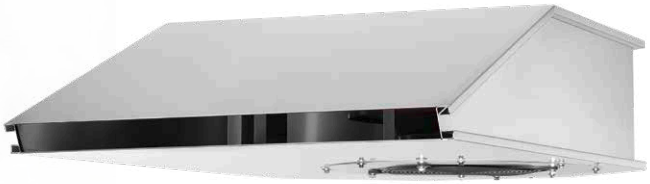
TGA Catalogue 4.0

Fans and systems
for fire protection and smoke extraction.



Helios

Fans and systems for **technical building services**

Basic SI system parameters
according to DIN EN 1301

Physical value	Unit	
	Name	Abbr
Length	Metre	m
Mass	Kilogramme	kg
Time	Second	s
Electric current	Ampere	A
Temperature	Kelvin	K
Light intensity	Candela	cd
Amount of substance	Mole	mol

Air flow volume units

Unit symbol	Name of unit	m^3/s	m^3/min	m^3/h	l/h	l/s	ft^3/s cu.ft/s	ft^3/min cfm	gal/min (UK)	gal/min (US)
1 m^3/s	Cubic metre/second	1	60	3600	$3.6*10^6$	1000	35.31	2118.8	$1.32*10^4$	$1.587*10^4$
1 m^3/min	Cubic metre/minute	0.01667	1	60	$6.0*10^4$	16.667	0.5885	35.31	220	260
1 m^3/h	Cubic metre/hour	$2.778*10^{-4}$	0.01667	1	1000	0.2778	$9.808*10^{-3}$	0.5886	3.667	4.403
1 l/h = 1 dm^3/h	Litre/hour	$2.778*10^{-7}$	$1.667*10^{-5}$	0.001	1	$2.778*10^{-4}$	$9.808*10^{-6}$	$5.886*10^{-4}$	$3.667*10^{-3}$	$4.403*10^{-3}$
1 l/s = 1 dm^3/s	Litre/second	0.001	0.05999	3.5	3600	1	$3.531*10^{-2}$	2.1188	13.198	15.8502
1 cu.ft/s	Cubic foot/second	$2.932*10^{-2}$	1.6992	102	$1.02*10^5$	28.3179	1	60	373.9	448.9
1 cfm	cubic foot/minute	$4.179*10^{-4}$	$2.832*10^{-2}$	1.70	$1.70*10^3$	0.47197	$1.667*10^{-2}$	1	6.229	7480
1 gal/min (UK)	Gallon/minute	$7.577*10^{-5}$	$4.546*10^{-3}$	$2.728*10^{-1}$	272.8	0.07577	$2.675*10^{-3}$	0.1605	1	1.201
1 gal/min (US)	Gallon/minute	$6.302*10^{-5}$	$3.846*10^{-3}$	$2.271*10^{-1}$	227.1	0.06309	$2.227*10^{-3}$	0.1336	0.8328	1

Pressure units

Unit symbol	Name of unit	Pa = N/m^2	bar	mbar	kp/cm^2 = mmWs	kp/cm^2 = at	atm	Torr = mm Hg	lbf/in^2	lbf/ft^2	in Hg
1 Pa = 1 N/m^2	Pascal	1	0.00001	0.01	0.10197	0.00001	–	0.0075	0.00014	0.02089	0.000295
1 bar	Bar	100000	1	1000	10197.2	1.01972	0.98692	750.062	14.5037	2088.54	29.53
1 mbar	Millibar	100	0.001	1	10.197	0.00102	0.000987	0.750	0.01450	2.08854	0.02953
1 kp/m^2= 1mm Ws	Millimetre Water column	98066.5	0.98067	980.66	10000	1	0.96784	735.559	14.2233	2048.16	28.959
1 kp/cm^2= 1 at	Techn. atmosphere	98066.5	0.98067	980.66	10000	1	0.96784	735.559	14.2233	2048.16	28.959
1 atm	Physic. atmosphere	101325	1.01325	1013.25	10332.3	1.03323	1	760	14.696	2116.22	29.9213
1 torr = 1 mm Hg	Millimetre Mercury column	133.322	0.00133	1.3332	13.5951	0.00136	0.00132	1	0.01934	2.78449	0.03937
1 lbf/in^2	pound-force per square inch	6894.76	0.06895	68.9476	703.07	0.07031	0.06805	51.7149	1	144	2.03602
1 lbf/ft^2	pound-force per square foot	47.8803	0.00048	0.47880	4.88243	0.00048	0.00047	0.35913	0.00694	1	0.01414
1 in Hg	Inch Mercury column	3386.39	0.03386	33.8639	345.316	0.03453	0.03342	25.4	0.49115	70.7262	1
1 in H_2O	Inch Water column	249	0.00249	2.4909	25.4	0.00254	–	1.8684	0.0315	5.2024	0.07366

Energy units

Units	J	MJ	kWh	MWh	kcal	Mcal	kg SKE	BTU
1 J = 1 Nm = 1 Ws	1	10^{-6}	–	–	$0.239*10^{-3}$	–	–	$0.948*10^{-3}$
1 MJ = 10^6 J	10^6	1	0.278	–	239	–	0.034	948
1 kWh	$3.6*10^6$	3.6	1	10^{-3}	860	0.86	0.123	3414
1 MWh	–	3600	10^3	1	–	860	123	$3.414*10^6$
1 kcal	4187	–	$1.163*10^{-3}$	–	1	10^{-3}	–	3.97
1 Mcal	–	4.187	1.163	–	10^6	1	0.143	3968
1 kg SKE	–	29.31	8.14	–	7000	7.0	1	$27.8*10^{-3}$
1 BTU	$1.05*10^3$	$1.05*10^{-3}$	–	0.252	–	–	1	–

Important physical values and their relationship to the basic parameters of the SI system

Physical value	Definition	Abbreviation	Relationship to the basic parameters of the SI system
Force	Mass · Acceleration	N (Newton)	$N = \frac{kg \cdot m}{s^2}$
Pressure	$\frac{Force}{Area}$	Pa (Pascal) $\frac{N}{mm^2}$	$Pa = \frac{N}{m^2} = \frac{kg \cdot m}{s^2 \cdot m^2}$ $\frac{N}{mm^2} = \frac{kg \cdot m}{s^2 \cdot 10^{-6}\, m^2}$
Work	Force · Distance	J (Joule)	$J = N \cdot m = \frac{kg \cdot m^2}{s^2}$
Power	$\frac{Work}{Time}$	W (Watt)	$W = \frac{J}{s} = \frac{N \cdot m}{s} = \frac{kg \cdot m^2}{s^3}$
Heat	Energy	J (Joule)	$J = N \cdot m = \frac{kg \cdot m^2}{s^2}$
Thermal conductivity	$\frac{Power}{Distance \cdot Temp.\ interval}$	$\frac{W}{m \cdot K}$	$\frac{W}{m \cdot K} = \frac{kg \cdot m^2}{s^3 \cdot m \cdot K}$
Specif. heat capacity	$\frac{Energy}{Mass \cdot Temp.\ interval}$	$\frac{J}{kg \cdot K}$	$\frac{J}{kg \cdot K} = \frac{kg \cdot m^2}{s^2 \cdot kg \cdot K}$
Electric charge	Electr. current · Time	C (Coulomb)	$C = A \cdot s$
Voltage	$\frac{Electrical\ work}{Electrical\ charge}$	V (Volt)	$V = \frac{W}{A} = \frac{kg \cdot m^2}{A \cdot s^3}$

The air volume required for the supply and extract ventilation of a room depends heavily on the use, as well as the pollution and odour pollution. The air volume required can also be determined by the generated process heat in industrial and commercial plants.

The flow rate can be determined according to different criteria using the following formulas and tables. If multiple criteria can be used for the calculation, the higher figure should be taken.

Calculation of outside air flow rate per person
(DIN EN 13779, as of 09.2007)

$$\dot{V} = n \cdot q_P \ [m^3/h]$$

n: Number of people
q_P: Ventilation rate per person from table 1

Calculation of flow rate regarding the number of people
(DIN EN 15251, as of 08.2007)

$$\dot{V} = n \cdot q_P + A \cdot q_B \ [m^3/h]$$

n: Number of people
q_P: Ventilation rate per person [m³/h] from table 2
A: Floor area of the room [m²]
q_B: Ventilation rate in relation to the building emissions [m³/h] from table 2

Calculation of flow rate for humidity removal

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

G: Water volume g/h
x_2: Water content in extract air g water / kg air
x_1: Water content in supply air g water / kg air
ρ: Air density kg/m³ (air 20 °C, 1013 mbar = 1.2 kg/m³)

Calculation of flow rate for heat dissipation

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

$\dot{Q}$: Heat output to be dissipated kW
c_p: Spec. heat capacity of air kJ/(kg · K) (air 20 °C: $c_p \approx 1$)
Δϑ: Temperature difference between fresh air and heated air K
ρ: Air density kg/m³ (air 20 °C,1013 mbar = 1.2 kg/m³ (1 kWh = 3600 kJ)

Calculation of heat output for heating the outside air

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

$\dot{Q}_L$: Ventilation heat/heat output kW
$\dot{V}$: Flow rate m³/h
ρ: Air density 1.2 kg/m³ (20 °C)
c_p: Spec. heat capacity kJ/(kg · K)
Δϑ: Temperature difference (K) between
ϑ i room temperature and
ϑ a outside air temperature

$$\Delta\vartheta = \vartheta i - \vartheta a \ [K]$$

Types of air pursuant to DIN EN 13779

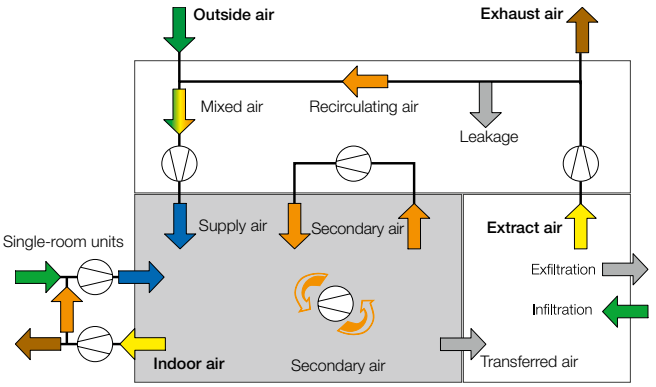


Table 1 Outside air flow rates according to DIN EN 13779

Category	Unit	Outside air flow rate per person			
		Non-smoking area		Smoking area	
		Usual range	Standard	Usual range	Standard
IDA 1	m³/h*person	> 54	72	> 108	144
IDA 2	m³/h*person	36 – 54	45	72 – 108	90
IDA 3	m³/h*person	22 – 36	29	43 – 72	58
IDA 4	m³/h*person	> 22	18	> 43	36

*IDA = Indoor air, room air categories see table 3.

Table 2 Outside air flow rates according to DIN EN 15251

Category	Air flow per person	Air flow for pollution through building emissions (m³/h*m²)		
		Very low-pollution building	Low-pollution building	Non-low-pollution building
I	36	1.8	3.6	7.2
II	25	1.3	2.5	5
III	14	0.7	1.4	2.9

Table 3 Room air categories according to DIN EN 15251

Category	Description
IDA I	High level of expectation and is recommended for spaces occupied by very sensitive and fragile persons with special requirements.
IDA II	Normal level of expectation. Recommended for new buildings and renovations.
IDA III	Normal level of expectation. Recommended for new buildings and renovations.
IDA IV	Values outside the criteria for the above categories. This category should only be used in exceptional cases.

There are also classifications into categories in other standards, such as DIN EN 13779, but these may have different names (e.g. 1, 2, 3...).

Definitions and abbreviations of different types of air
according to DIN EN 13779/09.2007

No.	Type of air	Abbrev.	Colour	Definition
1	Outside air	ODA	Green	Air entering the system or opening from outdoors before any air treatment.
2	Supply air	SUP	Blue	Airflow entering the trated room, or air entering the system after any treatment.
3	Indoor air	IDA	Grey	Air in the treated room or zone.
4	Transferred air	TRA	Grey	Indoor air which passes from the treated room to another treated room.
5	Extract air	ETA	Yellow	The airflow leaving the treated room.
6	Recirculation air	RCA	Orange	Extract air that is returned to the air treatment system and reused as supply air.
7	Exhaust air	EHA	Brown	Airflow is charged to the atmosphere.
8	Secondary air	SEC	Orange	Airflow taken from a room and returned to the same room after any treatment.
9	Leakage	LEA	Grey	Unintended airflow through leakage paths in the system.
10	Infiltration	INF	Green	Leakage of air into building through leak. paths in elements of struct. separating it from the outdoor air.
11	Exfiltration	EXF	Grey	Leakage of air out of the building through leak. paths in elem. of struct. separating it from the outdoor air.
12	Mixed air	MIA	v. colours	Air which contains two or more streams of air.
1.1	Outside air single room	SRO	Green	Air entering the single room air handling unit or opening from outdoors before any air treatment.
2.1	Supply air single room	SRS	Blue	Airflow entering the treated room.
5.1	Extract air single room	SET	Yellow	The airflow leaving the treated room into a single room air handling unit.
7.1	Exhaust air single room	SEH	Brown	Airflow discharged to the atmosphere from a single room air handling unit.

Necessity of acoustics in ventilation technology

When planning and constructing ventilation systems, the solution of acoustic problems and requirements is just as important and crucial as ideal flow technology and comfort. Deficient acoustics all too often result in serious planning and design defects and even "total losses", which are very difficult or impossible to subsequently repair. Therefore, the careful planning of the acoustics is essential for problem-free system operation. Unfortunately, systems without or with incorrectly executed attenuators are common practice and give ventilation systems a bad reputation for users of buildings. It is the responsibility of the manufacturers, planners and plant engineers to oppose these prejudices and attach particular importance to the acoustics.

The noise level of a fan must be taken into consideration when designing a ventilation system. The noise impact of a sound source (fan) on the rooms to be ventilated and on the neighbourhood can be roughly calculated 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. Therefore, approx. 6 m/s should not be exceeded. The soundproof installation of the fan and components must also be taken into account. The maximum permissible noise emmission values are regulated in relevant regulations (DIN 4109, VDI 4100) and must not be exceeded.
Noise reduction, i. e. sound power level reductions, is achieved through larger distances to the sound source, ducts, installations, ventilation grilles, etc., but above all by using attenuators. In general, the noises should be minimised at source as much as possible, i. e. select low-noise fans.

The sound power delivered from the fan at the air outlet must be converted to sound pressure for the sensitivity of the human ear. In relation to "freefield conditions", the reduction depending on distance can be seen in Fig. 1. The absorption capacity of the room is of major importance for the calculation in a room.

Noise level in the building neighbourhood (TA noise)

The industrial code defines the following maximum values:

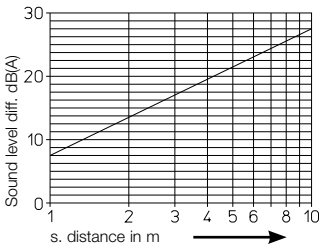
Area	Emission value dB(A) day/night	
Purely commercial area	70	70
Primarily commercial area	65	50
Mixed area	60	45
Primarily residential area	55	40
Purely residential area	50	35
Spa area Hospitals	45	35

Noise level at workplace

According to the specifications of the workplace ordinance, the following values as constant levels should not be exceeded:

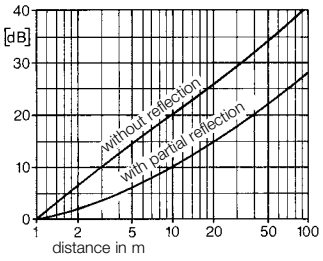
Activity	dB(A)
Primarily intellectual activities	55
Mechanised office work	70
All other activities (max. permissible exceedance 5 dB)	85
Break, first-aid, standby and relaxation rooms	55

Fig. 1
Difference from sound power to sound pressure with distance



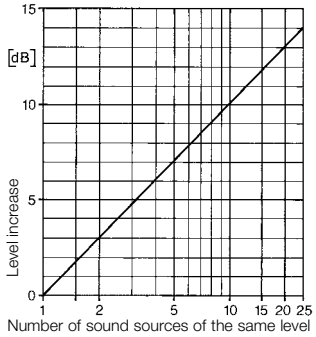
Example:
Fan sound power = 70 dB(A)
Sound pressure in 1 m distance (freefield)
= 70 dB(A) - 8 = 62 dB(A)

Fig. 2
Sound pressure level reduction with distance



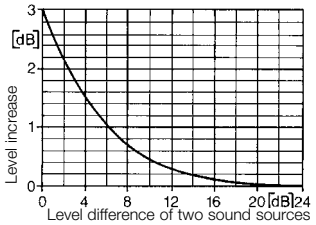
Example:
Sound pressure in 1 m distance = 60 dB(A)
Sound pressure in 5 m distance
without reflection (freefield) - 15 = 45 dB(A)
with partial reflection - 5 = 55 dB(A)

Fig. 3
Addition of multiple sound sources of the same sound level



Example: 10 sound sources à 60 dB(A)
Total volume:
60 dB(A) + 10 dB(A) = 70 dB(A)

Fig. 4
Addition of multiple sound sources of different sound levels



Example: 2 sound sources 60 dB(A) and 64 dB(A)
Total volume:
64 dB(A) + 1.5 dB(A) = 65.5 dB(A)

Table 4 Terms and definitions

Term	Definition
Sound	Mechanical oscillations of the particles of an elastic medium in a frequency range which we can perceive by our hearing. Sound needs therefore a medium to be able to spread out.One describes oscillations in the air as airborne sound, vibrations in solid bodies as a structure-borne sound.
Tone	Ils the oscillation (pressure change) sinusoidal, one speaks of a tone.
Complex tonal sound	Several individual tones produce a complex tonal sound.
Noise	Many mixed single notes that are not assignable to the human ear (one speaks of soughing, typical e.g. leaves or water).
Noisiness	If the noise is annoying, one calls it noisiness.
Speed of sound	The speed of sound is the speed at which the sound spreads. It is approx. 340 m/s in the air and approx. 5,000 m/s in steel.
Sound power	The sound power describes the total energy that a source emits in the form of sound. The physical value is Watt. It is specified as sound power level. This is calculated by the following formula: Lw = 10 lg W/W0 [dB] W0 = 10^{-12} Watt
Sound pressure	The human eardrum can take up sound pressure in a very wide recording range. Due to the large range of the recording, the sound pressure (phy. unit PA = pressure) is converted by a logarithmic formula to a sound pressure level. This reference unit is dimensionless. It is specified similarly as the sound power level in decibel (dB).. The human ear has range of 0 dB (threshold of hearing) to approx. 140 dB (threshold of noise pain).
Fan noises	Fan noises depend on a variety of different factors. Number of blades, blade shape, flow rate, differential pressure, circumferential speed, in- and outlet conditions, etc. Main sources are the broadband whirl noises due to of the turbulent airflows. The fan noises are mostly within the range of 200 to 800 Hz, thus in the low frequency band. Fans are compared on the basis of the sound power level. The sound power level is a explicit acoustic measurement and identification contrary to the sound pressure level.
Motor noises	Motor noises are generated in the motor in particular by the ball bearings, cooling airflow as well as the varying magnetisation.
Throttle flaps	Throttle flaps and similar equipment can cause significant noise, especially in the closed condition.
Duct and grille noises	Duct and grille noises originate in the air ducts by speed fluctuations and turbulence at sharp corners and edges, bends, T-pieces, grilles, etc., if the air has too high speeds (> 6 m/s) and by excitation of the duct walls to vibrations. Such noises have to be reduced by aerodynamically favourable design of the ducting.
Air outlet noises	Air outlet noises originate from the airflow at the outlet. The outlets should be designed not only in relation to the discharge speed but also particularly in terms of the acoustics. No rework is possible with a wrong design.

Fan parameters

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

The values were determined on a intake-side chamber test rig DIN EN ISO 5801. The noise measurements in the acoustic chamber or freefield conditions correspond to DIN 45635, pt.1 and pt.2.

Performance curve

The fan characteristics are shown in the form of a fan performance curve. The air flow volume is presented depending on static pressure (Δp_{fa}) or total pressure increase (Δp_{tot}) on the performance curve.

System performance curve

While the fan performance curve is determined on a standard test rig, the system performance curve must be determined by the system planner. This is carried out by means of a pressure loss calculation for the duct network. The maximum design flow rate is used as a parameter for the calculation. The system pressure loss is proportional to the square of the air flow volume. Different operating points in response to partial loads depending on the design operating point can be determined using this physical proportionality law.

Operating point

The operating point (BP) of a fan is the intersection of the fan performance curve and the system performance curve.

Performance curve presentation

The fan performance curves, total pressure increase and static pressure increase are shown in the performance diagram for types VAR and B VAR (Fig. 7).

With regard to the low pressure and medium pressure axial fans AVD / B AVD and AMD / B AMD, the air flow volume and static pressure can be adjusted to the calculated operating point (Fig. 8) by changing the pitch angle of the impeller blades (adjustable in standstill).

Fig. 7

B VAR 280/2 n=2800 1/min

Frequency		Hz	Ges.	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	88	58	69	80	83	83	79	70

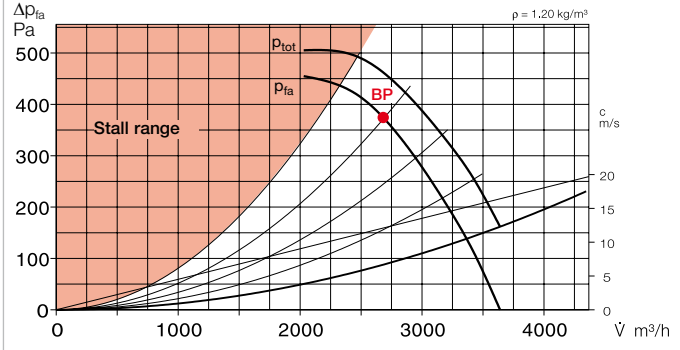
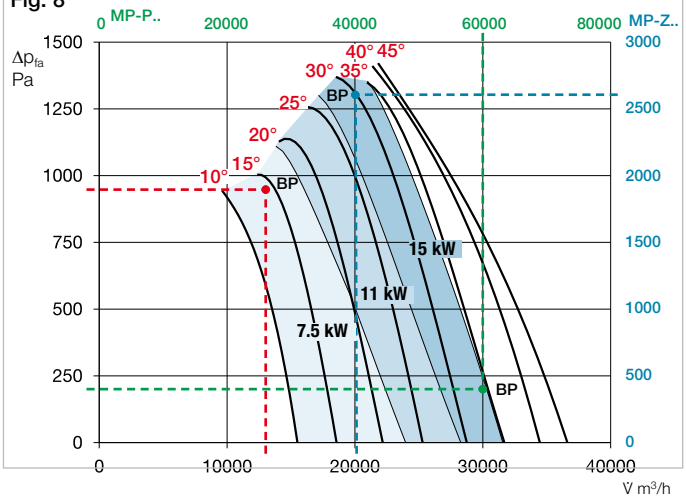


Fig. 8



With regard to B AVD F300/F400 as well as AMD and B AMD (Fig. 8), the calculation of the required motor output depends on the calculated operating point (BP), which lies on the intersection between the fan and system performance curves. The different motor outputs are presented by differently coloured areas on the performance diagram. The fan selection is therefore operating point-oriented. The pitch angle of the impeller blades and the motor output are variable for these fans, so that highly energy-efficient operation is achieved with maximum investment cost savings.

Example 1 for Fig. 8
Fan design
$\dot{V}$ = *12,000 m³/h*
Δp_{fa} = *950 Pa*
Consequently: Pitch angle 14°
Motor output 7.50 kW

Furthermore, the performance diagrams for series AMD / B AMD and VAR / B VAR also have two additional scales (Fig. 8), which enable the determination of the performance curves of two-stage (Z) and parallel (P) units.

P unit

If two identical fans are operated as a P unit in parallel in a ducting system, i.e. arranged side by side, the required air flow volume will double with a constant pressure increase. This can be seen from the green scale above the performance diagram.

Example 2 for Fig. 8
Fan design P unit:
= *60,000 m³/h*
$\dot{V}\Delta p_{fa}$ = *200 Pa*
Consequently: Pitch angle 33°
Motor output 15 kW

Z unit

If two identical fans are operated as a Z unit in two-stage, successive arrangement in a ducting system, the static pressure increase for both fans will double at a constant air flow volume, which can be seen from the blue scale next to the performance diagram.

Example 3 for Fig. 8
Fan design Z unit:
= *20,000 m³/h*
$\dot{V}\Delta p_{fa}$ = *2,600 Pa*
Consequently: Pitch angle 30°
Motor output 15 kW

Motor power at the fan shaft

$$Pw_1 = \frac{\dot{V} \cdot \Delta p_{tot}}{1000 \cdot \eta} \text{ [kW]}$$

Δp_{tot} = Total pressure increase [Pa]
η = Fan efficiency
$\dot{V}$ = [m³/s]

Use of a pole-switching motor

Poles n_1/n_2	Air flow volume $\frac{\dot{V}_2}{\dot{V}_1}$	Pressure $\frac{\Delta p_2}{\Delta p_1}$	Power $\frac{Pw_2}{Pw_1}$
4/2 8/4 12/6	2	4	8
6/4	1.5	2.25	3.38
8/6	1.33	1.78	2.37

Conversions, affinity designations

The performance data for a geometrically similar fan series can be converted depending on speed, diameter and air density.

Change in speed:

$$\dot{V}_2 = \dot{V}_1 \cdot \frac{n_2}{n_1}\ ;\ \Delta p_2 = \Delta p_1 \left(\frac{n_2}{n_1}\right)^2$$

$$P_{w2} = P_{w1}\left(\frac{n_2}{n_1}\right)^3$$

Change in diameter:

$$\dot{V}_2 = \dot{V}_1 \cdot \left(\frac{D_2}{D_1}\right)^3;\ \Delta p_2 = \Delta p_1 \left(\frac{D_2}{D_1}\right)^2$$

$$P_{w2} = P_{w1}\left(\frac{D_2}{D_1}\right)^5$$

Change in density, temperature:

$$\dot{V}_1 = \dot{V}_2 = const.$$

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

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

$$P_{w2} = P_{w1}\frac{\rho_2}{\rho_1} = P_{w1}\frac{T_1}{T_2} \text{ [kW]}$$

T: Absolute temperature (T = 273+t) [K]
t: Air flow temperature [°C]
Index 1: Initial condition
Index 2: Changed condition

Use of fan at greater geodetic height

Air density

$$\rho = \frac{p_a\,[hPa] \cdot 100}{R_i \cdot T} \text{ [kg/m³]}$$

p_a: Air pressure [hPa, mbar]
R_i: Gas constant (air: 287 J/(kgK))

Two-stage Z circuit

General information

The term two-stage (in series) refers to when two identical high-performance fans arranged successively are operating in the same ducting system.
The static pressures of the two fans are added at a constant air flow volume.

$\dot{V}$ = const.
$\Delta p_{fa} = p_{fa1} + p_{fa2}$

Operating modes (Fig. 11)

When the two fans are operated simutaneously, the performance corresponds to curve ③ $\Delta p_{fa1} + \Delta p_{fa2}$
When a fan is operated individually, the performance reduces to curve ① Δp_{fa1} or curve ② Δp_{fa2}
The performance can be adjusted to variable operation conditions through partial load switching, the use of pole-switching or controllable types.

- Fan 1 runs and forces air over 2 (curve ① Δp_{fa1})
- Fan 2 runs and takes in air over 1 (curve ② Δp_{fa2})
- Fans 1 + 2 run (curve ③ $\Delta p_{fa1} + \Delta p_{fa2}$)

It must be taken into account that if a fan is operated individually, the deactivated fan will create additional resistance.

Performance curve 1

① Δp_1 Fan 1 in operation
② Δp_2 Fan 2 in operation
③ $\Delta p_1 + \Delta p_2$ Both fans 1 and 2 in operation

1 System operating point for two-stage operation (series).
2 System operating point for individual operation of fan 1.
3 System operating point for individual operation of fan 2.

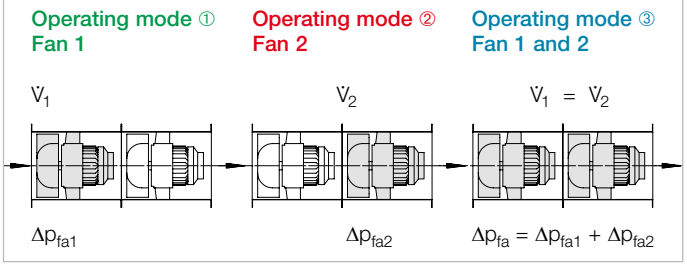
Speed change

With regard to fans with pole-switching (two speeds), it must be ensured that both fans are always operated at the same speed.

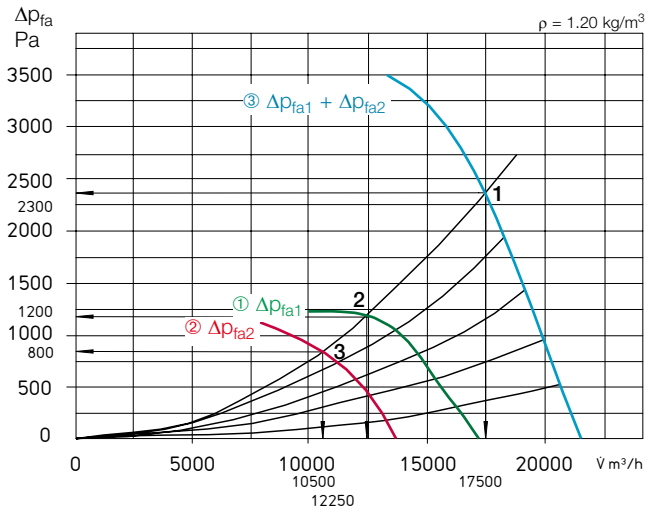
Note

If a system necessitates a redundant fan operating mode, it must be considered for a Z circuit that the deactivated fan will create considerable resistance in the system. For example, if fan 1 is blocked due to a defect, it is not possible that fan 2 will still reach the required operating point in an economical design. A Z circuit is therefore unsuitable if a redundant operating mode is required.

Fig. 11



Performance curve 1



Parallel P operation

General information

Parallel operation means that two identical fans arranged side by side are operating in the same duct system. The constant pressures of the two fans are added at a constant air flow volume.

Δp_{fa} = const.
$\dot{V} = \dot{V}_1 + \dot{V}_2$

Operating modes (Fig. 12)

When the two fans are operated simultaneously, the performance corresponds to curve ① $\dot{V}_1 + \dot{V}_2$
When a fan is operated individually, the performance reduces to curve ② $\dot{V}_1$ or $\dot{V}_2$
The performance can be adjusted to variable operation conditions through partial load switching, the use of pole-switching or controllable types. It must be ensured that the fan power adjusts according to the system performance curve (parabola). The volume will only double with constant pressure/resistance.

- Fans 1 and 2 run (curves ① $\dot{V}_1 + \dot{V}_2$)
- Fan 1 or 2 runs (curves ② $\dot{V}_1 / \dot{V}_2$)

Note: If a fan is operated individually, the backdraught shutter of the standing fan will automatically close.

Performance curve 2

① $\dot{V}_1 + \dot{V}_2$ both fans in operation
② $\dot{V}_1 / \dot{V}_2$ Fan $\dot{V}_1$ or $\dot{V}_2$ in operation

1 System operating point for parallel operation.
2 System operating point for individual operation of fan 1 or fan 2.
3 Possible operating point for individual operation. Cannot be achieved for parallel operation.

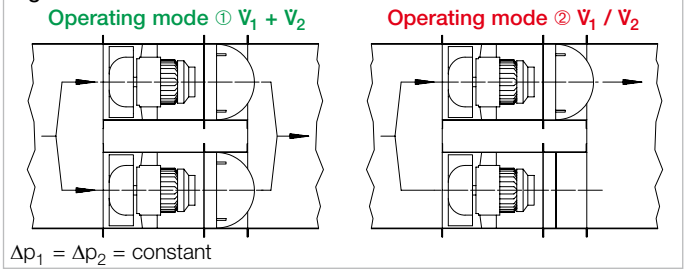
Speed change

With regard to fans with pole-switching (two speeds), it must be ensured that both fans are always operated at the same speed.

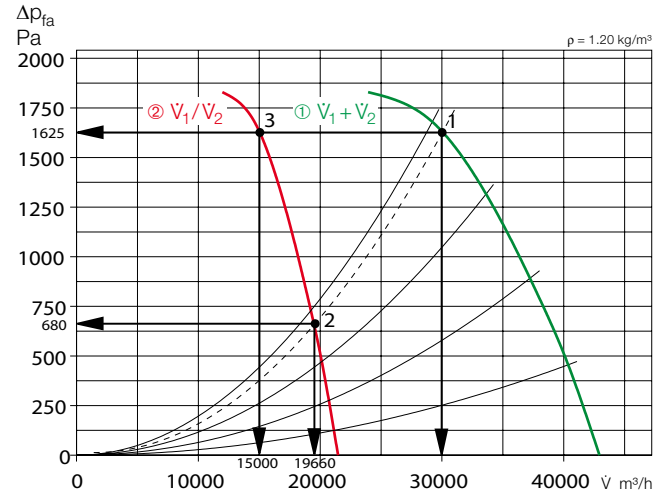
Note

If a system necessitates a redundant fan operating mode, a P circuit is particularly well suited for this. A blocked fan due to a defect has a negative impact on the performance curve of other fans in the in P circuit. Thus, the fans can be designed economically.

Fig. 12



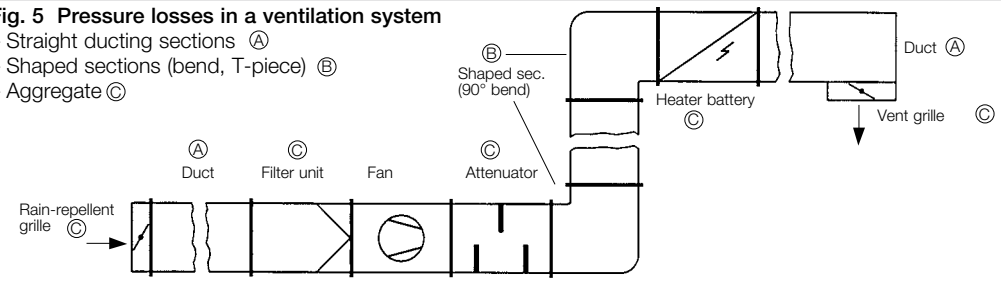
Performance curve 2



Pressure losses

Ventilation systems often consist of multiple components, such as fans, deflectors, grilles, heat exchangers, filters, etc.
All of these components cause pressure losses, which are crucial for the selection of the suitable fan. The pressure loss Δp_{fa} (static pressure difference) of the entire system is calculated by adding all individual resistances (see Fig. 5).

Fig. 5 Pressure losses in a ventilation system
– Straight ducting sections Ⓐ
– Shaped sections (bend, T-piece) Ⓑ
– Aggregate Ⓒ



Pressure loss in duct sections

A $\Sigma \Delta p = \Delta p_1/L \cdot L_1 + \Delta p_2/L \cdot L_2 + ...$ [Pa]

$\Delta p/_{L1,2}$...: From the diagram Fig. 6 [Pa/m]
L: Duct length [m]
Auxiliary parameter d_h

Equivalent diameter d_h

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

b: Duct width [mm]
h: Duct height [mm]
Auxiliary parameter d_h

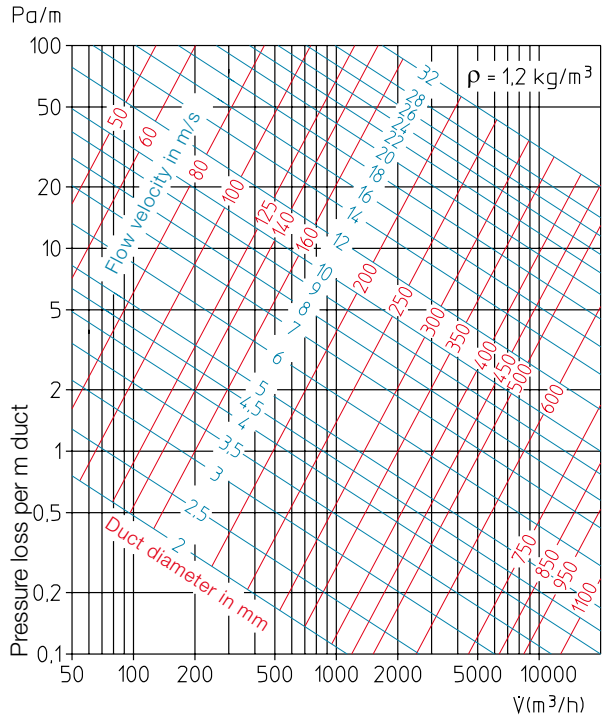
d_h for in-line rectangular fans

w 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 for roughness ε

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

Fig. 6 Duct friction losses Δp [Pa/m] (roughness ε = o)
V̇ [m³/h], c [m/s], d [mm]



Correction factor for roughness ε of different ducts			
Folded sheet metal ducts	1.5	Wooden ducts	1.5
Flexible hoses	7.0	Concrete ducts	2.0
Fibre cement	1.5	Brick-lined ducts	3.0

Pressure loss in shaped sections e. g. bends, junctions, cross-sectional modifications

B $\Sigma \Delta p_F = \Delta p_{F1} + \Delta p_{F2} + ...$ [Pa]

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

$\Delta p_{F1,2}$...: From the diagrams Fig.7-10 [Pa]
Aux. par. c: Flow speed [m/s]
ζ: Pressure loss coefficient

Resistances from aggregates

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

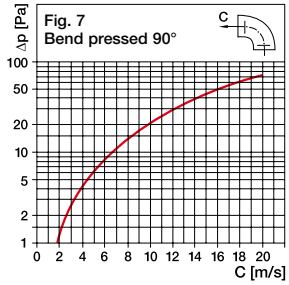
$\Delta p_{Agg1,2}$...: From table 5 or diagram

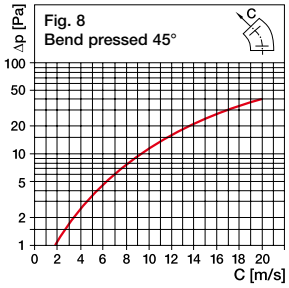
Table 5 Resistances from aggregates
(for rough calculation)

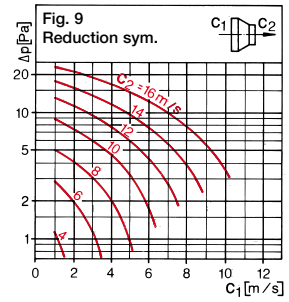
Aggregate/component	Flow resistance Δp Aggregate [PA]
Ventilation grille, automatic shutter, rain-repellent grille*	20 – 40
Helios VK shutter*	10 – 20
Heater battery, heat exchanger*	100 – 150
Filter clean*	40 – 60
contaminated	250 – 300
Attenuator*	40 – 80
Poppet valves*	10 – 200
Cyclones	500 – 750

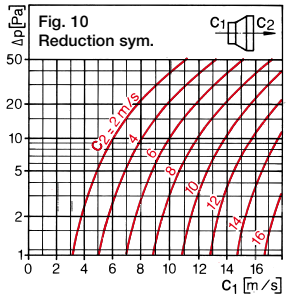
*see product page for exact values

Resistances of shaped sections









Dynamic pressure at discharge section

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

ρ: Air density [kg/m³]
(air 20 °C, 1013 mbar = 1.2 kg/m³)
c: Flow speed [m/s]

Total resistance Calculation process

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

Auxiliary parameters Flow rate

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

A: Flow cross-section [m²]
V̇: Air flow volume [m³/h]

General information

Smoke and heat exhaust systems have the task of ensuring a smoke-free layer above the ground in the event of a fire. This should ensure visibility to facilitate the evacuation of people and animals as well as active firefighting by the fire brigade. Furthermore, emergency signs must also be recognisable in panic situations.
The creation of smoke-free areas reduces the risk of inhalation of toxic fire gases and the associated threat to life and limb. The temperature in the smoke-free layer should not exceed 70 °C.
According to DIN 18232 smoke and heat exhaust systems are divided into two categories:

– **NRA:** Natural smoke and heat exhaust systems (18232-2)
– **MRA:** Powered smoke and heat exhaust systems (18232-5)

MRA: Powered smoke and heat exhaust systems

If the use of a natural smoke and heat exhaust system (NRA) is not possible due to structural conditions (e.g. multi-storey buildings, internal areas), a powered smoke and heat exhaust system (MRA) is used. With a powered smoke and heat exhaust system, the smoke gases are extracted by suitable fans.
Depending on the burning materials, highly toxic smoke is produced in a short time. The fire gas rises upwards in rooms on the basis of the principle of thermal lift to form a layer of smoke below the ceiling which spreads horizontally and vertically with the development of the fire. A powered smoke and heat exhaust system pursues the protection objective of creating a durable smoke-free layer in the lower area. This enables the self-rescue of people in the building as well as rescue and firefighting measures by the fire brigade. Sufficient fresh air is supplied via sufficiently dimensioned vent openings (airflow speed < 1 m/s) due to the extraction of fire gases the resulting vacuum in the lower building. Hence, the ideal result is a balance between incoming air and smoke gas extraction (see Fig.1).

Standards and guidelines

The dimensioning and requirements of smoke and heat exhaust systems are regulated in national and European standards (see Fig. 2).

Dimensioning of powered smoke and heat exhaust systems

The dimensioning of powered smoke and heat exhaust systems is specified in DIN 18232 part 5.
Other dimensioning and design variations are possible if they are justified. Alternatively, for example, the engineering method according to VDI 6019 sheet 2 can be used. It is advisable to coordinate the method of the dimensioning of a powered smoke and heat exhaust system with the relevant official authorities (fire safety experts, authorities, local fire brigade, etc.) in the planning phase. The following calculation steps should only be understood as a suggestion. The final specification should be carried out in compliance with the applicable laws and standards in accordance with the competent authority.

Dimensioning according to DIN 18232-5

A design according to DIN 18232-5 is possible if the area from which smoke is to be extracted is a large area with a clear height > 3 m.
The dimensioning group must first be determined for further dimensioning. This concerns a calculational fire area which depends on the fire development time and the fire propagation rate (see Table 1).

The fire development time to be used is dependent on the arrival timing of the fire brigade. It describes the time from the outbreak of the fire until the beginning of the firefighting. A time of 10 minutes is usually used. In case of very favourable conditions (plant fire brigade), the time can be reduced to 5 minutes. In case of unfavourable or really unusual circumstances, the value has to be increased to 15 or 20 minutes. The period from the outbreak of the fire until the fire alarm is not used, since an automatic fire alarm system or constantly present and trained staff must be on-site for early fire detection.
The fire propagation rate depends on the flammability of the fire load. The average value is normally used here. Low fire propagation rates can be assumed for combustible substances in non-combustible packaging. High fire propagation rates are to be used if substances with high flame propagation rates are present.

Determination of flow rate

The flow rate to be discharged for the smoke section (1,600 m²) must be determined according to tables. The smoke extraction flow rate is specified depending on the thickness of the smoke-free layer, heat release rate and dimensioning group (see table 2, p.10).
The dimensioning distinguishes between two heat release rates:
– 600 kW/m²
– 300 kW/m²
These values can be deviated from if there are justifiable reasons. In particular if other plume models are used for the determination of smoke-gas or other heat release rates are to be used.
The smoke-gas flow rate must be extracted by smoke extraction fans. The following types can be used:
– Roof-mounted fans
– Wall fans
– Central fans

The extraction locations must be dimensioned and distributed properly for smoke extraction.

Fig. 1 Equilibrium condition between supply air and extracted smoke-gases.

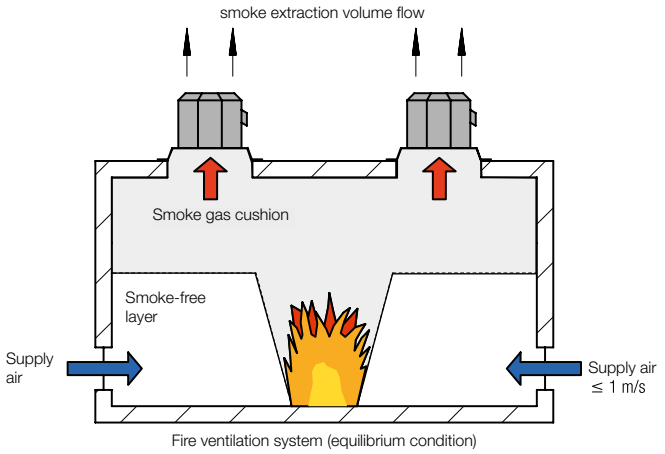


Fig. 2

German and European standards to DIN-publication for smoke and heat exhaust systems

German standards	European standards
DIN 18232 Smoke and heat control	**EN 12101 Smoke and heat control**
DIN 18232-1 *Terms, safety objectives*	**EN 12101-1 draft** *Specification for smoke barriers*
DIN 18232-2 *Natural smoke and heat exhaust system (NRA), requirements, design, installation*	**EN 12101-2** *Specification for für natural smoke and heat exhaust fans*
DIN 18232-4 *Heat exhaust systems (WA), test method*	**EN 12101-3** Specification for powered smoke and heat exhaust fans
DIN 18232-5 *Powered smoke and heat exhaust system (MRA) requirements, dimensioning*	**EN 12101-6** *Regulation for pressure differential systems, kits*
DIN 18232-7 *Heat exhaust fans made of meltable materials, assessment procedure, installation*	**EN 12101-7** *Smoke duct systems*
	EN 12101-8 *Smoke control dampers*
	EN 12101-10 *Energy supply*

Table 1: Determination of MRA dimensioning group according to DIN 18232

Applicable fire development time in minutes	Fire propagation rate		
	particularly low	medium	particularly high
≤ 5	1	2	3
≤ 10	2	3	4
≤ 15	3	4	5
≤ 20	4	5	-

A functional air vent opening is essential for efficient operation of a powered smoke and heat extract system. The supply air must stream in close to the ground within the smoke-free layer. A low-jet flow is essential. Otherwise the result is a swirling smoke-gas cushion. During the planning phase, it must be ensured that the top edge of the air vent opening is at least 1.0 m below the smoke-gas cushion. If the air vent openings have a maximum width of 1.25 m, the minimum distance can be reduced to 0.5 m. If a free air flow is not possible, a powered supply air intake must be realised. The maximum incoming air speed of 1 m/s is specified in DIN 18232-5. If the requirement in DIN 18232-5 cannot be met with regard to the maximum incoming air speed, the following compensation measures are possible in agreement with the competent expert:

– Installation of porous deflector plates
– Reduction or foregoing of fire loads in the air vent area
– Low active depth or effect of the air vent opening

High-speed incoming supply air can negatively affect the flow pattern due to the induction effect on the plume, with the consequence of a washout (smoke entry into the smoke free zone) or even a collapse of the plume. Therefore, a maximum incoming air speed of 0.5… 1.0 m/s is recommended. Supply air vent openings must be opened immediately after the MRA is triggered. Automatic opening is ensured by:

– Automatic opening mechanisms
– Plant fire brigade
– Constantly present and trained personnel

The clear cross-section of the incoming air vent opening is calculated according to the following formula:

$$A_{lichte} = \frac{\dot{V}_{ab.masch}}{w_{zu}} \quad [m^2]$$

A_{lichte} = free or clear opening area [m²]
$\dot{V}_{ab.masch}$ = Extraction volume [m³/s]
w_{zu} = Supply air speed [m/s]

Smoke section areas

The application of DIN 18232-5 requires that the rooms, from which smoke is to be extracted, have a maximum floor space of 1,600 m². Larger rooms are to be divided by means of smoke aprons into max. 1,600 m² large smoke section areas. The smoke section area can be increased up to 2,600 m² by increasing the flow rate of the smoke and heat exhaust fans. For this purpose, the values indicated in the table 2 have to be increased by 10 % for each 100 m² started after 1,600 m².

Further project planning steps in DIN 18232-5

The average smoke layer temperature (°C) can be seen in table 3 in consideration of the same parameters as in the procedure for the determination of volume flow (table 2). This value is necessary for determining the number of extraction points, as well as for the possible flow rate correction procedure.

Table 4 shows the required temperature class of the smoke and heat exhaust fans according to DIN EN 12101-3. The design parameters here are the same as those shown in tables 2 and 3.

Flow rate correction procedure

The high smoke-gas volume flows in everyday practice for smoke extraction projects pose enormous challenges for all project parties. If the effort for the project planning and design of the smoke and heat exhaust fans is still relatively manageable, the determination of the exact dimensions of the smoke extraction ducts, as well as the number and position of the air vent openings to be considered, is often more complicated. The correction procedure specified in the standard for the reduction of the smoke-gas volume flow rates according to table 2 can often provide the necessary remedy, since it considers the actual smoke layer heat losses. In a smoke extraction situation, a high heat transmission occurs due to the high temperature difference between the smoke layer and the surrounding area. This loss of heat flow through the room surfaces affected by the smoke causes the significant cooling of the smoke-gas cushion. The cooling of the smoke layer results in a significant reduction in the smoke-gas volume, which reduces the requirements for the smoke-gas volume flow to be discharged and temperature class of the smoke and heat exhaust products.

Table 2: Smoke-gas volume flow (m³/h) to be extracted per smoke section (DIN 18232-5)

Height of smoke-free layer	300 kW/m²					600 kW/m²				
	Dimensioning group									
	1	2	3	4	5	1	2	3	4	5
2 m	23000	38000	64000	112000	-	32000	56000	-	-	-
2,5 m	29000	46000	75000	128000	223000	38000	64000	112000	-	-
3 m	34000	55000	88000	145000	248000	44000	73000	124000	-	-
4 m	43000	72000	115000	184000	303000	58000	92000	152000	257000	448000
5 m	50000	85000	143000	229000	366000	71000	115000	183000	301000	511000
6 m	59000	96000	165000	276000	436000	84000	136000	218000	351000	581000
7 m	73000	105000	183000	311000	512000	93000	155000	256000	404000	657000
8 m	88000	121000	197000	342000	580000	109000	175000	286000	462000	738000
9 m	105000	143000	206000	368000	633000	127000	194000	316000	522000	825000
10 m	123000	166000	231000	387000	681000	149000	210000	345000	570000	916000

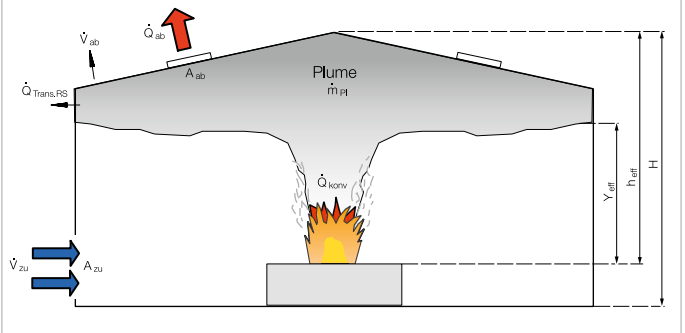
Table 3: Average smoke layer temperature T_{RS} in °C according to DIN 18232-5

Height of smoke-free layer	300 kW/m²					600 kW/m²				
	Dimensioning group									
	1	2	3	4	5	1	2	3	4	5
1 m	210	290	400	560	-	398	555	-	-	-
2 m	160	210	290	400	560	291	403	561	-	-
3 m	130	170	230	310	430	226	311	432	-	-
4 m	100	120	150	210	290	154	209	288	398	555
5 m	80	100	120	160	210	120	155	212	291	403
6 m	70	90	100	120	170	101	126	166	226	311
7 m	60	80	90	110	140	91	109	136	184	251
8 m	50	70	90	100	120	79	97	119	154	209
9 m	50	60	80	90	110	69	87	107	132	179
10 m	40	60	70	90	100	61	81	98	120	155

Table 4: Temperature classes of smoke and heat exhaust fans according to DIN 18232-5

Height of smoke-free layer	300 kW/m²					600 kW/m²				
	Dimensioning group									
	1	2	3	4	5	1	2	3	4	5
1 m	F400	F600	F842	-	-	F842	-	-	-	-
2 m	F300	F600	F600	F842	-	F600	F842	-	-	-
3 m	F300	F400	F600	F842	-	F400	F600	F842	-	-
4 m	F200	F300	F300	F400	F600	F300	F400	F600	F842	-
5 m	F200	F200	F300	F300	F600	F200	F300	F400	F600	F842
6 m	F200	F200	F200	F300	F400	F200	F200	F300	F400	F600
7 m	F200	F200	F200	F200	F300	F200	F200	F300	F300	F400
8 m	F200	F200	F200	F200	F300	F200	F200	F200	F300	F400
9 m	F200	F200	F200	F200	F200	F200	F200	F200	F200	F300
10 m	F200	F200	F200	F200	F200	F200	F200	F200	F200	F300

Fig. 3 Diagram of room on fire



The reduced flow rate in consideration of heat losses is calculated as follows:

$$\dot{V}_{RS,\,corrected} = \dot{V}_{RS} \cdot \frac{T_{RS,\,corr}}{T_{RS}}$$

$$T_{RS} = \frac{(1-\delta)\,(T_{RS} - T_\infty)}{1 + \frac{T_{RS}}{353{,}18\ \dot{V}_{RS} \cdot c_p} \Sigma U_i \cdot A_i} + T_\infty$$

$$\delta = 0.031 \cdot \sqrt[3]{A_R}$$

$$T_{RS} = (Value_{Tab.3}) + 273\ K$$

$$T_\infty = 293\ K$$

$$\dot{V}_{RS} \text{ in } [\frac{m^3}{s}]$$

$$c_{p,\,smoke} = 1.010 \cdot \frac{J}{kg\ K}$$

$$U_i \text{ in } [\frac{W}{m^2\ K}]$$

δ = Radiation factor of smoke layer
T_{RS} = Average smoke layer temperature according to table 3 in absolute number (K), value
T_∞ = Ambient or supply air temperature [K] = 293 K
$\dot{V}_{RS}$ = Smoke-gas volume flow to be discharged according to table 2
$C_{p,\,smoke}$ = Specific heat capacity of the smoke-gas
U_i = Heat transmission coefficient of the component in the smoke layer
A_i = Surface area of the component in the smoke layer (m^2)
A_R = Surface area of smoke section (m^2)

Number of extraction points

All extraction points in a smoke extraction duct and direct operating smoke and heat exhaust fans (e.g. roof fans with direct inlet, wall fans) are to be understood as extraction points in the sense of the standard. The number of necessary extraction points can be found in table 5. The maximum permissible smoke-gas volume flow (in degrees C) can be seen here in consideration of the smoke layer thickness and the average smoke layer temperature. The thickness of the smoke layer at the extraction point is shown in Fig. 4 and the average smoke layer temperature is shown in table 3.

Minimum distances between the exhaust openings must be observed. The predefined distances refer to the distance to the respective outer edges. The minimum distance (S_{min}) is calculated as follows:

$$S_{min} \geq 0.015 \cdot \sqrt{\dot{V}_i}$$

with:
$\dot{V}_i$ = Smoke-gas volume flow of extraction point (m^3/h)

Smoke and heat exhaust fans

The requirements of smoke and heat exhaust fans are specified by the European product standard DIN EN 12101-3 (smoke and heat flow control systems). All Helios smoke and heat exhaust fans are tested according to this test standard by recognised testing body. The evidence is provided by the issuing of a certificate concerning the performance reliability and the CE marking with the associated declaration of performance, as well as the Installation and Operating Instructions. Furthermore, they are DIBt approved. The approvals are issued by the German Institute for Building Technology (DIBt).

Installation of smoke and heat exhaust fans

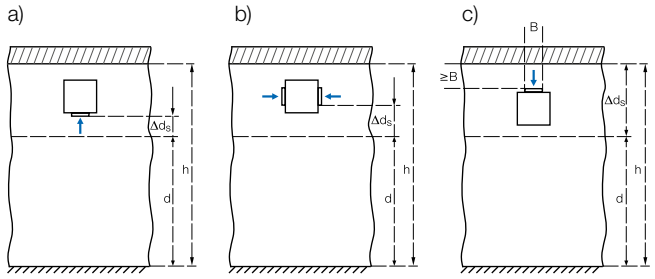
The installation of smoke and heat exhaust fans is regulated according to VDMA standard sheet 24177. There are three different installation types.
– Installation of the fan outside the smoke section and outside the building.
– Installation of the fan outside of the smoke section, inside of buildings in sufficiently ventilated room.
– Installation of the fan within the smoke section.

In principle, smoke and heat exhaust fans must be connected to the ducting by temperature-resistant and flexible connectors to compensate for thermal expansion. Roof fans which are mounted on roof bases and wall fans without duct connections are excluded. The connectors require proof of suitability. They must have the identical temperature category of the corresponding fan. The flexible connectors must be fitted before and after the fan without any offset. An installation with offset will cause a considerable performance reduction and increase in noise levels. Flexible connectors do not serve as adapters for any possible compensation for assembly inaccuracies.

Electrical connection, isolator switch, control

The electrical energy supply to smoke and heat exhaust fans is described in different standards and building regulations:
– Basic document fire protection
– Model building regulation
– Federal State building regulations
– Model duct system guidelines
– Testing institute report
– General building approvals
– European and national standards
In principle, the energy supply to the smoke and heat exhaust fan must always be ensured in case of fire. The functional integrity of cables and ducts must conform to the time classification of the fan.

Fig. 4 Smoke layer thickness at the exhaust openings



a) Δd_S for downward-facing exhaust openings
b) Δd_S for horizontal exhaust openings
c) Δd_S for upward-facing exhaust openings

h = Average clear ceiling height from the floor to the lower edge of the roof or ceiling
d = Target height clearance from the floor to the lower edge of the smoke layer
B = Clear width of exhaust opening

Table 5: Maximum permitted smoke volume flow at the extraction point in m^3/h according to DIN 18232-5

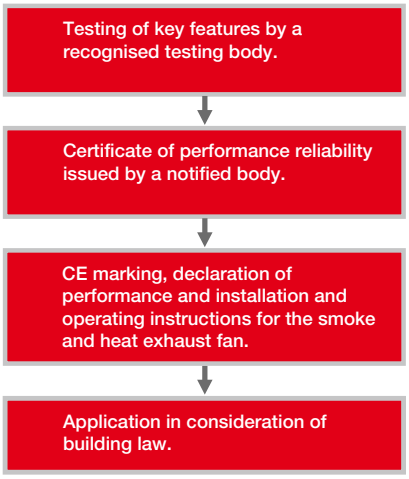
Smoke layer thickness at the exhaust opening	Average smoke layer temperature in °C										
	50	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**500**	**550**	**600**
0,5	1000	1300	1800	2000	2100	2400	2600	2900	3000	3050	3100
1	5000	7500	9000	10000	12000	15000	18000	19000	19500	20000	21000
1,5	15000	21000	28000	30000	38000	40000	41000	48000	50000	55000	60000
2	30000	42000	55000	65000	80000	90000	90000	95000	100000	105000	110000
2,5	50000	75000	100000	110000	135000	165000	170000	180000	200000	205000	210000
3	80000	110000	155000	195000	200000	225000	250000	260000	300000	305000	310000
3,5	125000	190000	220000	290000	300000	350000	370000	400000	450000	495000	500000
4	195000	260000	300000	400000	420000	500000	500000	550000	600000	700000	705000
5	300000	450000	550000	650000	750000	850000	900000	950000	1 Mio.	-	-

Table 6: Temperature classes of smoke extraction fans according to DIN EN 12101-3

Category	**F200**	**F300**	**F400**	**F600**	**F842**
Temperature (°C)	200	300	400	600	842
Functional integrity (minimum), (minutes)	120	60	120	60	30

The national standards such as DIN and EN have been taken into account in these categories.

Fig. 5 Building control requirements for smoke and heat exhaust fans



The power supply to the fan must be protected against mechanical damage. This can be ensured through the use of silicone or teflon-coated cables. The fan control unit must be located outside the fire zone. Smoke and heat exhaust fans require a separate power sup-

ply separate from the remaining power network. The respective national law and possibly other public requirements regulate whether the additional securing of the energy supply (emergency power) is necessary.
An isolator switch must be provided in the immediate vicinity of the fan for maintenance and repair work. It must be ensured that the isolator switch is not affected by radiant heat (thermal encapsulation). The isolator switch may be installed within a fire-resistant cooling air duct, if it is accessible via a fire-resistant inspection flap. Isolator switches must be effectively protected against unauthorized operation (e.g. padlock, key-switch design).

Smoke and heat exhaust fans with dual-use can be used for normal building ventilation. The ventilation operation can be speed-controlled. The speed control can be carried out by means of
– frequency inverter (FU)
– pole-switching motors (Dahlander winding or separate windings)

A sine filter is recommended due to motor insulation demands on the basis of occurring voltage peaks and voltage changes when controlling with a frequency inverter, and due to increasing insulation demands on the basis of line inductances and capacities.

The fan must not be regulated by means of a frequency inverter or other control devices in a smoke and heat extraction situation if they were not part of the smoke and heat exhaust fan testing. When the smoke and heat exhaust fan is triggered (in case of fire), the following must be ensured:
– Activation of the fan
– Bridging of thermal and electrical control elements
– Operation in the planned speed
– Ensure operation by preventing unauthorised deactivation

■ Smoke extraction ducts
Smoke extraction ducts are part of Building Rules List A and therefore require a test certificate from the building authorities. Smoke extraction ducts and their components must consist of non-combustible materials of class A, DIN 4102-1.

There are four different requirements for smoke extraction ducts:
– Thermal insulation (L90 according to DIN 4102-6)
– Leak-tightness (according to DIN EN 12101-7)
– Load capacity (according to DIN 4102-4 and 6)
– Cross-section preservation (according to DIN EN 12101-7)

□ Smoke extraction ducts within the fire zone
The criteria for load capacity, leak-tightness and cross-section preservation must be met within the fire zone. The use of sheet steel ducts is permitted (with the building authority test certificate).

□ Smoke extraction ducts inside the building; outside the fire zone
All four criteria must be met here. Calcium silicate ducts can be used as suitable thermal insulation.

□ Smoke extraction ducts outside the building
The criteria for load capacity, leak-tightness and cross-section preservation must be met for smoke extraction ducts outside of the building. The use of sheet steel ducts is permitted (with the building authority test certificate).

During the planning phase, particular attention must be paid to the smoke extraction duct outlets. Planning takes place according to the principle of M-LüAR 2005 section 5.1.2:

"Outside air and exhaust air openings (outlets) of ventilation ducts, from which smoke gases can be released into the atmosphere, must be arranged or formed in such a way that fire or smoke cannot pass through to other storeys, fire sections, building units, necessary stairways, rooms between the necessary stairways and external exits or exits to necessary corridors."

Fig. 6 Fans outside of smoke section and outside of the building

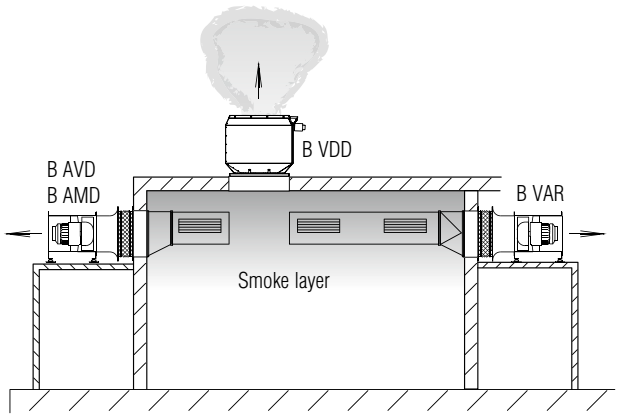


Fig. 7 Fans outside of smoke section, inside the building in sufficiently ventilated room

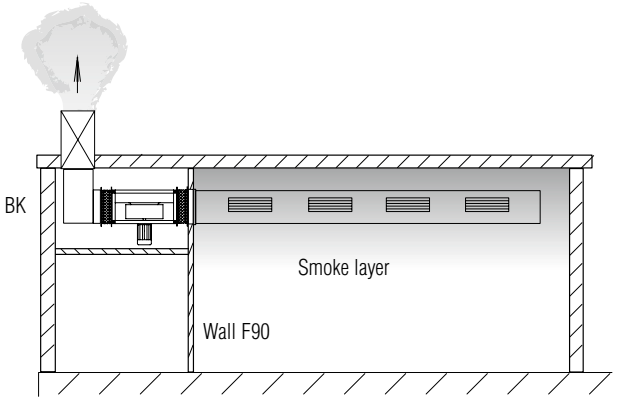
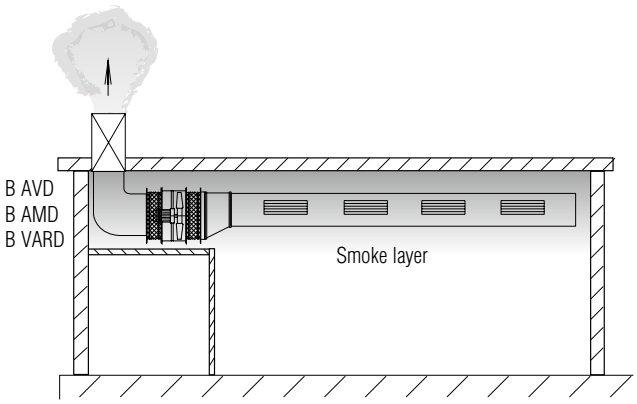


Fig. 8 Fan inside the smoke section



This is deemed to be fulfilled by meeting one the following requirements:
1. Outlets must be at least 2.5 m away from windows, other external wall openings and external walls with combustible building materials and corresponding cladding; this does not apply to the wooden battens on ventilated facades.
A distance to windows and other similar openings in walls is not necessary if these openings opposite to the outlets are protected by 1.5 m protruding, fire-resistant (corresponding to the ceiling) components made of non-combustible building material without openings.
The ventilation duct outlets above roof level must tower at least 1 m over components made of combustible building materials or lie 1.5 m away from these horizontally.
These distances are not required if these building materials are protected against fire risk by the external surfaces of the ventilation ducts up to a distance of at least 1.5 m (e.g. by an at least 5 cm thick layer of gravel or by at least 3 cm thick, tightly laid concrete slabs).”

Smoke and heat exhaust fan accessories

All accessories and components which are part of the smoke and heat exhaust system must be in the same temperature category as the corresponding smoke and heat exhaust fan at least. For this purpose, a relevant building law test certificate is required.
For example, the components include:
– Attenuators
– Flexible connectors
– Anti-vibration mounts
– Backdraught shutters
– Inlet nozzles
– Guards

Maintenance and function control

Recurring maintenance and functional integrity testing is the responsibility of the user.
Smoke and heat exhaust fans must be kept constantly operational and in good condition. Simple and safe maintenance and repair must be always guaranteed by appropriate installation.
The operational reliability and readiness must be checked twice a year. Maintenance must be carried out every year. The fan manufacturer specifications must be observed.

Installation information for axial smoke and heat exhaust fans

The ideal installation state (Fig. 8) has an inflow and outflow duct of 2.5 x D (D = Ø fan). In case of deviations from the ideal installation state, performances losses are possible.

Attaching anti-vibration mounts

The centre of gravity of a fan is decisively determined by the positioning of the motor in the fan casing. Since the motor in in-line fans is only rarely placed centrally in the axial direction, these fans have a so-called motor protrusion and thus no centred centre of gravity. In order to enable the use of evenly loaded anti-vibration mounts for horizontal fan installation despite this motor protrusion, the fan casing may need to be extended with an extension duct on the side of the motor protrusion.
The mounting brackets and anti-vibration mounts must be positioned on the fan and extension duct so that the total weight is evenly distributed on the two mounting brackets and the four anti-vibration mounts (Fig. 10/11).
A level fan mounting surface must also be ensured when mounting the anti-vibration mounts. Anti-vibration mounts must only be used to a very limited extent to compensate for a vertical offset of the mounting surface, but never to compensate for a horizontal offset between the mounting bracket and the on-site substructure.

Fig. 9 Funcitonal installation inflow and outflow with ducting, ducting section before and after the fan 2.5 x D (D = fan diameter)

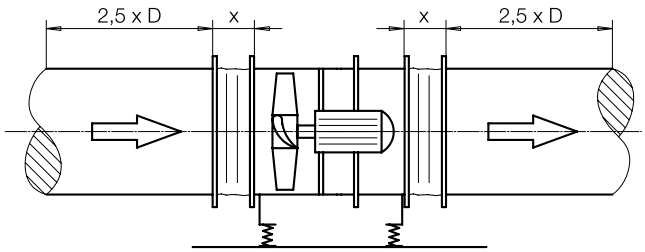


Fig. 10 a) Performance losses/sound level increase/unfavourable weight distribution
b) Improvement through inlet nozzle and extension duct

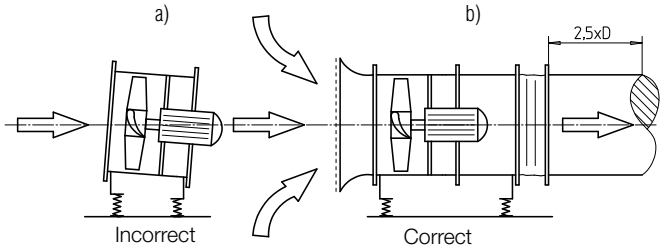


Fig. 11 a) Large performance losses, poor flow behaviour, unfavourable weight distribution.
b) A cone and inflow duct section of 2.5 x D for improvement, centre of gravity between anti-vibration mounts SDD

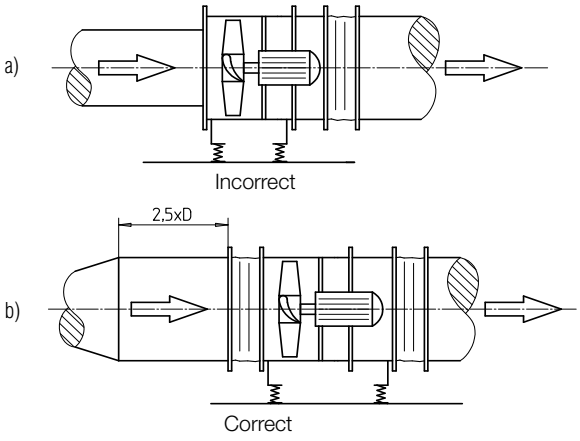
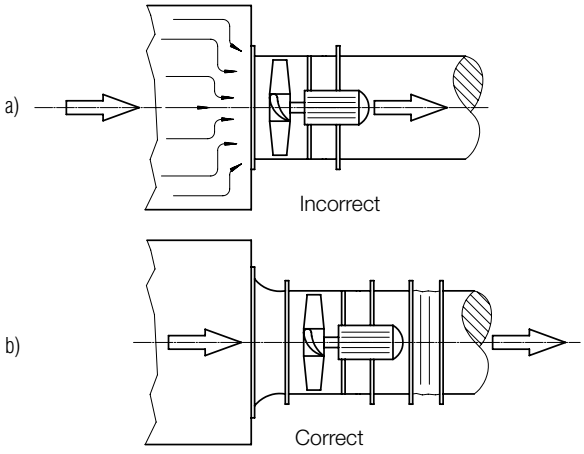


Fig. 12 a) Large performance loss, poor flow behaviour.
b) With inlet nozzle, vonsiderable improvement of inflow and noise behaviour.



Axial fans from Helios.
Powerful and individually applicable.

B AVD: Certified for temperature classes F300, F400 and F600 according to DIN EN 12101-3

40 °C Ex F300 F400 F600

Helios low pressure axial fans AVD and B AVD meet a wide range of application conditions.

We will be happy to create individual solutions for you, such as large-scale axial fans for technical building equipment or cooling tower applications. With diameters from 1 000 to 7 100 mm and volume flows of up to 2.2 million m³/h, Helios is the perfect contact partner for you when it comes to special fans.

Helios B AVD low pressure axial smoke exhaust fans are the ideal solution for mechanical smoke extraction in special structure, such as parking garages, industrial buildings, sales locations and meeting locations.
The successful B AVD F300, F400 and F600 series are equipped with profiled blades, which can be factory-adjusted. As a result, almost any operating point in the range from 1,000 to approx. 150,000 m³/h can be achieved at an external pressure of 50 to 1 100 Pa.

Highlights.
- Aluminium impeller with nine profiled blades (F300/F400) for high efficiency and high pressure rating.
- Compact design.
- Simple installation.
- Low noise and vibration during operation.
- CE-certified.

Low pressure axial fans AVD

For ventilation application (air flow temperatures from -30 to +40 °C)

Ø 710 – 1000 mm
V̇ = 8000 to 80000 m³/h

40 °C Ex

18f

Low pressure axial smoke exhaust fans

For smoke exhaust and extraction according to DIN EN 12101-3 in temperature classes F300 (120 min.) and F400 (120 min.).

Ø 500 – 1250 mm
V̇ = 1000 to 150000 m³/h

F300 F400

26f

Low pressure axial smoke exhaust fans

For smoke exhaust and extraction according to DIN EN 12101-3 in temperature class F600 (120 min.).

Ø 500 – 1250 mm
V̇ = 1000 to 140000 m³/h

F600

27f

Low pressure axial fans AVD / B AVD

Product-specific information.

16f

Application
- Versatile application in technical building equipment, e.g. for the ventilation of car parks or airports, etc.
- For preventive fire protection to secure smoke and heat extraction.
- For applications with air flow temperatures of 300 °C, 400 °C and 600 °C for 120 min. (F300, F400 and F600).

Characteristics
Helios AVD and B AVD are low pressure axial series, which are characterised by a low operating noise, high efficiency and low vibration.

Design
- Built-in fan AVD DK:
  Wall ring with inlet cone, casing made from galvanised steel, motor with terminal box and motor side guard.
- Duct fan AVD RK and HRF:
  Cylindrical duct with flanges on both ends. For direct in-line installation in ducting.
- B AVD smoke and heat exhaust fan:
  Cylindrical duct with flanges on both ends. For direct in-line installation in ducting.

Casing
Duct casing made from galvanised steel. Flanges on both ends (except AVD DK) according to DIN 24155 pt. 3, for direct in-line installation in ducting.

Impeller
- Series AVD and HRF:
  High-performance characteristics with 5 or 7 profiled blades made from polymer. Operating range from -30 °C to +40 °C.
- Series B AVD:
  High-performance characteristics with 5 or 9 profiled blades made from aluminium (F300, F400) or steel (F600). dynamically balanced, balance quality G 6.3.

Motor
For single-speed fans with a three-phase motor and a nominal motor power ≤ 2.20 kW, the connection for direct start-up is provided, fans with a nominal motor power ≥ 3.00 kW for star-delta start-up.
- Series AVD and HRF:
  Totally enclosed motor IP55 or IP54. Maintenance-free and interference-free. Tropicalised winding with humidity protection impregnation.
- Series B AVD:
  Direct through efficient IE3 three-phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing. Depending on the installation situation, relubrication intervals or bearing replacements must be observed (see Installation and Operating Instructions). Cable to the terminal box with fire-resistant sheathing.

Motor protrusion
- For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
- Series AVD:
  All types (except pole-switching and explosion-proof) have thermal contacts or PTC resistors as standard and must be protected by the following full motor protection devices pursuant to the footnotes in the tables:
  MSA, Ref. no. 01289
  (for PTC temperature sensors)
  M4, Ref. no. 01571
  All other types must be be protected by a conventional circuit breaker on site.
- Series B AVD:
  The B AVD types (except Dahlander) are equipped with PTC resistors as standard and must be protected by the following full motor protection devices pursuant to the footnotes in the tables:
  MSA, Ref. no. 01289
  (for PTC temperature sensors)
  This must be bridged in smoke extraction mode.

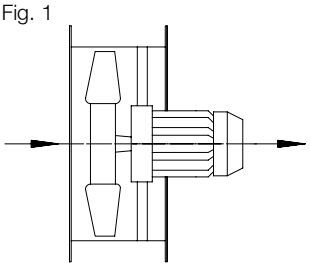
Electrical connection
- Series AVD:
  Standard terminal box (protection class IP54) mounted on motor (type DK). Also on outside of duct for HRF. Deviations for explosion-proof types.
- Series B AVD:
  Standard terminal box (protection class IP54) in temperature-resistant design.

Air flow temperature
- Series AVD:
  Suitable for supply and extract ventilation from -30 °C to +40 °C continuous temperature.
- Series B AVD:
  Can be used for continuous supply and extract ventilation operation from -20 °C to +40 °C.
  Suitable for flue gases up to 300 °C/120 min. (F300), 400 °C/120 min. (F400) and 600 °C/120 min. (F600).

Air output
- The smoke and heat exhaust fans B AVD are manufactured with an increased gap between casing and impeller.
  During ventilation mode (cold operation +40 °C), a reduced output of approx. 5 % is expected for the F300 types, and approx. 10 % for the F400 types. In a smoke extraction situation, the gap between casing and impeller will reduce. This results in the performance curves shown on the product pages. This must be taken into account when dimensioning.

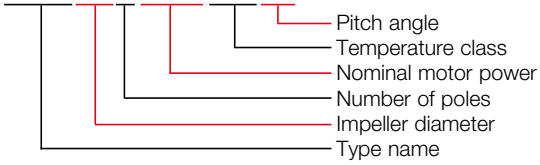
Air flow direction
- Series AVD DK/RK:
  The blades are adjustable at standstill, so that optimal adjustment to the operating point is possible ex works (in accordance with order). The maximum pitch angle of each type (according to motor power) is defined in the type table on the product pages.
  – The fans are designed with airflow direction B = over motor (Fig. 1) as standard, i.e. no other indication in the order.

Fig. 1



  – Series AVD DK/RK and HRF: Reversible using a reversing switch (Accessories). There is a performance reduction of ~30 % in the abnormal airflow direction.
- Series B AVD:
  – For types B AVD F300/F400, the blades are adjustable at standstill, so that optimal adjustment to the operating point is possible ex works (in accordance with order).
  – The B AVD types F600 are supplied with the pitch angle specified in the type table on the product pages.

Order data
The desired blade pitch angle must be specified when ordering.
Example:



Noise levels
- The sound power levels are indicated by means of frequency and as sum levels for different pitch angles above the performance curves on the product pages.

Certification
The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-03
F400: 0036-CPR-RG05-06
F600: 0036-CPR-RG05-04

Installation

☐ Series AVD:
Suitable for installation in any position, however depending on usage perhaps consider condensation drainage holes.

☐ Series B AVD:
Horizontal and vertical installation depending on the place of installation:
- Within the fire zone, without heat and sound insulation.
- Outside of the fire zone, within the building with heat and sound insulation L 90.
- Outside of the building without heat and sound insulation.

☐ Installation outdoors:
It must be ensured that no precipitation can penetrate into the smoke extraction fan.

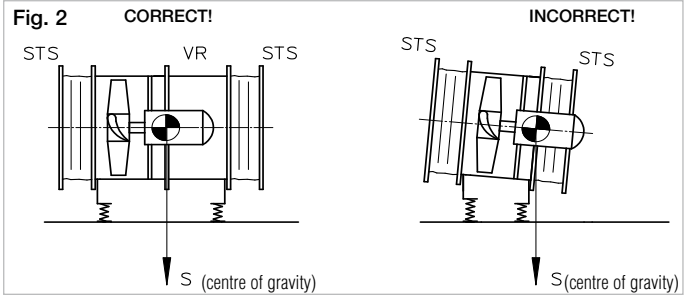
☐ In order to prevent the transmission of vibrations, the use of anti-vibration mounts is recommended (Accessories).
If installed outdoors, in constantly moist or wet environments, or if installed with a vertical shaft, this must be stated when ordering.

☐ Compliance with the specific fire protection regulations and guidelines.

Duct installation (tilting)

In order to prevent the tendency to tilt during installation of the axial fans with flanged flexible connectors on each side (type STS, Accessories), and extension duct (type VR, Accessories) is provided (Fig. 2).

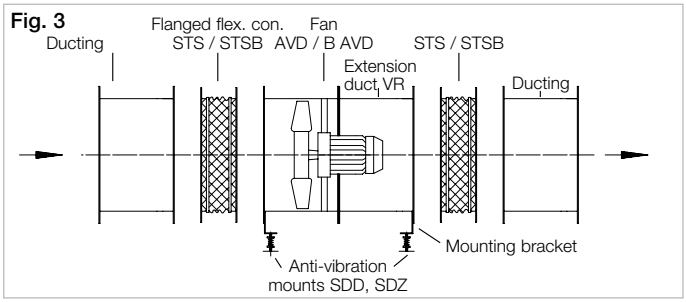
Fig. 2



Duct installation (horizontal)

Arrangement of the mounting bracket and anti vibration mounts (Accessories) on both flange sides of the unit. Use of anti-vibration mounts SDD for pressure loading or SDZ for tensile loading (ceiling suspension). In order to prevent sound and vibration transmission, flanged flexible connectors STS (accessories) are to be provided on each side (Fig. 3).

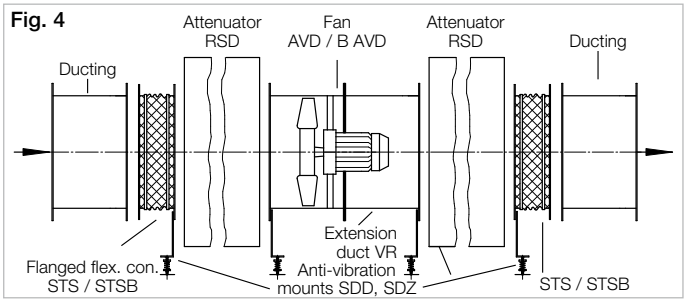
Fig. 3



Duct installation with attenuator on inlet and outlet sides

According to the local conditions, brackets (to be provided on site) are required for fastening the attenuators and supporting the weight. The intake attenuator must be fitted at the inlet, the outlet attenuator at the outlet with flanged flexible connectors (STS, STSB) (Fig. 4).

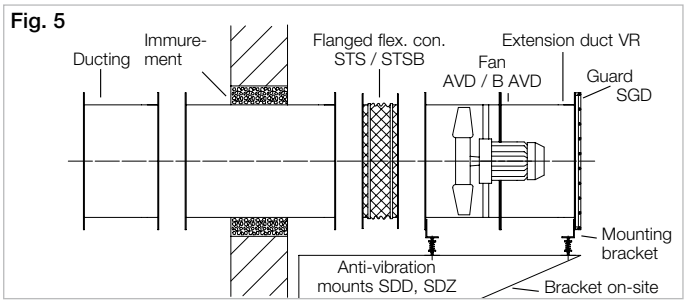
Fig. 4



Wall installation (horizontal)

On bracket (on site), wall bushing with pipe or duct, immurement with mineral wool. Flanged flexible connectors on both sides with extension duct VR and protection guard SG (Fig. 5).

Fig. 5



Series B AVD F600

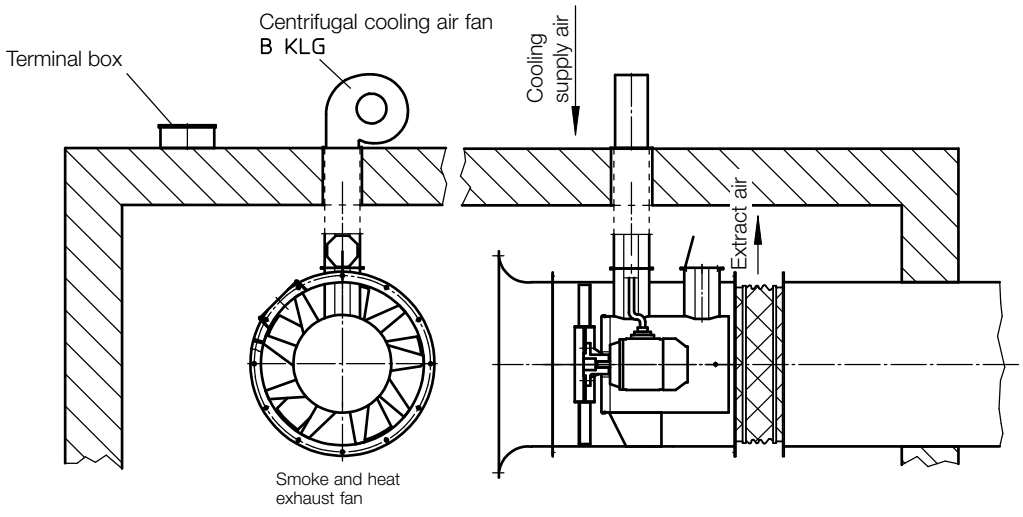
Impeller

High-performance characteristics with 5 profiled blades made of hot-dip galvanized steel. Welded, hot-dip galvanized steel impeller.
Dynamically balanced, balance quality G 6.3 < 4.0 mm/s.

Centrifugal cooling air fan

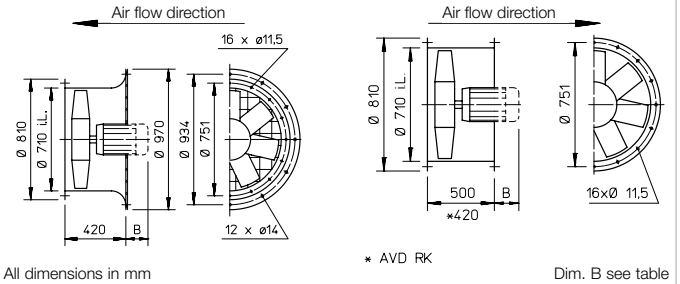
In order to ensure motor cooling, the centrifugal cooling air fan B KLG (Fig. 6) is a necessary accessory. The cooling air fan must be installed outside of the fire zone (smoke section) (Fig. 6). Alternative forced ventilation fan upon request.
Minimum cooling air flow volume see Accessories on page 150.

Fig. 6 Positioning in the fire zone



AVD DK 710 and HRF/AVD RK 710

Dimensions AVD DK 710 and HRF/AVD RK 710



* AVD RK

All dimensions in mm

Dim. B see table

Casing
With motor bracket made from galvanised sheet steel.

Impeller
High performance characteristics with 5 or 7 polymer blades, dynamically balanced.

Pitch angle
The impeller blades are adjustable (except explosion-proof) for optimal coverage of the operating point. The adjustment is carried out ex works (in accordance with order) and fixed. The motor allocation takes place using the maximum power pursuant to the information in the table below. The specified position must not be exceeded.

Motor
Totally enclosed motor IP55 or IP54. Maintenance-free and interference-free. Tropicalised winding with humidity protection impregnation.

Motor protection
All types (except pole switching and explosion proof) have thermal contacts or PTC resistors and must be protected by the following full motor protection devices pursuant to the footnotes in the tables:
[1] MD, Ref. no. 05849
[2] MSA, Ref. no. 01289
(for PTC temperature sensors)
[3] M4, Ref. no. 01571
All other types must be protected by a conventional circuit breaker on site.

Guard
As standard for AVD DK according to DIN EN ISO 13857, galvanised or powder coated.

Electrical connection
Terminal box protection class IP54 mounted to motor. Also outside on duct for HRF. Explosion-proof types may vary.

Speed control
Some types are speed controllable voltage reduction, see column “Transformer speed controller”. Controlled performance curves upon request.
All types are speed controllable by frequency inverter (except pole-switching and explosion-proof). The planned use of a frequency inverter without sine filter must be stated when ordering. This requires a change of fan design and possible additional costs.

Reversed operation
All types are reversible by means of a reversing switch. There is a performance reduction of 1/3 in the abnormal airflow direction.

Installation
Installation in any position. Ensure that the motor drainage holes face downwards.

Dimensions
Pole-switching and explosion-proof types may vary from adjacent information. Motor length may vary. Note protrusion dimension B.

Noise levels
The sound power levels are indicated by means of frequency and as sum levels above the performance curves.

Speed	Air flow volume (FID)	Motor power (nom.) (output)	Nominal voltage	Power consumption (control*)	Max. pitch angle	Wiring diagram	Max. air flow temp.	Net weight approx. [4]	Fan type						Dim. B Motor protrusion	Transformer controller for 5 speed pole switch	
									AVD DK incl. guard motor power in kW			HRFD, AVD RK motor power in kW					
min^{-1}	V̇ m³/h	kW	V	A	°	No.	+°C	kg	Type		Ref. no.	Type		Ref. no.	mm	Type	Ref. no.
40°	**3 phase motor, 400 V, 50 Hz, squirrel-cage rotor, protection class IP54**																
690	10450	0.29	400	0.9	20	469	40	42.0	**AVD DK 710/8[1]**	**0.29**	05251	**HRFD 710/8[1]**	**0.29**	06930	95	**RDS 2[5]**	01315
1445	26420	3.00*	400/690	6.2*	30	776	40	73.0	**AVD DK 710/4[3]**	**3.0**	05258	**HRFD 710/4[3]**	**3.0**	06937	180	—	—
40°	**2 speed, 3 phase motor, 400 V, 50 Hz, Y/△ circuit, protection class IP55**																
730/890	13550/16090	0.43*/0.75*	400/400	1.1*/2.3*	25	520	40	40.0	**AVD DK 710/6/6[3]**	**0.43/0.75**	05254	**HRFD 710/6/6[3]**	**0.43/0.75**	06933	95	**RDS 4[5]**	01316
940	19170	1.1*	230/400	5.1*	35	776	40	45.0	**AVD DK 710/6[3]**	**1.1**	05255	**HRFD 710/6[3]**	**1.1**	06934	135	—	—
1120/1360	16140/19670	0.95*/1.55*	400/400	2.4*/4.2*	20	520	40	45.0	**AVD DK 710/4/4[3]**	**0.95/1.55**	05256	**HRFD 710/4/4[3]**	**0.95/1.55**	06935	135	**RDS 7[5]**	01578
1030/1340	19370/23280	1.5*/2.2*	400/400	3.0*/5.2*	26	520	40	60.0	**AVD DK 710/4/4[3]**	**1.5/2.2**	05257	**HRFD 710/4/4[3]**	**1.2/2.2**	06936	180	**RDS 7[5]**	01578
40°	**Pole-switching, 2 speed, 3 phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP54**															Pole switch	
685/1430	10810/22090	0.5*/2.0*	400/400	2.0*/4.7*	23	471	40	67.0	**AVD DK 710/8/4**	**0.5/2.0**	05263	**HRFD 710/8/4**	**0.5/2.0**	06942	180	**PDA 12[6]**	05081
720/1440	14155/26200	0.9*/3.6*	400/400	2.9*/8.3*	30	471	40	93.0	**AVD DK 710/8/4**	**0.9/3.6**	05264	**AVD RK 710/8/4**	**0.9/3.6**	06943	210	**PDA 12[6]**	05081
Ex	**Explosion-proof Ex e II, 3 phase motor, 400 V, 50 Hz, protection class IP54, temperature class T1-T3**																
700	13270	0.55*	400	2.20*	35	470	40	68.0	**AVD DK 710/8 Ex**	**0.55**	05270	**HRFD 710/8 Ex**	**0.55**	06948	125	not permitted	
930	13480	0.55*	400	1.80*	25	470	40	67.0	**AVD DK 710/6 Ex**	**0.55**	05272	**HRFD 710//6 Ex**	**0.55**	06949	95	not permitted	
930	16770	0.95*	400	2.70*	35	470	40	77.0	**AVD DK 710/6 Ex**	**0.95**	05273	**HRFD 710/6 Ex**	**0.95**	06950	135	not permitted	
1420	20540	2.00*	400	4.70*	25	470	40	82.0	**AVD DK 710/4 Ex**	**2.0**	05275	**AVD RK 710/4 Ex**	**2.0**	06951	180	not permitted	
1420	26160	3.6*	400/690	8.10*	35	498	40	102.0	**AVD DK 710/4 Ex**	**3.6**	05276	**AVD RK 710/4 Ex**	**3.6**	06952	200	not permitted	

The flow volume and pressure increase information is required to determine the pitch angle.

[1] up to [3] full motor protection devices, see description “Motor protection”

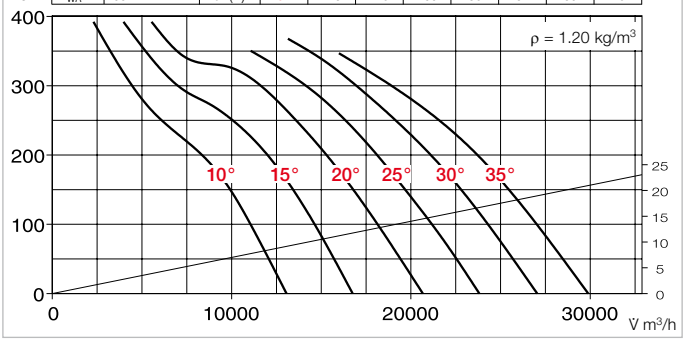
[4] Weights apply for types ..DK and ..RK, HRF less approx. 15 kg

[5] Incl. full motor protection

Performance curves AVD/HRF 710/4

n=1450 1/min

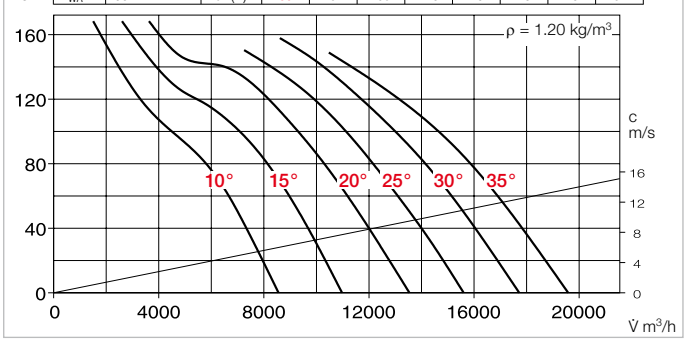
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	15 °	dB(A)	87	71	72	79	82	83	79	72
L_{WA}	25 °	dB(A)	89	73	74	81	84	85	81	74
L_{WA}	35 °	dB(A)	91	75	76	83	86	87	83	76



Performance curves AVD/HRF 710/6

n=950 1/min

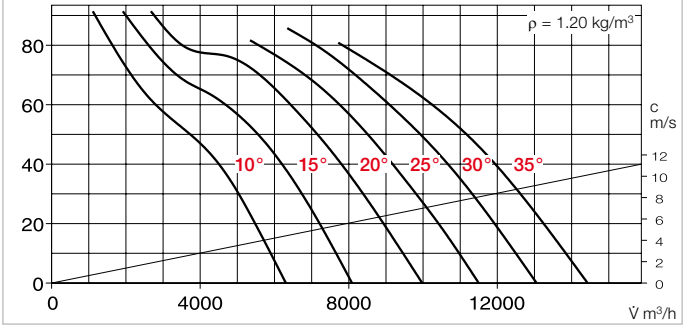
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	15 °	dB(A)	79	63	65	71	74	74	71	63
L_{WA}	25 °	dB(A)	81	65	67	73	76	76	73	65
L_{WA}	35 °	dB(A)	83	67	69	75	78	78	75	67



Performance curves AVD/HRF 710/8

n=700 1/min

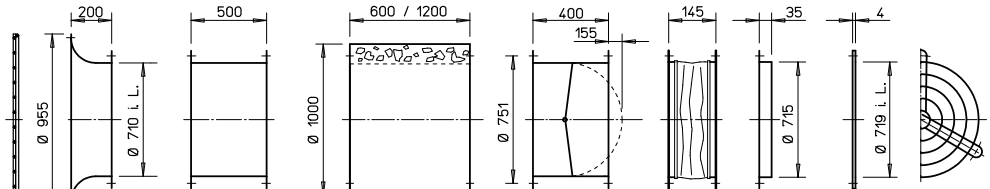
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	15 °	dB(A)	72	53	58	65	68	67	63	54
L_{WA}	25 °	dB(A)	74	55	60	67	70	69	65	56
L_{WA}	35 °	dB(A)	76	57	62	69	72	71	67	58



	Electronic speed controller, stepless frequency inverter		Anti vibration mounts Nominal size SDD/SDZ	
	Type	Ref. no.	**Type**	Ref. no.
	ESD 5[5]	00501	**..1/..1**	01452/01454
			..2/..2	01453/01455
	ESD 5[5]	00501	**..1/..1**	01452/01454
			..1/..1	01452/01454
	ESD 5[5]	00501	**..1/..1**	01452/01454
	ESD 11,5[5]	00502	**..1/..2**	01452/01455
	—	—	**..2/..2**	01453/01455
	—	—	**..2/..2**	01453/01455
	not permitted		**..1/..2**	01452/01455
	not permitted		**..1/..2**	01452/01455
	not permitted		**..1/..2**	01452/01455
	not permitted		**..2/..2**	01453/01455
	not permitted		**..2/..2**	01453/01455

[6] Flush-mounted version see Switch product page

Accessories for HRF/AVD RK Description see page 151 ff.



Bell mouth + guard **ASD-SGD 710** No. 01423

Extension duct **VR 710** No. 01411

Circular attenuator **RSD 710/..**

Automatic back-draught shutter **RVS 710** [a] No. 02601

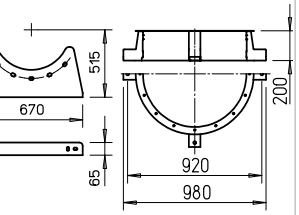
Flanged flex. connector **STS 710** [b] No. 01229

Counter flange **FR 710** No. 01212

Flat flange **FF 710** No. 04950

Guard duct-side **SG 710** No. 01244

[a] Motor-operated back-draught shutter see main Helios catalogue [b] Types for explosion-proof fans see below



2 mounting brackets **1 x MK 710** (= 2 pcs) No. 01372

Mounting ring for vertical fixing **MRV 710** No. 01743

Information	Page
Techn. description	16 f.
Project planning information	3 ff.

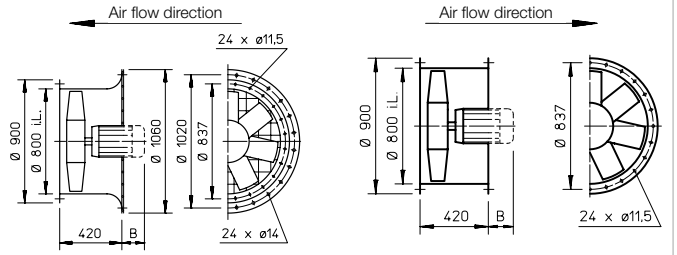
Special design

Alternative voltage, protection class, air flow direction, higher air flow temperature, acid protection and impeller made from cast aluminium upon request.

Other accessories	Page
[b] Access. for ex-proof fans	
Flanged flexible connector Type STS 710 Ex	No. 02510
Mounting accessories	148 ff.
Attenuators	156
Gas warning systems, switch and control technology	158 ff.
Frequency inverter	168 ff.

AVD DK 800 and HRF/AVD RK 800

Dimensions AVD DK 800 and HRF/AVD RK 800



All dimensions in mm

Dim. B see table

Casing
With motor bracket made from galvanised sheet steel.

Impeller
High performance characteristics with 5 or 7 polymer blades, dynamically balanced.

Pitch angle
The impeller blades are adjustable (except explosion-proof) for optimal coverage of the operating point. The adjustment is carried out ex works (in accordance with order) and fixed. The motor allocation takes place using the maximum power pursuant to the information in the table below. The specified position must not be exceeded.

Motor
Totally enclosed motor IP55 or IP54. Maintenance-free and interference-free. Tropicalised winding with humidity protection impregnation.

Motor protection
All types (except pole switching and explosion proof) have thermal contacts or PTC resistors and must be protected by the following full motor protection devices pursuant to the footnotes in the tables:
[4] MSA, Ref. no. 01289 (for PTC temperature sensors)
[5] M4, Ref. no. 01571
All other types must be protected by a conventional circuit breaker on site.

Electrical connection
Terminal box protection class IP54 mounted to motor.

Guard
According to DIN EN ISO 13857, hot-dip galvanised, as standard for AVD DK.

Speed control
Some types are speed controllable voltage reduction, see column “Transformer speed controller”. Controlled performance curves upon request.
All types are speed controllable by frequency inverter (except pole-switching and explosion-proof). The planned use of a frequency inverter without sine filter must be stated when ordering. This requires a change of fan design and possible additional costs.

Reversed operation
All types are reversible by means of a reversing switch. There is a performance reduction of 1/3 in the abnormal airflow direction.

Installation
Installation in any position. Ensure that the motor drainage holes face downwards.

Dimensions
Pole-switching and explosion-proof types may vary from adjacent information. Motor length may vary. Note protrusion dimension B.

Noise levels
The sound power levels are indicated by means of frequency and as sum levels above the performance curves.

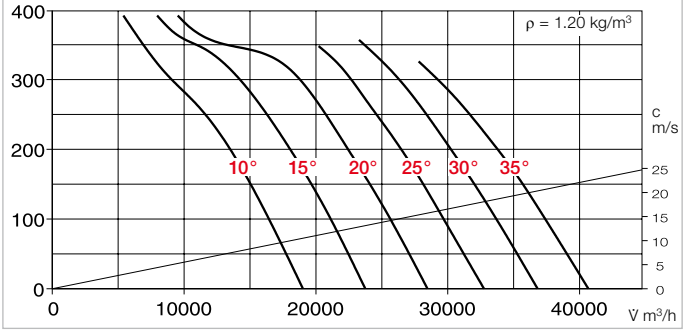
Speed	Air flow volume (FID)	Motor power (nom.) (output)	Nominal voltage	Power consumption (control*)	Max. pitch angle	Wiring diagram	Max. air flow temp.	Net weight approx. [4]	Fan type: AVD DK incl. guard motor power in kW			Fan type: HRFD, AVD RK motor power in kW			Dim. B Motor protrusion	Transformer controller for 5 speed pole switch	
									Type		Ref. no.	Type		Ref. no.		Type	Ref. no.
min^{-1}	V̇ m^3/h	kW	V	A	°	No.	+°C	kg							mm		
40°	**3 phase motor, 50 Hz, squirrel-cage rotor, protection class IP54**																
1445	33450	4.00*	400/690	8.3*	26	776	40	101	**AVD DK 800/4[5]**	**4.0**	05311	**AVD RK 800/4[5]**	**4.0**	06960	210	—	—
1450	39190	5.5*	400/690	11.00*	33	776(020)	40	115	**AVD DK 800/4[5]**	**5.5**	05312	**AVD RK 800/4[5]**	**5.5**	06961	290	—	—
40°	**2 speed, 3 phase motor, 400 V, 50 Hz, Y/△ circuit, protection class IP55**																
775/920	15720/18670	0.43*/0.75*	400/400	1.1*/2.3*	22	520	40	70	**AVD DK 800/6/6[6]**	**0.43/0.75**	05307	**AVD RK 800/6/6[6]**	**0.43/0.75**	06956	125	**RDS 4**	01316
40°	**Pole-switching, 2 speed, 3 phase motor, 50 Hz, protection class IP54**															Pole switch	
695/1400	10020/20180	0.37*/1.5*	400/400	1.3*/3.7*	12	471	40	95	**AVD DK 800/8/4[1]**	**0.37/1.5**	05319	**AVD RK 800/8/4[1]**	**0.37/1.5**	06968	180	**PDA 12[3]**	05081
Ex	**Explosion-proof Ex e II, 3 phase motor, 50 Hz, protection class IP54, temperature class T1-T3**																
700	17190	0.55*	400	2.2*	32	470	40	81	**AVD DK 800/8 Ex**	**0.55**	05326	**AVD RK 800/8 Ex**	**0.55**	06974	135	not permitted	
930	20340	0.95*	400	2.7*	23	470(020)	40	90	**AVD DK 800/6 Ex**	**0.95**	05329	**AVD RK 800/6 EX**	**0.95**	06976	135	not permitted	
950	26710	1.9*	400	4.7*	35	470(020)	40	118	**AVD DK 800/6 Ex**	**1.9**	05330	**AVD RK 800/6 Ex**	**1.9**	06977	210	not permitted	
1420	31900	3.6*	400/690	8.1*	24	498	40	115	**AVD DK 800/4 Ex**	**3.6**	05332	**AVD RK 800/4 Ex**	**3.6**	06978	210	not permitted	
1450	36820	5.0*	400/690	10.4*	30	498	40	143	**AVD DK 800/4 Ex**	**5.0**	05333	**AVD RK 800/4 Ex**	**5.0**	06979	290	not permitted	

The flow volume and pressure increase information is required to determine the pitch angle.
[1] Dahlander winding [2] Separate winding [3] Flush-mounted version see Switch product page
[4] Weights apply for types ..DK and ..RK, HRF less approx. 15 kg
[5] and [6] Full motor protection devices, see description “Motor protection”

Performance curves AVD 800/4

n=1450 1/min

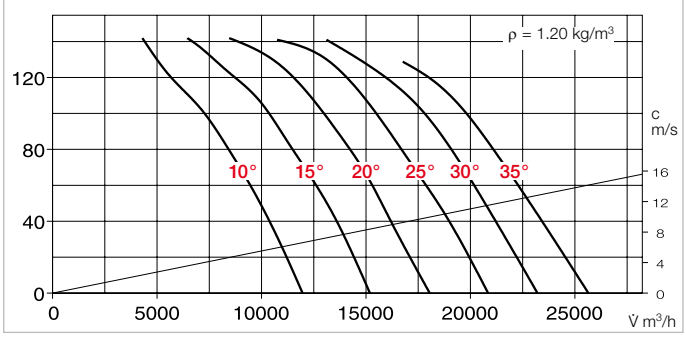
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	15 °	dB(A)	91	75	76	82	86	86	83	76
L_{WA}	25 °	dB(A)	93	77	78	84	88	88	85	78
L_{WA}	35 °	dB(A)	95	79	80	86	90	90	87	80



Performance curves AVD 800/6

n=945 1/min

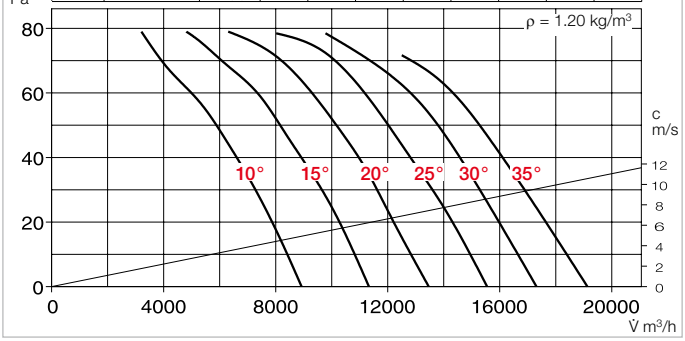
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	15 °	dB(A)	80	65	66	72	76	76	72	65
L_{WA}	25 °	dB(A)	82	67	68	74	78	78	74	67
L_{WA}	35 °	dB(A)	84	69	70	76	80	80	76	69



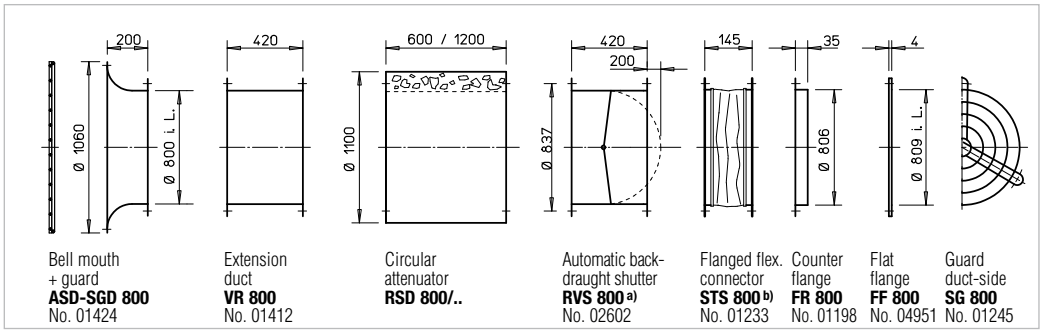
Performance curves AVD 800/8

n=705 1/min

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



Accessories for AVD RK Description see page 151 ff.

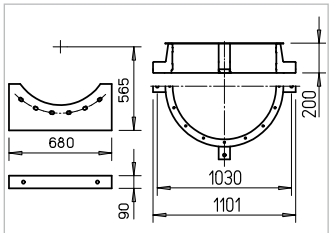


Bell mouth + guard	Extension duct	Circular attenuator	Automatic back-draught shutter	Flanged flex. connector	Counter flange	Flat flange	Guard duct-side
ASD-SGD 800	**VR 800**	**RSD 800/..**	**RVS 800** a)	**STS 800** b)	**FR 800**	**FF 800**	**SG 800**
No. 01424	No. 01412		No. 02602	No. 01233	No. 01198	No. 04951	No. 01245

a) Motor-operated back-draught shutter see main Helios catalogue b) Types for explosion-proof fans see below

Electronic speed controller, stepless frequency inverter		Anti vibration mounts Nominal size SDD/SDZ	
Type	Ref. no.	**Type**	Ref. no.
ESD 11,57)	00502	**..2/..2**	01453/01455
FU-CS 147)	05875	**..2/..2**	01453/01455
ESD 57)	00501	**..1/..2**	01452/01455
—	—	**..2/..2**	01453/01455
not permitted		**..2/..2**	01453/01455
not permitted		**..2/..2**	01453/01455
not permitted		**..2/..2**	01453/01455
not permitted		**..2/..2**	01453/01455
not permitted		**..2/..2**	01453/01455

7) Including full motor protection



2 mounting brackets **1 x MK 800** (= 2 pcs) No. 01373

Mounting ring for vertical fixing **MRV 800** No. 01744

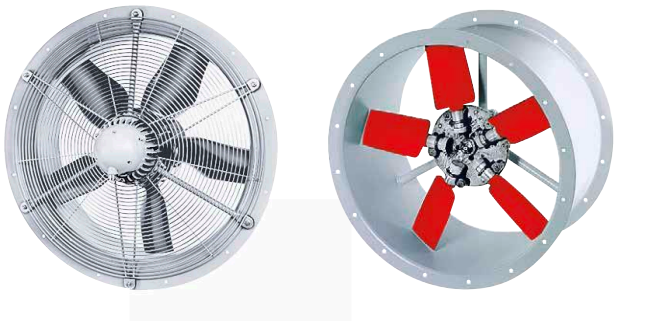
Information	Page
Techn. description	16 f.
Project planning information	3 ff.

Special design

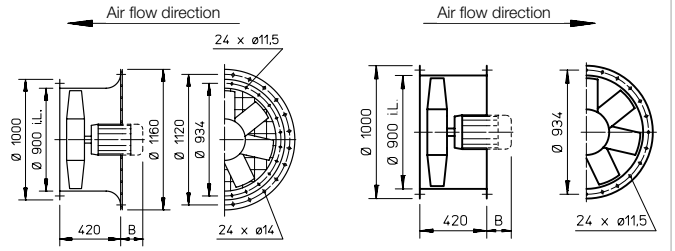
Alternative voltage, protection class, air flow direction, higher air flow temperature, acid protection and impeller made from cast aluminium upon request.

Other accessories	Page
b) Access. for ex-proof fans	
Flanged flexible connector Type STS 800 Ex	No. 02511
Mounting accessories	148 ff.
Attenuators	156
Gas warning systems, switch and control technology	158 ff.
Frequency inverter	168 ff.

AVD DK 900 and HRF/AVD RK 900



Dimensions AVD DK 900 and HRF/AVD RK 900



All dimensions in mm

Dim. B see table

Casing
With motor bracket made from galvanised sheet steel.

Impeller
High performance characteristics with 5 or 7 polymer blades, dynamically balanced.

Pitch angle
The impeller blades are adjustable (except explosion-proof) for optimal coverage of the operating point. The adjustment is carried out ex works (in accordance with order) and fixed. The motor allocation takes place using the maximum power pursuant to the information in the table below. The specified position must not be exceeded.

Motor
Totally enclosed motor IP55 or IP54. Maintenance-free and interference-free. Tropicalised winding with humidity protection impregnation.

Motor protection
All types (except pole switching and explosion proof) have thermal contacts or PTC resistors and must be protected by the following full motor protection devices pursuant to the footnotes in the tables:
[4] MSA, Ref. no. 01289 (for PTC temperature sensors)
[5] M4, Ref. no. 01571
All other types must be protected by a conventional circuit breaker on site.

Electrical connection
Terminal box protection class IP54 mounted to motor.

Guard
According to DIN EN ISO 13857, hot-dip galvanised, as standard for AVD DK.

Speed control
Some types are speed controllable voltage reduction, see column “Transformer speed controller”. Controlled performance curves upon request.
All types are speed controllable by frequency inverter (except pole-switching and explosion-proof). The planned use of a frequency inverter without sine filter must be stated when ordering. This requires a change of fan design and possible additional costs.

Reversed operation
All types are reversible by means of a reversing switch. There is a performance reduction of 1/3 in the abnormal airflow direction.

Installation
Installation in any position. Ensure that the motor drainage holes face downwards.

Dimensions
Pole-switching and explosion-proof types may vary from adjacent information. Motor length may vary. Note protrusion dimension B.

Noise levels
The sound power levels are indicated by means of frequency and as sum levels above the performance curves.

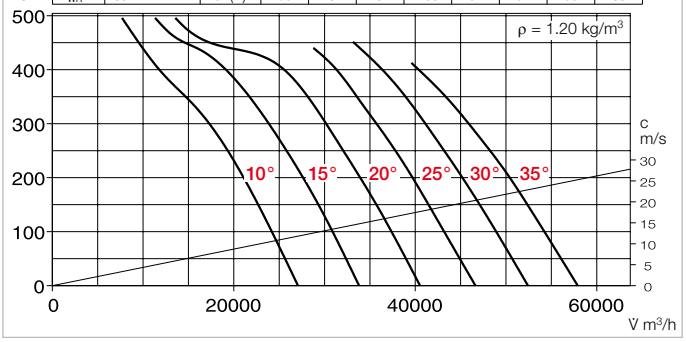
Speed	Air flow volume (FID)	Motor power (nom.) (output)	Nominal voltage	Power consumption (control*)	Max. pitch angle	Wiring diagram	Max. air flow temp.	Net weight approx. [4]	Fan type: AVD DK incl. guard motor power in kW			Fan type: HRFD, AVD RK motor power in kW			Dim. B Motor protrusion	Transformer controller for 5 speed pole switch	
min^{-1}	V̇ m³/h	kW	V	A	°	No.	+°C	kg	Type		Ref. no.	Type		Ref. no.	mm	Type	Ref. no.
40°	3 phase motor, 50 Hz, squirrel-cage rotor, protection class IP54																
950	37300	3.0*	400/690	6.2*	34	776	40	130	AVD DK 900/6[5]	3.0	05369	AVD RK 900/6[5]	3.0	06985	290	—	—
1445	35030	4.0*	400/690	8.3*	16	776	40	118	AVD DK 900/4[5]	4.0	05370	AVD RK 900/4[5]	4.0	06986	210	—	—
1450	48995	7.5*	400/690	14.5*	27	776(030)	40	142	AVD DK 900/4[5]	7.5	05371	AVD RK 900/4[5]	7.5	06987	325	—	—
1470	57720	11.0*	400/690	20.0*	34	776(030)	40	186	AVD DK 900/4[5]	11.0	05372	AVD RK 900/4[5]	11.0	06988	385	—	—
40°	2 speed, 3 phase motor, 400 V, 50 Hz, Y/△ circuit, protection class IP55																
755/930	18390/22660	0.71*/1.32*	400/400	2.1*/4.0*	19	520	40	90	AVD DK 900/6/6[6]	0.71/1.32	05367	AVD RK 900/6/6[6]	0.71/1.32	06983	180	RDS 7[7]	01578
770/920	25990/31060	1.38*/2.37*	400/400	3.9*/7.1*	27	520	40	115	AVD DK 900/6/6[6]	1.38/2.37	05368	AVD RK 900/6/6[6]	1.38/2.37	06984	210	RDS 11[7]	01332
40°	Pole-switching, 2 speed, 3 phase motor, 50 Hz, protection class IP54															Pole switch	
700/1435	18270/37450	1.10*/4.50*	400/400	2.9*/9.6*	18	471	40	120	AVD DK 900/8/4[1]	1.1/4.5	05379	AVD RK 900/8/4[1]	1.1/4.5	06995	290	PDA 12[3]	05081
715/1450	22390/45410	1.80*/6.50*	400/400	5.7*/14.5*	24	471	40	148	AVD DK 900/8/4[1]	1.8/6.5	05380	AVD RK 900/8/4[1]	1.8/6.5	06996	325	PDA 25	05060
Ex	Explosion-proof Ex e II, 3 phase motor, 50 Hz, protection class IP54, temperature class T1-T3																
700	24470	0.95*	400	2.8*	27	470	40	110	AVD DK 900/8 Ex	0.95	05386	AVD RK 900/8 Ex	0.95	06899	180	not permitted	
725	28470	1.30*	400	3.9*	34	470	40	130	AVD DK 900/8 Ex	1.3	05387	AVD RK 900/8 Ex	1.3	06900	210	not permitted	
950	30550	1.90*	400	4.7*	25	470	40	135	AVD DK 900/6 Ex	1.9	05389	AVD RK 900/6 Ex	1.9	06901	210	not permitted	
960	38040	3.50*	400/690	7.4*	35	498	40	160	AVD DK 900/6 Ex	3.5	05390	AVD RK 900/6 Ex	3.5	06902	290	not permitted	
1450	46630	6.80*	400/690	13.6*	25	498	40	175	AVD DK 900/4 Ex	6.8	05392	AVD RK 900/4 Ex	6.8	06903	325	not permitted	
1465	55240	10.00*	400/690	19.8*	32	498	40	235	AVD DK 900/4 Ex	10.0	05393	AVD RK 900/4 Ex	10.0	06904	385	not permitted	

The flow volume and pressure increase information is required to determine the pitch angle.
[1] Dahlander winding [2] Separate winding [3] Flush-mounted version see Switch product page
[4] Weights apply for types ..DK and ..RK, HRF less approx. 15 kg
[5] and [6] Full motor protection devices, see description “Motor protection”

Performance curves AVD 900/4

n=1450 1/min

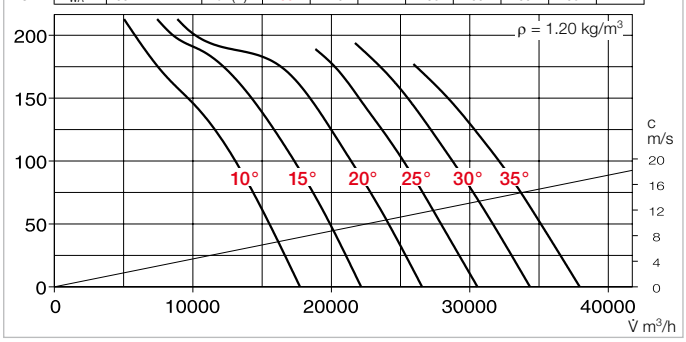
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	15 °	dB(A)	94	78	80	86	90	90	86	79
L_{WA}	25 °	dB(A)	96	80	82	88	92	92	88	81
L_{WA}	35 °	dB(A)	98	82	84	90	94	94	90	83



Performance curves AVD 900/6

n=945 1/min

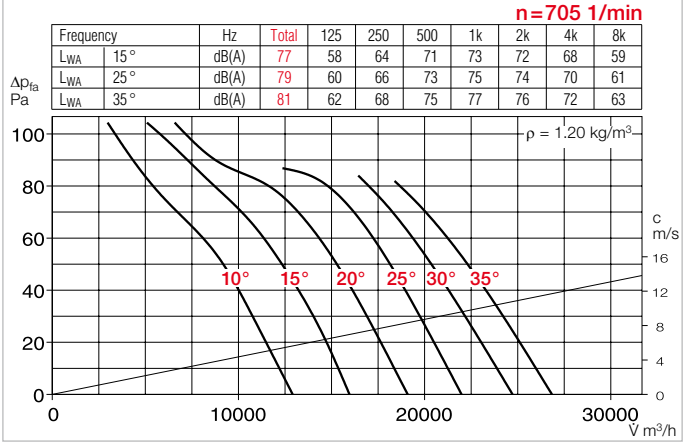
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	15 °	dB(A)	84	69	70	76	79	79	76	68
L_{WA}	25 °	dB(A)	86	71	72	78	81	81	78	70
L_{WA}	35 °	dB(A)	88	73	74	80	83	83	80	72



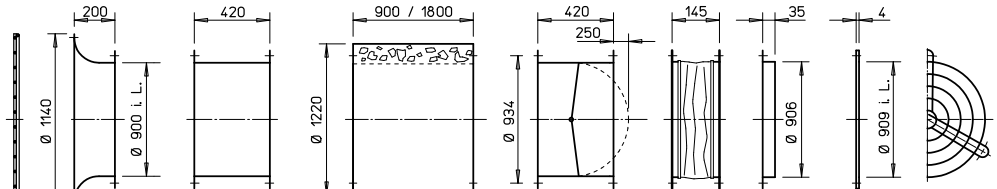
Performance curves AVD 900/8

n=705 1/min

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



Accessories for AVD RK Description see page 151 ff.



