

8300101216  
VBS0310XSPGZ

# EC centrifugal fan

backward-curved, single-intake

## ebm-papst Mulfingen GmbH & Co. KG

Bachmühle 2 · D-74673 Mulfingen

Phone +49 7938 81-0

Fax +49 7938 81-110

info1@de.ebmpapst.com

www.ebmpapst.com

Limited partnership · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRB 590142

## Nominal data

Item	8300101216	
Motor	E08421-35	
Phase		1~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200 .. 277
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min <sup>-1</sup>	2450
Power consumption	W	460
Current draw	A	2.0
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	55

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 $\eta_{es}$	%	63.7	48	09 Power consumption $P_{ed}$	kW	0.45
02 Measurement category		A		09 Air flow $q_v$	m <sup>3</sup> /h	1805
03 Efficiency category		Static		09 Pressure increase $p_{fs}$	Pa	527
04 Efficiency grade N		77.7	62	10 Speed (rpm) n	min <sup>-1</sup>	2455
05 Variable speed drive		Yes		11 Specific ratio <sup>*</sup>		1.01

Data obtained at optimum efficiency level.

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

LU-187069

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	4.5 kg
Size	310 mm
Motor size	84
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	Sheet aluminum
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H1
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	Any
Condensation drainage holes	None
Mode	S1
Motor bearing	Ball bearing; (sealed)
Technical features	<ul style="list-style-type: none"><li>- Output 10 VDC, max. 10 mA</li><li>- Operation and alarm display</li><li>- Tach output</li><li>- Alarm relay</li><li>- Integrated PID controller</li><li>- Power limiter</li><li>- Motor current limitation</li><li>- PFC, active</li><li>- RS-485 MODBUS-RTU</li><li>- Soft start</li><li>- Control input 0-10 VDC / PWM</li><li>- Control interface with SELV potential safely disconnected from the mains</li><li>- Thermal overload protection for electronics/motor</li><li>- Line undervoltage / phase failure detection</li></ul>
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Motor protection	Thermal switch auto reset, internally connected
With cable	Variable
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 61800-5-1; CE; UKCA
Approval	CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1

