The following ranges for various applications are available:

**Single stage unit VAR**
– Sizes 225 to 630 mm
**see following pages**

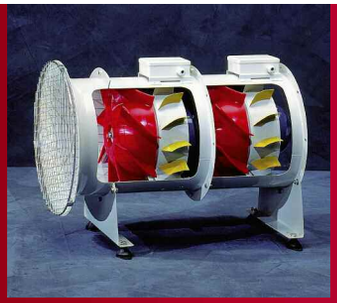
– For other sizes up to ø 1000 mm
**see separate catalogue**

**Parallel units P-VAR**
Large volumes and high pressures in a compact design. Especially suitable for ventilation of underground car parks. (car enactment and VDI 2053).
**see separate catalogue**

**Twin unit TwinVent® Z-VAR**
Highly efficient units with high pressure characteristics in a compact design. Flexible in application.
**see separate catalogue**

**Smoke extract according to DIN 12101 T.3 F 300**
**300 °C / 60 minutes**
All VAR-models from ø 280 mm andare available for smoke extraction temperature ranges F 300.

Further models are available in F 400 and F 600.
**see separate catalogue**



## Advanced technology for today's systems.

The Helios strategy of developing practical solutions to customers applications has resulted in many exciting fan designs. The RADAX® VAR-system is one of the best examples, being highly respected and well received in the market.

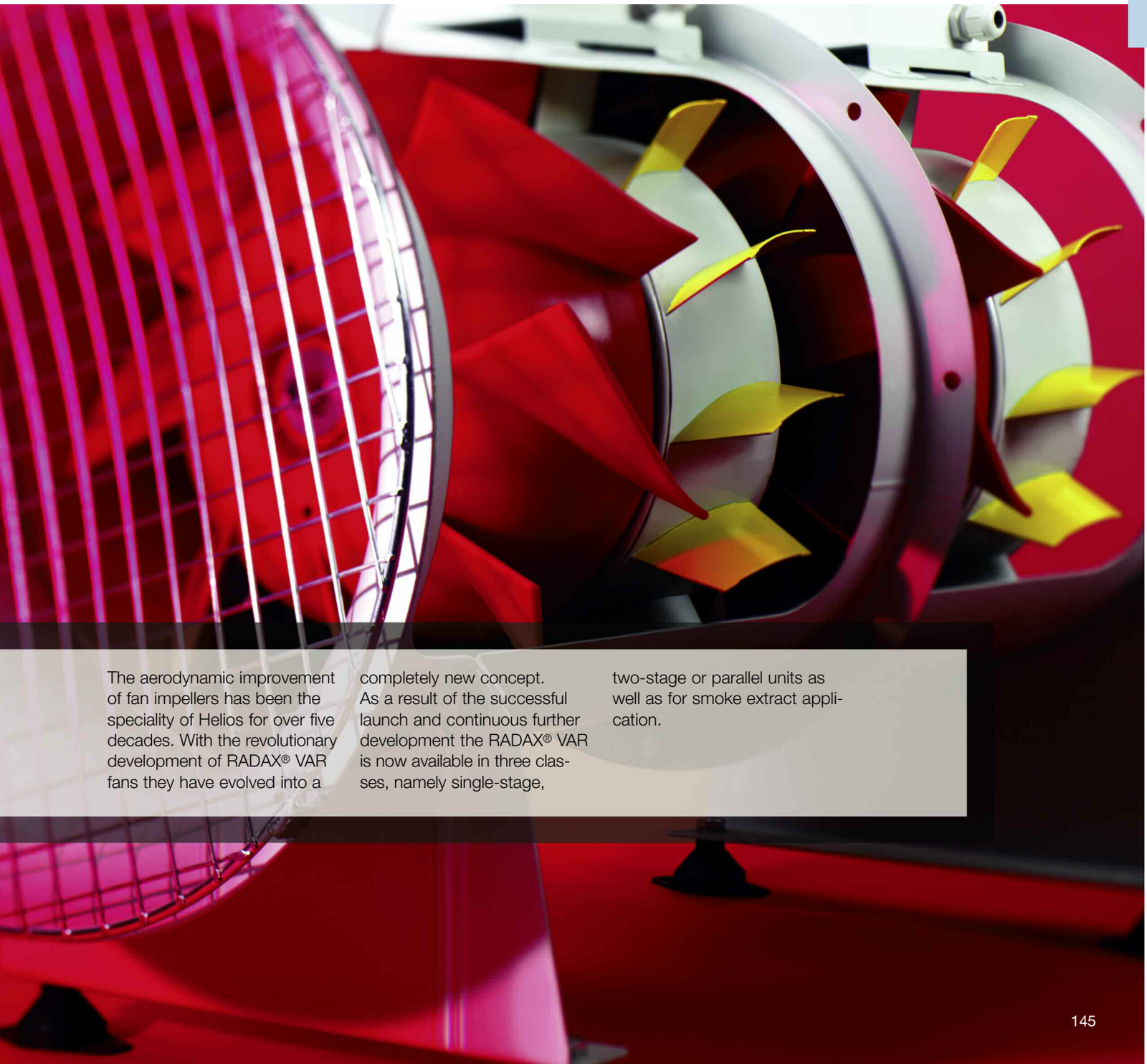
The success of the VAR-high pressure fans is in the combination of the pressure characteristics of centrifugal fans with axial air flow.

The benefits are:
- Maximum power at minimal energy costs.
- Low sound levels.
- High pressure and airflow within small dimensions.

The VAR-system fills the gap between axial-low pressure and high pressure centrifugal fans. The in-line airflow improves the efficiency of the total system and offers a considerable reduction of the required installation space and ducting compared to conventional solutions.

The effect:
- ☐ A wider range of applications.
- ☐ Increases options at design stage.
- ☐ Complicated ducting, bends etc. and associated pressure drop are reduced to a minimum, compared to centrifugal fans.
- ☐ Lower installation cost.
- ☐ Energy conservation.



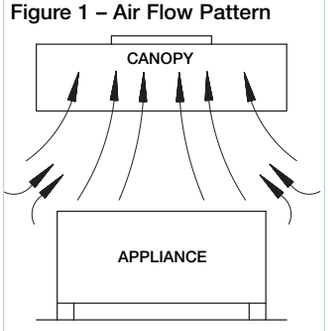


The aerodynamic improvement of fan impellers has been the speciality of Helios for over five decades. With the revolutionary development of RADAX® VAR fans they have evolved into a completely new concept. As a result of the successful launch and continuous further development the RADAX® VAR is now available in three classes, namely single-stage, two-stage or parallel units as well as for smoke extract application.

## Introduction

Whilst systems extracting from equipment producing effluent, such as dust, depend upon air streams of sufficient velocity being created to enable capture to take place, this concept cannot be applied to heat producing process e.g. cooking. All cooking processes create approximately 35% radiant and 65% convected heat which, in the absence of cross-draughts, rises vertically in a thermal up-draught called a 'plume'. This is shown in figure 1. Most of the effluent released from the food and heat source is entrained with additional air which causes the plume to enlarge and the average temperature and velocity to decrease. The rate of exhaust from the hood must equal or slightly exceed the flow rate of the plume, and additional air will be required to resist the cross-draughts that would otherwise carry the plume away from the canopy.

**Figure 1 – Air Flow Pattern**




The calculation of the optimum extract flow rate is the most important element of canopy design, as too much air will cause as many problems as too little. Whilst the size of the cooking appliances determine the size of the canopy supplied, it is the type of appliance that determines the volume of air to be extracted. The following methods of calculation are included for information.

## Method 1
### – Thermal Convection Method

This method follows the procedure covered in the CIBSE Guide but has been expanded to include a wider range of equipment. When details of the equipment to be ventilated are known, then each cooking appliance is allocated a thermal convection coefficient, which is the recommended volume of air to be extracted in $m^3/s$ per $m^2$ of surface area of the appliance. The area of each appliance is multiplied by the factor for that appliance, and the total value for each item of equipment under the canopy is added together to determine the total volume to be extracted. The factor will vary depending on whether the appliance is fired by gas or electricity, and these are shown in Table 1.

In the absence of complete information about the proposed equipment to be installed in a kitchen, there are a number of approximate methods that may be used to assess the amount of air to be removed. These are listed here for information, but should only be used for preliminary purposes and *not* for the final air flow calculation.

**Table 1 – Appliance, Coefficient and Temperature Schedule**

| Appliance | Coefficient ($m^3/s$ of appliance area) Gas | Electric | Surface Temp. °C |
|---|---|---|---|
| **MISCELLANEOUS** | | | |
| Benches, Spreaders and worktops | 0.03 | 0.03 | 25 |
| Sink | 0.15 | 0.15 | 25 |
| Pass Through Dishwasher * | 0.30 | 0.30 | 61 |
| Pan Wash, Utensil Wash | 0.40 | 0.40 | 42 |
| Rack and Flight Dishwasher | | see manufacturers literature | 58 |
| ** NB – the figures quoted are for the machine only; the room in which they are located needs to be treated separately.* | | | |
| **HEATING / WATER** | | | |
| Coffee Maker | — | 0.03 | 25 |
| Microwave Oven, Toaster | — | 0.03 | 25 |
| Bains Marie, Hot Cupboard | 0.20 | 0.15 | 57 |
| Servery Counter - Hot Food | 0.24 | 0.24 | 73 |
| Water Boiler, Still, Beverage Unit | 0.25 | 0.20 | 78 |
| Light Duty Boiling Pan, Tilting Kettle | 0.25 | 0.20 | 78 |
| **Refrigeration Unit** | | see manufacturers literature | |
| **GENERAL COOKING** | | | |
| Induction Hob, Ceramic Stove | — | 0.10 | 30 |
| Pantry and High Output Bakery Oven | 0.25 | 0.20 | 86 |
| Steamer / Pressure Cooker | 0.30 | 0.20 | 125 |
| Bratt Pan, Tilt Skillet | 0.32 | 0.32 | 190 |
| Boiling Table, Hot Top, Stock Pot Stove | 0.35 | 0.25 | 190 |
| Heavy Duty Boiling Pan | 0.35 | 0.25 | 146 |
| Open Top Range and Oven | 0.35 | 0.25 | 190 |
| Steaming and Roasting Oven | 0.35 | 0.35 | 98 |
| Fan Assisited Convection Oven | 0.38 | 0.30 | 86 |
| Pizza Oven | 0.38 | 0.30 | 92 |
| Low/Medium Duty Deep Fat Fryer | 0.45 | 0.35 | 190 |
| Low Medium Duty Grill | 0.50 | 0.30 | 220 |
| **FLAME COOKING** | | | |
| Griddle | 0.30 | 0.25 | 190 |
| Deep Fat Bratt Pan | 0.40 | 0.35 | 190 |
| Conveyer Pizza Oven | 0.45 | 0.40 | 90 |
| High Duty Deep Fat Fryer | 0.45 | 0.40 | 190 |
| Solid Top Oven range | 0.60 | 0.51 | 420 |
| Upright or Chain Broiler | 0.75 | 0.55 | 190 |
| Salamander or Steakhouse Grille | 0.75 | 0.55 | 260 |
| Chargrille. Broiler | 0.95 | 0.52 | 350 |
| Chinese Wok Range | 1.10 | — | 280 |
| Mesquite grille | 1.20 | — | 420 |

## Method 2
### – Quick calculation method

**Face Velocity Method**

When there is insufficient information on the type of cooking appliance available, the volume of air to be extracted may be determined by selecting a velocity across the face area of the canopy that is appropriate for the type of appliances expected to be used. The capture velocity is multiplied by the canopy area to determine the volume of air to be extracted.

The capture velocity should be selected to ensure an even distribution of air across the canopy face, and this velocity will vary according to the cooking application.

☐ Light loading – 0.25 m/s
Applies to steaming ovens, boiling pans, bains marie and stock-pot stoves.

☐ Medium loading – 0.35 m/s
Applies to deep fat fryers, bratt pans, solid and open ranges and griddles.

☐ Heavy loading – 0.5 m/s
Applies to chargrills, mesquite and specialist broiler units.

| Recommended Duct Velocities | Supply | Extract |
|---|---|---|
| Mains Runs | 6 - 8 m/s | 6 - 9 m/s |
| Branch Runs | 4 - 6 m/s | 5 - 7 m/s |
| Spigots | 3 - 5 m/s | 5 - 7 m/s |

Table 2 – Types of Grease Filter and Their Main Properties

| Type | Recommended Face Velocity Efficiency | Typical | Advantages | Disadvantages |
|---|---|---|---|---|
| Mesh | 2.0 - 5.0 m/s | 40 - 50 % | • Inexpensive<br>• Low Pressure drop when clean | • Grease held in air stream<br>• Variable pressure drop<br>• Potential fire hazard |
| Baffle | 4.5 - 5.5 m/s (at slot) | 65 - 80 % | • Inexpensive<br>• Has Non-overloading pressure drop | • Higher pressure drop than mesh filters |
| Cartridge | 4.5 - 5.5 m/s (at entry) | 90 - 95 % | • Higher Efficiency<br>• Non-overloading pressure drop | • High pressure drop<br>• Special plenum fabrication required |
| Water Wash | 4.5 - 5.5 m/s (at entry) | 90 - 95 % | • Higher Efficiency<br>• Non-overloading<br>• Low maintenance | • Expensive<br>• Very high pressure drop<br>• Hot water supply and drains required |
| Water Mist | 4.5 - 5.5 m/s (at entry) | 90 - 98 % | • Very efficient<br>• Non-overloading<br>• Low maintenance | • Expensive<br>• Very high pressure drop<br>• Hot & Cold water supplies & drains required. |

Table 3 – Types of Fans

| Type | Advantages | Disadvantages |
|---|---|---|
| Axial Fans | • Compact with an extensive duty range especially when operating in series<br>• Easily removed for maintenance cleaning<br>• A cheaper option | • The temperature limitations are greater but will serve for most general kitchen vent systems<br>• Unable to deal with some pressure requirements |
| 'In-Line' Centrifugal and Mixed flow | • Compact with a good duty range which can serve many kitchen vent systems<br>• Generally less expensive than some options<br>• Easily removed for maintenance and cleaning | • The temperature limitations are greater but will generally serve the the majority of kitchen systems<br>• Forward curved fans should only be used for supply systems |
| Roof Extract Fans (vertical jet discharge with Centrifugal impellers) | • Compact and, where the motor is encased outside the air stream, has a good temperature range<br>• Easily removed for maintenance and cleaning<br>• No space restrictions<br>• Good external appearance | • The temperature limitations are greater but will generally serve the majority of kitchen vent systems<br>• With poor roof access this type of fan can be a problem to maintain<br>• More expensive than in-line/axial fans but dispenses with necessity of discharge ductwork. |

## Make-Up Air

In order for the kitchen extract system to function correctly, it is essential that an allowance is made for the provision of replacement air. This can be achieved either by introducing mechanically supplied air, or by making provision for natural infiltration.

Where mechanical input is selected the system should provide 85% of the total extracted volume with the remaining 15% infiltrating naturally into the kitchen from surrounding areas. The mechanical or 'fan assisted' method ensures that the kitchen remains under negative pressure thus minimising the potential transfer of kitchen odours to areas outside the kitchen.

Make-up air can be introduced into the kitchen by means of the canopy or ventilated ceiling or through the HVAC system or by a combination of both. Where air is introduced through the canopy, the various options are shown in figs 4.

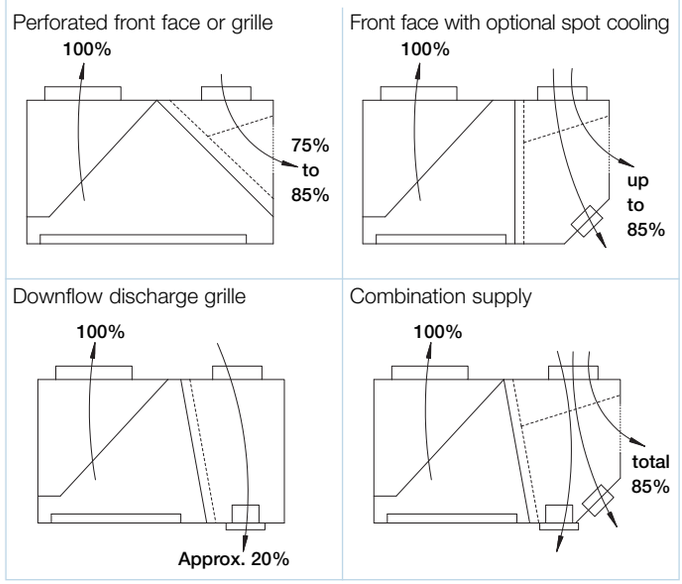
The fan powered system provides an option because the lack of control with infiltration may create the following problems:

- ☐ Unfiltered air will enter the kitchen.
- ☐ Air could be drawn from dirty areas.
- ☐ Uncontrolled air movement may affect the cooking process.
- ☐ Draughts and discomfort can be caused in cold weather.
- ☐ 'Cooling' cannot be provided to adjacent areas.

**Acknowledgment**

The information shown here is taken from HVCA's DW/171 Standard for Kitchen Ventilation Systems. For a full copy of DW/171 please contact HVCA Publications, Penrith – Telephone 01768 860405.

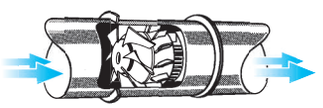
**Figure 4 – Outboard supply systems**



**These pages provide some additional information to complete the general technical information in the front of the catalogue.**

## Features
RADAX® VAR is a range of high pressure cased fans combining the advantages of axial and centrifugal fans.
The mixed flow impeller combined with the fixed guide vanes are designed to provide high air flows and pressures very efficiently.

