

Product Data Sheet 8412 NGHAR-183

**ebmpapst**

The engineer's choice



**8412 NGHAR-183****INDEX**

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## 1 General

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

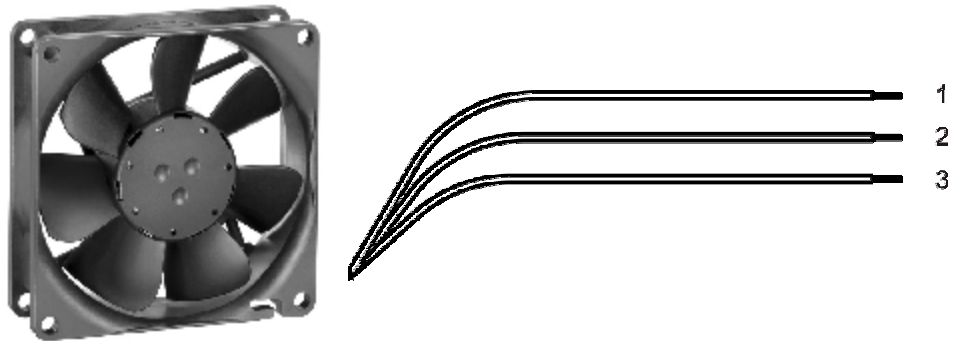
## 2 Mechanics

### 2.1 General

Width	80,0 mm	
Height	80,0 mm	
Depth	25,4 mm	
Mass	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	
Lead wire length	L = 290 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	CONTR

