

# Plug Fans with EC motor

version 05/2011



The engineer's choice

**ebmpapst**

# New Plug fans with EC motor

The plug fans of the centrifugal series with GreenTech EC technology, already established in the market, are now even better!

Firstly, all fans above a 500-watt drive output can now be controlled by MODBUS and 0-10V. Secondly, gaps existing in the product range have been filled and the series has been expanded to greater diameters.

The sizes 630, 710, 800 and 900 are new. These have been equipped with a stable base frame that enables the entire unit to be decoupled from vibrations in the environment.

This makes it possible to achieve additional applications, not just in the heating and ventilation industry. The plug fans are principally intended for operation without a scroll housing.

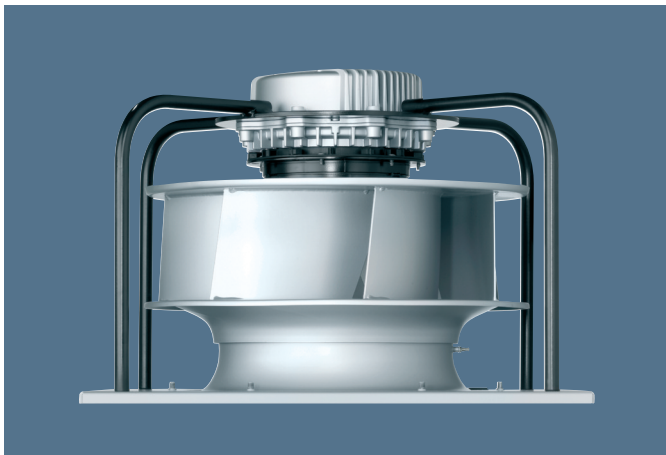
All plug fans shown in the catalogue exceed the minimum efficiency requirements of the ErP Directive for fans, which take effect in 2013 and 2015.

Now there are 12 sizes available, with their outer diameters ranging from 250 to 900 mm, which are driven by energy-saving EC external rotor motors with drive capacities between 400 W and 6 kW.

The welded impellers with their 7 backward curved blades are made of aluminium as this minimises the bearing load of the motors and maximises durability with high rotational velocity. The position of the impellers on the EC external-rotor motors has been optimised too in terms of aerodynamics and installation requirements.

The complete plug fan series is available in the new release of the "Product selector" design program. This tool can be used to select, compare and document fans according to the required operating points. Via a DLL file the plug fans can be integrated into your fan selection programme.

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Sustainability is at the centre of our thoughts and actions. Out of conviction!

*Eco-friendliness and sustainability have always been at the core of our thoughts and actions. For decades, we have worked according to the simple but strict creed of our co-founder Gerhard Sturm: "Each new product we develop has to be better than the last one in terms of economy and ecology." GreenTech is the ultimate expression of our corporate philosophy.*





**GreenTech is pro-active development.**

Even in the design phase, the materials and processes we use are optimised for the greatest possible eco-friendliness, energy balance and – wherever possible – recyclability. We continually improve the material and performance of our products, as well as the flow and noise characteristics. At the same time, we significantly reduce energy consumption. Close co-operation with universities and scientific institutes and the professorship we endow in the area of power engineering and regenerative energies allows us to profit from the latest research findings in these fields – and at the same time ensure highly qualified young academics.

**GreenTech is eco-friendly production.**

GreenTech also stands for maximum energy efficiency in our production processes. There, the intelligent use of industrial waste heat and ground-water cooling, photovoltaics and, of course, our own cooling and ventilation technology are of the utmost importance. Our most modern plant, for instance, consumes 91% less energy than currently specified and required. In this way, our products contribute to protecting the environment, from their origin to their recyclable packaging.

**GreenTech is acknowledged and certified.**

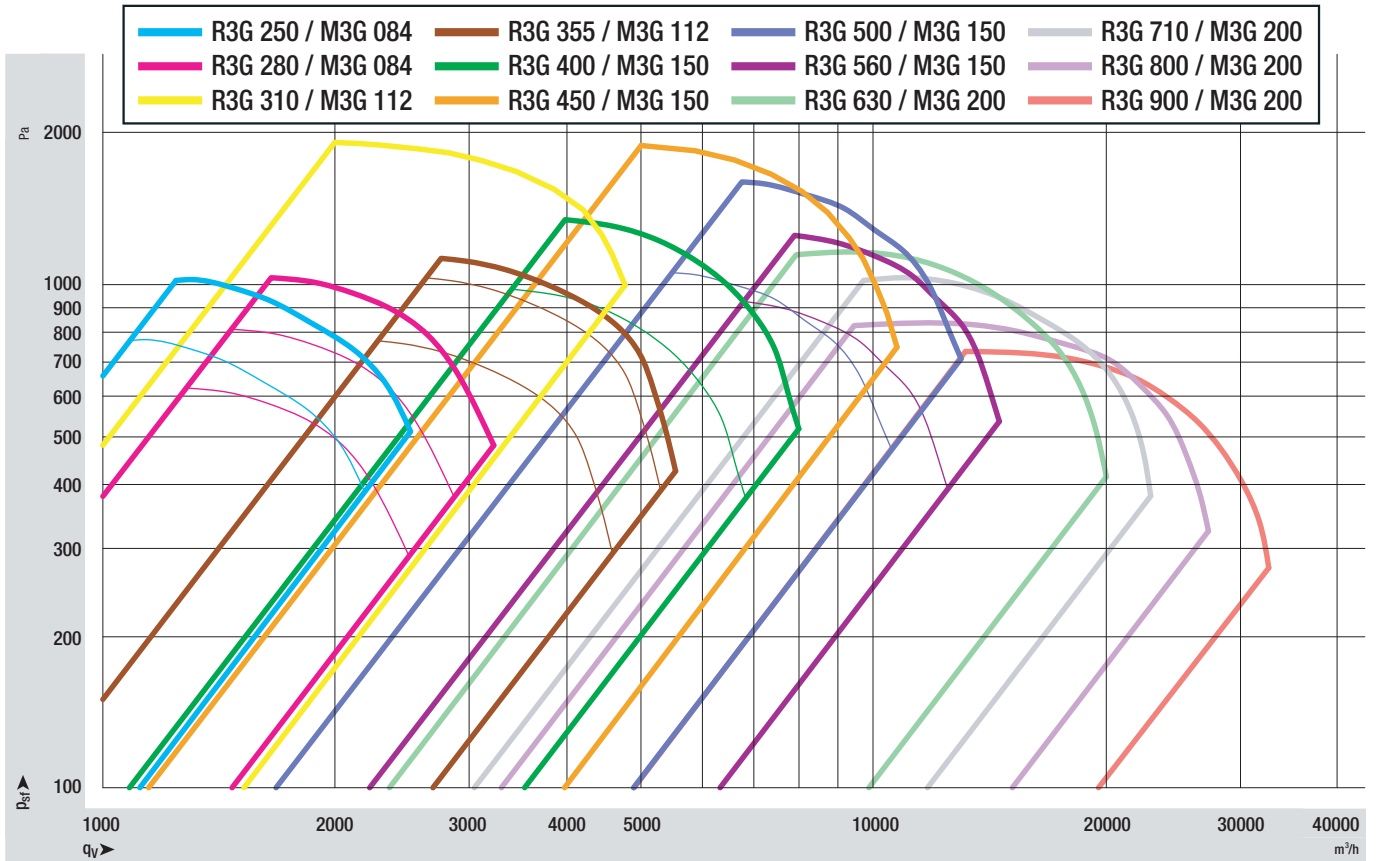
Every step in our chain of production meets the stringent standards of environmental specialists and the public. The 2008 Environmental Prize of Baden-Wuerttemberg, the Green Award 2009, the Energy Efficiency Award 2009 of the dena – to give just a few examples – testify to this. The environmental advantage gained in the performance of the products developed from our GreenTech philosophy can also be measured in the fulfilment of the most stringent energy and environmental standards. In many instances, our products are already well below the thresholds energy legislation will impose a few years from now – several times over.

**Our customers profit from this every day.**

The heart of GreenTech is future-oriented EC technology from ebmpapst. The EC technology at the core of our most efficient motors and fans allows efficiency of up to 90%, saves energy at a very high level, significantly extends service life and makes our products maintenance-free. These values pay off not only for the environment, but every cent also pays off for the user! All ebmpapst products – even those for which GreenTech EC technology does not (yet) make sense from an application viewpoint – feature the greatest possible connection of economy and ecology.

# New Plug Fans with EC motor

## Overview of curves

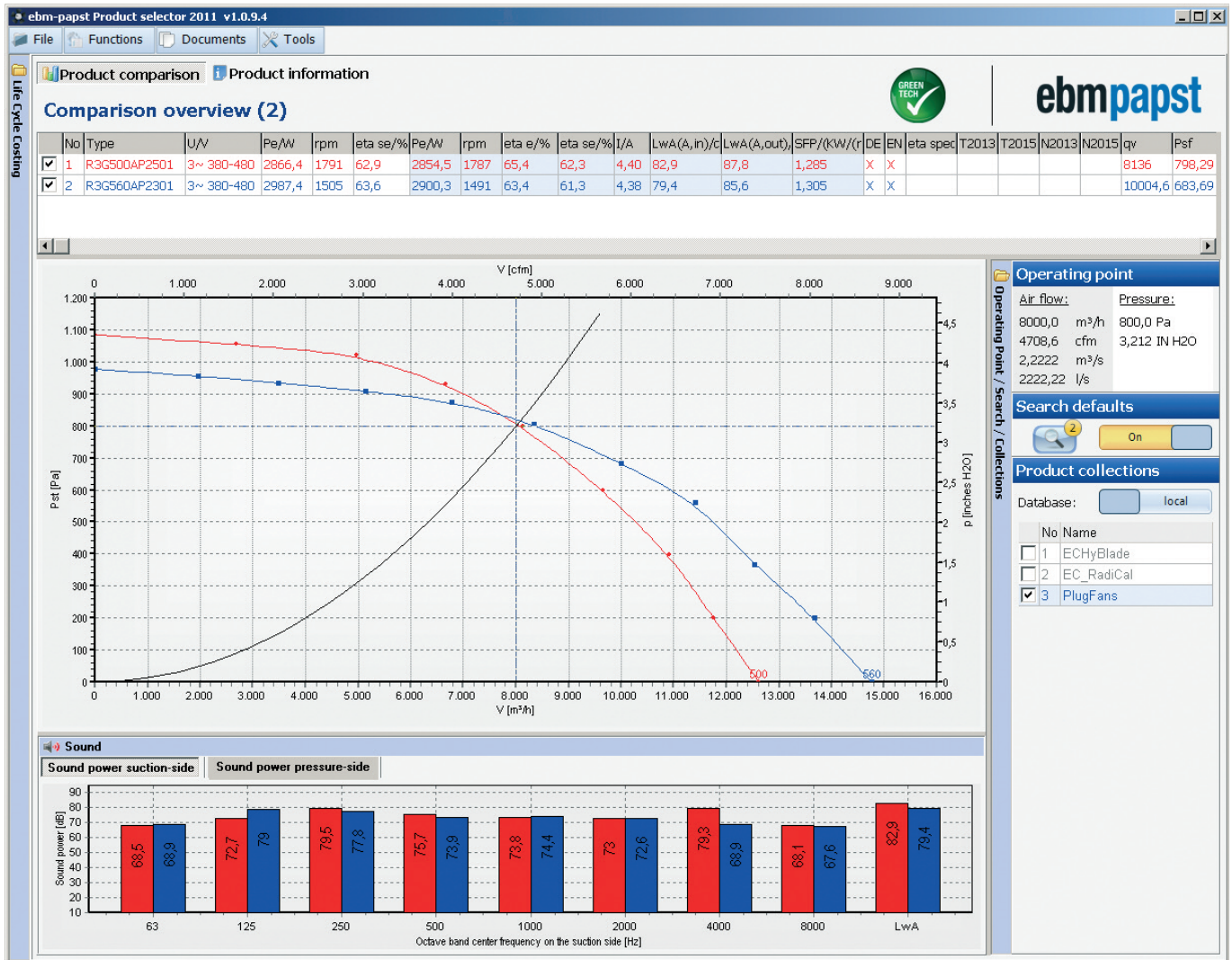


Size	Motor	Supply VAC	P <sub>e</sub> W	Standard Type		F4-2 Type <sup>(1)</sup>	F5 Type Hygiene devices <sup>(2)</sup>	Vibration-absorb. elem.
				Centrifugal fan	K-Box	K-Box	K-Box	D x H / Shore A
250	M3G 084-DF	1~ 200-277	450	R3G250-AT39-71	K3G250-AT39-72	K3G250-AT39-74	K3G250-AT39-56	---
	M3G 084-FA	1~ 200-277	700	R3G250-AV29-B1	K3G250-AV29-B2	K3G250-AV29-B4	K3G250-AV29-B6	---
280	M3G 084-FA	1~ 200-277	415	R3G280-AT04-71	K3G280-AT04-72	K3G280-AT04-74	K3G280-AT04-56	---
	M3G 084-GF	1~ 200-277	715	R3G280-AU06-B1	K3G280-AU06-B2	K3G280-AU06-B4	K3G280-AU06-B6	---
310	M3G 084-GF	3~ 380-480	1000	R3G280-AU11-C1	K3G280-AU11-C2	K3G280-AU11-C4	K3G280-AU11-C6	---
	M3G 112-EA	3~ 380-480	1000	R3G310-AX52-90	K3G310-AX52-90	K3G310-AX52-91	K3G310-AX52-35	---
	M3G 112-EA	1~ 200-277	1270	R3G310-AX54-21	K3G310-AX54-22	K3G310-AX54-52	---	---
	M3G 112-GA	3~ 380-480	1650	R3G310-BB49-01	K3G310-BB49-02	K3G310-BB49-32	---	---
355	M3G 112-IA	3~ 380-480	2915	R3G310-AZ88-01	K3G310-AZ88-02	K3G310-AZ88-32	K3G310-AZ88-35	---
	M3G 112-EA	3~ 380-480	1000	R3G355-AX56-90	K3G355-AX56-90	K3G355-AX56-91	---	---
400	M3G 112-GA	1~ 200-277	1400	R3G355-AY43-21	K3G355-AY43-22	K3G355-AY43-52	---	---
	M3G 112-GA	3~ 380-480	1700	R3G355-AY40-01	K3G355-AY40-02	K3G355-AY40-32	K3G355-AY40-35	---
450	M3G 112-IA	3~ 380-480	1850	R3G400-AY87-01	K3G400-AY87-02	K3G400-AY87-32	---	---
	M3G 150-FF	3~ 380-480	3000	R3G400-AQ23-01	K3G400-AQ23-01	K3G400-AQ23-31	K3G400-AQ23-35	---
500	M3G 112-IA	3~ 380-480	1650	R3G450-AY86-01	K3G450-AY86-02	K3G450-AY86-32	---	---
	M3G 150-FF	3~ 380-480	2730	R3G450-AQ24-01	K3G450-AQ24-01	K3G450-AQ24-31	K3G450-AQ24-35	---
560	M3G 150-IF	3~ 380-480	5370	R3G450-AZ30-01	K3G450-AZ30-01	K3G450-AZ30-31	K3G450-AZ30-35	---
	M3G 150-FF	3~ 380-480	2825	R3G500-AP25-01	K3G500-AP25-01	K3G500-AP25-31	---	---
710	M3G 150-IF	3~ 380-480	5500	R3G500-AQ33-01	K3G500-AQ33-01	K3G500-AQ33-31	K3G500-AQ33-35	---
	M3G 150-IF	3~ 380-480	3000	R3G560-AP23-01	K3G560-AP23-01	K3G560-AP23-31	---	---
800	M3G 150-NA	3~ 380-480	4700	R3G560-AQ04-01	K3G560-AQ04-01	K3G560-AQ04-31	K3G560-AQ04-35	---
	M3G 200-HF	3~ 380-480	6140	R3G630-AQ01-01	K3G630-AQ01-01	---	---	50 x 45 / 40
900	M3G 200-LA	3~ 380-480	6240	R3G710-AQ01-01	K3G710-AQ01-01	---	---	50 x 45 / 40
	M3G 200-QA	3~ 380-480	5800	R3G800-AQ03-01	K3G800-AQ03-01	---	---	50 x 45 / 40
	M3G 200-QA	3~ 380-480	5950	R3G900-AQ01-01	K3G900-AQ01-01	---	---	50 x 45 / 40

<sup>(1)</sup> Increased corrosion protection:  
The support bracket, mounting plate and impeller are coated in black, and the motor also features a black coating.

<sup>(2)</sup> Design of the hygiene devices:  
The support bracket, mounting plate and impeller are coated in white, the motor is coated in black, the fastening elements are made of stainless steel.

## Product Selector 2011



Additionally, and for selecting the correct fan, you can take advantage of the ebm-papst software "Product Selector" with integrated "Black-Box" module for integration in system configuration programmes on the customer side.

The new selection program gives you the ability to select plug fans based on the operating point. If multiple fans are in the specified power range, the aerodynamic and acoustic data displayed can be used to select and document the most suitable fan.

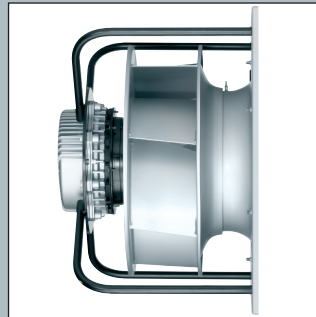
Additionally, the life cycle costs for the selected fans can be calculated. You can make your selection based on the operating point or on the type designation.

The data sheets, which can be created in PDF format, show not only the nominal data of the fan, but also the performance data in the specified operating point with the inlet and outlet side sound power levels across the octave band.

**For more detailed information, simply ask your ebm-papst contact!**

# EC Centrifugal fan modules

K3G 250 to K3G 900



## Text for tenders

### ebm-papst high performance centrifugal fan modules

Single inlet; direct drive; 2D centrifugal impeller with circumferential diffuser mounted on an electronically commutated external-rotor motor with integrated electronics; backward curved impeller blades; inlet nozzle made of galvanised sheet steel with pressure relief; complete unit statically and dynamically balanced in two planes according to DIN / ISO 1940 and to balancing quality G 6.3; EC external-rotor motor with maintenance-free ball bearings and permanent lubrication; wide voltage input 1~200-277V, 50/60 Hz respectively 3~380-480V, 50/60Hz; unit can be operated on all standard Electricity Board networks at identical air performance; optimised motor technology; soft start; integrated current limitation; connection via brought-out variable cable connector (motor size 084) or via easy-to-mount and robust integrated terminal box made of aluminium with spring loaded terminals (motor sizes 112, 150 and 200); extremely compact electronics; with adjustable PID controller (motor sizes 112, 150 and 200); meets all necessary EMC directives and all requirements as to current reverse transfer; no complicated installation with shielded cables required; very low-noise commutation logic; 100% controllability. Motors with an output of 750 W or higher have the RS485/MODBUS RTU interface. If structure-borne noise needs to be decoupled, any such action has to be taken by the customer.

**Optionally:** Modules with higher protection against corrosion.

**For technical details, dimensions and connection - see data sheet**

### Protective features

- Alarm relay with zero-potential change-over contacts (250 V AC/2 A,  $\cos \varphi = 1$ )
- Locked-rotor protection
- Phase failure detection
- Soft start of motors
- Mains under-voltage detection
- Over-temperature protection of electronics and motor
- Short-circuit protection

### Technical data

- |                             |                       |
|-----------------------------|-----------------------|
| - Air flow                  | $Q_v =$ _____ $m^3/h$ |
| - Static pressure           | $P_{sf} =$ _____ Pa   |
| - Nominal voltage range     | $U =$ _____ V         |
| - Frequency                 | $f =$ _____ Hz        |
| - Fan speed                 | $n =$ _____ rpm       |
| - Input power               | $P_e =$ _____ kW      |
| - Current draw              | $I =$ _____ A         |
| - Noise level               | $L_p =$ _____ dBA     |
| - Perm. ambient temperature | $T =$ _____ °C        |
| - Fan mass                  | $=$ _____ kg          |
| - Approvals                 | $=$ _____             |

### Fan type

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# EC centrifugal fans

R3G 250 to R3G 900



## Text for tenders

### ebm-papst high performance centrifugal fans

Single inlet; direct drive; 2D centrifugal impeller with circumferential diffuser mounted on an electronically commutated external-rotor motor with integrated electronics; backward curved impeller blades; inlet nozzle made of galvanised sheet steel; complete unit statically and dynamically balanced in two planes according to DIN / ISO 1940 and to balancing quality G 6.3; EC external-rotor motor with maintenance-free ball bearings and permanent lubrication; wide voltage input 1~200-277V, 50/60 Hz respectively 3~380-480V, 50/60Hz; unit can be operated on all standard Electricity Board networks at identical air performance; optimised motor technology; soft start; integrated current limitation; connection via brought-out variable cable connector (motor size 084) or via easy-to-mount and robust integrated terminal box made of aluminium with spring loaded terminals (motor sizes 112, 150 and 200); extremely compact electronics; with adjustable PID controller (motor sizes 112, 150 and 200); meets all necessary EMC directives and all requirements as to current reverse transfer; no complicated installation with shielded cables required; very low-noise commutation logic; 100% controllability. Motors with an output of 750 W or higher have the RS485/MODBUS RTU interface.

**For technical details, dimensions and connection - see data sheet**

### Protective features

- Alarm relay with zero-potential change-over contacts (250 V AC/2 A,  $\cos \varphi = 1$ )
- Locked-rotor protection
- Phase failure detection
- Soft start of motors
- Mains under-voltage detection
- Over-temperature protection of electronics and motor
- Short-circuit protection

### Technical data

- |                             |                       |
|-----------------------------|-----------------------|
| - Air flow                  | $Q_v =$ _____ $m^3/h$ |
| - Static pressure           | $p_{sf} =$ _____ Pa   |
| - Nominal voltage range     | $U =$ _____ V         |
| - Frequency                 | $f =$ _____ Hz        |
| - Fan speed                 | $n =$ _____ rpm       |
| - Input power               | $P_e =$ _____ kW      |
| - Current draw              | $I =$ _____ A         |
| - Noise level               | $L_p =$ _____ dBA     |
| - Perm. ambient temperature | $T =$ _____ °C        |
| - Fan mass                  | $=$ _____ kg          |
| - Direction of rotation     | $=$ rechts            |
| - Approvals                 | $=$ _____             |

### Fan type

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# EC centrifugal fan and modules

backward curved, Ø 250



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet aluminium  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

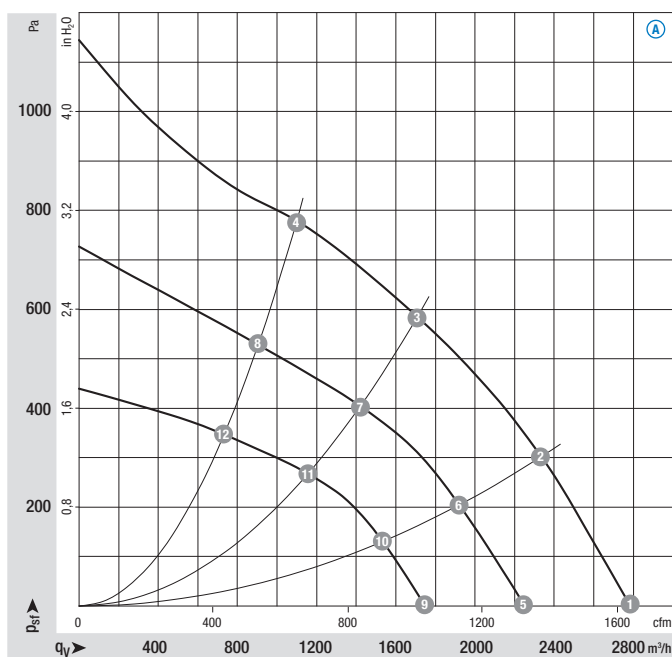
## Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm <sup>(1)</sup> rpm	Max. input power <sup>(1)</sup> W	Max. current draw <sup>(1)</sup> A	Perm. amb. temp. °C	Electr. connection p. 62
*3G 250	M3G 084-DF	A	1~ 200-277	50/60	3000	450	2,80	-25..+40	K1)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{pA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{pA}$ dB(A)
A 1	3175	380	2,48	84
A 2	3045	436	2,72	80
A 3	3000	450	2,80	76
A 4	3020	436	2,72	80
A 5	2575	201	1,34	79
A 6	2510	228	1,50	75
A 7	2470	235	1,57	73
A 8	2495	224	1,51	76
A 9	2000	92	0,66	74
A 10	2000	112	0,78	71
A 11	1990	125	0,88	68
A 12	2015	118	0,84	71

- **Technical features:**
  - PFC (passive)
  - Control input 0-10 VDC / PWM
  - Output 10 VDC max. 1,1 mA
  - Alarm relay
  - Over-temperature protected electronics / motor
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Cable exit:** Variable
- **Protection class:** I
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** UL, CSA; VDE, CCC, GOST are applied for



Masse centrifugal fan



Inlet nozzle with one pressure tap



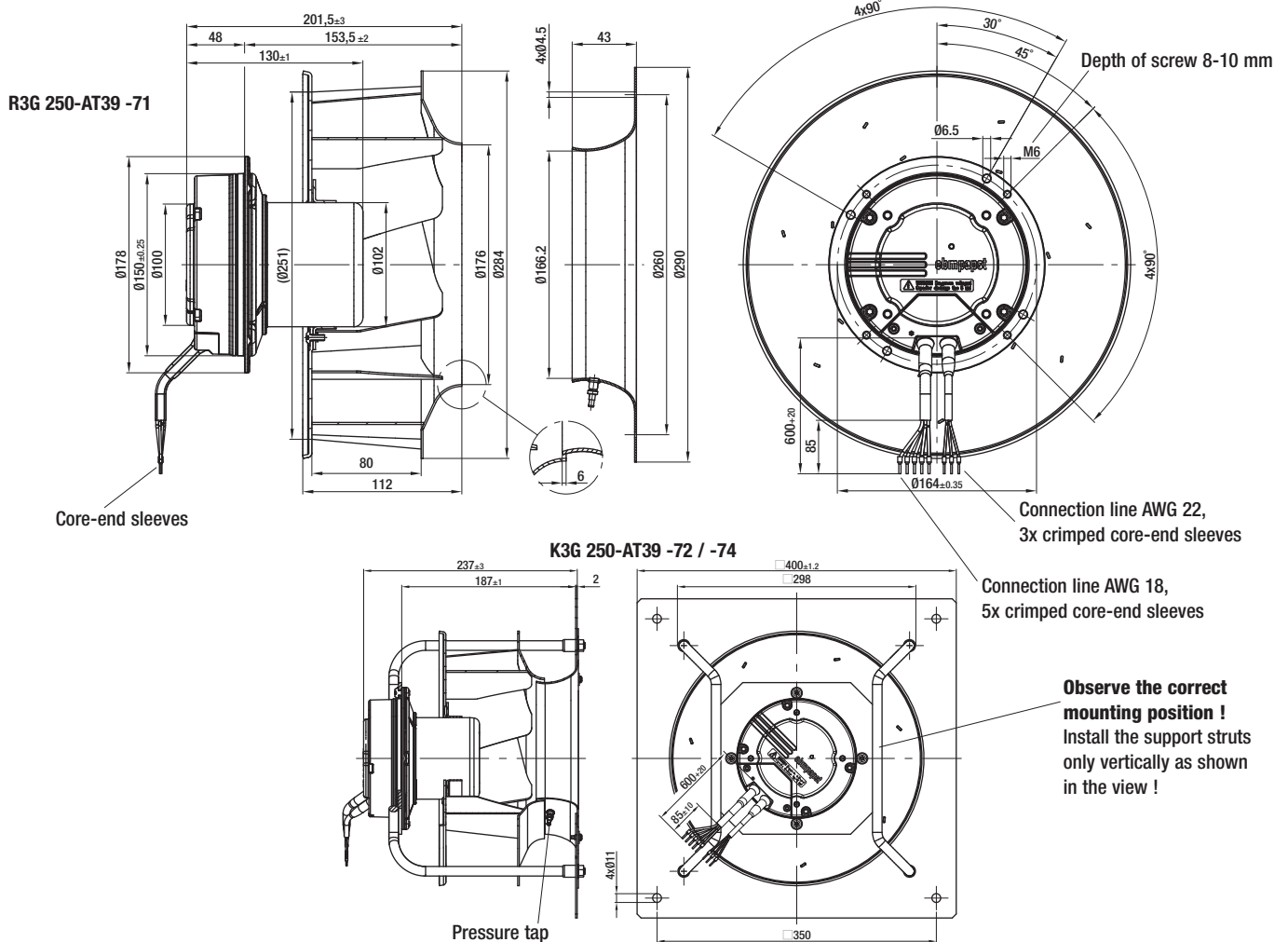
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 250-AT39 -71	4,4	25075-2-4013	K3G 250-AT39 -72	8,7	K3G 250-AT39 -74	8,7

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 250



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet aluminium  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

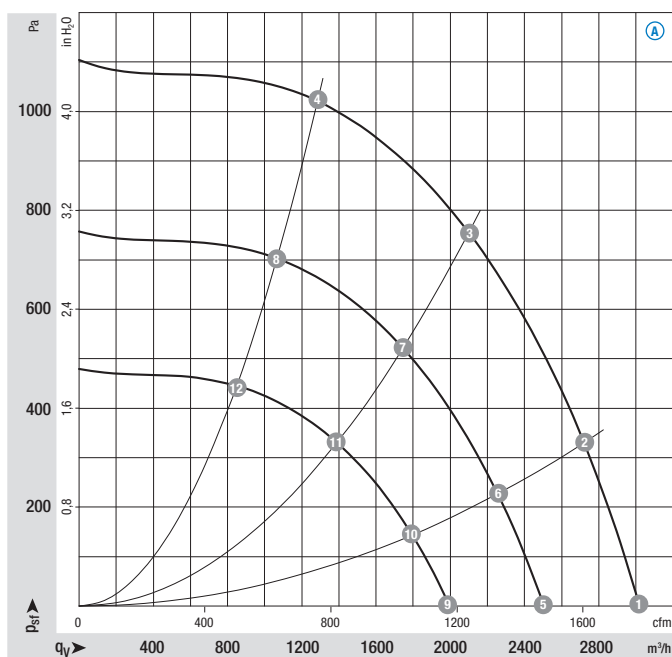
## Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm <sup>(1)</sup> rpm	Max. input power <sup>(1)</sup> W	Max. current draw <sup>(1)</sup> A	Perm. amb. temp. °C	Electr. connection p. 63
*3G 250	M3G 084-FA	A	1~ 200-277	50/60	3450	700	3,00	-25..+40	L7)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{pA}$  as per ISO 13347,  $L_{pA}$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{pA}$ dB(A)
A 1	3450	469	2,07	85
A 2	3450	591	2,64	82
A 3	3450	700	3,00	78
A 4	3450	661	2,95	81
A 5	2890	268	1,18	81
A 6	2890	337	1,51	78
A 7	2890	401	1,79	74
A 8	2890	378	1,69	77
A 9	2300	135	0,60	76
A 10	2300	170	0,76	73
A 11	2300	202	0,90	69
A 12	2300	190	0,85	72

- **Technical features:**
  - PFC (active)
  - Integrated PID controller
  - Control input 0-10 VDC / PWM
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Alarm relay
  - Line undervoltage detection
  - Motor current limitation
  - Over-temperature protected electronics / motor
  - Locked-rotor protection
  - Soft start
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Masse centrifugal fan



