

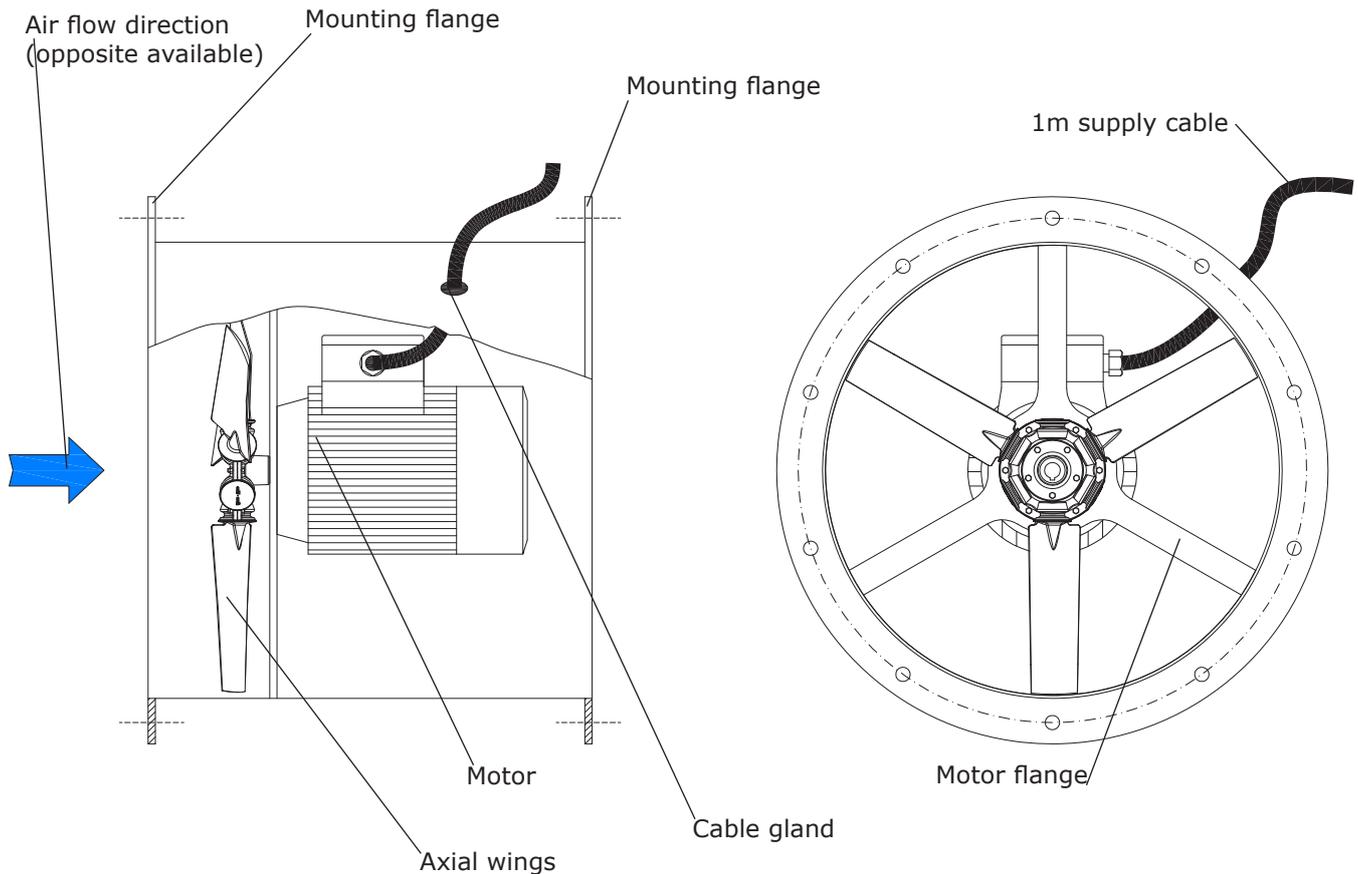
Axial flow fans

Specifications
Rev.85-8-2011

HVA series



HVA Series - Product information



Description

HVA is a series of cased high efficiency directly driven axial flow fans with adjustable pitch angle (at standstill) for direct in line duct installation or as a free blowing installation with bellmouth inlet diffuser.

Applications

HVA is designed for continuous operation in industrial environments. The HVA series can be used for a wide range of industrial grade ventilation applications such as cooling towers, condensers, greenhouses, ventilation systems etc. The HVA is also available for ship ventilation, smoke extraction (F300), offshore and ATEX areas.

Construction

Casing of welded Domex steel (optional AISI316) with drilled flanges acc. to Eurovent ½. Optional outlet guide vanes for boosting outlet pressure. The casing is galvanized and epoxy painted RAL9005. Depending on performance requirements the impeller is made of either fibreglass reinforced polymers or cast aluminium. The hub is always made of cast aluminium.

Standard Casing Sizes

ø250 to ø1400 mm.
(special models up to ø2700 mm.)

Corrosion Class

The standard models are designed to corrosion class C4 acc.to EN 12944-2. The HVA is also available in AISI316 corrosion class C5-Marine.

