

EC axial fan - HyBlade

sickle-shaped blades (S series)

with round full nozzle

W3G710-DV04-08 ebmpapst Datasheet

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www.fansco.com

Nominal data

Type	W3G710-DV04-08	
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	1570
Power consumption	W	4100
Current draw	A	6.2
Max. back pressure	Pa	300
Max. back pressure	in. wg	1.2
Min. ambient temperature	°C	-40
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 Commission Regulation (EU) 327/2011

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	41.2	37.7
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		43.5	40
05 Variable speed drive		Yes	

Data obtained at optimum efficiency level.

The ErP data is determined using a motor-impeller combination in a standardized measurement setup.

09 Power consumption P_{ed}	kW	4.4
09 Air flow q_v	m³/h	17060
09 Pressure increase p_{fs}	Pa	368
10 Speed (rpm) n	min ⁻¹	1580
11 Specific ratio*		1.00

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

LU-195541



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Technical description

Weight	46.8 kg
Size	710 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted gray
Blade material	Sheet aluminum insert, sprayed with PP plastic
Fan housing material	Sheet steel, galvanized and coated with white aluminum plastic (RAL 9006)
Guard grille material	Steel, coated with black plastic (RAL 9005)
Number of blades	5
Blade pitch	-5°
Airflow direction	A
Direction of rotation	Counterclockwise, 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)	Transportation -40°C/storage -60 °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 V6.0 - Motor current limitation - RFID - ISO 15693 compatible - 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
Electrical hookup	Terminal box
Motor protection	Reverse polarity and locked-rotor protection



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Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	EAC; UL 1004-7 + 60730-1; CSA C22.2 No. 77 + CAN/CSA-E60730-1

