

**Product Data Sheet**

**9695480195**

VWS0149XULCZ

6314/17HAR-195

**ebm**papst

The engineer's choice



6314/17HAR-195

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## 1 General

|                                     |                        |  |
|-------------------------------------|------------------------|--|
| Fan type                            | Fan                    |  |
| Rotating direction looking at rotor | Counterclockwise       |  |
| Airflow direction                   | Air outlet over struts |  |
| Bearing system                      | Ball bearing           |  |
| Mounting position - shaft           | Any                    |  |

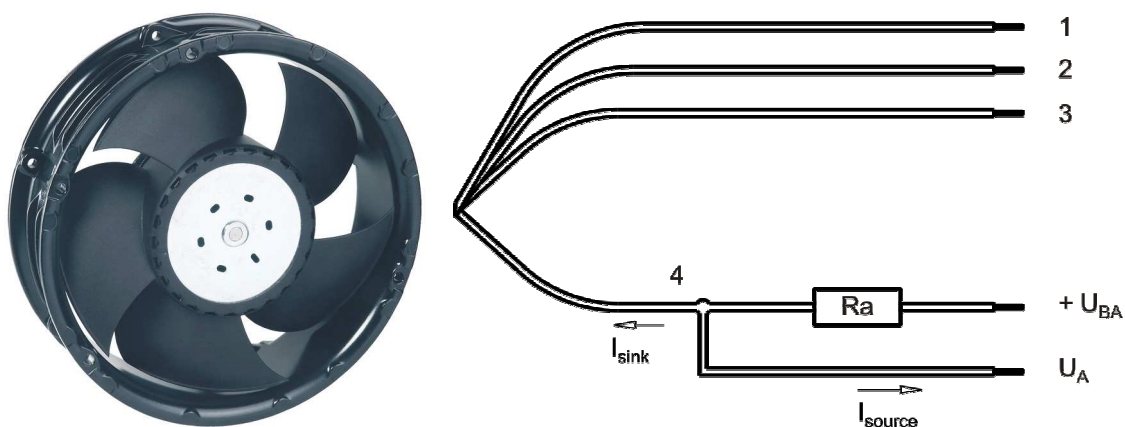
## 2 Mechanics

### 2.1 General

|                                                       |                                                                         |  |
|-------------------------------------------------------|-------------------------------------------------------------------------|--|
| Depth                                                 | 51,0 mm                                                                 |  |
| Diameter                                              | 172,0 mm                                                                |  |
| Mass                                                  | 0,825 kg                                                                |  |
| Housing material                                      | Metal                                                                   |  |
| Impeller material                                     | Plastic                                                                 |  |
| Max. torque when mounted across both mounting flanges | Wire outlet corner: 600 Ncm<br>Remaining corners: 600 Ncm               |  |
| Screw size                                            | ISO 4762 - M4 degreased, without an additional brace and without washer |  |

### 2.2 Connections

|                       |              |  |
|-----------------------|--------------|--|
| Electrical connection | Cable        |  |
| Lead wire length      | L = 4.200 mm |  |
| Tolerance             | +/- 50 mm    |  |
| Tube length           | S = 10 mm    |  |
| Tolerance             | +/- 3 mm     |  |
| Plug                  | See drawing  |  |
| Contact               | See drawing  |  |



| Wire | Color | Operation | Wire size | Insulation diameter |
|------|-------|-----------|-----------|---------------------|
| 1    | red   | + UB      | AWG 22    | 1,7 mm              |
| 2    | black | - GND     | AWG 22    | 1,7 mm              |
| 3    | brown | CONTR     | AWG 22    | 1,7 mm              |
| 4    | white | Alarm     | AWG 22    | 1,7 mm              |

The auxiliaries shown on the schematic diagram (which are required for the intended use) are not part of our delivery.

