

8300100535
VBS0560CTTPS

EC centrifugal fan - RadiPac

backward-curved, single-intake

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Nominal data

Item	8300100535	
Motor	E15037-85	
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	1990
Power consumption	W	4000
Current draw	A	5.8
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 (prEN 17166)

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	72.5	57.8	09 Power consumption P_{ed}	kW	3.94
02 Measurement category		A		09 Air flow q_v	m³/h	11555
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	856
04 Efficiency grade N		76.7	62	10 Speed (rpm) n	min ⁻¹	1995
05 Variable speed drive		Yes		11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

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

LU-220438

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).

Technical description

Weight	29.5 kg
Size	560 mm
Motor size	150
Rotor surface	Painted black
Terminal box material	Die-cast aluminum
Impeller material	PP plastic
Number of blades	5
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	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	- Operation and alarm display with LED - External 15-50 VDC input (parameterization) - Alarm relay - Integrated PI controller - Configurable inputs/outputs (I/O) - MODBUS V6.4 - Motor current limitation - PFC, active - 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 - Vibration sensor
Power Factor Correction (PFC)	Active
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC circuit feedback	According to EN 61000-3-2/3
EMC interference emission	According to EN 61000-6-4 (industrial environment)
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box
Motor protection	Electronic motor protection

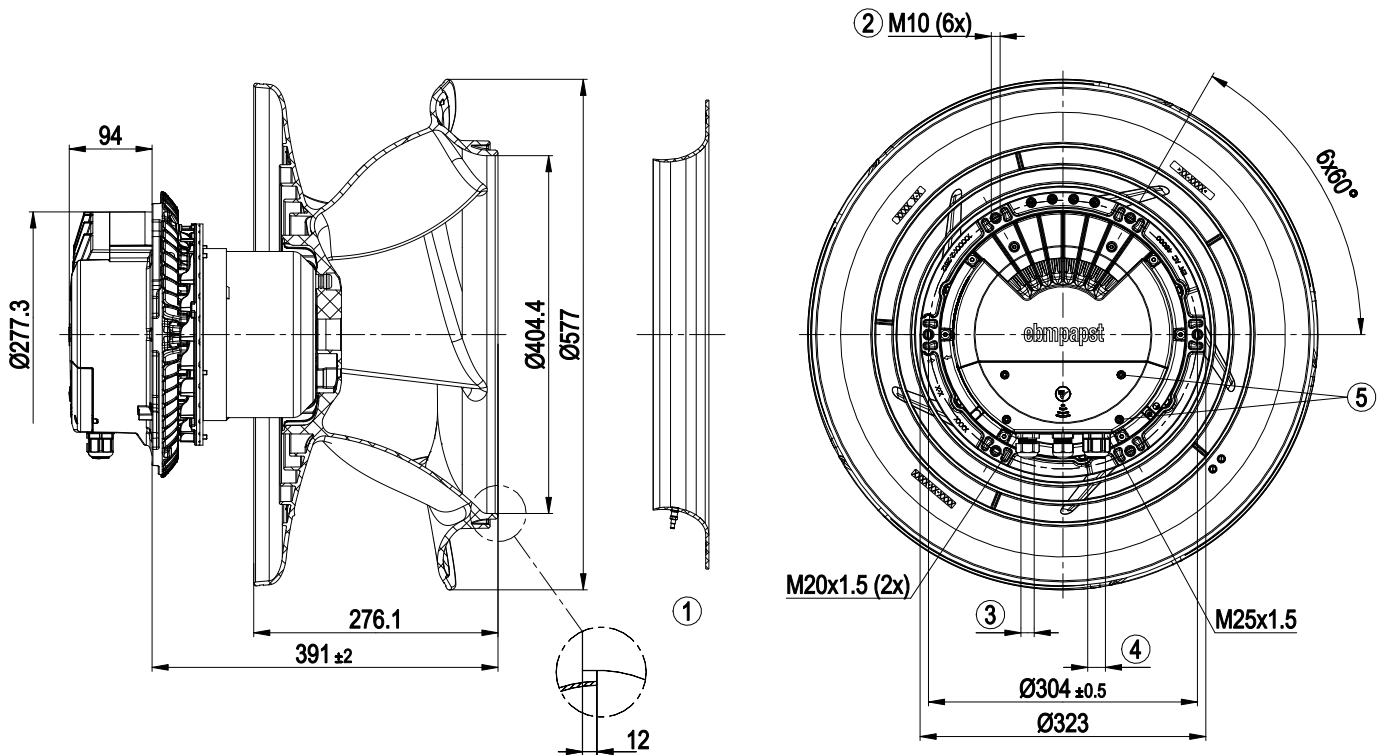
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Protection class assignment	I; If a protective earth is connected. The built-in component has several local protection class assignments. The final protection class is determined by the intended installation.
Conformity with standards	EN 61800-5-1; CE; UKCA
Approval	EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1; UL 1004-7 + 60730-1