Inlet nozzle with one pressure tap



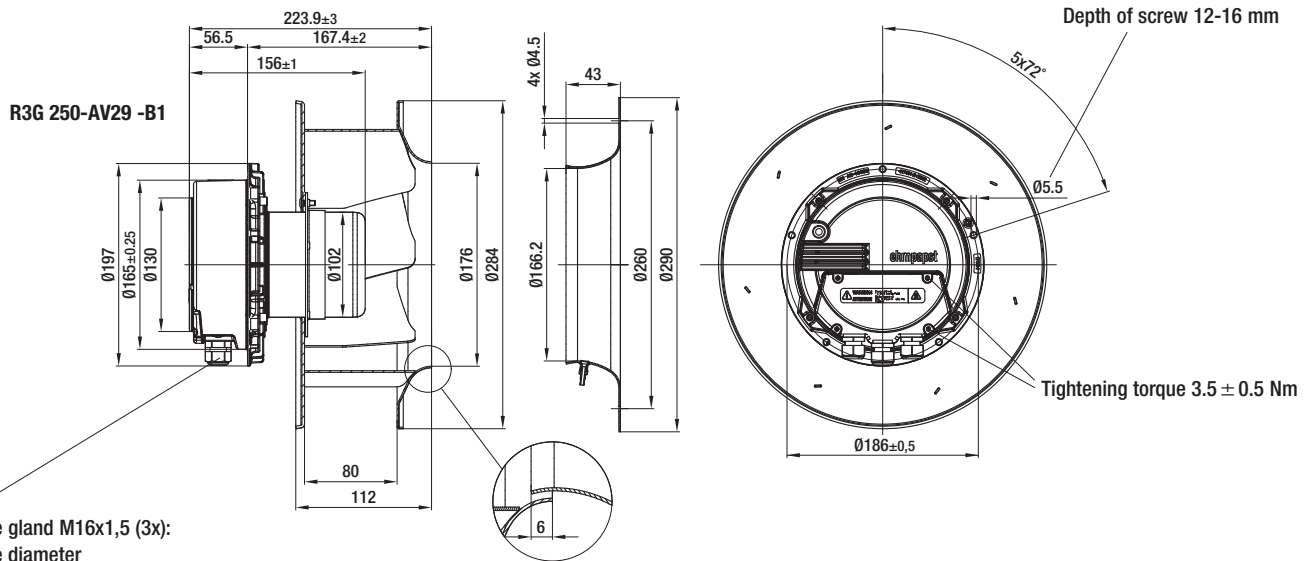
Mass of centrifugal module with support bracket



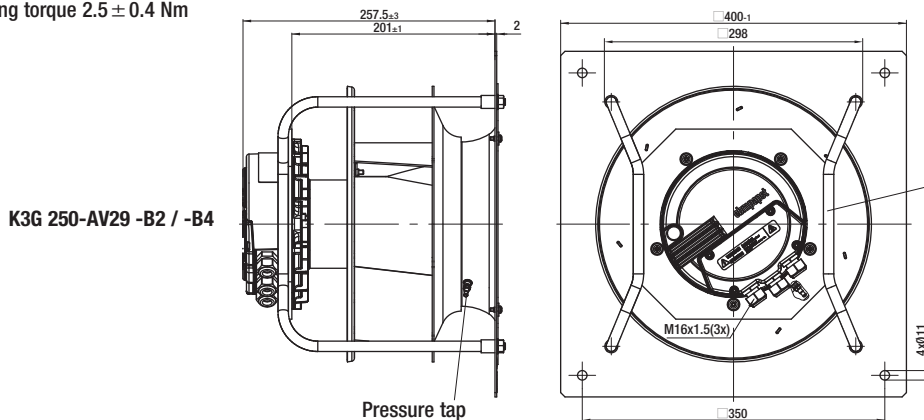
Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 250-AV29 -B1	5,6	25075-2-4013	K3G 250-AV29 -B2	10,1	K3G 250-AV29 -B4	10,1

(2) Centrifugal module with higher protection against corrosion



Cable gland M16x1,5 (3x):  
Cable diameter  
min. 4 mm, max. 10 mm,  
tightening torque 2.5  $\pm$  0.4 Nm



**Observe the correct mounting position !**  
Install the support struts only vertically as shown in the view !

# EC centrifugal fan and modules

backward curved, Ø 280



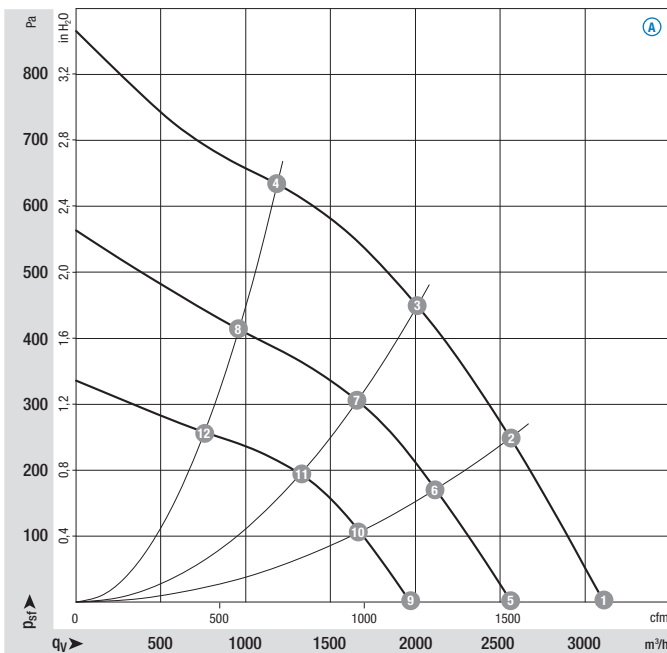
- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet aluminium  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 62	
*3G 280	M3G 084-FA	Ⓐ	1~ 200-277	50/60	2400	415	2,70	-25..+40	K1)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{wA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{wA}$ dB(A)
Ⓐ 1	2530	335	2,19	80
Ⓐ 2	2415	392	2,57	75
Ⓐ 3	2400	415	2,70	71
Ⓐ 4	2405	405	2,66	75
Ⓐ 5	2040	171	1,17	74
Ⓐ 6	1990	216	1,45	69
Ⓐ 7	1965	237	1,58	67
Ⓐ 8	2010	215	1,45	70
Ⓐ 9	1570	85	0,63	67
Ⓐ 10	1575	111	0,79	63
Ⓐ 11	1560	122	0,86	62
Ⓐ 12	1580	106	0,76	64

- **Technical features:**
  - PFC (passive)
  - Control input 0-10 VDC / PWM
  - Output 10 VDC max. 1,1 mA
  - Alarm relay
  - Over-temperature protected electronics / motor
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Cable exit:** Variable
- **Protection class:** I
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** UL, CSA; VDE, CCC, GOST are applied for



Masse centrifugal fan



Inlet nozzle with one pressure tap



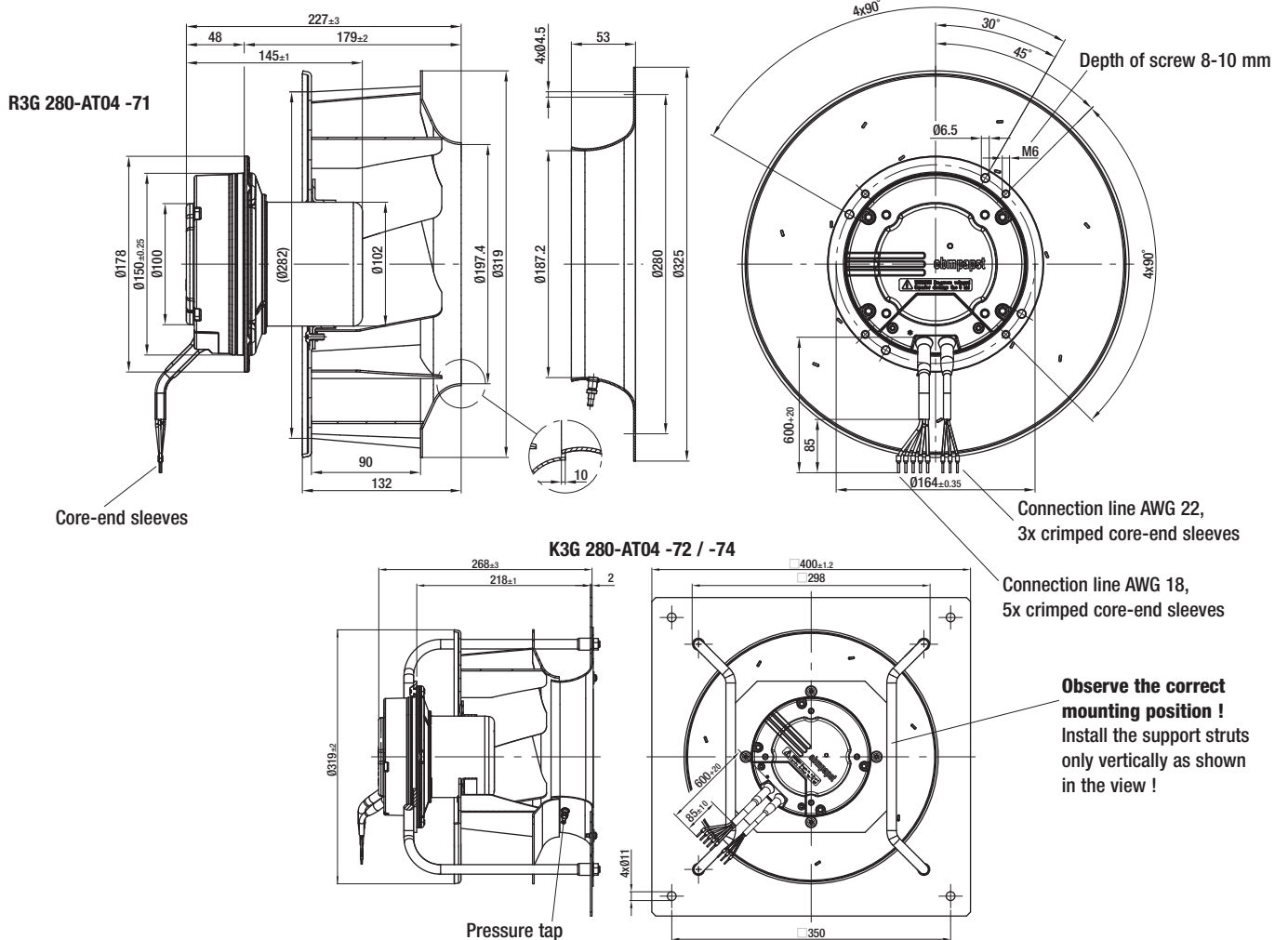
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 280-AT04 -71	5,4	28075-2-4013	K3G 280-AT04 -72	9,8	K3G 280-AT04 -74	9,8

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 280



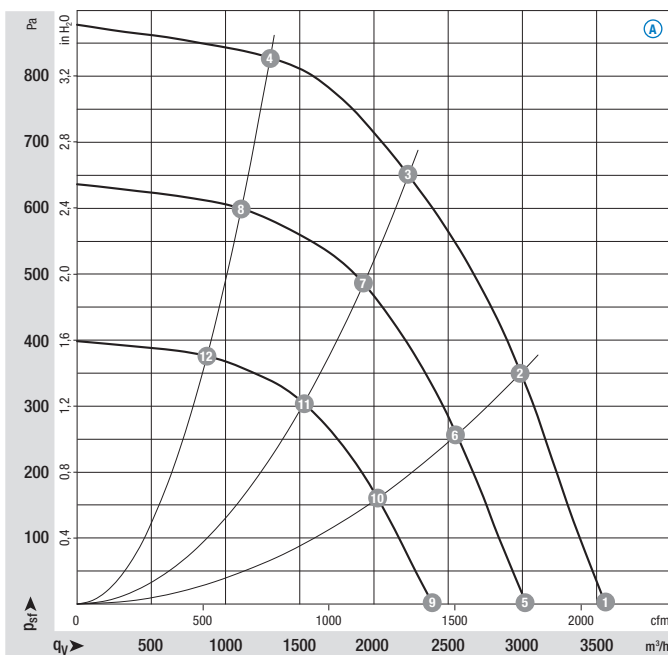
- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet aluminium  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 63	
*3G 280	M3G 084-GF	Ⓐ	1~ 200-277	50/60	2800	715	3,10	-25..+40	L7)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels: L<sub>WA</sub> as per ISO 13347, L<sub>PA</sub> measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	P <sub>e</sub> W	I A	L <sub>WA</sub> dB(A)
Ⓐ 1	2800	479	2,11	83
Ⓐ 2	2800	655	2,88	79
Ⓐ 3	2800	715	3,10	76
Ⓐ 4	2800	650	2,85	82
Ⓐ 5	2400	294	1,30	79
Ⓐ 6	2400	410	1,80	75
Ⓐ 7	2400	471	2,06	73
Ⓐ 8	2400	401	1,76	78
Ⓐ 9	1900	146	0,65	74
Ⓐ 10	1900	203	0,89	70
Ⓐ 11	1900	234	1,02	68
Ⓐ 12	1900	199	0,87	73



- **Technical features:**
  - PFC (active)
  - Integrated PID controller
  - Control input 0-10 VDC / PWM
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Alarm relay
  - Line undervoltage detection
  - Motor current limitation
  - Over-temperature protected electronics / motor
  - Locked-rotor protection
  - Soft start
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Masse centrifugal fan



Inlet nozzle with one pressure tap



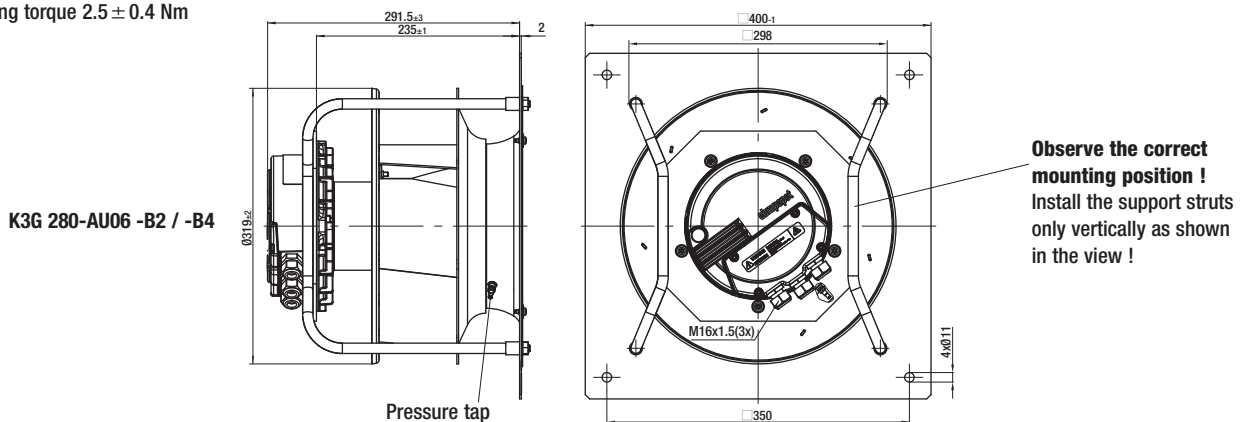
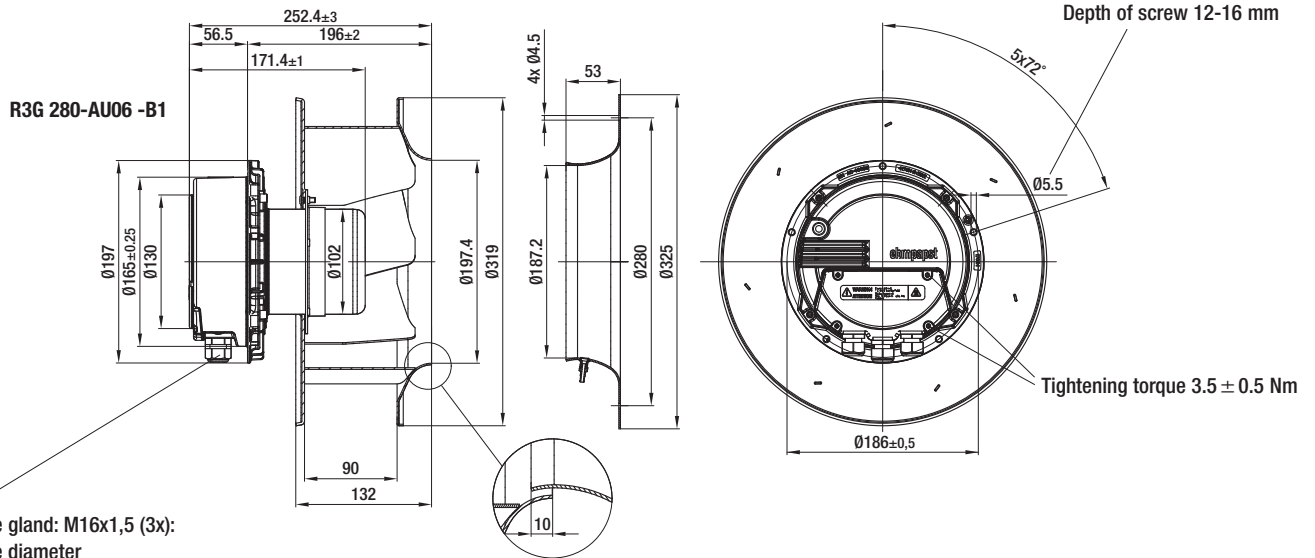
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 280-AU06 -B1	6,8	28075-2-4013	K3G 280-AU06 -B2	11,4	K3G 280-AU06 -B4	11,4

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 280



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet aluminium  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

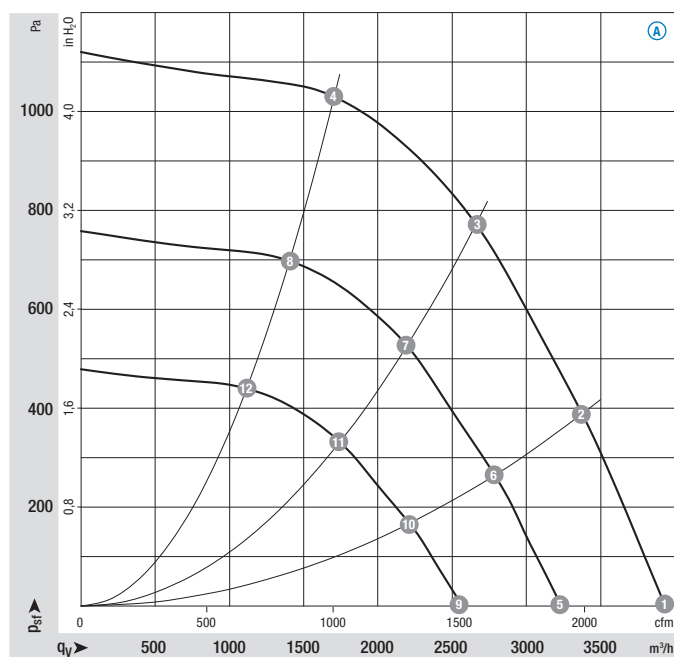
## Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm <sup>(1)</sup> rpm	Max. input power <sup>(1)</sup> W	Max. current draw <sup>(1)</sup> A	Perm. amb. temp. °C	Electr. connection p. 63
*3G 280	M3G 084-GF	A	3~ 380-480	50/60	3100	1000	1,60	-25..+60	L6)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{pA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{pA}$ dB(A)
A 1	3100	645	1,04	86
A 2	3100	852	1,35	83
A 3	3100	1000	1,60	80
A 4	3100	921	1,46	83
A 5	2575	358	0,58	82
A 6	2575	482	0,76	79
A 7	2575	562	0,89	76
A 8	2575	514	0,82	79
A 9	2045	180	0,29	77
A 10	2045	242	0,38	74
A 11	2045	282	0,45	71
A 12	2045	257	0,41	74

- **Technical features:**
  - PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC / PWM
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Alarm relay
  - Line undervoltage / phase failure detection
  - Motor current limitation
  - Over-temperature protected electronics / motor
  - Locked-rotor protection
  - Soft start
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Masse centrifugal fan



Inlet nozzle with one pressure tap



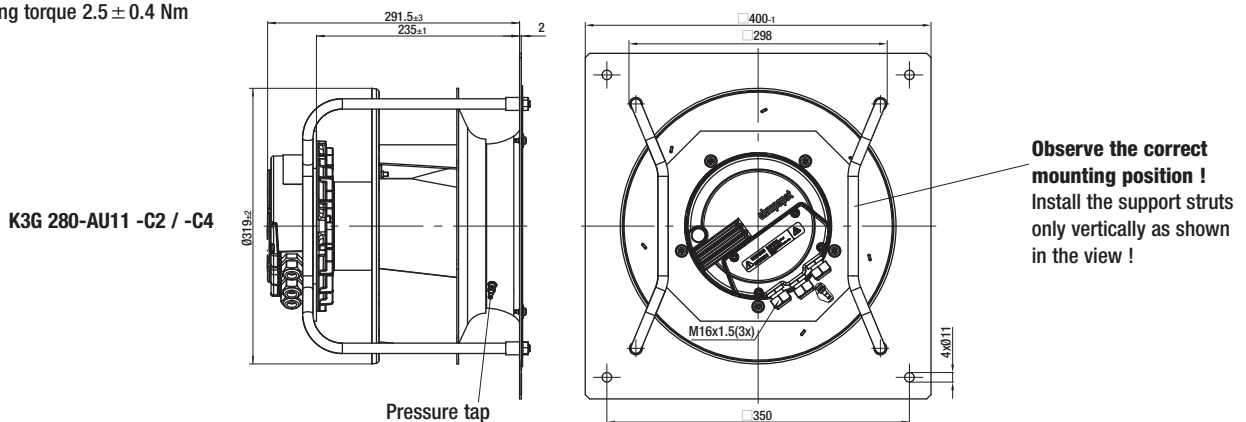
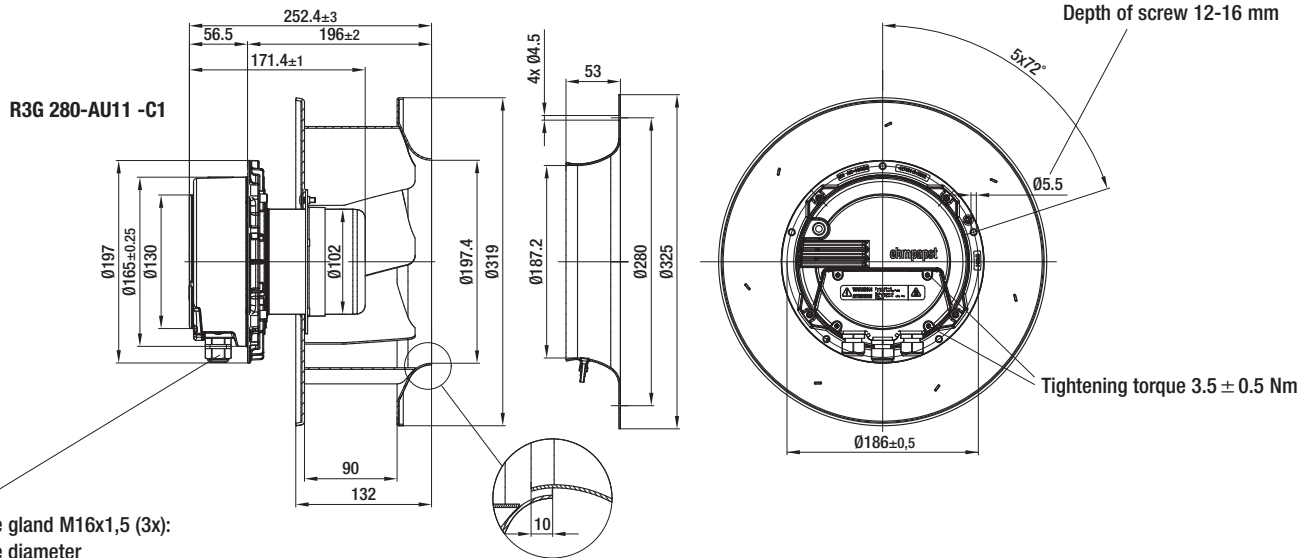
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 280-AU11 -C1	7,1	28075-2-4013	K3G 280-AU11 -C2	11,7	K3G 280-AU11 -C4	11,7

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 310



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

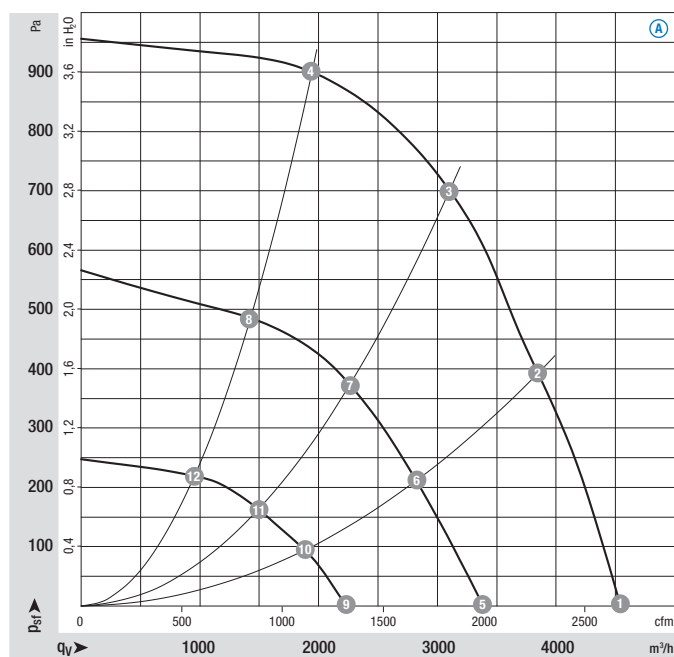
## Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm <sup>(1)</sup> rpm	Max. input power <sup>(1)</sup> W	Max. current draw <sup>(1)</sup> A	Perm. amb. temp. °C	Electr. connection p. 63
<b>*3G 310</b>	M3G 112-EA	<b>A</b>	3~ 380-480	50/60	2580	1000	1,60	-25..+55	L6)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{pA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{pA}$ dB(A)
<b>A 1</b>	2580	669	1,17	88
<b>A 2</b>	2580	862	1,46	81
<b>A 3</b>	2580	1000	1,60	77
<b>A 4</b>	2580	907	1,53	79
<b>A 5</b>	1930	288	0,57	80
<b>A 6</b>	1910	348	0,69	74
<b>A 7</b>	1900	396	0,77	70
<b>A 8</b>	1905	360	0,72	71
<b>A 9</b>	1305	123	0,28	72
<b>A 10</b>	1305	144	0,33	67
<b>A 11</b>	1305	151	0,34	62
<b>A 12</b>	1300	151	0,34	62

- **Technical features:**
  - PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC / PWM
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Alarm relay
  - Line undervoltage / phase failure detection
  - Motor current limitation
  - Over-temperature protected electronics / motor
  - Locked-rotor protection
  - Soft start
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Masse centrifugal fan



Inlet nozzle with one pressure tap



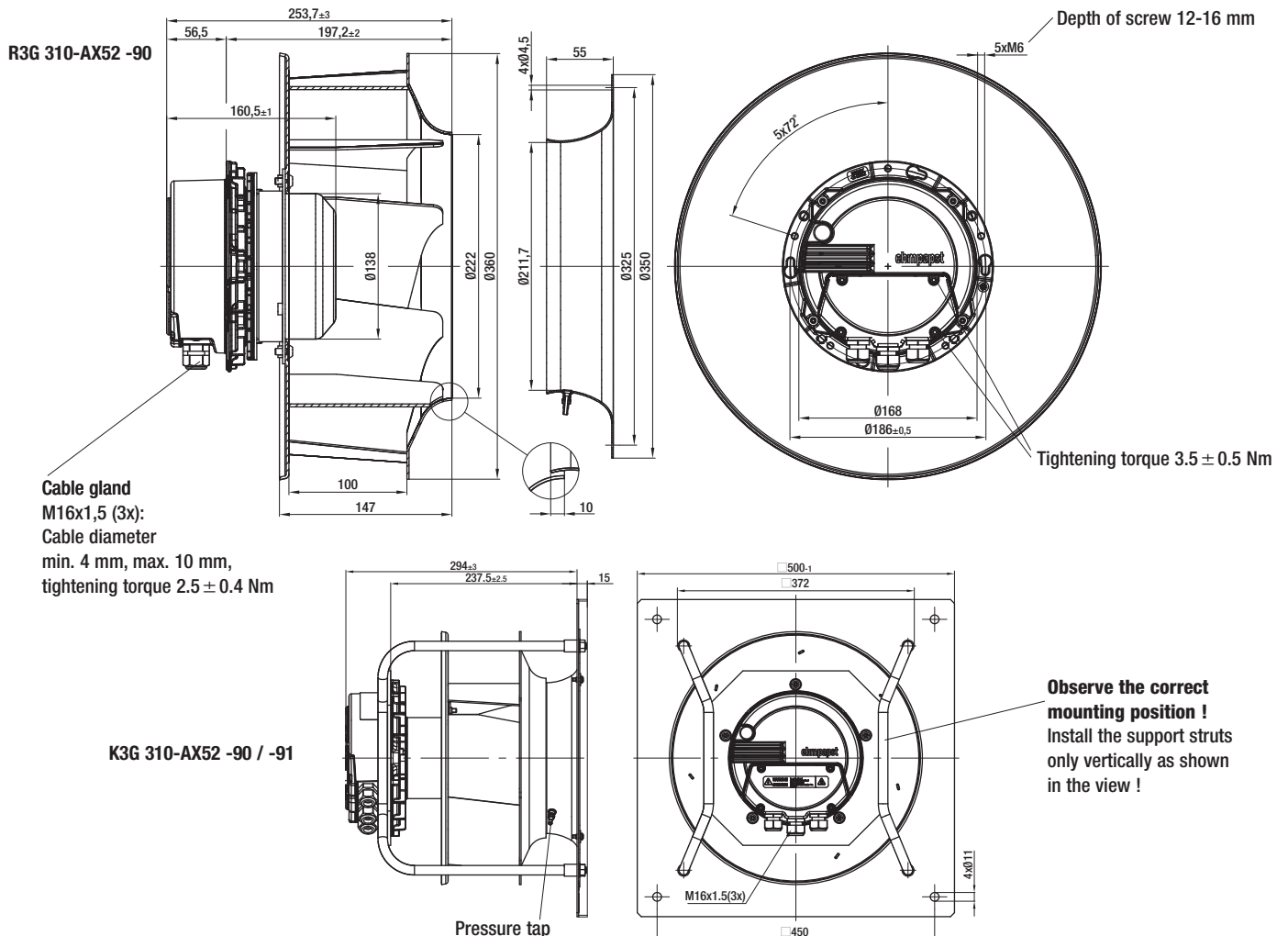
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

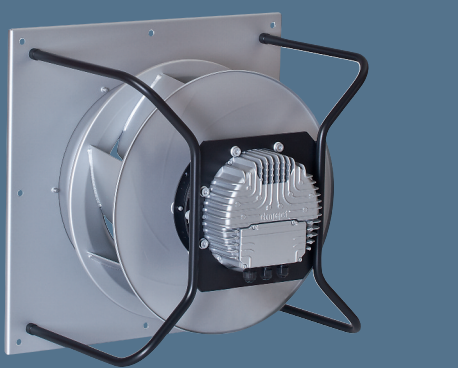
Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 310-AX52 -90	8,8	31575-2-4013	K3G 310-AX52 -90	16,7	K3G 310-AX52 -91	16,7