Bell mouth + guard **ASD-SGD 900** No. 01309

Extension duct **VR 900** No. 01311

Circular attenuator **RSD 900/..**

Automatic back-draught shutter **RVS 900** a) No. 02603

Flanged flex. connector **STS 900** b) No. 01234

Counter flange **FR 900** No. 01199

Flat flange **FF 900** No. 04952

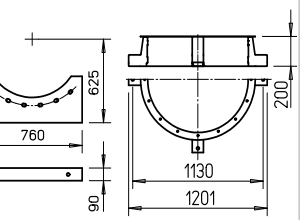
Guard duct-side **SG 900** No. 01246

a) Motor-operated back-draught shutter see main Helios catalogue

b) Types for explosion-proof fans see below

	Electronic speed controller, stepless frequency inverter		Anti vibration mounts Nominal size SDD/SDZ	
	Type	Ref. no.	**Type**	Ref. no.
	FU-BS 8[7]	05461	**..2/..2**	01453/01455
	FU-BS 10[7]	05462	**..2/..2**	01453/01455
	FU-CS 18[7]	05469	**..2/..2**	01453/01455
	FU-CS 22[7]	05470	**..3/..3**	01367/01366
	—	—	**..2/..2**	01453/01455
	—	—	**..2/..2**	01453/01455
	—	—	**..2/..2**	01453/01455
	—	—	**..2/..2**	01453/01455
	not permitted		**..2/..2**	01453/01455
	not permitted		**..2/..2**	01453/01455
	not permitted		**..2/..2**	01453/01455
	not permitted		**..2/..2**	01453/01455
	not permitted		**..2/..3**	01453/1366
	not permitted		**..3/..3**	01367/01366

[7] Including full motor protection



2 mounting brackets **1 x MK 900** (= 2 pcs) No. 01374

Mounting ring for vertical fixing **MRV 900** No. 01745

Information	**Page**
Techn. description	16 f.
Project planning information	3 ff.

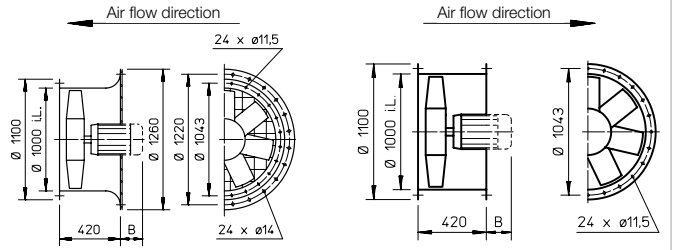
Special design

Alternative voltage, protection class, air flow direction, higher air flow temperature, acid protection and impeller made from cast aluminium upon request.

Other accessories	**Page**
b) **Access. for ex-proof fans**	
Flanged flexible connector Type STS 900 Ex	No. 02512
Mounting accessories	148 ff.
Attenuators	156
Gas warning systems, switch and control technology	158 ff.
Frequency inverter	168 ff.

AVD DK 1000 and HRF/AVD RK 1000

Dimensions AVD DK 1000 and HRF/AVD RK 1000



All dimensions in mm

Dim. B see table

Casing
With motor bracket made from galvanised sheet steel.

Impeller
High performance characteristics with 5 polymer blades, dynamically balanced.

Pitch angle
The impeller blades are adjustable (except explosion-proof) for optimal coverage of the operating point. The adjustment is carried out ex works (in accordance with order) and fixed. The motor allocation takes place using the maximum power pursuant to the information in the table below. The specified position must not be exceeded.

Motor
Totally enclosed motor IP55 or IP54. Maintenance-free and interference-free. Tropicalised winding with humidity protection impregnation.

Motor protection
All types (except pole switching and explosion proof) have thermal contacts or PTC resistors and must be protected by the following full motor protection devices pursuant to the footnotes in the tables:
[4] MSA, Ref. no. 01289 (for PTC temperature sensors)
[5] M4, Ref. no. 01571
All other types must be protected by a conventional circuit breaker on site.

Electrical connection
Terminal box protection class IP54 mounted to motor.

Guard
According to DIN EN ISO 13857, hot-dip galvanised, as standard for AVD DK.

Speed control
Some types are speed controllable voltage reduction, see column “Transformer speed controller”. Controlled performance curves upon request.
All types are speed controllable by frequency inverter (except pole-switching and explosion-proof). The planned use of a frequency inverter without sine filter must be stated when ordering. This requires a change of fan design and possible additional costs.

Reversed operation
All types are reversible by means of a reversing switch. There is a performance reduction of 1/3 in the abnormal airflow direction.

Installation
Installation in any position. Ensure that the motor drainage holes face downwards.

Dimensions
Pole-switching and explosion-proof types may vary from adjacent information. Motor length may vary. Note protrusion dimension B.

Noise levels
The sound power levels are indicated by means of frequency and as sum levels above the performance curves.

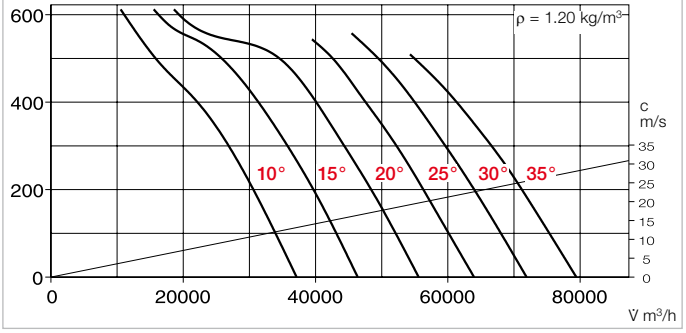
Speed	Air flow volume (FID)	Motor power (nom.) (output)	Nominal voltage	Power consumption (control*)	Max. pitch angle	Wiring diagram	Max. air flow temp.	Net weight approx. [4]	Fan type: AVD DK incl. guard motor power in kW			Fan type: HRFD, AVD RK motor power in kW			Dim. B Motor protrusion	Transformer controller for 5 speed pole switch	
min^{-1}	V̇ m³/h	kW	V	A	°	No.	+°C	kg	Type		Ref. no.	Type		Ref. no.	mm	Type	Ref. no.
40°	3 phase motor, 50 Hz, squirrel-cage rotor, protection class IP54																
950	39720	3.00*	400/690	6.2*	23	776	40	120	AVD DK 1000/6[5]	3.0	05398	AVD RK 1000/6[5]	3.0	05573	290	—	—
955	46320	4.00*	400/690	9.2*	29	776	40	127	AVD DK 1000/6[5]	4.0	05399	AVD RK 1000/6[5]	4.0	05574	325	—	—
955	52450	5.50*	400/690	12.4*	35	776	40	145	AVD DK 1000/6[5]	5.5	05400	AVD RK 1000/6[5]	5.5	05575	325	—	—
1470	61460	11.00*	400/690	20.0*	23	776	40	225	AVD DK 1000/4[5]	11.0	05401	AVD RK 1000/4[5]	11.0	05576	385	—	—
1470	71290	15.00*	400/690	26.0*	29	776(030)	40	195	AVD DK 1000/4[5]	15.0	05402	AVD RK 1000/4[5]	15.0	05577	430	—	—
1475	79440	18.50*	400/690	35.0*	34	776(030)	40	210	AVD DK 1000/4[5]	18.5	05403	AVD RK 1000/4[5]	18.5	05578	465	—	—
40°	Pole-switching, 2 speed, 3 phase motor, 50 Hz, protection class IP54															Pole switch	
715/1440	27410/55210	2.2*/9.0*	400/400	7.2*/19.0*	20	471	40	165	AVD DK 1000/8/4[1]	2.2/9.0	05407	AVD RK 1000/8/4[1]	2.2/9.0	05582	385	PDA 25	05060
715/1445	32325/65330	3.0*/12.0*	400/400	9.4*/25.0*	26	471	40	190	AVD DK 1000/8/4[1]	3.0/12.0	05408	AVD RK 1000/8/4[1]	3.0/12.0	05583	415	—	—
Ex	Explosion-proof Ex e II, 3 phase motor, 50 Hz, protection class IP54, temperature class T1-T3																
960	43180	3.5*	400/690	7.4*	26	498	40	130	AVD DK 1000/6 Ex	3.5	05415	AVD RK 1000/6 Ex	3.5	05590	325	not permitted	
960	52730	6.6*	400/690	13.4*	35	498	40	155	AVD DK 1000/6 Ex	6.6	05416	AVD RK 1000/6 Ex	6.6	05591	400	not permitted	

The flow volume and pressure increase information is required to determine the pitch angle.
[1] Dahlander winding [2] Separate winding [3] Flush-mounted version see Switch product page
[4] Weights apply for types ..DK and ..RK, HRF less approx. 15 kg
[5] and [6] Full motor protection devices, see description “Motor protection”

Performance curves AVD 1000/4

n=1450 1/min

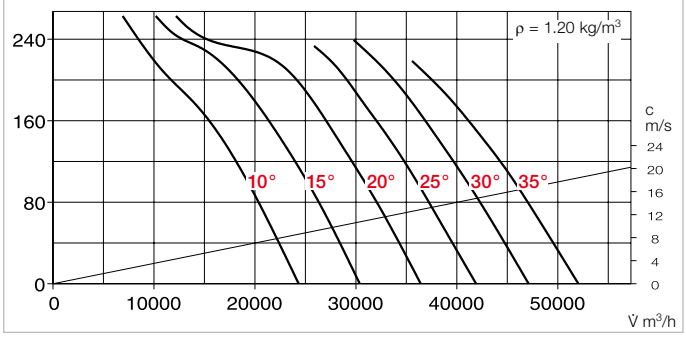
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	15 °	dB(A)	98	82	83	89	93	93	90	83
L_{WA}	25 °	dB(A)	100	84	85	91	95	95	92	85
L_{WA}	35 °	dB(A)	102	86	87	93	97	97	94	87



Performance curves AVD 1000/6

n=950 1/min

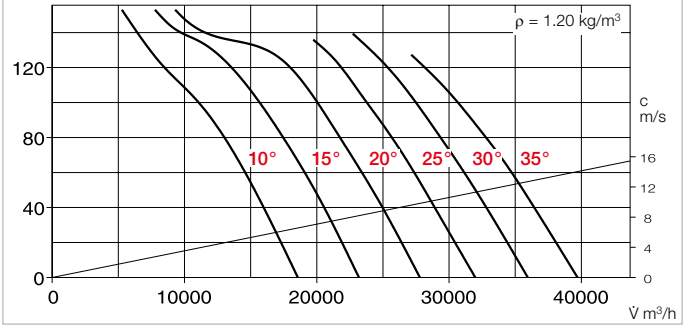
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	15 °	dB(A)	87	67	74	81	83	82	78	69
L_{WA}	25 °	dB(A)	89	69	76	83	85	84	80	71
L_{WA}	35 °	dB(A)	91	71	78	85	87	86	82	73



Performance curves AVD 1000/8

n=725 1/min

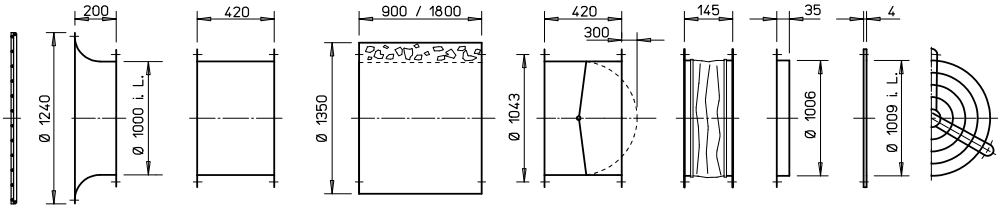
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	15 °	dB(A)	80	60	68	74	76	74	69	58
L_{WA}	25 °	dB(A)	82	62	70	76	78	76	71	60
L_{WA}	35 °	dB(A)	84	64	72	78	80	78	73	62



	Electronic speed controller, stepless frequency inverter		Anti vibration mounts Nominal size SDD/SDZ	
	Type	Ref. no.	**Type**	Ref. no.
	FU-BS 8[7]	05461	**..2/..2**	01453/01455
	FU-BS 10[7]	05462	**..2/..2**	01453/01455
	FU-BS 10[7]	05462	**..2/..2**	01453/01455
	FU-CS 22[7]	05470	**..3/..3**	01367/01366
	FU-CS 32[7]	05471	**..3/..3**	01367/01366
	FU-CS 40[7]	05472	**..3/..3**	01367/01366
	—	—	**..2/..2**	01453/01455
	—	—	**..3/..3**	01367/01366
	—	—	**..2/..2**	01453/01455
	—	—	**..2/..2**	01453/01455

[7] Including full motor protection

Accessories for AVD RK Description see page 151 ff.



Bell mouth + guard **ASD-SGD 1000** No. 01310

Extension duct **VR 1000** No. 01312

Circular attenuator **RSD 1000/..**

Automatic back-draught shutter **RVS 1000** [a] No. 02604

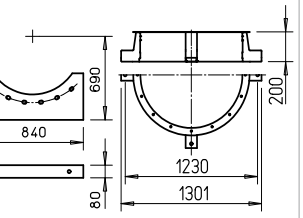
Flanged flex. connector **STS 1000** [b] No. 01235

Counter flange **FR 1000** No. 01210

Flat flange **FF 1000** No. 04953

Guard duct-side **SG 1000** No. 01290

[a] Motor-operated back-draught shutter see main Helios catalogue [b] Types for explosion-proof fans see below



2 mounting brackets **1 x MK 1000** (= 2 pcs) No. 01375

Mounting ring for vertical fixing **MRV 1000** No. 01749

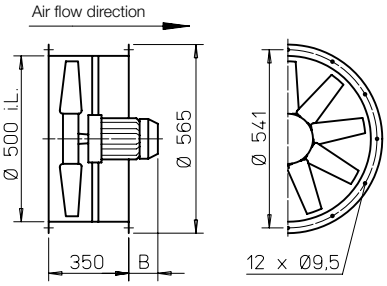
Information	**Page**
Techn. description	16 f.
Project planning information	3 ff.
Special design	
Alternative voltage, protection class, air flow direction, higher air flow temperature, acid protection and impeller made from cast aluminium upon request.	

Other accessories	**Page**
[b] **Access. for ex-proof fans**	
Flanged flexible connector Type STS 1000 Ex	No. 02513
Mounting accessories	148 ff.
Attenuators	156
Gas warning systems, switch and control technology	158 ff.
Frequency inverter	168 ff.

B AVD 500

F300 F400

Dimensions B AVD 500

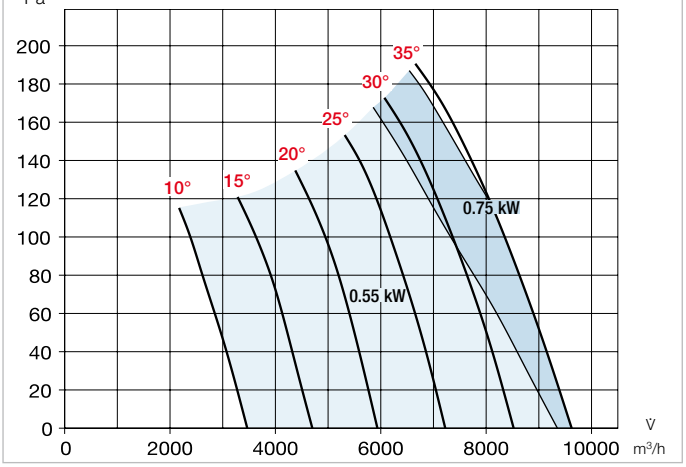


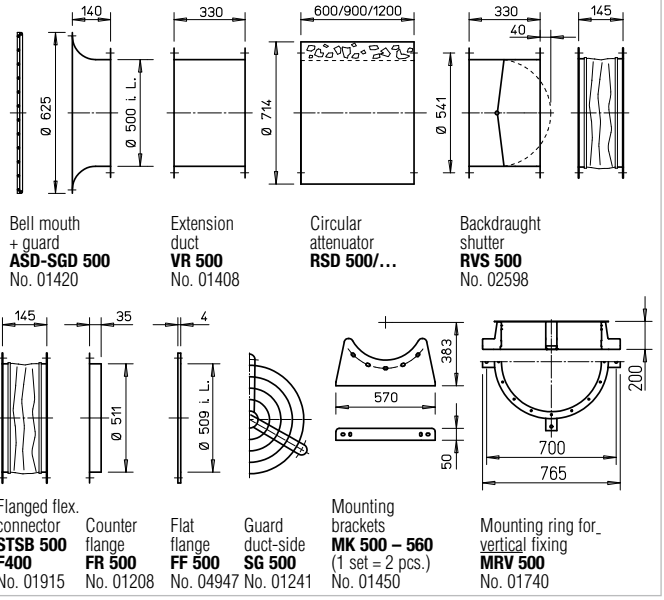
All dim. in mm

Performance curves B AVD 500/4

n=1420 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{wa}	10°	dB(A)	78	58	64	73	70	70	66	62
L_{wa}	20°	dB(A)	80	60	66	75	72	72	68	64
L_{wa}	30°	dB(A)	84	64	70	79	76	76	72	68
L_{wa}	35°	dB(A)	86	65	71	80	77	77	73	69





Certification

The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3.
Certificate of conformity:
F300: 0036-CPR-RG05-03
F400: 0036-CPR-RG05-06

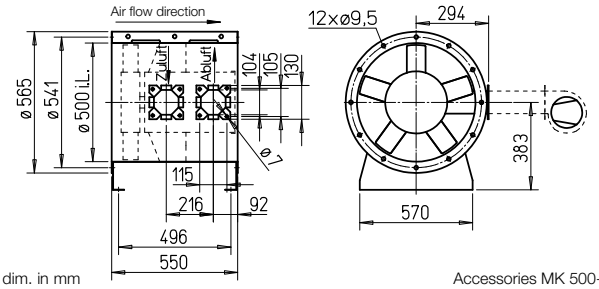
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 500/4 0.55 kW F300	02315	1420	9360	0.55	400	1.23	*	776	40 / 300	41	36	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 500/4 0.75 kW F300	02316	1420	9360	0.75	400	1.62	*	776	40 / 300	41	38	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 500/8/4 0.2/0.8 kW F300	02319	690/1415	4680/9360	0.2/0.8	400	0.88/1.99	*	471	40 / 300	41	39	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
F400 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 500/4 0.55 kW F400	02401	1420	9360	0.55	400	1.23	*	776	40 / 400	41	36	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 500/4 0.75 kW F400	02402	1420	9360	0.75	400	1.62	*	776	40 / 400	41	38	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 500/8/4 0.2/0.8 kW F400	02403	690/1415	4680/9360	0.2/0.8	400	0.88/1.99	*	471	40 / 400	41	39	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943

* The flow volume and pressure increase information is required to determine the pitch angle.
[1] For ventilation operation / smoke extraction (one time 120 min. at 300 °C or 120 min. at 400 °C).

B AVD 500

F600

Dimensions B AVD 500



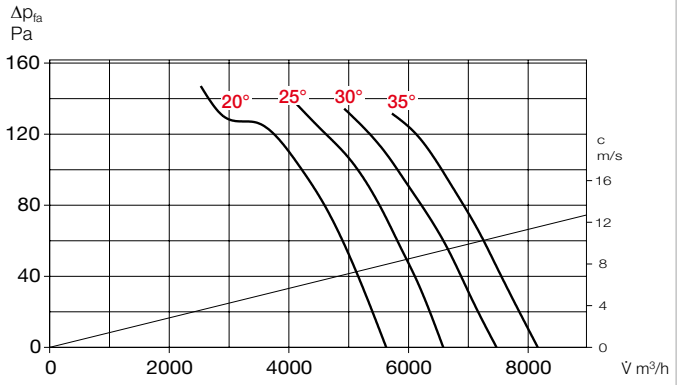
All dim. in mm

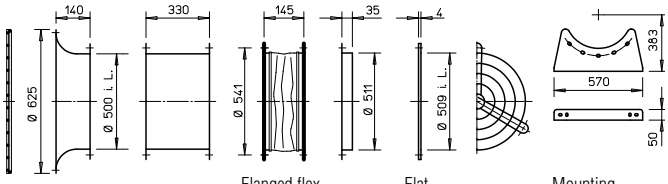
Accessories MK 500-560

Performance curves B AVD 500/4

n=1400 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	80	60	66	75	72	72	68	64
L_{WA}	30°	dB(A)	84	64	70	79	76	76	72	68
L_{WA}	35°	dB(A)	85	65	71	80	77	77	73	69





Bell mouth + guard **ASD-SGD 500** No. 01420

Extension duct **VR 500** No. 01408

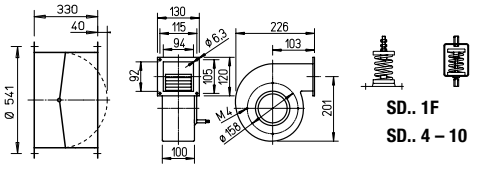
Flanged flex. connector **STSB 500** **F600** No. 02003

Counter flange **FR 500** No. 01208

Flat flange **FF 500** No. 04947

Guard duct-side **SG 500** No. 01241

Mounting brackets **MK 500-560** (1 set = 2 pcs.) No. 01450



Backdraught shutter **RVS 500** No. 02598

Centrifugal cooling air fan **B KLG 500** No. 02798

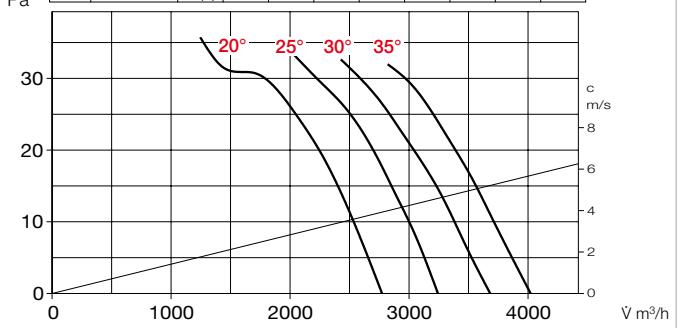
Anti vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

* Type assignment see table, last column

Performance curves B AVD 500/8

n=690 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	61	39	54	56	52	49	43	37
L_{WA}	30°	dB(A)	64	42	57	59	55	52	46	40
L_{WA}	35°	dB(A)	66	44	58	60	57	54	48	42



Certification

The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3. Certificate of conformity: F600: 0036-CPR-RG05-04

Information

Accessory details

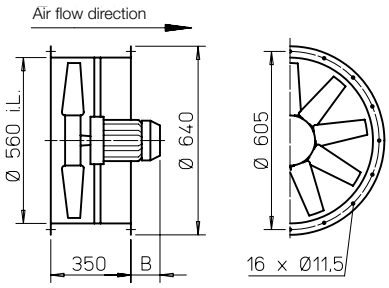
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile[2]	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 3 phase motor, 50 Hz, protection class IP54																	
B AVD 500/4-20 F600	02804	1420	5660	0.55	400	1.23	20	776	40 / 600	—	64	**EVS-D 007**	04587	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 500/4-25 F600	02805	1420	6630	0.55	400	1.23	25	776	40 / 600	—	64	**EVS-D 007**	04587	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 500/4-30 F600	02806	1420	7520	0.55	400	1.23	30	776	40 / 600	—	64	**EVS-D 007**	04587	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 500/4-35 F600	02807	1420	8280	0.55	400	1.23	35	776	40 / 600	—	64	**EVS-D 007**	04587	**SDD 1F**	01942	**SDZ 1F**	01943

[1] For ventilation operation / smoke extraction (one time 120 Min.). [2] Types SDZ not permitted for installation in fire zone.

B AVD 560

F300 F400

Dimensions B AVD 560

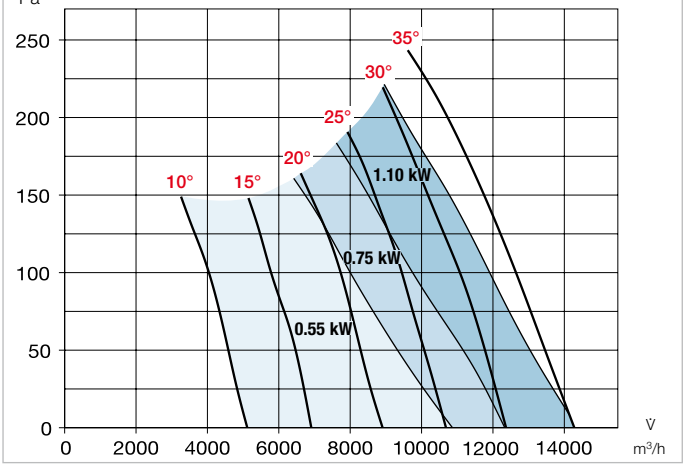


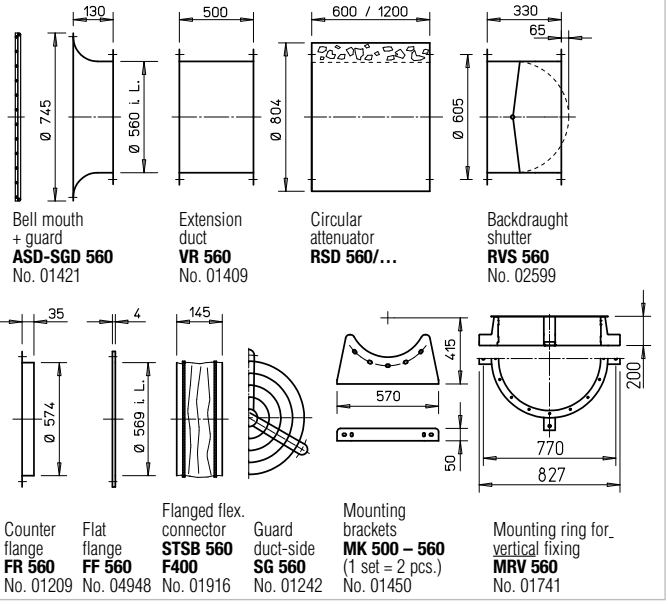
All dim. in mm

Performance curves B AVD 560/4

n=1420 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	80	60	66	75	72	72	68	64
L_{WA}	20°	dB(A)	83	63	69	78	75	75	71	67
L_{WA}	30°	dB(A)	87	67	73	82	79	79	75	71
L_{WA}	35°	dB(A)	89	69	75	84	81	81	77	73





Bell mouth + guard **ASD-SGD 560** No. 01421

Extension duct **VR 560** No. 01409

Circular attenuator **RSD 560/…**

Backdraught shutter **RVS 560** No. 02599

Counter flange **FR 560** No. 01209

Flat flange **FF 560** No. 04948

Flanged flex. connector **STSB 560** **F400** No. 01916

Guard duct-side **SG 560** No. 01242

Mounting brackets **MK 500 – 560** (1 set = 2 pcs.) No. 01450

Mounting ring for vertical fixing **MRV 560** No. 01741

Certification

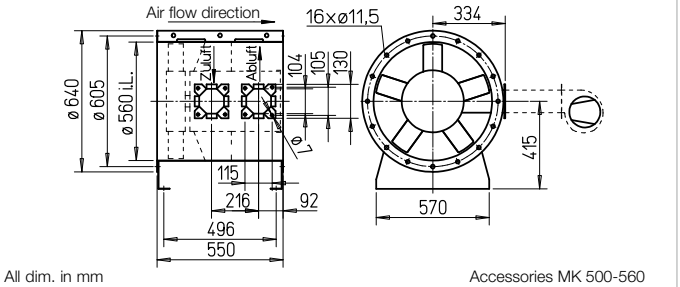
The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3.
Certificate of conformity:
F300: 0036-CPR-RG05-03
F400: 0036-CPR-RG05-06

Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	Nominal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protrusion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG Pressure		Anti-vibration mounts NG Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 560/4 0.55 kW F300	02525	1420	10870	0.55	400	1.23	*	776	40 / 300	41	39	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/4 0.75 kW F300	02324	1420	12340	0.75	400	1.62	*	776	40 / 300	41	41	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/4 1.1 kW F300	02325	1455	14280	1.1	400	2.35	*	776	40 / 300	59	46	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 560/8/4 0.15/0.6 kW F300	02526	710/1440	5570/11140	0.15/0.6	400	0.76/1.76	*	471	40 / 300	41	42	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/8/4 0.2/0.8 kW F300	02327	690/1415	6380/12760	0.2/0.8	400	0.88/1.99	*	471	40 / 300	41	42	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/8/4 0.3/1.2 kW F300	02328	705/1430	7140/14280	0.3/1.2	400	1.29/2.92	*	471	40 / 300	59	46	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/8/4 0.4/1.6 kW F300	02329	700/1420	7140/14280	0.4/1.6	400	1.69/3.80	*	471	40 / 300	84	48	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
F400 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 560/4 0.55 kW F400	02556	1420	10870	0.55	400	1.23	*	776	40 / 400	41	39	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/4 0.75 kW F400	02406	1420	12340	0.75	400	1.62	*	776	40 / 400	41	41	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/4 1.1 kW F400	02407	1455	14280	1.1	400	2.35	*	776	40 / 400	59	46	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 560/8/4 0.15/0.6 kW F400	02557	710/1440	5570/11140	0.15/0.6	400	0.76/1.76	*	471	40 / 400	41	42	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/8/4 0.2/0.8 kW F400	02409	690/1415	6380/12760	0.2/0.8	400	0.88/1.99	*	471	40 / 400	41	42	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/8/4 0.3/1.2 kW F400	02410	705/1430	7140/14280	0.3/1.2	400	1.29/2.92	*	471	40 / 400	59	46	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/8/4 0.4/1.6 kW F400	02411	700/1420	7140/14280	0.4/1.6	400	1.69/3.80	*	471	40 / 400	84	48	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943

* The flow volume and pressure increase information is required to determine the pitch angle.
[1] For ventilation operation / smoke extraction (one time 120 min. at 300 °C or 120 min. at 400 °C).

B AVD 560

Dimensions B AVD 560



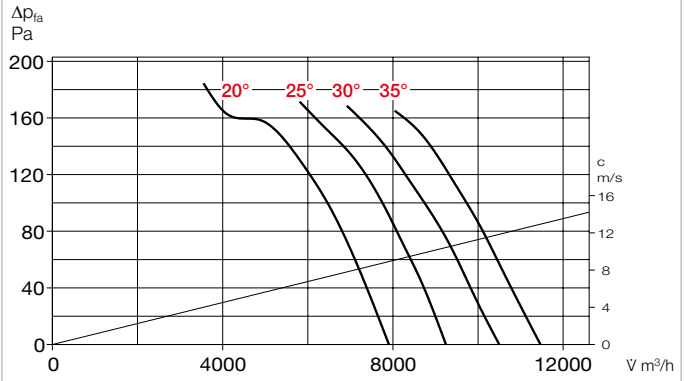
All dim. in mm

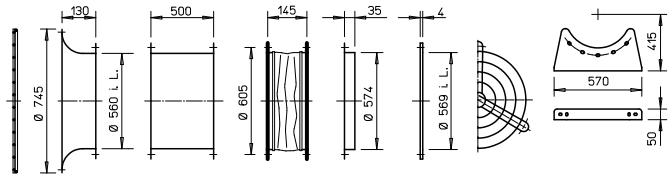
Accessories MK 500-560

Performance curves B AVD 560/4

n=1400 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	83	63	69	78	75	75	71	67
L_{WA}	30°	dB(A)	87	67	73	82	79	79	75	71
L_{WA}	35°	dB(A)	89	69	75	84	81	81	77	73





Bell mouth + guard **ASD-SGD 560** No. 01421

Extension duct **VR 560** No. 01409

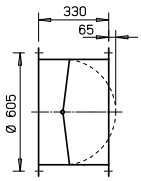
Flanged flex. connector **STSB 560** **F600** No. 02004

Counter flange **FR 560** No. 01209

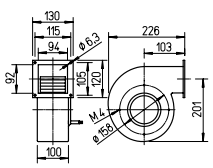
Flat flange **FF 560** No. 04948

Guard duct-side **SG 560** No. 01242

Mounting brackets **MK 500-560** (1 set = 2 pcs.) No. 01450



Backdraught shutter **RVS 560** No. 02599



Centrifugal cooling air fan **B KLG 500** No. 02798

SD.. 1F

SD.. 4 – 10

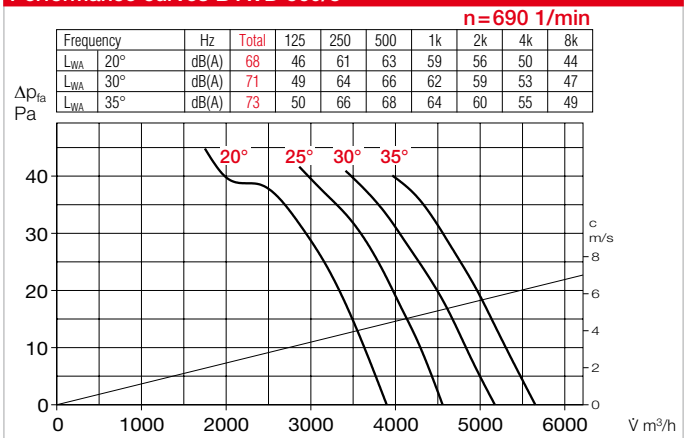
Anti vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

* Type assignment see table, last column

Performance curves B AVD 560/8

n=690 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	68	46	61	63	59	56	50	44
L_{WA}	30°	dB(A)	71	49	64	66	62	59	53	47
L_{WA}	35°	dB(A)	73	50	66	68	64	60	55	49



Certification

The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3. Certificate of conformity: F600: 0036-CPR-RG05-04

Information

Accessory details

Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile[2]	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 560/4-20 F600	02819	1420	7960	0.55	400	1.23	20	776	40 / 600	—	71	**EVS-D 007**	04587	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/4-25 F600	02820	1420	9310	0.75	400	1.62	25	776	40 / 600	—	74	**EVS-D 007**	04587	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/4-30 F600	02821	1420	10570	0.75	400	1.62	30	776	40 / 600	—	74	**EVS-D 007**	04587	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 560/4-35 F600	02822	1455	11630	1.10	400	2.35	35	776	40 / 600	—	79	**EVS-D 007**	04587	**SDD 1F**	01942	**SDZ 1F**	01943

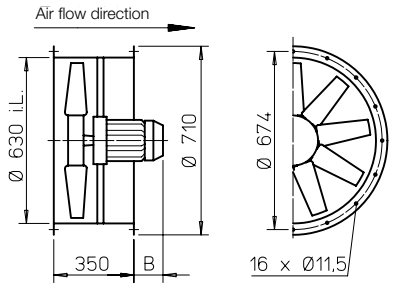
[1] For ventilation operation / smoke extraction (one time 120 Min.). [2] Types SDZ not permitted for installation in fire zone.

Low pressure smoke exhaust axial fans B AVD F300/F400
ø 630 mm

B AVD 630

F300 F400

Dimensions B AVD 630

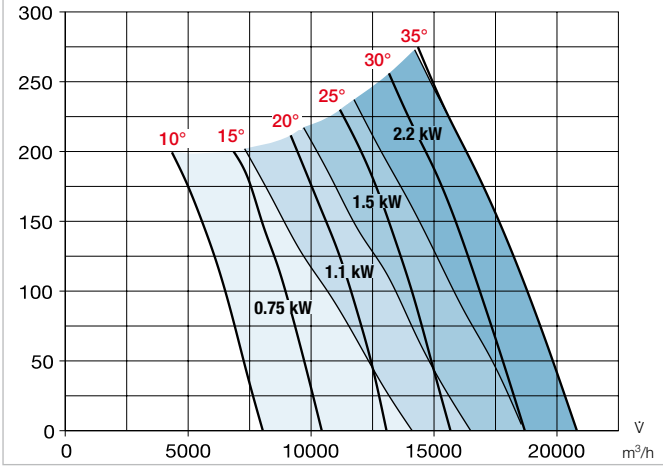


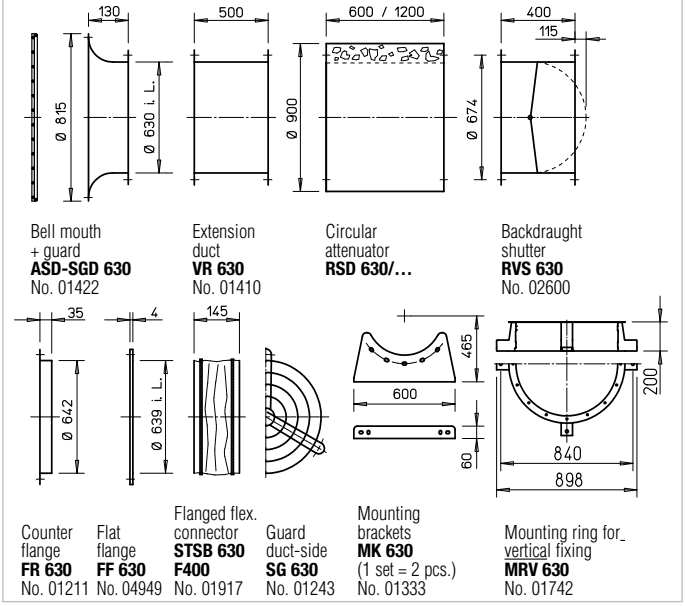
All dim. in mm

Performance curves B AVD 630/4

n=1420 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	83	63	69	78	75	75	71	67
L_{WA}	20°	dB(A)	86	66	72	81	78	78	74	70
L_{WA}	30°	dB(A)	90	70	76	85	82	82	78	74
L_{WA}	35°	dB(A)	92	72	78	87	84	84	80	76





Bell mouth + guard **ASD-SGD 630** No. 01422

Extension duct **VR 630** No. 01410

Circular attenuator **RSD 630/…**

Backdraught shutter **RVS 630** No. 02600

Counter flange **FR 630** No. 01211

Flat flange **FF 630** No. 04949

Flanged flex. connector **STSB 630 F400** No. 01917

Guard duct-side **SG 630** No. 01243

Mounting brackets **MK 630** (1 set = 2 pcs.) No. 01333

Mounting ring for vertical fixing **MRV 630** No. 01742

Certification

The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3.
Certificate of conformity:
F300: 0036-CPR-RG05-03
F400: 0036-CPR-RG05-06

Information	Page
Techn. description	16 f.
Project planning information	3 ff.
Accessory details	
Mounting accessories	148 ff.
Attenuators	156
Gas warning systems, switch and control technology	158 ff.

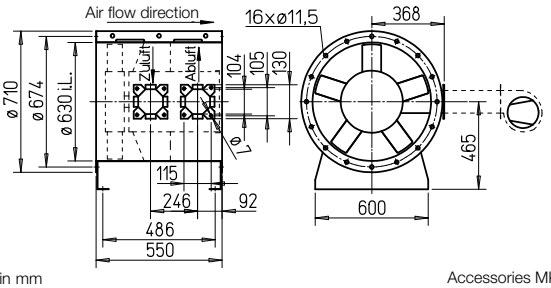
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring dia-gram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 630/4 0.75 kW F300	02527	1420	14110	0.75	400	1.62	*	776	40 / 300	41	43	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/4 1.1 kW F300	02335	1455	16500	1.1	400	2.35	*	776	40 / 300	59	48	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/4 1.5 kW F300	02336	1450	18700	1.5	400	3.17	*	776	40 / 300	84	52	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/4 2.2 kW F300	02337	1435	20810	2.2	400	4.56	*	776	40 / 300	121	61	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 630/8/4 0.2/0.8 kW F300	02338	690/1415	7210/14420	0.2/0.8	400	0.88/1.99	*	471	40 / 300	41	44	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/8/4 0.3/1.2 kW F300	02339	705/1430	8510/17020	0.3/1.2	400	1.29/2.92	*	471	40 / 300	59	49	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/8/4 0.4/1.6 kW F300	02528	700/1420	9520/19040	0.4/1.6	400	1.69/3.80	*	471	40 / 300	84	50	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/8/4 0.55/2.2 kW F300	02340	700/1430	10410/20810	0.55/2.2	400	2.00/4.84	*	471	40 / 300	121	55	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
F400 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 630/4 0.75 kW F400	02558	1420	14110	0.75	400	1.62	*	776	40 / 400	41	43	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/4 1.1 kW F400	02417	01455	16500	1.1	400	2.35	*	776	40 / 400	59	48	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/4 1.5 kW F400	02418	1450	18700	1.5	400	3.17	*	776	40 / 400	84	52	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/4 2.2 kW F400	02419	1435	20810	2.2	400	4.56	*	776	40 / 400	121	61	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 630/8/4 0.2/0.8 kW F400	02420	690/1415	7210/14420	0.2/0.8	400	0.88/1.99	*	471	40 / 400	41	44	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/8/4 0.3/1.2 kW F400	02421	705/1430	8510/17020	0.3/1.2	400	1.29/2.92	*	471	40 / 400	59	49	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/8/4 0.4/1.6 kW F400	02559	700/1420	9520/19040	0.4/1.6	400	1.69/3.80	*	471	40 / 400	84	50	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 630/8/4 0.55/2.2 kW F400	02422	700/1430	10410/20810	0.55/2.2	400	2.00/4.84	*	471	40 / 400	121	55	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943

* The flow volume and pressure increase information is required to determine the pitch angle.
[1] For ventilation operation / smoke extraction (one time 120 min. at 300 °C or 120 min. at 400 °C).

B AVD 630

F600

Dimensions B AVD 630



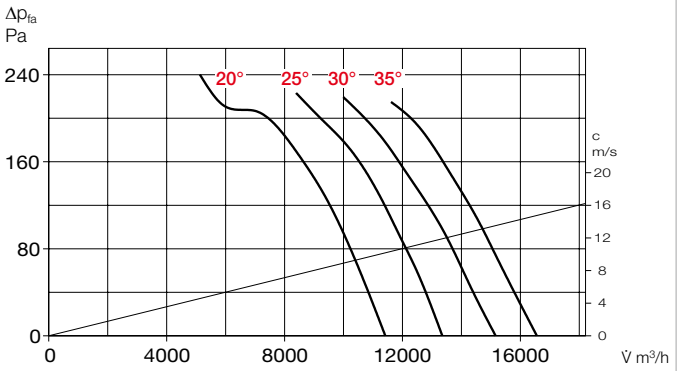
All dim. in mm

Accessories MK 630

Performance curves B AVD 630/4

n=1420 1/min

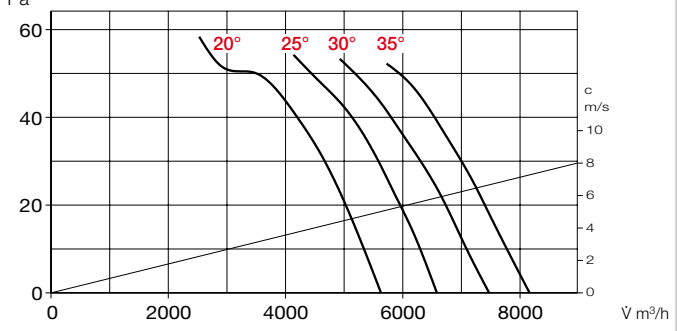
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	86	66	72	81	78	78	74	70
L_{WA}	30°	dB(A)	90	70	76	85	82	82	78	74
L_{WA}	35°	dB(A)	92	72	78	87	84	84	80	76

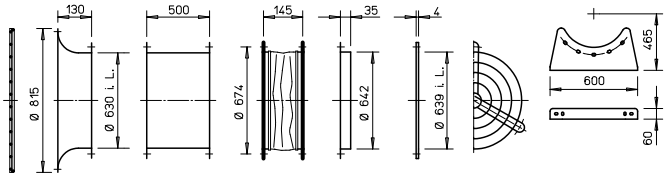


Performance curves B AVD 630/8

n=700 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	71	49	64	66	62	59	53	47
L_{WA}	30°	dB(A)	74	52	67	69	65	62	56	50
L_{WA}	35°	dB(A)	76	54	68	71	66	64	57	52





Bell mouth + guard **ASD-SGD 630** No. 01422

Extension duct **VR 630** No. 01410

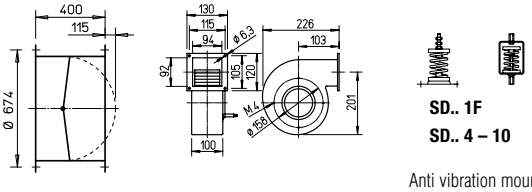
Flanged flex. connector **STSB 630** **F600** No. 02005

Counter flange **FR 630** No. 01211

Flat flange **FF 630** No. 04949

Guard duct-side **SG 630** No. 01243

Mounting brackets **MK 630** (1 set = 2 pcs.) No. 01333



SD.. 1F

SD.. 4 – 10

Backdraught shutter **RVS 630** No. 02600

Centrifugal cooling air fan **B KLG 500** No. 02798

Anti vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

* Type assignment see table, last column

Certification

The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3. Certificate of conformity: F600: 0036-CPR-RG05-04

Information

Accessory details

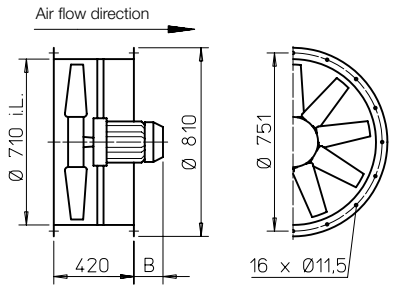
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 630/4-20 F600	02834	1455	11580	1.10	400	2.35	20	776	40 / 600	—	86	**EVS-D 007**	04587	**SDD 4**	01944	**SDZ 4**	01945
B AVD 630/4-25 F600	02835	1455	13540	1.10	400	2.35	25	776	40 / 600	—	86	**EVS-D 007**	04587	**SDD 4**	01944	**SDZ 4**	01945
B AVD 630/4-30 F600	02836	1450	15370	1.50	400	3.17	30	776	40 / 600	—	89	**EVS-D 007**	04587	**SDD 4**	01944	**SDZ 4**	01945
B AVD 630/4-35 F600	02837	1435	16740	2.20	400	4.56	35	776	40 / 600	—	98	**EVS-D 007**	04587	**SDD 4**	01944	**SDZ 4**	01945

[1] For ventilation operation / smoke extraction (one time 120 Min.). [2] Types SDZ not permitted for installation in fire zone.

B AVD 710

F300 F400

Dimensions B AVD 710

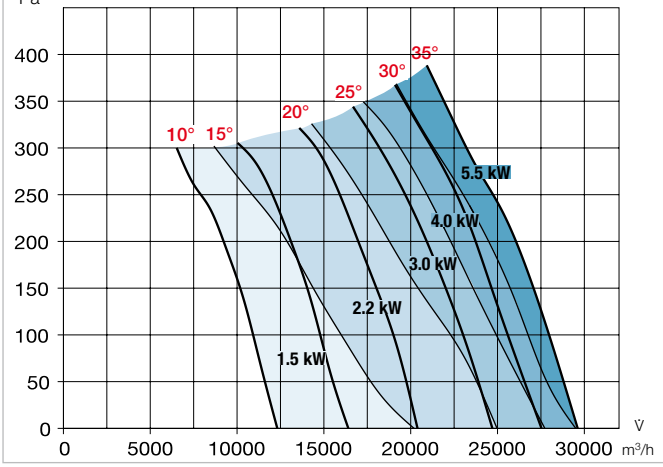


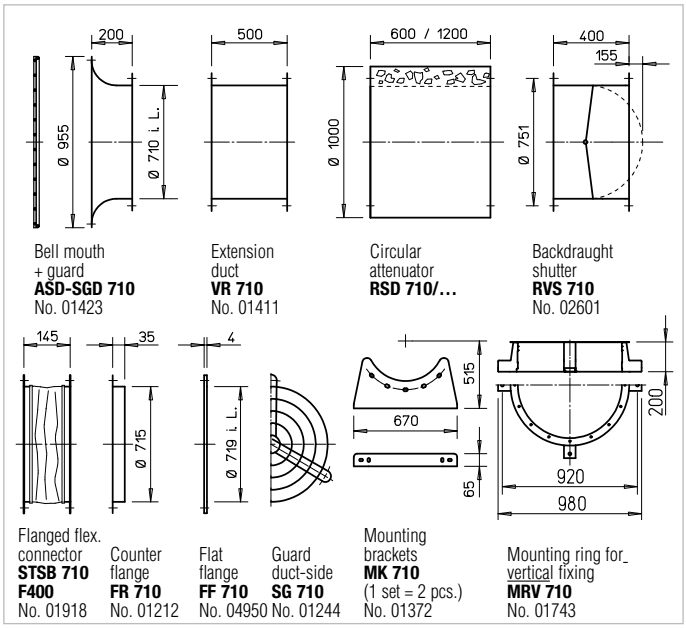
All dim. in mm

Performance curves B AVD 710/4

n=1435 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	95	76	87	89	87	86	78	70
L_{WA}	20°	dB(A)	97	78	89	91	89	88	80	72
L_{WA}	30°	dB(A)	99	80	91	93	91	90	82	74
L_{WA}	35°	dB(A)	100	81	92	94	92	91	83	75





Bell mouth + guard **ASD-SGD 710** No. 01423

Extension duct **VR 710** No. 01411

Circular attenuator **RSD 710/...**

Backdraught shutter **RVS 710** No. 02601

Flanged flex. connector **STSB 710 F400** No. 01918

Counter flange **FR 710** No. 01212

Flat flange **FF 710** No. 04950

Guard duct-side **SG 710** No. 01244

Mounting brackets **MK 710** (1 set = 2 pcs.) No. 01372

Mounting ring for vertical fixing **MRV 710** No. 01743

Certification

DIN EN 12101-3 tested.
Certificate of conformity:
F300: 0036-CPR-RG05-03
F400: 0036-CPR-RG05-06

Information

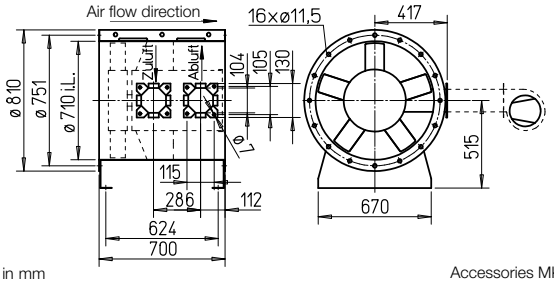
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	Nominal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protrusion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 710/4 1.5 kW F300	02529	1450	20190	1.5	400	3.17	*	776	40 / 300	49	67	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 710/4 2.2 kW F300	02343	1435	24980	2.2	400	4.56	*	776	40 / 300	86	81	**EVS-D 001**	04594	**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/4 3.0 kW F300	02344	1440	27730	3.0	400	6.15	*	776	40 / 300	86	87	**EVS-SD 001**	04586	**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/4 4.0 kW F300	02345	1450	29510	4.0	400	8.03	*	776	40 / 300	103	93	**EVS-SD 001**	04586	**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/4 5.5 kW F300	02346	1460	29620	5.5	400	10.40	*	776	40 / 300	142	116	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 710/8/4 0.55/2.2 kW F300	02547	700/1430	12490/24980	0.55/2.2	400	2.00/4.84	*	471	40 / 300	86	76	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/8/4 0.7/2.8 kW F300	02347	690/1410	13460/26920	0.7/2.8	400	2.41/6.01	*	471	40 / 300	86	77	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/8/4 1.0/3.8 kW F300	02348	710/1440	14370/28740	1.0/3.8	400	2.75/8.26	*	471	40 / 300	103	94	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/8/4 1.3/5.0 kW F300	02349	730/1440	14810/29620	1.3/5.0	400	3.50/10.40	*	471	40 / 300	142	121	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
F400 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 710/4 1.5 kW F400	02569	1450	20190	1.5	400	3.17	*	776	40 / 400	49	67	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AVD 710/4 2.2 kW F400	02426	1435	24980	2.2	400	4.56	*	776	40 / 400	86	81	**EVS-D 001**	04594	**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/4 3.0 kW F400	02427	1440	27730	3.0	400	6.15	*	776	40 / 400	86	87	**EVS-SD 001**	04586	**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/4 4.0 kW F400	02428	1450	29510	4.0	400	8.03	*	776	40 / 400	103	93	**EVS-SD 001**	04586	**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/4 5.5 kW F400	02429	1460	29620	5.5	400	10.4	*	776	40 / 400	142	116	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 710/8/4 0.55/2.2 kW F400	02572	700/1430	12490/24980	0.55/2.2	400	2.00/4.84	*	471	40 / 400	86	76	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/8/4 0.7/2.8 kW F400	02430	690/1410	13460/26920	0.7/2.8	400	2.41/6.01	*	471	40 / 400	86	77	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/8/4 1.0/3.8 kW F400	02431	710/1440	14370/28740	1.0/3.8	400	2.75/8.26	*	471	40 / 400	103	94	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/8/4 1.3/5.0 kW F400	02432	730/1440	14810/29620	1.3/5.0	400	3.50/10.4	*	471	40 / 400	142	121	**on demand**		**SDD 5**	01924	**SDZ 5**	01925

** The flow volume and pressure increase information is required to determine the pitch angle.
[1] For ventilation operation / smoke extraction (one time 120 min. at 300 °C or 120 min. at 400 °C).

B AVD 710

F600

Dimensions B AVD 710



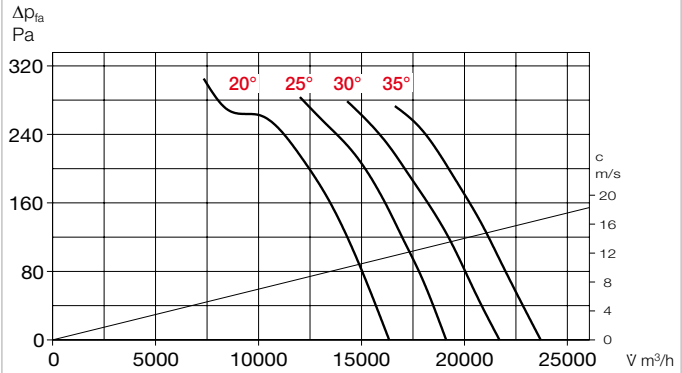
All dim. in mm

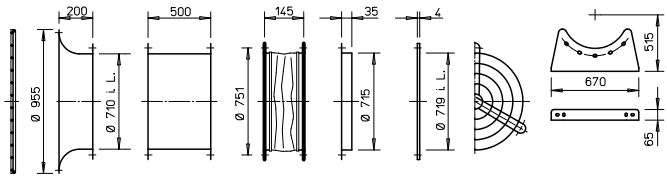
Accessories MK 710

Performance curves B AVD 710/4

n=1420 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	97	78	89	91	89	88	80	72
L_{WA}	30°	dB(A)	99	80	91	93	91	90	82	74
L_{WA}	35°	dB(A)	100	81	92	94	92	91	83	75





Bell mouth + guard **ASD-SGD 710** No. 01423

Extension duct **VR 710** No. 01411

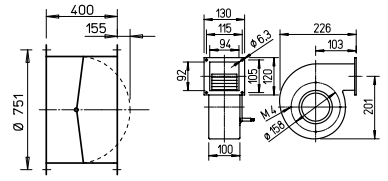
Flanged flex. connector **STSB 710** **F600** No. 02006

Counter flange **FR 710** No. 01212

Flat flange **FF 710** No. 04950

Guard duct-side **SG 710** No. 01244

Mounting brackets **MK 710** (1 set = 2 pcs.) No. 01372



SD.. 1F

SD.. 4 – 10

Backdraught shutter **RVS 710** No. 02601

Centrifugal cooling air fan **B KLG 500** No. 02798

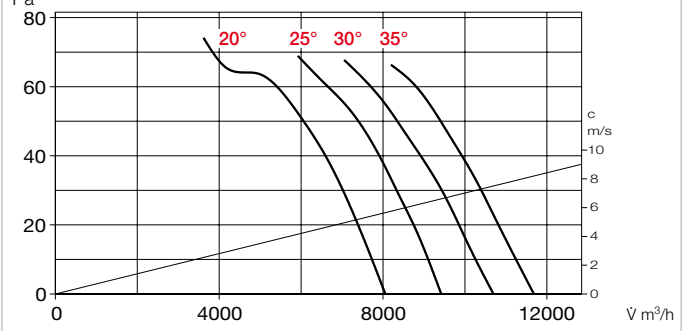
Anti vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

* Type assignment see table, last column

Performance curves B AVD 710/8

n=700 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	77	59	66	71	71	67	65	63
L_{WA}	30°	dB(A)	78	60	67	72	72	68	66	64
L_{WA}	35°	dB(A)	79	61	68	73	73	69	67	65



Certification

The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3. Certificate of conformity: F600: 0036-CPR-RG05-04

Information

Accessory details

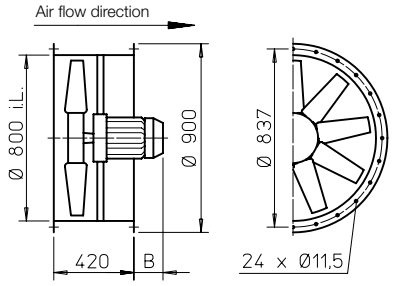
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal volta-ge	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile[2]	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 710/4-20 F600	02845	1435	16400	2.20	400	4.56	20	776	40 / 600	—	130	**EVS-D 007**	04587	**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/4-25 F600	02846	1435	19180	2.20	400	4.56	25	776	40 / 600	—	130	**EVS-D 007**	04587	**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/4-30 F600	02847	1440	21700	3.00	400	6.15	30	776	40 / 600	—	133	**EVS-SD 024**	04563	**SDD 5**	01924	**SDZ 5**	01925
B AVD 710/4-35 F600	02848	1450	24220	4.00	400	8.03	35	776	40 / 600	—	141	**EVS-SD 024**	04563	**SDD 5**	01924	**SDZ 5**	01925

[1] For ventilation operation / smoke extraction (one time 120 Min.). [2] Types SDZ not permitted for installation in fire zone.

B AVD 800

F300 F400

Dimensions B AVD 800

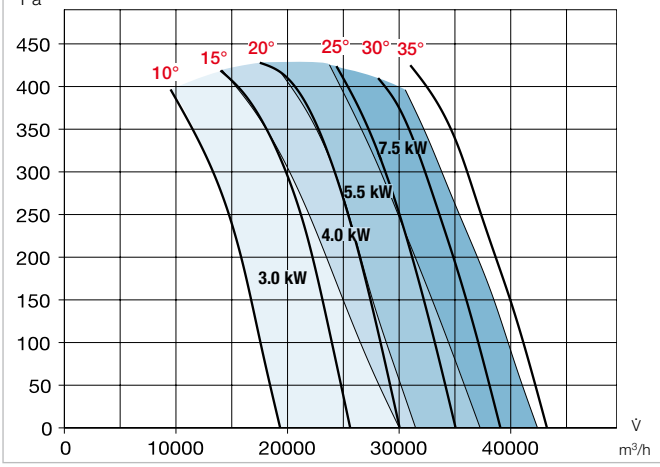


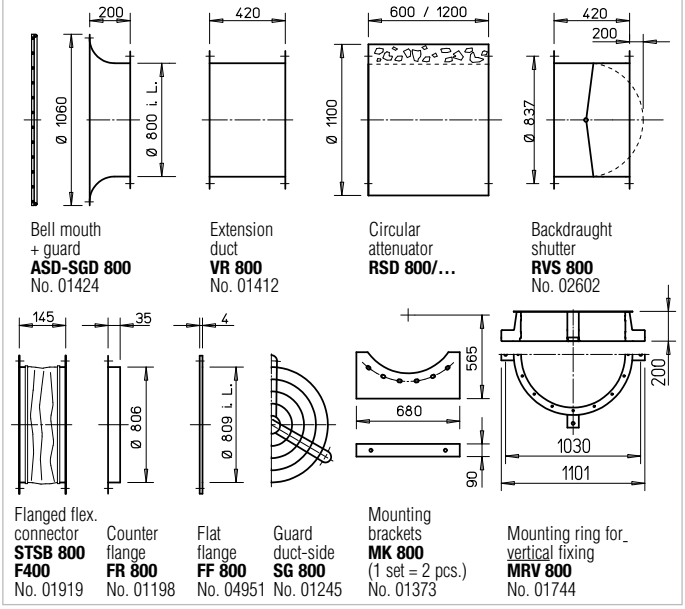
All dim. in mm

Performance curves B AVD 800/4

n=1440 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	98	79	90	92	90	89	81	73
L_{WA}	20°	dB(A)	100	81	92	94	92	91	83	75
L_{WA}	30°	dB(A)	102	83	94	96	94	93	85	77
L_{WA}	35°	dB(A)	103	84	95	97	95	94	86	78





Bell mouth + guard **ASD-SGD 800** No. 01424

Extension duct **VR 800** No. 01412

Circular attenuator **RSD 800/...**

Backdraught shutter **RVS 800** No. 02602

Flanged flex. connector **STSB 800 F400** No. 01919

Counter flange **FR 800** No. 01198

Flat flange **FF 800** No. 04951

Guard duct-side **SG 800** No. 01245

Mounting brackets **MK 800** (1 set = 2 pcs.) No. 01373

Mounting ring for vertical fixing **MRV 800** No. 01744

Certification
The B AVD have been tested according to DIN EN 12101-3.
Certificate of conformity:
F300: 0036-CPR-RG05-03
F400: 0036-CPR-RG05-06

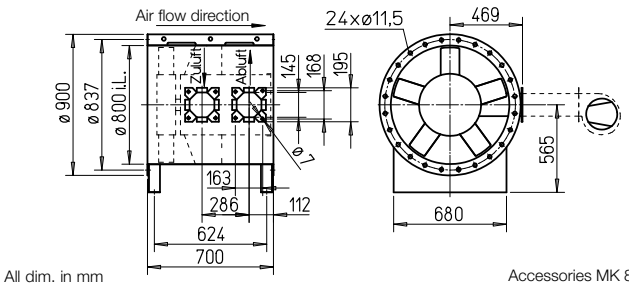
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 800/4 3.0 kW F300	02352	1440	30020	3.0	400	6.15	*	776	40 / 300	211	89	**EVS-SD 001**	04586	**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/4 4.0 kW F300	02353	1450	31480	4.0	400	8.03	*	776	40 / 300	228	98	**EVS-SD 001**	04586	**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/4 5.5 kW F300	02354	1460	37300	5.5	400	10.40	*	776	40 / 300	267	126	**EVS-SD 002**	04585	**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/4 7.5 kW F300	02355	1460	42400	7.5	400	13.90	*	776	40 / 300	305	135	**EVS-SD 003**	04584	**SDD 5**	1924	**SDZ 5**	01925
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 800/8/4 0.7/2.8 kW F300	02356	690/1410	14440/28880	0.7/2.8	400	2.41/6.01	*	471	40 / 300	211	89	**on demand**		**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/8/4 1.0/3.8 kW F300	02357	710/1440	15330/30660	1.0/3.8	400	2.75/8.26	*	471	40 / 300	228	98	**on demand**		**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/8/4 1.3/5.0 kW F300	02358	730/1440	17960/35920	1.3/5.0	400	3.50/10.4	*	471	40 / 300	267	128	**on demand**		**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/8/4 1.8/7.2 kW F300	02359	725/1430	20855/41710	1.8/7.2	400	4.64/14.4	*	471	40 / 300	305	140	**on demand**		**SDD 5**	1924	**SDZ 5**	01925
F400 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 800/4 3.0 kW F400	02436	1440	30020	3.0	400	6.15	*	776	40 / 400	211	89	**EVS-SD 001**	04586	**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/4 4.0 kW F400	02437	1450	31480	4.0	400	8.03	*	776	40 / 400	228	103	**EVS-SD 001**	04586	**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/4 5.5 kW F400	02438	1460	37300	5.5	400	10.40	*	776	40 / 400	267	126	**EVS-SD 002**	04585	**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/4 7.5 kW F400	02439	1460	42400	7.5	400	13.90	*	776	40 / 400	305	135	**EVS-SD 003**	04584	**SDD 5**	1924	**SDZ 5**	01925
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 800/8/4 0.7/2.8 kW F400	02440	690/1410	14440/28880	0.7/2.8	400	2.41/6.01	*	471	40 / 400	211	89	**on demand**		**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/8/4 1.0/3.8 kW F400	02441	710/1440	15330/30660	1.0/3.8	400	2.75/8.26	*	471	40 / 400	228	103	**on demand**		**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/8/4 1.3/5.0 kW F400	02442	730/1440	17960/35920	1.3/5.0	400	3.50/10.4	*	471	40 / 400	267	128	**on demand**		**SDD 5**	1924	**SDZ 5**	01925
B AVD 800/8/4 1.8/7.2 kW F400	02443	725/1430	20855/41710	1.8/7.2	400	4.64/14.4	*	471	40 / 400	305	140	**on demand**		**SDD 5**	1924	**SDZ 5**	01925

* The flow volume and pressure increase information is required to determine the pitch angle.
[1] For ventilation operation / smoke extraction (one time 120 min. at 300 °C or 120 min. at 400 °C).

B AVD

F600

Dimensions B AVD 800



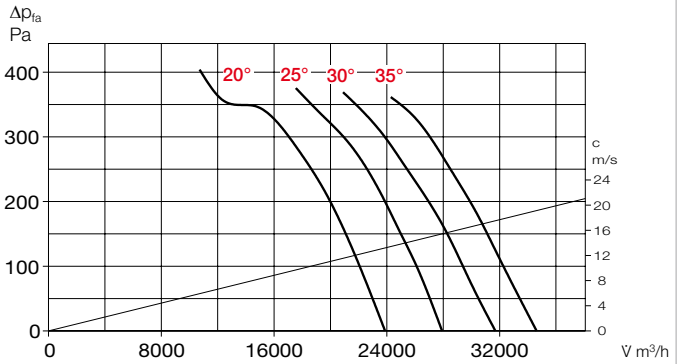
All dim. in mm

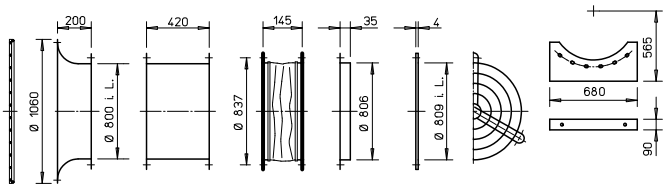
Accessories MK 800

Performance curves B AVD 800/4

n=1450 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	100	81	92	94	92	91	83	75
L_{WA}	30°	dB(A)	102	83	94	96	94	93	85	77
L_{WA}	35°	dB(A)	103	84	95	97	95	94	86	78





Bell mouth + guard **ASD-SGD 800** No. 01424

Extension duct **VR 800** No. 01412

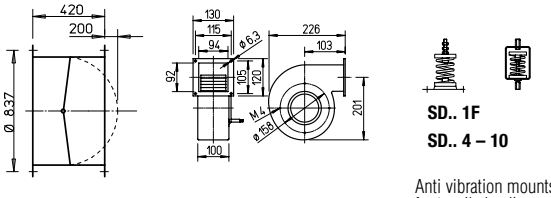
Flanged flex. connector **STSB 800** **F600** No. 02007

Counter flange **FR 800** No. 01198

Flat flange **FF 800** No. 04951

Guard duct-side **SG 800** No. 01245

Mounting brackets **MK 800** (1 set = 2 pcs.) No. 01373



SD.. 1F

SD.. 4 – 10

Backdraught shutter **RVS 800** No. 02602

Centrifugal cooling air fan **B KLG 500** No. 02798

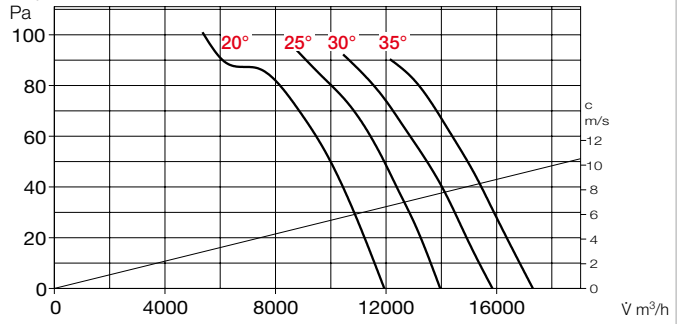
Anti vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

* Type assignment see table, last column

Performance curves B AVD 800/8

n=725 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	80	62	69	74	74	70	68	66
L_{WA}	30°	dB(A)	81	63	70	75	75	71	69	67
L_{WA}	35°	dB(A)	82	64	71	76	76	72	70	68



Certification

The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3. Certificate of conformity: F600: 0036-CPR-RG05-04

Information	Page
Techn. description	16 f.
Project planning information	3 ff.
Accessory details	
Mounting accessories	148 ff.
Centrif. cooling air fan	150
Gas warning systems, switch and control technology	158 ff.

Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring dia-gram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile[2]	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 800/4-20 F600	02855	1440	23380	3.00	400	6.15	20	776	40 / 600	—	151	**EVS-SD 024**	04563	**SDD 5**	01924	**SDZ 5**	01925
B AVD 800/4-25 F600	02856	1450	27720	4.00	400	8.03	25	776	40 / 600	—	160	**EVS-SD 024**	04563	**SDD 5**	01924	**SDZ 5**	01925
B AVD 800/4-30 F600	02857	1460	31920	5.50	400	10.40	30	776	40 / 600	—	181	**EVS-SD 025**	04562	**SDD 5**	01924	**SDZ 5**	01925
B AVD 800/4-35 F600	02858	1460	35010	7.50	400	13.90	35	776	40 / 600	—	190	**EVS-SD 026**	04561	**SDD 5**	01924	**SDZ 5**	01925

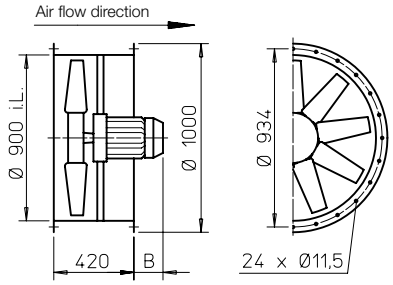
[1] For ventilation operation / smoke extraction (one time 120 Min.). [2] Types SDZ not permitted for installation in fire zone.

Low pressure smoke exhaust axial fans B AVD F300/F400
ø 900 mm

B AVD 900

F300 F400

Dimensions B AVD 900

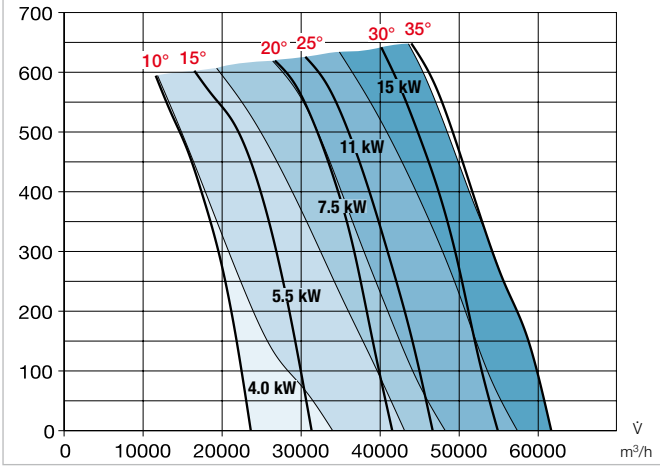


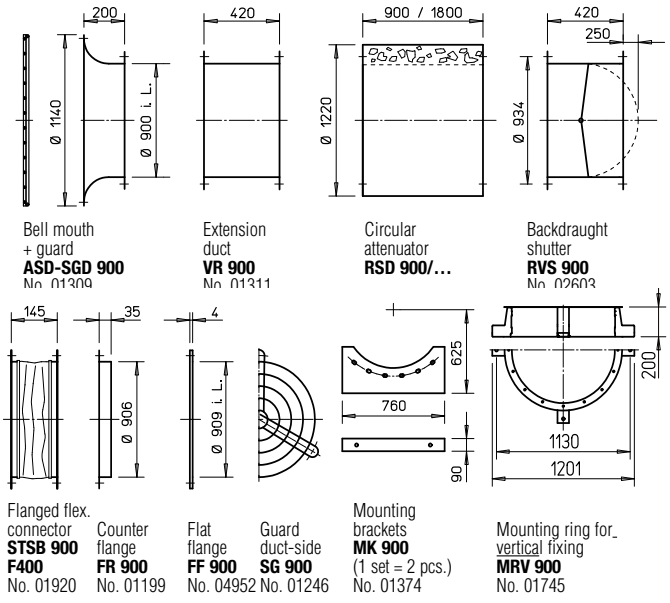
All dim. in mm

Performance curves B AVD 900/4

n=1450 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	98	70	84	90	94	92	84	76
L_{WA}	20°	dB(A)	100	72	86	92	96	94	86	78
L_{WA}	30°	dB(A)	104	76	90	96	100	98	90	82
L_{WA}	35°	dB(A)	105	77	91	97	101	99	91	83





Bell mouth + guard **ASD-SGD 900** No. 01309

Extension duct **VR 900** No. 01311

Circular attenuator **RSD 900/...**

Backdraught shutter **RVS 900** No. 02603

Flanged flex. connector **STSB 900 F400** No. 01920

Counter flange **FR 900** No. 01199

Flat flange **FF 900** No. 04952

Guard duct-side **SG 900** No. 01246

Mounting brackets **MK 900** (1 set = 2 pcs.) No. 01374

Mounting ring for vertical fixing **MRV 900** No. 01745

Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile	
		min⁻¹	V m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 900/4 4.0 kW F300	02548	1450	33990	4	400	8.03	*	776	40 / 300	228	124	**EVS-SD 001**	04586	**SDD 5**	01924	**SDZ 5**	01925
B AVD 900/4 5.5 kW F300	02362	1460	43100	5.5	400	10.4	*	776	40 / 300	267	145	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
B AVD 900/4 7.5 kW F300	02363	1460	48240	7.5	400	13.9	*	776	40 / 300	305	156	**EVS-SD 003**	04584	**SDD 5**	01924	**SDZ 5**	01925
B AVD 900/4 11 kW F300	02364	1470	57380	11.0	400	20.9	*	776	40 / 300	383	206	**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
B AVD 900/4 15 kW F300	02365	1465	61640	15.0	400	27.9	*	776	40 / 300	427	224	**EVS-SD 005**	04582	**SDD 6**	01926	**SDZ 6**	01927
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 900/8/4 1.0/3.8 kW F300	02549	710/1440	16490/32980	1.0/3.8	400	2.75/8.26	*	471	40 / 300	228	125	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
B AVD 900/8/4 1.3/5.0 kW F300	02366	730/1440	20760/41520	1.3/5.0	400	3.50/10.4	*	471	40 / 300	267	150	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
B AVD 900/8/4 1.8/7.2 kW F300	02367	725/1430	23390/46780	1.8/7.2	400	4.64/14.4	*	471	40 / 300	305	169	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 900/8/4 3.0/11 kW F300	02368	725/1455	28690/57380	3.0/11.0	400	7.0/21.0	*	471	40 / 300	383	208	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 900/8/4 4.3/17 kW F300	02369	730/1475	30820/61640	4.3/17.0	400	12.7/33.4	*	471	40 / 300	449	251	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
F400 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 900/4 4.0 kW F400	02573	1440	33990	4	400	8.03	*	776	40 / 400	228	124	**EVS-SD 001**	04586	**SDD 5**	01924	**SDZ 5**	01925
B AVD 900/4 5.5 kW F400	02447	1460	43100	5.5	400	10.4	*	776	40 / 400	267	145	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
B AVD 900/4 7.5 kW F400	02448	1460	48240	7.5	400	13.9	*	776	40 / 400	305	156	**EVS-SD 003**	04584	**SDD 5**	01924	**SDZ 5**	01925
B AVD 900/4 11 kW F400	02449	1470	57380	11.0	400	20.9	*	776	40 / 400	383	206	**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
B AVD 900/4 15 kW F400	02450	1465	61640	15.0	400	27.9	*	776	40 / 400	427	224	**EVS-SD 005**	04582	**SDD 6**	01926	**SDZ 6**	01927
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 900/8/4 1.0/3.8 kW F400	02574	710/1440	16490/32980	1.0/3.8	400	2.75/8.26	*	471	40 / 400	228	125	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
B AVD 900/8/4 1.3/5.0 kW F400	02452	730/1440	20760/41520	1.3/5.0	400	3.5/10.4	*	471	40 / 400	267	150	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
B AVD 900/8/4 1.8/7.2 kW F400	02453	725/1430	23390/46780	1.8/7.2	400	4.64/14.4	*	471	40 / 400	305	169	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 900/8/4 3.0/11 kW F400	02454	725/1455	28690/57380	3.0/11.0	400	7.0/21.0	*	471	40 / 400	383	208	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 900/8/4 4.3/17 kW F400	02455	730/1475	30820/61640	4.3/17.0	400	12.7/33.4	*	471	40 / 400	449	251	**on demand**		**SDD 6**	01926	**SDZ 6**	01927

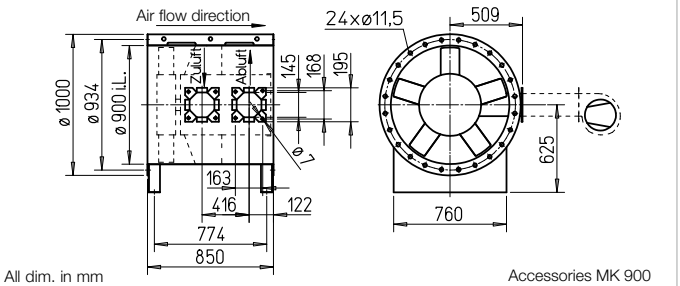
* The flow volume and pressure increase information is required to determine the pitch angle.

[1] For ventilation operation / smoke extraction (one time 120 min. at 300 °C or 120 min. at 400 °C).

B AVD 900

F600

Dimensions B AVD 900



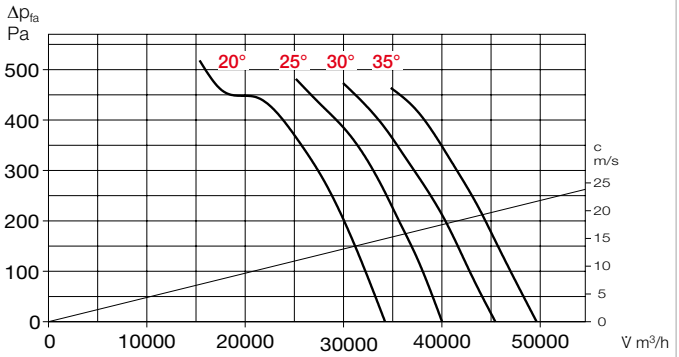
All dim. in mm

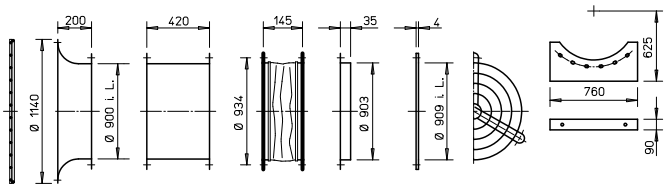
Accessories MK 900

Performance curves B AVD 900/4

n=1460 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	100	72	86	92	96	94	86	78
L_{WA}	30°	dB(A)	104	76	90	96	100	98	90	82
L_{WA}	35°	dB(A)	105	77	91	97	101	99	91	83





Bell mouth + guard **ASD-SGD 900** No. 01309

Extension duct **VR 900** No. 01311

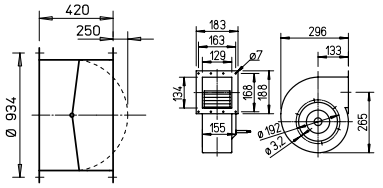
Flanged flex. connector **STSB 900** **F600** No. 02008

Counter flange **FR 900** No. 01199

Flat flange **FF 900** No. 04952

Guard duct-side **SG 900** No. 01246

Mounting brackets **MK 900** (1 set = 2 pcs.) No. 01374



Backdraught shutter **RVS 900** No. 02603

Centrifugal cooling air fan **B KLG 1000** No. 02799

SD.. 1F
SD.. 4 – 10

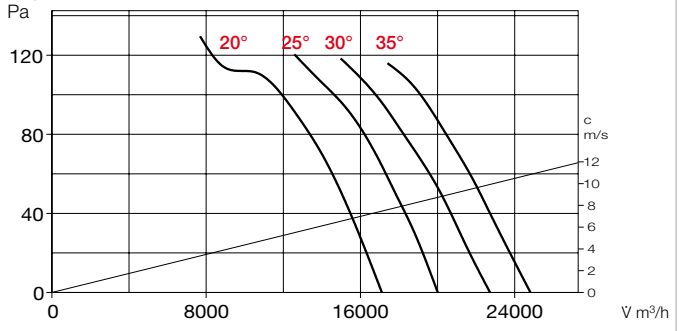
Anti vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

* Type assignment see table, last column

Performance curves B AVD 900/8

n=730 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	82	60	70	76	77	72	61	52
L_{WA}	30°	dB(A)	86	64	74	80	81	76	65	56
L_{WA}	35°	dB(A)	87	65	75	81	82	77	66	57



Certification

The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3. Certificate of conformity: F600: 0036-CPR-RG05-04

Information

Accessory details

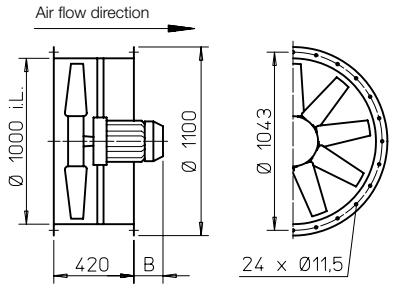
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring dia-gram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile[2]	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 900/4-20 F600	02865	1460	34220	5.50	400	10.40	20	776	40 / 600	—	210	**EVS-SD 028**	04559	**SDD 5**	01924	**SDZ 5**	01925
B AVD 900/4-25 F600	02866	1460	39880	7.50	400	13.90	25	776	40 / 600	—	219	**EVS-SD 029**	04558	**SDD 6**	01926	**SDZ 6**	01927
B AVD 900/4-30 F600	02867	1470	45750	11.0	400	20.90	30	776	40 / 600	—	252	**EVS-SD 030**	04557	**SDD 6**	01926	**SDZ 6**	01927
B AVD 900/4-35 F600	02868	1465	50180	15.0	400	27.90	35	776	40 / 600	—	272	**EVS-SD 031**	04556	**SDD 6**	01926	**SDZ 6**	01927

[1] For ventilation operation / smoke extraction (one time 120 Min.). [2] Types SDZ not permitted for installation in fire zone.

B AVD 1000

F300 F400

Dimensions B AVD 1000

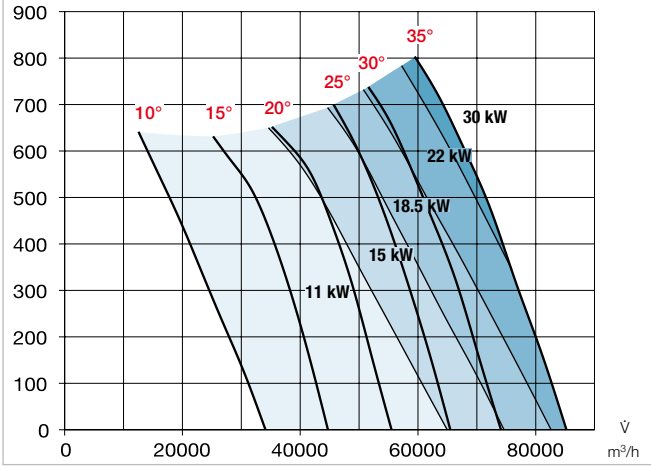


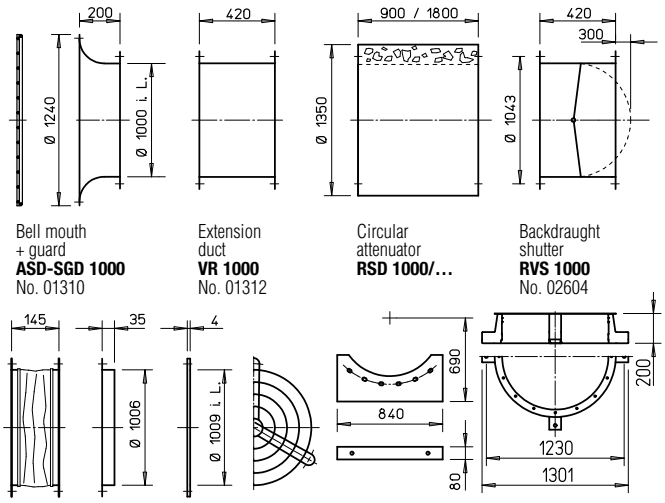
All dim. in mm

Performance curves B AVD 1000/4

n=1465 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	101	73	87	93	97	95	87	79
L_{WA}	20°	dB(A)	103	75	89	95	99	97	89	81
L_{WA}	30°	dB(A)	107	79	93	99	103	101	93	85
L_{WA}	35°	dB(A)	108	80	94	100	104	102	94	86





Bell mouth + guard **ASD-SGD 1000** No. 01310

Extension duct **VR 1000** No. 01312

Circular attenuator **RSD 1000/…**

Backdraught shutter **RVS 1000** No. 02604

Flanged flex. connector **STSB 1000 F400** No. 01921

Counter flange **FR 1000** No. 01210

Flat flange **FF 1000** No. 04953

Guard duct-side **SG 1000** No. 01290

Mounting brackets **MK 1000** (1 set = 2 pcs.) No. 01375

Mounting ring for vertical fixing **MRV 1000** No. 01749

Certification

Certificate of conformity:
F300: 0036-CPR-RG05-03
F400: 0036-CPR-RG05-06

Information

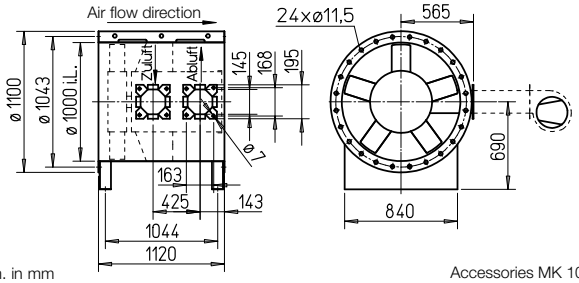
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1000/4 11 kW F300	02372	1470	64980	11.0	400	20.9	*	776	40 / 300	383	206	**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/4 15 kW F300	02373	1465	74630	15.0	400	27.9	*	776	40 / 300	427	228	**EVS-SD 005**	04582	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/4 18.5 kW F300	02550	1470	82610	18.5	400	35.1	*	776	40 / 300	449	261	**EVS-SD 006**	04581	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/4 22 kW F300	02375	1470	85220	22.0	400	41.0	*	776	40 / 300	487	278	**EVS-SD 007**	04580	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/4 30 kW F300	02376	1480	85220	30.0	400	57.1	*	776	40 / 300	552	322	**EVS-SD 008**	04579	**SDD 7**	01928	**SDZ 7**	01929
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1000/8/4 3.0/11 kW F300	02377	725/1455	32490/64980	3.0/11.0	400	7.0/21.0	*	471	40 / 300	383	205	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/8/4 4.3/17 kW F300	02378	730/1475	40190/80380	4.3/17.0	400	12.7/33.4	*	471	40 / 300	449	255	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/8/4 5.0/20 kW F300	02379	730/1470	42610/85220	5.0/20.0	400	14.1/38.6	*	471	40 / 300	487	268	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/8/4 6.5/28 kW F300	02380	735/1480	42610/85220	6.5/28.0	400	18.0/52.0	*	471	40 / 300	552	347	**on demand**		**SDD 7**	01928	**SDZ 7**	01929
F400 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1000/4 11 kW F400	02458	1470	64980	11.0	400	20.9	*	776	40 / 400	383	206	**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/4 15 kW F400	02459	01465	74630	15.0	400	27.9	*	776	40 / 400	427	228	**EVS-SD 005**	04582	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/4 18.5 kW F400	02611	1470	82610	18.5	400	35.1	*	776	40 / 400	449	261	**EVS-SD 006**	04581	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/4 22 kW F400	02461	1470	85220	22.0	400	41.0	*	776	40 / 400	487	276	**EVS-SD 007**	04580	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/4 30 kW F400	02462	1480	85220	30.0	400	57.1	*	776	40 / 400	552	322	**EVS-SD 008**	04579	**SDD 7**	01928	**SDZ 7**	01929
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1000/8/4 3.0/11 kW F400	02464	725/1455	32490/64980	3.0/11.0	400	7.0/21.0	*	471	40 / 400	383	205	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/8/4 4.3/17 kW F400	02465	730/1475	40190/80380	4.3/17.0	400	12.7/33.4	*	471	40 / 400	449	255	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/8/4 5.0/20 kW F400	02466	730/1470	42610/85220	5.0/20.0	400	14.1/38.6	*	471	40 / 400	487	268	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/8/4 6.5/28 kW F400	02467	735/1480	42610/85220	6.5/28.0	400	18.0/52.0	*	471	40 / 400	552	347	**on demand**		**SDD 7**	01928	**SDZ 7**	01929

* The flow volume and pressure increase information is required to determine the pitch angle.
[1] For ventilation operation / smoke extraction (one time 120 min. at 300 °C or 120 min. at 400 °C).

B AVD 1000

F600

Dimensions B AVD 1000



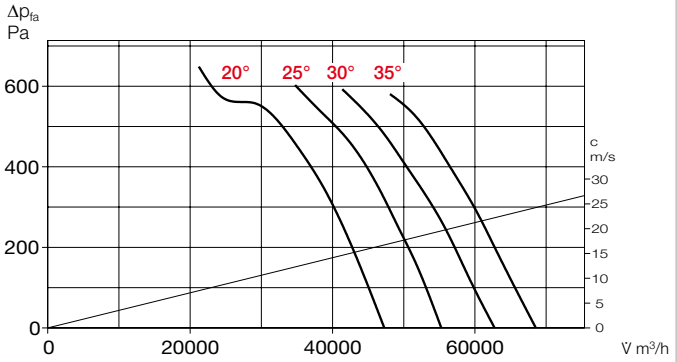
All dim. in mm

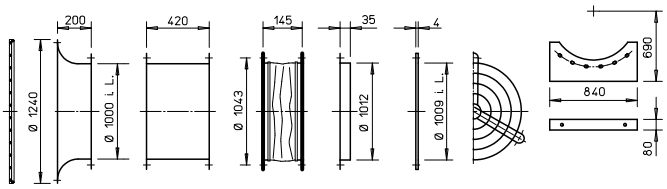
Accessories MK 1000

Performance curves B AVD 1000/4

n=1470 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	103	75	89	95	99	97	89	81
L_{WA}	30°	dB(A)	107	79	93	99	103	101	93	85
L_{WA}	35°	dB(A)	108	80	94	100	104	102	94	86





Bell mouth + guard **ASD-SGD 1000** No. 01310

Extension duct **VR 1000** No. 01312

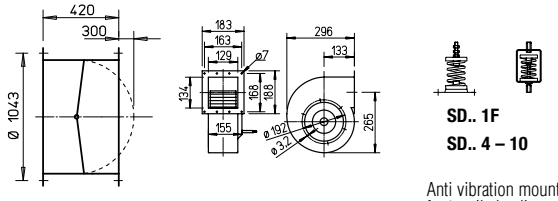
Flanged flex. connector **STSB 1000** **F600** No. 02009

Counter flange **FR 1000** No. 01210

Flat flange **FF 1000** No. 04953

Guard duct-side **SG 1000** No. 01290

Mounting brackets **MK 1000** (1 set = 2 pcs.) No. 01375



Backdraught shutter **RVS 1000** No. 02604

Centrifugal cooling air fan **B KLG 1000** No. 02799

SD.. 1F

SD.. 4 – 10

Anti vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)

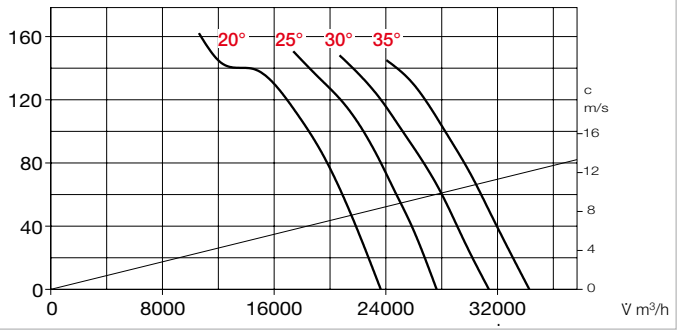
Anti vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

* Type assignment see table, last column

Performance curves B AVD 1000/8

n=735 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	85	63	73	79	80	75	64	55
L_{WA}	30°	dB(A)	89	67	77	83	84	79	68	59
L_{WA}	35°	dB(A)	90	68	78	84	85	80	69	60



Certification

The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3. Certificate of conformity: F600: 0036-CPR-RG05-04

Information

Accessory details

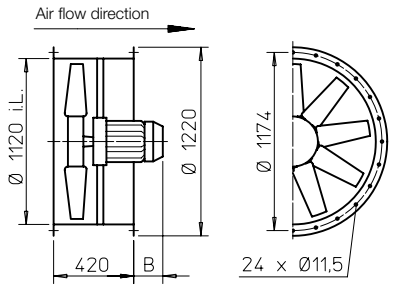
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile[2]	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1000/4-20 F600	02875	1470	47270	11.0	400	20.90	20	776	40 / 600	—	314	**EVS-SD 030**	04557	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/4-25 F600	02876	1465	55090	15.0	400	27.90	25	776	40 / 600	—	334	**EVS-SD 031**	04556	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/4-30 F600	02877	1465	62550	15.0	400	27.90	30	776	40 / 600	—	334	**EVS-SD 031**	04556	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1000/4-35 F600	02878	1470	68840	22.0	400	41.00	35	776	40 / 600	—	395	**EVS-SD 032**	04555	**SDD 6**	01926	**SDZ 6**	01927

[1] For ventilation operation / smoke extraction (one time 120 Min.). [2] Types SDZ not permitted for installation in fire zone.

B AVD 1120

F300 F400

Dimensions B AVD 1120

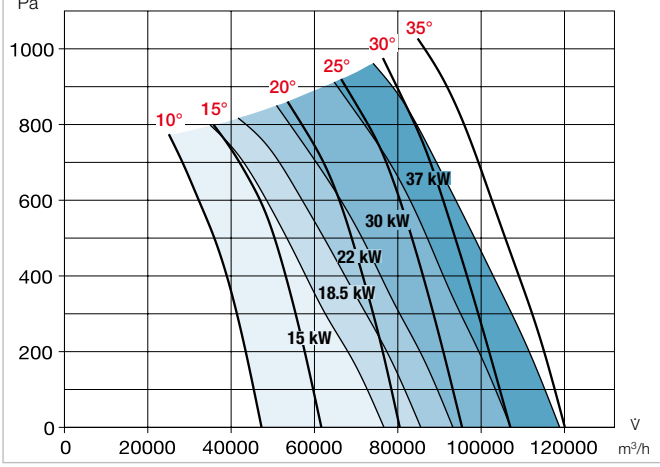


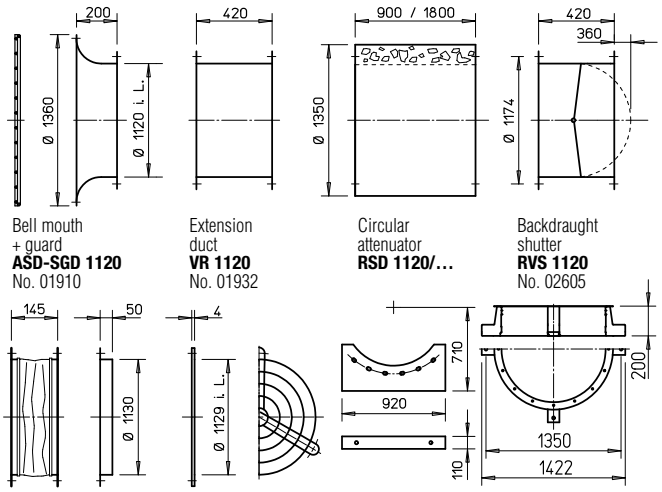
All dim. in mm

Performance curves B AVD 1120/4

n=1465 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	104	75	92	98	99	94	89	84
L_{WA}	20°	dB(A)	107	78	95	101	102	97	92	87
L_{WA}	30°	dB(A)	110	81	98	104	105	100	95	90
L_{WA}	35°	dB(A)	112	83	100	106	107	102	96	92





Bell mouth + guard **ASD-SGD 1120** No. 01910

Extension duct **VR 1120** No. 01932

Circular attenuator **RSD 1120/…**

Backdraught shutter **RVS 1120** No. 02605

Flanged flex. connector **STSB 1120 F400** No. 01922

Counter flange **FR 1120** No. 01362

Flat flange **FF 1120** No. 04954

Guard duct-side **SG 1120** No. 01361

Mounting brackets **MK 1120** (1 set = 2 pcs.) No. 01376

Mounting ring for vertical fixing **MRV 1120** No. 01750

Certification
Certificate of conformity:
F300: 0036-CPR-RG05-03
F400: 0036-CPR-RG05-06

Information — **Page**

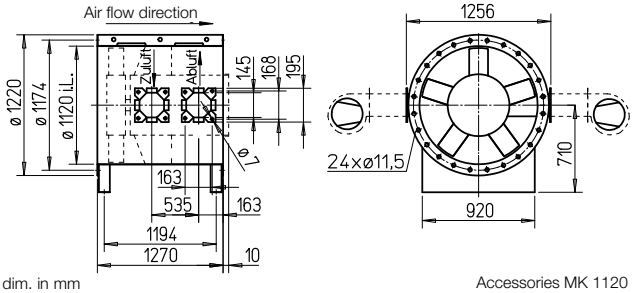
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring dia-gram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1120/4 15 kW F300	02383	1465	76680	15.0	400	27.9	*	776	40 / 300	427	258	**EVS-SD 005**	04582	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1120/4 18.5 kW F300	02551	1470	85520	18.5	400	35.1	*	776	40 / 300	449	291	**EVS-SD 006**	04581	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1120/4 22 kW F300	02385	1470	93230	22.0	400	41.0	*	776	40 / 300	487	316	**EVS-SD 007**	04580	**SDD 7**	01928	**SDZ 7**	01929
B AVD 1120/4 30 kW F300	02386	1480	107110	30.0	400	57.1	*	776	40 / 300	552	352	**EVS-SD 008**	04579	**SDD 7**	01928	**SDZ 7**	01929
B AVD 1120/4 37 kW F300	02387	1480	118850	37.0	400	66.8	*	776	40 / 300	641	491	**EVS-SD 009**	04578	**SDD 8**	01930	**SDZ 8**	01931
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1120/8/4 4.3/17 kW F300	02388	730/1475	41550/83100	4.3/17.0	400	12.7/33.4	*	471	40 / 300	449	285	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 1120/8/4 5.0/20 kW F300	02389	730/1470	45640/91280	5.0/20.0	400	14.1/38.6	*	471	40 / 300	487	300	**on demand**		**SDD 7**	01928	**SDZ 7**	01929
B AVD 1120/8/4 6.5/28 kW F300	02390	735/1480	51640/103280	6.5/28.0	400	18.0/52.0	*	471	40 / 300	552	359	**on demand**		**SDD 7**	01928	**SDZ 7**	01929
B AVD 1120/8/4 9.2/37 kW F300	02391	740/1485	59430/118860	9.2/37.0	400	25.4/74.2	*	471	40 / 300	604	486	**on demand**		**SDD 8**	01930	**SDZ 8**	01931
F400 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1120/4 15 kW F400	02470	1465	76680	15.0	400	27.9	*	776	40 / 400	427	258	**EVS-SD 005**	04582	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1120/4 18.5 kW F400	02612	1470	85520	18.5	400	35.1	*	776	40 / 400	449	291	**EVS-SD 006**	04581	**SDD 6**	01926	**SDZ 6**	01927
B AVD 1120/4 22 kW F400	02472	1470	93230	18.5	400	41.0	*	776	40 / 400	487	316	**EVS-SD 007**	04580	**SDD 7**	01928	**SDZ 7**	01929
B AVD 1120/4 30 kW F400	02473	1480	107110	30.0	400	57.1	*	776	40 / 400	552	352	**EVS-SD 008**	04579	**SDD 7**	01928	**SDZ 7**	01929
B AVD 1120/4 37 kW F400	02474	1480	118850	37.0	400	66.8	*	776	40 / 400	641	491	**EVS-SD 009**	04578	**SDD 8**	01930	**SDZ 8**	01931
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1120/8/4 4.3/17 kW F400	02475	730/1475	41550/83100	4.3/17.0	400	12.7/33.4	*	471	40 / 400	449	285	**on demand**		**SDD 6**	01926	**SDZ 6**	01927
B AVD 1120/8/4 5.0/20 kW F400	02476	730/1470	45640/91280	5.0/20.0	400	14.1/38.6	*	471	40 / 400	487	300	**on demand**		**SDD 7**	01928	**SDZ 7**	01929
B AVD 1120/8/4 6.5/28 kW F400	02477	735/1480	51640/103280	6.5/28.0	400	18.0/52.0	*	471	40 / 400	552	359	**on demand**		**SDD 7**	01928	**SDZ 7**	01929
B AVD 1120/8/4 9.2/37 kW F400	02478	740/1485	59430/118860	9.2/37.0	400	25.4/74.2	*	471	40 / 400	604	486	**on demand**		**SDD 8**	01930	**SDZ 8**	01931

* The flow volume and pressure increase information is required to determine the pitch angle.
[1] For ventilation operation / smoke extraction (one time 120 min. at 300 °C or 120 min. at 400 °C).

Dimensions B AVD 1120

F600

Dimensions B AVD 1120



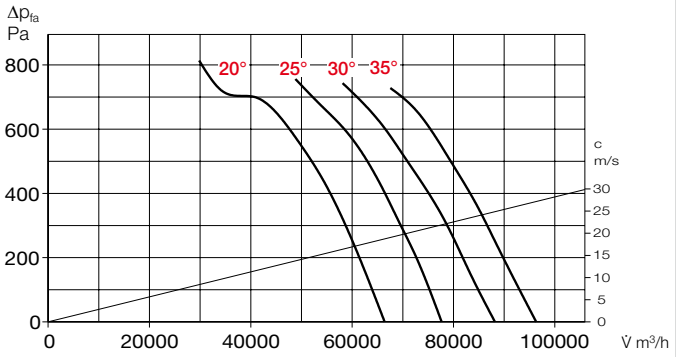
All dim. in mm

Accessories MK 1120

Performance curves B AVD 1120/4

n=1470 1/min

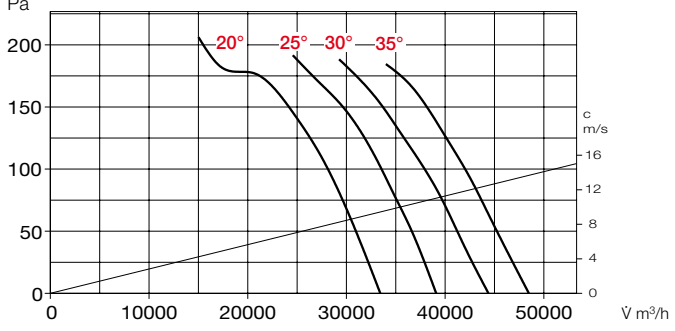
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	107	78	95	101	102	97	92	87
L_{WA}	30°	dB(A)	110	81	98	104	105	100	95	90
L_{WA}	35°	dB(A)	112	83	100	106	107	102	96	92

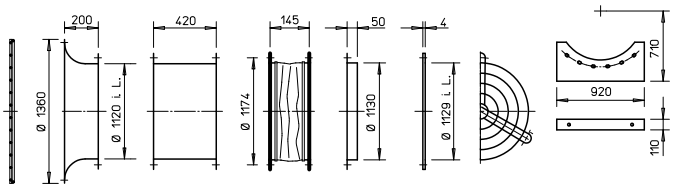


Performance curves B AVD 1120/8

n=740 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	88	66	76	82	83	78	67	58
L_{WA}	30°	dB(A)	92	70	80	86	87	82	71	62
L_{WA}	35°	dB(A)	94	72	82	88	89	84	73	64





Bell mouth + guard **ASD-SGD 1120** No. 01910

Extension duct **VR 1120** No. 01932

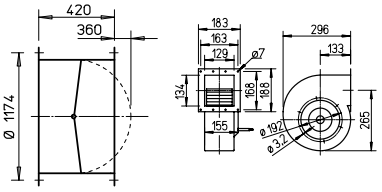
Flanged flex. connector **STSB 1120 F600** No. 02010

Counter flange **FR 1120** No. 01362

Flat flange **FF 1120** No. 04954

Guard duct-side **SG 1120** No. 01361

Mounting brackets **MK 1120** (1 set = 2 pcs.) No. 01376



Backdraught shutter **RVS 1120** No. 02605

Centrifugal cooling air fan **B KLG 1000** No. 02799 2 St. erforderlich

SD.. 1F
SD.. 4 – 10

Anti vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

* Type assignment see table, last column

Certification

The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3. Certificate of conformity: F600: 0036-CPR-RG05-04

Information

Accessory details

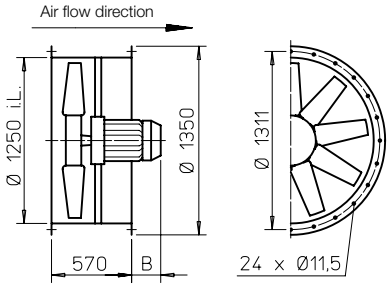
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile[2]	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1120/4-20 F600	02885	1470	66180	18.5	400	35.10	20	776	40 / 600	—	446	**EVS-SD 033**	04554	**SDD 7**	01928	**SDZ 7**	01929
B AVD 1120/4-25 F600	02886	1470	77390	22.0	400	41.0	25	776	40 / 600	—	468	**EVS-SD 034**	04552	**SDD 7**	01928	**SDZ 7**	01929
B AVD 1120/4-30 F600	02887	1480	88180	30.0	400	57.10	30	776	40 / 600	—	504	**EVS-SD 035**	04551	**SDD 7**	01928	**SDZ 7**	01929
B AVD 1120/4-35 F600	02888	1480	97370	37.0	400	66.80	35	776	40 / 600	10	645	**EVS-SD 036**	04550	**SDD 8**	01930	**SDZ 8**	01931

[1] For ventilation operation / smoke extraction (one time 120 Min.). [2] Types SDZ not permitted for installation in fire zone.

B AVD 1250

F300 F400

Dimensions B AVD 1250

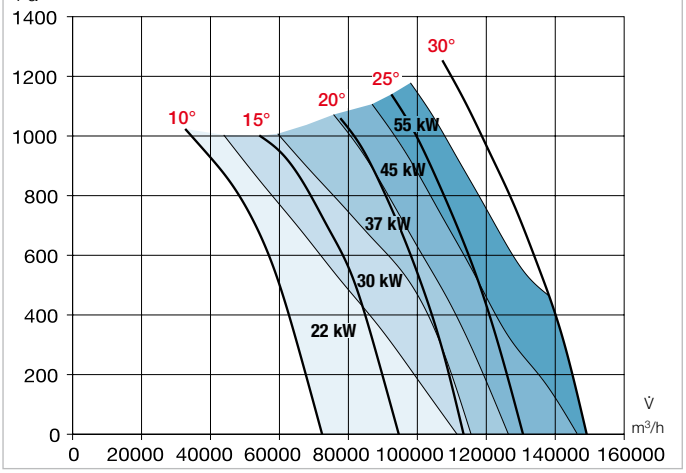


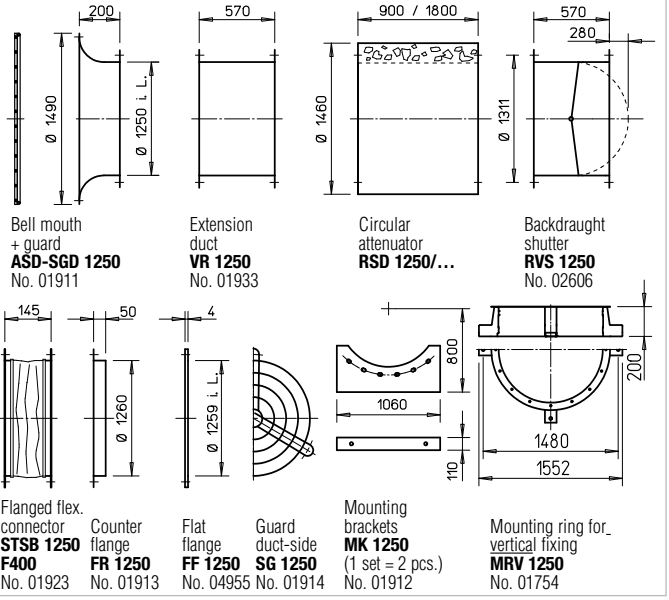
All dim. in mm

Performance curves B AVD 1250/4

n=1470 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	107	78	95	101	102	97	92	87
L_{WA}	20°	dB(A)	110	81	98	104	105	100	95	90
L_{WA}	30°	dB(A)	113	84	101	107	108	103	98	93





Bell mouth + guard **ASD-SGD 1250** No. 01911

Extension duct **VR 1250** No. 01933

Circular attenuator **RSD 1250/…**

Backdraught shutter **RVS 1250** No. 02606

Flanged flex. connector **STSB 1250 F400** No. 01923

Counter flange **FR 1250** No. 01913

Flat flange **FF 1250** No. 04955

Guard duct-side **SG 1250** No. 01914

Mounting brackets **MK 1250** (1 set = 2 pcs.) No. 01912

Mounting ring for vertical fixing **MRV 1250** No. 01754

Certification
Certificate of conformity:
F300: 0036-CPR-RG05-03
F400: 0036-CPR-RG05-06

Information — **Page**

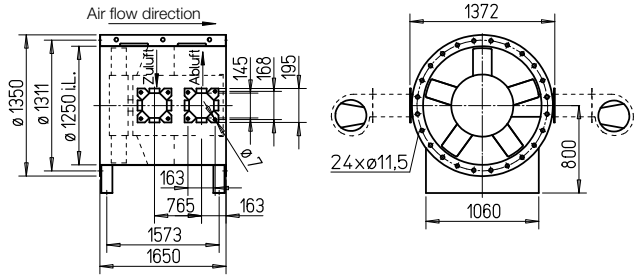
Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	Nominal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protrusion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG Pressure		Anti-vibration mounts NG Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1250/4 22 kW F300	02555	1470	111520	22.0	400	41.0	*	776	40 / 300	487	335	**EVS-SD 007**	04580	**SDD 7**	01928	**SDZ 7**	01929
B AVD 1250/4 30 kW F300	02392	1480	115590	30.0	400	57.1	*	776	40 / 300	552	378	**EVS-SD 008**	04579	**SDD 7**	01928	**SDZ 7**	01929
B AVD 1250/4 37 kW F300	02393	1480	126420	37.0	400	66.8	*	776	40 / 300	641	517	**EVS-SD 009**	04578	**SDD 8**	01930	**SDZ 8**	01931
B AVD 1250/4 45 kW F300	02394	1475	146350	45.0	400	80.9	*	776	40 / 300	641	522	**EVS-SD 009**	04578	**SDD 8**	01930	**SDZ 8**	01931
B AVD 1250/4 55 kW F300	02395	1480	149140	55.0	400	98.6	*	776	40 / 300	720	641	**EVS-SD 010**	04577	**SDD 8**	01930	**SDZ 8**	01931
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1250/8/4 6.5/28 kW F300	02396	735/1480	56670/113340	6.5/28.0	400	18.0/52.0	*	471	40 / 300	552	384	**on demand**		**SDD 7**	01928	**SDZ 7**	01929
B AVD 1250/8/4 9.2/37 kW F300	02397	740/1485	63210/126420	9.2/37.0	400	25.4/74.2	*	471	40 / 300	604	510	**on demand**		**SDD 8**	01930	**SDZ 8**	01931
B AVD 1250/8/4 11/44 kW F300	02398	740/1480	71870/143740	11.0/44.0	400	27.2/80.2	*	471	40 / 300	604	577	**on demand**		**SDD 8**	01930	**SDZ 8**	01931
B AVD 1250/8/4 14.7/55 kW F300	02399	735/1480	74570/149140	14.7/55.0	400	36.5/100	*	471	40 / 300	678	645	**on demand**		**SDD 8**	01930	**SDZ 8**	01931
F400 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1250/4 22 kW F400	02613	1470	111520	22.0	400	41.0	*	776	40 / 400	487	335	**EVS-SD 007**	04580	**SDD 7**	01928	**SDZ 7**	01929
B AVD 1250/4 30 kW F400	02480	1480	115590	30.0	400	57.1	*	776	40 / 400	552	378	**EVS-SD 008**	04579	**SDD 7**	01928	**SDZ 7**	01929
B AVD 1250/4 37 kW F400	02481	1480	126420	37.0	400	66.8	*	776	40 / 400	641	517	**EVS-SD 009**	04578	**SDD 8**	01930	**SDZ 8**	01931
B AVD 1250/4 45 kW F400	02482	1475	146350	45.0	400	80.9	*	776	40 / 400	641	522	**EVS-SD 009**	04578	**SDD 8**	01930	**SDZ 8**	01931
B AVD 1250/4 55 kW F400	02483	1480	149140	55.0	400	98.6	*	776	40 / 400	720	641	**EVS-SD 010**	04577	**SDD 8**	01930	**SDZ 8**	01931
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), 3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1250/8/4 6.5/28 kW F400	02484	735/1480	56670/113340	6.5/28.0	400	18.0/52.0	*	471	40 / 400	552	384	**on demand**		**SDD 7**	01928	**SDZ 7**	01929
B AVD 1250/8/4 9.2/37 kW F400	02485	740/1485	63210/126420	9.2/37.0	400	25.4/74.2	*	471	40 / 400	604	510	**on demand**		**SDD 8**	01930	**SDZ 8**	01931
B AVD 1250/8/4 11/44 kW F400	02486	740/1480	71870/143740	11.0/44.0	400	27.2/80.2	*	471	40 / 400	604	577	**on demand**		**SDD 8**	01930	**SDZ 8**	01931
B AVD 1250/8/4 14.7/55 kW F400	02487	735/1480	74570/149140	14.7/55.0	400	36.5/100	*	471	40 / 400	678	645	**on demand**		**SDD 8**	01930	**SDZ 8**	01931

* The flow volume and pressure increase information is required to determine the pitch angle.
[1] For ventilation operation / smoke extraction (one time 120 min. at 300 °C or 120 min. at 400 °C).

B AVD 1250

F600

Dimensions B AVD 1250



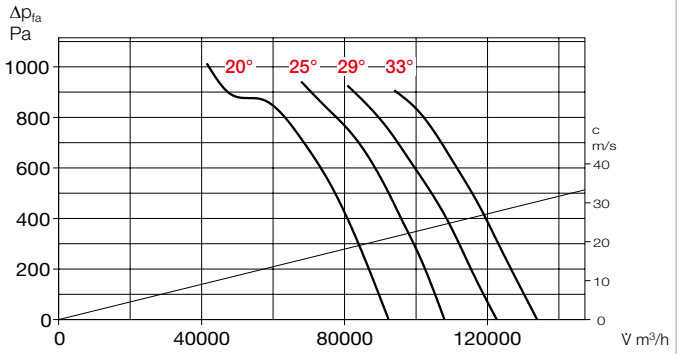
All dim. in mm

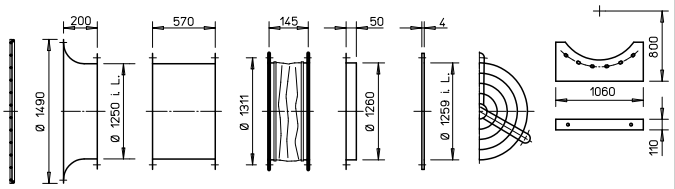
Accessories MK 1250

Performance curves B AVD 1250/4

n=1470 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	110	81	98	104	105	100	95	90
L_{WA}	29°	dB(A)	113	84	101	107	108	103	98	93
L_{WA}	33°	dB(A)	114	85	102	108	109	104	99	94





Bell mouth + guard **ASD-SGD 1250** No. 01911

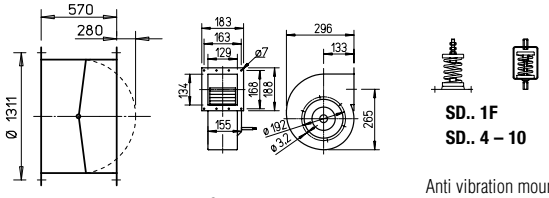
Extension duct **VR 1250** No. 01933

Flanged flex. connector **STSB 1250** **F600** No. 02011

Counter flange **FR 1250** No. 01913

Guard duct-side **SG 1250** No. 01914

Mounting brackets **MK 1250** (1 set = 2 pcs.) No. 01912



Backdraught shutter **RVS 1150** No. 02606

Centrifugal cooling air fan **B KLG 1000** No. 02799 2 St. erforderlich

SD.. 1F
SD.. 4 – 10

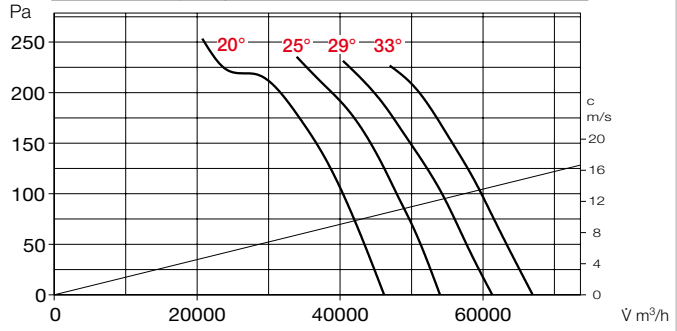
Anti vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

* Type assignment see table, last column

Performance curves B AVD 1250/8

n=735 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	20°	dB(A)	91	69	79	85	86	81	70	61
L_{WA}	29°	dB(A)	94	72	82	88	89	84	73	64
L_{WA}	33°	dB(A)	96	74	84	90	91	86	75	66



Certification

The smoke and heat exhaust fans B AVD have been tested according to DIN EN 12101-3. Certificate of conformity: F600: 0036-CPR-RG05-04

Information

Accessory details

Type	Ref. no.	Speed	Air flow volume (FID)	Motor pow. nom. (output)	No-minal voltage	Power consum. nom.	Pitch angle	Wiring diagram	Max. air flow temp.[1]	Dim. B Motor protru-sion	Net weight approx.	Pole switch surface-mounted		Anti-vibration mounts NG			
														Pressure		Tensile[2]	
		min⁻¹	V̇ m³/h	kW	V	A	°	No.	+°C	mm	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **3 phase motor, 50 Hz, protection class IP54**																	
B AVD 1250/4-20 F600	02893	1480	92320	30	400	57.10	20	776	40 / 600	—	595	**EVS-SD 035**	04551	**SDD 8**	01930	**SDZ 8**	01931
B AVD 1250/4-25 F600	02894	1480	108330	37	400	66.80	25	776	40 / 600	—	715	**EVS-SD 036**	04550	**SDD 8**	01930	**SDZ 8**	01931
B AVD 1250/4-29 F600	02895	1475	123000	45	400	80.90	29	776	40 / 600	—	736	**EVS-SD 036**	04550	**SDD 8**	01930	**SDZ 8**	01931
B AVD 1250/4-33 F600	02896	1480	135830	55	400	98.60	33	776	40 / 600	—	850	**EVS-SD 037**	04549	**SDD 8**	01930	**SDZ 8**	01931

[1] For ventilation operation / smoke extraction (one time 120 Min.). [2] Types SDZ not permitted for installation in fire zone.

