8317082035
VBH0500STTLS

EC centrifugal fan - RadiCal

backward-curved, single-intake
with support bracket

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Nominal data

Part number	8317082035
Type	VBH0500STTLS

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}	1900
Power consumption	W	2850
Current draw	A	4.4
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	40

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}	%	71.1	56.3
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		76.8	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	2.84
09 Air flow q_v	m^3/h	8715
09 Pressure increase p_{fs}	Pa	794
10 Speed (rpm) n	min^{-1}	1905
11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

* Specific ratio = 1 + p_{fs} / 100 000 Pa

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.

LU-206666

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

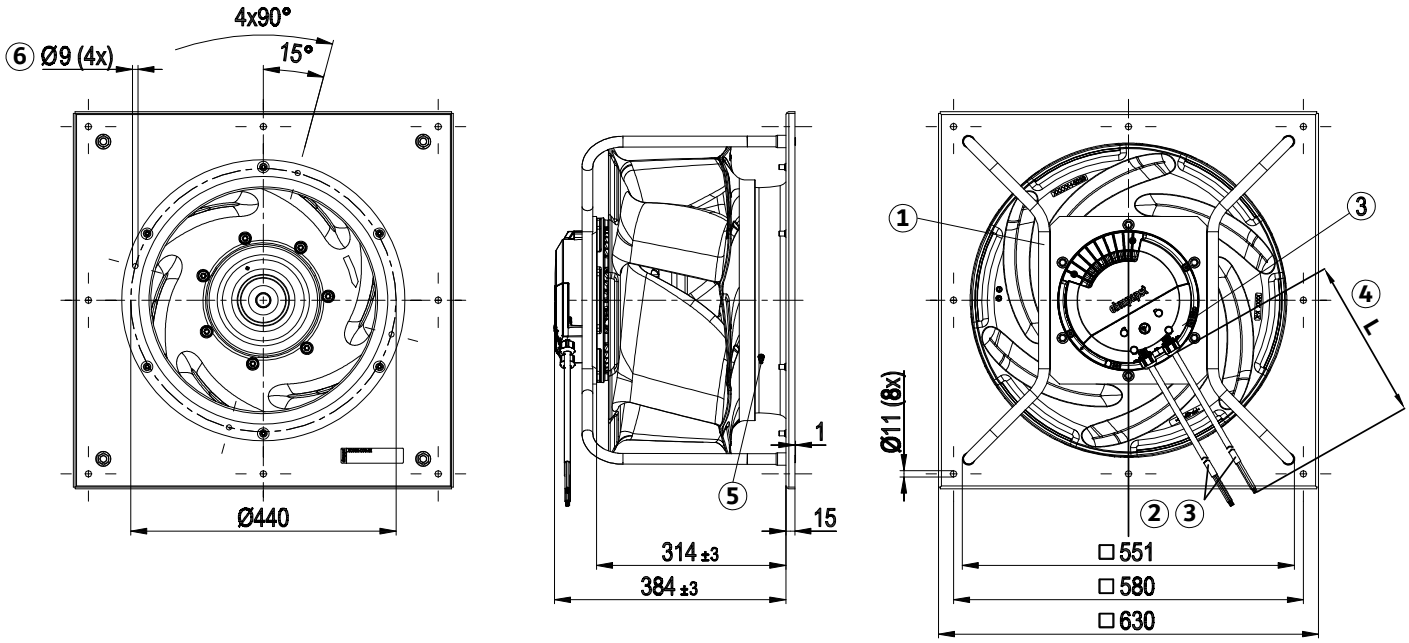
Weight	36.5 kg
Size	500 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Support plate material	Sheet steel, galvanized
Support bracket material	Steel, painted black
Inlet nozzle material	Sheet steel, galvanized
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H1
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	See legend on product drawing
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- 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 10VDC+/-3%, Imax=10mA - 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	Cable w/o connector
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE

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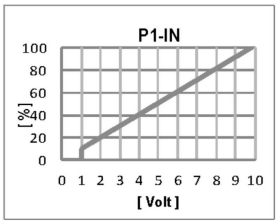
Product drawing



1	Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request
2	Cable length and customer connector (both power and signal) can be adjusted according to customer request
3	Cable wire diameter: power: AWG 15(4x); signal: AWG 22(8x)
4	L=1200mm±50mm
5	Inlet ring with pressure tap(k-factor:375)
6	Attachment holes for FlowGrid(35505-2-2957 not included in scope of delivery)

