AC axial fan

sickle-shaped blades (S series)
with round full nozzle, Transformer fan

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ErP2015 EXCEEDS THE NORM

Nominal data

Type	**W3G500-CD63-80**
Motor	**M3G112-GA**

Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380…480
Frequency	Hz	50/60

Type of data definition		fa
State		prelim.
Speed	min^{-1}	1765
Power input	W	960
Current draw	A	1.5
Max. back pressure	Pa	240
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

Installation category	A
Efficiency category	Static
Variable speed drive	Yes
Specific ratio*	1.00

* Specific ratio = 1 + p_{fs} / 100 000 Pa

		Actual	Request 2013	Request 2015
Overall efficiency η_{es}		40.6	30.3	34.3
Efficiency grade N		46.3	36	40
Power input P_{ed}	kW	1.28		
Airflow q_v	m^3/h	7040		
Pressure increase p_{fs}	Pa	247		
Speed n	min^{-1}	1760		

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

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Technical features

Size	500 mm
Suface of rotor	Coated in black
Terminal box material	PP plastic
Material of electronics housing	Die-cast aluminium, coated in black
Material of blades	Press-fitted sheet steel blank, sprayed with PP plastic
Material of wall ring	Sheet steel, pre-galvanized and coated with white-aluminum plastic (RAL 9006)
Material of guard grille	Steel, galvanized and coated with white-aluminum plastic (RAL 9006)
Number of blades	5
Direction of airflow	"A"
Direction of rotation	Clockwise, viewed toward rotor
Type of protection	IP 55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H2+
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 top; rotor on bottom on request
Operation mode	S1
Motor bearing	Ball bearing
Technical features	- Output 10 VDC, max. 10 mA - Operation and alarm display - 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 - Temperature derating - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
Electrical hookup	Via terminal box
Motor protection	Thermal overload protector (TOP) internally connected
Protection class	I (if protective earth is connected by customer)
Product conforming to standard	EN 61800-5-1; CE
Approval	UL1004-7 +60730; C22.2 Nr.77 + CAN/CSA-E60730-1; EAC

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Product drawing

1	Direction of air flow "A"
2	
3	

PRELIMINARY

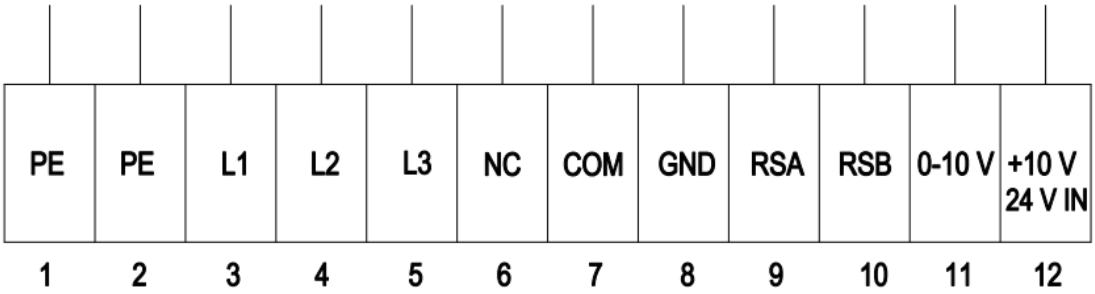
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Connection screen



No.	Conn.	Designation	Function / assignment
	1	PE	Protective earth
	2	PE	Protective earth
	3	L1	Power supply
	4	L2	Power supply
	5	L3	Power supply
	6	NC	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on supply side and basic insulation on control interface side
	7	COM	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on supply side and basic insulation on control interface side
	8	GND	Reference ground for control interface, SELV
	9	RSA	RS485 interface for MODBUS, RSA; SELV
	10	RSB	RS485 interface for MODBUS, RSA; SELV
	11	0-10V	Analog input (set value) SELV, 0-10 V, Ri = 100 kΩ, adjustable curve
	12	+10V	Fixed voltage output 10 VDC, SELV, +10 V ±3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. pot); fixed voltage input 24 VDC for setting parameters via MODBUS without line voltage supply

