



EC/AC centrifugal fans – RadiCal



ebmpapst

The engineer's choice

EC/AC centrifugal fans – RadiCal

Impellers made of high-tech compound material with optimised flow control, combined with proven single- or 3-phase asynchronous motors or highly efficient GreenTech EC motors: these are the outstanding features of the new generation of backward-curved centrifugal fans for operation without scroll housing. That's RadiCal!

The impellers in sizes 133 to 630mm are made of a single-piece special compound material which allows for high rotational speed, and thus for the high power density of the fan. The impeller styling has been optimised using complex simulation models adjusted to perfection by checking against prototypes. The result is an optimal, low-loss flow of air through the impeller and so there are no longer any drastic cross-sectional changes, a well-known source of losses in the impeller. A uniform flow profile without separations also means fewer noise sources and thus better acoustics. That's RadiCal, too!

The new motor in GreenTech EC technology with integrated control electronics is designed in such a way as to make the RadiCal fans in sizes 190 up to 250mm have the same mounting dimensions as the combination of the same impeller with an asynchronous motor. In addition, the specified EC centrifugal fan achieves significantly higher air performance than the AC variant with identical dimensions. The small GreenTech EC fans are available in two different control configurations: one with two fixed speed stages and another with the familiar continuous control option via a combined 0-10V/PWM control input. Sizes exceeding 250mm can be controlled by a 0-10V/PWM input signal or monitored respectively controlled via RS485 serial connection, using the MODBUS-RTU protocol.

This opens up entirely new possibilities for applications in ventilation and air-conditioning and beyond. For example, ebm-papst AC fans can now be replaced by the latest fans in GreenTech EC technology without any expensive modification.

Advantages at a glance:

- High efficiency with improved impeller technology and new EC motors
- Perfectly matching components (controller/motor/impeller)
- Extremely quietly running with optimised air flow through the impeller
- Significantly reduced tonal noise
- Unrivalled compactness
- Mechanical compatibility of AC and EC fans
- EC fans with 2 speeds or continuous control
- High power density
- Robust design and maintenance-free operation
- Easy initial set-up
- ErP* compliant (see individual designation)

*ErP: Energy-related Products directive – defined minimum requirements for fans in accordance with the EcoDesign directive for fans with a drive output of 125 W and above.

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



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

GreenTech is pro-active development.

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

GreenTech is eco-friendly production.

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

GreenTech is acknowledged and certified.

Every step in our chain of production meets the stringent standards of environmental specialists and the public. The Deutscher Nachhaltigkeitspreis 2012 (German Sustainability Award 2012), where we were given the Top3-award in the category "Germany's most sustainable strategy for the future (company group)" bears testimony to our commitment to sustainability, as does the DEKRA Award 2012 we received in the category "Umwelt – Herausforderung Energiewende / Environment – Challenge: Transition to more sustainable energy systems", to name only a few of a large number of examples. The environmental advantage gained in the performance of the products developed from our GreenTech philosophy can also be measured in the fulfillment of the most stringent energy and environmental standards. In many instances, our products are already well below the thresholds energy legislation will impose a few years from now – several times over.

Our customers profit from this every day.

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





EC centrifugal fans – RadiCal



EC centrifugal fans – RadiCal

backward curved, Ø 133

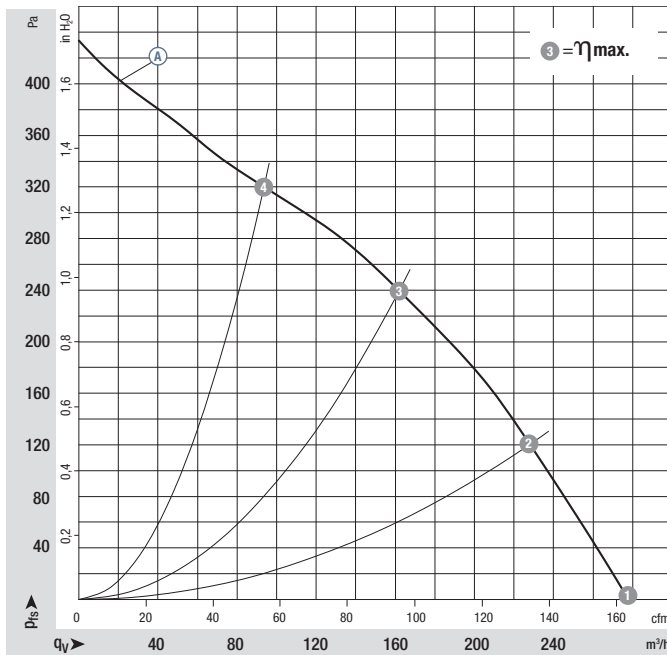


- **Material:** Housing: PA plastic 6, fibreglass-reinforced
Impeller: PA plastic 6, fibreglass-reinforced
Rotor: Thick layer passivated
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "B"
- **Mounting position:** Any
- **Condensate discharges:** None, open rotor
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Perm. amb. temp.	Technical features and electrical connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 133	M3G 045-AI	Ⓐ 1~	200-240	50/60	3770	27	0,27	-25..+60	p. 165 / H4)

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

Curves: Speed-controlled



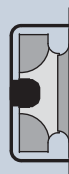
	n rpm	P _{ed} W	I A	L _{wA} dB(A)
Ⓐ 1	3930	24	0,23	66
Ⓐ 2	3800	26	0,26	63
Ⓐ 3	3770	27	0,27	61
Ⓐ 4	3835	26	0,25	65

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Technical features:** See electrical connections p. 165
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



Mass of centrifugal module with support basket

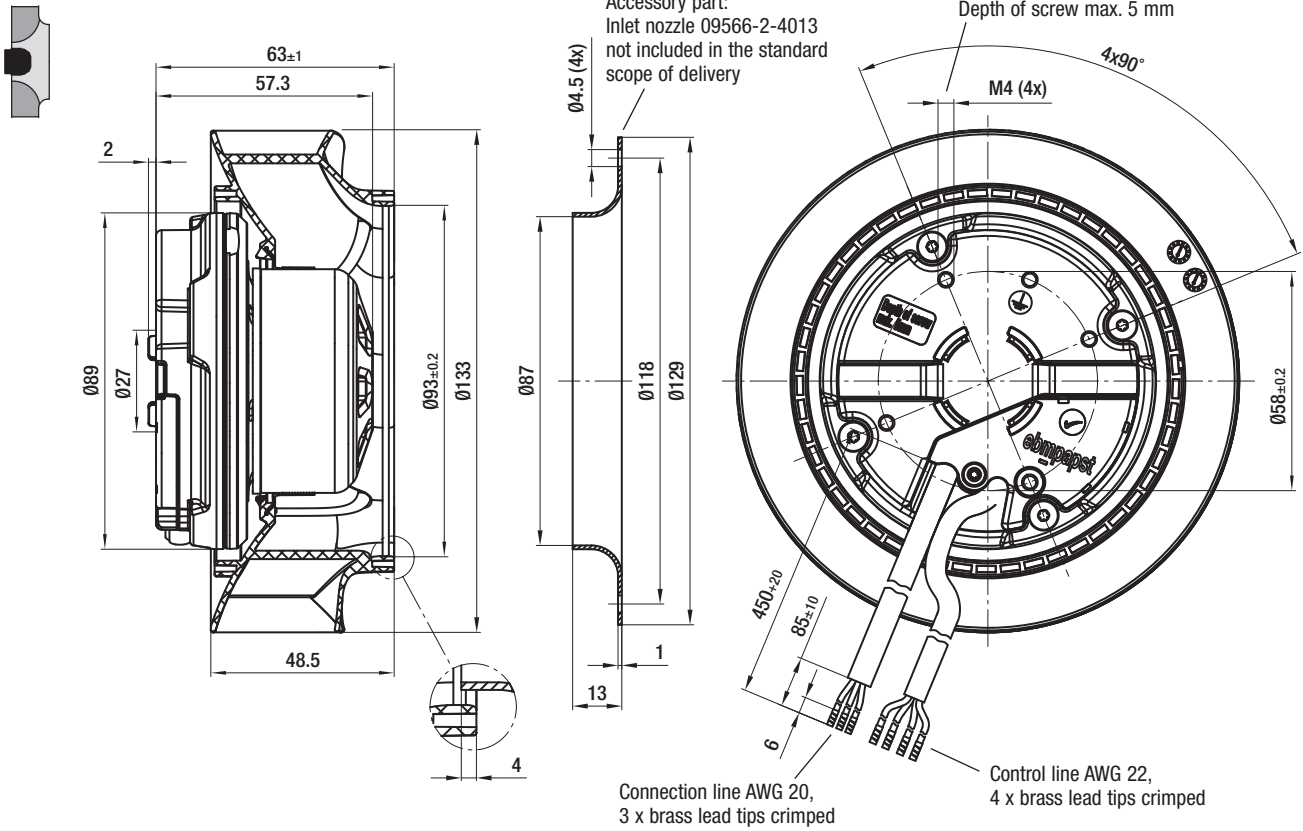
Centrifugal fan	kg	Centrifugal module w. support basket	kg
R3G 133-RA01 -03	0,5	K3G 133-RA01 -03	0,75

EC centrifugal fans – RadiCal

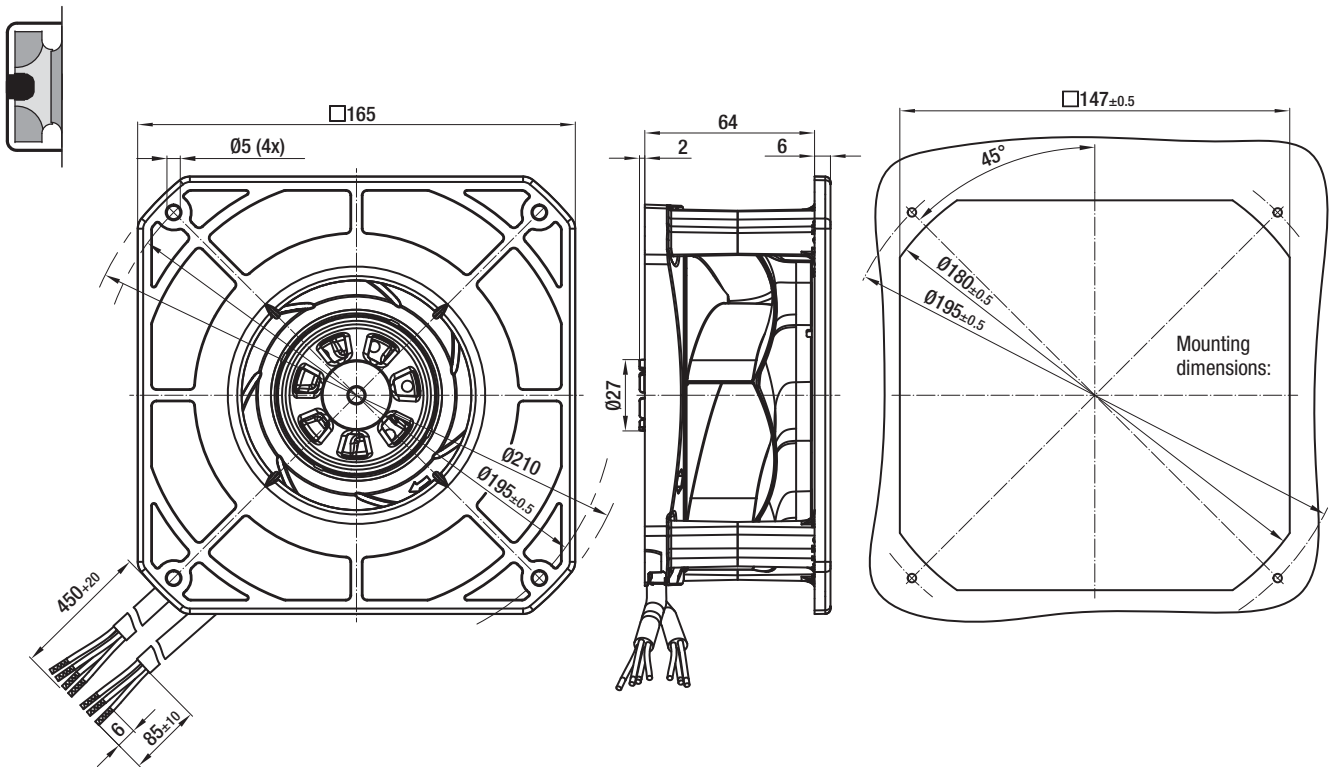
backward curved, Ø 133, speed-controlled



R3G 133-RA01-03 (Centrifugal fan)



K3G 133-RA01-03 (Centrifugal module with support basket)



EC centrifugal fans – RadiCal

backward curved, Ø 190



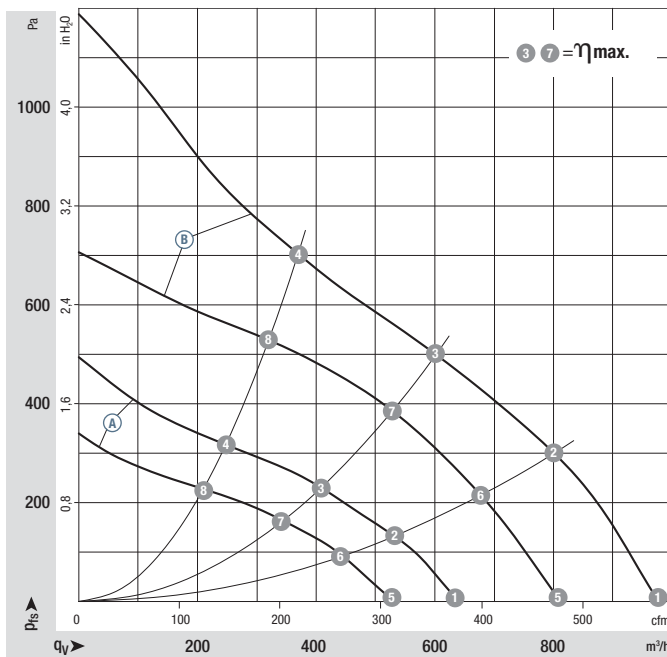
- **Material:** Housing: PA plastic 6, fibreglass-reinforced
Impeller: PA plastic 6, fibreglass-reinforced
Rotor: Thick layer passivated
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "B"
- **Mounting position:** Any
- **Condensate discharges:** None, open rotor
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Perm. amb. temp.	Technical features and electrical connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 190	M3G 055-BD	Ⓐ	1~ 200-240	50/60	2710	57	0,43	-25..+60	p. 164 / H3)
*3G 190	M3G 055-CF	Ⓑ	1~ 200-240	50/60	4120	169	1,35	-25..+60	p. 164 / H3)
*3G 190	M3G 055-BI	Ⓒ	1~ 200-240	50/60	3200	83	0,75	-25..+60	p. 165 / H4)
*3G 190	M3G 055-CF	Ⓓ	1~ 200-240	50/60	3640	115	1,10	-25..+60	p. 163 / H5)
*3G 190	M3G 055-CF	Ⓔ	1~ 200-240	50/60	4120	169	1,35	-25..+60	p. 165 / H4)

subject to alterations

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

Curves:
2 Speed stages



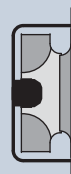
	n rpm	P _{ed} W	I A	L _{wA} dB(A)
Ⓐ ①	2880	49	0,36	69
Ⓐ ②	2815	52	0,40	64
Ⓐ ③	2710	57	0,43	62
Ⓐ ④	2780	54	0,41	67
Ⓐ ⑤	2435	30	0,23	65
Ⓐ ⑥	2390	32	0,25	60
Ⓐ ⑦	2325	35	0,27	59
Ⓐ ⑧	2360	33	0,26	63
Ⓑ ①	4440	160	1,35	81
Ⓑ ②	4235	165	1,35	75
Ⓑ ③	4120	169	1,35	72
Ⓑ ④	4155	160	1,35	74
Ⓑ ⑤	3720	95	0,85	77
Ⓑ ⑥	3675	105	0,95	73
Ⓑ ⑦	3615	115	1,00	69
Ⓑ ⑧	3650	110	0,95	72

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Technical features:** See electrical connections p. 163 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



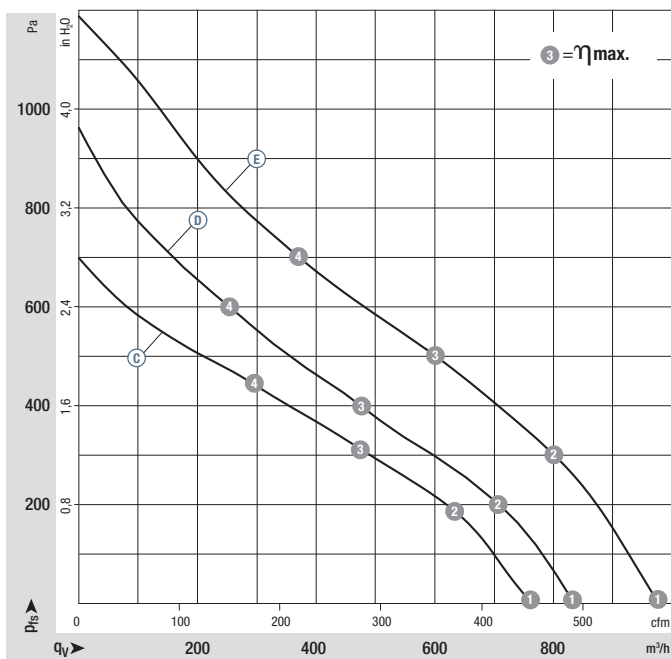
Mass of centrifugal fan



Mass of centrifugal module with support basket

Centrifugal fan	kg	Centrifugal module w. support basket	kg
R3G 190-RB01 -01	0,85	K3G 190-RB01 -01	1,40
R3G 190-RD45 -01	1,36	K3G 190-RD45 -01	1,91
R3G 190-RC05 -03	1,06	K3G 190-RC05 -03	1,61
R3G 190-RG19 -01	1,40	K3G 190-RG19 -01	1,60
R3G 190-RD45 -03	1,36	K3G 190-RD45 -03	1,91

Curves:
Speed-controlled



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

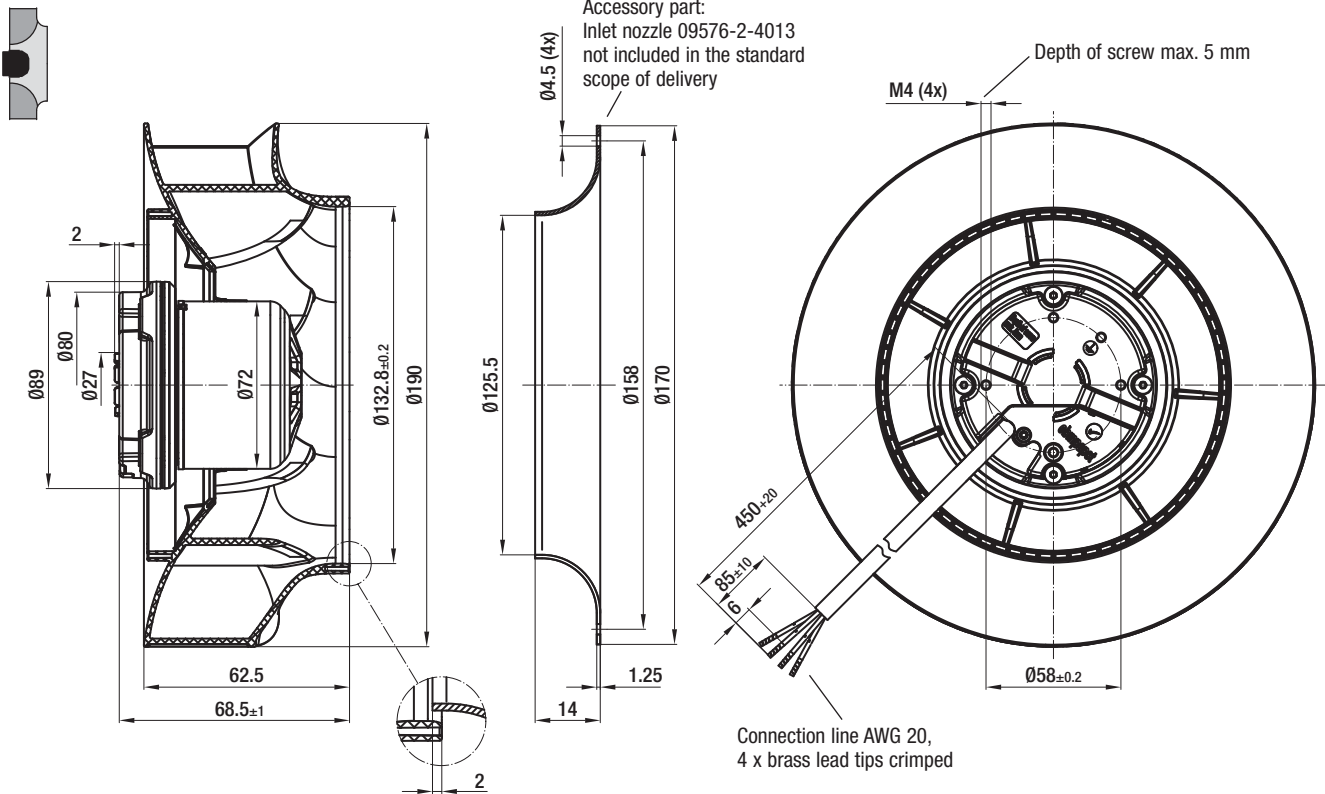
	n rpm	P_{ed} W	I A	L_{wA} dB(A)
Ⓒ 1	3435	80	0,69	73
Ⓒ 2	3335	83	0,73	68
Ⓒ 3	3200	83	0,75	66
Ⓒ 4	3300	83	0,74	70
Ⓓ 1	3980	115	1,10	78
Ⓓ 2	3865	115	1,10	74
Ⓓ 3	3640	115	1,10	71
Ⓓ 4	3840	115	1,10	76
Ⓔ 1	4440	160	1,35	81
Ⓔ 2	4235	165	1,35	75
Ⓔ 3	4120	169	1,35	72
Ⓔ 4	4155	160	1,35	74

EC centrifugal fans – RadiCal

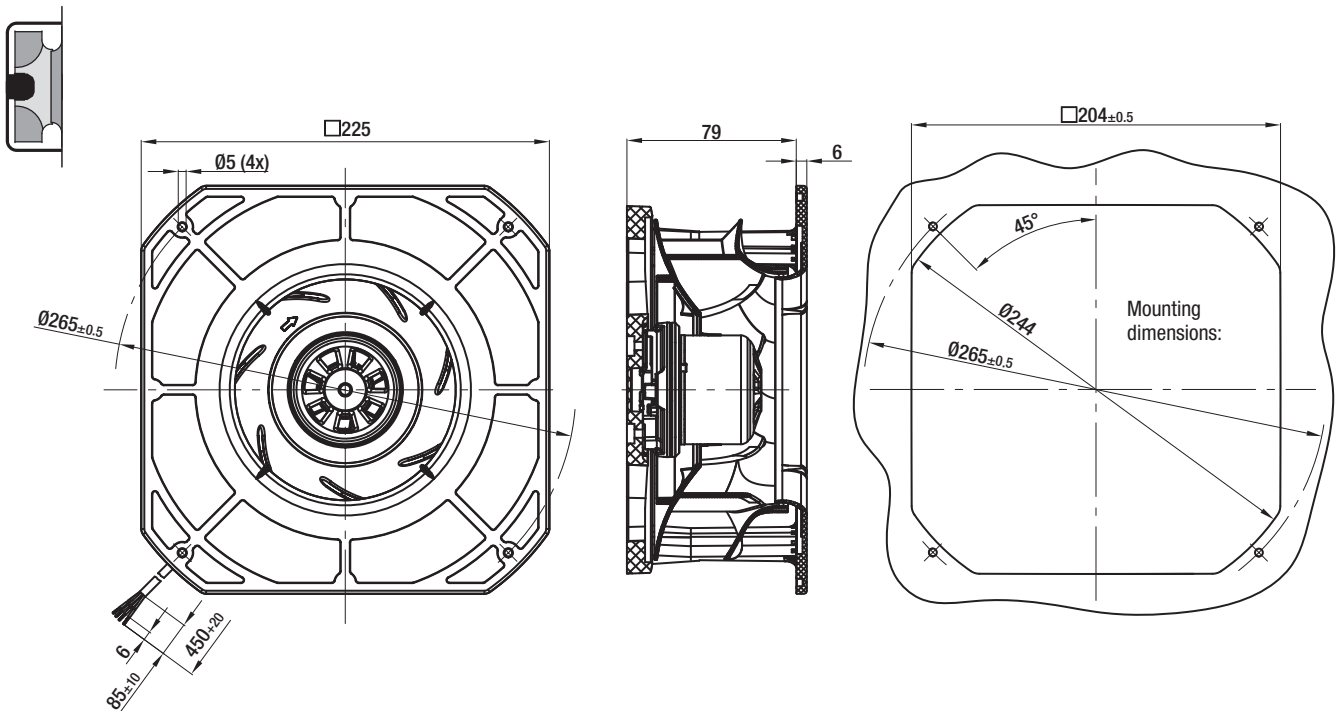
backward curved, Ø 190, 2 speed stages, 85 W - electronics



R3G 190-RB01-01 (Centrifugal fan)



K3G 190-RB01-01 (Centrifugal module with support basket)

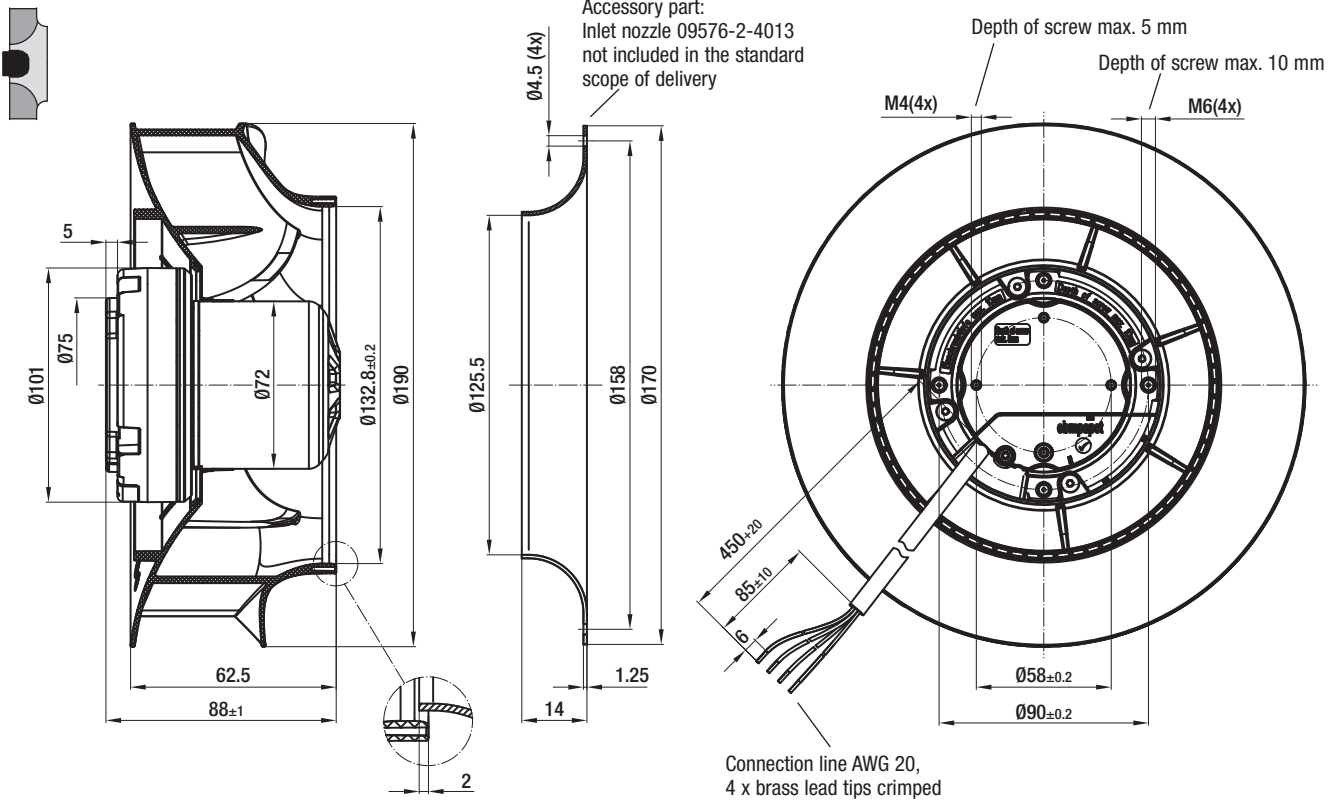


EC centrifugal fans – RadiCal

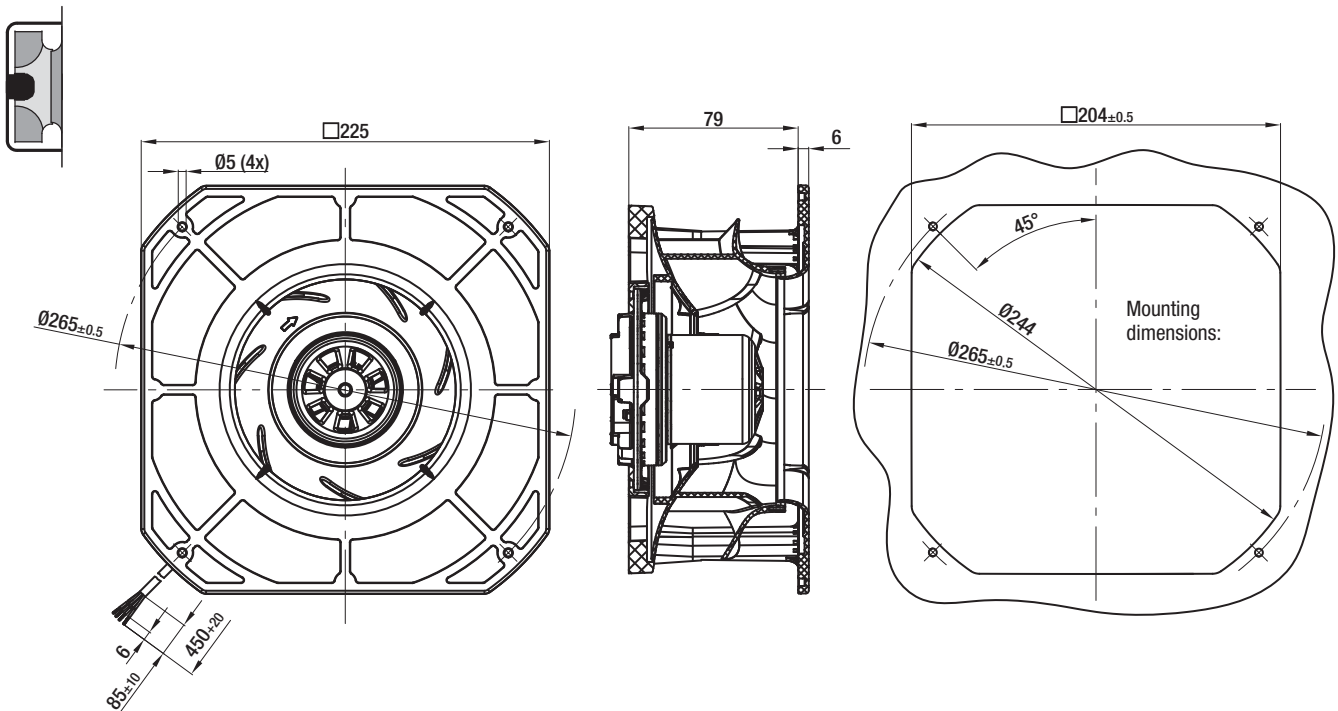
backward curved, Ø 190, 2 speed stages, 170 W - electronics



R3G 190-RD45-01 (Centrifugal fan)



K3G 190-RD45-01 (Centrifugal module with support basket)

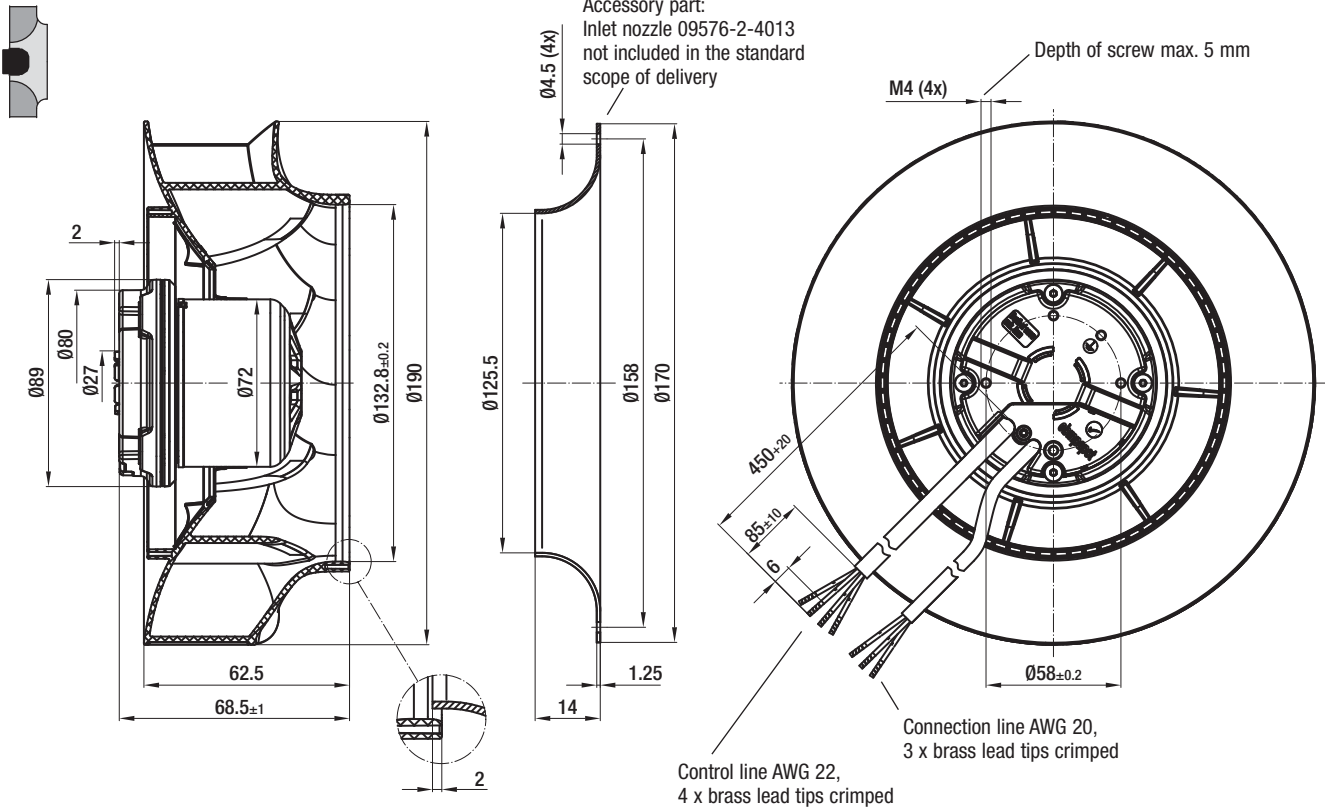


EC centrifugal fans – RadiCal

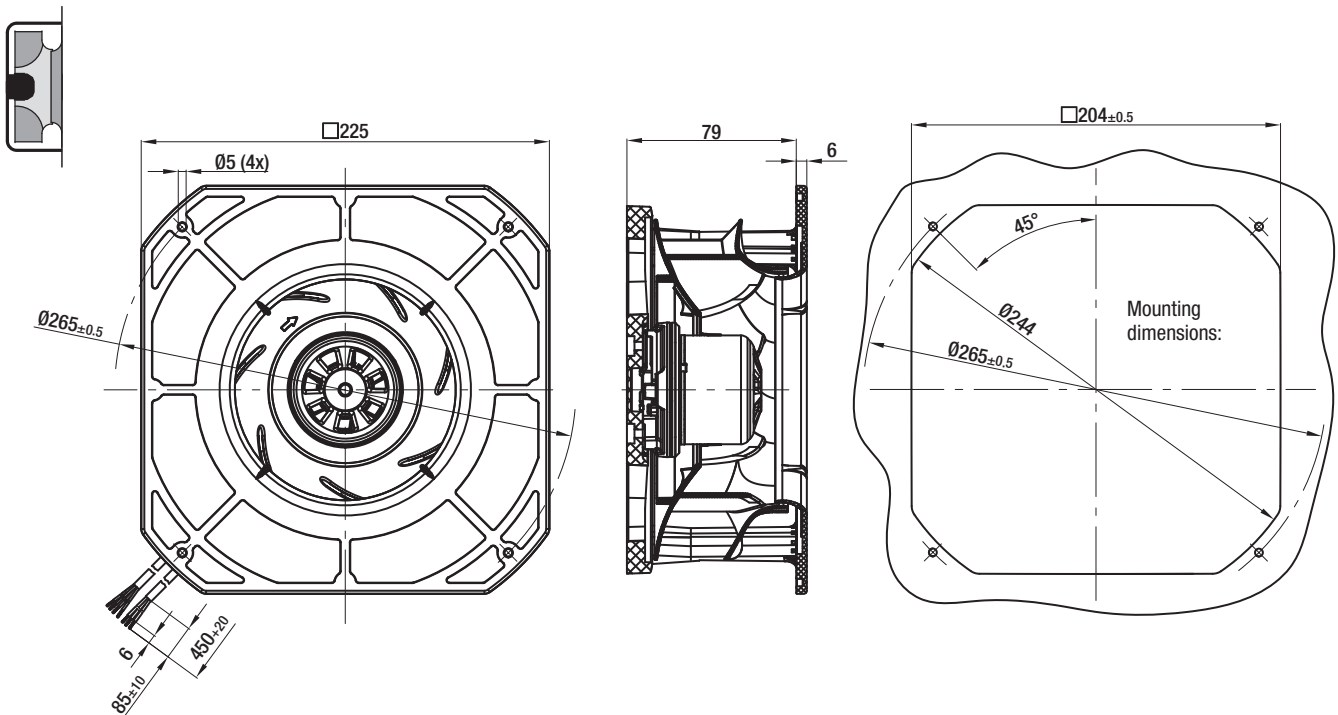
backward curved, Ø 190, speed-controlled, 85 W - electronics



R3G 190-RC05-03 (Centrifugal fan)



K3G 190-RC05-03 (Centrifugal module with support basket)



EC centrifugal fans – RadiCal

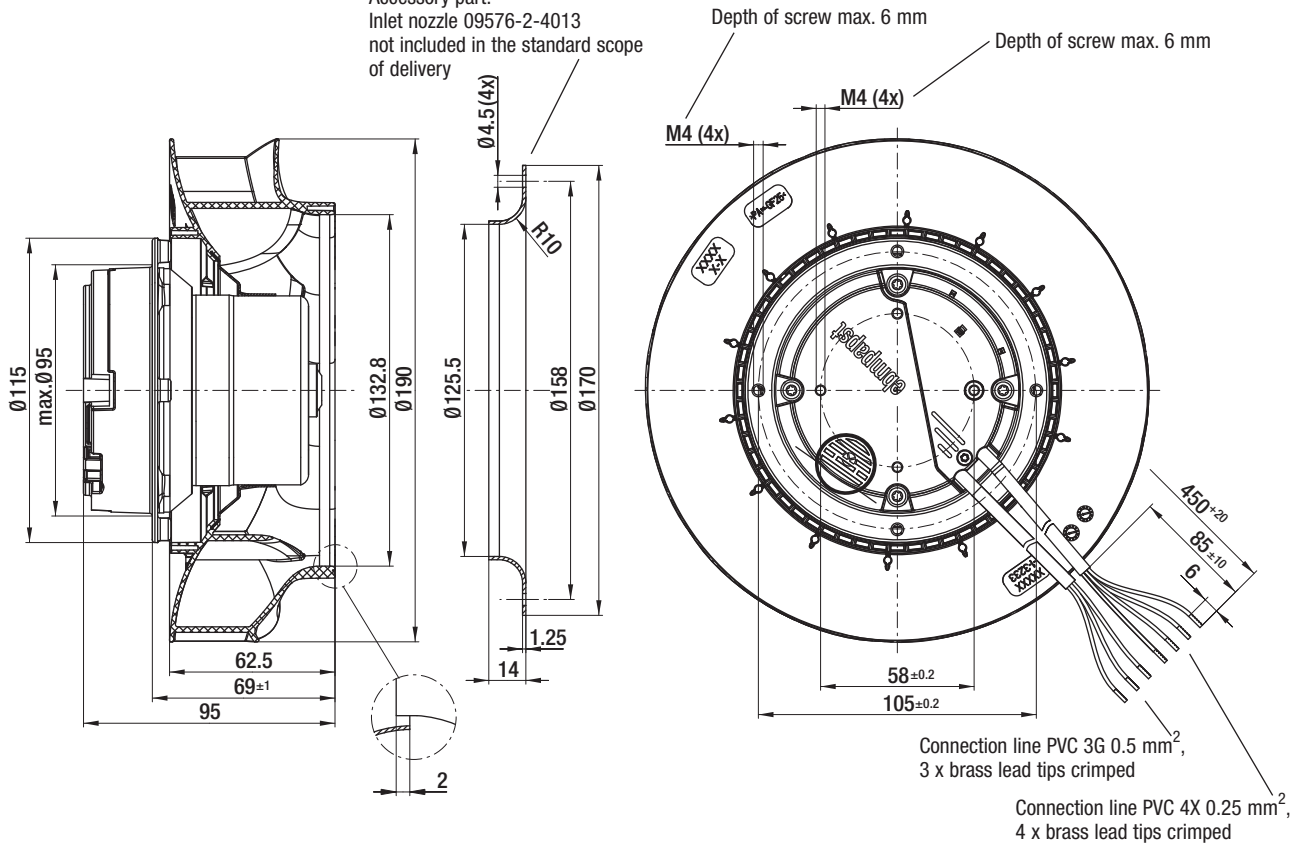
backward curved, Ø 190, speed-controlled, 115 W - electronics



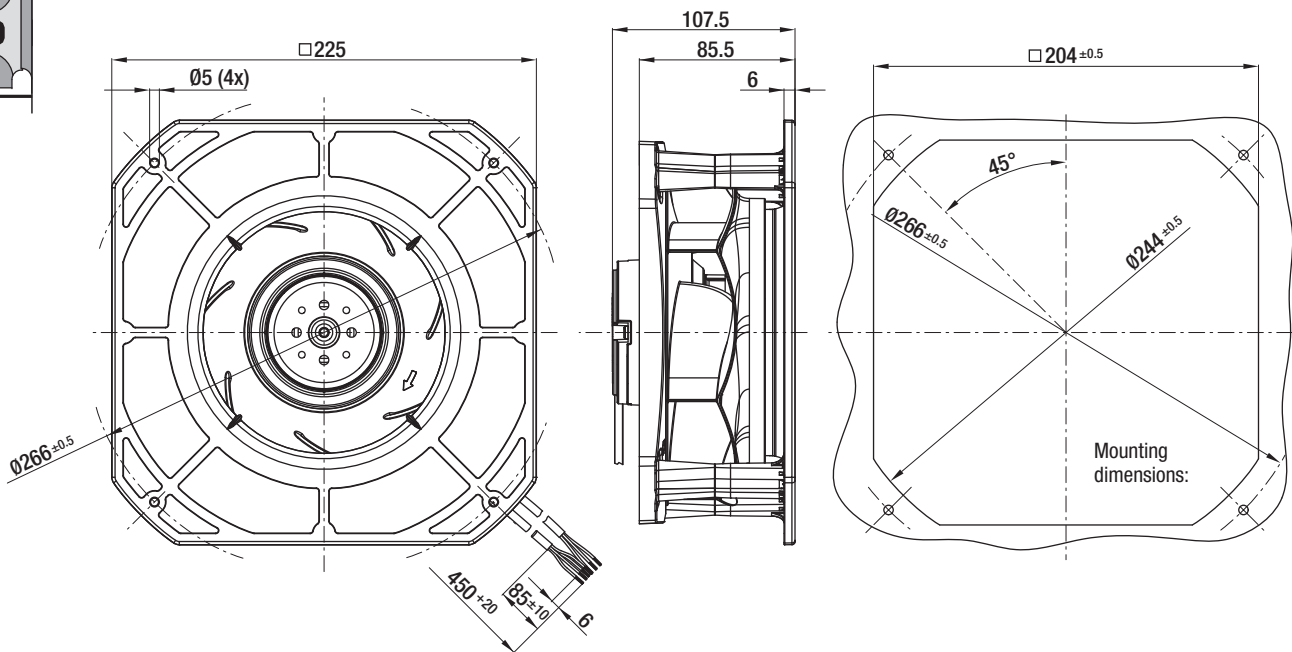
R3G 190-RG19-01 (Centrifugal fan)



Accessory part:
Inlet nozzle 09576-2-4013
not included in the standard scope
of delivery



K3G 190-RG19-01 (Centrifugal module with support basket)

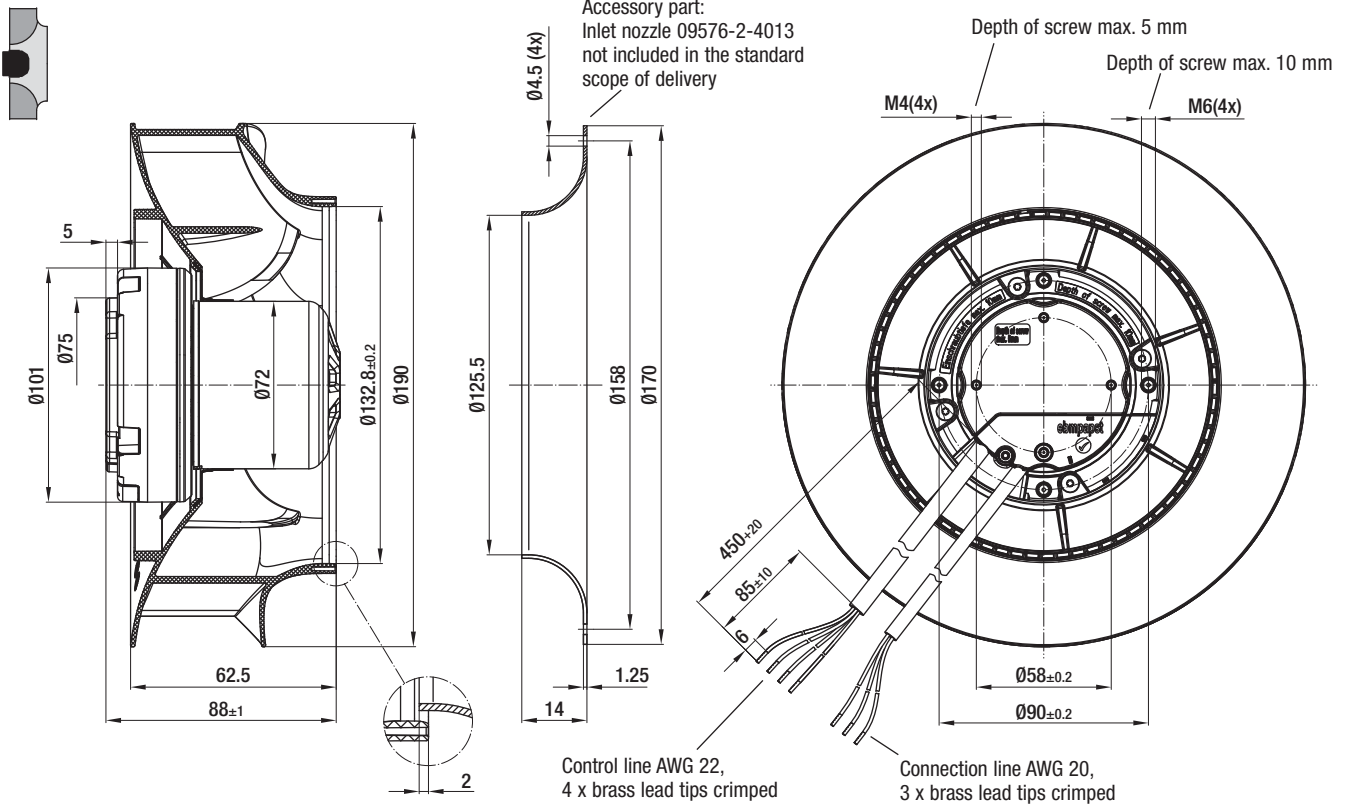


EC centrifugal fans – RadiCal

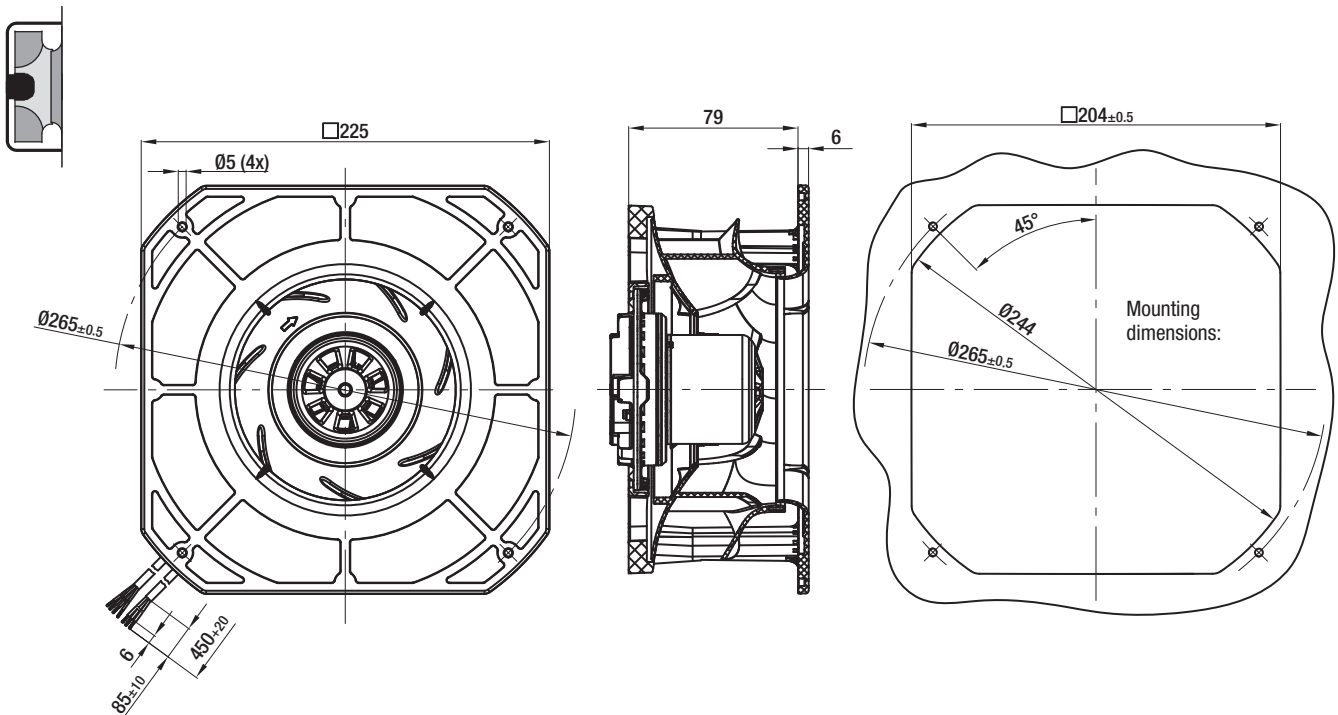
backward curved, Ø 190, speed-controlled, 170 W - electronics



R3G 190-RD45-03 (Centrifugal fan)



K3G 190-RD45-03 (Centrifugal module with support basket)



EC centrifugal fans – RadiCal

backward curved, Ø 220



- **Material:** Housing: PA plastic 6, fibreglass-reinforced
Impeller: PA plastic 6, fibreglass-reinforced
Rotor: Thick layer passivated
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "B"
- **Mounting position:** Any
- **Condensate discharges:** None, open rotor
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

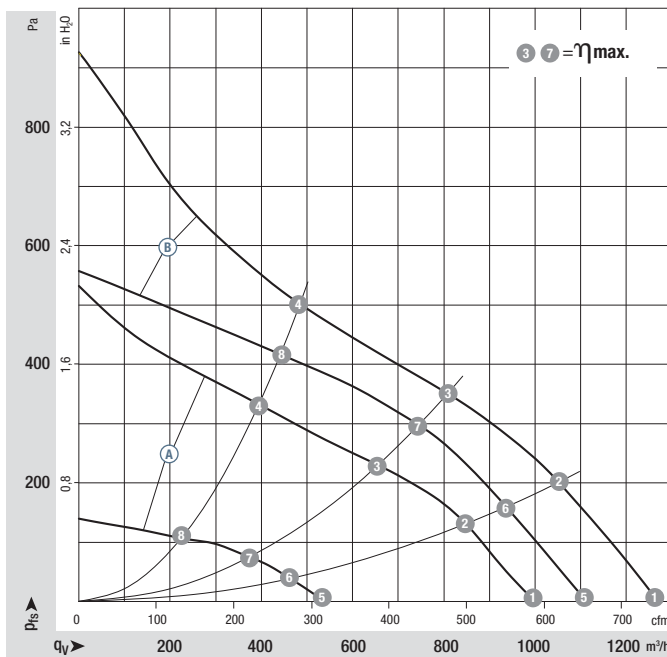
Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Perm. amb. temp.	Technical features and electrical connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 220	M3G 055-BI	Ⓐ	1~ 200-240	50/60	2580	85	0,70	-25..+60	p. 164 / H3)
*3G 220	M3G 055-CF	Ⓑ	1~ 200-240	50/60	3230	168	1,40	-25..+50	p. 164 / H3)
*3G 220	M3G 055-BI	Ⓒ	1~ 200-240	50/60	2580	85	0,70	-25..+60	p. 165 / H4)
*3G 220	M3G 055-CF	Ⓓ	1~ 200-240	50/60	2790	115	1,10	-25..+50	p. 163 / H5)
*3G 220	M3G 055-CF	Ⓔ	1~ 200-240	50/60	3230	168	1,40	-25..+50	p. 165 / H4)

subject to alterations

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

Curves: 2 Speed stages



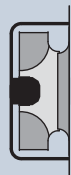
	n rpm	P _{ed} W	I A	L _{wA} dB(A)
Ⓐ ①	2765	79	0,67	71
Ⓐ ②	2700	85	0,69	67
Ⓐ ③	2580	85	0,70	65
Ⓐ ④	2630	85	0,70	66
Ⓐ ⑤	1505	16	0,18	57
Ⓐ ⑥	1485	16	0,20	54
Ⓐ ⑦	1470	17	0,21	51
Ⓐ ⑧	1485	17	0,19	52
Ⓑ ①	3540	168	1,40	77
Ⓑ ②	3370	168	1,40	73
Ⓑ ③	3230	168	1,40	70
Ⓑ ④	3310	168	1,40	72
Ⓑ ⑤	3000	100	0,85	74
Ⓑ ⑥	2955	110	0,95	70
Ⓑ ⑦	2900	120	1,00	68
Ⓑ ⑧	2930	115	0,97	70

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Technical features:** See electrical connections p. 163 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



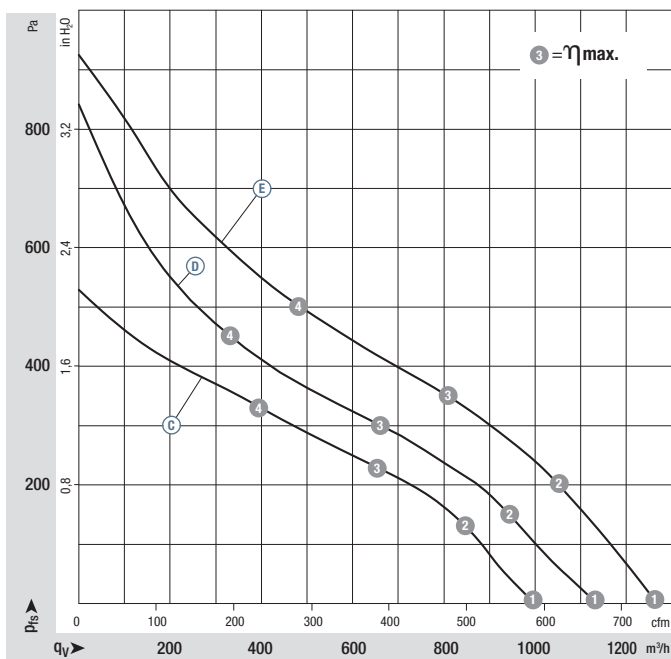
Mass of centrifugal fan



Mass of centrifugal module with support basket

Centrifugal fan	kg	Centrifugal module w. support basket	kg
R3G 220-RC05 -01	1,13	K3G 220-RC05 -01	2,03
R3G 220-RD53 -01	1,53	K3G 220-RD53 -01	2,43
R3G 220-RC05 -03	1,20	K3G 220-RC05 -03	2,10
R3G 220-RG19 -01	1,40	K3G 220-RG19 -01	2,00
R3G 220-RD53 -03	1,53	K3G 220-RD53 -03	2,43

Curves:
Speed-controlled



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

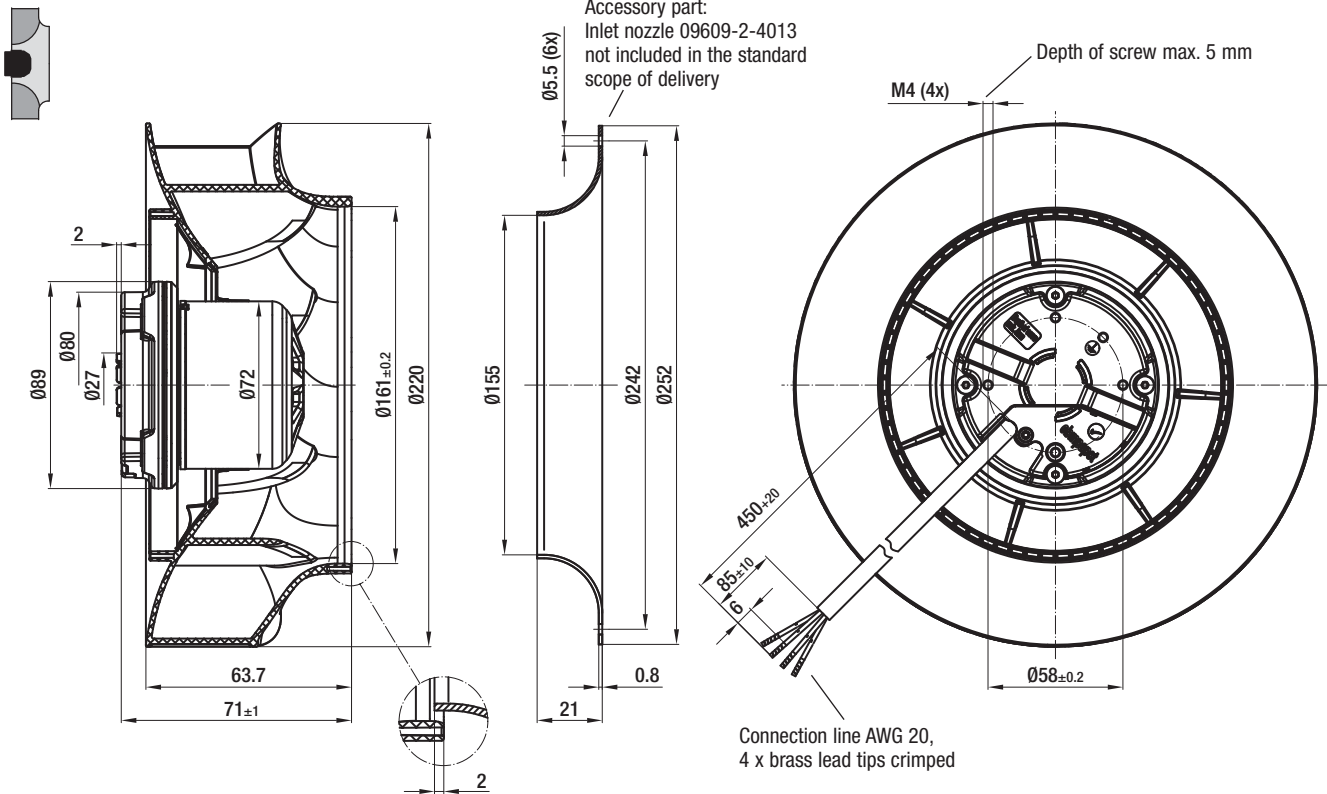
	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓒ 1	2765	79	0,67	71
Ⓒ 2	2700	85	0,69	67
Ⓒ 3	2580	85	0,70	65
Ⓒ 4	2635	85	0,70	66
Ⓓ 1	3085	115	1,10	74
Ⓓ 2	2935	115	1,10	69
Ⓓ 3	2790	115	1,10	66
Ⓓ 4	2940	115	1,10	70
Ⓔ 1	3540	168	1,40	77
Ⓔ 2	3370	168	1,40	73
Ⓔ 3	3230	168	1,40	70
Ⓔ 4	3310	168	1,40	72

EC centrifugal fans – RadiCal

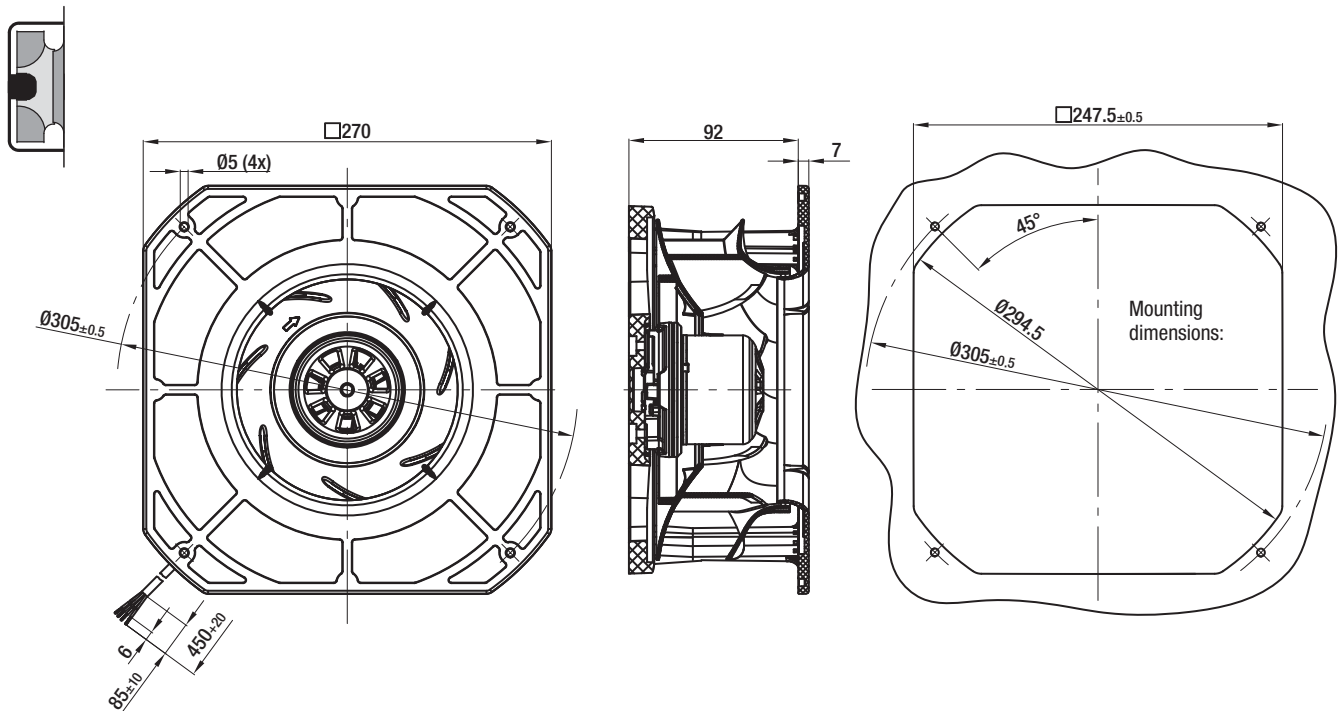
backward curved, Ø 220, 2 speed stages, 85 W - electronics



R3G 220-RC05-01 (Centrifugal fan)



K3G 220-RC05-01 (Centrifugal module with support basket)

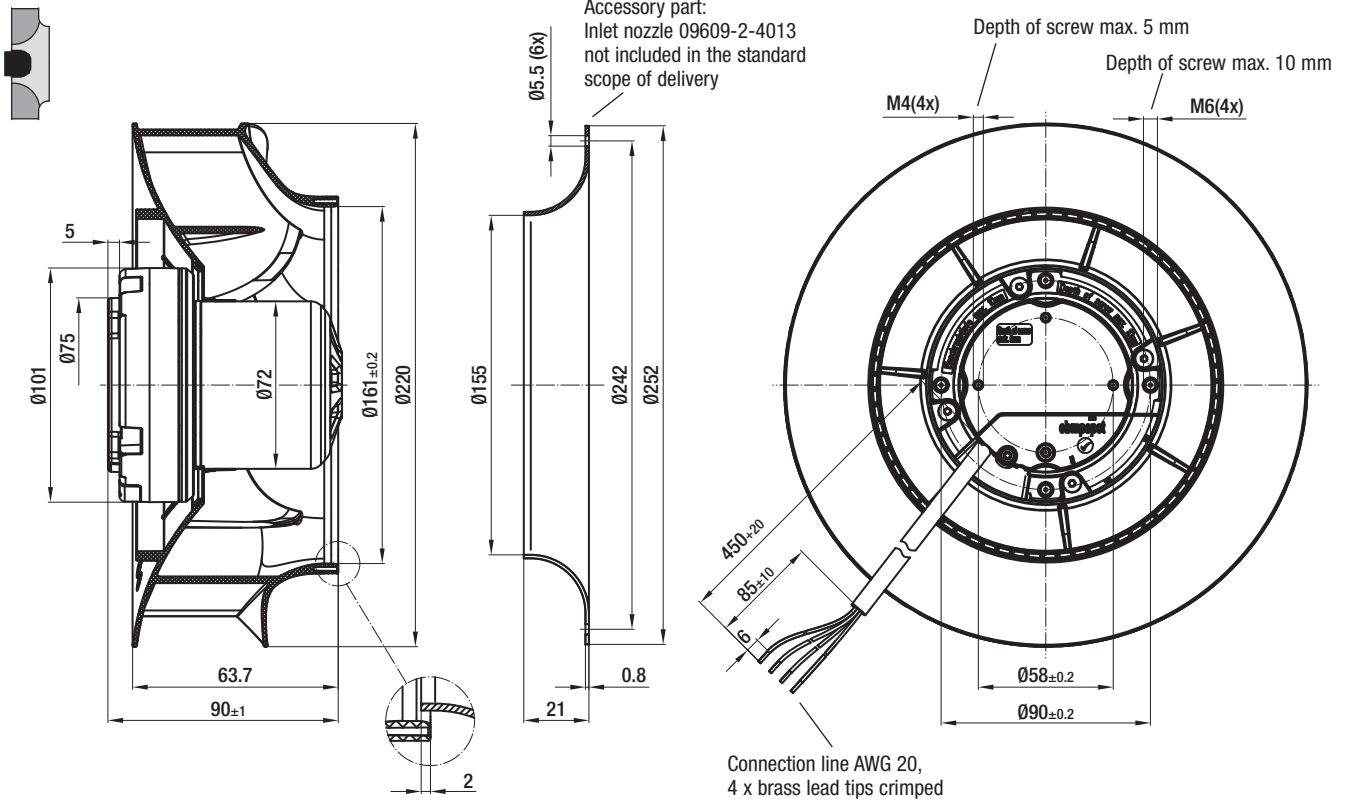


EC centrifugal fans – RadiCal

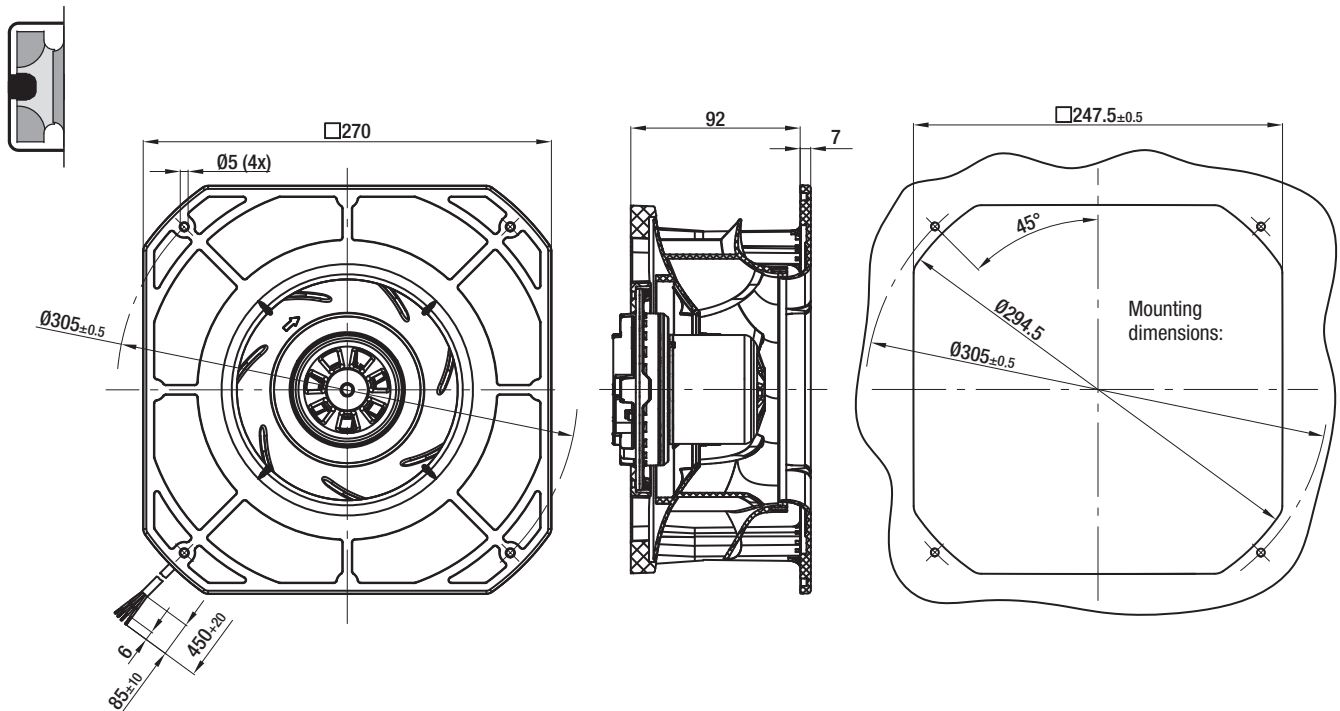
backward curved, Ø 220, 2 speed stages, 170 W - electronics



R3G 220-RD53-01 (Centrifugal fan)



K3G 220-RD53-01 (Centrifugal module with support basket)

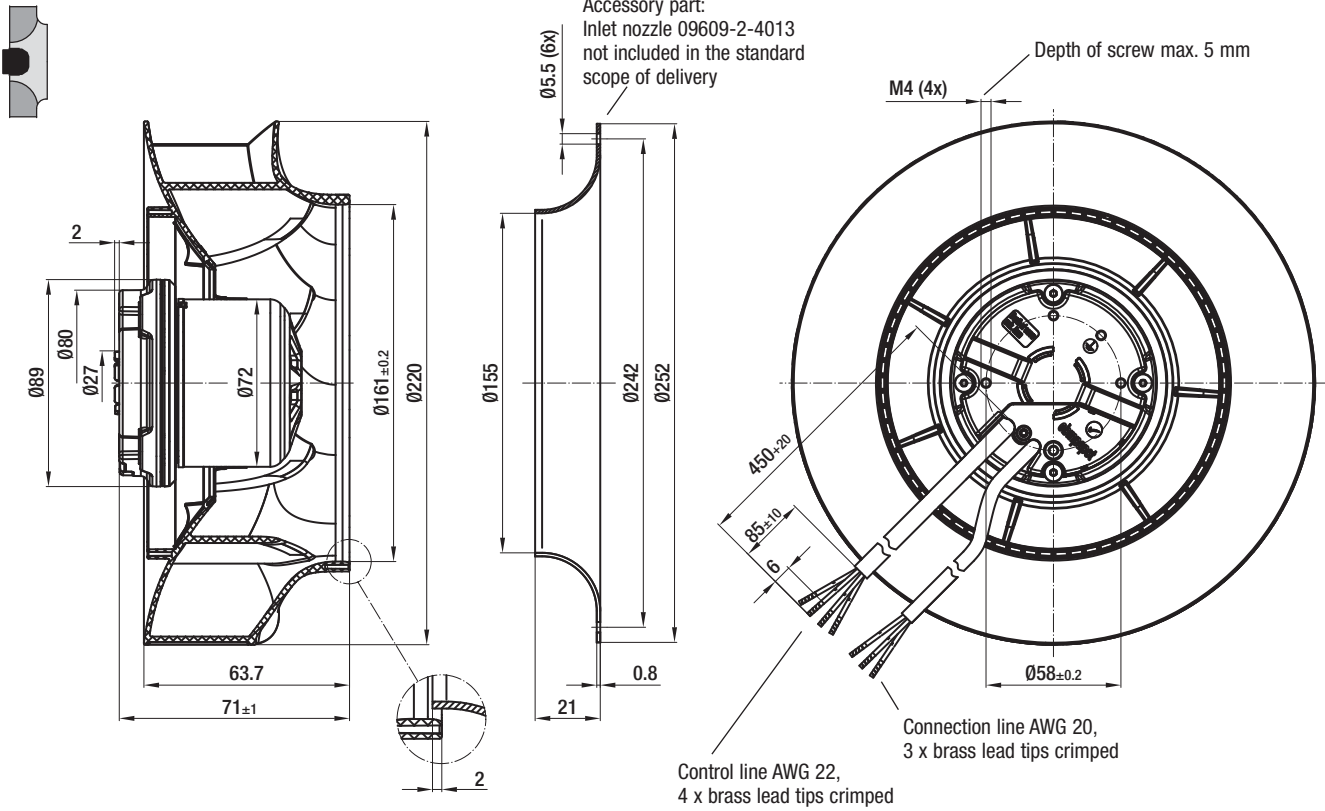


EC centrifugal fans – RadiCal

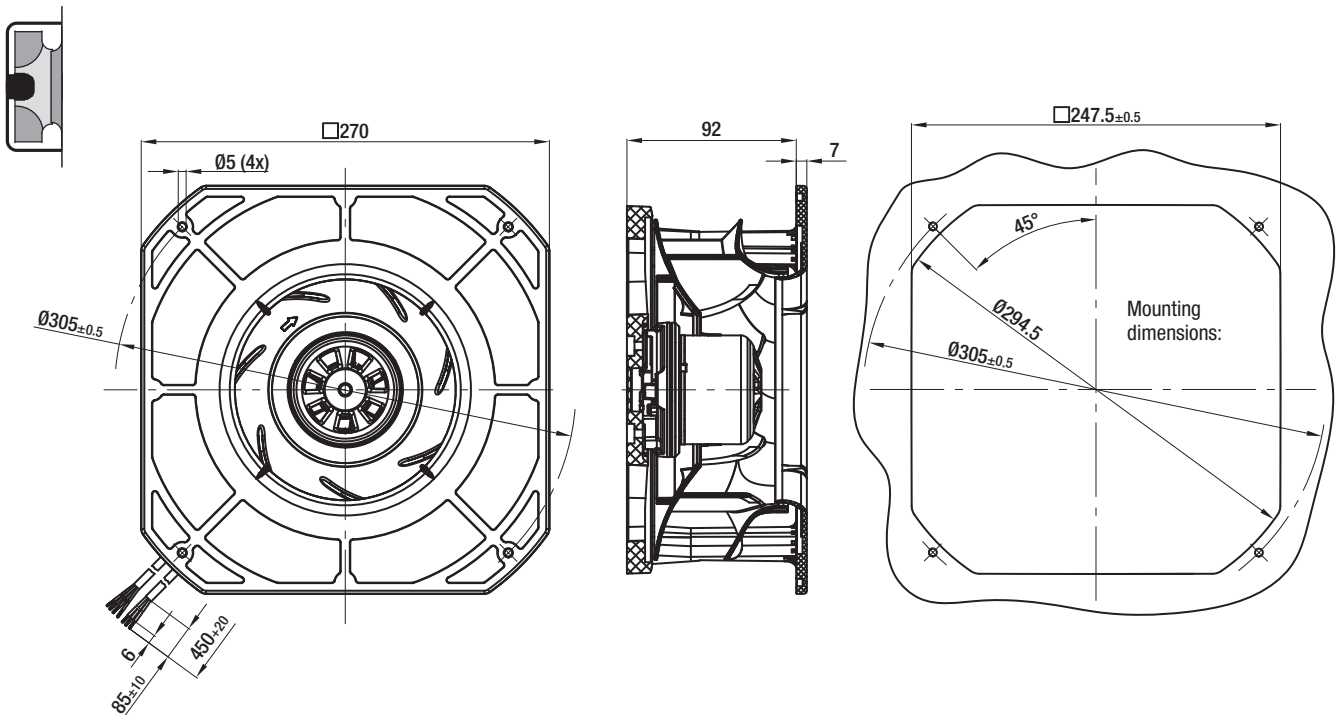
backward curved, Ø 220, speed-controlled, 85 W - electronics



