlet nozzle offer an airtight seal against the wall.
- Easy cleaning without a risk of air flow volume change.

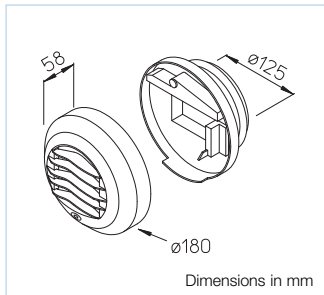
Design

Extract air element with mounting ring, ready to install, made of white polymer to be inserted in ducts with nominal diameter of 125 mm. The rubber seal on the mounting ring avoids air leakage. As a result, discolouration of the decor is minimised.

Function AE B

The trickle air flow is to be increased to on demand air flow via an integrated motion sensor. After 30 minutes it automatically returns to "trickle ventilation". Electrical supply through three batteries (on site, model LR 03, 1,5 V, operational life span approx. 18 months).

AE B – with motion sensor



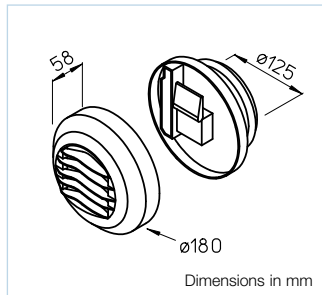
Delivery and installation

See the specification of model AE GB...

Accessory

- Attenuator AESE to be inserted behind the element (Ref. No. 2058).

AE Hygro... humidity controlled



Design, delivery, installation

See the specification of model AE GB...

Accessory

- Attenuator AESE to be inserted behind the element (Ref. No. 2058).
- Filter element VFE 90 for installation in front of the element (Ref. No. 2553).

Operation

The humidity controlled extract air elements allow a variable air flow volume depending on the relative humidity. They are suitable for the operation control of extract air volumes in bathroom and kitchen for ventilation systems in houses.

Advantages

- Automatically controlled air flow volume depending on the relative humidity between minimum and maximum limits.
- No need for adjustment or balancing of the system.
- Attractive design.
- High quality construction in an aerodynamic shape with low sound levels.
- The cover and optimised height of the inlet nozzle offer an airtight seal against the wall.
- Easy cleaning without a risk of air flow volume change.

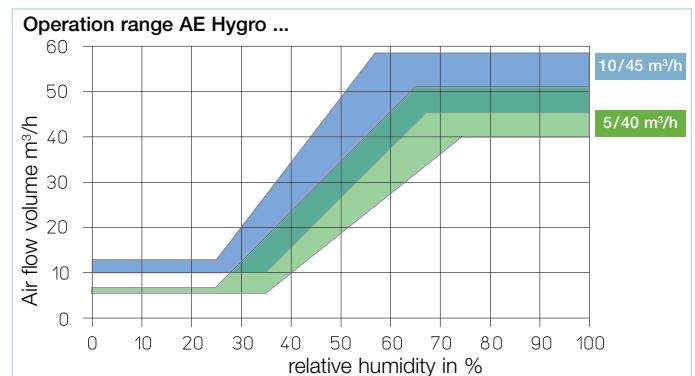
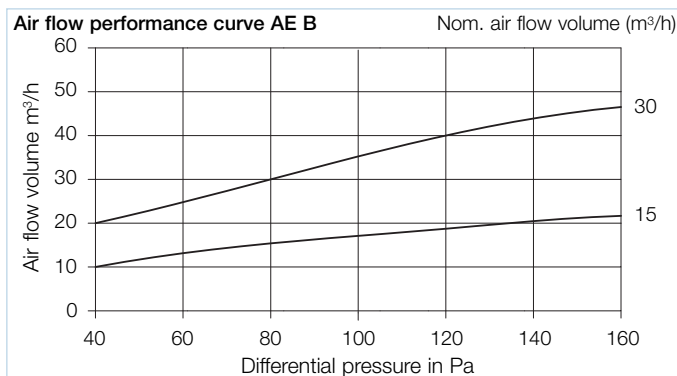
Function AE Hygro

The air flow volume is automatically controlled depending on the relative humidity between minimum and maximum limits. Achieving the defined trickle air flow at Δp of 80 Pa depending on the relative humidity. No need for electric connection.

Additional function AE Hygro GBE

The trickle air flow is increased to the higher level of air flow via a switch on-site (by others). After 30 minutes – regardless of the position of the switch on-site - it automatically returns to "trickle ventilation".

230 V, AC 0,5 / 3 W, IP X1



Ordering data	Type	Ref. No.	Sound level ²⁾			Attenuation	
			100 Pa	130 Pa	160 Pa	without AESE	with AESE
	AE B 15/30*	2055	20	25	28	60	64 ¹⁾

¹⁾ Equipped with attenuator AESE (accessory) ²⁾ Values are valid for trickle ventilation

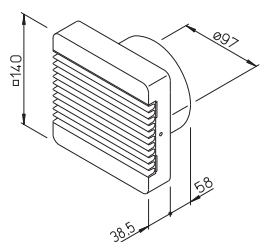
Ordering data	Type	Ref. No.	Sound level ²⁾			Attenuation	
			100 Pa	130 Pa	160 Pa	without AESE	with AESE
	AE Hygro 10/45*	2049	29	32	35	57	61 ¹⁾
	AE Hygro GBE 5/40/75 ³⁾ *	2053	28	31	34	56	64 ¹⁾
	AE Hygro GBE 10/45/120 ³⁾ *	2054	29	32	35	56	62 ¹⁾

¹⁾ Equipped with attenuator AESE (accessory)

²⁾ Values for trickle ventilation

³⁾ For the performance curve of on demand ventilation see AE GBE left page * Air flow volume in m³/h

ABV 100



Dimensions in mm

AbluVent ABV 100

Can be used in central ventilation systems in accordance with DIN 18017-3 with variable air flow volumes. On demand ventilation, e.g. for bathrooms and toilets without window. All elements in the system must have the same design. Made of high quality polymer, colour: white.

Function

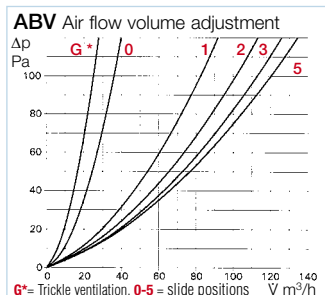
AbluVent is operated via a light switch. The louvres open when the room is in use. Trickle ventilation is provided when the room is not in use, a low air flow is extracted when the louvres are closed.

Advantages

- Energy saving.
- Low cost.
- Quick installation.
- Is always an optimum solution.
- Delayed operation on closure of 5 minutes.
- Stepless adjustment of air flow volume.
- Noiseless operation.
- Changeable filter to keep duct system clean.

Air flow volume

The opening pitch of the louvres can be set stepless between 15 – 80 degrees (covered, inside fascia panel).



The diagram above shows the air flow in relation to the setting (under pressure).

Technical data – connection

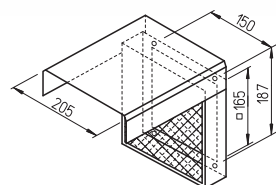
The unit is operated by a standard on/off switch, ideally combined with a light switch. Supply voltage: 1 ph. 220/240 V, 3 W. Double insulated, radio suppressed, protected to IP 44. Casing: polymer, alpine-white. The thermal metal shutter works with a short delay opening (approx. 30 sec.) and closing of (approx. 5 min.).

ABV 100 Ref. No. 0452

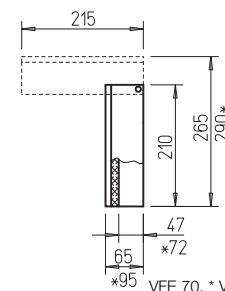
Accessory

ELF/ABV Ref. No. 6906
Spare filter mats
contents = 5 pieces

VFE



Dimensions in mm



Dimensions in mm
*95 VFE 70, * VFE 90

Filter element VFE

Simple and cost effective solution for filtering greasy, contaminated room air. To be installed in front of extract air elements or poppet valves.

Operation

Filter element to cover air vents and prevent dirt deposits from poppet valves, extract air elements and connected ducting. Ideal to use in the kitchen with a central ventilation system in line with DIN 18017.

Advantages

- Prevents grease and dust deposits from extract air elements or poppet valves and connected ducting.
- Easy filter replacement without tool kit.
- The permanent filter can easily be cleaned e.g. in a dishwasher.
- Discreet design in pleasant white.
- Simple installation via four screws.
- Hinders possible contamination areas.
- Less maintenance cost of ducting through longer cleaning periods.

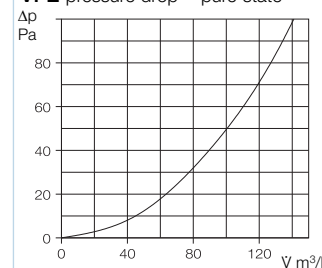
Casing

Robust casing made of galvanised steel, white, powder coated polymer. The fascia panel that is pivotable at 90° avoids the view to the filter and contamination area.

Filter

Dimensionally stable aluminium filter fabric with 324 cm² free filter area and aluminium frame.

VFE pressure drop pure state



Installation

Suitable for wall and ceiling installation. Simply fixed with four screws. Elongated slot-fixing holes ensure easy positioning. To be fixed directly over the installed extract air element (max. outer ø 175 mm). Fascia panel is hinged at 90°; for easy filter removal and a space between the upper edge of the casing and the ceiling (see drawing) is necessary.

Delivery

Each element including installation accessories are packed separately.

Model range

VFE 70 Ref. No. 2552

Suitable for extract air elements with max. 70 mm installation depth such as AE, MTVA, KTVA, BTV, BTK.

VFE 90 Ref. No. 2553

Suitable for extract air elements with max. 90 mm installation depth such as e.g. AE GBE, AE Hygro.

Accessory

ELF/VFE Ref. No. 2554

Spare air filter, suitable for the models VFE 70 and VFE 90. Contents = 2 pieces.

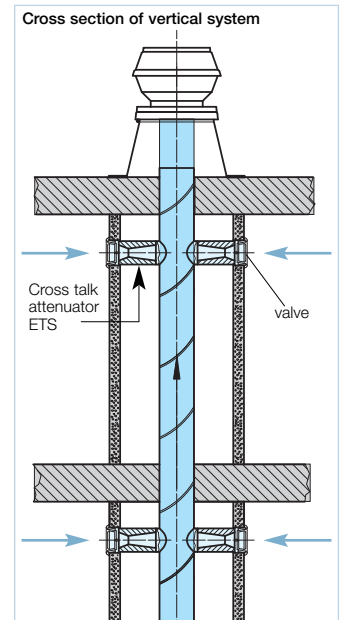
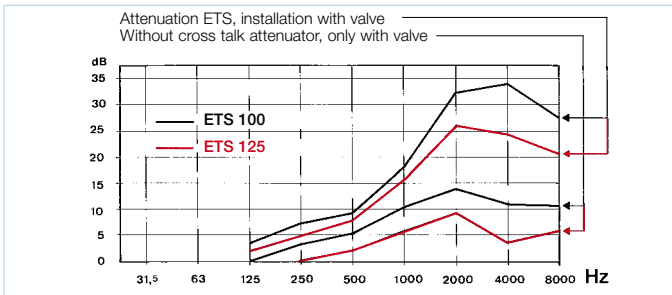
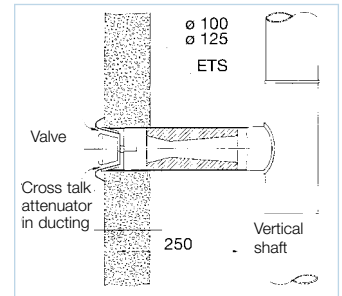
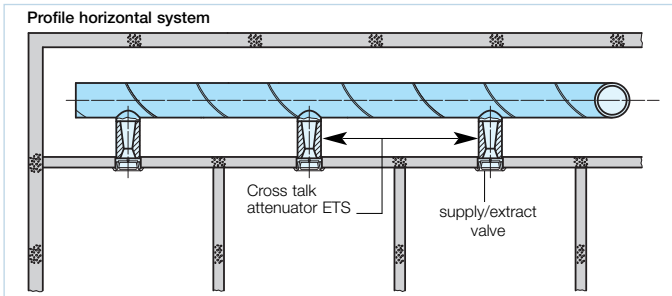
ETS



Surprisingly simple and cost effective solution to reduce noise transmission in central ventilation systems. Easy installation direct into ducting behind the air valve.

Advantages

- Optimum solution for prevention of noise transmission in ducting.
- Excellent attenuation figures (see diagram).
- Simple installation by inserting in to duct behind the air valve.
- Virtually no additional resistance to the system, as the resistance value is below the setting value of the valve.
- Minimising system costs by using cost effective ducting.
- Can be used with any brand of valves.



Model range

ETS 100 Ref. No. 4521
Nominal duct ø 100 mm

ETS 125 Ref. No 4522
Nominal duct ø 125 mm

Attenuation figure

The attenuation figure can be doubled if you have two facing rooms where both have an ETS attenuator in the ducting.

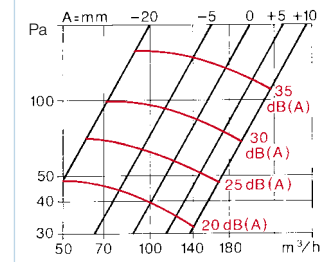
Material

Flexible polyurethane foam with improved reaction in case of fire, complies with DIN 4102, class B1, UL-94-HF 1, MVSS 302 and others.

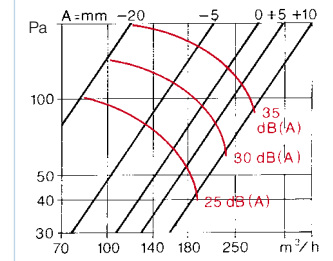
MTVA



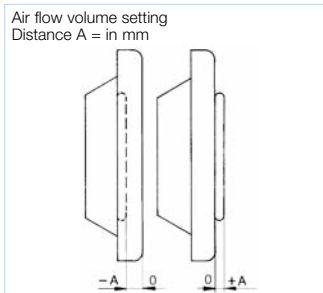
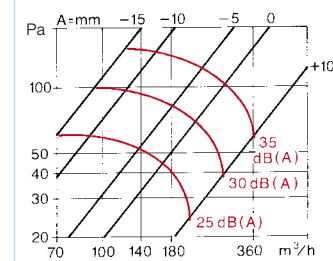
MTVA 125



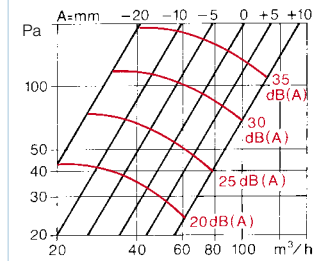
MTVA 160



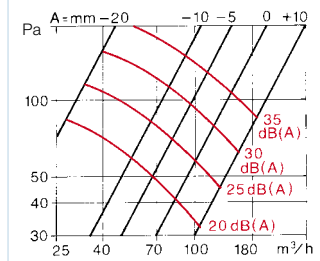
MTVA 200



MTVA 75/80



MTVA 100



Operation

For air extract in any room especially where ventilation system components of non flammable materials are required. Suitable for low and high air flow speed. Low noise characteristic.

Advantages

- Technically advanced design, aerodynamically shaped for low noise level.
- Large cover with optimised height of the inlet ring avoids marking of decor.
- Quick mounting in ceiling and wall without tools.
- Spring mounting clamp offers a direct insertion in ducts or walls up to approx. 20 mm size without an additional mounting ring.

Specification

Metal construction protected against corrosion by a high quality epoxy paint in white. The foam strip fitted around the valve provides an air tight connection avoiding air leakage and dis-colouration around the valve.

Delivery

Each valve is separately supplied in poly bag.

Accessory

For installation in ducting, walls or thin panels a mounting ring may be required (see table).

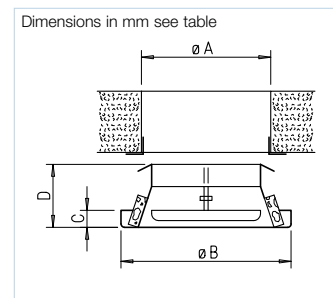
Installation

Set valve to required air flow volume according to the diagram. The distance 'A' is given in mm from the 0 point. Then simply press valve into wall or ducting.

Air data-extract

These diagrams show the relationship between air flow volumes, resistances and noise levels at various adjustments of the distance "A" in mm.

Technical data					
Type	MTVA 75/80	MTVA 100	MTVA 125	MTVA 160	MTVA 200
Ref. No.	8868	8869	8870	8871	8872
Dimensions in mm					
ø A	73 – 85	95 – 105	120 – 130	150 – 165	195 – 205
ø B	108	135	160	195	230
C	15	15	15	15	18
D	58	59	60	58	63
Weight in g	150	190	255	340	450
Mounting ring					
Type	EBR 75/80	EBR 100	EBR 125	EBR 160	EBR 200
Ref. No.	0952	0953	0954	0955	0956
for NW (mm)	75/80	100	125	150/160	200



KTVA



Operation

For air extract with high and low air flow speeds or resistances. For all rooms without special fire protection requirements.

Advantages

- Installation without tools in seconds.
- High noise attenuation through built-in attenuator in centre pod.
- High quality anti static polymers suitable for temperature to + 100 °C.
- Using a mounting ring avoids dis-colouration of surrounding decor.
- Spring fit connector allows direct installation in ducting or wall with a minimum thickness of approx. 20 mm without an additional mounting ring.

Specification

Aerodynamically shaped made from impact resistant white polymers. Adjustable air flow via rotating centre pod (see diagrams).

Delivery

Each valve is individually supplied in poly bag.

