

Product Data Sheet 6448 I

ebmpapst

The engineer's choice



6448 I

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1 General

Fan type	Fan	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

2 Mechanics**2.1 General**

Width	150,0 mm	
Depth	51,0 mm	
Diameter	172,0 mm	
Mass	0,760 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	Wire outlet corner: 260 Ncm Remaining corners: 260 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Plug	
Lead wire length	See drawing	
Tolerance		
Plug	See drawing	
Contact	See drawing	



	- GND
	+ UB

3 Operating Data

3.1 Electrical Interface - Input

Control input	Internal Temperature Sensor
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Features

<p>Characteristics</p>	<table border="1"> <caption>Graph Data: Fan Speed vs. Ambient Temperature</caption> <thead> <tr> <th>Umgebungstemperatur / Ambient temperature [°C]</th> <th>Drehzahl / speed [1/min]</th> </tr> </thead> <tbody> <tr><td>-10</td><td>1700</td></tr> <tr><td>0</td><td>1700</td></tr> <tr><td>10</td><td>1700</td></tr> <tr><td>20</td><td>1700</td></tr> <tr><td>30</td><td>1700</td></tr> <tr><td>40</td><td>2500</td></tr> <tr><td>50</td><td>3400</td></tr> <tr><td>60</td><td>3400</td></tr> <tr><td>70</td><td>3400</td></tr> <tr><td>75</td><td>3400</td></tr> </tbody> </table>	Umgebungstemperatur / Ambient temperature [°C]	Drehzahl / speed [1/min]	-10	1700	0	1700	10	1700	20	1700	30	1700	40	2500	50	3400	60	3400	70	3400	75	3400
Umgebungstemperatur / Ambient temperature [°C]	Drehzahl / speed [1/min]																						
-10	1700																						
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30	1700																						
40	2500																						
50	3400																						
60	3400																						
70	3400																						
75	3400																						
<p>Schematics</p>																							

3.2 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

Name	Condition
TU 0001	TU: ≥ 50 °C
NTC 0001	

Tu ≥ 50 °C or broken Sensor.

Features	Condition	Symbol	Values		
Voltage range		U	28 V		60 V
Nominal voltage		U_N		48 V	
Power consumption	$\Delta p = 0$	P	4,5 W	17 W	21,0 W
Tolerance	TU / NTC 0010		+/- 15 %	+/- 15 %	+/- 15 %
Current consumption	$\Delta p = 0$	I	160 mA	355 mA	350 mA
Tolerance	TU / NTC 0010		+/- 15 %	+/- 15 %	+/- 15 %
Speed	$\Delta p = 0$	n	2.150 1/min	3.400 1/min	3.820 1/min
Tolerance	TU / NTC 0010		+/- 10 %	+/- 8 %	+/- 10 %
Starting current consumption				≤ 1.000 mA	

3.3 Electrical Features

Electronic function	Speed-Controlled
Reversed polarity protection	Rectifying diode
Max. residual current at U_N	$I_F \leq 10$ mA
Locked rotor protection	Auto restart
Locked rotor current at U_N	I_{block} approx. 800 mA
Clock signal at locked rotor	t_3 / t_4 typical: 0,5 s / 5,0 s

