

Product Data Sheet 8312/17MT

ebm**papst**

The engineer's choice



8312/17MT**INDEX**

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1 General

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

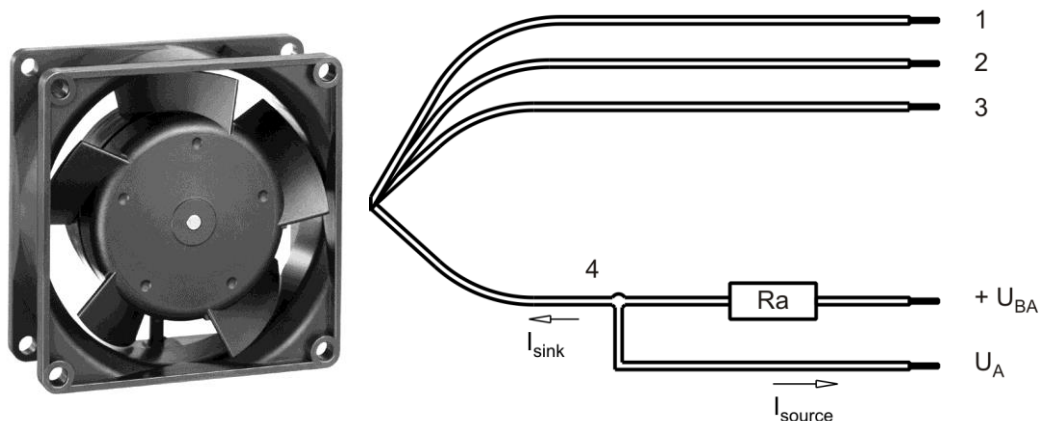
2 Mechanics

2.1 General

Width	80,0 mm	
Height	80,0 mm	
Depth	32,0 mm	
Mass	0,185 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	Wire outlet corner: 20 Ncm Remaining corners: 30 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Lead wire length	L = 310 mm	
Tolerance	+/- 10,0 mm	
Wire size (AWG)	24	
Insulation diameter	1,55 mm	



Wire	Color	Operation
1	red	+ UB
2	blue	- GND
3	violet	NTC
4	white	Alarm

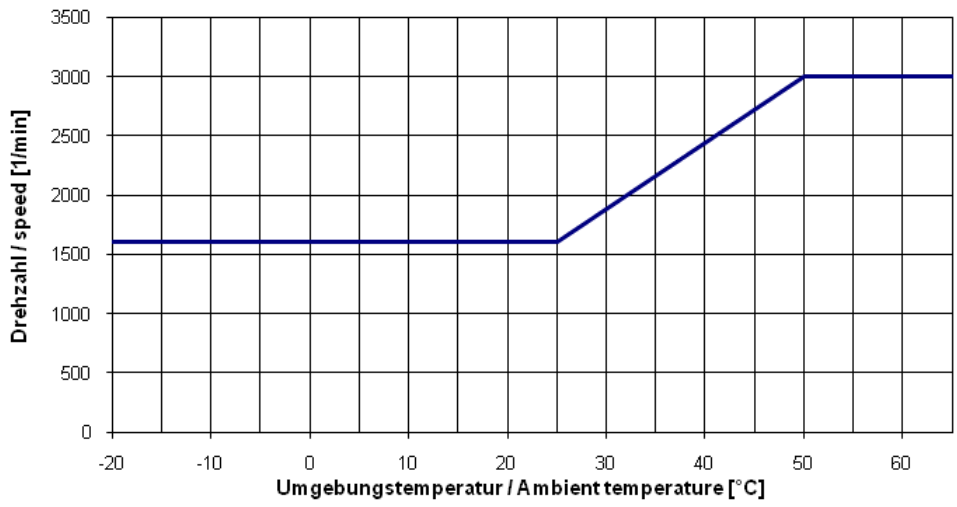
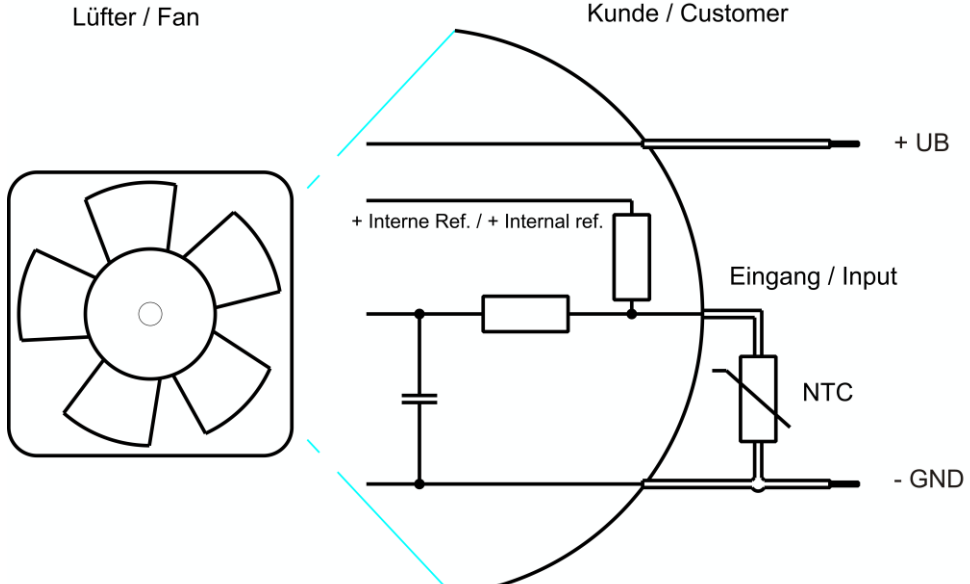
The auxiliaries shown on the schematic diagram (which are required for the intended use) are not part of our delivery.

