

8300101275

VBH0280RSNFS

# EC centrifugal fan - RadiCal

backward-curved, single-intake

with support ring

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Amtsgericht (court of registration) Stuttgart · HRB 590142

## Nominal data

Item	8300101275	
Motor	E07433-29	

Phase		1~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200 .. 240
Frequency	Hz	50/60
Method of obtaining data		ml
Status		prelim.
Speed (rpm)	min <sup>-1</sup>	1850
Power consumption	W	170
Current draw	A	1.4
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	60

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 $\eta_{es}$	%	66	43.4	09 Power consumption $P_{ed}$	kW	0.17
02 Measurement category		A		09 Air flow $q_v$	m <sup>3</sup> /h	1425
03 Efficiency category		Static		09 Pressure increase $p_{fs}$	Pa	250
04 Efficiency grade N		84.6	62	10 Speed (rpm) n	min <sup>-1</sup>	1840
05 Variable speed drive		Yes		11 Specific ratio <sup>*</sup>		1.00

Data obtained at optimum efficiency level.

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

LU-225084

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

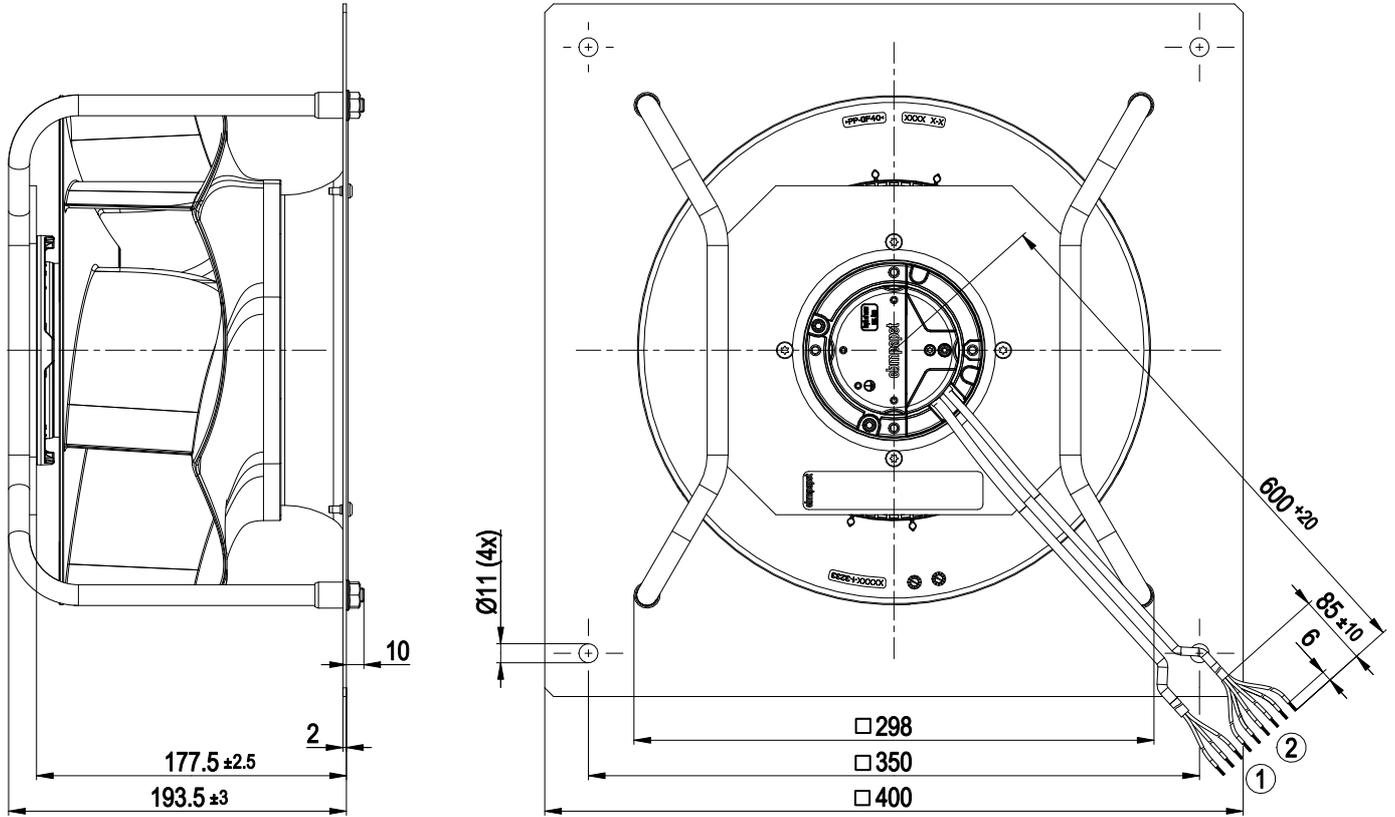
Size	280 mm
Motor size	74
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Support plate material	Sheet steel, galvanized
Support bracket material	Steel, galvanized and painted black
Inlet nozzle material	Sheet steel, galvanized
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"B"
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, open rotor
Mode	S1
Motor bearing	Ball bearing
Technical features	<ul style="list-style-type: none"> <li>- Output 10 VDC, max. 10 mA</li> <li>- Locked-rotor detection</li> <li>- Tach output</li> <li>- Speed control</li> <li>- Power limiter</li> <li>- Motor current limitation</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>- Overvoltage detection</li> <li>- Thermal overload protection for electronics/motor</li> <li>- Line undervoltage detection</li> </ul>
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Motor protection	Electronic motor protection
With cable	Variable
Protection class assignment	<p>I; If a protective earth is connected by the customer</p> <p>This component for installation may have several local protection classes. This information relates to this component's basic design.</p> <p>The final protection class is based on the component's intended installation and connection.</p>
Conformity with standards	EN 60335-1; EN 60034-1; EN 60204-1; CE; UKCA
Approval	CSA C22.2 No. 77 + CAN/CSA-E60730-1; UL 1004-7 + 60730-1

