

8300100376
VBS0450PTTLS

EC centrifugal fan - RadiPac

backward-curved, single-intake

ebm-papst Mulfingen GmbH & Co. KGaA & Co. KG
Bachmühle 2 · D-74673 Mulfingen
Phone +49 7938 81-0
info1@de.fansco.com
www.fansco.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	8300100376	
Motor	E15037-55	
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	2320
Power consumption	W	3700
Current draw	A	5.3
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	40

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

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

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	67.9	57.3	09 Power consumption P_{ed}	kW	3.55
02 Measurement category		A		09 Air flow q_v	m³/h	6940
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	1201
04 Efficiency grade N		72.6	62	10 Speed (rpm) n	min ⁻¹	2315
05 Variable speed drive		Yes		11 Specific ratio*		1.01

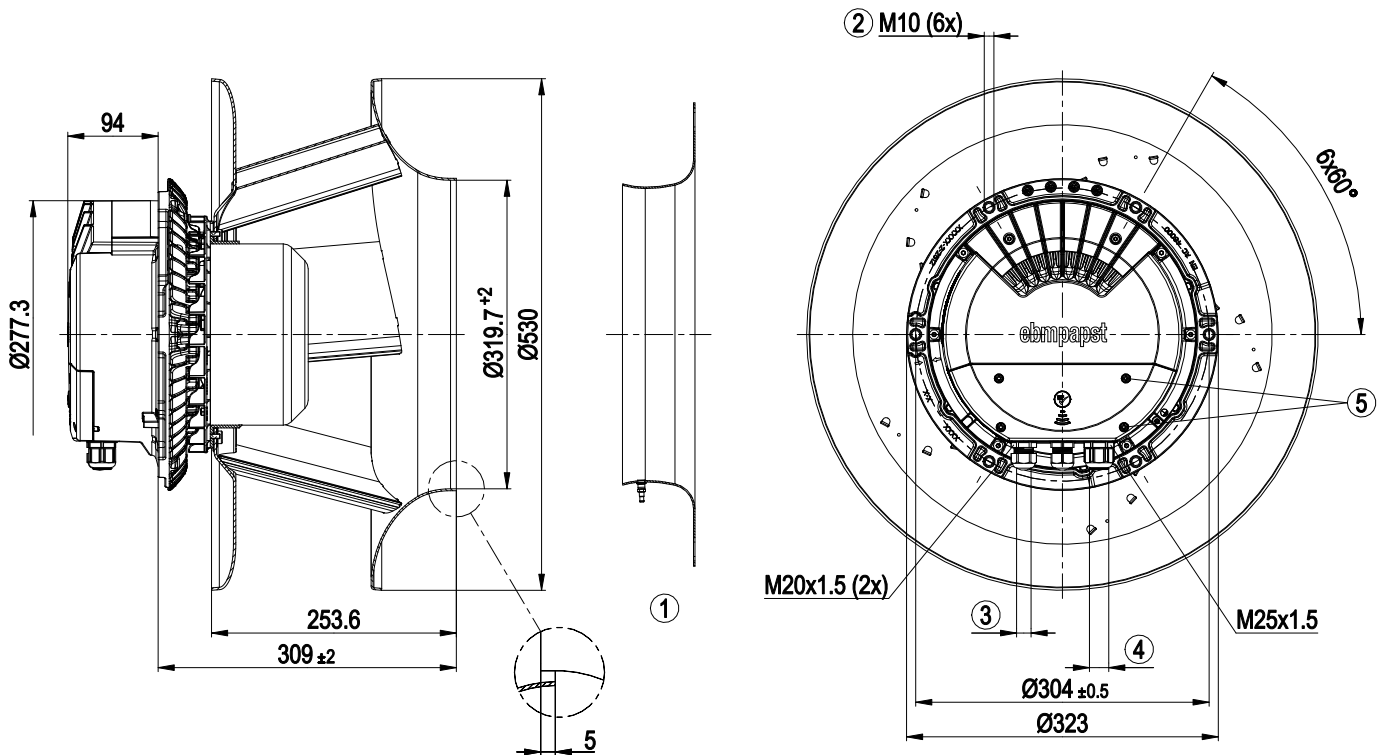
Data obtained at optimum efficiency level.
The efficiency values displayed for achieving conformity with the Ecodesign Regulation EU 327/2011 has been reached with defined air duct components (e.g. inlet rings).
The dimensions must be requested from ebm-papst. If other air conduction geometries are used 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).

