R3G500-RA24-71

EC centrifugal fan - RadiCal®

backward curved, single inlet



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ErP2015 EXCEEDS THE NORM

Nominal data

Type	**R3G500-RA24-71**
Motor	**M3G150-FF**

Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Type of data definition		ml
State		prelim.
Speed	min^{-1}	1700
Power input	W	2600
Current draw	A	4.0
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}	%	62.8	51.8	55.8
Efficiency grade N		69	58	62
Power input P_{ed}	kW	2.59		
Air flow q_v	m^3/h	6985		
Pressure increase p_{fs}	Pa	792		
Speed n	min^{-1}	1695		

Data definition with optimum efficiency. LU-145835
The ErP data is determined using a motor-impeller combination in a standardised measurement configuration.

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Technical features

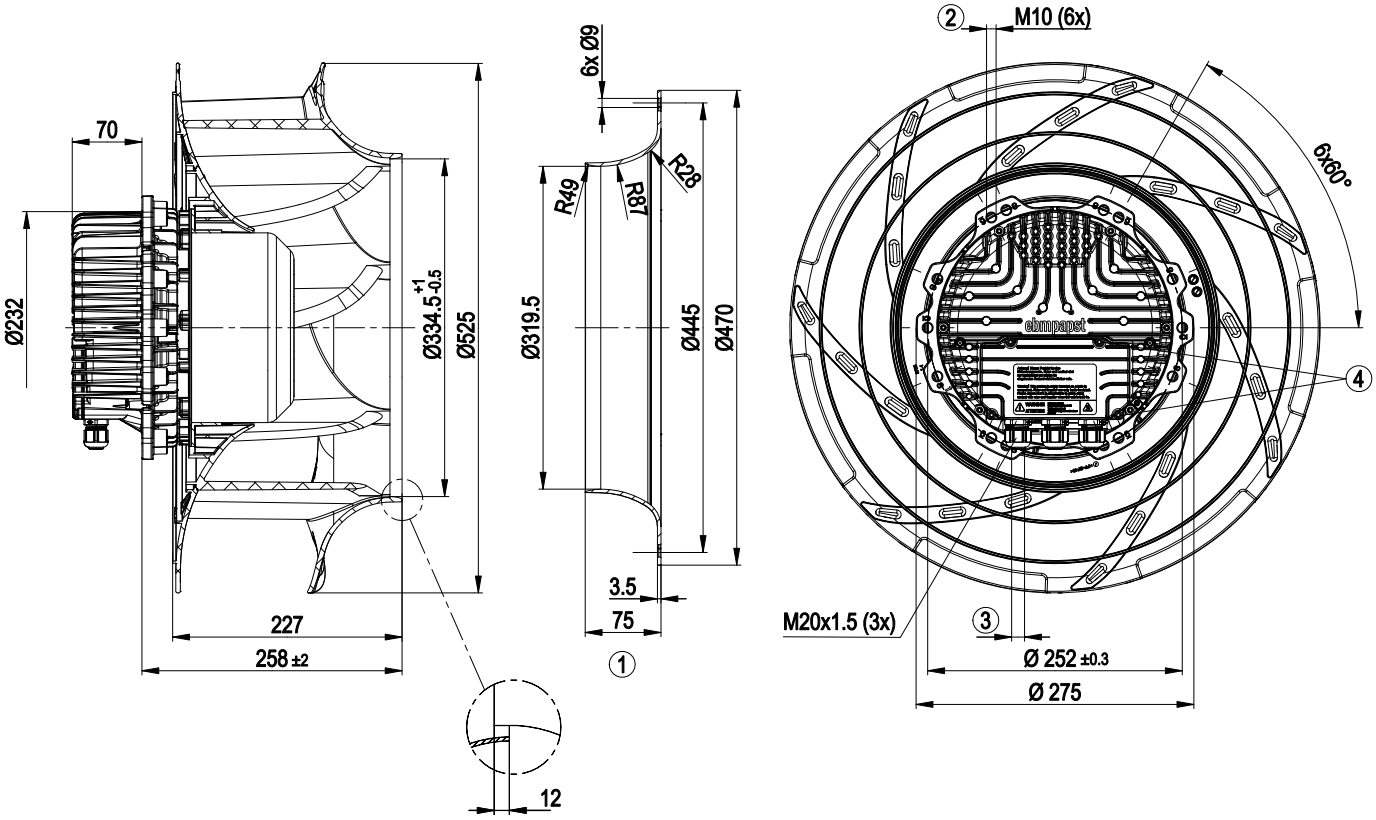
Mass	22 kg
Size	500 mm
Surface of rotor	Coated in black
Material of electronics housing	Die-cast aluminium
Material of impeller	PP plastic
Number of blades	7
Direction of rotation	Clockwise, seen on rotor
Type of protection	IP 54
Insulation class	"F"
Humidity class	F4-1
Max. permissible ambient motor 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	- Output 10 VDC, max. 10 mA - Operation and alarm display - External 24 V input (programming) - External release input - Alarm relay - Integrated PID controller - Motor current limit - PFC, passive - RS485 MODBUS RTU - Soft start - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from the mains - Over-temperature protected electronics / motor - Line undervoltage / phase failure detection
EMC interference immunity	Acc. to EN 61000-6-2 (industrial environment)
EMC interference emission	Acc. to EN 55022 (Class B, 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	EAC

