K3G280-AK54-21

EC centrifugal module

backward-curved, single-intake

with support bracket

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Nominal data

Type	**K3G280-AK54-21**
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^{-1}	3400
Power consumption	W	1030
Current draw	A	1.8
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	50

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

Data according to Commission Regulation (EU) 327/2011 (EN 17166)

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	52.7	51.6
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		63.1	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	1.02
09 Air flow q_v	m^3/h	1790
09 Pressure increase p_{fs}	Pa	1003
10 Speed (rpm) n	min^{-1}	3420
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-114283

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Technical description

Weight	14.65 kg
Size	280 mm
Motor size	112
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted black
Impeller material	Sheet aluminum, painted black
Support plate material	Sheet steel, galvanized and painted black
Support bracket material	Steel, painted black
Inlet nozzle material	Sheet steel, galvanized and painted black
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	H2
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	See legend on product drawing
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 - Alarm relay - Integrated PID controller - Motor current limitation - PFC, passive - RS-485 ebmBUS - Soft start - 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 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	Terminal box
Motor protection	Thermal overload protector (TOP) internally connected
With cable	Variable
Protection class	I (with customer connection of protective earth)
Conformity with standards	CE
Approval	CCC

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Comment	A prerequisite for operation is a Class 1 vehicle electrical system architecture according to EN 50533; if supply potential (e.g. 230 VAC) is passed through the alarm relay, the SELV signal wires lose their property of reinforced insulation and they then have only basic insulation The SELV property (reinforced insulation) is not lost when voltages of up to 110 VDC are passed through the alarm relay.

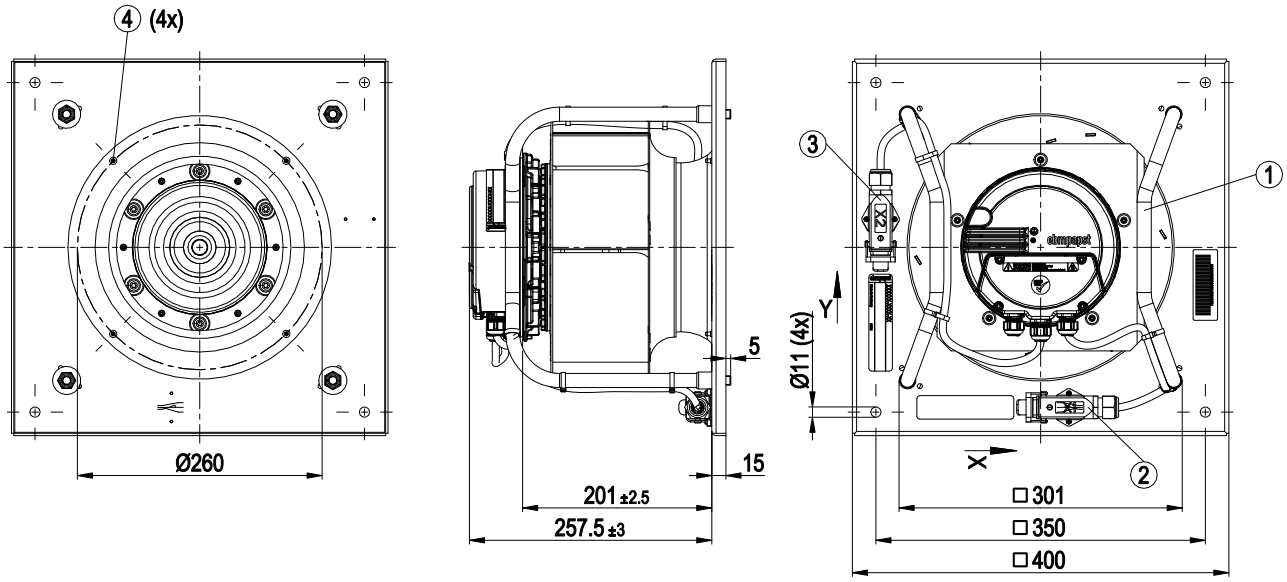
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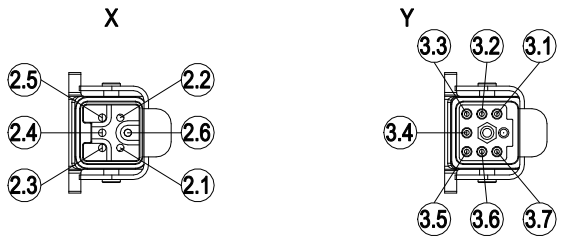
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Product drawing