Accessory

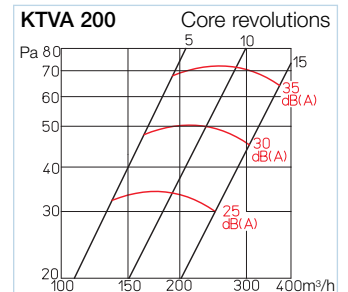
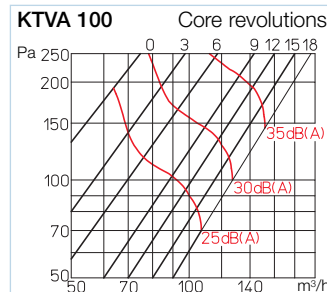
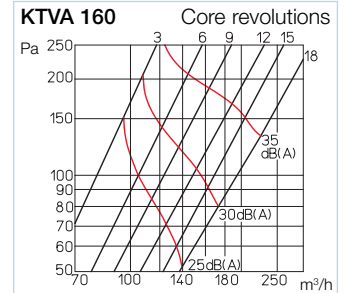
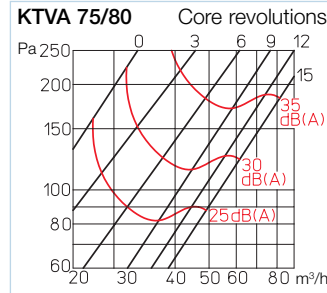
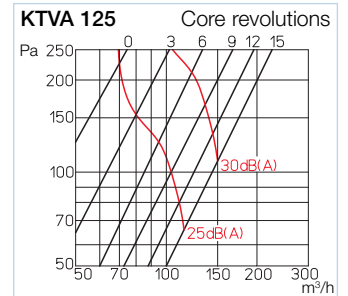
For installation in ducting, walls or thin panels a mounting ring may be required (see table).

Installation

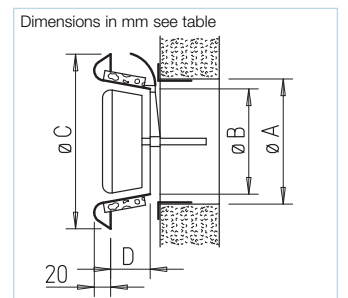
Set valve to required air flow volume according to the diagram through core revolutions then simply press valve into wall or ducting.

Air data-extract

These diagrams show the relationship between air flow volumes, resistances and noise levels at various core openings.



Technical data					
Type	KTVA 75/80	KTVA 100	KTVA 125	KTVA 160	KTVA 200
Ref. No.	0940	0941	0942	0943	0944
Dimensions in mm					
∅ A	73 – 85	95 – 105	120 – 130	150 – 165	195 – 210
∅ B	45	70	85	95	163
∅ C	115	138	165	190	240
D	38	35	35	37	35
Weight in g	90	115	150	200	340
Mounting ring					
Type	EBR 75/80	EBR 100	EBR 125	EBR 160	EBR 200
Ref. No.	0952	0953	0954	0955	0956
for NW (mm)	75/80	100	125	150/160	200





Operation

For air supply to any room especially where ventilation system components of non flammable materials are required. Suitable for low and high air flow speed. Low noise characteristic.

Advantages

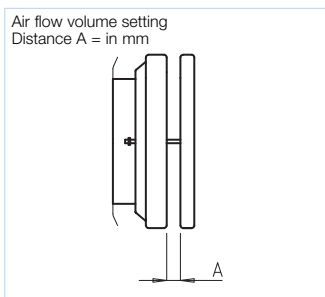
- Installation without tools in seconds.
- High noise attenuation through built-in attenuator in centre pod.
- Using a mounting ring avoids dis-colouration of surrounding decor.
- Spring fit connector allows direct installation in ducting or wall with a minimum thickness of approx. 20 mm without an additional mounting ring.

Specification

Metal construction protected against corrosion by a high quality epoxy paint in white. The foam strip fitted around the valve provides an air tight connection and avoids air leakage and dis-colouration around the valve.

Delivery

Each valve is separately supplied in a poly bag.

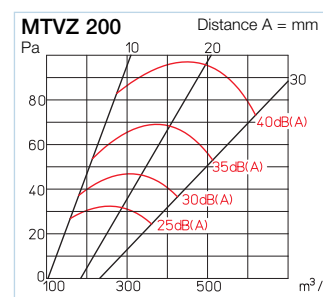
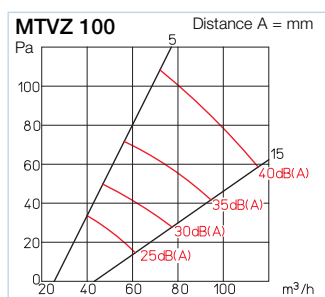
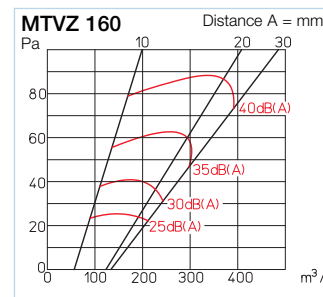
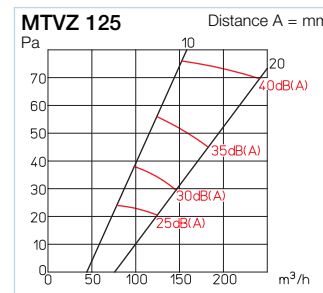
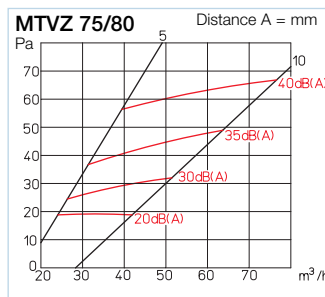


Accessory

For installation in ducting, walls or thin panels a mounting ring may be required (see table).

Installation

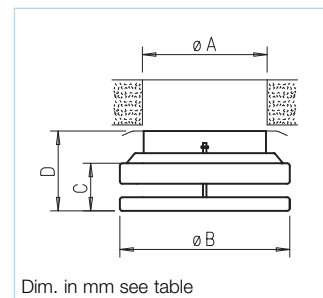
Set valve to required air flow volume according to the diagram. The distance 'A' is given in mm from the 0 point. Then simply press valve into wall or ducting.
For an even air flow a straight duct of approximately 300 mm is required.



Air data-extract

These diagrams show the relationship between air flow volumes, resistances and noise levels at various adjustments of the distance "A" in mm.

Technical data					
Type	MTVZ 75/80	MTVZ 100	MTVZ 125	MTVZ 160	MTVZ 200
Ref. No.	9603	9604	9605	9606	9607
Dimensions in mm					
ø A	73 – 85	95 – 105	120 – 130	150 – 165	195 – 210
ø B	108	135	160	195	230
C	26 – 56	26 – 56	26 – 56	26 – 56	26 – 56
D	68	70	70	68	73
Weight in g	190	240	300	390	480
Mounting ring					
Type	EBR 75/80	EBR 100	EBR 125	EBR 160	EBR 200
Ref. No.	0952	0953	0954	0955	0956
for NW (mm)	75/80	100	125	160	200



KTVZ



(Figure.: KTVZ 100-200)

Operation

For air extract with high and low air flow speeds or resistances. In all rooms without special fire protection requirements.

Advantages

- Installation without tools in seconds.
- High noise attenuation through built-in attenuator in centre pod.
- High quality anti static polymers suitable for temperature to + 100 °C.
- Using a mounting ring avoids dis-colouration of surrounding decor.
- Spring fit connector allows direct installation in ducting or wall with a minimum thickness of approx. 20 mm without an additional mounting ring.

Specification

Made from impact resistant white polymers and aerodynamically shaped. Adjustable air flow via rotating centre pod (see diagrams).

Delivery

Every valve is supplied separately in poly bag.

Accessory

For installation in ducting, walls or thin panels a mounting ring may be required (see table).

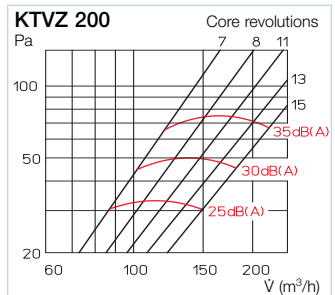
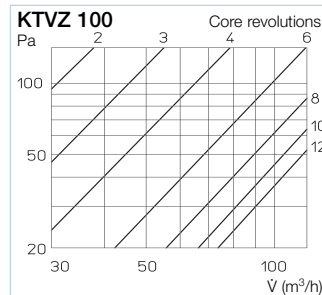
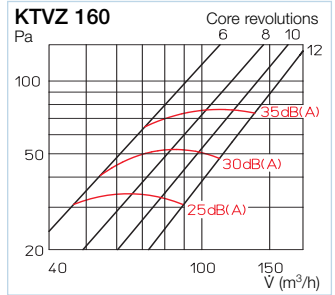
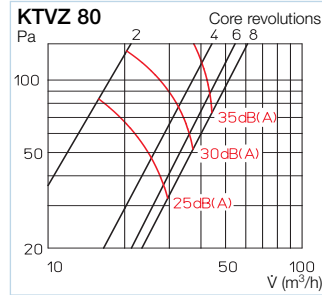
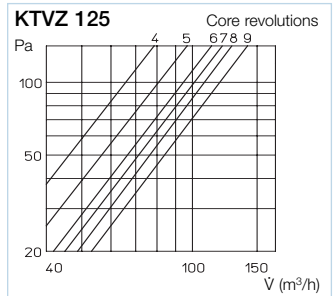
Installation

Set valve to required air flow volume according to the diagram. The distance 'A' is given in mm from the 0 point. Then simply press valve into wall or ducting.

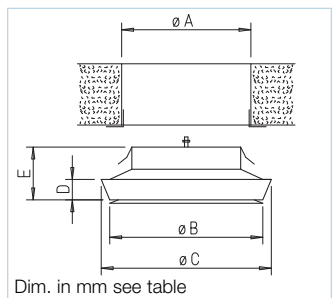
For an even air flow a straight duct of approximately 300 mm is required.

Air data-extract

These diagrams show the relationship between air flow volumes, resistances and noise levels at various core openings

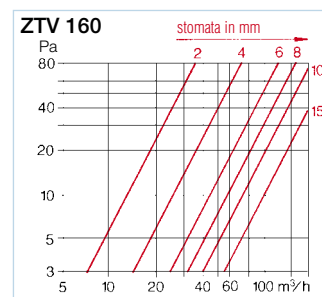
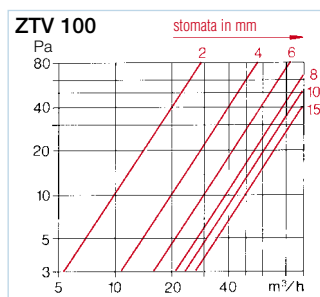
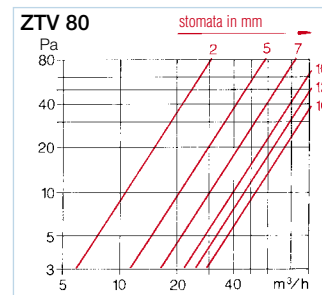


Technical data					
Type	KTVZ 80	KTVZ 100	KTVZ 125	KTVZ 160	KTVZ 200
Ref. No.	2762	2736	2737	2738	2739
Dimensions in mm					
ø A	70 – 80	95 – 105	120 – 130	145 – 160	195 – 210
ø B	80	138	170	195	235
ø C	119	148	180	205	245
D	19.5	17	21	23	22
E	52	47	47	51	56
Weight in g	90	100	260	370	600
Mounting ring					
Type	EBR 75/80	EBR 100	EBR 125	EBR 160	EBR 200
Ref. No.	0952	0953	0954	0955	0956
for NW (mm)	75/80	100	125	150/160	200



Dim. in mm see table

ZTV



Special features – Operation
 Innovative thermostatic supply air valve for automatic temperature controlled replacement air. Efficiently combines energy savings and permanent ventilation. Permanent control of supply air flow volume with adjustable core for any type of room. Suitable for natural (thermic) and mechanical ventilation as supply air element.

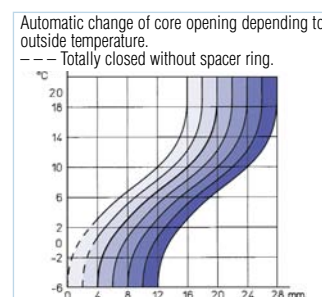
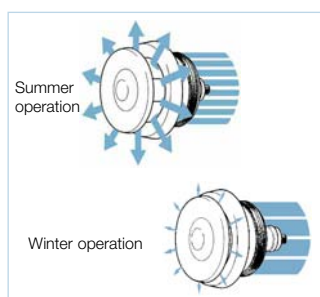
Installation
 ZTV valves can be easily installed in existing supply air openings. They are fixed to ducting by push fit (with rubber gasket) or by three concealed fixing holes in the frame supplied with fixing screws.

Function
 The thermostat operates automatically within a temperature range of -6 °C to +20 °C. Within this range air flow volumes between 0 and 30 m³/h are achieved conforming to DIN guidelines. See performance diagrams on the right. In its standard setting the valve closes completely at outside air temperature of approx. -4 °C. A minimum supply air rate is allowed by the 4 mm wide distance clip. The initial setting of the valve can be changed manually by rotating the centre core. One full rotation equals to a variance of 4 mm gap (see blue marked areas in diagram).

- Advantages**
- Fully automatic, on demand air flow control.
 - Maintenance free, no running cost.
 - Individual air flow volume adjustment by rotating the centre pod.
 - High noise absorption from the built-in attenuator.
 - Attractive, functional design.
 - Wide intake ring reduces wall discolouration.
 - Quick and easy installation.

Design
 The Helios supply air thermostat valves are made of impact resistant, white polymer. Aerodynamically shaped and an attractive design. Insulated coating on inner side of the valve plate to prevent condensation.

Number of units
 The number of supply air elements necessary is to be defined according to DIN 1946, T.6 in dependence to the apartment size and wind force (see chart on the right).



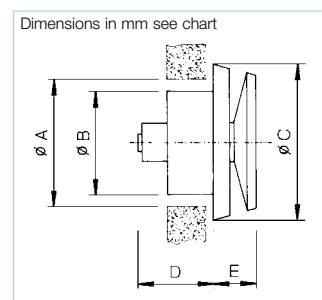
Number of units with mechanical on demand ventilation

Apartment size m ²	Number of ZLA / ZLE		Fans Number/Unit
	Extract air (8 Pa)*	Supply air (4 Pa)*	
Hotel room 25 m ²	2	-	1
Apartment 25 m ²	2 (3) **	-	1
Flat I 50 m ²	2	3 - 4	2
II > 50, < 80 m ²	3	4	2
III > 80 m ²	4	5	3
House to 120 m ²	4	5	3

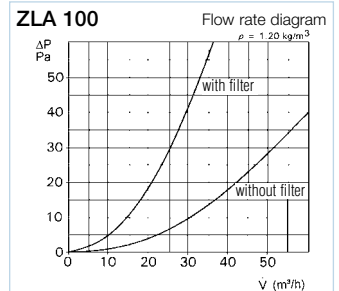
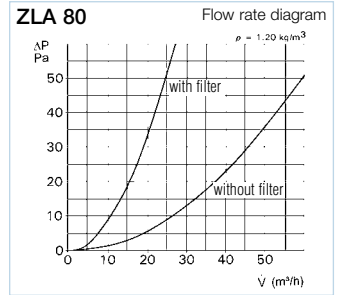
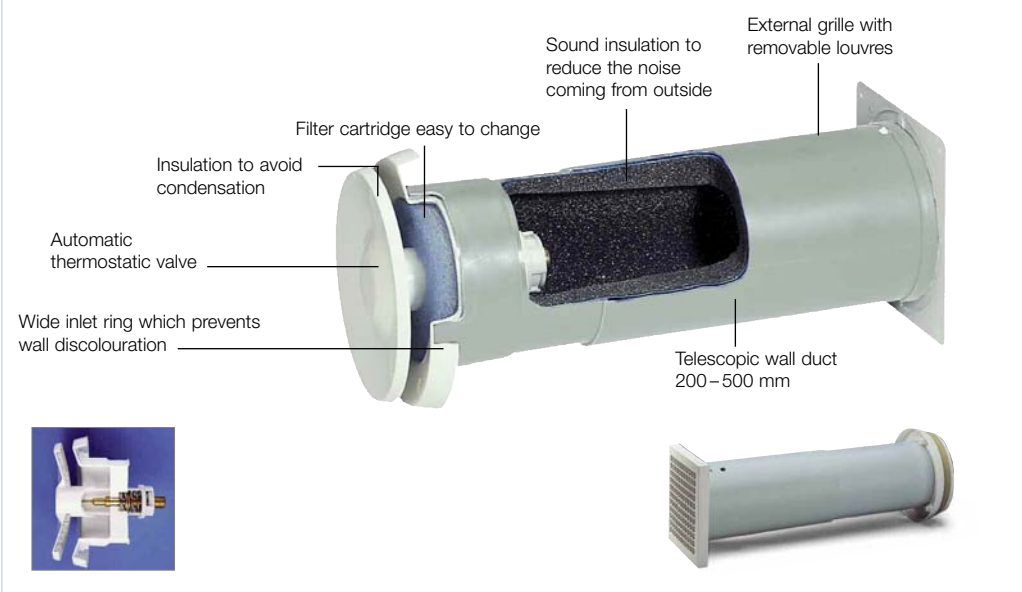
* according to DIN 1946, T.6 Tab. 10 ** if a kitchenette is also to be extracted

Ordering data

Type	ZTV 80	ZTV 100	ZTV 160
Ref. No.	0078	0073	0074
Dimensions in mm			
ø A = Duct nominal size	80	100	160
ø B	77	95	156
ø C	147	147	207
D	77	77	77
E	49	49	50
Weight approx. g	230	240	370



ZLA



Special features – Operation

Universally adaptable temperature controlled supply air unit. The energy saving, thermostatic supply valve provides a continuous air exchange at highest efficiency. The supply air volume is controlled depending on the outside air temperature, without any electrical connection. The supply air is evenly distributed, filtered (class G 3) and attenuated.

Advantages

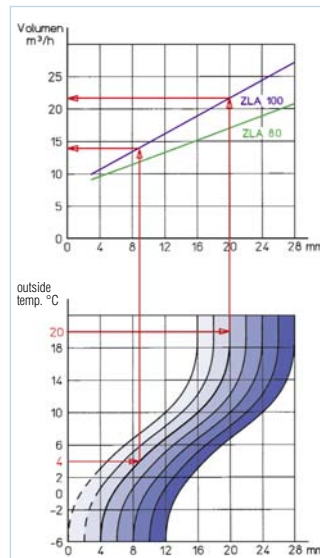
- Fully automatic, on demand air flow control.
- Maintenance free, no running cost.
- Individual air flow volume adjustment by rotating the central core.
- Telescopic wall duct, made of polymer for wall thicknesses between 200 to 500 mm.
- High noise absorption via the built-in attenuator.
- Easily removable filter.
- No electrical supply required.
- Quick and easy installation.

