R3G450-AQ24-01

EC centrifugal fan - RadiPac

backward curved, single inlet



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ErP2015 EXCEEDS THE NORM

Nominal data

Type	**R3G450-AQ24-01**	
Motor	**M3G150-FF**	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Type of data definition		ml
Speed	min^{-1}	2040
Power input	W	2730
Current draw	A	4.2
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	+60

ml = Max. load · me = Max. efficiency · fa = Running at free air · cs = Customer specs · cu = Customer unit
Subject to alterations

Data according to ErP directive

Installation category	A
Efficiency category	Static
Variable speed drive	Yes
Specific ratio*	1.01

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

		Actual	Request 2013	Request 2015
Overall efficiency η_{es}		66.3	52	56
Efficiency grade N		72.3	58	62
Power input P_{ed}	kW	2.7		
Air flow q_v	m^3/h	7585		
Pressure increase p_{fs}	Pa	804		
Speed n	min^{-1}	2050		

Data definition with optimum efficiency.
The ErP data is determined using a motor-impeller combination in a standardised measurement configuration.

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Technical features

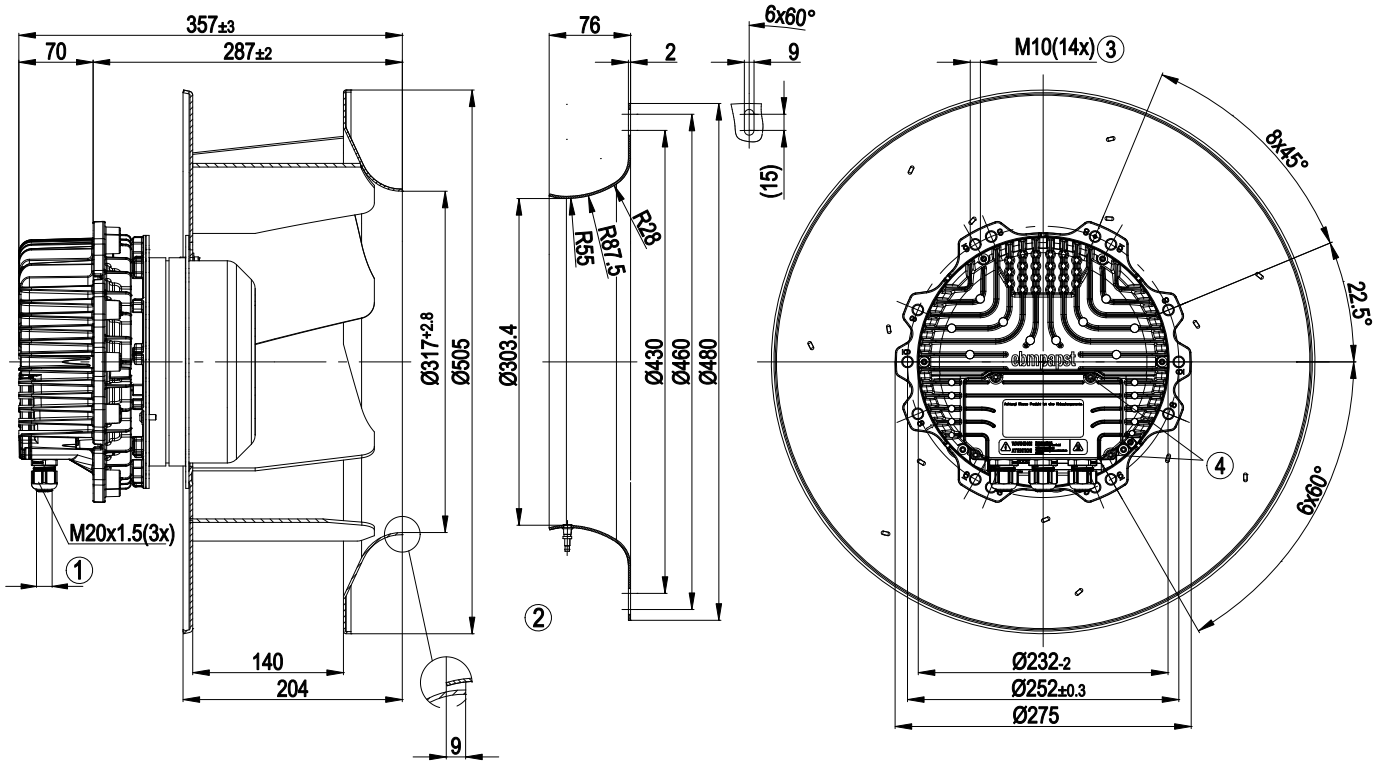
Mass	21.8 kg
Size	450 mm
Surface of rotor	Coated in black
Material of electronics housing	Die-cast aluminium
Material of impeller	Aluminium sheet
Number of blades	7
Direction of rotation	Clockwise, seen on rotor
Type of protection	IP 54
Insulation class	"F"
Humidity class	F4-1
Max. permissible ambient motor temp. (transp./ storage)	+80 °C
Min. permissible ambient motor temp. (transp./storage)	-40 °C
Mounting position	Shaft horizontal or rotor on bottom; rotor on top on request
Condensate discharge holes	Rotor-side
Operation mode	S1
Motor bearing	Ball bearing
Technical features	- RS485 MODBUS RTU - PFC, passive - Control input 0-10 VDC / PWM - Overtemperature-protected 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 limit - Soft start - Line undervoltage / phase failure detection - Output 10 VDC, max. 10 mA - Output 20 VDC, max. 50 mA - External 24 V input (setting parameters)
EMC interference immunity	Acc. to EN 61000-6-2 (industrial environment)
EMC interference emission	Acc. to EN 61000-6-3 (household environment)
Touch current acc. IEC 60990 (measuring network Fig. 4, TN system)	<= 3.5 mA
Electrical leads	Via terminal box
Motor protection	Reverse polarity and locked-rotor protection
Protection class	I (if protective earth is connected by customer)
Product conforming to standard	EN 61800-5-1; CE
Approval	UL 1004-7 + 60730; GOST; C22.2 Nr.77 + CAN/CSA-E60730-1