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## Product drawing



1	Supply line (PWR) PVC AWG20 3x splice
2	Control wire (CTRL) PVC AWG22 6x splice

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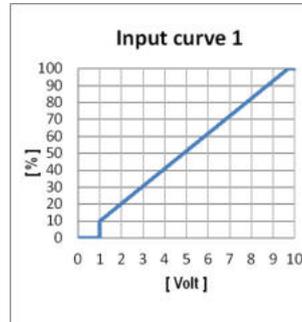
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## Connection diagram



No.	Conn.	Designation	Color	Function/assignment
	PWR	L	black	Power supply, phase, see nameplate for voltage range
	PWR	N	blue	Power supply, neutral conductor, see nameplate for voltage range
	PWR	PE	green/yellow	Protective earth
	CTRL	GND	blue	Reference ground for control interface, SELV
	CTRL	IO1	yellow	Factory setting: Analog input 0-10 V/PWM, Ri=100 KΩ, fPWM=1 kHz..10 kHz, Function: Speed set value Characteristic curve parameterizable (see "Input curve 1"), SELV Function parameterizable at the factory (see Optional interface functions table)
	CTRL	IO2	white	Factory setting: Open collector output, Umax=50 VDC, Imax= 10 mA, function: Tach output 1 pulse/revolution, SELV Function parameterizable at factory (see table Optional interface functions)
	CTRL	Vout	red	Voltage output 10 VDC +/-3%, Imax=10 mA Short-circuit-proof, power supply for external devices, SELV
	CTRL	-	gray	No function
	CTRL	-	brown	No function

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## Terminal/plug assignment

	configurable IO mode	electrical specification			
IO1	○ Din1 (high active): digital input	active: parameterizable voltage x -30 VDC not active: pin open or parameterizable voltage < x VDC, SELV			
	○ Ain1 0-10 V/PWM: analog input	Ri = 100 kΩ, characteristic curve parameterizable, f <sub>PWM</sub> = 1 k - 10 kHz, SELV			
IO2	○ Tach out (open collector)	U <sub>max</sub> = 50 VDC, I <sub>max</sub> = 10 mA, SELV		○	
	○ Diagnostics out (open collector)	U <sub>max</sub> = 50 VDC, I <sub>max</sub> = 10 mA, SELV		○	
	○ Alarm out (open collector)	U <sub>max</sub> = 50 VDC, I <sub>max</sub> = 10 mA, SELV		○	
Vout	○ Open collector	U <sub>max</sub> = 50 VDC, I <sub>max</sub> = 10 mA, SELV			
	Voltage output	Voltage 10 VDC, SELV			
	source: set value		○		
	switch: parameter set: #1 / #2		○		
	switch: direction of rotation: cw / ccw		○		
	switch: enable/disable input		○		
	configurable function		○		
	signal: tach out			○	
	signal: diagnostics out			○	
	signal: alarm out			○	
	signal: run monitoring			○	
	signal: status			○	
	signal: configurable function			○	

