

Product Data Sheet **9592207016**
VHS0048XUEBZ
RL48-19/18R-016

ebmpapst
The engineer's choice



RL48-19/18R-016

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1 General

Fan type	Blower	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air in axially, Air out radially	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

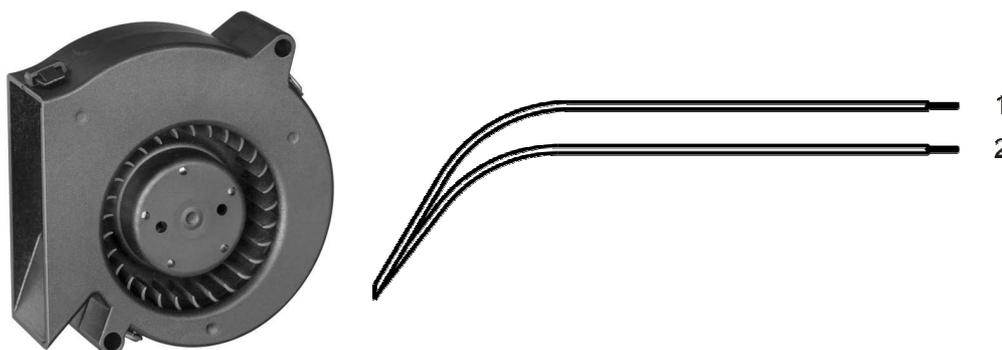
2 Mechanics

2.1 General

Width	76,0 mm	
Height	76,0 mm	
Depth	27,0 mm	
Mass	0,075 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	Wire outlet corner: 120 Ncm Remaining corners: 120 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires - Plug	
Lead wire length	L = 158 mm	
Tolerance	+ - 5 mm	
Plug	See drawing	
Contact	See drawing	



Wire	Color	Operation	Plug connection	Wire size	Insulation diameter
1	red	+ UB	Pin 2	AWG 22	1,1 mm
2	blue	- GND	Pin 1	AWG 22	1,1 mm

3 Operating Data

3.1 Electrical Operating Data

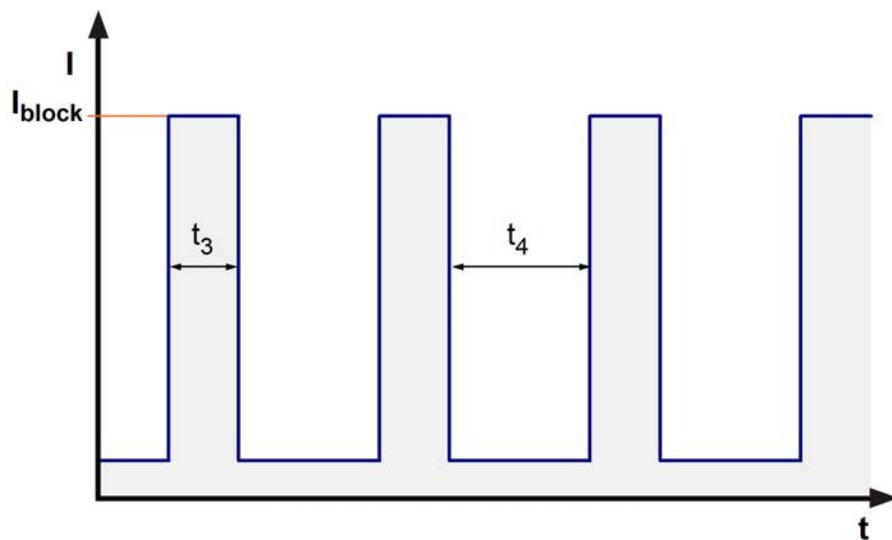
Measurement conditions: Normal air density = 1,2 kg/m³; Temperature 23°C +/- 3°C; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

$\Delta p = 0$: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range		U	36 V		56,0 V
Nominal voltage		U _N		48,0 V	
Power consumption	$\Delta p = 0$	P	2,6 W	4,6 W	6,2 W
Tolerance	0010		+/- 17,5 %	+/- 12,5 %	+/- 15,0 %
Current consumption	$\Delta p = 0$	I	72 mA	96 mA	111 mA
Tolerance	0010		+/- 17,5 %	+/- 12,5 %	+/- 15,0 %
Speed	$\Delta p = 0$	n	3.550 1/min	4.400 1/min	4.590 1/min
Tolerance	0010		+/- 12,5 %	+/- 7,5 %	+/- 10,0 %
Starting current consumption				200 mA	