Medium pressure axial fans.
Maximum performance for a wide range of applications.

With efficient IE3 motors.

Helios medium pressure axial fans are ideal for a wide range of applications in professional ventilation technology, such as e.g. in smoke protection pressure systems, garage ventilation systems as well as ventilation and smoke extraction systems in special structures such as airports, shopping centres and public buildings.

They boast flow rates up to 113000 m³/h and very high pressure ratings up to 1400 Pa. The AMD and B AMD series combine maximum performance with efficient operation.

The factory-adjustable, profiled blades made of aluminium casting alloy ensure precise adaptation to the respective operating point. The motor output can be easily adapted to the respective project requirements using the performance-oriented characteristic curve diagram.

The B AMD series can be used as a smoke extraction fan inside the fire zone, outside the fire zone and outside the building.

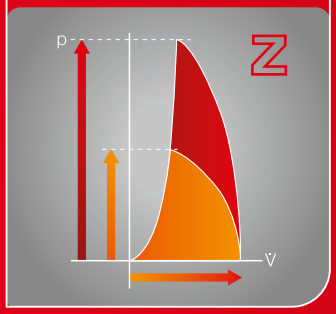
Highlights:
- Aerodynamically profiled blades made from high-strength aluminium alloy.
- Sheet steel casing with surface protection.
- Steel guide vane.
- Delivery ready for connection.
- Universal installation options.
- High efficiency with low energy consumption.

60 °C F300 F400

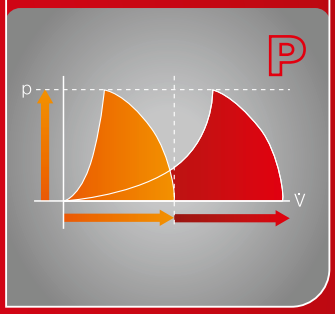
Two-stage, serial Z or parallel P units are ideally suited for use parking garages. A wide range of customer-specific requirements in relation to pressure increase, flow rate and space requirements can be optimally fulfilled by arranging two identical fans one behind the other or side by side.

Further information can be found on page 46 f.

Two-stage units



Parallel units



Medium pressure axial fans AMD

For ventilation at normal air flow temperatures from
-20 °C to +60 °C.

Helios offers more than 100 types in 12 sizes (BG 315 – 1 120) with perfectly coordinated accessories.

60 °C

48f

Medium pressure axial smoke exhaust fans B AMD

For use as smoke extraction fans in mechanical smoke extraction systems (MRA) in temperature classes F300 and F400.

There are more than 200 types in 12 sizes (BG 315-1 120) with perfectly coordinated accessories.

F300 F400

48f

Medium pressure axial fans and medium pressure axial smoke exhaust fans

Product-specific information.

46f

Application
- Versatile application in technical building equipment, e.g. for the supply and extract ventilation of car parks or airports, etc.
- In the permanent supply and extract ventilation operation from -20 °C to +60 °C air flow temperature.
- For preventive fire protection to secure smoke and heat extraction.
- For applications with air flow temperatures of 300 °C and 400 °C for 120 min. (F300 and F400).

Casing
- Duct casing with welded-in motor mounting plate and sheet steel guide vane.
  Pressed flanges on both sides according to DIN 24155, pt 3, for direct intermediate flanges in ducts.
- Surface protection through powder coating RAL 7015 (grey).

Impeller
- Hub and blades made from corrosion-resistant aluminium alloy.
- Dynamically balanced, quality class 6.3 for low-vibration operation.
- Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- Blade pitch angle is factory-adjustable corresponding to the ordered, optimal operating point.

Drive
With regard to single-speed fans with a three-phase motor and a rated motor power ≤ 2.20 kW, the connection is provided for direct start-up, fans with a rated motor power ≥ 3.00 kW for star-delta start-up.
- AMD series:
  Directly through efficient IE3 three-phase standard motor. Pole-changeable fans with IEC standard motor. Protection category IP55, insulation class F.
- B AMD series:
  Directly through efficient IE3 three-phase standard motor (smoke extraction motors F300 or F400). Pole-changeable fans with IEC standard motor. Protection category IP55. Insulation class H. External cable with protective cover.
  Depending on the installation situation, intervals for relubrication or bearing replacement must be observed (see Installation and Operating Instructions).

Speed control
Stepless (0-100 %) using frequency inverters. The planned use of a frequency inverter without sine filter must be stated when ordering. This requires a change of fan design and possible additional costs. When using as a smoke extraction fan, these switching devices in the on-site control system must be bridged in case of fire.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
- Series AMD and B AMD:
  All types have PTC resistors from the terminal box. Thus, effective motor protection is possible using full motor protection device (type MSA, Ref. no. 1289, Accessories) or FU (Accessories) .
- Series B AMD:
  For the smoke ventilation function, all motor protection devices and speed controllers (FU) for the smoke extraction fan must be bridged to achieve the required output and max. operating duration.

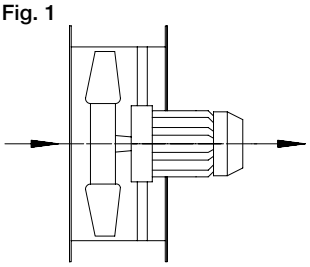
Electrical connection
- Series AMD:
  Standard plastic terminal box (protection class IP55), mounted on outside of fan casing.
- Series B AMD:
  Standard aluminium die-cast terminal box (protection class IP55), mounted on outside of fan casing.
- Cable to the terminal box with fire-resistant sheathing.

Air flow temperatures
- Series AMD:
  Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- Series B AMD:
  Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/ 120 min. or 400 °C/120 min.

Noise levels
The sound power levels are indicated by means of frequency and as sum levels for different pitch angles above the performance curves on the product pages.

Air flow direction
The fans are designed with airflow direction B = over motor (Fig. 1).

Fig. 1



Selection of anti-vibration dampers
In order to optimally reduce the vibrations caused by rotating components in the fan, the correct selection of anti-vibration mounts is essential. Since duct fans frequently have motor protrusion, the centre of gravity is sometimes off centre in the axial direction. In order to enable the use of evenly loaded anti-vibration mounts for horizontal fan positioning despite this motor protrusion, it may be necessary to extend the fan casing on the motor protrusion side with an extension duct.
The design is based on the calculated weight of the fan including attachments to be vibration dampened. For this purpose, the individual net weights of the components must be added (see examples 1 to 3).
The allocation of the anti-vibration dampers to the fans in the type table already takes the additional weight of the mounting brackets and possible extension duct (see installation information) into account.

Certification
The smoke extraction fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Order data
The desired blade pitch angle must be specified when ordering.
Example:
B AMD 355/2 1.5 kW F300 34°

- Pitch angle
- Temperature class
- Nominal motor power
- Number of poles
- Impeller diameter
- Type name

Calculation of total mass to be vibration-dampened
- Example 1:
  B AMD 710/4 7.5 kW F300 with duct extension
  1. Calculation of mass to be dampened

Weight B AMD 710/4	152 kg
Weight VR 710	21.5 kg
Weight MK 710	10.5 kg
Total weight:	184 kg

  2. Selection of anti-vibration mounts (see page 153)
     » up to 210 kg = SDD 5

- Example 2:
  B AMD 710/4 7.5 kW F300 as P unit
  1. Calculation of mass to be dampened

Weight B AMD 710/4	152 kg
Weight B AMD 710/4	152 kg
Weight MP-P 710	145 kg
Total weight:	449 kg

  2. Selection of anti-vibration mounts (see page 153)
     » up to 520 kg = SDD 7

- Example 3:
  B AMD 710/4 7.5 kW F300 as Z unit
  1. Calculation of mass to be dampened

Weight B AMD 710/4	152 kg
Weight B AMD 710/4	152 kg
Weight MK 710	10.5 kg
Weight MP-Z 710	43 kg
Total weight:	357.5 kg

  2. Selection of anti-vibration mounts (see page 153)
     » up to 520 kg = SDD 7

Installation

Horizontal and vertical installation depending on the place of installation:
- Within the fire zone, without heat and sound insulation.
- Outside of the fire zone, within the building with heat and sound insulation L 90.
- Outside of the building without heat and sound insulation with protection against the weather and precipitation.

In order to prevent the transmission of vibrations, the use of anti-vibration mounts is recommended (Accessories).
Compliance with Federal and regional fire protection regulations.

Duct installation (tilting)

In order to prevent the tendency to tilt during installation of the axial fans with flanged flexible connectors on each side (type STS, Accessories), and extension duct (type VR, Accessories) is provided (Fig. 2).

Duct installation

Arrangement of the mounting bracket (type MK) for horizontal or mounting ring (type MRV) for vertical installation with anti-vibration mounts on the fan. Use of anti-vibration mounts SDD for pressure loading or SDZ for tensile loading (ceiling suspension). In order to prevent sound and vibration transmission, flanged flexible connectors STS (accessories) are to be provided on each side (Fig. 3).

Duct installation with attenuator on inlet and outlet sides

According to the local conditions, brackets (to be provided on site) are required for fastening the attenuators and supporting the weight. The intake attenuator must be fitted at the inlet, the outlet attenuator at the outlet with flanged flexible connectors (STS, STSB) (Fig. 4).

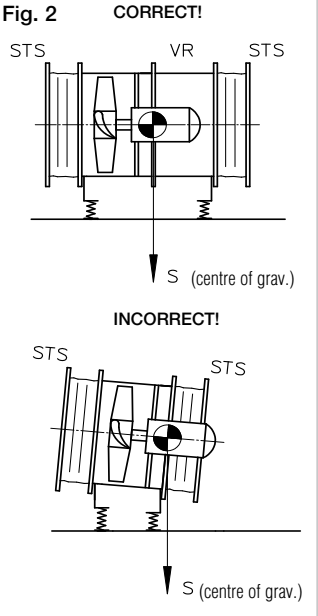
Wall installation (horizontal)

On bracket (on site), wall bushing with pipe or duct, immurement with mineral wool.
Flanged flexible connectors (type STS, Accessories) on both sides with extension duct (type VR, Accessories) and protection guard (type SG, Accessories) (Fig. 5).

Outdoor installation

It must be ensured that no precipitation can penetrate into the fan.

Fig. 2



Two-stage and parallel units

The wide-ranging requirements in relation to pressure increases, output and space requirement are often fulfilled in the area of technical building equipment (TGA) with two-stage Z or parallel P units. The Helios range offers suitable mounting packages for the respective units:

Two-stage unit / mounting package MP-Z (Fig. 6)

Two fans connected in series ensure high power density and advantageous installation due to the smallest space requirement. The two fans are arranged one behind the other and connected by means of extension ducts.
Mounting package MP-Z (scope of delivery):
Extension ducts (2 pcs.) incl. assembly kit (hexagon screws, nuts, spring washers).

Parallel unit / mounting package MP-P (Fig. 7)

Two fans connected in parallel bring high flow rates with corresponding pressure ratings and they specifically meet the requirements for car park ventilation and smoke extraction. Two identical fans side by side operate in a joint duct system.
Mounting package MP-P (scope of delivery):
Extension ducts (2 St.), Backdraught shutter (2 pcs.), mounting bracket (4 pcs.) mounting rail (2 pcs.) assembly kit (hexagon screws, nuts, spring washers, washers and threaded plate).

Fig. 3

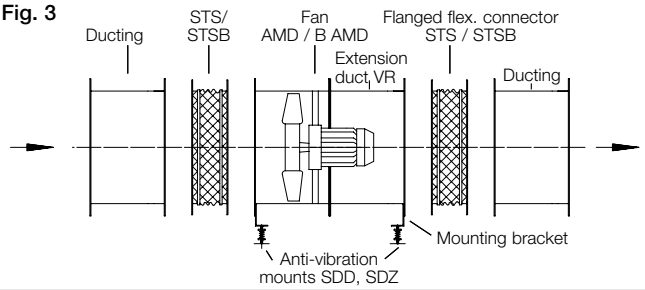


Fig. 4

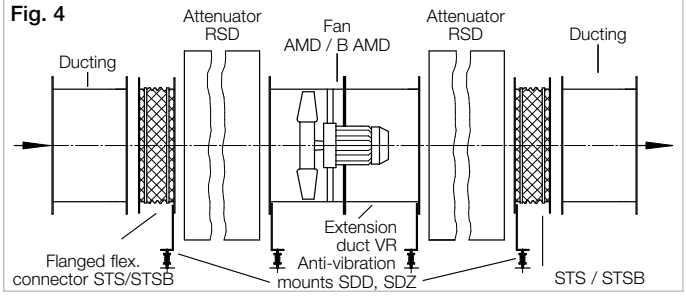
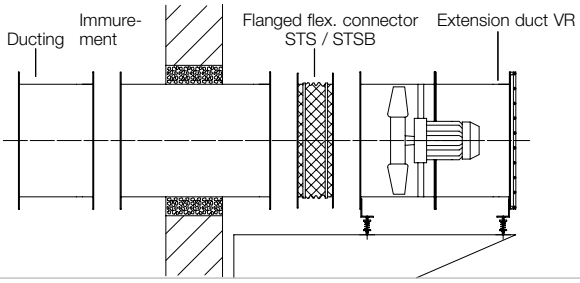
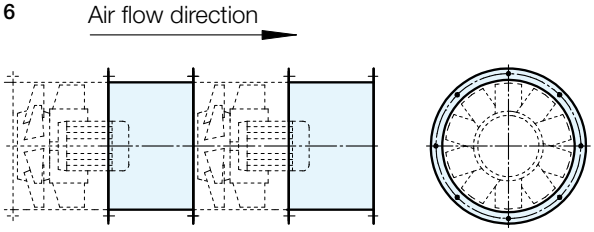


Fig. 5



Two-stage unit / Mounting package MP-Z

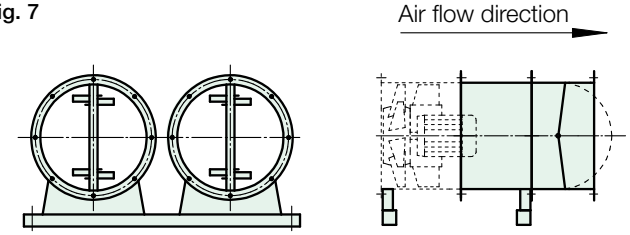
Fig. 6



All dimensions in mm

Parallel unit / Mounting package MP-P

Fig. 7



Accessories	Page
Project planning information	3 ff.
Z/P units	6 f, 157
Mounting accessories	151 ff.
Attenuators	156 ff.
Frequency inverters	168 ff.

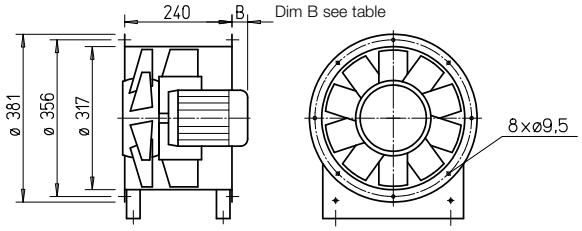
AMD / B AMD 315

60 °C F300 F400

(Fig. incl. mounting bracket (type MK, Accessories))

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Dimensions AMD / B AMD 315



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- Dynamically balanced, quality class 6.3 for low-vibration operation.
- Blades can be steplessly adjusted in the factory.

Motor
- Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

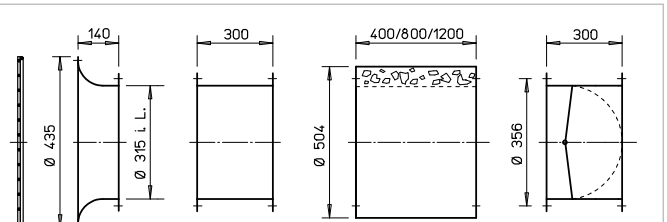
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 7.5 kg

MP-Z 315 Ref. no. 04903

Double volume

Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 25 kg

MP-P 315 Ref. no. 04887

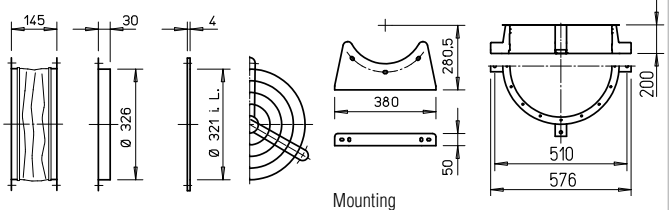


Bell mouth + guard **ASD-SGD 315** No. 01416

Extension duct **VR 315** No. 01404

Circular attenuator **RSD 315/...**

Backdraught shutter **RVS 315** [a] No. 02594



Flanged flex. connector **STS 315** [b] No. 01221

Counter flange **FR 315** No. 01204

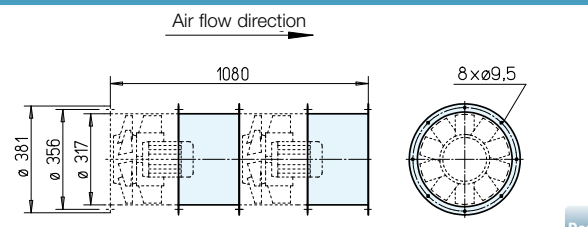
Flat flange **FF 315** No. 04943

Duct-side guard **SG 315** No. 01237

Mounting brackets **MK 315-355** (1 set = 2 pcs.) No. 01448

Mounting ring for vertical fixing **MRV 315** No. 01755

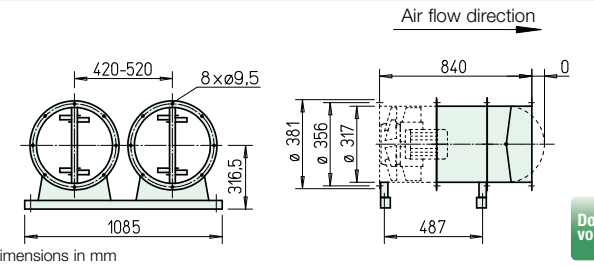
Dimensions MP-Z 315



All dimensions in mm

Double pressure

Dimensions MP-P 315

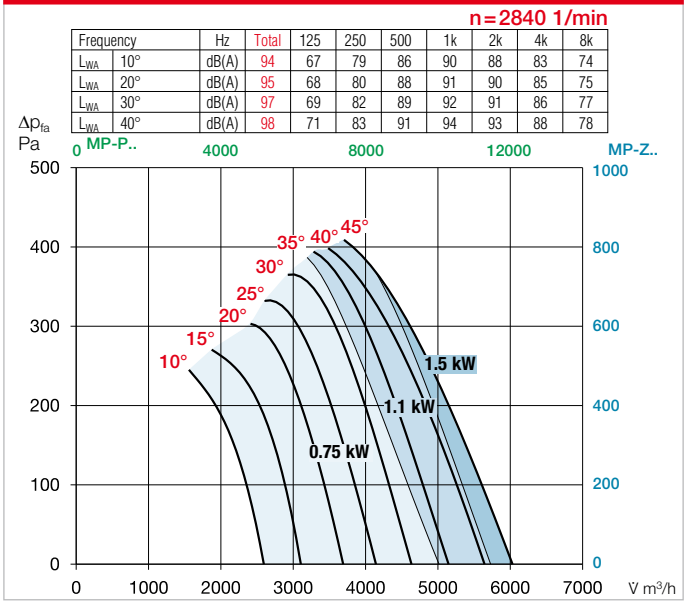


All dimensions in mm

Double volume

[a] Backdraught shutter, motorised, for ventilation, see main Helios catalogue. [b] Type for B AMD: STSB 315 F400, No. 14738

Performance curves AMD / B AMD 315/2



Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min^{-1}	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**										Full motor protection					
AMD 315/2 0.75 kW	03053	2890	0.75	400	1.6	125	796	60	23	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 315/2 1.1 kW	03054	2890	1.1	400	2.3	125	796	60	25	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 315/2 1.5 kW	03055	2890	1.5	400	3.1	125	796	60	23	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
AMD 315/4/2 0.17/0.75 kW	03056	1310/2835	0.17/0.75	400	0.8/1.9	125	777	60	27	—		**SDD 1**	01452	**SDZ 1**	01454
AMD 315/4/2 0.25/0.95 kW	03057	1340/2835	0.25/0.95	400	0.9/2.3	125	777	60	29	—		**SDD 1**	01452	**SDZ 1**	01454
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**										Smoke exhaust fan control system					
AMD 315/2 0.75 kW F300	03332	2890	0.75	400	1.6	103	776	60/300	26	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
AMD 315/2 1.1 kW F300	03333	2890	1.1	400	2.3	103	776	60/300	27	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 315/4/2 0.2/0.8 kW F300	03335	1400/2820	0.2/0.8	400	0.6/1.9	103	777	60/300	26	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 315/4/2 0.25/1.1 kW F300	03336	1390/2810	0.25/1.1	400	0.8/2.5	103	777	60/300	27	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B AMD 315/2 0.75 kW F400	03164	2890	0.75	400	1.6	103	776	60/400	26	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 315/2 1.1 kW F400	03165	2890	1.1	400	2.3	103	776	60/400	27	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 315/4/2 0.2/0.8 kW F400	03177	1400/2820	0.2/0.8	400	0.6/1.9	103	777	60/400	26	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 315/4/2 0.25/1.1 kW F400	03178	1390/2810	0.25/1.1	400	0.8/2.5	103	777	60/400	27	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943

The flow volume and pressure increase information is required to determine the pitch angle.
[1] For ventilation / smoke extraction (once 120 min.).
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

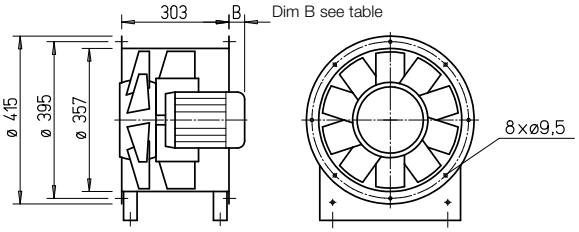
AMD / B AMD 355

(Fig. incl. mounting bracket (type MK, Accessories))

60 °C F300 F400

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Dimensions AMD / B AMD 355



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- Dynamically balanced, quality class 6.3 for low-vibration operation.
- Blades can be steplessly adjusted in the factory.

Motor
- Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

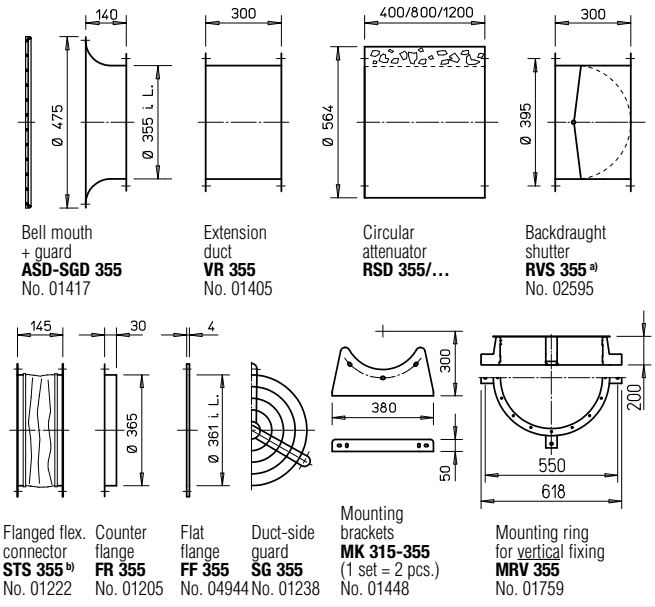
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 8 kg

MP-Z 355 Ref. no. 04904

Double volume

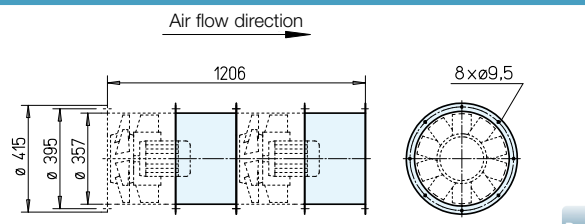
Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 27 kg

MP-P 355 Ref. no. 04888



Bell mouth + guard **ASD-SGD 355** No. 01417
Extension duct **VR 355** No. 01405
Circular attenuator **RSD 355/...**
Backdraught shutter **RVS 355** [a] No. 02595
Flanged flex. connector **STS 355** [b] No. 01222
Counter flange **FR 355** No. 01205
Flat flange **FF 355** No. 04944
Duct-side guard **SG 355** No. 01238
Mounting brackets **MK 315-355** (1 set = 2 pcs.) No. 01448
Mounting ring for vertical fixing **MRV 355** No. 01759

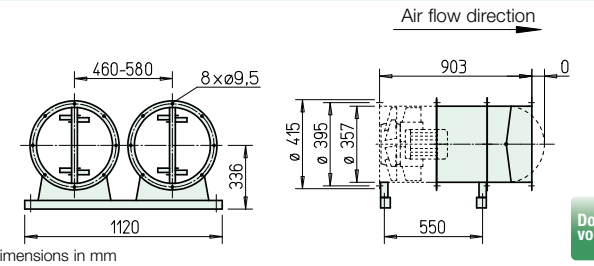
Dimensions MP-Z 355



All dimensions in mm

Double pressure

Dimensions MP-P 355



All dimensions in mm

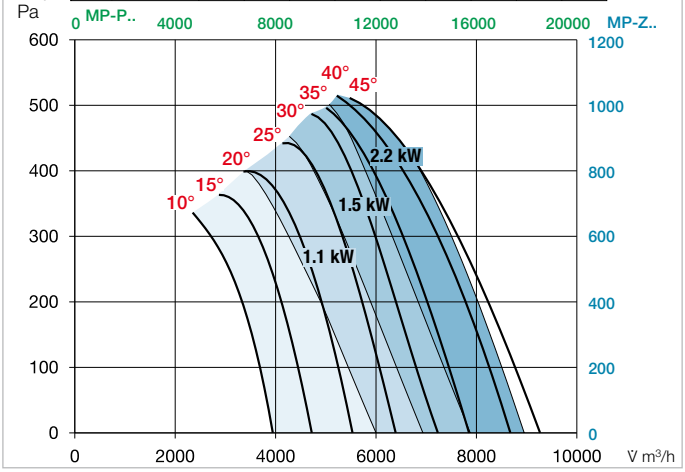
Double volume

[a] Backdraught shutter, motorised, for ventilation, see main Helios catalogue. [b] Type for B AMD: STSB 355 F400, No. 14744

Performance curves AMD / B AMD 355/2

n=2890 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	97	69	82	89	92	91	86	77
L_{WA}	20°	dB(A)	98	71	83	90	94	92	87	78
L_{WA}	30°	dB(A)	100	72	85	92	95	94	89	80
L_{WA}	40°	dB(A)	101	73	86	93	97	95	90	81



Information	Page
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Project planning information	3 ff.
Special designs	
Special design with inspection open. (add. cost) upon request.	

Accessory details	Page
Mounting accessories	151 ff.
Attenuators	156 ff.
Gas warning systems, switch and control technology	158 ff.
Frequency inverters	168 ff.

Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min^{-1}	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° Three phase motor, 400 V, 50 Hz, protection class IP55										Full motor protection					
AMD 355/2 0.75 kW	03082	2890	0.75	400	1.6	70	796	60	26	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 355/2 1.1 kW	03083	2890	1.1	400	2.3	70	796	60	26	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 355/2 1.5 kW	03084	2890	1.5	400	3.1	90	796	60	32	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 355/2 2.2 kW	03085	2890	2.2	400	4.3	120	796	60	36	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
60° Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55															
AMD 355/4/2 0.17/.075 kW	03086	1310/2835	0.17/0.75	400	0.8/1.9	70	777	60	30	—		**SDD 1**	01452	**SDZ 1**	01454
AMD 355/4/2 0.25/0.95 kW	03087	1340/2835	0.25/0.95	400	0.9/2.3	70	777	60	32	—		**SDD 1**	01452	**SDZ 1**	01454
AMD 355/4/2 0.3/1.4 kW	03088	1340/2850	0.3/1.4	400	1.1/3.1	90	777	60	37	—		**SDD 1**	01452	**SDZ 1**	01454
AMD 355/4/2 0.4/1.9 kW	03093	1390/2850	0.4/1.9	400	1.5/4.2	120	777	60	40	—		**SDD 1**	01452	**SDZ 1**	01454
F300 Three phase motor, 400 V, 50 Hz, protection class IP55										Smoke exhaust fan control system					
B AMD 355/2 0.75 kW F300	03337	2890	0.75	400	1.6	59	776	60/300	29	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/2 1.1 kW F300	03338	2890	1.1	400	2.3	59	776	60/300	30	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/2 1.5 kW F300	03339	2890	1.5	400	3.1	59	776	60/300	35	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/2 2.2 kW F300	03340	2890	2.2	400	4.3	68	776	60/300	37	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F300 Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55															
B AMD 355/4/2 0.2/0.8 kW F300	03342	1400/2820	0.2/0.8	400	0.6/1.9	59	777	60/300	29	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/4/2 0.25/1.1 kW F300	03343	1390/2810	0.25/1.1	400	0.8/2.5	59	777	60/300	30	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/4/2 0.37/1.5 kW F300	03344	1430/2875	0.37/1.5	400	1.2/3.6	68	777	60/300	35	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/4/2 0.5/2.2 kW F300	03345	1420/2845	0.5/2.2	400	1.5/4.6	93	777	60/300	37	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
F400 Three phase motor, 400 V, 50 Hz, protection class IP55															
B AMD 355/2 0.75 kW F400	03179	2890	0.75	400	1.6	59	776	60/400	29	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/2 1.1 kW F400	03180	2890	1.1	400	2.3	59	776	60/400	30	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/2 1.5 kW F400	03181	2890	1.5	400	3.1	59	776	60/400	34	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/2 2.2 kW F400	03182	2890	2.2	400	4.3	68	776	60/400	36	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F400 Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55															
B AMD 355/4/2 0.2/0.8 kW F400	03183	1400/2820	0.2/0.8	400	0.6/1.9	59	777	60/400	29	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/4/2 0.25/1.1 kW F400	03184	1390/2810	0.25/1.1	400	0.8/2.5	59	777	60/400	30	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/4/2 0.37/1.5 kW F400	03185	1430/2875	0.37/1.5	400	1.2/3.6	68	777	60/400	35	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 355/4/2 0.5/2.2 kW F400	03186	1420/2845	0.5/2.2	400	1.5/4.6	93	777	60/400	37	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943

The flow volume and pressure increase information is required to determine the pitch angle.

[1] For ventilation / smoke extraction (once 120 min.).

[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

AMD / B AMD 400

60 °C F300 F400

(Fig. incl. mounting bracket (type MK, Accessories))

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

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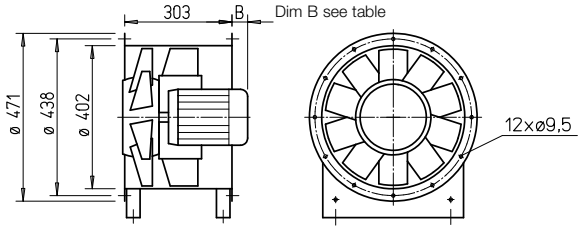
Special designs
Special design with inspection open. (add. cost) upon request.

Dimensions AMD / B AMD 400



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- ☐ Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- ☐ Dynamically balanced, quality class 6.3 for low-vibration operation.
- ☐ Blades can be steplessly adjusted in the factory.

Motor
- ☐ Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- ☐ Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- ☐ Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- ☐ Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- ☐ Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- ☐ Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

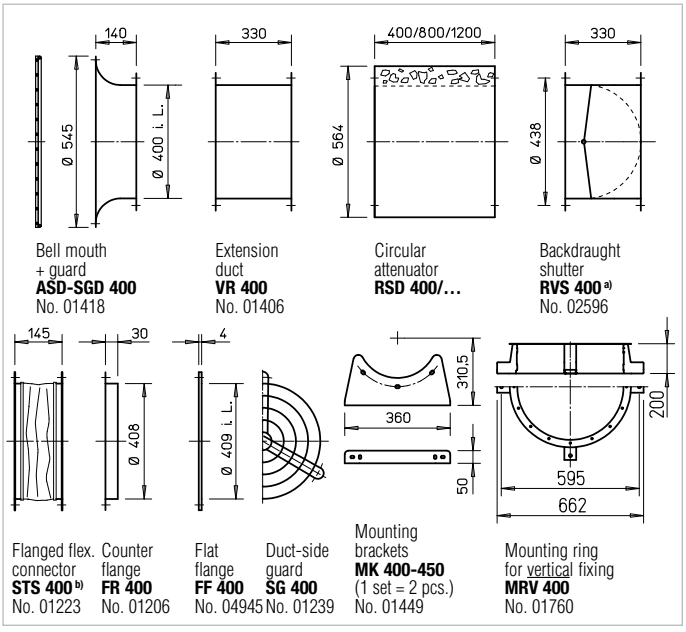
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 12 kg

MP-Z 400 Ref. no. 04905

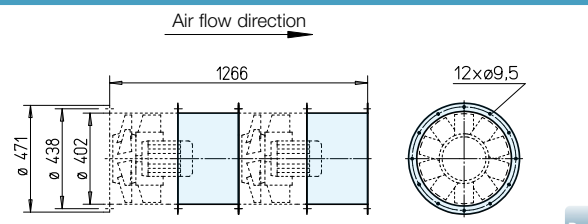
Double volume

Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 35 kg

MP-P 400 Ref. no. 04889



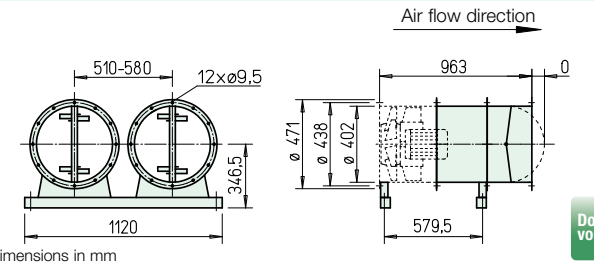
Dimensions MP-Z 400



All dimensions in mm

Double pressure

Dimensions MP-P 400



All dimensions in mm

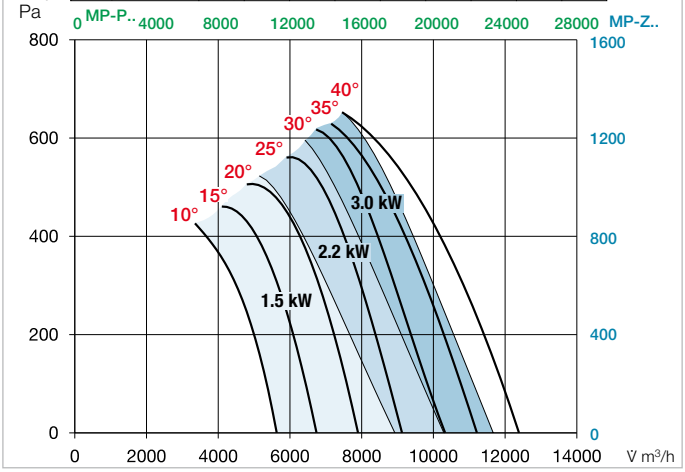
Double volume

a) Backdraught shutter, motorised, for ventilation, see main Helios catalogue. b) Type for B AMD: STSB 400 F400, No. 14743

Performance curves AMD / B AMD 400/2

n=2890 1/min

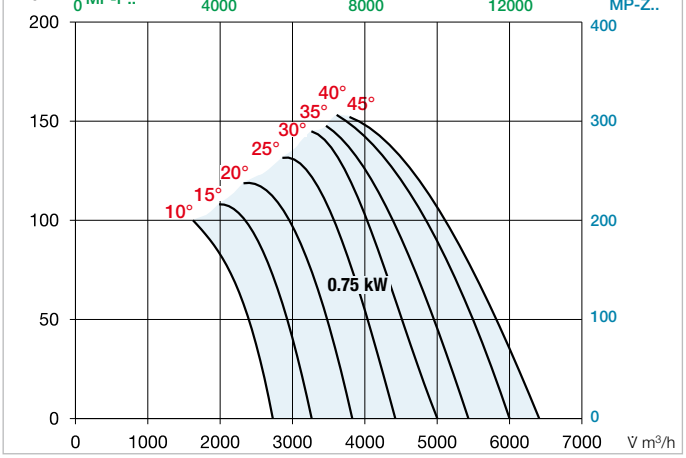
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	100	73	85	93	96	95	90	80
L_{WA}	20°	dB(A)	101	74	86	94	97	96	91	82
L_{WA}	30°	dB(A)	103	76	88	96	99	98	93	83
L_{WA}	40°	dB(A)	104	77	89	97	100	99	94	84



Performance curves AMD / B AMD 400/4

n=1400 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	83	63	73	78	79	75	68	56
L_{WA}	20°	dB(A)	84	64	74	79	80	76	69	57
L_{WA}	30°	dB(A)	86	66	76	81	82	78	71	59
L_{WA}	40°	dB(A)	87	67	77	82	83	79	72	60



Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min⁻¹	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**										Full motor protection					
AMD 400/4 0.75 kW	03102	1430	0.75	400	1.8	80	796	60	32	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 400/2 1.5 kW	03098	2890	1.5	400	3.1	100	796	60	35	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 400/2 2.2 kW	03099	2890	2.2	400	4.3	130	796	60	39	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 400/2 3 kW	03100	2895	3	400[4]	5.7	170	796	60	46	**MSA**	01289	**SDD 1**[3]	01452	**SDZ1**[3]	01454
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
AMD 400/4/2 0.4/1.9 kW	03101	1390/2850	0.4/1.9	400	1.5/4.2	130	777	60	43	—		**SDD 1**	01452	**SDZ 1**	01454
AMD 400/4/2 0.65/2.5 kW	03104	1380/2855	0.65/2.5	400	2.0/5.0	170	777	60	46	—		**SDD 1**[3]	01452	**SDZ 1**[3]	01454
AMD 400/4/2 0.8/3.1 kW	03105	1380/2860	0.8/3.1	400	2.1/6.1	170	777	60	46	—		**SDD 1**[3]	01452	**SDZ 1**[3]	01454
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**										Smoke exhaust fan control system					
B AMD 400/4 0.75 kW F300	03350	1430	0.75	400	1.8	59	776	60/300	34	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 400/2 1.5 kW F300	03346	2890	1.5	400	3.1	78	776	60/300	38	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 400/2 2.2 kW F300	03347	2890	2.2	400	4.3	103	776	60/300	40	**EVS-D 001**	04594	**SDD 1F**[3]	01942	**SDZ 1F**[3]	01943
B AMD 400/2 3 kW F300	03348	2895	3	400[4]	5.7	139	776	60/300	49	**EVS-SD 001**	04586	**SDD 1F**[3]	01942	**SDZ 1F**[3]	01943
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 400/4/2 0.37/1.5 kW F300	03349	1430/2875	0.37/1.5	400	1.2/3.6	78	777	60/300	38	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 400/4/2 0.5/2.2 kW F300	03351	1420/2845	0.5/2.2	400	1.5/4.6	103	777	60/300	40	**EVS-DA 001**	04548	**SDD 1F**[3]	01942	**SDZ 1F**[3]	01943
B AMD 400/4/2 0.8/3.1 kW F300	03352	1430/2890	0.8/3.1	400	2.0/6.2	139	777	60/300	51	**EVS-DA 001**	04548	**SDD 1F**[3]	01942	**SDZ 1F**[3]	01943
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B AMD 400/4 0.75 kW F400	03195	1430	0.75	400	1.8	59	776	60/400	33	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 400/2 1.5 kW F400	03188	2890	1.5	400	3.1	78	776	60/400	39	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 400/2 2.2 kW F400	03189	2890	2.2	400	4.3	103	776	60/400	39	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 400/2 3 kW F400	03190	2895	3	400[4]	5.7	139	776	60/400	52	**EVS-SD 001**	04586	**SDD 1F**[3]	01942	**SDZ 1F**[3]	01943
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 400/4/2 0.37/1.5 kW F400	03191	1430/2875	0.37/1.5	400	1.2/3.6	78	777	60/400	40	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 400/4/2 0.5/2.2 kW F400	03196	1420/2845	0.5/2.2	400	1.5/4.6	102	777	60/400	45	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 400/4/2 0.8/3.1 kW F400	03197	1430/2890	0.8/3.1	400	2.0/6.2	139	777	60/400	51	**EVS-DA 001**	04548	**SDD 1F**[3]	01942	**SDZ 1F**[3]	01943

The flow volume and pressure increase information is required to determine the pitch angle.v

[1] For ventilation / smoke extraction (once 120 min.).

[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

[3] Extension duct VR.. required over the motor protrusion.

[4] Y/Δ start-up.

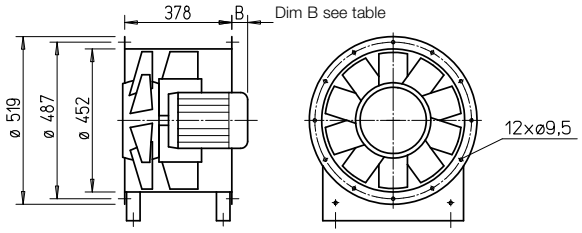
AMD / B AMD 450

60 °C F300 F400

(Fig. incl. mounting bracket (type MK, Accessories))

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Dimensions AMD / B AMD 450



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- ☐ Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- ☐ Dynamically balanced, quality class 6.3 for low-vibration operation.
- ☐ Blades can be steplessly adjusted in the factory.

Motor
- ☐ Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- ☐ Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- ☐ Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- ☐ Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- ☐ Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- ☐ Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

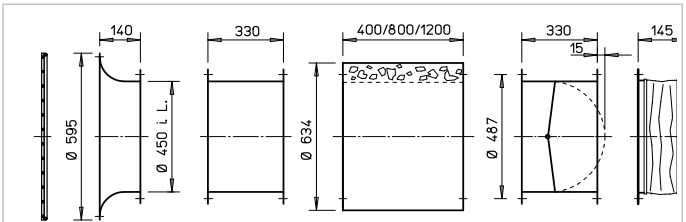
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 14 kg

MP-Z 450 Ref. no. 04906

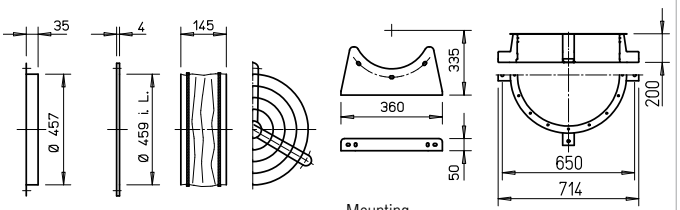
Double volume

Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 43 kg

MP-P 450 Ref. no. 04890

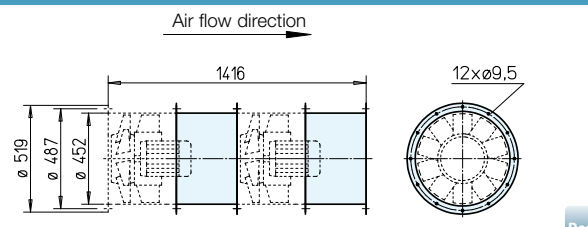


Bell mouth + guard **ASD-SGD 450** No. 01419 | Extension duct **VR 450** No. 01407 | Circular attenuator **RSD 450/…** | Backdraught shutter **RVS 450** [a] No. 02597



Flanged flex. connector **STS 450** [b] No. 01224 | Counter flange **FR 450** No. 01207 | Flat flange **FF 450** No. 04946 | Duct-side guard **SG 450** No. 01240 | Mounting brackets **MK 400-450** (1 set = 2 pcs.) No. 01449 | Mounting ring for vertical fixing **MRV 450** No. 01761

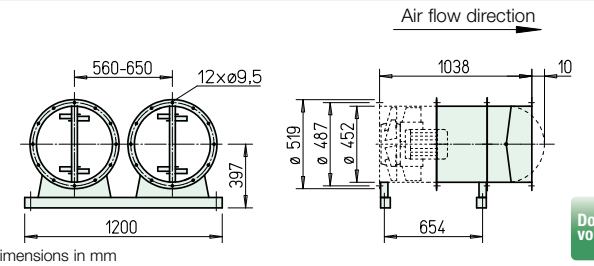
Dimensions MP-Z 450



All dimensions in mm

Double pressure

Dimensions MP-P 450



All dimensions in mm

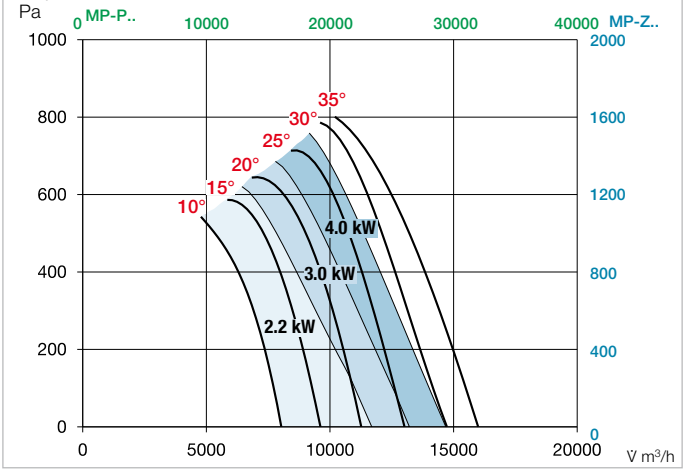
Double volume

[a] Backdraught shutter, motorised, for ventilation, see main Helios catalogue. [b] Type for B AMD: STSB 450 F400, No. 14742

Performance curves AMD / B AMD 450/2

n=2900 1/min

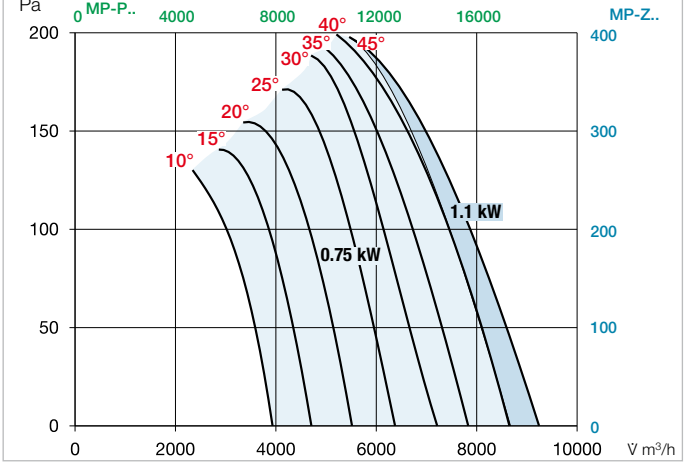
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	103	76	88	96	99	98	93	84
L_{WA}	20°	dB(A)	105	77	90	97	100	99	94	85
L_{WA}	30°	dB(A)	106	79	91	99	102	101	96	87



Performance curves AMD / B AMD 450/4

n=1420 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	87	67	76	82	83	79	71	60
L_{WA}	20°	dB(A)	88	68	78	83	84	80	73	61
L_{WA}	30°	dB(A)	90	70	80	85	86	82	75	63
L_{WA}	40°	dB(A)	91	71	81	86	87	83	76	64



Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min^{-1}	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**										Full motor protection					
AMD 450/4 0.75 kW	03109	1430	0.75	400	1.8	15	796	60	40	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 450/4 1.1 kW	03110	1440	1.1	400	2.5	40	796	60	44	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 450/2 2.2 kW	03106	2890	2.2	400	4.3	65	796	60	47	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 450/2 3 kW	03107	2895	3	400[3]	5.7	105	796	60	54	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 450/2 4 kW	03108	2910	4	400[3]	7.4	155	776	60	57	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
AMD 450/4/2 0.65/2.5 kW	03121	1380/2855	0.65/2.5	400	1.9/5.0	40	777	60	61	—		**SDD 1**	01452	**SDZ 2**	01455
AMD 450/4/2 0.8/3.1 kW	03111	1380/2860	0.8/3.1	400	2.1/6.1	65	777	60	61	—		**SDD 1**	01452	**SDZ 2**	01455
AMD 450/4/2 1.1/4.4 kW	03113	1390/2860	1.1/4.4	400	3.0/8.7	155	777	60	67	—		**SDD 1**	01452	**SDZ 2**	01455
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**										Smoke exhaust fan control system					
B AMD 450/4 0.75 kW F300	03356	1430	0.75	400	1.8	0	776	60/300	42	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1 F**	01943
B AMD 450/4 1.1 kW F300	03357	1440	1.1	400	2.5	16	776	60/300	47	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1 F**	01943
B AMD 450/2 2.2 kW F300	03353	2890	2.2	400	4.3	41	776	60/300	48	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1 F**	01943
B AMD 450/2 3 kW F300	03354	2895	3	400[3]	5.7	77	776	60/300	57	**EVS-SD 001**	04586	**SDD 1F**	01942	**SDZ 1 F**	01943
B AMD 450/2 4 kW F300	03355	2910	4	400[3]	7.4	95	776	60/300	68	**EVS-SD 001**	04586	**SDD 1F**	01942	**SDZ 1 F**	01943
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 450/4/2 0.5/2.2 kW F300	03358	1420/2845	0.5/2.2	400	1.5/4.6	41	777	60/300	48	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 450/4/2 0.8/3.1 kW F300	03359	1430/2890	0.8/3.1	400	2.0/6.2	77	777	60/300	59	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B AMD 450/4 0.75 kW F400	03205	1430	0.75	400	1.8	0	776	60/400	41	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 450/4 1.1 kW F400	03206	1440	1.1	400	2.5	16	776	60/400	48	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 450/2 2.2 kW F400	03198	2890	2.2	400	4.3	41	776	60/400	47	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 450/2 3 kW F400	03199	2895	3	400[3]	5.7	77	776	60/400	60	**EVS-SD 001**	04586	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 450/2 4 kW F400	03200	2910	4	400[3]	7.4	95	776	60/400	70	**EVS-SD 001**	04586	**SDD 1F**	01942	**SDZ 1F**	01943
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 450/4/2 0.5/2.2 kW F400	03207	1420/2845	0.5/2.2	400	1.5/4.6	41	777	60/400	48	**EVS-DA 001**	04548	**SDD 1 F**	01942	**SDZ 1 F**	01943
B AMD 450/4/2 0.8/3.1 kW F400	03208	1430/2890	0.8/3.1	400	2.0/6.2	77	777	60/400	59	**EVS-DA 001**	04548	**SDD 1 F**	01942	**SDZ 1 F**	01943

The flow volume and pressure increase information is required to determine the pitch angle.
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

[1] For ventilation / smoke extraction (once 120 min.).
[3] Y/Δ start-up.

AMD / B AMD 500

60 °C F300 F400

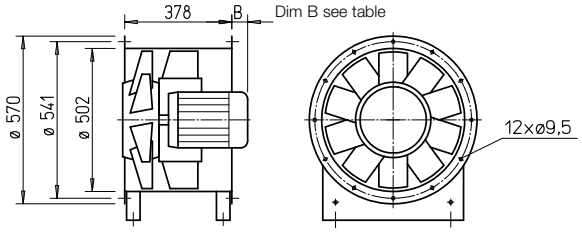
(Fig. incl. mounting bracket (type MK, Accessories))

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Information	Page
Techn. description	46
Project planning information	3 ff.

Special designs
Special design with inspection open. (add. cost) upon request.

Dimensions AMD / B AMD 500



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- ☐ Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- ☐ Dynamically balanced, quality class 6.3 for low-vibration operation.
- ☐ Blades can be steplessly adjusted in the factory.

Motor
- ☐ Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- ☐ Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- ☐ Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- ☐ Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- ☐ Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- ☐ Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

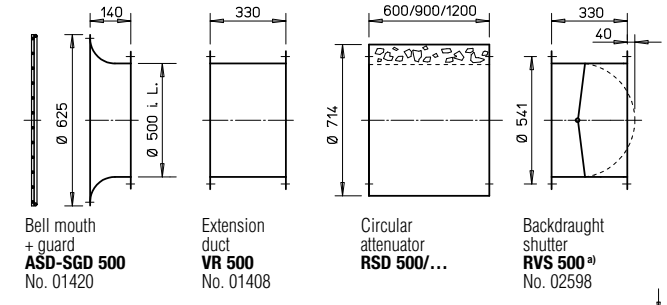
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 15 kg

MP-Z 500 Ref. no. 04907

Double volume

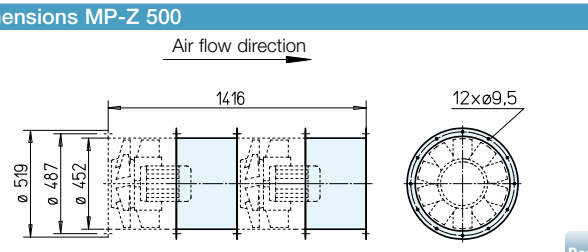
Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 55 kg

MP-P 500 Ref. no. 04891



Bell mouth + guard **ASD-SGD 500** No. 01420
Extension duct **VR 500** No. 01408
Circular attenuator **RSD 500/...**
Backdraught shutter **RVS 500** [a] No. 02598
Flanged flex. connector **STS 500** [b] No. 01225
Counter flange **FR 500** No. 01208
Flat flange **FF 500** No. 04947
Duct-side guard **SG 500** No. 01241
Mounting brackets **MK 500 – 560** (1 set = 2 pcs.) No. 01450
Mounting ring for vertical fixing **MRV 500** No. 01740

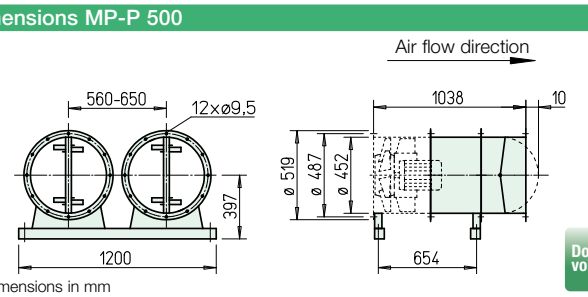
Dimensions MP-Z 500



All dimensions in mm

Double pressure

Dimensions MP-P 500



All dimensions in mm

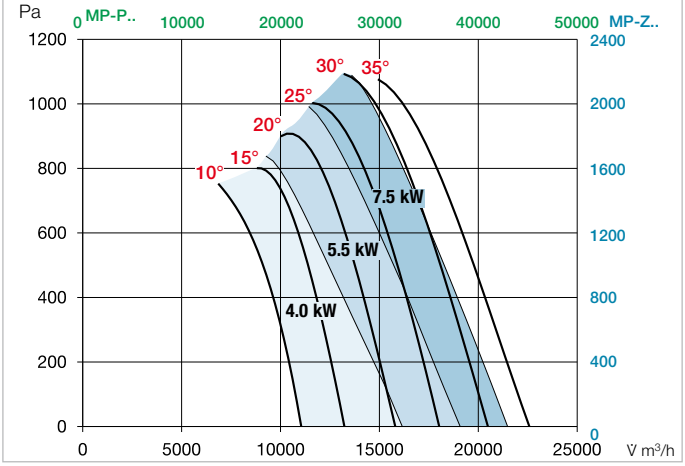
Double volume

[a] Backdraught shutter, motorised, for ventilation, see main Helios catalogue. [b] Type for B AMD: STSB 500 F400, No. 01915

Performance curves AMD / B AMD 500/2

n=2930 1/min

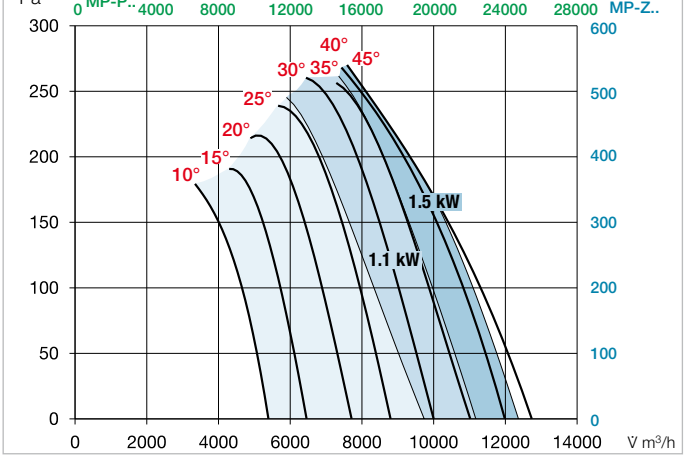
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	107	80	92	99	103	102	97	87
L_{WA}	20°	dB(A)	108	80	93	100	104	102	97	88
L_{WA}	30°	dB(A)	109	82	94	102	105	104	99	90
L_{WA}	40°	dB(A)	111	84	96	104	107	106	101	91



Performance curves AMD / B AMD 500/4

n=1430 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	90	70	80	85	86	82	75	63
L_{WA}	20°	dB(A)	91	71	81	86	87	83	76	64
L_{WA}	30°	dB(A)	93	73	82	88	89	85	77	66
L_{WA}	40°	dB(A)	94	74	84	89	90	86	79	67



Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min⁻¹	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**										Full motor protection					
AMD 500/4 0.75 kW	03118	1430	0.75	400	1.8	35	796	60	46	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 500/4 1.1 kW	03119	1440	1.1	400	2.5	60	796	60	50	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 500/4 1.5 kW	03122	1420	1.5	400	3.3	85	796	60	53	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 500/2 4 kW	03115	2910	4	400[3]	7.4	175	776	60	83	**MSA**	01289	**SDD 1**	01452	**SDZ 1**	01454
AMD 500/2 5.5 kW	03116	2940	5.5	400[3]	10.1	180	776	60	97	**MSA**	01289	**SDD 2**[4]	01453	**SDZ 2**[4]	01455
AMD 500/2 7.5 kW	03117	2930	7.5	400[3]	14.1	220	776	60	102	**MSA**	01289	**SDD 2**[4]	01453	**SDZ 2**[4]	01455
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
AMD 500/8/4 0.22/1.0 kW	03275	645/1390	0.22/1.0	400	0.9/2.4	60	777	60	55	—		**SDD 1**	01452	**SDZ 1**	01454
AMD 500/8/4 0.3/1.5 kW	03276	645/1390	0.3/1.5	400	1.1/3.0	85	777	60	58	—		**SDD 1**	01452	**SDZ 2**	01455
AMD 500/4/2 1.4/5.9 kW	03273	1400/2900	1.4/5.9	400	3.6/11.4	180	777	60	118	—		**SDD 2**[4]	01453	**SDZ 2**[4]	01455
AMD 500/4/2 2.0/8.0 kW	03274	1410/2900	2.0/8.0	400	4.7/14.9	220	777	60	129	—		**SDD 2**[4]	01453	**SDZ 2**[4]	01455
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**										Smoke exhaust fan control system					
B AMD 500/4 0.75 kW F300	03363	1430	0.75	400	1.8	18	776	60/300	48	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 500/4 1.1 kW F300	03364	1440	1.1	400	2.5	37	776	60/300	54	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 500/4 1.5 kW F300	03365	1440	1.5	400	3.3	62	776	60/300	57	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 500/2 4 kW F300	03360	2910	4	400[3]	7.4	116	776	60/300	93	**EVS-SD 001**	04586	**SDD 4**[4]	01944	**SDZ 4**[4]	01945
B AMD 500/2 5.5 kW F300	03361	2940	5.5	400[3]	10.1	153	776	60/300	110	**EVS-SD 002**	04585	**SDD 4**[4]	01944	**SDZ 4**[4]	01945
B AMD 500/2 7.5 kW F300	03362	2930	7.5	400[3]	14.1	192	776	60/300	118	**EVS-SD 003**	04584	**SDD 5**[4]	01924	**SDZ 5**[4]	01925
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 500/8/4 0.3/1.2 kW F300	03368	715/1440	0.3/1.2	400	1.2/3.0	62	777	60/300	53	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 500/8/4 0.55/2.2 kW F300	03369	700/1430	0.55/2.2	400	2.0/4.8	98	777	60/300	63	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 500/4/2 1.1/4.4 kW F300	03366	1440/2890	1.1/4.4	400	2.8/8.6	116	777	60/300	94	**EVS-DA 053**	04192	**SDD 4**[4]	01944	**SDZ 4**[4]	01945
B AMD 500/4/2 2.0/8.0 kW F300	03367	1470/2930	2.0/8.0	400	4.8/15.3	153	777	60/300	118	**EVS-DA 054**	04194	**SDD 5**[4]	01924	**SDZ 5**[4]	01925
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B AMD 500/4 0.75 kW F400	03213	1430	0.75	400	1.63	18	776	60/400	47	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 500/4 1.1 kW F400	03214	1440	1.1	400	2.4	37	776	60/400	55	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 500/4 1.5 kW F400	03215	1440	1.5	400	3.26	62	776	60/400	57	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 500/2 4 kW F400	03210	2910	4	400[3]	7.72	116	776	60/400	95	**EVS-SD 001**	04586	**SDD 4**[4]	01944	**SDZ 4**[4]	01945
B AMD 500/2 5.5 kW F400	03211	2940	5.5	400[3]	10.6	153	776	60/400	111	**EVS-SD 002**	04585	**SDD 4**[4]	01944	**SDZ 4**[4]	01945
B AMD 500/2 7.5 kW F400	03212	2930	7.5	400[3]	13.9	192	776	60/400	122	**EVS-SD 003**	04584	**SDD 5**[4]	01924	**SDZ 5**[4]	01925
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 500/8/4 0.3/1.2 kW F400	03218	715/1430	0.3/1.2	400	1.29/2.92	62	777	60/400	53	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 500/8/4 0.55/2.2 kW F400	03219	700/1430	0.55/2.2	400	2.0/4.84	98	777	60/400	63	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 500/4/2 1.1/4.4 kW F400	03216	1440/2890	1.1/4.4	400	2.79/8.59	116	777	60/400	94	**EVS-DA 053**	04192	**SDD 4**[4]	01944	**SDZ 4**[4]	01945
B AMD 500/4/2 2.0/8.0 kW F400	03217	1470/2930	2.0/8.0	400	4.83/15.3	153	777	60/400	118	**EVS-DA 054**	04194	**SDD 5**[4]	01924	**SDZ 5**[4]	01925

The flow volume and pressure increase information is required to determine the pitch angle.
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.
[4] Extension duct VR.. required over the motor protrusion.
[1] For ventilation / smoke extraction (once 120 min.).
[3] Y/Δ start-up.

AMD / B AMD 560

60 °C F300 F400

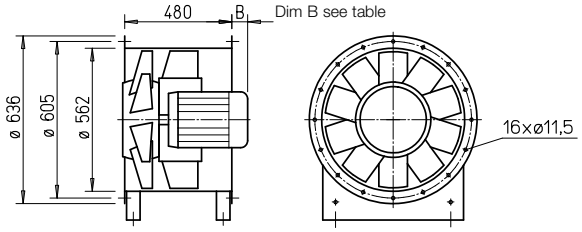
(Fig. incl. mounting bracket (type MK, Accessories))

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Information	Page
Techn. description	46
Project planning information	3 ff.

Special designs
Special design with inspection open. (add. cost) upon request.

Dimensions AMD / B AMD 560



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- ☐ Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- ☐ Dynamically balanced, quality class 6.3 for low-vibration operation.
- ☐ Blades can be steplessly adjusted in the factory.

Motor
- ☐ Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- ☐ Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- ☐ Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- ☐ Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- ☐ Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- ☐ Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

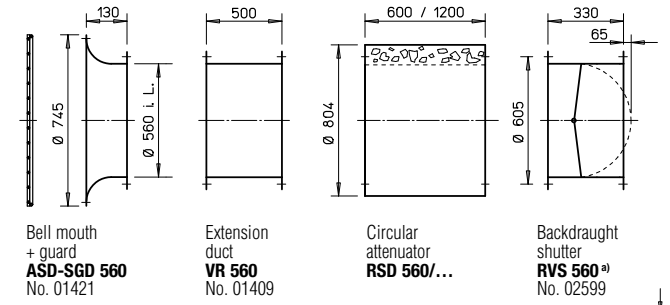
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 32 kg

MP-Z 560 Ref. no. 04908

Double volume

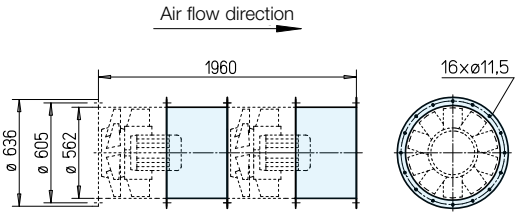
Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 82 kg

MP-P 560 Ref. no. 04892



Bell mouth + guard **ASD-SGD 560** No. 01421
Extension duct **VR 560** No. 01409
Circular attenuator **RSD 560/...**
Backdraught shutter **RVS 560** [a] No. 02599
Flanged flex. connector **STS 560** [b] No. 01226
Counter flange **FR 560** No. 01209
Flat flange **FF 560** No. 04948
Duct-side guard **SG 560** No. 01242
Mounting brackets **MK 500 – 560** (1 set = 2 pcs.) No. 01450
Mounting ring for vertical fixing **MRV 560** No. 01741

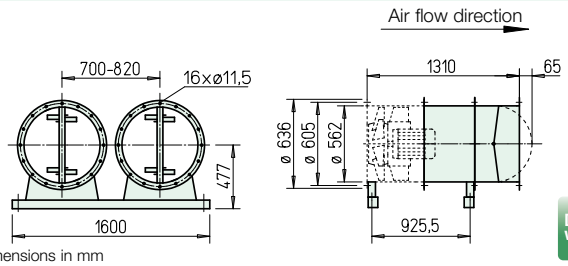
Dimensions MP-Z 560



All dimensions in mm

Double pressure

Dimensions MP-P 560



All dimensions in mm

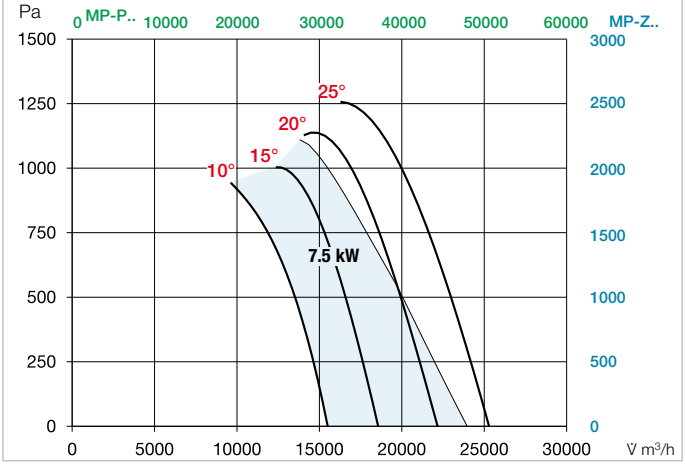
Double volume

[a] Backdraught shutter, motorised, for ventilation, see main Helios catalogue. [b] Type for B AMD: STSB 560 F400, No. 01916

Performance curves AMD / B AMD 560/2

n=2930 1/min

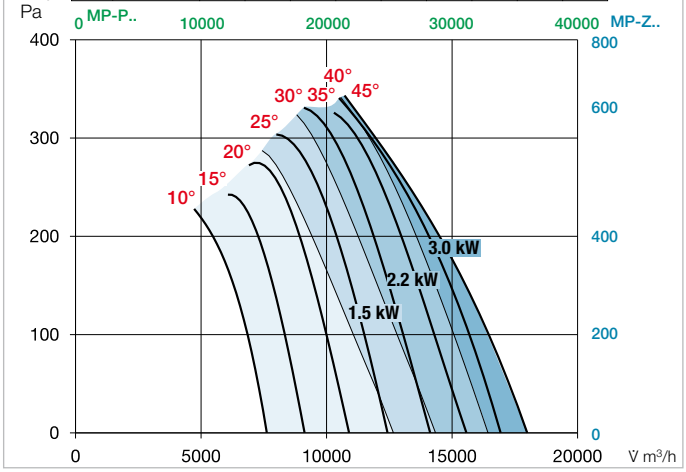
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	110	83	95	103	106	105	100	91
L_{WA}	20°	dB(A)	111	84	96	104	107	106	101	91
L_{WA}	30°	dB(A)	113	85	97	105	108	107	102	93



Performance curves AMD / B AMD 560/4

n=1440 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	94	73	83	89	89	86	78	67
L_{WA}	20°	dB(A)	94	74	84	89	90	87	79	68
L_{WA}	30°	dB(A)	96	76	86	91	92	88	81	69
L_{WA}	40°	dB(A)	98	78	87	93	93	90	82	71



Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min⁻¹	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**										Full motor protection					
AMD 560/4 1.1 kW	03281	1440	1.1	400	2.5	0	796	60	61	**MSA**	01289	**SDD 1**	01452	**SDZ 2**	01455
AMD 560/4 1.5 kW	03282	1440	1.5	400	3.3	0	796	60	64	**MSA**	01289	**SDD 1**	01452	**SDZ 2**	01455
AMD 560/4 2.2 kW	03285	1455	2.2	400	4.5	40	796	60	74	**MSA**	01289	**SDD 1**	01452	**SDZ 2**	01455
AMD 560/4 3 kW	03286	1455	3	400[3]	6.0	40	796	60	80	**MSA**	01289	**SDD 2**	01453	**SDZ 2**	01455
AMD 560/2 7.5 kW	03279	2930	7.5	400[3]	14.1	100	776	60	123	**MSA**	01289	**SDD 2**	01453	**SDZ 2**	01455
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
AMD 560/8/4 0.55/2.0 kW	03272	680/1410	0.55/2.0	400	2.0/4.5	0	777	60	79	—		**SDD 2**	01453	**SDZ 2**	01455
AMD 560/8/4 0.65/2.4 kW	03290	680/1410	0.65/2.4	400	2.5/5.5	40	777	60	79	—		**SDD 2**	01453	**SDZ 2**	01455
AMD 560/4/2 2.0/8.0 kW	03287	1410/2900	2.0/8.0	400	4.7/14.9	100	777	60	149	—		**SDD 2**	01453	**SDZ 2**	01455
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**										Smoke exhaust fan control system					
B AMD 560/4 1.1 kW F300	03391	1440	1.1	400	2.5	0	776	60/300	65	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 560/4 1.5 kW F300	03392	1440	1.5	400	3.3	0	776	60/300	68	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 560/4 2.2 kW F300	03393	1455	2.2	400	4.5	0	776	60/300	74	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 560/4 3 kW F300	03394	1455	3	400[3]	6.0	12	776	60/300	77	**EVS-SD 001**	04586	**SDD 4**	01944	**SDZ 4**	01945
B AMD 560/2 7.5 kW F300	03389	2930	7.5	400[3]	14.1	67	776	60/300	140	**EVS-SD 003**	04584	**SDD 5**	01924	**SDZ 5**	01925
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 560/8/4 0.4/1.6 kW F300	03396	700/1440	0.4/1.6	400	1.7/4.0	0	777	60/300	67	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 560/8/4 0.55/2.2 kW F300	03397	700/1430	0.55/2.2	400	2.0/4.8	12	777	60/300	74	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 560/8/4 0.7/2.8 kW F300	03398	710/1440	0.7/2.8	400	2.5/6.0	12	777	60/300	77	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 560/4/2 2.0/8.0 kW F300	03395	1470/2930	2.0/8.0	400	4.8/15.3	105	777	60/300	138	**EVS-DA 054**	04194	**SDD 5**	01924	**SDZ 5**	01925
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B AMD 560/4 1.1 kW F400	03222	1440	1.1	400	2.5	0	776	60/400	66	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 560/4 1.5 kW F400	03223	1440	1.5	400	3.3	0	776	60/400	68	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 560/4 2.2 kW F400	03224	1455	2.2	400	4.5	0	776	60/400	76	**EVS-D 001**	04594	**SDD 4**	01944	**SDZ 4**	01945
B AMD 560/4 3 kW F400	03225	1455	3	400[3]	6.0	12	776	60/400	78	**EVS-SD 001**	04586	**SDD 4**	01944	**SDZ 4**	01945
B AMD 560/2 7.5 kW F400	03220	2930	7.5	400[3]	14.1	67	776	60/400	144	**EVS-SD 003**	04584	**SDD 5**	01924	**SDZ 5**	01925
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 560/8/4 0.4/1.6 kW F400	03227	700/1440	0.4/1.6	400	1.7/4.0	0	777	60/400	67	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 560/8/4 0.55/2.2 kW F400	03228	700/1430	0.55/2.2	400	2.0/4.8	12	777	60/400	74	**EVS-DA 001**	04548	**SDD 1F**	01942	**SDZ 1F**	01943
B AMD 560/8/4 0.7/2.8 kW F400	03229	710/1440	0.7/2.8	400	2.5/6.0	12	777	60/400	77	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 560/4/2 2.0/8.0 kW F400	03226	1470/2930	2.0/8.0	400	4.8/15.3	105	777	60/400	138	**EVS-DA 054**	04194	**SDD 5**	01924	**SDZ 5**	01925

The flow volume and pressure increase information is required to determine the pitch angle.

[1] For ventilation / smoke extraction (once 120 min.).

[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

[3] Y/Δ start-up.

AMD / B AMD 630

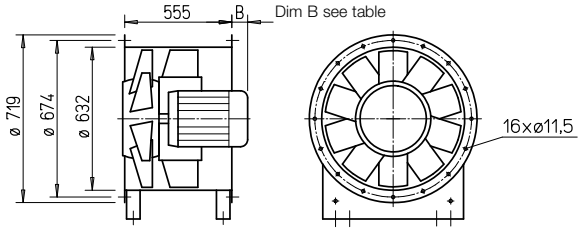
60 °C F300 F400

(Fig. incl. mounting bracket (type MK, Accessories))

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Accessory details	Page
Mounting accessories	151 ff.
Attenuators	156 ff.
Gas warning systems, switch and control technology	158 ff.
Frequency inverters	168 ff.

Dimensions AMD / B AMD 630



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- Dynamically balanced, quality class 6.3 for low-vibration operation.
- Blades can be steplessly adjusted in the factory.

Motor
- Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

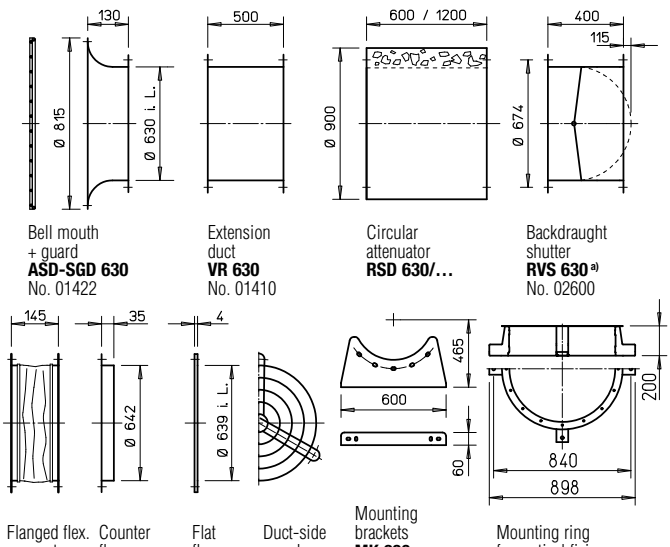
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 36 kg

MP-Z 630 Ref. no. 04909

Double volume

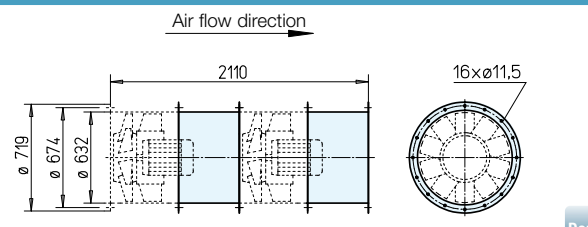
Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 110 kg

MP-P 630 Ref. no. 04893



Bell mouth + guard **ASD-SGD 630** No. 01422
Extension duct **VR 630** No. 01410
Circular attenuator **RSD 630/...**
Backdraught shutter **RVS 630** [a] No. 02600
Flanged flex. connector **STS 630** [b] No. 01228
Counter flange **FR 630** No. 01211
Flat flange **FF 630** No. 04949
Duct-side guard **SG 630** No. 01243
Mounting brackets **MK 630** (1 set = 2 pcs.) No. 01333
Mounting ring for vertical fixing **MRV 630** No. 01742

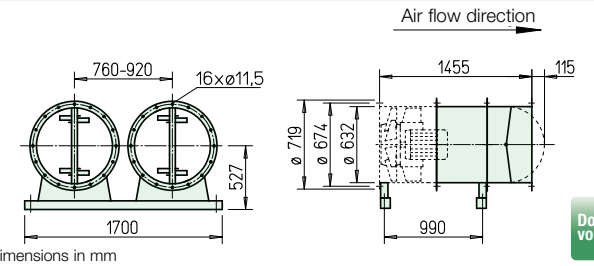
Dimensions MP-Z 630



All dimensions in mm

Double pressure

Dimensions MP-P 630



All dimensions in mm

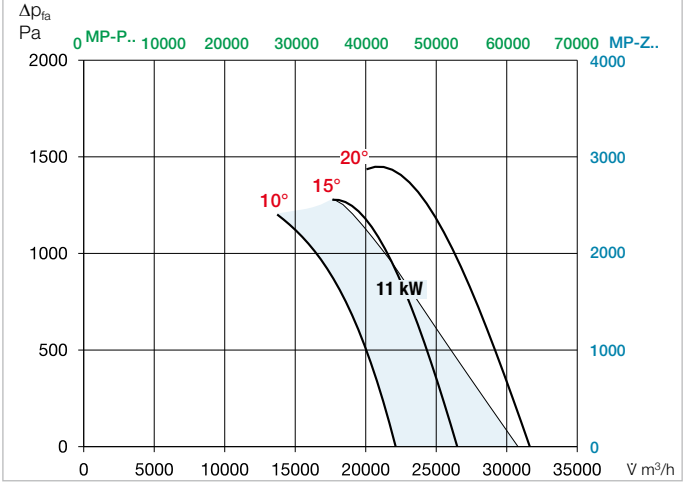
Double volume

[a] Backdraught shutter, motorised, for ventilation, see main Helios catalogue. [b] Type for B AMD: STSB 630 F400, No. 01917

Performance curves AMD / B AMD 630/2

n=2940 1/min

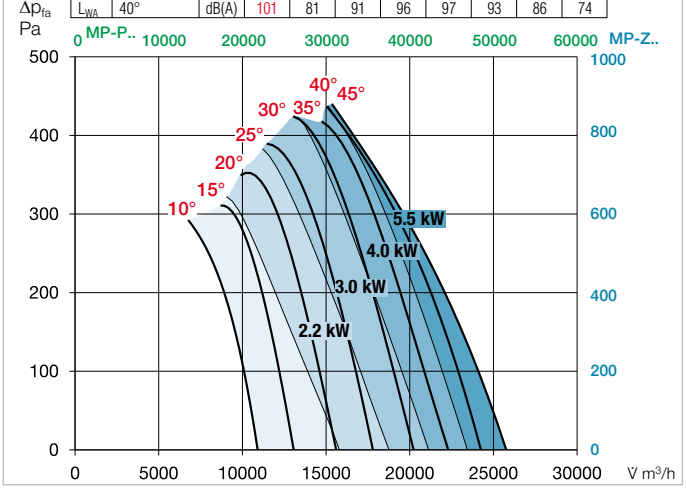
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	113	86	98	106	109	108	103	94
L_{WA}	20°	dB(A)	114	87	99	107	110	109	104	95



Performance curves AMD / B AMD 630/4

n=1450 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	97	77	87	92	93	89	82	70
L_{WA}	20°	dB(A)	98	78	88	93	94	90	83	71
L_{WA}	30°	dB(A)	100	79	89	95	95	92	85	73
L_{WA}	40°	dB(A)	101	81	91	96	97	93	86	74



Information	Page
Techn. description	46
Project planning information	3 ff.

Special designs

Special design with inspection open. (add. cost) upon request.

Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min⁻¹	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**										Full motor protection					
AMD 630/2 11 kW	03376	2945	11.0	400[3]	20.0	145	776	60	210	**MSA**	01289	**SDD 3**	01367	**SDZ 3**	01366
AMD 630/4 1.5 kW	03291	1440	1.5	400	3.3	0	796	60	84	**MSA**	01289	**SDD 2**	01453	**SDZ 2**	01455
AMD 630/4 2.2 kW	03292	1455	2.2	400	4.5	0	796	60	84	**MSA**	01289	**SDD 2**	01453	**SDZ 2**	01455
AMD 630/4 3 kW	03293	1455	3	400[3]	6.0	0	796	60	99	**MSA**	01289	**SDD 2**	01453	**SDZ 2**	01455
AMD 630/4 4 kW	03294	1500	4	400[3]	7.4	30	776	60	94	**MSA**	01289	**SDD 2**	01453	**SDZ 2**	01455
AMD 630/4 5.5 kW	03295	1470	5.5	400[3]	10.7	40	776	60	115	**MSA**	01289	**SDD 2**	01453	**SDZ 2**	01455
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
AMD 630/8/4 0.55/2.0 kW	03297	680/1410	0.55/2.0	400	2.0/4.5	0	777	60	98	—		**SDD 2**	01453	**SDZ 2**	01455
AMD 630/8/4 0.9/3.2 kW	03298	680/1420	0.9/3.2	400	3.2/7.1	30	777	60	104	—		**SDD 2**	01453	**SDZ 2**	01455
AMD 630/8/4 1.1/4.5 kW	03299	680/1435	1.1/4.5	400	3.6/9.3	40	777	60	130	—		**SDD 2**	01453	**SDZ 2**	01455
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**										Smoke exhaust fan control system					
B AMD 630/2 11 kW F300	05913	2945	11.0	400[3]	20.0	128	776	60/300	195	**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
B AMD 630/4 1.5 kW F300	03399	1440	1.5	400	3.3	0	776	60/300	88	**EVS-D 001**	04594	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/4 2.2 kW F300	03400	1455	2.2	400	4.5	0	776	60/300	93	**EVS-D 001**	04594	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/4 3 kW F300	03401	1455	3	400[3]	6.0	0	776	60/300	96	**EVS-SD 001**	04586	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/4 4 kW F300	03402	1460	4	400[3]	7.9	0	776	60/300	110	**EVS-SD 001**	04586	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/4 5.5 kW F300	03403	1470	5.5	400[3]	10.7	11	776	60/300	125	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 630/8/4 0.4/1.6 kW F300	03404	700/1440	0.4/1.6	400	1.7/4.0	0	777	60/300	86	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/8/4 0.55/2.2 kW F300	03405	700/1430	0.55/2.2	400	2.0/4.9	0	777	60/300	93	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/8/4 0.7/2.8 kW F300	03406	710/1440	0.7/2.8	400	2.5/6.0	0	777	60/300	96	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/8/4 1.0/3.8 kW F300	03407	710/1440	1.0/3.8	400	2.9/7.9	0	777	60/300	106	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/8/4 1.3/5.0 kW F300	03408	735/1475	1.3/5.0	400	3.8/10.4	11	777	60/300	131	**EVS-DA 053**	04192	**SDD 5**	01924	**SDZ 5**	01925
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B AMD 630/4 1.5 kW F400	03230	1440	1.5	400	3.3	0	776	60/400	88	**EVS-D 001**	04594	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/4 2.2 kW F400	03231	1455	2.2	400	4.5	0	776	60/400	95	**EVS-D 001**	04594	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/4 3 kW F400	03232	1455	3	400[3]	6.0	0	776	60/400	97	**EVS-SD 001**	04586	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/4 4 kW F400	03233	1460	4	400[3]	7.9	0	776	60/400	110	**EVS-SD 001**	04586	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/4 5.5 kW F400	03234	1470	5.5	400[3]	10.7	11	776	60/400	127	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 630/8/4 0.4/1.6 kW F400	03235	700/1440	0.4/1.6	400	1.7/4.0	0	777	60/400	86	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/8/4 0.55/2.2 kW F400	03236	700/1430	0.55/2.2	400	2.0/4.8	0	777	60/400	93	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/8/4 0.7/2.8 kW F400	03237	690/1440	0.7/2.8	400	2.5/6.0	0	777	60/400	96	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/8/4 1.0/3.8 kW F400	03238	710/1440	1.0/3.8	400	2.9/7.9	0	777	60/400	107	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 630/8/4 1.3/5.0 kW F400	03239	735/1475	1.3/5.0	400	3.8/10.4	11	777	60/400	131	**EVS-DA 053**	04192	**SDD 5**	01924	**SDZ 5**	01925

The flow volume and pressure increase information is required to determine the pitch angle.

[1] For ventilation / smoke extraction (once 120 min.).

[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

[3] Y/Δ start-up.

AMD / B AMD 710

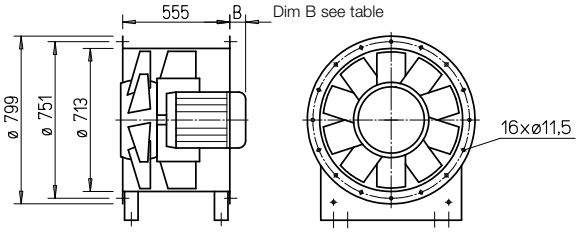
(Fig. incl. mounting bracket (type MK, Accessories))

60 °C F300 F400

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Accessory details	Page
Mounting accessories	151 ff.
Attenuators	156 ff.
Gas warning systems, switch and control technology	158 ff.
Frequency inverters	168 ff.

Dimensions AMD / B AMD 710



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- Dynamically balanced, quality class 6.3 for low-vibration operation.
- Blades can be steplessly adjusted in the factory.

Motor
- Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

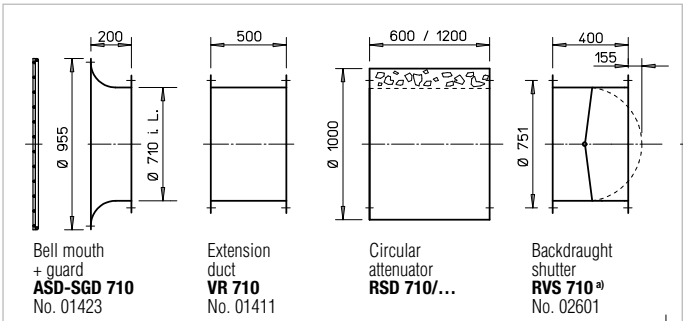
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 43 kg

MP-Z 710 Ref. no. 04910

Double volume

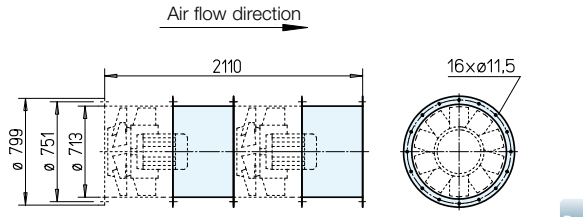
Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 145 kg

MP-P 710 Ref. no. 04894



Bell mouth + guard **ASD-SGD 710** No. 01423
Extension duct **VR 710** No. 01411
Circular attenuator **RSD 710/...**
Backdraught shutter **RVS 710** [a] No. 02601
Flanged flex. connector **STS 710** [b] No. 01229
Counter flange **FR 710** No. 01212
Flat flange **FF 710** No. 04950
Duct-side guard **SG 710** No. 01244
Mounting brackets **MK 710** (1 set = 2 pcs.) No. 01372
Mounting ring for vertical fixing **MRV 710** No. 01743

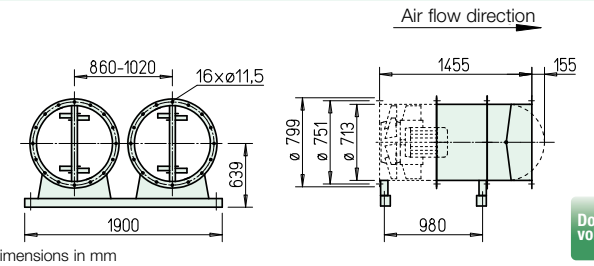
Dimensions MP-Z 710



All dimensions in mm

Double pressure

Dimensions MP-P 710



All dimensions in mm

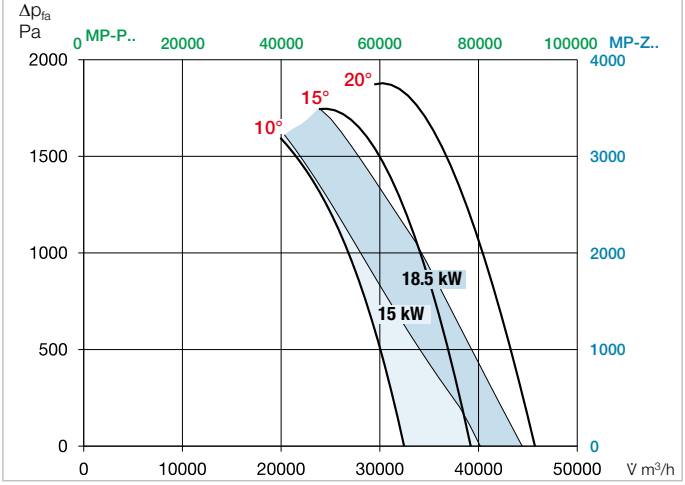
Double volume

[a] Backdraught shutter, motorised, for ventilation, see main Helios catalogue. [b] Type for B AMD: STSB 710 F400, No. 01918

Performance curves AMD / B AMD 710/2

n=2950 1/min

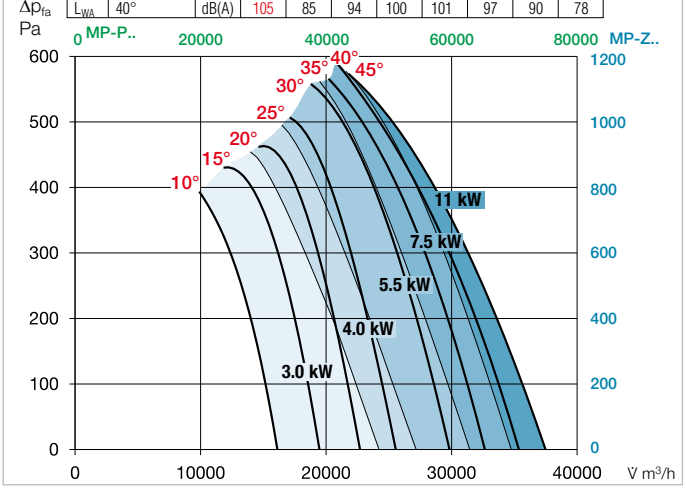
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	116	89	101	109	112	111	106	97
L_{WA}	20°	dB(A)	117	89	102	109	113	112	107	97



Performance curves AMD / B AMD 710/4

n=1465 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	100	80	90	95	96	92	85	73
L_{WA}	20°	dB(A)	101	80	90	96	96	93	86	74
L_{WA}	30°	dB(A)	103	83	92	98	99	95	88	76
L_{WA}	40°	dB(A)	105	85	94	100	101	97	90	78



Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min⁻¹	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**										Full motor protection					
AMD 710/2 15 kW	05863	2945	15	400[3]	27.7	175	776	60	251	**MSA**	01289	**SDD 3**	01367	**SDZ 3**	01366
AMD 710/2 18.5 kW	05883	2945	18.5	400[3]	33.9	230	776	60	266	**MSA**	01289	**SDD 3**	01367	**SDZ 3**	01366
AMD 710/4 3 kW	03301	1455	3	400[3]	6.0	10	796	60	107	**MSA**	01289	**SDD 2**	01453	**SDZ 2**	01455
AMD 710/4 4 kW	03302	1500	4	400[3]	7.4	60	776	60	114	**MSA**	01289	**SDD 2**	01453	**SDZ 2**	01455
AMD 710/4 5.5 kW	03303	1470	5.5	400[3]	10.7	70	776	60	135	**MSA**	01289	**SDD 2**	01453	**SDZ 2**	01455
AMD 710/4 7.5 kW	03304	1460	7.5	400[3]	14.2	110	776	60	146	**MSA**	01289	**SDD 2**	01453	**SDZ 2**	01455
AMD 710/4 11 kW	03305	1470	11	400[3]	20.9	175	776	60	217	**MSA**	01289	**SDD 3**	01367	**SDZ 3**	01366
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
AMD 710/8/4 0.9/3.2 kW	03306	680/1410	0.9/3.2	400	3.2/7.1	60	777	60	124	—		**SDD 2**	01453	**SDZ 2**	01455
AMD 710/8/4 1.1/4.5 kW	03307	680/1435	1.1/4.5	400	3.6/9.3	70	777	60	150	—		**SDD 2**	01453	**SDZ 3**	01366
AMD 710/8/4 1.5/6.3 kW	03308	680/1440	1.5/6.3	400	4.5/12.3	110	777	60	162	—		**SDD 2**	01453	**SDZ 3**	01366
AMD 710/8/4 2.0/8.9 kW	03309	690/1450	2.0/8.9	400	5.3/17.8	175	777	60	227	—		**SDD 3**	01367	**SDZ 3**	01366
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**										Smoke exhaust fan control system					
B AMD 710/2 15 kW F300	05914	2945	15.0	400[3]	27.7	158	776	60/300	225	**EVS-SD 005**	04582	**SDD 6**	01926	**SDZ 6**	01927
B AMD 710/2 18.5 kW F300	05915	2945	18.5	400[3]	33.9	224	776	60/300	273	**EVS-SD 006**	04581	**SDD 6**	01926	**SDZ 6**	01927
B AMD 710/4 3 kW F300	03420	1455	3	400[3]	6.0	0	776	60/300	116	**EVS-SD 001**	04586	**SDD 4**	01944	**SDZ 4**	01945
B AMD 710/4 4 kW F300	03421	1460	4	400[3]	7.9	4	776	60/300	130	**EVS-SD 001**	04586	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/4 5.5 kW F300	03422	1470	5.5	400[3]	10.7	41	776	60/300	145	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/4 7.5 kW F300	03423	1460	7.5	400[3]	14.2	80	776	60/300	152	**EVS-SD 003**	04584	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/4 11 kW F300	03424	1470	11	400[3]	20.9	158	776	60/300	187	**EVS-SD 004**	04583	**SDD 5**	01924	**SDZ 5**	01925
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 710/8/4 0.7/2.8 kW F300	03507	710/1440	0.7/2.8	400	2.5/6.0	0	777	60/300	116	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 710/8/4 1.0/3.8 kW F300	03508	710/1440	1.0/3.8	400	2.9/7.9	4	777	60/300	126	**EVS-DA 001**	04548	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/8/4 1.3/5.0 kW F300	03509	735/1475	1.3/5.0	400	3.8/10.4	41	777	60/300	151	**EVS-DA 053**	04192	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/8/4 1.8/7.2 kW F300	03510	735/1475	1.8/7.2	400	5.3/15.0	80	777	60/300	164	**EVS-DA 002**	04547	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/8/4 3.0/11 kW F300	03511	730/1470	3.0/11.0	400	7.0/21.7	158	777	60/300	200	**EVS-DA 054**	04194	**SDD 6**	01926	**SDZ 6**	01927
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B AMD 710/4 3.0 kW F400	03240	1455	3	400[3]	6.0	0	776	60/400	117	**EVS-SD 001**	04586	**SDD 4**	01944	**SDZ 4**	01945
B AMD 710/4 4.0 kW F400	03241	1460	4	400[3]	7.9	4	776	60/400	130	**EVS-SD 001**	04586	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/4 5.5 kW F400	03243	1470	5.5	400[3]	10.7	41	776	60/400	145	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/4 7.5 kW F400	03244	1460	7.5	400[3]	14.2	80	776	60/400	152	**EVS-SD 003**	04584	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/4 11 kW F400	03245	1470	11	400[3]	20.9	158	776	60/400	196	**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 710/8/4 0.7/2.8 kW F400	03246	710/1440	0.7/2.8	400	2.5/6.0	0	777	60/400	116	**EVS-DA 001**	04548	**SDD 4**	01944	**SDZ 4**	01945
B AMD 710/8/4 1.0/3.8 kW F400	03247	710/1440	1.0/3.8	400	2.9/7.9	4	777	60/400	127	**EVS-DA 001**	04548	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/8/4 1.3/5.0 kW F400	03248	735/1475	1.3/5.0	400	3.8/10.4	41	777	60/400	151	**EVS-DA 053**	04192	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/8/4 1.8/7.2 kW F400	03249	735/1475	1.8/7.2	400	5.3/15.0	80	777	60/400	164	**EVS-DA 002**	04547	**SDD 5**	01924	**SDZ 5**	01925
B AMD 710/8/4 3.0/11 kW F400	03250	730/1470	3.0/11.0	400	7.0/21.7	158	777	60/400	200	**EVS-DA 054**	04194	**SDD 6**	01926	**SDZ 6**	01927

The flow volume and pressure increase information is required to determine the pitch angle.

[1] For ventilation / smoke extraction (once 120 min.).

[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

[3] Y/Δ start-up.

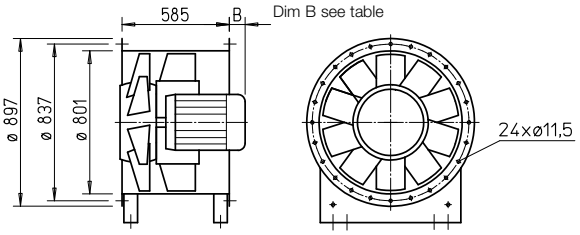
AMD / B AMD 800

(Fig. incl. mounting bracket (type MK, Accessories))

60 °C F300 F400

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Dimensions AMD / B AMD 800



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- Dynamically balanced, quality class 6.3 for low-vibration operation.
- Blades can be steplessly adjusted in the factory.

Motor
- Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

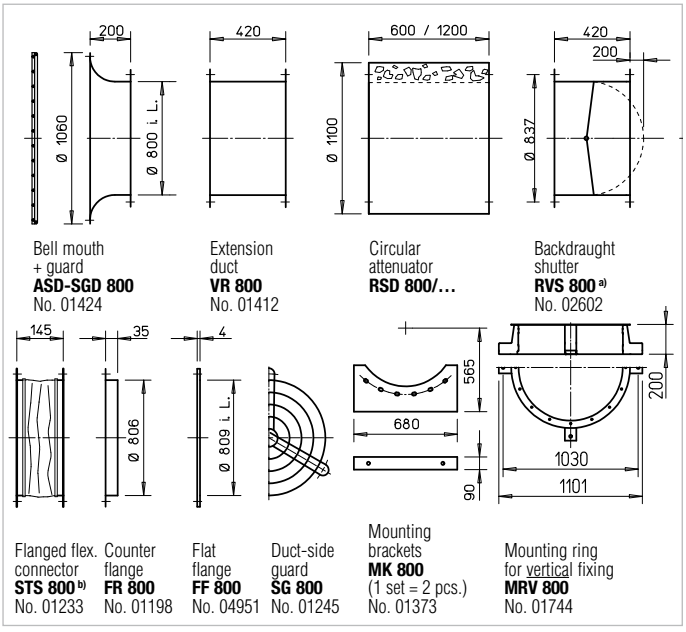
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 60 kg

MP-Z 800 Ref. no. 04911

Double volume

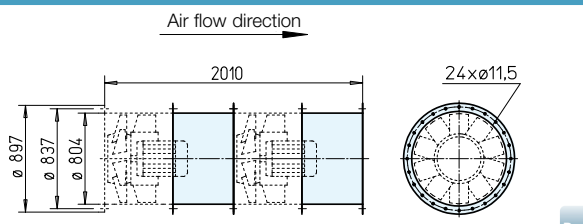
Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 205 kg

MP-P 800 Ref. no. 04895



Bell mouth + guard **ASD-SGD 800** No. 01424
Extension duct **VR 800** No. 01412
Circular attenuator **RSD 800/...**
Backdraught shutter **RVS 800** [a] No. 02602
Flanged flex. connector **STS 800** [b] No. 01233
Counter flange **FR 800** No. 01198
Flat flange **FF 800** No. 04951
Duct-side guard **SG 800** No. 01245
Mounting brackets **MK 800** (1 set = 2 pcs.) No. 01373
Mounting ring for vertical fixing **MRV 800** No. 01744

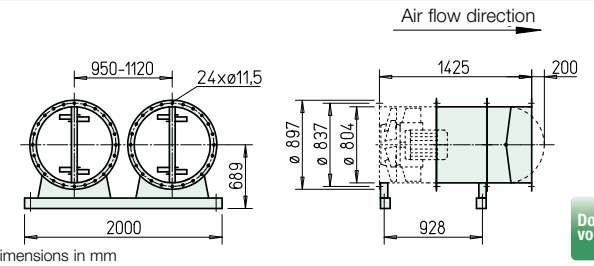
Dimensions MP-Z 800



All dimensions in mm

Double pressure

Dimensions MP-P 800



All dimensions in mm

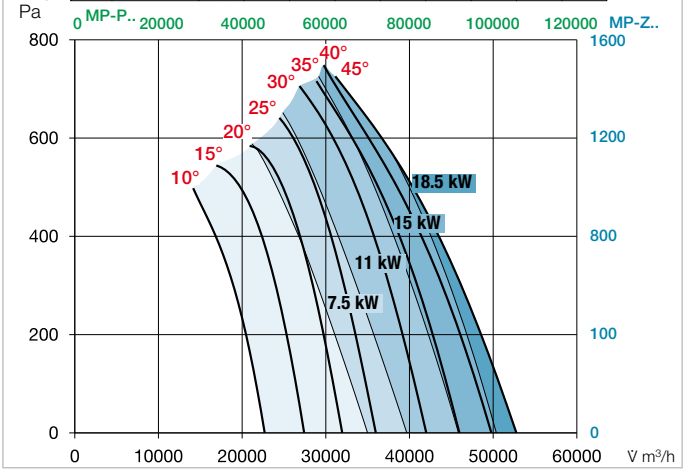
Double volume

[a] Backdraught shutter, motorised, for ventilation, see main Helios catalogue. [b] Type for B AMD: STSB 800 F400, No. 01919

Performance curves AMD / B AMD 800/4

n=1460 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	103	83	93	98	99	96	88	77
L_{WA}	20°	dB(A)	104	84	93	99	100	96	89	77
L_{WA}	30°	dB(A)	106	86	96	101	102	98	91	80
L_{WA}	40°	dB(A)	108	88	98	103	104	100	93	81



Information	Page
Techn. description	46
Project planning information	3 ff.
Special designs	
Special design with inspection open. (add. cost) upon request.	

Accessory details	Page
Mounting accessories	151 ff.
Attenuators	156 ff.
Gas warning systems, switch and control technology	158 ff.
Frequency inverters	168 ff.

Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min⁻¹	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**										Full motor protection					
AMD 800/4 5.5 kW	03311	1470	5.5	400[3]	10.7	65	776	60	174	**MSA**	01289	**SDD 3**	01367	**SDZ 3**	01366
AMD 800/4 7.5 kW	03312	1460	7.5	400[3]	14.2	100	776	60	185	**MSA**	01289	**SDD 3**	01367	**SDZ 3**	01366
AMD 800/4 11 kW	03313	1470	11	400[3]	20.9	165	776	60	260	**MSA**	01289	**SDD 3**	01367	**SDZ 3**	01366
AMD 800/4 15 kW	03314	1465	15	400[3]	27.9	210	776	60	270	**MSA**	01289	**SDD 3**[4]	01367	**SDZ 6**[4]	01927
AMD 800/4 18.5 kW	03315	1470	18.5	400[3]	35.1	250	776	60	290	**MSA**	01289	**SDD 3**[4]	01367	**SDZ 6**[4]	01927
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
AMD 800/8/4 1.5/6.3 kW	03316	680/1440	1.5/6.3	400	4.5/12.3	100	777	60	200	—		**SDD 3**	01367	**SDZ 3**	01366
AMD 800/8/4 2.0/8.9 kW	03317	690/1450	2.0/8.9	400	5.3/17.8	165	777	60	270	—		**SDD 3**	01367	**SDZ 3**	01366
AMD 800/8/4 2.7/12 kW	03318	700/1460	2.7/12	400	7.1/24.0	210	777	60	280	—		**SDD 3**[4]	01367	**SDZ 6**[4]	01927
AMD 800/8/4 4.0/16 kW	03319	720/1460	4.0/16.0	400	10.6/30.9	250	777	60	310	—		**SDD 3**[4]	01367	**SDZ 7**[4]	01929
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**										Smoke exhaust fan control system					
B AMD 800/4 5.5 kW F300	03514	1470	5.5	400[3]	10.7	34	776	60/300	183	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
B AMD 800/4 7.5 kW F300	03515	1460	7.5	400[3]	14.2	73	776	60/300	191	**EVS-SD 003**	04584	**SDD 5**	01924	**SDZ 5**	01925
B AMD 800/4 11 kW F300	03516	1470	11	400[3]	20.9	151	776	60/300	230	**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
B AMD 800/4 15 kW F300	03517	1465	15	400[3]	27.9	195	776	60/300	240	**EVS-SD 005**	04582	**SDD 6**[4]	01926	**SDZ 6**[4]	01927
B AMD 800/4 18.5 kW F300	03518	1470	18.5	400[3]	35.1	217	776	60/300	300	**EVS-SD 006**	04581	**SDD 6**[4]	01926	**SDZ 6**[4]	01927
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 800/8/4 1.3/5.0 kW F300	03519	735/1475	1.3/5.0	400	3.8/10.4	34	777	60/300	190	**EVS-DA 053**	04192	**SDD 5**	01924	**SDZ 5**	01925
B AMD 800/8/4 1.8/7.2 kW F300	03520	735/1475	1.8/7.2	400	5.3/15.0	73	777	60/300	210	**EVS-DA 002**	04547	**SDD 6**	01926	**SDZ 6**	01927
B AMD 800/8/4 3.0/11 kW F300	03521	730/1470	3.0/11.0	400	7.0/21.7	195	777	60/300	240	**EVS-DA 054**	04194	**SDD 6**[4]	01926	**SDZ 6**[4]	01927
B AMD 800/8/4 4.3/17 kW F300	03522	730/1475	4.3/17.0	400	12.7/33.4	217	777	60/300	290	**EVS-DA 055**	04196	**SDD 6**[4]	01926	**SDZ 6**[4]	01927
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B AMD 800/4 5.5 kW F400	03255	1470	5.5	400[3]	10.7	34	776	60/400	185	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
B AMD 800/4 7.5 kW F400	03256	1460	7.5	400[3]	14.2	73	776	60/400	192	**EVS-SD 003**	04584	**SDD 5**	01924	**SDZ 5**	01925
B AMD 800/4 11 kW F400	03257	1470	11	400[3]	20.9	151	776	60/400	240	**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
B AMD 800/4 15 kW F400	03258	1465	15	400[3]	27.9	195	776	60/400	250	**EVS-SD 005**	04582	**SDD 6**[4]	01926	**SDZ 6**[4]	01927
B AMD 800/4 18.5 kW F400	03259	1470	18.5	400[3]	35.1	217	776	60/400	300	**EVS-SD 006**	04581	**SDD 6**[4]	01926	**SDZ 6**[4]	01927
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 800/8/4 1.3/5.0 kW F400	03260	735/1475	1.3/5.0	400	3.8/10.4	34	777	60/400	190	**EVS-DA 053**	04192	**SDD 5**	01924	**SDZ 5**	01925
B AMD 800/8/4 1.8/7.2 kW F400	03261	735/1475	1.8/7.2	400	5.3/15.0	73	777	60/400	210	**EVS-DA 002**	04547	**SDD 6**	01926	**SDZ 6**	01927
B AMD 800/8/4 3.0/11 kW F400	03262	730/1470	3.0/11.0	400	7.0/21.7	195	777	60/400	240	**EVS-DA 054**	04194	**SDD 6**[4]	01926	**SDZ 6**[4]	01927
B AMD 800/8/4 4.3/17 kW F400	03263	730/1475	4.3/17.0	400	12.7/33.4	217	777	60/400	290	**EVS-DA 055**	04196	**SDD 6**[4]	01926	**SDZ 6**[4]	01927

The flow volume and pressure increase information is required to determine the pitch angle.
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.
[4] Extension duct VR.. required over the motor protrusion.
[1] For ventilation / smoke extraction (once 120 min.).
[3] Y/Δ start-up.

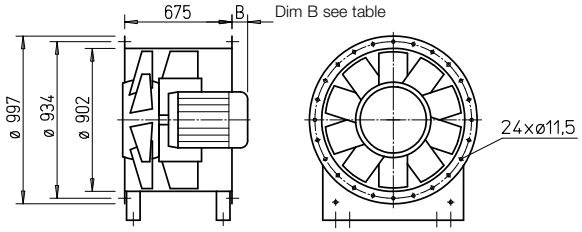
AMD / B AMD 900

60 °C F300 F400

(Fig. incl. mounting bracket (type MK, Accessories))

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Dimensions AMD / B AMD 900



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- ☐ Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- ☐ Dynamically balanced, quality class 6.3 for low-vibration operation.
- ☐ Blades can be steplessly adjusted in the factory.

Motor
- ☐ Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- ☐ Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- ☐ Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- ☐ Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- ☐ Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- ☐ Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

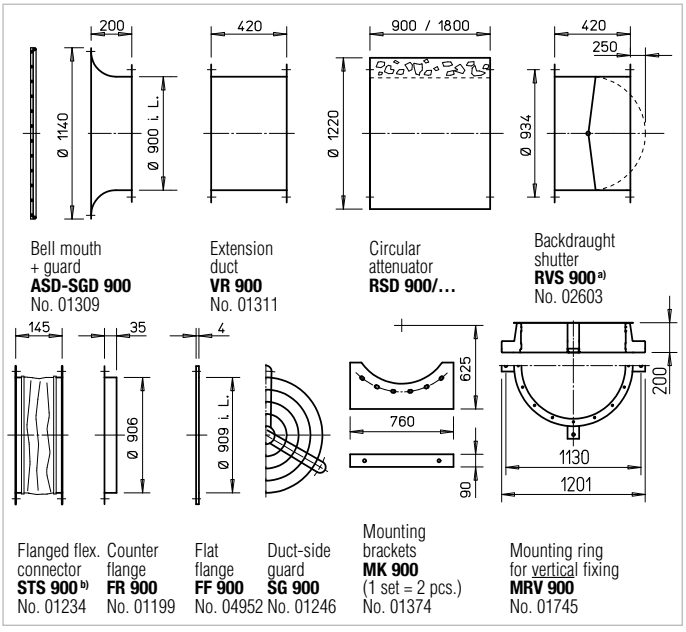
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 68 kg

MP-Z 900 Ref. no. 04912

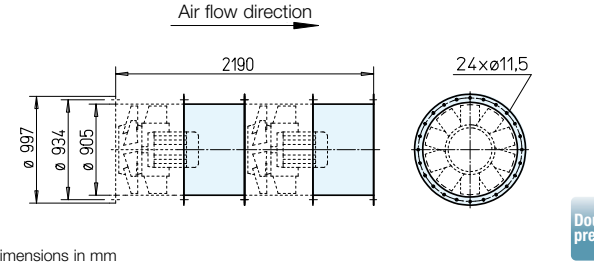
Double volume

Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 235 kg

MP-P 900 Ref. no. 04896



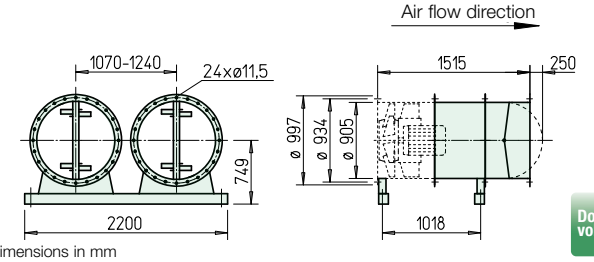
Dimensions MP-Z 900



All dimensions in mm

Double pressure

Dimensions MP-P 900



All dimensions in mm

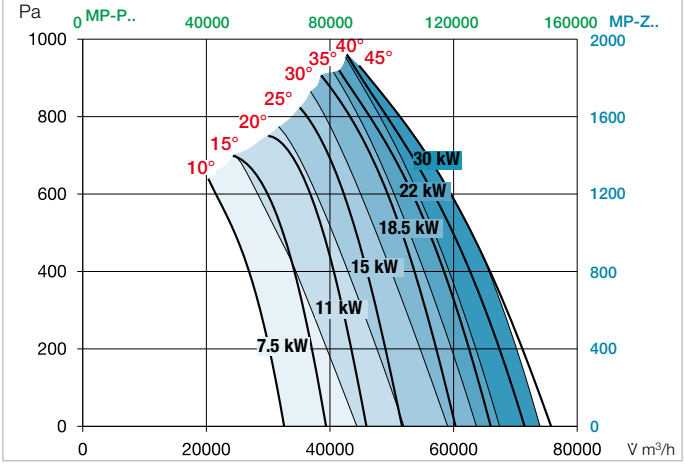
Double volume

a) Backdraught shutter, motorised, for ventilation, see main Helios catalogue. b) Type for B AMD: STSB 900 F400, No. 01920

Performance curves AMD / B AMD 900/4

n=1470 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	107	86	96	102	103	99	92	80
L_{WA}	20°	dB(A)	107	87	97	102	103	100	92	81
L_{WA}	30°	dB(A)	110	89	99	105	106	102	95	83
L_{WA}	40°	dB(A)	112	91	101	107	107	104	97	85



Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min⁻¹	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**										Full motor protection					
AMD 900/4 7.5 kW	03322	1460	7.5	400[3]	14.2	50	776	60	240	**MSA**	01289	**SDD 3**	01367	**SDZ 3**	01366
AMD 900/4 11 kW	03323	1470	11	400[3]	20.9	50	776	60	310	**MSA**	01289	**SDD 3**	01367	**SDZ 6**	01927
AMD 900/4 15 kW	03324	1465	15	400[3]	27.9	110	776	60	320	**MSA**	01289	**SDD 3**	01367	**SDZ 6**	01927
AMD 900/4 18.5 kW	03325	1470	18.5	400[3]	35.1	190	776	60	340	**MSA**	01289	**SDD 3**	01367	**SDZ 7**	01929
AMD 900/4 22 kW	03326	1470	22	400[3]	41.0	230	776	60	350	**MSA**	01289	**SDD 3**[4]	01367	**SDZ 7**[4]	01929
AMD 900/4 30 kW	03327	1480	30	400[3]	57.1	290	776	60	410	**MSA**	01289	**SDD 3**[4]	01367	**SDZ 7**[4]	01929
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
AMD 900/8/4 2.7/12 kW	03328	700/1460	2.7/12	400	7.1/24.0	110	777	60	330	—		**SDD 3**	01367	**SDZ 6**	01927
AMD 900/8/4 4.0/16 kW	03329	720/1460	4.0/16.0	400	10.6/30.9	190	777	60	360	—		**SDD 3**	01367	**SDZ 7**	01929
AMD 900/8/4 5.0/19.5 kW	03330	720/1470	5.0/19.5	400	12.9/37.2	230	777	60	370	—		**SDD 3**[4]	01367	**SDZ 7**[4]	01929
AMD 900/8/4 7.5/29 kW	03331	720/1470	7.5/29.0	400	18.9/54.7	290	777	60	440	—		**SDD 3**[4]	01367	**SDZ 7**[4]	01929
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**										Smoke exhaust fan control system					
B AMD 900/4 7.5 kW F300	03525	1460	7.5	400[3]	14.2	22	776	60/300	250	**EVS-SD 003**	04584	**SDD 6**	01926	**SDZ 6**	01927
B AMD 900/4 11 kW F300	03526	1470	11	400[3]	20.9	100	776	60/300	280	**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
B AMD 900/4 15 kW F300	03527	1465	15	400[3]	27.9	144	776	60/300	290	**EVS-SD 005**	04582	**SDD 6**	01926	**SDZ 6**	01927
B AMD 900/4 18.5 kW F300	03528	1470	18.5	400[3]	35.1	166	776	60/300	350	**EVS-SD 006**	04581	**SDD 7**	01928	**SDZ 7**	01929
B AMD 900/4 22 kW F300	03529	1470	22	400[3]	41.0	204	776	60/300	360	**EVS-SD 007**	04580	**SDD 7**[4]	01928	**SDZ 7**[4]	01929
B AMD 900/4 30 kW F300	03530	1480	30	400[3]	57.1	230	776	60/300	420	**EVS-SD 008**	04579	**SDD 7**[4]	01928	**SDZ 7**[4]	01929
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 900/8/4 3.0/11 kW F300	03535	730/1470	3.0/11.0	400	7.0/21.7	144	777	60/300	290	**EVS-DA 054**	04194	**SDD 6**	01926	**SDZ 6**	01927
B AMD 900/8/4 4.3/17 kW F300	03536	730/1475	4.3/17.0	400	12.7/33.4	166	777	60/300	340	**EVS-DA 055**	04196	**SDD 7**	01928	**SDZ 7**	01929
B AMD 900/8/4 5.0/20 kW F300	03537	730/1470	5.0/20.0	400	14.1/38.6	204	777	60/300	350	**EVS-DA 004**	04545	**SDD 7**[4]	01928	**SDZ 7**[4]	01929
B AMD 900/8/4 6.5/28 kW F300	03538	735/1480	6.5/28.0	400	18.0/52.0	230	777	60/300	410	**EVS-DA 056**	04202	**SDD 7**[4]	01928	**SDZ 7**[4]	01929
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B AMD 900/4 7.5 kW F400	03264	1460	7.5	400[3]	14.2	22	776	60/400	250	**EVS-SD 003**	04584	**SDD 6**	01926	**SDZ 6**	01927
B AMD 900/4 11 kW F400	03265	1470	11	400[3]	20.9	100	776	60/400	290	**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
B AMD 900/4 15 kW F400	03266	1465	15	400[3]	27.9	144	776	60/400	300	**EVS-SD 005**	04582	**SDD 6**	01926	**SDZ 6**	01927
B AMD 900/4 18.5 kW F400	03267	1470	18.5	400[3]	35.1	166	776	60/400	350	**EVS-SD 006**	04581	**SDD 7**	01928	**SDZ 7**	01929
B AMD 900/4 22 kW F400	03268	1470	22	400[3]	41.0	204	776	60/400	360	**EVS-SD 007**	04580	**SDD 7**[4]	01928	**SDZ 7**[4]	01929
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 900/8/4 3.0/11 kW F400	03269	730/1470	3.0/11.0	400	7.0/21.7	144	777	60/400	290	**EVS-DA 054**	04194	**SDD 6**	01926	**SDZ 6**	01927
B AMD 900/8/4 4.3/17 kW F400	03270	730/1475	4.3/17.0	400	12.7/33.4	166	777	60/400	340	**EVS-DA 055**	04196	**SDD 7**	01928	**SDZ 7**	01929
B AMD 900/8/4 5.0/20 kW F400	03271	730/1470	5.0/20.0	400	14.1/38.6	204	777	60/400	350	**EVS-DA 004**	04545	**SDD 7**[4]	01928	**SDZ 7**[4]	01929

The flow volume and pressure increase information is required to determine the pitch angle.
[1] For ventilation / smoke extraction (once 120 min.).
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.
[3] Y/Δ start-up.
[4] Extension duct VR.. required over the motor protrusion.

