R3G710-AP02-05

EC centrifugal fan

backward-curved, single-intake

R3G710-AP02-05 ebmpapst Datasheet
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ErP2015 EXCEEDS THE NORM

Nominal data

Type	**R3G710-AP02-05**
Motor	**M3G150-NA**

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}	920
Power consumption	W	2800
Current draw	A	4.3
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	40

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}	%	66.2	56.2
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		72	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	2.79
09 Air flow q_v	m^3/h	13805
09 Pressure increase p_{fs}	Pa	456
10 Speed (rpm) n	min^{-1}	920
11 Specific ratio*		1.00

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-154542

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Technical description

Weight	45 kg
Fan size	710 mm
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	Sheet aluminum
Number of blades	7
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
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 45° upward
Condensation drainage holes	None
Mode	S1
Motor bearing	Ball bearing
Technical features	- Output 10 VDC, max. 10 mA - Output 20 VDC, max. 50 mA - Output for slave 0-10 V - Input for sensor 0-10 V or 4-20 mA - External 24 V input (parameter setting) - External release input - Alarm relay - Integrated PID controller - Power limiter - Motor current limitation - PFC, passive - RS-485 MODBUS-RTU - Soft start - EEPROM write cycles: 100,000 maximum - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from the mains - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
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
Motor protection	Reverse polarity and locked-rotor protection
With cable	Lateral
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	C22.2 No.77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730

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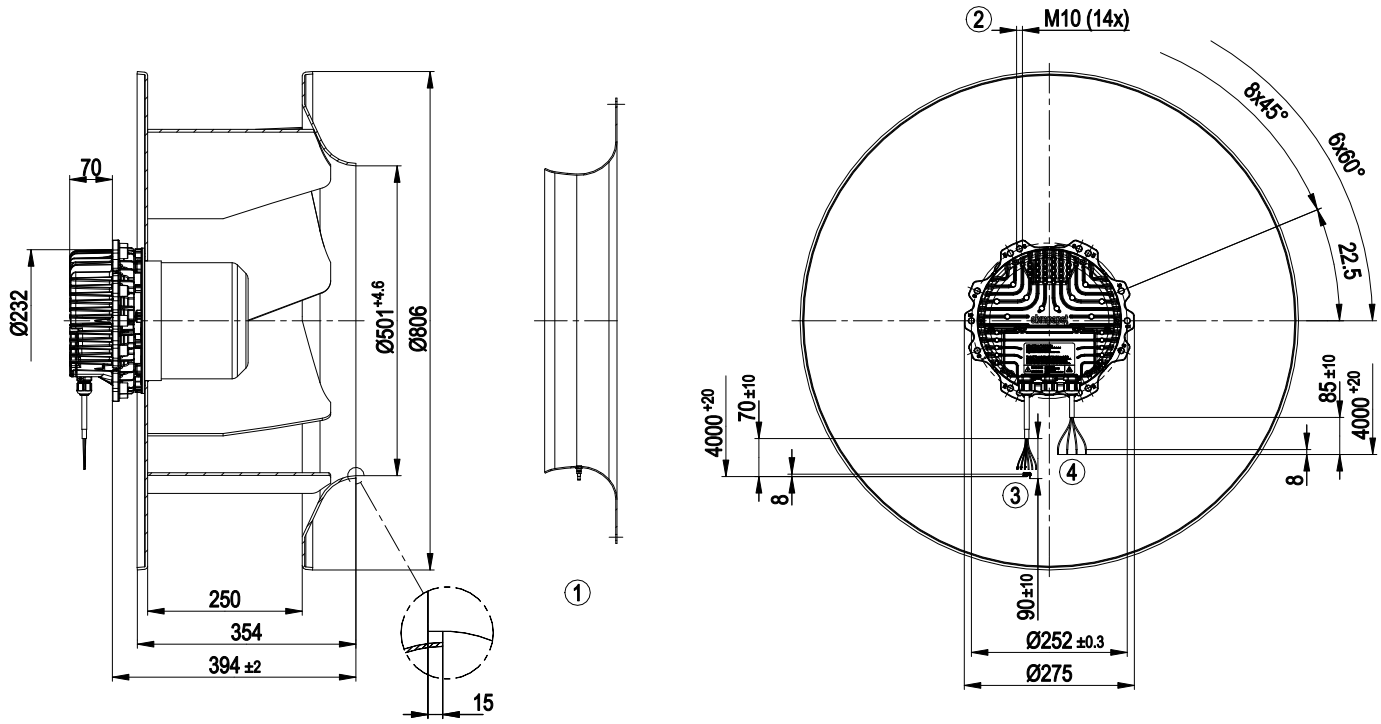
Product drawing



