

# EC axial fan - HyBlade

sickle-shaped blades (S series)

with guard grille for full nozzle

S3G500-BN33-05 ebmpapst Datasheet

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General partner Elektrobau Muldingen GmbH · Headquarters Muldingen

Amtsgericht (court of registration) Stuttgart · HRB 590142



## Nominal data

Type	S3G500-BN33-05	
Motor	M3G112-GA	
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>	1600
Power consumption	W	980
Current draw	A	1.6
Max. back pressure	Pa	200
Max. back pressure	inH <sub>2</sub> O	0.8
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 $\eta_{es}$	%	43.5	33.7	09 Power consumption $P_{ed}$	kW	1
02 Measurement category		A		09 Air flow $q_v$	m <sup>3</sup> /h	6630
03 Efficiency category		Static		09 Pressure increase $p_{fs}$	Pa	218
04 Efficiency grade N		49.8	40	10 Speed (rpm) n	min <sup>-1</sup>	1610
05 Variable speed drive		Yes		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 =  $1 + p_s / 100\,000\text{ Pa}$

LU-121588



### Technical description

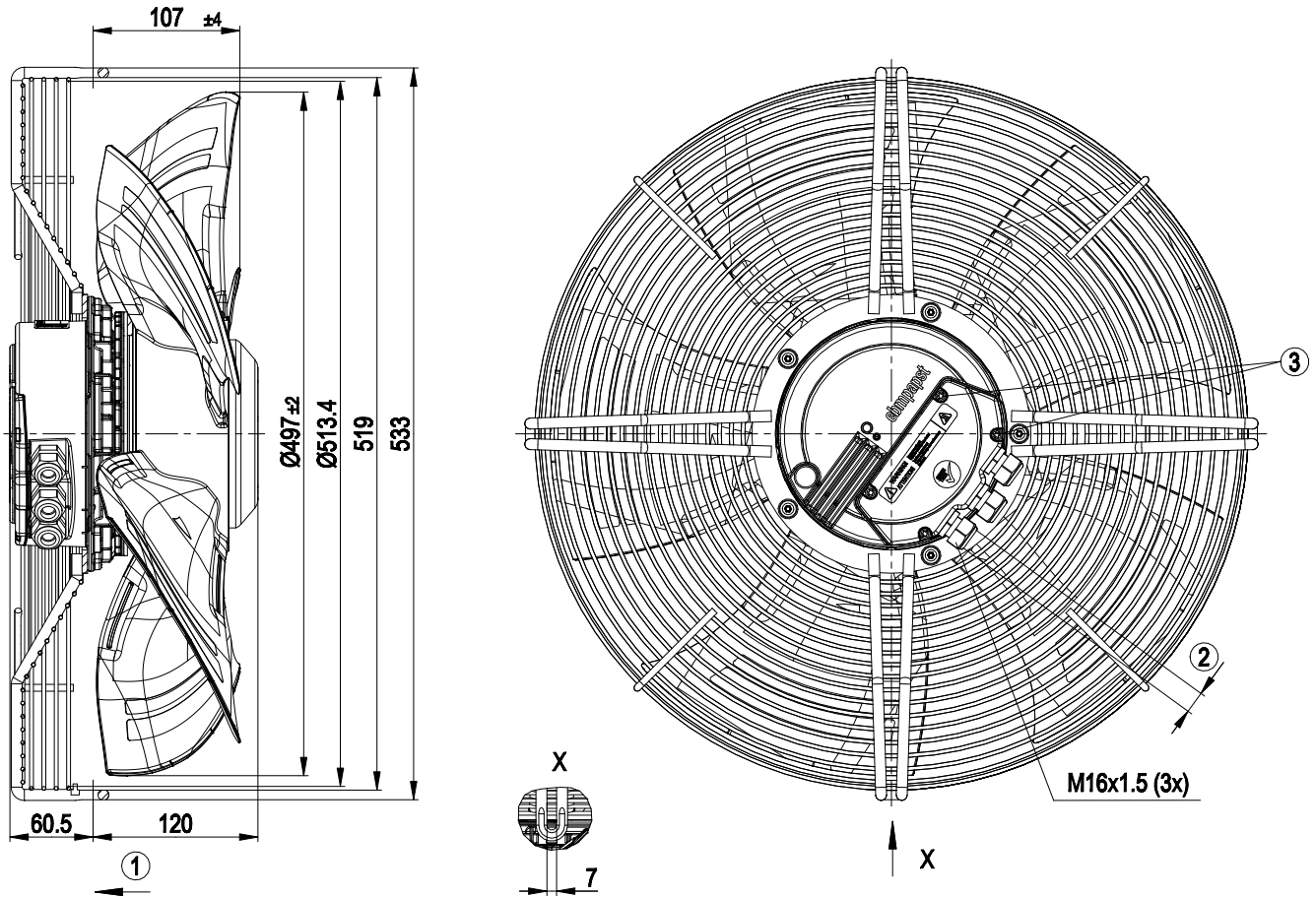
Weight	11.9 kg
Fan size	500 mm
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted black
Blade material	Press-fitted sheet steel blank, sprayed with PP plastic
Guard grille material	Steel, coated with black plastic (RAL 9005)
Number of blades	5
Airflow direction	"V"
Direction of rotation	Counterclockwise, 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	Shaft horizontal or rotor on bottom
Condensation drainage holes	On rotor side
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>- Output for slave 0-10 V</li> <li>- Input for sensor 0-10 V or 4-20 mA</li> <li>- External 24 V input (parameter setting)</li> <li>- Alarm relay</li> <li>- Integrated PID controller</li> <li>- Motor current limitation</li> <li>- PFC, passive</li> <li>- RS-485 MODBUS-RTU</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
With cable	Variable
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	EAC

