



## EC centrifugal fans – RadiPac



**ebmpapst**

The engineer's choice

# RadiPac: Everything packed in compact form

The line of radial plug fans with GreenTech EC motor technology already established in the market has been expanded further. And with the new product line, we also have a new name: RadiPac.

RadiPac is to denote medium pressure radial fans and is meant to be an independent line positioned to complement the low pressure line RadiCal. The “Pac” in RadiPac is short for “packaged”, as all required functions are packed into one fan and are on board.

The RadiPac line is available in drive capacities of up to 12 kW and sizes 250mm to 1250mm in outer diameter. As a standard, all fans with their rated input exceeding 500 Watts can be controlled by MODBUS and 0-10V.

What is new is their mechanical design. All sizes can now also be ordered as versions which can be directly mounted on the floor. As of size 400, the mechanical structure is executed in the form of a cube. The proven support bracket is available up to size 560.

All this allows them to be used in a wide variety of applications, going beyond the mere ventilation and air-conditioning industry. Generally, the RadiPacs are intended for use without scroll housing.

All RadiPacs listed in the catalogue exceed the minimum efficiency requirements of the ErP Directive for Fans, effective as of 2013 respectively 2015. The motor efficiency of the GreenTech EC motors is significantly above those specified in efficiency class IE4. And this is achieved without even having to resort to any of the rare earth magnets, the procurement of which we are critical of.

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

With the new release of our selection programme “Product selector”, the complete RadiPac line is available. This tool allows fans to be selected according to the specified duty points, and this selection to be compared and documented. Using a DLL file, the RadiPacs can be integrated in your specific programme for fan selection.

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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 Deutscher Nachhaltigkeitspreis 2012 (German Sustainability Award 2012), where we were given the Top3-award in the category "Germany's most sustainable strategy for the future (company group)" bears testimony to our commitment to sustainability, as does the DEKRA Award 2012 we received in the category "Umwelt – Herausforderung Energiewende / Environment – Challenge: Transition to more sustainable energy systems", to name only a few of a large number of examples. The environmental advantage gained in the performance of the products developed from our GreenTech philosophy can also be measured in the fulfillment 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 ebm-papst 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.



# Product overview: RadiPac

## RadiPac: Overview of types

Size	Motor	Nominal voltage range VAC	Max. input power W	Centrifugal fan Standard	Centrifugal module with support bracket Standard
250	M3G 084-DF	1~ 200-277	450	R3G250-AT39-71	K3G250-AT39-72
	M3G 084-FA	1~ 200-277	700	R3G250-AV29-B1	K3G250-AV29-B2
	M3G 084-GF	3~ 380-480	820	R3G250-AY11-C1	K3G250-AY11-C2
280	M3G 084-FA	1~ 200-277	415	R3G280-AT04-71	K3G280-AT04-72
	M3G 084-GF	1~ 200-277	715	R3G280-AU06-B1	K3G280-AU06-B2
	M3G 084-GF	3~ 380-480	1000	R3G280-AU11-C1	K3G280-AU11-C2
310	M3G 112-EA	3~ 380-480	1000	R3G310-AX52-90	K3G310-AX52-90
	M3G 112-EA	1~ 200-277	1270	R3G310-AX54-21	K3G310-AX54-22
	M3G 112-GA	3~ 380-480	1650	R3G310-BB49-01	K3G310-BB49-02
	M3G 112-IA	3~ 380-480	2915	R3G310-AZ88-01	K3G310-AZ88-02
355	M3G 112-EA	3~ 380-480	1000	R3G355-AX56-90	K3G355-AX56-90
	M3G 112-GA	1~ 200-277	1400	R3G355-AY43-21	K3G355-AY43-22
	M3G 112-GA	3~ 380-480	1700	R3G355-AY40-01	K3G355-AY40-02
	M3G 112-IA	3~ 380-480	2250	R3G355-BC92-01	K3G355-BC92-02
400	M3G 112-IA	3~ 380-480	1850	R3G400-AY87-01	K3G400-AY87-02
	M3G 150-FF	3~ 380-480	3000	R3G400-AQ23-01	K3G400-AQ23-01
	M3G 150-FF	3~ 380-480	3470	R3G400-AQ31-01	K3G400-AQ31-01
450	M3G 112-IA	3~ 380-480	1650	R3G450-AY86-01	K3G450-AY86-02
	M3G 150-FF	3~ 380-480	2730	R3G450-AQ24-01	K3G450-AQ24-01
	M3G 150-IF	3~ 380-480	5370	R3G450-AZ30-01	K3G450-AZ30-01
500	M3G 150-FF	3~ 380-480	2825	R3G500-AP25-01	K3G500-AP25-01
	M3G 150-FF	3~ 380-480	3510	R3G500-AP24-01	K3G500-AP24-01
	M3G 150-IF	3~ 380-480	5500	R3G500-AQ33-01	K3G500-AQ33-01
560	M3G 150-IF	3~ 380-480	3000	R3G560-AP23-01	K3G560-AP23-01
	M3G 150-NA	3~ 380-480	4700	R3G560-AQ04-01	K3G560-AQ04-01
630	M3G 150-NA	3~ 380-480	2900	R3G630-AP01-01	---
	M3G 200-HF	3~ 380-480	6750	---	---
	M3G 200-QA	3~ 380-480	11000	---	---
710	M3G 150-NA	3~ 380-480	2800	R3G710-AP02-01	---
	M3G 200-LA	3~ 380-480	7860	---	---
	M3G 200-QA	3~ 380-480	11800	---	---
800	M3G 200-QA	3~ 380-480	7530	---	---
	M3G 200-QA	3~ 380-480	11600	---	---
900	M3G 200-QA	3~ 380-480	7520	---	---
	M3G 200-QA	3~ 380-480	8700	---	---
Z50	M3G 200-QA	3~ 380-480	3560	---	---

## RadiPac in compact design

Size	Motor	Nominal voltage range VAC	Max. input power W	Centrifugal fan
280	M3G 084-GF	3~ 380-480	985	R3G280-AJ14-C1
310	M3G 112-GA	3~ 380-480	1650	R3G310-BC38-01
355	M3G 112-GA	3~ 380-480	1730	R3G355-BD43-01
400	M3G 150-FF	3~ 380-480	2840	R3G400-AS23-01
450	M3G 150-FF	3~ 380-480	2380	R3G450-AS24-01

Centrifugal module with support bracket Increased corrosion protection <sup>(1)</sup>	Centrifugal module with support bracket Hygiene devices <sup>(2)</sup>	Centrifugal module with support- cube design <sup>(4)</sup>
K3G250-AT39-74	K3G250-AT39-56	K3G250-AT39-89 <sup>(3)</sup>
K3G250-AV29-B4	K3G250-AV29-B6	K3G250-AV29-B9 <sup>(3)</sup>
K3G250-AY11-C4	---	K3G250-AY11-C9 <sup>(3)</sup>
K3G280-AT04-74	K3G280-AT04-56	K3G280-AT04-89 <sup>(3)</sup>
K3G280-AU06-B4	K3G280-AU06-B6	K3G280-AU06-B3 <sup>(3)</sup>
K3G280-AU11-C4	K3G280-AU11-C6	K3G280-AU11-C9 <sup>(3)</sup>
K3G310-AX52-91	K3G310-AX52-35	K3G310-AX52-96 <sup>(3)</sup>
K3G310-AX54-52	---	K3G310-AX54-98 <sup>(3)</sup>
K3G310-BB49-32	---	K3G310-BB49-96 <sup>(3)</sup>
K3G310-AZ88-32	K3G310-AZ88-35	K3G310-AZ88-96 <sup>(3)</sup>
K3G355-AX56-91	---	K3G355-AX56-96 <sup>(3)</sup>
K3G355-AY43-52	---	K3G355-AY43-98 <sup>(3)</sup>
K3G355-AY40-32	K3G355-AY40-35	K3G355-AY40-96 <sup>(3)</sup>
K3G355-BC92-32	---	K3G355-BC92-96 <sup>(3)</sup>
K3G400-AY87-32	---	K3G400-AY87-96 <sup>(3)</sup>
K3G400-AQ23-31	K3G400-AQ23-35	K3G400-AQ23-02 <sup>(4)</sup>
---	---	K3G400-AQ31-02 <sup>(4)</sup>
K3G450-AY86-32	---	K3G450-AY86-96 <sup>(4)</sup>
K3G450-AQ24-31	K3G450-AQ24-35	K3G450-AQ24-02 <sup>(4)</sup>
K3G450-AZ30-31	K3G450-AZ30-35	K3G450-AZ30-02 <sup>(4)</sup>
K3G500-AP25-31	---	K3G500-AP25-02 <sup>(4)</sup>
---	---	K3G500-AP24-02 <sup>(4)</sup>
K3G500-AQ33-31	K3G500-AQ33-35	K3G500-AQ33-02 <sup>(4)</sup>
K3G560-AP23-31	---	K3G560-AP23-02 <sup>(4)</sup>
K3G560-AQ04-31	K3G560-AQ04-35	K3G560-AQ04-02 <sup>(4)</sup>
---	---	---
---	---	K3G630-AR02-01 <sup>(4)</sup>
---	---	K3G630-AS05-01 <sup>(4)</sup>
---	---	---
---	---	K3G710-AR03-01 <sup>(4)</sup>
---	---	K3G710-AS06-01 <sup>(4)</sup>
---	---	---
---	---	K3G800-AR08-01 <sup>(4)</sup>
---	---	K3G800-AS07-01 <sup>(4)</sup>
---	---	---
---	---	K3G900-AR10-01 <sup>(4)</sup>
---	---	K3G900-AS08-01 <sup>(4)</sup>
---	---	---
---	---	K3GZ50-AQ11-01 <sup>(4)</sup>

**Legend:**

**(1) Increased corrosion protection:**

- Support bracket coated in black
- Support plate and impeller coated in black
- Motor coated in black

**(2) Design of hygiene devices:**

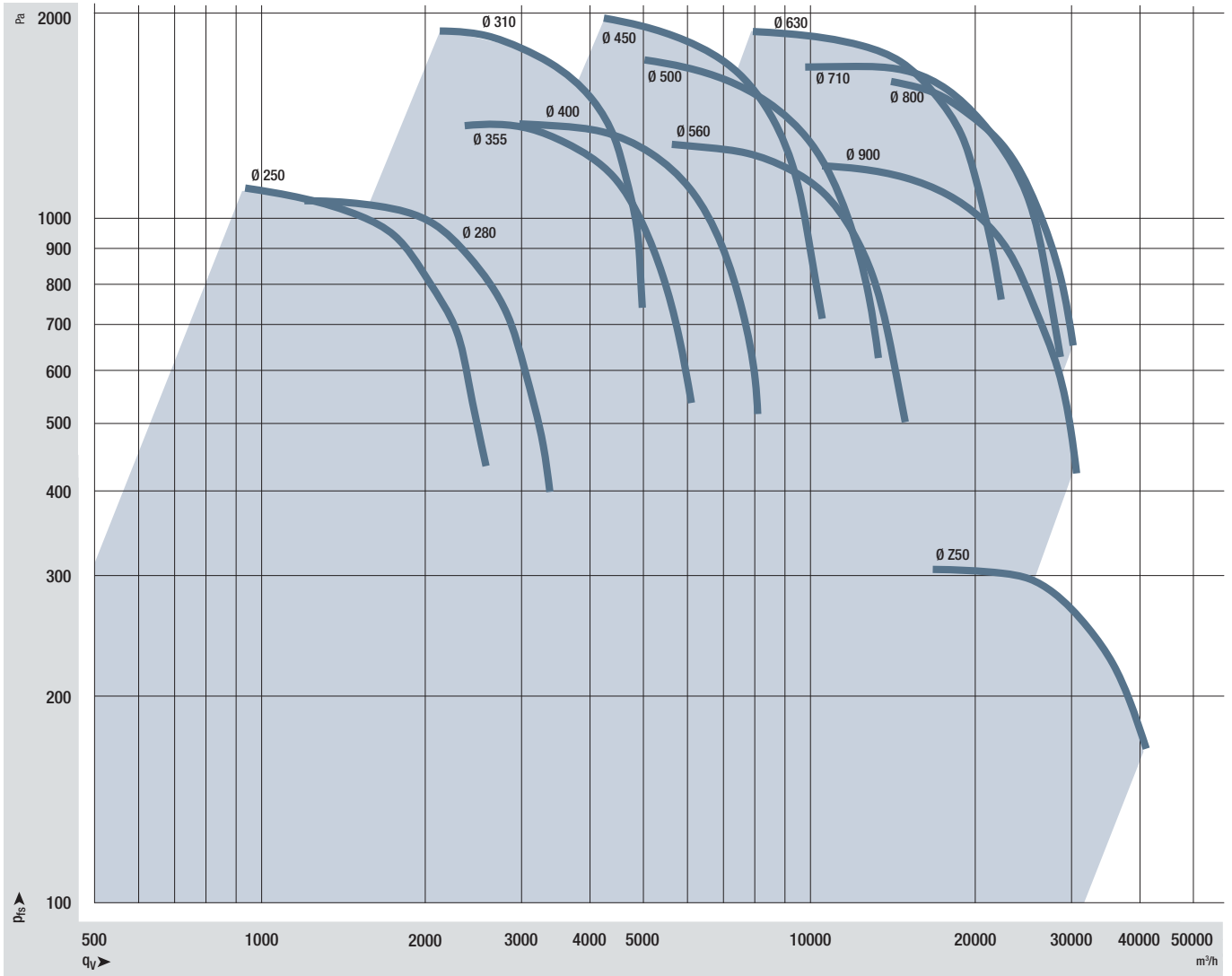
- Support bracket coated in black
- Support plate and impeller coated in white
- Motor coated in black
- Mounting elements made of stainless steel

**For technical data and dimensions – see standard type.**

**(3) Support design**

**(4) Cube design**

# Overview of characteristic curves: RadiPac





# RadiPac in the Product Selector



Additionally, and for selecting the correct fan, you can take advantage of the ebmpapst 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 ebmpapst contact!**

# EC centrifugal fans – RadiPac

K3G 250 to K3G 560

## Text for tender for radial fan modules:

Single inlet; direct drive; high-performance radial impeller with circumferential diffuser mounted on an electronically commutated external-rotor motor with integrated control electronics; radial impeller made of aluminium with backward curved, continuously welded blades; aerodynamically optimised inlet nozzle with bleeder connection for pressure relief made of zinc-coated sheet steel; complete unit statically and dynamically balanced in two planes as per DIN / ISO 1940 to balancing grade G 6.3; EC external-rotor motor, efficiency class IE4 without “rare earth” magnets being used, with maintenance-free ball bearings and permanent lubrication; nominal lifetime 40,000 operating hours; wide voltage input 1~200-277 V, 50/60 respectively 3~380-480 V, 50/60 Hz; 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 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 relevant EMC directives and all requirements as to circuit feedbacks; requires no complicated installation with shielded cables; very low-noise commutation logic; 100 % speed-controllable. Motors with an output of 750W or higher have an RS485/MODBUS RTU interface. Any potentially necessary constructional measures for structure-borne sound insulation have to be provided by customers.

**Optional:** Modules with increased corrosion protection.

**For technical data, dimensions and connections – 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           | $P_{fs} =$ _____ | Pa          |
| - Nominal voltage range     | $U =$ _____      | V           |
| - Frequency                 | $f =$ _____      | Hz          |
| - Fan speed                 | $n =$ _____      | rpm         |
| - Input power               | $P_{ed} =$ _____ | kW          |
| - Current draw              | $I =$ _____      | A           |
| - Noise level               | $L_p =$ _____    | dBA         |
| - Perm. ambient temperature | $T =$ _____      | $^{\circ}C$ |
| - Mass Fan                  | $=$ _____        | kg          |

**Fan type: K3G .....**

**Product: ebmpapst**



# EC centrifugal fans – RadiPac

K3G 400 to K3G Z50

## Text for tender for radial fan modules:

Single inlet; direct drive; high-performance radial impeller with circumferential diffuser mounted on an electronically commutated external-rotor motor with integrated control electronics; radial impeller made of aluminium with backward curved, continuously welded blades; aerodynamically optimised inlet nozzle made of zinc-coated sheet steel; complete unit statically and dynamically balanced in two planes as per DIN / ISO 1940 to balancing grade G 6.3; EC external-rotor motor, efficiency class IE4 without “rare earth” magnets being used, with maintenance-free ball bearings and permanent lubrication; nominal lifetime 40,000 operating hours; wide voltage input 3~380-480 V, 50/60 Hz; unit can be operated on all standard Electricity Board networks at identical air performance; optimised motor technology; soft start; integrated current limitation; connection via easy-to-mount and robust integrated terminal box made of aluminium with spring-loaded terminals; extremely compact electronics; with adjustable PID controller; meets all relevant EMC directives and all requirements as to circuit feedbacks; requires no complicated installation with shielded cables; very low-noise commutation logic; 100 % speed-controllable. All fans have an RS485/MODBUS RTU interface. Any potentially necessary constructional measures for structure-borne sound insulation have to be provided by customers.

For technical data, dimensions and connections – 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

## Technische Daten:

- |                                  |                              |
|----------------------------------|------------------------------|
| - Air flow                       | $Q_V =$ _____ $m^3/h$        |
| - Static pressure                | $p_{fs} =$ _____ Pa          |
| - Nominal voltage range          | $U =$ _____ V                |
| - Frequency                      | $f =$ _____ Hz               |
| - Fan speed                      | $n =$ _____ rpm              |
| - Input power                    | $P_{ed} =$ _____ kW          |
| - Current draw                   | $I =$ _____ A                |
| - Noise level                    | $L_p =$ _____ dBA            |
| - Perm. ambient temperature      | $T =$ _____ °C               |
| - Mass Fan                       | $=$ _____ kg                 |
| - Direction of rotation Impeller | $=$ Clockwise, seen on rotor |

Fan type: K3G .....

Product: ebm-papst



# EC centrifugal fans – RadiPac

backward curved, Ø 250



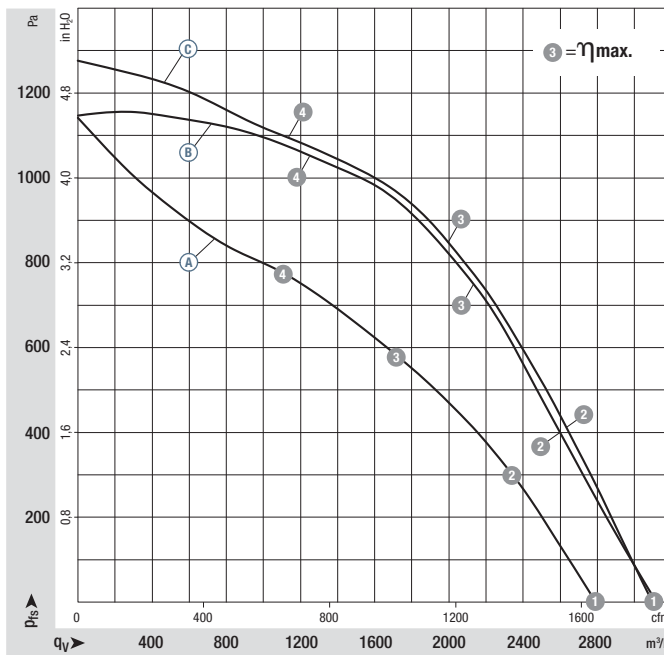
- **Material:** Support bracket: Steel, coated in black  
Support plate and inlet nozzle: Sheet steel, galvanised  
Impeller: Sheet aluminium  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of 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.	Technical features and electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 250	M3G 084-DF	Ⓐ 1~	200-277	50/60	3000	448	2,80	-25..+40	p. 88 / K1)
*3G 250	M3G 084-FA	Ⓑ 1~	200-277	50/60	3450	750	3,30	-25..+40	p. 91 / L7)
*3G 250	M3G 084-GF	Ⓒ 3~	380-480	50/60	3580	790	1,50	-25..+60	p. 93 / P2)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 or 400 VAC

## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>wA</sub> dB(A)
Ⓐ 1	3175	380	2,48	84
Ⓐ 2	3045	436	2,72	80
Ⓐ 3	3000	448	2,80	76
Ⓐ 4	3020	436	2,72	80
Ⓑ 1	3450	581	2,58	85
Ⓑ 2	3450	673	2,98	82
Ⓑ 3	3450	750	3,30	79
Ⓑ 4	3450	691	3,07	86
Ⓒ 1	3655	642	1,25	87
Ⓒ 2	3605	735	1,40	84
Ⓒ 3	3580	790	1,50	80
Ⓒ 4	3635	709	1,38	88

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 94 ff.

- **Technical features:** See electrical connections p. 88 ff.
- **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
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Ⓐ Variable
- **Terminal box design:** Ⓑ Ⓒ Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket <sup>(2)</sup>	kg	Centrifugal module w. support design	kg
R3G 250-AT39 -71	4,4	25075-2-4013	K3G 250-AT39 -72	8,4	K3G 250-AT39 -74	8,4	K3G 250-AT39 -89	10,4
R3G 250-AV29 -B1	5,6	25075-2-4013	K3G 250-AV29 -B2	10,1	K3G 250-AV29 -B4	10,1	K3G 250-AV29 -B9	12,1
R3G 250-AY11 -C1	6,7	25075-2-4013	K3G 250-AY11 -C2	11,1	K3G 250-AY11 -C4	11,1	K3G 250-AY11 -C9	13,1

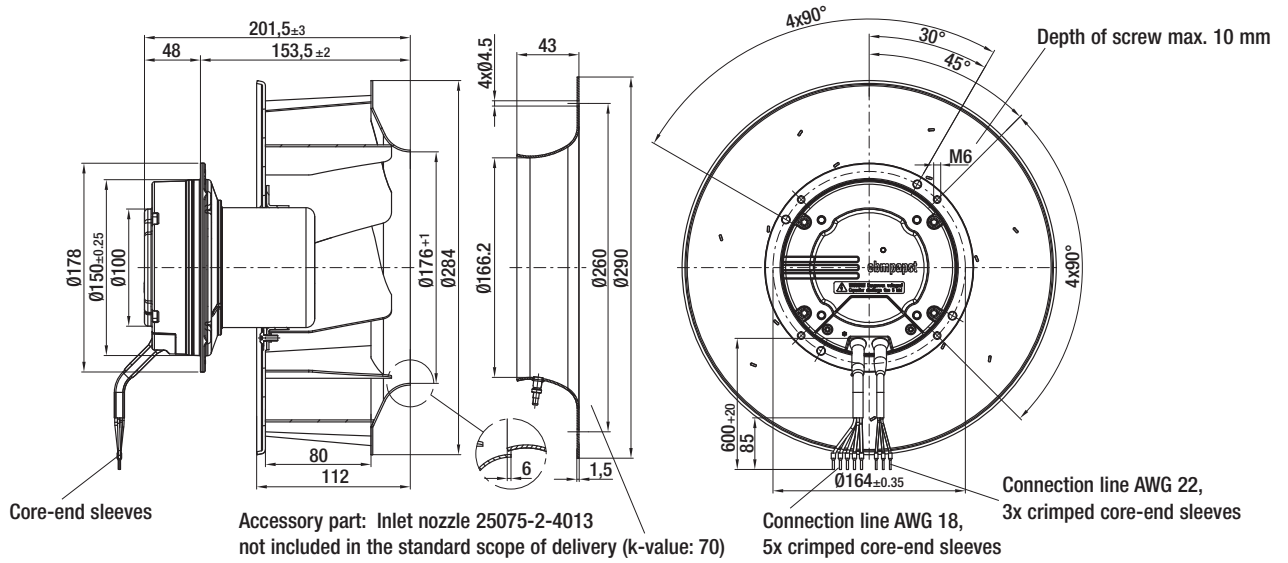
(2) Centrifugal module with higher protection against corrosion

# EC centrifugal fans – RadiPac

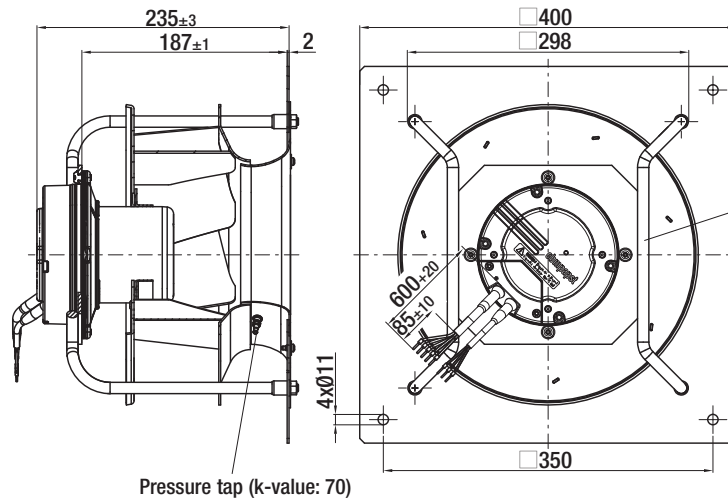
backward curved, Ø 250



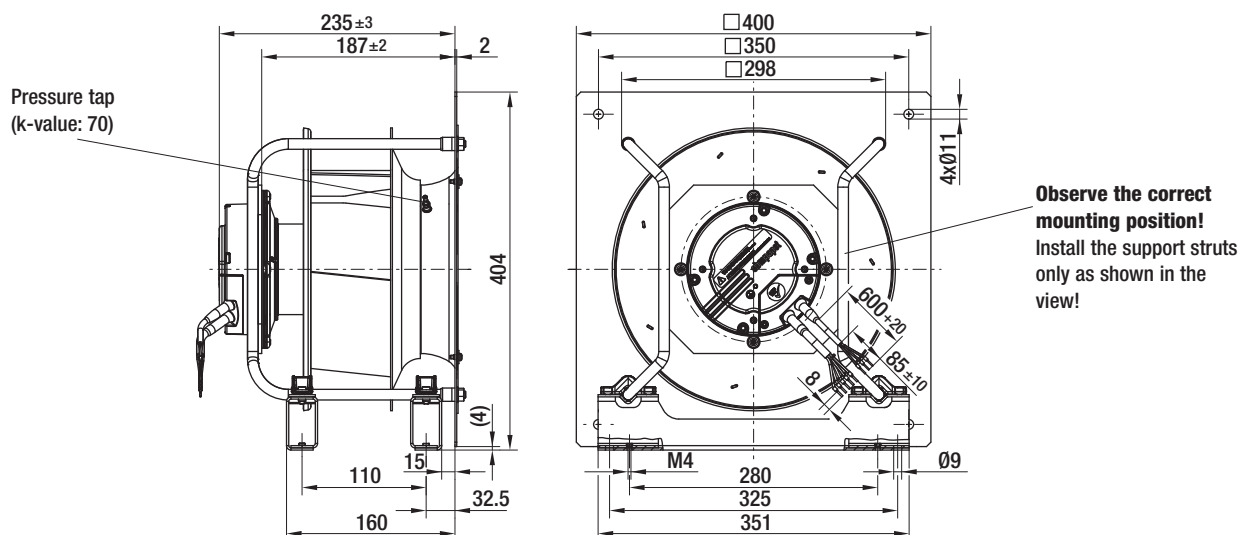
## R3G 250-AT39-71 (Centrifugal fan)



## K3G 250-AT39-72 / -74 (Centrifugal module with support bracket)

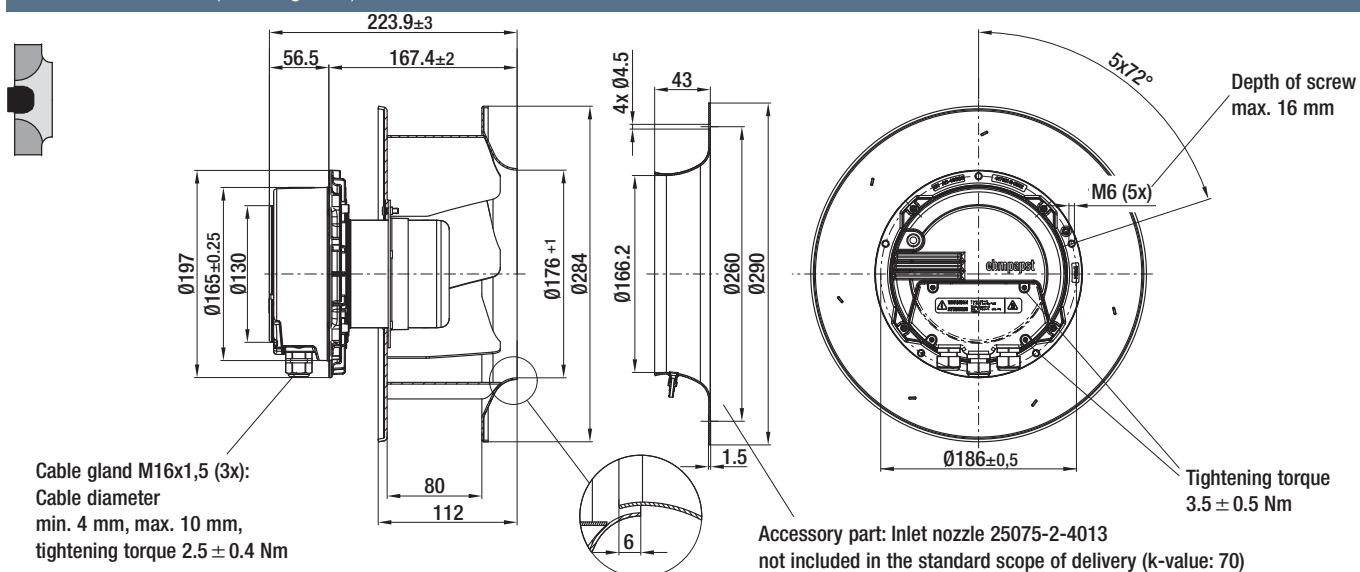


## K3G 250-AT39-89 (Centrifugal module with support design)

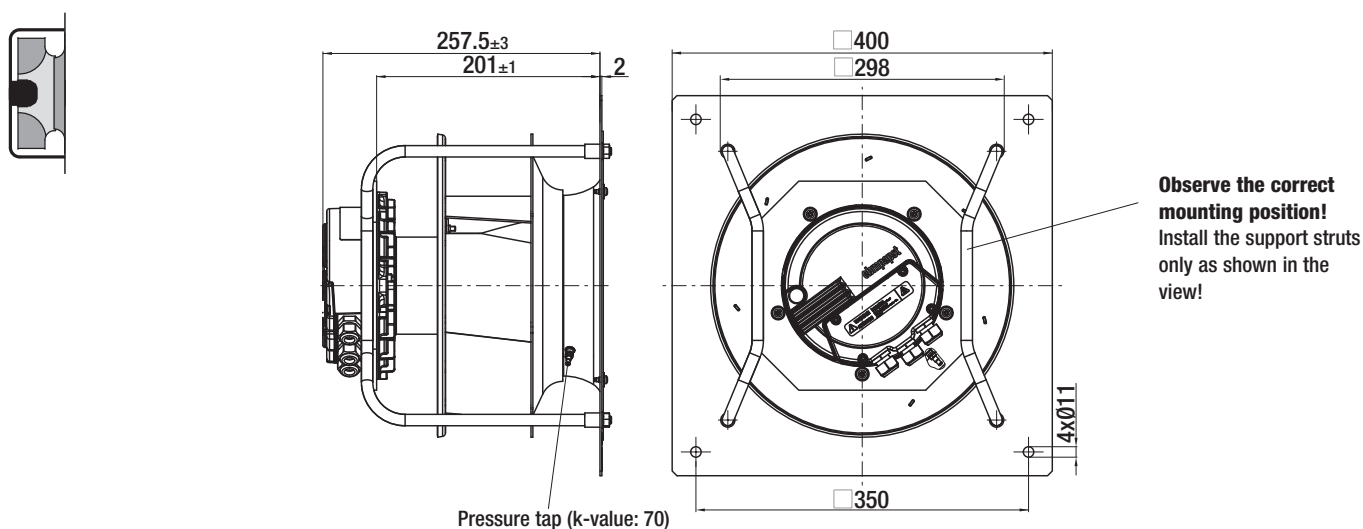




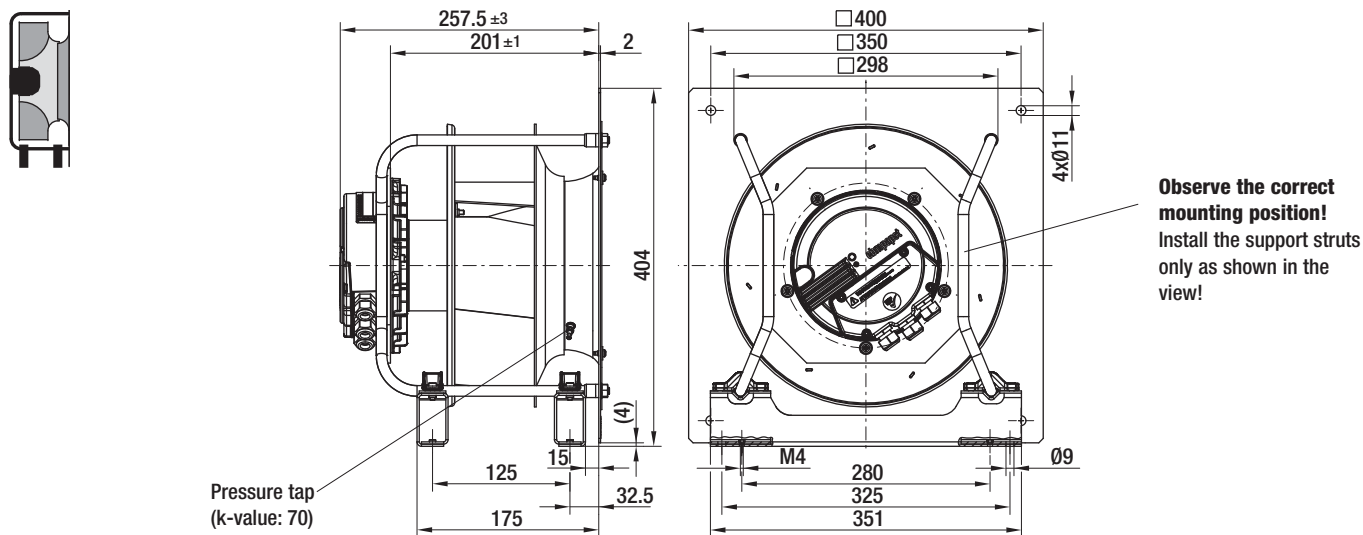
### R3G 250-AV29-B1 (Centrifugal fan)



### K3G 250-AV29-B2 / -B4 (Centrifugal module with support bracket)



### K3G 250-AV29-B9 (Centrifugal module with support design)

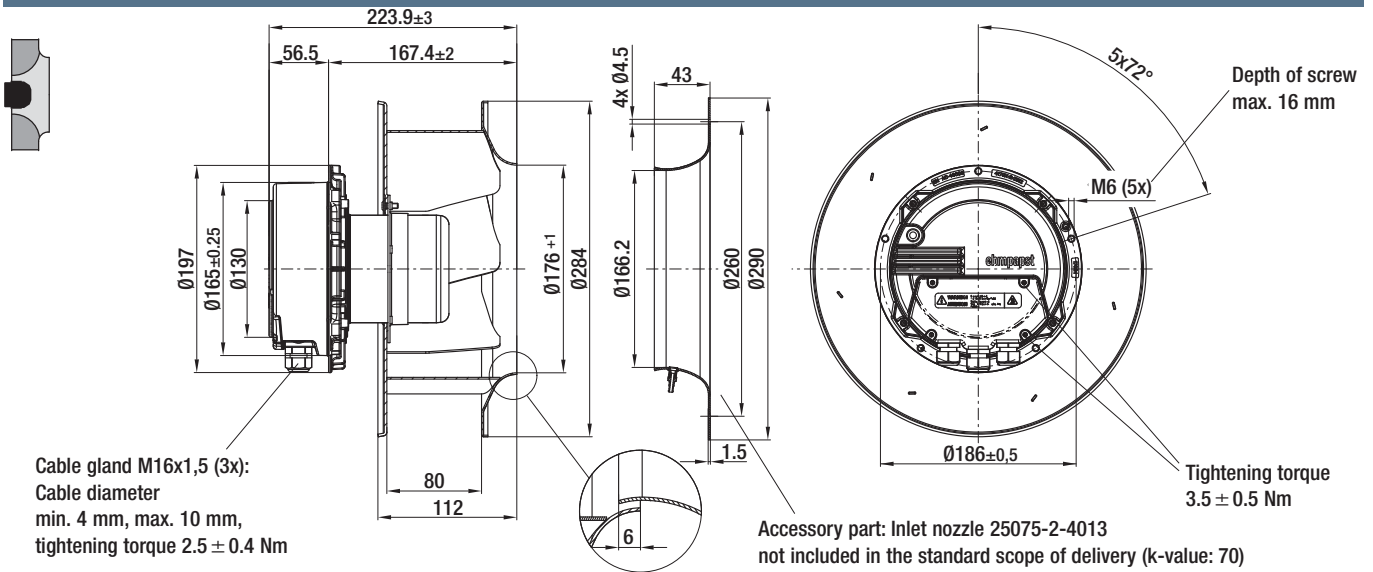


# EC centrifugal fans – RadiPac

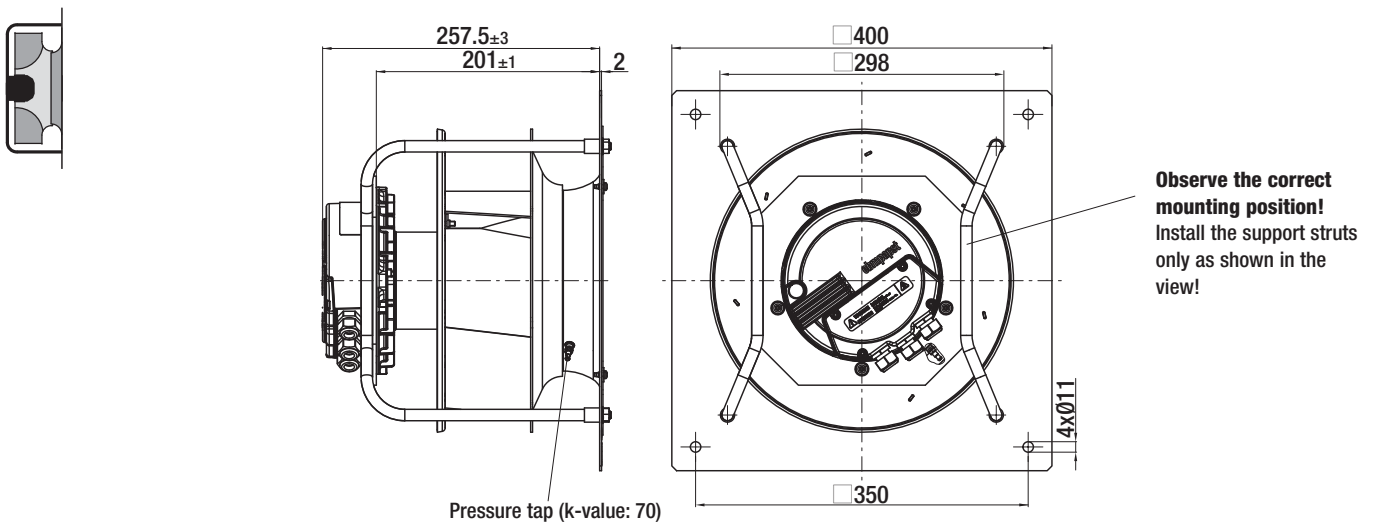
backward curved, Ø 250



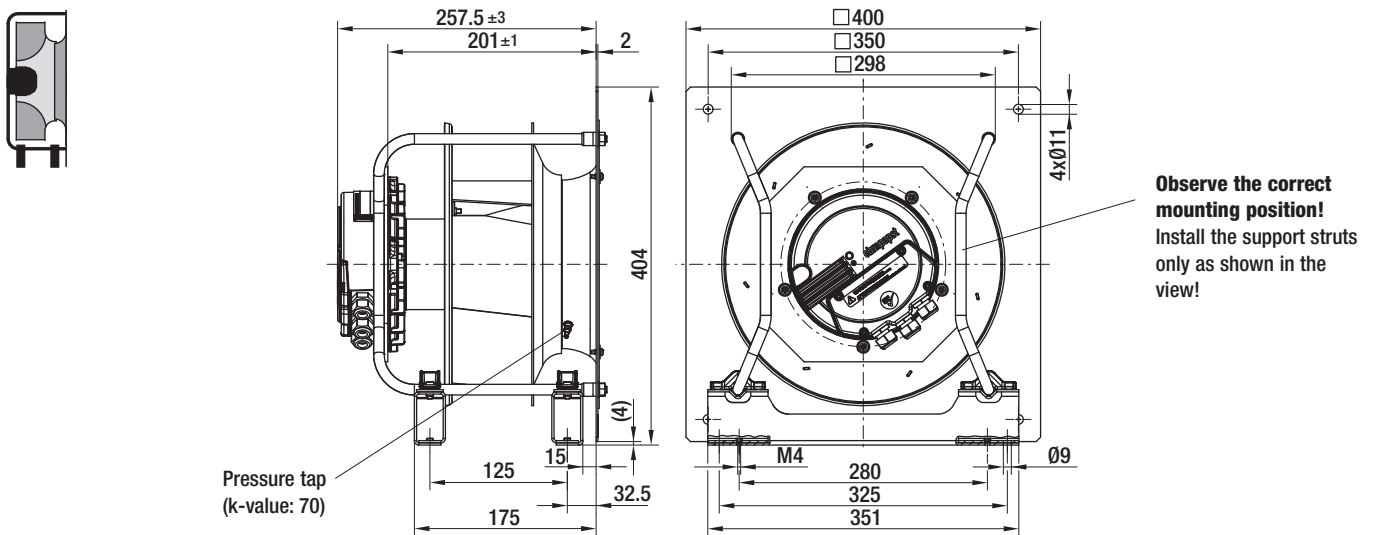
## R3G 250-AY11-C1 (Centrifugal fan)



## K3G 250-AY11-C2 / -C4 (Centrifugal module with support bracket)



## K3G 250-AY11-C9 (Centrifugal module with support design)







# EC centrifugal fans – RadiPac

backward curved, Ø 280



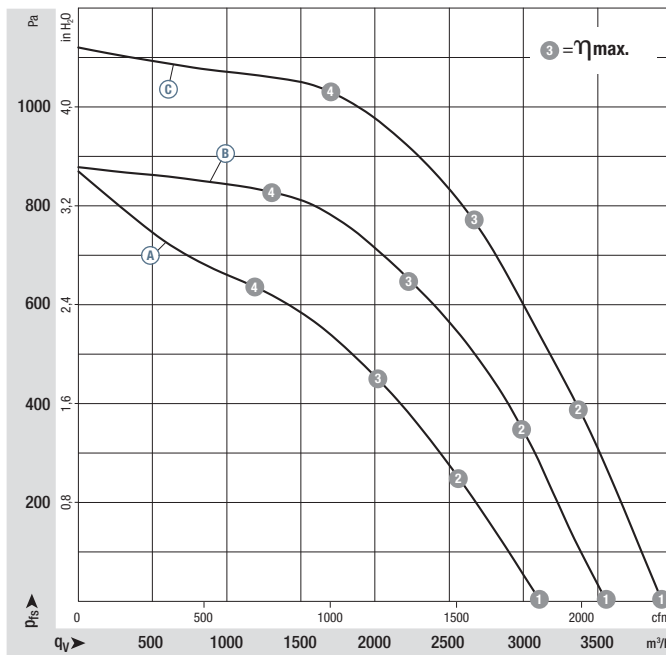
- **Material:** Support bracket: Steel, coated in black  
Support plate and inlet nozzle: Sheet steel, galvanised  
Impeller: Sheet aluminium  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of 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.	Technical features and electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 280	M3G 084-FA	Ⓐ 1~	200-277	50/60	2400	415	2,70	-25..+40	p. 88 / K1)
*3G 280	M3G 084-GF	Ⓑ 1~	200-277	50/60	2800	715	3,10	-25..+40	p. 91 / L7)
*3G 280	M3G 084-GF	Ⓒ 3~	380-480	50/60	3100	1000	1,60	-25..+60	p. 90 / L6)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 or 400 VAC

## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>wA</sub> 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
Ⓑ 1	2800	479	2,11	83
Ⓑ 2	2800	655	2,88	79
Ⓑ 3	2800	715	3,10	76
Ⓑ 4	2800	650	2,85	82
Ⓒ 1	3100	645	1,04	86
Ⓒ 2	3100	852	1,35	83
Ⓒ 3	3100	1000	1,60	80
Ⓒ 4	3100	921	1,46	83

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 94 ff.

