AC centrifugal fan - RadiCal

backward-curved, single-intake

R4D560-FB13-01 ebmpapst Datasheet FansCo

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Nominal data

Type	**R4D560-FB13-01**
Motor	**M4D138-LA**

Phase		3~	3~	3~	3~
Nominal voltage	VAC	400	400	400	480
Wiring		Δ	Y	Δ	Δ
Frequency	Hz	50	50	60	60
Method of obtaining data		ml	ml	ml	ml
Valid for approval/standard		CE	CE	CE	CE
Speed (rpm)	min^{-1}	1420	1260	1630	1680
Power consumption	W	1850	1470	3000	3120
Current draw	A	3.9	2.6	5.3	4.9
Min. back pressure	Pa	0	0	0	0
Min. back pressure	in. wg	0	0	0	0
Min. ambient temperature	°C	-40	-40	-40	-40
Max. ambient temperature	°C	60	40	55	60
Starting current	A	19	6.5	21.5	20

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment
Subject to change

60Hz: Add max. voltage tolerance 480V +/-5%

Data according to Commission Regulation (EU) 327/2011 (prEN 17166)

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	61	54.3
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		68.7	62
05 Variable speed drive		No	

09 Power consumption P_e	kW	1.83
09 Air flow q_v	m^3/h	8145
09 Pressure increase p_{fs}	Pa	496
10 Speed (rpm) n	min^{-1}	1425
11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

* Specific ratio = 1 + p_{fs} / 100 000 Pa

LU-212884

The efficiency values displayed for achieving conformity with the Ecodesign Regulation EU 327/2011 has been reached with defined air duct components (e.g. inlet rings).
The dimensions must be requested from ebm-papst. If other air conduction geometries are used on the installation side, the ebm-papst evaluation loses its validity/the conformity must be confirmed again.

The product does not fall within the scope of Regulation (EU) 2019/1781 due to the exception specified in Article 2 (2a) (motors completely integrated into a product).

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Technical description

Size	560 mm
Motor size	138
Rotor surface	Cast in aluminum
Impeller material	PP plastic
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H2
Ambient temperature note	Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), use must be made of a fan design with special low-temperature bearings.
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	Shaft horizontal or rotor on bottom; rotor on top on request
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Motor protection	Thermal switch auto reset, lead out, with basic insulation
With cable	Lateral
Protection class assignment	I; If a protective earth is connected by the customer This component for installation may have several local protection classes. This information relates to this component's basic design. The final protection class is based on the component's intended installation and connection.
Conformity with standards	EN 60034-1; CE
Approval	VDE; EAC

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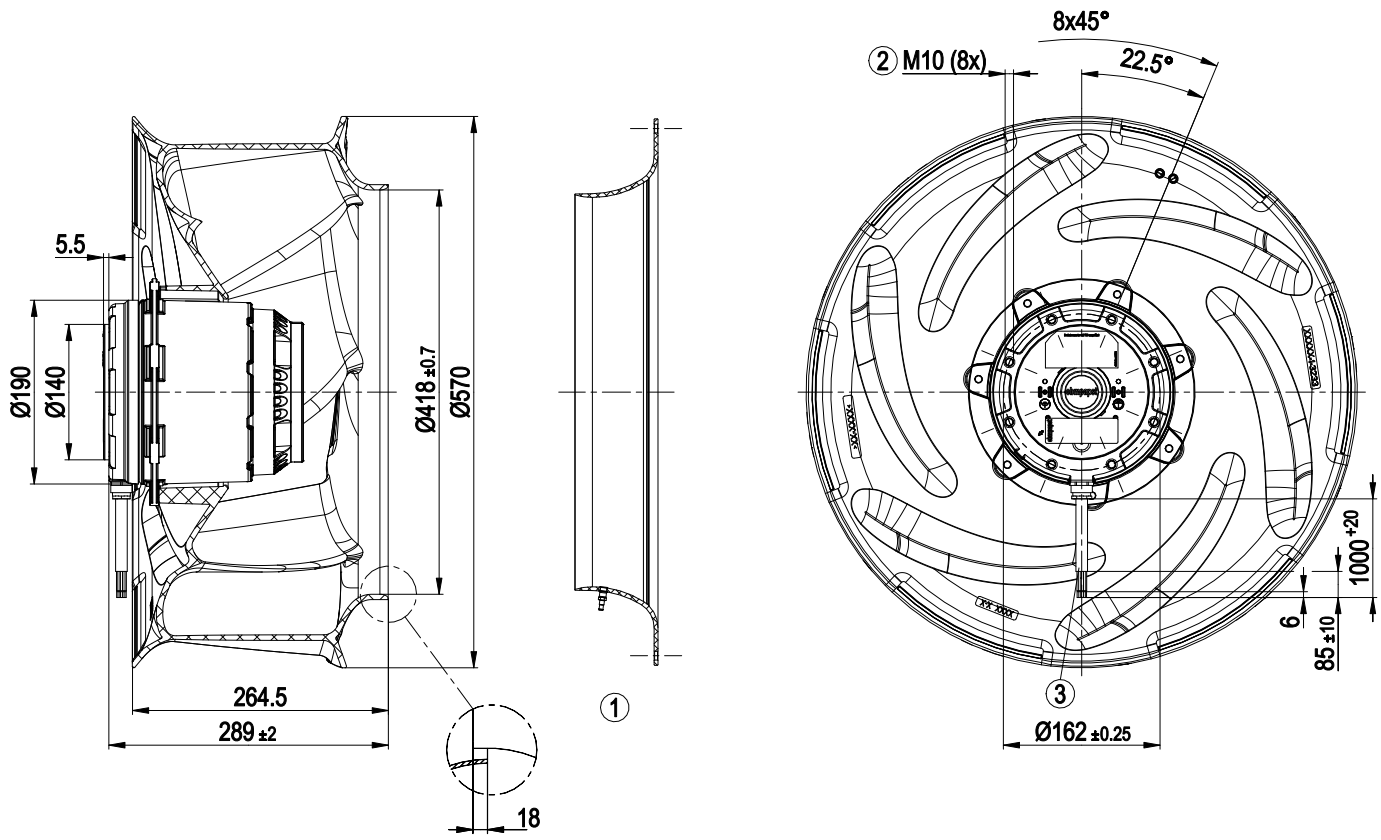
Product drawing