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 310



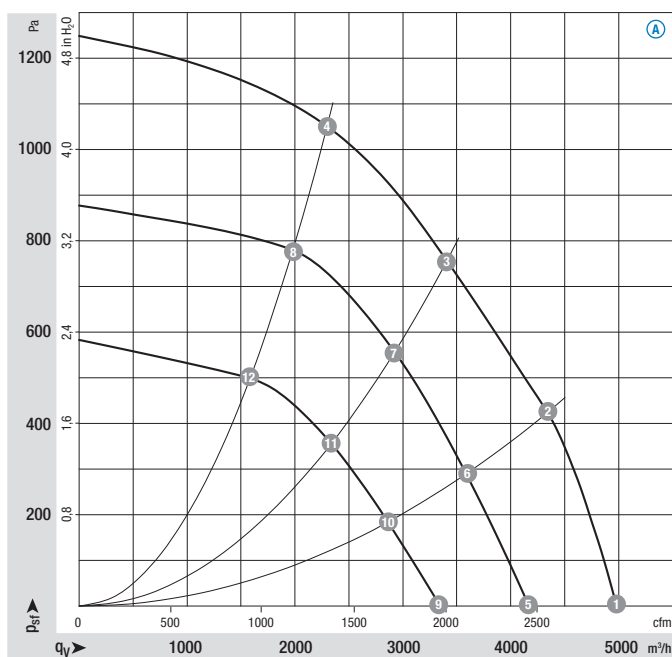
- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 65	
*3G 310	M3G 112-EA	Ⓐ	1~ 200-277	50/60	2850	1270	5,60	-25..+60	L9)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{wA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{wA}$ dB(A)
Ⓐ 1	2930	946	4,14	88
Ⓐ 2	2895	1147	5,01	83
Ⓐ 3	2850	1270	5,60	79
Ⓐ 4	2850	1237	5,41	83
Ⓐ 5	2430	529	2,34	84
Ⓐ 6	2430	663	2,91	78
Ⓐ 7	2430	743	3,26	77
Ⓐ 8	2430	751	3,29	78
Ⓐ 9	1955	299	1,36	78
Ⓐ 10	1955	360	1,61	73
Ⓐ 11	1955	398	1,77	72
Ⓐ 12	1955	400	1,78	73

- **Technical features:**
  - PFC (active)
  - Integrated PID controller
  - Control input 0-10 VDC / PWM
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Alarm relay
  - Line undervoltage detection
  - Motor current limitation
  - Over-temperature protected electronics / motor
  - Locked-rotor protection
  - Soft start
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



Inlet nozzle with one pressure tap



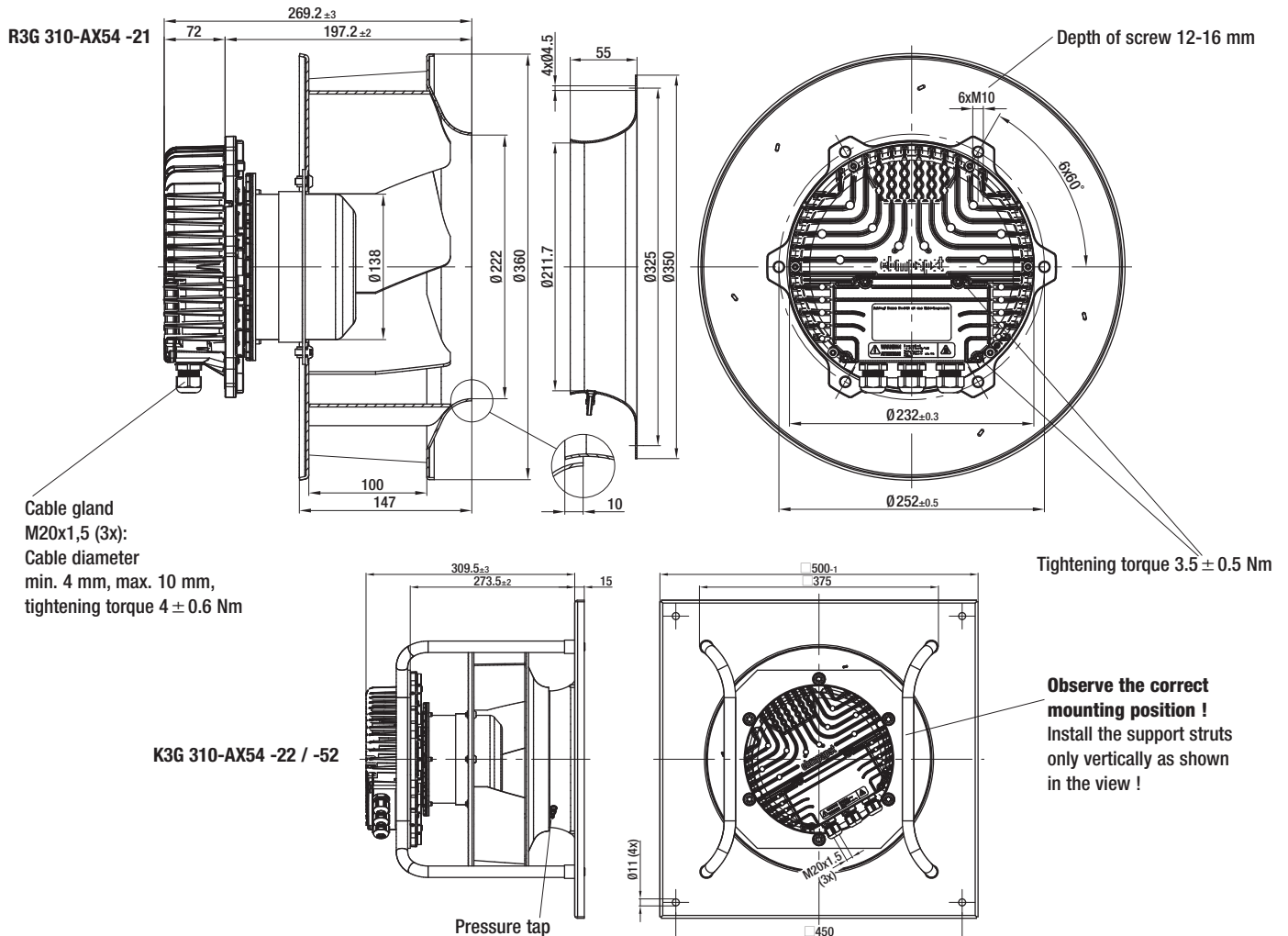
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 310-AX54 -21	11,0	31575-2-4013	K3G 310-AX54 -22	19,4	K3G 310-AX54 -52	19,4

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 310



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

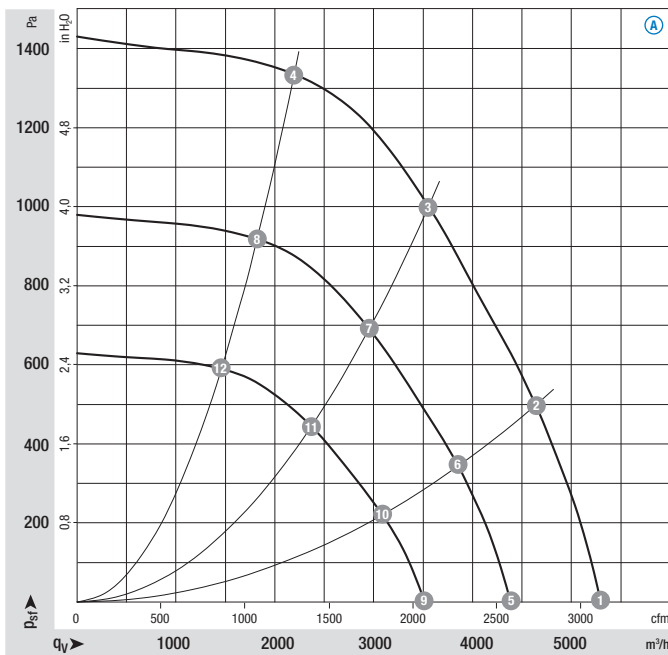
## Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm <sup>(1)</sup> rpm	Max. input power <sup>(1)</sup> W	Max. current draw <sup>(1)</sup> A	Perm. amb. temp. °C	Electr. connection p. 64
<b>*3G 310</b>	M3G 112-GA	<b>A</b>	3~ 380-480	50/60	3140	1650	2,50	-25..+60	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels: L<sub>w</sub>A as per ISO 13347, L<sub>p</sub>A measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	P <sub>e</sub> W	I A	L <sub>w</sub> A dB(A)
<b>A 1</b>	3140	1158	1,79	90
<b>A 2</b>	3140	1440	2,21	86
<b>A 3</b>	3140	1650	2,50	83
<b>A 4</b>	3140	1559	2,39	87
<b>A 5</b>	2620	658	1,02	85
<b>A 6</b>	2620	824	1,26	82
<b>A 7</b>	2620	942	1,44	79
<b>A 8</b>	2620	889	1,36	83
<b>A 9</b>	2100	339	0,52	81
<b>A 10</b>	2100	425	0,65	77
<b>A 11</b>	2100	485	0,74	74
<b>A 12</b>	2100	458	0,70	78



- **Technical features:**
  - PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC bzw. 4-20 mA
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Motor current limitation, Alarm relay
  - Line undervoltage / phase failure detection
  - Over-temperature protected electronics / motor
  - Locked-rotor protection, Soft start
  - Digital inputs for day/night switch, enabling, cooling / heating
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Masse centrifugal fan



Inlet nozzle with one pressure tap



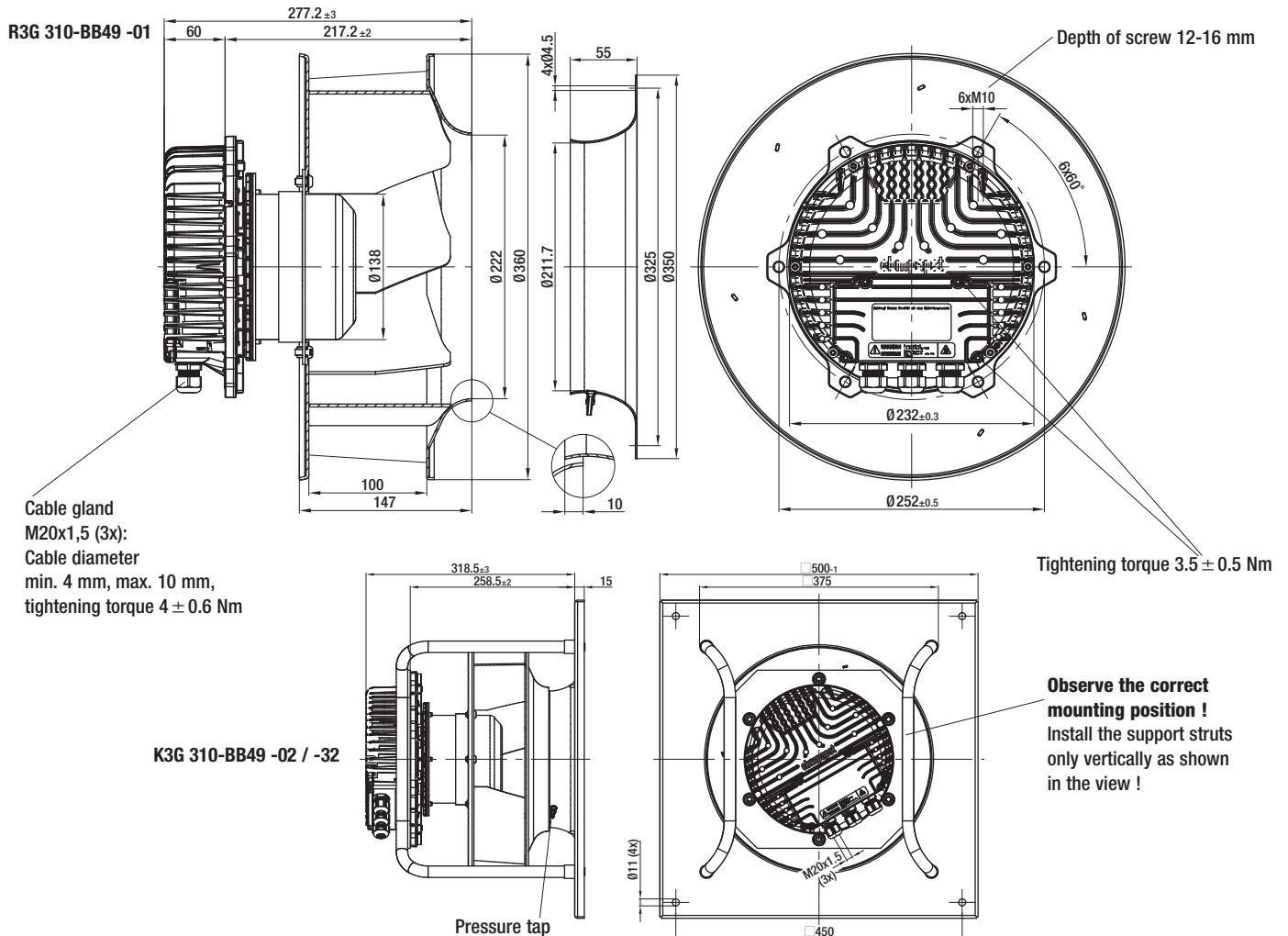
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

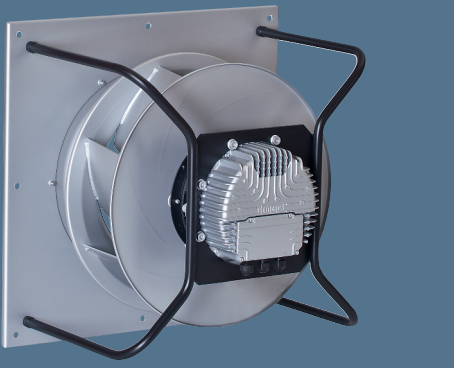
Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 310-BB49 -01	12,6	31575-2-4013	K3G 310-BB49 -02	21,0	K3G 310-BB49 -32	21,0

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 310



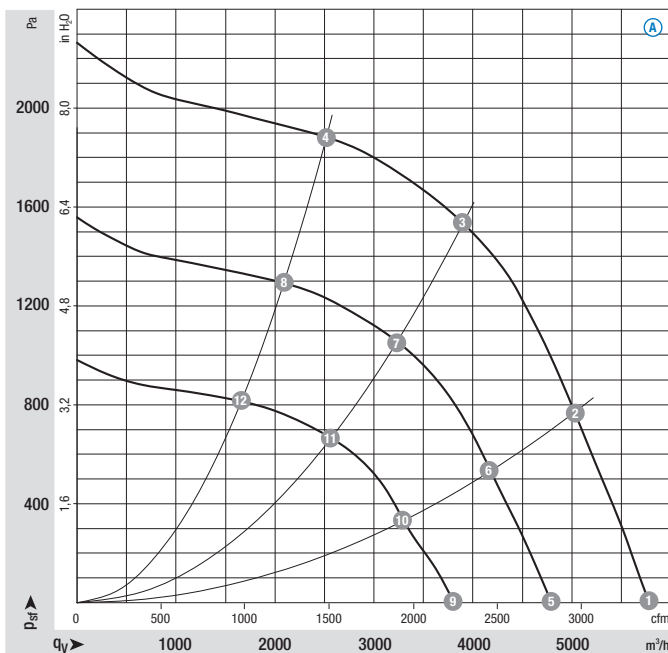
- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 64	
*3G 310	M3G 112-IA	(A) 3~	380-480	50/60	4100	2915	4,50	-25..+40	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels: L<sub>WA</sub> as per ISO 13347, L<sub>pA</sub> measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

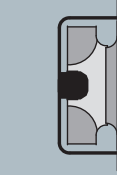
For detailed information see page 66 ff.

	n rpm	P <sub>e</sub> W	I A	L <sub>WA</sub> dB(A)
(A) 1	4100	1976	3,03	97
(A) 2	4100	2488	3,77	91
(A) 3	4100	2915	4,50	89
(A) 4	4100	2750	4,19	93
(A) 5	3400	1127	1,73	93
(A) 6	3400	1428	2,17	87
(A) 7	3400	1659	2,53	85
(A) 8	3400	1566	2,39	89
(A) 9	2700	564	0,87	88
(A) 10	2700	715	1,08	82
(A) 11	2700	831	1,27	80
(A) 12	2700	784	1,19	84

- **Technical features:**
  - PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC bzw. 4-20 mA
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Motor current limitation, Alarm relay
  - Line undervoltage / phase failure detection
  - Over-temperature protected electronics / motor
  - Locked-rotor protection, Soft start
  - Digital inputs for day/night switch, enabling, cooling / heating
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



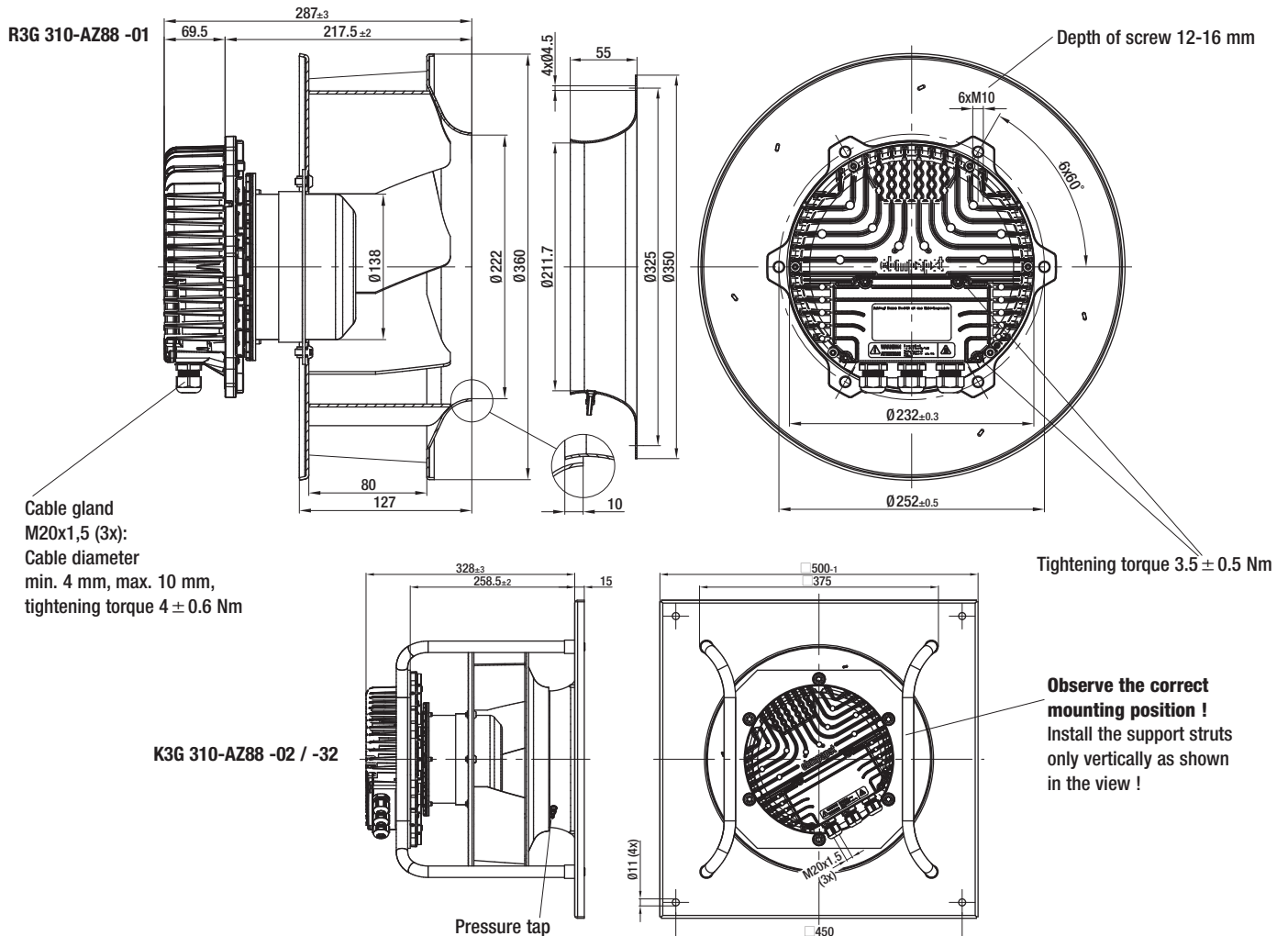
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 310-AZ88 -01	15,0	31575-1-4013	K3G 310-AZ88 -02	24,2	K3G 310-AZ88 -32	24,2

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 355



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

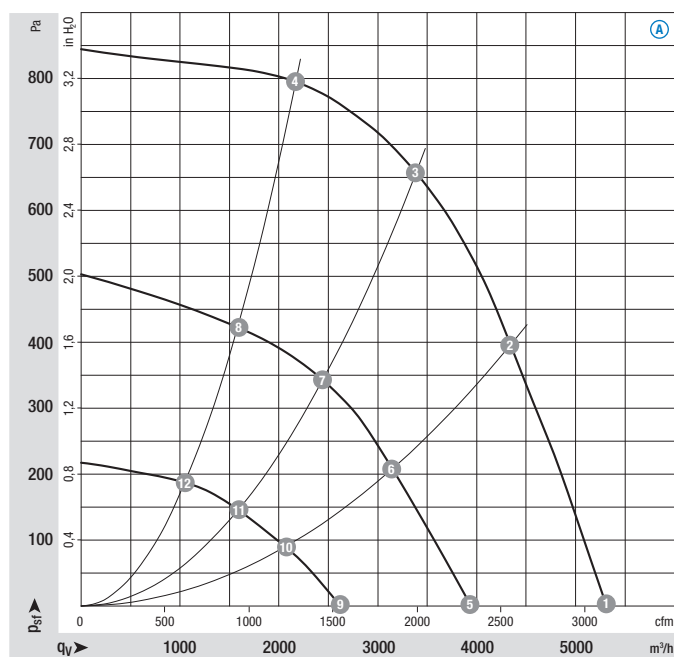
## Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm <sup>(1)</sup> rpm	Max. input power <sup>(1)</sup> W	Max. current draw <sup>(1)</sup> A	Perm. amb. temp. °C	Electr. connection p. 63
<b>*3G 355</b>	M3G 112-EA	<b>A</b>	3~ 380-480	50/60	2140	1000	1,70	-25..+60	L6)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{wA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{wA}$ dB(A)
<b>A 1</b>	2140	656	1,14	87
<b>A 2</b>	2140	893	1,50	77
<b>A 3</b>	2140	1000	1,70	75
<b>A 4</b>	2140	918	1,54	78
<b>A 5</b>	1610	286	0,57	79
<b>A 6</b>	1595	350	0,68	70
<b>A 7</b>	1580	387	0,74	69
<b>A 8</b>	1585	366	0,70	70
<b>A 9</b>	1080	113	0,28	71
<b>A 10</b>	1065	133	0,31	64
<b>A 11</b>	1065	143	0,33	60
<b>A 12</b>	1060	135	0,32	61

- **Technical features:**
  - PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC / PWM
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Alarm relay
  - Line undervoltage / phase failure detection
  - Motor current limitation
  - Over-temperature protected electronics / motor
  - Locked-rotor protection
  - Soft start
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Masse centrifugal fan



Inlet nozzle with one pressure tap



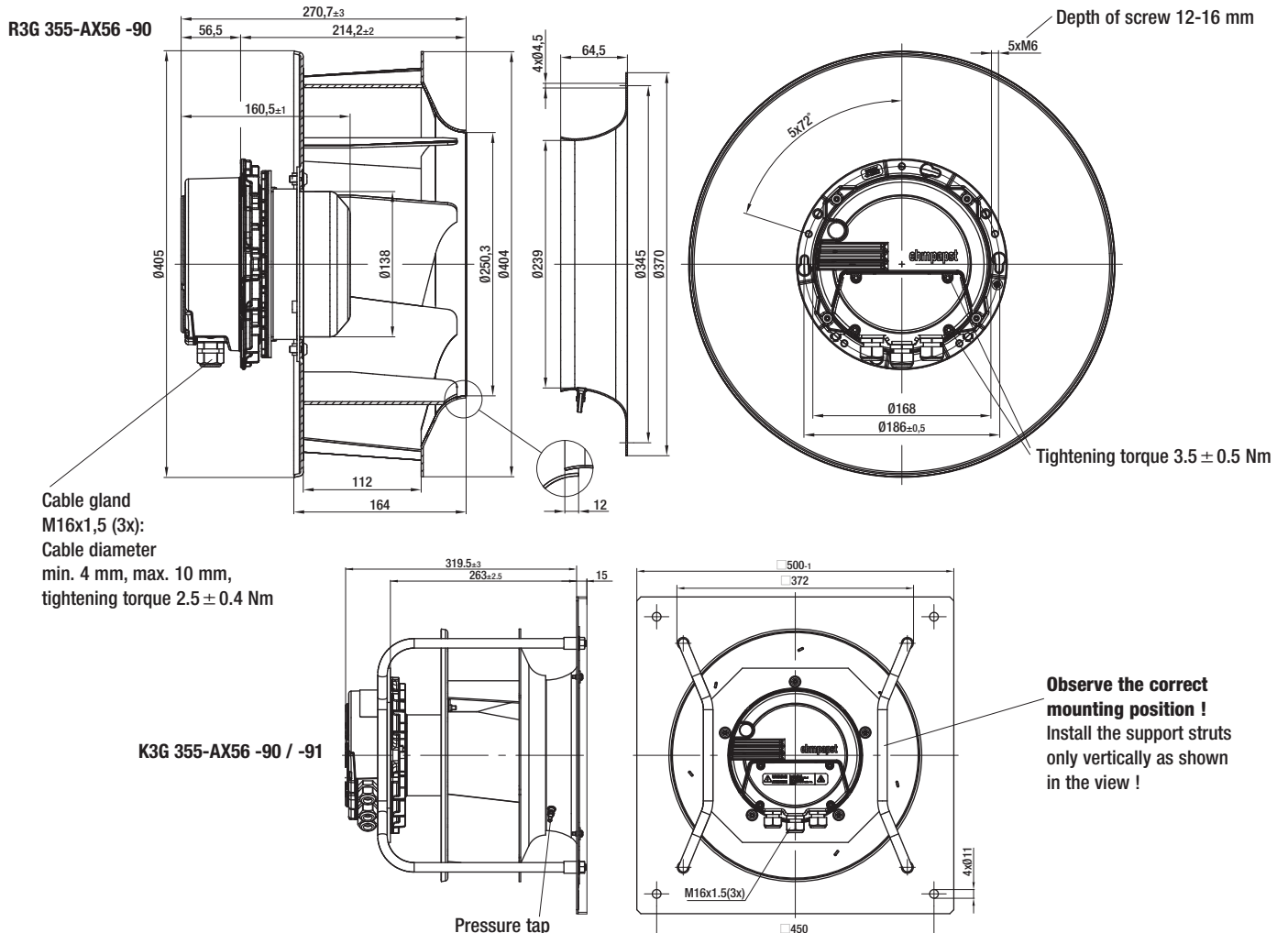
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 355-AX56 -90	9,4	35675-2-4013	K3G 355-AX56 -90	17,4	K3G 355-AX56 -91	17,4

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 355



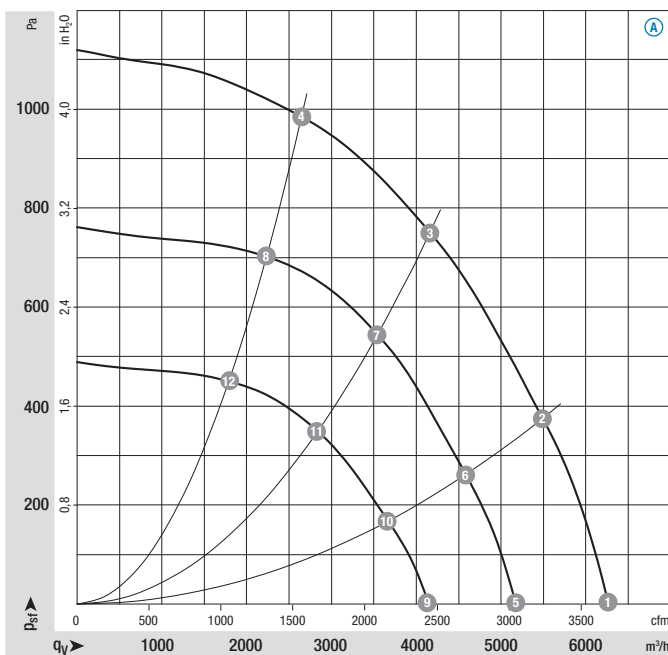
- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 65	
*3G 355	M3G 112-GA	(A) 1~	200-277	50/60	2450	1400	6,00	-25..+50	L9)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{pA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	P <sub>e</sub> W	I A	L <sub>wA</sub> dB(A)
(A) 1	2450	998	4,33	86
(A) 2	2440	1232	5,35	82
(A) 3	2450	1400	6,00	79
(A) 4	2410	1344	5,84	82
(A) 5	2035	562	2,44	82
(A) 6	2035	715	3,11	78
(A) 7	2035	855	3,72	76
(A) 8	2035	810	3,52	78
(A) 9	1630	289	1,25	77
(A) 10	1630	368	1,60	73
(A) 11	1630	440	1,91	71
(A) 12	1630	416	1,81	73

- **Technical features:**
  - PFC (active)
  - Integrated PID controller
  - Control input 0-10 VDC / PWM
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Alarm relay
  - Line undervoltage detection
  - Motor current limitation
  - Over-temperature protected electronics / motor
  - Locked-rotor protection
  - Soft start
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