3 Operating Data

3.1 Electrical Interface - Input

Control input	External Temperature Sensor
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Features

Characteristics	 <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>-20</td><td>1600</td></tr> <tr><td>-10</td><td>1600</td></tr> <tr><td>0</td><td>1600</td></tr> <tr><td>10</td><td>1600</td></tr> <tr><td>20</td><td>1600</td></tr> <tr><td>25</td><td>1600</td></tr> <tr><td>30</td><td>1800</td></tr> <tr><td>40</td><td>2400</td></tr> <tr><td>50</td><td>3000</td></tr> <tr><td>60</td><td>3000</td></tr> </tbody> </table>	Umgebungstemperatur / Ambient temperature [°C]	Drehzahl / speed [1/min]	-20	1600	-10	1600	0	1600	10	1600	20	1600	25	1600	30	1800	40	2400	50	3000	60	3000
Umgebungstemperatur / Ambient temperature [°C]	Drehzahl / speed [1/min]																						
-20	1600																						
-10	1600																						
0	1600																						
10	1600																						
20	1600																						
25	1600																						
30	1800																						
40	2400																						
50	3000																						
60	3000																						
Schematics	 The schematic diagram illustrates the electrical connection between the fan and the customer's power supply. The fan is represented by a fan symbol on the left. On the right, the customer's power supply is shown with terminals for + UB, + Interne Ref. / + Internal ref., Eingang / Input, NTC, and - GND. The fan's internal reference is connected to + UB. The fan's input is connected to the positive supply through a resistor and to ground through an NTC thermistor. A capacitor is connected between the input and ground.																						

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)

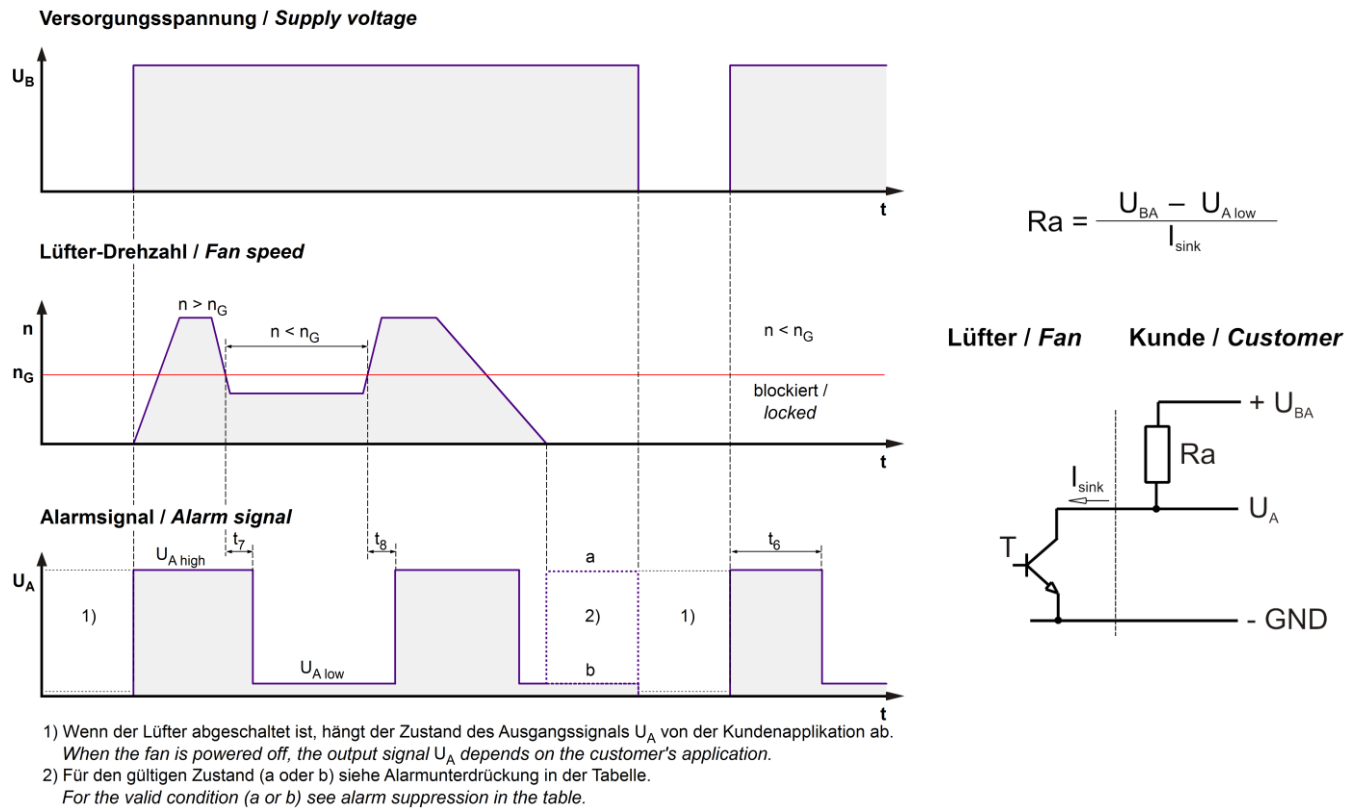
I: corresp. to arithm. mean current value