1	Accessory part: Inlet ring 56356-2-2943 with pressure tap (k-factor: 410) not included in scope of delivery
2	Max. clearance for screw 18 mm
3	Cable halogen-silicone-free 9G 0.75 mm²
	9x splice

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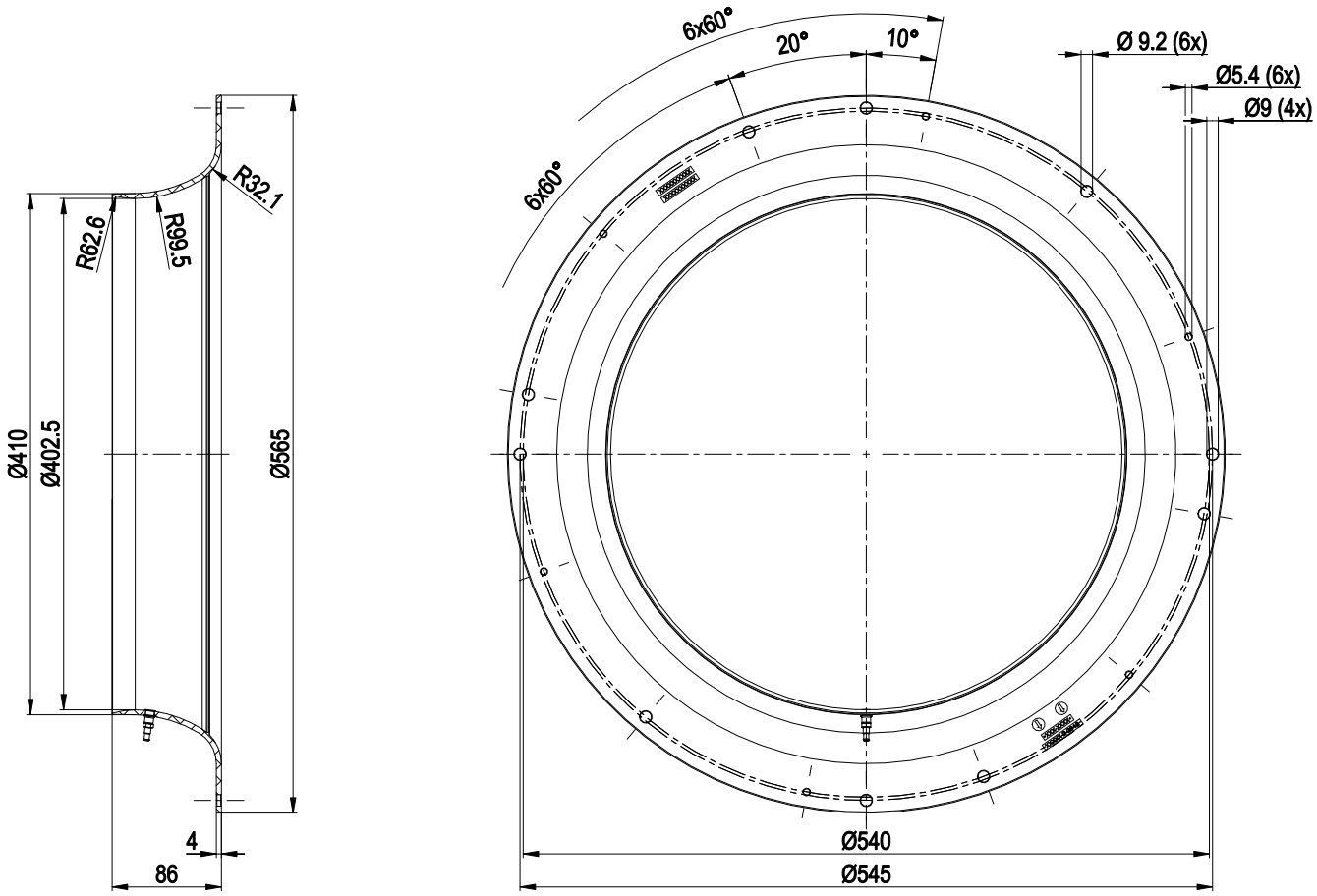
Accessory part



