

Product Data Sheet 4184 NMCR

**ebmpapst**

The engineer's choice



4184 NMCR

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**1 General**

Fan type	Fan	
Rotating direction looking at rotor	Clockwise	
Airflow direction	Air intake over struts	
Bearing system	Stainless steel bearing	
Mounting position - shaft	Any	

**2 Mechanics****2.1 General**

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Mass	0,380 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 420 Ncm Remaining corners: 600 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

**2.2 Connections**

Electrical connection	Plug	
Lead wire length	See drawing	
Tolerance		
Plug	See drawing	
Contact	See drawing	



### 3 Operating Data

#### 3.1 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

Features	Condition	Symbol	Values		
Voltage range		U	12 V		30 V
Nominal voltage		$U_N$		24 V	
Power consumption	$\Delta p = 0$	P	0,7 W	4 W	5,7 W
Tolerance	0010		+/- 17,5 %	+/- 12,5 %	+/- 15 %
Current consumption	$\Delta p = 0$	I	58 mA	165 mA	190 mA
Tolerance	0010		+/- 17,5 %	+/- 12,5 %	+/- 15 %
Speed	$\Delta p = 0$	n	1.350 1/min	2.800 1/min	3.450 1/min
Tolerance	0010		+/- 12,5 %	+/- 7,5 %	+/- 10 %
Starting current consumption				<= 720 mA	

#### 3.2 Electrical Features

Electronic function	None	
Reversed polarity protection	Rectifying diode	
Max. residual current at $U_N$	$I_F \leq 50 \mu A$	
Locked rotor protection	Capacitor	
Locked rotor current at $U_N$	$I_{block}$ approx. 15 mA	

Note to the locked rotor protection:

Fan restart only by switch off an on the operating voltage.

Note to the locked rotor current:

after approx. 10 s.

### 3.3 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;

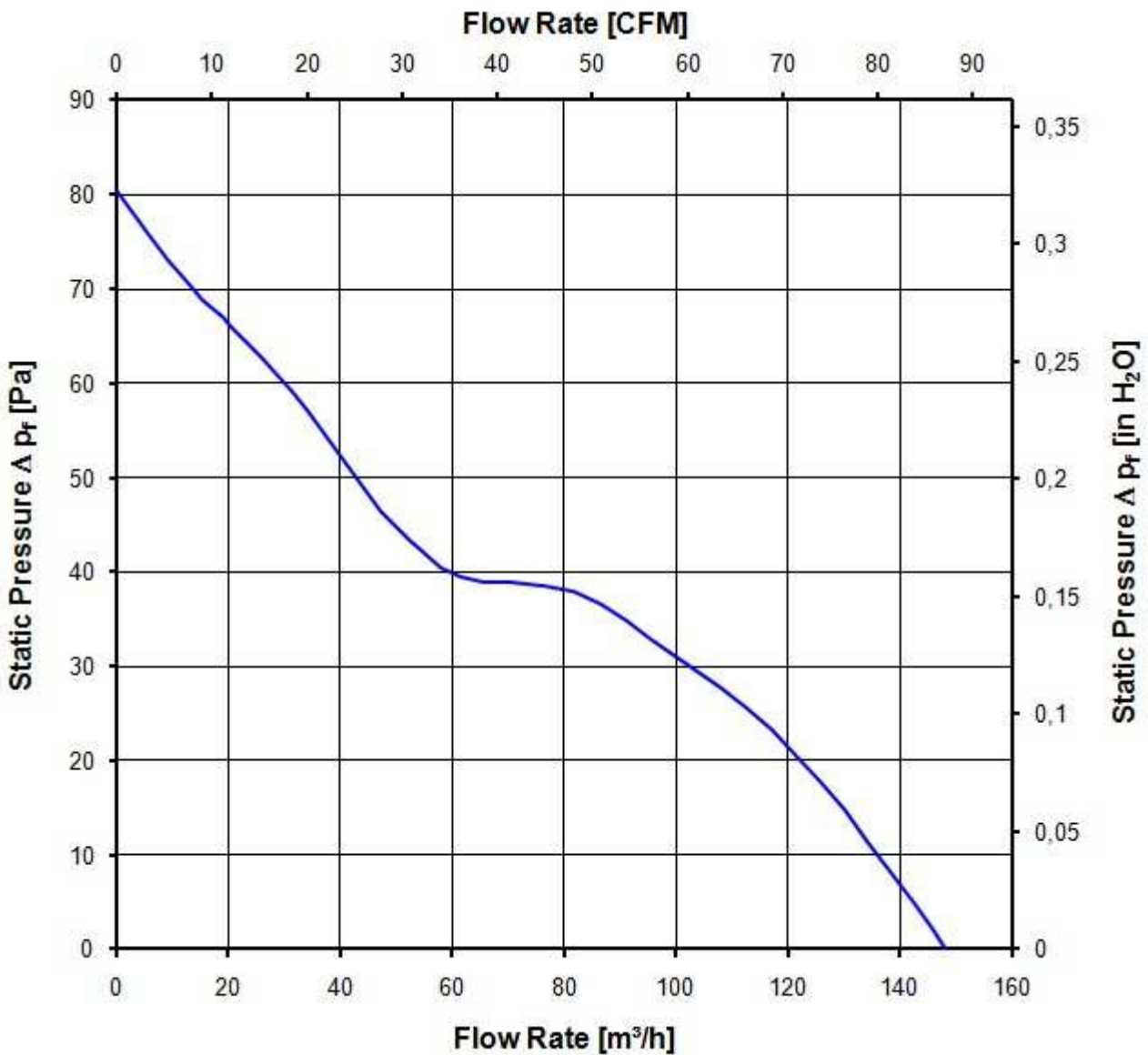
In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.