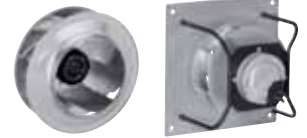
- **Technical features:** See electrical connections p. 88 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Ⓐ Variable
- **Terminal box design:** Ⓑ Ⓒ Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket <sup>(2)</sup>	kg	Centrifugal module w. support design	kg
R3G 280-AT04 -71	5,4	28075-2-4013	K3G 280-AT04 -72	9,7	K3G 280-AT04 -74	9,7	K3G 280-AT04 -89	11,7
R3G 280-AU06 -B1	6,8	28075-2-4013	K3G 280-AU06 -B2	11,5	K3G 280-AU06 -B4	11,5	K3G 280-AU06 -B3	13,5
R3G 280-AU11 -C1	7,1	28075-2-4013	K3G 280-AU11 -C2	11,7	K3G 280-AU11 -C4	11,7	K3G 280-AU11 -C9	13,7

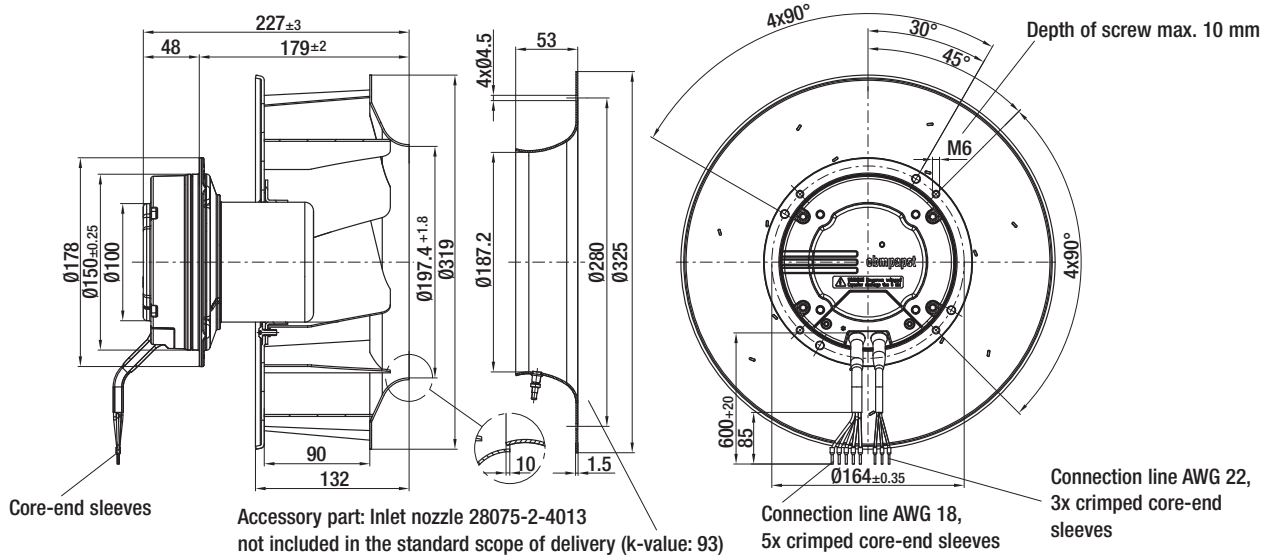
(2) Centrifugal module with higher protection against corrosion

# EC centrifugal fans – RadiPac

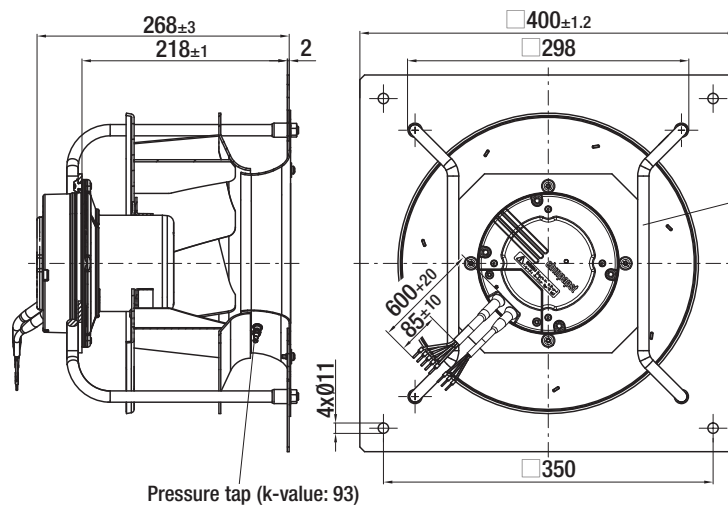
backward curved, Ø 280



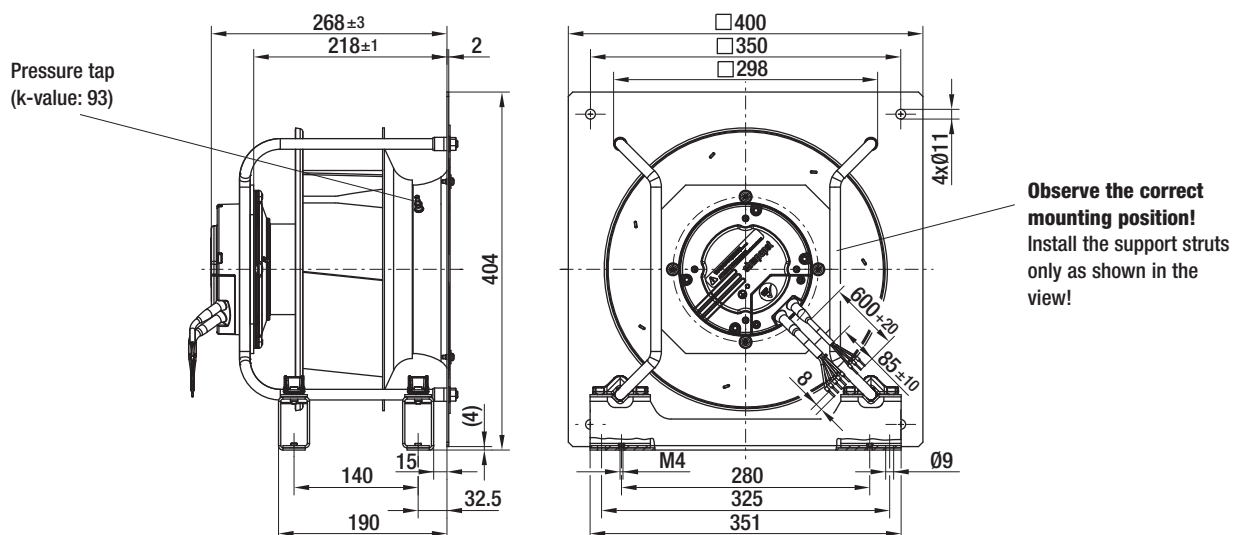
## R3G 280-AT04-71 (Centrifugal fan)



## K3G 280-AT04-72 / -74 (Centrifugal module with support bracket)

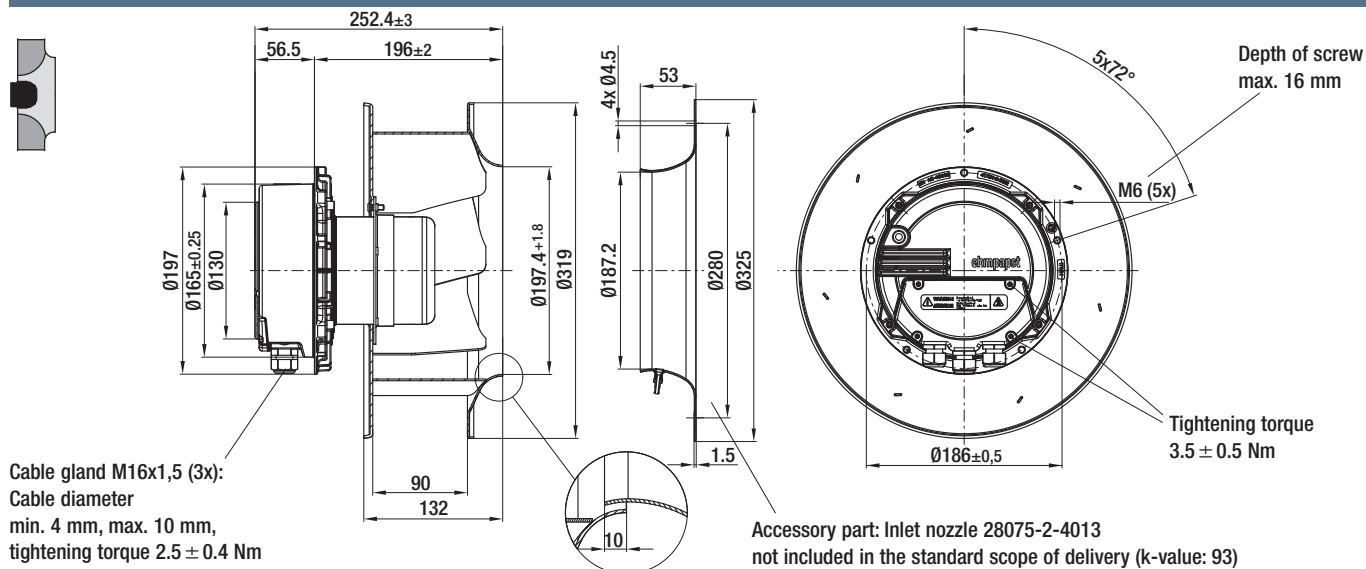


## K3G 280-AT04-89 (Centrifugal module with support design)

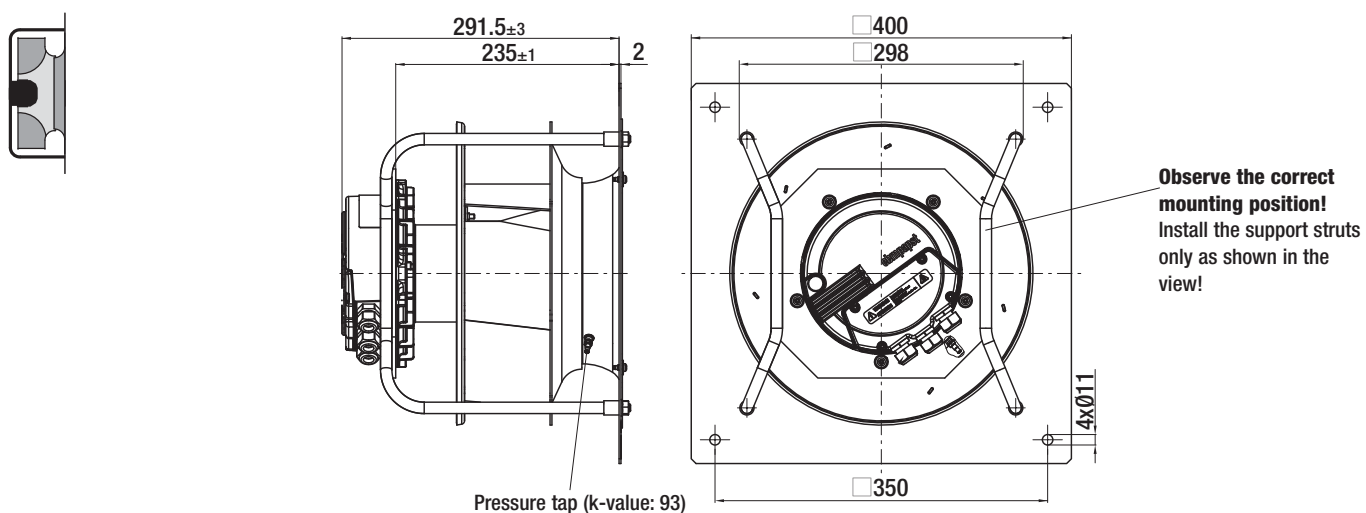




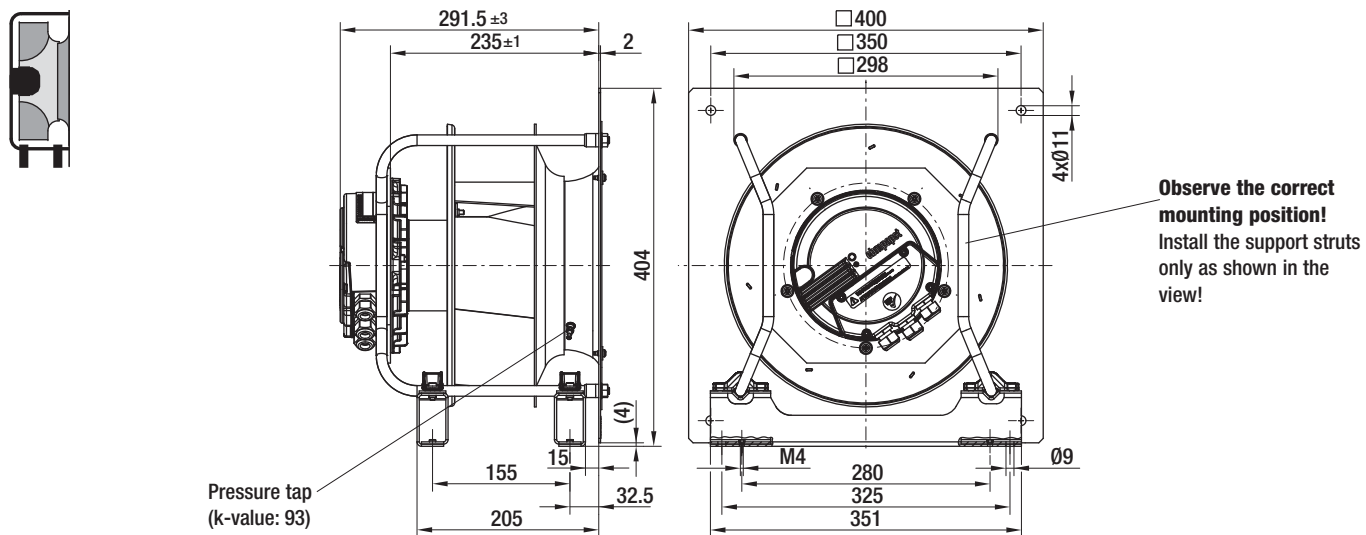
### R3G 280-AU06-B1 (Centrifugal fan)



### K3G 280-AU06-B2 / -B4 (Centrifugal module with support bracket)



### K3G 280-AU06-B3 (Centrifugal module with support design)

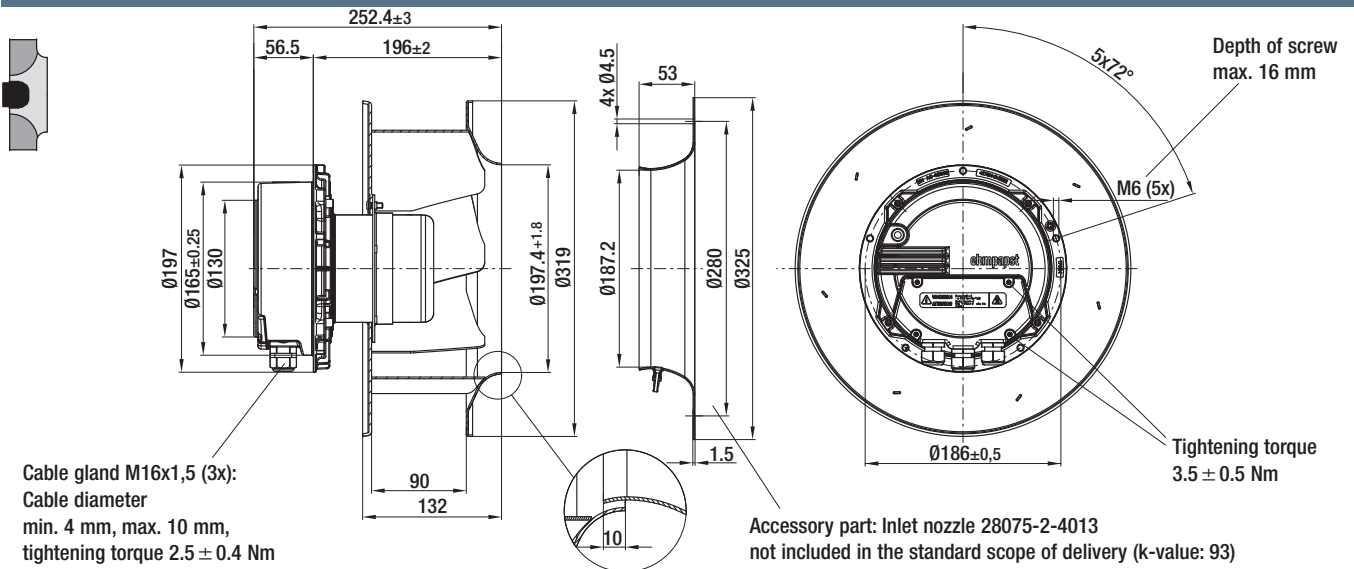


# EC centrifugal fans – RadiPac

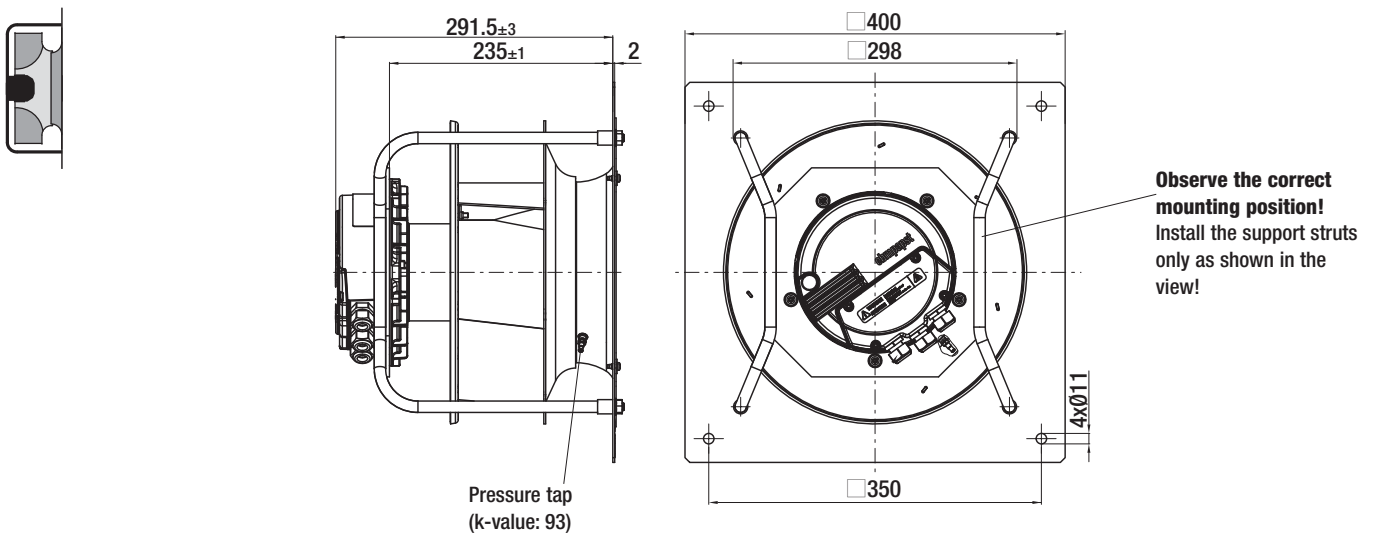
backward curved, Ø 280



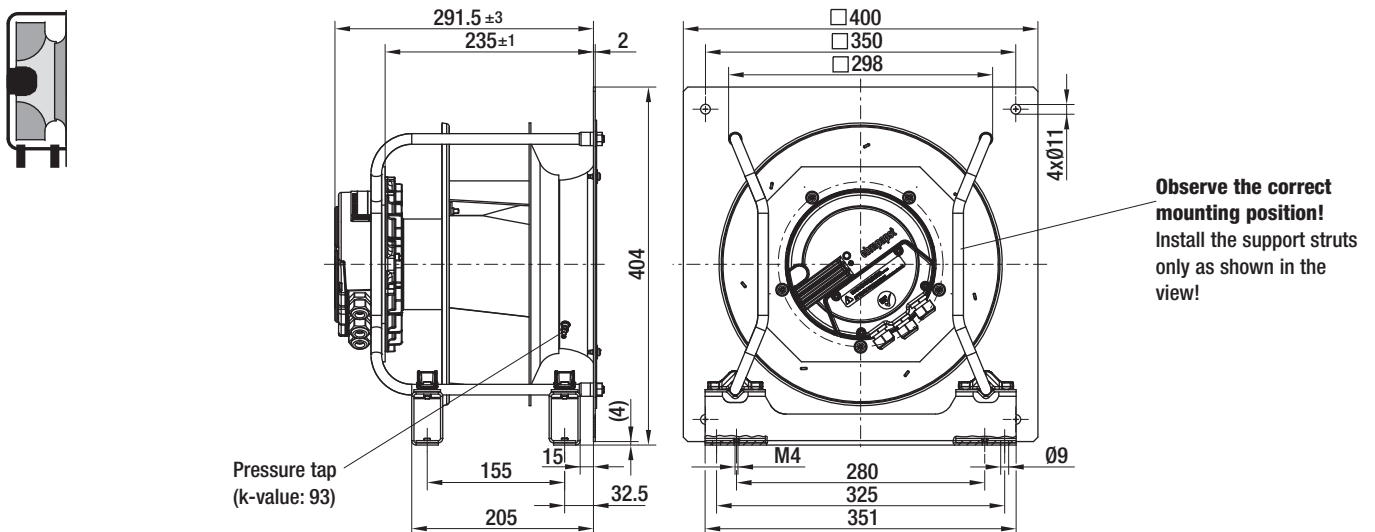
## R3G 280-AU11-C1 (Centrifugal fan)



## K3G 280-AU11-C2 / -C4 (Centrifugal module with support bracket)



## K3G 280-AU11-C9 (Centrifugal module with support design)





# EC centrifugal fans – RadiPac

backward curved, Ø 310



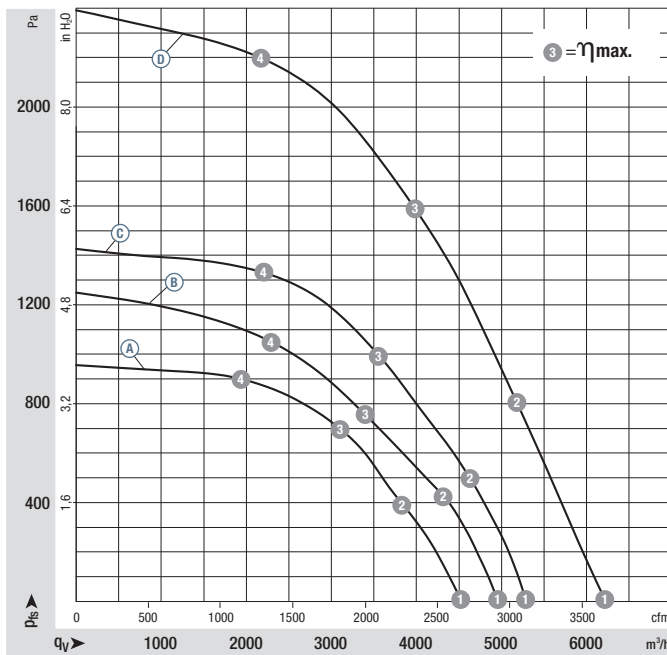
- **Material:** Support bracket: Steel, coated in black  
Support plate and inlet nozzle: Sheet steel, galvanised  
Impeller: Sheet aluminium  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of 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.	Technical features and electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 310	M3G 112-EA	Ⓐ	3~ 380-480	50/60	2580	1000	1,63	-25..+55	p. 90 / L6)
*3G 310	M3G 112-EA	Ⓑ	1~ 200-277	50/60	2850	1270	5,60	-25..+60	p. 92 / L9)
*3G 310	M3G 112-GA	Ⓒ	3~ 380-480	50/60	3140	1650	2,50	-25..+60	p. 89 / M3)
*3G 310	M3G 112-IA	Ⓓ	3~ 380-480	50/60	4100	3240	4,90	-25..+40	p. 89 / M3)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 or 400 VAC






## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>w</sub> A dB(A)
Ⓐ ①	2580	669	1,17	88
Ⓐ ②	2580	862	1,46	81
Ⓐ ③	2580	1000	1,63	77
Ⓐ ④	2580	907	1,53	79
Ⓑ ①	2930	946	4,14	88
Ⓑ ②	2895	1147	5,01	83
Ⓑ ③	2850	1270	5,60	79
Ⓑ ④	2850	1237	5,41	83
Ⓒ ①	3140	1158	1,79	90
Ⓒ ②	3140	1440	2,21	86
Ⓒ ③	3140	1650	2,50	83
Ⓒ ④	3140	1559	2,39	87
Ⓓ ①	4100	2244	3,35	99
Ⓓ ②	4100	2767	4,12	94
Ⓓ ③	4100	3240	4,90	91
Ⓓ ④	4100	3018	4,49	95

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 94 ff.



- **Technical features:** See electrical connections p. 89 ff.
- **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
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:**  GOST  
    VDE, GOST

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket <sup>(2)</sup>	kg	Centrifugal module w. support design	kg
R3G 310-AX52 -90	8,8	31575-2-4013	K3G 310-AX52 -90	16,7	K3G 310-AX52 -91	16,7	K3G 310-AX52 -96	19,0
R3G 310-AX54 -21	11,0	31575-2-4013	K3G 310-AX54 -22	19,4	K3G 310-AX54 -52	19,4	K3G 310-AX54 -98	22,2
R3G 310-BB49 -01	12,6	31575-2-4013	K3G 310-BB49 -02	21,0	K3G 310-BB49 -32	21,0	K3G 310-BB49 -96	24,1
R3G 310-AZ88 -01	15,0	31575-2-4013	K3G 310-AZ88 -02	24,2	K3G 310-AZ88 -32	24,2	K3G 310-AZ88 -96	26,2

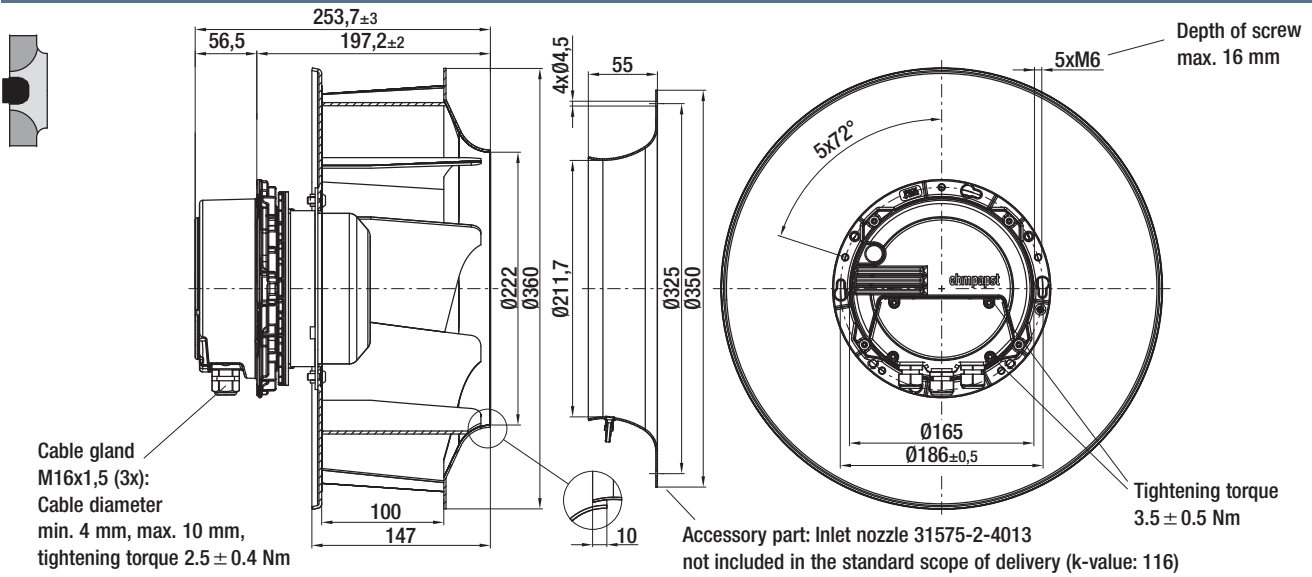
(2) Centrifugal module with higher protection against corrosion

# EC centrifugal fans – RadiPac

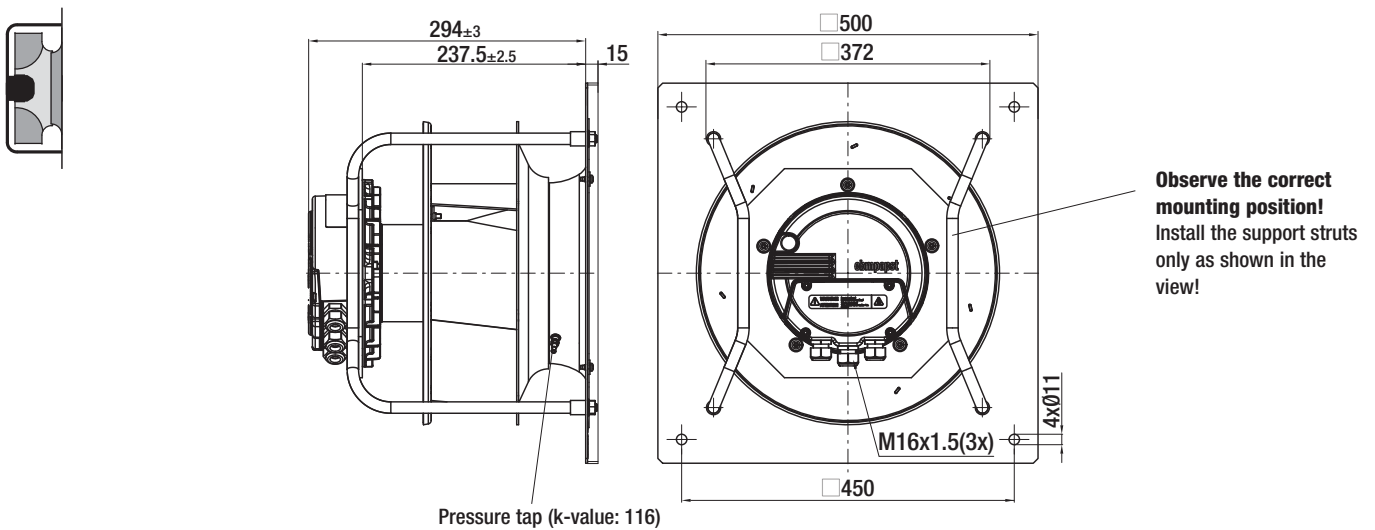
backward curved, Ø 310



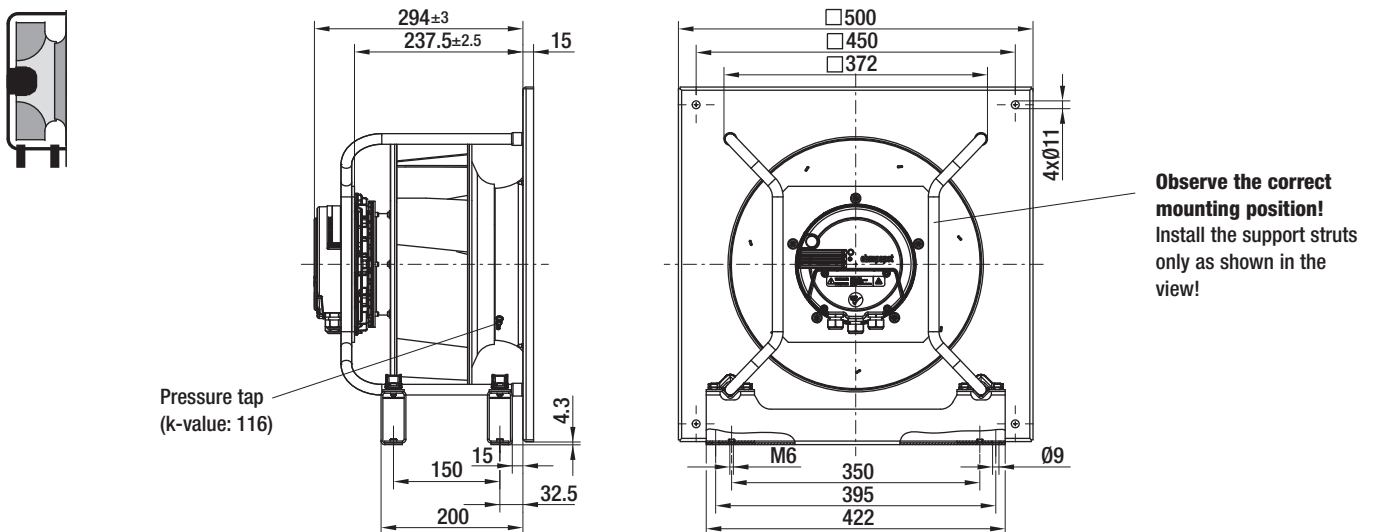
## R3G 310-AX52-90 (Centrifugal fan)