Name	Condition		
TU 0001	TU: > 50 °C		
NTC 0001	NTC < 30 kOhm		

Features	Condition	Symbol	Values		
Voltage range		U	8 V		15 V
Nominal voltage		U_N		12 V	
Power consumption	$\Delta p = 0$	P	1,1 W +/- 25 %	2,45 W +/- 25 %	2,4 W +/- 25 %
Tolerance	TU / NTC 0010				
Current consumption	$\Delta p = 0$	I	140 mA +/- 25 %	205 mA +/- 25 %	160 mA +/- 25 %
Tolerance	TU / NTC 0010				
Speed	$\Delta p = 0$	n	1.950 1/min +/- 12,5 %	3.000 1/min +/- 5 %	3.000 1/min +/- 5 %
Tolerance	TU / NTC 0010				
Starting current consumption				860 mA	

3.3 Electrical Interface - Output

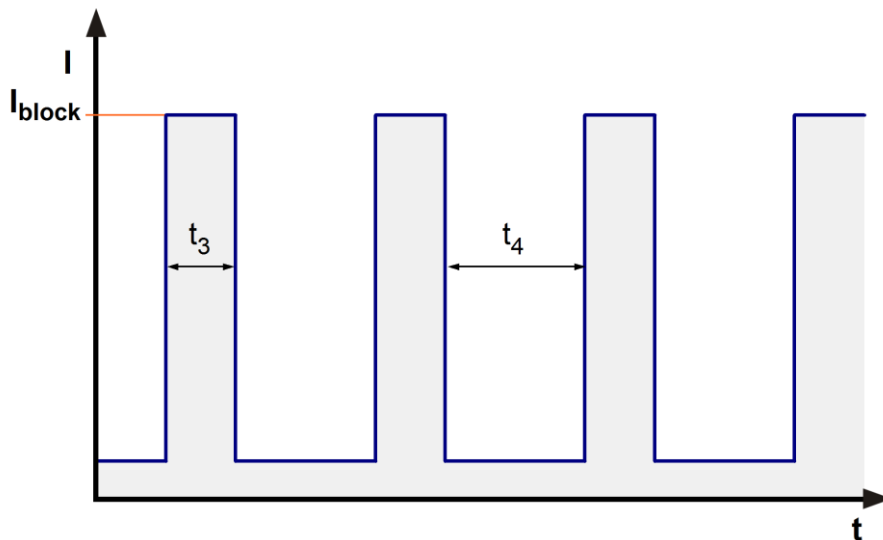
Alarm type	/17 (high = ok, open collector)
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Features	Note	Values
Alarm operating voltage U_{BA}		$\leq 60 \text{ V}$
Alarm signal Low $U_{A\text{ low}}$	$I_{\text{sink}}: 2 \text{ mA}$	$\leq 0,4 \text{ V}$
Alarm signal High $U_{A\text{ high}}$	$I_{\text{source}}: 0 \text{ mA}$	60 V
Maximum sink current I_{sink}		$\leq 20 \text{ mA}$
External resistor	External resistor R_a from U_{BA} to U_A required. All voltage measured to GND.	
Alarm start-up delay time t_6		$\leq 15 \text{ s}$
Alarm trip speed limit n_G		1.500 1/min $\pm 100 \text{ 1/min}$
Tolerance		
Alarm at sense failure	No	
Alarm latch	No	
Alarm isolated from motor	No	