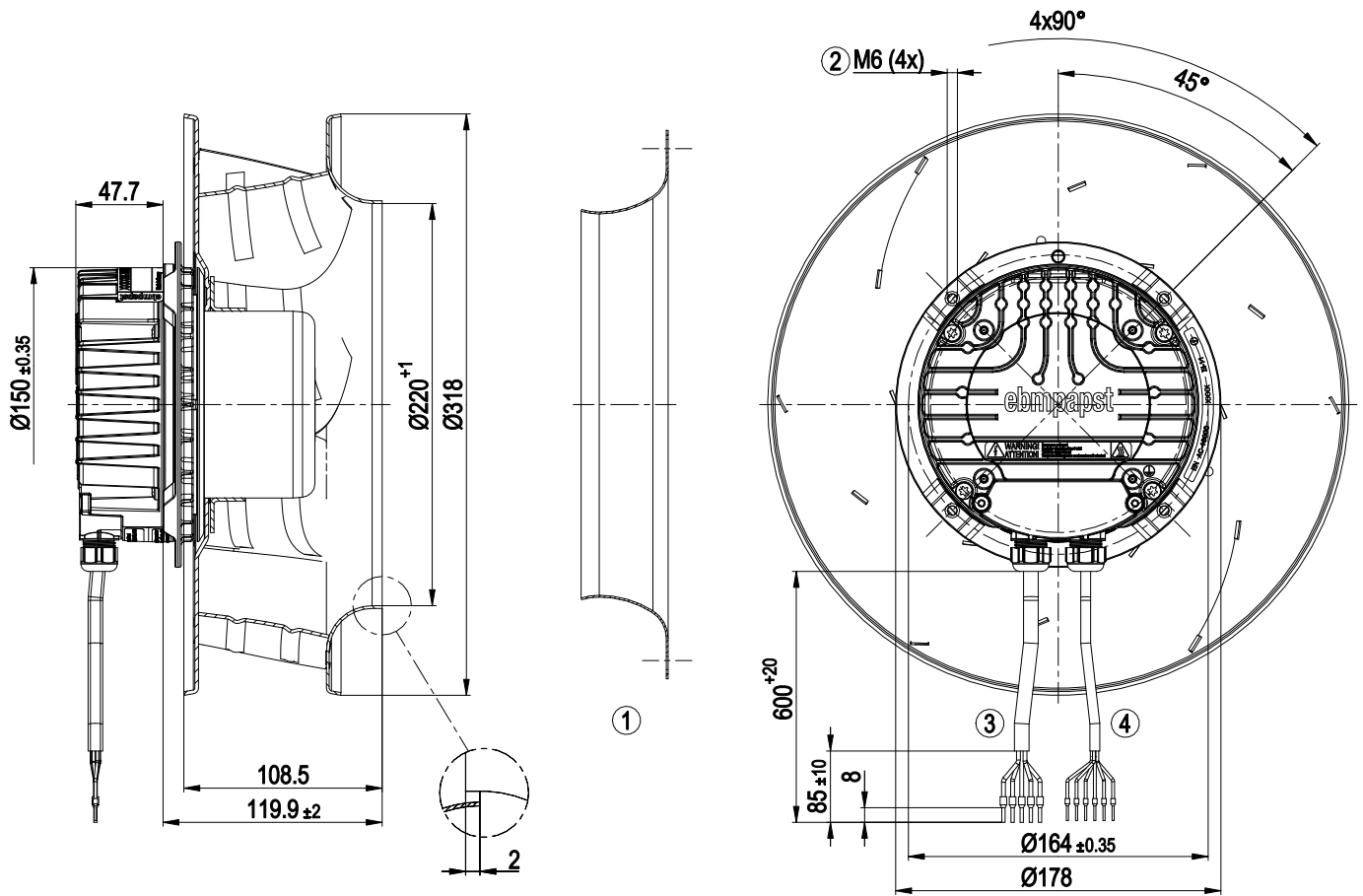


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## Product drawing



1	Accessory part: inlet ring 31050-2-4013 not included in scope of delivery
2	Max. clearance for screw 16 mm
3	Cable PVC AWG18 5x wire-end ferrule
4	Cable PVC AWG22 6x wire-end ferrule