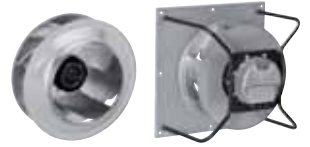


## K3G 310-AX52-90 / -91 (Centrifugal module with support bracket)



## K3G 310-AX52-96 (Centrifugal module with support design)

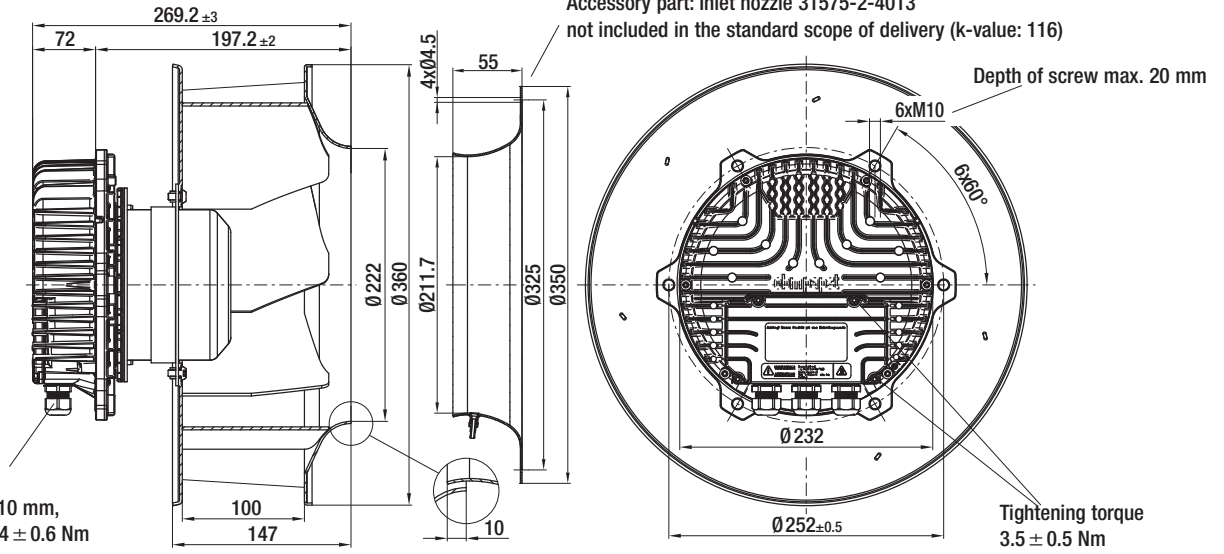




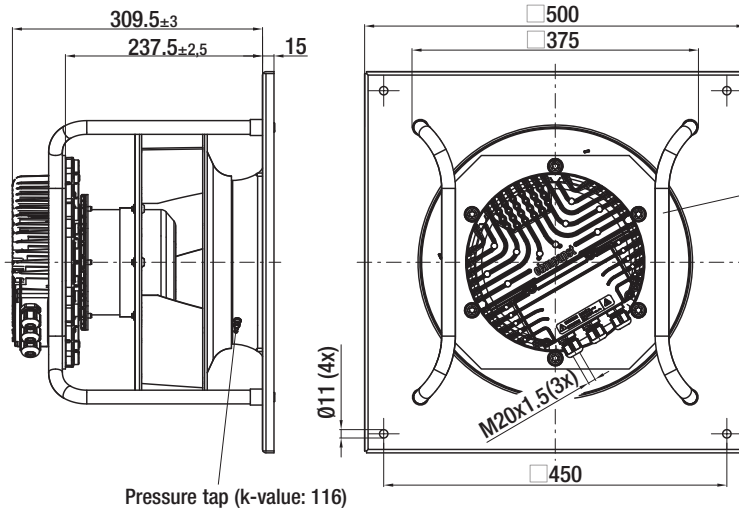
**R3G 310-AX54-21** (Centrifugal fan)



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

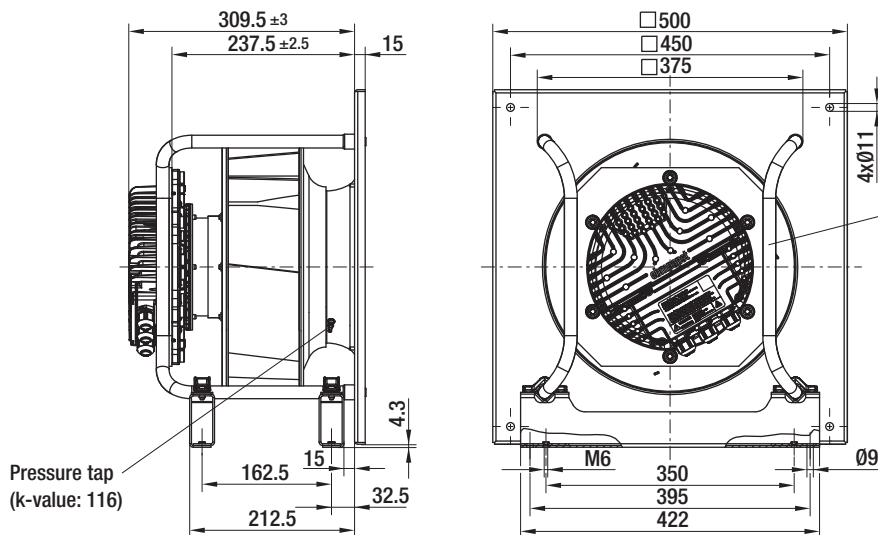


**K3G 310-AX54-22 / -52** (Centrifugal module with support bracket)



Pressure tap (k-value: 116)

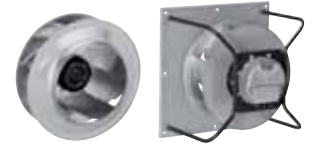
**K3G 310-AX54-98** (Centrifugal module with support design)



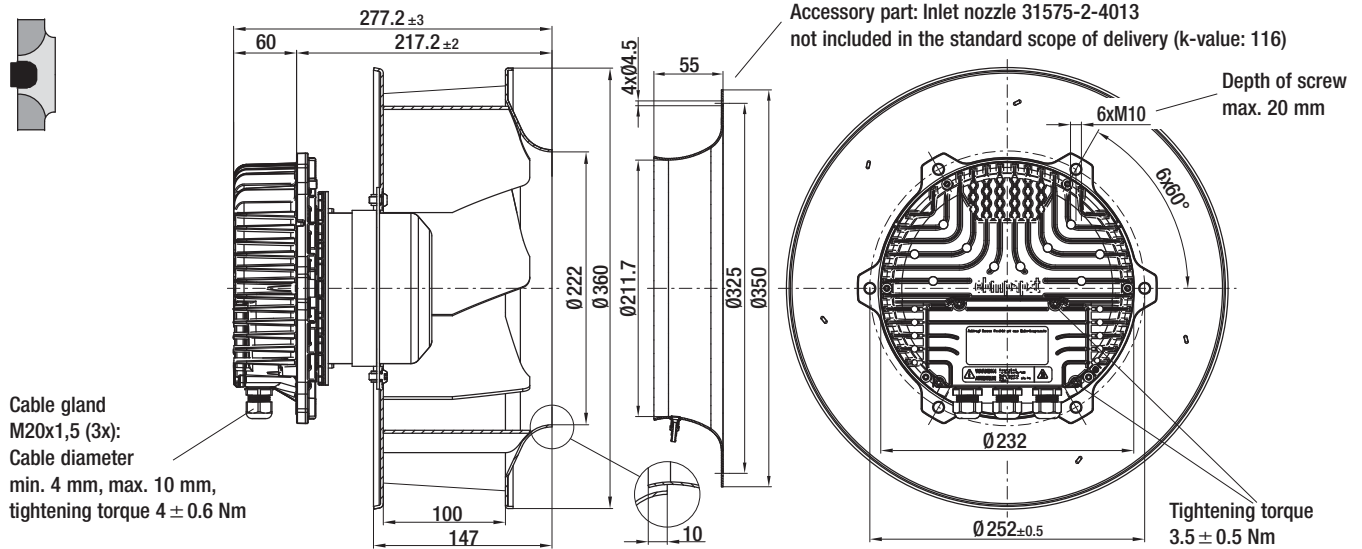
Pressure tap  
(k-value: 116)

# EC centrifugal fans – RadiPac

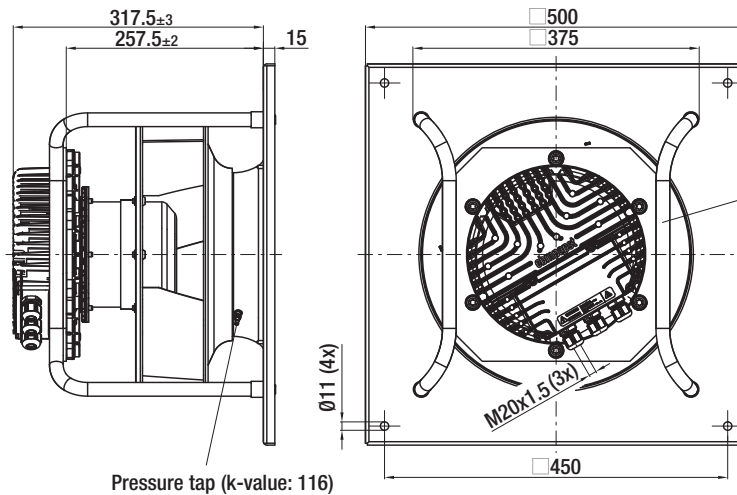
backward curved, Ø 310



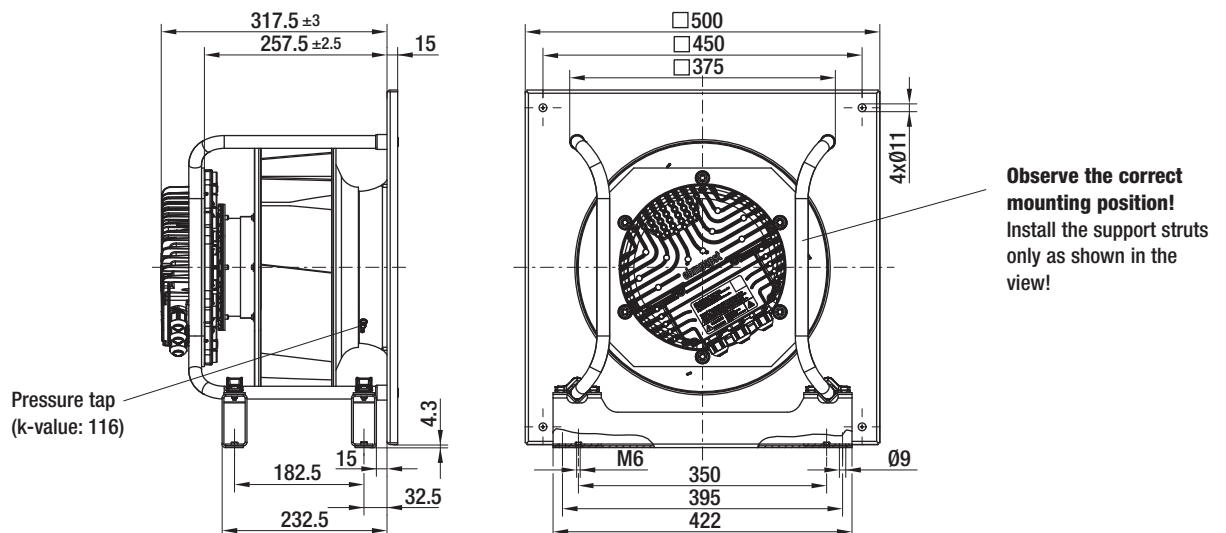
## R3G 310-BB49-01 (Centrifugal fan)

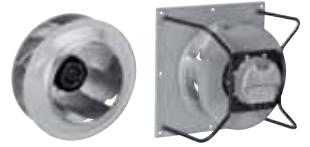


## K3G 310-BB49-02 / -32 (Centrifugal module with support bracket)

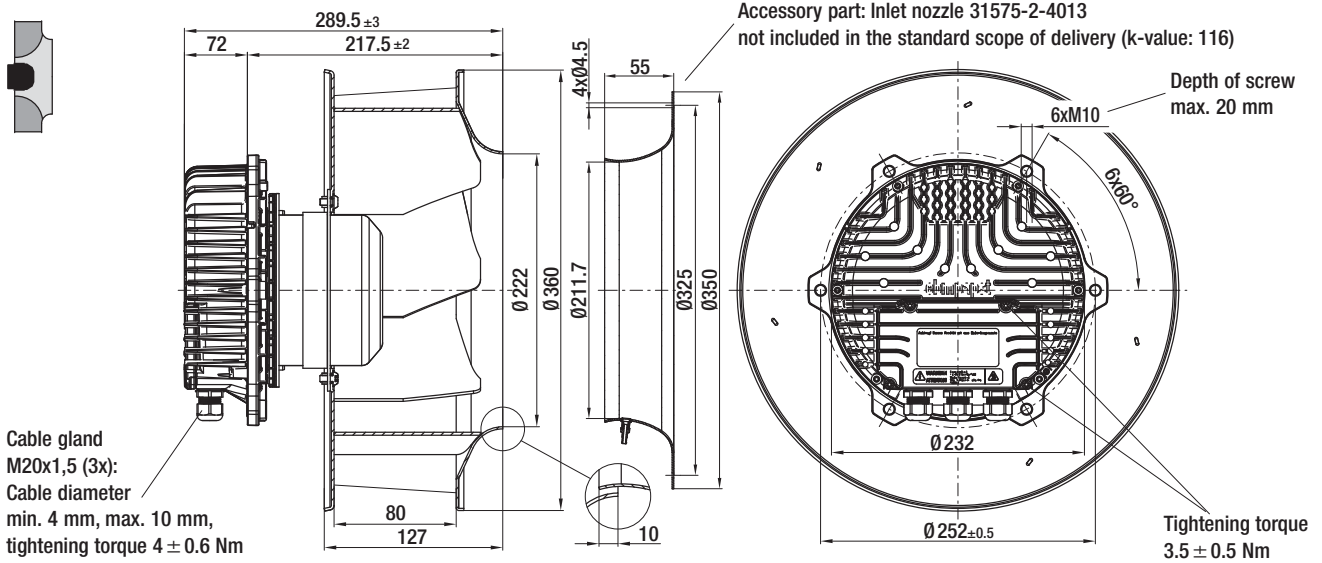


## K3G 310-BB49-96 (Centrifugal module with support design)

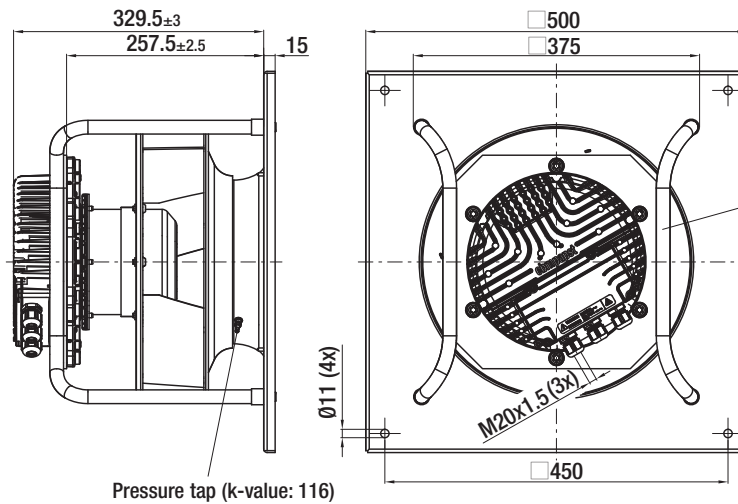




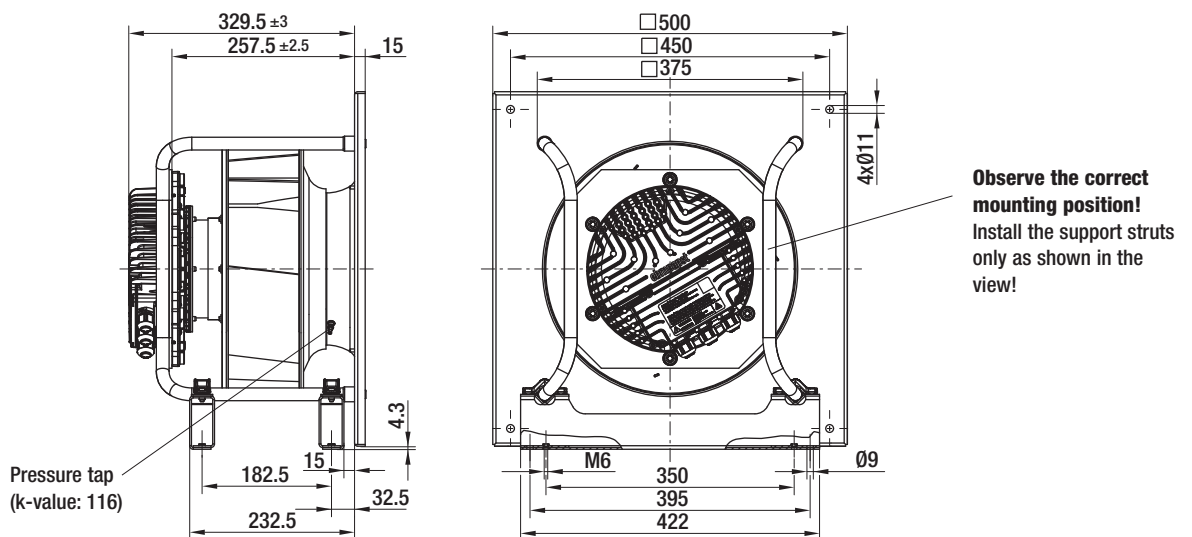
**R3G 310-AZ88-01** (Centrifugal fan)



**K3G 310-AZ88-02 / -32** (Centrifugal module with support bracket)



**K3G 310-AZ88-96** (Centrifugal module with support design)



# EC centrifugal fans – RadiPac

backward curved, Ø 355



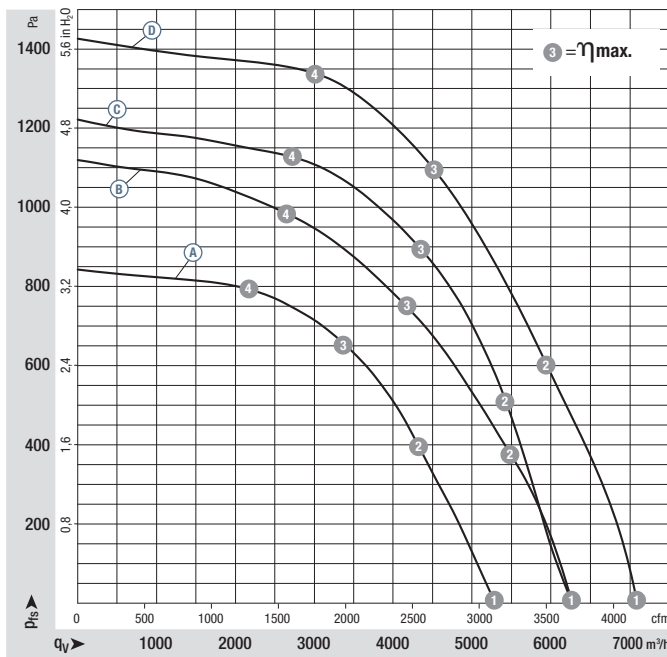
- **Material:** Support bracket: Steel, coated in black  
Support plate and inlet nozzle: Sheet steel, galvanised  
Impeller: Sheet aluminium  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of 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.	Technical features and electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 355	M3G 112-EA	Ⓐ 3~	380-480	50/60	2140	1000	1,65	-25..+60	p. 90 / L6)
*3G 355	M3G 112-GA	Ⓑ 1~	200-277	50/60	2450	1400	6,00	-25..+50	p. 92 / L9)
*3G 355	M3G 112-GA	Ⓒ 3~	380-480	50/60	2600	1700	2,60	-25..+40	p. 89 / M3)
*3G 355	M3G 112-IA	Ⓓ 3~	380-480	50/60	2800	2250	3,50	-25..+55	p. 89 / M3)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 or 400 VAC

## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>wA</sub> dB(A)
Ⓐ 1	2140	656	1,14	87
Ⓐ 2	2140	893	1,50	77
Ⓐ 3	2140	1000	1,65	75
Ⓐ 4	2140	918	1,54	78
Ⓑ 1	2450	998	4,33	86
Ⓑ 2	2440	1232	5,35	82
Ⓑ 3	2450	1400	6,00	79
Ⓑ 4	2410	1344	5,94	82
Ⓒ 1	2600	1140	1,74	92
Ⓒ 2	2600	1510	2,30	83
Ⓒ 3	2600	1700	2,60	79
Ⓒ 4	2600	1594	2,42	83
Ⓓ 1	2800	1463	2,33	90
Ⓓ 2	2800	1916	2,99	86
Ⓓ 3	2800	2250	3,50	85
Ⓓ 4	2800	2134	3,29	88

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 94 ff.

- **Technical features:** See electrical connections p. 89 ff.
- **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
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** Ⓡ GOST  
ⓐ ⓐ ⓐ ⓐ VDE, GOST

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket <sup>(2)</sup>	kg	Centrifugal module w. support design	kg
R3G 355-AX56 -90	9,4	35675-2-4013	K3G 355-AX56 -90	17,4	K3G 355-AX56 -91	17,4	K3G 355-AX56 -96	19,4
R3G 355-AY43 -21	14,0	35675-2-4013	K3G 355-AY43 -22	22,4	K3G 355-AY43 -52	22,4	K3G 355-AY43 -98	25,5
R3G 355-AY40 -01	13,1	35675-2-4013	K3G 355-AY40 -02	23,4	K3G 355-AY40 -32	23,4	K3G 355-AY40 -96	25,0
R3G 355-BC92 -01	15,2	35675-2-4013	K3G 355-BC92 -02	25,8	K3G 355-BC92 -32	25,8	K3G 355-BC92 -96	27,8

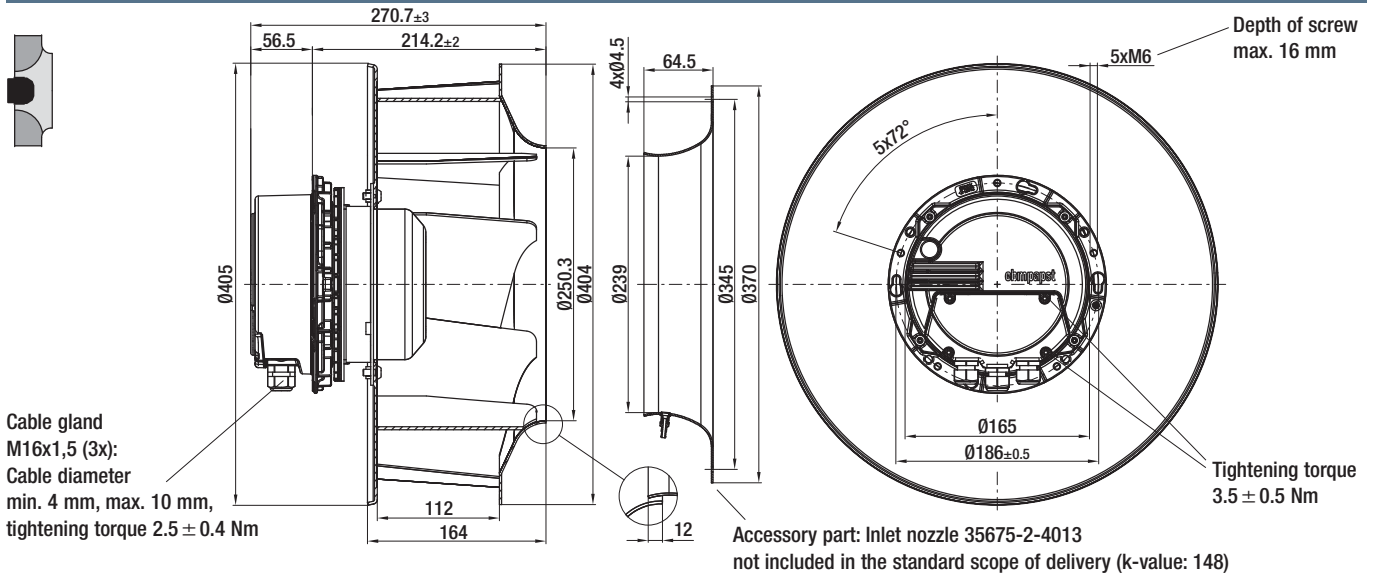
(2) Centrifugal module with higher protection against corrosion

# EC centrifugal fans – RadiPac

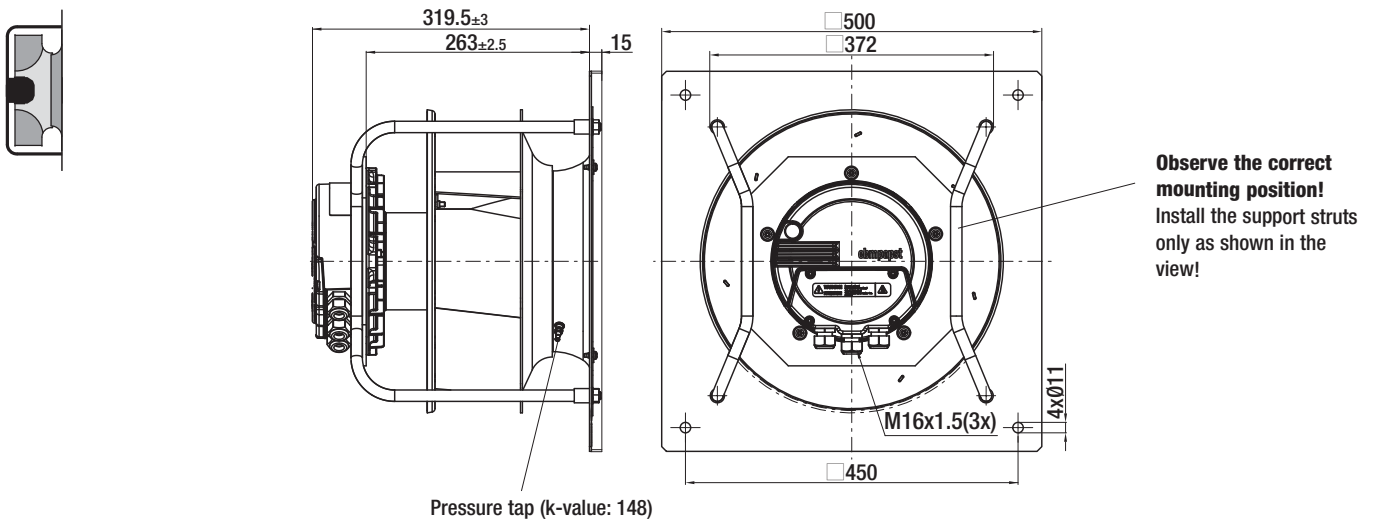
backward curved, Ø 355



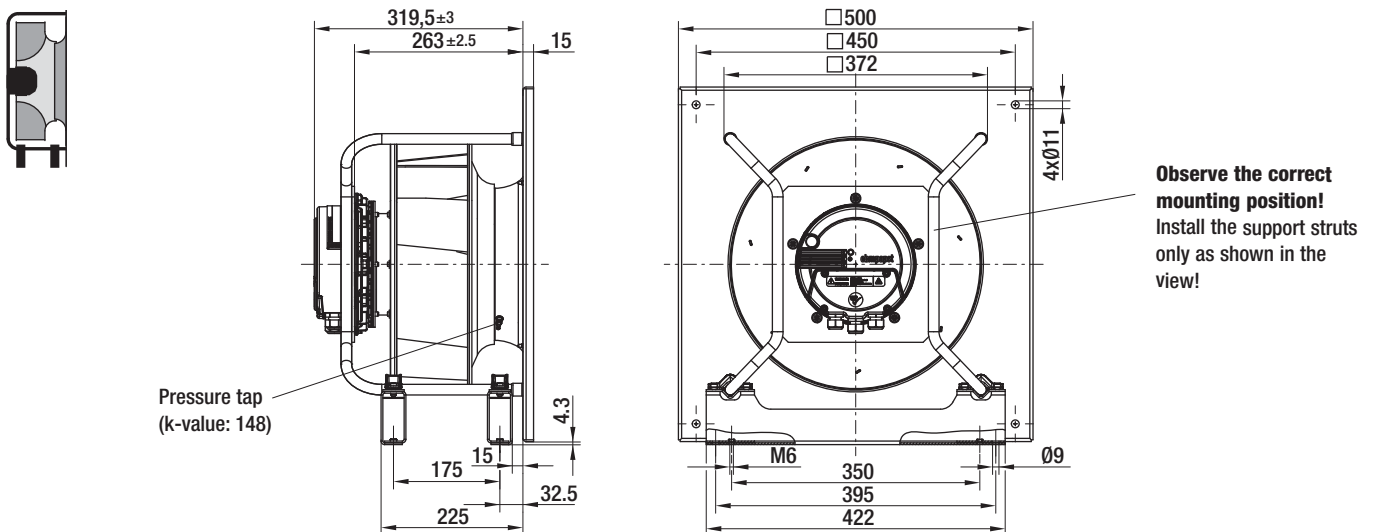
## R3G 355-AX56-90 (Centrifugal fan)



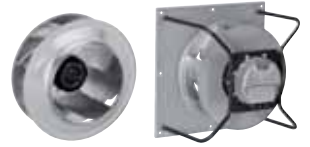
## K3G 355-AX56-90 / -91 (Centrifugal module with support bracket)



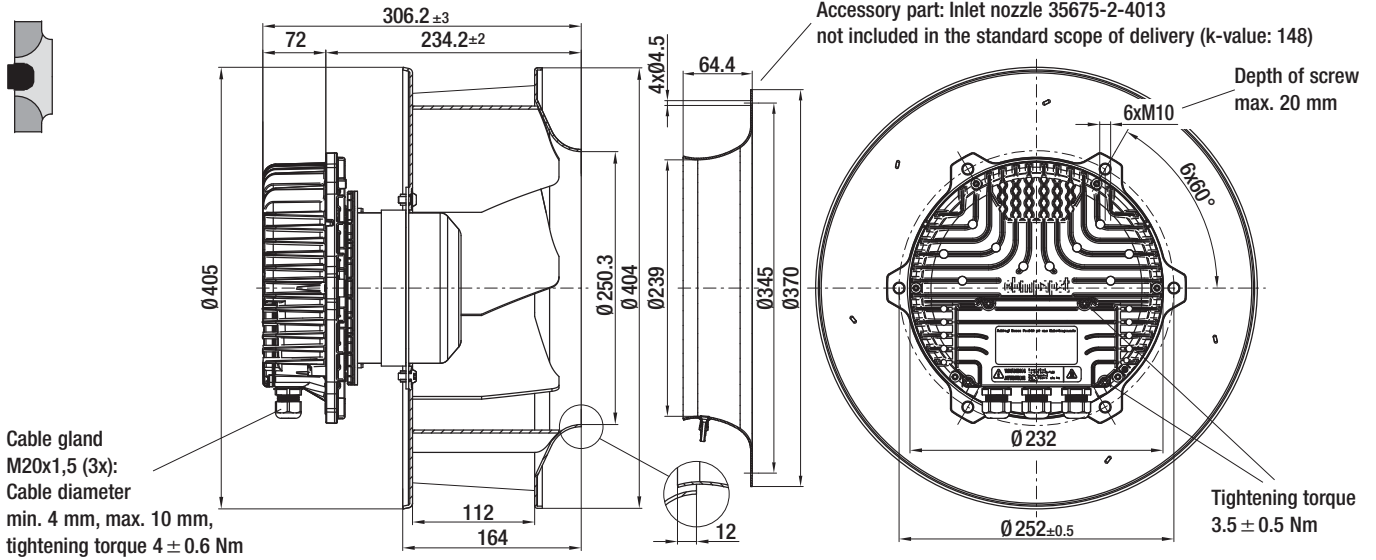
## K3G 355-AX56-96 (Centrifugal module with support design)



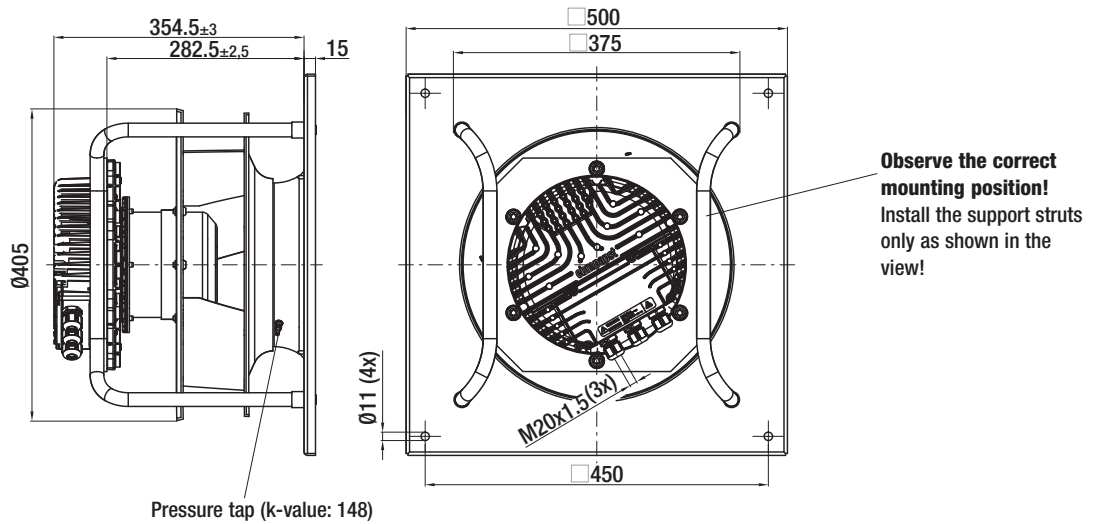




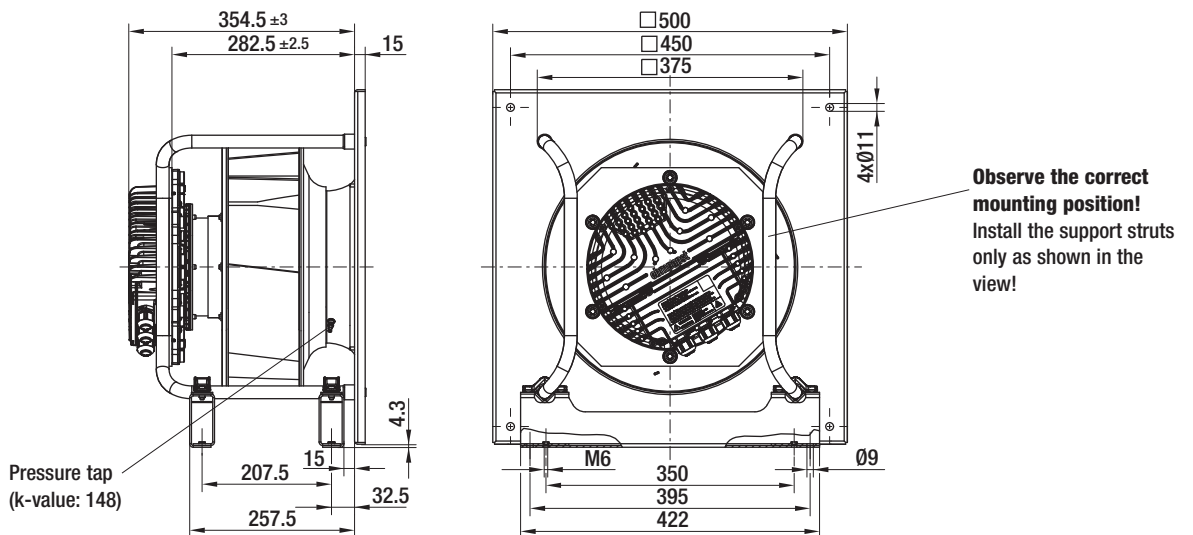
**R3G 355-AY43-21** (Centrifugal fan)



**K3G 355-AY43-22 / -52** (Centrifugal module with support bracket)

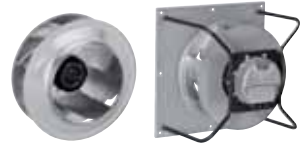


**K3G 355-AY43-98** (Centrifugal module with support design)

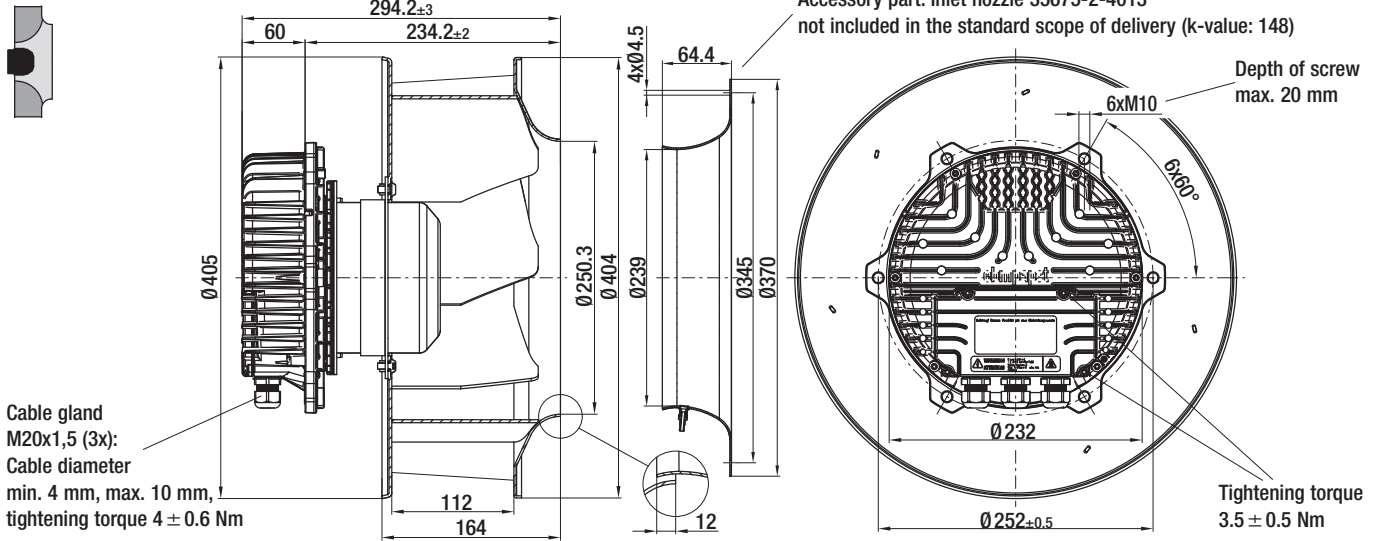


# EC centrifugal fans – RadiPac

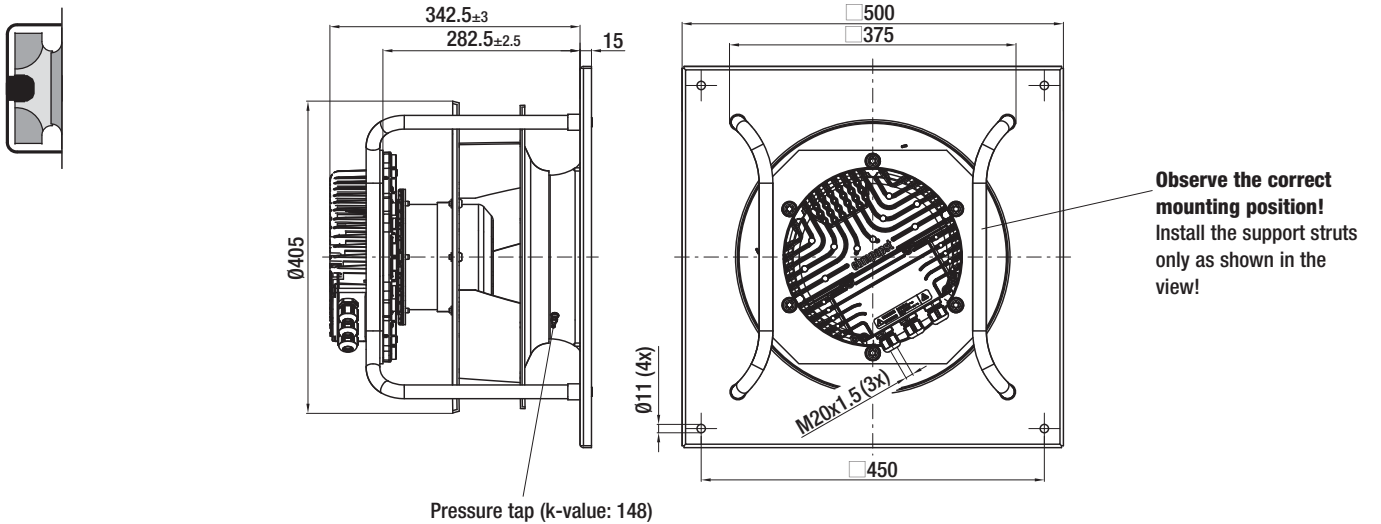
backward curved, Ø 355



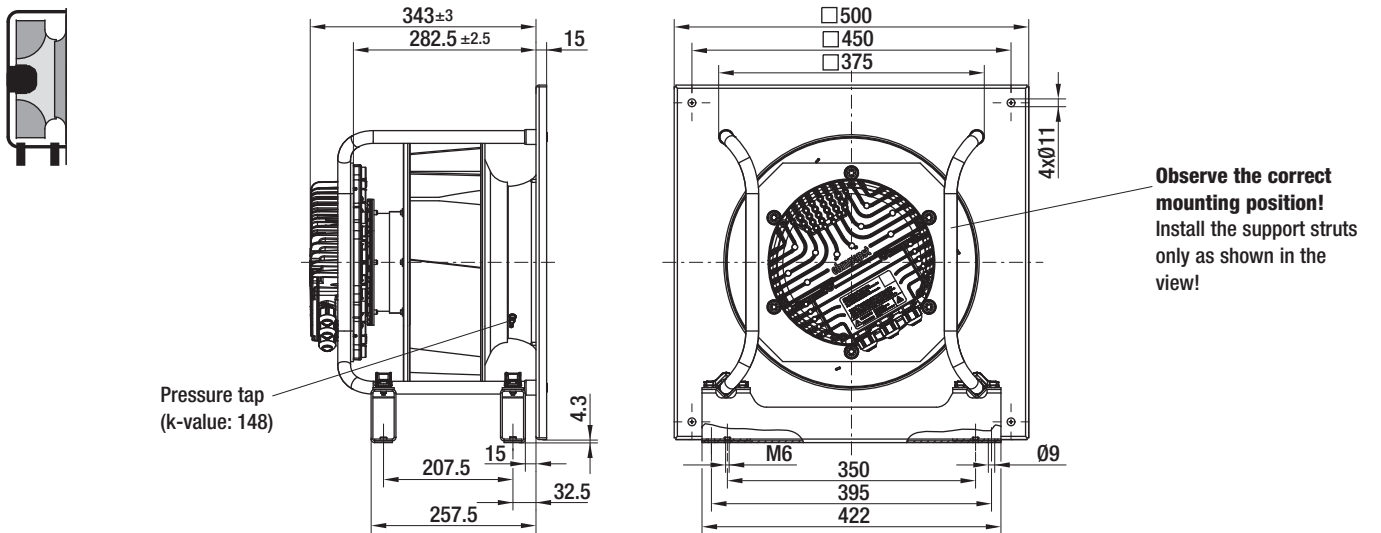
## R3G 355-AY40-01 (Centrifugal fan)

