



The engineer's choice

ebmpapst

8414 NH**INDEX**

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1 General

Fan type	Fan	
Rotational direction looking at rotor	counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position	any	

2 Mechanics

2.1 General

Width	80,0 mm	
Height	80,0 mm	
Depth	25,4 mm	
Weight	0,095 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	wire outlet corner: 50 Ncm remaining corners: 70 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Length of lead wire	310 mm	
Tolerance	+/- 10,0 mm	
Wire gauge (AWG)	24	
Insulation diameter	1,55 mm	
Contact	see drawing	



	Colour	Operation
Wire 1	red	+ UB
Wire 2	blue	- GND

3 Operating Data

3.1 Operating Data - Electrical Interface - Input

Control input	None
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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 section 3.5)
 I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	18,0 V		26,0 V
Nominal voltage	$\Delta p = 0$	U_N		24,0 V	
Power consumption	$\Delta p = 0$	P	1,3 W	2,4 W	2,8 W
Tolerance	0001		+/- 17,5 %	+/- 12,5 %	+/- 15,0 %
Current consumption	$\Delta p = 0$	I	74 mA	100 mA	110 mA
Tolerance	0001		+/- 17,5 %	+/- 12,5 %	+/- 15,0 %
Speed	$\Delta p = 0$	n	2.750 1/min	3.600 1/min	3.860 1/min
Tolerance	0001		+/- 12,5 %	+/- 7,5 %	+/- 10,0 %
Starting current consumption				355 mA	

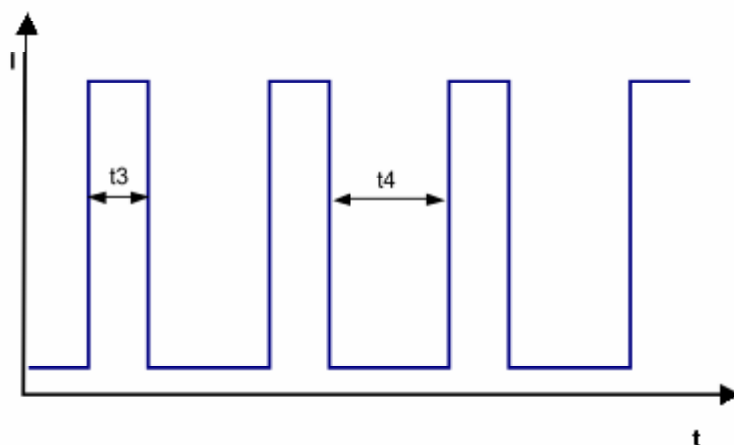
3.3 Operating Data - Electrical Interface -Output

Tacho type	None
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Alarm type	None
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3.4 Electrical Features

Electronic function	None	
Reversed polarity protection	Rectifying diode	
Max. residual current at U_n	$I_F \leq 5 \mu A$	
Locked rotor protection	Auto restart	
Locked rotor current at U_n	approx. 355 mA	
Clock signal t3/t4 at locked rotor	Typical: 0,2 s / 1,1 s t3: 0,06 s... 0,77 s t4: 0,3 s... 3,6 s	



