

EC axial fan - AxiBlade

sickle-shaped blades (S series)
Fan housing with guide vanes

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Nominal data

Type	W3G910-OV04-E1	
Motor	M3G150-NA	
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	1190
Power consumption	W	4400
Current draw	A	6.7
Max. back pressure	Pa	340
Max. back pressure	in. wg	1.36
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	45

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 (prEN 17166)

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	60.9	37.7	09 Power consumption P_{ed}	kW	4.39
02 Measurement category		A		09 Air flow q_v	m³/h	28010
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	331
04 Efficiency grade N		63.2	40	10 Speed (rpm) n	min ⁻¹	1195
05 Variable speed drive		Yes		11 Specific ratio*		1.00

Data obtained at optimum efficiency level.

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

LU-210946

The efficiency values displayed for achieving conformity with the Ecodesign Regulation EU 327/2011 has been reached with defined air duct components (e.g. inlet rings).
The dimensions must be requested from ebm-papst. If other air conduction geometries are used on the installation side, the ebm-papst evaluation loses its validity/the conformity must be confirmed again.
The product does not fall within the scope of Regulation (EU) 2019/1781 due to the exception specified in Article 2 (2a) (motors completely integrated into a product).



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Technical description

Weight	56.8 kg
Size	910 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted gray
Impeller material	PP plastic
Fan housing material	Sheet steel, galvanized and coated with black plastic (RAL 9005)
Material guide vanes	PP plastic
Guard grille material	Steel, coated with black plastic (RAL 9005)
Internal diffuser material including cover	PP plastic
Number of blades	5
Blade pitch	0°
Airflow direction	V
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H2
Ambient temperature note	Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), use must be made of a fan design with special low-temperature bearings.
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; rotor on top on request
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- Operation and alarm display with LED - External 15-50 VDC input (parameterization) - Alarm relay - Integrated PI controller - Configurable inputs/outputs (I/O) - MODBUS V6.3 - Motor current limitation - RS-485 MODBUS-RTU - Soft start - Voltage output 3.3-24 VDC, Pmax = 800 mW - 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 interference emission	According to EN 61000-6-3 (household environment), except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA



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Electrical hookup	Terminal box
Motor protection	Reverse polarity and locked-rotor protection
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; UKCA; CE
Approval	EAC; UL 1004-7 + 60730-1; CSA C22.2 No. 77 + CAN/CSA-E60730-1

