

EC axial fan - HyBlade

sickled blades (S series)
with full round nozzle

W3G500-FN33-90 ebmpapst Datasheet
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Nominal data

Type	W3G500-FN33-90	
Motor	M3G112-GA	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Type of data definition		ml
Speed (rpm)	min ⁻¹	1600
Power input	W	980
Current draw	A	1.6
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

		Actual	Request 2015
01 Overall efficiency η_{es}	%	43.5	33.7
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		49.8	40
05 Variable speed drive		Yes	

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

09 Power input P_{ed}	kW	1
09 Air flow q_v	m³/h	6630
09 Pressure increase p_{fs}	Pa	218
10 Speed (rpm) n	min ⁻¹	1610
11 Specific ratio*		1.00

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

LU-121588



Technical features

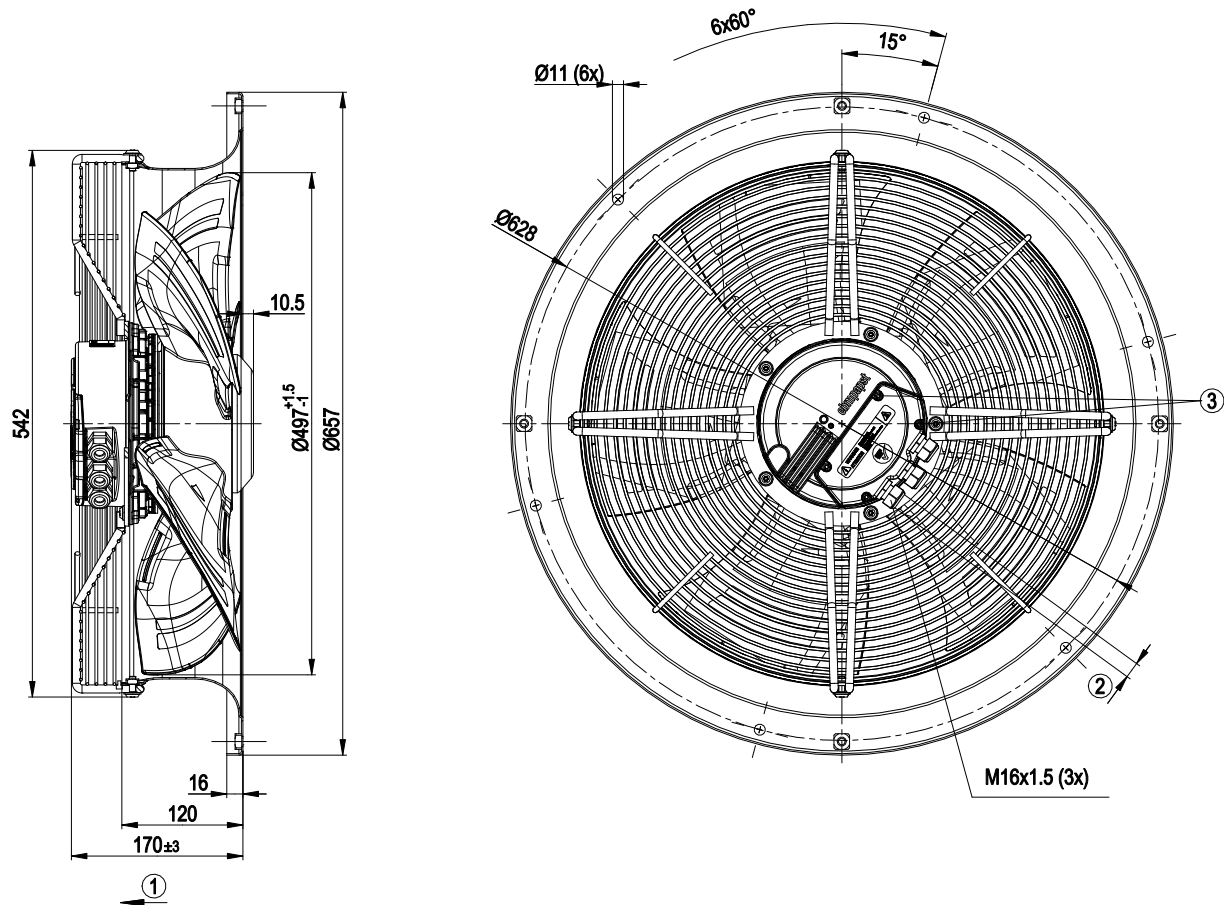
Mass	15.8 kg
Size	500 mm
Surface of rotor	Coated in black
Material of electronics housing	Die-cast aluminium
Material of blades	Press-fitted sheet steel blank, sprayed with PP plastic
Material of wall ring	Sheet steel, galvanised and coated in black plastic (RAL 9005)
Material of guard grille	Steel, coated in black plastic (RAL9005)
Number of blades	5
Direction of air flow	"V"
Direction of rotation	Counter-clockwise, seen on rotor
Type of protection	IP 54
Insulation class	"B"
Humidity (F)/environmental protection class (H)	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 - 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 (programming) - 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 harmonics	Acc. to EN 61000-3-2/3
EMC interference emission	Acc. to EN 61000-6-4 (industrial environment)
Touch current acc. IEC 60990 (measuring network Fig. 4, TN system)	<= 3.5 mA
Electrical leads	Via terminal box
Motor protection	Thermal overload protector (TOP) wired internally
Protection class	I (if protective earth is connected by customer)
Product conforming to standard	EN 61800-5-1; CE
Approval	EAC; UL 1004-7 + 60730

