

Product Data Sheet 8312 NHH

ebm**papst**

The engineer's choice



8312 NHH

INDEX

1	General	3
2	Mechanics	3
2.1	General	3
2.2	Connections	3
3	Operating Data	5
3.1	Electrical Operating Data	5
3.2	Electrical Features	5
3.3	Aerodynamics	6
3.4	Sound Data	7
4	Environment	7
4.1	General	7
4.2	Climatic Requirements	7
4.3	EMC	7
5	Safety	9
5.1	Electrical Safety	9
5.2	Approval Tests	9
6	Reliability	9
6.1	General	9

1 General

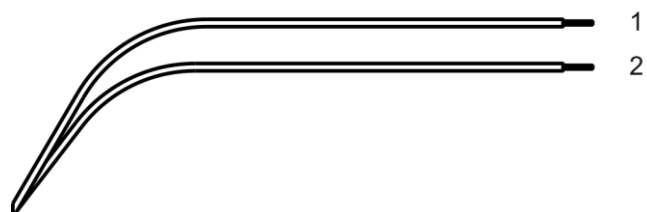
Fan type	Fan	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

2 Mechanics**2.1 General**

Width	80,0 mm	
Height	80,0 mm	
Depth	32 mm	
Mass	0,1 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 100 Ncm Remaining corners: 100 Ncm 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	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 26	1,35 mm
2	blue	- GND	AWG 26	1,35 mm

3 Operating Data

3.1 Electrical Operating Data

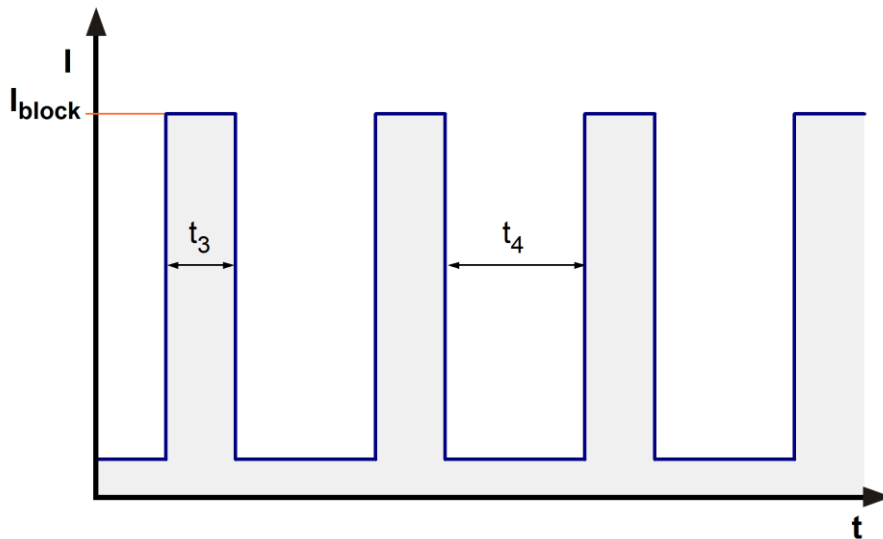
Measurement conditions: Normal air density = 1,2 kg/m³; Temperature 23°C +/- 3°C; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

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

Features	Condition	Symbol	Values		
Voltage range		U	6 V		15 V
Nominal voltage		U_N		12 V	
Power consumption	$\Delta p = 0$	P	1,2 W	5,3 W	8,7 W
Tolerance	0010		+/- 17,5 %	+/- 12,5 %	+/- 15 %
Current consumption	$\Delta p = 0$	I	200 mA	440 mA	580 mA
Tolerance	0010		+/- 17,5 %	+/- 12,5 %	+/- 15 %
Speed	$\Delta p = 0$	n	3.100 1/min	6.300 1/min	7.500 1/min
Tolerance	0010		+/- 12,5 %	+/- 7,5 %	+/- 10 %
Starting current consumption				2.600 mA	

3.2 Electrical Features

Electronic function	None	
Reversed polarity protection	Rectifying diode	
Max. residual current at U_N	$I_F \leq 500 \mu A$	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 2.600 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,23 s / 11,8 s	



3.3 Aerodynamics

Measurement conditions:

Measured with a double chamber intake rig.

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:

at free air flow

3.4 Sound Data

Measurement conditions: Sound pressure level: 1 meter distance between microphone and the air intake.
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:

at free air flow

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	75 °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.