Operating Temperatures

The standard HVA is suitable for air flow temperatures from -20°C to +60°C. Models with permanently higher or lower operating temperatures are available.

Standards

Performance data in accordance to EN/ISO 5801 and DIN 24163. Impellers dynamically balanced to ISO 1940 cl. G6.3 and VDI 2060.

Air flows up to ca. 350.000 m³/h and static pressures of ca. 2.000 Pa. (special models up to 850K)

Air flow direction

If not ordered differently the fans come in air flow direction impeller -> motor. Air flow direction motor -> impeller is also available. The standard impeller (SV) is not fully reversible (60% air flow in reverse). The impellers are available as fully reversible (FR) at a small fee.

Wiring

HVA is supplied with an 1 metre power cable outside the casing. Optional terminal box is available.

Motors

The standard HVAs are supplied with three phased 230/400/440/690V B5/B14 EIC flange motors or B3 foot EIC motors with fully sealed bearings. Grease in accordance to DIN 51825. Service intervals are depending on motor type. However as a rule of thumb the intervals are 10.000 hours for two polled motors and 20.000 hours for four polled motors at normal operations.

Motors up to 2.2 kW are available as single phased 1x230 Volts

All motors are supplied as 50 or 60 Hz

The motor is placed in air flow (special motor enclosures are available).

The HVAs are suited for frequency inverter operations.

Smoke Extraction motors F300 in acc. to EN 12101-3 (300°C / 120 min.)



ATEX

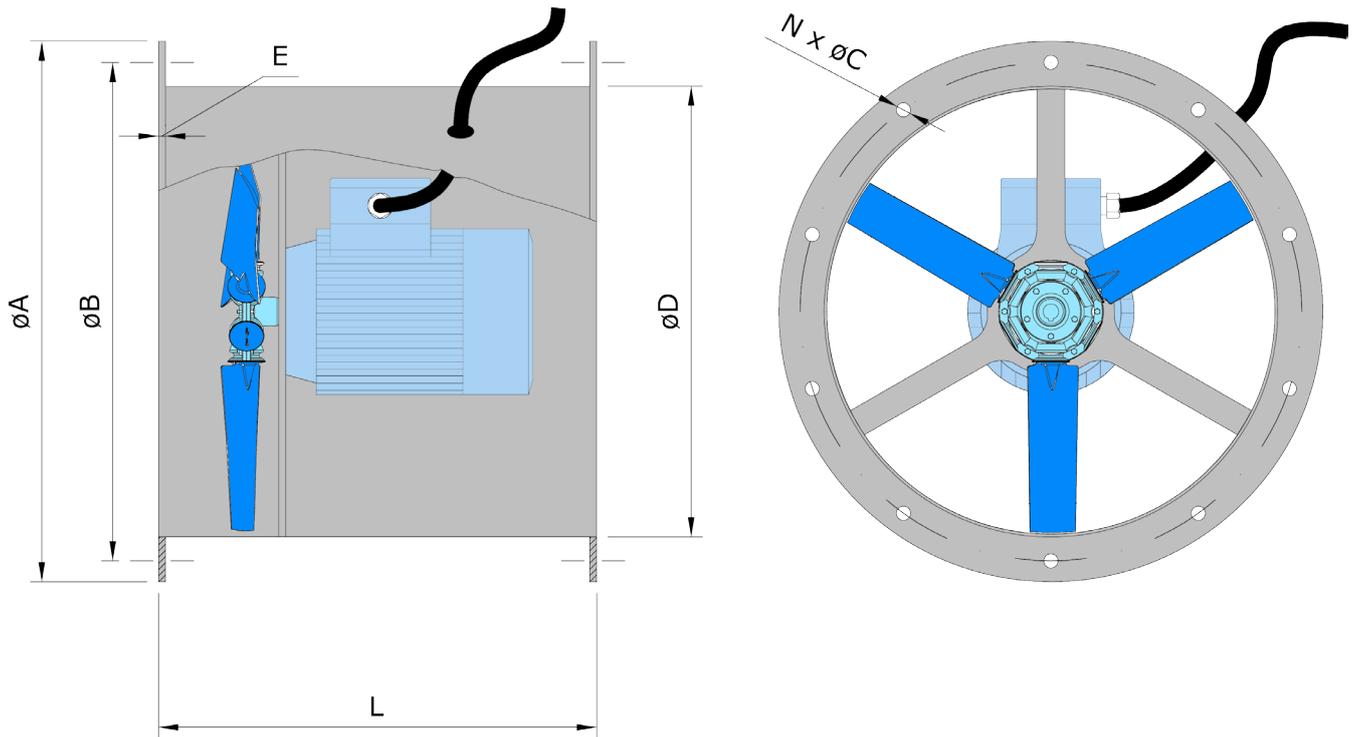
HVA is available as ATEX-certified for zone 1, 2 or 22.