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection	Rectifying diode	
Max. residual current at U_N	$I_F \leq 10 \text{ mA}$	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 860 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,8 s / 20 s	



3.5 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;

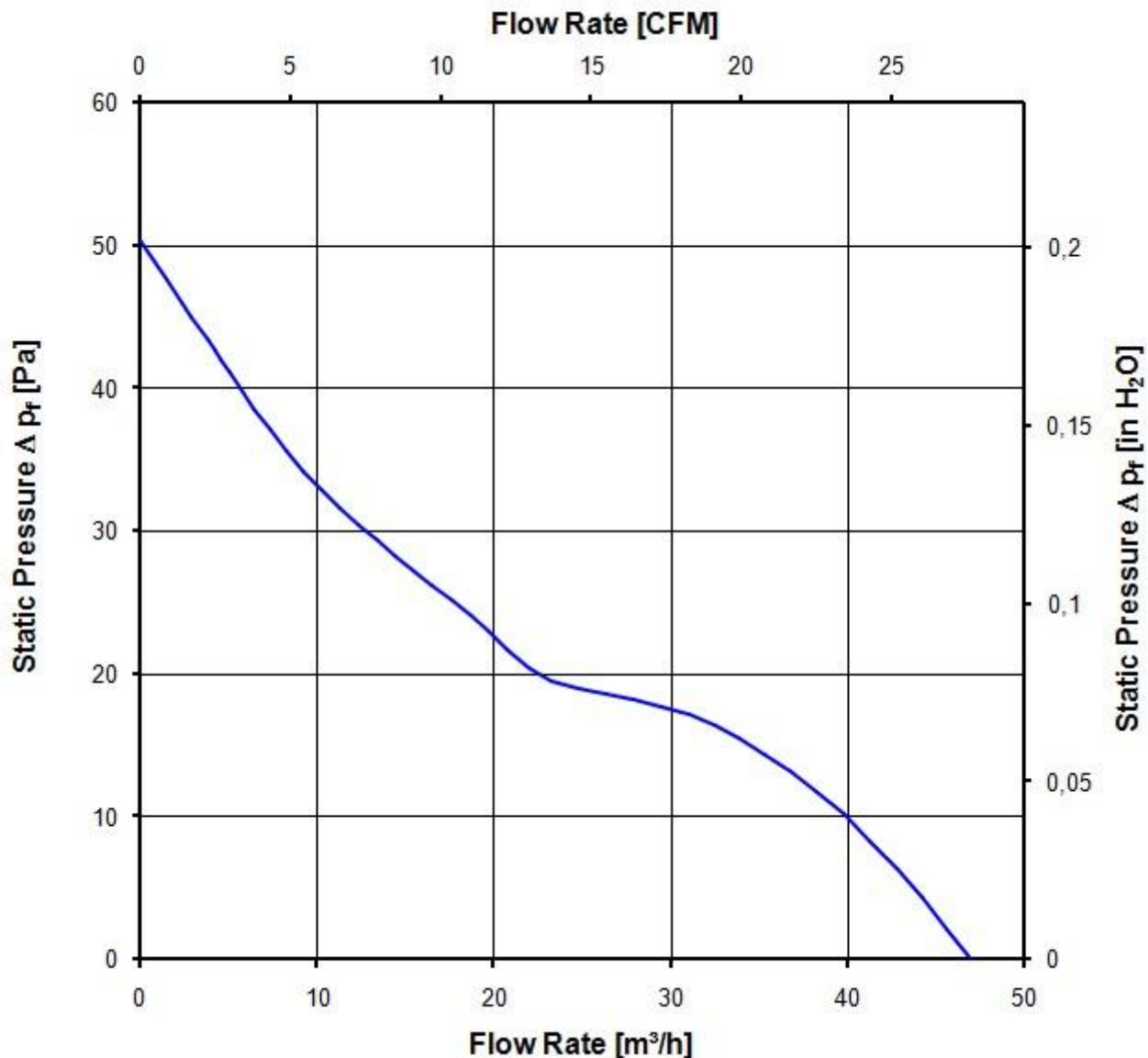
In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.