Function

The thermostat operates automatically within a temperature range of $-6 \text{ }^\circ\text{C}$ to $+20 \text{ }^\circ\text{C}$. Within this range air flow volumes between 0 and $30 \text{ m}^3/\text{h}$ are achieved conforming to DIN guidelines. See performance diagrams on the right. In its standard setting the valve closes completely at an outside air temperature of approx. $-4 \text{ }^\circ\text{C}$. A minimum supply air rate is set by the 4 mm wide distance clip. The initial setting of the valve can be changed manually by rotating the central core. One full rotation equals to a variance of 4 mm gap (see blue marked areas in diagram).

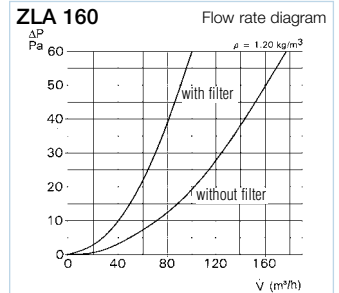
Installation

Suitable for wall or ceiling openings. Telescopic duct should be inserted from outside and the cover grille should be screwed on. Duct to be cleaned and the valve to be inserted from inside.



Information

The number of supply air units is to be defined according to DIN 1946, T.6 (see chart on the left page).



Performance figures

The air flow volume depending on pressure difference is determined by the opening gap of the valve plate. The performance values can be seen from the diagrams above.

Accessories

Spare filters class G 3

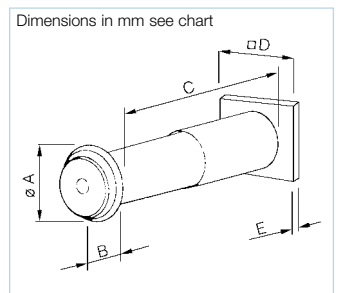
Contents: 10 pieces.

ELFZ 80 Ref. No. 0339

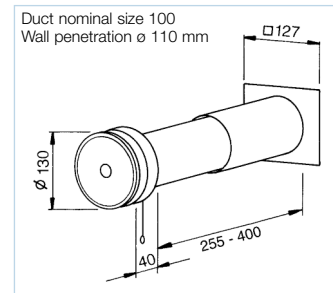
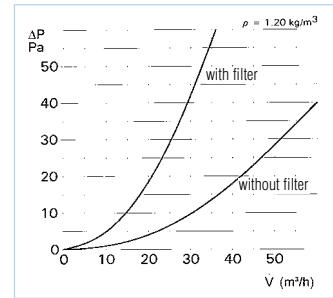
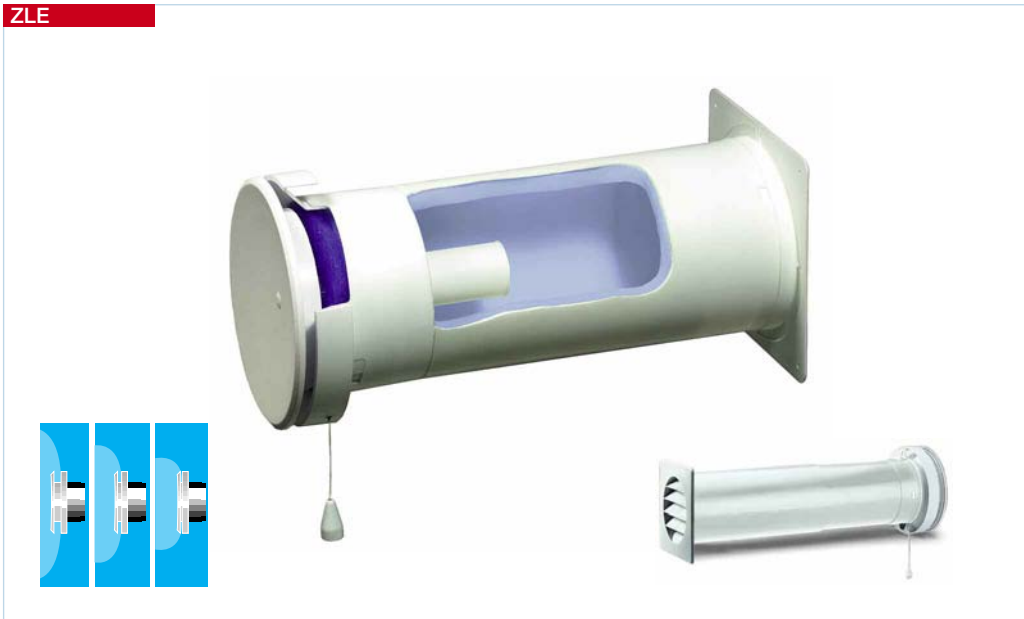
ELFZ 100 Ref. No. 0340

ELFZ 160 Ref. No. 0341

Ordering data			
Type	ZLA 80	ZLA 100	ZLA 160
Ref. No.	0214	0215	0216
Air flow volume max. with filter m ³ /h	25	35	100
Duct nominal size (mm)	80	100	160
Wall penetration \varnothing mm	96	115	175
$\varnothing A$ mm	147	147	207
B mm	49	49	50
C mm	200–500	200–500	200–500
D mm	107	140	190
E mm	3	15	24
Weight approx. kg	0.7	0.8	1.6
Noise insulation rate R_w 30 to 35 dB (dependent from installation or wall thickness; equals to an insulation glazing to VDI 2719 protection class 2 or 3).			



ZLE



ZLE 100 Ref. No. 0079

Accessories

Spare filter class G 3
ELF/ZLE 100 Ref. No. 0338
 Contents = 10 pieces.

Special features – Operation

Manually operated supply air element for any kind of room. The air flow volume can be adjusted through a four step ratchet mechanism using a pull cord. The supply air is evenly distributed, filtered (class G 3) and attenuated.

Advantages

- Permanent intake air avoiding drafts.
- Adjustable air volume controlled by adjusting the valve plate.
- Simple control via pull cord.
- No electrical supply required.
- Wide intake ring reduces wall discoloration.
- Telescopic wall duct, made of polymer for wall thicknesses between 255 to 400 mm.
- High noise absorption with the built-in attenuator.
- Easily removable filter.
- Quick and easy installation.

Installation

Simple installation in wall openings. Insert the telescopic duct from outside, adjust to thickness of wall and render. Push in rain repellent grille from outside, snap lock fixing or can be screwed with masonry plugs. Insert valve from inside. If placed near radiators the supply air is pre-heated during the cooler periods. Ensure that valve is accessible for filter change.

Specification

ZLE comes as a complete unit including:

- Valve**
Attractive, unobtrusive design made of high quality white polymer. Incorporating a pull cord for three core positions. Insulated coat on inner valve to prevent condensation.
- Telescopic wall duct**
Two liners, made of impact resistant polymer.
- Attenuator**
To reduce air noise levels from outside.
- Air filter**
For clean and dust free air supply (class G 3), replaceable.
- Outside wall grille**
Fixed, rain repellent, made of UV-stable polymer in white.

Filter change

Easy, without any tool kit. Can be maintained by removing the valve.

Performance figures

The air flow volume depending on pressure difference is determined by the opening gap of the valve plate. The performance figures are shown in the diagram above. Noise insulation rate: R_w : 30–35 dB (depending on installation and wall thickness; comparable with double glazing class 2 or 3).

Number of units

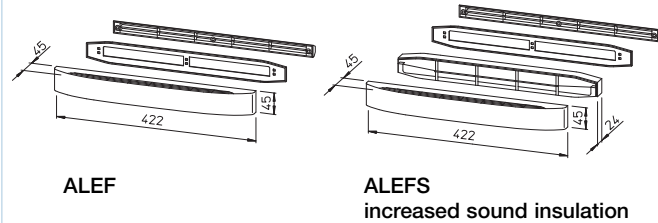
The number of required supply air elements is to be defined according to DIN 1946, T.6 independent to the apartment size and wind force (see the following chart).

Number of units with mechanical on demand ventilation				
	Apartment size m ²	Number of ZLA / ZLE		Fans
		Extract air (8 Pa)*	Supply air (4 Pa)*	Number/Unit
Hotel room	25 m ²	2	–	1
Apartment	25 m ²	2 (3) **	–	1
Flat	I 50 m ²	2	3 – 4	2
	II > 50, < 80 m ²	3	4	2
	III > 80 m ²	4	5	3
House to	120 m ²	4	5	3

* according to DIN 1946, T.6 Tab. 10 ** if a kitchenette is also to be extracted

ALEF..


Dimensions in mm


ALEF
ALEFS
increased sound insulation

Air flow volume elements ALEF.. with air flow volume control/limitation, to install in window frames / casements.

■ Operation

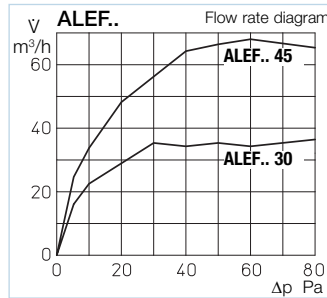
The window element flow is directly related to the differential pressure and supplies the outside air to living rooms and bedrooms. Simple installation, is also suitable for retro-fitting.

■ Specification

Ready-to-install unit, contains inner facade with an automatic air flow volume delimiter, installation plate and cover strip. All parts are made of high quality, white polymer. The models ALEFS have an acoustic element for an increased sound insulation.

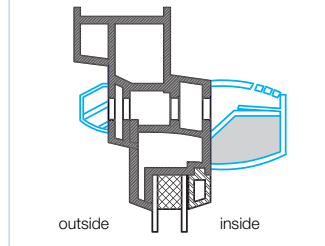
■ Function

Due to the negative pressure of extract air in the kitchen, bathroom and toilet, the element allows a certain amount of air flow volume to enter in the living/bed rooms from outside (see diagram).

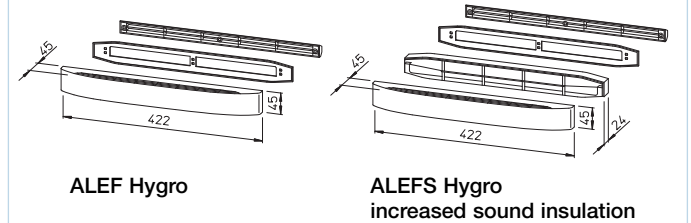

■ Installation

In wooden, polymer and metal window frames. Openings by means of milling groups or holes in the upper frame. Simply screw the cover strip to the installation plate and clip the inner facade on.

Applicationsample ALEF..
In windows with aluminium frames.


ALEF.. Hygro – humidity controlled


Dimensions in mm


ALEF Hygro
ALEFS Hygro
increased sound insulation

Humidity controlled air flow volume elements ALEF.. Hygro with air flow volume control/limitation to install in window frames/casements.

■ Operation

Window elements that allow a controlled air flow volume, dependent on the humidity level in the room, to enter in the living /bed rooms.

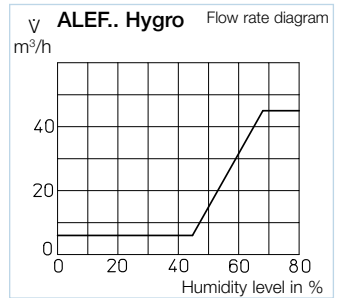
Ideal in combination with humidity controlled extract fans. Simple installation, is also suitable for retro-fitting.

■ Specification

Ready-to-install unit, contains inner facade with an automatic air flow volume delimiter, installation plate and cover strip. All parts are made of high quality, white polymer. The models ALEFS Hygro have an acoustic element for an increased sound insulation.

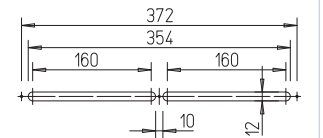
■ Function

Due to the negative pressure of extract air in the kitchen, bathroom and toilet, the element allows a certain amount of air flow volume, which depends on the humidity level in the room, to enter in the living/bed rooms from outside (see diagram).


■ Installation

In wooden, polymer and metal window frames. Openings by means of milling groups or holes in the upper frame. Simply screw the cover strip to the installation plate and clip the inner facade on.

Dimension opening and fixing in mm



Ordering data	Air flow volume elements to install in window frames			
	ALEF with air flow volume control and limits		ALEFS Similar to ALEF, extra attenuation	
Type	ALEF 30	ALEF 45	ALEFS 30	ALEFS 45
Ref. No.	2100	2101	2102	2103
Air flow vol. m³/h	30	45	30	45
Sound level D _{ne} , dB (A)	39	37	41	39
Weight approx. g	190	190	210	210

Ordering data	Air flow volume elements to install in window frames	
	ALEF Hygro – with humidity control with air flow volume control and limits	ALEFS Hygro Similar to ALEF with extra attenuation
Type	ALEF 6/45 Hygro	ALEFS 6/45 Hygro
Ref. No.	2056	2057
Air flow vol. m³/h	6/45	6/45
Sound level D _{ne} , dB (A)	37	39
Weight approx. g	200	220

The aim of fire protection is to prevent the spread of fire from room to room and floor to floor in multi-storey buildings. Therefore building designers specify compartments in the building that are protected by fire rated walls, floors and ceilings which have to meet the regulations regarding their fire (resistance) rating. However it is necessary to make openings in these walls, floors and ceilings for service purposes.

Fire damper ELS-D

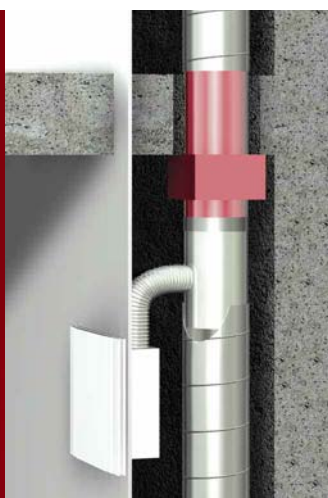
Fire protection barrier for ventilation ductings according to DIN 18017. For vertical installation in ducting directly below the ceiling. With the installation of ELS-D, the use of further classified fire protection elements on air intakes or extracts is unnecessary. Ideal for use in installation shafts with mixed mains (also with combustible mains). Approved for single and central ventilation systems as well as for intake and extract air systems. Maintenance free.

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Cold smoke shutters KAK

The cold smoke shutters with magnetic closure prevent cold smoke entering into other areas of the building via the ventilation system. They should be positioned behind valves and air extract elements (also in combination with BAE/BAK) of the supply or exhaust openings

Page 395

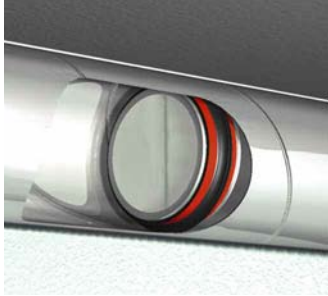


Fire protection for ventilation – simplified.

Fire protection – shutter elements

Prevents the transmission of fire and smoke through ventilation ducting or ventilation openings in other fire sections.

Page 390



Fire protection valve and fire protection valve flaps

Shutoff devices with air flow throttle to prevent fire and smoke transmission through ventilation ductings or ventilation openings.

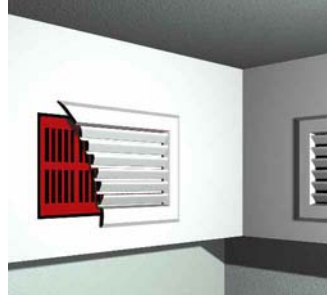
Page 392



“Fire stop”-ventilation blocks

Ensure a static ventilation in the rooms or cells such as installation shafts and cable ducts where fire and smoke transmission is prevented.

Page 396



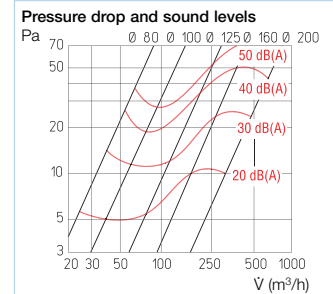
“Fire stop”-ventilation blocks
BLS. Fire resistance grade
F 30 to F 90 according to
DIN 4102 part 2

Fire protection valves BTV
K 90-18017 and fire protection
dampers BTK K 90-4102

Fire protection shutter elements
BA.. K 90-18017 and
K 30 DIN 4102

BAE

Approval Z-41.3-614
Maintenance free.



Operation

Shutter to prevent fire and smoke transmission. Suitable for installation in ventilation shafts and ducting with required fire resistance class K 90-18017. Suitable for insertion into spiral ducting or for wall installation with mounting sleeve EH (accessory) and for installation into ceiling which is not fire resistant.

Function

When the ambient temperature of +72 °C is exceeded, the integrated thermal coupling releases the spring loaded semi-circle blades. Two safety bows interlock the shutter blades.

Official certification

The suitability of this shutter has been tested for use in ventilation systems to DIN 18017 and approved by the German institute for Bautechnik, Z-41.3-614.

Special features

- Maintenance free.
- Insertion in spiral ducting without additional wall mounting frame.
- Can be installed outside the shaft wall.
- For air flow in both directions, suitable for extract and supply air systems.
- Lower flow resistance even with high air flow volumes.
- Can be connected to cooker hoods.
- Low noise levels.
- Can also be used for commercial applications e.g. tea kitchens, toilets and small lounges.

Design

Cylindrical duct sleeve with butterfly shutter and integrated thermal coupling.

Packaging

One shutter in plastic bag.

Installation and setting

- The test certificate contains the exact guideline relating to operation and installation. Available on request.
- If the mounting sleeve must be used it must be plastered in with mortar class II or III DIN 1053 or with plasterboard, joint filler.

Accessory Limit switch (assembly kit)

To control BAE and report its operating status to the central building management system. For mounting on all ND (except BAE 80).
BA-S Ref. No. 2585
Switch as change-over IP 65
max. load 12-250 V/5 A (2 A ind.)
Connection cable 1 m long / 3 x 0.34 mm²
Wiring diagram No. SS-830

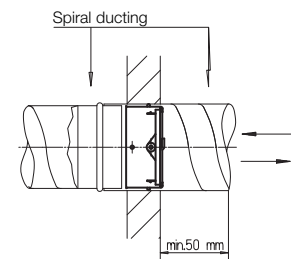


Installation examples

Duct installation

The element is to be installed through simple insertion (e.g. in spiral ducting) and to be fixed together with the duct in the wall. Suitable for installation in both directions, independent from air flow direction.