R3G 220-RC05-03 (Centrifugal fan)



K3G 220-RC05-03 (Centrifugal module with support basket)

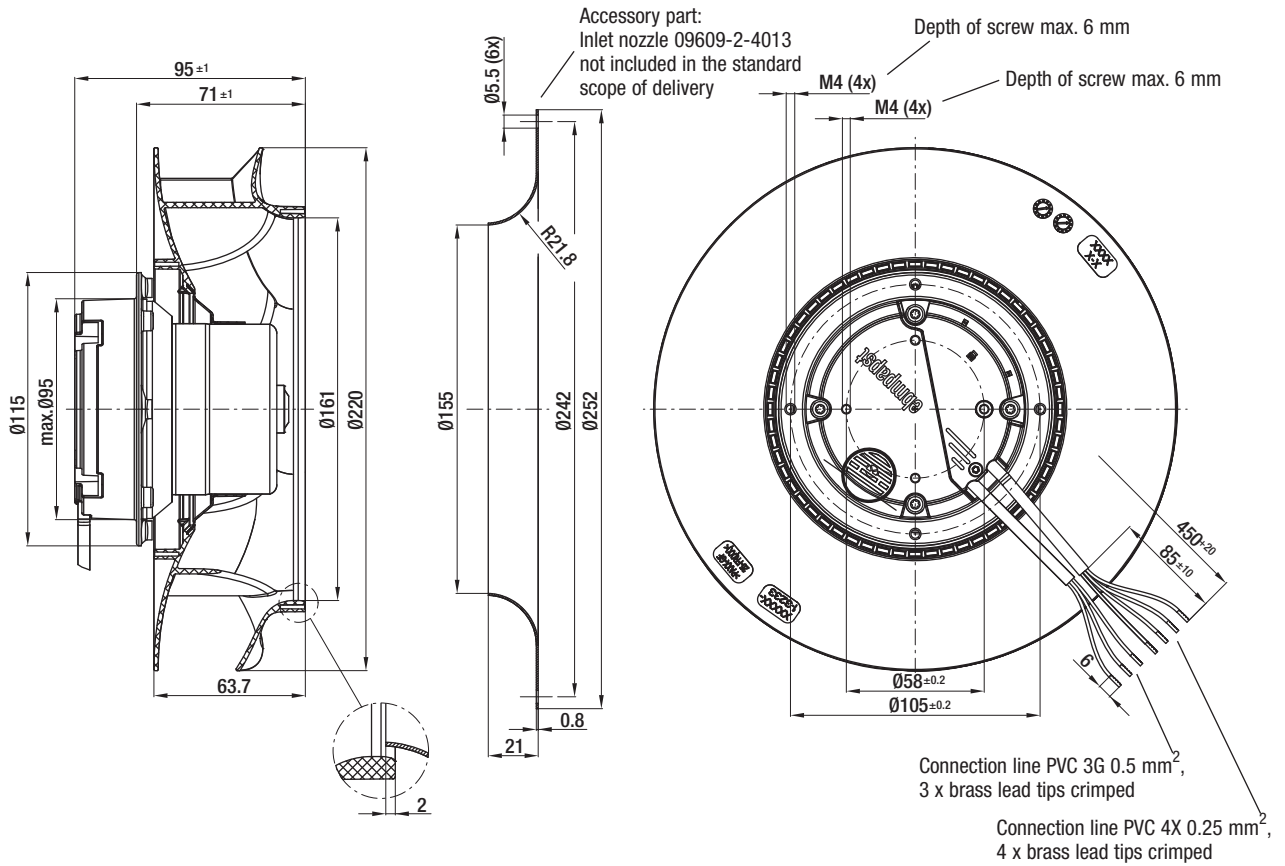


EC centrifugal fans – RadiCal

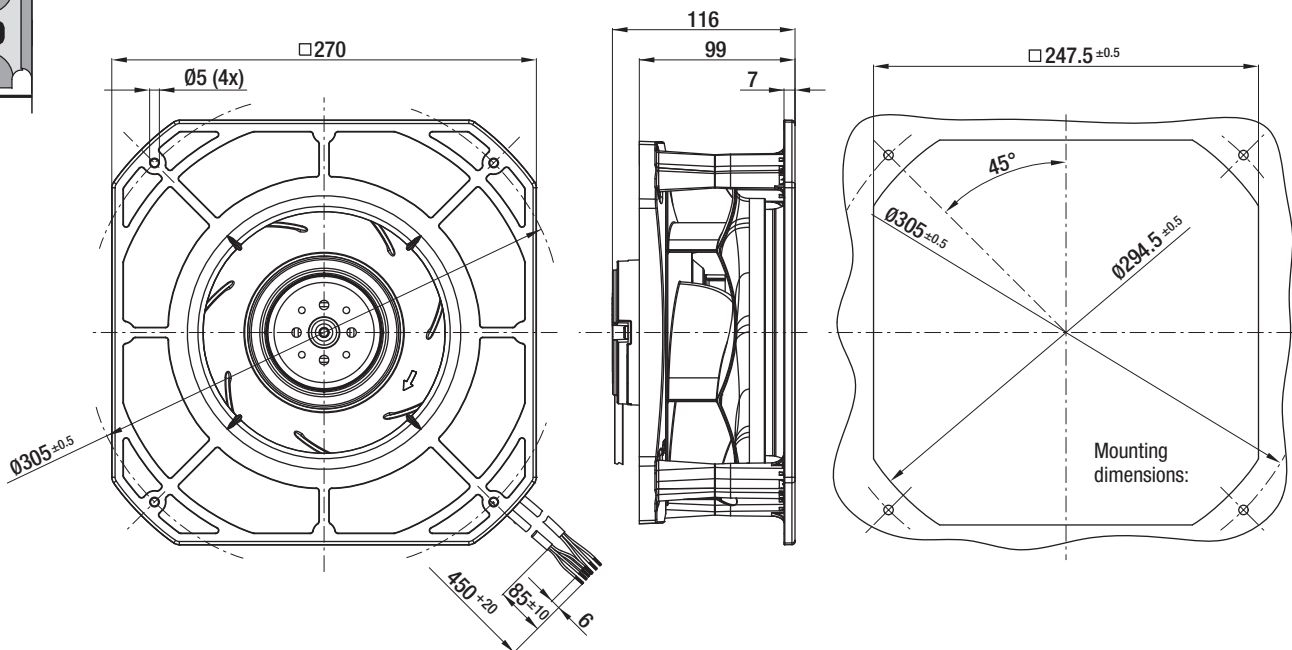
backward curved, Ø 220, speed-controlled, 115 W - electronics



R3G 220-RG19-01 (Centrifugal fan)



K3G 220-RG19-01 (Centrifugal module with support basket)

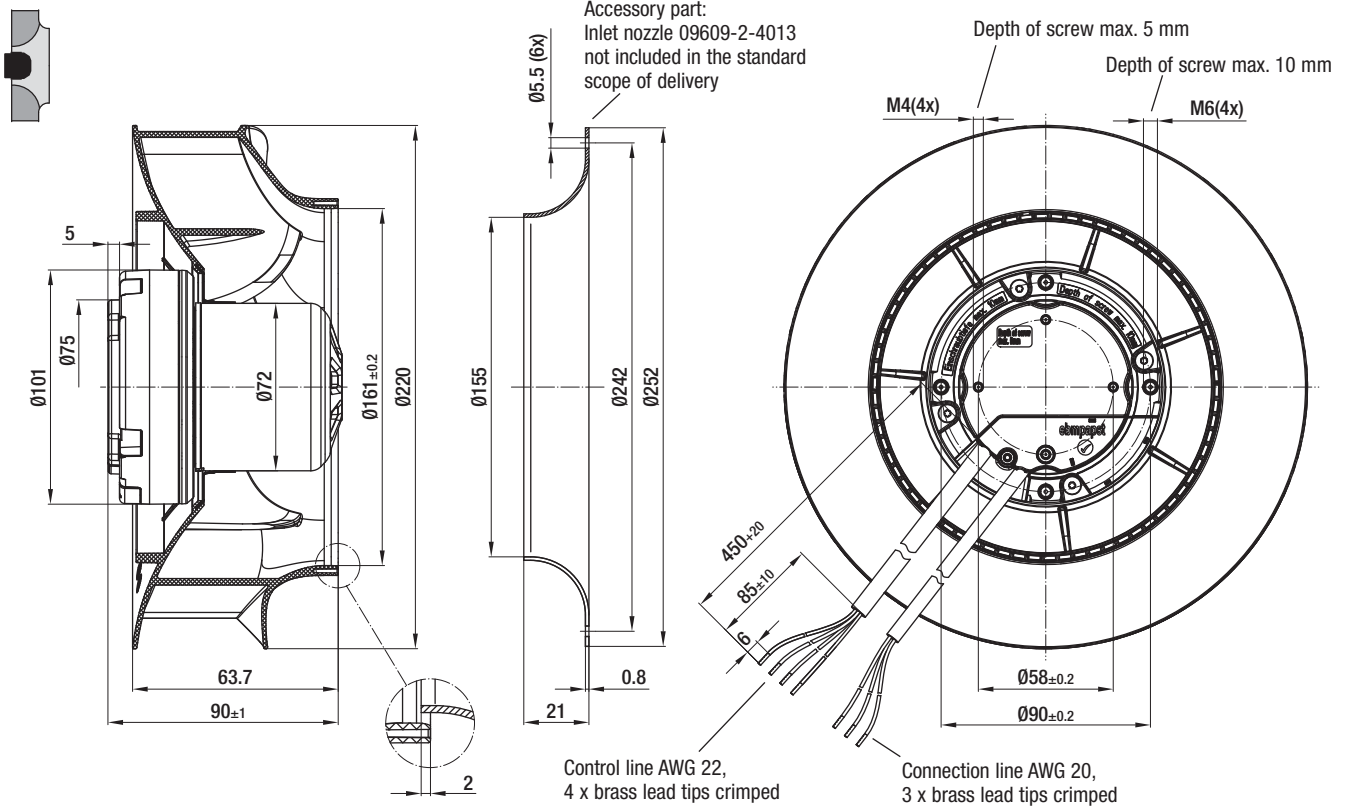


EC centrifugal fans – RadiCal

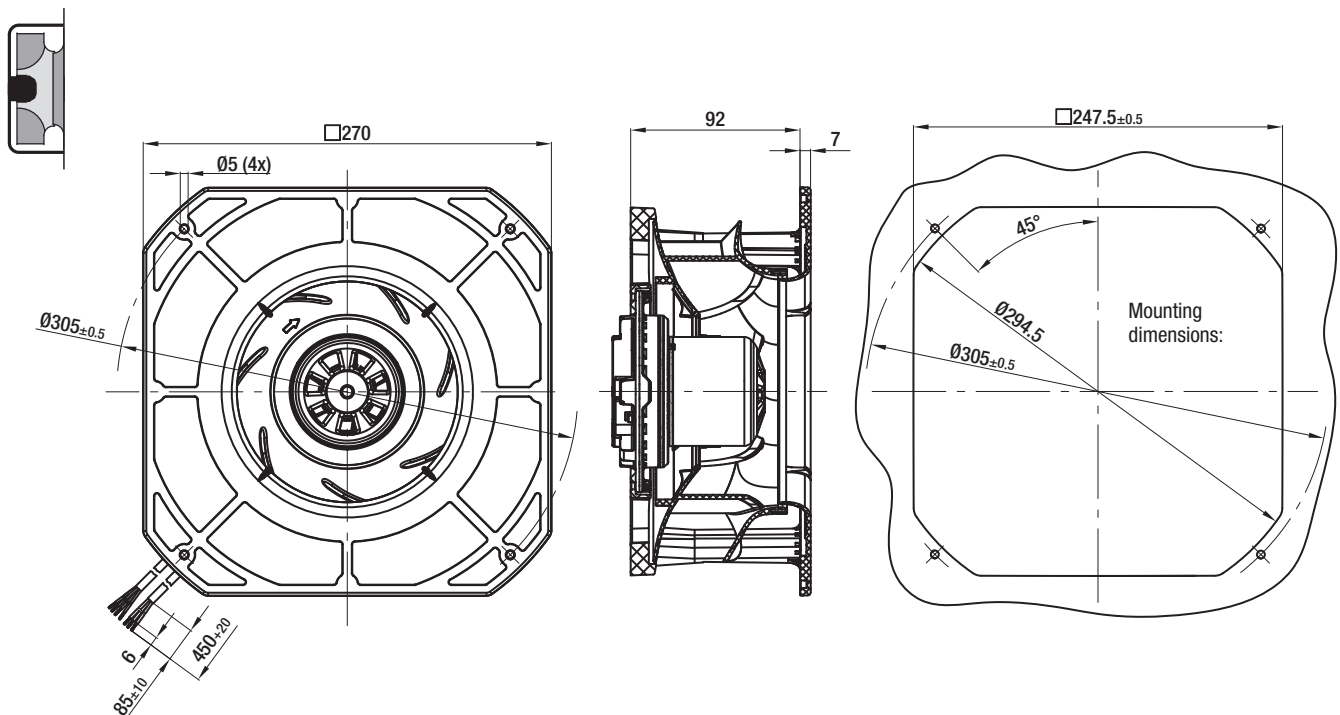
backward curved, Ø 220, speed-controlled, 170 W - electronics



R3G 220-RD53-03 (Centrifugal fan)



K3G 220-RD53-03 (Centrifugal module with support basket)



EC centrifugal fans – RadiCal

backward curved, Ø 225



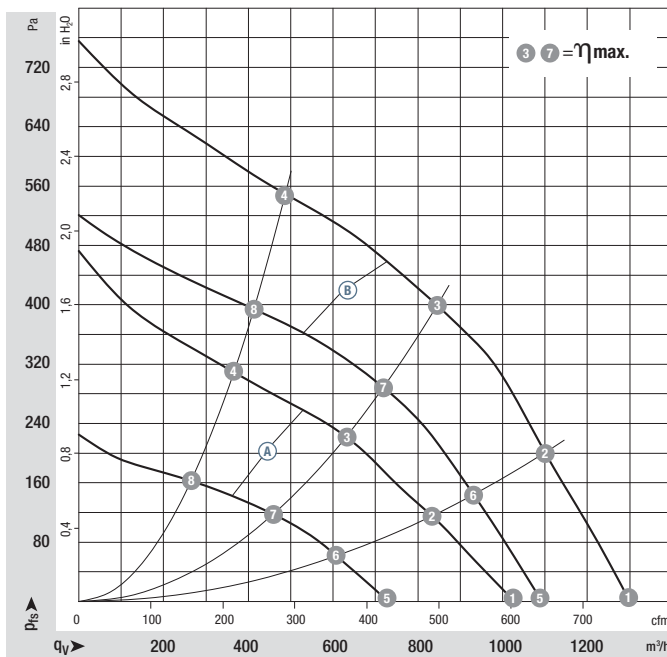
- **Material:** Housing: PA plastic 6, fibreglass-reinforced
Impeller: PA plastic 6, fibreglass-reinforced
Rotor: Thick layer passivated
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "B"
- **Mounting position:** Any
- **Condensate discharges:** None, open rotor
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Perm. amb. temp.	Technical features and electrical connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 225	M3G 055-CF	Ⓐ 1~	200-240	50/60	2200	82	0,70	-25..+60	p. 164 / H3)
*3G 225	M3G 055-DF	Ⓑ 1~	200-240	50/60	2860	170	1,40	-25..+60	p. 164 / H3)
*3G 225	M3G 055-CF	Ⓒ 1~	200-240	50/60	2200	82	0,70	-25..+60	p. 165 / H4)
*3G 225	M3G 055-CF	Ⓓ 1~	200-240	50/60	2440	115	1,10	-25..+40	p. 163 / H5)
*3G 225	M3G 055-DF	Ⓔ 1~	200-240	50/60	2860	170	1,40	-25..+60	p. 165 / H4)

subject to alterations

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

Curves:
2 Speed stages



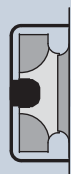
Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓐ ①	2290	70	0,62	69
Ⓐ ②	2170	77	0,66	65
Ⓐ ③	2200	82	0,70	60
Ⓐ ④	2225	73	0,63	66
Ⓐ ⑤	1640	27	0,28	61
Ⓐ ⑥	1585	31	0,31	58
Ⓐ ⑦	1590	31	0,32	53
Ⓐ ⑧	1630	28	0,29	58
Ⓑ ①	3030	150	1,25	78
Ⓑ ②	2910	165	1,40	74
Ⓑ ③	2860	170	1,40	68
Ⓑ ④	2970	155	1,35	73
Ⓑ ⑤	2550	91	0,83	74
Ⓑ ⑥	2495	104	0,94	70
Ⓑ ⑦	2490	105	0,93	65
Ⓑ ⑧	2525	97	0,89	69

- **Technical features:** See electrical connections p. 163 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



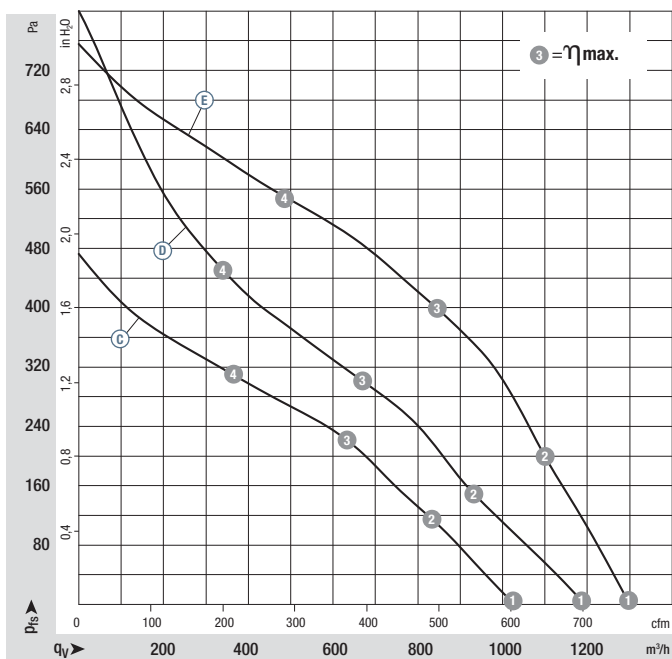
Mass of centrifugal fan



Mass of centrifugal module with support basket

Centrifugal fan	kg	Centrifugal module w. support basket	kg
R3G 225-RD05 -01	1,40	K3G 225-RD05 -01	2,00
R3G 225-RE07 -01	1,60	K3G 225-RE07 -01	2,20
R3G 225-RD05 -03	1,40	K3G 225-RD05 -03	2,00
R3G 225-RH19 -01	1,50	K3G 225-RH19 -01	2,10
R3G 225-RE07 -03	1,60	K3G 225-RE07 -03	2,20

Curves:
Speed-controlled



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{pA} as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

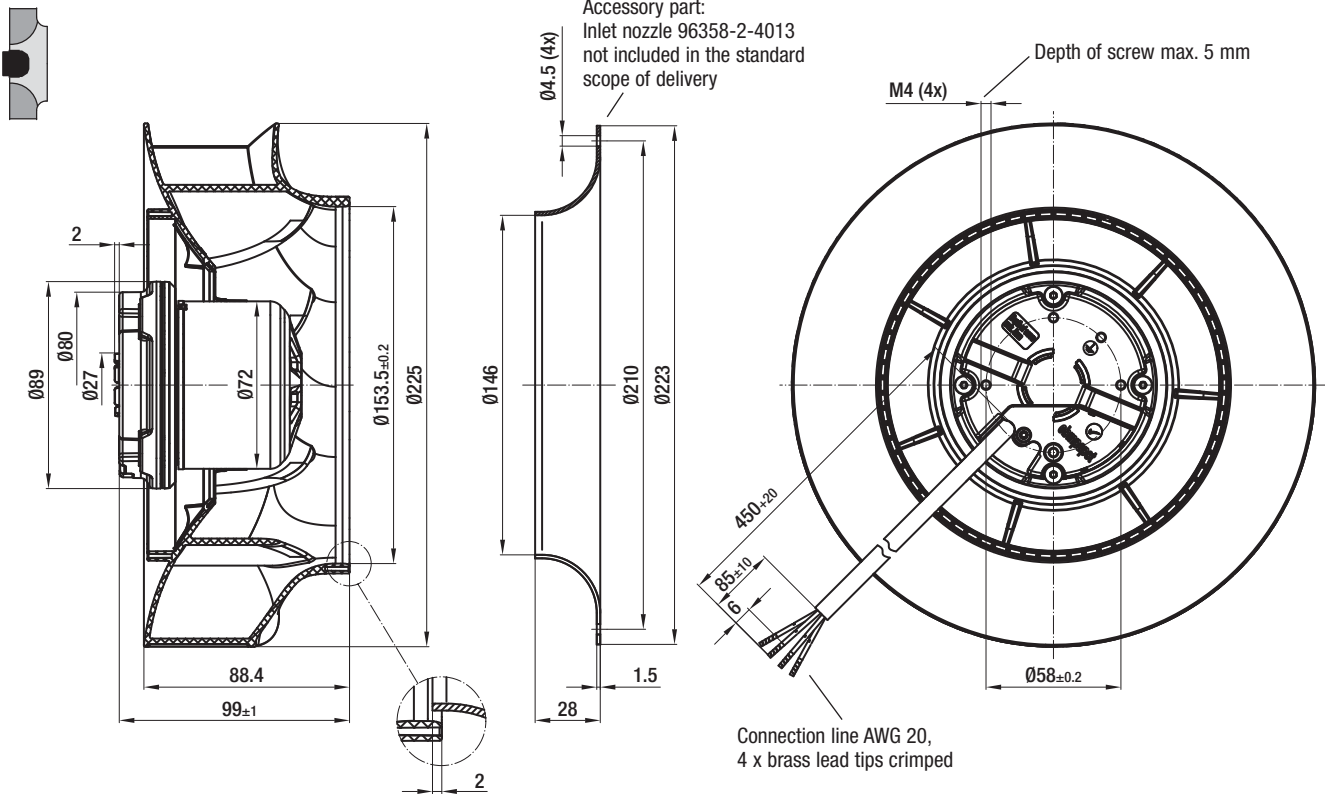
	n rpm	P_{ed} W	I A	L_{pA} dB(A)
Ⓒ 1	2290	70	0,62	69
Ⓒ 2	2170	77	0,66	65
Ⓒ 3	2200	82	0,70	60
Ⓒ 4	2225	73	0,63	66
Ⓓ 1	2685	115	1,10	73
Ⓓ 2	2445	115	1,10	67
Ⓓ 3	2440	115	1,10	63
Ⓓ 4	2640	115	1,10	71
Ⓔ 1	3030	150	1,25	78
Ⓔ 2	2910	165	1,40	74
Ⓔ 3	2860	170	1,40	68
Ⓔ 4	2970	155	1,35	73

EC centrifugal fans – RadiCal

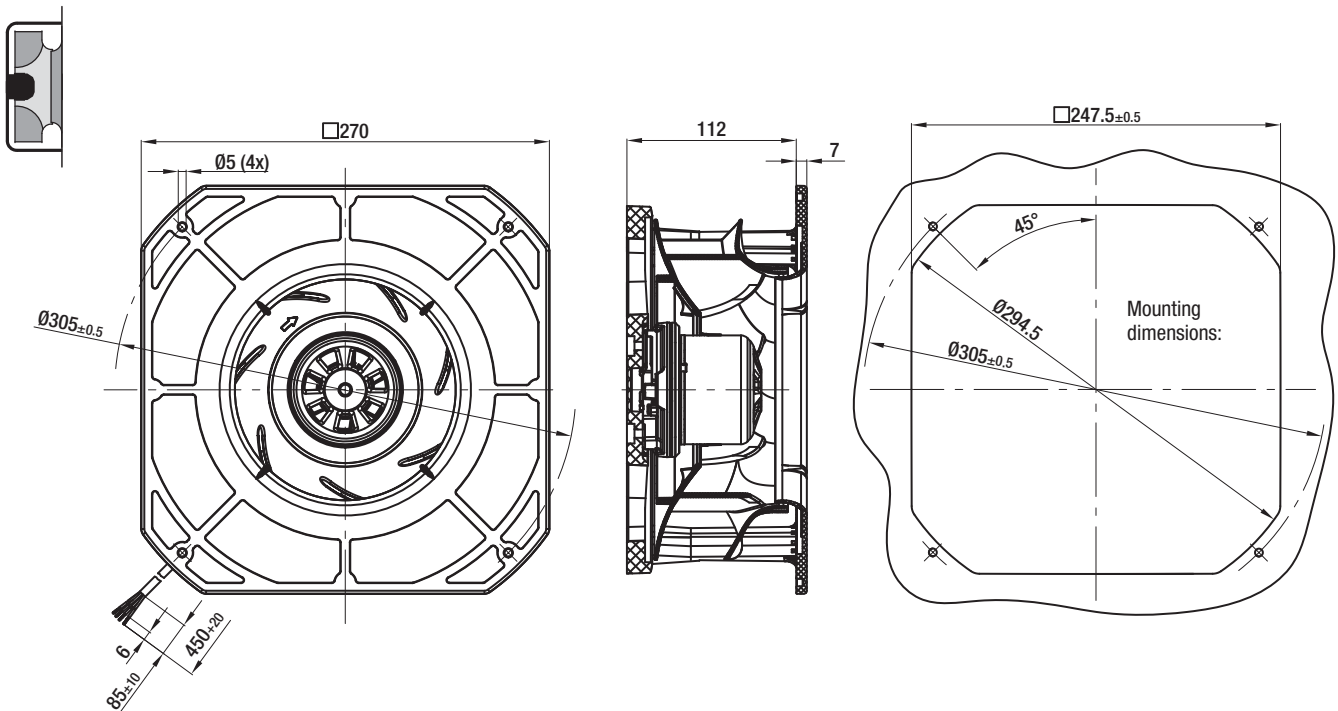
backward curved, Ø 225, 2 speed stages, 85 W - electronics



R3G 225-RD05-01 (Centrifugal fan)



K3G 225-RD05-01 (Centrifugal module with support basket)

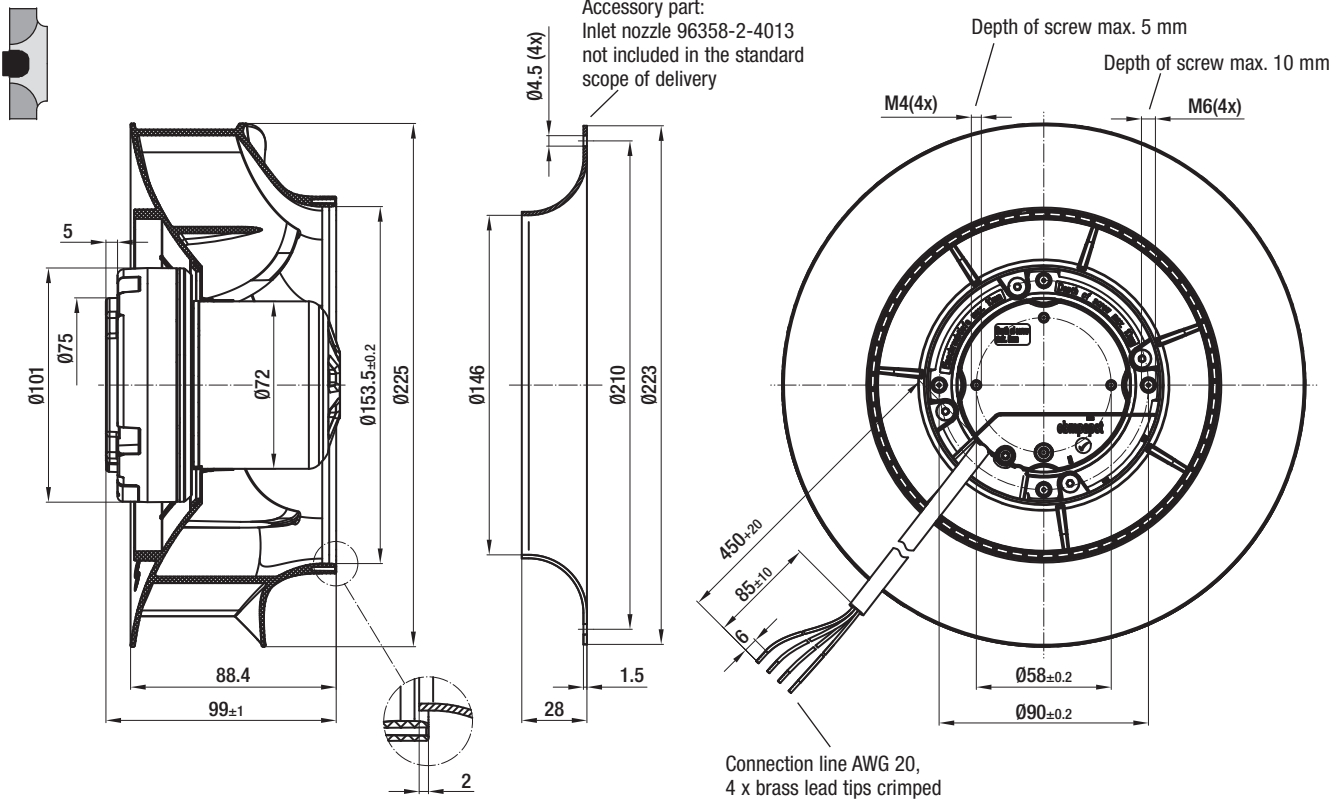


EC centrifugal fans – RadiCal

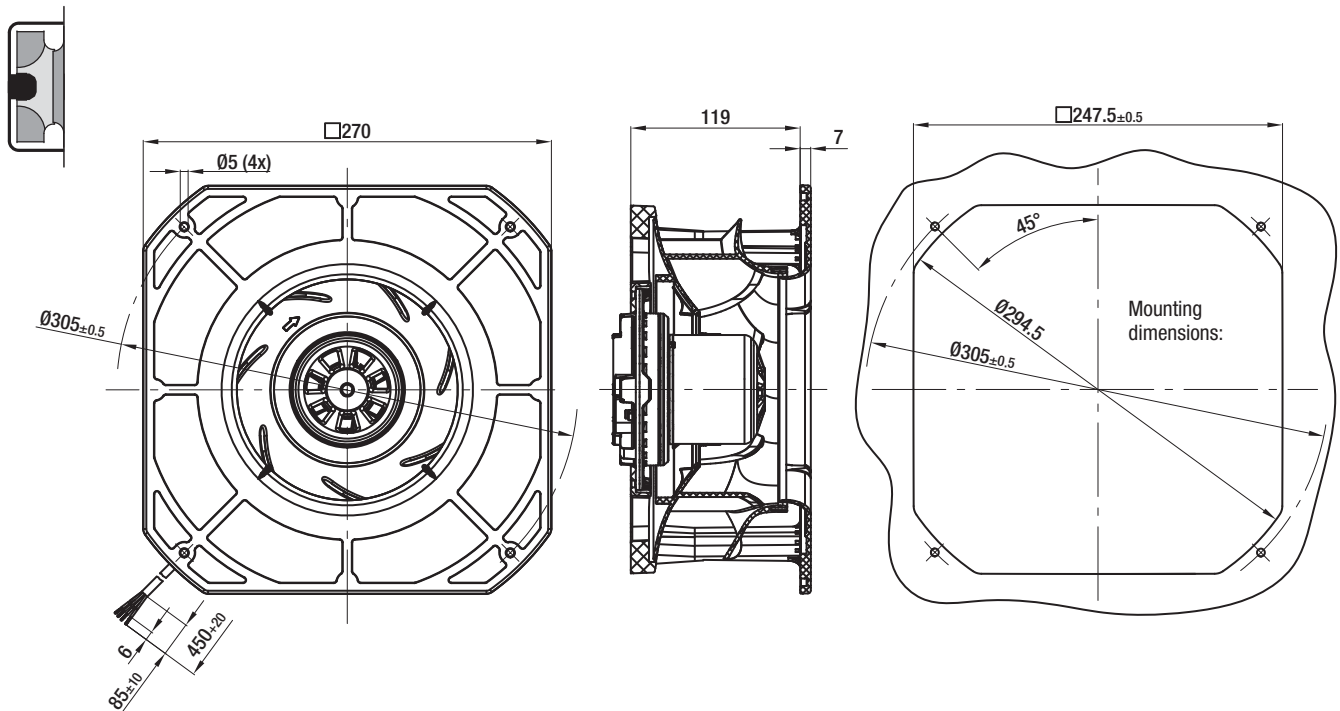
backward curved, Ø 225, 2 speed stages, 170 W - electronics



R3G 225-RE07-01 (Centrifugal fan)



K3G 225-RE07-01 (Centrifugal module with support basket)

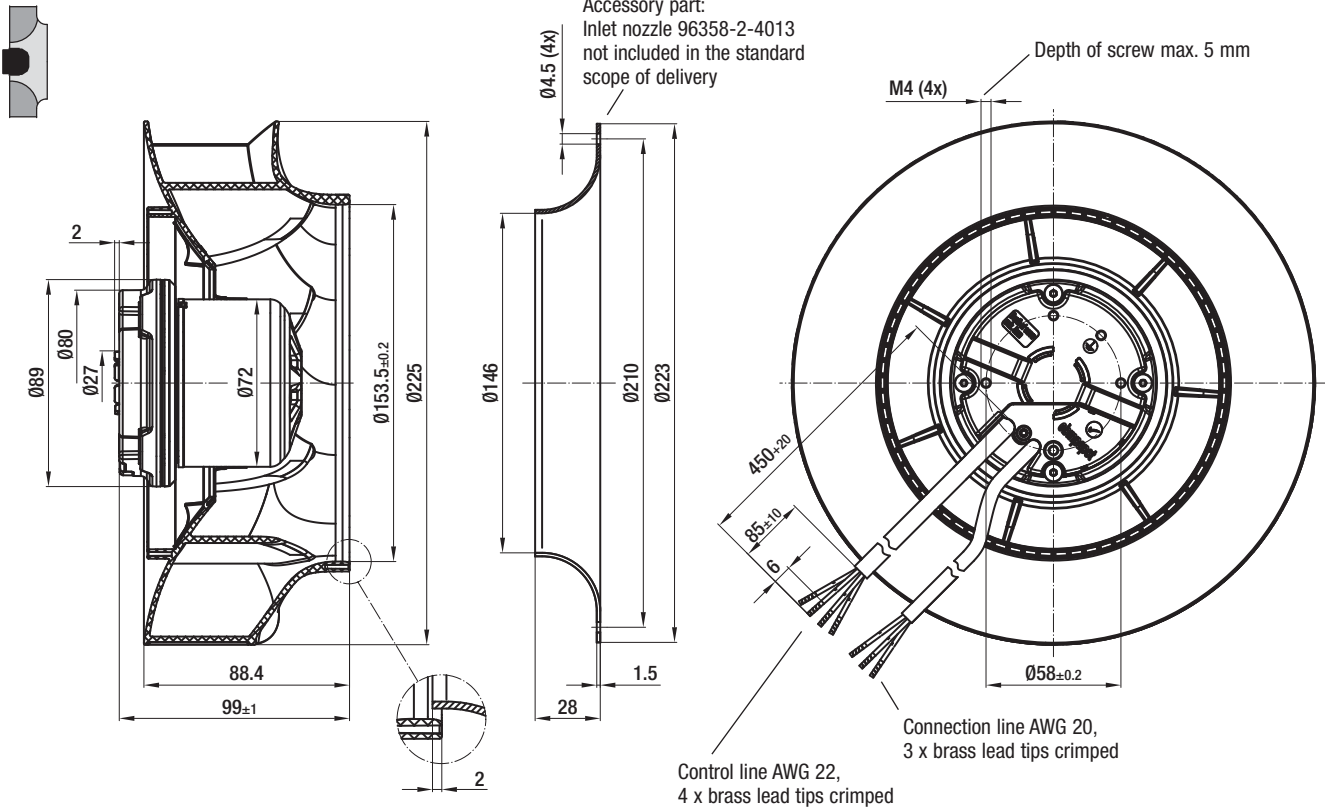


EC centrifugal fans – RadiCal

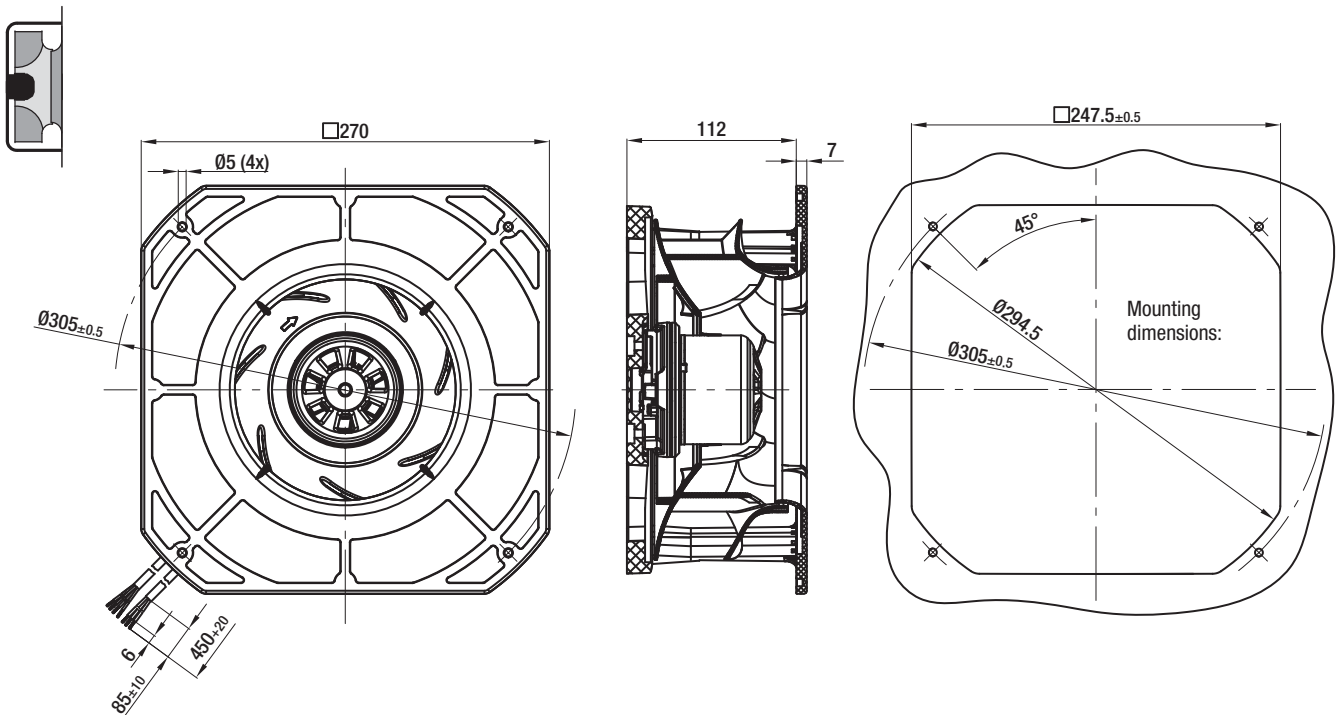
backward curved, Ø 225, speed-controlled, 85 W - electronics



R3G 225-RD05-03 (Centrifugal fan)



K3G 225-RD05-03 (Centrifugal module with support basket)

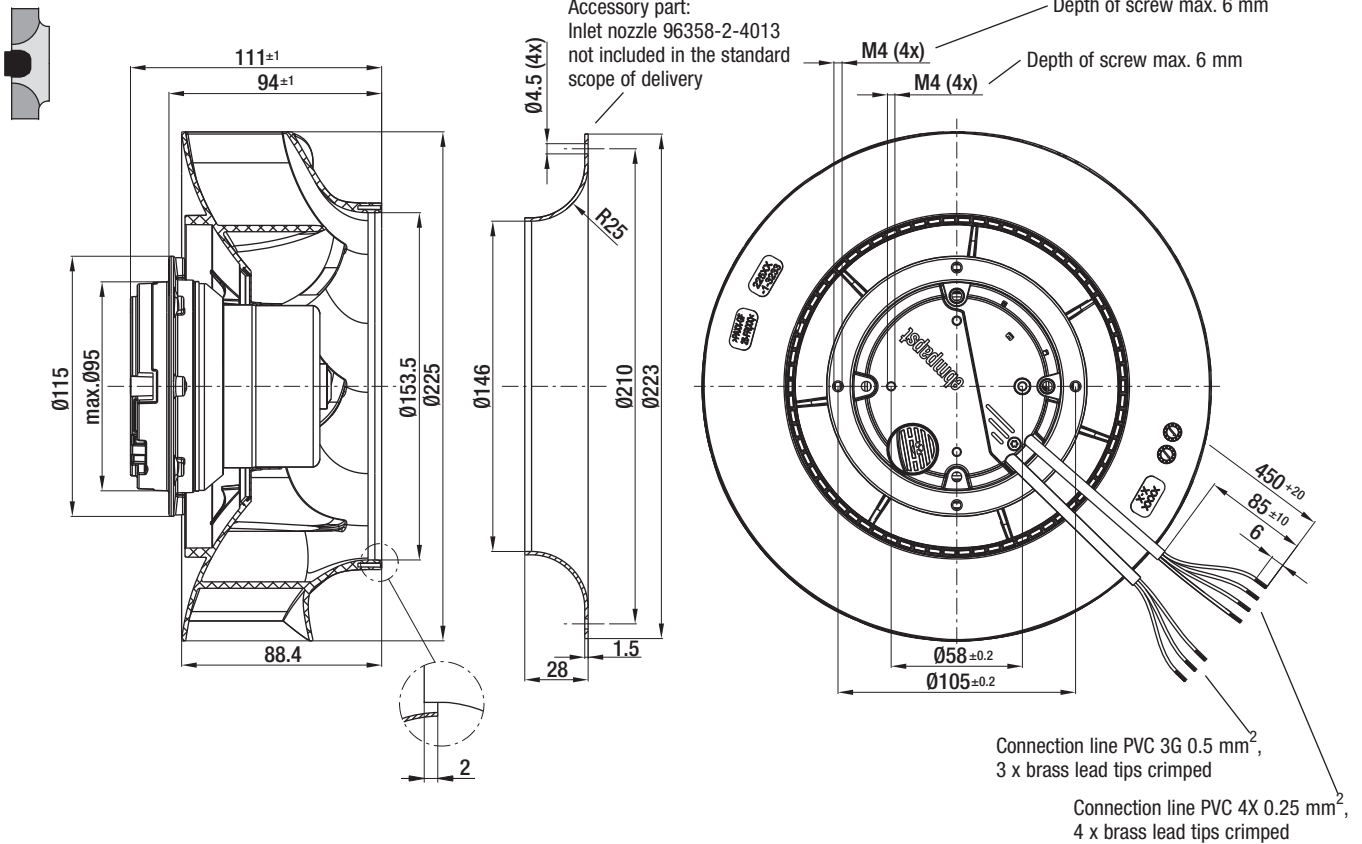


EC centrifugal fans – RadiCal

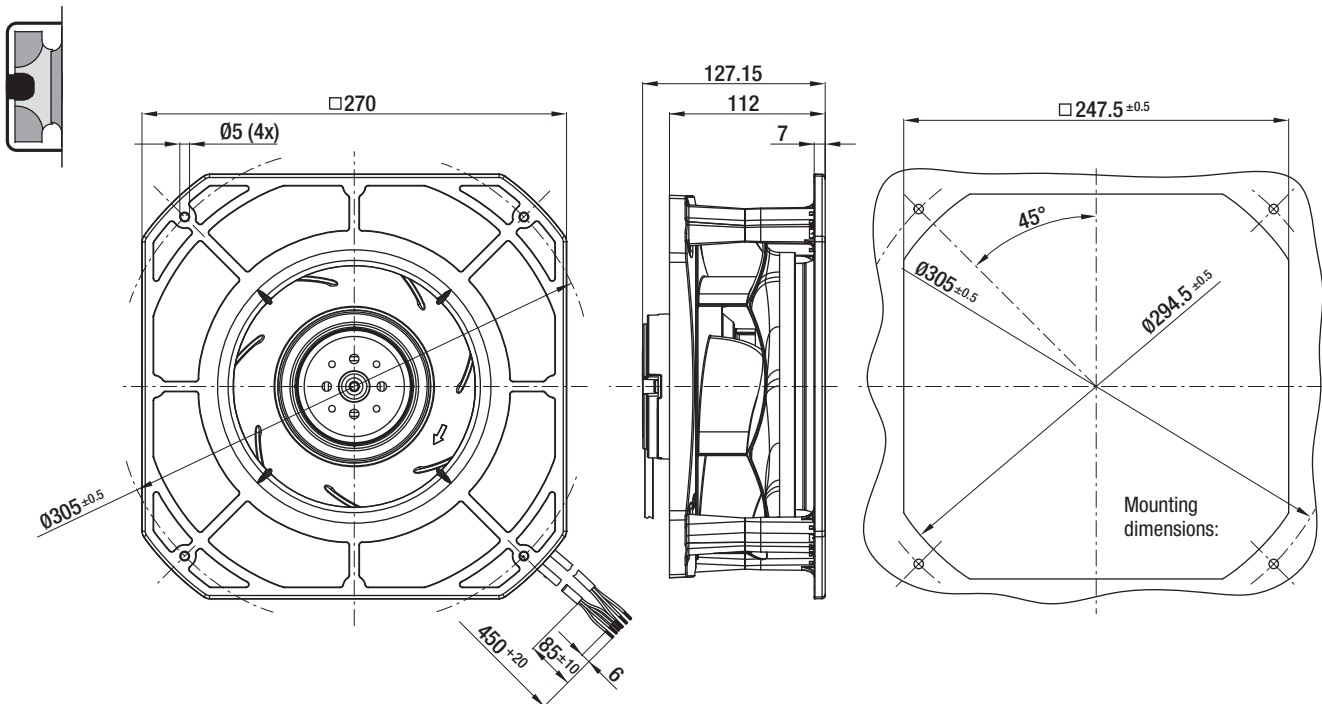
backward curved, Ø 225, speed-controlled, 115 W - electronics



R3G 225-RH19-01 (Centrifugal fan)



K3G 225-RH19-01 (Centrifugal module with support basket)

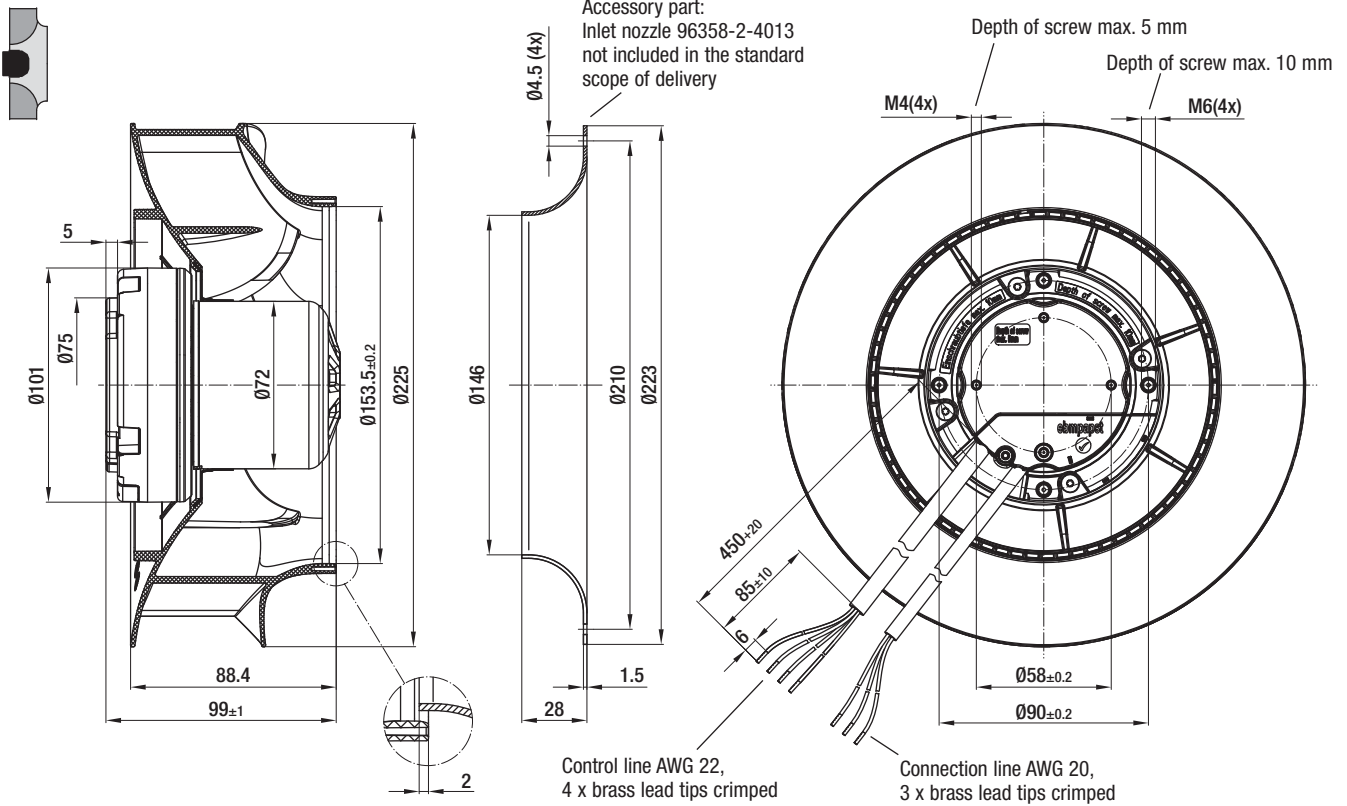


EC centrifugal fans – RadiCal

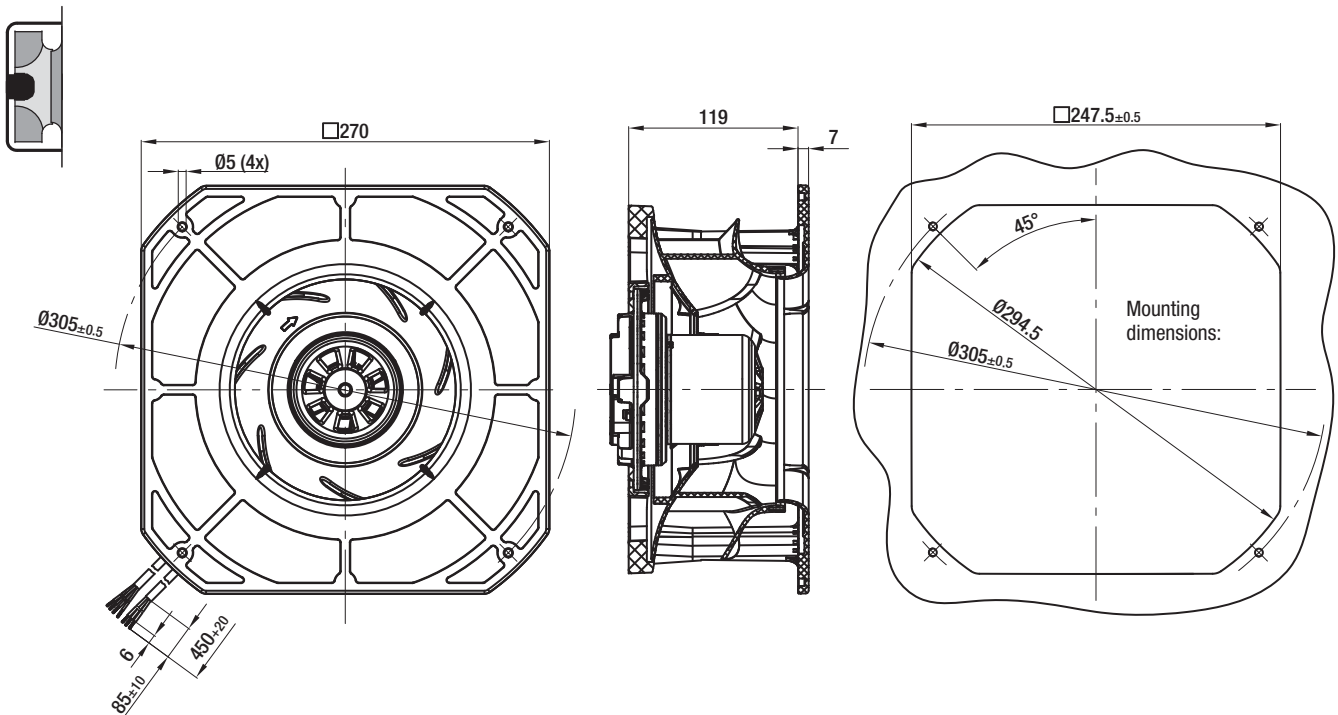
backward curved, Ø 225, speed-controlled, 170 W - electronics



R3G 225-RE07-03 (Centrifugal fan)



K3G 225-RE07-03 (Centrifugal module with support basket)



EC centrifugal fans – RadiCal

backward curved, Ø 250



- **Material:** Housing: PA plastic 6, fibreglass-reinforced
Impeller: PA plastic 6, fibreglass-reinforced
Rotor: Thick layer passivated
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "B"
- **Mounting position:** Any
- **Condensate discharges:** None, open rotor
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

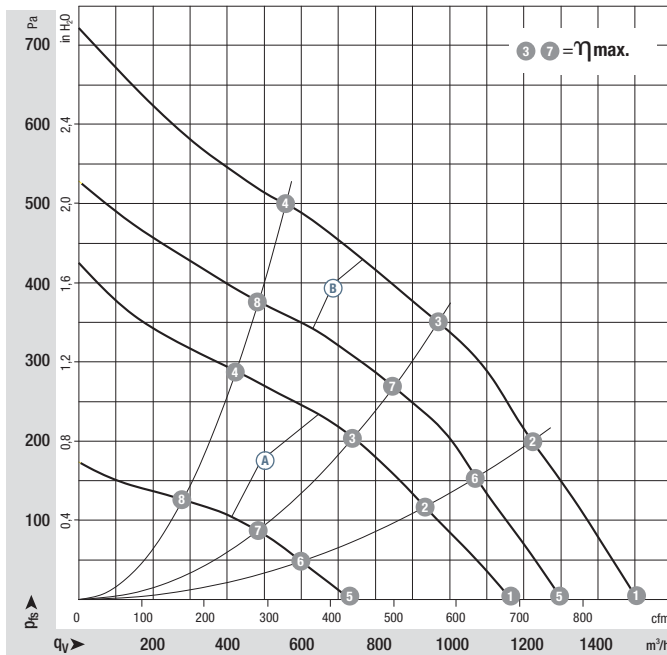
Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm ⁽¹⁾ rpm	Max. input power ⁽¹⁾ W	Max. current draw ⁽¹⁾ A	Perm. amb. temp. °C	Technical features and electrical connection
*3G 250	M3G 055-CF	Ⓐ	1~ 200-240	50/60	1955	80	0,70	-25..+60	p. 164 / H3)
*3G 250	M3G 055-DF	Ⓑ	1~ 200-240	50/60	2510	170	1,40	-25..+60	p. 164 / H3)
*3G 250	M3G 055-CF	Ⓒ	1~ 200-240	50/60	1955	80	0,70	-25..+60	p. 165 / H4)
*3G 250	M3G 055-DF	Ⓓ	1~ 200-240	50/60	2510	170	1,40	-25..+60	p. 165 / H4)

subject to alterations

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

Curves: 2 Speed stages



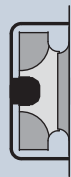
	n rpm	P _{ed} W	I A	L _{wA} dB(A)
Ⓐ ①	2050	70	0,60	69
Ⓐ ②	1965	80	0,68	66
Ⓐ ③	1955	80	0,70	61
Ⓐ ④	1990	78	0,65	66
Ⓐ ⑤	1325	22	0,23	60
Ⓐ ⑥	1290	26	0,26	57
Ⓐ ⑦	1290	26	0,28	53
Ⓐ ⑧	1330	26	0,26	57
Ⓑ ①	2680	145	1,15	76
Ⓑ ②	2565	170	1,40	71
Ⓑ ③	2510	170	1,40	67
Ⓑ ④	2610	160	1,30	73
Ⓑ ⑤	2330	96	0,80	72
Ⓑ ⑥	2265	110	0,92	67
Ⓑ ⑦	2250	115	0,96	64
Ⓑ ⑧	2285	110	0,93	68

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Technical features:** See electrical connections p. 164 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



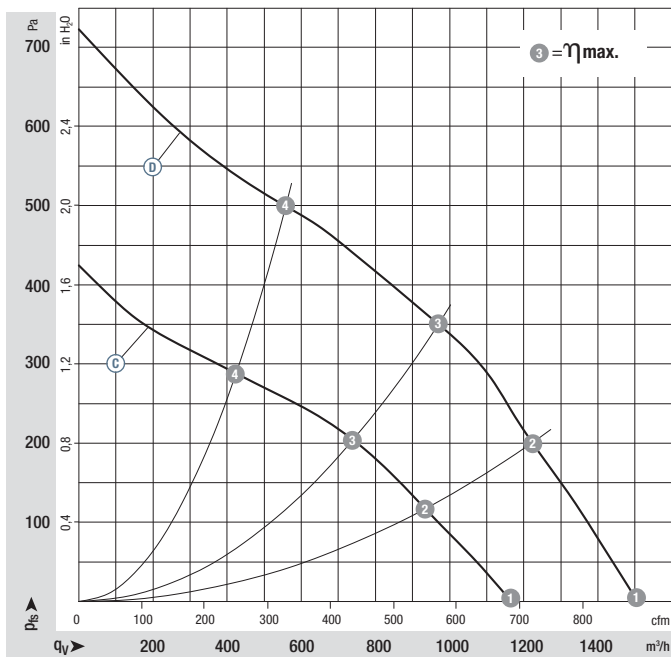
Mass of centrifugal fan



Mass of centrifugal module with support basket

Centrifugal fan	kg	Centrifugal module w. support basket	kg
R3G 250-RD17 -01	1,50	K3G 250-RD17 -01	2,28
R3G 250-RE07 -05	1,91	K3G 250-RE07 -05	2,69
R3G 250-RD17 -03	1,50	K3G 250-RD17 -03	2,28
R3G 250-RE07 -07	1,91	K3G 250-RE07 -07	2,69

Curves:
Speed-controlled



	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓒ ①	2050	70	0,60	69
Ⓒ ②	1965	80	0,68	66
Ⓒ ③	1955	80	0,70	61
Ⓒ ④	1990	78	0,65	66
Ⓓ ①	2680	145	1,15	76
Ⓓ ②	2565	170	1,40	71
Ⓓ ③	2510	170	1,40	67
Ⓓ ④	2610	160	1,30	73

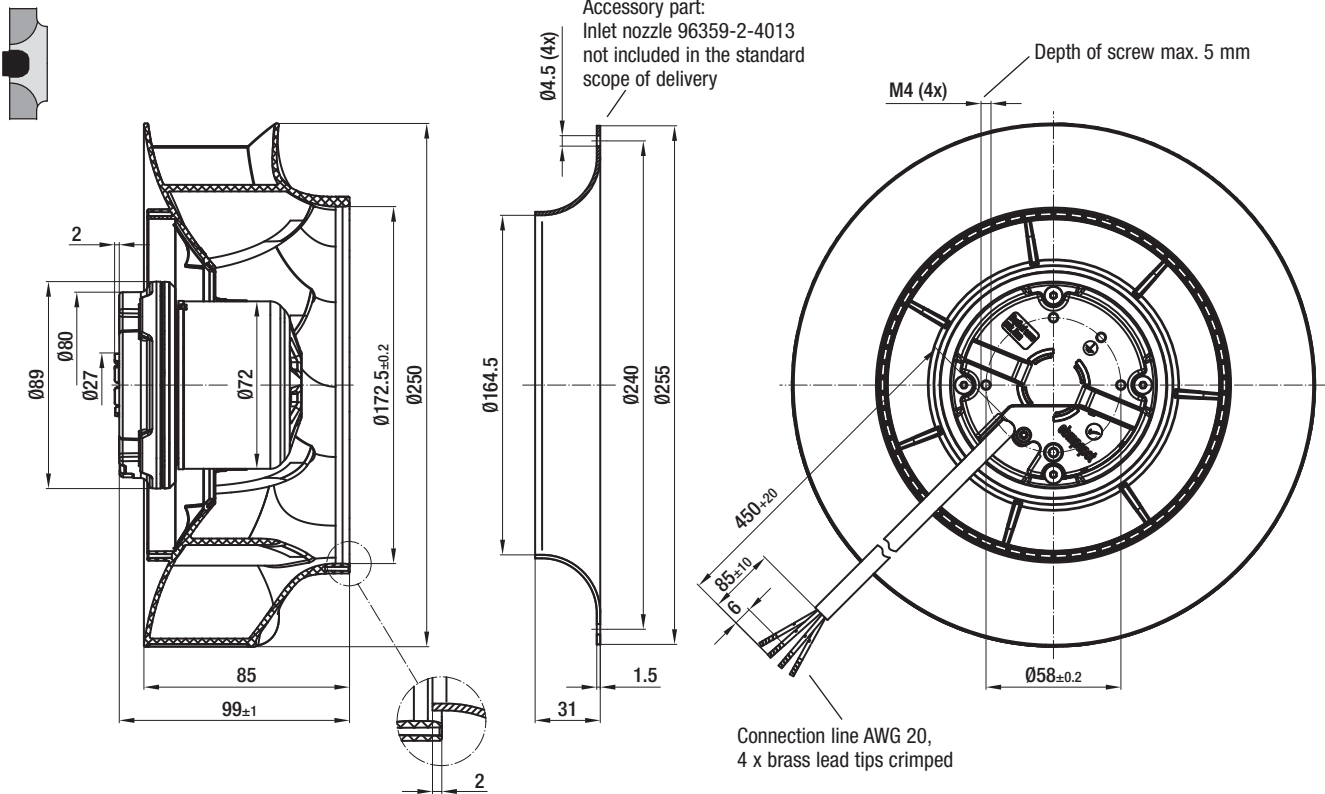
Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

EC centrifugal fans – RadiCal

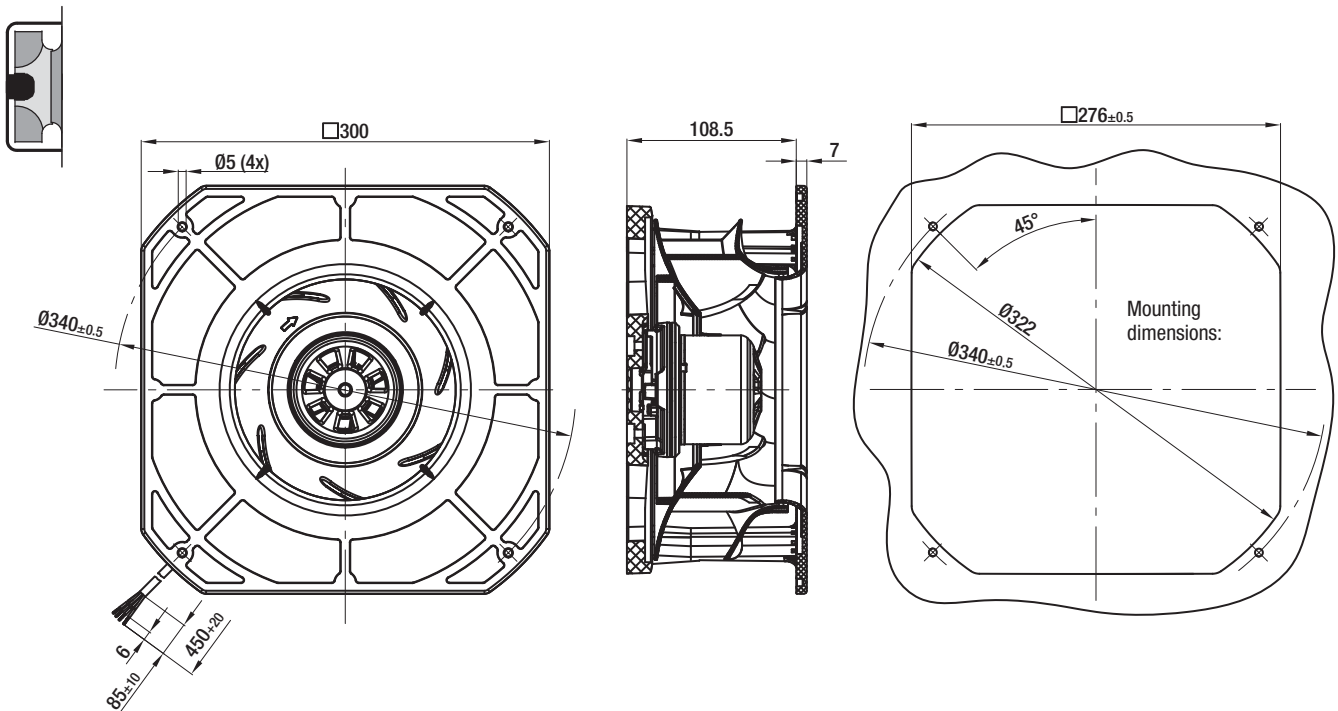
backward curved, Ø 250, 2 speed stages, 85 W - electronics



R3G 250-RD17-01 (Centrifugal fan)



K3G 250-RD17-01 (Centrifugal module with support basket)

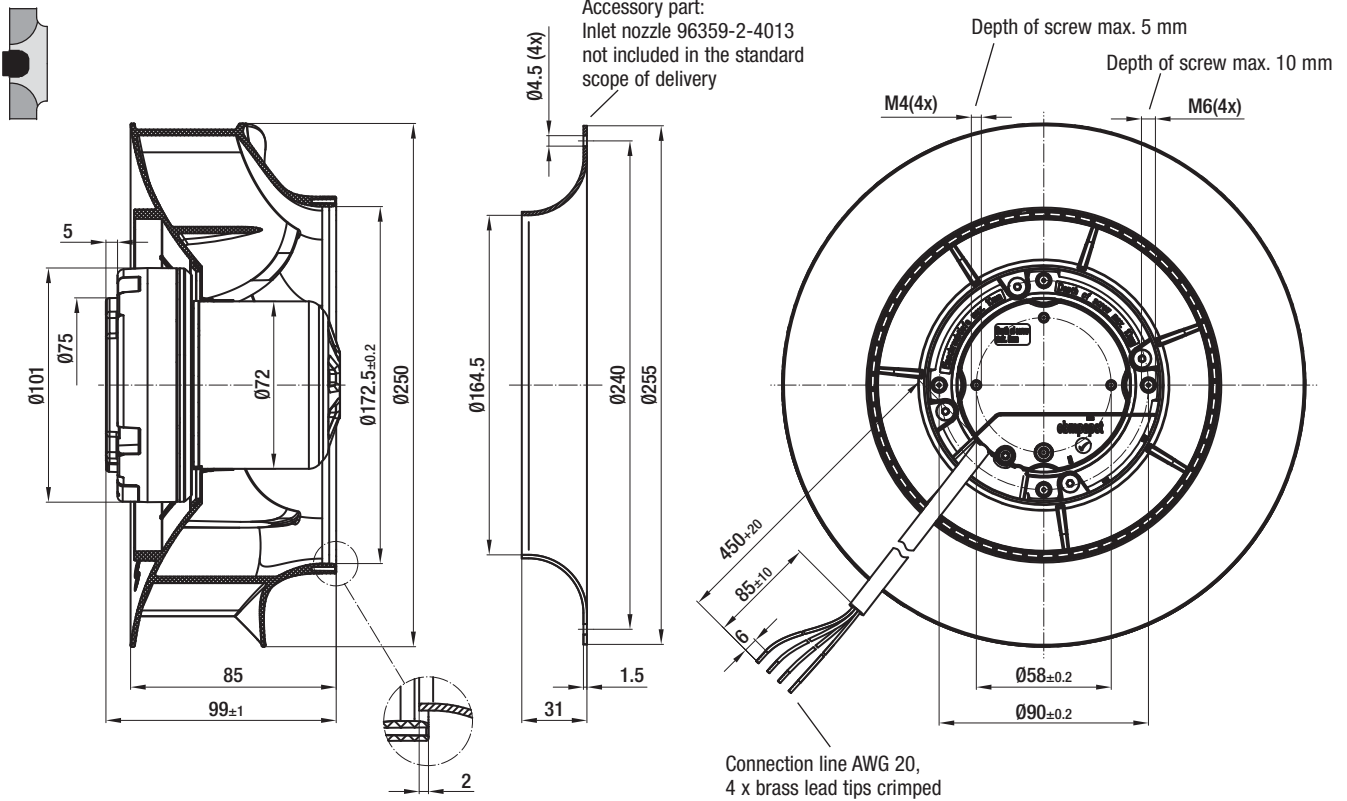


EC centrifugal fans – RadiCal

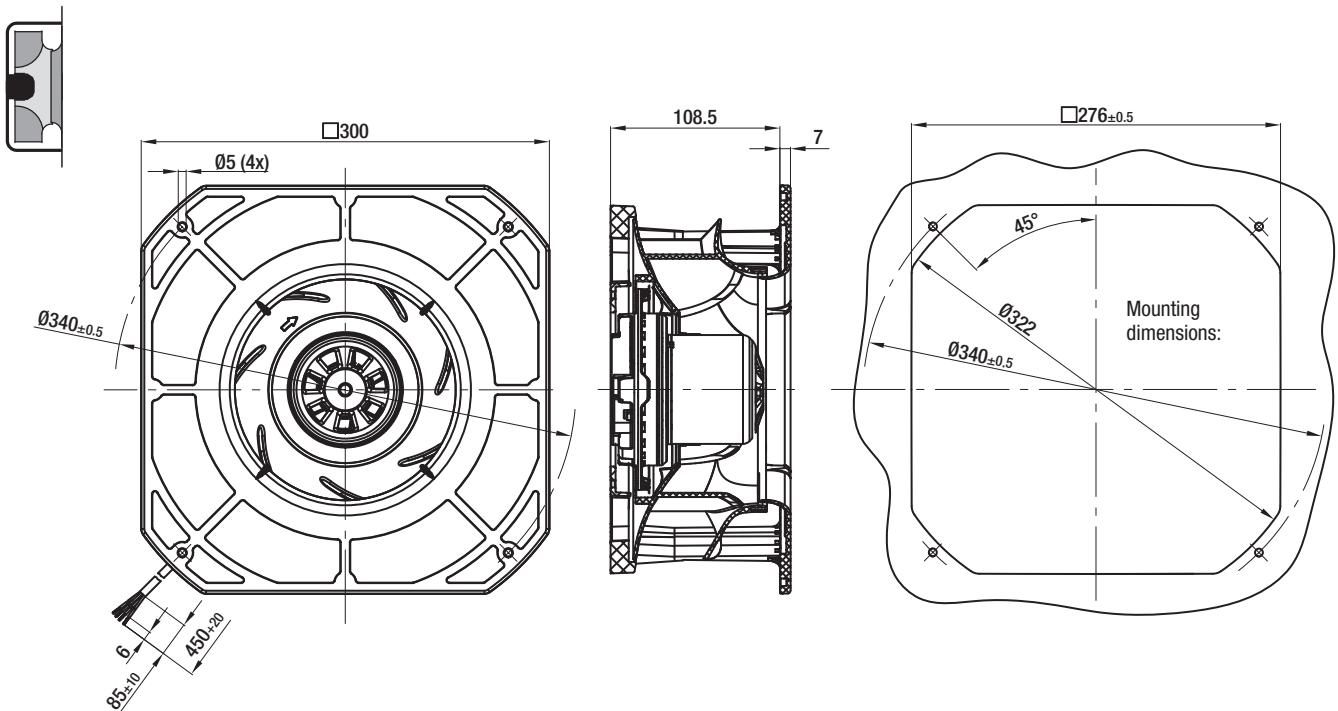
backward curved, Ø 250, 2 speed stages, 170 W - electronics



R3G 250-RE07-05 (Centrifugal fan)



K3G 250-RE07-05 (Centrifugal module with support basket)

