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The engineer's choice

**ebmpapst**

# 6424

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**1 General**

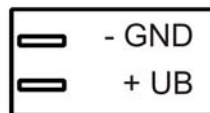
|                                       |                        |  |
|---------------------------------------|------------------------|--|
| Fan type                              | Fan                    |  |
| Rotational direction looking at rotor | counterclockwise       |  |
| Airflow direction 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

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

|   |   |  |
|---|---|--|
| Width   | 150,0 mm  |  |
| Depth   | 51,0 mm   |  |
| Diameter  | 172,0 mm  |  |
| Weight  | 0,760 kg  |  |
| Housing material                                      | Metal   |  |
| Impeller material                                     | Plastic   |  |
| Max. torque when mounted across both mounting flanges | wire outlet corner: 260 Ncm<br>remaining corners: 260 Ncm               |  |
| Screw size  | ISO 4762 - M4 degreased, without an additional brace and without washer |  |

**2.2 Connections**

|                       |      |  |
|-----------------------|------|--|
| Electrical connection | Plug |  |
| Length of lead wire   |      |  |
| Tolerance             |      |  |
| Wire gauge (AWG)      |      |  |
| Insulation diameter   |      |  |



**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/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      | 12,0 V                   |                          | 28,0 V                   |
| Nominal voltage                  | $\Delta p = 0$         | $U_N$  |                          | 24,0 V                   |                          |
| Power consumption<br>Tolerance   | $\Delta p = 0$<br>0001 | P      | 3,1 W<br>+- 25,0 %       | 15,6 W<br>+- 25,0 %      | 21,1 W<br>+- 20,0 %      |
| Current consumption<br>Tolerance | $\Delta p = 0$<br>0001 | I      | 260 mA<br>+- 25,0 %      | 650 mA<br>+- 25,0 %      | 755 mA<br>+- 20,0 %      |
| Speed<br>Tolerance               | $\Delta p = 0$<br>0001 | n      | 1.750 1/min<br>+- 10,0 % | 3.400 1/min<br>+- 10,0 % | 3.850 1/min<br>+- 10,0 % |
| Starting current consumption     |                        |        |                          | 4.000 mA                 |                          |

No inrush current means: Inrush current is mainly affected by length and kind of connecting line 120uF

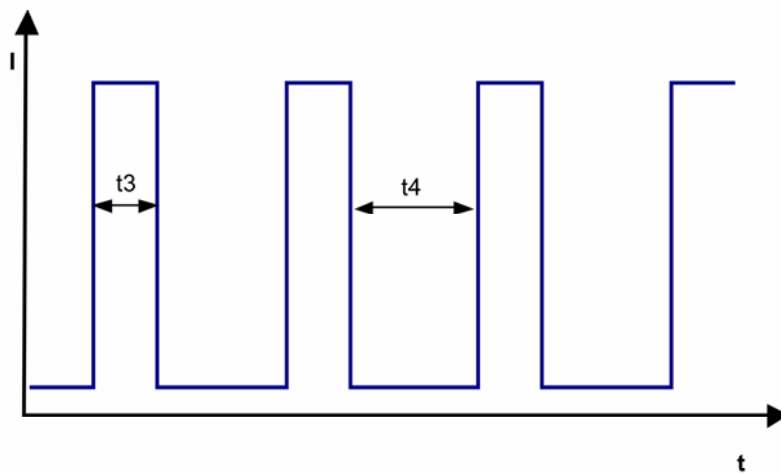
### 3.3 Operating Data - Electrical Interface -Output

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

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

### 3.4 Electrical Features

|  |                          |  |
|--|--------------------------|--|
| Electronic function                    | None                     |  |
| Reversed polarity protection           | Rectifying diode         |  |
| Max. residual current at $U_n$         | $I_F \leq 10 \text{ mA}$ |  |
| Locked rotor protection                | Auto restart             |  |
| Locked rotor current at $U_n$          | approx. 4.000 mA         |  |
| Clock signal $t_3/t_4$ at locked rotor | Typical: 1,4 s / 5,3 s   |  |