* Specific ratio = $1 + p_b / 100\,000\text{ Pa}$ LU-223231

Technical description

Weight	23.6 kg
Size	450 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	Sheet aluminum
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
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box
Motor protection	Electronic motor 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.
Conformity with standards	EN 61800-5-1; UKCA; CE
Approval	EAC; UL 1004-7 + 60730-1; CSA C22.2 No. 77 + CAN/CSA-E60730-1

Product drawing



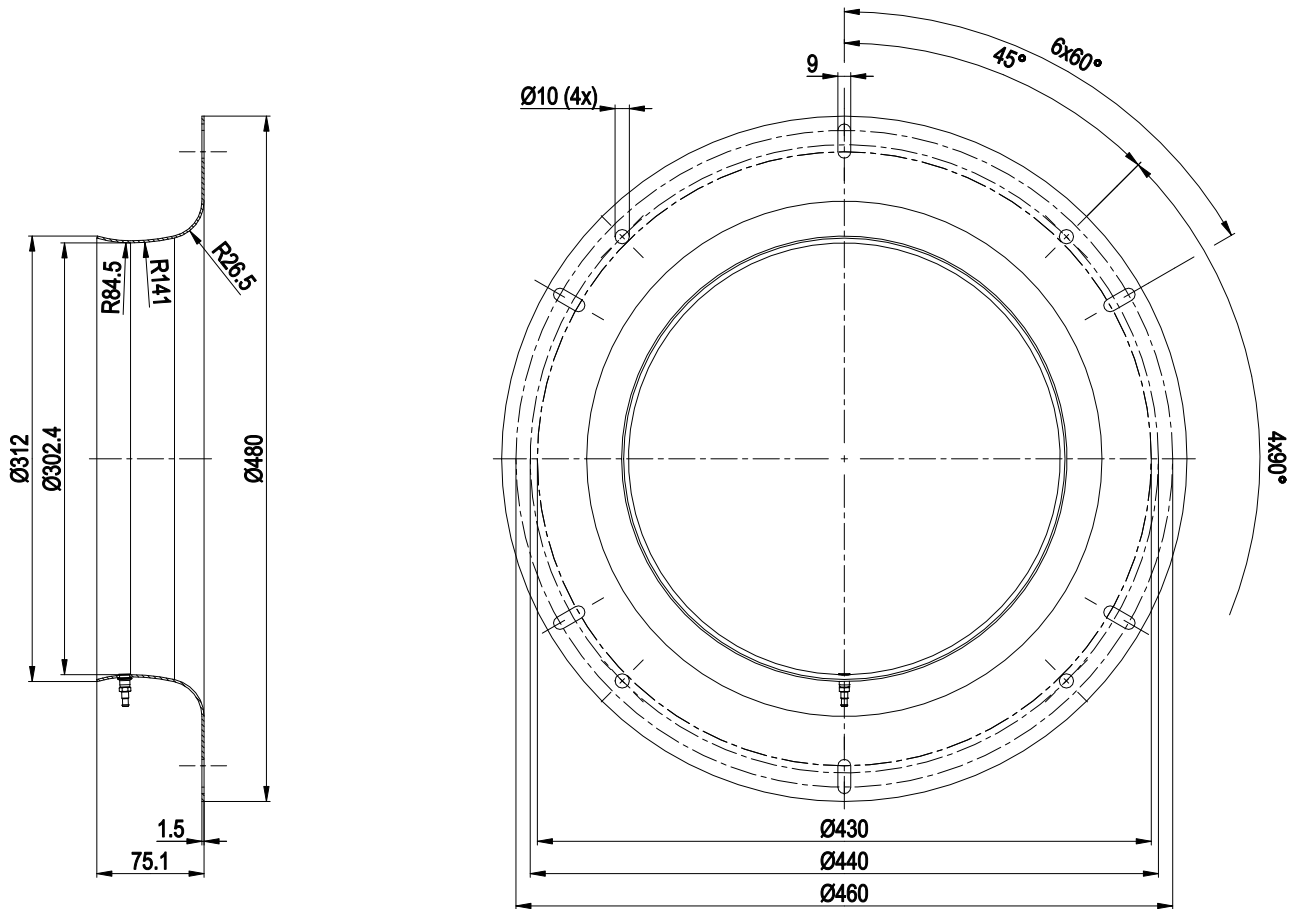
1	Accessory part: Inlet ring 45075-2-4013 with pressure tap (k-factor: 240) not included in scope of delivery
2	Max. clearance for screw 20 mm
3	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
4	Cable diameter min. 5 mm, max. 14 mm, tightening torque 6 ± 0.9 Nm
	(The tightening torque 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