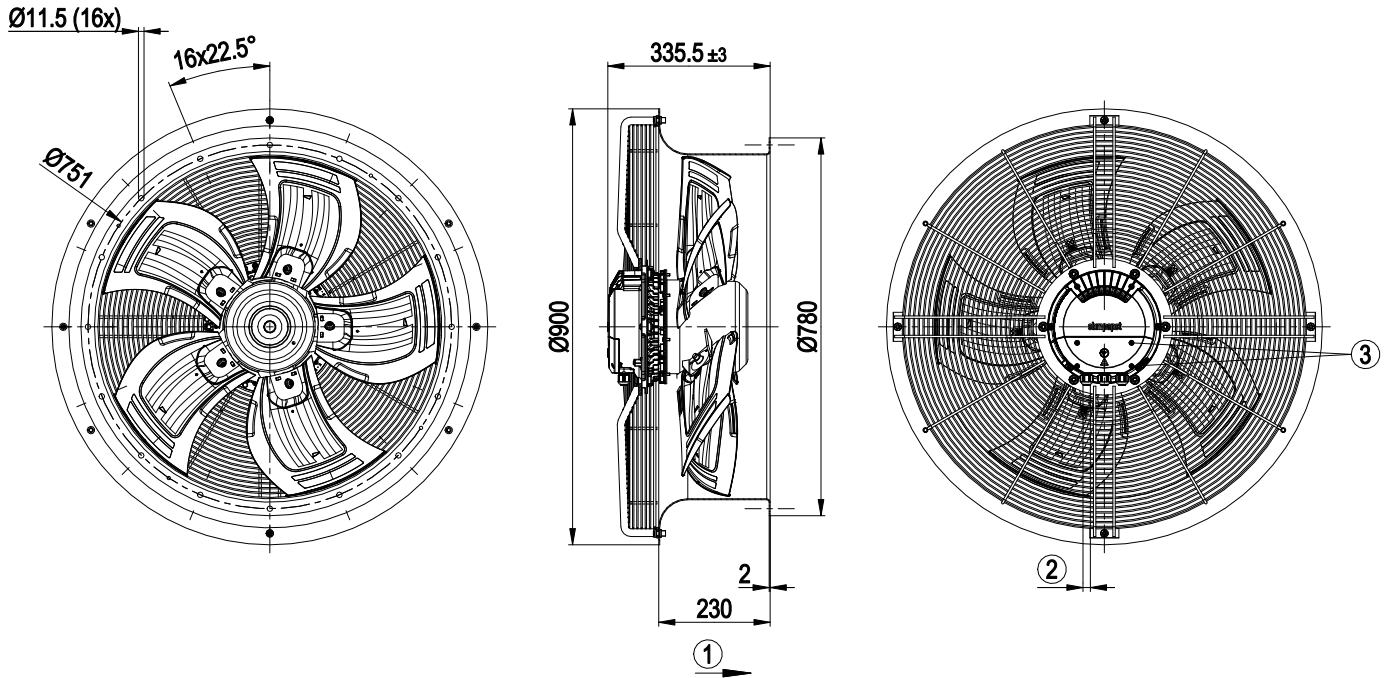


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Product drawing



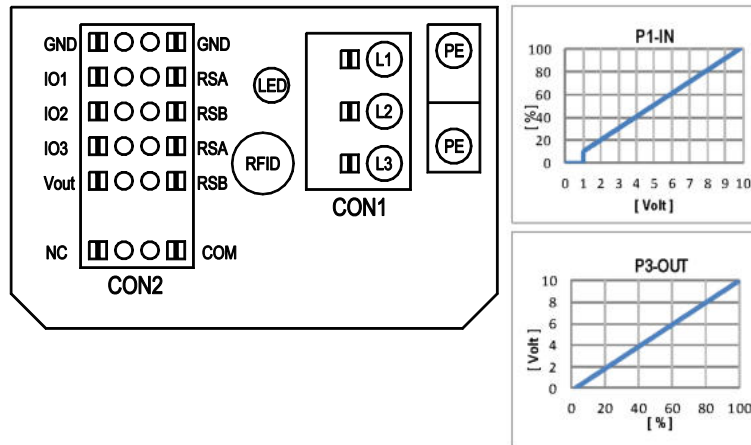
1	Direction of air flow "A"
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
3	Tightening torque 1.5 ± 0.2 Nm

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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 V6.0																							
CON2		configurable IO mode	electrical specification	MODBUS Register for IO mode configuration	configurable IO functions: normal / inverse	INPUT											OUTPUT						
						D101 [...]	D147 [...]	D104 [...]	D12E [...]	D148 [...]	D16C [...]	D16A [...]	(selected directly via IO mode)	(selected directly via IO mode)	signal: tach out	signal: diagnostics out	D130 [0]	D130 [1]	D130 [2]	D130 [5]	D00C [1]	D130 [4]	
						source: set value	source: sensor value	switch: parameter set: #1 / #2	switch: control function: heating (pos.)	switch: direction of rotation: cw / ccw	switch: set value source	switch: fan enable / disable	signal: fan modulation level %	signal: actual speed	signal: system modulation level %	signal: remote control output 0-10V	pulse input for auto-addressing						
						source: set value	source: sensor value	switch: parameter set: #1 / #2	switch: control function: heating (pos.)	switch: direction of rotation: cw / ccw	switch: set value source	switch: fan enable / disable	signal: tach out	signal: diagnostics out	signal: fan modulation level %	signal: actual speed	signal: system modulation level %	signal: remote control output 0-10V	pulse input for auto-addressing				
IO1		configurable IO mode	electrical specification	MODBUS Register for IO mode configuration	configurable IO functions: normal / inverse	D158 [0]	D158 [2]	D158 [5]	D158 [6]	D159 [0]	D159 [2]	D159 [3]	D15A [0]	D15A [1]	D15A [7]	D15A [4]	D15A [5]	D15A [6]					
						not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	RI=100K, characteristic curve parameterizable, $f_{PWM}=1k..10kHz$ SELV	Umax=50VDC, Imax=20mA SELV	Umax=50VDC, Imax=20mA SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	RI=100K, characteristic curve parameterizable, $f_{PWM}=1k..10kHz$ SELV	RI=125R, characteristic curve parameterizable, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	40Hz - 10kHz characteristics parameterizable	not active: pin open or applied voltage 3,5-50VDC active: applied voltage < 1,5VDC, SELV	function parameterizable, max. 5mA, max output frequency 300Hz SELV	0-10V/max. 5mA, max output frequency 300Hz SELV	0-10V/max. 5mA, max output frequency 300Hz SELV				○
						not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	RI=100K, characteristic curve parameterizable, $f_{PWM}=1k..10kHz$ SELV	Umax=50VDC, Imax=20mA SELV	Umax=50VDC, Imax=20mA SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	RI=100K, characteristic curve parameterizable, $f_{PWM}=1k..10kHz$ SELV	RI=125R, characteristic curve parameterizable, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	40Hz - 10kHz characteristics parameterizable	not active: pin open or applied voltage 3,5-50VDC active: applied voltage < 1,5VDC, SELV	function parameterizable, max. 5mA, max output frequency 300Hz SELV	0-10V/max. 5mA, max output frequency 300Hz SELV	0-10V/max. 5mA, max output frequency 300Hz SELV				○
						not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	RI=100K, characteristic curve parameterizable, $f_{PWM}=1k..10kHz$ SELV	Umax=50VDC, Imax=20mA SELV	Umax=50VDC, Imax=20mA SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	RI=100K, characteristic curve parameterizable, $f_{PWM}=1k..10kHz$ SELV	RI=125R, characteristic curve parameterizable, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	40Hz - 10kHz characteristics parameterizable	not active: pin open or applied voltage 3,5-50VDC active: applied voltage < 1,5VDC, SELV	function parameterizable, max. 5mA, max output frequency 300Hz SELV	0-10V/max. 5mA, max output frequency 300Hz SELV	0-10V/max. 5mA, max output frequency 300Hz SELV				○
IO2		configurable IO mode	electrical specification	MODBUS Register for IO mode configuration	configurable IO functions: normal / inverse	D159 [0]	D159 [2]	D159 [3]	D15A [0]	D15A [1]	D15A [7]	D15A [4]	D15A [5]	D15A [6]									
						not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	RI=100K, characteristic curve parameterizable, $f_{PWM}=1k..10kHz$ SELV	RI=125R, characteristic curve parameterizable, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	40Hz - 10kHz characteristics parameterizable	not active: pin open or applied voltage 3,5-50VDC active: applied voltage < 1,5VDC, SELV	function parameterizable, max. 5mA, max output frequency 300Hz SELV	0-10V/max. 5mA, max output frequency 300Hz SELV	0-10V/max. 5mA, max output frequency 300Hz SELV								
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IO3		configurable IO mode	electrical specification	MODBUS Register for IO mode configuration	configurable IO functions: normal / inverse	D15A [0]	D15A [1]	D15A [7]	D15A [4]	D15A [5]	D15A [6]												
						not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	
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○ configurable option

