W3G450-ZZ81-N1

EC axial fan - AxiEco

sickle-shaped blades (S series)

with round full nozzle, for rail applications

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Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	**W3G450-ZZ81-N1**
Motor	**M3G112-EA**

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}	2000
Power consumption	W	1200
Current draw	A	1.9
Max. back pressure	Pa	420
Max. back pressure	in. wg	1.69
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	70

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

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Technical description

Weight	15.7 kg
Size	450 mm
Motor size	112
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted black
Impeller material	PA66 plastic, sheet-metal plate painted black
Fan housing material	Die-cast aluminum, painted black
Inlet ring material	Sheet aluminum, painted black
Number of blades	5
Airflow direction	V
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H3
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; (sealed)
Technical features	- Output 10 VDC, max. 10 mA - Alarm relay - Integrated PID controller - Run monitoring - Power limiter - Motor current limitation - Emergency operation - 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 - Overvoltage detection - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
EMC regulations	According to EN 50121-3-2
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Motor protection	Thermal overload protector (TOP) internally connected
With cable	Lateral

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Protection class assignment	I; If a protective earth is connected by the customer This component for installation may have several local protection classes. This information relates to this component's basic design. The final protection class is based on the component's intended installation and connection.
Conformity with standards	EN 15085-1, CPC3; EN 45545-2, HL3; EN 50155; EN 61373, Cat. 1B
Approval	EAC
Comment	A prerequisite for operation is a Class 1 vehicle electrical system architecture according to EN 50533; if supply potential (e.g. 230 VAC) is passed through the alarm relay, the SELV signal wires lose their property of reinforced insulation and they then have only basic insulation The SELV property (reinforced insulation) is not lost when voltages of up to 110 VDC are passed through the alarm relay.

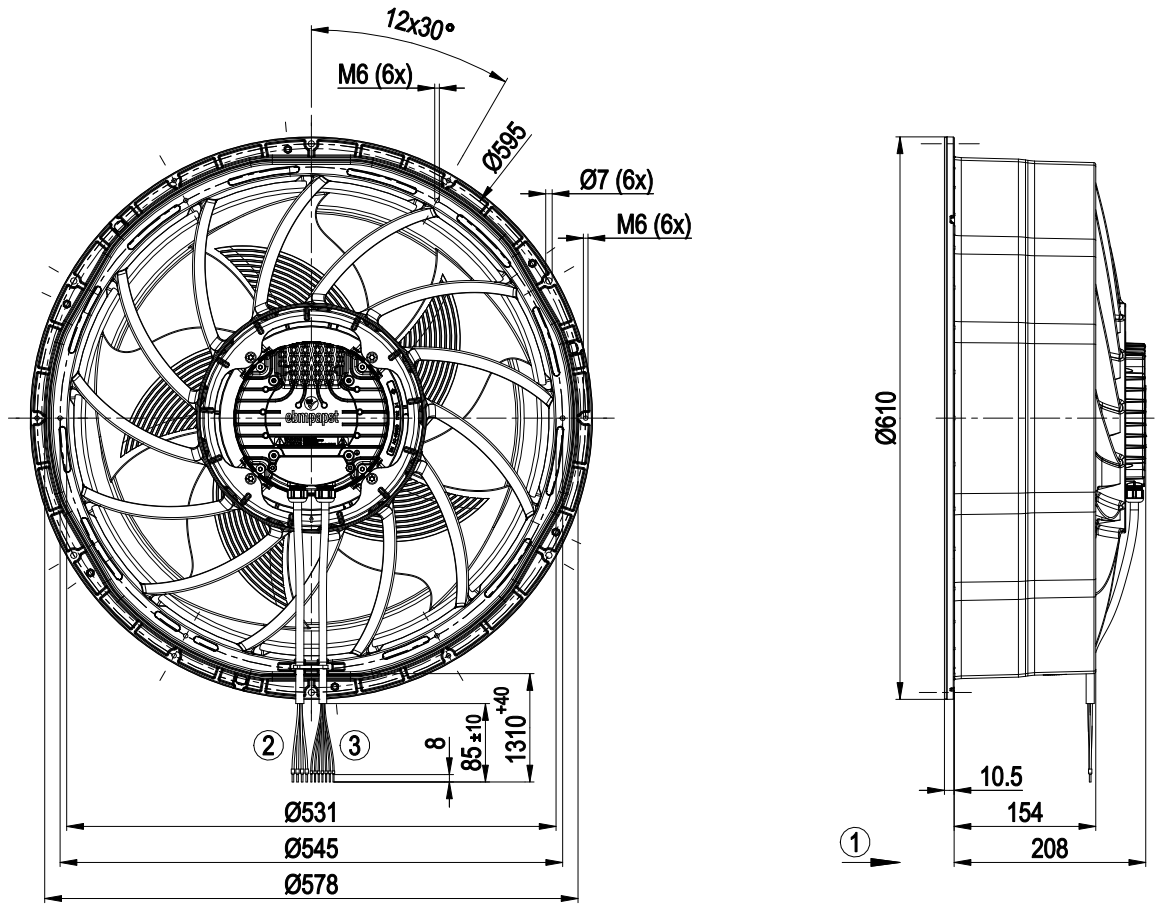
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Product drawing



