R4D450-AK01-01

AC centrifugal fan

backward-curved, single-intake



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Nominal data

Type	**R4D450-AK01-01**
Motor	**M4D110-GF**

Phase		3~	3~	3~	3~	3~	3~
Nominal voltage	VAC	230	230	277	400	400	480
Wiring		Δ	Δ	Δ	Y	Y	Y
Frequency	Hz	50	60	60	50	60	60
Method of obtaining data		ml	ml	ml	ml	ml	ml
Valid for approval/standard		CE	CE	CE	CE	CE	CE
Speed (rpm)	min^{-1}	1350	1490	1580	1350	1490	1580
Power consumption	W	740	1090	1200	740	1090	1200
Current draw	A	2.6	3.32	3.2	1.5	1.92	1.85
Min. back pressure	Pa	0	0	0	0	0	0
Min. back pressure	in. wg	0	0	0	0	0	0
Min. ambient temperature	°C	-40	-40	-40	-40	-40	-40
Max. ambient temperature	°C	80	50	50	80	50	50
Starting current	A	10.6	9.7	12.1	6.1	5.6	7.0

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

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

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	51.7	50.1
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		63.6	62
05 Variable speed drive		No	

09 Power consumption P_e	kW	0.73
09 Air flow q_v	m^3/h	3910
09 Pressure increase p_{fs}	Pa	350
10 Speed (rpm) n	min^{-1}	1355
11 Specific ratio*		1.00

Data obtained at optimum efficiency level.

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

LU-72625

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

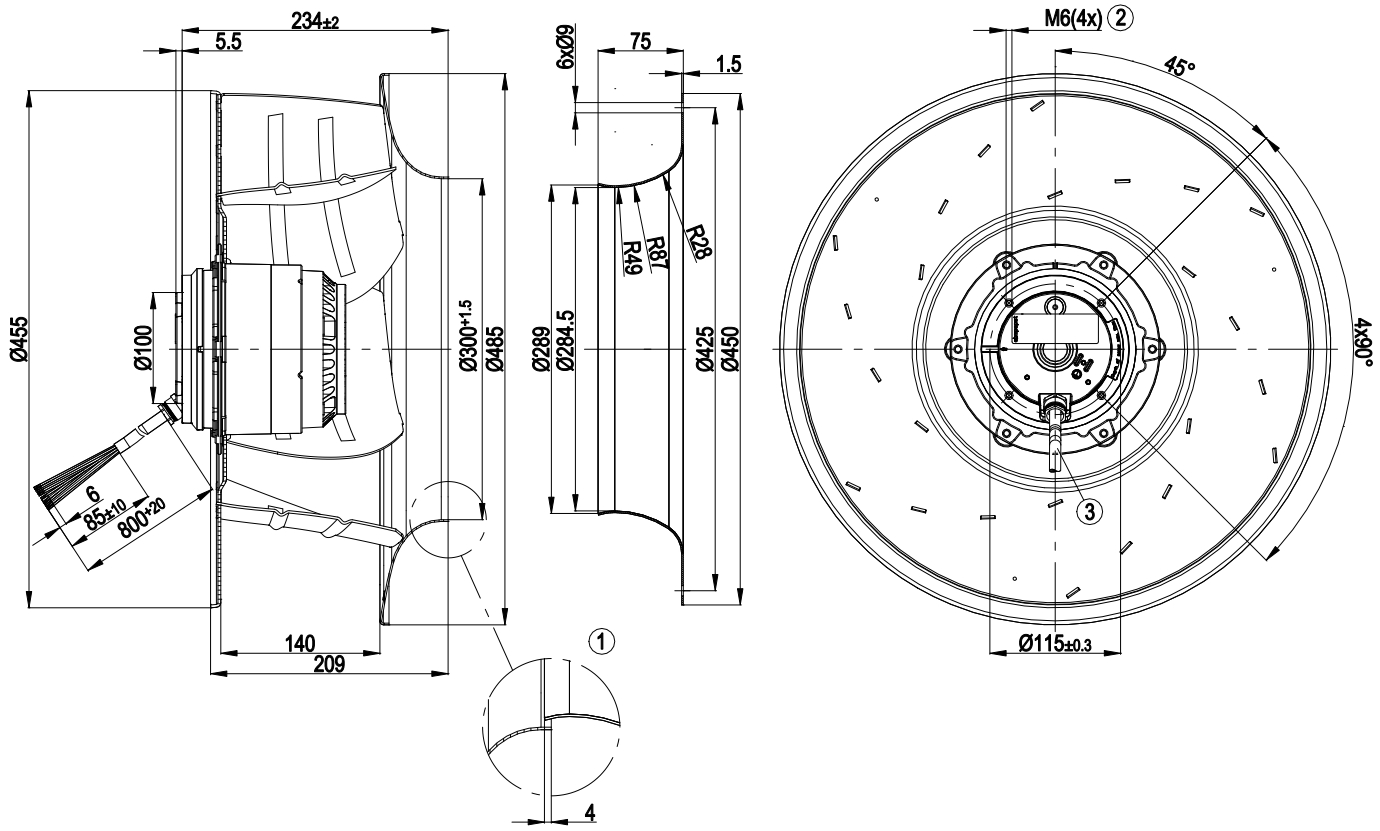
Weight	12 kg
Size	450 mm
Motor size	110
Rotor surface	Cast in aluminum
Impeller material	Sheet aluminum
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H2
Max. permitted ambient temp. 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
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	CSA C22.2 No. 100; EAC; UL 1004-1; VDE