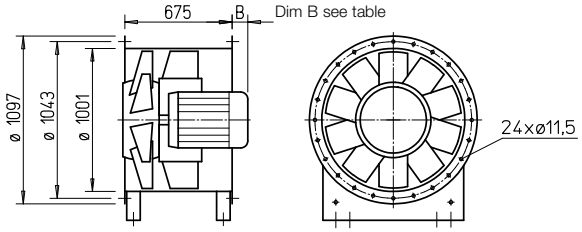
AMD / B AMD 1000

(Fig. incl. mounting bracket (type MK, Accessories))

60 °C F300 F400

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Dimensions AMD / B AMD 1000



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- Dynamically balanced, quality class 6.3 for low-vibration operation.
- Blades can be steplessly adjusted in the factory.

Motor
- Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

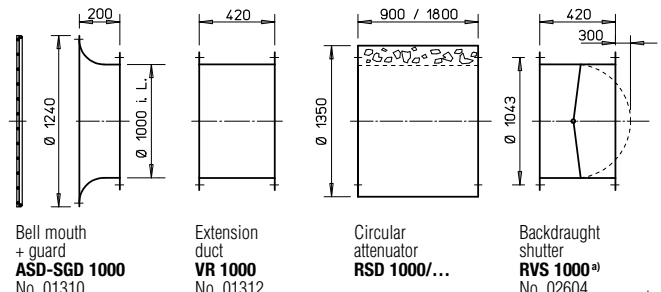
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 75 kg

MP-Z 1000 Ref. no. 04913

Double volume

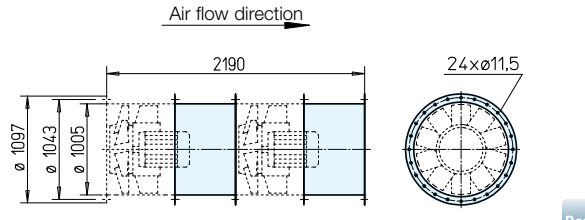
Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 255 kg

MP-P 1000 Ref. no. 04897



Bell mouth + guard **ASD-SGD 1000** No. 01310
Extension duct **VR 1000** No. 01312
Circular attenuator **RSD 1000/...**
Backdraught shutter **RVS 1000** [a] No. 02604
Flanged flex. connector **STS 1000** [b] No. 01235
Counter flange **FR 1000** No. 01210
Flat flange **FF 1000** No. 04953
Duct-side guard **SG 1000** No. 01290
Mounting brackets **MK 1000** (1 set = 2 pcs.) No. 01375
Mounting ring for vertical fixing **MRV 1000** No. 01749

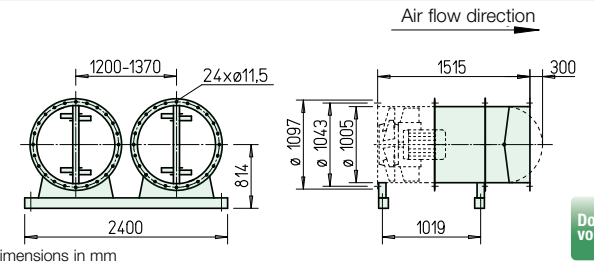
Dimensions MP-Z 1000



All dimensions in mm

Double pressure

Dimensions MP-P 1000



All dimensions in mm

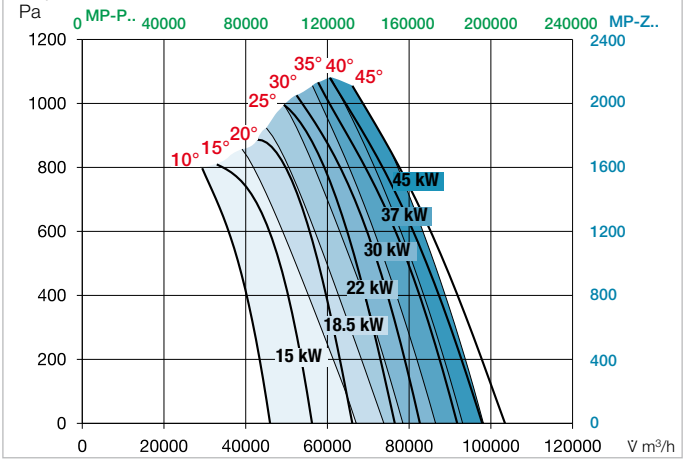
Double volume

[a] Backdraught shutter, motorised, for ventilation, see main Helios catalogue. [b] Type for B AMD: STSB 1000 F400, No. 01921

Performance curves AMD / B AMD 1000/4

n=1475 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	110	89	99	105	105	102	95	83
L_{WA}	20°	dB(A)	110	90	100	105	106	103	95	84
L_{WA}	30°	dB(A)	112	92	102	107	108	105	97	86
L_{WA}	40°	dB(A)	114	94	104	109	110	107	99	88



Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min⁻¹	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**										Full motor protection					
AMD 1000/4 15 kW	03667	1465	15	400[3]	27.9	160	776	60	360	**MSA**	01289	**SDD 3**	01367	**SDZ 7**	01929
AMD 1000/4 18.5 kW	03668	1470	18.5	400[3]	35.1	195	776	60	370	**MSA**	01289	**SDD 3**	01367	**SDZ 7**	01929
AMD 1000/4 22 kW	03669	1470	22	400[3]	41.0	235	776	60	390	**MSA**	01289	**SDD 3**	01367	**SDZ 7**	01929
AMD 1000/4 30 kW	03670	1480	30	400[3]	57.1	290	776	60	450	**MSA**	01289	**SDD 3**[4]	01367	**SDZ 7**[4]	01929
AMD 1000/4 37 kW	03671	1480	37	400[3]	66.8	300	776	60	460	**MSA**	01289	**SDD 3**[4]	01367	**SDZ 7**[4]	01929
AMD 1000/4 45 kW	03672	1475	45	400[3]	80.9	325	776	60	490	**MSA**	01289	**SDD 3**[4]	01367	**SDZ 8**[4]	01931
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
AMD 1000/8/4 4.0/16 kW	03674	720/1460	4.0/16.0	400	10.6/30.9	195	777	60	390	—		**SDD 3**	01367	**SDZ 7**	01929
AMD 1000/8/4 5.0/19.5 kW	03675	720/1470	5.0/19.5	400	12.9/37.2	235	777	60	410	—		**SDD 3**	01367	**SDZ 7**	01929
AMD 1000/8/4 7.5/29 kW	03676	720/1470	7.5/29.5	400	18.9/54.7	325	777	60	470	—		**SDD 3**[4]	01367	**SDZ 8**[4]	01931
AMD 1000/8/4 9.5/40 kW	03677	725/1475	9.5/40.0	400	24.3/72.1	300	777	60	530	—		**SDD 3**[4]	01367	**SDZ 8**[4]	01931
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**										Smoke exhaust fan control system					
B AMD 1000/4 15 kW F300	03630	1465	15	400[3]	27.9	150	776	60/300	330	**EVS-SD 005**	04582	**SDD 6**	01926	**SDZ 6**	01927
B AMD 1000/4 18.5 kW F300	03631	1470	18.5	400[3]	35.1	210	776	60/300	380	**EVS-SD 006**	04581	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1000/4 22 kW F300	03632	1470	22	400[3]	41.0	210	776	60/300	390	**EVS-SD 007**	04580	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1000/4 30 kW F300	03633	1480	30	400[3]	57.1	275	776	60/300	460	**EVS-SD 008**	04579	**SDD 7**[4]	01928	**SDZ 7**[4]	01929
B AMD 1000/4 37 kW F300	03634	1480	37	400[3]	66.8	325	776	60/300	560	**EVS-SD 009**	04578	**SDD 8**[4]	01930	**SDZ 8**[4]	01931
B AMD 1000/4 45 kW F300	03635	1475	45	400[3]	80.9	325	776	60/300	590	**EVS-SD 009**	04578	**SDD 8**[4]	01930	**SDZ 8**[4]	01931
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 1000/8/4 4.3/17 kW F300	03636	730/1475	4.3/17.0	400	12.7/33.4	170	777	60/300	370	**EVS-DA 055**	04196	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1000/8/4 5.0/20 kW F300	03637	730/1470	5.0/20.0	400	14.1/38.6	210	777	60/300	390	**EVS-DA 004**	04545	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1000/8/4 6.5/28 kW F300	03638	735/1480	6.5/28.0	400	18.0/52.0	275	777	60/300	450	**EVS-DA 056**	04202	**SDD 7**[4]	01928	**SDZ 7**[4]	01929
B AMD 1000/8/4 9.2/37 kW F300	03639	740/1485	9.2/37.0	400	25.4/74.2	325	777	60/300	570	**EVS-DA 057**	04209	**SDD 8**[4]	01930	**SDZ 8**[4]	01931
B AMD 1000/8/4 11/44 kW F300	03640	740/1480	11.0/44.0	400	27.2/84.1	325	777	60/300	630	**EVS-DA 057**	04209	**SDD 8**[4]	01930	**SDZ 8**[4]	01931
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B AMD 1000/4 15 kW F400	03580	1465	15	400[3]	27.9	150	776	60/400	330	**EVS-SD 005**	04582	**SDD 6**	01926	**SDZ 6**	01927
B AMD 1000/4 18.5 kW F400	03581	1470	18.5	400[3]	35.1	210	776	60/400	390	**EVS-SD 006**	04581	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1000/4 22 kW F400	03582	1470	22	400[3]	41.0	210	776	60/400	390	**EVS-SD 007**	04580	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1000/4 30 kW F400	03583	1480	30	400[3]	57.1	275	776	60/400	460	**EVS-SD 008**	04579	**SDD 7**[4]	01928	**SDZ 7**[4]	01929
B AMD 1000/4 37 kW F400	03584	1480	37	400[3]	66.8	325	776	60/400	590	**EVS-SD 009**	04578	**SDD 8**[4]	01930	**SDZ 8**[4]	01931
B AMD 1000/4 45 kW F400	03585	1475	45	400[3]	80.9	325	776	60/400	590	**EVS-SD 009**	04578	**SDD 8**[4]	01930	**SDZ 8**[4]	01931
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B AMD 1000/8/4 4.3/17 kW F400	03597	730/1475	4.3/17.0	400	12.7/33.4	170	777	60/400	370	**EVS-DA 055**	04196	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1000/8/4 5.0/20 kW F400	03598	730/1470	5.0/20.0	400	14.1/38.6	210	777	60/400	390	**EVS-DA 004**	04545	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1000/8/4 6.5/28 kW F400	03599	735/1480	6.5/28.0	400	18.0/52.0	275	777	60/400	442	**EVS-DA 056**	04202	**SDD 7**[4]	01928	**SDZ 7**[4]	01929
B AMD 1000/8/4 9.2/37 kW F400	03600	740/1485	9.2/37.0	400	25.4/74.2	325	777	60/400	567	**EVS-DA 057**	04209	**SDD 8**[4]	01930	**SDZ 8**[4]	01931
B AMD 1000/8/4 11/44 kW F400	03601	740/1480	11.0/44.0	400	27.2/84.1	325	777	60/400	632	**EVS-DA 057**	04209	**SDD 8**[4]	01930	**SDZ 8**[4]	01931

The flow volume and pressure increase information is required to determine the pitch angle.
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.
[4] Extension duct VR.. required over the motor protrusion.
[1] For ventilation / smoke extraction (once 120 min.).
[3] Y/Δ start-up.

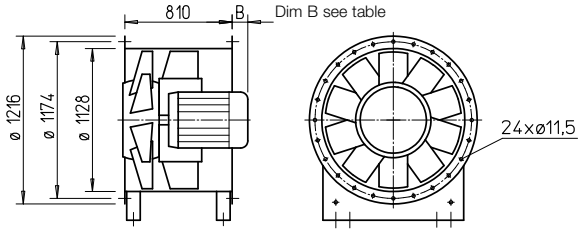
AMD / B AMD 1120

60 °C F300 F400

(Fig. incl. mounting bracket (type MK, Accessories))

Certification
The smoke ventilation fans B AMD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-13
F400: 0036-CPR-RG05-14

Dimensions AMD / B AMD 1120



All dimensions in mm

Accessories MK... (see below)

Description, Installation, Casing, Air flow direction, etc.
see page 46.

Impeller
- ☐ Hub and blades made from corrosion-resistant aluminium alloy. Ten aerodynamically profiled blades achieve the highest level of efficiency and pressure ratings together with the guide vane.
- ☐ Dynamically balanced, quality class 6.3 for low-vibration operation.
- ☐ Blades can be steplessly adjusted in the factory.

Motor
- ☐ Series AMD: Direct through efficient IE3 standard three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55, insulation class F.
- ☐ Series B AMD: Direct through efficient IE3 three phase motor (smoke extraction motors F300 or F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. Fire-resistant external cable with sheathing.

Motor protrusion
For some types, the motor protrudes over the casing. Protrusion dimension B in mm must be observed according to the type table.

Motor protection
All types have PTC resistors from the terminal box. This must be bridged in smoke extraction mode for B AMD models.

Electrical connection
- ☐ Series AMD: Standard plastic terminal box (protection class IP55), mounted to outside of duct.
- ☐ Series B AMD: Standard aluminium die-cast terminal box (protection class IP55), mounted to outside of duct.

Air flow temperatures
- ☐ Series AMD: Suitable for supply and extract ventilation from -20 °C to +60 °C continuous temperature. Types for higher air flow temperatures upon request.
- ☐ Series B AMD: Like series AMD, but also for smoke extraction according to the temperature classification up to 300 °C/120 min. and 400 °C/120 min.

Double pressure

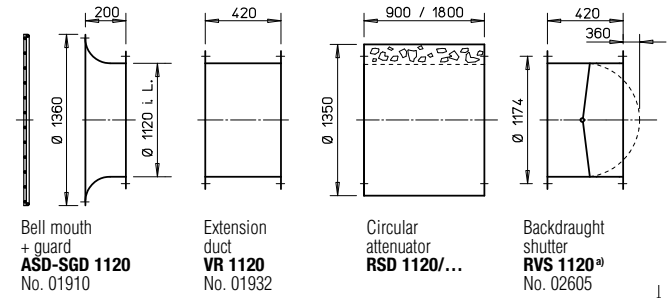
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 85 kg

MP-Z 1120 Ref. no. 04914

Double volume

Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates. Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits. Weight: 290 kg

MP-P 1120 Ref. no. 04898



Bell mouth + guard **ASD-SGD 1120** No. 01910

Extension duct **VR 1120** No. 01932

Circular attenuator **RSD 1120/...**

Backdraught shutter **RVS 1120**[a] No. 02605

Flanged flex. connector **STS 1120**[b] No. 05806

Counter flange **FR 1120** No. 01362

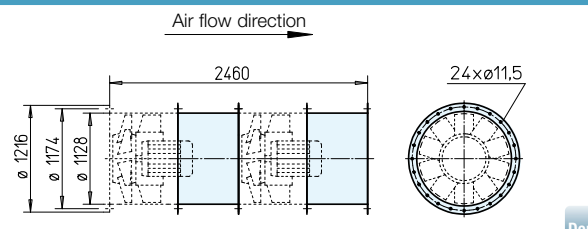
Flat flange **FF 1120** No. 04954

Duct-side guard **SG 1120** No. 01361

Mounting brackets **MK 1120** (1 set = 2 pcs.) No. 01376

Mounting ring for vertical fixing **MRV 1120** No. 01750

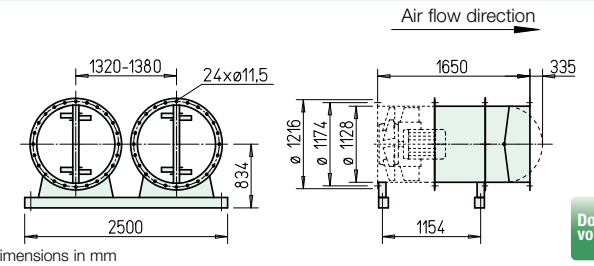
Dimensions MP-Z 1120



All dimensions in mm

Double pressure

Dimensions MP-P 1120



All dimensions in mm

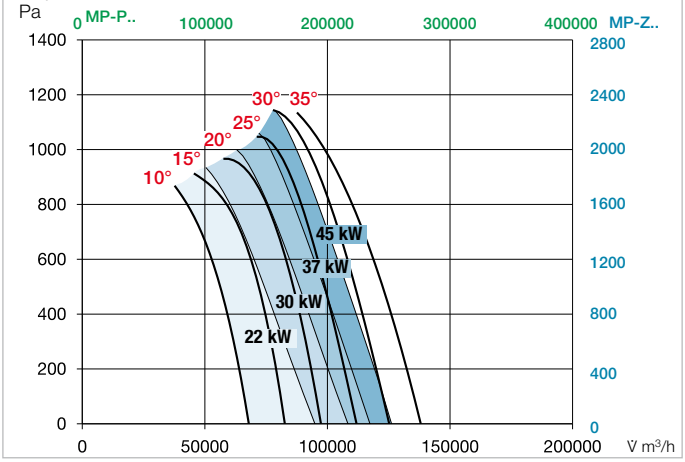
Double volume

[a] Backdraught shutter, motorised, for ventilation, see main Helios catalogue. [b] Type for B AMD: STSB 1120 F400, No. 01922

Performance curves AMD / B AMD 1120/4

n=1475 1/min

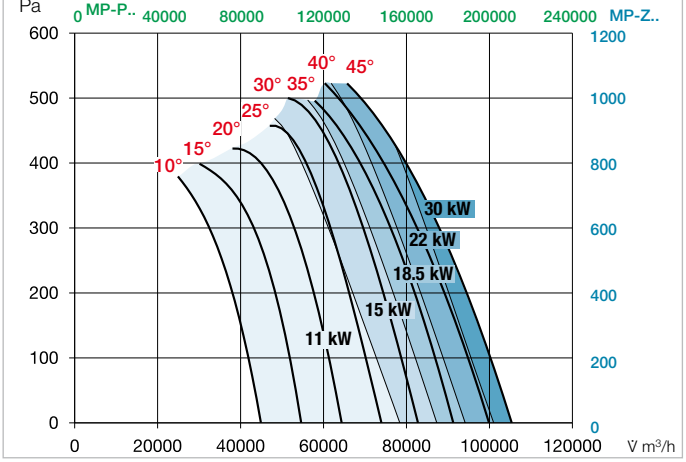
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	112	91	101	107	108	104	97	85
L_{WA}	20°	dB(A)	113	92	102	108	109	105	98	86
L_{WA}	30°	dB(A)	114	94	104	109	110	107	99	88
L_{WA}	40°	dB(A)	116	95	105	111	112	108	101	89



Performance curves AMD / B AMD 1120/6

n=975 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	10°	dB(A)	102	85	93	97	97	92	83	70
L_{WA}	20°	dB(A)	103	86	94	98	98	93	84	71
L_{WA}	30°	dB(A)	104	87	96	100	99	94	86	73
L_{WA}	40°	dB(A)	106	89	97	101	101	96	87	74



Information	Page
Techn. description	46
Project planning information	3 ff.

Special designs

Special design with inspection open. (add. cost) upon request.

Accessory details	Page
Mounting accessories	151 ff.
Attenuators	156 ff.
Gas warning systems, switch and control technology	158 ff.
Frequency inverters	168 ff.

Type	Ref. no.	Speed	Nominal motor power (output)	Nominal voltage	Nominal current	Dim. B motor protrusion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Full motor protection or Smoke exhaust fan control system		Anti-vibration mounts[2] Pressure		Tensile	
		min^{-1}	kW	V	A	mm	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**										Full motor protection					
AMD 1120/6 11 kW	03899	975	11	400[3]	21.9	25	776	60	400	**MSA**	01289	**SDD 3**	01367	**SDZ 7**	01929
AMD 1120/6 15 kW	03900	975	15	400[3]	28.2	100	776	60	430	**MSA**	01289	**SDD 3**	01367	**SDZ 7**	01929
AMD 1120/6 18.5 kW	03901	980	18.5	400[3]	35.9	150	776	60	489	**MSA**	01289	**SDD 3**	01367	**SDZ 7**	01929
AMD 1120/6 22 kW	03902	980	22	400[3]	42.4	150	776	60	508	**MSA**	01289	**SDD 3**	01367	**SDZ 8**	01931
AMD 1120/6 30 kW	03903	985	30	400[3]	56.0	190	776	60	544	**MSA**	01289	**SDD 3**	01367	**SDZ 8**	01931
AMD 1120/4 22 kW	03953	1470	22	400[3]	41.0	100	776	60	484	**MSA**	01289	**SDD 3**	01367	**SDZ 7**	01929
AMD 1120/4 30 kW	03954	1480	30	400[3]	57.1	150	776	60	535	**MSA**	01289	**SDD 3**	01367	**SDZ 7**	01929
AMD 1120/4 37 kW	03955	1480	37	400[3]	66.8	165	776	60	592	**MSA**	01289	**SDD 3**[4]	01367	**SDZ 8**[4]	01931
AMD 1120/4 45 kW	03956	1475	45	400[3]	80.9	190	776	60	614	**MSA**	01289	**SDD 3**[4]	01367	**SDZ 8**[4]	01931
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
AMD 1120/8/4 4.0/16.0 kW	03924	720/1460	4.0/16.0	400	10.6/30.9	60	777	60	405	—		**SDD 3**	01367	**SDZ 7**	01929
AMD 1120/8/4 5.0/19.5 kW	03925	720/1470	5.0/19.5	400	12.9/37.2	100	777	60	490	—		**SDD 3**	01367	**SDZ 7**	01929
AMD 1120/8/4 7.5/29.0 kW	03926	720/1470	7.5/29.5	400	18.9/54.7	150	777	60	535	—		**SDD 3**	01367	**SDZ 8**	01931
AMD 1120/8/4 9.5/40.0 kW	03927	725/1475	9.5/40.0	400	24.4/72.1	190	777	60	590	—		**SDD 3**[4]	01367	**SDZ 8**[4]	01931
F300 F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
	F300/F400					**F300/F400**			**F300/F400**	Smoke exhaust fan control system					
B AMD 1120/6 11 kW	05921/03818	975	11	400[3]	21.9	9/15	776	60/400	395/400	**EVS-SD 004**	04583	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1120/6 15 kW	05922/03819	975	15	400[3]	28.2	69/75	776	60/400	440/445	**EVS-SD 005**	04582	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1120/6 18.5 kW	05923/03820	980	18.5	400[3]	35.9	134/140	776	60/400	470/475	**EVS-SD 006**	04581	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1120/6 22 kW	05924/03821	980	22	400[3]	42.4	134/140	776	60/400	480/485	**EVS-SD 007**	04580	**SDD 8**	01930	**SDZ 8**	01931
B AMD 1120/6 30 kW	05956/03822	985	30	400[3]	56.0	223/230	776	60/400	635/640	**EVS-SD 008**	04579	**SDD 8**	01930	**SDZ 8**	01931
B AMD 1120/4 22 kW	05986/03619	1470	22	400[3]	41.0	69/75	776	60/400	455/460	**EVS-SD 007**	04580	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1120/4 30 kW	05988/03620	1480	30	400[3]	57.1	134/140	776	60/400	498/503	**EVS-SD 008**	04579	**SDD 8**	01930	**SDZ 8**	01931
B AMD 1120/4 37 kW	05989/03621	1480	37	400[3]	66.8	223/190	776	60/400	635/640	**EVS-SD 009**	04578	**SDD 8**[4]	01930	**SDZ 8**[4]	01931
B AMD 1120/4 45 kW	05990/03622	1475	45	400[3]	80.9	223/190	776	60/400	670/675	**EVS-SD 009**	04578	**SDD 8**[4]	01930	**SDZ 8**[4]	01931
F300 F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
	F300/F400					**F300/F400**			**F300/F400**						
B AMD 1120/8/4 4.3/17 kW	06030/03962	730/1475	4.3/17.0	400	12.7/33.4	31/35	777	60/400	432/437	**EVS-DA 055**	04196	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1120/8/4 5.0/20 kW	06031/03963	730/1470	5.0/20.0	400	14.1/38.6	69/75	777	60/400	447/452	**EVS-DA 004**	04545	**SDD 7**	01928	**SDZ 7**	01929
B AMD 1120/8/4 6.5/28 kW	06037/03964	735/1480	6.5/28.0	400	18.0/52.0	134	777	60/400	505/510	**EVS-DA 056**	04202	**SDD 8**	01930	**SDZ 8**	01931
B AMD 1120/8/4 9.2/37 kW	06038/03965	740/1485	9.2/37.0	400	25.4/74.2	223	776	60/400	630/635	**EVS-DA 057**	04209	**SDD 8**[4]	01930	**SDZ 8**[4]	01931
B AMD 1120/8/4 11/44 kW	06039/03966	740/1480	11.0/44.0	400	27.2/84.1	223	777	60/400	695/700	**EVS-DA 057**	04209	**SDD 8**[4]	01930	**SDZ 8**[4]	01931

The flow volume and pressure increase information is required to determine the pitch angle.
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.
[4] Extension duct VR.. required over the motor protrusion.
[1] For ventilation / smoke extraction (once 120 min.).
[3] Y/Δ start-up.

High pressure round duct fans. RADAX® synergy.

With efficient IE3 motors.

Helios high pressure round duct fans RADAX® VAR are ideal for garage ventilation according to the Ordinance Governing Parking Facilities (GaVo) and Guideline VDI 2053. They are certified for temperature classes F300/F400 DIN EN 12101-3.

RADAX® VAR combines the performance characteristics of centrifugal fans with axial air flow.

This synergy results in enormous benefits:
- Maximum power with minimum energy costs
- Low sound levels
- High pressure, high volume
- Improved efficiency
- Reduced space requirement
- Low installation costs
- Planning freedom
- Energy saving

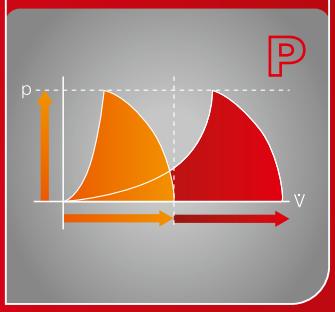
The RADAX® impellers ideally combine the advantages of axial and centrifugal fans and ensure high pressure at high air flow rates in the compact casing. The complete VAR range includes single-stage, two-stage and parallel units, also for smoke extraction.

40 °C 60 °C Ex F300 F400 F600

Parallel units P-VAR are advantageous when large air flow volumes and high pressures are required in a compact design. Direct integration in the ducting system results in a considerable reduction of the required installation space, low-loss air flow and a reduction of installation costs. The integrated backdraught shutters with automatic functionality on the outlet side prevent backflow during partial load operation, standstill or fan failure.

Two-stage units

Parallel units



Two-stage TwinVent® Z-VAR are particularly versatile as “power units” with the highest pressure ratings in a compact design. Two semi-axial fans connected in series with downstream guide vanes ensure unrivalled power density and advantageous installations with minimum space requirements.

Further information can be found on page 6 f.

High pressure round duct fans VAR

For ventilation.

– Ø 225 to 630 mm
(Helios main catalogue)

– Ø 710 to 900 mm

40 °C
60 °C
Ex

98f

High pressure round duct smoke exhaust fans B VAR

For smoke extraction according to DIN 12101-3 in temperature classes:

– **F300**
Ø 280 to 900 mm

– **F400**
Ø 500 to 900 mm

– **F600**
Ø 500 to 900 mm

F300
F400
F600

76f

High pressure round duct fans and high pressure round duct smoke exhaust fans

Product-specific information.

74f

Application
- Versatile application in technical building equipment, e.g. the supply and extract ventilation of garages or airports etc.
- In preventive fire protection for safeguarding, smoke control and extraction.
- For areas of application with air flow temperatures from 300 °C, 400 °C and 600 °C over 120 min. (F300, F400 and F600).

Features
RADAX® VAR and B VAR are high pressure in-line fan series, which ideally combine the characteristics of axial and centrifugal fans. The semi-axial impeller is coordinated with the fixed guide vane so that high pressure and flow rate performance is achieved with high efficiency.

Casing
Duct casing with flanges on both sides pursuant to DIN 24155, pt. 3 with integrated guide blading and galvanised steel motor support.

Impeller
- **Series VAR:**
  Semi-axial impeller with eight spatially curved blades made from hot-dip galvanised steel. Aluminium (additional cost) available upon request. High efficiency, low operating noise level, high corrosion-resistance, low-vibration operation due to dynamic balancing, quality class G 6.3.
- **Series B VAR:**
  Semi-axial impeller with eight spatially curved blades. Made from cast aluminium up to size 315. Made from hot-dip galvanised steel over size 355. High efficiency, low operating noise level, high corrosion-resistance, low-vibration operation due to dynamic balancing, quality class G 6.3.

Motor
For single-speed fans with a three-phase motor and a nominal motor power ≤ 2.20 kW the connection for direct start-up is provided, fans with a nominal motor power ≥ 3.00 kW for star-delta start-up.
- **Series VAR:**
  Direct through maintenance-free flange motor. Enclosed design IP54. Aluminium casing with cooling fins. interference-free, sealed ball bearings. Tropicalised winding with humidity protection impregnation. With condensation drain holes upon request, installation type specification necessary when ordering for this purpose.
- **Series B VAR:**
  Direct through efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.
  Depending on the installation situation, relubrication intervals or bearing replacements must be observed (see Installation and Operating Instructions).

Motor protection
- **Series VAR:**
  All types (except pole-switching and explosion-proof) have thermal contacts or PTC resistors as standard and must be protected by the following full motor protection devices pursuant to the footnotes in the tables:
  MSA, Ref. no. 01289
  (for PTC temperature sensors)
  M4, Ref. no. 01571
  All other types must be be protected by a conventional circuit breaker on site
- **Series B VAR:**
  The B VAR types (except Dahlander) are equipped with PTC resistors as standard and must be protected by the following full motor protection devices pursuant to the footnotes in the tables:
  MSA, Ref. no. 01289
  (for PTC temperature sensors)
  This must be bridged in smoke extraction mode.

Electrical connection
Standard plastic terminal box (protection class IP54) (series VAR) or in temperature-resistant design (series B VAR), outside of duct.

Air flow temperatures
- **VAR series:**
  Suitable for supply and extract ventilation from -30 °C to +40 °C/+60°C continuous temperature.
- **B VAR series:**
  Applicable in continuous supply and extract ventilation from -20 °C to +40 °C.
  Suitable for flue gases up to 300 °C/120 min. (F300), 400 °C/120 min. (F400) and 600 °C/120 min. (F600).

Air output
- The smoke and heat exhaust fans B VAR are manufactured with an increased gap between casing and impeller. During ventilation mode (cold operation +40 °C) a reduced output of approx. 5 % is expected for the F300 types and approx. 10 % for the F400 types. In a smoke extraction situation, the gap between casing and impeller will reduce. This results in the performance curves shown on the product pages. This must be taken into account when dimensioning.

Air flow direction
The air flow direction cannot be changed, however it can be determined by the installation type. The correct motor rotation direction and air flow direction is marked by arrows on the fan.

Noise levels
- The sound power levels are indicated by means of frequency and as sum levels for different pitch angles above the performance curves on the product pages.

Certification
Fire gas test according to DIN EN 12101-3
Certificate of performance reliability:
F300: 0036-CPR-RG05-01
F400: 0036-CPR-RG05-05
F600: 0036-CPR-RG05-02

Installation
- **Series VAR:**
  Suitable for installation in any position, however depending on usage perhaps consider condensation drainage holes. In order to prevent vibration transmission, the use of anti-vibration dampers is recommended (Accessories).
- **Series B VAR:**
  Horizontal and vertical installation depending on the installation site:
  – Within the fire zone, without heat and sound insulation.
  – Outside of the fire zone, within the building with heat and sound insulation L 90.
  – Outside of the building without heat and sound insulation. In order to prevent the transmission of vibrations, the use of anti-vibration mounts is recommended (Accessories). In case of outdoor installation or installation in constantly wet or damp environments, or in case of vertical shaft installation, this must be specified when ordering.
  Compliance with Federal and regional fire protection regulations.
- In order to achieve the specified performance values, a duct section with length = 2.5 x duct diameter is required with free outflow, as well as a corresponding duct section for duct installation (intake and discharge side) (Fig. 1).
- RADAX® VAR and B VAR can be installed in any position; hole positioning must be considered for equipment with condensation drain holes. Large motors may protrude from the back and may cause uneven distribution due to the high weight. An extension duct (type VR, Accessories) is provided to move the centre of gravity (Fig. 1).

Fig. 1

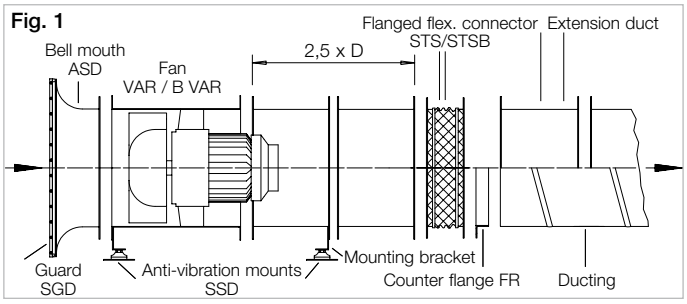
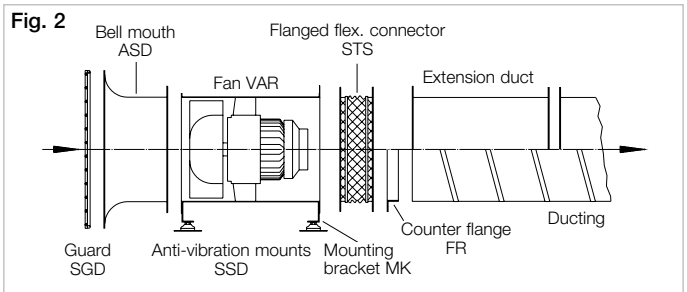


Fig. 2



Horizontal installation
Free inlet, discharge side operation. Ceiling, wall or floor installation (Fig. 2).

Horizontal installation with attenuator
Free inlet, discharge side operation with attenuator. Circular attenuators can be flange connected to reduce intake and discharge side sound power levels (Fig. 3).

Ceiling suspension
Fig. 4 shows the typical installation in ventilation operation. The VAR systems can be installed on ceilings or walls by direct suspension without any addition to the wall. The duct casing with flanges on both sides (according to DIN 24155, pt.3) is for direct installation in the ducting.

Vertical installation
Integrated in the ducting with intake side attenuator. Wall installation. The elements must be suspended separately depending on the weights. For inspection, do not install fan with load distribution.

Selection of anti-vibration dampers (Fig. 8)
In order to optimally reduce the vibrations caused by rotating components in the fan, the correct selection of anti-vibration mounts is essential. The design is based on the calculated weight of the fan including attachments to be vibration dampened. For this purpose, the individual net weights of the components must be added.

Example:
B VAR 900/4 37 kW F300 as Z unit

1) Calculation of mass to be dampened

B VAR 900/4	533 kg
B VAR 900/4	533 kg
MP-Z 900	68 kg
VR 900	34 kg
MK 900	18 kg
Total weight	1186 kg

For types B VAR 900 and 1000 as well as B VAR 500/2 and 500/4/2, an additional extension duct is required (to be ordered separately).

2) Selection of anti-vibration dampers (see page 153).
Up to 1300 kg = SDD 9

Fig. 3

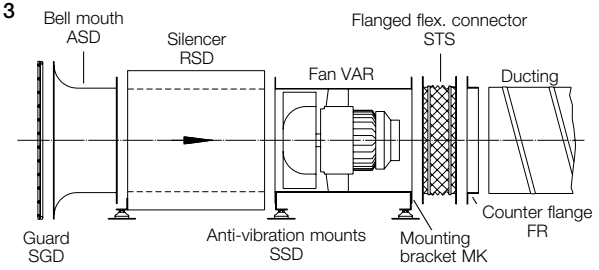


Fig. 4

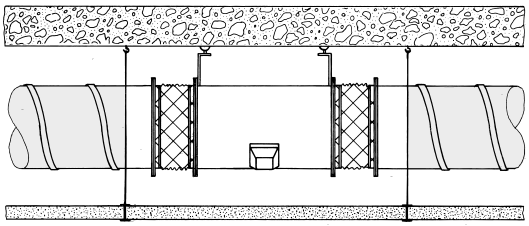


Fig. 5

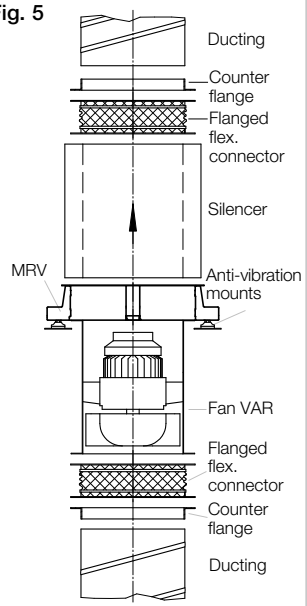


Fig. 6

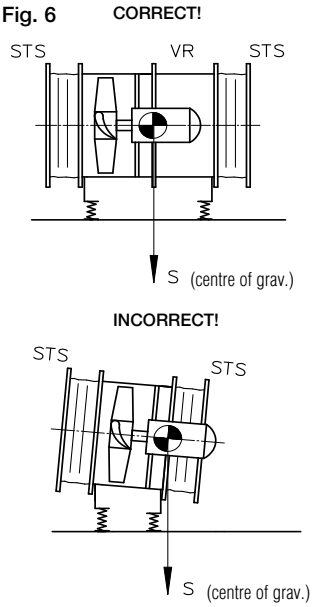


Fig. 7 Installation within fire zone

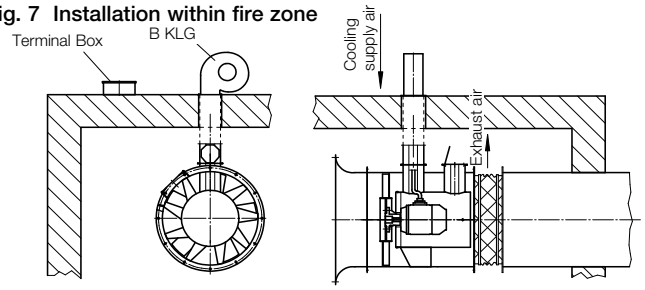
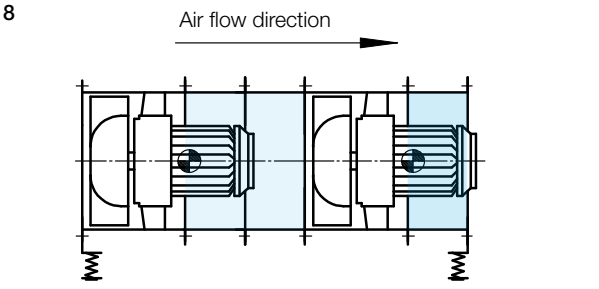


Fig. 8



Two-stage and parallel units
The wide-ranging requirements in relation to pressure increases, output and space requirement are often fulfilled in the area of technical building equipment (TGA) with two-stage Z or parallel P units. The Helios range offers suitable mounting packages for the respective units:

Two-stage unit / mounting package MP-Z
Two fans connected in series ensure unrivalled power density and advantageous installation due to the smallest space requirement. The two fans are arranged one behind the other and connected by means of extension ducts.
Mounting package MP-Z (scope of delivery):
Extension ducts (2 pcs.) incl. assembly kit (hexagon screws, nuts, spring washers).

Parallel unit / mounting package MP-P
Two fans connected in parallel bring high flow rates with corresponding pressure ratings and they specifically meet the requirements for car park ventilation and smoke extraction. Two identical fans side by side operate in a joint duct system.
Mounting package MP-P (scope of delivery):
Extension ducts (2 St.), Backdraught shutter (2 pcs.), mounting bracket (4 pcs.) mounting rail (2 pcs.) assembly kit (hexagon screws, nuts, spring washers, washers and threaded plate).

Series B VAR F600

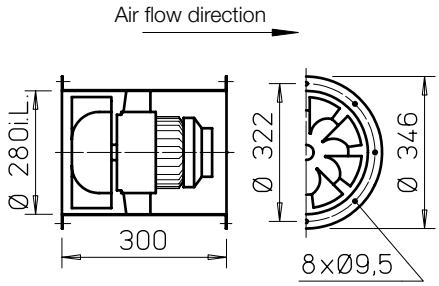
Impeller
Specially developed impeller made from hot-dip galvanised steel.
Dynamically balanced, quality class G 6.3.

Centrifugal cooling air fan
The centrifugal cooling air fan B KLG (Fig. 7) is a necessary accessory for ensuring motor cooling.
Alternative forced ventilation fans upon request.
Minimum cooling air flow rate see Accessories page 150.

B VAR 280 F300

F300

Dimensions B VAR 280 F300



All dim. in mm

- **Casing**
  Duct with flanges on both sides DIN 24155 pt. 3. Made from galvanised sheet steel, fixed impeller with inner hub for mounting the flange motor.
- **Impeller**
  Optimised for high pressure and volume output.
  Special development with spatially curved cast aluminium blades.
- **Motor**
  Direct through efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.
- **Motor protection**
  All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.
- **Installation**
  Installation in any position. Suitable for installation within and outside of the fire zone.
- **Electrical connection**
  Standard terminal box in temperature-resistant design (protection class IP54) outside of duct.
- **Safety information**
  Guard for impeller pursuant to DIN EN ISO 13857 must be secured by installation.
- **Noise levels**
  See information on sound power levels above the performance curves. The lower sound pressure level can be determined using the diagram on the “Technical information” page. Noise emmissions and room acoustics see

Double pressure

- **Mounting package MP-Z for two-stage Z unit**

For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 6.5 kg

MP-Z 280 Ref. no. 04902

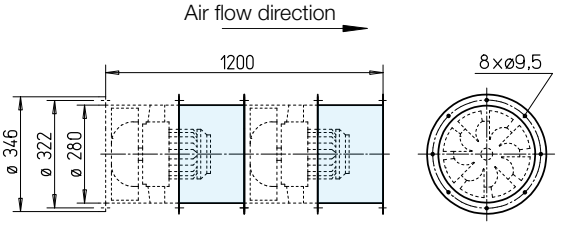
Double volume

- **Mounting package MP-P for parallel P unit**

For arrangement of two identical fans side by side, for highest flow rates.
Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits.
Weight: 22 kg

MP-P 280 Ref. no. 04886

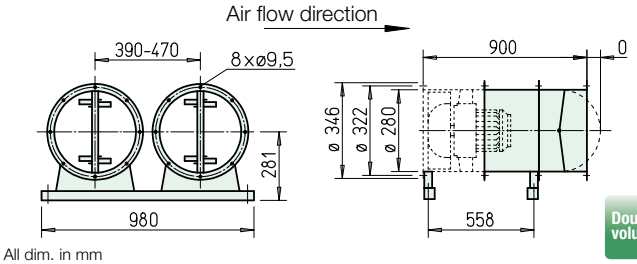
Dimensions MP-Z 280



Double pressure

All dim. in mm

Dimensions MP-P 280



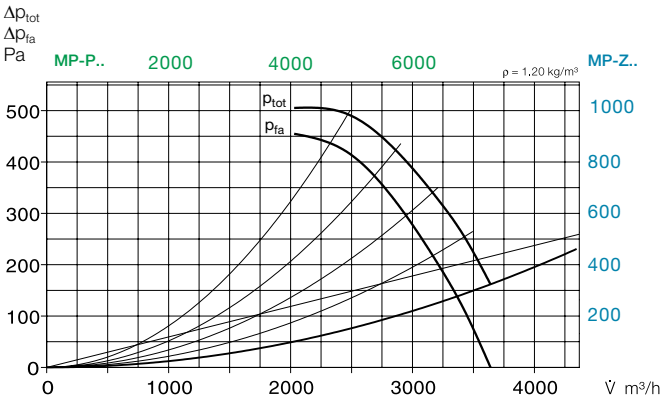
Double volume

All dim. in mm

Performance curves B VAR 280/2 F300

n=2800 1/min

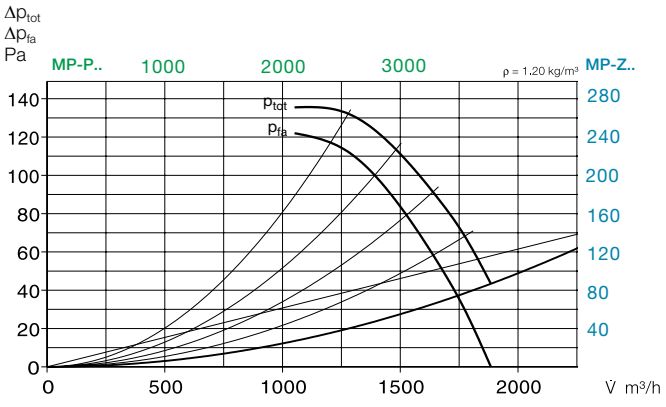
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	88	58	69	80	83	83	79	70
$L_{PA,4m}$	Air noise	dB(A)	68	38	49	60	63	63	59	50



Performance curves B VAR 280/4 F300

n=1450 1/min

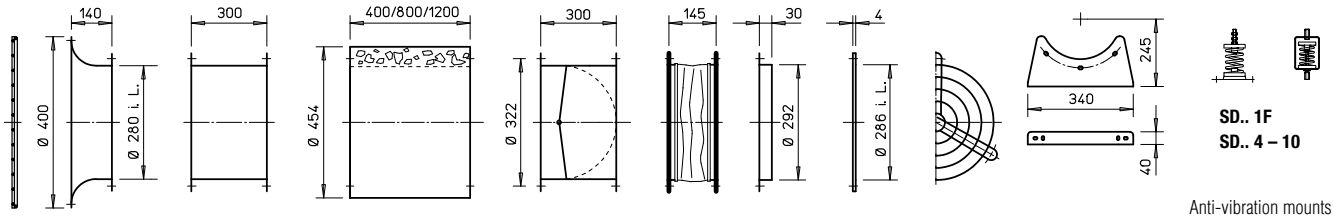
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	72	48	62	66	69	66	59	49
$L_{PA,4m}$	Air noise	dB(A)	52	28	42	46	49	46	39	29



Certification

The smoke extraction fans B VARD have been tested according to DIN EN 12101-3. Certificate of performance reliability:
F300: 0036-CPR-RG05-01

Information



Bell mouth + guard **ASD-SGD 280** No. 01415

Extension duct **VR 280** No. 01403

Circular attenuator **RSD 280/...**

Backdraught shutter, automatic **RVS 280** No. 02593

Flang. flex. connector **STSB 280 F400** No. 14739

Counter flange **FR 280** No. 01214

Flat flange **FF 280** No. 04942

Duct-side guard **SG 280** No. 01428

Mounting brackets **MK 250 – 280** (1 set = 2 pcs.) No. 01447

Anti-vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti-vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

Accessories page 151 ff.

* Type allocation see table, last column

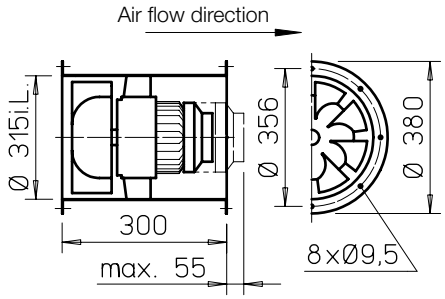
Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2] Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 280/4 F300	02298	1420	1860	0.55	400	1.23	776	40/ 300	22	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B VARD 280/2 F300	02300	2830	3700	1.10	400	2.33	776	40/ 300	23	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), three phase motor 50 Hz, protection class IP54**															
B VARD 280/4/2 F300	02301	1390/2810	1810/3700	0.25/1.1	400	0.75/2.41	471	40/ 300	24	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943

[1] For ventilation / smoke extraction (once 120 min.).
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

B VAR 315 F300

F300

Dimensions B VAR 315 F300



All dim. in mm

- **Casing**
  Duct with flanges on both sides DIN 24155 pt. 3. Made from galvanised sheet steel, fixed impeller with inner hub for mounting the flange motor.
- **Impeller**
  Optimised for high pressure and volume output.
  Special development with spatially curved cast aluminium blades.
- **Motor**
  Direct through efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.
- **Motor protection**
  All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.
- **Installation**
  Installation in any position. Suitable for installation within and outside of the fire zone.
- **Electrical connection**
  Standard terminal box in temperature-resistant design (protection class IP54) outside of duct.
- **Safety information**
  Guard for impeller pursuant to DIN EN ISO 13857 must be secured by installation.
- **Noise levels**
  See information on sound power levels above the performance curves. The lower sound pressure level can be determined using the diagram on the “Technical information” page. Noise emmissions and room acoustics see page 5.

Double pressure

- **Mounting package MP-Z for two-stage Z unit**

For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 7.5 kg

MP-Z 315 Ref. no. 04903

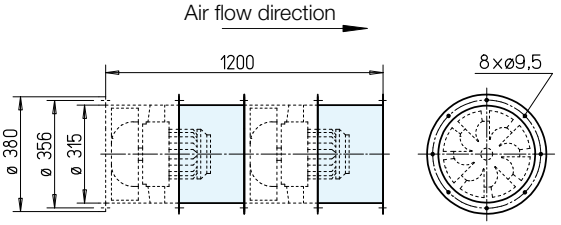
Double volume

- **Mounting package MP-P for parallel P unit**

For arrangement of two identical fans side by side, for highest flow rates.
Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits.
Weight: 25 kg

MP-P 315 Ref. no. 04887

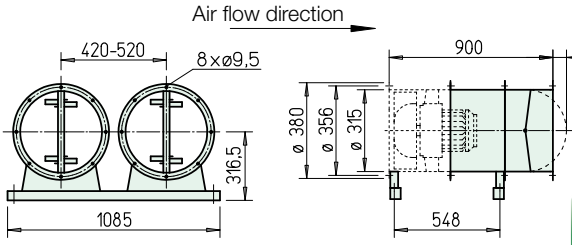
Dimensions MP-Z 315



All dim. in mm

Double pressure

Dimensions MP-P 315



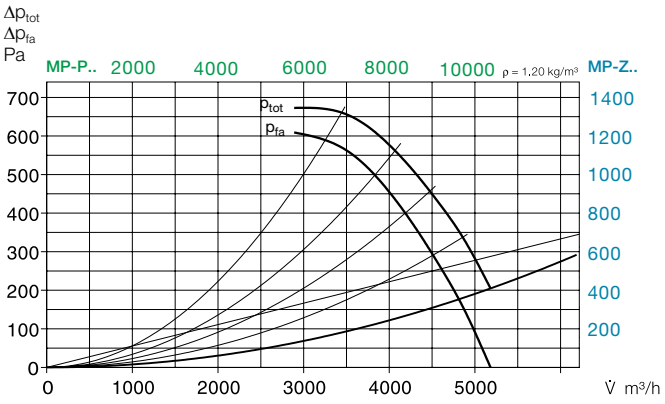
All dim. in mm

Double volume

Performance curves B VAR 315/2 F300

n=2800 1/min

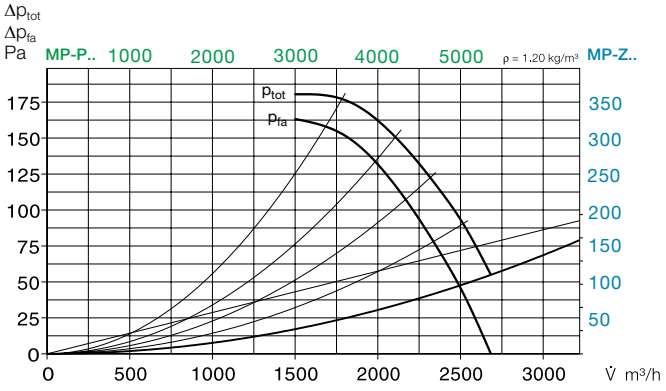
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	91	62	73	84	86	87	82	74
$L_{PA,4m}$	Air noise	dB(A)	71	42	53	64	66	67	62	54



Performance curves B VAR 315/4 F300

n=1450 1/min

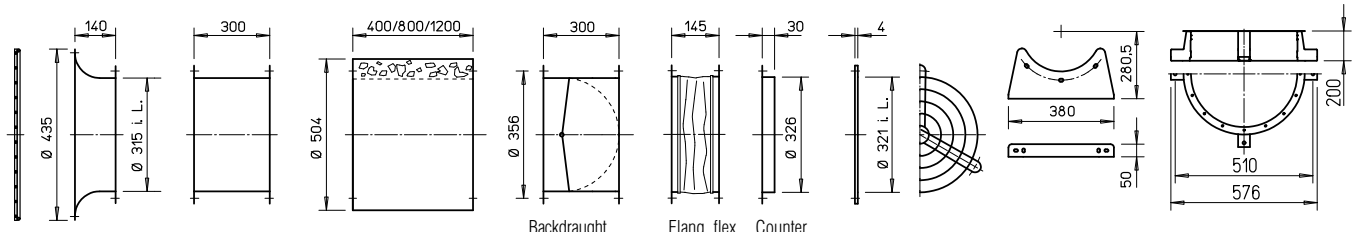
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	76	52	65	70	72	70	63	53
$L_{PA,4m}$	Air noise	dB(A)	56	32	45	50	52	50	43	33



Certification

The smoke extraction fans B VARD have been tested according to DIN EN 12101-3. Certificate of performance reliability: F300: 0036-CPR-RG05-01

Information



Bell mouth + guard **ASD-SGD 315** No. 01416

Extension duct **VR 315** No. 01404

Circular attenuator **RSD 315/…**

Backdraught shutter, automatic **RVS 315** No. 02594

Flang. flex. connector **STSB 315 F400** No. 14738

Counter flange **FR 315** No. 01204

Flat flange **FF 315** No. 04943

Duct-side guard **SG 315** No. 01237

Mounting brackets **MK 315 – 355** (1 set = 2 pcs.) No. 01448

Mounting ring for vertical installation **MRV 315** No. 01755

Accessories page 151 ff.

Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2] Pressure		Anti-vibration mount [2] Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 315/4 F300	02302	1420	2590	0.55	400	1.23	776	40 / 300	22	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B VARD 315/2 F300	02303	2885	5270	1.50	400	3.20	776	40 / 300	32	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), three phase motor 50 Hz, protection class IP54**															
B VARD 315/4/2 F300	02304	1390/2810	2580/5270	0.25/1.1	400	0.75/2.41	471	40 / 300	26	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943

[1] For ventilation / smoke extraction (once 120 min.).

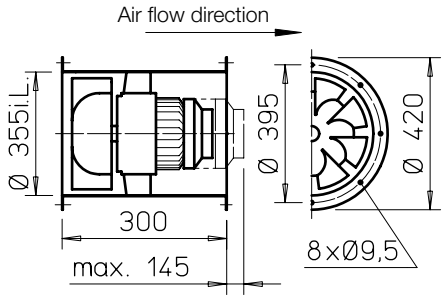
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

High pressure in-line smoke exhaust fans B VAR F300
ø 355 mm

B VAR 355 F300

F300

Dimensions B VAR 355 F300



All dim. in mm

- **Casing**
  Duct with flanges on both sides DIN 24155 pt. 3. Made from galvanised sheet steel, fixed impeller with inner hub for mounting the flange motor.
- **Impeller**
  Optimised for high pressure and volume output.
  Special development with spatially curved hot-dip galvanised steel blades.
- **Motor**
  Direct through efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.
- **Motor protection**
  All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.
- **Installation**
  Installation in any position. Suitable for installation within and outside of the fire zone.
- **Electrical connection**
  Standard terminal box in temperature-resistant design (protection class IP54) outside of duct.
- **Safety information**
  Guard for impeller pursuant to DIN EN ISO 13857 must be secured by installation.
- **Noise levels**
  See information on sound power levels above the performance curves. The lower sound pressure level can be determined using the diagram on the “Technical information” page. Noise emmissions and room acoustics see page 5.

Double pressure

- **Mounting package MP-Z for two-stage Z unit**

For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 8 kg

MP-Z 355 Ref. no. 04904

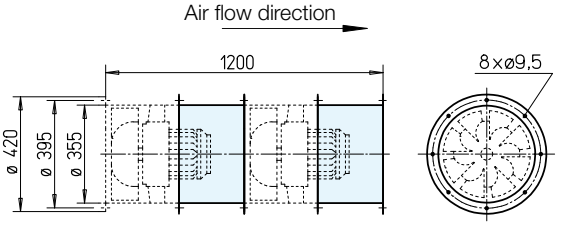
Double volume

- **Mounting package MP-P for parallel P unit**

For arrangement of two identical fans side by side, for highest flow rates.
Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits.
Weight: 27 kg

MP-P 355 Ref. no. 04888

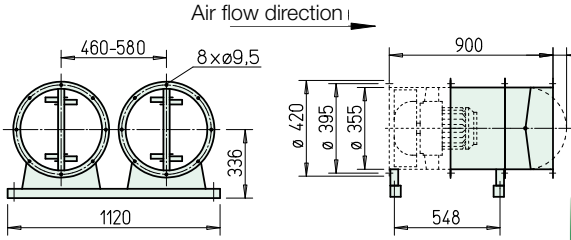
Dimensions MP-Z 355



Double pressure

All dim. in mm

Dimensions MP-P 355



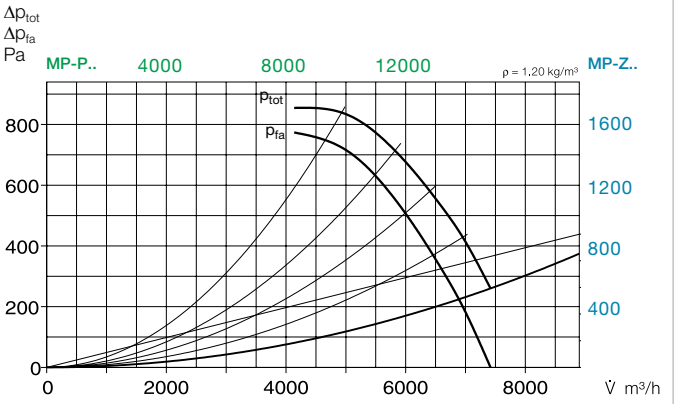
Double volume

All dim. in mm

Performance curves B VAR 355/2 F300

n=2800 1/min

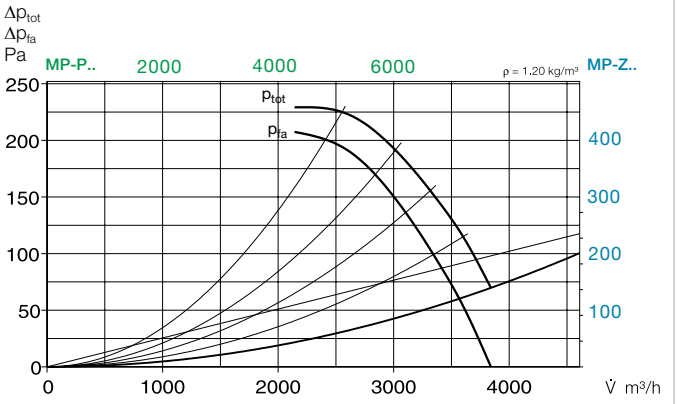
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	95	65	76	88	90	90	86	77
$L_{PA,4m}$	Air noise	dB(A)	75	45	56	68	70	70	66	57



Performance curves B VAR 355/4 F300

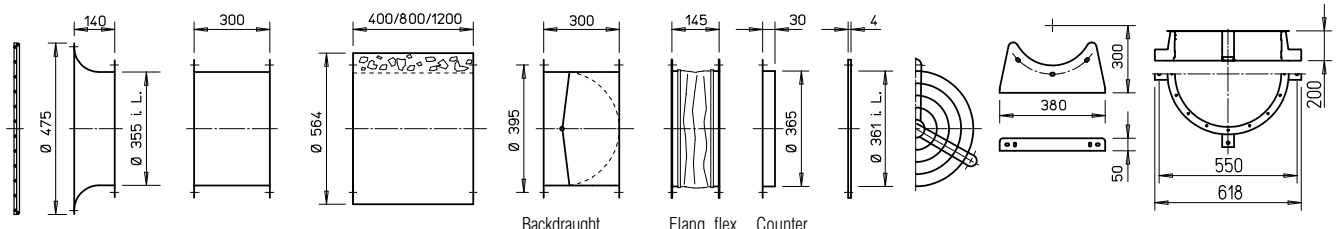
n=1450 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	80	55	69	73	76	73	66	56
$L_{PA,4m}$	Air noise	dB(A)	60	35	49	53	56	53	46	36



Certification

The smoke extraction fans B VARD have been tested according to DIN EN 12101-3. Certificate of performance reliability:
F300: 0036-CPR-RG05-01



Bell mouth + guard **ASD-SGD 355** No. 01417

Extension duct **VR 355** No. 01405

Circular attenuator **RSD 355/…**

Backdraught shutter, automatic **RVS 355** No. 02595

Flang. flex. connector **STSB 355 F400** No. 14744

Counter flange **FR 355** No. 01205

Flat flange **FF 355** No. 04944

Duct-side guard **SG 355** No. 01238

Mounting brackets **MK 315 – 355** (1 set = 2 pcs.) No. 01448

Mounting ring for vertical installation **MRV 355** No. 01759

Accessories page 151 ff.

Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2] Pressure		Anti-vibration mount [2] Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 355/4 F300	02305	1420	3700	0.55	400	1.23	776	40 / 300	24	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B VARD 355/2 F300	02306	2915	7625	3.00	400	5.77	776	40 / 300	48	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), three phase motor 50 Hz, protection class IP54**															
B VARD 355/4/2 F300	02307	1435/2890	3750/7545	0.65/2.5	400	1.66/5.18	471	40 / 300	43	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943

[1] For ventilation / smoke extraction (once 120 min.).

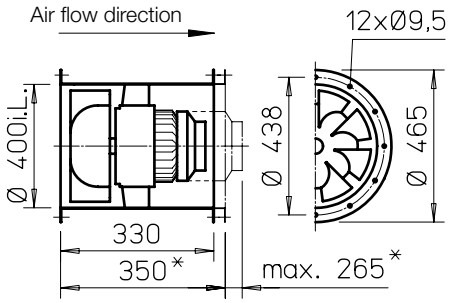
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

High pressure in-line smoke exhaust fans B VAR F300
ø 400 mm

B VAR 400 F300

F300

Dimensions B VAR 400 F300



*only for n=2800 1/min

All dim. in mm

- **Casing**
  Duct with flanges on both sides DIN 24155 pt. 3. Made from galvanised sheet steel, fixed impeller with inner hub for mounting the flange motor.
  Type 400/2 welded casing, hot-dip galvanised.

- **Impeller**
  Optimised for high pressure and volume output.
  Special development with spatially curved hot-dip galvanised steel blades.

- **Motor**
  Direct through efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.

- **Motor protection**
  All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.

- **Installation**
  Installation in any position. Suitable for installation within and outside of the fire zone.

- **Electrical connection**
  Standard terminal box in temperature-resistant design (protection class IP54) outside of duct.

- **Safety information**
  Guard for impeller pursuant to DIN EN ISO 13857 must be secured by installation.

- **Noise levels**
  See information on sound power levels above the performance curves. The lower sound pressure level can be determined using the diagram on the “Technical information” page. Noise emmissions and room acoustics see page 5.

Double pressure

- **Mounting package MP-Z for two-stage Z unit**

For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 12 kg

MP-Z 400 Ref. no. 04905

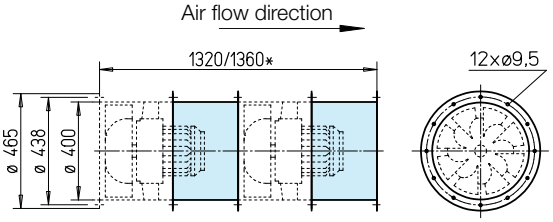
Double volume

- **Mounting package MP-P for parallel P unit**

For arrangement of two identical fans side by side, for highest flow rates.
Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits.
Weight: 35 kg

MP-P 400 Ref. no. 04889

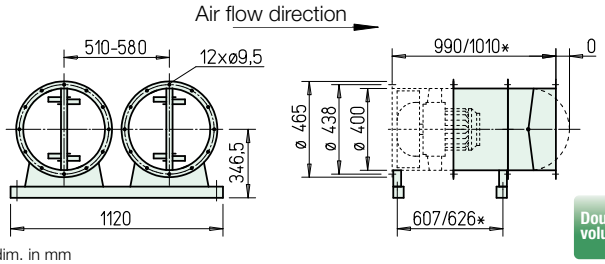
Dimensions MP-Z 400



All dim. in mm

Double pressure

Dimensions MP-P 400



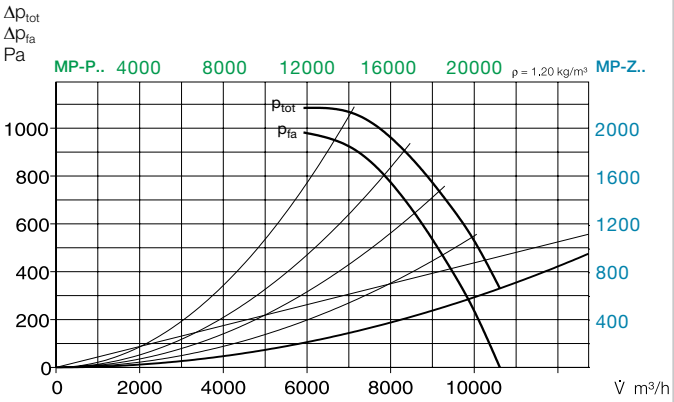
All dim. in mm

Double volume

Performance curves B VAR 400/2 F300

n=2800 1/min

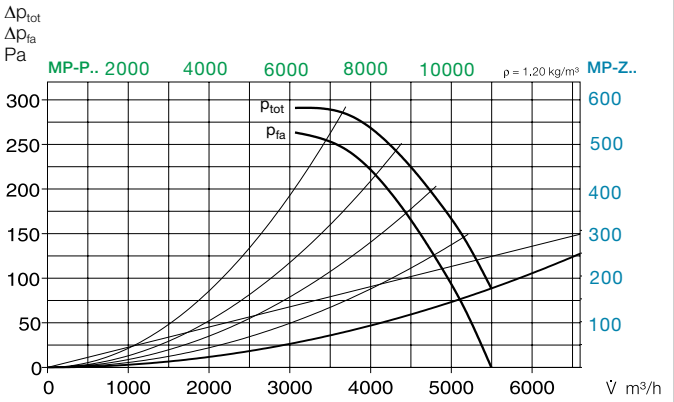
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	98	69	80	91	94	94	90	81
$L_{PA,4m}$	Air noise	dB(A)	78	49	60	71	74	74	70	61



Performance curves B VAR 400/4 F300

n=1450 1/min

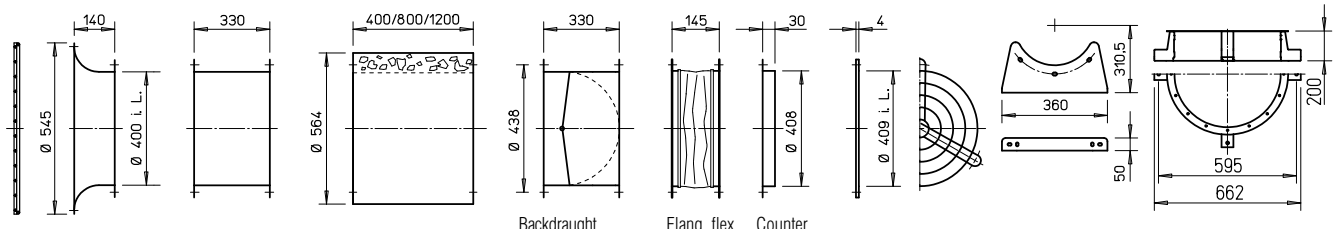
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	83	59	72	77	79	77	70	60
$L_{PA,4m}$	Air noise	dB(A)	63	39	52	57	59	57	50	40



Certification

The smoke extraction fans B VARD have been tested according to DIN EN 12101-3. Certificate of performance reliability:
F300: 0036-CPR-RG05-01

Information	Page
Techn. description	74 f.
Project planning information	3 ff.
Accessory details	
Mounting accessories	151 ff.
Attenuator	156
Gas warning systems, switch and control technology	158 ff.



Bell mouth + guard **ASD-SGD 400** No. 01418

Extension duct **VR 400** No. 01406

Circular attenuator **RSD 400/…**

Backdraught shutter, automatic **RVS 400** No. 02596

Flang. flex. connector **STSB 400 F400** No. 14743

Counter flange **FR 400** No. 01206

Flat flange **FF 400** No. 04945

Duct-side guard **SG 400** No. 01239

Mounting brackets **MK 400 – 450** (1 set = 2 pcs.) No. 01449

Mounting ring for vertical installation **MRV 400** No. 01760

Accessories page 151 ff.

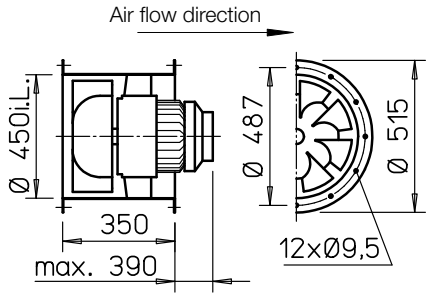
Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2] Pressure		Anti-vibration mount [2] Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 400/4 F300	02308	1420	5300	0.75	400	1.62	776	40 / 300	33	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B VARD 400/2 F300	02309	2900	11010	4.00	400	7.59	776	40 / 300	71	**EVS-SD 001**	04586	**SDD 1F**	01942	**SDZ 1F**	01943
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), three phase motor 50 Hz, protection class IP54**															
B VARD 400/4/2 F300	02310	1440/2890	5450/10900	1.1/4.4	400	2.79/8.59	471	40 / 300	76	**on demand**		**SDD 1F**	01942	**SDZ 1F**	01943

[1] For ventilation / smoke extraction (once 120 min.). [2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

B VAR 450 F300

F300

Dimensions B VAR 450 F300



All dim. in mm

- **Casing**
  Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.
- **Impeller**
  Optimised for high pressure and volume output.
  Special development with spatially curved hot-dip galvanised steel blades.
- **Motor**
  Direct through efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.
- **Motor protection**
  All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.
- **Installation**
  Installation in any position. Suitable for installation within and outside of the fire zone.
- **Electrical connection**
  Standard terminal box in temperature-resistant design (protection class IP54) outside of duct.
- **Safety information**
  Guard for impeller pursuant to DIN EN ISO 13857 must be secured by installation.
- **Noise levels**
  See information on sound power levels above the performance curves. The lower sound pressure level can be determined using the diagram on the “Technical information” page. Noise emmissions and room acoustics see page 5.

Double pressure

- **Mounting package MP-Z for two-stage Z unit**

For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 14 kg

MP-Z 450 Ref. no. 04906

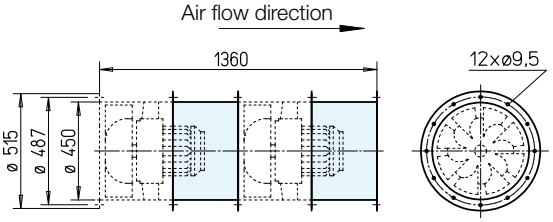
Double volume

- **Mounting package MP-P for parallel P unit**

For arrangement of two identical fans side by side, for highest flow rates.
Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits.
Weight: 43 kg

MP-P 450 Ref. no. 04890

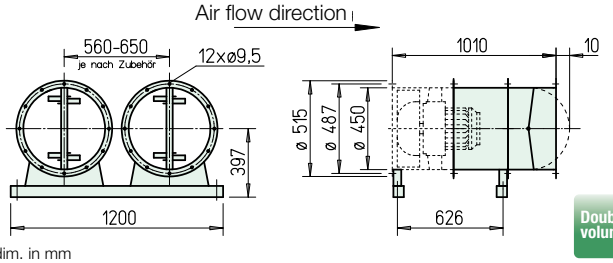
Dimensions MP-Z 450



All dim. in mm

Double pressure

Dimensions MP-P 450



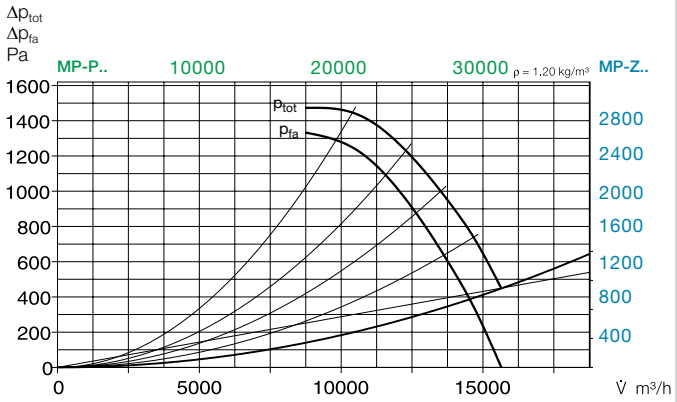
All dim. in mm

Double volume

Performance curves B VAR 450/2 F300

n=2900 1/min

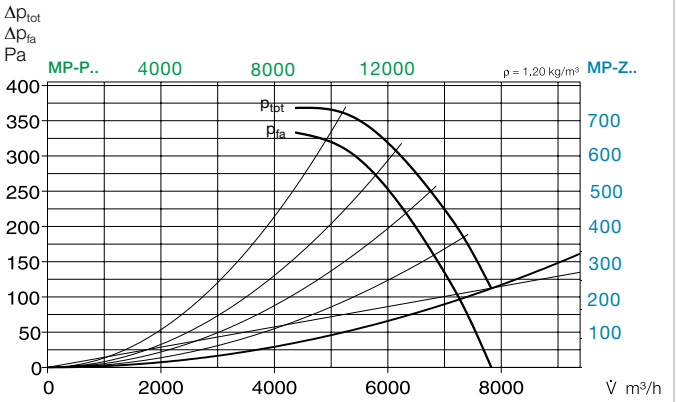
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	103	73	84	95	98	98	94	85
$L_{PA,4m}$	Air noise	dB(A)	83	53	64	75	78	78	74	65



Performance curves B VAR 450/4 F300

n=1450 1/min

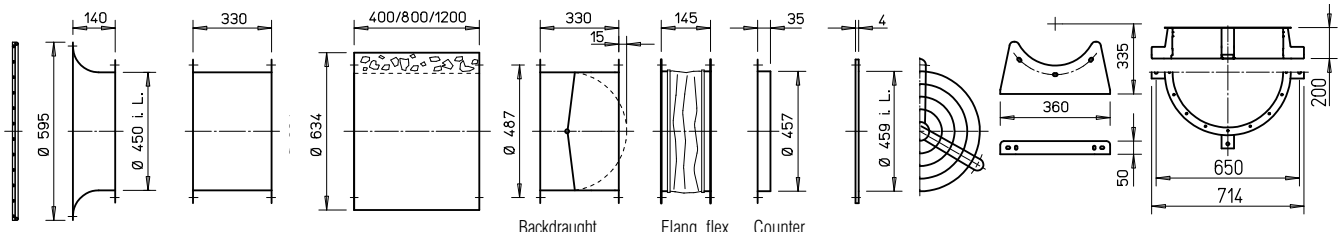
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	87	62	76	81	83	80	74	64
$L_{PA,4m}$	Air noise	dB(A)	67	42	56	61	63	60	54	44



Certification

The smoke extraction fans B VARD have been tested according to DIN EN 12101-3. Certificate of performance reliability:
F300: 0036-CPR-RG05-01

Information	Page
Techn. description	74 f.
Project planning information	3 ff.
Accessory details	
Mounting accessories	151 ff.
Attenuator	156
Gas warning systems, switch and control technology	158 ff.



Bell mouth + guard **ASD-SGD 450** No. 01419

Extension duct **VR 450** No. 01407

Circular attenuator **RSD 450/…**

Backdraught shutter, automatic **RVS 450** No. 02597

Flang. flex. connector **STSB 450 F400** No. 14742

Counter flange **FR 450** No. 01207

Flat flange **FF 450** No. 04946

Duct-side guard **SG 450** No. 01240

Mounting brackets **MK 400 – 450** (1 set = 2 pcs.) No. 01449

Mounting ring for vertical installation **MRV 450** No. 01761

Accessories page 151 ff.

Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2] Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 450/4 F300	02311	1450	7600	1.5	400	3.17	776	40 / 300	64	**EVS-D 001**	04594	**SDD 1F**	01942	**SDZ 1F**	01943
B VARD 450/2 F300	02312	2930	15805	7.5	400	14.1	776	40 / 300	102	**EVS-SD 003**	04584	**SDD 4**	01944	**SDZ 4**	01945
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), three phase motor 50 Hz, protection class IP54**															
B VARD 450/4/2 F300	02313	1470/2930	7815/15765	2.0/8.0	400	4.83/15.3	471	40 / 300	106	**on demand**		**SDD 4**	01944	**SDZ 4**	01945

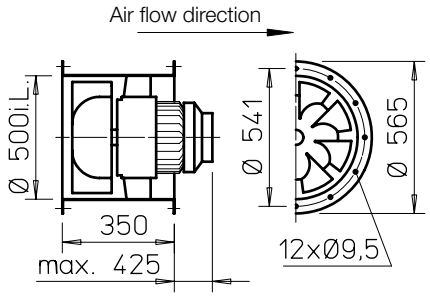
[1] For ventilation / smoke extraction (once 120 min.).

[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

B VAR 500 F300/F400

F300 F400

Dimensions B VAR 500 F300/F400



All dim. in mm

- **Casing**
  Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.
- **Impeller**
  Optimised for high pressure and volume output. Special development with spatially curved hot-dip galvanised steel blades.
- **Motor**
  Direct through efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.
- **Motor protection**
  All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.
- **Installation**
  Installation in any position. Suitable for installation within and outside of the fire zone.
- **Electrical connection**
  Standard terminal box in temperature-resistant design (protection class IP54) outside of duct.
- **Safety information**
  Guard for impeller pursuant to DIN EN ISO 13857 must be secured by installation.
- **Noise levels**
  See information on sound power levels above the performance curves. The lower sound pressure level can be determined using the diagram on the “Technical information” page. Noise emmissions and room acoustics see page 5.

Double pressure

- **Mounting package MP-Z for two-stage Z unit**

For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 15 kg

MP-Z 500 Ref. no. 04907

Additional extension duct required for type B VAR 500/2 and 500/4/2.

VR 500 Ref. no. 01408

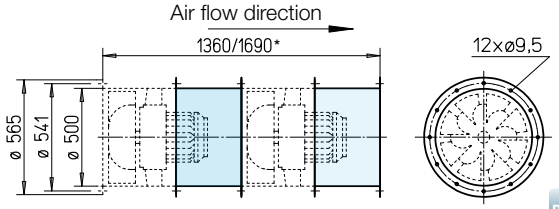
Double volume

- **Mounting package MP-P for parallel P unit**

For arrangement of two identical fans side by side, for highest flow rates.
Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits.
Weight: 55 kg

MP-P 500 Ref. no. 04891

Dimensions MP-Z 500

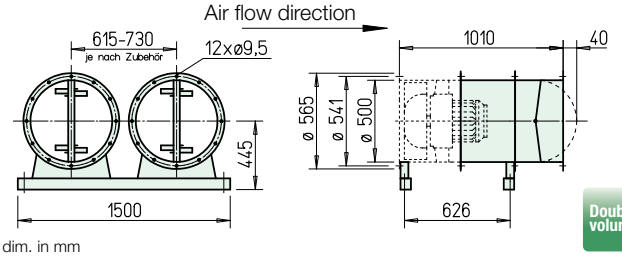


* Additional extension duct for type B VAR 500/2 and 500/4/2 needed.

All dim. in mm

Double pressure

Dimensions MP-P 500



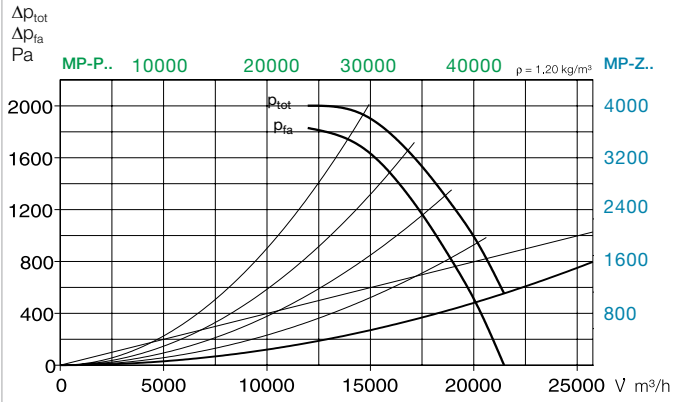
All dim. in mm

Double volume

Performance curves B VAR 500/2 F300/F400

n=2900 1/min

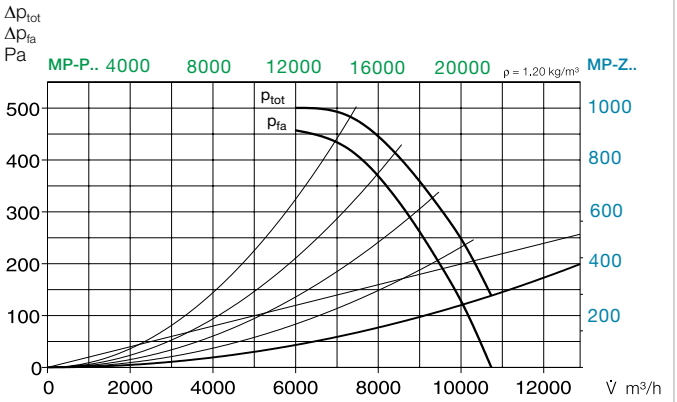
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	106	76	87	99	101	101	97	89
$L_{PA,4m}$	Air noise	dB(A)	86	56	67	79	81	81	77	69



Performance curves B VAR 500/4 F300/F400

n=1450 1/min

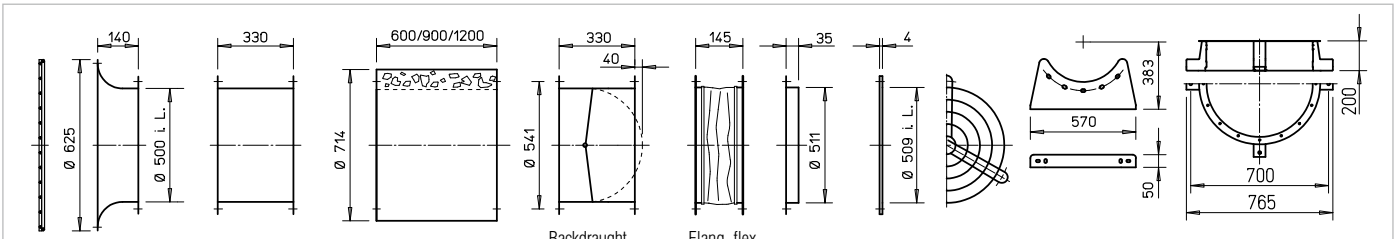
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	90	66	79	84	86	84	77	67
$L_{PA,4m}$	Air noise	dB(A)	70	46	59	64	66	64	57	47



Certification

The smoke extraction fans B VARD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-01
F400: 0036-CPR-RG05-05

Information



Bell mouth + guard **ASD-SGD 500** No. 01420

Extension duct **VR 500** No. 01408

Circular attenuator **RSD 500/…**

Backdraught shutter, automatic **RVS 500** No. 02598

Flang. flex. connector **STSB 500 F400** No. 01915

Counter flange **FR 500** No. 01208

Flat flange **FF 500** No. 04947

Duct-side guard **SG 500** No. 01241

Mounting brackets **MK 500 – 560** (1 set = 2 pcs.) No. 01450

Mounting ring for vertical installation **MRV 500** No. 01740

Accessories page 151 ff.

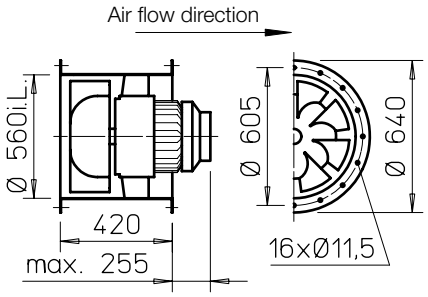
Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2] Pressure		Tensile	
		min^{-1}	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 500/4 F300	02322	1435	10510	2.2	400	4.56	776	40 / 300	79	**EVS-D 001**	04594	**SDD 4**	01944	**SDZ 4**	01945
B VARD 500/2 F300	02296	2945	21760	15.0	400	27.7	776	40 / 300	168	**EVS-SD 005**	04582	**SDD 5**	01924	**SDZ 5**	01925
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), three phase motor 50 Hz, protection class IP54**															
B VARD 500/8/4 F300	02323	700/1430	4960/10430	0.55/2.2	400	2.0/4.84	471	40 / 300	84	**on demand**		**SDD 4**	01944	**SDZ 4**	01945
B VARD 500/4/2 F300	02299	1470/2950	10840/21760	4.0/16.0	400	9.57/30.5	471	40 / 300	191	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
F400 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 500/4 F400	02404	1435	10510	2.2	400	4.56	776	40 / 400	79	**EVS-D 001**	04594	**SDD 4**	01944	**SDZ 4**	01945
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), three phase motor 50 Hz, protection class IP54**															
B VARD 500/8/4 F400	02405	700/1430	4960/10430	0.55/2.2	400	2.0/4.84	471	40 / 400	84	**on demand**		**SDD 4**	01944	**SDZ 4**	01945

[1] For ventilation / smoke extraction (once 120 min. at 300 °C or 120 min. at 400 °C).
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

B VAR 560 F300/F400

F300 F400

Dimensions B VAR 560 F300/F400



All dim. in mm

- **Casing**
  Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.
- **Impeller**
  Optimised for high pressure and volume output.
  Special development with spatially curved hot-dip galvanised steel blades
- **Motor**
  Direct through efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.
- **Motor protection**
  All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.
- **Installation**
  Installation in any position. Suitable for installation within and outside of the fire zone.
- **Electrical connection**
  Standard terminal box in temperature-resistant design (protection class IP54) outside of duct.
- **Safety information**
  Guard for impeller pursuant to DIN EN ISO 13857 must be secured by installation.
- **Noise levels**
  See information on sound power levels above the performance curves. The lower sound pressure level can be determined using the diagram on the “Technical information” page. Noise emmissions and room acoustics see page 5.

Double pressure

- **Mounting package MP-Z for two-stage Z unit**

For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 32 kg

MP-Z 560 Ref. no. 04908

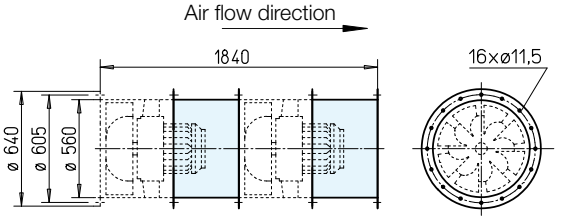
Double volume

- **Mounting package MP-P for parallel P unit**

For arrangement of two identical fans side by side, for highest flow rates.
Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits.
Weight: 82 kg

MP-P 560 Ref. no. 04892

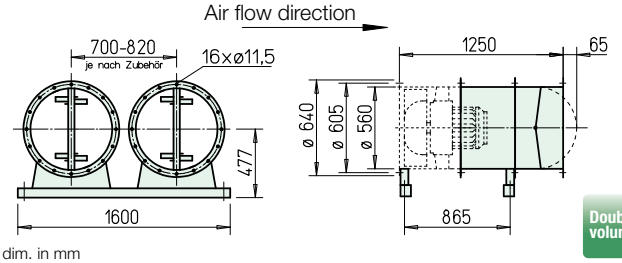
Dimensions MP-Z 560



Double pressure

All dim. in mm

Dimensions MP-P 560



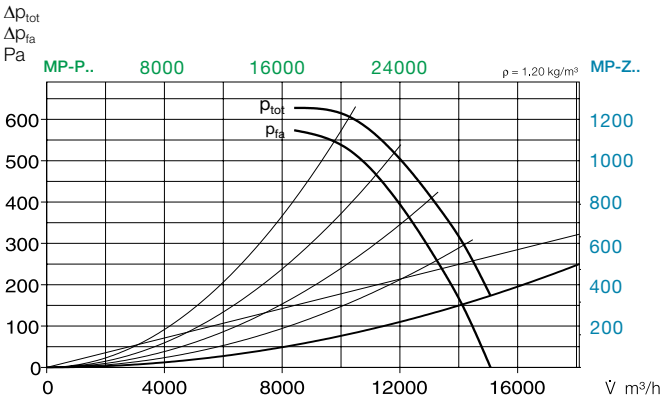
Double volume

All dim. in mm

Performance curves B VAR 560/4 F300/F400

n=1450 1/min

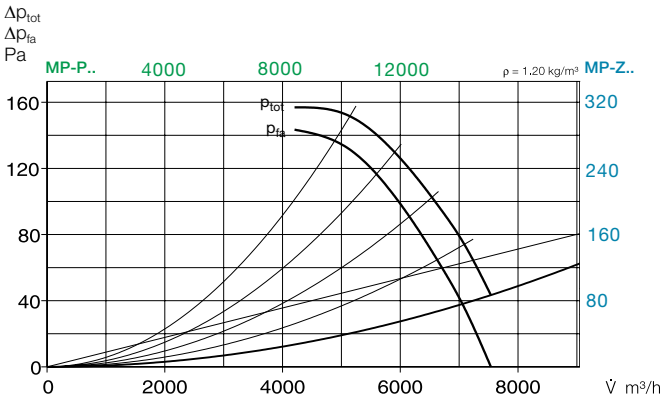
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	93	69	83	87	90	87	80	70
$L_{PA,4m}$	Air noise	dB(A)	73	49	63	67	70	67	60	50



Performance curves B VAR 560/8 F300/F400

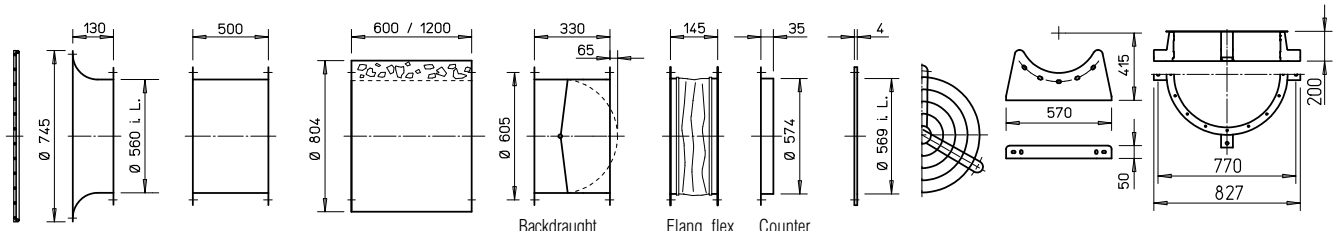
n=725 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	76	61	68	72	72	66	58	51



Certification
The smoke extraction fans B VARD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F300: 0036-CPR-RG05-01
F400: 0036-CPR-RG05-05

Information	**Page**
Techn. description	74 f.
Project planning information	3 ff.
Accessory details	
Mounting accessories	151 ff.
Attenuator	156
Gas warning systems, switch and control technology	158 ff.



Bell mouth + guard **ASD-SGD 560** No. 01421
Extension duct **VR 560** No. 01409
Circular attenuator **RSD 560/…**
Backdraught shutter, automatic **RVS 560** No. 02599
Flang. flex. connector **STSB 560 F400** No. 01916
Counter flange **FR 560** No. 01209
Flat flange **FF 560** No. 04948
Duct-side guard **SG 560** No. 01242
Mounting brackets **MK 500 – 560** (1 set = 2 pcs.) No. 01450
Mounting ring for vertical installation **MRV 560** No. 01741

Accessories page 151 ff.

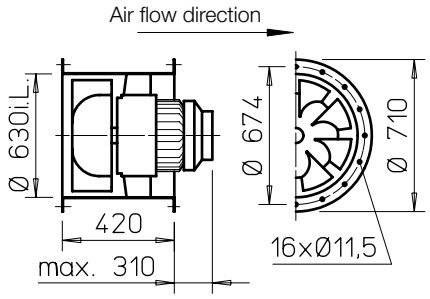
Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2]			
												Pressure		**Tensile**	
		min^{-1}	V̇ m³/h	kW	V	A	No.	+°C	kg	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
F300 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 560/4 F300	02330	1440	14710	3.0	400	6.15	776	40 / 300	106	**EVS-SD 001**	04586	**SDD 4**	01944	**SDZ 4**	01945
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), three phase motor 50 Hz, protection class IP54**															
B VARD 560/8/4 F300	02331	690/1410	7380/14970	0.7/2.8	400	2.41/6.01	471	40 / 300	106	**on demand**		**SDD 4**	01944	**SDZ 4**	01945
F400 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 560/4 F400	02412	1440	14710	3.0	400	6.15	776	40 / 400	110	**EVS-SD 001**	04586	**SDD 4**	01944	**SDZ 4**	01945
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), three phase motor 50 Hz, protection class IP54**															
B VARD 560/8/4 F400	02413	690/1410	7380/14970	0.7/2.8	400	2.41/6.01	471	40 / 400	106	**on demand**		**SDD 4**	01944	**SDZ 4**	01945

[1] For ventilation / smoke extraction (once 120 min. at 300 °C or 120 min. at 400 °C).
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

B VAR 630 F300/F400

F300 F400

Dimensions B VAR 630 F300/F400



All dim. in mm

- **Casing**
  Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.
- **Impeller**
  Optimised for high pressure and volume output.
  Special development with spatially curved hot-dip galvanised steel blades
- **Motor**
  Direct through efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.
- **Motor protection**
  All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.
- **Installation**
  Installation in any position. Suitable for installation within and outside of the fire zone.
- **Electrical connection**
  Standard terminal box in temperature-resistant design (protection class IP54) outside of duct.
- **Safety information**
  Guard for impeller pursuant to DIN EN ISO 13857 must be secured by installation.
- **Noise levels**
  See information on sound power levels above the performance curves. The lower sound pressure level can be determined using the diagram on the “Technical information” page. Noise emmissions and room acoustics see page 5.

Double pressure

- **Mounting package MP-Z for two-stage Z unit**

For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 36 kg

MP-Z 630 Ref. no. 04909

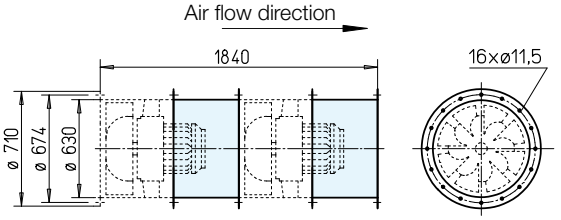
Double volume

- **Mounting package MP-P for parallel P unit**

For arrangement of two identical fans side by side, for highest flow rates.
Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits.
Weight: 110 kg

MP-P 630 Ref. no. 04893

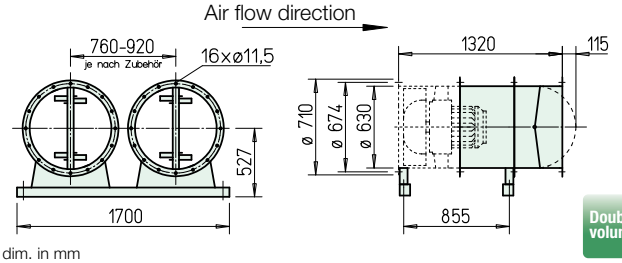
Dimensions MP-Z 630



Double pressure

All dim. in mm

Dimensions MP-P 630



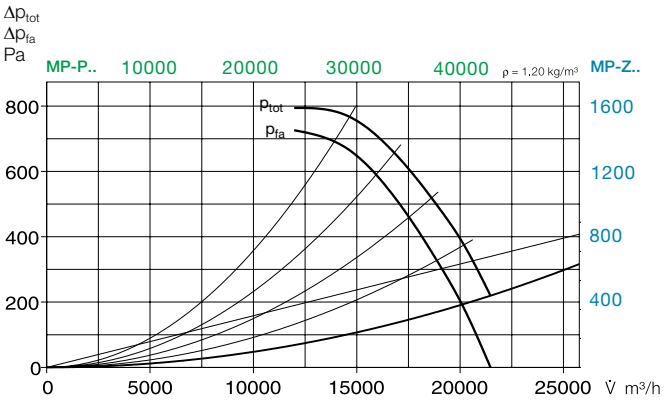
Double volume

All dim. in mm

Performance curves B VAR 630/4 F300/F400

n=1450 1/min

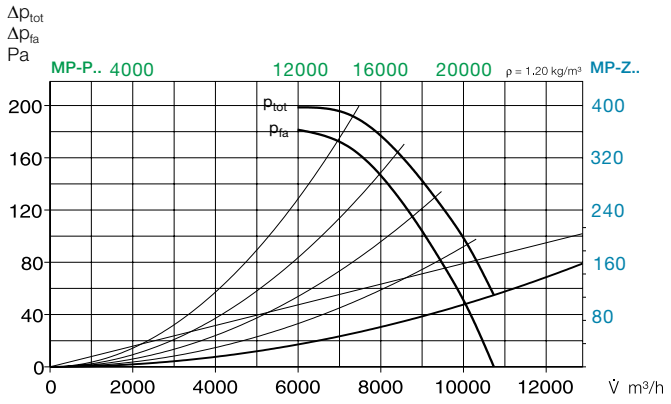
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	97	73	89	91	93	91	84	74
$L_{PA,4m}$	Air noise	dB(A)	77	53	69	71	73	71	64	54



Performance curves B VAR 630/8 F300/F400

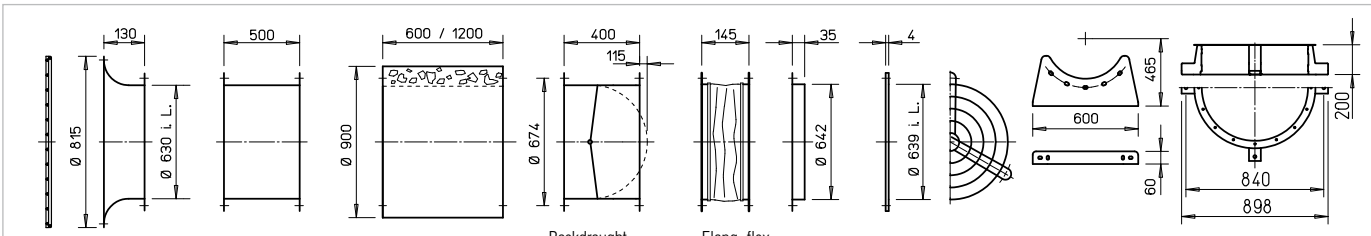
n=725 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	80	65	71	76	75	70	62	55



Certification

The smoke extraction fans B VARD have been tested according to DIN EN 12101-3. Certificate of performance reliability:
F300: 0036-CPR-RG05-01
F400: 0036-CPR-RG05-05



Bell mouth + guard **ASD-SGD 630** No. 01422

Extension duct **VR 630** No. 01410

Circular attenuator **RSD 630/…**

Backdraught shutter, automatic **RVS 630** No. 02600

Flang. flex. connector **STSB 630 F400** No. 01917

Counter flange **FR 630** No. 01211

Flat flange **FF 630** No.04949

Duct-side guard **SG 630** No. 01243

Mounting brackets **MK 630** (1 set = 2 pcs.) No. 01333

Mounting ring for vertical installation **MRV 630** No. 01742

Accessories page 151 ff.

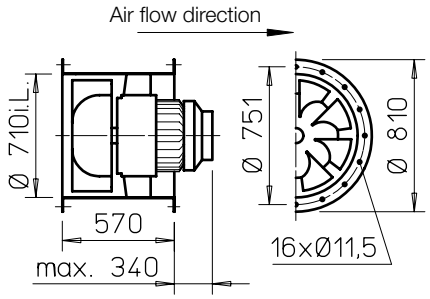
Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2] Pressure		Tensile	
		min^{-1}	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F300 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 630/4 F300	02341	1460	21460	5.5	400	10.4	776	40 / 300	150	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), three phase motor 50 Hz, protection class IP54**															
B VARD 630/8/4 F300	02342	725/1430	10660/21460	1.8/7.2	400	4.64/14.4	471	40 / 300	167	**on demand**		**SDD 5**	01924	**SDZ 5**	01925
F400 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 630/4 F400	02423	1460	21460	5.5	400	10.4	776	40 / 400	153	**EVS-SD 002**	04585	**SDD 5**	01924	**SDZ 5**	01925
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), three phase motor 50 Hz, protection class IP54**															
B VARD 630/8/4 F400	02424	725/1430	10660/21460	1.8/7.2	400	4.64/14.4	471	40 / 400	167	**on demand**		**SDD 5**	01924	**SDZ 5**	01925

[1] For ventilation / smoke extraction (once 120 min. at 300 °C or 120 min. at 400 °C).
[2] For Z/P version due to higher total weight Type allocation according to tables on page 157.

VAR and B VAR 710 F300/F400

40 °C 60 °C Ex F300 F400

Dimensions VAR and B VAR 710 F300/F400



All dim. in mm

Casing
Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.

Impeller
Optimised for high pressure and volume output.
Special development with spatially curved hot-dip galvanised steel blades

Motor
Direct through IEC three phase motor.

☐ **Series VAR**
Enclosed design IP54. With condensation drain holes upon request, installation type specification necessary when ordering for this purpose.

☐ **Series B VAR**
Efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.

Motor protection

☐ **Series VAR**
All types (except explosion-proof and pole-switching models) have PTC resistors. For effective motor protection, these must be wired to a full motor protection device (see type table).
Motors without PTC resistors must be protected with an on-site motor-protective circuit-breaker.

☐ **Series B VAR**
All types (except pole-switching) have PTC resistors as standard and must be protected with a full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.

Installation
Installation in any position.

☐ **Series VAR**
Consider potential condensation drain holes depending on application.

☐ **Series B VAR**
Suitable for installation within and outside of the fire zone.

Electrical connection
Standard plastic terminal box (protection class IP54) (series VAR) or in temperature-resistant design (series B VAR), outside of duct.

Double pressure

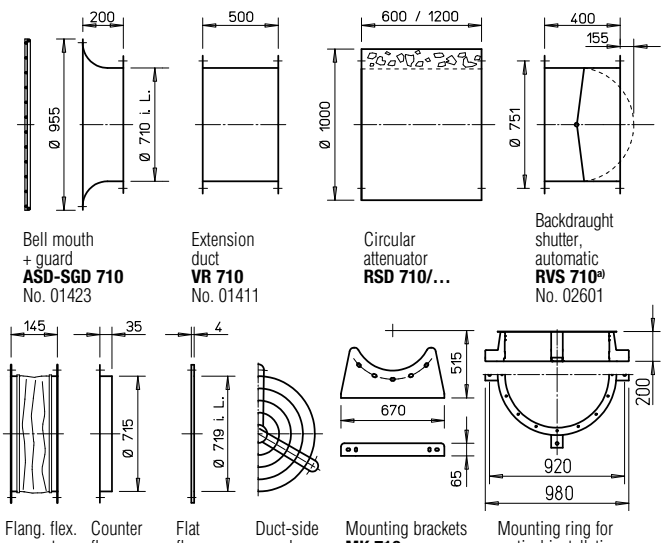
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 43 kg

MP-Z 710 Ref. no. 04910

Double volume

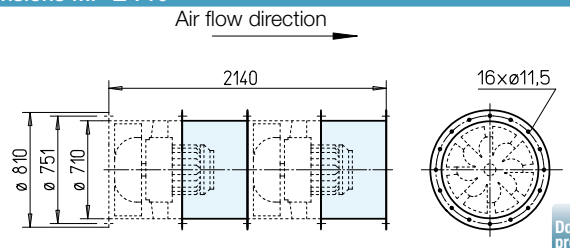
Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates.
Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits.
Weight: 145 kg

MP-P 710 Ref. no. 04894



Bell mouth + guard **ASD-SGD 710** No. 01423
Extension duct **VR 710** No. 01411
Circular attenuator **RSD 710/…**
Backdraught shutter, automatic **RVS 710**[a] No. 02601
Flang. flex. connector **STS 710**[b] No. 01229
Counter flange **FR 710** No. 01212
Flat flange **FF 710** No. 04950
Duct-side guard **SG 710** No. 01244
Mounting brackets **MK 710** (1 set = 2 pcs.) No. 01372
Mounting ring for vertical installation **MRV 710** No. 01743

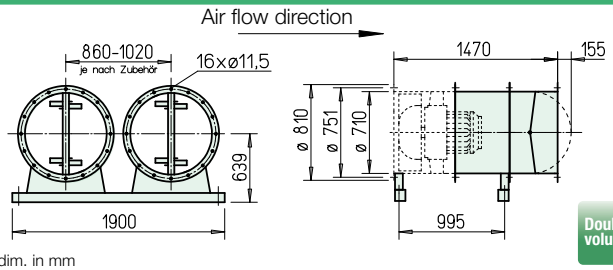
Dimensions MP-Z 710



Double pressure

All dim. in mm

Dimensions MP-P 710



Double volume

All dim. in mm

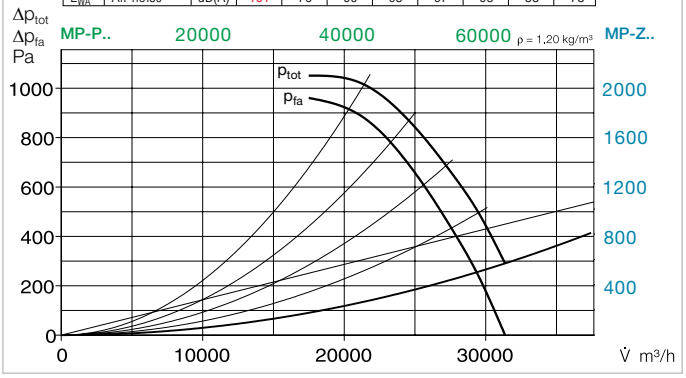
[a] Backdraught shutter, motorised, **for ventilation**, see main Helios catalogue
[b] Type for B VARD: STSB 710 F400, No. 01918

Accessories page 151 ff.

Performance curves VAR / B VAR 710/4 F300/F400

n=1480 1/min

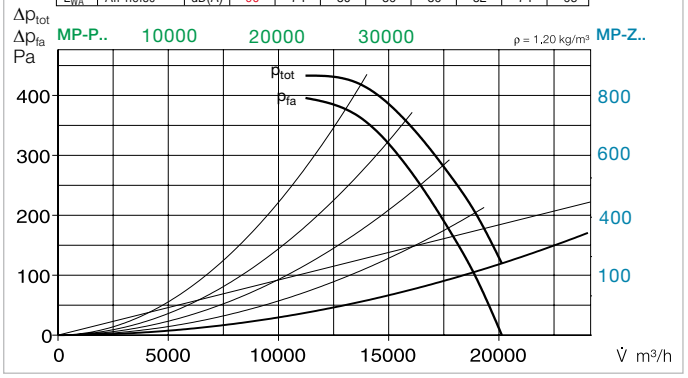
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	101	76	90	95	97	95	88	78



Performance curves VAR / B VAR 710/6 F300/F400

n=950 1/min

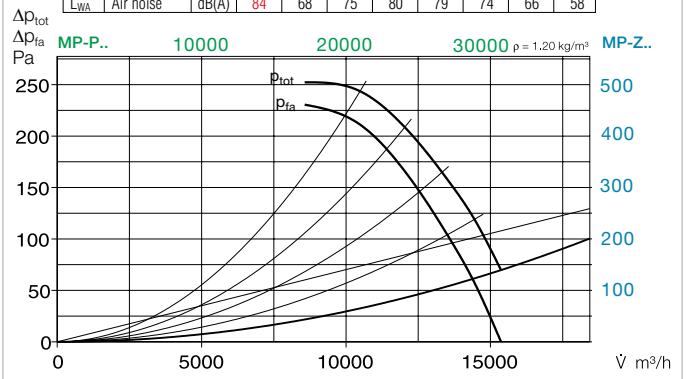
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	90	74	80	86	86	82	74	65



Performance curves VAR / B VAR 710/8 F300/F400

n=725 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	84	68	75	80	79	74	66	58



Certification

The smoke extraction fans B VARD have been tested according to DIN EN 12101-3. Certificate of performance reliability:
F300: 0036-CPR-RG05-01
F400: 0036-CPR-RG05-05

Information

Safety information B VAR

Protection against accidental contact for impeller must be ensured by installation pursuant to DIN EN ISO 13857.

Noise levels

See information on sound power levels above the performance curves. The lower sound pressure level can be determined using the diagram on the “Technical information” page. Noise emmissions and room acoustics see page 5.

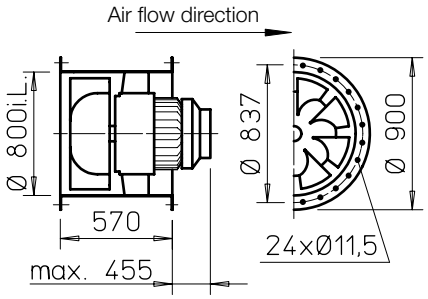
Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Stromaufnahme bei Nominal voltage	Anschluss Schaltplan	max. air flow temp.[4] at nom. voltage	Net weight approx.	Frequency inverter		Full motor protection or Smoke exhaust fan control system		Anti-vibration mount [5] Pressure		Anti-vibration mount [5] Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
40° **Three phase motor, 50 Hz, protection class IP54**												Full motor protection					
VARD 710/4	06723	1450	31050	11.0*	400/690	21.6/12.6	776	40	280.0	**FU-CS 22**[2]	05470	**MSA**[3]	01289	**SDD 3**	01367	**SDZ 3**	01366
60° **Pole-switching, 2 speed (Dahlander winding Y/YY), Three phase motor, 50 Hz, protection class IP54**																	
VARD 710/8/4	06794	730/1470	15470/31160	3.00/11.00*	400	8.90/24.0	471	60	230.0	—		**MSA**[3]	01289	**SDD 3**	01367	**SDZ 3**	01366
Ex **Explosion-proof, E Exe II, three phases motor, 50 Hz, temperature class T 3, protection class IP54**																	
VARD 710/8 Ex[1]	06724	680	14410	1.30*	400	3.65	470	40	165.0	not permitted		not permitted		**SDD 2**	01453	**SDZ 3**	01366
VARD 710/6 Ex[1]	06725	955	20240	2.60*	400	6.8/3.9	498	40	190.0	not permitted		not permitted		**SDD 3**	01367	**SDZ 3**	01366
VARD 710/4 Ex[1]	06726	1465	31050	10.00*	400	19.3/11.2	498	40	255.0	not permitted		not permitted		**SDD 3**	01367	**SDZ 3**	01366
F300 **Three phase motor, 50 Hz, protection class IP54**												Smoke exhaust fan control system					
B VARD 710/4 F300	02350	1470	30940	11.00	400	20.9	776	40 / 300[4]	230.0	—		**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
F300 **Pole-switching, 2 speed (Dahlander winding Y/YY), Three phase motor, 50 Hz, protection class IP54**																	
B VARD 710/8/4 F300	02351	725/1455	15460/30940	3.0/11.0	400	7.0/21.0	471	40 / 300[4]	244.0	—		**on demand**		**SDD 6**	01926	**SDZ 6**	01927
F400 **Three phase motor, 50 Hz, protection class IP54**																	
B VARD 710/4 F400	02433	1470	30940	11.0	400	20.9	776	40 / 400[4]	240.0	—		**EVS-SD 004**	04583	**SDD 6**	01926	**SDZ 6**	01927
F400 **Pole-switching, 2 speed (Dahlander winding Y/YY), Three phase motor, 50 Hz, protection class IP54**																	
B VARD 710/8/4 F400	02434	725/1455	15460/30940	3.0/11.0	400	7.0/21.0	471	40 / 400[4]	244.0	—		**on demand**		**SDD 6**	01926	**SDZ 6**	01927

[1] There must be a vibration monitoring system (on-site) pursuant to DIN EN 14986.
[2] incl. full motor protection device and sine filter
[3] for PTC resistor temperature sensor
[4] Smoke extraction (once 120 min. at 300 °C or 120 min. at 400 °C)
[5] Types SDZ not permitted for installation within fire zone.

VAR and B VAR 800 F300/F400

40 °C 60 °C Ex F300 F400

Dimensions VAR and B VAR 800 F300/F400



All dim. in mm

Casing
Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.

Impeller
Optimised for high pressure and volume output.
Special development with spatially curved hot-dip galvanised steel blades

Motor
Direct through IEC three phase motor.

☐ **Series VAR**
Enclosed design IP54. With condensation drain holes upon request, installation type specification necessary when ordering for this purpose.

☐ **Series B VAR**
Efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.

Motor protection

☐ **Series VAR**
All types (except explosion-proof and pole-switching models) have PTC resistors. For effective motor protection, these must be wired to a full motor protection device (see type table).
Motors without PTC resistors must be protected with an on-site motor-protective circuit-breaker.

☐ **Series B VAR**
All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.

Installation
Installation in any position.

☐ **Series VAR**
Consider potential condensation drain holes depending on application.

☐ **Series B VAR**
Suitable for installation within and outside of the fire zone.

Electrical connection
Standard plastic terminal box (protection class IP54) (series VAR) or in temperature-resistant design (series B VAR), outside of duct.

Double pressure

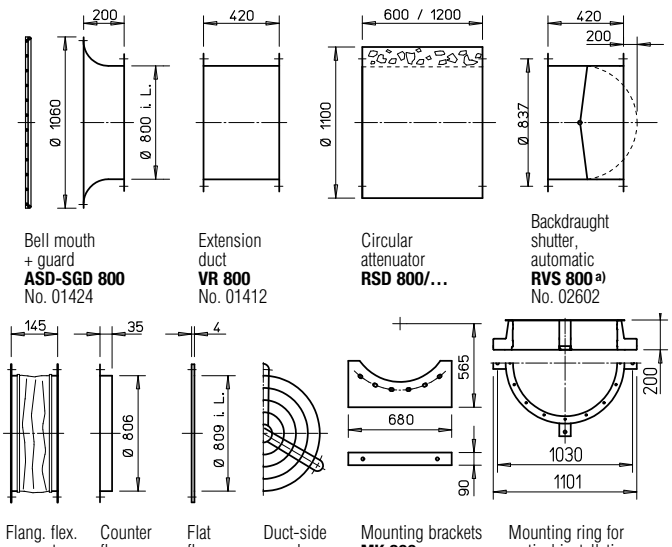
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 60 kg

MP-Z 800 Ref. no. 04911

Double volume

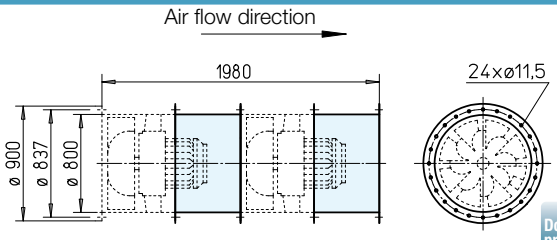
Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates.
Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits.
Weight: 205 kg

MP-P 800 Ref. no. 04895



Bell mouth + guard **ASD-SGD 800** No. 01424
Extension duct **VR 800** No. 01412
Circular attenuator **RSD 800/…**
Backdraught shutter, automatic **RVS 800** a) No. 02602
Flang. flex. connector **STS 800** b) No. 01233
Counter flange **FR 800** No. 01198
Flat flange **FF 800** No. 04951
Duct-side guard **SG 800** No. 01245
Mounting brackets **MK 800** (1 set = 2 pcs.) No. 01373
Mounting ring for vertical installation **MRV 800** No. 01744

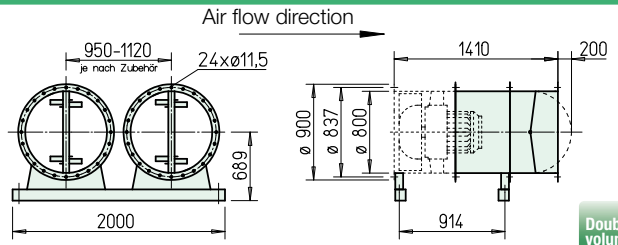
Dimensions MP-Z 800



Double pressure

All dim. in mm

Dimensions MP-P 800



Double volume

All dim. in mm

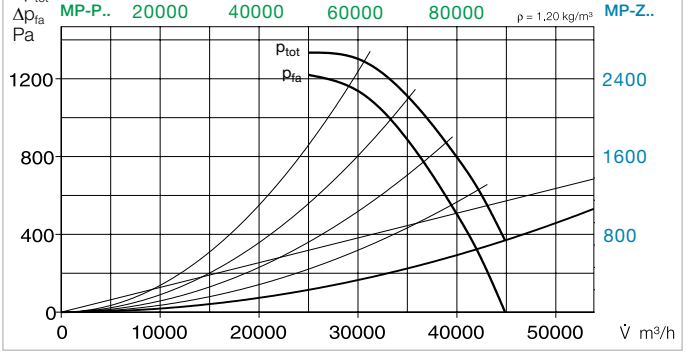
a) Backdraught shutter, motorised, **for ventilation**, see main Helios catalogue
b) Type for B VARD: STSB 800 F400, No. 01919

Accessories page 151 ff.

Performance curves VAR / B VAR 800/4 F300/F400

n=1480 1/min

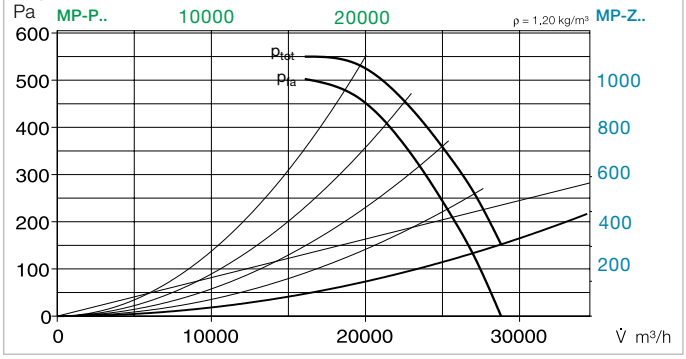
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	105	80	94	98	101	98	92	82



Performance curves VAR / B VAR 800/6 F300/F400

n=950 1/min

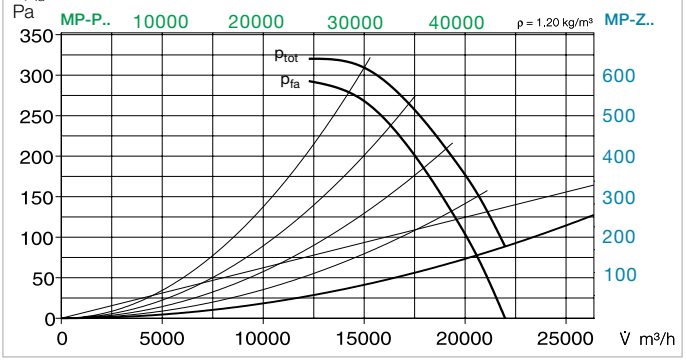
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	94	77	83	89	90	85	78	69



Performance curves VAR / B VAR 800/8 F300/F400

n=725 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	87	72	79	83	83	77	69	62



Certification

The smoke extraction fans B VARD have been tested according to DIN EN 12101-3. Certificate of performance reliability:
F300: 0036-CPR-RG05-01
F400: 0036-CPR-RG05-05

Information

Accessory details

Safety information B VAR

Protection against accidental contact for impeller must be ensured by installation pursuant to DIN EN ISO 13857.