Made to order

A number of extra features such as brackets, wall mount consoles, antivibration pads, bellmouth inlets, safety guards, dampers and silencers etc. are available as optional extras

HVA - Dimensions



[mm]	ϕA	ϕB	ϕC	ϕD	E	L	N	T	kg
HVA-250	310	280	10	250	4	250	4	2	10
HVA-315	385	355	10	315	4	250	8	2	15
HVA-400	480	450	12	400	4	300	8	2	29
HVA-500	590	560	12	500	5	400	12	3	45
HVA-630	720	690	12	630	5	450	12	3	64
HVA-710	800	770	12	710	5	500	16	3	78
HVA-800	890	860	12	800	5	550	16	3	86
HVA-900	1000	970	15	900	5	600	16	3	100
HVA-1000	1100	1070	15	1000	6	700	16	4	122
HVA-1120	1220	1190	15	1120	6	750	20	4	180
HVA-1250	1360	1320	15	1250	8	800	20	4	212
HVA-1400	1510	1470	15	1400	10	900	20	5	266

T = casing body material thickness - kg = weight without motor

NB! Short model => L = 250mm regardless of fan size (for wall mount apps.).



AISI316 C5-M Class



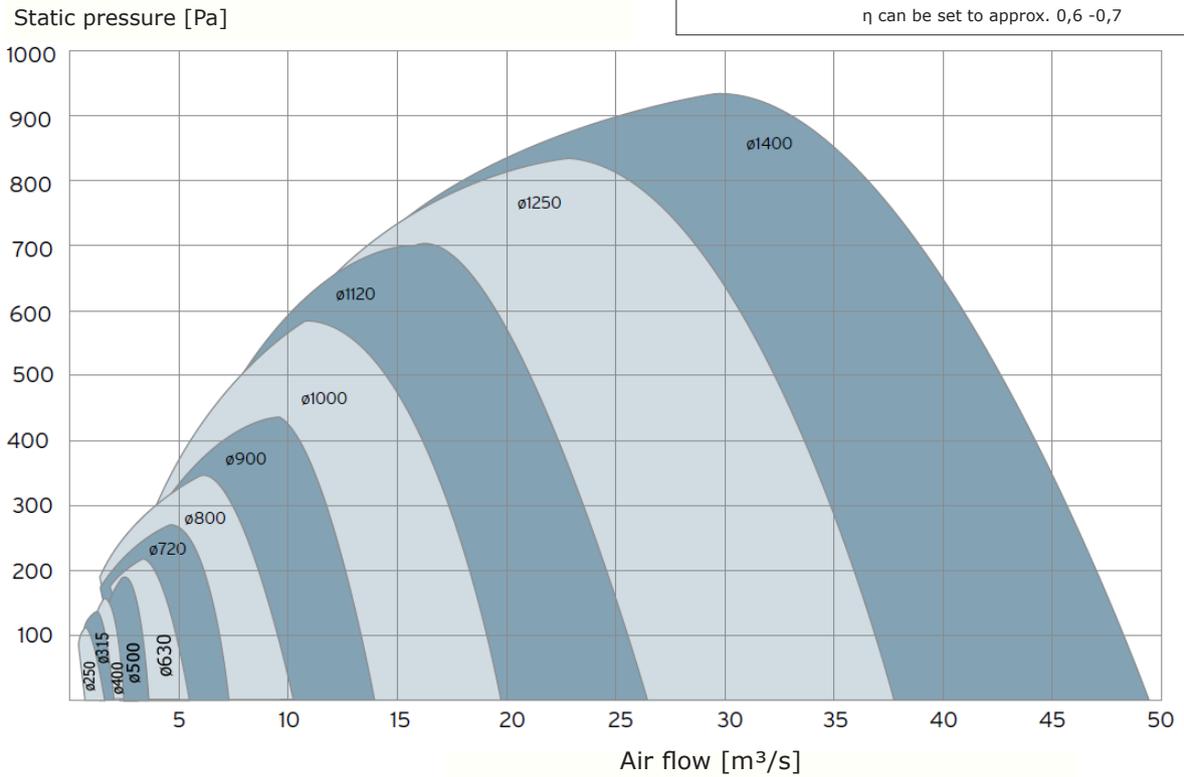
Standard C4 Class

"The HVAs are suitable for a wide range of industrial grade ventilation tasks such as greenhouses, cooling towers, condensers, process equipment, ship ventilation and much more - special models up to diam. 2700"