3.2 Electrical Features

Electronic function	None	
Reversed polarity protection	Rectifying diode	
Max. residual current at U_N	$I_F \leq 100 \mu A$	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 200 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,25 s / 10 s	



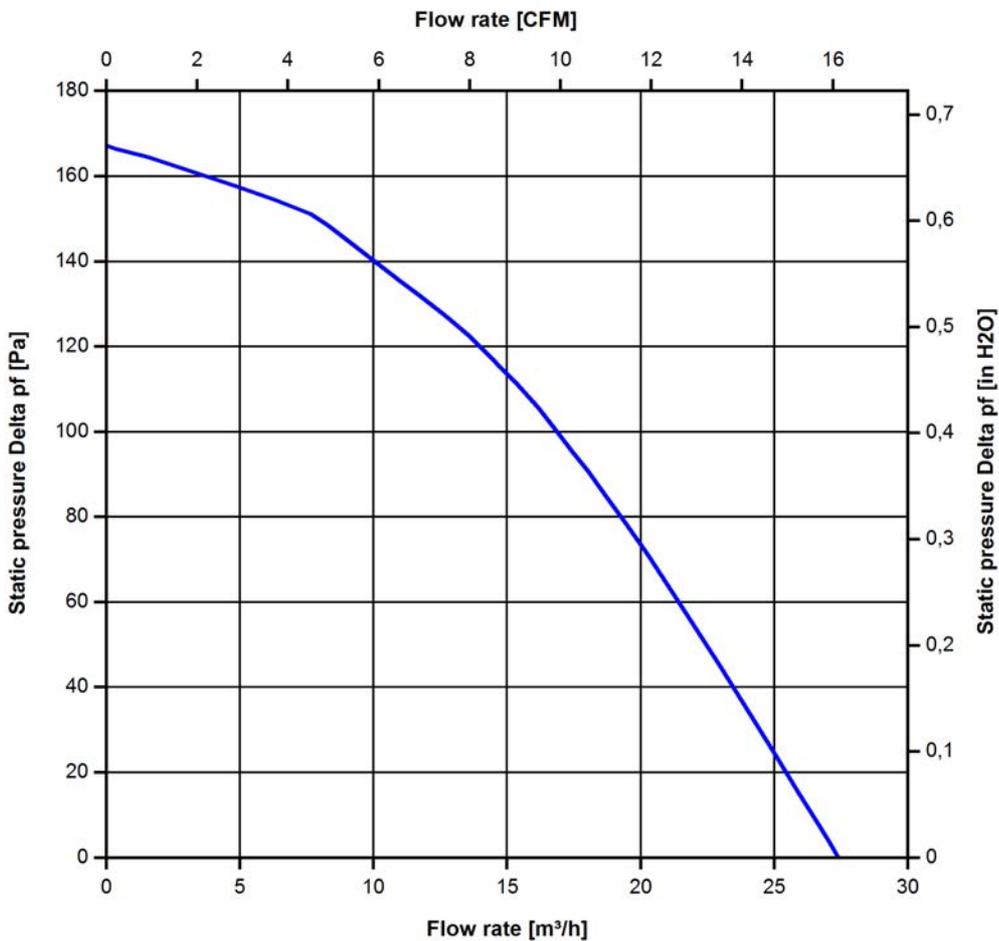
3.3 Aerodynamics

Measurement conditions: Measured with a double chamber intake rig acc. to DIN EN ISO 5801.
 Normal air density = 1,2 kg/m³; Temperature 23°C +/- 3°C;
 In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.
 The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions.

a.) Operation condition:

4.400 1/min at free air flow

Max. free-air flow ($\Delta p = 0 / \dot{V} = \text{max.}$)	28,0 m ³ /h	
Max. static pressure ($\Delta p = \text{max.} / \dot{V} = 0$)	165 Pa	



3.4 Sound Data

Measurement conditions: Sound pressure level: 1 meter distance between microphone and the air intake.
Sound power level: Acc. to DIN 45635 part 38 (ISO 10302)
Measured in a semianchoic chamber with a background noise level of $L_p(A) < 5 \text{ dB(A)}$
For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

4.400 1/min at free air flow		
Optimal operating point	19,0 m ³ /h @ 77 Pa	
Sound power level at the optimal operating point	5,7 bel(A)	
Sound pressure level at free air flow, measured in rubber bands		

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-32 °C	
Max. permitted ambient temperature TU max.	70 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

Humidity requirements	humid heat, cyclic; according to DIN EN 60068-2-30, 6 cycle	
Water exposure	None	
Dust requirements	Dust check; according to DIN EN 60068-2-68, 6g/m ² d, 1 day	
Salt fog requirements	None	

Permitted application area:

The product is for the use in sheltered rooms with limited controlled temperature. Occasionally condensed water is allowed. Direct exposure to water must be avoided. Saline ambient conditions must be avoided.