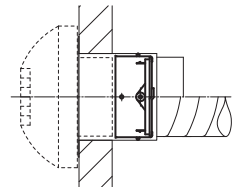
Duct installation



Wall installation

Via mounting sleeve (accessory) in walls of brick, thermolite block or plaster panel, shaft partition walls in F 90 and F 30 or system tested walls with more than 40 mm thickness. Suitable for installation in both directions, independent from air flow direction.

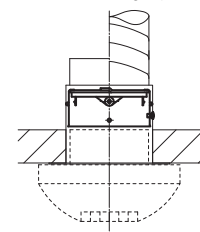
Wall installation with mounting sleeve or spiral duct and plug-in supply / extract air element.



Ceiling installation

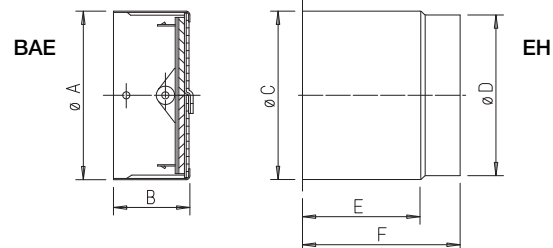
Can be installed into ceiling which is not fire resistant.

Ceiling installation with mounting sleeve and plug-in supply / extract air element. Connection to mains through spiral ducting.



Ordering data

Type	Ref. No.	Dim. in mm		Weight kg	Accessories:				
		ø A	B		Mount. sleeve	Ref. No.	ø C	Dimensions in mm	
							ø D	E	F
BAE 80	2624	78	36	0.13					
BAE 100	2625	98	42	0.19	EH 100	2639	101	98	120
BAE 125	2626	123	47	0.27	EH 125	2640	128	123	120
BAE 160	2627	158	64	0.41	EH 160	2641	162	158	140
BAE 200	2628	197	70	0.57	EH 200	2642	201	197	150



Dimensions in mm see chart

BAK

Approval Z-41.3-586



Operation

Shutter to prevent fire and smoke transmission. Suitable for installation in ventilation shafts or walls which serve as fire section with required fire resistance class K 30-4102. For inlet opening essential escape routes if the openings locate at the bottom level of the wall area. Suitable for insertion into spiral ducting or for wall installation with mounting sleeve EH (accessory).

Function

When the ambient temperature of +72 °C is exceeded, the integrated thermal coupling releases the spring loaded semi-circle blades. Two safety bows interlock the shutter blades.

Official certification

The suitability of this shutter has been tested for use in ventilation systems to DIN 1946 and approved by the German institute for Bautechnik, Z-41.3-586.

Special features

- Can be installed directly in the ventilation zone.
- For air flow in both directions, suitable for extract and supply air systems.
- Lower flow resistance even with high air flow volumes.
- Simple fixing through mounting sleeve (accessory).

Design

Cylindrical duct sleeve with butterfly shutter and integrated thermal coupling.

Packaging

One shutter in plastic bag.

Installation and setting

- The test certificate contains the exact guideline relating to operation and installation. Available on request.
- If the mounting sleeve must be used it must be plastered in with mortar class II or III DIN 1053 or with plasterboard, joint filler.

Accessory

Limit switch (assembly kit)

To control BAK and report its operating status to the central building management system. For mounting on all ND.

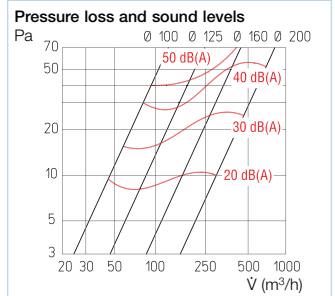
BA-S Ref. No. 2585
Switch as change-over IP 65
max. load 12-250 V/5 A (2 A ind.)
Connection cable 1 m long / 3 x 0.34 mm²
Wiring diagram -No. SS-830



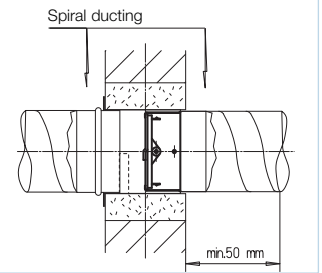
Installation examples

Duct installation

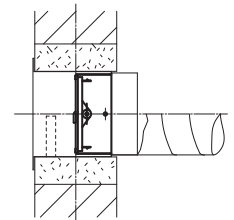
The element is to be fixed through simple insertion in the mounting sleeve (accessory) and to be mounted together in the shaft wall. Installation is independent from air flow direction. Completed with connection to ducting on both ends of the mounting sleeve.



Duct installation



Wall installation of brick, thermolite block or plaster panel.



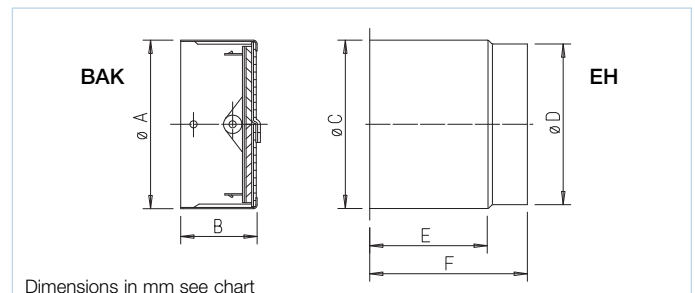
Wall installation

Via mounting sleeve (accessory) in walls of brick, thermolite block or plaster panel or system tested walls with more than 40 mm thickness. Suitable for installation in both directions, independent from air flow direction.



Ordering data

Type	Ref. No.	Dim. in mm		Weight ap. kg	Accessories:									
		∅ A	B		Mount. sleeve	Ref. No.	∅ C	Dimensions in mm						
							∅ D	E	F					
BAK 100	2620	98	42	0.22	EH 100	2639	101	98	92	120				
BAK 125	2621	123	47	0.31	EH 125	2640	128	123	92	120				
BAK 160	2622	158	64	0.48	EH 160	2641	162	158	114	140				
BAK 200	2623	197	70	0.68	EH 200	2642	201	197	120	150				

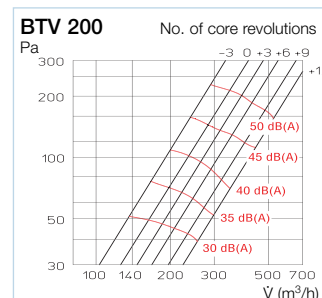
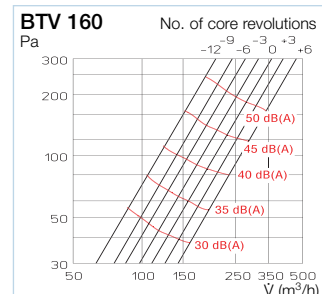
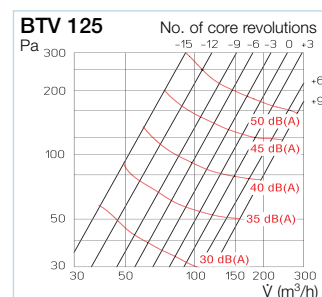
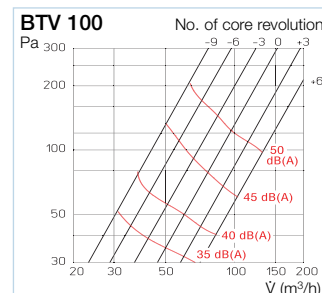


Dimensions in mm see chart

Fire protection

BTV

Approval Z-41.3-587
Maintenance free.



Operation

Shutter to prevent fire and smoke transmission. Suitable for installation in ventilation shafts and ducting with required fire resistance class K 90-18017. Suitable for insertion into spiral ducting or for wall and ceiling installation by means of mounting ring (included in the delivery).

Function

When the room temperature of +72 °C is reached, the thermal coupling trips. The built-in pressure spring closes the valve automatically.

Official certification

The suitability of this shutter with throttle device has been tested for use in ventilation systems to DIN 18017 and approved by the German institute for Bautechnik, Z-41.3-587.

Special features

- Maintenance free.
- Officially tested fire protection valve with low air noise at high pressure drop.
- Can be installed in the ducting or shaft walls.
- High attenuation value.
- Attractive, functional shape.
- Simple adjustment that cannot be changed by unauthorised person reduces the amount of work.
- Can be easily removed only by authorised person for maintenance and cleaning purposes.
- Wide operation range.
- Can also be used for commercial applications e.g. tea kitchens, toilets and small lounges.

Design

Metal construction with high quality finish. Protected against corrosion through epoxy powder paint in white RAL 9010. Aerodynamically designed with center core and bell mouth ring.

Delivery

One valve in a poly bag including mounting ring made of galvanised steel.

Installation and setting

- Wall and ceiling installation (F 90 and F 30) with mounting sleeve /included in delivery).
- The certificate contains exact data relating to operation and installation. Available on request.
- Fitted with one hand using the bayonet plug of the mounting ring (included in the delivery).
- The installation (using the mounting ring) must be plastered in with mortar class II or III DIN 1053 or with plasterboard, joint filler.
- Air flow volume settings according to the adjacent diagrams.
- Setting stays fixed and cannot be changed by an unauthorised person without dismantling the valve.

Accessory Limit switch (assembly kit)



To control BTV and report its operating status to the central building management system. For mounting on all ND.

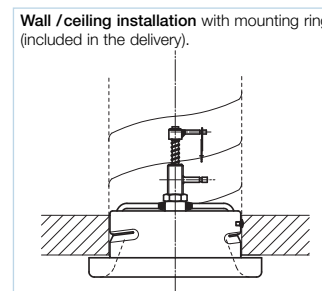
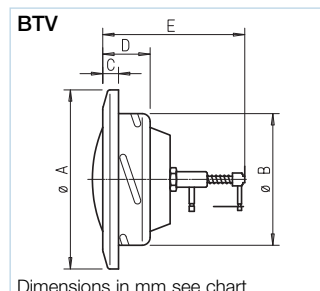
BT-S Ref. No. 2586
Switch as change-over IP 65
max. load 12-250 V/5 A (2 A ind.)
Connection cable 1 m long / 3 x 0-34 mm²
Wiring diagram No. SS-830



Ordering data

Mounting ring included in the delivery

Type	Ref. No.	Dimensions in mm					Weight approx. kg
		ø A	ø B	C	D	E	
BTV 100	2634	133	99	15	51	146	0.40
BTV 125	2635	163	124	15	55	161	0.55
BTV 160	2636	193	159	15	55	178	0.70
BTV 200	2637	243	199	20	77	184	0.95



BTK

Approval Z-41.3-588



Operation

Shutter to prevent fire and smoke transmission. Suitable for installation in ventilation shafts or walls which serve as fire section with required fire resistance class K 90-4102. For inlet opening essential escape routes if the openings locate at the bottom level of the wall area. Suitable for insertion into spiral ducting or for wall installation with mounting sleeve EH (included in the delivery).

When the room temperature of +72 °C is reached, the thermal coupling trips. The built-in pressure spring closes the valve automatically.

Official certification

The suitability of this shutter with throttle device has been tested for use in ventilation systems to DIN 1946 and approved by the German institute for Bautechnik, Z-41.3-588.

Special features

- Officially tested fire protection valve with low air noise at high pressure drop.
- High attenuation value.
- Attractive, functional shape.
- Simple adjustment that cannot be changed by unauthorised person reduces the amount of work.
- Can be easily removed only by authorised person for maintenance and cleaning purposes.
- Wide operation range.

Design

Metal construction with high quality finish. Protected against corrosion through epoxy powder paint in white RAL 9010. Optimum aerodynamically designed with center core and bell mouth ring.

Delivery

One valve in a poly bag including mounting sleeve made of galvanised steel.

Installation and setting

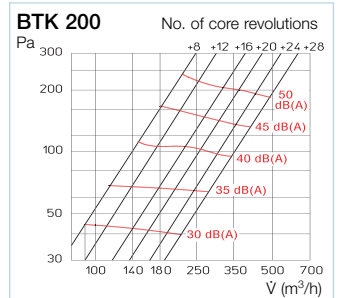
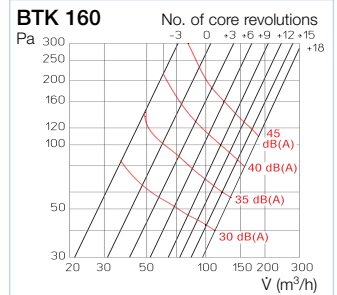
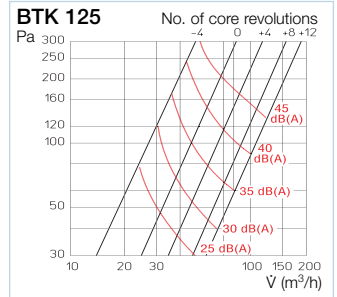
- The certificate contains exact data relating to operation and installation. Available on request.
- Fitted with one hand using the bayonet plug of the mounting ring (included in the delivery).
- The installation (using the mounting ring) must be plastered in with mortar class II or III DIN 1053 or with plasterboard, joint filler.
- Air flow volume settings according to the adjacent diagrams.
- Setting stays fixed and cannot be changed by an unauthorised person without dismantling the valve.

Accessory Limit switch (assembly kit)

To control BTK and report its operating status to the central building management system. For mounting on all ND.

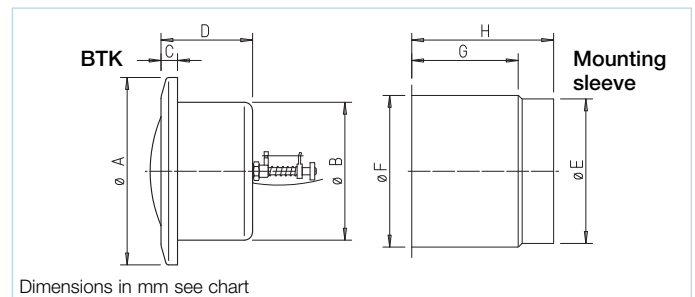


BT-S Ref. No. 2586
Switch as change-over IP 65
max. load 12-250 V/5 A (2 A ind.)
Connection cable 1 m long / 3 x 0.34 mm²
Wiring diagram No. SS-830



Ordering data

Type	Ref No.	Dimensions in mm				Weight ap. kg	Included in the delivery:				
		ø A	ø B	C	D		Mount. sleeve	ø E	ø F	G	H
BTK 125	2630	152	120	11	118	1.50	125	123	128	115	150
BTK 160	2631	194	155	18	113	2.20	160	158	162	115	150
BTK 200	2632	240	192	18	113	3.10	200	197	200	115	150



Dimensions in mm see chart



According to building regulations ventilation ducts that cross more than two storeys vertically must be protected against fire and smoke. These conditions have been fulfilled so far through installing the ventilation duct in a fire proof shaft. This has some disadvantages such as high investment cost, need of large space and longer building time, especially the construction of two shafts (Separation of the mixed installation shaft from the ventilation shaft).

■ **The use of ELS-D fire dampers result in various benefits such as:**

- Ventilation ducting can be placed in mixed installation shaft with simple, 12,5 mm thick plasterboard facing.
- ELS-D are completely maintenance free. Additional fire resistant elements that might need maintenance are not necessary.
- Allows the in-duct ventilation units to be connected via Aluflex ducting without fire protection sheathing and fire protection damper.
- In central ventilation systems, the poppet valves or air flow controlling extract air elements can be replaced with units made of polymer. In order to avoid cold smoke cold smoke dampers (KAK) to be used.
- To extract the air from kitchens is admissible.
- The constructional and functional advantages of prewall installations or registers can be unconditionally implemented.
- Smallest dimensions reduce the required space and allows a compact bundle of services in a restricted space.
- The full cross section of the ventilation duct remains, that means no additional pressure drop. Cleaning and maintenance works are not hindered.

■ **General approval under building law DIBt with No. Z-41.3-368. Fire resistance class: K 90-18017.**

■ **Specification**

Casing made of galvanised steel with integrated spigot on top and bottom. The top spigot can also be used as ceiling lead through.

■ **Two stage function**

- The shutter closes first at approx. 90°C and prevents the transmission of high temperatures to other storeys.
- At approx. 180°C the integrated fire rated foam seals the ventilation ducting completely above the shutter.

■ **Installation**

ELS-D can be easily installed single handed vertically against the bottom part of the floor slab or in installation registers. The fire damper is to be fixed with two mounting fish plates, that are held in grating and floor finish. The ceiling leadthrough is already integrated in ELS-D. Thanks to the standard connection nozzles the main ducting can be simply imposed and inserted to the other side like a fitting.

■ **Accessories Cold smoke damper**

Prevents any reverse flow of cold smoke in central ventilation systems and much else in other ventilation zones while the fan is not working. (Not required in individual ventilation systems)

- KAK 100** Ref. No. 4097
ND 100 mm
- KAK 125** Ref. No. 4098
ND 125 mm



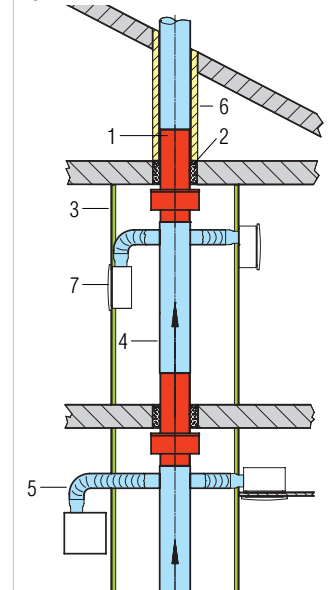
■ **Note**

Further sizes and product details for use of the cold smoke damper KAK.