## Air flow
The axial air flow pattern allows operation without loss, guide vanes improve and straighten the air and increase the efficiency of the fan. The VAR in-line installation eliminates the need for bulky bends, transformation pieces etc. including their resistances. This saves installation and energy costs.



## Casing
Casing flanges on both sides to DIN 24155, Pt.3 with guide vanes and motor support made from galvanised steel.
Models with n = 2800 min$^{-1}$ of size 400, 450, 500 as well as all models of size 630 welded casing, hot-dip galvanised.
Terminal box to IP 55 fixed to the outer casing.

## Impeller
Mixed flow impeller with 8 spacious curved blades. Up to size 355 made from polymer.
Models with n = 2800 min$^{-1}$ of size 355 as well as all models of size 400 to 630 made from hot-dip galvanised steel. Aluminium is available (additional charge) on demand.
VAR fans offer high efficiency, low operation noise, high corrosion resistance and low vibration operation through dynamical balance to DIN ISO 1940 Pt.1 – quality grade 6.3.

## Air flow temperature
The standard models are suitable for ambients from –30 °C to at least +40 °C. See also information on product pages. Higher temperature models are available on request.

| Information | Pages |
|---|---|
| Design of systems. | |
| Acoustic, explosion proof | 12 on |
| General technical information | |
| Speed control | 17 on |

## Explosion proof
The ex-proof models conform to cluster II, category 2G for the operation in zone 1 or 2. According to EC guideline 94/9/EG bigger air gaps are specified which lead to a power reduction of up to 10%.

## Air flow direction
The air flow of the fan cannot be reversed, however the fan is suitable for installation in any position. The correct direction of rotation and air flow are marked on the fan.

## Installation position, mounting, condensation opening
To achieve the performance figures shown, a straight duct of 2 times the diameter in length downstream of the fan is required (and installed in ducting ideally the same upstream) (figure 1).
☐ RADAX®-VAR can be installed in any position. Where motor condensate drainage is used, ensure the drain holes face downwards.
☐ When installing the fan for vertical airflow as well as in an outside position or in a permanently humid or wet atmosphere, this must be specified at time of ordering
On site assembly and mounting must to be carried in such a way that the vertically fitted fan is distortion-free and safe.

## Transmission of vibration
To avoid transmission of vibration between fan and building the use of anti vibration mounts is recommended (accessory SDD..., SDZ...).
For fans with larger motors the motor may protrude beyond the flange. In this case an extension duct (accessory VR...) is recommended to ensure the anti vibration mounts are equally loaded.

## Installation-examples
### ☐ Horizontal installation
– **Figure 2**
Free intake, ducted on exhaust. Mounted on ceiling, wall or floor.

– **Figure 3**
Free intake with attenuator, ducted on exhaust.
To reduce inlet and exhaust noise levels, attenuators can be fitted to both ends of the fan.

Fig. 1

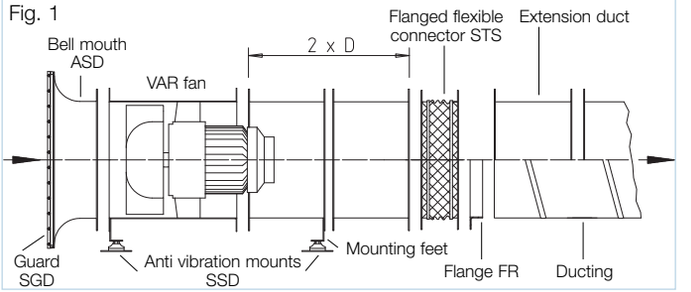



Fig. 2

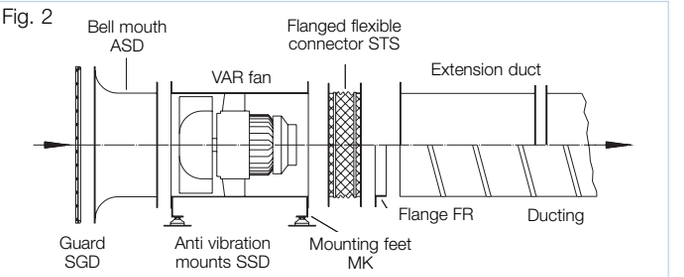



Fig. 3

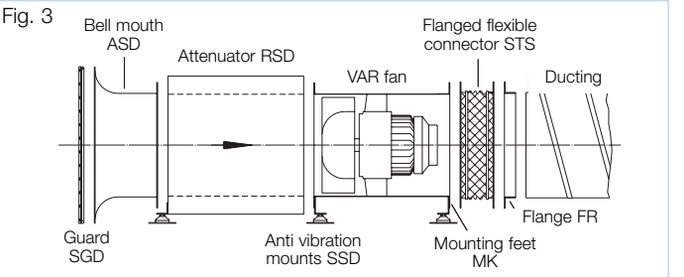
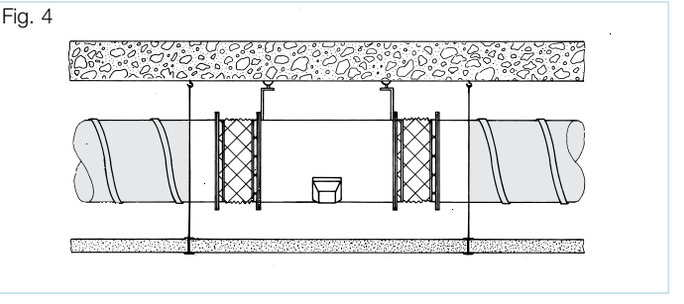


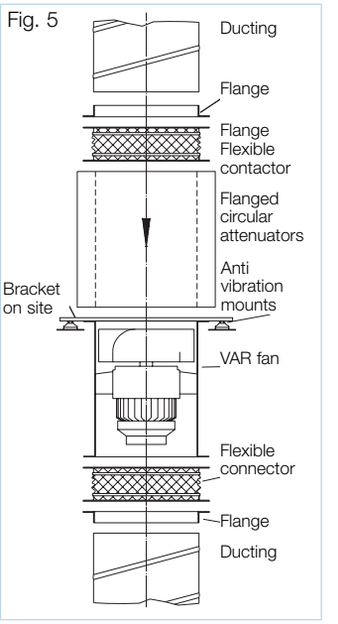

Fig. 4



– **Figure 4**
**Ceiling void installation**
Figure 4 shows an in-line duct installation. VAR fans can be mounted direct in the ceiling above the void. The casing is designed for straight in-line installation using the flanged ends (to DIN 24155 Pt. 3).

### ☐ Vertical installation
– **Figure 5**
In-line wall mounted installation with attenuator on intake. The accessories should be fixed separately to ensure that the fan may be easily removed for maintenance.

Fig. 5



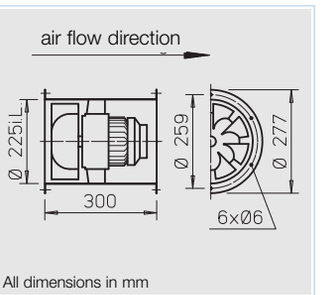
To use this quick selection table for RADAX®-VAR mixed flow fans: Select the nearest static pressure $\Delta p_{stat.}$ (Pa.) and follow the column down until you reach the nearest air flow volume $\dot{V}$ ($m^3/s$). N.B. More than one selection may be possible. The sound pressure level dB(A), R.P.M. and impeller diameter in mm are given on the table, horizontally to the left.

Sizes from ø 710 mm as well as twin and parallel VAR-units are shown in the HELIOS separate catalogue a copy of which is available on request.

| Diameter | R.P.M. | Sound pressure level - intake | Air flow volume $\dot{V}$ $m^3/s$ against static pressure = N / $m^2$ = free available pressure | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | $min^{-1}$ | $L_{PA}$ dB(A) | ($\Delta p_{stat.}$) in Pa | | | | | | | | | | | | |
| | | at 4 meters | **0** | **50** | **100** | **150** | **200** | **300** | **400** | **500** | **600** | **700** | **800** | **900** | **1000** |
| **225** | 2800 | 61 | 0.525 | 0.503 | 0.478 | 0.450 | 0.417 | | | | | | | | |
| **225** | 1450 | 46 | 0.269 | 0.217 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **250** | 2800 | 64 | 0.719 | 0.694 | 0.669 | 0.639 | 0.606 | 0.525 | | | | | | | |
| **250** | 1450 | 49 | 0.369 | 0.317 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **280** | 2800 | 68 | 1.011 | 0.983 | 0.955 | 0.925 | 0.892 | 0.814 | 0.711 | | | | | | |
| **280** | 1450 | 52 | 0.519 | 0.464 | 0.381 | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **315** | 2800 | 71 | 1.439 | 1.411 | 1.383 | 1.353 | 1.319 | 1.244 | 1.161 | 1.058 | 0.842 | | | | |
| **315** | 1450 | 56 | 0.742 | 0.686 | 0.611 | 0.494 | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **355** | 2800 | 75 | 2.058 | 2.028 | 1.997 | 1.967 | 1.931 | 1.850 | 1.764 | 1.669 | 1.561 | 1.417 | | | |
| **355** | 1450 | 60 | 1.064 | 1.003 | 0.922 | 0.828 | 0.650 | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **400** | 2800 | 78 | 2.947 | 2.914 | 2.878 | 2.843 | 2.803 | 2.722 | 2.633 | 2.533 | 2.431 | 2.314 | 2.181 | 2.006 | |
| **400** | 1450 | 63 | 1.522 | 1.453 | 1.372 | 1.278 | 1.164 | | | | | | | | |
| **400** | 930 | 52 | 0.972 | 0.85 | 0.636 | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **450** | 2800 | 83 | 4.347 | 4.308 | 4.272 | 4.233 | 4.193 | 4.114 | 4.022 | 3.928 | 3.822 | 3.714 | 3.600 | 3.481 | 3.347 |
| **450** | 1400 | 67 | 2.169 | 2.094 | 2.008 | 1.906 | 1.794 | 1.494 | | | | | | | |
| **450** | 930 | 56 | 1.386 | 1.256 | 1.075 | | | | | | | | | | |

| Diameter | R.P.M. | Sound pressure level - intake | Air flow volume $\dot{V}$ $m^3/s$ against static pressure = N / $m^2$ = free available pressure | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | $min^{-1}$ | $L_{PA}$ dB(A) | ($\Delta p_{stat.}$) in Pa | | | | | | | | | | | | |
| | | at 4 meters | **0** | **150** | **300** | **450** | **600** | **750** | **900** | **1050** | **1200** | **1550** | **1800** | | |
| **500** | 2900 | 86 | 5.964 | 5.769 | 5.661 | 5.608 | 5.472 | 5.317 | 5.161 | 4.994 | 4.814 | 4.400 | 3.550 | | |
| **500** | 1450 | 70 | 2.978 | 2.731 | 2.403 | 1.742 | | | | | | | | | |
| **500** | 930 | 59 | 1.906 | 1.431 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **560** | 1450 | 73 | 4.186 | 3.919 | 3.575 | 3.156 | | | | | | | | | |
| **560** | 950 | 63 | 2.736 | 2.253 | | | | | | | | | | | |
| **560** | 725 | 56 | 2.086 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **630** | 1450 | 77 | 5.961 | 5.669 | 5.308 | 4.892 | 4.378 | | | | | | | | |
| **630** | 950 | 67 | 3.900 | 3.386 | 2.428 | | | | | | | | | | |
| **630** | 725 | 60 | 2.969 | 2.169 | | | | | | | | | | | |
| **The following sizes are shown in a see separate catalogue a copy of which is available on request.** | | | | | | | | | | | | | | | |
| **710** | 1480 | 81 | 8.708 | 8.392 | 8.033 | 7.603 | 7.133 | 6.586 | 5.775 | | | | | | |
| **710** | 950 | 70 | 5.586 | 5.033 | 4.275 | | | | | | | | | | |
| **710** | 725 | 64 | 4.258 | 3.438 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **800** | 1480 | 85 | 12.464 | 12.106 | 11.725 | 11.281 | 10.781 | 10.253 | 9.661 | 8.925 | 7.408 | | | | |
| **800** | 950 | 74 | 7.992 | 7.400 | 6.625 | 5.547 | | | | | | | | | |
| **800** | 725 | 67 | 6.094 | 5.225 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **900** | 1480 | 88 | 17.747 | 17.347 | 16.928 | 16.472 | 15.956 | 15.392 | 14.808 | 14.164 | 13.450 | 11.003 | | | |
| **900** | 950 | 78 | 11.386 | 10.736 | 9.919 | 8.958 | 7.453 | | | | | | | | |
| **900** | 725 | 71 | 8.683 | 7.753 | 6.433 | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| **1000** | 1480 | 92 | 24.344 | 23.903 | 23.447 | 22.942 | 22.436 | 21.847 | 21.222 | 20.586 | 19.903 | 18.358 | 15.958 | | |
| **1000** | 950 | 81 | 15.617 | 14.914 | 14.075 | 13.078 | 11.933 | 10.014 | | | | | | | |
| **1000** | 725 | 74 | 11.911 | 10.925 | 9.608 | 6.969 | | | | | | | | | |

# 225 mm ø High pressure in-line mixed-flow RADAX® VAR



All dimensions in mm

## ■ Specification

### ☐ Casing
Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

### ☐ Impeller
Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from impact resistant polymers.

### ☐ Motor
Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

### ☐ Speed control
For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering.
Explosion proof fans are not controllable.

### ☐ Electrical connection
Terminal box fitted externally on the casing as standard (IP 55).

### ☐ Installation
Installation in any position. Ensure that motor drainage holes (where used) face downwards.

### ☐ Motor protection
All models (except ex proof) have thermal contacts as standard which must be connected to a full motor protection unit (see table below).
With the 1 ph. ex-proof models thermal contacts are wired in series with the winding which automatically resets.
Models without thermal contacts must be protected by a conventional circuit breaker.

### ☐ Sound levels
Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

| ☐ Information | Pages |
|---|---|
| Technical description | 148 |
| Selection chart | 149 |
| Design of systems | 12 on |

**Made to order designs**
Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

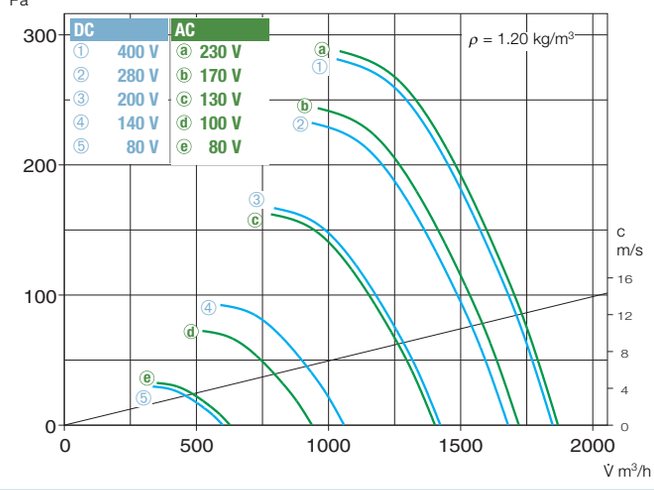
For safety and correct use note the technical information on pages 17 on.

| Type | Ref. No. | R.P.M. | Air flow volume (FID) | Motor power (nominal)* | Voltage | Current* full load | Current* speed controlled | Wiring diagram | Maximum air flow temp. standard supply | Maximum air flow temp. speed controlled | Nominal weight (net) | 5 step transformer controller Pole switch | | Full motor protection starter using the motor thermal contacts | | Anti vibration mounts comp. | Anti vibration mounts susp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $min^{-1}$ | $V m^3/h$ | kW | V | A | A | No. | +°C | +°C | kg | **Type** | Ref. No. | **Type** | Ref. No. | **Type** | **Type** |
| **1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARW 225/4** | 6660 | 1450 | 980 | 0.10 | 230 | 0.50 | 0.55 | 966 | 60 | 40 | 10.5 | **MWS 1.5**[1] | 1947 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **VARW 225/2** | 6661 | 2770 | 1870 | 0.35 | 230 | 1.90 | 2.50 | 966 | 60 | 40 | 10.5 | **MWS 3**[1] | 1948 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 225/4** | 6662 | 1420 | 960 | 0.10 | 400Y | 0.20 | 0.20 | 469 | 60 | 40 | 10.5 | **RDS 1**[1] | 1314 | **MD** | 5849 | **SDD 1** | **SDZ 1** |
| **VARD 225/2** | 6663 | 2720 | 1830 | 0.28 | 400Y | 0.60 | 0.60 | 469 | 60 | 40 | 10.5 | **RDS 1**[1] | 1314 | **MD** | 5849 | **SDD 1** | **SDZ 1** |
| **Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | Pole switch | | | | | |
| **VARD 225/8/4** | 6770 | 725/1450 | 490/980 | 0.03/0.07 | 400 | 0.10/0.22 | — | 472 | 60 | — | 10.5 | **PDA 12**[3] | 5081 | **M 3**[2] | 1293 | **SDD 1** | **SDZ 1** |
| **VARD 225/4/2** | 6771 | 1450/2800 | 980/1890 | 0.07/0.30 | 400 | 0.25/0.70 | — | 472 | 60 | — | 10.5 | **PDA 12**[3] | 5081 | **M 3**[2] | 1293 | **SDD 1** | **SDZ 1** |
| **Explosion proof, E Ex de II B, 230 V / 1 ph. / 50 Hz, temperature class T1-T3, protection to IP 55** | | | | | | | | | | | | | | | | | |
| **VARW 225/4 Ex** | 6733 | 1400 | 950 | 0.06 | 230 | 0.70 | — | 757 | 40 | — | 12.0 | not permitted | | — | — | **SDD 1** | **SDZ 1** |
| **VARW 225/2 Ex** | 6734 | 2650 | 1780 | 0.18 | 230 | 1.23 | — | 757 | 40 | — | 12.5 | not permitted | | — | — | **SDD 1** | **SDZ 1** |
| **Explosion proof, E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protected to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 225/4 Ex** | 6664 | 1400 | 940 | 0.12 | 400Y | 0.41 | — | 470 | 40 | — | 12.5 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |
| **VARD 225/2 Ex** | 6665 | 2850 | 1930 | 0.25 | 400Y | 0.72 | — | 470 | 40 | — | 12.5 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |