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Product drawing



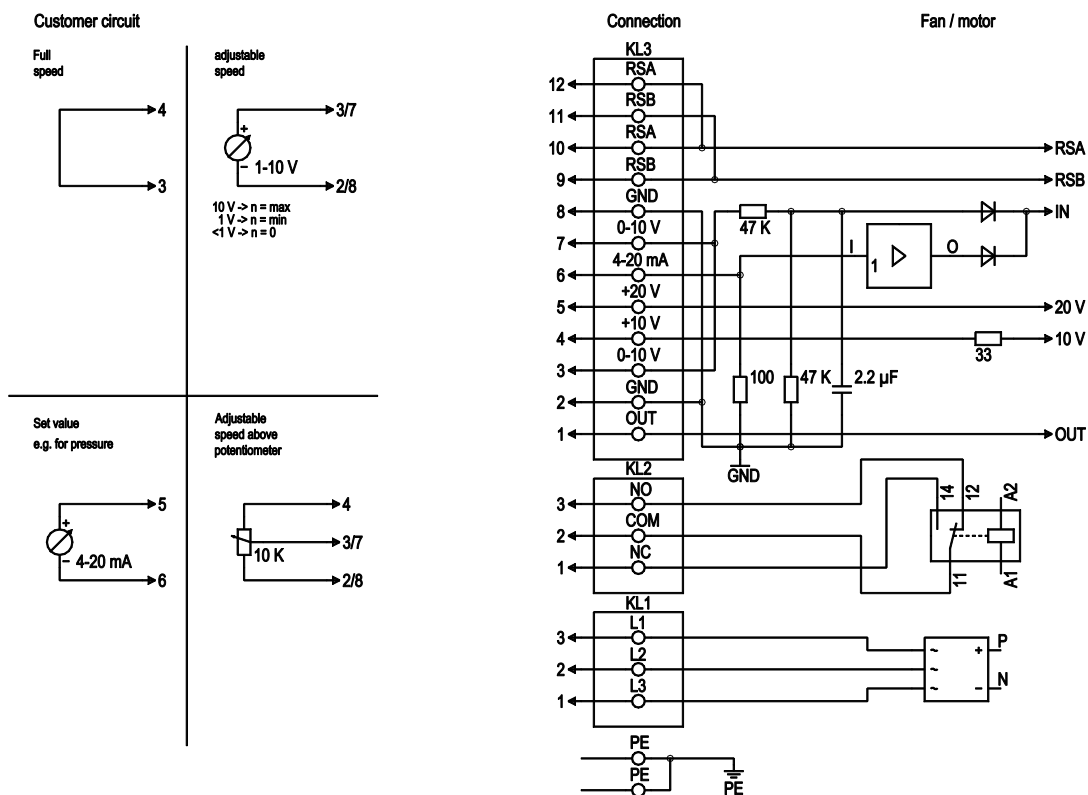
1	Direction of air flow "V"
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque 2.5 ± 0.4 Nm
3	Tightening torque 3.5 ± 0.5 Nm