Product drawing



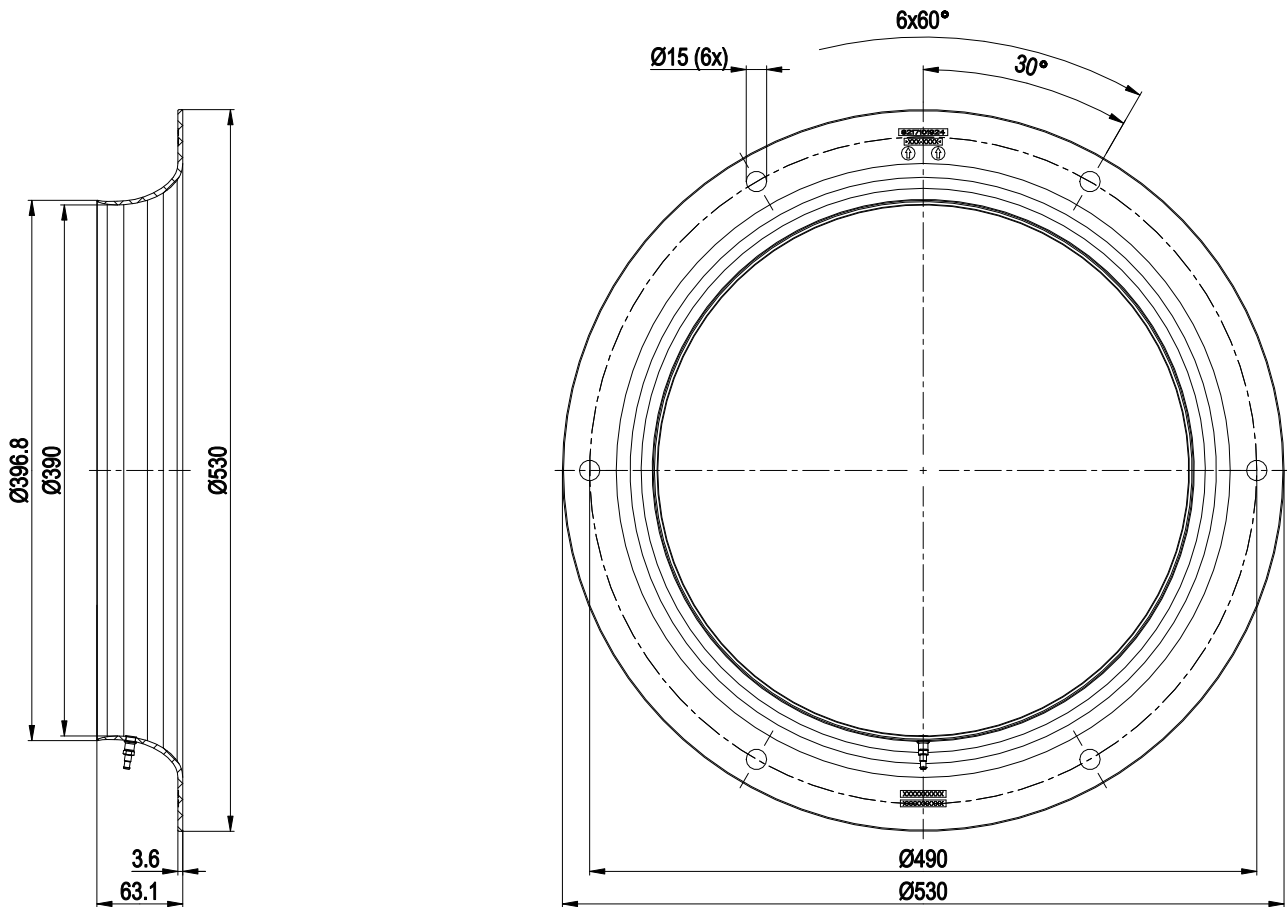
1	Accessory part: Inlet ring 8217102237 with pressure tap (k-factor: 381) (not included in scope of delivery)
2	Max. clearance for screw 20 mm
3	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
4	Cable diameter min. 5 mm, max. 14 mm, tightening torque 6 ± 0.9 Nm
	(The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
5	Tightening torque 3 ± 0.3 Nm