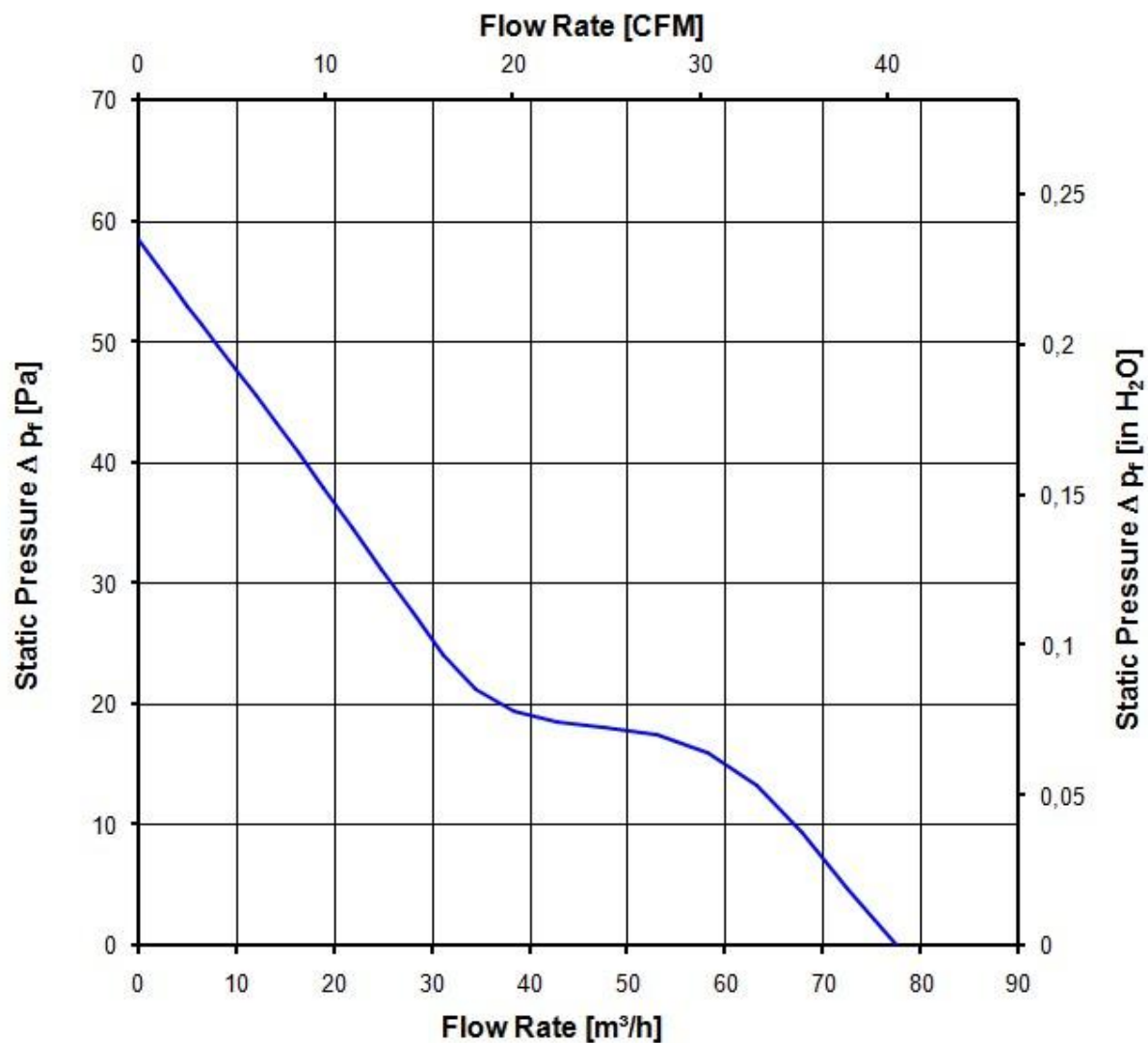
3.5 Aerodynamic

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.

a.) Operation condition:

3.600 1/min at free air flow

Max. free-air flow ($\Delta p = 0$ / $\dot{V} = \text{max.}$)	78,0 m ³ /h	
Max. static pressure ($\Delta p = \text{max.}$ / $\dot{V} = 0$)	58 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 section 3.5

a.) Operation condition:

3.600 1/min at free air flow		
Optimal operating point	64,0 m ³ /h @ 14 Pa	
Sound power level at the optimal operating point	5,0 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	37,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °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, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Radiation exposure	None	
Dust requirements	None	
Salt fog requirements	None	
Harmful gas 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.	Not applicable	
B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	Not applicable	
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	
Air and leakage distances	1,0 mm / 1,2 mm	
Protection class	III	

