EC centrifugal fans - RadiPac

Edition 2016-02

ebmpapst

The engineer's choice

GREEN TECH

RadiPac: Now even better!

The ebm-papst RadiPac EC centrifugal fan series is more efficient than ever.

This was achieved by the logical advanced development of the aerodynamics and motor technology.

While materials of higher quality were used in the motors to reduce internal losses, the centrifugal impeller has undergone an entirely new development!

Furthermore, the installation situation preferred later in air handling units was already given proper consideration in the design of the blade channel. This has a tremendous effect on the energy balance during operation and results in drastic energy savings....

In the future, sizes 250 and 280 will be made of high-strength composite material. For sizes 310 to 560, we will continue to use sheet aluminum, with the difference being that the blade with a hollow profile achieves the greatest stability and the design produces the best aeroacoustic properties.

Sizes 630 to 900 are still produced with our proven aerodynamics. But the new aerodynamics technology will soon be available for these sizes as well.

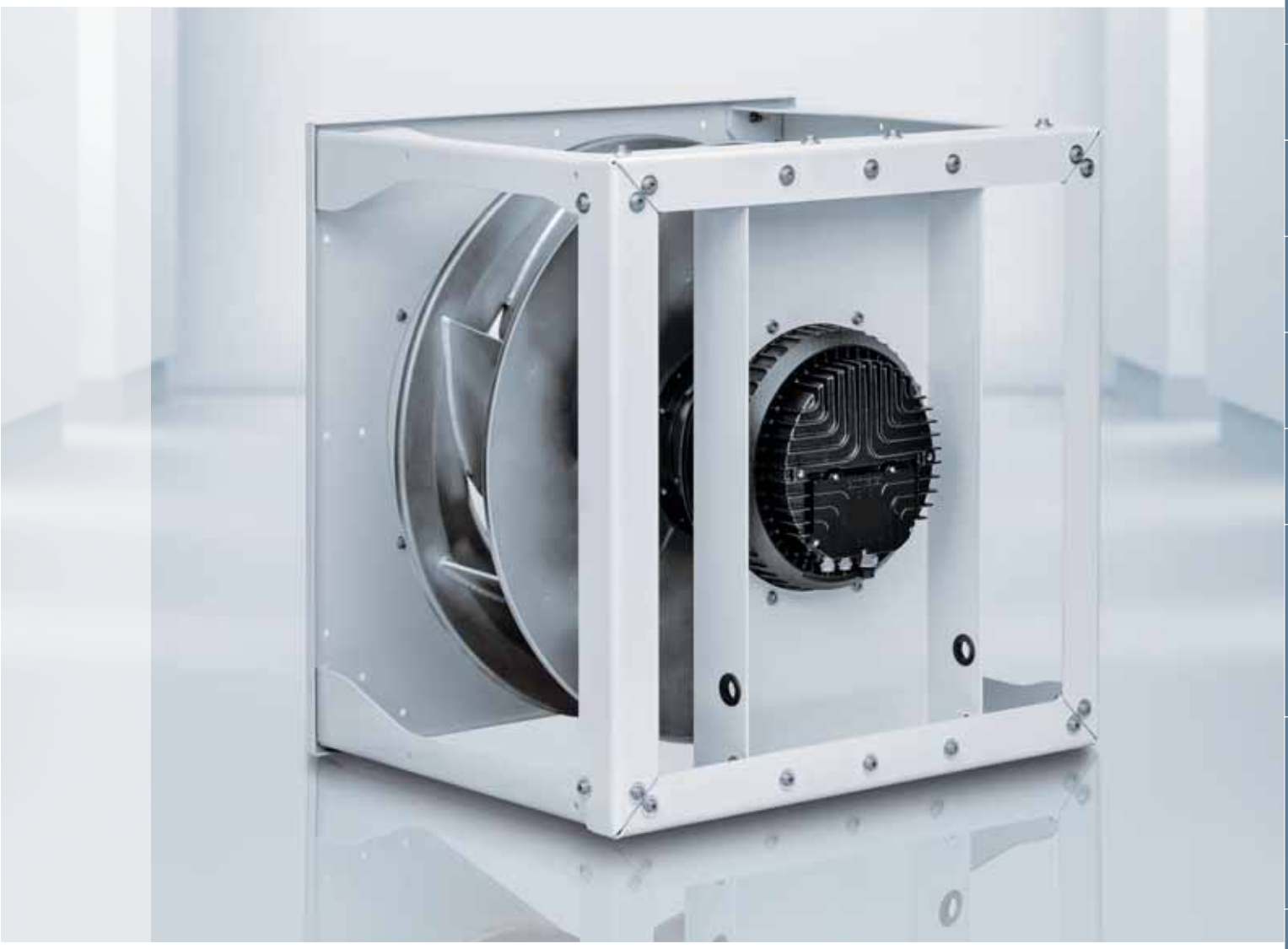
The new RadiPac fans are characterized especially by the following points:

- Best overall efficiency
- Comfortable noise level
- Compact design
- Consistent series
- Fast availability
- Easy startup (uncomplicated configuration of the control electronics)
- Well coordinated system (preconfigured motor / control electronics / impeller system)
- Logistic advantages due to complete unit
- EC motor without rare earth magnets

Production selection software is available on request to help you make a convenient and quick selection, calculate the lifecycle costs, and to compare products.

Additional information on the subjects of efficiency, dependability, and commitment is available in special editions 1 and 2 of the special techmag publications.

Contents



About ebm-papst.

As a leader in technologies for ventilation and drive engineering, ebm-papst is in demand as an engineering partner in many sectors. With over 15,000 different products, we provide the right solution for just about any challenge. Our fans and drives are reliable, quiet and energy-efficient.

Six reasons that make us the ideal partner:

Our systems expertise.
You want the best solution for every project. The interrelationships between ventilation and drive engineering must thus be considered as a whole. And that's what we do – with **motor technology** that sets standards, sophisticated **electronics** and **aerodynamic designs** – all from a single source and perfectly matched. These system solutions release unique synergies worldwide. And in particular – they relieve you of a lot of work, so that you can concentrate on your core competency.

The ebm-papst spirit of invention.
In addition to our wide range of products, we are always able to develop customized solutions for you. A diversified team of 600 engineers and technicians works at our three locations in Germany: Mulfingen, Landshut and St. Georgen. Contact us to discuss your next project.

Our lead in technology.
As pioneer and trail-blazer for developing highly efficient EC technology, we are way ahead of other motor manufacturers. Almost our entire product range is also available with GreenTech EC technology. The list of benefits is long: higher efficiency, maintenance-free, longer service life, sound reduction, intelligent control characteristics and incomparable energy efficiency with savings of up to 80 % compared to conventional AC technology. Let our technology be your competitive advantage as you lead in your industry.

Proximity to our customers.
ebm-papst owns 57 sales offices worldwide, of which 47 are subsidiaries with an extensive network of sales representatives and distributors. You will always have a local contact, someone who speaks your language and knows your market.

Our standard of quality.
Of course you can rely on the highest standards of quality with our products. Our quality management is uncompromising, at every step in every process. This is underscored by our certification according to international standards including DIN EN ISO 9001, ISO/TS 16949-2 and DIN EN ISO 14001.

Our sustainable approach.
Assuming responsibility for the environment, for our employees and for society is an integral part of our corporate philosophy. We develop products with an eye to maximum environmental compatibility, in particular resource-preserving production methods. We promote environmental awareness among our young staff and are actively involved in sporting, cultural activities and education. That's what makes us a leading company – and an ideal partner for you.

The story of our success to market and technology pioneer.

1963	Founding of **Elektrobau Mulfingen GmbH & Co. KG** by Gerhard Sturm and Heinz Ziehl.
1965	First tubeaxial fan developed in EC/DC technology.
1966	ebm-papst's success takes off with the new 68 motor.
1972	The first ebm-papst foreign subsidiary is established in Sweden.
1988	Gerhard Sturm is awarded the Federal Cross of Merit.
1990	The sixty-millionth external-rotor fan is produced.
1992	Acquisition of **PAPST Motoren GmbH** in St. Georgen.
1997	Buyout of the **Landshut** (mvl) plant.
1998	Development of first fans with integrated electronics.
2003	Change of name to **ebm-papst**.
2008	The **HyBlade®** range of fans sets new efficiency standards.
2010	**GreenTech** – our sign for energy efficiency and resource preservation.
2011	**RadiCal** defines a new standard for EC centrifugal fans.
2013	ebm-papst takes over the gearbox specialist Zeitlauf and wins the **German Sustainability Award**.
2014	Team partnership with Mercedes AMG PETRONAS Formula 1 team.
2015	**RadiPac** pushes the limits of efficiency.

Product overview RadiPac

RadiPac: The best solution

Ø	Motor	Nominal voltage range VAC	Max. input power kW	Centrifugal fan	Centrifugal module with support bracket	Centrifugal module with cube design	Page ff.
250	M3G 084-DF	1~200-277	0,50	R3G 250-PR04 -H1	K3G 250-PR04 -H2	---	12
	M3G 084-DF	1~200-277	0,75	R3G 250-PR17 -I1	K3G 250-PR17 -I2	---	
	M3G 084-DF	3~380-480	1,18	R3G 250-PR02 -J1	K3G 250-PR02 -J2	---	
280	M3G 084-DF	1~200-277	0,50	R3G 280-PR03 -H1	K3G 280-PR03 -H2	---	18
	M3G 084-DF	1~200-277	0,75	R3G 280-PR04 -I1	K3G 280-PR04 -I2	---	
	M3G 084-FA	3~380-480	1,05	R3G 280-PS10 -J1	K3G 280-PS10 -J2	---	
310	M3G 084-GF	3~380-480	1,23	R3G 310-PT08 -J1	K3G 310-PT08 -J2	---	24
	M3G 112-GA	3~380-480	1,80	R3G 310-PH38 -01	K3G 310-PH38 -02	---	
	M3G 112-GA	3~380-480	2,95	R3G 310-PH58 -01	K3G 310-PH58 -02	---	
355	M3G 112-EA	3~380-480	1,10	R3G 355-PJ75 -01	K3G 355-PJ75 -01	---	30
	M3G 112-GA	3~380-480	1,90	R3G 355-PH49 -01	K3G 355-PH49 -02	---	
	M3G 112-IA	3~380-480	2,68	R3G 355-PI93 -01	K3G 355-PI93 -02	---	
400	M3G 112-IA	3~380-480	2,50	R3G 400-PI92 -01	K3G 400-PI92 -02	---	36
	M3G 150-FF	3~380-480	3,35	R3G 400-PA27 -71	K3G 400-PA27 -71	---	
450	M3G 112-IA	3~380-480	1,74	R3G 450-PI86 -01	K3G 450-PI86 -02	---	40
	M3G 150-FF	3~380-480	2,90	R3G 450-PA23 -71	K3G 450-PA23 -71	---	
	M3G 150-IF	3~380-480	5,25	R3G 450-PB24 -01	K3G 450-PB24 -01	---	
500	M3G 150-FF	3~380-480	3,45	R3G 500-PA23 -71	K3G 500-PA23 -71	---	46
	M3G 150-IF	3~380-480	5,70	R3G 500-PB33 -01	K3G 500-PB33 -01	---	
560	M3G 150-IF	3~380-480	3,30	R3G 560-PB31 -71	K3G 560-PB31 -71	---	50
	M3G 150-NA	3~380-480	5,00	R3G 560-PC04 -01	K3G 560-PC04 -01	---	

Example:
R3G .....



Example:
K3G .....



Data is subject to change without notice at ebm-papst discretion.

Product overview RadiPac

RadiPac: The powerful solution

Ø	Motor	Nominal voltage range VAC	Max. input power kW	Centrifugal fan	Centrifugal module with support bracket	Centrifugal module with cube design	Page ff.
630	M3G 150-NA	3~380-480	2,90	R3G 630-AP01 -01	K3G 630-AP01 -01	---	54
	M3G 200-HF	3~380-480	6,75	---	---	K3G 630-AR02 -01	
	M3G 200-QA	3~380-480	11,00	---	---	K3G 630-AS05 -01	
710	M3G 150-NA	3~380-480	2,80	R3G 710-AP02 -01	K3G 710-AP02 -01	---	58
	M3G 200-LA	3~380-480	7,86	---	---	K3G 710-AR03 -01	
	M3G 200-QA	3~380-480	11,80	---	---	K3G 710-AS06 -01	
800	M3G 200-QA	3~380-480	7,53	---	---	K3G 800-AR08 -01	62
	M3G 200-QA	3~380-480	11,60	---	---	K3G 800-AS07 -01	
900	M3G 200-QA	3~380-480	7,52	---	---	K3G 900-AR10 -01	66
	M3G 200-QA	3~380-480	8,70	---	---	K3G 900-AS08 -01	

Example:
R3G .....

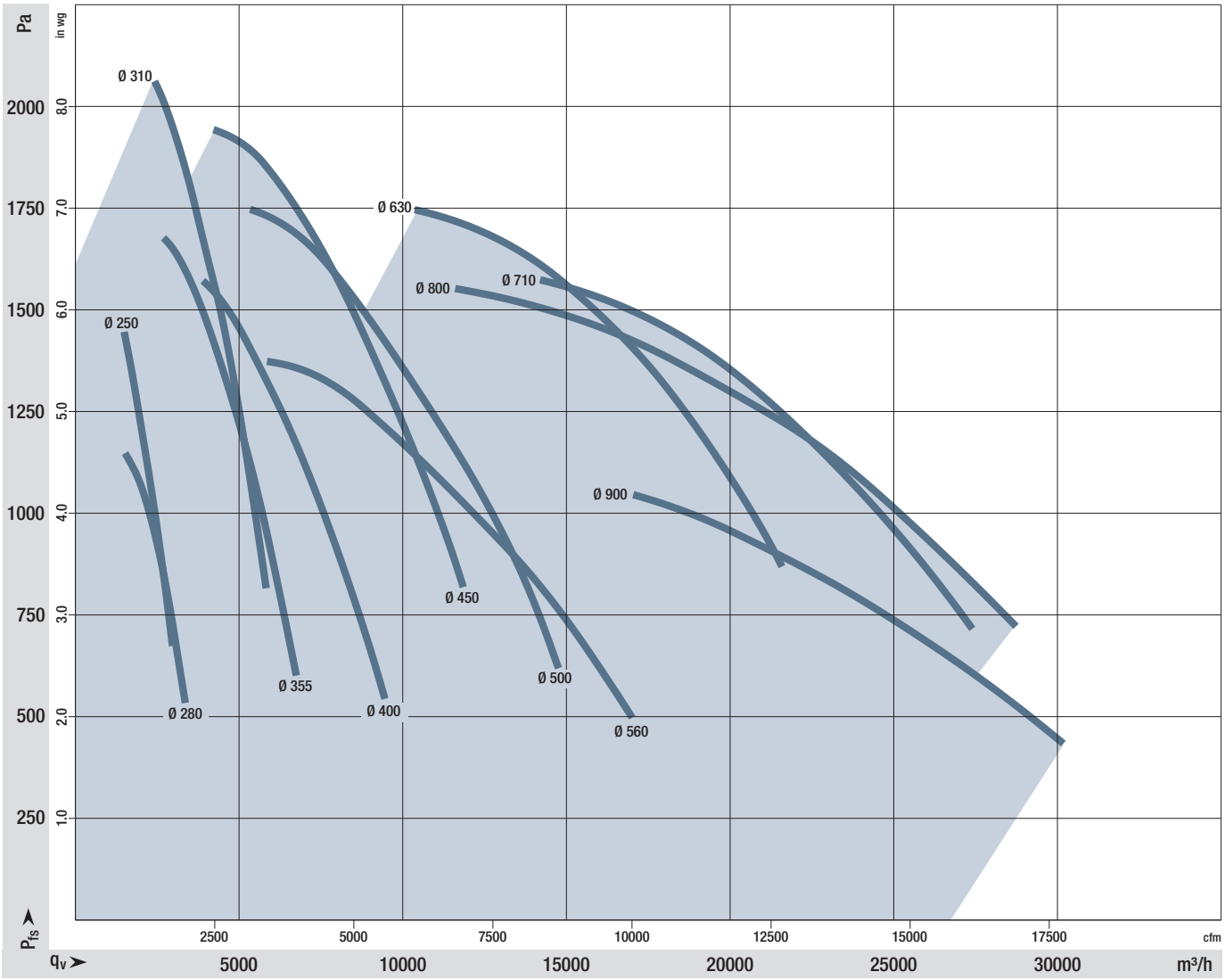
Example:
K3G .....

RadiPac: The compact solution

Ø	Motor	Nominal voltage range VAC	Max. input power kW	Centrifugal fan (compact design)	Centrifugal module with support bracket	Centrifugal module with cube design	Page ff.
280	M3G 084-GF	3~380-480	0,99	R3G 280-AJ14 -C1	---	---	70
310	M3G 112-GA	3~380-480	1,65	R3G 310-BC38 -01	---	---	
355	M3G 112-GA	3~380-480	1,73	R3G 355-BD43 -01	---	---	
400	M3G 150-FF	3~380-480	2,84	R3G 400-AS23 -01	---	---	
450	M3G 150-FF	3~380-480	2,38	R3G 450-AS24 -01	---	---	

Example:
R3G .....

Overview of curves RadiPac



The graph shows the maximum air performance for each size. If less performance is required, variants with smaller motors can be used. This saves additional costs. The right fan for every application!

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RadiPac in the Product Selector

To aid in selection of the right fan, ebm-papst provides the "Product Selector" software with an integrated "Black-Box" module for incorporation in customer device configuration programs.

With this new program, you can use the operating point as a selection criterion for RadiPac fans.

If there is more than one fan in the specified power range, the displayed aerodynamic and acoustic data can be used to select and document the most suitable fan.

The difference between the measurements and the data published in the "Product Selector" software was tested by TÜV SÜD and the accuracy of the calculation was assigned to class B0.

You can also have the life cycle costs calculated for the selected fans. You can make your selection based on point of operation or type designation.

Data sheets can be created in PDF format and show not only a fan's nominal data but also its performance data at the specified operating point together with the intake and outlet sound power levels over the octave band.

Just ask your contact at ebm-papst!

EC centrifugal fans – RadiPac

EC centrifugal fans – RadiPac

backward curved, Ø 250

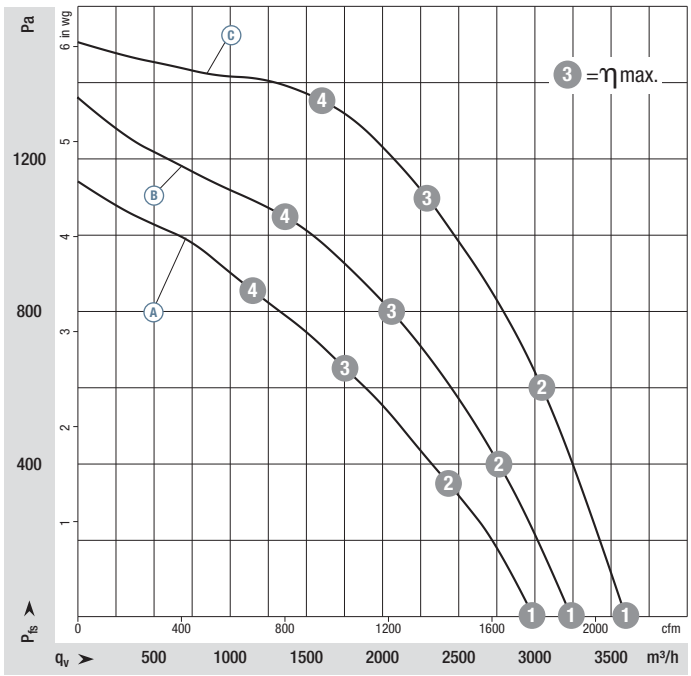
- **Material:** Support bracket: Steel, painted black
  Support plate and inlet ring: Sheet steel, galvanized
  Impeller: PP plastic
  Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** IP 55
- **Insulation class:** "F"
- **Installation position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
Type	**Motor**		**VAC**	**Hz**	**rpm**	**kW**	**A**	**°C**	**kg**	
***3G 250**	M3G 084-DF	Ⓐ	1~200-277	50/60	3080	0,50	2,30	-25..+40	4,2	P. 94 / P5)
***3G 250**	M3G 084-DF	Ⓑ	1~200-277	50/60	3450	0,75	3,30	-25..+40	4,6	P. 94 / P5)
***3G 250**	M3G 084-DF	Ⓒ	3~380-480	50/60	4000	1,18	1,80	-25..+40	4,5	P. 95 / P6)

Subject to change

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

Curves:



		n rpm	P_{ed} kW	I A	L_WA dB(A)
Ⓐ	1	3375	0,49	2,12	89
Ⓐ	2	3135	0,50	2,30	79
Ⓐ	3	3080	0,50	2,30	75
Ⓐ	4	3200	0,50	2,30	79
Ⓑ	1	3605	0,62	2,71	91
Ⓑ	2	3505	0,73	3,20	83
Ⓑ	3	3450	0,75	3,30	77
Ⓑ	4	3525	0,73	3,17	81
Ⓒ	1	4000	0,86	1,34	91
Ⓒ	2	4000	1,13	1,75	85
Ⓒ	3	4000	1,18	1,80	83
Ⓒ	4	4000	1,11	1,71	86

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

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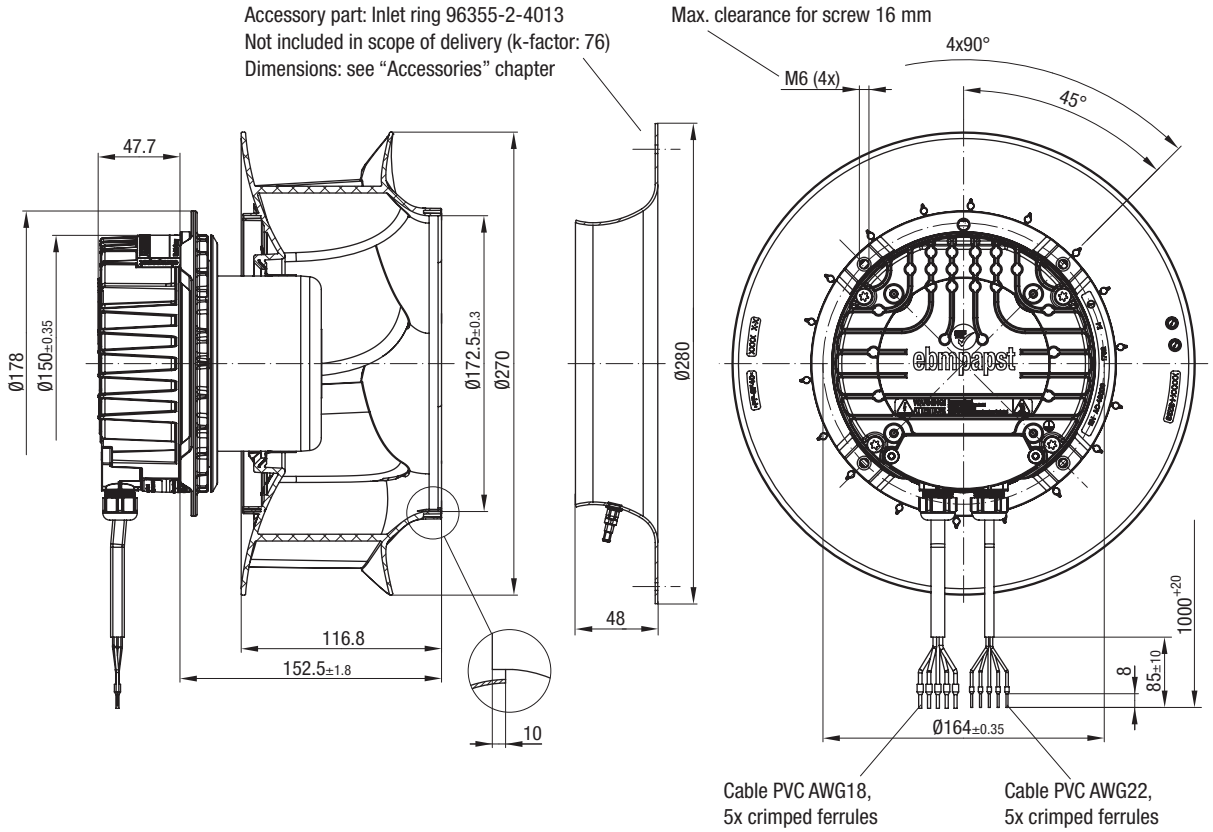
- **Technical features:** See connection diagram P. 94 f.
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Cable exit:** Variable
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE
  Ⓐ Ⓑ EN 60335-1
- **Approvals:** C22.2 Nr.77 + CAN/CSA-E60730-1, UL 1004-7 + 60730
- **Efficiency:** Ecodesign EU regulation EU 327/2011

Weight centrifugal fan

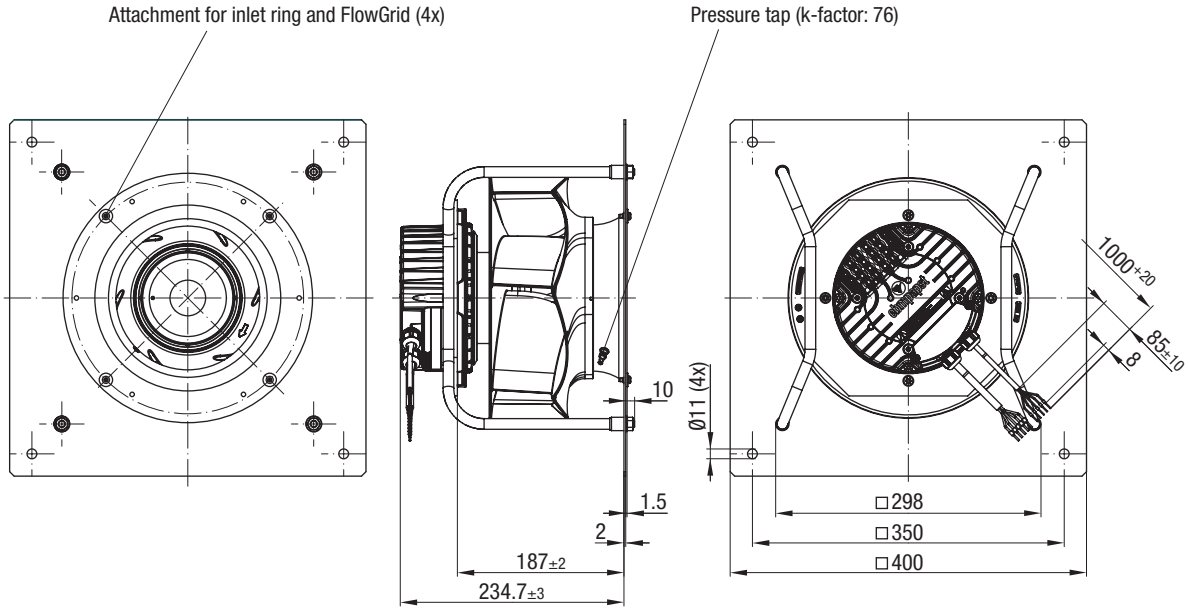
Weight centrifugal module with support bracket

Centrifugal fan	kg	Inlet ring with one pressure tap	Centrifugal module with support bracket	kg
R3G 250-PR04 -H1	4,2	96355-2-4013	K3G 250-PR04 -H2	8,5
R3G 250-PR17 -I1	4,6	96355-2-4013	K3G 250-PR17 -I2	8,9
R3G 250-PR02 -J1	4,5	96355-2-4013	K3G 250-PR02 -J2	8,8

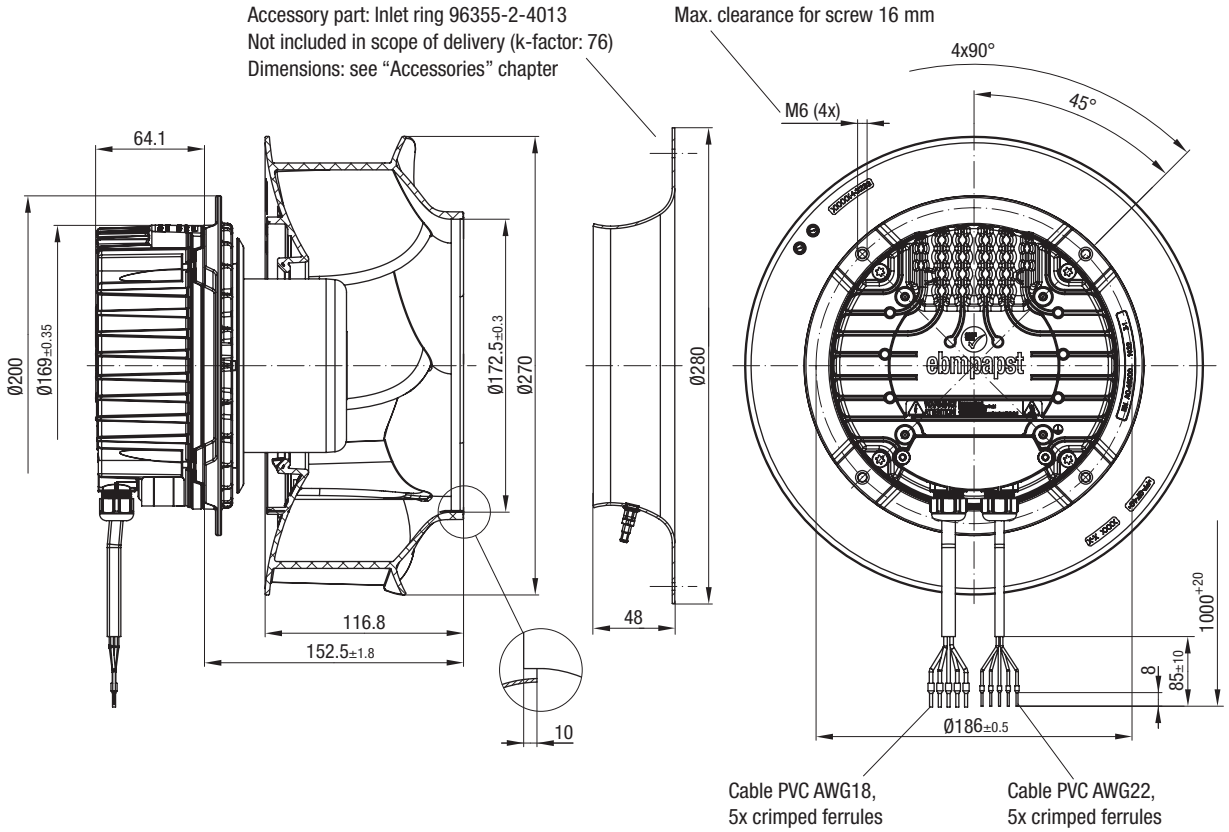
R3G 250-PR04-H1 (Centrifugal fan)



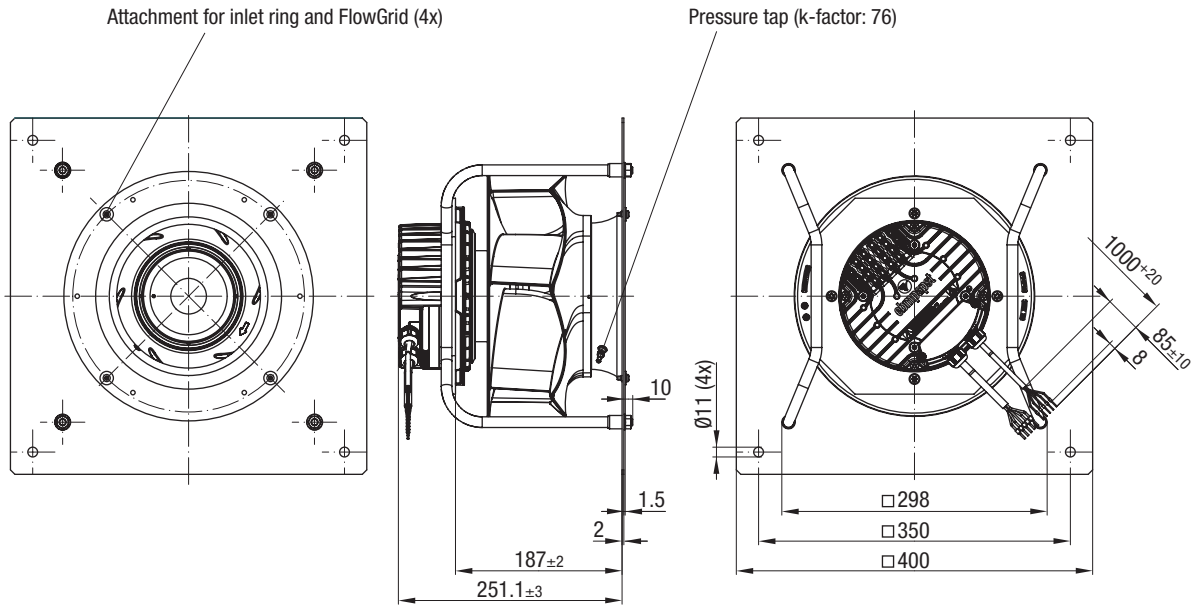
K3G 250-PR04-H2 (Centrifugal module with support bracket)



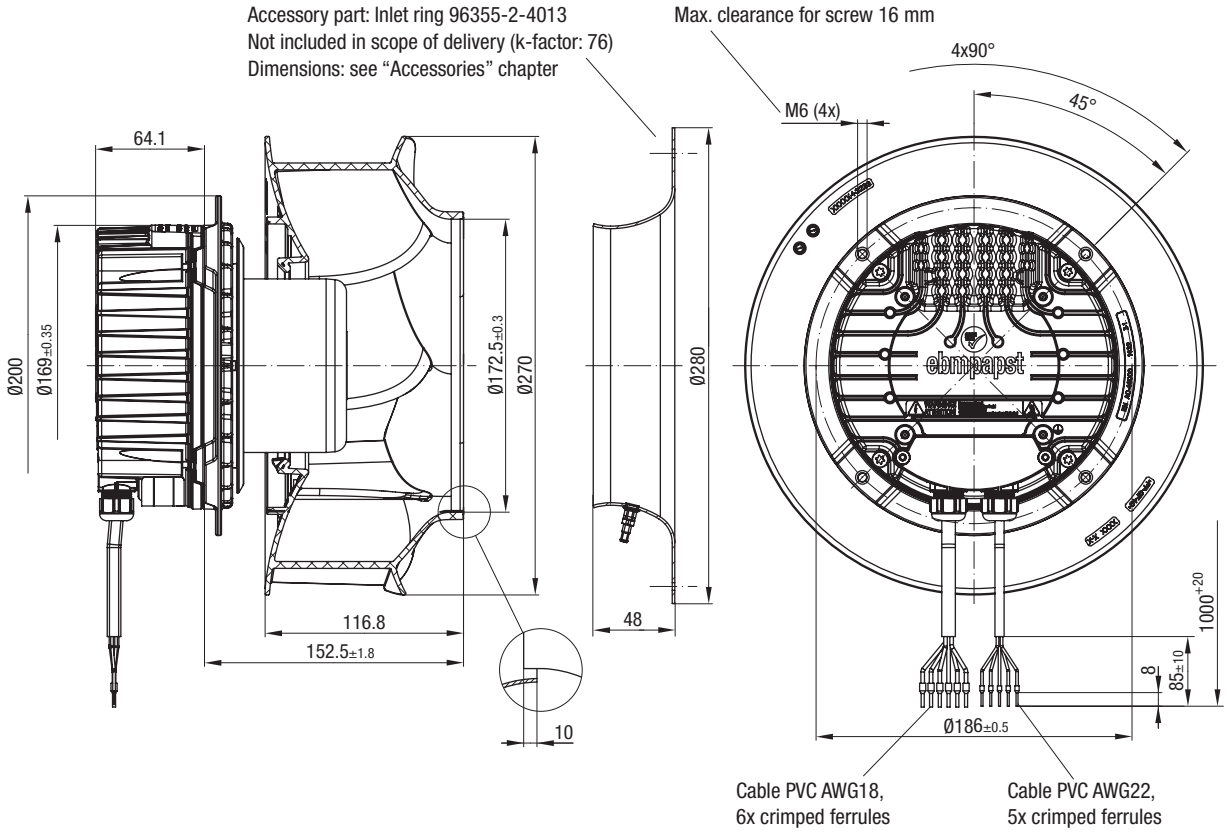
R3G 250-PR17-I1 (Centrifugal fan)



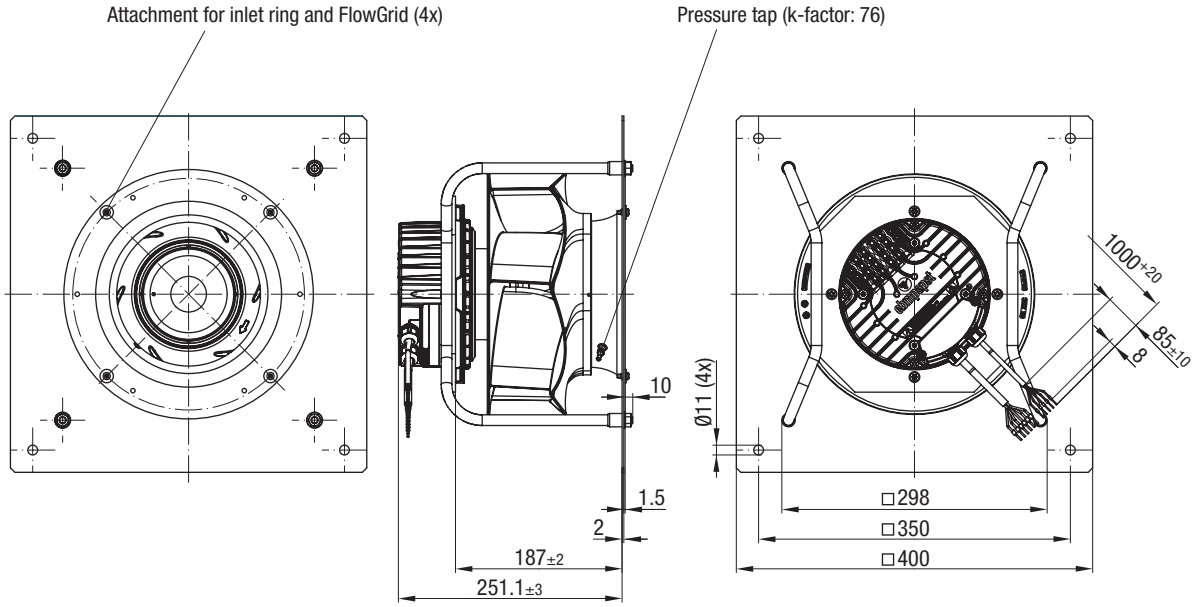
K3G 250-PR17-I2 (Centrifugal module with support bracket)



R3G 250-PR02-J1 (Centrifugal fan)



K3G 250-PR02-J2 (Centrifugal module with support bracket)



Agents	Technology	Compact design	Ø 900	Ø 800	Ø 710	Ø 630	Ø 560	Ø 500	Ø 450	Ø 400	Ø 355	Ø 310	Ø 280	Ø 250	Information

EC centrifugal fans – RadiPac

backward curved, Ø 280

- **Material:** Support bracket: Steel, painted black
  Support plate and inlet ring: Sheet steel, galvanized
  Impeller: PP plastic
  Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** IP 55
- **Insulation class:** "F"
- **Installation position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

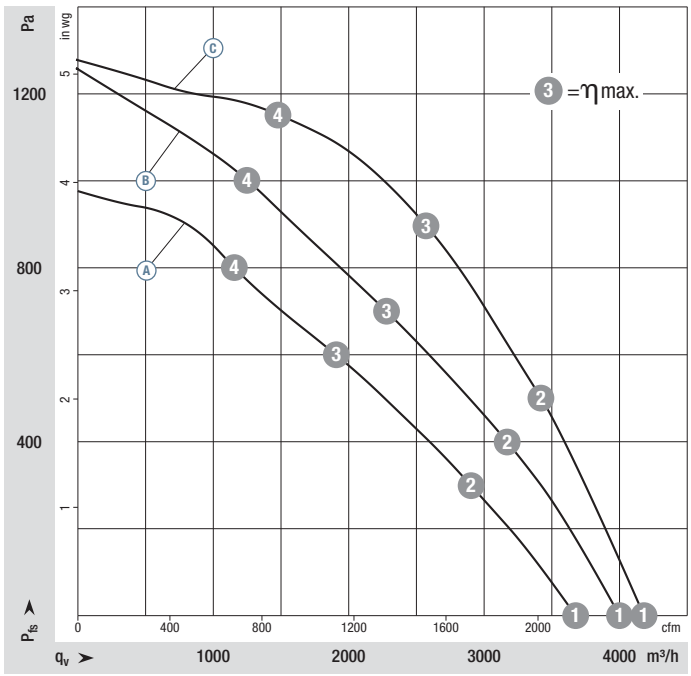
Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
			VAC	Hz	rpm	kW	A	°C	kg	
***3G 280**	M3G 084-DF	A	1~200-277	50/60	2670	0,50	2,30	-25..+45	4,2	P. 94 / P5)
***3G 280**	M3G 084-DF	B	1~200-277	50/60	3000	0,75	3,30	-25..+45	4,9	P. 94 / P5)
***3G 280**	M3G 084-FA	C	3~380-480	50/60	3400	1,05	1,60	-25..+45	5,4	P. 95 / P6)