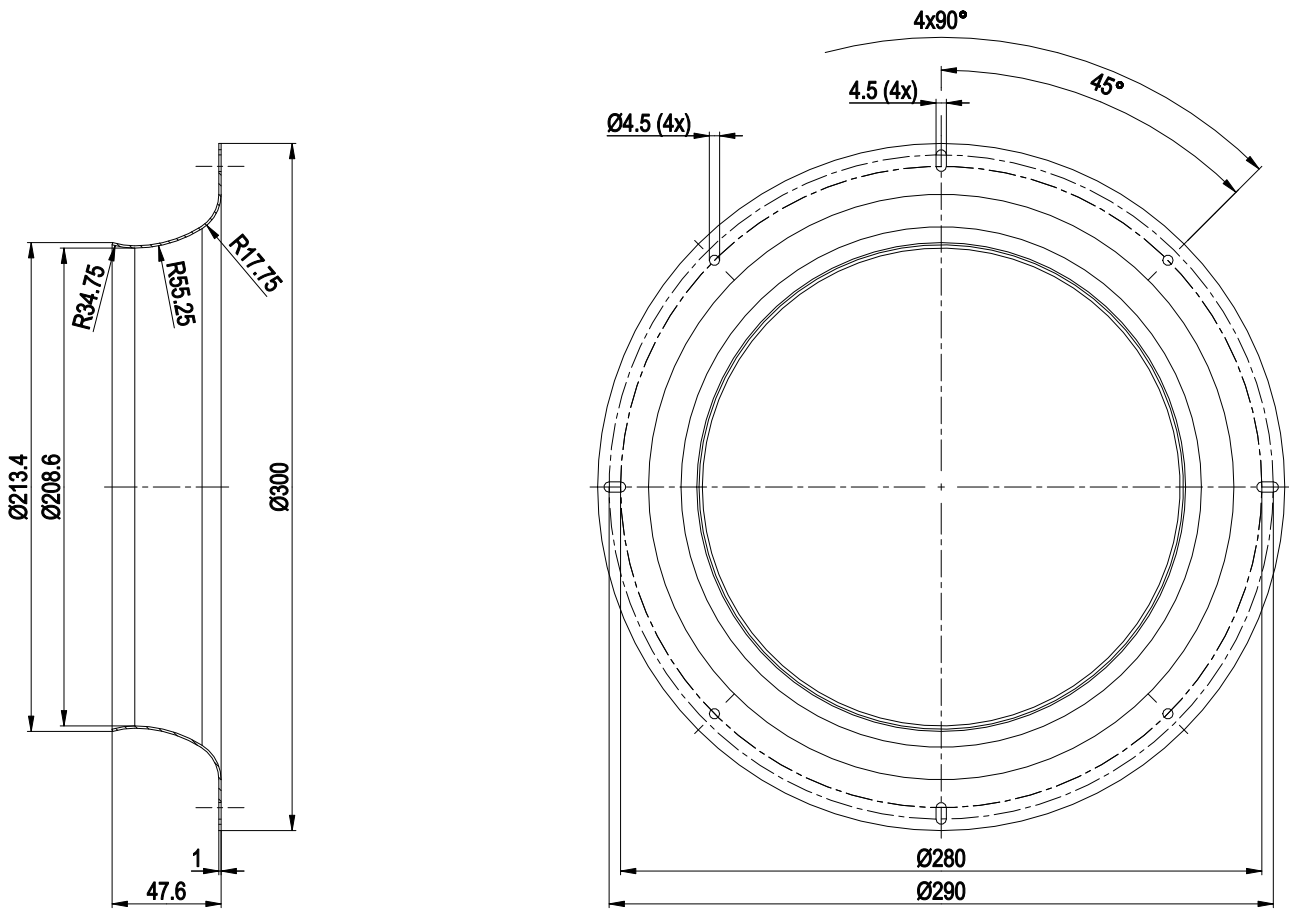


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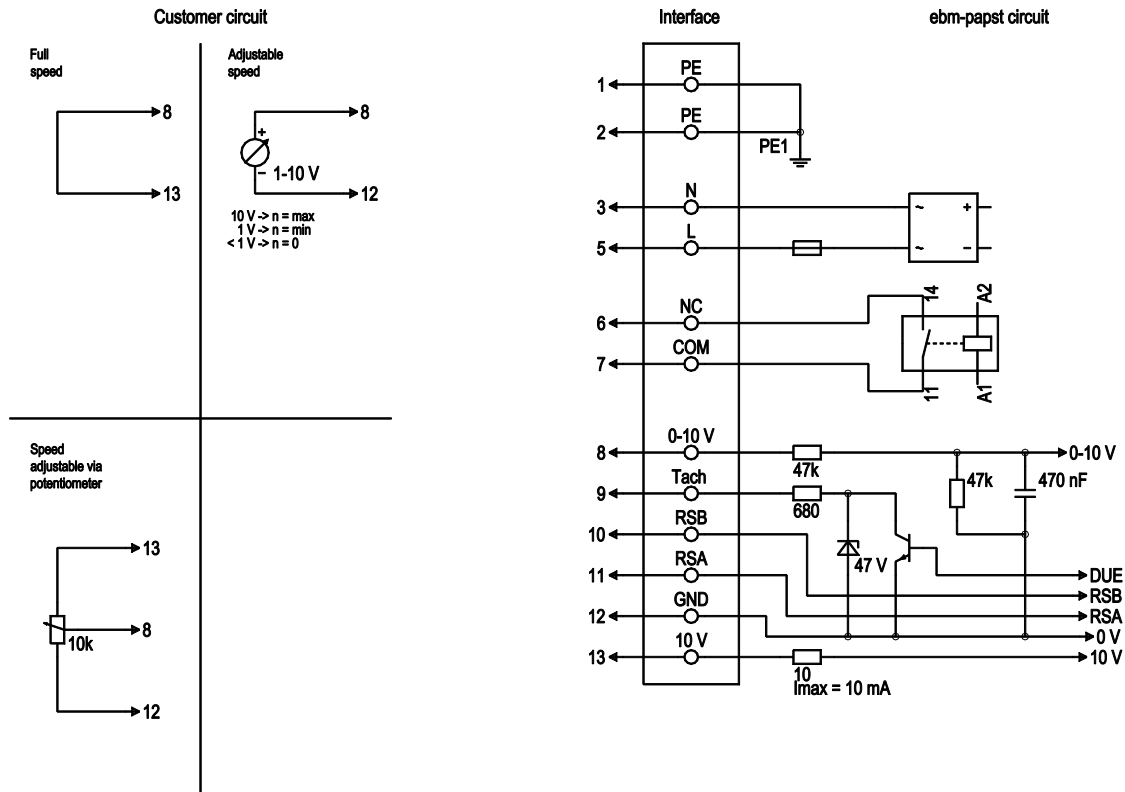
## Accessory part



