

## Nominal data

<b>Part number</b>	8317082304	
<b>Type</b>	VWA0800BTTLs	
<b>Phase</b>		3~
<b>Nominal voltage</b>	VAC	400
<b>Nominal voltage range</b>	VAC	380 .. 480
<b>Frequency</b>	Hz	50/60
<b>Method of obtaining data</b>		ml
<b>Speed (rpm)</b>	min <sup>-1</sup>	940
<b>Power consumption</b>	W	1950
<b>Current draw</b>	A	3.1
<b>Max. back pressure</b>	Pa	220
<b>Max. back pressure</b>	in. wg	0.88
<b>Min. ambient temperature</b>	°C	-40
<b>Max. ambient temperature</b>	°C	60

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

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), a fan design with special low-temperature bearings must be used.

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

		Actual	Req. 2015			
01 Overall efficiency $\eta_{es}$	%	50.7	35.2	09 Power consumption $P_{ed}$	kW	1.75
02 Measurement category		A		09 Air flow $q_v$	m <sup>3</sup> /h	16655
03 Efficiency category		Static		09 Pressure increase $p_{fs}$	Pa	181
04 Efficiency grade N		55.5	40	10 Speed (rpm) n	min <sup>-1</sup>	945
05 Variable speed drive		Yes		11 Specific ratio*		1.00

Data obtained at optimum efficiency level.

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

LU-185106

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

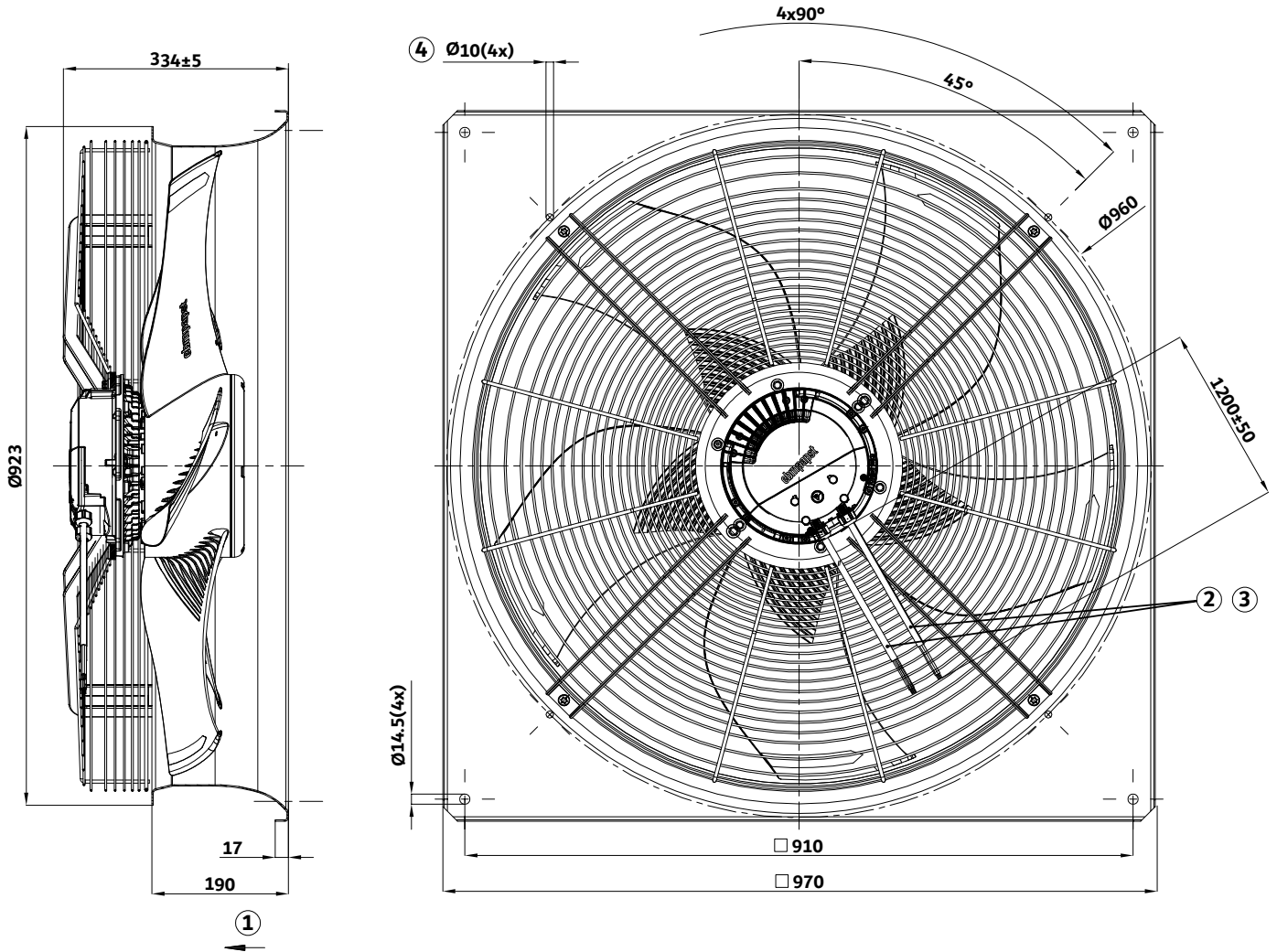
<b>Weight</b>	46 kg
<b>Size</b>	800 mm
<b>Motor size</b>	150
<b>Rotor surface</b>	Painted black
<b>Electronics housing material</b>	Die-cast aluminum, painted gray
<b>Impeller material</b>	PP plastic
<b>Fan housing material</b>	Sheet steel, galvanized and coated with black plastic (RAL 9005)
<b>Guard grille material</b>	Steel, coated with black plastic (RAL 9005)
<b>Number of blades</b>	5
<b>Blade pitch</b>	0°
<b>Airflow direction</b>	V
<b>Direction of rotation</b>	Clockwise, viewed toward rotor
<b>Degree of protection</b>	IP55
<b>Insulation class</b>	"F"
<b>Moisture (F) / Environmental (H) protection class</b>	H2
<b>Ambient temperature note</b>	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.
<b>Max. permitted ambient temp. for motor (transport/storage)</b>	+80 °C
<b>Min. permitted ambient temp. for motor (transport/storage)</b>	-40 °C
<b>Installation position</b>	Shaft horizontal or rotor on bottom; rotor on top on request
<b>Condensation drainage holes</b>	On rotor side
<b>Mode</b>	S1
<b>Motor bearing</b>	Ball bearing
<b>Technical features</b>	<ul style="list-style-type: none"> <li>- External 15-50 VDC input (parameterization)</li> <li>- Alarm relay</li> <li>- Integrated PI controller</li> <li>- Configurable inputs/outputs (I/O)</li> <li>- MODBUS V6.3</li> <li>- Motor current limitation</li> <li>- RS-485 MODBUS-RTU</li> <li>- Soft start</li> <li>- Voltage output 10VDC+/-3%, I<sub>max</sub>=10mA</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>
<b>EMC immunity to interference</b>	According to EN 61000-6-2 (industrial environment)
<b>EMC interference emission</b>	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
<b>Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)</b>	<= 3.5 mA
<b>Electrical hookup</b>	Cable w/o connector
<b>Protection class</b>	I (with customer connection of protective earth)
<b>Conformity with standards</b>	EN 61800-5-1; CE