Subject to change

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

Curves:



		n rpm	P_{ed} kW	I A	L_WA dB(A)
A	1	2990	0,50	2,18	87
A	2	2785	0,50	2,30	80
A	3	2670	0,50	2,30	74
A	4	2835	0,50	2,30	78
B	1	3260	0,64	2,81	87
B	2	3115	0,73	3,18	82
B	3	3000	0,75	3,30	77
B	4	3180	0,72	3,15	82
C	1	3400	0,74	1,17	88
C	2	3400	0,96	149	83
C	3	3400	1,05	160	80
C	4	3400	0,93	143	85

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

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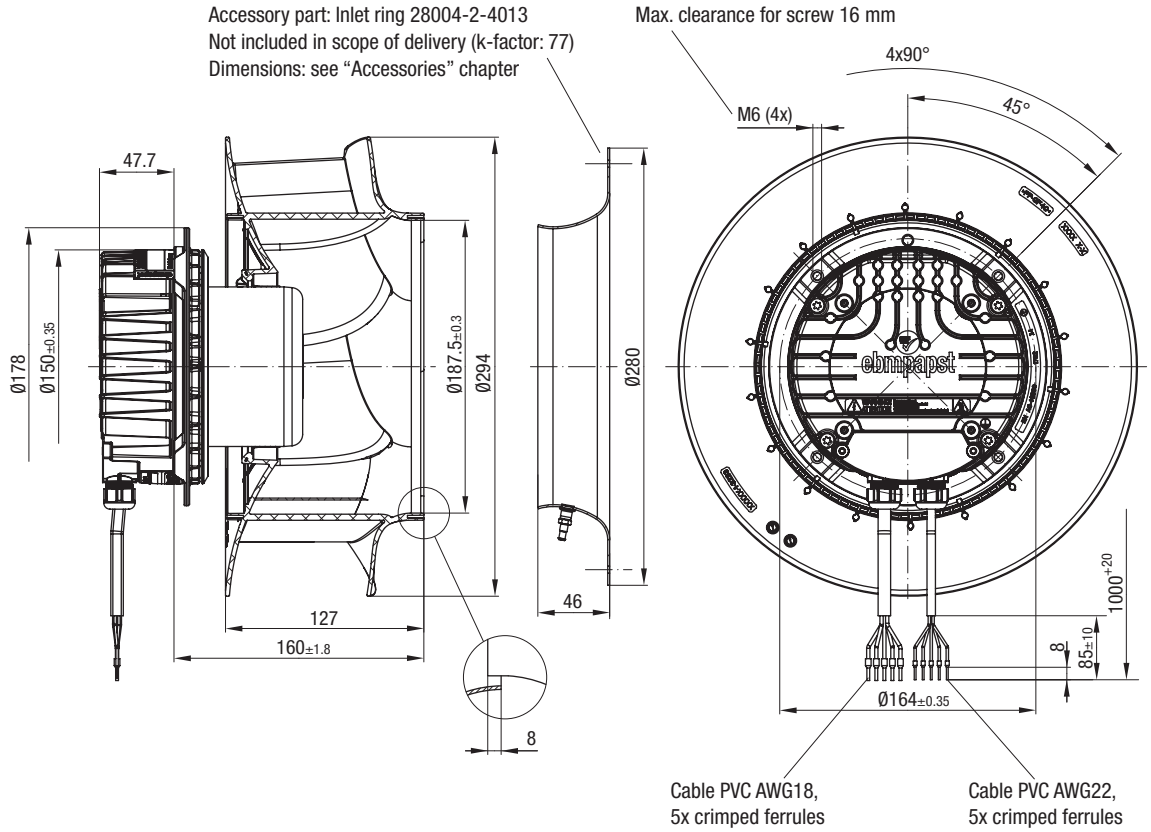
- **Technical features:** See connection diagram P. 94 f.
- **EMC:** Ⓐ Ⓑ Interference emission according to EN 61000-6-3
  Ⓒ Interference emission according to EN 61000-6-3, except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW
  Ⓐ Ⓑ Ⓒ Immunity to interference according to EN 61000-6-2
  Ⓐ Ⓑ Circuit feedback according to EN 61000-3-2/3
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Cable exit:** Variable
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE; Ⓐ Ⓑ EN 60335-1
- **Approvals:** C22.2 Nr.77 + CAN/CSA-E60730-1, UL 1004-7 + 60730
- **Efficiency:** Ecodesign EU regulation EU 327/2011

Weight centrifugal fan

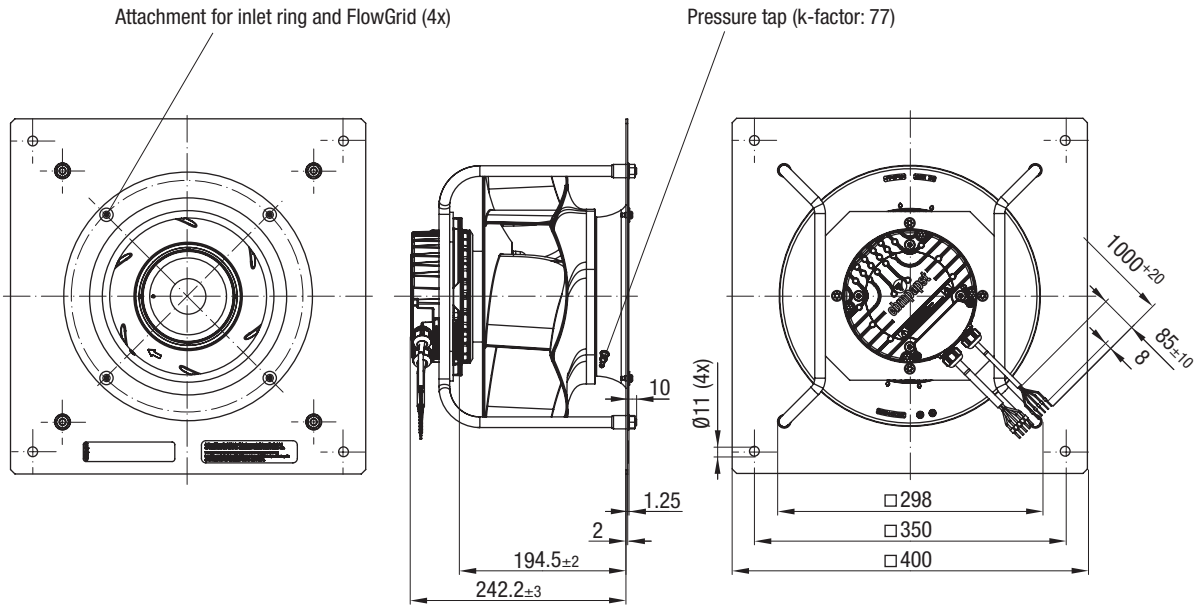
Weight centrifugal module with support bracket

Centrifugal fan	kg	Inlet ring with one pressure tap	Centrifugal module with support bracket	kg
R3G 280-PR03 -H1	4,2	28004-2-4013	K3G 280-PR03 -H2	8,4
R3G 280-PR04 -I1	4,9	28004-2-4013	K3G 280-PR04 -I2	9,1
R3G 280-PS10 -J1	5,4	28004-2-4013	K3G 280-PS10 -J2	9,3

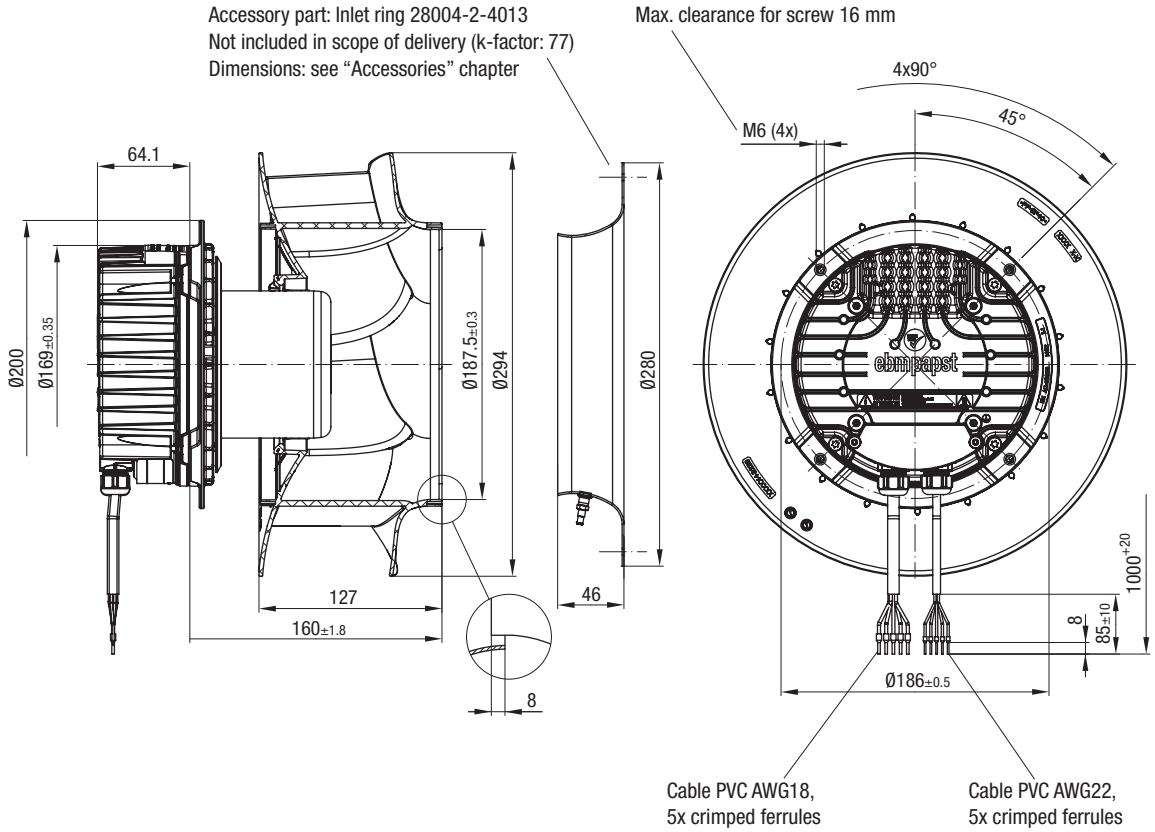
R3G 280-PR03-H1 (Centrifugal fan)



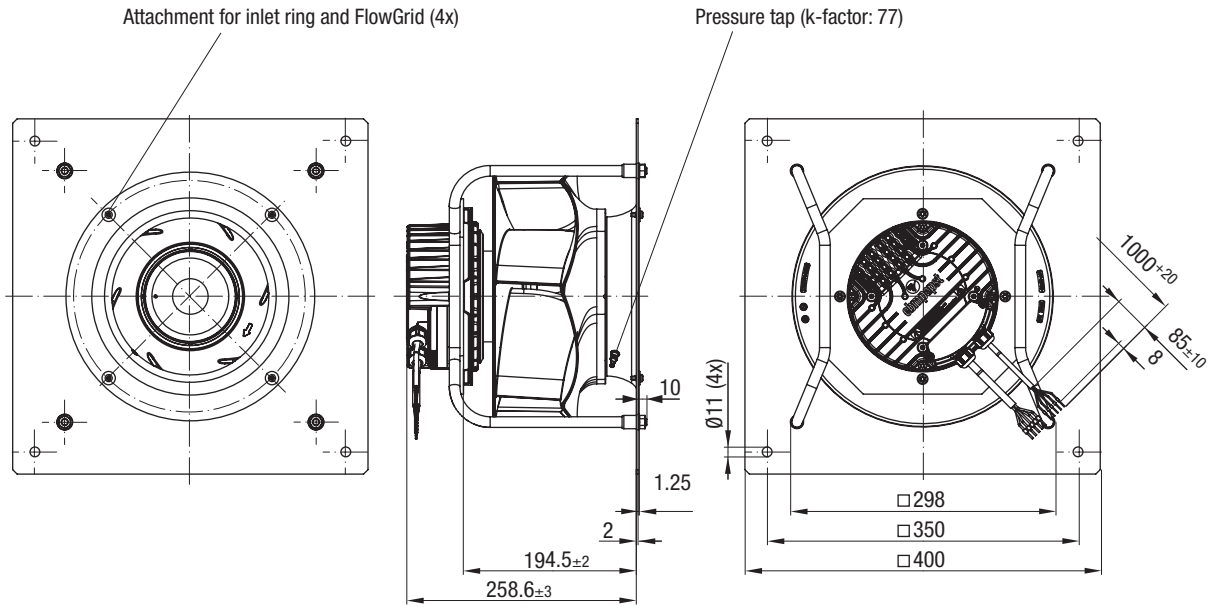
K3G 280-PR03-H2 (Centrifugal module with support bracket)



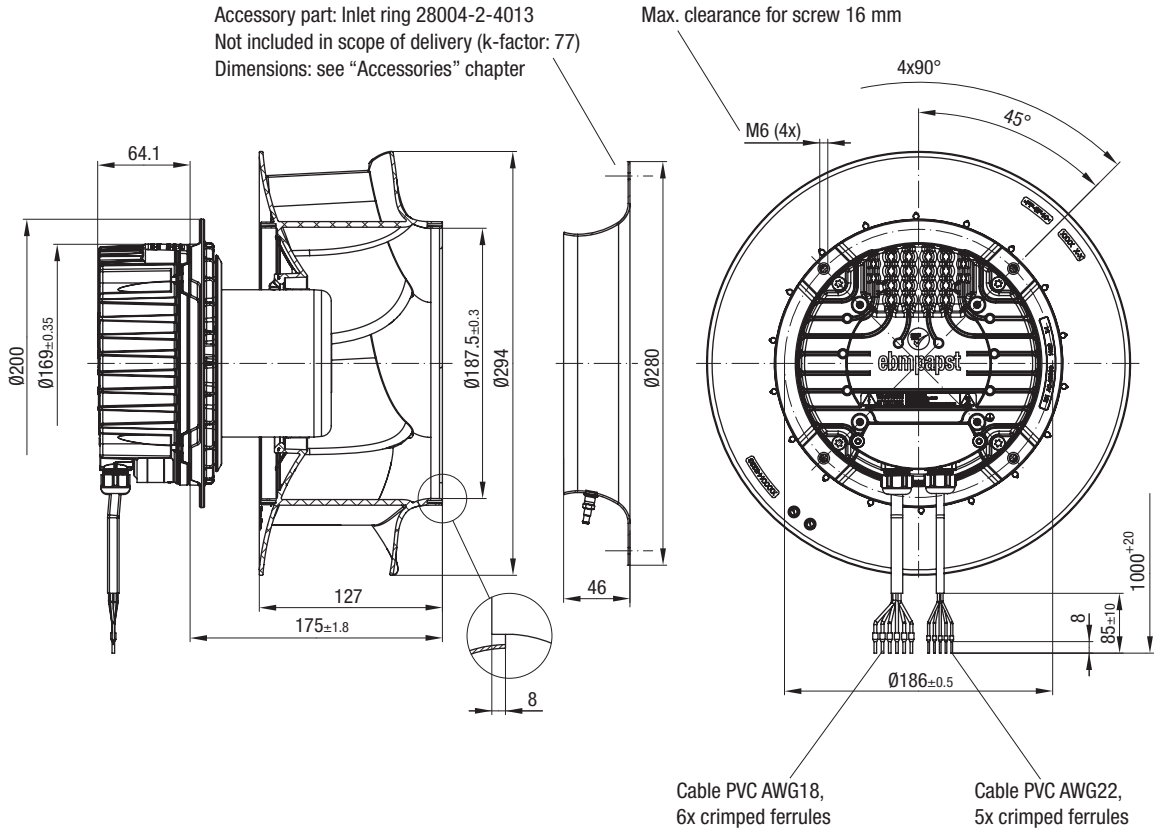
R3G 280-PR04-I1 (Centrifugal fan)



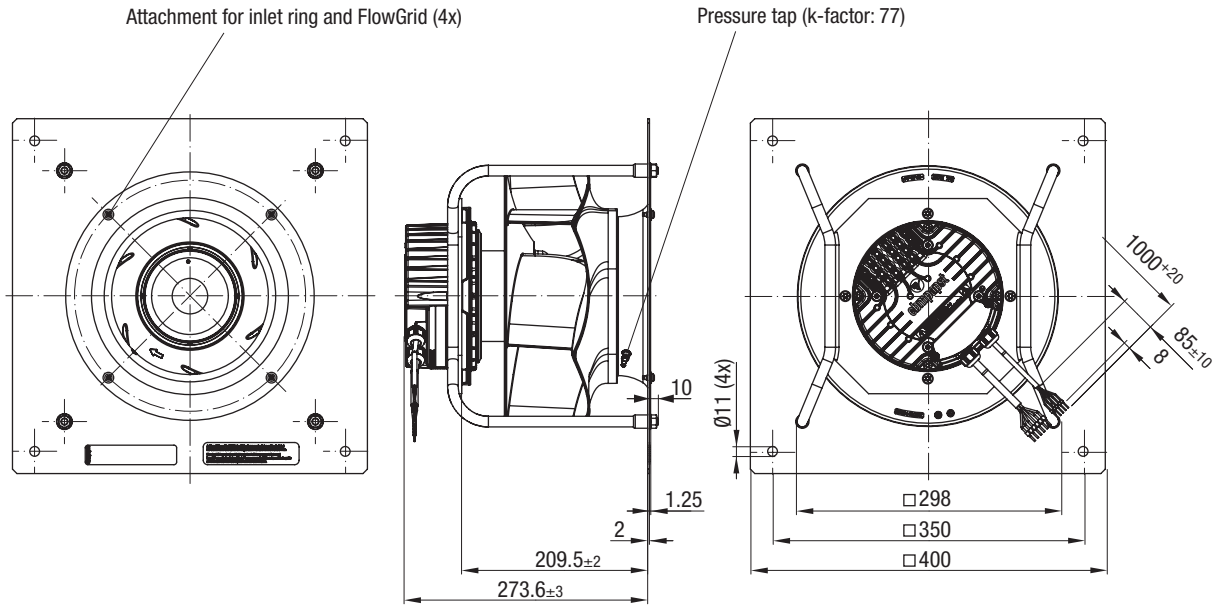
K3G 280-PR04-I2 (Centrifugal module with support bracket)



R3G 280-PS10-J1 (Centrifugal fan)



K3G 280-PS10-J2 (Centrifugal module with support bracket)



Agents	Technology	Compact design	Ø 900	Ø 800	Ø 710	Ø 630	Ø 560	Ø 500	Ø 450	Ø 400	Ø 355	Ø 310	Ø 280	Ø 250	Information

EC centrifugal fans – RadiPac

backward curved, Ø 310

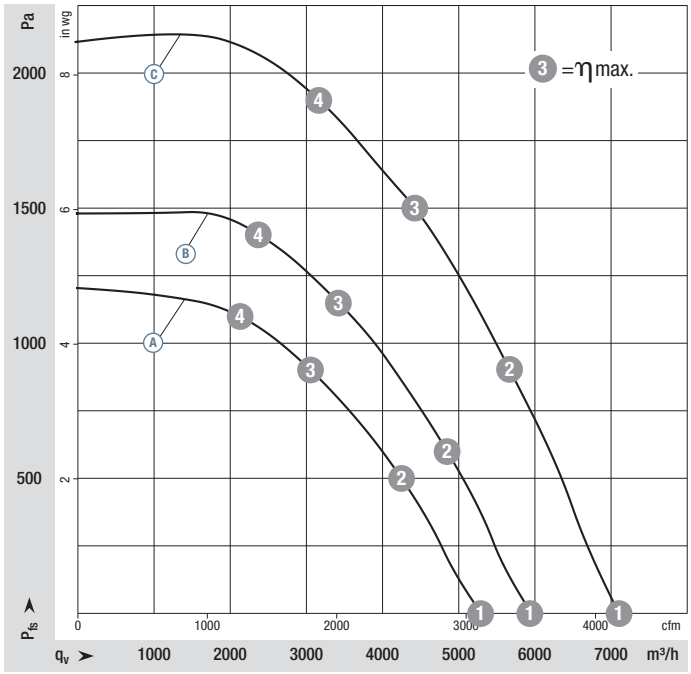
- **Material:** Support bracket: Steel, painted black
  Support plate and inlet ring: Sheet steel, galvanized
  Impeller: Sheet aluminium
  Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 5
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** Ⓐ IP 55; Ⓑ Ⓒ IP 54
- **Insulation class:** Ⓐ "F"; Ⓑ Ⓒ "B"
- **Installation position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
Type	**Motor**		**VAC**	**Hz**	**rpm**	**kW**	**A**	**°C**	**kg**	
***3G 310**	M3G 084-GF	Ⓐ	3~380-480	50/60	3010	1,23	1,90	-25..+40	7,0	P. 96 / P8)
***3G 310**	M3G 112-GA	Ⓑ	3~380-480	50/60	3410	1,80	2,80	-25..+40	10,9	P. 92 / M3)
***3G 310**	M3G 112-GA	Ⓒ	3~380-480	50/60	4000	2,95	4,60	-25..+40	10,9	P. 92 / M3)

Subject to change

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

Curves:



		n rpm	P_{ed} kW	I A	L_WA dB(A)
Ⓐ	1	3010	0,67	1,06	92
Ⓐ	2	3010	1,05	1,61	84
Ⓐ	3	3010	1,23	1,90	78
Ⓐ	4	3010	1,19	1,82	85
Ⓑ	1	3410	1,05	1,68	93
Ⓑ	2	3410	1,54	2,40	86
Ⓑ	3	3410	1,80	2,80	83
Ⓑ	4	3410	1,75	2,69	87
Ⓒ	1	4000	1,41	2,66	102
Ⓒ	2	4000	2,61	4,03	92
Ⓒ	3	4000	2,94	4,53	89
Ⓒ	4	4000	2,95	4,60	92

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

ebmpapst

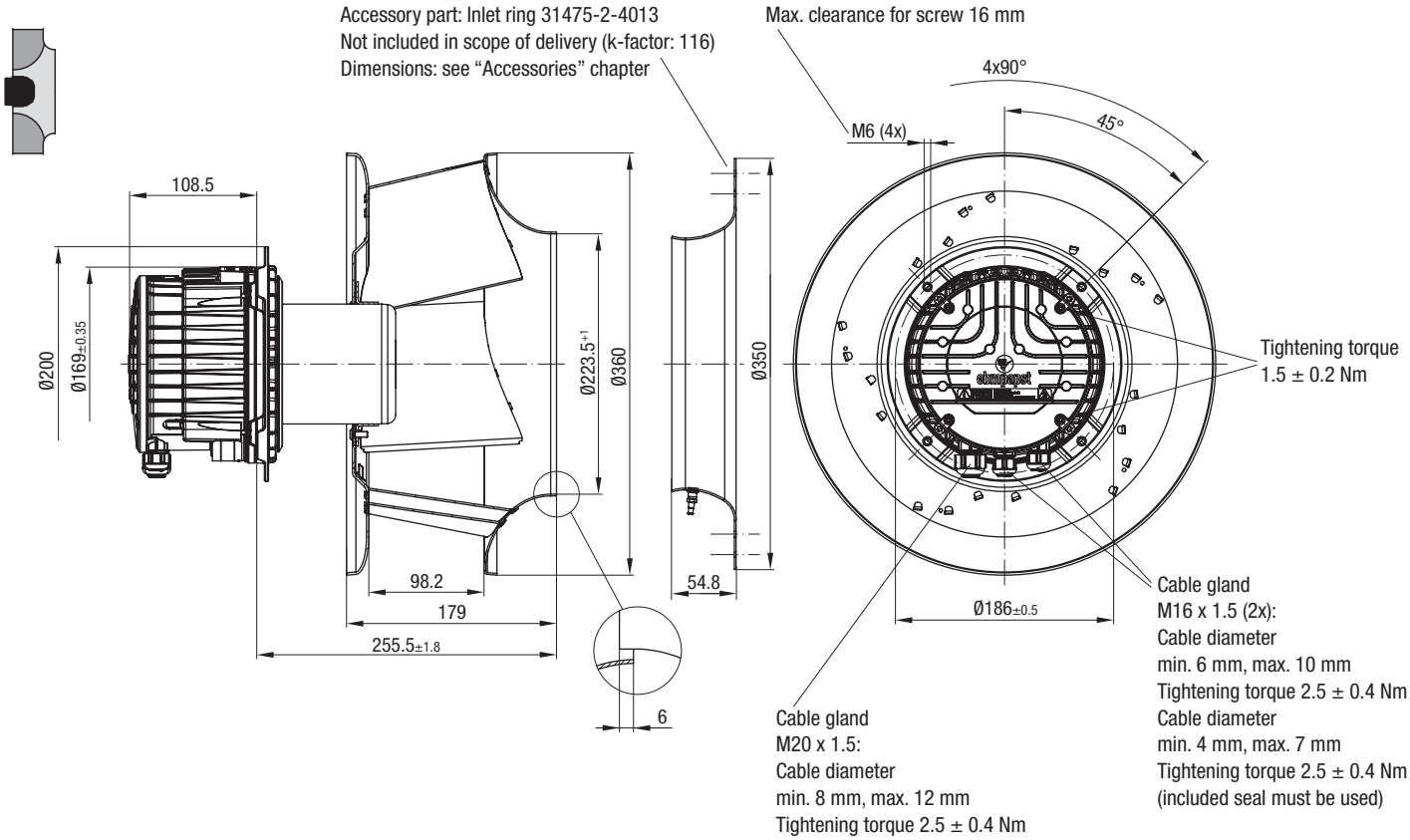
- **Technical features:** See connection diagram P. 92 f.
- **EMC:** Interference emission according to EN 61000-6-3,
  except EN 61000-3-2 for professionally used equipment
  with a total rated power greater than 1 kW
  Immunity to interference according to EN 61000-6-2
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Terminal box design:** electrical connection via terminal strip
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE
- **Approvals:** C22.2 Nr.77 + CAN/CSA-E60730-1, UL 1004-7 + 60730
- **Efficiency:** Ecodesign EU regulation EU 327/2011

Weight centrifugal fan

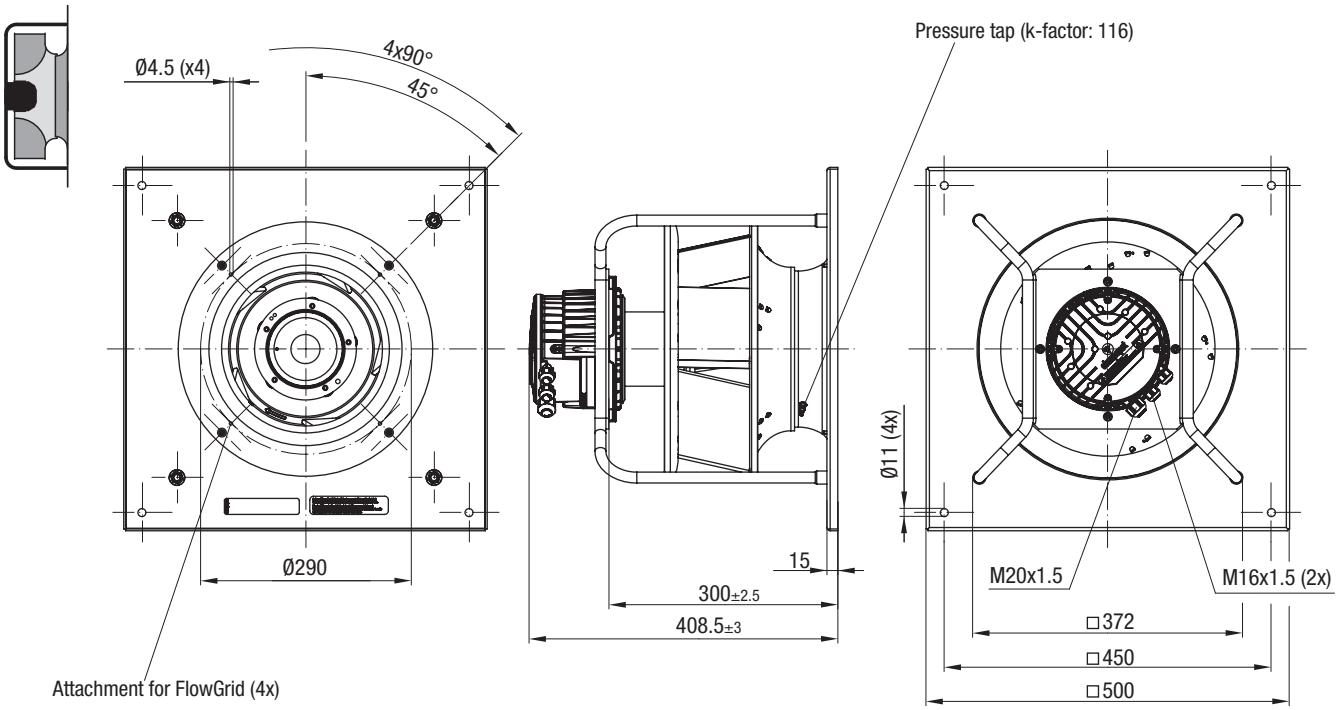
Weight centrifugal module with support bracket

Centrifugal fan	kg	Inlet ring with one pressure tap	Centrifugal module with support bracket	kg
R3G 310-PT08 -J1	7,0	31475-2-4013	K3G 310-PT08 -J2	15,5
R3G 310-PH38 -01	10,9	31475-2-4013	K3G 310-PH38 -02	18,0
R3G 310-PH58 -01	10,9	31475-2-4013	K3G 310-PH58 -02	18,0

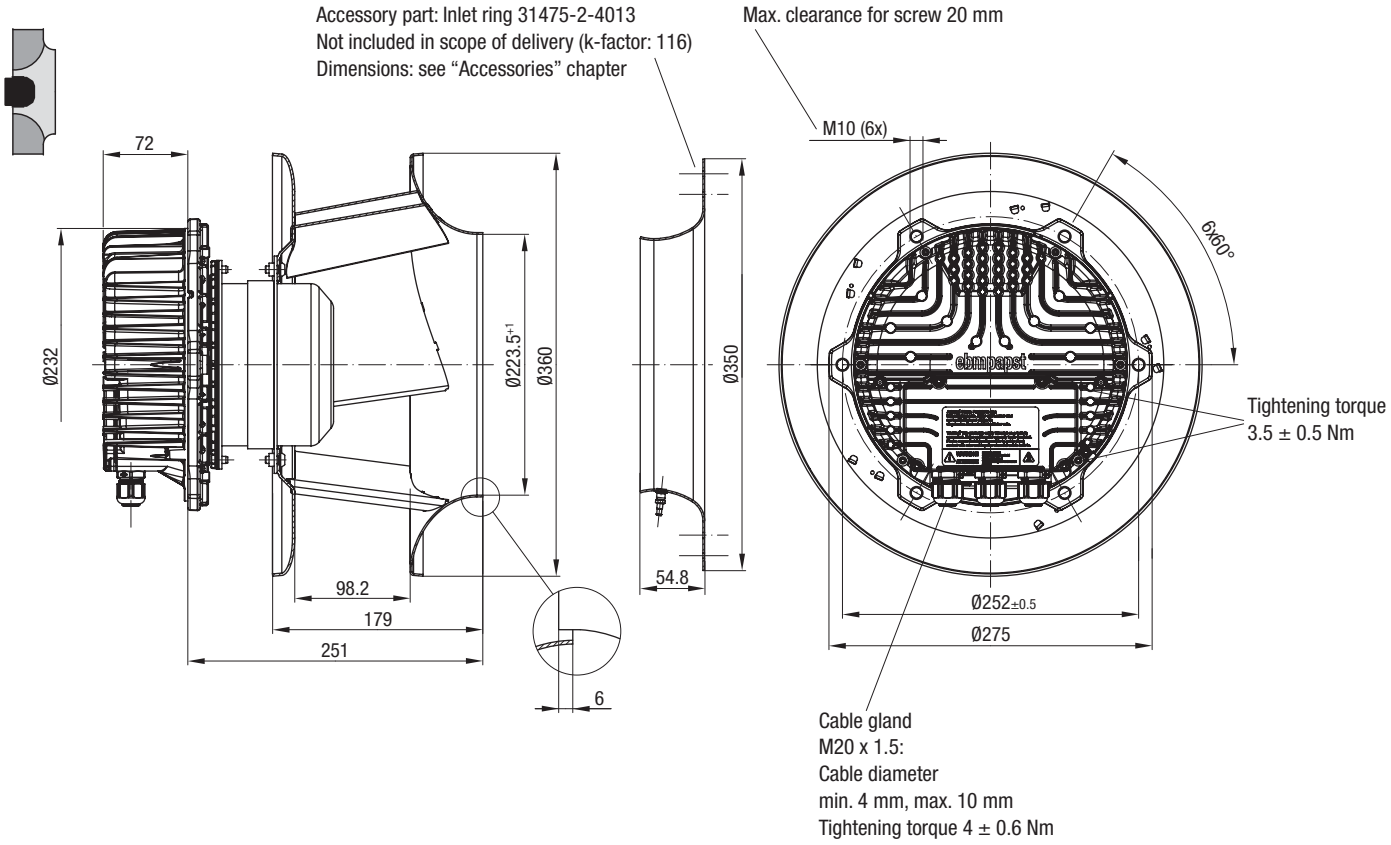
R3G 310-PT08-J1 (Centrifugal fan)



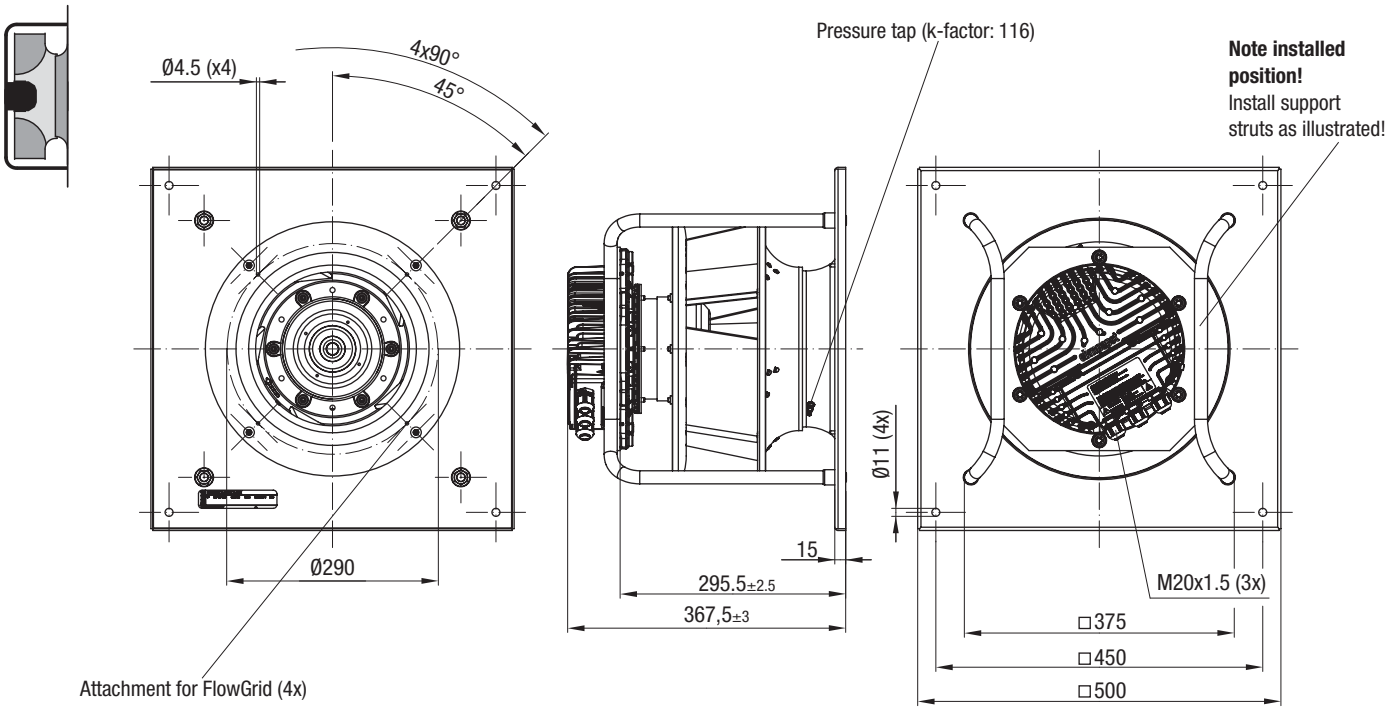
K3G 310-PT08-J2 (Centrifugal module with support bracket)



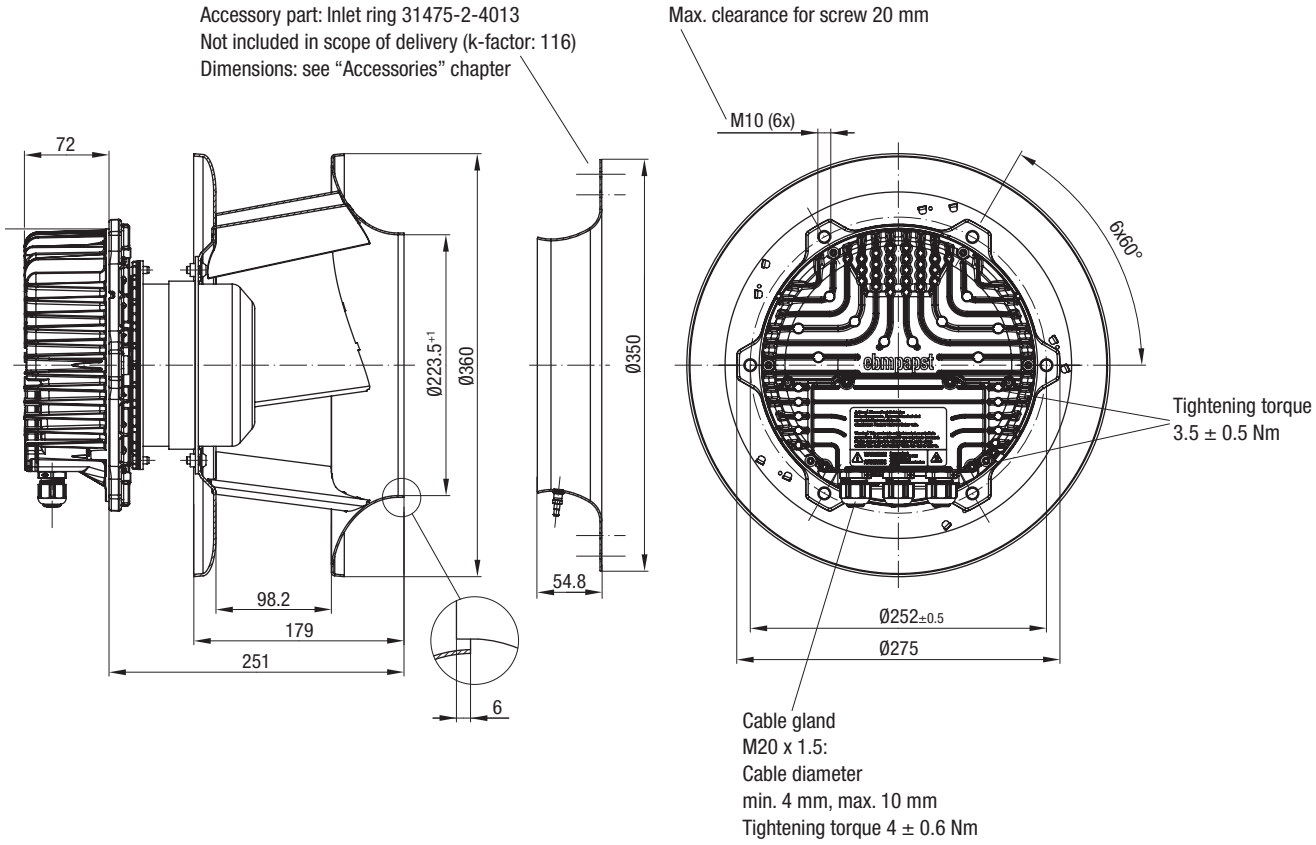
R3G 310-PH38-01 (Centrifugal fan)