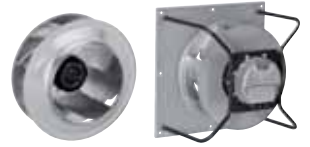


## K3G 355-AY40-02 / -32 (Centrifugal module with support bracket)

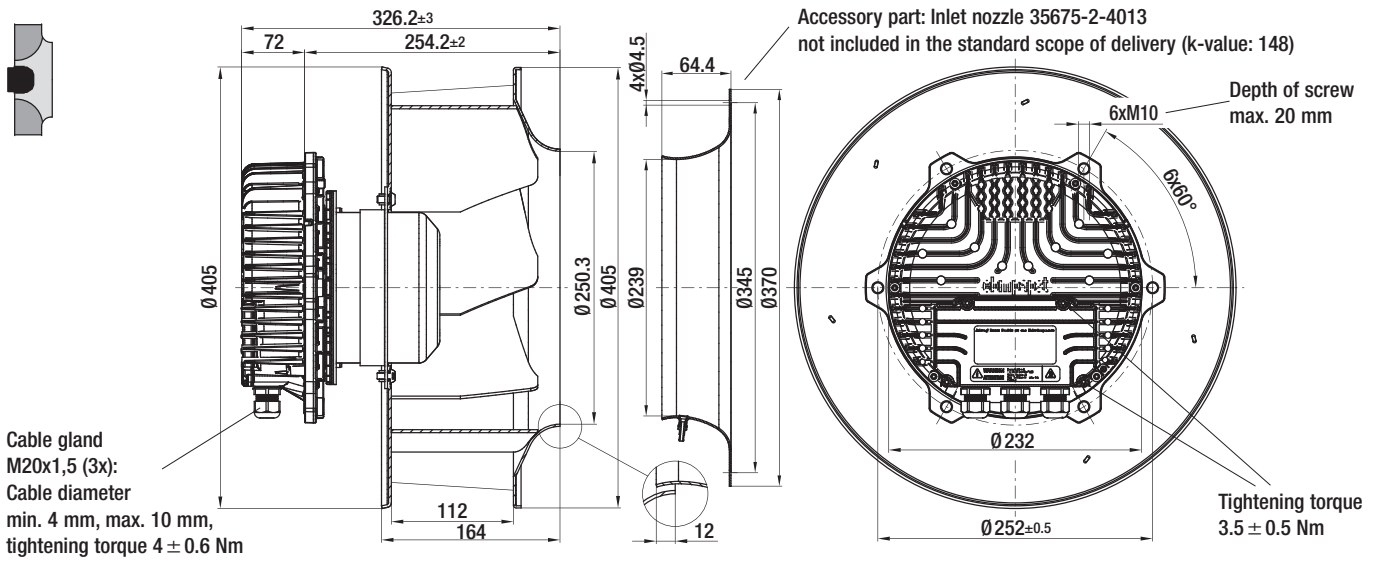


## K3G 355-AY40-96 (Centrifugal module with support design)

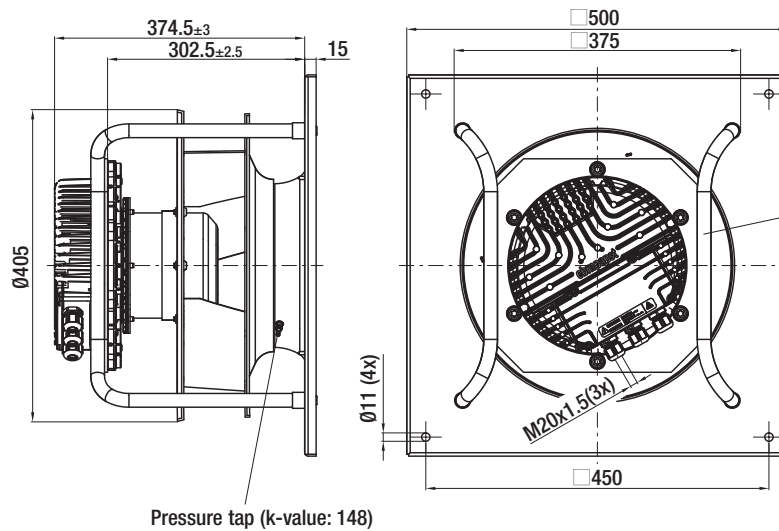




R3G 355-BC92-01 (Centrifugal fan)

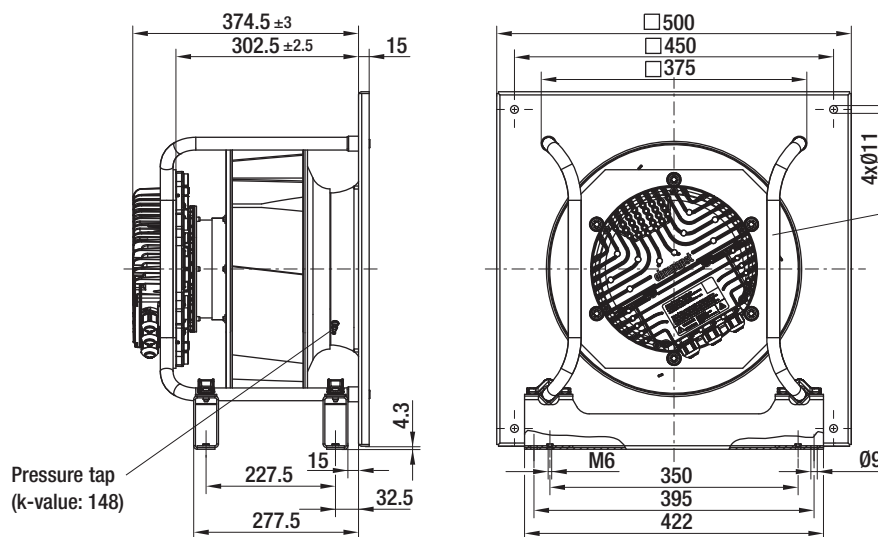


K3G 355-BC92-02 / -32 (Centrifugal module with support bracket)



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

K3G 355-BC92-96 (Centrifugal module with support design)



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

# EC centrifugal fans – RadiPac

backward curved, Ø 400



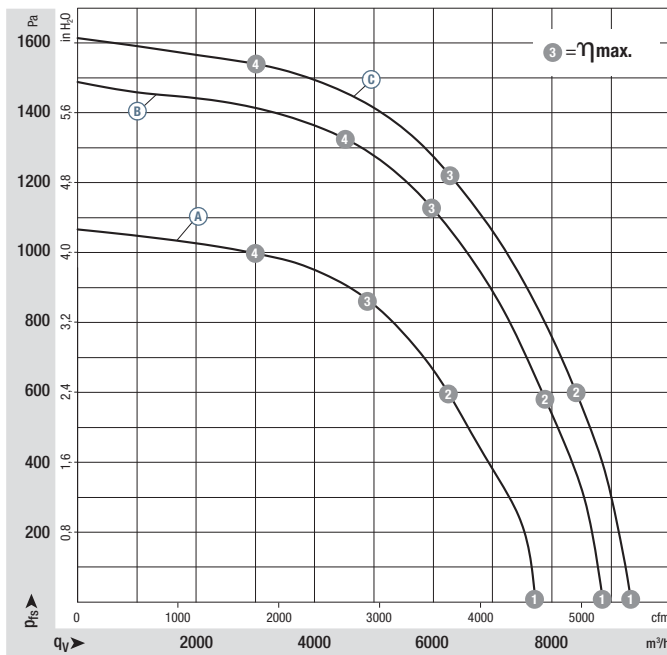
- **Material:** Support bracket: Steel, coated in black; Support plate and inlet nozzle: Sheet steel, galvanised; Cube design with inlet nozzle: Sheet steel, galvanised and plastic-coated in light grey (RAL 7035)  
Impeller: Sheet aluminium  
Rotor: Coated in black; Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** Ⓐ "B"; Ⓑ Ⓒ "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.	Technical features and electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 400	M3G 112-IA	Ⓐ	3~ 380-480	50/60	2180	1850	2,90	-25..+50	p. 89 / M3)
*3G 400	M3G 150-FF	Ⓑ	3~ 380-480	50/60	2550	3000	4,60	-25..+60	p. 89 / M3)
*3G 400	M3G 150-FF	Ⓒ	3~ 380-480	50/60	2680	3470	5,30	-25..+40	p. 89 / M3)

subject to alterations

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

## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>wA</sub> 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
Ⓑ ①	2550	1989	3,03	93
Ⓑ ②	2550	2578	3,92	87
Ⓑ ③	2550	3000	4,60	85
Ⓑ ④	2550	2890	4,41	87
Ⓒ ①	2680	2293	3,51	94
Ⓒ ②	2680	2974	4,53	89
Ⓒ ③	2680	3470	5,30	86
Ⓒ ④	2680	2873	4,41	91

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>wA</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 94 ff.

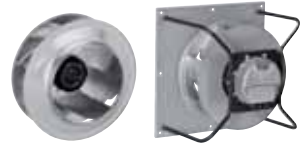
- **Technical features:** See electrical connections p. 89
- **EMC:** Interference emission acc. to EN 61000-6-3  
Interference immunity acc. to EN 61000-6-2  
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ VDE, GOST;  
Ⓑ Ⓒ UL, CSA, GOST

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket <sup>(2)</sup>	kg	Centrifugal module with support- <sup>(3)</sup> cube design <sup>(4)</sup>	kg
R3G 400-AY87 -01	15,6	40075-2-4013	K3G 400-AY87 -02	26,0	K3G 400-AY87 -32	26,0	K3G 400-AY87 -96 <sup>(3)</sup>	28,0
R3G 400-AQ23 -01	21,7	40075-2-4013	K3G 400-AQ23 -01	32,3	K3G 400-AQ23 -31	32,3	K3G 400-AQ23 -02 <sup>(4)</sup>	47,0
R3G 400-AQ31 -01	21,7	40075-2-4013	K3G 400-AQ31 -01	32,3	---	---	K3G 400-AQ31 -02 <sup>(4)</sup>	47,0

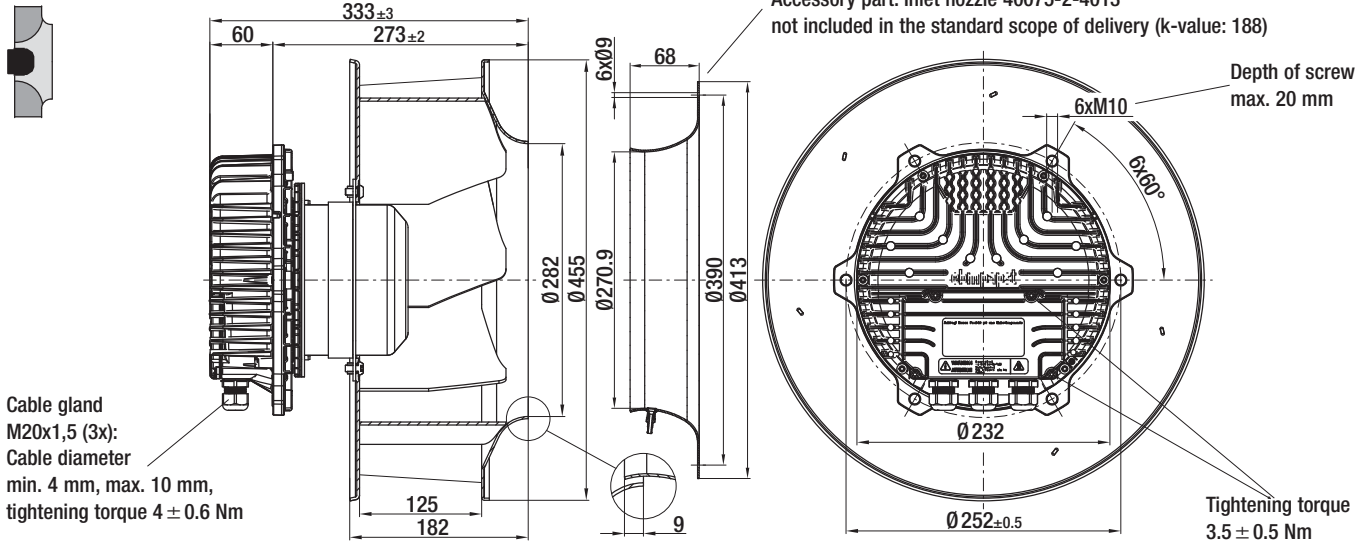
(2) Centrifugal module with higher protection against corrosion (3) Support design (4) Cube design

# EC centrifugal fans – RadiPac

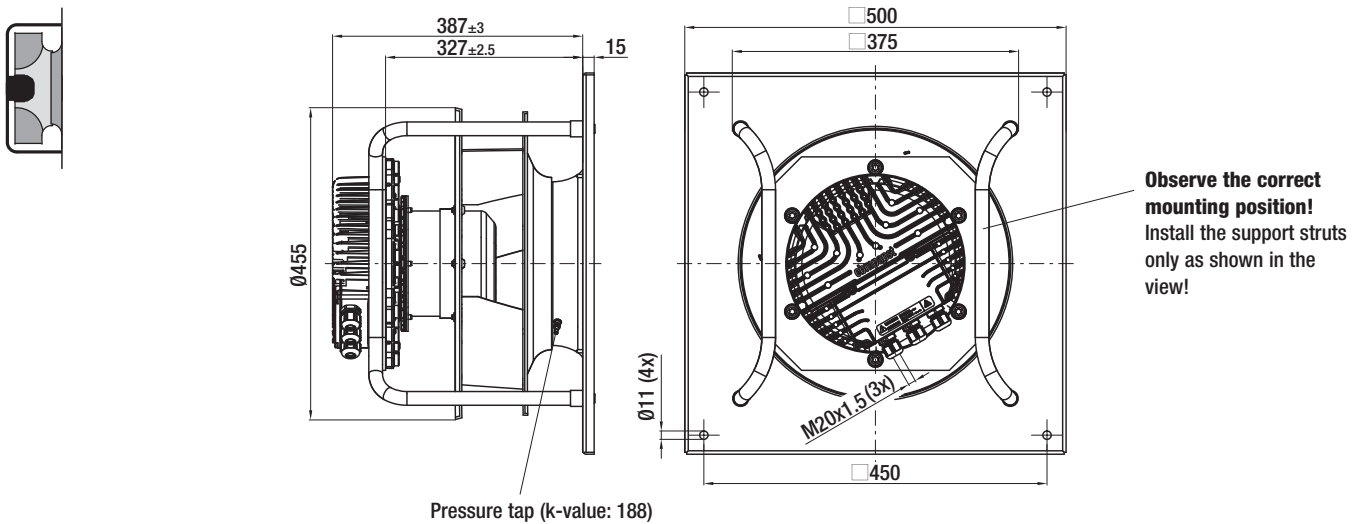
backward curved, Ø 400



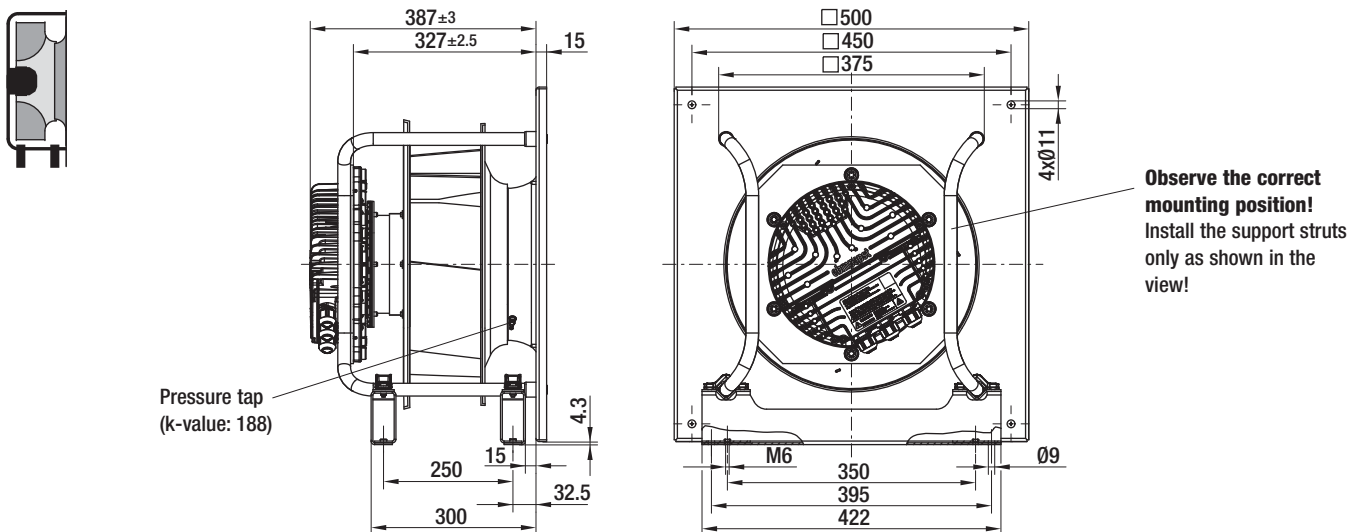
## R3G 400-AY87-01 (Centrifugal fan)



## K3G 400-AY87-02 / -32 (Centrifugal module with support bracket)

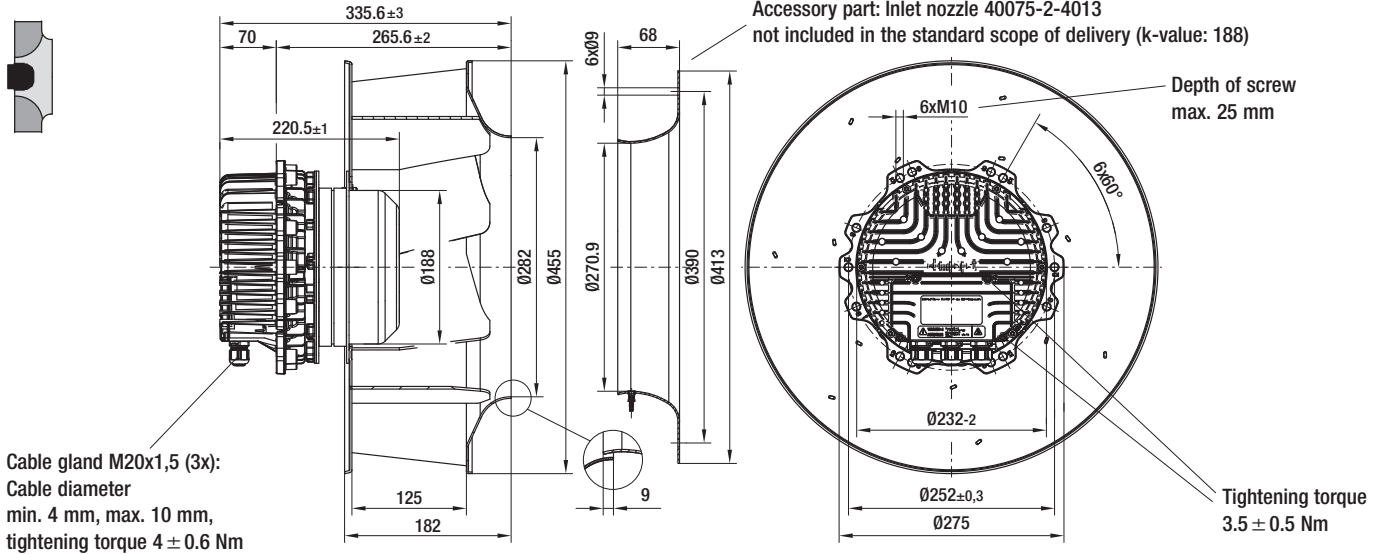


## K3G 400-AY87-96 (Centrifugal module with support design)

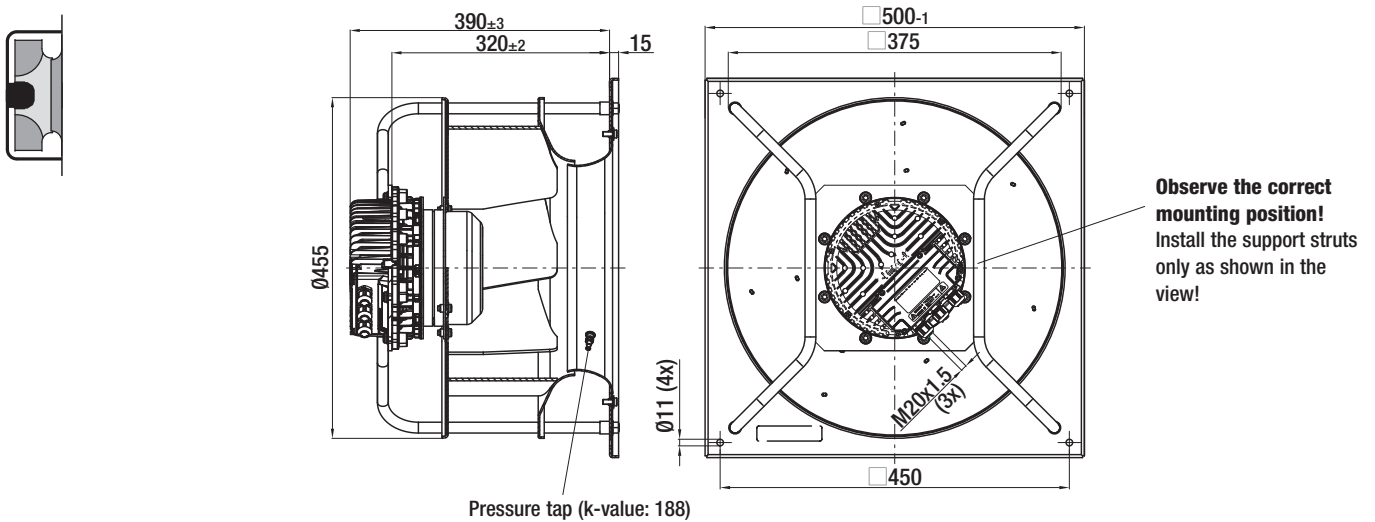




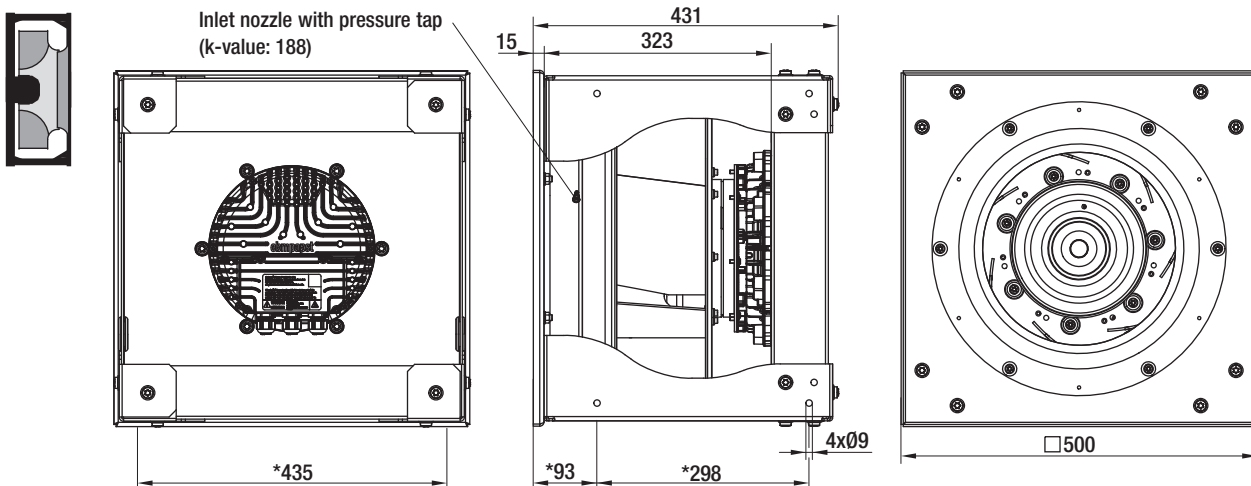
### R3G 400-AQ23-01 (Centrifugal fan)



### K3G 400-AQ23-01 / -31 (Centrifugal module with support bracket)



### K3G 400-AQ23-02 (Centrifugal module with cube design)



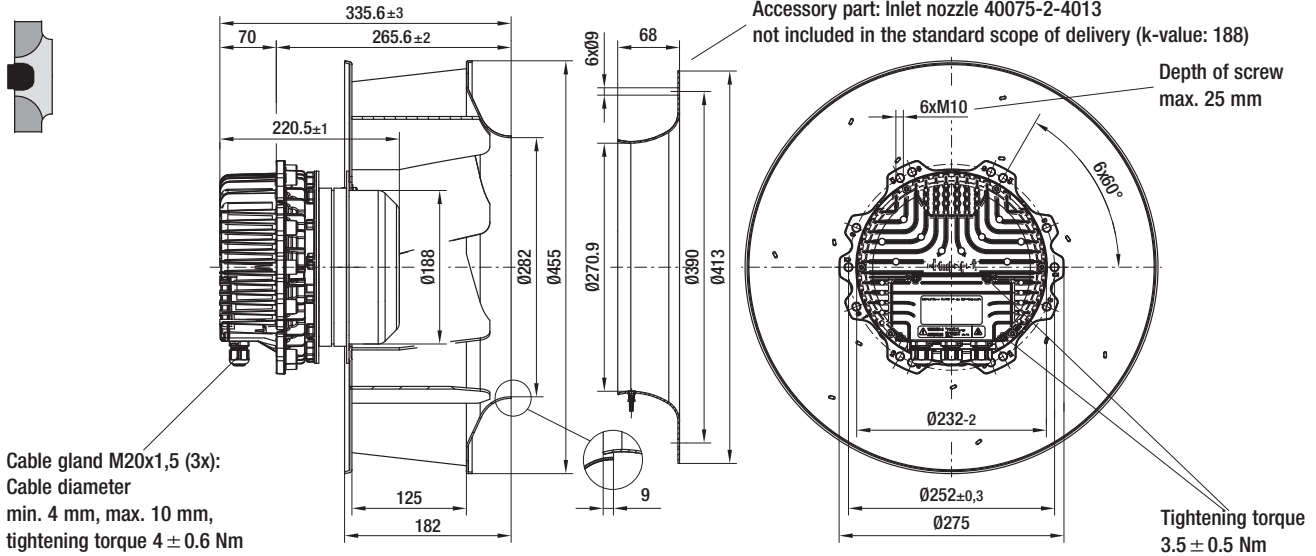
\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.

# EC centrifugal fans – RadiPac

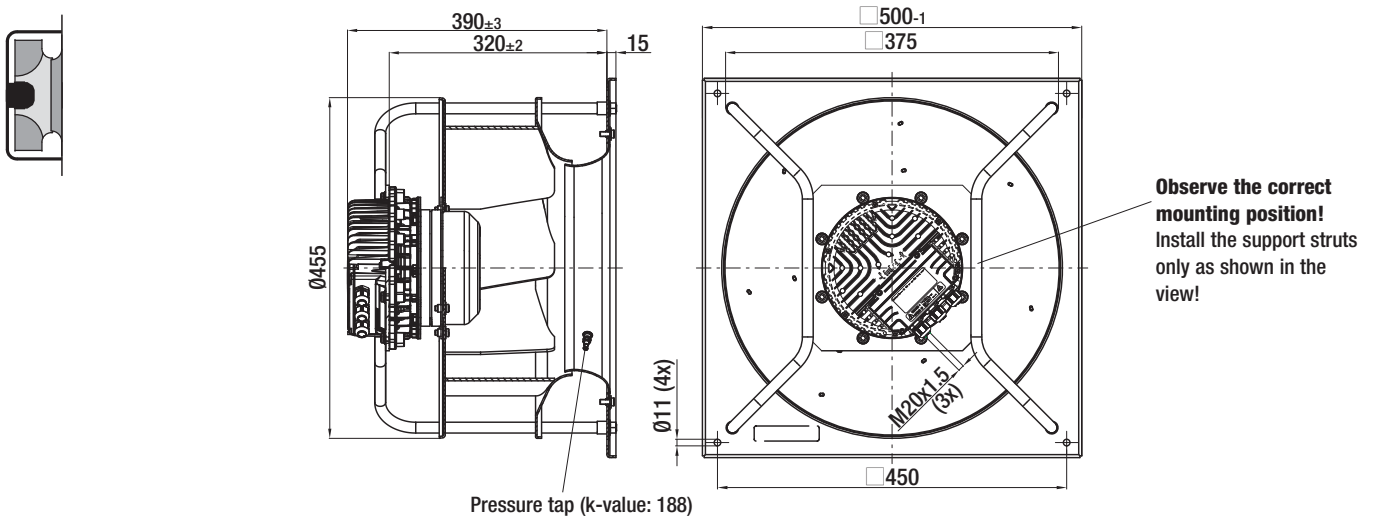
backward curved, Ø 400



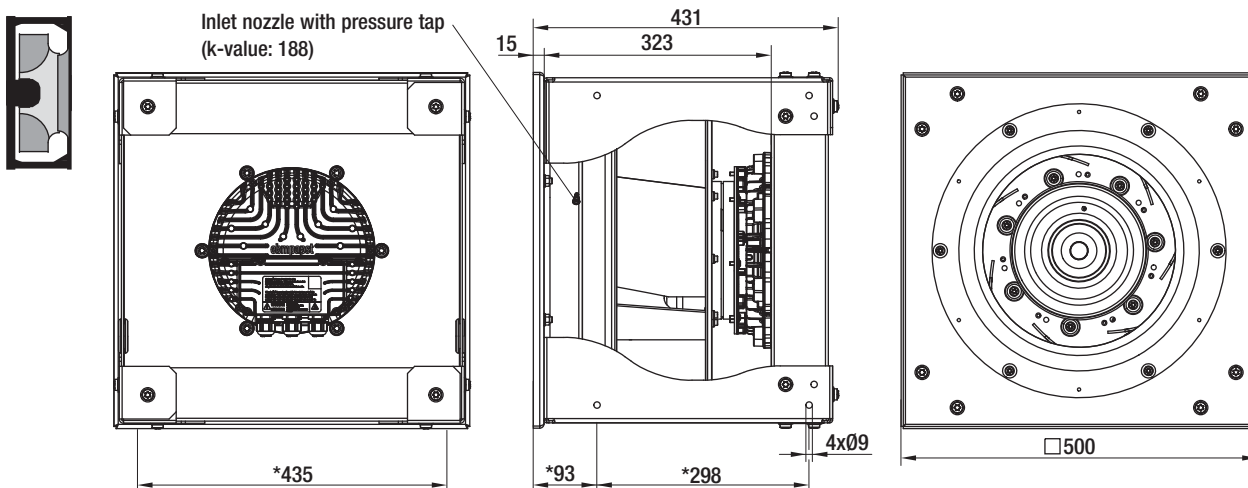
## R3G 400-AQ31-01 (Centrifugal fan)



## K3G 400-AQ31-01 (Centrifugal module with support bracket)



## K3G 400-AQ31-02 (Centrifugal module with cube design)



\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.





# EC centrifugal fans – RadiPac

backward curved, Ø 450



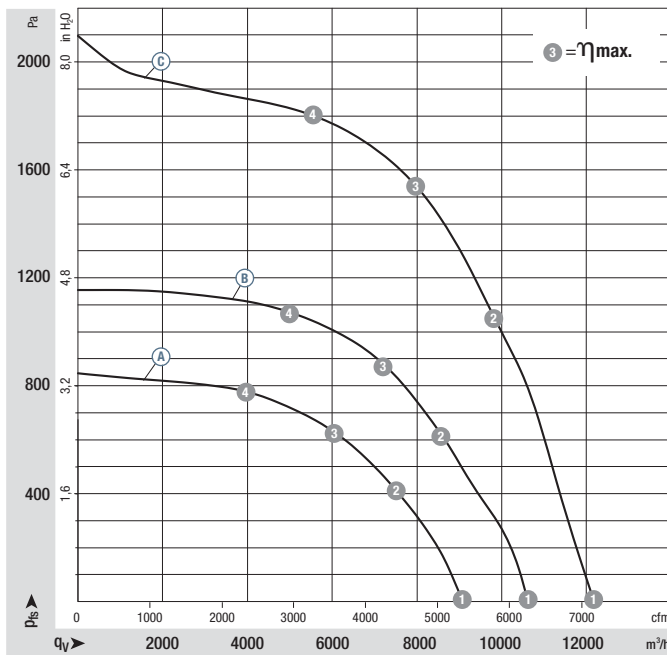
- **Material:** Support bracket: Steel, coated in black; Support plate and inlet nozzle: Sheet steel, galvanised; Cube design with inlet nozzle: Sheet steel, galvanised and plastic-coated in light grey (RAL 7035)  
Impeller: Sheet aluminium  
Rotor: Coated in black; Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** (A) "B"; (B) (C) "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.	Technical features and electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 450	M3G 112-IA	(A)	3~ 380-480	50/60	1750	1615	2,50	-25..+50	p. 89 / M3)
*3G 450	M3G 150-FF	(B)	3~ 380-480	50/60	2040	2730	4,20	-25..+60	p. 89 / M3)
*3G 450	M3G 150-IF	(C)	3~ 380-480	50/60	2750	5370	8,30	-25..+40	p. 89 / M3)

subject to alterations

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

## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>wA</sub> 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
(B) 1	2040	1773	2,71	92
(B) 2	2040	2500	3,80	83
(B) 3	2040	2730	4,20	81
(B) 4	2040	2587	3,96	83
(C) 1	2750	3105	4,79	100
(C) 2	2750	4841	7,47	90
(C) 3	2750	5370	8,30	89
(C) 4	2750	5060	7,80	93

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 94 ff.