1	Installation position: Shaft horizontal (only install support struts vertically as illustrated)
2	Cable, halogen-free, railway application EN 45545, 4G 1.5 mm²
	Connector housing Harting 19 20 003 1250, 6-pole pin insert Harting 09 12 005 3001, 3x plug pin Harting 09 33 000 6104, 1x connector GHW 25862.123.009
2.1	not used
2.2	not used
2.3	L1
2.4	L2
2.5	L3
2.6	PE
3	Cable, halogen-free, railway application EN 45545, 7x 0.75 mm²
	Connector housing Harting 19 20 003 1250, 7-pole pin insert Harting 09 12 007 3001, 7x plug pin Harting 09 15 000 6105
3.1	GND
3.2	0-10 V/PWM
3.3	+20 VDC
3.4	+10 V
3.5	NO
3.6	COM
3.7	NC
4	Attachment for inlet ring and FlowGrid (20280-2-2957 not included in scope of delivery)

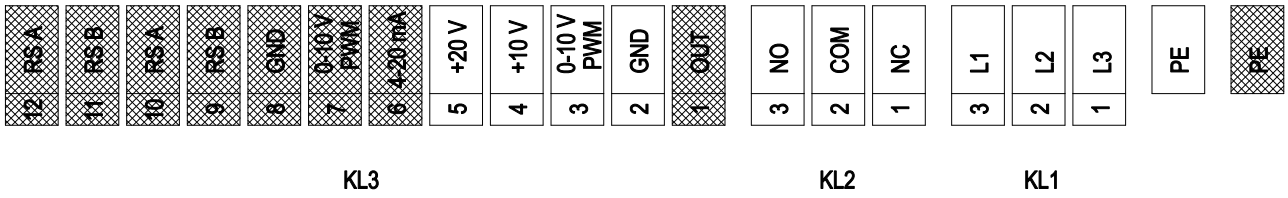
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Connection diagram



shaded gray => not brought out via leads

No.	Conn.	Designation	Function/assignment
		PE	Ground connection; PE connection
1	1	L3	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
1	2	L2	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
1	3	L1	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
2	1	NC	Status relay; floating status contact; break for failure
2	2	COM	Status relay; floating status contact; changeover contact; common connection; contact rating 250 VAC/ max. 2 A (AC1)/min. 10 mA
2	3	NO	Status relay; floating status contact; make for failure
3	1	OUT	Analog output 0-10 V; max. 5 mA; output of current motor modulation level
3	2	GND	Reference ground for control interface
3	3	0 - 10 V / PWM	Analog input (set value for open-loop and closed-loop speed control/measured value for external sensor control); 0 - 10 V; Ri = 100 kΩ; only usable as alternative to 4 - 20 mA input
3	4	+10 V	Fixed voltage output 10 VDC; +10 V + 15%; max. 10 mA; short-circuit-proof; power supply for ext. devices (e.g. potentiometers)
3	5	+20 V	Fixed voltage output 20 VDC; +20 V ± 20%; max. 50 mA; short-circuit-proof; power supply for ext. devices (e.g. sensors)
3	6	4 - 20 mA	Analog input (set value for open-loop and closed-loop speed control/measured value for external sensor control); 4 - 20 mA; Ri = 100 Ω; only usable as alternative to 0 - 10 V/PWM input
3	7	0 -10 V / PWM	Analog input (set value for open-loop and closed-loop speed control/measured value for external sensor control); 0 - 10 V; Ri = 100 kΩ; electrically directly in parallel with KL3.3; only usable as alternative to 4 - 20 mA input
3	8	GND	Reference ground for control interface
3	9	RS B	Bus connection RS485; RSB; ebm BUS
3	10	RS A	Bus connection RS485; RSA; ebm BUS
3	11	RS B	Bus connection RS485; RSB; ebm BUS, electrically directly in parallel with KL. 3.9
3	12	RS A	Bus connection RS485; RSA; ebm BUS; electrically directly in parallel with Kl.3.10