8300100376
VBS0450PTTLS

EC centrifugal fan - RadiPac

backward-curved, single-intake

Accessory part

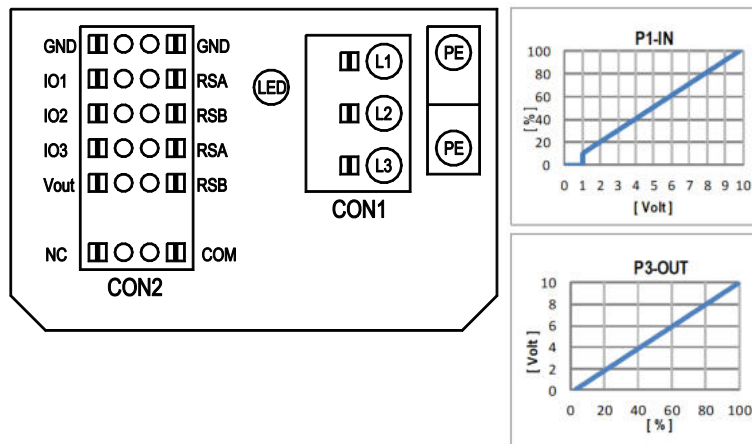


Inlet ring 45075-2-4013 with pressure tap (k-factor: 240)

EC centrifugal fan - RadiPac

backward-curved, single-intake

Connection diagram

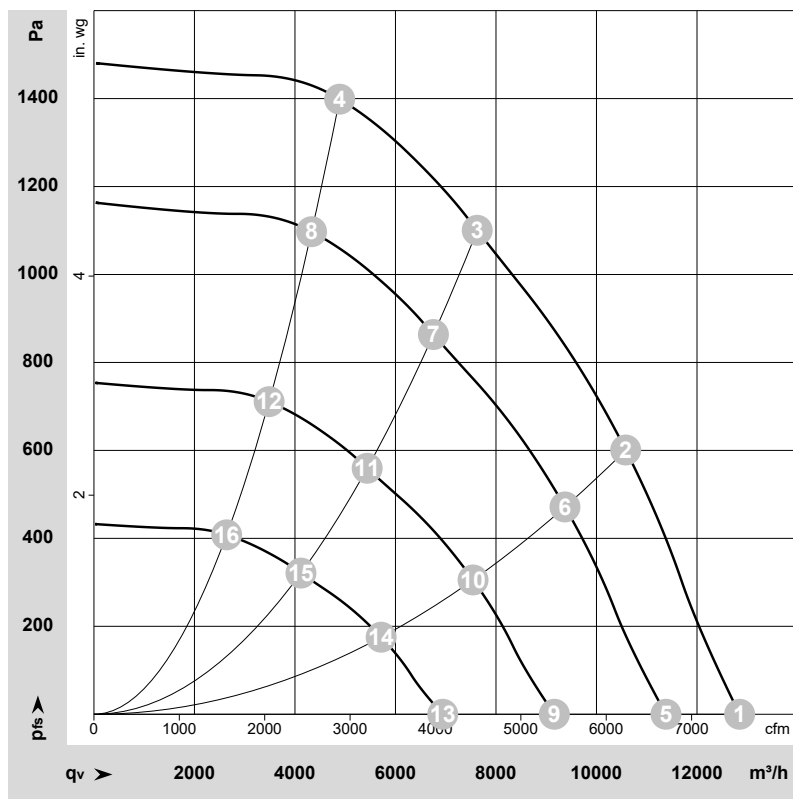


No.	Conn.	Designation	Function/assignment
	CON1	L1, L2, L3	Power supply, phase, see nameplate for voltage range
	PE	PE	Protective earth
	CON2	RSA	RS485 interface for MODBUS, RSA; SELV
	CON2	RSB	RS485 interface for MODBUS, RSB; SELV
	CON2	GND	Reference ground for control interface, SELV
	CON2	IO1	Function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