Noise levels

See information on sound power levels above the performance curves. The lower sound pressure level can be determined using the diagram on the “Technical information” page. Noise emmissions and room acoustics see page 5.

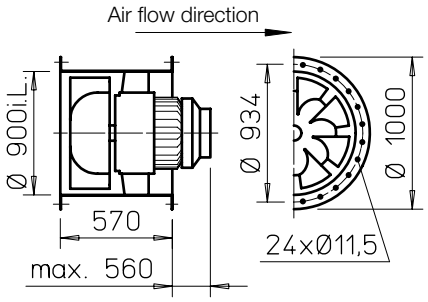
Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption at nom. voltage	Wiring diagram	max. air flow temp.[4] at nom. voltage	Net weight approx.	Frequency inverter		Full motor protection or Smoke exhaust fan control system		Anti-vibration mount [2]			
														Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
40° Three phase motor, 50 Hz, protection class IP54												Full motor protection					
VARD 800/4	06729	1460	44720	18.50*	400/690	34.4/20	776	40	324.0	**FU-CS 40[3]**	05472	**MSA**	01289	**SDD 3**	01367	**SDZ 6**	01927
60° Pole-switching, 2 speed (Dahlander winding Y/YY), Three phase motor, 50 Hz, protection class IP54																	
VARD 800/8/4	06796	735/1470	22280/44570	5.50/20.00*	400	12.0/40.0	471	60	325.0	—		—		**SDD 3**	01367	**SDZ 6**	01927
Ex Explosion-proof, E Exe II, three phase motor, 50 Hz, temperature class T 3, protection class IP54																	
VARD 800/8 Ex[1]	06730	710	21530	2.60*	400	6.6/3.8	470	40	240.0	not permitted		not permitted		**SDD 3**	01367	**SDZ 3**	01366
VARD 800/6 Ex[1]	06731	970	29410	6.60*	400	15.0/8.7	498	40	280.0	not permitted		not permitted		**SDD 3**	01367	**SDZ 3**	01366
VARD 800/4 Ex[1]	06732	1475	44720	17.50*	400	33.5/19.4	498	40	370.0	not permitted		not permitted		**SDD 3**	01367	**SDZ 6**	01927
F300 Three phase motor, 50 Hz, protection class IP54												Smoke exhaust fan control system					
B VARD 800/4 F300	02360	1470	44570	18.5	400	35.1	776	40 / 300[3]	326.0	—		**EVS-SD 006**	04581	**SDD 7**	01928	**SDZ 7**	01929
F300 Pole-switching, 2 speed (Dahlander winding Y/YY), Three phase motor, 50 Hz, protection class IP54																	
B VARD 800/8/4 F300	02361	730/1470	22430/44570	5.0/20.0	400	14.1/38.6	471	40 / 300[3]	339.0	—		**on demand**		**SDD 7**	01928	**SDZ 7**	01929
F400 Three phase motor, 50 Hz, protection class IP54																	
B VARD 800/4 F400	02444	1470	44570	18.5	400	35.1	776	40 / 400[3]	330.0	—		**EVS-SD 006**	04581	**SDD 7**	01928	**SDZ 7**	01929
F400 Pole-switching, 2 speed (Dahlander winding Y/YY), Three phase motor, 50 Hz, protection class IP54																	
B VARD 800/8/4 F400	02445	730/1470	22430/44570	5.0/20.0	400	14.1/38.6	471	40 / 400[3]	339.0	—		**on demand**		**SDD 7**	01928	**SDZ 7**	01929

[1] There must be a vibration monitoring system (on-site) pursuant to DIN EN 14986.
[2] Types SDZ not permitted for installation within fire zone.
[3] incl. full motor protection device and sine filter
[4] Smoke extraction (once 120 min. at 300 °C or 120 min. at 400 °C).

VAR and B VAR 900 F300/F400

40 °C 60 °C Ex F300 F400

Dimensions VAR and B VAR 900 F300/F400



All dim. in mm

Casing
Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.

Impeller
Optimised for high pressure and volume output.
Special development with spatially curved hot-dip galvanised steel blades

Motor
Direct through IEC three phase motor.
☐ **Series VAR**
Enclosed design IP54. With condensation drain holes upon request, installation type specification necessary when ordering for this purpose.

☐ **Series B VAR**
Efficient IE3 three phase motor (smoke extraction motors F300 and F400). Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.

Motor protection
☐ **Series VAR**
All types (except explosion-proof and pole-switching models) have PTC resistors. For effective motor protection, these must be wired to a full motor protection device (see type table).
Motors without PTC resistors must be protected with an on-site motor-protective circuit-breaker.
☐ **Series B VAR**
All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.

Installation
Installation in any position.
☐ **Series VAR**
Consider potential condensation drain holes depending on application.

☐ **Series B VAR**
Suitable for installation within and outside of the fire zone.

Electrical connection
Standard plastic terminal box (protection class IP54) (series VAR) or in temperature-resistant design (series B VAR), outside of duct.

Double pressure

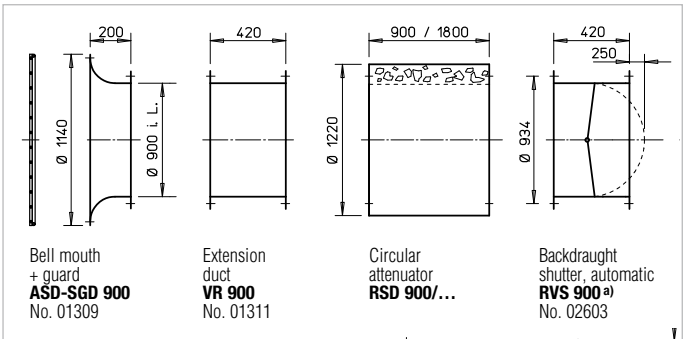
Mounting package MP-Z for two-stage Z unit
For arrangement of two identical fans in a row, for highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.
Weight: 68 kg

MP-Z 900	Ref. no. 04912
Additional extension duct required.	
VR 900	Ref. no. 01311

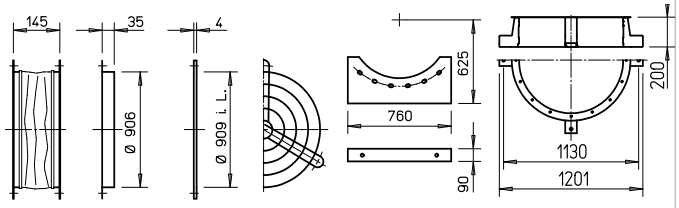
Double volume

Mounting package MP-P for parallel P unit
For arrangement of two identical fans side by side, for highest flow rates.
Scope of delivery: Extension ducts, backdraught shutter, mounting rails (2 pcs. each), mounting brackets (4 pcs.) and assembly kits.
Weight: 235 kg

MP-P 900	Ref. no. 04896

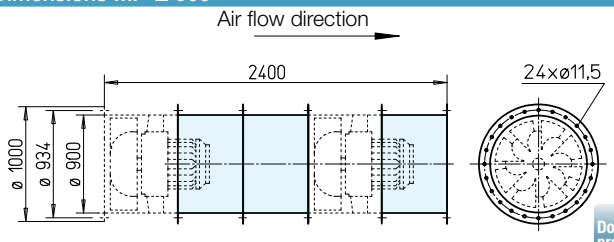


Bell mouth + guard **ASD-SGD 900** No. 01309 | Extension duct **VR 900** No. 01311 | Circular attenuator **RSD 900/…** | Backdraught shutter, automatic **RVS 900** [a] No. 02603



Flang. flex. connector **STS 900** [b] No. 01234 | Counter flange **FR 900** No. 01199 | Flat flange **FF 900** No. 04952 | Duct-side guard **SG 900** No. 01246 | Mounting brackets **MK 900** (1 set = 2 pcs.) No. 01374 | Mounting ring for vertical installation **MRV 900** No. 01745

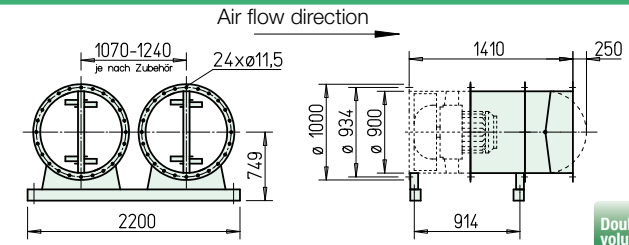
Dimensions MP-Z 900



All dim. in mm

Double pressure

Dimensions MP-P 900



All dim. in mm

Double volume

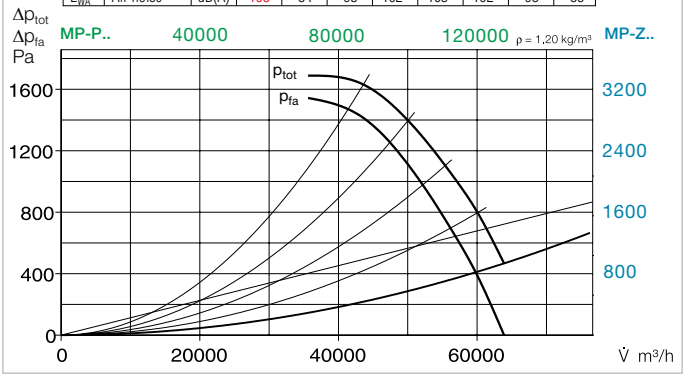
[a] Backdraught shutter, motorised, **for ventilation**, see main Helios catalogue
[b] Type for B VARD: STSB 900 F400, No. 01920 bis 02000 Pa

Accessories page 151 ff.

Performance curves VAR / B VAR 900/4 F300/F400

n=1480 1/min

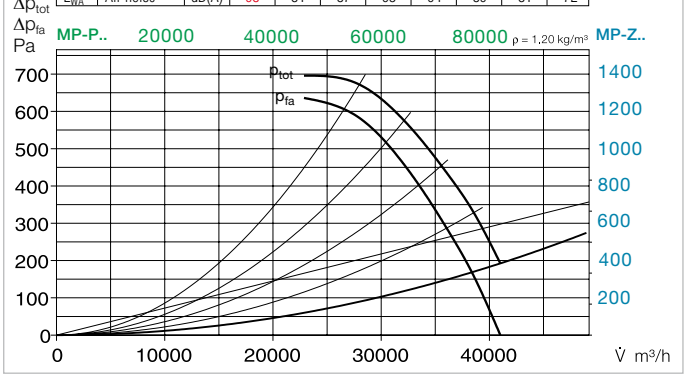
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	108	84	98	102	105	102	95	85



Performance curves VAR / B VAR 900/6 F300/F400

n=950 1/min

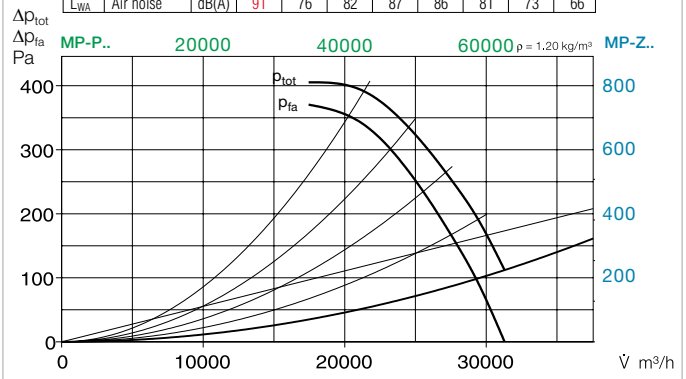
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	98	81	87	93	94	89	81	72



Performance curves VAR / B VAR 900/8 F300/F400

n=725 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	91	76	82	87	86	81	73	66



Certification

The smoke extraction fans B VARD have been tested according to DIN EN 12101-3. Certificate of performance reliability:
F300: 0036-CPR-RG05-01
F400: 0036-CPR-RG05-05

Information	Page
Techn. description	74 f.
Project planning information	3 ff.

Accessory details	
Mounting accessories	151 ff.
Attenuator	156
Gas warning systems, switch and control technology	158 ff.

Safety information B VAR

Protection against accidental contact for impeller must be ensured by installation pursuant to DIN EN ISO 13857.

Noise levels

See information on sound power levels above the performance curves. The lower sound pressure level can be determined using the diagram on the “Technical information” page. Noise emmissions and room acoustics see page 5.

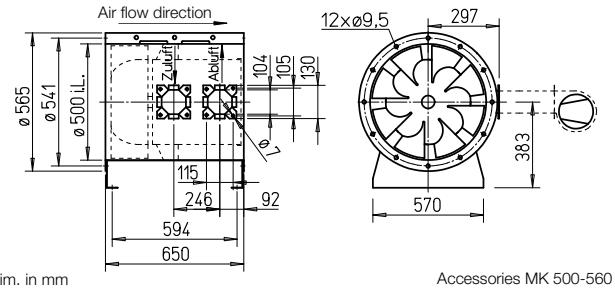
Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption at nom. voltage	Wiring diagram	max. air flow temp.[3] at nom. voltage	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2]			
												Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
40° Three phase motor, 50 Hz, protection class IP54															
VARD 900/4	06743	1480	63890	37.00*	400/690	73.0/42.2	776	40	500.0	—		**SDD 3**	01367	**SDZ 7**	01929
60° Pole-switching, 2 Drehzahlen (Dahlander winding Y/YY), Three phase motor, 50 Hz, protection class IP54															
VARD 900/8/4	06800	730/1450	31510/62600	9.50/40.00*	400	35.0/80.0	471	60	540.0	—		**SDD 3**	01367	**SDZ 7**	01929
Ex Explosion-proof, E Exe II, three phase motor, 50 Hz, temperature class T 3, protection class IP54															
VARD 900/8 Ex[1]	06744	725	31300	4.80*	400	11.8/6.8	498	40	325.0	—		**SDD 3**	01367	**SDZ 6**	01927
VARD 900/6 Ex[1]	06745	980	42310	13.20*	400	28.0/16.2	498	40	390.0	—		**SDD 3**	01367	**SDZ 6**	01927
VARD 900/4 Ex[1]	06746	1475	63670	36.00*	400	67.0/38.7	498	40	545.0	—		**SDD 3**	01367	**SDZ 7**	01929
F300 Three phase motor, 50 Hz, protection class IP54															
B VARD 900/4 F300	02370	1480	63460	37.0	400	66.8	776	40 / 300[3]	533.0	**EVS-SD 009**	04578	**SDD 8**	01930	**SDZ 8**	01931
F300 Pole-switching, 2 speed (Dahlander winding Y/YY), Three phase motor, 50 Hz, protection class IP54															
B VARD 900/8/4 F300	02371	740/1485	31730/63460	9.2/37.0	400	25.4/74.2	471	40 / 300[3]	551.0	**on demand**		**SDD 8**	01930	**SDZ 8**	01931
F400 Three phase motor, 50 Hz, protection class IP54															
B VARD 900/4 F400	02456	1480	63460	37.0	400	66.8	776	40 / 400[3]	554.0	**EVS-SD 009**	04578	**SDD 8**	01930	**SDZ 8**	01931
F400 Pole-switching, 2 speed (Dahlander winding Y/YY), Three phase motor, 50 Hz, protection class IP54															
B VARD 900/8/4 F400	02457	740/1485	31730/63460	9.2/37.0	400	25.4/74.2	471	40 / 400[3]	551.0	**on demand**		**SDD 8**	01930	**SDZ 8**	01931

[1] There must be a vibration monitoring system (on-site) pursuant to DIN EN 14986. [2] Types SDZ not permitted for installation within fire zone.
[3] Smoke extraction (once 120 min. at 300 °C or 120 min. at 400 °C).

B VAR 500 F600

F600

Dimensions B VAR 500 F600



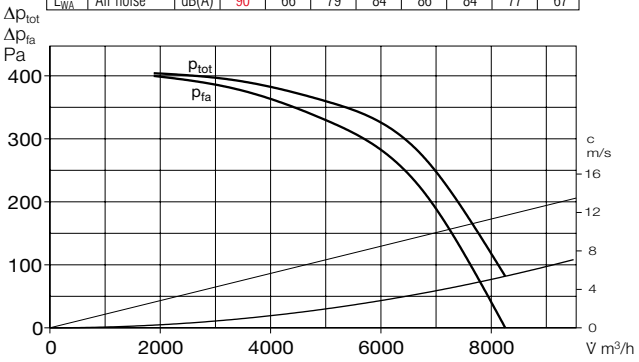
All dim. in mm

Accessories MK 500-560

Performance curves B VAR 500/4 F600

n=1420 1/min

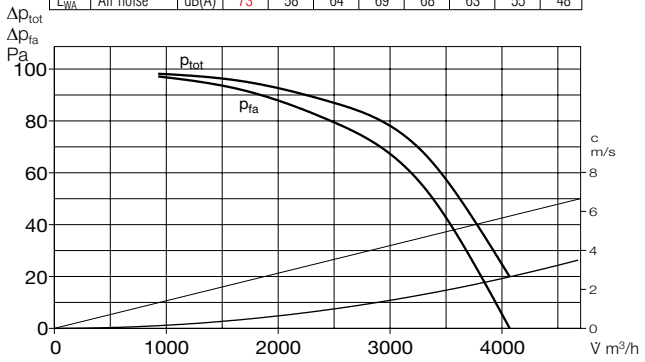
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	90	66	79	84	86	84	77	67

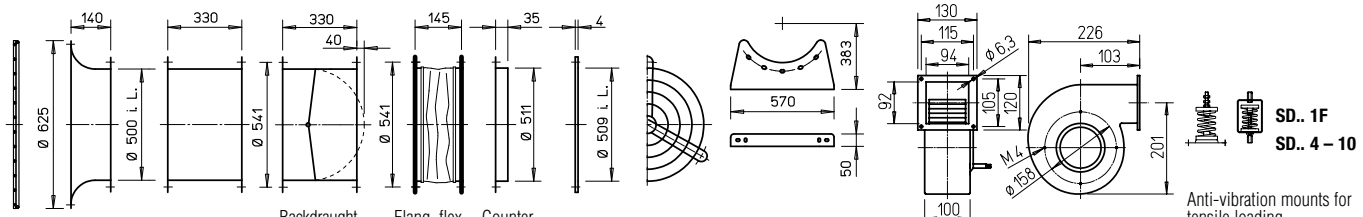


Performance curves B VAR 500/8 F600

n=700 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	73	58	64	69	68	63	55	48





Bell mouth + guard **ASD-SGD 500** No. 01420

Extension duct **VR 500** No. 01408

Backdraught shutter, automatic **RVS 500** No. 02598

Flang. flex. connector **STSB 500 F600** No. 02003

Counter flange **FR 500** No. 01208

Flat flange **FF 500** No. 04947

Duct-side guard **ŠG 500** No. 01241

Mounting brackets **MK 500 – 560** (1 set = 2 pcs.) No. 01450

Centrif. cooling air fan **B KLG 500** No. 02798

Anti-vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti-vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

Accessories page 151 ff.

* Type allocation see table, last column

Casing
Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.

Impeller
Optimised for high pressure and volume output.
Special development with spatially curved hot-dip galvanised steel blades.

Motor
Direct through Efficient IE3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.

Motor protection
All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.

Installation
Installation in any position. Suitable for installation within and outside of the fire zone.

Electrical connection
Standard terminal box (IP54) mounted for installation outside of the fire zone.

Safety information
Protection against accidental contact for impeller must be ensured pursuant to DIN EN ISO 13857.

Centrifugal cooling air fan
The centrifugal cooling air fan B KLG is a required accessory for ensuring motor cooling.
Alternative forced ventilation fan upon request.
Minimum cooling air flow rate V̇ = 250 m³/h.

Certification
The smoke extraction fans B VARD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F600: 0036-CPR-RG05-02

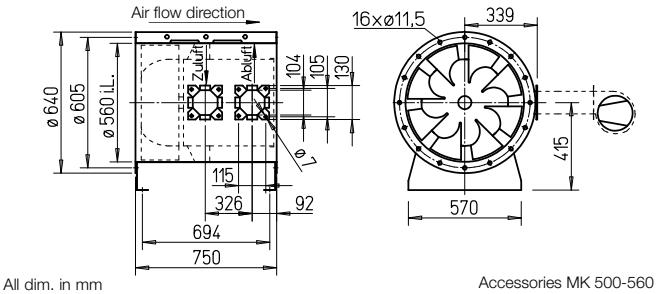
Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2] Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 500/4 F600	02813	1435	10510	2.2	400	4.56	776	40 / 600	101	**EVS-D 007**	04587	**SDD 4**	01944	**SDZ 4**	01945

[1] For ventilation / smoke extraction (once 120 min.).

[2] Types SDZ not permitted for installation within fire zone.

B VAR 560 F600

Dimensions B VAR 560 F600



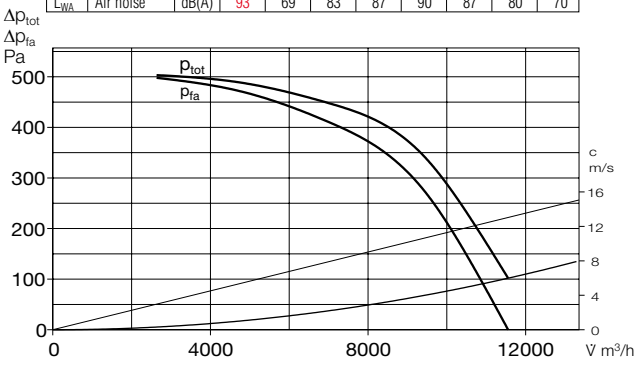
All dim. in mm

Accessories MK 500-560

Performance curves B VAR 560/4 F600

n=1415 1/min

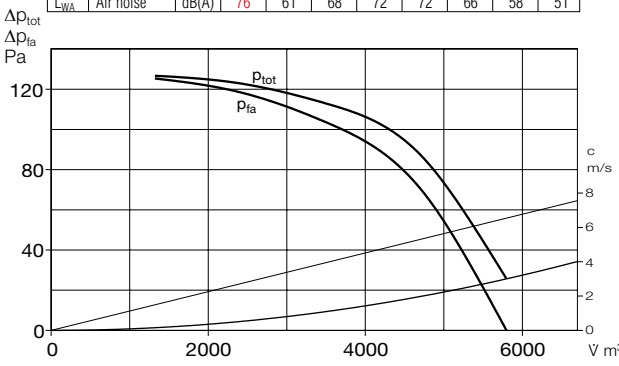
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	93	69	83	87	90	87	80	70

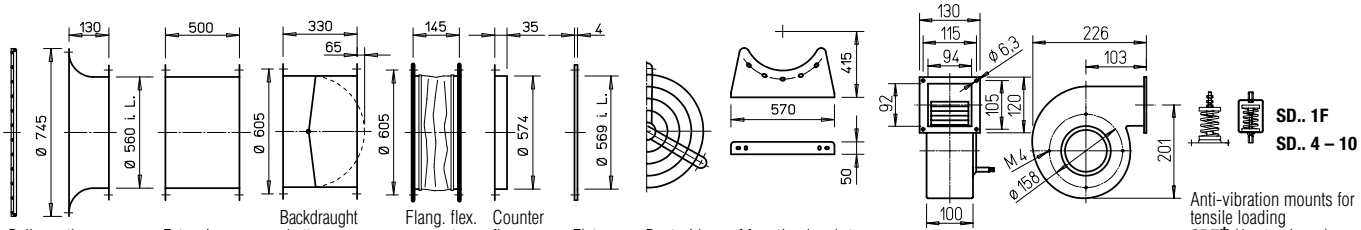


Performance curves B VAR 560/8 F600

n=710 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	76	61	68	72	72	66	58	51





Bell mouth + guard **ASD-SGD 560** No. 01421

Extension duct **VR 560** No. 01409

Backdraught shutter, automatic **RVS 560** No. 02599

Flang. flex. connector **STSB 560 F600** No. 02004

Counter flange **FR 560** No. 01209

Flat flange **FF 560** No. 04948

Duct-side guard **SG 560** No. 01242

Mounting brackets **MK 500 – 560** (1 set = 2 pcs.) No. 01450

Centrif. cooling air fan **B KLG 500** No. 02798

Anti-vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti-vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

Accessories page 151 ff.

* Type allocation see table, last column

Casing
Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.

Impeller
Optimised for high pressure and volume output.
Special development with spatially curved hot-dip galvanised steel blades.

Motor
Direct through Efficient IE3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.

Motor protection
All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.

Installation
Installation in any position. Suitable for installation within and outside of the fire zone.

Electrical connection
Standard terminal box (IP54) mounted for installation outside of the fire zone.

Safety information
Protection against accidental contact for impeller must be ensured pursuant to DIN EN ISO 13857.

Centrifugal cooling air fan
The centrifugal cooling air fan B KLG is a required accessory for ensuring motor cooling.
Alternative forced ventilation fan upon request.
Minimum cooling air flow rate $\dot{V}$ = 340 m³/h.

Certification
The smoke extraction fans B VARD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F600: 0036-CPR-RG05-02

Information	Page
Techn. description	74 f.
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Centrif. cooling air fan	150
Gas warning systems, switch and control technology	158 ff.

Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2]			
												Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 560/4 F600	02828	1440	11470	3.0	400	6.15	776	40 / 600	129	**EVS-SD 024**	04563	**SDD 4**	01944	**SDZ 4**	01945

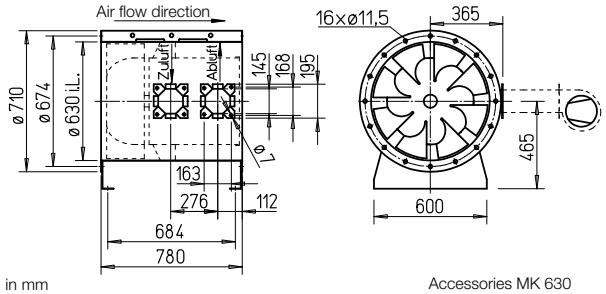
[1] For ventilation / smoke extraction (once 120 min.).

[2] Types SDZ not permitted for installation within fire zone.

B VAR 630 F600

F600

Dimensions B VAR 630 F600



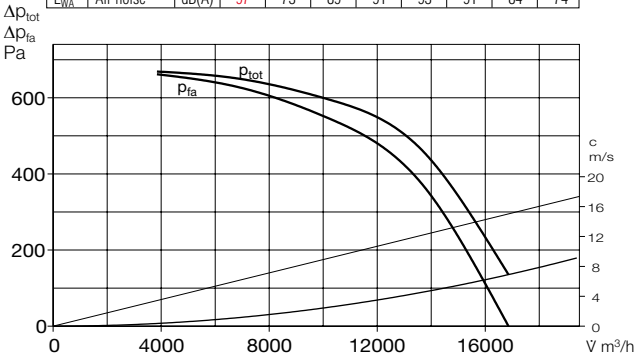
All dim. in mm

Accessories MK 630

Performance curves B VAR 630/4 F600

n=1450 1/min

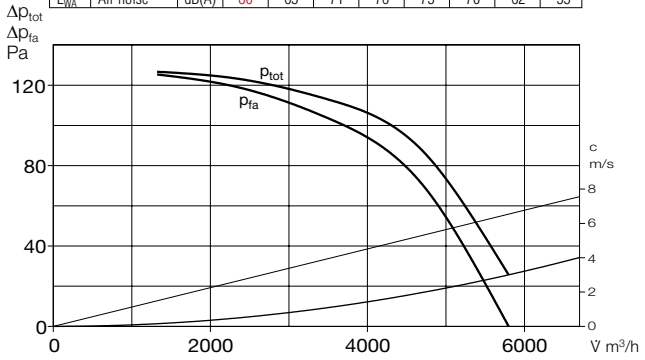
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	97	73	89	91	93	91	84	74

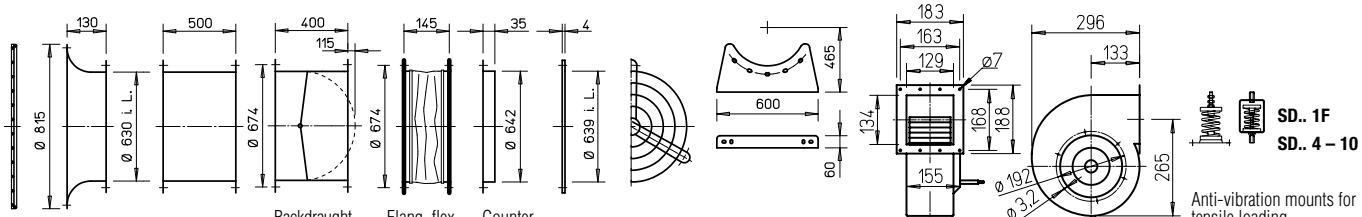


Performance curves B VAR 630/8 F600

n=720 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	80	65	71	76	75	70	62	55





Bell mouth + guard **ASD-SGD 630** No. 01422

Extension duct **VR 630** No. 01410

Backdraught shutter, automatic **RVS 630** No. 02600

Flang. flex. connector **STSB 630** **F600** No. 02005

Counter flange **FR 630** No. 01211

Flat flange **FF 630** No. 04949

Duct-side guard **SG 630** No. 01243

Mounting brackets **MK 630** (1 set = 2 pcs.) No. 01333

Centrif. cooling air fan **B KLG 1000** No. 02799

Anti-vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti-vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

Accessories page 151 ff.

* Type allocation see table, last column

Casing
Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.

Impeller
Optimised for high pressure and volume output.
Special development with spatially curved hot-dip galvanised steel blades.

Motor
Direct through Efficient IE3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.

Motor protection
All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.

Installation
Installation in any position. Suitable for installation within and outside of the fire zone.

Electrical connection
Standard terminal box (IP54) mounted for installation outside of the fire zone.

Safety information
Protection against accidental contact for impeller must be ensured pursuant to DIN EN ISO 13857.

Centrifugal cooling air fan
The centrifugal cooling air fan B KLG is a required accessory for ensuring motor cooling.
Alternative forced ventilation fan upon request.
Minimum cooling air flow rate $\dot{V}$ = 445 m³/h.

Certification
The smoke extraction fans B VARD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F600: 0036-CPR-RG05-02

Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consump-tion	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2]			
												Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 630/4 F600	02843	1460	21460	5.5	400	10.4	776	40 / 600	179	**EVS-SD 028**	04559	**SDD 5**	01924	**SDZ 5**	01925

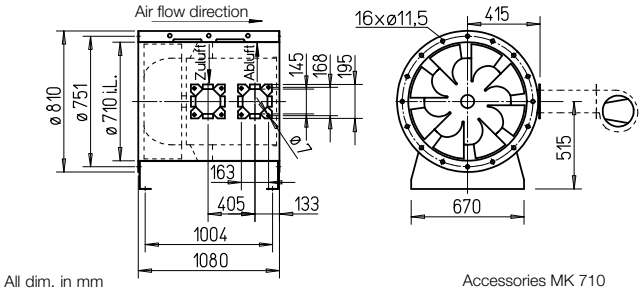
[1] For ventilation / smoke extraction (once 120 min.).

[2] Types SDZ not permitted for installation within fire zone.

B VAR 710 F600

F600

Dimensions B VAR 710 F600



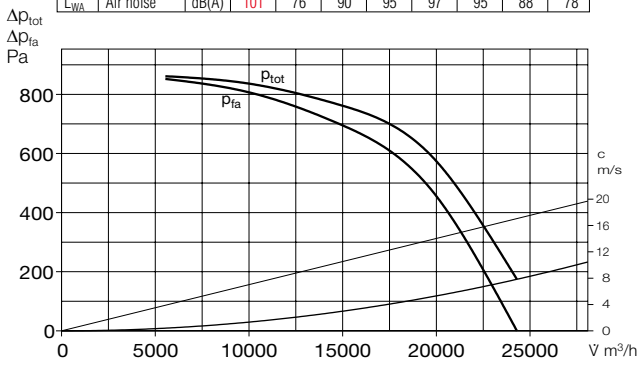
All dim. in mm

Accessories MK 710

Performance curves B VAR 710/4 F600

n=1460 1/min

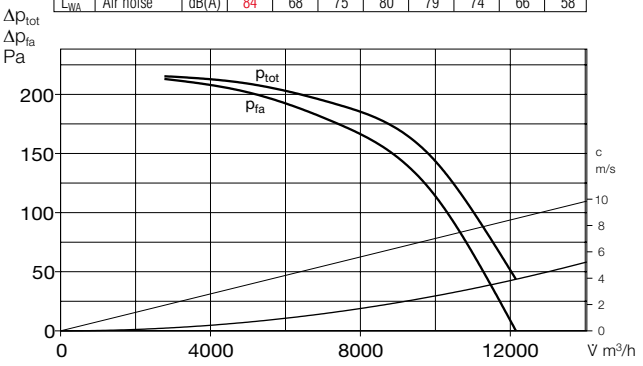
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	101	76	90	95	97	95	88	78

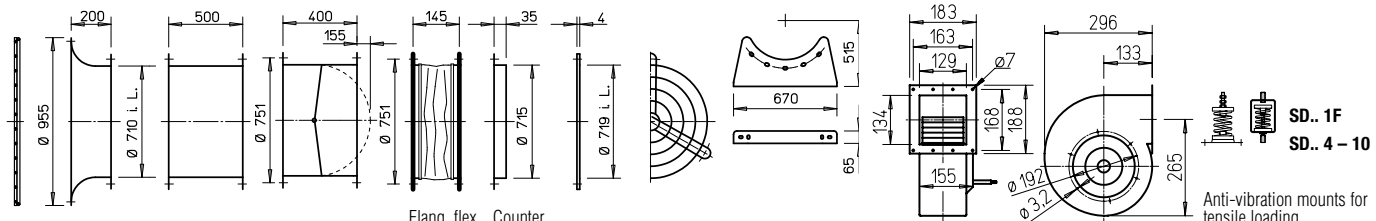


Performance curves B VAR 710/8 F600

n=730 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	84	68	75	80	79	74	66	58





Bell mouth + guard **ASD-SGD 710** No. 01423

Extension duct **VR 710** No. 01411

Backdraught shutter **RVS 710** No. 02601

Flang. flex. connector **STSB 710** **F600** No. 02006

Counter flange **FR 710** No. 01212

Flat flange **FF 710** No. 04950

Duct-side guard **SG 710** No. 01244

Mounting brackets **MK 710** (1 set = 2 pcs.) No. 01372

Centrif. cooling air fan **B KLG 1000** No. 02799

Anti-vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)

Anti-vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

Accessories page 151 ff.

* Type allocation see table, last column

Casing
Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.

Impeller
Optimised for high pressure and volume output.
Special development with spatially curved hot-dip galvanised steel blades.

Motor
Direct through Efficient IE3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.

Motor protection
All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.

Installation
Installation in any position. Suitable for installation within and outside of the fire zone.

Electrical connection
Standard terminal box (IP54) mounted for installation outside of the fire zone.

Safety information
Protection against accidental contact for impeller must be ensured pursuant to DIN EN ISO 13857.

Centrifugal cooling air fan
The centrifugal cooling air fan B KLG is a required accessory for ensuring motor cooling.
Alternative forced ventilation fan upon request.
Minimum cooling air flow rate $\dot{V}$ = 565 m³/h.

Certification
The smoke extraction fans B VARD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F600: 0036-CPR-RG05-02

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Techn. description	74 f.
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Centrif. cooling air fan	150
Gas warning systems, switch and control technology	158 ff.

Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2]			
												Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 710/4 F600	02853	1470	30940	11.0	400	20.9	776	40 / 600	283	**EVS-SD 030**	04557	**SDD 6**	01926	**SDZ 6**	01927

[1] For ventilation / smoke extraction (once 120 min.).

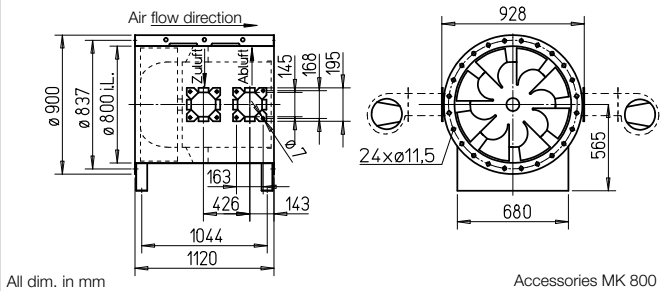
[2] Types SDZ not permitted for installation within fire zone.

High pressure in-line smoke exhaust fans B VAR F600
ø 800 mm

B VAR 800 F600

F600

Dimensions B VAR 800 F600



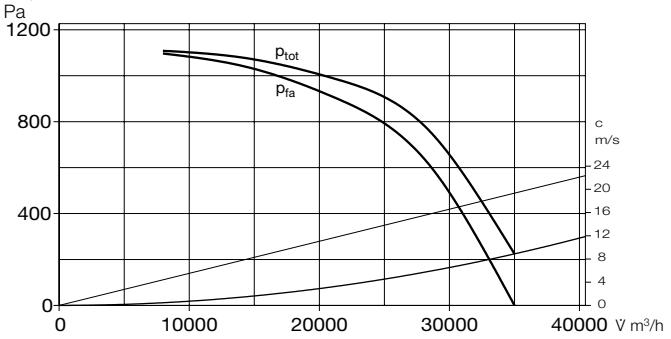
All dim. in mm

Accessories MK 800

Performance curves B VAR 800/4 F600

n=1470 1/min

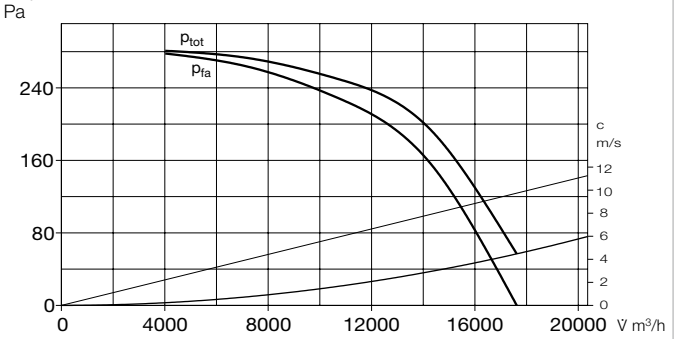
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	105	80	94	98	101	98	92	82

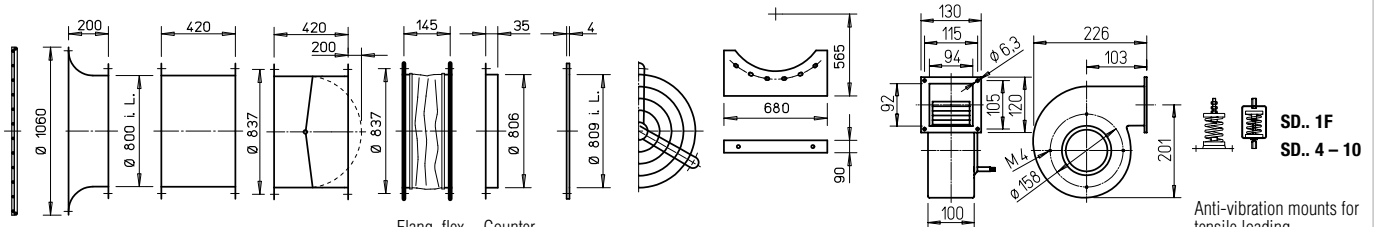


Performance curves B VAR 800/8 F600

n=740 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	87	72	79	83	83	77	69	62





Bell mouth + guard **ASD-SGD 800** No. 01424

Extension duct **VR 800** No. 01412

Backdraught shutter **RVS 800** No. 02602

Flang. flex. connector **STSB 800 F600** No. 02007

Counter flange **FR 800** No. 01198

Flat flange **FF 800** No. 04951

Duct-side guard **SG 800** No. 01245

Mounting brackets **MK 800** (1 set = 2 pcs.) No. 01373

Centrif. cooling air fan **B KLG 500** No. 02798 2 St. erforderlich

Anti-vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti-vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

Accessories page 151 ff.

* Type allocation see table, last column

Casing
Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.

Impeller
Optimised for high pressure and volume output.
Special development with spatially curved hot-dip galvanised steel blades.

Motor
Direct through Efficient IE3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.

Motor protection
All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.

Installation
Installation in any position. Suitable for installation within and outside of the fire zone.

Electrical connection
Standard terminal box (IP54) mounted for installation outside of the fire zone.

Safety information
Protection against accidental contact for impeller must be ensured pursuant to DIN EN ISO 13857.

Centrifugal cooling air fan
The centrifugal cooling air fan B KLG is a required accessory for ensuring motor cooling.
Alternative forced ventilation fan upon request.
Minimum cooling air flow rate V̇ = 700 m³/h.

Certification
The smoke extraction fans B VARD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F600: 0036-CPR-RG05-02

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Centrif. cooling air fan	150
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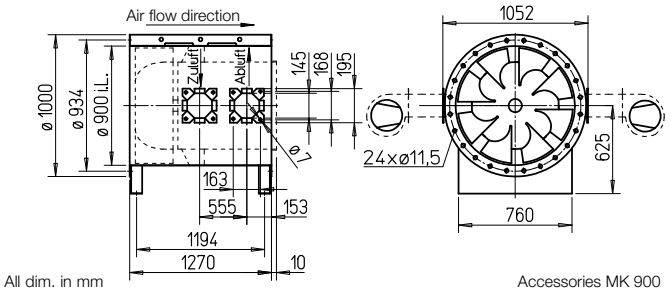
Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2]			
												Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 800/4 F600	02863	1470	44570	18.5	400	35.1	776	40 / 600	394	**EVS-SD 027**	04560	**SDD 7**	01928	**SDZ 7**	01929

[1] For ventilation / smoke extraction (once 120 min.).

[2] Types SDZ not permitted for installation within fire zone.

B VAR 900 F600

Dimensions B VAR 900 F600



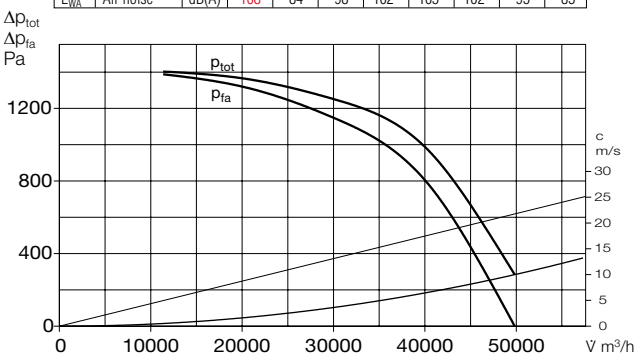
All dim. in mm

Accessories MK 900

Performance curves B VAR 900/4 F600

n=1470 1/min

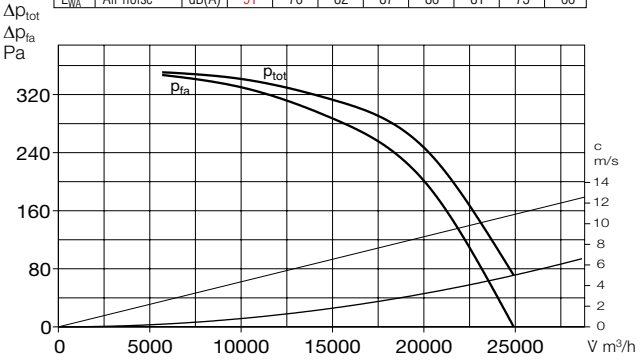
Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	108	84	98	102	105	102	95	85

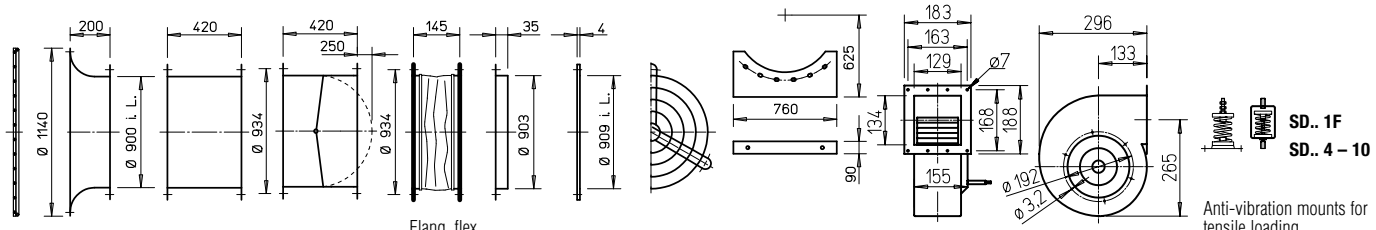


Performance curves B VAR 900/8 F600

n=735 1/min

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Air noise	dB(A)	91	76	82	87	86	81	73	66





Bell mouth + guard **ASD-SGD 900** No. 01309

Extension duct **VR 900** No. 01311

Backdraught shutter, **RVS 900** No. 02603

Flang. flex. connector **STSB 900** **F600** No. 02008

Counter flange **FR 900** No. 01199

Flat flange **FF 900** No. 04952

Duct-side guard **SG 900** No. 01246

Mounting brackets **MK 900** (1 set = 2 pcs.) No. 01374

Centrif. cooling air fan **B KLG 1000** No. 02799 2 St. erforderlich

Anti-vibration mounts for tensile loading **SDZ*** (1 set = 4 pcs.)
Anti-vibration mounts for pressure loading **SDD*** (1 set = 4 pcs.)

Accessories page 151 ff.

* Type allocation see table, last column

Casing
Duct with flanges on both sides DIN 24155 pt. 3. Welded construction, hot-dip galvanised. Welded guide vane with inner hub for mounting the flange motor, hot-dip galvanised.

Impeller
Optimised for high pressure and volume output.
Special development with spatially curved hot-dip galvanised steel blades.

Motor
Direct through Efficient IE3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55. Insulation class H. External cable with sheathing.

Motor protection
All types (except pole-switching) have PTC resistors as standard and must be protected with aa full motor protection device (MSA, Ref. no. 01289). This must be bridged in smoke extraction situation.

Installation
Installation in any position. Suitable for installation within and outside of the fire zone.

Electrical connection
Standard terminal box (IP54) mounted for installation outside of the fire zone.

Safety information
Protection against accidental contact for impeller must be ensured pursuant to DIN EN ISO 13857.

Centrifugal cooling air fan
The centrifugal cooling air fan B KLG is a required accessory for ensuring motor cooling.
Alternative forced ventilation fan upon request.
Minimum cooling air flow rate V̇ = 850 m³/h.

Certification
The smoke extraction fans B VARD have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F600: 0036-CPR-RG05-02

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Centrif. cooling air fan	150
Gas warning systems, switch and control technology	158 ff.

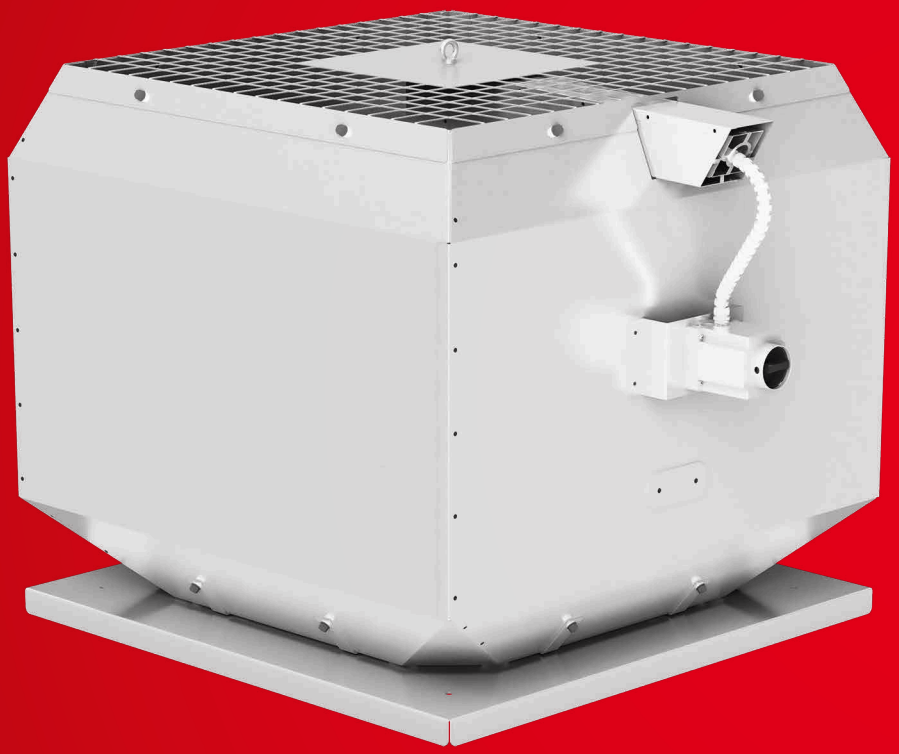
Type	Ref. no.	Speed	Output free-blowing	Nom. motor power. (output)	Nominal voltage	Power consumption	Wiring diagram	max. air flow temp.[1]	Net weight approx.	Smoke exhaust fan control system incl. full motor protection		Anti-vibration mount [2] Pressure		Tensile	
		min⁻¹	V̇ m³/h	kW	V	A	No.	+°C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F600 **Three phase motor, 50 Hz, protection class IP54**															
B VARD 900/4 F600	02873	1480	63460	37.0	400	66.8	776	40 / 600	655	**EVS-SD 036**	04550	**SDD 8**	01930	**SDZ 8**	01931

[1] For ventilation / smoke extraction (once 120 min.).

[2] Types SDZ not permitted for installation within fire zone.

Smoke exhaust roof fans.
Right at the top.

GERMAN DESIGN AWARD WINNER 2021



Developed to withstand the most extreme conditions, the Helios smoke exhaust roof fans are invaluable lifesavers in case of fire. Thanks to their dual functionality, they can be used for everyday ventilation, e.g. in assembly areas and sales outlets, in addition to smoke extraction.

The vertical air outlet prevents damage to the adjacent parts of the building in case of fire. Due to their robust design, smoke exhaust roof fans are ideal for use in difficult operating conditions.

The standard integrated transport lugs facilitate transportation and positioning at the installation site. The isolator switch, which is easily accessible from the outside and for the electrical connection, is practical for installation.

Highlights:
- 40 types from 1000 to 70 000 m^3/h.
- Dual function for ventilation and smoke extraction due to frequency inverter.
- Innovative design with patented cooling concept.
- A wide range of accessory components for maximum system diversity.
- Reliable even in case of increased snow load: Deflector B DEF for requirements up to snow load class SL 2000 and SL 3000.

F400 F600

▶ PLAY

Helios roof fan videos are now on YouTube:

Smoke exhaust roof fans

Smoke exhaust roof fans F400 and F 600 in sizes from Ø 315 to 900 mm and flow rates from 1 000 to 70 000 m³/h.

F400 F600

106ff

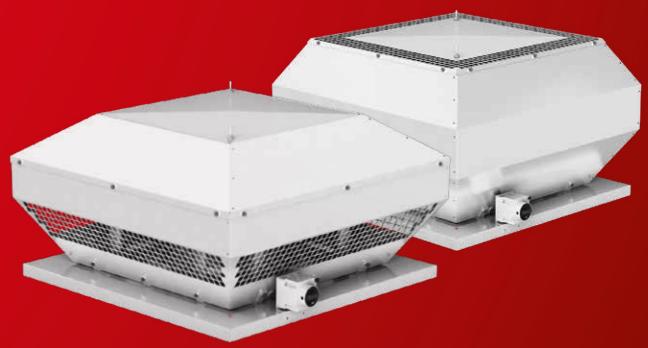
Other roof fans

More than 150 types in horizontal and vertical outlet designs with AC and efficient EC technology, in explosion-proof, T120 versions and with volume flows from 540 to 70 000 m³/h – you will be offered an individual solution for every construction project.

See Helios main catalogue no. 95178

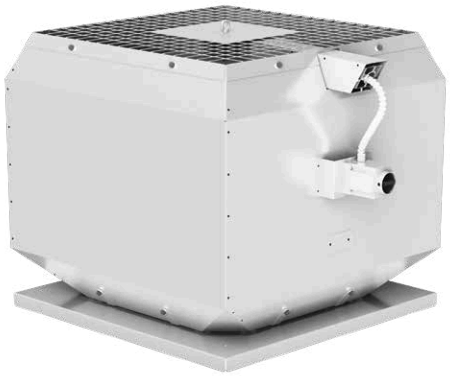
EC T120 Ex

Certified for temperature classes F400 and F600 according to DIN EN 12101-3.



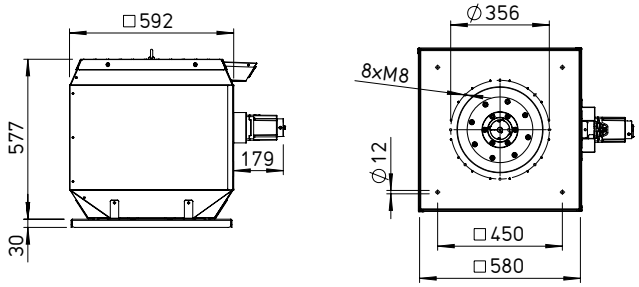
Smoke exhaust roof fans B VDD F400/F600
ø 315 mm

B VD 315 F400/F600



F400 F600

Dimensions B VD 315 F400/F600



Dim. in mm

Application
- In mechanical smoke extraction systems (MRA) for ensuring smoke extraction in special structures, such as sales locations, large parking garages, meeting locations or industrial buildings.
- Smoke extraction with temperature classes F400 and F600.
- Also suitable for ventilation operation (Dual-Use).
- For increased ventilation requirements with a continuous air flow temperature of up to 120 °C.

Features
- Smoke exhaust roof fan as a smoke extraction fan with dual-function (smoke extraction and ventilation).
- Robust design with efficiency-optimised casing for difficult operating conditions.
- High operational reliability due to minimal maintenance requirements.
- Ready-for-use delivery for easy installation.
- Base plate with threaded bolts for the easy mounting of inlet-side accessories.
- Standard PTC thermistor as motor protection for ventilation operation (motor protection devices must be automatically deactivated in case of fire for max. operating duration).
- Motor outside of air flow, enclosed in self-ventilated motor casing for optimal motor cooling.
- Comprehensive accessories enable perfect compliance with property-specific requirements.
- Isolator switch for electrical connection as standard.
- Perfectly tuned for operation with frequency inverter.

Casing
- Made of seawater-resistant aluminium for maximum weather protection.
- Base plate with inlet nozzle and motor support made of powder-coated steel sheet.
- Vertical air outlet prevents damage to adjacent parts of the building in case of fire.
- Outlet-side aluminium protection grille.
- Standard transport lugs for simple positioning.
- Attractive architectural design.

Impeller
- Directly driven high-performance centrifugal impeller, with eight backward curved blades.
- Design made of powder-coated steel sheet.
- Single-side inlet.
- Dynamically balanced, quality class 6.3.
- High efficiency for maximum output with low-noise operation.
- Direct mounting of hub to motor shaft.

Drive
- High-quality smoke exhaust motor for high environmental temperatures, perfectly tuned for use in smoke extraction fans.
- Enclosed motor design, protection category IP55.
- Winding in insulation class H.
- Motor outside of air flow, protected from this by thermal separation.
- Innovative motor cooling concept, perfectly tuned for smoke extraction with frequency inverter operation and reduced speed.
- Motor cooling airflow through intake duct. Automatic flow during fan operation.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).

Speed control
- Optimal ventilation operation with speed control by means of frequency inverter.
- Smoke extraction possible with frequency inverter operation, elaborate bypass circuit can be omitted in case of fire.
- It must be ensured that operation takes place at the speed required for the smoke extraction flow rate for smoke extraction.
- Frequency inverter with all-pole sine filter and special operating mode for smoke ventilation operation is essential (Accessories).

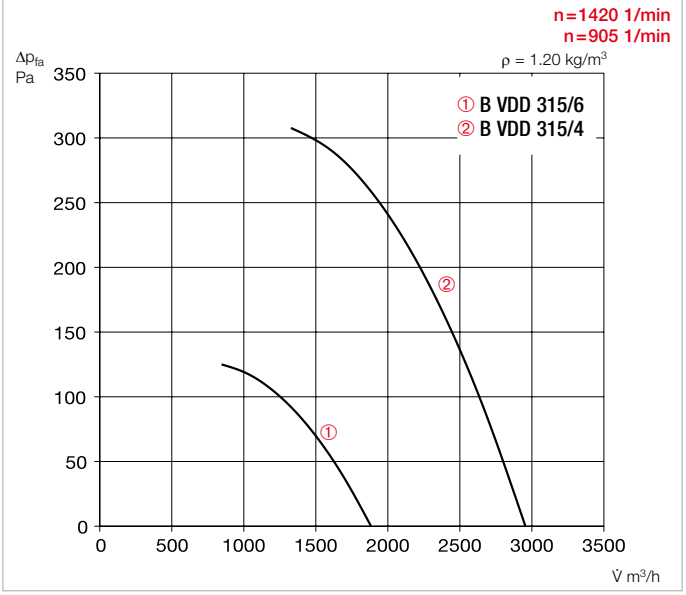
Dual function (Dual-Use)
- Approved for daily ventilation on demand and smoke extraction.
- Ventilation in continuous operation possible.
- High efficiency meets the ERP requirements for Dual-Use smoke extraction fans.

Assembly/Installation
- Outdoors on horizontal roof (vertical motor shaft) or flat roof base. Flat roof base, see Accessories.
- Snow load class 0 pursuant to DIN EN 12101-3, installation on roofs above heated rooms. For snow load class SL 2000 und SL 3000: Outlet-side deflector, see Accessories.
- Standard transport lug for simple positioning.
- Inlet-side connectable accessories can be attached to the threaded bolts in the base plate (hole pattern according to DIN 24155).

Type	Ref. no.	Speed	Output free-blowing	Sound pres. casing-radiated	Sound power level casing-radiated	Nominal motor output	Nominal motor current	Starting current	Wiring diagram	Net weight approx.	Frequency inverter		Smoke ventilation fan control system		Full motor prot. dev.* for connection of integrated PTC resistor	
		min^{-1}	V m^3/h	dB(A) in 4 m	dB(A)	kW	A	A	No.	kg	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
F400 **Single speed, three phase motor 400 V, 50 Hz, protection class IP55**																
B VDD 315/4 F400	07583	1.420	2.950	55	75	0.55	1.23	8.1	1262	56	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289
B VDD 315/6 F400	07584	925	1.900	51	71	0.37	0.97	4.4	1262	56	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289
F600 **Single speed, three phase motor 400 V, 50 Hz, protection class IP55**																
B VDD 315/4 F600	07585	1.420	2.950	55	75	0.55	1.23	8.1	1262	56	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289
B VDD 315/6 F600	07586	925	1.900	51	71	0.37	0.97	4.4	1262	56	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289

* These switch devices in the on-site control system must be bridged when using as smoke exhaust fan.

Performance diagram B VD 315 F400/F600



Air flow temperature
- Temperature classes F400 and F600.
- Smoke extraction 400 °C/120 minutes, or 600 °C/120 minutes.
- 120 °C continuous air flow temperature.
- For ambient temperatures from -20 °C to +60 °C.

Noise levels
- The horizontally radiated noise is specified as sound pressure level in 4 m (freefield conditions) in the type table.
- Different installation situations or disturbed flows can lead to increased noise levels.
- Hood silencer and silencer insert for flat roof base, see Accessories.

Motor protection
- All types have PTC thermistors in the motor winding as standard.
- PTC thermistor assessment with suitable full motor protection device, MSA, EVS or frequency inverter (Accessories).
- The motor protection must be automatically bridged/bypassed in case of smoke extraction (deactivation) to ensure the maximum function duration.

Voltages and frequencies
- Nominal voltage and frequency are specified in the table. These also form the basis for the performance data.

Electrical connection
- To external isolator switch in protection category IP65.
- Isolator switch can be locked in position “0 OFF” and “I ON” using on-site padlock.
- Fans with a nominal motor output up to 2.20 kW can be directly activated, with star-delta start-up for 3.00 kW and above.

Delivery information
- Ready-to-use units, completely pre-assembled.
- Simple positioning with standard transport lug.

Safety information
- Outlet-side with aluminium protection grille as standard. Prevents penetration of leaves and solids and provides contact protection.

Fire test
- Successfully tested according to DIN EN 12101-3: 2015-12.

Accessories

Flat roof base

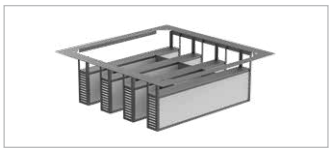
B FDS 315/300	Ref. no. 01765
B FDS 315/500	Ref. no. 01766

Flat roof base for B VD F400 and F600 in heights 300 mm and 500 mm for mounting on flat roof.

Silencer insert

B SSD 315	Ref. no. 03475

Silencer insert with connectors for flat roof base for inlet-side noise reduction. Flat roof base B FDS required.



Hood silencer

B HSDV 315	Ref. no. 03071

Hood silencer with inner core for outlet-side noise reduction.

Deflector

B DEF 315/2000	Ref. no. 40077
B DEF 315/3000	Ref. no. 03410

Deflector with snow load class SL 2000 and SL 3000 for mounting on B VD F400 and F600.

Inlet nozzle with protection grille

ASD-SGD 315	Ref. no. 01416

Flexible connector

STSB 315 F400	Ref. no. 14738
STSB 315 F600	Ref. no. 01940

Extension duct

VR 315	Ref. no. 01404

Duct shutter

RVS 315	Ref. no. 02594

Smoke exhaust fan control system

EVS-D 001	Ref. no. 04594

Smoke exhaust fan control system for the operation of B VD F400/F600.

Bearing condition diagnostics system

LZD-Basic	Ref. no. 05790
LZD-Comfort	Ref. no. 05791

For ensuring the functionality of motor bearings. Factory-mounted to fan.

Information

Notes on operation in case of fire:
- Unhindered discharge of smoke gases at all times.
- Motor protection devices must be automatically bridged.
- Secure electrical power supply (safety power supply) required.

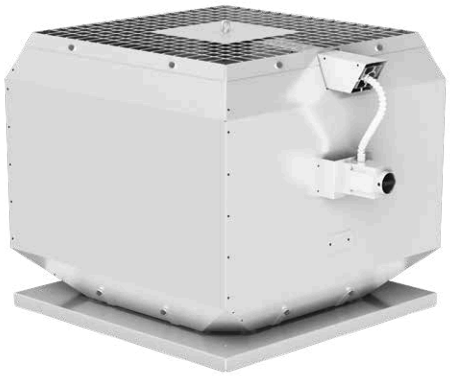
The relevant regulations apply for the maintaining the functionality of electrical circuit systems.

Planning information p. 3 ff.

Accessories	Page
Mounting accessories	151 ff.
Control devices, switches	158 ff.

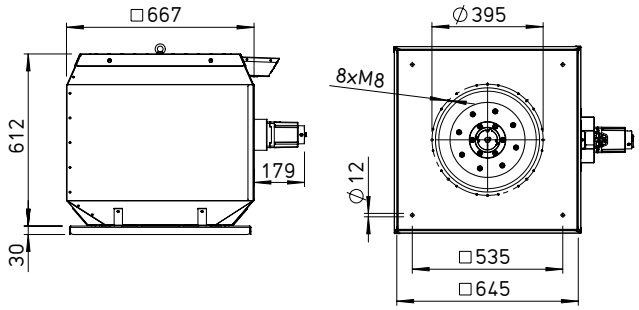
Smoke exhaust roof fans B VD F400/F600
ø 355 mm

B VD 355 F400/F600



F400 F600

Dimensions B VD 355 F400/F600



Dim. in mm

Application
- In mechanical smoke extraction systems (MRA) for ensuring smoke extraction in special structures, such as sales locations, large parking garages, meeting locations or industrial buildings.
- Smoke extraction with temperature classes F400 and F600.
- Also suitable for ventilation operation (Dual-Use).
- For increased ventilation requirements with a continuous air flow temperature of up to 120 °C.

Features
- Smoke exhaust roof fan as a smoke extraction fan with dual-function (smoke extraction and ventilation).
- Robust design with efficiency-optimised casing for difficult operating conditions.
- High operational reliability due to minimal maintenance requirements.
- Ready-for-use delivery for easy installation.
- Base plate with threaded bolts for the easy mounting of inlet-side accessories.
- Standard PTC thermistor as motor protection for ventilation operation (motor protection devices must be automatically deactivated in case of fire for max. operating duration).
- Motor outside of air flow, enclosed in self-ventilated motor casing for optimal motor cooling.
- Comprehensive accessories enable perfect compliance with property-specific requirements.
- Isolator switch for electrical connection as standard.
- Perfectly tuned for operation with frequency inverter.

Casing
- Made of seawater-resistant aluminium for maximum weather protection.
- Base plate with inlet nozzle and motor support made of powder-coated steel sheet.
- Vertical air outlet prevents damage to adjacent parts of the building in case of fire.
- Outlet-side aluminium protection grille.
- Standard transport lugs for simple positioning.
- Attractive architectural design.

Impeller
- Directly driven high-performance centrifugal impeller, with eight backward curved blades.
- Design made of powder-coated steel sheet.
- Single-side inlet.
- Dynamically balanced, quality class 6.3.
- High efficiency for maximum output with low-noise operation.
- Direct mounting of hub to motor shaft.

Drive
- High-quality smoke exhaust motor for high environmental temperatures, perfectly tuned for use in smoke extraction fans.
- Enclosed motor design, protection category IP55.
- Winding in insulation class H.
- Motor outside of air flow, protected from this by thermal separation.
- Innovative motor cooling concept, perfectly tuned for smoke extraction with frequency inverter operation and reduced speed.
- Motor cooling airflow through intake duct. Automatic flow during fan operation.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).

Speed control
- Optimal ventilation operation with speed control by means of frequency inverter.
- Smoke extraction possible with frequency inverter operation, elaborate bypass circuit can be omitted in case of fire.
- It must be ensured that operation takes place at the speed required for the smoke extraction flow rate for smoke extraction.
- Frequency inverter with all-pole sine filter and special operating mode for smoke ventilation operation is essential (Accessories).

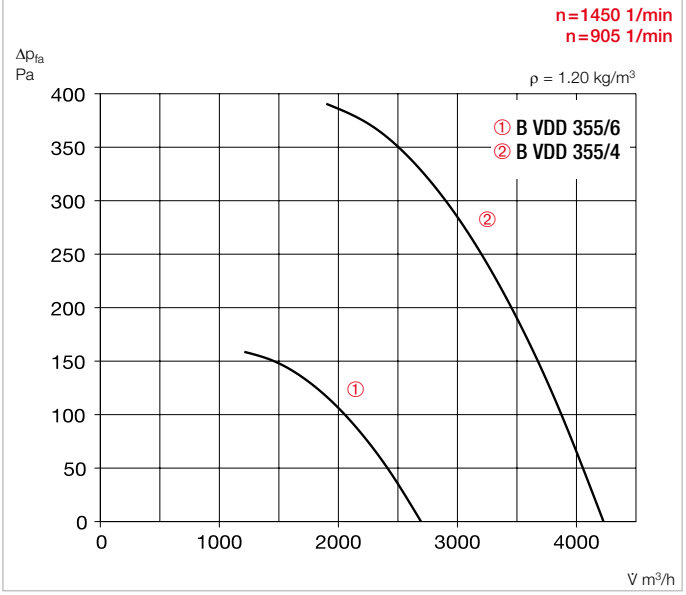
Dual function (Dual-use)
- Approved for daily ventilation on demand and smoke extraction.
- Ventilation in continuous operation possible.
- High efficiency meets the ERP requirements for Dual-Use smoke extraction fans.

Assembly/Installation
- Outdoors on horizontal roof (vertical motor shaft) or flat roof base. Flat roof base, see Accessories.
- Snow load class 0 pursuant to DIN EN 12101-3, installation on roofs above heated rooms. For snow load class SL 2000 und SL 3000: Outlet-side deflector, see Accessories.
- Standard transport lug for simple positioning.
- Inlet-side connectable accessories can be attached to the threaded bolts in the base plate (hole pattern according to DIN 24155).

Type	Ref. no.	Speed	Output free-blowing	Sound pres. casing-radiated	Sound power level casing-radiated	Nominal motor output	Nominal motor current	Starting current	Wiring diagram	Net weight approx.	Frequency inverter		Smoke ventilation fan control system		Full motor prot. dev.* for connection of integrated PTC resistor	
		min^{-1}	V m^3/h	dB(A) in 4 m	dB(A)	kW	A	A	No.	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F400 **Single speed, three phase motor 400 V, 50 Hz, protection class IP55**																
B VDD 355/4 F400	01213	1.420	4.250	58	78	0.55	1.23	8.1	1262	61	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289
B VDD 355/6 F400	01227	925	2.700	55	75	0.37	0.97	4.4	1262	61	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289
F600 **Single speed, three phase motor 400 V, 50 Hz, protection class IP55**																
B VDD 355/4 F600	01232	1.420	4.250	58	78	0.55	1.23	8.1	1262	61	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289
B VDD 355/6 F600	01451	925	2.700	55	75	0.37	0.97	4.4	1262	61	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289

* These switch devices in the on-site control system must be bridged when using as smoke exhaust fan.

Performance diagram B VD 355 F400/F600



Air flow temperature
- Temperature classes F400 and F600.
- Smoke extraction 400 °C/120 minutes, or 600 °C/120 minutes.
- 120 °C continuous air flow temperature.
- For ambient temperatures from -20 °C to +60 °C.

Noise levels
- The horizontally radiated noise is specified as sound pressure level in 4 m (freefield conditions) in the type table.
- Different installation situations or disturbed flows can lead to increased noise levels.
- Hood silencer and silencer insert for flat roof base, see Accessories.

Motor protection
- All types have PTC thermistors in the motor winding as standard.
- PTC thermistor assessment with suitable full motor protection device, MSA, EVS or frequency inverter (Accessories).
- The motor protection must be automatically bridged/bypassed in case of smoke extraction (deactivation) to ensure the maximum function duration.

Voltages and frequencies
- Nominal voltage and frequency are specified in the table. These also form the basis for the performance data.

Electrical connection
- To external isolator switch in protection category IP65.
- Isolator switch can be locked in position “0 OFF” and “I ON” using on-site padlock.
- Fans with a nominal motor output up to 2.20 kW can be directly activated, with star-delta start-up for 3.00 kW and above.

Delivery information
- Ready-to-use units, completely pre-assembled.
- Simple positioning with standard transport lug.

Safety information
- Outlet-side with aluminium protection grille as standard. Prevents penetration of leaves and solids and provides contact protection.

Fire test
- Successfully tested according to DIN EN 12101-3: 2015-12.

Accessories

Flat roof base

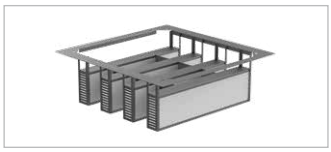
B FDS 355/300	Ref. no. 01767
B FDS 355/500	Ref. no. 01768

Flat roof base for B VD F400 and F600 in heights 300 mm and 500 mm for mounting on flat roof.

Silencer insert

B SSD 355	Ref. no. 03482

Silencer insert with connectors for flat roof base for inlet-side noise reduction. Flat roof base B FDS required.



Hood silencer

B HSDV 355	Ref. no. 03081

Hood silencer with inner core for outlet-side noise reduction.

Deflector

B DEF 355/2000	Ref. no. 40078
B DEF 355/3000	Ref. no. 03425

Deflector with snow load class SL 2000 and SL 3000 for mounting on B VD F400 and F600.

Inlet nozzle with protection grille

ASD-SGD 355	Ref. no. 01417

Flexible connector

STSB 355 F400	Ref. no. 14744
STSB 355 F600	Ref. no. 01941

Extension duct

VR 355	Ref. no. 01405

Duct shutter

RVS 355	Ref. no. 02595

Smoke exhaust fan control system

EVS-D 001	Ref. no. 04594

Smoke exhaust fan control system for the operation of B VD F400/F600.

Bearing condition diagnostics system

LZD-Basic	Ref. no. 05790
LZD-Comfort	Ref. no. 05791

For ensuring the functionality of motor bearings. Factory-mounted to fan.

Information

Notes on operation in case of fire:
- Unhindered discharge of smoke gases at all times.
- Motor protection devices must be automatically bridged.
- Secure electrical power supply (safety power supply) required.

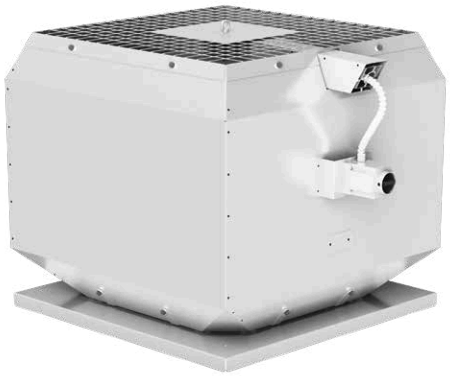
The relevant regulations apply for the maintaining the functionality of electrical circuit systems.

Planning information p. 3 ff.

Accessories	Page
Mounting accessories	151 ff.
Control devices, switches	158 ff.

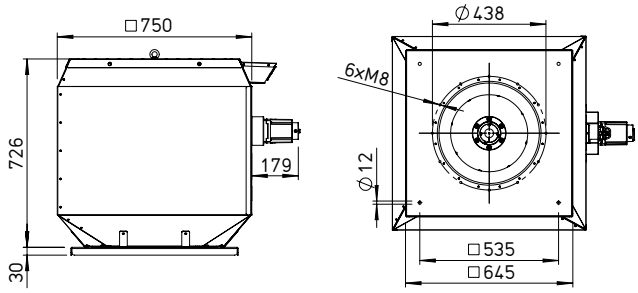
Smoke exhaust roof fans B VD F400/F600
ø 400 mm

B VD 400 F400/F600



F400 F600

Dimensions B VD 400 F400/F600



Dim. in mm

Application
- In mechanical smoke extraction systems (MRA) for ensuring smoke extraction in special structures, such as sales locations, large parking garages, meeting locations or industrial buildings.
- Smoke extraction with temperature classes F400 and F600.
- Also suitable for ventilation operation (Dual-Use).
- For increased ventilation requirements with a continuous air flow temperature of up to 120 °C.

Features
- Smoke exhaust roof fan as a smoke extraction fan with dual-function (smoke extraction and ventilation).
- Robust design with efficiency-optimised casing for difficult operating conditions.
- High operational reliability due to minimal maintenance requirements.
- Ready-for-use delivery for easy installation.
- Base plate with threaded bolts for the easy mounting of inlet-side accessories.
- Standard PTC thermistor as motor protection for ventilation operation (motor protection devices must be automatically deactivated in case of fire for max. operating duration).
- Motor outside of air flow, enclosed in self-ventilated motor casing for optimal motor cooling.
- Comprehensive accessories enable perfect compliance with property-specific requirements.
- Isolator switch for electrical connection as standard.
- Perfectly tuned for operation with frequency inverter.

Casing
- Made of seawater-resistant aluminium for maximum weather protection.
- Base plate with inlet nozzle and motor support made of powder-coated steel sheet.
- Vertical air outlet prevents damage to adjacent parts of the building in case of fire.
- Outlet-side aluminium protection grille.
- Standard transport lugs for simple positioning.
- Attractive architectural design.

Impeller
- Directly driven high-performance centrifugal impeller, with eight backward curved blades.
- Design made of powder-coated steel sheet.
- Single-side inlet.
- Dynamically balanced, quality class 6.3.
- High efficiency for maximum output with low-noise operation.
- Direct mounting of hub to motor shaft.

Drive
- High-quality smoke exhaust motor for high environmental temperatures, perfectly tuned for use in smoke extraction fans.
- Enclosed motor design, protection category IP55.
- Winding in insulation class H.
- Motor outside of air flow, protected from this by thermal separation.
- Innovative motor cooling concept, perfectly tuned for smoke extraction with frequency inverter operation and reduced speed.
- Motor cooling airflow through intake duct. Automatic flow during fan operation.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).

Speed control
- Optimal ventilation operation with speed control by means of frequency inverter.
- Smoke extraction possible with frequency inverter operation, elaborate bypass circuit can be omitted in case of fire.
- It must be ensured that operation takes place at the speed required for the smoke extraction flow rate for smoke extraction.
- Frequency inverter with all-pole sine filter and special operating mode for smoke ventilation operation is essential (Accessories).

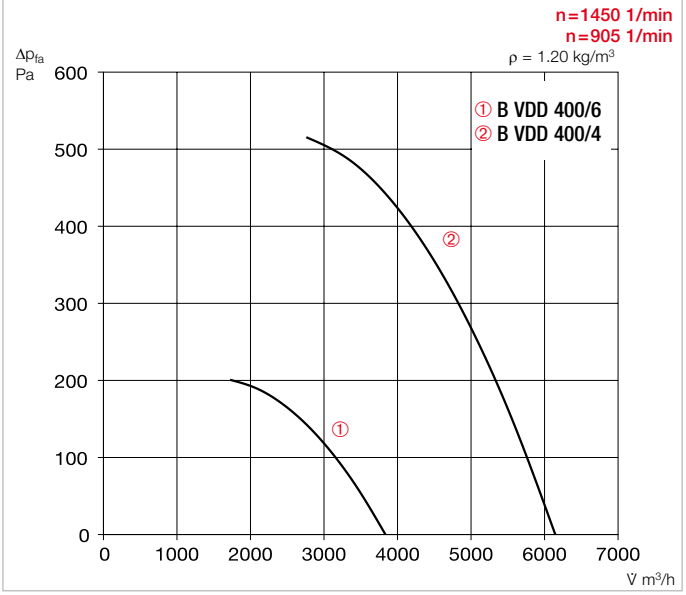
Dual function (Dual-use)
- Approved for daily ventilation on demand and smoke extraction.
- Ventilation in continuous operation possible.
- High efficiency meets the ERP requirements for Dual-Use smoke extraction fans.

Assembly/Installation
- Outdoors on horizontal roof (vertical motor shaft) or flat roof base. Flat roof base, see Accessories.
- Snow load class 0 pursuant to DIN EN 12101-3, installation on roofs above heated rooms. For snow load class SL 2000 und SL 3000: Outlet-side deflector, see Accessories.
- Standard transport lug for simple positioning.
- Inlet-side connectable accessories can be attached to the threaded bolts in the base plate (hole pattern according to DIN 24155).

Type	Ref. no.	Speed	Output free-blowing	Sound pres. casing-radiated	Sound power level casing-radiated	Nominal motor output	Nominal motor current	Starting current	Wiring diagram	Net weight approx.	Frequency inverter		Smoke ventilation fan control system		Full motor prot. dev.* for connection of integrated PTC resistor	
		min^{-1}	V m^3/h	dB(A) in 4 m	dB(A)	kW	A	A	No.	kg	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
F400 **Single speed, three phase motor 400 V, 50 Hz, protection class IP55**																
B VDD 400/4 F400	01458	1.430	6.150	62	82	0.75	1.64	11.5	1262	74	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289
B VDD 400/6 F400	01478	925	3.850	59	79	0.37	0.97	4.4	1262	72	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289
F600 **Single speed, three phase motor 400 V, 50 Hz, protection class IP55**																
B VDD 400/4 F600	01480	1.430	6.150	62	82	0.75	1.64	11.5	1262	74	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289
B VDD 400/6 F600	01487	925	3.850	59	79	0.37	0.97	4.4	1262	72	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289

* These switch devices in the on-site control system must be bridged when using as smoke exhaust fan.

Performance diagram B VD 400 F400/F600



Air flow temperature
- Temperature classes F400 and F600.
- Smoke extraction 400 °C/120 minutes, or 600 °C/120 minutes.
- 120 °C continuous air flow temperature.
- For ambient temperatures from -20 °C to +60 °C.

Noise levels
- The horizontally radiated noise is specified as sound pressure level in 4 m (freefield conditions) in the type table.
- Different installation situations or disturbed flows can lead to increased noise levels.
- Hood silencer and silencer insert for flat roof base, see Accessories.

Motor protection
- All types have PTC thermistors in the motor winding as standard.
- PTC thermistor assessment with suitable full motor protection device, MSA, EVS or frequency inverter (Accessories).
- The motor protection must be automatically bridged/bypassed in case of smoke extraction (deactivation) to ensure the maximum function duration.

Voltages and frequencies
- Nominal voltage and frequency are specified in the table. These also form the basis for the performance data.

Electrical connection
- To external isolator switch in protection category IP65.
- Isolator switch can be locked in position “0 OFF” and “I ON” using on-site padlock.
- Fans with a nominal motor output up to 2.20 kW can be directly activated, with star-delta start-up for 3.00 kW and above.

Delivery information
- Ready-to-use units, completely pre-assembled.
- Simple positioning with standard transport lug.

Safety information
- Outlet-side with aluminium protection grille as standard. Prevents penetration of leaves and solids and provides contact protection.

Fire test
- Successfully tested according to DIN EN 12101-3: 2015-12.

Accessories

Flat roof base

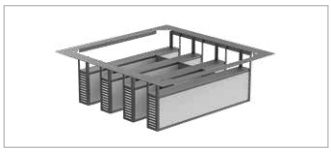
B FDS 400/300	Ref. no. 01767
B FDS 400/500	Ref. no. 01768

Flat roof base for B VD F400 and F600 in heights 300 mm and 500 mm for mounting on flat roof.

Silencer insert

B SSD 400	Ref. no. 03482

Silencer insert with connectors for flat roof base for inlet-side noise reduction. Flat roof base B FDS required.



Hood silencer

B HSDV 400	Ref. no. 03135

Hood silencer with inner core for outlet-side noise reduction.

Deflector

B DEF 400/2000	Ref. no. 40079
B DEF 400/3000	Ref. no. 03428

Deflector with snow load class SL 2000 and SL 3000 for mounting on B VD F400 and F600.

Inlet nozzle with protection grille

ASD-SGD 400	Ref. no. 01418

Flexible connector

STSB 400 F400	Ref. no. 14743
STSB 400 F600	Ref. no. 01958

Extension duct

VR 400	Ref. no. 01406

Duct shutter

RVS 400	Ref. no. 02596

Smoke exhaust fan control system

EVS-D 001	Ref. no. 04594

Smoke exhaust fan control system for the operation of B VD F400/F600.

Bearing condition diagnostics system

LZD-Basic	Ref. no. 05790
LZD-Comfort	Ref. no. 05791

For ensuring the functionality of motor bearings. Factory-mounted to fan.

Information

Notes on operation in case of fire:
- Unhindered discharge of smoke gases at all times.
- Motor protection devices must be automatically bridged.
- Secure electrical power supply (safety power supply) required.

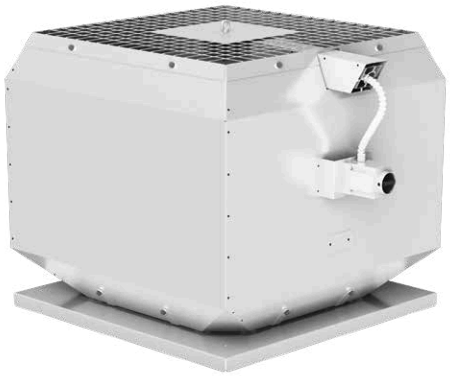
The relevant regulations apply for the maintaining the functionality of electrical circuit systems.

Planning information p. 3 ff.

Accessories	Page
Mounting accessories	151 ff.
Control devices, switches	158 ff.

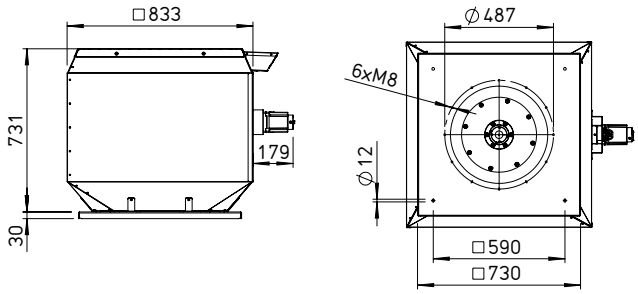
Smoke exhaust roof fans B VD F400/F600
ø 450 mm

B VD 450 F400/F600



F400 F600

Dimensions B VD 450 F400/F600



Dim. in mm

Application
- In mechanical smoke extraction systems (MRA) for ensuring smoke extraction in special structures, such as sales locations, large parking garages, meeting locations or industrial buildings.
- Smoke extraction with temperature classes F400 and F600.
- Also suitable for ventilation operation (Dual-Use).
- For increased ventilation requirements with a continuous air flow temperature of up to 120 °C.

Features
- Smoke exhaust roof fan as a smoke extraction fan with dual-function (smoke extraction and ventilation).
- Robust design with efficiency-optimised casing for difficult operating conditions.
- High operational reliability due to minimal maintenance requirements.
- Ready-for-use delivery for easy installation.
- Base plate with threaded bolts for the easy mounting of inlet-side accessories.
- Standard PTC thermistor as motor protection for ventilation operation (motor protection devices must be automatically deactivated in case of fire for max. operating duration).
- Motor outside of air flow, enclosed in self-ventilated motor casing for optimal motor cooling.
- Comprehensive accessories enable perfect compliance with property-specific requirements.
- Isolator switch for electrical connection as standard.
- Perfectly tuned for operation with frequency inverter.

Casing
- Made of seawater-resistant aluminium for maximum weather protection.
- Base plate with inlet nozzle and motor support made of powder-coated steel sheet.
- Vertical air outlet prevents damage to adjacent parts of the building in case of fire.
- Outlet-side aluminium protection grille.
- Standard transport lugs for simple positioning.
- Attractive architectural design.

Impeller
- Directly driven high-performance centrifugal impeller, with eight backward curved blades.
- Design made of powder-coated steel sheet.
- Single-side inlet.
- Dynamically balanced, quality class 6.3.
- High efficiency for maximum output with low-noise operation.
- Direct mounting of hub to motor shaft.

Drive
- High-quality smoke exhaust motor for high environmental temperatures, perfectly tuned for use in smoke extraction fans.
- Enclosed motor design, protection category IP55.
- Winding in insulation class H.
- Motor outside of air flow, protected from this by thermal separation.
- Innovative motor cooling concept, perfectly tuned for smoke extraction with frequency inverter operation and reduced speed.
- Motor cooling airflow through intake duct. Automatic flow during fan operation.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).

Speed control
- Optimal ventilation operation with speed control by means of frequency inverter.
- Smoke extraction possible with frequency inverter operation, elaborate bypass circuit can be omitted in case of fire.
- It must be ensured that operation takes place at the speed required for the smoke extraction flow rate for smoke extraction.
- Frequency inverter with all-pole sine filter and special operating mode for smoke ventilation operation is essential (Accessories).

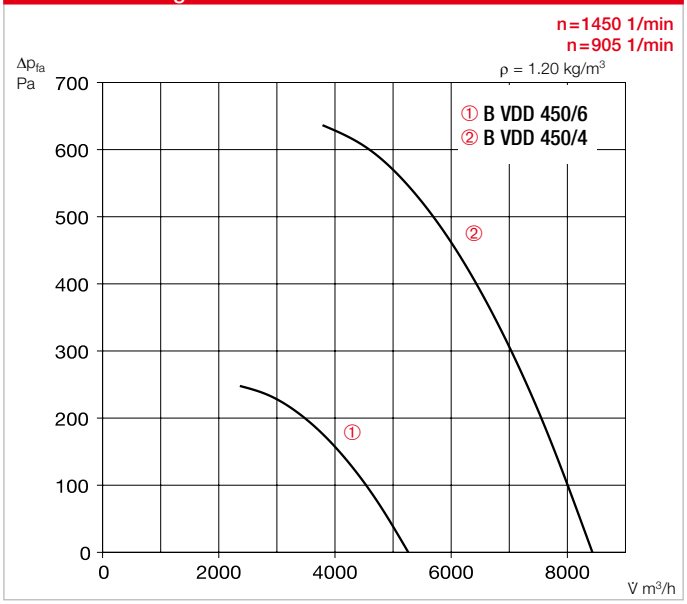
Dual function (Dual-use)
- Approved for daily ventilation on demand and smoke extraction.
- Ventilation in continuous operation possible.
- High efficiency meets the ERP requirements for Dual-Use smoke extraction fans.

Assembly/Installation
- Outdoors on horizontal roof (vertical motor shaft) or flat roof base. Flat roof base, see Accessories.
- Snow load class 0 pursuant to DIN EN 12101-3, installation on roofs above heated rooms. For snow load class SL 2000 und SL 3000: Outlet-side deflector, see Accessories.
- Standard transport lug for simple positioning.
- Inlet-side connectable accessories can be attached to the threaded bolts in the base plate (hole pattern according to DIN 24155).

Type	Ref. no.	Speed	Output free-blowing	Sound pres. casing-radiated	Sound power level casing-radiated	Nominal motor output	Nominal motor current	Starting current	Wiring diagram	Net weight approx.	Frequency inverter		Smoke ventilation fan control system		Full motor prot. dev.* for connection of integrated PTC resistor	
		min^{-1}	V m^3/h	dB(A) in 4 m	dB(A)	kW	A	A	No.	kg	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
F400 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 450/4 F400	01488	1.450	8.450	65	85	1.50	3.17	23.5	1262	93	**FU-CS 8**	05873	**EVS-D 001**	04594	**MSA**	01289
B VDD 450/6 F400	01490	925	5.250	62	82	0.37	0.97	4.4	1262	83	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289
F600 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 450/4 F600	01566	1.450	8.450	65	85	1.50	3.17	23.5	1262	93	**FU-CS 8**	05873	**EVS-D 001**	04594	**MSA**	01289
B VDD 450/6 F600	01572	925	5.250	62	82	0.37	0.97	4.4	1262	83	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289

* These switch devices in the on-site control system must be bridged when using as smoke exhaust fan.

Performance diagram B VD 450 F400/F600



Air flow temperature
- Temperature classes F400 and F600.
- Smoke extraction 400 °C/120 minutes, or 600 °C/120 minutes.
- 120 °C continuous air flow temperature.
- For ambient temperatures from -20 °C to +60 °C.

Noise levels
- The horizontally radiated noise is specified as sound pressure level in 4 m (freefield conditions) in the type table.
- Different installation situations or disturbed flows can lead to increased noise levels.
- Hood silencer and silencer insert for flat roof base, see Accessories.

Motor protection
- All types have PTC thermistors in the motor winding as standard.
- PTC thermistor assessment with suitable full motor protection device, MSA, EVS or frequency inverter (Accessories).
- The motor protection must be automatically bridged/bypassed in case of smoke extraction (deactivation) to ensure the maximum function duration.

Voltages and frequencies
- Nominal voltage and frequency are specified in the table. These also form the basis for the performance data.

Electrical connection
- To external isolator switch in protection category IP65.
- Isolator switch can be locked in position “0 OFF” and “I ON” using on-site padlock.
- Fans with a nominal motor output up to 2.20 kW can be directly activated, with star-delta start-up for 3.00 kW and above.

Delivery information
- Ready-to-use units, completely pre-assembled.
- Simple positioning with standard transport lug.

Safety information
- Outlet-side with aluminium protection grille as standard. Prevents penetration of leaves and solids and provides contact protection.

Fire test
- Successfully tested according to DIN EN 12101-3: 2015-12.

Accessories

Flat roof base

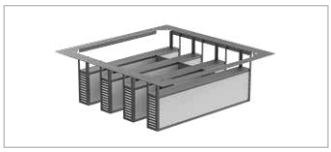
B FDS 450/300	Ref. no. 01793
B FDS 450/500	Ref. no. 01800

Flat roof base for B VD F400 and F600 in heights 300 mm and 500 mm for mounting on flat roof.

Silencer insert

B SSD 450	Ref. no. 03500

Silencer insert with connectors for flat roof base for inlet-side noise reduction. Flat roof base B FDS required.



Hood silencer

B HSDV 450	Ref. no. 03136

Hood silencer with inner core for outlet-side noise reduction.

Deflector

B DEF 450/2000	Ref. no. 40080
B DEF 450/3000	Ref. no. 03434

Deflector with snow load class SL 2000 and SL 3000 for mounting on B VD F400 and F600.

Inlet nozzle with protection grille

ASD-SGD 450	Ref. no. 01419

Flexible connector

STSB 450 F400	Ref. no. 14742
STSB 450 F600	Ref. no. 01959

Extension duct

VR 450	Ref. no. 01407

Duct shutter

RVS 450	Ref. no. 02597

Smoke exhaust fan control system

EVS-D 001	Ref. no. 04594

Smoke exhaust fan control system for the operation of B VD F400/F600.

Bearing condition diagnostics system

LZD-Basic	Ref. no. 05790
LZD-Comfort	Ref. no. 05791

For ensuring the functionality of motor bearings. Factory-mounted to fan.

Information

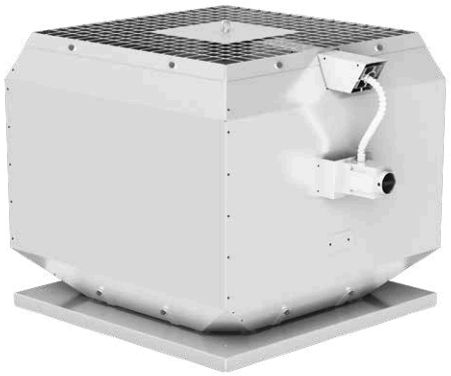
Notes on operation in case of fire:
- Unhindered discharge of smoke gases at all times.
- Motor protection devices must be automatically bridged.
- Secure electrical power supply (safety power supply) required.

The relevant regulations apply for the maintaining the functionality of electrical circuit systems.

Planning information p. 3 ff.

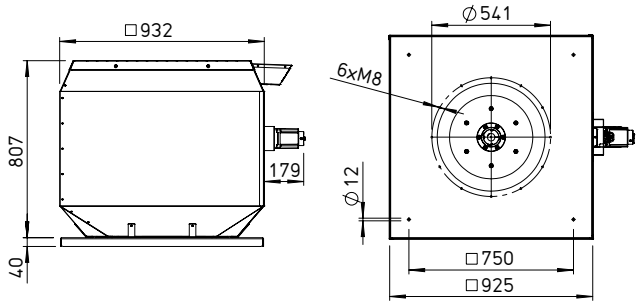
Smoke exhaust roof fans B VD F400/F600
ø 500 mm

B VD 500 F400/F600



F400 F600

Dimensions B VD 500 F400/F600



Dim. in mm

Application
- In mechanical smoke extraction systems (MRA) for ensuring smoke extraction in special structures, such as sales locations, large parking garages, meeting locations or industrial buildings.
- Smoke extraction with temperature classes F400 and F600.
- Also suitable for ventilation operation (Dual-Use).
- For increased ventilation requirements with a continuous air flow temperature of up to 120 °C.

Features
- Smoke exhaust roof fan as a smoke extraction fan with dual-function (smoke extraction and ventilation).
- Robust design with efficiency-optimised casing for difficult operating conditions.
- High operational reliability due to minimal maintenance requirements.
- Ready-for-use delivery for easy installation.
- Base plate with threaded bolts for the easy mounting of inlet-side accessories.
- Standard PTC thermistor as motor protection for ventilation operation (motor protection devices must be automatically deactivated in case of fire for max. operating duration).
- Motor outside of air flow, enclosed in self-ventilated motor casing for optimal motor cooling.
- Comprehensive accessories enable perfect compliance with property-specific requirements.
- Isolator switch for electrical connection as standard.
- Perfectly tuned for operation with frequency inverter.

Casing
- Made of seawater-resistant aluminium for maximum weather protection.
- Base plate with inlet nozzle and motor support made of powder-coated steel sheet.
- Vertical air outlet prevents damage to adjacent parts of the building in case of fire.
- Outlet-side aluminium protection grille.
- Standard transport lugs for simple positioning.
- Attractive architectural design.

Impeller
- Directly driven high-performance centrifugal impeller, with eight backward curved blades.
- Design made of powder-coated steel sheet.
- Single-side inlet.
- Dynamically balanced, quality class 6.3.
- High efficiency for maximum output with low-noise operation.
- Direct mounting of hub to motor shaft.

Drive
- High-quality smoke exhaust motor for high environmental temperatures, perfectly tuned for use in smoke extraction fans.
- Enclosed motor design, protection category IP55.
- Winding in insulation class H.
- Motor outside of air flow, protected from this by thermal separation.
- Innovative motor cooling concept, perfectly tuned for smoke extraction with frequency inverter operation and reduced speed.
- Motor cooling airflow through intake duct. Automatic flow during fan operation.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).

Speed control
- Optimal ventilation operation with speed control by means of frequency inverter.
- Smoke extraction possible with frequency inverter operation, elaborate bypass circuit can be omitted in case of fire.
- It must be ensured that operation takes place at the speed required for the smoke extraction flow rate for smoke extraction.
- Frequency inverter with all-pole sine filter and special operating mode for smoke ventilation operation is essential (Accessories).

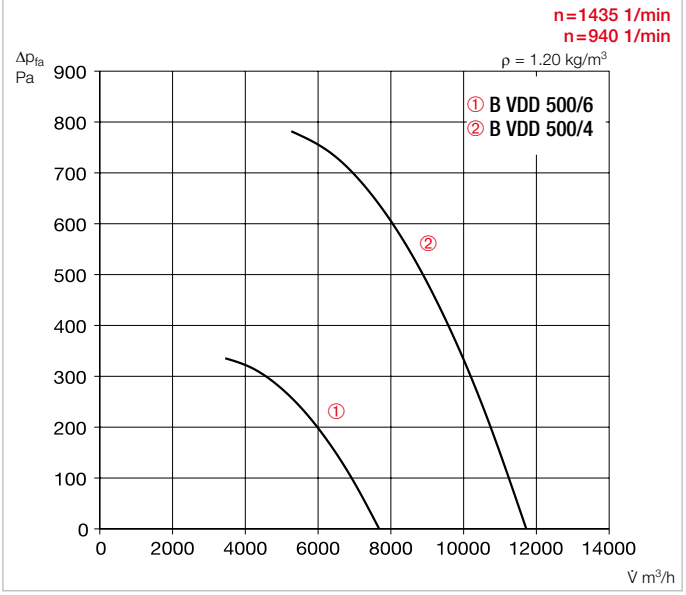
Dual function (Dual-use)
- Approved for daily ventilation on demand and smoke extraction.
- Ventilation in continuous operation possible.
- High efficiency meets the ERP requirements for Dual-Use smoke extraction fans.

Assembly/Installation
- Outdoors on horizontal roof (vertical motor shaft) or flat roof base. Flat roof base, see Accessories.
- Snow load class 0 pursuant to DIN EN 12101-3, installation on roofs above heated rooms. For snow load class SL 2000 und SL 3000: Outlet-side deflector, see Accessories.
- Standard transport lug for simple positioning.
- Inlet-side connectable accessories can be attached to the threaded bolts in the base plate (hole pattern according to DIN 24155).

Type	Ref. no.	Speed	Output free-blowing	Sound pres. casing-radiated	Sound power level casing-radiated	Nominal motor output	Nominal motor current	Starting current	Wiring diagram	Net weight approx.	Frequency inverter		Smoke ventilation fan control system		Full motor prot. dev.* for connection of integrated PTC resistor	
		min^{-1}	V m^3/h	dB(A) in 4 m	dB(A)	kW	A	A	No.	kg	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
F400 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 500/4 F400	01573	1.435	11.750	68	88	2.20	4.56	33.7	1262	122	**FU-CS 8**	05873	**EVS-D 001**	04594	**MSA**	01289
B VDD 500/6 F400	01591	950	7.700	64	84	0.75	1.93	10.0	1262	113	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289
F600 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 500/4 F600	01597	1.435	11.750	68	88	2.20	4.56	33.7	1262	122	**FU-CS 8**	05873	**EVS-D 001**	04594	**MSA**	01289
B VDD 500/6 F600	01618	950	7.700	64	84	0.75	1.93	10.0	1262	113	**FU-CS 2.5**	05871	**EVS-D 001**	04594	**MSA**	01289

* These switch devices in the on-site control system must be bridged when using as smoke exhaust fan.

Performance diagram B VD 500 F400/F600



Air flow temperature
- Temperature classes F400 and F600.
- Smoke extraction 400 °C/120 minutes, or 600 °C/120 minutes.
- 120 °C continuous air flow temperature.
- For ambient temperatures from -20 °C to +60 °C.

Noise levels
- The horizontally radiated noise is specified as sound pressure level in 4 m (freefield conditions) in the type table.
- Different installation situations or disturbed flows can lead to increased noise levels.
- Hood silencer and silencer insert for flat roof base, see Accessories.

Motor protection
- All types have PTC thermistors in the motor winding as standard.
- PTC thermistor assessment with suitable full motor protection device, MSA, EVS or frequency inverter (Accessories).
- The motor protection must be automatically bridged/bypassed in case of smoke extraction (deactivation) to ensure the maximum function duration.

Voltages and frequencies
- Nominal voltage and frequency are specified in the table. These also form the basis for the performance data.

Electrical connection
- To external isolator switch in protection category IP65.
- Isolator switch can be locked in position “0 OFF” and “I ON” using on-site padlock.
- Fans with a nominal motor output up to 2.20 kW can be directly activated, with star-delta start-up for 3.00 kW and above.

Delivery information
- Ready-to-use units, completely pre-assembled.
- Simple positioning with standard transport lug.

Safety information
- Outlet-side with aluminium protection grille as standard. Prevents penetration of leaves and solids and provides contact protection.

Fire test
- Successfully tested according to DIN EN 12101-3: 2015-12.

Accessories

Flat roof base

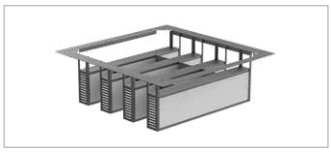
B FDS 500/300	Ref. no. 01804
B FDS 500/500	Ref. no. 01810

Flat roof base for B VD F400 and F600 in heights 300 mm and 500 mm for mounting on flat roof.

Silencer insert

B SSD 500	Ref. no. 03501

Silencer insert with connectors for flat roof base for inlet-side noise reduction. Flat roof base B FDS required.



Hood silencer

B HSDV 500	Ref. no. 03192

Hood silencer with inner core for outlet-side noise reduction.

Deflector

B DEF 500/2000	Ref. no. 40081
B DEF 500/3000	Ref. no. 03437

Deflector with snow load class SL 2000 and SL 3000 for mounting on B VD F400 and F600.

Inlet nozzle with protection grille

ASD-SGD 500	Ref. no. 01420

Flexible connector

STSB 500 F400	Ref. no. 01915
STSB 500 F600	Ref. no. 02003

Extension duct

VR 500	Ref. no. 01408

Duct shutter

RVS 500	Ref. no. 02598

Smoke exhaust fan control system

EVS-D 001	Ref. no. 04594

Smoke exhaust fan control system for the operation of B VD F400/F600.

Bearing condition diagnostics system

LZD-Basic	Ref. no. 05790
LZD-Comfort	Ref. no. 05791

For ensuring the functionality of motor bearings. Factory-mounted to fan.

Information

Notes on operation in case of fire:
- Unhindered discharge of smoke gases at all times.
- Motor protection devices must be automatically bridged.
- Secure electrical power supply (safety power supply) required.

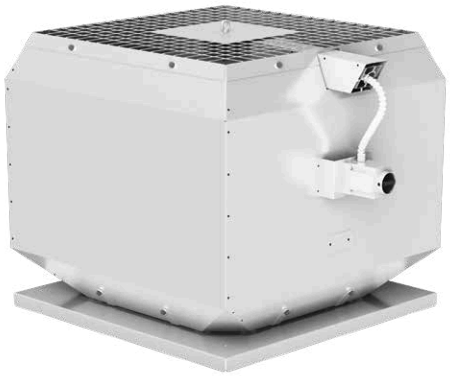
The relevant regulations apply for the maintaining the functionality of electrical circuit systems.

Planning information p. 3 ff.

Accessories	Page
Mounting accessories	151 ff.
Control devices, switches	158 ff.

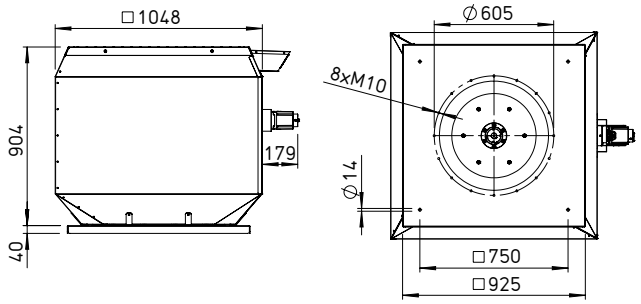
Smoke exhaust roof fans B VD F400/F600
ø 560 mm

B VD 560 F400/F600



F400 F600

Dimensions B VD 560 F400/F600



Dim. in mm

Application
- In mechanical smoke extraction systems (MRA) for ensuring smoke extraction in special structures, such as sales locations, large parking garages, meeting locations or industrial buildings.
- Smoke extraction with temperature classes F400 and F600.
- Also suitable for ventilation operation (Dual-Use).
- For increased ventilation requirements with a continuous air flow temperature of up to 120 °C.

Features
- Smoke exhaust roof fan as a smoke extraction fan with dual-function (smoke extraction and ventilation).
- Robust design with efficiency-optimised casing for difficult operating conditions.
- High operational reliability due to minimal maintenance requirements.
- Ready-for-use delivery for easy installation.
- Base plate with threaded bolts for the easy mounting of inlet-side accessories.
- Standard PTC thermistor as motor protection for ventilation operation (motor protection devices must be automatically deactivated in case of fire for max. operating duration).
- Motor outside of air flow, enclosed in self-ventilated motor casing for optimal motor cooling.
- Comprehensive accessories enable perfect compliance with property-specific requirements.
- Isolator switch for electrical connection as standard.
- Perfectly tuned for operation with frequency inverter.

Casing
- Made of seawater-resistant aluminium for maximum weather protection.
- Base plate with inlet nozzle and motor support made of powder-coated steel sheet.
- Vertical air outlet prevents damage to adjacent parts of the building in case of fire.
- Outlet-side aluminium protection grille.
- Standard transport lugs for simple positioning.
- Attractive architectural design.

Impeller
- Directly driven high-performance centrifugal impeller, with eight backward curved blades.
- Design made of powder-coated steel sheet.
- Single-side inlet.
- Dynamically balanced, quality class 6.3.
- High efficiency for maximum output with low-noise operation.
- Direct mounting of hub to motor shaft.

Drive
- High-quality smoke exhaust motor for high environmental temperatures, perfectly tuned for use in smoke extraction fans.
- Enclosed motor design, protection category IP55.
- Winding in insulation class H.
- Motor outside of air flow, protected from this by thermal separation.
- Innovative motor cooling concept, perfectly tuned for smoke extraction with frequency inverter operation and reduced speed.
- Motor cooling airflow through intake duct. Automatic flow during fan operation.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).

Speed control
- Optimal ventilation operation with speed control by means of frequency inverter.
- Smoke extraction possible with frequency inverter operation, elaborate bypass circuit can be omitted in case of fire.
- It must be ensured that operation takes place at the speed required for the smoke extraction flow rate for smoke extraction.
- Frequency inverter with all-pole sine filter and special operating mode for smoke ventilation operation is essential (Accessories).

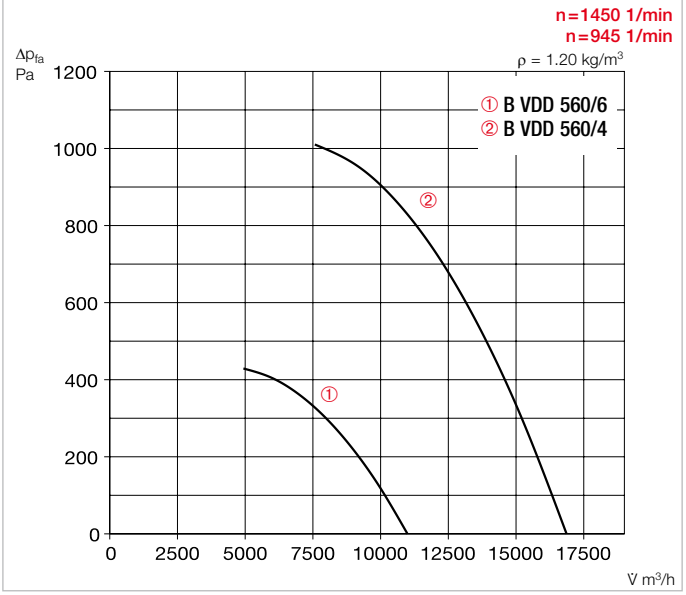
Dual function (Dual-use)
- Approved for daily ventilation on demand and smoke extraction.
- Ventilation in continuous operation possible.
- High efficiency meets the ERP requirements for Dual-Use smoke extraction fans.

Assembly/Installation
- Outdoors on horizontal roof (vertical motor shaft) or flat roof base. Flat roof base, see Accessories.
- Snow load class 0 pursuant to DIN EN 12101-3, installation on roofs above heated rooms. For snow load class SL 2000 und SL 3000: Outlet-side deflector, see Accessories.
- Standard transport lug for simple positioning.
- Inlet-side connectable accessories can be attached to the threaded bolts in the base plate (hole pattern according to DIN 24155).

Type	Ref. no.	Speed	Output free-blowing	Sound pres. casing-radiated	Sound power level casing-radiated	Nominal motor output	Nominal motor current	Starting current	Wiring diagram	Net weight approx.	Frequency inverter		Smoke ventilation fan control system		Full motor prot. dev.* for connection of integrated PTC resistor	
		min^{-1}	V m^3/h	dB(A) in 4 m	dB(A)	kW	A	A	No.	kg	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
F400 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 560/4 F400	01625	1.450	16.850	72	92	4.00	8.23	57.6	1261	147	**FU-CS 10**	05874	**EVS-SD 001**	04586	**MSA**	01289
B VDD 560/6 F400	01627	945	11.000	68	88	1.10	2.69	13.2	1262	132	**FU-CS 8**	05873	**EVS-D 001**	04594	**MSA**	01289
F600 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 560/4 F600	01638	1.450	16.850	72	92	4.00	8.23	57.6	1261	147	**FU-CS 10**	05874	**EVS-SD 001**	04586	**MSA**	01289
B VDD 560/6 F600	01639	945	11.000	68	88	1.10	2.69	13.2	1262	132	**FU-CS 8**	05873	**EVS-D 001**	04594	**MSA**	01289

* These switch devices in the on-site control system must be bridged when using as smoke exhaust fan.

Performance diagram B VD 560 F400/F600



Air flow temperature

- Temperature classes F400 and F600.
- Smoke extraction 400 °C/120 minutes, or 600 °C/120 minutes.
- 120 °C continuous air flow temperature.
- For ambient temperatures from -20 °C to +60 °C.

Noise levels

- The horizontally radiated noise is specified as sound pressure level in 4 m (freefield conditions) in the type table.
- Different installation situations or disturbed flows can lead to increased noise levels.
- Hood silencer and silencer insert for flat roof base, see Accessories.

Motor protection

- All types have PTC thermistors in the motor winding as standard.
- PTC thermistor assessment with suitable full motor protection device, MSA, EVS or frequency inverter (Accessories).
- The motor protection must be automatically bridged/bypassed in case of smoke extraction (deactivation) to ensure the maximum function duration.

Voltages and frequencies

- Nominal voltage and frequency are specified in the table. These also form the basis for the performance data.

Electrical connection

- To external isolator switch in protection category IP65.
- Isolator switch can be locked in position “0 OFF” and “I ON” using on-site padlock.
- Fans with a nominal motor output up to 2.20 kW can be directly activated, with star-delta start-up for 3.00 kW and above.

Delivery information

- Ready-to-use units, completely pre-assembled.
- Simple positioning with standard transport lug.

Safety information

- Outlet-side with aluminium protection grille as standard. Prevents penetration of leaves and solids and provides contact protection.

Fire test

- Successfully tested according to DIN EN 12101-3: 2015-12.

Accessories

Flat roof base

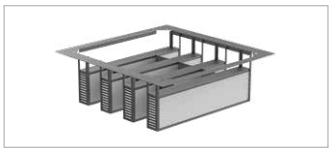
B FDS 560/300	Ref. no. 01804
B FDS 560/500	Ref. no. 01810

Flat roof base for B VD F400 and F600 in heights 300 mm and 500 mm for mounting on flat roof.

Silencer insert

B SSD 560	Ref. no. 03501

Silencer insert with connectors for flat roof base for inlet-side noise reduction. Flat roof base B FDS required.



Hood silencer

B HSDV 560	Ref. no. 03193

Hood silencer with inner core for outlet-side noise reduction.

Deflector

B DEF 560/2000	Ref. no. 40082
B DEF 560/3000	Ref. no. 03454

Deflector with snow load class SL 2000 and SL 3000 for mounting on B VD F400 and F600.

Inlet nozzle with protection grille

ASD-SGD 560	Ref. no. 01421

Flexible connector

STSB 560 F400	Ref. no. 01916
STSB 560 F600	Ref. no. 02004

Extension duct

VR 560	Ref. no. 01409

Duct shutter

RVS 560	Ref. no. 02599

Smoke exhaust fan control system

Switching type Y/Δ

EVS-SD 001 (4 kW)	Ref. no. 04586

Direct start-up

EVS-D 001 (4 kW)	Ref. no. 04594

Smoke exhaust fan control system for the operation of B VD F400/F600.

Bearing condition diagnostics system

LZD-Basic	Ref. no. 05790
LZD-Comfort	Ref. no. 05791

For ensuring the functionality of motor bearings. Factory-mounted to fan.

Information

Notes on operation in case of fire:

– Unhindered discharge of smoke gases at all times.

– Motor protection devices must be automatically bridged.

– Secure electrical power supply (safety power supply) required.

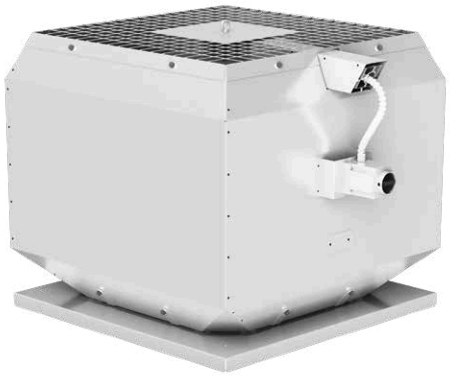
The relevant regulations apply for the maintaining the functionality of electrical circuit systems.

Planning information p. 3 ff.

Accessories	Page
Mounting accessories	151 ff.
Control devices, switches	158 ff.

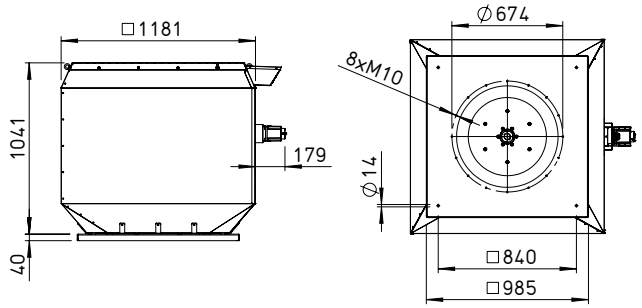
Smoke exhaust roof fans B VD F400/F600
ø 630 mm

B VD 630 F400/F600



F400 F600

Dimensions B VD 630 F400/F600



Dim. in mm

Application
- In mechanical smoke extraction systems (MRA) for ensuring smoke extraction in special structures, such as sales locations, large parking garages, meeting locations or industrial buildings.
- Smoke extraction with temperature classes F400 and F600.
- Also suitable for ventilation operation (Dual-Use).
- For increased ventilation requirements with a continuous air flow temperature of up to 120 °C.

Features
- Smoke exhaust roof fan as a smoke extraction fan with dual-function (smoke extraction and ventilation).
- Robust design with efficiency-optimised casing for difficult operating conditions.
- High operational reliability due to minimal maintenance requirements.
- Ready-for-use delivery for easy installation.
- Base plate with threaded bolts for the easy mounting of inlet-side accessories.
- Standard PTC thermistor as motor protection for ventilation operation (motor protection devices must be automatically deactivated in case of fire for max. operating duration).
- Motor outside of air flow, enclosed in self-ventilated motor casing for optimal motor cooling.
- Comprehensive accessories enable perfect compliance with property-specific requirements.
- Isolator switch for electrical connection as standard.
- Perfectly tuned for operation with frequency inverter.

Casing
- Made of seawater-resistant aluminium for maximum weather protection.
- Base plate with inlet nozzle and motor support made of powder-coated steel sheet.
- Vertical air outlet prevents damage to adjacent parts of the building in case of fire.
- Outlet-side aluminium protection grille.
- Standard transport lugs for simple positioning.
- Attractive architectural design.

Impeller
- Directly driven high-performance centrifugal impeller, with eight backward curved blades.
- Design made of powder-coated steel sheet.
- Single-side inlet.
- Dynamically balanced, quality class 6.3.
- High efficiency for maximum output with low-noise operation.
- Direct mounting of hub to motor shaft.

Drive
- High-quality smoke exhaust motor for high environmental temperatures, perfectly tuned for use in smoke extraction fans.
- Enclosed motor design, protection category IP55.
- Winding in insulation class H.
- Motor outside of air flow, protected from this by thermal separation.
- Innovative motor cooling concept, perfectly tuned for smoke extraction with frequency inverter operation and reduced speed.
- Motor cooling airflow through intake duct. Automatic flow during fan operation.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).

Speed control
- Optimal ventilation operation with speed control by means of frequency inverter.
- Smoke extraction possible with frequency inverter operation, elaborate bypass circuit can be omitted in case of fire.
- It must be ensured that operation takes place at the speed required for the smoke extraction flow rate for smoke extraction.
- Frequency inverter with all-pole sine filter and special operating mode for smoke ventilation operation is essential (Accessories).

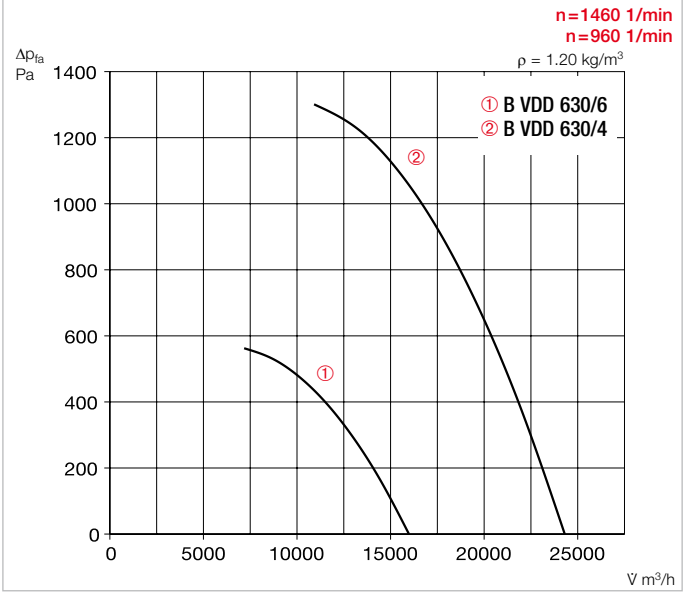
Dual function (Dual-use)
- Approved for daily ventilation on demand and smoke extraction.
- Ventilation in continuous operation possible.
- High efficiency meets the ERP requirements for Dual-Use smoke extraction fans.

Assembly/Installation
- Outdoors on horizontal roof (vertical motor shaft) or flat roof base. Flat roof base, see Accessories.
- Snow load class 0 pursuant to DIN EN 12101-3, installation on roofs above heated rooms. For snow load class SL 2000 und SL 3000: Outlet-side deflector, see Accessories.
- Standard transport lug for simple positioning.
- Inlet-side connectable accessories can be attached to the threaded bolts in the base plate (hole pattern according to DIN 24155).

