

EC axial fan - HyBlade

sickle-shaped blades (S series)

Fan housing with mounting grille

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Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	W3G800-DS26-35	
Motor	M3G150-FF	

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	1000
Power consumption	W	2200
Current draw	A	3.4
Max. back pressure	Pa	200
Max. back pressure	in. wg	0.8
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 (EN 17166)

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	42	35.5	09 Power consumption P_{ed}	kW	1.91
02 Measurement category		A		09 Air flow q_v	m ³ /h	18650
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	146
04 Efficiency grade N		46.5	40	10 Speed (rpm) n	min ⁻¹	1000
05 Variable speed drive		Yes		11 Specific ratio*		1.00

Data obtained at optimum efficiency level.

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

LU-208841

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

Size	800 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted gray
Blade material	Sheet aluminum insert (painted black), sprayed with PP plastic
Support ring material	Steel, coated with black plastic (RAL 9005)
Fan housing material	Sheet steel, galvanized and coated with black plastic (RAL 9005)
Number of blades	5
Blade pitch	0°
Airflow direction	A
Direction of rotation	Counterclockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H2+A
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 top; rotor on bottom on request
Condensation drainage holes	On stator 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
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; CE



W3G800-DS26-35

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Approval

UL 1004-7 + 60730-1; CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC

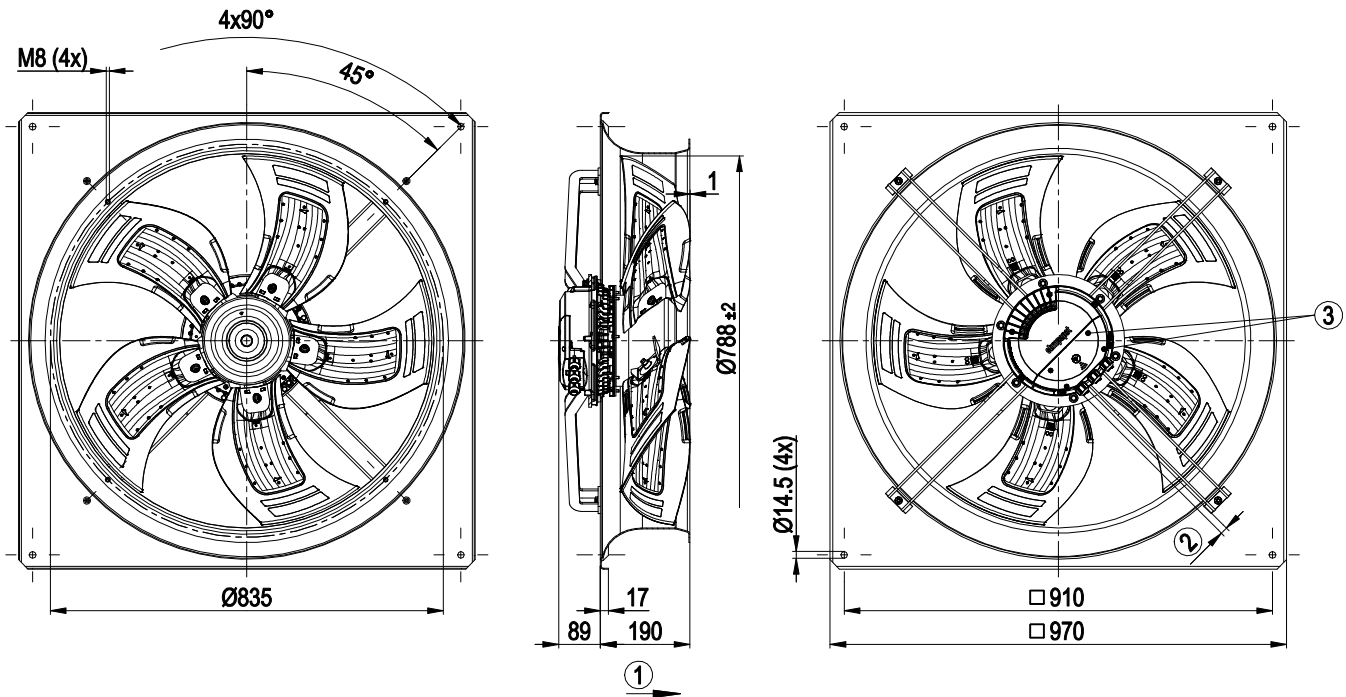


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Product drawing



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

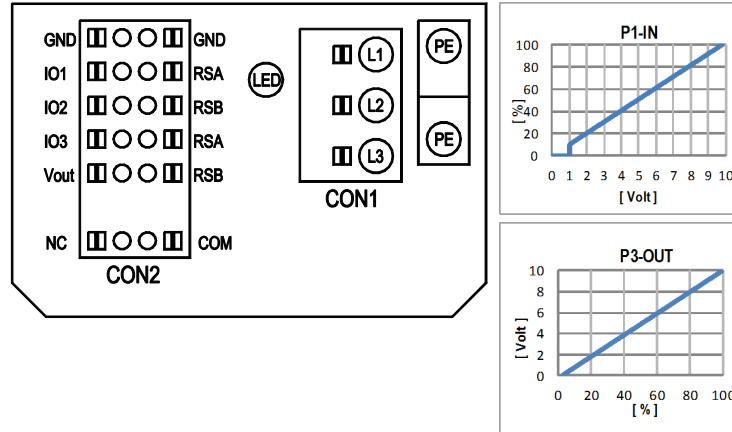


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Connection diagram



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 IO functions: normal/ inverse	MODBUS Register for IO mode configuration	electrical specification	configurable IO mode	CON2	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 [...]	switch: parameter set: #1 / #2	switch: control function: heating (pos.) / cooling (neg.)	switch: direction of rotation: cw / ccw	D16C [...]	D16A [...]	signal: tach out (selected directly/ via IO mode)	signal: diagnostics out (selected directly/ via IO mode)	signal: fan modulation level %	signal: actual speed	signal: system modulation level %	signal: remote control output 0-10V	D130 [5]	D00C [1]	pulse input for auto-addressing	D130 [4]	pulse output for auto-addressing							