Inlet nozzle with one pressure tap



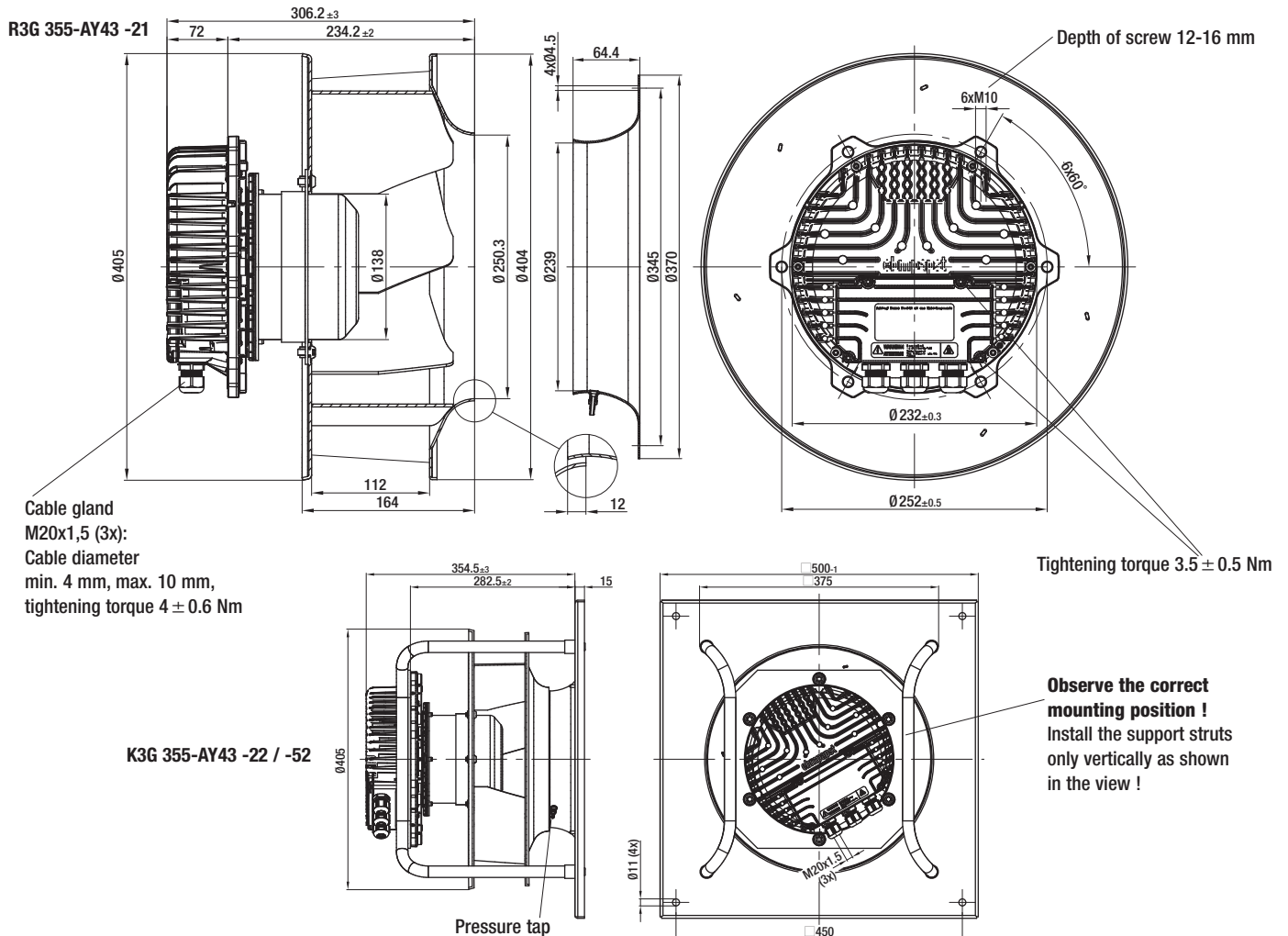
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

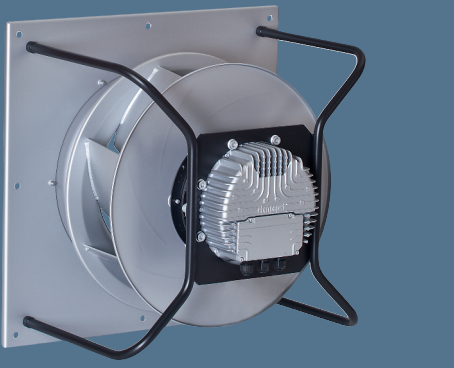
Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 355-AY43 -21	14,0	35675-2-4013	K3G 355-AY43 -22	22,4	K3G 355-AY43 -52	22,4

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 355



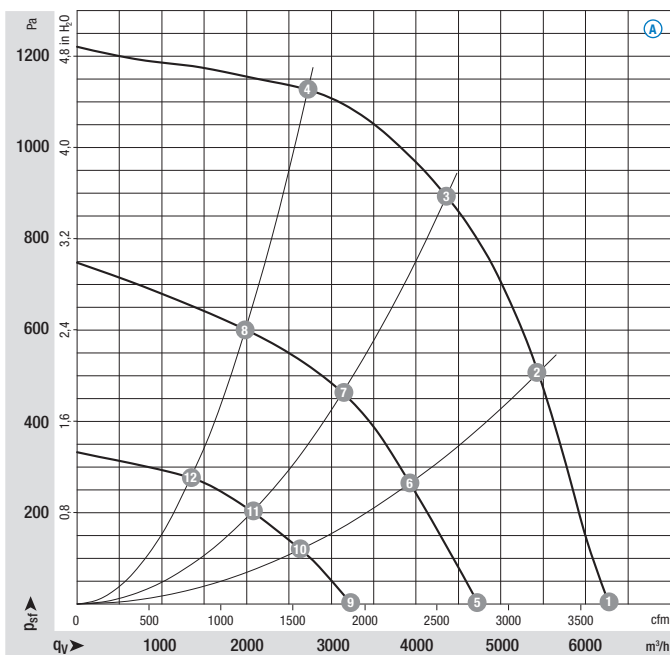
- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 64	
*3G 355	M3G 112-GA	Ⓐ 3~	380-480	50/60	2600	1700	2,60	-25..+40	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels: L<sub>wA</sub> as per ISO 13347, L<sub>pA</sub> measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	P <sub>e</sub> W	I A	L <sub>wA</sub> dB(A)
Ⓐ 1	2600	1140	1,74	92
Ⓐ 2	2600	1510	2,30	83
Ⓐ 3	2600	1700	2,60	79
Ⓐ 4	2600	1594	2,42	83
Ⓐ 5	1940	436	0,73	84
Ⓐ 6	1910	541	0,88	76
Ⓐ 7	1885	533	0,95	73
Ⓐ 8	1905	558	0,91	76
Ⓐ 9	1330	194	0,40	76
Ⓐ 10	1315	226	0,45	70
Ⓐ 11	1305	239	0,47	66
Ⓐ 12	1305	236	0,46	66



– **Technical features:**

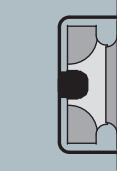
- PFC (passive)
- Integrated PID controller
- Control input 0-10 VDC bzw. 4-20 mA
- Input for sensor 0-10 V or 4-20 mA
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for

- Slave output 0-10 V max. 3 mA
- Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
- Output 10 VDC ( $+10\%$ ) max. 10 mA
- RS485 MODBUS
- Motor current limitation, Alarm relay

- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Locked-rotor protection, Soft start
- Digital inputs for day/night switch, enabling, cooling / heating



Mass of centrifugal fan



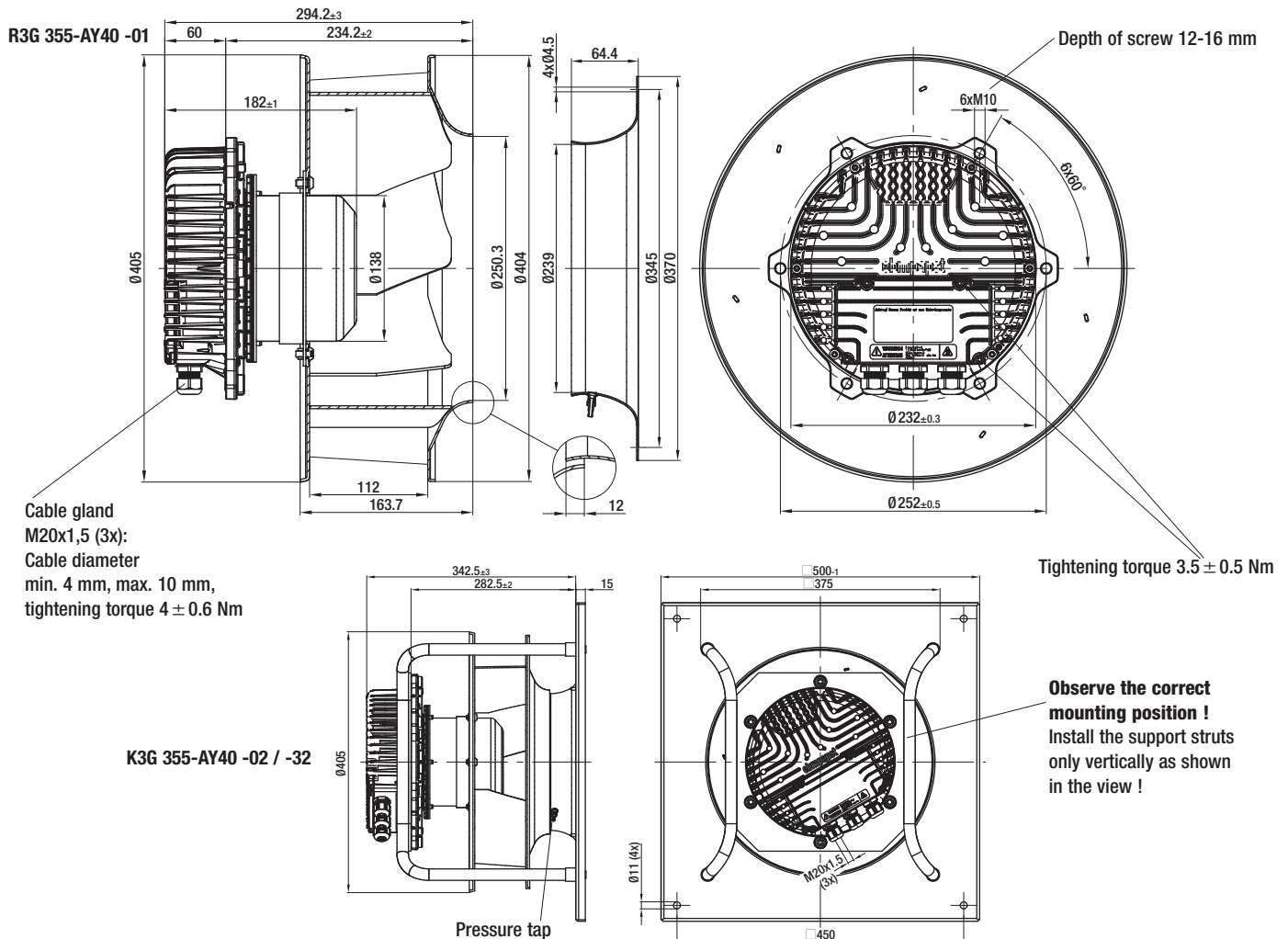
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

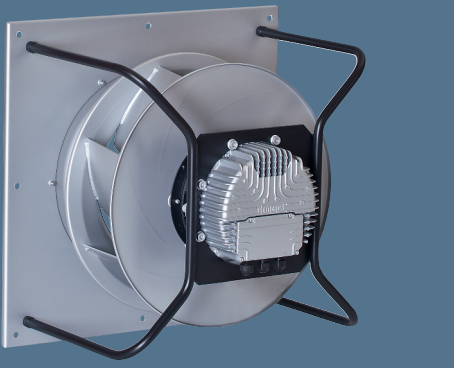
Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 355-AY40 -01	13,1	35675-2-4013	K3G 355-AY40 -02	23,4	K3G 355-AY40 -32	23,4

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 400



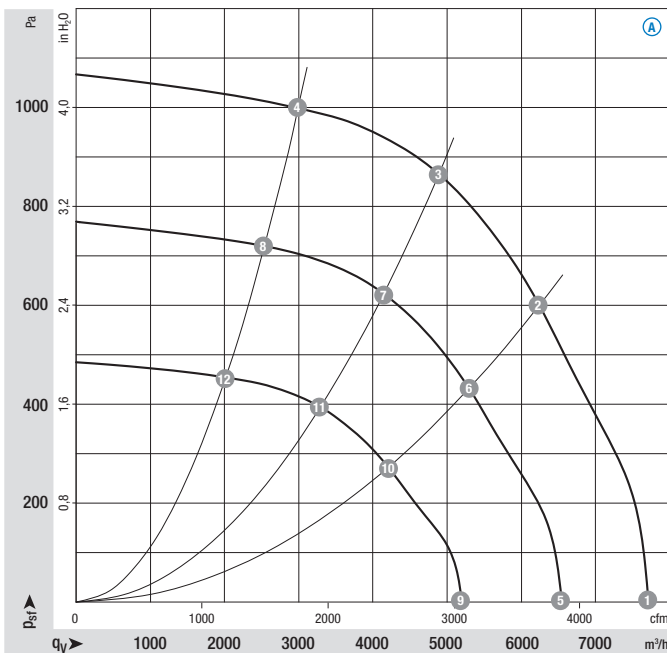
- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 64	
*3G 400	M3G 112-IA	Ⓐ 3~	380-480	50/60	2180	1850	2,90	-25..+50	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{wA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{wA}$ dB(A)
Ⓐ 1	2180	1178	1,81	89
Ⓐ 2	2180	1748	2,66	82
Ⓐ 3	2180	1850	2,90	81
Ⓐ 4	2180	1638	2,49	84
Ⓐ 5	1850	720	1,10	85
Ⓐ 6	1850	1063	1,62	78
Ⓐ 7	1850	1132	1,72	77
Ⓐ 8	1850	1001	1,52	80
Ⓐ 9	1470	361	0,55	80
Ⓐ 10	1470	533	0,81	73
Ⓐ 11	1470	568	0,86	72
Ⓐ 12	1470	502	0,76	75

- **Technical features:**
  - PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC bzw. 4-20 mA
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Motor current limitation, Alarm relay
  - Line undervoltage / phase failure detection
  - Over-temperature protected electronics / motor
  - Locked-rotor protection, Soft start
  - Digital inputs for day/night switch, enabling, cooling / heating
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Masse centrifugal fan



Inlet nozzle with one pressure tap



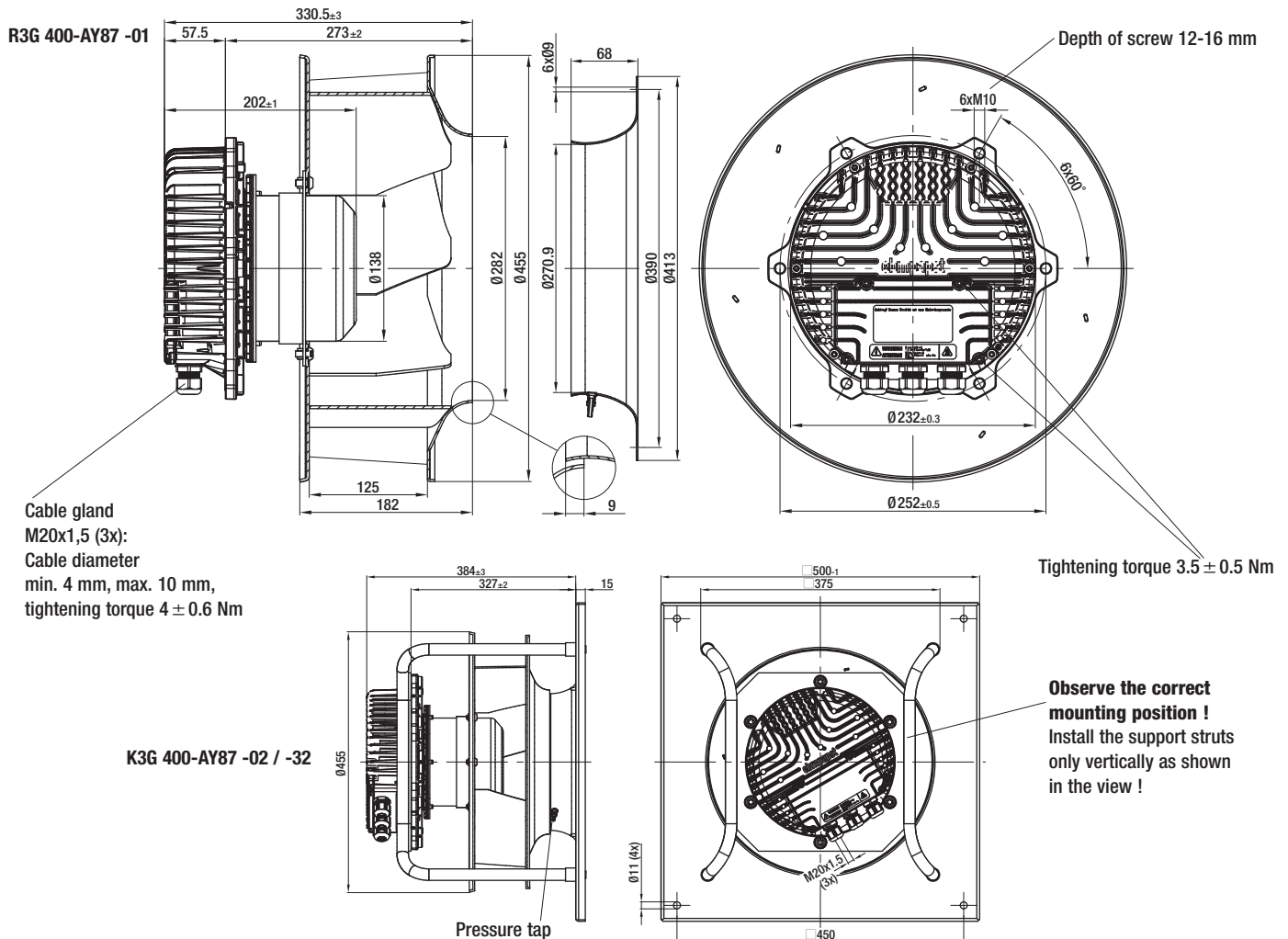
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

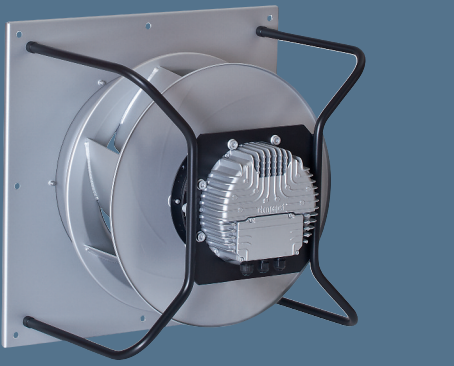
Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 400-AY87 -01	15,6	40075-2-4013	K3G 400-AY87 -02	26,0	K3G 400-AY87 -32	26,0

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 400



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

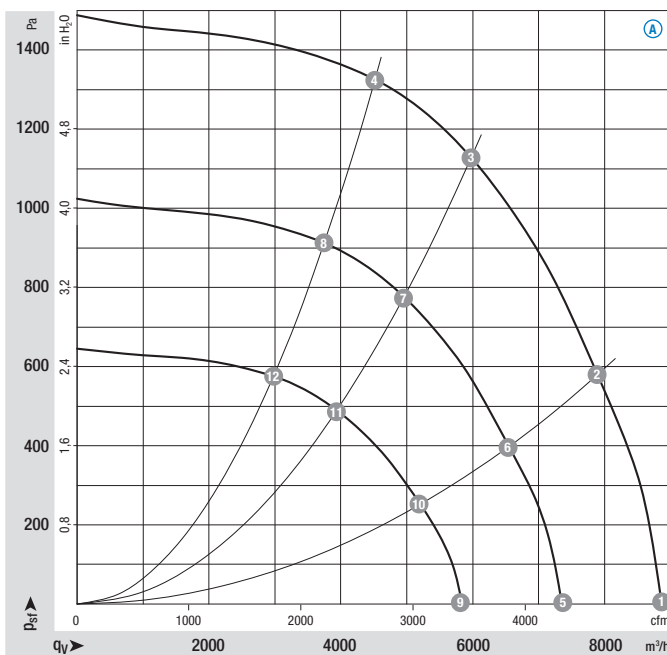
## Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
			VAC	Hz	rpm	W	A	°C	p. 64
*3G 400	M3G 150-FF	A	3~ 380-480	50/60	2550	3000	4,60	-25..+60	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{pA}$  as per ISO 13347,  $L_{pA}$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{pA}$ dB(A)
A 1	2550	1989	3,03	93
A 2	2550	2578	3,92	87
A 3	2550	3000	4,60	85
A 4	2550	2890	4,41	87
A 5	2115	1135	1,73	89
A 6	2115	1471	2,24	83
A 7	2115	1709	2,61	81
A 8	2115	1649	2,52	83
A 9	1680	569	0,87	84
A 10	1680	737	1,12	78
A 11	1680	857	1,31	76
A 12	1680	826	1,26	78

- **Technical features:**
  - PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC bzw. 4-20 mA
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Motor current limitation, Alarm relay
  - Line undervoltage / phase failure detection
  - Over-temperature protected electronics / motor
  - Locked-rotor protection, Soft start
  - Digital inputs for day/night switch, enabling, cooling / heating
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** UL, CSA, GOST



Masse centrifugal fan



Inlet nozzle with one pressure tap



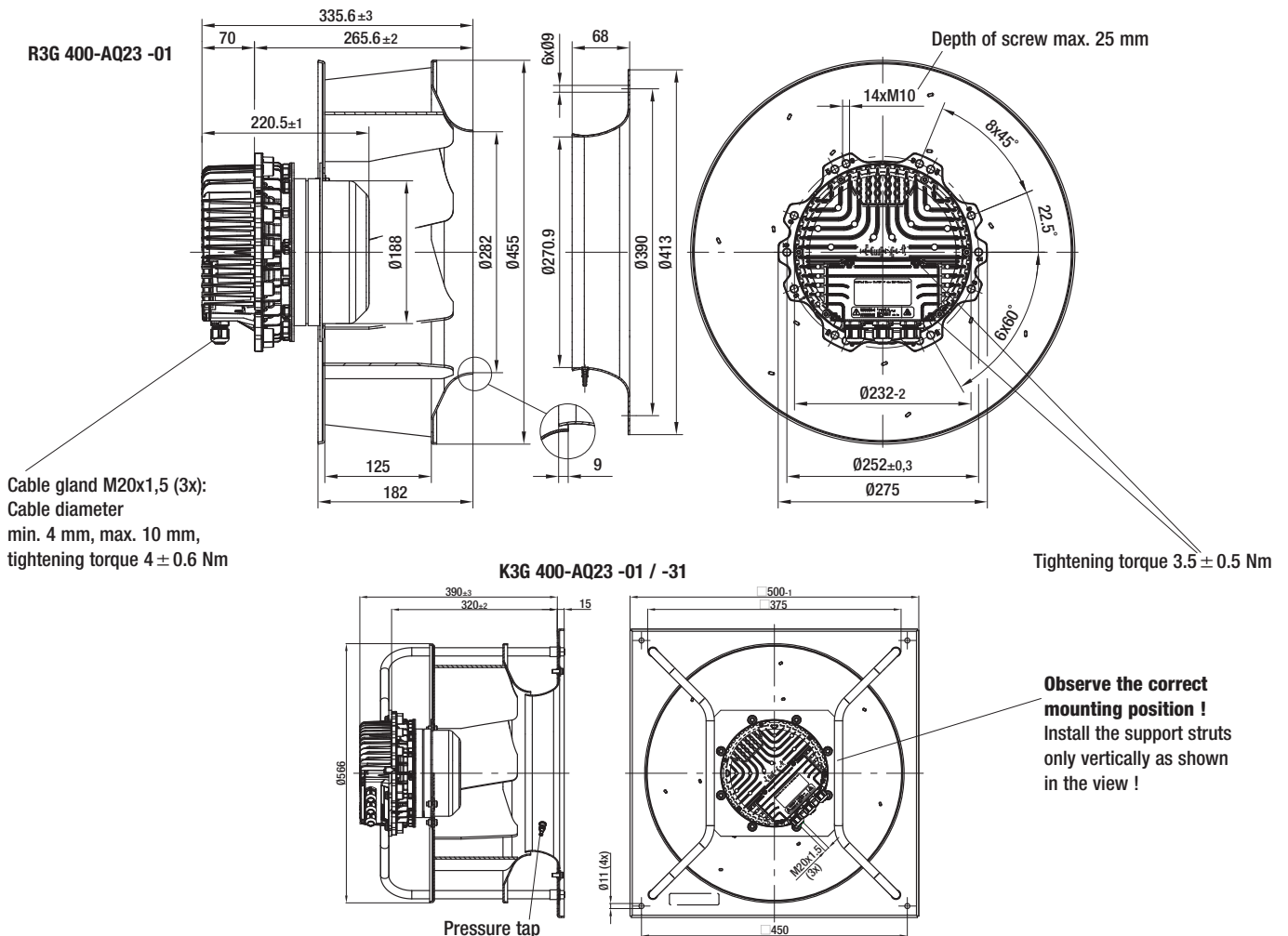
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

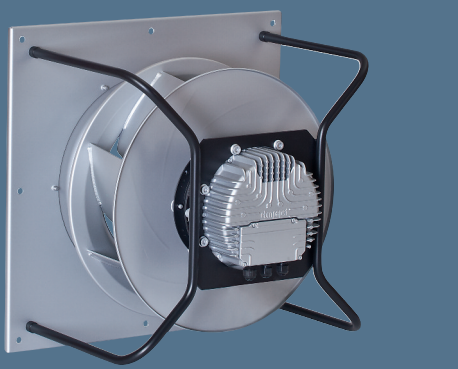
Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 400-AQ23 -01	21,7	40075-2-4013	K3G 400-AQ23 -01	32,3	K3G 400-AQ23 -31	32,3

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 450



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

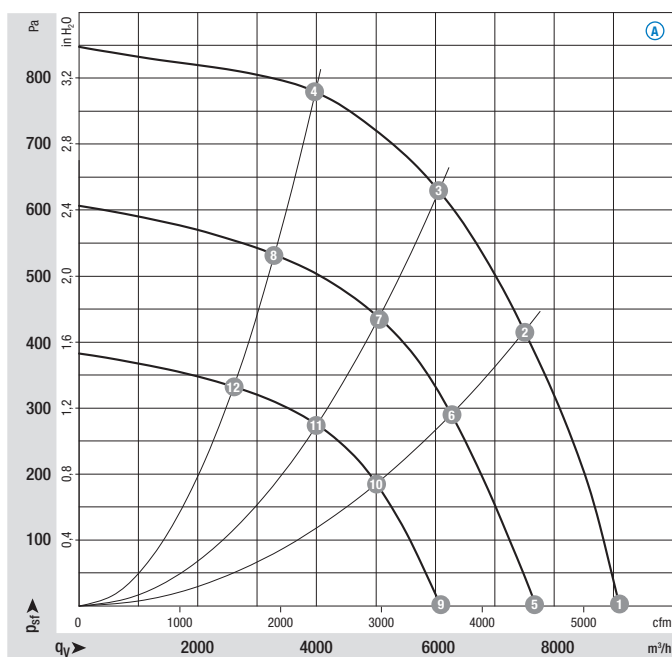
## Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm <sup>(1)</sup> rpm	Max. input power <sup>(1)</sup> W	Max. current draw <sup>(1)</sup> A	Perm. amb. temp. °C	Electr. connection p. 64
*3G 450	M3G 112-IA	A	3~ 380-480	50/60	1750	1615	2,50	-25..+50	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{pA}$  as per ISO 13347,  $L_{pA}$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{pA}$ dB(A)
A 1	1750	1036	1,61	87
A 2	1750	1457	2,25	80
A 3	1750	1615	2,50	77
A 4	1750	1524	2,33	80
A 5	1450	571	0,92	82
A 6	1450	812	1,28	75
A 7	1450	906	1,42	73
A 8	1450	810	1,27	76
A 9	1155	306	0,56	76
A 10	1155	427	0,73	69
A 11	1155	462	0,77	67
A 12	1155	411	0,70	69

- **Technical features:**
  - PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC bzw. 4-20 mA
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Motor current limitation, Alarm relay
  - Line undervoltage / phase failure detection
  - Over-temperature protected electronics / motor
  - Locked-rotor protection, Soft start
  - Digital inputs for day/night switch, enabling, cooling / heating
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Masse centrifugal fan



Inlet nozzle with one pressure tap



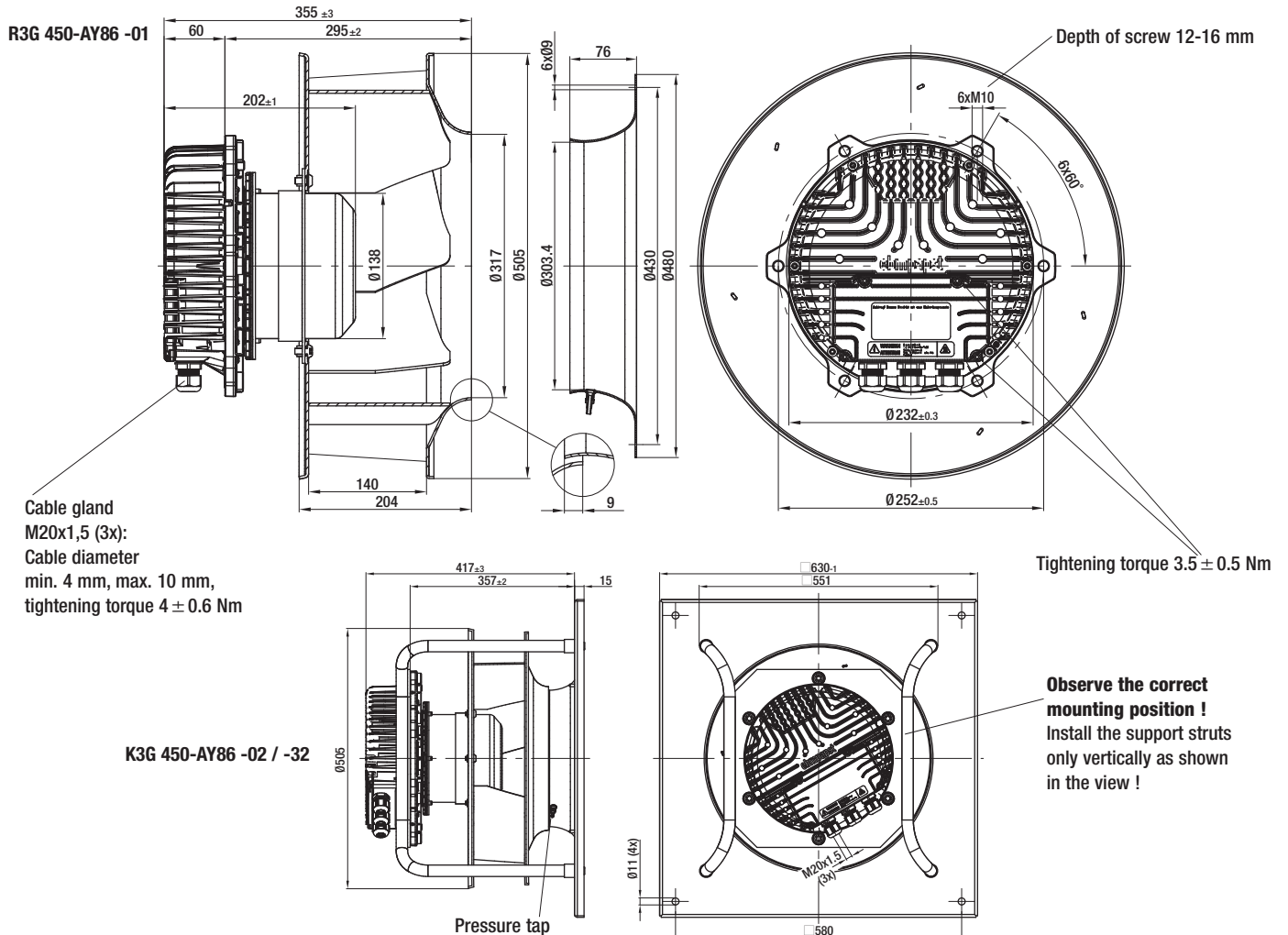
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

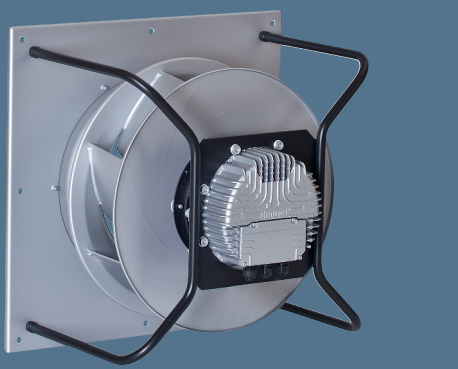
Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 450-AY86 -01	16,4	45075-2-4013	K3G 450-AY86 -02	31,9	K3G 450-AY86 -32	31,9