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Connection diagram

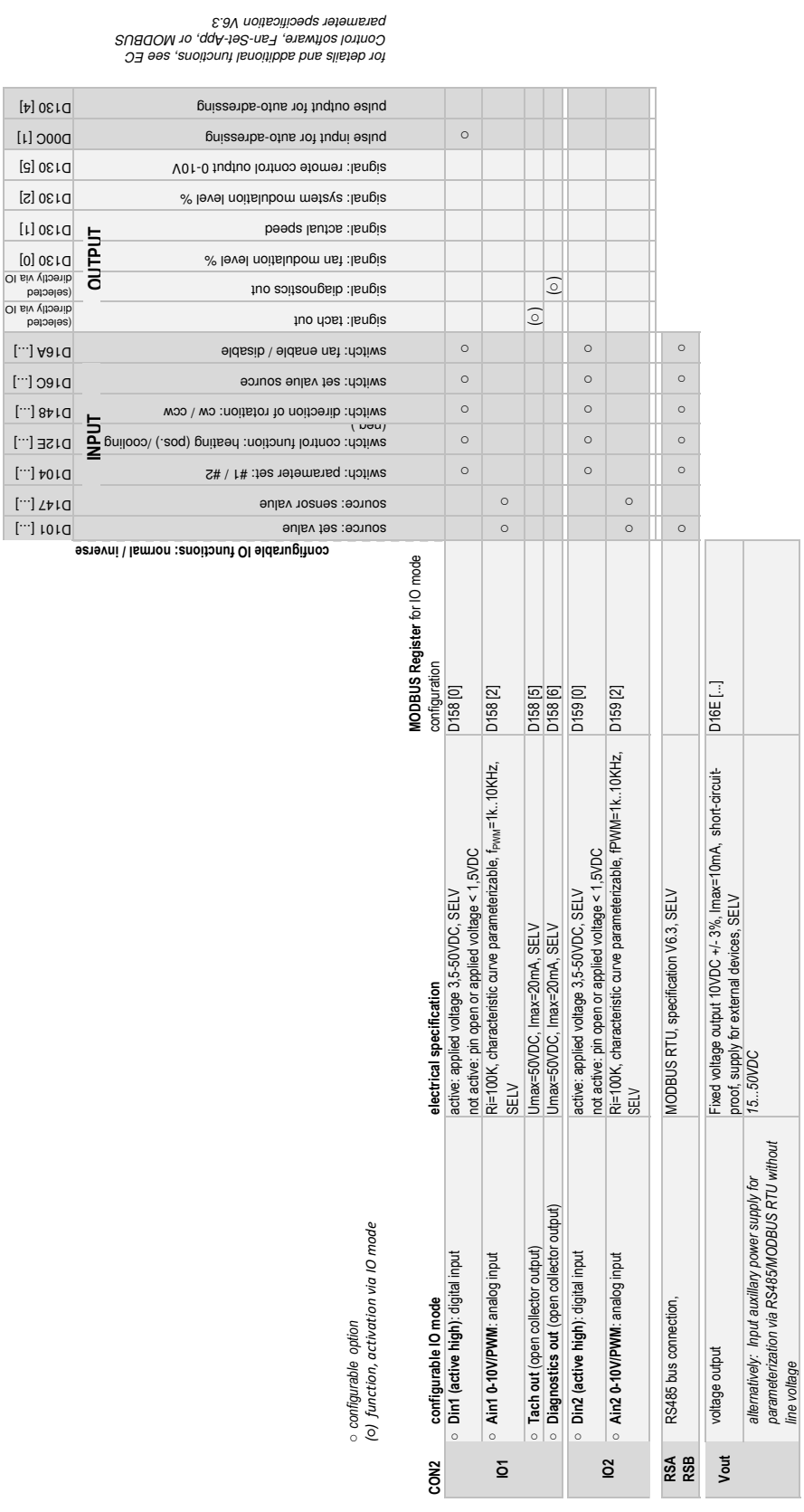


Wire color		Designation	Function/assignment
black		L1	Power supply, phase, see nameplate for voltage range
black		L2	Power supply, phase, see nameplate for voltage range
black		L3	Power supply, phase, see nameplate for voltage range
green/yellow		PE	Protective earth
grey		RSA	RS485 interface for MODBUS, RSA; SELV
brown		RSB	RS485 interface for MODBUS, RSB; SELV
blue		GND	Reference ground for control interface, SELV
white		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"
yellow		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
red		Vout	Voltage output 10VDC+/-3%, Imax=10mA supply for external devices, SELV alternatively: 15-50 VDC input for parameterization via MODBUS without line voltage
orange (1)		COM	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) / min. 10mA, reinforced insulation on supply side and on control interface side
orange (2)		NC	Status relay, floating status contact, break for failure
		P1-IN	Input characteristic curve