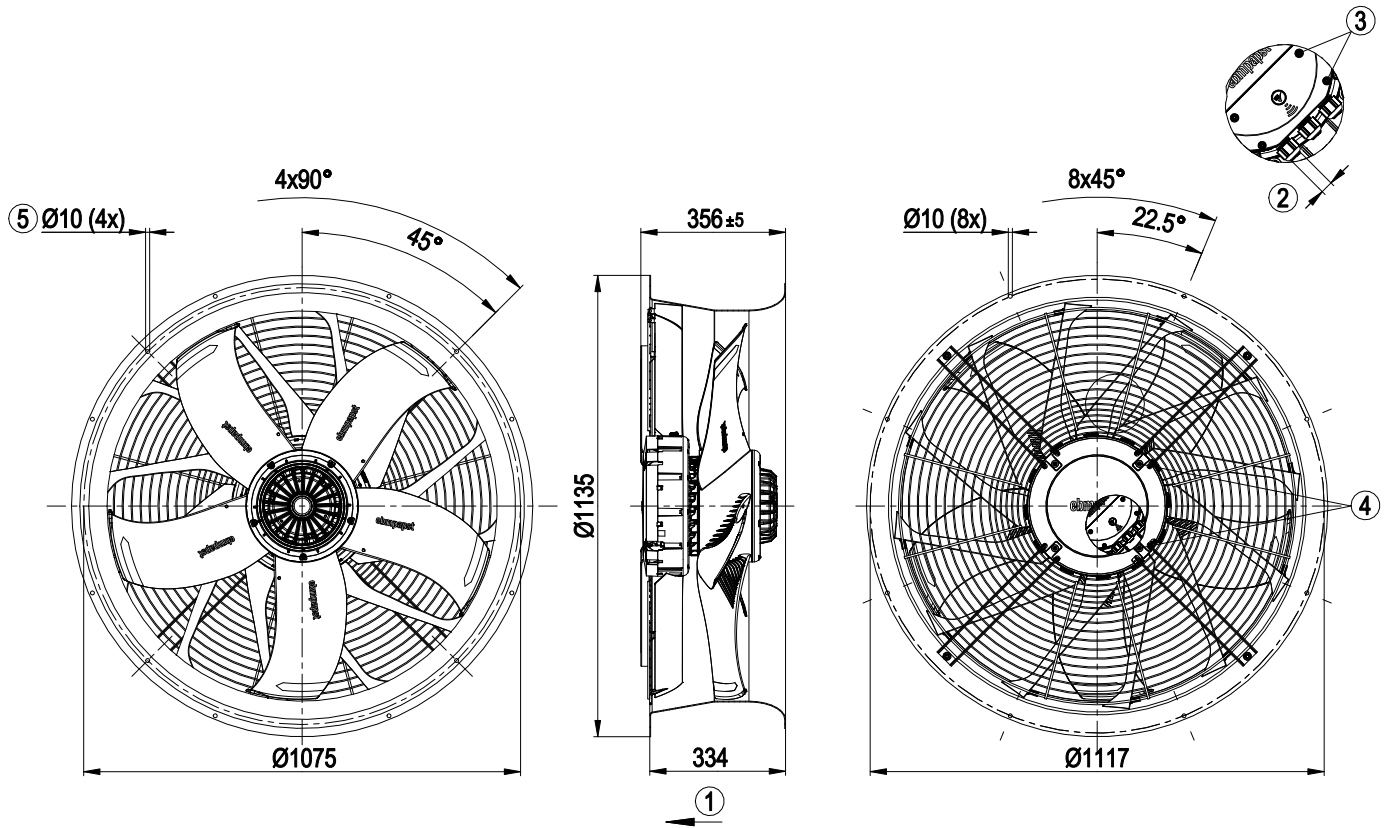


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Product drawing



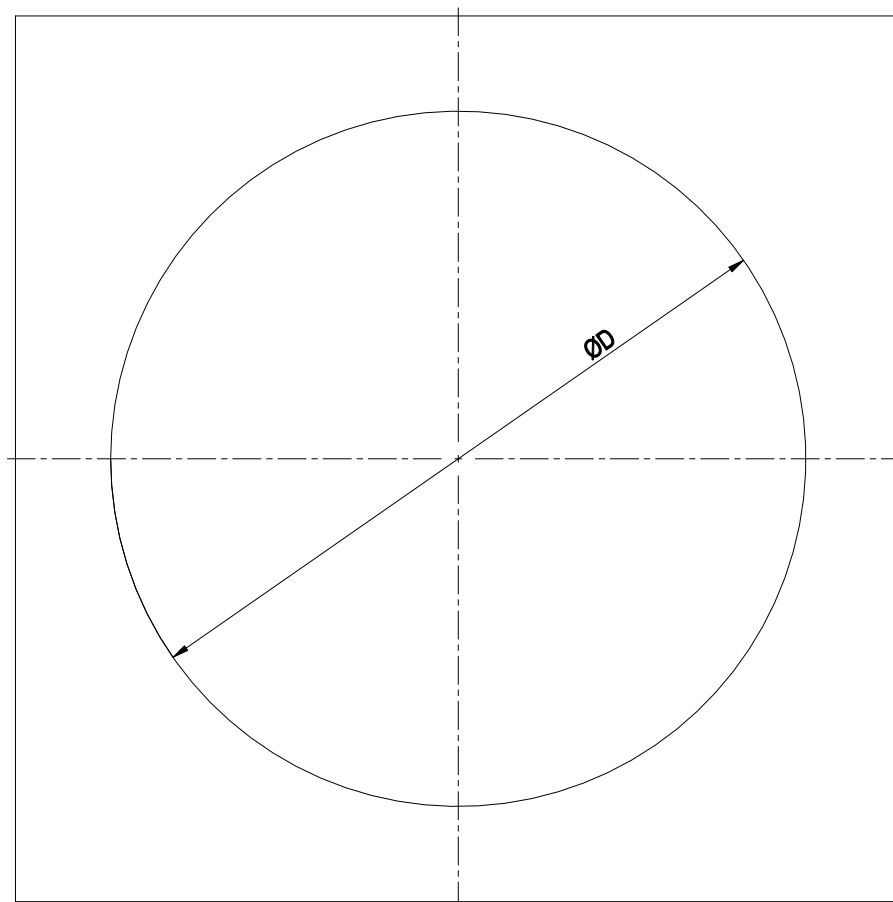
1	Airflow direction "V"
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm (The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
3	Tightening torque 1.5 ± 0.2 Nm
4	Tightening torque 3 ± 0.3 Nm
5	Attachment holes for FlowGrid (91000-2-2957 not included in scope of delivery)