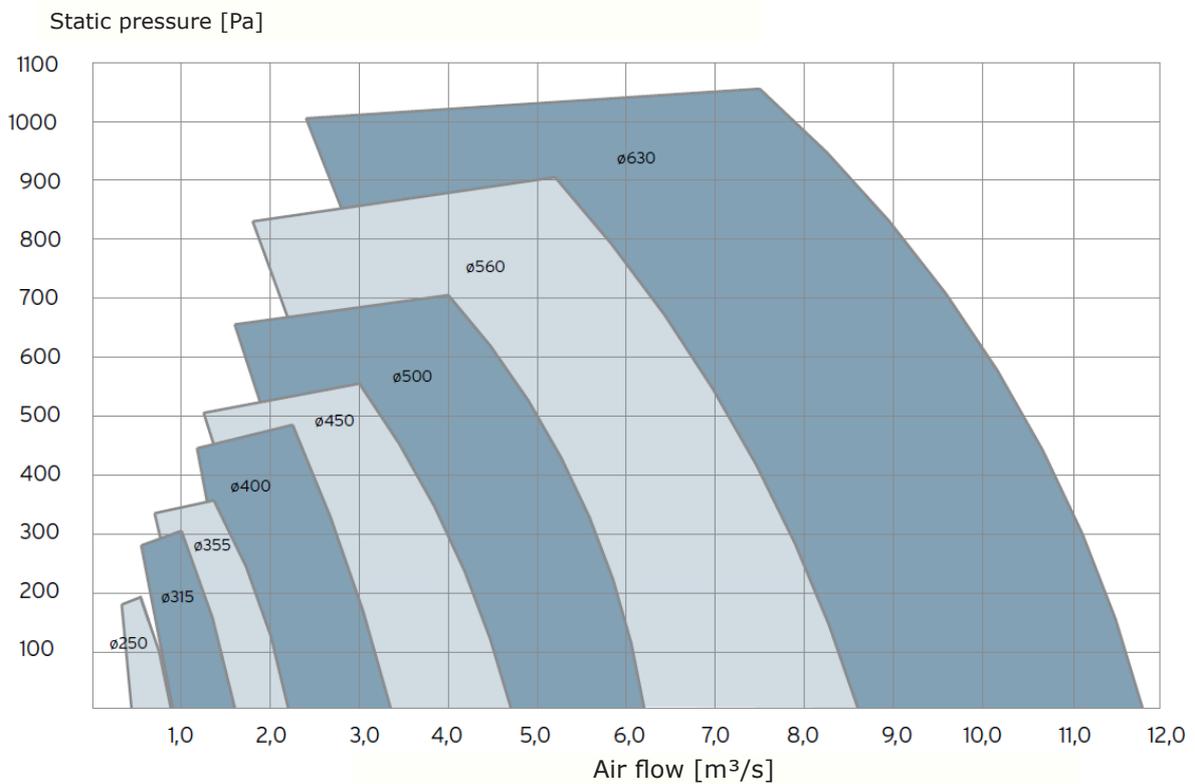
Performance curves - 1450 rpm

$$\text{Power needed [kW]} = \frac{[\text{Pa}] \times [\text{m}^3/\text{s}]}{\eta \times 1000}$$

