# Product Data Sheet 4600 X

ebmpapst

The engineer's choice

GREEN TECH

**4600 X**

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## 1 General

| | |
|---|---|
| Fan type | Fan |
| Rotating direction looking at rotor | Clockwise |
| Airflow direction | Air intake over struts |
| Bearing system | Sleeve bearing |
| Mounting position - shaft | Any |
| Balancing grade | 2,5 |

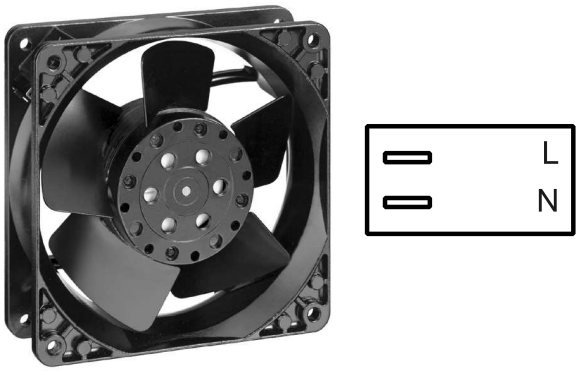
## 2 Mechanics

### 2.1 General

| | | |
|---|---|---|
| Width | 119,0 mm | |
| Height | 119,0 mm | |
| Depth | 38,0 mm | |
| Diameter | 0,0 mm | |
| Mass | 0,550 kg | |
| Housing material | Metal | |
| Impeller material | Metal | |
| Max. torque when mounted across both mounting flanges<br>Screw size | Wire outlet corner: 160 Ncm<br>Remaining corners: 160 Ncm<br>ISO 4762 - M3 degreased, without an additional brace and without washer | |

## 2.2 Connections

| | | |
|---|---|---|
| Electrical connection | Plug | |
| Lead wire length<br><br>Tolerance | See drawing | |
| Tube length<br><br>Tolerance | See drawing | |
| Wire size (AWG) | | |
| Insulation diameter | | |
| Plug | See drawing | |
| Contact | See drawing | |



## 3 Operating Data

### 3.1 Electrical Operating Data

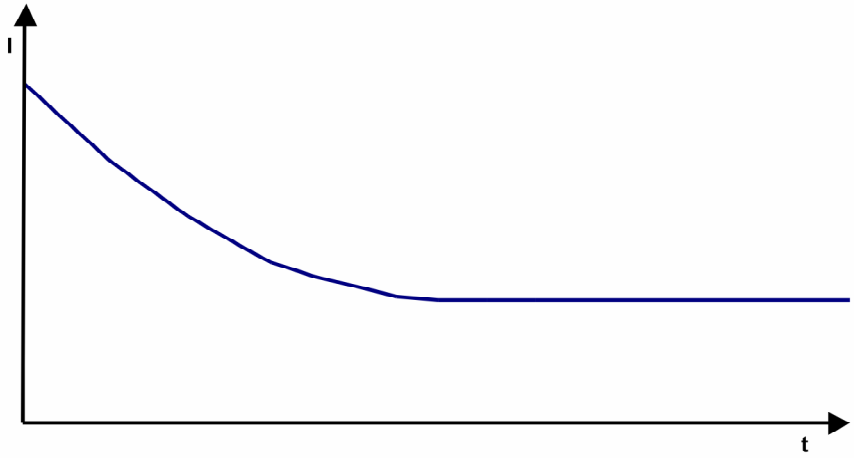
| | |
|---|---|
| Measurement conditions: | Normal air density = 1,2 kg/m3; Temperature 23°C +/- 3°C; Motor axis horizontal;warm-up time before measuring 5 minutes (unless otherwise specified).<br>In the intake and outlet area should not be any solid obstruction within 0,5 m. |

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

| Features | Condition | Symbol | Values | |
|---|---|---|---|---|
| Frequency | $\Delta p = 0$ | f | 50 Hz | 60 Hz |
| Nominal voltage<br>Tolerance | $\Delta p = 0$ | $U_N$ | 115 V<br>+- 10 % | 115 V<br>+- 10 % |
| Power consumption<br>Tolerance | $\Delta p = 0$ | P | 20 W<br>+ 5 % - 10 % | 20 W<br>+ 5 % - 10 % |
| Speed<br>Tolerance | $\Delta p = 0$ | n | 2.650 1/min<br>+- 3 % | 3.100 1/min<br>+- 3 % |