- **Technical features:** See electrical connections p. 89
- **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
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ VDE, GOST;  
Ⓑ Ⓒ UL, CSA, GOST

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket <sup>(2)</sup>	kg	Centrifugal module with cube design	kg
R3G 450-AY86 -01	16,4	45075-2-4013	K3G 450-AY86 -02	31,9	K3G 450-AY86 -32	31,9	K3G 450-AY86 -96	46,0
R3G 450-AQ24 -01	22,5	45075-2-4013	K3G 450-AQ24 -01	38,2	K3G 450-AQ24 -31	38,2	K3G 450-AQ24 -02	56,5
R3G 450-AZ30 -01	31,1	45075-2-4013	K3G 450-AZ30 -01	52,7	K3G 450-AZ30 -31	52,7	K3G 450-AZ30 -02	68,0

(2) Centrifugal module with higher protection against corrosion

# EC centrifugal fans – RadiPac

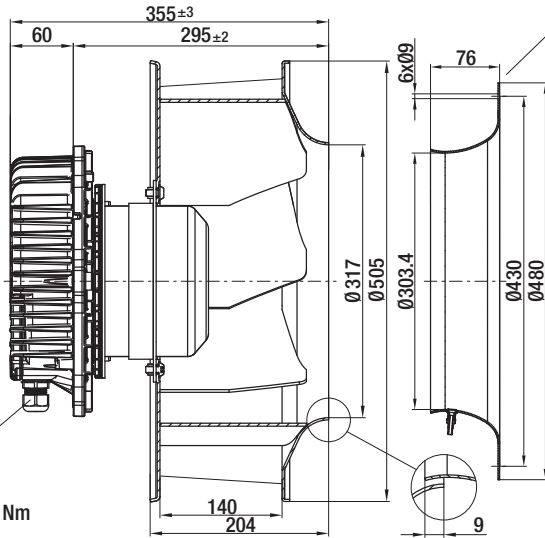
backward curved, Ø 450



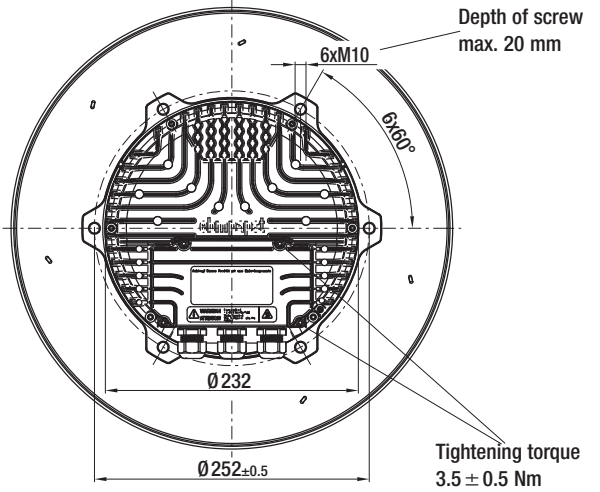
## R3G 450-AY86-01 (Centrifugal fan)



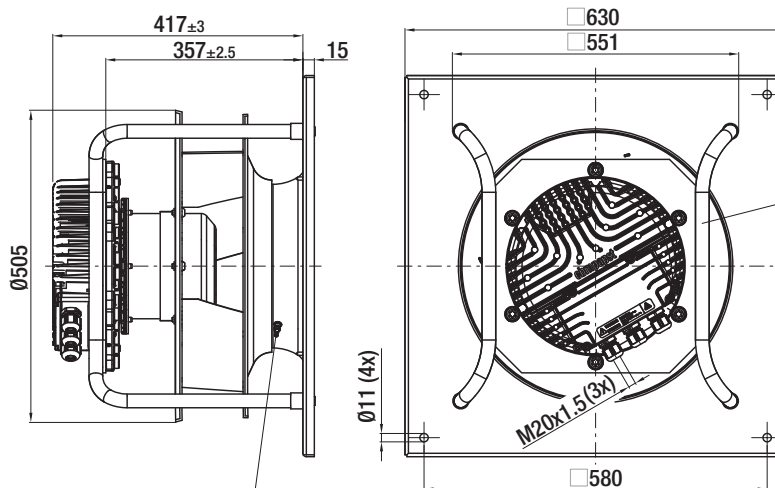
Cable gland  
M20x1,5 (3x):  
Cable diameter  
min. 4 mm, max. 10 mm,  
tightening torque  $4 \pm 0.6$  Nm



Accessory part: Inlet nozzle 45075-2-4013  
not included in the standard scope of delivery (k-value: 240)



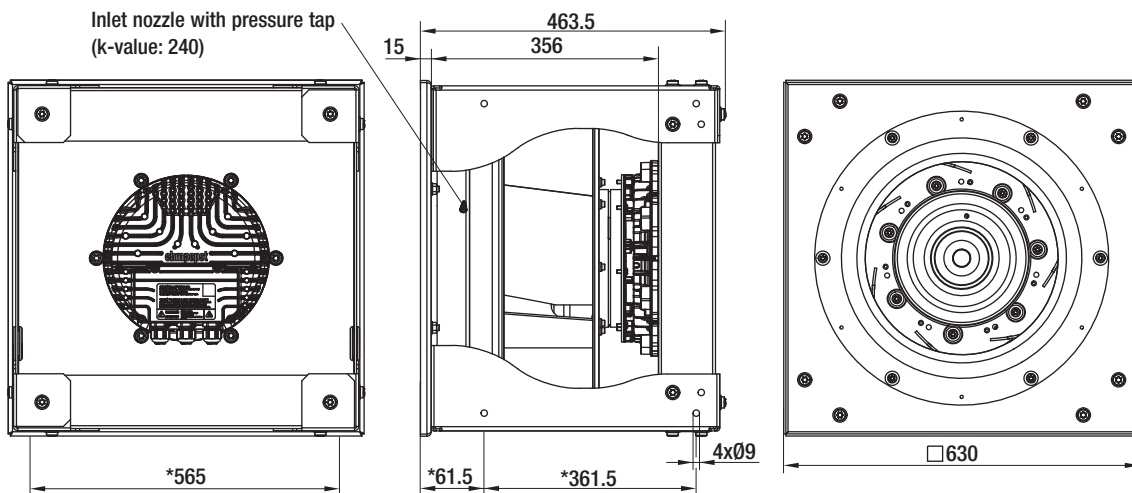
## K3G 450-AY86-02 / -32 (Centrifugal module with support bracket)



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

Pressure tap (k-value: 240)

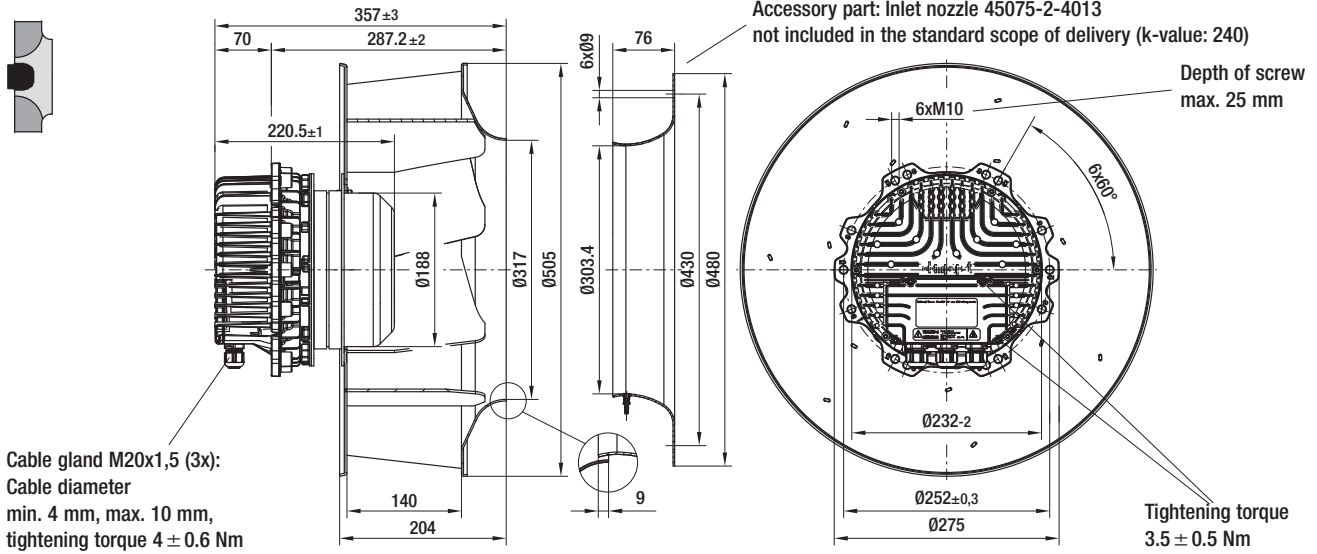
## K3G 450-AY86-96 (Centrifugal module with cube design)



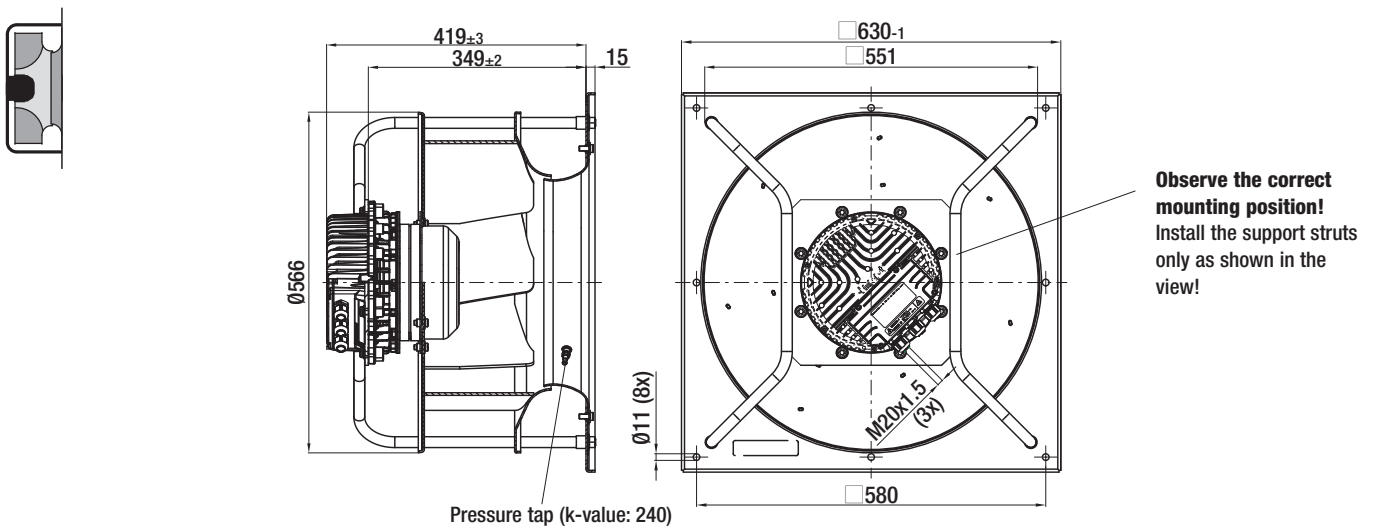
\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.



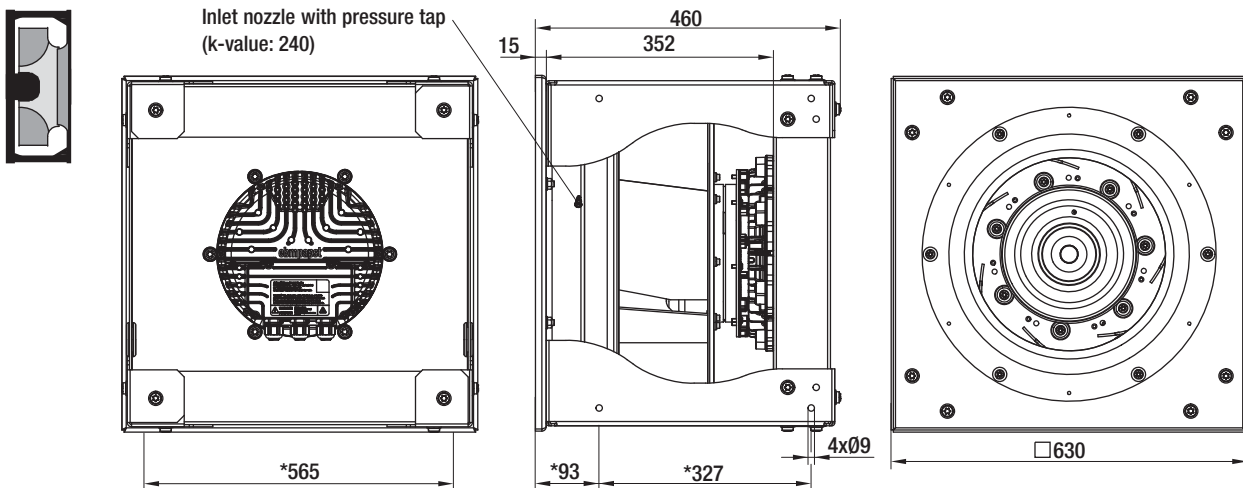
**R3G 450-AQ24-01** (Centrifugal fan)



**K3G 450-AQ24-01 / -31** (Centrifugal module with support bracket)



**K3G 450-AQ24-02** (Centrifugal module with cube design)



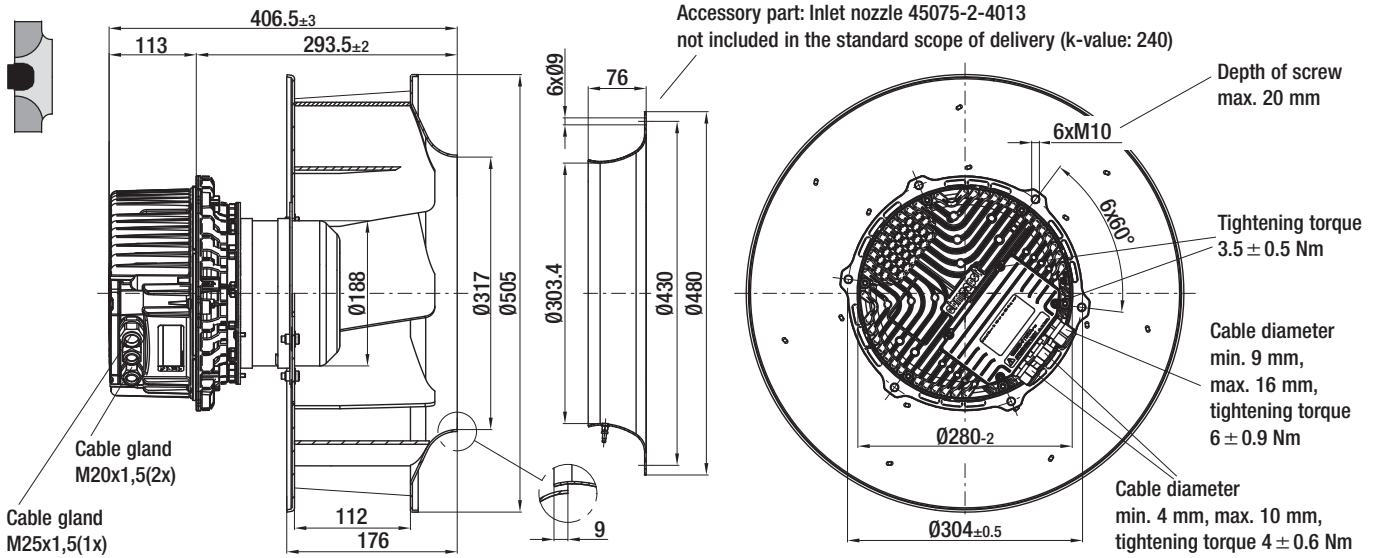
\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.

# EC centrifugal fans – RadiPac

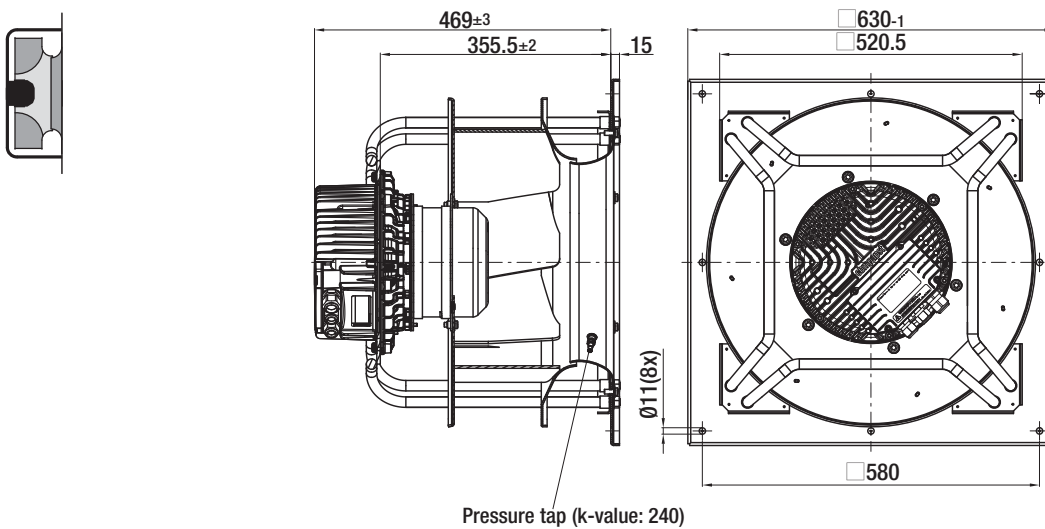
backward curved, Ø 450



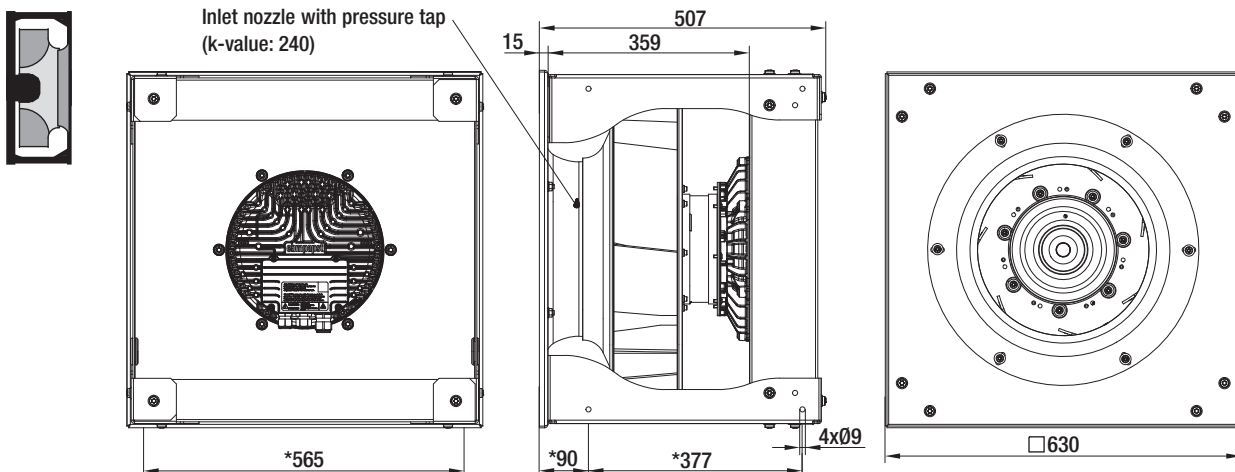
## R3G 450-AZ30-01 (Centrifugal fan)



## K3G 450-AZ30-01 / -31 (Centrifugal module with support bracket)



## K3G 450-AZ30-02 (Centrifugal module with cube design)



\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.



# EC centrifugal fans – RadiPac

backward curved, Ø 500



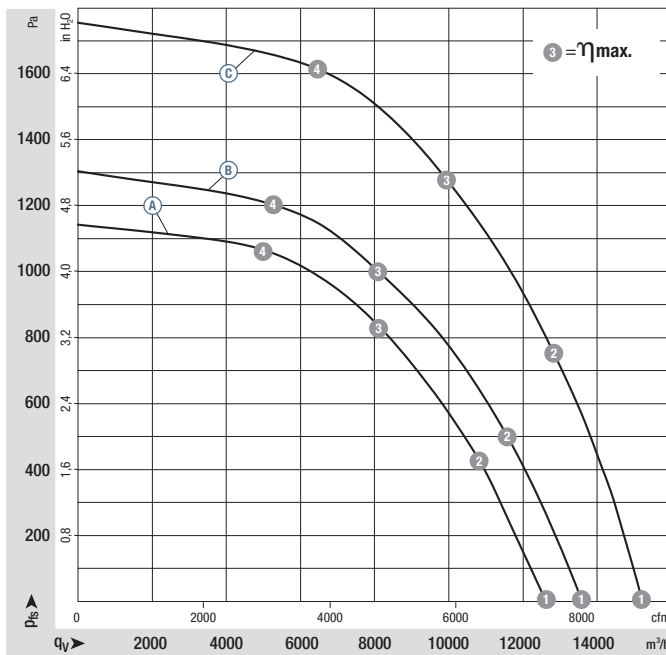
- **Material:** Support bracket: Steel, coated in black; Support plate and inlet nozzle: Sheet steel, galvanised; Cube design with inlet nozzle: Sheet steel, galvanised and plastic-coated in light grey (RAL 7035)  
Impeller: Sheet aluminium  
Rotor: Coated in black; Electronics enclosure: Die-cast aluminium
- **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.	Technical features and electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 500	M3G 150-FF	Ⓐ	3~ 380-480	50/60	1780	2825	4,30	-25..+60	p. 89 / M3)
*3G 500	M3G 150-FF	Ⓑ	3~ 380-480	50/60	1910	3510	5,40	-25..+50	p. 89 / M3)
*3G 500	M3G 150-IF	Ⓒ	3~ 380-480	50/60	2200	5500	8,40	-25..+45	p. 89 / M3)

subject to alterations

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

## Curves



	n rpm	P <sub>ed</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
Ⓑ 1	1910	2375	3,54	96
Ⓑ 2	1910	3069	4,57	90
Ⓑ 3	1910	3510	5,40	84
Ⓑ 4	1910	3264	4,83	87
Ⓒ 1	2200	3725	5,82	100
Ⓒ 2	2200	4944	7,64	94
Ⓒ 3	2200	5500	8,40	89
Ⓒ 4	2200	5148	7,95	90

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>wA</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 94 ff.



- **Technical features:** See electrical connections p. 89
- **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
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** UL, CSA, GOST

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket <sup>(2)</sup>	kg	Centrifugal module with cube design	kg
R3G 500-AP25 -01	24,6	64025-2-4013	K3G 500-AP25 -01	40,2	K3G 500-AP25 -31	40,2	K3G 500-AP25 -02	58,5
R3G 500-AP24 -01	24,6	64025-2-4013	K3G 500-AP24 -01	40,2	---	---	K3G 500-AP24 -02	58,5
R3G 500-AQ33 -01	21,7	64025-2-4013	K3G 500-AQ33 -01	32,3	K3G 500-AQ33 -31	32,3	K3G 500-AQ33 -02	70,0

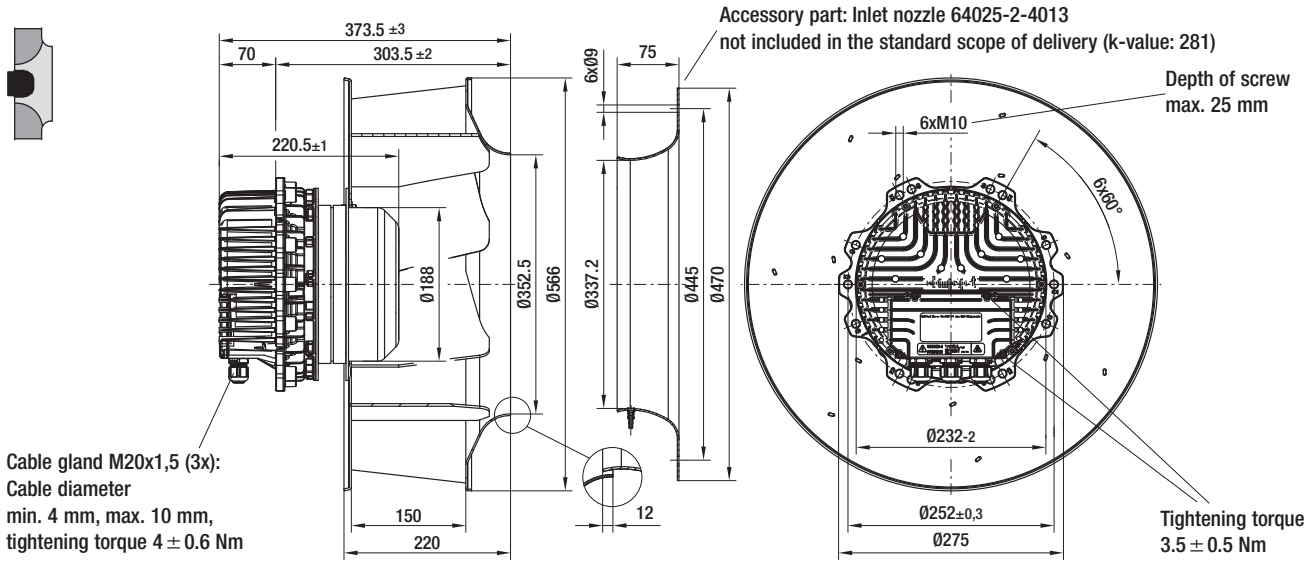
(2) Centrifugal module with higher protection against corrosion

# EC centrifugal fans – RadiPac

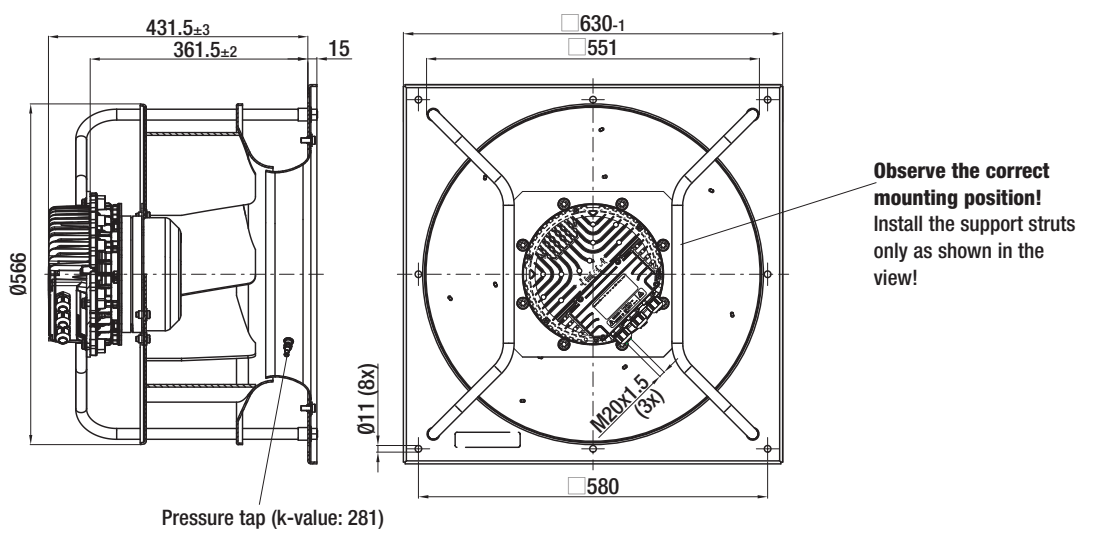
backward curved, Ø 500



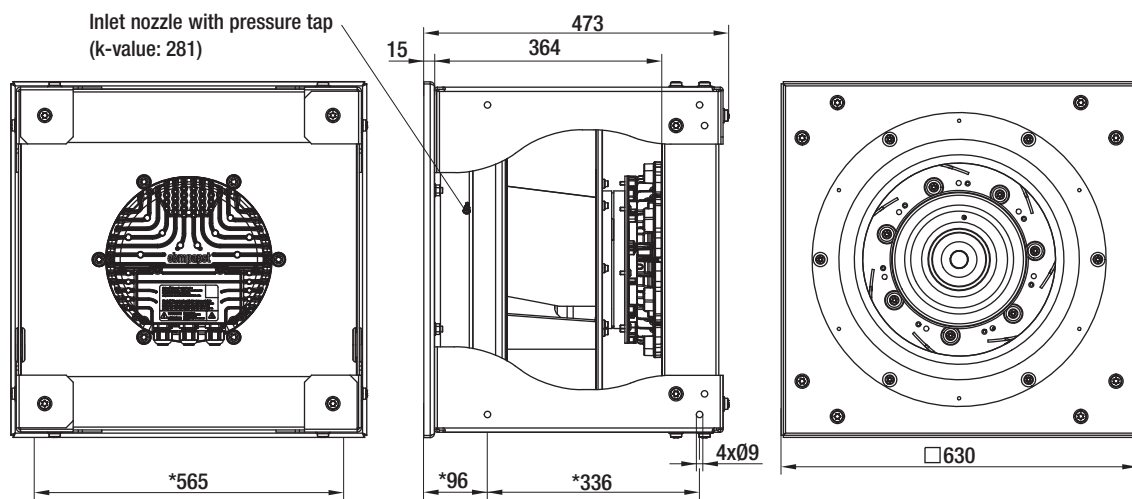
## R3G 500-AP25-01 (Centrifugal fan)



## K3G 500-AP25-01 / -31 (Centrifugal module with support bracket)



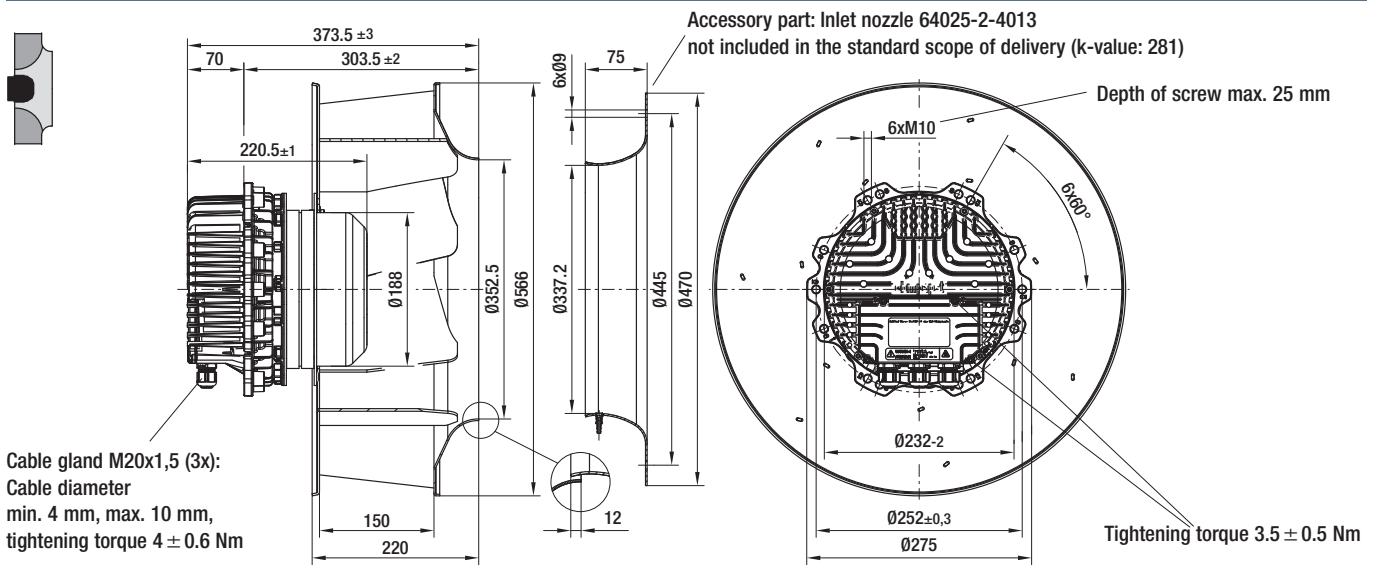
## K3G 500-AP25-02 (Centrifugal module with cube design)



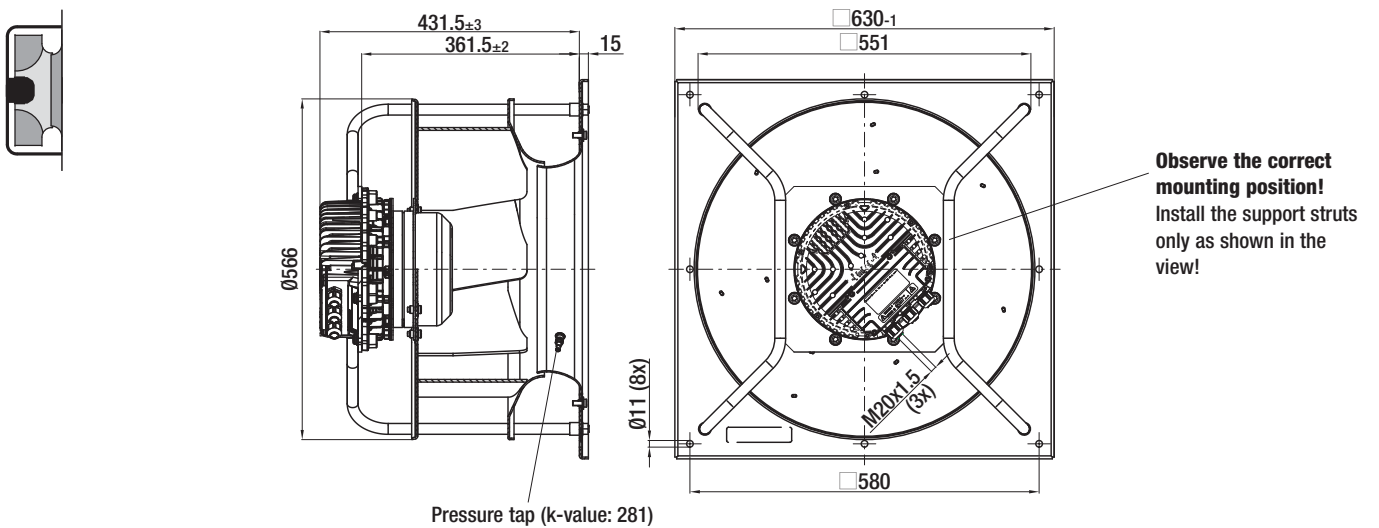
\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.



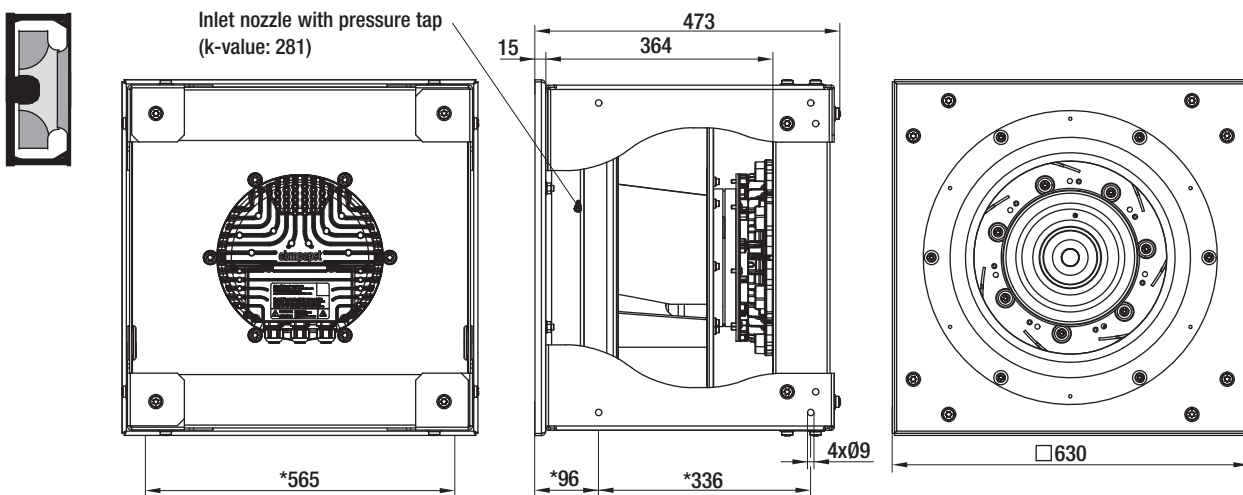
### R3G 500-AP24-01 (Centrifugal fan)



### K3G 500-AP24-01 (Centrifugal module with support bracket)



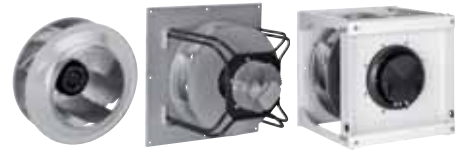
### K3G 500-AP24-02 (Centrifugal module with cube design)



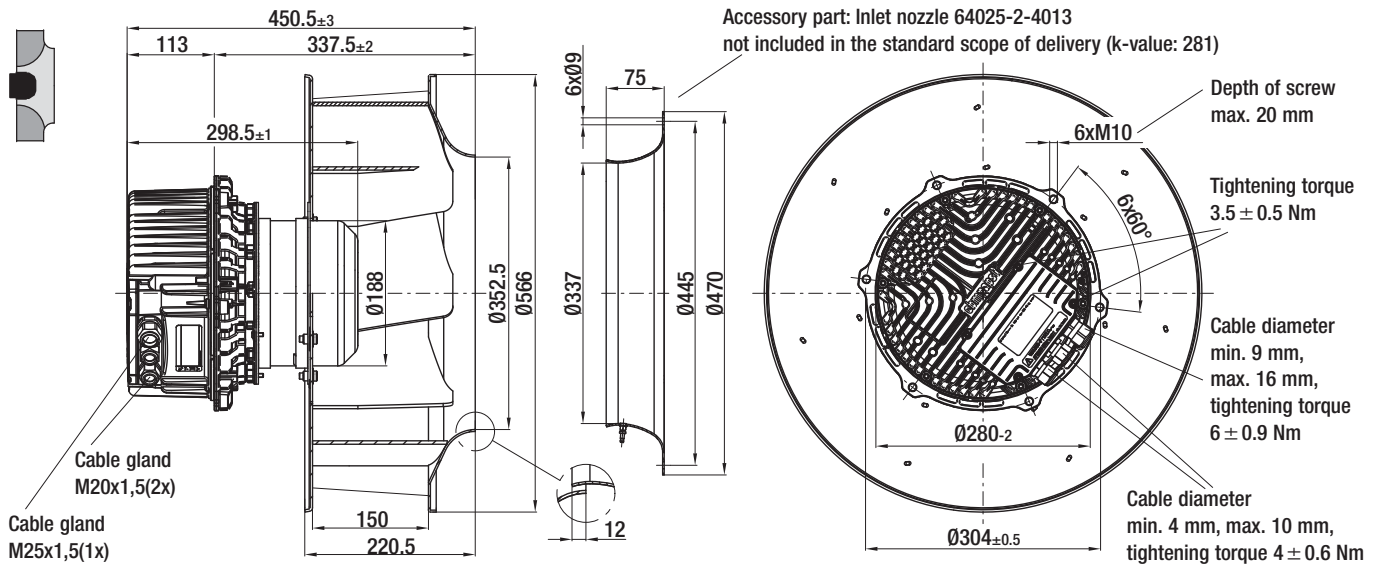
\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.

# EC centrifugal fans – RadiPac

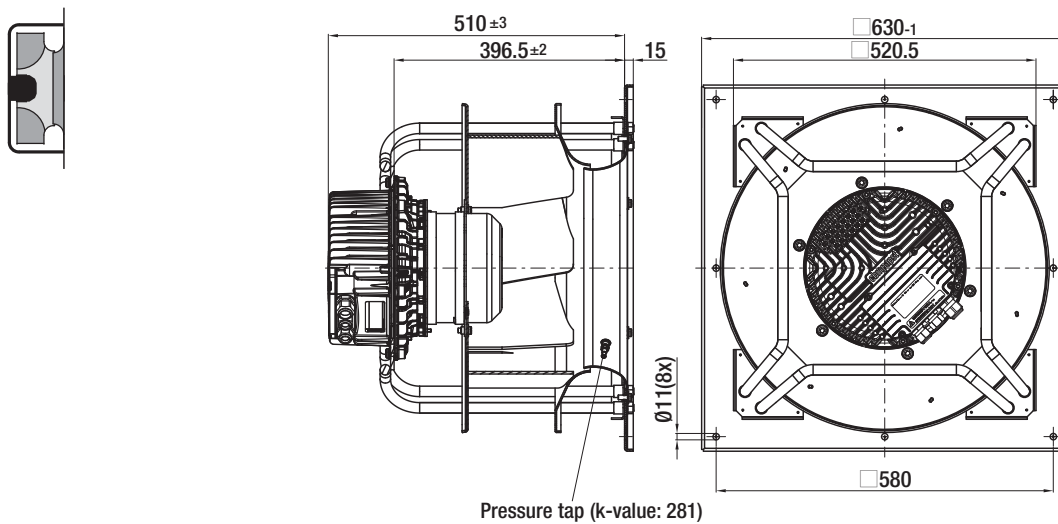
backward curved, Ø 500



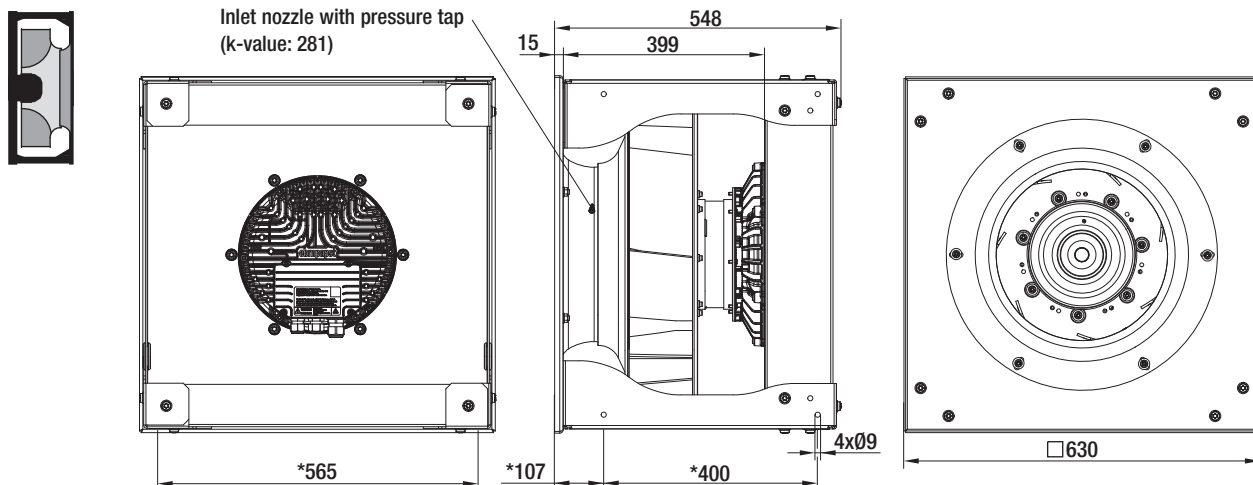
## R3G 500-AQ33-01 (Centrifugal fan)



## K3G 500-AQ33-01 / -31 (Centrifugal module with support bracket)



## K3G 500-AQ33-02 (Centrifugal module with cube design)



\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.