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Product drawing



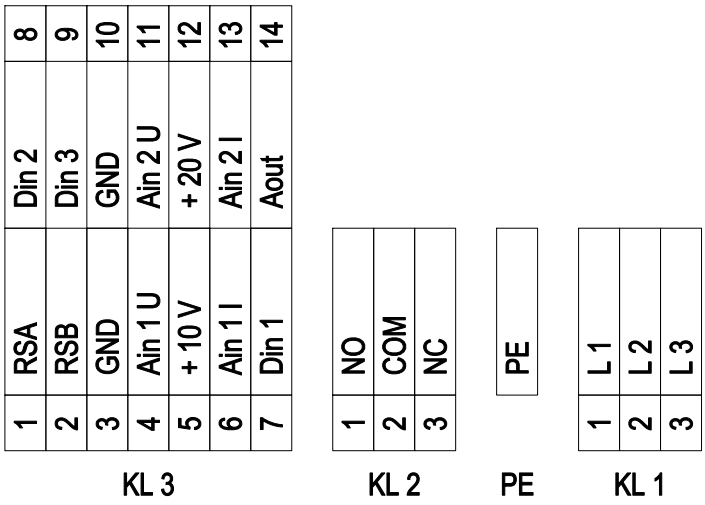
1	Cable diameter: min. 4 mm, max. 10 mm, tightening torque: 4±0.6 Nm
2	Accessory part: inlet nozzle 45075-2-4013 with a pressure tap not included in the standard scope of delivery; other inlet nozzles on request
3	Depth of screw max. 25 mm
4	Tightening torque 3.5±0.5 Nm