* Ex models: for nominal value of motor see information on page 18 [1] includes full motor protection unit [2] includes operation and speed switch [3] see product page for flush mounted version

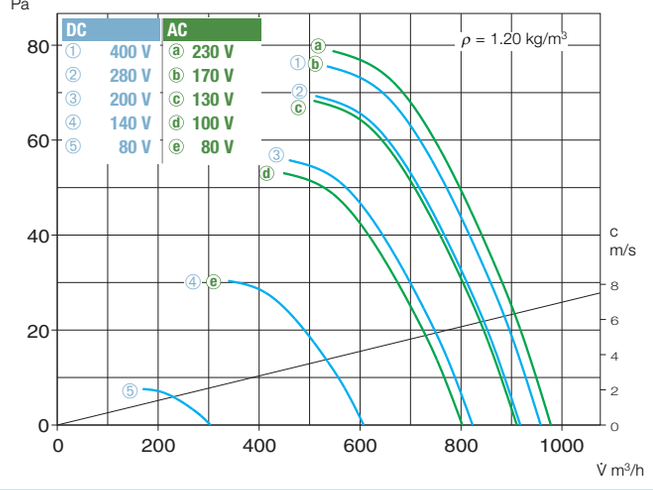
## 225/2 — R.P.M. = 2800

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 81 | 51 | 62 | 74 | 76 | 76 | 72 | 63 |
| $L_{PA,4m}$ | Air noise | dB(A) | 61 | 31 | 42 | 54 | 56 | 56 | 52 | 43 |



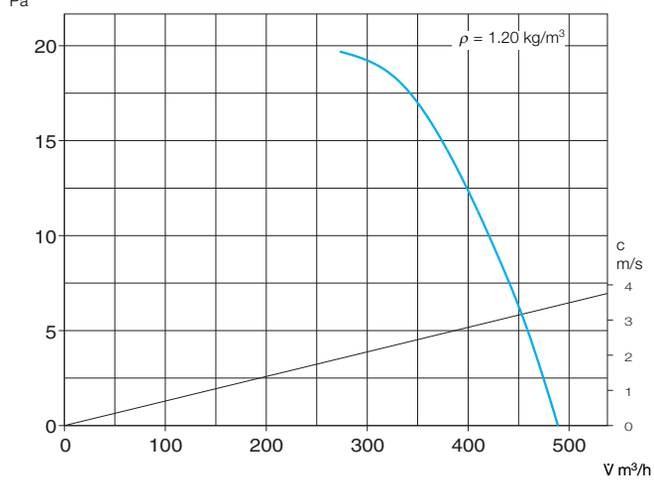

## 225/4 — R.P.M. = 1450

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 66 | 41 | 55 | 60 | 62 | 59 | 52 | 43 |
| $L_{PA,4m}$ | Air noise | dB(A) | 46 | 21 | 35 | 40 | 42 | 39 | 32 | 23 |




## 225/8 — R.P.M. = 725

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 49 | 33 | 40 | 45 | 44 | 39 | 31 | 24 |
| $L_{PA,4m}$ | Air noise | dB(A) | 29 | 13 | 20 | 25 | 24 | 19 | 11 | 4 |





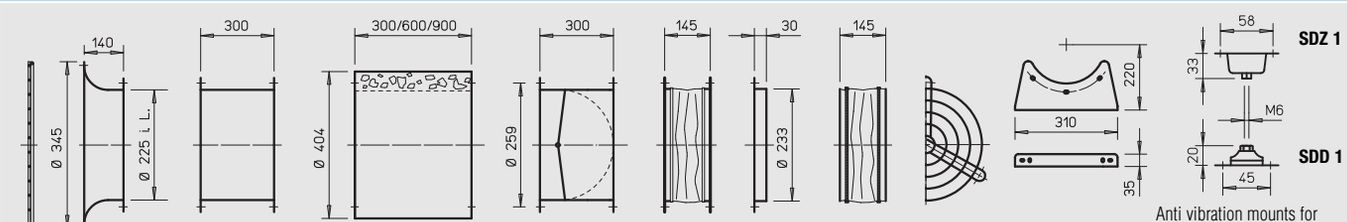
**Other accessories** **Pages**

[b] **Accessories for explosion proof fans**

**Flanged flexible connector**
**STS 225 Ex** Ref. 2500
**Flexible sleeve**
**FM 225 Ex** Ref. 1687

Attenuators 318 on
Shutters, grilles and louvres 361 on
Speed controllers and switches 397 on


**Accessories –** Specification see pages 170 on.




Bell mouth + guard **ASD-SGD 225** Ref. 1413

Extension duct **VR 225** Ref. 1401

Circular attenuators **RSD 225/...**

Automatic back-draught shutter **RVS 225** [a] Ref. 2591

Flanged flex. connector **STS 225** [b] Ref. 1218

Flange **FR 225** Ref. 1201

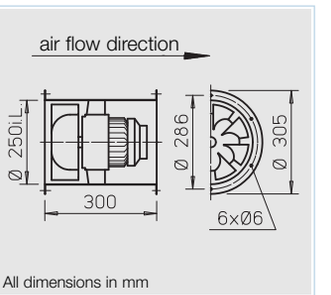
Flexible sleeve **FM 225** [b] Ref. 1671

Guard **SG 225** Ref. 1215

Mounting feet (pair) **MK 225** Ref. 1446

Anti vibration mounts for suspension (set of 4) **SDZ 1** (4 pcs.) Ref. 1454
Anti vibration mounts for compression (set of 4) **SDD 1** (4 pcs.) Ref. 1452

[a] For motorised shutters see accessory pages [b] Types for explosion proof fans see above



All dimensions in mm

## Specification

### Casing
Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

### Impeller
Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from impact resistant polymers.

### Motor
Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

### Speed control
For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering.
Explosion proof fans are not controllable.

### Electrical connection
Terminal box fitted externally on the casing as standard (IP 55).

### Installation
Installation in any position. Ensure that motor drainage holes (where used) face downwards.

### Motor protection
All models (except ex proof) have thermal contacts as standard which must be connected to a full motor protection unit (see table below).
With the 1 ph. ex-proof models thermal contacts are wired in series with the winding which automatically resets.
Models without thermal contacts must be protected by a conventional circuit breaker.

### Sound levels
Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

| Information | Pages |
|---|---|
| Technical description | 148 |
| Selection chart | 149 |
| Design of systems | 12 on |

**Made to order designs**
Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

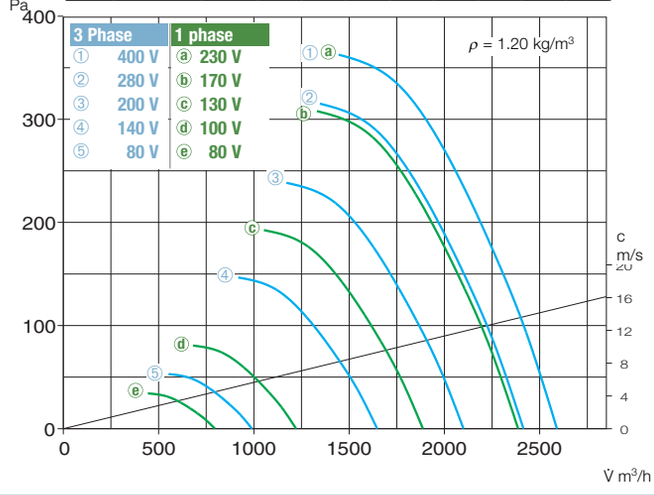
For safety and correct use note the technical information on pages 17 on.

| Type | Ref. No. | R.P.M. | Air flow volume (FID) | Motor power (nominal)* | Voltage | Current* full load | Current* speed controlled | Wiring diagram | Maximum air flow temp. standard supply | Maximum air flow temp. speed controlled | Nominal weight (net) | 5 step transformer controller Pole switch Type | Ref. No. | Full motor protection starter using the motor thermal contacts Type | Ref. No. | Anti vibration mounts comp. | Anti vibration mounts susp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $min^{-1}$ | $V m^3/h$ | kW | V | A | A | No. | +°C | +°C | kg | Type | Ref. No. | Type | Ref. No. | Type | Type |
| **1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARW 250/4** | 6666 | 1420 | 1310 | 0.12 | 230 | 0.46 | 0.60 | 966 | 60 | 40 | 11.5 | **MWS 1.5**[1] | 1947 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **VARW 250/2** | 6667 | 2800 | 2590 | 0.55 | 230 | 2.40 | 3.00 | 966 | 60 | 40 | 13.0 | **MWS 5**[1] | 1949 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 250/4** | 6668 | 1410 | 1300 | 0.09 | 400Y | 0.30 | 0.30 | 469 | 60 | 40 | 11.5 | **RDS 1**[1] | 1314 | **MD** | 5849 | **SDD 1** | **SDZ 1** |
| **VARD 250/2** | 6669 | 2800 | 2590 | 0.47 | 400Y | 1.10 | 1.10 | 469 | 60 | 40 | 11.5 | **RDS 2**[1] | 1315 | **MD** | 5849 | **SDD 1** | **SDZ 1** |
| **Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | Pole switch | | | | | |
| **VARD 250/8/4** | 6772 | 725/1450 | 670/1340 | 0.04/0.09 | 400 | 0.12/0.25 | — | 472 | 60 | — | 11.5 | **PDA 12**[3] | 5081 | **M 3**[2] | 1293 | **SDD 1** | **SDZ 1** |
| **VARD 250/4/2** | 6773 | 1450/2800 | 1340/2590 | 0.10/0.53 | 400 | 0.30/1.10 | — | 472 | 60 | — | 13.0 | **PDA 12**[3] | 5081 | **M 3**[2] | 1293 | **SDD 1** | **SDZ 1** |
| **Explosion-proof, E Ex de II B, 230 V / 1 ph. / 50 Hz, temperature class T1-T3, protection to IP 55** | | | | | | | | | | | | | | | | | |
| **VARW 250/4 Ex** | 6735 | 1400 | 1290 | 0.06 | 230 | 0.70 | — | 757 | 40 | — | 13.0 | not permitted | | — | — | **SDD 1** | **SDZ 1** |
| **Explosion-proof, E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 250/4 Ex** | 6670 | 1400 | 1300 | 0.12 | 400Y | 0.41 | — | 470 | 40 | — | 13.0 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |
| **VARD 250/2 Ex** | 6671 | 2825 | 2590 | 0.37 | 400Y | 0.95 | — | 470 | 40 | — | 15.5 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |

* Ex models: for nominal value of motor see information on page 18 [1] includes full motor protection unit [2] includes operation and speed switch [3] see product page for flush mounted version

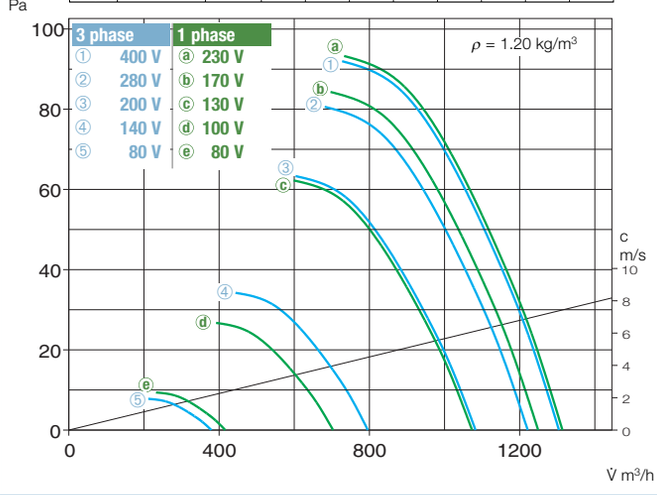
## 250/2 — R.P.M. = 2800

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 84 | 55 | 65 | 77 | 79 | 80 | 75 | 67 |
| $L_{PA,4m}$ | Air noise | dB(A) | 64 | 35 | 45 | 57 | 59 | 60 | 55 | 47 |



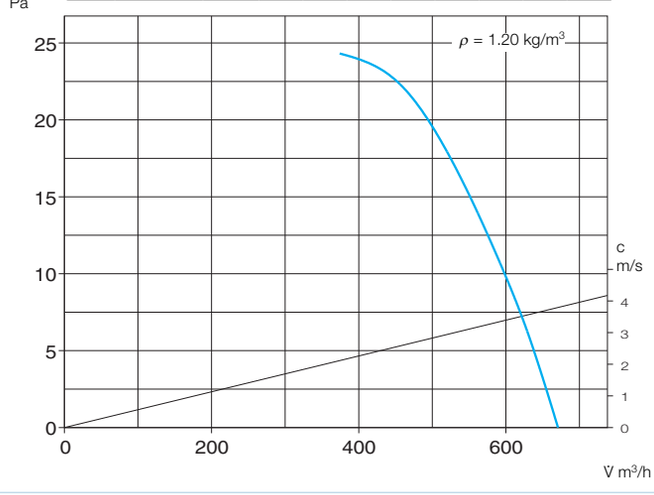

## 250/4 — R.P.M. = 1450

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 69 | 44 | 58 | 63 | 65 | 63 | 56 | 46 |
| $L_{PA,4m}$ | Air noise | dB(A) | 49 | 24 | 38 | 43 | 45 | 43 | 36 | 26 |



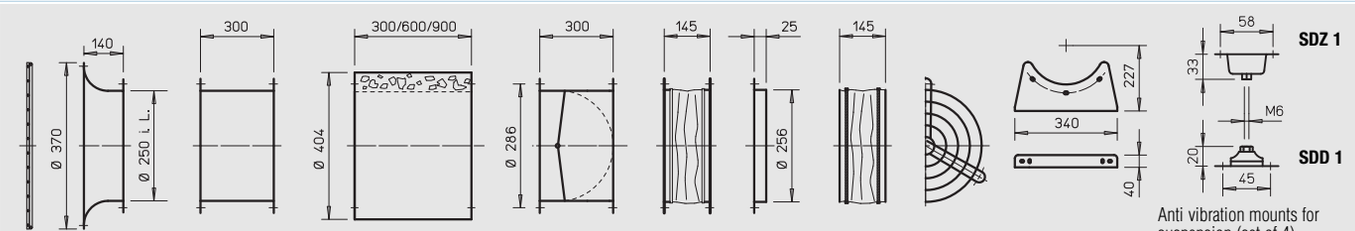

## 250/8 — R.P.M. = 725

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 52 | 37 | 43 | 48 | 47 | 42 | 34 | 27 |
| $L_{PA,4m}$ | Air noise | dB(A) | 32 | 17 | 23 | 28 | 27 | 22 | 14 | 7 |






**Accessories –** Specification see pages 170 on.




Bell mouth + guard **ASD-SGD 250** Ref. 1414

Extension duct **VR 250** Ref. 1402

Circular attenuators **RSD 250/...**

Automatic back-draught shutter **RVS 250** a) Ref. 2592

Flanged flex. connector **STS 250** b) Ref. 1220

Flange **FR 250** Ref. 1203

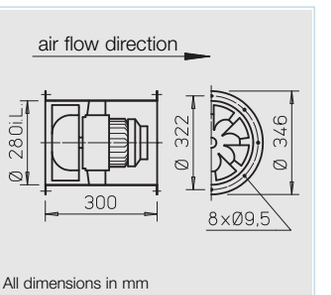
Flexible sleeve **FM 250** b) Ref. 1672

Guard **SG 250** Ref. 1236

Mounting feet (pair) **MK 250** Ref. 1447

Anti vibration mounts for suspension (set of 4) **SDZ 1** (4 pcs.) Ref. 1454
Anti vibration mounts for compression (set of 4) **SDD 1** (4 pcs.) Ref. 1452

a) For motorised shutters see accessory pages  b) Types for explosion proof fans see above



All dimensions in mm

## ■ Specification

### ☐ Casing
Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

### ☐ Impeller
Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from impact resistant polymers.

### ☐ Motor
Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

### ☐ Speed control
For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering.
Explosion proof fans are not controllable.

### ☐ Electrical connection
Terminal box fitted externally on the casing as standard (IP 55).

### ☐ Installation
Installation in any position. Ensure that motor drainage holes (where used) face downwards.

### ☐ Motor protection
All models (except ex proof) have thermal contacts as standard which must be connected to a full motor protection unit (see table below).
With the 1 ph. ex-proof models thermal contacts are wired in series with the winding which automatically resets.
Models without thermal contacts must be protected by a conventional circuit breaker.