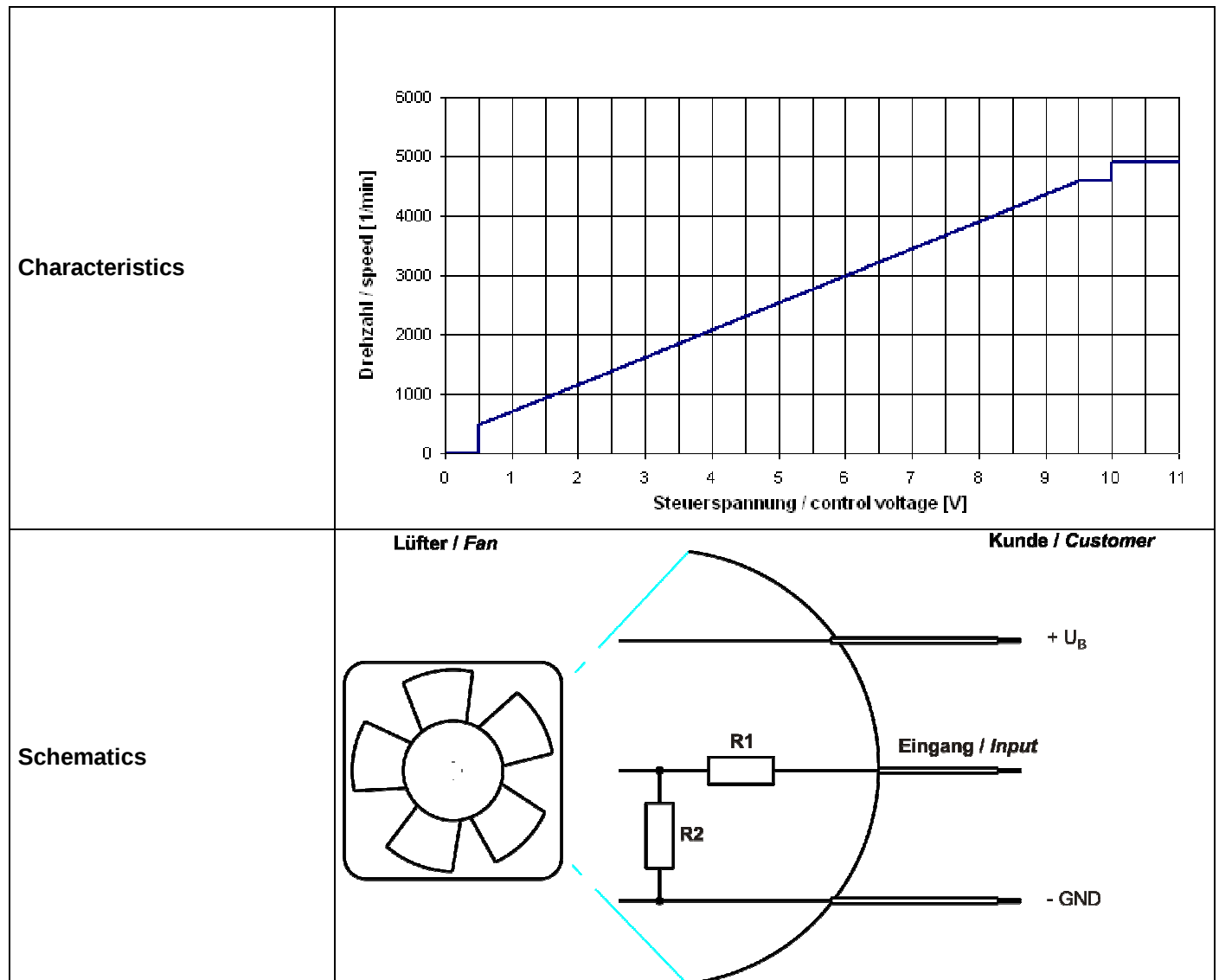
### 3 Operating Data

#### 3.1 Electrical Interface - Input

|               |        |
|---------------|--------|
| Control input | Analog |
|---------------|--------|

#### Features

|                     |              |
|---------------------|--------------|
| Input voltage range | 0 V - 11,0 V |
|---------------------|--------------|



The programmed speed curve is the same for the fans 9695480194 and 9695480195. Because of the 4.2 meter long connection cable of the 9695480195 there is a slightly different characteristic curve at 9.5 V or 10 V analog control voltage.