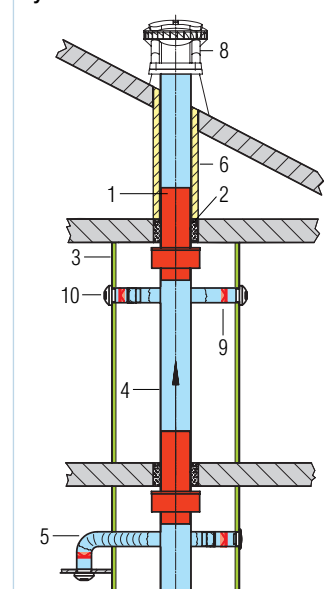
see page 395

- Legends**
- 1 Ceiling bulkhead ELS-D
 - 2 Ceiling grouting
 - 3 Installation shaft facing e.g. 12,5 mm plasterboards
 - 4 Main ducting (spiral duct)
 - 5 Connection ducting (Aluflex)
 - 6 Insulation against condensation
 - 7 ELS individual ventilation units surface of flush mounting without fire protection requirements
 - 8 Central fan e.g. DVEC (see page 61 on)
 - 9 Cold smoke damper KAK
 - 10 Extract air element AE or poppet valve (KTVA or MTVA)

System with in-duct fan



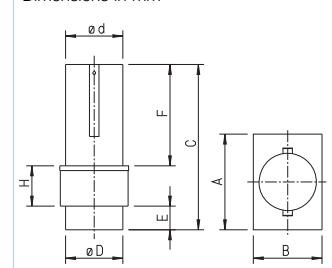
System with central fan



Ordering data

Type	Ref. No.	Dimensions in mm							Weight approx. kg	
		ø A	B	C	ø d	ø D	E	F		H
ELS-D 100	0270	183	123	385	99	102	50	250	85	2.5
ELD-D 125	0185	208	148	394	124	127	50	250	94	3.4
ELS-D 140	0186	233	163	403	139	142	50	250	103	4.0
ELS-D 160	0187	258	183	413	159	162	50	250	113	5.0
ELS-D 180	0188	283	203	424	179	182	50	250	124	6.0
ELS-D 200	0271	308	223	434	199	202	50	250	134	7.2

Dimensions in mm



KAK

NEW!



In a fire it is smoke inhalation that is the major cause of fatalities. The control of the spread of smoke is important in designing a building. The spread of smoke to areas away from the fire is cold smoke. The automatic Helios cold smoke damper with magnetic lock prevents the spread of cold smoke. They seal the supply or extract air system as required in the fire regulations.

■ Operation

According to DIN 18017-3 the central extract ventilation systems in multi-storey dwellings have common mains and a central fan that is specified above or below the ceiling. The affiliated rooms (e.g. kitchen, bathroom, toilet) in the respective storey (ventilation zone) are ventilated through the extract air ducting. The mains cross multiple ventilation zones they must be led into a fire-resistant (F90 classified) shaft. The extract air vents in each ventilation zone must be equipped with fire dampers or fire safety valves. These costly and space occupying solutions can be replaced with certified ceiling bulkheads which are integrated or moulded on the route of mains in the ceiling area. Thereby the mains can be integrated in the installation shaft.

Regional building regulations as well as general technical approvals of shut-off elements and ceiling bulkheads ensure that an exhaust air flow on the vertically attached shut-off device in the mains must always be secured to outside through the mains.

The requirement becomes relevant, if the central fan breaks down, in case of fire and the smoke reaches to the mains in the room due to excess pressure and also enters areas (other ventilation zones) which are not affected by fire due to upcoming air pressure through openings (poppet valves).

The Helios cold smoke dampers KAK with magnetic lock prevent the cold smoke from entering in other ventilation zones. They must be positioned in all supply / extract air vents behind the poppet valves or extract air elements (in combination with BAE/BAK as well).

■ Design

- Ready to install element for insertion in ducting and fittings.
- Frames with surrounding U-lip seal ring made of EPDM gasket to seal the ventilation duct.
- Shutter frames on both sides made of polymer with metal insert encompass the silicon-membrane. Therefore the shutter sits quietly in the air stream.
- A permanent magnet which seals the shutter at low pressure levels is located on a thread axis in the inner cylinder frame.

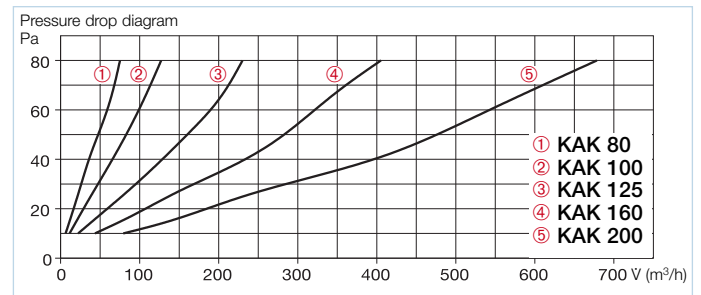
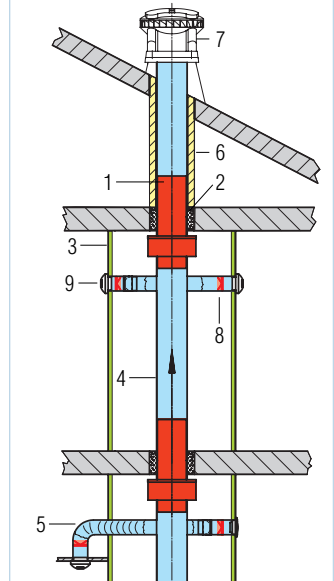
- Closing and opening pressure can be adjusted to the installation circumstances.
- The very low installation depth and the asymmetric shape of the shutter frames, which ensure a big opening angle, are particularly beneficial.

■ Installation and setting

- While inserting KAK into ducting the air flow direction must be considered.
- On vertical installation with horizontal air flow, the horizontal positioning of rotation axis must be considered.
- Positioning must be directly behind the poppet valve or behind the air inlet/outlet.

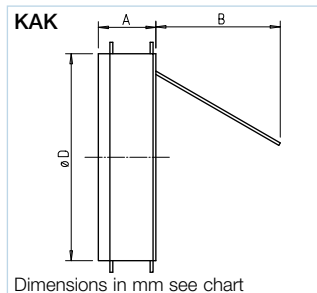
- Legends**
- 1 Ceiling bulkhead ELS-D
 - 2 Ceiling grouting
 - 3 Installation shaft facing e.g. 12.5 mm plasterboards
 - 4 Main ducting (spiral duct)
 - 5 Connection ducting (Aluflex)
 - 6 Insulation against condensation
 - 7 Central fan, e.g. DVEC (see page 61 on)
 - 8 Cold smoke damper KAK
 - 9 Extract air element AE or poppet valve (KTVA or MTVA)

System with central fan



Ordering data

Type	Ref. No.	Dim. in mm		
		ø D	A	B
KAK 80	4096	79	12	63
KAK 100	4097	95	20	60
KAK 125	4098	120	20	83
KAK 160	4099	155	20	110
KAK 200	4100	196	20	150



"Fire stop" ventilation bricks allow intake and extract ventilation in the rooms protected against fire and smoke transmission and in the cells such as installation shafts and cable ducts. They enable a constant, static air change, which prevents the heat build-up in the closed cells. Furthermore these bricks serve as air flow vent in the wall required for open fields (escape routes), as long as the vents are located on the lower part of the wall.

Special features

- Fire resistance class F 30 to F 90 conforms to DIN 4102 part 2 (see the box on the right).
- BLS consists of intumescent painted building material with the approval Nr. Z-19.11-1384 through the DIBt.
- Furthermore the regulations for the usage and installation of BLS should be taken from the general technical approval Z-19.18-1657.
- Maintenance free, No moving parts.
- Simple installation.
- Resistant against humidity, most oils, benzine and weak acids.

■ During the installation process the classification of building components is not affected. The ventilation bricks are finished with organic intumescent material, that foams up under the effect of heat. Openings, slots and joints close and thereby prevent fire and smoke transmission.

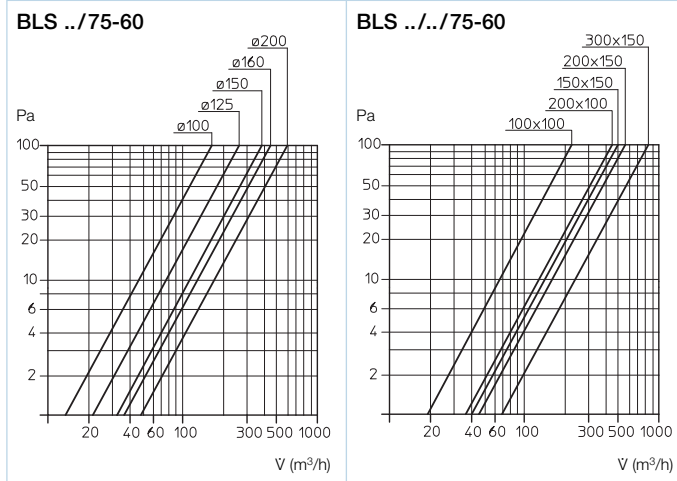
■ Each brick is delivered with two ventilation grilles made of steel (colour, pure white, RAL 9010). These non vision grilles protect the bricks on both sides.

■ Fiber silicate frames in the BLS section may cause double edges on the walls with less wall thickness.



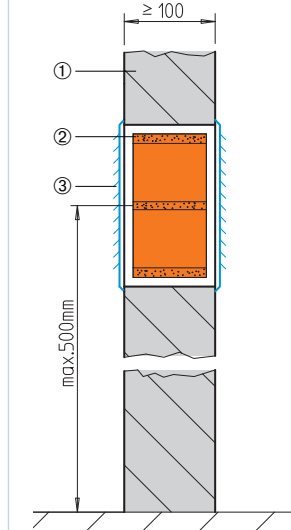
Fire resistant class	Ventilation stone Installation in	Thick mm	Legends
F 30	Brick and concrete wall. Light separating and shaft walls, classified cable ducts.	75	① Brick wall ② Ventilation brick ③ ventilation grille, on both sides
F 90	Brick-built and concreted walls. Light separating wall, classified shaft walls and cable ducts.	75	④ Fiber silicate plates

Air flow volumes – Differential pressure



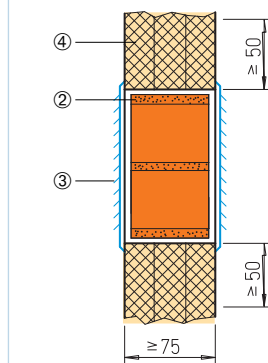
Product range, dimensions in mm									
Ventilation brick				M. openings	Wght.	Free cross	Grille		
Ref. No.	Type	ø	D	max. i.L.	kg	section cm²	W	H	
2712	BLS 100/75-60	100	75	ø 103	0.21	37	200	200	
2715	BLS 125/75-60	125	75	ø 128	0.50	43	200	200	
2767	BLS 150/75-60	150	75	ø 153	0.60	85	200	200	
2718	BLS 160/75-60	160	75	ø 163	0.67	100	255	255	
2721	BLS 200/75-60	200	75	ø 204	1.12	168	255	255	
		W	H	D			W	H	
2766	BLS 100/100/75-60	100	100	75	103 x 103	0.38	50	200	200
2724	BLS 150/150/75-60	150	150	75	153 x 153	0.80	110	255	255
2727	BLS 200/100/75-60	200	100	75	203 x 103	0.75	100	305	155
2730	BLS 200/150/75-60	200	150	75	203 x 153	1.15	147	305	200
2733	BLS 300/150/75-60	300	150	75	303 x 153	1.56	220	405	205

Installation in brick walls and concrete walls F 30 – F 90



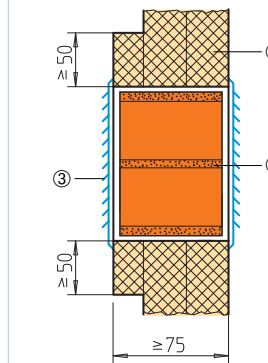
Dimensions in mm

Installation in classified separation wall and cable duct F 90



Dimensions in mm

Installation in classified separation wall and cable duct F 30 and F 90



Dimensions in mm

To control ventilation and air conditioning systems to changing requirements and conditions is a must for comfortable, energy efficient ventilation.

Variations in number of people per room, different number of pollutants, changing temperatures, day and night operation etc. Helios will be pleased to advise on any application.

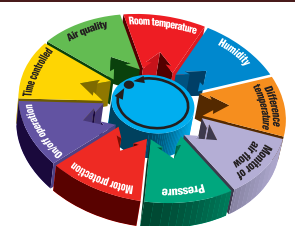
Everything from one supplier. That gives the installer and user the best possible safety and control with a full guarantee from Helios.








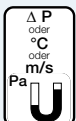



Moreover a lot of time and money is saved during design, installation and operation when the control equipment is fully compatible with the fan in its wiring layout and function. Problems are solved before they occur.

The extensive control, measure and monitor range from Helios offers the matching solutions for every task and fulfills all requirements with regards to energy saving and noise reduction.



Convenient and energy saving control.



Task	Helios controller solution	Page	
 Manual control of air flow volume	Manual speed controller – Without motor protection – 230 V, 1 ph. – Electronic, flush / surface mounted – 230 V, 1 ph. – Transformer, surface mounted – 400 V, 3 ph. – Transformer, surface mounted – 230 V, 1 ph. – Transformer, electronic, surface mounted – 400 V, 3 ph. – Frequency inverter – With built-in motor full protection for connection to thermal contacts – 230 V, 1 ph. – Transformer, surface mounted – 400 V, 3 ph. – Transformer, surface mounted – 400 V, 3 ph. – Electronic, surface mounted	ES.., BSX 403 TSW, TSSW 404 TSW, TSSW 405 ETW 406 FU.. 407 MWS 404 RDS 405 ESD 406	
	Operation switch for fans with 2 speeds – Pole switch for Dahlander windings, flush / surface mounted – Pole switch for separated windings, flush / surface mounted	PDA / PDU 401 PGWA / PGWU 401	
	 Radio electronic	Radio switching system Portable on / off switch for alternating current fans. Operates without battery and wiring.	FSS Transmitter 400 FSE 1 Receiver 400
	 Overrun timer	Overrun switch Thermal electric, electronic, mechanic with adjustable and fixed overrun time	ZT, ZNE, ZNI, ZV 399
	 Air quality	Air quality sensor with on / off function depending on room air quality	ACL 411
	Air flow velocity	Air flow monitor for monitoring the minimum air flow velocity in ducts and pipes	SWE, SWT 411
	 Room temperature dependant	Ventilation thermostat – one step with on / off function – four step, mechanical – stepless, electronic	TME 1 410 TME 4 409 EST 409
	 Temperature difference dependant	Temperature controllers with integrated power unit, surface mounted – 230 V, 1 ph. – electronic – transformer – 400 V, 3 ph. – transformer	EUR 6 C 408 KTRW 409 KTRD 409
		Differential temperature controller electronic, stepless, with power unit for surface mounting	EDTW 411
	 Humidity dependant control	Humidistat with on / off function, surface mounted	HY 3 410
 Temperature, pressure, speed Pressure dependant control	Fans for sanitary area with integrated humidity control	M1/.. F, ELS-VF 22, 53	
	Universal controller with power unit 230 V, 1 ph.	EUR 6 C 408	
 Motor protection against overload	Differential pressure switch for monitoring the air filters, system pressure and fan operation	DDS 410	
	Motor full protection switch to connect the thermal contacts for monitoring the windings temperature	MD, MW M 2, M 3, M 4 402	
 Operation switch	Motor protection tripping unit for PTC - temperature sensor in windings	MSA 402	
	Reverse switch to change air flow direction of axial fans	WS 400	
	Pole / reverse switch, as before, but for 2 speed axial fans	PWGW, PWDA 401	
 Timer	Isolating switch to disconnect all phases for service works	RHS 401	
	Weekly autotimer for automatic operation control	WSUP 399	



■ **Flush mounted overrun timer for installation in gang boxes behind a switch**

Specially designed overrun timer for bathroom and toilet. The compact design allows installation behind a switch within a single gang box. Operation via on / off switch or ideally to be combined with a light switch in rooms without a window. Can be individually adjusted through different timer variations.

Interference immunity and emission
ZT is designed with a thermal electric circuit, is immune against tolerable peak voltages and radio suppressed. The interference immunity and emission of ZNE/ZNI comply with the latest EN guidelines. ZV is tested as follows: Interference emission to DIN EN 55014 / VDE 0875-14-1; DIN EN 50370 / VDE 0875-1; DIN EN 61000-3-3 / VDE 0838-3. Installed with an additional suppressor

EG 0.1 Ref. No. 0273
In order to screen inadmissible peak voltages according to DIN EN 61000-6 the radio interference grade N is achieved. The interference immunity to DIN EN 61000-6-2 / VDE 0839-6-2 up to max. 2 kV. If those figures are exceeded additional measures will be required.

■ **Overrun timer for mounting in terminal box**

■ **Weekly autotimer**

ZT Ref. No. 1277

Thermal electric overrun timer with adjustable run on time,

depending on duty cycle. Optional delayed start via different wiring options. In parallel wiring with light switch the fan can be temporarily switched off via a series switch.

Variable run on time, depending on duty cycle.
Min. approx. 2 min.; max. approx. 12 min.
Optional delayed start (approx. 45 sec.)
Voltage 230 V, 1 ph., 50/60 Hz
Current 4 A (ind.)
Protection to IP 20
Dimensions mm W 32 x H 40 x D 14
Installation UP box behind switch
Wiring diagram-No. SS-174
– when two rooms/switches are to be controlled SS-174.3



ZNE Ref. No. 0342

Electronic overrun timer with stepless adjustable run on time

Operation via on / off switch, e. g. in combination with light switch. Compact design allows easy installation.

Stepless adjustable run on time 0–21 min.
Optional delayed start 45 sec
Voltage 230 V, 1 ph., 50/60 Hz
Current min. 0.05 A max. 0.8 A (ind.)
Protection to IP 40
Dimensions mm W 17 x H 37 x D 13
Installation in gang box behind switch
Wiring diagram-No. SS-477.1
– when two rooms/switches are to be controlled SS-174.3



ZNI Ref. No. 0343

Electronic interval switch with adjustable interval and run on time

Starts operation automatically at adjustable time intervals, if no manual switching has taken place. If switched manually, e. g. light switch, the preset overrun time applies.

Adjustable interval time 0, 4, 8, 12, 24 hr.
Run on time if manually switched, stepless adjustable 0–21 min.
Optional delayed start 45 sec.
Voltage 230 V, 1 ph., 50/60 Hz
Current min. 0.05 A max. 0.8 A (ind.)
Protection to IP 40
Dimensions mm W 17 x H 37 x D 13
Installation in gang box behind switch
Wiring diagram-No. SS-477.1
– when two rooms/switches are to be controlled SS-174.3



ZV Ref. No. 1279

Electronic overrun timer with stepless adjustable run on time and operation switch with run on time/continuous operation options.