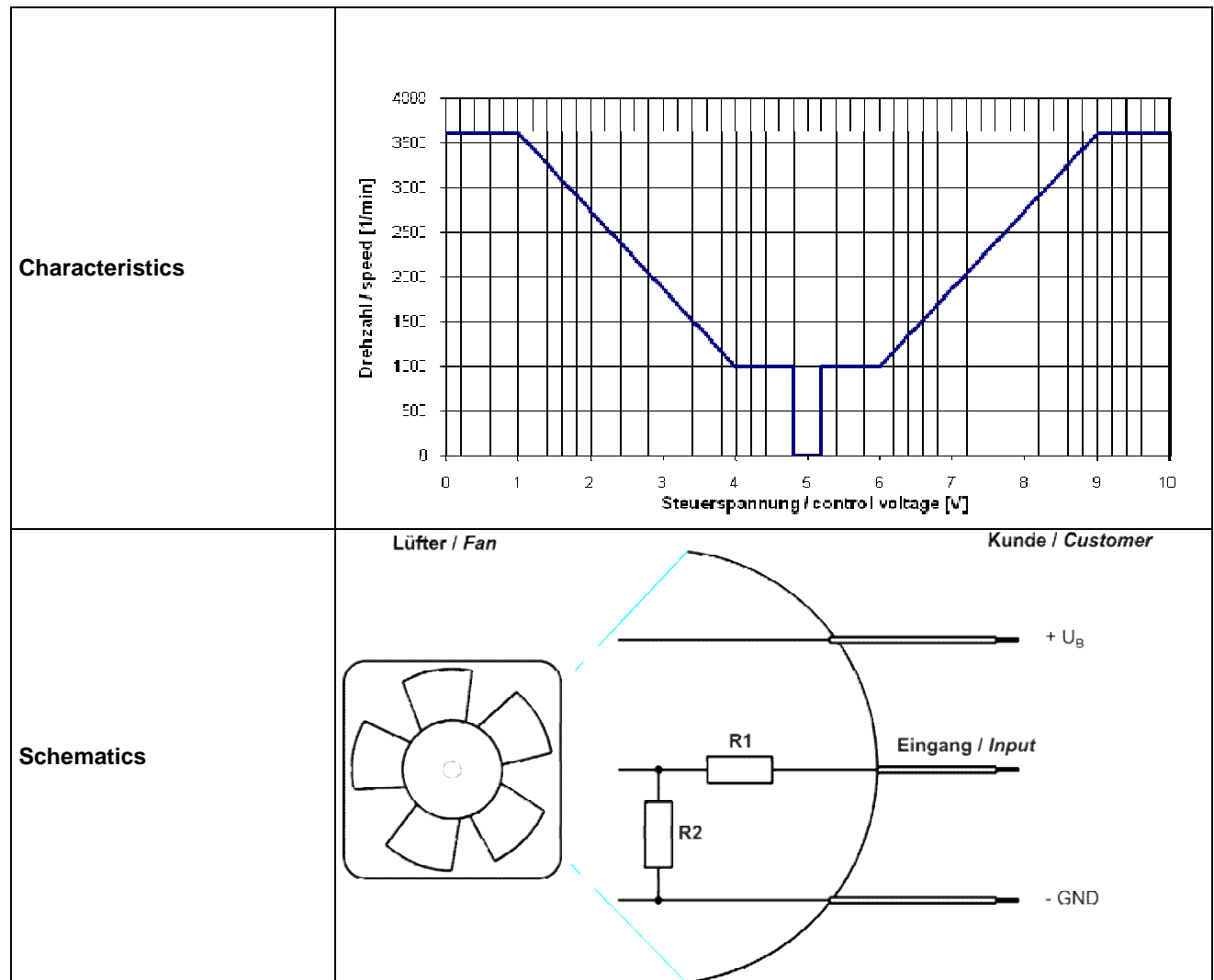
### 3 Operating Data

#### 3.1 Electrical Interface - Input

Control input	Analog
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#### Features

Input voltage range	0 V - 10 V
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**Note to the speed control / direction of rotation**

On the control voltage input from 4,4 ... 4,8 V and 5,2 ... 5,6 V undefined value range. From 5.6 V reversing operation.

### 3.2 Electrical Operating Data

Measurement conditions: Normal air density = 1,2 kg/m<sup>3</sup>; 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

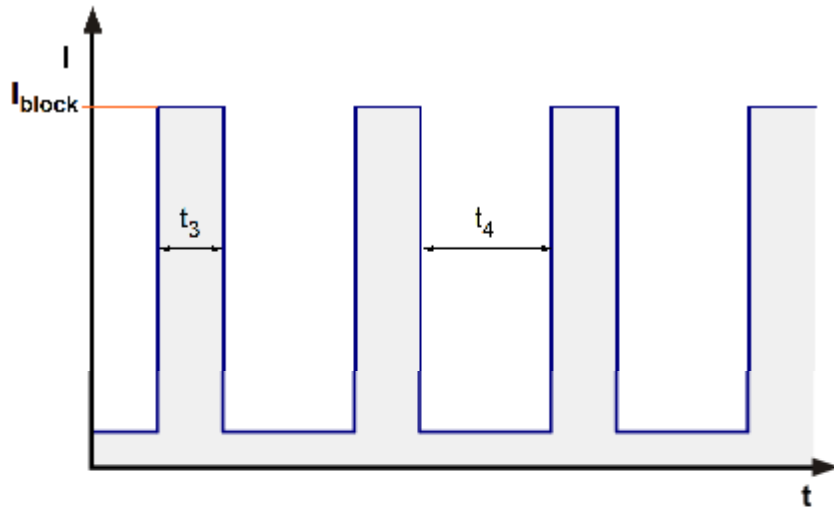
Name	Condition
U Contr. 0001	U Contr.: 0,7 V

Data are valid for reversed operation!

Features	Condition	Symbol	Values		
Voltage range		U	10,5 V		13,2 V
Nominal voltage		$U_N$		12,0 V	
Power consumption	$\Delta p = 0$	P	2,2 W	2,8 W	2,8 W
Tolerance	U Contr. 0010		+/- 17,5 %	+/- 25,0 %	+/- 25,0 %
Current consumption	$\Delta p = 0$	I	205 mA	230 mA	215 mA
Tolerance	U Contr. 0010		+/- 17,5 %	+/- 25,0 %	+/- 25,0 %
Speed	$\Delta p = 0$	n	3.340 1/min	3.600 1/min	3.600 1/min
Tolerance	U Contr. 0010		+/- 12,5 %	+/- 9,0 %	+/- 9,0 %
Starting current consumption				600 mA	

### 3.3 Electrical Features

Electronic function	Speed-Controlled	
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. 440 mA	
Clock signal at locked rotor	$t_3 / t_4$ typical: 0,6 s / 10 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/m<sup>3</sup>; 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:

