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**ebmpapst**

# 4416 M

## INDEX

<b>1</b>	<b>General</b> .....	<b>3</b>
<b>2</b>	<b>Mechanics</b> .....	<b>3</b>
2.1	General .....	3
2.2	Connections .....	3
<b>3</b>	<b>Operating Data</b> .....	<b>4</b>
3.1	Operating Data - Electrical Interface - Input .....	4
3.2	Electrical Operating Data .....	5
3.3	Operating Data - Electrical Interface -Output .....	5
3.4	Electrical Features .....	6
3.5	Aerodynamic .....	7
3.6	Sound Data .....	8
<b>4</b>	<b>Environment</b> .....	<b>8</b>
4.1	General .....	8
4.2	Climatic requirements*) .....	8
<b>5</b>	<b>Safety</b> .....	<b>9</b>
5.1	Electrical Safety .....	9
5.2	Approval Tests .....	9
<b>6</b>	<b>Reliability</b> .....	<b>9</b>
6.1	General .....	9

**1 General**

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

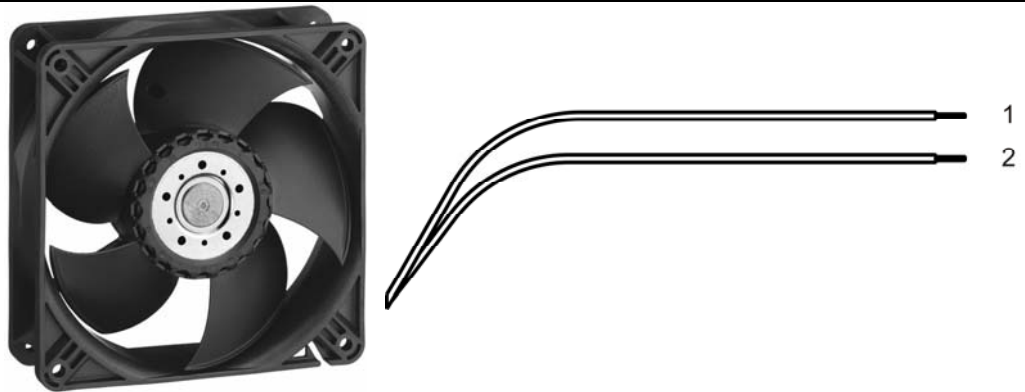
**2 Mechanics**

**2.1 General**

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Weight	0,270 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	wire outlet corner: 80 Ncm remaining corners: 80 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	1,10 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

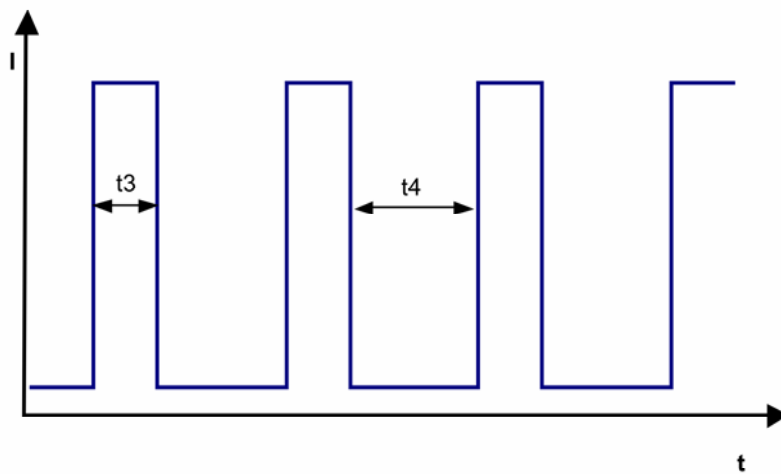
Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	30,0 V		45,0 V
Nominal voltage	$\Delta p = 0$	$U_N$		36,0 V	
Power consumption	$\Delta p = 0$	P	2,9 W	4,2 W	6,8 W
Tolerance	0001		+/- 17,5 %	+/- 12,5 %	+/- 15,0 %
Current consumption	$\Delta p = 0$	I	97 mA	116 mA	151 mA
Tolerance	0001		+/- 17,5 %	+/- 12,5 %	+/- 15,0 %
Speed	$\Delta p = 0$	n	2.850 1/min	3.300 1/min	4.000 1/min
Tolerance	0001		+/- 12,5 %	+/- 7,5 %	+/- 10,0 %
Inrush current				740 mA	