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 450



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

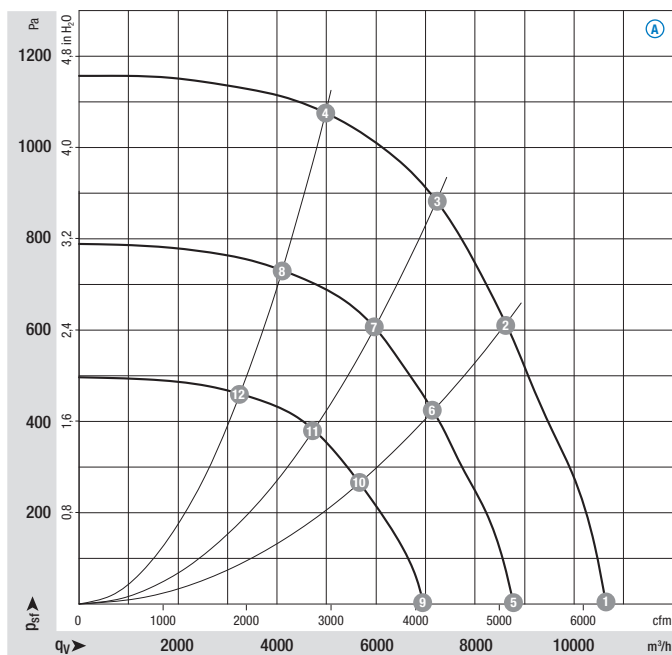
## Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm <sup>(1)</sup> rpm	Max. input power <sup>(1)</sup> W	Max. current draw <sup>(1)</sup> A	Perm. amb. temp. °C	Electr. connection p. 64
*3G 450	M3G 150-FF	A	3~ 380-480	50/60	2040	2730	4,20	-25..+60	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels: L<sub>WA</sub> as per ISO 13347, L<sub>pA</sub> measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	P <sub>e</sub> W	I A	L <sub>WA</sub> dB(A)
A 1	2040	1773	2,71	92
A 2	2040	2500	3,80	83
A 3	2040	2730	4,20	81
A 4	2040	2587	3,96	83
A 5	1695	991	1,52	88
A 6	1695	1428	2,17	79
A 7	1695	1548	2,35	77
A 8	1695	1450	2,22	79
A 9	1345	495	0,76	83
A 10	1345	713	1,09	74
A 11	1345	774	1,18	72
A 12	1345	725	1,11	74



- **Technical features:**
  - PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC bzw. 4-20 mA
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Motor current limitation, Alarm relay
  - Line undervoltage / phase failure detection
  - Over-temperature protected electronics / motor
  - Locked-rotor protection, Soft start
  - Digital inputs for day/night switch, enabling, cooling / heating
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** UL, CSA, GOST



Masse centrifugal fan



Inlet nozzle with one pressure tap



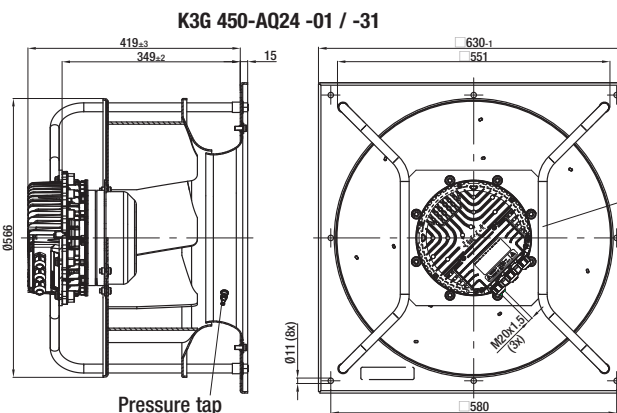
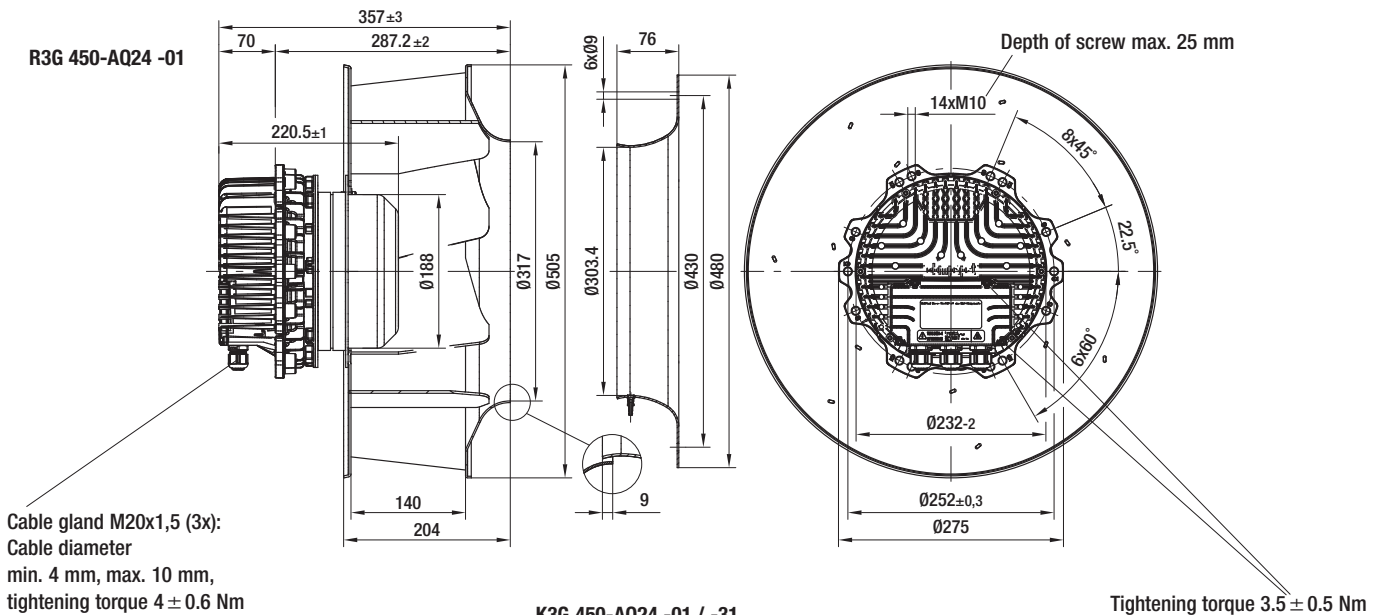
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 450-AQ24 -01	22,5	45075-2-4013	K3G 450-AQ24 -01	38,2	K3G 450-AQ24 -31	38,2

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 450



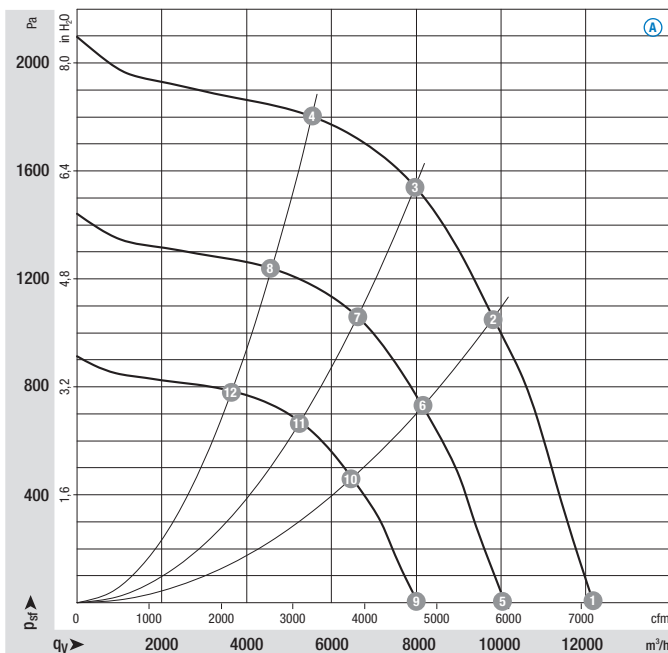
- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 64	
*3G 450	M3G 150-IF	(A) 3~	380-480	50/60	2750	5370	8,30	-25..+40	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels: L<sub>WA</sub> as per ISO 13347, L<sub>pA</sub> measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	P <sub>e</sub> W	I A	L <sub>WA</sub> dB(A)
(A) 1	2750	3105	4,79	100
(A) 2	2750	4841	7,47	90
(A) 3	2750	5370	8,30	89
(A) 4	2750	5060	7,80	93
(A) 5	2280	1769	2,73	96
(A) 6	2280	2759	4,26	86
(A) 7	2280	3058	4,70	85
(A) 8	2280	2884	4,44	89
(A) 9	1815	893	1,38	91
(A) 10	1815	1392	2,15	81
(A) 11	1815	1543	2,37	80
(A) 12	1815	1455	2,24	84

– **Technical features:**

- PFC (passive)
- Integrated PID controller
- Control input 0-10 VDC bzw. 4-20 mA
- Input for sensor 0-10 V or 4-20 mA
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** UL, CSA, GOST

- Slave output 0-10 V max. 3 mA
- Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
- Output 10 VDC ( $+10\%$ ) max. 10 mA
- RS485 MODBUS
- Motor current limitation, Alarm relay

- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Locked-rotor protection, Soft start
- Digital inputs for day/night switch, enabling, cooling / heating



Masse centrifugal fan



Inlet nozzle with one pressure tap



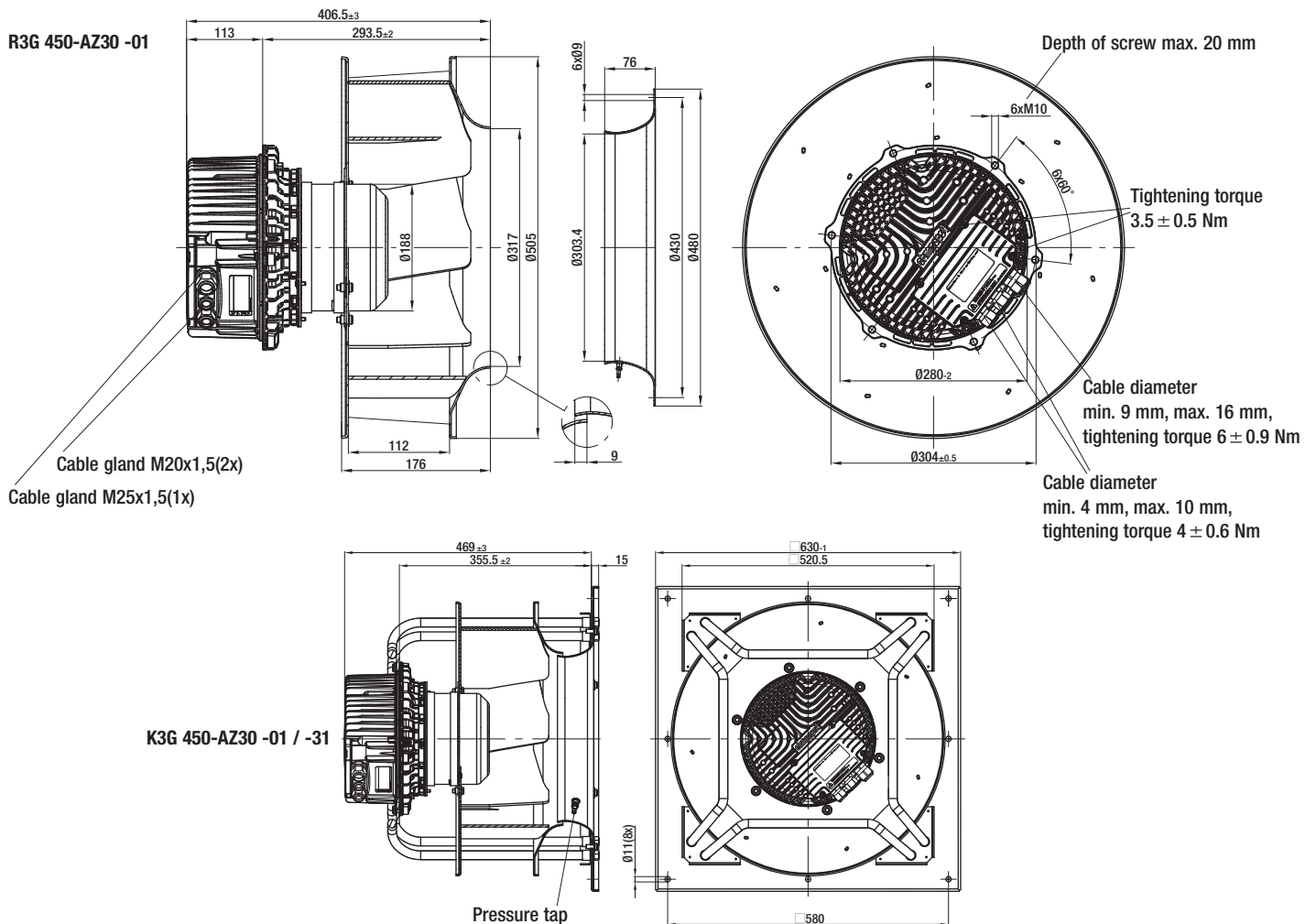
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket <sup>(2)</sup>	kg
R3G 450-AZ30 -01	31,1	45075-1-4013	K3G 450-AZ30 -01	52,7	K3G 450-AZ30 -31	52,7

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 500



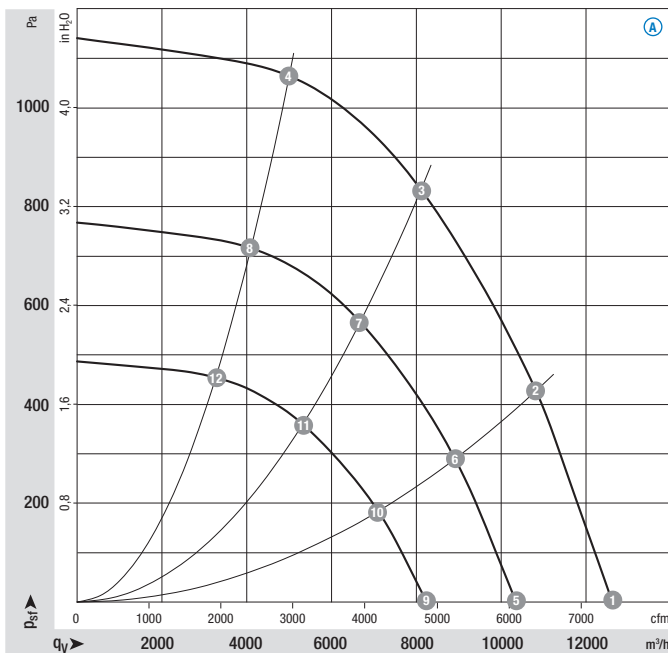
- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 64	
*3G 500	M3G 150-FF	Ⓐ 3~	380-480	50/60	1780	2825	4,30	-25..+60	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{wA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	P <sub>e</sub> W	I A	L <sub>wA</sub> dB(A)
Ⓐ 1	1780	1985	3,09	94
Ⓐ 2	1780	2530	3,90	89
Ⓐ 3	1780	2825	4,30	83
Ⓐ 4	1780	2692	4,14	85
Ⓐ 5	1475	1094	1,70	90
Ⓐ 6	1475	1411	2,18	84
Ⓐ 7	1475	1602	2,47	79
Ⓐ 8	1475	1484	2,28	80
Ⓐ 9	1175	553	0,86	85
Ⓐ 10	1175	714	1,10	80
Ⓐ 11	1175	810	1,25	74
Ⓐ 12	1175	750	1,15	75

– **Technical features:**

- PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC bzw. 4-20 mA
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Motor current limitation, Alarm relay
  - Line undervoltage / phase failure detection
  - Over-temperature protected electronics / motor
  - Locked-rotor protection, Soft start
  - Digital inputs for day/night switch, enabling, cooling / heating
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** UL, CSA, GOST



Masse centrifugal fan



Inlet nozzle with one pressure tap



Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

**Centrifugal fan**

**kg**

**Inlet nozzle with one pressure tap**

**Centrifugal module w. support bracket**

**kg**

**Centrifugal module w. supp. bracket (2)**

**kg**

R3G 500-AP25 -01

24,6

64025-2-4013

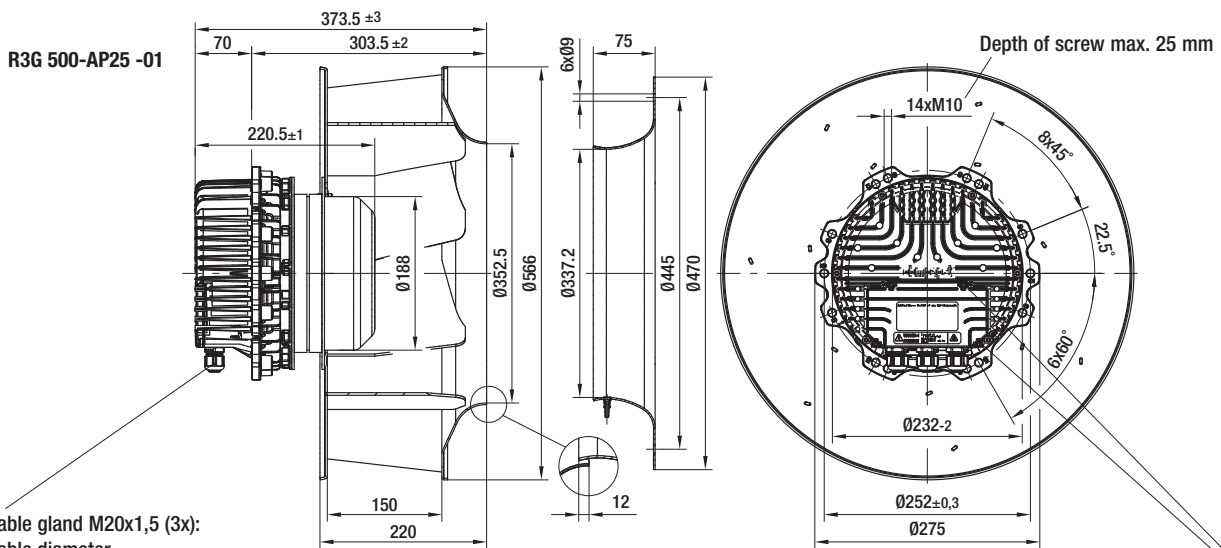
K3G 500-AP25 -01

40,2

K3G 500-AP25 -31

40,2

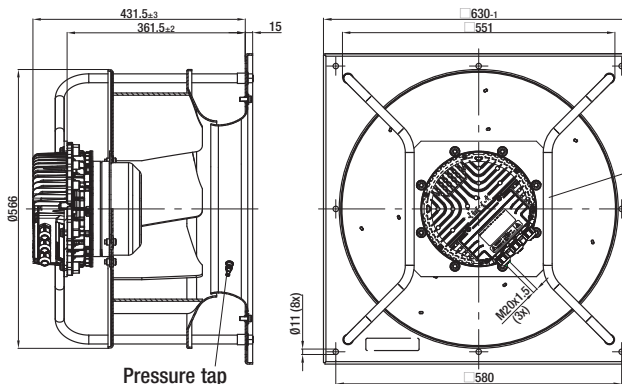
(2) Centrifugal module with higher protection against corrosion



Cable gland M20x1,5 (3x):  
Cable diameter  
min. 4 mm, max. 10 mm,  
tightening torque  $4 \pm 0.6$  Nm

Tightening torque  $3.5 \pm 0.5$  Nm

**K3G 500-AP25 -01 / -31**



**Observe the correct mounting position !**  
Install the support struts only vertically as shown in the view !

# EC centrifugal fan and modules

backward curved, Ø 500



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

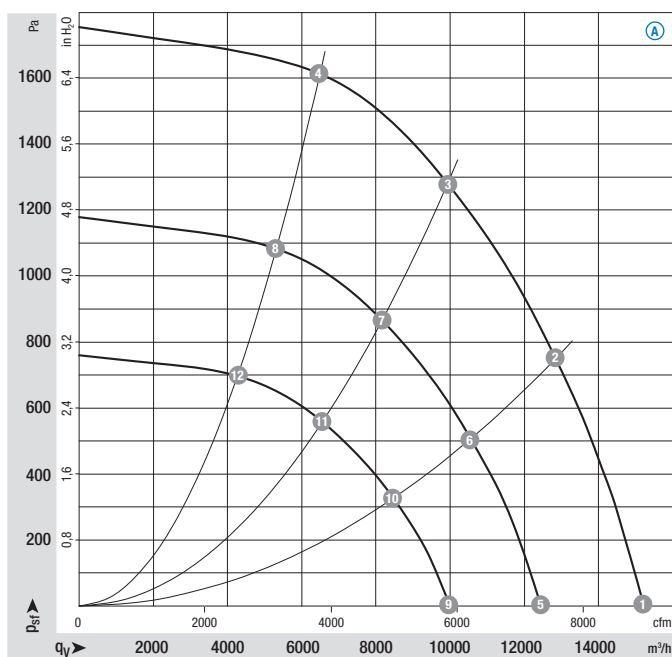
## Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm <sup>(1)</sup> rpm	Max. input power <sup>(1)</sup> W	Max. current draw <sup>(1)</sup> A	Perm. amb. temp. °C	Electr. connection p. 64
*3G 500	M3G 150-IF	A	3~ 380-480	50/60	2200	5500	8,40	-25..+45	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{pA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{pA}$ dB(A)
A 1	2200	3725	5,82	100
A 2	2200	4944	7,64	94
A 3	2200	5500	8,40	89
A 4	2200	5148	7,95	90
A 5	1825	2039	3,19	95
A 6	1825	2736	4,23	90
A 7	1825	3052	4,70	84
A 8	1825	2830	4,37	86
A 9	1465	1055	1,65	91
A 10	1465	1416	2,19	85
A 11	1465	1578	2,43	80
A 12	1465	1464	2,26	81

– **Technical features:**

- PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC bzw. 4-20 mA
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Motor current limitation, Alarm relay
  - Line undervoltage / phase failure detection
  - Over-temperature protected electronics / motor
  - Locked-rotor protection, Soft start
  - Digital inputs for day/night switch, enabling, cooling / heating
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** UL, CSA, GOST



Masse centrifugal fan



Inlet nozzle with one pressure tap



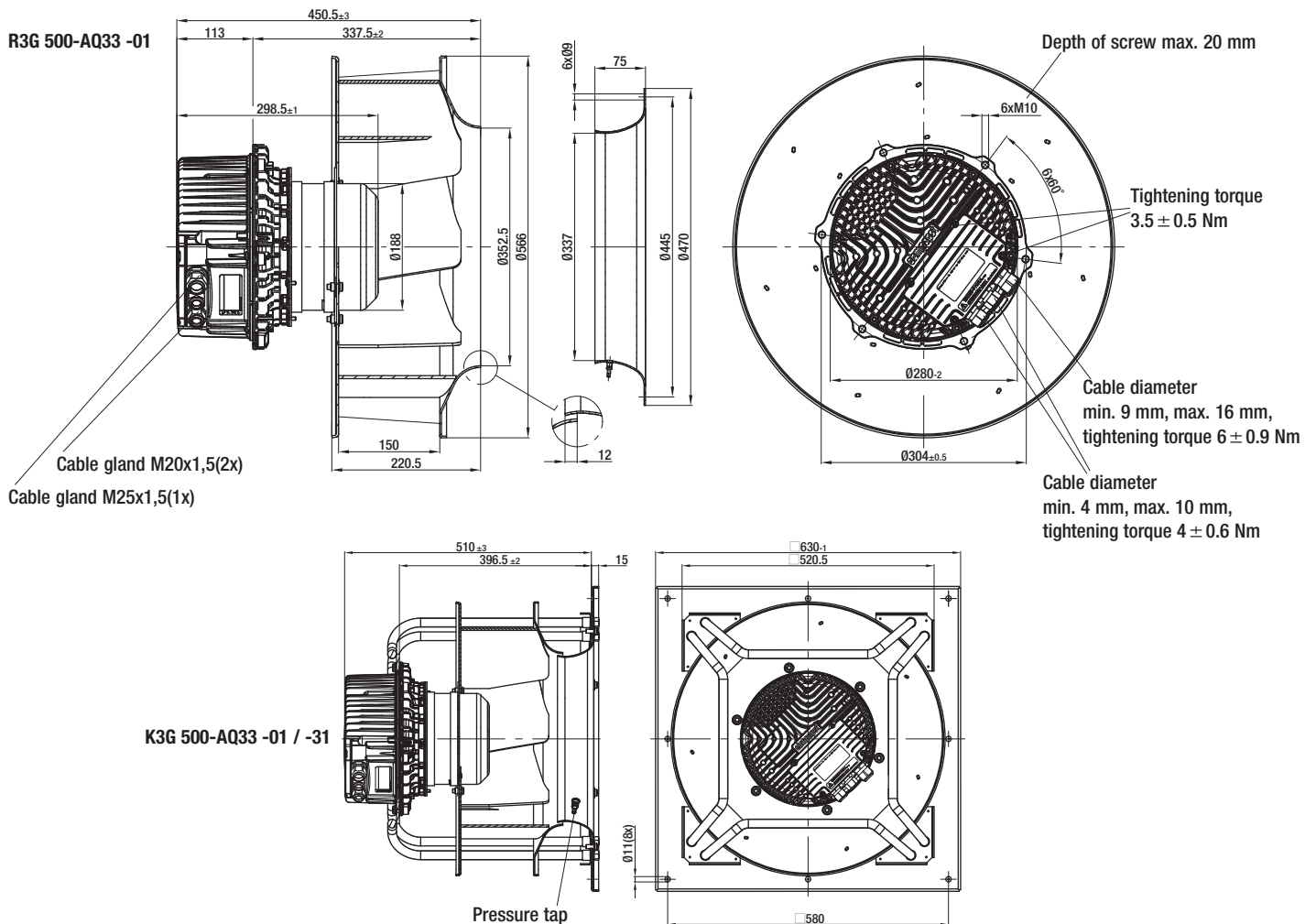
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

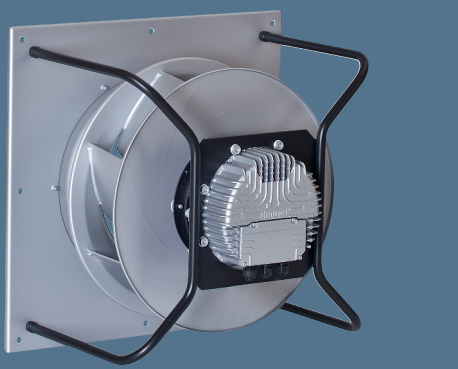
Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 500-AQ33 -01	33,2	64025-2-4013	K3G 500-AQ33 -01	55,9	K3G 500-AQ33 -31	55,9

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 560



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

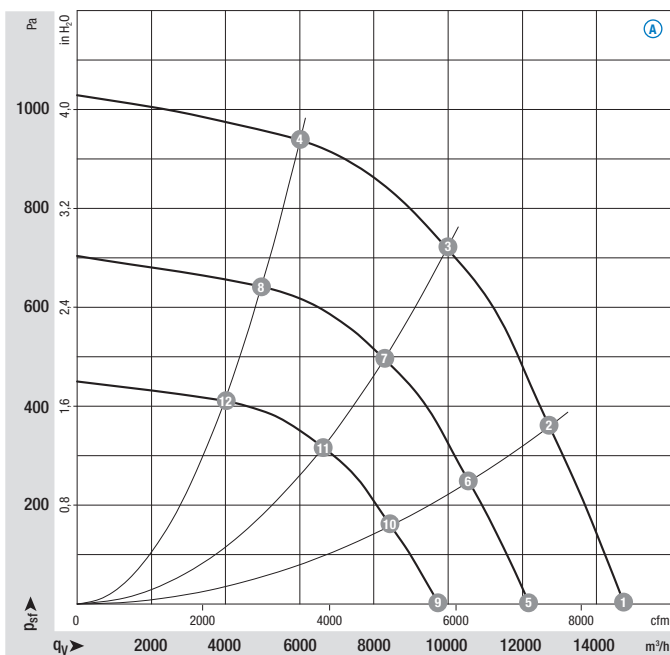
## Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm <sup>(1)</sup> rpm	Max. input power <sup>(1)</sup> W	Max. current draw <sup>(1)</sup> A	Perm. amb. temp. °C	Electr. connection p. 64
*3G 560	M3G 150-IF	A	3~ 380-480	50/60	1500	3000	4,60	-25..+50	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{wA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{wA}$ dB(A)
A 1	1500	1952	2,98	90
A 2	1500	2481	3,77	86
A 3	1500	3000	4,60	80
A 4	1500	2754	4,18	83
A 5	1250	1101	1,68	86
A 6	1250	1420	2,16	82
A 7	1250	1712	2,60	76
A 8	1250	1560	2,37	78
A 9	1000	564	0,86	81
A 10	1000	727	1,10	77
A 11	1000	876	1,33	71
A 12	1000	799	1,21	74



- **Technical features:**
  - PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC bzw. 4-20 mA
  - Input for sensor 0-10 V or 4-20 mA
  - Slave output 0-10 V max. 3 mA
  - Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
  - Output 10 VDC ( $+10\%$ ) max. 10 mA
  - RS485 MODBUS
  - Motor current limitation, Alarm relay
  - Line undervoltage / phase failure detection
  - Over-temperature protected electronics / motor
  - Locked-rotor protection, Soft start
  - Digital inputs for day/night switch, enabling, cooling / heating
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** UL, CSA, GOST



