



The engineer's choice

**ebmpapst**

# 8414 N-558

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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	

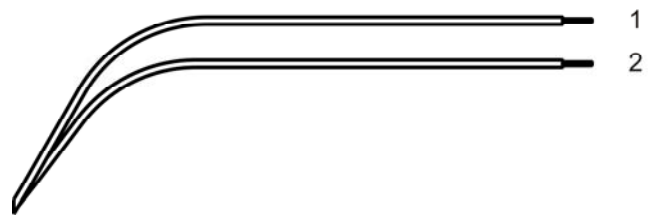
**2 Mechanics**

**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: 140 Ncm	
inserts	8 x 6-32 UNC	

**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	



	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/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 section 3.5)  
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	18,0 V		28,0 V
Nominal voltage	$\Delta p = 0$	$U_N$		24,0 V	
Power consumption	$\Delta p = 0$	P	1,0 W	1,8 W	2,4 W
Tolerance	0001		+/- 17,5 %	+/- 12,5 %	+/- 15,0 %
Current consumption	$\Delta p = 0$	I	54 mA	73 mA	86 mA
Tolerance	0001		+/- 17,5 %	+/- 12,5 %	+/- 15,0 %
Speed	$\Delta p = 0$	n	2.300 1/min	3.100 1/min	3.490 1/min
Tolerance	0001		+/- 12,5 %	+/- 7,5 %	+/- 10,0 %

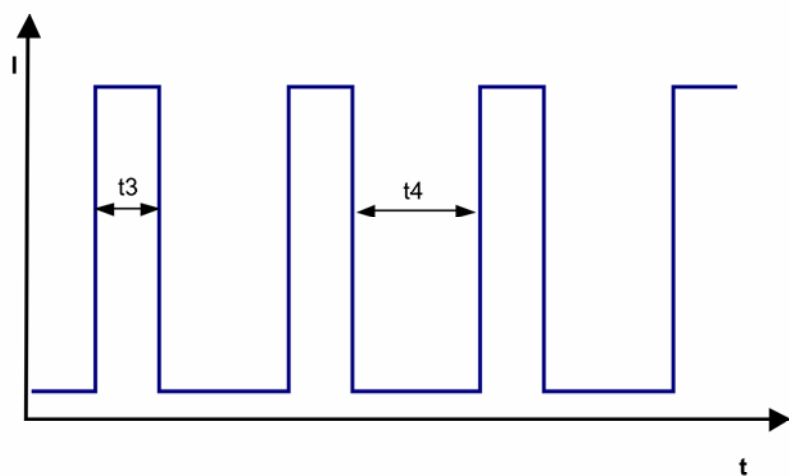
### 3.3 Operating Data - Electrical Interface -Output

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 $U_n$		
Clock signal $t_3/t_4$ at locked rotor	Typical: 0,16 s / 1 s $t_3$ : 0,06 s... 0,8 s $t_4$ : 0,3 s... 3,6 s	