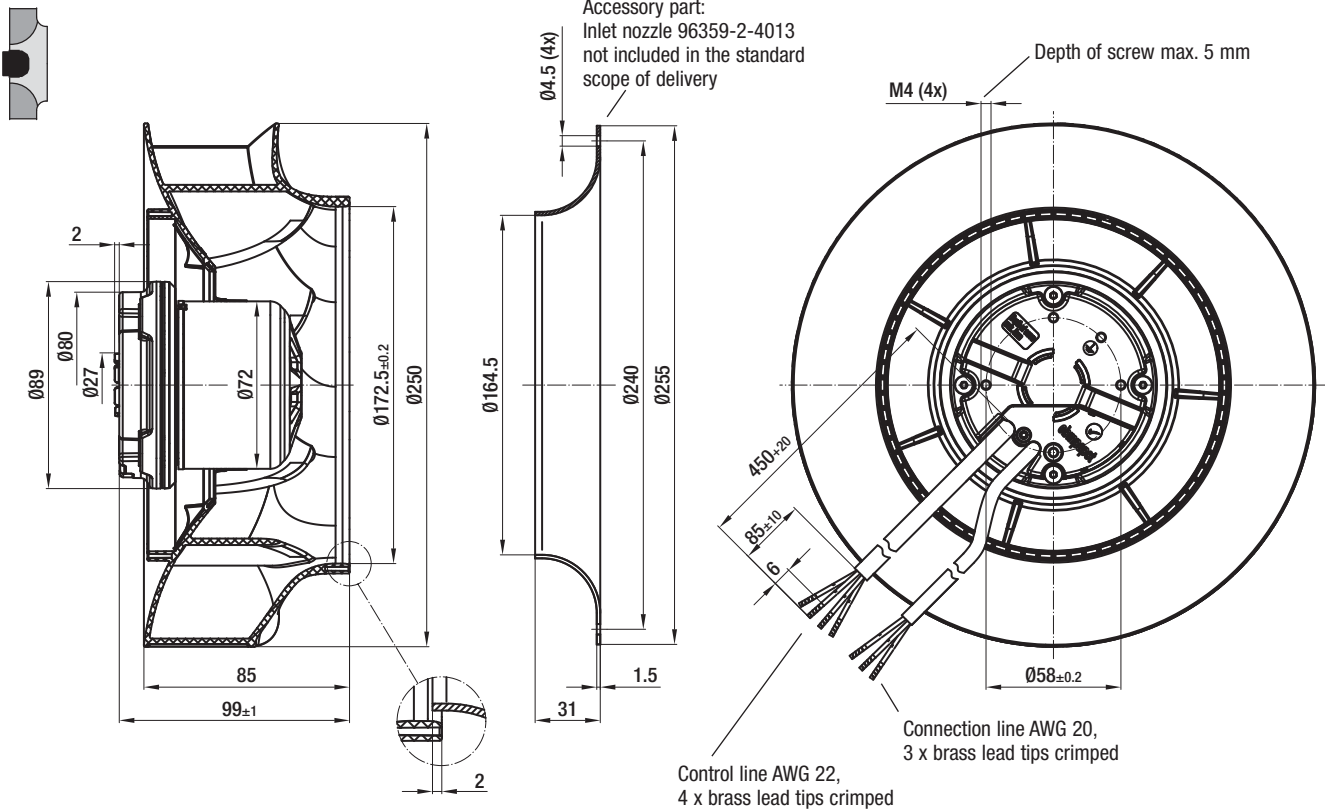


EC centrifugal fans – RadiCal

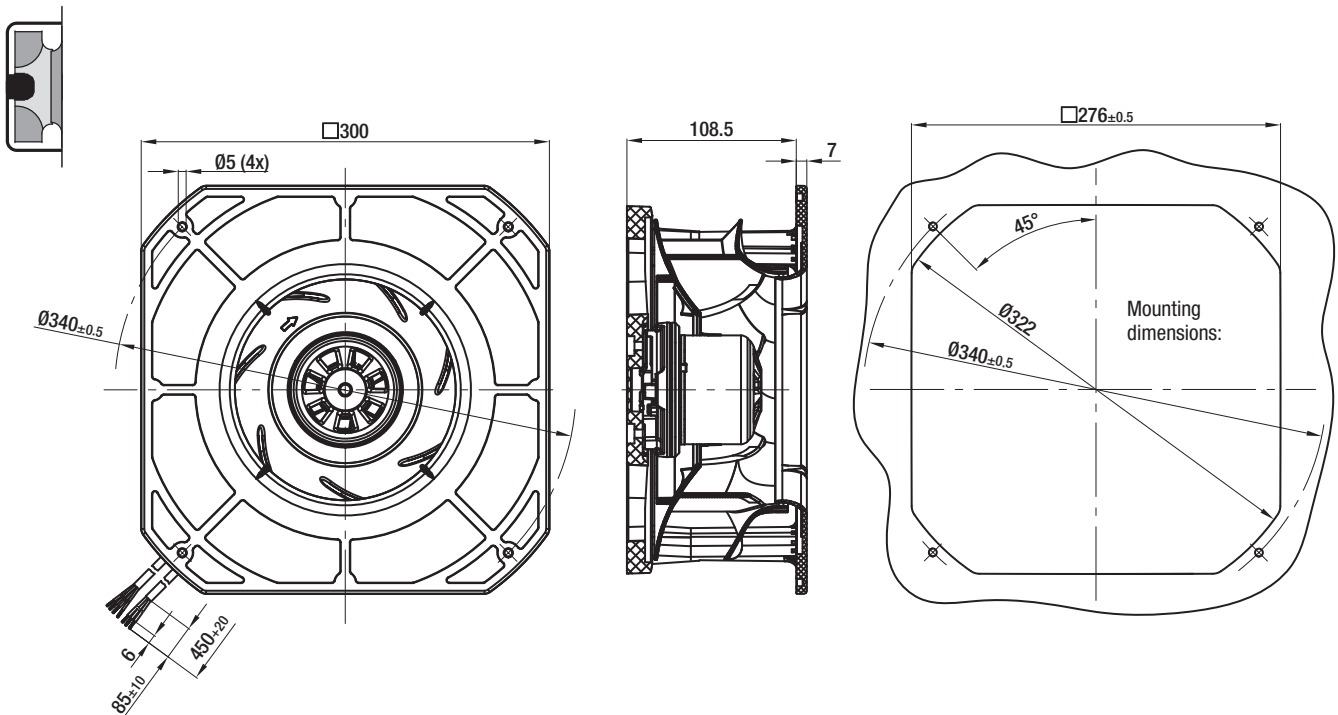
backward curved, Ø 250, speed-controlled, 85 W - electronics



R3G 250-RD17-03 (Centrifugal fan)



K3G 250-RD17-03 (Centrifugal module with support basket)

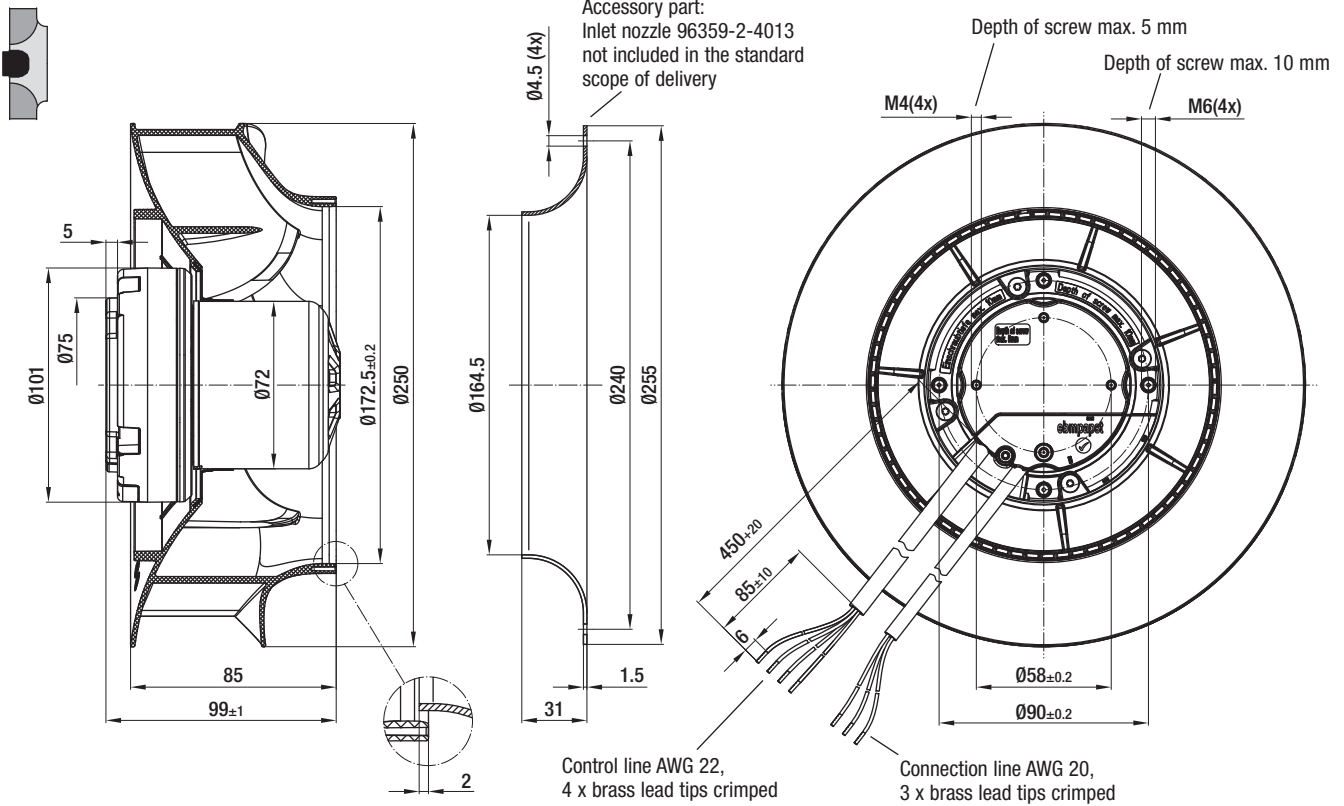


EC centrifugal fans – RadiCal

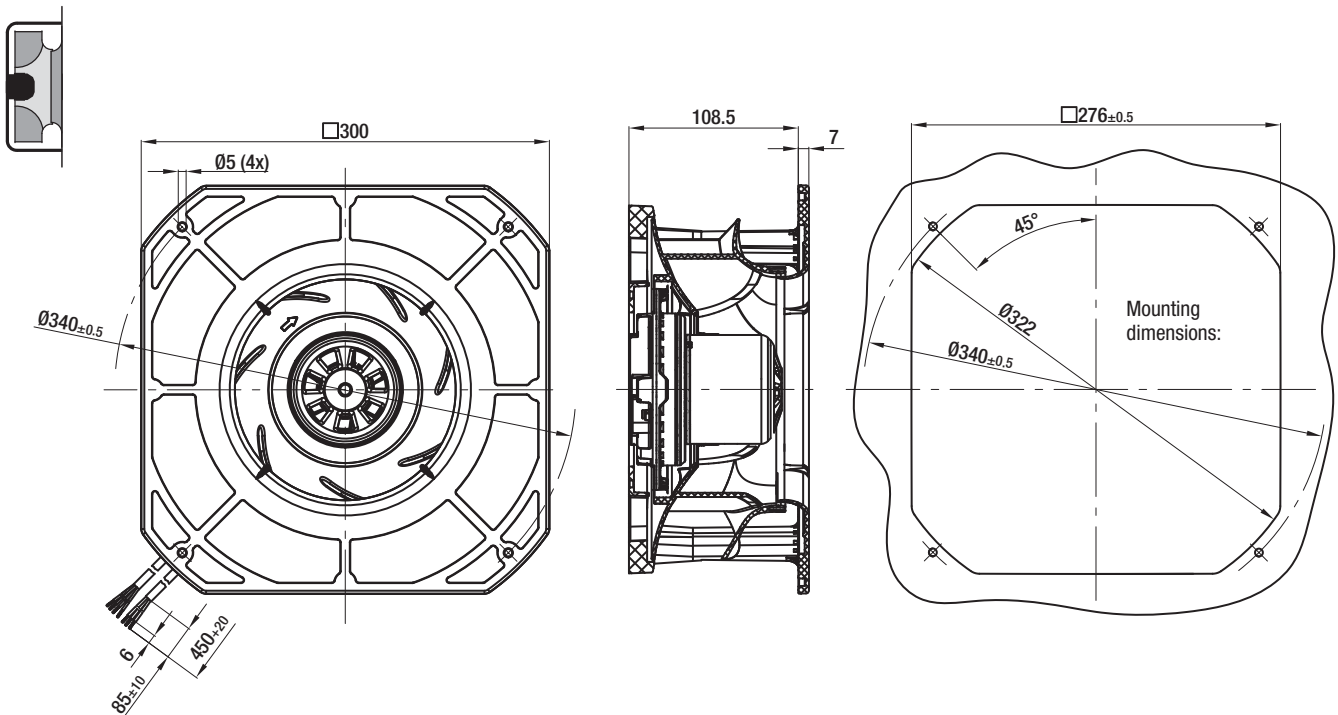
backward curved, Ø 250, speed-controlled, 170 W - electronics



R3G 250-RE07-07 (Centrifugal fan)



K3G 250-RE07-07 (Centrifugal module with support basket)



EC centrifugal fans – RadiCal

backward curved, Ø 250



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

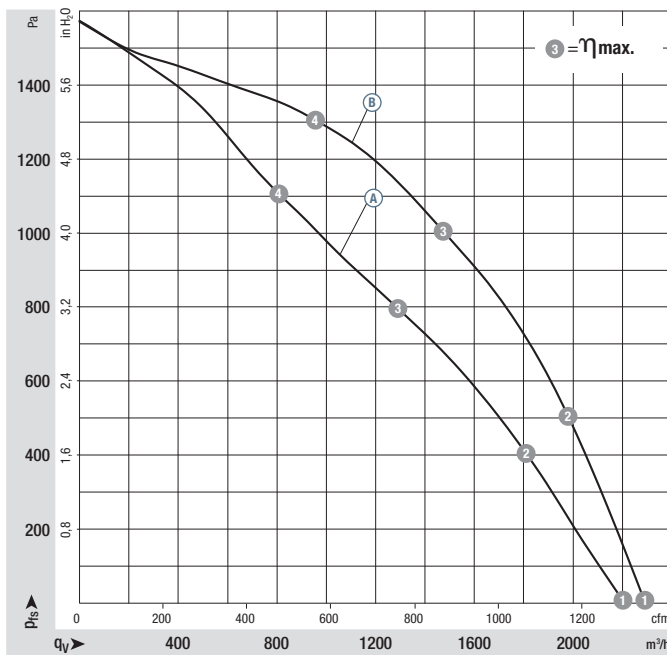
Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Perm. amb. temp.	Technical features and electrical connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 250	M3G 084-DF	Ⓐ	1~ 200-277	50/60	3740	500	2,20	-25..+60	p. 166 / P5)
*3G 250	M3G 084-DF	Ⓑ	1~ 200-277	50/60	4250	750	3,30	-25..+60	p. 166 / P5)

subject to alterations

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

Curves:



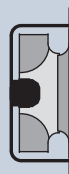
	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓐ ①	4100	500	2,20	89
Ⓐ ②	3870	500	2,20	83
Ⓐ ③	3740	500	2,20	78
Ⓐ ④	3860	500	2,20	84
Ⓑ ①	4250	585	2,60	90
Ⓑ ②	4250	685	3,00	86
Ⓑ ③	4250	750	3,30	82
Ⓑ ④	4250	695	3,10	84

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Technical features:** See electrical connections p. 166
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Centrifugal module w. support bracket	kg
R3G 250-RR01 -H1	4,1	K3G 250-RR01 -H2	8,1
R3G 250-RR02 -I1	4,4	K3G 250-RR02 -I2	8,5

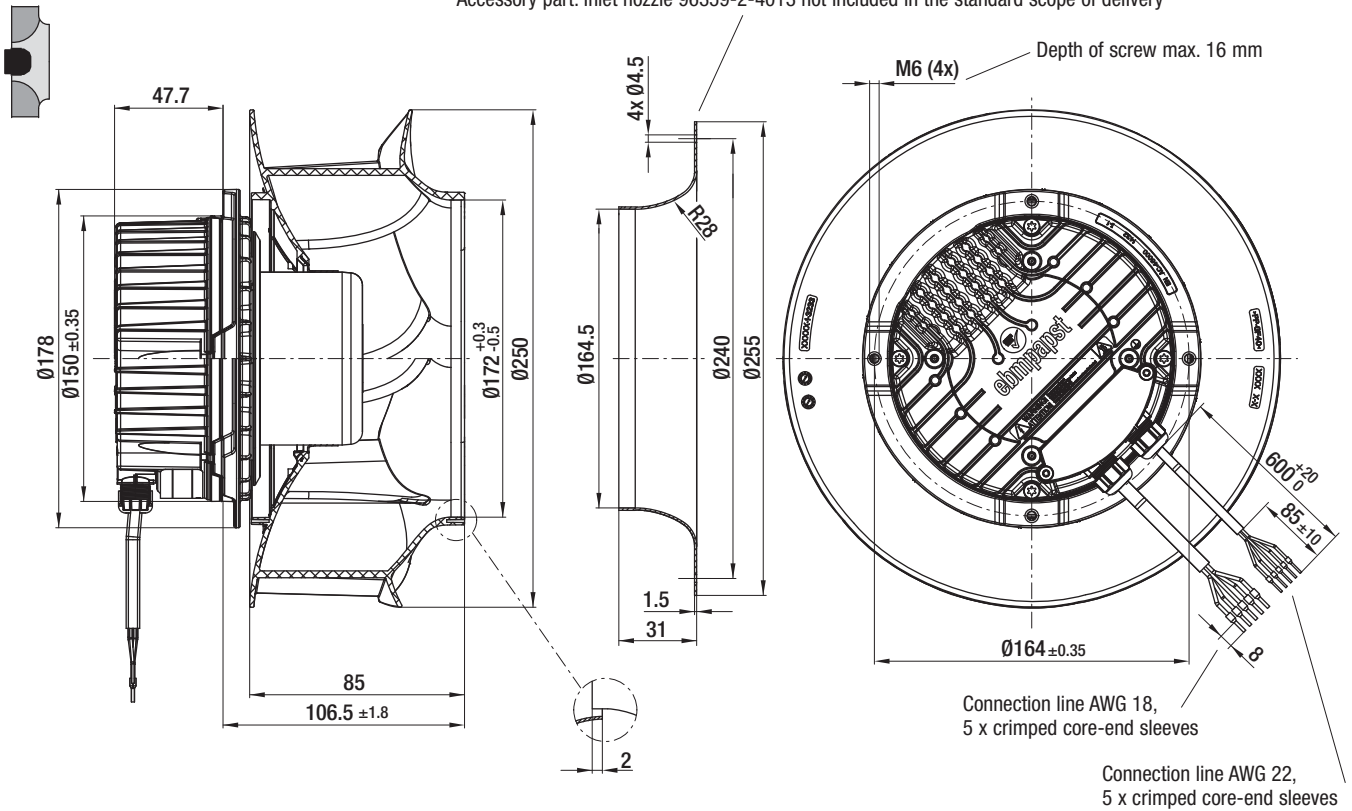
EC centrifugal fans – RadiCal

backward curved, Ø 250

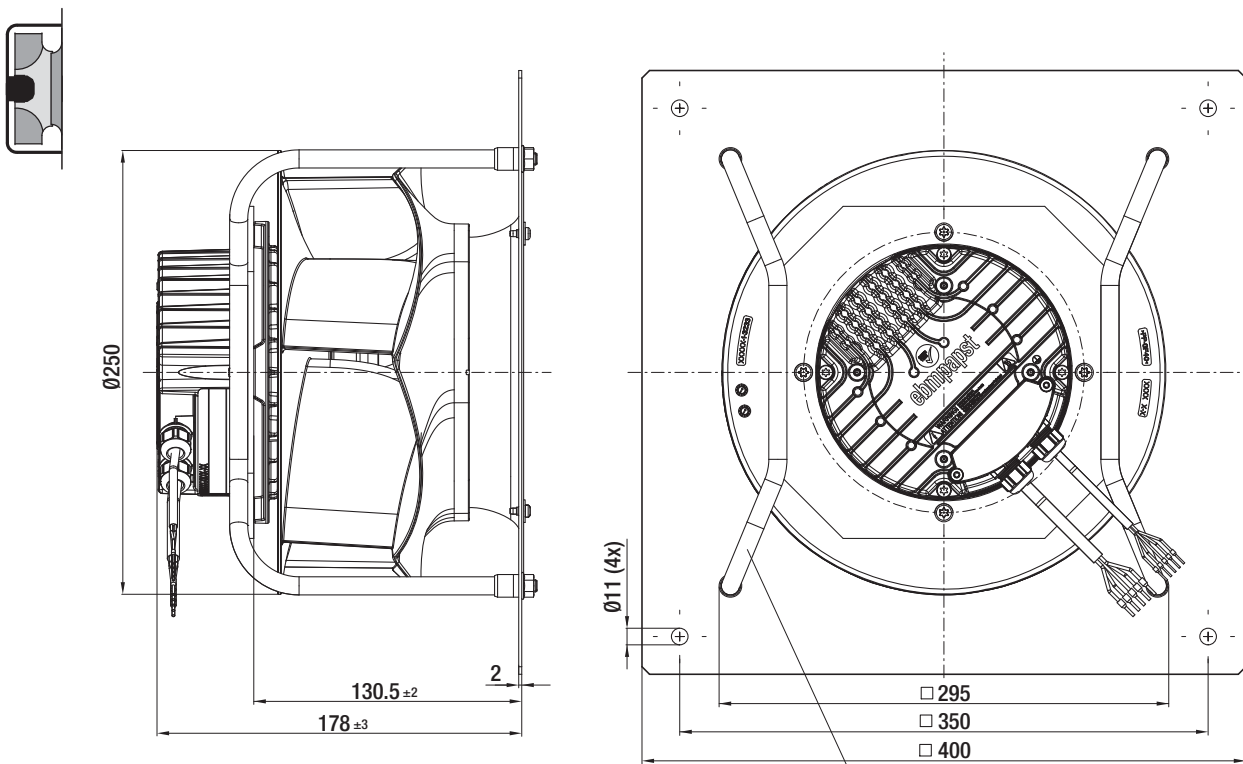


R3G 250-RR01-H1 (Centrifugal fan)

Accessory part: Inlet nozzle 96359-2-4013 not included in the standard scope of delivery



K3G 250-RR01-H2 (Centrifugal module with support bracket)



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

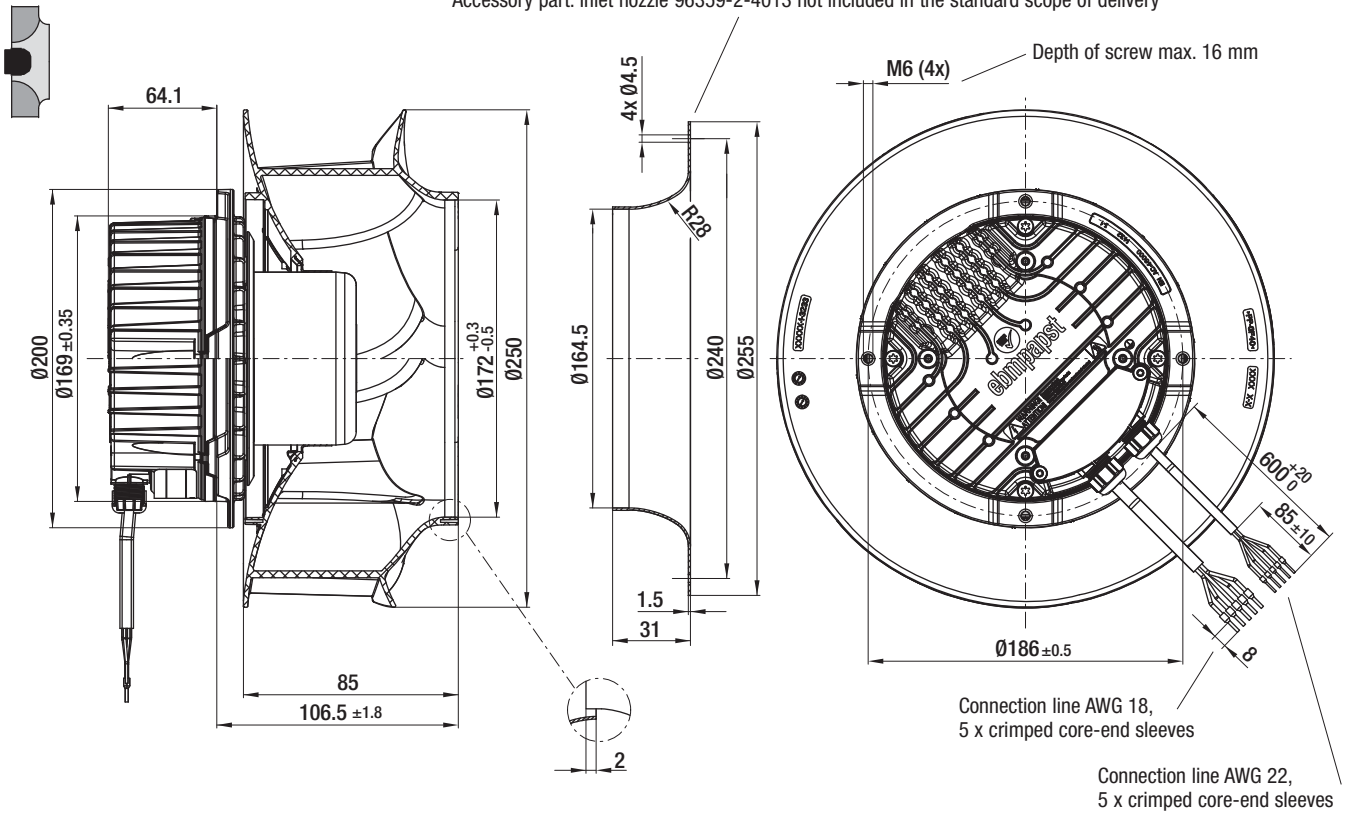
EC centrifugal fans – RadiCal

backward curved, Ø 250

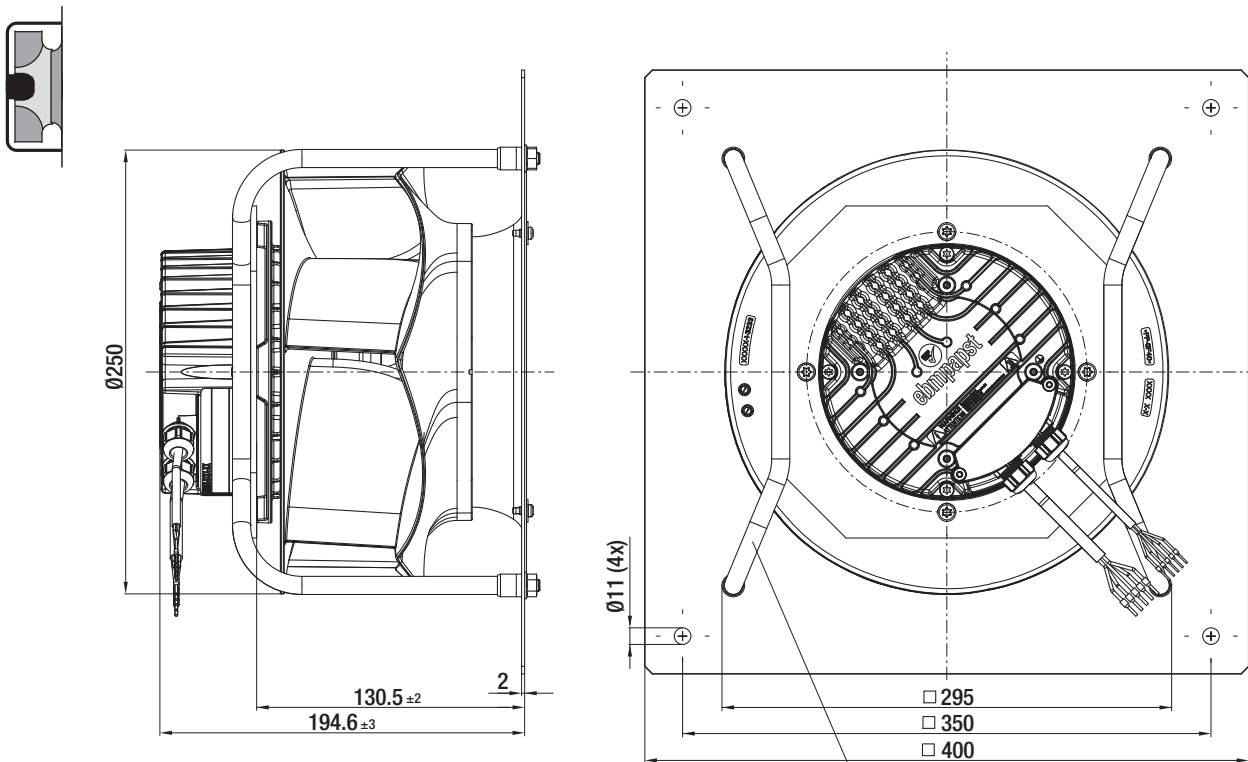


R3G 250-RR02-I1 (Centrifugal fan)

Accessory part: Inlet nozzle 96359-2-4013 not included in the standard scope of delivery



K3G 250-RR02-I2 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

backward curved, Ø 280



- **Material:** Support bracket: Steel, coated in black
Support plate and inlet nozzle: Sheet steel, galvanised
Impeller: Plastic PP
Rotor: (A) Surface passivated, (B) (C) Coated in black
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** (A) "B", (B) (C) "F"
- **Mounting position:** (A) any, (B) (C) Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** (A) None (open rotor), (B) (C) Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

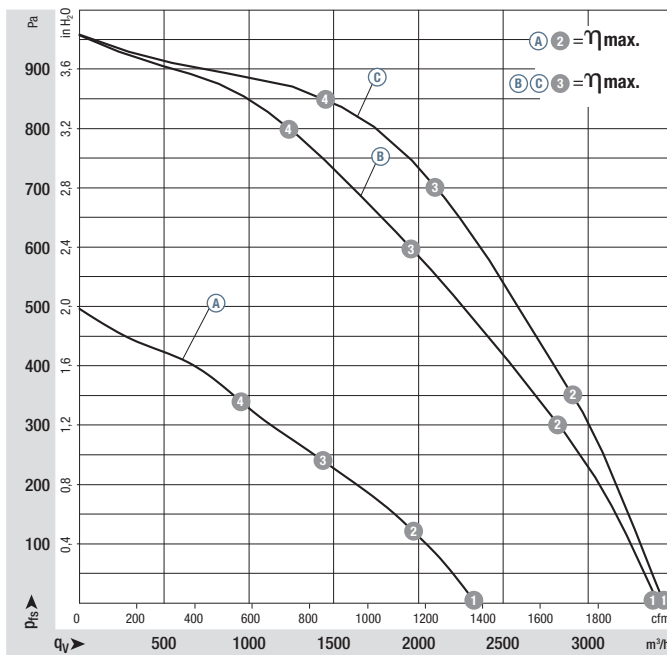
Nominal data

Type	Motor	Curve	Nominal voltage range	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Perm. amb. temp.	Technical features and electrical connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 280	M3G 074-CF	(A)	1~ 200-240	50/60	1910	168	1,40	-25..+60	p. 165 / H4)
*3G 280	M3G 084-DF	(B)	1~ 200-277	50/60	2700	500	2,20	-25..+60	p. 166 / P5)
*3G 280	M3G 084-DF	(C)	1~ 200-277	50/60	2900	660	2,90	-25..+60	p. 166 / P5)

subject to alterations

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

Curves:



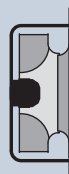
	n rpm	P _{ed} W	I A	L _{wA} dB(A)
(A) 1	1980	150	1,05	75
(A) 2	1910	168	1,40	69
(A) 3	1775	165	1,30	64
(A) 4	1840	165	1,30	64
(B) 1	2880	460	2,00	85
(B) 2	2800	500	2,20	80
(B) 3	2700	500	2,20	74
(B) 4	2810	500	2,20	78
(C) 1	2900	490	2,20	86
(C) 2	2900	600	2,70	81
(C) 3	2900	660	2,90	76
(C) 4	2900	600	2,70	79

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Technical features:** See electrical connections p. 165 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
 - Ⓐ On account of the installation conditions, ferritic damping in the connection line may be required for the application.
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** Ⓐ EN 60335-1, CE; Ⓑ Ⓒ EN 60335-1, EN 61800-5-1, CE
- **Approvals:** Ⓐ VDE, cURus on request; Ⓑ Ⓒ VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



Mass of centrifugal module with support bracket

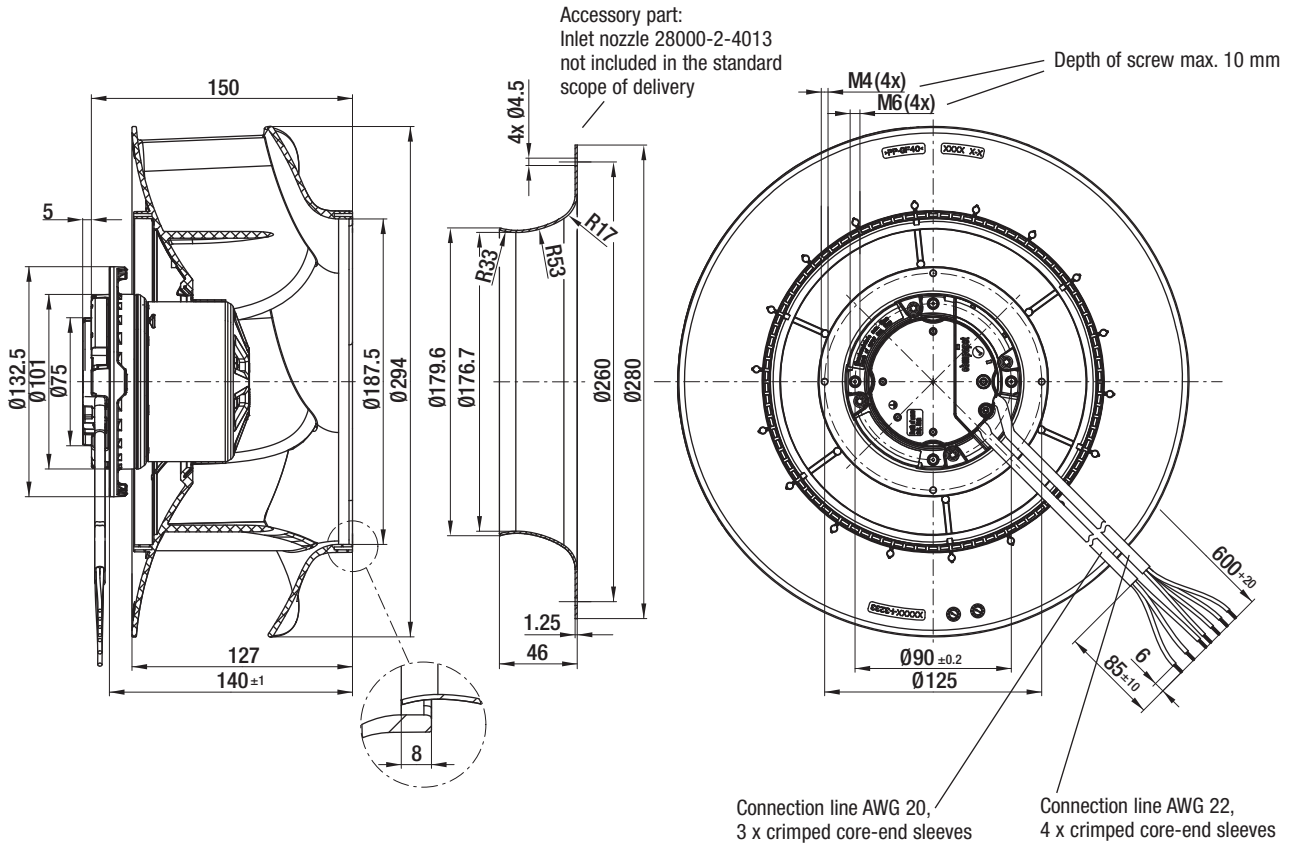
Centrifugal fan	kg	Centrifugal module w. support bracket	kg
R3G 280-RB02 -03	2,7	K3G 280-RB02 -03	6,8
R3G 280-RR03 -H1	4,3	K3G 280-RR03 -H2	8,4
R3G 280-RR04 -I1	4,6	K3G 280-RR04 -I2	8,8

EC centrifugal fans – RadiCal

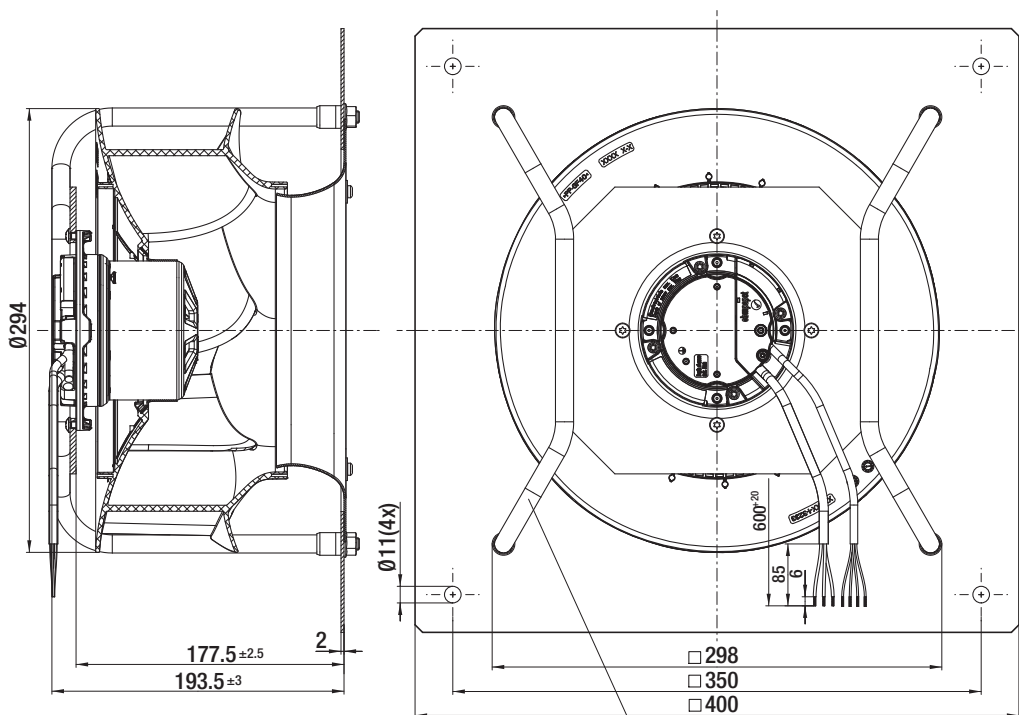
backward curved, Ø 280



R3G 280-RB02-03 (Centrifugal fan)



K3G 280-RB02-03 (Centrifugal module with support bracket)



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

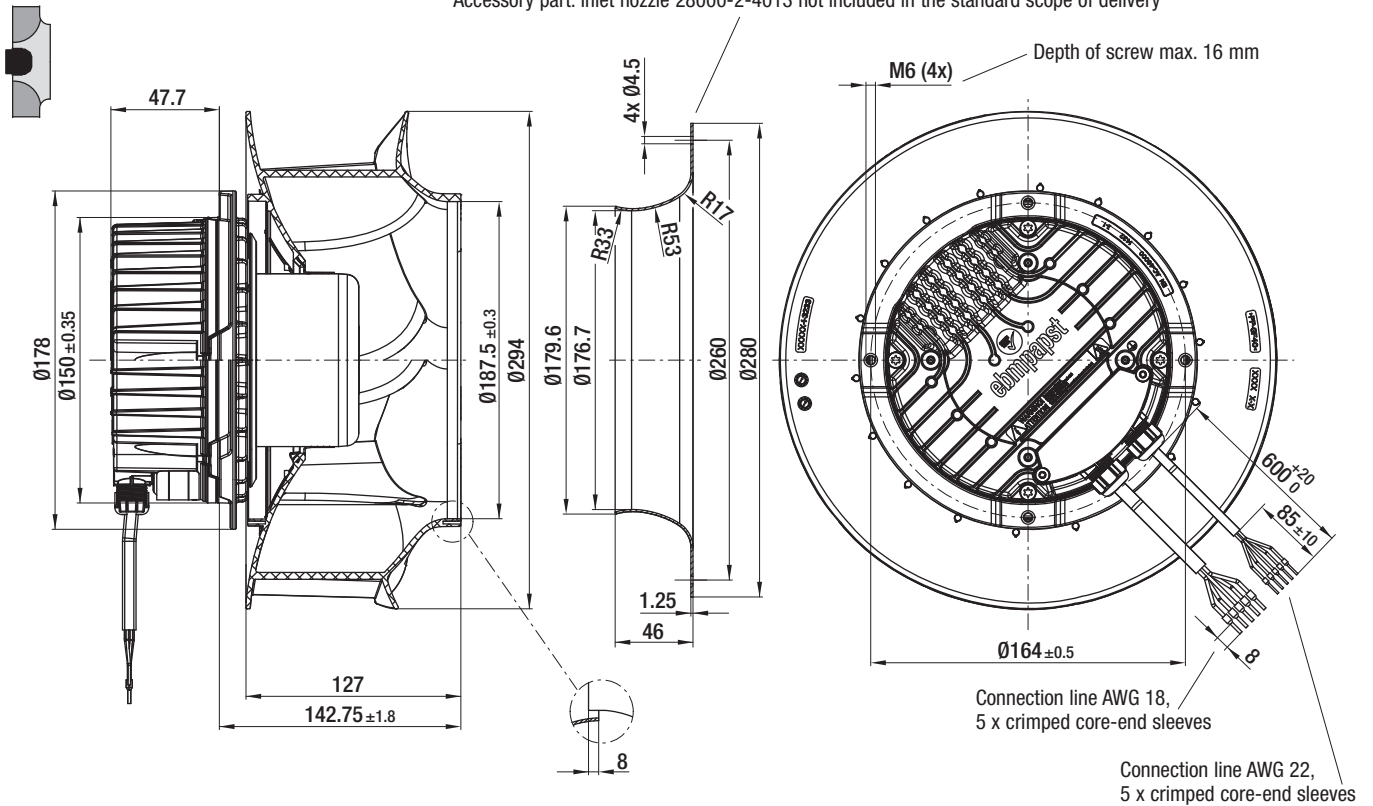
EC centrifugal fans – RadiCal

backward curved, Ø 280

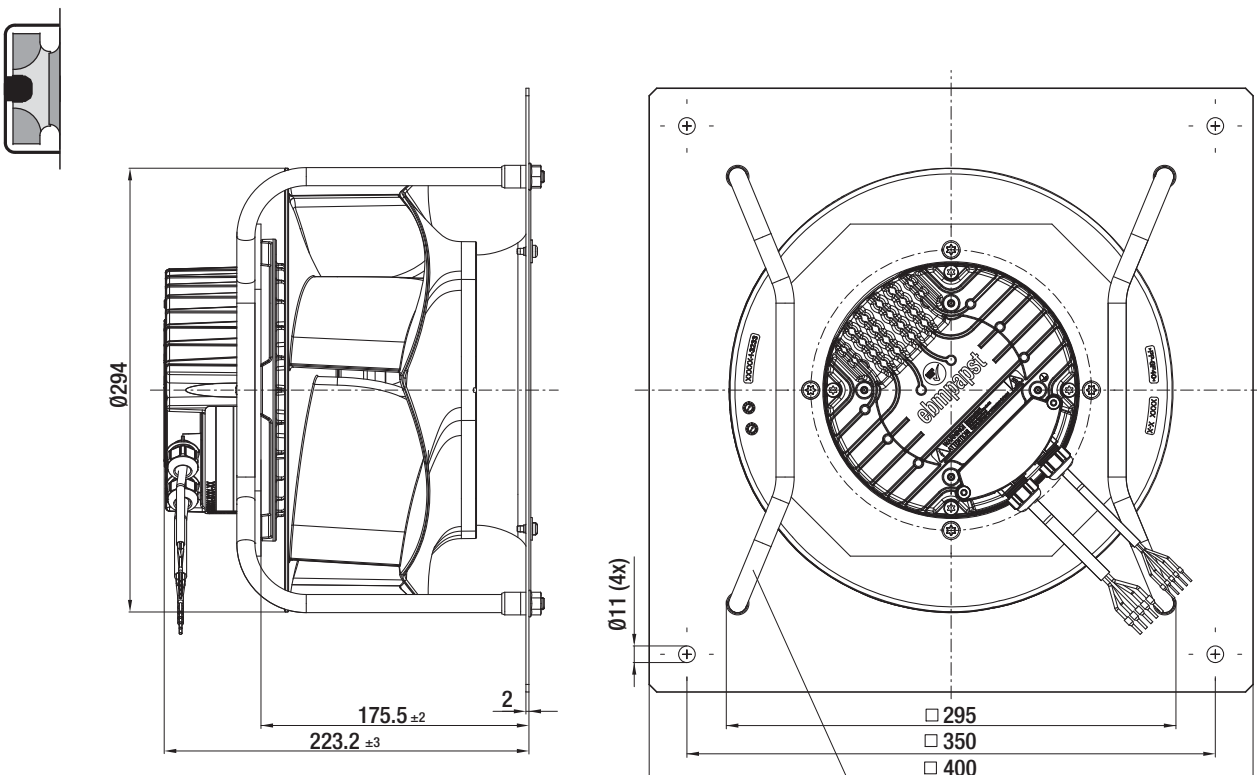


R3G 280-RR03-H1 (Centrifugal fan)

Accessory part: Inlet nozzle 28000-2-4013 not included in the standard scope of delivery



K3G 280-RR03-H2 (Centrifugal module with support bracket)



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

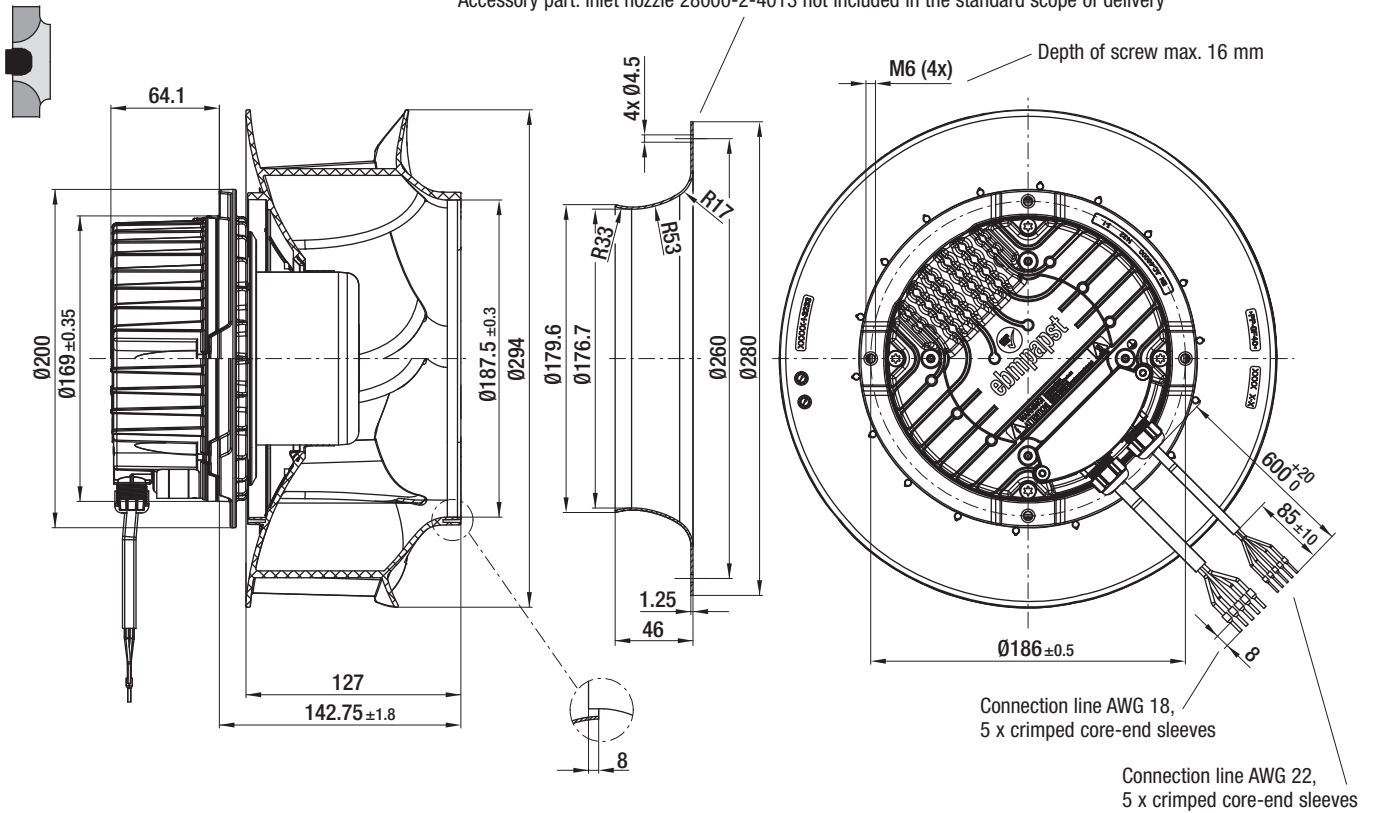
EC centrifugal fans – RadiCal

backward curved, Ø 280

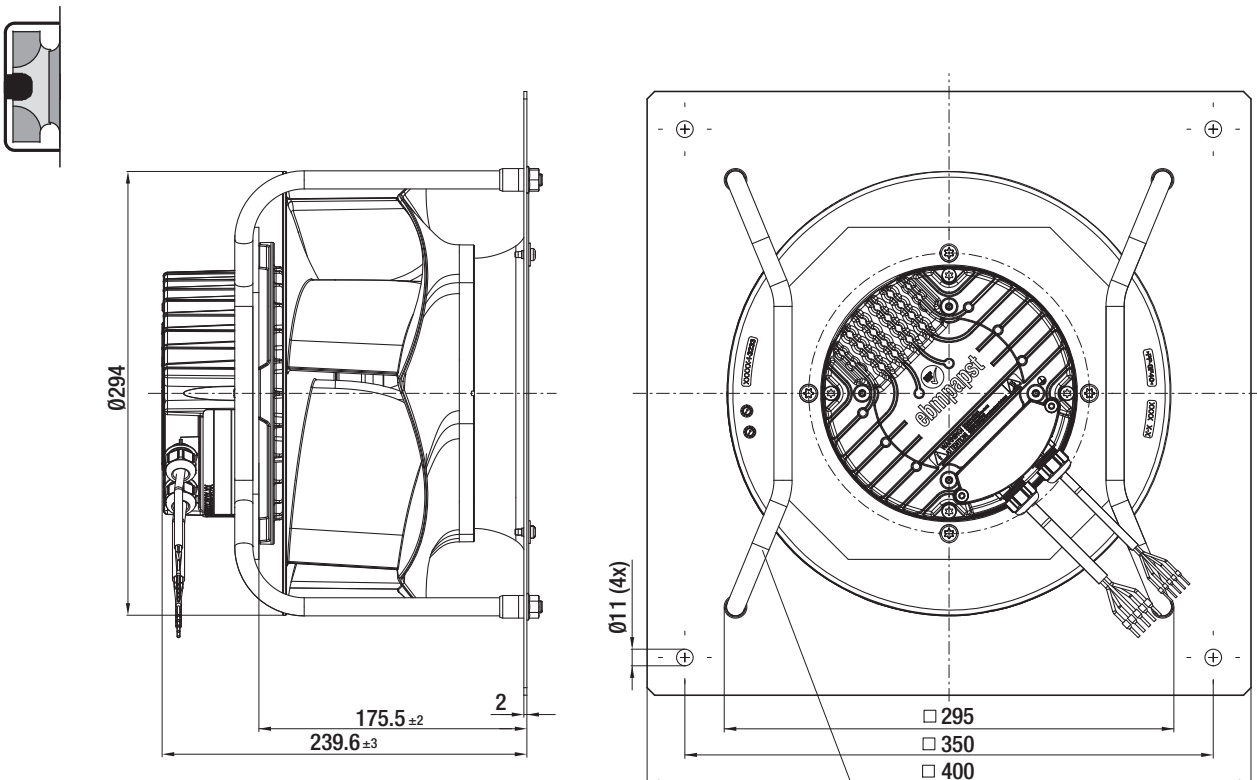


R3G 280-RR04-I1 (Centrifugal fan)

Accessory part: Inlet nozzle 28000-2-4013 not included in the standard scope of delivery



K3G 280-RR04-I2 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

backward curved, Ø 310



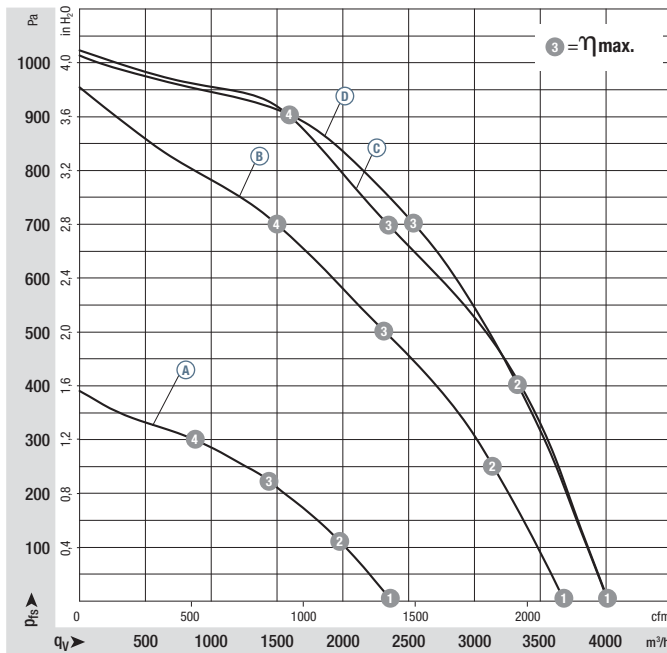
- **Material:** Support bracket: Steel, coated in black
Support plate and inlet nozzle: Sheet steel, galvanised
Impeller: Plastic PP
Rotor: (A) Surface passivated, (B) (C) (D) Coated in black
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** (A) "B", (B) (C) (D) "F"
- **Mounting position:** (A) any, (B) (C) (D) Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** (A) None (open rotor), (B) (C) (D) Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Perm. amb. temp.	Technical features and electrical connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 310	M3G 074-CF	(A) 1~ 200-240	50/60	1525	150	1,20	-25..+60	p. 165 / H4)	
*3G 310	M3G 084-DF	(B) 1~ 200-277	50/60	2360	500	2,20	-25..+60	p. 166 / P5)	
*3G 310	M3G 084-FA	(C) 1~ 200-277	50/60	2640	740	3,25	-25..+60	p. 166 / P5)	
*3G 310	M3G 084-FA	(D) 3~ 380-480	50/60	2700	790	1,25	-25..+60	p. 167 / P6)	

subject to alterations

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

Curves:



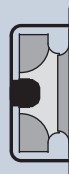
	n rpm	P _{ed} W	I A	L _{WA} dB(A)
(A) 1	1600	115	0,95	69
(A) 2	1545	140	1,10	65
(A) 3	1525	150	1,20	59
(A) 4	1545	140	1,15	62
(B) 1	2510	430	1,90	81
(B) 2	2440	500	2,20	76
(B) 3	2360	500	2,20	72
(B) 4	2410	500	2,20	77
(C) 1	2700	550	2,45	84
(C) 2	2700	730	3,20	79
(C) 3	2640	740	3,25	75
(C) 4	2700	730	3,20	79
(D) 1	2700	560	0,89	84
(D) 2	2700	720	1,15	79
(D) 3	2700	790	1,25	76
(D) 4	2700	725	1,15	80

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Technical features:** See electrical connections p. 165 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
 - Ⓐ On account of the installation conditions, ferritic damping in the connection line may be required for the application.
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** Ⓐ EN 60335-1, CE; Ⓑ Ⓒ Ⓓ EN 60335-1, EN 61800-5-1, CE
- **Approvals:** Ⓐ VDE, cURus on request; Ⓑ Ⓒ Ⓓ VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



Mass of centrifugal module with support bracket

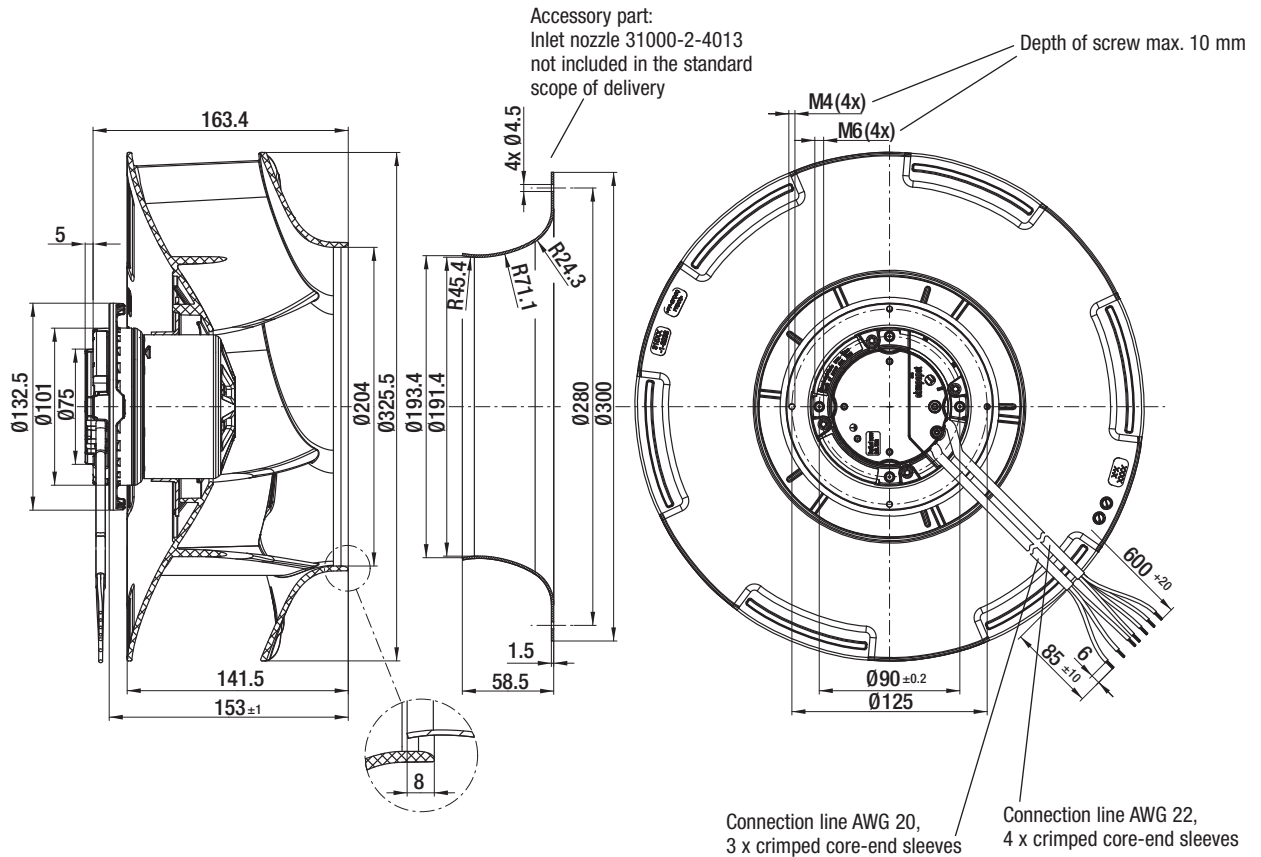
Centrifugal fan	kg	Centrifugal module w. support bracket	kg
R3G 310-RB01 -03	2,9	K3G 310-RB01 -03	7,5
R3G 310-RR05 -H1	4,7	K3G 310-RR05 -H2	9,6
R3G 310-RS01 -I1	5,7	K3G 310-RS01 -I2	10,7
R3G 310-RS05 -J1	5,5	K3G 310-RS05 -J2	10,5

EC centrifugal fans – RadiCal

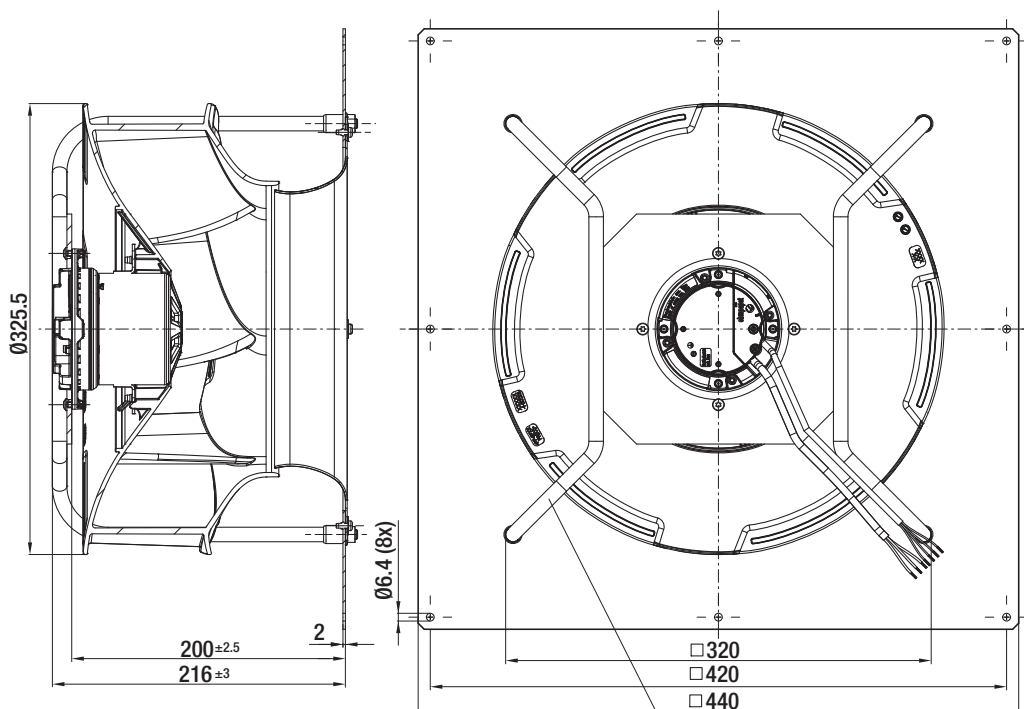
backward curved, Ø 310



R3G 310-RB01-03 (Centrifugal fan)



K3G 310-RB01-03 (Centrifugal module with support bracket)



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

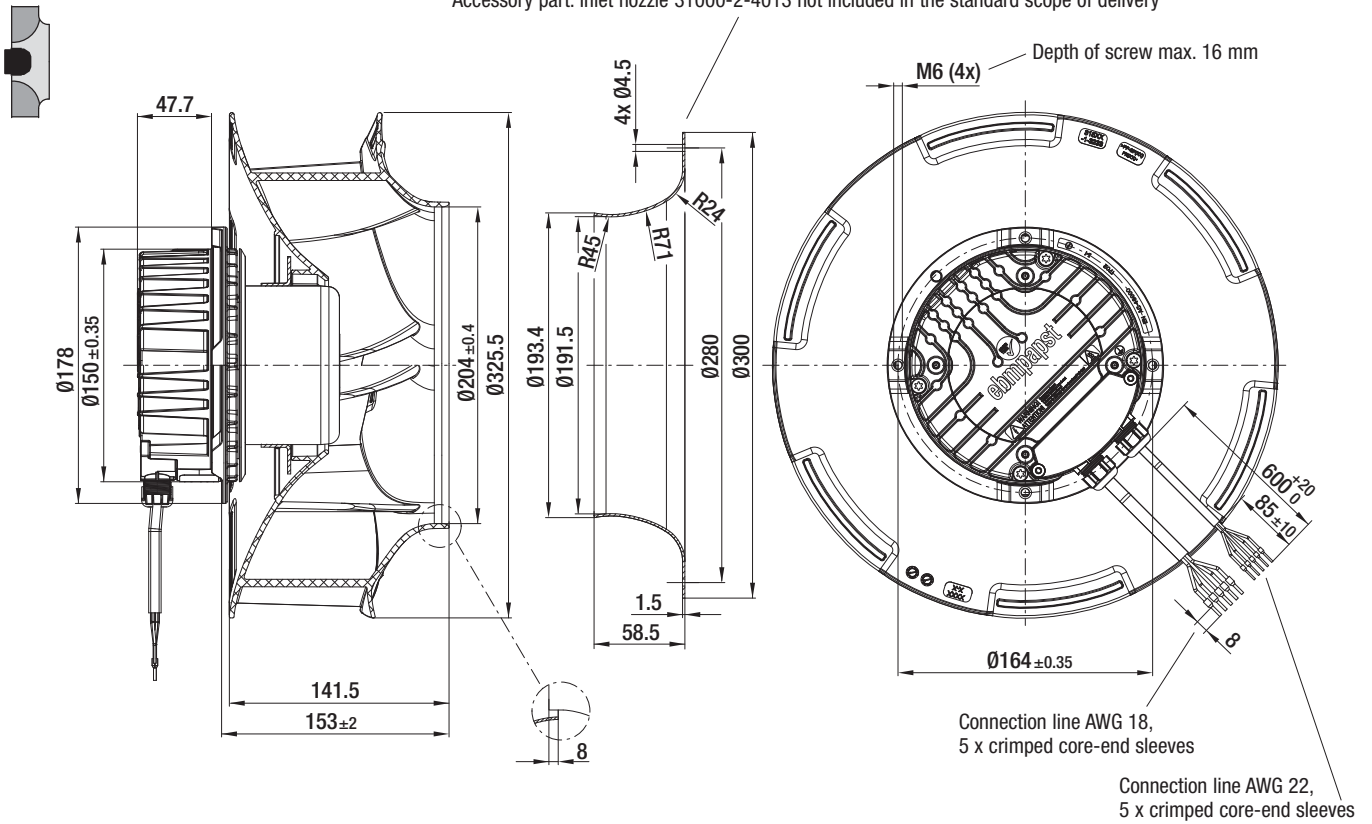
EC centrifugal fans – RadiCal

backward curved, Ø 310

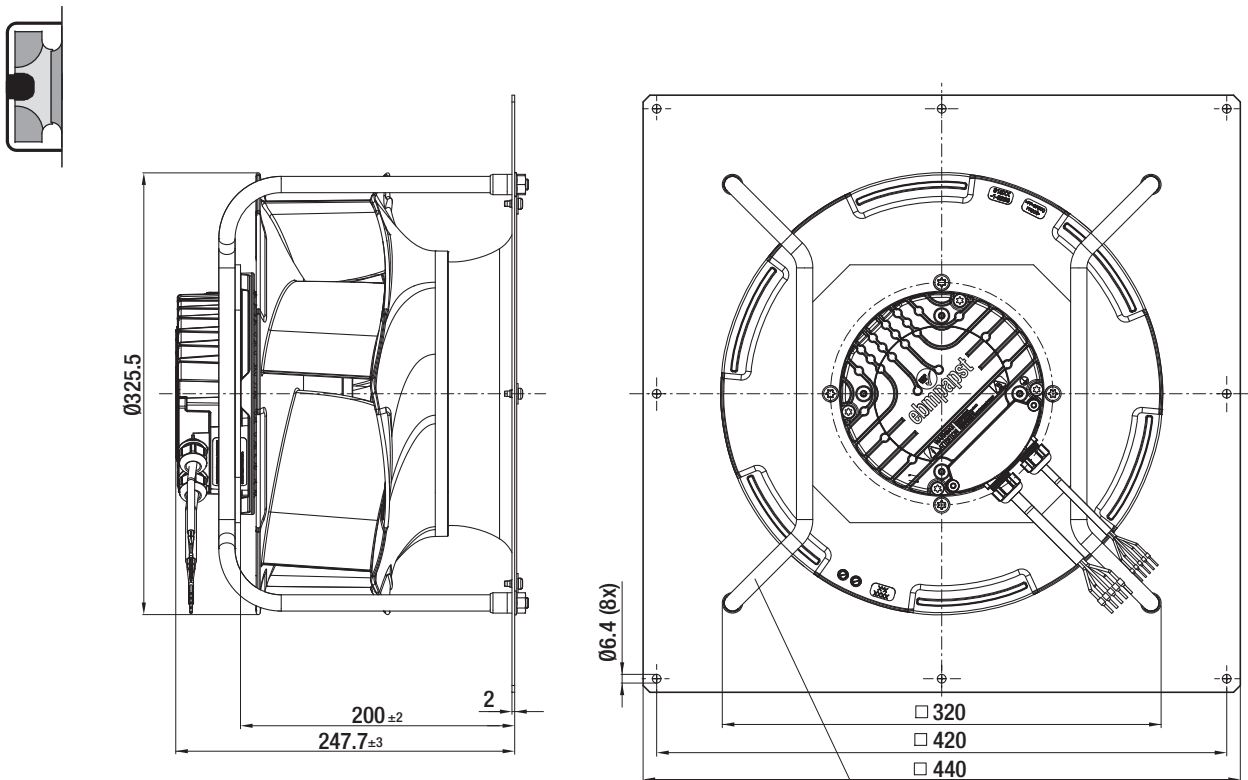


R3G 310-RR05-H1 (Centrifugal fan)

Accessory part: Inlet nozzle 31000-2-4013 not included in the standard scope of delivery



K3G 310-RR05-H2 (Centrifugal module with support bracket)



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

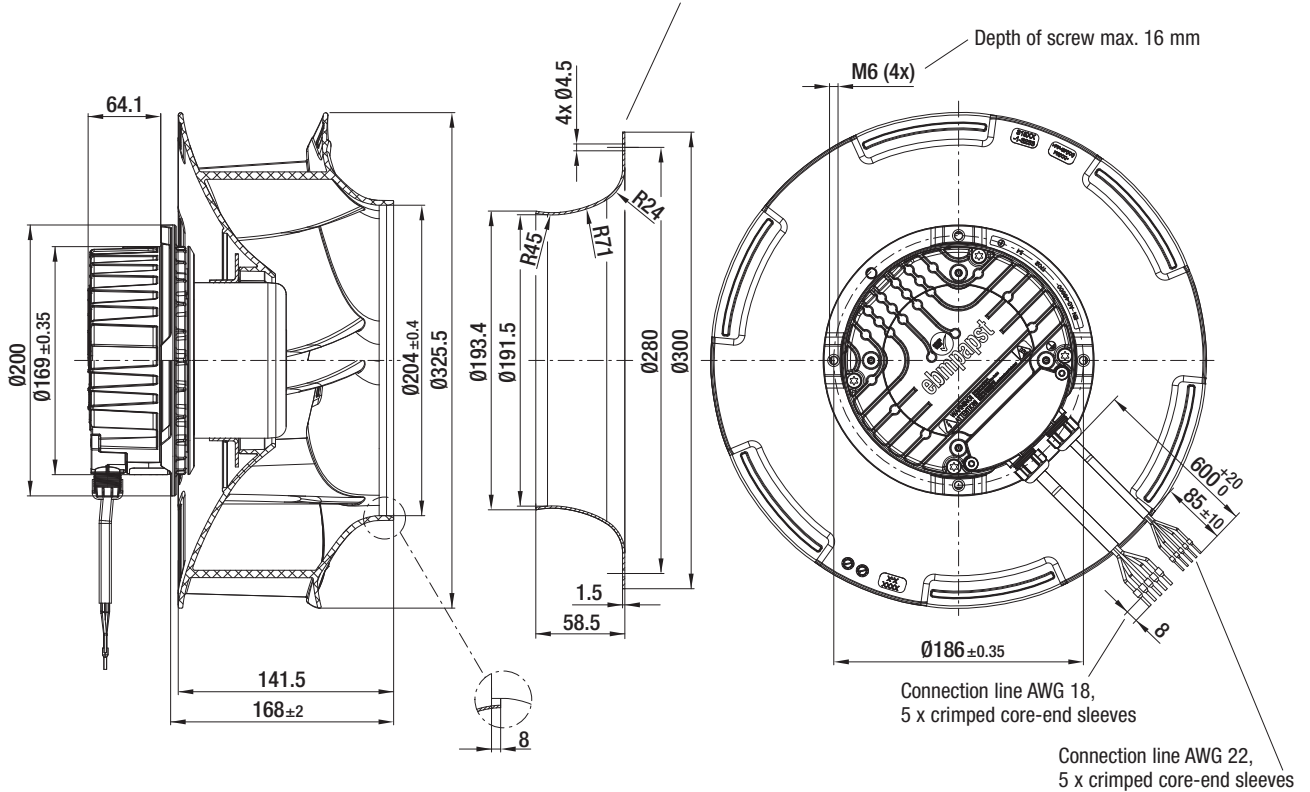
EC centrifugal fans – RadiCal

backward curved, Ø 310

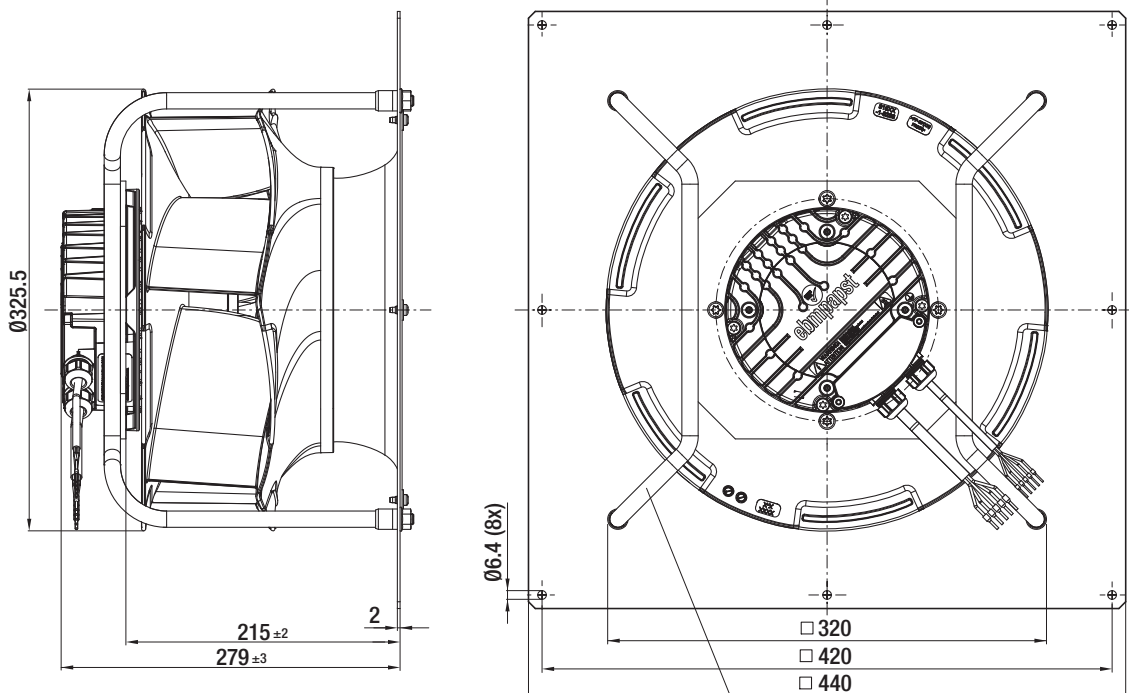


R3G 310-RS01-I1 (Centrifugal fan)

Accessory part: Inlet nozzle 31000-2-4013 not included in the standard scope of delivery



K3G 310-RS01-I2 (Centrifugal module with support bracket)



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

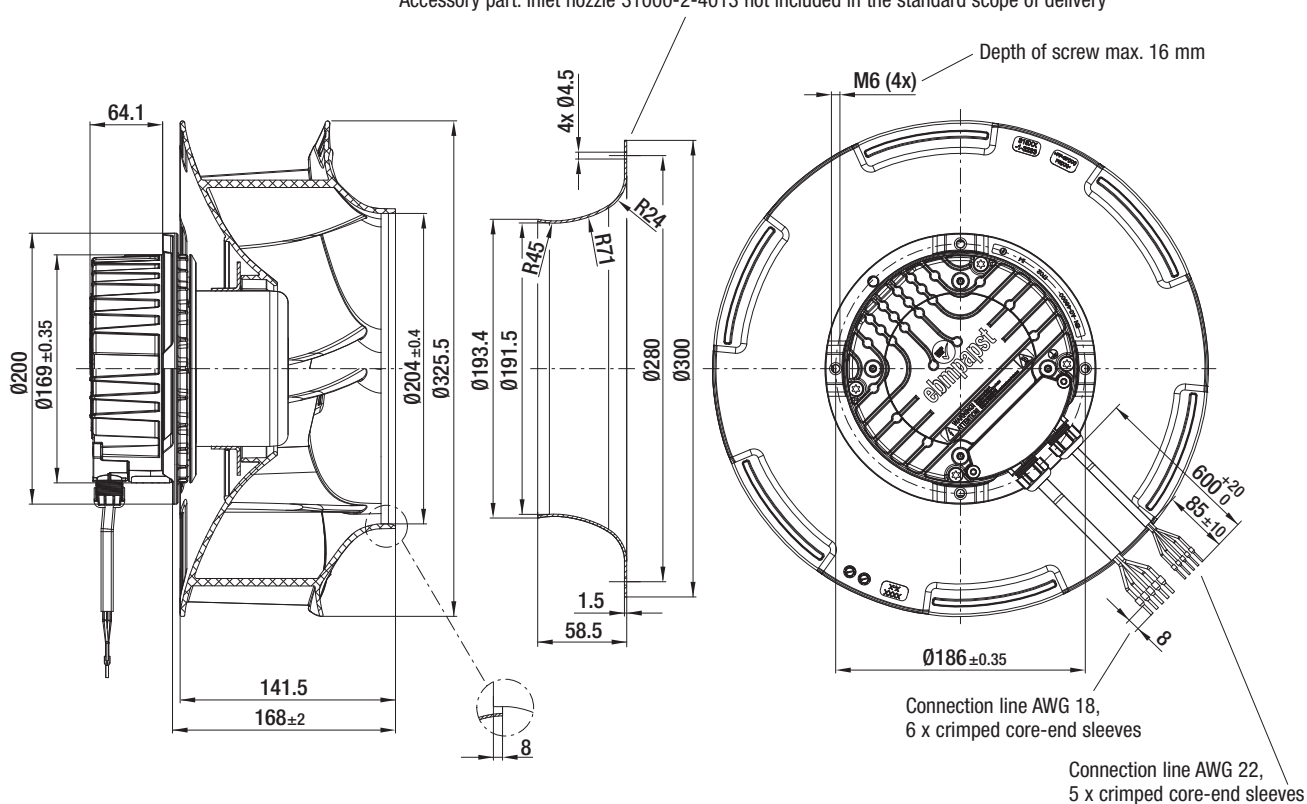
EC centrifugal fans – RadiCal

backward curved, Ø 310

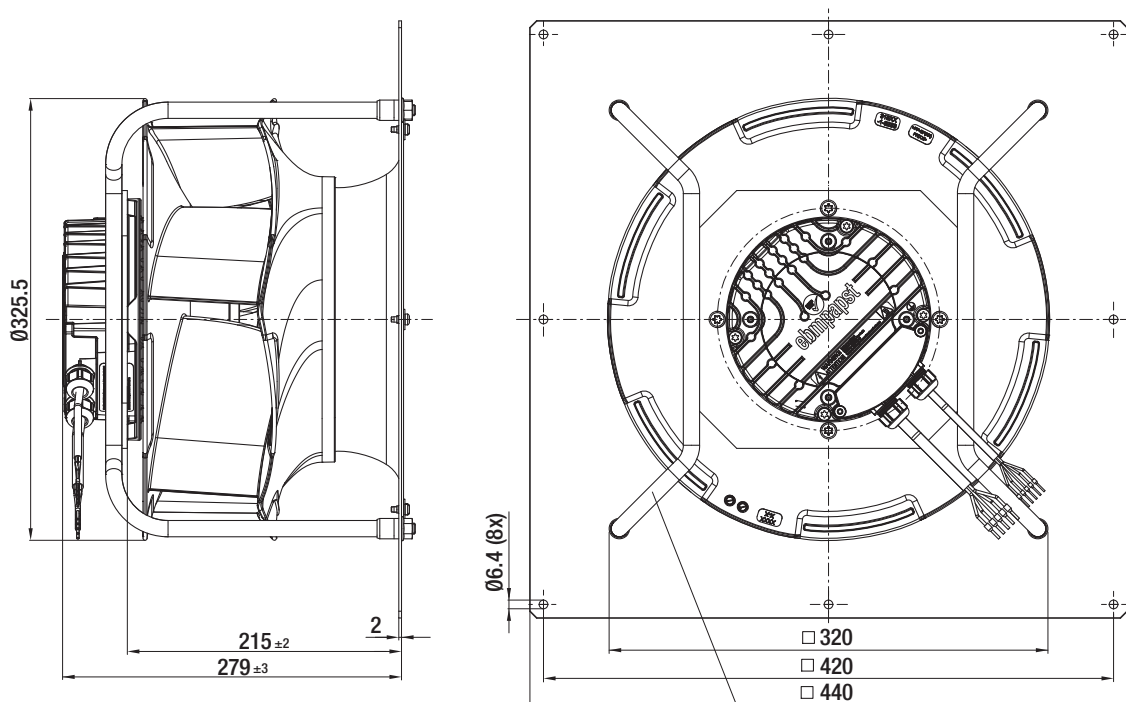


R3G 310-RS05-J1 (Centrifugal fan)