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Product drawing



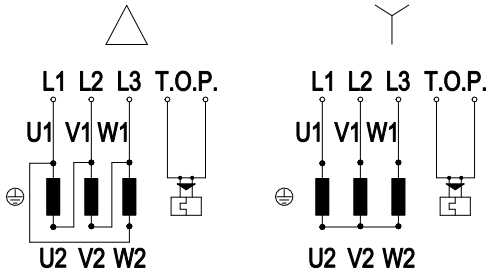
1	Accessory part: Inlet ring 63045-2-4013 not included in scope of delivery, other inlet rings on request
2	Max. clearance for screw 12 mm
3	Cable silicone 9G0.75 mm², 9 x crimped splices

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Connection diagram



Note: Change of rotation direction by reversing two phases

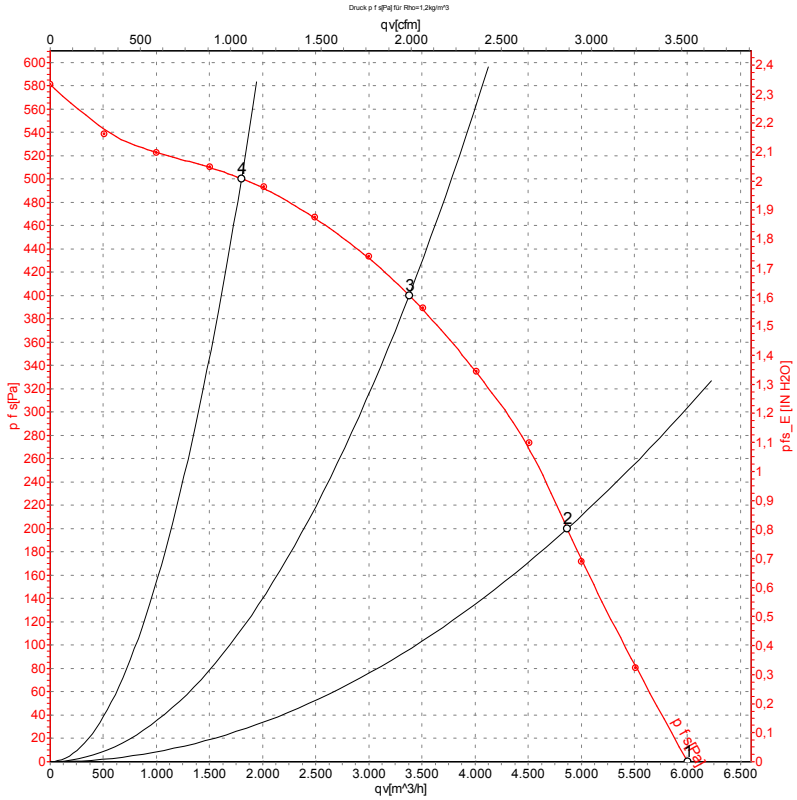
Δ	Delta connection	Y	Star connection	L1	black
L2	blue	L3	brown	U1	black
V1	blue	W1	brown	U2	green
V2	white	W2	yellow	TOP	gray