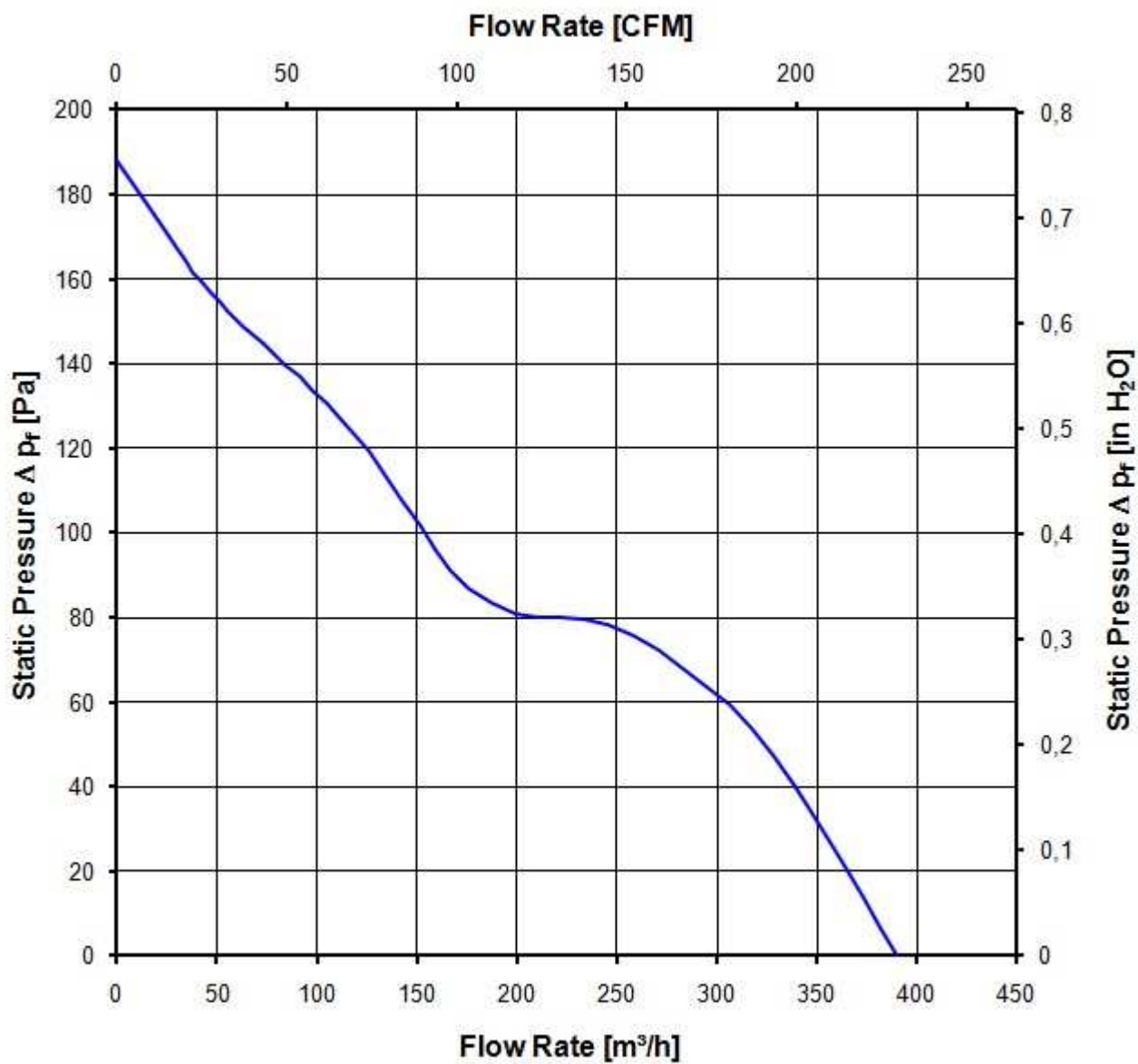
3.4 Aerodynamics

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:

3.400 1/min at free air flow	TU >= 50 °C		
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Max. free-air flow ($\Delta p = 0 / \dot{V} = \text{max.}$)	390,0 m ³ /h	
Max. static pressure ($\Delta p = \text{max.} / \dot{V} = 0$)	188 Pa	



3.5 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:

3.400 1/min at free air flow	TU $\geq 50 \text{ }^\circ\text{C}$		
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Optimal operating point	275,0 m3/h @ 61 Pa	
Sound power level at the optimal operating point	6,4 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	55,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-10 $^\circ\text{C}$	
Max. permitted ambient temperature TU max.	72 $^\circ\text{C}$	
Min. permitted storage temperature TL min.	-40 $^\circ\text{C}$	
Max. permitted storage temperature TL max.	80 $^\circ\text{C}$	

4.2 Climatic Requirements

Humidity requirements	humid heat, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Dust requirements	None	
Salt fog requirements	None	

Permitted application area:

The product is intended for use in sheltered rooms with controlled temperature and controlled humidity. Directly exposure to water must be avoided.

Pollution degree 1 (according DIN EN 60664-1)

There is either no pollution or it occurs only dry, non-conductive pollution. The pollution has no negative impact.