Inlet ring 56356-2-2943 with pressure tap (k-factor: 410)

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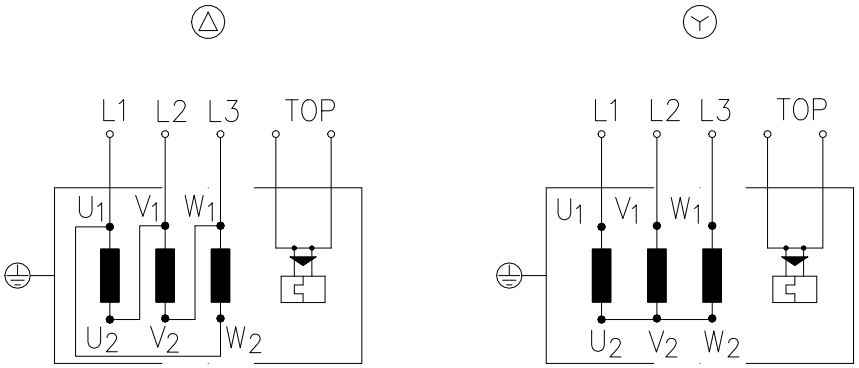
Connection diagram



Change of rotation direction by reversing two phases

Δ	Delta connection	Y	Star connection	L1	= U1 = black
L2	= V1 = blue	L3	= W1 = brown	W2	yellow
U2	green	V2	white	TOP	2x gray
PE	green/yellow				

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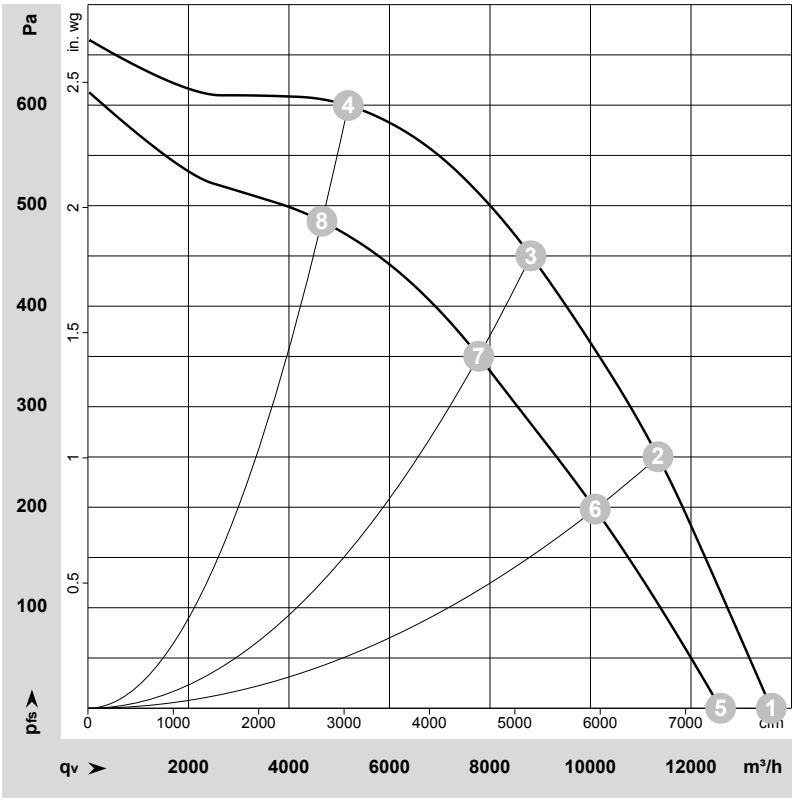
Curves: Air performance 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-212884-1
Measurement: LU-219138-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