Accessory part: Inlet nozzle 31000-2-4013 not included in the standard scope of delivery



K3G 310-RS05-J2 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

backward curved, Ø 355



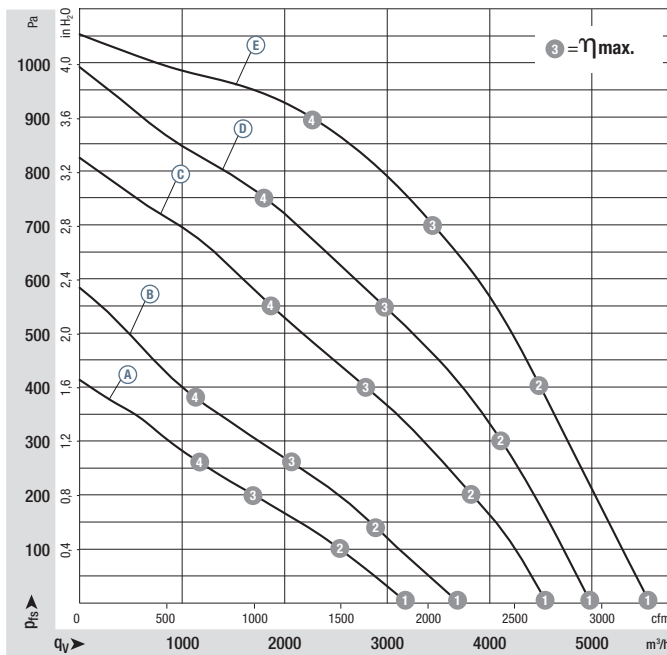
- **Material:** Support bracket: Steel, coated in black
Support plate and inlet nozzle: Sheet steel, galvanised
Impeller: Plastic PP
Rotor: (A) Surface passivated, (B) (C) (D) (E) Coated in black
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** (A) "B", (B) (C) (D) (E) "F"
- **Mounting position:** (A) any, (B) (C) (D) (E) Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** (A) None (open rotor), (B) (C) (D) (E) Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Perm. amb. temp.	Technical features and electrical connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 355	M3G 074-CF	(A) 1~ 200-240	50/60	1250	168	1,40	-25..+60	p. 165 / H4)	
*3G 355	M3G 084-DF	(B) 1~ 200-277	50/60	1450	250	1,10	-25..+60	p. 166 / P5)	
*3G 355	M3G 084-FA	(C) 1~ 200-277	50/60	1850	500	2,20	-25..+60	p. 166 / P5)	
*3G 355	M3G 084-GF	(D) 1~ 200-277	50/60	2100	750	3,30	-25..+60	p. 166 / P5)	
*3G 355	M3G 112-EA	(E) 3~ 380-480	50/60	2400	1140	1,80	-25..+60	p. 167 / P6)	

subject to alterations

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

Curves:



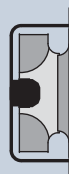
Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

	n rpm	P _{ed} W	I A	L _{WA} dB(A)
(A) 1	1425	165	1,35	71
(A) 2	1305	165	1,35	65
(A) 3	1250	168	1,40	58
(A) 4	1280	165	1,35	60
(B) 1	1660	250	1,10	77
(B) 2	1505	250	1,10	68
(B) 3	1450	250	1,10	63
(B) 4	1525	250	1,10	68
(C) 1	2050	455	2,00	87
(C) 2	1940	500	2,20	78
(C) 3	1850	500	2,20	70
(C) 4	1890	500	2,20	73
(D) 1	2240	630	2,75	87
(D) 2	2165	750	3,30	81
(D) 3	2100	750	3,30	74
(D) 4	2165	740	3,25	77
(E) 1	2400	790	1,25	91
(E) 2	2400	1040	1,65	83
(E) 3	2400	1140	1,80	76
(E) 4	2400	1090	1,70	79

- **Technical features:** See electrical connections p. 165 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
 Ⓐ On account of the installation conditions, ferritic damping in the connection line may be required for the application.
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** Ⓐ EN 60335-1, CE; Ⓑ Ⓒ Ⓓ Ⓔ EN 60335-1, EN 61800-5-1, CE
- **Approvals:** Ⓐ VDE, cURus on request; Ⓑ Ⓒ Ⓓ Ⓔ VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



Mass of centrifugal module with support bracket

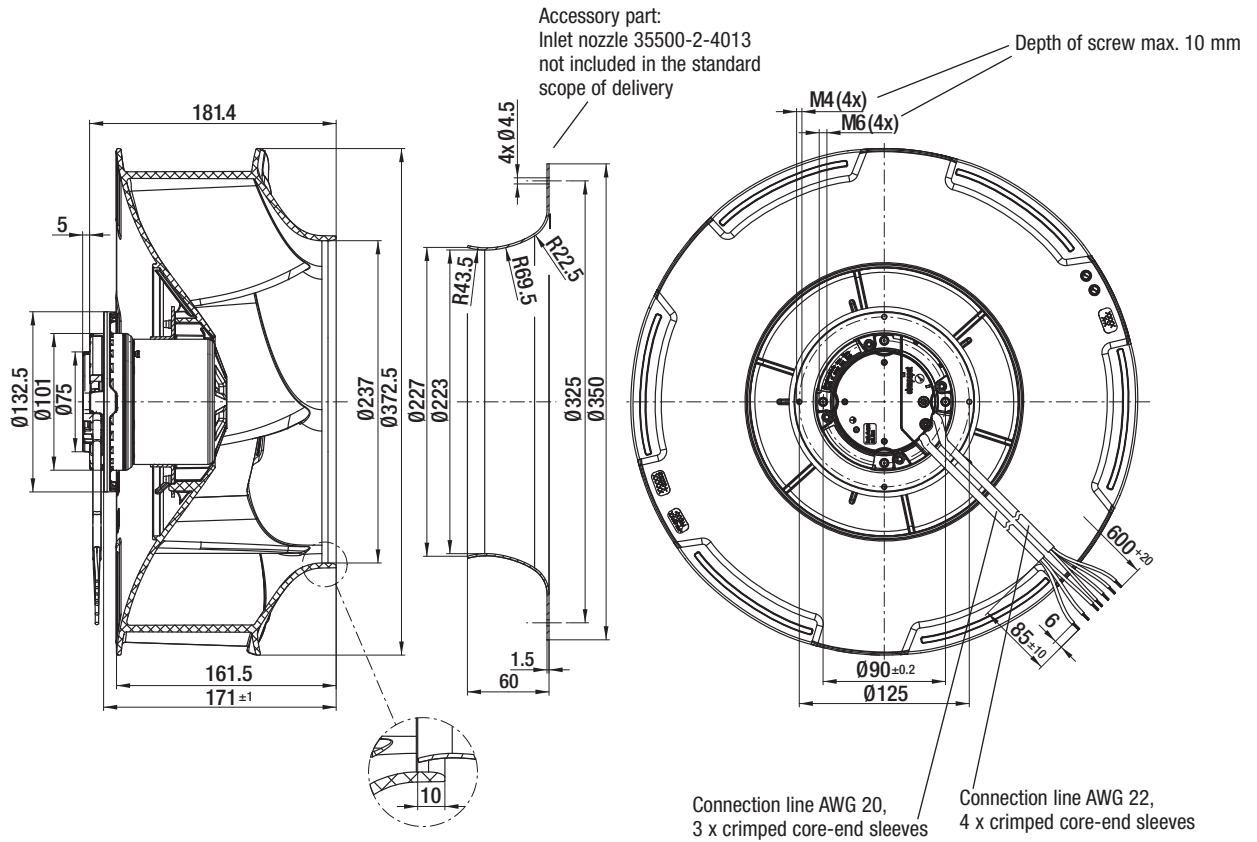
Centrifugal fan	kg	Centrifugal module w. support bracket	kg
R3G 355-RB03 -03	3,7	K3G 355-RB03 -03	9,7
R3G 355-RR06 -G1	5,0	K3G 355-RR06 -G2	10,8
R3G 355-RS02 -H1	5,7	K3G 355-RS02 -H2	11,6
R3G 355-RT01 -I1	6,9	K3G 355-RT01 -I2	14,9
R3G 355-RJ75 -01	8,3	K3G 355-RJ75 -01	16,3

EC centrifugal fans – RadiCal

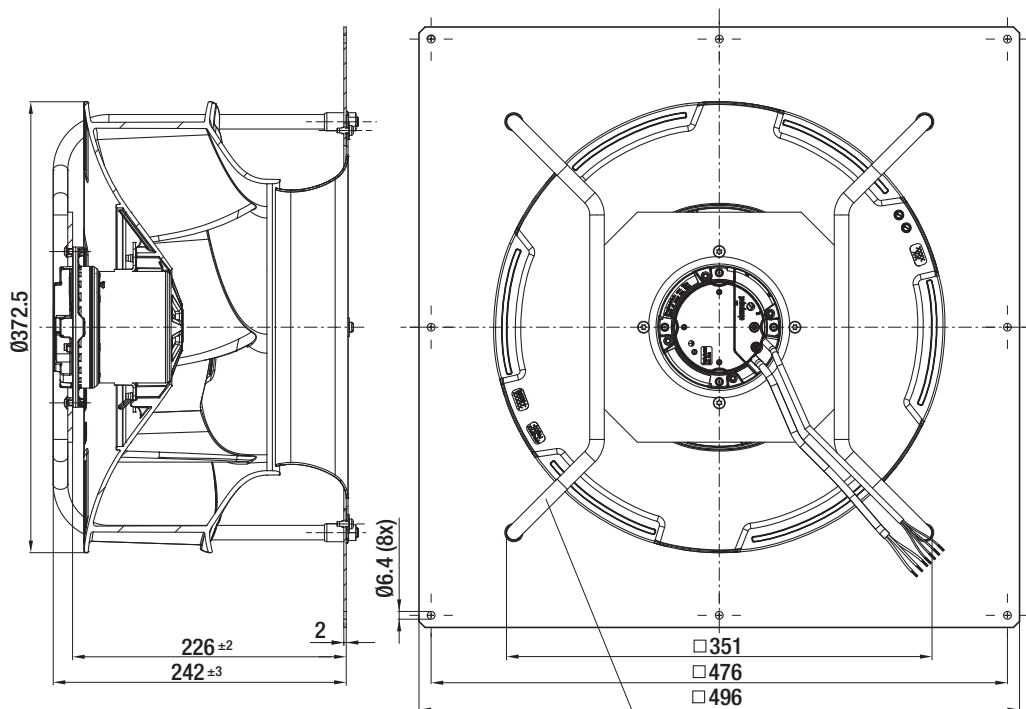
backward curved, Ø 355



R3G 355-RB03-03 (Centrifugal fan)



K3G 355-RB03-03 (Centrifugal module with support bracket)



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

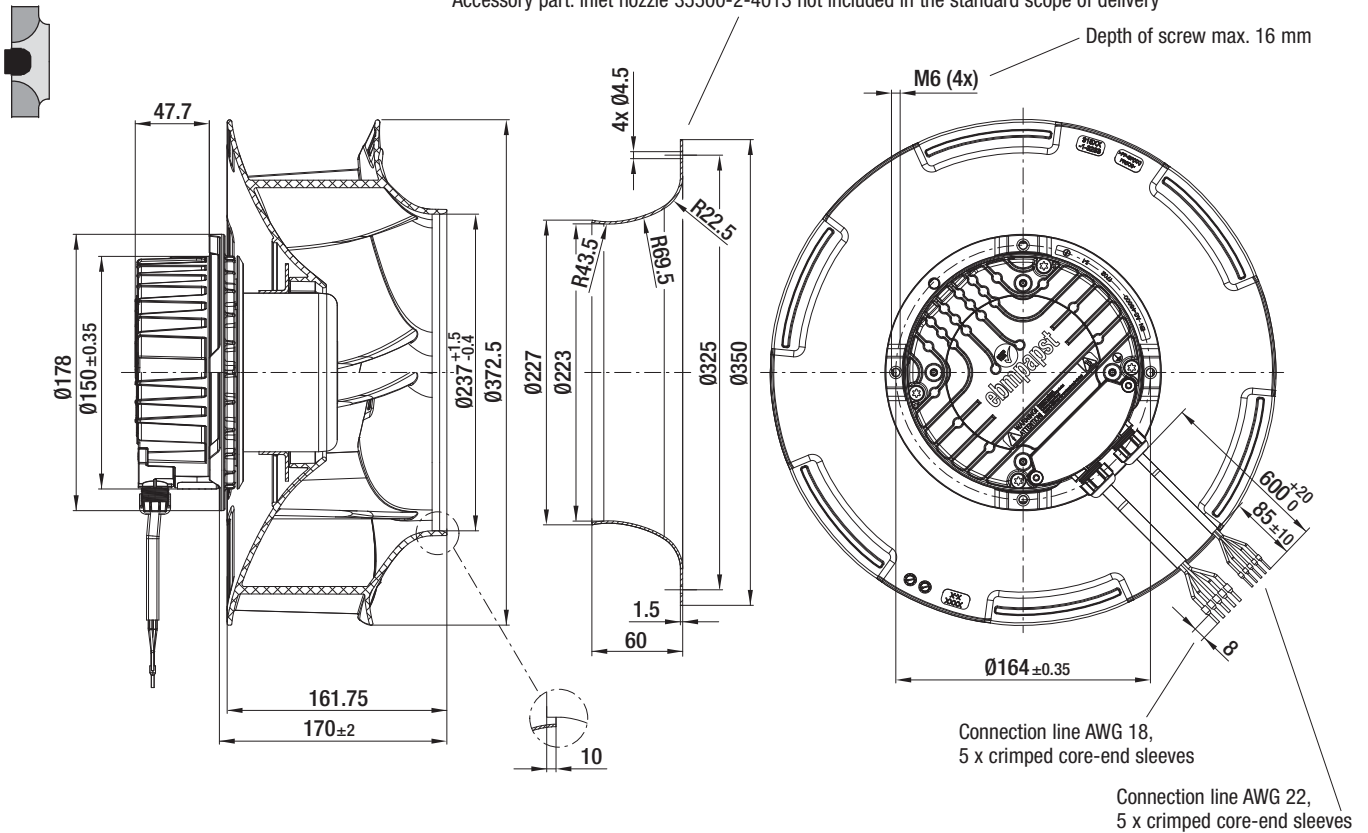
EC centrifugal fans – RadiCal

backward curved, Ø 355

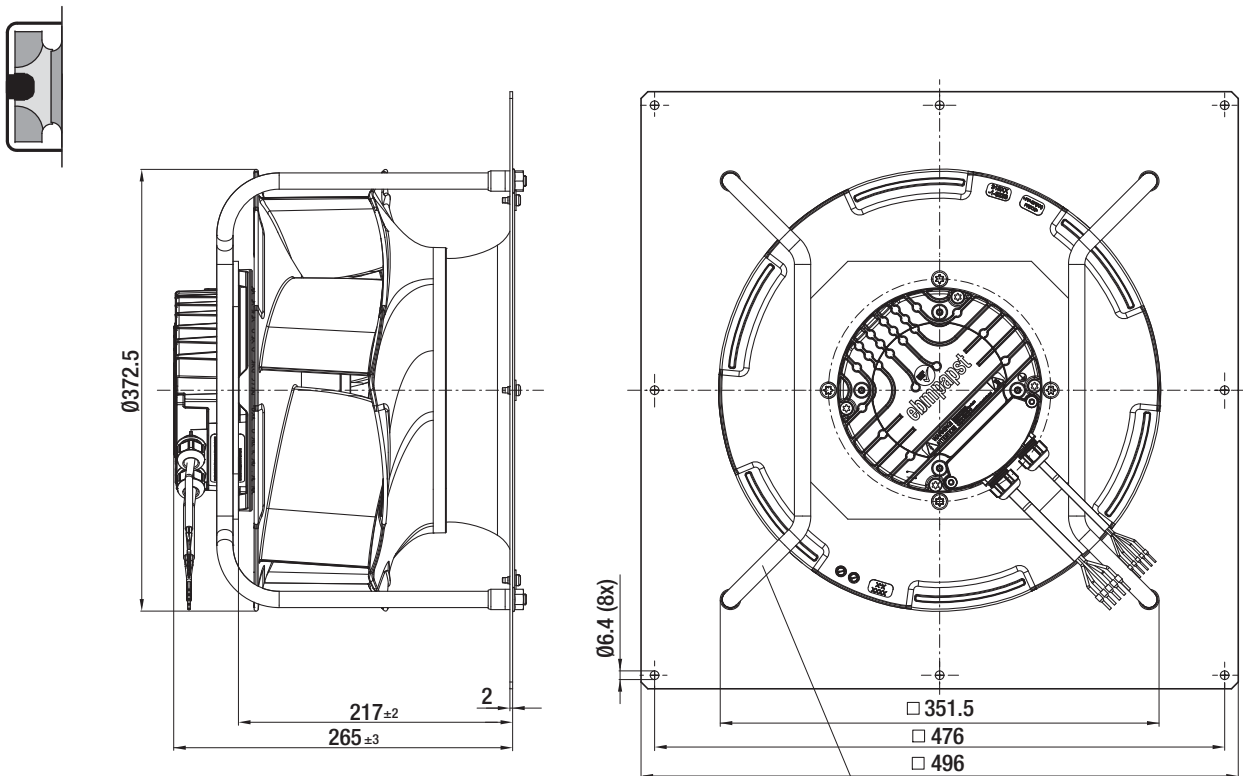


R3G 355-RR06-G1 (Centrifugal fan)

Accessory part: Inlet nozzle 35500-2-4013 not included in the standard scope of delivery



K3G 355-RR06-G2 (Centrifugal module with support bracket)



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

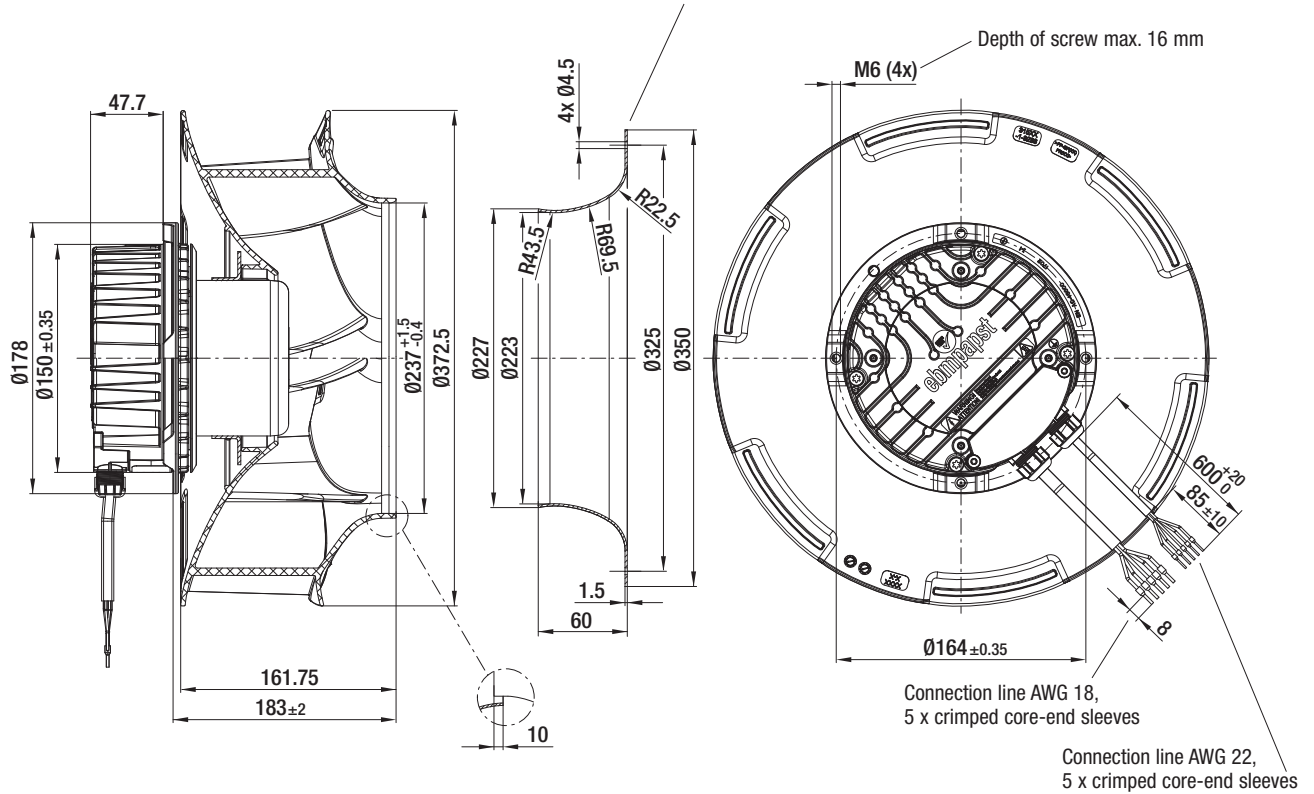
EC centrifugal fans – RadiCal

backward curved, Ø 355

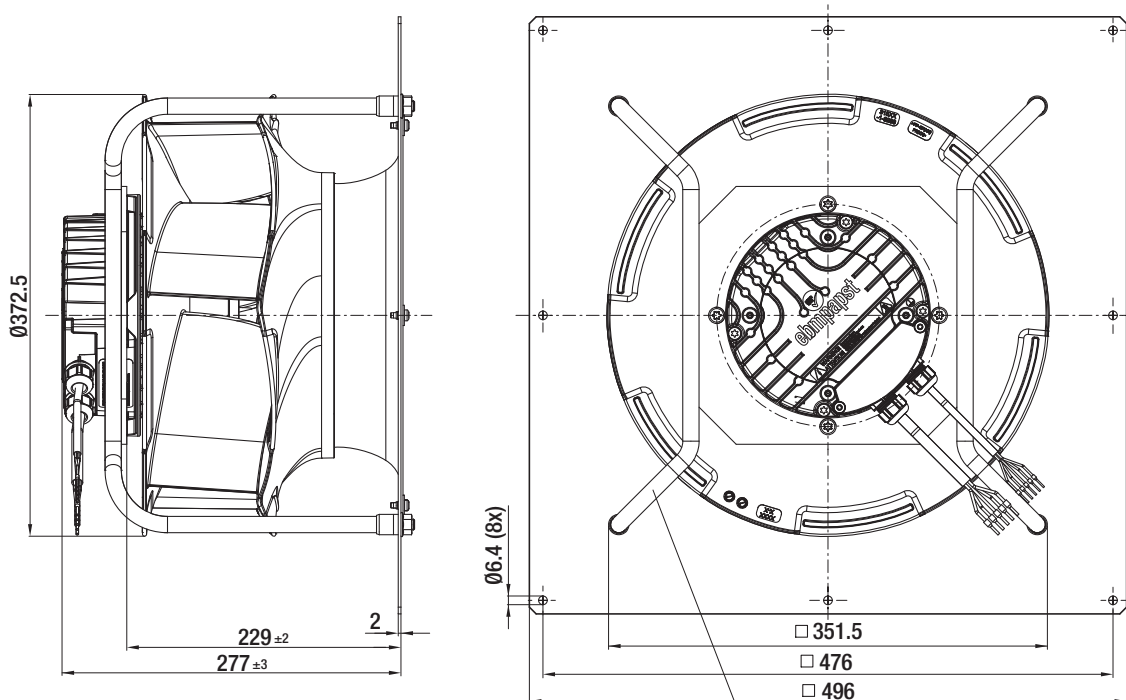


R3G 355-RS02-H1 (Centrifugal fan)

Accessory part: Inlet nozzle 35500-2-4013 not included in the standard scope of delivery



K3G 355-RS02-H2 (Centrifugal module with support bracket)



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

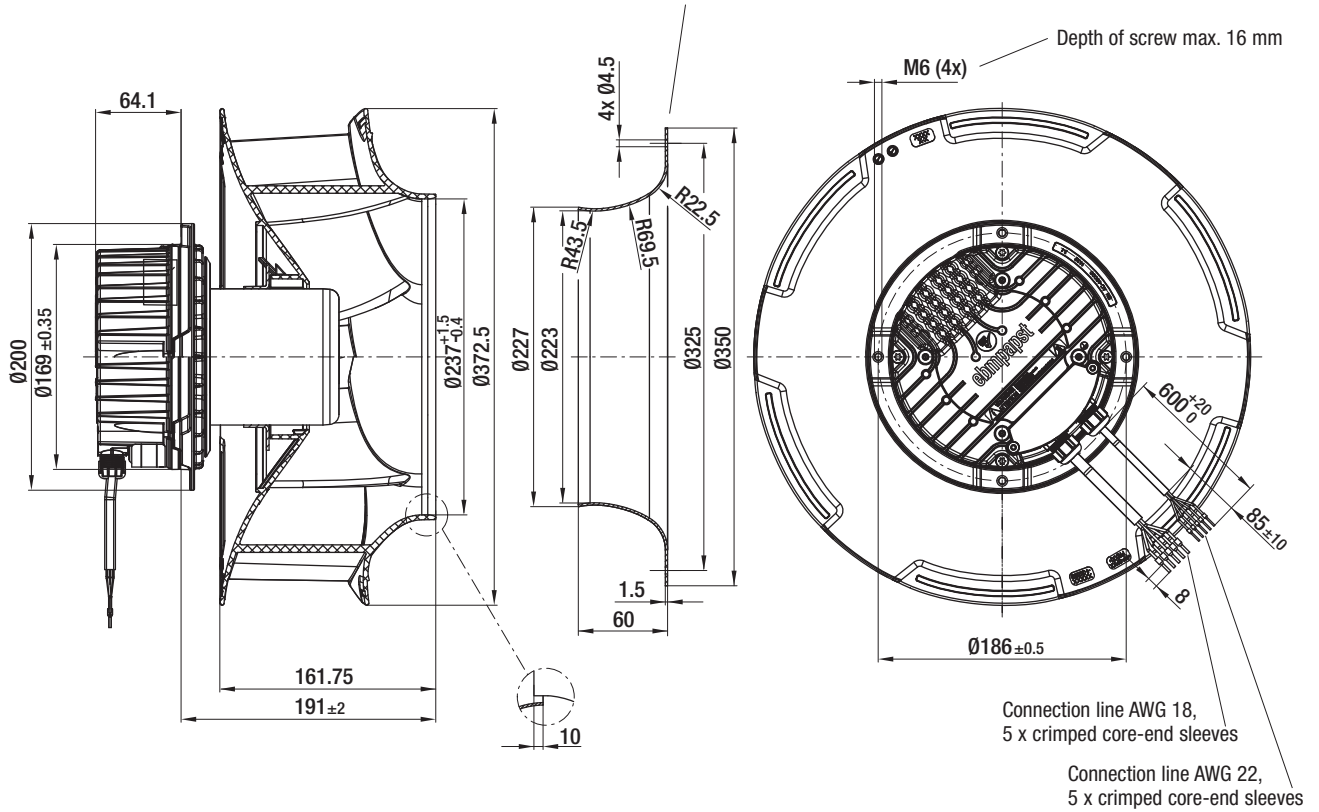
EC centrifugal fans – RadiCal

backward curved, Ø 355

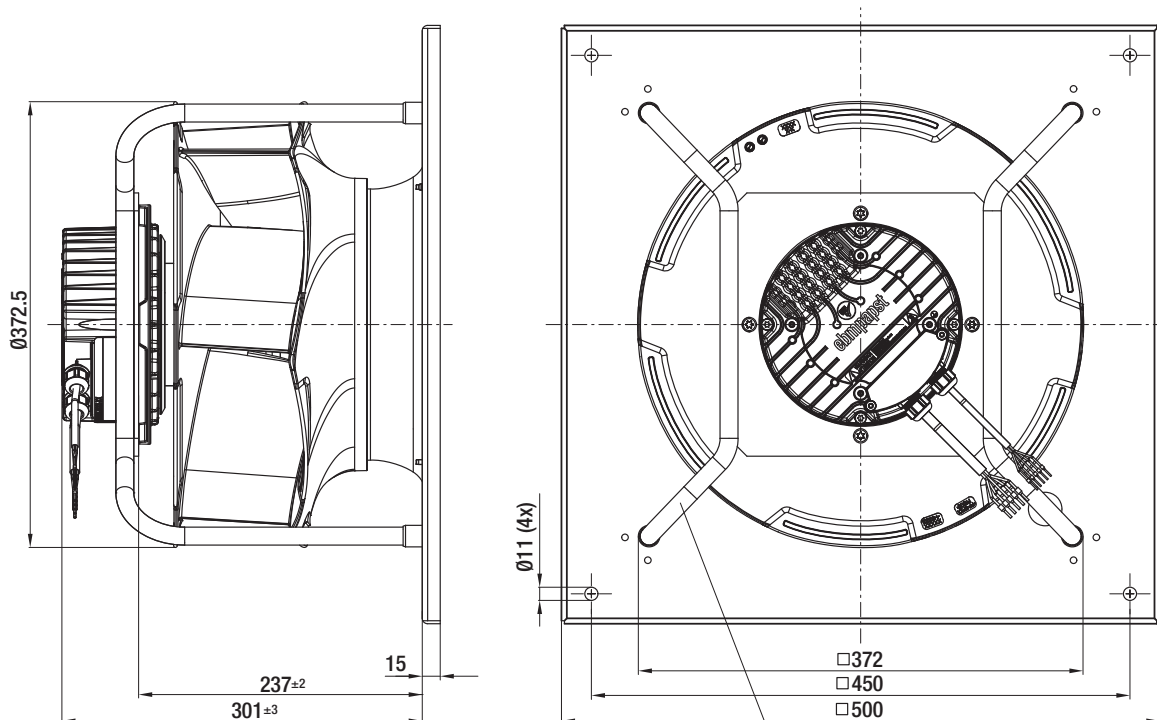


R3G 355-RT01-I1 (Centrifugal fan)

Accessory part: Inlet nozzle 35500-2-4013 not included in the standard scope of delivery



K3G 355-RT01-I2 (Centrifugal module with support bracket)



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

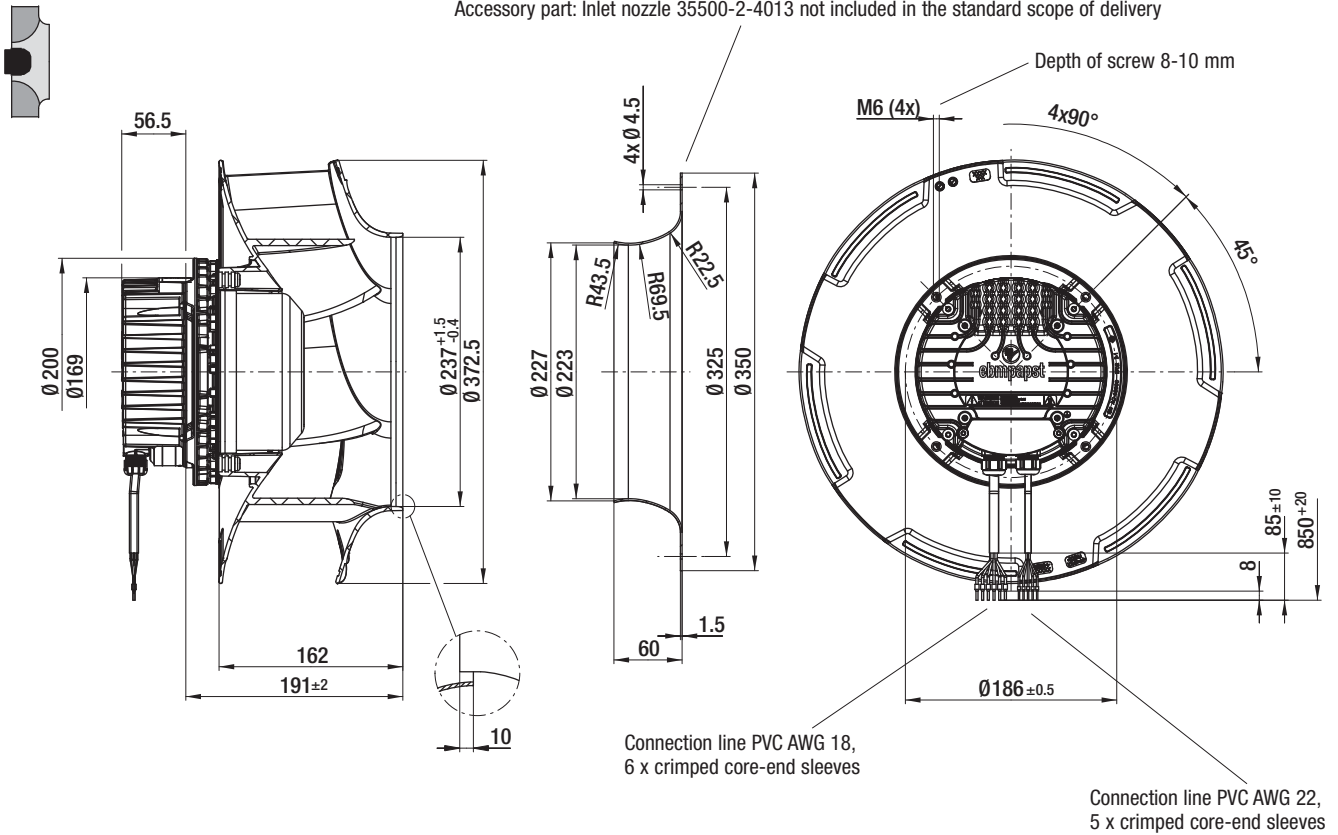
EC centrifugal fans – RadiCal

backward curved, Ø 355

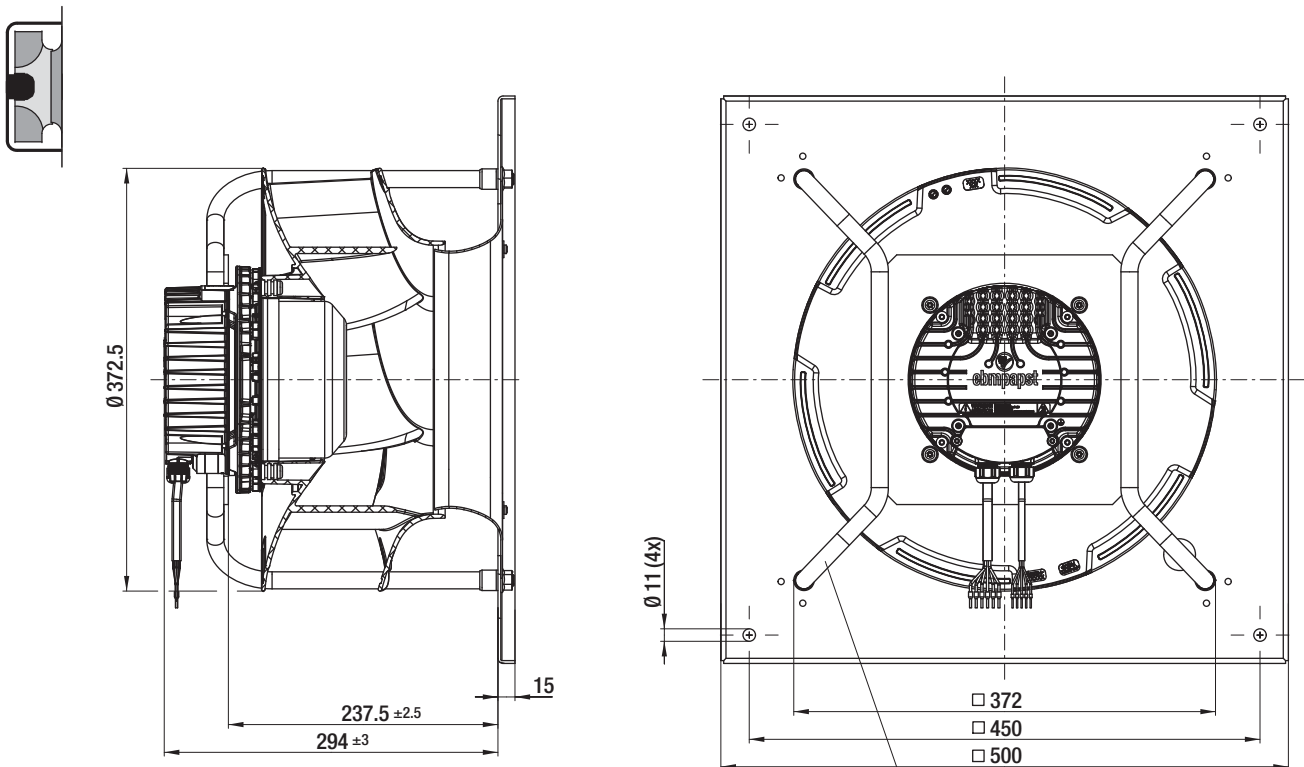


R3G 355-RJ75-01 (Centrifugal fan)

Accessory part: Inlet nozzle 35500-2-4013 not included in the standard scope of delivery



K3G 355-RJ75-01 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

backward curved, Ø 400



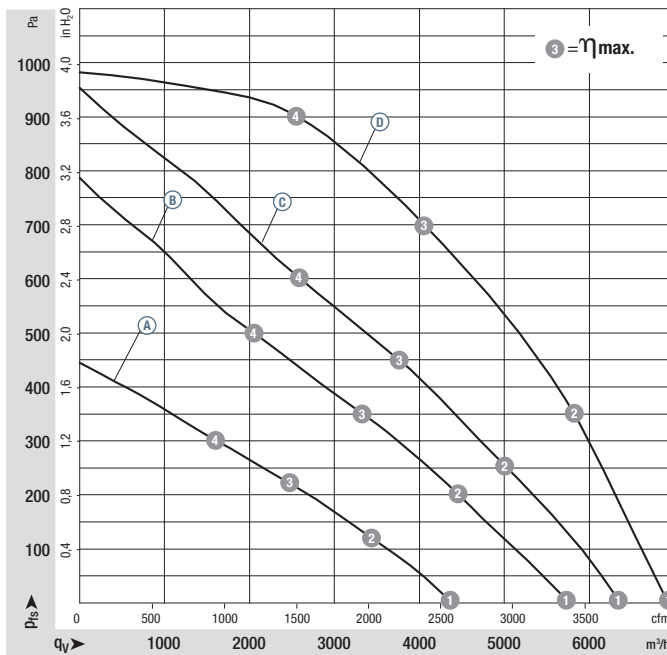
- **Material:** Support bracket: Steel, coated in black
Support plate and inlet nozzle: Sheet steel, galvanised
Impeller: Plastic PP
Rotor: Coated in black
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Perm. amb. temp.	Technical features and electrical connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 400	M3G 084-DF	Ⓐ	1~ 200-277	50/60	1170	250	1,10	-25..+60	p. 166 / P5)
*3G 400	M3G 084-FA	Ⓑ	1~ 200-277	50/60	1500	500	2,20	-25..+50	p. 166 / P5)
*3G 400	M3G 084-GF	Ⓒ	1~ 200-277	50/60	1700	750	3,30	-25..+55	p. 166 / P5)
*3G 400	M3G 112-EA	Ⓓ	3~ 380-480	50/60	2060	1320	2,10	-25..+50	p. 167 / P6)

subject to alterations

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

Curves:



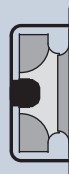
	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓐ ①	1320	240	1,05	75
Ⓐ ②	1200	250	1,10	71
Ⓐ ③	1170	250	1,10	61
Ⓐ ④	1210	250	1,10	67
Ⓑ ①	1725	500	2,20	80
Ⓑ ②	1550	500	2,20	73
Ⓑ ③	1500	500	2,20	68
Ⓑ ④	1550	500	2,20	72
Ⓒ ①	1925	740	3,25	83
Ⓒ ②	1755	750	3,30	78
Ⓒ ③	1700	750	3,30	72
Ⓒ ④	1745	750	3,30	72
Ⓓ ①	2120	965	1,55	89
Ⓓ ②	2110	1240	2,00	82
Ⓓ ③	2060	1320	2,10	74
Ⓓ ④	2110	1270	2,05	79

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Technical features:** See electrical connections p. 166 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, EN 61800-5-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Centrifugal module w. support bracket	kg
R3G 400-RR07 -G1	5,6	K3G 400-RR07 -G2	12,5
R3G 400-RS03 -H1	6,4	K3G 400-RS03 -H2	13,3
R3G 400-RT02 -I1	7,3	K3G 400-RT02 -I2	15,3
R3G 400-RJ75 -O1	8,5	K3G 400-RJ75 -O1	16,5

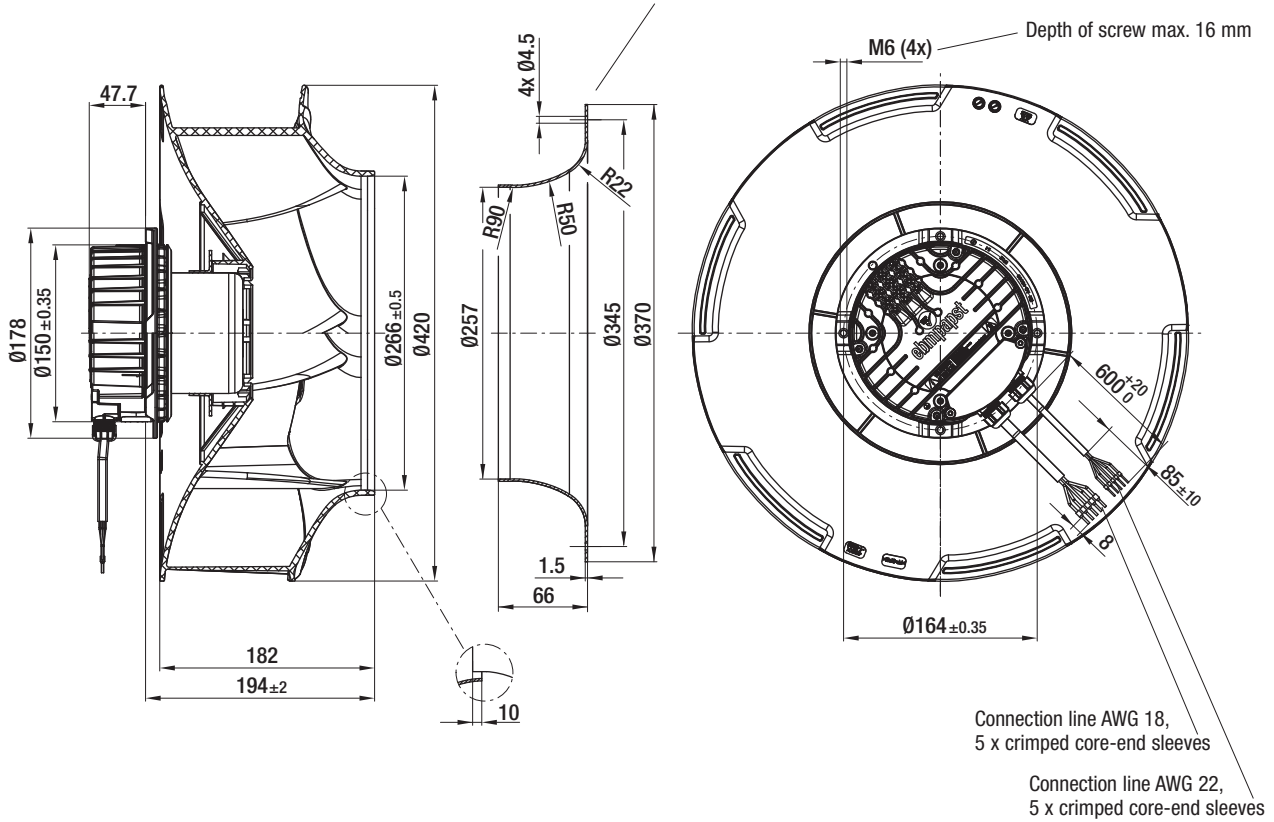
EC centrifugal fans – RadiCal

backward curved, Ø 400

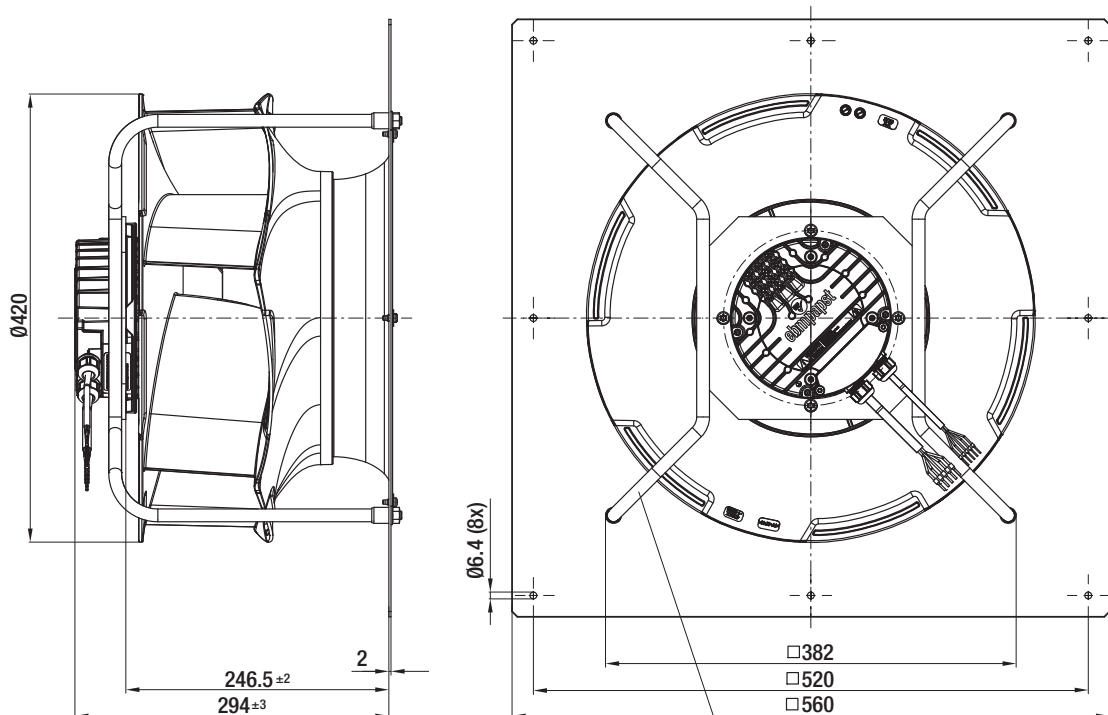


R3G 400-RR07-G1 (Centrifugal fan)

Accessory part: Inlet nozzle 54476-2-4013 not included in the standard scope of delivery



K3G 400-RR07-G2 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

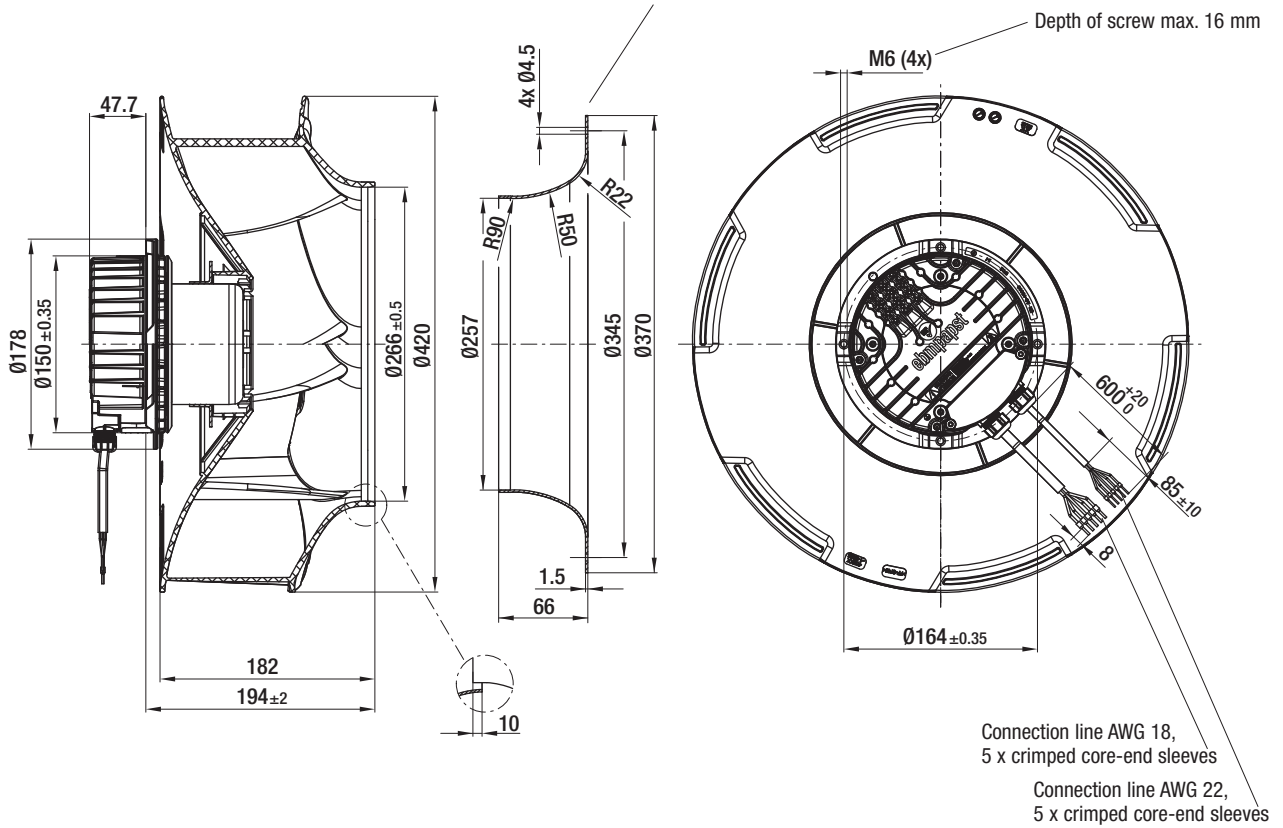
backward curved, Ø 400



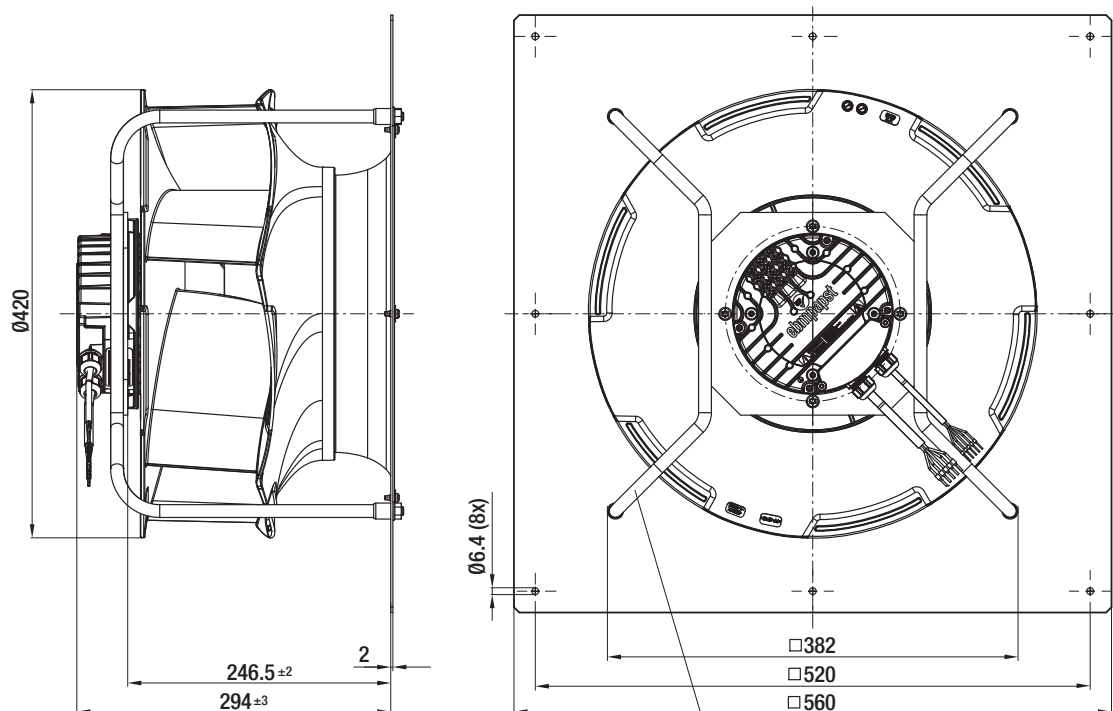
R3G 400-RS03-H1 (Centrifugal fan)

Accessory part: Inlet nozzle 54476-2-4013 not included in the standard scope of delivery

Depth of screw max. 16 mm



K3G 400-RS03-H2 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

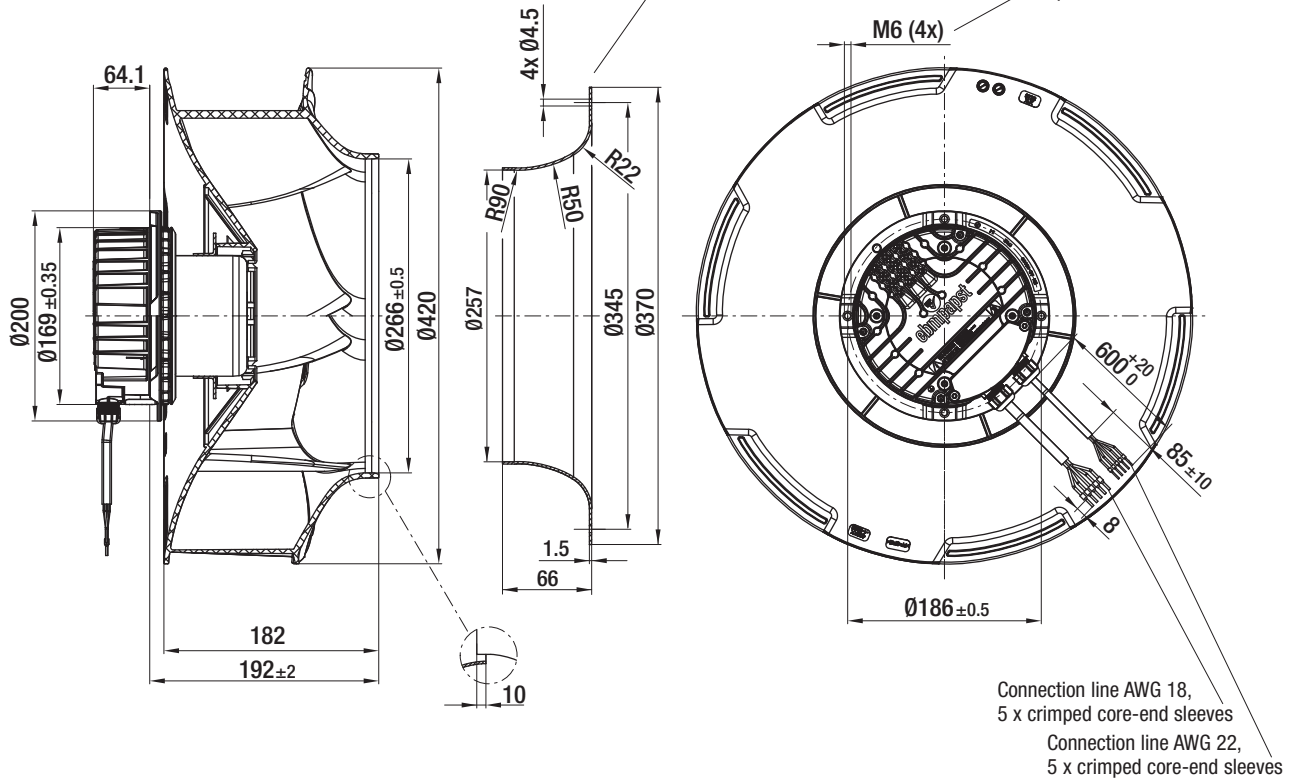
backward curved, Ø 400



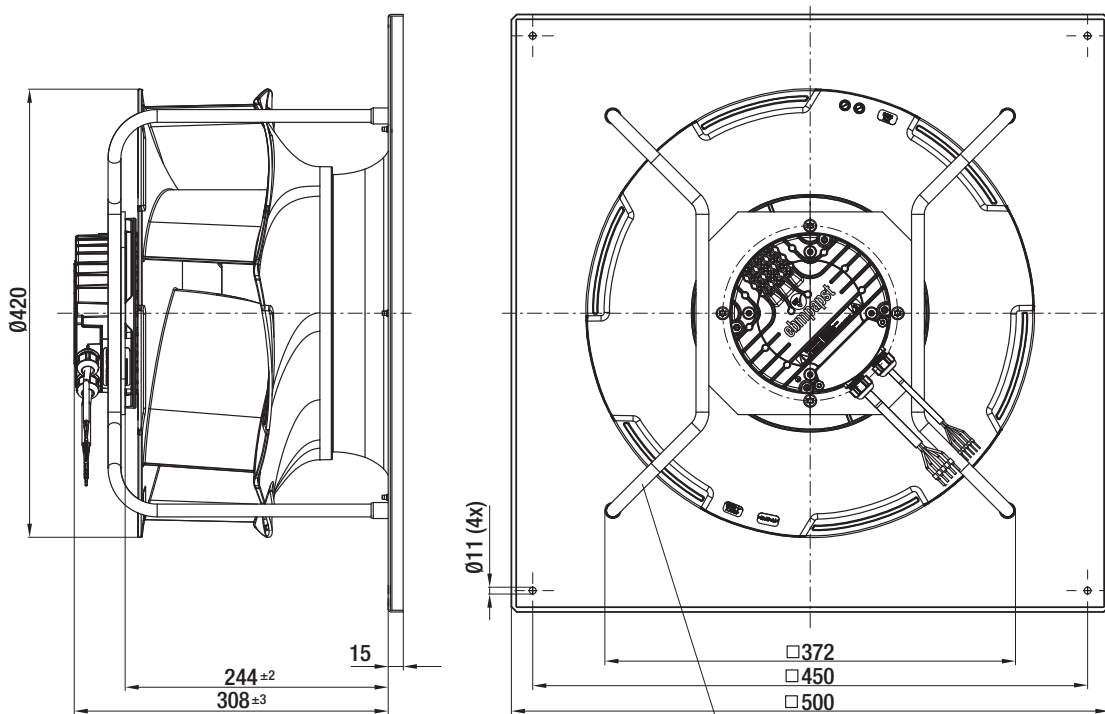
R3G 400-RT02-I1 (Centrifugal fan)

Accessory part: Inlet nozzle 54476-2-4013 not included in the standard scope of delivery

Depth of screw max. 16 mm



K3G 400-RT02-I2 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

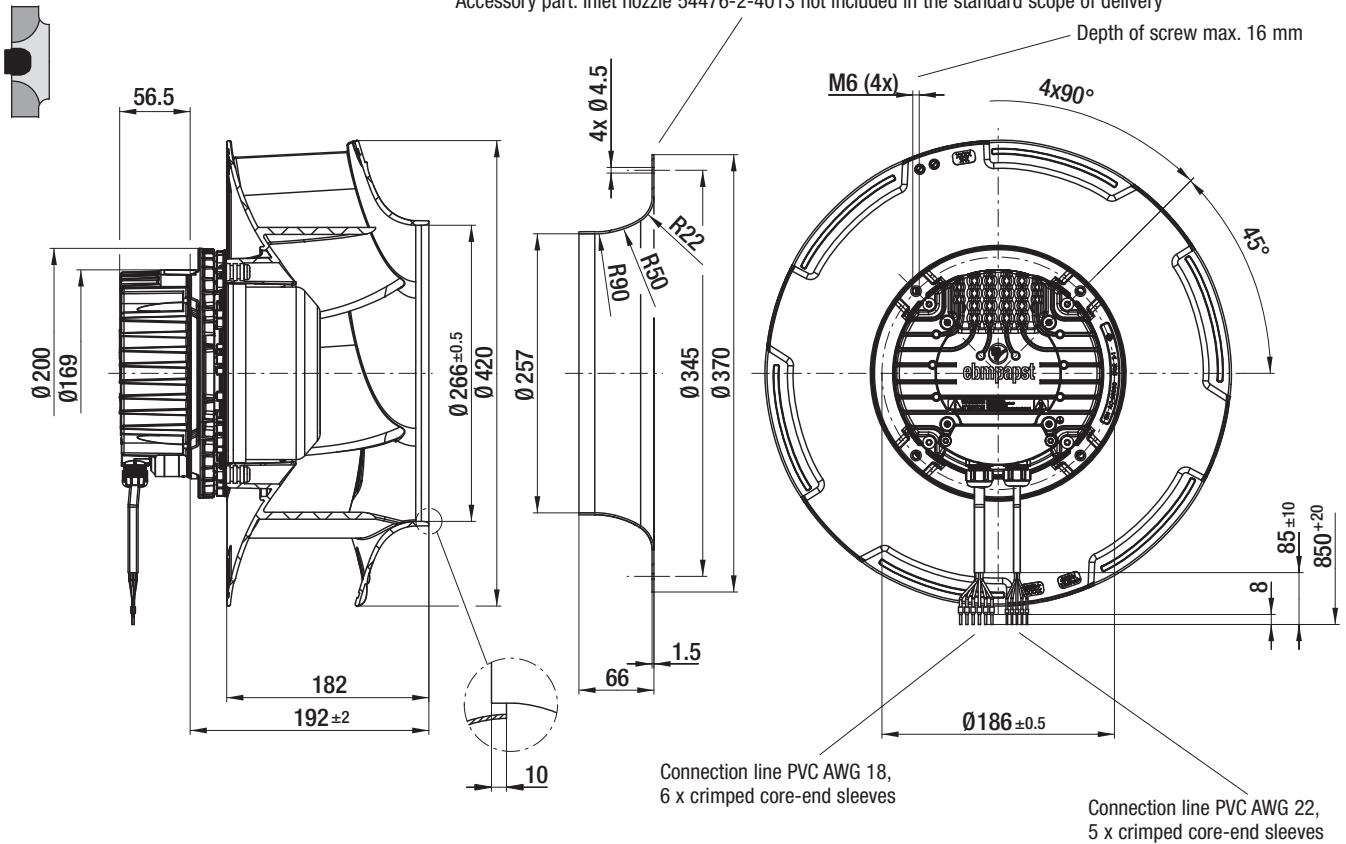
backward curved, Ø 400



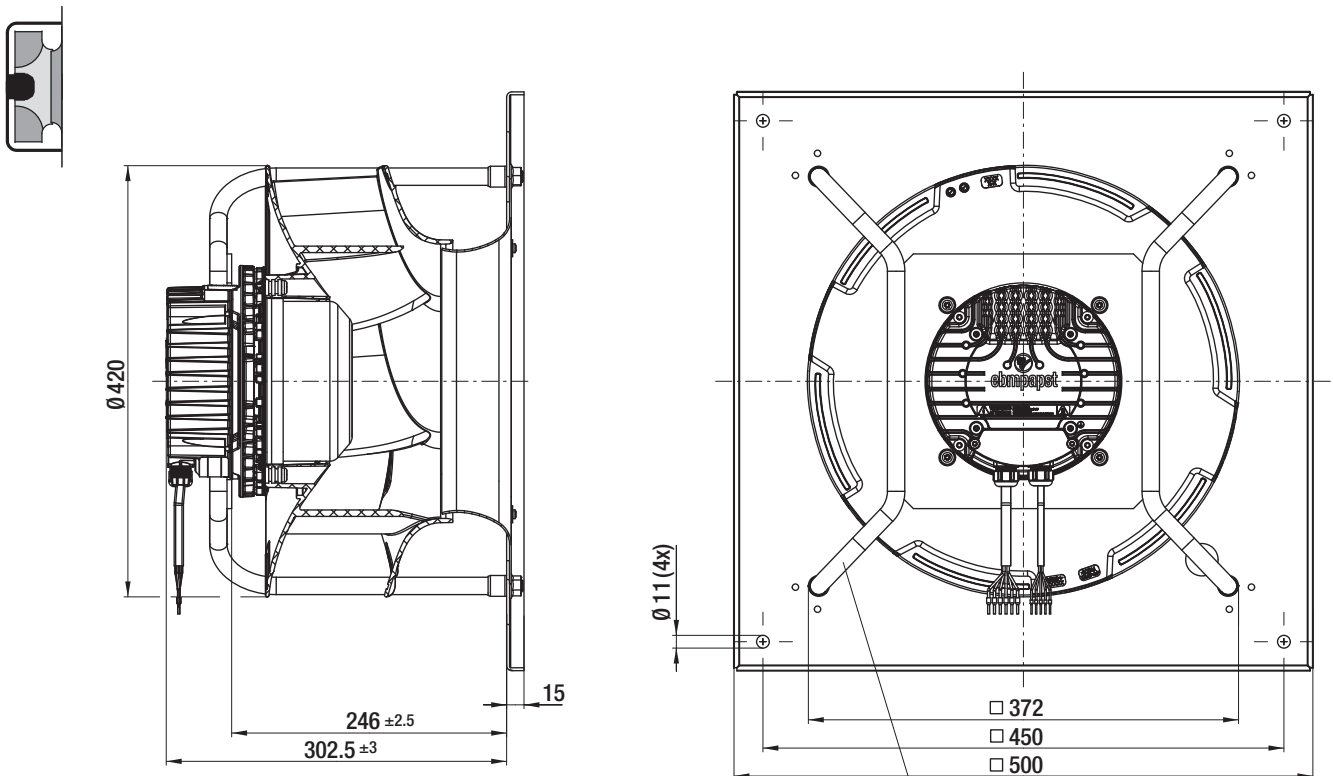
R3G 400-RJ75-01 (Centrifugal fan)

Accessory part: Inlet nozzle 54476-2-4013 not included in the standard scope of delivery

Depth of screw max. 16 mm



K3G 400-RJ75-01 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

backward curved, Ø 450



- **Material:** Support bracket: Steel, coated in black
Support plate: Sheet steel, galvanised / Inlet nozzle: Plastic ABS
Impeller: Plastic PP
Rotor: Coated in black
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

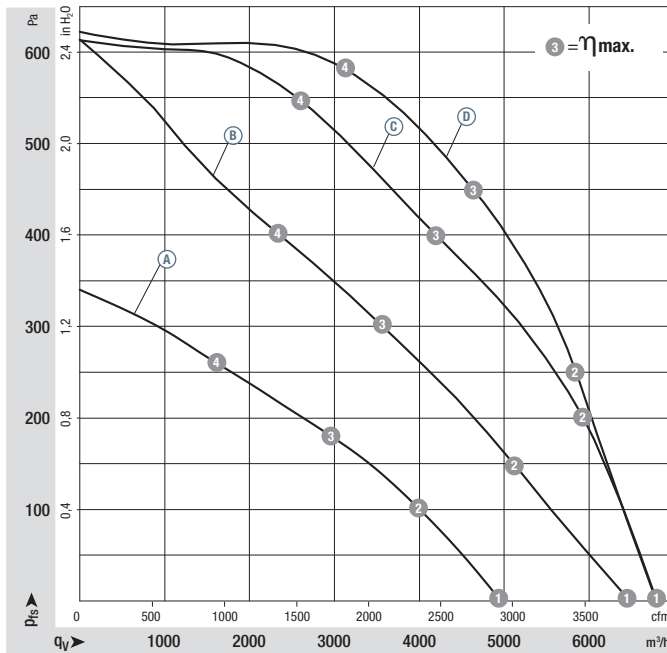
Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm ⁽¹⁾ rpm	Max. input power ⁽¹⁾ W	Max. current draw ⁽¹⁾ A	Perm. amb. temp. °C	Technical features and electrical connection
*3G 450	M3G 084-FA	Ⓐ	1~ 200-277	50/60	1000	250	1,10	-25..+60	p. 166 / P5)
*3G 450	M3G 084-GF	Ⓑ	1~ 200-277	50/60	1260	500	2,20	-25..+50	p. 166 / P5)
*3G 450	M3G 112-EA	Ⓒ	1~ 200-277	50/60	1440	750	3,30	-25..+60	p. 166 / P5)
*3G 450	M3G 112-GA	Ⓓ	3~ 380-480	50/60	1550	950	1,50	-25..+60	p. 167 / P6)

subject to alterations

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

Curves:



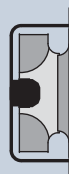
	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓐ ①	1130	230	1,05	76
Ⓐ ②	1050	250	1,10	68
Ⓐ ③	1000	250	1,10	62
Ⓐ ④	1031	250	1,10	70
Ⓑ ①	1470	500	2,00	95
Ⓑ ②	1345	500	2,20	80
Ⓑ ③	1260	500	2,20	69
Ⓑ ④	1295	500	2,20	71
Ⓒ ①	1550	570	2,55	79
Ⓒ ②	1525	750	3,30	78
Ⓒ ③	1440	750	3,30	72
Ⓒ ④	1495	750	3,30	76
Ⓓ ①	1550	600	1,00	79
Ⓓ ②	1550	820	1,35	78
Ⓓ ③	1550	950	1,50	74
Ⓓ ④	1550	880	1,40	75

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Technical features:** See electrical connections p. 166 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, EN 61800-5-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Centrifugal module w. support bracket	kg
R3G 450-RS04 -G1	6,7	K3G 450-RS04 -G2	16,5
R3G 450-RT03 -H1	7,5	K3G 450-RT03 -H2	17,3
R3G 450-RJ74 -21	9,2	K3G 450-RJ74 -21	19,3
R3G 450-RK56 -01	10,6	K3G 450-RK56 -01	20,7

EC centrifugal fans – RadiCal

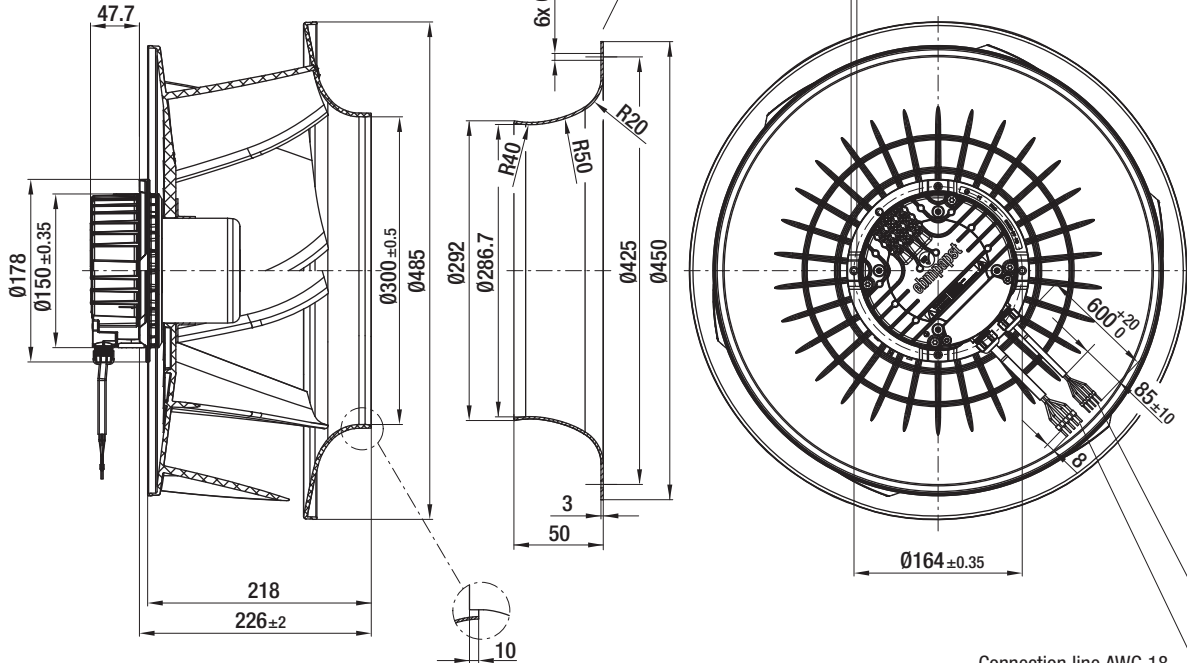
backward curved, Ø 450



R3G 450-RS04-G1 (Centrifugal fan)

Accessory part: Inlet nozzle 45901-2-2943 not included in the standard scope of delivery