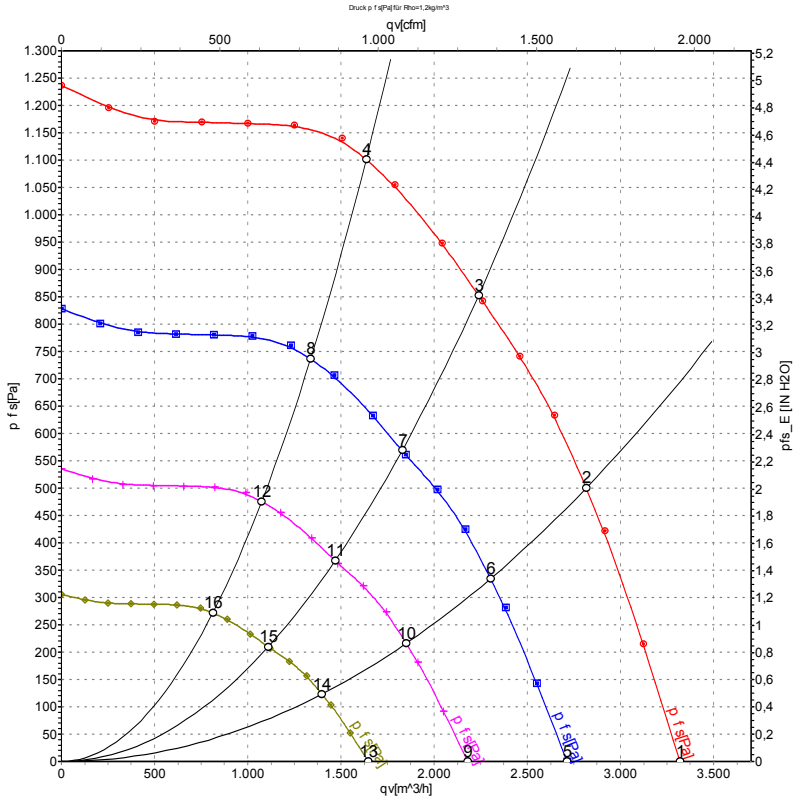
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Curves: Air performance 50 Hz



Measurement: LU-114283-1

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}	q_V	p_{fs}	q_V	p_{fs}
	V	Hz	min^{-1}	W	A	dB(A)	dB(A)	m^3/h	Pa	cfm	in. wg
1	400	50	3400	817	1.44	84	91	3320	0	1955	0.00
2	400	50	3400	997	1.72	80	88	2815	500	1655	2.01
3	400	50	3400	1030	1.80	78	86	2240	850	1320	3.41
4	400	50	3400	980	1.69	77	84	1635	1100	960	4.42
5	400	50	2800	446	0.79	80	87	2715	0	1595	0.00
6	400	50	2800	545	0.94	76	83	2305	335	1355	1.34
7	400	50	2800	575	0.95	74	81	1830	568	1075	2.28
8	400	50	2800	547	0.93	72	80	1335	736	785	2.95
9	400	50	2250	232	0.41	75	82	2180	0	1285	0.00
10	400	50	2250	283	0.49	71	79	1850	216	1090	0.87
11	400	50	2250	298	0.49	69	77	1470	367	865	1.47
12	400	50	2250	284	0.48	67	75	1075	475	635	1.91
13	400	50	1700	100	0.18	69	76	1645	0	970	0.00
14	400	50	1700	122	0.21	65	72	1400	123	825	0.49
15	400	50	1700	129	0.21	63	70	1110	209	655	0.84
16	400	50	1700	122	0.21	61	69	810	271	480	1.09

U = Voltage · 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
q_V = Air flow · p_{fs} = Pressure increase

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