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Accessory part

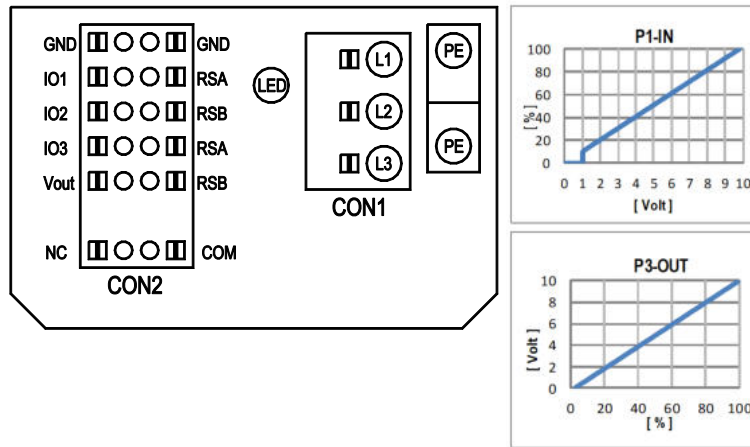


Inlet ring 8217102237 with pressure tap (k-factor: 381)

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Connection diagram

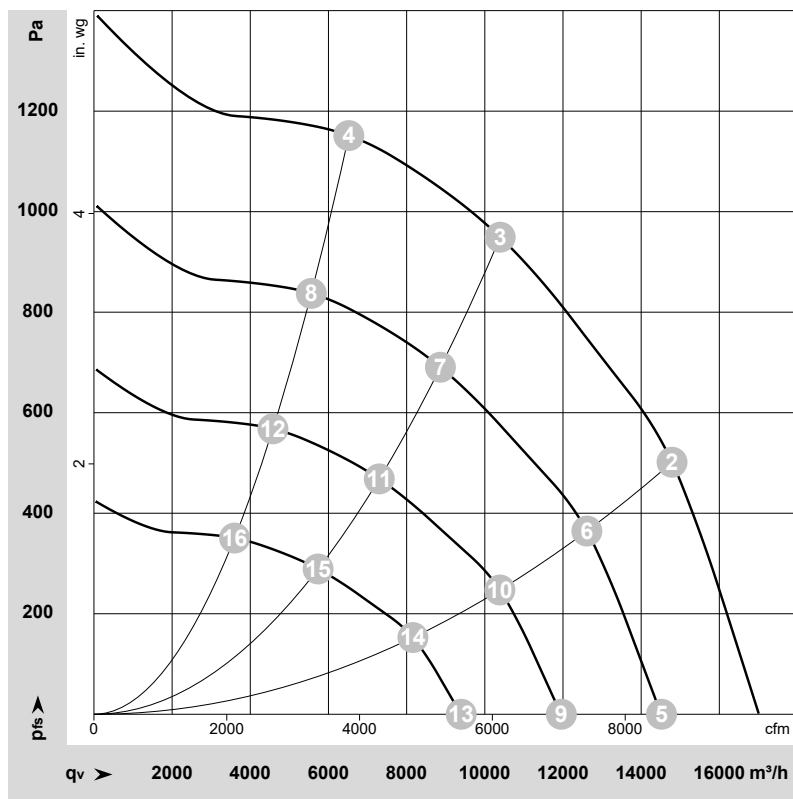


No.	Conn.	Designation	Function/assignment
	CON1	L1, L2, L3	Power supply, phase, see nameplate for voltage range
	PE	PE	Protective earth
	CON2	RSA	RS485 interface for MODBUS, RSA; SELV
	CON2	RSB	RS485 interface for MODBUS, RSB; SELV
	CON2	GND	Reference ground for control interface, SELV
	CON2	IO1	Function 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: Actual speed Characteristic curve parametrizable (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

Terminal/plug assignment

configurable IO functions: normal / inverse		electrical specification	configurable IO mode	CON2	MODBUS Register for IO mode configuration																							
					INPUT												OUTPUT											
IO1	○ Din1 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	D158 [0]	○	switch: fan enable / disable	D16A [...]	(selected directly via IO mode)	D130 [0]	signal: fan modulation level %	D130 [1]	signal: actual speed	D130 [2]	signal: system modulation level %	D130 [5]	signal: remote control output 0-10V	D00C [1]	pulse output for auto-addressing	D130 [4]										
	○ Ain1 0-10V/PWM: analog input	RI = 100k, characteristic curve parameterizable, f _{PWM} = 1k..10kHz, SELV	D158 [2]	○	switch: set value source	D16C [...]	(selected directly via IO mode)	D130 [10]	signal: tach out	D16A [...]	(selected directly via IO mode)	D130 [11]	signal: diagnostics out	D130 [0]	signal: tach out	D16A [...]	(selected directly via IO mode)	D130 [10]										
	○ Tach out (open collector output)	U _{max} = 50VDC, I _{max} = 20mA, SELV	D158 [5]	○	switch: direction of rotation: cw / ccw	D148 [...]	(selected directly via IO mode)	D130 [11]	switch: control function: heating (pos.) / cooling (neg.)	D12E [...]	switch: parameter set: #1 / #2	D104 [...]	source: sensor value	D147 [...]	source: set value	D101 [...]	source: set value	D101 [...]										
	○ Diagnostics out (open collector output)	U _{max} = 50VDC, I _{max} = 20mA, SELV	D158 [6]	○	switch: parameter set: #1 / #2	D104 [...]	source: sensor value	D147 [...]	source: set value	D101 [...]	source: set value	D101 [...]	source: set value	D101 [...]	source: set value	D101 [...]	source: set value	D101 [...]										
IO2	○ Din2 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	D159 [0]	○	switch: control function: heating (pos.) / cooling (neg.)	D12E [...]	switch: parameter set: #1 / #2	D104 [...]	source: sensor value	D147 [...]	source: set value	D101 [...]	source: set value	D101 [...]	source: set value	D101 [...]	source: set value	D101 [...]										
	○ Ain2 0-10V/PWM: analog input	RI = 100k, characteristic curve parameterizable, f _{PWM} = 1k..10kHz, SELV	D159 [2]	○	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	(selected directly via IO mode)	D130 [10]	signal: fan modulation level %	D130 [11]	signal: system modulation level %	D130 [5]	signal: remote control output 0-10V	D130 [4]										