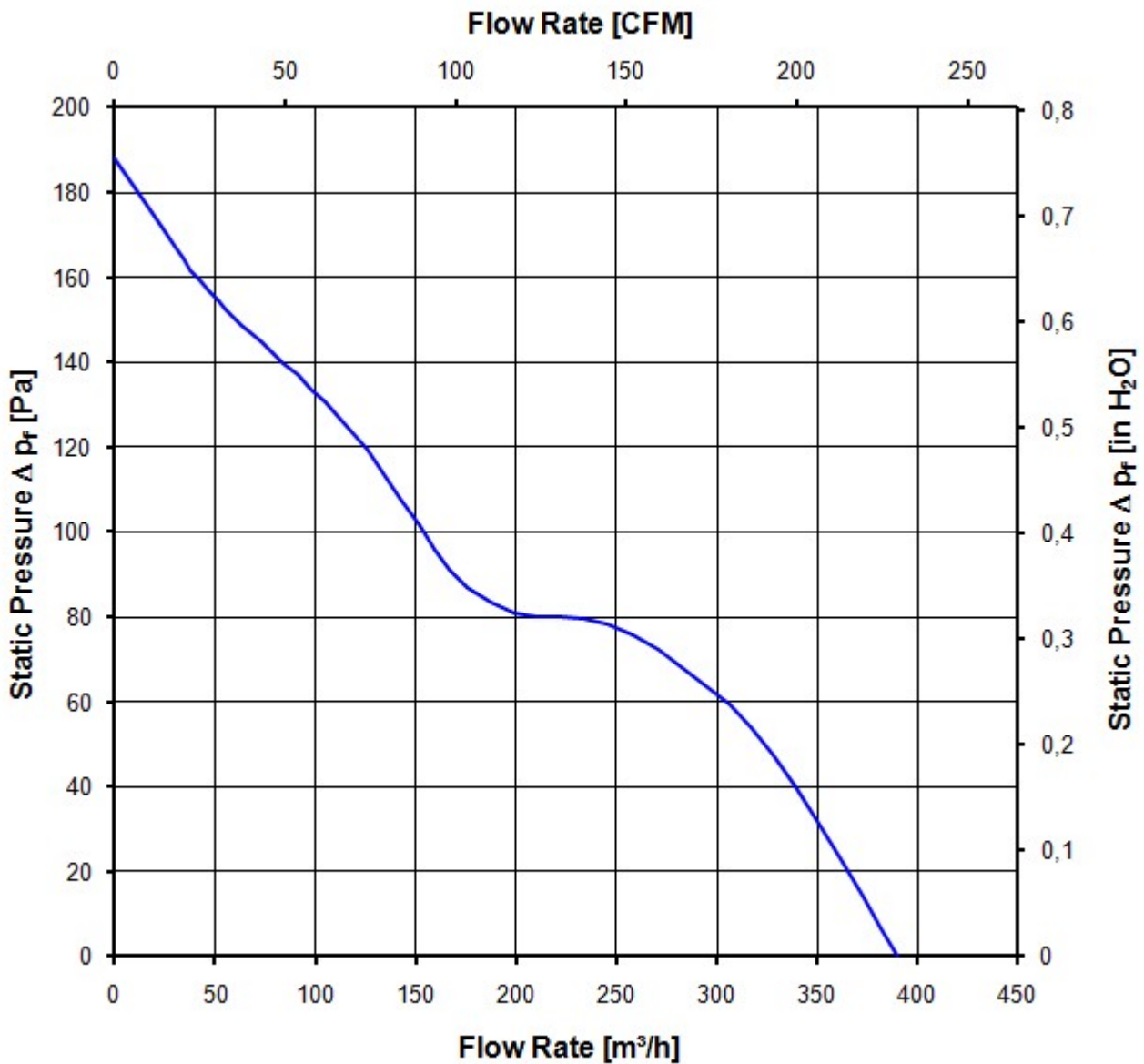
### 3.5 Aerodynamic

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:

|                              |
|------------------------------|
| 3.400 1/min at free air flow |
|------------------------------|

|   |                         |  |
|---|-------------------------|--|
| Max. free-air flow ( $\Delta p = 0 / \dot{V} = \text{max.}$ )   | 390,0 m <sup>3</sup> /h |  |
| Max. static pressure ( $\Delta p = \text{max.} / \dot{V} = 0$ ) | 188 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:

|   |                                 |  |
|---|---------------------------------|--|
| 3.400 1/min at free air flow                                    |                                 |  |
| Optimal operating point   | 275,0 m <sup>3</sup> /h @ 61 Pa |  |
| Sound power level at the optimal operating point                | 6,4 bel(A)                      |  |
| Sound pressure level at free air flow, measured in rubber bands | 55,0 dB(A)                      |  |

## 4 Environment

### 4.1 General

|  |        |  |
|--|--------|--|
| Min. permitted ambient temperature TU min. | -20 °C |  |
| Max. permitted ambient temperature TU max. | 72 °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<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°C.<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. | 500 VAC / 1 Min.<br><br>500 VAC / 1 Sec. |  |
| Isolation resistance<br>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:

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

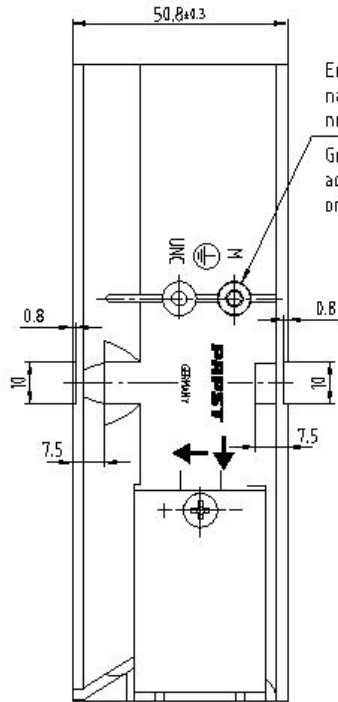
## 6 Reliability

### 6.1 General

|                                   |           |  |
|-----------------------------------|-----------|--|
| Life expectancy L10 at TU = 40 °C | 75.000 h  |  |
| Life expectancy L10 at TU max.    | 35.000 h  |  |
| Life expectancy L10 Delta (40 °C) | 125.000 h |  |