Parallel wiring to a light switch and fan is possible via an on / off switch or push button.

Stepless adjustable run on time 4 – 15 Min.
Voltage 230 V, 1 ph., 50/60 Hz
Current 2.1 A (ind.)
Protection to IP 20
Dimensions mm W 18 x H 93 x D 67
Installation terminal box, 35 mm sectional rail
Wiring diagram-No. SS-236.1



WSUP Ref. No. 9990

Weekly autotimer

Digital autotimer with LCD display to control any unit with a nominal current of up to 8 A automatically. Suitable for switching the least electronic current from 1 mA/20 mV through a standard, gilded μ -contact. Autotimer with 42 switching times is programmable for each week day.

Voltage 230 V, 1 ph., 50 Hz
Current min. 1 mA / 20 mV DC
max. 8 A / 250 V AC $\cos \varphi \approx 1$
Switching contact potential-free changeover
Protection to IP 2 W
Dimensions mm W 85 x H 85 x D 52
Installation AP casing, UP box
Wiring diagram-No. SS-862



Reversing switch

For surface and flush mounting

WS **Ref. No. 1271**
To change air flow direction of 1 ph. and 3 ph. axial high performance fans. Installation: Surface or flush mounted (switch box is included as standard). With screw fixing (M 3, 60 mm). Similar to product pages the units are specified in the model chart

Current AC 3 / 5.5 kW / 12 A (ind.)
Voltage 230 V, 1 ph., 50/60 Hz
400 V, 3 ph., 50/60 Hz
Protection to IP 54
(when flush mounted IP 30)
Wiring diagram-No. SS-752
Weight approx. 0.4 kg
Dimensions mm W 91 x H 121 x D 109
– when flush mounted W 72 x H 72 x D 35
Casing polymer, light grey



Reversing, speed and on / off switch

Installation in UP switch box

DSEL 2 **Ref. No. 1306**
1. **Speed changeover switch** and on / off switch of fans with two speed steps such as ELS-V.. 60/35, -VN 100/60.
2. **Reverse switch** for changing the air flow direction of reversible fans (for supply and extract air) and on / off switch. Similar to product pages the units are specified in the model chart. Two toggle switches with symbols are included as standard for speed change or reverse operation. Colour pure white.

Current 3 A (ind.)
Voltage 230 V, 1 ph., 50/60 Hz
Protection to IP 30
Installation in standard UP box
Wiring diagram-No. – two speed SS-827
– Reverse operation SS-828
Dimensions mm W 80 x H 80 x D 15
Weight approx. 0.1 kg



Three speed and operation switch with 0 position

Installation in UP switch box

Convenient flush mounted speed switch for fans with three speed steps. Cannot be parallel wired with the light switch.
Voltage 230 V, 1 ph., 50/60 Hz
Weight approx. 0.1 kg

DSEL 3 **Ref. No. 1611**
Can be used with the fan models ELS-V.. 100/60/35 and ZEB 380.

DSZ **Ref. No. 1598**
Can be used with the central extract air box ZEB EC.

DSZ
Current AC 3 / 2.2 kW, AC 15 / 6 A
Protection to IP 20
Installation in UP box with 55 mm depth
Wiring diagram-No. SS-735
Dimensions mm W 80 x H 80 x D 23



Speed, operation and reversing switch

For surface and flush mounting

FR 22/30 **Ref. No. 0998**
Suitable for fan models GX 225 or 300.
For surface and flush mounted installation in dry rooms. Three sliding switches with following functions: Two pole operation switch on/off with operating display, high or low speed and reverse switch (supply/extract air).

Current approx. 0.8 A (ind.)
Voltage 230 V, 1 ph., 50/60 Hz
Protection to IP 20
Wiring diagram-No. SS-497
Dimensions mm W 210 x H 85 x D 55
Weight approx. 1.2 kg
Casing polymer, white



Radio switching system

Portable on/off switch for alternating current fans. Operates without battery and wiring.

This superior radio electronic switch opens up new dimensions in ventilation control. It operates without battery and facilitates a wireless connection from the switch point to the load. The system consists of a transmitter (radio switch, model FSS) and a receiver (model FSE 1). The flat radio switch is suited to mobile use, can also be screwed or fixed. The receiver can be mounted in the flush mounted switch box and in the terminal box.

– No cable installation and electrical work. Additional installations do not require any painting and paperhanging.

Most important advantages

- Maintenance free and reliable function on the noise free frequency of 868 MHz.
- Wireless control.
- Mobile, through a simple location change of the transmitter.

Transmitter

FSS **Ref. No. 1956**
Radio switch with piezo converter. Rocker switch with symbols on/off. Transmission range 300 m in free field, in dwellings, through walls approx. 30 m
Colour pure white
Dimensions mm W 86 x H 80 x D 25
Weight approx. 0.08 kg

Receiver

FSE 1 **Ref. No. 1957**
Can be accessed from up to 30 transmitters (model FSS).
Current 4 A (ind.)
Voltage 230 V, 1 ph., 50/60 Hz
neutral wire necessary
Wiring diagram-No. SS-839
Dimensions mm W 51 x H 51 x D 34
Weight approx. 0.05 kg



Pole switches

- for separate windings PGWA
- for Dahlander windings PDA

For surface mounting

Surface mounted operation switch for pole changing fans.

Type	Ref. No.	Current	SS No.
------	----------	---------	--------

For separate windings

PGWA 12	5083	AC 3/5.5 kW 12 A	345
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PGWA 25	5061	AC 3/11 kW 25 A	345
----------------	------	-----------------	-----

For Dahlander windings

PDA 12	5081	AC 3/5.5 kW 12 A	733 ¹⁾
---------------	------	------------------	-------------------

PDA 25	5060	AC 3/11 kW 25 A	733 ¹⁾
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¹⁾ For motors without TK: SS-732

Technical data for all models

Voltage 400 V, 3 ph., 50/60 Hz
Protection to IP 65

Type	Dimensions mm			Weight kg
	W	H	D	
P. 12	82	82	130	0.4
P. 25	92	92	140	0.5



Pole switches

- for separate windings PGWU
- for Dahlander windings PDU

For flush mounting

Pole switch PGWU/PDU

Flush mounted operation switch for pole changing fans.

Type	Ref. No.	Current	SS No.
------	----------	---------	--------

For separate windings

PGWU 12	5084	AC 3/5.5 kW 12 A	345
----------------	------	------------------	-----

For Dahlander windings

PDU 12	5082	AC 3/5.5 kW 12 A	733 ¹⁾
---------------	------	------------------	-------------------

¹⁾ For motors with thermal contacts; without TK:
Connection to wiring diagram-No. SS-732

Technical data for both models

Voltage 400 V, 3 ph., 50/60 Hz
Protection to IP 30

Dim. mm Installation depth 87
Excess length 40
Cover plate 80 x 80

Delivery incl. flush mounting box
Weight approx. 0.2 kg



Reverse and pole switch

- for separate windings PWGW
- for Dahlander windings PWDA

For surface mounting

PWGW Ref. No. 1281

For separate windings

PWDA Ref. No. 1282

For Dahlander windings

To switch speed and air flow direction of pole changing fans.
Grey polymer casing.

Technical data for both models

Voltage 400 V, 3 ph., 50/60 Hz
Current AC 3 / 7.5 kW

Protection to IP 55
Dimensions mm W 96 x H 105 x D 147

Weight approx. 0.5 kg

Wiring diagram-No. for PWGW SS-13

Wiring diagram-No. for PWDA SS-11



Speed reversing switches DS 2..

- for two speed three phase Y/Δ fans

DS 2 Ref. No. 1351

On/off and speed reversing switch for two speed three phase Y/Δ fans. Grey polymer casing for surface mounting.

Technical data for both models

Voltage 400 V, 3 ph., 50/60 Hz

Current AC 3 / 5.5 kW / 12 A

Dimensions mm W 82 x H 82 x D 130

Weight approx. 0.4 kg

Protection to, DS 2 IP 65

Wiring diagram-No. for DS 2 SS-87



- for two speed alternating current fans (SlimVent, RR)

DS 2/2 Ref. No. 1267

On/off and speed reversing switch for two speed 1 ph. fans, RR and SlimVent SVR, SVS.

Protection to, DS 2/2 IP 54

Wiring diagram-No. for DS 2/2 SS-934

Isolator switches RHS

RHS 3 + 1 Ref. No. 1594

Position "0" is lockable via padlock. Conforms to DIN EN 60204 T.1 / VDE 0113-1. Polymer casing for surface mounting. 3-pole isolator with additional terminals, for single speed and speed controlled fans.

Technical data

Voltage 400 V, 3 ph., 50 Hz

Current

- Main contact AC 3 / 5.5 kW 12 A ind.

- Auxiliary contact AC 3 / 2.2 kW 4 A ind.

Protection to IP 54

Dimensions mm W 101 x H 126 x D 104

Weight approx. 0.35 kg

Wiring diagram-No. SS-505.2



RHS 6 + 2 Ref. No. 1595

Position "0" is lockable via padlock. Conforms to DIN EN 60204 T.1 / VDE 0113-1. Polymer casing for surface mounting. 6-pole isolator with 2 additional terminals, for all pole changing fans.

Technical data

Voltage 400 V, 3 ph., 50/60 Hz

Current AC 3 / 5.5 kW

Protection to IP 65

Dimensions mm W 82 x H 82 x D 125

Weight approx. 0.3 kg

Wiring diagram-No. SS-505.3



Motor protection

Regulations and standards

The harmonised European standards and national installation directives require thermal overload protection for electric motors. This can be achieved in various ways and depends on the motor specification.

- Optimal protection is provided by thermal contacts ("TK" consecutively), which monitor the motor winding temperature. These contacts protect also the speed controlled motors.
- For low motor powers, the thermal contacts are wired in series with the motor windings, in other words, they are internally wired. This ensures an automatic function (resetting after cooling), without the operator reacting necessarily on the interference.
- For motors/fans with higher performances the leads of the thermal contacts or PTC thermistor-temperature sensor are wired to the terminal block and must be connected to the adjacent motor full protection/tripping units. Only under this condition is the warranty claim valid.
- Motors/fans without thermal monitoring elements in the windings (e. g. IEC norm motors) must be secured on all poles by a suitable motor protection switch.

For 1 ph. fans with thermal contact leads wired to the terminal block

Motor full protection switch MW

Operation and full protection unit in polymer casing for surface mounting or installation in fuse board (clamping assembly for support rail).



For 3 ph. fans with thermal contacts

Motor full protection switch MD

Operation and full protection unit in polymer casing for surface mounting or installation in fuse board (clamping assembly for support rail).



For pole changing 3 ph. fans with separate windings and thermal contacts

Motor full protection switch M 2

Switching and full protection unit in light grey polymer casing with control lamp for surface mounting.



For pole changing 3 ph. fans with Dahlander windings and thermal contacts

Motor full protection switch M 3

Design and functions as M 2

For two speed 3 ph. fans with Y/Δ switching and thermal contacts

Motor full protection switch M 4

Design and function as M 3



For 3 ph. fans with built-in positive temperature coefficient thermistors (PTC temperature sensors) for thermal motor protection. Specified for use in speed controlled, explosion proof fans.

Motor full protection switch MSA

Tripping unit with manual reset for 1 to 6, PTC thermistors wired in series.



MW

Ref. No. 1579

On/off operation via push-button switch. Manual reset function interference.

Volt free auxiliary contact for connection of failure indication alarm.
230 V, 1 ph., 50/60 Hz, applicable from 80 V
Nominal current 0.4 to 10 A
Protection to IP 55 Weight approx. 0.5 kg
Dimensions mm W 80 x H 140 x D 95
Wiring diagram-No. SS-517

MD

Ref. No. 5849

On/off operation via push-button switch. Manual reset function interference.

Volt free auxiliary contact for connection of failure indication alarm.
400 V, 3 ph., 50/60 Hz, applicable from 80 V
Nominal current 0.1 to 25 A
Protection to IP 55 Weight approx. 0.5 kg
Dimensions mm W 80 x H 140 x D 95
Wiring diagram-No. SS-518

M 2

Ref. No. 1292

If the thermal contact opens the motor disconnects from the supply. Restarting after interference via "0" position on the switch.

Voltage 400 V, 50/60 Hz
Power AC 3 / 5.5 kW
Nominal current approx. 12 A
Protection to IP 55 Weight approx. 1.0 kg
Dimensions mm W 170 x H 135 x D 115
Wiring diagram-No. SS-142

M 3

Ref. No. 1293

As M 2, but suitable for pole changing 3 ph. fans with Dahlander windings and built-in thermal contacts.
Dimensions mm W 170 x H 135 x D 135
Wiring diagram-No. SS-143

M 4

Ref. No. 1571

As M 3, but suitable for two speed 3 ph. fans with Y/Δ switching and built-in thermal contacts.
Wiring diagram-No. SS-144

MSA

Ref. No. 1289

For thermal protection of electric motors to DIN 44081 and 44082 (by guideline 94/9/EG (ATEX)). If the nominal response temperature in PTC thermistors reaches a set limit the built-in relay disconnects the motor. The fault is indicated by a light emitting diode. Restarting via pressing the "Reset" button or an external switch. Casing made of polymer, suitable for fuse board installation on support rail according to DIN EN 60715.

Voltage 230 V ± 15 %, 50/60 Hz
3 phase operation via contactor
Current at 230 V 3 A AC 15
Connection options 1 to 6 PTCs in series
Tested by Physikalisch-Technische Bundesanstalt, according to DIN EN 60079-14/ VDE 0165, DIN EN 60079-0/VDE 0170-1 or DIN EN 60079-10/VDE 0165 T. 101
Protection to IP 20 Weight approx. 0.2 kg
Dimensions mm W 35 x H 90 x D 58
Wiring diagram-No. SS-325.1

Information

Page

Technical information	17 on
Transformer controllers with motor full protection unit	
– for 1 ph. motors MWS	404
– for 3 ph. motors RDS	405

■ **Electronic speed controller for stepless speed control of single phase fans**

- A number of different fans can be controlled with one controller within 90% of the controller's maximum load.
- The minimum speed can be adjusted using the potentiometer.
- Overload protection via built-in fuse.
- Additional terminal (always carrying the full Voltage if controller is switched on) for connection of lamps or shutters.
- Conforms to EMV directives. VDE 0875/12.88 Pt. 1 and 3, EN 61000, EN 55104, EN 60669 and IEC 669-2-1,CE.

■ **Surface mounted models**

- Attractive, totally closed casing of polymer.
- ESA 1 and 3 with illuminated control knob.

■ **Important note**

- Only motors which are suitable for speed control via electronic control should be used.

- **Electronic speed controllers**, may cause motor humming at lower Voltages. For noise critical applications we recommend the use of low noise transformer controllers.

For surface mounting 230 V / 1 ph.

For surface mounting, with reversing switch 230 V / 1 ph.

Suitable for fan models: HVR 150/2 RE, REW 150 and 200, range HV. H..200/4 and 250/4 and window fans GX..

For fuse board installation 230 V / 1 ph.

For surface mounting 220/240 V / 1 ph.

AVAILABLE IN THE UK ONLY!

ESA 1 Ref. No. 0238

Max. load 1 A (T 40 E)
White polymer casing.
Operation display via illuminated ring in control knob.
Minimum current 0.15 A
Protection to IP 40
Wiring diagram No. SS-556.1
Dimensions mm W 80 x H 80 x D 65

ESU 1 Ref. No. 0236

flush mounting in mm ø 57; D 34

ESA 3 Ref. No. 0239

Max. load 2.5 A (T 40 E)
White polymer casing.
Operation display via illuminated ring in control knob.
Minimum current 0.15 A
Protection to IP 40
Wiring diagram No. SS-556.1
Dimensions mm W 80 x H 80 x D 65

ESU 3 Ref. No. 0237

flush mounting in mm ø 57; D 34

ESA 5 Ref. No. 1299

Max. load 5 A (T 40 E)
Light-grey polymer casing, facia plate anodised aluminium
Minimum current 0.2 A
Protection to IP 54
Wiring diagram No. SS-165
Dimensions mm W 85 x H 155 x D 72

ESU 5 Ref. No. 1296

flush mounting in mm W 69 x H 152 x D 42

BSX Ref. No. 0240

Max. load 1 A (T 40 E)
Surface mounted speed controller with reversing switch for reversible fans (intake/extract) in a white polymer casing. Only suitable for fans, that are reversible via reversing switch.
Minimum current 0.15 A
Protection to IP 40
Wiring diagram No. SS-480.2
Dimensions mm W 80 x H 80 x D 65

ESE 2.5 Ref. No. 1302

Max. load 2.5 A (T 40 E)
For installation in fuse boards (35 mm standard buzzbar profile and for 68 mm built-in range).
Minimum current 0.1 A
Protection to IP 20
Wiring diagram No. SS-376
Dimensions mm W 50 x H 85 x D 60 (there from 10 mm protruding)

Electronic speed controller

Frequency 50/60 Hz
Protection to IP 65
Wiring diagram No. SS-710

ESA 3 IND Ref. No. 7806

Maximum current 3 A
Dimensions mm W 111 x H 99 x D 54

ESA 6 IND Ref. No. 7807

Maximum current 6 A
Dimensions mm W 145 x H 97 x D 64

ESA 10 IND Ref. No. 7808

Maximum current 10 A
Dimensions mm W 104 x H 146 x D 83



Five step transformer speed controller for speed controlling of 1 ph. alternating current fans

- Suitable for power control of all speed controllable 1 ph. alternating current fans.
- Four secondary voltages stepped in 80 / 100 / 130 / 170 and 230 V (full mains voltage) allow to control 5 fan speeds.
- A number of different fans can be connected to one controller up to its nominal load.

Advantages

- Good cost effectiveness.
- Reliable.
- Low loss and low noise fan operation.
- MWS-, TSW- (from the model TSW 1,5) and STSSW models with full power output for connection with the signal lamp or shutter.

