

R3G400-AK53-05

# EC centrifugal fan

backward-curved, single-intake



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## Nominal data

Type	R3G400-AK53-05	
Motor	M3G112-EA	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min <sup>-1</sup>	1880
Power consumption	W	1000
Current draw	A	1.6
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	60

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 $\eta_{es}$	%	58.7	51.5
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		69.2	62
05 Variable speed drive		Yes	

Data obtained at optimum efficiency level.

The ErP data is determined using a motor-impeller combination in a standardized measurement setup.

09 Power consumption $P_{ed}$	kW	0.99
09 Air flow $q_v$	m <sup>3</sup> /h	3505
09 Pressure increase $p_{fs}$	Pa	554
10 Speed (rpm) $n$	min <sup>-1</sup>	1895
11 Specific ratio*		1.01

\* Specific ratio =  $1 + p_{fs} / 100\,000\text{ Pa}$

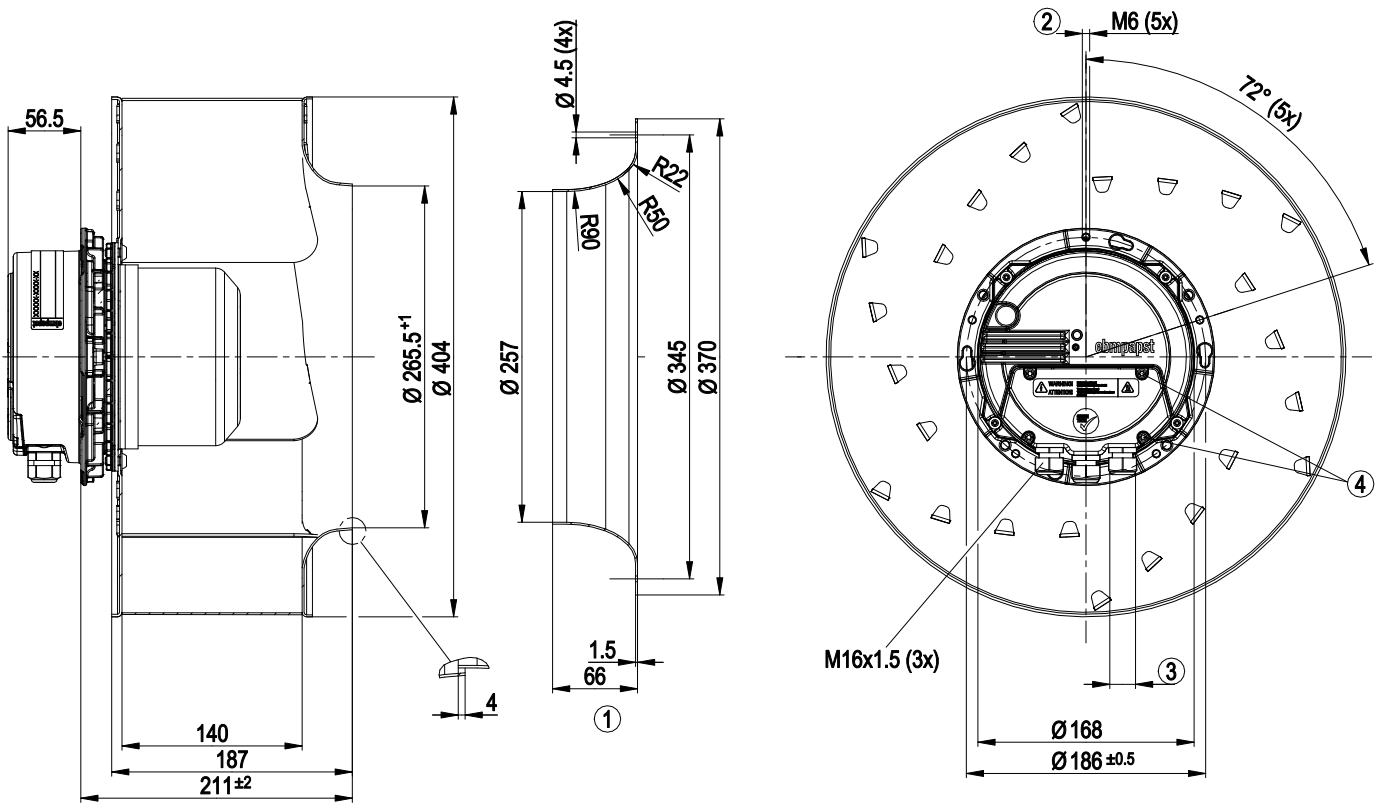
LU-107842



## Technical description

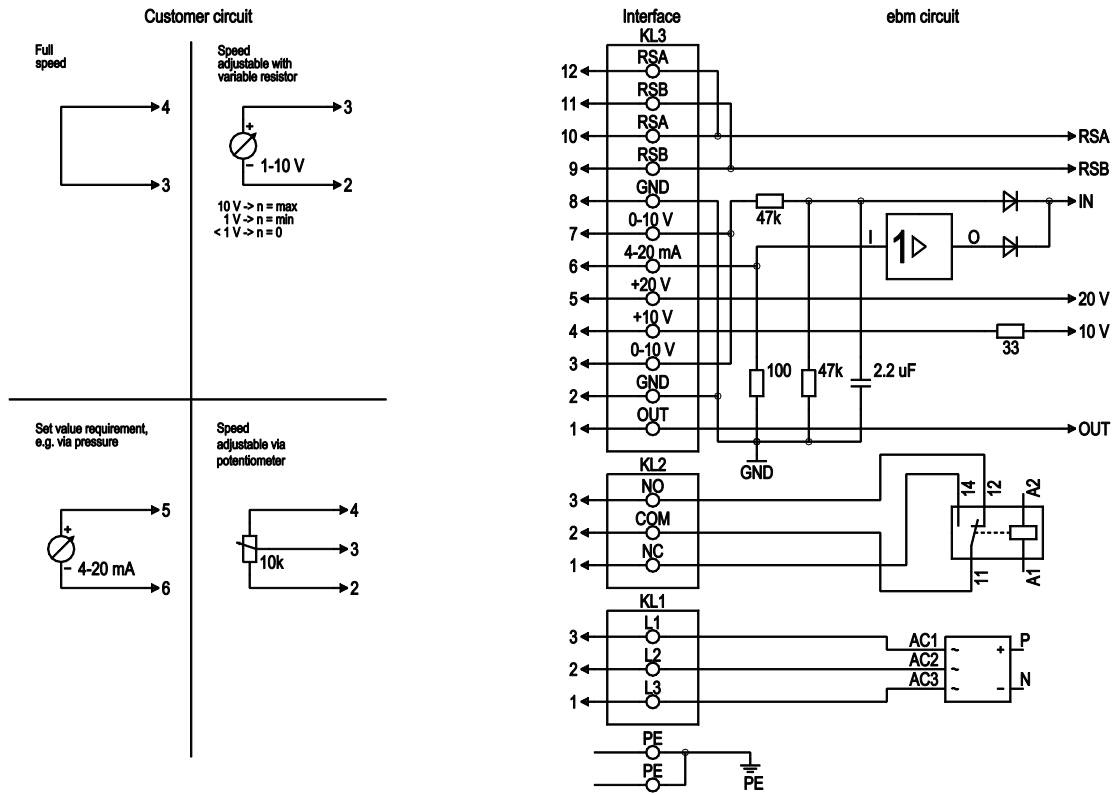
Weight	8.8 kg
Fan size	400 mm
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	Sheet aluminum
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"B"
Moisture (F) / Environmental (H) protection 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	Any
Mode	S1
Motor bearing	Ball bearing
Technical features	<ul style="list-style-type: none"> <li>- Output 10 VDC, max. 10 mA</li> <li>- Output 20 VDC, max. 50 mA</li> <li>- Tach output</li> <li>- Input for sensor 0-10 V or 4-20 mA</li> <li>- Alarm relay</li> <li>- Integrated PID controller</li> <li>- Motor current limitation</li> <li>- PFC, passive</li> <li>- RS-485 ebmBUS</li> <li>- Soft start</li> <li>- Control input 0-10 VDC / PWM</li> <li>- Control interface with SELV potential safely disconnected from supply</li> <li>- Thermal overload protection for electronics/motor</li> <li>- Line undervoltage / phase failure detection</li> </ul>
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC circuit feedback	According to EN 61000-3-2/3
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	Thermal overload protector (TOP) internally connected
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	CSA C22.2 No. 77; UL 2111; VDE; CCC