8317082304  
VWA0800BTTLs

# EC centrifugal fan - RadiCal

backward-curved, single-intake

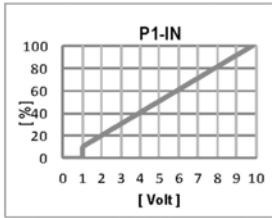
## Product drawing



1	Airflow direction "V"
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	Attachment holes for FlowGrid (80000-2-2957 not included in scope of delivery)



## 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%, I <sub>max</sub> =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

## Terminal/plug assignment

Control software, Fan-Set-App, or MODBUS parameter specification V6.3  
for details and additional functions, see EC

CON2	configurable IO mode	electrical specification	MODBUS Register for IO mode configuration
IO1	Dim1 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	D168 [0]
	Ain1 0-10V/PWM: analog input	RI=100K, characteristic curve parameterizable, f <sub>PWM</sub> =1k...10KHz, SELV	D168 [2]
	Tach out (open collector output)	U <sub>max</sub> =50VDC, I <sub>max</sub> =20mA, SELV	D158 [5]
	Diagnosis out (open collector output)	U <sub>max</sub> =50VDC, I <sub>max</sub> =20mA, SELV	D158 [6]
IO2	Din2 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	D159 [0]
	Ain2 0-10V/PWM: analog input	RI=100K, characteristic curve parameterizable, f <sub>PWM</sub> =1k...10KHz, SELV	D159 [2]
RSA RSB	RS485 bus connection,	MODBUS RTU, specification V6.3, SELV	
Vout	voltage output  alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	Fixed voltage output 10VDC ±r.3%, I <sub>max</sub> =10mA, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...]