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## Product drawing



1	Direction of air flow "V"
2	Cable diameter min. 4 mm; max. 10 mm; tightening torque 2.5±0.4 Nm
3	Tightening torque 3.5 ± 0.5 Nm

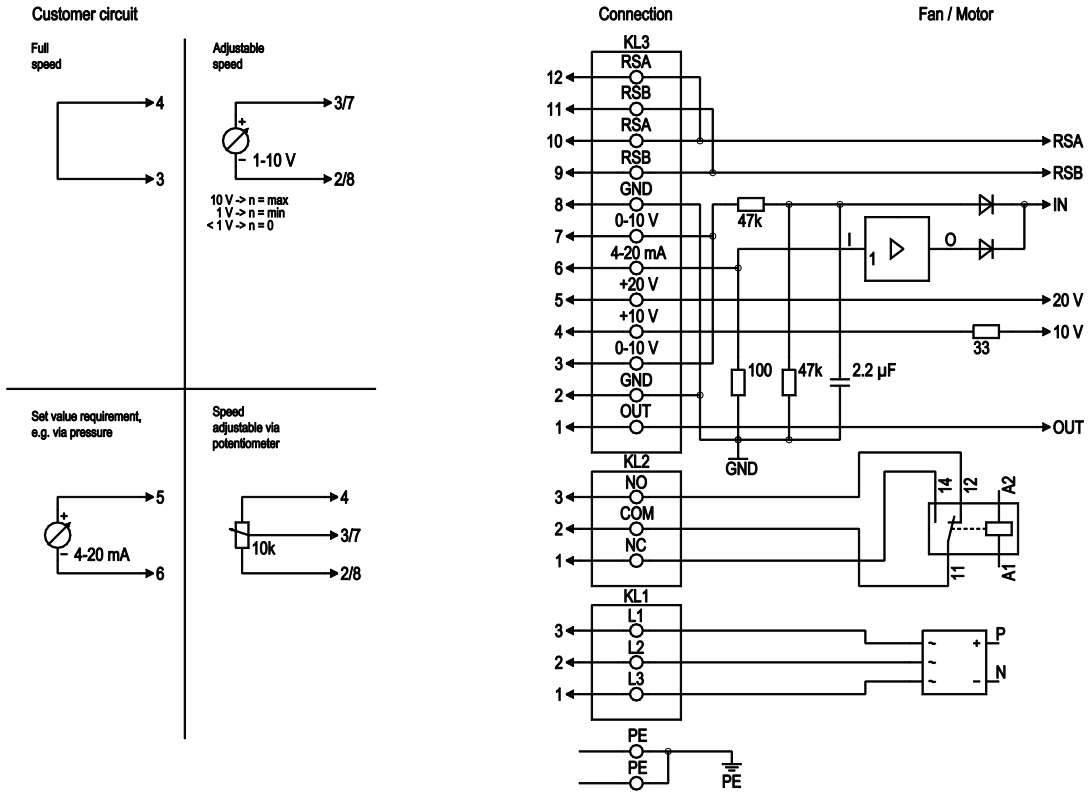


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## Connection diagram



No.	Conn.	Designation	Function/assignment
PE		PE	Protective earth terminal
KL1	1, 2, 3	L1, L2, L3	Power supply, voltage range (see nameplate), 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	Analog output, 0-10 VDC, max. 3 mA, SELV, output of current motor modulation level: 1 V corresponds to 10% modulation level. 10 V corresponds to 100% modulation level.
KL3	2, 8	GND	Reference ground for control interface, SELV
KL3	3, 7	0-10 V	Use control / current sensor value input 0-10 VDC, impedance 100 kΩ only as alternative to 4-20 mA input, SELV
KL3	4	+10 V	Voltage output 10 VDC (±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 / current sensor value input 4-20 mA, impedance 100 Ω only as alternative to 0-10 V input, SELV
KL3	9, 11	RSB	RS485 interface for MODBUS, RSB
KL3	10, 12	RSA	RS485 interface for MODBUS, RSA

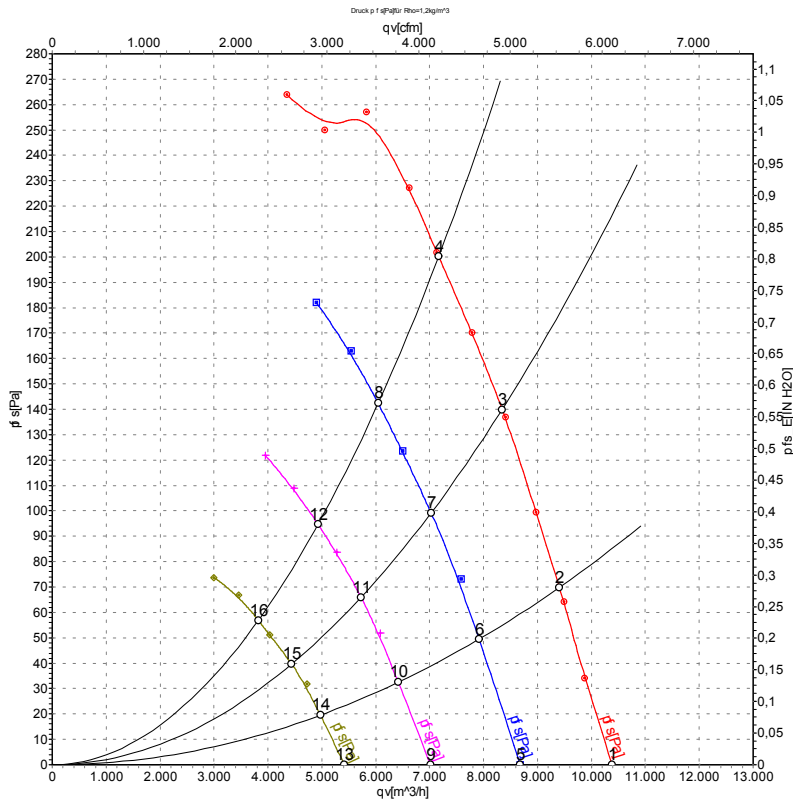


