R3G450-AT28-01

EC centrifugal fan

backward-curved



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ErP2015 EXCEEDS THE NORM

Nominal data

Type	**R3G450-AT28-01**
Motor	**M3G150-FF**

Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min^{-1}	2170
Power consumption	W	2550
Current draw	A	3.9
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	65

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

Data according to ErP Directive

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	60.4	55.8
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		66.6	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	2.55
09 Air flow q_v	m^3/h	5535
09 Pressure increase p_{fs}	Pa	947
10 Speed (rpm) n	min^{-1}	2135
11 Specific ratio*		1.01

Data obtained at optimum efficiency level.
The ErP data is determined using a motor-impeller combination in a standardized measurement setup.

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

LU-119470

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Technical description

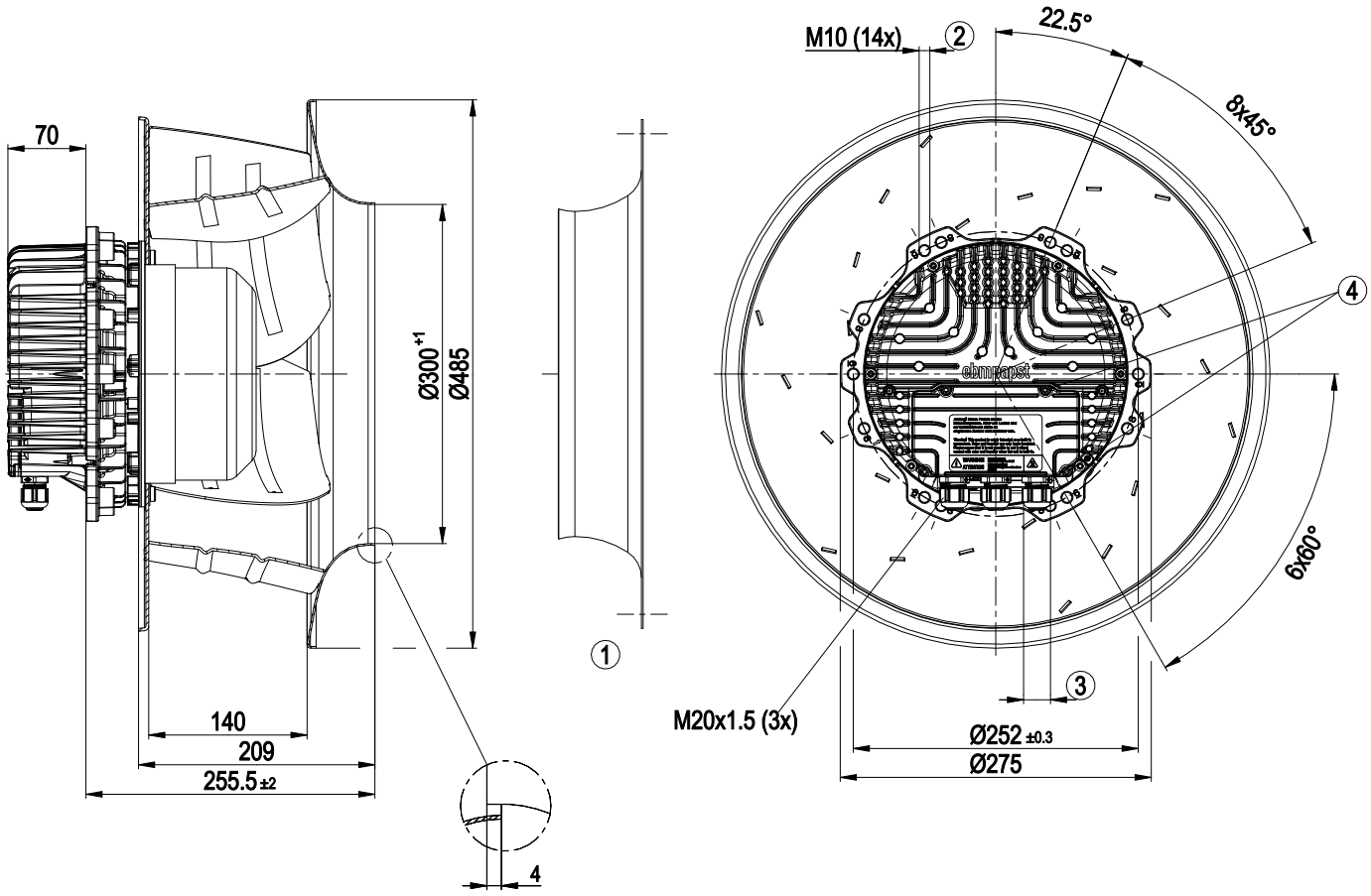
Weight	21.6 kg
Fan size	450 mm
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	Sheet aluminum, welded
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	F4-1
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
Technical features	- RS-485 MODBUS-RTU - PFC, passive - Control input 0-10 VDC / PWM - Thermal overload protection for electronics/motor - Alarm relay - Integrated PID controller - Input for sensor 0-10 V or 4-20 mA - Output for slave 0-10 V - Motor current limitation - Soft start - Line undervoltage / phase failure detection - Output 10 VDC, max. 10 mA - Output 20 VDC, max. 50 mA - External 24 V input (parameter setting)
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC interference emission	According to EN 61000-6-3 (household environment)
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Via terminal box
Motor protection	Reverse polarity and locked-rotor protection
Protection class	I (with customer connection of protective earth)
Conformity with standards	CE
Approval	C22.2 No.77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730