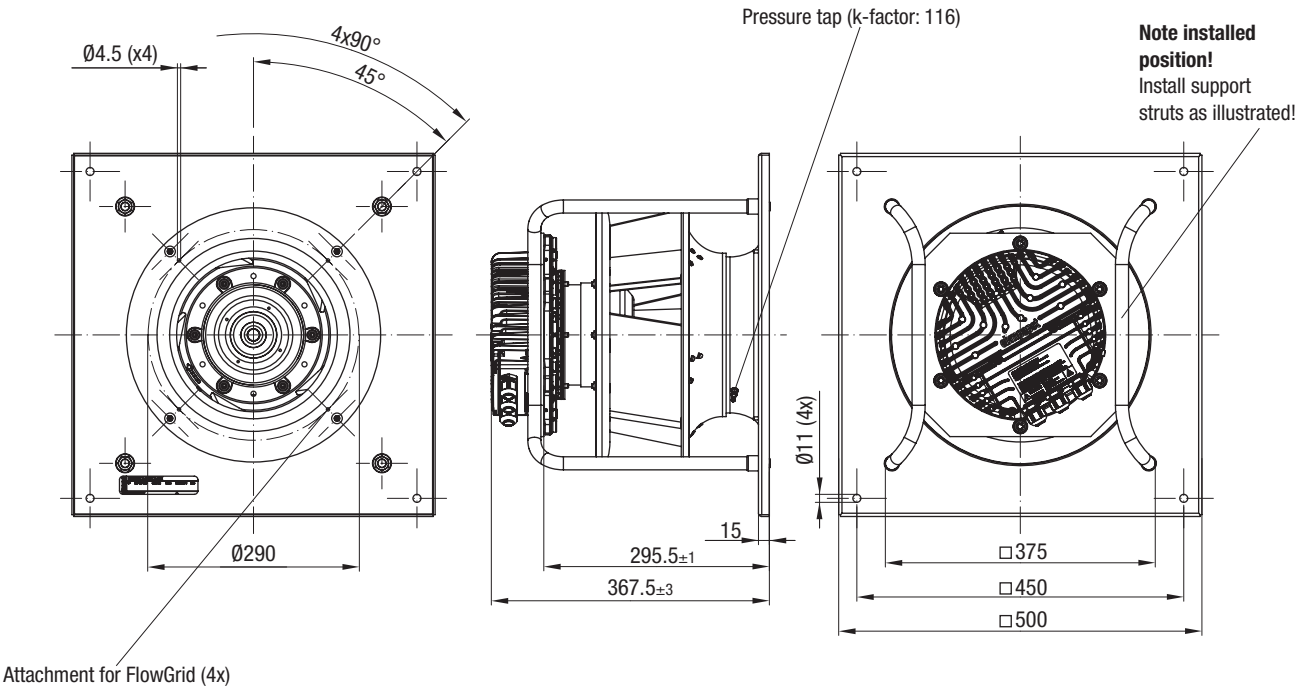
K3G 310-PH38-02 (Centrifugal module with support bracket)



R3G 310-PH58-01 (Centrifugal fan)



K3G 310-PH58-02 (Centrifugal module with support bracket)



Agents	Technology	Compact design	Ø 900	Ø 800	Ø 710	Ø 630	Ø 560	Ø 500	Ø 450	Ø 400	Ø 355	Ø 310	Ø 280	Ø 250	Information

EC centrifugal fans – RadiPac

backward curved, Ø 355

- **Material:** Support bracket: Steel, painted black
  Support plate and inlet ring: Sheet steel, galvanized
  Impeller: Sheet aluminium
  Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 5
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** Ⓐ IP 55; Ⓑ Ⓒ IP 54
- **Insulation class:** Ⓐ "F"; Ⓑ Ⓒ "B"
- **Installation position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

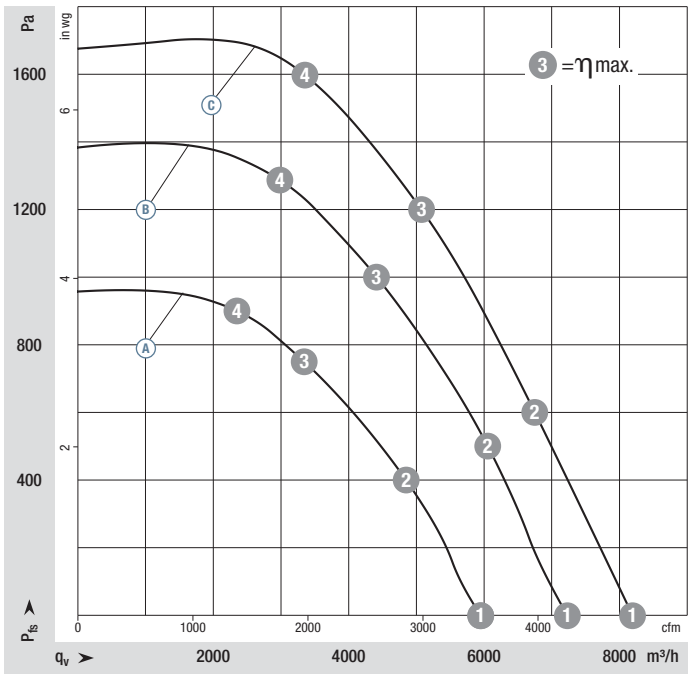
Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
			VAC	Hz	rpm	kW	A	°C	kg	
*3G 355	M3G 112-EA	Ⓐ	3~380-480	50/60	2400	1,10	1,70	-25..+40	8,7	P. 96 / P8)
*3G 355	M3G 112-GA	Ⓑ	3~380-480	50/60	2870	1,90	3,00	-25..+40	13,0	P. 92 / M3)
*3G 355	M3G 112-IA	Ⓒ	3~380-480	50/60	3230	2,68	4,10	-25..+40	15,0	P. 92 / M3)

Subject to change

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

Curves:



		n rpm	P_{ed} kW	I A	L_WA dB(A)
Ⓐ	1	2400	0,62	0,98	87
Ⓐ	2	2400	0,97	1,49	78
Ⓐ	3	2400	1,10	1,70	76
Ⓐ	4	2400	1,07	1,65	80
Ⓑ	1	2870	1,05	1,69	92
Ⓑ	2	2870	1,58	2,46	85
Ⓑ	3	2870	1,90	3,00	81
Ⓑ	4	2870	1,89	2,92	86
Ⓒ	1	3230	1,48	2,30	93
Ⓒ	2	3230	2,16	3,32	87
Ⓒ	3	3230	2,68	4,10	83
Ⓒ	4	3230	2,56	3,94	87

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

ebmpapst

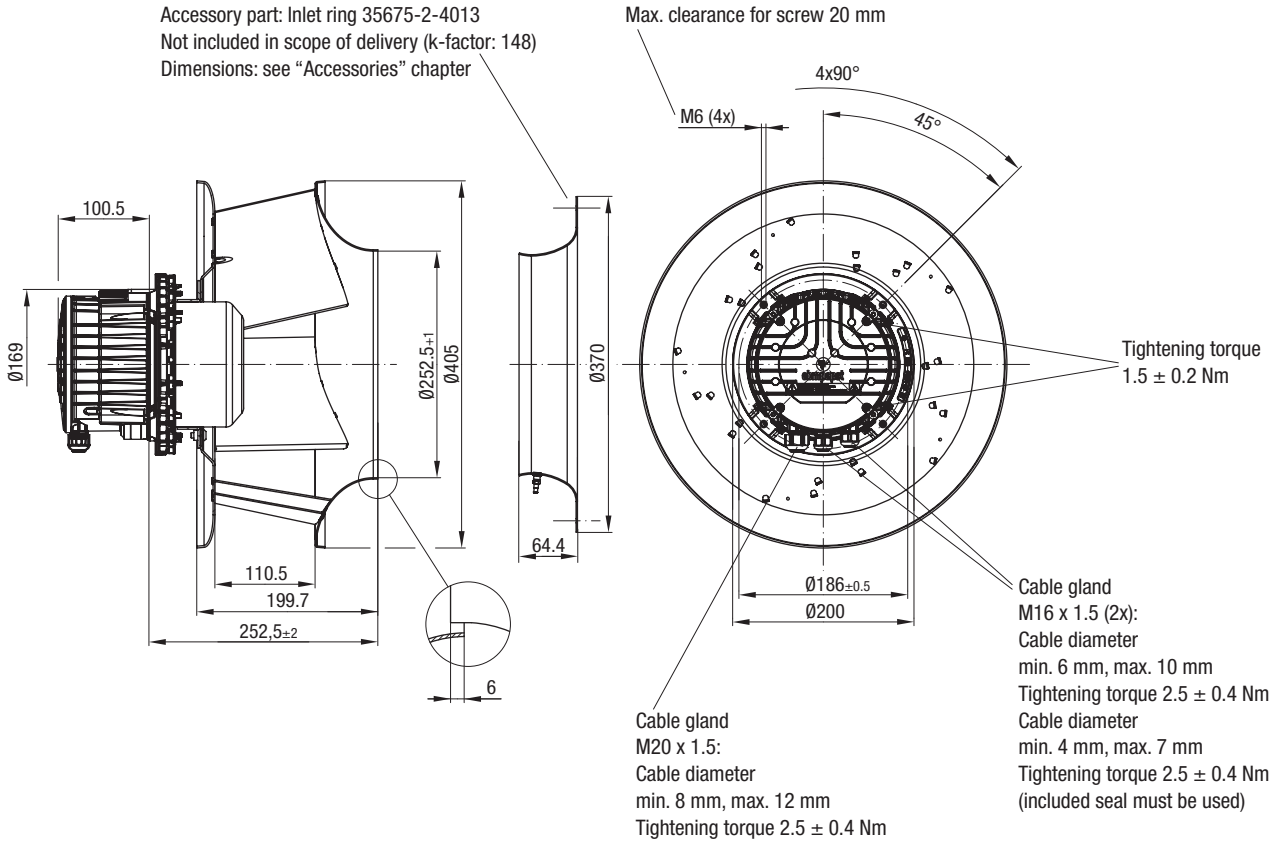
- **Technical features:** See connection diagram P. 92 f.
- **EMC:** Interference emission according to EN 61000-6-3,
  except EN 61000-3-2 for professionally used equipment
  with a total rated power greater than 1 kW
  Immunity to interference according to EN 61000-6-2
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Terminal box design:** electrical connection via terminal strip
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE
- **Approvals:** C22.2 Nr.77 + CAN/CSA-E60730-1, UL 1004-7 + 60730
- **Efficiency:** Ecodesign EU regulation EU 327/2011

Weight centrifugal fan

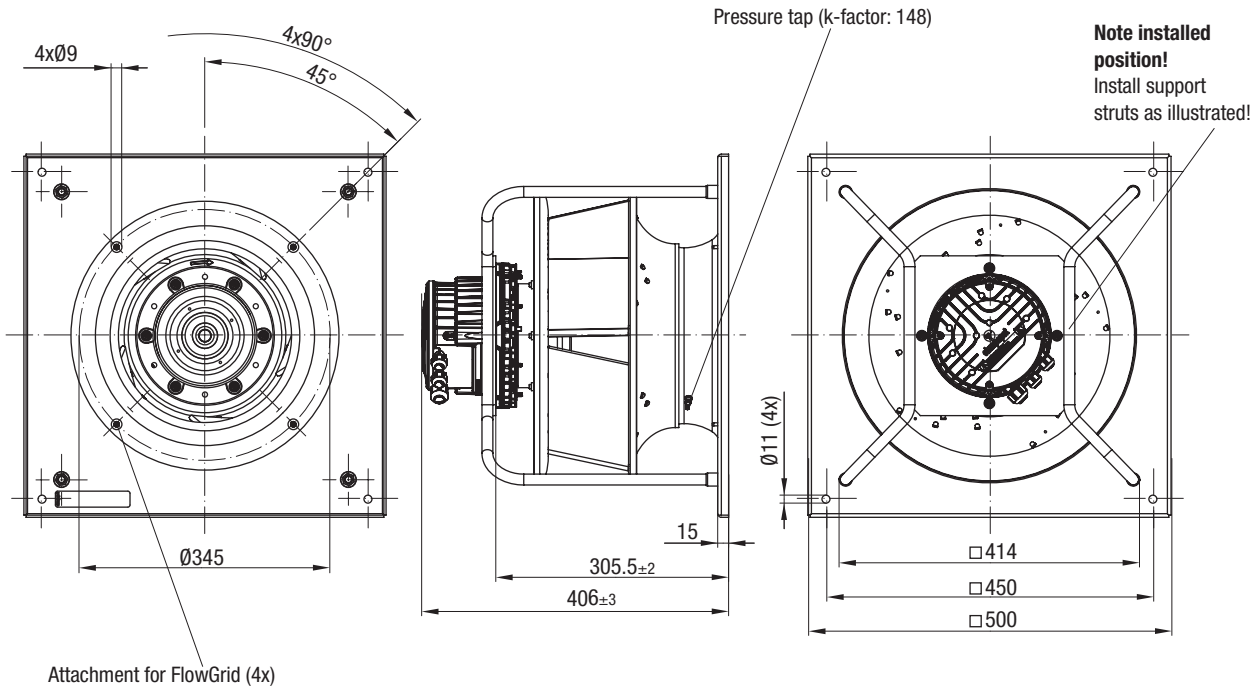
Weight centrifugal module with support bracket

Centrifugal fan	kg	Inlet ring with one pressure tap	Centrifugal module with support bracket	kg
R3G 355-PJ75 -01	8,7	35675-2-4013	K3G 355-PJ75 -01	16,4
R3G 355-PH49 -01	13,0	35675-2-4013	K3G 355-PH49 -02	23,0
R3G 355-PI93 -01	15,0	35675-2-4013	K3G 355-PI93 -02	26,0

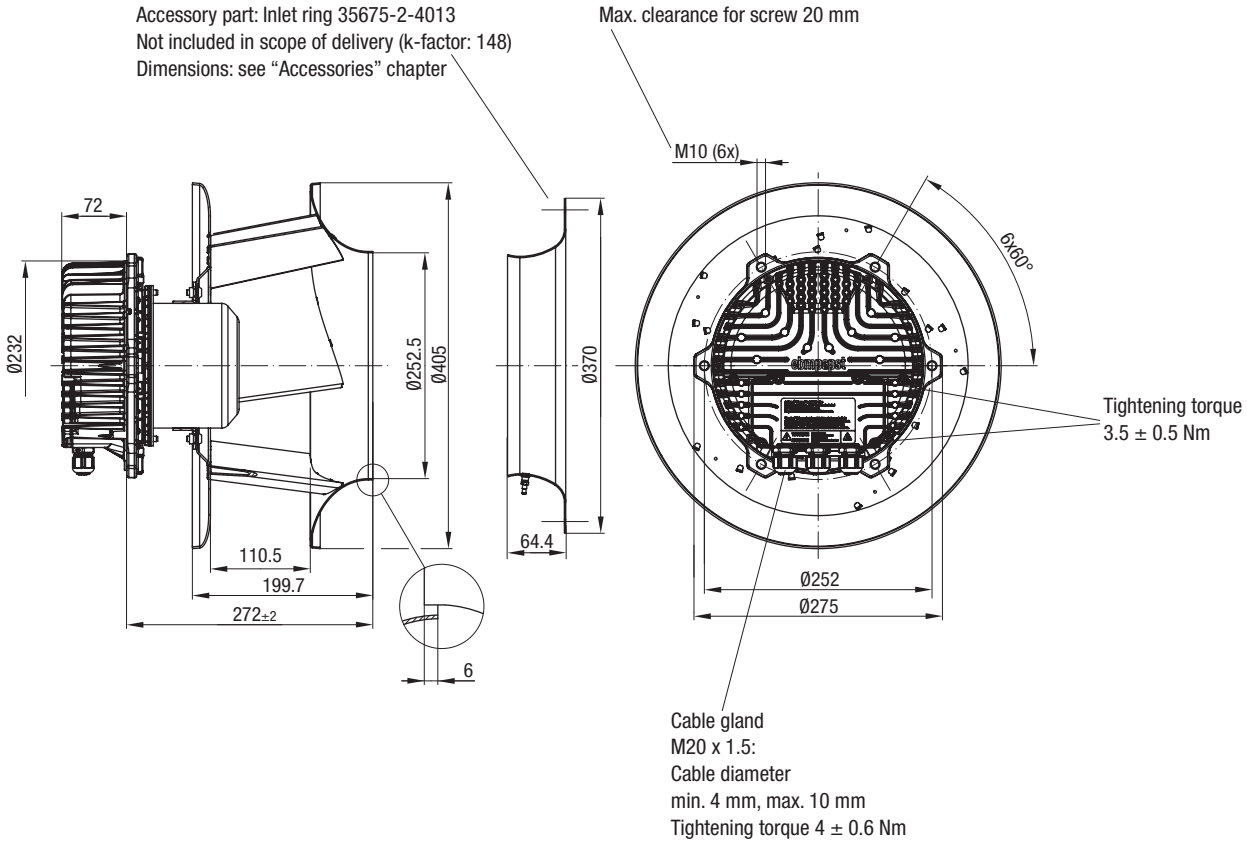
R3G 355-PJ75-01 (Centrifugal fan)



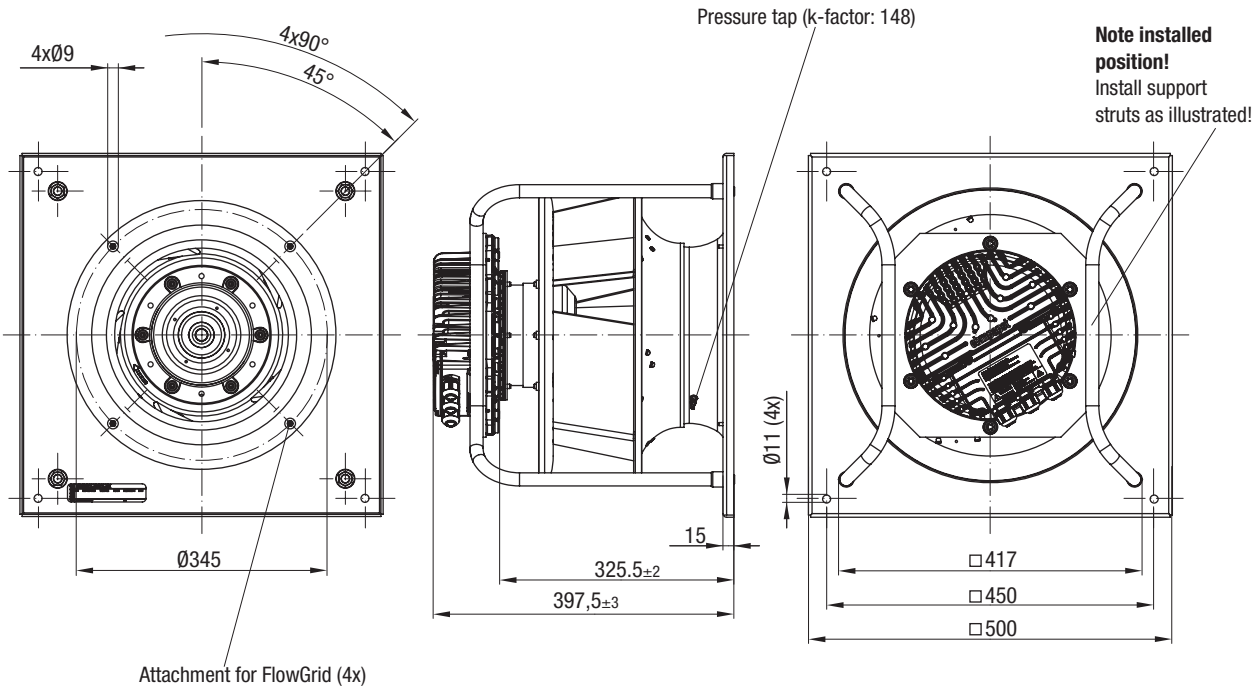
K3G 355-PJ75-01 (Centrifugal module with support bracket)



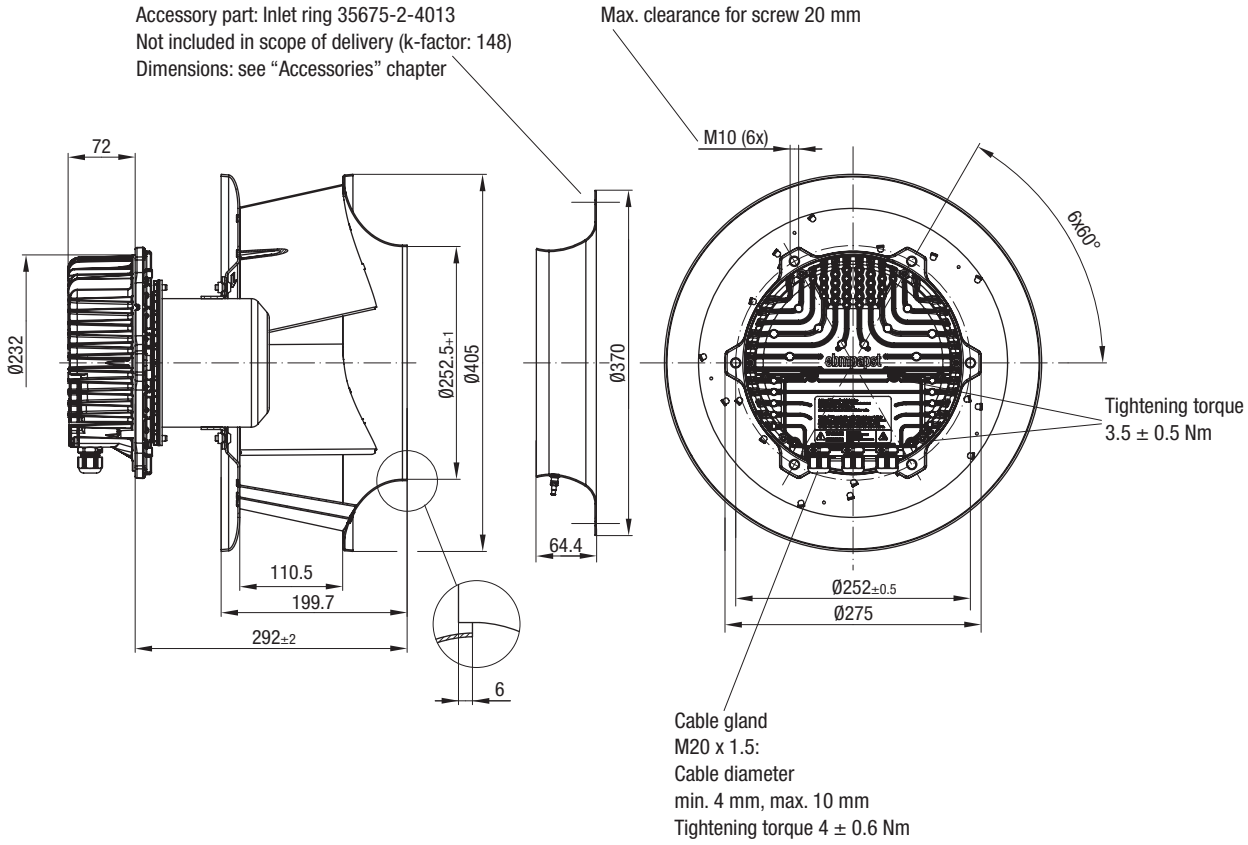
R3G 355-PH49-01 (Centrifugal fan)



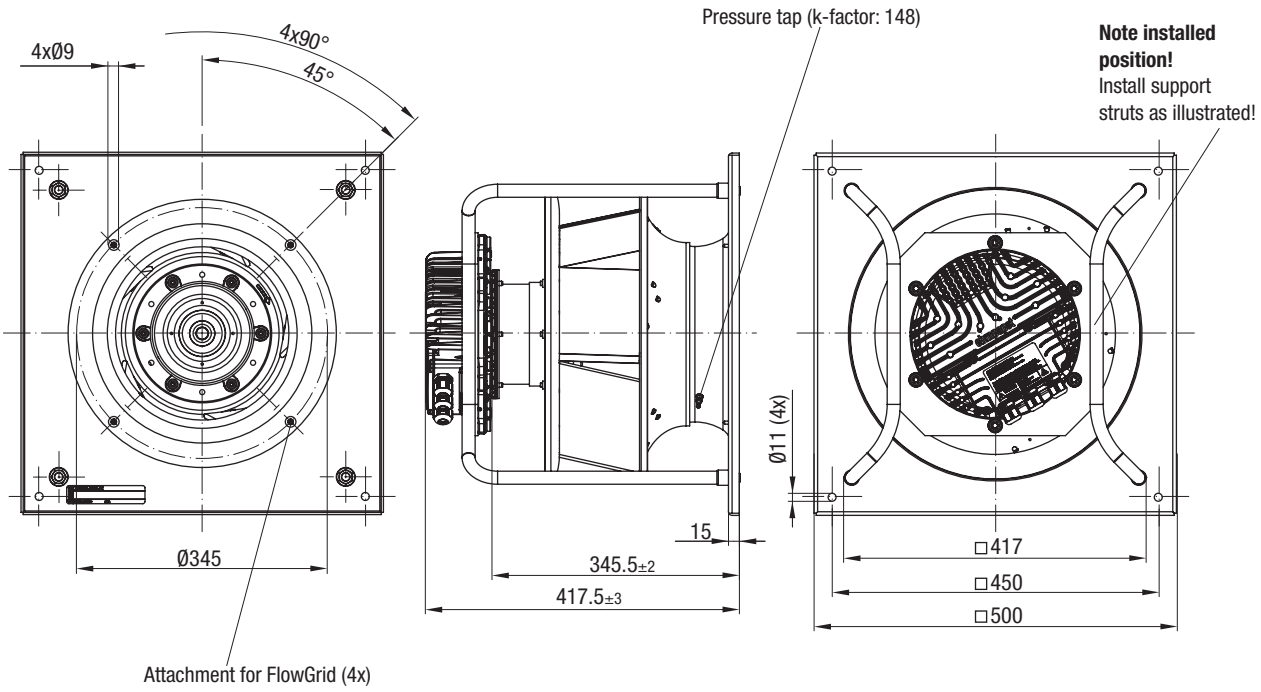
K3G 355-PH49-02 (Centrifugal module with support bracket)



R3G 355-PI93-01 (Centrifugal fan)



K3G 355-PI93-02 (Centrifugal module with support bracket)



Agents	Technology	Compact design	Ø 900	Ø 800	Ø 710	Ø 630	Ø 560	Ø 500	Ø 450	Ø 400	Ø 355	Ø 310	Ø 280	Ø 250	Information

EC centrifugal fans – RadiPac

backward curved, Ø 400

- **Material:** Support bracket: Steel, painted black
  Support plate and inlet ring: Sheet steel, galvanized
  Impeller: Sheet aluminium
  Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 5
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** Ⓐ IP 54; Ⓑ IP 55
- **Insulation class:** Ⓐ "B"; Ⓑ "F"
- **Installation position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

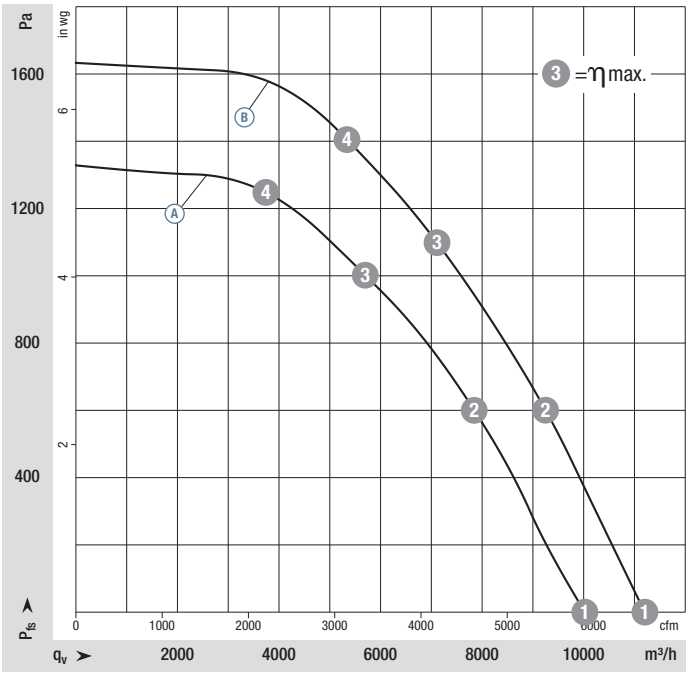
Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
			VAC	Hz	rpm	kW	A	°C	kg	
*3G 400	M3G 112-IA	Ⓐ	3~380-480	50/60	2450	2,50	3,80	-25..+40	14,6	P. 92 / M3)
*3G 400	M3G 150-FF	Ⓑ	3~380-480	50/60	2750	3,35	5,20	-25..+40	20,3	P. 93 / M5)

Subject to change

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

Curves:



		n rpm	P_{ed} kW	I A	L_WA dB(A)
Ⓐ	1	2450	1,32	2,07	96
Ⓐ	2	2450	2,21	3,38	85
Ⓐ	3	2450	2,50	3,80	82
Ⓐ	4	2450	2,34	3,57	86
Ⓑ	1	2750	1,85	2,90	100
Ⓑ	2	2750	2,83	4,35	90
Ⓑ	3	2750	3,29	5,04	85
Ⓑ	4	2750	3,35	5,20	86

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

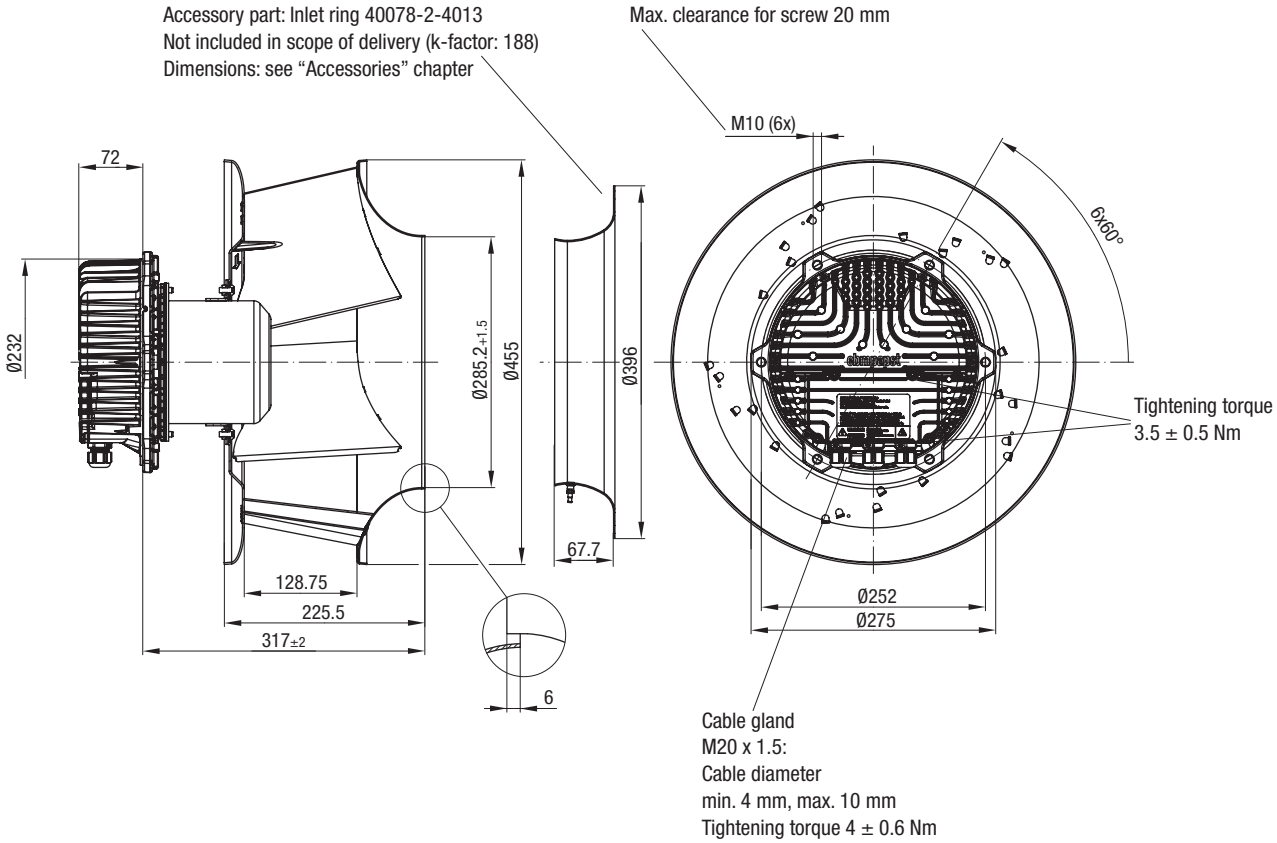
- **Technical features:** See connection diagram P. 92 f.
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Terminal box design:** electrical connection via terminal strip
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ C22.2 Nr.77 + CAN/CSA-E60730-1, UL 1004-7 + 60730
  Ⓑ EAC
- **Efficiency:** Ecodesign EU regulation EU 327/2011

Weight centrifugal fan

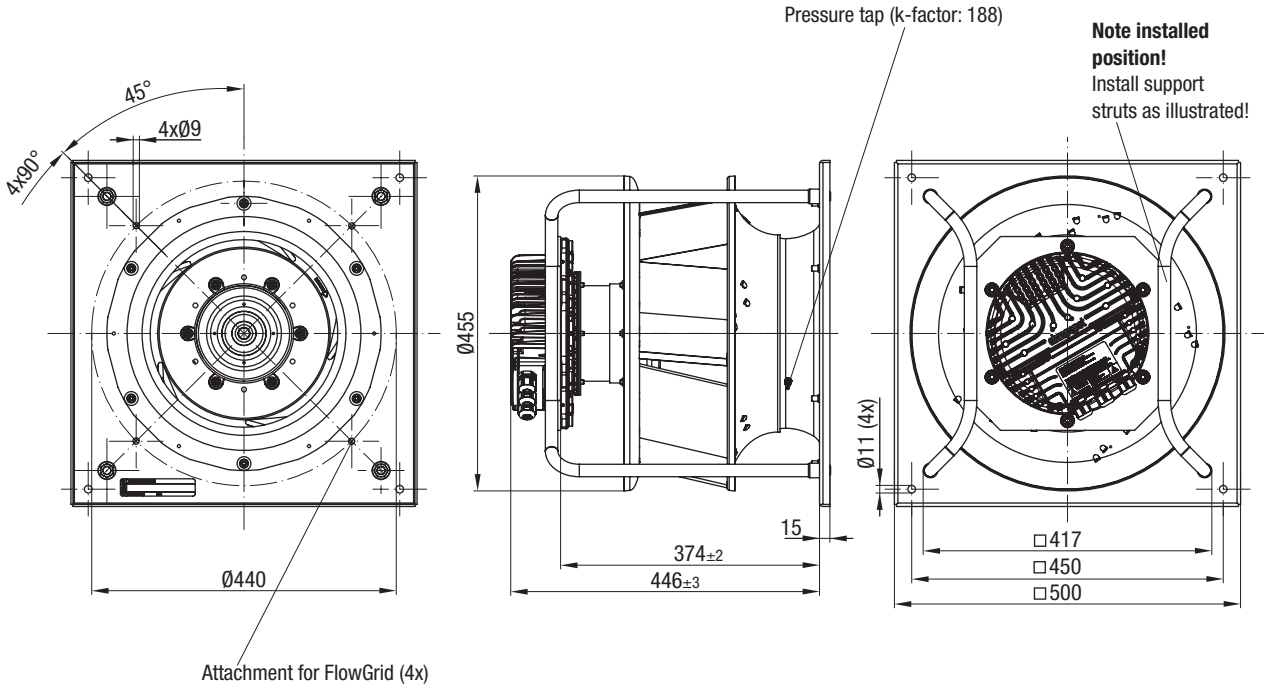
Weight centrifugal module with support bracket

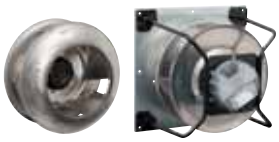
Centrifugal fan	kg	Inlet ring with one pressure tap	Centrifugal module with support bracket	kg
R3G 400-PI92 -01	14,6	40078-2-4013	K3G 400-PI92 -02	26,0
R3G 400-PA27 -71	20,3	40078-2-4013	K3G 400-PA27 -71	32,0

R3G 400-PI92-01 (Centrifugal fan)

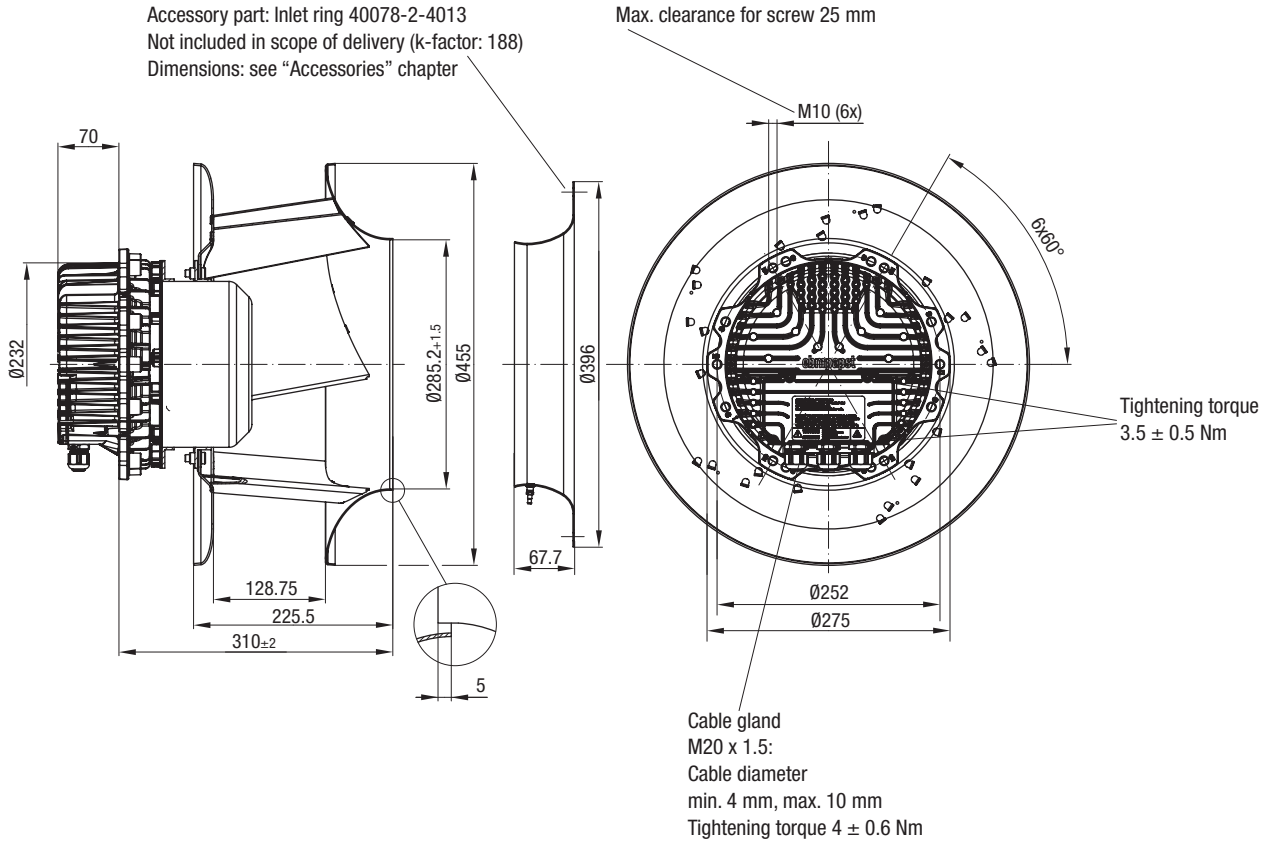


K3G 400-PI92-02 (Centrifugal module with support bracket)