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Connection screen



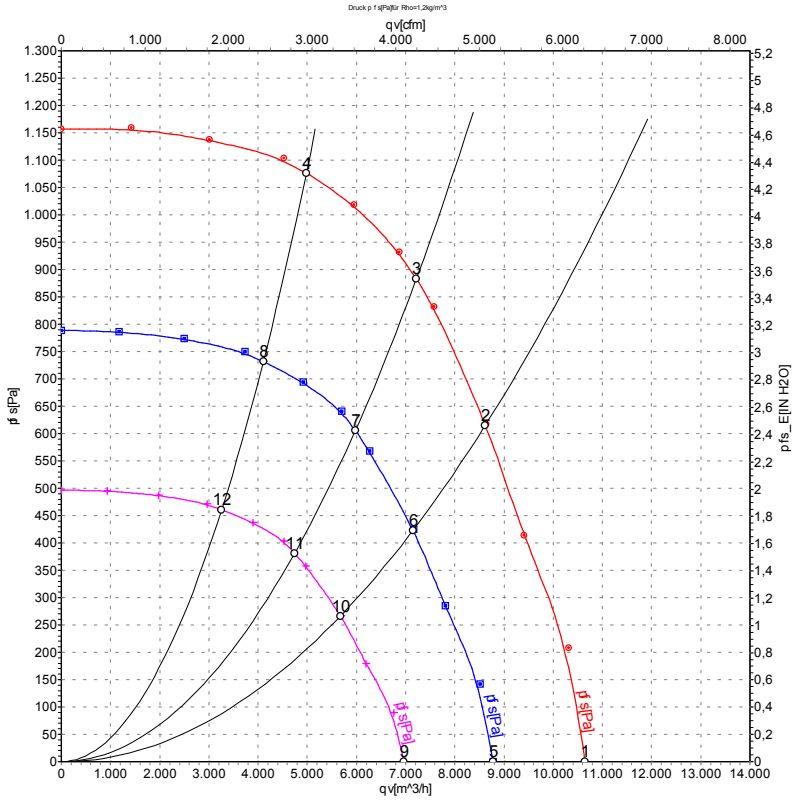
No.	Pin	Signal	Function / assignment
KL 1	1	L1	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
KL 1	2	L2	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
KL 1	3	L3	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
PE		PE	Earth connection, PE connection
KL 2	1	NO	Status relay, floating status contact; normally open; close with error
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 with error
KL 3	1	RSA	Bus connection RS485; RSA; MODBUS RTU
KL 3	2	RSB	Bus connection RS485; RSB; MODBUS RTU
KL 3	3 / 10	GND	Signal ground for control interface KL3
KL 3	4	Ain1 U	Analogue input 1 (set value); 0-10 V; Ri= 100 kΩ; parametrisable curves; only usable as alternative to input Ain1 I
KL 3	5	+ 10 V	Fixed voltage output 10 VDC; + 10 V +/-3%; max. 10 mA; short circuit proof; power supply for ext. devices (e.g. potentiometer)
KL 3	6	Ain1 I	Analogue input 1 (set value); 4-20 mA; Ri= 100 Ω; parametrisable curves; only usable as alternative to input Ain1 U
KL 3	7	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 <1 V
KL 3	8	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 < 1 VDC
KL 3	9	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 (control deviation = actual sensor value - set value) inverse: bridge to GND or applied voltage < 1 VDC (control deviation = set value - actual sensor value)
KL 3	11	Ain2 U	Analogue input 2; actual sensor value 0-10 V; Ri= 100 kΩ; parametrisable curve; only usable as alternative to input Ain2 I
KL 3	12	+ 20 V	Fixed voltage output 20 VDC; + 20 V +25/-10 %; max. 50 mA; short circuit proof; power supply for ext. devices (e.g. sensors)
KL 3	13	Ain2 I	Analogue input 2; actual sensor value 4-20 mA; Ri= 100 Ω; parametrisable curve; only usable as alternative to input Ain2 U
KL 3	14	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; function selectable per bus; parametrisable curve.

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Charts: Air flow 50 Hz



Measurement: LU-118089

Air performance measured as per ISO 5801 Installation category A. For detailed information on the measuring set-up, please contact ebm-papst. Suction-side noise levels: LwA measured as per ISO 13347 / LpA measured with 1m distance to fan axis. The values given are valid under the measuring conditions mentioned above and may vary according to the actual installation situation. With any deviation from the standard set-up, the specific values have to be checked and reviewed with the unit installed.

Measured values

	U	f	n	P_{ed}	I	LwA_{in}	qv	p_{fs}
	V	Hz	min^{-1}	W	A	dB(A)	m^3/h	Pa
1	400	50	2040	1773	2.71	92	10650	0
2	400	50	2040	2500	3.80	83	8615	620
3	400	50	2040	2730	4.20	81	7220	885
4	400	50	2040	2587	3.96	83	4980	1080
5	400	50	1695	991	1.52	88	8770	0
6	400	50	1695	1428	2.17	79	7145	428
7	400	50	1695	1548	2.35	77	5980	605
8	400	50	1695	1450	2.22	79	4105	732
9	400	50	1345	495	0.76	83	6960	0
10	400	50	1345	713	1.09	74	5670	269
11	400	50	1345	774	1.18	72	4745	381
12	400	50	1345	725	1.11	74	3260	461

U = Supply voltage · f = Frequency · n = Speed · P_{ed} = Power input · I = Current draw · LwA_{in} = Sound power level inlet side · qv = Air flow · p_{fs} = Pressure increase

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