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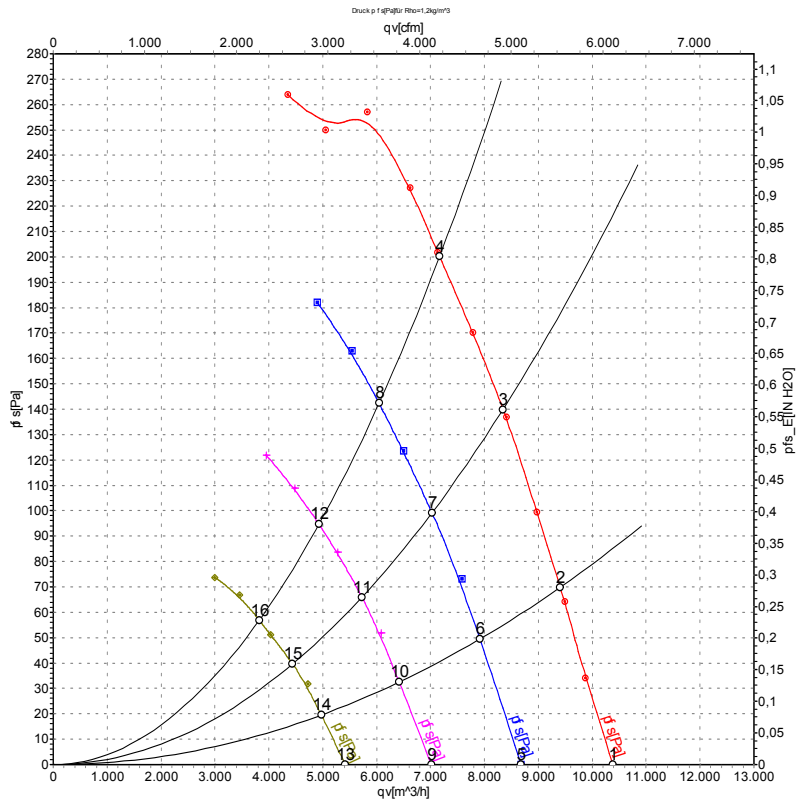
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Connection screen



No.	Conn.	Designation	Function / assignment
PE		PE	Protective earth connection
KL1	1, 2, 3	L1, L2, L3	Supply voltage, voltage range (see type plate), 50/60 Hz
KL2	1	NC	Floating status contact, break with error
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, close with error
KL3	1	OUT	Analogue output, 0-10 VDC, max. 3 mA, SELV, Output of the actual motor duty cycle (PWM): 1 V corresponds to 10% PWM, 10 V correspond to 100% PWM.
KL3	2, 8	GND	Signal ground for control interface, SELV
KL3	3, 7	0-10 V	Set value / actual 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, supply voltage for external devices (e.g. sensors), SELV
KL3	6	4-20 mA	Set value / actual 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

Charts: Air flow 50 Hz



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

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: L_{wA} measured as per ISO 13347 /
 L_{pA} 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	L _{pA_{in}}	L _{wA_{in}}	L _{wA_{out}}	q _v	p _{fs}	q _v	p _{fs}
	V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	dB(A)	m³/h	Pa	cfm	inH ₂ O
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 = Supply voltage · f = Frequency · n = Speed (rpm) · P_{ed} = Power input · I = Current draw · L_{pA_{in}} = Sound pressure level inlet side · L_{wA_{in}} = Sound power level inlet side · L_{wA_{out}} = Sound power level outlet side
 q_v = Air flow · p_{fs} = Pressure increase