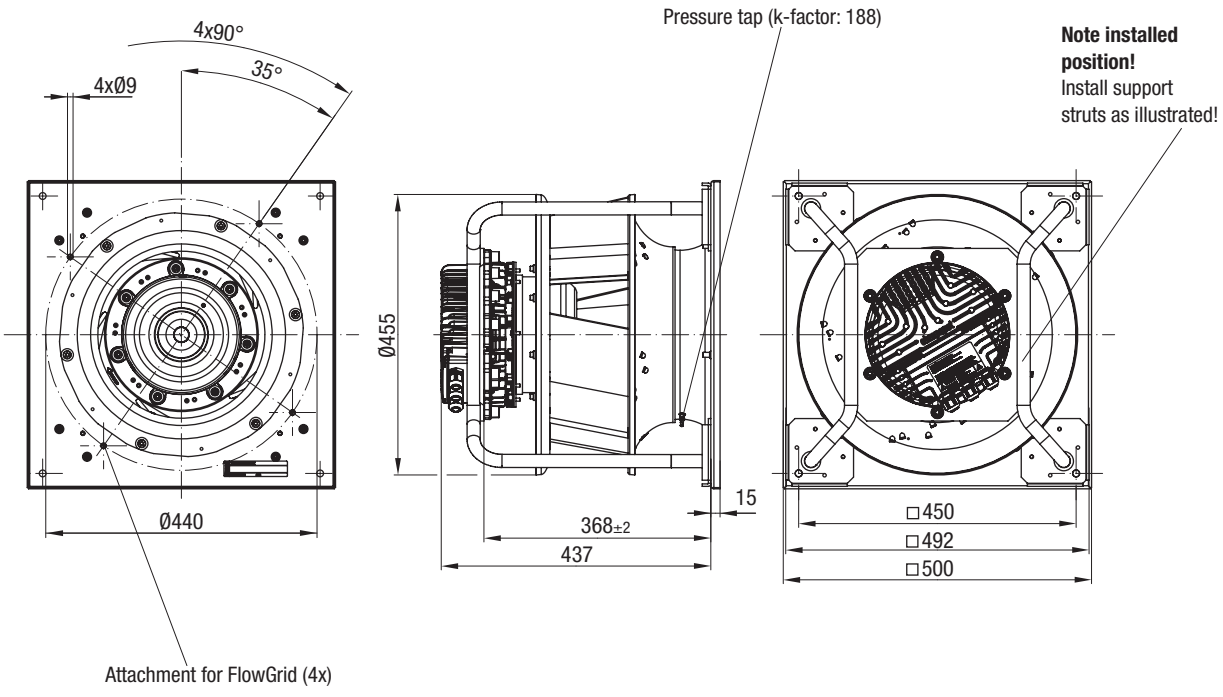




R3G 400-PA27-71 (Centrifugal fan)



K3G 400-PA27-71 (Centrifugal module with support bracket)



EC centrifugal fans – RadiPac

backward curved, Ø 450

- **Material:** Support bracket: Steel, painted black
  Support plate and inlet ring: Sheet steel, galvanized
  Impeller: Sheet aluminium
  Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 5
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** Ⓐ IP 54; Ⓑ Ⓒ IP 55
- **Insulation class:** Ⓐ "B"; Ⓑ Ⓒ "F"
- **Installation position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

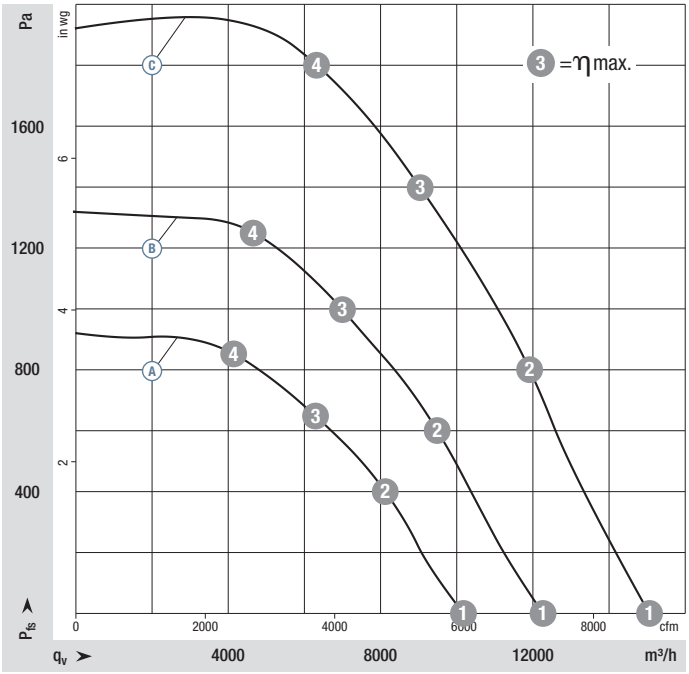
Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
			VAC	Hz	rpm	kW	A	°C	kg	
*3G 450	M3G 112-IA	Ⓐ	3~380-480	50/60	1730	1,74	2,70	-25..+50	17,0	P. 92 / M3)
*3G 450	M3G 150-FF	Ⓑ	3~380-480	50/60	2140	2,90	4,50	-25..+40	23,5	P. 93 / M5)
*3G 450	M3G 150-IF	Ⓒ	3~380-480	50/60	2600	5,25	8,00	-25..+40	31,0	P. 92 / M3)

Subject to change

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

Curves:



		n rpm	P_{ed} kW	I A	L_WA dB(A)
Ⓐ	1	1790	1,00	1,61	91
Ⓐ	2	1790	1,53	2,38	82
Ⓐ	3	1790	1,74	2,70	77
Ⓐ	4	1790	1,66	2,57	82
Ⓑ	1	2140	1,71	2,69	96
Ⓑ	2	2140	2,66	4,09	85
Ⓑ	3	2140	2,90	4,50	81
Ⓑ	4	2140	2,76	4,25	86
Ⓒ	1	2600	3,07	4,78	102
Ⓒ	2	2600	4,64	7,13	92
Ⓒ	3	2600	5,25	8,00	87
Ⓒ	4	2600	5,14	7,89	91

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

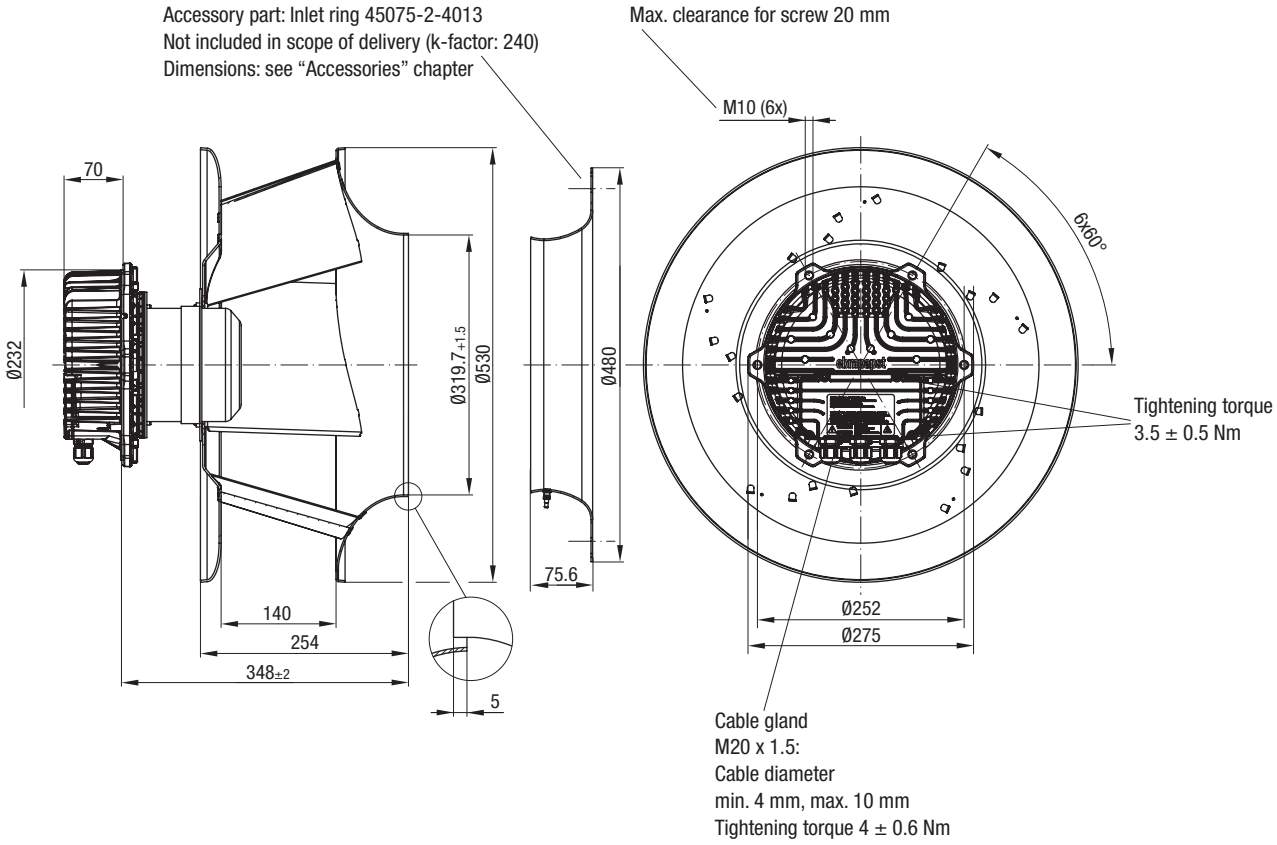
- **Technical features:** See connection diagram P. 92 f.
- **EMC:** Ⓒ Interference emission according to EN 61000-6-3,
  except EN 61000-3-2 for professionally used equipment
  with a total rated power greater than 1 kW
  Ⓒ Immunity to interference according to EN 61000-6-2
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Terminal box design:** electrical connection via terminal strip
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ C22.2 Nr.77 + CAN/CSA-E60730-1, UL 1004-7 + 60730
  Ⓑ EAC
  Ⓒ EAC, UL, CSA
- **Efficiency:** Ecodesign EU regulation EU 327/2011

Weight centrifugal fan

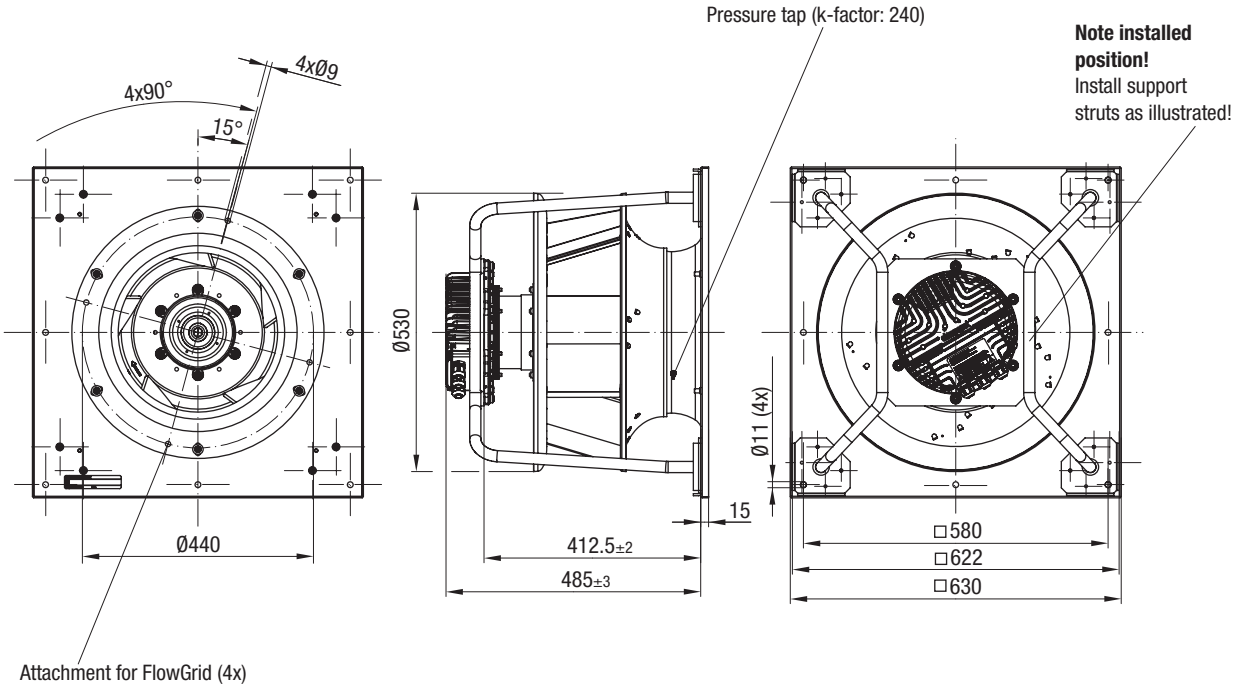
Weight centrifugal module with support bracket

Centrifugal fan	kg	Inlet ring with one pressure tap	Centrifugal module with support bracket	kg
R3G 450-PI86 -01	17,0	45075-2-4013	K3G 450-PI86 -02	32,0
R3G 450-PA23 -71	23,5	45075-2-4013	K3G 450-PA23 -71	37,0
R3G 450-PB24 -01	31,0	45075-2-4013	K3G 450-PB24 -01	47,4

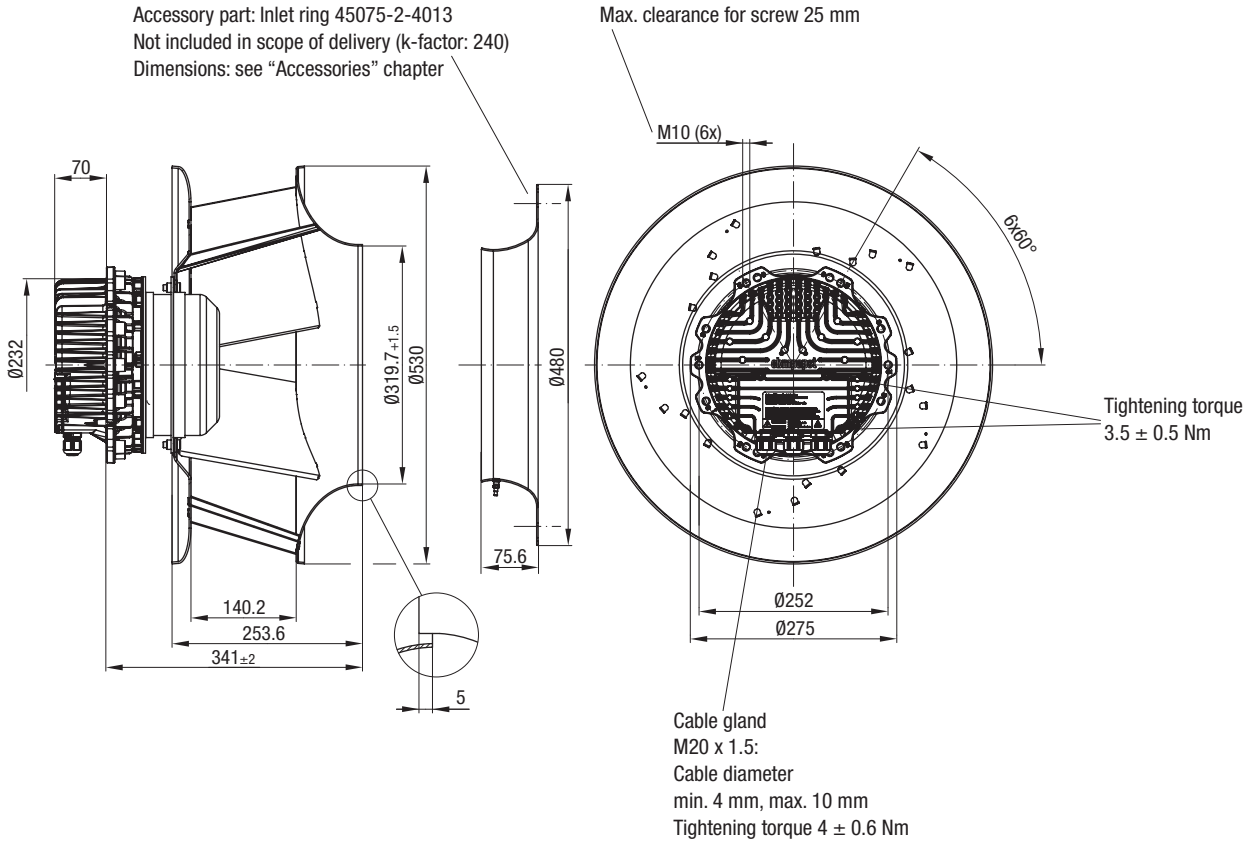
R3G 450-PI86-01 (Centrifugal fan)



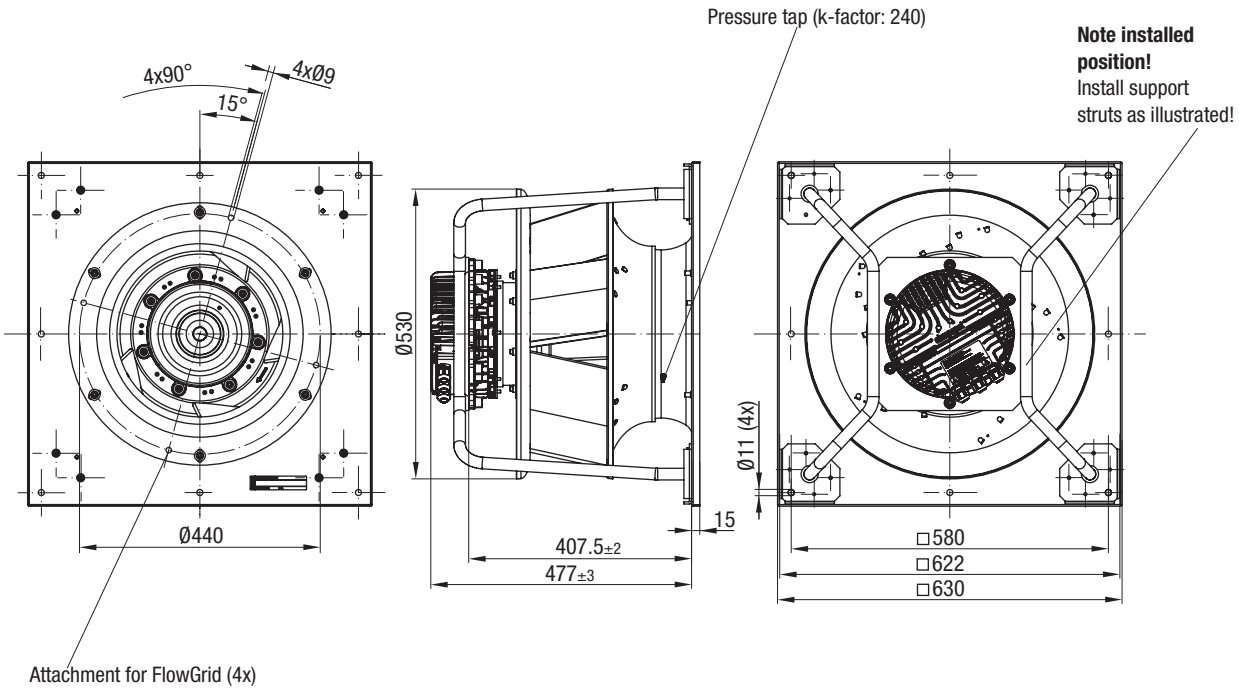
K3G 450-PI86-02 (Centrifugal module with support bracket)



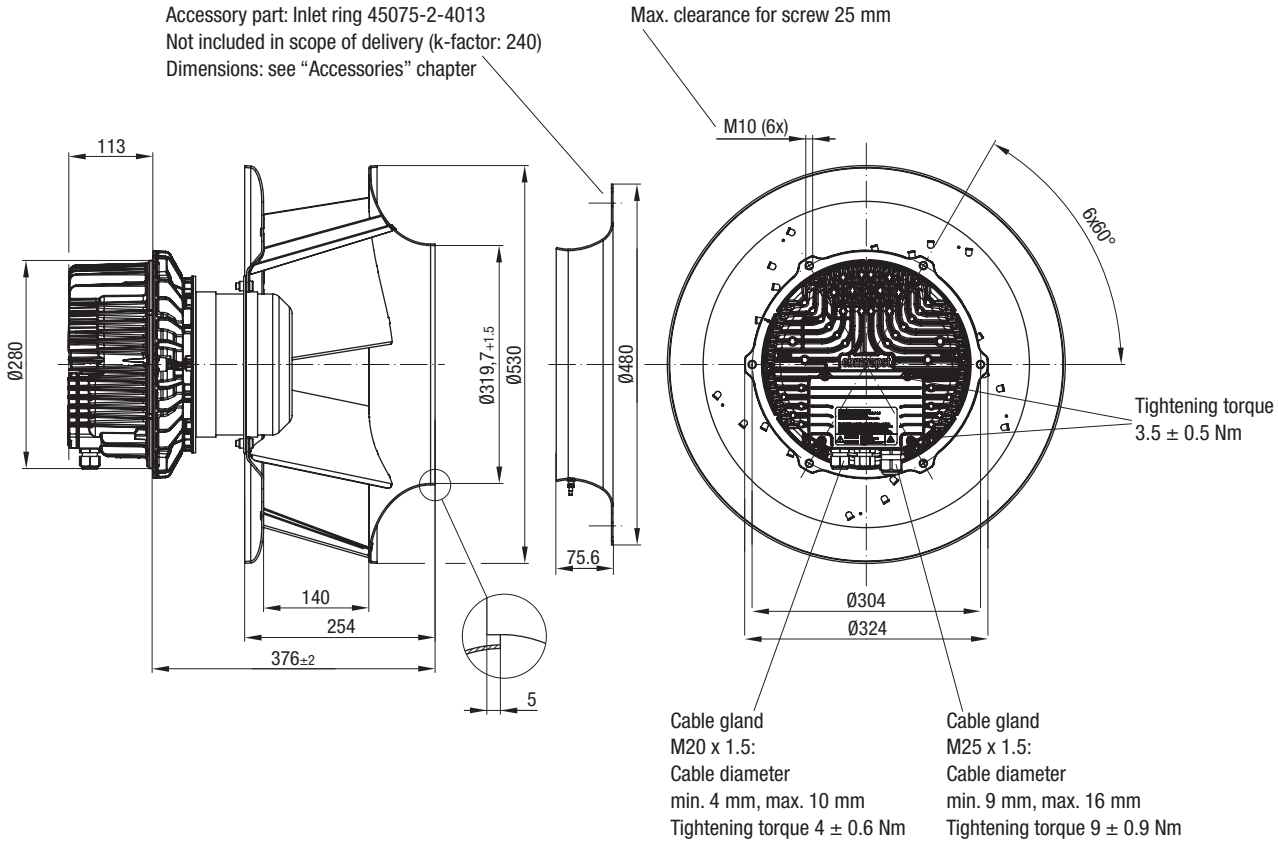
R3G 450-PA23-71 (Centrifugal fan)



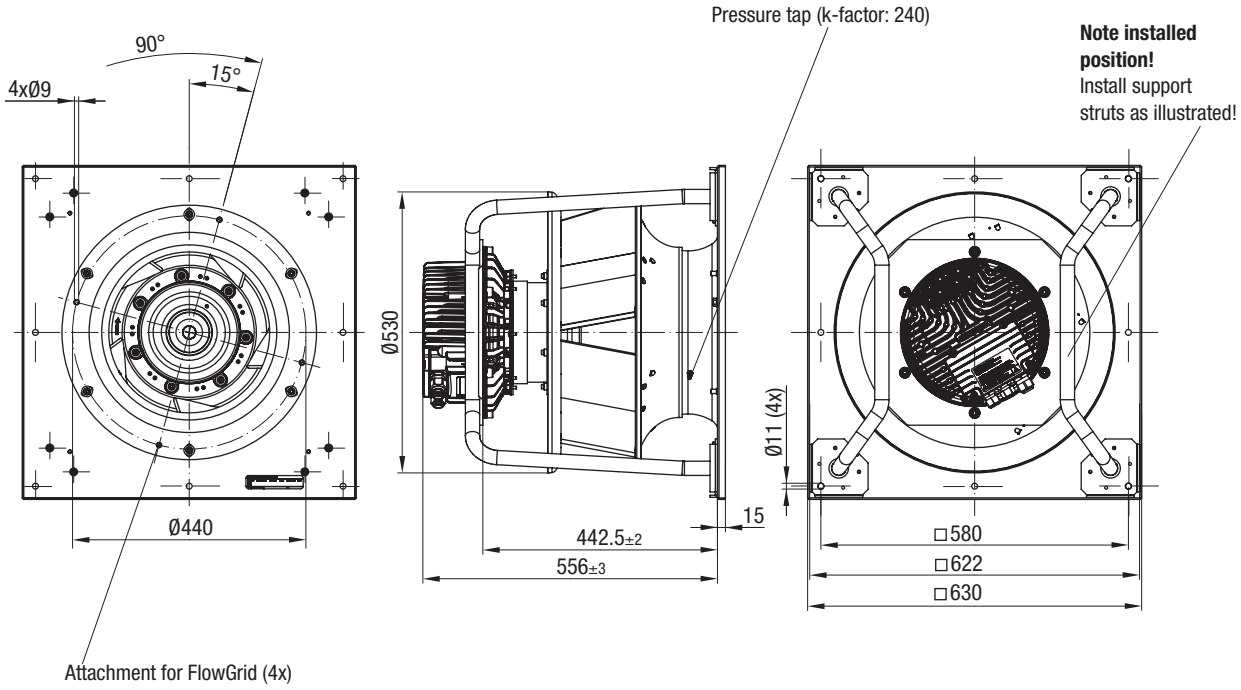
K3G 450-PA23-71 (Centrifugal module with support bracket)



R3G 450-PB24-01 (Centrifugal fan)



K3G 450-PB24-01 (Centrifugal module with support bracket)



Agents	Technology	Compact design	Ø 900	Ø 800	Ø 710	Ø 630	Ø 560	Ø 500	Ø 450	Ø 400	Ø 355	Ø 310	Ø 280	Ø 250	Information

EC centrifugal fans – RadiPac

backward curved, Ø 500

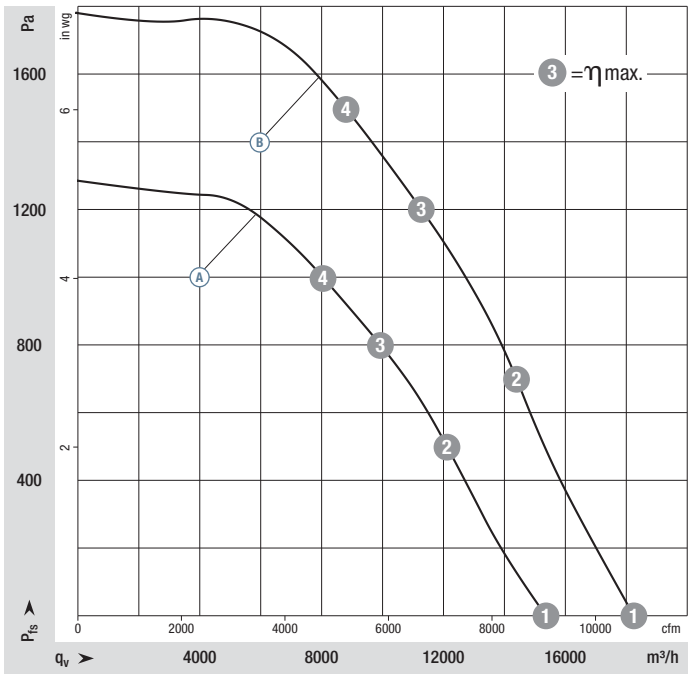
- **Material:** Support bracket: Steel, painted black
  Support plate and inlet ring: Sheet steel, galvanized
  Impeller: Sheet aluminium
  Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 5
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** IP 55
- **Insulation class:** "F"
- **Installation position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
Type	**Motor**		**VAC**	**Hz**	**rpm**	**kW**	**A**	**°C**	**kg**	
***3G 500**	M3G 150-FF	A	3~380-480	50/60	1910	3,45	5,30	-25..+40	24,3	P. 93 / M5)
***3G 500**	M3G 150-IF	B	3~380-480	50/60	2250	5,70	9,00	-25..+40	32,0	P. 92 / M3)

Subject to change

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

Curves:



		n rpm	P_{ed} kW	I A	L_WA dB(A)
A	1	1910	1,98	3,09	102
A	2	1910	2,92	4,49	92
A	3	1910	3,38	5,19	86
A	4	1910	3,45	5,30	53
B	1	2250	3,24	5,05	105
B	2	2250	4,86	7,47	95
B	3	2250	5,70	9,00	88
B	4	2250	5,70	8,74	87

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

ebmpapst

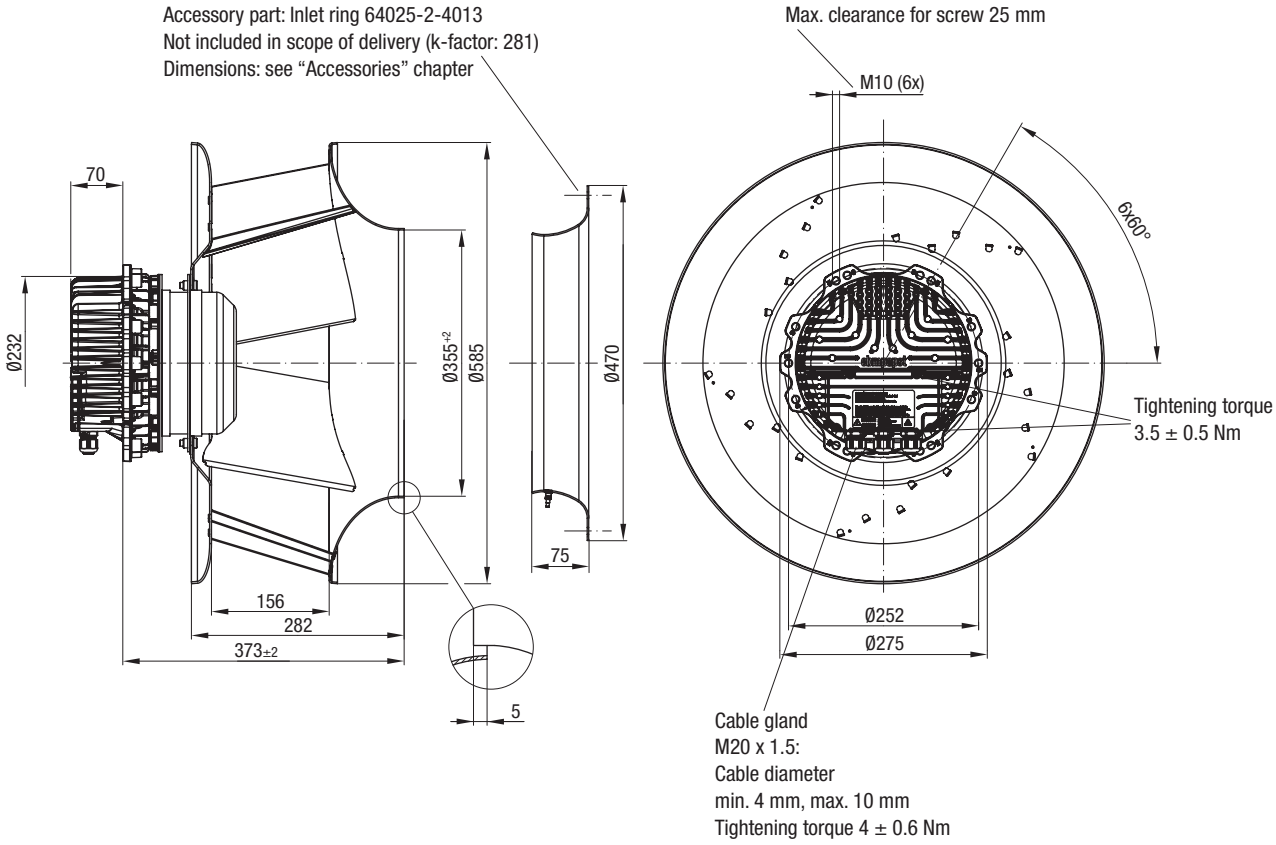
- **Technical features:** See connection diagram P. 92 f.
- **EMC:** Ⓐ Interference emission according to EN 61000-6-4
  Ⓑ Interference emission according to EN 61000-6-3, except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW
  Ⓐ Ⓑ Immunity to interference according to EN 61000-6-2
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Terminal box design:** electrical connection via terminal strip
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ EAC
  Ⓑ EAC, UL, CSA
- **Efficiency:** Ecodesign EU regulation EU 327/2011

Weight centrifugal fan

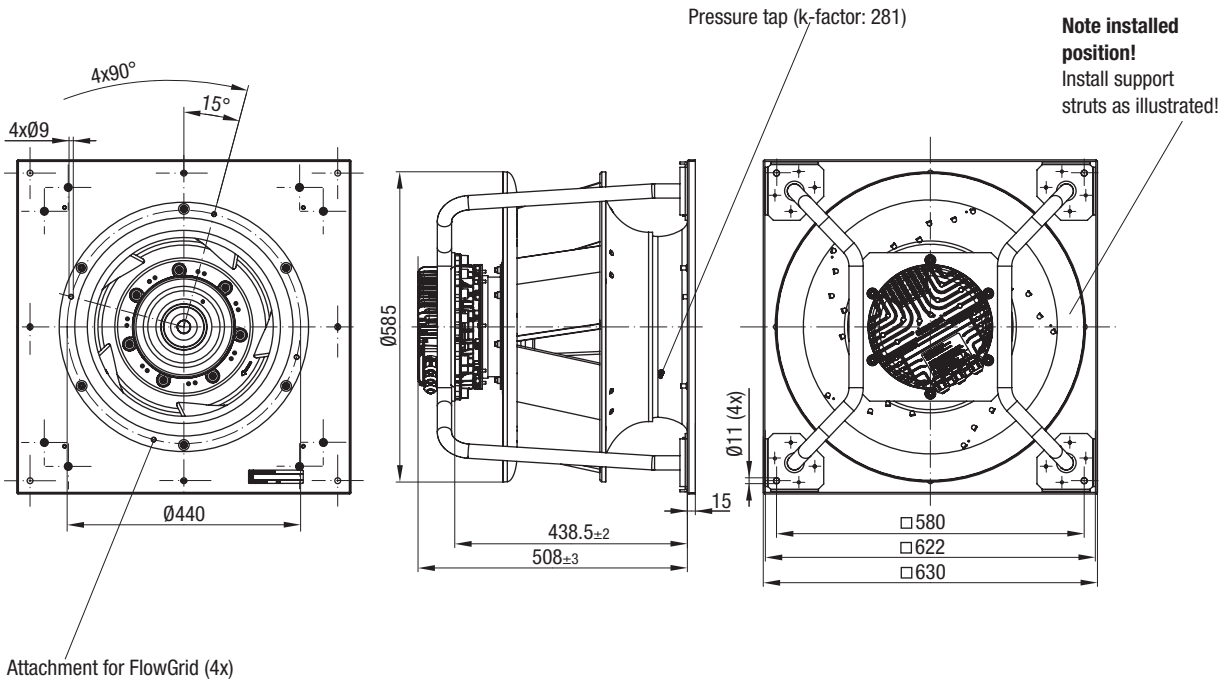
Weight centrifugal module with support bracket

Centrifugal fan	kg	Inlet ring with one pressure tap	Centrifugal module with support bracket	kg
R3G 500-PA23 -71	24,3	64025-2-4013	K3G 500-PA23 -71	38,7
R3G 500-PB33 -01	32,0	64025-2-4013	K3G 500-PB33 -01	48,0

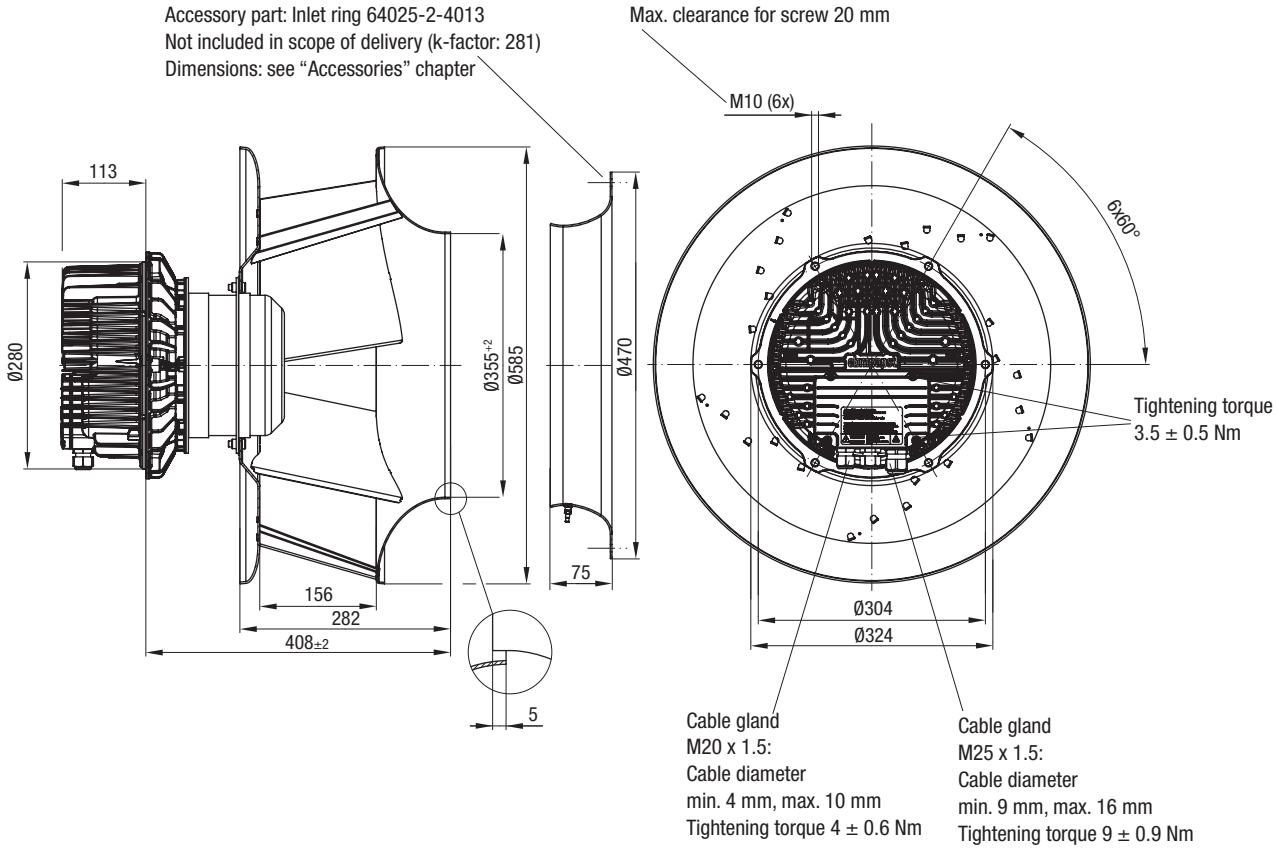
R3G 500-PA23-71 (Centrifugal fan)



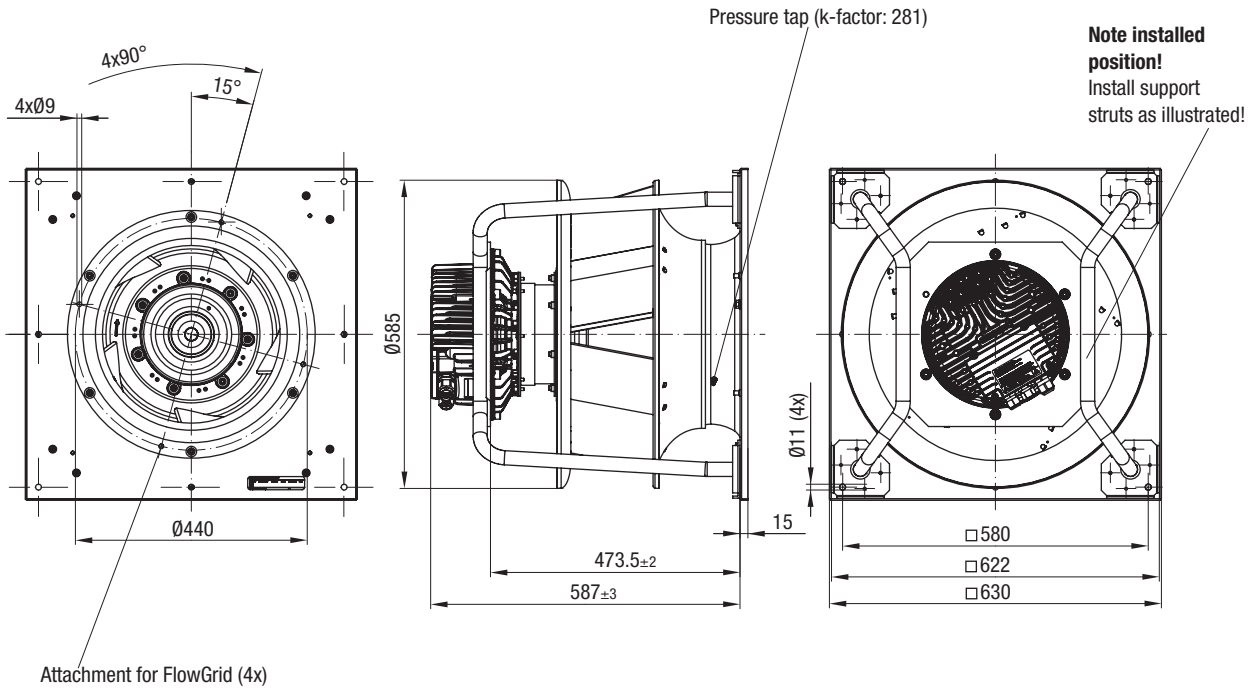
K3G 500-PA23-71 (Centrifugal module with support bracket)