### 3.3 Operating Data - Electrical Interface -Output

Tacho type	None
Alarm type	None

### 3.4 Electrical Features

Electronic function	None	
Reversed polarity protection	Rectifying diode	
Max. residual current at $U_n$	$I_F < 500 \mu\text{A}$	
Locked rotor protection	Auto restart	
Locked rotor current at $U_n$	approx. 740 mA	
Clock signal $t_3/t_4$ at locked rotor	Typical: 0,4 s / 10 s	

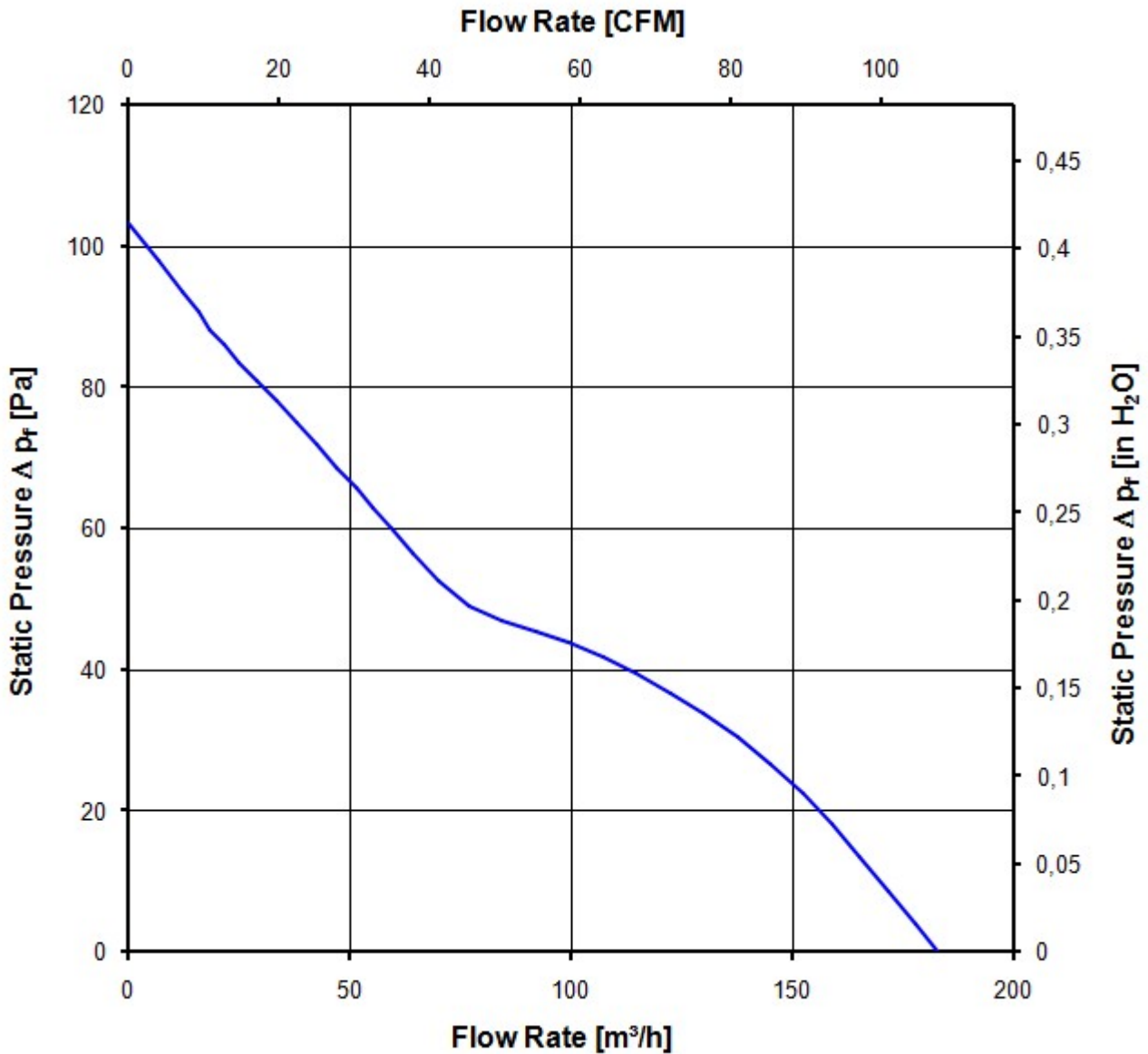


**3.5 Aerodynamic**

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:

3.300 1/min at free air flow		
Max. free-air flow ( $\Delta p = 0 / \dot{V} = \text{max.}$ )	184,0 m <sup>3</sup> /h	
Max. static pressure ( $\Delta p = \text{max.} / \dot{V} = 0$ )	103 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:

3.300 1/min at free air flow		
Optimal operating point	106,0 m <sup>3</sup> /h @ 38 Pa	
Sound power level at the optimal operating point	5,3 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	43,0 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.	500 VAC / 1 Min.	
B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 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	
Air and leakage distances	1,0 mm / 1,2 mm	
Protection class	III	

**5.2 Approval Tests**

UL	Yes / UL507, Electric Fans
CSA	Yes

The approval tests are observed to:

Maximal permitted operating voltage (see section 3.1) and max. permitted ambient temperature TU max.