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Product drawing



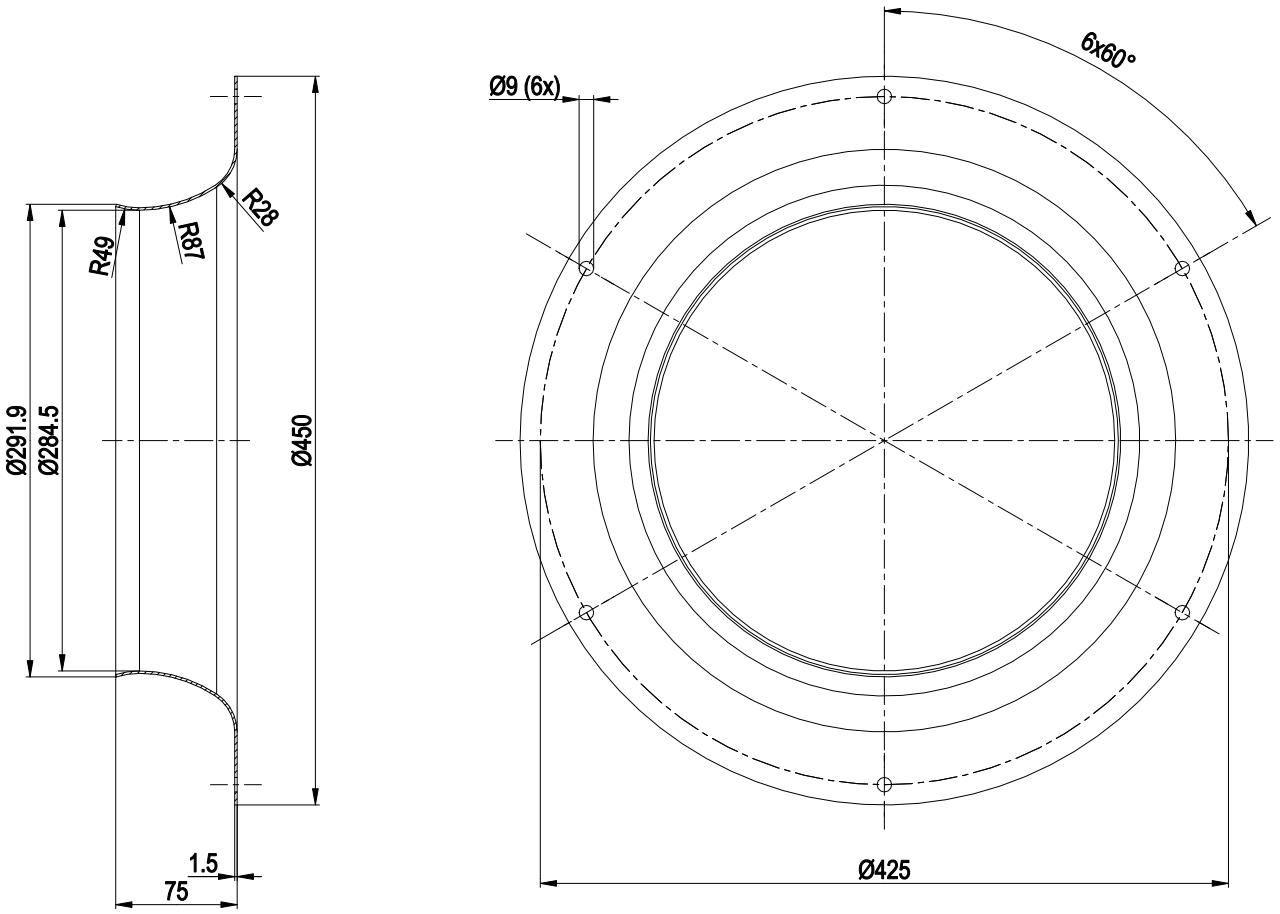
1	Accessory part: Inlet ring 63045-2-4013 not included in scope of delivery, other inlet rings on request
2	Max. clearance for screw 25 mm
3	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4±0.6 Nm
4	Tightening torque 3.5±0.5 Nm