									D158 [2]	RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz SELV	D158 [5]	Umax = 50VDC, Imax = 20mA SELV	D158 [6]	Umax = 50VDC, Imax = 20mA SELV	D159 [0]	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	D159 [2]	RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz SELV	D159 [3]	RI = 125R, characteristic curve parameterizable, SELV	D15A [0]	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	D15A [1]	active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC	D15A [7]	PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV	D15A [8]	40Hz - 10KHz, characteristics parameterizable active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1.5VDC, SELV	D15A [4]	function parameterizable, max. 5mA, max output frequency 300Hz SELV	D15A [5]	0-10V max. 5mA, max output frequency 300Hz SELV	D15A [6]	0-10V max. 5mA, max output frequency 300Hz SELV
									D15A [0]	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	D15A [1]	active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC	D15A [7]	PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV	D15A [8]	40Hz - 10KHz, characteristics parameterizable active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1.5VDC, SELV	D15A [4]	function parameterizable, max. 5mA, max output frequency 300Hz SELV	D15A [5]	0-10V max. 5mA, max output frequency 300Hz SELV	D15A [6]	0-10V max. 5mA, max output frequency 300Hz SELV												
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RSA RSB	voltage output	MODBUS RTU, specification V6.3, SELV	voltage output	D16E [...]	source: set value	D101 [...]	source: sensor value	D147 [...]	D104 [...]	switch: parameter set: #1 / #2	switch: control function: heating (pos.) / cooling (neg.)	switch: direction of rotation: cw / ccw	D16C [...]	D16A [...]	signal: tach out (selected directly/ via IO mode)	signal: diagnostics out (selected directly/ via IO mode)	signal: fan modulation level %	signal: actual speed	signal: system modulation level %	signal: remote control output 0-10V	D130 [5]	D00C [1]	pulse input for auto-addressing	D130 [4]	pulse output for auto-addressing									
Vout	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	15...50VDC	voltage parameterizable 3.3...24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV	D16E [...]	source: set value	D101 [...]	source: sensor value	D147 [...]	D104 [...]	switch: parameter set: #1 / #2	switch: control function: heating (pos.) / cooling (neg.)	switch: direction of rotation: cw / ccw	D16C [...]	D16A [...]	signal: tach out (selected directly/ via IO mode)	signal: diagnostics out (selected directly/ via IO mode)	signal: fan modulation level %	signal: actual speed	signal: system modulation level %	signal: remote control output 0-10V	D130 [5]	D00C [1]	pulse input for auto-addressing	D130 [4]	pulse output for auto-addressing									