For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.0

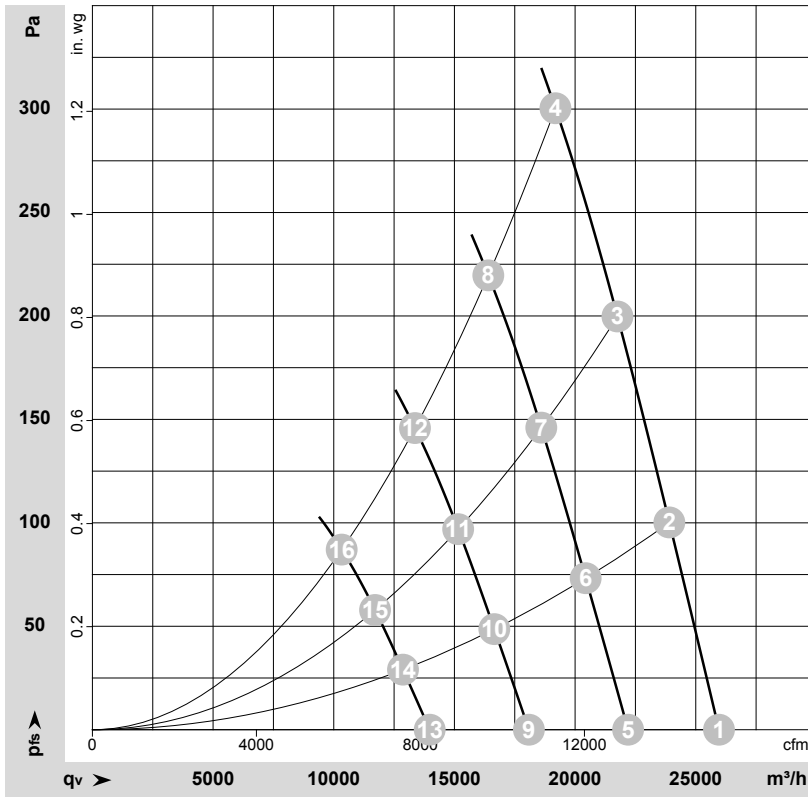


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Curves: Air performance 50 Hz



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

Measurement: LU-195541-1

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)	m³/h	Pa	cfm	in. wg
1	3~	400	50	1570	3013	4.62	81	89	90	25965	0	15280	0.00
2	3~	400	50	1570	3369	5.15	80	88	89	23905	100	14070	0.40
3	3~	400	50	1570	3707	5.66	80	88	88	21755	200	12805	0.80
4	3~	400	50	1570	4100	6.20	80	88	88	19185	300	11290	1.20
5	3~	400	50	1350	1883	2.89	77	85	86	22195	0	13065	0.00
6	3~	400	50	1350	2105	3.22	76	84	85	20440	74	12030	0.30
7	3~	400	50	1350	2317	3.54	76	84	84	18600	146	10950	0.59
8	3~	400	50	1350	2557	3.90	76	84	84	16405	221	9655	0.89
9	3~	400	50	1100	1019	1.56	71	80	81	18085	0	10645	0.00
10	3~	400	50	1100	1139	1.74	71	79	80	16655	49	9800	0.20
11	3~	400	50	1100	1253	1.91	71	79	79	15155	97	8920	0.39
12	3~	400	50	1100	1383	2.11	71	78	79	13365	147	7865	0.59
13	3~	400	50	850	470	0.72	65	73	74	13975	0	8225	0.00
14	3~	400	50	850	526	0.80	64	73	73	12870	29	7575	0.12
15	3~	400	50	850	578	0.88	64	72	73	11710	58	6895	0.23
16	3~	400	50	850	638	0.97	64	72	73	10330	88	6080	0.35

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