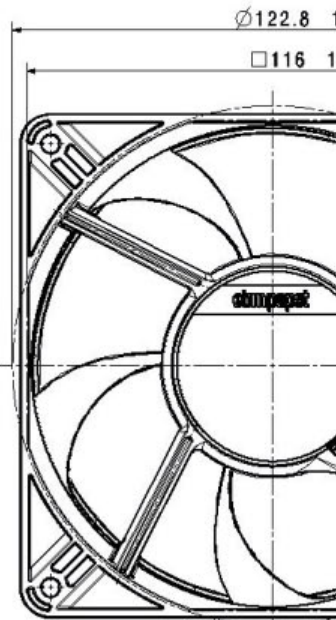
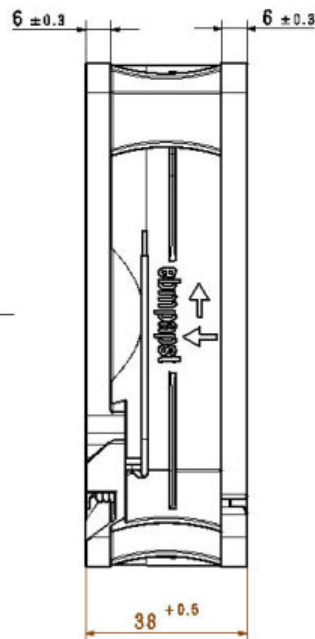
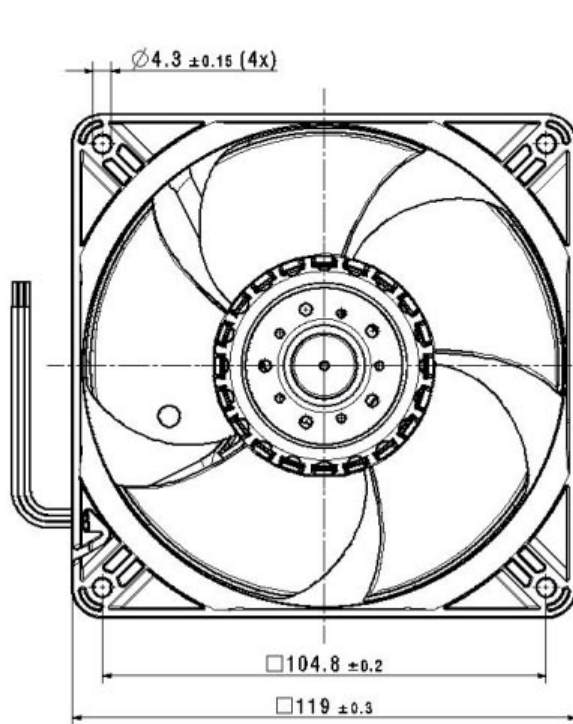
**6 Reliability**

**6.1 General**

Life expectancy L10 at TU = 40 °C	65.000 h	
Life expectancy L10 at TU max.	32.500 h	
Life expectancy L10 Delta (40 °C)	130.000 h	

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 guaranteed only if the user complies with the conditions of use and the conditions of sale. The user is  
 responsible for the use of the product in a manner that is consistent with the requirements of a safety work of design.

Messwertangaben sind nur für die angegebenen  
 Maße zu verwenden und sind nicht übertragbar.



- 1.) Maße fuer Montageausschnitt
- max. Anziehdrehmoment = 0.8Nm
  - Axialspiel: mit Feder spielfrei verspannt
  - Anzahl und Länge der Litzen siehe BV- Bl. 1
- 1.) measures for mounting cut-out
- max. tightening torque = 0.8Nm
  - without axial clearance by a pre-loaded spring
  - length and number of wires see design specification page 1

MP-Status	Art.-Nr./ Part No.	Grün-Status (Status) Green-Status (Status)	Grün-Status (Status) Green-Status (Status)	Grün-Status (Status) Green-Status (Status)	Grün-Status (Status) Green-Status (Status)
		Datum		Name	
		Rev./ Rev.			Fertig / Title:
		Rev./ Rev.			Zug. Nr. / Part No.
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