o configurable option

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

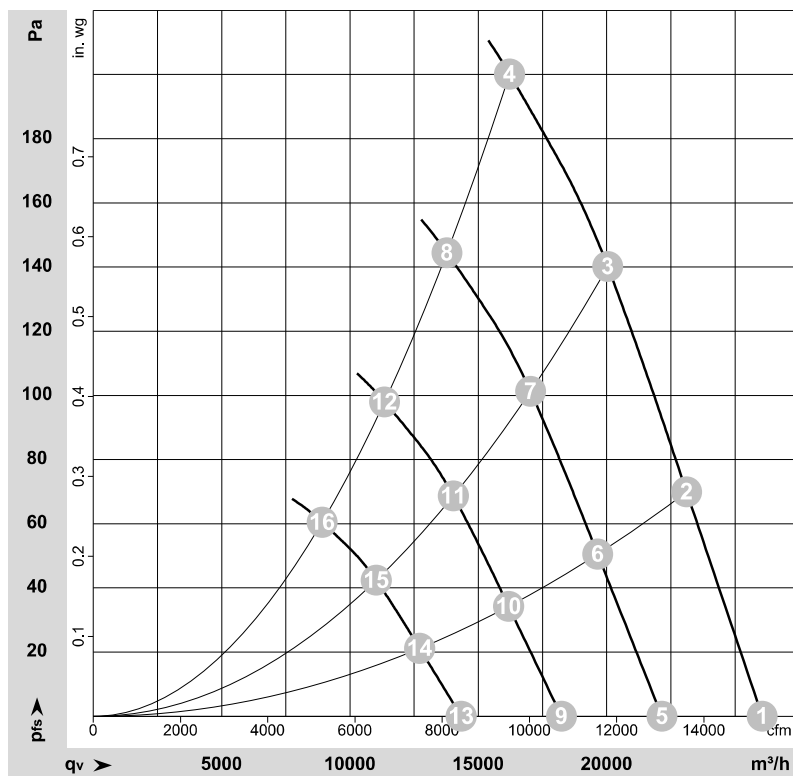


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Curves: Air performance 50 Hz



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

Measurement: LU-205697-1

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	1000	1539	2.46	67	74	74	26060	0	15340	0.00
2	3~	400	50	1000	1784	2.81	67	74	74	23115	70	13605	0.28
3	3~	400	50	1000	2002	3.13	69	76	75	20040	140	11795	0.56
4	3~	400	50	1000	2200	3.40	72	79	78	16215	200	9545	0.80
5	3~	400	50	850	945	1.51	63	70	70	22150	0	13040	0.00
6	3~	400	50	850	1096	1.73	63	70	69	19650	51	11565	0.20
7	3~	400	50	850	1230	1.92	65	72	70	17035	101	10025	0.41
8	3~	400	50	850	1332	2.08	68	75	74	13775	144	8110	0.58
9	3~	400	50	700	528	0.84	58	65	65	18240	0	10735	0.00
10	3~	400	50	700	612	0.96	58	65	65	16180	34	9525	0.14
11	3~	400	50	700	687	1.07	60	67	66	14030	69	8255	0.28
12	3~	400	50	700	744	1.16	63	70	69	11345	98	6680	0.39
13	3~	400	50	550	256	0.41	52	59	59	14335	0	8435	0.00
14	3~	400	50	550	297	0.47	52	59	58	12715	21	7485	0.08
15	3~	400	50	550	333	0.52	54	61	59	11020	42	6485	0.17
16	3~	400	50	550	361	0.56	57	64	63	8915	60	5245	0.24

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