R3G 500-PB33-01 (Centrifugal fan)



K3G 500-PB33-01 (Centrifugal module with support bracket)



EC centrifugal fans – RadiPac

backward curved, Ø 560

- **Material:** Support bracket: Steel, painted black
  Support plate and inlet ring: Sheet steel, galvanized
  Impeller: Sheet aluminium
  Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 5
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** IP 55
- **Insulation class:** "F"
- **Installation position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

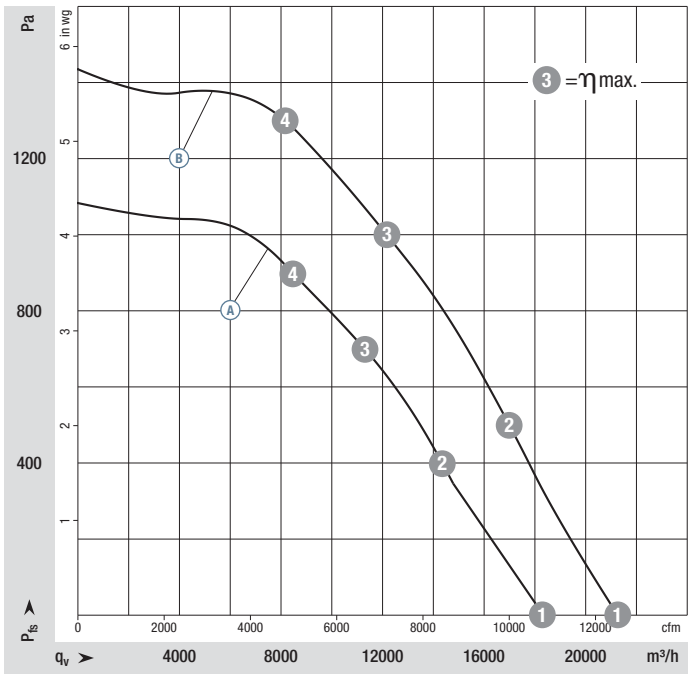
Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
			VAC	Hz	rpm	kW	A	°C	kg	
***3G 560**	M3G 150-IF	Ⓐ	3~380-480	50/60	1540	3,30	5,10	-25..+40	30,5	P. 93 / M5)
***3G 560**	M3G 150-NA	Ⓑ	3~380-480	50/60	1760	5,00	7,70	-25..+40	38,5	P. 92 / M3)

Subject to change

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

Curves:



		n rpm	P_{ed} kW	I A	L_WA dB(A)
Ⓐ	1	1540	1,83	2,88	97
Ⓐ	2	1540	2,81	4,32	88
Ⓐ	3	1540	3,30	5,10	82
Ⓐ	4	1540	3,23	4,95	82
Ⓑ	1	1760	2,79	4,36	101
Ⓑ	2	1760	4,25	6,52	92
Ⓑ	3	1760	5,00	7,70	84
Ⓑ	4	1760	4,79	7,32	87

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

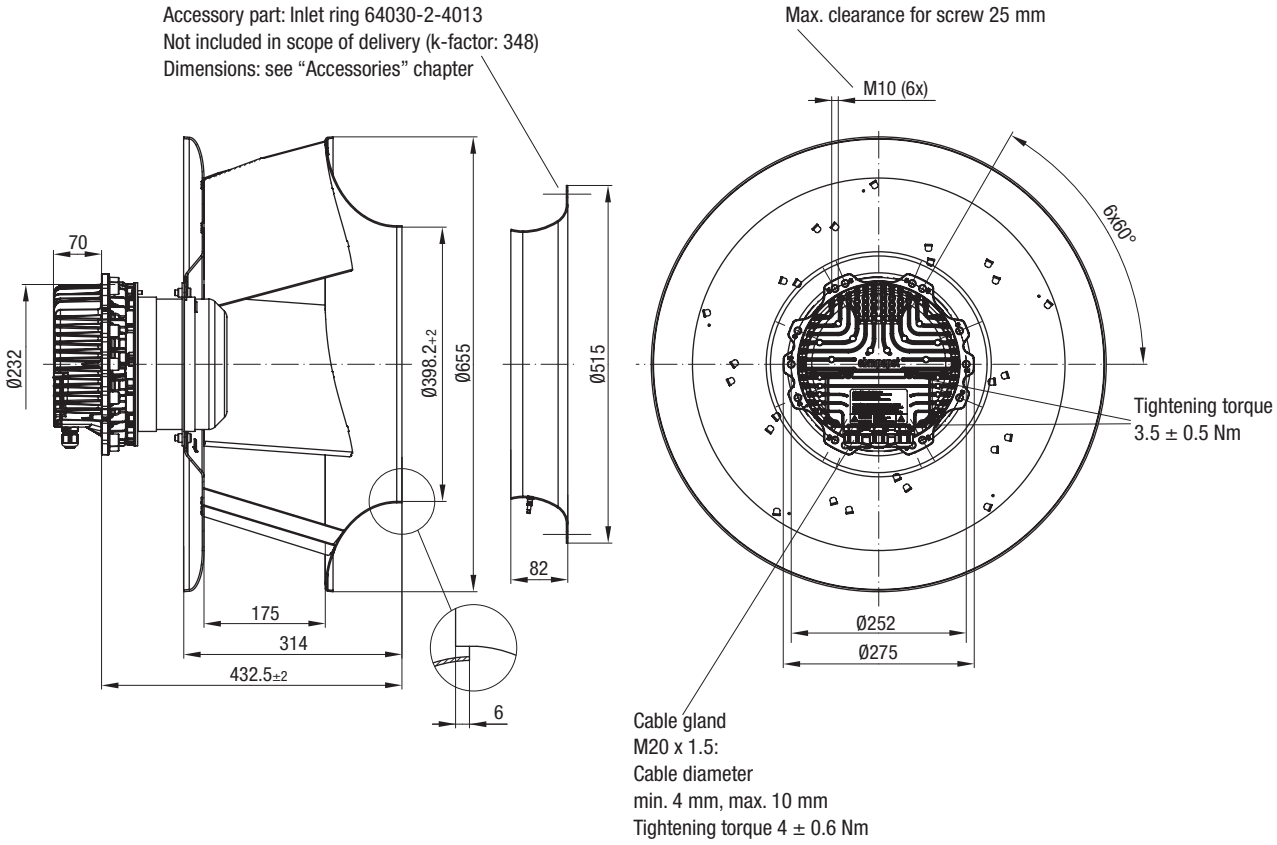
- **Technical features:** See connection diagram P. 92 f.
- **EMC:** Interference emission according to EN 61000-6-3,
  except EN 61000-3-2 for professionally used equipment
  with a total rated power greater than 1 kW
  Immunity to interference according to EN 61000-6-2
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Terminal box design:** electrical connection via terminal strip
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ EAC
  Ⓑ EAC, UL, CSA
- **Efficiency:** Ecodesign EU regulation EU 327/2011

Weight centrifugal fan

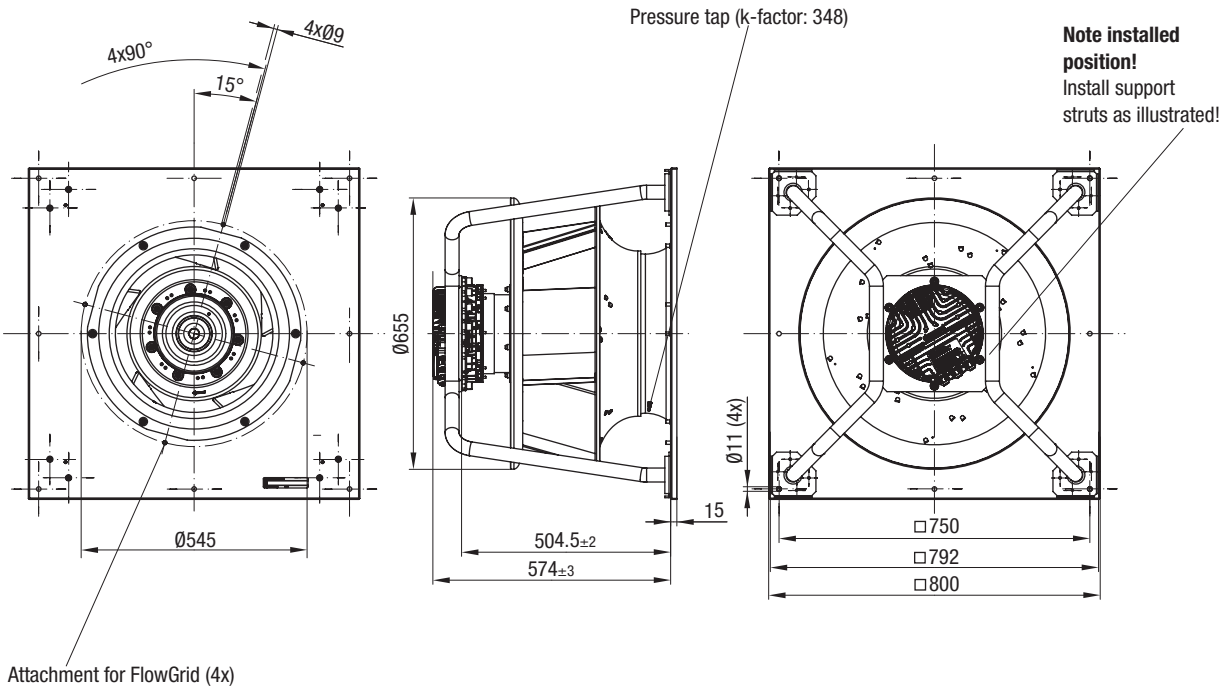
Weight centrifugal module with support bracket

Centrifugal fan	kg	Inlet ring with one pressure tap	Centrifugal module with support bracket	kg
R3G 560-PB31 -71	30,5	64030-2-4013	K3G 560-PB31 -71	52,0
R3G 560-PC04 -01	38,5	64030-2-4013	K3G 560-PC04 -01	68,0

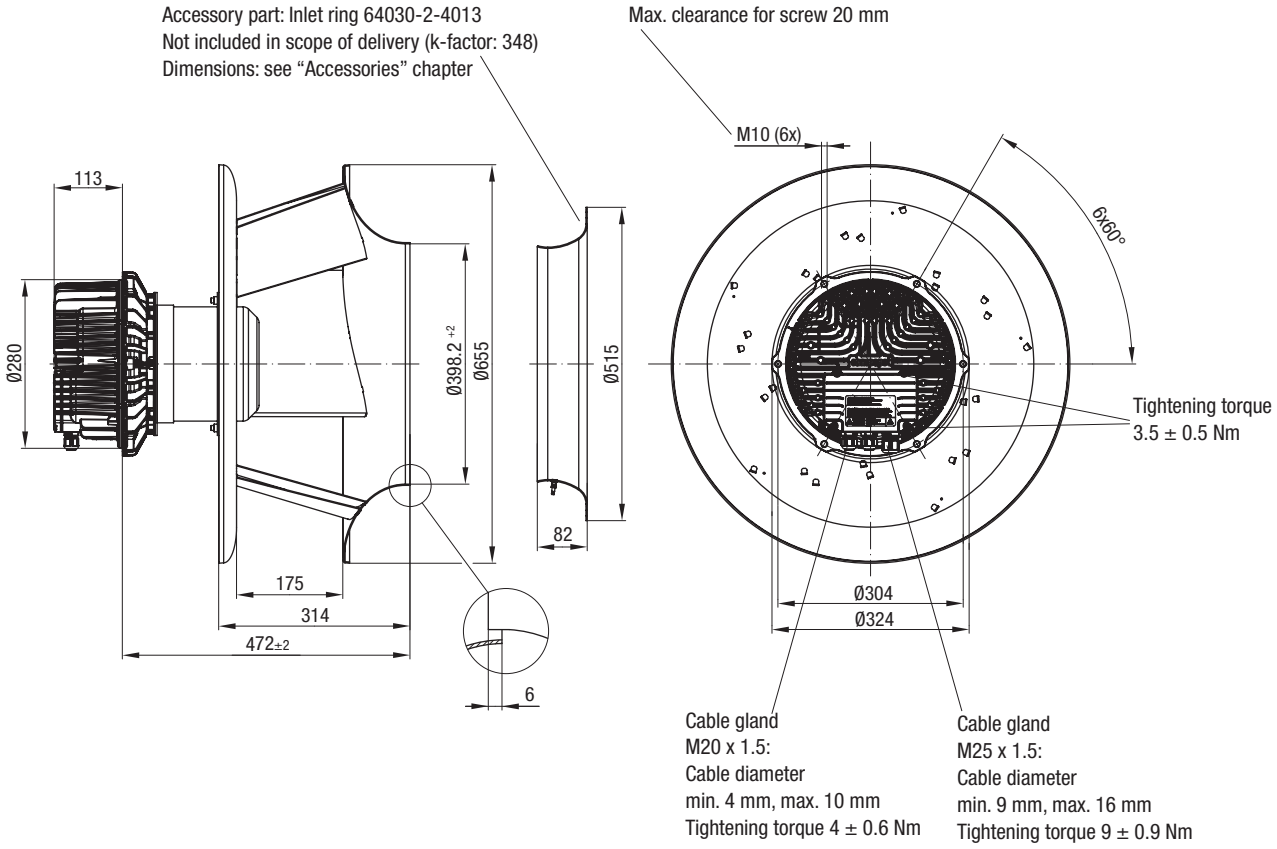
R3G 560-PB31-71 (Centrifugal fan)



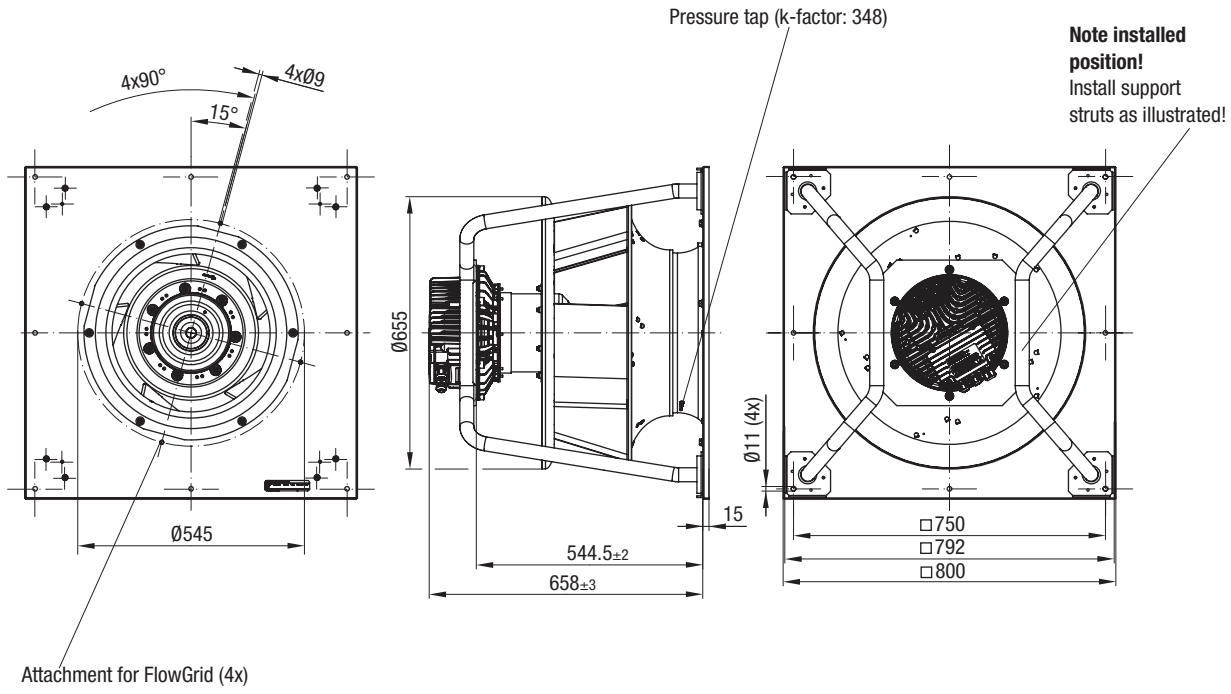
K3G 560-PB31-71 (Centrifugal module with support bracket)



R3G 560-PC04-01 (Centrifugal fan)



K3G 560-PC04-01 (Centrifugal module with support bracket)



EC centrifugal fans – RadiPac

backward curved, Ø 630

- **Material:** Ⓑ Ⓒ Cube design with inlet ring: Sheet steel, galvanized and coated with light gray plastic (RAL 7035)
  Impeller: Sheet aluminium; Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** Ⓐ IP 55; Ⓑ Ⓒ IP 54 (according to EN 60529)
- **Insulation class:** "F"
- **Installation position:** Shaft horizontal (Ⓑ Ⓒ base mounting only) or rotor on bottom; rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

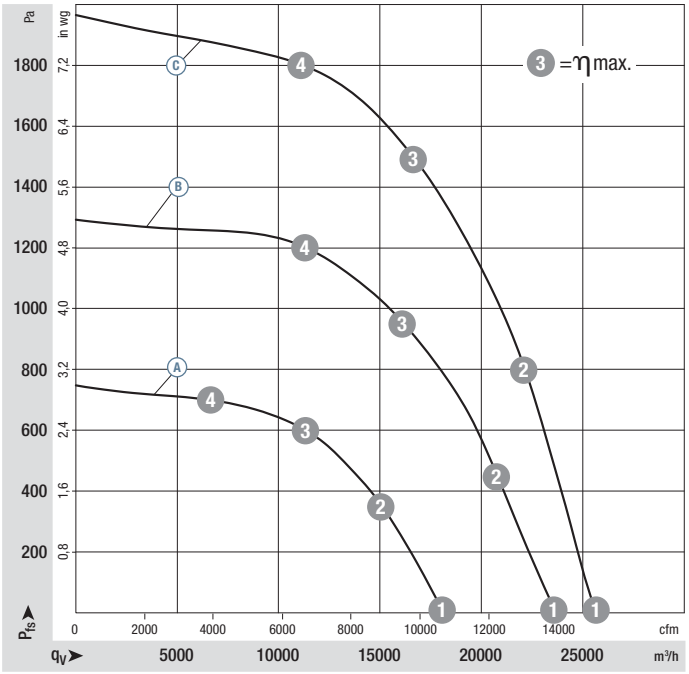
Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
			VAC	Hz	rpm	kW	A	°C	kg	
*3G 630	M3G 150-NA	Ⓐ	3~380-480	50/60	1130	2,90	4,50	-25..+55	40	P. 92 / M3)
*3G 630	M3G 200-HF	Ⓑ	3~380-480	50/60	1500	6,75	10,3	-25..+50	125	P. 92 / M3)
*3G 630	M3G 200-QA	Ⓒ	3~380-480	50/60	1850	11,0	17,0	-25..+40	160	P. 92 / M3)

Subject to change

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

Curves:



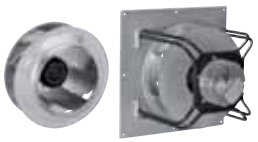
		n rpm	P_{ed} kW	I A	L_WA dB(A)
Ⓐ	1	1130	2,16	3,26	88
Ⓐ	2	1130	2,83	4,30	81
Ⓐ	3	1130	2,90	4,50	78
Ⓐ	4	1130	2,46	3,73	79
Ⓑ	1	1500	4,52	7,00	97
Ⓑ	2	1500	5,76	8,87	92
Ⓑ	3	1500	6,75	10,3	88
Ⓑ	4	1500	6,33	9,69	88
Ⓒ	1	1850	7,46	11,6	101
Ⓒ	2	1850	10,0	15,4	96
Ⓒ	3	1850	11,0	17,0	91
Ⓒ	4	1850	9,89	15,2	92

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

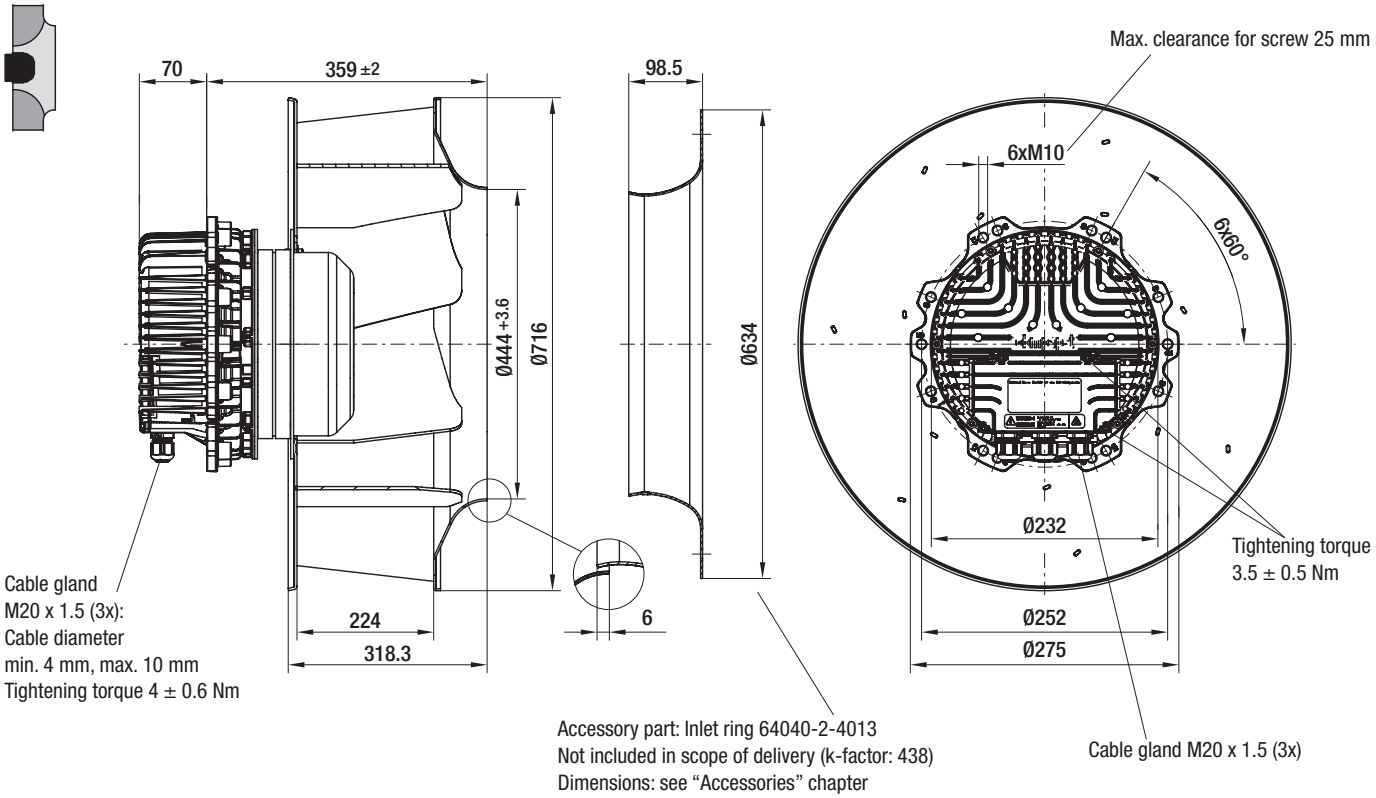
ebmpapst

- **Technical features:** See connection diagram P. 92 f.
- **EMC:** Ⓑ Ⓒ Interference emission according to EN 61000-6-4
  Ⓑ Ⓒ Immunity to interference according to EN 61000-6-2
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Terminal box design:** electrical connection via terminal strip
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ Ⓒ UL, CSA, EAC
  Ⓑ EAC
- **Efficiency:** Ecodesign EU regulation EU 327/2011

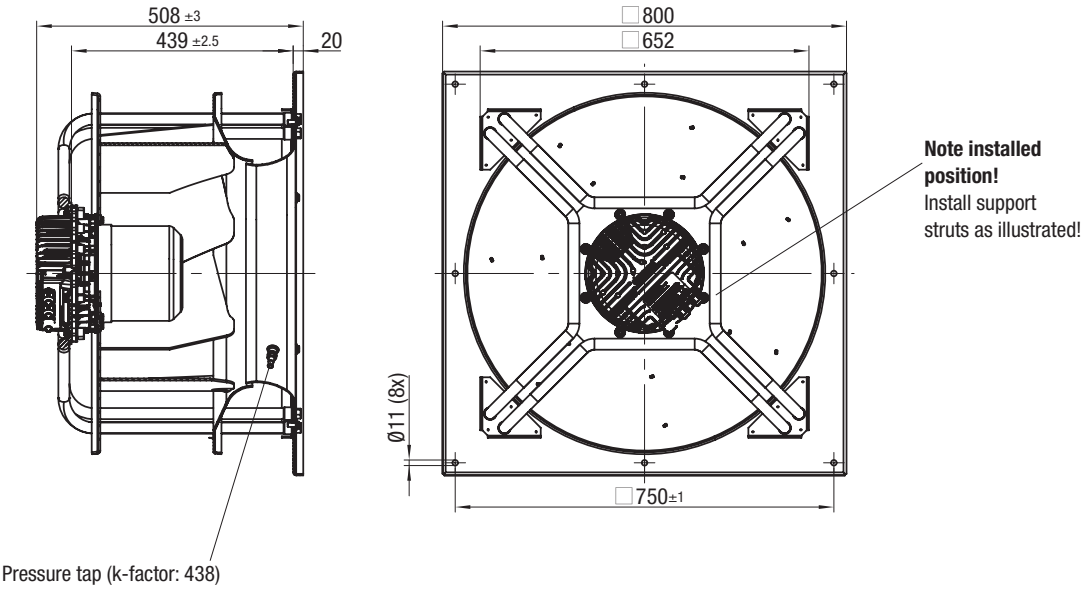
Centrifugal fan	Weight centrifugal fan kg	Inlet ring with one pressure tap	Centrifugal module with support bracket	Weight centrifugal module with support bracket kg	Centrifugal module with cube design	Weight centrifugal module with cube design kg
R3G 630-AP01 -01	40,0	64040-2-4013	K3G 630-AP01 -01	77,5	---	---
---	---	---	---	---	K3G 630-AR02 -01	125
---	---	---	---	---	K3G 630-AS05 -01	160



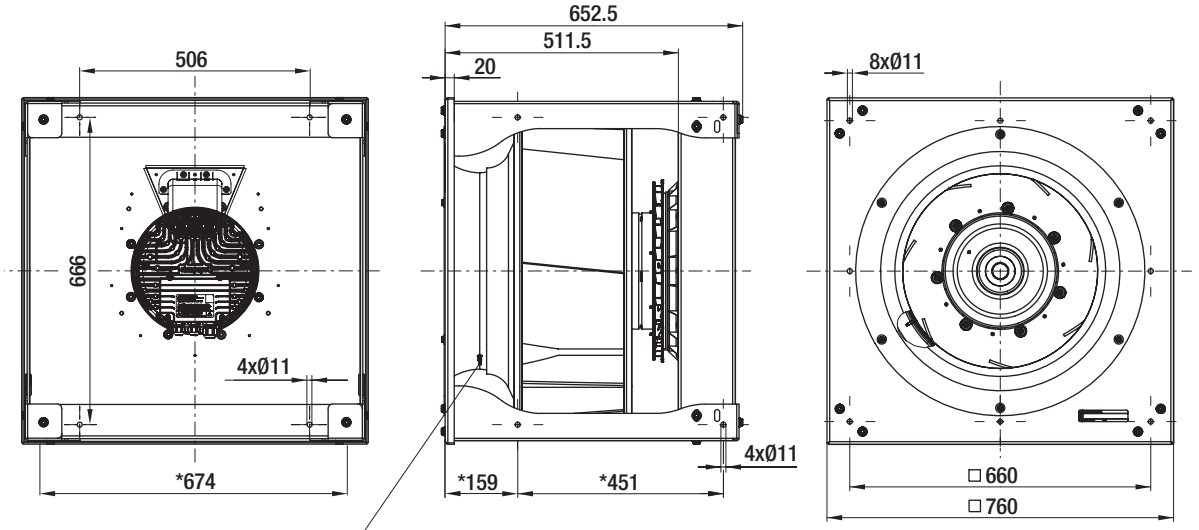
R3G 630-AP01-01 (Centrifugal fan)

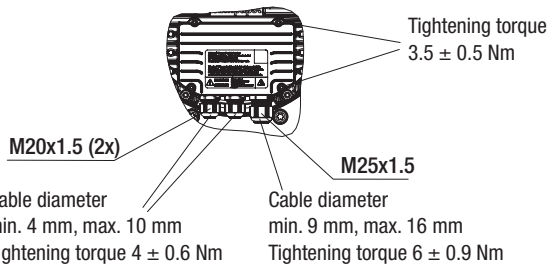


K3G 630-AP01-01 (Centrifugal module with support bracket)



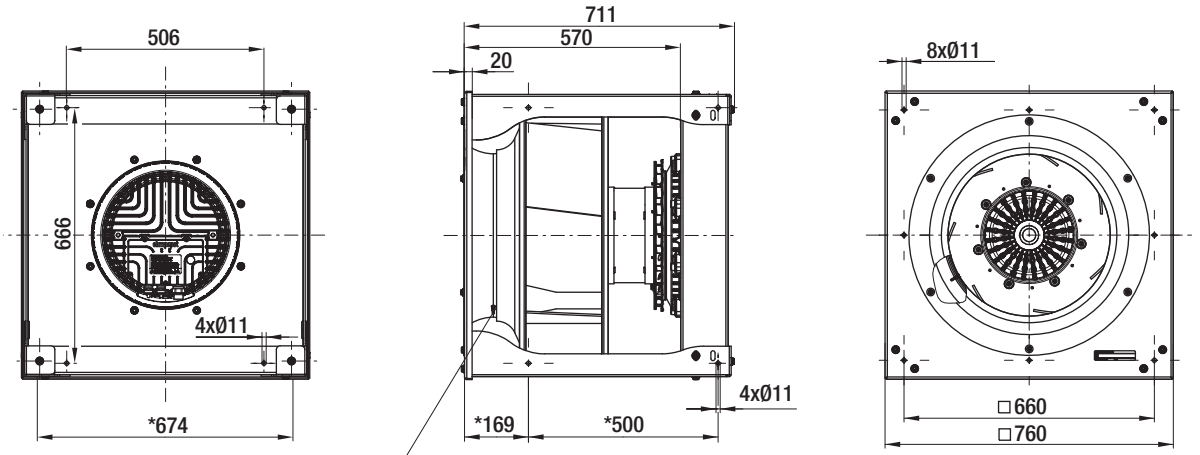
K3G 630-AR02-01 (Centrifugal module with cube design)

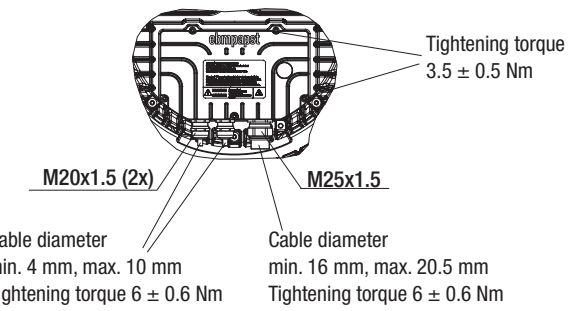




* Mounting position for vibration-absorbing and spring elements, only floor mounting allowed for horizontal shaft position.

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

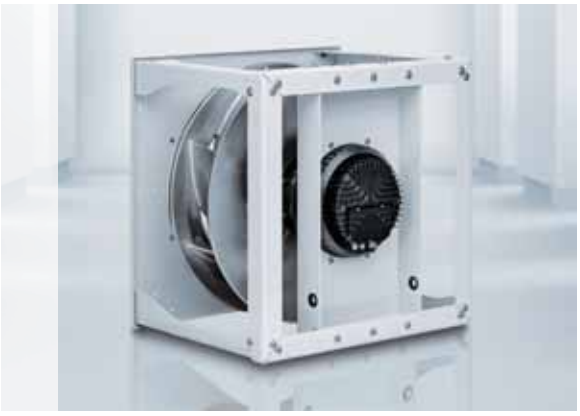




* Mounting position for vibration-absorbing and spring elements, only floor mounting allowed for horizontal shaft position.

EC centrifugal fans – RadiPac

backward curved, Ø 710



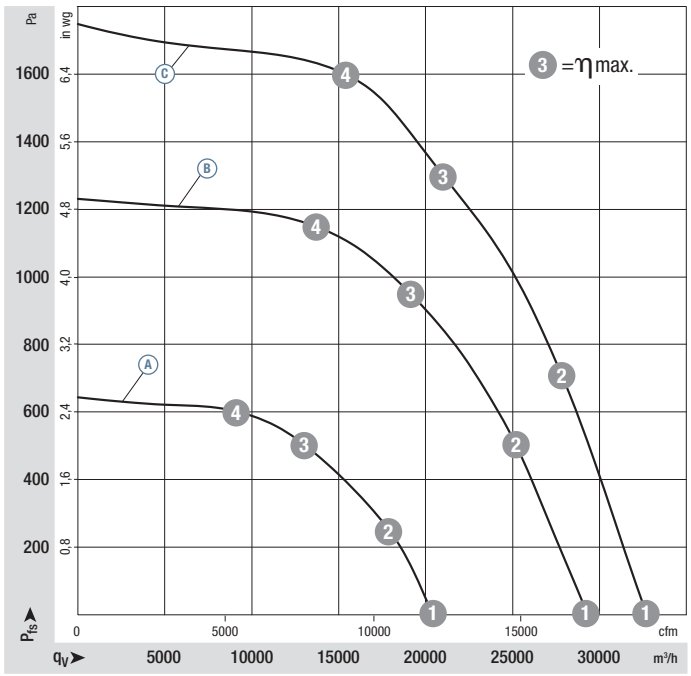
- **Material:** Ⓑ Ⓒ Cube design with inlet ring: Sheet steel, galvanized and coated with light gray plastic (RAL 7035)
  Impeller: Sheet aluminium; Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** Ⓐ IP 55; Ⓑ Ⓒ IP 54 (according to EN 60529)
- **Insulation class:** "F"
- **Installation position:** Shaft horizontal (Ⓑ Ⓒ base mounting only) or rotor on bottom; rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
Type	**Motor**		**VAC**	**Hz**	**rpm**	**kW**	**A**	**°C**	**kg**	
***3G 710**	M3G 150-NA	Ⓐ	3~380-480	50/60	920	2,80	4,30	-25..+40	44	P. 92 / M3)
***3G 710**	M3G 200-LA	Ⓑ	3~380-480	50/60	1300	7,86	12,0	-25..+40	163	P. 92 / M3)
***3G 710**	M3G 200-QA	Ⓒ	3~380-480	50/60	1550	11,8	18,0	-25..+40	194	P. 92 / M3)

Subject to change

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

Curves:



		n rpm	P_{ed} kW	I A	L_WA dB(A)
Ⓐ	1	920	1,82	2,72	84
Ⓐ	2	920	2,52	3,77	80
Ⓐ	3	920	2,80	4,30	78
Ⓐ	4	920	2,57	3,82	78
Ⓑ	1	1300	5,12	7,87	96
Ⓑ	2	1300	6,91	10,6	91
Ⓑ	3	1300	7,86	12,0	86
Ⓑ	4	1300	7,37	11,2	87
Ⓒ	1	1550	7,63	11,9	101
Ⓒ	2	1550	10,4	16,0	94
Ⓒ	3	1550	11,8	18,0	88
Ⓒ	4	1550	11,1	17,1	91

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

ebmpapst

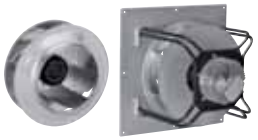
- **Technical features:** See connection diagram P. 92
- **EMC:** Ⓐ Interference emission according to EN 61000-6-3, except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW
  Ⓑ Ⓒ Interference emission according to EN 61000-6-4
  Immunity to interference according to EN 61000-6-2
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Terminal box design:** electrical connection via terminal strip
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ Ⓒ UL, CSA, EAC
  Ⓑ EAC
- **Efficiency:** Ecodesign EU regulation EU 327/2011

Weight centrifugal fan

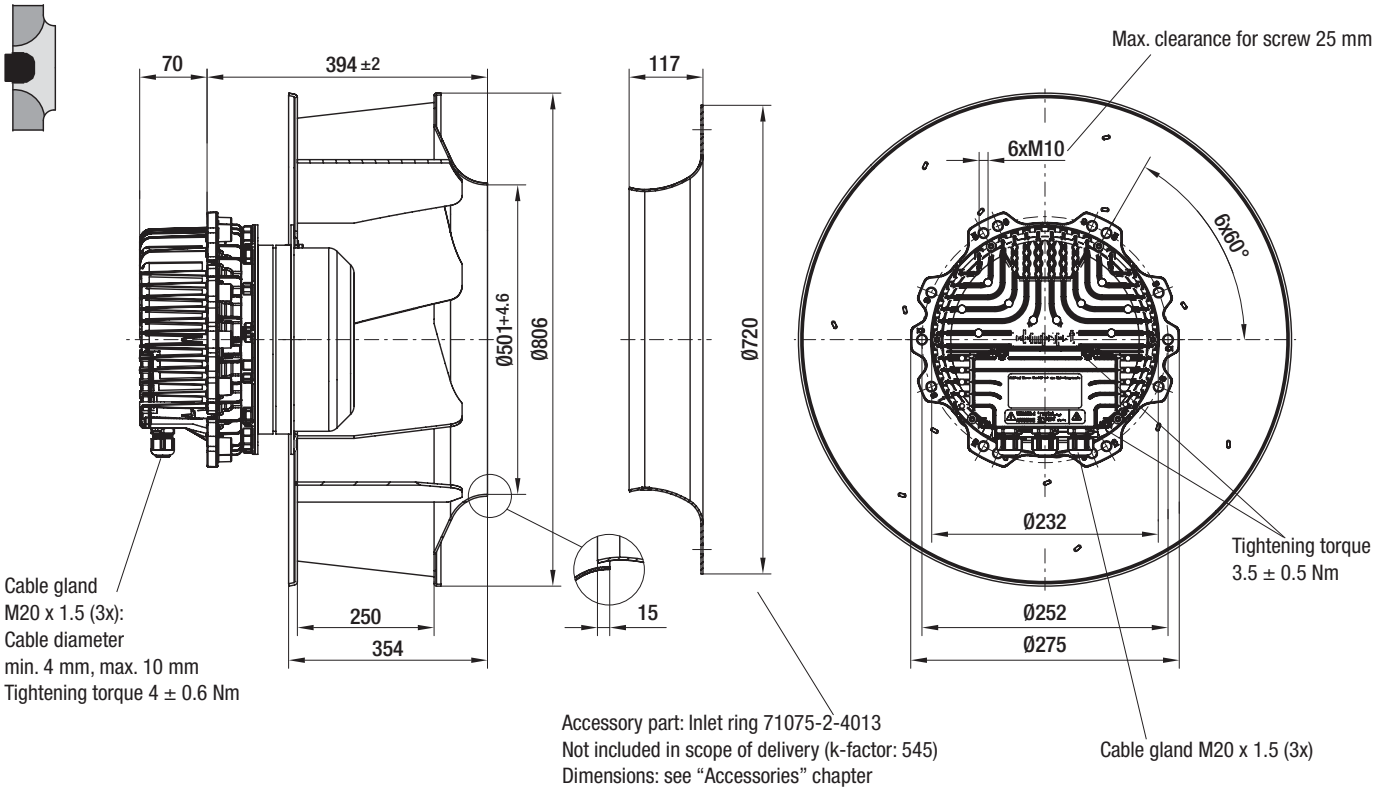
Weight centrifugal module with support bracket