### ☐ Sound levels
Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

| ☐ Information | Pages |
|---|---|
| Technical description | 148 |
| Selection chart | 149 |
| Design of systems | 12 on |

**Made to order designs**
Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

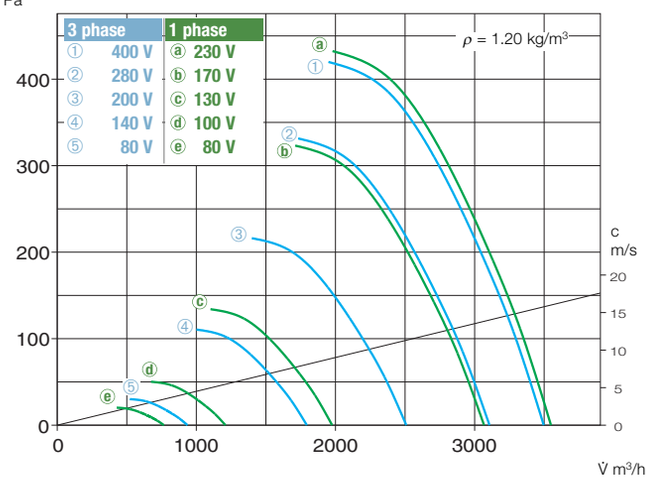
For safety and correct use note the technical information on pages 17 on.

| Type | Ref. No. | R.P.M. | Air flow volume (FID) | Motor power (nominal)* | Voltage | Current* full load | Current* speed controlled | Wiring diagram | Maximum air flow temp. standard supply | Maximum air flow temp. speed controlled | Nominal weight (net) | 5 step transformer controller Pole switch Type | Ref. No. | Full motor protection starter using the motor thermal contacts Type | Ref. No. | Anti vibration mounts comp. | Anti vibration mounts susp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $min^{-1}$ | $Vm^3/h$ | kW | V | A | A | No. | +°C | +°C | kg | | | | | | |
| **1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARW 280/4** | 6672 | 1420 | 1840 | 0.14 | 230 | 0.75 | 0.85 | 966 | 60 | 40 | 12.0 | **MWS 1,5**[1] | 1947 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **VARW 280/2** | 6659 | 2730 | 3550 | 0.79 | 230 | 4.00 | 4.50 | 967 | 60 | 40 | 14.0 | **MWS 5**[1] | 1949 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 280/4** | 6673 | 1370 | 1780 | 0.12 | 400Y | 0.35 | 0.35 | 469 | 60 | 40 | 12.0 | **RDS 1**[1] | 1314 | **MD** | 5849 | **SDD 1** | **SDZ 1** |
| **VARD 280/2** | 6674 | 2690 | 3490 | 0.77 | 400Y | 1.60 | 1.80 | 469 | 60 | 40 | 13.5 | **RDS 2**[1] | 1315 | **MD** | 5849 | **SDD 1** | **SDZ 1** |
| **Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | Pole switch | | | | | |
| **VARD 280/8/4** | 6774 | 725/1450 | 940/1880 | 0.04/0.13 | 400 | 0.15/0.35 | — | 472 | 60 | — | 12.0 | **PDA 12**[3] | 5081 | **M 3**[2] | 1293 | **SDD 1** | **SDZ 1** |
| **VARD 280/4/2** | 6775 | 1450/2800 | 1880/3640 | 0.13/0.90 | 400 | 0.65/1.95 | — | 472 | 60 | — | 13.5 | **PDA 12**[3] | 5081 | **M 3**[2] | 1293 | **SDD 1** | **SDZ 1** |
| **Explosion proof, E Ex de II B, 230 V / 1 ph. / 50 Hz, temperature class T1-T3, protection to IP 55** | | | | | | | | | | | | | | | | | |
| **VARW 280/4 Ex** | 6737 | 1330 | 1720 | 0.09 | 230 | 1.15 | — | 757 | 40 | — | 14.0 | not permitted | | — | — | **SDD 1** | **SDZ 1** |
| **Explosion proof, E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 280/4 Ex** | 6675 | 1400 | 1820 | 0.12 | 400Y | 0.41 | — | 470 | 40 | — | 16.0 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |
| **VARD 280/2 Ex** | 6676 | 2860 | 3720 | 0.75 | 400Y | 1.65 | — | 470 | 40 | — | 18.0 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |

* Ex models: for nominal value of motor see information on page 18 [1] includes full motor protection unit [2] includes operation and speed switch [3] see product page for flush mounted version

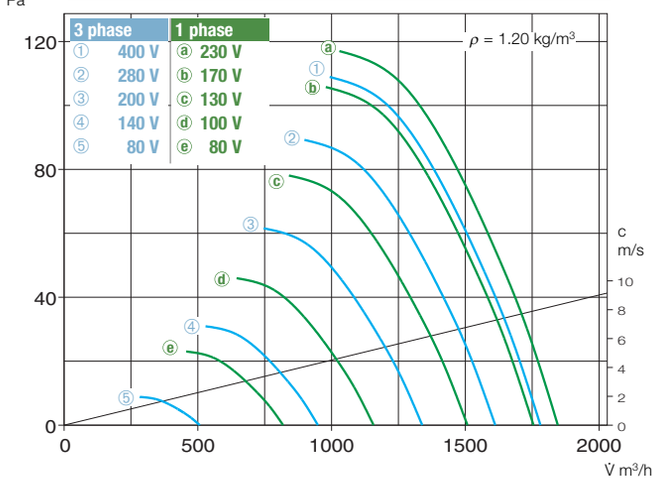
## 280/2 — R.P.M. = 2800

| 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 |



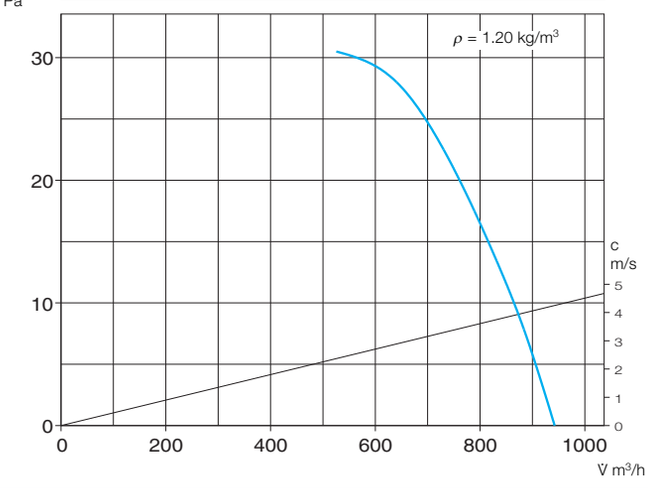

## 280/4 — R.P.M. = 1450

| 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 |




## 280/8 — R.P.M. = 725

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 55 | 40 | 47 | 51 | 51 | 45 | 37 | 30 |
| $L_{PA,4m}$ | Air noise | dB(A) | 35 | 20 | 27 | 31 | 31 | 25 | 17 | 10 |



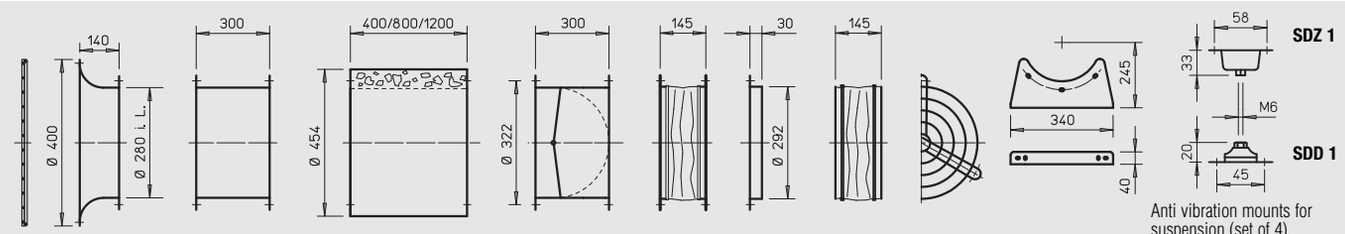

**Other accessories** — **Pages**

[b] **Accessories for explosion proof fans**

**Flanged flexible connector**
**STS 280 Ex** Ref. 2502
**Flexible sleeve**
**FM 280 Ex** Ref. 1689

Filters and attenuators 305 on
Shutters, grilles and louvres 361 on
Speed controllers and switches 397 on

**Accessories –** Specification see pages 170 on.




Bell mouth + guard **ASD-SGD 280** Ref. 1415

Extension duct **VR 280** Ref. 1403

Circular attenuators **RSD 280/...**

Automatic back-draught shutter **RVS 280** [a] Ref. 2593

Flanged flex. connector **STS 280** [b] Ref. 1231

Flange **FR 280** Ref.1214

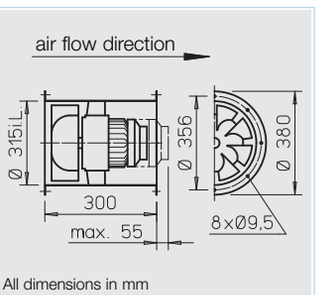
Flexible sleeve **FM 280** [b] Ref. 1673

Guard **SG 280** Ref. 1428

Mounting feet (pair) **MK 280** Ref. 1447

Anti vibration mounts for suspension (set of 4) **SDZ 1** (4 pcs.) Ref. 1454
Anti vibration mounts for compression (set of 4) **SDD 1** (4 pcs.) Ref. 1452

[a] For motorised shutters see accessory pages [b] Types for explosion proof fans see above



All dimensions in mm

## ■ Specification

### ☐ Casing
Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

### ☐ Impeller
Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from impact resistant polymers.

### ☐ Motor
Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

### ☐ Speed control
For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering.
Explosion proof fans are not controllable.

### ☐ Electrical connection
Terminal box fitted externally on the casing as standard (IP 55).

### ☐ Installation
Installation in any position. Ensure that motor drainage holes (where used) face downwards.

### ☐ Motor protection
All models (except ex proof) have thermal contacts as standard which must be connected to a full motor protection unit (see table below).
With the 1 ph. ex-proof models thermal contacts are wired in series with the winding which automatically resets.
Models without thermal contacts must be protected by a conventional circuit breaker.

### ☐ Sound levels
Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

| ☐ Information | Pages |
|---|---|
| Technical description | 148 |
| Selection chart | 149 |
| Design of systems | 12 on |

**Made to order designs**
Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

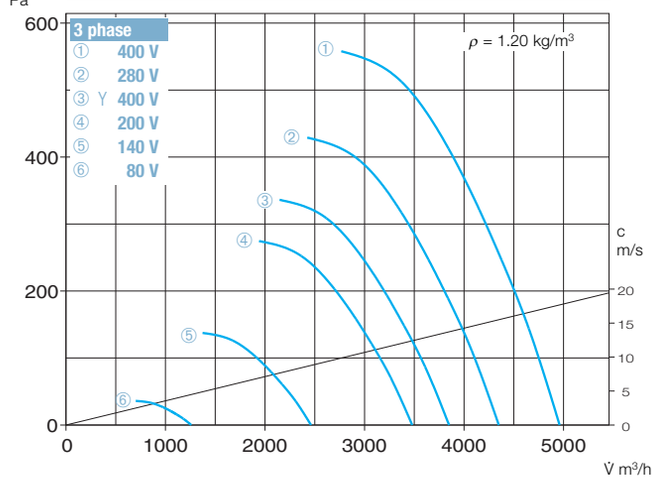
For safety and correct use note the technical information on pages 17 on.

| Type | Ref. No. | R.P.M. | Air flow volume (FID) | Motor power (nominal)* | Voltage | Current* full load | Current* speed controlled | Wiring diagram | Maximum air flow temp. standard supply | Maximum air flow temp. speed controlled | Nominal weight (net) | 5 step transformer controller Pole switch Type | 5 step transformer controller Pole switch Ref. No. | Full motor protection starter using the motor thermal contacts Type | Full motor protection starter using the motor thermal contacts Ref. No. | Anti vibration mounts comp. | Anti vibration mounts susp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | min$^{-1}$ | V m$^3$/h | kW | V | A | A | No | +°C | +°C | kg | | | | | | |
| **1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARW 315/4** | 6677 | 1380 | 2550 | 0.23 | 230 | 1.10 | 1.30 | 966 | 60 | 40 | 13.0 | **MWS 3**[1] | 1948 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 315/4** | 6678 | 1390 | 2570 | 0.23 | 400Y | 0.70 | 0.70 | 469 | 60 | 40 | 13.0 | **RDS 1**[1] | 1314 | **MD** | 5849 | **SDD 1** | **SDZ 1** |
| **2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/△-motor, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 315/2/2** | 6679 | 2080/2680 | 3850/5000 | 1.00/1.40 | 400Y/△ | 1.6/2.5 | 2.8 | 520 | 60 | 40 | 20.5 | **RDS 4**[1] | 1316 | **M 4**[2] | 1571 | **SDD 1** | **SDZ 1** |
| **Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | Pole switch | | | | | |
| **VARD 315/8/4** | 6776 | 725/1450 | 1340/2680 | 0.07/0.23 | 400 | 0.25/0.55 | — | 472 | 60 | — | 14.5 | **PDA 12**[3] | 5081 | **M 3**[2] | 1293 | **SDD 1** | **SDZ 1** |
| **VARD 315/4/2** | 6777 | 1450/2800 | 2680/5180 | 0.25/1.65 | 400 | 0.70/2.90 | — | 472 | 60 | — | 20.5 | **PDA 12**[3] | 5081 | **M 3**[2] | 1293 | **SDD 1** | **SDZ 1** |
| **Explosion proof, E Ex de II B, 230 V / 1 ph. / 50 Hz, temperature class T1-T3, protection to IP 55** | | | | | | | | | | | | | | | | | |
| **VARW 315/4 Ex** | 6738 | 1450 | 2680 | 0.18 | 230 | 1.90 | — | 757 | 40 | — | 15.0 | not permitted | | — | — | **SDD 1** | **SDZ 1** |
| **Explosion proof, E Exe II, 400 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 315/4 Ex** | 6680 | 1420 | 2610 | 0.37 | 400Y | 1.14 | — | 470 | 40 | — | 17.0 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |
| **VARD 315/2 Ex** | 6681 | 2860 | 5260 | 1.50 | 400Y | 3.15 | — | 470 | 40 | — | 23.0 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |

* Ex models: for nominal value of motor see information on page 18 [1] includes full motor protection unit [2] includes operation and speed switch [3] see product page for flush mounted version

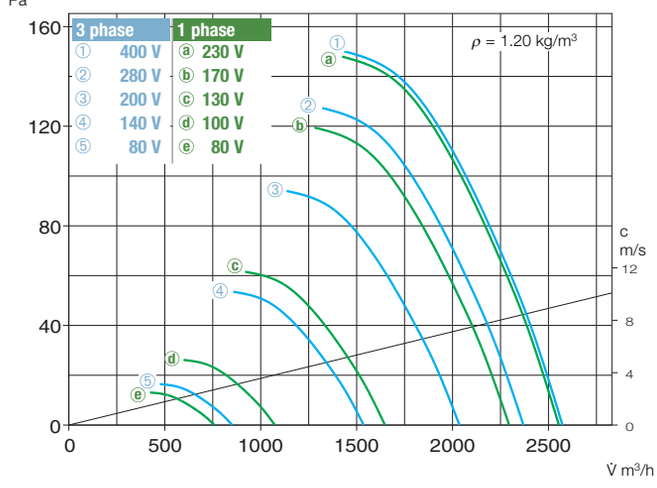
## 315/2 — R.P.M. = 2700

| 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 |



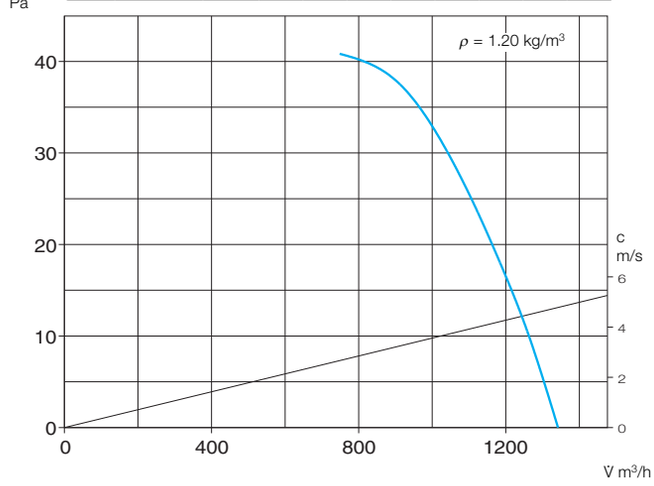

## 315/4 — R.P.M. = 1450

| 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 |




## 315/8 — R.P.M. = 725

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 59 | 44 | 50 | 55 | 54 | 49 | 41 | 34 |
| $L_{PA,4m}$ | Air noise | dB(A) | 39 | 24 | 30 | 35 | 34 | 29 | 21 | 14 |



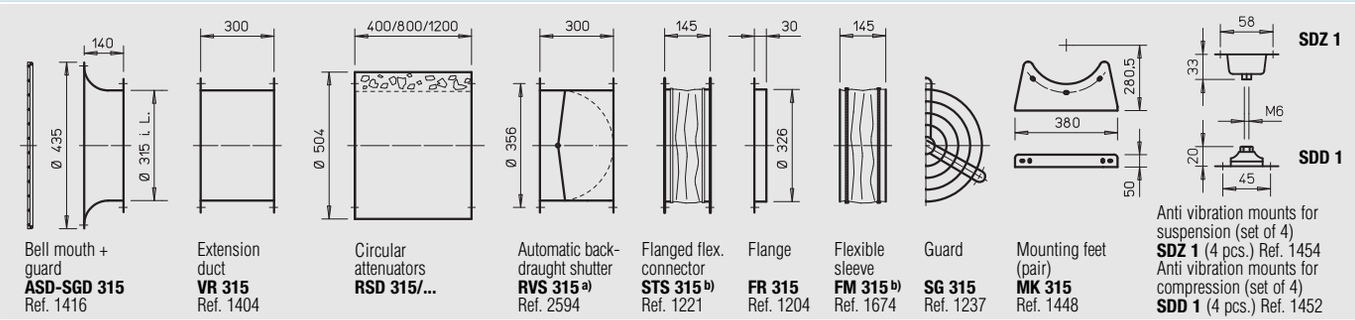

**Other accessories** **Pages**

[b] **Accessories for explosion proof fans**

**Flanged flexible connector**
**STS 315 Ex** Ref. 2503
**Flexible sleeve**
**FM 315 Ex** Ref. 1690

Filters and attenuators 305 on
Shutters, grilles and louvres 361 on
Speed controllers and switches 397 on

**Accessories –** Specification see pages 170 on.




Bell mouth + guard **ASD-SGD 315** Ref. 1416

Extension duct **VR 315** Ref. 1404

Circular attenuators **RSD 315/...**

Automatic back-draught shutter **RVS 315** [a] Ref. 2594

Flanged flex. connector **STS 315** [b] Ref. 1221

Flange **FR 315** Ref. 1204

Flexible sleeve **FM 315** [b] Ref. 1674

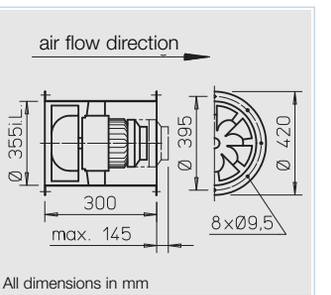
Guard **SG 315** Ref. 1237

Mounting feet (pair) **MK 315** Ref. 1448

Anti vibration mounts for suspension (set of 4) **SDZ 1** (4 pcs.) Ref. 1454
Anti vibration mounts for compression (set of 4) **SDD 1** (4 pcs.) Ref. 1452

[a] For motorised shutters see accessory pages [b] Types for explosion proof fans see above

# 355 mm ø High pressure in-line mixed-flow RADAX® VAR



All dimensions in mm

## ■ Specification

### ☐ Casing
Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

### ☐ Impeller
Specially developed mixed-flow curved impeller, dynamically balanced manufactured from impact resistant polymers (models with R.P.M. = 2800 min$^{-1}$ from hot dipped galvanised steel).