Type	Ref. no.	Speed	Output free-blowing	Sound pres. casing-radiated	Sound power level casing-radiated	Nominal motor output	Nominal motor current	Starting current	Wiring diagram	Net weight approx.	Frequency inverter		Smoke ventilation fan control system		Full motor prot. dev.* for connection of integrated PTC resistor	
		min^{-1}	V m^3/h	dB(A) in 4 m	dB(A)	kW	A	A	No.	kg	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
F400 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 630/4 F400	01640	1.460	24.300	76	96	7.50	14.20	118	1261	231	**FU-CS 18**	05469	**EVS-SD 003**	04584	**MSA**	01289
B VDD 630/6 F400	01642	960	16.000	72	92	2.20	5.22	31.3	1262	203	**FU-CS 8**	05873	**EVS-D 001**	04594	**MSA**	01289
F600 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 630/4 F600	01643	1.460	24.300	76	96	7.50	14.20	118	1261	231	**FU-CS 18**	05469	**EVS-SD 003**	04584	**MSA**	01289
B VDD 630/6 F600	01644	960	16.000	72	92	2.20	5.22	31.3	1262	203	**FU-CS 8**	05873	**EVS-D 001**	04594	**MSA**	01289

* These switch devices in the on-site control system must be bridged when using as smoke exhaust fan.

Performance diagram B VD 630 F400/F600



Air flow temperature
- Temperature classes F400 and F600.
- Smoke extraction 400 °C/120 minutes, or 600 °C/120 minutes.
- 120 °C continuous air flow temperature.
- For ambient temperatures from -20 °C to +60 °C.

Noise levels
- The horizontally radiated noise is specified as sound pressure level in 4 m (freefield conditions) in the type table.
- Different installation situations or disturbed flows can lead to increased noise levels.
- Hood silencer and silencer insert for flat roof base, see Accessories.

Motor protection
- All types have PTC thermistors in the motor winding as standard.
- PTC thermistor assessment with suitable full motor protection device, MSA, EVS or frequency inverter (Accessories).
- The motor protection must be automatically bridged/bypassed in case of smoke extraction (deactivation) to ensure the maximum function duration.

Voltages and frequencies
- Nominal voltage and frequency are specified in the table. These also form the basis for the performance data.

Electrical connection
- To external isolator switch in protection category IP65.
- Isolator switch can be locked in position “0 OFF” and “I ON” using on-site padlock.
- Fans with a nominal motor output up to 2.20 kW can be directly activated, with star-delta start-up for 3.00 kW and above.

Delivery information
- Ready-to-use units, completely pre-assembled.
- Simple positioning with standard transport lug.

Safety information
- Outlet-side with aluminium protection grille as standard. Prevents penetration of leaves and solids and provides contact protection.

Fire test
- Successfully tested according to DIN EN 12101-3: 2015-12.

Accessories

Flat roof base

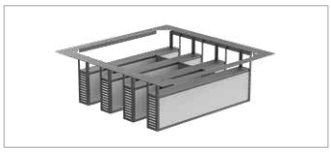
B FDS 630/300	Ref. no. 01866
B FDS 630/500	Ref. no. 01867

Flat roof base for B VD F400 and F600 in heights 300 mm and 500 mm for mounting on flat roof.

Silencer insert

B SSD 630	Ref. no. 03512

Silencer insert with connectors for flat roof base for inlet-side noise reduction. Flat roof base B FDS required.



Hood silencer

B HSDV 630	Ref. no. 03203

Hood silencer with inner core for outlet-side noise reduction.

Deflector

B DEF 630/2000	Ref. no. 40083
B DEF 630/3000	Ref. no. 03455

Deflector with snow load class SL 2000 and SL 3000 for mounting on B VD F400 and F600.

Inlet nozzle with protection grille

ASD-SGD 630	Ref. no. 01422

Flexible connector

STSB 630 F400	Ref. no. 01917
STSB 630 F600	Ref. no. 02005

Extension duct

VR 630	Ref. no. 01410

Duct shutter

RVS 630	Ref. no. 02600

Smoke exhaust fan control system

Switching type Y/Δ

EVS-SD 003 (7,5 kW)	no. 04584

Direct start-up

EVS-D 001 (4,0 kW)	no. 04594

Smoke exhaust fan control system for the operation of B VD F400/F600.

Bearing condition diagnostics system

LZD-Basic	Ref. no. 05790
LZD-Comfort	Ref. no. 05791

For ensuring the functionality of motor bearings. Factory-mounted to fan.

Information

Notes on operation in case of fire:
- Unhindered discharge of smoke gases at all times.
- Motor protection devices must be automatically bridged.
- Secure electrical power supply (safety power supply) required.

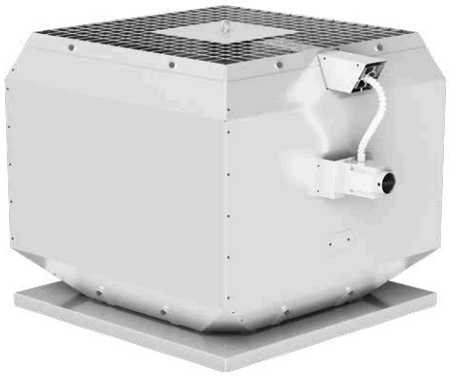
The relevant regulations apply for the maintaining the functionality of electrical circuit systems.

Planning information p. 3 ff.

Accessories	Page
Mounting accessories	151 ff.
Control devices, switches	158 ff.

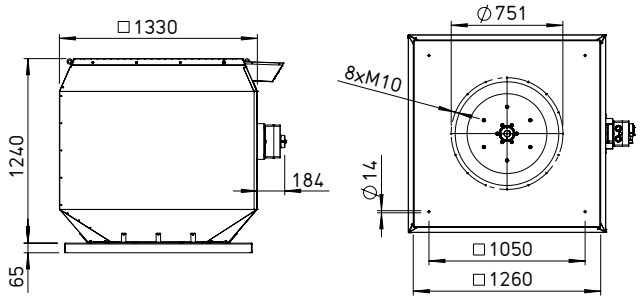
Smoke exhaust roof fans B VD F400/F600
ø 710 mm

B VD 710 F400/F600



F400 F600

Dimensions B VD 710 F400/F600



Dim. in mm

Application
- In mechanical smoke extraction systems (MRA) for ensuring smoke extraction in special structures, such as sales locations, large parking garages, meeting locations or industrial buildings.
- Smoke extraction with temperature classes F400 and F600.
- Also suitable for ventilation operation (Dual-Use).
- For increased ventilation requirements with a continuous air flow temperature of up to 120 °C.

Features
- Smoke exhaust roof fan as a smoke extraction fan with dual-function (smoke extraction and ventilation).
- Robust design with efficiency-optimised casing for difficult operating conditions.
- High operational reliability due to minimal maintenance requirements.
- Ready-for-use delivery for easy installation.
- Base plate with threaded bolts for the easy mounting of inlet-side accessories.
- Standard PTC thermistor as motor protection for ventilation operation (motor protection devices must be automatically deactivated in case of fire for max. operating duration).
- Motor outside of air flow, enclosed in self-ventilated motor casing for optimal motor cooling.
- Comprehensive accessories enable perfect compliance with property-specific requirements.
- Isolator switch for electrical connection as standard.
- Perfectly tuned for operation with frequency inverter.

Casing
- Made of seawater-resistant aluminium for maximum weather protection.
- Base plate with inlet nozzle and motor support made of powder-coated steel sheet.
- Vertical air outlet prevents damage to adjacent parts of the building in case of fire.
- Outlet-side aluminium protection grille.
- Standard transport lugs for simple positioning.
- Attractive architectural design.

Impeller
- Directly driven high-performance centrifugal impeller, with eight backward curved blades.
- Design made of powder-coated steel sheet.
- Single-side inlet.
- Dynamically balanced, quality class 6.3.
- High efficiency for maximum output with low-noise operation.
- Direct mounting of hub to motor shaft.

Drive
- High-quality smoke exhaust motor for high environmental temperatures, perfectly tuned for use in smoke extraction fans.
- Enclosed motor design, protection category IP55.
- Winding in insulation class H.
- Motor outside of air flow, protected from this by thermal separation.
- Innovative motor cooling concept, perfectly tuned for smoke extraction with frequency inverter operation and reduced speed.
- Motor cooling airflow through intake duct. Automatic flow during fan operation.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).

Speed control
- Optimal ventilation operation with speed control by means of frequency inverter.
- Smoke extraction possible with frequency inverter operation, elaborate bypass circuit can be omitted in case of fire.
- It must be ensured that operation takes place at the speed required for the smoke extraction flow rate for smoke extraction.
- Frequency inverter with all-pole sine filter and special operating mode for smoke ventilation operation is essential (Accessories).

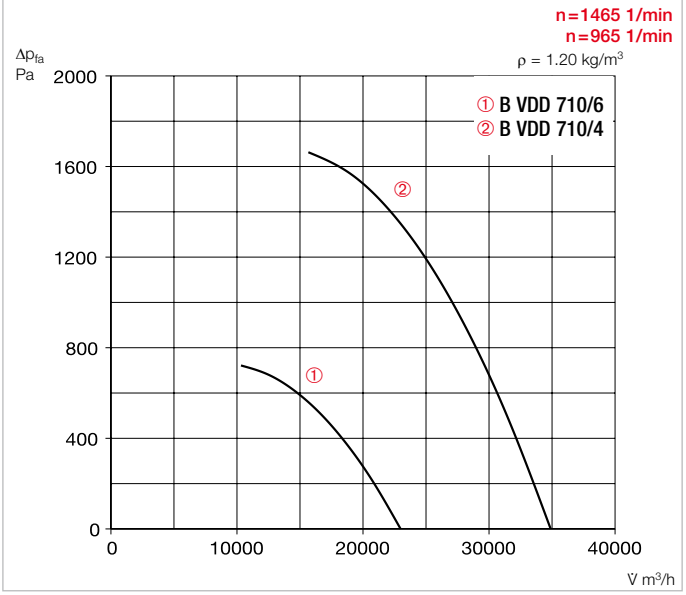
Dual function (Dual-use)
- Approved for daily ventilation on demand and smoke extraction.
- Ventilation in continuous operation possible.
- High efficiency meets the ERP requirements for Dual-Use smoke extraction fans.

Assembly/Installation
- Outdoors on horizontal roof (vertical motor shaft) or flat roof base. Flat roof base, see Accessories.
- Snow load class 0 pursuant to DIN EN 12101-3, installation on roofs above heated rooms. For snow load class SL 2000 und SL 3000: Outlet-side deflector, see Accessories.
- Standard transport lug for simple positioning.
- Inlet-side connectable accessories can be attached to the threaded bolts in the base plate (hole pattern according to DIN 24155).

Type	Ref. no.	Speed	Output free-blowing	Sound pres. casing-radiated	Sound power level casing-radiated	Nominal motor output	Nominal motor current	Starting current	Wiring diagram	Net weight approx.	Frequency inverter		Smoke ventilation fan control system		Full motor prot. dev.* for connection of integrated PTC resistor	
		min^{-1}	V m^3/h	dB(A) in 4 m	dB(A)	kW	A	A	No.	kg	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
F400 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 710/4 F400	01646	1.465	34.850	80	100	15.00	27.90	201	1307	403	**FU-CS 32**	05471	**EVS-SD 005**	04582	**MSA**	01289
B VDD 710/6 F400	01647	965	22.950	76	96	4.00	9.11	55.6	1261	338	**FU-CS 10**	05874	**EVS-SD 001**	04586	**MSA**	01289
F600 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 710/4 F600	01648	1.465	34.850	80	100	15.00	27.90	201	1307	403	**FU-CS 32**	05471	**EVS-SD 005**	04582	**MSA**	01289
B VDD 710/6 F600	01698	965	22.950	76	96	4.00	9.11	55.6	1261	338	**FU-CS 10**	05874	**EVS-SD 001**	04586	**MSA**	01289

* These switch devices in the on-site control system must be bridged when using as smoke exhaust fan.

Performance diagram B VD 710 F400/F600



Air flow temperature
- Temperature classes F400 and F600.
- Smoke extraction 400 °C/120 minutes, or 600 °C/120 minutes.
- 120 °C continuous air flow temperature.
- For ambient temperatures from -20 °C to +60 °C.

Noise levels
- The horizontally radiated noise is specified as sound pressure level in 4 m (freefield conditions) in the type table.
- Different installation situations or disturbed flows can lead to increased noise levels.
- Hood silencer and silencer insert for flat roof base, see Accessories.

Motor protection
- All types have PTC thermistors in the motor winding as standard.
- PTC thermistor assessment with suitable full motor protection device, MSA, EVS or frequency inverter (Accessories).
- The motor protection must be automatically bridged/bypassed in case of smoke extraction (deactivation) to ensure the maximum function duration.

Voltages and frequencies
- Nominal voltage and frequency are specified in the table. These also form the basis for the performance data.

Electrical connection
- To external isolator switch in protection category IP65.
- Isolator switch can be locked in position “0 OFF” and “I ON” using on-site padlock.
- Fans with a nominal motor output up to 2.20 kW can be directly activated, with star-delta start-up for 3.00 kW and above.

Delivery information
- Ready-to-use units, completely pre-assembled.
- Simple positioning with standard transport lug.

Safety information
- Outlet-side with aluminium protection grille as standard. Prevents penetration of leaves and solids and provides contact protection.

Fire test
- Successfully tested according to DIN EN 12101-3: 2015-12.

Accessories

Flat roof base

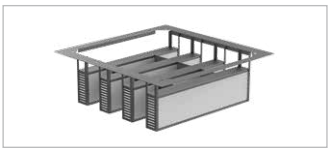
B FDS 710/300	Ref. no. 01868
B FDS 710/500	Ref. no. 01869

Flat roof base for B VD F400 and F600 in heights 300 mm and 500 mm for mounting on flat roof.

Silencer insert

B SSD 710	Ref. no. 03523

Silencer insert with connectors for flat roof base for inlet-side noise reduction. Flat roof base B FDS required.



Hood silencer

B HSDV 710	Ref. no. 03253

Hood silencer with inner core for outlet-side noise reduction.

Deflector

B DEF 710/2000	Ref. no. 40084
B DEF 710/3000	Ref. no. 03468

Deflector with snow load class SL 2000 and SL 3000 for mounting on B VD F400 and F600.

Inlet nozzle with protection grille

ASD-SGD 710	Ref. no. 01423

Flexible connector

STSB 710 F400	Ref. no. 01918
STSB 710 F600	Ref. no. 02006

Extension duct

VR 710	Ref. no. 01411

Duct shutter

RVS 710	Ref. no. 02601

Smoke exhaust fan control system

EVS-SD 005 (15,0 kW)	no. 04582
EVS-SD 001 (4,0 kW)	no. 04586

Smoke exhaust fan control system for the operation of B VD F400/F600.

Bearing condition diagnostics system

LZD-Basic	Ref. no. 05790
LZD-Comfort	Ref. no. 05791

For ensuring the functionality of motor bearings. Factory-mounted to fan.

Information

Notes on operation in case of fire:
- Unhindered discharge of smoke gases at all times.
- Motor protection devices must be automatically bridged.
- Secure electrical power supply (safety power supply) required.

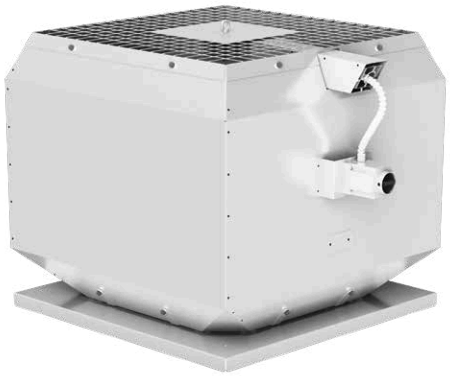
The relevant regulations apply for the maintaining the functionality of electrical circuit systems.

Planning information p. 3 ff.

Accessories	Page
Mounting accessories	151 ff.
Control devices, switches	158 ff.

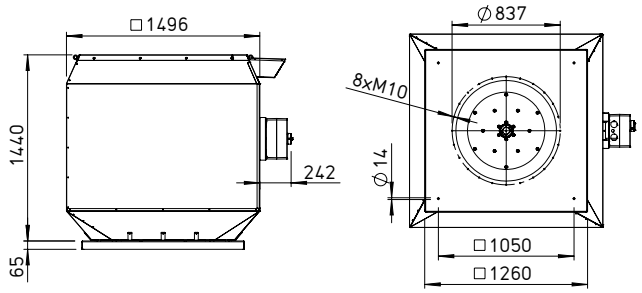
Smoke exhaust roof fans B VD F400/F600
ø 800 mm

B VD 800 F400/F600



F400 F600

Dimensions B VD 800 F400/F600



Dim. in mm

Application
- In mechanical smoke extraction systems (MRA) for ensuring smoke extraction in special structures, such as sales locations, large parking garages, meeting locations or industrial buildings.
- Smoke extraction with temperature classes F400 and F600.
- Also suitable for ventilation operation (Dual-Use).
- For increased ventilation requirements with a continuous air flow temperature of up to 120 °C.

Features
- Smoke exhaust roof fan as a smoke extraction fan with dual-function (smoke extraction and ventilation).
- Robust design with efficiency-optimised casing for difficult operating conditions.
- High operational reliability due to minimal maintenance requirements.
- Ready-for-use delivery for easy installation.
- Base plate with threaded bolts for the easy mounting of inlet-side accessories.
- Standard PTC thermistor as motor protection for ventilation operation (motor protection devices must be automatically deactivated in case of fire for max. operating duration).
- Motor outside of air flow, enclosed in self-ventilated motor casing for optimal motor cooling.
- Comprehensive accessories enable perfect compliance with property-specific requirements.
- Isolator switch for electrical connection as standard.
- Perfectly tuned for operation with frequency inverter.

Casing
- Made of seawater-resistant aluminium for maximum weather protection.
- Base plate with inlet nozzle and motor support made of powder-coated steel sheet.
- Vertical air outlet prevents damage to adjacent parts of the building in case of fire.
- Outlet-side aluminium protection grille.
- Standard transport lugs for simple positioning.
- Attractive architectural design.

Impeller
- Directly driven high-performance centrifugal impeller, with eight backward curved blades.
- Design made of powder-coated steel sheet.
- Single-side inlet.
- Dynamically balanced, quality class 6.3.
- High efficiency for maximum output with low-noise operation.
- Direct mounting of hub to motor shaft.

Drive
- High-quality smoke exhaust motor for high environmental temperatures, perfectly tuned for use in smoke extraction fans.
- Enclosed motor design, protection category IP55.
- Winding in insulation class H.
- Motor outside of air flow, protected from this by thermal separation.
- Innovative motor cooling concept, perfectly tuned for smoke extraction with frequency inverter operation and reduced speed.
- Motor cooling airflow through intake duct. Automatic flow during fan operation.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).

Speed control
- Optimal ventilation operation with speed control by means of frequency inverter.
- Smoke extraction possible with frequency inverter operation, elaborate bypass circuit can be omitted in case of fire.
- It must be ensured that operation takes place at the speed required for the smoke extraction flow rate for smoke extraction.
- Frequency inverter with all-pole sine filter and special operating mode for smoke ventilation operation is essential (Accessories).

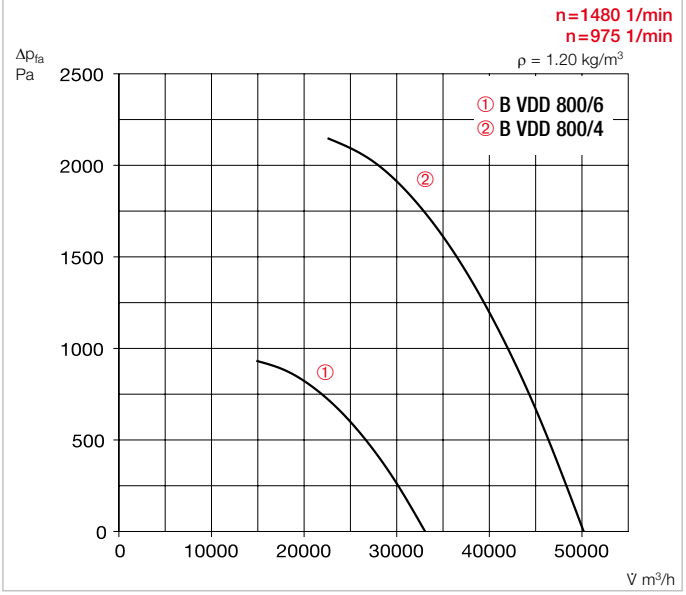
Dual function (Dual-use)
- Approved for daily ventilation on demand and smoke extraction.
- Ventilation in continuous operation possible.
- High efficiency meets the ERP requirements for Dual-Use smoke extraction fans.

Assembly/Installation
- Outdoors on horizontal roof (vertical motor shaft) or flat roof base. Flat roof base, see Accessories.
- Snow load class 0 pursuant to DIN EN 12101-3, installation on roofs above heated rooms. For snow load class SL 2000 und SL 3000: Outlet-side deflector, see Accessories.
- Standard transport lug for simple positioning.
- Inlet-side connectable accessories can be attached to the threaded bolts in the base plate (hole pattern according to DIN 24155).

Type	Ref. no.	Speed	Output free-blowing	Sound pres. casing-radiated	Sound power level casing-radiated	Nominal motor output	Nominal motor current	Starting current	Wiring diagram	Net weight approx.	Frequency inverter		Smoke ventilation fan control system		Full motor prot. dev.* for connection of integrated PTC resistor	
		min^{-1}	V m^3/h	dB(A) in 4 m	dB(A)	kW	A	A	No.	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
F400 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 800/4 F400	01699	1.480	49.850	83	103	30.00	57.10	428	1307	611	—		**EVS-SD 008**	04579	**MSA**	01289
B VDD 800/6 F400	01709	975	33.050	79	99	7.50	14.80	93	1261	501	**FU-CS 18**	05469	**EVS-SD 003**	04584	**MSA**	01289
F600 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 800/4 F600	01715	1.480	49.850	83	103	30.00	57.10	428	1307	611	—		**EVS-SD 008**	04579	**MSA**	01289
B VDD 800/6 F600	01716	975	33.050	79	99	7.50	14.80	93	1261	501	**FU-CS 18**	05469	**EVS-SD 003**	04584	**MSA**	01289

* These switch devices in the on-site control system must be bridged when using as smoke exhaust fan.

Performance diagram B VD 800 F400/F600



Air flow temperature
- Temperature classes F400 and F600.
- Smoke extraction 400 °C/120 minutes, or 600 °C/120 minutes.
- 120 °C continuous air flow temperature.
- For ambient temperatures from -20 °C to +60 °C.

Noise levels
- The horizontally radiated noise is specified as sound pressure level in 4 m (freefield conditions) in the type table.
- Different installation situations or disturbed flows can lead to increased noise levels.
- Hood silencer and silencer insert for flat roof base, see Accessories.

Motor protection
- All types have PTC thermistors in the motor winding as standard.
- PTC thermistor assessment with suitable full motor protection device, MSA, EVS or frequency inverter (Accessories).
- The motor protection must be automatically bridged/bypassed in case of smoke extraction (deactivation) to ensure the maximum function duration.

Voltages and frequencies
- Nominal voltage and frequency are specified in the table. These also form the basis for the performance data.

Electrical connection
- To external isolator switch in protection category IP65.
- Isolator switch can be locked in position “0 OFF” and “I ON” using on-site padlock.
- Fans with a nominal motor output up to 2.20 kW can be directly activated, with star-delta start-up for 3.00 kW and above.

Delivery information
- Ready-to-use units, completely pre-assembled.
- Simple positioning with standard transport lug.

Safety information
- Outlet-side with aluminium protection grille as standard. Prevents penetration of leaves and solids and provides contact protection.

Fire test
- Successfully tested according to DIN EN 12101-3: 2015-12.

Accessories

Flat roof base

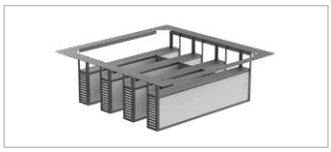
B FDS 800/300	Ref. no. 01868
B FDS 800/500	Ref. no. 01869

Flat roof base for B VD F400 and F600 in heights 300 mm and 500 mm for mounting on flat roof.

Silencer insert

B SSD 800	Ref. no. 03523

Silencer insert with connectors for flat roof base for inlet-side noise reduction. Flat roof base B FDS required.



Hood silencer

B HSDV 800	Ref. no. 03370

Hood silencer with inner core for outlet-side noise reduction.

Deflector

B DEF 800/2000	Ref. no. 40085
B DEF 800/3000	Ref. no. 03471

Deflector with snow load class SL 2000 and SL 3000 for mounting on B VD F400 and F600.

Inlet nozzle with protection grille

ASD-SGD 800	Ref. no. 01424

Flexible connector

STSB 800 F400	Ref. no. 01919
STSB 800 F600	Ref. no. 02007

Extension duct

VR 800	Ref. no. 01412

Duct shutter

RVS 800	Ref. no. 02602

In case of a direct fan connection, an additional extension duct (VR 800 Ref. no. 01412) must be placed in between.

Smoke exhaust fan control system

EVS-SD 008 (30,0 kW)	no. 04579
EVS-SD 003 (7,5 kW)	no. 04584

Smoke exhaust fan control system for the operation of B VD F400/F600.

Bearing condition diagnostics system

LZD-Basic	Ref. no. 05790
LZD-Comfort	Ref. no. 05791

For ensuring the functionality of motor bearings. Factory-mounted to fan.

Information

Notes on operation in case of fire:
- Unhindered discharge of smoke gases at all times.
- Motor protection devices must be automatically bridged.
- Secure electrical power supply (safety power supply) required.

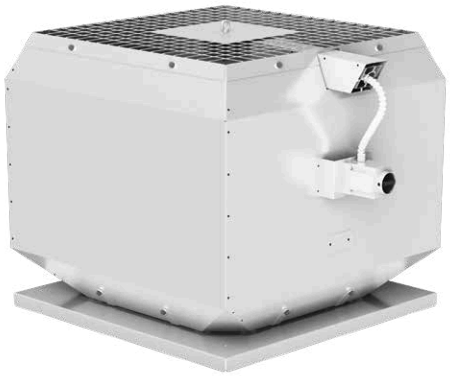
The relevant regulations apply for the maintaining the functionality of electrical circuit systems.

Planning information p. 3 ff.

Accessories	Page
Mounting accessories	151 ff.
Control devices, switches	158 ff.

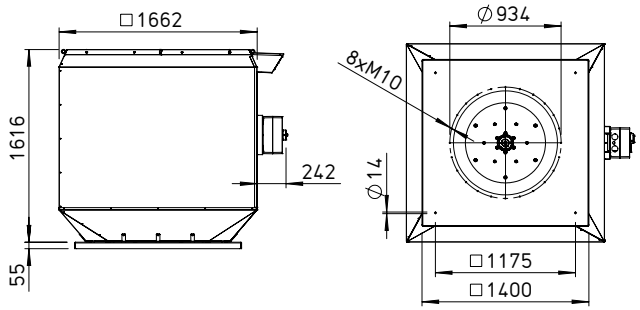
Smoke exhaust roof fans B VD F400/F600
ø 900 mm

B VD 900 F400/F600



F400 F600

Dimensions B VD 900 F400/F600



Dim. in mm

Application
- In mechanical smoke extraction systems (MRA) for ensuring smoke extraction in special structures, such as sales locations, large parking garages, meeting locations or industrial buildings.
- Smoke extraction with temperature classes F400 and F600.
- Also suitable for ventilation operation (Dual-Use).
- For increased ventilation requirements with a continuous air flow temperature of up to 120 °C.

Features
- Smoke exhaust roof fan as a smoke extraction fan with dual-function (smoke extraction and ventilation).
- Robust design with efficiency-optimised casing for difficult operating conditions.
- High operational reliability due to minimal maintenance requirements.
- Ready-for-use delivery for easy installation.
- Base plate with threaded bolts for the easy mounting of inlet-side accessories.
- Standard PTC thermistor as motor protection for ventilation operation (motor protection devices must be automatically deactivated in case of fire for max. operating duration).
- Motor outside of air flow, enclosed in self-ventilated motor casing for optimal motor cooling.
- Comprehensive accessories enable perfect compliance with property-specific requirements.
- Isolator switch for electrical connection as standard.
- Perfectly tuned for operation with frequency inverter.

Casing
- Made of seawater-resistant aluminium for maximum weather protection.
- Base plate with inlet nozzle and motor support made of powder-coated steel sheet.
- Vertical air outlet prevents damage to adjacent parts of the building in case of fire.
- Outlet-side aluminium protection grille.
- Standard transport lugs for simple positioning.
- Attractive architectural design.

Impeller
- Directly driven high-performance centrifugal impeller, with eight backward curved blades.
- Design made of powder-coated steel sheet.
- Single-side inlet.
- Dynamically balanced, quality class 6.3.
- High efficiency for maximum output with low-noise operation.
- Direct mounting of hub to motor shaft.

Drive
- High-quality smoke exhaust motor for high environmental temperatures, perfectly tuned for use in smoke extraction fans.
- Enclosed motor design, protection category IP55.
- Winding in insulation class H.
- Motor outside of air flow, protected from this by thermal separation.
- Innovative motor cooling concept, perfectly tuned for smoke extraction with frequency inverter operation and reduced speed.
- Motor cooling airflow through intake duct. Automatic flow during fan operation.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).

Speed control
- Optimal ventilation operation with speed control by means of frequency inverter.
- Smoke extraction possible with frequency inverter operation, elaborate bypass circuit can be omitted in case of fire.
- It must be ensured that operation takes place at the speed required for the smoke extraction flow rate for smoke extraction.
- Frequency inverter with all-pole sine filter and special operating mode for smoke ventilation operation is essential (Accessories).

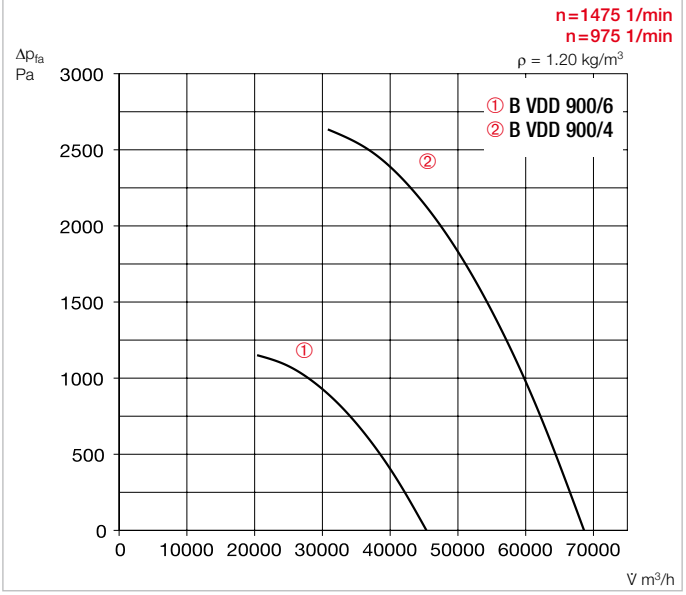
Dual function (Dual-use)
- Approved for daily ventilation on demand and smoke extraction.
- Ventilation in continuous operation possible.
- High efficiency meets the ERP requirements for Dual-Use smoke extraction fans.

Assembly/Installation
- Outdoors on horizontal roof (vertical motor shaft) or flat roof base. Flat roof base, see Accessories.
- Snow load class 0 pursuant to DIN EN 12101-3, installation on roofs above heated rooms. For snow load class SL 2000 und SL 3000: Outlet-side deflector, see Accessories.
- Standard transport lug for simple positioning.
- Inlet-side connectable accessories can be attached to the threaded bolts in the base plate (hole pattern according to DIN 24155).

Type	Ref. no.	Speed	Output free-blowing	Sound pres. casing-radiated	Sound power level casing-radiated	Nominal motor output	Nominal motor current	Starting current	Wiring diagram	Net weight approx.	Frequency inverter		Smoke ventilation fan control system		Full motor prot. dev.* for connection of integrated PTC resistor	
		min^{-1}	V m^3/h	dB(A) in 4 m	dB(A)	kW	A	A	No.	kg	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
F400 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 900/4 F400	01719	1.475	68.550	89	109	45.00	80.90	607	1307	883	—		**EVS-SD 009**	04578	**MSA**	01289
B VDD 900/6 F400	01720	975	45.300	82	102	15.00	28.20	217	1307	618	**FU-CS 32**	05471	**EVS-SD 005**	04582	**MSA**	01289
F600 **Single speed, three phase motor 400 V, 50 Hz, protection category IP55**																
B VDD 900/4 F600	01721	1.475	68.550	89	109	45.00	80.90	607	1307	883	—		**EVS-SD 009**	04578	**MSA**	01289
B VDD 900/6 F600	01723	975	45.300	82	102	15.00	28.20	217	1307	618	**FU-CS 32**	05471	**EVS-SD 005**	04582	**MSA**	01289

* These switch devices in the on-site control system must be bridged when using as smoke exhaust fan.

Performance diagram B VD 900 F400/F600



Air flow temperature
- Temperature classes F400 and F600.
- Smoke extraction 400 °C/120 minutes, or 600 °C/120 minutes.
- 120 °C continuous air flow temperature.
- For ambient temperatures from -20 °C to +60 °C.

Noise levels
- The horizontally radiated noise is specified as sound pressure level in 4 m (freefield conditions) in the type table.
- Different installation situations or disturbed flows can lead to increased noise levels.
- Hood silencer and silencer insert for flat roof base, see Accessories.

Motor protection
- All types have PTC thermistors in the motor winding as standard.
- PTC thermistor assessment with suitable full motor protection device, MSA, EVS or frequency inverter (Accessories).
- The motor protection must be automatically bridged/bypassed in case of smoke extraction (deactivation) to ensure the maximum function duration.

Voltages and frequencies
- Nominal voltage and frequency are specified in the table. These also form the basis for the performance data.

Electrical connection
- To external isolator switch in protection category IP65.
- Isolator switch can be locked in position “0 OFF” and “I ON” using on-site padlock.
- Fans with a nominal motor output up to 2.20 kW can be directly activated, with star-delta start-up for 3.00 kW and above.

Delivery information
- Ready-to-use units, completely pre-assembled.
- Simple positioning with standard transport lug.

Safety information
- Outlet-side with aluminium protection grille as standard. Prevents penetration of leaves and solids and provides contact protection.

Fire test
- Successfully tested according to DIN EN 12101-3: 2015-12.

Accessories

Flat roof base

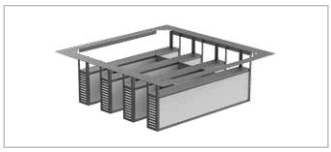
B FDS 900/300	Ref. no. 01884
B FDS 900/500	Ref. no. 02000

Flat roof base for B VD F400 and F600 in heights 300 mm and 500 mm for mounting on flat roof.

Silencer insert

B SSD 900	Ref. no. 03532

Silencer insert with connectors for flat roof base for inlet-side noise reduction. Flat roof base B FDS required.



Hood silencer

B HSDV 900	Ref. no. 03372

Hood silencer with inner core for outlet-side noise reduction.

Deflector

B DEF 900/2000	Ref. no. 40086
B DEF 900/3000	Ref. no. 03473

Deflector with snow load class SL 2000 and SL 3000 for mounting on B VD F400 and F600.

Inlet nozzle with protection grille

ASD-SGD 900	Ref. no. 01309

Flexible connector

STSB 900 F400	Ref. no. 01920
STSB 900 F600	Ref. no. 02008

Extension duct

VR 900	Ref. no. 01311

Duct shutter

RVS 900	Ref. no. 02603

In case of a direct fan connection, an additional extension duct (VR 900 Ref. no. 01311) must be placed in between.

Smoke exhaust fan control system

EVS-SD 009 (45,0 kW)	no. 04578
EVS-SD 005 (15,0 kW)	no. 04582

Smoke exhaust fan control system for the operation of B VD F400/F600.

Bearing condition diagnostics system

LZD-Basic	Ref. no. 05790
LZD-Comfort	Ref. no. 05791

For ensuring the functionality of motor bearings. Factory-mounted to fan.

Information

Notes on operation in case of fire:
- Unhindered discharge of smoke gases at all times.
- Motor protection devices must be automatically bridged.
- Secure electrical power supply (safety power supply) required.

The relevant regulations apply for the maintaining the functionality of electrical circuit systems.

Planning information p. 3 ff.

Accessories	Page
Mounting accessories	151 ff.
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Rectangular duct smoke exhaust fans. **For safe smoke extraction from buildings.**

Certified for temperature class F400 according to DIN EN 12101-3

F400

Rectangular duct smoke exhaust fans guarantee smoke and heat extraction. The rectangular duct smoke exhaust fans for temperature class F400 are certified according to European product and test standard DIN EN 12101-3. They allow air flow temperatures of up to 400 °C/120 minutes.

Highlights:
– Hinged motor-impeller unit for simple inspection and cleaning.
– Compact design for direct installation in ducting without height offset.
– Inlet and outlet with holes for connection of standard flanges.
– 16 types
$\dot{V}$ = 1 500 - 16 000 m³/h

Rectangular duct smoke exhaust fans

Rectangular duct smoke exhaust fans F400 for rectangular ducts
40 x 20 to 60 x 35 cm.

F400

128f

Rectangular duct smoke exhaust fans

Rectangular duct smoke exhaust fans F400 for rectangular ducts
70 x 40 to 120 x 60 cm.

F400

130f

Other rectangular duct fans

Forward and backward curved InlineVent® rectangular duct fans.

Silenced rectangular duct fans backward curved, Acoustic Line SKR.

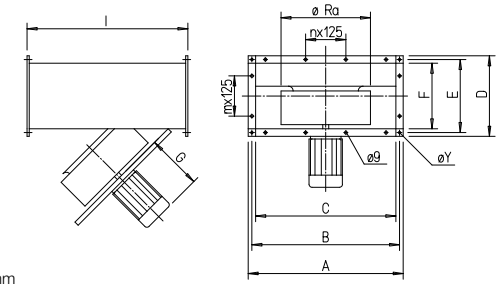
See Helios main catalogue no. 95178

EC Ex

BK F400 for rectangular ducts 40 x 20 cm to 60 x 35 cm

F400

Dimensions BK F400 for rectangular ducts 40 x 20 cm to 60 x 35 cm



Dim. in mm

Type	A	B	C	D	E	F	G	l	Ø Ra	n	m	Ø Y
BKD 225/2/2/40/20	440	420	400	240	220	200	270	500	284	1	–	9
BKW 250/4/50/30	540	520	500	340	320	300	215	675	319	3	1	9
BKD 250/2/2/50/30	540	520	500	340	320	300	290	675	319	3	1	9
BKW 280/4/50/30	540	520	500	340	320	300	221	675	360	3	1	9
BKW 315/4/60/35	640	620	600	390	370	350	260	775	405	3	1	9
BKW 400/6/60/35	640	620	600	390	370	350	285	775	455	3	1	9
BKW 400/4/60/35	640	620	600	390	370	350	358	775	455	3	1	9
BKD 400/4/4/60/35	640	620	600	390	370	350	285	775	455	3	1	9

Application
- For ensuring smoke and heat extraction in preventative fire protection for individual rooms, corridors, escape routes or entire buildings. Also for the prevention of “flashover”.
- For areas of application with air flow temperatures from 400 °C/120 min. (F400).
- Versatile for general smoke extraction tasks.
- Wherever easy access is necessary for cleaning and maintenance.
- Smoke exhaust fan without dual function (rectangular duct smoke exhaust fans BK can only be used as smoke extraction fans and usage in ventilation operation is not permitted).

Air flow temperature
Temperature range 400 °C/120 min. (in smoke extraction) and ambient temperatures from -20 °C to +40 °C.

Features
- Hinged motor-impeller unit for inspection and cleaning. All parts easily accessible.
- Robust design for difficult operating conditions.
- Standard motor protection against thermal overload throughintegrated thermal contacts (to be bridged in case of smoke extraction).
- Additional cooling wheel on the motor shaft for effective heat dissipation.
- Ready-for-use delivery for easy installation.
- High operational reliability due to minimal maintenance requirements.

Casing
- Made of galvanised steel sheet. Rectangular, for direct installation in ducting. Inlet and outlet with holes for connection of standard flanges.
- Compact design for simple integration in smoke extraction ducts, without height offset.

Impeller
- Directly driven, backward curved centrifugal impeller made from galvanised steel.
- Dynamically balanced, quality class 6.3.

Drive
- For single speed fans with three phase motor and a nominal motor output ≤ 2.20 kW, the connection is provided for direct start-up.
- Special motor for use with high air flow temperatures.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).
- Enclosed design in IP55, with self-ventilation, storage with sufficient lubricant for service life.
- Winding with humidity protection in insulation class F.
- Motor outside of air flow, protected from this by thermal separation.
- Additional impeller for atmospheric cooling.
- Design according to IEC/T5 60034-1, IEC 72, VDE 530 / DIN EN 60034 and VDE 0700 / DIN EN 60335-1.

Full motor protection
- All types are equipped with thermal contacts. Their connections are led out to the terminal board and must be wired to the suitable full motor protection device (Accessories). The motor protection devices must be bridged in smoke extraction operation.

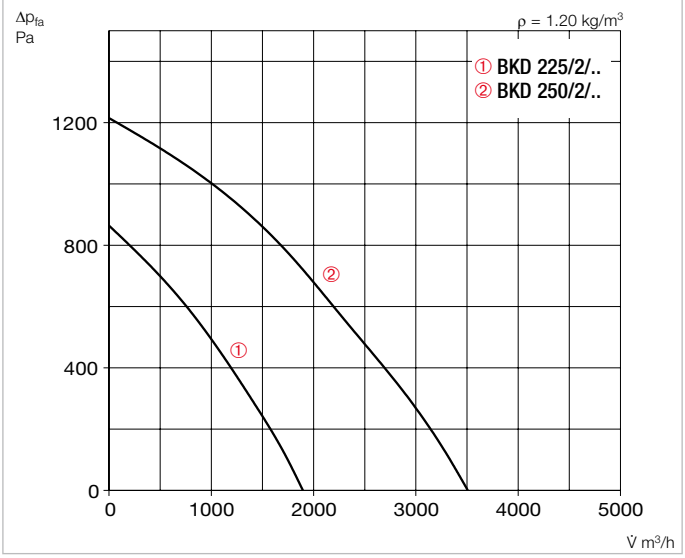
Electrical connection
- Freely accessible terminal box (protection class IP55) mounted to motor. When cutting the connection cable to length, consider the pivoting range of the motor-impeller unit.

Assembly/Installation
- **For installation outside of fire/ temperature-critical rooms.**
- Installation in any position. Consider pivoting range and ease of access to motor-impeller unit.

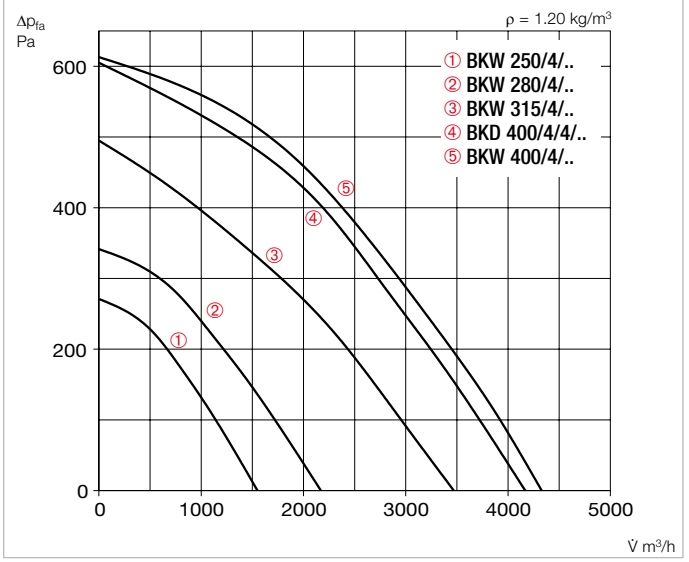
Type	Ref. no.	Speed	Output free-blowing	Sound pres. casing-radiated	Power consumption		Wiring diagram	Net weight approx.	Smoke exhaust fan control system	
		min^{-1}	$\dot{V}$ m^3/h	dB(A) in 4 m	kW	A	No.	kg	**Type**	Ref. no.
F400 **Single speed, alternating current 230 V, 50 Hz, capacitor motor, protection category IP55, with thermal contact**										
BKW 250/4/50/30 F400	08552	1350	1550	45	0.16	0.80	1268[1)]	36	**EVS-W 001**	04595
BKW 280/4/50/30 F400	08555	1370	2170	48	0.16	0.82	1268[1)]	38	**EVS-W 001**	04595
BKW 315/4/60/35 F400	08558	1320	3470	52	0.42	2.00	1268[1)]	46	**EVS-W 001**	04595
BKW 400/6/60/35 F400	08557	915	2750	45	0.30	1.62	1268[1)]	57	**EVS-W 001**	04595
BKW 400/4/60/35 F400	08559	1420	4330	55	1.36	6.90	1268[1)]	58	**EVS-W 001**	04595
F400 **Single speed, three-phase motor 400 V, 50 Hz, protection category IP55, with thermal contact**										
BKD 225/2/2/40/20 F400	08548	2630	1900	56	0.47	0.96	1234[2)]	34	**EVS-D 001**	04594
BKD 250/2/2/50/30 F400	08553	2720	3510	59	1.03	2.00	1234[2)]	37	**EVS-D 001**	04594
BKD 400/4/4/60/35 F400	08561	1350	4170	55	0.81	1.60	1234[2)]	60	**EVS-D 001**	04594

[1)] Principle connection 1269 [2)] Principle connection 565

Performance diagram BK../2/..



Performance diagram BK../4/..



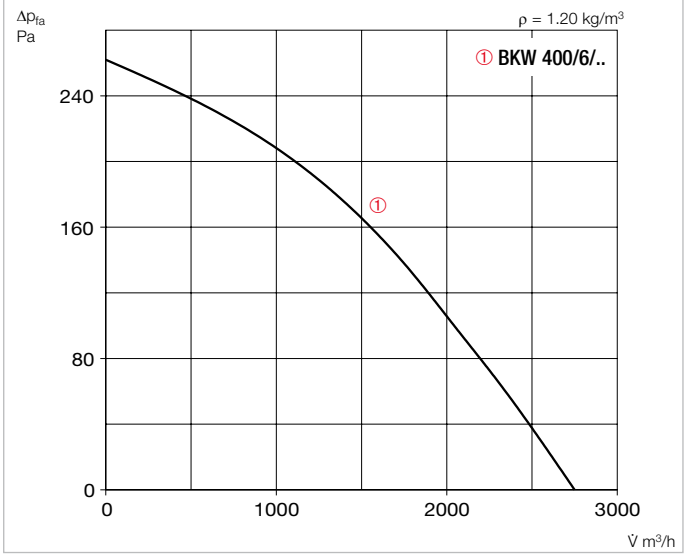
☐ The motor may only be suspended in the horizontal installation position. The descriptions and specifications in the declaration of performance must be observed.
Note:
When using as smoke exhaust fan, it must be insulated according to DIN 4102-4 if damage to the surrounding area is expected due to the casing temperature.

Safety information
Contact protection must be ensured for the impeller pursuant to DIN EN ISO 13857.

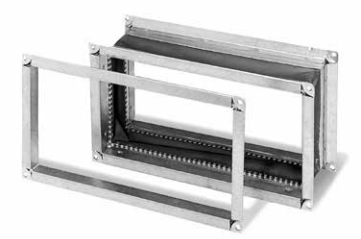
Noise levels
The radiated noise is specified in the type table as sound pressure level in dB(A) in 4 m in freefield conditions. Different installation conditions or disturbed flow can lead to increased noise levels.

Certification
The smoke extraction fans BK have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F400: 0036-CPR-RG05-08

Performance diagram BK../6/..



GFB and VSB



Counter flange GFB		Flexible connector VSB*		Compatible with rectangular duct smoke exhaust fan NG mm i.L.
Type	Ref. no.	**Type**	Ref. no.	
GFB 40/20	06871	**VSB 40/20 F400**	06844	400 x 200
GFB 50/30	06872	**VSB 50/30 F400**	06834	500 x 300
GFB 60/35	06873	**VSB 60/35 F400**	06835	600 x 350

*VSB = Temperature resistance from –30 °C to +130 °C, 400 °C for 2 hours.

Accessories

Counter flange GFB
Galvanised steel sheet flange frame dimensionally adapted to the rectangular fans for connection to the duct.

Flexible connector VSB
With double-sided flange frame. For prevention of structure-borne sound transmission and compensation of mounting tolerances.

Important note
In case of smoke extraction, the electrical power supply must be fire-protected. Potential motor protection devices, control devices must be automatically bridged in case of fire (deactivated) and functionality at the maximum operating stage must be ensured.

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Accessories	Page
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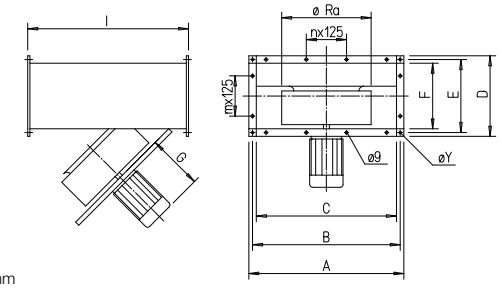
BK F400 for rectangular ducts 70 x 40 cm to 120 x 60 cm

F400

Dimensions BK F400 for rectangular ducts 70 x 40 to 120 x 60 cm



Dim. in mm

Type	A	B	C	D	E	F	G	I	Ø Ra	n	m	Ø Y
BKW 450/6/70/40	740	720	700	440	420	400	274	850	505	3	1	9
BKD 450/4/4/70/40	740	720	700	440	420	400	323	850	505	3	1	9
BKW 500/6/80/50	840	820	800	540	520	500	274	1025	566	5	3	9
BKD 500/4/4/80/50	840	820	800	540	520	500	357	1025	566	5	3	9
BKD 560/6/6/80/50	840	820	800	540	520	500	358	1025	636	5	3	9
BKD 560/4/80/50	840	820	800	540	520	500	372	1025	636	5	3	9
BKD 630/6/6/100/50	1040	1020	1000	540	520	500	372	1075	716	7	3	9
BKD 710/6/120/60	1240	1220	1200	640	620	600	442	1200	806	7	3	9

Application
- For ensuring smoke and heat extraction in preventative fire protection for individual rooms, corridors, escape routes or entire buildings. Also for the prevention of “flashover”.
- For areas of application with air flow temperatures from 400 °C/120 min. (F400).
- Versatile for general smoke extraction tasks.
- Wherever easy access is necessary for cleaning and maintenance.
- Smoke exhaust fan without dual function (rectangular duct smoke exhaust fans BK can only be used as smoke extraction fans and usage in ventilation operation is not permitted).

Air flow temperature
Temperature range 400 °C/120 min. (in smoke extraction) and ambient temperatures from -20 °C to +40 °C.

Features
- Hinged motor-impeller unit for inspection and cleaning. All parts easily accessible.
- Robust design for difficult operating conditions.
- Standard motor protection against thermal overload through integrated thermal or PTC thermistor elements (to be bridged in case of smoke extraction).
- Additional cooling wheel on the motor shaft for effective heat dissipation.
- Ready-for-use delivery for easy installation.
- High operational reliability due to minimal maintenance requirements.

Casing
- Made of galvanised steel sheet. Rectangular, for direct installation in ducting. Inlet and outlet with holes for connection of standard flanges.
- Compact design for simple integration in smoke extraction ducts, without height offset.

Impeller
- Directly driven, backward curved centrifugal impeller made from galvanised steel.
- Dynamically balanced, quality class 6.3.

Drive
- For single speed fans with three phase motor and a nominal motor output ≤ 2.20 kW, the connection is provided for direct start-up.
- Special motor for use with high air flow temperatures.
- Motor bearings can be monitored with Helios bearing condition diagnostics system (Accessories).
- Enclosed design in IP55, with self-ventilation, storage with sufficient lubricant for service life.
- Winding with humidity protection in insulation class F.
- Motor outside of air flow, protected from this by thermal separation.
- Additional impeller for atmospheric cooling.
- Design according to IEC/T5 60034-1, IEC 72, VDE 530 / DIN EN 60034 and VDE 0700 / DIN EN 60335-1

Full motor protection
- All types are equipped with thermal contacts or PTC thermistors. Their connections are led out to the terminal board and must be wired to the suitable full motor protection device (Accessories). The motor protection devices must be bridged in smoke extraction operation.

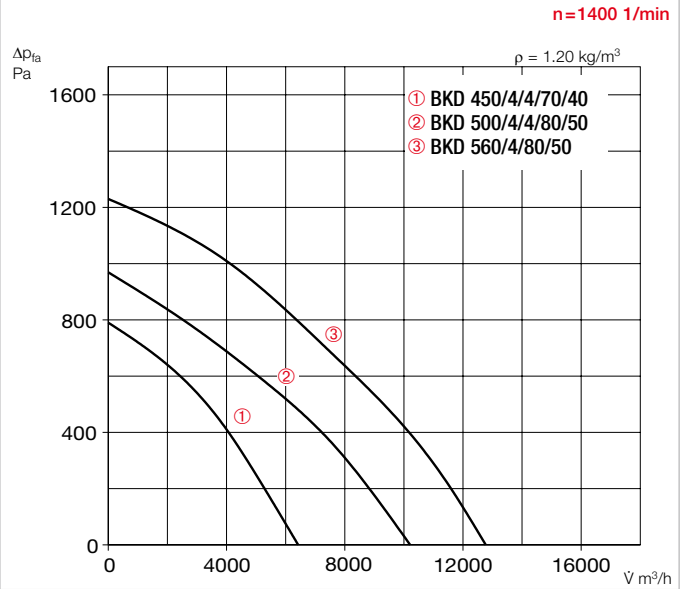
Electrical connection
- Freely accessible terminal box (protection class IP55) mounted to motor. When cutting the connection cable to length, consider the pivoting range of the motor-impeller unit. The motor protection devices must be bridged in smoke extraction operation.

Voltages and frequencies
Nominal voltage and frequency are specified in the table. These also form the basis for the performance data.

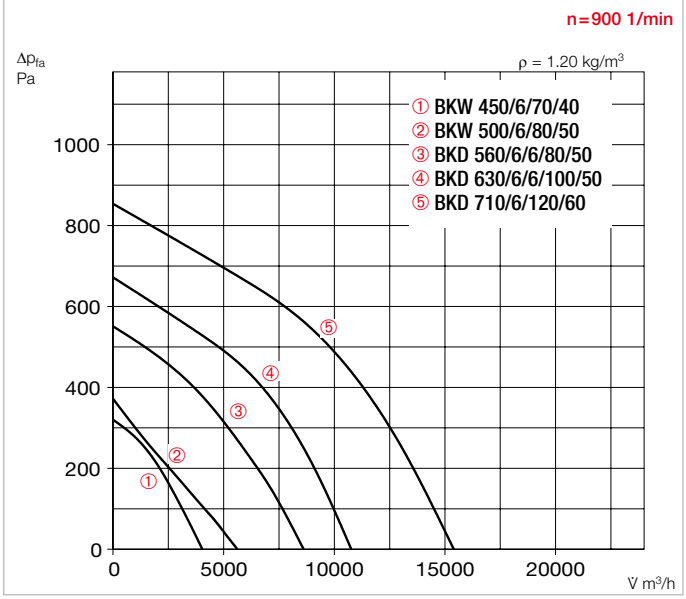
Type	Ref no.	Speed	Output free-blowing	Sound pres. casing-radiated	Power consumption		Wiring diagram	Net weight approx.	Smoke exhaust fan control system	
		min^{-1}	$\dot{V}m^3/h$	dB(A) in 4 m	kW	A	No.	kg	**Type**	Ref. no.
F400 **Single speed, alternating current 230 V, 50 Hz, capacitor motor, protection category IP55, with thermal contact**										
BKW 450/6/70/40 F400	08562	870	4040	49	0.42	2.0	1268[1)]	85	**EVS-W 001**	04595
BKW 500/6/80/50 F400	08564	810	5620	52	0.58	2.6	1268[1)]	105	**EVS-W 001**	04595
F400 **Single speed, three-phase motor 400 V, 50 Hz, protection category IP55, with thermal contact**										
BKD 450/4/4/70/40 F400	08563	1380	6420	59	1.41	3.2	1234[2)]	87	**EVS-D 001**	04594
BKD 500/4/4/80/50 F400	08550	1370	10210	62	2.10	4.2	1234[2)]	108	**EVS-D 001**	04594
BKD 560/6/6/80/50 F400	08565	920	8610	56	1.31	3.8	1234[2)]	120	**EVS-D 001**	04594
BKD 630/6/6/100/50 F400	08566	950	10770	59	2.20	6.3	1234[2)]	150	**EVS-D 001**	04594
F400 **Single speed, three-phase motor 400 V, 50 Hz, protection category IP55, with PTC thermistor**										
BKD 560/4/80/50 F400	08551	1435	12770	65	4.00	8.4	1235[3)]	142	**EVS-SD 002**	04585
BKD 710/6/120/60 F400	08568	954	15400	63	3.00	6.8	1235[3)]	185	**EVS-SD 001**	04586

[1)] Principle connection 1269 [2)] Principle connection 565 [3)] Principle connection 565.1

Performance diagram BK../4/..



Performance diagram BK../6/..



Assembly/Installation

For installation outside of fire/ temperature-critical rooms.

- Installation in any position. Consider pivoting range and ease of access to motor-impeller unit.
- The motor may only be suspended in the horizontal installation position. The descriptions and specifications in the declaration of performance must be observed.

Note:
When using as smoke exhaust fan, it must be insulated according to DIN 4102-4 if damage to the surrounding area is expected due to the casing temperature.

Safety information

Contact protection must be ensured for the impeller pursuant to DIN EN ISO 13857.

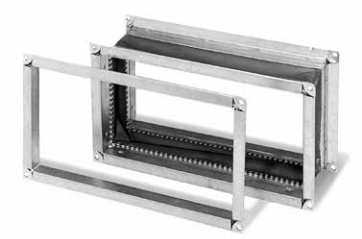
Noise levels

The radiated noise is specified in the type table as sound pressure level in dB(A) in 4 m in freefield conditions. Different installation conditions or disturbed flow can lead to increased noise levels.

Certification

The smoke extraction fans BK have been tested according to DIN EN 12101-3.
Certificate of performance reliability:
F400: 0036-CPR-RG05-08

GFB and VSB



Counter flange GFB		Flexible connector VSB*		Compatible with rectangular duct smoke exhaust fan NG mm i.L.
Type	Ref. no.	**Type**	Ref. no.	
GFB 70/40	06874	**VSB 70/40 F400**	06836	700 x 400
GFB 80/50	06847	**VSB 80/50 F400**	06838	800 x 500
GFB 100/50	06848	**VSB 100/50 F400**	06839	1000 x 500
GFB 120/60	06845	**VSB 120/60 F400**	06842	1200 x 600

*VSB = Temperature resistance from –30 °C to +130 °C, 400 °C for 2 hours.

Accessories

Counter flange GFB
Galvanised steel sheet flange frame dimensionally adapted to the rectangular fans for connection to the duct.

Flexible connector VSB
With double-sided flange frame. For prevention of structure-borne sound transmission and compensation of mounting tolerances.

Important note

In case of smoke extraction, the electrical power supply must be fire-protected. Potential motor protection devices, control devices must be automatically bridged in case of fire (deactivated) and functionality at the maximum operating stage must be ensured.

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Helios Jet fans.
High-thrust, flat and remarkably quiet.

Certified for temperature classes F300 and F400 according to DIN EN 12101-3

Axial and centrifugal jet fans are used in parking garages for daily supply and extract ventilation and they ensure smoke extraction to support fire service efforts in case of fire. They have an impulse effect on the air due to the generated air jet. Thus, there is a movement of air in the respective air flow direction towards the central extract air fan or towards the next jet fan unit. In contrast to a ducted parking garage ventilation system, the use of jet fans allows control of the air flow to ensure continuous and effective supply and extract ventilation as well as life-saving smoke extraction in case of emergency.

Particularly quiet.
The lowest sound emissions at maximum thrust performances from 6 to 75 N speak for themselves.

Simple installation.
Helios jet fans are characterised by particularly easy installation due to the low net weight. Practical, integrated standard mounting rails for easy ceiling installation perfectly complement the lightweight aluminium construction.

First-class service.
The first-class service from Helios for support with planning, design and commissioning completes the range perfectly.

40 °C | 60 °C | EC | F300 | F400

■ Axial jet fans IVAD and B IVAD

Low-noise and universal in application, they set standards in thrust and weight.
– High-performance axial impeller for unidirectional and reversible operation.
– ø 315-400, Thrust 6-67 N
– Optional in F300 and F400 (300 °C or 400 °C/120 min.)

60 °C F300 F400

136f

■ Centrifugal jet fans IVRD and B IVRD

Slimline, compact, lightweight and full power. Ideal for restricted spatial conditions.
– High-performance centrifugal impeller with backward curved blades.
– ø 500-560, Thrust 16-75 N
– Optional in F300 (300 °C/120 min.)

60 °C F300

144f

■ Centrifugal jet fans IVRW / IVRD EC

Latest EC technology for economical ventilation solutions in parking garages and commercial applications.
– Highly efficient motor with EC technology.
– High-performance centrifugal impeller with backward curved blades.
– ø 400-450, Thrust 50-75 N
– Three phase and alternating current version

40 °C EC

142f

■ Axial and centrifugal jet fans

Product-specific information.

134f

Axial jet fan IVAD and B IVAD F300/F400

Application
- For supply and extract ventilation and smoke extraction in car parks.
- For areas of application with air flow temperatures of 300 °C and 400 °C for 120 min. (F300 and F400). In continuous supply and extract ventilation up to max. +60 °C air flow temperature.

Casing
- Duct casing made from corrosion-resistant aluminium with motor support and ceiling suspension. Aerodynamically shaped inlet with safety guard according to DIN EN 13857, outlet nozzle with adjustable guide vanes. Reversible types with adjustable guide vanes on both sides.
- Polygon-shaped impact attenuators on both sides of casing. Casing made from corrosion-resistant aluminium, abrasion-resistant mineral wool lining (non-flammable according to DIN 4102) and galvanised perforated plate.

Impeller
- High-performance impeller for unidirectional and reversible operation.
- Dynamically balanced, quality class 6.3.
- With aerodynamically optimal blades made from corrosion-resistant aluminium alloy, continuously adjustable in standstill.

Motor
The connection for direct start-up is provided for single-speed fans with three phase motor and nominal motor output ≤ 3.00 kW.
- Series IVAD:
  Maintenance-free efficient IE3 three phase motor, protection class IP55. Connection cable (Ölflex SY cable) centrifugal design, with metal cladding.
- Series B IVAD:
  Efficient IE3 smoke exhaust three phase motor in temperature-resistant design, protection class IP55.
  Radial external cable to terminal box with fire-resistant sheathing.

Motor protection
- Series IVAD and B IVAD:
  All types are equipped with PTC resistors from the terminal boxes. Thus, effective motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).
- Series B IVAD:
  For the smoke extraction function, all motor protection devices and speed controllers (FU) of the smoke extraction fan must be bridged to achieve the required output and max. operating duration.

Electrical connection
- Series IVAD:
  Standard plastic terminal box (protection class IP55), mounted on outside of ducting.
- Series B IVAD:
  Standard aluminium die-cast terminal box (protection class IP55), mounted on outside of ducting.

Air flow temperatures
- Series IVAD:
  Suitable for supply and extract ventilation from -20 °C to +60 °C permanent temperature.
- Series B IVAD:
  Suitable for smoke gases up to 300 °C/120 min. (F300) or 400 °C/120 min. (F400).

Air flow direction
Depending on the selected type, both unidirectional and 100% reversible air flow directions are possible.

Certification
The jet fans B IVAD have been tested according to DIN EN 12101-3.
EC certificate of conformity:
F300: 0036 CPD RG05 10
F400: 0036 CPD RG05 11

Installation
- Easy and safe installation by integrated standard mounting rails directly to the ceiling. Rail attachment with just four fixing points.
- When installing a fan from series B IVAD, temperature-resistant plugs and screws (Accessories, to be provided on-site) should be used.
- In order to avoid vibration transmission the use of anti-vibration mounts is recommended.
- For girders or other suspensions, the jet fan guide van must be adjusted. Thus, different distances to girders can be realised.
- Compliance with Federal and regional fire protection regulations.

Centrifugal jet fan IVRD, B IVRD F300, IVRW EC 400 and IVRD EC 450

Application
- For supply and extract ventilation and smoke extraction in car parks.
- For areas of application with air flow temperatures of 300 °C (F300). In continuous supply and extract ventilation up to max. +60 °C air flow temperature.
- Centrifugal jet fans with EC technology for continuous supply and extract ventilation up to max. +40°C air flow temperature.

Casing
Casing made from corrosion-resistant aluminium in compact design. Aerodynamically designed inlet nozzle. Continuous optimal surface protection through steel powder coating.

Impeller IVRD and B IVRD F300
High-performance centrifugal impeller with backward curved blades made of powder-coated steel sheet. Dynamically balanced, quality class 6.3.

Impeller IVR EC
High-performance centrifugal impeller with backward curved blades made of plastic. Dynamically balanced, quality class 6.3.

Motor
The connection for direct start-up is provided for single-speed fans with three phase motor and nominal motor output ≤ 3.00 kW.
- Series IVRD:
  Maintenance-free efficient IE3 three phase motor, protection class IP55. Connection cable (Ölflex SY cable) centrifugal design, with metal cladding.
- Series B IVRD:
  IEC smoke exhaust three phase motor in temperature-resistant design, protection class IP55. Radial external cable to terminal box with fire-resistant sheathing.
- Series IVR EC: Highly efficient EC motor, variably controllable via 0-10 Volt signal, protection category IP 54. Connection cable led out to the casing terminal box.

Motor protection
- Series IVRD and B IVRD:
  All types are equipped with PTC resistors from the terminal boxes. Thus, effective motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).
- Series B IVRD:
  or the smoke extraction function, all motor protection devices and speed controllers (FU) of the smoke extraction fan must be bridged to achieve the required output and max. operating duration.
- Series IVR EC: Standard terminal box made of plastic, mounted to outside of casing.

Electrical connection
- Series IVRD:
  Standard plastic terminal box (protection class IP55), mounted on outside of ducting.
- Series B IVRD:
  Standard aluminium die-cast terminal box (protection class IP55), mounted on outside of ducting.
- Series IVR EC: Integrated electronic temp. monitoring system for EC motor and electronics.

Air flow temperatures
- Series IVRD:
  Suitable for supply and extract ventilation from -20 °C to +60 °C permanent temperature.
- Series B IVRD:
  Suitable for smoke gases up to 300 °C/120 min. (F300).
- Series IVR EC: Suitable for supply and extract ventilation from -20°C to +40°C continuous temperature.

Certification
The jet fans B IVRD have been tested according to DIN EN 12101-3.
EC certificate of conformity:
F300: 0036 CPD RG05 12

Installation
- Easy and safe installation by integrated standard mounting rails directly to the ceiling. Rail attachment with just four fixing points.
- When installing a fan from series B IVRD temperature-resistant plugs and screws (on-site accessories) should be used.
- In order to avoid vibration transmission the use of anti-vibration mounts is recommended.

Requirements for car park ventilation systems
- Each ventilation system must have at least two fans of the same size, which together provide the required total air flow volume in simultaneous operation. Explosion-proof fans are not required.
- Each fan in a mechanised supply or extract air system must be powered by a dedicated circuit to which other systems may not be connected.
- Each final and auxiliary circuit of a mechanical supply or extract air system must be designed in such a way that an electrical fault will not cause the failure of the entire ventilation system.
- If the ventilation system will be operated with one fan from time to time, the fans must be connected in such a way that if one fan fails, the other fan will switch on automatically.

Mechanical smoke and heat extraction
Smoke and heat extraction is prescribed in addition to the pure ventilation function in some countries (see table).

- The requirements of the Ordinance Governing Parking Facilities in the Federal States with regard to mechanical smoke and heat extraction have the following in common:
  - Automatic activation on in case of smoke.
  - Maximum load temperature of 300 °C (F300)/1 hour.
  - 10 air changes per hour (max. 70,000 m³/h in Baden-Württemberg).
  - Functional integrity of the electrical cable systems in case of external fire for at least 1 ½ hours.

Isolator switch and control

The use of isolator switches on smoke and heat exhaust fans is only permissible if it is secured against unauthorised operation. This can be done through the use of key switches or by attaching a padlock. Furthermore, the terminal boxes in smoke and heat exhaust fans must be temperature resistant.
The smoke and heat exhaust fan control equipment (cabinets) must not be placed inside the garage, but are to be installed outside the fire risk areas.

Car park ventilation systems

The perfect ventilation solution in a car park consists of:

- Jet fans for the development of a controlled air flow in the direction of the extract air unit, and for the after-flow of the supply air.
- Central extraction units for the extraction of extract air in normal operation or smoke gases in case of fire.
- Supply air fans, if the air supply via access ramps or other supply air openings is not sufficient.

Functionality in ventilation mode

Jet fans have an impulse effect on the air due to the generated air jet. Thus, there is continuous air movement in the respective flow direction towards the central extract air unit or towards the next jet fan unit. Indoor air is induced into the jet through the generated wake turbulence. Due to this induction effect and the mixture of indoor air, the discharge flow rate of the fan increases by approx. tenfold to an effective total air flow rate. Thus, reliable and highly effective air circulation in the car park is guaranteed. Dead zones, which are usual for duct-guided extract air systems, are avoided through the use of jet fans.

- Extract air fans discharge the polluted air from the car park. The supply air flow circulation is passive via the entrance and exit or supply air openings, or alternatively mechanically through supply air fans.
- The number of fans, size and exact positioning of the jet fans is project-specific in consideration of structural conditions such as geometry, girders, supply air flows, columns, etc.
- Helios jet fans are available in axial and centrifugal design. Different system solutions can be realised depending on the structural conditions or ventilation system requirements.

Functionality in case of fire

Helios jet fans are available in different temperature classes. If mechanical smoke and heat extraction is not required in relation to building law or regulatory requirements, jet fans with a permissible permanent temperature of up to +60 °C are used. The two temperature classes F300 (120 min.) and F400 (120 min.) are available for use as smoke and heat exhaust fans.

- While the aim is to provide an escape route keeping the smoke layer above head height when designing smoke extraction for factories, assembly areas, sales outlets and non-residential buildings, this cannot be achieved in car parks due to the low height of the ceiling (approx. 2.50 m). In order to provide an escape route for affected people in the event of a fire and the necessary smoke extraction, the ultimate planning goal is to create low smoke or smoke free areas.
  Car parks are usually required to have fire alarm systems which not only monitor smoke within the car park, but also offer a suitable control strategy which observes the operation of impulse and smoke extraction fans. In the event of smoke extraction, the primary task for jet fan systems is to effectively prevent the spread of smoke and fumes and to direct the smoke gases towards the main extraction points. Depending on the design strategy, defined areas in a car park can be kept smoke-free for longer periods. Reversible (thrust-reversible) jet fans can be used in all sorts of scenarios (depending on the fire locations in the car park).

	Extract air flow rate	Closed medium-sized garage 101 – 1000 m²		Closed large garage > 1000 m²							
	Incoming and outgoing traffic low/busy	Incoming and outgoing traffic low or busy		Incoming and outgoing traffic			Air volume if sprinkler system present (instead of smoke extraction)	Sprinkler system required (building is not only for garage use)	Max. permissible CO content	CO content warning threshold	Status
					low	busy					
Federal state	m³/h per m² garage space	Smoke and heat extract.	Gas warn. system	Smoke and heat extract. min. LW (1/h)	Gas warn. system	Gas warn. system	m³/h per m²		ppm / min. average	ppm / min. actual value	
Baden-Württemberg	6 / 12	–	–	10 / F300 [1) 2)]	–	x		A1, B1, E	100 / 30	250	Feb 17
Bavaria	6 / 12	–	–	10 / F300	–	x	12	A, B, C	100 / 30	250	Aug 18
Berlin	6 / 12	F300 [3)]	–	F300 [3)]	–	x		A, B, D	100 / 30	250	Feb 19
Brandenburg	6 / 12	–	–	10 / F300	–	x	12	A, B, D	100 / 30	250	Nov 17
Bremen	6 / 12	–	–	–	–	x		A, B, D	100 / 30	250	Jun 14
Hamburg	6 / 12	–	–	12 m³/h je m² [5)]	–	x		A, B, D	100 / 30	250	Jan 12
Hesse	8 / 16	–	x	10 / F300 [6)]	x	x	16	A, D	50 / 60	85/15	Jan 15
Mecklenburg-West	6 / 12	–	–	–	–	x		A, B, D	100 / 30	250	Mrz 13
Lower Saxony	6 / 12	–	–	10 / F300 [1)]	–	x	12	A, B, D*	100 / 30	250	Okt 12
North Rhine-Westphalia	6 / 12	–	–	10 / F300	–	x	12	A, B, C	100 / 30	250	Dez 16
Rhineland Palatinate	6 / 12	–	–	–	–	x		A, B, D	100 / 30	250	Dez 02
Saarland	6 / 12	–	–	–	–	x		A, B, C	100 / 60	250	Aug 08
Saxony	6 / 12	–	–	10 / F300 [4)]	–	x		A, B, D	100 / 30	250	Jul 11
Saxony-Anhalt	6 / 12	–	–	10 / F300	–	x	12	A, B, D	100 / 30	250	Mai 15
Schleswig-Holstein	6 / 12	–	–	–	–	x		A, B, D	100 / 30	250	Apr 20
Thuringia	6 / 12	–	–	10 / F300	–	x	12	A, B, C	100 / 30	250	Mrz 95

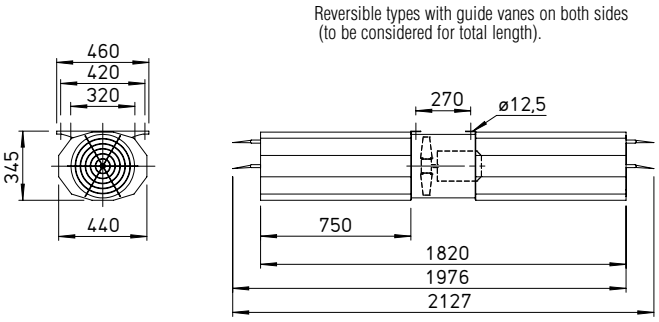
[1)] Only for floors which are more than 4m below ground surface on average, optional mechanical smoke extraction or sprinkler system, for smoke sections larger than 2500 m² sprinkler system + mechanical smoke extraction.
[2)] max. 70 000 m³/h. [3)] Extract air flow rate same as smoke extraction rate.
[4)] 300 °C for 30 minutes.
[5)] The Hamburg Construction Inspection Service must be taken into account.
[6)] Underground floors larger than 2500 m² optional mechanical smoke extraction or sprinkler system.

A Overground garage larger than 5000 m².
A1 Overground garage larger than 5000 m² alternative smoke extraction with max. 70000 m³/h.
B Underground garage larger than 2500 m².
B1 Undergr. garage up to max. 4 m below ground surf. and larger than 2500 m² altern. smoke extraction with max. 70000 m³/h.
C Floors which are below the 1st underground floor.
D Floors which are more than 4 m below ground surface.
E Floors which are more than 4 m below ground surface and larger than 2500 m² .
* Ordinance Governing Parking Facilities is unclear, coordination with experts necessary.

IVAD 315

60 °C

Dimensions IVAD 315



Dim. in mm

High-quality, high-performance jet fans with optimal dimensions for minimum space requirement. Suitable for supply and extract ventilation of car parks with air flow temperatures up to 60 °C.

Special features
- Low noise emission.
- Maximum thrust.
- Easy and fast to install due to low weight (aluminium construction).
- Direct driven, axial.
- Optional 100% reversible (types IVAD R).

Casing
Duct casing made from corrosion-resistant aluminium with motor support and ceiling suspension.
Aerodynamically shaped inlet with guard, outlet nozzle with adjustable guide vane. Reversible types with adjustable guide vanes on both sides (to be considered for total length).

Impeller
High-performance impeller for unidirectional and reversible operation. Dynamically balanced, quality class 6.3.
With flow-optimised blades made from corrosion-resistant aluminium alloy, adjustable in standstill.

Motor
Direct via efficient IE 3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55.

Motor protection
All types are equipped with PTC resistors from the terminal boxes. Thus, efficient motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).

Noise insulation
Polygon attenuators mounted on both sides, whose aluminium casings are fully lined with abrasion-resistant mineral wool and galvanised perforated plate according to DIN 4102 (non-flammable).

Installation
With integrated mounting rails as standard, which are fixed directly to the ceiling using plugs (Accessories, on-site) at four fixing points.

In order to prevent vibration transmission, the use of anti-vibration mounts is recommended (SDZ, Accessories, see table).

Electrical connection
Plastic terminal box (protection class IP55) as standard, outside on casing.

Assembly
The Federal, State and regional regulations and ordinances must be observed for the assembly.

Accessories
Anti-vibration mounts for tensile loading (1 set = 4 pcs.)

SDZ 1

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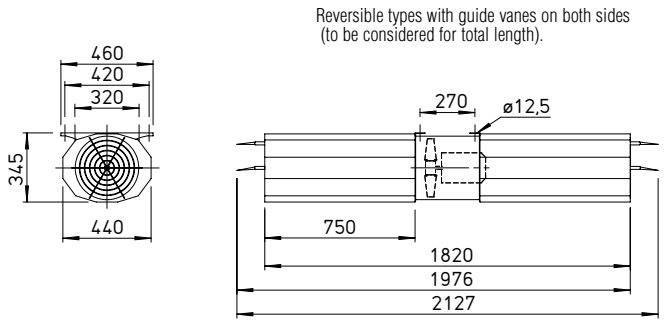
Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Reversible	Sound pressure level[1] L_{PA}	Nominal motor power (output)	Nominal motor current		Wiring diagram	Max. air flow temperature	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.)	
									Operation	Start-up					
		N	m/s	V̇ m³/h	min⁻¹		dB(A)	kW	A	A	No.	+ °C	kg	**Type**	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**															
IVAD 315/2 R	04102	23	15.4	4400	2890	Yes	59	1.10	2.3	8.0	796	60	37	**SDZ 1**	01454
IVAD 315/2	04110	25	15.9	4600	2890	No	58	1.10	2.3	8.0	796	60	37	**SDZ 1**	01454
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
IVAD 315/4/2 R	04101	6/23	7.6/15.3	2200/4400	1340/2835	Yes	39/59	0.25/0.95	0.9/2.3	4.6/17.2	777	60	42	**SDZ 1**	01454
IVAD 315/4/2	04109	6/24	7.9/15.8	2200/4400	1340/2835	No	39/58	0.25/0.95	0.9/2.3	5.0/17.4	777	60	42	**SDZ 1**	01454

[1] measured in freefield conditions below 45°, at distance of 3 m

B IVAD 315 F300/F400

F300 F400

Dimensions B IVAD 315 F300/F400



Dim. in mm

High-quality, high-performance jet fans with optimal dimensions for minimum space requirement. Suitable for supply and extract ventilation of car parks. Temperature range optional 300 °C/120 min. or 400 °C/ 120 min. (in smoke extraction operation) or 60 °C in permanent operation.

Special features

- Low noise emission.
- Maximum thrust.
- Easy and fast to install due to low weight (aluminium construction).
- Direct driven, axial.
- Optional 100% reversible (types B IVAD R).

Casing

Duct casing made from corrosion-resistant aluminium with motor support and ceiling suspension.
Aerodynamically shaped inlet with guard, outlet nozzle with adjustable guide vane.
eversible types with adjustable guide vanes on both sides (to be considered for total length).

Impeller

High-performance impeller for unidirectional and reversible operation. Dynamically balanced, quality class 6.3. With flow-optimised blades made from corrosion-resistant aluminium alloy, adjustable in standstill.

Motor

Direct via efficient IE 3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55 and temperature-resistant design.

Motor protection

All types are equipped with PTC resistors from the terminal boxes. Thus, efficient motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).
For the smoke extraction function, all full motor protection devices and speed controllers (FU) for the smoke extraction fan must be bridged to achieve the required output and max. operating duration.

Noise insulation

Polygon attenuators mounted on both sides, whose aluminium casings are fully lined with abrasion-resistant mineral wool and galvanised perforated plate according to DIN 4102 (non-flammable).

Installation

With integrated mounting rails as standard, which are fixed directly to the ceiling using temperature-resistant plugs (Accessories, on-site) at four fixing points.
In order to prevent vibration transmission, the use of anti-vibration mounts is recommended (SDZ, Accessories, see table).

Electrical connection

Aluminium die-cast terminal box (protection class IP55) as standard, outside on casing.
On-site cabling with temperature-resistant connection cable.

Certification

- Structural tolerances according to DIN 2768
  Performance measurement according to DIN 24163
- The jet fans B IVAD have been tested according to DIN EN 12101-3.
  EC certificate of compliance:
  F300: 0036 CPD RG05 10
  F400: 0036 CPD RG05 11

Accessories

Anti-vibration mounts for tensile loading (1 set = 4 pcs.)

SDZ 1 F

Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Reversible	Sound pressure level[1] L_{PA}	Nominal motor power (output)	Nominal motor current Operation	Nominal motor current Start-up	Wiring diagram	Max. air flow temperature	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.) Type	Anti-vibration mount Ref. no.
		N	m/s	V̇ m³/h	min⁻¹		dB(A)	kW	A	A	No.	+ °C	kg	Type	Ref. no.
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B IVAD 315/2 R F300	04118	23	15.3	4400	2830	Yes	59	1.10	2.3	17.2	776	60/300	41	**SDZ 1 F**	01943
B IVAD 315/2 F300	04126	25	15.8	4500	2830	No	58	1.10	2.3	17.2	776	60/300	41	**SDZ 1 F**	01943
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B IVAD 315/4/2 R F300	04117	6/23	7.6/15.3	2200/4400	1390/2810	Yes	40/60	0.25/1.10	0.8/2.5	3.4/14.9	777	60/300	40	**SDZ 1 F**	01943
B IVAD 315/4/2 F300	04125	7/25	7.9/15.7	2300/4500	1390/2810	No	39/58	0.25/1.10	0.8/2.5	3.4/14.9	777	60/300	40	**SDZ 1 F**	01943
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B IVAD 315/2 R F400	04134	23	15.3	4400	2830	Yes	59	1.10	2.33	17.2	776	60/400	42	**SDZ 1 F**	01943
B IVAD 315/2 F400	04142	25	15.8	4500	2830	No	58	1.10	2.33	17.2	776	60/400	42	**SDZ 1 F**	01943
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B IVAD 315/4/2 R F400	04133	6/23	7.6/15.3	2200/4400	1390/2810	Yes	39/59	0.25/1.10	0.8/2.4	2.9/14.4	777	60/400	43	**SDZ 1 F**	01943
B IVAD 315/4/2 F400	04141	7/25	7.9/15.7	2300/4500	1390/2810	No	37/58	0.25/1.10	0.8/2.4	2.9/14.4	777	60/400	43	**SDZ 1 F**	01943

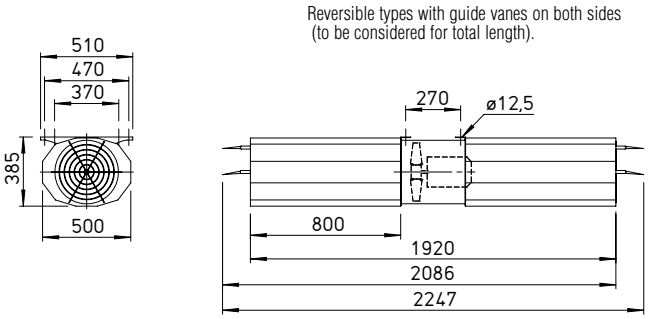
[1] measured in freefield conditions below 45°, at distance of 3 m

2) For ventilation / smoke extraction (one-off 120 min.)

IVAD 355

60 °C

Dimensions IVAD 355



Dim. in mm

High-quality, high-performance jet fans with optimal dimensions for minimum space requirement. Suitable for supply and extract ventilation of car parks with air flow temperatures up to 60 °C.

Special features
- Low noise emission.
- Maximum thrust.
- Easy and fast to install due to low weight (aluminium construction).
- Direct driven, axial.
- Optional 100% reversible (types IVAD R).

Casing
Duct casing made from corrosion-resistant aluminium with motor support and ceiling suspension. Aerodynamically shaped inlet with guard, outlet nozzle with adjustable guide vane. Reversible types with adjustable guide vanes on both sides (to be considered for total length).

Impeller
High-performance impeller for unidirectional and reversible operation. Dynamically balanced, quality class 6.3. With flow-optimised blades made from corrosion-resistant aluminium alloy, adjustable in standstill.

Motor
Direct via efficient IE 3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55.

Motor protection
All types are equipped with PTC resistors from the terminal boxes. Thus, efficient motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).

Noise insulation
Polygon attenuators mounted on both sides, whose aluminium casings are fully lined with abrasion-resistant mineral wool and galvanised perforated plate according to DIN 4102 (non-flammable).

Installation
With integrated mounting rails as standard, which are fixed directly to the ceiling using plugs (Accessories, on-site) at four fixing points.
In order to prevent vibration transmission, the use of anti-vibration mounts is recommended (SDZ, Accessories, see table).

Electrical connection
Plastic terminal box (protection class IP55) as standard, outside on casing.

Assembly
The Federal, State and regional regulations and ordinances must be observed for the assembly.

Accessories
Anti-vibration mounts for tensile loading (1 set = 4 pcs.)

SDZ 1

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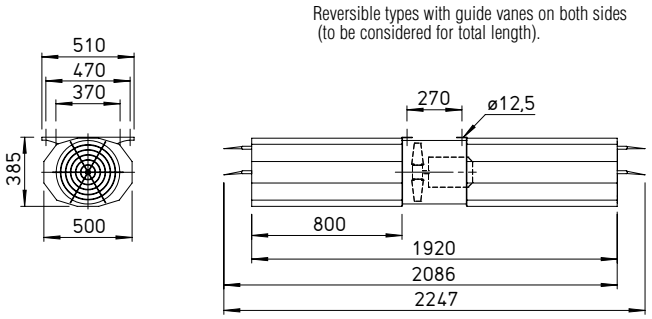
Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Reversible	Sound pressure level[1] L_{PA}	Nominal motor power (output)	Nominal motor current		Wiring diagram	Max. air flow temperature	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.)	
									Operation	Start-up					
		N	m/s	V̇ m³/h	min⁻¹		dB(A)	kW	A	A	No.	+ °C	kg	**Type**	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**															
IVAD 355/2 R	04105	38	17.7	6400	2890	Yes	63	1.50	3.1	23.6	796	60	47	**SDZ 1**	01454
IVAD 355/2	04113	46	19.4	7000	2890	No	63	1.50	3.1	23.6	796	60	47	**SDZ 1**	01454
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
IVAD 355/4/2 R	04104	10/37	8.7/17.4	3200/6300	1340/2850	Yes	38/62	0.30/1.40	1.1/3.1	6.1/23.1	777	60	48	**SDZ 1**	01454
IVAD 355/4/2	04112	11/42	9.4/18.7	3400/6800	1340/2850	No	41/62	0.30/1.40	1.1/3.1	6.1/23.1	777	60	48	**SDZ 1**	01454

[1] measured in freefield conditions below 45°, at distance of 3 m

B IVAD 355 F300/F400

F300 F400

Dimensions B IVAD 355 F300/F400



Dim. in mm

High-quality, high-performance jet fans with optimal dimensions for minimum space requirement. Suitable for supply and extract ventilation of car parks. Temperature range optional 300 °C/120 min. or 400 °C/ 120 min. (in smoke extraction operation) or 60 °C in permanent operation.

Special features

- Low noise emission.
- Maximum thrust.
- Easy and fast to install due to low weight (aluminium construction).
- Direct driven, axial.
- Optional 100% reversible (types B IVAD R).

Casing

Duct casing made from corrosion-resistant aluminium with motor support and ceiling suspension.
Aerodynamically shaped inlet with guard, outlet nozzle with adjustable guide vane.
eversible types with adjustable guide vanes on both sides (to be considered for total length).

Impeller

High-performance impeller for unidirectional and reversible operation. Dynamically balanced, quality class 6.3. With flow-optimised blades made from corrosion-resistant aluminium alloy, adjustable in standstill.

Motor

Direct via efficient IE 3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55 and temperature-resistant design.

Motor protection

All types are equipped with PTC resistors from the terminal boxes. Thus, efficient motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).
For the smoke extraction function, all full motor protection devices and speed controllers (FU) for the smoke extraction fan must be bridged to achieve the required output and max. operating duration.

Noise insulation

Polygon attenuators mounted on both sides, whose aluminium casings are fully lined with abrasion-resistant mineral wool and galvanised perforated plate according to DIN 4102 (non-flammable).

Installation

With integrated mounting rails as standard, which are fixed directly to the ceiling using temperature-resistant plugs (Accessories, on-site) at four fixing points.
In order to prevent vibration transmission, the use of anti-vibration mounts is recommended (SDZ, Accessories, see table).

Electrical connection

Aluminium die-cast terminal box (protection class IP55) as standard, outside on casing.
On-site cabling with temperature-resistant connection cable.

Certification

- Structural tolerances according to DIN 2768
  Performance measurement according to DIN 24163
- The jet fans B IVAD have been tested according to DIN EN 12101-3.
  EC certificate of compliance:
  F300: 0036 CPD RG05 10
  F400: 0036 CPD RG05 11

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Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Reversible	Sound pressure level[1] L_{PA}	Nominal motor power (output)	Nominal motor current Operation	Nominal motor current Start-up	Wiring diagram	Max. air flow temperature	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.) Type	Anti-vibration mount (1 set = 4 pcs.) Ref. no.
		N	m/s	V̇ m³/h	min⁻¹		dB(A)	kW	A	A	No.	+ °C	kg	**Type**	Ref. no.
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B IVAD 355/2 R F300	04121	38	17.5	6400	2875	Yes	62	1.50	3.1	23.5	776	60/300	51	**SDZ 1 F**	01943
B IVAD 355/2 F300	04129	46	19.2	7000	2875	No	63	1.50	3.1	23.5	776	60/300	51	**SDZ 1 F**	01943
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B IVAD 355/4/2 R F300	04120	10/38	8.9/17.7	3200/6400	1430/2875	Yes	41/62	0.37/1.50	1.2/3.6	6.0/25.1	777	60/300	53	**SDZ 1 F**	01943
B IVAD 355/4/2 F300	04128	12/46	9.7/19.4	3600/7000	1430/2875	No	41/63	0.37/1.50	1.2/3.6	6.0/25.1	777	60/300	53	**SDZ 1 F**	01943
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B IVAD 355/2 R F400	04137	38	17.5	6400	2875	Yes	62	1.50	3.1	23.5	776	60/400	54	**SDZ 1 F**	01943
B IVAD 355/2 F400	04145	46	19.2	7000	2875	No	63	1.50	3.1	23.5	776	60/400	54	**SDZ 1 F**	01943
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B IVAD 355/4/2 R F400	04136	10/38	8.9/17.7	3200/6400	1435/2900	Yes	41/62	0.37/1.50	1.3/3.5	5.6/23.0	777	60/400	52	**SDZ 1 F**	01943
B IVAD 355/4/2 F400	04144	12/46	9.7/19.4	3600/7000	1435/2900	No	41/64	0.37/1.50	1.3/3.5	5.6/23.0	777	60/400	52	**SDZ 1 F**	01943

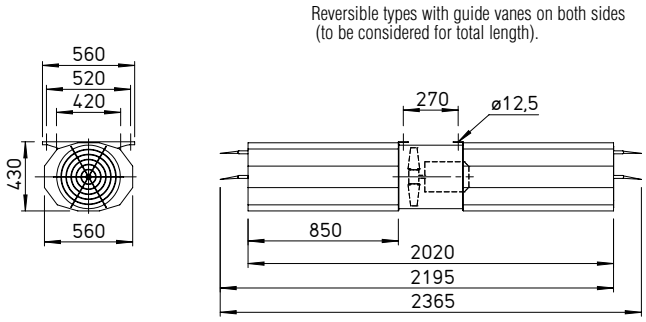
[1] measured in freefield conditions below 45°, at distance of 3 m

2) For ventilation / smoke extraction (one-off 120 min.)

IVAD 400

60 °C

Dimensions IVAD 400



Dim. in mm

High-quality, high-performance jet fans with optimal dimensions for minimum space requirement. Suitable for supply and extract ventilation of car parks with air flow temperatures up to 60 °C.

Special features
- Low noise emission.
- Maximum thrust.
- Easy and fast to install due to low weight (aluminium construction).
- Direct driven, axial.
- Optional 100 % reversible (types IVAD R).

Casing
Duct casing made from corrosion-resistant aluminium with motor support and ceiling suspension. Aerodynamically shaped inlet with guard, outlet nozzle with adjustable guide vane. Reversible types with adjustable guide vanes on both sides (to be considered for total length).

Impeller
High-performance impeller for unidirectional and reversible operation. Dynamically balanced, quality class 6.3. With flow-optimised blades made from corrosion-resistant aluminium alloy, adjustable in standstill.

Motor
Direct via efficient IE 3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55.

Motor protection
All types are equipped with PTC resistors from the terminal boxes. Thus, efficient motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).

Noise insulation
Polygon attenuators mounted on both sides, whose aluminium casings are fully lined with abrasion-resistant mineral wool and galvanised perforated plate according to DIN 4102 (non-flammable).

Installation
With integrated mounting rails as standard, which are fixed directly to the ceiling using plugs (Accessories, on-site) at four fixing points.
In order to prevent vibration transmission, the use of anti-vibration mounts is recommended (SDZ, Accessories, see table).

Electrical connection
Plastic terminal box (protection class IP55) as standard, outside on casing.

Assembly
The Federal, State and regional regulations and ordinances must be observed for the assembly.

Accessories
Anti-vibration mounts for tensile loading (1 set = 4 pcs.)

SDZ 1 and 2

Information	Page
Techn. description	134 f.
Accessory details	**Page**
Anti-vibration mounts	153
Gas warning systems	158 f.

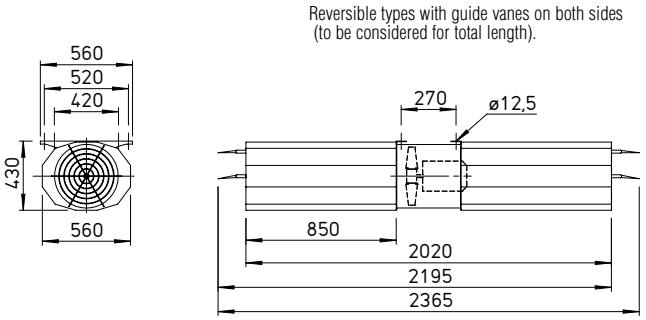
Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Reversible	Sound pressure level[1] L_{PA}	Nominal motor power (output)	Nominal motor current		Wiring diagram	Max. air flow temperature	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.)	
									Operation	Start-up				Type	Ref. no.
		N	m/s	V̇ m³/h	min⁻¹		dB(A)	kW	A	A	No.	+ °C	kg		
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**															
IVAD 400/2 R	04108	62	20.2	9200	2890	Yes	67	2.20	4.3	32.7	796	60	59	**SDZ 1**	01454
IVAD 400/2	04116	67	21.1	9600	2890	No	66	2.20	4.3	32.7	796	60	59	**SDZ 1**	01454
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
IVAD 400/4/2 R	04107	15/60	9.9/20.7	4500/9000	1380/2855	Yes	43/66	0.65/2.50	1.9/5.0	10.2/39.4	777	60	73	**SDZ 2**	01455
IVAD 400/4/2	04115	17/65	10.4/20.7	4700/9400	1380/2855	No	44/65	0.65/2.50	1.9/5.0	10.7/37.6	777	60	73	**SDZ 2**	01455

[1] measured in freefield conditions below 45°, at distance of 3 m

B IVAD 400 F300/F400

F300 F400

Dimensions B IVAD 400 F300/F400



Dim. in mm

High-quality, high-performance jet fans with optimal dimensions for minimum space requirement. Suitable for supply and extract ventilation of car parks. Temperature range optional 300 °C/120 min. or 400 °C/ 120 min. (in smoke extraction operation) or 60 °C in permanent operation.

Special features

- Low noise emission.
- Maximum thrust.
- Easy and fast to install due to low weight (aluminium construction).
- Direct driven, axial.
- Optional 100% reversible (types B IVAD R).

Casing

Duct casing made from corrosion-resistant aluminium with motor support and ceiling suspension.
Aerodynamically shaped inlet with guard, outlet nozzle with adjustable guide vane.
eversible types with adjustable guide vanes on both sides (to be considered for total length).

Impeller

High-performance impeller for unidirectional and reversible operation. Dynamically balanced, quality class 6.3. With flow-optimised blades made from corrosion-resistant aluminium alloy, adjustable in standstill.

Motor

Direct via efficient IE 3 three phase motor. Pole-switching fans with IEC standard motor. Protection class IP55 and temperature-resistant design.

Motor protection

All types are equipped with PTC resistors from the terminal boxes. Thus, efficient motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).
For the smoke extraction function, all full motor protection devices and speed controllers (FU) for the smoke extraction fan must be bridged to achieve the required output and max. operating duration.

Noise insulation

Polygon attenuators mounted on both sides, whose aluminium casings are fully lined with abrasion-resistant mineral wool and galvanised perforated plate according to DIN 4102 (non-flammable).

Installation

With integrated mounting rails as standard, which are fixed directly to the ceiling using temperature-resistant plugs (Accessories, on-site) at four fixing points.
In order to prevent vibration transmission, the use of anti-vibration mounts is recommended (SDZ, Accessories, see table).

Electrical connection

Aluminium die-cast terminal box (protection class IP55) as standard, outside on casing.
On-site cabling with temperature-resistant connection cable.

Certification

- Structural tolerances according to DIN 2768
  Performance measurement according to DIN 24163
- The jet fans B IVAD have been tested according to DIN EN 12101-3.
  EC certificate of compliance:
  F300: 0036 CPD RG05 10
  F400: 0036 CPD RG05 11

Information	Page
Techn. description	134 f.
Accessory details	**Page**
Anti-vibration mounts	153
Gas warning systems	158 f.

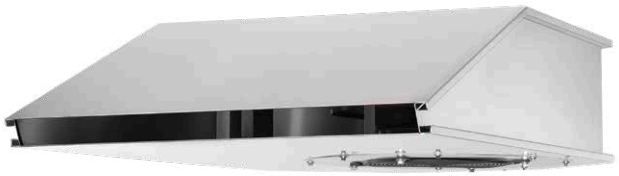
Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Reversible	Sound pressure level[1] L_{PA}	Nominal motor power (output)	Nominal motor current Operation	Nominal motor current Start-up	Wiring diagram	Max. air flow temperature	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.) Type	Anti-vibration mount (1 set = 4 pcs.) Ref. no.
		N	m/s	V̇ m³/h	min⁻¹		dB(A)	kW	A	A	No.	+ °C	kg	Type	Ref. no.
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B IVAD 400/2 R F300	04124	60	19.9	9000	2865	Yes	66	2.20	4.4	33.2	776	60/300	62	**SDZ 1 F**	01943
B IVAD 400/2 F300	04132	65	20.7	9400	2865	No	65	2.20	4.4	33.2	776	60/300	62	**SDZ 1 F**	01943
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B IVAD 400/4/2 R F300	04123	15/60	9.9/19.9	4500/9000	1420/2845	Yes	44/65	0.50/2.20	1.5/4.6	5.4/31.5	777	60/300	62	**SDZ 1 F**	01943
B IVAD 400/4/2 F300	04131	17/65	10.4/20.8	4700/9400	1420/2845	No	44/66	0.50/2.20	1.5/4.6	5.4/31.5	777	60/300	62	**SDZ 1 F**	01943
F400 **Three phase motor, 400 V, 50 Hz, protection class IP55**															
B IVAD 400/2 R F400	04140	60	19.9	9000	2865	Yes	66	2.20	4.43	33.2	776	60/400	63	**SDZ 1 F**	01943
B IVAD 400/2 F400	04148	65	20.7	9400	2865	No	65	2.20	4.43	33.2	776	60/400	63	**SDZ 1 F**	01943
F400 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**															
B IVAD 400/4/2 R F400	04139	15/60	9.9/19.9	4500/9000	1420/2845	Yes	43/66	0.50/2.20	1.5/4.6	5.4/27.8	777	60/400	63	**SDZ 1 F**	01943
B IVAD 400/4/2 F400	04147	17/65	10.4/20.7	4700/9400	1420/2845	No	42/65	0.50/2.20	1.5/4.6	5.4/27.8	777	60/400	63	**SDZ 1 F**	01943

[1] measured in freefield conditions below 45°, at distance of 3 m

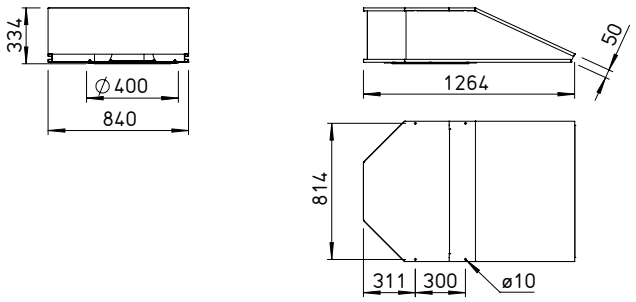
2) For ventilation / smoke extraction (one-off 120 min.)

Centrifugal Jet Fans IVRW EC
ø 400 mm

IVRW EC 400



Dimensions IVRW EC 400



Dim. in mm

High-quality, powerful jet fans with optimal dimensions for the smallest space requirements. Latest EC technology for economical ventilation solutions in garages and commercial applications. Suitable for supply and extract ventilation with air flow temperatures of up to 40 °C.

Special features
- Low noise emission.
- Highly efficient motor with EC technology.
- Variable control via 0 – 10 Volt signal.
- Maximum thrust.
- Aluminium casing in lightweight construction for high efficiency level.
- Quick and easy to install due to low weight.
- Centrifugal impeller powered directly from EC external rotor motor.
- Alternating current version.

Casing
Casing made of corrosion-resistant aluminium in compact design. Aerodynamically designed inlet nozzle.

Impeller
High-performance centrifugal impeller with backward curved blades. Dynamically balanced, quality class 6.3.

Drive
Highly efficient EC motor. In alternating current version (IVRW). Protection category IP54.

Motor protection
The integrated motor protection is fed to the casing terminal box for evaluation (250 V~/2 A). The fault signal is fed to the terminals. This allows effective motor protection.

Installation
With integrated mounting holes in the casing seam as standard for easy mounting to four attachment points directly on the ceiling (on-site mounting material). The use of anti-vibration mounts are recommended to prevent vibration transmission (SDZ, Accessories).

Electrical connection
Standard terminal box made of plastic (protection category IP55), outside on casing.

Installation
The Federal, state and regional rules and regulations must be observed for installation.

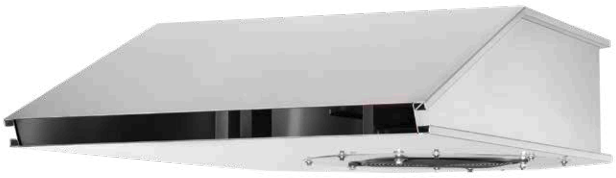
Accessories
Anti-vibration mounts for tensile loading (1 set = 4 pcs.)

SDZ 1

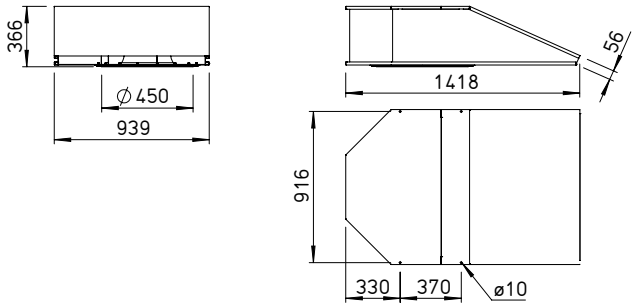
Information	Page
Techn. description	134 f.
Accessory details	**Page**
Anti-vibration mounts	153

Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Sound pressure level [1] L_{PA}	Nominal motor power (output)	Nominal motor current	Wiring diagram	Max. air flow temperature	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.)	
		N	m/s	V̇ m³/h	min⁻¹	dB(A)	kW	A	No.	+ °C	kg	**Type**	Ref. no.
40° **Alternating current, 230 V, 50/60 Hz, protection category IP54**													
IVRW EC 400	09802	50	33.0	4700	1950	64	1.3	6.40	1300	40	28	**SDZ 1**	01454

IVRD EC 450



Dimensions IVRD EC 450



Dim. in mm

High-quality, powerful jet fans with optimal dimensions for the smallest space requirements. Latest EC technology for economical ventilation solutions in garages and commercial applications. Suitable for supply and extract ventilation with air flow temperatures of up to 40 °C.

Special features
- Low noise emission.
- Highly efficient motor with EC technology.
- Variable control via 0 – 10 Volt signal.
- Maximum thrust.
- Aluminium casing in lightweight construction for top efficiency level.
- Quick and easy to install due to low weight.
- Centrifugal impeller powered directly from EC external rotor motor.
- Three-phase current version.

Casing
Casing made of corrosion-resistant aluminium in compact design. Aerodynamically designed inlet nozzle.

Impeller
High-performance centrifugal impeller with backward curved blades. Dynamically balanced, quality class 6.3.

Drive
Highly efficient EC motor. In three-phase current version (IVRD). Protection category IP54.

Motor protection
The integrated motor protection is fed to the casing terminal box for evaluation (250 V~/2 A). The fault signal is fed to the terminals. This allows effective motor protection.

Installation
With integrated mounting holes in the casing seam as standard for easy mounting to four attachment points directly on the ceiling (on-site mounting material). The use of anti-vibration mounts are recommended to prevent vibration transmission (SDZ, Accessories).

Electrical connection
Standard terminal box made of plastic (protection category IP55), outside on casing.

Installation
The Federal, state and regional rules and regulations must be observed for installation.

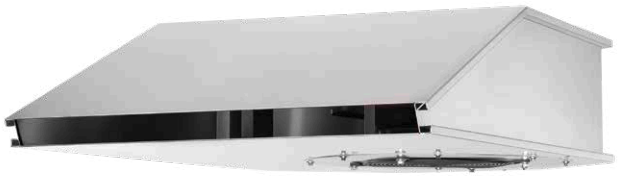
Accessories
Anti-vibration mounts for tensile loading (1 set = 4 pcs.)

SDZ 1

Information	Page
Techn. description	134 f.
Accessory details	**Page**
Anti-vibration mounts	153

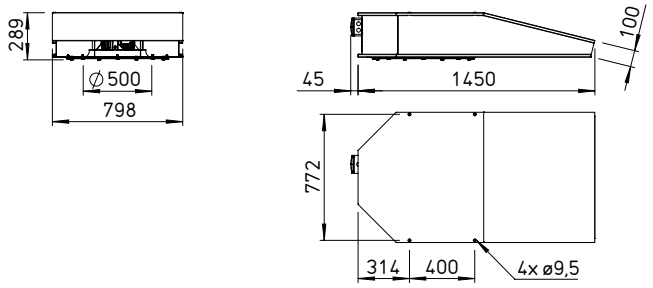
Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Sound pressure level [1] L_{PA}	Nominal motor power (output)	Nominal motor current	Wiring diagram	Max. air flow temperature	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.)	
		N	m/s	V̇ m³/h	min⁻¹	dB(A)	kW	A	No.	+ °C	kg	**Type**	Ref. no.
40° **Three-phase current, 400 V, 50/60 Hz, protection category IP54**													
IVRD EC 450	09803	75	36.0	6300	1800	68	1.8	2.90	1299	40	33	**SDZ 1**	01454

IVRD 500



60 °C

Dimensions IVRD 500



Dim. in mm

High-quality, high-performance jet fans with optimal dimensions for minimum space requirement. Suitable for supply and extract ventilation of car parks with air flow temperatures up to 60 °C.

Special features
- Low noise emission.
- Maximum thrust.
- Easy and fast to install due to low weight (aluminium construction).
- Direct driven, centrifugal.

Casing
Casing made from corrosion-resistant aluminium in compact design.
Aerodynamically shaped inlet nozzle. Permanent optimal surface protection through steel powder coating.

Impeller
High-performance centrifugal impeller with welded, backward curved blades. Dynamically balanced, quality class 6.3.

Motor
IEC three phase standard motor in protection class IP55.

Motor protection
All types are equipped with PTC resistors from the terminal boxes.
Thus, efficient motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).

Installation
With integrated mounting brackets as standard, which are fixed directly to the ceiling using plugs (Accessories, on-site) at four fixing points.
In order to prevent vibration transmission, the use of anti-vibration mounts is recommended (SDZ, Accessories, see table).

Electrical connection
Plastic terminal box (protection class IP55) as standard, outside on casing.

Assembly
The Federal, State and regional regulations and ordinances must be observed for the assembly.

Accessories
Anti-vibration mounts for tensile loading (1 set = 4 pcs.)

SDZ 2

Information	Page
Techn. description	134 f.
Accessory details	**Page**
Anti-vibration mounts	153
Gas warning systems	158 f.

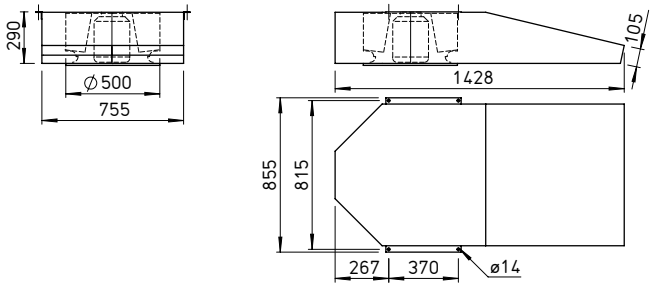
Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Sound pressure level [1] L_{PA}	Nominal motor power (output)	Nominal motor current		Wiring diagram	Max. air flow temperature [2]	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.)	
								Operation	Start-up					
		N	m/s	V̇ m³/h	min⁻¹	dB(A)	kW	A	A	No.	+ °C	kg	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**														
IVRD 500/4	04149	42	21.0	6100	1440	73	1.50	3.3	20.5	776	60	63	**SDZ 2**	01455
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**														
IVRD 500/8/4	04150	11/42	10.5/21.0	3000/6000	700/1420	55/73	0.40/1.60	1.7/3.8	5.4/21.7	777	60	61	**SDZ 2**	01455

[1] measured in freefield conditions below 45°, at distance of 3 m

B IVRD 500 F300

F300

Dimensions B IVRD 500 F300



Dim. in mm

High-quality, high-performance jet fans with optimal dimensions for minimum space requirement. Suitable for supply and extract ventilation of car parks. Temperature range 300 °C/120 min. (in smoke extraction operation) or 60 °C in permanent operation.

Special features

- ☐ Low noise emission.
- ☐ Maximum thrust.
- ☐ Easy and fast to install due to low weight (aluminium construction).
- ☐ Direct driven, centrifugal.

Casing

Casing made from corrosion-resistant aluminium in compact design.
Aerodynamically shaped inlet nozzle. Permanent optimal surface protection through steel powder coating.

Impeller

High-performance centrifugal impeller with welded, backward curved blades. Dynamically balanced, quality class 6.3.

Motor

IEC three phase standard motor in temperature-resistant design, protection class IP55.

Motor protection

All types are equipped with PTC resistors from the terminal boxes. Thus, efficient motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).
For the smoke extraction function, all full motor protection devices and speed controllers (FU) for the smoke extraction fan must be bridged to achieve the required output and max. operating duration.

Installation

With integrated mounting brackets as standard, which are fixed directly to the ceiling using plugs (Accessories, on-site) at four fixing points.
In order to prevent vibration transmission, the use of anti-vibration mounts is recommended (SDZ, Accessories, see table).

Electrical connection

Aluminium die-cast terminal box (protection class IP55) as standard, outside on casing.
On-site cabling with temperature-resistant connection cable

Assembly

The Federal, State and regional regulations and ordinances must be observed for the assembly.

Certification

- Structural tolerances according to DIN 2768
- Performance measurement according to DIN 24163
- The jet fans B IVRD have been tested according to DIN EN 12101-3.
  EC certificate of compliance: F300: 0036 CPD RG05 12

Accessories

Anti-vibration mounts for tensile loading (1 set = 4 pcs.)

SDZ 1 F

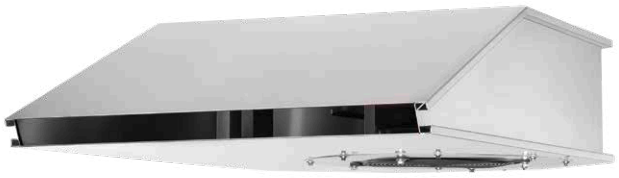
Information	Page
Techn. description	134 f.
Accessory details	**Page**
Anti-vibration mounts	153
Gas warning systems	158 f.

Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Sound pressure level [1] L_{PA}	Nominal motor power (output)	Nominal motor current: Operation	Nominal motor current: Start-up	Wiring diagram	Max. air flow temperature [2]	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.): Type	Anti-vibration mount (1 set = 4 pcs.): Ref. no.
		N	m/s	V̇ m³/h	min⁻¹	dB(A)	kW	A	A	No.	+ °C	kg	**Type**	Ref. no.
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**														
B IVRD 500/4 F300	04155	42	21.0	6100	1420	73	1.50	3.3	20.5	776	60/300	63	**SDZ 1 F**	01943
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**														
B IVRD 500/8/4 F300	04156	11/42	10.5/21.0	3000/6000	700/1420	55/73	0.40/1.60	1.7/3.8	5.4/21.7	777	60/300	63	**SDZ 1 F**	01943

[1] measured in freefield conditions below 45°, at distance of 3 m

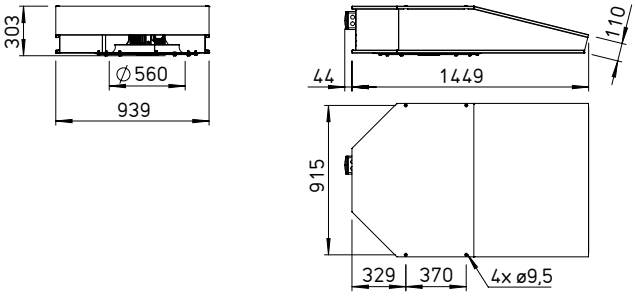
[2] For ventilation / smoke extraction (one-off 120 min.)

IVRD 560



60 °C

Dimensions IVRD 560



Dim. in mm

High-quality, high-performance jet fans with optimal dimensions for minimum space requirement. Suitable for supply and extract ventilation of car parks with air flow temperatures up to 60 °C.

Special features
- Low noise emission.
- Maximum thrust.
- Easy and fast to install due to low weight (aluminium construction).
- Direct driven, centrifugal.

Casing
Casing made from corrosion-resistant aluminium in compact design.
Aerodynamically shaped inlet nozzle. Permanent optimal surface protection through steel powder coating.

Impeller
High-performance centrifugal impeller with welded, backward curved blades. Dynamically balanced, quality class 6.3.

Motor
IEC three phase standard motor in protection class IP55.

Motor protection
All types are equipped with PTC resistors from the terminal boxes.
Thus, efficient motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).

Installation
With integrated mounting brackets as standard, which are fixed directly to the ceiling using plugs (Accessories, on-site) at four fixing points.
In order to prevent vibration transmission, the use of anti-vibration mounts is recommended (SDZ, Accessories, see table).

Electrical connection
Plastic terminal box (protection class IP55) as standard, outside on casing.

Assembly
The Federal, State and regional regulations and ordinances must be observed for the assembly.

Accessories
Anti-vibration mounts for tensile loading (1 set = 4 pcs.)

SDZ 2

Information	Page
Techn. description	134 f.
Accessory details	**Page**
Anti-vibration mounts	153
Gas warning systems	158 f.

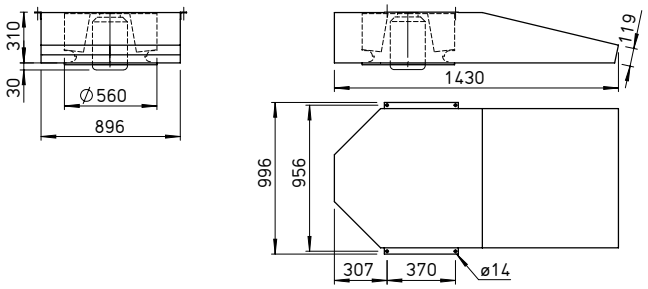
Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Sound pressure level [1] L_{PA}	Nominal motor power (output)	Nominal motor current		Wiring diagram	Max. air flow temperature [2]	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.)	
								Operation	Start-up					
		N	m/s	V̇ m³/h	min⁻¹	dB(A)	kW	A	A	No.	+ °C	kg	Type	Ref. no.
60° **Three phase motor, 400 V, 50 Hz, protection class IP55**														
IVRD 560/4	04153	75	25.2	8900	1420	77	2.20	4.6	34.0	776	60	71	**SDZ 2**	01455
60° **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**														
IVRD 560/8/4	04154	19/75	25.2/12.5	4500/8900	700/1420	77/58	0.50/2.20	2.0/5.0	7.1/30.7	777	60	72	**SDZ 2**	01455

[1] measured in freefield conditions below 45°, at distance of 3 m

B IVRD 560 F300

F300

Dimensions B IVRD 560 F300



Dim. in mm

High-quality, high-performance jet fans with optimal dimensions for minimum space requirement. Suitable for supply and extract ventilation of car parks. Temperature range 300 °C/120 min. (in smoke extraction operation) or 60 °C in permanent operation.

Special features
- ☐ Low noise emission.
- ☐ Maximum thrust.
- ☐ Easy and fast to install due to low weight (aluminium construction).
- ☐ Direct driven, centrifugal.

Casing
Casing made from corrosion-resistant aluminium in compact design.
Aerodynamically shaped inlet nozzle. Permanent optimal surface protection through steel powder coating.

Impeller
High-performance centrifugal impeller with welded, backward curved blades. Dynamically balanced, quality class 6.3.

Motor
IEC three phase standard motor in temperature-resistant design, protection class IP55.

Motor protection
All types are equipped with PTC resistors from the terminal boxes. Thus, efficient motor protection is possible by means of full motor protection device (type MSA, Ref. no. 01289, Accessories) or FU (Accessories).
For the smoke extraction function, all full motor protection devices and speed controllers (FU) for the smoke extraction fan must be bridged to achieve the required output and max. operating duration.

Installation
With integrated mounting brackets as standard, which are fixed directly to the ceiling using plugs (Accessories, on-site) at four fixing points.
In order to prevent vibration transmission, the use of anti-vibration mounts is recommended (SDZ, Accessories, see table).

Electrical connection
Aluminium die-cast terminal box (protection class IP55) as standard, outside on casing.
On-site cabling with temperature-resistant connection cable.

Assembly
The Federal, State and regional regulations and ordinances must be observed for the assembly.