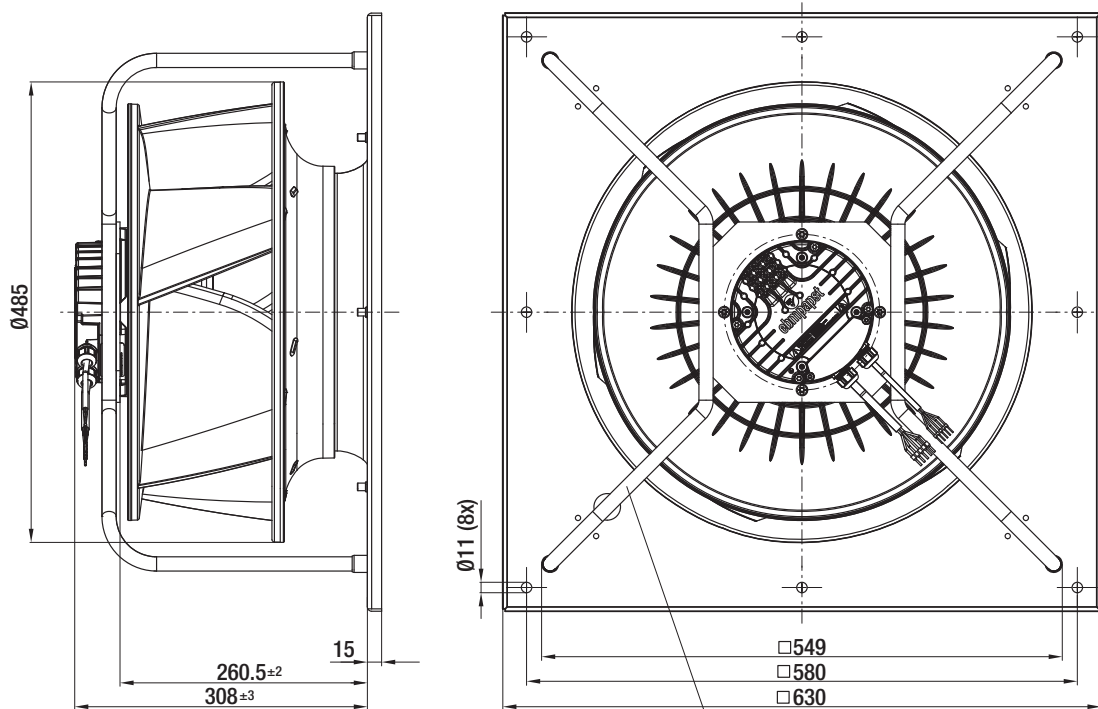
Depth of screw max. 16 mm



Connection line AWG 18,
5 x crimped core-end sleeves

Connection line AWG 22,
5 x crimped core-end sleeves

K3G 450-RS04-G2 (Centrifugal module with support bracket)



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

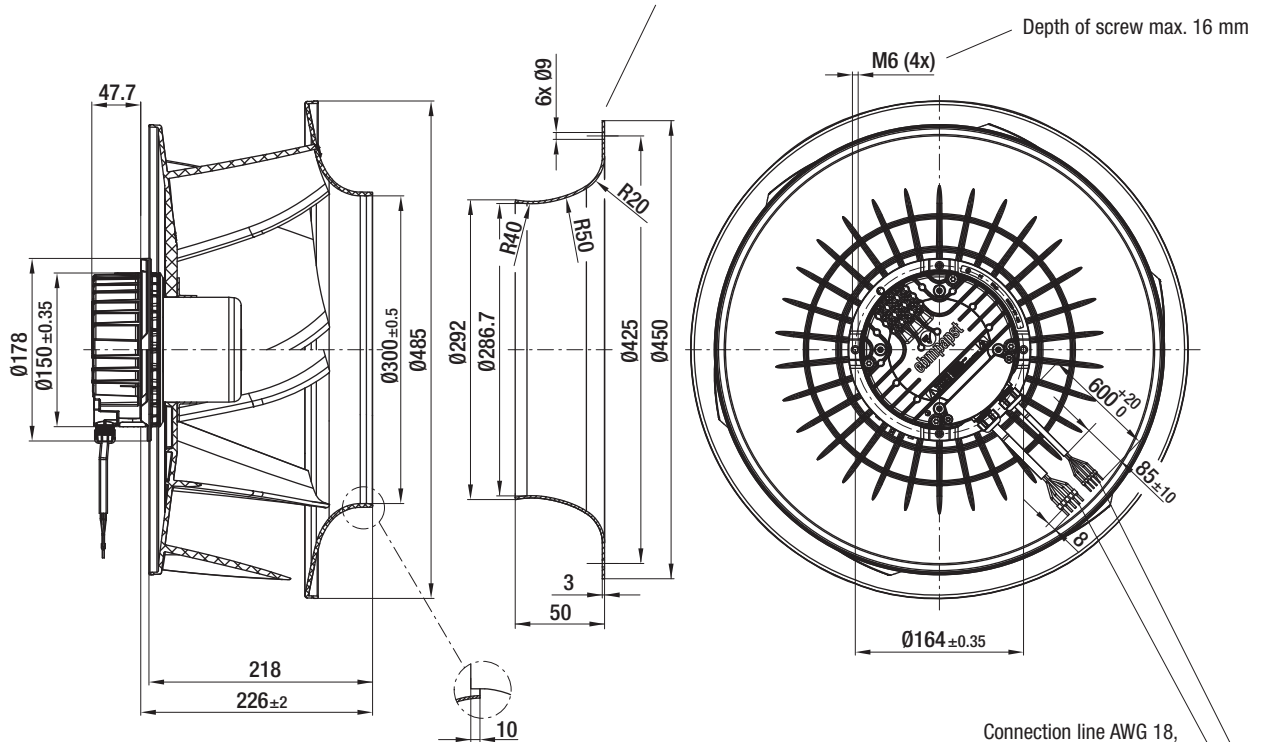
EC centrifugal fans – RadiCal

backward curved, Ø 450



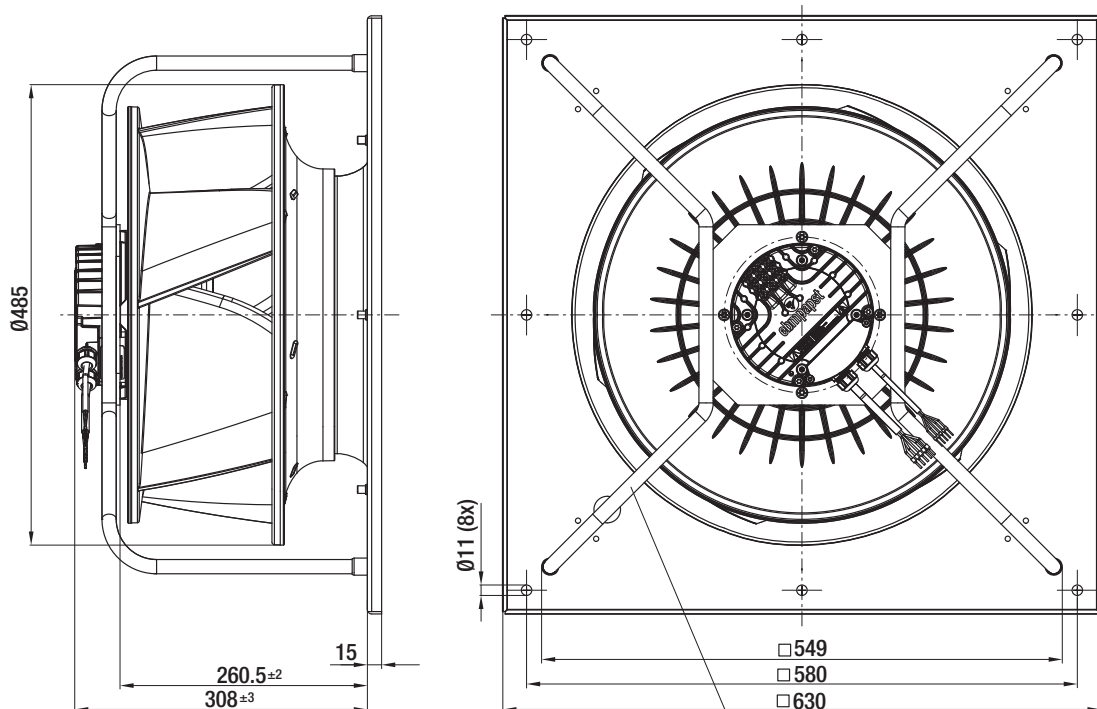
R3G 450-RT03-H1 (Centrifugal fan)

Accessory part: Inlet nozzle 45901-2-2943 not included in the standard scope of delivery



Depth of screw max. 16 mm
M6 (4x)
Connection line AWG 18,
5 x crimped core-end sleeves
Connection line AWG 22,
5 x crimped core-end sleeves

K3G 450-RT03-H2 (Centrifugal module with support bracket)



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

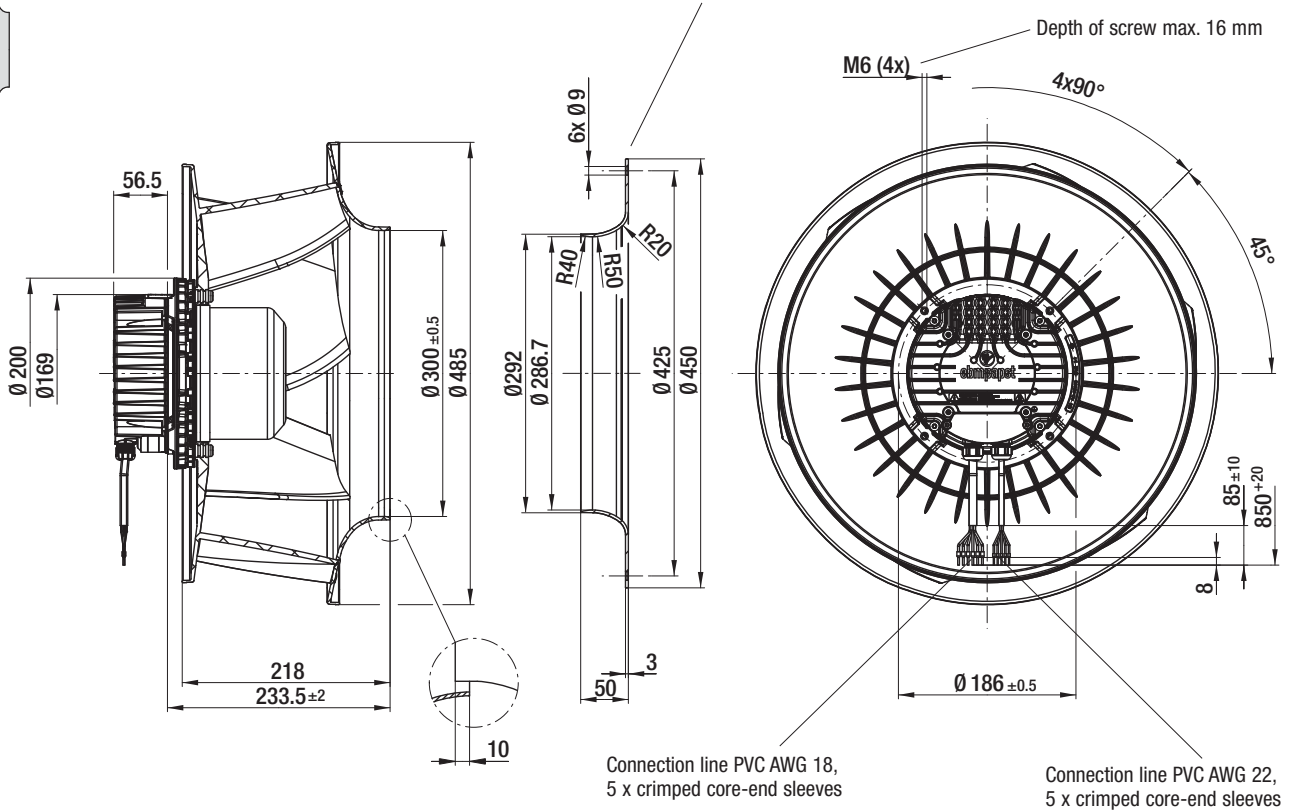
EC centrifugal fans – RadiCal

backward curved, Ø 450

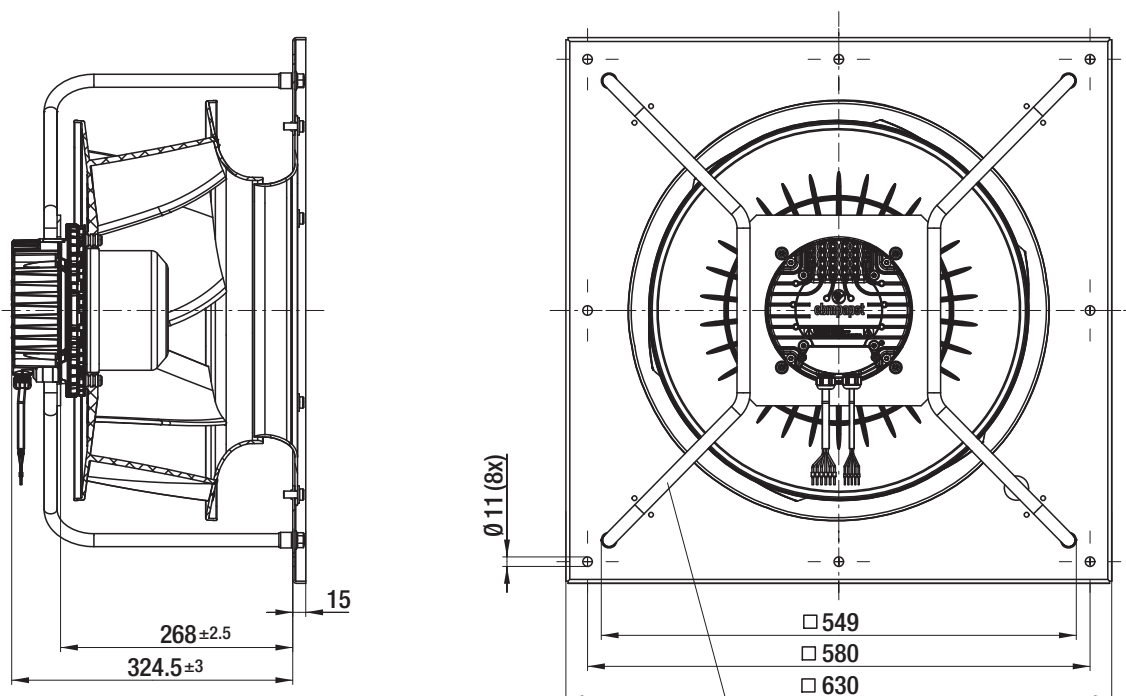


R3G 450-RJ74-21 (Centrifugal fan)

Accessory part: Inlet nozzle 45901-2-2943 not included in the standard scope of delivery



K3G 450-RJ74-21 (Centrifugal module with support bracket)



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

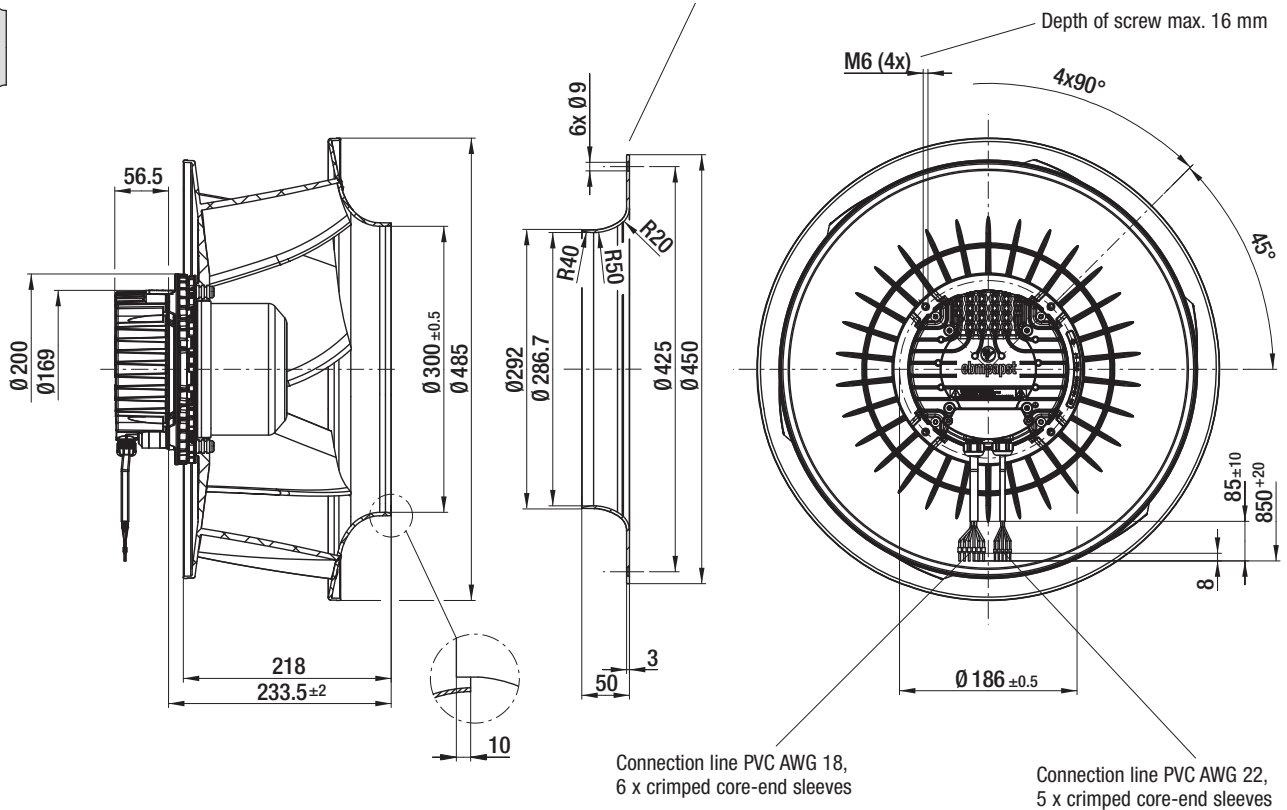
EC centrifugal fans – RadiCal

backward curved, Ø 450

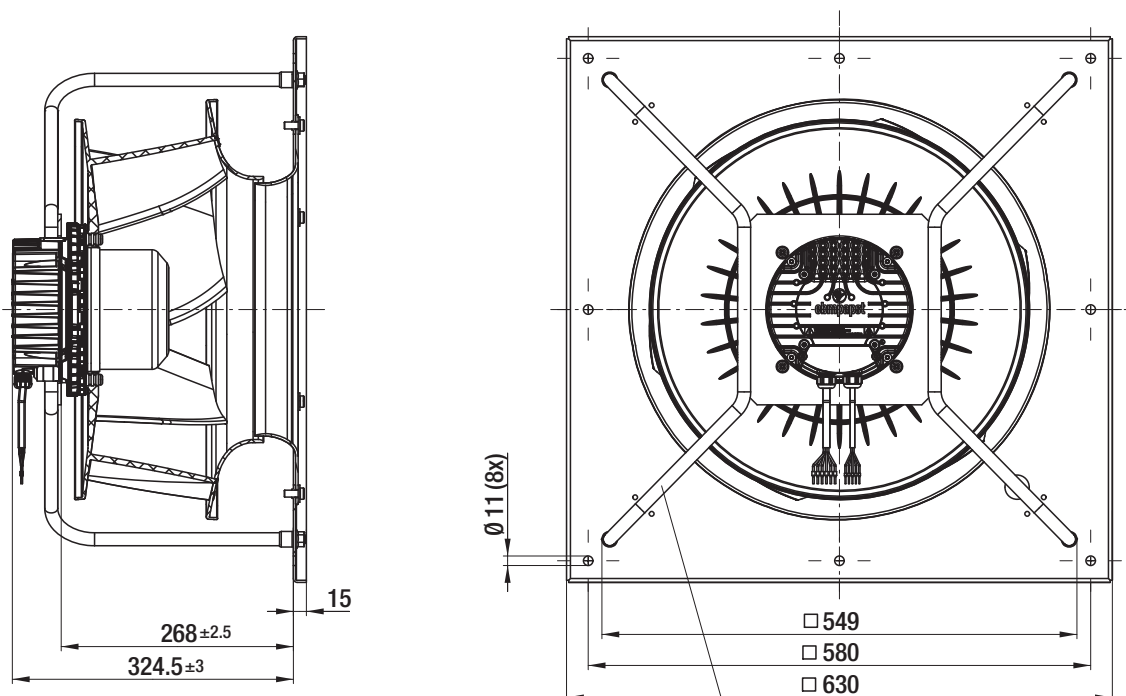


R3G 450-RK56-01 (Centrifugal fan)

Accessory part: Inlet nozzle 45901-2-2943 not included in the standard scope of delivery



K3G 450-RK56-01 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

backward curved, Ø 500



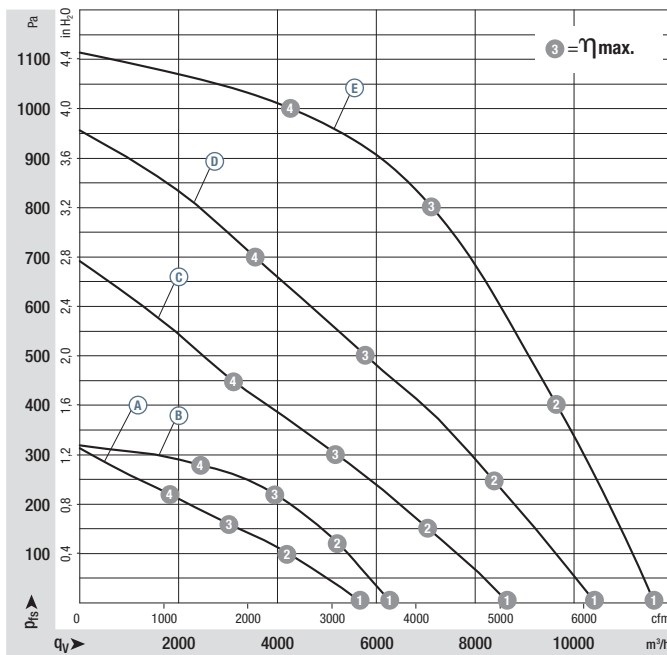
- **Material:** Support bracket: Steel, coated in black
Support plate: Sheet steel, galvanised / Inlet nozzle: Plastic ABS
Impeller: Plastic PP
Rotor: Coated in black
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of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

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Perm. amb. temp.	Technical features and electrical connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 500	M3G 084-FA	Ⓐ	1~ 200-277	50/60	750	250	1,10	-25..+60	p. 166 / P5)
*3G 500	M3G 084-GF	Ⓑ	1~ 200-277	50/60	900	460	2,00	-25..+40	p. 166 / P5)
*3G 500	M3G 112-GA	Ⓒ	1~ 200-277	50/60	1100	750	3,30	-25..+60	p. 166 / P5)
*3G 500	M3G 112-IA	Ⓓ	3~ 380-480	50/60	1350	1320	2,10	-25..+50	p. 167 / P6)
*3G 500	M3G 150-FF	Ⓔ	3~ 380-480	50/60	1700	2600	4,00	-25..+60	p. 169 / M5)

subject to alterations

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

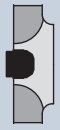
Curves:



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓐ ①	825	230	1,00	68
Ⓐ ②	765	250	1,10	62
Ⓐ ③	750	250	1,10	56
Ⓐ ④	795	250	1,10	59
Ⓑ ①	900	300	1,30	70
Ⓑ ②	900	410	1,80	66
Ⓑ ③	900	460	2,00	62
Ⓑ ④	900	400	1,75	61
Ⓒ ①	1250	750	3,30	77
Ⓒ ②	1155	750	3,30	73
Ⓒ ③	1100	750	3,30	67
Ⓒ ④	1150	750	3,30	69
Ⓓ ①	1495	1215	1,90	82
Ⓓ ②	1410	1320	2,10	77
Ⓓ ③	1350	1320	2,10	71
Ⓓ ④	1420	1320	2,10	76
Ⓔ ①	1695	1790	2,80	86
Ⓔ ②	1695	2300	3,60	82
Ⓔ ③	1700	2600	4,00	77
Ⓔ ④	1695	2230	3,50	81

- **Technical features:** See electrical connections p. 166 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Ⓐ Ⓑ Ⓒ Ⓓ Variable
- **Terminal box design:** Ⓔ Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** Ⓐ Ⓑ Ⓒ Ⓓ EN 60335-1, EN 61800-5-1, CE; Ⓔ EN 61800-5-1, CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Centrifugal module w. support bracket	kg
R3G 500-RS06 -G1	8,6	K3G 500-RS06 -G2	18,9
R3G 500-RT04 -H1	9,5	K3G 500-RT04 -H2	19,7
R3G 500-RK55 -21	12,6	K3G 500-RK55 -21	23,1
R3G 500-RL96 -01	14,1	K3G 500-RL96 -01	24,6
R3G 500-RA24 -71	21,0	K3G 500-RA24 -71	35,0

EC centrifugal fans – RadiCal

backward curved, Ø 500

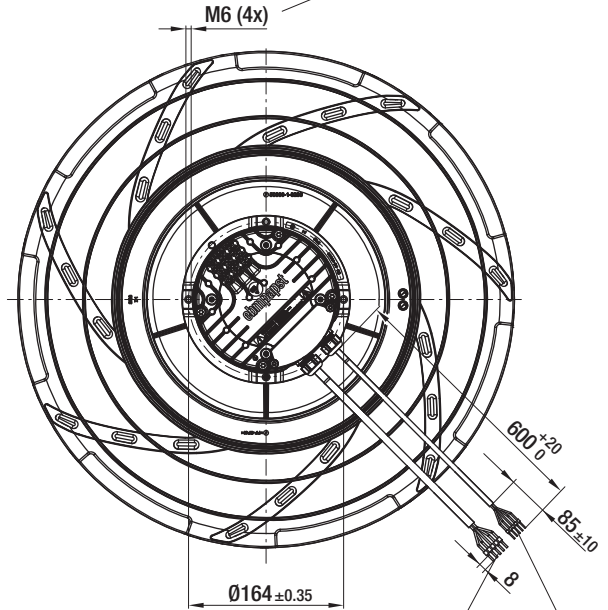
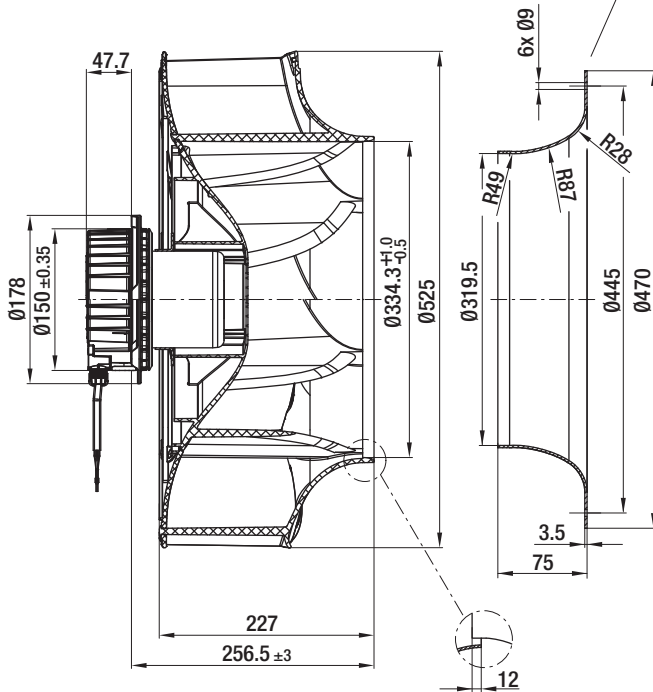


R3G 500-RS06-G1 (Centrifugal fan)



Accessory part: Inlet nozzle 50901-2-2943 not included in the standard scope of delivery

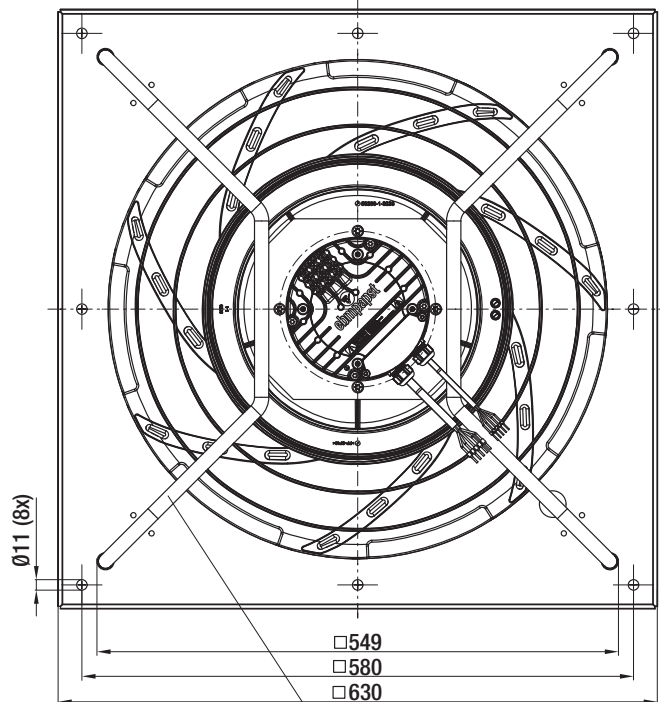
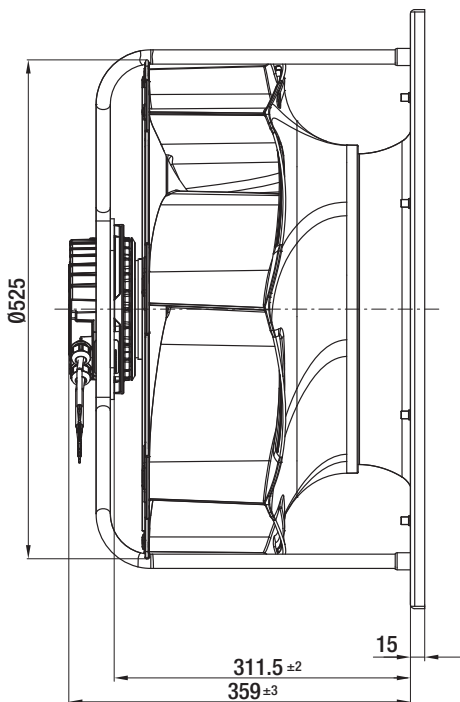
Depth of screw max. 16 mm



Connection line AWG 18,
5 x crimped core-end sleeves

Connection line AWG 22,
5 x crimped core-end sleeves

K3G 500-RS06-G2 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

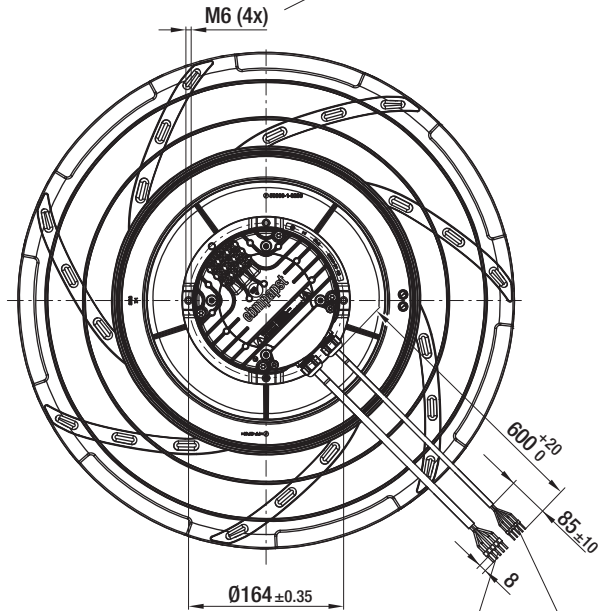
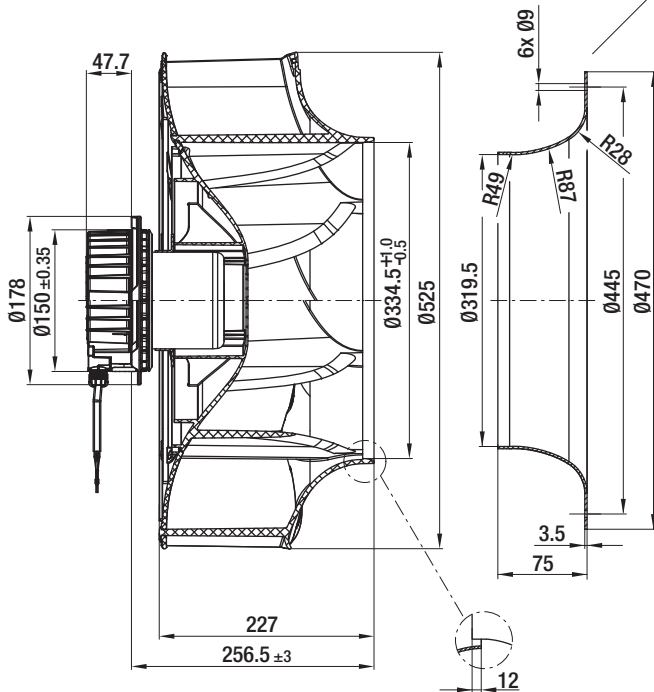
backward curved, Ø 500



R3G 500-RT04-H1 (Centrifugal fan)

Accessory part: Inlet nozzle 50901-2-2943 not included in the standard scope of delivery

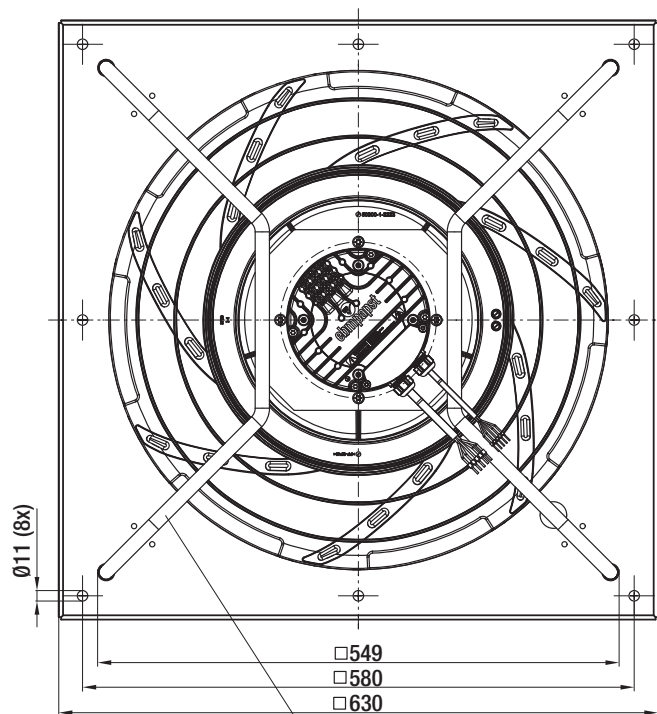
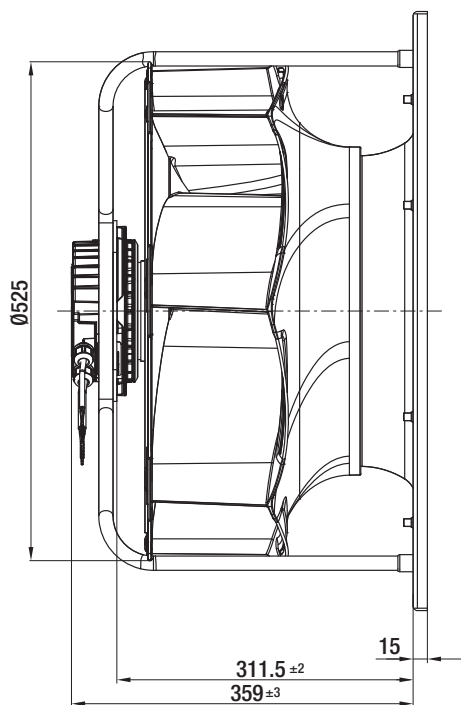
Depth of screw max. 16 mm



Connection line AWG 18,
5 x crimped core-end sleeves

Connection line AWG 22,
5 x crimped core-end sleeves

K3G 500-RT04-H2 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

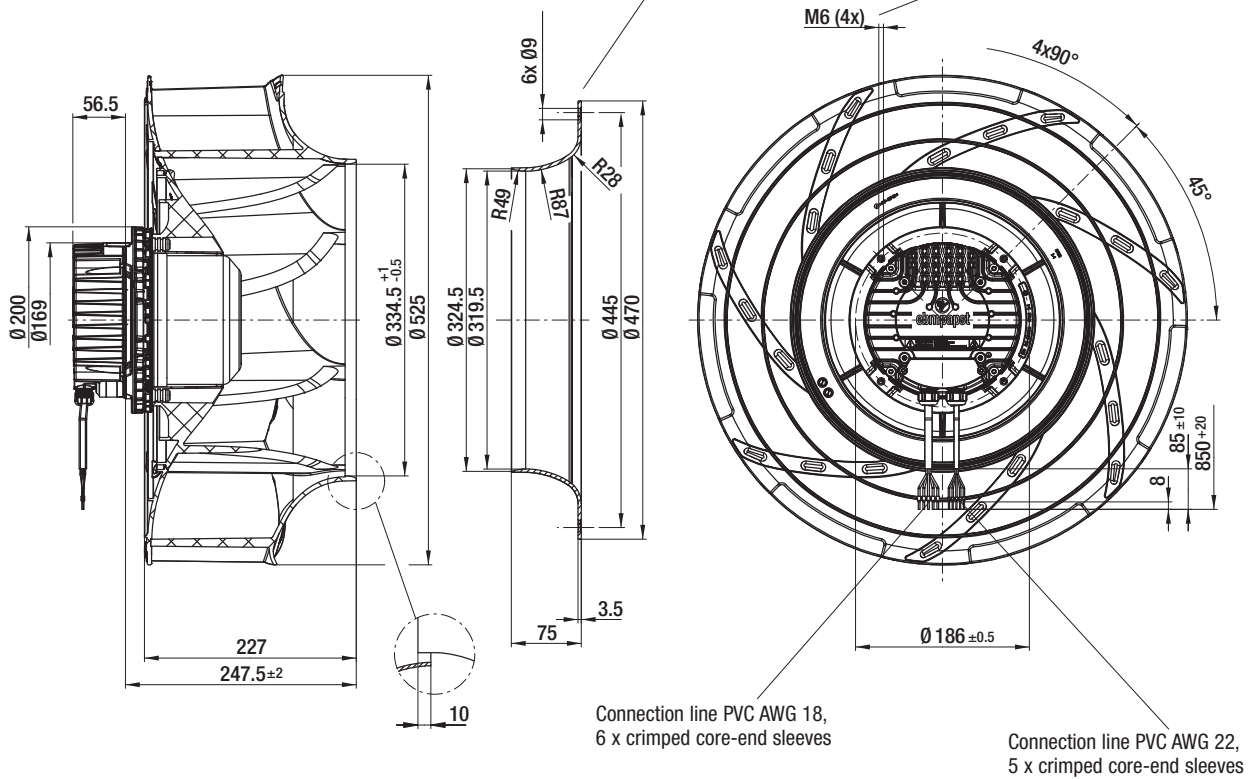
backward curved, Ø 500



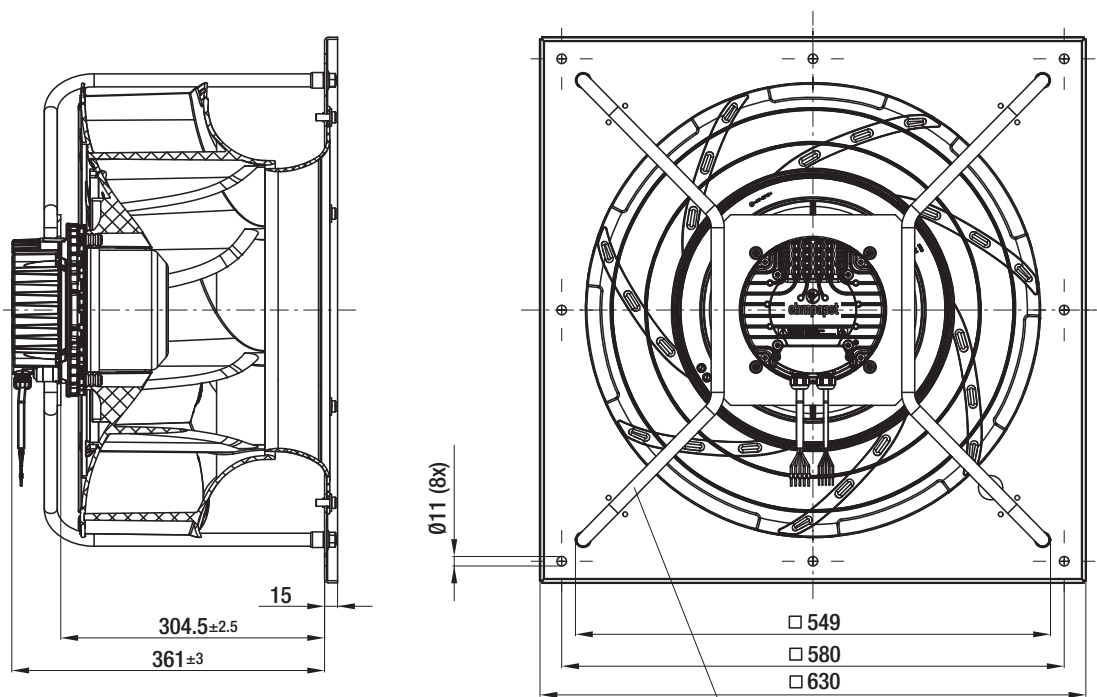
R3G 500-RL96-01 (Centrifugal fan)

Accessory part: Inlet nozzle 50901-2-2943 not included in the standard scope of delivery

Depth of screw max. 16 mm



K3G 500-RL96-01 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

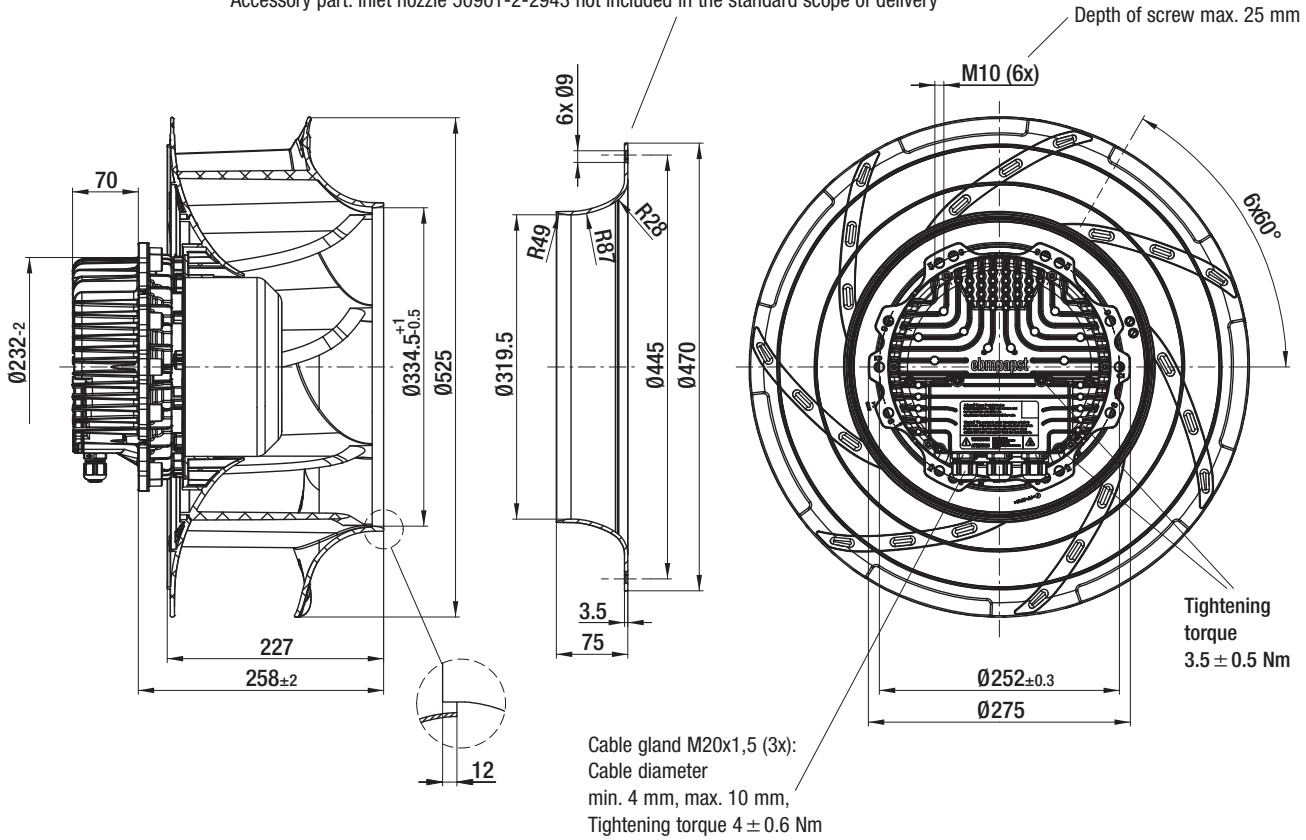
backward curved, Ø 500



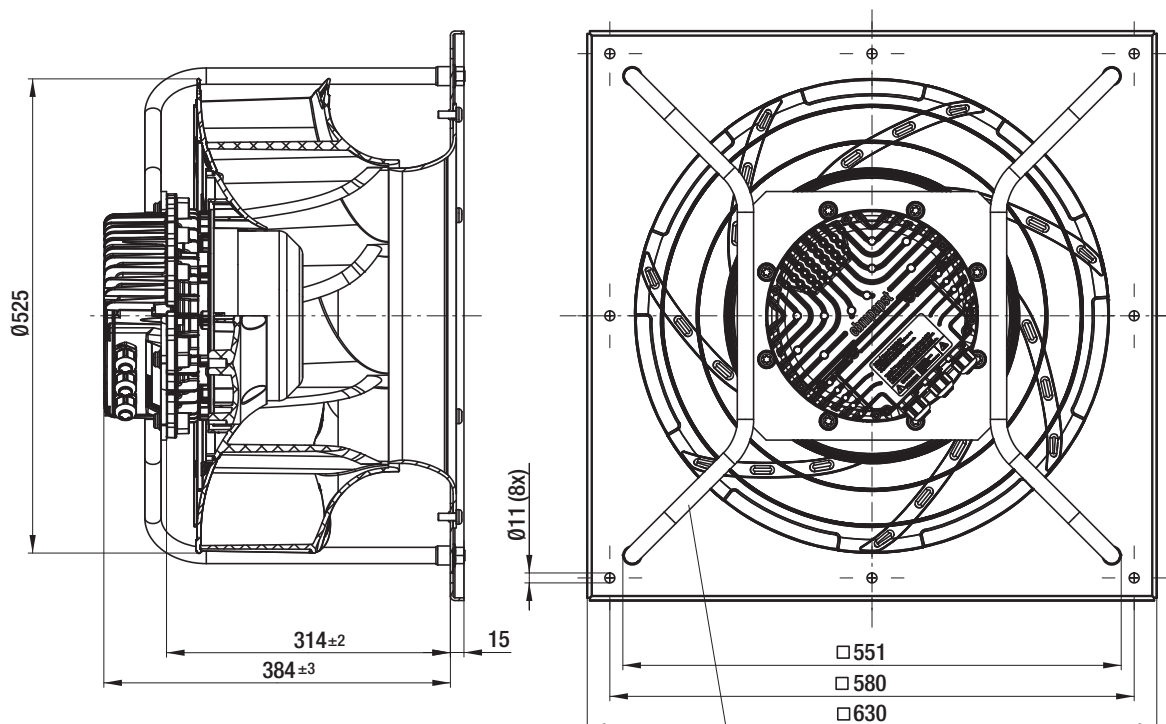
R3G 500-RA24-71 (Centrifugal fan)

Accessory part: Inlet nozzle 50901-2-2943 not included in the standard scope of delivery

Depth of screw max. 25 mm



K3G 500-RA24-71 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

backward curved, Ø 560



- **Material:** Support bracket: Steel, coated in black
Support plate and inlet nozzle: Sheet steel, galvanised
Impeller: Plastic PP
Rotor: Coated in black
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

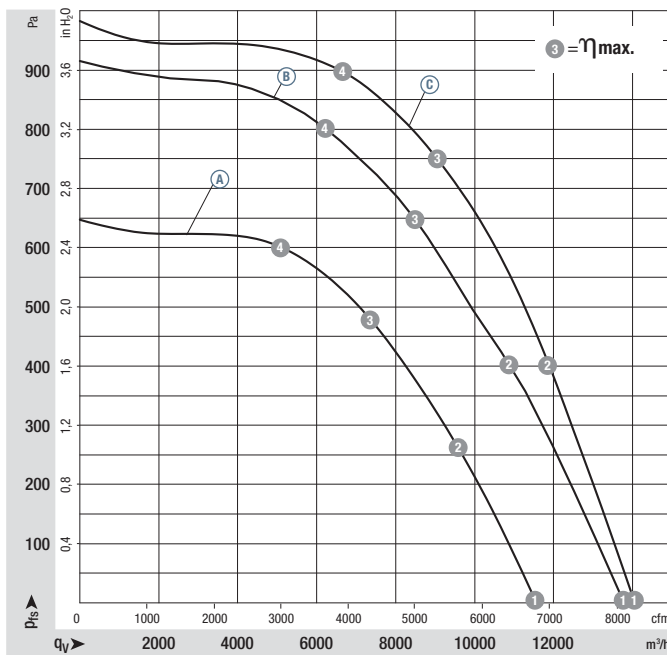
Nominal data

Type	Motor	Curve	Nominal voltage range VAC	Frequency Hz	Speed/rpm ⁽¹⁾ rpm	Max. input power ⁽¹⁾ W	Max. current draw ⁽¹⁾ A	Perm. amb. temp. °C	Technical features and electrical connection
*3G 560	M3G 150-FF	Ⓐ	1~ 200-277	50/60	1340	1590	7,00	-25..+55	p. 168 / M4)
*3G 560	M3G 150-FF	Ⓑ	3~ 380-480	50/60	1540	2360	3,65	-25..+60	p. 169 / M5)
*3G 560	M3G 150-IF	Ⓒ	3~ 380-480	50/60	1650	2900	4,40	-25..+55	p. 169 / M5)

subject to alterations

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

Curves:



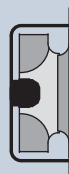
	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓐ 1	1340	1120	4,90	83
Ⓐ 2	1340	1460	6,40	78
Ⓐ 3	1340	1590	7,00	74
Ⓐ 4	1340	1520	6,65	76
Ⓑ 1	1540	1840	2,90	86
Ⓑ 2	1540	2300	3,60	81
Ⓑ 3	1540	2360	3,65	78
Ⓑ 4	1540	2310	3,60	80
Ⓒ 1	1650	2010	3,10	87
Ⓒ 2	1650	2630	4,10	81
Ⓒ 3	1650	2900	4,40	77
Ⓒ 4	1650	2770	4,30	80

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Technical features:** See electrical connections p. 168 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1; CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



Mass of centrifugal fan



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Centrifugal module w. support bracket	kg
R3G 560-RA25 -21	22,5	K3G 560-RA25 -21	43,2
R3G 560-RA25 -71	21,6	K3G 560-RA25 -71	42,3
R3G 560-RB31 -71	26,0	K3G 560-RB31 -71	46,7

EC centrifugal fans – RadiCal

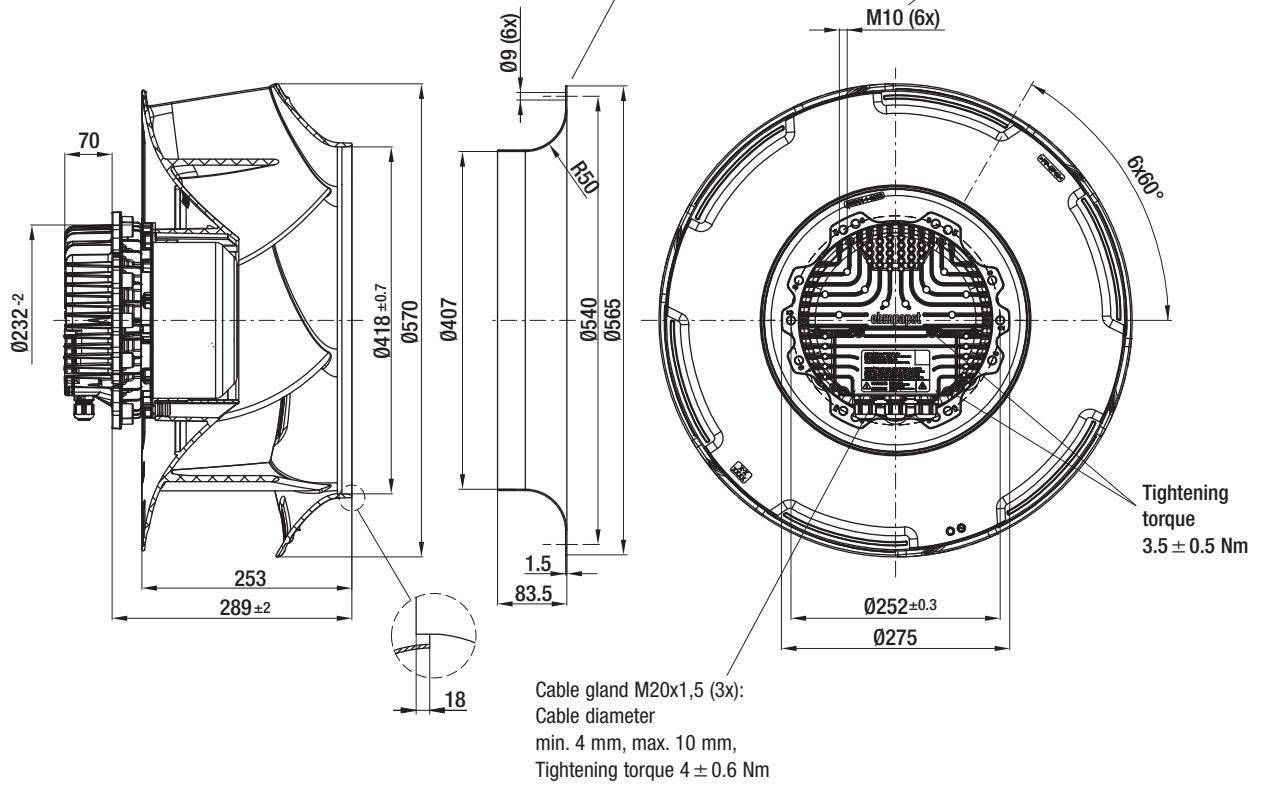
backward curved, Ø 560



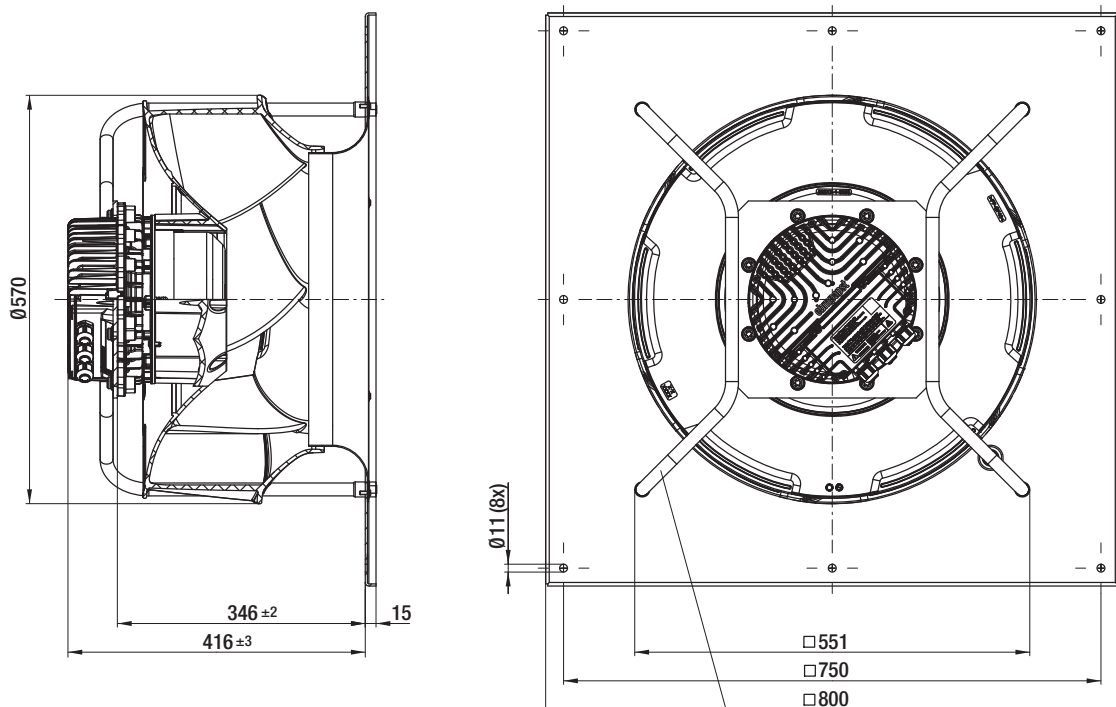
R3G 560-RA25-21 (Centrifugal fan)

Accessory part: Inlet nozzle 54482-2-4013 not included in the standard scope of delivery

Depth of screw max. 25 mm



K3G 560-RA25-21 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

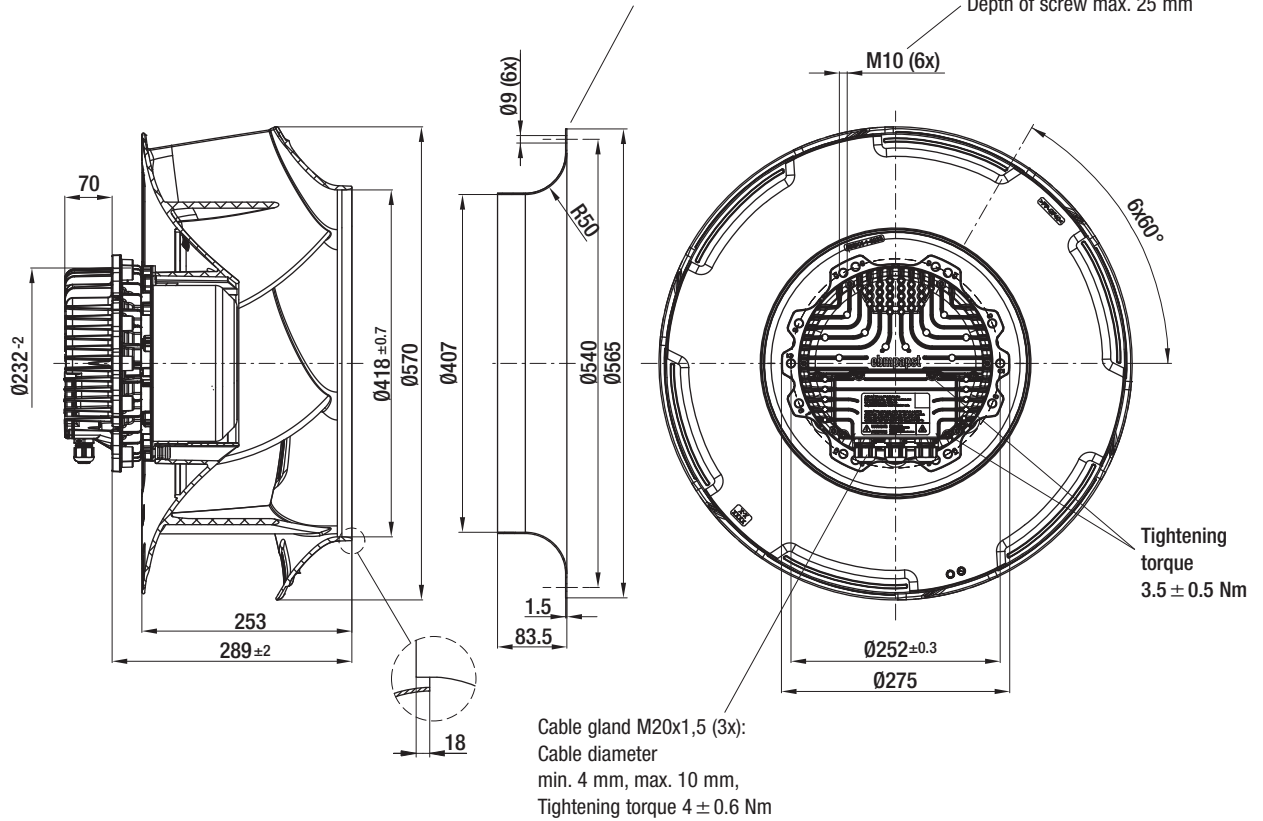
backward curved, Ø 560



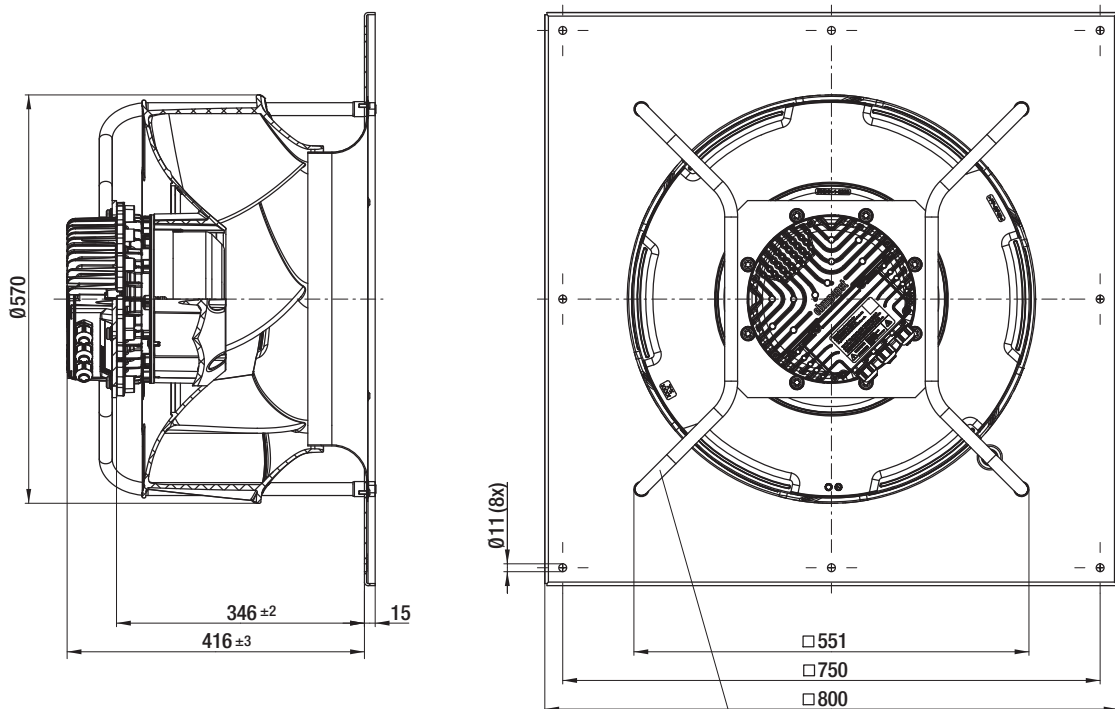
R3G 560-RA25-71 (Centrifugal fan)

Accessory part: Inlet nozzle 54482-2-4013 not included in the standard scope of delivery

Depth of screw max. 25 mm



K3G 560-RA25-71 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

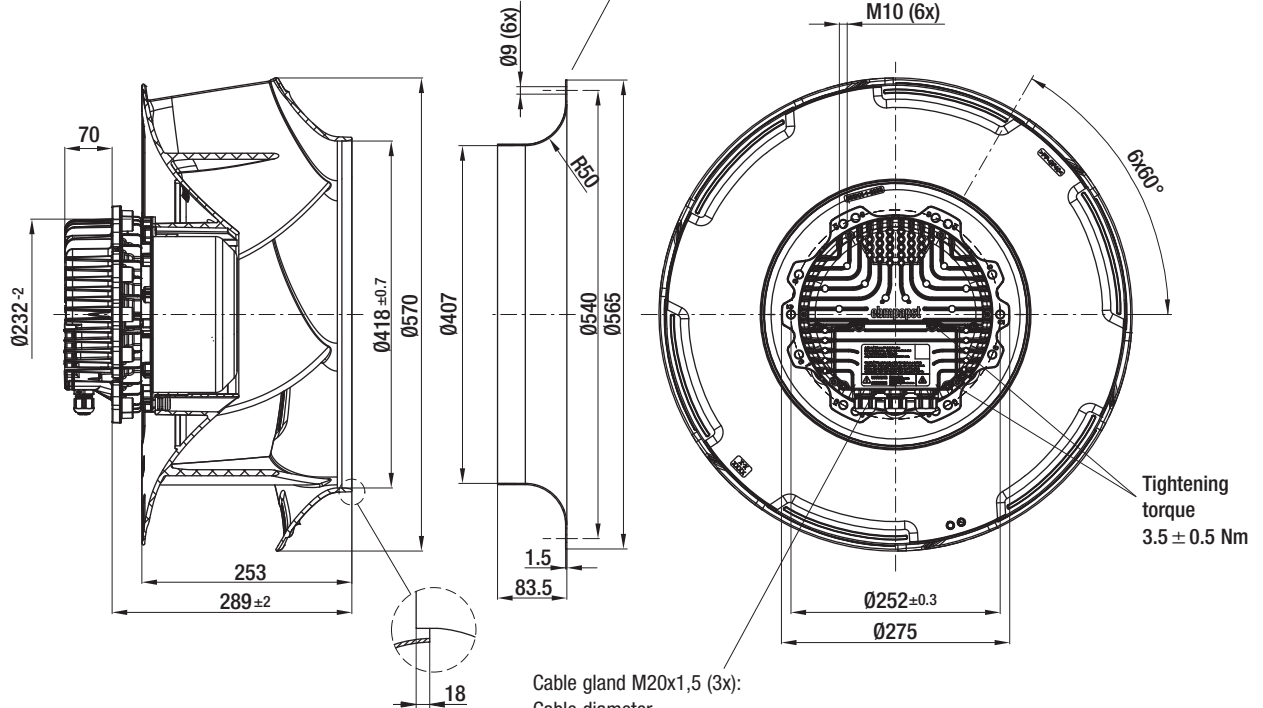
backward curved, Ø 560



R3G 560-RB31-71 (Centrifugal fan)

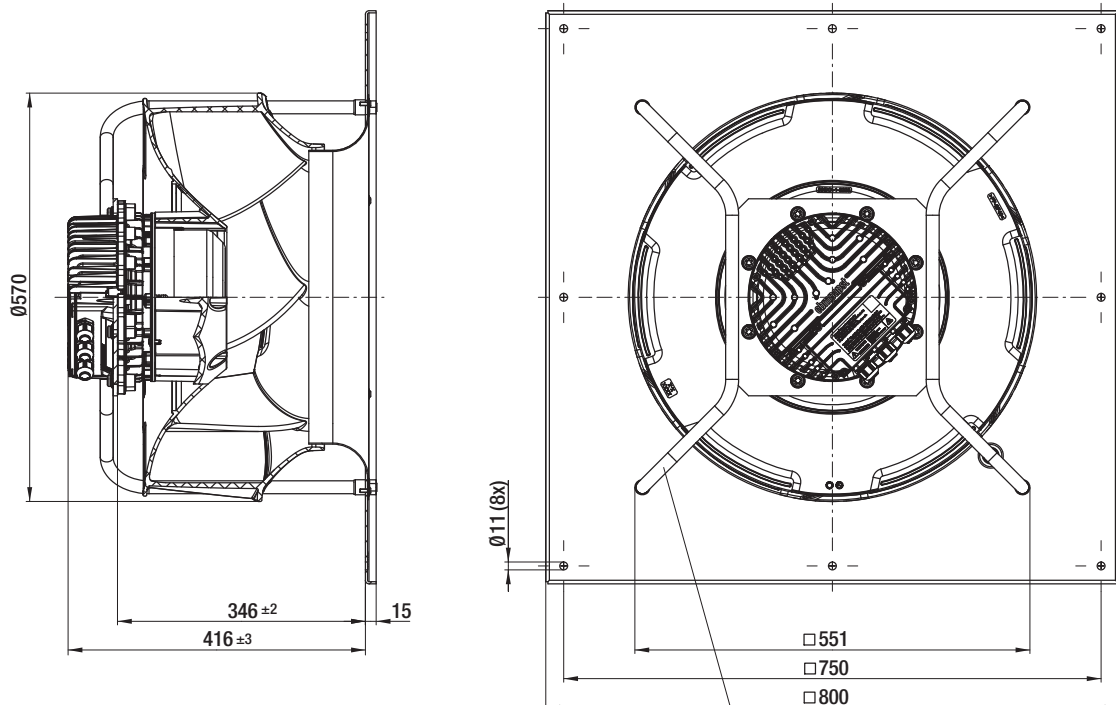
Accessory part: Inlet nozzle 54482-2-4013 not included in the standard scope of delivery

Depth of screw max. 25 mm



Cable gland M20x1,5 (3x):
Cable diameter
min. 4 mm, max. 10 mm,
Tightening torque 4 ± 0.6 Nm

K3G 560-RB31-71 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

backward curved, Ø 630



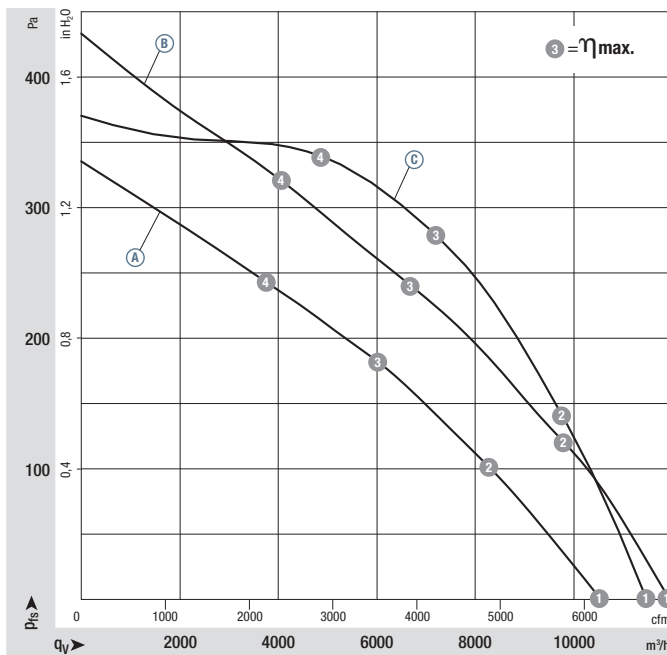
- **Material:** Support bracket: Steel, coated in black
Support plate and inlet nozzle: Sheet steel, galvanised
Impeller: Plastic PP
Rotor: Coated in black
Electronics enclosure: Die-cast aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Perm. amb. temp.	Technical features and electrical connection
Type	Motor	VAC	Hz	rpm	W	A	°C		
*3G 630	M3G 112-IA	Ⓐ	1~ 200-277	50/60	740	500	2,20	-25..+40	p. 166 / P5)
*3G 630	M3G 112-IA	Ⓑ	1~ 200-277	50/60	840	750	3,30	-25..+40	p. 166 / P5)
*3G 630	M3G 112-IA	Ⓒ	3~ 380-480	50/60	900	950	1,50	-25..+40	p. 167 / P6)
*3G 630	M3G 150-FF	Ⓓ	1~ 200-277	50/60	1030	1415	6,20	-25..+50	p. 168 / M4)
*3G 630	M3G 150-FF	Ⓔ	3~ 380-480	50/60	1130	1790	2,80	-25..+60	p. 169 / M5)
*3G 630	M3G 150-IF	Ⓕ	3~ 380-480	50/60	1300	2700	4,15	-25..+55	p. 169 / M5)

subject to alterations

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

Curves:



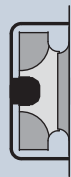
	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓐ ①	825	460	2,00	76
Ⓐ ②	770	500	2,20	69
Ⓐ ③	740	500	2,20	65
Ⓐ ④	750	500	2,20	67
Ⓑ ①	930	690	3,00	80
Ⓑ ②	880	750	3,30	73
Ⓑ ③	840	750	3,30	70
Ⓑ ④	865	750	3,30	71
Ⓒ ①	900	600	1,00	78
Ⓒ ②	900	830	1,30	73
Ⓒ ③	900	950	1,50	69
Ⓒ ④	900	885	1,40	71

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Technical features:** See electrical connections p. 166 ff.
- **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Terminal box design:** Electrical connection via terminal strip
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 61800-5-1; CE
- **Approvals:** VDE, UL, CSA, CCC, GOST are applied for



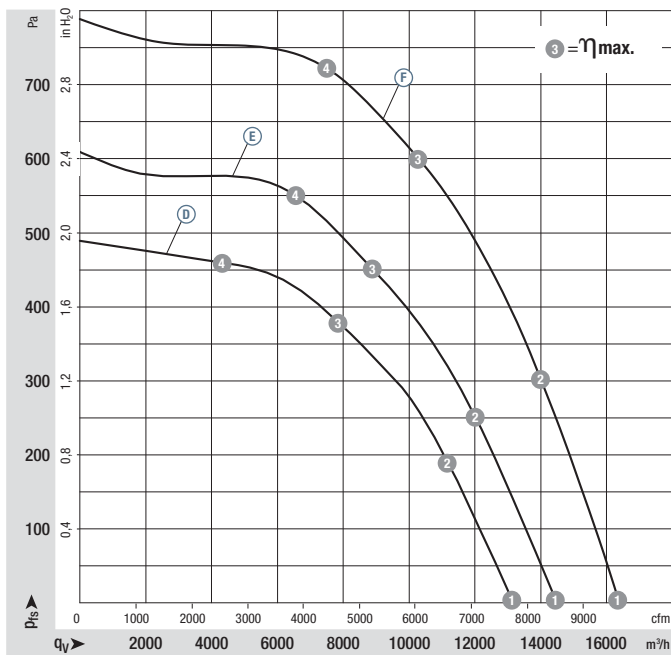
Mass of centrifugal fan



Mass of centrifugal module with support bracket

Centrifugal fan	kg	Centrifugal module w. support bracket	kg
R3G 630-RK57 -31	15,8	K3G 630-RK57 -31	34,8
R3G 630-RL94 -21	17,6	K3G 630-RL94 -21	36,6
R3G 630-RL95 -01	17,4	K3G 630-RL95 -01	36,4
R3G 630-RA38 -21	25,0	K3G 630-RA38 -21	50,0
R3G 630-RA21 -71	24,0	K3G 630-RA21 -71	49,0
R3G 630-RB32 -71	29,0	K3G 630-RB32 -71	54,0

Curves:



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

	n rpm	P_{ed} W	I A	L_{WA} dB(A)
Ⓓ ①	1030	920	4,00	82
Ⓓ ②	1030	1240	5,45	75
Ⓓ ③	1030	1415	6,20	74
Ⓓ ④	1030	1230	5,40	77
Ⓔ ①	1130	1180	1,95	84
Ⓔ ②	1130	1640	2,60	77
Ⓔ ③	1130	1790	2,80	74
Ⓔ ④	1130	1750	2,80	75
Ⓕ ①	1300	1780	2,80	87
Ⓕ ②	1300	2420	3,75	81
Ⓕ ③	1300	2700	4,15	77
Ⓕ ④	1300	2640	4,10	80

