

EC axial panel fan - HyBlade

sickle-shaped blades (S series)
with guard grille for full nozzle

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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	S3G990-BY22-71	
Motor	M3G150-IF	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Status		prelim.
Speed (rpm)	min ⁻¹	820
Power consumption	W	1650
Current draw	A	2.6
Max. back pressure	Pa	140
Max. back pressure	in. wg	0.56
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	70

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · oe = Customer equipment
Subject to change

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), a fan design with special low-temperature bearings must be used.

Data according to Commission Regulation (EU) 327/2011 (prEN 17166)

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	47.5	34.8	09 Power consumption P_{ed}	kW	1.52
02 Measurement category		A		09 Air flow q_v	m ³ /h	21965
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	111
04 Efficiency grade N		52.7	40	10 Speed (rpm) n	min ⁻¹	820
05 Variable speed drive		Yes		11 Specific ratio*		1.00

Data obtained at optimum efficiency level.

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

LU-177634

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	41.8 kg
Size	990 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted black
Blade material	Sheet aluminum insert, sprayed with PP plastic
Guard grille material	Steel, coated with black plastic (RAL 9005)
Number of blades	5
Blade pitch	-5°
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 between -40°C and -25°C is permissible. For continuous operation at temperatures below -25°C (e.g. refrigeration applications) we recommend our 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	- Output 10 VDC, max. 10 mA - Operation and alarm display - External 24 V input (parameter setting) - External release input - Alarm relay - Integrated PID controller - Motor current limitation - PFC, passive - RS-485 MODBUS-RTU - Soft start - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from supply - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
Power Factor Correction (PFC)	Passive (through low-capacitance DC link)
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 assignment	I; If a protective earth is connected. The built-in component has several local protection class assignments. The final protection class is determined by the intended installation.

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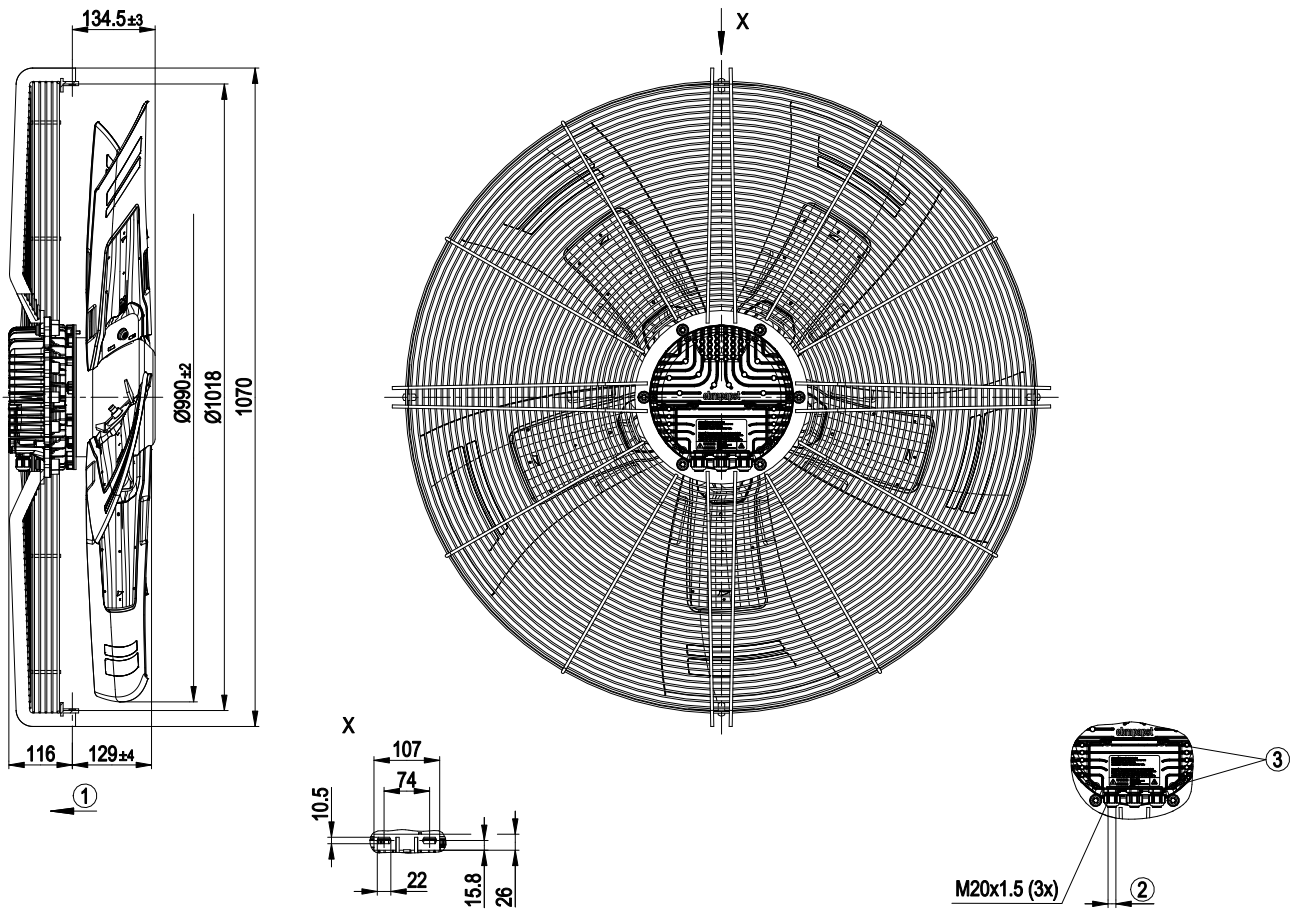
Conformity with standards	EN 61800-5-1; CE
Approval	EAC