Masse centrifugal fan



Inlet nozzle with one pressure tap



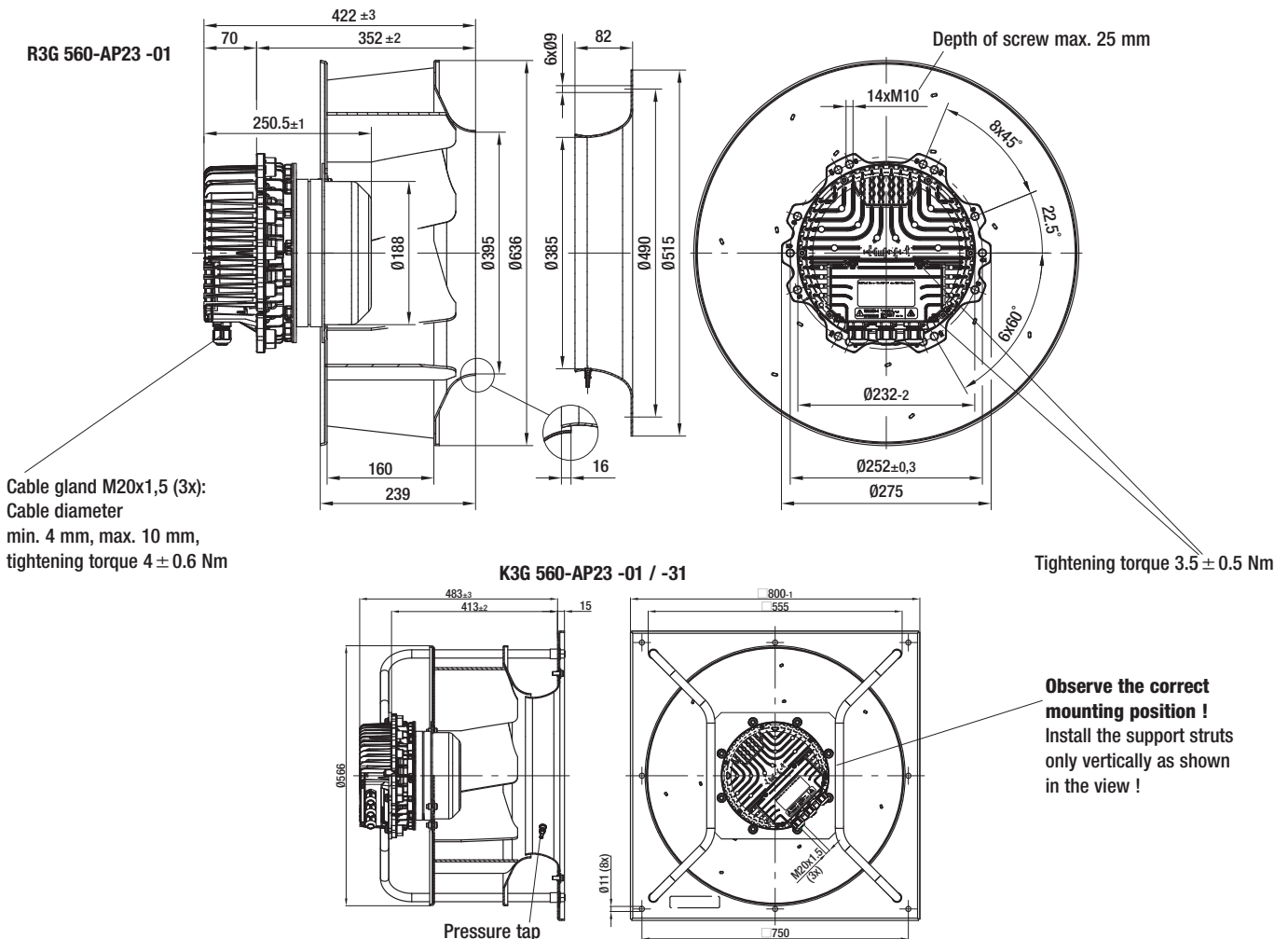
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 560-AP23 -01	30,5	64030-2-4013	K3G 560-AP23 -01	56,1	K3G 560-AP23 -31	56,1

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 560



- **Material:** Support bracket: Steel, coated in black  
Support plate: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

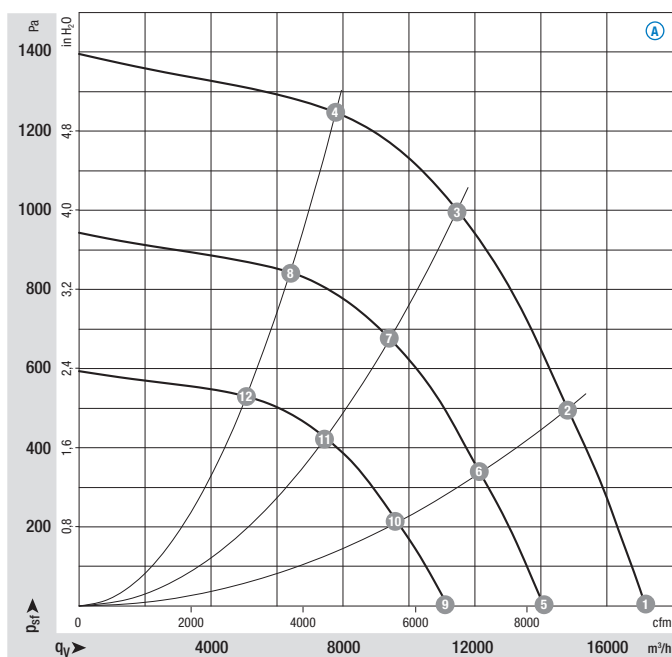
## Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm <sup>(1)</sup> rpm	Max. input power <sup>(1)</sup> W	Max. current draw <sup>(1)</sup> A	Perm. amb. temp. °C	Electr. connection p. 64
*3G 560	M3G 150-NA	A	3~ 380-480	50/60	1750	4700	7,30	-25..+40	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels: L<sub>WA</sub> as per ISO 13347, L<sub>pA</sub> measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	P <sub>e</sub> W	I A	L <sub>WA</sub> dB(A)
A 1	1750	3032	4,77	97
A 2	1750	3929	6,10	91
A 3	1750	4700	7,30	84
A 4	1750	4366	6,71	86
A 5	1450	1675	2,64	93
A 6	1450	2171	3,37	87
A 7	1450	2602	4,01	80
A 8	1450	2432	3,74	82
A 9	1150	836	1,32	88
A 10	1150	1083	1,68	82
A 11	1150	1298	2,00	75
A 12	1150	1213	1,87	76

– **Technical features:**

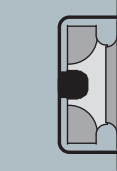
- PFC (passive)
- Integrated PID controller
- Control input 0-10 VDC bzw. 4-20 mA
- Input for sensor 0-10 V or 4-20 mA
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** UL, CSA, GOST

- Slave output 0-10 V max. 3 mA
- Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
- Output 10 VDC ( $+10\%$ ) max. 10 mA
- RS485 MODBUS
- Motor current limitation, Alarm relay

- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Locked-rotor protection, Soft start
- Digital inputs for day/night switch, enabling, cooling / heating



Masse centrifugal fan



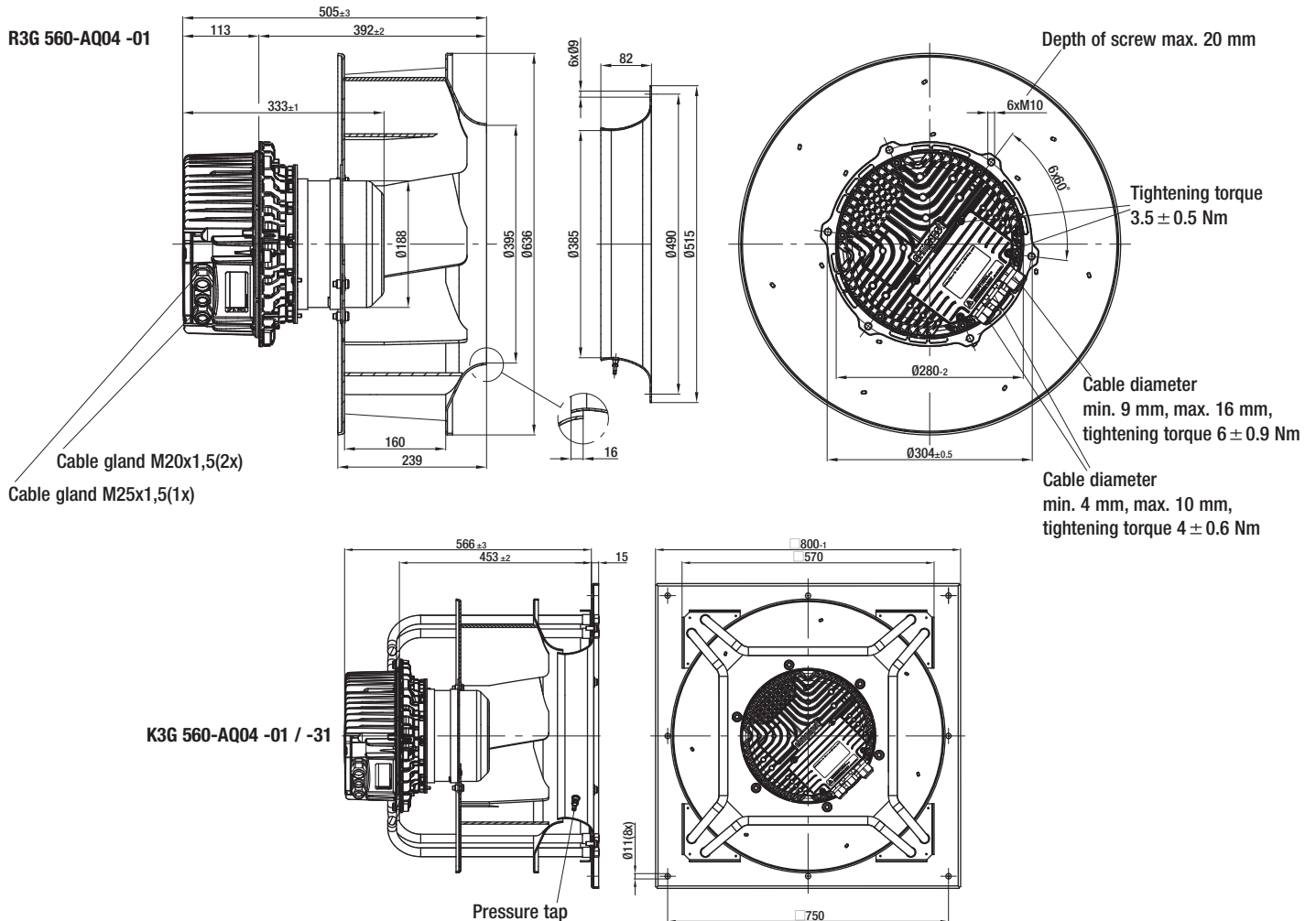
Mass of centrifugal module with support bracket



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket (2)	kg
R3G 560-AQ04 -01	40,0	64030-2-4013	K3G 560-AQ04 -01	69,7	K3G 560-AQ04 -31	69,7

(2) Centrifugal module with higher protection against corrosion



# EC centrifugal fan and modules

backward curved, Ø 630



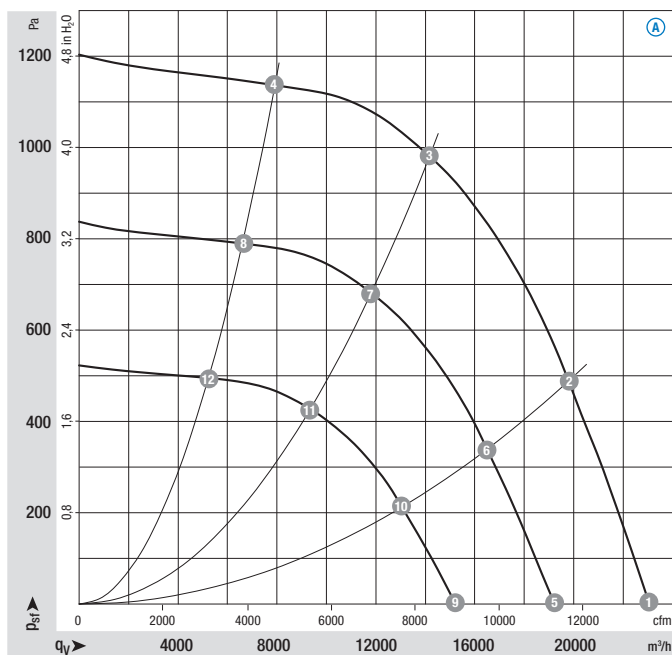
- **Material:** Support structure: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 64	
*3G 630	M3G 200-HF	Ⓐ	3~ 380-480	50/60	1450	6140	9,90	-25..+40	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{wA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{wA}$ dB(A)
Ⓐ 1	1450	4116	6,75	95
Ⓐ 2	1450	5426	8,70	88
Ⓐ 3	1450	6140	9,90	84
Ⓐ 4	1450	4956	7,95	87
Ⓐ 5	1200	2314	3,79	90
Ⓐ 6	1200	3050	4,89	84
Ⓐ 7	1200	3450	5,54	80
Ⓐ 8	1200	2792	4,48	83
Ⓐ 9	960	1185	1,94	86
Ⓐ 10	960	1562	2,50	79
Ⓐ 11	960	1766	2,83	75
Ⓐ 12	960	1429	2,29	78

– **Technical features:**

- PFC (passive)
- Integrated PID controller
- Control input 0-10 VDC bzw. 4-20 mA
- Input for sensor 0-10 V or 4-20 mA
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** UL, CSA, GOST applied for

- Slave output 0-10 V max. 3 mA
- Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
- Output 10 VDC ( $+10\%$ ) max. 10 mA
- RS485 MODBUS
- Motor current limitation, Alarm relay

- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Locked-rotor protection, Soft start
- Digital inputs for day/night switch, enabling, cooling / heating



Masse centrifugal fan



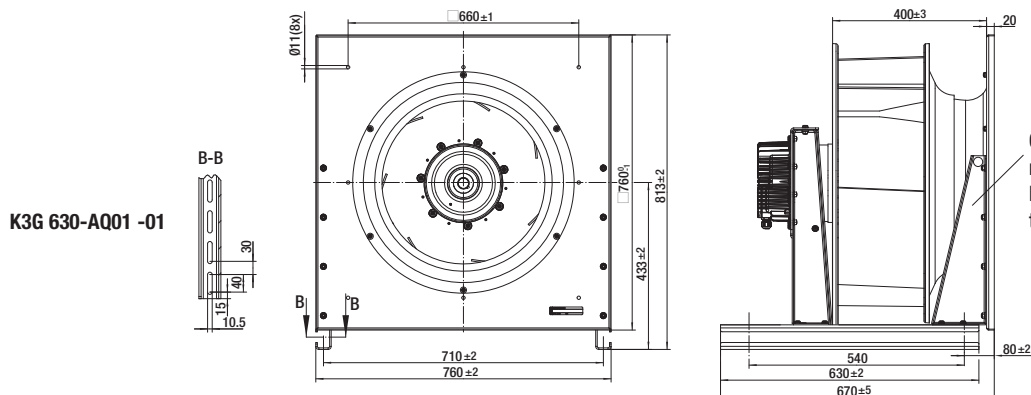
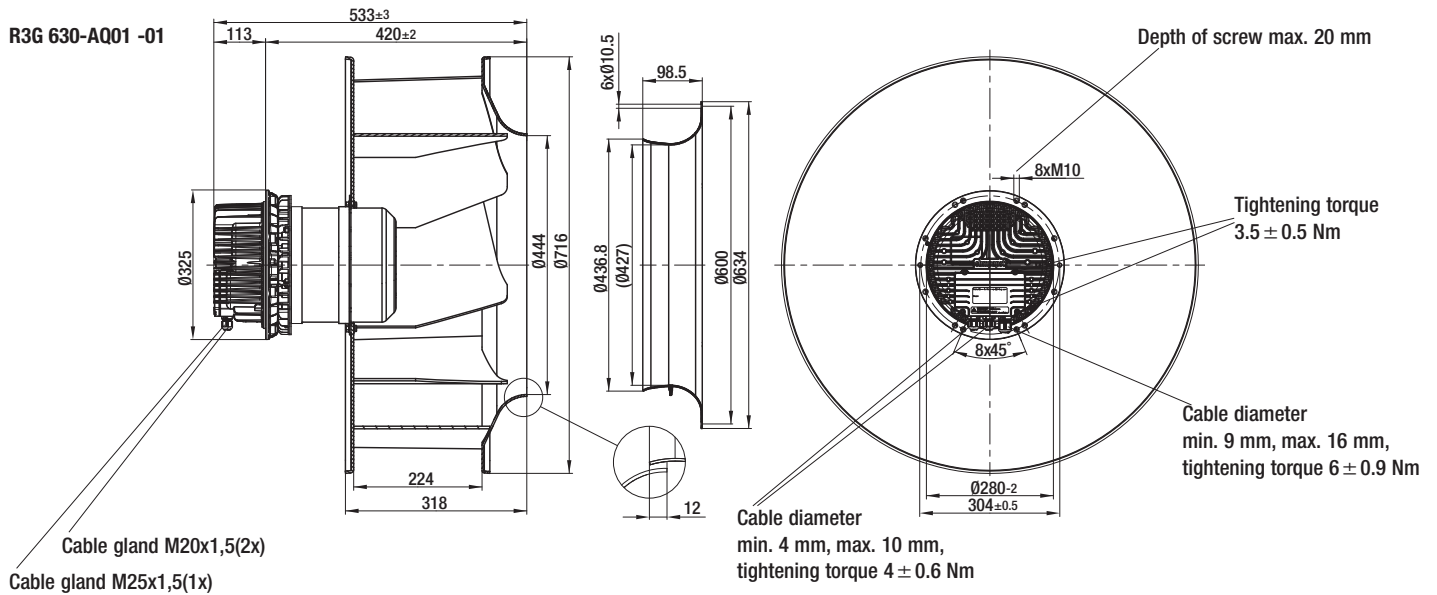
Inlet nozzle with one pressure tap



Centrifugal module with support structure

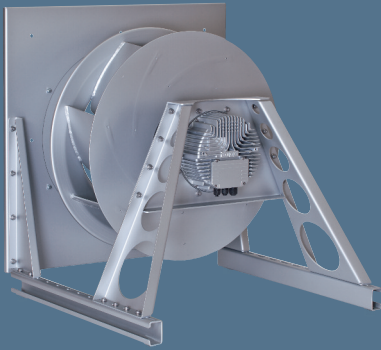
Mass of centrifugal module with supporting construction

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module with support structure	kg
R3G 630-AQ01 -01	61,0	64040-2-4013	K3G 630-AQ01 -01	105,0



# EC centrifugal fan and modules

backward curved, Ø 710



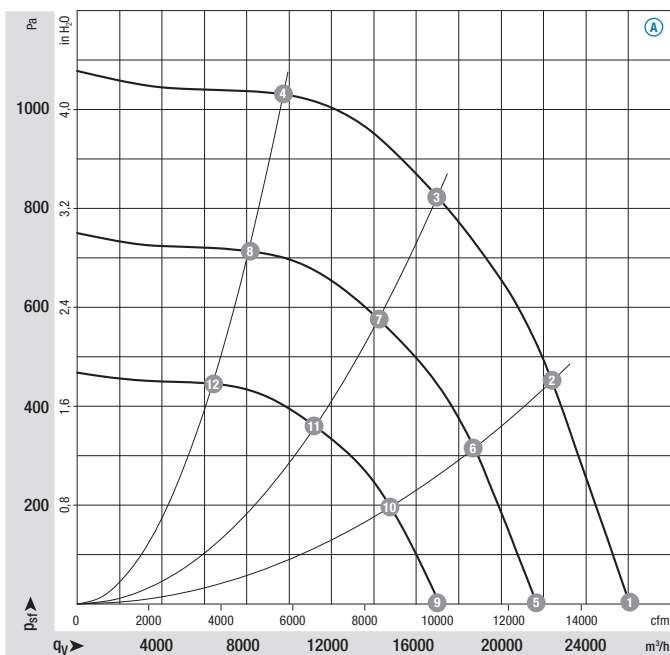
- **Material:** Support structure: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 64	
*3G 710	M3G 200-LA	Ⓐ 3~	380-480	50/60	1200	6240	10,00	-25..+40	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{pA}$  as per ISO 13347,  $L_{pA}$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	P <sub>e</sub> W	I A	L <sub>wA</sub> dB(A)
Ⓐ 1	1200	4060	6,70	96
Ⓐ 2	1200	5561	8,94	89
Ⓐ 3	1200	6240	10,00	83
Ⓐ 4	1200	4999	8,12	85
Ⓐ 5	1000	2332	3,85	92
Ⓐ 6	1000	3202	5,15	85
Ⓐ 7	1000	3590	5,73	79
Ⓐ 8	1000	2872	4,67	81
Ⓐ 9	790	1150	1,90	87
Ⓐ 10	790	1579	2,54	80
Ⓐ 11	790	1770	2,83	74
Ⓐ 12	790	1416	2,30	76

– **Technical features:**

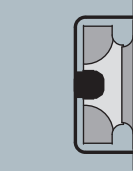
- PFC (passive)
- Integrated PID controller
- Control input 0-10 VDC bzw. 4-20 mA
- Input for sensor 0-10 V or 4-20 mA
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** UL, CSA, GOST applied for

- Slave output 0-10 V max. 3 mA
- Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
- Output 10 VDC ( $+10\%$ ) max. 10 mA
- RS485 MODBUS
- Motor current limitation, Alarm relay

- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Locked-rotor protection, Soft start
- Digital inputs for day/night switch, enabling, cooling / heating

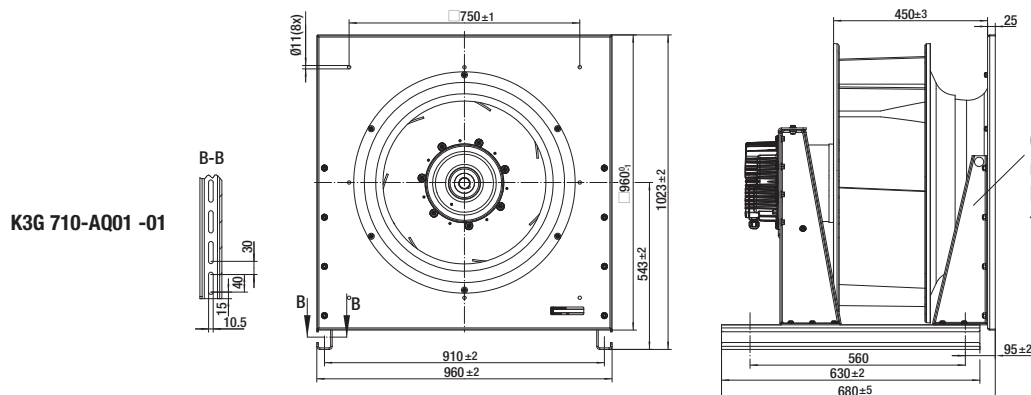
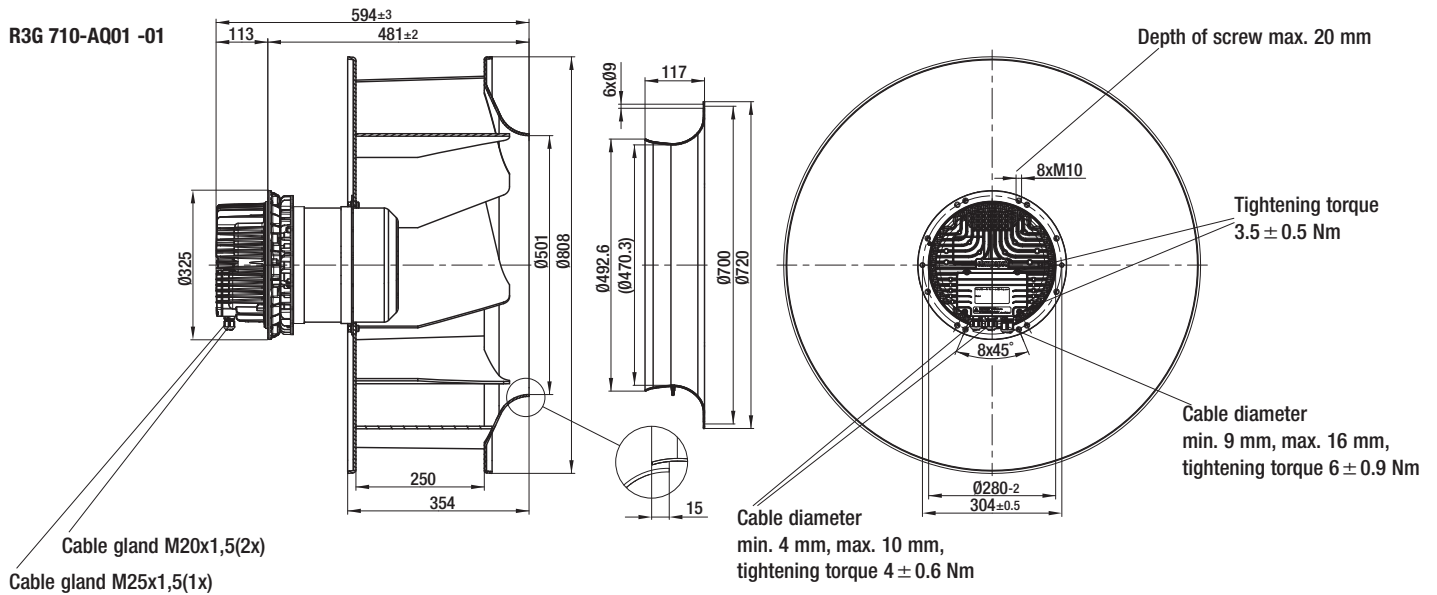


Masse centrifugal fan



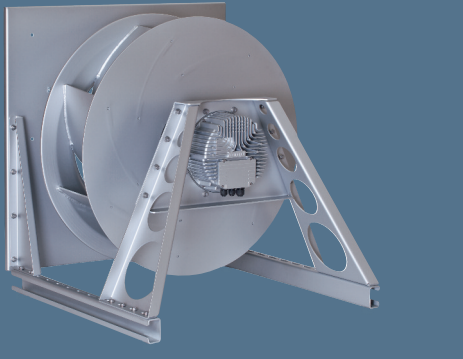
Mass of centrifugal module with supporting construction

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module with support structure	kg
R3G 710-AQ01 -01	73,0	71075-2-4013	K3G 710-AQ01 -01	130,0



# EC centrifugal fan and modules

backward curved, Ø 800



- **Material:** Support structure: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

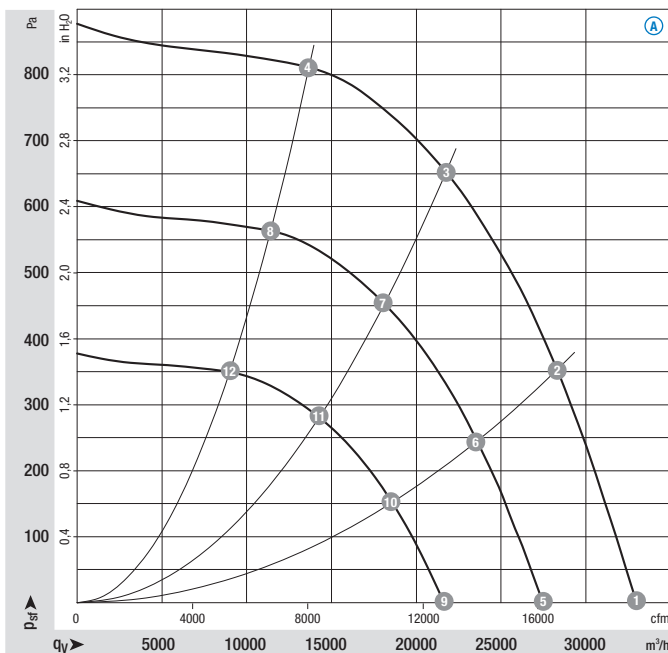
## Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
			VAC	Hz	rpm	W	A	°C	p. 64
<b>*3G 800</b>	M3G 200-QA	(A)	3~ 380-480	50/60	960	5800	9,40	-25..+40	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{pA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{pA}$ dB(A)
(A) 1	960	3763	6,21	91
(A) 2	960	5067	8,20	85
(A) 3	960	5800	9,40	79
(A) 4	960	5306	8,53	81
(A) 5	800	2193	3,62	87
(A) 6	800	2994	4,84	81
(A) 7	800	3413	5,50	75
(A) 8	800	3107	4,99	77
(A) 9	630	1071	1,77	82
(A) 10	630	1462	2,36	76
(A) 11	630	1667	2,69	70
(A) 12	630	1517	2,44	72



– **Technical features:**

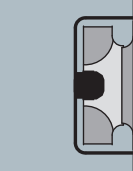
- PFC (passive)
  - Integrated PID controller
  - Control input 0-10 VDC bzw. 4-20 mA
  - Input for sensor 0-10 V or 4-20 mA
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** UL, CSA, GOST applied for

- Slave output 0-10 V max. 3 mA
- Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
- Output 10 VDC ( $+10\%$ ) max. 10 mA
- RS485 MODBUS
- Motor current limitation, Alarm relay

- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Locked-rotor protection, Soft start
- Digital inputs for day/night switch, enabling, cooling / heating

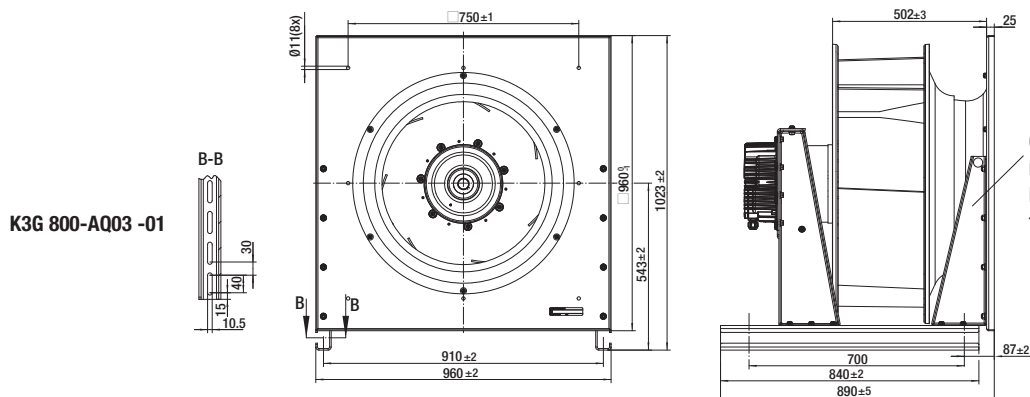
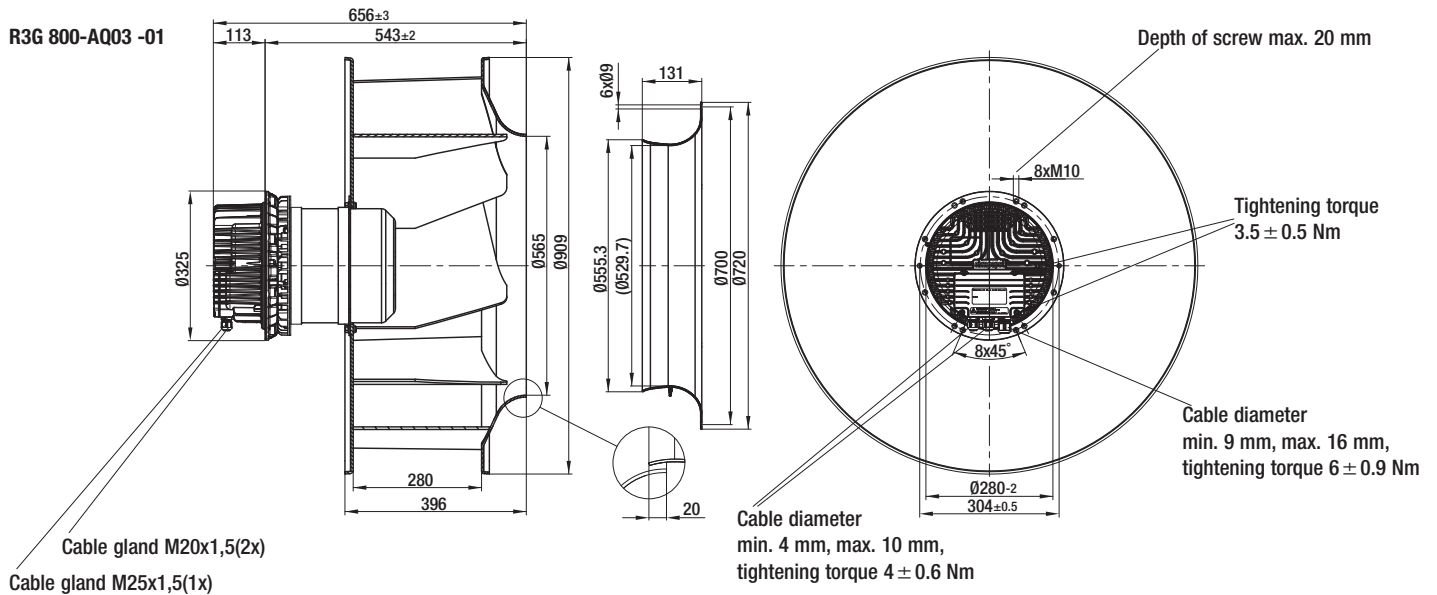