EC centrifugal fans – RadiCal

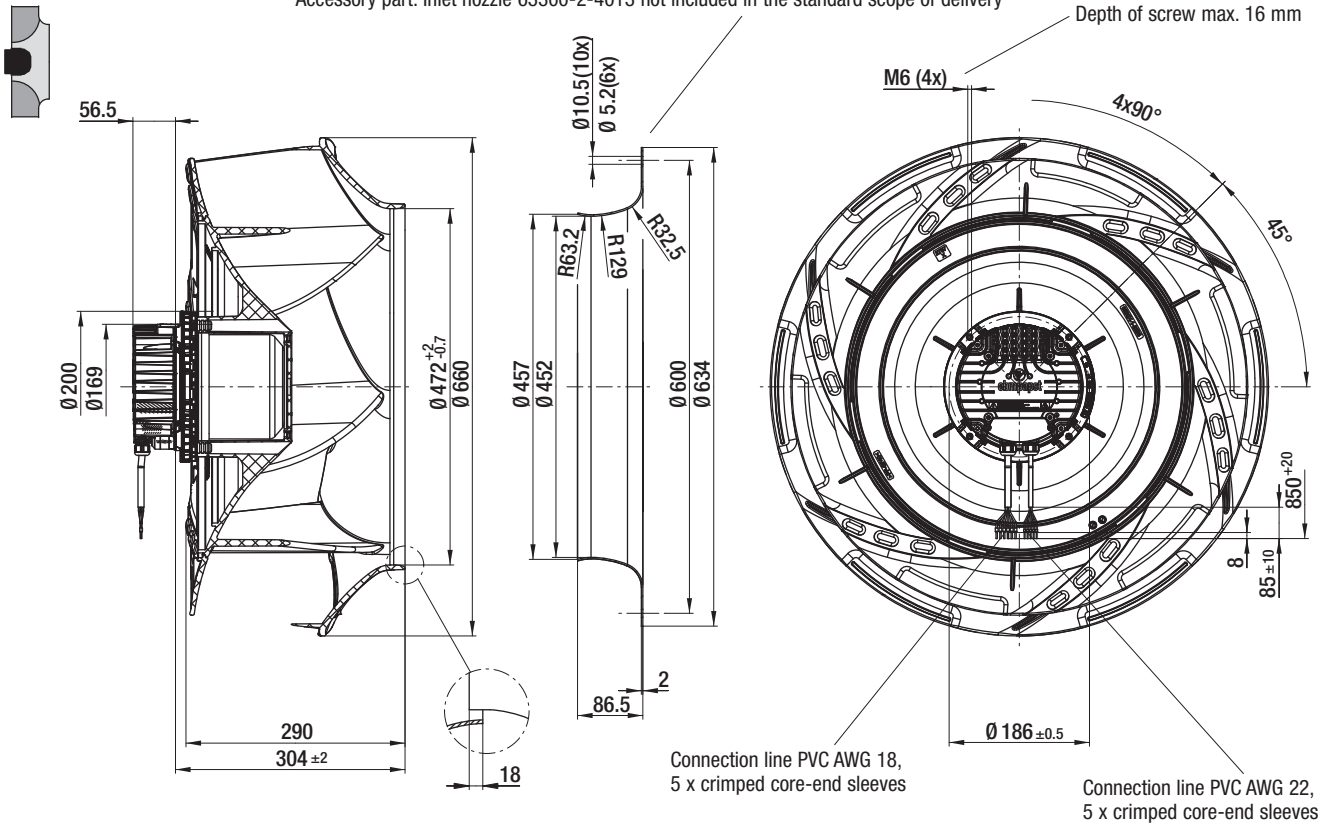
backward curved, Ø 630



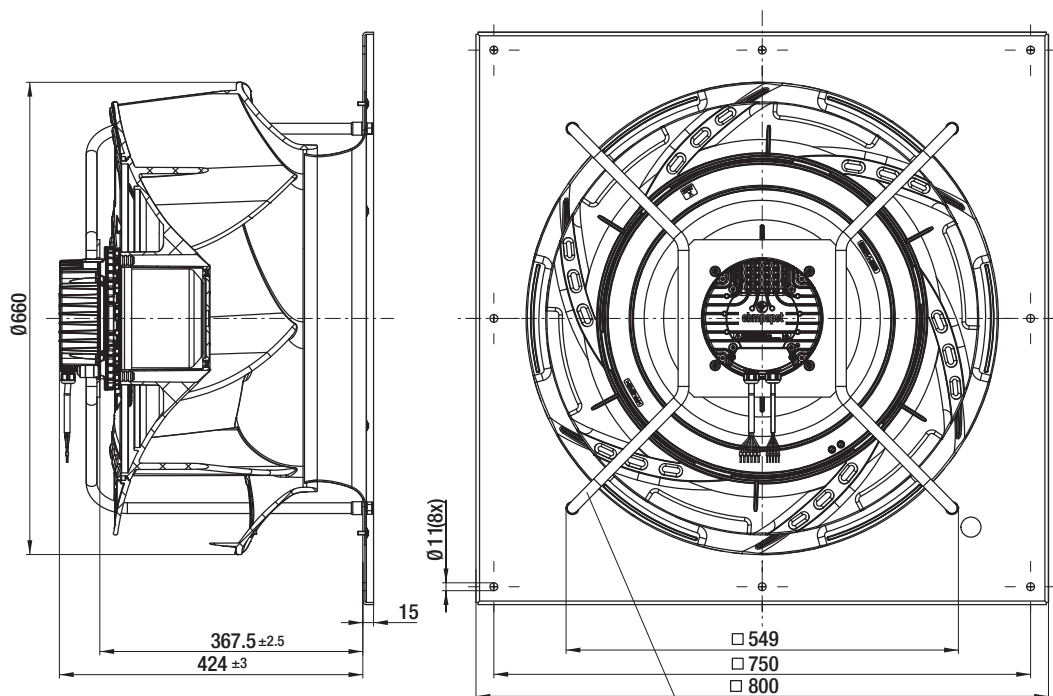
R3G 630-RL94-21 (Centrifugal fan)

Accessory part: Inlet nozzle 63300-2-4013 not included in the standard scope of delivery

Depth of screw max. 16 mm



K3G 630-RL94-21 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

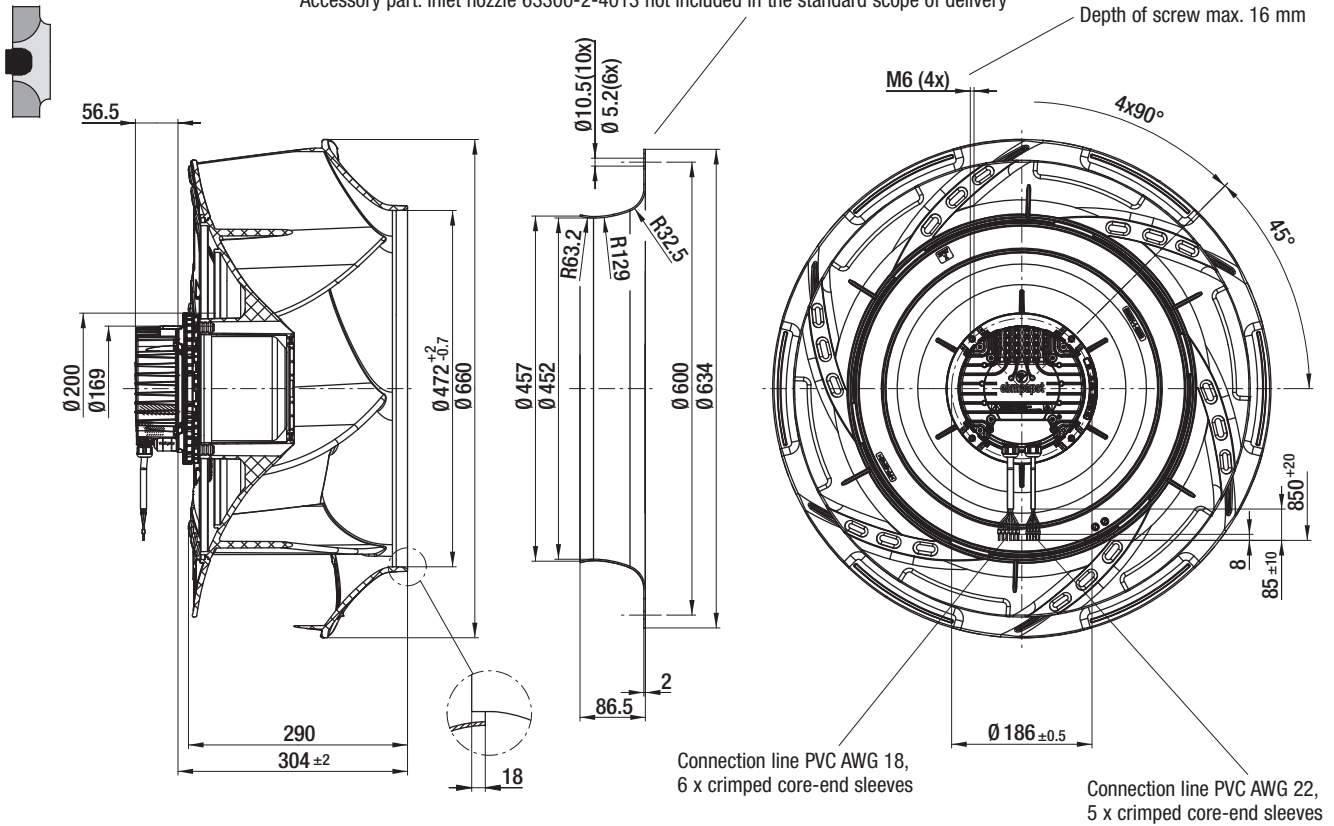
backward curved, Ø 630



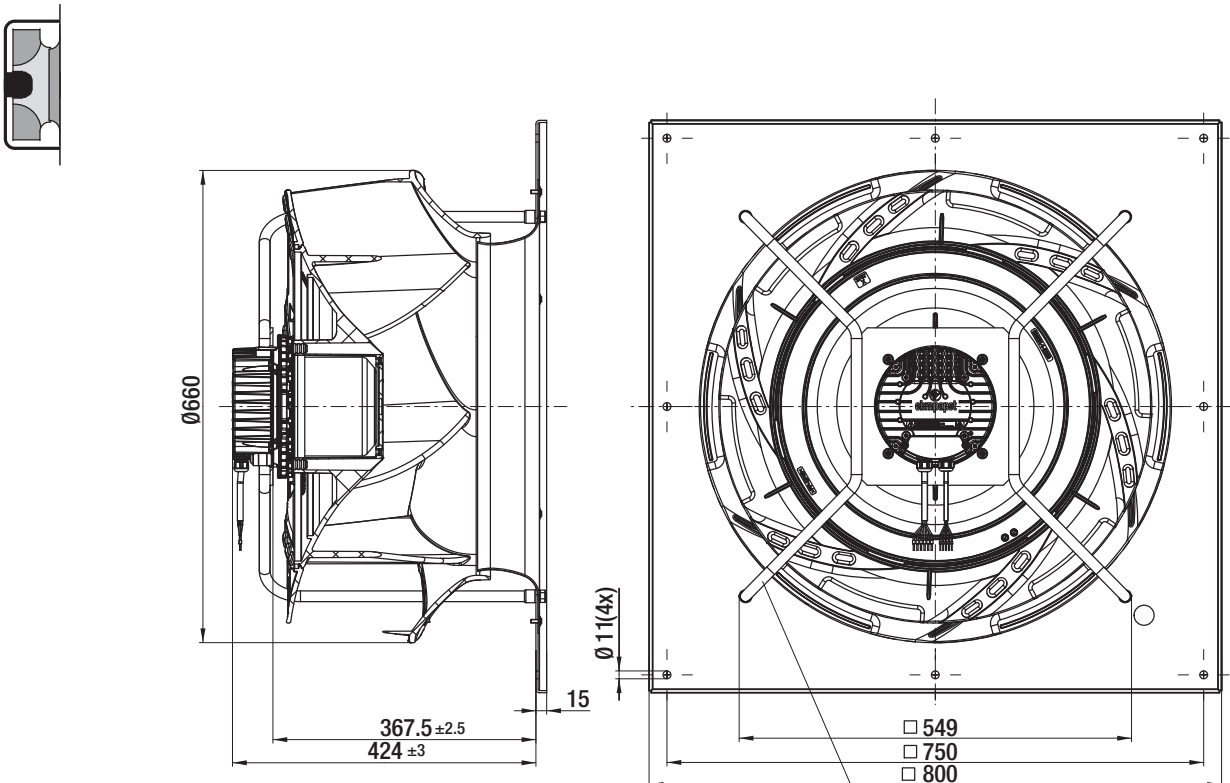
R3G 630-RL95-01 (Centrifugal fan)

Accessory part: Inlet nozzle 63300-2-4013 not included in the standard scope of delivery

Depth of screw max. 16 mm



K3G 630-RL95-01 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

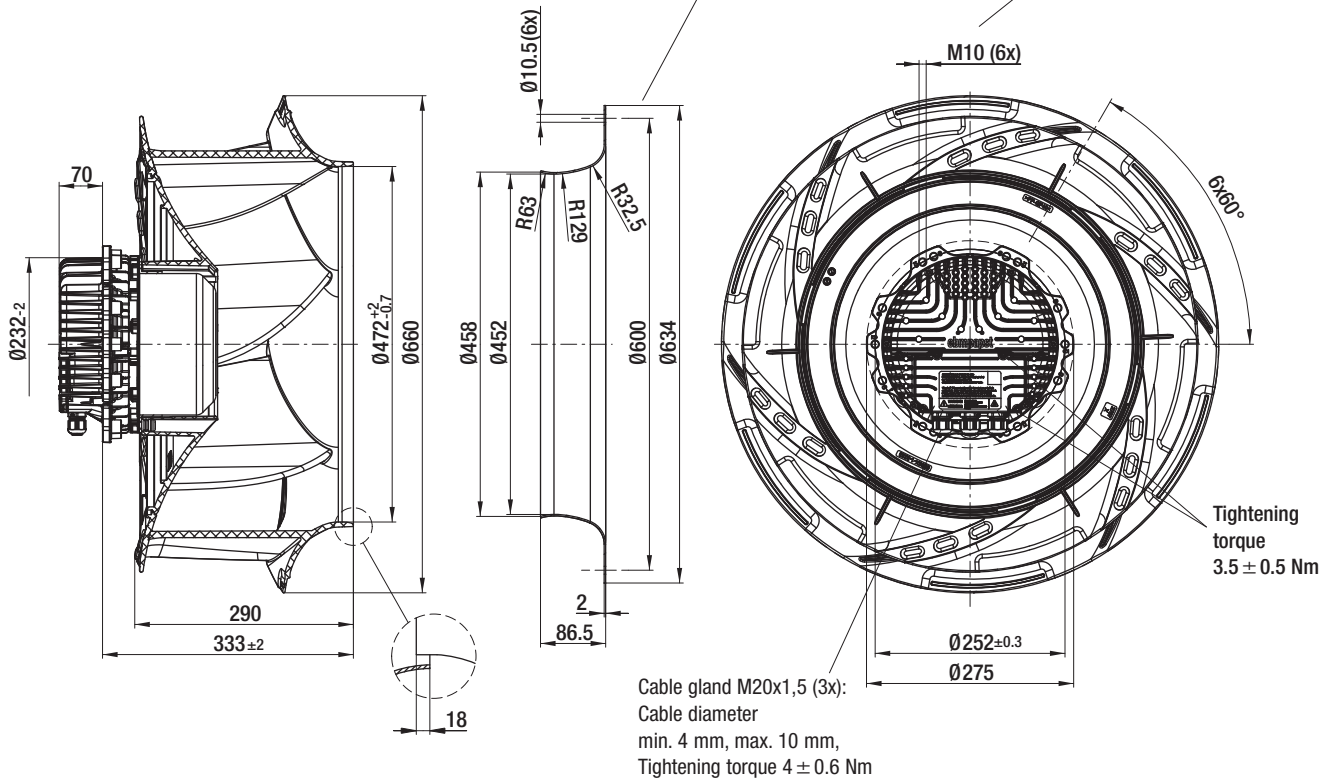
backward curved, Ø 630



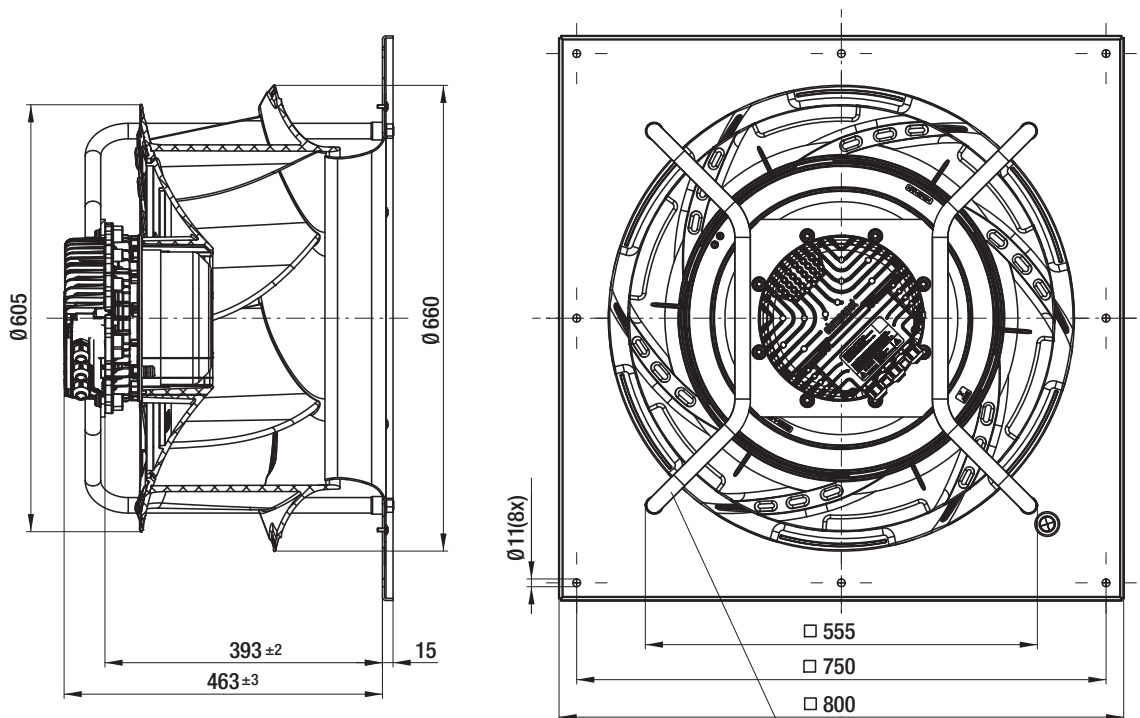
R3G 630-RA38-21 (Centrifugal fan)

Accessory part: Inlet nozzle 63300-2-4013 not included in the standard scope of delivery

Depth of screw max. 25 mm



K3G 630-RA38-21 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

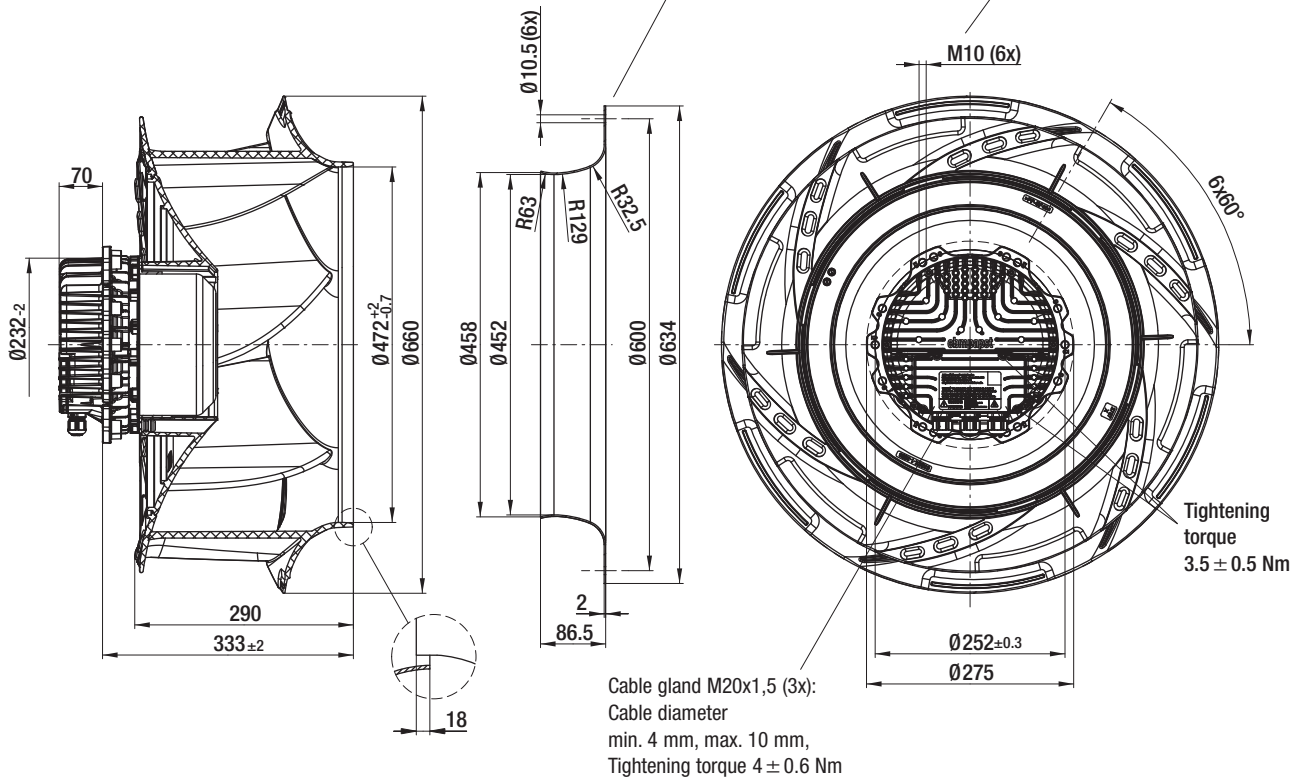
backward curved, Ø 630



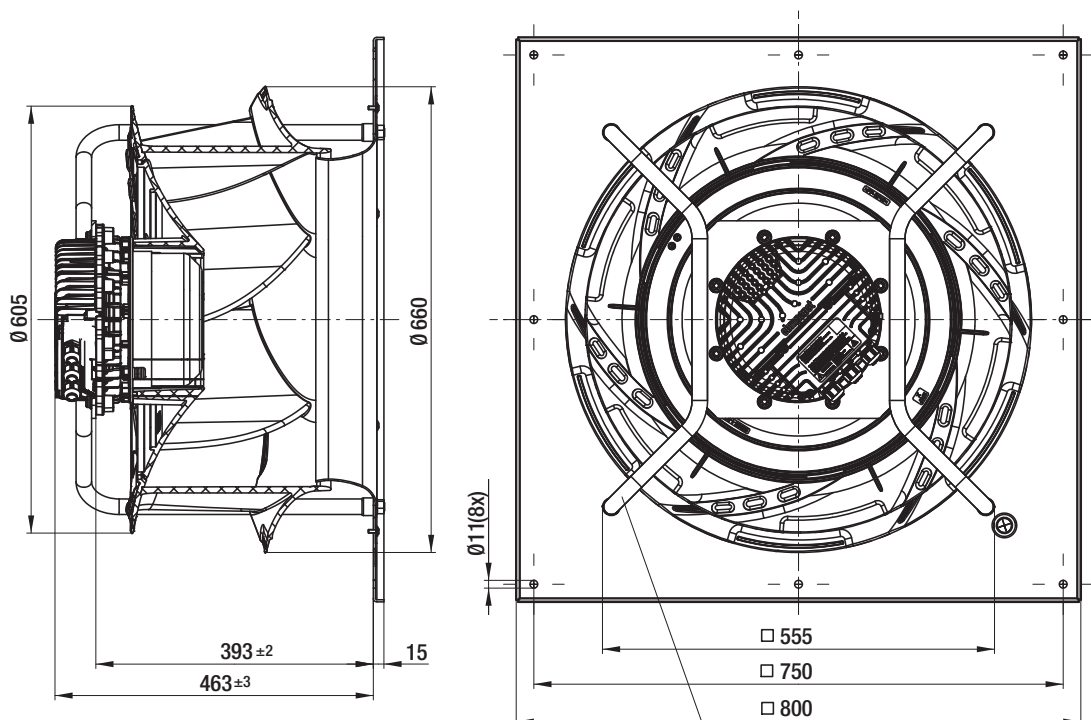
R3G 630-RA21-71 (Centrifugal fan)

Accessory part: Inlet nozzle 63300-2-4013 not included in the standard scope of delivery

Depth of screw max. 25 mm



K3G 630-RA21-71 (Centrifugal module with support bracket)



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

EC centrifugal fans – RadiCal

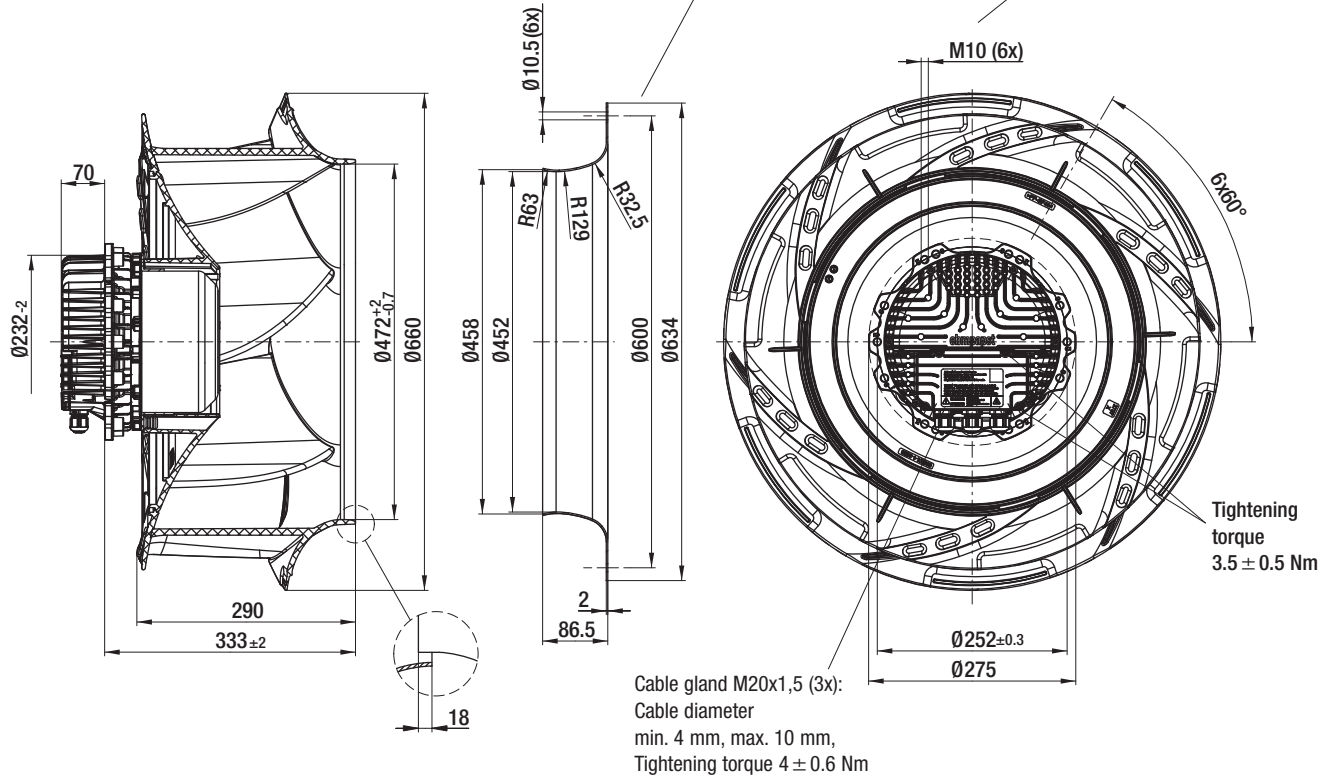
backward curved, Ø 630



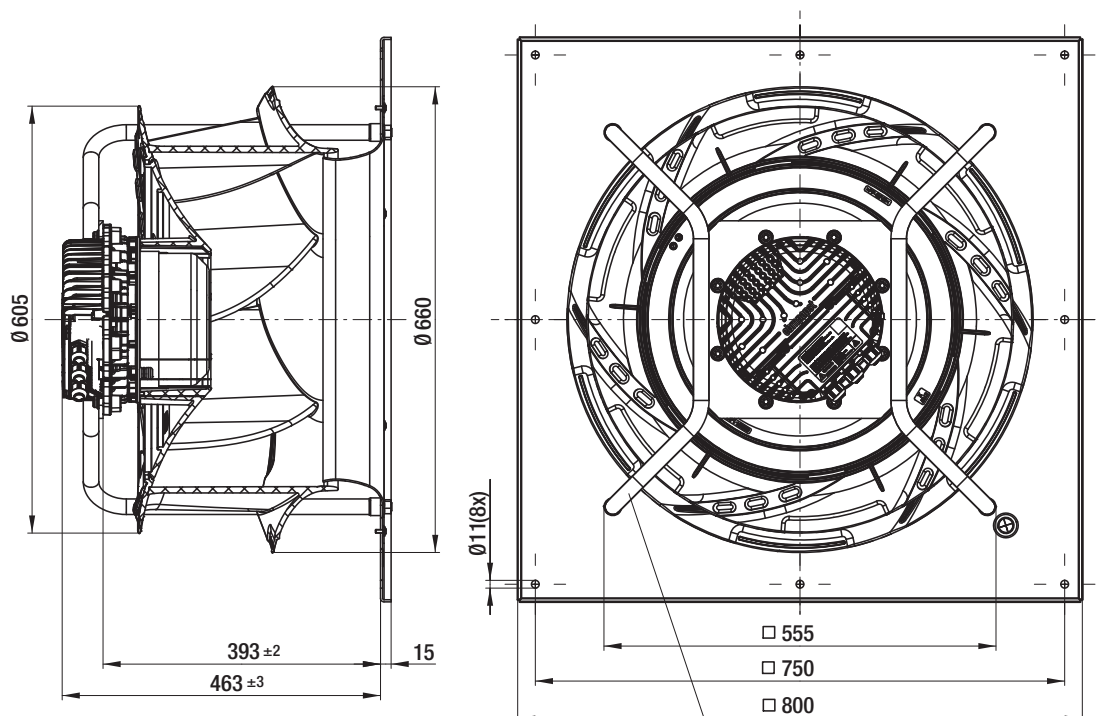
R3G 630-RB32-71 (Centrifugal fan)

Accessory part: Inlet nozzle 63300-2-4013 not included in the standard scope of delivery

Depth of screw max. 25 mm



K3G 630-RB32-71 (Centrifugal module with support bracket)



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



AC centrifugal fans – RadiCal



AC centrifugal fans – RadiCal

backward curved, Ø 133



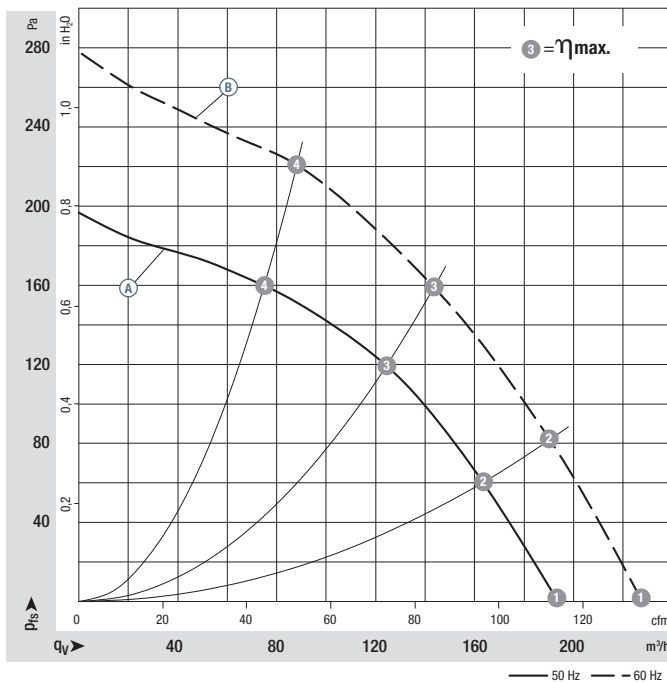
- **Material:** Housing: Plastic PA 6, fibreglass-reinforced
Impeller: Plastic PA 6, fibreglass-reinforced
Rotor: Coated in black
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 42, depending on installation and position in acc. to EN 60034-5
- **Insulation class:** "B"
- **Mounting position:** any
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 170	
*2E 133	M2E 042-CA	Ⓐ 1~ 230	50	2700	26	0,12	1,5 / 400	-25..+45	A1)	
		Ⓑ 1~ 230	60	3100	27	0,14	1,5 / 400	-25..+60		

subject to alterations

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

Curves:



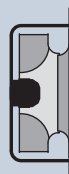
	n rpm	P _{ed} W	I A	L _w A dB(A)
Ⓐ ①	2750	25	0,11	58
Ⓐ ②	2730	25	0,11	56
Ⓐ ③	2700	26	0,12	53
Ⓐ ④	2730	24	0,11	57
Ⓑ ①	3200	25	0,13	62
Ⓑ ②	3170	26	0,13	59
Ⓑ ③	3100	27	0,14	57
Ⓑ ④	3185	26	0,13	60

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_wA as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Motor protection:** TOP wired internally
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE



Mass of centrifugal fan



Mass of centrifugal module with support basket

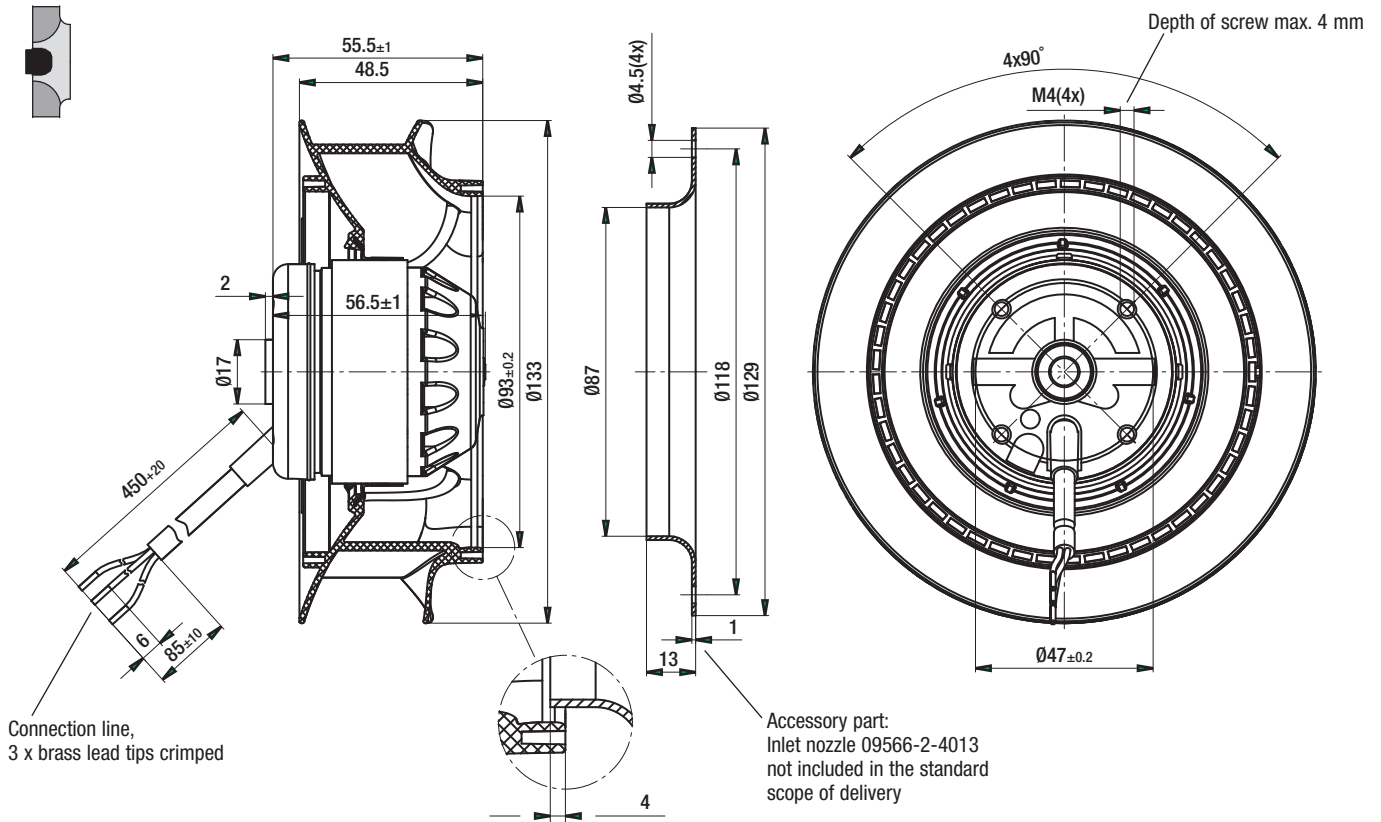
Centrifugal fan	kg	Centrifugal module w. support basket	kg
R2E 133-RA03 -01	0,6	K2E 133-RA03 -01	0,8

AC centrifugal fans – RadiCal

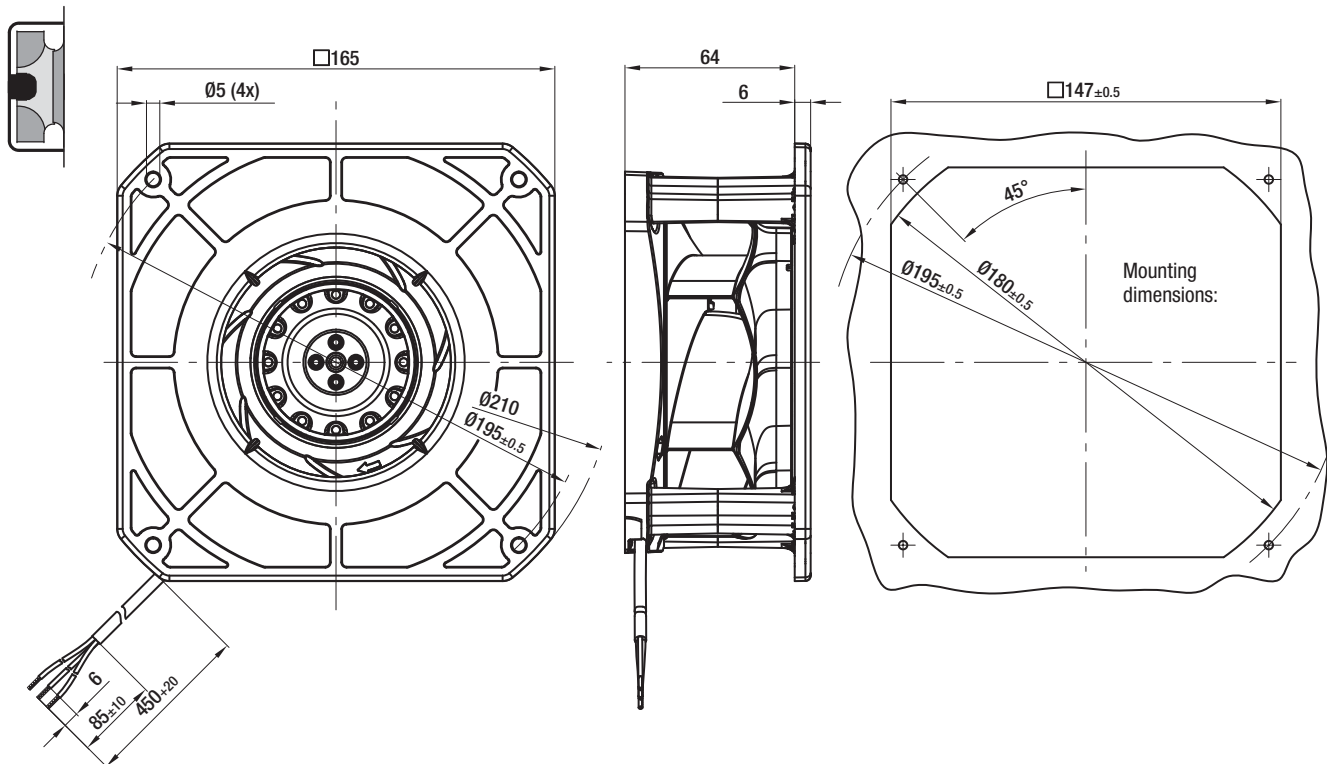
backward curved, Ø 133



R2E 133-RA03-01 (Centrifugal fan)



K2E 133-RA03-01 (Centrifugal module with support basket)



AC centrifugal fans – RadiCal

backward curved, Ø 190



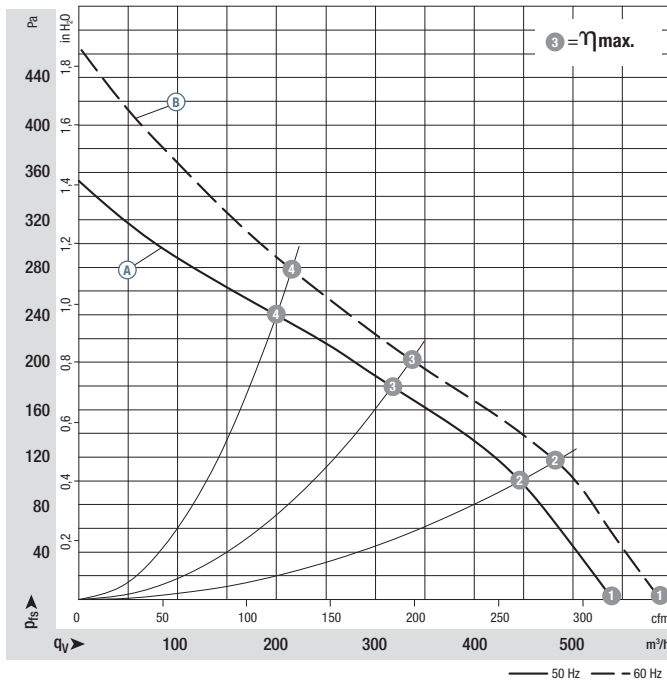
- **Material:** Housing: Plastic PA 6, fibreglass-reinforced
Impeller: Plastic PA 6, fibreglass-reinforced
Rotor: Coated in black
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 44, depending on installation and position in acc. to EN 60034-5
- **Insulation class:** "B"
- **Mounting position:** any
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 170	
*2E 190	M2E 068-BF	Ⓐ 1~ 230	50	2350	52	0,23	1,5 / 400	-25..+65	A1)	
		Ⓑ 1~ 230	60	2500	65	0,29	1,5 / 400	-25..+75		

subject to alterations

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

Curves:



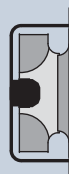
	n rpm	P_{ed} W	I A	L_{wA} dB(A)
Ⓐ ①	2480	48	0,22	66
Ⓐ ②	2440	49	0,22	63
Ⓐ ③	2350	52	0,23	60
Ⓐ ④	2435	50	0,22	62
Ⓑ ①	2720	60	0,27	68
Ⓑ ②	2645	62	0,27	66
Ⓑ ③	2500	65	0,29	62
Ⓑ ④	2615	63	0,27	65

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Motor protection:** TOP wired internally
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable (R2E)
- **Connection leads:** Plug system (K2E)
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** R2E: CCC, GOST
K2E: CCC



Mass of centrifugal fan



Mass of centrifugal module with support basket

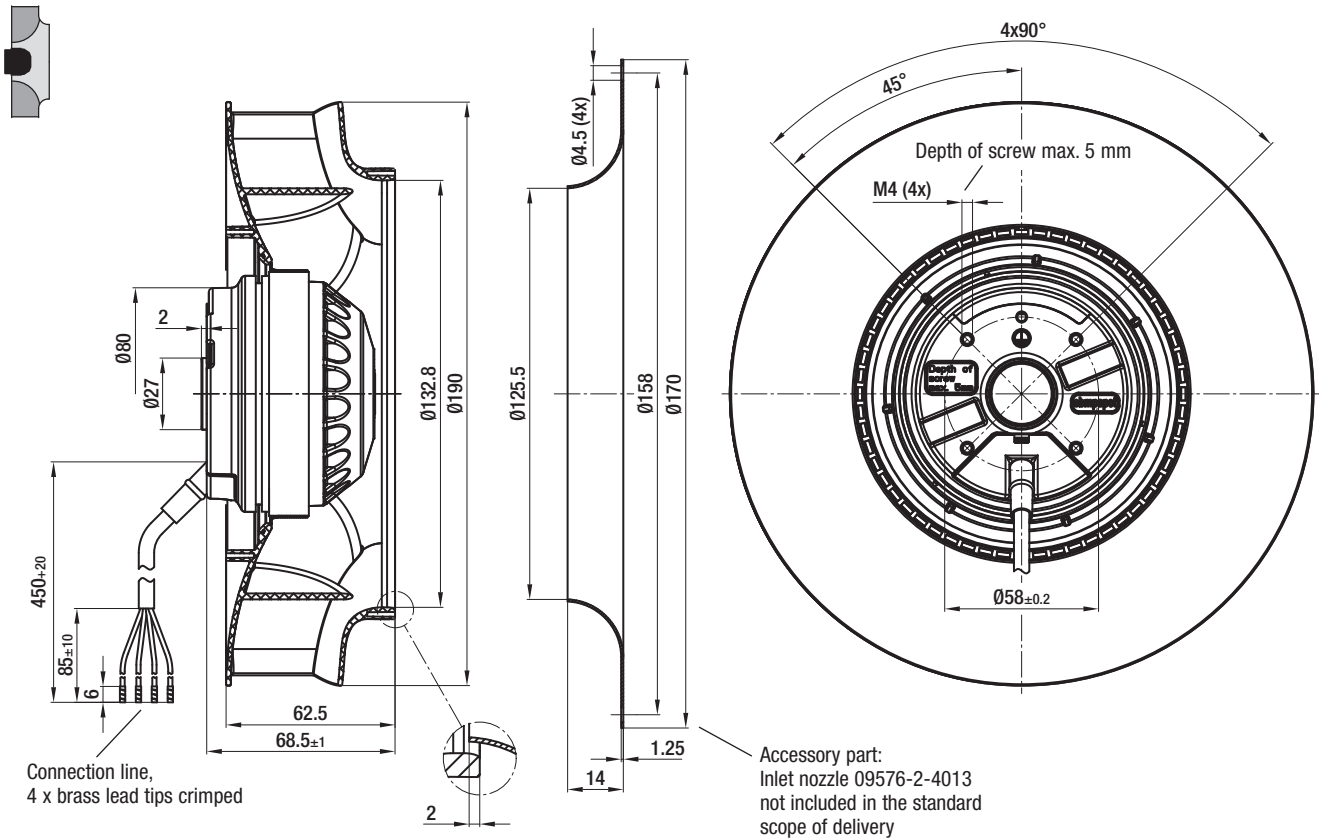
Centrifugal fan	kg	Centrifugal module w. support basket	kg
R2E 190-RA26 -05	1,3	K2E 190-RA26 -01	1,7

AC centrifugal fans – RadiCal

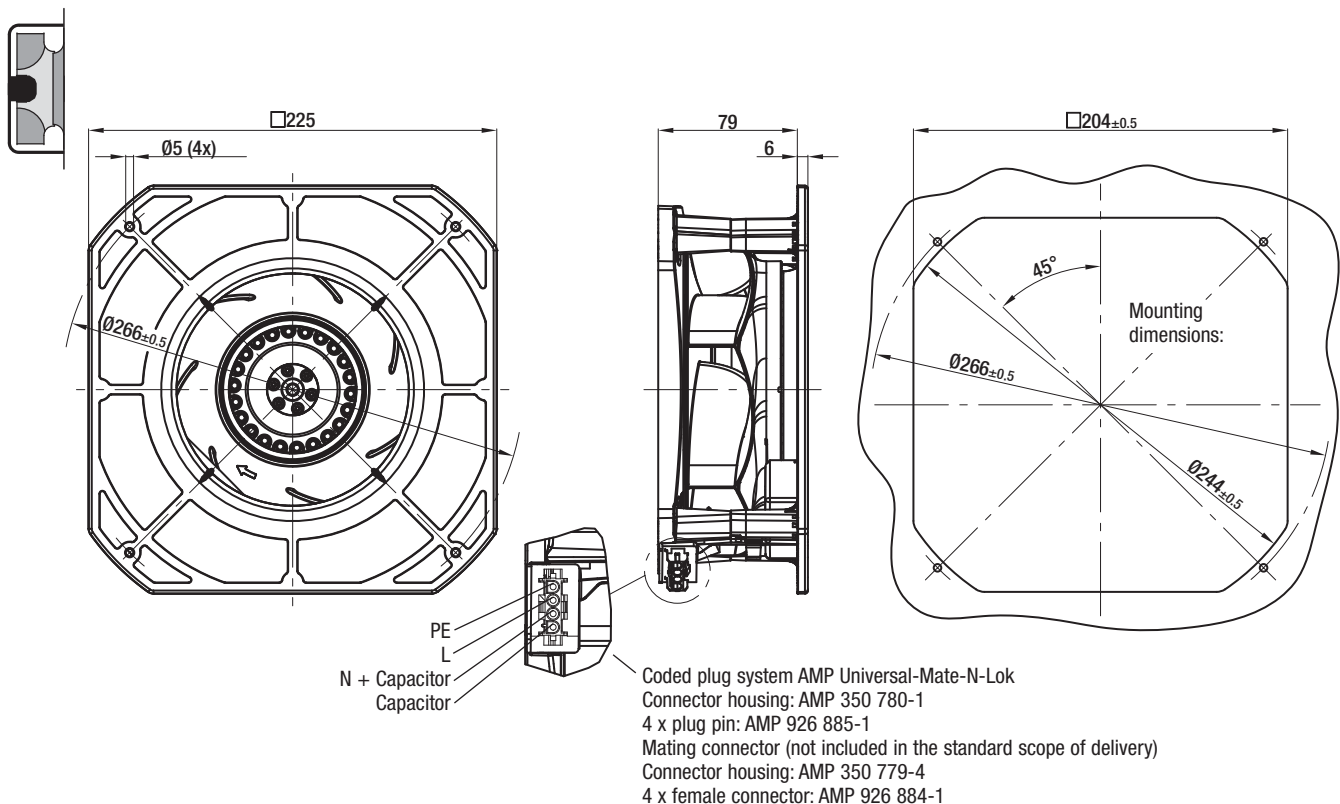
backward curved, Ø 190



R2E 190-RA26-05 (Centrifugal fan)



K2E 190-RA26-01 (Centrifugal module with support basket)



AC centrifugal fans – RadiCal

backward curved, Ø 220



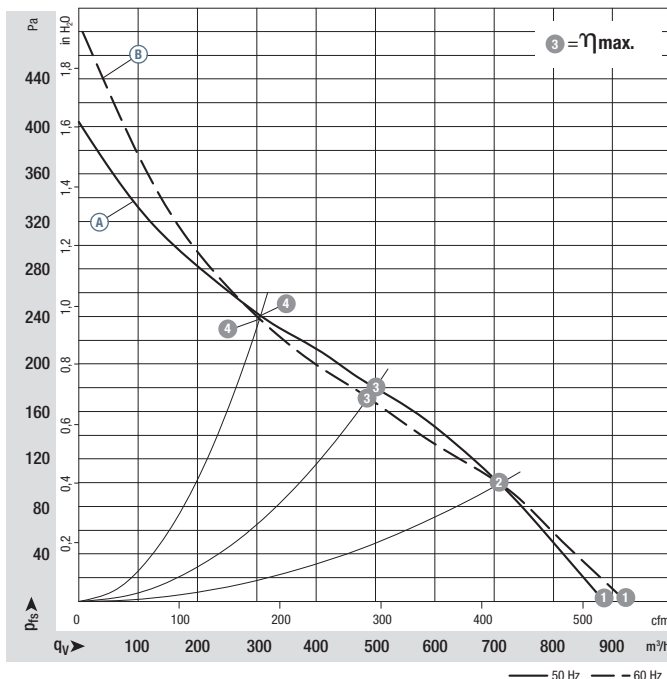
- **Material:** Housing: Plastic PA 6, fibreglass-reinforced
Impeller: Plastic PA 6, fibreglass-reinforced
Rotor: Coated in black
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 44, depending on installation and position in acc. to EN 60034-5
- **Insulation class:** "B"
- **Mounting position:** any
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 170	
*2E 220	M2E 068-BF	A) 1~ 230	50	2100	88	0,39	2,0 / 450	-25..+50	A1)	
		B) 1~ 230	60	2050	107	0,47	2,0 / 450	-25..+60		
*2E 220	M2E 068-CF	C) 1~ 230	50	2500	102	0,45	2,5 / 400	-25..+60	A1)	
		D) 1~ 230	60	2650	135	0,60	2,5 / 400	-25..+75		

subject to alterations

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

Curves:



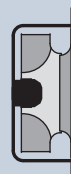
	n rpm	P _{ed} W	I A	L _{WA} dB(A)
A) ①	2350	80	0,36	68
A) ②	2240	86	0,38	62
A) ③	2100	88	0,39	60
A) ④	2185	86	0,38	63
B) ①	2450	100	0,46	69
B) ②	2220	105	0,46	62
B) ③	2050	107	0,47	60
B) ④	2165	105	0,46	63

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Motor protection:** TOP wired internally
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable (R2E)
- **Connection leads:** Plug system (K2E)
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** R2E 220-RA: VDE, CCC, GOST
R2E 220-RB: CCC, GOST
K2E: CCC



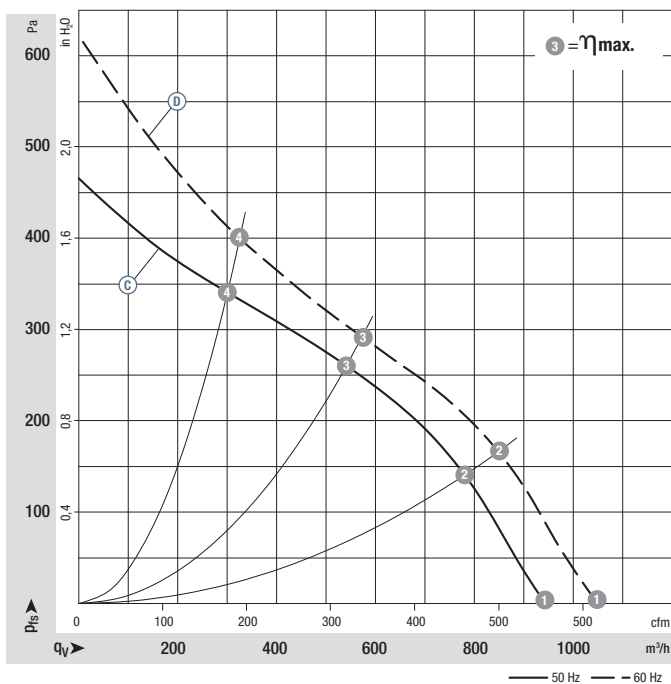
Mass of centrifugal fan



Mass of centrifugal module with support basket

Centrifugal fan	kg	Centrifugal module w. support basket	kg
R2E 220-RA38 -01	1,30	K2E 220-RA38 -01	2,00
R2E 220-RB06 -01	1,80	K2E 220-RB06 -01	2,40

Curves:



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

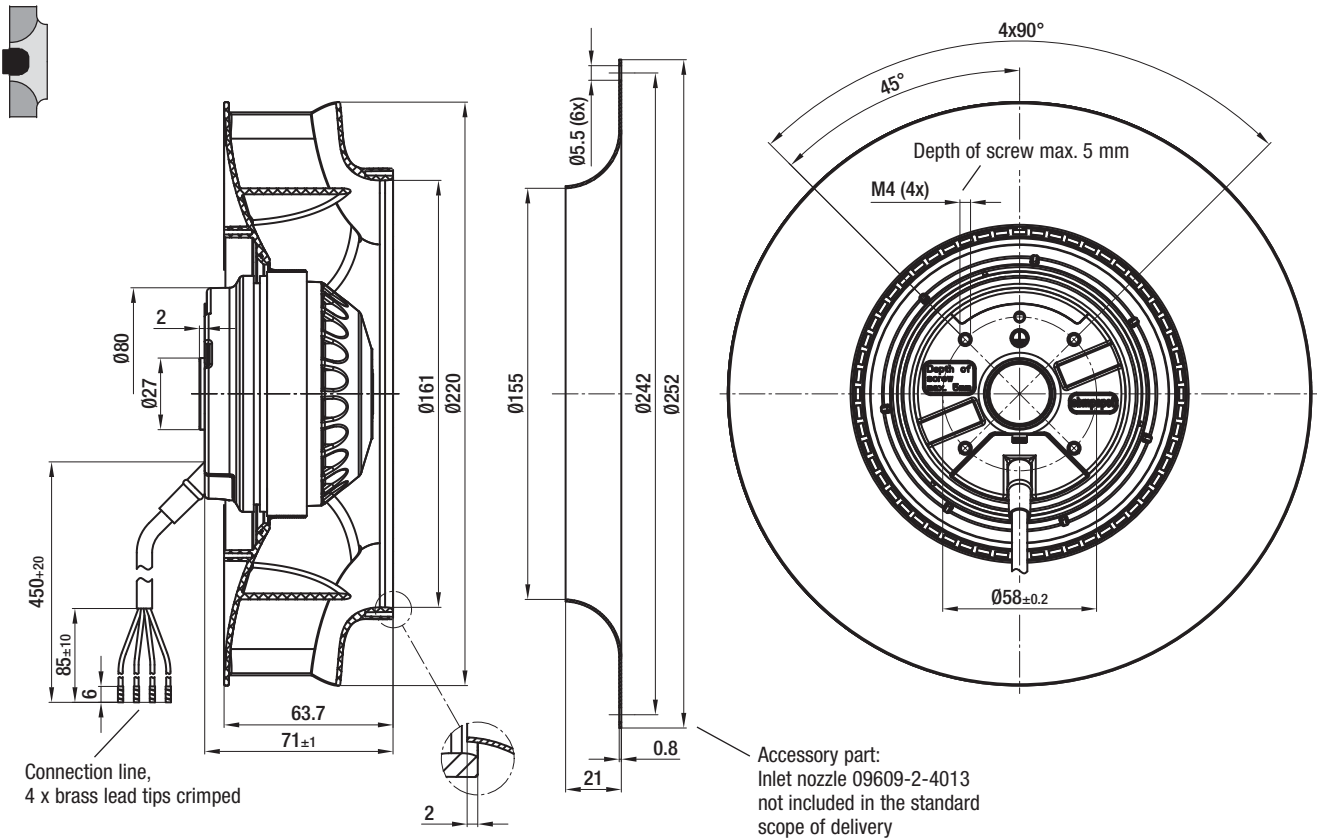
	n rpm	P _{ed} W	I A	L _{WA} dB(A)
(A) 1	2600	90	0,40	70
(A) 2	2575	95	0,43	66
(A) 3	2500	102	0,45	64
(A) 4	2580	95	0,42	67
(B) 1	2900	120	0,53	73
(B) 2	2790	130	0,56	68
(B) 3	2650	135	0,60	66
(B) 4	2795	125	0,55	69

AC centrifugal fans – RadiCal

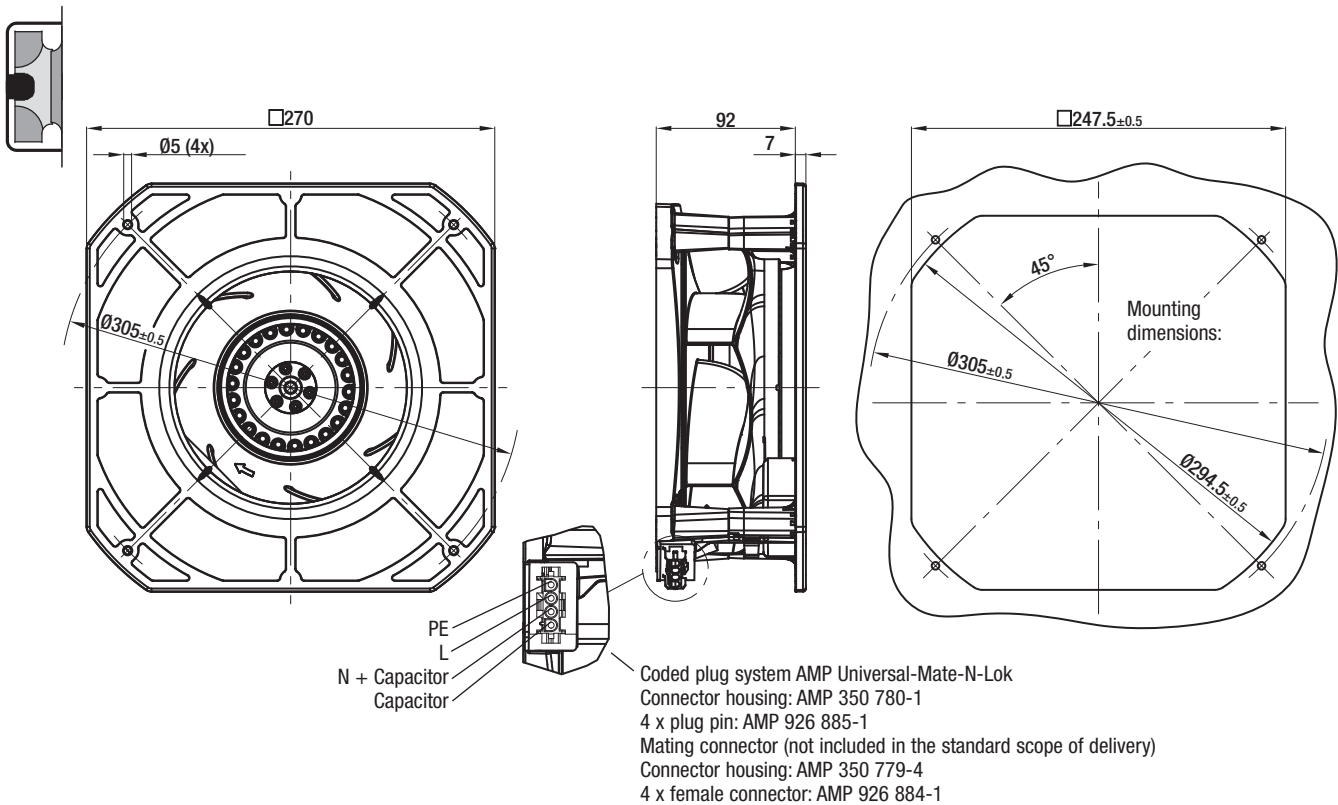
backward curved, Ø 220



R2E 220-RA38-01 / R2E 220-RB06-01 (Centrifugal fan)



K2E 220-RA38-01 / K2E 220-RB06-01 (Centrifugal module with support basket)



AC centrifugal fans – RadiCal

backward curved, Ø 225



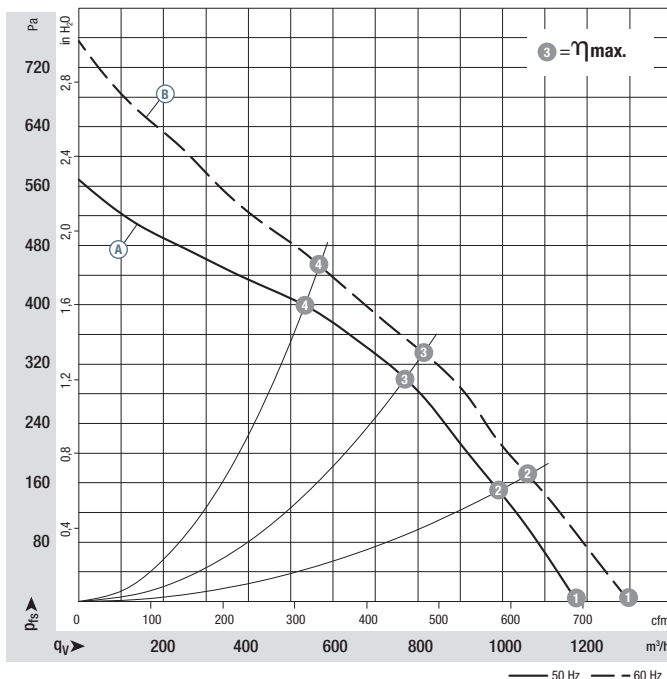
- **Material:** Housing: Plastic PA 6, fibreglass-reinforced
Impeller: Plastic PA 6, fibreglass-reinforced
Rotor: Coated in black
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 44, depending on installation and position in acc. to EN 60034-5
- **Insulation class:** "B"
- **Mounting position:** any
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 170	
*2E 225	M2E 068-DF	Ⓐ 1~ 230	50	2500	155	0,68	3,5 / 450	-25..+70	A1)	
		Ⓑ 1~ 230	60	2600	210	0,92	3,5 / 450	-25..+65		

subject to alterations

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

Curves:



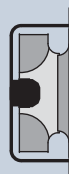
	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓐ ①	2660	130	0,57	73
Ⓐ ②	2575	145	0,64	72
Ⓐ ③	2500	155	0,68	66
Ⓐ ④	2590	145	0,63	69
Ⓑ ①	2900	190	0,83	76
Ⓑ ②	2735	205	0,89	73
Ⓑ ③	2600	210	0,92	68
Ⓑ ④	2750	200	0,88	71

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Motor protection:** TOP wired internally
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable (R2E)
- **Connection leads:** Plug system (K2E)
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** CCC



Mass of centrifugal fan



Mass of centrifugal module with support basket

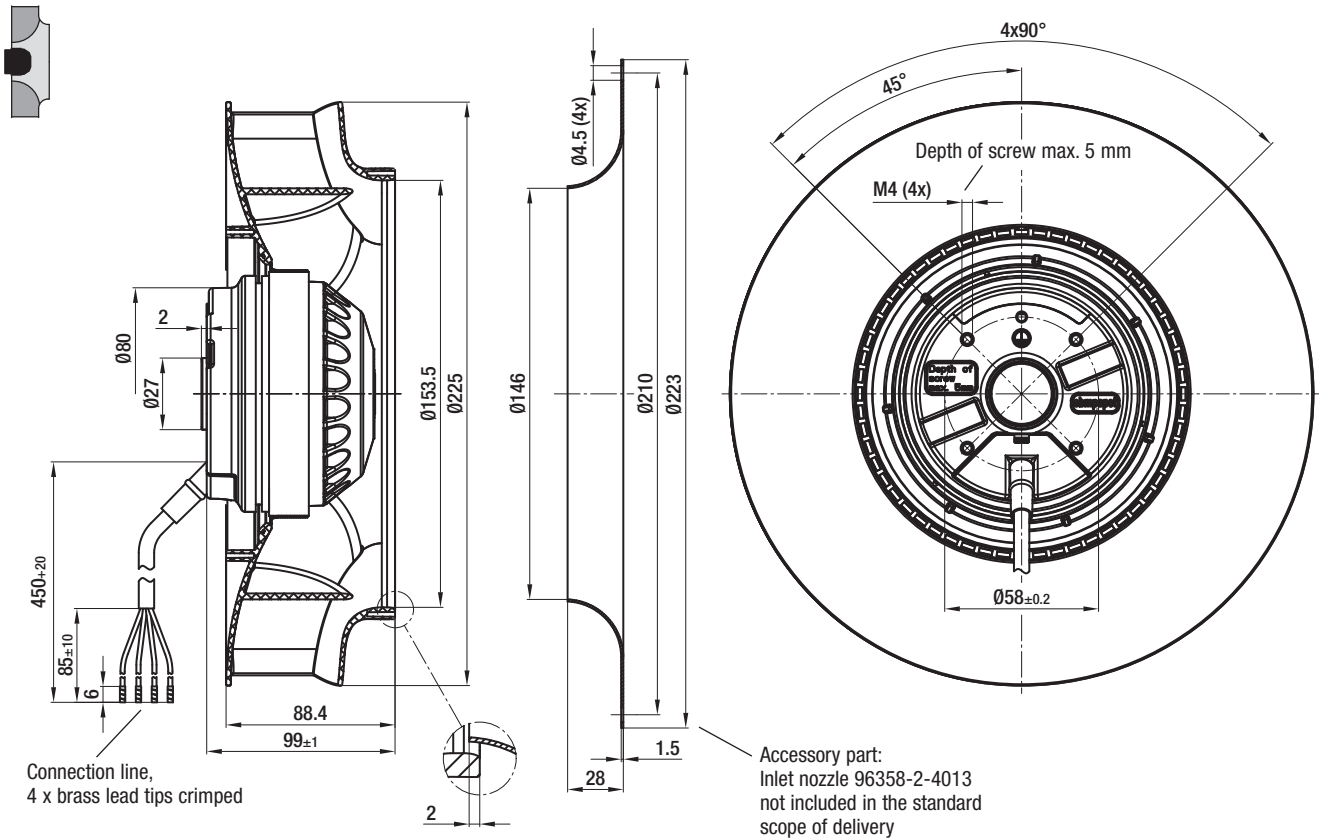
Centrifugal fan	kg	Centrifugal module w. support basket	kg
R2E 225-RA92 -09	2,30	K2E 225-RA92 -01	3,40

AC centrifugal fans – RadiCal

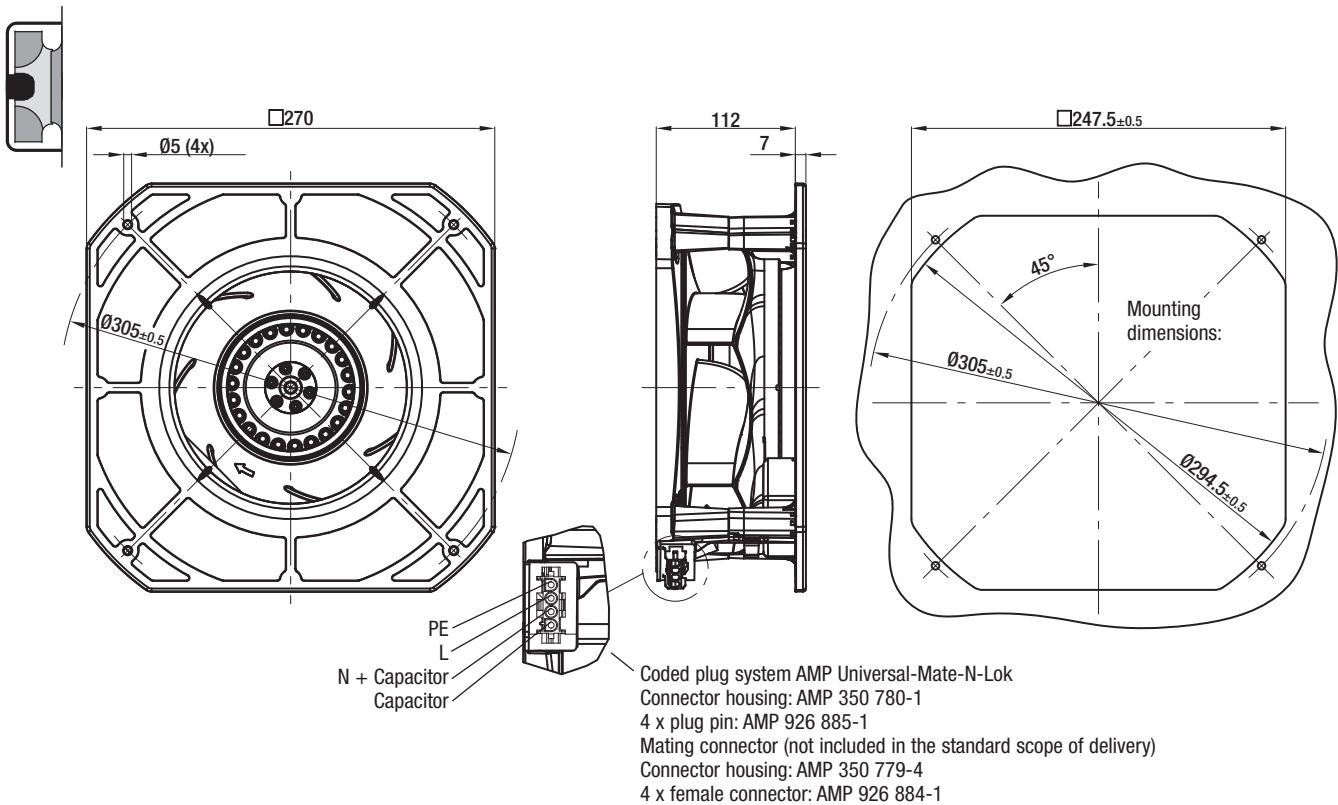
backward curved, Ø 225



R2E 225-RA92-09 (Centrifugal fan)



K2E 225-RA92-01 (Centrifugal module with support basket)



AC centrifugal fans – RadiCal

backward curved, Ø 250



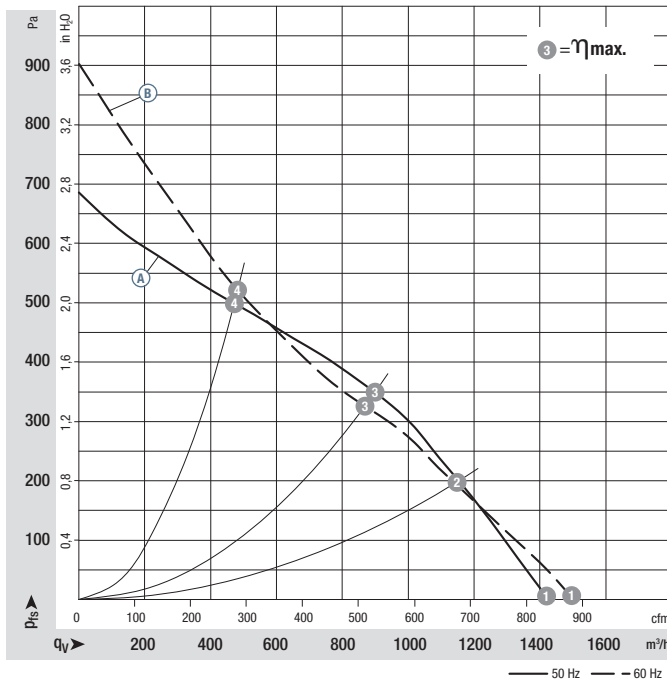
- **Material:** Housing: Plastic PA 6, fibreglass-reinforced
Impeller: Plastic PA 6, fibreglass-reinforced
Rotor: Coated in black
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 44, depending on installation and position in acc. to EN 60034-5
- **Insulation class:** "B"
- **Mounting position:** any
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 170	
*2E 250	M2E 068-EC	Ⓐ 1~ 230	50	2500	210	0,93	5,0 / 400	-25..+70	A1)	
		Ⓑ 1~ 230	60	2450	285	1,25	5,0 / 400	-25..+30		

subject to alterations

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

Curves:



	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓐ ①	2630	180	0,78	75
Ⓐ ②	2525	205	0,91	70
Ⓐ ③	2500	210	0,93	67
Ⓐ ④	2585	190	0,83	72
Ⓑ ①	3220	170	0,76	79
Ⓑ ②	2485	275	1,20	71
Ⓑ ③	2450	285	1,25	67
Ⓑ ④	2650	260	1,15	74

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Motor protection:** TOP wired internally
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable (R2E)
- **Connection leads:** Plug system (K2E)
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** R2E: CCC



Mass of centrifugal fan



Mass of centrifugal module with support basket

Centrifugal fan	kg	Centrifugal module w. support basket	kg
R2E 250-RA50 -01	2,90	K2E 250-RA50 -01 ⁽²⁾	3,70