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Accessory part



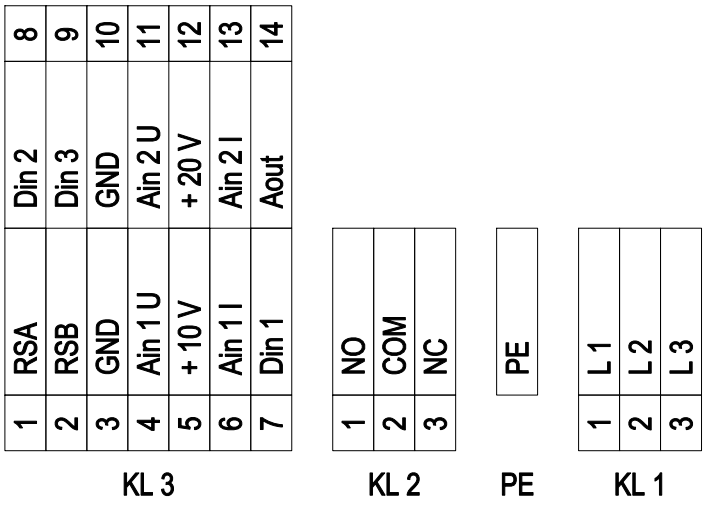
Inlet ring 63045-2-4013 not included in scope of delivery

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Connection diagram



No.	Conn.	Designation	Function/assignment
KL 1	1	L1	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
KL 1	2	L2	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
KL 1	3	L3	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
PE		PE	Ground connection, PE connection
KL 2	1	NO	Status relay, floating status contact; make for failure
KL2	2	COM	Status relay, floating status contact; changeover contact; common connection; contact rating 250 VAC / max. 2 A (AC1) / min. 10 mA
KL2	3	NC	Status relay, floating status contact; break for failure
KL 3	1	RSA	Bus connection RS485, RSA, MODBUS-RTU; SELV
KL 3	2	RSB	Bus connection RS485, RSB, MODBUS-RTU; SELV
KL 3	3 / 10	GND	Reference ground for control interface; SELV
KL 3	4	Ain1 U	Analog input 1, set value: 0-10 V, Ri = 100 kΩ, adjustable curve, only usable as alternative to input Ain1 I; SELV
KL 3	5	+ 10 V	Fixed voltage output 10 VDC, +10 V ±3%, max. 10 mA, short-circuit-proof power supply for external devices (e.g. pot); SELV
KL 3	6	Ain1 I	Analog input 1, set value: 4-20 mA, Ri = 100 Ω, adjustable curve, only usable as alternative to input Ain1U; SELV
KL 3	7	Din1	Digital input 1: enable electronics, enable: pin open or applied voltage 5-50 VDC disable: bridge to GND or applied voltage < 1 VDC reset function: triggers software reset after a level change to < 1 VDC; SELV
KL 3	8	Din2	Digital input 2: Switching parameter sets 1/2, according to EEPROM setting, the valid or used parameter set can be selected via bus or via digital input DIN2. Parameter set 1: pin open or applied voltage 5-50 VDC Parameter set 2: bridge to GND or applied voltage < 1 VDC; SELV
KL 3	9	Din3	Digital input 3: according to EEPROM setting, the integrated controller's direction of action can be selected as normal/inverse via bus or digital input normal: pin open or applied voltage 5-50 VDC inverse: bridge to GND or applied voltage < 1 VDC; SELV
KL 3	11	Ain2 U	Analog input 2, measured value: 0-10 V, Ri = 100 kΩ, adjustable curve, only usable as alternative to input Ain2I; SELV
KL 3	12	+ 20 V	Fixed voltage output 20 VDC, +20 V +25/-10%, max. 50 mA, short-circuit-proof power supply for external devices (e.g. sensors); SELV