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:

2.800 1/min at free air flow

Max. free-air flow ( $\Delta p = 0 / \dot{V} = \text{max.}$ )	148,0 m <sup>3</sup> /h	
Max. static pressure ( $\Delta p = \text{max.} / \dot{V} = 0$ )	80 Pa	



### 3.4 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 chapter aerodynamics.

a.) Operation condition:

2.800 1/min at free air flow
------------------------------

Optimal operating point	86,0 m <sup>3</sup> /h @ 33 Pa	
Sound power level at the optimal operating point	5,1 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.	-30 °C	
Max. permitted ambient temperature TU max.	85 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	85 °C	
Permitted ambient temperature TU1	-40 °C... 85 °C @ $\geq 14,4 \text{ V}$	
Permitted ambient temperature TU2	... @	

Note to TU1: Apply for operation  $\geq 14,4 \dots 30 \text{ V}$ .

### 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. Occasionally, 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.	500 VAC / 1 Min.	
B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	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	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

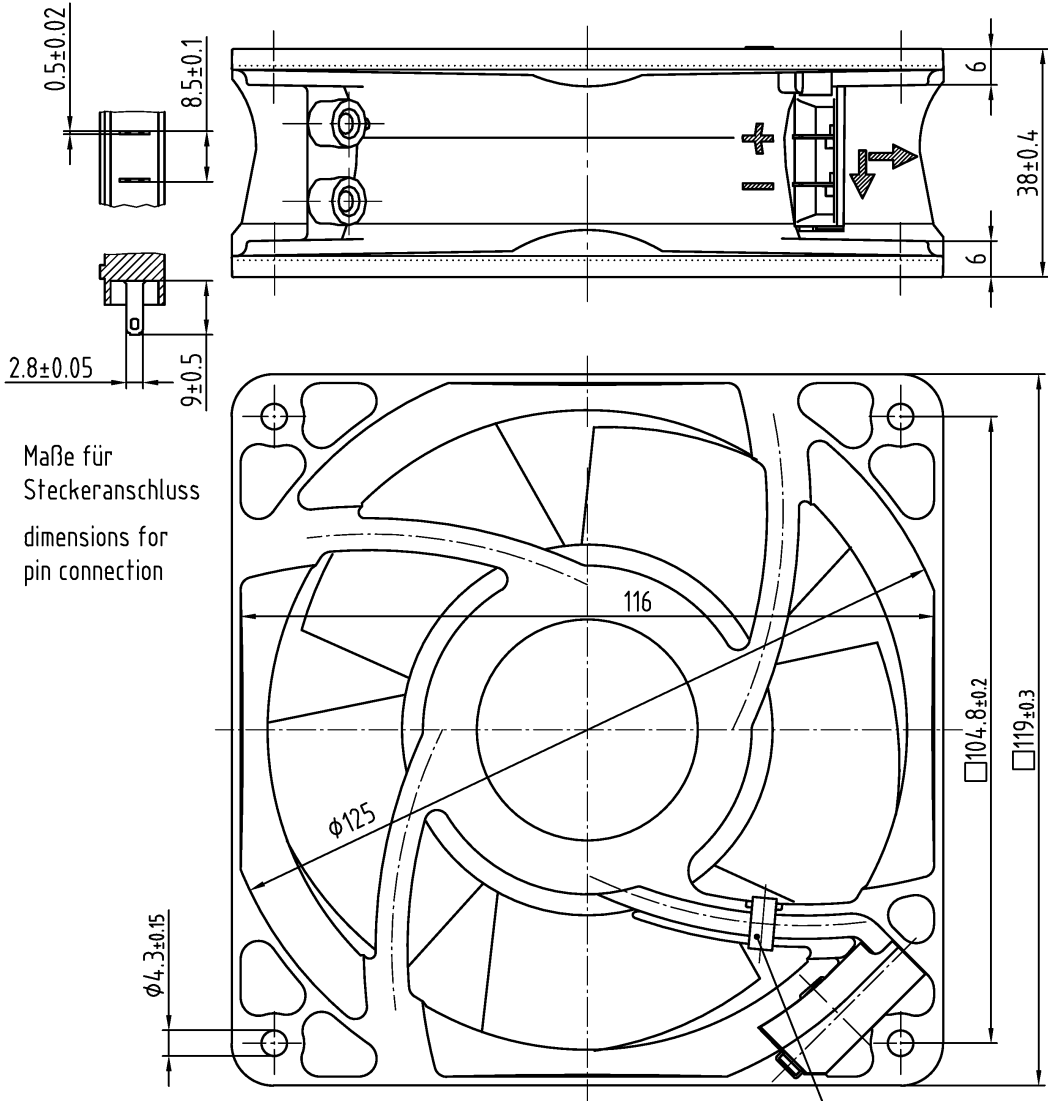
## 6 Reliability

### 6.1 General

Life expectancy L10 at TU = 40 °C	70.000 h	
Life expectancy L10 at TU max.	12.500 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	117.500 h	

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Schutzvermerk nach DIN ISO 16046 beachten/  
Refer to protection notice DIN ISO 16046!



Maße für Steckeranschluss  
dimensions for pin connection

Axialspiel bei  
- Kugellagerung (K): 0 (mit Federausgleich)  
- Gleitlagerung (G): 0.1 - 0.6

axial clearance by  
- ball bearing (K): 0 (with spring compensation)  
- sleeve bearing (G): 0.1 - 0.6

SAP-Status/State		Aend.-Nr./Change-No.		AutoCAD-System-Version		ebmpapst		Werkstoff/Material:		Volumen/Volume (mm <sup>3</sup> ):	
				Datum/Date		CAD-Umgebung/ CAD-Environment				Gewicht/Mass (g):	
Tolerierung/Tolerances:		Bearb./ Drawn		Name/Name		Artikel/Title					
Allgemeintoleranzen/Gen. tolerances:		Gepr./ Checked				Zchg.-Nr./ Drawing.-No.:		Ers.f.Zchg./ Replaces:			
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