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Mounting dimensions



Diameter of the necessary recess for mounting the fan housing in the end device

BG630: D = Ø785 mm

BG710: D = Ø830 mm

BG800: D = Ø950 mm

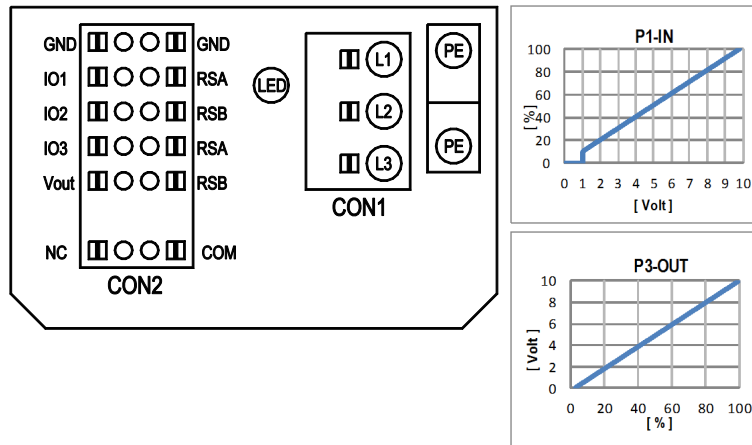
BG910: D = Ø1050 mm

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Connection diagram



No.	Conn.	Designation	Function/assignment
	CON1	L1, L2, L3	Power supply, phase, see nameplate for voltage range
	PE	PE	Protective earth
	CON2	RSA	RS485 interface for MODBUS, RSA; SELV
	CON2	RSB	RS485 interface for MODBUS, RSB; SELV
	CON2	GND	Reference ground for control interface, SELV
	CON2	IO1	Function parameterizable (see "Optional interface functions" table) Factory setting: Digital input - high active, function: Disable input, SELV - inactive: Pin open or applied voltage < 1.5 VDC - active: applied voltage 3.5-50 VDC Reset function: Triggering of error reset on change of state from "enabled" to "disabled"
	CON2	IO2	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog input 0-10 V / PWM, Ri=100 kΩ, function: Set value Characteristic curve parameterizable (see input characteristic curve P1-IN), SELV
	CON2	IO3	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog output 0-10 V, max. 5 mA, function: Fan modulation level Characteristic curve parameterizable (see output characteristic curve P3-OUT), SELV
	CON2	Vout	Voltage output 3.3-24 VDC ±5%, Pmax=800 mW, voltage parameterizable Factory setting: 10 VDC short-circuit-proof, supply for external devices, SELV alternatively: 15-50 VDC input for parameterization via MODBUS without line voltage
	CON2	COM	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) / min. 10 mA, reinforced insulation on supply side and on control interface side
	CON2	NC	Status relay, floating status contact, break for failure
		LED	green: status = good, ready for operation orange: status = warning red: status = failure
		P1-IN	Input characteristic curve
		P3-OUT	Output characteristic curve

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Terminal/plug assignment

○ configurable option																							
For further information and additional functions see EC Control Software, Fan-Set-App. or MODBUS Parameter Specification V6.3																							
CON2	configurable IO functions: normal / inverse	MODBUS Register for IO mode configuration	electrical specification	configurable IO mode	Din1 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC	D158 [0]	source: set value	D101 [...] D147 [...] D104 [...] D12E [...] D148 [...] D16C [...] D16A [...]	(selected directly via IO mode)	(selected directly via IO mode)	signal: tach out	signal: diagnostics out (selected directly via IO mode)	D130 [0]	D130 [1]	D130 [2]	D130 [5]	D00C [1]	D130 [4]				
				IO1	Ain1 0-10V/PWM: analog input	RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10kHz, SELV	D158 [2]	○	switch: control function: heating (pos.) / cooling (neg.)	○	switch: direction of rotation: cw / ccw	○	switch: set value source	○	switch: fan enable / disable	○	signal: fan modulation level %	signal: system modulation level %	signal: remote control output 0-10V	pulse input for auto-addressing	pulse output for auto-addressing		
				IO1	Tach out (open collector output)	U _{max} = 50VDC, I _{max} = 20mA, SELV	D158 [5]	○															
					Diagnostics out (open collector output)	U _{max} = 50VDC, I _{max} = 20mA, SELV	D158 [6]	○															
					IO2	Din2 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC	D159 [0]	○														
				Ain2 0-10V/PWM: analog input		RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10kHz, SELV	D159 [2]	○															
				Ain2 4-20mA: analog input		RI = 125R, characteristic curve parameterizable, SELV	D159 [3]	○															
				IO3	Din3 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC	D15A [0]																
					Din3 (active low): digital input	active: applied voltage < 1,5VDC, SELV not active: pin open or applied voltage 3.5-50VDC	D15A [1]																
					PWMMin3: digital input, idle level high	PWM = 40Hz - 10kHz, characteristics parameterizable	D15A [7]	○															
active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV																							
PWMMin3: digital input, idle level low	40Hz - 10kHz, characteristics parameterizable	D15A [8]	○																				
	active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1,5VDC, SELV																						
RSA RSB	Aout3 0-10V: analog output	function parameterizable, max. 5mA max output frequency 300Hz, SELV	D15A [4]																				
	Tacho out (pulses), analog output	0-10V/max. 5mA max output frequency 300Hz, SELV	D15A [5]																				
	Diagnostics out (pulses)	0-10V/max. 5mA max output frequency 300Hz, SELV	D15A [6]																				
	RS485 bus connection,	MODBUS RTU, specification V6.3, SELV																					
Vout	voltage output	voltage parameterizable 3.3...24VDC +/- 5%, P _{max} =800mW, short-circuit-proof, supply for external devices, SELV	D16E [...]																				
	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	15...50VDC																					