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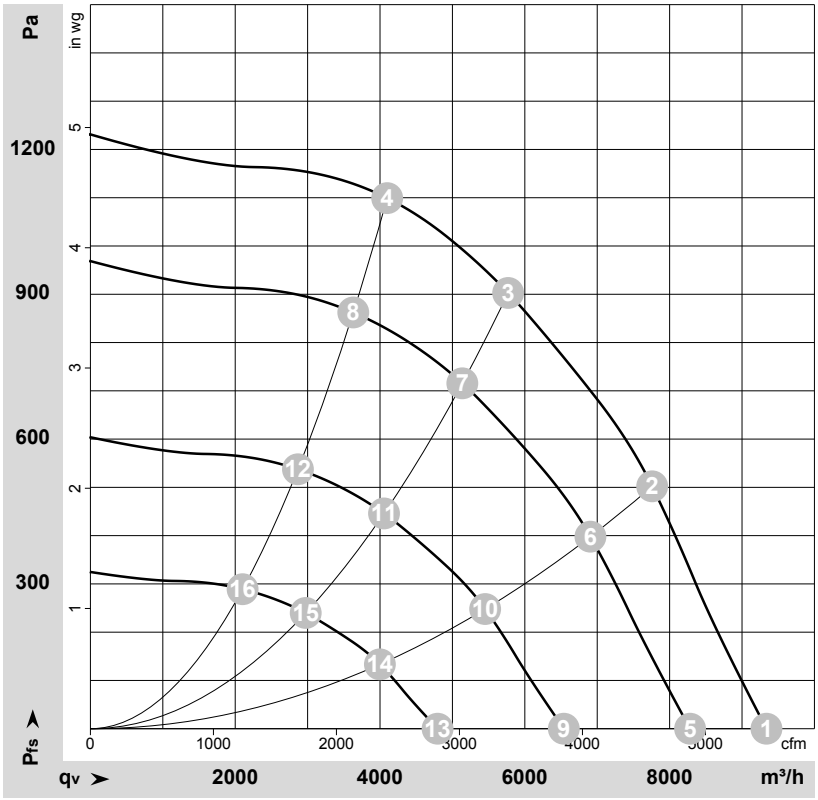
No.	Conn.	Designation	Function/assignment
KL 3	13	Ain2 I	Analog input 2, measured value: 4-20 mA, Ri = 100 Ω, adjustable curve, only usable as alternative to input Ain2U; SELV
KL 3	14	Aout	Analog output 0-10 VDC, max. 5 mA, output of current motor modulation level / motor speed adjustable curve; SELV

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Curves: Air performance 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-119470-1

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

	U	f	n	P_{ed}	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	inH2O
1	400	50	2170	1780	2.73	84	91	98	9335	0	5495	0.00
2	400	50	2170	2327	3.56	80	87	95	7760	500	4565	2.01
3	400	50	2170	2550	3.90	75	82	90	5770	900	3395	3.61
4	400	50	2170	2398	3.67	78	86	93	4100	1100	2415	4.42
5	400	50	1900	1242	1.90	81	88	95	8285	0	4875	0.00
6	400	50	1900	1641	2.51	77	84	92	6905	398	4065	1.60
7	400	50	1900	1790	2.74	72	80	87	5135	718	3025	2.88
8	400	50	1900	1665	2.55	75	83	90	3630	865	2135	3.47
9	400	50	1500	611	0.94	75	82	89	6540	0	3850	0.00
10	400	50	1500	808	1.23	72	78	86	5450	248	3210	1.00
11	400	50	1500	881	1.35	66	74	81	4055	447	2385	1.79
12	400	50	1500	819	1.26	69	77	84	2865	539	1685	2.16
13	400	50	1100	241	0.37	67	74	81	4795	0	2820	0.00
14	400	50	1100	319	0.49	64	71	78	4000	133	2355	0.53
15	400	50	1100	347	0.53	59	66	73	2975	241	1750	0.97
16	400	50	1100	323	0.50	61	69	76	2100	290	1235	1.16

U = Power supply · f = Frequency · n = Speed (rpm) · P_{ed} = 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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