η can be set to approx. 0,6 -0,7



Performance curves - 2940 rpm

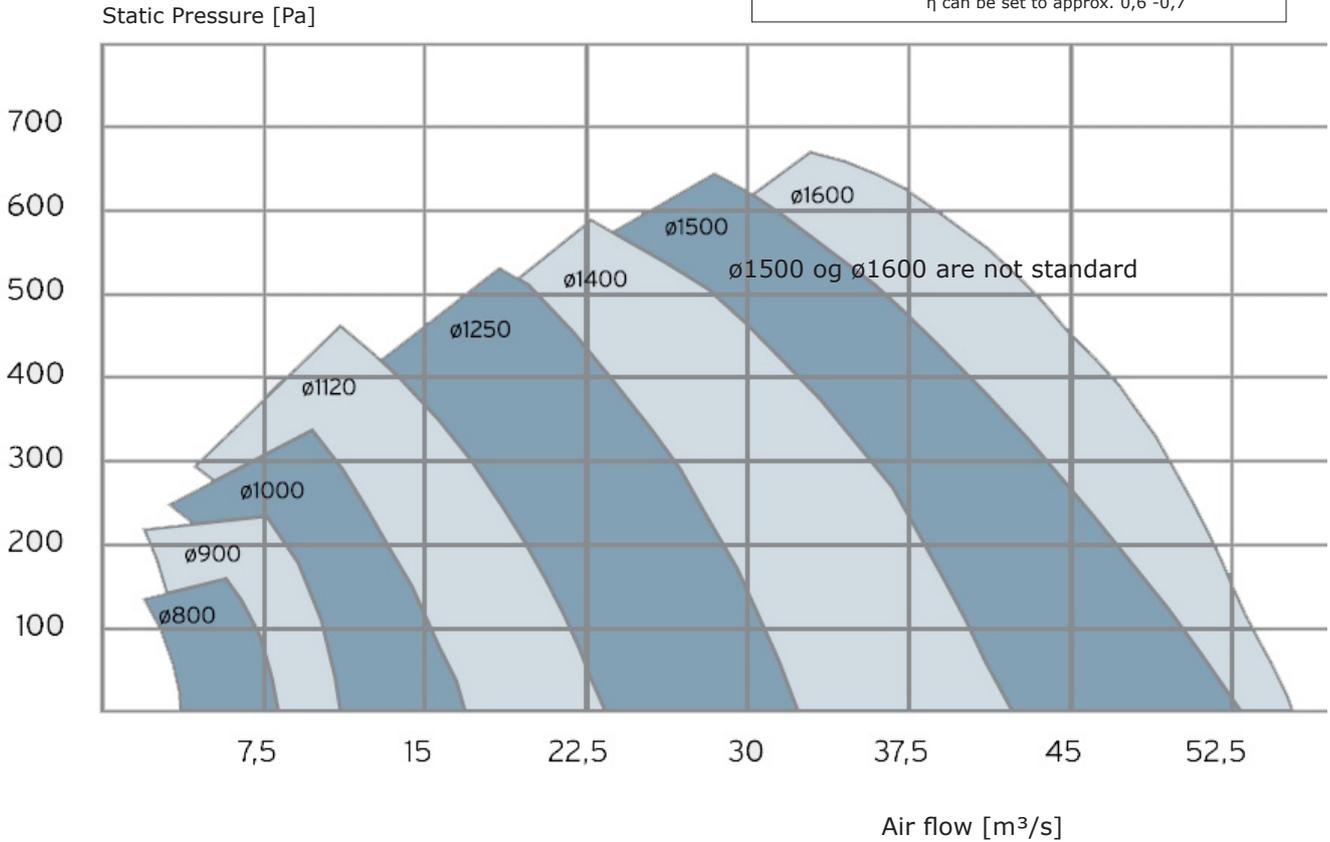


"The performance curves should be seen as a quick-guide to selection of fan size. The final design of the axial flow fan with sound, motor, choices of materials, air volume and pressure, refer to our sales team. Note the static pressure is based on an unobstructed configuration and will be higher using the duct system as described in the installation examples. "

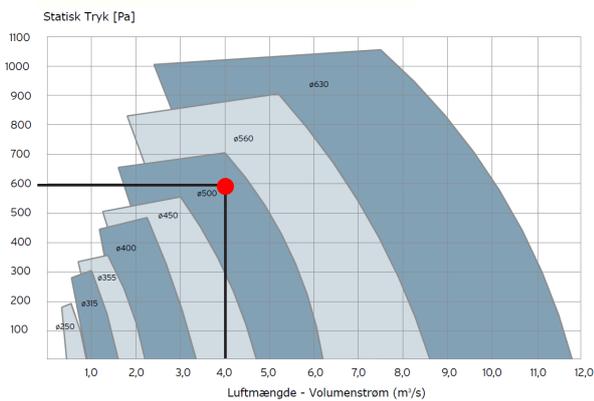
Performance curves - 900 rpm

$$\text{Power needed [kW]} = \frac{[\text{Pa}] \times [\text{m}^3/\text{s}]}{\eta \times 1000}$$

η can be set to approx. 0,6 -0,7



Example of approach to the selection of fan and motor size



1st Find the desired operating point on one of the fan curves. For example. 4 m³/s at 600 Pa which is marked on 2940 rpm curve to the left.

2nd Read the fan size. In which field is the working point? In this case the working point in the shaded ø500 field.

3rd Calculate the required power. Based on formula at the top of this page. In our case $(600 \times 4) / (0.6 \times 1000) = 4 \text{ kW}$.

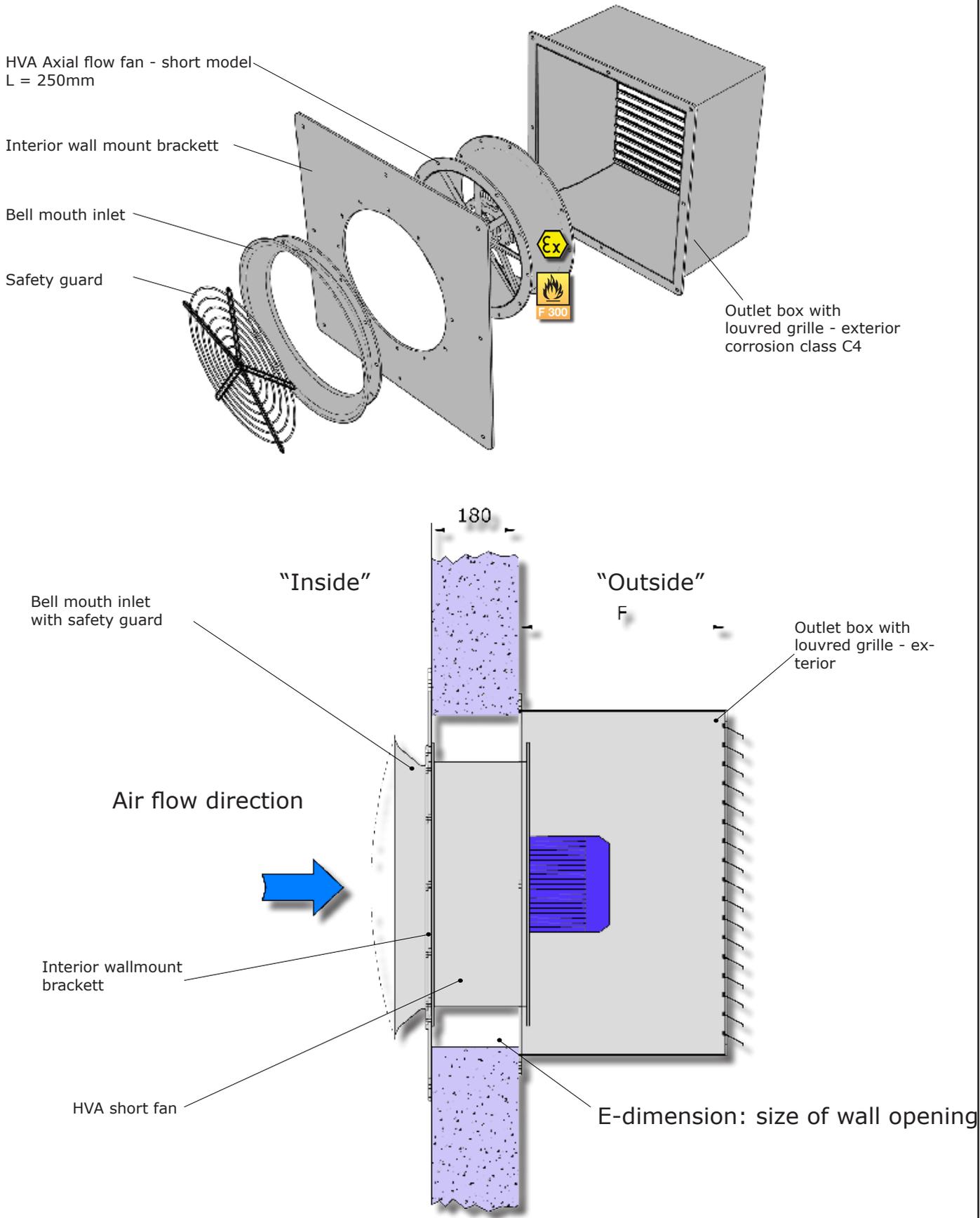
4th Choose a motor one size larger than the calculated power consumption from the following sizes: (0.25 to 0.37 - 0.55 to 0.75 - 1.1 to 1.5 - 2,2 - 3 - 4 - 5, 5 to 7.5 - 11 - 15 to 18.5 - 22 to 30 - 37 - 45 kW). In our case it will be 5.5 kW.