Certification
- Structural tolerances according to DIN 2768
- Performance measurement according to DIN 24163
- The jet fans B IVRD have been tested according to DIN EN 12101-3.
  EC certificate of compliance: F300: 0036 CPD RG05 12

Accessories
Anti-vibration mounts for tensile loading (1 set = 4 pcs.)

SDZ 1 F

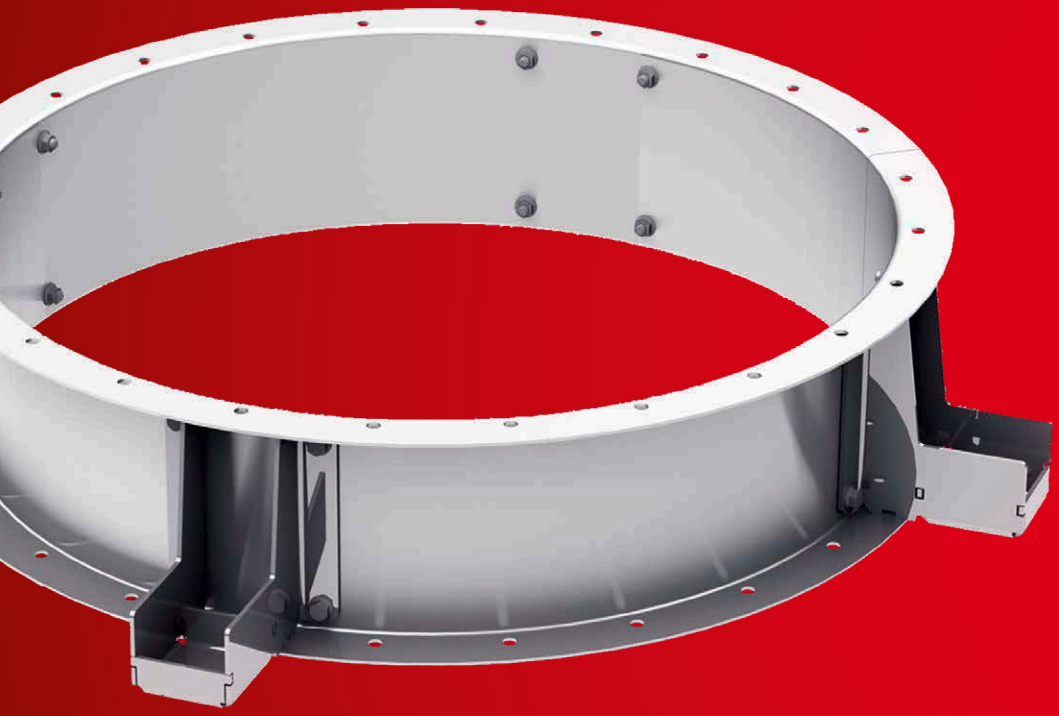
Information	Page
Techn. description	134 f.
Accessory details	**Page**
Anti-vibration mounts	153
Gas warning systems	158 f.

Type	Ref. no.	Thrust	Discharge speed	Max. output	Nominal speed	Sound pressure level [1] L_{PA}	Nominal motor power (output)	Nominal motor current: Operation	Nominal motor current: Start-up	Wiring diagram	Max. air flow temperature [2]	Net weight approx.	Anti-vibration mount (1 set = 4 pcs.): Type	Anti-vibration mount (1 set = 4 pcs.): Ref. no.
		N	m/s	V̇ m³/h	min⁻¹	dB(A)	kW	A	A	No.	+ °C	kg	**Type**	Ref. no.
F300 **Three phase motor, 400 V, 50 Hz, protection class IP55**														
B IVRD 560/4 F300	04159	75	25.2	8900	1410	77	2.20	5.2	34.0	776	60/300	70	**SDZ 1 F**	01943
F300 **Pole-switching, 2 speed, three phase motor, Dahlander winding Y/YY, 400 V, 50 Hz, protection class IP55**														
B IVRD 560/8/4 F300	04160	19/75	25.2/12.5	4500/8900	700/1420	77/58	0.50/2.20	2.0/5.0	7.1/30.7	777	60/300	72	**SDZ 1 F**	01943

[1] measured in freefield conditions below 45°, at distance of 3 m

[2] For ventilation / smoke extraction (one-off 120 min.)

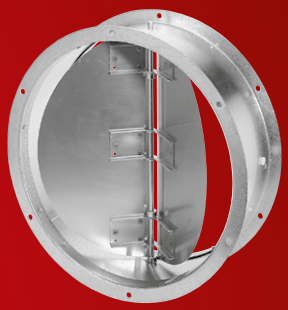
Tailored system components for your individual requirements.



Whatever you need for installation and line connection, at Helios you will not only find the fans, but also the matching system components. From the mounting ring to the vertical fan mounting and the automatic backdraught shutter through to the vibration dampers.

This means there are no mishaps during installation. Expensive adaptations through elaborate, handcrafted constructions are no longer necessary. The installation times are reduced. Helios always focuses on integrated complete solutions with accessories that are perfectly tailored to the fans. In addition to the special mounting accessories for smoke exhaust fans, you will find other system components on the following pages.

40 °C F300 F400 F600



Centrifugal cooling air fans

Centrifugal cooling air fan B KLG for additional motor ventilation for smoke exhaust fans (**B AVD** and **B VAR**) in temperature class F600.

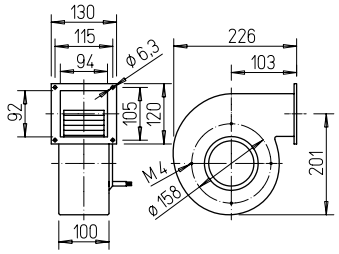
150f

Mechanical mounting accessories

- Inlet nozzle with protection grille ASD-SGD
- Protection grille SG
- Duct shutter RVS
- Extension duct VR
- Flexible connector STSB
- Mounting bracket MK
- Flat roof base B FDS
- Base silencer for flat roof base B SSD
- Hood silencer B HSDV
- Vibration dampers
- Counter flange and flat flange
- Connector VSB
- Diffusor DIF
- Deflector B DEF
- Mounting ring MRV
- Silencer RSD
- Mounting kits MP-P / MP-Z

151f

B KLG 500



All dimensions in mm

40 °C

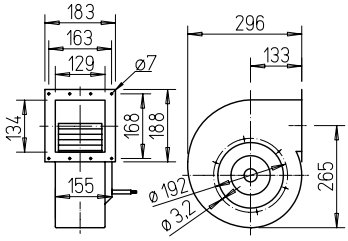
Centrifugal cooling air fan
with separately fitted thermal contact and inlet-side protection grille for smoke exhaust fans F600 for motor ventilation.

A flow monitor (Accessories, type SWE, Ref. no. 00065) is required for monitoring the motor cooling during ventilation.

Technical data

Type B KLG 500	Ref. no. 02798
Protection category	IP44
Voltage	230 V
Frequency	50 Hz
Current	0.7 A
Output	160 W
Max. ambient temperature	40 °C
Speed	2400 1/min
Volume flow	500 m³/h

B KLG 1000



All dimensions in mm

40 °C

Centrifugal cooling air fan
for smoke exhaust fans and inlet-side protection grille F600 for motor ventilation.

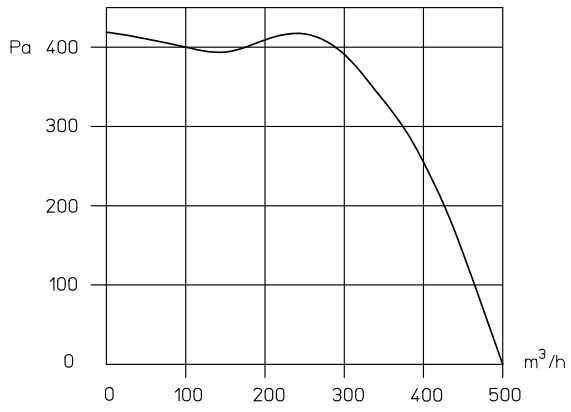
A flow monitor (Accessories, type SWE, Ref. no. 00065) is required for monitoring the motor cooling during ventilation.

Technical data

Type B KLG 1000	Ref. no. 02799
Protection category	IP44
Voltage	400 V
Frequency	50 Hz
Current	0,39 A
Output	175 W
Max. ambient temperature	40 °C
Speed	1330 1/min
Volume flow	1030 m³/h

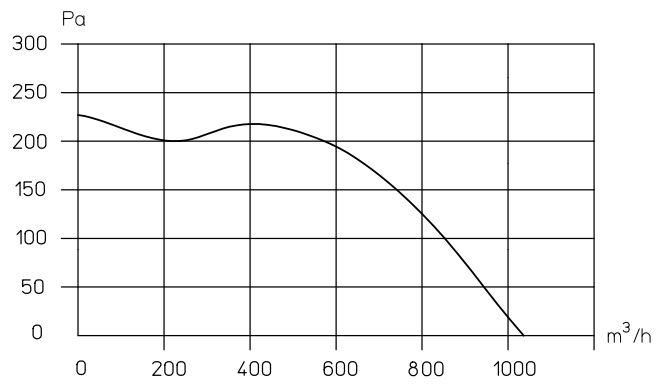
Performance curves B KLG 500

n=2400 1/min



Performance curves B KLG 1000

n=1330 1/min



Selection table – Cooling air volume for B VAR..

Type	Fan	Cool. air vol.	Quant.	B VAR casing	still available
B VAR	B KLG	required, V̇ [m³/h]	Pc	[Pa][1]	Dpex [Pa][2]
500	500	250	1	95	314
560	500	340	1	175	187
630	1000	445	1	80	129
710	1000	565	1	125	73
800	500	700	2	190	160
900	1000	850	2	70	140
1000	1000	1000	2	100	106
1120	–	–	–	–	–
1250	–	–	–	–	–

Cooling air temp. max. 40 °C
[1] Resistance in fan/cooling system
[2] Available pressure at cooling air fan outlet

Selection table – Cooling air volume for B AVD..

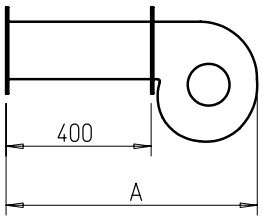
Type	Fan	Cool. air vol.	Quant.	B VAR casing	still available
B AVD	B KLG	required, V̇ [m³/h]	Pc	[Pa][1]	Dpex [Pa][2]
500	500	250	1	95	314
560	500	280	1	115	290
630	500	315	1	235	235
710	500	355	1	190	155
800	500	400	1	65	207
900	1000	450	1	80	129
1000	1000	500	1	100	106
1120	1000	875	2	75	135
1250	1000	1250	2	155	31

Cooling air temp. max. 40 °C
[1] Resistance in fan/cooling system
[2] Available pressure at cooling air fan outlet

Selection table – Cooling air fan B KLG.. for B VAR and B AVD

Type	Ø F600	B AVD dim. A	B AVD dim. A
B KLG 500	500	626	626
	560	626	626
	630	626	696
	710	626	696
	800	626	696
B KLG 1000	900	696	696
	1000	696	696
	1120	696	–
	1250	696	–

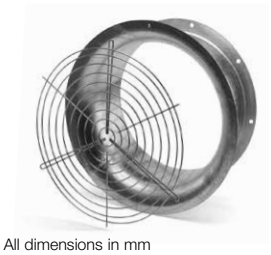
B KLG..

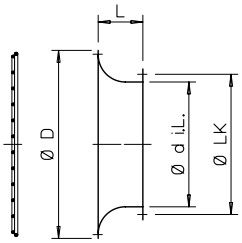


All dimensions in mm

Assignment, see adjacent table.

ASD-SGD





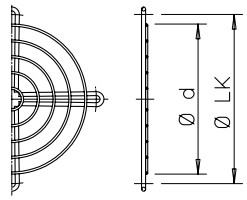
40 °C F300 F400 F600

All dimensions in mm

Inlet nozzle with protection grille and large entry radius. Made of steel sheet pressed, hot-dip galvanised. With flange on connection side according to DIN 24155, p. 2. Powder-coated protection grille for inlet side coverage (galvanised from Ø 800) in accordance with DIN EN ISO 13857.

Type	Ref. no.	Ø D	L	Ø d i.L.	Ø LK	Weight approx. kg
ASD-SGD 280	01415	400	140	280	322	3.2
ASD-SGD 315	01416	435	140	315	356	3.5
ASD-SGD 355	01417	475	140	355	395	4.0
ASD-SGD 400	01418	545	140	400	438	4.5
ASD-SGD 450	01419	595	140	450	487	5.7
ASD-SGD 500	01420	625	140	500	541	6.3
ASD-SGD 560	01421	745	130	560	605	7.0
ASD-SGD 630	01422	815	200	630	674	7.6
ASD-SGD 710	01423	955	200	710	751	19.5
ASD-SGD 800	01424	1060	200	800	837	22.3
ASD-SGD 900	01309	1140	200	900	934	25.0
ASD-SGD 1000	01310	1240	200	1000	1043	28.5
ASD-SGD 1120	01910	1360	200	1120	1174	39.0
ASD-SGD 1250	01911	1490	200	1250	1311	45.0

SG



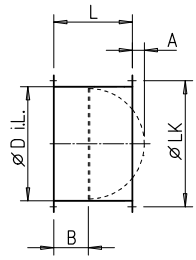
40 °C F300 F400 F600

All dimensions in mm

Protection grille SG for outlet-side coverage. Powder-coated, Colour: metallic silver (galvanised from Ø 800). Dimensions and fastening lugs tailored to fan flange tube NG DIN 24155, pt. 2. according to DIN EN ISO 13857.

Type	Ref. no.	Ø D	Ø LK	Weight approx. kg	Number of fixing points
SG 280	01428	270	322	0.3	4
SG 315	01237	310	356	0.4	4
SG 355	01238	350	395	0.4	4
SG 400	01239	390	438	0.5	3
SG 450	01240	450	487	0.6	3
SG 500	01241	490	541	0.7	3
SG 560	01242	550	605	0.9	4
SG 630	01243	630	674	1.5	4
SG 710	01244	710	751	1.8	4
SG 800	01245	790	837	2.2	4
SG 900	01246	890	934	2.7	4
SG 1000	01290	990	1034	3.5	4
SG 1120	01361	1140	1147	6.5	4
SG 1250	01914	1270	1311	8.0	4

RVS



40 °C F300 F400 F600

All dimensions in mm

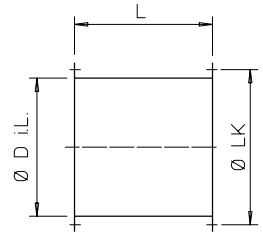
Automatic duct shutter with spring return[1] Can be installed horizontally in any direction, vertically with throughflow from bottom to top. Shutter opening in flow direction; automatic function through fan operation. Spring mechanism outside of air flow. Locking force depends on fan power and installation position can be changed. Shutter and casing made of galvanised steel sheet, shutter made of aluminium for nominal size 225 – 560 mm. Double-sided flange. Holes pursuant to DIN 24155, p. 2.

Type[2]	Ref. no.	Ø D i.L.	L	A	B	Ø LK	Weight approx. kg
RVS 280	02593	280	300	–	160	322	3.9
RVS 315	02594	315	300	–	160	356	4.3
RVS 355	02595	355	300	–	160	395	5.0
RVS 400	02596	400	330	–	190	438	7.2
RVS 450	02597	454	330	10	190	487	10.4
RVS 500	02598	504	330	40	120	541	11.7
RVS 560	02599	560	330	65	120	605	16.1
RVS 630	02600	630	400	115	200	674	19.5
RVS 710	02601	710	400	155	200	751	26.5
RVS 800	02602	800	420	200	210	837	37.3
RVS 900	02603	900	420	250	210	934	41.8
RVS 1000	02604	1000	420	300	210	1043	47.3
RVS 1120	02605	1120	420	335	210	1174	54.1
RVS 1250	02606	1250	570	250	210	1311	75.0

[1] Pressure loss diagram and motorised version RVM for ventilation (cold operation 40 °C) see Helios main catalogue

[2] Ambient temperature -30 to +100 °C

VR



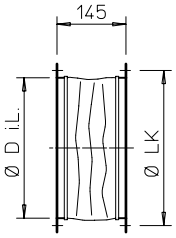
40 °C F300 F400 F600

All dimensions in mm

Extension duct VR Pipe section with double-sided flanges and holes according to DIN 24155, p. 2. Made of hot-dip galvanised steel sheet for the extension of the fan shaft. For types with protruding motor, for installation in pipeline. Prevents power losses in case of free outlet.

Type	Ref. no.	Ø D i.L.	L	Ø LK	Weight approx. kg
VR 280	01403	280	300	322	3.2
VR 315	01404	315	300	356	3.5
VR 355	01405	355	300	395	4.0
VR 400	01406	400	330	438	6.0
VR 450	01407	454	330	487	9.0
VR 500	01408	504	330	541	10.0
VR 560	01409	560	500	605	14.0
VR 630	01410	630	500	674	15.5
VR 710	01411	710	500	751	21.5
VR 800	01412	800	420	837	31.0
VR 900	01311	900	420	934	34.0
VR 1000	01312	1000	420	1043	37.6
VR 1120	01932	1120	420	1174	42.1
VR 1250	01933	1250	570	1311	60.0

STSB



All dimensions in mm

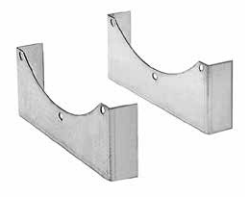
40 °C F300 F400 F600

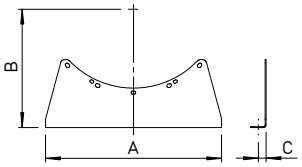
Flanged flexible connector STSB
Flexible connector for installation between the fan and duct system. Prevents structure-borne noise transmission, bridges mounting tolerances.

Elastic sleeve made of glass fibre (max. +600 °C). With galvanised angle flange rings on both sides or flat flanges for F400 and F600. Dimensions according to DIN 24155 pt. 3. (See table for permissible temperature & operating point).

Type	Ref. no.	Type	Ref. no.	NG mm	Ø D i.L.	Ø LK	Weight approx. kg
40 °C STS		F400 STSB F400					
STS 280	01231	STSB 280 F400	14739	280	288	322	1.5
STS 315	01221	STSB 315 F400	14738	315	322	356	1.8
STS 355	01222	STSB 355 F400	14744	355	361	395	2.3
STS 400	01223	STSB 400 F400	14743	400	404	438	2.5
STS 450	01224	STSB 450 F400	14742	450	453	487	3.8
STS 500	01225	STSB 500 F400	01915	500	507	541	3.4
STS 560	01226	STSB 560 F400	01916	560	570	605	4.5
STS 630	01228	STSB 630 F400	01917	630	638	674	4.6
STS 710	01229	STSB 710 F400	01918	710	711	751	7.0
STS 800	01233	STSB 800 F400	01919	800	801	837	7.5
STS 900	01234	STSB 900 F400	01920	900	898	934	7.5
STS 1000	01235	STSB 1000 F400	01921	1000	1004	1043	15.0
STS 1120	05806	STSB 1120 F400	01922	1120	1120	1174	16.5
STS 1250	09523	STSB 1250 F400	01923	1250	1250	1311	19.0
F600 STSB F600							
STSB 315 F600	01940			315	322	356	2.5
STSB 355 F600	01941			355	361	395	2.8
STSB 400 F600	01958			400	404	438	3.2
STSB 450 F600	01959			450	453	487	3.6
STSB 500 F600	02003			500	507	541	3.4
STSB 560 F600	02004			560	570	605	4.5
STSB 630 F600	02005			630	638	674	4.6
STSB 710 F600	02006			710	711	751	7.0
STSB 800 F600	02007			800	801	837	7.5
STSB 900 F600	02008			900	898	934	7.5
STSB 1000 F600	02009			1000	1004	1043	15.0
STSB 1120 F600	02010			1120	1120	1174	16.5
STSB 1250 F600	02011			1250	1250	1311	19.0

MK





All dimensions in mm

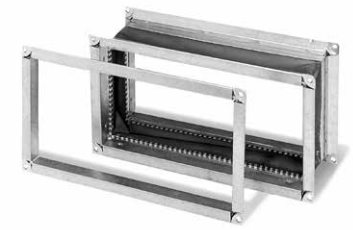
40 °C F300 F400 F600

Mounting bracket MK
For mounting the fan flange casing to the ceiling, wall or floor. Made of galvanised steel sheet (from Ø 1000) or hot-dip galvanised steel. Holes adapted to the hole circle in the fan flanges. Supplied as a pair including screws and nuts.

Note:
If motors with high weight are installed, an extension duct (VR..) must be provided to move the centre of gravity. Attach the brackets to the two external flanges.

Type	Ref. no.	A	B	C	Weight approx. kg
MK 250-280	01447	340	227/245	20	1.7
MK 315-355	01448	380	281/300	25	2.2
MK 400-450	01449	360	311/335	25	2.6
MK 500-560	01450	570	383/415	25	5.3
MK 630	01333	600	465	30	8.5
MK 710	01372	670	515	35	10.5
MK 800	01373	680	565	35	16.0
MK 900	01374	760	625	35	18.0
MK 1000	01375	840	690	35	19.5
MK 1120	01376	920	710	35	28.5
MK 1250	01912	1060	800	35	37.0

GF and VSB



F300 F400

Counter flange GFB
Galvanised steel sheet flange frame dimensionally adapted to the rectangular fans for connection to the duct.

Flexible connector VSB
With double-sided flange frame. For prevention of structure-borne sound transmission and compensation of mounting tolerances.

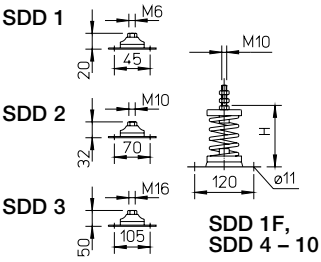
Accessories for rectangular duct smoke exhaust fans BK.. NG mm i.L.	Counter flange GFB		Flexible connector VSB	
	Type	Ref. no.	Type	Ref. no.
400 x 200	GFB 40/20	06871	VSB 40/20 F400	06844
500 x 300	GFB 50/30	06872	VSB 50/30 F400	06834
600 x 350	GFB 60/35	06873	VSB 60/35 F400	06835
700 x 400	GFB 70/40	06874	VSB 70/40 F400	06836
800 x 500	GFB 80/50	06847	VSB 80/50 F400	06838
1000 x 500	GFB 100/50	06848	VSB 100/50 F400	06839
1200 x 600	GFB 120/60	06845	VSB 120/60 F400	06842

VSB = Temperature resistance from −30 °C to +130 °C, 400 °C for 2 hours.

SDD

SDD 1–3

SDD 1F, 4 – 10



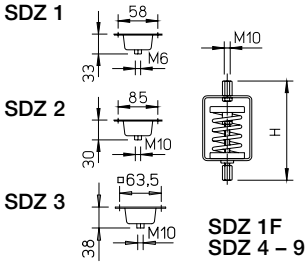
All dimensions in mm

SDZ

SDZ 1 – 2

SDZ 3
(no Fig.,
with square four-point attachment)

SDZ 1F, 4 – 9



All dimensions in mm

Vibration dampers for compression load for vibration and noise-insulating installation of fans. Delivery unit 1 set = 4 pcs.

Rubber bonded metal elements must be used for temp. up to max. +60 °C, spring-type vibration dampers must be used for temp. above +60 °C (e.g. smoke extraction).

Type	Ref. no.	Max. fan weight kg	H Height in mm	Spring-type vibr. damper	Temperature-resistance
SDD 1	01452	80	*		60 °C
SDD 2	01453	180	*		60 °C
SDD 3	01367	750	*		60 °C
SDD 1F	01942	80	112 – 87	•	600 °C
SDD 4	01944	130	112 – 87	•	600 °C
SDD 5	01924	210	112 – 86	•	600 °C
SDD 6	01926	350	112 – 85	•	600 °C
SDD 7	01928	520	112 – 85	•	600 °C
SDD 8	01930	900	112 – 82	•	600 °C
SDD 9	01934	1300	112 – 85	•	600 °C
SDD 10	01951	1800	112 – 88	•	600 °C

* specified in dimensional drawing

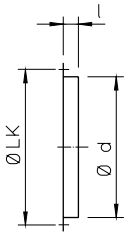
Vibration dampers for tensile load for vibration and noise-insulating fan suspension (ceiling mounting). Design like SDD series.

Important installation note
A uniform load distribution (balance centre of gravity in case of heavy motor) must be ensured during installation. Del. unit 1 set = 4 pcs.

Type	Ref. no.	Max. fan weight kg	H Height in mm	Spring-type vibr. damper	Temperature-resistance
SDZ 1	01454	60	*		60 °C
SDZ 2	01455	160	*		60 °C
SDZ 3	01366	300	*		60 °C
SDZ 1F	01943	80	190 – 215	•	400 °C
SDZ 4	01945	130	190 – 215	•	400 °C
SDZ 5	01925	210	190 – 216	•	400 °C
SDZ 6	01927	350	190 – 217	•	400 °C
SDZ 7	01929	520	190 – 217	•	400 °C
SDZ 8	01931	900	190 – 220	•	400 °C
SDZ 9	01935	1300	190 – 217	•	400 °C

* specified in dimensional drawing

FR



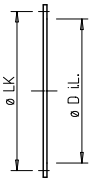
40 °C F300 F400 F600

All dimensions in mm

Counter flange FR
Angle flange ring made of galvanised steel sheet. Dimensions/ holes according to DIN 24155 pt. 2.

Type	Ref. no.	Ø LK	l	Ø d	Weight approx. kg
FR 280	01214	322	30	288	0.9
FR 315	01204	356	30	322	1.0
FR 355	01205	395	30	361	1.1
FR 400	01206	438	30	404	1.2
FR 450	01207	487	35	453	1.4
FR 500	01208	541	35	507	1.6
FR 560	01209	605	35	570	1.9
FR 630	01211	674	35	638	2.2
FR 710	01212	751	35	711	2.5
FR 800	01198	837	35	800	3.9
FR 900	01199	934	35	900	4.4
FR 1000	01210	1043	35	1000	5.2
FR 1120	01362	1174	50	1120	8.0
FR 1250	01913	1311	50	1250	9.0

FF



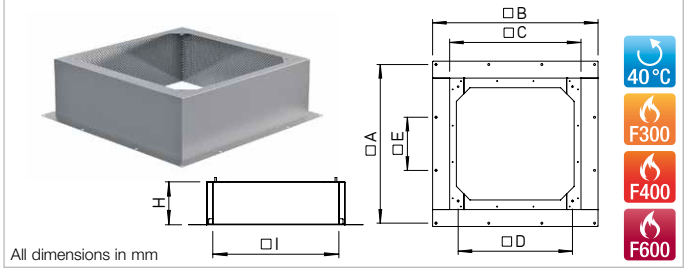
40 °C F300 F400 F600

All dimensions in mm

Flat flange FF
Flat flange ring made of galvanised steel sheet. Dimensions/ holes according to DIN 24155 pt. 2.

Type	Ref. no.	Ø LK	Ø d i.L.	Weight approx. kg
FF 280	04942	322	286	0.9
FF 315	04943	356	321	1.0
FF 355	04944	395	361	1.1
FF 400	04945	438	409	1.3
FF 450	04946	487	459	1.5
FF 500	04947	541	509	1.6
FF 560	04948	605	569	2.6
FF 630	04949	674	639	2.9
FF 710	04950	751	719	3.3
FF 800	04951	837	809	3.6
FF 900	04952	934	909	4.0
FF 1000	04953	1043	1009	4.5
FF 1120	04954	1174	1129	5.8
FF 1250	04955	1311	1259	6.4

B FDS

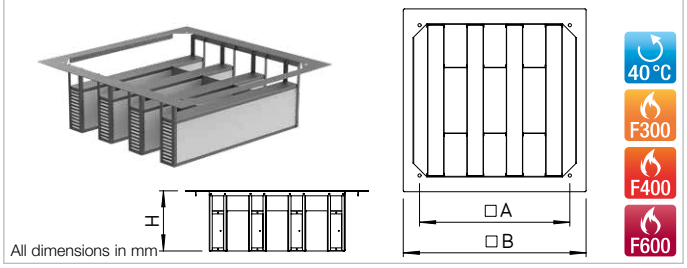


Flat roof base B FDS
For placement of smoke exhaust roof fans on flat roof. Powder-coated steel sheet design, with abrasion-resistant, sound and thermal insulation.
Suitable for smoke extraction with temperature class F400 and F600.
Available in height 300 and 500 mm, snow depth should be checked.

Installation:
Install base over ceiling opening (roof). Allow roof coating over entire adhesive edge of the base and seal with bitumen putty.

Type	Ref. no.	A	B	C	D	E	H	I
B FDS 315/300	01765	770	820	570	450	255	300	486
B FDS 315/500	01766	770	820	570	450	255	500	486
B FDS 355/300	01767	835	885	635	535	280	300	551
B FDS 355/500	01768	835	885	635	535	280	500	551
B FDS 400/300	01767	835	885	635	535	280	300	551
B FDS 400/500	01768	835	885	635	535	280	500	551
B FDS 450/300	01793	920	970	720	590	305	300	636
B FDS 450/500	01800	920	970	720	590	305	500	636
B FDS 500/300	01804	1115	1165	915	750	370	300	831
B FDS 500/500	01810	1115	1165	915	750	370	500	831
B FDS 560/300	01804	1115	1165	915	750	370	300	831
B FDS 560/500	01810	1115	1165	915	750	370	500	831
B FDS 630/300	01866	1165	1215	965	840	390	300	880
B FDS 630/500	01867	1165	1215	965	840	390	500	880
B FDS 710/300	01868	1440	1490	1240	1050	480	300	1154
B FDS 710/500	01869	1440	1490	1240	1050	480	500	1154
B FDS 800/300	01868	1440	1490	1240	1050	480	300	1154
B FDS 800/500	01869	1440	1490	1240	1050	480	500	1154
B FDS 900/300	01884	1580	1630	1380	1175	525	300	1294
B FDS 900/500	02000	1580	1630	1380	1175	525	500	1294

B SSD

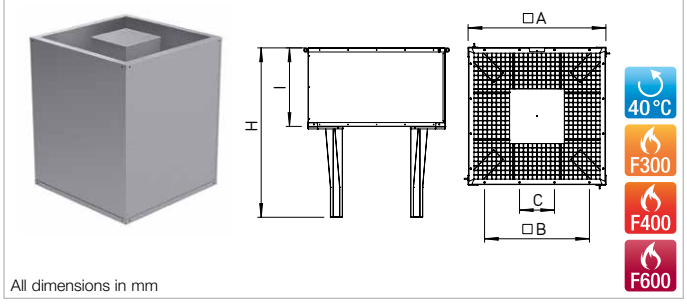


Silencer insert for flat roof base B SSD
Silencer insert with connectors for flat roof base for inlet-side noise reduction. Galvanised steel sheet design. Flat roof base B FDS with 300 or 500 mm height required. Average insulation value 9 dB.

Installation:
Insert the silencer insert in installed flat roof base from top and fix to smoke exhaust roof fan and flat roof base using screw connection. When using B SSD, inlet-side accessories cannot be installed on fan base plate. Silencer insert can be retrofitted.

Type	Ref. no.	A	B	H	max. pressure loss Pa
B SSD 315	03475	450	570	300	8
B SSD 355	03482	535	635	300	8
B SSD 400	03482	535	635	300	18
B SSD 450	03500	590	720	300	18
B SSD 500	03501	750	915	300	12
B SSD 560	03501	750	915	300	25
B SSD 630	03512	840	965	300	38
B SSD 710	03523	1050	1240	300	30
B SSD 800	03523	1050	1240	300	65
B SSD 900	03532	1175	1380	300	65

B HSDV

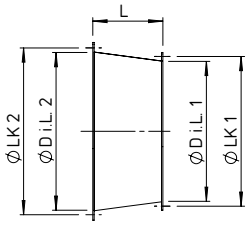


Hood silencer B HSDV
With inner core for outlet-side noise reduction. High quality aluminium design. Available for series B VD F400 and F600, nominal size 315 to 900.
Average insulation value 8 dB.

Installation:
The hood silencer is placed on the smoke exhaust roof fan and it can also be retrofitted without structural alterations. Exclusively available for series B VD F400 and F600.

Type	Ref. no.	A	B	C	H	I
B HSDV 315	03071	599	–	315	685	315
B HSDV 355	03081	699	–	360	731	355
B HSDV 400	03135	734	–	345	865	400
B HSDV 450	03136	820	–	390	892	450
B HSDV 500	03192	920	–	421	987	502
B HSDV 560	03193	1030	–	540	1097	562
B HSDV 630	03203	1161	720	240	1257	632
B HSDV 710	03253	1241	881	294	1491	712
B HSDV 800	03370	1406	1071	357	1729	802
B HSDV 900	03372	1641	1200	400	1941	902

DIF



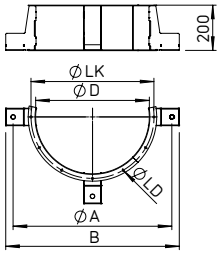
40 °C F300 F400 F600

All dimensions in mm

Diffusor DIF
Aerodynamically optimised diffusor for high pressure recovery. Delays air flow due to size step to convert dynamic pressure to static pressure. Additional application as an adapter for an optimised transition to the next size. Specially developed for application directly behind a fan and at the end of a pipeline as an outdoor outlet with reduced outlet losses. High quality design made of hot-dip galvanised steel sheet with double-sided welded flange, hole pattern according to DIN 24155. Approved for use in smoke extraction for temperature class F300, F400 and F600.

Type	Ref. no.	Size step	L	Ø D.i.L 1	Ø LK 1	Ø D.i.L 2	Ø LK 2	Weight kg
DIF 280	03551	280 x 315	140	280	322	315	356	4.1
DIF 315	03552	315 x 355	160	315	356	355	395	4.9
DIF 355	03553	355 x 400	180	355	395	400	438	5.9
DIF 400	03554	400 x 450	200	400	438	450	487	7.0
DIF 450	03555	450 x 500	225	450	487	500	541	8.4
DIF 500	03556	500 x 560	250	500	541	560	605	11.5
DIF 560	03565	560 x 630	280	560	605	630	674	15.4
DIF 630	03566	630 x 710	315	630	674	710	751	19.0
DIF 710	03567	710 x 800	355	710	751	800	837	24.1
DIF 800	03568	800 x 900	400	800	837	900	934	37.8
DIF 900	03569	900 x 1000	450	900	934	1000	1043	45.7
DIF 1000	03570	1000 x 1120	500	1000	1043	1120	1174	54.9
DIF 1120	03571	1120 x 1250	560	1120	1174	1250	1311	66.5
DIF 1250	03572	1250 x 1400	630	1250	1311	1400	1465	81.3

MRV



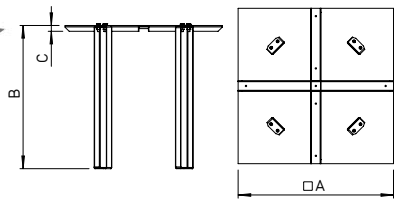
40 °C F300 F400

All dimensions in mm

Mounting ring MRV
The mounting ring MRV is designed for the vertical fixing of fans (e.g. Helios types AVD, AMD, VAR etc.).
In each case, four mounting brackets for direct mounting or the inclusion of anti-vibration mounts (SDZ or SDD) ensure the safe vertical installation of fans. The galvanised mounting rings MRV are temperature-resistant for smoke extraction: F300 and F400.

Type	Ref. no.	Ø A	B	Ø D	Ø LK	Ø LD	Weight kg	Load capacity kg
MRV 315	01755	510	576	315	356	9.5 (8x)	6.5	280
MRV 355	01759	550	618	355	395	9.5 (8x)	6.9	280
MRV 400	01760	595	662	400	438	9.5 (12x)	7.4	280
MRV 450	01761	650	714	450	487	9.5 (12x)	7.9	280
MRV 500	01740	700	765	500	541	9.5 (12x)	8.3	280
MRV 560	01741	770	827	560	605	11.5 (16x)	12.9	390
MRV 630	01742	840	898	630	674	11.5 (16x)	13.9	390
MRV 710	01743	920	980	710	751	11.5 (16x)	15.7	390
MRV 800	01744	1030	1101	800	837	11.5 (24x)	24.8	1050
MRV 900	01745	1130	1201	900	934	11.5 (24x)	27.0	1050
MRV 1000	01749	1230	1301	1000	1043	11.5 (24x)	29.1	1050
MRV 1120	01750	1350	1422	1120	1174	11.5 (24x)	31.7	1050
MRV 1250	01754	1480	1552	1250	1311	11.5 (24x)	34.5	1050

B DEF 2000



40 °C F300 F400 F600

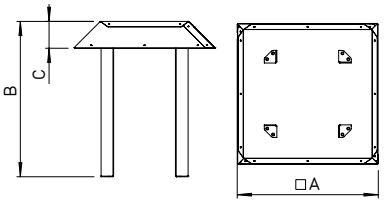
All dimensions in mm

Deflector
Deflector for mounting on smoke exhaust roof fans (F400 and F600) for snow load class SL 2000. Deflector in modular design, ready-for-assembly incl. mounting profile and fixing material.

Installation:
The deflector is attached to the smoke exhaust roof fan and can also be retrofitted without structural changes. When using the deflector, the hood silencer B HSDV cannot be used at the same time.

Type	Ref. no.	B	A	C	Weight kg
B DEF 315/2000	40077	543	595	22	11.5
B DEF 355/2000	40078	574	670	22	13.0
B DEF 400/2000	40079	692	750	22	15.7
B DEF 450/2000	40080	689	835	22	18.9
B DEF 500/2000	40081	761	934	22	22.5
B DEF 560/2000	40082	852	1050	22	28.2
B DEF 630/2000	40083	982	1186	22	36.8
B DEF 710/2000	40084	1176	1335	22	45.3
B DEF 800/2000	40085	1755	1520	276	79.1
B DEF 900/2000	40086	1927	1782	383	94.7

B DEF 3000



40 °C F300 F400 F600

All dimensions in mm

Deflector
Deflector for mounting on smoke exhaust roof fans (F400 and F600) for snow load class SL 3000. Deflector in modular design, ready-for-assembly incl. mounting profile and fixing material.

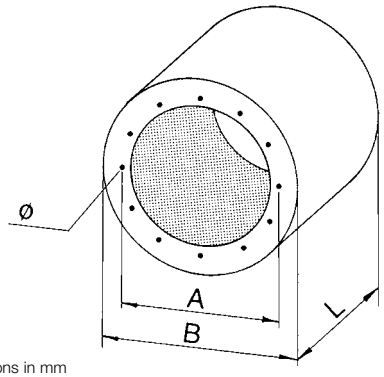
Installation:
The deflector is attached to the smoke exhaust roof fan and can also be retrofitted without structural changes. When using the deflector, the hood silencer B HSDV cannot be used at the same time.

Type	Ref. no.	A	B	C	Weight kg
B DEF 315/3000	03410	595	656	113	11.5
B DEF 355/3000	03425	670	705	131	13.0
B DEF 400/3000	03428	752	842	150	16.2
B DEF 450/3000	03434	836	853	164	19.1
B DEF 500/3000	03437	935	938	177	23.5
B DEF 560/3000	03454	1051	1060	208	29.2
B DEF 630/3000	03455	1188	1209	227	50.4
B DEF 710/3000	03468	1335	1432	257	64.0
B DEF 800/3000	03471	1491	1651	279	80.0
B DEF 900/3000	03473	1805	1928	394	116.2

RSD

40 °C
F300
F400

Dimensions RSD



All dimensions in mm

Round duct silencer RSD

Design – Installation
Casing made of galvanised steel sheet. Lining with high-quality mineral wool, which is equipped with a fleece on the flow side for protection against abrasion. The dimensions and fixing holes of all sizes are based on the standard fan diameter (R 20). The fixing holes correspond to DIN 24155, p. 2.

Insertion loss
Multiple silencers with the same diameter can be arranged one behind the other for larger insertion losses.

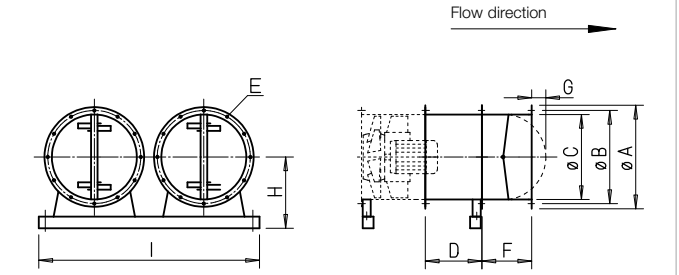
Pressure losses
The flow resistances of the RSD silencer are very low. Twice the friction resistance is taken into account for the system calculation.

Type	Ref. no.	Basic length	Dimensions in mm				Weight approx. kg	Insertion loss D_e dB							Average loss
Nominal Ø			L	A	B	Hole Ø		125	250	500	1000	2000	4000	8000	
RSD 280/400	08740	1	400	322	454	8 x M 8	10	4	5	8	14	9	8	6	8
RSD 280/800	08741	2	800	322	454	8 x M 8	18	7	9	16	28	18	17	14	14
RSD 280/1200	08742	3	1200	322	454	8 x M 8	25	9	12	23	37	23	20	16	18
RSD 315/400	08743	1	400	356	504	8 x M 8	11	3	3	7	13	8	7	5	5
RSD 315/800	08744	2	800	356	504	8 x M 8	19	6	8	14	26	16	12	9	12
RSD 315/1200	08745	3	1200	356	504	8 x M 8	28	9	12	21	36	18	17	14	18
RSD 355/400	08746	1	400	395	564	8 x M 8	13	3	4	7	11	7	6	4	6
RSD 355/800	08747	2	800	395	564	8 x M 8	23	6	7	13	22	14	12	8	11
RSD 355/1200	08748	3	1200	395	564	8 x M 8	33	8	11	17	29	18	15	10	17
RSD 400/400	08749	1	400	438	564	12 x M 8	12	3	4	6	9	7	5	3	6
RSD 400/800	08750	2	800	438	564	12 x M 8	21	6	6	12	18	13	12	8	9
RSD 400/1200	08751	3	1200	438	564	12 x M 8	30	7	10	14	22	18	13	9	15
RSD 450/400	08752	1	400	487	634	12 x M 8	17	4	5	8	10	8	7	5	8
RSD 450/800	08753	2	800	487	634	12 x M 8	27	6	7	13	18	13	12	9	11
RSD 450/1200	08754	3	1200	487	634	12 x M 8	38	8	10	18	23	17	14	10	15
RSD 500/600	08755	1	600	541	714	12 x M 8	27	4	5	9	11	9	9	6	8
RSD 500/900	08756	2	900	541	714	12 x M 8	36	6	8	14	16	13	13	9	12
RSD 500/1200	08757	3	1200	541	714	12 x M 8	45	8	11	22	24	17	16	12	17
RSD 560/600	08758	1	600	605	804	8 x M 10	32	3	5	9	9	8	8	6	8
RSD 560/1200	08759	2	1200	605	804	8 x M 10	52	6	10	19	19	16	13	10	15
RSD 630/600	08760	1	600	674	900	8 x M 10	44	3	5	8	8	8	7	5	8
RSD 630/1200	08761	2	1200	674	900	8 x M 10	68	5	10	16	15	15	11	8	15
RSD 710/600	08762	1	600	751	1000	8 x M 10	51	3	5	7	7	7	6	4	8
RSD 710/1200	08763	2	1200	751	1000	8 x M 10	80	5	10	14	13	13	10	7	15
RSD 800/600	08764	1	600	837	1100	12 x M 10	57	2	5	7	6	6	5	4	8
RSD 800/1200	08765	2	1200	837	1100	12 x M 10	88	5	9	13	11	11	9	6	14
RSD 900/900	08766	1	900	934	1220	12 x M 10	82	2	4	10	9	6	5	4	6
RSD 900/1800	08767	2	1800	934	1220	12 x M 10	135	4	9	21	17	13	9	8	14
RSD 1000/900	08768	1	900	1043	1350	12 x M 10	96	2	4	8	7	5	4	3	6
RSD 1000/1800	08769	2	1800	1043	1350	12 x M 10	157	4	7	16	14	10	7	6	11
RSD 1120/900	08770	1	900	1174	1350	12 x M 10	81	2	3	7	6	4	3	3	5
RSD 1120/1800	08771	2	1800	1174	1350	12 x M 10	136	3	6	14	11	8	6	5	9
RSD 1250/900	08772	1	900	1311	1460	12 x M 10	86	1	2	5	4	3	2	2	3
RSD 1250/1800	08773	2	1800	1311	1460	12 x M 10	146	2	4	11	9	7	5	4	6

MP-P

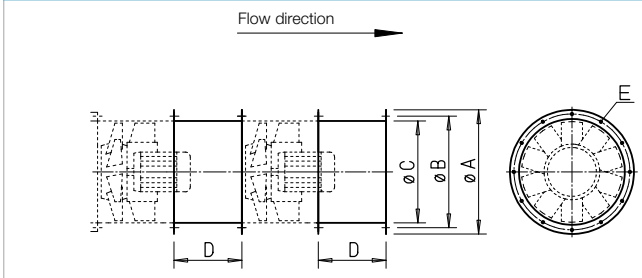
MP-Z

Dimensions MP-P



All dimensions in mm

Dimensions MP-Z



All dimensions in mm

Double volume

Mounting kit MP-P for parallel P unit

Two fans connected in parallel provide high flow rates at the corresponding pressure rating and specifically meet the requirements for garage ventilation and smoke extraction. Two fans arranged side by side in the P unit work in the same duct system for the highest flow rates.
Scope of delivery: Extension ducts, duct shutters, mounting rails (2 pcs each), mounting brackets (4 pcs) and assembly kits.

Double pressure

Mounting kit MP-Z for two-stage Z unit

Two fans connected in parallel ensure high power density and advantageous installation due to the lowest space requirement. The two fans are arranged successively and connected with extension ducts. Z unit for successive arrangement of two identical fans, for the highest pressure ratings.
Scope of delivery: Extension ducts (2 pcs.) and assembly kit.

Type	Ref. no.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)
MP-P 225	04884	277	259	225	300	6xø7.0	300	0	256	910
MP-P 250	04885	305	286	250	300	6xø7.0	300	0	263	945
MP-P 280	04886	346	322	280	300	8xø9.5	300	0	281	980
MP-P 315	04887	380	356	315	300	8xø9.5	300	0	317	1085
MP-P 355	04888	420	395	355	300	8xø9.5	300	0	336	1120
MP-P 400	04889	465	438	400	330	12xø9.5	330	0	347	1120
MP-P 450	04890	515	487	450	330	12xø9.5	330	15	397	1200
MP-P 500	04891	565	541	500	330	12xø9.5	330	40	445	1500
MP-P 560	04892	640	605	560	500	16xø11.5	330	65	477	1600
MP-P 630	04893	710	674	630	500	16xø11,5	400	115	527	1700
MP-P 710	04894	810	751	710	500	16xø11.5	400	155	639	1900
MP-P 800	04895	900	837	800	420	24xø11.5	420	200	689	2000
MP-P 900	04896	1000	934	900	420	24xø11.5	420	250	749	2200
MP-P 1000	04897	1100	1043	1000	420	24xø11.5	420	300	814	2400
MP-P 1120	04898	1220	1174	1120	420	24xø11.5	420	335	834	2500

Type	Ref. no.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
MP-Z 225	04900	277	259	225	300	6xø7.0
MP-Z 250	04901	305	286	250	300	6xø7.0
MP-Z 280	04902	346	322	280	300	8xø9.5
MP-Z 315	04903	380	356	315	300	8xø9.5
MP-Z 355	04904	420	395	355	300	8xø9.5
MP-Z 400	04905	465	438	400	330	12xø9.5
MP-Z 450	04906	515	487	450	330	12xø9.5
MP-Z 500*	04907	565	541	500	330	12xø9.5
MP-Z 560	04908	640	605	560	500	16xø11.5
MP-Z 630	04909	710	674	630	500	16xø11.5
MP-Z 710	04910	810	751	710	500	16xø11.5
MP-Z 800*	04911	900	837	800	420	24xø11.5
MP-Z 900*	04912	1000	934	900	420	24xø11.5
MP-Z 1000	04913	1100	1043	1000	420	24xø11.5
MP-Z 1120	04914	1220	1174	1120	420	24xø11.5

* Additional extension duct (Accessories: Type VR) may be required. Fan motor protrusion (dimension B) must be considered.

Measure. Control. **Regulate.**

For the economical and safe operation of smoke extraction and car park ventilation systems, modern control and regulation technology is essential. The extensive Helios range offers a wide range of system solutions that enable an individual adjustment to your requirements.

The **car park ventilation control systems LS / B LS**, available with or without smoke extract function offer in a compact design all necessary features for car park ventilation and smoke extraction according to the requirements of the German car park regulations.

The **smoke extraction control EVS** is the control centre for a safe smoke evacuation. The versatile connection options for external actuators and the fire alarm system enable flexible use.

The **Bearing Condition Diagnostics LZD** ensures the monitoring of the bearings of smoke extraction fans and thus their operational safety. Thanks to the monitoring and the associated safety, bearings can remain in use for much longer before an expensive bearing change has to be carried out.

Gas warning system (GWA)

The **GWA gas warning system** detects the harmful gases and reliably warns the car park users of excessively high, health-endangering concentrations. In addition, by recording the gas concentration, a demand-oriented and more economical operation of the fans is achieved.

Only available for projects in Germany

160

Electronic accessories

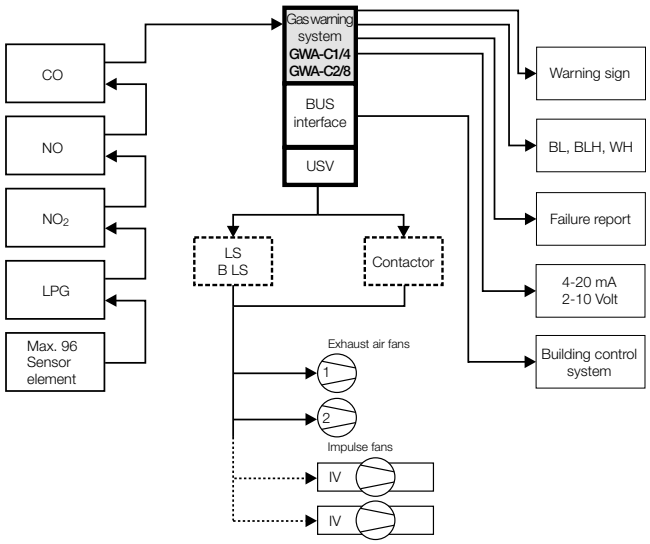
- Garage ventilation control system LS and B LS
- Smoke extraction fan control system EVS
- Bearing condition diagnostics system LZD
- Frequency inverter FU
- Isolator / main switch
- Full motor protection switch and triggering device

162f

GWA

Only available for projects in Germany

System diagram



The Helios gas warning system GWA was specially developed to monitor pollutant concentrations in garages and loading areas. The detection of pollutants can be adjusted to the specific requirements of the property by using different sensor elements. Furthermore, the GWA can be expanded to a complete system consisting of all necessary components, such as an uninterruptible power supply (UPS), smoke extraction function power unit for controlling fans, visual and acoustic warning devices as well as an interface for integration in the building control technology (GLT).

Description

Digital gas warning system pursuant to EN 50545, with software according to EN 50271 (SIL 2), installed in compact plastic casing. Can be expanded into an individual system with smoke extraction function and power unit, for controlling extract air and jet fans in switch cabinet.

Information

The systems can only be commissioned by the Helios Customer Service team. Gas warning systems must be maintained once a year. Performance range details in Helios TGA service catalogue Ref. no. 85934.

Controller for continuous monitoring with connection option for a total of 96 bus sensors.

Product features

- High system reliability due to permanent monitoring of sensors and fail-safe storage of all parameters.
- Simple operation of control system through six input buttons and a LCD display with plain text.
- Universal, easily understandable installation concept for all components.

Scope of delivery

The Helios gas warning system is available in two different compact variants, as well as a system solution individually tailored to property-specific customer requirements.

Compact variants 1 and 2
Type GWA-C1/4
Type GWA-C2/8

Gas warning system in compact plastic casing (RAL 7035) with viewing cover and cable glands. Standard connection option for warning devices. Control output with 2-10 V signal for demand-oriented speed control of EC fans or fans with frequency inverter. For controlling other fans, optimally expandable with the garage ventilation control system LS.

Individual system solution
Type SSTG

Garage switch cabinet with gas warning system display integrated in the switch cabinet door. GWA controller and uninterruptible power supply (USV) 2 – 10 V output possible, integrated and coordinated in the garage switch cabinet for all gas warning system functions and warning systems.

Alarm thresholds

Up to four alarm thresholds can be set per sensor. Three standard values for these alarm thresholds are preset upon delivery, but these can be adjusted to on-site conditions e.g. during commissioning.
If alarm threshold 3 is exceeded of if a fault occurs, a transmission signal will be automatically generated.

Alarm threshold 1 and 2:
15 minute averaging process
Alarm threshold 3 and 4:
Actual value trigger

Relay

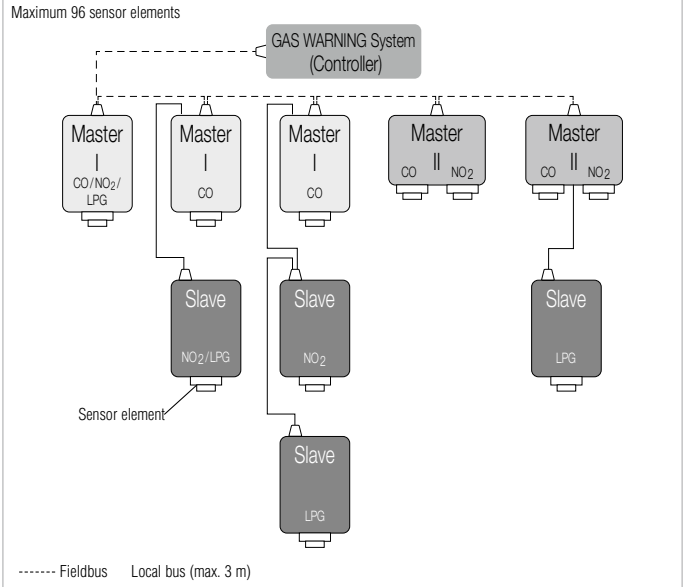
The gas warning system control unit has a defined number (see product table) of potential-free fault and alarm relays, which can be loaded with max. 250 V AC and 5.0 A. Various components such as extract air fans, jet fans or warning devices can be allocated to the individual alarm thresholds with the alarm relay.

Uninterruptible power supply

The Helios gas warning system can be expanded with an optimally tailored uninterruptible power supply (UPS).
Designed for the reliable functioning of the gas warning system, connected sensors and warning devices, also for at least 1 hour in case of a power failure. In this respect, the UPS has its own self-monitoring system and is delivered in a separate casing for the two compact variants, whereby the individual system solution is integrated in the switch cabinet.

Type	Ref. no.	Voltage	P. supply 24V DC IP65	Connect. sensor elements	Fault relay	Alarm relay	Analog. inputs	Analogue outputs	Weight (without USV)	Dimensions (WxHxD)	USV				
			A	Sth.	230V, 5 A	230V, 5 A	4-20 mA	4-20 mA	kg	mm	Type	Ref. no.	Cap..	Dim. (WxHxD)	Weight
Compact variant 1															
GWA-C1/4	05884	1~, 230V, 50/60 Hz	6.5	96	1	4	4	2	2.7	298x260x140	**GWA-USV 2,2**	05886	2.2 Ah	298x260x140	4 kg
Compact variant 2															
GWA-C2/8	05885	1~, 230V, 50/60 Hz	6.5	96	1	8	8	4	3.4	298x420x140	**GWA-USV 7,2**	05887	7.2 Ah	410x260x140	7 kg
System solution															
SSTG	02499	3~, 400V, 50/60 Hz	10	96	1	max. 32	max. 32	max. 16	A.A.	Upon request	**GWA-USV 7,2**	Upon req.	7.2 Ah	In switch cabinet	7 kg

Application examples for sensors



Sensors

The individual sensors for detecting pollutant concentrations consist of sensor casings and sensor elements..

Sensor casing

– Sensor casing made of plastic (protection class IP65) with cable glands. Sensor casing Master I optionally in stainless steel design (IP54).
(Accessories: Opener for stainless steel casing: Type GWA-S OE, Ref no. 8215)
– Master I and Master II: Casing for connection of max. 3 sensor elements. Direct and indirect connection of sensor elements possible via additional casings (Slave). Connection to gas warning system via fieldbus.
– Slave: Casing for connection of one sensor element. Connection to casing Master I or Master II via local bus.

Sensor element

– Sensor element for mounting to sensor casing Master I, Master II or Slave.
– Available sensor elements: CO, NO, NO_2 and LPG.
– The connection of max. 96 sensor elements is possible per gas warning system.

Sensor casing				
	Dimensions	Protection category plastic casing	Recommended installation height	Temperature range
Master I	94x130x57	IP65	IP54	-25 to +50 °C
Master II	130x94x57	IP65	–	-25 to +50 °C
Slave	94x130x56	IP65	–	-25 to +50 °C
Sensor element				
	Measurement range	Preset alarm thresholds acc. to EN 50545	Recommended installation height	Application
CO	0 -300 ppm	30 / 60 / 150	1.50 m	Petrol motors
NO	0 -100 ppm	10 / 20 / 50	1.50 m	Diesel motors (alt.)
NO2	0 -30 ppm	3 / 6 / 15	0.80 m	Diesel motors
LPG	0 -100 % UEG	10 / 20	0.30 m	LPG motors

Planning information

– 1x warning sign per 500 m²
– 1x CO-, NO-, NO2 sensor, LPG sensor per 400 m²

Information

The sensor elements must be calibrated or replaced regularly.

Accessories

Bus interface
Interfaces for connection of gas warning system to the building control technology (GLT) and transmission of system statuses. There is no intervention option.
– for Modbus
GWA-BG Modbus Ref. no. 08251
– for BACnet
GWA-BG BACnet Ref. no. 05861

Sensor casing
– Master I
for connection to GWA via fieldbus and direct connection of sensor element. Additional connection of max. 2 sensor casings (Slave) possible via local bus. Optionally in stainless steel. For VA, connection of sensor casing Slave not possible.
GWA-SG K M1 Ref. no. 05857
GWA-SG VA M1 Ref. no. 05858
Opener for stainl. steel casing (VA).
GWA-S OE Ref. no. 08215
– Master II
for connection to GWA via fieldbus and direct connection of two sensor elements. Additional connection of max. 1 sensor casing (Slave) possible via local bus.
GWA-SG K M2 Ref. no. 05859
– Slave
for connection to Master I + II and direct connection of one sensor element.
GWA-SG K S Ref. no. 05860

Sensor element
for connection to sensor casing.
– CO
GWA-SE CO Ref. no. 05879
– NO_2
GWA-SE NO_2 Ref. no. 05881
– LPG
GWA-SE LPG Ref. no. 05882

Warning devices
Visual and acoustic warning devices as 24 Volt signal transmitters, incl. base. Casing made from impact-resistant plastic, for ceiling and wall installation.
– Flash light siren
BLH Ref. no. 04983
– Flash light
BL Ref. no. 08216
– Siren
WH Ref. no. 08217

Warning sign
24 Volt warning sign with yellow symbols according to VDI 2053 on white background. Optionally with acoustic signal.
Dim. mm (W x H x D) 642 x 203 x 22
– Warning sign
GWA-WT 1 Ref. no. 08213
– Warning sign with acoustics
GWA-WT 1S Ref. no. 08214

Master I + II

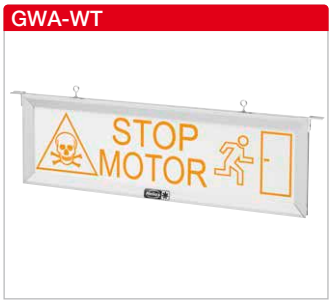
* K = Plastic casing VA = Stainless steel casing

Slave

Sensor

BL, BLH, WH

GWA-WT



Garage ventilation control system LS, B LS and SSTG with and without smoke extraction function

LS and B LS

Garage ventilation control system

The Helios garage ventilation control system was specially developed to meet the requirements for modern and efficient ventilation of garages. The use of Helios fans and the ventilation control system LS significantly reduces the risks to people from toxic gases such as carbon monoxide (CO) and nitrogen dioxide (NO_2).

- ☐ Two fans are operated and monitored by the ventilation control system LS according to the provisions of the Ordinance Governing Parking Facilities. Pollutants resulting from garage use are diluted and discharged through the air exchange stipulated in the respectively valid Ordinance Governing Parking Facilities (GaVO).
- ☐ The LS monitors the control circuit and load circuit, detects faults or power failures and switches over to the system that is still functional.
- ☐ In addition to the automatic mode, the fans also can be operated individually, together or alternately to achieve the same fan running times.
- ☐ If only one fan is operating, the garage ventilation control system LS is programmed in such a way that the second fan automatically goes into operation and a fault signal is transmitted in case of such a failure.

Delivery range

The Helios range of garage ventilation control systems includes 1~ and 3~ models in various performance ranges for direct and star-delta start-up and with Dahlander winding for fan operation at two different speed pursuant to the table below. All models are optionally available with additional smoke ventilation function (types B LS).

Order information

When ordering the garage ventilation control system, the following specifications are required:

- ☐ Required control system type
  Garage ventilation control system (LS) or Garage ventilation control system with additional smoke extraction function (B LS).
- ☐ Fan types
  The performance range, switching type and motor protection device of the garage ventilation control system can be found in the type specification of the fan to be controlled (Helios reference number).

Casing

The system is delivered ready-for-use and easy to install and service in a plastic casing (types up to 4 kW) or in robust switch cabinet casing made from sheet metal (types from 4 kW).

Delivery range

Vent. contr. system	Control system with smoke extr. function	Switch	Current	Voltage	Performance range
LS-W	**B LS-W**	Direct	1~	230 V	Up to 4.0 kW
LS-D	**B LS-D**	Direct	3~	400 V	Up to 2.2 kW
LS-SD	**B LS-SD**	Y/Δ	3~	400 V	From 3.0 kW to 18.5 kW
LS-DA	**B LS-DA**	Y/YY	3~	400 V	Up to 18,5 kW
SSTG	**SSTG**	Individual	3~	400 V	Individual

Types with greater performance upon request.

Operation

The operating mode and fan sequence can be set using the rotary switch on the control panel. The running times of the connected fans can be individually programmed using the analogue timer.

	Position	Function
☐ Fan sequence	"1"	Fan 1 activated for operation. Switch to fan 2 in case of fault.
	"2"	Fan 2 activated for operation. Switch to fan 1 in case of fault.
	"1+2"	Both fans successively activated for operation.
	"1/2"	Both fans alternatively activated for operation to achieve the same running times.
☐ Oper. mode	"Auto"	Pre-selected fan sequence controlled by timer.
	"Manual"	Fan operation controlled by manual adjustment on "Fan sequence" rotary switch.
	"Off/ unlock"	The control system is deactivated. Faults are deleted.
☐ Timer		The analogue timer allows the individual adjustment of fan running times to the respective situation in the garage to be ventilated. "**Auto**" mode must be selected on the garage ventilation control system for the corresponding controlling of programmed times. The shortest timer switching sequence is 20 minutes.

Display function

The status of the connected fans and the position of the supply/extract air shutters are indicated separately place for each fan via LEDs. Fault signals and triggered fire dampers are also indicated by LEDs on the control system in addition to the acoustic warning via the optionally connectable siren.

	Operation	Function
☐ **Damper OPEN**	Green LED lights up	Supply or extract air damper is opened, fan runs 30 seconds delayed.
	Green LED goes off	Supply or extract air damper is closed, fan is off.
☐ **Fan ON**	Green LED lights up	Fan is in operation, associated supply or extract air damper is opened.
	Green LED goes off	Fan is not in operation, associated supply and extract air damper is closed.
☐ **Fault**	Red LED flashes	Fan fault.
☐ **Fire damper**	Red LED lights up	Fire damper triggered.

Garage ventilation control system with smoke extraction function B LS

If there are garage smoke extraction requirements in case of fire in addition to the ventilation and the associated reduction of the pollutant concentration, the garage ventilation control system B LS with smoke extraction function is the optimal solution.

- ☐ By connecting the smoke exhaust garage ventilation control system B LS to a smoke detector line or a fire alarm system, the smoke extraction function is automatically triggered in case of fire. One or more push-button alarms and a fire service switch can be attached for manual triggering by garage users and the fire service.
- ☐ Once the smoke extraction function is triggered, all motor protection devices are bridged and the smoke exhaust fans will run at nominal speed. Stage 2 (maximum fan speed) is automatically set for control systems with Dahlander windings.
- ☐ The operation of F600 smoke exhaust fans with cooling air fans is not possible when using the Helios smoke exhaust garage ventilation control system.

Technical data

Timer		24 h
Switching sequence		20 min.
Switching capacity	Damper	500 VA
	Siren	500 VA
Switching current	Damper	max. 2 A
	Siren	max. 2 A
Control fuse		12 V 0,5 A
		230 V 2 A
Ambient temperature		–10 to +40 °C
Protection category		IP54
Installation position		Vertical

Individual system solution Type SSTG

- Garage switch cabinet specifically adapted to the building project with power units for all supply air fans, extract air fans and jet fans to be controlled.
- Control via respective load contactors or with frequency inverter or for EC fans.
- With additional smoke extraction function, also available for multiple fire sections, for controlling Helios smoke exhaust fans and any smoke extraction dampers.
- In case of fire, the motor protection devices for the smoke extraction fans are automatically bridged pursuant to VDMA 24177, to ensure the smoke extraction function until the destruction of the fan.
- The Helios gas warning system controller and the corresponding USV can be integrated in the system. The display and operating panel is then integrated in the switch cabinet door.

Information

- In accordance with applicable garage regulations and VDI directives, the ventilation system requires two fans, each of which must provide at least 50 % of the total air flow volume. In case of the failure of one fan, the other fan must be able to provide 2/3 of the total air flow volume.
- The garage fans must be wired to their own electrical circuits to which no other electrical systems can be connected.

Operating and display panel

The functionality and operation of the Helios garage ventilation control system can be adjusted on the clearly arranged control and display panel. The front panel is well protected by a lockable cover against access by unauthorised persons.

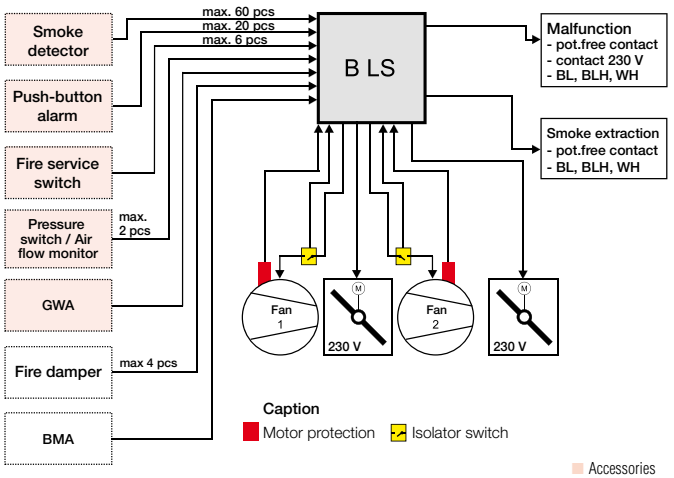
Line monitoring B LS

The detector circuits for the fire alarm system, as well as the smoke detector, push-button alarm and fire service switch are monitored for wire breakage and short circuit. The detector circuits are executed in limit value technology.

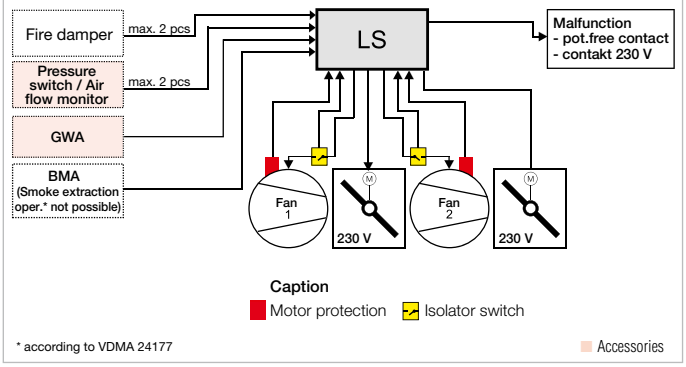
Motor protection

- The motors of the connected fans are protected by deactivation in case of overload by the garage ventilation control system LS. For motors with thermal contacts or PTC thermistors, this can be connected to the garage ventilation control system terminal block. For motors without thermal contacts or PTC thermistors, the garage ventilation control system has motor protection circuit breakers. If the motor protection devices are triggered, a fault signal is transmitted which can be unlocked after cause investigation by the rotary switch for the operating mode.
- All motor protection devices for the smoke exhaust garage ventilation control system B LS are bridged in case of smoke extraction. Thus, the smoke extraction function is ensured until the destruction of the fan.

System diagram B LS with smoke extraction function



System diagram LS



Connection options B LS

- Input
  - Gas warning system
  - Fire alarm system
  - 2x fire dampers
  - 2x feedback from isolator switch
  - 60x smoke detector
  - 20x push-button alarm
  - 6x fire service switch
  - Motor monitoring by PTC thermistor (KL) or thermal contact (TK)
- Output
  - 2x smoke extraction fan
  - 2x 230 V damper
  - Fault
    - 1x pot.-free contact
    - 1x flash light
  - Smoke extraction
  - Outputs see box in diagram

Connection options LS

- Input
  - Gas warning system
  - Fire alarm system (smoke extract. not possible)
  - 4x fire dampers
  - 2x feedback from isolator switch
  - Motor monitoring by PTC thermistor (KL) or thermal contact (TK)
- Output
  - 2x fan
  - 2x 230 V damper
  - Fault
    - 1x pot.-free contact
    - 1x flash light
  - Outputs see box in diagram

Marking

- TÜV approval
- CE

Accessories

Type RMR Ref. no. 04984
Smoke detector according to EN 54-7, incl. detector base for the automatic triggering of system for smoke detection.

Type DKM Ref. no. 04985
Push-button alarm in limit value technology for manual triggering of system by button. Includes reset button and LED indicator for operating state.

Type FWS 2 Ref. no. 08255
Fire service switch (incl. LED display) with connection for DIN profile half-cylinder (Accessories).

Type BL Ref. no. 08216
Flash light as 24 V signal transmitter, incl. base. Casing made of impact-resistant plastic. For ceiling and wall installation.
Accessories:
Voltage transformer SPW 110-240 V AC / 24 V DC
Ref. no. 5820

Type BLH Ref. no. 04983
Flash light siren as 24 V signal transmitter, incl. base. Casing made of impact-resistant plastic. For ceiling and wall installation.

Type WH Ref. no. 08217
Siren as 24 V signal transmitter, incl. base. Casing made of impact-resistant plastic. For ceiling and wall installation.
Accessories:
Voltage transformer SPW 110-240 V AC / 24 V DC
Ref. no. 5820

Type DDS/DDB No. 00445/82062
Complete attachment kit for monitoring air filters, system pressure and fan operation.

Type RS 3+1 Ref. no. 06387
3-pole isolator switch with auxiliary contact for fans. Plastic casing for surface-mounting.

Type RS 6+1 See page 172
6-pole isolator switch with auxiliary contact for fans. Plastic casing for surface-mounting.

Information

Isolator switch B RS in functional integrity F300 and F400 for installation within the area to be vented see p. 172

EVS

Smoke exhaust fan control system

- By generating low-smoke layers and areas, Helios smoke exhaust fans facilitate the safe evacuation of people. The smoke exhaust fan control system EVS was specifically designed for controlling the fans available in temperature classes F300, F400 and F600.
- EVS is particularly suitable for smoke extraction in small properties as well as individual fire sections and it also has a ventilation function. This ensures a significant improvement of air quality during normal operation due to the regular air exchange.

Delivery range

The Helios range of smoke exhaust fan control systems includes 1~ and 3~ models in various performance ranges for direct and star-delta start-up and with Dahlander winding for fan operation at two different speeds pursuant to the table below.
For fans with EC motor or control via frequency inverter with 0-10V output signal.

Order information

When ordering the Helios smoke exhaust fan control system, the following specifications are required:

- Smoke exhaust fan type to be controlled
  The performance range, switching type and motor protection device of the smoke exhaust fan control system can be found in the type specification of the smoke exhaust fan to be controlled (Helios reference number).

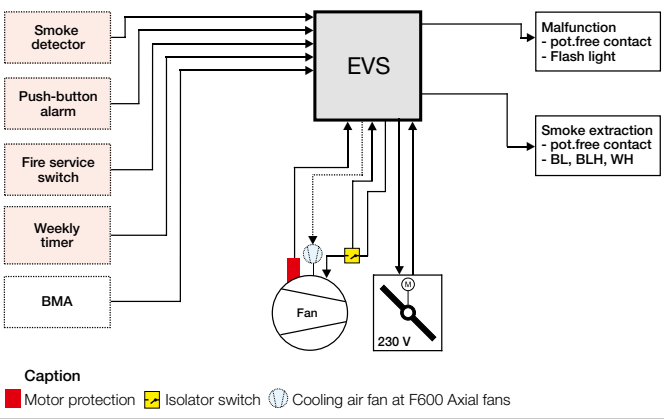
Casing and operation

The EVS types up to 22 kW are delivered in a light grey ISO casing (IP54). The models from 30 kW are designed in a robust sheet metal casing with a side-mounted, lockable “Emergency Stop”main switch, which can be sealed in the “ON” position (not for EVS-FUEC). The front control and display panel enables the control of the individual functions with visual indication of the current operating states. The casing type of EVS for F600 with the addition for a cooling air fan and casing dimensions of the respective control available upon request.

Information

One smoke exhaust fan can be connected and operated per EVS. Smoke exhaust fan control systems for the connection of multiple smoke exhaust fans are also available upon request.

System diagram EVS (different for EVS-FUEC)



Functions

The functionality of the Helios smoke exhaust fan control system complies with the requirements of the VDMA standard sheet 24177.
The following control functions can be adjusted via the control panel connected to the EVS casing:

- Ready:
  The smoke exhaust fan is deactivated. The smoke extraction mode is activated when the EVS is triggered via the smoke detector, push-button alarm or other external smoke extraction warning device.
- Smoke extraction:
  All motor protection devices for the smoke exhaust fan are bridged. Once the damper is opened by the EVS, the smoke exhaust fan runs at the nominal speed. Stage 2 (maximum fan speed) is automatically set for control systems with Dahlander windings.
- On or stage 1 and 2:
  All motor protection devices for overload protection are activated. Once the multi-leaf damper is opened by the EVS, the smoke exhaust fan runs at the selected speed for manual ventilation. The smoke extraction mode is activated when the EVS is triggered via the smoke detector, push-button alarm or other external smoke extraction warning device.

Information

The installation of the EVS should be as close as possible to the relevant smoke exhaust fan, but outside the area from which smoke is to be extracted. The installation of the power supply for the EVS and the smoke exhaust fan must be function-preserving and directly connected to the low-voltage main distribution board.

Delivery range and technical data

Type	Switching	Power consumption	Nominal voltage	Ambient temperature
EVS-W	Direct	up to 4.0 kW	230 V	0 up to +40 °C
EVS-D	Direct	up to 4.0 kW	400 V	0 up to +40 °C
EVS-SD	Y/Δ	up to 55 kW	400 V	0 up to +40 °C
EVS-DA	Y/YY	up to 55 kW	400 V	0 up to +40 °C
EVS-FUEC	0-10 V	*	230 V	0 up to +40 °C

* Power supply direct to fan/frequency inverter, EVS-FUEC only transmits a control signal.

Connection options

Input:
- Fire alarm system
- 60x smoke detector
- 20x push-button alarm
- 6x fire service switch
- Motor monitoring by PTC thermistor or thermal contact
- 1x WSUP (2x WSUP for EVS-DA)
- 1x feedback from isolator switch

Output:
- 1x smoke exhaust fan
- 1x 230 V damper
- 2x cooling air fan for F600 smoke exhaust fan, flow monitor system included
- Fault
  - 1x pot.-free contact
  - 1x flash light
- Smoke extraction
  - 1x pot.-free contact
  - 1x flash light
  - 1x flash light siren
  - 1x siren

Motor protection

The motor of smoke exhaust fan is protected by deactivation in case of overload in ventilation mode. This motor protection is provided by the thermal contact or PTC thermistor of the smoke exhaust fan that is connected to the EVS.
If the smoke exhaust fan motor does not have a thermal contact or PTC thermistor, then a motor protection relay in the EVS will protect the motor against overloading.

With regard to the smoke exhaust fan control system EVS, all motor protection devices are bridged in the event of smoke extraction. The smoke extraction function is therefore ensured until the destruction of the fan.

Line monitoring

The detector circuits for the fire alarm system, as well as the smoke detector, push-button alarm and fire service switch are monitored for wire breakage and short circuit. The detector circuits are executed in limit value technology.

EVS for F600 smoke exhaust fans

The motor cooling for Helios F600 smoke exhaust fans is carried out using separate cooling air fans (type KLG, Accessories). These cooling air fans are also controlled by the EVS and monitored in the ventilation mode by flow monitor systems. The flow monitor systems are already installed in the EVS.

EVS-FUEC for smoke extraction fans controlled via frequency inverter or EC motor in case of fire.
In case of smoke extraction in the temperature classes of EN 13501-4, the fan must be tested together with the frequency inverter (Types FU-C(S) with protection mode, accessories) and may then also be operated at different speeds in the event of smoke extraction. The frequency inverter is not bypassed.
Smoke extraction by means of a fan with EC motor is possible if the gases to be extracted are not in an increased temperature class (e.g. for sprinklers).
With regard to the EVS-FUEC, the fan is directly powered by the NSHV. The smoke extraction or ventilation function is controlled via the smoke exhaust fan control system EVS-FUEC.

Individual solutions

Helios delivers individual switch cabinets upon request and thus the matching smoke exhaust fan control system for every project.

Marking

- TÜV approval
- CE

Accessories

Smoke detector

Type RMR Ref. no. 04984

Smoke detector according to EN 54-7, incl. detector base for the automatic triggering of EVS for smoke detection.

Operating voltage	9-33 V DC
Power consum. rest/alarm	30 µA/20 mA
Protection category	IP40
Dimensions mm	Ø 100 x H 44

Push-button alarm

Type DKM Ref. no. 04985

Push-button alarm in limit value technology for manual triggering of EVS by button. Includes reset button and LED indicator for operating state.

Operating voltage	20-30 V DC
Protection category	IP40
Colour	RAL 2011
Dimensions mm	W 125 x H 125 x D 36

Fire service switch

Type FWS 2 Ref. no. 08255

Fire service switch (incl. LED display) with connection for DIN profile half-cylinder (Accessories).

Accessories:
Locking cylinder FWS ZY
Ref. no. 82331
Smoke extr. panel FWT p. 170

Weekly timer

Digital timer with LCD display for automatic control of EVS ventilation function. Installation in dry environment..
- For surface-mounting

Type WSUP Ref. no. 09990

- For switch cabinet installation

Type WSUP-S Ref. no. 09577

Warning devices

Visual and acoustic warning devices as 24 Volt signal transmitters, incl. base. Casing made from impact-resistant plastic, for ceiling and wall installation.
- Flash light siren

Type BLH Ref. no. 04983

- Flash light

Type BL Ref. no. 08216

- Siren

Type WH Ref. no. 08217

Isolator switch

Type RS 3+1 Ref. no. 06387

3-pole isolator switch with auxiliary contact for fans. Plastic casing for surface-mounting.

Type RS 6+1 See page 172

6-pole isolator switch with auxiliary contact for fans. Plastic casing for surface-mounting.

RMR

DKM

FWS 2

WSUP / WSUP-S

BLH / BL / WH

Information

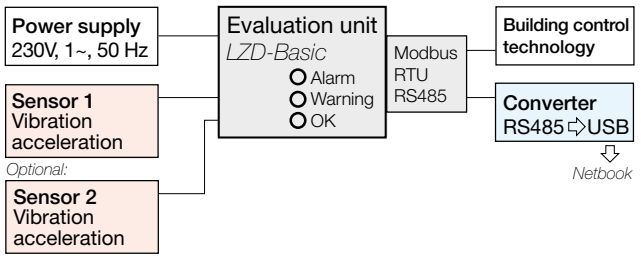
Cooling air fan B KLG for F600 smoke extraction fan 150 ff.

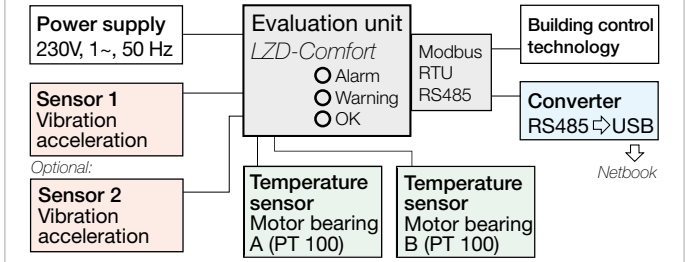
Isolator switch B RS in functional integrity F300 and F400 for installation within the area to be vented see p. 172

LZD

Information

The system is ready-for-use without on-site parametrisation or calibration.





The Helios bearing condition diagnostics system is for ensuring the functionality of motor bearings, even after a long standstill period, as may be the case with Helios smoke exhaust fans. The system checks and analyses the condition of the motor bearings. The results are shown directly using the traffic light principle for fast recording on-site or through the optional integration in the building control technology.

Area of application

The Helios bearing condition diagnostics system is designed for the constant or occasional monitoring of motor bearings in Helios fans operated directly on the mains. Ideally used for Helios smoke exhaust fans to be able to detect bearing damage at an early stage so that the motor bearings can be replaced depending on the actual bearing condition.

Product variants

The Helios bearing condition diagnostics system is available in two variants. Both systems have been developed for recording, checking, visualising and transmitting the bearing conditions.

- ☐ LZD Basic: Motor bearing condition diagnostics by recording the vibration acceleration.
- ☐ LZD Comfort: Motor bearing condition diagnostics by recording the vibration acceleration and bearing temperatures.

Order information

When ordering the Helios bearing condition diagnostics system, the following specifications are required:

- ☐ Bearing condition diagnostics system product variant (LZD Basic or LZD Comfort).
- ☐ Accessories for bearing condition diagnostics system.
- ☐ Helios fan to be monitored (type or reference no.).

Description LZD Basic

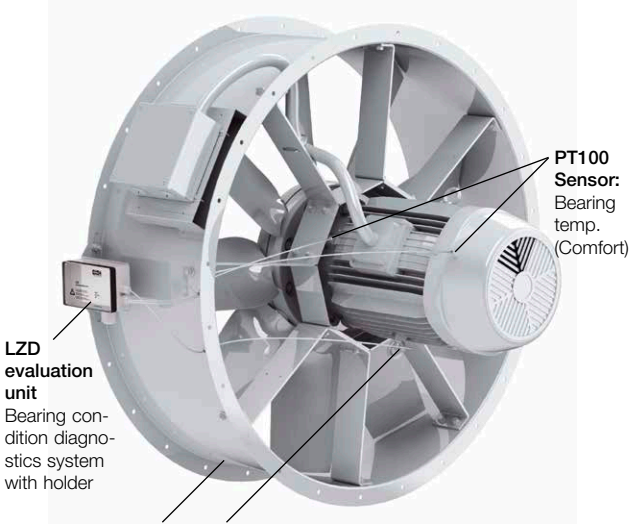
- ☐ Analysis of vibration acceleration at motor.
- ☐ Recording, analysing, visualising and transmitting the bearing conditions.
- ☐ Results shown directly using the traffic light principle with visual LED condition display or through integration in the building control technology (Modbus RTU).
- ☐ Connection to PC possible through interface converter (Accessories) using USB interface.
- ☐ Retrofittable for existing fans.

Description LZD Comfort

- ☐ Analysis of vibration acceleration at motor.
- ☐ Evaluation of bearing grease condition by analysing the absolute and temperature difference between A-side and B-side motor bearings.
- ☐ Recording, analysing, visualising and transmitting the bearing conditions.
- ☐ Results shown directly using the traffic light principle with visual LED condition display or through integration in the building control technology (Modbus RTU).
- ☐ Connection to PC possible through interface converter (Accessories) using USB interface.

Type	Ref. no.	Voltage	Power consumption	Sensors		Monitoring	Evaluation unit		Wiring diagram
				Vibration acceleration	Bearing temperature		Dimensions (WxHxD)	Protection category	
LZD Basic	05790	1~, 230V, 50 Hz	5 W	1 - 2 pcs	–	Vibration acceleration	180 x 110 x 62.5	67	1089
LZD Comfort	05791	1~, 230V, 50 Hz	5 W	1 - 2 pcs	2 pcs	Vibration acceleration and bearing temperature	180 x 110 x 62.5	67	1089

Installation example LZD



Information

One evaluation unit is required per fan to be monitored.

Outstanding product features

- The system is ready-for-use without on-site parametrisation or calibration.
- The bearing condition diagnostics system works independently of the nominal speed of the motor and can be used for both 1-stage and 2-stage motors.
- The data set in the control unit contains all limit values for the vibrations and temperatures of the Helios fan motors.
- Optimised analysis of bearing conditions by suppressing the low frequency vibrations of the fan.
- Integration of up to 247 evaluation units in the building control technology.

System benefits

- Maximum cost-savings through simple documentation of bearing condition for the functional test and maintenance.
- Retrofittable for existing fans.
- Immediately ready-for-use without on-site calibration.
- The system allows bearing replacement depending on actual wear through bearing condition diagnosis.
- High operational reliability of smoke exhaust fans through early detection of impending bearing damage.

Scope of delivery

- The Helios bearing condition diagnostics system is already mounted ex works to the fan to be monitored via a separate holder upon delivery (possible additional costs for fan in special design).
- Evaluation unit LZD Basic or LZD Comfort.
- Sensors for recording the vibration acceleration and bearing temperatures (only for LZD Comfort).

Casing

- Evaluation unit in compact plastic casing with transparent cover, cable glands and condensation drain.
- Can be used for outdoor installation, protection class IP67, UV-resistant.

Connection

- Input
  - Mains connect. 230 V/1~/50 Hz
  - Max. two sensors for vibration acceleration
  - Max. two sensors (PT 100) for motor bearing temp. (only for LZD Comfort)
- Output
  Modbus RTU interface
  - Building control technology
  - USB interface converter

Connection options

- Stand-alone
- Connection via USB interface converter, max. 247 evaluation units.
- Integration in bus system in building control technology (GLT), max. 247 evaluation units.

Bearing condition indication

- Green: OK
  The condition of the rolling bearing (LZD Basic) and the condition of the bearing grease (LZD Comfort) is fine.
  - Bearing is functional.
  - Bearing replacement not recommended!
- Yellow: WARNING
  The condition of the rolling bearing (LZD Basic) and the condition of the bearing grease (LZD Comfort) is still acceptable.
  - Bearing is still functional.
  - Halving of maintenance interval is recommended!
- Red: ALARM
  The condition of the rolling bearing (LZD Basic) and the condition of the bearing grease (LZD Comfort) is not fine.
  - Bearing is not functional.
  - Immediate bearing replacement is recommended!

Marking

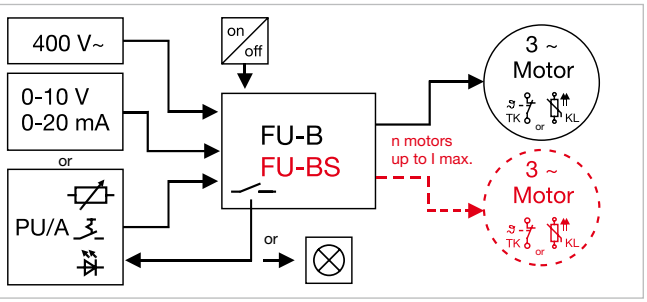
CE

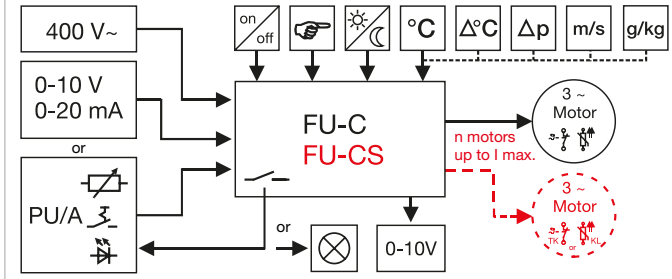
Technical data

Mains voltage	230 V, 1~
Mains frequency	50 Hz
Power consumption	5 W
Operating temperature	-30 to +50 °C
Max. length Modbus RTU	400 m
Protect. category (DIN EN 60529)	IP67
Protection class	II
Casing	UV-resistant
Dimensions	W 180 x H 110 x D 62,5
Wiring diagram	1089

FU-B and FU-BS

FU-C and FU-CS





Description
FU-B “Basic”

- Frequency inverter FU-B in basic design without sine filter for speed control of individual fan.
- Speed specification via 0-10 V control signal (e.g. potentiometer PU/PA, Accessories).
- Cable length between FU-B and fan max. 10 m with shielded cable.
- The fan must be designed for operation with frequency inverter (EMC suitable fan/motor, optional special design).
- The FU-B is fixed at its nominal current.
- For FU-B operation (without sine filter), the frequency inverter capability must be specified when ordering fan.

Description
FU-BS “Basic Sine”

- Frequency inverter FU-BS in basic design with integrated, all-pole effective sine filter.
- For the speed control of one or more fans. The permitted number of fans comes from the maximum FU current.
- Speed specification via 0-10 V control signal (e.g. PU/PA, Accessories).
- Cable length between FU-BS and fan over 10 m possible.
- No additional EMC shielding of electrical cables required. The fans including motors do not require special EMC measures for the frequency inverter operation.
- The FU-BS is fixed at its nominal current.
- When using the frequency inverter with integrated sine filter, conventional standard fans/motors can be used.

Description
FU-C “Comfort”

- Frequency inverter FU-C in comfort design without sine filter for speed control of individual fan.
- Includes display and three operating buttons for adjusting the fan and control parameters.
- Parameterisation and control options via Modbus.
- With integrated, full control system for temperature, pressure and air speed. Required sensors LDF 500, LGF 10, LT.., AFS.., (Accessories) available.
- Speed specification via 0-10 V control signal (e.g. potentiometer PU/PA, Accessories) or via direct input on display.
- Cable length and suitability of fan for operation with frequency inverter see description FU-B.
- For FU-C operation (without sine filter), the frequency inverter capability must be specified when ordering fan.
- With protection mode for use in smoke extraction systems, bridged internal protection device for maximum operating duration.

Description
FU-CS “Comfort Sine”

- Frequency inverter FU-CS in comfort design with integrated, all-pole effective sine filter.
- For the speed control of one or more fans. The permitted number of fans comes from the maximum FU current.
- Includes display and three operating buttons for adjusting the fan and control parameters.
- Parameterisation and control options via Modbus.
- With integrated, full control system for temperature, pressure and air speed. Required sensors LDF 500, LGF 10, LT.., AFS.., (Accessories) available.
- Speed specification, cable length, EMC measures see description FU-BS.
- When using the frequency inverter with integrated sine filter, conventional standard fans/motors can be used.
- With protection mode for use in smoke extraction systems, bridged internal protection device for maximum operating duration.

	FU-B and FU-BS
Analogue inputs	1 x 0 – 10 V, Ri 100 kOhm or 0 – 20 mA
Logic inputs	1 x digital 24 V, release
Analogue output	—
Relay output	1 x NOC 250 V / 2 A ind.
Power supply for modules	1 x 10 V DC, 10 mA, 1 x 24 V DC, 70 mA
Motor temperature monitoring	Thermal contact or PTC thermistor

	FU-C and FU-CS
Analogue inputs	2 x 0 – 10 V, Ri 100 kOhm or 0 – 20 mA, or KTY
Logic inputs	2 x digital 24 V, parameterisable function
Analogue output	1 x 0 – 10 V DC, 10 mA
Relay output	2 x NOC 250 V / 2 A ind.
Power supply for modules	1 x 10 V DC, 10 mA (in analogue output), 1 x 24 V DC, 70 mA
Motor temperature monitoring	Thermal contact or PTC thermistor

General features

- Specially for HLK application of optimised inverter.
- Energy-saving through variable speed setting.
- Specially designed for fan motor, i.e. minimum energy consumption and minimum noise generation in partial load zone.
- Use of maintenance-free three phase asynchronous motors of all designs and performances.
- No performance restriction when using standard motors.
- Operating signal via potential-free contact.
- Potentiometer power supply: 10 V DC / 10 mA for potentiometer with e.g. 10 kOhm
- Analogue input for speed specification (0-10 V, 0(4)-20 mA).
- Protection against earth leakage and short circuit.
- Integrated electronic motor protection via TK or PTC thermistor.
- Controller galvanically isolated.
- Protection against overvoltages
- Also suitable for switch cabinet installation.
- Performance reduction at ambient temp. above 40 °C – 55 °C.

Type-specific features

Basic types:

- Additional power supply: 24 V DC / 70 mA for wiring of digital inputs and external auxiliary components.

Sine types:

- Includes internal, all-pole effective sine filter.
- For the simple, retrospective extension of existing ventilation systems.

Comfort types:

- Free specification of acceleration and deceleration times for reduction of start-up noises.
- Additional power supply: 24 V DC / 120 mA for wiring of digital inputs and external auxiliary components.
- Simple adjustment and control of values by means of display
- Comprehensive diagnostics display in case of fault.
- Speed specification direct on unit via display.
- Serial interface RS 485 / Modbus-RTU.
- Parameterisable, performance adjustment as required.

Information

- **Internal, all-pole effective sine filter** (types FU-..S)
  Filters the voltages between the individual phases as well as the phase voltage between phase and protective conductor. Thus, the output voltage of the frequency inverter is purely sinusoidal and corresponds to the quality of a standard mains voltage.
- **FI circuit breaker** (all types)
  When using the FU in an environment that requires a FI circuit breaker, it must be sensitive to universal current, type B+, 300 mA.
- **EMC**
  All FU types comply with EMC directive 2014/30/EU and the applicable standards such as DIN EN 60335-1 and DIN EN 550011. Radio interference filters are integrated for compliance with cl. B (residential area). For FU-B and C, the cable between the fan and the frequency inverter must be shielded and max. 10 m long. Motor power supply and temp. monitoring must be installed separately.
- **Design motor current/ frequency**
  When selecting a suitable frequency inverter, the max. motor current must be considered. If a multiple fans are operated, 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 otherwise the motor will overload and fail. Operation with higher frequency is possible upon request.
- **Motor protection**
  Maximum motor protection is achieved by monitoring (thermal contact/PTC thermistors), in which max. 6 PTC thermistors in series can be connected to a device. An increase in the number of PTC thermistors is possible through the use of monitoring devices (MSA, Accessories).

Type	Ref. no.	Maximum output		Cable cross-section from mains to motor cable	Wiring diagram	Dimensions			Net weight approx.
		Output current	Motor			Height	Width	Depth	
		A	kW	mm²	No.	mm	mm	mm	kg
Basic design without sine filter for three-phase current fans, 3~, 400 V, 50/60 Hz, protection category IP 54									
FU-B 3.6	05453	3.6	1,5	4 x 1.5[1)]	1020	284	240	115	2.6
FU-B 5.0	05454	5.0	2,2	4 x 1.5[1)]	1020	302	250	196	4.6
FU-B 7.0	05455	7.0	3,0	4 x 1.5[1)]	1020	302	250	196	4.7
FU-B 8.5	05456	8.5	4,0	4 x 1.5[1)]	1020	302	250	196	5.6
FU-B 12	05457	12.0	5,5	4 x 1.5[1)]	1020	302	250	196	5.7
FU-B 17	05458	17.0	7,5	4 x 1.5[1)]	1020	302	250	196	5.9
Basic design with all-pole effective sine filter for three-phase current fans, 3~, 400 V, 50/60 Hz, protection category IP 54									
FU-BS 2.5	05459	2.5	[2)]	4 x 1.5	1028	284	240	115	2.7
FU-BS 5.0	05460	5.0	[2)]	4 x 1.5	1028	302	250	196	5.2
FU-BS 8.0	05461	5.0	[2)]	4 x 1.5	1028	302	250	196	6.3
FU-BS 10	05462	10.0	[2)]	4 x 1.5	1028	302	250	196	6.8
FU-BS 16	05463	16.0	[2)]	4 x 1.5	1028	302	250	196	6.9
Comfort design without sine filter for three-phase current fans, 3~, 400 V, 50/60 Hz, protection category IP 54									
FU-C 4.2	05865	4.2	1,5	4 x 1.5[1)]	1030	302	250	195.5	6.4
FU-C 8.5	05868	8.5	4,0	4 x 1.5[1)]	1030	302	250	195.5	7.3
FU-C 12	05869	12.0	5,5	4 x 1.5[1)]	1030	302	250	195.5	7.5
FU-C 17	05870	17.0	7,5	4 x 2.5[1)]	1030	302	250	195.5	7.5
FU-C 25	05464	25.0	11	5 x 4.0[1)]	1030	355	280	239	12.5
FU-C 32	05465	32.0	15	4 x 6.0[1)]	1030	524	386	283	24.5
FU-C 39	05466	39.0	18,5	4 x 10.0[1)]	1030	524	386	283	26.3
FU-C 46	05467	46.0	22	4 x 10.0[1)]	1030	524	386	283	26.3
FU-C 62	05468	62.0	30	4 x 16.0[1)]	1030	524	386	283	26.3
Comfort design with all-pole effective sine filter for three-phase current fans, 3~, 400 V, 50/60 Hz, protection category IP 54									
FU-CS 2.5	05871	2.5	[2)]	4 x 1.5	1032	284	240	115	3.3
FU-CS 8	05873	8.0	[2)]	4 x 1.5	1032	302	250	195.5	7.9
FU-CS 10	05874	10.0	[2)]	4 x 1.5	1032	302	250	195.5	8.2
FU-CS 14	05875	14.0	[2)]	4 x 1.5	1032	302	250	195.5	8.7
FU-CS 18	05469	18.0	[2)]	4 x 2.5	1032	302	250	196	9.1
FU-CS 22	05470	22.0	[2)]	5 x 4.0	1032	355	280	239	14.5
FU-CS 32	05471	32.0	[2)]	4 x 6.0	1032	525	386	283	29.6
FU-CS 40	05472	40.0	[2)]	4 x 10.0	1032	525	386	283	29.6
FU-CS 50	05473	50.0	[2)]	4 x 16.0	1032	525	386	283	32.8

[1)] Max. 10 m shielded, motor power supply and motor protection installed separately. [2)] The max. current of all connected fans is decisive for the design.

Accessories

PU 24/PA 24 No. 01736/01737
Speed potentiometer, flush/surface, LED 24 V, poti 10 V/1.3–10 V.

SU-3 10/SA-3 10 04266/04267
Speed three-step switch, flush/surface, 10 V/1.7–10 V.

Type WSUP Ref. no. 09990
Weekly timer with LCD display, potential-free contact.

Type WSUP-S Ref. no. 09577
Weekly timer potential-free contact, for DIN rail.

Type EDR Ref. no. 01437
Electronic diff. pressure controller 0–1000 Pa, 10–24 V / 0–10 V.

Type ETR Ref. no. 01438
Electronic temperature controller (sensor see Accessories ETR).

Type LDF 500 Ref. no. 01322
Differential air pressure sensor, measurement range 0 to 500 Pa.

Type LGF 10 Ref. no. 01325
Air speed sensor,
Measurement range 0 to 10 m/s.

Type LTA 40 Ref. no. 01336
Temp. sensor for outside,
Meas. range –20 °C to +60 °C,
Protection category IP 54.

Type LTK 40 Ref. no. 01324
Temp. sensor for duct installation,
Meas. range 0 °C to +40 °C.

Type LTR 40 Ref. no. 01323
Room temperature sensor,
Meas. range +0,5 °C to +40 °C.

Type AFS 0–10 V Ref. no. 06532
Absolute humidity sensor, with 0–10 V control output.

Type AFS set 0–10 V No. 07376
Set consisting of 2 sensors.

General technical data

Mains voltage	3~, 208 – 480 V
Mains frequency	50/60 Hz
Output voltage	95 % of U_{Net}
Output frequency	50 Hz
Protection category	IP 54
Ambient temperature	0 to +40 °C (–20 °C not current-free)

Fire service switch

FWS 2

Type FWS 2 Ref. no. 08255

Fire service switch for connection to the smoke exhaust fan control system EVS, the garage control system B LS/SSTG or the overpressure ventilation systems for stairways. Specially developed and tuned for high requirements for functional safety and use in safety-related systems. Self-retracting switch contact buttons (conversion to latches possible for overpressure ventilation systems). Hidden reset function via button under the casing cover. Includes an LED display for the visualisation of four system operating states.

Safety pressure switch

FWS ZY

Type FWS ZY Ref. no. 82331

Profile half-cylinder with adjustable lock bit incl. 3 keys, with anti-drill protection, nickel-plated brass.

Electronic air flow monitor

SWE

Type SWE Ref. no. 00065

For monitoring the air flow in a duct section. Open-circuit or closed-circuit principle possible.

Technical data

Voltage	230 V, 1~, 50/60 Hz
Capacity	5 A (ind.) cos j 0,4
Setpoint setting range	1-20 m/s
Air flow temperature	max. 60 °C
Ambient temperature	max. 60 °C
Protection category	IP20
Dimensions mm	W 35 x H 90 x D 66
Sensor length mm	140
Weight approx.	0.4 kg
Wiring diagram no.	689.1

Differential pressure switch

DDS

Type DDS Ref. no. 00445

Complete attachment kit for monitoring air filters, system pressure and fan operation. Suitable for DDC applications (24 V DC/0.1 A) due to gold-plated connection contacts. Once used in conventional technology (230 V AC/ 1.5 A), subsequent use in DDC applications no longer possible. Suitable for applications according to VDI 6022.

Technical data

Adjustable measuring range	50 – 500 Pa
Switching differential Dp	20 Pa
Max. operating overpressure	5 kPa
Capacity	230 V AC 1.5 (0.4) A
	24 V DC 0.1 A
Ambient temperature	-20 to +85 °C
Air flow temperature	-20 to +85 °C
Humidity	0...50% RH
	non-condensing
Protection category	IP54
Dimensions mm	Ø 104, D 58
Weight approx.	0.23 kg
Wiring diagram no.	490

Safety pressure switch

DDB

Type DDB Ref. no. 82062

Safety pressure switch for monitoring differential pressures and protecting against impermissibly high differential pressure, e.g. in RDA/ TSA DDK and TSA.
Pressure measurement range 20 to 300 Pa.
Switch contact load 1.0 (0.4) A, 250 VAC. Protection category IP 54. Dim. mm approx. 58 x 104 mm. Wall and ceiling installation.

Isolator / main switch RHS

RHS 3+1

Type RHS 3+1 Ref. no. 01594

Position “0” lockable by means of padlock. According to DIN EN 60204 pt.1/VDE 0113-1. Plastic casing for surface-mounting. 3 pole with additional contact, for single speed and speed-controlled fans.

Technical data

Voltage	400 V, 3~, 50 Hz
Capacity	
– main contact	AC 3 / 5,5 kW 12 A ind.
– aux. contact	AC 3 / 2.2 kW 4 A ind.
Protection category	IP54
Dim. mm	W 101 x H 126 x D 104
Weight approx.	0.35 kg
Wiring diagram no.	505.2

RHS 6+2

Type RHS 6+2 Ref. no. 01595

Position “0” lockable by means of padlock. According to DIN EN 60204 pt.1/VDE 0113-1. Plastic casing for surface-mounting. 6 pole with 2 additional contacts, for all pole-switching fans.

Technical data

Voltage	400 V, 3~, 50/60 Hz
Capacity	AC 3 / 5.5 kW
Protection category	IP65
Dim. mm	W 82 x H 82 x D 125
Weight approx.	0.3 kg
Wiring diagram no.	505.3

■ Isolator switch RS
□ 3 pole with auxiliary contact

RS 3+1 7,5

Type RS 3+1 7.5 Ref. no. 06387
Plastic casing for surface-mounting. Locking options in position “0 OFF” and position “I ON”.

Technical data

Voltage	400 V, 3~, 50/60 Hz
Operating current	20 A
Capacity	AC-23 B, 7,5 kW
Prot. category	IP65
Protect. class	II
Actuation	Rotary actuator
Temperature range	-25 °C to +60 °C
Weight approx.	0.3 kg
Casing	UV and weather resistant
Wiring diagram no.	1088

□ 6 pole with auxiliary contact

RS 6+1

Type RS 6+1
Plastic casing for surface-mounting. Locking options in position “0 OFF” and position “I ON”.

Technical data

Voltage	400 V, 3~, 50/60 Hz
Prot. category	IP65
Protect. class	II
Actuation	Rotary actuator
Locking options	“0 OFF” and “I ON”
Temperature range	-25 °C to +60 °C*
Casing	UV and weather resistant
Wiring diagram no.	1088

**RS 6+1 55:* -25 °C to +40 °C.

Type	Ref. no.	Capacity			Cable entry main contact	Size cable entry
For Dahlander winding or Y/Δ start-up						
RS 6+1 7.5	06388	20 A	AC-23 B	7.5 kW	4 pcs	M20
RS 6+1 11	06389	25 A	AC-23 B	11 kW	4 pcs	M25
RS 6+1 15	06390	32 A	AC-23 B	15 kW	4 pcs	M25
RS 6+1 22	06391	50 A	AC-23 B	22 kW	4 pcs	M40/32/25
RS 6+1 37	06392	80 A	AC-23 B	37 kW	4 pcs	M40/50
RS 6+1 45	06393	125 A	AC-23 B	45 kW	4 pcs	M50
RS 6+1 55	06394	125 A	AC-23 B	55 kW	4 pcs	M40/50

■ Smoke exhaust isolator switch B RS
□ 6 pole with auxiliary contact

B RS

Type B RS
EN 12101-3 certified smoke spill inspection switch in temperature-time classification F300 and F400. Metal casing for surface mounting. Locking options in position “0 OFF” and position “I ON”.

Technical data

Voltage	400 V, 3~, 50/60 Hz
Prot. category	IP65
Protect. class	II
Color	RAL 7035
Actuation	Rotary actuator
Temperature-Time classification	F300/F400
Casing	UV and weather resistant
Wiring diagram no.	1394

Type	Ref. no.	Capacity		
F300				
B RS 6+1 11 F300	40087	25 A	AC-23 B	11 kW
F400				
B RS 6+1 11 F400	40088	25 A	AC-23 B	11 kW
B RS 6+1 22 F400	40089	40 A	AC-23 B	22 kW
B RS 6+1 30 F400	40090	63 A	AC-23 B	30 kW
B RS 6+1 45 F400	40091	100 A	AC-23 B	45 kW
B RS 6+1 55 F400	40092	125 A	AC-23 B	55 kW

■ **For alternating current fans with thermal contacts wired to the terminal board**

▢ **Full motor protection switch MW**
Switch and full protection device in plastic casing for surface mounting or installation in switch cabinet (clamping assembly for mounting rail).

MW

Type MW Ref. no. 01579
On/off actuation by push-button switch. Manual recommissioning after fault.
Potential-free auxiliary contact for connection for fault report.
230 V, 1~, 50/60 Hz, use from 80 V
Nominal current 0.4 to 10 A
Protection cat. IP55 Weight approx. 0.5 kg
Dimensions mm W 80 x H 140 x D 95
Wiring diagram no. 517

■ **For three-phase current fans with thermal contacts**

▢ **Full motor protection switch MD**
Switch and full protection device in plastic casing for surface mounting or installation in switch cabinet (clamping assembly for mounting rail).

MD

Type MD Ref. no. 05849
On/off actuation by push-button switch. Manual recommissioning after fault.
Potential-free auxiliary contact for connection for fault report.
400 V, 3~, 50/60 Hz, use from 80 V
Nominal current 0.1 to 25 A
Protection cat. IP55 Weight approx. 0.5 kg
Dimensions mm W 80 x H 140 x D 95
Wiring diagram no. 518

■ **For pole-changeable three-phase current fans with separate winding and thermal contacts**

▢ **Full motor protection switch M 2**
Switch and full protection device in light-grey plastic casing with indicator light for surface mounting.

M

Type M 2 Ref. no. 01292
Motor disconnected from the mains with TK response. Recommissioning after fault by switch rotation over position “0”.

Voltage 400 V, 50/60 Hz
Switching capacity AC 3 / 5.5 kW
Nominal current approx. 12 A
Protection cat. IP55 Weight approx. 1.0 kg
Dimensions mm W 170 x H 135 x D 115
Wiring diagram no. 142

■ **For pole-changeable three-phase current fans with Dahlander winding and thermal contacts**

▢ **Full motor protection switch M 3**
Design and function like M 2

M

Type M 3 Ref. no. 01293
Like M 2, but for pole-switching 3~ fans with Dahlander winding and built-in TK.
Dimensions mm W 170 x H 135 x D 135
Wiring diagram no. 143

■ **For two-speed three-phase current fans with Y/Δ switching and thermal contacts**

▢ **Full motor protection switch M 4**
Design and function like M 3

Type M 4 Ref. no. 01571
Like M 3, but for two speed 3~ fans with Y/Δ switching and built-in TK.
Wiring diagram no. 144

■ **For three-phase current fans with built-in PTC thermistors (PTC temperature sensors) for thermal motor protection. Use mandatory for speed-controlled, explosion-proof fans.**

▢ **Full motor protection switch MSA**
Triggering device with lockout for 1 to 6 PTC thermistor temperature sensors connected in series.

MSA

When the nominal response temperature of a PTC thermistor is reached, the built-in relay drops out. A fault is indicated by built-in LED. Recommissioning by pressing the “Reset” button or via externally connectable switch. Plastic casing for switch cabinet installation on mounting rail according to DIN EN 60715.

Type MSA Ref. no. 01289
For thermal protection of electric motors (also explosion-proof electric motors according to guideline 2014/34/EU (ATEX)) with built-in PTC resistor temperature sensors according to DIN 44081 and DIN 44082.
When following is reached
Voltage 230 V ± 15 %, 50/60 Hz
3~ operation via contactor
Switching capacity at 230 V 3 A AC 15
Connection options 1 to 6 PTC thermistors in series. Type-tested by Federal Institute of Physics and Metrology, according to
DIN EN 60079-14 / VDE 0165-1
DIN EN 60079-0 / VDE 0170-1
DIN EN 60079-17 / VDE 0165-10-1
Protection category IP20
Weight approx. 0.2 kg
Dimensions mm W 35 x H 90 x D 58
Wiring diagram no. 325.1

■ **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 (hereinafter “TK”), which monitor the motor winding temperature. These contacts also protect the speed-controlled motors.

▢ For low motor powers, the thermal contacts are wired in series with the motor windings, i.e. they are internally wired. This ensures an automatic function (deactivation and reactivation after cooling) without the operator necessarily having to react to the fault.

▢ For motors/fans with higher power, the connections of the thermal contacts or PTC thermistor temperature sensors are wired to the terminal block and must be connected to the adjacent motor full motor protection/triggering devices. Only under this condition can the warranty claim be preserved.

▢ Motors/fans without thermal monitoring elements in the winding (e. g. IEC standard motors) must be all-pole protected by a suitable motor protection switch.

Smoke protection pressure and stairway scavenging air systems – keeping stairways free from smoke.

Smoke protection pressure and stairway scavenging air systems guarantee life-saving smoke extraction in stairways, airlocks, fire service lifts and anterooms in case of fire. They allow the people in the building to use the escape routes and thus safely exit the building.

A smoke protection pressure system generates a defined differential pressure between the escape routes and the adjacent building areas using a supply air fan, which effectively prevents the spread of smoke.
Whenever escaping persons open the doors which lead into the smoke-free escape route, the supply air fan immediately provides a flow of fresh air. This prevents the smoke from entering the escape route. Even with opened doors, the spreading of smoke is effectively prevented, so that the escape routes can be used without restrictions.
In addition to keeping escape routes free from smoke, the smoke protection pressure system also ensures the significant reduction of building damage caused by smoke. Smoke-free access to the fire floor is also created for the fire service, so that the source of the fire can be tackled quickly and effectively.
Stairway scavenging air systems ensure the ventilation of the entire stairway using a fan. The resulting dilution and discharge of smoke significantly reduces the smoke gas concentration.
The chances for a quick and successful self-rescue are considerably increased for the people in the building.

Smoke protection pressure systems

+ Redundancy package
– Supply air fan incl. mounting brackets and extension duct
– Frequency inverter or load unit

+ Ventilation package
– Wind and rain sensor
– Temperature sensor
– Weekly timer
– Ventilation key switch

180f

Stairway scavenging air system with controlled pressure maintenance

+ Redundancy package
– Supply air fan incl. mounting brackets and extension duct
– Frequency inverter or load unit

+ Ventilation package
– Wind and rain sensor
– Temperature sensor
– Weekly timer
– Ventilation key switch

186f

Stairway scavenging air system

+ Ventilation package
– Wind and rain sensor
– Temperature sensor
– Weekly timer
– Ventilation key switch

192f

Smoke protection pressure systems and stairway scavenging air systems

Product-specific planning information.

Only available for projects in Germany

176f

Planning

Protection objectives

Smoke protection pressure systems (RDA) keep escape routes in buildings free from smoke in case of fire (internal emergency stairways and fire service lifts in particular). Thus, they enable the self-rescue of persons, support the fire service efforts and reduce the damage caused by the spread of smoke and fire in the building.

Requirements

In order to effectively prevent the entry of smoke into the escape route, fresh air must flow through leakage areas against the spread of smoke and the specified speeds must be complied with for the cross-sections of the opened doors on the fire floor (self-rescue: ≥ 0.75 or ≥ 1.0 m/s, fire service: ≥ 2 m/s). In this respect, the differential pressure must not fall below 15 Pa and a door opening force of 100 N must not be exceeded for closed doors in the escape route. The constantly changing pressure conditions due to opening and closing doors must be taken into account by adjusting the air volume flows in the stairway complying with a control time of 3 seconds.

Standards and directives

DIN EN 12101-6 contains detailed explanations and specifications for smoke protection pressure systems.
The VDMA standard sheet 24188 formulates further requirements for the smoke removal, dilution and clearance. Furthermore, the legal building guidelines in the specific State Building Codes (LBO) or the high-rise building regulation must be taken into account. Numerous planning aids and descriptions are included in standard sheet 24188 and the VDMA information sheets.

Acceptance

An RDA must be coordinated with the architects, fire protection concept designers and the competent approval authority early in the planning phase. After the installation and adjustment, an expert will conduct an acceptance inspection. The operator will receive a briefing upon system handover. The functional reliability in case of emergency is ensured by the annual maintenance and regular functional tests.

System types

The VDMA standard sheet 24188 distinguishes between five system types:

1. Natural smoke extraction
2. Scavenging air system without controlled pressure maintenance
3. Scavenging air system with controlled pressure maintenance, without secured outflow on floor
4. Smoke protection pressure system with secured outflow on floor
5. Smoke protection pressure system with secured outflow on floor as well as redundant operating mode and emergency power supply

Delivery range

If only the flushing of the stairway is required, the planning of a stairway scavenging air system (TSA, TSAS) is favourable. This provides a constant supply air flow rate into the stairway, whereby infiltrated smoke gases are diluted and flushed out via the opened light dome. If there are additional requirements for overpressure in the stairway, a stairway scavenging air system with controlled pressure maintenance (TSA FU or TSA DDK) is preferable in the planning phase. If there are further requirements regarding the air flow speed for the door between the stairway and the fire floor beyond the differential pressure regulation in the stairway, a smoke protection pressure system (RDA FU and RDA DDK) with controlled air discharge opening on the fire floor should be planned.

Functions of a smoke protection pressure system

Triggering

Smoke protection pressure systems must be automatically put into operation via smoke detector. There should be one smoke detector per door that leads into the escape route. The smoke detector must be mounted in front of the entrance door in anterooms. Furthermore, at least one push-button alarm must be installed in the entrance area from outside. The system can be triggered by the building fire alarm system (BMA).

Flushing

The smoke protection pressure system must flush the stairway directly after triggering. An opening area must be created for discharging the scavenging air at the top of the stairway, e.g. through a light dome controlled by the RDA control system or differential pressure control damper. Possible infiltrated smoke gases are diluted in the RDA start-up phase and discharged from the stairway.

Overpressure build-up

After the initial scavenging, a controlled overpressure must be built up between the stairway and the fire floor in order to ensure a smoke-free area. For this purpose, the system must switch to pressure regulation operation and provide a defined air flow volume to the stairway using the supply air fan. For an equal air supply in the stairway of a high building, a supply air duct must be planned with injection points on every third floor. With the doors closed in the stairway, the differential pressure between the stairway and the adjacent unit is at least 15 Pa. If the differential pressure in the stairway falls too low or if not enough air is flowing through an opened door on the fire floor, smoke may enter the stairway. On the other hand, if the differential pressure is too high in the stairway, there may be impermissibly high door opening forces of more than 100 N (measured at the door handle) at the emergency doors. Depending on the surface of the door leaves and the force of the attached door closer, overpressures of approx. 40 Pa must not be exceeded in most cases.

Differential pressure regulation

Doors must be opened and closed for escaping persons or the fire service, which results in constantly changing pressure conditions in the stairway. A smoke protection pressure system must react to these conditions very quickly (3 sec.). The smoke protection pressure and stairway scavenging air systems with controlled pressure maintenance are available as active systems with frequency inverters (RDA FU, TSA FU) or as a passive solution with a self-regulating differential pressure control damper (RDA DDK, TSA DDK) for regulating the differential pressure.

– Active system:
The actively controlled systems have a specially developed frequency inverter, which enables a variable system supply air flow volume.
During pressure regulation operation, sensors permanently measure the differential pressure in the stairway. The frequency inverter automatically ensures that the differential pressure in the stairway is kept constant by controlling the speed of the supply air fan. For example, in case of an opened door, a significantly higher supply air volume flow will be supplied to the stairway than if all doors are closed.

– Passive system:
The passively controlled smoke protection pressure system has a differential pressure control damper, which reduces the overpressure to the atmosphere using an innovative mechanism when the differential pressure in the stairway is too high.

For this purpose, an opening pressure that is individually adjusted to the building is set for the differential pressure control damper.
With this system, the supply air fan runs permanently at its nominal speed in case of fire. The supply air flow volume is designed for if there is an opened door to the fire floor and simultaneous flow through smaller leakage areas in the stairway. In this situation, the differential pressure control damper is closed. If the door on the fire floor is closed, the differential pressure control damper will open and allow the supply air volume flow to flow into the atmosphere.

Door throughflow
In order that no smoke can infiltrate into the stairway while people are escaping from the fire floor, fresh air must quickly flow through the open door on the fire floor. For this purpose, the supply air fan provides fresh air through the open door in the direction of the escaping persons. The required door throughflow speed depends on the respective protection objectives:
- Self-rescue of persons ≥ 0.75 or ≥ 1.0 m/s
- Fire service support ≥ 2 m/s

Controlled air discharge opening
In order to reach the door throughflow speed, there must be a controlled air discharge opening (active or passive air discharge shaft, window with actuator, etc.) in the utilisation unit affected by the fire. The actuator for this opening can be controlled by the RDA or the fire alarm system, This requires specific system activation with information on the fire location. DIN EN 12101-6 Annex A contains important information on the correct design for the free-flowing areas of a controlled air discharge opening. If the air is discharged via a smoke extraction duct, precise pressure loss calculations and large duct cross-sections are often required.