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:

3.000 1/min at free air flow	TU > 50 °C NTC < 30 kOhm		
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Max. free-air flow ($\Delta p = 0$ / $\dot{V} = \text{max.}$)	48,0 m ³ /h	
Max. static pressure ($\Delta p = \text{max.}$ / $\dot{V} = 0$)	50 Pa	



3.6 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:

3.000 1/min at free air flow	TU > 50 °C NTC < 30 kOhm		
Optimal operating point	34,0 m3/h @ 14 Pa		
Sound power level at the optimal operating point	4,8 bel(A)		
Sound pressure level at free air flow, measured in rubber bands	34,0 dB(A)		

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	65 °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, 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. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 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

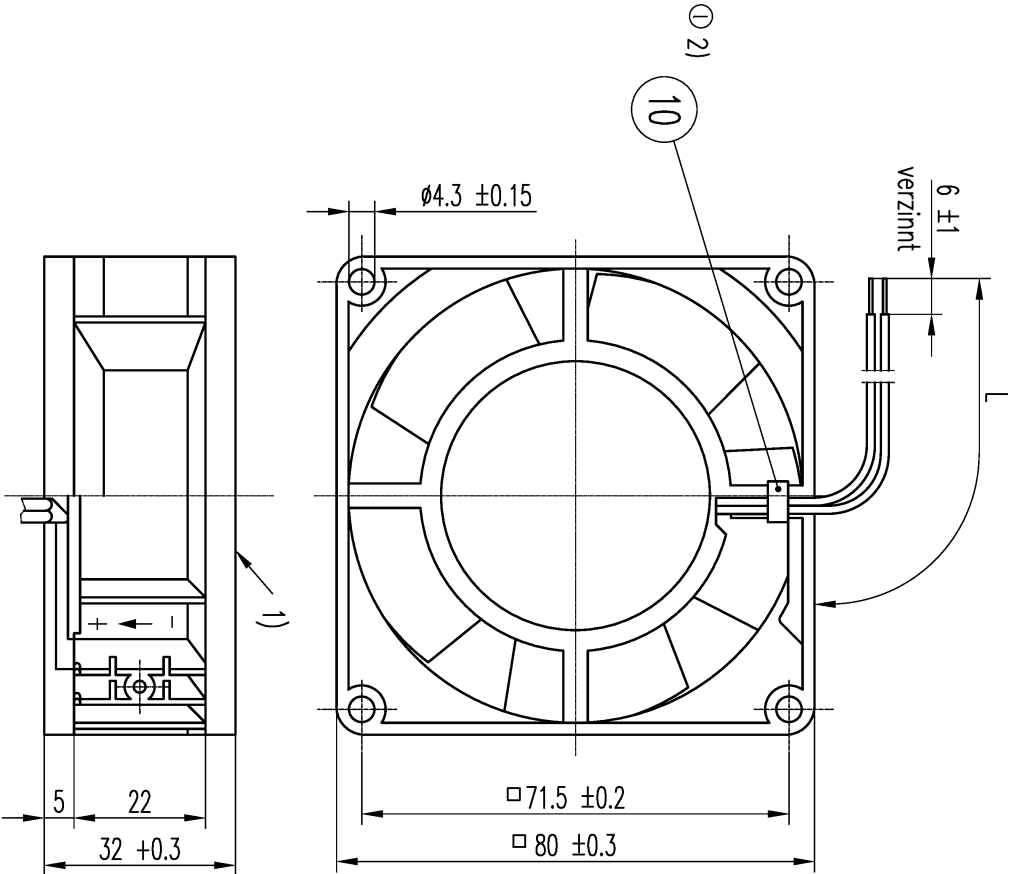
CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	67.500 h	
Life expectancy L10 at TU max.	38.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	115.000 h	

Schutzvermerk nach DIN 34 beachten



- 1) Rotorüberstand bis max. 0,4 zulässig
- 2) nur wenn in Stückliste vermerkt

Ⓜ

Axialspiel: (K) mit Feder ausgeglichen
(G) 0,1-0,5 mm

Anzahl und Längen der Litzen siehe Bv-BI.1

Allgemeintoleranzen				DIN ISO 2768 – c			
m				Datum	Name	Artikel	Maßstab
l				Erstellt			
k				Geprüft			
i							
Index, Änd.-Nr. Datum Geändert von				PAPST-MOTOREN GmbH & Co KG			
Zur Verwendung im Verteiler freigegeben				D-78172 St. Georgen			
von				am			
				Germany			
				Ers.f.Zchg:			

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