### ☐ Motor
Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

### ☐ Speed control
For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering.
Explosion proof fans are not controllable.

### ☐ Electrical connection
Terminal box fitted externally on the casing as standard (IP 55).

### ☐ Installation
Installation in any position. Ensure that motor drainage holes (where used) face downwards.

### ☐ Motor protection
All models (except explosion proof as well as models VARD 355/4/2) have thermal contacts as standard which must be connected to a motor protection unit (see table below).
Models without thermal contacts must be protected by a conventional circuit breaker (MCB/RCD).

### ☐ Sound levels
Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

| Information | Pages |
|---|---|
| Technical description | 148 |
| Selection chart | 149 |
| Design of systems | 12 on |

**Made to order designs**
Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

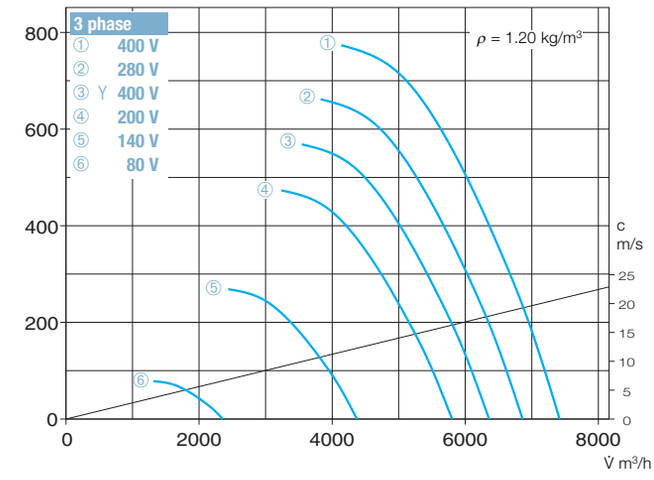
For safety and correct use note the technical information on pages 17 on.

| Type | Ref. No. | R.P.M. | Air flow volume (FID) | Motor power (nominal)* | Voltage | Current* full load | Current* speed controlled | Wiring diagram | Maximum air flow temp. standard supply | Maximum air flow temp. speed controlled | Nominal weight (net) | 5 step transformer controller Pole switch Type | Ref. No. | Full motor protection starter using the motor thermal contacts Type | Ref. No. | Anti vibration mounts comp. Type | Anti vibration mounts susp. Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | min$^{-1}$ | V m$^3$/h | kW | V | A | A | No. | +°C | +°C | kg | Type | Ref. No. | Type | Ref. No. | Type | Type |
| **1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARW 355/4** | 6682 | 1380 | 3680 | 0.35 | 230 | 1.70 | 2.00 | 966 | 60 | 40 | 15.5 | **MWS 3**[1] | 1948 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 355/4** | 6683 | 1390 | 3650 | 0.36 | 400Y | 0.90 | 0.90 | 469 | 60 | 40 | 15.5 | **RDS 1**[1] | 1314 | **MD** | 5849 | **SDD 1** | **SDZ 1** |
| **Double motor, 3 Phase motor, 50 Hz, Y/△-motor, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 355/2/2** | 6684 | 2400/2800 | 6320/7370 | 2.09/2.66 | 400Y/Δ | 3.40/4.60 | 5.60 | 520 | 60 | 30 | 21.5 | **RDS 7**[1] | 1578 | **M 4**[2] | 1571 | **SDD 1** | **SDZ 1** |
| **Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | Pole switch | | | | | |
| **VARD 355/8/4** | 6778 | 725/1450 | 1920/3840 | 0.10/0.39 | 400 | 0.40/1.10 | — | 472 | 60 | — | 15.5 | **PDA 12**[3] | 5081 | **M 3**[2] | 1293 | **SDD 1** | **SDZ 1** |
| **VARD 355/4/2** | 6779 | 1440/2880 | 3820/7630 | 0.65/2.60 | 400 | 1.50/5.70 | — | 471 | 40 | — | 29.0 | **PDA 12**[3] | 5081 | — | — | **SDD 1** | **SDZ 1** |
| **Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 355/4 Ex** | 6685 | 1420 | 3740 | 0.37 | 400Y | 1.14 | — | 470 | 40 | — | 19.0 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |
| **VARD 355/2 Ex**[4] | 6686 | 2860 | 7580 | 2.50 | 400/690 | 4.85/2.77 | — | 498 | 40 | — | 33.0 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |

* Ex models: for nominal value of motor see information on page 18 [1] includes full motor protection unit [2] includes operation and speed switch [3] see product page for flush mounted version
[4] According to draft standard prEN 14986 an oscillation control (on site) has to be provided.

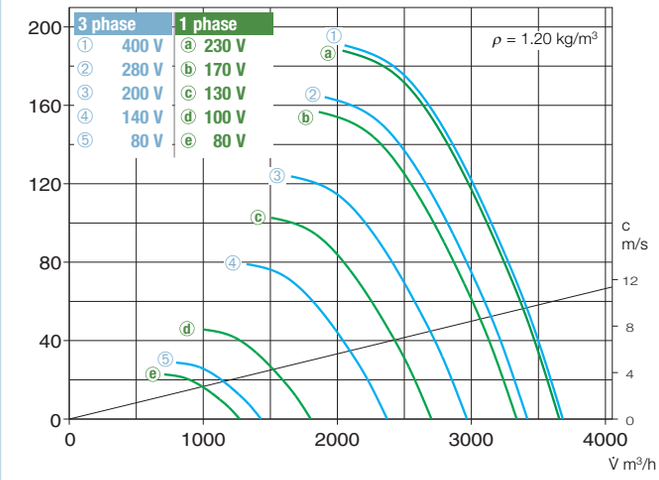
## 355/2 — R.P.M. = 2800

| 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 |



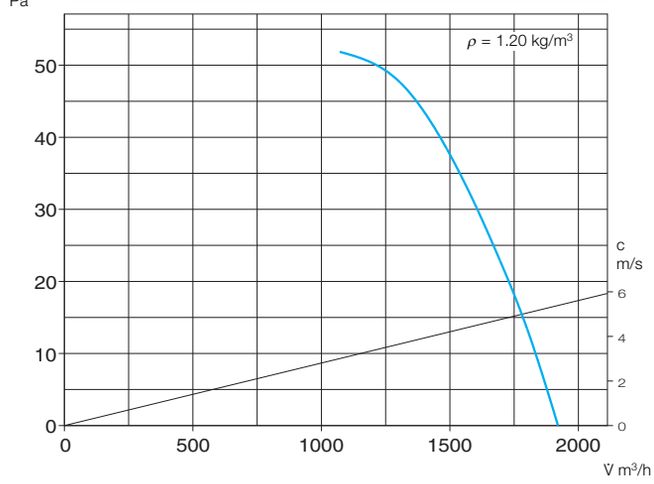

## 355/4 — R.P.M. = 1400

| 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 |




## 355/8 — R.P.M. = 725

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 63 | 47 | 54 | 59 | 58 | 52 | 44 | 37 |
| $L_{PA,4m}$ | Air noise | dB(A) | 43 | 27 | 34 | 39 | 38 | 32 | 24 | 17 |





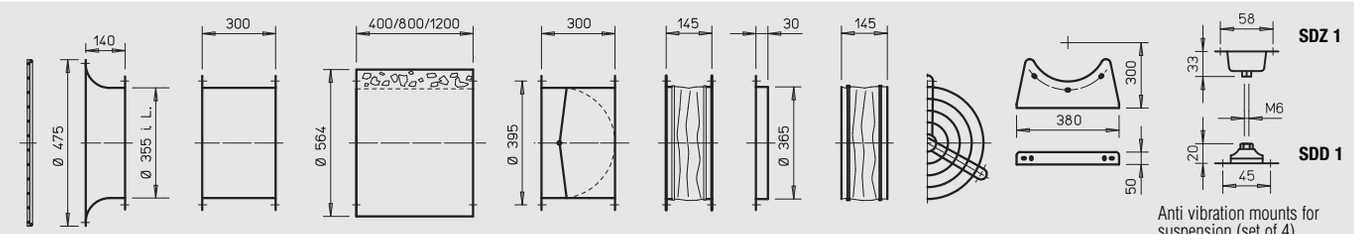
**Other accessories** **Pages**

[b] **Accessories for explosion proof fans**

**Flanged flexible connector**
**STS 355 Ex** Ref. 2504
**Flexible sleeve**
**FM 355 Ex** Ref. 1691

Filters and attenuators 305 on
Shutters, grilles and louvres 361 on
Speed controllers and switches 397 on


**Accessories –** Specification see pages 170 on.




Bell mouth + guard **ASD-SGD 355** Ref. 1417

Extension duct **VR 355** Ref. 1405

Circular attenuators **RSD 355/...**

Automatic back-draught shutter **RVS 355** [a] Ref. 2595

Flanged flex. connector **STS 355** [b] Ref. 1222

Flange **FR 355** Ref.1205

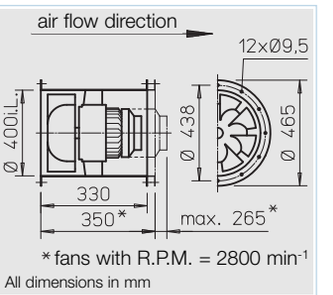
Flexible sleeve **FM 355** [b] Ref. 1675

Guard **SG 355** Ref. 1238

Mounting feet (pair) **MK 355** Ref. 1448

Anti vibration mounts for suspension (set of 4) **SDZ 1** (4 pcs.) Ref. 1454
Anti vibration mounts for compression (set of 4) **SDD 1** (4 pcs.) Ref. 1452

[a] For motorised shutters see accessory pages [b] Types for explosion proof fans see above



All dimensions in mm

## ■ Specification

### ☐ Casing
Manufactured in galvanised steel with flanges on both sides to DIN 24155, Pt. 3, vanes and fixed motor support. Models with R.P.M. = 2800 min$^{-1}$ with welded casing made from hot dipped galvanised steel.

### ☐ Impeller
Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from hot dipped galvanised steel.

### ☐ Motor
Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

### ☐ Speed control
For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering.
Explosion proof fans are not controllable.

### ☐ Electrical connection
Terminal box fitted externally on the casing as standard (IP 55).

### ☐ Installation
Installation in any position. Ensure that motor drainage holes (where used) face downwards.

### ☐ Motor protection
All models (except explosion proof as well as models VARD 400/4/2) have thermal contacts as standard which must be connected to a motor protection unit (see table below).
Models without thermal contacts must be protected by a conventional circuit breaker.

### ☐ Sound levels
Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

| ☐ Information | Pages |
|---|---|
| Technical description | 148 |
| Selection chart | 149 |
| Design of systems | 12 on |

**Made to order designs**
Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.

For safety and correct use note the technical information on pages 17 on.

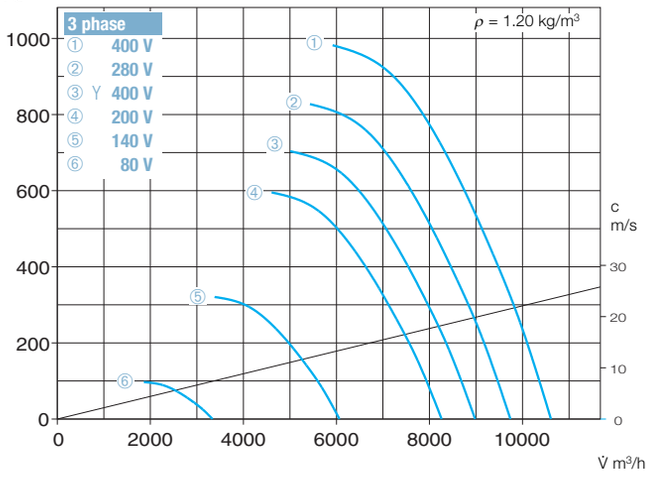
| ☐ Other accessories | Pages |
|---|---|
| [b] **Accessories for explosion proof fans** | |
| **Flanged flexible connector STS 400 Ex** | Ref. 2505 |
| **Flexible sleeve FM 400 Ex** | Ref. 1692 |
| Filters and attenuators | 305 on |
| Shutters, grilles and louvres | 361 on |
| Speed controllers and switches | 397 on |

| Type | Ref. No. | R.P.M. | Air flow volume (FID) | Motor power (nominal)* | Voltage | Current* full load | Current* speed controlled | Wiring diagram | Maximum air flow temp. standard supply | Maximum air flow temp. speed controlled | Nominal weight (net) | 5 step transformer controller Pole switch | Ref. No. | Full motor protection starter using the motor thermal contacts | Ref. No. | Anti vibration mounts comp. | Anti vibration mounts susp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | min$^{-1}$ | V m$^3$/h | kW | V | A | A | No. | +°C | +°C | kg | Type | | Type | | Type | Type |
| **1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARW 400/6** | 6687 | 910 | 3440 | 0.28 | 230 | 1.20 | 1.25 | 967 | 60 | 40 | 19.5 | **MWS 3**[1] | 1948 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **VARW 400/4** | 6688 | 1390 | 5270 | 0.73 | 230 | 3.20 | 3.70 | 967 | 60 | 40 | 22.5 | **MWS 5**[1] | 1949 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 400/6** | 6689 | 920 | 3480 | 0.25 | 400Y | 0.75 | 0.75 | 469 | 60 | 40 | 19.5 | **RDS 1**[1] | 1314 | **MD** | 5849 | **SDD 1** | **SDZ 1** |
| **VARD 400/4** | 6690 | 1400 | 5300 | 0.73 | 400Y | 2.00 | 2.00 | 469 | 60 | 40 | 22.5 | **RDS 4**[1] | 1316 | **MD** | 5849 | **SDD 1** | **SDZ 1** |
| **2 speed motor, 400 V / 3 ph. / 50 Hz, Y/△-motor, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 400/2/2** | 6691 | 2370/2800 | 8980/10610 | 3.70/4.90 | 400Y/△ | 5.9/8.0 | 10.00 | 520 | 60 | 40 | 74.0 | **RDS 11**[1] | 1332 | **M 4**[2] | 1571 | **SDD 1** | **SDZ 2** |
| **Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | Pole switch | | | | | |
| **VARD 400/8/4** | 6781 | 710/1420 | 2690/5380 | 0.22/0.78 | 400 | 1.00/2.00 | — | 472 | 60 | — | 22.5 | **PDA 12**[3] | 5081 | **M 3**[2] | 1293 | **SDD 1** | **SDZ 1** |
| **VARD 400/4/2** | 6782 | 1460/2890 | 5530/10950 | 1.20/4.80 | 400 | 2.60/10.0 | — | 471 | 40 | — | 74.0 | **PDA 12**[3] | 5081 | — | — | **SDD 1** | **SDZ 2** |
| **Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 400/6 Ex** | 6692 | 900 | 3390 | 0.18 | 400Y | 0.71 | — | 470 | 40 | — | 21.0 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |
| **VARD 400/4 Ex** | 6693 | 1400 | 5360 | 0.55 | 400Y | 1.51 | — | 470 | 40 | — | 25.0 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |
| **VARD 400/2 Ex**[4] | 6694 | 2895 | 10950 | 4.60 | 400/690 | 8.20 | — | 498 | 40 | — | 83.0 | not permitted | | not permitted | | **SDD 2** | **SDZ 2** |

* Ex models: for nominal value of motor see information on page 18 [1] includes full motor protection unit [2] includes operation and speed switch [3] see product page for flush mounted version
[4] According to draft standard prEN 14986 an oscillation control (on site) has to be provided.