5th We need a HVA/500 5.5 kW with 2940rpm motor ie. a HVA/500-2 5.5 kW.

6th Find the desired fan in our price catalogue. (including ATEX and F300 models.)

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HVA - Optional equipment for wall mounting



Beskrivelse	400	500	630	710	800	900	1000	1120
Wall opening needed [mm] - E	550x550	650x650	800x800	900x900	1x1m	1,1x1,1m	1,2x1,2m	1,3x1,3m
Minimum wall thickness [mm]	180	180	180	180	180	180	180	180
Width of outlet box [mm] - E	330	430	450	450	450	480	480	480



Duct flange Eurovent 1/2



Outlet duct with flange
Length = 1 x D



Extension duct L= 500mm



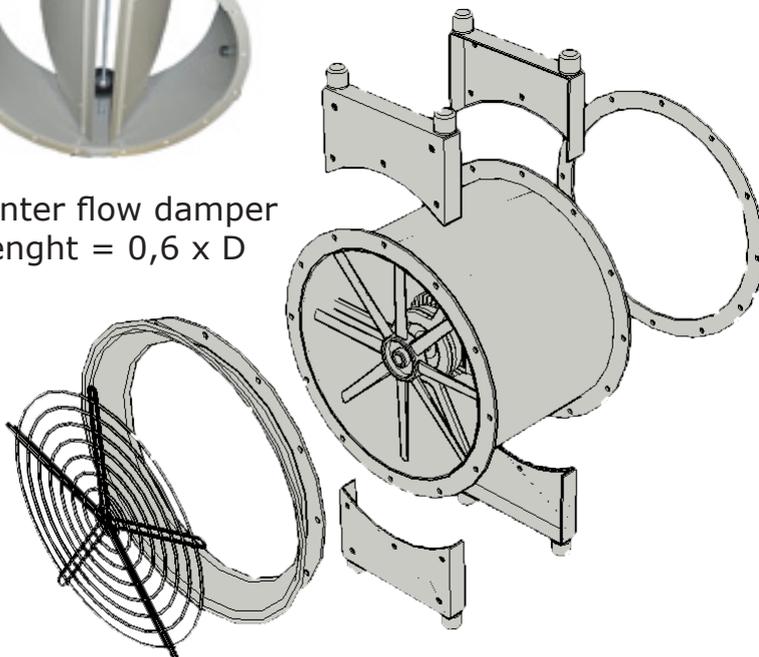
Mounting bracket for
horizontal mounting