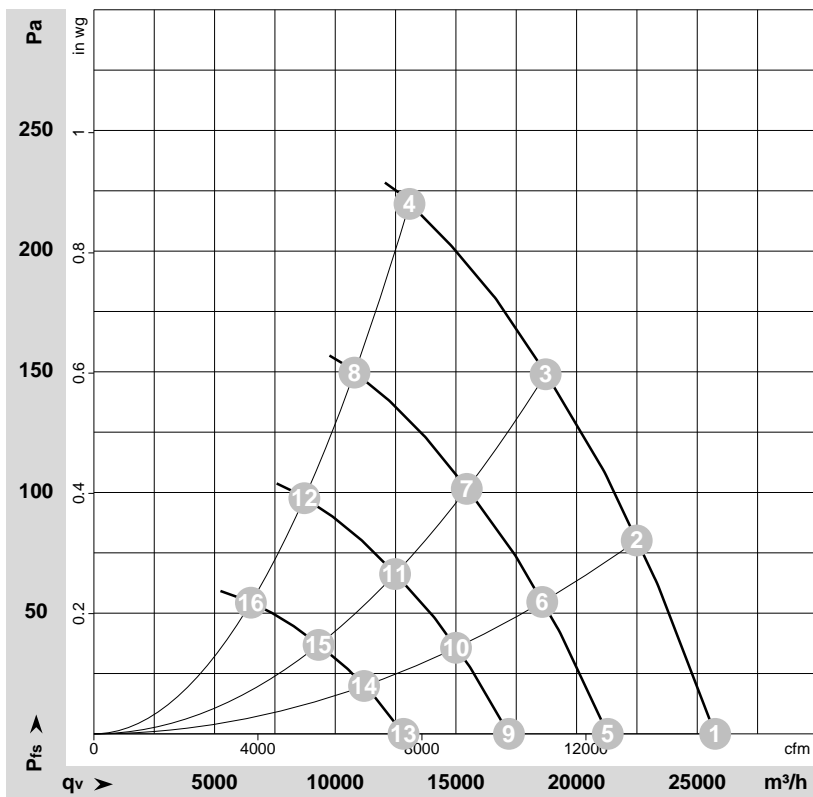
o configurable option  
(o) function, activation via IO mode

configurable IO functions: normal / Inverse

IO	INPUT	OUTPUT
D101 [...]	source: set value	
D147 [...]	source: sensor value	
D104 [...]	switch: parameter set: #1 / #2	
D12E [...]	switch: control function: heating (pos.) / cooling (neg.)	
D148 [...]	switch: direction of rotation: cw / ccw	
D16C [...]	switch: set value source	
D16A [...]	switch: fan enable / disable	
(selected directly via IO)	signal: tach out	(o)
(selected directly via IO)	signal: diagnostics out	(o)
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 input for auto-addressing	o
D130 [4]	pulse output for auto-addressing	

customer connection side

## Curves: Air performance 50 Hz



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

Measurement: LU-185106-1

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

	U	f	n	P <sub>ed</sub>	I	LpA <sub>in</sub>	LwA <sub>in</sub>	LwA <sub>out</sub>	q <sub>v</sub>	P <sub>fs</sub>	q <sub>v</sub>	P <sub>fs</sub>
	V	Hz	min <sup>-1</sup>	W	A	dB(A)	dB(A)	dB(A)	m <sup>3</sup> /h	Pa	cfm	in. wg
1	400	50	940	1166	1.93	68	76	77	25740	0	15150	0.00
2	400	50	940	1457	2.35	67	74	75	22495	80	13240	0.32
3	400	50	940	1667	2.65	69	76	77	18720	150	11020	0.60
4	400	50	940	1950	3.10	79	86	88	13075	220	7695	0.88
5	400	50	780	660	1.09	64	71	72	21290	0	12530	0.00
6	400	50	780	821	1.32	62	69	70	18575	55	10935	0.22
7	400	50	780	938	1.49	65	71	72	15450	102	9095	0.41
8	400	50	780	1091	1.71	74	82	83	10795	150	6355	0.60
9	400	50	630	348	0.58	58	65	67	17195	0	10120	0.00
10	400	50	630	432	0.70	57	64	65	15005	36	8830	0.14
11	400	50	630	494	0.79	59	66	66	12480	66	7345	0.26
12	400	50	630	575	0.90	69	76	77	8720	98	5130	0.39
13	400	50	470	144	0.24	51	58	59	12830	0	7550	0.00
14	400	50	470	180	0.29	49	56	57	11195	20	6590	0.08
15	400	50	470	205	0.33	52	59	59	9310	37	5480	0.15
16	400	50	470	239	0.37	61	69	70	6505	54	3830	0.22

U = Voltage · f = Frequency · n = Speed (rpm) · P<sub>ed</sub> = Power consumption · I = Current draw · LpA<sub>in</sub> = Sound pressure level intake side · LwA<sub>in</sub> = Sound power level intake side  
LwA<sub>out</sub> = Sound power level outlet side · q<sub>v</sub> = Air flow · P<sub>fs</sub> = Pressure increase