



4414 ML

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1 General

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

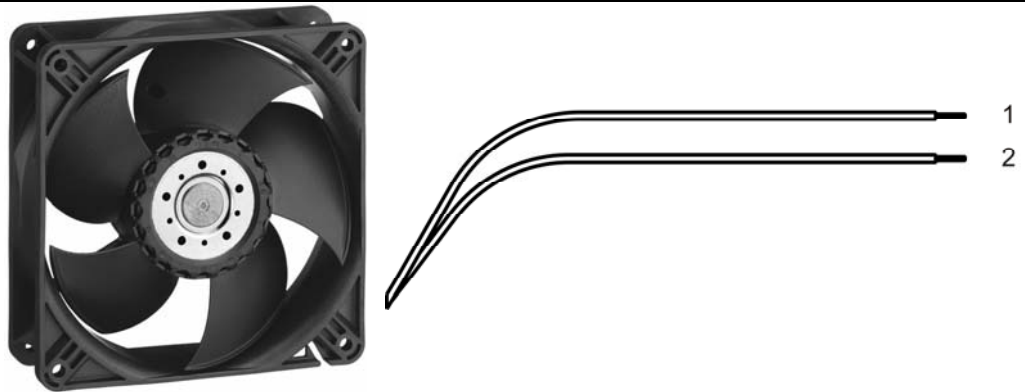
2 Mechanics

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 |
|---------------|------|

3.2 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). 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 | 12,0 V | | 28,0 V |
| Nominal voltage | $\Delta p = 0$ | U_N | | 24,0 V | |
| Power consumption | $\Delta p = 0$ | P | 0,75 W | 3,2 W | 4,5 W |
| Tolerance | 0001 | | +/- 17,5 % | +/- 12,5 % | +/- 15,0 % |
| Current consumption | $\Delta p = 0$ | I | 63 mA | 132 mA | 162 mA |
| Tolerance | 0001 | | +/- 17,5 % | +/- 12,5 % | +/- 15,0 % |
| Speed | $\Delta p = 0$ | n | 1.540 1/min | 3.000 1/min | 3.415 1/min |
| Tolerance | 0001 | | +/- 12,5 % | +/- 7,5 % | +/- 10,0 % |
| Starting current consumption | | | | < 1.040 mA | |

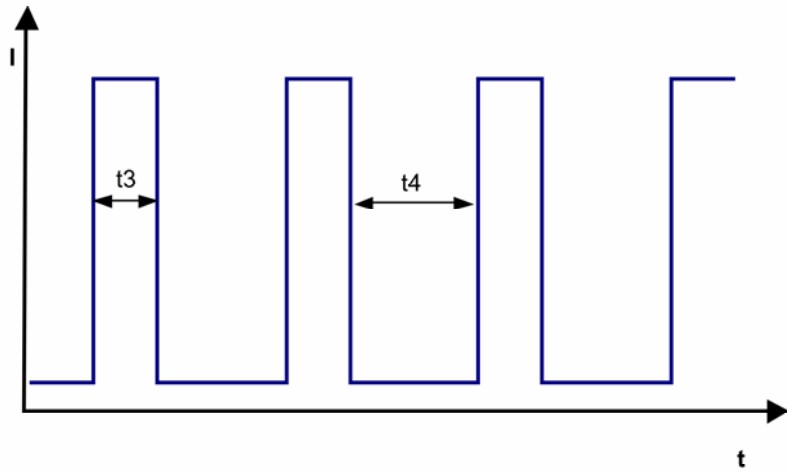
3.3 Operating Data - Electrical Interface -Output

| | |
|------------|------|
| Tacho type | None |
|------------|------|

| | |
|------------|------|
| Alarm type | None |
|------------|------|

3.4 Electrical Features

| | | |
|------------------------------------|------------------------|--|
| Electronic function | None | |
| Reversed polarity protection | Rectifying diode | |
| Max. residual current at U_N | IF <= 50 uA | |
| Locked rotor protection | Auto restart | |
| Locked rotor current at U_N | approx. 1.040 mA | |
| Clock signal t3/t4 at locked rotor | Typical: 0,5 s / 2,8 s | |