### 3.2 Electrical Features

| | |
|---|---|
| Locked rotor protection | Impedance |
| Locked rotor current at | |




### 3.3 Aerodynamics

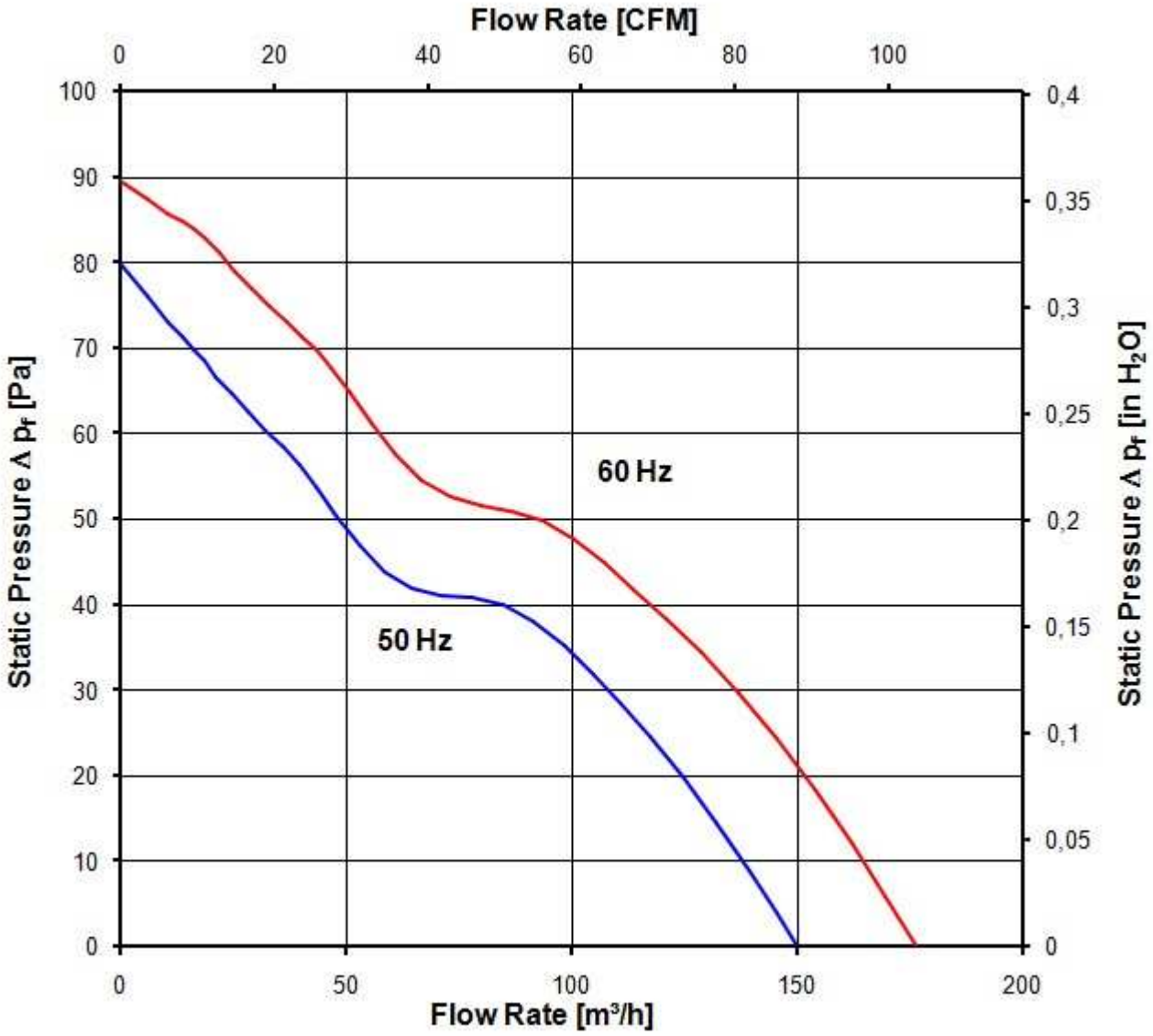
Measurement conditions: Measured with a double chamber intake rig acc. to DIN EN ISO 5801.
Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃;
In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.
The information is only valid under the specified 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:
2.650 1/min at free air flow Frequency: 50 Hz