Pollution degree 2 (according DIN EN 60664-1)

It occurs only non-conductive pollution. Occassionally, temporary conductivity caused by condensation occurs.

Please require severity levels and specification parameters from the responsible development departments.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25°C. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min.	
B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25°C measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,5 mm	
Protection class	III	

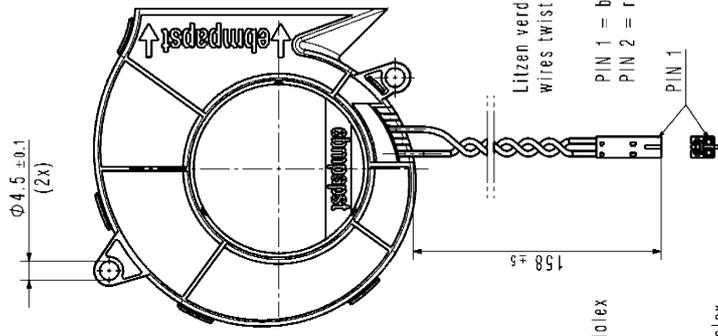
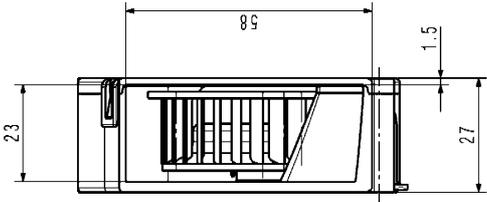
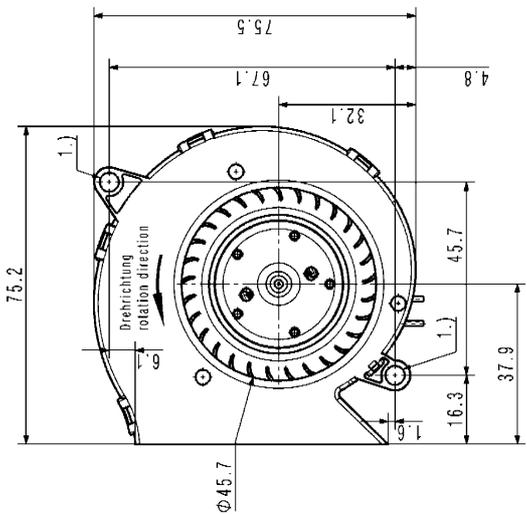
5.2 Approval Tests

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Yes / GB 12350 Safety Requirements for small Power Motors

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	60.000 h	
Life expectancy L10 at TU max.	30.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	102.500 h	

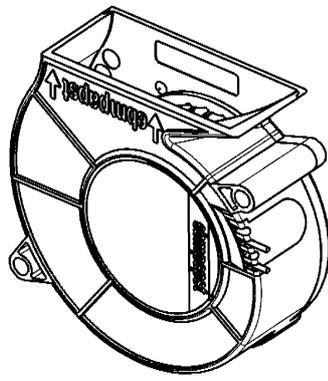


1 Steckergehäuse Molex
 1 Housing Molex
 Nr.: 50-57-9402

2 Kontakte Molex
 2 crimp contacts Molex
 Nr.: 16-02-0088

Litzen verdreht
 Wires twisted

PIN 1 = blau (blue) (-)
 PIN 2 = rot (red) (+)



1.) max. Anschraubdrehmoment = 1,3Nm
 1.) max. screw turning moment = 1,3Nm

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Spezialwerk nach DIN ISO 9001 Bisherig
 Refer to production order DIN ISO 9001

CAD System Version DATE System Version CAD Model / CAD-Definition	Master / Material: STEIG- Einzelteile	Volume / Anzahl (WP): Gewicht / Mass (g):
ID: Referenzmodell / ID-Referenzmodell Name	Artikel / Title:	
Tabularung / Tolerances: Allgemeinheiten / Gen. tolerances:	Zeich. Nr. / Drawing No.:	
Winkel, Form und Lage / angle, shape and position: DIN ISO 2768-MK-E	Zeich. / Type of document: ebmpapst	Form / Size: Massstab / Scale: 1:1