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

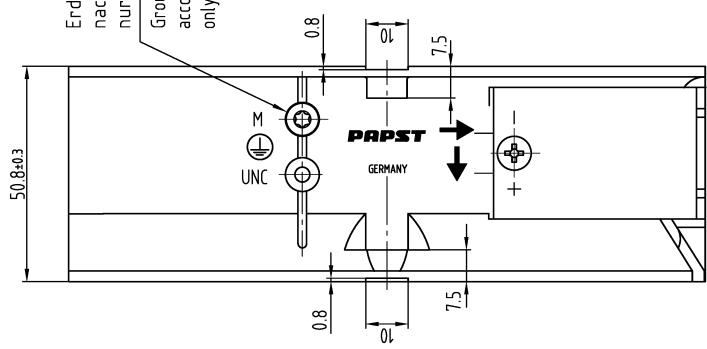
CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	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	75.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	127.500 h	

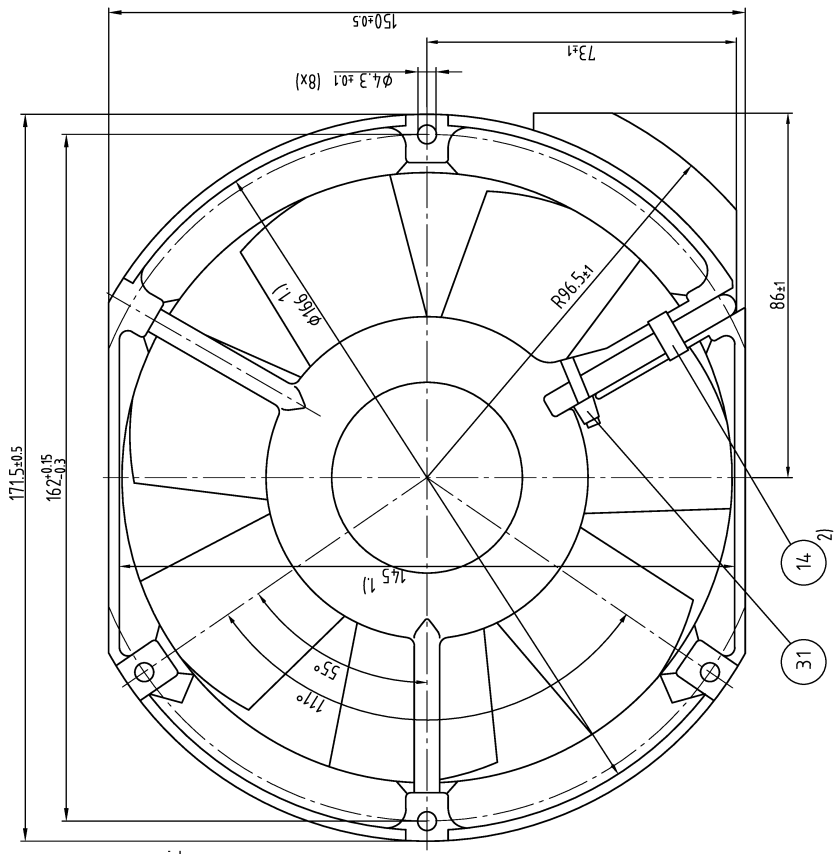
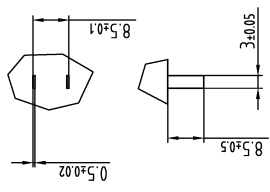
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 Schutzzeichen nach DIN ISO 1676 beibehalten!
 Refer to protection notice DIN ISO 1676!



① Erdungsschraube Duo-Tapfite nach DIN 7500, CM 4x8, Torx nur, wenn in Unterstückliste enthalten
 Grounding screw Duo-Tapfite according to DIN 7500, CM 4x8, Torx only, if contained in sub-bill of material.

- Axialspiel: mit Feder spielfrei verspannt
- 1) Maße für Montagewand
- 2) nur, wenn in Stückliste enthalten
- without axial clearance by a pre-loaded spring
- 1) dimensions for assembly wall
- 2) only, if contained in bill of material

Maße für Steckeranschluss
 dimensions for plug connector



SP-Stückliste	Best.-Nr./Orig.-No.	 Tolerancing/Tolerances: Allgemindehärenzen/gen. tolerances	ebmpapst CAP-Technologie/ CAP-Engineering		ebmpapst ebn-papst St. Georgen GmbH & Co. KG
	Art./Dts.-System-Nr. Zeichn.-Nr. / Drawing-No.		Stückzahl / Qty.	Werkstoff/Material: Artikel/Title	
Zeichn.-Nr. / Drawing-No.		Volumen/Volumen (mm ³): Gewicht/Mass (g)		Material/Material: Formel/Formel: Masse/Mass: Maßstab/Scale	