# EC centrifugal fans – RadiPac

backward curved, Ø 560



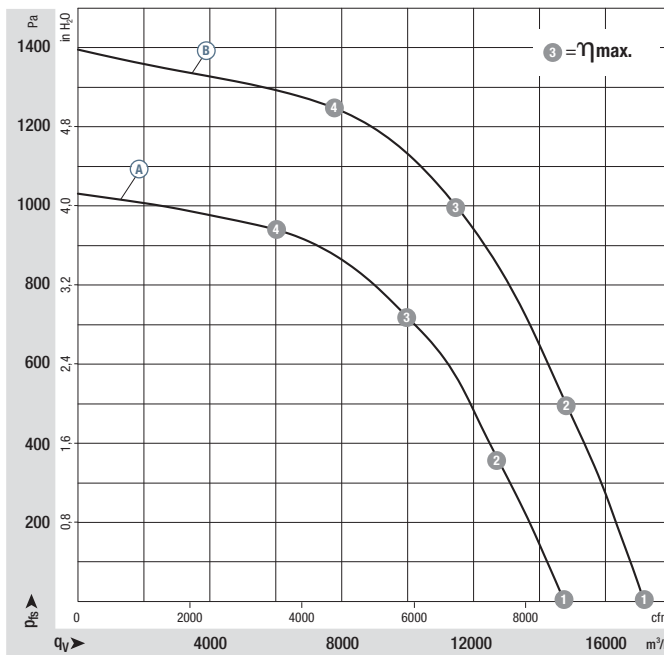
- **Material:** Support bracket: Steel, coated in black; Support plate and inlet nozzle: Sheet steel, galvanised; Cube design with inlet nozzle: Sheet steel, galvanised and plastic-coated in light grey (RAL 7035)  
Impeller: Sheet aluminium  
Rotor: Coated in black; Electronics enclosure: Die-cast aluminium
- **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.	Technical features and electr. connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 560	M3G 150-IF	Ⓐ 3~	380-480	50/60	1500	3000	4,60	-25..+50	p. 89 / M3)
*3G 560	M3G 150-NA	Ⓑ 3~	380-480	50/60	1750	4700	7,30	-25..+40	p. 89 / M3)

subject to alterations

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

## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>wA</sub> dB(A)
Ⓐ ①	1500	1952	2,98	90
Ⓐ ②	1500	2481	3,77	86
Ⓐ ③	1500	3000	4,60	80
Ⓐ ④	1500	2754	4,18	83
Ⓑ ①	1750	3032	4,77	97
Ⓑ ②	1750	3929	6,10	91
Ⓑ ③	1750	4700	7,30	84
Ⓑ ④	1750	4366	6,71	86

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 94 ff.

- **Technical features:** See electrical connections p. 89
- **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
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** UL, CSA, GOST

Centrifugal fan	kg	Inlet nozzle with one pressure tap	Centrifugal module w. support bracket	kg	Centrifugal module w. supp. bracket <sup>(2)</sup>	kg	Centrifugal module with cube design	kg
R3G 560-AP23 -01	30,5	64030-2-4013	K3G 560-AP23 -01	56,1	K3G 560-AP23 -31	56,1	K3G 560-AP23 -02	74,0
R3G 560-AQ04 -01	40,0	64030-2-4013	K3G 560-AQ04 -01	69,7	K3G 560-AQ04 -31	69,7	K3G 560-AQ04 -02	86,5

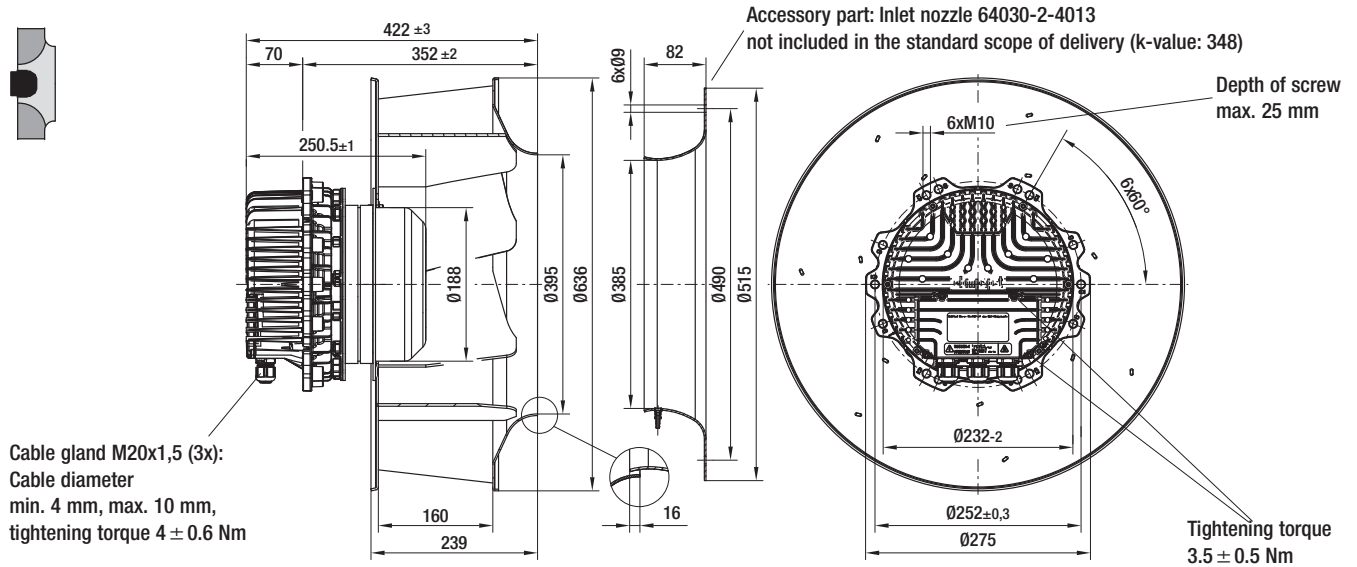
(2) Centrifugal module with higher protection against corrosion

# EC centrifugal fans – RadiPac

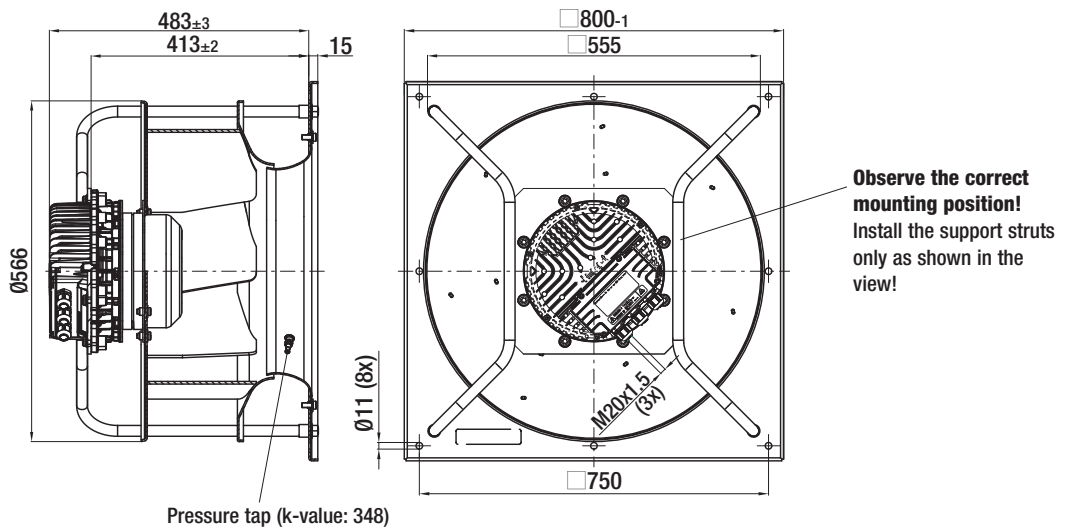
backward curved, Ø 560



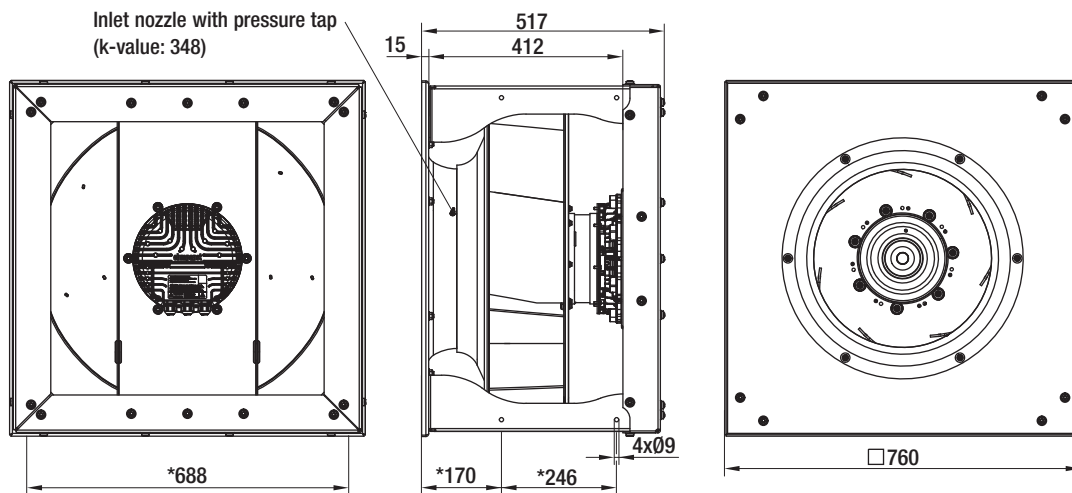
## R3G 560-AP23-01 (Centrifugal fan)



## K3G 560-AP23-01 / -31 (Centrifugal module with support bracket)



## K3G 560-AP23-02 (Centrifugal module with cube design)

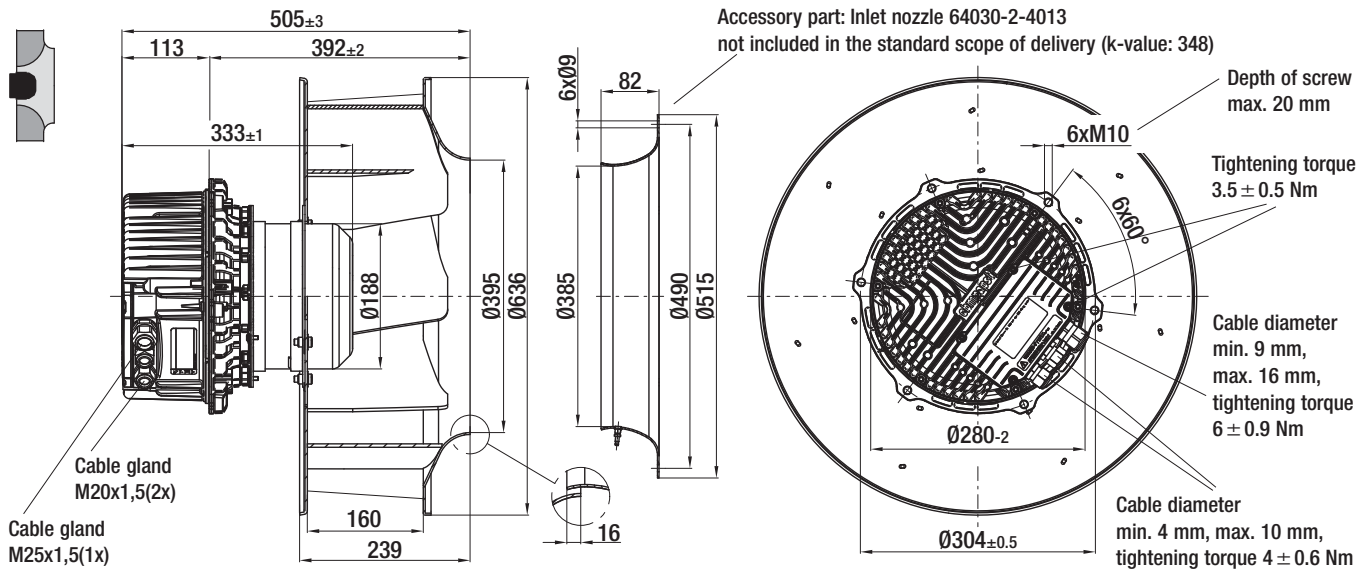


\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.

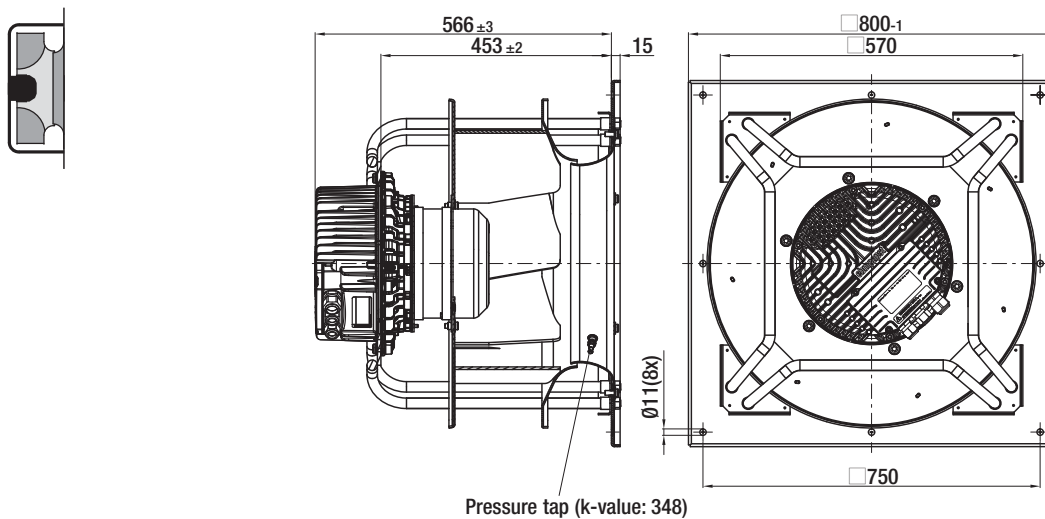




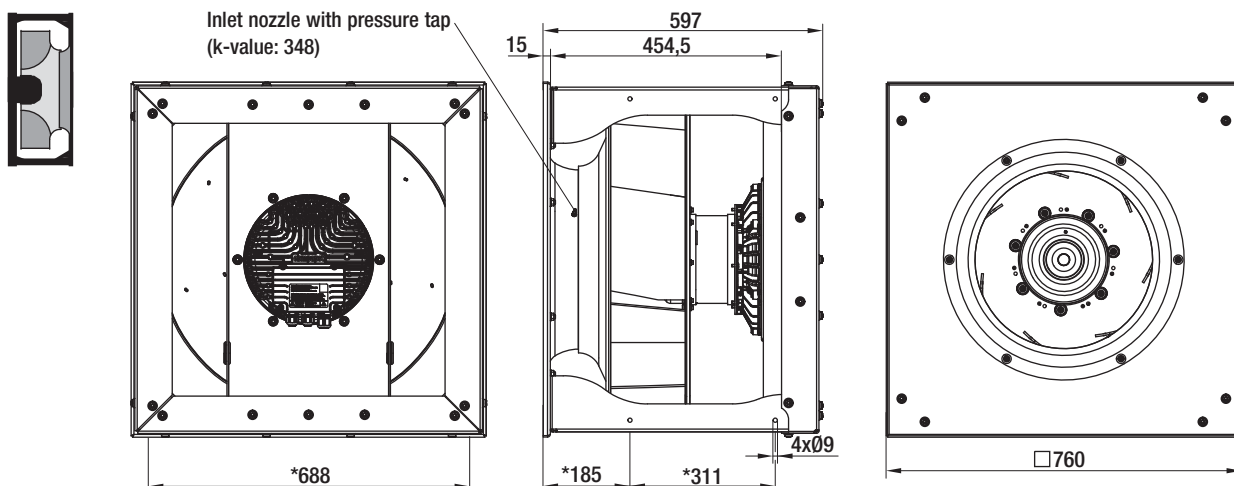
### R3G 560-AQ04-01 (Centrifugal fan)



### K3G 560-AQ04-01 / -31 (Centrifugal module with support bracket)



### K3G 560-AQ04-02 (Centrifugal module with cube design)



\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.

# EC centrifugal fans – RadiPac

backward curved, Ø 630



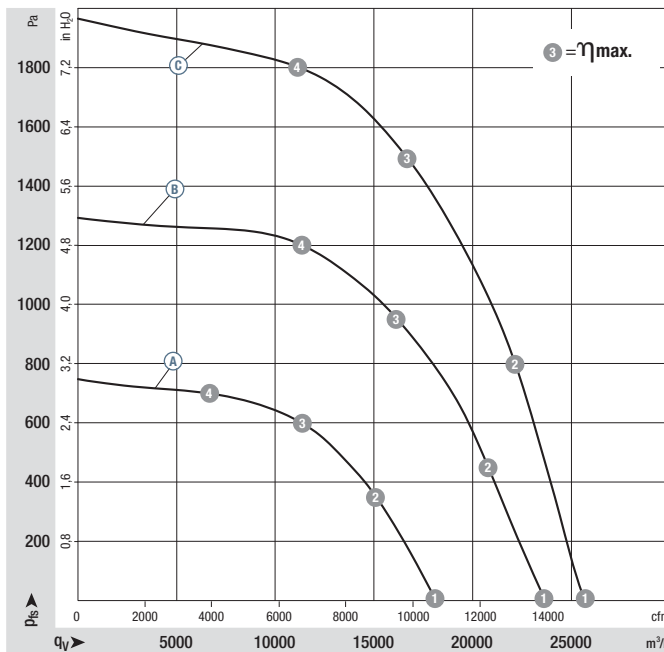
- **Material:** Ⓑ Ⓒ Cube design with inlet nozzle: Sheet steel, galvanised and plastic-coated in light grey (RAL 7035)  
Impeller: Sheet aluminium  
Rotor: Coated in black; Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal (Ⓑ Ⓒ for floor installation only) 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.	Mass	Technical features and elect. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	kg		
R3G 630-AP01 -01	M3G 150-NA	Ⓐ	3~ 380-480	50/60	1130	2900	4,50	-25..+55	40	p. 89 / M3)
K3G 630-AR02 -01	M3G 200-HF	Ⓑ	3~ 380-480	50/60	1500	6750	10,30	-25..+50	125	p. 89 / M3)
K3G 630-AS05 -01	M3G 200-QA	Ⓒ	3~ 380-480	50/60	1850	11000	17,00	-25..+40	160	p. 89 / M3)

subject to alterations

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

## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>wA</sub> dB(A)
Ⓐ ①	1130	2155	3,26	88
Ⓐ ②	1130	2834	4,30	81
Ⓐ ③	1130	2900	4,50	78
Ⓐ ④	1130	2461	3,73	79
Ⓑ ①	1500	4523	7,00	97
Ⓑ ②	1500	5763	8,87	92
Ⓑ ③	1500	6750	10,30	88
Ⓑ ④	1500	6333	9,69	88
Ⓒ ①	1850	7459	11,55	101
Ⓒ ②	1850	10040	15,39	96
Ⓒ ③	1850	11000	17,00	91
Ⓒ ④	1850	9894	15,15	92

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 94 ff.

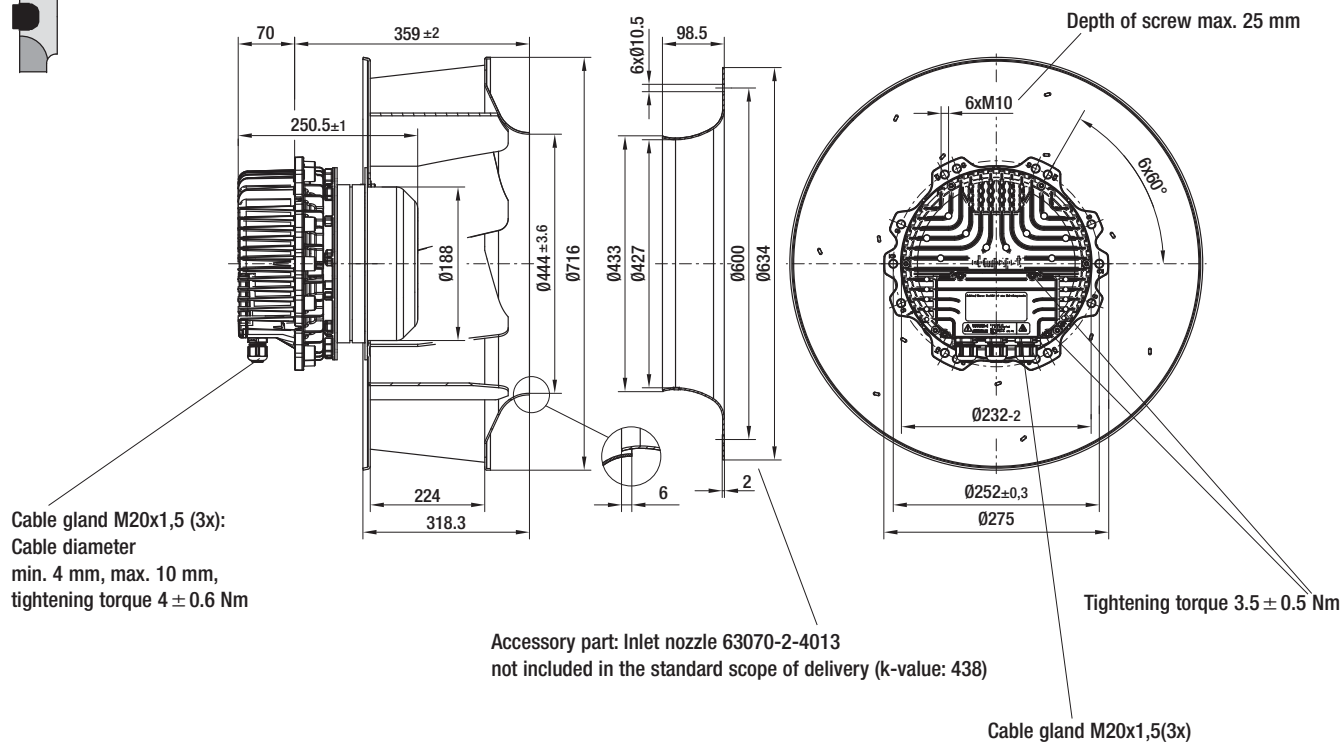
- **Technical features:** See electrical connections p. 89
- **EMC:** Ⓐ Interference emission acc. to EN 61000-6-3  
Ⓐ Interference immunity acc. to EN 61000-6-2
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ UL, CSA, GOST;  
Ⓑ Ⓒ GOST

# EC centrifugal fans – RadiPac

backward curved, Ø 630

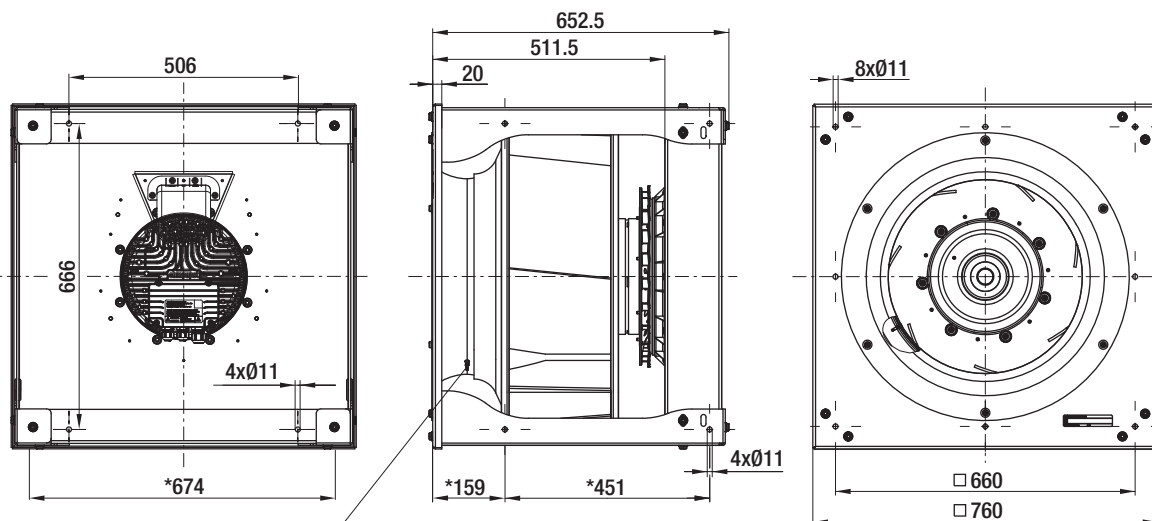


R3G 630-AP01-01 (Centrifugal fan)



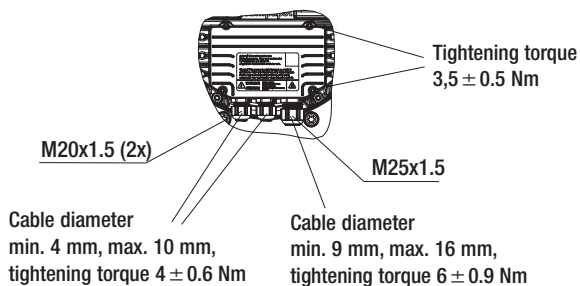


**K3G 630-AR02-01** (Centrifugal module with cube design)

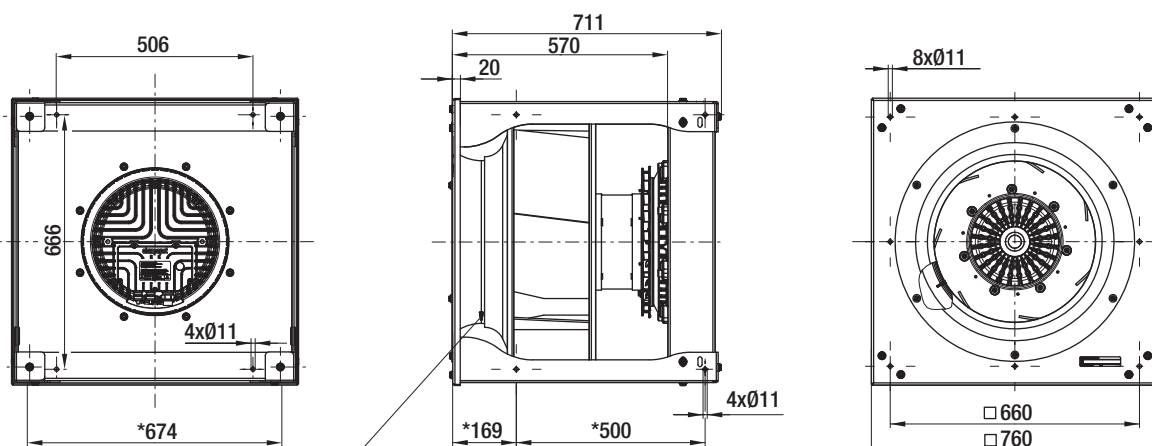


Inlet nozzle with pressure tap (k-value: 438)

\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.

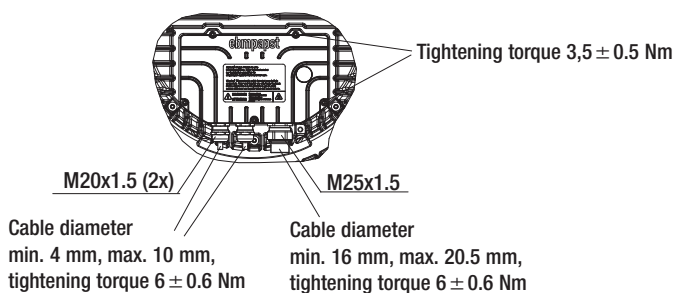


**K3G 630-AS05-01** (Centrifugal module with cube design)



Inlet nozzle with pressure tap (k-value: 438)

\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.



# EC centrifugal fans – RadiPac

backward curved, Ø 710



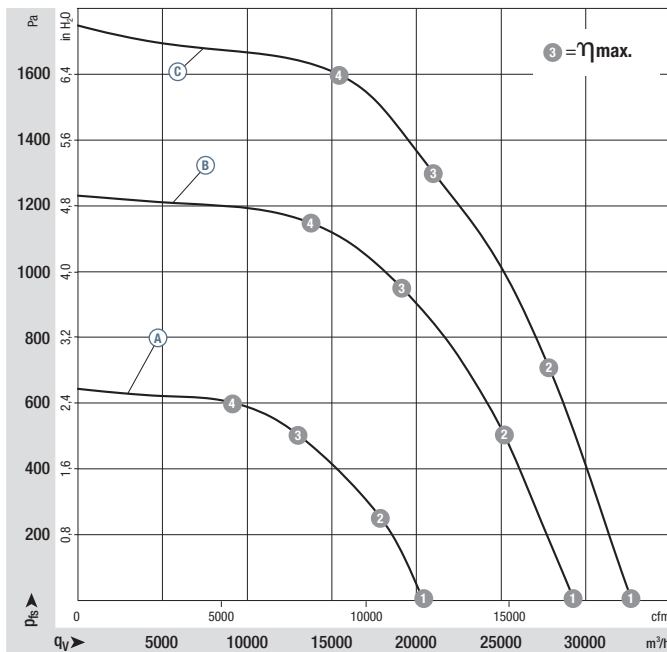
- **Material:** Ⓑ Ⓒ Cube design with inlet nozzle: Sheet steel, galvanised and plastic-coated in light grey (RAL 7035)  
Impeller: Sheet aluminium  
Rotor: Coated in black; Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal (Ⓑ Ⓒ for floor installation only) 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.	Mass	Technical features and elect. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	kg		
R3G 710-AP02 -01	M3G 150-NA	Ⓐ	3~ 380-480	50/60	920	2800	4,30	-25..+40	44	p. 89 / M3)
K3G 710-AR03 -01	M3G 200-LA	Ⓑ	3~ 380-480	50/60	1300	7860	12,00	-25..+40	163	p. 89 / M3)
K3G 710-AS06 -01	M3G 200-QA	Ⓒ	3~ 380-480	50/60	1550	11800	18,00	-25..+40	194	p. 89 / M3)

subject to alterations

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

## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>wA</sub> dB(A)
Ⓐ 1	920	1824	2,72	84
Ⓐ 2	920	2522	3,77	80
Ⓐ 3	920	2800	4,30	78
Ⓐ 4	920	2566	3,82	78
Ⓑ 1	1300	5116	7,87	96
Ⓑ 2	1300	6911	10,63	91
Ⓑ 3	1300	7860	12,00	86
Ⓑ 4	1300	7367	11,21	87
Ⓒ 1	1550	7632	11,88	101
Ⓒ 2	1550	10356	16,00	94
Ⓒ 3	1550	11800	18,00	88
Ⓒ 4	1550	11144	17,09	91

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 94 ff.

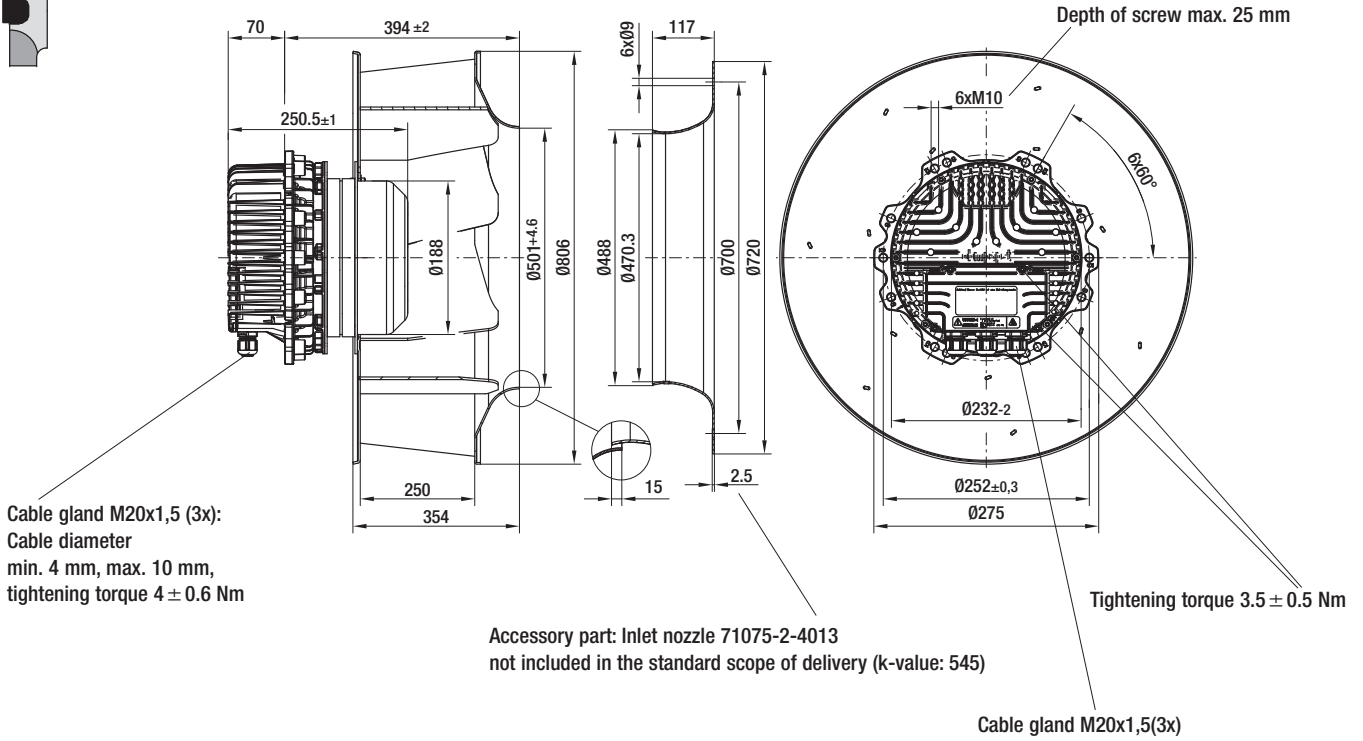
- **Technical features:** See electrical connections p. 89
- **EMC:** Ⓐ Interference emission acc. to EN 61000-6-3  
           Ⓐ Interference immunity acc. to EN 61000-6-2
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ UL, CSA, GOST;  
                   Ⓑ Ⓒ GOST

# EC centrifugal fans – RadiPac

backward curved, Ø 710



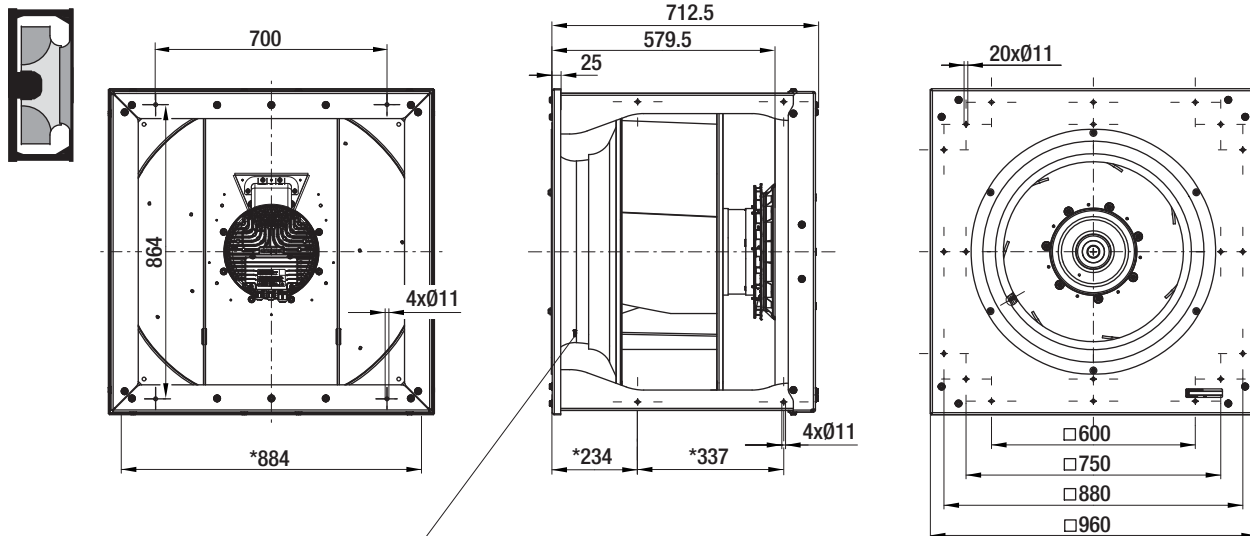
R3G 710-AP02-01 (Centrifugal fan)





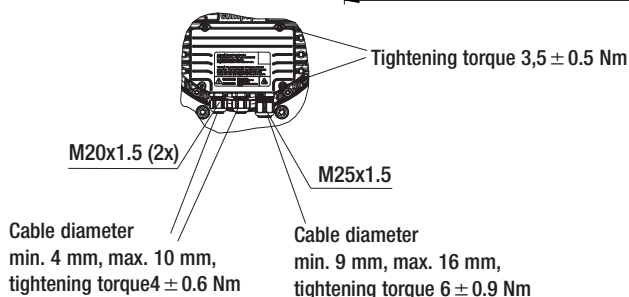


**K3G 710-AR03-01** (Centrifugal module with cube design)

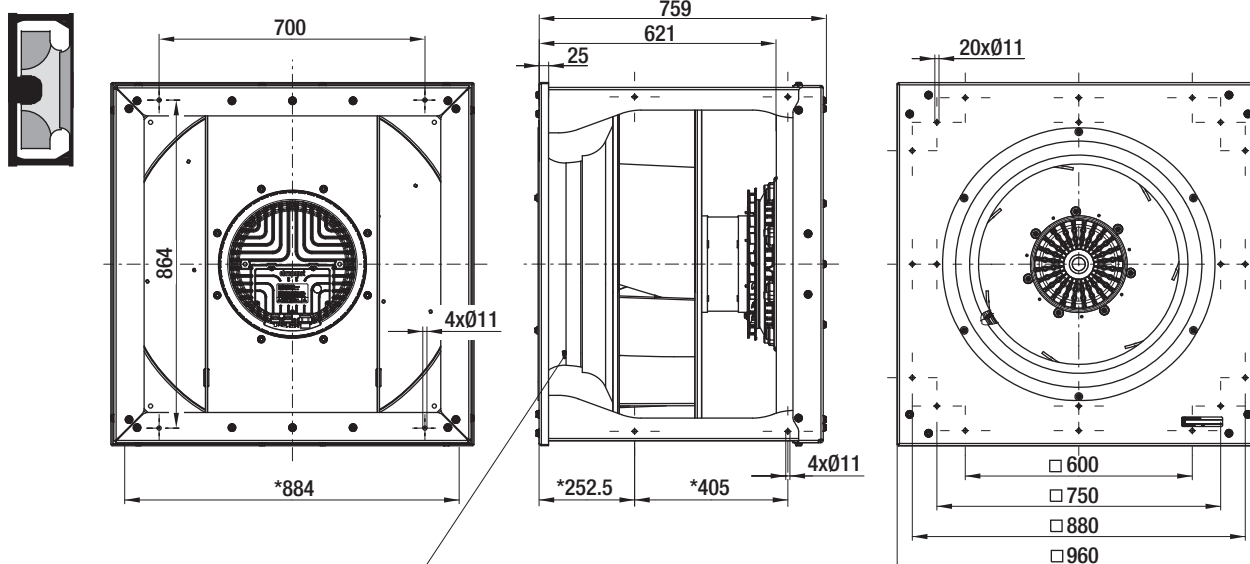


Inlet nozzle with pressure tap (k-value: 545)

\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.

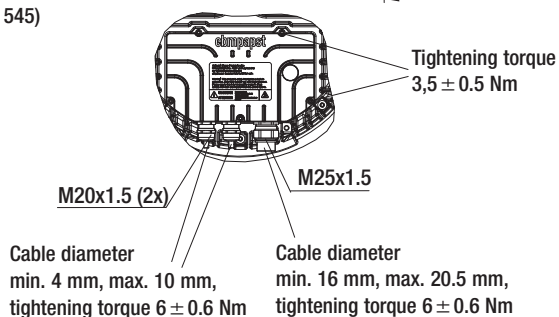


**K3G 710-AS06-01** (Centrifugal module with cube design)



Inlet nozzle with pressure tap (k-value: 545)

\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.