| | |
|---|---|
| Max. free-air flow (Δp = 0 / $\dot{V}$ = max.) | 150,0 m3/h |
| Max. static pressure (Δp = max. / $\dot{V}$ =0) | 80 Pa |

b.) Operation condition:
3.100 1/min at free air flow Frequency: 60 Hz

| | |
|---|---|
| Max. free-air flow (Δp = 0 / $\dot{V}$ = max.) | 176,0 m3/h |
| Max. static pressure (Δp = max. / $\dot{V}$ =0) | 90 Pa |


Flow Rate [CFM]
0
20
40
60
80
100
Static Pressure Δ pf [Pa]
100
90
80
70
60
50
40
30
20
10
0
Static Pressure Δ pf [in H2O]
0,4
0,35
0,3
0,25
0,2
0,15
0,1
0,05
0
60 Hz
50 Hz
0
50
100
150
200
Flow Rate [m³/h]

### 3.4 Sound Data

| | |
|---|---|
| Measurement conditions: | Sound pressure level: 1 meter distance between microphone and the air intake.<br>Sound power level: Acc. to DIN 45635 part 38 (ISO 10302)Sound power level: Acc. to DIN 45635 part 38 (ISO 10302)<br>Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A)<br>For further measurement conditions see chapter aerodynamics. |

a.) Operation condition:
2.650 1/min at free air flow Frequency: 50 Hz

| | | |
|---|---|---|
| Optimal operating point | 120,0 m3/h @ 20 Pa | |
| Sound power level at the optimal operating point | 5,5 bel(A) | |
| Sound pressure level at free air flow, measured in rubber bands | 46,0 dB(A) | |

b.) Operation condition:
3.100 1/min at free air flow Frequency: 60 Hz

| | | |
|---|---|---|
| Optimal operating point | 140,0 m3/h @ 26 Pa | |
| Sound power level at the optimal operating point | 5,9 bel(A) | |
| Sound pressure level at free air flow, measured in rubber bands | 50,0 dB(A) | |

## 4 Environment

### 4.1 General

| | | |
|---|---|---|
| Min. permitted ambient temperature TU min. | -10 °C / 50 Hz<br>-10 °C / 60 Hz | |
| Max. permitted ambient temperature TU max. | 55 °C / 50 Hz<br>60 °C / 60 Hz | |
| 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.

## 5 Safety

### 5.1 Electrical Safety

| | |
|---|---|
| Dielectric strength<br>DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700)<br>A.) Type test<br>Measuring conditions: After 48h of storage at 95% R.H. and 25℃.<br>No arcing or breakdown is allowed!<br>All connections together to ground.<br>B.) Routine test<br>Measuring conditions: At indoor climate.<br>No arcing or breakdown is allowed!<br>All connections together to ground. | 1000 VAC / 1 Min.<br><br>1500 VAC / 1 Sec. |
| Isolation resistance<br>Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min. | RI > 50 MOhm |
| Clearance / creepage distance | 2,0 mm / 1,1 mm |
| Protection class | I |

### 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 | Yes / GB 12350 Safety Requirements for small Power Motors |

The approval tests are observed to:
U approval max.: 115 V / f: 60 Hz @ TU approval max.: 60 ℃

## 6 Reliability

### 6.1 General

| | | |
|---|---|---|
| Life expectancy L10 at TU = 40 ℃ | 37.500 h / 50 Hz<br>40.000 h / 60 Hz | |
| Life expectancy L10 at TU max. | 27.500 h / 50 Hz<br>25.000 h / 60 Hz | |