1	Accessory part: inlet ring 71075-2-4013 with pressure tap not included in scope of delivery
2	Max. clearance for screw 25 mm
3	Cable FEP AWG20, 4x crimped ferrules, PE (green/yellow) 90 mm stripped
4	Cable silicone 4x 1.5 mm², 4x crimped ferrules

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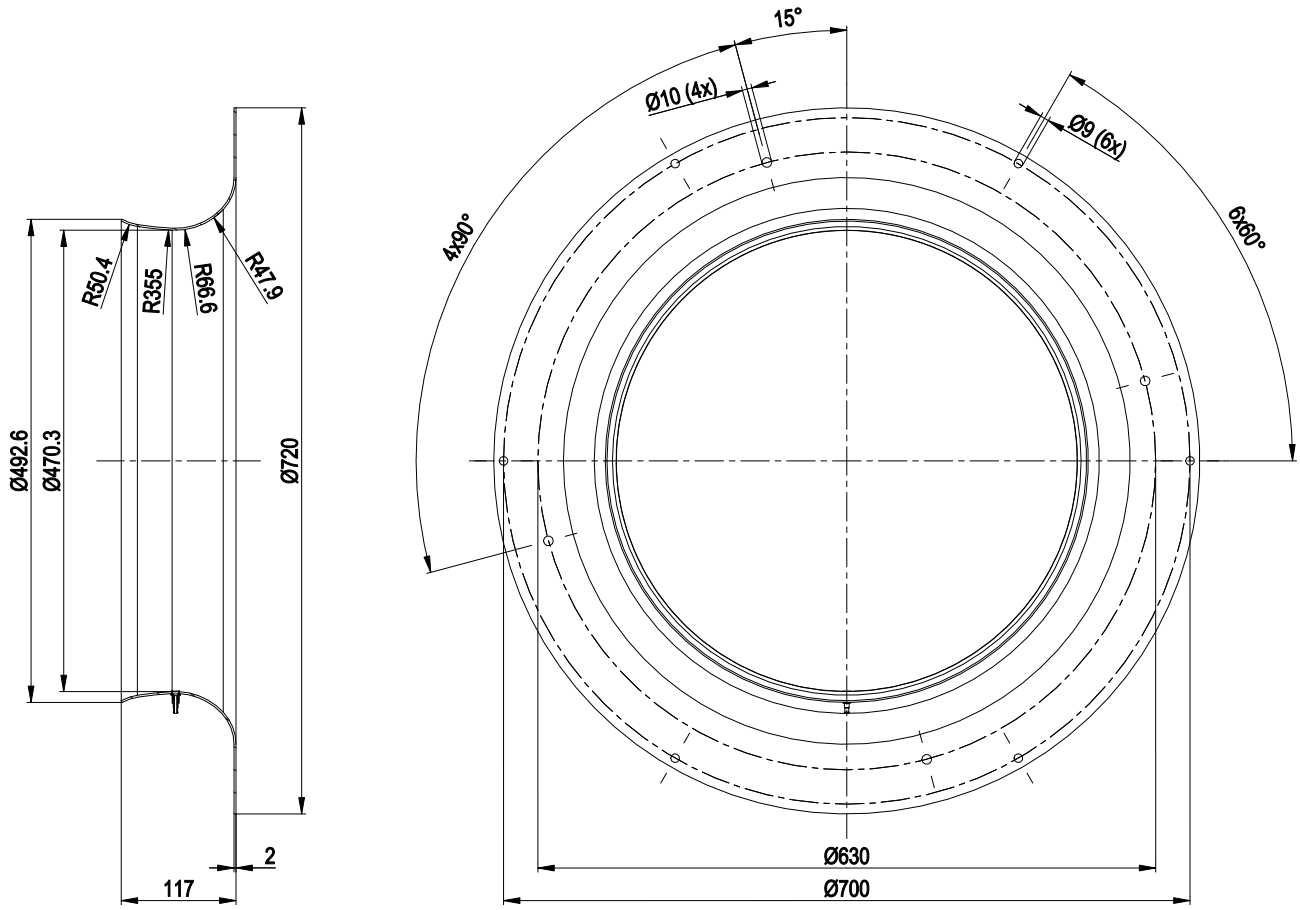
Accessory part