# EC centrifugal fans – RadiPac

backward curved, Ø 800



- **Material:** Cube design with inlet nozzle: Sheet steel, galvanised and plastic-coated in light grey (RAL 7035)  
Impeller: Sheet aluminium  
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 (for floor installation only) or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

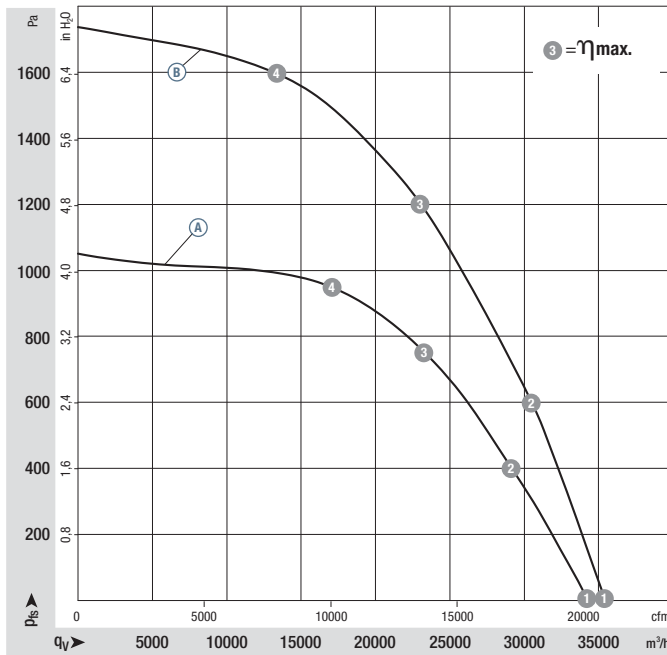
## Nominal data

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.	Mass	Technical features and elect. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	kg		
K3G 800-AR08 -01	M3G 200-QA	Ⓐ	3~ 380-480	50/60	1050	7530	11,60	-25..+40	189	p. 89 / M3)
K3G 800-AS07 -01	M3G 200-QA	Ⓑ	3~ 380-480	50/60	1370	11600	17,80	-25..+40	196	p. 89 / M3)

subject to alterations

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

## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>wA</sub> dB(A)
Ⓐ 1	1050	4907	7,58	94
Ⓐ 2	1050	6555	10,10	88
Ⓐ 3	1050	7530	11,60	85
Ⓐ 4	1050	7183	11,02	85
Ⓑ 1	1370	6755	10,53	106
Ⓑ 2	1370	9619	14,77	98
Ⓑ 3	1370	11600	17,80	90
Ⓑ 4	1370	10690	16,37	93

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 94 ff.

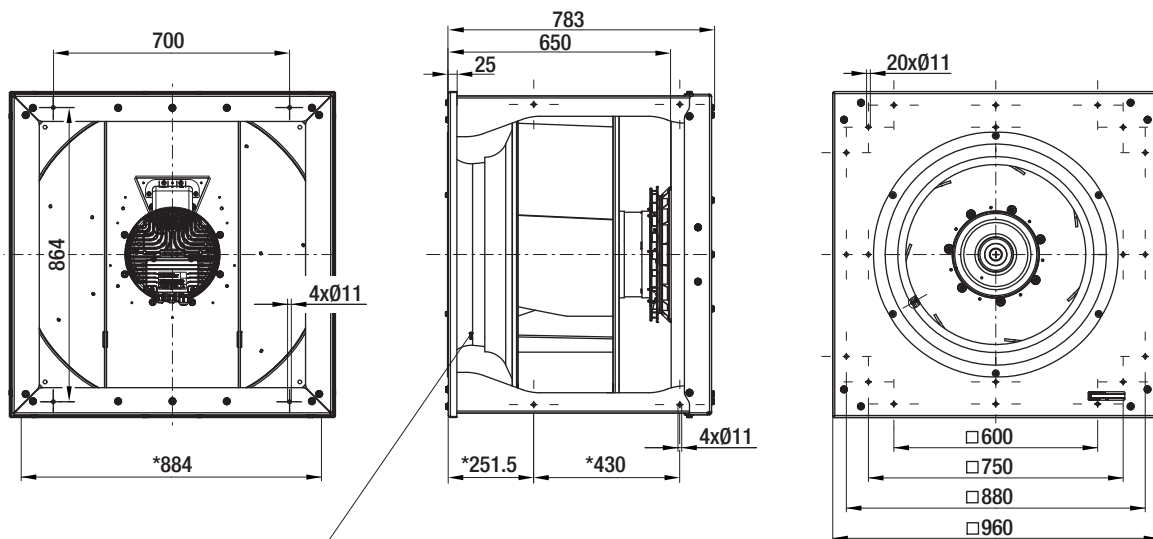
- **Technical features:** See electrical connections p. 89
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** GOST

# EC centrifugal fans – RadiPac

backward curved, Ø 800



K3G 800-AR08-01 (Centrifugal module with cube design)



Inlet nozzle with pressure tap  
(k-value: 695)

Tightening torque  
 $3,5 \pm 0,5$  Nm

M20x1.5 (2x)

M25x1.5

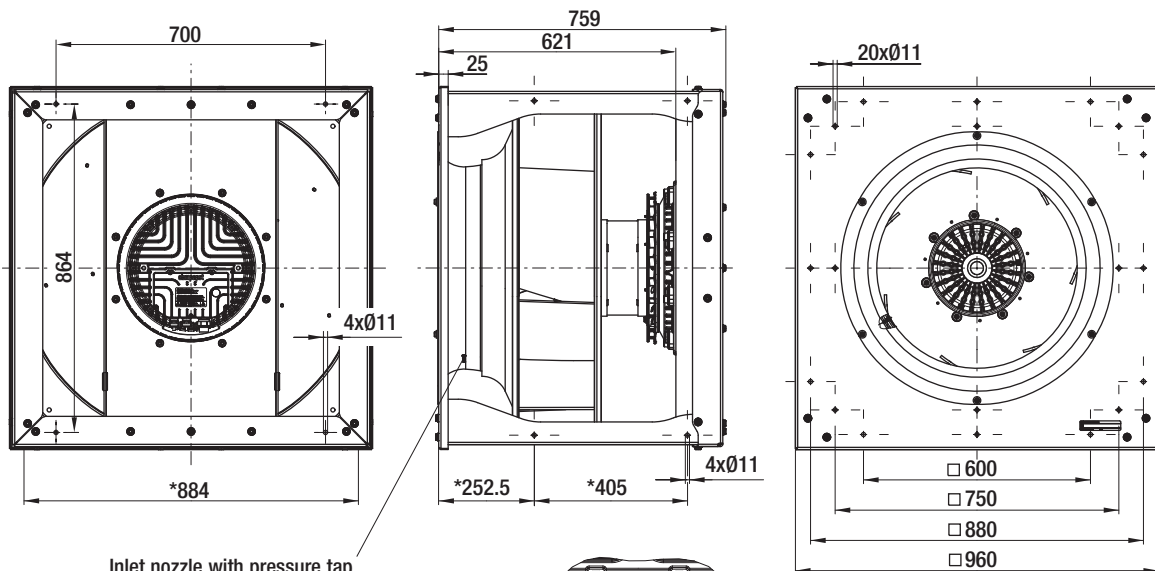
Cable diameter  
min. 4 mm, max. 10 mm,  
tightening torque  $4 \pm 0,6$  Nm

Cable diameter  
min. 9 mm, max. 16 mm,  
tightening torque  $6 \pm 0,9$  Nm

\* Screw-on position for rubber mounting  
respectively spring elements;  
with horizontal shaft position,  
only direct installation on the  
floor possible and permitted.

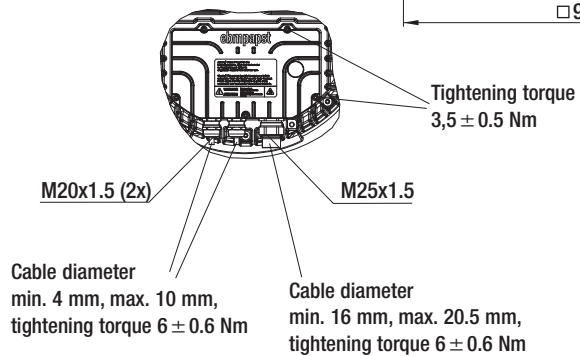


**K3G 800-AS07-01** (Centrifugal module with cube design)



Inlet nozzle with pressure tap  
(k-value: 695)

\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.



# EC centrifugal fans – RadiPac

backward curved, Ø 900



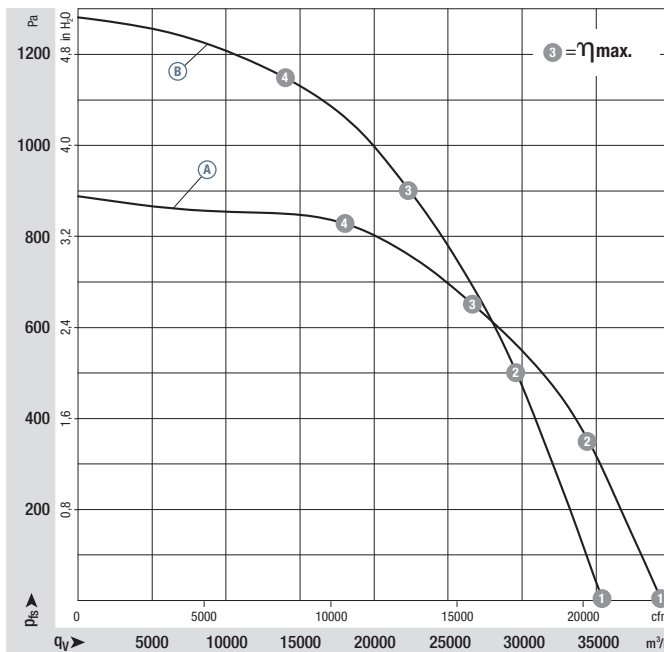
- **Material:** Cube design with inlet nozzle: Sheet steel, galvanised and plastic-coated in light grey (RAL 7035)  
Impeller: Sheet aluminium  
Rotor: Coated in black; Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal (for floor installation only) 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.	Mass	Technical features and elect. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	kg		
K3G 900-AR10 -01	M3G 200-QA	Ⓐ	3~ 380-480	50/60	860	7520	11,50	-25..+40	222	p. 89 / M3)
K3G 900-AS08 -01	M3G 200-QA	Ⓑ	3~ 380-480	50/60	1050	8700	13,50	-25..+40	232	p. 89 / M3)

subject to alterations

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

## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>WA</sub> dB(A)
Ⓐ ①	860	5028	7,72	92
Ⓐ ②	860	6750	10,33	87
Ⓐ ③	860	7520	11,50	82
Ⓐ ④	860	7015	10,72	81
Ⓑ ①	1050	5036	8,03	99
Ⓑ ②	1050	7329	11,42	91
Ⓑ ③	1050	8700	13,50	86
Ⓑ ④	1050	7744	12,03	87

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>WA</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 94 ff.

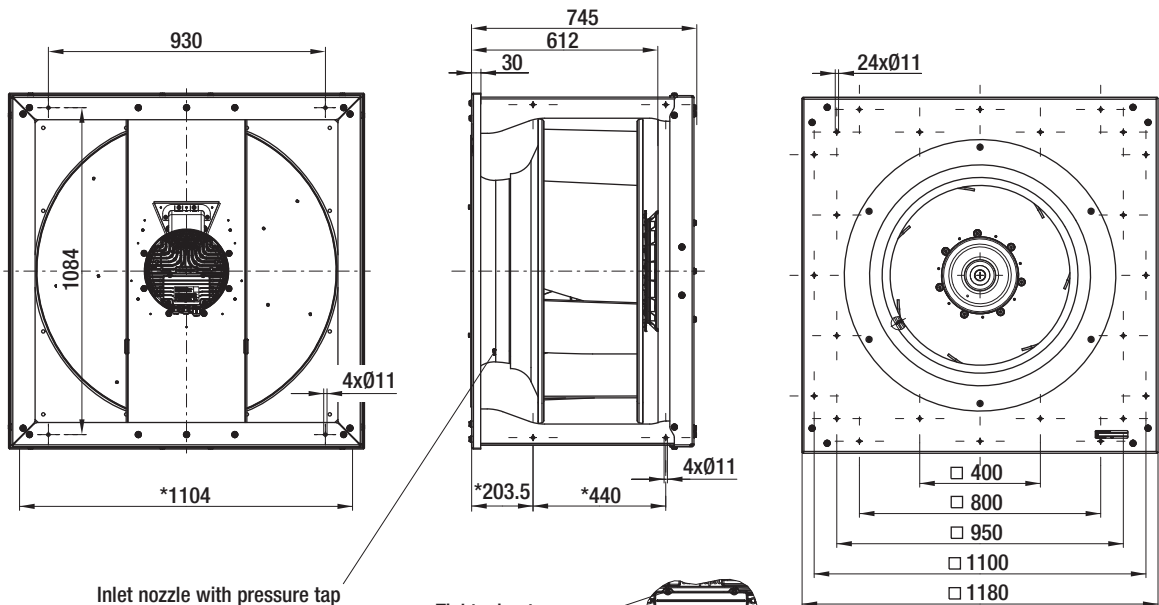
- **Technical features:** See electrical connections p. 89
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** GOST

# EC centrifugal fans – RadiPac

backward curved, Ø 900



**K3G 900-AR10-01** (Centrifugal module with cube design)



Inlet nozzle with pressure tap  
(k-value: 900)

\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.

Tightening torque  
 $3,5 \pm 0.5$  Nm

M20x1.5 (2x)

M25x1.5

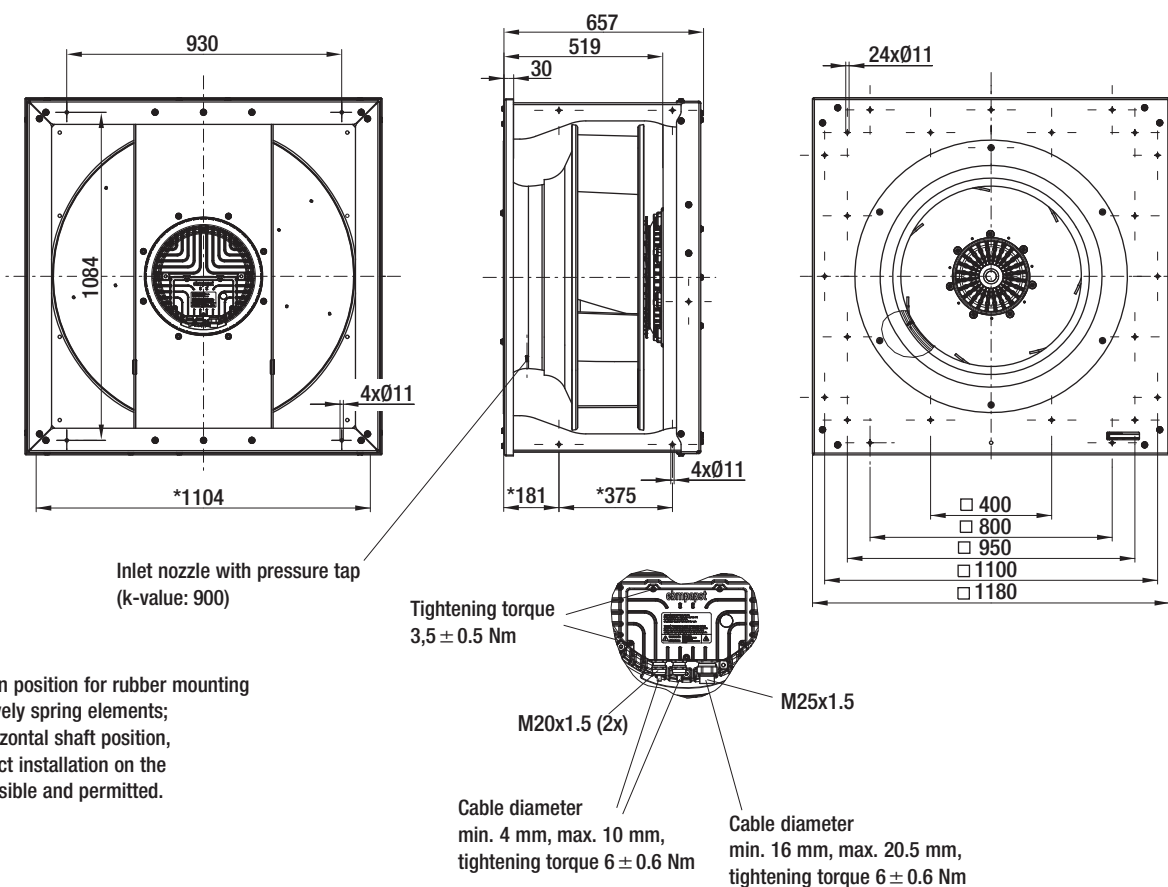
Cable diameter  
min. 4 mm, max. 10 mm,  
tightening torque  $4 \pm 0.6$  Nm

Cable diameter  
min. 9 mm, max. 16 mm,  
tightening torque  $6 \pm 0.9$  Nm





**K3G 900-AS08-01** (Centrifugal module with cube design)



\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.

# EC centrifugal fans – RadiPac

backward curved, Ø Z50



- **Material:** Cube design with inlet nozzle: Sheet steel, galvanised and plastic-coated in light grey (RAL 7035)  
Impeller: Sheet aluminium  
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 (for floor installation only) or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

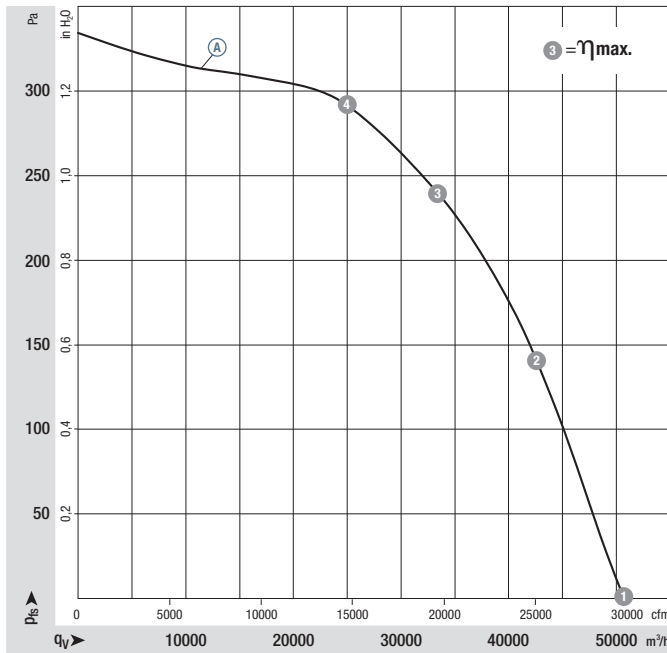
## Nominal data

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.	Mass	Technical features and electr. connection
			VAC	Hz	rpm	W	A	°C	kg	
K3G Z50-AQ11 -01	M3G 200-QA	Ⓐ	3~ 380-480	50/60	380	3560	5,40	-25..+40	350	p. 89 / M3)

subject to alterations

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

## Curves



	n rpm	P <sub>ed</sub> W	I A	L <sub>w</sub> A dB(A)
Ⓐ 1	380	2250	3,40	81
Ⓐ 2	380	3180	4,60	74
Ⓐ 3	380	3560	5,40	73
Ⓐ 4	380	3340	4,90	73

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 94 ff.

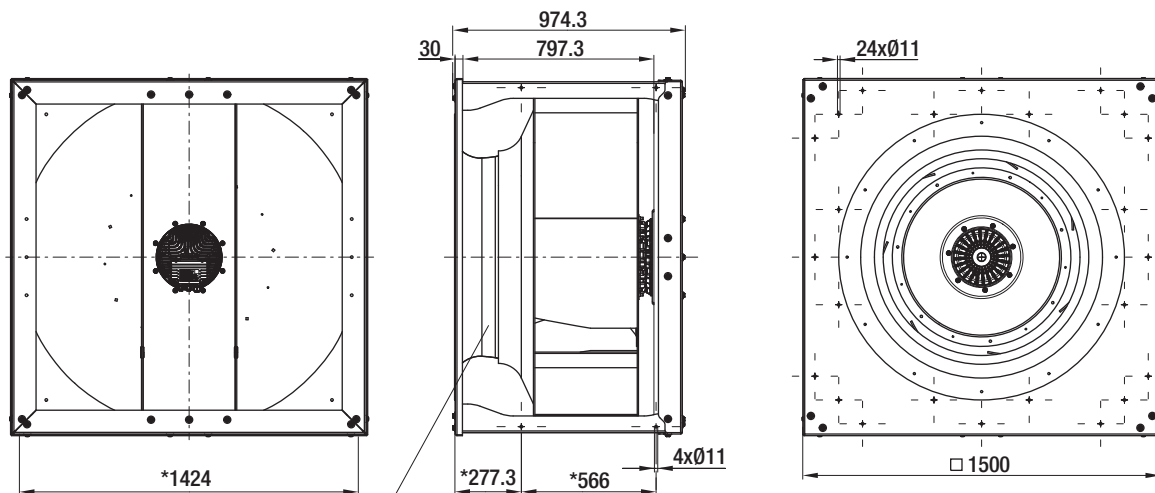
- **Technical features:** See electrical connections p. 89
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:** GOST

# EC centrifugal fans – RadiPac

backward curved, Ø Z50

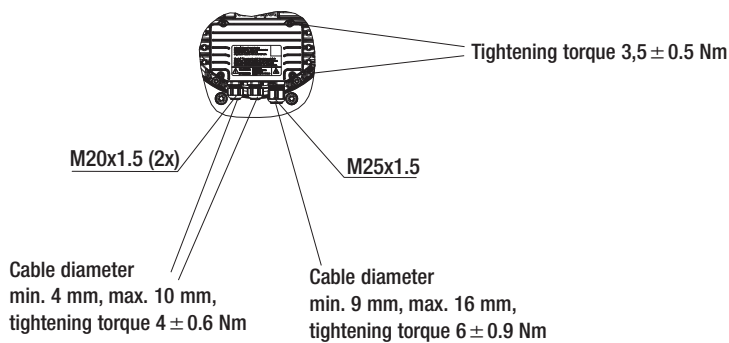


K3G Z50-AQ11-01 (Centrifugal module with cube design)



Inlet nozzle with pressure tap (k-value: 1730)

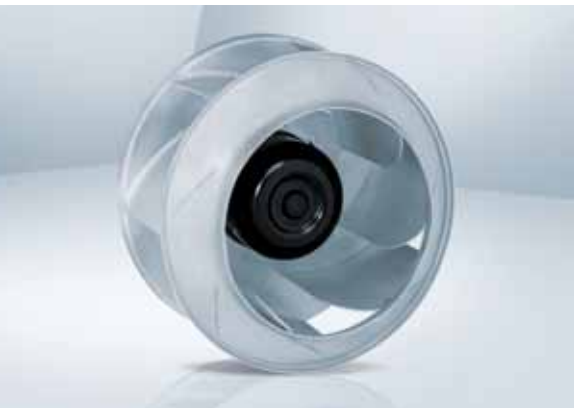
\* Screw-on position for rubber mounting respectively spring elements; with horizontal shaft position, only direct installation on the floor possible and permitted.





# EC centrifugal fans – RadiPac

backward curved, Ø 280 - 450 (compact design)



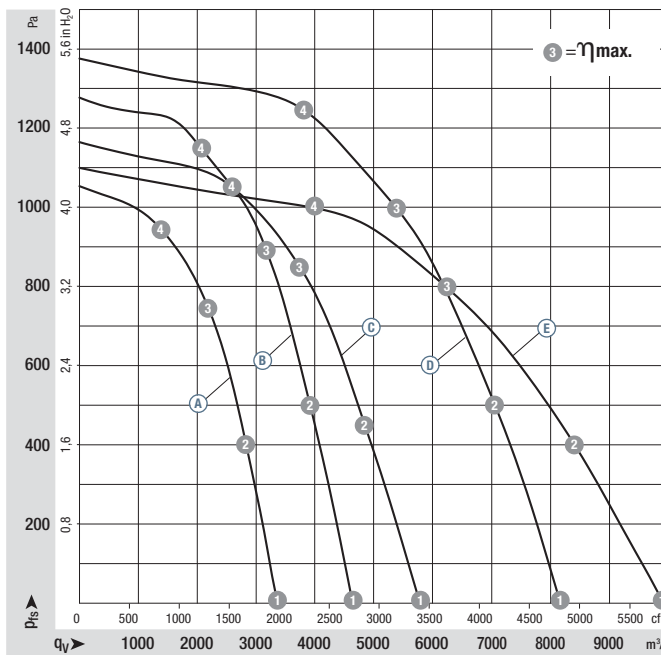
- **Material:** Impeller: Sheet aluminium  
Rotor: Coated in black  
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54 (acc. to EN 60529)
- **Insulation class:** "B"
- **Mounting position:** Shaft 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.	Mass	Technical features and elect. connection
Type	Motor	VAC	Hz	rpm	W	A	°C	kg		
R3G 280-AJ14 -C1	M3G 084-GF	Ⓐ	3~ 380-480	50/60	3260	985	1,60	-25..+60	7,1	p. 90 / L6)
R3G 310-BC38 -01	M3G 112-GA	Ⓑ	3~ 380-480	50/60	3170	1650	2,50	-25..+50	12,1	p. 89 / M3)
R3G 355-BD43 -01	M3G 112-GA	Ⓒ	3~ 380-480	50/60	2650	1730	2,60	-25..+60	12,6	p. 89 / M3)
R3G 400-AS23 -01	M3G 150-FF	Ⓓ	3~ 380-480	50/60	2550	2840	4,20	-25..+60	21,3	p. 89 / M3)
R3G 450-AS24 -01	M3G 150-FF	Ⓔ	3~ 380-480	50/60	2040	2380	3,60	-25..+60	22,0	p. 89 / M3)

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 94 ff.

	n rpm	$P_{ed}$ W	I A	$L_{wA}$ dB(A)
Ⓐ 1	3260	703	1,31	89
Ⓐ 2	3260	877	1,57	86
Ⓐ 3	3260	985	1,60	84
Ⓐ 4	3260	873	1,57	85
Ⓑ 1	3170	1230	1,83	90
Ⓑ 2	3170	1523	2,27	88
Ⓑ 3	3170	1650	2,50	85
Ⓑ 4	3170	1540	2,30	88
Ⓒ 1	2650	1248	1,86	90
Ⓒ 2	2650	1561	2,33	86
Ⓒ 3	2650	1730	2,60	84
Ⓒ 4	2650	1629	2,42	86
Ⓓ 1	2550	2095	3,13	92
Ⓓ 2	2550	2594	3,84	89
Ⓓ 3	2550	2840	4,20	86
Ⓓ 4	2550	2675	3,95	89
Ⓔ 1	2040	1641	2,48	90
Ⓔ 2	2040	2156	3,23	85
Ⓔ 3	2040	2380	3,60	82
Ⓔ 4	2040	2171	3,24	86

- **Technical features:** See electrical connections p. 89
- **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
- **Touch current:** : < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1, CE
- **Approvals:**
  - Ⓐ VDE, UL, CSA, CCC, GOST are applied for;
  - Ⓑ Ⓒ VDE, GOST;
  - Ⓓ Ⓔ UL, CSA, GOST

# EC centrifugal fans – RadiPac

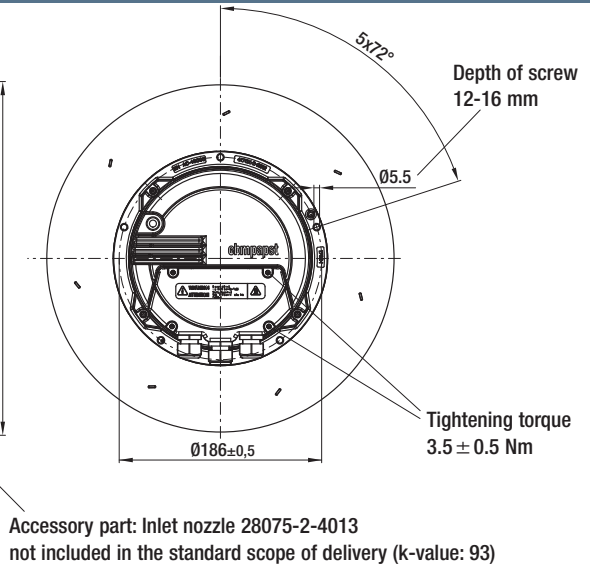
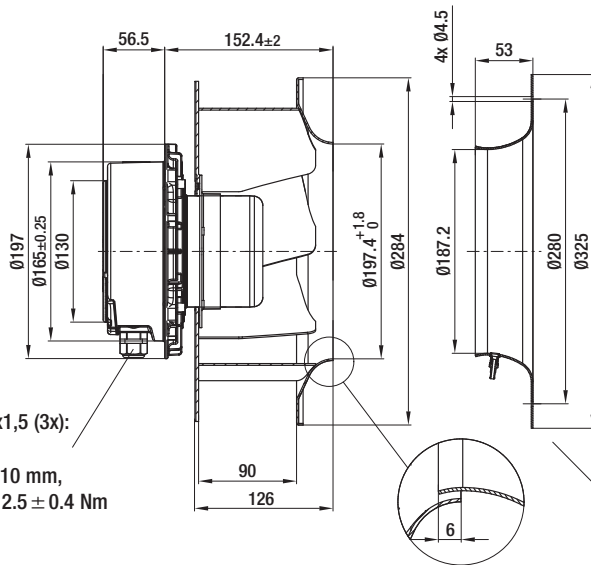
backward curved, Ø 280 - 450 (compact design)



## R3G 280-AJ14-C1 (Centrifugal fan)



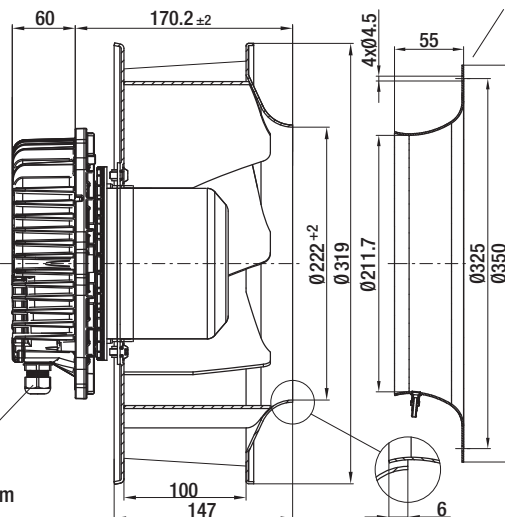
Cable gland M16x1,5 (3x):  
Cable diameter  
min. 4 mm, max. 10 mm,  
tightening torque  $2.5 \pm 0.4$  Nm



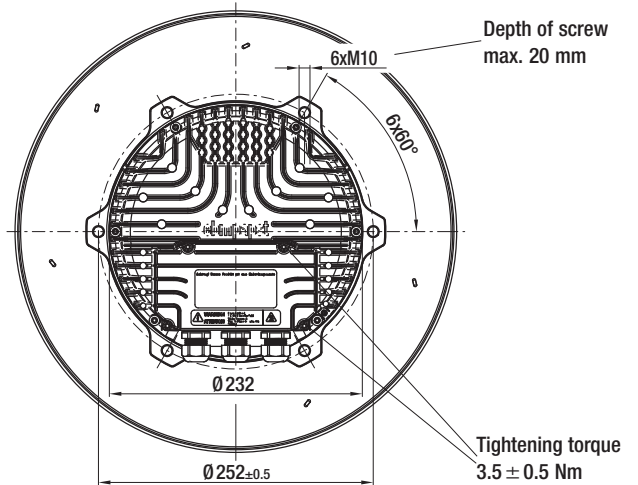
## R3G 310-BC38-01 (Centrifugal fan)



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



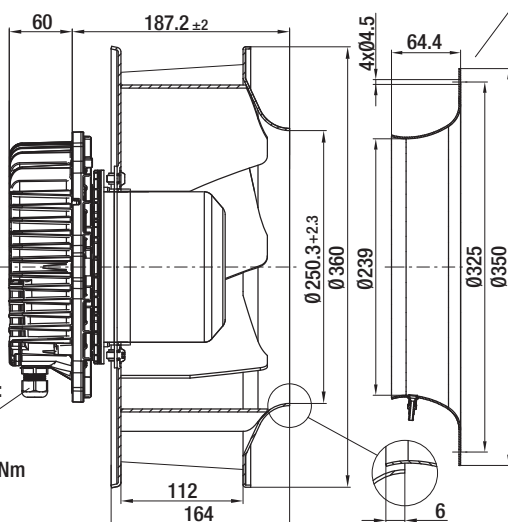
Accessory part: Inlet nozzle 31575-2-4013  
not included in the standard scope of delivery (k-value: 116)



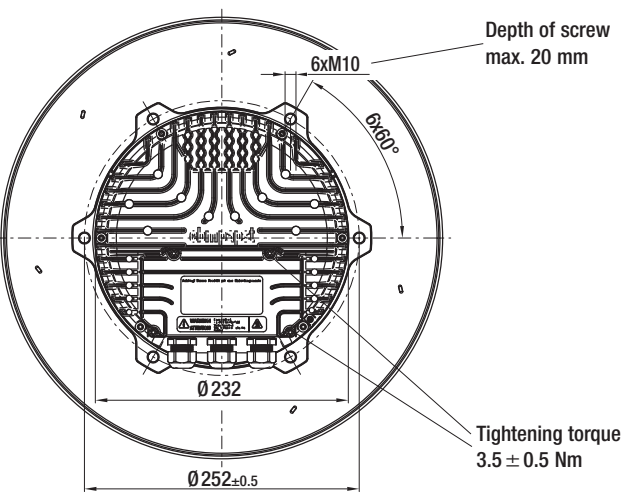
## R3G 355-BD43-01 (Centrifugal fan)



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



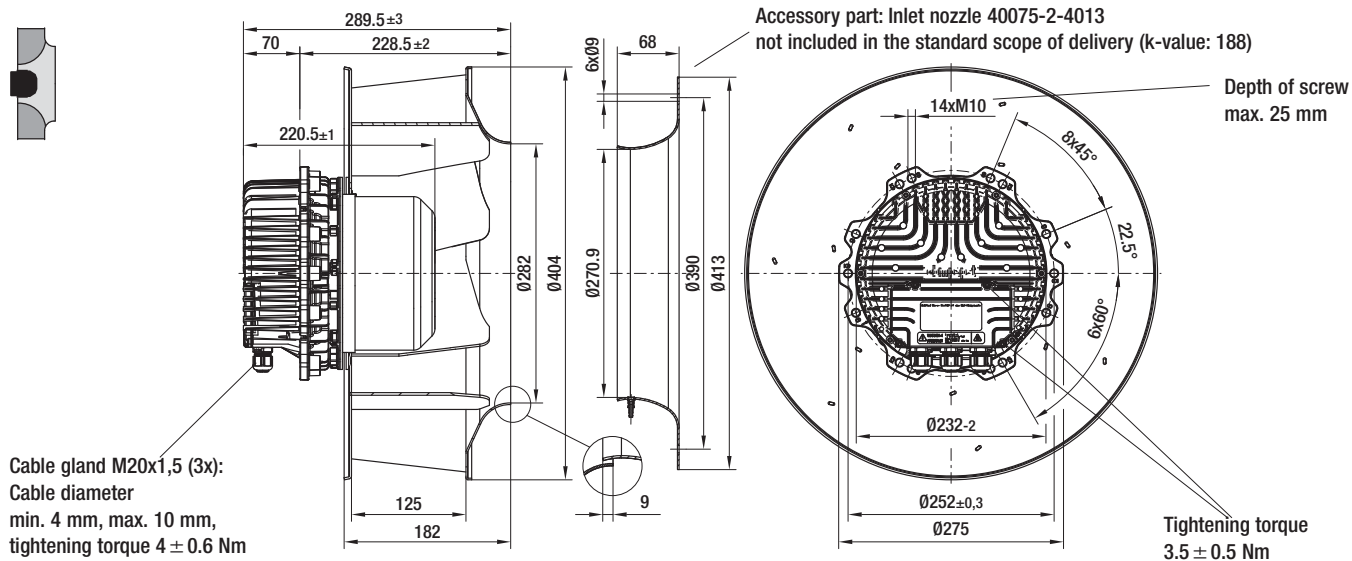
Accessory part: Inlet nozzle 35675-2-4013  
not included in the standard scope of delivery (k-value: 148)



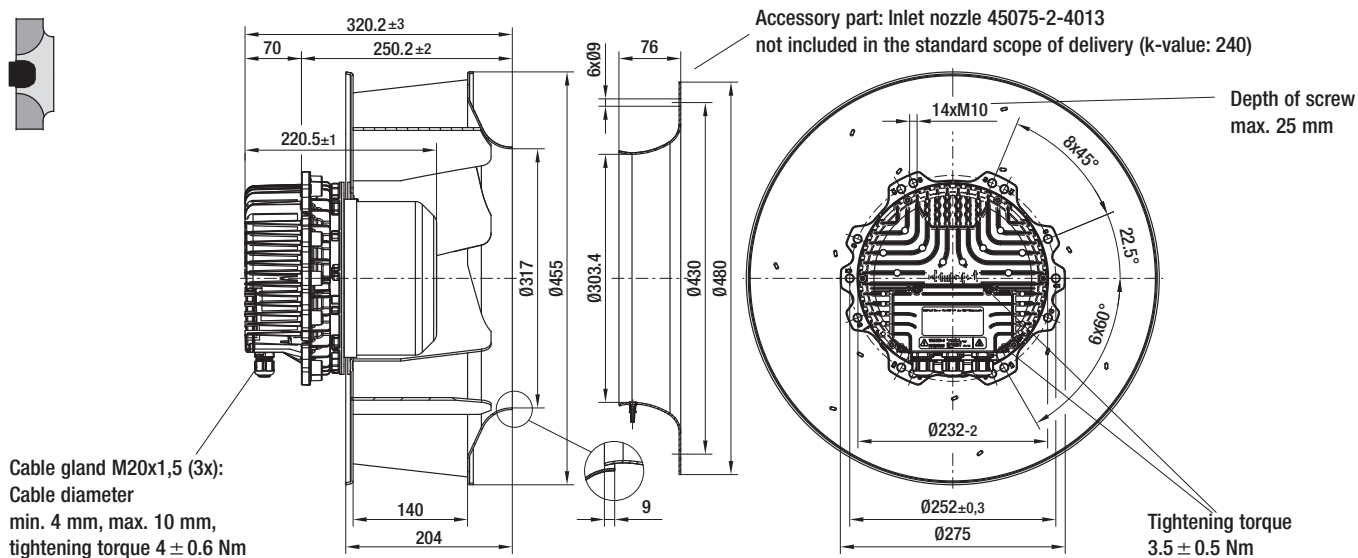




**R3G 400-AS23-01** (Centrifugal fan)

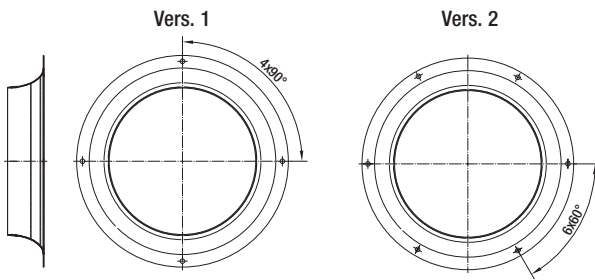


**R3G 450-AS24-01** (Centrifugal fan)



# Inlet nozzles

- **Material:** galvanised sheet steel



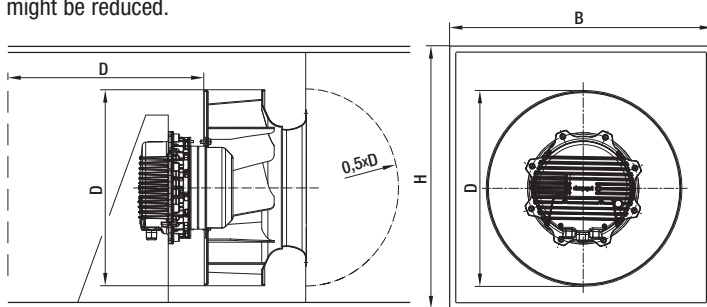
## Inlet nozzles without measuring device for backward curved centrifugal fans

Part no.	Size	Vers.	For dimensions, see
25070-2-4013	250	1	page 14
28070-2-4013	280	1	page 20
31570-2-4013	310	1	page 26
35670-2-4013	355	1	page 32
40070-2-4013	400	2	page 38
45070-2-4013	450	2	page 44
63072-2-4013	500	2	page 50
63071-2-4013	560	2	page 56
63070-2-4013	630	2	page 60
71070-2-4013	710	2	page 64

subject to alterations

## Effects of installation space

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



$d_h$  = Hydraulic diameter

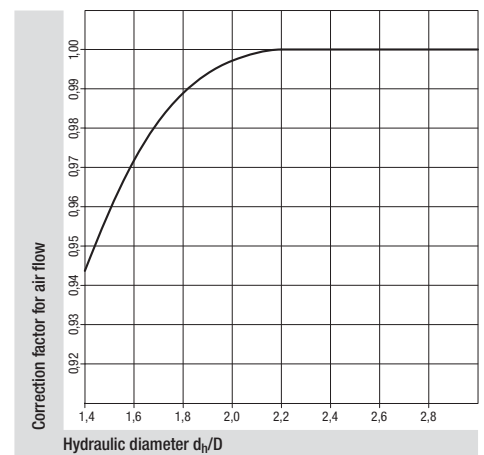
$$\text{Formula: } d_h = 2 \times B \times H / (B + H)$$

B = Width of box

H = Height of box

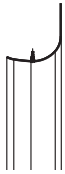
D = Outer diameter of the fan

## Curve:

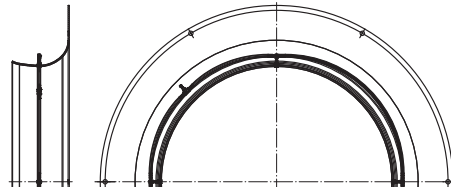


# Inlet nozzles with measuring device

Vers. 3  
(with one pressure tap)



Vers. 4  
(with piezometer ring)



- **Material:** galvanised sheet steel

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

Part no.	Part no.	Size	Vers.	For dimensions, see
25075-2-4013 <sup>(3)</sup>	25080-2-4013 <sup>(4)</sup>	250	3/4	page 14
28075-2-4013 <sup>(3)</sup>	28080-2-4013 <sup>(4)</sup>	280	3/4	page 20
31575-2-4013 <sup>(3)</sup>	31580-2-4013 <sup>(4)</sup>	310	3/4	page 26
35675-2-4013 <sup>(3)</sup>	35680-2-4013 <sup>(4)</sup>	355	3/4	page 32
40075-2-4013 <sup>(3)</sup>	40080-2-4013 <sup>(4)</sup>	400	3/4	page 38
45075-2-4013 <sup>(3)</sup>	45080-2-4013 <sup>(4)</sup>	450	3/4	page 44
64025-2-4013 <sup>(3)</sup>	64002-2-4013 <sup>(4)</sup>	500	3/4	page 50
64030-2-4013 <sup>(3)</sup>	64001-2-4013 <sup>(4)</sup>	560	3/4	page 56
64040-2-4013 <sup>(3)</sup>	64000-2-4013 <sup>(4)</sup>	630	3/4	page 60
71075-2-4013 <sup>(3)</sup>	71080-2-4013 <sup>(4)</sup>	710	3/4	page 64

subject to alterations

<sup>(3)</sup> with one pressure tap

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

### 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:

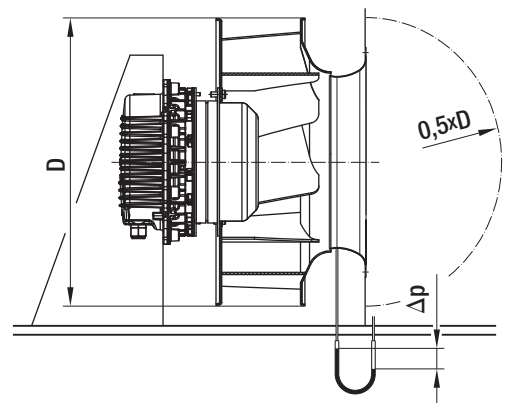
$$q_v = k \cdot \sqrt{\Delta p} \quad q_v \text{ in [m}^3/\text{h]} \text{ und } \Delta p \text{ in [Pa]}$$

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.