Inlet ring 31050-2-4013

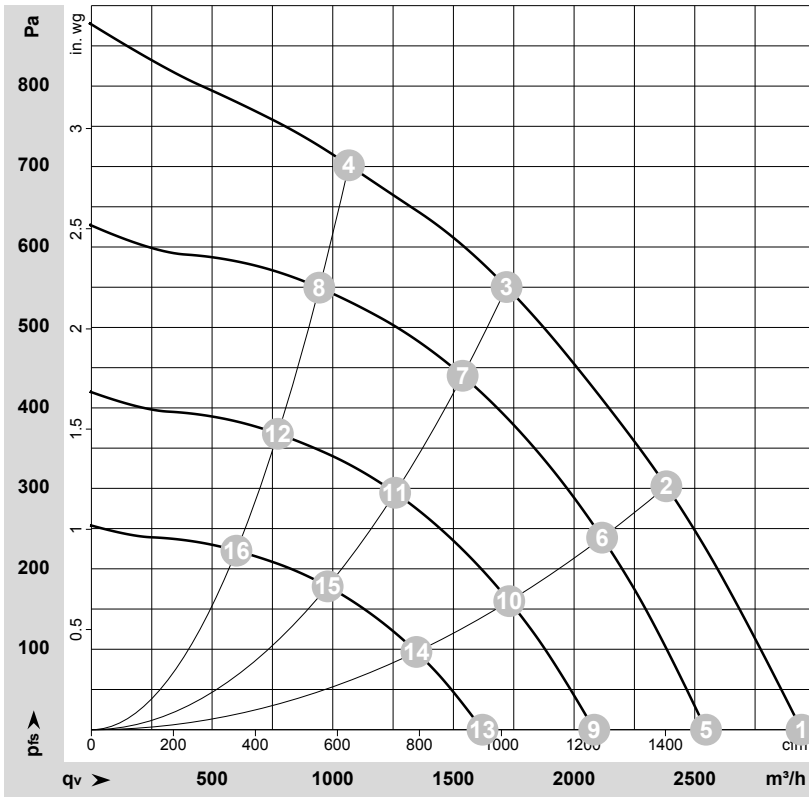


## Connection diagram



No.	Conn.	Designation	Color	Function/assignment
1	1, 2	PE	green/yellow	Protective earth
1	3	N	blue	Power supply, neutral conductor, 50/60 Hz
1	5	L	black	Power supply, phase, 50/60 Hz
1	6	NC	white 1	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; basic insulation on supply side and reinforced insulation on control interface side
1	7	COM	white 2	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; basic insulation on supply side and reinforced insulation on control interface side
2	8	0-10 V	yellow	Analog input (set value) SELV, 0-10 V, Ri = 100 kΩ, adjustable curve
2	9	Tacho	gray	Tach output: open collector, 1 pulse per revolution, Isink max = 10 mA, SELV
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	+10 V	red	Fixed voltage output 10 VDC, +10 V ±3%, max. 10 mA, short-circuit-proof power supply for external devices (e.g. pot); SELV

## Curves: Air performance 50 Hz



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

Measurement: LU-187069-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebmpapst. 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 <sub>e</sub>	I	q <sub>v</sub>	P <sub>fs</sub>	q <sub>v</sub>	P <sub>fs</sub>
		V	Hz	min <sup>-1</sup>	W	A	m <sup>3</sup> /h	Pa	cfm	in. wg
1	1~	230	50	2540	345	1.52	2945	0	1730	0.00
2	1~	230	50	2475	410	1.80	2380	300	1400	1.20
3	1~	230	50	2450	460	2.00	1720	550	1010	2.21
4	1~	230	50	2485	430	1.88	1065	700	630	2.81
5	1~	230	50	2200	223	0.98	2545	0	1500	0.00
6	1~	230	50	2200	287	1.26	2115	241	1245	0.97
7	1~	230	50	2200	329	1.44	1540	440	905	1.77
8	1~	230	50	2200	298	1.31	945	549	555	2.20
9	1~	230	50	1800	122	0.54	2085	0	1225	0.00
10	1~	230	50	1800	157	0.69	1730	161	1020	0.65
11	1~	230	50	1800	180	0.79	1260	295	740	1.18
12	1~	230	50	1800	163	0.72	775	368	455	1.48
13	1~	230	50	1400	58	0.25	1620	0	955	0.00
14	1~	230	50	1400	74	0.33	1345	98	795	0.39
15	1~	230	50	1400	85	0.37	980	178	575	0.71
16	1~	230	50	1400	77	0.34	600	223	355	0.90

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P<sub>e</sub> = Power consumption · I = Current draw · q<sub>v</sub> = Air flow · P<sub>fs</sub> = Pressure increase