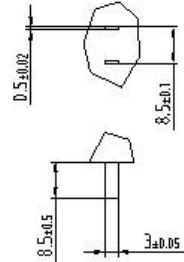
Design of the frames and pins (to which and how the components of the assembly listed are attached) is subject to change without notice. In the event of a request for a part or the replacement of a part, please refer to the drawing.

Subassembly such as DIN ISO 1606 backstop refer to specification with DIN ISO 1606



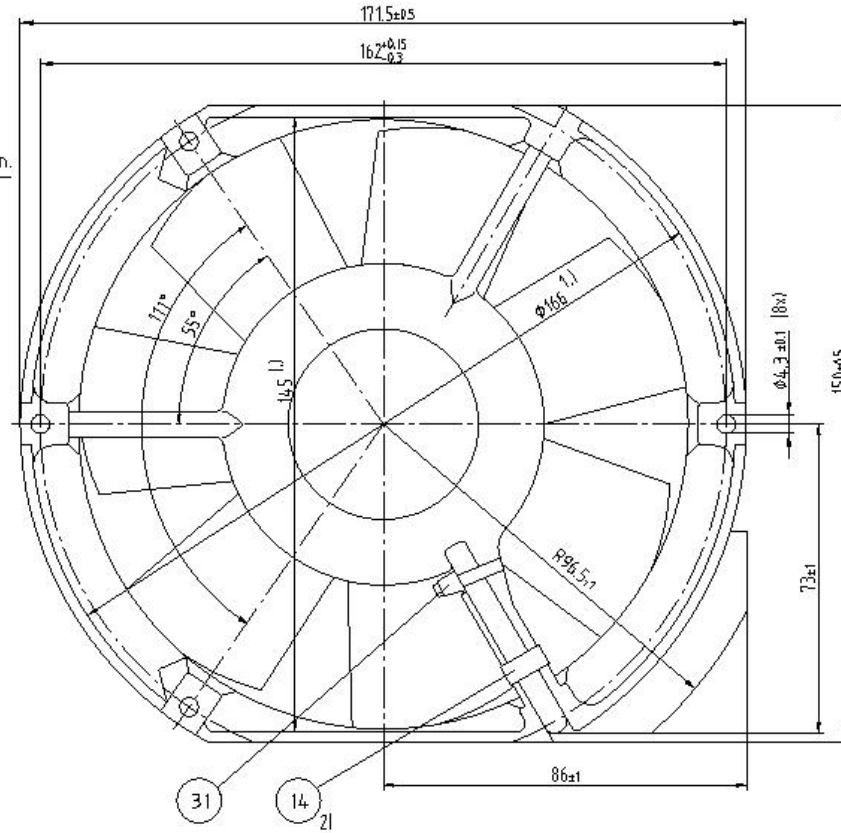
①  
Erdungsschraube Duo-TapTite nach DIN 7500, CM 4x8, Torx nur, wenn in Unterstückliste enthalten.  
Grounding screw Duo-TapTite according to DIN 7500, CM 4x8, Torx only, if contained in sub-bill of material.

Maße für Steckeranschluss  
dimensions for plug connector



- Axialspiel: mit Feder spielfrei verspannt
- 1) Maße für Montagewand
- 2) nur, wenn in Stückliste enthalten

- without axial clearance by a pre-loaded spring
- 1) dimensions for assembly wall
- 2) only, if contained in bill of material



| SW-Stufe/Step                     | Rev./Change-# | Artik.-No./Part-Num.               | ebmpapst<br>CDD - Drehschm./<br>CDD - Environment | Werkstoff/Material  | Volumen/Volume [cm³/l] |
|-----------------------------------|---------------|------------------------------------|---|---------------------|------------------------|
|                                   |               | Edm/Edm                            | Name/Name   |                     | Gewicht/Weight [g]     |
|                                   |               | Bearb./<br>Drawn                   |   | Artikel/Title       |                        |
| Toleranz/Tolerance:               |               | Rev./<br>Revised                   |   |                     |                        |
| Allgemeintoleranz/Gen. tolerances |               | <b>ebmpapst</b>                    |   | Zug-/Nr./ Drawing-# | Erst-/Zugl./ Replaces  |
|                                   |               | ebmpapst St. Georgen GmbH & Co. KG |   | Edm/Type of Drawn   | Feld/Sheet (Edm/Edm)   |
|                                   |               |                                    |   | Ind./Ind.           | Form/Size              |
|                                   |               |                                    |   |                     | Maßstab/Scale          |