RELEASED

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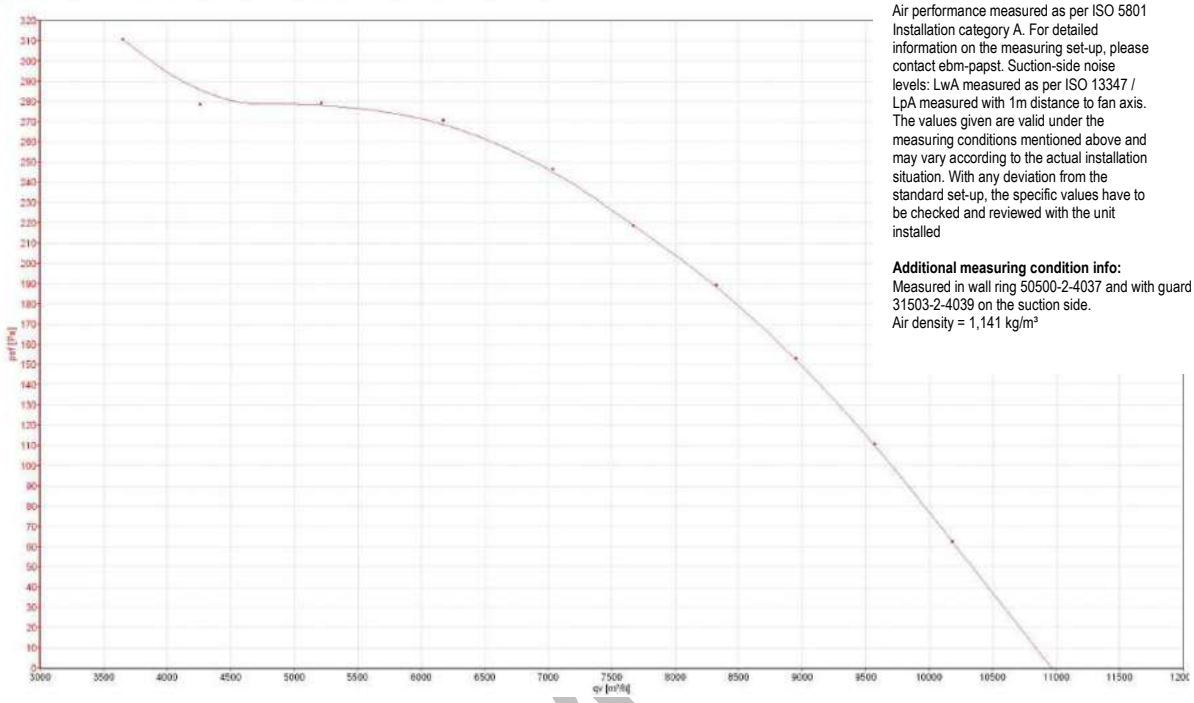
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Charts: Airflow

Line	Idno	Type	Idx.	U [V]	f [Hz]	C [uF]	Ust [V]	Layout	Inst. cat.	Remark
●—●	174921	W3G500CD0380	01B	400	50		10		A	



Measurement: LU-174921

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: LwA measured as per ISO 13347 / LpA 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

Additional measuring condition info:
Measured in wall ring 50500-2-4037 and with guard grille 31503-2-4039 on the suction side.
Air density = 1,141 kg/m³

Measured values

Measured Data

No.	DB	U [V]	I_1 [A]	I_2 [A]	I_3 [A]	P_e [W]	λ	n [1/min]	p_{sf} [Pa]	p_{sf12} [Pa]	p_f [Pa]	q_v [m³/h]	η_e [%]	LpA_{In} [dBA]	LpA_{Out} [dBA]	LwA_{In} [dBA]	LwA_{Out} [dBA]	LwA [dBA]
1	5	401,22	1,48	1,47	1,48	958,3	0,93	1764	-0,4	-0,4	180,5	10969,1	57,4	80,1	69,5	86,9	85,6	89,3
2	5	401,16	1,60	1,60	1,60	1040,9	0,94	1765	62,5	65,9	218,5	10181,2	59,4	78,6	68,7	85,5	84,5	88,0
3	5	401,11	1,69	1,69	1,69	1103,2	0,94	1764	110,8	116,8	248,5	9569,7	60,0	77,6	67,9	84,0	83,4	86,7
4	5	401,07	1,77	1,76	1,77	1152,5	0,94	1764	153,0	161,4	273,6	8951,1	59,1	76,7	67,7	82,8	82,7	85,8
5	5	401,03	1,85	1,85	1,85	1206,7	0,94	1763	189,3	199,7	293,5	8323,7	56,4	76,6	67,7	82,4	82,4	85,4
6	5	400,99	1,92	1,91	1,91	1251,0	0,94	1763	218,7	230,7	307,2	7672,5	52,5	76,3	67,8	82,4	82,3	85,3
7	5	400,96	1,97	1,96	1,96	1283,4	0,94	1758	246,5	260,0	321,0	7038,2	49,0	76,3	68,0	82,6	82,1	85,4
8	5	400,96	1,96	1,96	1,96	1280,5	0,94	1746	270,7	285,5	328,1	6175,8	44,1	77,1	69,1	83,4	82,6	86,0
9	5	400,96	1,96	1,95	1,96	1278,2	0,94	1757	279,2	294,5	320,1	5212,6	36,4	81,2	74,4	87,5	87,9	90,7
10	5	400,96	1,97	1,96	1,96	1282,0	0,94	1758	278,4	293,7	305,7	4260,0	28,3	82,8	75,5	89,1	89,4	92,2
11	5	400,97	1,96	1,96	1,96	1279,3	0,94	1732	310,8	327,9	330,9	3651,0	26,3	82,4	74,7	88,6	88,7	91,7

Air performance acc. ISO 5801, sound acc. ISO 3744 and ISO 3745

U	= supply voltage (effective voltage)	λ	= Power factor (λ=Pe/(U·I))
I_1	= current draw (phase U1, effective current)	I_2	= current draw (phase V1, effective current)
P_e	= input power (active power)	I_3	= current draw (phase W1, effective current)
P_u	= output power of fan	η_e	= overall efficiency of fan (η_e=Pu/Pe)
Rho	= density of flow medium	v_m	= medium exhaust speed (vm=qv/discharge area)
p_f	= total pressure increase (pf=psf+pd)	p_d	= dynamic pressure (pd=Rho·vm²/2)
p_{sf}	= static pressure increase	p_{sf12}	= static pressure increase converted into standard density (Rho=1.2kg/m³)
n	= speed	q_v	= flow rate
LpA_{In}	= sound pressure level suction side	LwA_{In}	= sound power level suction side
LpA_{Out}	= sound pressure level pressure side	LwA_{Out}	= sound power level pressure side

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