Design for surface mounting units

- Robust ISO casing, light grey, made of impact resistant polymer. Protection to IP 54.
- Built-in operating switch for five speed steps and on/off function.
- Operation display via control lamp.
- Fully impregnated transformers T 40 E.
- Conforms to DIN VDE 0550.
- Max. permitted ambient temperature +40 °C.
- Delivered ready for installation, simple connection to terminal block.

Design for built-in transformers

- Built-up terminal block for five voltage outputs.
- Attached fixing brackets for simple fixture.
- Fully impregnated transformers T 40 E.

Accessories

Six step cam switch, model STSSW for switch board installation, with front mounting plate.

**For surface mounting
Max. load 0,35 A
1 ph. alternating current, 230 V**

**For surface mounting
1 ph. alternating current, 230 V**

**For switchboard installation
1 ph. alternating current, 230 V**

**With motor full protection facility
1 ph. alternating current, 230 V
For surface mounting**

Mini speed controller TSW 0.3
Compact five step speed controller with on/off switch for surface mounting in dry rooms. Polymer casing, white.

TSW 0.3 Ref. No. 3608
max. load 0.35 A
Protection to IP 20
Dimensions mm W 160 x H 85 x D 60
Wiring diagram-No. SS-496.1



Transformer speed contr. TSW
For one or more alternating current fans.

Type	Ref. No.	I max. A	Dim. in mm		
			W	H	D
TSW 1.5¹⁾	1495	1.5	154	200	79
TSW 3.0¹⁾	1496	3.0	154	200	148
TSW 5.0²⁾	1497	5.0	200	254	167
TSW 7.5²⁾	1596	7.5	200	254	167
TSW 10²⁾	1498	10.0	200	254	167

¹⁾ SS-960 ²⁾ SS-437.1

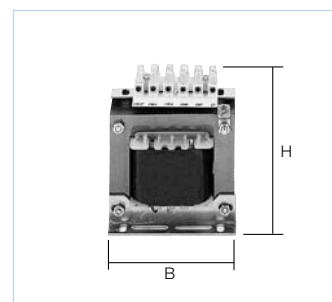


Speed control transformer TSSW

Built-in transformer with rail and terminals for 5 output voltages.

Type	Ref. No.	I max. A	Dim. in mm		
			W	H	D
TSSW 1.5	6520	1.5	78	90	78
TSSW 3	6521	3.0	84	94	92
TSSW 5	6522	5.0	105	111	87
TSSW 10	6523	10.0	120	122	112

Wiring diagram-No. SS-268



Five step operating switch STSSW

Accessory for control transformer TSSW for 230 V, 1 ph. fans. For switchboard installation with front fixing and front panel. Connections are deepened.

STSSW Ref. No. 0234
Voltage AC 3, 230 V
max. load 2.2 kW
Installation depth 70 mm, □ 46 mm
Wiring diagram-No. SS-548



Transformer speed contr. MWS with motor full protection facility

Five step speed controller with integrated tripping unit for 230 V, 1 ph. fans. To connect thermal contacts wired to the terminal box. A number of fans can be controlled up to the nominal load. If a thermal contact trips all fans will be disconnected. Step switch and control lamp included. Restarting via "0" position after interference or power cut off.



Type	Ref. No.	I max. A	Casing IP 54 made of	Dimensions in mm			Weight approx. kg
				W	H	D	
MWS 1.5	1947	1.5	Polymer	200	254	98	3.0
MWS 3	1948	3.0	Polymer	200	254	98	4.0
MWS 5	1949	5.0	Polymer	200	254	167	5.3
MWS 7.5	1950	7.5	Polymer	236	316	188	10.0
MWS 10	1946	10.0	Polymer	236	316	188	13.5

Connection according to wiring diagram No. SS-440.4

■ **Five step transformer speed controller for speed controlling of 3 ph. alternating current fans**

□ Suitable for speed control of all speed controllable 3 ph. alternating current fans, for Y/Δ reversible switching models in higher steps.

□ Four secondary voltages stepped in 80 / (115)* / 140 / 200 / 280 and 400 V (full mains voltage) allow to control 5 fan speeds.

* On TSD internally adjustable for voltage controllable, explosion proof in-duct and roof fans.

□ A number of different fans can be connected to one controller up to its nominal load.

■ **Advantages**

- Good cost effectiveness.
- Reliable.
- Low loss and low noise fan operation.
- RDS-, TSD- and STSSD models with full power output for connection with the signal lamp or shutter.

■ **Design for surface mounting units**

- Robust ISO casing, light grey, made of impact resistant polymer. Protection to IP 54. Models from RDS 7 and TSD 5.5 made of steel, double painted, protection to IP 65.
- Built-in operating switch for five speed steps and on/off function.
- Operation display via control lamp.
- Fully impregnated transformers T 40 E, protection class II.
- Conforms to DIN VDE 0550.
- Max. permitted ambient temperature +40 °C.
- Delivered ready for installation, simple connection to terminal block.

■ **Design for built-in transformers**

- Two transformers in V switching ensure the functions as described above.
- Built-up terminal block for five voltage outputs.
- Attached fixing brackets for simple fixture.
- Fully impregnated transformers T 40 E.
- Contactors and external wiring to be supplied onsite.

□ **Accessories**

Five step switch STSSD for fuse board installation, with front board.

**For surface mounting
3 ph. alternating current, 400 V**

**For switchboard installation
3 ph. alternating current, 400 V**

**With motor full protection facility
3 ph. alternating current, 400 V
For surface mounting**

Speed control transformer TSD

As TSW, but for 3 phase fans.

Type	Ref. No.	I max. A	Dim. in mm			
			A	W	H	D
TSD 0.8	1500	0.8	200	254	167	
TSD 1.5	1501	1.5	200	254	167	
TSD 3.0	1502	3.0	200	254	167	
TSD 5.5	1503	5.5	300	300	150	
TSD 7.0	1504	7.0	300	300	150	
TSD 11.0	1513	11.0	300	400	200	

Wiring diagram-No. SS-436.2

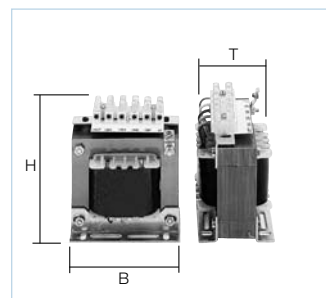


Speed control transformer TSSD

As TSSW, but two transformers without casing, in V switching.

Type	Ref. No.	I max. A	Dim. in mm			
			A	W	H	D
TSSD 1	6516	1.0	84	95	80	
TSSD 2	6517	2.0	96	104	92	
TSSD 4	6518	4.0	105	112	98	
TSSD 7	6519	7.0	120	122	134	
TSSD 11	6515	11.0	150	146	158	

Wiring diagram-No. SS-267.1

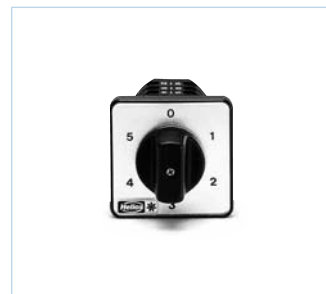


5 step operating switch STSSD

Suitable for control of transformer TSSD for 400 V, 3 ph. fans. For switchboard installation with front fixing and front panel. Connections are deepened.

STSSD Ref. No. 0235

Voltage AC 3, 400 V
max. load 5.5 kW
Installation depth 110 mm, □ 46 mm
Wiring diagram-No. SS-549.1



Transformer speed controller RDS with motor full protection facility

Five step speed controller with integrated thermal contact tripping unit for 400 V, 3 ph. alternating current fans. To connect thermal contacts wired to the terminal box. A number of fans can be controlled up to the nominal load. If a thermal contact trips all fans will be disconnected. Step switch and control lamp included. Restarting via "0" position after interference or power cut off.



Type	Ref. No.	I max. A	Casing IP 54 made of	Dimensions in mm			Weight approx. kg
				W	H	D	
RDS 1	1314	1.0	Polymer	236	316	128	6.0
RDS 2	1315	2.0	Polymer	236	316	128	9.7
RDS 4	1316	4.0	Polymer	236	316	128	10.5
RDS 7	1578	7.0	Steel	300	300	150	21.0
RDS 11	1332	11.0	Steel	300	400	200	26.0

Designed to comply with VDE 0550, fully impregnated transformers in V switching.
Max. permitted ambient temperature + 40 °C. Wiring diagram-No. SS-139.

ESD



The Helios range of speed controllers offer a simple solution between fans and building management systems!

Common features

- Control via analogue 0–10 V input signal on the building site, electronic control system EUR 6 C or other control units.
- A number of different fans can be controlled by one controller up to its maximum load.
- Several controllers can be controlled in parallel by a building management system that allows the ventilation to be divided in several fans or fan units and therefore in several circuits.

Accessories for both ranges

An universal control unit with 10 V can be used if the fans are not controlled by a building management system.

EUR 6 C Ref. No. 1321

For specification see the page of electronic control system.

Specification ESD

Convenient, stepless, electronic speed controller for 3 ph. fans, which can be controlled via phase control through voltage lowering (except KVD.. Ex models).
 The most modern technology by use of micro controllers.

Adjusting possibilities/Display

- On/off and stepless speed selection via rotary potentiometer.
- 0-10 V input. Thereby can be remote controlled by an external rotary potentiometer (22 kOhm).
- 3 ph. phase monitoring, Protection against phase failure.
- Smooth start-up function.
- Automatic minimum initial voltage 80 V.
- Fulfills EMV requirements class B, no need for shrouded wiring between unit and motor.
- LEDs as status and fault display.
- Integrated protection for electronics against overload.
- Motor full protection through monitoring the thermal contacts of motors.

Casing

- Polymer casing, light grey with wide cooling element.
- Can be used directly even in dirty areas (e.g. kitchen) through the protection to IP 65.

Model range

Type	Ref. No.	Output current	Power input	Connection to wiring diagram	Dimensions			Cooling element Width	Weight	Protection to
					H	W	D			
		A	kW	No.	mm	mm	mm	kg	IP	
For alternating current fans, 3 ph., 400 V, 50/60 Hz										
ESD 5	0501	5.0	2.2	831	160	115	165	23	1.5	65
ESD 11.5	0502	11.5	5.5	831	160	160	165	68	1.7	65

ETW



Specification ETW

Seven step electronic transformer control unit for speed control of 1 ph. fans.
 Robust and low loss power units for ventilation systems controlled by building management systems.

Adjusting possibilities/Display

- Built-in operating switch allows on, off and direct supply.
- Power step rotary switch allows manual operation of steps (1–7) or automatic operation. In “auto” mode the automatic control of the transformer control unit is carried out by the onsite ventilation control.
- The operating step is displayed by a LED.
- The built-in minimum air volume switch can be totally switched off from the ventilation controller via an analogue input.

Overload protection

ETW models are protected by a built-in temperature switch against permanent overload. When the overload protection trips the unit switches automatically to direct supply. After cooling down the unit switches back to normal operation. The interference can or should be signalled via the output to an external alarm.

Casing

- Polymer casing, light grey.

Dimensions

Type	Dim. in mm			Weight kg
	H	W	D	
ETW 5	315	240	210	8
ETW 10	315	240	210	10

Model range

Type	Ref. No.	Output current	Output voltages Step							Connection to wiring diagram	Protection to
			1	2	3	4	5	6	7		
		A	V							No.	IP
For alternating current fans, 1 ph., 230 V, 50/60 Hz											
ETW 5	1263	5.0	80	95	115	135	165	195	230	683	54
ETW 10	1264	10.0	80	95	115	135	165	195	230	683	54

FU..



Advantages

- Specifically for the HLK usage of optimised inverter.
- Immediate start-up via plug + drive concept.
- Considerable energy savings through on demand fan speed.
- Specifically designed for fans, resulting in minimum energy consumption and minimum noise production in partial load zone.
- Suitable for maintenance free three phase asynchronous motors of all sizes and performance levels.
- No power limitation if standard motors are used.
- Precisely, on demand power adjustment.
- Fault indication via voltage free contacts.
- Programmable acceleration and deceleration times to reduce starting noise.
- Simple to add on to existing systems.
- Integrated radio suppression filter to adherence of limits according to EN 55011 class A, group 1 (for panel mounting units FUS..) or class B, group 1 (for models FUG.. in surface mounted casing).
- Internal power supply: 10 V DC/10 mA for potentiometer 1–10 kOhm and 24 V DC/200 mA for control of digital inputs.

Special features

- Simple adjustment and control of values via display.
- Extensive diagnostic display in case of failure.
- Compact design.
- Analogue inputs for speed selection (0-10 V, 0-20 mA, 4-20 mA).
- Speed selection
 - via analogue inputs
 - via potentiometer
 - directly on unit via display.
- Protection against earth leakage and short circuit.
- Built-in electronic motor protection via thermal contacts or PTC.
- Control circuit galvanically separated.
- Integrated mains filter to reduce circuit feedback.
- Protection against peak voltage.
- Serial port RS 485.

Technical information

When selecting a suitable frequency inverter, the max. motor current must be considered. If a number of fans are controlled the sum of all the individual currents must be taken. In order to avoid faults and breakdowns, a reserve of 10 % must be kept. The maximum frequency of 50 Hz must not be exceeded with standard fans, as the motor will overloaded and thus fail. An operation with higher frequency is available on request. If operated for longer times at very low speed (< 20 % of nominal speed) or if the speed changes frequently the motor temperature must be monitored through thermal contacts or PTC. For design details see installation and operation instructions.

Note

Different motors are only suitable for operation with the frequency inverter, if a sinus filter on all poles is installed between inverter and motor to protect the phases against each other. When ordering the fan, it must be stated that a frequency inverter is to be used.

Design – model range

Helios VarioVent cover the range from 1.5 to 22 kW (43.5 A). Units for higher outputs are available on request.

There are two models:

- Basic version FUS.. , IP 20, switchboard mounting, EMV filter class A.
- Casing version FUG.. for surface mounting, IP 54, EMV filter class B.

The designs differ with regards to protection, dimensions, radio interference suppression as well as the maximum cable length. They can be operated directly via integrated display or via remote control.

General technical data

Supply voltage	3 ph., 380 – 480 V
Frequency	50/60 Hz
Output voltage	0 – supply voltage
Output frequency	0 – 200 Hz

Control inputs and outputs:

2 analogue inputs	0 – 10 V DC 0 – 20 mA DC
3 logic inputs	max. 30 V
1 analogue output	0 – 10 V DC 0 – 20 mA
2 relay outputs	min. 3 mA, 24 V DC max. 2 A, 250 V (ind)
Internal	10.5 V DC, 10 mA
Voltage source	24.0 V DC, 200 mA
Ambient temperature	–10 to +40 °C

Accessories

Electronically automatic control for connection to FU.. models.

EUR 6 C Ref. No. 1321

For specification see the product page of electronic control system.

Type	Ref.No.	maximum power		Cable cross sectional area from supply and to motor (shielded cable)	Connection to wiring diagram	Dimensions			Nominal weight approx.	Suitable sinus filter*	
		Output current	Motor			Height	Width	Depth		Type	Ref. No.
		A	kW	mm ²	No.	mm	mm	mm	kg		
Units for panel mounting, protection to IP 20											
FUS 3.7	6093	3.7	1.5	4 x 1.5 ¹⁾	896	192	105	150	2.0	FU-SF 11	6116
FUS 5.1	6094	5.1	2.2	4 x 1.5 ¹⁾	896	192	105	150	2.0	FU-SF 11	6116
FUS 7.2	6095	7.2	3.0	4 x 1.5 ¹⁾	896	232	140	150	3.4	FU-SF 11	6116
FUS 12	6097	12.0	5.5	4 x 2.5 ¹⁾	896	232	140	150	3.4	FU-SF 16	6117
FUS 16	6098	16.0	7.5	4 x 4.0 ¹⁾	896	307	180	170	6.5	FU-SF 33	6118
FUS 22.5	6099	22.5	11.0	4 x 6.0 ¹⁾	896	405	245	190	6.5	FU-SF 33	6118
FUS 30.5	6100	30.5	15.0	4 x 10 ¹⁾	896	405	245	190	11.7	FU-SF 33	6118
FUS 37	6101	37.0	18.5	4 x 16 ¹⁾	896	405	245	190	11.7	FU-SF 66	6119
FUS 43.5	6102	43.5	22.0	4 x 16 ²⁾	896	537	240	210	26.4	FU-SF 66	6119
Units for surface mounting, protection to IP 54											
FUG 3.7	6105	3.7	1.5	4 x 1.5 ³⁾	896	297	215	192	7.5	FU-SF 11	6116
FUG 5.1	6106	5.1	2.2	4 x 1.5 ³⁾	896	340	230	208	7.5	FU-SF 11	6116
FUG 7.2	6107	7.2	3.0	4 x 1.5 ³⁾	896	340	230	208	10.6	FU-SF 11	6116
FUG 12	6109	12.0	5.5	4 x 2.5 ³⁾	896	340	230	208	10.6	FU-SF 16	6117
FUG 16	6110	16.0	7.5	4 x 4.0 ³⁾	896	340	230	208	11.9	FU-SF 33	6118
FUG 22.5	6111	22.5	11.0	4 x 6.0 ³⁾	896	560	290	315	36.5	FU-SF 33	6118
FUG 30.5	6112	30.5	15.0	4 x 10 ³⁾	896	560	290	315	36.5	FU-SF 33	6118
FUG 37	6113	37.0	18.5	4 x 16 ³⁾	896	665	310	315	45.0	FU-SF 66	6119
FUG 43.5	6114	43.5	22.0	4 x 16 ³⁾	896	720	284	315	58.5	FU-SF 66	6119

maximum cable length: 1) 5 m 2) 50 m 3) 20 m * For switchboard mounting, IP 20

■ **Universal controller EUR 6 C**
Electronic control automatic
with power supply unit
operating on the phase control
principle.

□ **Operation**

For control of central ventilation systems or for stepless control of one or several speed controllable 1 ph. fans.

In domestic, commercial, industrial and agricultural applications.