Inlet ring 71075-2-4013 with pressure tap not included in scope of delivery

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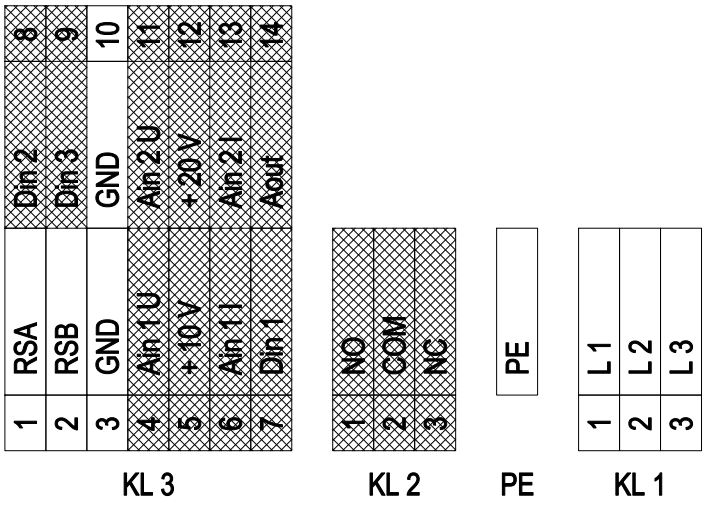
Connection diagram



shaded gray => not brought out via leads

No.	Conn.	Designation	Color	Function/assignment
1	KL1	L1	blue	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
1	KL1	L2	brown	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
1	KL1	L3	black	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
1	PE	PE	green/yellow	Ground connection, PE connection
	KL2	NO		Status relay, floating status contact, make for failure
	KL2	COM		Status relay, floating status contact, changeover contact, common connection, contact rating 250 VAC / max. 2 A (AC1) / min. 10 mA
	KL2	NC		Status relay, floating status contact, break for failure
2	KL3	RSA	white	Bus connection RS485; RSA; MODBUS RTU
2	KL3	RSB	brown	Bus connection RS485; RSB; MODBUS RTU
2	KL3	GND	green/yellow	Reference ground for control interface
	KL3	Ain1 U		Analog input 1 (set value), 0-10 V, Ri = 100 kΩ, adjustable curves, only usable as alternative to input Ain1I
	KL3	+ 10 V		Fixed voltage output 10 VDC, +10 V ±3%; max. 10 mA; short-circuit-proof; power supply for external devices (e.g. pot)
	KL3	Ain1 I		Analog input 1 (set value), 4-20 mA, Ri = 100 Ω, adjustable curves, only usable as alternative to input Ain1U
	KL3	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 V
	KL3	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
	KL3	Din3		Digital input 3: Direction of action of integrated controller; According to EEPROM setting, the direction of action of the integrated controller 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
	KL3	Ain2 U		Analog input 2, measured value 0-10 V, Ri = 100 kΩ, adjustable curve, only usable as alternative to input Ain2I
	KL3	+ 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)

No.	Conn.	Designation	Color	Function/assignment
	KL3	Ain2 I		Analog input 2, measured value: 4-20 mA, Ri = 100 Ω, adjustable curve, only usable as alternative to input Ain2U
	KL3	Aout		Analog output 0-10 V, max. 5 mA, output of current motor modulation level / of the current motor speed. Adjustable curve.