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Product drawing



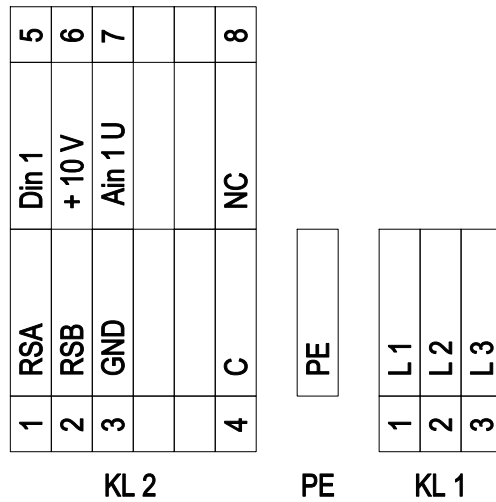
1	Direction of air flow "V"
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
3	Tightening torque 3.5 ± 0.5 Nm

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Connection diagram



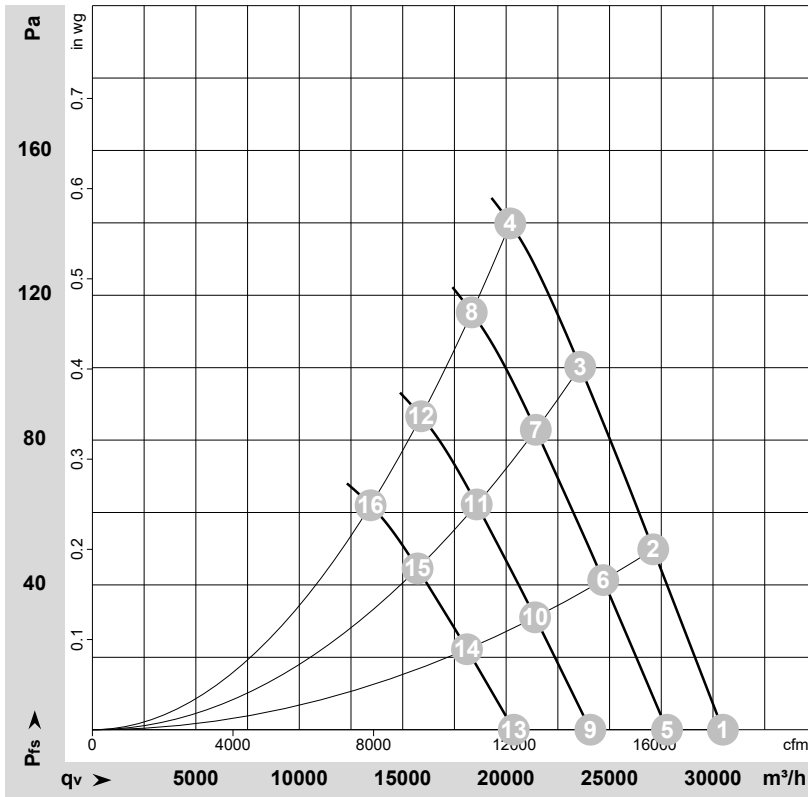
No.	Conn.	Designation	Function/assignment
KL 1	1	L1	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
KL 1	2	L2	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
KL 1	3	L3	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
PE		PE	Ground connection, PE connection
KL 2	1	RSA	Bus connection RS485, RSA, MODBUS-RTU; SELV
KL 2	2	RSB	Bus connection RS485, RSB, MODBUS-RTU; SELV
KL 2	3	GND	Reference ground for control interface; SELV
KL2	4	C	Status relay, floating status contact, break for failure; contact rating 250 VAC / max. 2 A (AC1) / min. 10 mA
KL 2	5	Din1	Digital input 1 enable electronics, enable: pin open or applied voltage 5-50 VDC disable: bridge to GND or applied voltage < 1 VDC reset function: triggers software reset after a level change to < 1 V; SELV
KL 2	6	+ 10 V	Fixed voltage output 10 VDC, +10 V $\pm$ 3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. pot); SELV Or: +24 VDC input for parameter setting via MODBUS without line voltage