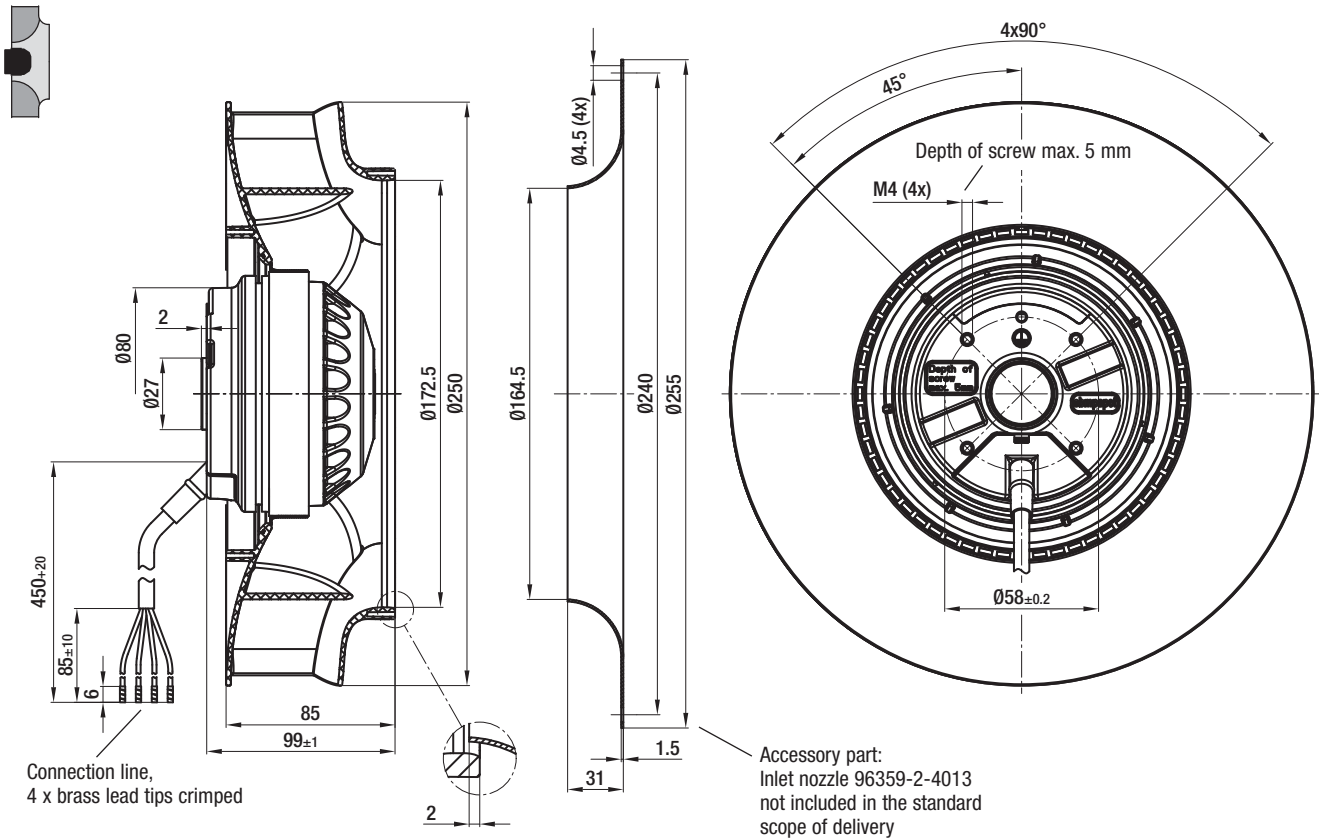
(2) Only applicable by 50 Hz

AC centrifugal fans – RadiCal

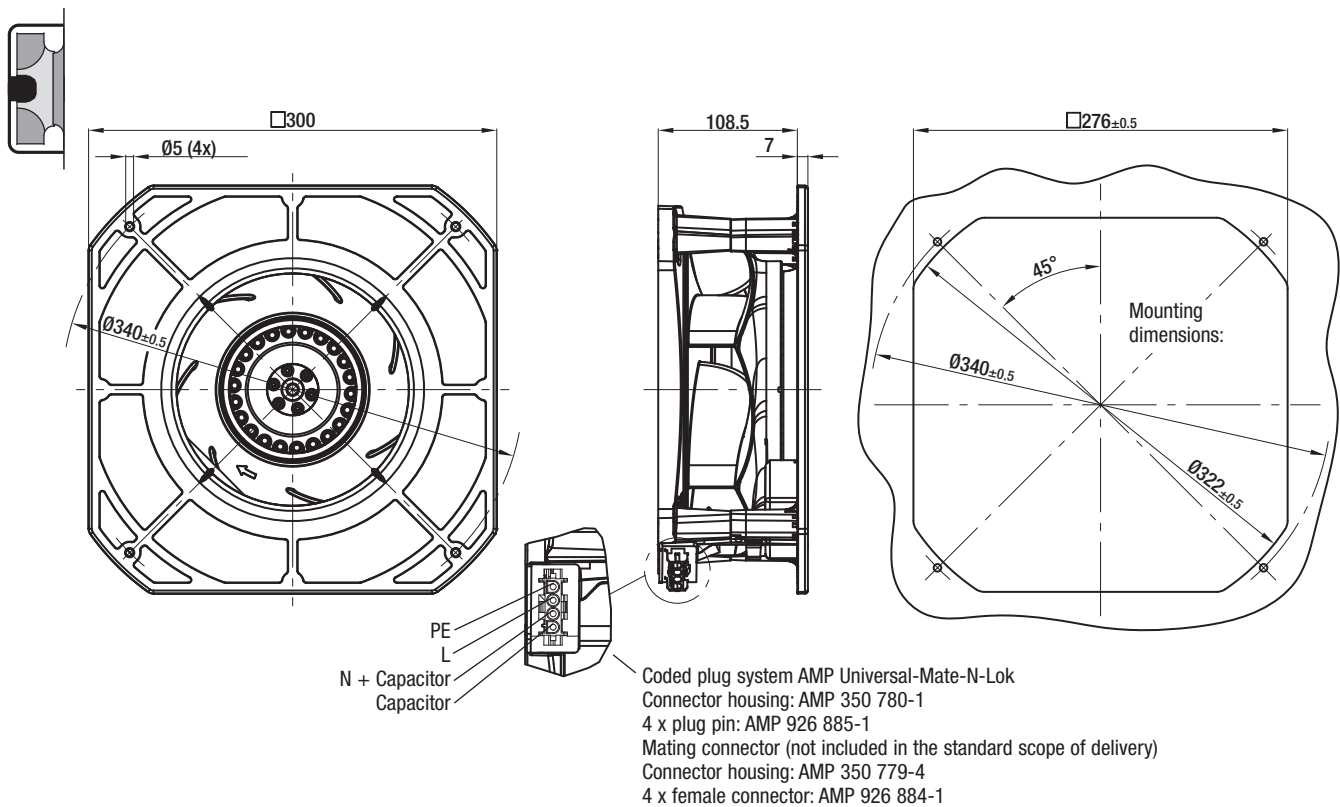
backward curved, Ø 250



R2E 250-RA50-01 (Centrifugal fan)



K2E 250-RA50-01 (Centrifugal module with support basket)



AC centrifugal fans – RadiCal

backward curved, Ø 250



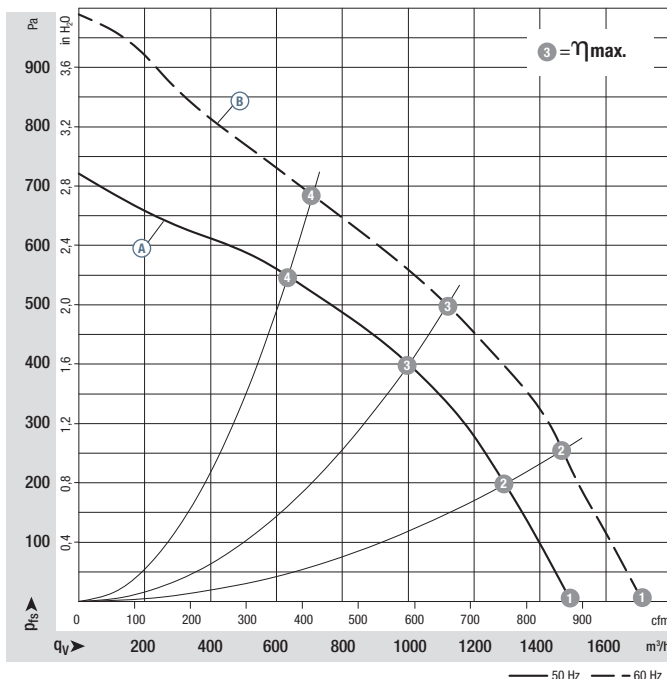
- **Material:** Impeller: Plastic PA 6, fibreglass-reinforced
Rotor: Coated in black
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 44, depending on installation and position in acc. to EN 60034-5
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 170	
*2E 250	M2E 074-EI	Ⓐ 1~ 230	50	2750	250	1,10	5,0 / 450	-25..+70	A1)	
		Ⓑ 1~ 230	60	3100	390	1,71	5,0 / 450	-25..+55		

subject to alterations

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

Curves:



	n	P _{ed}	I	L _{WA}
	rpm	W	A	dB(A)
Ⓐ ①	2800	215	0,95	78
Ⓐ ②	2790	235	1,05	74
Ⓐ ③	2750	250	1,10	71
Ⓐ ④	2800	230	1,00	74
Ⓑ ①	3200	345	1,50	81
Ⓑ ②	3150	370	1,60	77
Ⓑ ③	3100	390	1,71	73
Ⓑ ④	3140	370	1,60	79

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Motor protection:** TOP wired internally
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE, cURus on request



Mass of centrifugal fan

Centrifugal fan

kg

R2E 250-RB06 -01

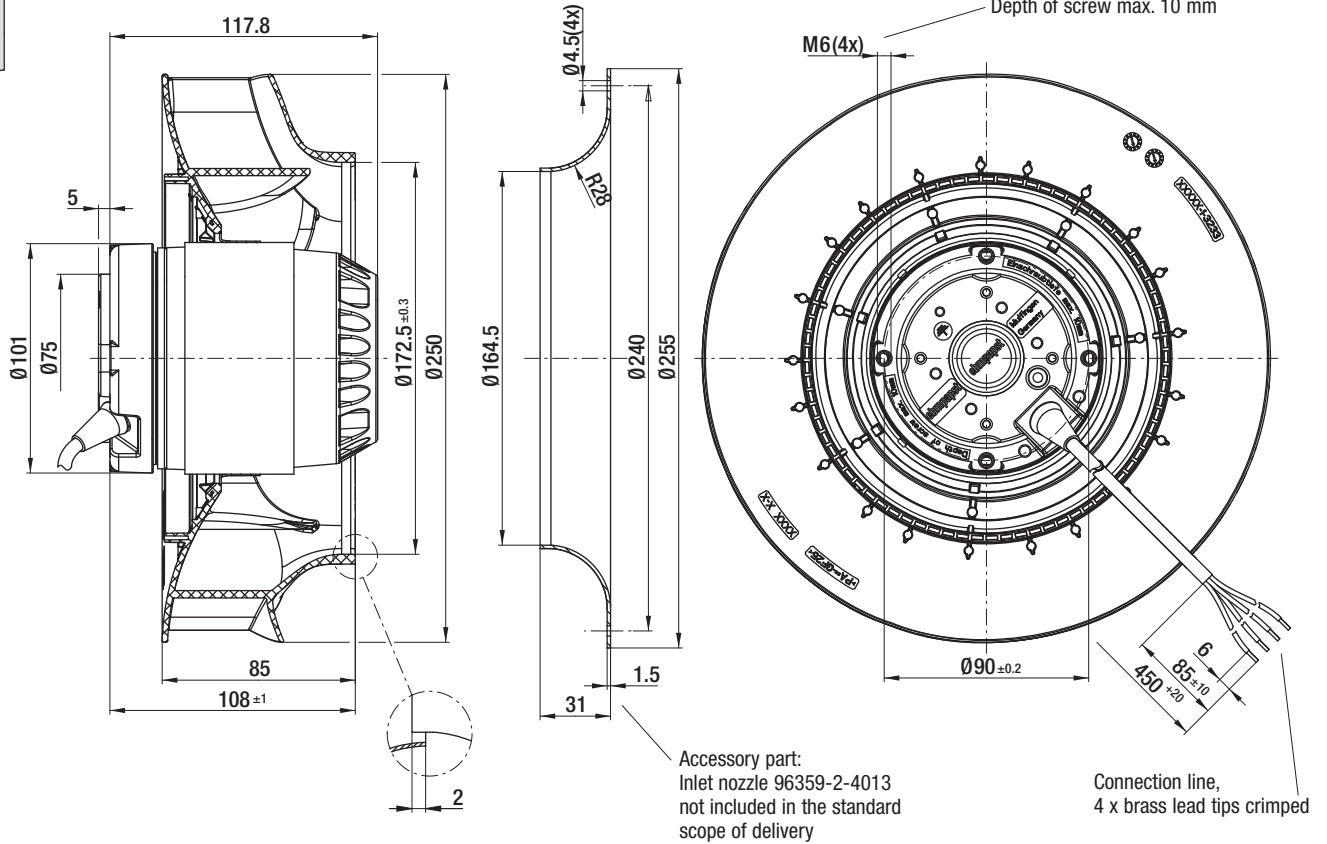
4,10

AC centrifugal fans – RadiCal

backward curved, Ø 250



R2E 250-RB06-01 (Centrifugal fan)



AC centrifugal fans – RadiCal

backward curved, Ø 280



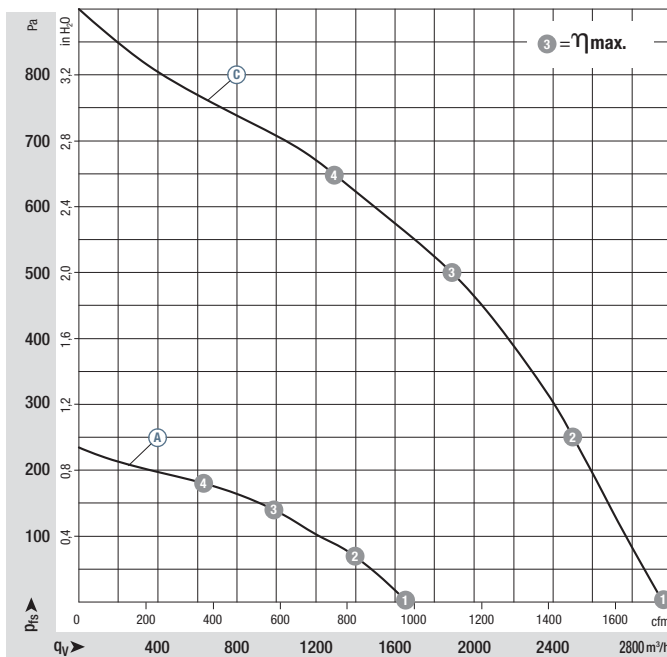
- **Material:** Impeller: Plastic PP
Rotor: Coated in black
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 44, depending on installation and position in acc. to EN 60034-5
- **Insulation class:** Ⓐ Ⓑ "B"; Ⓒ "F"
- **Mounting position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 170 / 171	
*4E 280	M4E 068-DF	Ⓐ	1~ 230	50	1320	90	0,40	2,5 / 400	-25..+65	A1)
		Ⓑ	1~ 230	60	1400	125	0,55	2,5 / 400	-25..+55	
*2D 280	M2D 074-GA	Ⓒ	3~ 400	50	2500	570	0,91	---	-25..+50	D2)

subject to alterations

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

**Curves:
(50 Hz)**



	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓐ ①	1380	73	0,32	66
Ⓐ ②	1340	85	0,37	61
Ⓐ ③	1320	90	0,40	55
Ⓐ ④	1340	84	0,37	57
Ⓒ ①	2640	440	0,73	84
Ⓒ ②	2555	520	0,84	79
Ⓒ ③	2500	570	0,91	73
Ⓒ ④	2540	530	0,84	74

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Motor protection:** Ⓐ Ⓑ TOP wired internally; Ⓒ Connection for external TOP
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Ⓐ Ⓑ Axial; Ⓒ Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** R4E: CCC
R2D: VDE, cURus on request

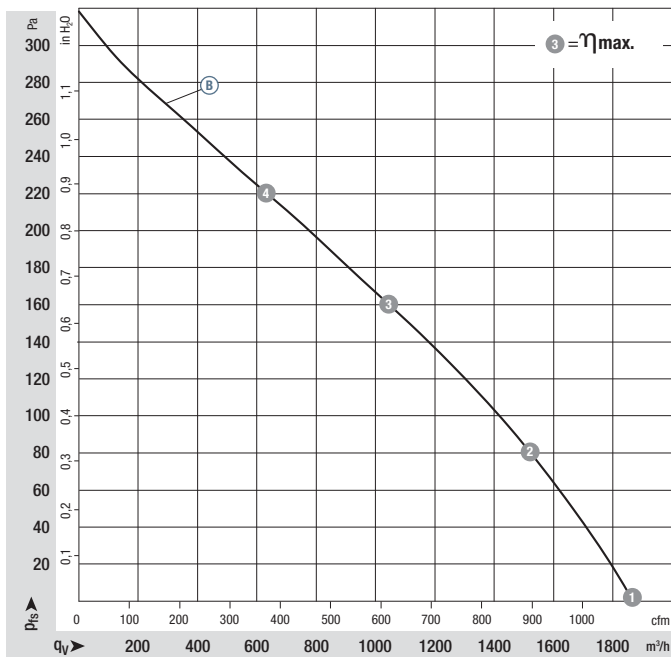


Mass of centrifugal fan

Centrifugal fan	kg
R4E 280-RA28 -05 ⁽²⁾	2,50
R2D 280-RB06 -01 ⁽³⁾	5,40

(2) ErP 2015 (3) ErP 2013

Curves:
(60 Hz)



	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓑ ①	1550	105	0,45	68
Ⓑ ②	1450	120	0,50	62
Ⓑ ③	1400	125	0,55	57
Ⓑ ④	1470	115	0,50	60

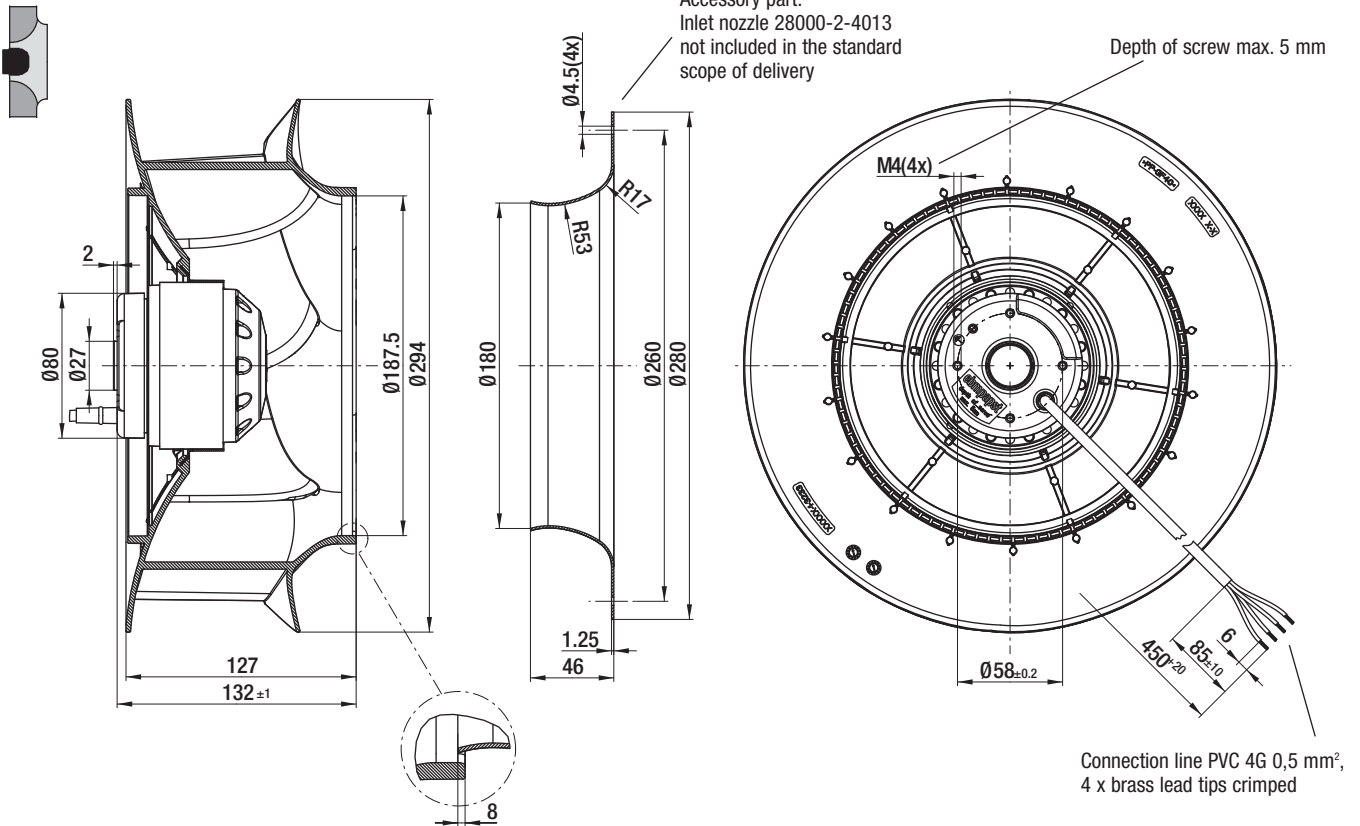
Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

AC centrifugal fans – RadiCal

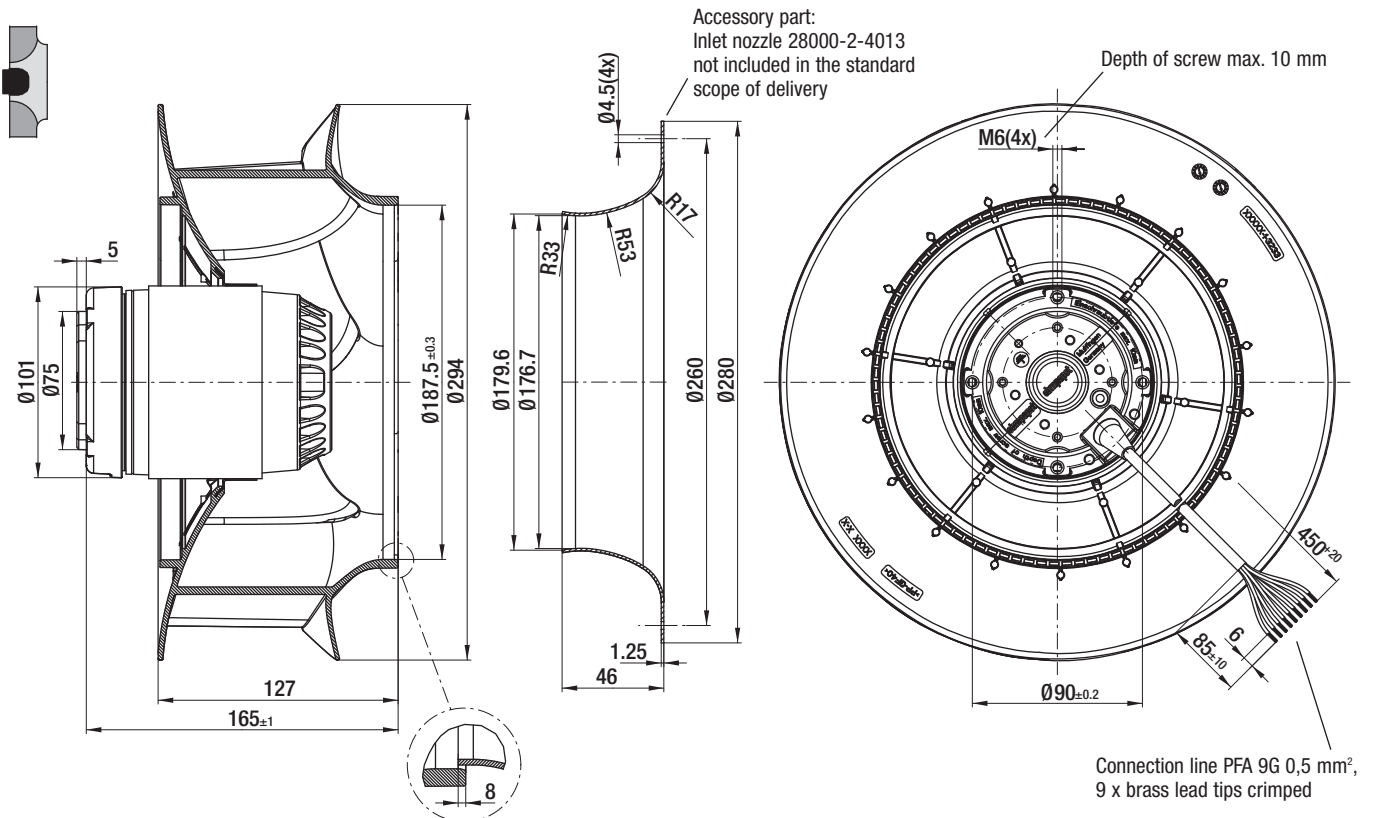
backward curved, Ø 280



R4E 280-RA28-05 (Centrifugal fan)



R2D 280-RB06-01 (Centrifugal fan)



AC centrifugal fans – RadiCal

backward curved, Ø 310



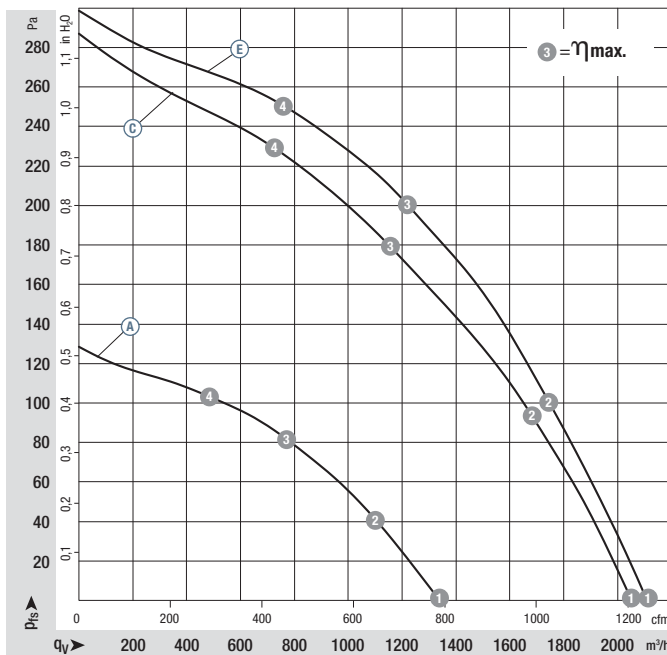
- **Material:** Impeller: Plastic PP
Rotor: Coated in black
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 44, depending on installation and position in acc. to EN 60034-5
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 170 / 171	
*6E 310	M6E 068-EC	(A)	1~ 230	50	890	55	0,25	1,5 / 450	-25..+60	A1)
		(B)	1~ 230	60	1000	69	0,31	1,5 / 450	-25..+60	
*4E 310	M4E 068-EC	(C)	1~ 230	50	1325	137	0,62	4,0 / 400	-25..+60	A1)
		(D)	1~ 230	60	1380	185	0,82	4,0 / 400	-25..+40	
*4D 310	M4D 068-EC	(E)	3~ 400	50	1380	145	0,35	---	-25..+55	D2)
		(F)	3~ 400	60	1550	205	0,37	---	-25..+55	

subject to alterations

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

Curves:
(50 Hz)



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

	n rpm	P_{ed} W	I A	L_{wA} dB(A)
(A) 1	930	48	0,23	57
(A) 2	910	52	0,24	53
(A) 3	890	55	0,25	46
(A) 4	910	52	0,24	47
(C) 1	1390	110	0,50	66
(C) 2	1345	130	0,58	61
(C) 3	1325	137	0,62	56
(C) 4	1355	125	0,57	58
(E) 1	1425	110	0,32	67
(E) 2	1395	130	0,33	62
(E) 3	1380	145	0,35	56
(E) 4	1395	130	0,33	59

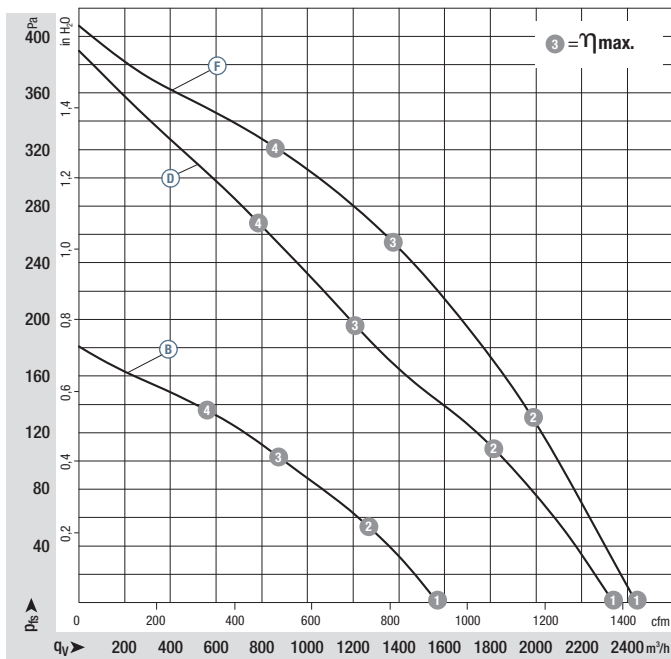
- **Motor protection:** Ⓐ Ⓑ Ⓒ Ⓓ TOP wired internally; Ⓔ Ⓕ Connection for external TOP
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Axial
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE, cURus on request



Mass of centrifugal fan

Centrifugal fan	kg
R6E 310-RA04 -01	3,40
R4E 310-RA06 -01	3,40
R4D 310-RA18 -01	3,40

Curves:
(60 Hz)



	n rpm	P _{ed} W	I A	L _{wA} dB(A)
Ⓑ ①	1085	60	0,26	60
Ⓑ ②	1035	65	0,29	56
Ⓑ ③	1000	69	0,31	49
Ⓑ ④	1040	65	0,28	52
Ⓓ ①	1580	150	0,64	69
Ⓓ ②	1455	175	0,77	63
Ⓓ ③	1380	185	0,82	61
Ⓓ ④	1470	170	0,75	62
Ⓕ ①	1635	150	0,30	70
Ⓕ ②	1580	185	0,34	65
Ⓕ ③	1550	205	0,37	61
Ⓕ ④	1585	180	0,34	66

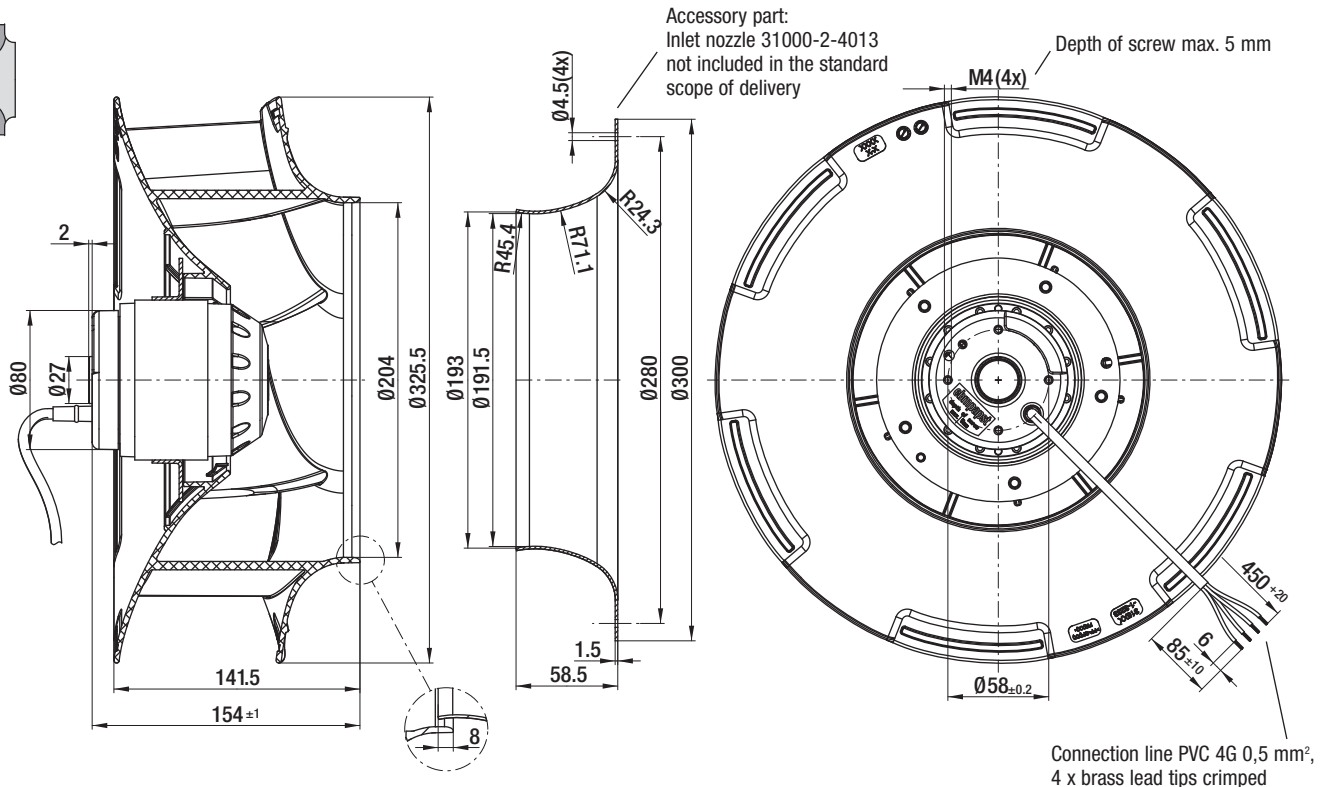
Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

AC centrifugal fans – RadiCal

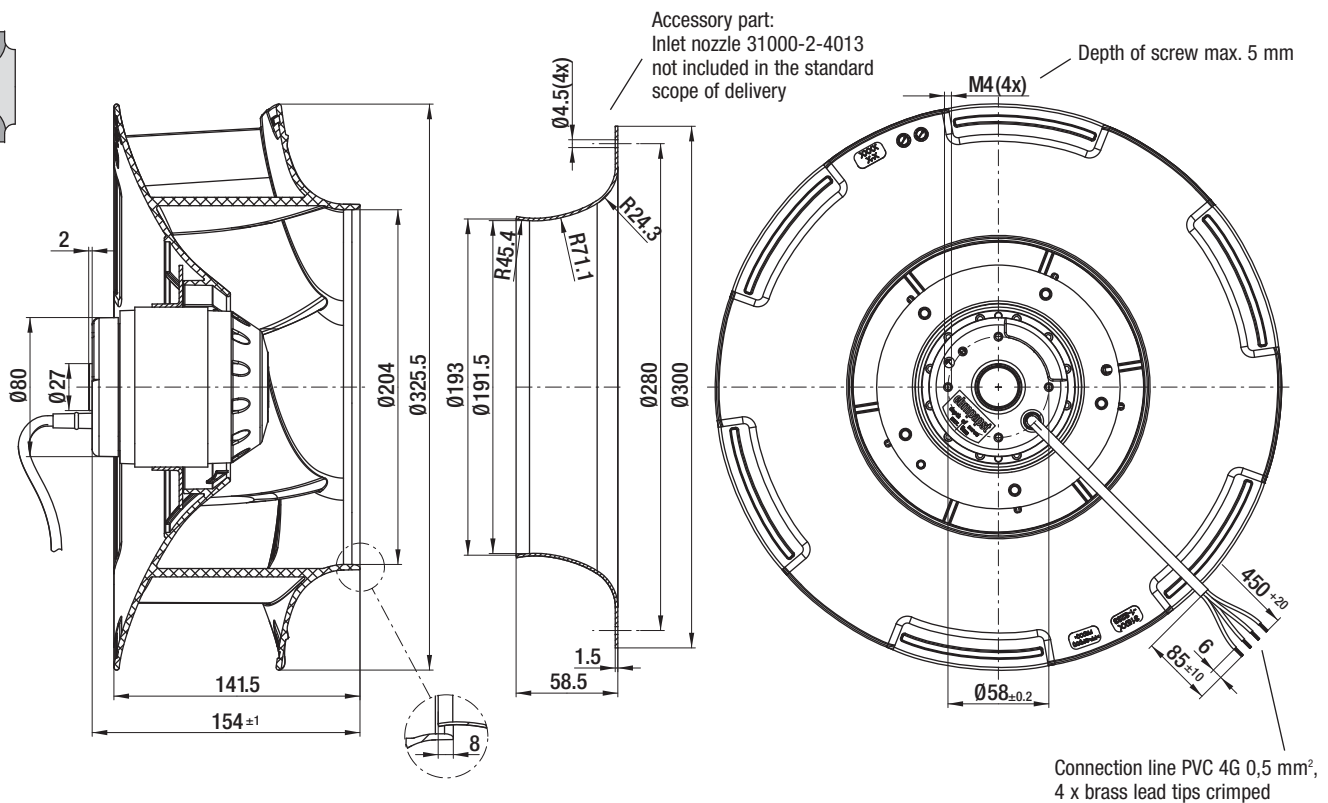
backward curved, Ø 310



R6E 310-RA04-01 (Centrifugal fan)



R4E 310-RA06-01 (Centrifugal fan)

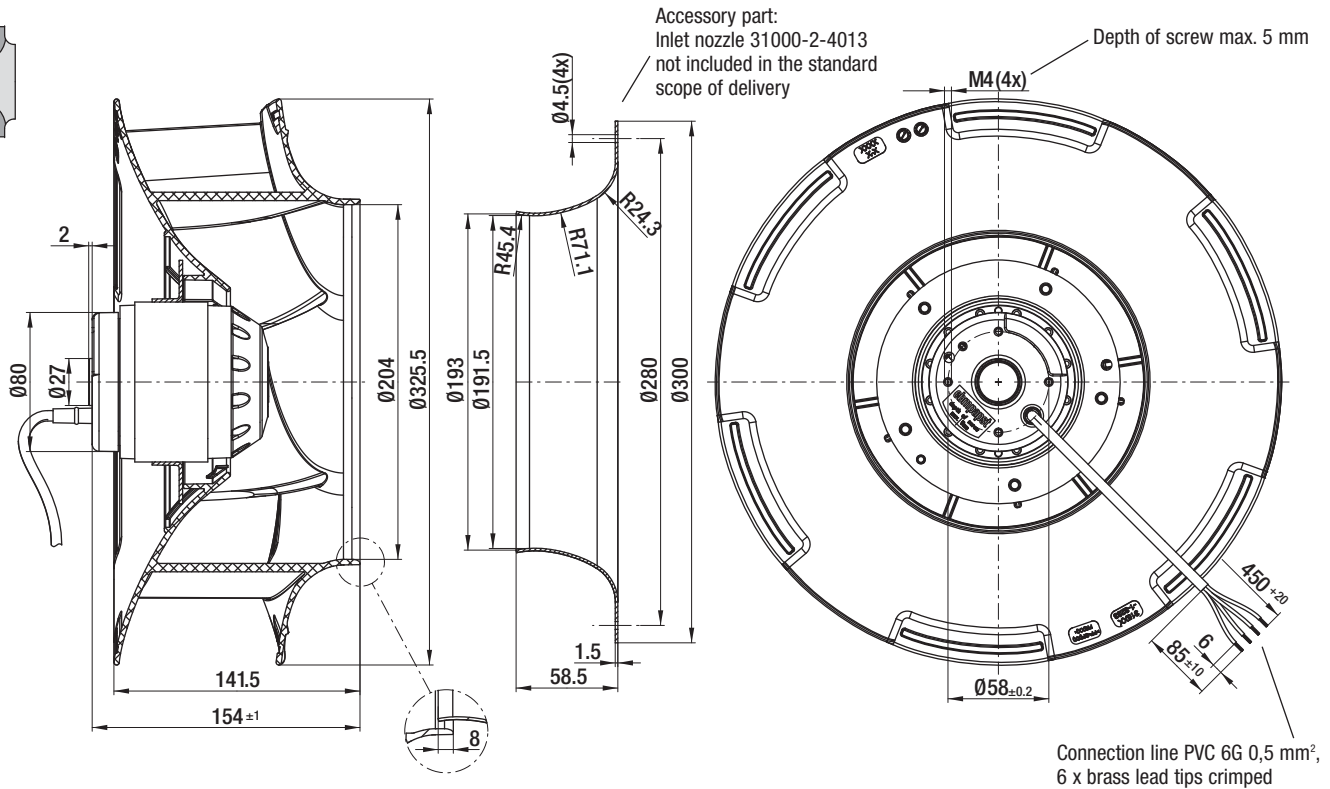


AC centrifugal fans – RadiCal

backward curved, Ø 310



R4D 310-RA18-01 (Centrifugal fan)



AC centrifugal fans – RadiCal

backward curved, Ø 355



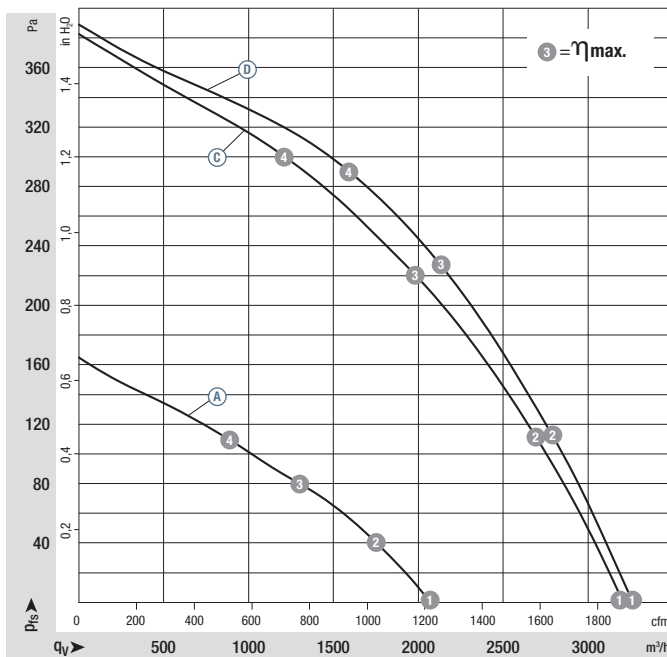
- **Material:** Impeller: Plastic PP
Rotor: Coated in black
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 44, depending on installation and position in acc. to EN 60034-5
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 170 / 171	
*6E 355	M6E 074-DF	Ⓐ 1~ 230	50	830	85	0,37	2,0 / 400	-25..+60	A1)	
		Ⓑ 1~ 230	60	775	105	0,46	2,0 / 400	-25..+50		
*4E 355	M4E 074-GA	Ⓒ 1~ 230	50	1330	270	1,18	6,0 / 400	-25..+60	A1)	
*4D 355	M4D 074-GA	Ⓓ 3~ 400	50	1390	270	0,72	---	-25..+60	D2)	
		Ⓔ 3~ 400	60	1550	400	0,78	---	-25..+40		

subject to alterations

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

Curves:
(50 Hz)



	n rpm	P _{ed} W	I A	L _{wA} dB(A)
Ⓐ ①	905	70	0,32	60
Ⓐ ②	870	80	0,35	55
Ⓐ ③	830	85	0,37	48
Ⓐ ④	845	85	0,36	48
Ⓒ ①	1405	200	0,89	72
Ⓒ ②	1375	230	1,00	66
Ⓒ ③	1330	270	1,18	61
Ⓒ ④	1360	245	1,05	63
Ⓓ ①	1425	205	0,67	72
Ⓓ ②	1405	240	0,69	67
Ⓓ ③	1390	270	0,72	62
Ⓓ ④	1395	265	0,70	62

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

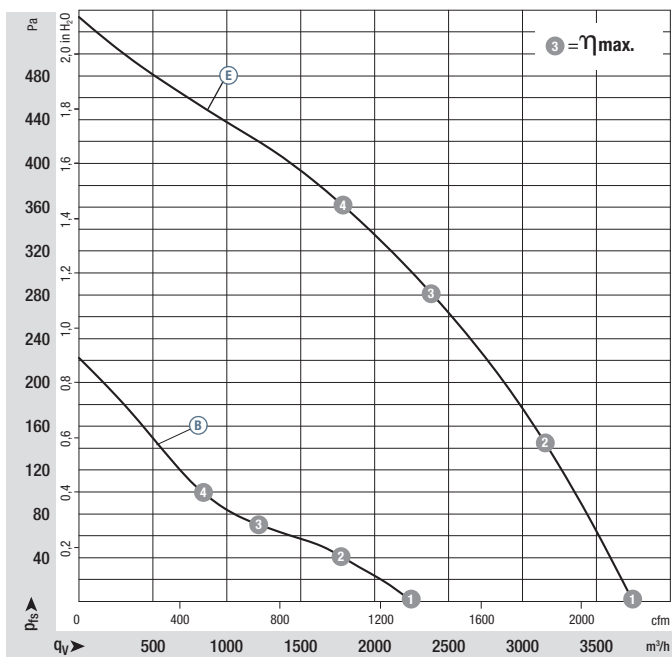
- **Motor protection:** Ⓐ Ⓑ Ⓒ TOP wired internally; Ⓓ Ⓔ Connection for external TOP
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE, cURus on request



Mass of centrifugal fan

Centrifugal fan	kg
R6E 355-RB20 -01	4,20
R4E 355-RB10 -01	5,60
R4D 355-RB10 -01	5,60

Curves:
(60 Hz)



Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

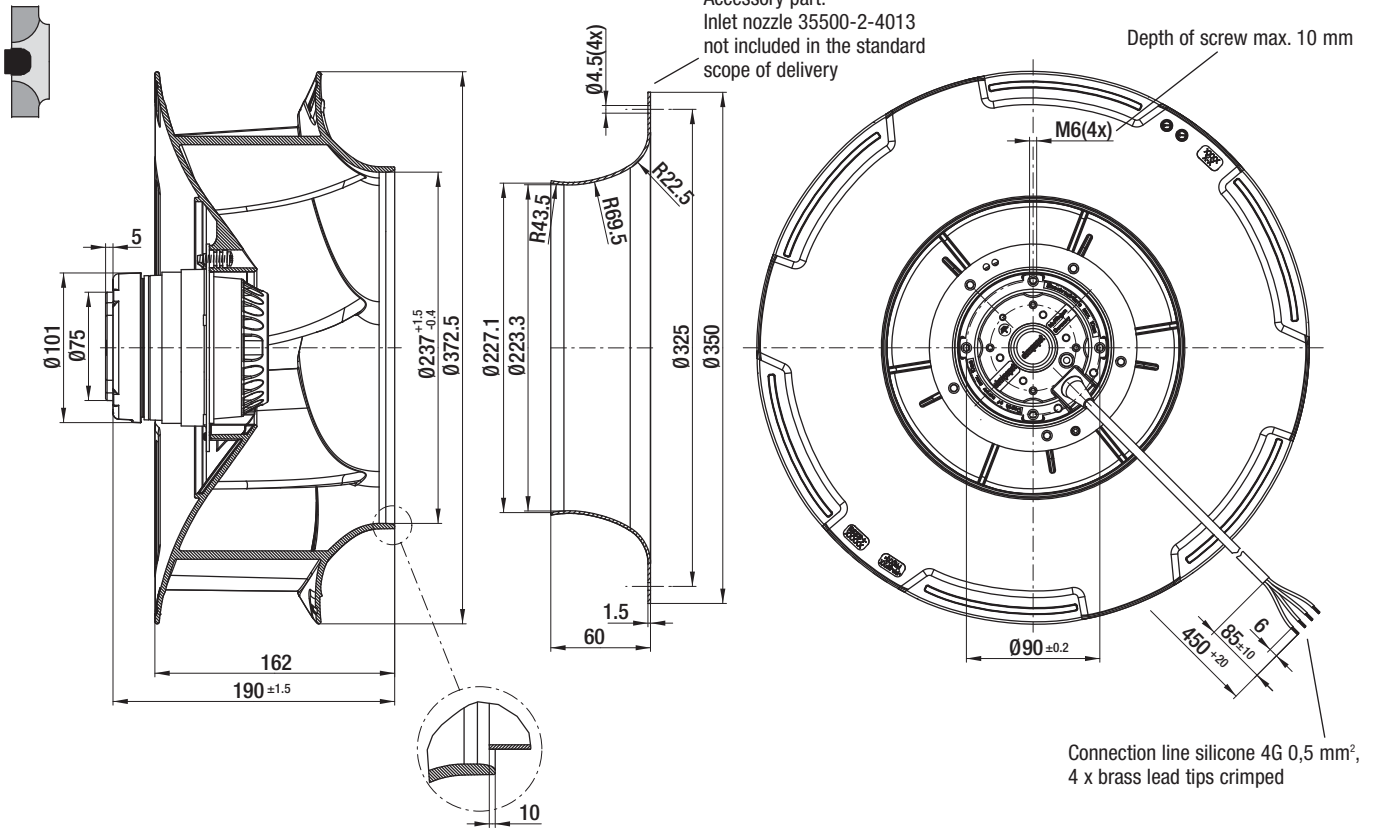
	n rpm	P_{ed} W	I A	L_{wA} dB(A)
Ⓑ ①	985	96	0,44	62
Ⓑ ②	875	100	0,44	55
Ⓑ ③	775	105	0,46	48
Ⓑ ④	805	105	0,45	48
Ⓔ ①	1635	295	0,64	75
Ⓔ ②	1590	355	0,72	70
Ⓔ ③	1550	400	0,78	66
Ⓔ ④	1555	390	0,76	65

AC centrifugal fans – RadiCal

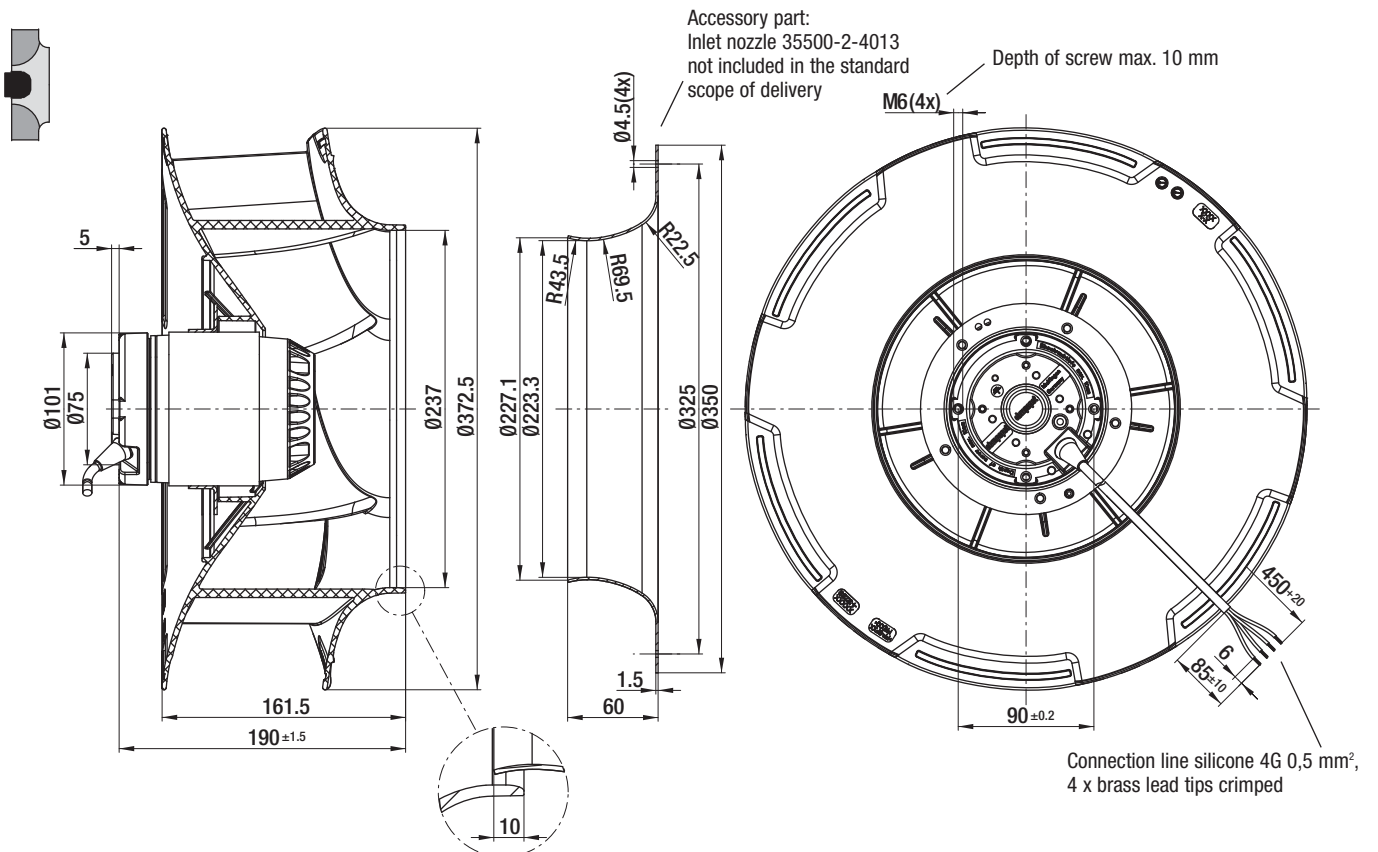
backward curved, Ø 355



R6E 355-RB20-01 (Centrifugal fan)



R4E 355-RB10-01 (Centrifugal fan)

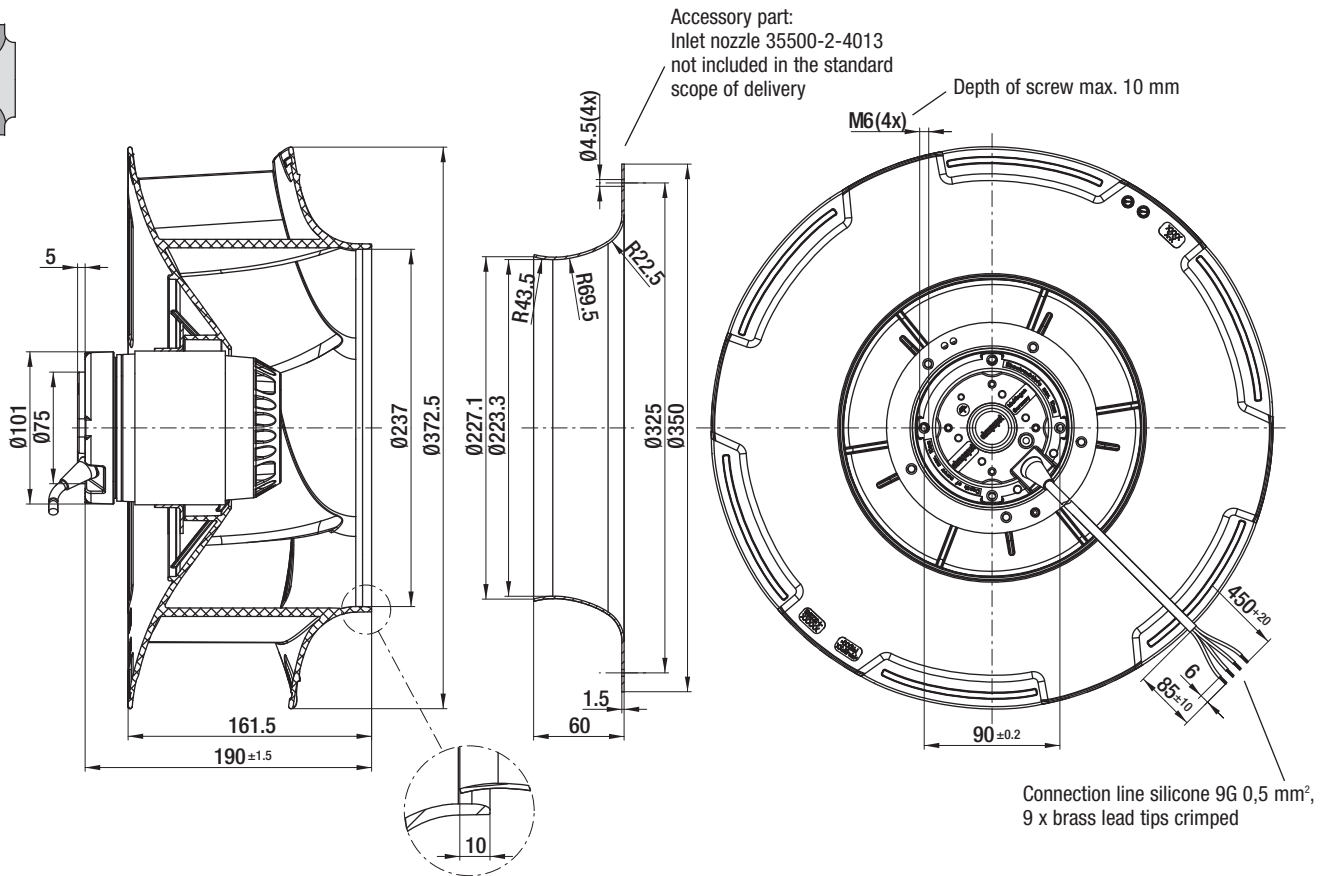


AC centrifugal fans – RadiCal

backward curved, Ø 355



R4D 355-RB10-01 (Centrifugal fan)



AC centrifugal fans – RadiCal

backward curved, Ø 400



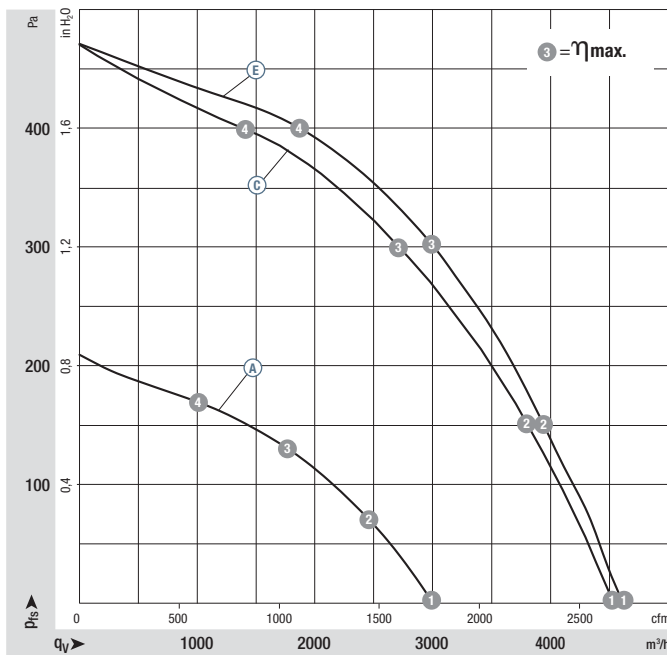
- **Material:** Impeller: Plastic PP
Rotor: Coated in black
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "F"
- **Mounting position:** Any
- **Condensate discharges:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 170 / 171	
*6E 400	M6E 094-FA	(A) 1~ 230	50	880	155	0,68	5,0 / 450	-40..+60	A2a)	
		(B) 1~ 230	60	970	215	0,95	5,0 / 450	-40..+60		
*4E 400	M4E 094-HA	(C) 1~ 230	50	1340	470	2,33	9,0 / 400	-40..+60	A2a)	
		(D) 1~ 230	60	1430	650	3,00	9,0 / 400	-40..+45		
*4D 400	M4D 094-HA	(E) 3~ 400	50	1400	515	1,19	---	-40..+60	F1a)	
		(F) 3~ 400	60	1580	770	1,35	---	-40..+40		

subject to alterations

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

Curves:
(50 Hz)



	n rpm	P _{ed} W	I A	L _{WA} dB(A)
(A) 1	915	130	0,58	69
(A) 2	895	145	0,64	62
(A) 3	880	155	0,68	55
(A) 4	895	145	0,63	55
(C) 1	1395	370	1,95	---
(C) 2	1360	435	2,20	---
(C) 3	1340	470	2,33	---
(C) 4	1380	400	2,05	---
(E) 1	1430	405	1,10	81
(E) 2	1410	480	1,15	75
(E) 3	1400	515	1,19	67
(E) 4	1410	475	1,15	67

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

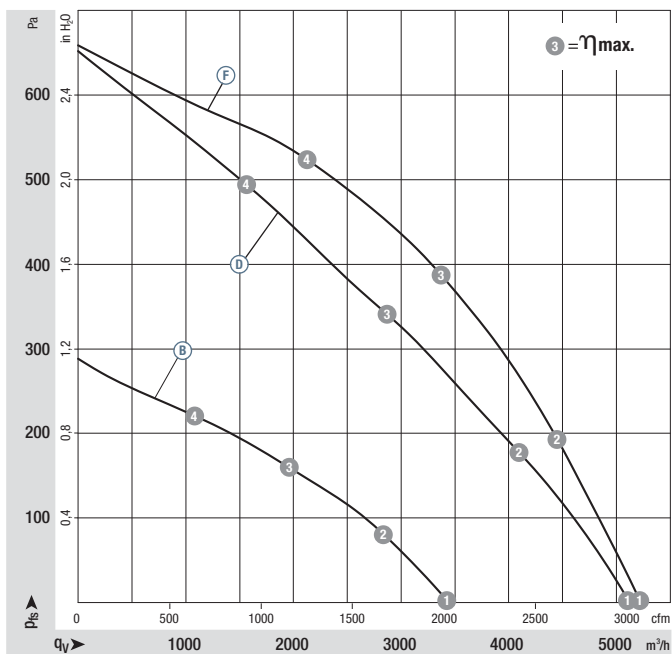
- **Motor protection:** Connection for external TOP
- **Touch current:** $\leq 3,5$ mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** Ⓐ Ⓑ Ⓒ Ⓓ CCC



Mass of centrifugal fan

Centrifugal fan	kg
R6E 400-RN06 -01	7,40
R4E 400-R009 -01	8,50
R4D 400-R022 -01	8,80

Curves:
(60 Hz)



	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓑ ①	1055	195	0,85	70
Ⓑ ②	1005	210	0,91	64
Ⓑ ③	970	215	0,95	57
Ⓑ ④	1020	205	0,90	59
Ⓓ ①	1585	525	2,35	---
Ⓓ ②	1470	625	2,90	---
Ⓓ ③	1430	650	3,00	---
Ⓓ ④	1535	575	2,60	---
Ⓕ ①	1645	600	1,10	85
Ⓕ ②	1605	715	1,25	79
Ⓕ ③	1580	770	1,35	72
Ⓕ ④	1605	700	1,25	73

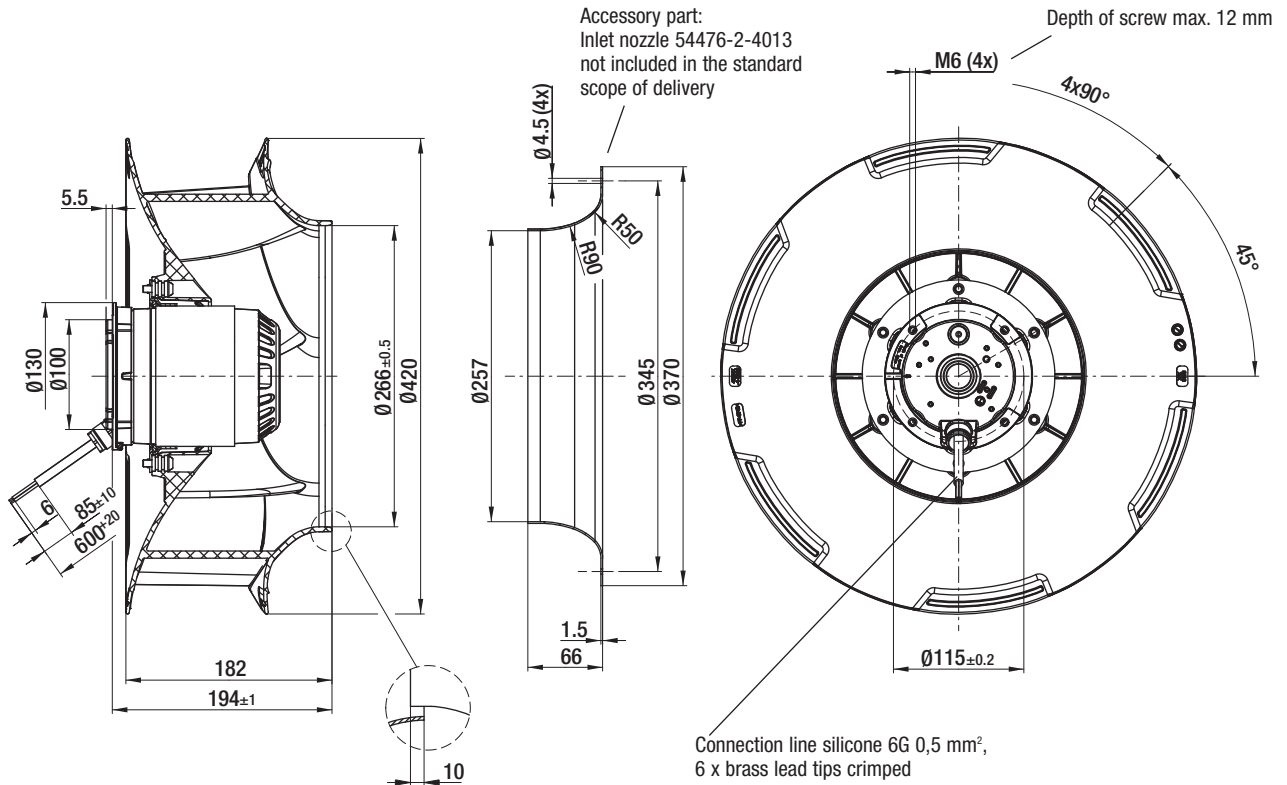
Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

AC centrifugal fans – RadiCal

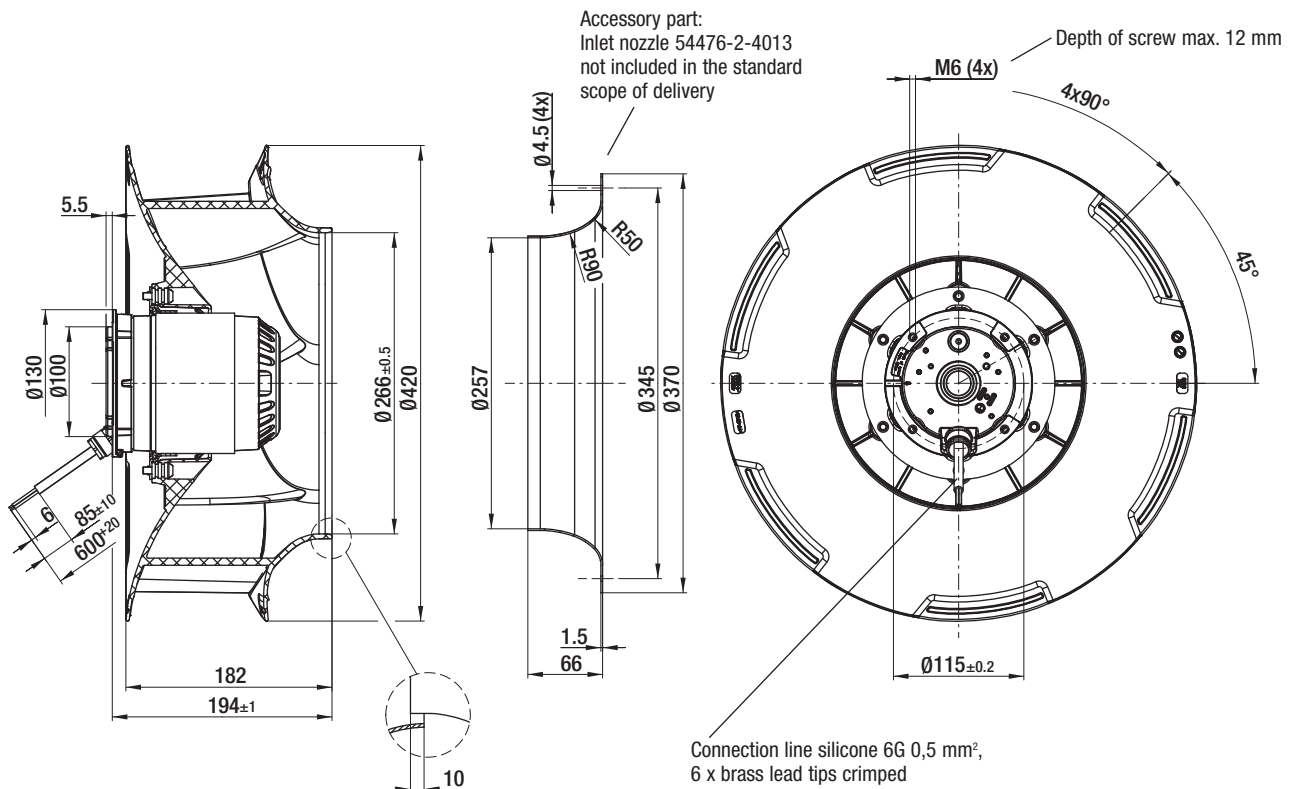
backward curved, Ø 400



R6E 400-RN06-01 (Centrifugal fan)



R4E 400-R009-01 (Centrifugal fan)



AC centrifugal fans – RadiCal

backward curved, Ø 450



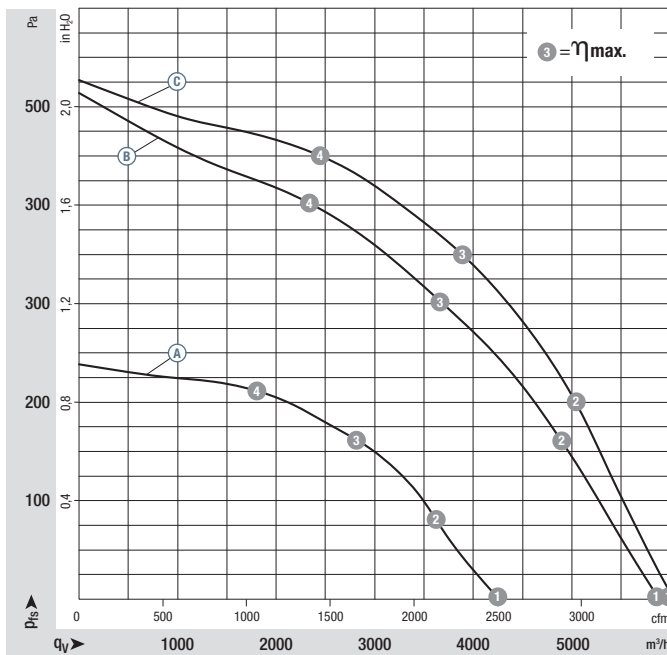
- **Material:** Impeller: Plastic PP
Rotor: Cast in aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "F"
- **Mounting position:** Shaft horizontal or rotor on bottom, rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 170 / 171	
*6E 450	M6E 110-EF	Ⓐ	1~ 230	50	940	285	1,35	8,0 / 450	-40..+60	A1)
*4E 450	M4E 110-GF	Ⓑ	1~ 230	50	1260	690	3,10	14,0 / 450	-40..+55	A1)
*4D 450	M4D 110-GF	Ⓒ	3~ 400	50	1350	710	1,45	---	-40..+60	D2)

subject to alterations

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

Curves:
(50 Hz)



	n rpm	P _{ed} W	I A	L _{wA} dB(A)
Ⓐ ①	960	230	1,15	68
Ⓐ ②	950	260	1,25	65
Ⓐ ③	940	285	1,35	62
Ⓐ ④	945	270	1,30	63
Ⓑ ①	1365	545	2,40	77
Ⓑ ②	1310	630	2,75	74
Ⓑ ③	1260	690	3,10	69
Ⓑ ④	1295	650	2,85	71
Ⓒ ①	1405	495	1,15	77
Ⓒ ②	1370	645	1,30	75
Ⓒ ③	1350	710	1,45	70
Ⓒ ④	1370	650	1,30	73

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Motor protection:** Connection for external TOP
- **Touch current:** $\leq 3,5$ mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** [Ⓐ] [Ⓑ] EN 61800-5-1, CE [Ⓒ] EN 60034, CE
- **Approvals:** VDE, CCC, GOST, UL, CSA



Mass of centrifugal fan

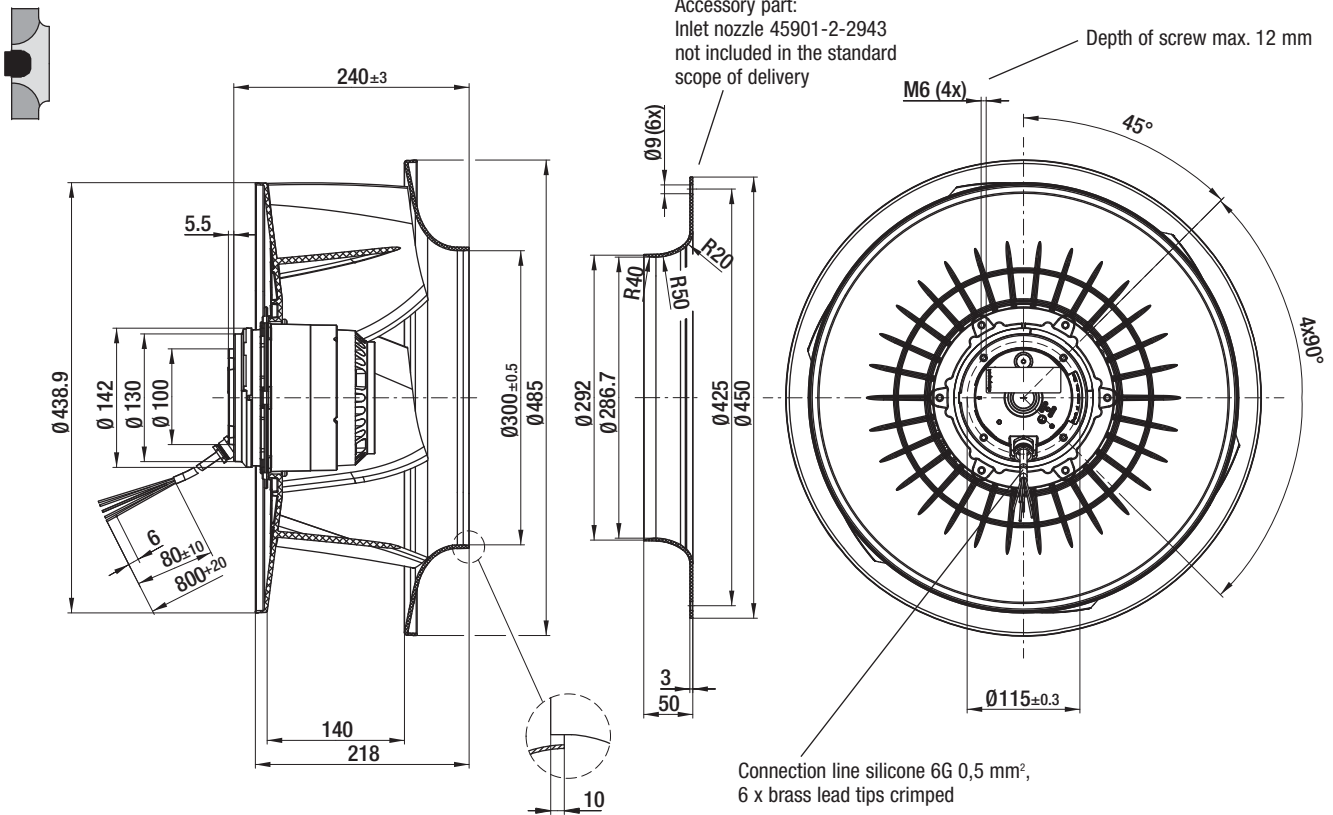
Centrifugal fan	kg
R6E 450-RG01 -01	12,0
R4E 450-RH01 -01	12,0
R4D 450-RH01 -01	9,40

AC centrifugal fans – RadiCal

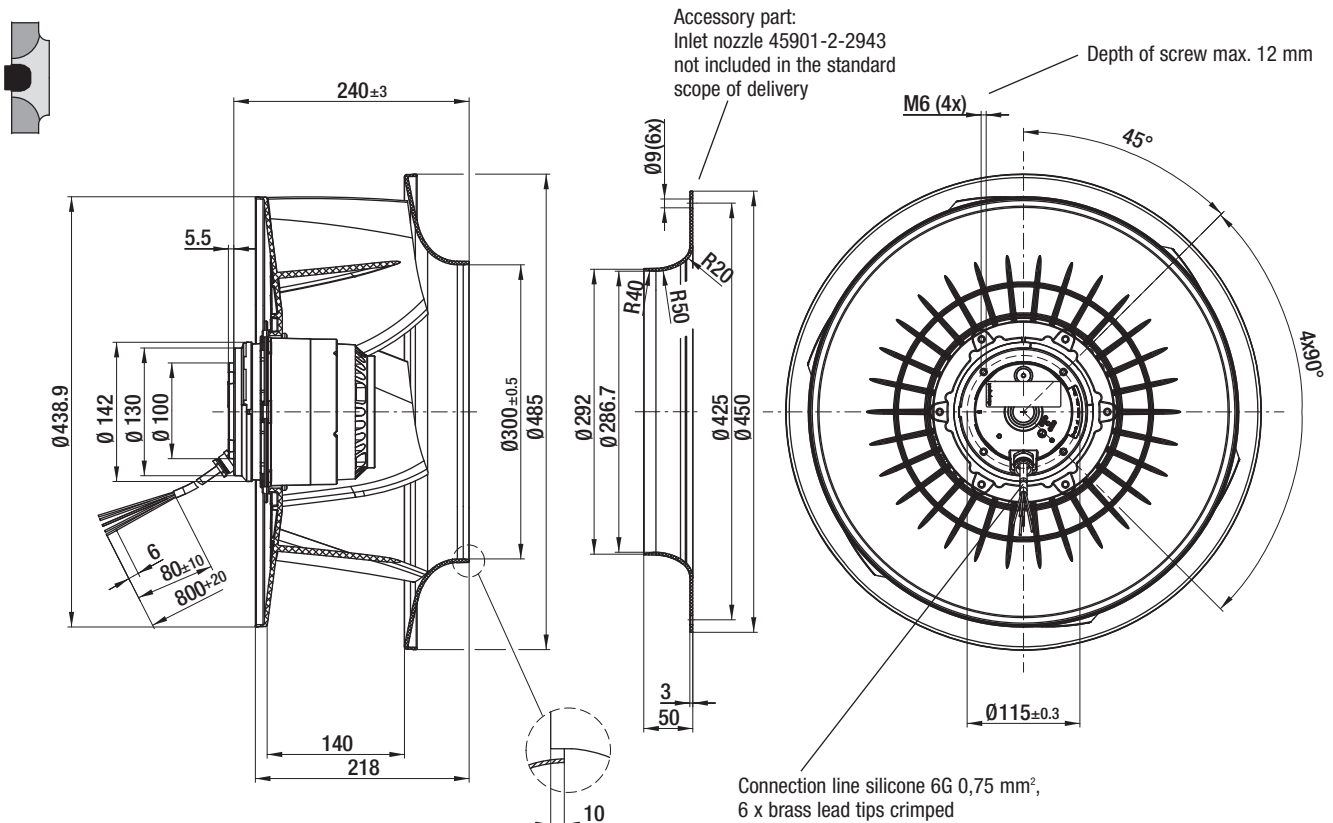
backward curved, Ø 450



R6E 450-RG01-01 (Centrifugal fan)