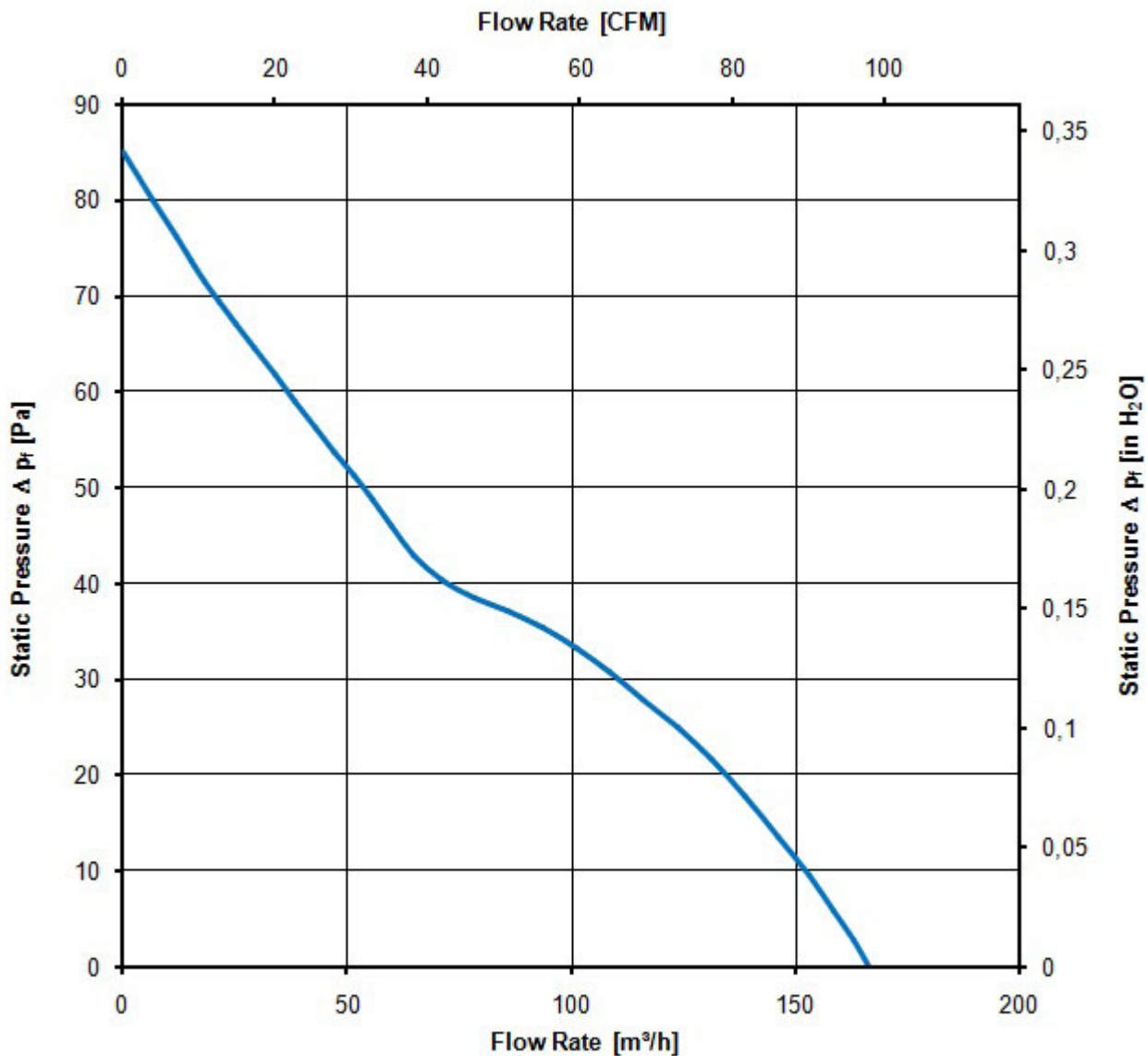
3.5 Aerodynamic

Measurement conditions: Measured with a double chamber intake rig acc. to DIN EN ISO 5801.
 Normal air density = 1,2 kg/m³; Temperature 23°C +/- 3°C;
 In the intake and outlet area should not be any solid obstruction within 0,5 m.

a.) Operation condition:

3.000 1/min at free air flow

| | | |
|-----------------------------------------------------------------|-------------------------|--|
| Max. free-air flow ($\Delta p = 0 / \dot{V} = \text{max.}$) | 168,0 m ³ /h | |
| Max. static pressure ($\Delta p = \text{max.} / \dot{V} = 0$) | 85 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:

| | | |
|-----------------------------------------------------------------|--------------------------------|--|
| 3.000 1/min at free air flow | | |
| Optimal operating point | 92,0 m ³ /h @ 32 Pa | |
| Sound power level at the optimal operating point | 5,1 bel(A) | |
| Sound pressure level at free air flow, measured in rubber bands | 40,0 dB(A) | |

4 Environment

4.1 General

| | | |
|--------------------------------------------|--------|--|
| Min. permitted ambient temperature TU min. | -20 °C | |
| Max. permitted ambient temperature TU max. | 80 °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. | 500 VAC / 1 Min. 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

| | |
|-----|-------------------------------------------------------------------------------|
| CE | Yes |
| UL | Yes / UL audited by CSA according to 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.: 75,0 °C