KL 2	7	Ain1 U	Analog input 1 (set value) 0-10 V, Ri = 100 k Ω , adjustable curve; SELV
KL2	8	NC	Status relay, floating status contact, break for failure

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Curves: Air performance 50 Hz



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

Measurement: LU-162869-1
Date: 2014-05-12
Housing: 38998-2-4037

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	Y	400	50	820	947	1.61	72	80	80	30480	0	17940	0.00
2	Y	400	50	820	1224	1.99	70	77	77	27110	50	15960	0.20
3	Y	400	50	820	1465	2.34	71	78	78	23580	100	13880	0.40
4	Y	400	50	820	1650	2.60	73	80	80	20200	140	11890	0.56
5	Y	400	50	750	717	1.22	70	77	77	27775	0	16350	0.00
6	Y	400	50	750	927	1.51	67	75	75	24695	42	14535	0.17
7	Y	400	50	750	1100	1.76	68	76	76	21435	83	12615	0.33
8	Y	400	50	750	1233	1.94	71	78	78	18335	116	10795	0.47
9	Y	400	50	650	467	0.79	66	74	74	24075	0	14170	0.00
10	Y	400	50	650	603	0.98	64	72	71	21400	31	12595	0.12
11	Y	400	50	650	716	1.14	65	72	72	18575	62	10935	0.25
12	Y	400	50	650	803	1.27	67	74	74	15890	87	9355	0.35
13	Y	400	50	550	283	0.48	62	70	69	20370	0	11990	0.00
14	Y	400	50	550	365	0.59	59	67	67	18110	22	10660	0.09
15	Y	400	50	550	434	0.69	61	68	68	15720	45	9250	0.18
16	Y	400	50	550	486	0.77	63	70	70	13445	62	7915	0.25

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