□ **Control functions**

Simple and quick start-up of parameters via integrated "start-up wizard". Depending on the connected sensor a control can be carried out according to following control variables:

- **Manual speed control**, e.g. adjustable via keyboard
- **Temperature standard** (required accessory, temperature sensor LTR 40 or LTK 40)
- **Temperature with additional functions** hard-wired, (required accessory, temperature sensor LTR 40 or LTK 40)
- **Differential temperature control** (required accessory, temperature sensor LTR 40 or LTK 40)
- **Differential pressure standard** (required accessory, differential air pressure sensor LDF 500)
- **Differential pressure with outside temperature compensation** (required accessory, differential air pressure and temperature sensor LDF 500 and LTR 40 or LTK 40). Ideally used in central extract ventilation systems according to DIN 18017 in domestic applications.
- **Air velocity** (required accessory, air velocity sensor LGF 10)

The required sensor is to be ordered as accessory separately. The control ranges are freely adjustable within the sensor's range.

The aligned output voltage according to nominal value and current value is between 0% (35 V) to 100% (correspond to approx. 80 V - 230 V).

The selection of minimum and maximum values are possible.

- Main switch with positions:
 "0" = Controller off
 "I" = Automatic operation
 "230 V" = uncontrolled direct supply.

Inputs and outputs:

Outputs:

- 1 x motor connection based on phase control principle.
- 1 x analogue output 0-10 V control of e.g. a frequency inverter, shutter, EC-motor.



- 2 x voltage free relays, programmable, alarm, heating or status signals.

Inputs:

- 2 x sensor inputs, programmable on the particularly needed sensor type.
- Connection of thermal contacts for motor protection.

The whole system stops when a thermal contact trips. It must be restarted manually after the motor has cooled down.

- 2 x digital inputs, programmable to enable, external interference, limit on/off, switching night time mode, internal/external, automatic/manual, reset, max. speed on/off.

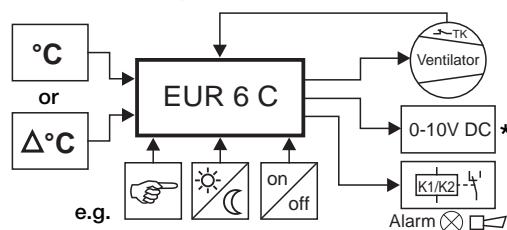
Settings

- Stepless selection of nominal values and control range
- Min./max. power (speed) limitation
- On/off switching of minimum air flow volume
- Setting for a switched output e.g. for a heater via programmable relay
- Stepless selection for alarm indication at over and under temperature, Output on display or additionally on relay
- Min. and max. shutter opening
- Reverse control functions
- Continuous control of ventilation dampers
- The setting is carried out through a dirt resistant membrane keyboard

□ **Display**

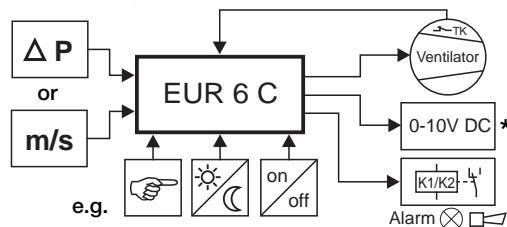
- Multi functions LC-display
- Numerical nominal and actual value display with scale
- Symbols (alarm, heater, selection)
- Bar graph/level indicator
- Text display for menu, status and fault indications

Mode 2.03: Temperature control with additional function
Mode 2.05: Differential temperature control



* e.g. for EC-Motor, shutter, frequency inverter

Mode 4.01: Differential pressure control
Mode 6.01: Air velocity control



* e.g. for EC-Motor, shutter, frequency inverter

□ **Casing**

Polymer, light grey, for surface mounting.
 Protection to IP 54
 Dim. mm W 223 x H 200 x D 131

■ **Required accessories**

- LDF 500** Ref. No. 1322
Differential air pressure sensor
Range 0 - 500 Pa
- LGF 10** Ref. No. 1325
Air velocity sensor
Range 0 - 10 m/s
- LTA 40** Ref. No. 1336
Temperature sensor for outside
Range -20 to +60 °C
- LTK 40** Ref. No. 1324
Temperature sensor for in-duct installation
Range 0 to +40 °C
- LTR 40** Ref. No. 1323
Room temperature sensor
Range 0.5 to +40 °C

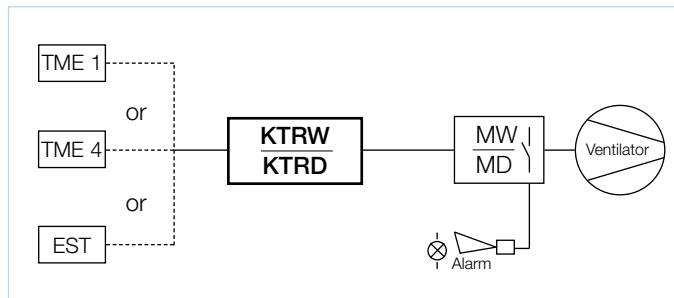
EUR 6 C	Ref. No. 1321
Voltage	230 V, 1 ph., 50/60 Hz
max. current	6 A
Required minimum current	0.2 A
Controlled output voltage	0 - 100 %
Control range temperature	0 - 40 °C
Control range pressure	0 - 500 Pa
Control range velocity	0 - 10 m/s
Permitted ambient temperature	0 to +40 °C
Weight	approx. 1.4 kg
Wiring diagram-No.	SS-911

□ **Note**

Electronic speed controllers may produce motor humming. For noise critical applications transformer controllers to be used.

■ Five step auto transformer controller KTRW and KTRD

- Delicate, low loss transformer controller for temperature dependent fan control.
- Recommended for noise critical applications.
- Control via an electronic thermostat TME 4 or EST to be ordered separately as accessory.



For alternating current fans 1 ph., 230 V, 50/60 Hz

Auto transformer KTRW 230 V

For automatic control of one or several 1 ph. alternating current fans in relation to the room temperature.

Five step automatic operation, whereby each step can be switched manually as well. Suitable for agricultural applications.

Light grey, polymer casing.

Type	Ref. No.	I max. A	Dim. in mm		
			W	H	D
KTRW 3	1662	3	236	316	128

Voltage 230 V, 1 ph., 50/60 Hz
Protection to IP 54
Max. ambient temperature +40 °C
Wiring diagram-No. SS-674



For alternating current fans 3 ph., 400 V, 50/60 Hz

Auto transformer KTRD 400 V

For automatic control of five step 3 ph. alternating current fans in relation to the room temperature.

The built-in operating switch allows five step manual and automatic control.

Robust casing made of steel, double painted in light grey.

Type	Ref. No.	I max. A	Dim. in mm		
			B	H	T
KTRD 3	1650	3	300	500	200
KTRD 5,5	1651	5.5	300	500	200
KTRD 10	1652	10	400	500	200
KTRD 15	1653	15	400	500	200

Voltage 400 V, 3 ph., 50/60 Hz
Protection to IP 54
Max. ambient temperature +40 °C
Wiring diagram-No. SS-676.1



■ Accessories for KTRW and KTRD

Four step electronic thermostat

For temperature dependent control of a KTR transformer controller or for on/off operation of up to four single phase fans (supply voltage 230 V required).

Electronic four step thermostat with a switching sequence of 1 K for adjusted nominal value.

Enables a five step, temperature controlled fan operation in combination with the auto transformer KTR according to the relation between the nominal and actual temperatures.

Robust casing made of impact resistant, light grey polymer. Cable entry at the bottom of the casing in PG 11.

TME 4 Ref. No. 1335

Voltage 230 V, 1 ph., 50/60 Hz
Max. continuous current (AC 3) 6 A
Temperature range 0 to +50 °C
Switching precision +/- 0.8 K at 20 °C
Switching distance 1 K
Protection class II
Protection to IP 54
Dimensions mm W 120 x H 80 x D 75
Weight approx. 0.4 kg
Wiring diagram-No. SS-702



Electronic control thermostat EST with versatile control variables to control an auto transformer KTR..

Control functions

- Temperature dependent, five step fan control via KTR.. units. Limiting of control range through selecting a minimum and maximum air rate (voltage). Minimum air rate can be switched on and off.
- Ventilation damper control (analogue 0...10 V)
- Control of a frequency inverter (analogue 0...10 V)
- Heating thermostat
- Temperature display (too low and to high temperature with outside air temperature compensation).
- The setting is carried out through a dirt resistant membrane keyboard.

□ Displays

- Displays for operation mode, room temperature, outside temperature and adjusted nominal temperature.
- Signal-LED for lowering automatism.
- Alarm signal-LED for over/under temperature and system failures.
- Scaled LED display (0-100 %) for fan speed and opening of shutter

□ Temperature sensor

An outside and an inside temperature sensors are included as standard. Casing with protection to IP 55. Installation up to 100m distance from controller. To connect via 3 x 1.5 mm² cable.

□ Settings

- Stepless selection of nominal temperature and control range.
- Min. / max. power (speed) limit.
- On/off switching of minimum air flow volume.

EST Ref. No. 1355

Voltage 230 V, 1 ph., 50/60 Hz
Protection to IP 54
Transformer connect. 230 V AC/max. 10 A
Temperature range (adjustable) 0 - 40 °C
Control range (adjustable) 2 - 12 K
Alarm low temp. (adjustable) -20 - 0 K
Alarm high temp. (adjustable) 0 - 25 K
Heating (adjustable) -15 - +5 K
Outside temp. compensation 0 - 20 K
Min. air rate approx. 0 - 40 %
Max. air rate approx. 60 - 100 %
Disable of minimum air speed -25 - 0 K
Dimensions mm W 260 x H 215 x D 120
Weight approx. 2.0 kg
Wiring diagram-No. SS-357.3



- Lowering automatism on/off
- Stepless temperature selection for heater control
- Stepless selection of alarm indication at too low and too high temperatures
- Min. and max. shutter opening

■ Casing

Polymer, light grey with transparent hinged lid, for surface mounting.

Differential pressure switch DDS
DDS Ref. No. 0445

■ **Operation**

- Complete kit to monitor air filter, system pressure and fan operation.
- Suitable for BMS applications (24 V DC/0,1 A) thanks to the gold-plated connection contacts. Once the unit has been connected conventionally (230 V AC/1,5 A) a BMS application is no longer possible.
- Suitable for applications according to VDI 6022.

■ **Technical data**

Adjustable pressure range	50 – 500 Pa
Switching difference Δp	20 Pa
max. system over pressure	5 kPa
Current	230 V AC 1.5 (0.4) A
	24 V DC 0.1 A
Ambient temp.	-20 to +85 °C
Air flow temp.	-20 to +85 °C
Humidity	0...50% r.F., non-condensing
Protection to	IP 54
Dimensions mm	ø 104, D 58
Weight approx.	0.23 kg
Wiring diagram-No.	SS-490



■ **Function**

Adjustable opener/closer to monitor the pressure drops and thus the amount of dust in air filters, the pressure increase of fans and the pressure level within the ventilation system.

■ **Product contents**

- Complete kit including:
- Differential pressure switch DDS
 - 4 fastening screws
 - 2 pipe connections
 - Connection pipe ø 6 mm x 1.5 mm x 2000 mm
 - Drilling template for connecting points
 - Retain plate + 3 fastening screws
 - 3 screw terminals

One step thermostat TME 1
TME 1 Ref. No. 1334

■ **Operational applications**

- Robust, electronic thermostat for temperature dependent on/off operation of fans or heaters. Suitable for installation in humid and dusty rooms. Surface mounting in any position.

■ **Technical data**

Voltage	230 V, 1 ph., 50/60 Hz
Current	16 A
Max. current (AC 3)	6 A
Temperature range	0 to +50 °C
Switching sensitivity	+/- 0.8 K at 20 °C
Protection class	II
Protection to	IP 54
Ambient temp.	0 bis +60 °C
Dimensions mm	W 82 x H 80 x D 75
Weight approx.	0.2 kg
Wiring diagram-No.	SS-701
Connection cable	NYM-0 4 x 1.5 mm ²



■ **Function**

- Single step control thermostat for direct switching of one or a number of fans.
- Also suitable for heater control through optional connection.
- Voltage free switch-over contact.

■ **Specification**

- Enclosed casing made of impact resistant, light grey polymer. Cable entry on the bottom of casing via self-sealing grommet PG 11.
- Connection via terminal block, after removing the casing cover.

Ventilation humidistat
HY 3 Ref. No. 1359

Ventilation humidistat
HY 3 SI Ref. No. 1360

Inner scale.

■ **Operation**

- Electromechanical humidity controller for on/off operation of fans (in 3 ph. models control via contactor) to reduce the relative humidity in a room through air exchange.

■ **Technical data**

Relative humidity level	30 to 90 %
Switching sensitivity approx.	± 6 %
Voltage max.	230 V, 1 ph., 50/60 Hz
Current	3 A (ind.)
Ambient temperature	0 – 40 °C
Protection to	IP 20
Dimensions mm	W 76 x H 76 x D 34
Weight approx.	0.25 kg
Wiring diagram-No.	SS-168.1



■ **Specification**

- Universal hygostat housed in an attractive polymer casing for surface mounting. Colour white.
- Set value adjustment via external rotary knob. In HY 3 SI via the inner scale.

- Not suitable for dusty or aggressive air.
- Sensor element made of poly-amid fibres.
- Also suitable for humidification through optional connection.

Air quality controller

ACL Ref. No.0492

Operation

- Electronic air quality sensor to control:
 - 1 ph. alternating current fans to max. 1 A.
 - 3 ph. alternating current fans via contactor.
- For ventilation systems in conference rooms, restaurants, shops, manufacturing plants, domestic rooms etc.

Function

- On and off operation of one or a number of fans in relation to the room's air quality.
- The unit has an integrated sensor which reacts on oxidable gases and pollutants such as carbon monoxide, alcohol, formaldehydes, benzene, solvent, methane, tobacco etc.

Technical data

Voltage 230 V, 1 ph., 50/60 Hz
 Overrun time, adjustable 1 – 10 Min.
 Power-up delay approx. 5 sec.
 Current 2 A (ind.)
 Protection to IP 30
 Dimensions mm W 125 x H 75 x D 30
 Weight approx. 0.2 kg
 Wiring diagram-No. SS-485.1



Adjustment possibilities

- The unit switches the fan on if the set value is exceeded or if the concentration rises quickly.
- Adjustable (from outside) overrun timer after the sensor has switched off.
- Indicator lamp for operation type (automatic/manual) and fan operation and overrun time.
- Functional and operational switch on the front casing.

Casing

Compact casing with air change slots, made of light grey polymer, for surface mounting.

Electronic air flow monitors

SWE Ref. No. 0065

Operation

To monitor air flow in ducting. Open or closed circuit principles are available as options.

Function

The air flow sensor (connected to controller) registers the air flow and compares it with the preset value. That can be set on the front side of the control unit (in the range of 1 – 20 m/s).

The relay contacts if the set value is reached or exceeded. Two LED's show U_N and the position of the output relay. It is possible to connect an external failure display via a relay output (1 change-over, voltage free, max. current 5 A / AC 250 V).

Installation

Control unit suitable to be mounted in switchboard for fixing on a 35 mm support rail. Air flow sensor with mounting rosette for in-duct installation

with cable (length 2.5 m; up to max. 10 m extensible), that is to be connected to the control unit.

Technical data

Voltage 230 V, 1 ph., 50/60 Hz
 Current 5 A (ind.) $\cos \phi$ 0.4
 Set value adjustment range 1-20 m/s
 Air flow temperature max. 60 °C
 Ambient temperature max. 60 °C
 Protection to IP 20
 Dimensions mm W 35 x H 90 x D 66
 Weight approx. 0.4 kg
 Wiring diagram-No. SS-689.1



Mechanical air flow monitor

SWT Ref. No. 0080

Operation

Mechanical air flow monitor with adjustable trigger power to monitor the minimum air flow velocity in ducting minimum 315 dia.

Design

Robust design with a paddle made of high-grade steel. Supplied with mounting plate to fix the unit outside of the ducting.

Function

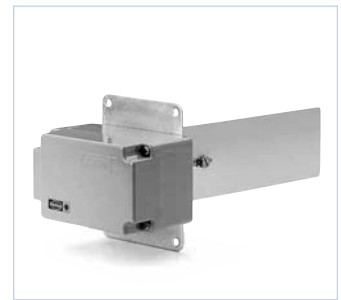
- Can be used as a switch to make or break circuit connections.
- The unit can be set to respond if a minimum or maximum air flow velocity is achieved.
- Adjustable minimum air flow velocity:
 - Lower than approx. 1.5 m/sec.
 - Higher than approx. 3 m/sec.

Installation

The unit must be installed in a way that the weight of the paddle does not affect the spring mechanism inside the unit.

Technical data

Voltage 24-230 V AC, 50/60 Hz
 Current 15 (8) A (ind.)
 Air flow temperature -40...+ 85 °C
 Protection to IP 65
 Dimensions mm
 - Paddle W 55, L 175, D 0.15
 - Casing W 107 x H 69 x D 70
 Weight approx. 0.4 kg
 Wiring diagram-No. SS-557.1



Differential temp. controller

EDTW Ref. No. 1613

Operation and advantages

- Electronic, stepless differential temperature controller for connection of electronically controlled
 - Ceiling fans and
 - All 1 ph. alternating current fans.
- For continuous speed control subject to the temperature difference.
- Designed for use in combination with ceiling fans or fans which move the room air towards the floor to save heating energy. The unit optimises the difference between the floor and ceiling temperature.

Function

- Stepless speed control between (0 – 100 %) in relation to the temperature difference between both temperature sensors and the equalisation with the set value.
- Inclusive temperature sensors with a flying lead (1 x 10 m long, for mounting underneath the ceiling; 1 x 2 m long, for mounting above the floor.
- If the temperature difference rises the fan speed increases proportionally and slows down for falling temperature.
- Proportional range can be adjusted stepless from 1 – 10 K.

Technical data

Voltage 230 V, 1 ph., 50/60 Hz
 Current max. 2.5 A (T 40 E)
 Adjustable control range 1 – 10 K
 Protection to IP 20
 Dimensions mm W 210 x H 85 x D 55
 Weight approx. 0.7 kg
 Wiring diagram-No. SS-438

Adjustment possibilities

- On/off (with function display)
- Automatic/manual operation.
- Reverse of air flow direction.
- Proportional range.
- Summer operation: as manual speed controller. Depending on the fan type motor humming might be produced.



Casing

Impact resistant, white polymer, for surface and flush mounting.