## Product drawing



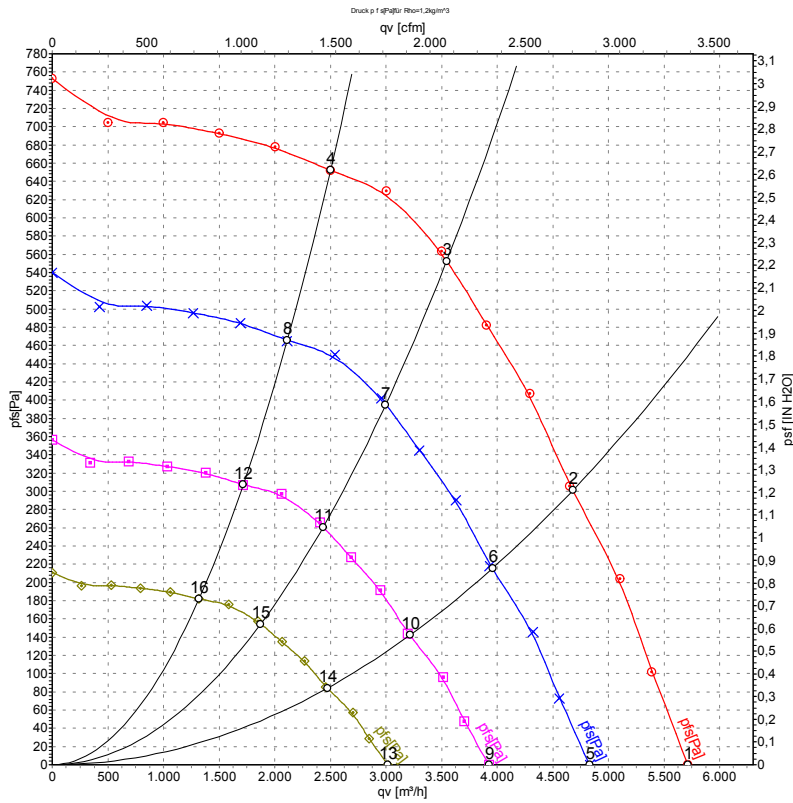
1	Accessory part: inlet ring 54476-2-4013 not included in scope of delivery
2	Max. clearance for screw 16 mm
3	Cable diameter min. 4 mm; max. 10 mm, tightening torque 2.5±0.4 Nm
4	Tightening torque 3.5±0.5 Nm

## Connection diagram



No.	Conn.	Designation	Function/assignment
PE		PE	Protective earth terminal
KL1	1, 2, 3	L1, L2, L3	Power supply 50/60 Hz
KL2	1	NC	Floating status contact, break for failure
KL2	2	COM	Floating status contact, changeover contact, common connection (2 A, max. 250 VAC, min. 10 mA, AC1)
KL2	3	NO	Floating status contact, make for failure
KL3	1	OUT	Tach output; 1 pulse/revolution, open collector; $R_i=680 \Omega$ ,
KL3	2, 8	GND	Reference ground for control interface, SELV
KL3	3, 7	0-10 V	Use control input/current sensor value input 0-10 VDC, impedance 100 k $\Omega$ only as alternative to 4-20 mA input, SELV
KL3	4	+10 V	Voltage output 10 VDC ( $\pm 3\%$ ), max. 10 mA, power supply for external devices (e.g. potentiometer), SELV
KL3	5	+20 V	Voltage output 20 VDC ( $+25\%/-10\%$ ), max. 50 mA, power supply for external devices (e.g. sensors), SELV
KL3	6	4-20 mA	Use control input/current sensor value input 4-20 mA, impedance 100 $\Omega$ only as alternative to 0-10 V input, SELV
KL3	9, 11	RSB	RS485 interface for ebmBus, RSB, SELV
KL3	10, 12	RSA	RS485 interface for ebmBus, RSA, SELV

## Curves: Air performance 50 Hz



Measurement: LU-107842-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebmpapst. 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 <sub>ed</sub>	I	LpA <sub>in</sub>	LwA <sub>in</sub>	LwA <sub>out</sub>	qv	P <sub>fs</sub>	qv	P <sub>fs</sub>
	V	Hz	min <sup>-1</sup>	W	A	dB(A)	dB(A)	dB(A)	m <sup>3</sup> /h	Pa	CFM	inH2O
1	400	50	1880	762	1.27	76	82	88	5715	0	3365	0.00
2	400	50	1880	871	1.43	73	80	86	4680	300	2755	1.20
3	400	50	1880	1000	1.60	71	78	83	3545	550	2085	2.21
4	400	50	1880	896	1.46	73	80	85	2500	650	1470	2.61
5	400	50	1600	460	0.77	72	79	84	4830	0	2845	0.00
6	400	50	1600	527	0.86	69	76	82	3960	214	2330	0.86
7	400	50	1600	602	0.94	67	74	80	2995	396	1765	1.59
8	400	50	1600	540	0.88	70	77	81	2115	465	1245	1.87
9	400	50	1300	247	0.41	68	74	80	3925	0	2310	0.00
10	400	50	1300	283	0.46	65	72	78	3215	141	1895	0.57
11	400	50	1300	323	0.51	63	69	75	2435	262	1435	1.05
12	400	50	1300	290	0.47	65	72	77	1715	307	1010	1.23
13	400	50	1000	112	0.19	62	68	74	3020	0	1775	0.00
14	400	50	1000	129	0.21	59	66	72	2475	84	1455	0.34
15	400	50	1000	147	0.23	57	64	69	1875	155	1100	0.62
16	400	50	1000	132	0.21	59	66	71	1320	182	780	0.73

U = Power supply · f = Frequency · n = Speed (rpm) · P<sub>ed</sub> = Power consumption · I = Current draw · LpA<sub>in</sub> = Sound pressure level intake side · LwA<sub>in</sub> = Sound power level intake side  
LwA<sub>out</sub> = Sound power level outlet side · qv = Air flow · P<sub>fs</sub> = Pressure increase