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Curves: Air performance 50 Hz



Measurement: LU-101530-1
Date: 2006-09-14
Nozzle: 63045-2-4013

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}	q_V	p_{fs}	q_V	p_{fs}
		V	Hz	min^{-1}	W	A	dB(A)	dB(A)	m^3/h	Pa	cfm	in. wg
1	Y	400	50	1395	566	1.26	71	79	6000	0	3530	0.00
2	Y	400	50	1365	670	1.37	66	75	4870	200	2865	0.80
3	Y	400	50	1350	740	1.50	63	70	3380	400	1990	1.61
4	Y	400	50	1375	617	1.31	68	76	1800	500	1060	2.01

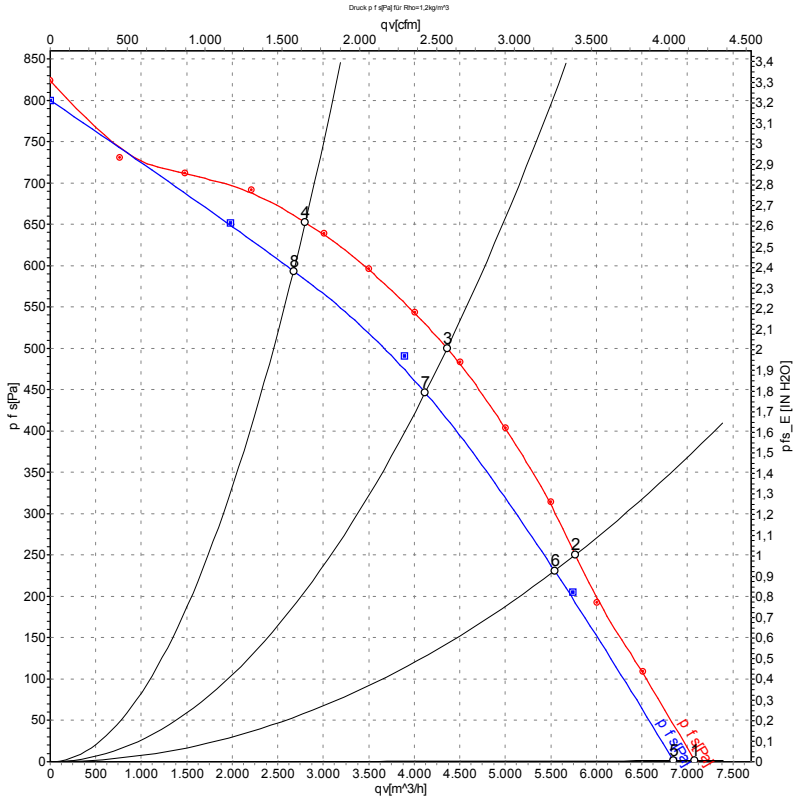
Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_e = Power consumption · I = Current draw · LpA_{in} = Sound pressure level intake side · LwA_{in} = Sound power level intake side
q_V = Air flow · p_{fs} = Pressure increase

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Curves: Air performance 60 Hz



Measurement: LU-101532-1
Date: 2006-09-14

Measurement: LU-101546-1
Date: 2006-09-14

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}	q_V	p_{fs}	q_V	p_{fs}
		V	Hz	min^{-1}	W	A	dB(A)	dB(A)	m^3/h	Pa	cfm	in. wg
1	Y	480	60	1640	918	1.49	75	83	7080	0	4170	0.00
2	Y	480	60	1605	1084	1.67	71	79	5770	250	3395	1.00
3	Y	480	60	1580	1200	1.85	67	75	4360	500	2565	2.01
4	Y	480	60	1600	1100	1.68	70	78	2800	650	1650	2.61
5	Y	400	60	1575	845	1.50	74	82	6845	0	4030	0.00
6	Y	400	60	1530	973	1.71	69	77	5540	235	3260	0.94
7	Y	400	60	1490	1090	1.92	65	74	4120	456	2425	1.83
8	Y	400	60	1530	970	1.67	69	77	2675	594	1575	2.38

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
q_V = Air flow · p_{fs} = Pressure increase

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