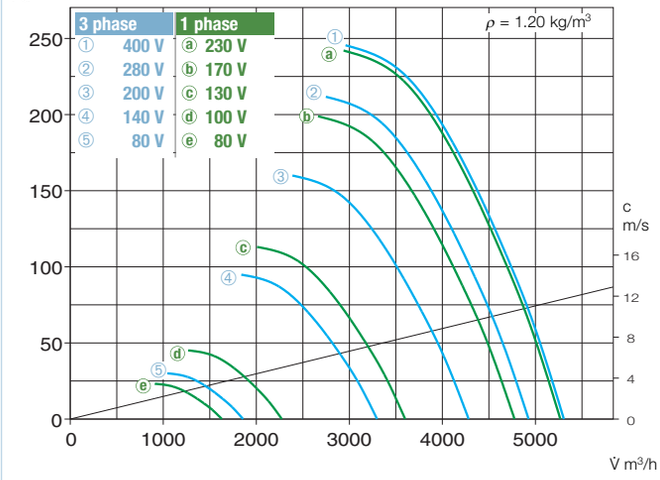
## 400/2 — R.P.M. = 2800

| 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 |



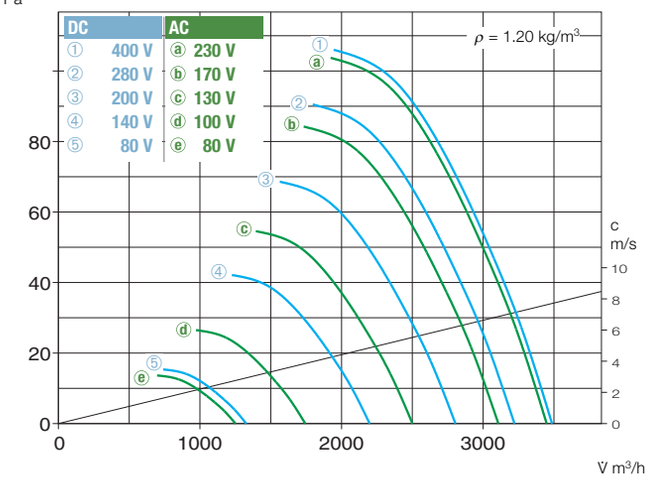

## 400/4 — R.P.M. = 1450

| 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 |



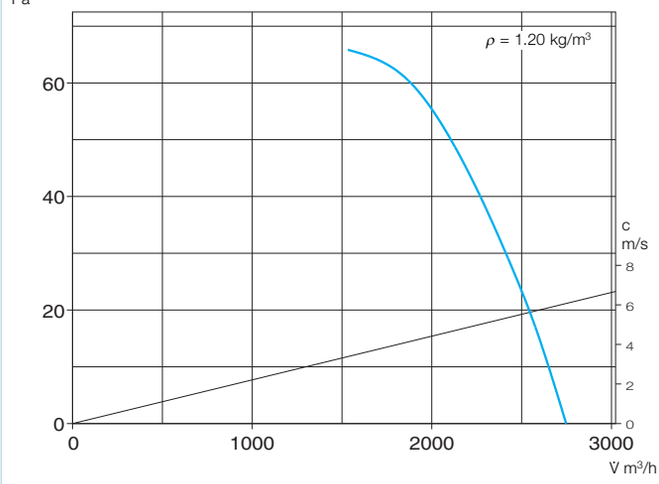

## 400/6 — R.P.M. = 930

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 72 | 56 | 62 | 68 | 68 | 64 | 56 | 47 |
| $L_{PA,4m}$ | Air noise | dB(A) | 52 | 36 | 42 | 48 | 48 | 44 | 36 | 27 |

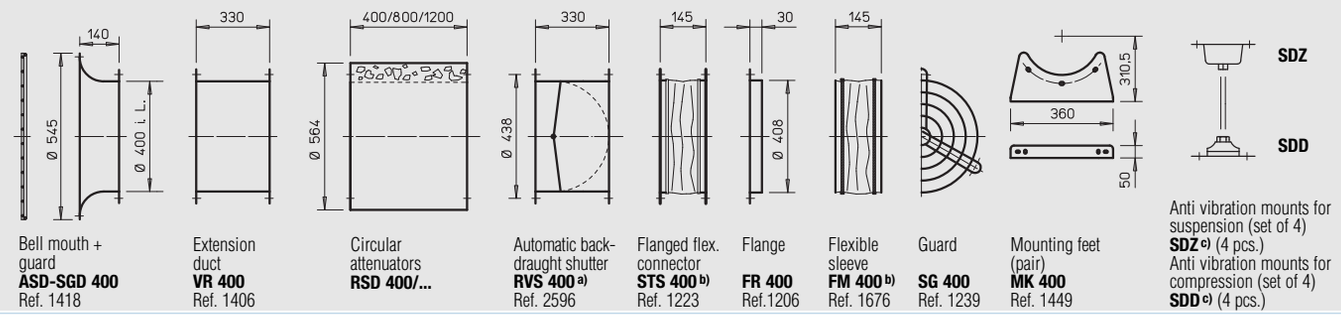



## 400/8 — R.P.M. = 725

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 66 | 51 | 58 | 62 | 62 | 56 | 48 | 41 |
| $L_{PA,4m}$ | Air noise | dB(A) | 46 | 31 | 38 | 42 | 42 | 36 | 28 | 21 |




**Accessories –** Specification see pages 170 on.




Bell mouth + guard
**ASD-SGD 400**
Ref. 1418

Extension duct
**VR 400**
Ref. 1406

Circular attenuators
**RSD 400/...**

Automatic back-draught shutter
**RVS 400** a)
Ref. 2596

Flanged flex. connector
**STS 400** b)
Ref. 1223

Flange
**FR 400**
Ref.1206

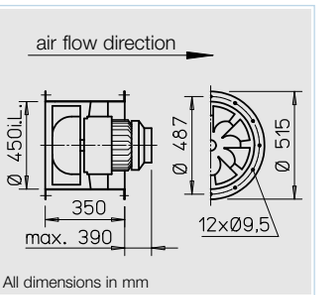
Flexible sleeve
**FM 400** b)
Ref. 1676

Guard
**SG 400**
Ref. 1239

Mounting feet (pair)
**MK 400**
Ref. 1449

Anti vibration mounts for suspension (set of 4)
**SDZ** c) (4 pcs.)
Anti vibration mounts for compression (set of 4)
**SDD** c) (4 pcs.)

a) For motorised shutters see accessory pages  b) Types for explosion proof fans see left page  c) Suitable model see last column of data table



All dimensions in mm

## ■ Specification

### ☐ Casing
Manufactured in galvanised steel with flanges on both sides to DIN 24155, Pt. 3, vanes and fixed motor support. Models with n = 2800 min$^{-1}$ with welded casing made from hot dipped galvanised steel.

### ☐ Impeller
Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from hot dipped galvanised steel.

### ☐ Motor
Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

### ☐ Speed control
For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering.
Explosion proof fans are not controllable.

### ☐ Electrical connection
Terminal box fitted externally on the casing as standard (IP 55).

### ☐ Installation
Installation in any position. Ensure that motor drainage holes (where used) face downwards.

### ☐ Motor protection
All models (except explosion proof and dual-speed models) have thermal contacts or PTC resistors which must be connected to a motor protection unit (see table below).
Models without thermal contacts must be protected by a conventional circuit breaker.

### ☐ Sound levels
Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

| ☐ Information | Pages |
|---|---|
| Technical description | 148 |
| Selection chart | 149 |
| Design of systems | 12 on |

**Made to order designs**
Alternative voltages, frequencies, protection classes, acid protection, high temperatures etc. are available on request.
For safety and correct use note the technical information on pages 17 on.

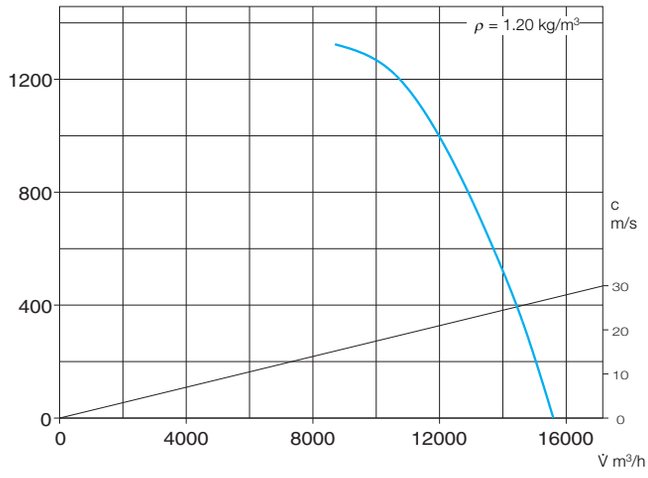
| ☐ Other Accessories | Page |
|---|---|
| [b] **Accessories for explosion proof fans** | |
| **Flanged flexible connector STS 450 Ex** | Ref. 2506 |
| **Flexible sleeve FM 450 Ex** | Ref. 1693 |
| Filters and attenuators | 305 on |
| Shutters, grilles and louvres | 361 on |
| Speed controllers and switches | 397 on |

| Type | Ref. No. | R.P.M. | Air flow volume (FID) | Motor power (nominal)* | Voltage | Current* full load | Current* speed controlled | Wiring diagram | Maximum air flow temp. standard supply | Maximum air flow temp. speed controlled | Nominal weight (net) | 5 step transformer controller Pole switch | | Full motor protection starter using the motor thermal contacts | | Anti vibration mounts comp. | Anti vibration mounts susp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | min$^{-1}$ | V m$^3$/h | kW | V | A | A | No. | +°C | +°C | kg | Type | Ref. No. | Type | Ref. No. | Type | Type |
| **1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARW 450/6** | 6695 | 930 | 5020 | 0.53 | 230 | 2.40 | 2.60 | 967 | 60 | 40 | 45.0 | **MWS 3**[1] | 1948 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **VARW 450/4** | 6736 | 1330 | 7180 | 1.47 | 230 | 6.50 | 7.00 | 968 | 60 | 40 | 45.0 | **MWS 7.5**[1] | 1950 | **MW** | 1579 | **SDD 1** | **SDZ 1** |
| **3 Phase motor, 400/690 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 450/6** | 6696 | 930 | 5020 | 0.43 | 400Y | 1.15 | 1.15 | 469 | 60 | 40 | 45.0 | **RDS 2**[1] | 1315 | **MD** | 5849 | **SDD 1** | **SDZ 1** |
| **VARD 450/2** | 6698 | 2890 | 15590 | 8.00 | 400/690 | 15.0 | — | 776 | 60 | — | 95.0 | **FUS 16**[1] | 6098 | **MSA**[4] | 1289 | **SDD 2** | **SDZ 2** |
| **2 speed motor, 400 V / 3 ph. / 50 Hz, Y/△-motor, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 450/4/4** | 6697 | 1100/1370 | 5930/7390 | 0.74/1.00 | 400Y/△ | 1.2/2.3 | 2.3 | 520 | 60 | 40 | 45.0 | **RDS 4**[1] | 1316 | **M 4**[2] | 1571 | **SDD 1** | **SDZ 1** |
| **Pole-switching, 2 speed motor (Dahlander winding Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | Pole switch | | | | | |
| **VARD 450/8/4** | 6784 | 710/1420 | 3830/7660 | 0.25/1.10 | 400 | 1.1/2.6 | — | 471 | 60 | — | 50.0 | **PDA 12**[3] | 5081 | — | — | **SDD 1** | **SDZ 1** |
| **VARD 450/4/2** | 6785 | 1460/2920 | 7880/15760 | 1.20/8.00 | 400 | 4.20/16.5 | — | 471 | 60 | — | 105.0 | **PDA 25** | 5060 | — | — | **SDD 2** | **SDZ 2** |
| **Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 450/6 Ex** | 6699 | 900 | 5020 | 0.25 | 400Y | 0.99 | — | 470 | 40 | — | 48.0 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |
| **VARD 450/4 Ex** | 6700 | 1425 | 7640 | 1.10 | 400Y | 2.55 | — | 470 | 40 | — | 51.0 | not permitted | | not permitted | | **SDD 1** | **SDZ 1** |
| **VARD 450/2 Ex**[5] | 6701 | 2930 | 15810 | 7.50 | 400/690 | 14.10 | — | 498 | 40 | — | 155.0 | not permitted | | not permitted | | **SDD 2** | **SDZ 3** |

* Ex models: for nominal value of motor see information on page 18 [1] includes full motor protection unit [2] includes operation and speed switch [3] see product page for flush mounted version
[4] for PTC resistor [5] a vibration monitoring shall be provided (on site) according to DIN EN 14986.

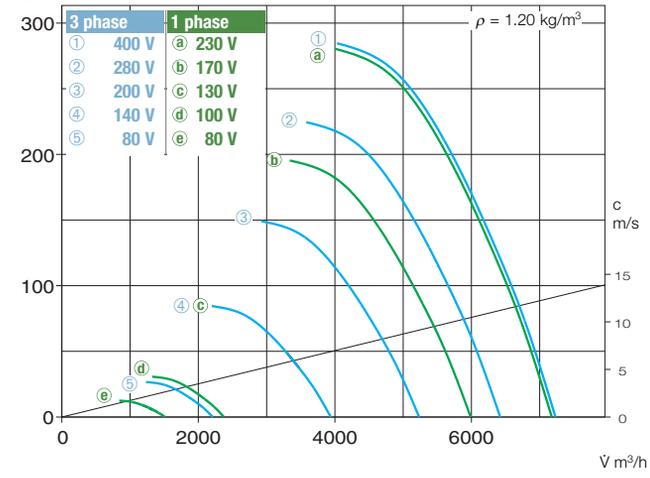
## 450/2 — n = 2800 1/min

| Frequenz | | 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 |



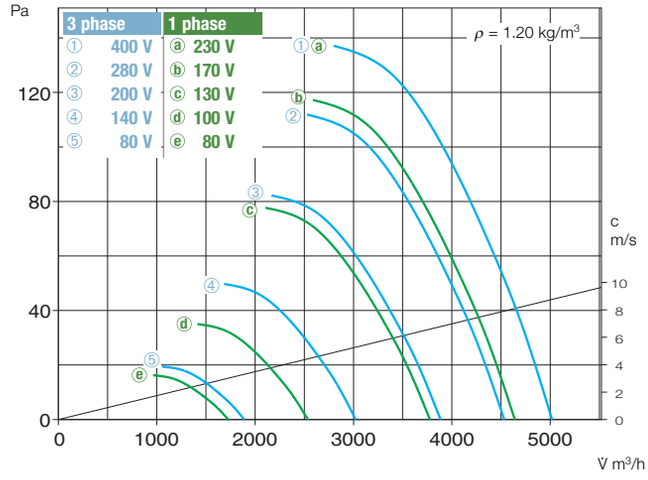

## 450/4 — n = 1400 1/min

| Frequenz | | 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 |



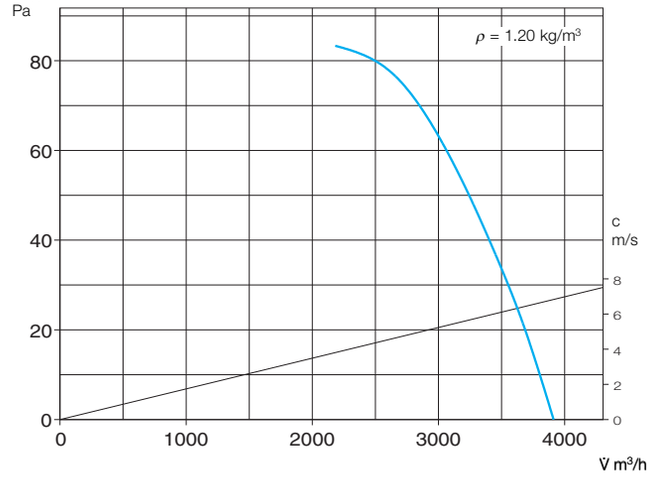

## 450/6 — n = 930 1/min

| Frequenz | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 76 | 60 | 65 | 71 | 72 | 67 | 59 | 51 |
| $L_{PA,4m}$ | Air noise | dB(A) | 56 | 40 | 45 | 51 | 52 | 47 | 39 | 31 |

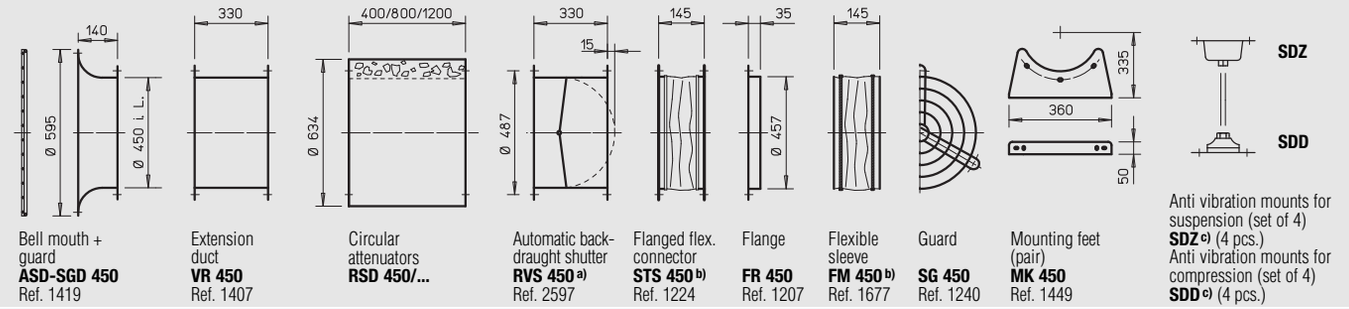



## 450/8 — n = 725 1/min

| Frequenz | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 70 | 54 | 61 | 66 | 65 | 60 | 52 | 45 |
| $L_{PA,4m}$ | Air noise | dB(A) | 50 | 34 | 41 | 46 | 45 | 40 | 32 | 25 |




**Accessories –** Specification see pages 170 on.




Bell mouth + guard
**ASD-SGD 450**
Ref. 1419

Extension duct
**VR 450**
Ref. 1407

Circular attenuators
**RSD 450/...**

Automatic back-draught shutter
**RVS 450** a)
Ref. 2597

Flanged flex. connector
**STS 450** b)
Ref. 1224

Flange
**FR 450**
Ref. 1207

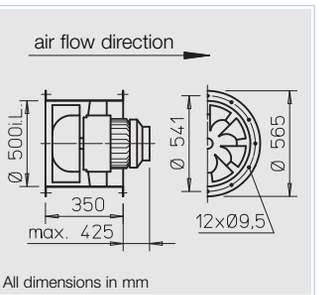
Flexible sleeve
**FM 450** b)
Ref. 1677

Guard
**SG 450**
Ref. 1240

Mounting feet (pair)
**MK 450**
Ref. 1449

Anti vibration mounts for suspension (set of 4)
**SDZ** c) (4 pcs.)
Anti vibration mounts for compression (set of 4)
**SDD** c) (4 pcs.)

a) For motorised shutters see accessory pages b) Types for explosion proof fans see left page c) Suitable model see last column of data table



All dimensions in mm

## ■ Specification

### ☐ Casing
Manufactured in galvanised steel with flanges on both sides to DIN 24155, Pt. 3, vanes and fixed motor support. Models with n = 2800 min$^{-1}$ with welded casing made from hot dipped galvanised steel.