Counter flow damper
Length = 0,6 x D

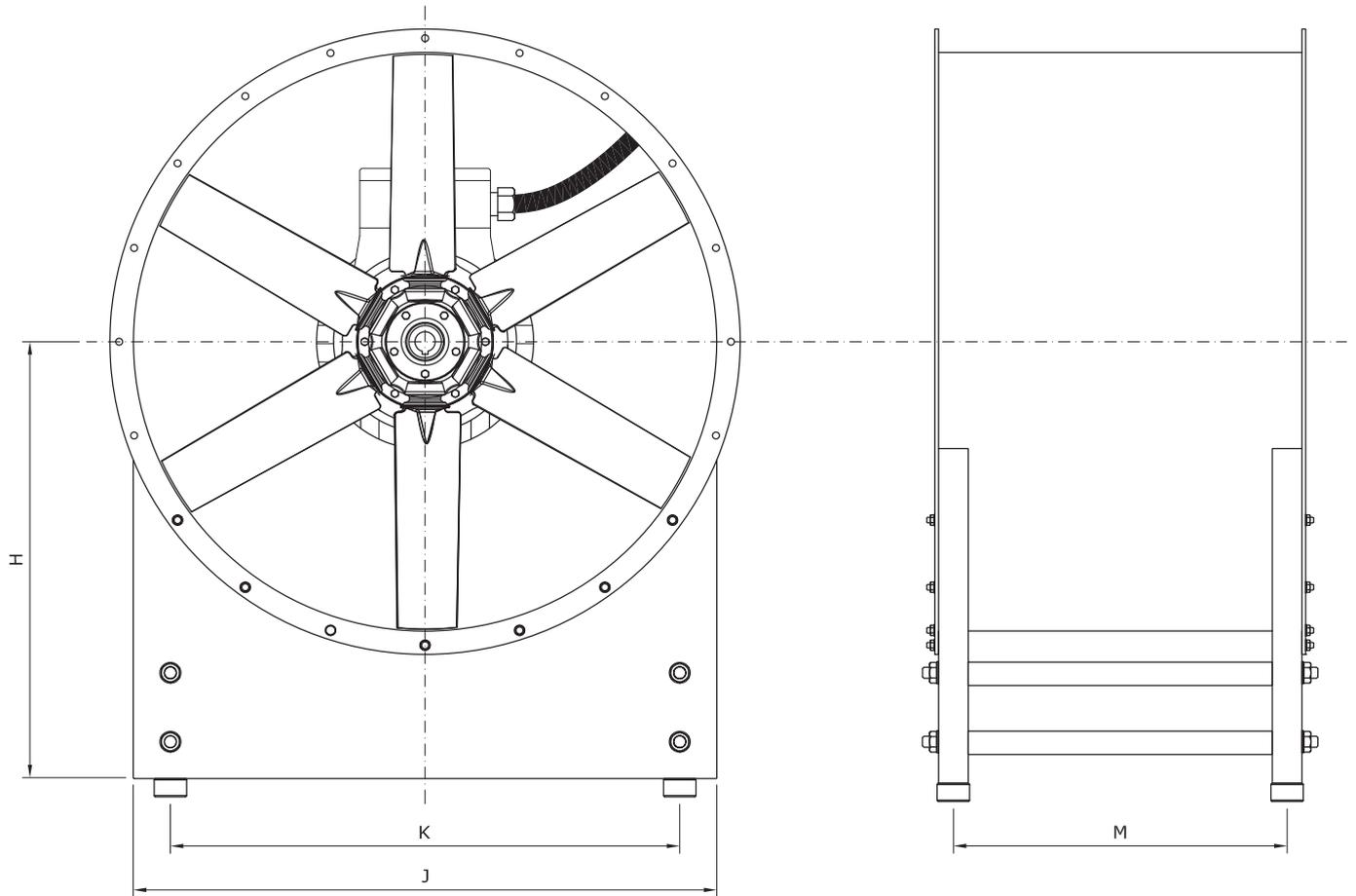


Flex.connection



Bell mouth with or with-
out safety guard

HVA - Mounting bracket for horizontal mounting



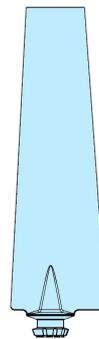
	250	315	400	500	630	710	800	900	1000	1120	1250	1400
H [mm]	240	280	330	390	480	530	580	680	740	800	950	1000
J [mm]	170	200	250	325	400	450	520	590	670	750	1260	1410
K [mm]	140	170	220	275	350	380	450	520	600	680	1160	1310
M [mm]	212	212	262	330	390	440	490	540	640	690	740	840
Weight [kg]	2,2	3,1	4,2	5,5	13,0	15,4	17,8	23	25	28	42	49
Vibration pads height [mm]	25-30	25-30	25-30	25-50	25-50	25-50	30-60	30-60	30-60	30-60	30-70	30-70

Wing desing

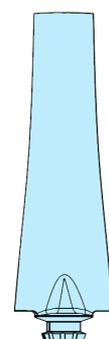
HVA can be supplied with standard wing-type SV (60% of full air flow backwards) covering most applications or with full reversible blade, where it is desired to have the same high efficiencies in both airflow directions.

Standard blade SV comes in PAG, PPG or aluminum.