### 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 chapter aerodynamics)  
 I: corresp. to arithm. mean current value

| Name          | Condition        |
|---------------|------------------|
| U Contr. 0001 | U Contr.: 11,0 V |

**Note to the inrush current:**

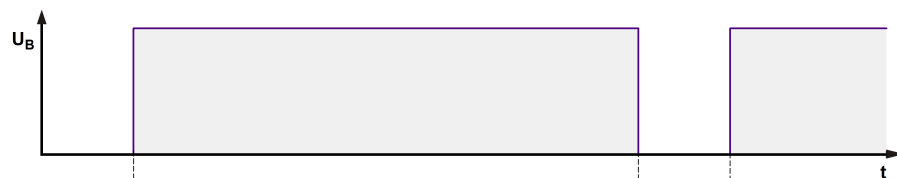
The internal electrolytic capacitor 120  $\mu$ F / 50V has no resistor or inrush current limitation, essentially the type and length of the connecting cable is limiting the Inrush current.

| Features                     | Condition      | Symbol | Values      |             |             |
|------------------------------|----------------|--------|-------------|-------------|-------------|
| Voltage range                |                | U      | 12,0 V      |             | 28,0 V      |
| Nominal voltage              |                | $U_N$  |             | 24,0 V      |             |
| Power consumption            | $\Delta p = 0$ | P      | 6,6 W       | 30 W        | 29,8 W      |
| Tolerance                    | U Contr. 0010  |        | +/- 17,5 %  | +/- 15 %    | +/- 15 %    |
| Current consumption          | $\Delta p = 0$ | I      | 560 mA      | 1.250 mA    | 1.070 mA    |
| Tolerance                    | U Contr. 0010  |        | +/- 17,5 %  | +/- 15 %    | +/- 15 %    |
| Speed                        | $\Delta p = 0$ | n      | 2.450 1/min | 4.800 1/min | 4.900 1/min |
| Tolerance                    | U Contr. 0010  |        | +/- 10 %    | +/- 5 %     | +/- 5 %     |
| Starting current consumption |                |        |             | <= 2.000 mA |             |

## 3.3 Electrical Interface - Output

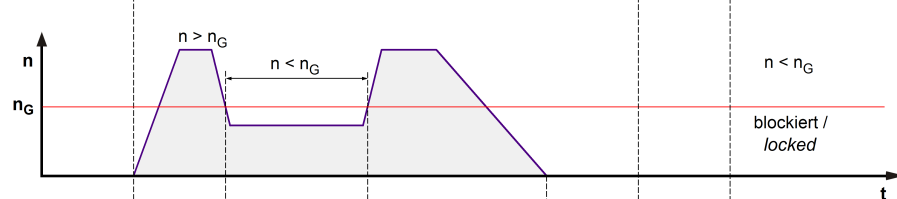
|            |                                 |
|------------|---------------------------------|
| Alarm type | /17 (high = ok, open collector) |
|------------|---------------------------------|

Versorgungsspannung / Supply voltage

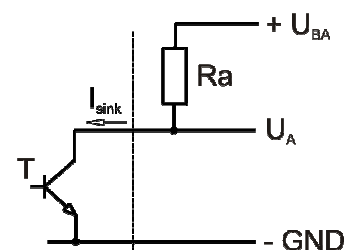


$$R_a = \frac{U_{BA} - U_{A\text{ low}}}{I_{\text{sink}}}$$

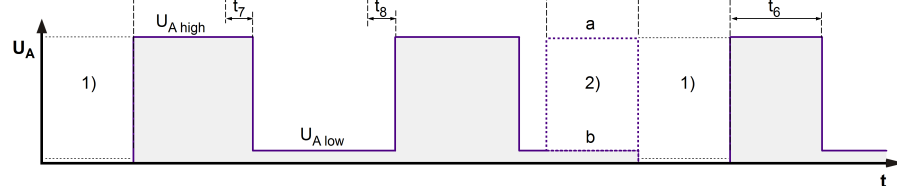
Lüfter-Drehzahl / Fan speed



Lüfter / Fan      Kunde / Customer



Alarmsignal / Alarm signal



1) Wenn der Lüfter abgeschaltet ist, hängt der Zustand des Ausgangssignals  $U_A$  von der Kundenapplikation ab.

When the fan is powered off, the output signal  $U_A$  depends on the customer's application.