Measured values

	Wired	U	f	n	P_e	I	LpA_{in}	LwA_{in}	LwA_{out}	q_V	p_{fs}	q_V	p_{fs}
		V	Hz	min^{-1}	W	A	dB(A)	dB(A)	dB(A)	m^3/h	Pa	cfm	in. wg
1	Δ	400	50	1455	1258	3.23	76	84	87	13600	0	8005	0.00
2	Δ	400	50	1435	1687	3.69	72	80	85	11345	250	6675	1.00
3	Δ	400	50	1420	1850	3.90	70	78	83	8815	450	5190	1.81
4	Δ	400	50	1430	1725	3.73	72	80	85	5180	600	3050	2.41
5	Y	400	50	1345	1086	1.90	74	82	85	12590	0	7410	0.00
6	Y	400	50	1280	1401	2.45	69	77	82	10095	200	5940	0.80
7	Y	400	50	1260	1470	2.60	67	74	80	7775	350	4575	1.41
8	Y	400	50	1265	1448	2.53	69	77	82	4655	486	2740	1.95

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_e = Power consumption · I = Current draw · LpA_{in} = Sound pressure level intake side · LwA_{in} = Sound power level intake side
LwA_{out} = Sound power level outlet side · q_V = Air flow · p_{fs} = Pressure increase

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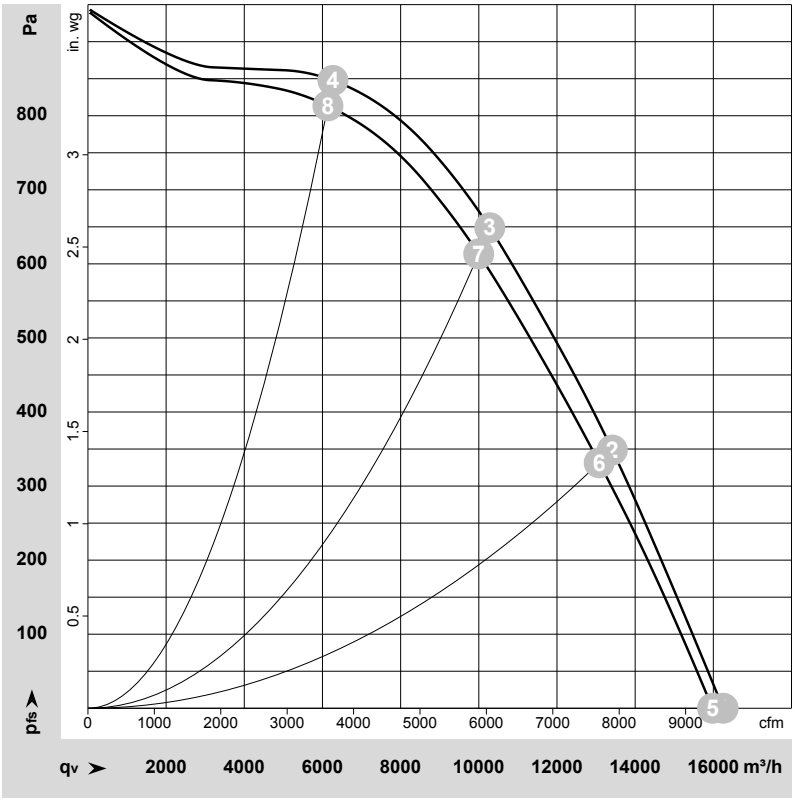
Curves: Air performance 60 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-213640-1
Measurement: LU-217958-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

Measured values

	Wired	U	f	n	P_e	I	LpA_{in}	LwA_{in}	LwA_{out}	q_V	p_{fs}	q_V	p_{fs}
		V	Hz	min^{-1}	W	A	dB(A)	dB(A)	dB(A)	m^3/h	Pa	cfm	in. wg
1	Δ	480	60	1730	2115	3.78	80	88	92	16250	0	9565	0.00
2	Δ	480	60	1700	2823	4.55	77	84	90	13415	350	7895	1.41
3	Δ	480	60	1680	3120	4.90	74	82	87	10280	650	6050	2.61
4	Δ	480	60	1695	2916	4.64	77	84	89	6270	850	3690	3.41
5	Δ	400	60	1700	2033	3.75	80	88	92	15980	0	9405	0.00
6	Δ	400	60	1650	2710	4.78	76	84	89	13080	333	7700	1.34
7	Δ	400	60	1630	3000	5.30	74	81	87	9995	615	5885	2.47
8	Δ	400	60	1640	2812	4.92	77	84	89	6140	815	3615	3.27

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_e = Power consumption · I = Current draw · LpA_{in} = Sound pressure level intake side · LwA_{in} = Sound power level intake side
LwA_{out} = Sound power level outlet side · q_V = Air flow · p_{fs} = Pressure increase