Masse centrifugal fan



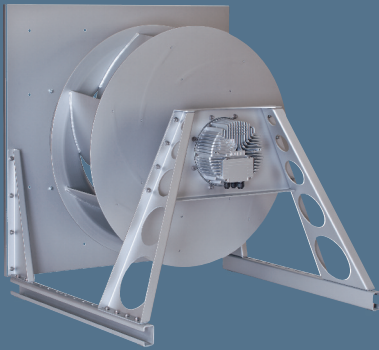
Mass of centrifugal module with supporting construction

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module with support structure	kg
R3G 800-AQ03 -01	97,0	80075-2-4013	K3G 800-AQ03 -01	158,0



# EC centrifugal fan and modules

backward curved, Ø 900



- **Material:** Support structure: Sheet steel, hot-galvanised  
Impeller: Sheet aluminium, welded  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

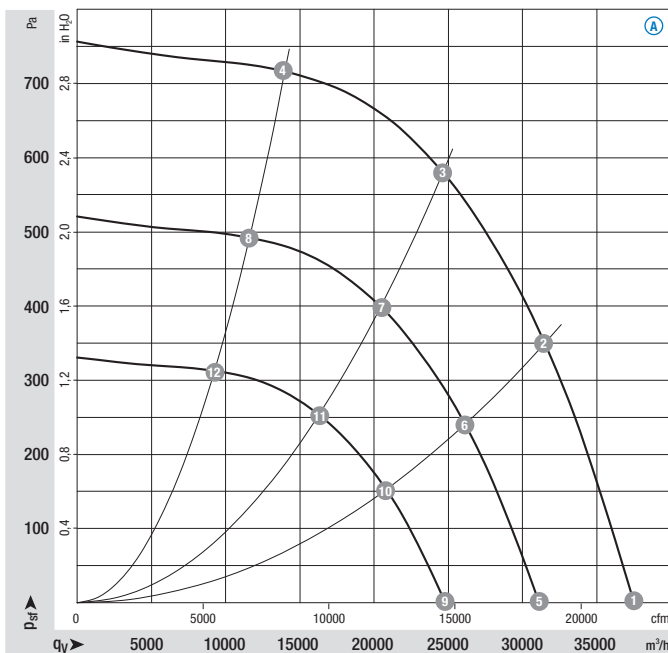
## Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed/rpm <sup>(1)</sup>	Max. input power <sup>(1)</sup>	Max. current draw <sup>(1)</sup>	Perm. amb. temp.	Electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	p. 64	
*3G 900	M3G 200-QA	(A)	3~ 380-480	50/60	800	5950	9,50	-25..+40	L5)

subject to alterations

(1) Nominal data in operating point with maximum load and 400 VAC

## Curves



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact

Suction-side noise levels:  $L_{pA}$  as per ISO 13347,  $L_pA$  measured at 1 m distance to fan axis

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

For detailed information see page 66 ff.

	n rpm	$P_e$ W	I A	$L_{pA}$ dB(A)
(A) 1	800	3732	6,14	91
(A) 2	800	5512	8,86	83
(A) 3	800	5950	9,50	78
(A) 4	800	4991	8,02	79
(A) 5	665	2129	3,50	87
(A) 6	665	3144	5,05	79
(A) 7	665	3397	5,42	74
(A) 8	665	2847	4,58	75
(A) 9	530	1078	1,77	82
(A) 10	530	1591	2,56	74
(A) 11	530	1720	2,74	69
(A) 12	530	1441	2,32	70

– **Technical features:**

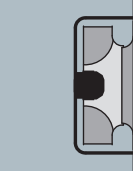
- PFC (passive)
- Integrated PID controller
- Control input 0-10 VDC bzw. 4-20 mA
- Input for sensor 0-10 V or 4-20 mA
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal strip
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:** CE
- **Approvals:** UL, CSA, GOST applied for

- Slave output 0-10 V max. 3 mA
- Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
- Output 10 VDC ( $+10\%$ ) max. 10 mA
- RS485 MODBUS
- Motor current limitation, Alarm relay

- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Locked-rotor protection, Soft start
- Digital inputs for day/night switch, enabling, cooling / heating

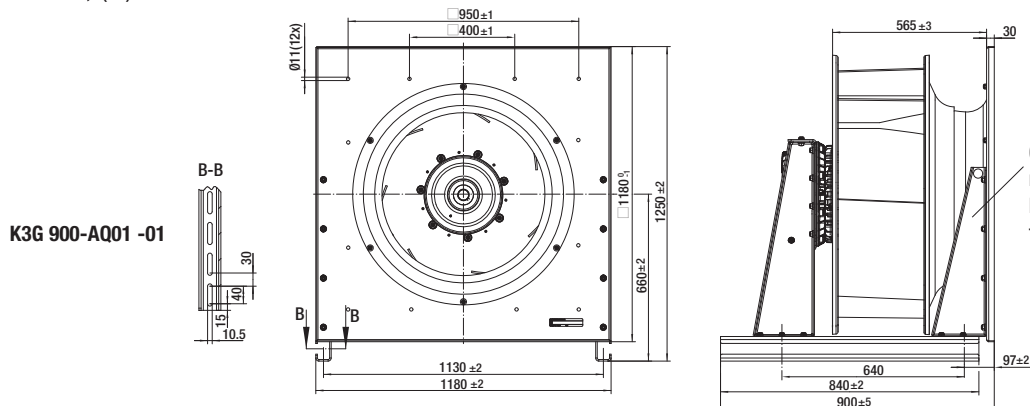
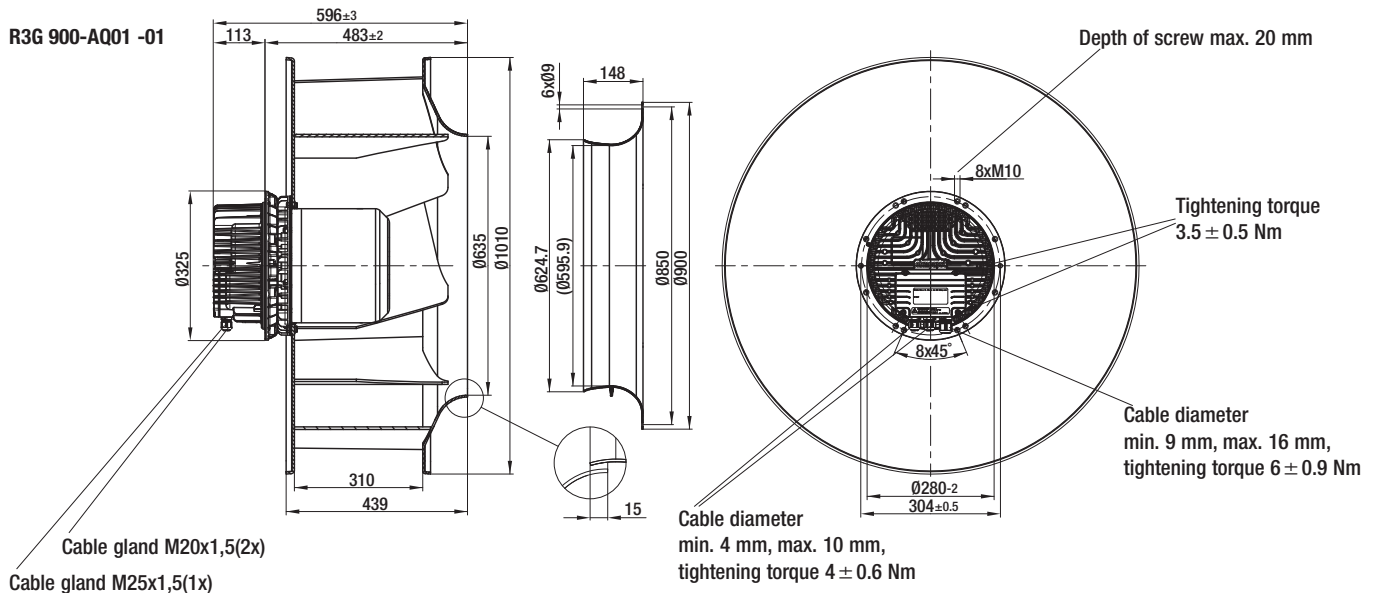


Masse centrifugal fan

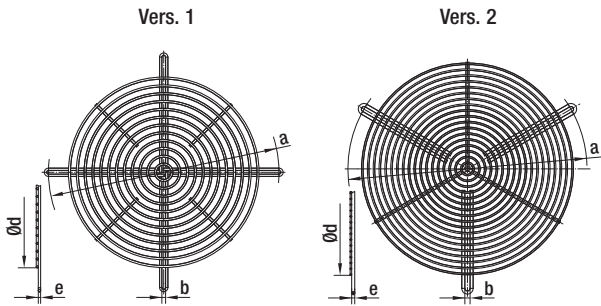


Mass of centrifugal module with supporting construction

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module with support structure	kg
R3G 900-AQ01 -01	107,0	90075-2-4013	K3G 900-AQ01 -01	194,0



# Accessories

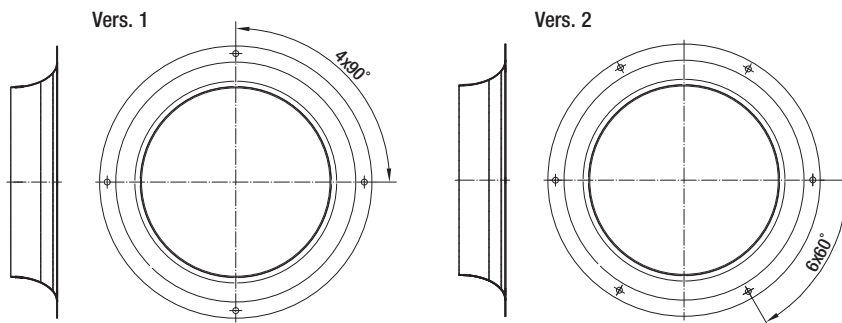


- **Material:** sheet steel, plastic coated, silver-metallic gloss

## Air intake guard grilles for backward curved centrifugal fans (according to EN 294)

Part no.	Size	Vers.	a	b	d	e	Strut pitch
78129-2-4039	250	1	260	4,5	191	2,8	4 x 90°
78130-2-4039	280	1	280	4,5	229	2,8	4 x 90°
78131-2-4039	310	1	325	4,5	248	2,8	4 x 90°
78132-2-4039	355	1	345	4,5	305	2,8	4 x 90°
78133-2-4039	400	2	390	8,5	343	3,8	3 x 120°
78134-2-4039	450	2	430	8,5	381	3,8	3 x 120°
78139-2-4039	500	2	445	8,5	410	3,8	3 x 120°
78137-2-4039	560	2	490	8,5	430	3,8	3 x 120°

subject to alterations



- **Material:** galvanised sheet steel

## Inlet nozzles without measuring device for backward curved centrifugal fans

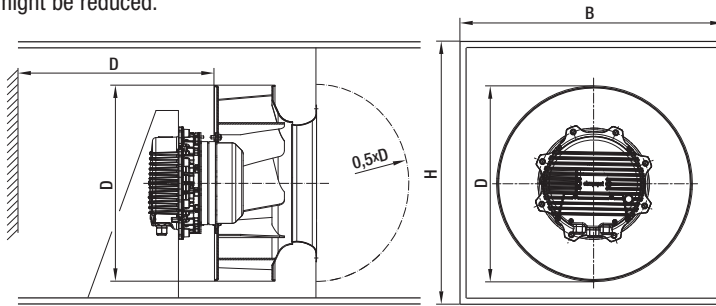
Part no.	Size	Vers.	For dimensions, see
25070-2-4013	250	1	page 11
28070-2-4013	280	1	page 15
31570-2-4013	310	1	page 21
35670-2-4013	355	1	page 29
40070-2-4013	400	2	page 35
45070-2-4013	450	2	page 39
63072-2-4013	500	2	page 45
63071-2-4013	560	2	page 49
63070-2-4013	630	2	page 53
71070-2-4013	710	2	page 55
80070-2-4013	800	2	page 57
90070-2-4013	900	2	page 59

subject to alterations

# Accessories

## Effects of installation space

When mounting our product in a rectangular box, air performance might be reduced.



$d_h$  = Hydraulic diameter

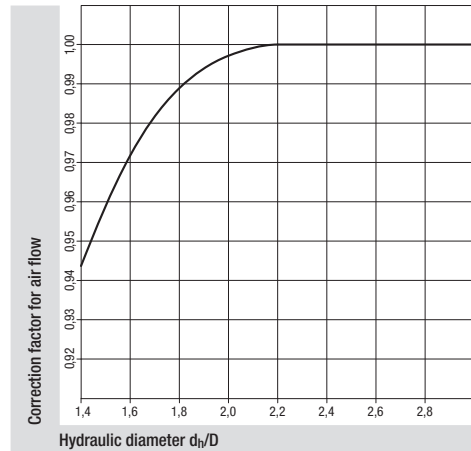
Formula:  $d_h = 2 \times B \times H / (B + H)$

B = Width of box

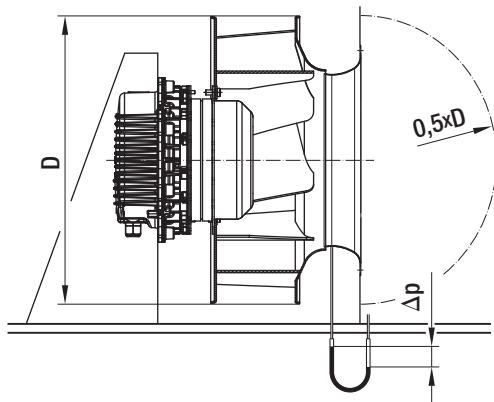
H = Height of box

D = Outer diameter of the fan

## Curve



## Air flow determination:



The differential pressure approach compares the static pressure before the inlet nozzle with the static pressure inside the inlet nozzle. Air flow can be calculated on the basis of the differential pressure (difference in pressure of the static pressures) in keeping with the following equation:

$$q_v = k \cdot \sqrt{\Delta p} \quad q_v \text{ in [m}^3/\text{h]} \text{ and } \Delta p \text{ in [Pa]}$$

If constant air flow is to be controlled to, then the nozzle pressure has to be kept constant:

$$\Delta p = q_v^2 : k^2$$

k takes into account the specific nozzle characteristics. Differences in static pressure are measured in 1/4 measuring point(s) along the circumference of the inlet nozzle. Connection on the customer side is accomplished via a pre-mounted T tube connector. This tube connector is suited for pneumatic hoses with an internal diameter of 4 mm.

## Inlet nozzles with measuring device to determine air flow for backward curved centrifugal fans

Part no.	Part no.	Size	k-value	For dimensions, see
25075-2-4013 <sup>(1)</sup> / 25080-2-4013 <sup>(2)</sup>		250	70	page 11
28075-2-4013 <sup>(1)</sup> / 28080-2-4013 <sup>(2)</sup>		280	93	page 15
31575-2-4013 <sup>(1)</sup> / 31580-2-4013 <sup>(2)</sup>		310	116	page 21
35675-2-4013 <sup>(1)</sup> / 35680-2-4013 <sup>(2)</sup>		355	148	page 29
40075-2-4013 <sup>(1)</sup> / 40080-2-4013 <sup>(2)</sup>		400	188	page 35
45075-2-4013 <sup>(1)</sup> / 45080-2-4013 <sup>(2)</sup>		450	240	page 39
64025-2-4013 <sup>(1)</sup> / 64002-2-4013 <sup>(2)</sup>		500	281	page 45
64030-2-4013 <sup>(1)</sup> / 64001-2-4013 <sup>(2)</sup>		560	348	page 49
64040-2-4013 <sup>(1)</sup> / 64000-2-4013 <sup>(2)</sup>		630	438	page 53
71075-2-4013 <sup>(1)</sup> / 71080-2-4013 <sup>(2)</sup>		710	545	page 55
80075-2-4013 <sup>(1)</sup> / 80080-2-4013 <sup>(2)</sup>		800	695	page 57
90075-2-4013 <sup>(1)</sup> / 90080-2-4013 <sup>(2)</sup>		900	900	page 59

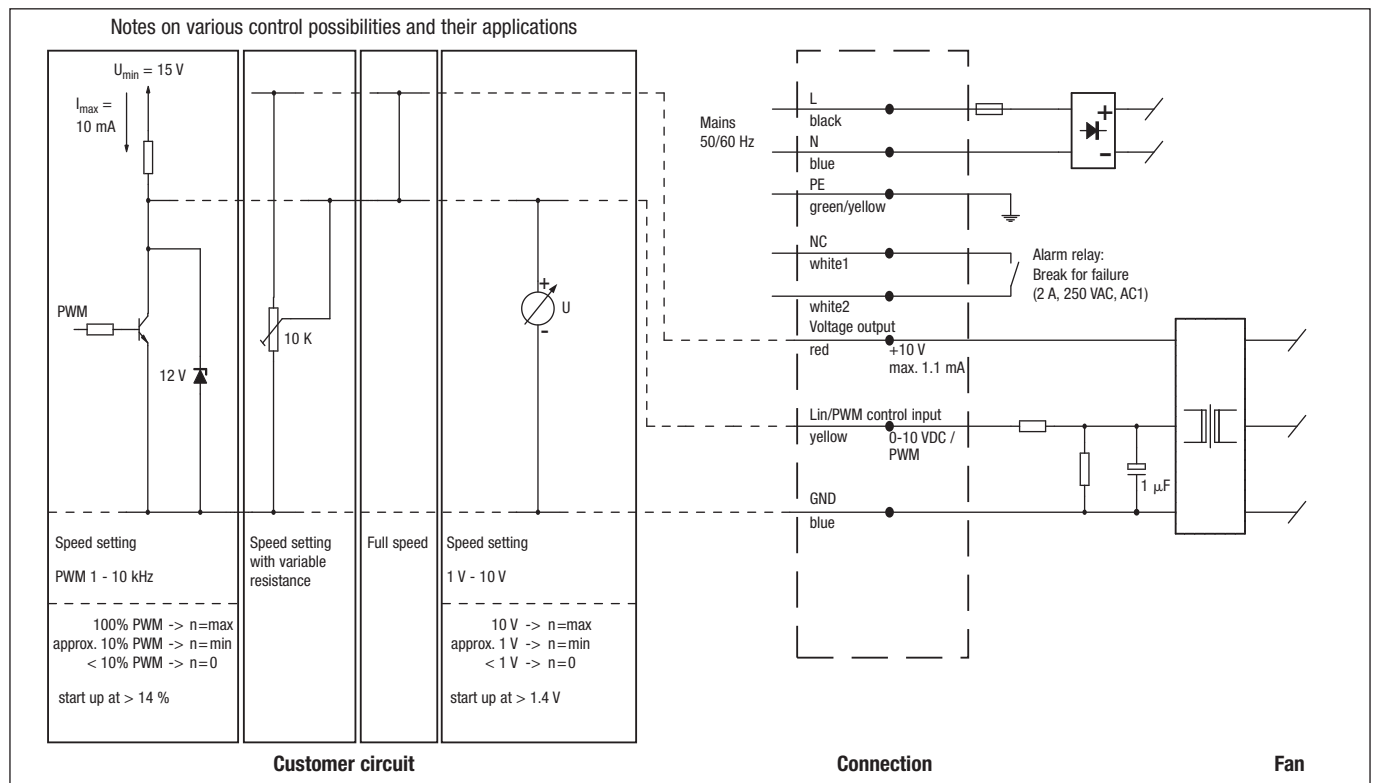
subject to alterations

<sup>(1)</sup> with one pressure tap

<sup>(2)</sup> with piezometer ring (4 pressure taps connected by tubing)

## Electrical connections EC

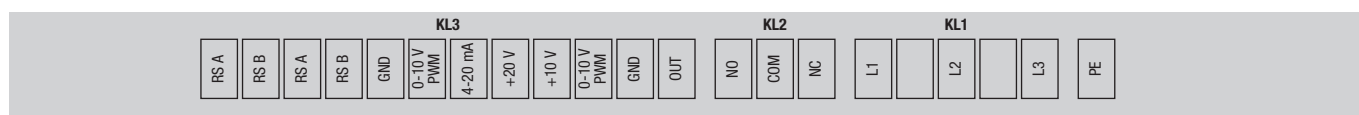
K1)



Line	Connection	Colour	Assignment / function
1	L	black	Mains 50/60 Hz, phase
	N	blue	Mains 50/60 Hz, neutral
	PE	green/yel	Protective earth
	NC	white1	Alarm relay, break for failure
	COM	white2	Alarm relay, COMMON

Line	Connection	Colour	Assignment / function
2	+10 V	red	Voltage output +10 V max. 1.1 mA
	0-10 V / PWM	yellow	Control input (Impedance 100 k $\Omega$ )
	GND	blue	GND

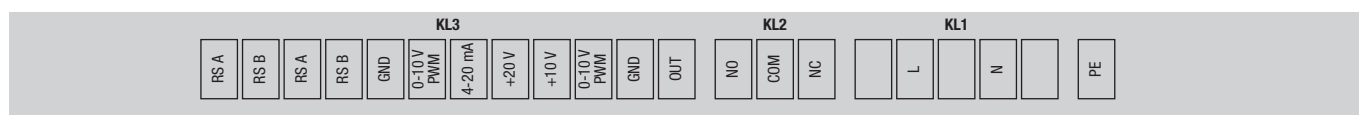
## L6)



Connector	Connection	Assignment / function
PE	PE	Protective earth
KL1	L3	Mains; L3
	L2	Mains; L2
	L1	Mains; L1
KL2	NC	Alarm relay, break for failure
	COM	Alarm relay, COMMON (2A, 250 VAC, AC1)
	NO	Alarm relay, make for failure

Connector	Connection	Assignment / function
KL3	OUT	Master output 0-10 V max. 3 mA
	GND	GND
	0-10 V / PWM	Control / Actual value input (Impedance 100 k $\Omega$ )
	+10 V	Supply for external potentiometer, 10 VDC (+10 %) max. 10 mA
	+20 V	Supply for external sensor, 20 VDC ( $\pm$ 20 %) max. 50 mA
	4-20 mA	Control / Actual value input
	0-10 V / PWM	Control / Actual value input
	GND	GND
	RSB	RS485 interface for MODBUS RTU; RS B
	RSA	RS485 interface for MODBUS RTU; RS A
	RSB	RS485 interface for MODBUS RTU; RS B
	RSA	RS485 interface for MODBUS RTU; RS A

## L7)

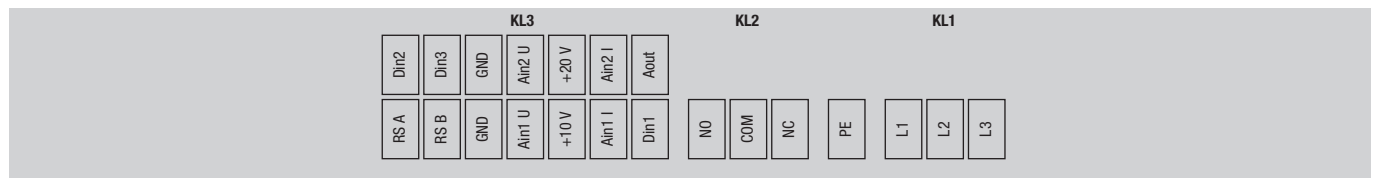


Connector	Connection	Assignment / function
PE	PE	Protective earth
KL1	N	Mains 50/60 Hz. neutral
	L	Mains 50/60 Hz. phase
KL2	NC	Alarm relay, break for failure
	COM	Alarm relay, COMMON (2A, 250 VAC, AC1)
	NO	Alarm relay, make for failure

Connector	Connection	Assignment / function
KL3	OUT	Master output 0-10 V max. 3 mA
	GND	GND
	0-10 V / PWM	Control / Actual value input (Impedance 100 k $\Omega$ )
	+10 V	Supply for external potentiometer, 10 VDC (+10 %) max. 10 mA
	+20 V	Supply for external sensor, 20 VDC ( $\pm$ 20 %) max. 50 mA
	4-20 mA	Control / Actual value input
	0-10 V / PWM	Control / Actual value input
	GND	GND
	RSB	RS485 interface for MODBUS RTU; RS B
	RSA	RS485 interface for MODBUS RTU; RS A
	RSB	RS485 interface for MODBUS RTU; RS B
	RSA	RS485 interface for MODBUS RTU; RS A

## Electrical connections EC

L5)

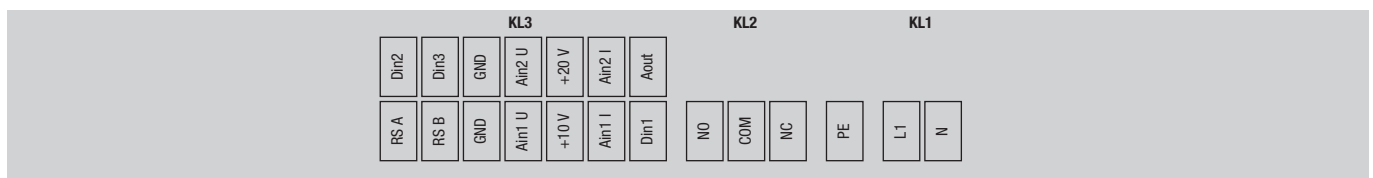


Connector	Connection	Assignment / function
KL1	L3	Mains; L3
	L2	Mains; L2
	L1	Mains; L1
PE	PE	Protective earth
KL2	NC	Alarm relay, break for failure
	COM	Alarm relay, COMMON (2A, 250 VAC, AC1)
	NO	Alarm relay, make for failure

Connector	Connection	Assignment / function
KL3	Din1	Digital input 1 (enabling / disabling of electronics), Enabling: Pin open or applied voltage 5...50 VDC Disabling: Bridge to GND or applied voltage < 1 VDC
	Ain1 I	Analogue set value input, 4-20 mA (impedance 100 Ω), only to be used as alternative to terminal Ain1 U
	+10 V	Supply for external potentiometer, 10 VDC (±3 %) max. 10 mA
	Ain1U	Analogue set value input, 0-10 V (impedance 100 kΩ), only to be used as alternative to terminal Ain1 I
	GND	GND
	RSB	RS485 interface for MODBUS RTU; RS B
	RSA	RS485 interface for MODBUS RTU; RS A
	Aout	Analogue output 0-10 V max. 5 mA, reading of current motor speed / current motor control factor
	Ain2 I	Analog. actual value input, 4-20mA (impedance 100Ω), only to be used as alternative to terminal Ain2 U
	+20 V	Supply for external sensor, 20 VDC (+25 % / -10%) max. 40 mA
	Ain2 U	Analog. actual value input, 0-10 V (impedance 100 kΩ), only to be used as alternative to terminal Ain2 I
	GND	GND
	Din3	Digital input 3 (switch Normal / Inverse), The preset effective direction of the integrated controller can be selected via BUS or via digital input Normal/Inverse. Normal: Pin open or applied voltage 5...50 VDC Inverse: Bridge to GND or applied voltage < 1 VDC
	Din2	Digital input 2 (switch Day / Night), The preset set of parameters can be selected via BUS or via digital input Day/Night. Day: Pin open or applied voltage 5...50 VDC Night: Bridge to GND or applied voltage < 1 VDC



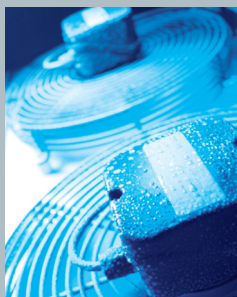
L9)



Connector	Connection	Assignment / function
KL1	N	Mains; neutral
	L1	Mains; L1
PE	PE	Protective earth
KL2	NC	Alarm relay, break for failure
	COM	Alarm relay, COMMON (2A, 250 VAC, AC1)
	NO	Alarm relay, make for failure

Connector	Connection	Assignment / function
KL3	Din1	Digital input 1 (enabling / disabling of electronics), Enabling: Pin open or applied voltage 5...50 VDC Disabling: Bridge to GND or applied voltage < 1 VDC
	Ain1 I	Analogue set value input, 4-20 mA (impedance 100 Ω), only to be used as alternative to terminal Ain1 U
	+10 V	Supply for external potentiometer, 10 VDC (±3 %) max. 10 mA
	Ain1U	Analogue set value input, 0-10 V (impedance 100 kΩ), only to be used as alternative to terminal Ain1 I
	GND	GND
	RSB	RS485 interface for MODBUS RTU; RS B
	RSA	RS485 interface for MODBUS RTU; RS A
	Aout	Analogue output 0-10 V max. 5 mA, reading of current motor speed / current motor control factor
	Ain2 I	Analogue actual value input, 4-20mA (impedance 100Ω), only to be used as alternative to terminal Ain2 U
	+20 V	Supply for external sensor, 20 VDC (+25 % / -10%) max. 40 mA
	Ain2 U	Analogue actual value input, 0-10 V (impedance 100 kΩ), only to be used as alternative to terminal Ain2 I
	GND	GND
	Din3	Digital input 3 (switch Normal / Inverse), The preset effective direction of the integrated controller can be selected via BUS or via digital input Normal/Inverse. Normal: Pin open or applied voltage 5...50 VDC Inverse: Bridge to GND or applied voltage < 1 VDC
	Din2	Digital input 2 (switch Day / Night), The preset set of parameters can be selected via BUS or via digital input Day/Night. Day: Pin open or applied voltage 5...50 VDC Night: Bridge to GND or applied voltage < 1 VDC

# Technical parameters & scope



## High standards for all ebm-papst products

*Here at ebm-papst, we constantly strive to further improve our products in order to be able to offer you the best possible product for your application. Careful monitoring of the market ensures that technical innovations are reflected in the improvements of our products.*

*Based on the technical parameters listed below and the ambience you want our product to operate in, we here at ebm-papst can always work out the best solution for your specific application.*

## General performance parameters

Any deviations from the technical data and parameters described here are listed on the product-specific data sheet.

### Type of protection

The type of protection is specified in the product-specific data sheets.

### Insulation class

The insulation class is specified in the product-specific data sheets.

### Mounting position

The mounting position is specified in the product-specific data sheets.

### Condensate discharge holes

Information on the condensate discharge holes is provided in the product-specific data sheets.

### Mode of operation

The mode of operation is specified in the product-specific data sheets.

### Protection class

The protection class is specified in the product-specific data sheets.

## Service life

The service life of ebm-papst products depends on two major factors:

- The service life of the insulation system
- The service life of the bearing system

The service life of the insulation system mainly depends on voltage level, temperature and ambient conditions, such as humidity and condensation.

The service life of the bearing system depends mainly on the thermal load on the bearing.

The majority of our products use maintenance-free ball bearings for any mounting position possible. As an option, sleeve bearings can be used, which is indicated on the product-specific data sheet wherever applicable.

The service life L10 of the ball bearings can be taken as approx. 40,000 operating hours at an ambient temperature of 40 °C, yet this estimate can vary according to the actual ambient conditions.

We will gladly provide you with a lifetime calculation taking into account your specific operating conditions.

## Motor protection / thermal protection

Information on motor protection and thermal protection is provided in the product-specific data sheets.