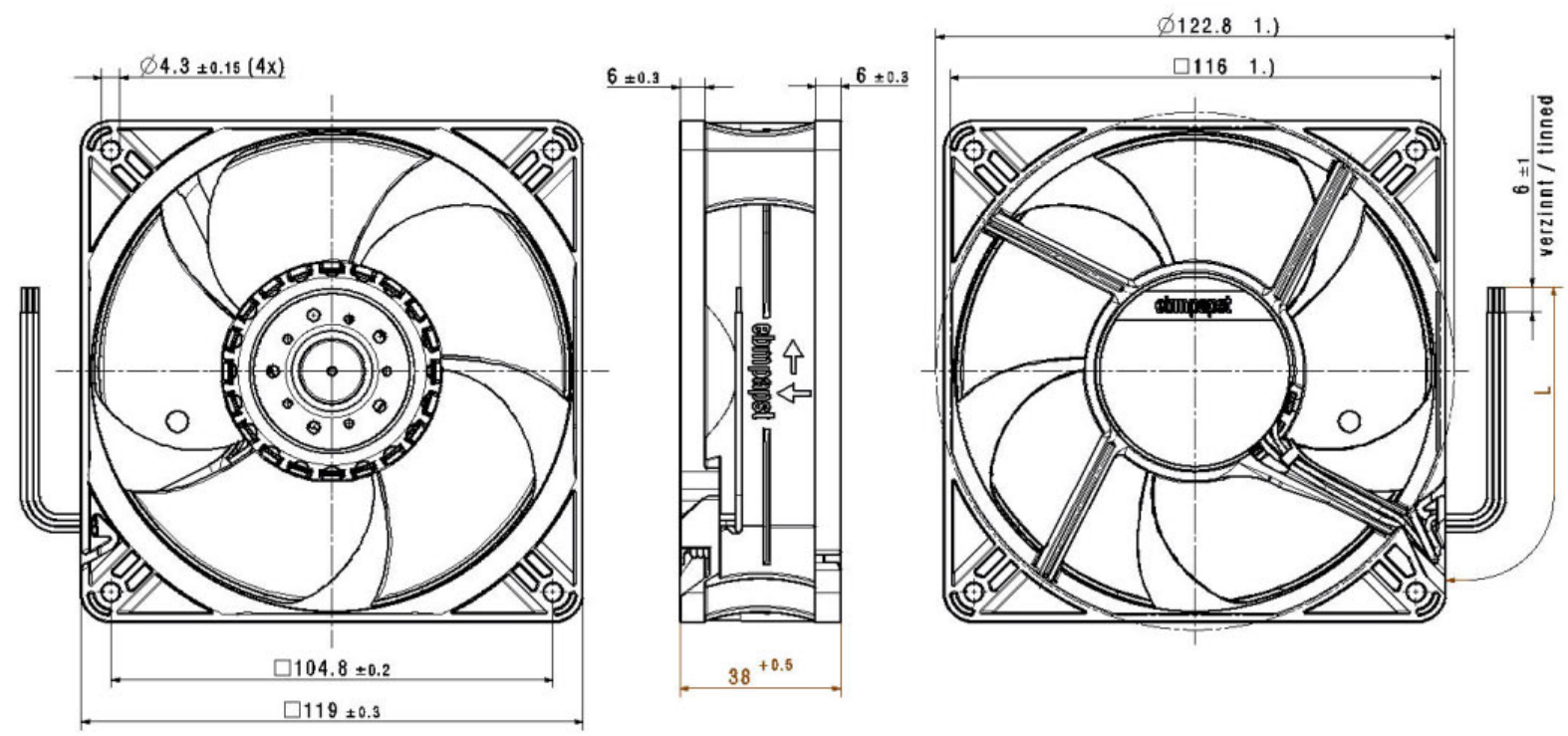
6 Reliability

6.1 General

| | | |
|-----------------------------------|-----------|--|
| Life expectancy L10 at TU = 40 °C | 65.000 h | |
| Life expectancy L10 Delta (40 °C) | 130.000 h | |

Quality of this document, and clarity of views and the use or readability of this document, does not constitute a warranty or liability for the manufacturer. It is the user's responsibility to ensure that the product is used in accordance with the instructions for use.

Informationen zum 3D-Modell (Datei) sind im Anhang 1 der Zeichnung zu finden.



Zeichnung entspricht 3D-Modell:
 Drawing is equivalent to 3D-Model:
 9283510500_CPA_000_A

- A**
- 1.) Maße fuer Montageausschnitt
 - max. Anziehdrehmoment = 0.8Nm
 - Axialspiel: mit Feder spielfrei verspannt
 - Anzahl und Länge der Litzen siehe BV- Bl. 1
- A**
- 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

| | | | | |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| BP-Status/Status | SMD-/SMT/ Durchloech- Technik | GEM-System-Verfahren/ GEM-System-Verfahren | GEM-System-Verfahren/ GEM-System-Verfahren | Material: Volume / Volumen (m³): Masse / Mass (g): |
| Toleranzang. / Tolerances: Allguedersetzungen / dev. tolerances: | Datum Name Bearb./ bear. Gepr./ checked Freige./ released | Artikel / Title: Züg.-Nr. / Drawing No.: Dr.-F.Zug. / Revision: | ebmpapst ebmpapst St.-Georgien GmbH & Co KG | Scherart / Type of Material: Teilnummer (Part No.): Farbe / Color: Form / Size: Beschrift./ Label: 2:1 |