Weight centrifugal module with cube design

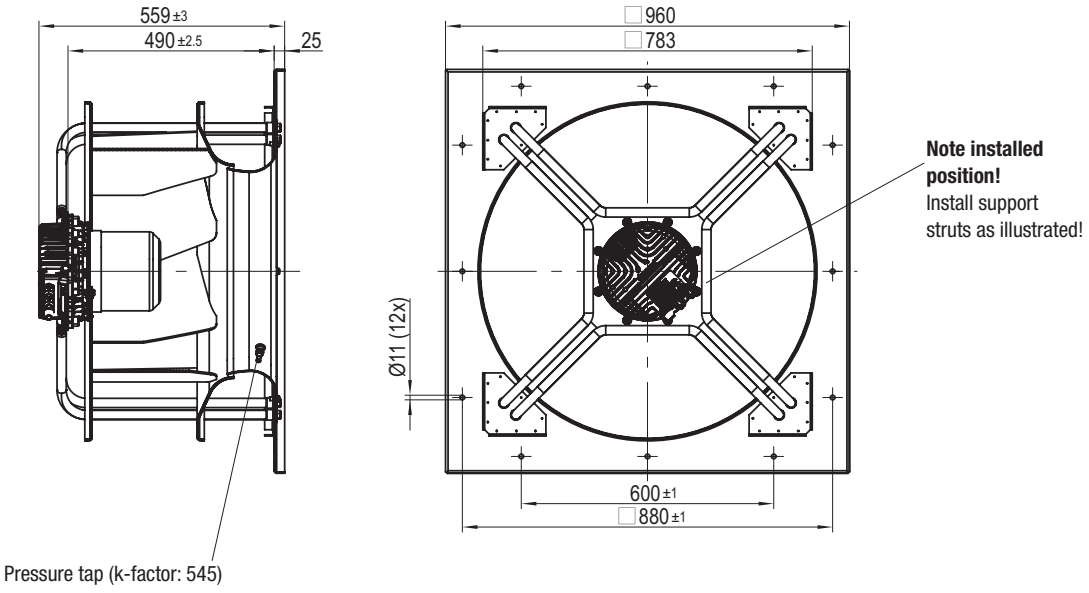
Centrifugal fan	kg	Inlet ring with one pressure tap	Centrifugal module with support bracket	kg	Centrifugal module with cube design	kg
R3G 710-AP02 -01	44,0	71075-2-4013	K3G 710-AP02 -01	92,0	---	---
---	---	---	---	---	K3G 710-AR03 -01	163
---	---	---	---	---	K3G 710-AS06 -01	194



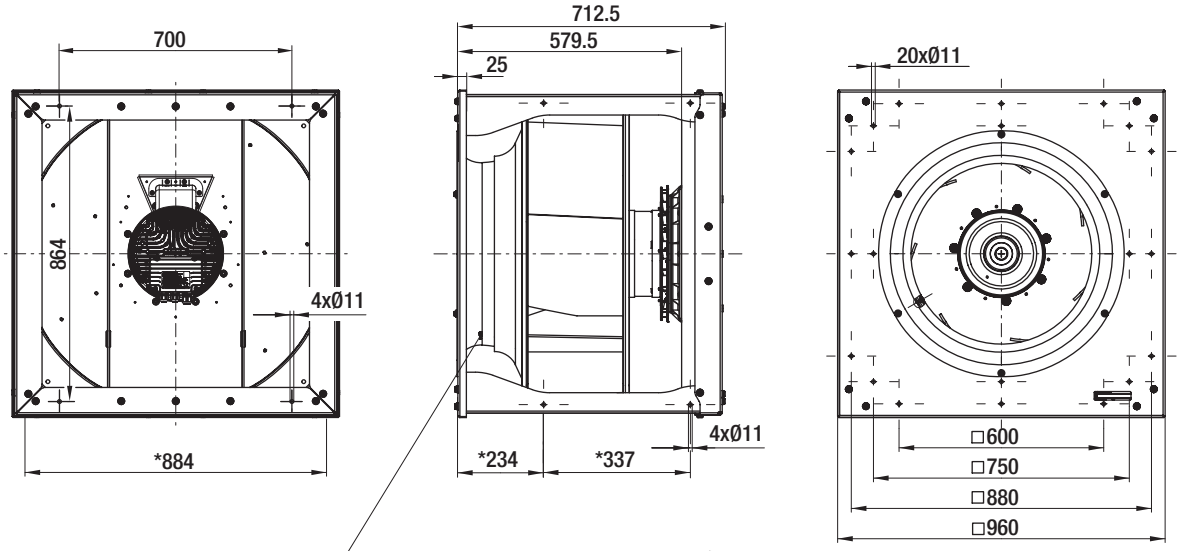
R3G 710-AP02-01 (Centrifugal fan)



K3G 710-AP02-01 (Centrifugal module with support bracket)

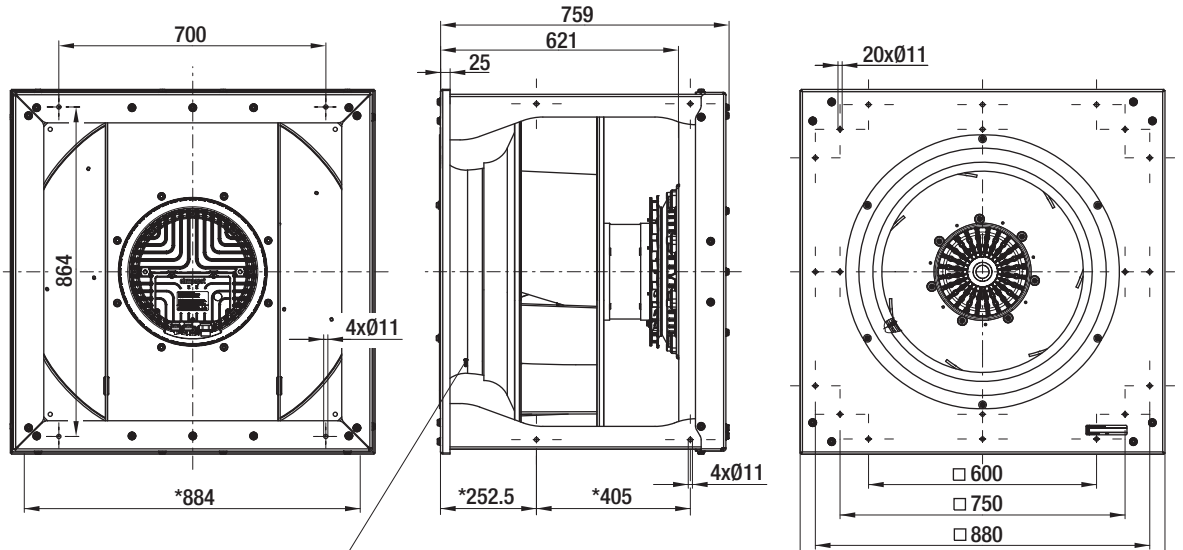


K3G 710-AR03-01 (Centrifugal module with cube design)



* Mounting position for vibration-absorbing and spring elements, only floor mounting allowed for horizontal shaft position.

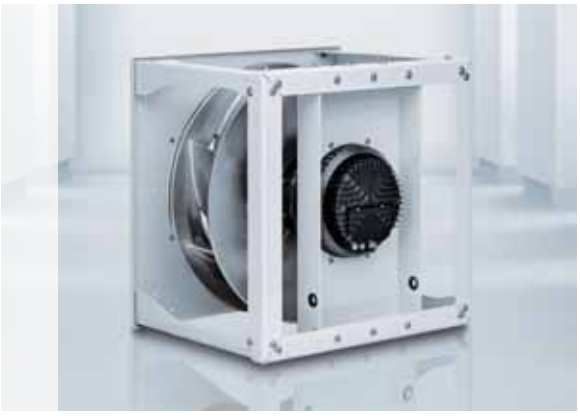
K3G 710-AS06-01 (Centrifugal module with cube design)



* Mounting position for vibration-absorbing and spring elements, only floor mounting allowed for horizontal shaft position.

EC centrifugal fans – RadiPac

backward curved, Ø 800



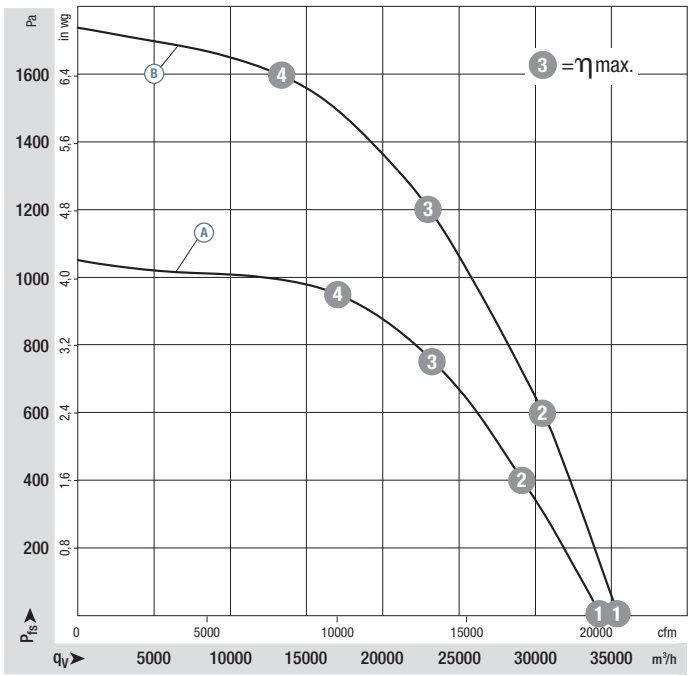
- **Material:** Cube design with inlet ring: Sheet steel, galvanized and coated with light gray plastic (RAL 7035)
  Impeller: Sheet aluminium; Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** IP 54 (according to EN 60529)
- **Insulation class:** "F"
- **Installation position:** Shaft horizontal (base mounting only) or rotor on bottom; rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
Type	**Motor**		**VAC**	**Hz**	**rpm**	**kW**	**A**	**°C**	**kg**	
K3G 800-AR08 -01	M3G 200-QA	A	3~380-480	50/60	1050	7,53	11,6	-25..+40	189	P. 92 / M3)
K3G 800-AS07 -01	M3G 200-QA	B	3~380-480	50/60	1370	11,6	17,8	-25..+40	196	P. 92 / M3)

Subject to change

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

Curves:



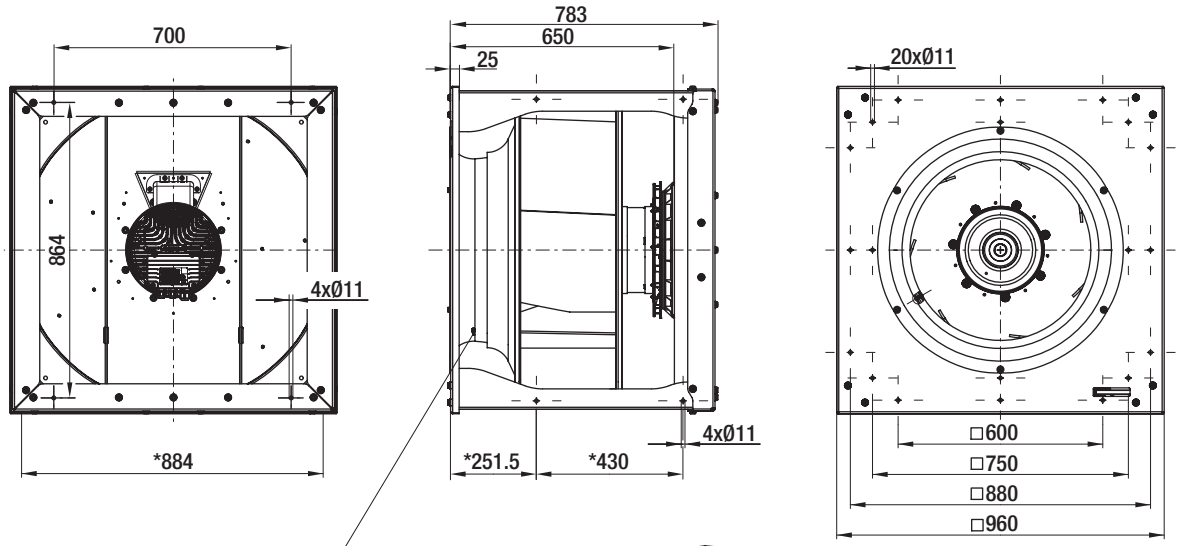
		n rpm	P_{ed} kW	I A	L_WA dB(A)
A	1	1050	4,91	7,58	94
A	2	1050	6,56	10,1	88
A	3	1050	7,53	11,6	85
A	4	1050	7,18	11,0	85
B	1	1370	6,76	10,5	106
B	2	1370	9,62	14,8	98
B	3	1370	11,6	17,8	90
B	4	1370	10,7	16,4	93

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

ebmpapst

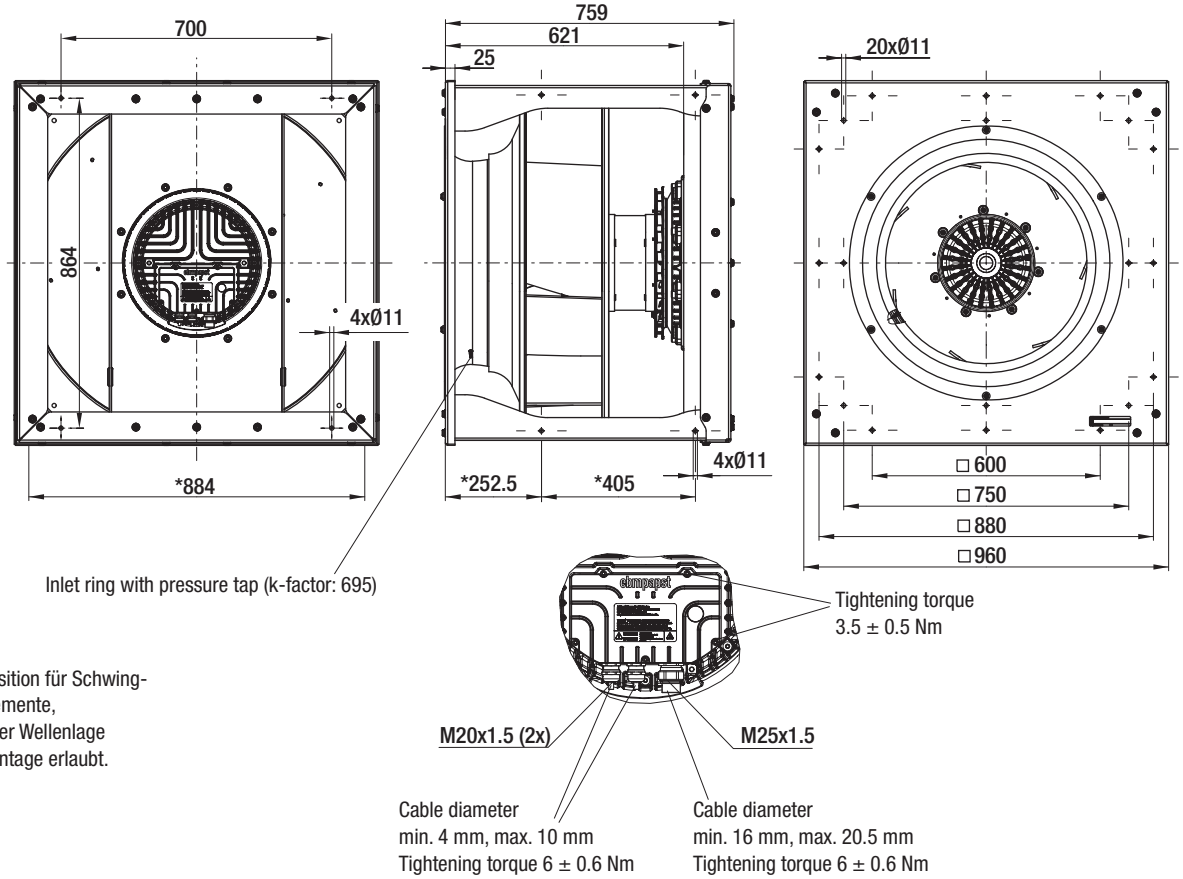
- **Technical features:** See connection diagram P. 92
- **EMC:** Interference emission according to EN 61000-6-4
  Immunity to interference according to EN 61000-6-2
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Terminal box design:** electrical connection via terminal strip
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ EAC
  Ⓑ UL, CSA, EAC
- **Efficiency:** Ecodesign EU regulation EU 327/2011

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



* Mounting position for vibration-absorbing and spring elements, only floor mounting allowed for horizontal shaft position.

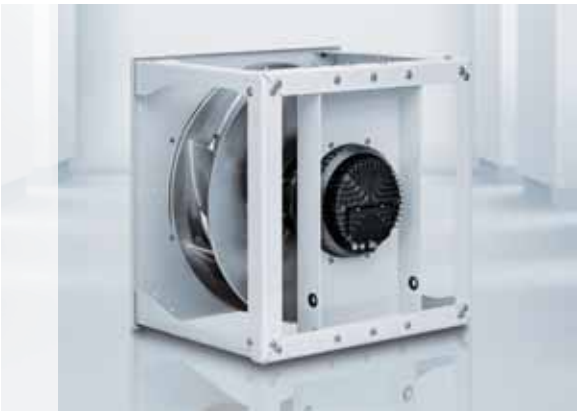
K3G 800-AS07-01 (Centrifugal module with cube design)



* Anschraubposition für Schwing- bzw. Federelemente, bei horizontaler Wellenlage nur Bodenmontage erlaubt.

EC centrifugal fans – RadiPac

backward curved, Ø 900



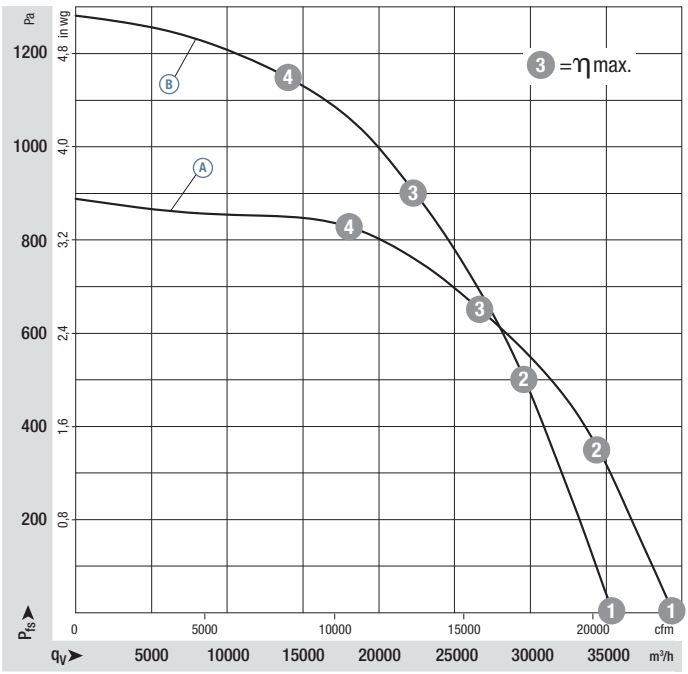
- **Material:** Cube design with inlet ring: Sheet steel, galvanized and coated with light gray plastic (RAL 7035)
  Impeller: Sheet aluminium; Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** IP 54 (according to EN 60529)
- **Insulation class:** "F"
- **Installation position:** Shaft horizontal (base mounting only) or rotor on bottom; rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
Type	**Motor**		**VAC**	**Hz**	**rpm**	**kW**	**A**	**°C**	**kg**	
K3G 900-AR10 -01	M3G 200-QA	Ⓐ	3~380-480	50/60	860	7,52	11,5	-25..+40	222	P. 92 / M3)
K3G 900-AS08 -01	M3G 200-QA	Ⓑ	3~380-480	50/60	1050	8,70	13,5	-25..+40	232	P. 92 / M3)

Subject to change

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

Curves:



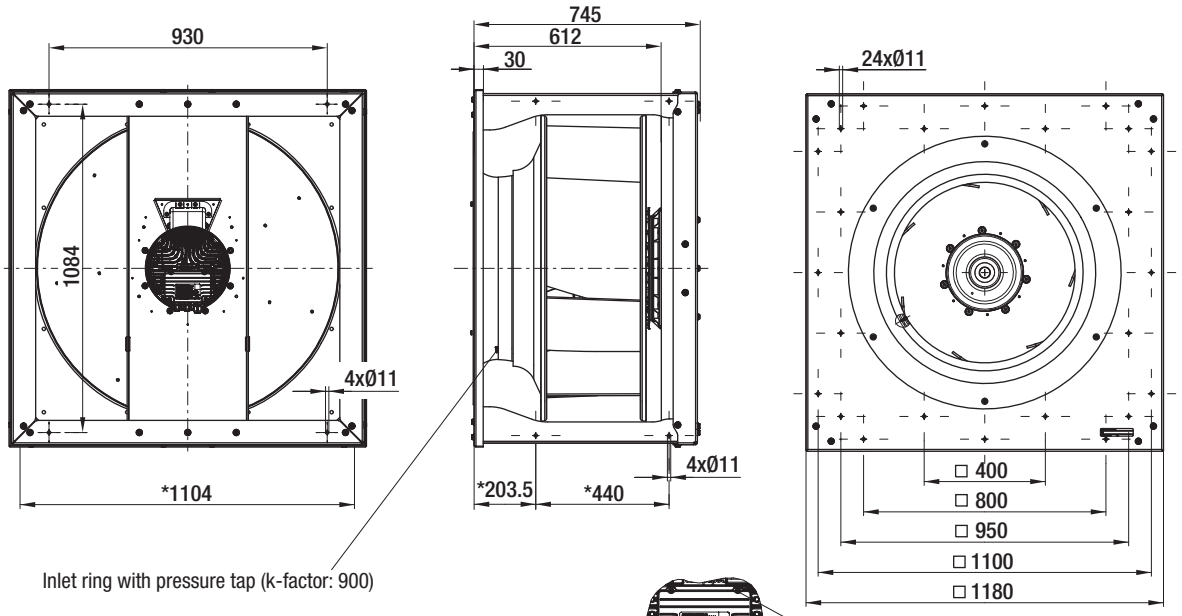
		n rpm	P_{ed} kW	I A	L_WA dB(A)
Ⓐ	1	860	5,03	7,72	92
Ⓐ	2	860	6,75	10,3	87
Ⓐ	3	860	7,52	11,5	82
Ⓐ	4	860	7,02	10,7	81
Ⓑ	1	1050	5,04	8,03	99
Ⓑ	2	1050	7,33	11,4	91
Ⓑ	3	1050	8,70	13,5	86
Ⓑ	4	1050	7,74	12,0	87

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

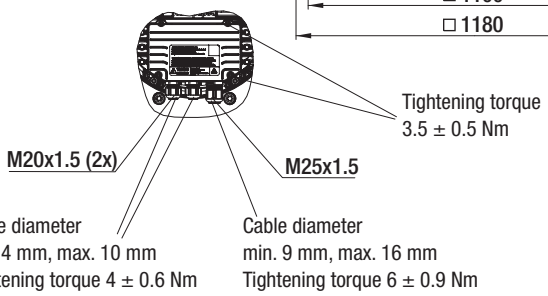
ebmpapst

- **Technical features:** See connection diagram P. 92
- **EMC:** Ⓐ Interference emission according to EN 61000-6-4
  Ⓐ Immunity to interference according to EN 61000-6-2
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Terminal box design:** electrical connection via terminal strip
- **Protection class:** I (with customer connection of protective earth)
- **Conformity with standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ EAC
  Ⓑ UL, CSA, EAC
- **Efficiency:** Ecodesign EU regulation EU 327/2011

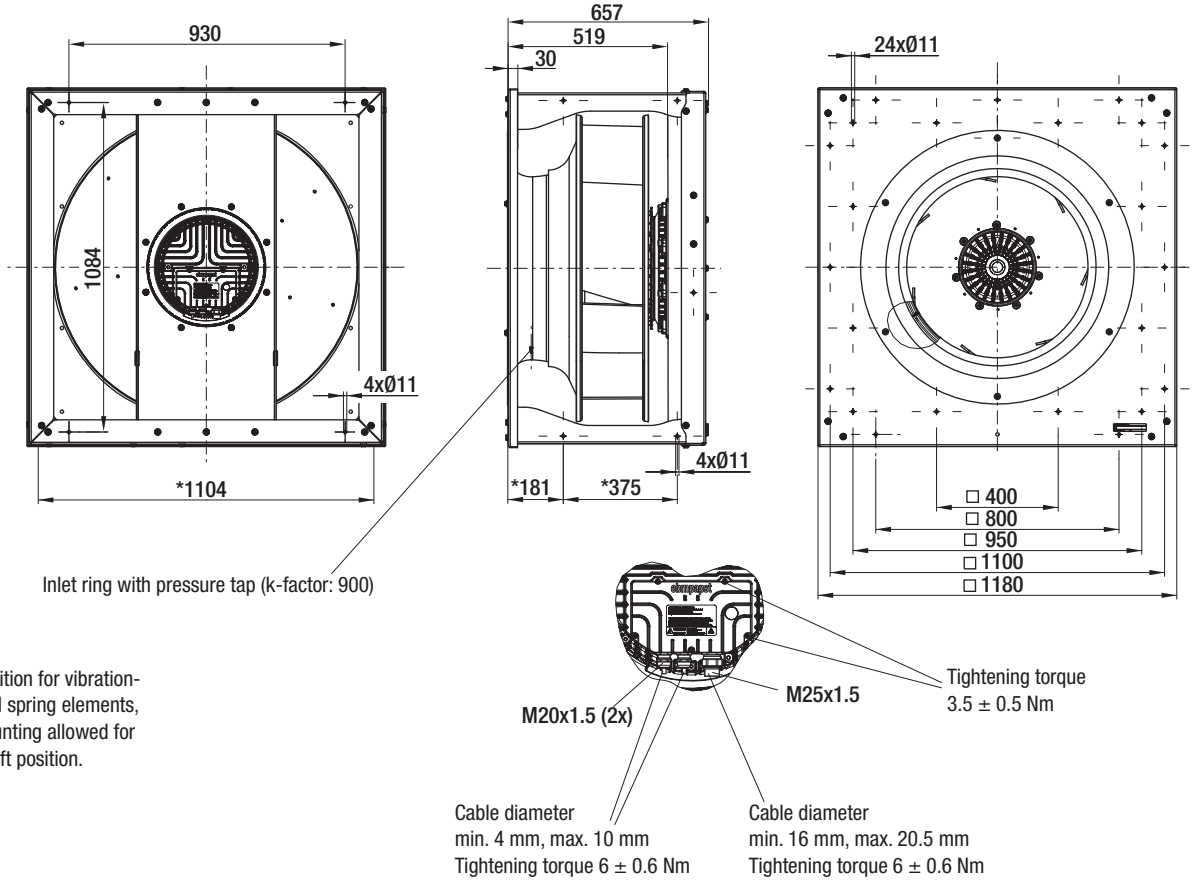
K3G 900-AR10-01 (Centrifugal module with cube design)



* Mounting position for vibration-absorbing and spring elements, only floor mounting allowed for horizontal shaft position.



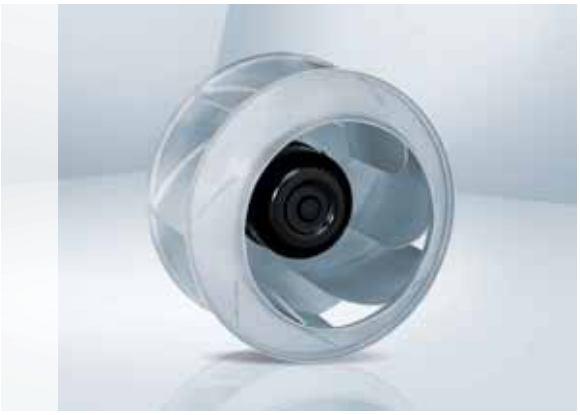
K3G 900-AS08-01 (Centrifugal module with cube design)



* Mounting position for vibration-absorbing and spring elements, only floor mounting allowed for horizontal shaft position.

EC centrifugal fans – RadiPac

backward curved, Ø 280 - 450 (compact design)



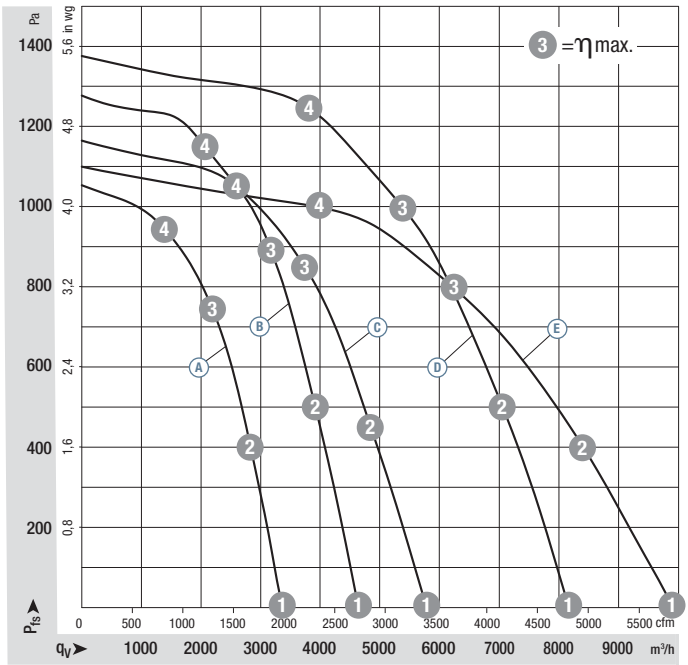
- **Material:** Impeller: Sheet aluminium
  Rotor: Painted black
  Electronics housing: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise viewed toward rotor
- **Degree of protection:** IP 54
- **Insulation class:** "B"
- **Installation position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensation drainage holes:** Rotor side
- **Mode:** Continuous operation (S1)
- **Mounting:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed[1]	Max. Input power[1]	Max. Input current[1]	Perm. ambient temp.	Weight	Techn. features and connection diagram
Type	**Motor**		**VAC**	**Hz**	**rpm**	**kW**	**A**	**°C**	**kg**	
R3G 280-AJ14 -C1	M3G 084-GF	Ⓐ	3~380-480	50/60	3260	0,99	1,60	-25..+60	6,8	P. 97 / L6)
R3G 310-BC38 -01	M3G 112-GA	Ⓑ	3~380-480	50/60	3170	1,65	2,50	-25..+50	12,1	P. 92 / M3)
R3G 355-BD43 -01	M3G 112-GA	Ⓒ	3~380-480	50/60	2650	1,73	2,60	-25..+60	12,6	P. 92 / M3)
R3G 400-AS23 -01	M3G 150-FF	Ⓓ	3~380-480	50/60	2550	2,84	4,20	-25..+60	21,3	P. 92 / M3)
R3G 450-AS24 -01	M3G 150-FF	Ⓔ	3~380-480	50/60	2040	2,38	3,60	-25..+60	22,0	P. 92 / M3)

Subject to change

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

Curves:



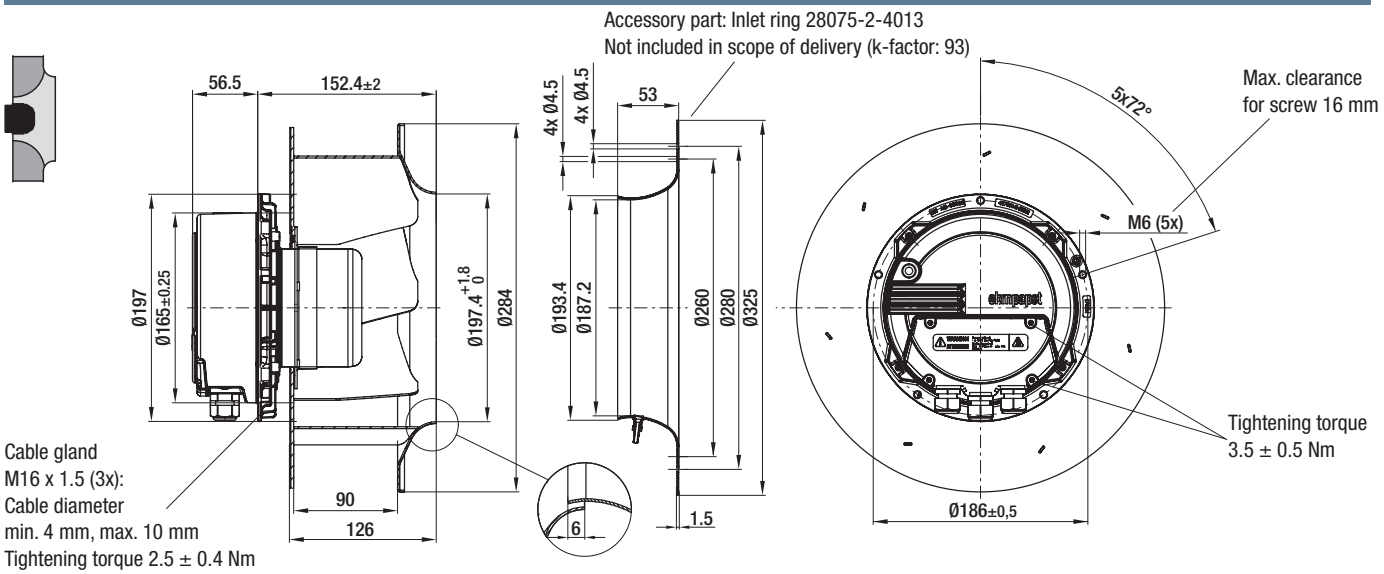
		n rpm	P_{ed} kW	I A	L_WA dB(A)
Ⓐ	1	3260	0,70	1,31	89
Ⓐ	2	3260	0,88	1,57	86
Ⓐ	3	3260	0,99	1,60	84
Ⓐ	4	3260	0,87	1,57	85
Ⓑ	1	3170	1,23	1,83	90
Ⓑ	2	3170	1,52	2,27	88
Ⓑ	3	3170	1,65	2,50	85
Ⓑ	4	3170	1,54	2,30	88
Ⓒ	1	2650	1,25	1,86	90
Ⓒ	2	2650	1,56	2,33	86
Ⓒ	3	2650	1,73	2,60	84
Ⓒ	4	2650	1,63	2,42	86
Ⓓ	1	2550	2,10	3,13	92
Ⓓ	2	2550	2,59	3,84	89
Ⓓ	3	2550	2,84	4,20	86
Ⓓ	4	2550	2,68	3,95	89
Ⓔ	1	2040	1,64	2,48	90
Ⓔ	2	2040	2,16	3,23	85
Ⓔ	3	2040	2,38	3,60	82
Ⓔ	4	2040	2,17	3,24	86

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: Lw_A according to ISO 13347, Lp_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition. See Page 98 ff for detailed information.

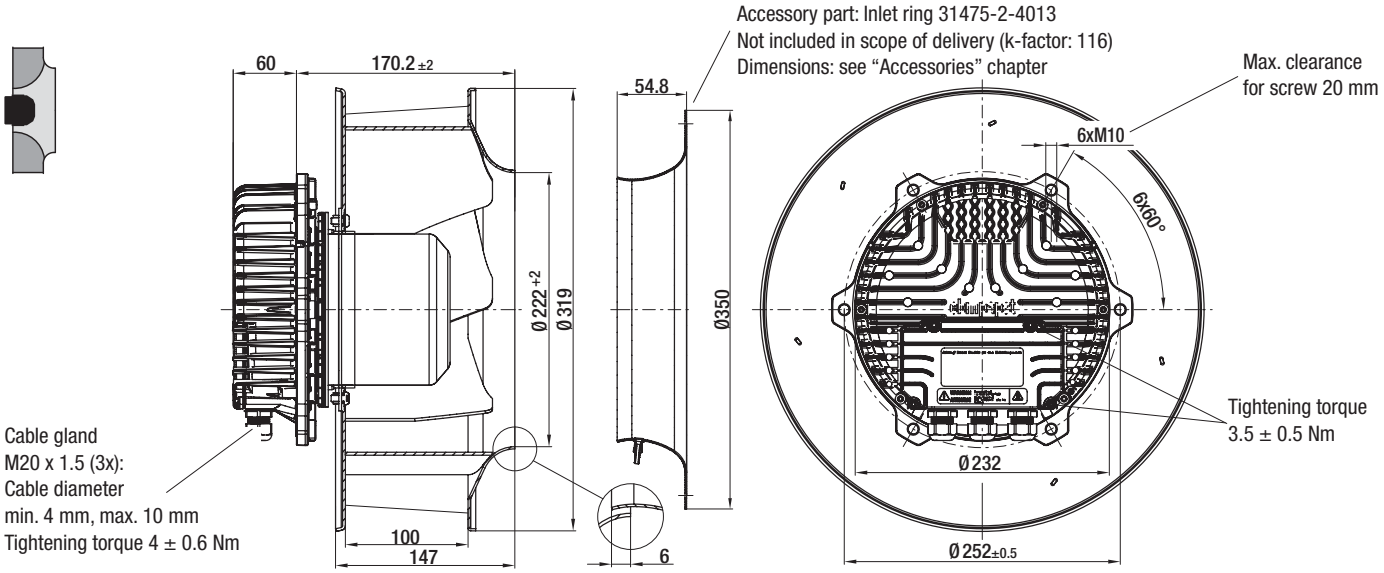
ebmpapst

- **Technical features:** See connection diagram P. 92 f.
- **EMC:** Ⓓ Interference emission according to EN 61000-6-3,
  except EN 61000-3-2 for professionally used equipment
  with a total rated power greater than 1 kW
  Ⓓ Immunity to interference according to EN 61000-6-2
- **Touch current:** <= 3,5 mA according to IEC 60990 (measuring circuit Fig. 4)
- **Terminal box design:** electrical connection via terminal strip
- **Protection class:** I (if protective earth is connected by customer to the housing's connection point)
- **Conformity with standards:** EN 61800-5-1, CE
- **Approvals:** Ⓐ C22.2 Nr.77 + CAN/CSA-E60730-1, EAC, UL 1004-7 + 60730
  Ⓑ Ⓒ VDE, EAC
  Ⓓ Ⓔ UL, CSA, EAC
- **Efficiency:** Ecodesign EU regulation EU 327/2011

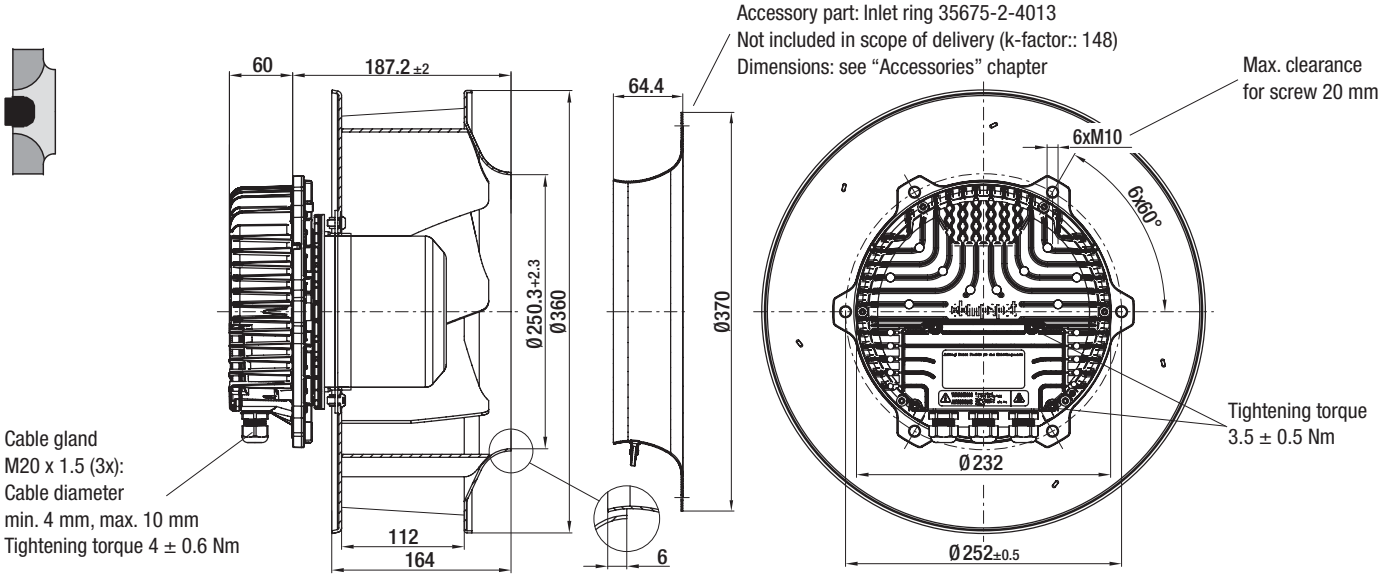
R3G 280-AJ14-C1 (Centrifugal fan)



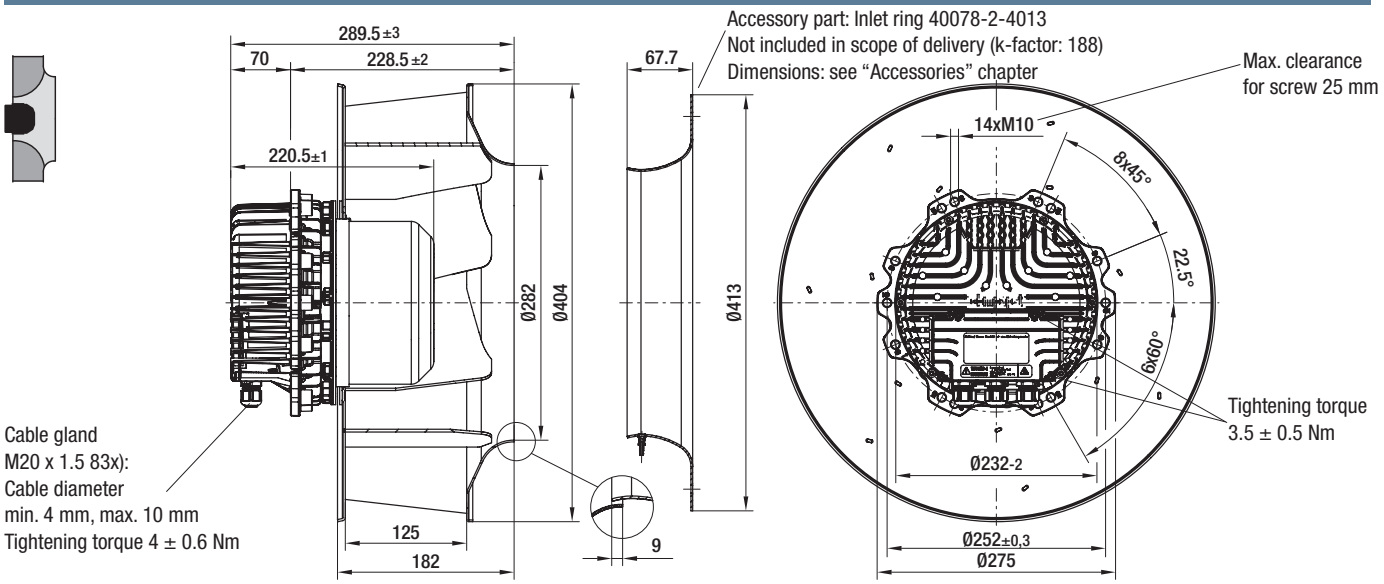
R3G 310-BC38-01 (Centrifugal fan)



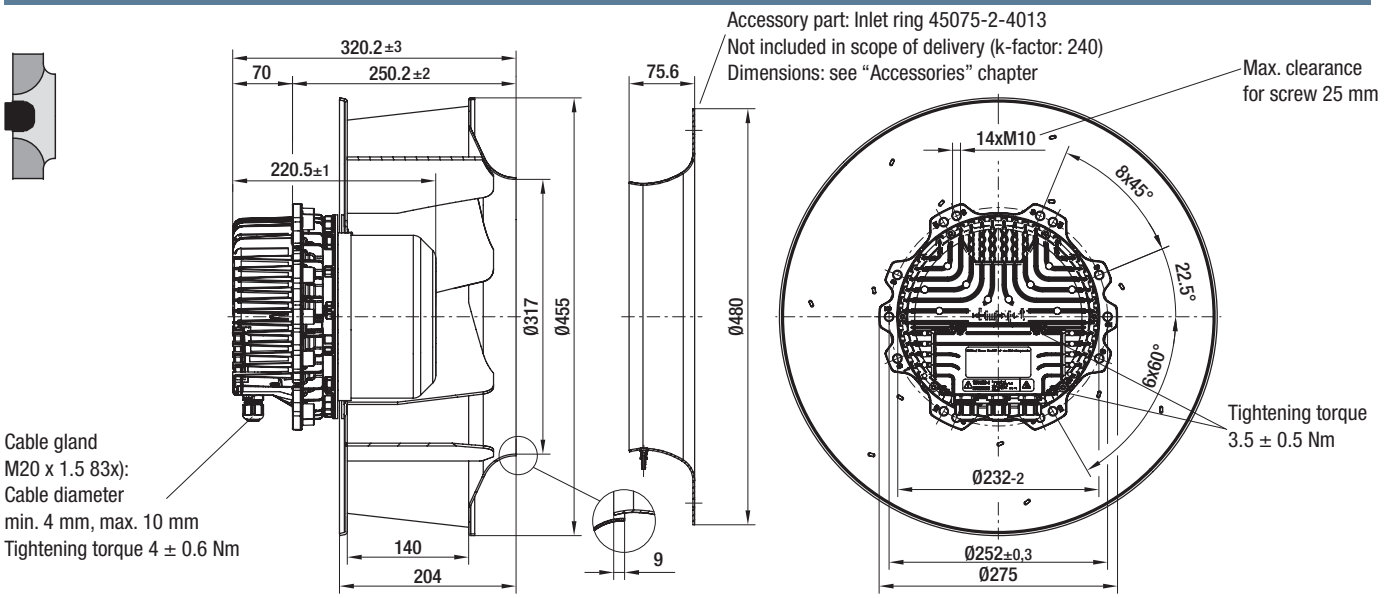
R3G 355-BD43-01 (Centrifugal fan)



R3G 400-AS23-01 (Centrifugal fan)



R3G 450-AS24-01 (Centrifugal fan)



Tender specifications

Fan size 250 to 560

Direct-drive single inlet centrifugal fans with backwards-curved high-performance centrifugal impellers with radial diffusers, mounted on a GreenTech EC external rotor motor with integrated control electronics.