3.600 1/min at free air flow	U Contr. 0,7 V		
Max. free-air flow ( $\Delta p = 0 / \dot{V} = \max.$ )		74 m <sup>3</sup> /h	
Max. static pressure ( $\Delta p = \max. / \dot{V} = 0$ )		62 Pa	

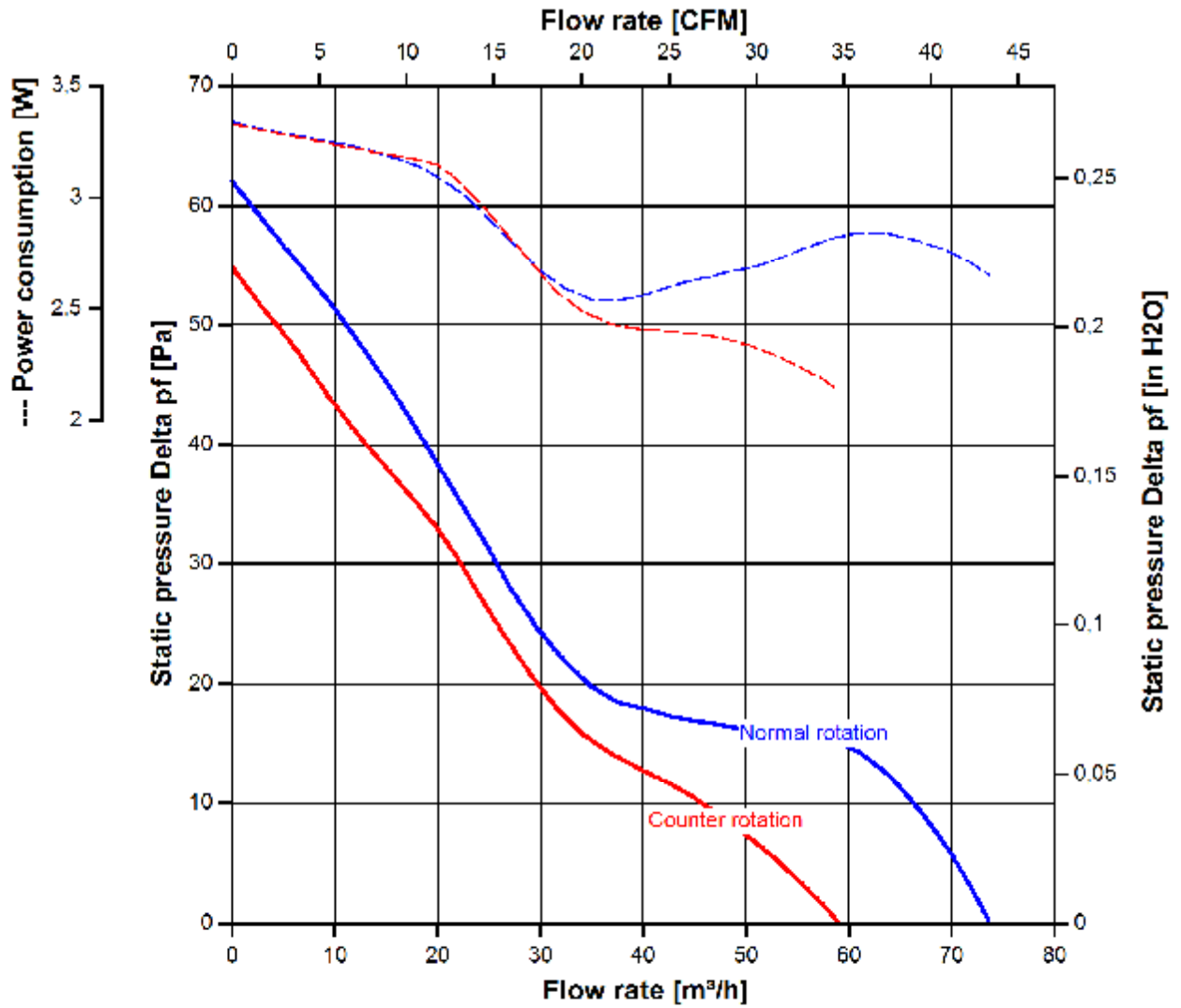
#### Rotation in normal direction.