### ☐ Impeller
Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from hot dipped galvanised steel.

### ☐ Motor
Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

### ☐ Speed control
For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering.
Explosion proof fans are not controllable.

### ☐ Electrical connection
Terminal box fitted externally on the casing as standard (IP 55).

### ☐ Installation
Installation in any position. Ensure that motor drainage holes (where used) face downwards.

### ☐ Motor protection
All models (except explosion proof and dual-speed models) have thermal contacts or PTC resistors which must be connected to a motor protection unit (see table below).
Models without thermal contacts must be protected by a conventional circuit breaker.

### ☐ Sound levels
Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

| ☐ Information | Pages |
|---|---|
| Technical description | 148 |
| Selection chart | 149 |
| Design of systems | 12 on |

**Made to order designs**
Alternative voltages, frequencies, protection classes, acid protection, high temperatures available on request.
For safety and correct use note the technical information on pages 17 on.

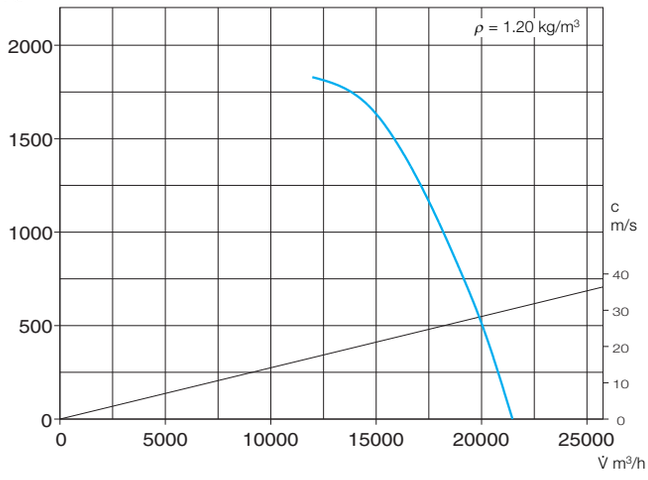
| ☐ Other accessories | Pages |
|---|---|
| [b] **Accessories for explosion proof fans** | |
| **Flanged flexible connector STS 500 Ex** | Ref. 2507 |
| **Flexible sleeve FM 500 Ex** | Ref. 1694 |
| Filters and attenuators | 305 on |
| Shutters, grilles and louvres | 361 on |
| Speed controllers and switches | 397 on |

| Type | Ref. No. | R.P.M. | Air flow volume (FID) | Motor power (nominal)* | Voltage | Current* full load | Current* speed controlled | Wiring diagram | Maximum air flow temp. standard supply | Maximum air flow temp. speed controlled | Nominal weight (net) | 5 step transformer controller Pole switch Type | Ref. No. | Full motor protection starter using the motor thermal contacts Type | Ref. No. | Anti vibration mounts comp. | Anti vibration mounts susp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | min$^{-1}$ | V m$^3$/h | kW | V | A | A | No. | +°C | +°C | kg | Type | Ref. No. | Type | Ref. No. | Type | Type |
| **1 Phase motor, 230 V / 1 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARW 500/6** | 6702 | 920 | 6810 | 0.63 | 230 | 3.00 | 3.90 | 967 | 60 | 40 | 70.0 | **MWS 5**[1] | 1949 | **MW** | 1579 | **SDD 2** | **SDZ 2** |
| **VARW 500/4** | 6739 | 1340 | 9920 | 2.02 | 230 | 9.10 | 9.10 | 968 | 60 | 40 | 70.0 | **MWS 10**[1] | 1946 | **MW** | 1579 | **SDD 2** | **SDZ 2** |
| **3 Phase motor, 400/690 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 500/6** | 6703 | 900 | 6660 | 0.62 | 400Y | 1.70 | 1.70 | 469 | 60 | 40 | 70.0 | **RDS 2**[1] | 1315 | **MD** | 5849 | **SDD 2** | **SDZ 2** |
| **VARD 500/2** | 6705 | 2935 | 21730 | 15.00 | 400/690 | 29/16.7 | — | 776 | 60 | — | 170.0 | **FUS 37**[1] | 6101 | **MSA**[4] | 1289 | **SDD 2** | **SDZ 3** |
| **2 speed motor, 400 V / 3 ph. / 50 Hz, Y/△-motor, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 500/4/4** | 6704 | 1120/1370 | 8360/10070 | 1.2/1.8 | 400Y/Δ | 2.1/3.9 | 3.9 | 520 | 60 | 40 | 70.0 | **RDS 7**[1] | 1578 | **M 4**[2] | 1571 | **SDD 2** | **SDZ 2** |
| **Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | Pole switch | | | | | |
| **VARD 500/8/4** | 6787 | 690/1400 | 5110/10360 | 0.55/2.20 | 400 | 1.7/5.1 | — | 471 | 60 | — | 75.0 | **PDA 12**[3] | 5081 | — | — | **SDD 2** | **SDZ 2** |
| **VARD 500/4/2** | 6788 | 1475/2935 | 10920/21730 | 2.50/15.00 | 400 | 6.0/23.5 | — | 471 | 60 | — | 165.0 | **PDA 25** | 5060 | — | — | **SDD 2** | **SDZ 3** |
| **Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz temperature class T1-T3, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 500/6 Ex** | 6706 | 930 | 6810 | 0.55 | 400Y | 1.83 | — | 470 | 40 | — | 70.0 | not permitted | | not permitted | | **SDD 2** | **SDZ 2** |
| **VARD 500/4 Ex** | 6707 | 1400 | 10470 | 1.50 | 400Y | 3.40 | — | 470 | 40 | — | 75.0 | not permitted | | not permitted | | **SDD 2** | **SDZ 2** |
| **VARD 500/2 Ex**[5] | 6708 | 2930 | 21760 | 12.50 | 400/690 | 23.50 | — | 498 | 40 | — | 215.0 | not permitted | | not permitted | | **SDD 3** | **SDZ 3** |

* Ex models: for nominal value of motor see information on page 18 [1] includes full motor protection unit [2] includes operation and speed switch [3] see product page for flush mounted version
[4] for PTC resistor [5] a vibration monitoring shall be provided (on site) according to DIN EN 14986.

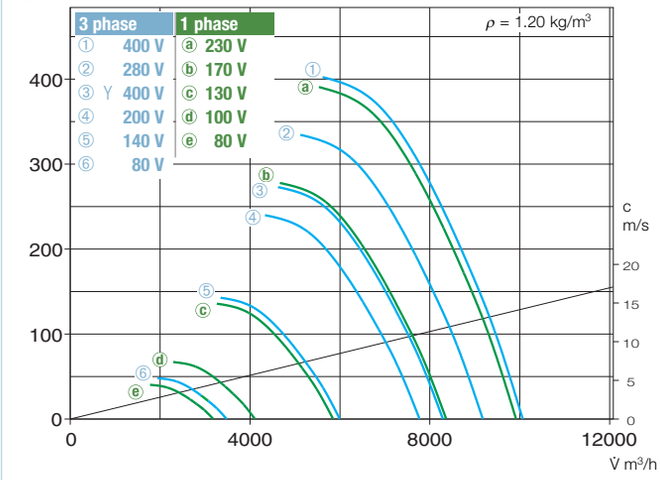
## 500/2 — R.P.M. = 2900

| 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 |



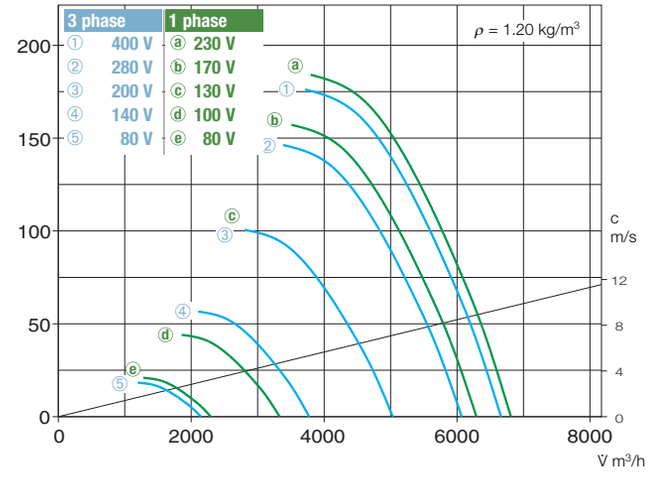

## 500/4 — R.P.M. = 1450

| 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 |



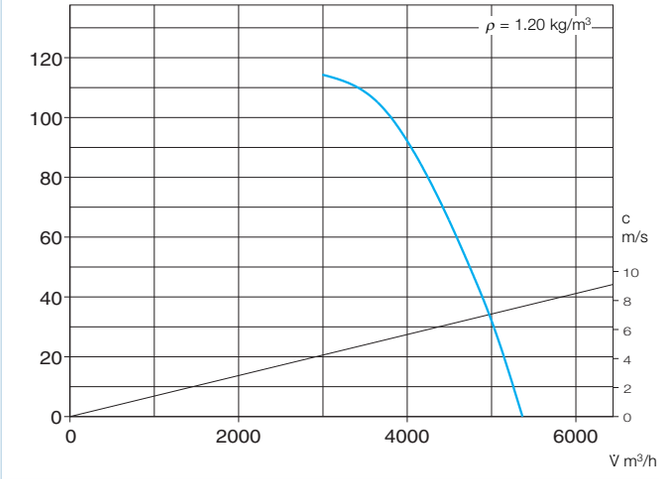

## 500/6 — R.P.M. = 930

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 79 | 63 | 69 | 74 | 75 | 71 | 63 | 54 |
| $L_{PA,4m}$ | Air noise | dB(A) | 59 | 43 | 49 | 54 | 55 | 51 | 43 | 34 |

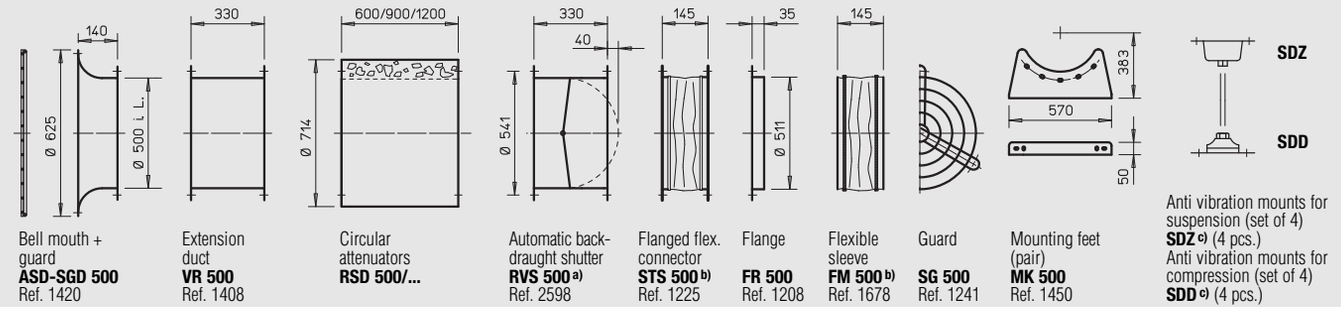



## 500/8 — R.P.M. = 725

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 73 | 58 | 64 | 69 | 68 | 63 | 55 | 48 |
| $L_{PA,4m}$ | Air noise | dB(A) | 53 | 38 | 44 | 49 | 48 | 43 | 35 | 28 |




**Accessories –** Specification see pages 170 on.




Bell mouth + guard **ASD-SGD 500** Ref. 1420

Extension duct **VR 500** Ref. 1408

Circular attenuators **RSD 500/...**

Automatic back-draught shutter **RVS 500** a) Ref. 2598

Flanged flex. connector **STS 500** b) Ref. 1225

Flange **FR 500** Ref. 1208

Flexible sleeve **FM 500** b) Ref. 1678

Guard **SG 500** Ref. 1241

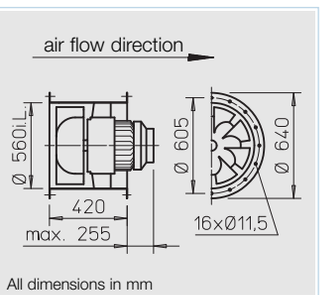
Mounting feet (pair) **MK 500** Ref. 1450

Anti vibration mounts for suspension (set of 4) **SDZ** c) (4 pcs.)
Anti vibration mounts for compression (set of 4) **SDD** c) (4 pcs.)

a) For motorised shutters see accessory pages

b) Types for explosion proof fans see left page

c) Suitable model see last column of data table



All dimensions in mm

## ■ Specification

### ☐ Casing
Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

### ☐ Impeller
Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from hot dipped galvanised steel.

### ☐ Motor
Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

### ☐ Speed control
For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering.
Explosion proof fans are not controllable.

### ☐ Electrical connection
Terminal box fitted externally on the casing as standard (IP 55).

### ☐ Installation
Installation in any position. Ensure that motor drainage holes (where used) face downwards.

### ☐ Motor protection
All models (except explosion proof and dual-speed models) have thermal contacts or PTC resistors which must be connected to a motor protection unit (see table below).
Models without thermal contacts must be protected by a conventional circuit breaker.

### ☐ Sound levels
Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acoustic information on page 13.

| ☐ Information | Pages |
|---|---|
| Technical description | 148 |
| Selection chart | 149 |
| Design of systems | 12 on |

**Made to order designs**
Alternative voltages, frequencies, protection classes, acid protection, high temperatures available on request.
For safety and correct use note the technical information on pages 17-19.

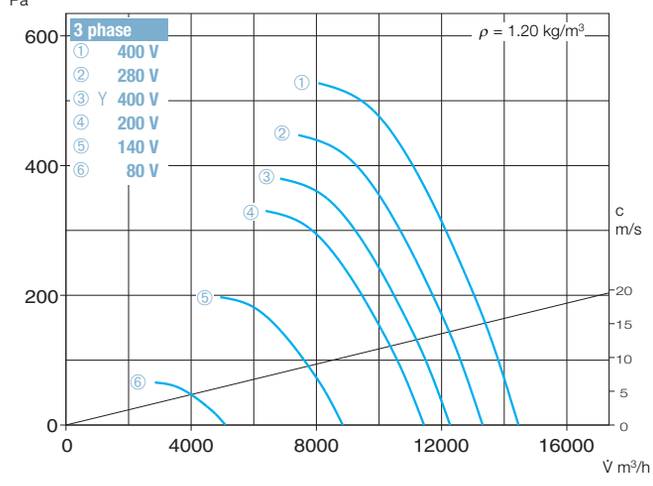
| ☐ Other accessories | Pages |
|---|---|
| [b] **Accessories for explosion proof fans** | |
| **Flanged flexible connector STS 560 Ex** | Ref. 2508 |
| **Flexible sleeve FM 560 Ex** | Ref. 1695 |
| Filters and attenuators | 305 on |
| Shutters, grilles and louvres | 361 on |
| Speed controllers and switches | 397 on |

| Type | Ref. No. | R.P.M. | Air flow volume (FID) | Motor power (nominal)* | Voltage | Current* full load | Current* speed controlled | Wiring diagram | Maximum air flow temp. standard supply | Maximum air flow temp. speed controlled | Nominal weight (net) | 5 step transformer controller Pole switch Type | Ref. No. | Full motor protection starter using the motor thermal contacts Type | Ref. No. | Anti vibration mounts comp. | Anti vibration mounts susp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $min^{-1}$ | V $m^3/h$ | kW | V | A | A | No. | +°C | +°C | ap. kg | Type | Ref. No. | Type | Ref. No. | Type | Type |
| **3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 560/8** | 6709 | 700 | 7280 | 0.53 | 400Y | 1.30 | 1.40 | 469 | 60 | 40 | 95.0 | **RDS 2**[1] | 1315 | **MD** | 5849 | **SDD 2** | **SDZ 2** |
| **2 speed motor, 400 V / 3 ph. / 50 Hz, Y/△-motor, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 560/6/6** | 6710 | 770/910 | 7890/9320 | 0.70/0.98 | 400Y/Δ | 1.2/2.4 | 2.4 | 520 | 60 | 40 | 85.0 | **RDS 4**[1] | 1316 | **M 4**[2] | 1571 | **SDD 2** | **SDZ 2** |
| **VARD 560/4/4** | 6711 | 1180/1390 | 12090/14240 | 2.10/3.00 | 400Y/Δ | 3.5/5.9 | 6.5 | 520 | 60 | 40 | 95.0 | **RDS 7**[1] | 1578 | **M 4**[2] | 1571 | **SDD 2** | **SDZ 2** |
| **Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | Pole switch | | | | | |
| **VARD 560/8/4** | 6790 | 705/1430 | 7330/14870 | 0.90/3.60 | 400 | 3.0/8.1 | — | 471 | 60 | — | 100.0 | **PDA 12**[3] | 5081 | — | — | **SDD 2** | **SDZ 2** |
| **Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 560/8 Ex** | 6712 | 700 | 7120 | 0.37 | 400Y | 1.61 | — | 470 | 40 | — | 85.0 | not permitted | | not permitted | | **SDD 2** | **SDZ 2** |
| **VARD 560/6 Ex** | 6713 | 900 | 9360 | 1.10 | 400Y | 3.10 | — | 470 | 40 | — | 90.0 | not permitted | | not permitted | | **SDD 2** | **SDZ 2** |
| **VARD 560/4 Ex**[4] | 6714 | 1440 | 14980 | 3.60 | 400/690 | 7.70 | — | 498 | 40 | — | 105.0 | not permitted | | not permitted | | **SDD 2** | **SDZ 2** |

* Ex models: for nominal value of motor see information on page 18 [1] includes full motor protection unit [2] includes operation and speed switch [3] see product page for flush mounted version
[4] According to draft standard prEN 14986 an oscillation control (on site) has to be provided.