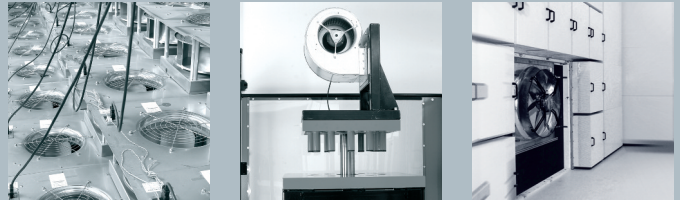
Depending on motor type and field of application, the following protective features are realised:

- Thermal overload protection (TOP), either in-circuit or external
- PTC with electronic diagnostics
- Impedance protection
- Thermal overload protection (TOP) with electronic diagnostics
- Current limitation via electronics

If an external TOP is connected, the customer has to make sure to connect a conventional trigger device for switching it off.

Products without fitted TOP and without protection against improper use, a motor protection complying with the valid standards has to be installed.

*Left: Endurance test room  
Middle: Shock test  
Right: Chamber test rig*



### ■ Mechanical strain / performance parameters

All ebm-papst products are subjected to comprehensive tests complying with the normative specifications. In addition to this, the tests also reflect the vast experience and expertise of ebm-papst.

#### **Vibration test**

Vibration tests are carried out in compliance with

- Vibration test in operation according to DIN IEC 68, parts 2-6
- Vibration test at standstill according to DIN IEC 68, parts 2-6

#### **Shock load**

Shock load tests are carried out in compliance with

- Shock load according to DIN IEC 68, parts 2-27

#### **Balancing quality**

Testing the balancing quality is carried out in compliance with

- Residual imbalance according to DIN ISO 1940
- Standard balancing quality level G 6.3

Should you require a higher balancing quality level for your specific application, please let us know and specify this when ordering your product.

### ■ Chemo-physical strain / performance parameters

Should you have questions about chemo-physical strain, please direct them to your ebm-papst contact.

### ■ Fields of application, industries and applications

Our products are used in various industries and applications:

Ventilation, air-conditioning and refrigeration technology, clean room technology, automotive and rail technology, medical and laboratory technology, electronics, computer and office technology, telecommunications, household appliances, heating, machines and plants, drive engineering. Our products are not designed for use in the aviation and aerospace industry!

### ■ Legal and normative directives

The products described in this catalogue are designed, developed and produced in keeping with the standards in place for the relevant product and, if known, the conditions governing the relevant fields of application.

#### **Standards**

Information on standards is provided in the product-specific data sheets.

#### **EMC**

Information on EMC standards is provided in the product-specific data sheets.

Complying with the EMC standards has to be established on the final appliance, as different mounting situations can result in changed EMC properties.

#### **Leakage current**

Information on the leakage current is provided in the product-specific data sheets.

Measuring is according to IEC 60990.

#### **Approvals**

In case you require a specific approval for your ebm-papst product (VDE, UL, GOST, CCC, CSA, etc.) please let us know.

Most of our products can be supplied with the relevant approval.

Information on existing approvals is provided in the product-specific data sheets.

### ■ Air performance measurements

All air performance measurements are carried out on suction side and on chamber test beds conforming to the specifications as per ISO 5801 and DIN 24163. The fans under test are installed in the measuring chamber at free air intake and exhaust (installation category A) and are operated at nominal voltage, with AC also at nominal frequency, and without any additional components such as guard grilles.

As required by the standard, the air performance curves correspond to an air density of 1.2 kg/m<sup>3</sup>.

Room for precision noise measuring



### ■ Measurement conditions for air and noise measurement

ebm-papst products are measured under the following conditions:

- Axial and diagonal fans in direction of rotation “V” in full nozzle and without guard grille
- Backward curved centrifugal fans, free-running and with inlet nozzle
- Forward curved single and dual inlet centrifugal fans with housing

### ■ Noise measurements

All noise measurements are carried out in low-reflective test rooms with reverberant floor. Thus the ebm-papst acoustic test chambers meet the requirements of precision class 1 according to DIN EN ISO 3745. For noise measurement, the fans being tested are placed in a reverberant wall and operated at nominal voltage (for AC, also at nominal frequency) without additional attachments such as the guard grille.

### Sound pressure level and sound level

All acoustic values are established according to ISO 13347, DIN 45635 and ISO 3744/3745 to accuracy class 2 and given in A-rated form.

When the sound pressure level ( $L_p$ ) is measured, the microphone is on the intake side of the fan being tested, usually at a distance of 1 m on the fan axis.

To measure the sound power level ( $L_w$ ), 10 microphones are distributed over an enveloping surface on the intake side of the fan being tested (see graphic). The sound power level measured can be roughly calculated from the sound pressure level by adding 7 dB.

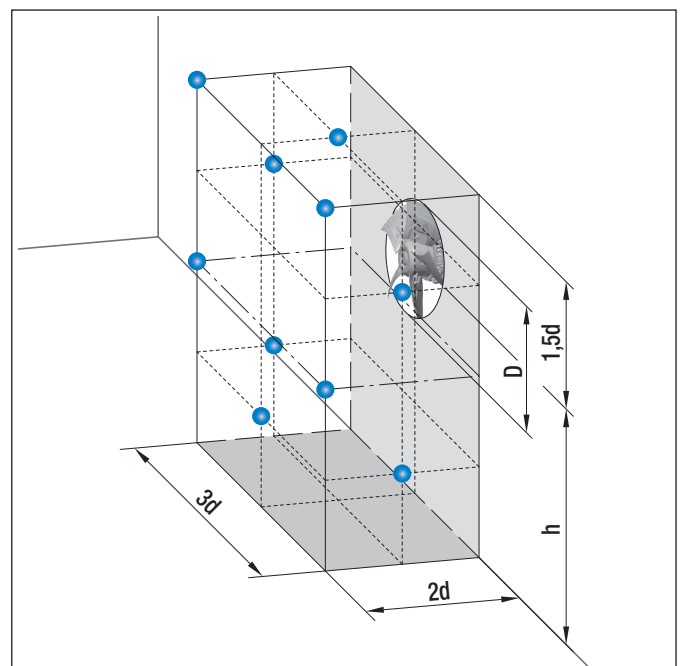
Measuring configuration as per ISO 13347-3 respectively DIN 45635-38:

- 10 measuring points

$$d \geq D$$

$$h = 1,5d \dots 4,5d$$

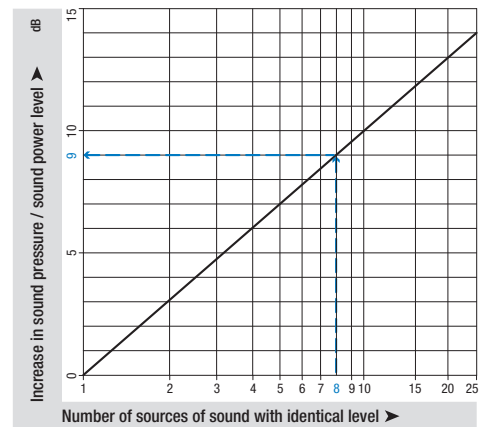
$$\text{Measurement area } S = 6d^2 + 7d(h + 1,5d)$$



### Adding multiple noise sources with the same level

Adding 2 noise sources with the same volume results in a level increase of approx. 3 dB. The noise characteristics of multiple identical fans can be determined in advance based on the noise values specified in the data sheet. This is shown in the diagram opposite.

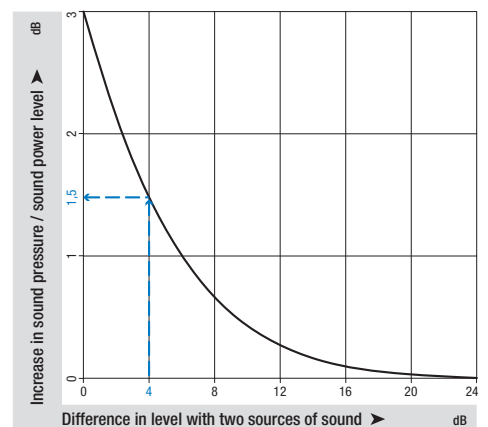
Example: 8 A3G800 axial fans are on a condenser. According to the data sheet, the sound pressure level of a fan is approximately 75 dB(A). The level increase measured from the diagram is 9 dB. Thus the overall sound level of the installation can be expected to be 84 dB(A).



### Adding two noise sources with different levels

The acoustic performance of two different fans can be predetermined based on the sound levels given in the data sheet. This is shown in the diagram opposite.

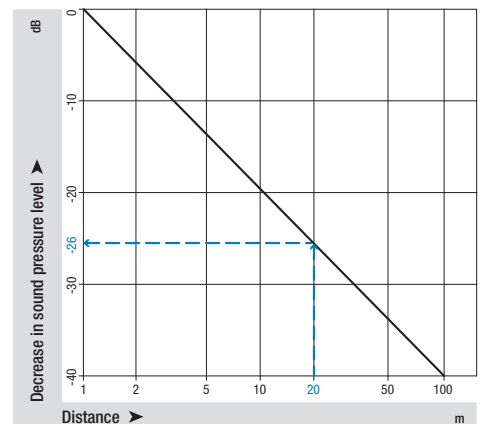
Example: There is an axial fan A3G800 with a sound pressure level of 75 dB(A) at the operating point and an axial fan A3G710 with 71 dB(A) in a ventilation unit. The level difference is 4 dB. The level increase can now be read in the diagram as approx. 1.5 dB. This means that the overall sound level of the unit can be expected to be 76.5 dB(A).



### Distance laws

Sound power level is independent of distance to the sound source. In contrast to this, sound pressure level decreases the further away the noise source is. The adjacent diagram shows the decrease in level under far sound field conditions. Far sound field conditions apply whenever the distance between microphone and fan is big when compared to fan diameter and wavelength to be considered. For more information on far sound field, please consult the relevant literature on this complex topic. Per doubling of distance, the level in the far sound field decreases by 6 dB. In the near field of the fan, other correlations apply and the decrease in levels can be considerably smaller. The following example only applies to far sound field conditions and can vary strongly depending on the installation effects:

With an axial fan A3G300, a sound pressure level of 65 dB(A) was measured at a distance of 1 m. According to the adjacent diagram, at a distance of 20 m we would get a reduction by 26 dB, i.e. a sound pressure level of 39 dB(A).





fan agent



compact fan agent



motor specialist



motor agent

# ebm-papst in Germany

## Germany

### ebm-papst Muldingen GmbH & Co. KG

Bachmühle 2  
D-74673 Muldingen  
Phone +49 7938 81-0  
Fax +49 7938 81-110  
info1@de.ebmpapst.com

www.ebmpapst.com

### ebm-papst St. Georgen GmbH & Co. KG

Hermann-Papst-Straße 1  
D-78112 St. Georgen  
Phone +49 7724 81-0  
Fax +49 7724 81-1309  
info2@de.ebmpapst.com

www.ebmpapst.com

### ebm-papst Landshut GmbH

Hofmark-Aich-Straße 25  
D-84030 Landshut  
Phone +49 871 707-0  
Fax +49 871 707-465  
info3@de.ebmpapst.com

www.ebmpapst.com



#### Berlin



Dipl.-Ing. (TH) Jens Duchow  
Händelstraße 7  
D-16341 Panketal  
Phone +49 30 944149-62  
Fax +49 30 944149-63  
Jens.Duchow@de.ebmpapst.com



#### Bielefeld



Dipl.-Ing. (FH) Wolf-Jürgen Weber  
Niehausweg 13  
D-33739 Bielefeld  
Phone +49 5206 91732-31  
Fax +49 5206 91732-35  
Wolf-Juergen.Weber@de.ebmpapst.com



#### Dortmund



Dipl.-Ing. (FH) Hans-Joachim Pundt  
Auf den Steinern 3  
D-59519 Möhnesee-Völlinghausen  
Phone +49 2925 800-407  
Fax +49 2925 800-408  
Hans-Joachim.Pundt@de.ebmpapst.com



#### Frankfurt



Dipl.-Ing. Christian Kleffmann  
Dr.-Hermann-Krause-Straße 23  
D-63452 Hanau  
Phone +49 6181 1898-12  
Fax +49 6181 1898-13  
Christian.Kleffmann@de.ebmpapst.com



#### Halle



Dipl.-Ing. (TU) Michael Hanning  
Lercheneck 4  
D-06198 Salzdahlau / OT Lieskau  
Phone +49 345 55124-56  
Fax +49 345 55124-57  
Michael.Hanning@de.ebmpapst.com



#### Hamburg



Ingenieurbüro Breuell GmbH  
Ing. Dirk Kahl  
Elektroingenieur  
Grützmühlenweg 40  
D-22339 Hamburg  
Phone +49 40 538092-19  
Fax +49 40 538092-84  
Dirk.Kahl@de.ebmpapst.com



#### Heilbronn / Heidelberg



Dipl.-Ing. Mark Gartner  
Gehweg 12  
D-74199 Unterheinriet  
Phone +49 7130 404569-1  
Fax +49 7130 404569-2  
Mark.Gartner@de.ebmpapst.com



#### Kassel



Dipl.-Ing. (FH) Ralph Brück  
Hoherainstraße 3 b  
D-35075 Gladenbach  
Phone +49 6462 4071-10  
Fax +49 6462 4071-11  
Ralph.Brueck@de.ebmpapst.com



#### Koblenz



Winfried Schaefer  
Hinter der Kirch 10  
D-56767 Uersfeld  
Phone +49 2657 16-96  
Fax +49 2657 16-76  
Winfried.Schaefer@de.ebmpapst.com



#### Munich



Dipl.-Wirt.-Ing. (FH) Jens Peter  
Umlandstraße 6  
D-74427 Fichtenberg  
Phone +49 7971 260-180  
Fax +49 7971 260-221  
Jens.Peter@de.ebmpapst.com



#### Nuremberg



Dipl.-Wirt.-Ing. (FH) Axel Resch  
Steinsfeldstraße 80  
D-74626 Bretzfeld  
Phone +49 7946 94401-02  
Fax +49 7946 94401-03  
Axel.Resch@de.ebmpapst.com



#### Offenburg



Dipl.-Ing. (FH) Ralf Braun  
Hubeneck 21  
D-77704 Oberkirch  
Phone +49 7802 9822-52  
Fax +49 7802 9822-53  
Ralf.Braun@de.ebmpapst.com



#### Stuttgart



Dipl.-Ing. (FH) Rudi Weinmann  
Hindenburgstraße 100/1  
D-73207 Plochingen  
Phone +49 7153 9289-80  
Fax +49 7153 9289-81  
Rudi.Weinmann@de.ebmpapst.com



#### Ulm



M.Sc. Reinhard Sommerreißer  
Am Silbermannpark 10  
D-86161 Augsburg  
Phone +49 821 6610-7023  
Fax +49 821 6610-7024  
Reinhard.Sommerreisser@de.ebmpapst.com

## Distributors



#### Frankfurt

R.E.D. Handelsgesellschaft mbH  
Gutenbergstraße 3  
D-63110 Rodgau - Jügesheim  
Phone +49 6106 841-0  
Fax +49 6106 841-111  
info@red-elektromechanik.de  
www.red-elektromechanik.de



#### Hamburg

Breuell + Hilgenfeldt GmbH  
Grützmühlenweg 40  
D-22339 Hamburg  
Phone +49 40 538092-20  
Fax +49 40 538092-84  
info@breuell-hilgenfeldt.de



#### Munich

A. Schweiger GmbH  
Ohmstraße 1  
D-82054 Sauerlach  
Phone +49 8104 897-0  
Fax +49 8104 897-90  
info@schweiger-gmbh.de  
www.schweiger-gmbh.com

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#### North



Breuell + Hilgenfeldt GmbH  
Grützmühlenweg 40  
D-22339 Hamburg  
Phone +49 40 538092-20  
Fax +49 40 538092-84  
ebmpapst@breuell-hilgenfeldt.de



#### South



HDS Ventilatoren Vertriebs GmbH  
Glaswiesenstraße 1  
D-74677 Dörzbach  
Phone +49 7937 8033520  
Fax +49 7937 8033525  
info@hds-gmbh.net

## Europe

 **Austria**  
 ebm-papst Motoren & Ventilatoren GmbH  
 Straubingstraße 17  
A-4030 Linz  
Phone +43 732 321150-0  
Fax +43 732 321150-20  
info@at.ebmpapst.com  
www.ebmpapst.at

 **Belarus**  
 ebm-papst Bel AgmbH  
 P.O. Box 117  
BY-220138 Minsk  
Phone +375 17 3851556  
Fax +375 17 3851556  
info@by.ebmpapst.com  
www.ebmpapst.by

 **Belgium**  
 ebm-papst Benelux B.V.  
 Sales office Belgium-Luxemburg  
Romeinsestraat 6/0101  
Research Park Haasrode  
B-3001 Heverlee-Leuven  
Phone +32 16 396-200  
Fax +32 16 396-220  
info@be.ebmpapst.com  
www.ebmpapst.be

 **Bulgaria**  
 ebm-papst Romania S.R.L.  
 Str. Tarnavei Nr. 20  
RO-500327 Brasov  
Phone +40 268 312-805  
Fax +40 268 312-805  
dudasludovic@xnet.ro

 **Croatia**  
 ebm-papst Industries Kft.  
 Ezred u. 2.  
H-1044 Budapest  
Phone +36 1 8722-190  
Fax +36 1 8722-194  
office@hu.ebmpapst.com

 **Czech Republic / Slovakia**  
 ebm-papst CZ s.r.o.  
 Kaštanová 34a  
CZ-620 00 Brno  
Phone +420 544 502-411  
Fax +420 547 232-622  
info@ebmpapst.cz  
www.ebmpapst.cz

 **Denmark**  
 ebm-papst Denmark ApS  
 Vallengsbækvej 21  
DK-2605 Brøndby  
Phone +45 43 631111  
Fax +45 43 630505  
mail@dk.ebmpapst.com  
www.ebmpapst.dk

 **Estonia**  
 ebm-papst Oy, Eesti Filiaal  
 Keskk tee 13  
Aaviku küla, Jüri Tehnopol  
EST-75301 Rae Vald, Harjumaa  
Phone +372 65569-78  
Fax +372 65569-79  
www.ebmpapst.ee

 **Finland**  
 ebm-papst Oy  
 Puistotie 1  
FIN-02760 Espoo  
Phone +358 9 887022-0  
Fax +358 9 887022-13  
mailbox@ebmpapst.fi  
www.ebmpapst.fi

 **France**  
 ebm-papst sarl  
 ZI Nord - rue A. Mohler  
BP 62  
F-67212 Obernai Cedex  
Phone +33 820 326266  
Fax +33 3 88673883  
info@ebmpapst.fr  
www.ebmpapst.fr

 **Greece**  
 Helcoma  
 Th. Rotas & Co OE  
Davaki 65  
GR-17672 Kallithea-Attiki  
Phone +30 210 9513-705  
Fax +30 210 9513-490  
contact@helcoma.gr  
www.helcoma.gr


 **Hungary**  
 ebm-papst Industries Kft.  
 Ezred u. 2.  
H-1044 Budapest  
Phone +36 1 8722-190  
Fax +36 1 8722-194  
office@hu.ebmpapst.com

 **Iceland**  
 RJ Engineers  
 Stangarhyl 1a  
IS-110 Reykjavik  
Phone +354 567 8030  
Fax +354 567 8015  
rj@rj.is  
www.rj.is

 **Ireland**  
 ebm-papst UK Ltd.  
 Chelmsford Business Park  
GB-Chelmsford Essex CM2 5EZ  
Phone +44 1245 468555  
Fax +44 1245 466336  
sales@uk.ebmpapst.com  
www.ebmpapst.co.uk

 **AuBren Limited**  
 Portlaoise Business & Technology Park  
 Mountrath Road  
IRL-Portlaoise, Co. Laois  
Phone +353 57 8664343  
Fax +353 57 8664346  
sales@ie.aubren.com  
www.aubren.com

 **Italy**  
 ebm-papst Srl  
 Via Cornaggia 108  
I-22076 Mozzate (Co)  
Phone +39 0331 836201  
Fax +39 0331 821510  
info@it.ebmpapst.com  
www.ebmpapst.it

 **Macedonia**  
 ebm-papst Industries Kft.  
 Ezred u. 2.  
H-1044 Budapest  
Phone +36 1 8722-190  
Fax +36 1 8722-194  
office@hu.ebmpapst.com



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# ebm-papst in Europe



## Netherlands

ebm-papst Benelux B.V.  
Engelseweg 127  
NL-5705 AC Helmond  
Phone +31 492 502-900  
Fax +31 492 502-950  
verkoop@nl.ebmpapst.com  
www.ebmpapst.nl



## Norway

ebm-papst AS  
P.B. 173 Holmlia  
N-1203 Oslo  
Phone +47 22 763340  
Fax +47 22 619173  
mailbox@ebmpapst.no  
www.ebmpapst.no



## Poland

ebm-papst Polska Sp. z o.o.  
ul. Annopol 4A  
PL-03236 Warszawa  
Phone +48 22 6757819  
Fax +48 22 6769587  
office@ebmpapst.pl  
www.ebmpapst.pl



## Portugal

ebm-papst (Portugal), Lda.  
Centro Empresarial de Alverca  
Rua de Adarse, Vale D'Ervas  
Corpo D / Fracção 3  
P-2615-178 Alverca do Ribatejo  
Phone +351 218 394 880  
Fax +351 218 394 759  
info@pt.ebmpapst.com  
www.ebmpapst.pt



## Romania

ebm-papst Romania S.R.L.  
Str. Tarnavei Nr. 20  
RO-500327 Brasov  
Phone +40 268 312-805  
Fax +40 268 312-805  
dudasludovic@xnet.ro



## Russia

ebm-papst Ural GmbH  
Posadskaja-Strasse, 23(E), 3  
RU-620102 Ekaterinburg  
Phone +7 343 2338000  
Fax +7 343 2337788  
Konstantin.Molokov@ru.ebmpapst.com  
www.ebmpapst.ur.ru



ebm-papst Rus GmbH  
proezd 4529, vladenie 5, stroenie 1  
RU-141000 Mytistschi, Oblast Moskau  
Phone +7 495 9807524  
Fax +7 495 5140924  
info@ebmpapst.ru  
www.ebmpapst.ru



## Serbia & Montenegro

ebm-papst Industries Kft.  
Ezred u. 2.  
H-1044 Budapest  
Phone +36 1 8722-190  
Fax +36 1 8722-194  
office@hu.ebmpapst.com



## Spain

ebm-papst Ibérica S.L.  
Avda. del Sistema Solar, 29  
E-28830 San Fernando de Henares (Madrid)  
Phone +34 91 6780894  
Fax +34 91 6781530  
ventas@ebmpapst.es



## Sweden

ebm-papst AB  
Äggelundavägen 2  
S-17562 Järfälla  
Phone +46 8 7619400  
Fax +46 8 362306  
info@ebmpapst.se  
www.ebmpapst.se



## Switzerland

ebm-papst AG  
Rütisbergstrasse 1  
CH-8156 Oberhasli  
Phone +41 44 73220-70  
Fax +41 44 73220-77  
verkauf@ebmpapst.ch  
www.ebmpapst.ch



## Turkey

Akantel Elektronik San. Tic. LTD. Sti.  
Atatürk Organize Sanayi  
Bölgesi 10007 SK. No.:6  
TR-35620 Cigli-Izmir  
Phone +90 232 3282090  
Fax +90 232 3280270  
akantel@akantel.com.tr  
www.ebmpapst.com.tr



## Ukraine

ebm-papst Ukraine LLC  
Lepse Boulevard, 4, Building 47  
UA-03067 Kiev  
Phone +38 044 2063091  
Fax +38 044 2063091  
mail@ebmpapst.ua  
www.ebmpapst.ua



## United Kingdom

ebm-papst UK Ltd.  
Chelmsford Business Park  
GB-Chelmsford Essex CM2 5EZ  
Phone +44 1245 468555  
Fax +44 1245 466336  
sales@uk.ebmpapst.com  
www.ebmpapst.co.uk



ebm-papst Automotive & Drives (UK) Ltd.  
The Smithy  
Fidlers Lane  
GB-East Ilsley, Berkshire RG20 7LG  
Phone +44 1635 2811-11  
Fax +44 1635 2811-61  
A&Dsales@uk.ebmpapst.com  
www.ebmpapst-ad.com



## America

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### Argentina



ebm-papst de Argentina S.A.  
Hernandarias 148 Lomas del Mirador  
Pcia. de Buenos Aires (1752)  
Phone +54 11 46576135  
Fax +54 11 46572092  
ventas@ar.ebmpapst.com  
www.ebmpapst.com.ar



### Brasil



ebm-papst Motores Ventiladores Ltda.  
Av. José Giorgi, 301 Galpões B6+B7  
Condominio Logical Center  
BR-06707-100 Cotia - São Paulo  
Phone +55 11 4613-8700  
Fax +55 11 3164-8924  
vendas@br.ebmpapst.com  
www.ebmpapst.com.br



### Canada



ebm-papst Canada Inc.  
1800 Ironstone Manor, Unit 2  
CDN-Pickering, Ontario, L1W3J9  
Phone +1 905 420-3533  
Fax +1 905 420-3772  
sales@ca.ebmpapst.com  
www.ebmpapst.ca



### Mexico



ebm Industrial S.de R.L. de C.V.  
Paseo de Tamarindos 400-A-5º Piso  
Col. Bosques de las Lomas  
MEX-Mexico 05120, D.F.  
Phone +52 55 3300-5144  
Fax +52 55 3300-5243  
sales@mx.ebmpapst.com  
www.ebmpapst.com.mx

## USA



ebm-papst Inc.  
P.O. Box 4009  
100 Hyde Road  
USA-Farmington, CT 06034  
Phone +1 860 674-1515  
Fax +1 860 674-8536  
sales@us.ebmpapst.com  
www.ebmpapst.us



ebm-papst Automotive & Drives, Inc.  
3200 Greenfield, Suite 255  
USA-Dearborn, MI 48120  
Phone +1 313 406-8080  
Fax +1 313 406-8081  
automotive@us.ebmpapst.com  
www.ebmpapst-automotive.us

## Africa

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### South Africa



ebm-papst South Africa (Pty) Ltd.  
P.O. Box 3124  
1119 Yacht Avenue  
ZA-2040 Honeydew  
Phone +27 11 794-3434  
Fax +27 11 794-5020  
info@za.ebmpapst.com  
www.ebmpapst.co.za



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# ebm-papst in Asia and Australia

## Asia



### China



ebm-papst Ventilator (Shanghai) Co., Ltd.  
No. 418, Huajing Road  
WaiGaoQiao Free Trade Zone  
No. 2001, Yang Gao (N) Road  
VRC-200131 Shanghai, P.R. of China  
Phone +86 21 5046-0183  
Fax +86 21 5046-1119  
sales@cn.ebmpapst.com  
www.ebmpapst.com.cn



### Hong Kong



ebm-papst Hong Kong Ltd.  
Unit No. 13,9 / F  
Technology Park, 18 On Lai Street  
Siu Lek Yuen, Shatin N.T.  
Hong Kong - P.R. of China  
Phone +852 2145-8678  
Fax +852 2145-7678  
info@hk.ebmpapst.com



### India



ebm-papst India Pvt. Ltd.  
26/3, G.N.T. Road, Erukkencherry  
IND-Chennai-600118  
Phone +91 44 25372556  
Fax +91 44 25371149  
sales@in.ebmpapst.com  
www.ebmpapst.in



### Indonesia



ebm-papst Indonesia  
Representative Office  
German Centre, 4th Floor, Suite 4470  
Jl. Kapt. Subijono Dj. Bumi Serpong Damai  
RI-15321 Tangerang  
Phone +62 21 5376250  
Fax +62 21 5388305  
salesdept@id.ebmpapst.com



### Israel



Polak Bros. Import Agencies Ltd.  
9 Hamefalsim Street  
IL-Kiryat Arie, Petach-Tikva 49514  
Phone +972 3 9100300  
Fax +972 3 5796679  
polak@polak.co.il  
www.polak.co.il



### Japan



ebm-papst Industries Japan K.K.  
12 Floor, Benex S-3 Bldg.  
3-20-8 Shinyokohama, Kohoku-ku  
J-222-0033 Yokohama  
Phone +81 45 47057-51  
Fax +81 45 47057-52  
info@jp.ebmpapst.com  
www.ebmpapst.jp



### Korea



ebm-papst Korea Co. Ltd.  
6F, Trutec Bldg.  
B 6-2, Digital Media City (DMC)  
Sangam-Dong, Mapo-Gu  
ROK-Seoul 121-270  
Phone +82 2 366213-24  
Fax +82 2 366213-26  
info@kr.ebmpapst.com  
www.ebmpapst.co.kr



### Malaysia



ebm-papst Malaysia  
Representative Office  
Unit 12-2, Jalan USJ Sentral 3  
Persiaran Subang, Selangor Darul Ehsan  
MAL-47600 Subang Jaya  
Phone +60 3 8024-1680  
Fax +60 3 8024-8718  
salesdept@my.ebmpapst.com



### Singapore



ebm-papst SEA Pte. Ltd.  
No. 23 Ubi Road 4  
#06-00 Olympia Industrial Building  
SGP-Singapore 408620  
Phone +65 65513789  
Fax +65 68428439  
salesdept@sg.ebmpapst.com



### Taiwan



ETECO Engineering & Trading Corp.  
10F-I, No. 92, Teh-Wei Str.  
RC-Tsow-Inn District, Kaohsiung  
Phone +886 7 557-4268  
Fax +886 7 557-2788  
eteco@ms22.hinet.net  
www.ebmpapst.com.tw



### Thailand



ebm-papst Thailand Co., Ltd.  
99/349 Na-Nakorn Bldg., 4th Floor  
Chaeng Wattana Road, Thungsonghong,  
THA-10210 Laksi, BKK  
Phone +66 2 57615-24  
Fax +66 2 57615-42  
salesdept@th.ebmpapst.com



### United Arab Emirates



ebm-papst Middle East FZE  
PO Box 17755  
Jebel Ali Free Zone / FZS1 / AP05  
UAE-Dubai  
Phone +971 4 88608-26  
Fax +971 4 88608-27  
info@ae.ebmpapst.com  
www.ebmpapst.ae



### Vietnam



ebm-papst Vietnam  
Representative Office  
Room #102, 25 Nguyen Van Thu Street  
District 1  
VN-Ho Chi Minh City  
Phone +84 8 39104099  
Fax +84 8 39103970  
linh.nguyen@vn.ebmpapst.com

## Australia

---



### Australia

ebm-papst A&NZ Pty Ltd.



10 Oxford Road



AUS-Laverton North, Victoria, 3026

Phone +61 3 9360-6400

Fax +61 3 9360-6464

[sales@ebmpapst.com.au](mailto:sales@ebmpapst.com.au)

[www.ebmpapst.com.au](http://www.ebmpapst.com.au)



### New Zealand

ebm-papst A&NZ Pty Ltd.



102 Henderson Valley Road



NZ-Henderson, Auckland 1230

Phone +64 9 837-1884

Fax +64 9 837-1899

[sales@ebmpapst.com.au](mailto:sales@ebmpapst.com.au)

[www.ebmpapst.com.au](http://www.ebmpapst.com.au)

**ebm-papst**  
**Mulfingen GmbH & Co. KG**

Bachmühle 2  
D-74673 Mulfingen  
Phone +49 7938 81-0  
Fax +49 7938 81-110  
info1@de.ebmpapst.com

[www.ebmpapst.com](http://www.ebmpapst.com)



**ebmpapst**