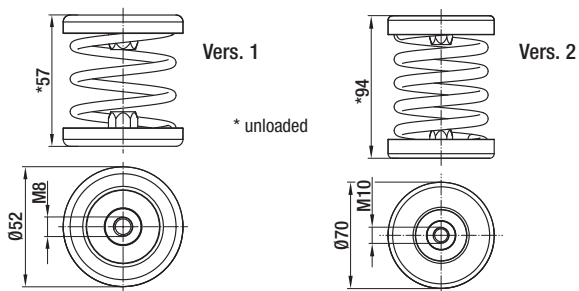
Differences in static pressure are measured in 1/4 measuring point(s) along the circumference of the inlet nozzle. Connection on the customer side is accomplished via a pre-mounted T tube connector. This tube connector is suited for pneumatic hoses with an internal diameter of 4 mm.



### k-values: (for RadiPac inlet nozzles)

Size	250	280	310	355	400	450	500
k-value	70	93	116	148	188	240	281
Size	560	630	710	800	900	Z50	
k-value	348	438	545	695	900	1730	

# Spring elements



- **Packaging:** part numbers refer to one set consisting of 4 x spring elements.

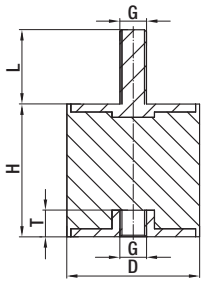
Delivered in cardboard box.

## Spring elements

Order no. (set)	Type	Vers.	Minimum speed	Spring deflection
11001-4-5142	K3G 250-AT39-89	1	360 rpm	14,1 mm
11001-4-5142	K3G 250-AV29-B9	1	340 rpm	16,0 mm
11001-4-5142	K3G 280-AT04-89	1	340 rpm	16,4 mm
11001-4-5142	K3G 280-AU06-B3	1	330 rpm	16,5 mm
11001-4-5142	K3G 280-AU11-C9	1	320 rpm	18,2 mm
11003-4-5142	K3G 310-AX52-96	1	420 rpm	10,3 mm
11003-4-5142	K3G 310-AX54-98	1	390 rpm	12,2 mm
11003-4-5142	K3G 310-BB49-96	1	380 rpm	13,1 mm
11003-4-5142	K3G 310-AZ88-96	1	360 rpm	14,2 mm
11003-4-5142	K3G 355-AX56-96	1	420 rpm	10,5 mm
11003-4-5142	K3G 355-AY43-98	1	370 rpm	13,8 mm
11003-4-5142	K3G 355-AY40-96	1	370 rpm	13,6 mm
11003-4-5142	K3G 400-AY87-96	1	350 rpm	15,2 mm
11005-4-5142	K3G 450-AY86-96	1	470 rpm	8,1 mm
11005-4-5142	K3G 400-AQ23-02	1	430 rpm	10,1 mm
11005-4-5142	K3G 400-AQ31-02	1	430 rpm	10,1 mm
11005-4-5142	K3G 450-AQ24-02	1	390 rpm	12,1 mm
11005-4-5142	K3G 450-AZ30-02	1	360 rpm	14,6 mm
11005-4-5142	K3G 500-AP25-02	1	380 rpm	12,5 mm
11005-4-5142	K3G 500-AP24-02	1	380 rpm	12,5 mm
11005-4-5142	K3G 500-AQ33-02	1	350 rpm	15,0 mm
11005-4-5142	K3G 560-AP23-02	1	340 rpm	15,9 mm
11005-4-5142	K3G 560-AQ04-02	1	320 rpm	18,5 mm
11012-4-5142	K3G 630-AR02-01	2	270 rpm	25,7 mm
11013-4-5142	K3G 630-AS05-01	2	330 rpm	17,3 mm
11013-4-5142	K3G 710-AR03-01	2	310 rpm	19,5 mm
11013-4-5142	K3G 710-AS06-01	2	300 rpm	20,3 mm
11013-4-5142	K3G 800-AR08-01	2	280 rpm	23,1 mm
11013-4-5142	K3G 800-AS07-01	2	280 rpm	23,1 mm
11014-4-5142	K3G 900-AR10-01	2	320 rpm	17,8 mm
11014-4-5142	K3G 900-AS08-01	2	320 rpm	17,8 mm

subject to alterations

# Rubber mounting



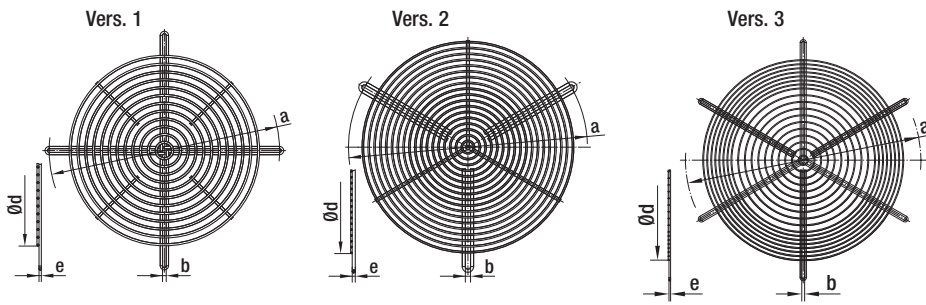
- **Packaging:** Part numbers refer to one set consisting of 4 x rubber stops, washers and nuts.

Delivered in plastig bag.

Rubber mounting								
Order no. (set)	Type	Minimum speed	Spring deflection	D	G	H	L	T
10001-4-5164	K3G 250-AT39-89	1250 rpm	0,9 mm	15	M4	25	10	5
10001-4-5164	K3G 250-AV29-B9	1170 rpm	1,0 mm	15	M4	25	10	5
10001-4-5164	K3G 280-AT04-89	1160 rpm	1,0 mm	15	M4	25	10	5
10001-4-5164	K3G 280-AU06-B3	1150 rpm	1,0 mm	15	M4	25	10	5
10001-4-5164	K3G 280-AU11-C9	1100 rpm	1,1 mm	15	M4	25	10	5
10002-4-5164	K3G 310-AX52-96	1390 rpm	0,7 mm	20	M6	25	18	6
10002-4-5164	K3G 310-AX54-98	1270 rpm	0,9 mm	20	M6	25	18	6
10002-4-5164	K3G 310-BB49-96	1230 rpm	0,9 mm	20	M6	25	18	6
10002-4-5164	K3G 310-AZ88-96	1180 rpm	1,0 mm	20	M6	25	18	6
10002-4-5164	K3G 355-AX56-96	1370 rpm	0,7 mm	20	M6	25	18	6
10002-4-5164	K3G 355-AY43-98	1190 rpm	1,0 mm	20	M6	25	18	6
10002-4-5164	K3G 355-AY40-96	1210 rpm	0,9 mm	20	M6	25	18	6
10002-4-5164	K3G 400-AY87-96	1140 rpm	1,1 mm	20	M6	25	18	6
10002-4-5164	K3G 450-AY86-96	980 rpm	1,4 mm	20	M6	25	18	6
10003-4-5164	K3G 400-AQ23-02	950 rpm	1,5 mm	25	M8	25	20	8
10003-4-5164	K3G 400-AQ31-02	950 rpm	1,5 mm	25	M8	25	20	8
10003-4-5164	K3G 450-AQ24-02	870 rpm	1,8 mm	25	M8	25	20	8
10004-4-5164	K3G 450-AZ30-02	940 rpm	1,5 mm	30	M8	30	20	8
10003-4-5164	K3G 500-AP25-02	860 rpm	1,8 mm	25	M8	25	20	8
10003-4-5164	K3G 500-AP24-02	860 rpm	1,8 mm	25	M8	25	20	8
10004-4-5164	K3G 500-AQ33-02	930 rpm	1,6 mm	30	M8	30	20	8
10003-4-5164	K3G 560-AP23-02	760 rpm	2,3 mm	25	M8	25	20	8
10004-4-5164	K3G 560-AQ04-02	840 rpm	1,9 mm	30	M8	30	20	8
10005-4-5164	K3G 630-AR02-01	680 rpm	2,9 mm	40	M10	40	28	10
10006-4-5164	K3G 630-AS05-01	740 rpm	2,4 mm	50	M10	50	28	10
10005-4-5164	K3G 710-AR03-01	620 rpm	3,5 mm	40	M10	40	28	10
10006-4-5164	K3G 710-AS06-01	680 rpm	2,9 mm	50	M10	50	28	10
10005-4-5164	K3G 800-AR08-01	570 rpm	4,1 mm	40	M10	40	28	10
10006-4-5164	K3G 800-AS07-01	640 rpm	3,3 mm	50	M10	50	28	10
10005-4-5164	K3G 900-AR10-01	520 rpm	5,0 mm	40	M10	40	28	10
10006-4-5164	K3G 900-AS08-01	580 rpm	3,9 mm	50	M10	50	28	10

subject to alterations

# Air intake guard grilles



- **Material:** steel wire, plastic coated

## Air intake guard grilles for backward curved centrifugal fans (according to EN ISO 13857)

Part no.	Size	Vers.	a	b	d	e	Strut pitch
78129-2-4039	250	1	260	4,5	210	2,8	4 x 90°
78130-2-4039	280	1	280	4,5	230	2,8	4 x 90°
78131-2-4039	310	1	325	4,5	250	2,8	4 x 90°
78132-2-4039	355	1	345	4,5	310	2,8	4 x 90°
78133-2-4039	400	2	390	8,5	350	3,8	3 x 120°
78134-2-4039	450	2	430	8,5	410	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°
78138-2-4039	630	2	600	8,5	490	3,8	3 x 120°
78141-2-4039	710	3	700	8,5	598	4,8	6 x 60°
78141-2-4039	800	3	700	8,5	598	4,8	6 x 60°
78142-2-4039	900	3	850	8,5	680	4,8	6 x 60°

subject to alterations



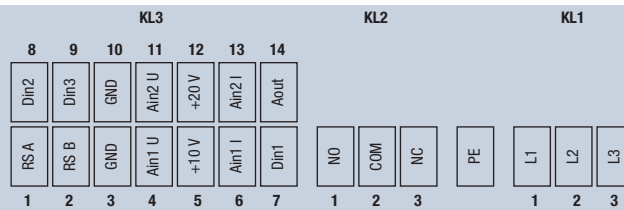




# Electrical connections EC M3)

## 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. 5 mA
- Output 20 VDC ( $\pm 20\%$ ) max. 50 mA
- Output 10 VDC ( $+10\%$ ) max. 10 mA
- RS485 MODBUS-RTU
- Motor current limitation, Alarm relay
- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Reverse polarity and locked-rotor protection, Soft start
- External 24 V input (programming)
- External release input
- Operation and alarm display
- Control interface with SELV potential safely disconnected from the mains



Connector	Pin	Connection	Assignment / function
KL1	1	L1	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
	2	L2	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
	3	L3	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
PE		PE	Earth connection, PE connection
KL2	1	NO	Status relay, floating status contact, close with error
	2	COM	Status relay, floating status contact, changeover contact, common connection (2 A, 250 V, min. 10 mA, AC1)
	3	NC	Status relay, floating status contact, break with error
KL3	1	RSA	Bus connection RS485; RSA; MODBUS RTU
	2	RSB	Bus connection RS485; RSB; MODBUS RTU
	3/10	GND	Signal ground for control interface
	4	Ain1 U	Analogue input 1 (set value); 0-10 V; Ri= 100 k $\Omega$ ; parametrisable curves; only usable as alternative to input Ain1 I
	5	+10 V	Fixed voltage output 10 VDC; +10 V $\pm 3\%$ ; max. 10 mA; short circuit proof; power supply for ext. devices (e.g. potentiometer)
	6	Ain1 I	Analogue input 1 (set value); 4-20 mA; Ri= 100 $\Omega$ ; parametrisable curve; only usable as alternative to input Ain1 U
	7	Din1	Digital input 1: enabling of electronics; enabling: open pin or applied voltage 5 to 50 VDC; disabling: bridge to GND or applied voltage < 1 VDC; reset function: triggers software reset after a level change to < 1V
	8	Din2	Digital input 2: parameter set switch 1/2; according to EEPROM setting, the valid/used parameter set is selectable per BUS or per digital input Din2. Parameter set 1: open pin or applied voltage 5 to 50 VDC; parameter set 2: bridge to GND or applied voltage < 1 VDC
	9	Din3	Digital input 3: Control characteristic of the integrated controller; according to EEPROM setting, the control characteristic of the integrated controller is normally/inversely selectable per BUS or per digital input; normal: open pin or applied voltage 5 to 50 VDC (control deviation = actual sensor value - set value); inverse: bridge to GND or applied voltage < 1 VDC control deviation = set value - actual sensor value)
	11	Ain2 U	Analogue input 2; actual sensor value 0-10 V; Ri= 100 k $\Omega$ ; parametrisable curve; only usable as alternative to input Ain2 I
	12	+20 V	Fixed voltage output 20 VDC; +20 V $\pm 25\%$ ; max. 50 mA; short circuit proof; power supply for ext. devices (e.g. sensors)
	13	Ain2 I	Analogue input 2; actual sensor value 4-20 mA; Ri= 100 $\Omega$ ; parametrisable curve; only usable as alternative to input Ain2 U
	14	Aout	Analogue output 0-10 V; max. 5 mA; output of the actual motor control factor (output voltage of electronics)/of the actual motor speed; function selectable per BUS; parametrisable curve

# Electrical connections EC L6)

## 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



Connector	Connection	Assignment / function
PE	PE	Protective earth
KL1	L3	Mains; L3
	L2	Mains; L2
	L1	Mains; L1
KL2	NC	Status relay, floating status contact, break with error
	COM	Status relay, floating status contact, changeover contact, common connection (2 A, 250 V, min. 10 mA, AC1)
	NO	Status relay, floating status contact, close with error

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; RSB
	RSA	RS485 interface for MODBUS RTU; RSA
	RSB	RS485 interface for MODBUS RTU; RSB
	RSA	RS485 interface for MODBUS RTU; RSA

# Electrical connections EC L7)

## 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



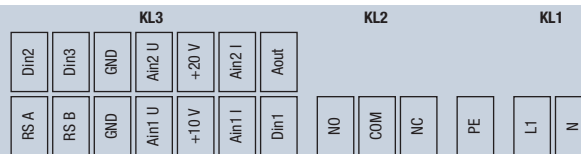
Connector	Connection	Assignment / function
PE	PE	Protective earth
KL1	N	Mains 50/60 Hz. neutral
	L	Mains 50/60 Hz. phase
KL2	NC	Status relay, floating status contact, break with error
	COM	Status relay, floating status contact, changeover contact, common connection (2 A, 250 V, min. 10 mA, AC1)
	NO	Status relay, floating status contact, close with error

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; RSB
	RSA	RS485 interface for MODBUS RTU; RSA
	RSB	RS485 interface for MODBUS RTU; RSB
	RSA	RS485 interface for MODBUS RTU; RSA

# Electrical connections EC (L9)

## 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



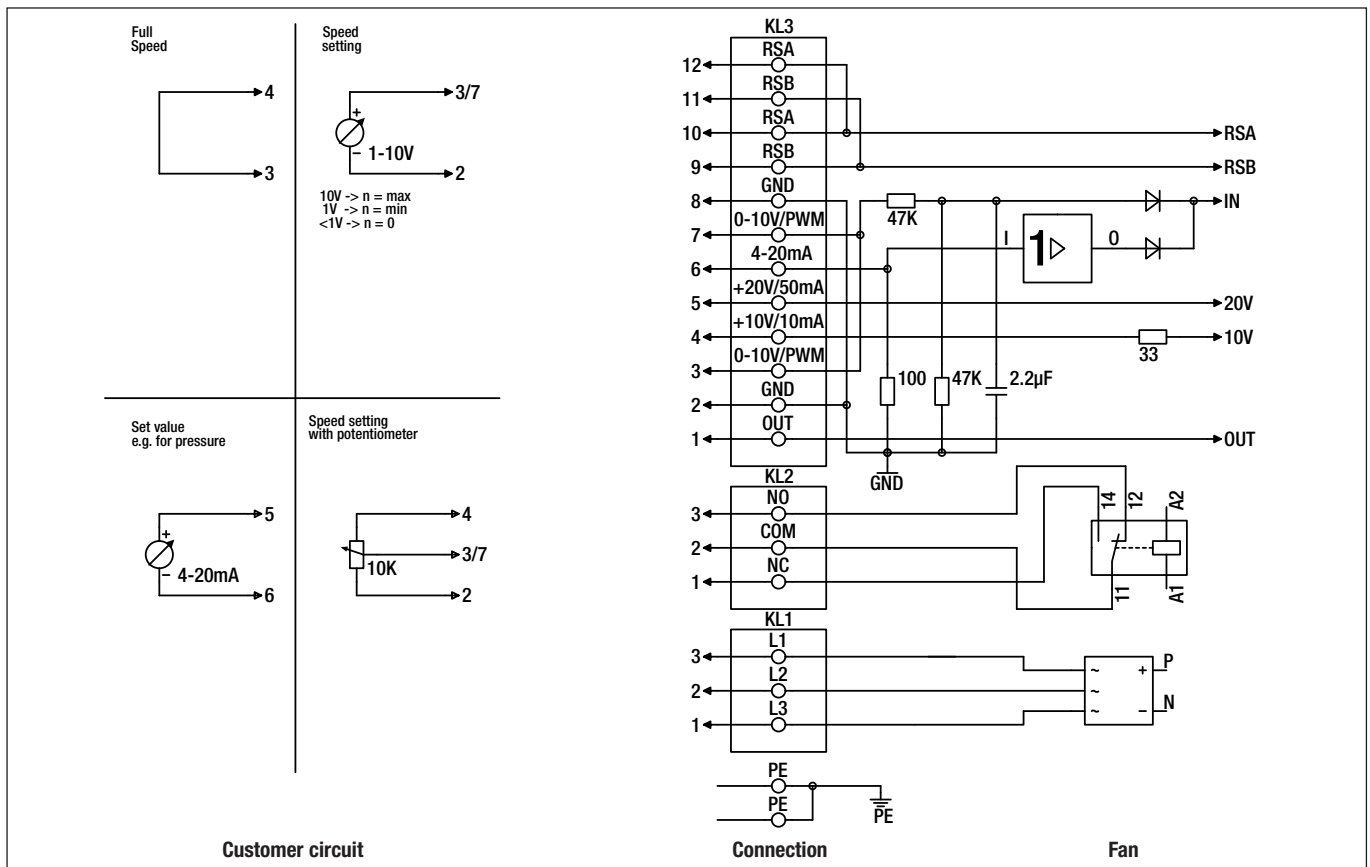
Connector	Connection	Assignment / function
KL1	N	Mains; neutral
	L1	Mains; L1
PE	PE	Protective earth
KL2	NC	Status relay, floating status contact, break with error
	COM	Status relay, floating status contact, changeover contact, common connection (2 A, 250 V, min. 10 mA, AC1)
	NO	Status relay, floating status contact, close with error

Connector	Connection	Assignment / function
KL3	Din1	Digital input 1 (enabling / disabling of electronics), Enabling: Pin open or applied voltage 5 to 50 VDC Disabling: Bridge to GND or applied voltage < 1 VDC
	Ain1 I	Analogue set value input, 4-20 mA (impedance 100 $\Omega$ ), only to be used as alternative to terminal Ain1 U
	+10 V	Supply for external potentiometer, 10 VDC ( $\pm 3\%$ ) max. 10 mA
	Ain1U	Analogue set value input, 0-10 V (impedance 100 k $\Omega$ ), only to be used as alternative to terminal Ain1 I
	GND	GND
	RSB	RS485 interface for MODBUS RTU; RSB
	RSA	RS485 interface for MODBUS RTU; RSA
	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 100 $\Omega$ ), 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 k $\Omega$ ), 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 to 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 to 50 VDC Night: Bridge to GND or applied voltage < 1 VDC

# Electrical connections EC P2)

## 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. 5 mA
- Output 20 VDC ( $\pm 25\%$  /  $-10\%$ ) max. 50 mA
- Output 10 VDC ( $+3\%$ ) max. 10 mA
- External 24 V input (programming)
- RS485 MODBUS RTU
- Motor current limitation, Alarm relay
- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Locked-rotor protection, Soft start
- Control interface with SELV potential safely disconnected from the mains



Connector	Pin	Connection	Assignment / function
PE		PE	Earth connection, PE connection
KL1	1/2/3	L1, L2, L3	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
KL2	1	NC	Status relay, floating status contact; option 1: break with error; option 2: break with error for run monitor error message
	2	COM	Status relay, floating status contact; changeover contact; common connection (2 A, 250 V, min. 10 mA, AC1)
	3	NO	Status relay, floating status contact; option 1: close with error; option 2: close with run monitor error message
KL3	1	OUT	Analogue output 0-10 V; max. 3 mA, SELV, output of the actual motor duty cycle (PWM): 1 V corresponds to 10 % PWM, 10 V corresponds to 100 % PWM
	2/8	GND	Signal ground for control interface KL3; SELV
	3/7	0-10 V	Control input 0-10 VDC, impedance 100 k $\Omega$ ; only usable as alternative to 4-20 mA input, SELV
	4	+10 V	Fixed voltage output 10 VDC ( $\pm 3\%$ ), max. 10 mA; power supply for ext. devices (e.g. potentiometer), SELV
	5	+20 V	Fixed voltage output 20 VDC ( $+25\%$ / $-10\%$ ), max. 50 mA; power supply for ext. devices (e.g. sensors), SELV
	6	4-20 mA	Control input 4-20 mA, impedance 100 $\Omega$ ; only usable as alternative to 0-10 V input, SELV
	9/11	RSB	RS485 interface for MODBUS RTU; RSB
	10/12	RSA	RS485 interface for MODBUS RTU; RSA

# 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.

### 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>.

# Technical parameters & scope



## 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.

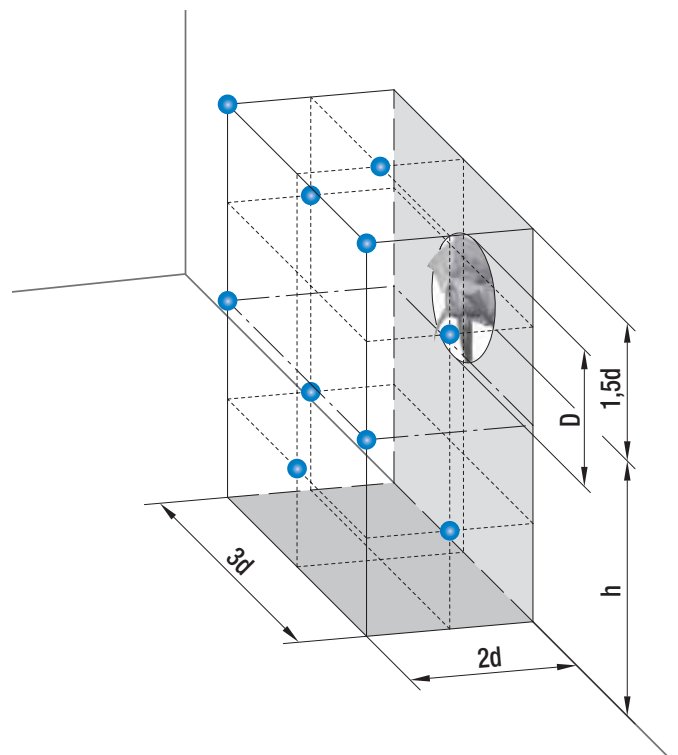
Measuring configuration as per ISO 13347-3 respectively DIN 45635-38:

- 10 measuring points

$$d \geq D$$

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

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





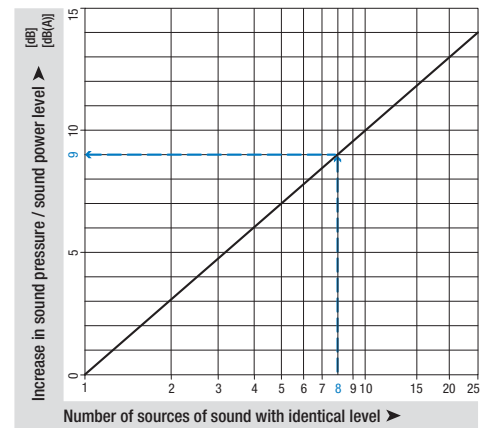


### Combined level of multiple same-level sound sources

Adding 2 noise sources with the same level 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.

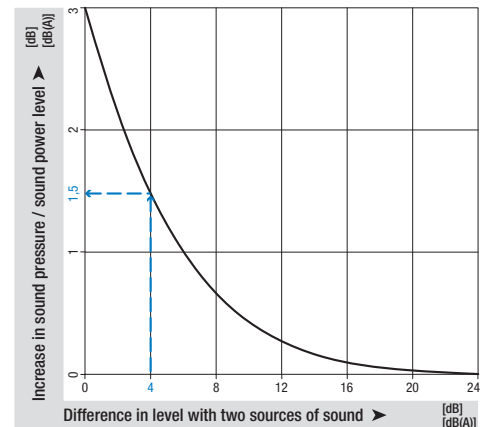
**Example:** 8 A3G800 axial fans are on a condenser. According to the data sheet, the sound pressure level of a fan is approximately 75 dB(A). The level increase measured from the diagram is 9 dB. Thus the overall sound level of the installation can be expected to be 84 dB(A).



### Combined level of two different-level sound sources

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.

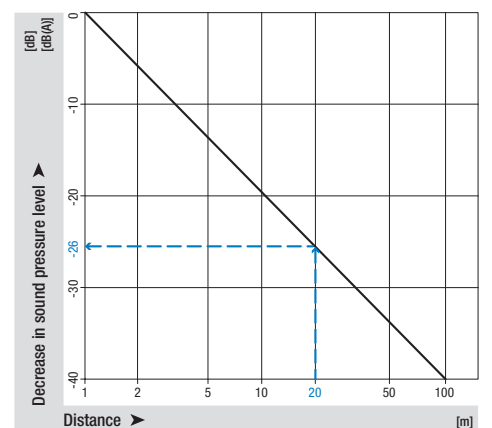
**Example:** There is an axial fan A3G800 with a sound pressure level of 75 dB(A) at the operating point and an axial fan A3G710 with 71 dB(A) in a ventilation unit. The level difference is 4 dB. The level increase can now be read in the diagram as approx. 1.5 dB. This means that the overall sound level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



# ebm-papst in Germany

## ebm-papst Mulfingen GmbH & Co. KG

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

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

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

## ebm-papst Landshut GmbH

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

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

 **Bielefeld**  
 Dipl.-Ing. (FH) Wolf-Jürgen Weber  
Niehausweg 13  
 33739 Bielefeld  
GERMANY  
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  
 59519 Möhnensee-Völlinghausen  
GERMANY  
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  
 63452 Hanau  
GERMANY  
Phone +49 6181 1898-12  
Fax +49 6181 1898-13  
Christian.Kleffmann@de.ebmpapst.com

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

 **Hamburg**  
 Ingenieurbüro Breuell GmbH  
Ing. Dirk Kahl  
 Elektroingenieur  
Grützmlenweg 48  
22339 Hamburg  
GERMANY  
Phone +49 40 538092-19  
Fax +49 40 538092-84  
Dirk.Kahl@de.ebmpapst.com

 **Heilbronn / Heidelberg**  
 Dipl.-Ing. Mark Gartner  
Gehweg 12  
 74199 Unterheinriet  
GERMANY  
Phone +49 7130 404569-1  
Fax +49 7130 404569-2  
Mark.Gartner@de.ebmpapst.com

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

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

 **Munich**  
 Dipl.-Wirt.-Ing. (FH) Jens Peter  
Landsbergerstraße 14  
 86932 Pürgen  
GERMANY  
Phone +49 8196 99877-54  
Fax +49 8196 99877-55  
Jens.Peter@de.ebmpapst.com

 **Nuremberg**  
 Dipl.-Wirt.-Ing. (FH) Axel Resch  
Dr.-August-Koch-Str. 1  
 91639 Wolfraams-Eschenbach  
GERMANY  
Phone +49 9875 9783-170  
Fax +49 9875 9783-171  
Axel.Resch@de.ebmpapst.com

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

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

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

## Distributoren

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

 **Hamburg**  
Breuell + Hilgenfeldt GmbH  
Grützmlenweg 48  
22339 Hamburg  
GERMANY  
Phone +49 40 538092-20  
Fax +49 40 538092-84  
info@breuell-hilgenfeldt.de

 **Munich**  
A. Schweiger GmbH  
Ohmstraße 1  
82054 Sauerlach  
GERMANY  
Phone +49 8104 897-0  
Fax +49 8104 897-90  
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 **South**  
 HDS Ventilatoren Vertriebs GmbH  
Glaswiesenstraße 1  
74677 Dörzbach  
GERMANY  
Phone +49 7937 80355-20  
Fax +49 7937 80355-25  
info@hds-gmbh.net  
www.hds-gmbh.net

# ebm-papst in Europe



## Europe

 **Austria**  
ebm-papst Motoren & Ventilatoren GmbH  
 Straubingstraße 17  
 4030 Linz  
AUSTRIA  
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  
 220138 Minsk  
BELARUS  
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  
3001 Heverlee-Leuven  
BELGIUM  
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 No. 20  
 500327 Brasov  
ROMANIA  
Phone +40 268 331859  
Fax +40 268 312805  
dudasludovic@xnet.ro




 **Croatia**  
ebm-papst Industries Kft.  
 Ezred u. 2.  
 1044 Budapest  
HUNGARY  
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  
 620 00 Brno  
CZECH REPUBLIC  
Phone +420 544 502-411  
Fax +420 547 232-622  
info@ebmpapst.cz  
www.ebmpapst.cz

 **Denmark**  
ebm-papst Denmark ApS  
 Vallengsbækvej 21  
 2605 Brøndby  
DENMARK  
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Fax +45 43 630505  
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 **Hungary**  
ebm-papst Industries Kft.  
 Ezred u. 2.  
 1044 Budapest  
HUNGARY  
Phone +36 1 8722-190  
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office@hu.ebmpapst.com

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

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

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

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

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

# ebm-papst in Europe



 **Netherlands**  
ebm-papst Benelux B.V.  
 Engelseweg 127  
 5705 AC Helmond  
NETHERLANDS  
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  
 1203 Oslo  
NORWAY  
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  
 03236 Warszawa  
POLAND  
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  
2615-178 Alverca do Ribatejo  
PORTUGAL  
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  
 500327 Brasov  
ROMANIA  
Phone +40 268 331859  
Fax +40 268 312805  
dudasludovic@xnet.ro

**Russia**  
 ebm-papst Ural GmbH  
 Posadskaja-Strasse, 23(E), 3  
 620102 Ekaterinburg  
RUSSIA  
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  
 141000 Mytistschi, Oblast Moskau  
RUSSIA  
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Fax +7 495 5140924  
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www.ebmpapst.ru




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 Ezred u. 2.  
 1044 Budapest  
HUNGARY  
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Fax +36 1 8722-194  
office@hu.ebmpapst.com

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

 **Sweden**  
ebm-papst AB  
 Äggelundavägen 2  
 17562 Järfälla  
SWEDEN  
Phone +46 10 4544400  
Fax +46 8 362306  
info@ebmpapst.se  
www.ebmpapst.se

 **Switzerland**  
ebm-papst AG  
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www.ebmpapst.com.tr

 **Ukraine**  
ebm-papst Ukraine LLC  
 Lapse Boulevard, 4, Building 21  
 03067 Kiev  
UKRAINE  
Phone +38 044 2063091  
Fax +38 044 2063091  
mail@ebmpapst.ua  
www.ebmpapst.ua

**United Kingdom**  
 ebm-papst UK Ltd.  
 Chelmsford Business Park  
 Chelmsford Essex CM2 5EZ  
UNITED KINGDOM  
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 Av. José Giorgi, 301 Galpões B6+B7  
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www.ebmpapst.com.mx

## USA

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www.ebmpapst.us

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Dearborn, MI 48120  
UNITED STATES  
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Fax +1 313 406-8081  
automotive@us.ebmpapst.com  
www.ebmpapst-automotive.us

## Africa

 **South Africa**  
ebm-papst South Africa (Pty) Ltd.  
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 1119 Yacht Avenue  
2040 Honeydew  
SOUTH AFRICA  
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Fax +27 11 794-5020  
info@za.ebmpapst.com  
www.ebmpapst.co.za



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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.  
Room 17E, MG Tower  
133 Hoi Bun Road, Kwun Tong  
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  
Chennai-600118  
INDIA  
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  
15321 Tangerang  
INDONESIA  
Phone +62 21 5376250  
Fax +62 21 5388305  
salesdept@id.ebmpapst.com



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ISRAEL  
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Fax +972 3 5796679  
polak@polak.co.il  
www.polak.co.il



### Japan

ebm-papst Industries Japan K.K.  
12th Floor, Benex S-3 Bldg.  
3-20-8 Shinyokohama, Kohoku-ku  
222-0033 Yokohama  
JAPAN  
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  
Seoul 121-270  
KOREA  
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  
47600 Subang Jaya  
MALAYSIA  
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  
Singapore 408620  
SINGAPORE  
Phone +65 65513789  
Fax +65 68428439  
salesdept@sg.ebmpapst.com



### Taiwan

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



### Thailand

ebm-papst Thailand Co., Ltd.  
99/9 Moo 2, Central Chaengwattana Tower  
14th Floor, Room 1402  
Chaengwattana Road Bangtarad, Pakkret  
11120 Nonthaburi  
THAILAND  
Phone +66 2 8353785-7  
Fax +66 2 8353788  
salesdept@th.ebmpapst.com



### United Arab Emirates

ebm-papst Middle East FZE  
PO Box 17755  
Jebel Ali Free Zone / FZS1 / AP05  
Dubai  
UNITED ARAB EMIRATES  
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  
Ho Chi Minh City  
VIETNAM  
Phone +84 8 39104099  
Fax +84 8 39103970  
linh.nguyen@vn.ebmpapst.com

## Australia



### Australia

ebm-papst A&NZ Pty Ltd.  
10 Oxford Road  
Laverton North, Victoria, 3026  
AUSTRALIA  
Phone +61 3 9360-6400  
Fax +61 3 9360-6464  
sales@ebmpapst.com.au  
www.ebmpapst.com.au



### New Zealand

ebm-papst A&NZ Pty Ltd.  
102 Henderson Valley Road  
Henderson, Auckland 1230  
NEW ZEALAND  
Phone +64 9 837-1884  
Fax +64 9 837-1899  
sales@ebmpapst.com.au  
www.ebmpapst.com.au



**ebm-papst**  
**Mulfingen GmbH & Co. KG**  
Bachmühle 2  
74673 Mulfingen  
Germany  
Phone +49 7938 81-0  
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