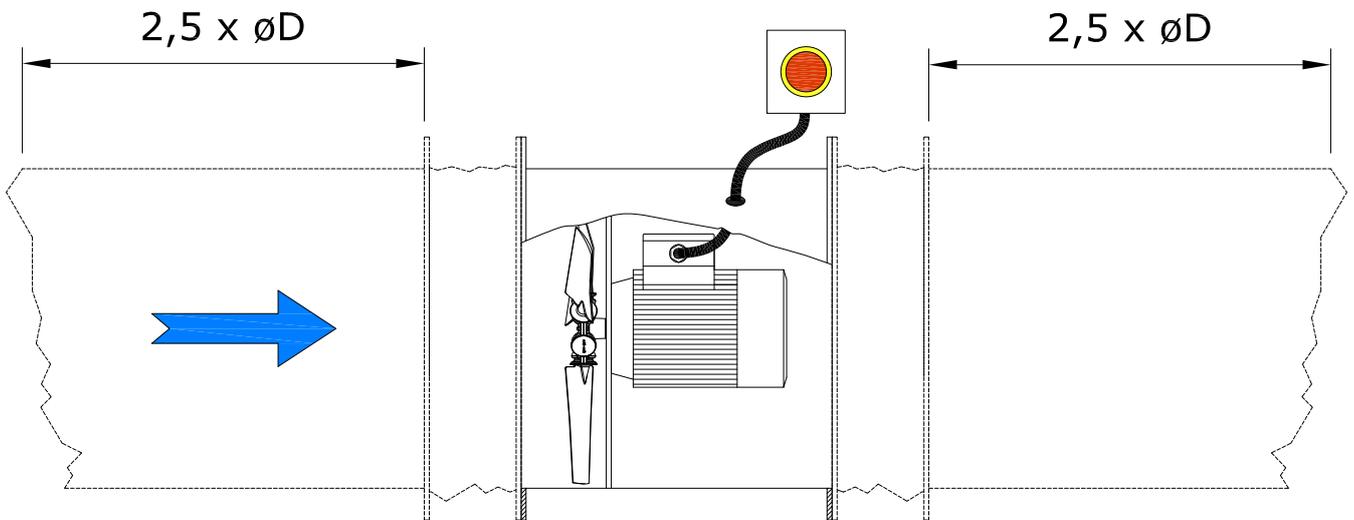
The fully reversible Wing Type FR is available in aluminum.



Standard Wing Type SV

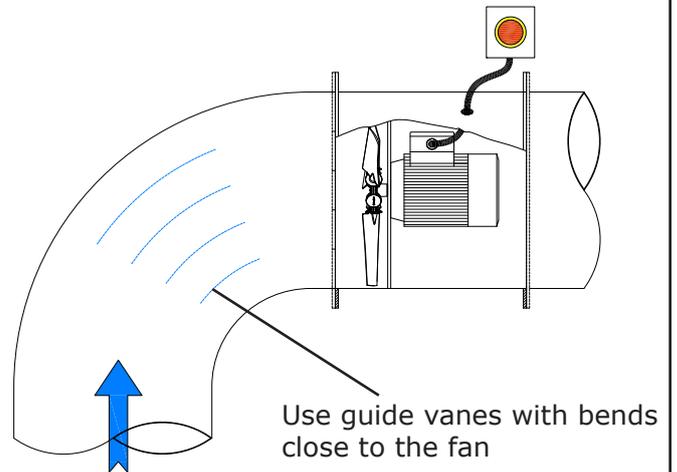


Fully Reversible Wing Type FR



The ideal duct configuration

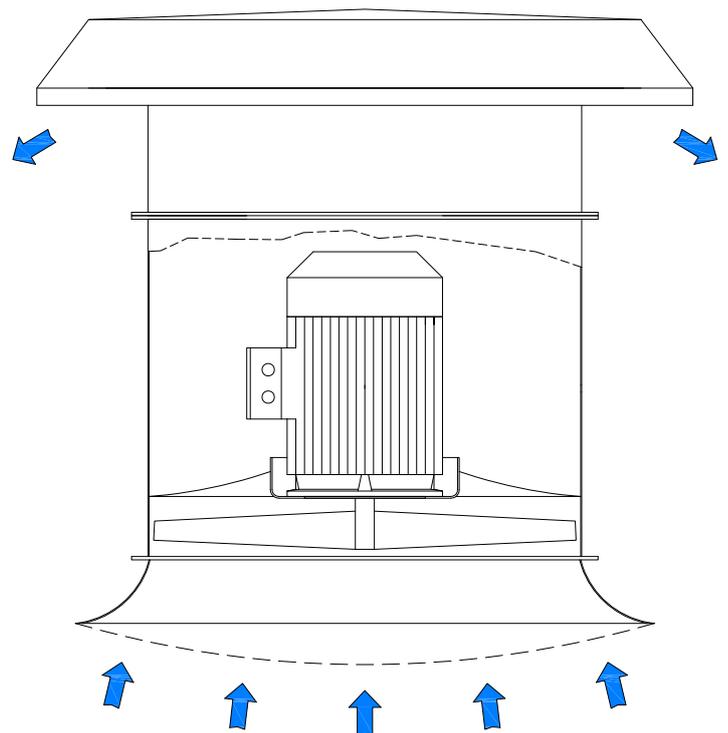
The ideal duct configuration corresponds to test preparation in our laboratory. And should be sought for maximum airflow and minimum noise and energy consumption. The straight duct lengths of inlet and outlet side should ideally be 2.5 x duct diameter



The free blowing configuration

We recommend safety guard and bell mouth inlet for free blowing/extracting applications. The fan can be installed in any position (horizontal, vertical or at an angle) and be fitted with a roof hood if required.

The air flow direction can be configured to supply air or extract air.



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