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## Curves: Air performance 50 Hz



Measurement: LU-121588-1  
 Measurement: LU-125150-1  
 Measurement: LU-125151-1  
 Measurement: LU-125149-1

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 <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	1600	680	1.20	72	80	80	10390	0	6115	0.00
2	400	50	1600	827	1.33	70	77	77	9405	70	5535	0.28
3	400	50	1600	907	1.41	68	75	75	8345	140	4910	0.56
4	400	50	1600	980	1.60	68	76	75	7170	200	4220	0.80
5	400	50	1350	434	0.78	69	76	76	8680	0	5110	0.00
6	400	50	1350	489	0.85	66	73	73	7915	51	4660	0.20
7	400	50	1350	538	0.91	64	71	71	7025	99	4135	0.40
8	400	50	1350	577	0.95	64	71	71	6045	142	3560	0.57
9	400	50	1100	256	0.51	64	72	71	7015	0	4130	0.00
10	400	50	1100	282	0.55	62	69	68	6420	33	3780	0.13
11	400	50	1100	308	0.60	59	67	66	5730	66	3370	0.26
12	400	50	1100	329	0.64	59	66	65	4930	95	2900	0.38
13	400	50	850	133	0.31	60	67	66	5415	0	3185	0.00
14	400	50	850	145	0.32	57	64	63	4975	20	2930	0.08
15	400	50	850	155	0.34	55	62	61	4445	40	2615	0.16
16	400	50	850	163	0.36	53	60	60	3820	57	2250	0.23

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