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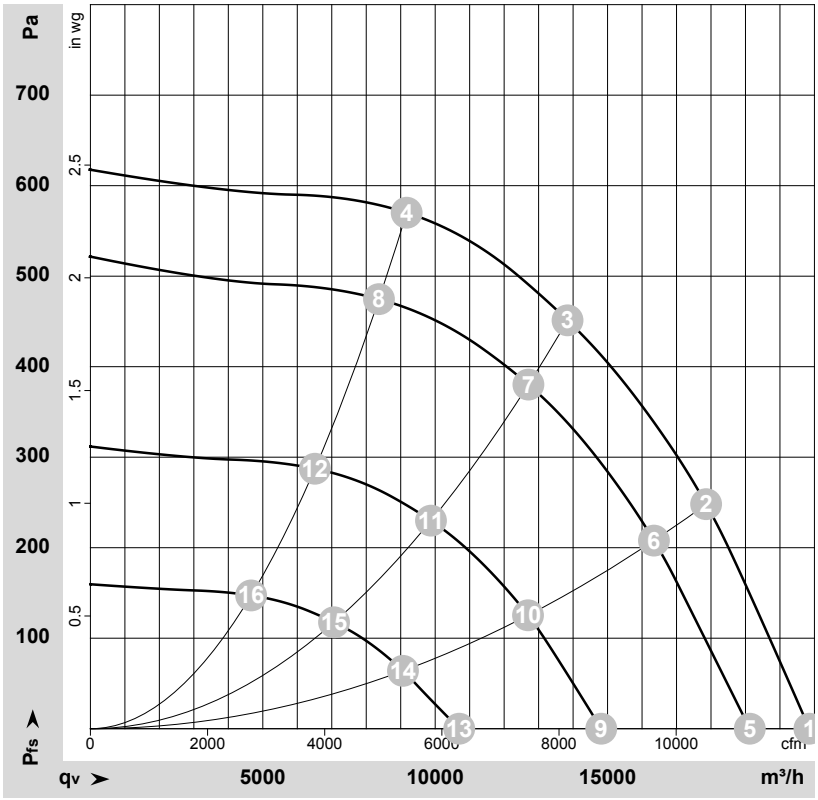
Curves: Air performance 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-154542-1

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_{ed}	I	LpA_{in}	LwA_{in}	LwA_{out}	qv	p_{fs}	qv	p_{fs}
		V	Hz	min^{-1}	W	A	dB(A)	dB(A)	dB(A)	m^3/h	Pa	CFM	inH2O
1	Y	400	50	920	1861	2.90	76	84	90	20855	0	12275	0.00
2	Y	400	50	920	2521	3.88	71	80	85	17860	250	10510	1.00
3	Y	400	50	920	2800	4.30	70	78	84	13840	450	8145	1.81
4	Y	400	50	920	2542	3.89	70	78	84	9175	570	5400	2.29
5	Y	400	50	845	1441	2.26	73	82	87	19125	0	11255	0.00
6	Y	400	50	845	1977	3.05	69	78	83	16345	212	9620	0.85
7	Y	400	50	845	2173	3.36	68	76	82	12705	383	7475	1.54
8	Y	400	50	845	1965	3.03	68	76	82	8370	475	4925	1.91
9	Y	400	50	660	727	1.26	66	75	80	14815	0	8720	0.00
10	Y	400	50	660	960	1.56	63	71	77	12695	127	7470	0.51
11	Y	400	50	660	1049	1.74	62	70	75	9880	231	5815	0.93
12	Y	400	50	660	950	1.54	61	69	75	6510	287	3830	1.15
13	Y	400	50	475	285	0.61	57	66	72	10700	0	6295	0.00
14	Y	400	50	475	374	0.76	54	63	68	9065	65	5335	0.26
15	Y	400	50	475	409	0.82	54	62	67	7065	118	4160	0.47
16	Y	400	50	475	370	0.75	53	61	66	4660	147	2745	0.59

Wired = Wiring · 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 · qv = Air flow · p_{fs} = Pressure increase