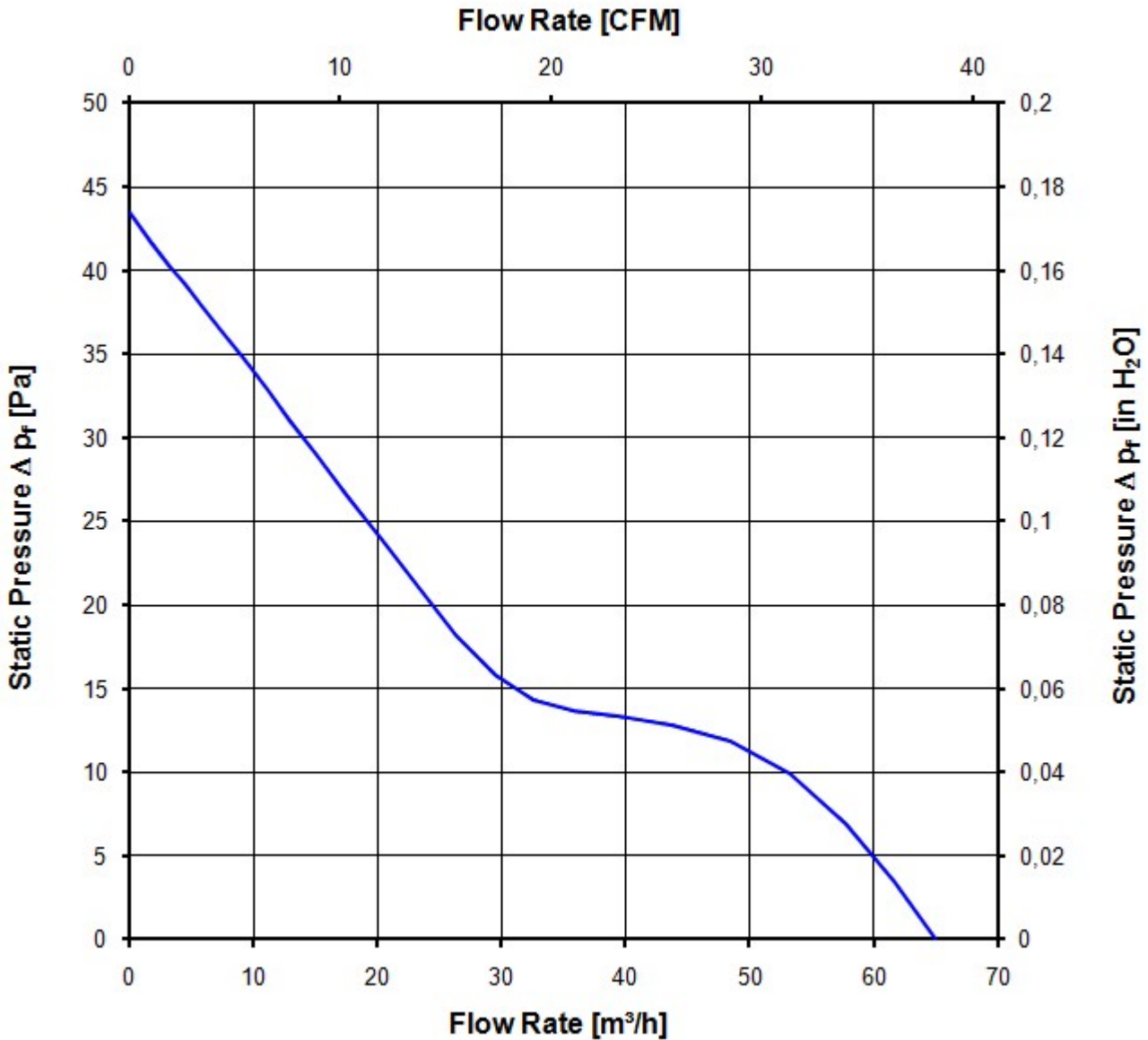
### 3.5 Aerodynamic

Measurement conditions: Measured with a double chamber intake rig acc. to DIN EN ISO 5801.  
 Normal air density = 1,2 kg/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.

a.) Operation condition:

3.100 1/min at free air flow

Max. free-air flow ( $\Delta p = 0 / \dot{V} = \text{max.}$ )	65,0 m <sup>3</sup> /h	
Max. static pressure ( $\Delta p = \text{max.} / \dot{V} = 0$ )	43 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:

3.100 1/min at free air flow		
Optimal operating point	52,0 m <sup>3</sup> /h @ 10 Pa	
Sound power level at the optimal operating point	4,6 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	32,0 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.



## 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.	Not applicable  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 / UL507, Electric Fans
VDE	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Yes / C22.2 No. 113 Fans and Ventilators
CCC	No

The approval tests are observed to:

U approval max.: 28,0 V @ TU approval max.: 70,0 °C

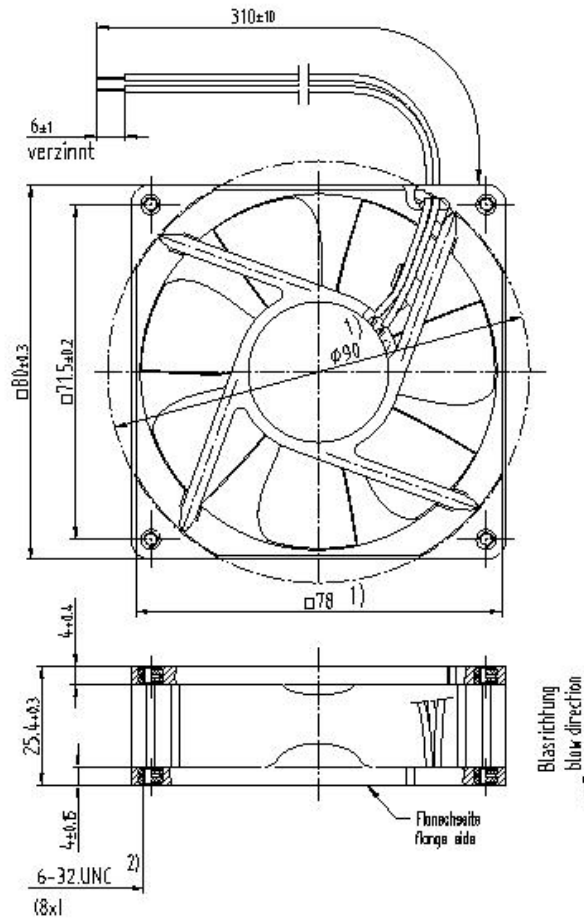
## 6 Reliability

### 6.1 General

Life expectancy L10 at TU = 40 °C	70.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 Delta (40 °C)	140.000 h	

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Edizione: 10/2018  
Refer to protection outline DR 633 0018



- 1) Maße für Montagewand/ measures for mounting plate
- 2) = Anzugsmoment der Befestigungsschraube max. 1.4 Nm
- 2) = tightening torque the mounting screw max. 1.4 Nm
- Axialspiel bei/ axial tolerance
- Kugellagerung (K): 0 (mit Federausgleich) / by ballbearing (K): 0 (by pre-loaded spring)
- Gleitlagerung (G): 0.1 - 1.6 / by sleeve bearing (G): 0.1-1.6

		ebmpapst		Werkstoff/Material:		Volumen/Volume (mm³):	
SW-Stahl/Steel	Acid-Res./Acid-Res.	4x4x0-System-Version	COB-Übersetzung/ COB-Environment			Gewicht/Weight (g):	
		Zahnrad Name/Name		Artikel/Title			
		Bauart/ Drawn					
Toleranz/Tolerances:		Typ/ Design		Zug-/Nr./ Drawing-Nr.:		Ersatzteil/Replaces	
Allgemeintoleranzen/Gen. tolerances							
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