○ configurable option

For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.3

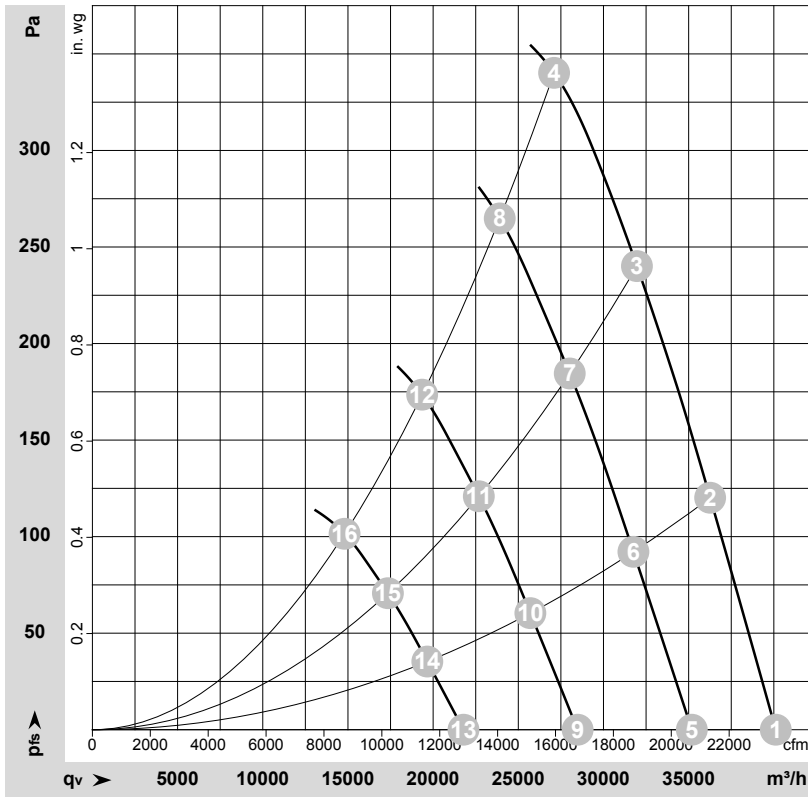


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Curves: Air performance 50 Hz



$$\rho = 1.15 \text{ kg/m}^3 \pm 2 \%$$

Measurement: LU-210946-1

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

	Wired	U	f	n	P _{ed}	I	LpA _{in}	LwA _{in}	LwA _{out}	q _v	p _{fs}	q _v	p _{fs}
		V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	dB(A)	m ³ /h	Pa	cfm	in. wg
1	3~	400	50	1190	2906	4.47	78	86	87	40115	0	23610	0.00
2	3~	400	50	1190	3530	5.40	76	84	85	36260	120	21345	0.48
3	3~	400	50	1190	4036	6.15	77	85	86	31965	240	18815	0.96
4	3~	400	50	1190	4400	6.70	80	88	89	27100	340	15950	1.36
5	3~	400	50	1050	1962	3.02	75	83	84	35185	0	20710	0.00
6	3~	400	50	1050	2365	3.62	73	81	82	31755	93	18690	0.37
7	3~	400	50	1050	2719	4.14	74	81	82	28020	185	16490	0.74
8	3~	400	50	1050	3019	4.60	77	84	85	23910	265	14075	1.06
9	3~	400	50	850	1041	1.60	69	77	79	28485	0	16765	0.00
10	3~	400	50	850	1254	1.92	67	76	77	25710	61	15130	0.24
11	3~	400	50	850	1442	2.20	68	76	77	22685	121	13350	0.49
12	3~	400	50	850	1602	2.44	72	79	80	19355	174	11390	0.70
13	3~	400	50	650	465	0.72	62	71	72	21780	0	12820	0.00
14	3~	400	50	650	561	0.86	60	69	70	19660	36	11570	0.14
15	3~	400	50	650	645	0.98	61	69	70	17345	71	10210	0.29
16	3~	400	50	650	716	1.09	65	72	73	14800	102	8710	0.41

Wired = Wiring · 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
LwA_{out} = Sound power level outlet side · q_v = Air flow · p_{fs} = Pressure increase