Impeller made of aluminum, with 5 backwards-curved, continuously welded, hollow-profile blades; impeller sizes 250 and 280 made of plastic; flow-optimized inlet ring made of galvanized sheet steel with pressure test nipple.

Motor impeller statically and dynamically balanced on two planes to balancing grade G 6.3 in accordance with DIN ISO 1940.

GreenTech EC external rotor motor surpasses efficiency class IE4, magnets with no rare earths, maintenance-free ball bearings with long-term lubrication, theoretical nominal service life of at least 40,000 hours of operation.

Soft start, integrated current limitation, extended voltage input 1~200-277 V, 50/60 respectively 3~380-480 V, 50/60 Hz. Fan can be used with all standard power supply networks with unaltered air performance.

Integrated electronics, low-noise commutation logic; 100 % open-loop speed control; all fans have an RS485/MODBUS RTU interface, and do not need to be installed with shielded cables.

All 1~ types have an integrated active PFC (Power Factor Correction) to reduce disturbing harmonic content.

Terminal box made of aluminum with easily accessible connection area with spring-loaded terminals, environment-resistant cable glands, or with external variable cable (sizes 250 to 280).

Any work required for isolation from structure-borne noise to be performed by the customer.

Fan satisfies the applicable EMC guidelines and requirements with regard to circuit feedback (for specific information, see the respective data sheet).
Documentation and marking conform to the applicable EU Directives.

Reliable performance data, air performance measurements on intake-side chamber test rig according to ISO 5801 and DIN 24163, noise measurements in anechoic rooms according to DIN EN ISO 3745.

Integrated protective devices:

- 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
- Thermal overload protection for electronics and motor
- Short circuit protection

Optional:

- Other and specific requirements on request

Technical data:

Fan type		= __ __ __ __ __ __ - __ __ __ __ - __ __	
Air flow	qV	= _____	m^3/h, cfm
Stat. pressure increase	pfs	= _____	Pa, in wg
Stat. overall efficiency	ηes	= _____	%
Operating speed	n	= _____	rpm
Motor type		= EC-Motor	
Type of control		= Closed-loop speed control, 0-100 %	
Motor efficiency class		= IE4	
Total power input	Ped	= _____	kW
Specific fan power	SFP	= _____	kW/(m^3/s)
Nominal voltage range	UN	= _____	V
Line frequency	f	= 50 / 60	Hz
Nominal current	IN	= _____	A
Protection class		= IP54	
Sound power level	L_WA (A, in)	= _____ / L_WA (A, out) = _____	dB(A)
Sound pressure level (at 1 m)	L_PA (A, in)	= _____ / L_PA (A, out) = _____	dB(A)
Perm. ambient temperature	T	= _____ bis _____	°C
Weight of fan	m	= _____	kg

See data sheet for dimensions and connections.

Tender specifications

Fan size 630 to 900

Direct-drive single inlet centrifugal fans with backwards-curved high-performance centrifugal impellers with radial diffusers, mounted on a GreenTech EC external rotor motor with integrated control electronics.

Impeller made of aluminum, with 7 backwards-curved, continuously welded blades; flow-optimized inlet ring made of galvanized sheet steel with pressure test nipple.

Motor impeller statically and dynamically balanced on two planes to balancing grade G 6.3 (motor size 200 to balancing grade G 4.0) in accordance with DIN ISO 1940.

GreenTech EC external rotor motor surpasses efficiency class IE4, magnets with no rare earths, maintenance-free ball bearings with long-term lubrication, theoretical nominal service life of at least 40,000 hours of operation.

Soft start, integrated current limitation, extended voltage input 3~380-480 V, 50/60 Hz. Fan can be used with all standard power supply networks with unaltered air performance.

Integrated electronics, low-noise commutation logic; 100 % open-loop speed control; all fans have an RS485/MODBUS RTU interface, and do not need to be installed with shielded cables.

Terminal box made of aluminum with easily accessible connection area with spring-loaded terminals, environment-resistant cable glands.

Any work required for isolation from structure-borne noise to be performed by the customer.

Fan satisfies the applicable EMC guidelines and requirements with regard to circuit feedback (for specific information, see the respective data sheet).
Documentation and marking conform to the applicable EU Directives.

Reliable performance data, air performance measurements on intake-side chamber test rig according to ISO 5801 and DIN 24163, noise measurements in anechoic rooms according to DIN EN ISO 3745

Integrated protective devices:

- 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
- Thermal overload protection for electronics and motor
- Short circuit protection

Optional:

- Other and specific requirements on request

Technical data:

Fan type		= __ __ __ __ __ __ - __ __ __ __ - __ __	
Air flow	qV	= _____	m^3/h, cfm
Stat. pressure increase	pfs	= _____	Pa, in wg
Stat. overall efficiency	ηes	= _____	%
Operating speed	n	= _____	rpm
Motor type		= EC-Motor	
Type of control		= Closed-loop speed control, 0-100 %	
Motor efficiency class		= IE4	
Total power input	Ped	= _____	kW
Specific fan power	SFP	= _____	kW/(m^3/s)
Nominal voltage range	UN	= _____	V
Line frequency	f	= 50 / 60	Hz
Nominal current	IN	= _____	A
Protection class		= IP54	
Sound power level	L_WA (A, in)	= _____ / L_WA (A, out) = _____	dB(A)
Sound pressure level (at 1 m)	L_PA (A, in)	= _____ / L_PA (A, out) = _____	dB(A)
Perm. ambient temperature	T	= _____ bis _____	°C
Weight of fan	m	= _____	kg

See data sheet for dimensions and connections.

Accessories

FlowGrid
by ebmpapst
patent pending

FlowGrid air inlet grill

Efficient noise reduction

ebm-papst fans are not measured on our own advanced test stands just for their air performance alone. The acoustic behavior of the fans is also examined and the measurement results are included in the technical documentation.

Please note that the measurements are taken under ideal conditions with undisturbed inflow and outflow. If the fans are subsequently installed and used in devices with rather tight spaces, it is to be expected that the noise data provided in the documentation will not be applicable.

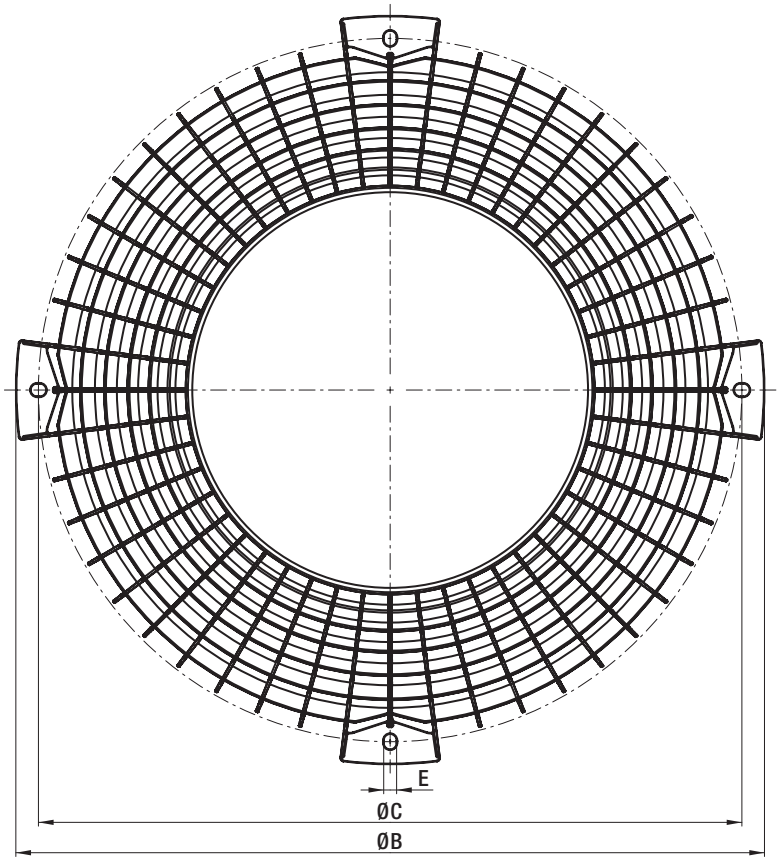
In order to minimize the negative impact of the installation situation, ebm-papst offers the FlowGrid air-inlet guard shown here. It is installed on the intake side of the fan and effectively reduces the noise generated by the fan. Particularly annoying, low-frequency noises are reduced efficiently. The level of noise reduction is dependent on the installation situation, which is why no generally applicable data is possible here.

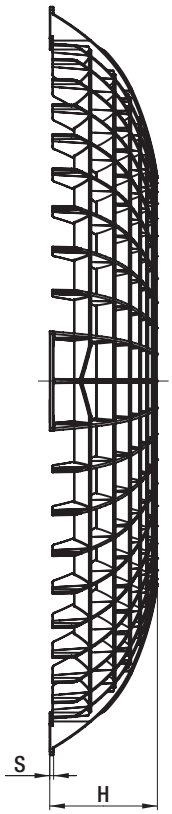
FlowGrid air inlet grill Dimensions (mm)

Part number	Fan size	ØB	ØC	ØE	S	H	N*
20280-2-2957	250, 280	280	245-261	4,5	3,5	40	2 ± 0,5 Nm
25310-2-2957	310	315	288-292	5,5	3,5	49	2 ± 0,5 Nm
00400-2-2957	355	370	334-346	4,5	3,5	56	2 ± 0,5 Nm
35505-2-2957	400, 450, 500	470	440	9,0	3,5	71	10 ± 2 Nm
00630-2-2957	560, 630	580	545	10	3,0	90	10 ± 2 Nm
50710-2-2957	710	666	630	10	3,0	106	10 ± 2 Nm
63000-2-2957	800	785	750	10	3,0	125	10 ± 2 Nm
80000-2-2957	900	995	960	10	3,5	131	10 ± 2 Nm

Subject to change

* Recommended tightening torque for fastening screws





Would you like to find out more?

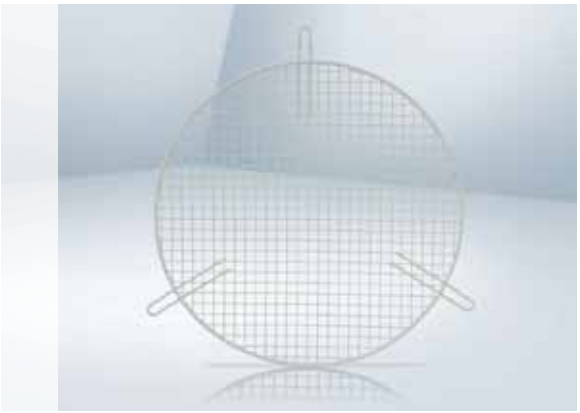
If you need an installation guide or more information about the dimensions, go to:

www.ebmpapst.com/flowgrid-manual

or scan the QR code below:

Intake finger guard

Wire mesh finger guard



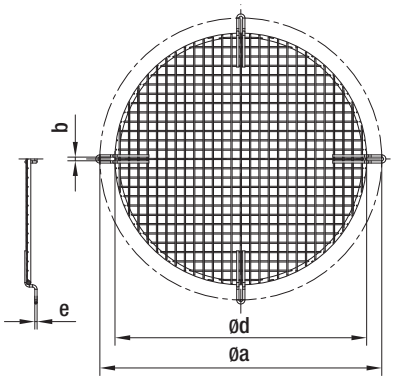
– **Material**: Steel wire, phosphated,
Versions 1 and 2: Painted pebble gray (RAL 7032)
Versions 3 and 4: Painted light gray (RAL 7035)

Intake finger guard for backwards-curved centrifugal fans (according to EN ISO 13857)

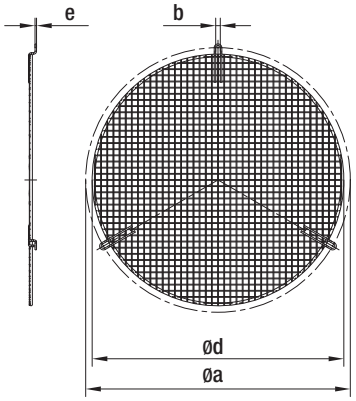
Part number	Fan size	Version	a	b	d	e	Strut division	Dimensions (mm)
79280-2-4039	250, 280	1	280	4,5	227	2,8	4 x 90°	
79310-2-4039	310	1	325	4,5	271	2,8	4 x 90°	
79355-2-4039	355	1	345	4,5	308	2,8	4 x 90°	
79400-2-4039	400	2	390	8,5	343	2,8	3 x 120°	
79450-2-4039	450	2	430	8,5	381	2,8	3 x 120°	
79500-2-4039	500	2	445	8,5	417	2,8	3 x 120°	
79560-2-4039	560	2	490	8,5	466	2,8	3 x 120°	
79630-2-4039	630	3	600	8,5	551	3,9	3 x 120°	
79710-2-4039	710, 800	3	700	8,5	651	3,9	3 x 120°	
79900-2-4039	900	4	850	8,5	801	3,9	6 x 60°	

Subject to change

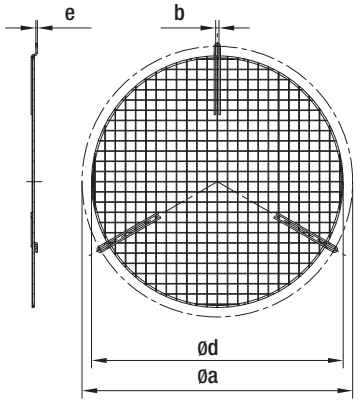
Version 1



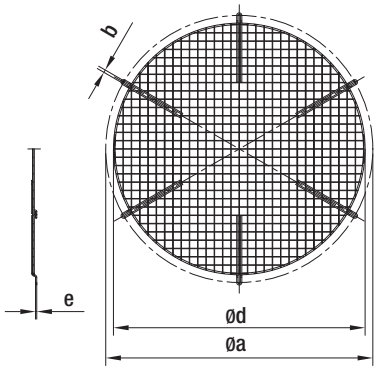
Version 2



Version 3



Version 4



Inlet rings

With / without measuring device

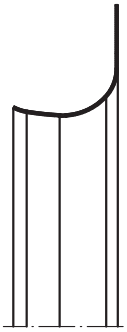
– **Material**: Galvanized sheet steel

Inlet rings with / without measuring device to determine the air flow for backwards-curved centrifugal fans

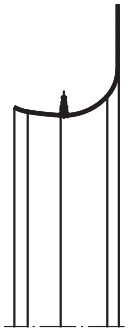
Part number	Fan size	Dimensions / drawing
96350-2-4013[1] / 96355-2-4013[2] / 96345-2-4013[3]	250	see page 89
28000-2-4013[1] / 28004-2-4013[2] / 28003-2-4013[3]	280	see page 89
28070-2-4013[1] / 28075-2-4013[2] / 28080-2-4013[3]	280 (compact)	see page 76
31470-2-4013[1] / 31475-2-4013[2] / 31480-2-4013[3]	310	see page 89
35670-2-4013[1] / 35675-2-4013[2] / 35680-2-4013[3]	355	see page 89
40073-2-4013[1] / 40078-2-4013[2] / 40083-2-4013[3]	400	see page 89
45070-2-4013[1] / 45075-2-4013[2] / 45080-2-4013[3]	450	see page 89
63072-2-4013[1] / 64025-2-4013[2] / 64002-2-4013[3]	500	see page 90
63071-2-4013[1] / 64030-2-4013[2] / 64001-2-4013[3]	560	see page 90
63070-2-4013[1] / 64040-2-4013[2] / 64000-2-4013[3]	630	see page 91
71070-2-4013[1] / 71075-2-4013[2] / 71080-2-4013[3]	710	see page 91

Subject to change [1] Without measuring device [2] With one pressure tap [3] With piezometer

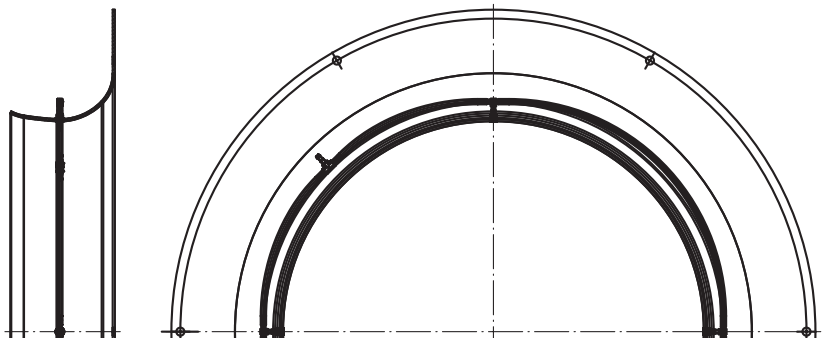
(1) Without measuring device:



(2) With one pressure tap:



(3) With piezometer:



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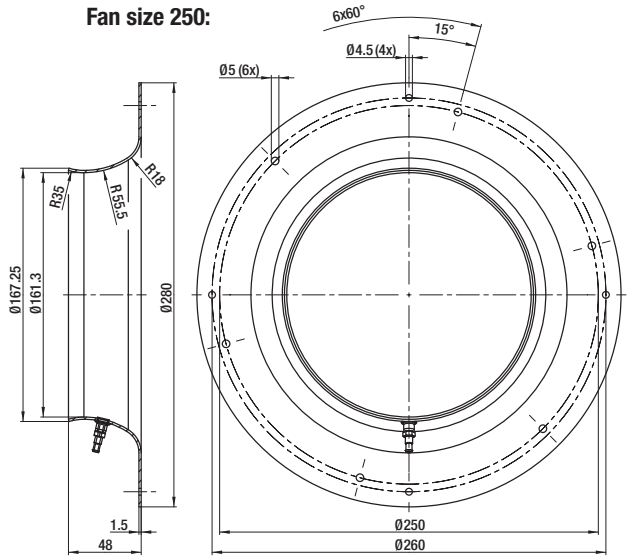
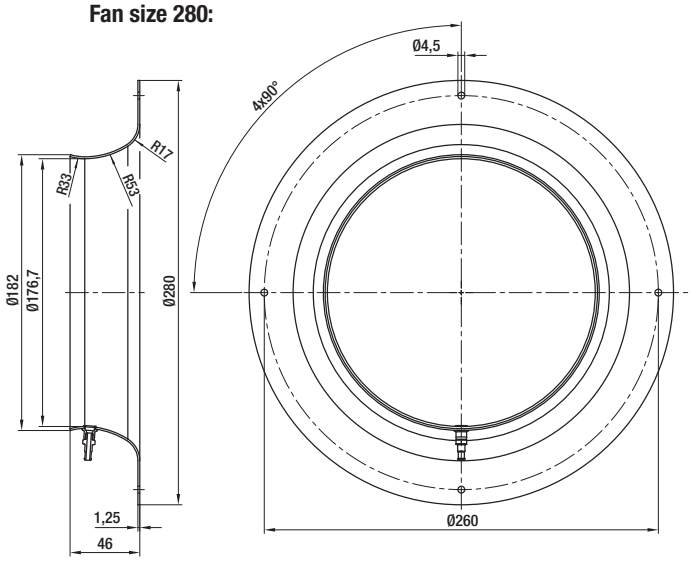
Inlet rings

Dimensioned drawings with one pressure tap

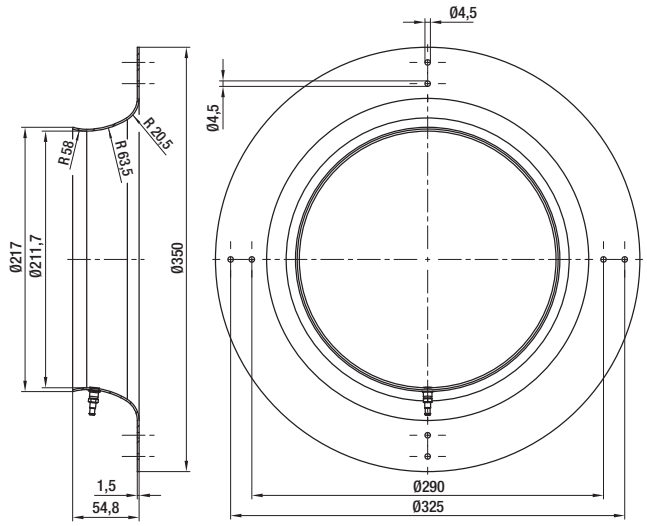
Fan size 250:



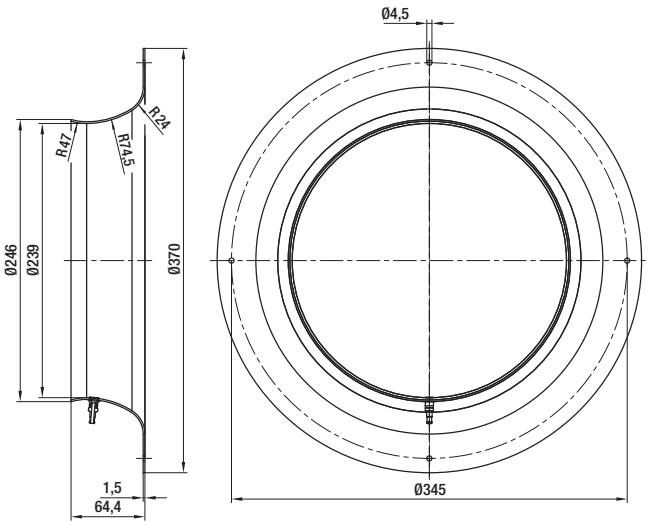
Fan size 280:



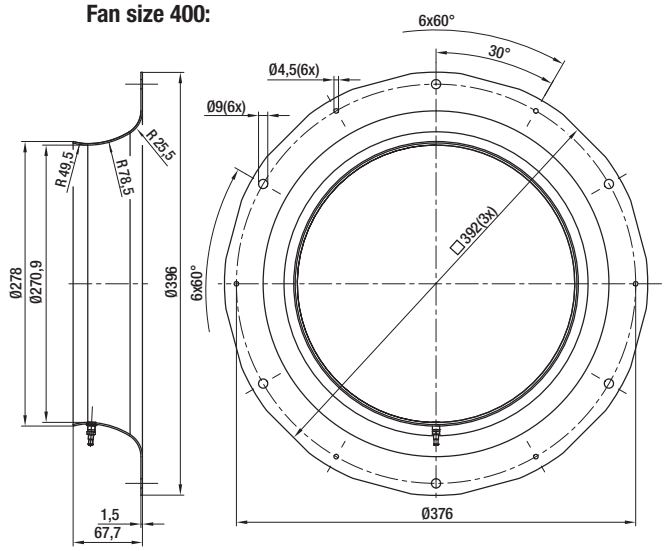
Fan size 310:



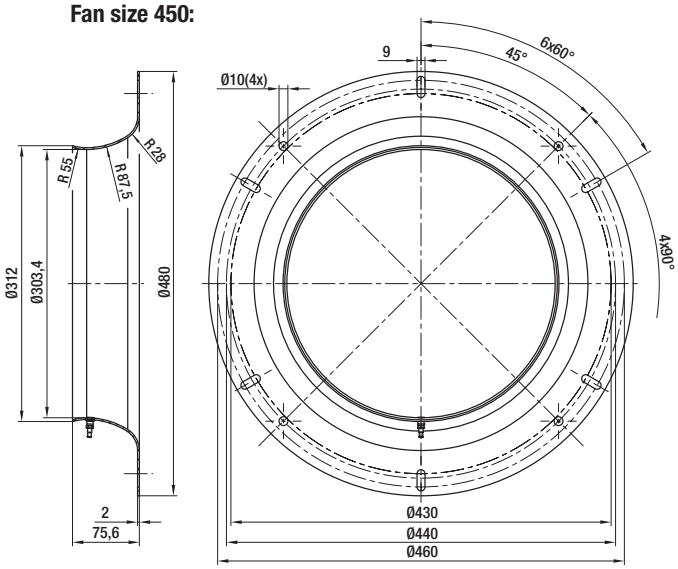
Fan size 355:



Fan size 400:



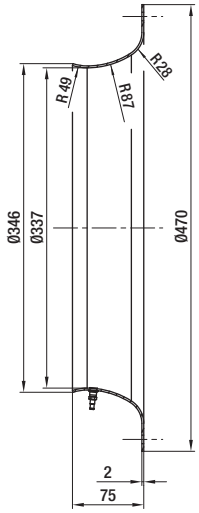
Fan size 450:

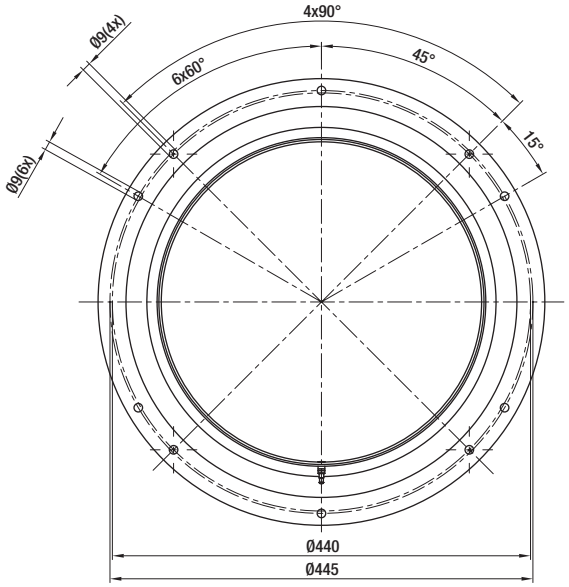


Inlet rings

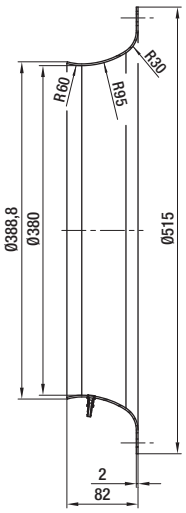
Dimensioned drawings with one pressure tap

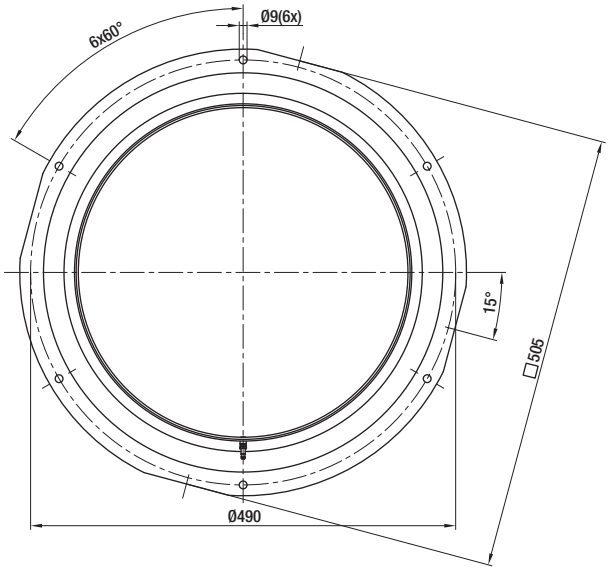
Fan size 500:





Fan size 560:





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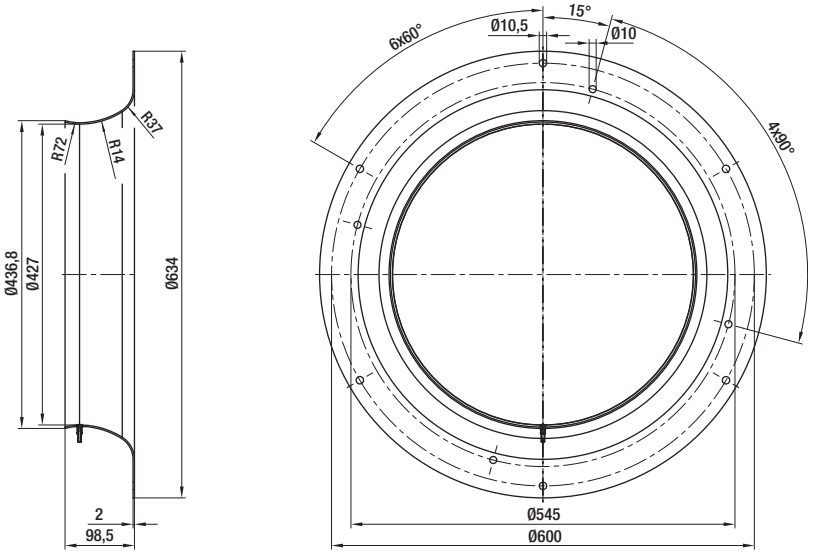
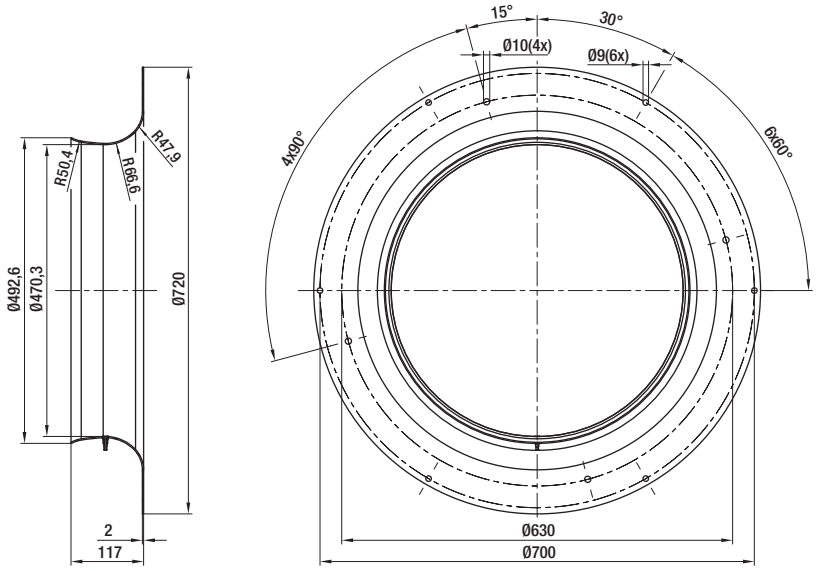
Inlet rings

Dimensioned drawings with one pressure tap

Fan size 630:

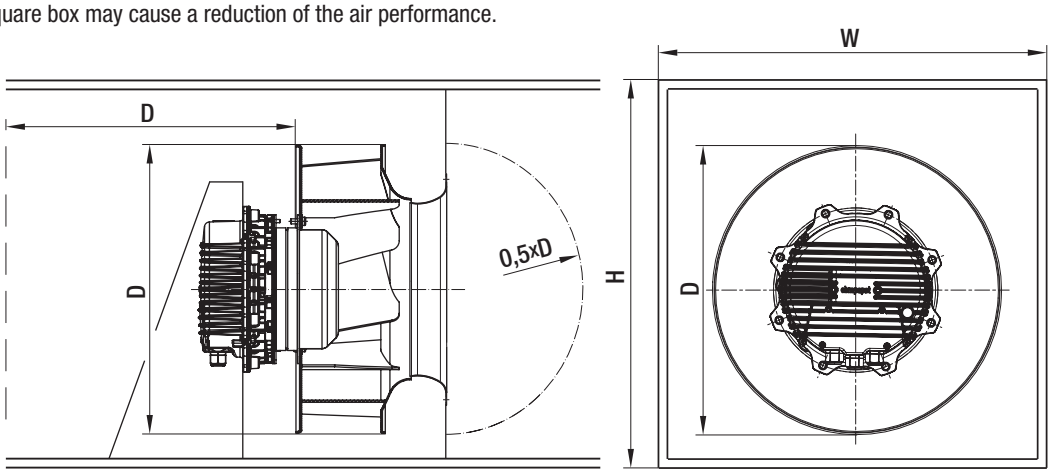


Fan size 710:



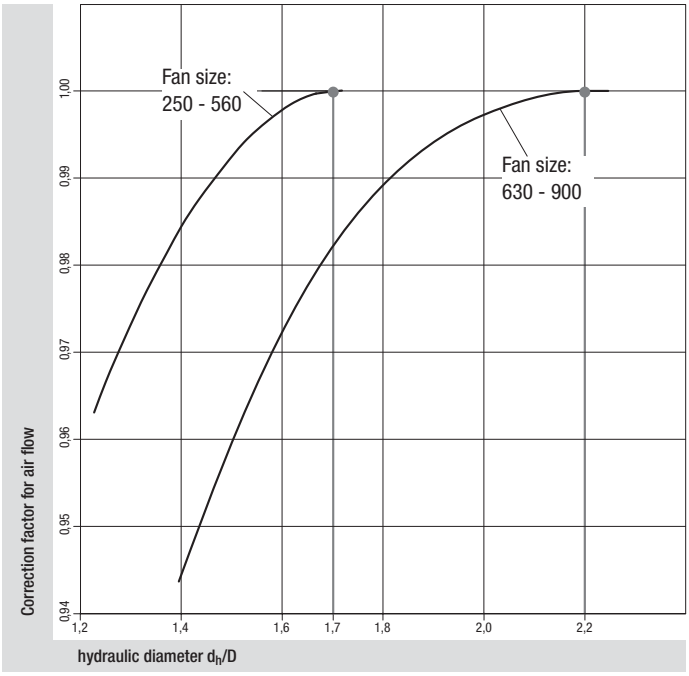
Effects of installation space

Effects of installation space:
Installation in a square box may cause a reduction of the air performance.



d_h	=	Hydraulic diameter Formula: $d_h = 2 \times B \times H / (B + H)$
W	=	Width of the box
H	=	Height of the box
D	=	Outside diameter of the fan

Correction values for the air flow:



The correction values shown here were determined from an extensive series of measurements taken on our own internal chamber test rig.

Here, square and rectangular outflow cross sections were considered.
This is why the hydraulic diameter was used to determine the correction values.

The new RadiPac fans are known to be less vulnerable to tight installation situations.

For square cross sections that are greater than 1.7 x the impeller diameter, no deduction has to be applied to the catalog curves.
For RadiPac sizes starting with 630, this is the case from 2.2 x the impeller diameter onward.

Air flow measurement

Air flow measurement:
The differential pressure method compares the static pressure upstream of the inlet ring with the static pressure in the inlet ring.

The air flow can be calculated from the differential pressure (between the static pressures) according to the following equation:

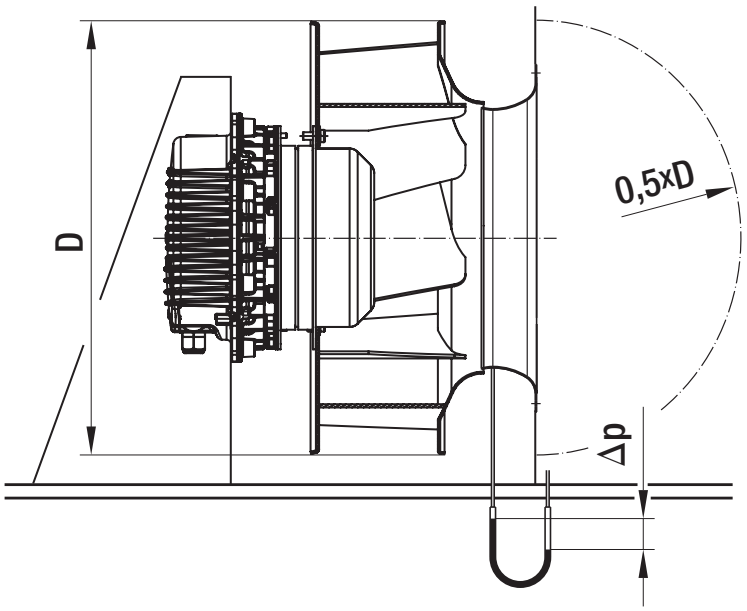
$$q_V = k \cdot \sqrt{\Delta p} \qquad q_V \text{ in } [m^3/h] \text{ and } \Delta p \text{ in } [Pa]$$

If the air flow is to be regulated to remain constant, the inlet pressure must be kept constant:

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

k takes into account the specific properties of the inlet ring.