1	Airflow direction "V"
2	Cable, halogen-free, railway application EN 45545, 4G 1.5 mm²
	4x wire-end ferrule
3	Cable, halogen-free, railway application EN 45545, 7x 0.5 mm²
	7x wire-end ferrule

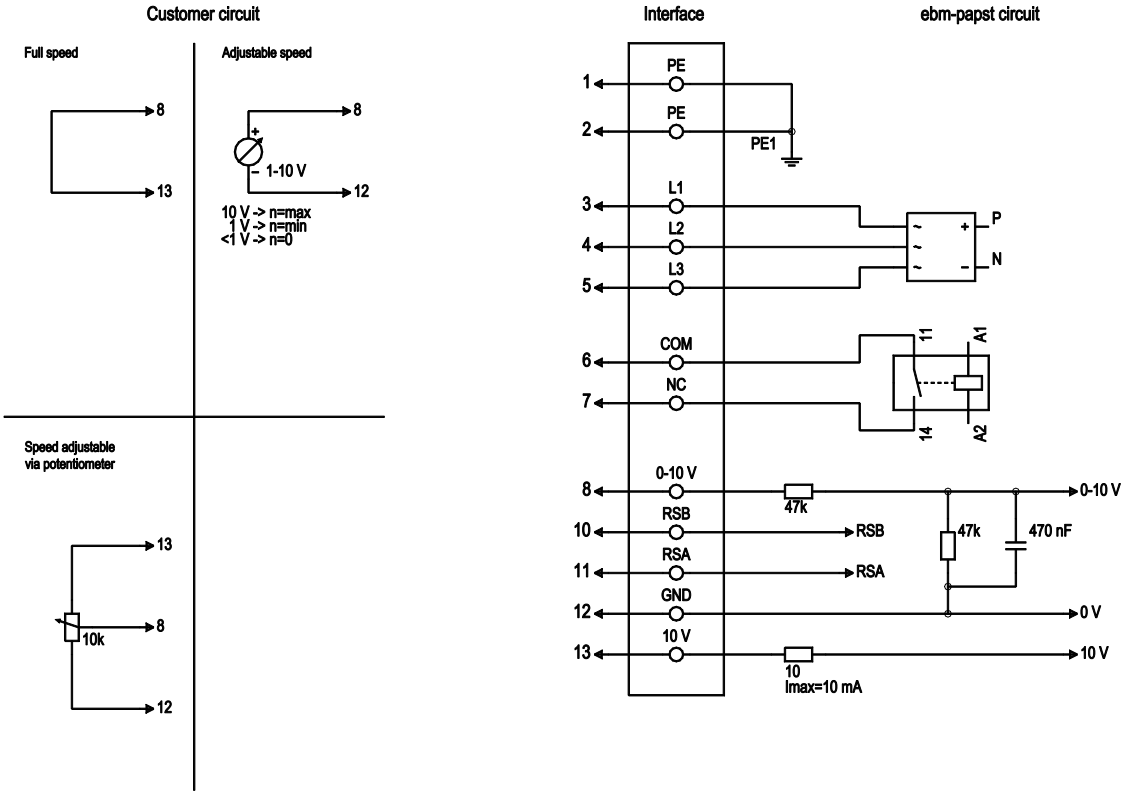
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Connection diagram