## 560/4

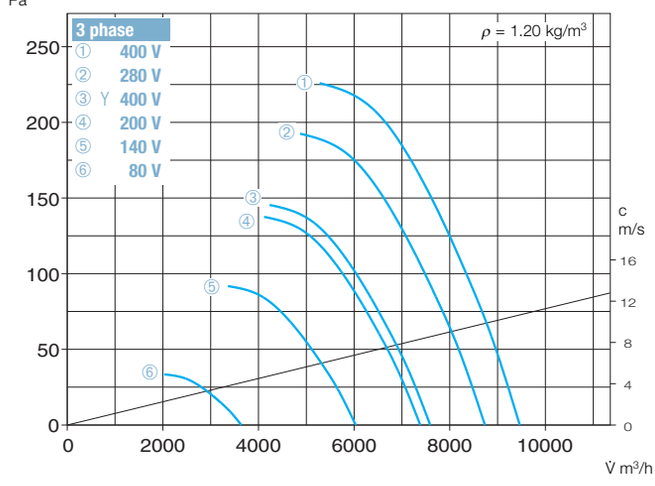
| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 93 | 69 | 83 | 87 | 90 | 87 | 80 | 70 |
| $L_{PA,4m}$ | Air noise | dB(A) | 73 | 49 | 63 | 67 | 70 | 67 | 60 | 50 |




## 560/6

R.P.M. = 950

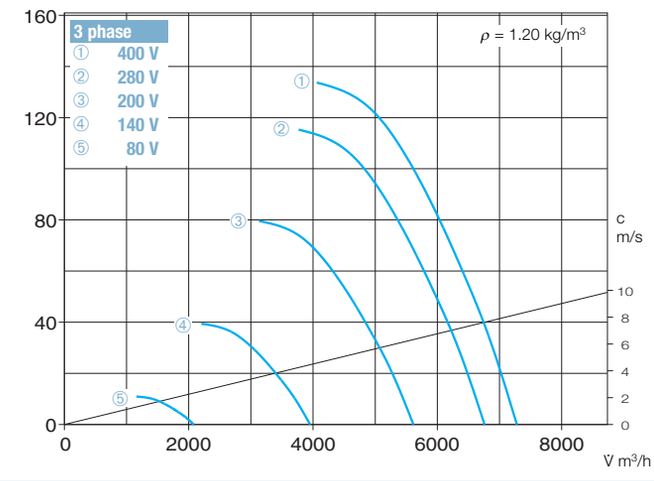
| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 83 | 67 | 72 | 78 | 79 | 75 | 67 | 58 |
| $L_{PA,4m}$ | Air noise | dB(A) | 63 | 47 | 52 | 58 | 59 | 55 | 47 | 38 |



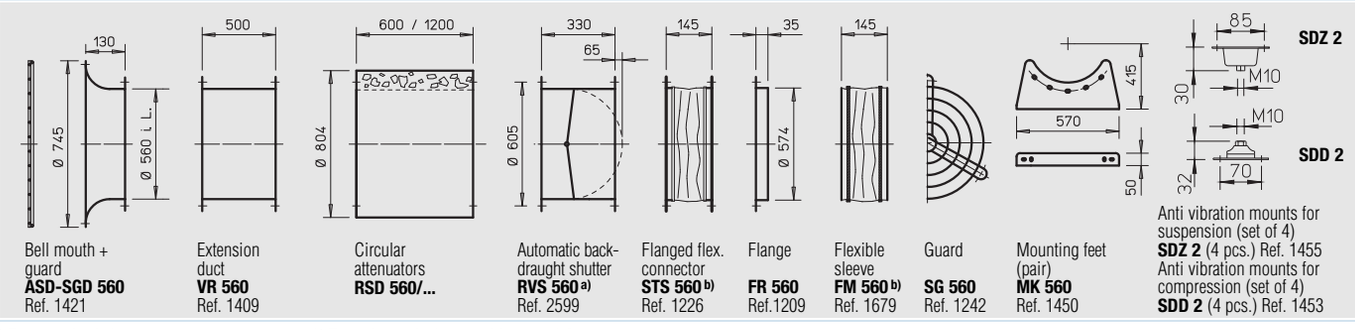

## 560/8

R.P.M. = 725

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 76 | 61 | 68 | 72 | 72 | 66 | 58 | 51 |
| $L_{PA,4m}$ | Air noise | dB(A) | 56 | 41 | 48 | 52 | 52 | 46 | 38 | 31 |




**Accessories –** Specification see pages 170 on.




Bell mouth + guard
**ASD-SGD 560**
Ref. 1421

Extension duct
**VR 560**
Ref. 1409

Circular attenuators
**RSD 560/...**

Automatic back-draught shutter
**RVS 560** a)
Ref. 2599

Flanged flex. connector
**STS 560** b)
Ref. 1226

Flange
**FR 560**
Ref.1209

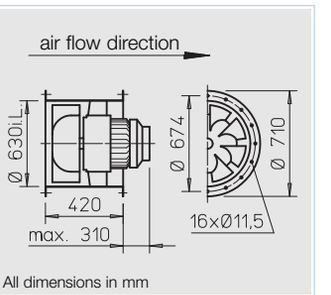
Flexible sleeve
**FM 560** b)
Ref. 1679

Guard
**SG 560**
Ref. 1242

Mounting feet (pair)
**MK 560**
Ref. 1450

Anti vibration mounts for suspension (set of 4)
**SDZ 2** (4 pcs.) Ref. 1455
Anti vibration mounts for compression (set of 4)
**SDD 2** (4 pcs.) Ref. 1453

a) For motorised shutters see accessory pages  b) Types for explosion proof fans see left page



All dimensions in mm

## ■ Specification

### ☐ Casing
Manufactured in galvanised sheet steel with flanges on both sides to DIN 24155, Pt. 3, with fixed guide vanes and motor support.

### ☐ Impeller
Specially developed mixed-flow curved impeller, dynamically balanced, manufactured from hot dipped galvanised steel.

### ☐ Motor
Direct driven, maintenance free flange motor, totally enclosed with an aluminium casing and cooling fins, protected to IP 54. Sealed for life ball bearings with tropicalized protection of windings and radio suppression. Optional drainage holes made to order (please state installation position).

### ☐ Speed control
For all speed controllable models the current is given in the 'speed controlled' column of the table below which must be used when selecting a controller. If the fan is to be controlled by a frequency inverter this must be stated when ordering.
Explosion proof fans are not controllable.

### ☐ Electrical connection
Terminal box fitted externally on the casing as standard (IP 55).

### ☐ Installation
Installation in any position. Ensure that condensation motor drainage holes (where used) face downwards.

### ☐ Motor protection
All models (except explosion proof and dual-speed models) have thermal contacts or PTC resistors which must be connected to a motor protection unit (see table below).
Models without thermal contacts must be protected by a conventional circuit breaker.

### ☐ Sound levels
Data shown within the performance curves refer to sound power levels. For determination of the lower sound pressure levels refer to acousticl information on page 13.

| ☐ Information | Pages |
|---|---|
| Technical description | 148 |
| Selection chart | 149 |
| Design of systems | 12 on |

**Made to order designs**
Alternative voltages, frequencies, protection classes, acid protection, high temperatures available on request.
For safety and correct use note the technical information on pages 17 on.

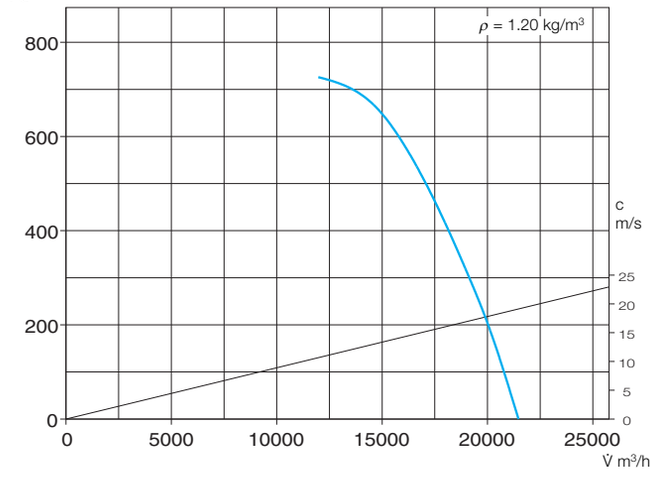
| ☐ Other accessories | Pages |
|---|---|
| [b]**Accessories for explosion proof fans** | |
| **Flanged flexible connector STS 630 Ex** | Ref. 2509 |
| **Flexible sleeve FM 630 Ex** | Ref. 1696 |
| Filters and attenuators | 305 on |
| Shutters, grilles and louvres | 361 on |
| Speed controllers and switches | 397 on |

| Type | Ref. No. | R.P.M. | Air flow volume (FID) | Motor power (nominal)* | Voltage | Current* full load | Current* speed controlled | Wiring diagram | Maximum air flow temp. standard supply | Maximum air flow temp. speed controlled | Nominal weight (net) | 5 step transformer controller Pole switch Type | 5 step transformer controller Pole switch Ref. No. | Full motor protection starter using the motor thermal contacts Type | Full motor protection starter using the motor thermal contacts Ref. No. | Anti vibration mounts comp. | Anti vibration mounts susp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | min$^{-1}$ | V m$^3$/h | kW | V | A | A | No. | +°C | +°C | ap. kg | Type | Ref. No. | Type | Ref. No. | Type | Type |
| **3 Phase motor, 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 630/4** | 6717 | 1440 | 21320 | 6.20 | 400/690 | 12.0/6.9 | — | 776 | 60 | — | 145.0 | **FUS 16**[1] | 6098 | **MSA**[4] | 1289 | **SDD 2** | **SDZ 2** |
| **2 speed motor, 400 V / 3 ph. / 50 Hz, Y/△-motor, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 630/8/8** | 6715 | 580/680 | 8590/10070 | 0.50/0.88 | 400Y/Δ | 1.9/3.1 | 3.1 | 520 | 60 | 40 | 110.0 | **RDS 4**[1] | 1316 | **M 4**[2] | 1571 | **SDD 2** | **SDZ 2** |
| **VARD 630/6/6** | 6716 | 770/920 | 11180/13630 | 1.10/1.56 | 400Y/Δ | 2.0/3.9 | 3.9 | 520 | 60 | 40 | 110.0 | **RDS 7**[1] | 1578 | **M 4**[2] | 1571 | **SDD 2** | **SDZ 2** |
| **Pole-switching, 2 speed motor (Dahlander windings Y/YY), 400 V / 3 ph. / 50 Hz, protection to IP 54** | | | | | | | | | | | | Pole switch | | | | | |
| **VARD 630/8/4** | 6792 | 715/1430 | 10590/21170 | 1.40/5.50 | 400 | 5.0/12.0 | — | 471 | 60 | — | 145.0 | **PDA 12**[3] | 5081 | — | — | **SDD 2** | **SDZ 2** |
| **Explosion proof, E Exe II, 400/690 V / 3 ph. / 50 Hz, temperature class T1-T3, protection to IP 54** | | | | | | | | | | | | | | | | | |
| **VARD 630/8 Ex** | 6718 | 700 | 10220 | 0.95 | 400Y | 2.75 | — | 470 | 40 | — | 110.0 | not permitted | | not permitted | | **SDD 2** | **SDZ 2** |
| **VARD 630/6 Ex** | 6719 | 950 | 13990 | 1.90 | 400Y | 4.70 | — | 470 | 40 | — | 130.0 | not permitted | | not permitted | | **SDD 2** | **SDZ 2** |
| **VARD 630/4 Ex**[5] | 6720 | 1435 | 21400 | 6.80 | 400/690 | 13.1 | — | 498 | 40 | — | 165.0 | not permitted | | not permitted | | **SDD 2** | **SDZ 3** |

* Ex models: for nominal value of motor see information on page 18 [1] includes full motor protection unit [2] includes operation and speed switch [3] see product page for flush mounted version
[4] for PTC resistor [5] a vibration monitoring shall be provided (on site) according to DIN EN 14986.

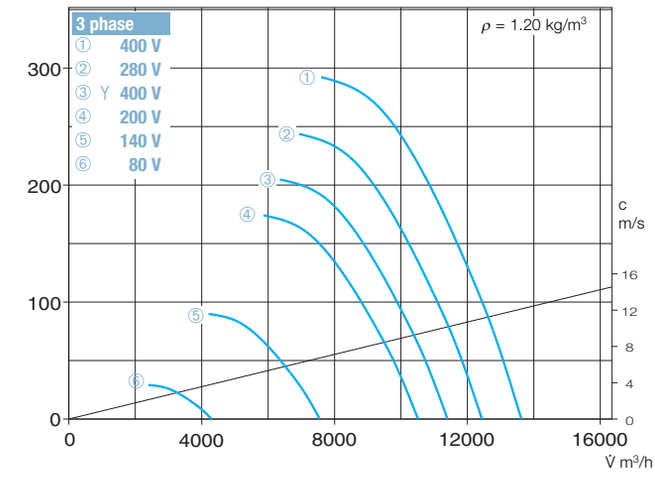
## 630/4 — R.P.M. = 1450

| 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 |



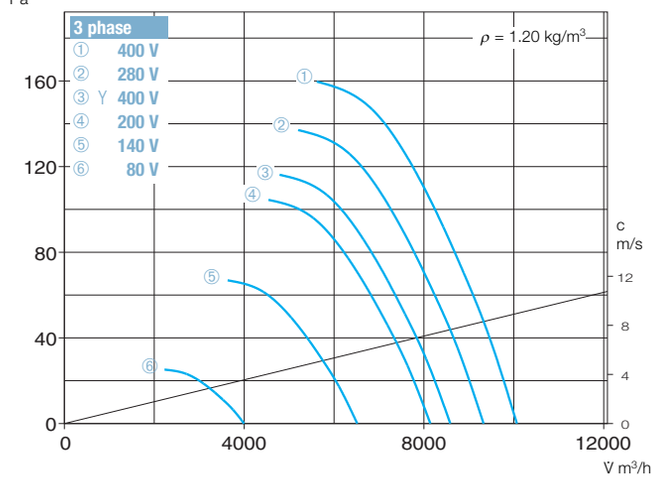

## 630/6 — R.P.M. = 950

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 87 | 70 | 76 | 82 | 83 | 78 | 70 | 62 |
| $L_{PA,4m}$ | Air noise | dB(A) | 67 | 50 | 56 | 62 | 63 | 58 | 50 | 42 |



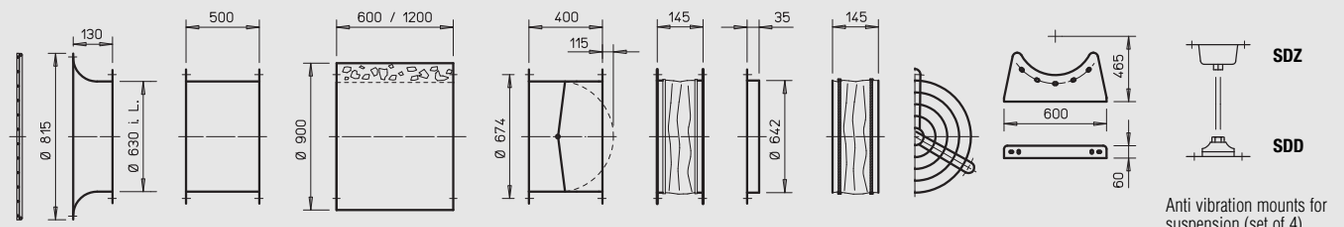

## 630/8 — R.P.M. = 725

| Frequency | | Hz | Total | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{WA}$ | Air noise | dB(A) | 80 | 65 | 71 | 76 | 75 | 70 | 62 | 55 |
| $L_{PA,4m}$ | Air noise | dB(A) | 60 | 45 | 51 | 56 | 55 | 50 | 42 | 35 |




RADAX® VAR

**Accessories –** Specification see pages 170 on




Bell mouth + guard
**ASD-SGD 630**
Ref. 1422

Extension duct
**VR 630**
Ref. 1410

Circular attenuators
**RSD 630/...**

Automatic back-draught shutter
**RVS 630** a)
Ref. 2600

Flanged flex. connector
**STS 630** b)
Ref. 1228

Flange
**FR 630**
Ref. 1211

Flexible sleeve
**FM 630** b)
Ref. 1680

Guard
**SG 630**
Ref. 1243

Mounting feet (pair)
**MK 630**
Ref. 1333

Anti vibration mounts for suspension (set of 4)
**SDZ** c) (4 pcs.)
Anti vibration mounts for compression (set of 4)
**SDD** c) (4 pcs.)

a) For motorised shutters see accessory pages  b) Types for explosion proof fans see left page  c) Suitable model see last column of data table