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Product drawing



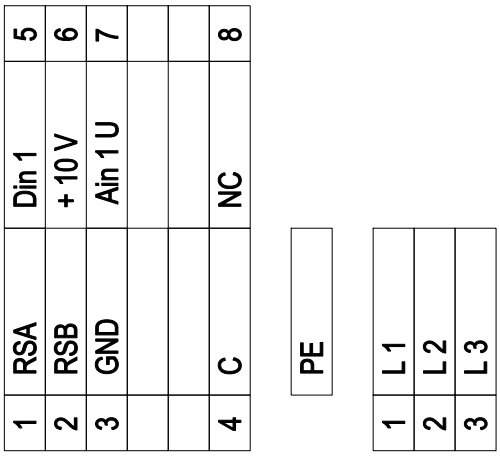
1	Accessory part: Inlet nozzle 50901-2-2943, not included in the standard scope of delivery
2	Depth of screw max. 25 mm
3	Cable diameter: min. 4 mm, max. 10 mm, tightening torque: 4±0.6 Nm
4	Tightening torque 3.5±0.5 Nm

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Connection screen



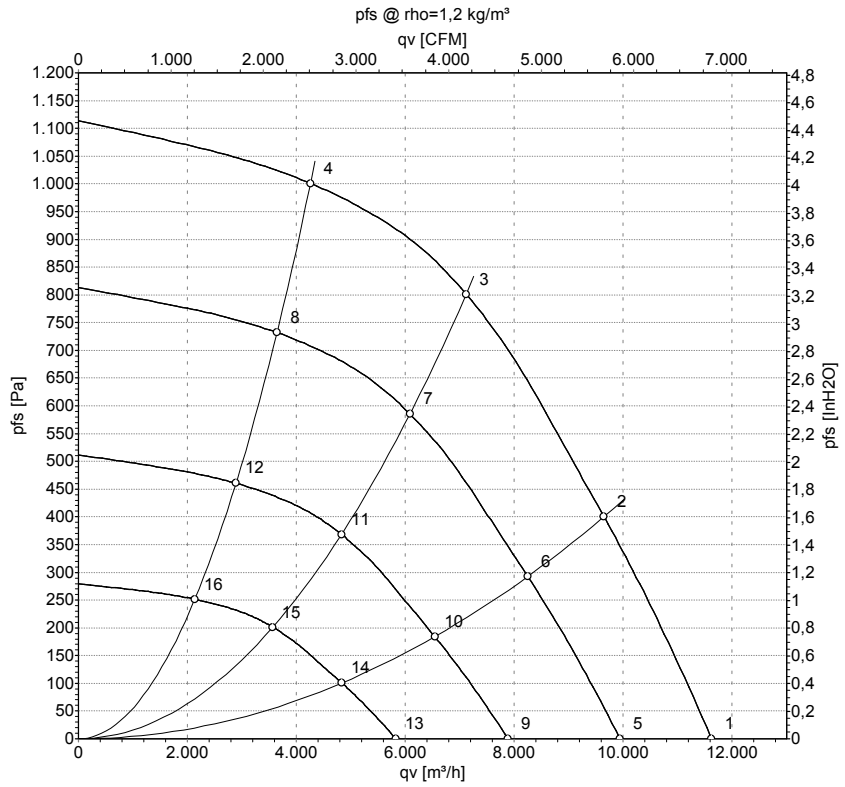
No.	Conn.	Designation	Function / assignment
KL 1	1	L1	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
KL 1	2	L2	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
KL 1	3	L3	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
PE		PE	Earth connection, PE connection
KL 2	1	RSA	Bus connection RS-485, RSA, MODBUS RTU; SELV
KL 2	2	RSB	Bus connection RS-485, RSB, MODBUS RTU; SELV
KL 2	3	GND	Signal ground for control interface; SELV
KL2	4	C	Status relay; floating status contact; changeover contact; common connection; contact rating 250 VAC / 2 A (AC1)
KL 2	5	Din1	Digital input 1 enabling of electronics, enabling: open pin or applied voltage 5-50 VDC disabling: bridge to GND or applied voltage <1 VDC reset function: triggers software reset after a level change to <1 V; SELV
KL 2	6	+ 10 V	Fixed voltage output 10 VDC, +10 V ±3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. potentiometer), SELV
KL 2	7	Ain1 U	Analogue input 1 (set value) 0-10 V, Ri = 100 kΩ, parametrisable curve, only usable as alternative to input Ain1 I SELV
KL2	8	NC	Status relay, floating status contact; break for failure

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Charts: Air flow 50 Hz



Measurement: LU-145835

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	LpA_{in}	LwA_{in}	LwA_{out}	qv	p_{fs}
	V	Hz	min^{-1}	W	A	dB(A)	dB(A)	dB(A)	m^3/h	Pa
1	400	50	1695	1789	2.83	79	86	93	11620	0
2	400	50	1695	2293	3.57	75	82	89	9645	400
3	400	50	1700	2600	4.00	70	77	84	7120	800
4	400	50	1695	2229	3.47	73	81	86	4260	1000
5	400	50	1450	1120	1.77	75	82	89	9940	0
6	400	50	1450	1433	2.23	71	78	85	8250	293
7	400	50	1450	1615	2.50	66	73	80	6085	587
8	400	50	1450	1395	2.17	69	77	82	3645	733
9	400	50	1150	559	0.88	69	76	83	7885	0
10	400	50	1150	715	1.11	65	72	79	6540	184
11	400	50	1150	806	1.25	60	67	74	4825	369
12	400	50	1150	696	1.08	64	72	76	2890	461
13	400	50	850	226	0.36	61	68	75	5830	0
14	400	50	850	289	0.45	57	65	71	4835	101
15	400	50	850	325	0.50	53	60	66	3565	202
16	400	50	850	281	0.44	56	64	69	2135	252

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

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