No.	Conn.	Designation	Color	Function/assignment
1	1	PE	green/yellow	Protective earth
1	2	PE	-	not brought out via wire
1	3	L1	black	Power supply, phase 50/60 Hz
1	4	L2	blue	Power supply, phase 50/60 Hz
1	5	L3	brown	Power supply, phase 50/60 Hz
2	6	COM	gray	Status relay, floating status contact, common connection, contact rating 250 VAC / max. 2 A (AC1), min. 1 mA / 5 VDC, reinforced insulation on control interface side, basic insulation on supply side according to EN 50124-1
2	7	NC	orange	Status relay, floating status contact, break for failure, contact rating 250 VAC / max. 2 A (AC1), min. 1 mA / 5 VDC, reinforced insulation on control interface side, basic insulation on supply side according to EN 50124-1
2	8	0-10V	yellow	Analog input (set value) SELV, 0-10 V, Ri = 100 kΩ, adjustable curve
2	10	RSB	brown	RS485 interface for MODBUS, RSB; SELV
2	11	RSA	white	RS485 interface for MODBUS, RSA; SELV
2	12	GND	blue	Reference ground for control interface, SELV
2	13	+10V	red	Fixed voltage output 10 VDC, +10 V ± 3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. pot); SELV

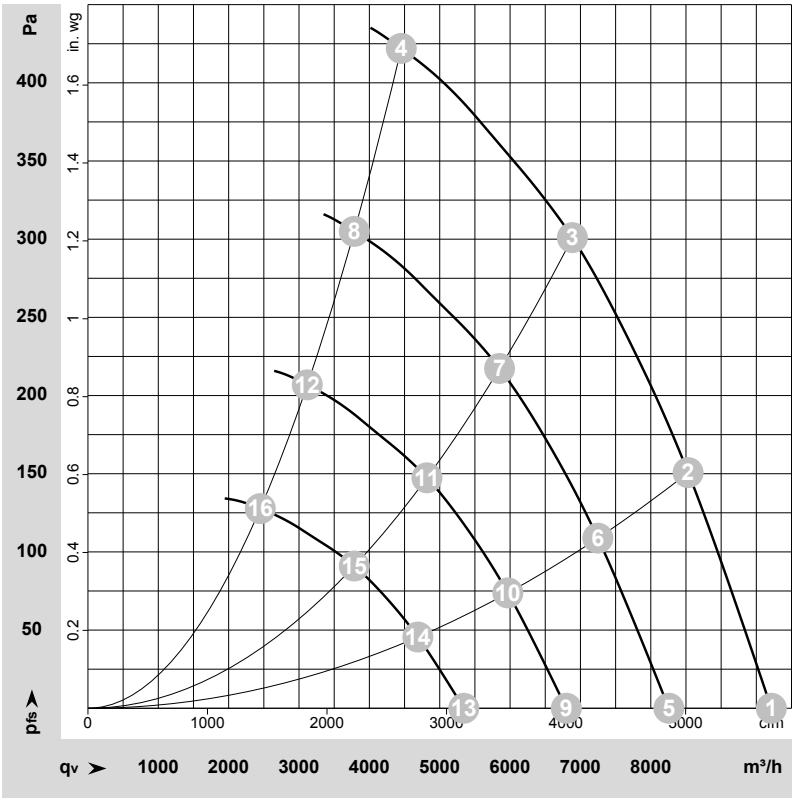
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Curves: Air performance 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-216365-1

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	2000	812	1.26	77	84	87	9715	0	5715	0.00
2	3~	400	50	2000	978	1.51	75	82	84	8530	150	5020	0.60
3	3~	400	50	2000	1115	1.71	73	81	84	6885	300	4050	1.20
4	3~	400	50	2000	1200	1.90	77	84	88	4455	420	2620	1.69
5	3~	400	50	1700	499	0.78	73	80	83	8255	0	4860	0.00
6	3~	400	50	1700	600	0.93	71	78	80	7245	109	4265	0.44
7	3~	400	50	1700	684	1.05	69	77	80	5850	218	3445	0.88
8	3~	400	50	1700	738	1.13	73	80	84	3785	305	2230	1.22
9	3~	400	50	1400	279	0.43	68	75	78	6800	0	4000	0.00
10	3~	400	50	1400	335	0.52	66	73	75	5970	74	3515	0.30
11	3~	400	50	1400	382	0.59	64	72	75	4820	148	2835	0.59
12	3~	400	50	1400	412	0.63	68	75	79	3120	207	1835	0.83
13	3~	400	50	1100	135	0.21	62	69	72	5340	0	3145	0.00
14	3~	400	50	1100	163	0.25	60	67	69	4690	46	2760	0.18
15	3~	400	50	1100	185	0.28	58	66	69	3785	91	2230	0.37
16	3~	400	50	1100	200	0.31	62	69	73	2450	128	1440	0.51

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

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