4.3 EMC

Kind	Conducted Emission; Voltage; 150 kHz-30 MHz
According	DIN EN 55022:2007-04
Ceek accuracy / Limit	Class B
Result	Below limit Class B

Kind	Radiated Emission; 30 MHz - 1000 MHz
According	DIN EN 55022:2007-04
Ceek accuracy / Limit	Class B
Result	Below limit Class B

Kind	Electrostatic Discharge Immunity Test
According	DIN EN 61000-4-2:2001-12
Ceek accuracy / Limit	Contact Discharge +/- 4 kV; Air Discharge +/- 8 kV
Result	B: The monitored function may deviate from designed performance to a specified level during exposure to a disturbance or revert to a fail safe

	mode or operation, but shall return to normal operation after the disturbance is removed.
--	---

Kind	Electromagnetic Field Immunity Test
According	DIN EN 61000-4-3:2006-12
Check accuracy / Limit	10 V/m; 80 - 1000 MHz; AM; m = 0,8; f = 1 kHz; 1%; t = 3 s
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

Kind	Electrical Fast Transient / Burst Immunity Test
According	DIN EN 61000-4-4:2005-07
Check accuracy / Limit	+/- 2 kV on Power Lines; Coupling: POS, NEG, {PE}, ALL, 5 kHz and 100 kHz; 1 min
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

Kind	Immunity to Conducted Disturbances, Induced by RF-Fields
According	DIN EN 61000-4-6:2001-12
Check accuracy / Limit	10 Vrms; 150 kHz - 80 MHz; AM; m = 0,8; f = 1 kHz; 1%; t = 3 s
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

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 / 1,2 mm	
Protection class	III	

5.2 Approval Tests

CE	EC Declaration of Conformity	No
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	No
VDE	Association for Electrical, Electronic and Information Technologies	No
CSA	Canadian Standards Association	No
CCC	China Compulsory Certification	Not applicable

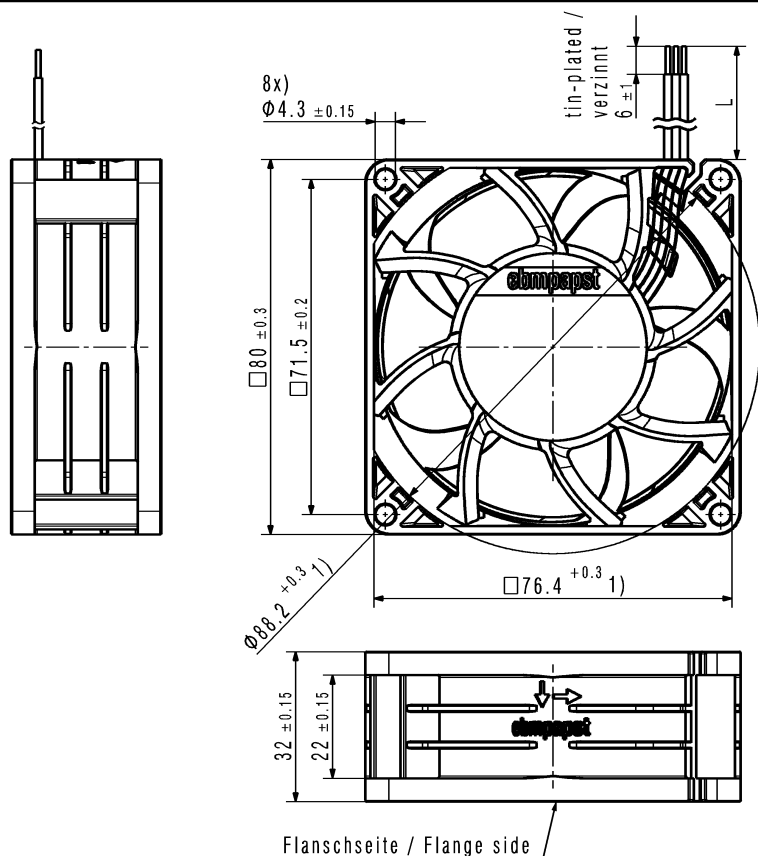
6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	72.500 h	
Life expectancy L10 at TU max.	27.500 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	120.000 h	

Copying of this document, and giving it others and the use or communication of the contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages. All rights are reserved in the event of the grant of a patent or the registration of a utility model or design.

Schutzvermerk nach DIN ISO 16116 beachten!
Refer to protection notice DIN ISO 16116-1.



1) Maße für Montagewand / Dimensions for assembly wall

- Kein Axialspiel der Kugellager durch Federausgleich / no axial clearance of ball bearings due to a pre-load spring
- Anzahl und Länge der Litzen siehe Produktspezifikation Blatt 1
Number and length of the wires see design specification sheet 1

				Werkstoff / Material:		Volumen / Volume (mm³):							
Dokument-Status / Document-State		CATIA-Version/ CATIA-Version		CAD-Umgebung/ CAD-Environment		Gewicht / Mass (g):							
		9292910101 CPM00A		Artikel / Title:									
Änd.-Nr. / Change-No.		3D-Referenzmodell / 3D-Reference model											
Tolerierung / Tolerances:		Datum Name											
Allgemeintoleranzen / Gen. Tolerances:		Bearb. / Drawn		Zchg.-Nr. / Drawing No:				Ers.f.Zchg. / Replaces:					
		Gepr. / Checked											
		Freig. / Released											
				Dokumenttyp / Type of Document		Teildokument (Blatt/Page)		Index / Index		Format / Size:		Massstab/Scale	
ebm-papst St.Georgen GmbH & Co KG								A					