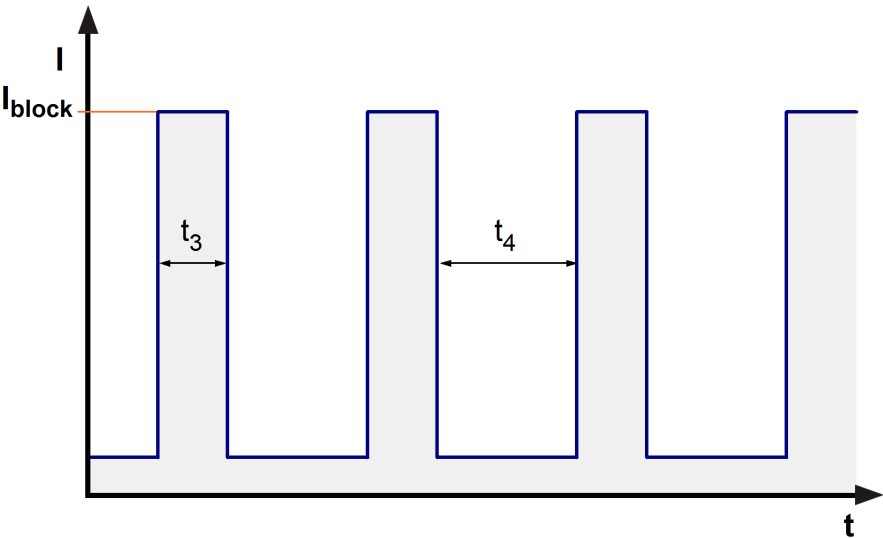
2) Für den gültigen Zustand (a oder b) siehe Alarmunterdrückung in der Tabelle.

For the valid condition (a or b) see alarm suppression in the table.

| Features                                          | Note                                                                                  | Values                |
|---------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------|
| Alarm operating voltage $U_{BA}$                  |                                                                                       | $\leq 60,0 \text{ V}$ |
| Alarm signal Low $U_{A\text{ low}}$               | $I_{\text{sink}}: 2 \text{ mA}$                                                       | $\leq 0,4 \text{ V}$  |
| Alarm signal High $U_{A\text{ high}}$             | $I_{\text{source}}: 0 \text{ mA}$                                                     | $\leq 60,0 \text{ V}$ |
| Maximum sink current $I_{\text{sink}}$            |                                                                                       | 20 mA                 |
| Leakage current                                   |                                                                                       | 75 $\mu\text{A}$      |
| External resistor                                 | External resistor $R_a$ from $U_{BA}$ to $U_A$ required. All voltage measured to GND. |                       |
| Alarm start-up delay time $t_6$                   |                                                                                       | 10,0 s                |
| Tolerance                                         |                                                                                       | + - 1,0 s             |
| Alarm delay time $t_7$                            |                                                                                       | 5,0 s                 |
| Tolerance                                         |                                                                                       | + - 1,0 s             |
| Alarm trip speed limit of the nominal Speed $n_G$ |                                                                                       | 75 %                  |
| Tolerance                                         |                                                                                       | + - 5 %               |
| Alarm at sense failure                            | No                                                                                    |                       |
| Alarm latch                                       | No                                                                                    |                       |
| Alarm isolated from motor                         | No                                                                                    |                       |

**3.4     Electrical Features**

|                                |                                                                                          |  |
|--------------------------------|------------------------------------------------------------------------------------------|--|
| Electronic function            | Speed-Controlled                                                                         |  |
| 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 $U_N$  | $I_{block}$ approx. 3.000 mA                                                             |  |
| Clock signal at locked rotor   | $t_3 / t_4$ typical: 0,5 s / 10,0 s                                                      |  |
| Internal fuse                  | Littelfuse NANO2 > Very Fast-Acting > 451/453 Series<br>4A / 125V (Art.No.: 0451004.MRL) |  |



### 3.5 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:

|                              |                 |  |  |
|------------------------------|-----------------|--|--|
| 4.800 1/min at free air flow | U Contr. 11,0 V |  |  |
|------------------------------|-----------------|--|--|

|                                                           |                       |  |
|-----------------------------------------------------------|-----------------------|--|
| Max. free-air flow ( $\Delta p = 0 / \dot{V} = \max.$ )   | 525 m <sup>3</sup> /h |  |
| Max. static pressure ( $\Delta p = \max. / \dot{V} = 0$ ) | 375 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 chapter aerodynamics.

a.) Operation condition:

|                                                                 |                                |  |  |
|-----------------------------------------------------------------|--------------------------------|--|--|
| 4.800 1/min at free air flow                                    | U Contr. 11,0 V                |  |  |
| Optimal operating point                                         | 430 m <sup>3</sup> /h @ 107 Pa |  |  |
| Sound power level at the optimal operating point                | 6,8 bel(A)                     |  |  |
| Sound pressure level at free air flow, measured in rubber bands | 57,0 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, 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<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>850 VDC / 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                             |  |
| 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 E38324                                             |
| 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**