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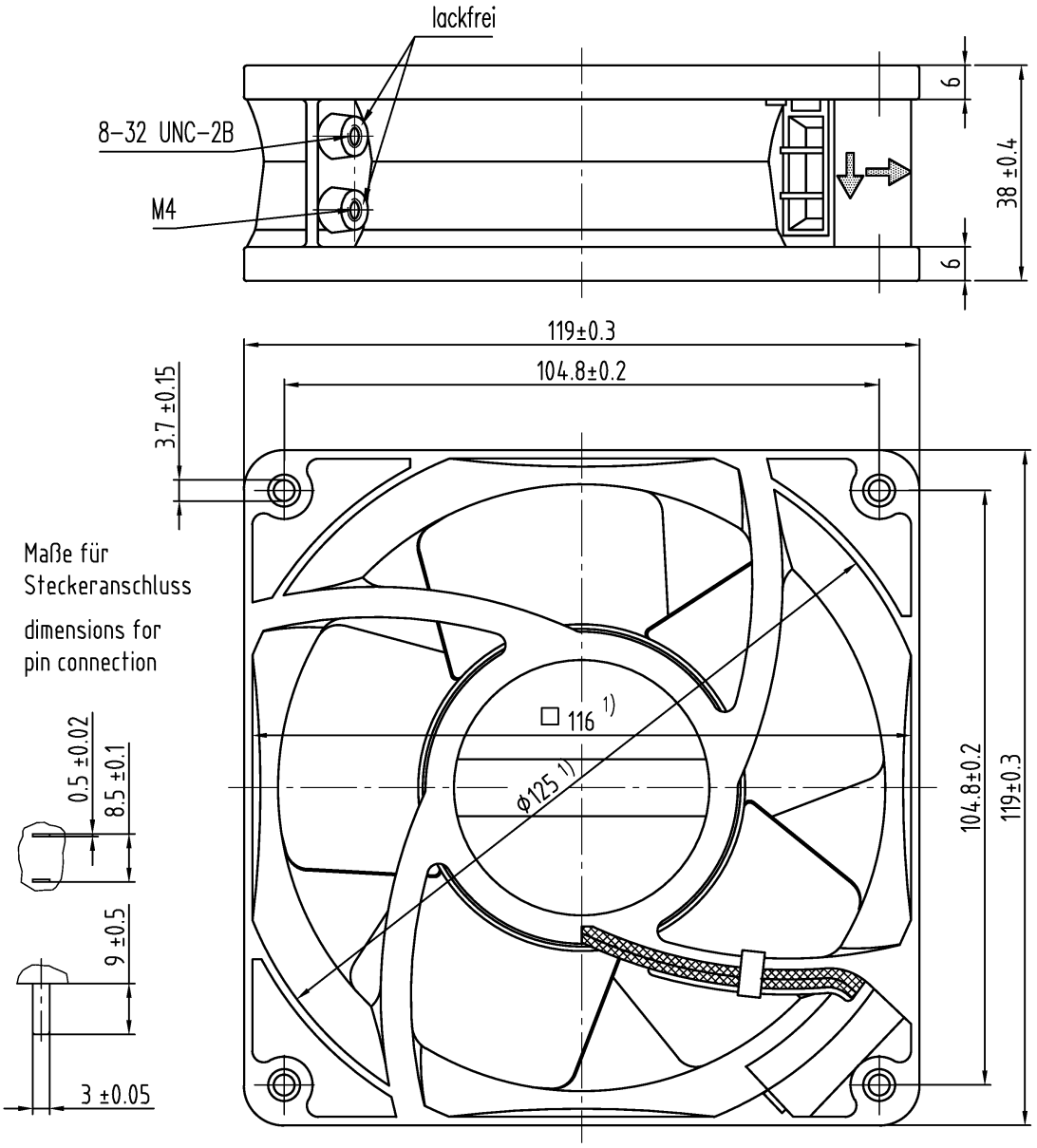


1) Maße für Montagewand

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

1) dimensions for assembly wall

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

| | | | | | |
|---|---|---|---|---|---|
| | | | ebmpapst | Werkstoff/Material: | Volumen/Volume (mm³): |
| SAP-Status/State | Aend.-Nr./Change-No. | AutoCAD-System-Version | CAD-Umgebung/ CAD-Enviroment | | Gewicht/Mass (g): |
| | | Datum/Date | Name/Name | | |
| | | Bearb./ Drawn | | Artikel/Title | |
| Tolerierung/Tolerances: | | Gepr./ Checked | | | |
| | | Freig./ Releas. | | | |
| Allgemeintoleranzen/Gen. tolerances: | | ebmpapst | | Zchg.-Nr./ Drawing.-No.: | Ers.f.Zchg./ Replaces: |
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