	○ Ain2 4-20mA: analog input	RI = 125R, characteristic curve parameterizable, SELV	D159 [3]	○	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]										
	○ Din3 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	D15A [0]	○	switch: fan enable / disable	D16A [...]	(selected directly via IO mode)	D130 [10]	signal: tach out	D16A [...]	(selected directly via IO mode)	D130 [11]	signal: diagnostics out	D130 [0]	signal: tach out	D16A [...]	(selected directly via IO mode)	D130 [10]										
IO3	○ Din3 (active low): digital input	active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage < 1.5VDC	D15A [1]	○	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]										
	○ PWMIn3: digital input idle level high	PWM = 40Hz - 10kHz, characteristics parameterizable	D15A [7]	○	switch: parameter set: #1 / #2	D104 [...]	switch: control function: heating (pos.) / cooling (neg.)	D12E [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]										
	○ PWMIn3: digital input idle level low	active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV	D15A [8]	○	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]										
	○ Aout3 0-10V: analog output	active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1.5VDC, SELV	D15A [4]	○	switch: fan enable / disable	D16A [...]	(selected directly via IO mode)	D130 [10]	signal: tach out	D16A [...]	(selected directly via IO mode)	D130 [11]	signal: diagnostics out	D130 [0]	signal: tach out	D16A [...]	(selected directly via IO mode)	D130 [10]										
RSA RSB	○ Tacho out (pulses), analog output	function parameterizable, max. 5mA max output frequency 300Hz, SELV	D15A [5]	○	switch: parameter set: #1 / #2	D104 [...]	switch: control function: heating (pos.) / cooling (neg.)	D12E [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]										
	○ Diagnostics out (pulses)	0-10V max. 5mA max output frequency 300Hz, SELV	D15A [6]	○	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]										
		0-10V max. 5mA max output frequency 300Hz, SELV		○	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]										
		MODBUS RTU, specification V6.4, SELV		○	switch: fan enable / disable	D16A [...]	(selected directly via IO mode)	D130 [10]	signal: tach out	D16A [...]	(selected directly via IO mode)	D130 [11]	signal: diagnostics out	D130 [0]	signal: tach out	D16A [...]	(selected directly via IO mode)	D130 [10]										
Vout		RS485 bus connection,		○	switch: fan enable / disable	D16A [...]	(selected directly via IO mode)	D130 [10]	signal: tach out	D16A [...]	(selected directly via IO mode)	D130 [11]	signal: diagnostics out	D130 [0]	signal: tach out	D16A [...]	(selected directly via IO mode)	D130 [10]										
		voltage output		○	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]										
		alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage		○	switch: parameter set: #1 / #2	D104 [...]	switch: control function: heating (pos.) / cooling (neg.)	D12E [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]										