Outside air inlet
The outside air inlet of the system must be located in such a way that no smoke can be taken in (see Model Ventilation System Directive – M-LüAR). Duct smoke detectors for monitoring the outside air inlet offer additional security, but must be coordinated with the expert inspectors in advance. An intake-side multi-leaf damper must be provided in the outside air inlet to protect against the infiltration of cold air. This multi-leaf damper is equipped with a motorised drive and is automatically opened when the system is in operation.
If the system has two redundant supply air fans (e.g. redundancy package), backdraught shutters must be provided for the fans to prevent short-circuiting when only one fan is operated. These backdraught shutters can be operated by spring force or via a motorised drive. The switch cabinet expansion in the redundancy package provides a specific damper control system for the supply air fan in operation for this purpose.

Differential pressure control dampers
Type description example:

DDK-L FD 1000/1020

- Dimensions in mm
- FD = flat roof installation
- LK = light dome installation
- WE = wall installation
- with ventilation function
- Diff. pressure control damper

Fire service lifts
Smoke protection pressure systems prevent the entry of smoke gases into the fire service lift shaft and their anterooms through the regulated build-up of overpressure. The RDA automatically opens an overflow opening (smoke extraction damper) on the fire floor, so that there is a ventilation connection between the lift shaft and anteroom, through which the supply air volume flow can flow from the lift shaft into the anteroom.
Parallel to this, a controlled air discharge opening is automatically created on the fire floor.
If the anteroom door is opened in case of fire, the supply air will immediately flow from the anteroom towards the direction of the spreading smoke. The resulting door throughflow speed of at least 0.75 m/s effectively prevents the spreading of smoke through the doors into the fire service lift anteroom. Thus, the entire fire service lift and its anterooms are kept free from smoke.
In line with reaching the throughflow speed in a stairway, it is also essential to create a controlled air discharge opening on the fire floor for the fire service lifts.

Supply air volume flow design
Using the calculation of the required dimensioning volume flow, the matching supply air fan is designed in three steps:

Leakage volume flow
The leakage volume flow must constantly flow into the stairway after triggering in order to build up the required overpressure. Leakages which the overpressure in the stairway can leak through include e.g. door gaps, lift shaft doors and leaking connections between windows and brickwork. Since the determination of leakages is often very difficult, non-considered leakages are compensated for using a factor of 1.5. In this respect, it is important to consider a potentially opened light dome or external door.

Volume flow for ensuring the required door throughflow speed
The required volume flow is determined depending on the door size and required throughflow speed.

Dimensioning volume flow
The final dimensioning volume flow results from the sum of the two aforementioned volume flows plus a limit deviation of 15 % for throughflow losses. The supply air fan is designed based on this dimensioning volume flow and the property-specific pressure losses.

DDK.. FD

DDK.. LK

DDK.. WE

Helios fans

Products

As a leading manufacturer of fans and ventilation systems, Helios offers a wide range of products and meets all requirements for flow rate and pressure increase in the finest gradations. Helios high-performance axial fans and Helios medium pressure axial fans are used in the RDA und TSA service packages and their flow rates are ideally adapted to the smoke protection pressure and stairway scavenging air systems.

Systems

Modular system packages enable the individual adjustment to the property and thus increase planning flexibility and system safety.

Services

Helios offers various services for planning support, realisation, commissioning and acceptance of RDA and TSA. The systems can only be commissioned by the Helios customer service team. Details on the scope of services can be found in the Helios TGA service catalogue Ref. no. 85934 or **heliosventilatoren.de/de/tga-service.de**

Air discharge via air discharge shaft

When the system is triggered, a controlled air discharge opening must be automatically made in the utilisation unit affected by fire in order to guarantee the required door throughflow speed. Especially with regard to high or freestanding buildings, complex building geometries and buildings in regions with strong wind, the controlled air discharge opening cannot be implemented above windows as facade outflow.
In these cases, a passive or active controlled air discharge shaft must be taken into account in the planning phase, which is used exclusively for smoke protection pressure system air discharge and works independent of wind influences.
With regard to this form of air discharge, the supply air flow is immediately discharged via an air discharge shaft running vertically through the building after the door throughflow. This air discharge shaft is often positioned in the necessary corridor.
It is essential that air discharge shaft has the corresponding fire resistance class and the air flows into the respective floors via the smoke control dampers.
It must be ensured that only the smoke control damper on the fire floor opens. All other scenarios which would result in the opening of other smoke control dampers on other floors must be excluded (locked).

Passive air discharge shaft (system diagram 1)

When the system is triggered, the corresponding airway is enabled by opening the smoke control damper on the fire floor and opening an air discharge shaft damper.
Large pressure losses during inflow (screen and smoke control damper) in the passive air discharge shaft must be taken into account, as well as impermissibly high pressure losses in the air discharge shaft itself.
Only the differential pressure from the stairway (max. 40 Pa in most cases) is available for the throughflow.
Thus, large shaft cross-sections of up to 1.5 m² and large inflow areas are crucial for a low flow speed and low pressure losses.
This form of air discharge can be used in buildings up to a height of around 10 floors depending on the flow and pressure conditions.
With regard to higher buildings, the air discharge pressure losses exceed the differential pressure in the stairway. If the differential pressure in the stairway is exceeded in such a way due to faulty planning, the door throughflow speed on the fire floor cannot be achieved due to the non-functioning air discharge.

Active controlled air discharge shaft (system diagram 2)

With regard to an active controlled air discharge shaft, the air is discharged via an air discharge shaft running vertically through the building.
However, the pressure losses in the air discharge shaft are compensated by a fan. This fan is positioned on the air discharge shaft and extracts the air from the fire floor.
An air discharge shaft (even with small cross-section) can also be used in high-rise buildings using this technology.
Fans in temperature class F300 are usually used and controlled using a frequency inverter depending on the pressure conditions and fire floor and they can also be implemented redundantly.
In order to precisely control the fan extraction, a differential pressure measurement is taken directly in front of the extraction point. A differential pressure sensor must therefore be installed on every floor and the RDA only evaluates the relevant sensor on the fire floor in case of fire. The differential pressure sensors are usually installed in the anterooms.
In order to reliably prevent pressure peaks when doors open and close, a bypass control damper can be positioned between the fan and air discharge shaft.
The control system for the active controlled air discharge shaft is housed in a separate switch cabinet and can also be positioned on the roof of the building in the immediate vicinity of the air discharge fan in the corresponding design.
The careful coordination of the supply air fan and the fan on the discharge air shaft is required for the adjustment in order to maintain the maximum permissible door opening force at all times.
The air discharge from the fan must be free of flammable objects and inaccessible for persons since increased temperatures can be expected under certain conditions.

Information

Active air discharge shaft for RDA available as expansion module, see EM 8.0 and EM 8.1 on page 183 and 184.

Includes secondary switch cabinet and frequency inverter.

Other property-specific components to be selected (not included in EM):

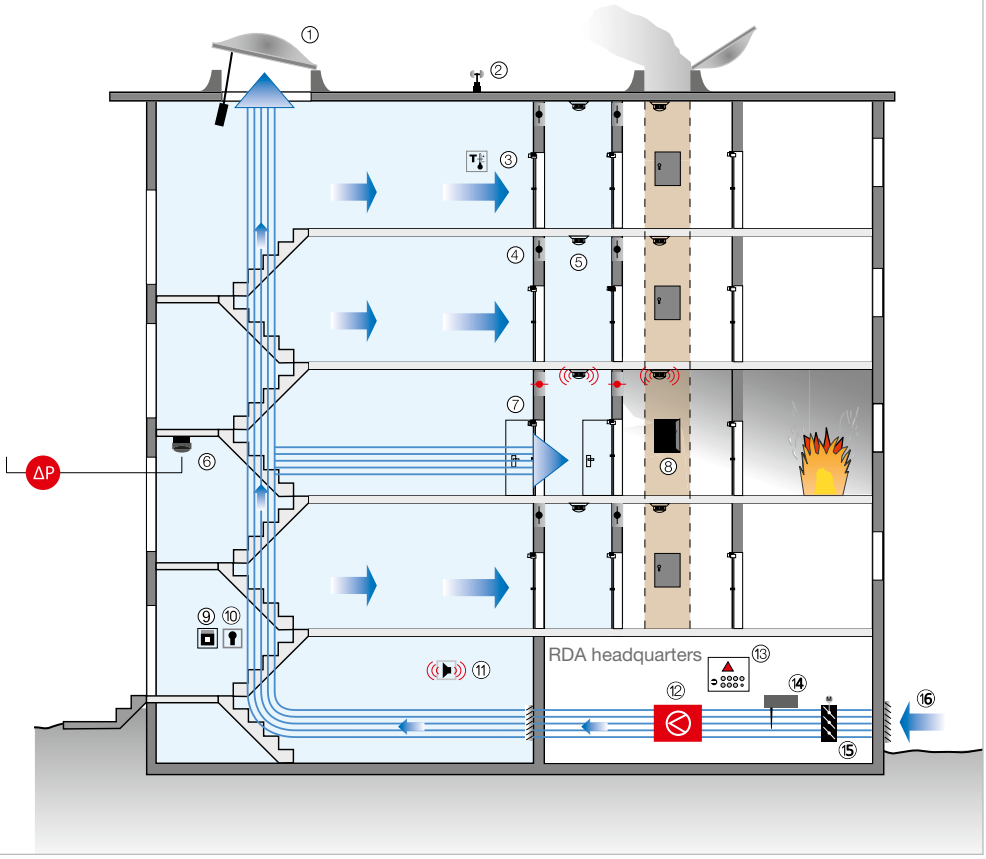
- Fan in shielded design (fire gas)
- Bypass control damper
- Mechanical accessories for fan installation (MK, SDD, VR, RVS, DIF, STS, etc.)
- Isolator switch
- Diff. pressure sensor (DDR) for each extraction point

Passive air discharge shaft (1)

Components

① Light dome
② Wind and rain sensor
③ Temperature sensor
④ Overflow valve
⑤ Smoke detector
⑥ Differential pressure sensor
⑦ Door closer[1)]
⑧ Smoke control damper[1)]
⑨ Push-button alarm
⑩ Ventilation key switch
⑪ Flash light siren
⑫ Supply air fan
⑬ RDA control with FU
⑭ Duct smoke detector
⑮ Inlet-side multi-leaf damper
⑯ Outside air intake[1)]

[1)] *On-site components*



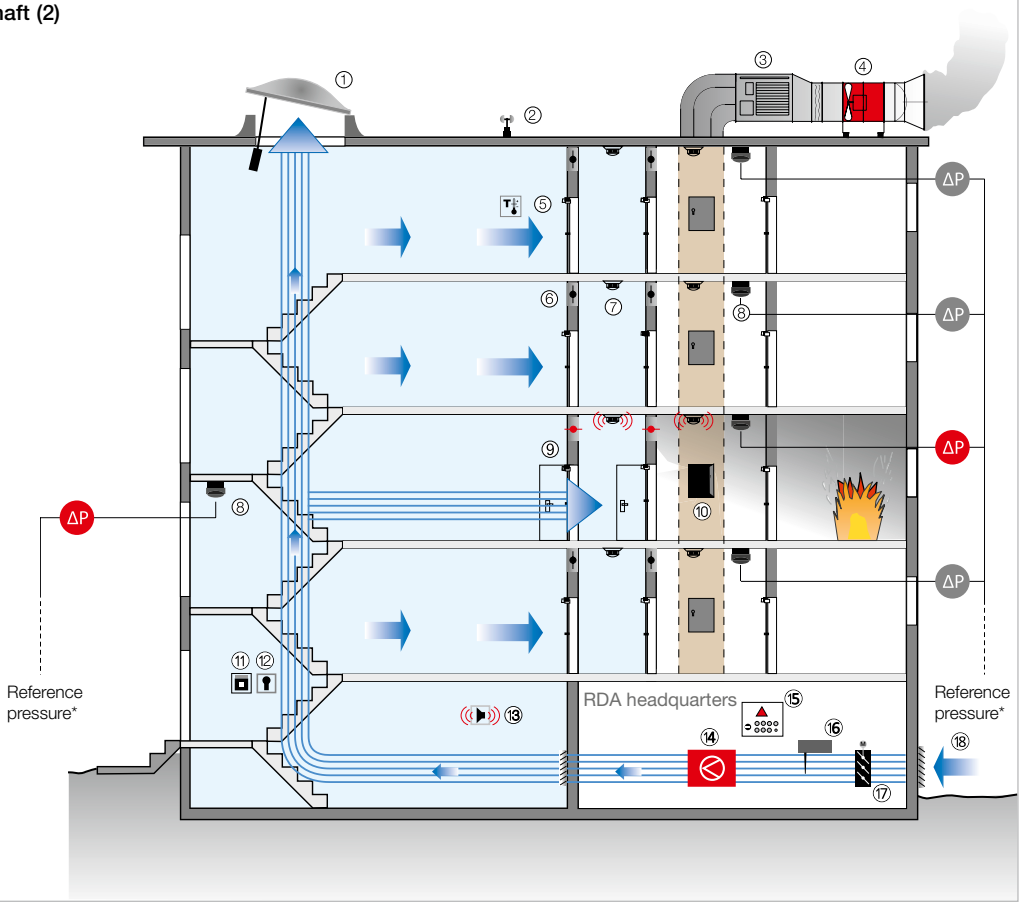
Active controlled air discharge shaft (2)

Components

① Light dome
② Wind and rain sensor
③ Air discharge element with bypass shutter and secondary switch cabinet
④ Exhaust fan with frequency inverter
⑤ Temperature sensor
⑥ Overflow valve
⑦ Smoke detector
⑧ Differential pressure sensor
⑨ Door closer
⑩ Smoke control damper[1)]
⑪ Push-button alarm
⑫ Ventilation key switch
⑬ Flash light siren
⑭ Supply air fan
⑮ RDA control with FU
⑯ Duct smoke detector
⑰ Inlet-side multi-leaf damper
⑱ Outside air intake[1)]

[1)] *On-site components*

**All differential pressure sensors refer to the same reference pressure.*



Smoke protection pressure system.

Smoke protection pressure systems ensure that escape routes are kept free from smoke in case of fire by building up differential pressure. Both active systems with frequency inverters (FU) and passive systems with self-regulating differential pressure control dampers (DDK) are used for differential pressure regulation. RDA service packages are available with frequency inverters or differential pressure control dampers in a total of three (DDK) or four (FU) sizes with volume flows from 15,000 to 35,000 m³/h. In addition to the fan, the service packages also include the switch cabinet with the control system and the respective components for differential pressure regulation.
Each RDA service package can be combined with the packages below and additional accessories to complete the system.

- ✓ Supply air fan incl. mounting brackets and extension duct
- ✓ Switch cabinet with control
- ✓ Frequency inverter
- ✓ 2 differential pressure sensors

Light dome (to be ordered separately if not provided on-site)

- ✓ Supply air fan incl. mounting brackets and extension duct
- ✓ Switch cabinet with control
- ✓ Safety pressure switch

Differential pressure control damper, optionally with/without ventilation function, for flat roof/wall or light dome installation (to be ordered separately)

RDA FU
Redundancy package

The solution when a RDA FU is required with two separately operating fans and load units.
Includes 1 unit of each

- ✓ Supply air fan incl. mounting brackets and extension duct
- ✓ Frequency inverter
- ✓ Switch board expansion

Ventilation package

Extends the functionality of the RDA to demand-oriented ventilation operation:

- ✓ Wind and rain sensor
- ✓ Temperature sensor
- ✓ Weekly timer
- ✓ Ventilation key switch

RDA DDK
Redundancy package

The solution when a RDA DDK is required with two separately operating fans and load units.
Includes 1 unit of each

- ✓ Supply air fan incl. mounting brackets and extension duct
- ✓ Load unit
- ✓ Switch board expansion

Active system
Smoke protection pressure systems with frequency inverter (RDA FU)

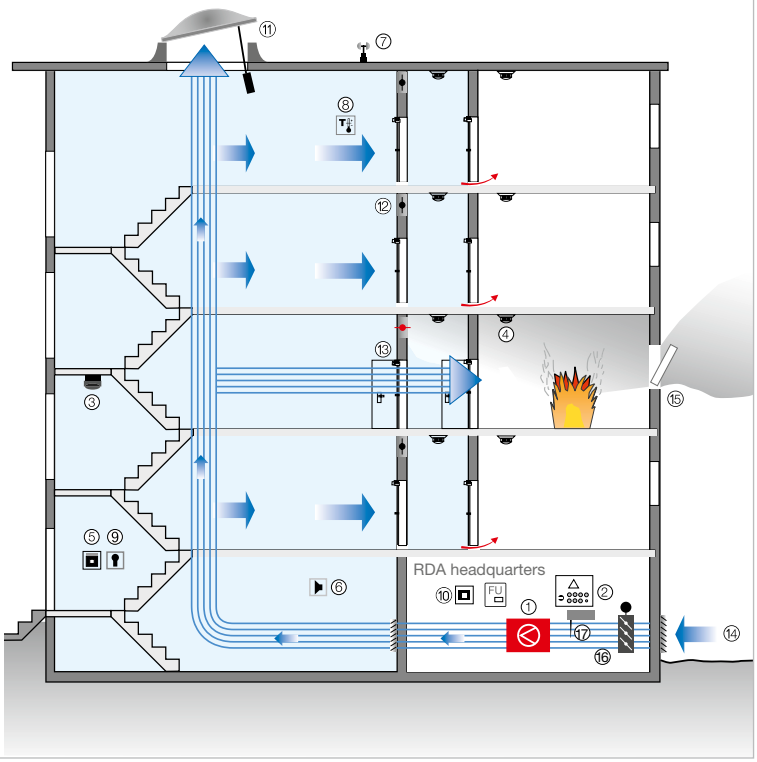
RDA FU packages and their components

Service package RDA FU
① Supply air fan
② RDA control with FU
③ Diff. pressure sensor

Accessories
④ Smoke detector
⑤ Push-button alarm
⑥ Flash light siren

Ventilation package LPT
⑦ Wind and rain sensor
⑧ Temperature sensor
⑨ Ventilation key switch
⑩ Weekly timer

Accessories
⑪ Light dome
⑫ Overflow valve
⑬ Door closer
⑭ Outside air inlet
⑮ Contr. air disch. opening
⑯ Intake-side multi-l. damper
⑰ Duct smoke detector



Smoke protection pressure system

Functionality RDA FU

During smoke detection, the RDA FU is triggered and the fan supplies fresh air to the stairway. The constant flow of fresh air flows through the opened light dome to dilute and flush any infiltrated smoke gases. The additional controlled overpressure that builds up in the stairway prevents the infiltration of smoke and ensures that the escape routes are kept free from smoke. The RDA opens a controlled air discharge opening on the fire floor, through which the supply air flows into the atmosphere after it has passed through the opened door between the escape route and the fire floor at a prescribed speed in addition to the escape route. Thus, fire gases are held back and the entry of smoke into the stairway is prevented.
The required differential pressure regulation is carried out by speed adjustment via the via the frequency inverter. The optional ventilation function allows the system to be used for the demand-based ventilation of the stairway at high temperatures.

Passive system
Smoke protection pressure systems with differential pressure control damper (RDA DDK)

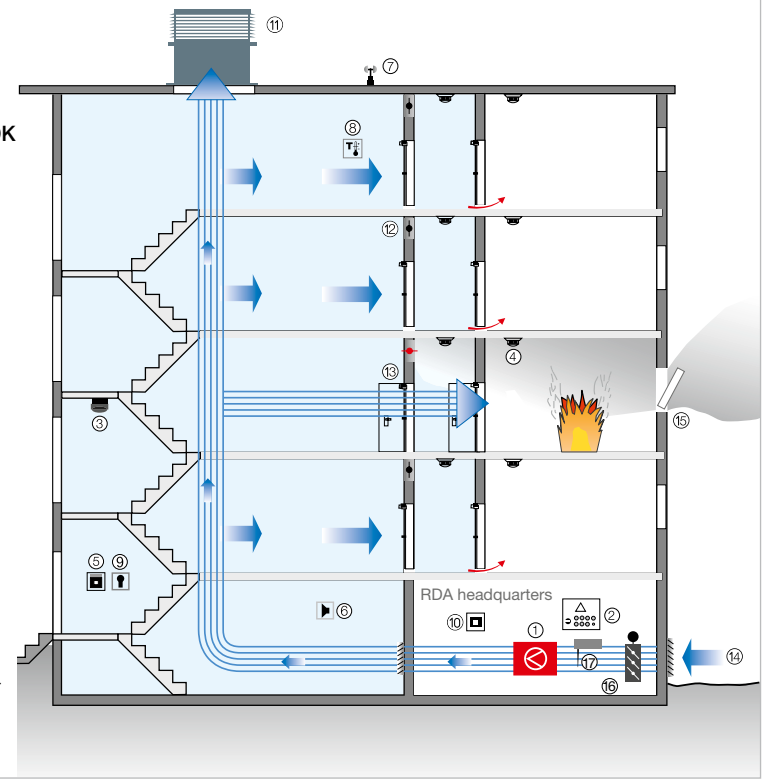
RDA DDK-Pakete und deren Komponenten

Service package RDA DDK
① Supply air fan
② RDA control with FU
③ Diff. pressure sensor

Accessories
④ Smoke detector
⑤ Push-button alarm
⑥ Flash light siren

Ventilation package LPT
⑦ Wind and rain sensor
⑧ Temperature sensor
⑨ Ventilation key switch
⑩ Weekly timer

Accessories
⑪ Light dome
⑫ Overflow valve
⑬ Door closer
⑭ Outside air inlet
⑮ Contr. air disch. opening
⑯ Intake-side multi-l. damper
⑰ Duct smoke detector



Smoke protection pressure system

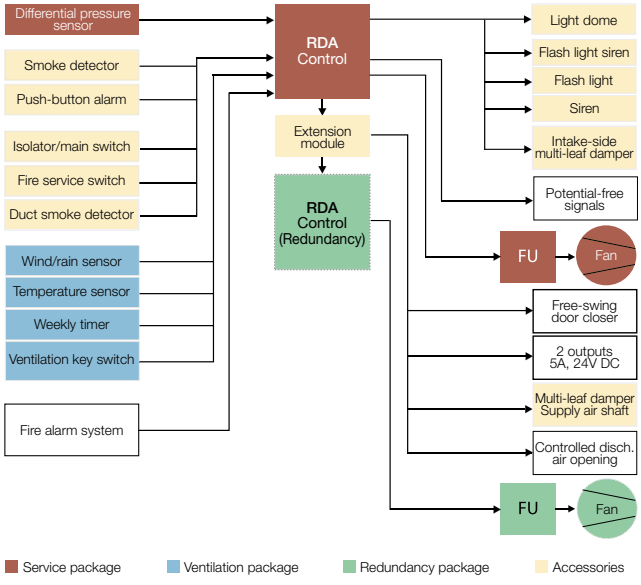
Functionality RDA DDK

For the passive smoke protection pressure system RDA DDK, the differential pressure regulation is ensured by an automatic differential pressure control damper, which creates an opening to the atmosphere at a pre-set pressure.
During smoke detection, the RDA DDK is triggered and the fan supplies fresh air to the stairway. The resulting controlled overpressure prevents the infiltration of smoke and ensures that the escape routes are kept free from smoke. The supply air flows into the atmosphere through a controlled air discharge opening after it has passed through the opened door between the escape route and the fire floor at a prescribed speed in addition to the escape route. Thus, fire gases are held back and the entry of smoke into the stairway is prevented.
The optional ventilation function allows the system to be used for the demand-based ventilation of the stairway at high temperatures.

RDA FU service package

Light dome available as separate accessory, see page 201.

System diagram RDA FU



Smoke protection pressure systems ensure that stairways, air-locks, fire brigade lifts and their anterooms are kept free from smoke in case of fire by building up the differential pressure.

With regard to the active systems RDA FU, the differential pressure is regulated by automatic fan speed adjustment via a frequency inverter.

Ideally matched system components in modular packages allow

- ☐ **the individual adjustment of the system to all structural conditions and requirements.**
- ☐ **trouble-free planning, installation and commissioning, as well as safe system operation.**

■ **Scope of delivery / Packages**
The modular packages can be ordered individually:

☐ **Service package RDA FU**
There are four service packages for selection, which contain the following components required in all properties as the basis of each RDA FU:

– Supply air fan in four performance ratings, depending on the required volume flow and operating point, see table below. Includes mounting brackets and extension duct.
– Switch cabinet with complete control system. Can be expanded with various functions and modules, see table on right page.
– Frequency inverter, specially coordinated ex works for optimal differential pressure regulation in smoke protection pressure systems.
– 2 differential pressure sensors for recording the prevailing pressure conditions in the overpressure area.

A light dome coordinated with the property must be selected as a pressure release unit pursuant to the table below and ordered separately if there is no controllable opening area at the top of the stairway on-site.

☐ **Smoke package RPT**
Includes the system components required for system triggering and alerting (see right page).

☐ **Ventilation package LPT**
Extends the functionality of the RDA to demand-oriented ventilation operation (see right page).

☐ **Redundancy package RDP RDA FU**
Converts the RDA into a complete system with two independently operating supply air fans including control system and frequency inverter (see right page) in case of corresponding building code requirements.

■ **Description**

☐ **Switch cabinet**
Lockable switch cabinet in high-quality sheet metal casing. With control and display panel mounted on the front.

☐ **Differential pressure regulation**
The Helios RDA FU fulfils all building code and normative requirements for differential pressure regulation by using a specially developed frequency inverter in combination with a high-performance supply air fan and innovative control technology.

☐ **Battery buffering**
RDA FU has battery buffering, which powers the entire control system including all relevant connections, warning devices and components (except supply air fan) in the event of a power cut as a breakdown control system.

☐ **Optional ventilation function**
The RDA creates natural ventilation in the stairway by opening the light dome and intake-side multi-leaf damper. There is also an option to support the ventilation with the supply air fan. The optional ventilation package (LPT) is required to use this extended function.

■ **Active air discharge shaft**

☐ **EM 8.0 and EM 8.1**
Contains secondary switch cabinet (for EM 8.1 for external installation with weather protection roof) and frequency inverter up to 7.5 kW. Connection to primary switch cabinet via BUS cable. Connection of floor-selective pressure sensors. Bypass shutter can optionally be connected.

RDA FU service package incl. a) Frequency inverter[1]				b) Supply air fan, three phase motor, IP55				c) Switch cab.	d) Diff. pressure sensor						
Type	Ref. no.	Volume flow (max.)	Differential pressure (max.)	Type	Nominal motor power	Voltage	Power consum.	Dimensions	Meas. range	Signal	**Redundancy package**		**Anti-vibration mounts (tensile)**		
		m^3/h	Pa	400 V, 50 Hz	KW	V	A	mm	Pa	mA	**Type**	Ref. no.	**Type**	Ref. no.	
RDA FU 15	05040	15 000	360	AMD 630/4	3,0	400	6,00	1000x1000x301	-100 to +100	4 - 20	**RDP RDA FU 15**	05048	**SDZ 4**	01945	
RDA FU 20	04996	20 000	410	AVD 800/4	4,0	400	7,95	1000x1000x301	-100 to +100	4 - 20	**RDP RDA FU 20**	05058	**SDZ 5**	01925	
RDA FU 25	04997	25 000	390	AVD 800/4	5,5	400	10,6	1000x1000x301	-100 to +100	4 - 20	**RDP RDA FU 25**	05059	**SDZ 5**	01925	
RDA FU 35	04998	35 000	630	AVD 900/4	11,0	400	22,2	1000x1000x301	-100 to +100	4 - 20	**RDP RDA FU 35**	05070	**SDZ 6**	01927	

Accessories für RDA FU..

Type	**Light dome** with 24V DC spindle drive, hub = 500 mm, 300 mm skylight base				**Intake-side multi-leaf damper**			**Servo motor** 24 V DC		**Bell mouth with guard**		**Automatic back-draught shutter**		**Flanged flex. connector**		**Anti-vibration mounts (pressure)**	
	Type	Nom. dim.	Opening	Ref. no.	**Type**	mm	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
RDA FU 15	**LK 12**	1200x1200	1.0 m^2	82059	**JVK 70/70**	700x700	01067	**STM 10/24**	01075	**ASD-SGD 630**	01422	**RVS 630**	02600	**STS 630**	01228	**SDD 4**	01944
RDA FU 20	**LK 12**	1200x1200	1.0 m^2	82059	**JVK 80/80**	800x800	01068	**STM 10/24**	01075	**ASD-SGD 800**	01424	**RVS 800**	02602	**STS 800**	01233	**SDD 5**	01924
RDA FU 25	**LK 12**	1200x1200	1.0 m^2	82059	**JVK 90/90**	900x900	01069	**STM 10/24**	01075	**ASD-SGD 800**	01424	**RVS 800**	02602	**STS 800**	01233	**SDD 5**	01924
RDA FU 35	**LK 15**	1500x1500	1.3 m^2	82060	**JVK 100/100**	1000x1000	01074	**STM 20/24**	01093	**ASD-SGD 900**	01309	**RVS 900**	02603	**STS 900**	01234	**SDD 6**	01926

[1] Power (kW) and dimensions (mm) upon request.

Further accessories, see page 198 f.

Connection options to RDA FU controls		
Type	Qty	Description
AVD/AMD	1 x	Frequency inverter, supply air fan
RS	1 x	Isolator switch
RMR	20 x	Smoke detector (1 line)
DKM	10 x	Push-button alarm (1 line)
BLH		Flash light siren
BL	Σ 10 x	Flash light
WH		Siren
DDR	2 x	Differential pressure sensor
FWS 2	1 x	Fire service switch
RMK	1 x	Duct smoke detector
JVK..	1 x	Inlet-side multi-leaf damper
LK..	1 x	Light dome
EM..	–	Extension module
LPT	1 x	Ventilation package
RDP RDA FU..	1 x	Redundancy package

Extension modules for RDA FU controls (for integration in switch cabinet)		
Type	Ref. no.	Description
EM 1	04968	2 outputs: 5 A, 24 V DC
EM 2	04969	Two additional outputs for magnetic door clamps, 24 V DC / 250 mA
EM 3	04970	20 additional smoke detectors (1 line)
EM 4	04971	10 additional multi-leaf dampers in supply air
EM 7.0	04940	6 floor-selective inputs and outputs
EM 7.1	09777	8 floor-selective inputs and outputs
EM 7.2	09778	12 floor-selective inputs and outputs
EM 7.3	09779	16 floor-selective inputs and outputs
EM 8.0	09780	Active controlled air discharge shaft – switch cab, internal install. Incl. secondary switch cabinet, frequency inverter 7.5 kW
EM 8.1	09781	Active controlled air discharge shaft – switch cab, external install. Incl. secondary switch cabinet with WSD, frequency inverter 7.5 kW
Accessory for EM 8.0 and EM 8.1		Bypass shutter for active contr. air discharge shaft incl. drive Ref. no. 37507 Redundancy package for active controlled air discharge shaft Ref. no. 07475
EM 10	04419	GSM module Accessory for EM 10: GSM antenna Ref. no. 04420

System packages

Ventilation

Type LPT Ref. no. 04986

Extends the RDA functional scope to the demand-oriented ventilation operation (summer), Package contents (1 unit each):

- Ventilation key switch No. 82063
- Temperature sensor No. 82064
- Weekly timer No. 09990
- Wind and rain sensor No. 82066

Redundancy package

RDP RDA FU 15	Ref. no. 05048
RDP RDA FU 20	Ref. no. 05058
RDP RDA FU 25	Ref. no. 05059
RDP RDA FU 35	Ref. no. 05070

Package contents coordinated with the service package, consists of (1 unit each):

- Supply fan incl. mounting brackets (set of 2 pcs) and extension duct
- Frequency inverter
- Switch cabinet expansion

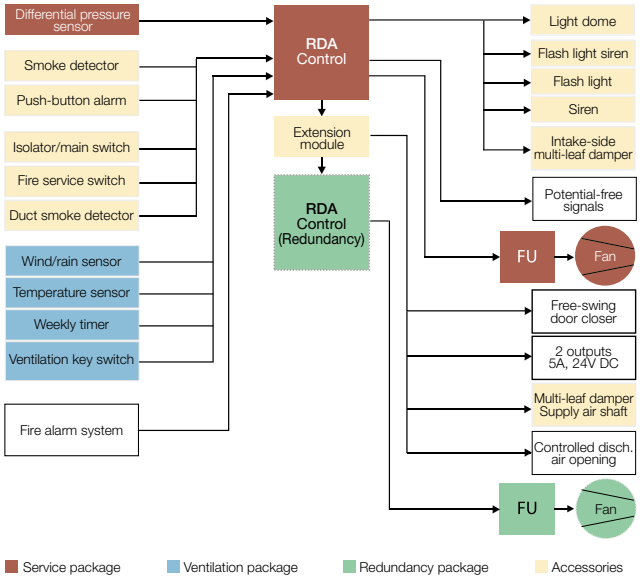
Ventilation package

Redundancy package

RDA DDK service package

Diff. pressure control damper available as separate accessory.

System diagram RDA DDK



Smoke protection pressure systems ensure that stairways, airlocks, fire brigade lifts and their anterooms are kept free from smoke in case of fire by building up the differential pressure.

With regard to the passive systems RDA DDK, the differential pressure is regulated by the automatic, mechanical differential pressure control damper.

Ideally matched system components in modular packages allow

- ☐ **the individual adjustment of the system to all structural conditions and requirements.**
- ☐ **trouble-free planning, installation and commissioning, as well as safe system operation.**

■ **Scope of delivery / Packages**
The modular packages can be ordered individually:

☐ **Service package RDA DDK**
There are three service packages for selection, which contain the following components required in all properties as the basis of each RDA DDK:

- Supply air fan in three performance ratings, depending on the required volume flow and operating point, see table below. Includes mounting brackets and extension duct.
- Switch cabinet with complete control system. Can be expanded with various functions and modules, see table on right page.
- Safety pressure switch as reliable protection against impermissibly high differential pressure in stairway.

A differential pressure control damper (DDK) must be selected (see product table) for differential pressure regulation depending on the property-specific design volume flow. This DDK is available for wall, flat roof or light dome installation, and with the optional ventilation function.

☐ **Smoke package RPT**
Includes the system components required for system triggering and alerting (see right page).

☐ **Ventilation package LPT**
Extends the functionality of the RDA to demand-oriented ventilation operation (see right page) with the additional selection of DDK-L with ventilation function.

☐ **Redundancy package RDP RDA DDK**
Converts the RDA into a complete system with two independently operating supply air fans including control system (see right page) in case of corresponding building code requirements.

■ **Description**

☐ **Switch cabinet**
Lockable switch cabinet in high-quality sheet metal casing. With control and display panel mounted on the front.

☐ **Differential pressure regulation**
The Helios RDA DDK fulfils all building code and normative requirements for differential pressure regulation by using a differential pressure control damper in combination with a high-performance supply air fan and innovative control technology.

☐ **Battery buffering**
RDA DDK has battery buffering, which powers the entire control system including all relevant connections, warning devices and components (except supply air fan) in the event of a power cut as a breakdown control system.

☐ **Optional ventilation function**
The RDA DDK creates natural ventilation in the stairway by opening the differential pressure control damper and intake-side multi-leaf damper. The optional ventilation package (LPT) and a differential pressure control damper with ventilation function (DDK-L, see product table) are required to use this extended function.

■ **Active air discharge shaft**

☐ **EM 8.0 and EM 8.1**
Contains secondary switch cabinet (for EM 8.1 for external installation with weather protection roof) and frequency inverter up to 7.5 kW. Connection to primary switch cabinet via BUS cable. Connection of floor-selective pressure sensors. Bypass shutter can optionally be connected.

RDA DDK service package icluding				a) Supply air fan, three phase motor, IP55				b) Switch cab.	c) Safety pressure switch							
Type	Ref. no.	Volume flow (max.)	Diff. pressure (max.)	Type	Nominal motor power	Voltage	Power consum.	Dimensions	Meas. range	Signal	**Redundancy package**		**Anti-vibration mounts Pressure**		**Tensile**	
		m^3/h	Pa	400 V, 50 Hz	KW	V	A	mm	Pa	pot. free	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
RDA DDK 15	05085	15 000	360	AMD 630/4	3.0	400	6.00	1000x1000x301	+20 to +300	changeover	**RDP RDA DDK 15**	05241	**SDD 4**	01944	**SDZ 4**	01945
RDA DDK 20	05087	20 000	410	AVD 800/4	4.0	400	7.95	1000x1000x301	+20 to +300	changeover	**RDP RDA DDK 20**	05246	**SDD 5**	01924	**SDZ 5**	01925
RDA DDK 25	05097	25 000	390	AVD 800/4	5.5	400	10.6	1000x1000x301	+20 to +300	changeover	**RDP RDA DDK 25**	05247	**SDD 5**	01924	**SDZ 5**	01925

Accessories for RDA DDK.. See right page for dimensions

Type	**Differential pressure control damper** without ventilation function						**Differential pressure control damper** with ventilation function						**Deflector plate**		**Intake-side multi-leaf damper**			**Servo motor** 24V DC	
	DDK FD..		**DDK LK..**		**DDK WE..**		**DDK-L FD..**		**DDK-L LK..**		**DDK-L WE..**		**DDK-PB..**					**STM..**	
	Type	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	mm	Ref. no.	**Type**	Ref. no.
RDA DDK 15	**..900/920**	07604	**..900/920**	07614	**..900/920**	07182	**..900/920**	07609	**..900/920**	07131	**..900/920**	07187	**..900/920**	07225	**JVK 70/70**	700x700	01067	**...10/24**	01075
RDA DDK 20	**..1000/1020**	07605	**..1000/1020**	07615	**..1000/1020**	07183	**..1000/1020**	07610	**..1000/1020**	07132	**..1000/1020**	07188	**..1000/1020**	07226	**JVK 80/80**	800x800	01068	**...10/24**	01075
RDA DDK 25	**..1100/1120**	07606	**..1100/1120**	07616	**..1100/1120**	07184	**..1100/1120**	07611	**..1100/1120**	07133	**..1100/1120**	07189	**..1100/1120**	07227	**JVK 90/90**	900x900	01069	**...10/24**	01075

Further accessories, see page 198 f.

System packages

Ventilation packages

Type LPT Ref. no. 04986

Extends the RDA functional scope to the demand-oriented ventilation operation (summer), Package contents (1 unit each):

– Ventilation key switch No. 82063
–Temperature sensor No. 82064
–Weekly timer No. 09990
–Wind and rain sensor No. 82066

Redundancy package

RDP RDA DDK 15 Ref. no. 05241
RDP RDA DDK 20 Ref. no. 05246
RDP RDA DDK 25 Ref. no. 05247

Package contents coordinated with the service package, consists of (1 unit each):

– Supply fan incl. mounting brackets (set of 2 pcs) and extension duct
– Frequency inverter
– Switch cabinet expansion

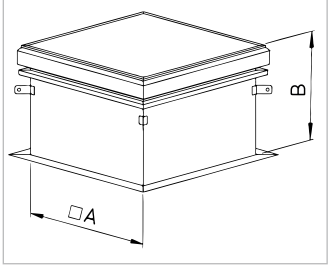
Ventilation package

Redundancy package

Type	Ref. no.*	Dimensions in mm A	B
DDK LK	07612	1200	1042
DDK LK	07613	1200	1042
DDK LK	07614	1500	1042
DDK LK	07615	1500	1042
DDK LK	07616	1500	1042

Diff. press. control damper with ventil. function – Ref. no. see left page.

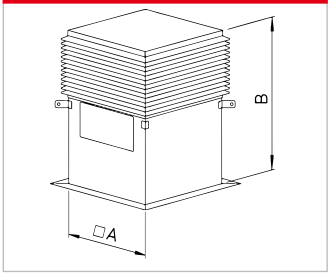
DDK LK



Type	Ref. no.*	Dimensions in mm A	B
DDK FD	07602	1200	1819
DDK FD	07603	1200	1819
DDK FD	07604	1500	2014
DDK FD	07605	1500	2014
DDK FD	07606	1500	2014

Diff. press. control damper with ventil. function – Ref. no. see left page.

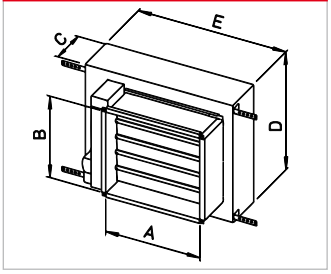
DDK FD



Type	Ref. no.*	Dimensions in mm A i.L	B	C	D	E
DDK WE	07180	600	520	246	756	951
DDK WE	07181	700	820	246	1056	1051
DDK WE	07182	900	920	246	1156	1251
DDK WE	07183	1000	1020	246	1256	1351
DDK WE	07184	1100	1120	246	1356	1451

Diff. press. control damper with ventil. function – Ref. no. see left page.

DDK WE



Connection options to RDA DDK controls

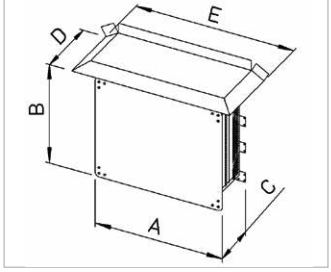
Type	Qty	Description
AVD/AMD	1 x	Frequency inverter, supply air fan
RS	1 x	Isolator switch
RMR	20 x	Smoke detector (1 line)
DKM	10 x	Push-button alarm (1 line)
BLH	Σ 10 x	Flash light siren
BL		Flash light
WH		Siren
DDB	1 x	Safety pressure switch
FWS 2	1 x	Fire service switch
RMK	1 x	Duct smoke detector
JVK..	1 x	Intake-side multi-leaf damper
DDK..	1 x	Differential pressure control damper
EM..	–	Extension module
LPT	1 x	Ventilation package
RDP RDA DDK..	1 x	Redundancy package

Extension modules for RDA FU controls (for integration in switch cabinet)

Type	Ref. no.	Description
EM 1	04968	2 outputs: 5 A, 24 V DC
EM 2	04969	Two additional outputs for magnetic door clamps, 24 V DC / 250 mA
EM 3	04970	20 additional smoke detectors (1 line)
EM 4	04971	10 additional multi-leaf dampers in supply air
EM 7.0	04940	6 floor-selective inputs and outputs
EM 7.1	09777	8 floor-selective inputs and outputs
EM 7.2	09778	12 floor-selective inputs and outputs
EM 7.3	09779	16 floor-selective inputs and outputs
EM 8.0	09780	Active controlled air discharge shaft – switch cab, internal install. Incl. secondary switch cabinet, frequency inverter 7.5 kW
EM 8.1	09781	Active controlled air discharge shaft – switch cab, external install. Incl. secondary switch cabinet with WSD, frequency inverter 7.5 kW
Accessory for EM 8.0 and EM 8.1		Bypass shutter for active contr. air discharge shaft incl. drive Ref. no. 37507 Redundancy package for active controlled air discharge shaft Ref. no. 07475
EM 10	04419	GSM module Accessory for EM 10: GSM antenna Ref. no. 04420

Type	Ref. no.	Dimensions in mm A	B	C	D	E
DDK PB	07223	1335	1040	520	680	1760
DDK PB	07224	1435	1340	770	930	1860
DDK PB	07225	1635	1440	770	930	1960
DDK PB	07226	1735	1540	770	930	2060
DDK PB	07227	1835	1640	1020	1180	2160

DDK PB



Stairway scavenging air system with controlled pressure maintenance.

Stairway scavenging air systems with controlled pressure maintenance dilute and flush the smoke gases which have entered into escape routes in case of fire. They also prevent the further entry of smoke through leakage routes or leaks by building up a controlled differential pressure.
Both active systems with frequency inverters (FU) and passive systems with self-regulating differential pressure control dampers (DDK) are used for differential pressure regulation.
TSA service packages are available with frequency inverters or differential pressure control dampers in a total of three sizes with volume flows from 10,000 to 20,000 m³/h.
In addition to the fan, the service packages also include the switch cabinet with the control system and the respective components for differential pressure regulation.
Each TSA service package can be combined with the packages below and additional accessories to complete the system.

TSA FU service package

- ✓ Supply air fan incl. mounting brackets and extension duct
- ✓ Switch cabinet with control
- ✓ Frequency inverter
- ✓ 2 differential pressure sensors

Light dome (to be ordered separately if not provided on-site)

TSA DDK service package

- ✓ Supply air fan incl. mounting brackets and extension duct
- ✓ Switch cabinet with control
- ✓ Safety pressure switch

Differential pressure control damper, optionally with/without ventilation function, for flat roof/wall or light dome installation (to be ordered separately)

TSA FU
Redundancy package

The solution when a TSA FU is required with two separately operating fans and load units.
Includes 1 unit of each

- ✓ Supply air fan incl. mounting brackets and extension duct
- ✓ Frequency inverter
- ✓ Switch board expansion

Ventilation package

Extends the functionality of the TSA to demand-oriented ventilation operation:

- ✓ Wind and rain sensor
- ✓ Temperature sensor
- ✓ Weekly timer
- ✓ Ventilation key switch

TSA DDK
Redundancy package

The solution when a TSA DDK is required with two separately operating fans and load units.
Includes 1 unit of each

- ✓ Supply air fan incl. mounting brackets and extension duct
- ✓ Load unit
- ✓ Switch board expansion

Active system
Stairway scavenging air systems with frequency inverter (TSA FU)
Flushing of stairways with controlled pressure maintenance

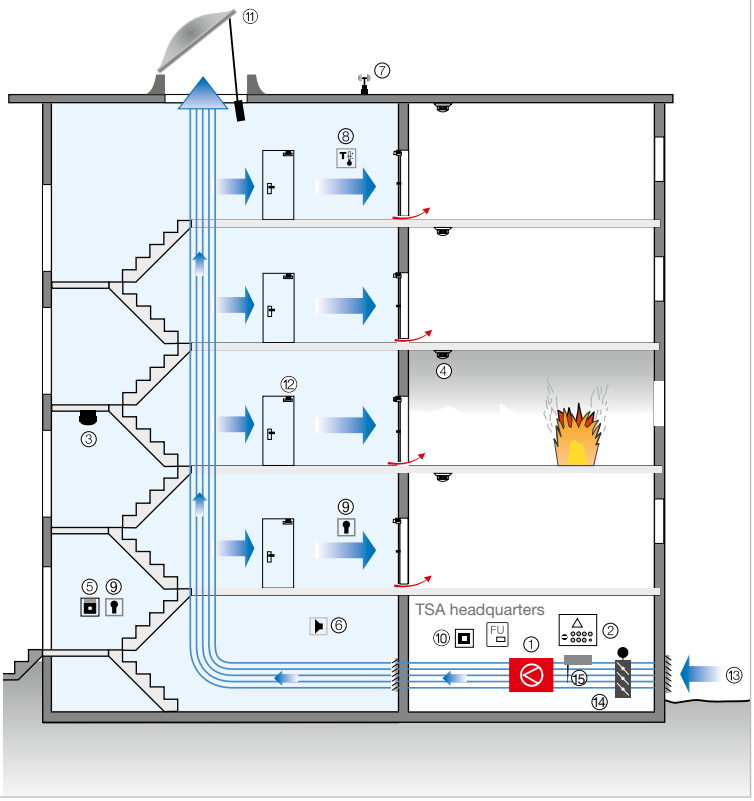
TSA FU packages and their components

Service package TSA FU
① Supply air fan
② TSA control with FU
③ Diff. pressure sensor

Accessories
④ Smoke detector
⑤ Push-button alarm
⑥ Flash light siren

Ventilation package LPT
⑦ Wind and rain sensor
⑧ Temperature sensor
⑨ Ventilation key switch
⑩ Weekly timer

Accessories
⑪ Light dome
⑫ Door closer
⑬ Outside air inlet
⑭ Intake-side multi-l. damper
⑮ Duct smoke detector



Stairway scavenging air system with controlled pressure maintenance

Functionality TSA FU

During smoke detection in a utilisation unit, the Helios TSA FU is immediately triggered and the supply air fan supplies fresh air into the stairway. This flows through the entire stairway, dilutes the infiltrated smoke gases and flushes the gases into the atmosphere through the opened light dome at the top of the stairway.
A controlled overpressure also builds up in the stairway, which prevents the infiltration of smoke through leaks between the escape route and fire floor. Thus, the stairway can still be used as an escape route.
The required differential pressure regulation takes place via the frequency inverter and the realised variable fan speed.
The optional ventilation function allows the system to be used for the demand-based ventilation of the stairway at high temperatures.

Passive system
Stairway scavenging air systems with differential pressure control damper (TSA DDK)
Flushing of stairways with controlled pressure maintenance

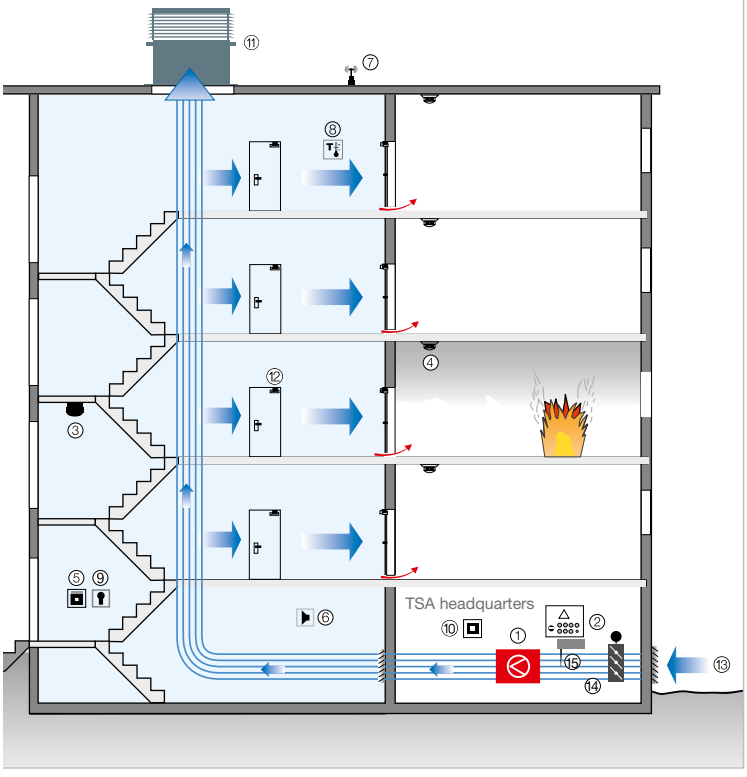
TSA DDK packages and their components

Service package TSA DDK
① Supply air fan
② TSA control with FU
③ Diff. pressure sensor

Accessories
④ Smoke detector
⑤ Push-button alarm
⑥ Flash light siren

Ventilation package LPT
⑦ Wind and rain sensor
⑧ Temperature sensor
⑨ Ventilation key switch
⑩ Weekly timer

Accessories
⑪ Light dome
⑫ Door closer
⑬ Outside air inlet
⑭ Intake-side multi-l. damper
⑮ Duct smoke detector



Stairway scavenging air system with controlled pressure maintenance

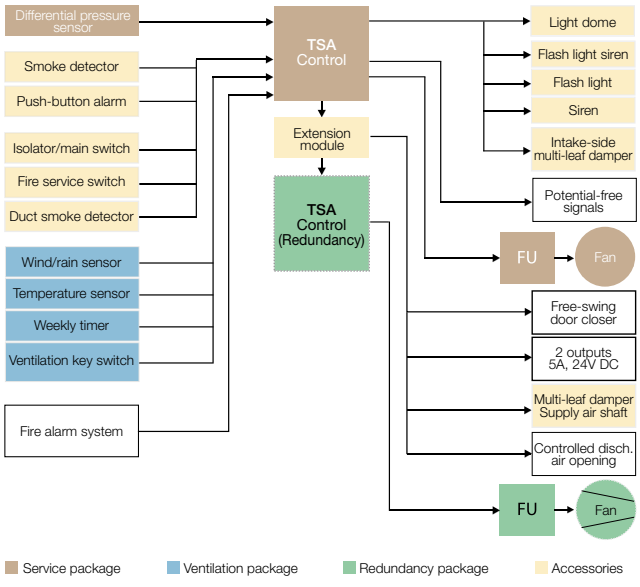
Functionality TSA DDK

During smoke detection in a utilisation unit, the Helios TSA DDK is immediately triggered and the supply air fan supplies fresh air into the stairway. This flows through the entire stairway, dilutes the infiltrated smoke gases and flushes the gases into the atmosphere through the differential pressure control damper at the top of the stairway.
A controlled overpressure also builds up in the stairway, which prevents the infiltration of smoke through leaks between the escape route and fire floor. Thus, the stairway can still be used as an escape route.
The required differential pressure regulation takes place via the automatic differential pressure control damper, which creates an opening to the atmosphere at a pre-set pressure.
The optional ventilation function allows the system to be used for the demand-based ventilation of the stairway at high temperatures.

TSA FU Service package

Light dome available as separate accessory, see page 201.

System diagram TSA FU



Stairway scavenging air systems with controlled pressure maintenance dilute and flush the infiltrated smoke gases in the escape route in case of fire. The further entry of smoke into the escape route is additionally prevented by building up a controlled differential pressure.

With regard to the active systems TSA FU, the differential pressure is regulated by automatic fan speed adjustment via a frequency inverter.

Ideally matched system components in modular packages allow

- ☐ **the individual adjustment of the system to all structural conditions and requirements.**
- ☐ **trouble-free planning, installation and commissioning, as well as safe system operation.**

■ Scope of delivery / Packages

The modular packages can be ordered individually:

☐ Service package TSA FU

There are three service packages for selection, which contain the following components required in all properties as the basis of each TSA FU:

- Supply air fan in three performance ratings, depending on the required volume flow and operating point, see table below. Includes mounting brackets and extension duct.
- Switch cabinet with complete control system. Can be expanded with various functions and modules, see table on right page.
- Frequency inverter, specially coordinated ex works for optimal differential pressure regulation in smoke protection pressure systems.
- 2 differential pressure sensors for recording the prevailing pressure conditions in the overpressure area.

A light dome coordinated with the property must be selected as a pressure release unit pursuant to the table below and ordered separately if there is no controllable opening area at the top of the stairway on-site.

☐ Smoke package RPT

Includes the system components required for system triggering and alerting (see right page).

☐ Ventilation package LPT

Extends the functionality of the TSA to demand-oriented ventilation operation (see right page).

☐ Redundancy package RDP TSA FU

Converts the TSA into a complete system with two independently operating supply air fans including control system and frequency inverter (see right page) in case of corresponding building code requirements.

■ Description

☐ Switch cabinet

Lockable switch cabinet in high-quality sheet metal casing. With control and display panel mounted on the front.

☐ Differential pressure regulation

The Helios TSA FU fulfils all building code and normative requirements for differential pressure regulation by using a specially developed frequency inverter in combination with a high-performance supply air fan and innovative control technology.

☐ Battery buffering

TSA FU has battery buffering, which powers the entire control system including all relevant connections, warning devices and components (except supply air fan) in the event of a power cut as a breakdown control system.

☐ Optional ventilation function

The TSA creates natural ventilation in the stairway by opening the light dome and intake-side multi-leaf damper. There is also an option to support the ventilation with the supply air fan. The optional ventilation package (LPT) is required to use this extended function.

TSA FU service package icluding				a) Supply air fan, three phase motor, IP55				b) Switch cab.	c) Safety pressure switch							
Type	Ref. no.	Volume flow (max.)	Diff. pressure (max.)	Type	Nominal motor power	Voltage	Power consum.	Dimensions	Meas. range	Signal	**Redundancy package**		**Anti-vibration mounts Pressure**		**Tensile**	
		m^3/h	Pa	400 V, 50 Hz	KW	V	A	mm	Pa	pot. free	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
TSA FU 10	05474	10 000	340	AMD 560/4	2.2	400	4.50	800x800x211	-100 to +100	4 - 20	**RDP TSA FU 10**	05535	**SDD 4**	01944	**SDZ 4**	01945
TSA FU 15	05475	15 000	360	AMD 630/4	3.0	400	6.00	800x800x211	-100 to +100	4 - 20	**RDP TSA FU 15**	05536	**SDD 4**	01944	**SDZ 4**	01945
TSA FU 20	05476	20 000	410	AVD 800/4	4.0	400	7.95	800x800x211	-100 to +100	4 - 20	**RDP TSA FU 20**	05537	**SDD 5**	01924	**SDZ 5**	01925

Accessories for TSA FU..

Type	**Light dome** with 24V DC spindle drive, hub = 500 mm, 300 mm skylight base				**Intake-side multi-leaf damper**			**Servo motor** 24 V DC		**Bell mouth with guard**		**Automatic backdraught shutter**		**Flanged flex. connector**	
	Type	Nom. dim.	Opening	Ref. no.	**Type**	mm	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
TSA FU 10	**LK 12**	1200x1200	1.0 m^2	82059	**JVK 60/60**	600x600	01066	**STM 10/24**	01075	**ASD-SGD 560**	01421	**RVS 560**	02599	**STS 560**	01226
TSA FU 15	**LK 12**	1200x1200	1.0 m^2	82059	**JVK 70/70**	700x700	01067	**STM 10/24**	01075	**ASD-SGD 630**	01422	**RVS 630**	02600	**STS 630**	01228
TSA FU 20	**LK 12**	1200x1200	1.0 m^2	82059	**JVK 80/80**	800x800	01068	**STM 10/24**	01075	**ASD-SGD 800**	01424	**RVS 800**	02602	**STS 800**	01233

1) Power (kW) and dimensions (mm) upon request. Further accessories, see page 198 f.

System packages

Ventilation package

Type LPT	Ref. no. 04986

Extends the TSA functional scope to the demand-oriented ventilation operation (summer), Package contents (1 unit each):

- Ventilation key switch No. 82063
- Temperature sensor No. 82064
- Weekly timer No. 09990
- Wind and rain sensor No. 82066

Redundancy package

RDP TSA FU 10	Ref. no. 05535
RDP TSA FU 15	Ref. no. 05536
RDP TSA FU 20	Ref. no. 05537

Package contents coordinated with the service package, consists of (1 unit each):

- Supply fan incl. mounting brackets (set of 2 pcs) and extension duct
- Frequency inverter
- Switch cabinet expansion

Ventilation package

Redundancy package

Connection options to TSA FU controls

Type	Qty	Description
AVD/AMD	1 x	Frequency inverter, supply air fan
RS	1 x	Isolator switch
RMR	20 x	Smoke detector (1 line)
DKM	10 x	Push-button alarm (1 line)
BLH	Σ 10 x	Flash light siren
BL		Flash light
WH		Siren
DDR	2 x	Differential pressure sensor
FWS 2	1 x	Fire service switch
RMK	1 x	Duct smoke detector
JVK..	1 x	Intake-side multi-leaf damper
LK..	1 x	Light dome
EM..	–	Extension module
LPT	1 x	Ventilation package
RDP TSA FU..	1 x	Redundancy package

Extension modules for TSA FU controls for integration in switch cabinet)

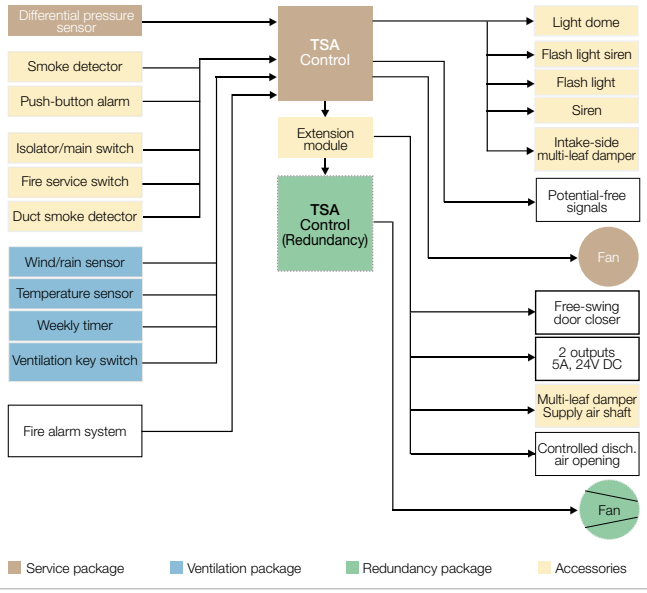
Type	Qty	Description
EM 1	04968	2 outputs: 5 A, 24 V DC
EM 2	04969	Changeover contact for free-swing door closer, cap. 250 V/6 A Two outputs for magnetic door clamps, 24 V DC / 250 mA
EM 3	04970	20 additional smoke detectors (1 line)
EM 4	04971	10 additional multi-leaf dampers in supply air
EM 10	04419	GSM module Access. for EM 10: GSM antenna Ref. no. 04420

Stairway scavenging air system TSA DDK
Passive system, with differential pressure control damper

TSA DDK Leistungspaket

Diff. pressure control damper available as separate accessory.

System diagram TSA DDK



Stairway scavenging air systems with controlled pressure maintenance dilute and flush the infiltrated smoke gases in the escape route in case of fire. The further entry of smoke into the escape route is additionally prevented by building up a controlled differential pressure.

With regard to the passive systems TSA DDK, the differential pressure is regulated by the automatic, mechanical differential pressure control damper.

Ideally matched system components in modular packages allow

- ☐ **the individual adjustment of the system to all structural conditions and requirements.**
- ☐ **trouble-free planning, installation and commissioning, as well as safe system operation.**

■ Scope of delivery / Packages

The modular packages can be ordered individually:

☐ Service package TSA DDK

There are three service packages for selection, which contain the following components required in all properties as the basis of each TSA DDK:

- Supply air fan in three performance ratings, depending on the required volume flow and operating point, see table below. Includes mounting brackets and extension duct.
- Switch cabinet with complete control system. Can be expanded with various functions and modules, see table on right page.
- Safety pressure switch as reliable protection against impermissibly high differential pressure in stairway.

A differential pressure control damper (DDK) must be selected (see product table) for differential pressure regulation depending on the property-specific design volume flow. This DDK is available for wall, flat roof or light dome installation, and with the optional ventilation function.

☐ Smoke package RPT

Includes the system components required for system triggering and alerting (see right page).

☐ Ventilation package LPT

Extends the functionality of the TSA to demand-oriented ventilation operation (see right page) with the additional selection of DDK-L with ventilation function.

☐ Redundancy package RDP TSA DDK

Converts the TSA into a complete system with two independently operating supply air fans including control system (see right page) in case of corresponding building code requirements.

■ Description

☐ Switch cabinet

Lockable switch cabinet in high-quality sheet metal casing. With control and display panel mounted on the front.

☐ Differential pressure regulation

The Helios TSA DDK fulfils all building code and normative requirements for differential pressure regulation by using a differential pressure control damper in combination with a high-performance supply air fan and innovative control technology.

☐ Battery buffering

TSA DDK has battery buffering, which powers the entire control system including all relevant connections, warning devices and components (except supply air fan) in the event of a power cut as a breakdown control system.

☐ Optional ventilation function

The TSA DDK creates natural ventilation in the stairway by opening the differential pressure control damper and intake-side multi-leaf damper. The optional ventilation package (LPT) and a differential pressure control damper with ventilation function (DDK-L, see product table) are required to use this extended function.

TSA DDK service package icluding				a) Supply air fan, three phase motor, IP55				b) Switch cab.	c) Safety pressure switch						
Type	Ref. no.	Volume flow (max.)	Diff. pressure (max.)	Type	Nominal motor power	Voltage	Power consum.	Dimensions	Meas. range	Signal	**Redundancy package**		**Anti-vibration mounts Pressure**		**Tensile**
		m³/h	Pa	400 V, 50 Hz	KW	V	A	mm	Pa	pot. free	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
TSA DDK 10	05277	10 000	340	AMD 560/4	2,2	400	4.50	800x800x211	+20 to +300	changeover	**RDP TSA DDK 10**	05248	**SDD 4**	01944	**SDZ 4**	01945
TSA DDK 15	05278	15 000	360	AMD 630/4	3,0	400	6.00	800x800x211	+20 to +300	changeover	**RDP TSA DDK 15**	05249	**SDD 4**	01944	**SDZ 4**	01945
TSA DDK 20	05279	20 000	410	AVD 800/4	4,0	400	7.95	1000x1000x301	+20 to +300	changeover	**RDP TSA DDK 20**	05234	**SDD 5**	01924	**SDZ 5**	01925

Accessories for TSA DDK.. See right page for dimensions

Type	**Differential pressure control damper** without ventilation function						**Differential pressure control damper** with ventilation function						**Deflector plate**		**Intake-side multi-leaf damper**			**Servo motor** 24V DC	
	DDK FD..		**DDK LK..**		**DDK WE..**		**DDK-L FD..**		**DDK-L LK..**		**DDK-L WE..**		**DDK-PB..**					**STM..**	
	Type	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	mm	Ref. no.	**Type**	Ref. no.
TSA DDK 10	**..700/820**	07603	**..700/820**	07613	**..700/820**	07181	**..700/820**	07608	**..700/820**	07130	**..700/820**	07186	**..700/820**	07224	**JVK 60/60**	600x600	01066	**...10/24**	01075
TSA DDK 15	**..900/920**	07604	**..900/920**	07614	**..900/920**	07182	**..900/920**	07609	**..900/920**	07131	**..900/920**	07187	**..900/920**	07225	**JVK 70/70**	700x700	01067	**...10/24**	01075
TSA DDK 20	**..1000/1020**	07605	**..1000/1020**	07615	**..1000/1020**	07183	**..1000/1020**	07610	**..1000/1020**	07132	**..1000/1020**	07188	**..1000/1020**	07226	**JVK 80/80**	800x800	01068	**...10/24**	01075

Further accessories, see page 198 f.

System package

Ventilation package

Type LPT Ref. no. 04986

Extends the TSA functional scope to the demand-oriented ventilation operation (summer), Package contents (1 unit each):

- Ventilation key switch No. 82063
- Temperature sensor No. 82064
- Weekly timer No. 09990
- Wind and rain sensor No. 82066

Redundancy package

RDP TSA DDK 10	Ref. no. 05248
RDP TSA DDK 15	Ref. no. 05249
RDP TSA DDK 20	Ref. no. 05234

Package contents coordinated with the service package, consists of (1 unit each):

- Supply fan incl. mounting brackets (set of 2 pcs) and extension duct
- Load unit
- Switch cabinet expansion

Ventilation package

Redundancy package

Connection options to TSA DDK controls

Type	Qty	Description
AVD/AMD	1 x	Frequency inverter, supply air fan
RS	1 x	Isolator switch
RMR	20 x	Smoke detector (1 line)
DKM	10 x	Push-button alarm (1 line)
BLH	Σ 10 x	Flash light siren
BL		Flash light
WH		Siren
DDR	2 x	Differential pressure sensor
FWS 2	1 x	Fire service switch
RMK	1 x	Duct smoke detector
JVK..	1 x	Intake-side multi-leaf damper
LK..	1 x	Light dome
EM..	–	Extension module
LPT	1 x	Ventilation package
RDP TSA FU..	1 x	Redundancy package

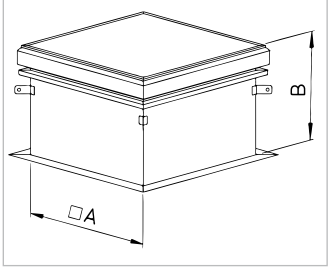
Extension modules for TSA DDK controls for integration in switch cabinet)

Type	Qty	Description
EM 1	04968	2 outputs: 5 A, 24 V DC
EM 2	04969	Changeover contact for free-swing door closer, cap. 250 V/6 A Two outputs for magnetic door clamps, 24 V DC / 250 mA
EM 3	04970	20 additional smoke detectors (1 line)
EM 4	04971	10 additional multi-leaf dampers in supply air
EM 10	04419	GSM module Access. for EM 10: GSM antenna Ref. no. 04420

Type	Ref. no.*	Dimensions in mm A	B
DDK LK	07612	1200	1042
DDK LK	07613	1200	1042
DDK LK	07614	1500	1042
DDK LK	07615	1500	1042
DDK LK	07616	1500	1042

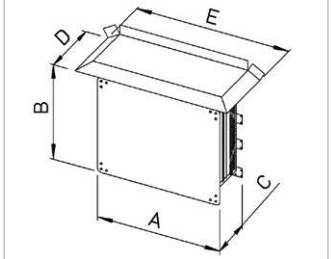
Diff. press. control damper with ventil. function – Ref. no. see left page.

DDK LK



Type	Ref. no.	Dimensions in mm A	B	C	D	E
DDK PB	07223	1335	1040	520	680	1760
DDK PB	07224	1435	1340	770	930	1860
DDK PB	07225	1635	1440	770	930	1960
DDK PB	07226	1735	1540	770	930	2060
DDK PB	07227	1835	1640	1020	1180	2160

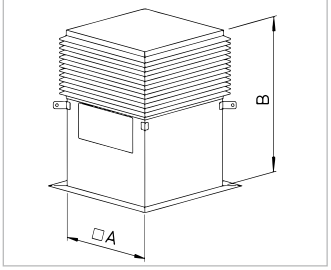
DDK PB



Type	Ref. no.*	Dimensions in mm A	B
DDK FD	07602	1200	1819
DDK FD	07603	1200	1819
DDK FD	07604	1500	2014
DDK FD	07605	1500	2014
DDK FD	07606	1500	2014

Diff. press. control damper with ventil. function – Ref. no. see left page.

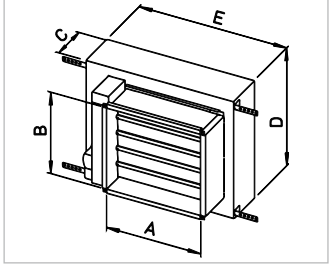
DDK FD



Type	Ref. no.*	Dimensions in mm A	B	C	D	E
DDK WE	07180	600	520	246	756	951
DDK WE	07181	700	820	246	1056	1051
DDK WE	07182	900	920	246	1156	1251
DDK WE	07183	1000	1020	246	1256	1351
DDK WE	07184	1100	1120	246	1356	1451

Diff. press. control damper with ventil. function – Ref. no. see left page.

DDK WE



Stairway scavenging air system.

Stairway scavenging air systems flush the entire stairway with fresh air in case of fire (minimum volume flow 10,000 m³/h) and thus ensure the dilution and flushing of the fire gases which have entered into escape routes.
The TSA service packages are available as standard units (TSA) or in a special low-noise “Silent” design (TSAS). Both versions are available with optional pole-switching fans, which extend the functionality of the TSA system to a demand-oriented ventilation operation (TSA-L and TSAS-L) in combination with the ventilation package below.
In addition to the fan, all TSA service packages include the switch cabinet with the control system and can be combined with the smoke package below and additional accessories to complete the system. The service packages TSA-L and TSAS-L also offer the connection option of the ventilation package.

- ✓ Supply air fan incl. mounting brackets and extension duct
- ✓ Switch cabinet with control
- ✓ Safety pressure switch

Light dome (to be ordered separately if not provided on-site)

- ✓ Supply air fan incl. mounting brackets and extension duct
- ✓ Switch cabinet with control and connection option for ventilation package
- ✓ Safety pressure switch

Light dome (to be ordered separately if not provided on-site)

Ventilation package

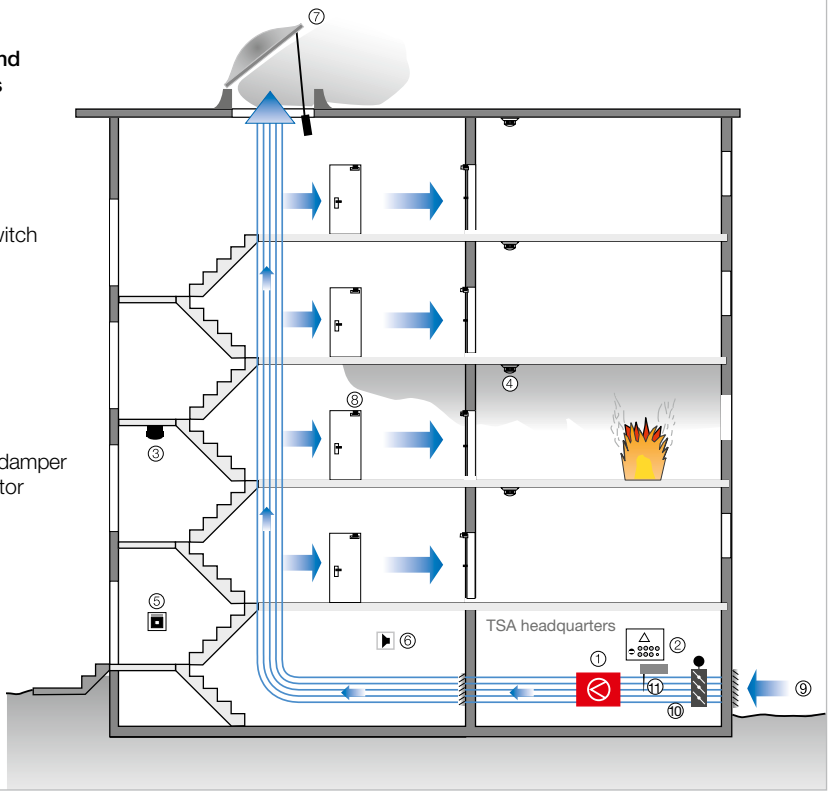
Extends the functionality of the TSA-L and TSAS-L to demand-oriented ventilation operation:
- ✓ Wind and rain sensor
- ✓ Temperature sensor
- ✓ Weekly timer
- ✓ Ventilation key switch

Stairway scavenging air systems TSA and TSAS in low-noise “silent” design
Flushing of stairways to dilute the smoke gas concentration

TSA..packages and their components

Service package TSA and TSAS
① Supply air fan
② TSA control
③ Safety pressure switch

Accessories
④ Smoke detector
⑤ Push-button alarm
⑥ Flash light siren
⑦ Light dome
⑧ Door closer
⑨ Outside air inlet
⑩ Intake-side multi-l. damper
⑪ Duct smoke detector



Stairway scavenging air system

Functionality TSA/TSAS

During smoke detection in a utilisation unit, the Helios TSA/TSAS is immediately triggered and the light dome at the top of the stairway is opened. The supply air fan supplies fresh air into the stairway, which flows through the entire stairway and thus dilutes the infiltrated smoke gases. The air then flows outside through the opened light dome at the top of the stairway. A constant volume flow of over 10,000 m³/h ensures the considerable reduction of the smoke gas concentration in the flushed stairway.
The TSA service packages are available with the standard supply air fan or as a “silent” version “TSAS” with a lower sound power level.

Stairway scavenging air systems TSA-L and TSAS-L for additional, optional ventilation operation
– Flushing of stairways to dilute the smoke gas concentration in case of fire
– Economical, demand-oriented ventilation operation in connection with ventilation package LPT

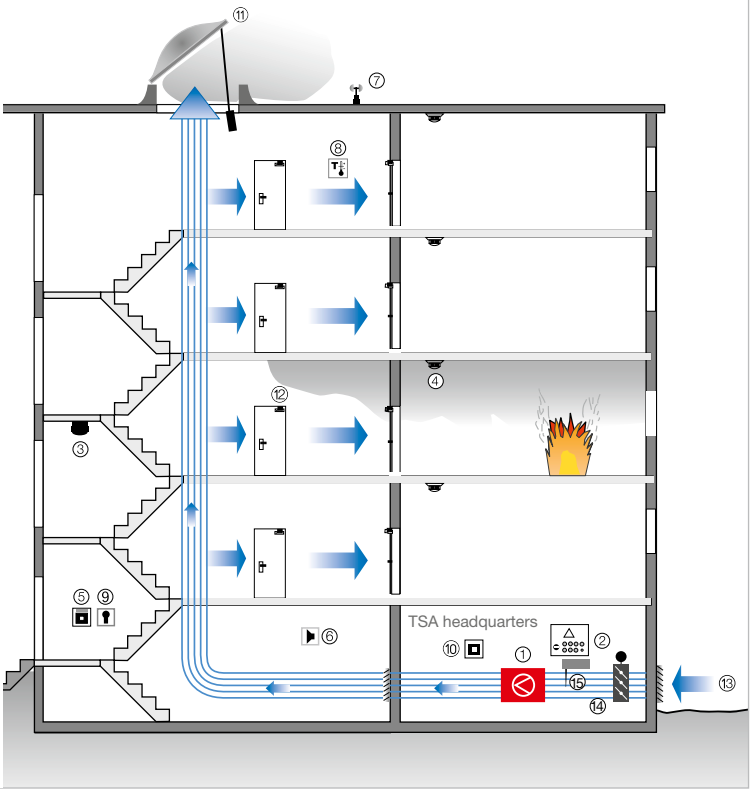
TSA..-L packages and their components

Service package TSA-L and TSAS-L
① Supply air fan
② TSA control
③ Safety pressure switch

Accessories
④ Smoke detector
⑤ Push-button alarm
⑥ Flash light siren

Ventilation LPT
⑦ Wind and rain sensor
⑧ Temperature sensor
⑨ Ventilation key switch
⑩ Weekly timer

Accessories
⑪ Light dome
⑫ Door closer
⑬ Outside air inlet
⑭ Intake-side multi-l. damper
⑮ Duct smoke detector



Stairway scavenging air system

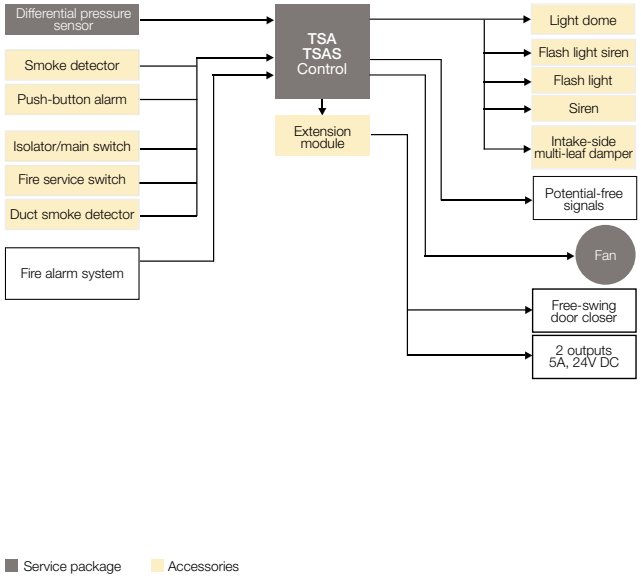
Functionality TSA-L/TSAS-L

If manual and automatic stairway ventilation is required, e.g. at high temperatures in the summer, in addition to the stairway scavenging in case of fire, the Helios range offers the service packages TSA-L and TSAS-L. Using the corresponding switch cabinet equipment and two-stage supply air fan, they are predestined for the connection of ventilation package “LPT” and guarantee particularly ecomonical, demand-oriented ventilation operation.
During smoke detection in a utilisation unit, the operation corresponds to the functionality described above.

TSA/TSAS Service package

Light dome available as separate accessory, see page 201.

System diagram TSA/TSAS



Helios stairway scavenging air systems ensure the significant dilution of the smoke gas concentration in stairways by flushing in case of fire and thus increasing the chances of a fast and successful self-rescue.

The Helios TSA service range is divided into preconfigured packages with matched components and also includes particularly low-noise system solutions.

The modular system allows
- ☐ **the individual adjustment of the system to all structural conditions and requirements.**
- ☐ **trouble-free planning, installation and commissioning, as well as safe system operation.**

■ **Scope of delivery / Packages**
The TSA service range is modular in packages with matching components, which can be ordered separately:

☐ **Service package TSA / TSAS**
The service package can be selected in a compact standard version TSA or in a particularly low-noise design TSAS depending on the structural conditions. Both service packages contain the following components required in all properties as the basis of each stairway scavenging air system:
- Supply air fan in two performance ratings pursuant to the table below, with a supply air volume flow of at least 10,000 m³/h for stairway flushing. Includes mounting brackets and extension duct.
- Switch cabinet with complete control system. Can be expanded with various functions and modules, see table on right page.
- Safety pressure switch as reliable protection against impermissibly high differential pressure in stairway.

The light dome coordinated with the property must be selected as a pressure release unit pursuant to the table below and ordered separately if there is no controllable opening area at the top of the stairway on-site.

☐ **Smoke package RPT**
Includes the system components required for system triggering and alerting (see right page).

■ **Description**

☐ **Switch cabinet**
Lockable switch cabinet in high-quality sheet metal casing. With control and display panel mounted on the front.

☐ **Stairway flushing**
The infiltrated smoke gases in the stairway are diluted and flushed out through a supply air volume flow of at least 10,000 m³/h. In this respect, the supply air fan runs at maximum speed and flushes the entire stairway with fresh air via an injection point in the lower area with simultaneous air discharge opening at the top of the stairway.

☐ **Battery buffering**
TSA / TSAS has battery buffering, which powers the entire control system including all relevant connections, warning devices and components (except supply air fan) in the event of a power cut as a breakdown control system.

TSA/TSAS service package including				a) Supply air motor, three phase motor, IP55				b) Switch cab.	c) Safety pressure switch			
Type	Ref. no.	Volume flow (max.)	Diff. pressure (max.)	Type	Nominal motor power	Voltage	Power consum.	Dimensions	Meas. range	Signal	**Anti-vibration mounts Pressure**	**Tensile**
		m³/h	Pa	400 V, 50 Hz	KW	V	A	mm	Pa	pot. free	**Type** Ref. no.	**Type** Ref. no.
TSA	04992	10 000	510	AMD 450/2	3.0	400	5.70	800x800x211	+20 to +300	changeover	**SDD 4** 01944	**SDZ 4** 01945
TSAS	04994	10 000	340	AMD 560/4	2.2	400	4.50	800x800x211	+20 to +300	changeover	**SDD 4** 01944	**SDZ 4** 01945

Accessories for TSA/TSAS..

Type	**Light dome** with 24V DC spindle drive, hub = 500 mm, 300 mm skylight base				**Intake-side multi-leaf damper**			**Servo motor** 24 V DC		**Bell mouth with guard**		**Automatic backdraught shutter**		**Flanged flex. connector**	
	Type	Nom. dim.	Opening	Ref. no.	**Type**	mm	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
TSA	**LK 12**	1200x1200	1.0 m²	82059	**JVK 60/60**	600x600	01066	**STM 10/24**	01075	**ASD-SGD 450**	01419	**RVS 450**	02597	**STS 450**	01224
TSAS	**LK 12**	1200x1200	1.0 m²	82059	**JVK 60/60**	600x600	01066	**STM 10/24**	01075	**ASD-SGD 560**	01421	**RVS 560**	02599	**STS 560**	01226

Description of accessories, see page 198 f.

Connection options to TSA/TSAS controls		
Type	Qty	Description
AMD	1 x	Frequency inverter, supply air fan
RS	1 x	Isolator switch
RMR	20 x	Smoke detector (1 line)
DKM	10 x	Push-button alarm (1 line)
BLH		Flash light siren
BL	Σ 10 x	Flash light
WH		Siren
DDB	1 x	Safety pressure switch
FWS 2	1 x	Fire service switch
RMK	1 x	Duct smoke detector
JVK..	1 x	Intake-side multi-leaf damper
LK..	1 x	Light dome
EM..	–	Extension module

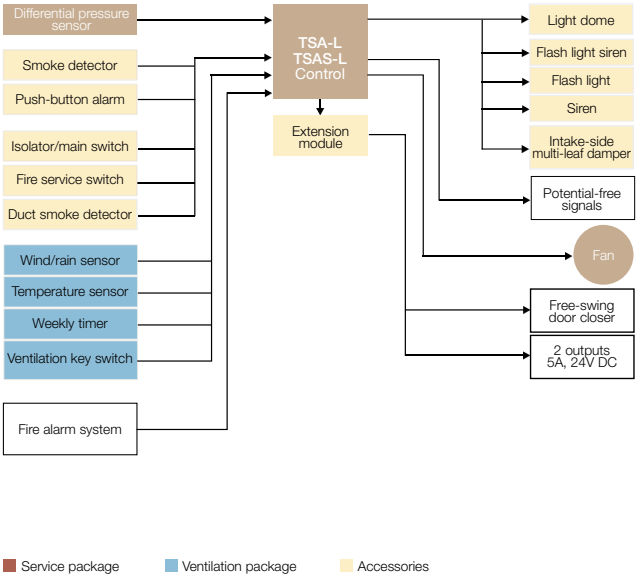
Extension modules for TSA/TSAS controls for integration in switch cabinet)		
Type	Qty	Description
EM 1	04968	2 outputs: 5 A, 24 V DC
EM 2	04969	Changeover contact for free-swing door closer, cap. 250 V/6 A Two outputs for magnetic door clamps, 24 V DC / 250 mA
EM 3	04970	20 additional smoke detectors (1 line)
EM 4	04971	10 additional multi-leaf dampers in supply air
EM 10	04419	GSM module Access. for EM 10: GSM antenna Ref. no. 04420

Stairway scavenging air system TSA-L and TSAS-L with optional ventilation function

TSA-L/TSAS-L Service package

Light dome available as separate accessory, see page 201.

System diagram TSA-L/TSAS-L



Helios stairway scavenging air systems ensure the significant dilution of the smoke gas concentration in stairways by flushing in case of fire and thus increasing the chances of a fast and successful self-rescue.

The Helios TSA-"L" service range also offers the possibility of economical, demand-oriented ventilation operation (e.g. at high temperatures in summer).

The modular system packages allow:

- ☐ **the individual adjustment of the system to all structural conditions and requirements.**
- ☐ **trouble-free planning, installation and commissioning, as well as safe system operation.**

■ Scope of delivery / Packages

The TSA-L/TSAS-L service range is modular in packages with matching components, which can be ordered separately:

☐ Service package TSA-L/ TSAS-L

The service package can be selected in a compact standard version TSA-L or in a particularly low-noise design TSAS-L depending on the structural conditions. Both service packages contain the following components required in all properties as the basis of each stairway scavenging air system:

- Two-stage supply air fan with Dahlander motor. Ideally suited for optional ventilation operation (e.g. at high temperatures in the summer). In two performance ratings pursuant to the table below, with a supply air volume flow of at least 10 ,000 m³/h for stairway flushing. Includes mounting brackets and extension duct.
- Switch cabinet with complete control system. Can be expanded with various functions and modules, see table on right page.
- Safety pressure switch as reliable protection against impermissibly high differential pressure in stairway.
  The light dome coordinated with the property must be selected as a pressure release unit pursuant to the table below and ordered separately if there is no controllable opening area at the top of the stairway on-site.

☐ Smoke package RPT

Includes the system components required for system triggering and alerting (see right page).

☐ Ventilation package LPT

Extends the functionality of the TSA-L/TSAS-L to demand-oriented ventilation operation (see right page).

■ Description

☐ Switch cabinet

Lockable switch cabinet in high-quality sheet metal casing. With control and display panel mounted on the front.

☐ Stairway flushing

The infiltrated smoke gases in the stairway are diluted and flushed out through a supply air volume flow of at least 10 ,000 m³/h. In this respect, the supply air fan runs at maximum speed and flushes the entire stairway with fresh air via an injection point in the lower area with simultaneous air discharge opening at the top of the stairway.

☐ Battery buffering

TSA-L/ TSAS-L has battery buffering, which powers the entire control system including all relevant connections, warning devices and components (except supply air fan) in the event of a power cut as a breakdown control system.

☐ Optional ventilation function

The TSA-L/ TSAS-L creates natural ventilation in the stairway by opening the light dome and intake-side multi-leaf damper. There is also an option to support the ventilation with the supply air fan, which blows fresh air into the stairway at a low stage (fan with Dahlander motor). The optional ventilation package (LPT) is required to use this extended function.

TSA-L/TSAS-L service package including				a) Supply air fan, three phase motor, IP55				b) Switch cab.	c) Safety pressure switch						
Type	Ref. no.	Volume flow (max.)	Diff. pressure (max.)	Type	Nominal motor power	Voltage	Power consum.	Dimensions	Meas. range	Signal	**Anti-vibration mounts**				
		m³/h	Pa	400 V, 50 Hz	KW	V	A	mm	Pa	pot. free	**Type**	Ref. no.	**Type**	Ref. no.	
TSA-L	04993	10 000	520	AMD 450/4/2	0.8/3.1	400	2.10/6.10	1000x1000x301	+20 to +300	Changeover	**SDD 4**	01944	**SDZ 4**	01945	
TSAS-L	04995	10 000	340	AMD 560/8/4	0.5/2.0	400	2.00/4.50	1000x1000x301	+20 to +300	Changeover	**SDD 4**	01944	**SDZ 4**	01945	

Accessories for TSA-L/TSAS-L														
Type	**Light dome** with 24V DC spindle drive, hub = 500 mm, 300 mm skylight base				**Intake-side multi-leaf damper**			**Servo motor** 24 V DC		**Bell mouth with guard**		**Automatic backdraught shutter**		**Flanged flexible connector**	
	Type	Nom. dim.	Opening	Ref. no.	**Type**	mm	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.	**Type**	Ref. no.
TSA-L	**LK 12**	1200x1200	1.0 m²	82059	**JVK 60/60**	600x600	01066	**STM 10/24**	01075	**ASD-SGD 450**	01419	**RVS 450**	02597	**STS 450**	01224
TSAS-L	**LK 12**	1200x1200	1.0 m²	82059	**JVK 60/60**	600x600	01066	**STM 10/24**	01075	**ASD-SGD 560**	01421	**RVS 560**	02599	**STS 560**	01226

Description of accessories, see page 198 f.

■ **System package**
Ventilation package

Type LPT Ref. no. 04986

Extends the TSA functional scope to the demand-oriented ventilation operation (summer), Package contents (1 unit each):

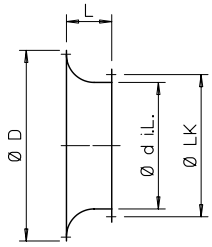
– Ventilation key switch No. 82063
– Temperature sensor No. 82064
– Weekly timer No. 09990
– Wind and rain sensor No. 82066

Ventilation package

Connection options to TSA-L/TSAS-L controls		
Type	Qty	Description
AMD	1 x	Frequency inverter, supply air fan
RS	1 x	Isolator switch
RMR	20 x	Smoke detector (1 line)
DKM	10 x	Push-button alarm (1 line)
BLH		Flash light siren
BL	Σ 10 x	Flash light
WH		Siren
DDB	1 x	Safety pressure switch
FWS 2	1 x	Fire service switch
RMK	1 x	Duct smoke detector
JVK..	1 x	Intake-side multi-leaf damper
LK..	1 x	Light dome
EM..	–	Extension module
LPT	1 x	Ventilation package

Extension modules for TSA-L/TSAS-L controls for integration in switch cabinet)		
Type	Qty	Description
EM 1	04968	2 outputs: 5 A, 24 V DC
EM 2	04969	Changeover contact for free-swing door closer, cap. 250 V/6 A Two outputs for magnetic door clamps, 24 V DC / 250 mA
EM 3	04970	20 additional smoke detectors (1 line)
EM 4	04971	10 additional multi-leaf dampers in supply air
EM 10	04419	GSM module Access. for EM 10: GSM antenna Ref. no. 04420

ASD-SGD



40 °C F300 F400 F600

Dim. in mm

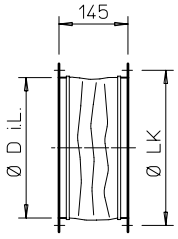
Inlet nozzle with protection grille and large entry radius. Made of steel sheet pressed, hot-dip galvanized. With flange on connection side according to DIN 24155, p. 2.

Powder-coated protection grille for inlet side coverage (galvanised from Ø 800) in accordance with DIN EN ISO 13857.

Type	Ref. no.	Ø D	L	Ø d i.L.	Ø LK	Weight approx. kg
ASD 200 *	01388	310	140	203	235	0.9
ASD-SGD 225	01413	345	140	225	259	2.5
ASD-SGD 250	01414	370	140	250	286	2.8
ASD-SGD 280	01415	400	140	280	322	3.2
ASD-SGD 315	01416	435	140	315	356	3.5
ASD-SGD 355	01417	475	140	355	395	4.0
ASD-SGD 400	01418	545	140	400	438	4.5
ASD-SGD 450	01419	595	140	450	487	5.7
ASD-SGD 500	01420	625	140	500	541	6.3
ASD-SGD 560	01421	745	130	560	605	7.0
ASD-SGD 630	01422	815	130	630	674	7,6
ASD-SGD 710	01423	955	200	710	751	19.5
ASD-SGD 800	01424	1060	200	800	837	22.3
ASD-SGD 900	01309	1140	200	900	934	25.0
ASD-SGD 1000	01310	1240	200	1000	1043	28.5

* no protection grille

STS



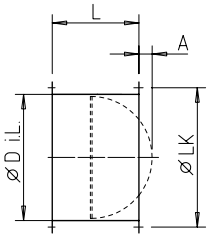
40 °C F300 F400 F600

Dim. in mm

Flanged flexible connector
Flexible connector for installation between the fan and duct system. Prevents structure-borne noise transmission, bridges installation tolerances. Elastic sleeve made of silicone-free PVC fabric (max. +80 °C). With galvanised angle flange rings on both sides, dimensions according to DIN 24155 p. 2.

Type[2]	Ref. no.	Ø D i.L.	Ø LK	Weight approx. kg
STS 200	01219	205	235	1.3
STS 225	01218	229	259	1.1
STS 250	01220	252	286	1.3
STS 280	01231	288	322	1.5
STS 315	01221	322	356	1.8
STS 355	01222	361	395	2.3
STS 400	01223	404	438	2.5
STS 450	01224	453	487	3.8
STS 500	01225	507	541	3.4
STS 560	01226	570	605	4.5
STS 630	01228	638	674	4.6
STS 710	01229	711	751	7.0
STS 800	01233	801	837	7.5
STS 900	01234	898	934	7.5
STS 1000	01235	1004	1043	15.0

RVS



40 °C F300 F400 F600

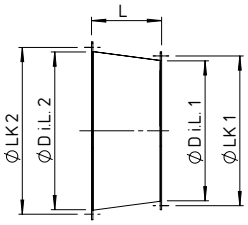
Dim. in mm

Automatic duct shutter with spring return[1]
Can be installed horizontally in any direction, vertically with throughflow from bottom to top. Shutter opening in flow direction; automatic function through fan operation. Spring mechanism outside of air flow. Locking force depends on fan power and installation position can be changed. Shutter and casing made of galvanised steel sheet, shutter made of aluminium for nominal size 225 – 560 mm. Double-sided flange. Holes pursuant to DIN 24155, p. 2.

Type[2]	Ref. no.	Ø D i.L.	L	A	Ø LK	Weight approx. kg
RVS 225	02591	225	300	–	259	3.0
RVS 250	02592	250	300	–	286	3.4
RVS 280	02593	280	300	–	322	3.9
RVS 315	02594	315	300	–	356	4.3
RVS 355	02595	355	300	–	395	5.0
RVS 400	02596	400	330	–	438	7.2
RVS 450	02597	454	330	15	487	10.4
RVS 500	02598	504	330	40	541	11.7
RVS 560	02599	560	330	65	605	16.1
RVS 630	02600	630	400	115	674	19.5
RVS 710	02601	710	400	155	751	26.5
RVS 800	02602	800	420	200	837	37.3
RVS 900	02603	900	420	250	934	41.8
RVS 1000	02604	1000	420	300	1043	47.3

[1] Pressure loss diagram see Helios main catalogue [2] Ambient temperature –30 to +100 °C

DIF



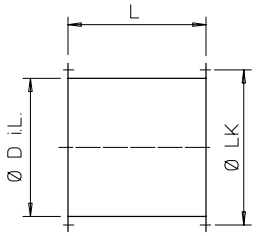
40 °C F300 F400 F600

Dim. in mm

Diffusor DIF
Aerodynamically optimised diffusor for high pressure recovery. Delays air flow due to size step to convert dynamic pressure to static pressure. Additional application as an adapter for an optimised transition to the next size. Specially developed for application directly behind a fan and at the end of a pipeline as an outdoor outlet with reduced outlet losses. In case of a free outlet at the diffusor, the protection grille (type SG) can be used in the next larger dimension.
Made of hot-dip galvanised steel sheet with double-sided welded flange, hole pattern according to DIN 24155.

Type	Ref. no.	Baugrößensprung	L	Ø D.i.L 1	Ø LK 1	Ø D.i.L 2	Ø LK 2	Weight kg
DIF 280	03551	280 to 315	140	280	322	315	356	4.1
DIF 315	03552	315 to 355	160	315	356	355	395	4.9
DIF 355	03553	355 to 400	180	355	395	400	438	5.9
DIF 400	03554	400 to 450	200	400	438	450	487	7.0
DIF 450	03555	450 to 500	225	450	487	500	541	8.4
DIF 500	03556	500 to 560	250	500	541	560	605	11.5
DIF 560	03565	560 to 630	280	560	605	630	674	15.4
DIF 630	03566	630 to 710	315	630	674	710	751	19.0
DIF 710	03567	710 to 800	355	710	751	800	837	24.1
DIF 800	03568	800 to 900	400	800	837	900	934	37.8
DIF 900	03569	900 to 1000	450	900	934	1000	1043	45.7
DIF 1000	03570	1000 to 1120	500	1000	1043	1120	1174	54.9

VR



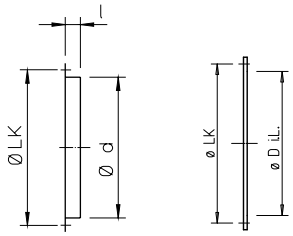
40 °C F300 F400 F600

Dim. in mm

Extension duct
Pipe section with double-sided flanges and holes according to DIN 24155, p. 2. Made of hot-dip galvanised steel sheet for the extension of the fan shaft.
For types with protruding motor, for installation in pipeline. Prevents power losses in case of free outlet.

Type	Ref. no.	Ø D i.L.	L	Ø LK	Weight approx. kg
VR 225	01401	225	300	259	2.5
VR 250	01402	250	300	286	2.8
VR 280	01403	280	300	322	3.2
VR 315	01404	315	300	356	3.5
VR 355	01405	355	300	395	4.0
VR 400	01406	400	330	438	6.0
VR 450	01407	450	330	487	9.0
VR 500	01408	500	330	541	10.0
VR 560	01409	560	500	605	14.0
VR 630	01410	630	500	674	15.5
VR 710	01411	710	500	751	21.5
VR 800	01412	800	420	837	31.0
VR 900	01311	900	420	934	34.0
VR 1000	01312	1000	420	1043	37.6

FR / FF



40 °C F300 F400 F600

Dim. in mm

Counter flange FR / Flat flange FF
Angle flange ring/ flat flange ring made of galvanised steel sheet. Dimensions/ holes according to DIN 24155 p. 2.

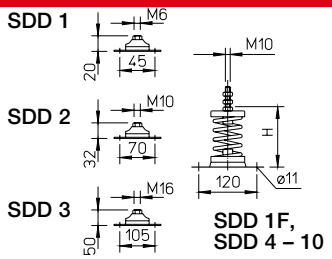
Type	Ref. no.	Ø LK	l	Ø d	Ø d i.L.	Weight approx. kg
FR 200	01202	235	25	209	–	0.6
FR 225	01201	259	30	233	–	0.7
FR 250	01203	286	25	256	256	0.8
FR 280	01214	322	30	292	286	0.9
FR 315	01204	356	30	326	321	1.0
FR 355	01205	395	30	365	361	1.1
FR 400	01206	438	30	408	409	1.2
FR 450	01207	487	35	457	459	1.4
FR 500	01208	541	35	511	509	1.6
FR 560	01209	605	35	574	569	1.9
FR 630	01211	674	35	642	639	2.2
FR 710	01212	751	35	715	719	2.5
FR 800	01198	837	35	806	809	3.9
FR 900	01199	934	35	903	909	4.4
FR 1000	01210	1043	35	1012	1009	5.2

Type	Ref. no.	Ø LK	l	Ø d	Ø d i.L.	Weight approx. kg
FF 250	04941	286	25	256	256	0.7
FF 280	04942	322	30	292	286	0.9
FF 315	04943	356	30	326	321	1.0
FF 355	04944	395	30	365	361	1.2
FF 400	04945	438	30	408	409	1.3
FF 450	04946	487	35	457	459	1.5
FF 500	04947	541	35	511	509	1.6
FF 560	04948	605	35	574	569	2.6
FF 630	04949	674	35	642	639	2.9
FF 710	04950	751	35	715	719	3.3
FF 800	04951	837	35	806	809	3.6
FF 900	04952	934	35	903	909	4.1
FF 1000	04953	1043	35	1012	1009	4.5

SDD

SDD 1 – 3

SDD 1F, 4 – 10



Dim. in mm

Vibration dampers for compression load
For vibration and noise-insulating installation of fans on horizontal surfaces. Easy installation in combination with MK (accessories). Selection according to fan weight, see table.

Rubber bonded metal elements must be used for small and medium weight loads and temperatures up to max. + 60 °C, and spring-type vibration dampers must be used for high loads and temperatures above +60 °C (e.g. smoke extraction).

Type	Ref. no.	Max. fan weight kg	H Height in mm	Spring-type vibration damper	Delivery unit 1 set = 4 pcs
SDD 1	01452	80	*		
SDD 1F	01942	80	112 – 82	•	
SDD 2	01453	180	*		
SDD 3	01367	750	*		
SDD 4	01944	130	112 – 87	•	
SDD 5	01924	210	112 – 86	•	
SDD 6	01926	350	112 – 85	•	
SDD 7	01928	520	112 – 85	•	
SDD 8	01930	900	112 – 82	•	
SDD 9	01934	1300	112 – 85	•	
SDD 10	01951	1800	112 – 88	•	

* specified in dimensional drawing.

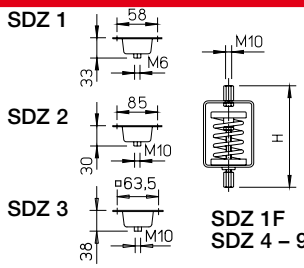
SDZ

SDZ 1 – 2

SDZ 3
(w/o Fig.,
with square, four-point fixing)

SDZ 1F, 4 – 9

Dim. in mm



Vibration dampers for tensile load
For vibration and noise-insulating fan suspension (ceiling mounting). Design, description and delivery according to SDD series.

Important installation note for vibration dampers!
A uniform load distribution (balance centre of gravity in case of heavy motor) must be ensured during installation.

Type	Ref. no.	Max. fan weight kg	H Height in mm	Spring-type vibration damper	Delivery unit 1 set = 4 pcs
SDZ 1	01454	60	*		
SDZ 1F	01943	80	190 – 215	•	
SDZ 2	01455	160	*		
SDZ 3	01366	300	*		
SDZ 4	01945	130	190 – 215	•	
SDZ 5	01925	210	190 – 216	•	
SDZ 6	01927	350	190 – 217	•	
SDZ 7	01929	520	190 – 217	•	
SDZ 8	01931	900	190 – 220	•	
SDZ 9	01935	1300	190 – 217	•	

* specified in dimensional drawing.

Smoke detector
Type RMR Ref. no. 04984
Smoke detector according to EN 54-7, incl. detector base for the automatic triggering of EVS for smoke detection. Operating voltage 9-33 V DC. Power consum. rest/alarm 30 µA/20 mA. Protection class IP40.
Dim. mm Ø 100 x H 44.

RMR

Push-button alarm
Type DKM Ref. no. 04985
Push-button alarm in limit value technology for manual triggering of EVS by button. Includes reset button and LED indicator for operating state. Operating voltage 20-30 V DC. Protection class IP40.
Colour RAL 2011.
Dim. mm W 125 x H 125 x D 36

DKM

Signaltransmitters
Type BLH Ref. no. 04983
Type BL Ref. no. 08216
Type WH Ref. no. 08217
Flash light siren (BLH), flash light (BL) and siren (WH) as 24 Volt signal transmitters, incl. base. Casing made from impact-resistant plastic, for ceiling and wall installation. Protection class IP65.
Dim. mm Ø 93

BLH / BL / WH

Duct smoke detector
Type RMK Ref. no. 04982
Duct smoke detector, incl. inlet duct for early detection of fire gases in the outside air inlet at flow speeds of 1 – 20 m/s. Operating current 16-28 V DC. Power consum. rest/alarm 22/11 mA. Protection class IP54. Relay contact potential-free break contact.
Dim. mm L 250 x W 135 x H 100.

RMK

Isolator switch
Type RS 3+1 7,5 Ref. no. 06387
– 3-pole with auxiliary contact
For fans with direct start-up. Plastic casing for surface-mounting. Locking options in position “0 OFF” and position “I ON”. Voltage 400 V, 3~, 50/60 Hz. Operating current 20 A. Capacity AC-23 B, 7.5 kW. Protection category IP65. Protection class II. Actuation Rotary actuator. Temp. range -25 °C to +60 °C. Weight approx. 0.3 kg. Casing Flush and weather-resistant. Wiring diagram no. 1088.

RS 3+1 7,5

Fire service switch
Type FWS 2 Ref. no. 08255
Fire service switch with LED display for connection to RDA / TSA. Operating voltage 18 – 30 V DC. Power consum. rest/alarm 2/20 mA. Protection class IP44.
Dim. mm 125 x 70.

Accessory:
Locking cylinder FWS ZY
Ref. no. 82331.

FWS 2

Safety pressure switch
Type DDB Ref. no. 82062
Safety pressure switch for monitoring differential pressures and protection against impermissibly high differential pressure, e.g. in RDA/TSA DDK and TSA.
Pressure meas. range 20 to 300 Pa. Capacity switch contact 1.0 (0,4) A, 250 VAC. Protection class IP54.
Dim. mm approx. 58 x 104 mm. Installation Wall and ceiling installation.

DDB

Differential pressure sensor
Type DDR Ref. no. 82061
Differential pressure sensor in two-wire technology with durable capacitive sensor element.
Operating voltage 12 to 36 V DC.
Meas. range -100 to +100 Pa.
Casing protection class IP65.
Dim. mm 90 x 75 x 61.5 mm.
Casing material Polyamide PA 6.6.

DDR

Isolator switch
Type RS 6+1
– 6-pole with auxiliary contact

Type	Ref. no.	Capacity
For Dahlander winding or Y/D start-up		
RS 6+1 7,5	06388	20 A, AC-23 B 7,5 kW
RS 6+1 11	06389	25 A, AC-23 B 11 kW
RS 6+1 15	06390	32 A, AC-23 B 15 kW
RS 6+1 22	06391	50 A, AC-23 B 22 kW
RS 6+1 37	06392	80 A, AC-23 B 37 kW
RS 6+1 45	06393	125 A, AC-23 B 45 kW

Voltage 400 V, 3~, 50/60 Hz. Protection category IP65. Protection class II. Actuation Rotary actuator. Locking options.“0 OFF” and “I ON”. Temperature range -25 °C to +60 °C. Casing Flush and weather-resistant. Wiring diagram no. 1088

RS 6+1

Overflow valve
Type ÜV 200 Ref. no. 04981

For pressure equalisation between two rooms, DN 200. Incl. in-duct fire damper (BAK) and cold smoke shutter (KAK).
External diameter 235 mm.
Length 280 mm. Suitable for wall thickness min. 100 mm. Through-flow volume flow 50 of 400 m³ /h.
ÜV 200 only with BAK or KAK on demand.

ÜV 200

Screen
Type ÜVB 200 Ref. no. 07509

Material screen: Steel, powder-coated-coated RAL 9003 (signal white).
External screen dimensions:
300 x 300 mm

ÜVB 200

Cover shell
Type ÜVH 200/50 Ref. no. 07510
Type ÜVH 200/110 Ref. no. 07511

Material cover shell:
Steel, powder-coated RAL 9003 (signal white).
External diameter 241 mm.
Length cover shell 50 and 110 mm (depending on type).

ÜVH 200/50 / ÜVH 200/110

Damper servo motor
STM 10 24V 2P Ref. no. 01075
STM 20 24V 2P Ref. no. 01093
STM 16 24V S Ref. no. 21112

Electrical 24 Volt servo motor with spring return for opening and closing shutters JVK and JKG.
Torque 10 und 20 Nm (depending on type).

Adaption module, Type APM no. 28735
24 V for pole change to 3-point.
For controlling 3-point drives.

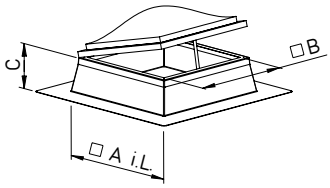
STM 10 / STM 20 / STM 16

Light dome
Type LK 12 Ref. no. 82059
Type LK 15 Ref. no. 82060

Light dome with 300 mm skylight base and 24 Volt RWA linear actuator. Opal light dome design with coloured plastic glazing.
Scope of delivery: Skylight, skylight base, linear actuator, hinge bracket and piston slide bracket.

Type	Ref. no.	Dimensions in mm		
		A i.L	B	C
LK 12	82059	1200	1000	300
LK 15	82060	1500	1300	300

LK 12 / LK 15

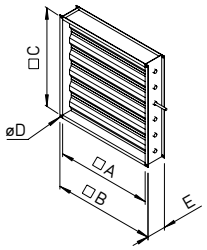


Multi-leaf damper
Type JVK

Multi-leaf damper JVK: Designed in square frame casing with connection flanges made from galvanised sheet steel on both sides. Airtight connection to frame casing.

Type	Ref. no.	Dimensions in mm				
		A	B	C	D	E
JVK 60/60	01066	600	640	620	Ø 9	120
JVK 70/70	01067	700	740	720	Ø 9	120
JVK 80/80	01068	800	840	820	Ø 9	120
JVK 90/90	01069	900	940	920	Ø 9	120
JVK 100/100	01074	1000	1040	1020	Ø 9	120

JVK

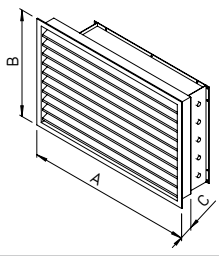


Multi-leaf damper
Type JKG 70/50

Multi-leaf damper JKG 70/50 with mounted aluminium screen.
Nom. dim. multi-leaf damp.
700 x 500 mm.
Nom. dim. screen 880 x 555 mm.
Depth multi-leaf damper 175 mm.
Depth screen 85 mm.
Total depth 260 mm.
Total weight approx. 18 kg.
Leak tightness (EN 1751) Class 2.

Type	Ref. no.	Dimensions in mm		
		A	B	C
JKG 70/50	04979	931	601	85

JKG 70/50



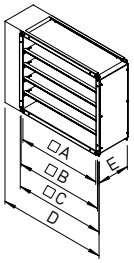
Bypass control damper
Type BRK 1000 x 1000

Bypass control damper BRK 1000 x 1000, optional for actively controlled air discharge shafts. Aluminium design incl. 24 V DC drive. Opens and closes within 1.5 seconds. Nominal size BRK 1000 x 1000 m. External dimensions BRK 1287 x 1072 mm. Depth BRK 165 mm. Total weight approx. 23 kg

Type	Ref. no.
BRK 1000 x 1000	37507

Dimensions in mm				
A	B	C	D	E
1000	1036	1072	1287	165

BRK 1000 x 1000



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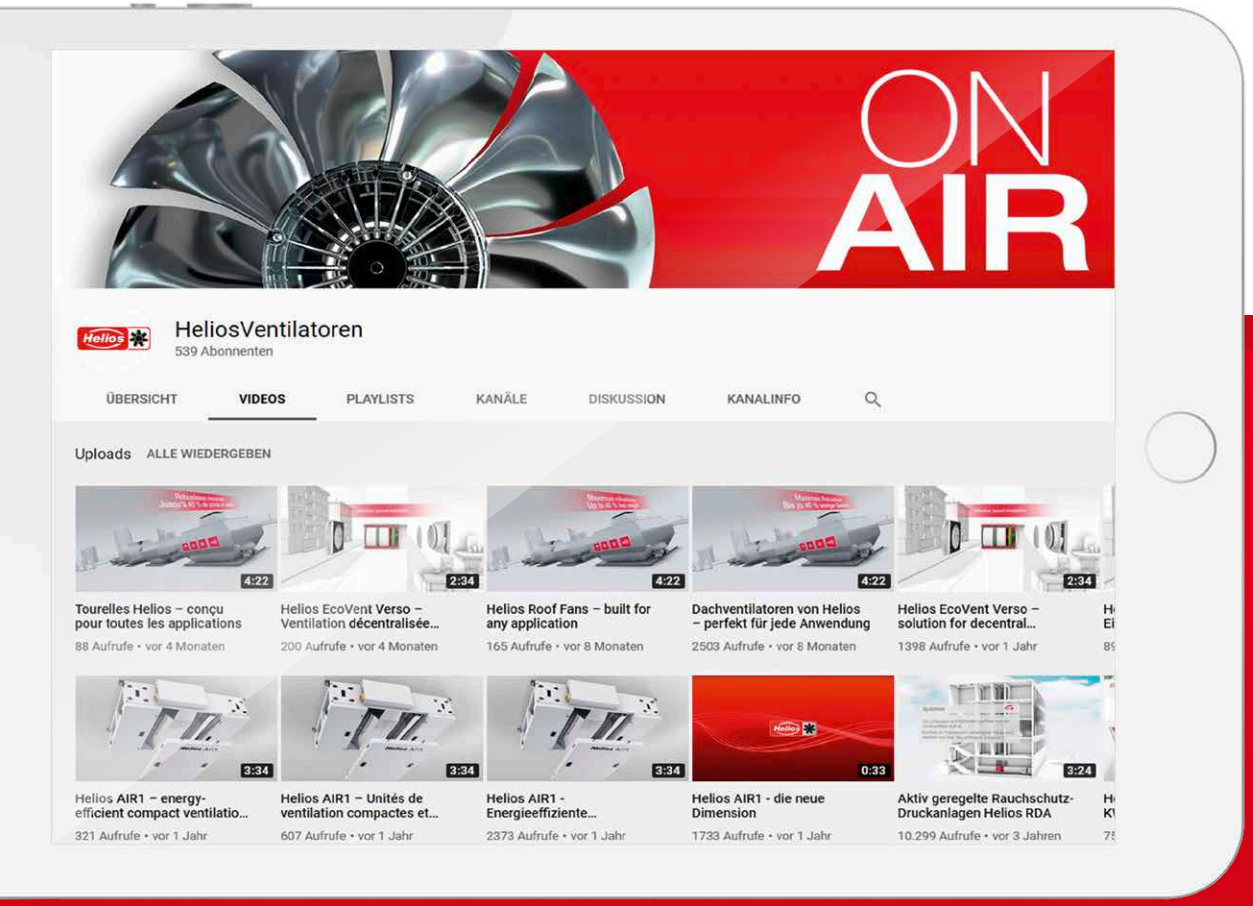
YouTube

Cinematic ventilation systems can be found on our YouTube channel.



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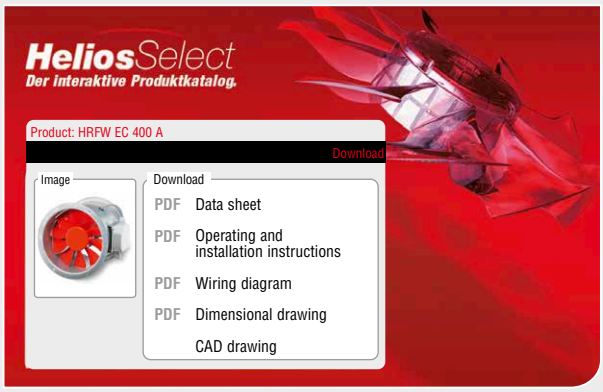

Find your desired product quickly and easily with HeliosSelect.

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www.HeliosSelect.com

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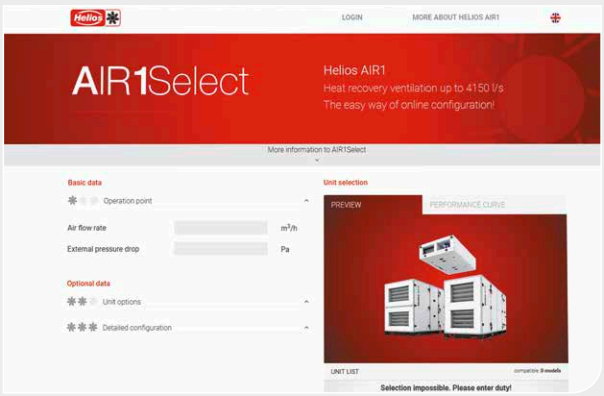

AIR1Select: The online tool for configuring RLT units.

In order to assist you with the selection of an optimal compact ventilation unit, we developed AIR1Select – an online configuration tool especially for Helios AIR1 ventilation units. AIR1Select allows the configuration of your ventilation unit with a few self-explanatory inputs. You can save, export and call up your results at any time.

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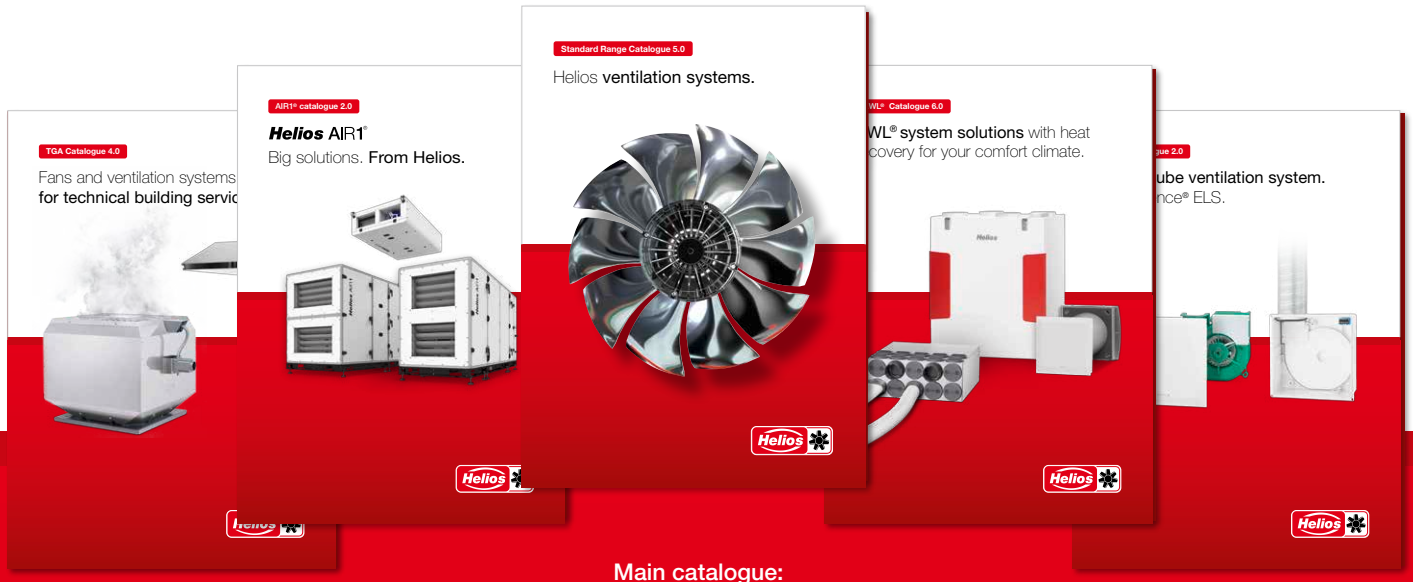
Our catalogues.



TGA catalogue:
Fans and systems for fire protection and smoke extraction.

Helios AIR1 catalogue:
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