[illegible]

			configurable IO mode	electrical specification	configurable IO functions: normal/ inverse
CON2			Din1 (active high): digital input	active: applied voltage 3,5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC	MODBUS Register for IO mode configuration D158 [0] D158 [2] D158 [5] D158 [6] D159 [0] D159 [2] D159 [3] D15A [0] D15A [1] D15A [7] D15A [8] D15A [4] D15A [5] D15A [6]
			- Ain1 0-10V/PWM: analog input - Tach out (open collector output) - Diagnostics out (open collector output)	Ri = 100k, characteristic curve parameterizable, $f_{PWM} = 1k..10kHz$ SELV Umax = 50VDC, I _{max} = 20mA SELV Umax = 50VDC, I _{max} = 20mA SELV	
			Din2 (active high): digital input	active: applied voltage 3,5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC	
			- Ain2 0-10V/PWM: analog input - Ain2 4-20mA: analog input	Ri = 100k, characteristic curve parameterizable, $f_{PWM} = 1k..10kHz$ SELV Ri = 125R, characteristic curve parameterizable, SELV	
IO3			Din3 (active high): digital input	active: applied voltage 3,5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC	D15A [0] D15A [1] D15A [7] D15A [8] D15A [4] D15A [5] D15A [6]
			Din3 (active low): digital input	active: applied voltage < 1,5VDC, SELV not active: pin open or applied voltage < 1,5VDC	
			PWMIn3: digital input idle level high	active: applied voltage < 1,5VDC, SELV not active: pin open or applied voltage < 1,5VDC	
			PWMIn3: digital input idle level low	active: applied voltage < 1,5VDC, SELV not active: pin open or applied voltage < 1,5VDC	
IO3			PWMIn3: digital input idle level high	active: pin open or applied voltage 3,5-50VDC not active: applied voltage < 1,5VDC, SELV	D15A [0] D15A [1] D15A [7] D15A [8] D15A [4] D15A [5] D15A [6]
			PWMIn3: digital input idle level low	active: pin open or applied voltage 3,5-50VDC not active: applied voltage < 1,5VDC, SELV	
			- Aout3 0-10V: analog output - Tacho out (pulses), analog output - Diagnostics out (pulses)	active: applied voltage 3,5-50VDC not active: pin open or applied voltage < 1,5VDC, SELV function parameterizable, max. 5mA max output frequency 300Hz SELV 0-10V/max. 5mA max output frequency 300Hz SELV 0-10V/max. 5mA max output frequency 300Hz SELV	
			RS485 bus connection,	MODBUS RTU, specification V6.4, SELV	
RSA	RSB				
Vout			voltage output	voltage parameterizable 3,3..24VDC +/- 5%, P _{max} =800mW, short-circuit-proof, supply for external devices, SELV	D16E [...]
			alternatively: input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	15...50VDC	

Curves: Air performance 50 Hz



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

Measurement: LU-223231-1
Date: 2022-09-30
Nozzle: 45070-2-4013

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	2320	2185	3.16	87	95	96	98	12850	0	7565	0.00
2	3~	400	50	2320	3223	4.65	79	87	91	92	10580	600	6230	2.41
3	3~	400	50	2320	3700	5.30	74	82	88	89	7625	1100	4490	4.42
4	3~	400	50	2320	3400	4.90	81	88	93	94	4890	1400	2880	5.62
5	3~	400	50	2050	1520	2.19	84	92	93	95	11385	0	6700	0.00
6	3~	400	50	2050	2240	3.23	76	84	87	89	9375	473	5515	1.90
7	3~	400	50	2050	2531	3.65	71	79	85	86	6755	863	3975	3.46
8	3~	400	50	2050	2363	3.41	78	85	90	91	4330	1097	2550	4.40
9	3~	400	50	1650	792	1.14	79	86	87	90	9160	0	5395	0.00
10	3~	400	50	1650	1168	1.68	71	78	82	84	7545	306	4440	1.23
11	3~	400	50	1650	1320	1.90	66	73	80	81	5435	559	3200	2.24
12	3~	400	50	1650	1232	1.78	73	80	84	86	3485	711	2050	2.85
13	3~	400	50	1250	345	0.50	72	79	80	83	6940	0	4085	0.00
14	3~	400	50	1250	508	0.73	64	71	75	77	5715	176	3365	0.71
15	3~	400	50	1250	574	0.83	59	66	73	74	4120	321	2425	1.29
16	3~	400	50	1250	536	0.77	66	73	77	79	2640	408	1555	1.64

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