### Basic (B4)

Factory configuration option upon request

- factory configuration option

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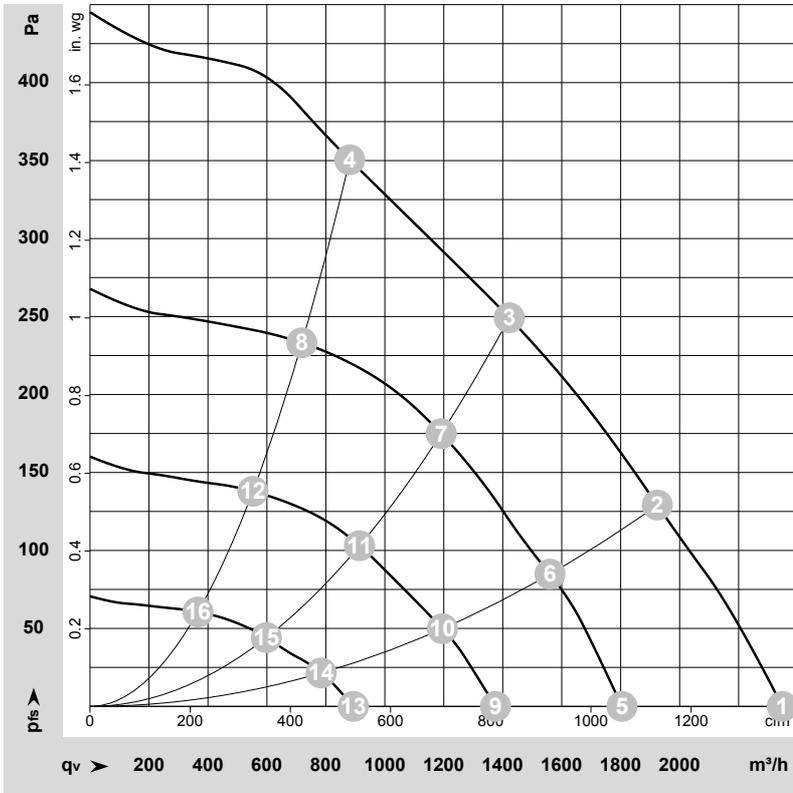
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## Curves: Air performance 50 Hz



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

Measurement: LU-225084-1  
Date: 2023-01-25  
Nozzle: 28000-2-4013

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 <sub>e</sub>	I	LpA <sub>in</sub>	LwA <sub>in</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)	m <sup>3</sup> /h	Pa	cfm	in. wg
1	1~	230	50	2000	159	1.34	68	75	2350	0	1380	0.00
2	1~	230	50	1905	170	1.40	61	69	1925	130	1130	0.52
3	1~	230	50	1850	170	1.40	56	64	1420	250	835	1.00
4	1~	230	50	1905	170	1.40	59	67	880	350	520	1.41
5	1~	230	50	1555	78	0.69			1805	0	1060	0.00
6	1~	230	50	1555	95	0.83			1560	85	920	0.34
7	1~	230	50	1555	104	0.90			1190	176	700	0.71
8	1~	230	50	1555	96	0.84			720	233	425	0.94
9	1~	230	50	1200	38	0.35			1375	0	810	0.00
10	1~	230	50	1195	46	0.42			1195	50	705	0.20
11	1~	230	50	1195	51	0.45			915	104	540	0.42
12	1~	230	50	1200	47	0.42			555	138	325	0.55
13	1~	230	50	800	15	0.14			895	0	525	0.00
14	1~	230	50	800	17	0.16			785	21	460	0.08
15	1~	230	50	795	18	0.17			600	44	350	0.18
16	1~	230	50	795	17	0.17			365	61	215	0.24

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