The pressure is tapped at 1 (4) point(s) on the circumference of the inlet ring. The customer connection consists of a built-in T-shaped hose fitting. The hose fitting is suitable for pneumatic hoses with an inside diameter of 4 mm.



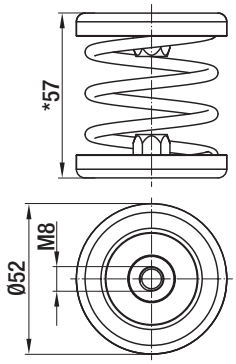
k-factors: (for RadiPac inlet rings)

Fan size	250	280	310	355	400	450	500
k-factor	76	77	116	148	188	240	281

Fan size	560	630	710	800	900
k-factor	348	438	545	695	900

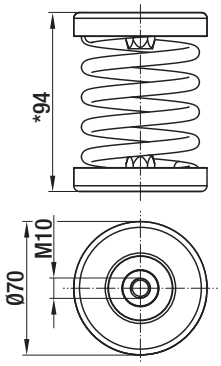
Spring elements

Version 1:



* Unloaded

Version 2:



– **Packaging:** Part numbers refer to one set consisting of 4x spring elements each.

Supplied in a box.

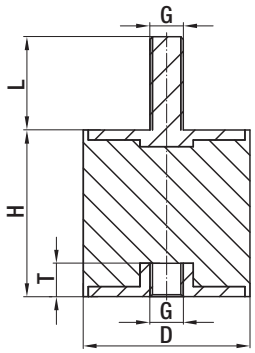
Spring elements

Part number (set)	Type	Version	Minimum speed	Deflection
---	K3G 250	---	---	Cube design in preparation
---	K3G 250	---	---	Cube design in preparation
---	K3G 250	---	---	Cube design in preparation
---	K3G 280	---	---	Cube design in preparation
---	K3G 280	---	---	Cube design in preparation
---	K3G 280	---	---	Cube design in preparation
---	K3G 310	---	---	Cube design in preparation
---	K3G 310	---	---	Cube design in preparation
---	K3G 310	---	---	Cube design in preparation
---	K3G 355	---	---	Cube design in preparation
---	K3G 355	---	---	Cube design in preparation
---	K3G 355	---	---	Cube design in preparation
---	K3G 400	---	---	Cube design in preparation
---	K3G 400	---	---	Cube design in preparation
---	K3G 450	---	---	Cube design in preparation
---	K3G 450	---	---	Cube design in preparation
---	K3G 450	---	---	Cube design in preparation
---	K3G 500	---	---	Cube design in preparation
---	K3G 500	---	---	Cube design in preparation
---	K3G 560	---	---	Cube design in preparation
---	K3G 560	---	---	Cube design in preparation
11012-4-5142	K3G 630-AR02-01	2	270 min^{-1}	25,7 mm
11013-4-5142	K3G 630-AS05-01	2	330 min^{-1}	17,3 mm
11013-4-5142	K3G 710-AR03-01	2	310 min^{-1}	19,5 mm
11013-4-5142	K3G 710-AS06-01	2	300 min^{-1}	20,3 mm
11013-4-5142	K3G 800-AR08-01	2	280 min^{-1}	23,1 mm
11013-4-5142	K3G 800-AS07-01	2	280 min^{-1}	23,1 mm
11014-4-5142	K3G 900-AR10-01	2	320 min^{-1}	17,8 mm
11014-4-5142	K3G 900-AS08-01	2	320 min^{-1}	17,8 mm

Subject to change

Attention: The spring elements offered are matched to the respective fan as a set (4x). Each fan must be installed separately. The installation and operation of several fans on one set of spring elements is not allowed. The spring elements are designed to achieve the best decoupling efficiency possible. However, when the fan is started up, it will run through the resonance frequency causing a brief vibration to occur. So when the fan is being operated, care must be taken to ensure that the specified minimum speed is also not undershot when the spring elements indicated are used. This will prevent the fan from being operated continuously in the resonance frequency. Operation close to or in the resonance frequency will destroy the fan! If spring elements other than those indicated are used, it is mandatory that a check be made to determine how the resonance frequency, and thus the operating requirements, change.

Vibration-absorbing elements



– **Packaging:** Part numbers refer to one set consisting of 4x rubber buffers, washers, and nuts each.

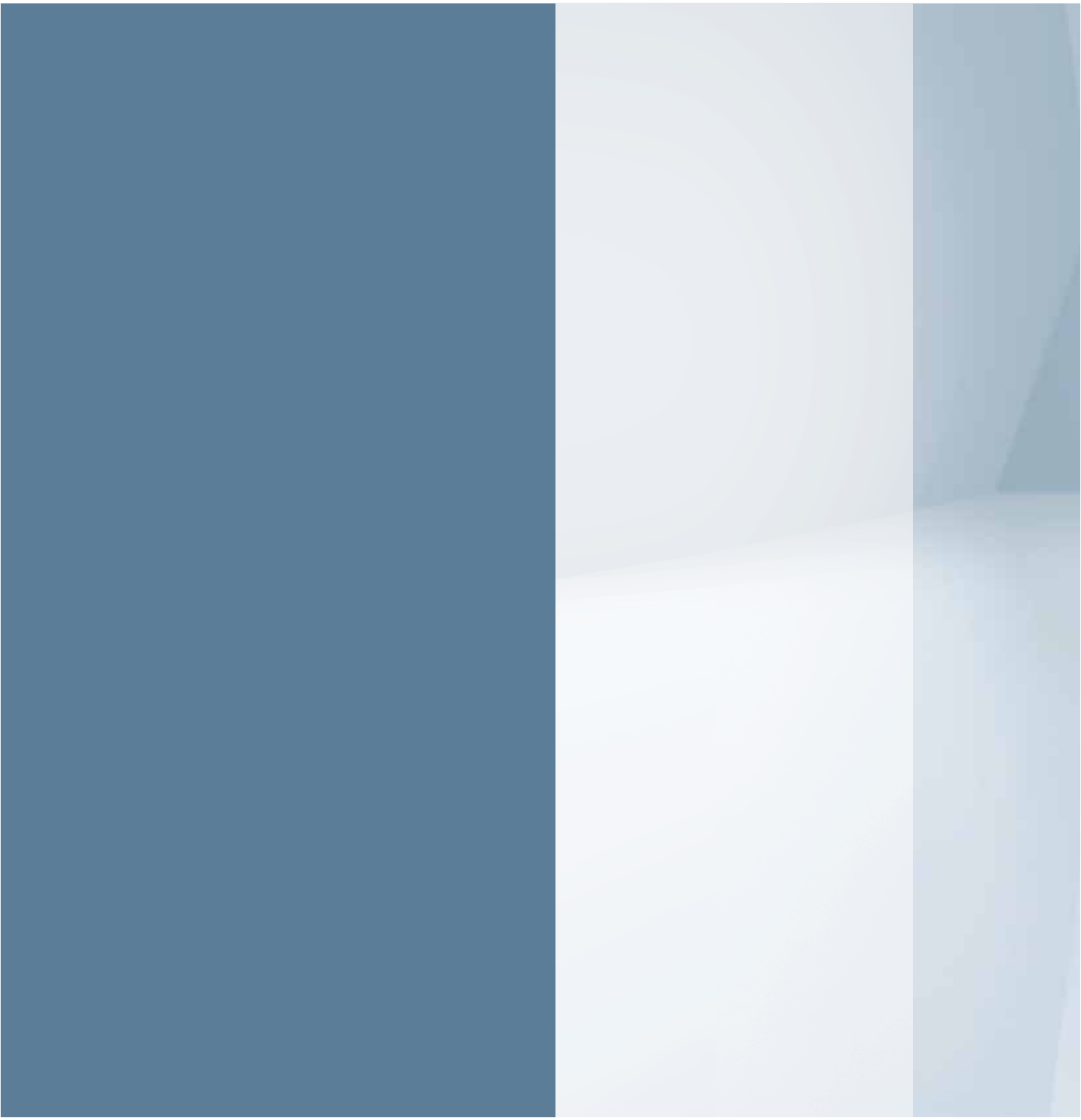
Supplied in a box.

Vibration-absorbing elements

Part number (set)	Type	Minimum speed	Deflection	D	G	H	L	T	
---	K3G 250	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 250	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 250	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 280	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 280	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 280	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 310	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 310	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 310	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 355	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 355	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 355	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 400	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 400	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 450	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 450	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 450	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 500	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 500	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 560	---	---	--	--	--	--	--	Cube design in preparation
---	K3G 560	---	---	--	--	--	--	--	Cube design in preparation
10005-4-5164	K3G 630-AR02-01	680 min^{-1}	2,9 mm	40	M10	40	28	10	
10006-4-5164	K3G 630-AS05-01	740 min^{-1}	2,4 mm	50	M10	50	28	10	
10005-4-5164	K3G 710-AR03-01	620 min^{-1}	3,5 mm	40	M10	40	28	10	
10006-4-5164	K3G 710-AS06-01	680 min^{-1}	2,9 mm	50	M10	50	28	10	
10005-4-5164	K3G 800-AR08-01	570 min^{-1}	4,1 mm	40	M10	40	28	10	
10006-4-5164	K3G 800-AS07-01	640 min^{-1}	3,3 mm	50	M10	50	28	10	
10005-4-5164	K3G 900-AR10-01	520 min^{-1}	5,0 mm	40	M10	40	28	10	
10006-4-5164	K3G 900-AS08-01	580 min^{-1}	3,9 mm	50	M10	50	28	10	

Subject to change

Attention: The vibration-absorbing elements offered are matched to the respective fan as a set (4x). Each fan must be installed separately. The installation and operation of several fans on one set of vibration-absorbing elements is not allowed. The vibration-absorbing elements are designed to achieve the best decoupling efficiency possible. However, when the fan is started up, it will run through the resonance frequency causing a brief vibration to occur. So when the fan is being operated, care must be taken to ensure that the specified minimum speed is also not undershot when the vibration-absorbing elements indicated are used. This will prevent the fan from being operated continuously in the resonance frequency. Operation close to or in the resonance frequency will destroy the fan! If vibration-absorbing elements other than those indicated are used, it is mandatory that a check be made to determine how the resonance frequency, and thus the operating requirements, change.



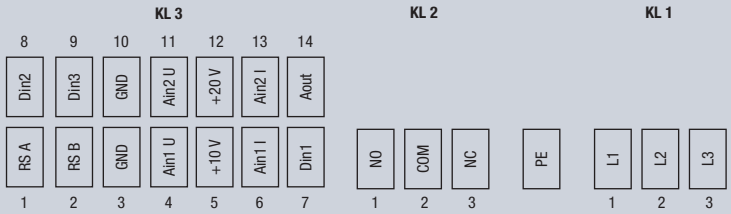
Connection diagrams

Connection diagram: M3)

M3G112 / M3G150 / M3G200

Technical features:

- Control input 0-10 VDC / PWM
- Output 10 VDC (+10 %) max. 10 mA
- Output 20 VDC (+/-20 %) max. 50 mA
- Output for slave 0-10 V max. 5 mA
- Input for sensor 0-10 V or 4-20 mA
- Operation and fault indicator
- Integrated PI controller
- Reverse plarity and locked-rotor protection / Soft start
- Motor current limitation / Alarm relay
- RS 485 MODBUS-RTU / PFC, passive
- Thermal overload protection for electronics/motor
- Undervoltage/phase failure detection
- Control interface with SELV potential safely disconnected from supply
- External enable input/External 24 V input (parameterization)



Terminal	Pin	Connection	Assignment/function
KL1	1	L1	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
	2	L2	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
	3	L3	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
PE		PE	Ground connection, PE connection
KL2	1	NO	Status relay, floating status contact, make for failure
	2	COM	Status relay, floating status contact, changeover contact, common connectionl (2 A, 250 V, min. 10 mA, AC1)
	3	NC	Status relay, floating status contact, break for failure
KL3	1	RSA	Bus connection RS485; RSA; MODBUS RTU
	2	RSB	Bus connection RS485; RSB; MODBUS RTU
	3/10	GND	Reference ground for control interface, SELV
	4	Ain1 U /PWM	Analog input 1 (set value); 0-10 V; Ri= 100 kΩ; adjustable curve; only for use as alternative to input Ain1 I, SELV
	5	+10 V	Fixed voltage output 10 VDC; +10 V ±3 %; max. 10 mA; short-circuit-proof; power supply for external devices (e.g. potentiometer), SELV
	6	Ain1I	Analog input 1 (set value); 4-20 mA; Ri= 100 Ω; adjustable curve, only for use as alternative to input Ain1 U, SELV
	7	Din1	Digital input 1: Enable electronics; Enable: Pin open or applied voltage 5...50 VDC; Disable: Bridge to GND or applied voltage < 1 VDC; Reset function: Triggering of software reset after level change to < 1VDC, SELV
	8	Din2	Digital input 2: Switching parameter sets 1/2, according to EEPROM setting, the valid/used parameter set can be selected via bus or via digital input Din2. Parameter set 1: Pin open or applied voltage 5-50 VDC; Parameter set 2: Bridge to GND or applied voltage < 1 VDC, SELV
	9	Din3	Digital input 3: Direction of action of integrated controller; According to EEPROM setting, the direction of action of the integrated controller can be selected as normal/inverse via bus or digital input; Normal: Pin open or applied voltage 5...50 VDC; Inverse: Bridge or applied voltage < 1 VDC, SELV
	11	Ain2 U	Analog input 2; Measured value 0-10 V; Ri= 100 kΩ; adjustable curve; only for use as alternative to input 11 Ain2 I, SELV
	12	+20 V	Fixed voltage output 20 VDC; +20 V +25/-10 %; max. 50 mA; short-circuit-proof; power supply for external devices (e.g. sensor), SELV
	13	Ain2I	Analog input 2; Measured value 4-20 mA; Ri= 100 Ω; adjustable curve, only for use as alternative to input Ain2 U, SELV
	14	Aout	Analog output 0-10 V; max. 5 mA; output of current motor modulation level/current motor speed. Adjustable curve, SELV

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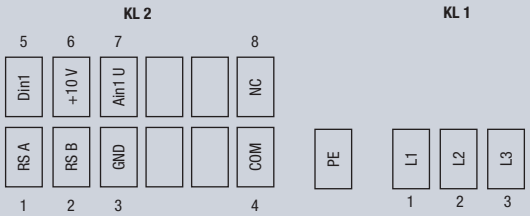
Connection diagram: M5)

M3G150

Technical features:

- Control input 0-10 VDC / PWM
- Output 10 VDC max. 10 mA
- Operation and fault indicator
- Integrated PI controller
- Alarm relay
- Soft start
- PFC, passive
- Reverse plarity and locked-rotor protection
- Motor current limitation
- RS 485 MODBUS-RTU
- Thermal overload protection for electronics/motor
- Undervoltage/phase failure detection
- Control interface with SELV potential safely disconnected from supply
- External enable input/External 24 V input (parameterization)



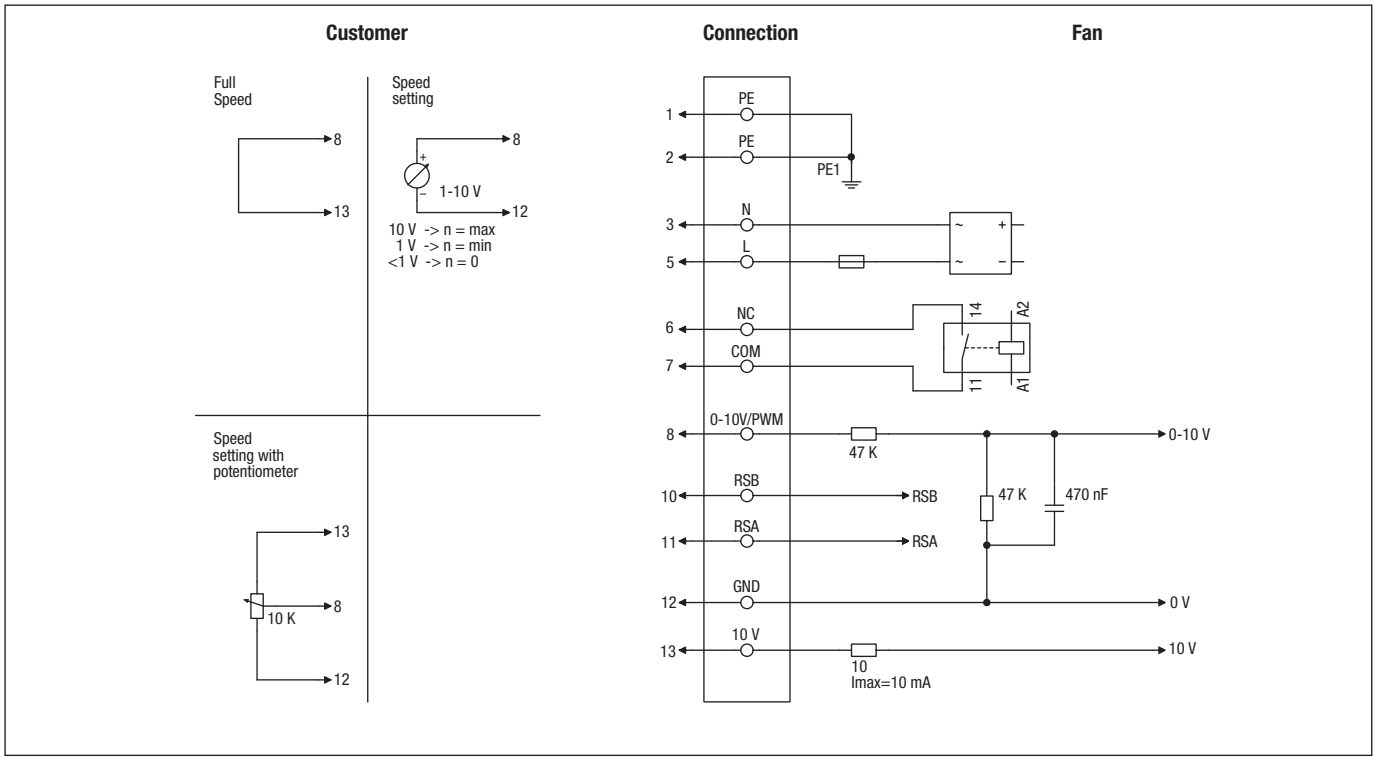
Terminal	Pin	Connection	Assignment/function
KL1	1	L1	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
	2	L2	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
	3	L3	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
PE		PE	Ground connection, PE connection
KL2	1	RSA	Bus connection RS485; RSA; MODBUS RTU, SELV
	2	RSB	Bus connection RS485; RSB; MODBUS RTU, SELV
	3	GND	Reference ground for control interface, SELV
	4	COM	Status relay, floating status contact, changeover contact, common connection, contact rating 250 VAC / 2 A (AC1)
	5	Din1	Digital input 1: Enable electronics; Enable: Pin open or applied voltage 5...50 VDC; Disable: Bridge to GND or applied voltage < 1 VDC; Reset function: Triggering of software reset after level change to < 1VDC, SELV
	6	+10 V	Fixed voltage output 10 VDC; +10 V ±3 %; max. 10 mA; short-circuit-proof; power supply for external devices (e.g. potentiometer), SELV
	7	Ain1 U /PWM	Analog input 1 (set value); 0-10 V; Ri= 100 kΩ; adjustable curve, SELV
	8	NC	Status relay, floating status contact; break for failure

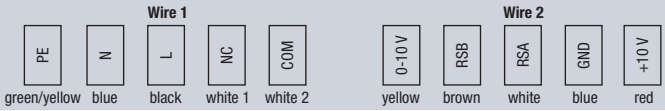
Connection diagram: P5)

M3G084, 1~

Technical features:

- Control input 0-10 VDC / PWM
- Output 10 VDC max. 10 mA
- Operation and fault indicator
- Alarm relay
- Locked-rotor protection, Soft start
- Power limiter
- PFC, active
- Motor current limitation
- RS 485 MODBUS-RTU
- Thermal overload protection for electronics/motor
- Undervoltage/phase failure detection
- Control interface with SELV potential safely disconnected from supply





Wire	No.	Connection	Color	Assignment/function
1	1, 2	PE	green/yel.	Protective earth
1	3	N	blue	Power supply, neutral conductor, voltage range see nameplate, 50/60 Hz
1	5	L	black	Power supply, phase, voltage range see nameplate, 50/60 Hz
1	6	NC	white 1	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
1	7	COM	white 2	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
2	8	0-10 V / PWM	yellow	Analog input (set value), SELV 0-10 V, impedance 100 kΩ, adjustable curve
2	10	RSB	brown	RS485 interface for MODBUS, RSB, SELV
2	11	RSA	white	RS485 interface for MODBUS, RSA, SELV
2	12	GND	blue	Reference ground for control interface, SELV
2	13	+ 10 V	red	Fixed voltage output 10 VDC, SELV +10 V +/- 3%), max. 10 mA, short-circuit-proof, power supply for ext. devices (e.g. potentiometer)

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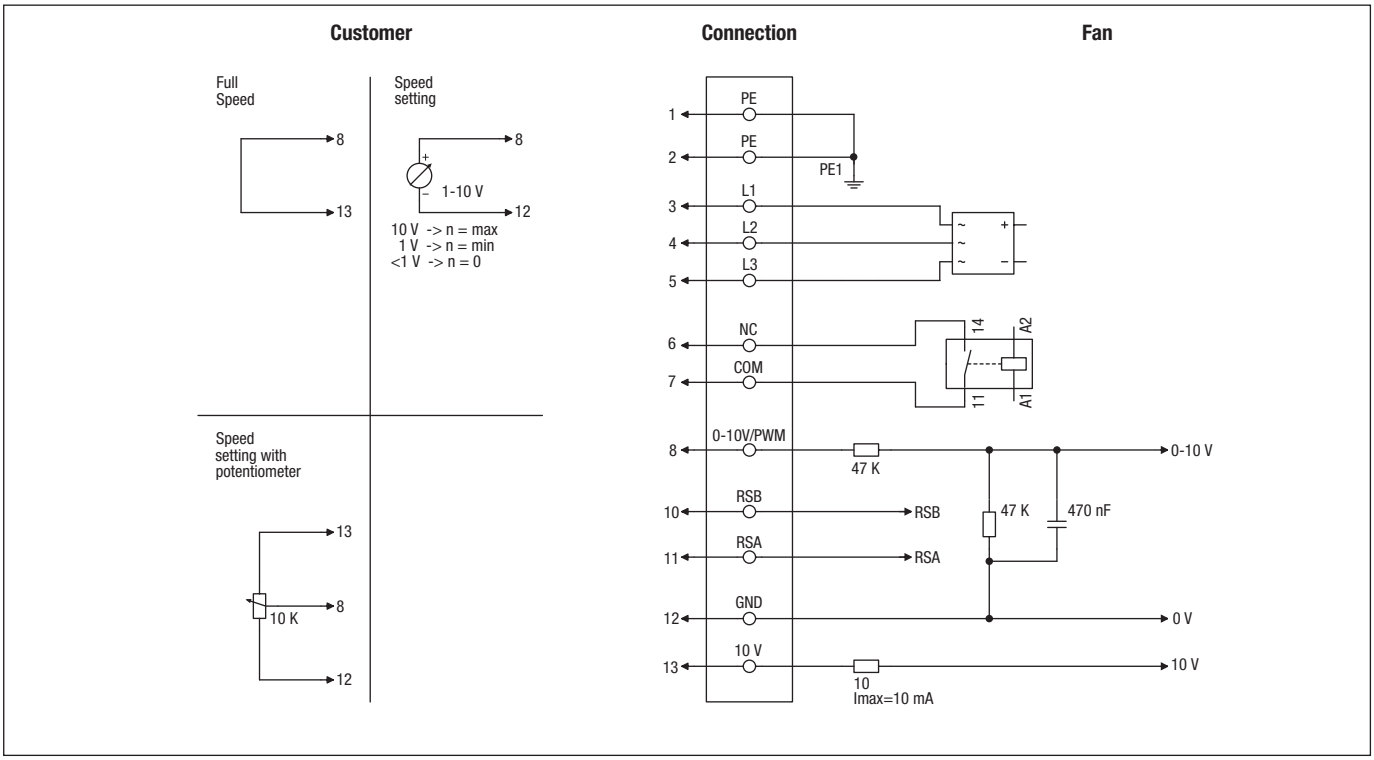
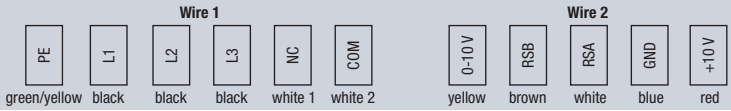
Connection diagram: P6)

M3G084, 3~

Technical features:

- Control input 0-10 VDC / PWM
- Output 10 VDC max. 10 mA
- Operation and fault indicator
- Integrated PI controller
- Alarm relay
- Locked-rotor protection, Soft start
- PFC, passive
- Motor current limitation
- RS 485 MODBUS-RTU
- Thermal overload protection for electronics/motor
- Undervoltage/phase failure detection
- External 24 V input (parameterization)
- Write cycles EEPROM max. 100,000
- Control interface with SELV potential safely disconnected from supply





Wire	No.	Connection	Color	Assignment/function
1	1, 2	PE	green/yel.	Protective earth
1	3, 4, 5	L1, L2, L3	black	Power supply, phase, voltage range see nameplate, 50/60 Hz
1	6	NC	white 1	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
1	7	COM	white 2	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
2	8	0-10 V / PWM	yellow	Analog input (set value), SELV 0-10 V, impedance 100 kΩ, adjustable curve
2	10	RSB	brown	RS485 interface for MODBUS, RSB, SELV
2	11	RSA	white	RS485 interface for MODBUS, RSA, SELV
2	12	GND	blue	Reference ground for control interface, SELV
2	13	+ 10 V	red	Fixed voltage output 10 VDC, SELV +10 V +/- 3%), max. 10 mA, short-circuit-proof, power supply for ext. devices (e.g. potentiometer), SELV Fixed voltage output 24 VDC for setting parameters via MODBUS without line voltage supply

Connection diagram: P8)

M3G084 & M3G112, 3~

Technical features:

- Control input 0-10 VDC / PWM
- Output 10 VDC max. 10 mA
- Operation and fault indicator
- Integrated PI controller
- Alarm relay
- Locked-rotor protection, Soft start
- PFC, passive
- Motor current limitation
- RS 485 MODBUS-RTU
- Thermal overload protection for electronics/motor
- Undervoltage/phase failure detection
- External 24 V input (parameterization)
- Write cycles EEPROM max. 100,000
- Control interface with SELV potential safely disconnected from supply

No.	Connection	Assignment/function
1, 2	PE	Protective earth
3	L1	Power supply, voltage range see nameplate, 50/60 Hz
4	L2	Power supply, voltage range see nameplate, 50/60 Hz
5	L3	Power supply, voltage range see nameplate, 50/60 Hz
6	NC	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
7	COM	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
8	GND	Reference ground for control interface, SELV
9	RSA	RS485 interface for MODBUS, RSA, SELV
10	RSB	RS485 interface for MODBUS, RSB, SELV
11	0-10 V / PWM	Analog input (set value), SELV 0-10 V, impedance 100 kΩ, adjustable curve
12	+10 V	Fixed voltage output 10 VDC, SELV +10 V +/- 3%), max. 10 mA, short-circuit-proof, power supply for ext. devices (e.g. potentiometer), SELV Fixed voltage output 24 VDC for setting parameters via MODBUS without line voltage supply

Connection diagram: L6)

M3G084, 3~ (compact)

Technical features:

- Control input 0-10 VDC / PWM
- Input for sensor 0-10 V or 4-20 mA
- Output for slave 0-10 V max. 3 mA
- Output 20 VDC (+25 %/-10 %) max. 50 mA
- Output 10 VDC (+/-3 %) max. 10 mA
- Integrated PI controller
- PFC, passive
- Motor current limitation, Alarm relay
- RS 485 MODBUS-RTU
- Thermal overload protection for electronics/motor
- Undervoltage/phase failure detection
- Locked-rotor protection, Soft start
- External 24 V input (parameterization)
- Control interface with SELV potential safely disconnected from supply

Terminal	Connection	Assignment/function
PE	PE	Protective earth
KL1	L3	Power supply, voltage range see nameplate, 50/60 Hz
	L2	Power supply, voltage range see nameplate, 50/60 Hz
	L1	Power supply, voltage range see nameplate, 50/60 Hz
KL2	NC	Status relay, floating status contact; break for failure
	COM	Status relay, floating status contact, common connection (2 A, 250 V, min. 10 mA, AC1)
	NO	Status relay, floating status contact; make for failure
KL3	OUT	Analogue output 0-10 VDC max. 3 mA, SELV; Output of the actual motor duty cycle (PWM): 1 V corresponds to 10 % PWM, 10 V correspond to 100 % PWM.
	GND	Reference ground for control interface, SELV
	0-10 V / PWM	Control input/current sensor value input 0-10 VDC, (impedance 100 kΩ), only for use as alternative to input 4-20 mA, SELV
	+10 V	Voltage output 10 VDC (±3 %), max. 10 mA, power supply for ext. devices (e.g. potentiometer), SELV
	+20 V	Voltage output 20 VDC (+25/-10 %), max. 50 mA, power supply for ext. devices (e.g. sensor), SELV
	4-20 mA	Control input/current sensor value input 4-20 mA, (Impedanz 100 Ω), only for use as alternative to input 0-10 V, SELV
	0-10 V / PWM	Control input/current sensor value input 0-10 VDC, (Impedanz 100 kΩ), only for use as alternative to input 4-20 mA, SELV
	GND	Reference ground for control interface, SELV
	RSB	RS485 interface for MODBUS RTU; RSB, SELV
	RSA	RS485 interface for MODBUS RTU; RSA, SELV
	RSB	RS485 interface for MODBUS RTU; RSB, SELV
	RSA	RS485 interface for MODBUS RTU; RSA, SELV

Technical parameters and scope

High standards for all ebm-papst products

At ebm-papst we are always looking to improve our products to be able to offer customers just what they need for their particular requirements. Careful monitoring of the market enables us to constantly incorporate enhancements into our products. As shown by the technical parameters listed below, you can always be sure of finding the right solution from ebm-papst for whatever application you may have in mind.

General performance parameters

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

Degree of protection

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

Insulation class

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

Installation position

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

Condensation drainage holes

Information on condensation drainage 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 main factors:

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

The service life of the insulation system is essentially governed by the voltage level, the temperature and the ambient conditions such as humidity and condensation.

The service life of the bearing system is primarily governed by the thermal load on the bearings. For the majority of our products we use maintenance-free ball bearings which can be fitted in any installation position. Sleeve bearings can alternatively be employed, as described in the product-specific data sheets.

As a rough guide (depending on the general conditions), the ball bearings have a life expectancy L10 of approx. 40,000 hours of operation at an ambient temperature of 40 °C.

We will gladly provide you with a life expectancy calculation based on your specific usage conditions.

Motor protection/thermal protection

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

The following protection methods are provided depending on the type of motor and area of application:

– Thermal overload protector, in-circuit or external
– PTC with electronic diagnostics
– Impedance protection
– Thermal overload protector with electronic diagnostics
– Current limitation via electronics

If use is made of an external thermal overload protector, a commercially available tripping unit must be connected by the customer for shut-off. Motor protection conforming to the applicable standard must be fitted for products not provided with a built-in thermal overload protector and not protected against improper use.

Mechanical strain/performance parameters

All ebm-papst products are subjected to comprehensive testing in conformity with the normative specifications and also incorporating the extensive experience of ebm-papst.

Vibration testing

Vibration testing is performed as follows:

– Vibration test in operation according to DIN IEC 68 Part 2-6
– Vibration test at standstill according to DIN IEC 68 Part 2-6

Shock load

Shock load testing is performed as follows:

– Shock load according to DIN IEC 68 Part 2-27

Balancing grade

Balancing grade testing is performed as follows:

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

Should your particular application require a higher level of balancing, please contact us and specify the details in your order.

Chemical and physical strain/performance parameters

Please consult your ebm-papst contact for any questions regarding chemical and physical strain.

Areas of use, industries & applications

Our products are used in a variety of industries and for numerous applications:
Ventilation, air conditioning and refrigeration technology, clean room technology, automotive and railway engineering, medical and laboratory technology, electronics, computer and office systems, telecommunications, household appliances, heating systems, machinery and installations, drive engineering.
Our products are not intended for use in the aerospace industry!

Legal and normative specifications

The products described in this catalog are developed and manufactured in accordance with the standards applying to the particular product and, if known, in accordance with the conditions of the particular area 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.
Compliance with EMC standards has to be assessed on the final product, as EMC properties may change under different installation conditions.

Touch current

Information on touch current is provided in the product-specific data sheets.
Measurement is performed according to IEC 60990.

Approvals

Please contact us if you require a specific type of approval (VDE, UL, GOST, CCC, CSA, etc.) for your ebm-papst product.
Most of our products can be supplied with the applicable approval.
Information on existing approvals is provided in the product-specific data sheets.

Air performance measurements

All air performance measurements are conducted on intake-side chamber test rigs conforming to the requirements of ISO 5801 and DIN 24163. The fans under test are attached to the measuring chamber with free air intake and exhaust (installation category A) and operated at nominal voltage, with alternating current also at nominal frequency, without any additional attachments such as a guard grill.
As required by the standards, the air performance curves shown are referenced to an air density of 1.15 kg/m^3.

Technical parameters and scope

Air and sound measurement conditions

Measurements on ebm-papst products are taken under the following conditions:

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

Sound measurements

All sound measurements are taken in anechoic rooms with reverberant floor. ebm-papst acoustic test chambers meet the requirements of accuracy class 1 as per DIN EN ISO 3745. For sound measurement, the fans being tested are positioned in a reverberant wall and operated at nominal voltage, with alternating current also at nominal frequency, without any additional attachments such as a guard grill.

Sound pressure and sound power level

All acoustic values are determined in accordance with ISO 13347, DIN 45635 and ISO 3744/3745 as per accuracy class 2 and given in A-rated form.

For measurement of the sound pressure level L_p the microphone is located on the intake side of the fan being tested, generally at a distance of 1 m on the fan axis.

For measurement of 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 measured sound power level can be roughly calculated from the sound pressure level by adding 7 dB.

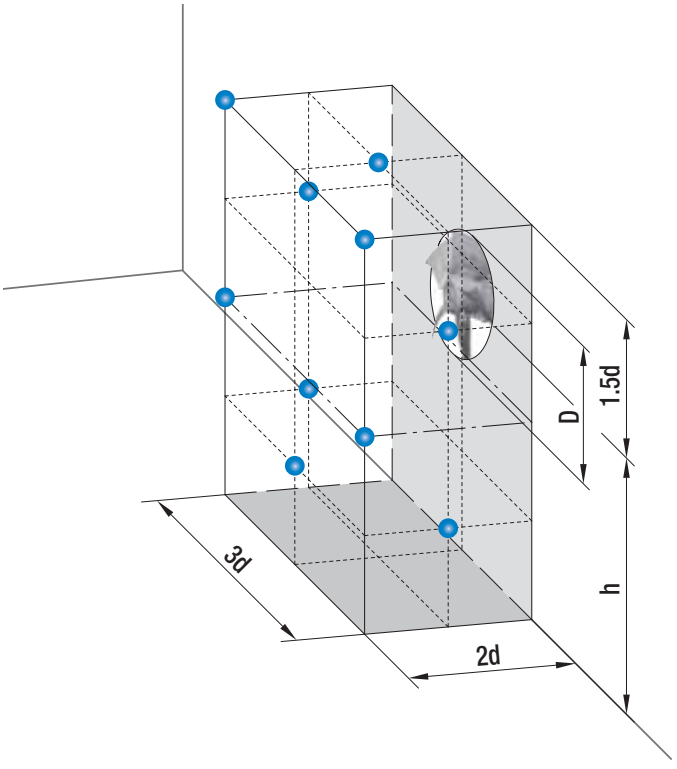
Measurement set-up according to ISO 13347-3 and DIN 45635-38:

● 10 measuring points

$d \geq D$

$h = 1.5d \ldots 4.5d$

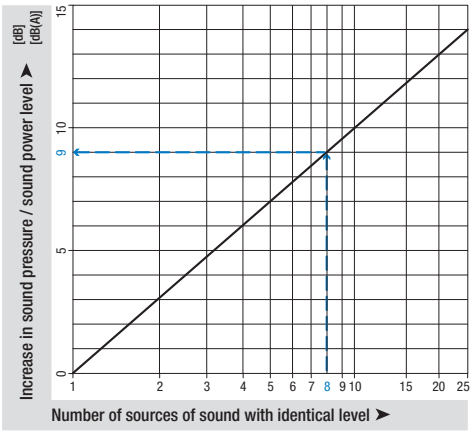
Measurement area $S = 6d^2 + 7d\ (h + 1.5d)$



Cumulative level of several sound sources with the same level

The addition of 2 sound sources with the same level produces a level increase of approx. 3 dB. The noise characteristics of several identical fans can be predicted on the basis of the sound values specified in the data sheet. This is shown in the adjacent graph.

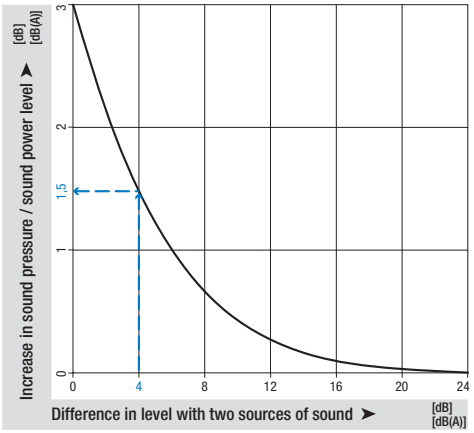
Example: There are 8 axial fans A3G800 on a condenser. According to the data sheet, the sound pressure level of one fan is 75 dB(A). The level increase determined from the graph is 9 dB. This means that a total level of 84 dB(A) is to be expected for the installation.



Cumulative level of two sound sources with different levels

The noise characteristics of two different fans can be predicted on the basis of the sound values specified in the data sheet. This is shown in the adjacent graph.

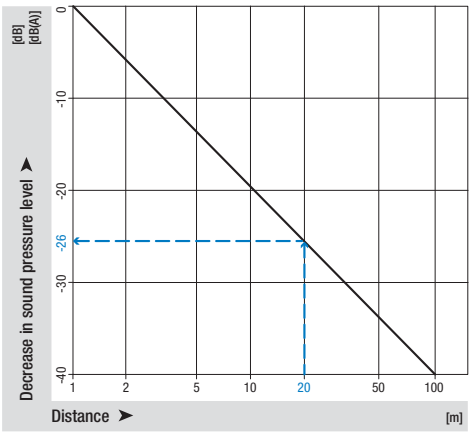
Example: In a ventilation unit, there is one axial fan A3G800 with a sound pressure level of 75 dB(A) at the point of operation and one axial fan A3G710 with 71 dB(A). The difference in level is 4 dB. The level increase of approx. 1.5 dB can now be read off the graph. This means that a total level of 76.5 dB(A) is to be expected for the unit.



Distance laws

The sound power level is not governed by the distance from the noise source. By contrast, the sound pressure level decreases with increasing distance from the sound source. The adjacent graph shows the decrease in level under far field conditions. Far field conditions apply if there is a considerable distance between the microphone and the fan in relation to the fan diameter and the wavelength under consideration. On account of the complexity of the topic, literature should be consulted for more detailed information on far fields. The level in the far field decreases by 6 dB each time the distance is doubled. Different relationships apply in the near field of the fan and the level may decrease to a far lesser extent. The following example only applies to far field conditions and may vary considerably as a result of installation effects:

For an axial fan A3G300, a sound pressure level of 65 dB(A) was measured at a distance of 1 m. From the adjacent graph, this would yield a reduction of 26 dB at a distance of 20 m, i.e. a sound pressure level of 39 dB(A).



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