5.2 Approval Tests

CE	Yes
UL	Yes
VDE	Yes
CSA	Yes
CCC	No

The approval tests are observed to:

U approval max.: 26,0 V @ TU approval max.: 70,0 °C

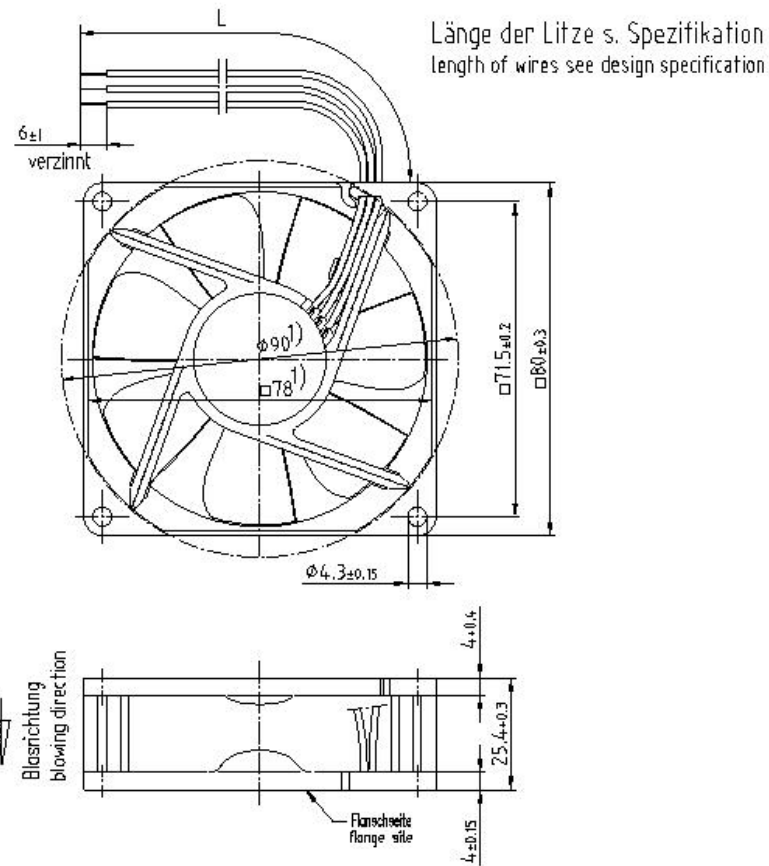
6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	70.000 h	
Life expectancy L10 at TU max.	35.000 h	

Coping of the flange - not given - is to allow sufficient clearance of the rotating flange of any other fan in the same housing. The flange of the fan must be at least 10 mm from the end of the part or the magnification of a fully made or design.

Spitzenwert nach DIN ISO 1800 beachtet
Refer to protection within the ISO 1800



Länge der Litze s. Spezifikation
length of wires see design specification

1) Maße für Montagewand

1) dimensions for assembly wall

Axialspiel bei

axial clearance by

- Kugellagerung (K): ϕ mit Federausgleich
- Gleitlagerung (G): $0.1 - 0.9$

- ball bearing (K): ϕ (with spring compensation)
- sleeve bearing (G): $0.1 - 0.9$

SIP-Stärke/Size	Fast-Ne-Change-Ne	Art/CAD-Speche-Werte Name/Name	ebm-papst CAD-Umgebung/ CAD-Environment	Werkstoff/Material	Volumen/Volume (mm ³)
		Bearb./ Drawn	Gepr./ Checked	Artikel/Title	Gewicht/Weight (g)
Veränderung/Change:		Prüf./ Tested			
Allgemeintoleranzen/Gen. tolerances		ebm-papst		Zug- Nr./ Drawing- No.	Erst-Zug/Replaces
		ebm-papst St. Georgen GmbH & Co. KG		Material/Type of Material	Teilnummer/Part No.
				Material/Type of Material	Formel/Size
					Material/Type of Material