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Terminal/plug assignment



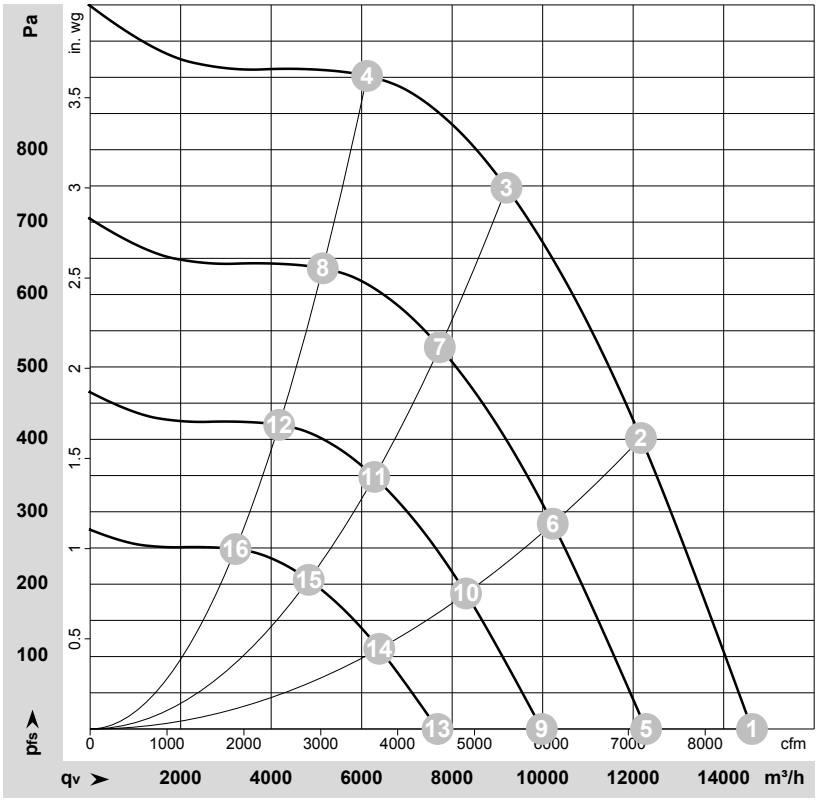
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Curves: Air performance 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-206666-1

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	1900	1648	2.61	82	89	92	14625	0	8610	0.00
2	3~	400	50	1900	2479	3.83	76	83	88	12170	400	7165	1.61
3	3~	400	50	1900	2850	4.40	71	78	85	9200	750	5415	3.01
4	3~	400	50	1900	2627	4.05	75	82	87	6120	900	3600	3.61
5	3~	400	50	1600	976	1.55	77	85	88	12285	0	7230	0.00
6	3~	400	50	1600	1469	2.27	71	78	84	10225	285	6015	1.14
7	3~	400	50	1600	1685	2.59	66	74	81	7725	528	4550	2.12
8	3~	400	50	1600	1557	2.40	71	78	83	5140	638	3025	2.56
9	3~	400	50	1300	524	0.83	72	79	83	9980	0	5875	0.00
10	3~	400	50	1300	788	1.22	66	73	79	8305	188	4890	0.75
11	3~	400	50	1300	904	1.39	61	69	76	6280	349	3695	1.40
12	3~	400	50	1300	835	1.29	65	73	78	4175	421	2460	1.69
13	3~	400	50	1000	238	0.38	65	73	76	7680	0	4520	0.00
14	3~	400	50	1000	359	0.55	60	67	72	6390	111	3760	0.45
15	3~	400	50	1000	411	0.63	54	62	69	4830	206	2840	0.83
16	3~	400	50	1000	380	0.59	59	66	71	3215	249	1890	1.00

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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