Curves: Air performance 50 Hz



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

Measurement: LU-220438-1
Date: 2022-05-06
Nozzle: 8217101924

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 _e	I	LpA _{in}	LwA _{in}	LwA _{out}	LwA	q _v	P _{fs}	q _v	P _{fs}
		V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	dB(A)	dB	m³/h	Pa	cfm	in. wg
1	3~	400	50	1990	2497	3.61	84	92	95	97	17025	0	10020	0.00
2	3~	400	50	1990	3530	5.11	77	85	90	91	14790	500	8705	2.01
3	3~	400	50	1990	4000	5.80	71	79	84	86	10395	950	6115	3.81
4	3~	400	50	1995	3676	5.32	76	83	88	89	6520	1150	3840	4.62
5	3~	400	50	1700	1550	2.24	80	88	91	93	14520	0	8545	0.00
6	3~	400	50	1700	2188	3.17	73	81	86	87	12610	368	7425	1.48
7	3~	400	50	1700	2464	3.56	67	75	80	82	8865	692	5215	2.78
8	3~	400	50	1700	2281	3.30	72	79	84	85	5560	840	3275	3.37
9	3~	400	50	1400	866	1.25	75	83	86	88	11960	0	7040	0.00
10	3~	400	50	1400	1222	1.77	69	76	81	82	10385	249	6115	1.00
11	3~	400	50	1400	1376	1.99	62	70	76	77	7300	469	4295	1.88
12	3~	400	50	1400	1274	1.84	67	74	79	80	4580	570	2695	2.29
13	3~	400	50	1100	420	0.61	69	77	80	82	9395	0	5530	0.00
14	3~	400	50	1100	593	0.86	62	70	75	76	8160	154	4805	0.62
15	3~	400	50	1100	668	0.97	56	64	70	71	5735	290	3375	1.16
16	3~	400	50	1100	618	0.89	61	68	73	74	3600	352	2120	1.41

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_e = 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