R4E 450-RH01-01 (Centrifugal fan)

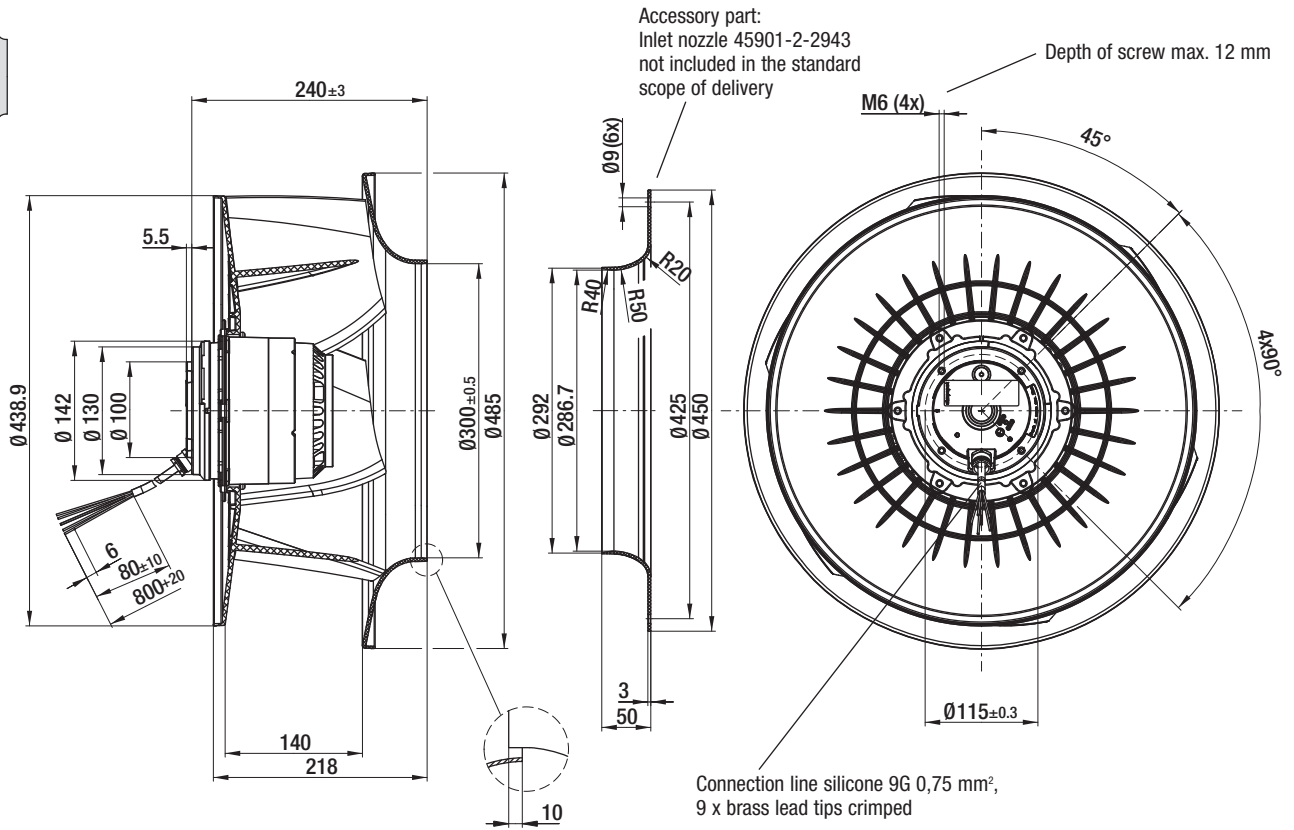


AC centrifugal fans – RadiCal

backward curved, Ø 450



R4D 450-RH01-01 (Centrifugal fan)



AC centrifugal fans – RadiCal

backward curved, Ø 500



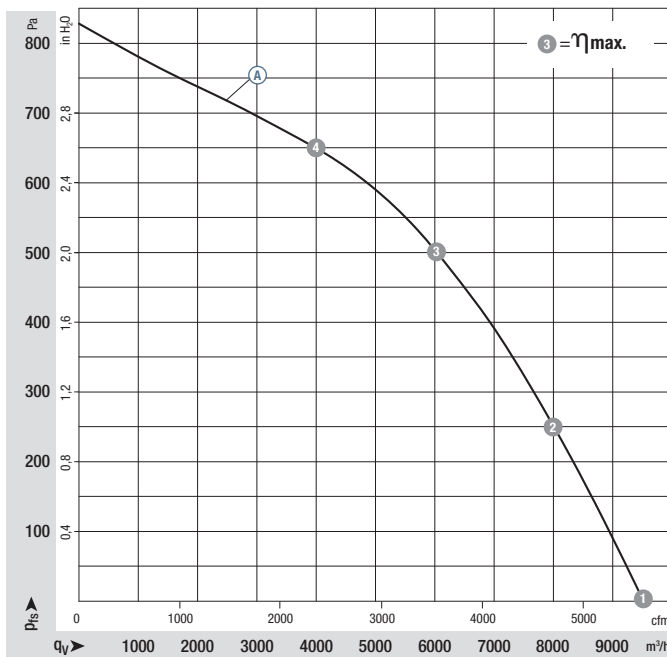
- **Material:** Impeller: Plastic PP
Rotor: Cast in aluminium
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "F"
- **Mounting position:** Any
- **Condensate discharges:** Rotor- and stator-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C		
*4D 500	M4D 138-HF	Ⓐ 3~ 400	50	1370	1520	2,91	---	-40..+70	p. 171	
									D2)	

subject to alterations

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

Curves:
(50 Hz)



	n rpm	P _{ed} W	I A	L _{wA} dB(A)
Ⓐ 1	1410	1125	2,45	81
Ⓐ 2	1390	1350	2,70	77
Ⓐ 3	1370	1520	2,91	73
Ⓐ 4	1380	1385	2,75	73

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Motor protection:** Connection for external TOP
- **Touch current:** $\leq 3,5$ mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Lateral
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60034, EN 61800-5-1, CE
- **Approvals:** VDE, GOST



Mass of centrifugal fan

Centrifugal fan

kg

R4D 500-RA03 -01

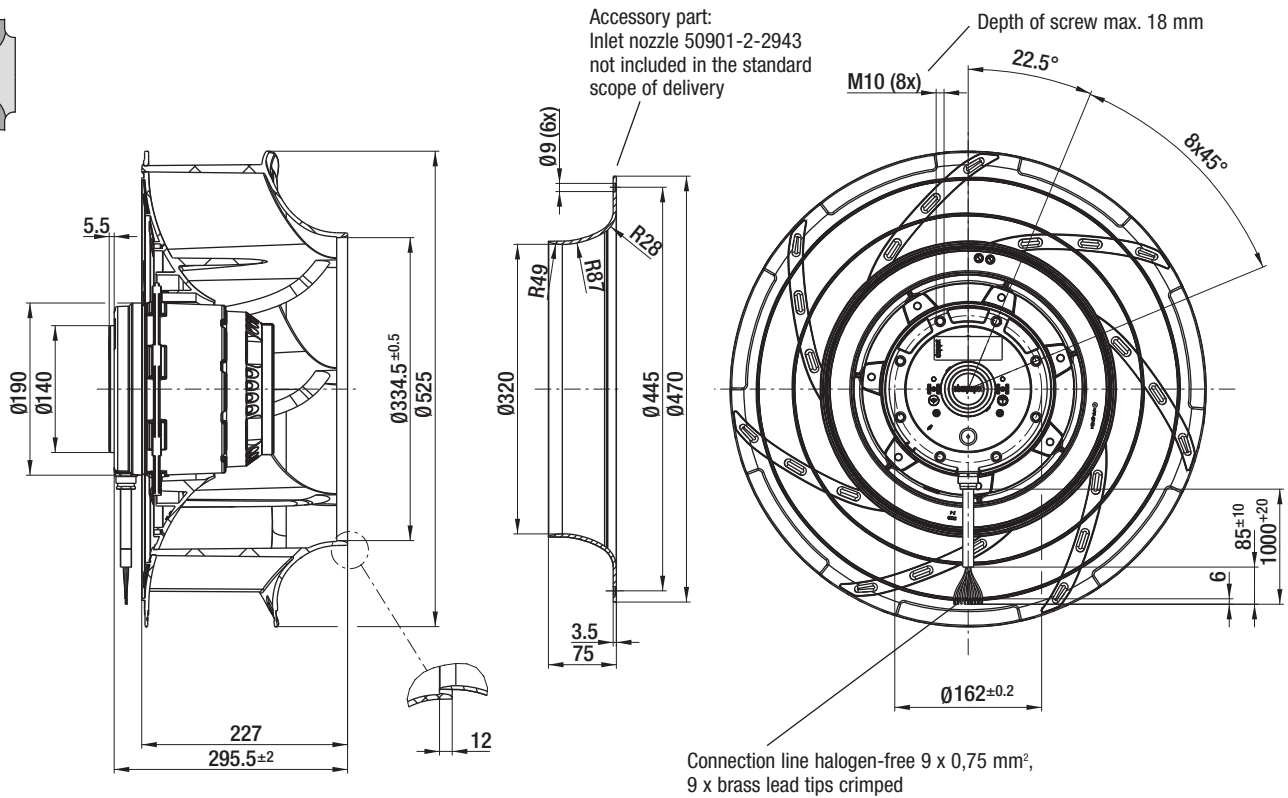
21,5

AC centrifugal fans – RadiCal

backward curved, Ø 500



R4D 500-RA03-01 (Centrifugal fan)



AC centrifugal fans – RadiCal

backward curved, Ø 560



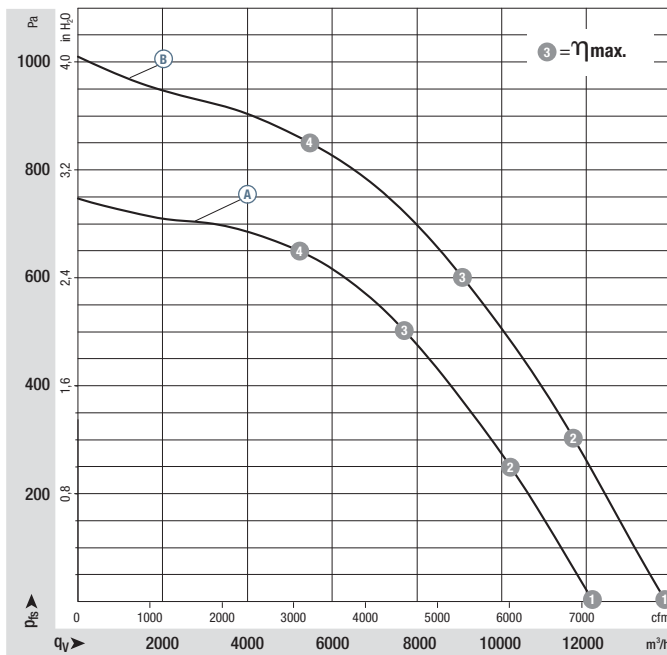
- **Material:** Impeller: Plastic PP
Rotor: Cast in aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "F"
- **Mounting position:** Any
- **Condensate discharges:** Rotor- and stator-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C	p. 171	
*4D 560	M4D 138-LA	Ⓐ 3~ 400	50	1390	1950	3,98	---	-40..+60	D2)	
		Ⓑ 3~ 400	60	1560	2990	5,16	---	-40..+40		

subject to alterations

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

Curves:
(50 Hz)



	n rpm	P _{ed} W	I A	L _{WA} dB(A)
Ⓐ ①	1425	1475	3,45	85
Ⓐ ②	1405	1780	3,75	81
Ⓐ ③	1390	1950	3,98	78
Ⓐ ④	1400	1850	3,85	79
Ⓑ ①	1635	2275	4,05	88
Ⓑ ②	1590	2730	4,75	84
Ⓑ ③	1560	2990	5,16	81
Ⓑ ④	1585	2785	4,80	83

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

- **Motor protection:** Connection for external TOP
- **Touch current:** $\leq 3,5$ mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Lateral
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60034, EN 61800-5-1, CE
- **Approvals:** VDE, GOST



Mass of centrifugal fan

Centrifugal fan

kg

R4D 560-RB03 -01

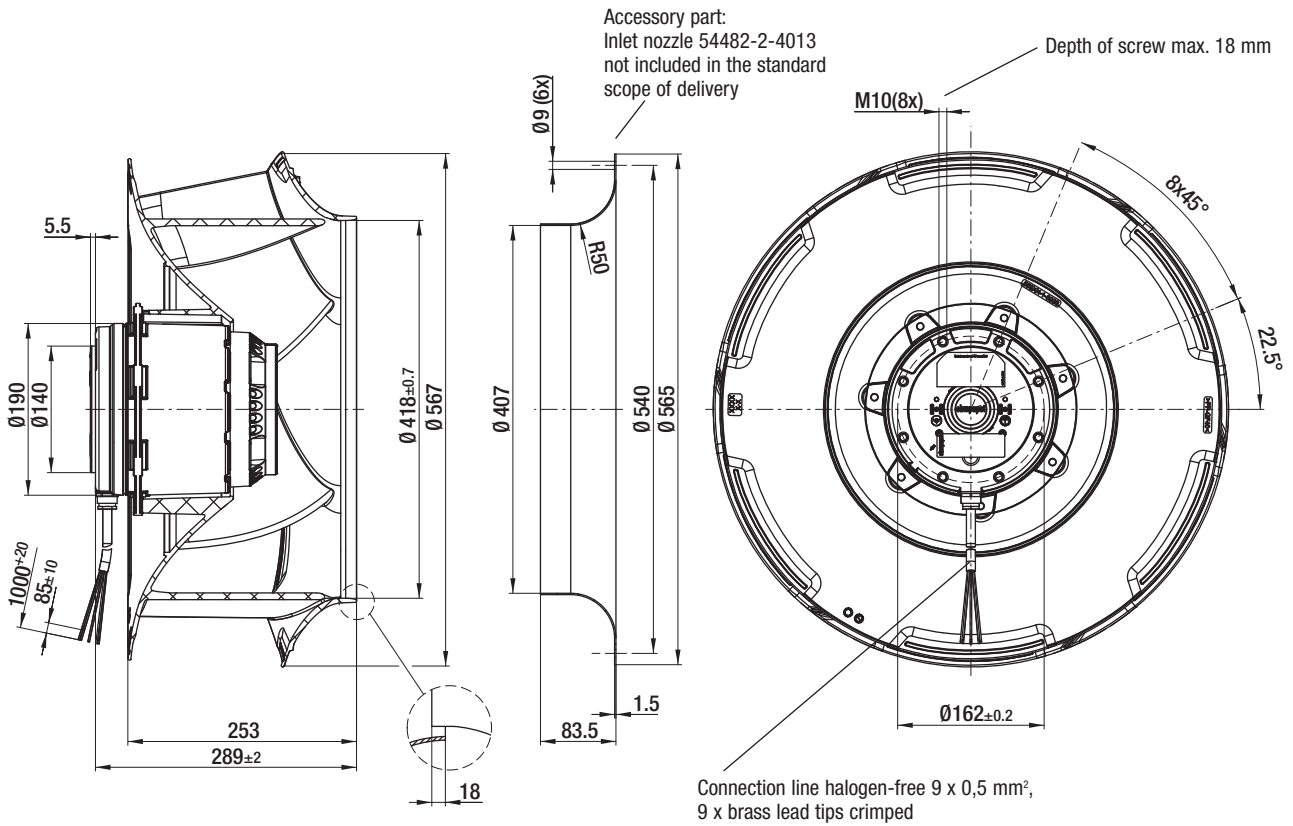
25,5

AC centrifugal fans – RadiCal

backward curved, Ø 560



R4D 560-RB03-01 (Centrifugal fan)



AC centrifugal fans – RadiCal

backward curved, Ø 630



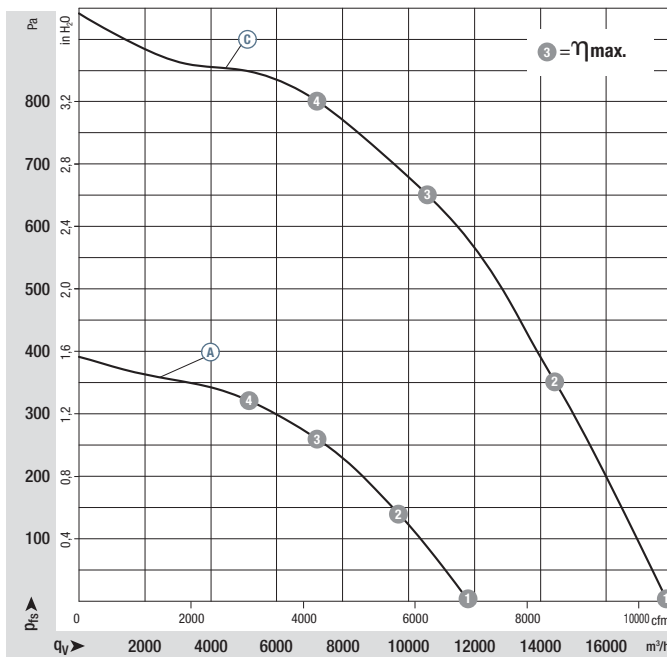
- **Material:** Impeller: Plastic PP
Rotor: Cast in aluminium
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, seen on rotor
- **Type of protection:** (A) (B) IP 54, (C) IP 20
- **Insulation class:** "F"
- **Mounting position:** Any
- **Condensate discharges:** (A) (B) Rotor- and stator-side, (C) Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data		Curve	Nominal voltage	Frequency	Speed/rpm ⁽¹⁾	Max. input power ⁽¹⁾	Max. current draw ⁽¹⁾	Capacitor	Perm. amb. temp.	Electrical connection
Type	Motor	VAC	Hz	rpm	W	A	µF/VDB	°C		
*6D 630	M6D 138-HF	(A)	3~ 400	50	880	1030	2,20	---	-40..+60	D2)
		(B)	3~ 400	60	940	1440	2,81	---	-40..+60	
*4D 630	M4D 138-LA	(C)	3~ 400	50	1345	3570	6,63	---	-40..+40	D2)

subject to alterations

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

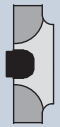
Curves:
(50 Hz)



	n rpm	P _{ed} W	I A	L _{WA} dB(A)
(A) 1	925	735	1,85	79
(A) 2	895	935	2,10	73
(A) 3	880	1030	2,20	71
(A) 4	885	995	2,15	72
(C) 1	1400	2570	5,15	90
(C) 2	1360	3315	6,25	84
(C) 3	1345	3570	6,63	81
(C) 4	1350	3395	6,35	83

Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

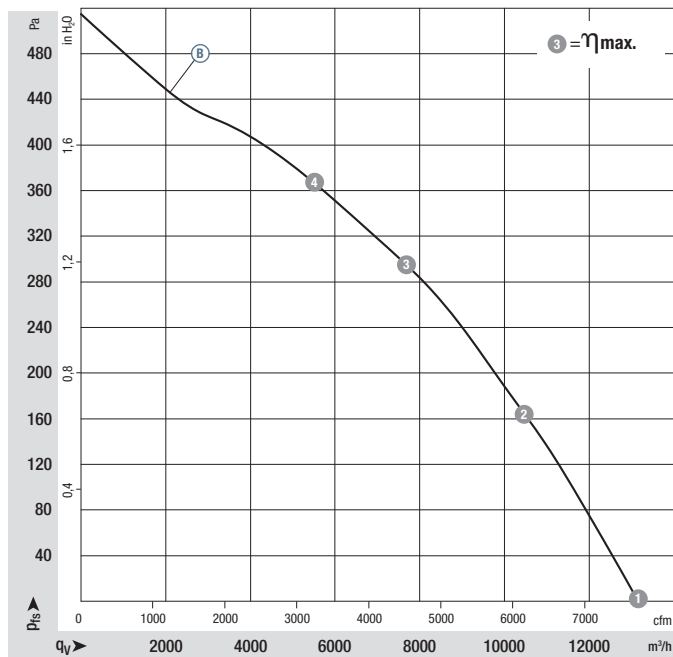
- **Motor protection:** Connection for external TOP
- **Touch current:** $\leq 3,5$ mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Lateral
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60034, EN 61800-5-1, CE
- **Approvals:** VDE, GOST



Mass of centrifugal fan

Centrifugal fan	kg
R6D 630-RA07 -01	25,0
R4D 630-RB15 -01	28,0

Curves:
(60 Hz)



	n rpm	P_{ed} W	I A	L_{wA} dB(A)
ⓑ ①	1030	1090	2,20	83
ⓑ ②	970	1340	2,65	75
ⓑ ③	940	1440	2,81	72
ⓑ ④	945	1410	2,75	73

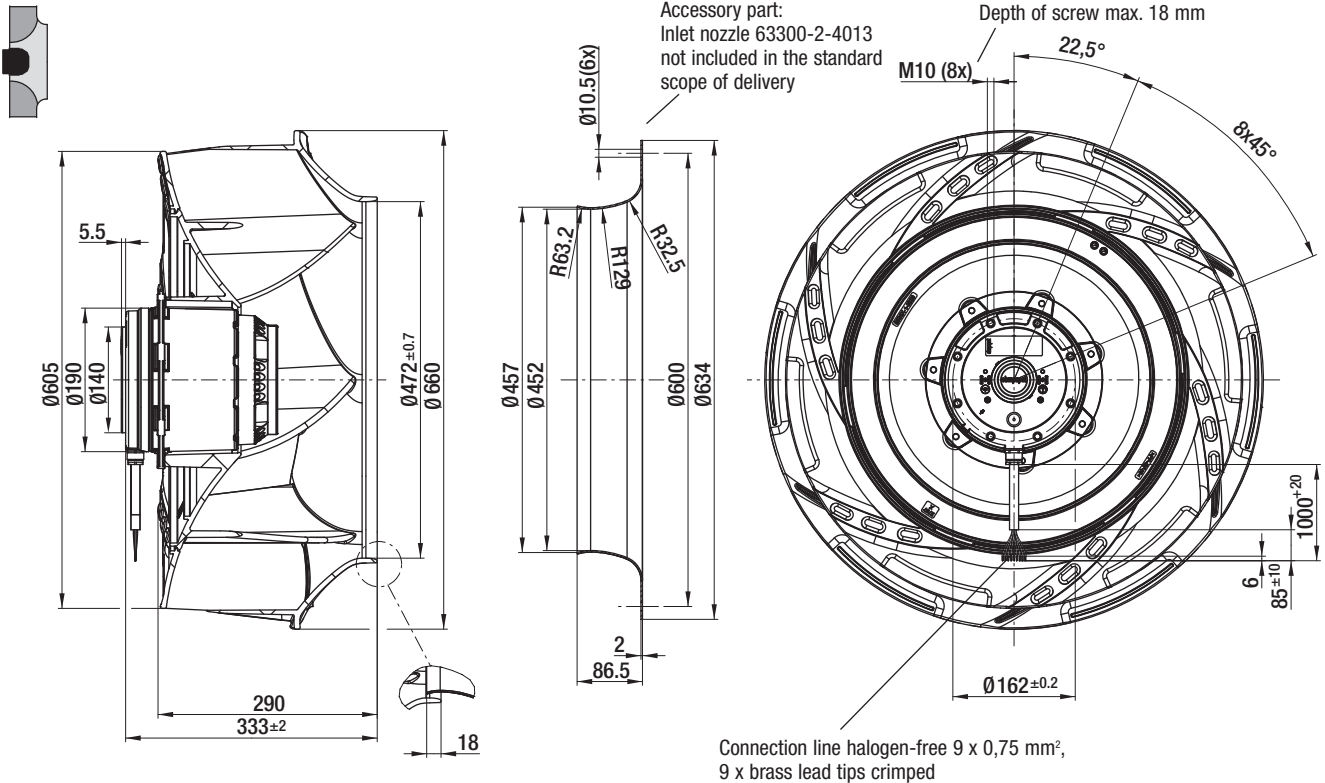
Air performance measured as per: ISO 5801, Installation category A, with ebm-papst inlet nozzle without protection against accidental contact. Suction-side noise levels: L_{wA} as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 172 ff.

AC centrifugal fans – RadiCal

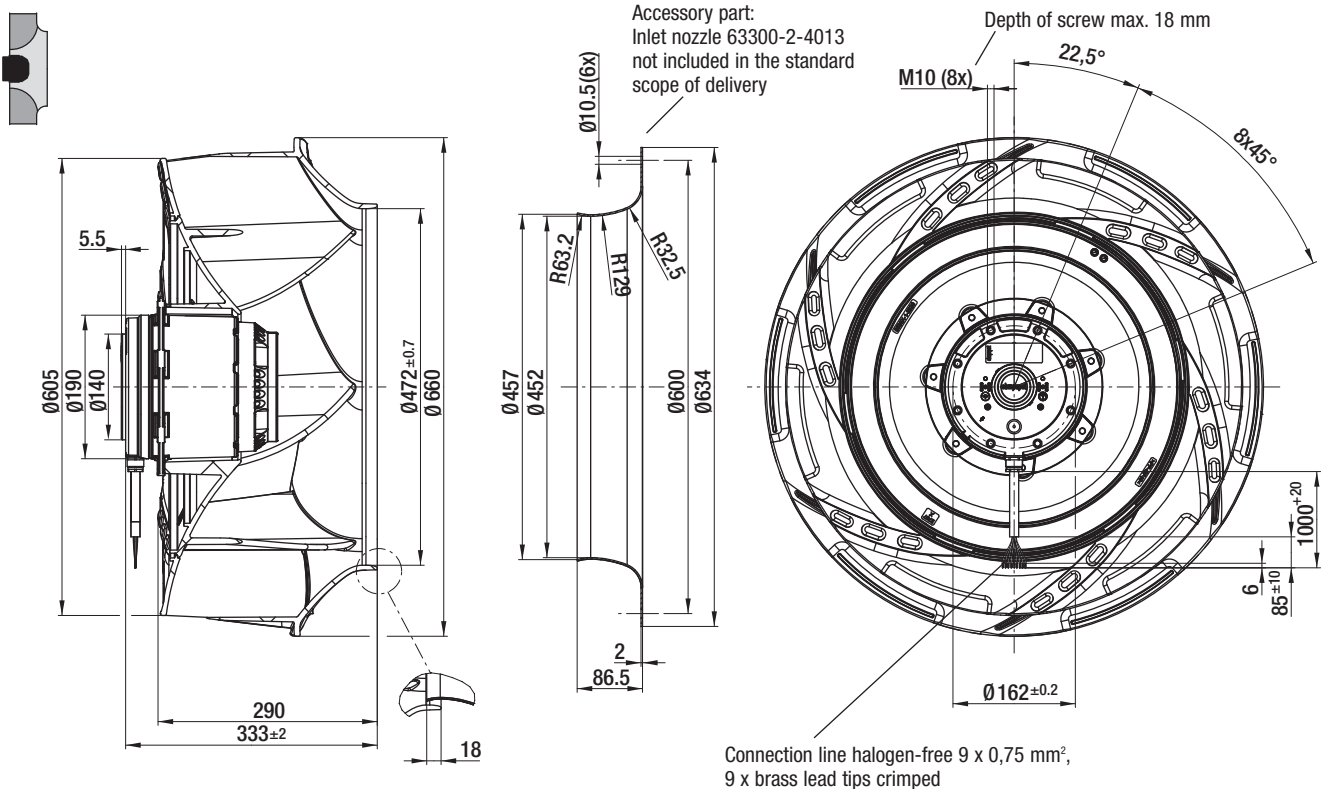
backward curved, Ø 630



R6D 630-RA07-01 (Centrifugal fan)

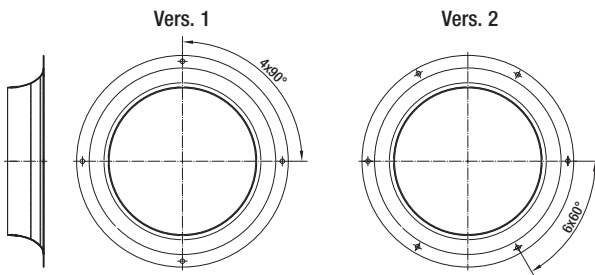


R4D 630-RB15-01 (Centrifugal fan)



Inlet nozzles

- **Material:** galvanised sheet steel



Inlet nozzles without measuring device for backward curved centrifugal fans

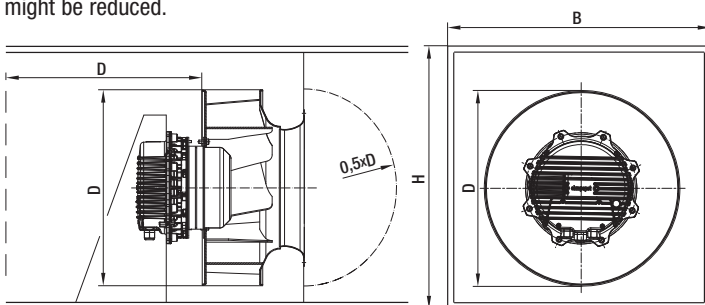
Part no.	Size	Vers.	Dimensions
09566-2-4013	133	1	see corresponding product page
09576-2-4013	190	1	see corresponding product page
09609-2-4013	220	2	see corresponding product page
96358-2-4013	225	1	see corresponding product page
96359-2-4013	250	1	see corresponding product page
28000-2-4013	280	1	see corresponding product page
31000-2-4013	310	1	see corresponding product page
35500-2-4013	355	1	see corresponding product page
54476-2-4013	400	1	see corresponding product page
45901-2-2943 *	450	2	see corresponding product page
50901-2-2943 *	500	2	see corresponding product page
54482-2-4013	560	2	see corresponding product page
63300-2-4013	630	2	see corresponding product page

subject to alterations

* Material: Plastic ABS

Effects of installation space

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



d_h = Hydraulic diameter

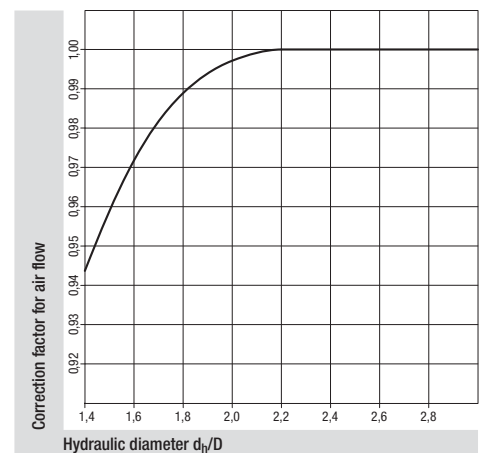
$$\text{Formula: } d_h = 2 \times B \times H / (B + H)$$

B = Width of box

H = Height of box

D = Outer diameter of the fan

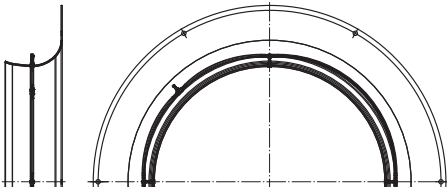
Curve:



Inlet nozzles with measuring device

- **Material:** galvanised sheet steel

With piezometer ring



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

Part no.	Size	k-value	Dimensions
96400-2-4013	250	60	see corresponding product page
28003-2-4013	280	77	see corresponding product page
31003-2-4013	310	93	see corresponding product page
35503-2-4013	355	128	see corresponding product page
54501-2-4013	400	180	see corresponding product page
45910-2-2943 *	450	190	see corresponding product page
50920-2-2943 *	500	260	see corresponding product page
54492-2-4013	560	405	see corresponding product page
63310-2-4013	630	515	see corresponding product page

subject to alterations

* Material: Plastic ABS

Air flow determination

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

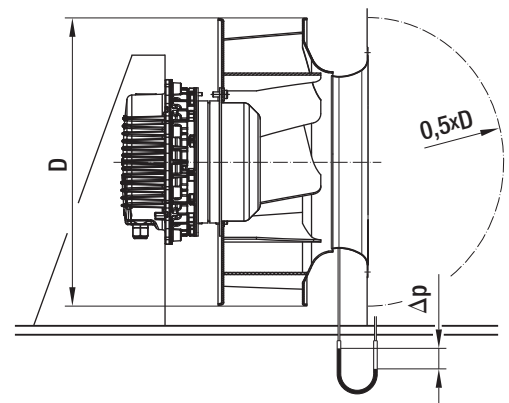
$$q_v = k \cdot \sqrt{\Delta p} \quad q_v \text{ in [m}^3\text{/h] und } \Delta p \text{ in [Pa]}$$

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

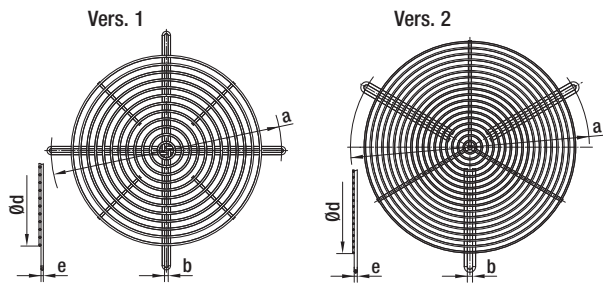
$$\Delta p = q_v^2 : k^2$$

k takes into account the specific nozzle characteristics.

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



Air intake guard grilles



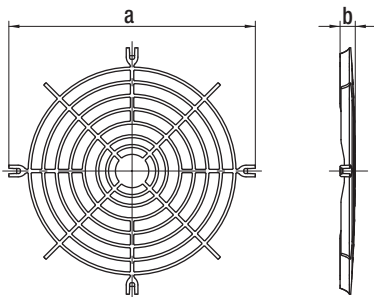
- **Material:** steel wire, plastic coated

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

Part no.	Size	Vers.	a	b	d	e	Strut pitch
78128-2-4039	250	1	240	5,4	208	2,4	4 x 90°
78129-2-4039	280	1	260	4,5	210	2,8	4 x 90°
78130-2-4039	310	1	280	4,5	230	2,8	4 x 90°
78131-2-4039	355	1	325	4,5	250	2,8	4 x 90°
78132-2-4039	400	1	345	4,5	310	2,8	4 x 90°
78136-2-4039	450	2	425	8,5	350	3,8	3 x 120°
78139-2-4039	500	2	445	8,5	410	3,8	3 x 120°
78138-2-4039	630	2	600	8,5	490	3,8	3 x 120°

The table has been changed with respect to the printed edition of the catalogue.

subject to alterations



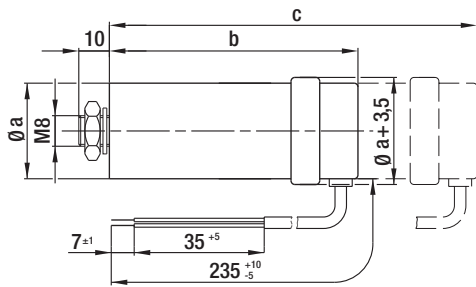
- **Material:** PA plastic 6, fibreglass-reinforced

Guard grille for suction side for compact centrifugal modules

Part no.	Size	a	b
13351-2-2929	133	94,1	7,7
19051-2-2929	190	133,0	9,0
22051-2-2929	220	166,0	8,7
22551-2-2929	225	158,0	8,7
25051-2-2929	250	177,0	9,7

subject to alterations

Capacitors

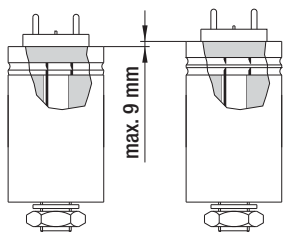


- **Material:** Plastic cap, aluminium cup
- **Designation:** FPU or P2 according to IEC 252 (non-flammable, non-explosive, circuit-breaking)
- **Approval:** VDE according to DIN EN 60252 (VDE 0560/8)
- **Calculated life time:**
420 V; -25 to +85°C; 30,000 hrs; class A
470 V; -25 to +85°C; 10,000 hrs; class B
500 V; -25 to +85°C; 3,000 hrs; class C

MKP motor capacitors FPU or P2 (with fuse)

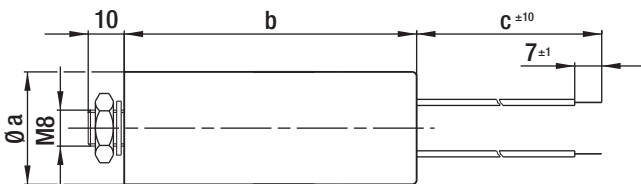
Part no.	Capacity	a	b (max.)	c (max.)
02155-4-7320	1,5 μ F	25,0	77,0	92,0
02156-4-7320	2,0 μ F	25,0	77,0	92,0
02159-4-7320	2,5 μ F	30,0	71,0	92,0
02179-4-7320	3,5 μ F	30,0	75,0	82,0
02161-4-7320	4,0 μ F	25-30	104,0	135,0
02162-4-7320	5,0 μ F	25-30	104,0	113,0
02163-4-7320	6,0 μ F	30,0	101,0	110,0
02165-4-7320	8,0 μ F	30-35	102,0	111,0
90026-4-7320	14,0 μ F	40,0	130,0	139,0

subject to alterations



- **Pull-off protector:** The housing expands by max. 9 mm. The protector responds to overload by the generated excess pressure snapping off the internal lead in a predetermined breaking point.

- **Mounting:** c is the overall dimension of the capacitor which has to be taken into account when mounting the part. The capacitor design, however, depends on the manufacturer. The expansion (9 mm) is either added to dimension b, or it is already integrated in the capacitor.



- **Material:** Housing made of thermoplastic resin
- **Connection line:** Multi-lead PVC cable 0.5 mm² with brass lead tips
- **Approval:** VDE according to DIN EN 60252 (VDE 0560/8)
- **Calculated life time:**
400 V; -25 to +85°C; 30,000 hrs; class A
450 V; -25 to +85°C; 10,000 hrs; class B

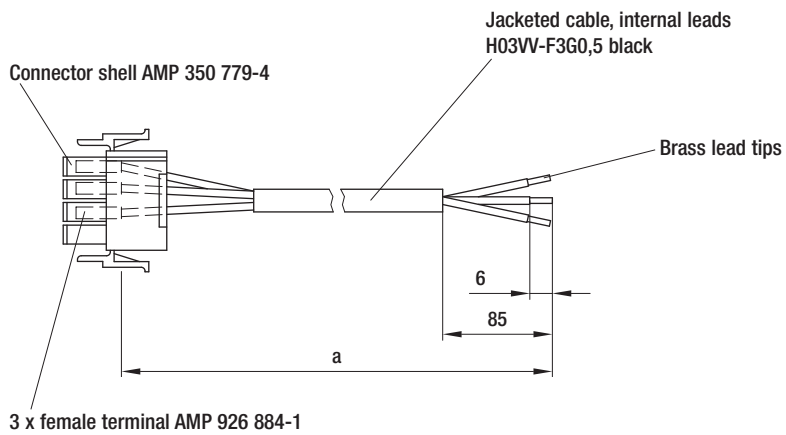
MKP motor capacitors P0 (without fuse)

Part no.	Capacity	a	b (max.)	c
99832-4-7320	9,0 μ F	35,0	70,0	100,0

subject to alterations

Connection leads

230 V



- Plug assignment:

1	=	green/yellow
2	=	blue
3	=	brown
4	=	not assigned

Lead connections for AC centrifugal modules (230 V)

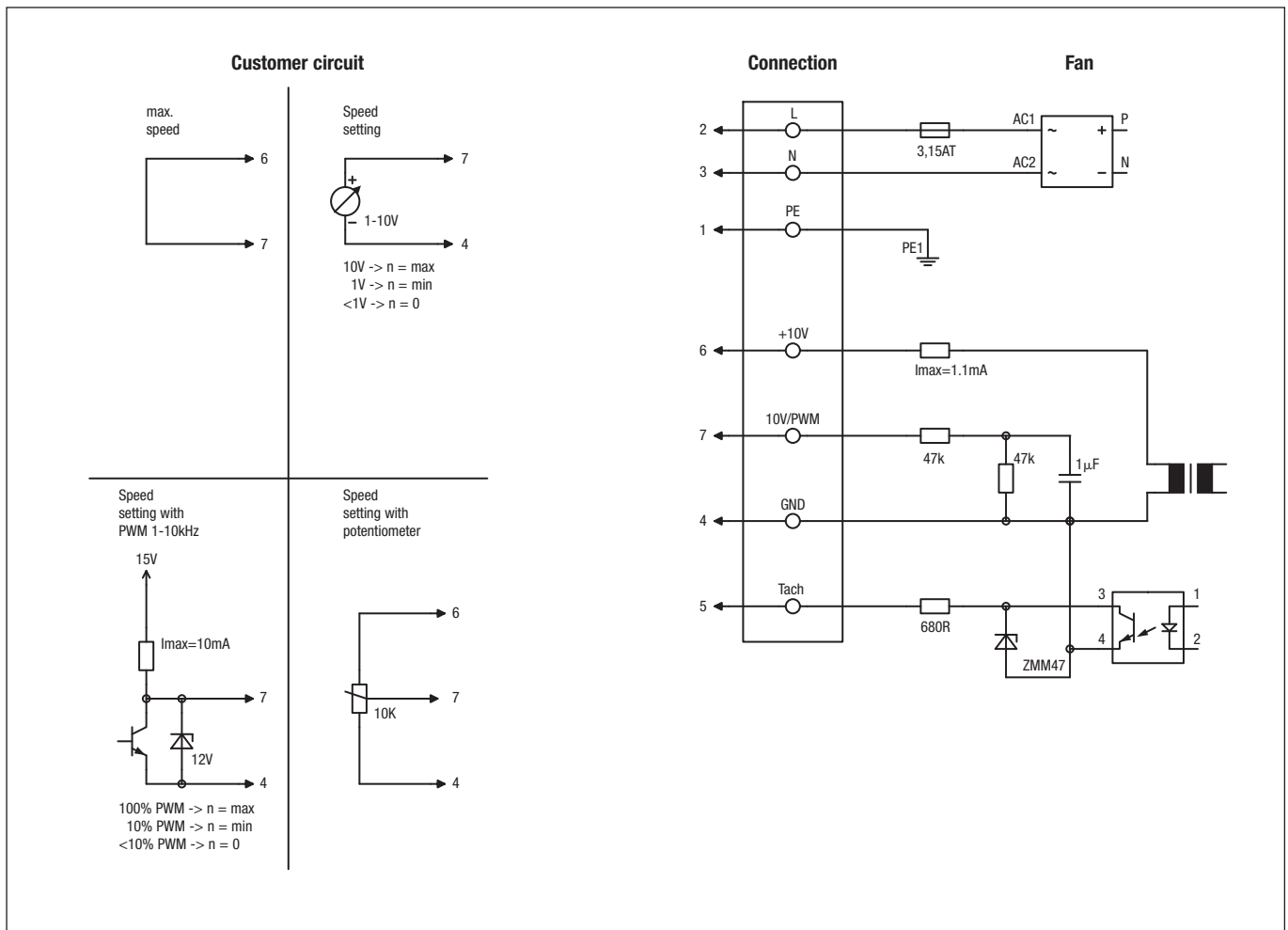
Part no.	a
23030-4-1012	450,0
23031-4-1012	1000,0
23032-4-1012	1300,0
23033-4-1012	1600,0
23034-4-1012	2300,0

subject to alterations

Electrical connections EC H5)

Technical features (M3G 055 Speed-controlled):

- Output 10 VDC max. 1,1 mA
- Tach output
- Over-temperature protected motor
- Motor current limitation
- Locked-rotor protection
- Soft start
- Control interface with SELV potential safely disconnected from the mains

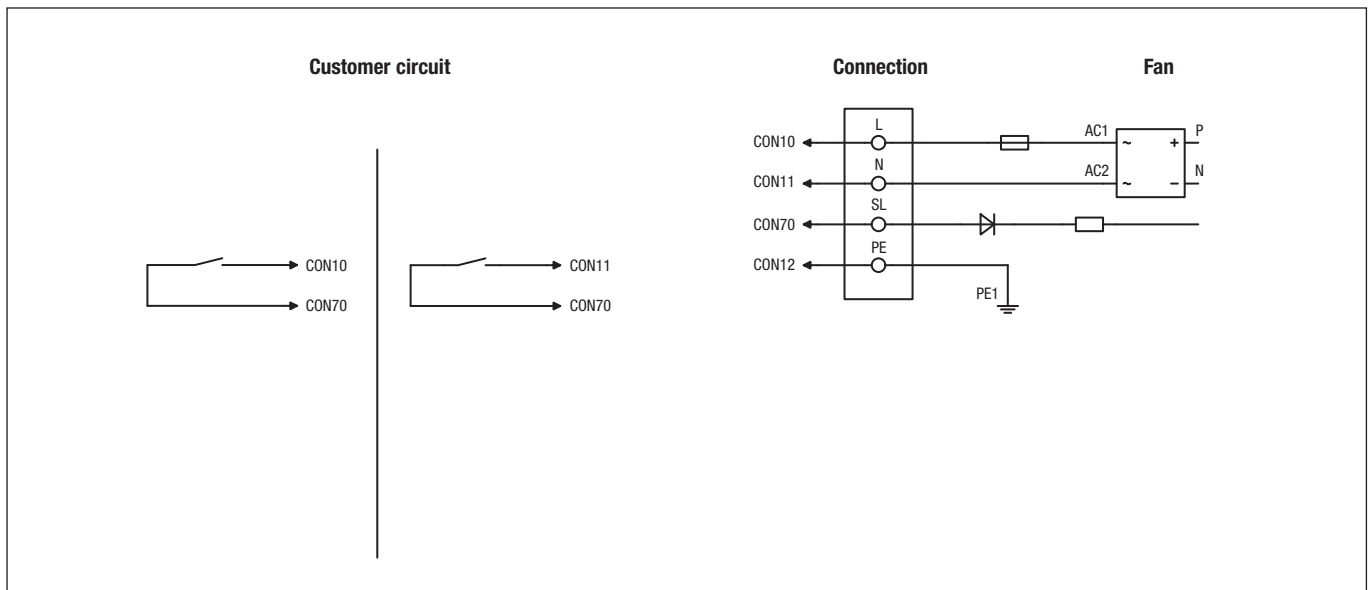


Line	Connection	Colour	Assignment / function
2	L	brown	Power supply 230 VAC, 50 - 60 Hz, see type plate for voltage range
3	N	blue	Neutral conductor
1	PE	green/yellow	Protective earth
7	0-10V PWM	yellow	Control input 0 - 10 V or PWM, electrically isolated
5	Tach	white	Tach output: Open Collector, 1 pulse per revolution, electrically isolated, Isink max=10mA
6	10V/max.1.1mA	red	Voltage output 10 V / 1.1 mA, electrically isolated
4	GND	blue	GND - Connection for control interface

Electrical connections EC H3)

Technical features (M3G 045 / M3G 055 with 2 Speed stages):

- Speed adjustment input (230V)
- Over-temperature protected electronics / motor
- Motor current limitation
- Locked-rotor protection
- Soft start

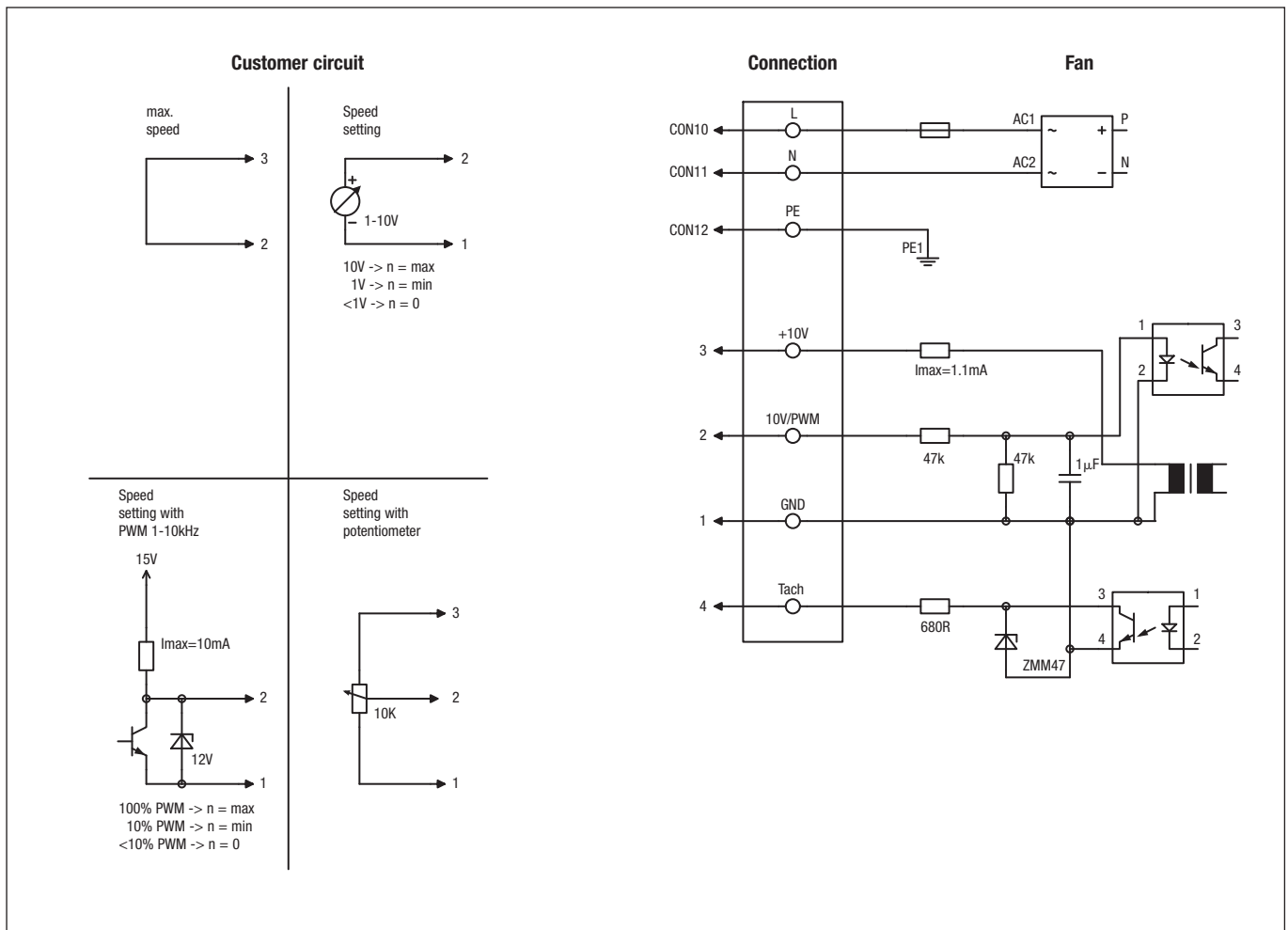


Line	Connection	Colour	Assignment / function
CON10	L	black	Power supply 230 VAC, 50 - 60 Hz
CON11	N	blue	Neutral conductor
CON12	PE	green/yellow	Protective earth
CON70	SL	brown	Speed selection: switch open = speed 1; switch closed = speed 2

Electrical connections EC H4)

Technical features (M3G 045 / M3G 055 Speed-controlled; M3G 074):

- Control input 0-10 VDC / PWM
- Output 10 VDC max. 1,1 mA
- Tach output
- Over-temperature protected electronics / motor
- Motor current limitation
- Locked-rotor protection
- Soft start

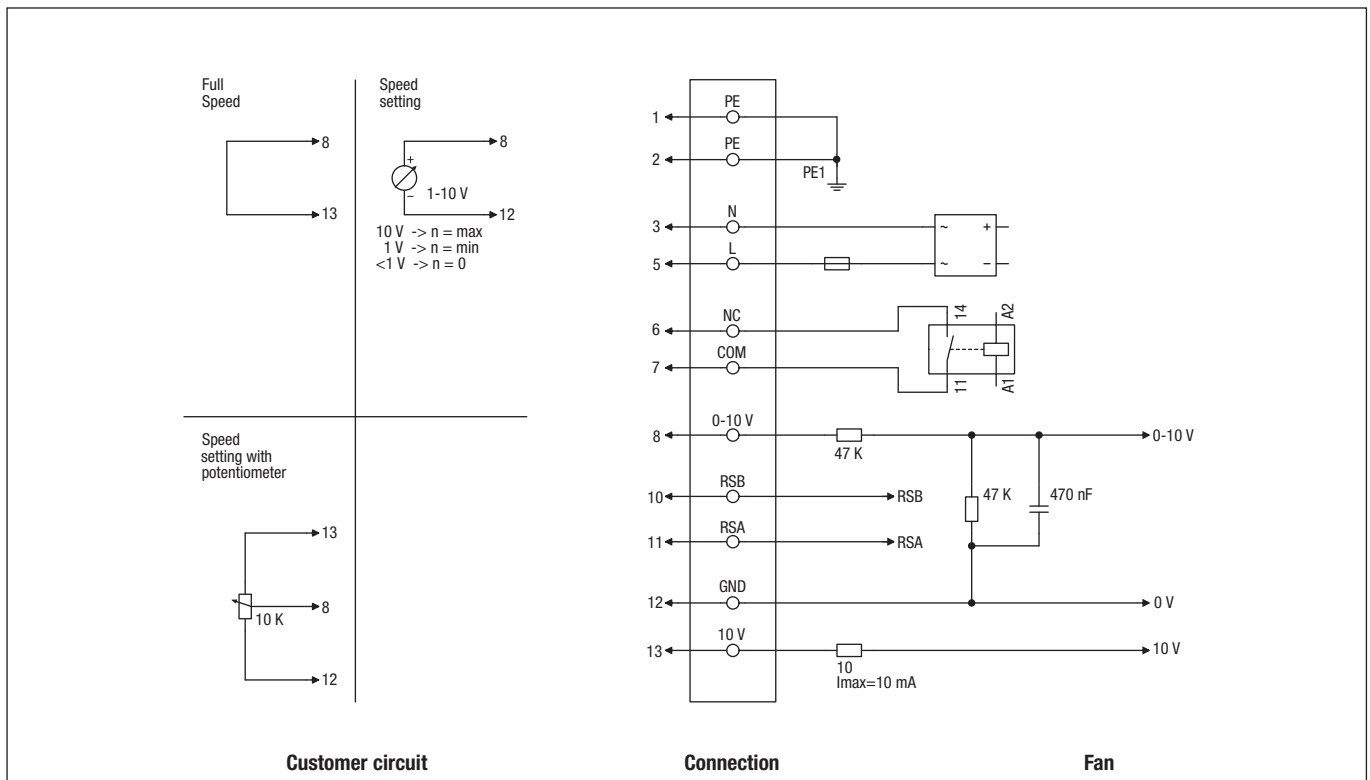


Line	Connection	Colour	Assignment / function
CON10	L	black	Power supply 230 VAC, 50 - 60 Hz, see type plate for voltage range
CON11	N	blue	Neutral conductor
CON12	PE	green/yellow	Protective earth
1	GND	blue	GND - Connection for control interface
2	0-10V PWM	yellow	Control input 0 - 10 V or PWM, electrically isolated
3	10V/max.1.1mA	red	Voltage output 10 V / 1.1 mA, electrically isolated, not short-circuit-proof
4	Tach	white	Tach output: Open Collector, 1 pulse per revolution, electrically isolated

Electrical connections EC P5)

Technical features:

- PFC (aktive)
- integrated PID controller
- Control input 0-10 VDC / PWM
- Output 10 VDC max. 10 mA
- Operation and alarm display
- RS485 MODBUS RTU
- Motor current limitation, Alarm relay
- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Locked-rotor protection, Soft start
- Control interface with SELV potential safely disconnected from the mains

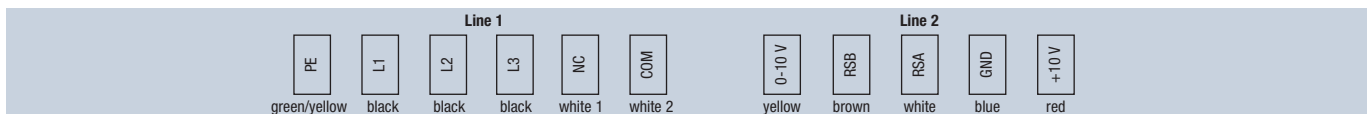
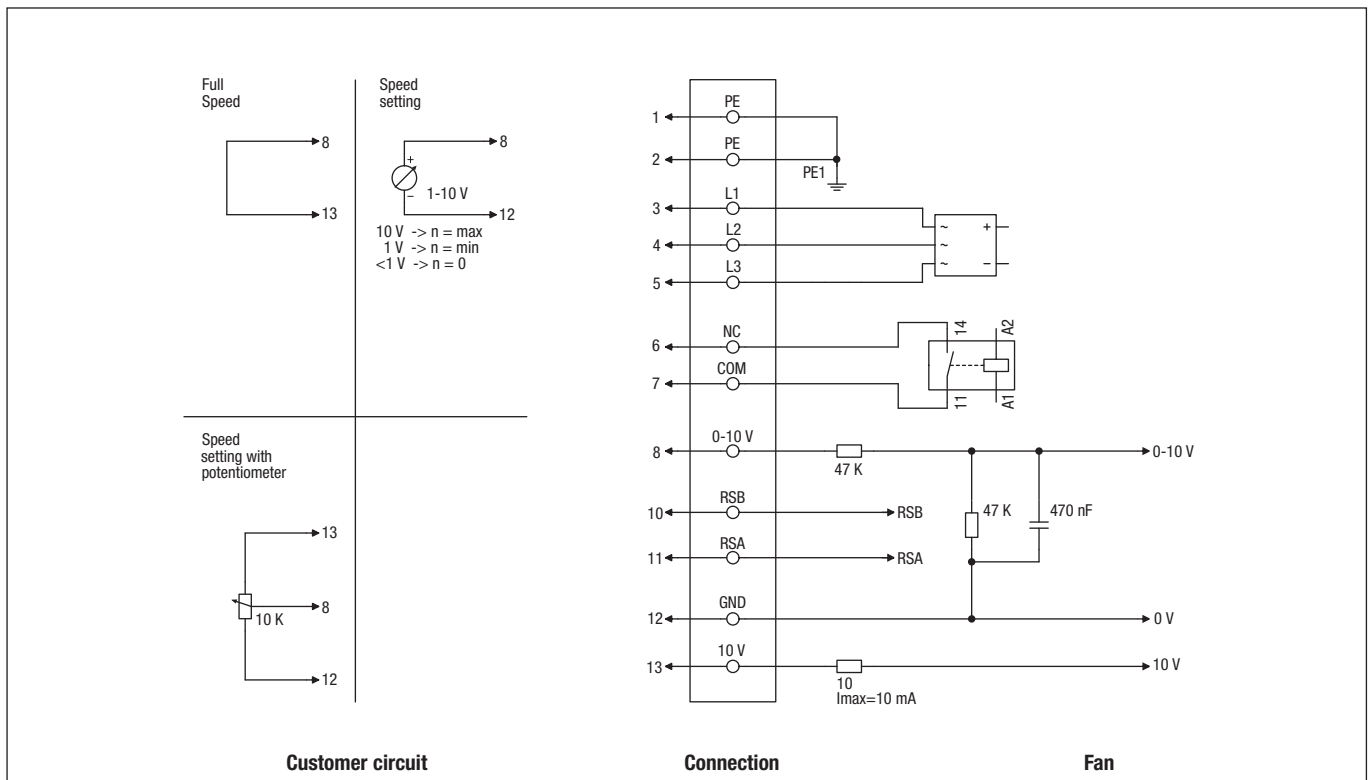


Line	No.	Connection	Colour	Assignment / function
1	1, 2	PE	green/yellow	Protective earth
1	3	N	blue	Supply voltage, neutral conductor, see type plate for voltage range, 50/60 Hz
1	5	L	black	Supply voltage, phase, see type plate for voltage range, 50/60 Hz
1	6	NC	white 1	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) min. 10 mA, basic insulation on mains 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 mains side and reinforced insulation on control interface side
2	8	0-10 V	yellow	Analogue input (set value), SELV 0-10 V, Impedance 100 kΩ, parametrisable 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 external devices (e.g. potentiometer)

Electrical connections EC P6)

Technical features:

- PFC (passive)
- integrated PID controller
- Control input 0-10 VDC / PWM
- Output 10 VDC max. 10 mA
- Operation and alarm display
- RS485 MODBUS RTU
- Motor current limitation, Alarm relay
- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Locked-rotor protection, Soft start
- Control interface with SELV potential safely disconnected from the mains

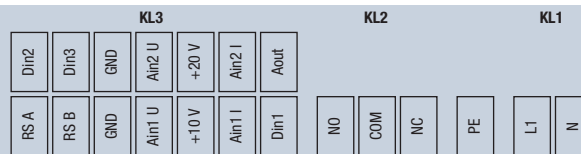


Line	No.	Connection	Colour	Assignment / function
1	1, 2	PE	green/yellow	Protective earth
1	3, 4, 5	L1, L2, L3	black	Supply voltage, see type plate for voltage range, 50/60 Hz
1	6	NC	white 1	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) min. 10 mA, basic insulation on mains 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 mains side and reinforced insulation on control interface side
2	8	0-10 V	yellow	Analogue input (set value), SELV 0-10 V, Impedance 100 kΩ, parametrisable 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 external devices (e.g. potentiometer)

Electrical connections EC M4)

Technical features:

- PFC (active)
- integrated PID controller
- Control input 0-10 VDC / PWM
- Input for sensor 0-10 V bzw. 4-20 mA
- External 24 V input (programming)
- External release input
- Output for slave 0-10 V max. 3 mA
- Output 20 VDC ($\pm 20\%$) max. 50 mA
- Output 10 VDC ($+10\%$) max. 10 mA
- Tach output
- RS485 MODBUS-RTU
- Alarm relay
- Line undervoltage / phase failure detection
- Motor current limitation
- Output limit
- Over-temperature protected electronics / motor
- Reverse polarity and locked-rotor protection
- Soft start
- Control interface with SELV potential safely disconnected from the mains

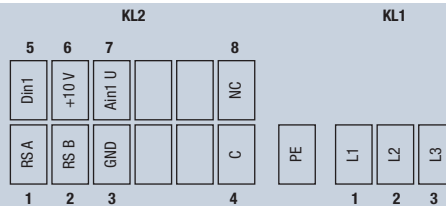


Connector	Connection	Assignment / function
KL1	N	Mains supply connection, supply voltage 1~200-277 VAC, 50/60 Hz
	L1	Mains supply connection, supply voltage 1~200-277 VAC, 50/60 Hz
PE	PE	Earth connection, PE connection
KL2	NC	Status relay, floating status contact, option 1: break with error, option 2: break with error for run monitor error message
	COM	Status relay, floating status contact, changeover contact, common connection, contact rating 250 VAC / 2 A (AC1)
	NO	Status relay, floating status contact, option 1: close with error, option 2: close with run monitor error message
KL3	Din1	Digital input 1: enabling of electronics; enabling: open pin or applied voltage 5 to 50 VDC; disabling: bridge to GND or applied voltage < 0,8 VDC; reset function: triggers software reset after a level change to < 0,8 V
	Ain1 I	Analogue input 1 (set value); 4-20 mA; Ri= 100 Ω ; parametrisable curve; only usable as alternative to input Ain1 U
	+10 V	Fixed voltage output 10 VDC; +10 V $\pm 3\%$; max. 10 mA; short circuit proof; power supply for ext. devices (e.g. potentiometer)
	Ain1U	Analogue input 1 (set value); 0-10 V; Ri= 100 k Ω ; parametrisable curves; only usable as alternative to input Ain1 I
	GND	Signal ground for control interface
	RSB	Bus connection RS485; RSB; MODBUS RTU
	RSA	Bus connection RS485; RSA; MODBUS RTU
	Aout	Analogue output 0-10 V; max. 5 mA; output of the actual motor control factor (output voltage of electronics)/of the actual motor speed; parametrisable curve
	Ain2 I	Analogue input 2; actual sensor value 4-20 mA; Ri= 100 Ω ; parametrisable curve; only useable as alternative to input Ain2 U
	+20 V	Fixed voltage output 20 VDC; +20 V $\pm 25/-10\%$; max. 50 mA; short circuit proof; power supply for ext. devices (e.g. sensors)
	Ain2 U	Analogue input 2; actual sensor value 0-10 V; Ri= 100 k Ω ; parametrisable curve; only useable as alternative to input Ain2 I
	GND	Signal ground for control interface
	Din3	Digital input 3: Control characteristic of the integrated controller; according to EEPROM setting, the control characteristic of the integrated controller is normally/inversely selectable per BUS or per digital input; normal: open pin or applied voltage 5 to 50 VDC; inverse: bridge to GND or applied voltage < 0,8 VDC
	Din2	Digital input 2: parameter set switch 1/2; according to EEPROM setting, the valid/used parameter set is selectable per BUS or per digital input Din2. Parameter set 1: open pin or applied voltage 5 to 50 VDC; parameter set 2: bridge to GND or applied voltage < 0,8 VDC

Electrical connections EC M5)

Technical features:

- PFC (passive)
- integrated PID controller
- Control input 0-10 VDC / PWM
- External release input
- External 24 V input (programming)
- Output 10 VDC max. 10 mA
- Operation and alarm display
- RS485 MODBUS-RTU
- Motor current limitation
- Alarm relay
- Line undervoltage / phase failure detection
- Over-temperature protected electronics / motor
- Reverse polarity and locked-rotor protection
- Soft start
- Control interface with SELV potential safely disconnected from the mains



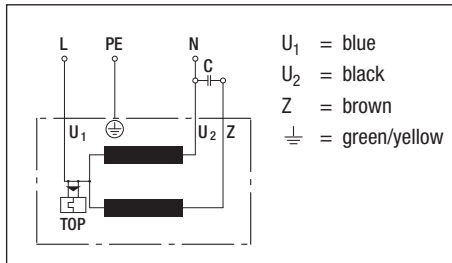
Connector	Pin	Connection	Assignment / function
KL1	1	L1	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
	2	L2	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
	3	L3	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
PE		PE	Earth connection, PE connection
KL2	1	RSA	Bus connection RS485; RSA; MODBUS RTU
	2	RSB	Bus connection RS485; RSB; MODBUS RTU
	3	GND	Signal ground for control interface
	4	C	Status relay, floating status contact, changeover contact, common connection 250 VAC / 2 A (AC1)
	5	Din1	Digital input 1: enabling of electronics; enabling: open pin or applied voltage 5 to 50 VDC; disabling: bridge to GND or applied voltage < 1 VDC; reset function: triggers software reset after a level change to < 1V
	6	+10 V	Fixed voltage output 10 VDC; +10 V \pm 3 %; max. 10 mA; short circuit proof; power supply for ext. devices (e.g. potentiometer)
	7	Ain1 U	Analogue input 1 (set value); 0-10 V; Ri= 100 k Ω ; parametrisable curves
	8	NC	Status relay, floating status contact, break with error

Electrical connections AC

A1) / A2a)

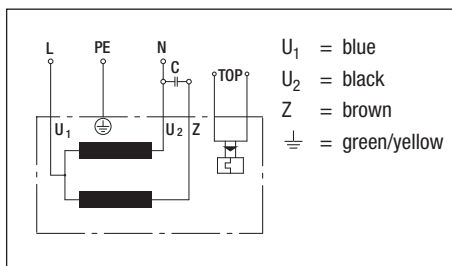
A1) Single-phase capacitor motor (1~ 230 VAC power line)

with TOP wired internally



A2a) Single-phase capacitor motor (1~ 230 VAC power line)

with connection for external TOP

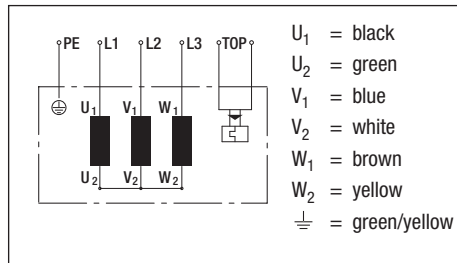


Electrical connections AC

D2) / F1a)

D2) Star connection (3~ 400 VAC power line)

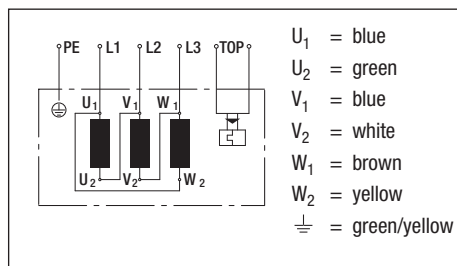
with TOP



Direction of rotation is reversed by swapping two line phases.

F1a) Delta connection (3~ 400 VAC power line)

with TOP



Direction of rotation is reversed by swapping two line phases

Technical parameters & scope

High standards for all ebm-papst products

Here at ebm-papst, we constantly strive to further improve our products in order to be able to offer you the best possible product for your application. Careful monitoring of the market ensures that technical innovations are reflected in the improvements of our products. Based on the technical parameters listed below and the ambience you want our product to operate in, we here at ebm-papst can always work out the best solution for your specific application..

General performance parameters

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

Type of protection

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

Insulation class

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

Mounting position

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

Condensate discharge holes

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

Mode of operation

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

Protection class

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

Service life

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

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

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

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

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

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

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

Motor protection / thermal protection

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

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

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

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

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

Mechanical strain / performance parameters

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



Vibration test

Vibration tests are carried out in compliance with

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

Shock load

Shock load tests are carried out in compliance with

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

Balancing quality

Testing the balancing quality is carried out in compliance with

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

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

Chemo-physical strain / performance parameters

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

Fields of application, industries and applications

Our products are used in various industries and applications:

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

Legal and normative directives

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

Standards

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

EMC

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

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

Leakage current

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

Measuring is according to IEC 60990.

Approvals

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

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

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

Air performance measurements

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

As required by the standard, the air performance curves correspond to an air density of 1.2 kg/m³.

Technical parameters & scope



Measurement conditions for air and noise measurement

ebm-papst products are measured under the following conditions:

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

Noise measurements

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

Sound pressure level and sound level

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

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

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

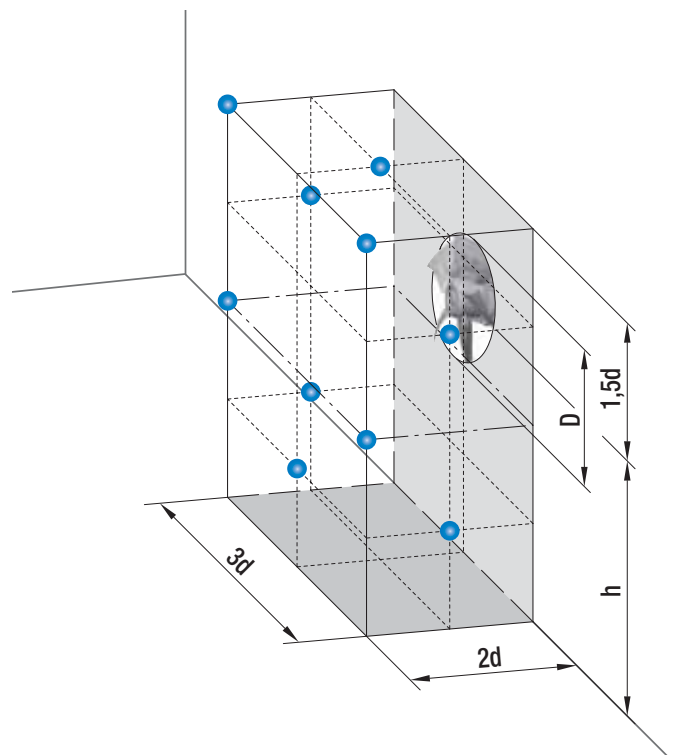
Measuring configuration as per ISO 13347-3 respectively DIN 45635-38:

- 10 measuring points

$$d \geq D$$

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

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



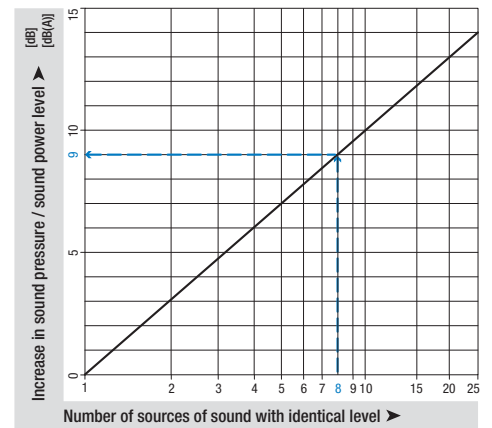


Combined level of multiple same-level sound sources

Adding 2 noise sources with the same level results in a level increase of approx. 3 dB.

The noise characteristics of multiple identical fans can be determined in advance based on the noise values specified in the data sheet. This is shown in the diagram opposite.

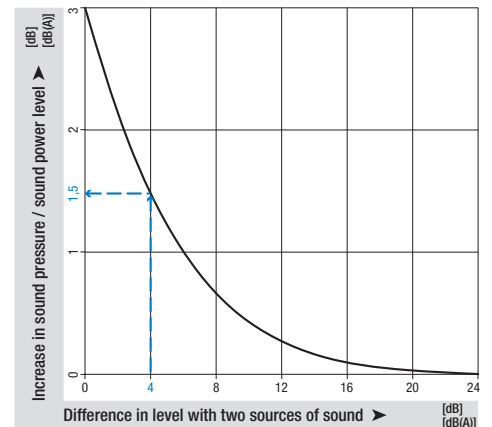
Example: 8 A3G800 axial fans are on a condenser. According to the data sheet, the sound pressure level of a fan is approximately 75 dB(A). The level increase measured from the diagram is 9 dB. Thus the overall sound level of the installation can be expected to be 84 dB(A).



Combined level of two different-level sound sources

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

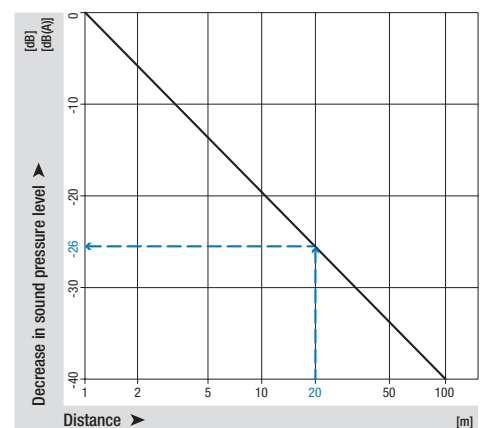
Example: There is an axial fan A3G800 with a sound pressure level of 75 dB(A) at the operating point and an axial fan A3G710 with 71 dB(A) in a ventilation unit. The level difference is 4 dB. The level increase can now be read in the diagram as approx. 1.5 dB. This means that the overall sound level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



Distance laws

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

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



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