b.) Operation condition:

at free air flow			
Max. free-air flow ( $\Delta p = 0 / \dot{V} = \max.$ )		59 m <sup>3</sup> /h	
Max. static pressure ( $\Delta p = \max. / \dot{V} = 0$ )		55 Pa	

#### Counter rotation.

n: 3.600 1/min





### 3.5 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:

3.600 1/min at free air flow	U Contr. 0,7 V		
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b.) Operation condition:

at free air flow	
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## 4 Environment

### 4.1 General

Min. permitted ambient temperature TU min.	-10 °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 <sup>2</sup> 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.	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	
Clearance / creepage distance	1,0 mm / 1,2 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

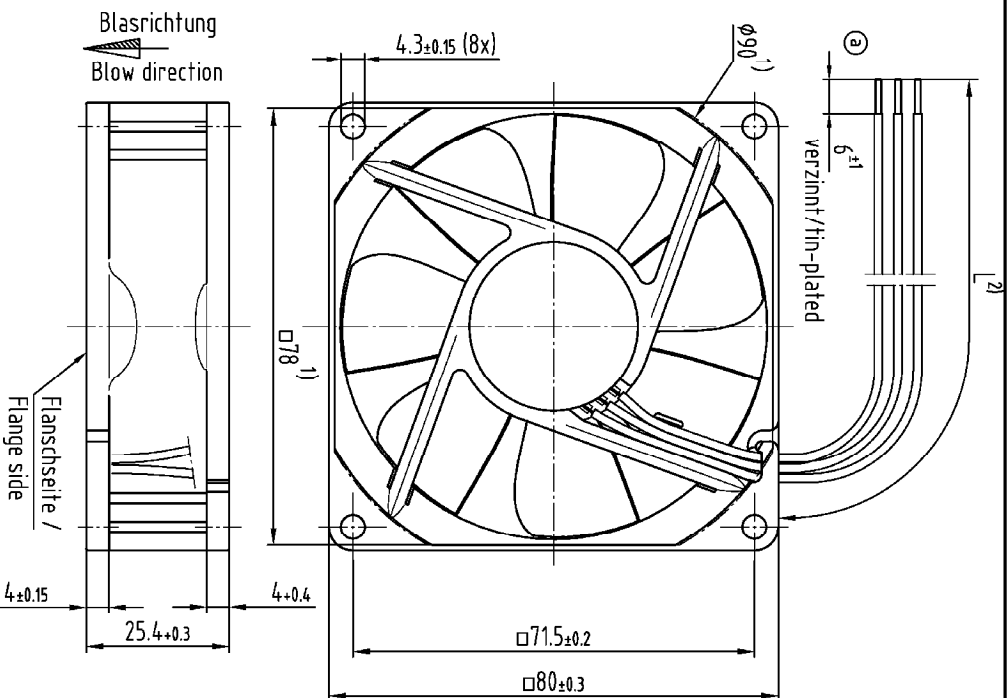
## 6 Reliability

### 6.1 General

Life expectancy L10 at TU = 40 °C	70.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	117.500 h	

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Schutzvermerk nach DIN ISO 16016 beachten/  
Refer to protection notice DIN ISO 16016!



- 1) = Maße für Montageausschnitt / Dimensions for assembly wall.  
2) = Länge der Litzen siehe Produktspezifikation Bl. 3 /  
Length of wires see product specification page 3.

- Axialspiel bei Kugellagerung (K): 0 (mit Federausgleich) /  
Axial clearance by ball bearing (K): 0 (by preload spring)  
- Axialspiel bei Gleitlagerung (G): 0.1 - 0.9 /  
Axial clearance by sleeve bearing (G): 0.1 - 0.9

SAP-Status/State		Art.-Nr./Change-No.		ebmpapst		Verstärk./Material:		Volumen/Volume (cm <sup>3</sup> ):	
Handl./System-Version		Datei/Date		CAD-Steuerung/Name/Name		Artikel/Title		Gewicht/Mass (g):	
Beart./Drawn		Gepr./Checked		Freig./Released		Zchg.-Nr./Drawing-No.:		Ers./Zug./Replaces:	
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