KARTA KATALOGOWA

# 3314 NNU

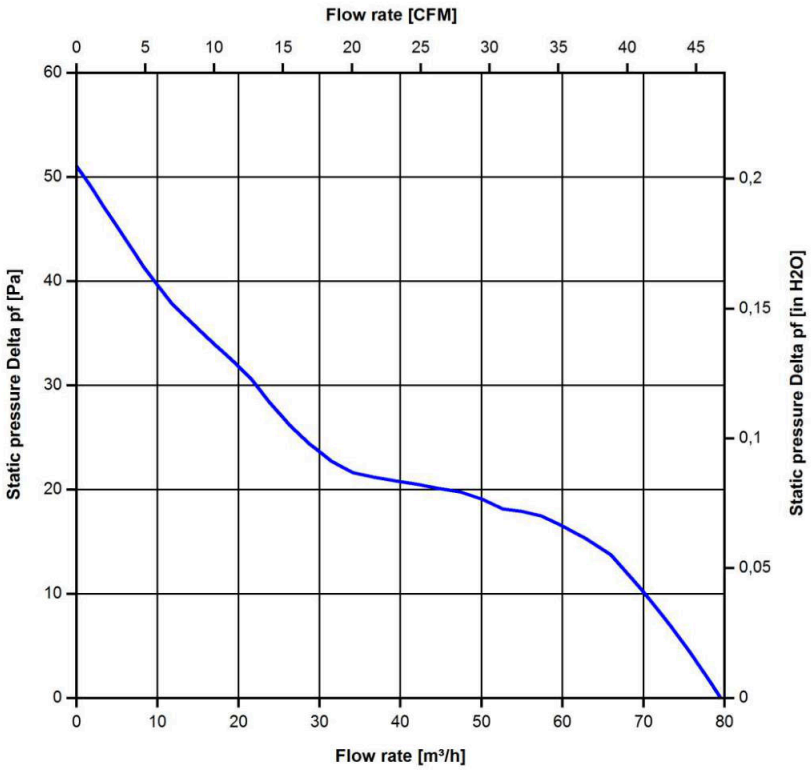
Wentylator osiowy kompaktowy DC

Producent: ebm-papst

| Dane znamionowe | |
|---|---|
| Napięcie znamionowe | **24 V DC (12…28 V DC)** |
| Prędkość obrotowa | **2650 obr/min** |
| Pobór mocy | **1,6 W** |
| Pobór prądu | **65 mA** |
| Wydajność | **80 m³/h** |
| Maks. ciśnienie statyczne | **50 Pa** |
| Poziom ciśnienia akustycznego | **33 dB(A)** |
| Poziom mocy akustycznej | **4,7 B** |
| Temperatura otoczenia | **−20…+75 °C** |

| Budowa | |
|---|---|
| Wymiary | **92 × 92 × 32 mm** |
| Materiał wirnika | **tworzywo sztuczne** |
| Obudowa | **tworzywo sztuczne** |
| Kierunek przepływu | **wydmuch przez żebra** |
| Podłączenie | **przewody** |
| Trwałość L10 (40 °C) | **77500 h** |

## Charakterystyka przepływowa




Dane na okładce odczytane z karty produktu ebm-papst (oryginał na kolejnych stronach).
Producent zastrzega możliwość zmian.

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# Product Data Sheet 9293510109

VWCE092PJGHS
3314 NNU

ebmpapst

engineering a better life

**Product Data Sheet**

**9293510109**
VWCE092PJGHS
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**3314 NNU**

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**Product Data Sheet**

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## 1 General

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

## 2 Mechanics

### 2.1 General

| | | |
|---|---|---|
| Width | 92,0 mm | |
| Height | 92,0 mm | |
| Depth | 32 mm | |
| Mass | 0,22 kg | |
| Housing material | Plastic | |
| Impeller material | Plastic | |
| Max. torque when mounted across both mounting flanges<br>Screw size | Wire outlet corner: 80 Ncm<br>Remaining corners: 80 Ncm<br>ISO 4762 - M4 degreased, without an additional brace and without washer | |

### 2.2 Connections

| | | |
|---|---|---|
| Electrical connection | Wires | |
| Lead wire length<br>Tolerance | L = 310 mm<br>+- 10,0 mm | |
| Wire size (AWG) | | |
| Insulation diameter | 1,5 mm | |

| Wire | Color | Operation | Wire size | Insulation diameter |
|---|---|---|---|---|
| 1 | red | + UB | AWG 24 | |
| 2 | blue | - GND | AWG 24 | |

## 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). In the intake and outlet area should not be any solid obstruction within 0,5 m.

Δp = 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 | | 28 V |
| Nominal voltage | | $U_N$ | | 24 V | |
| Power consumption<br>Tolerance | Δp = 0<br>0010 | P | 0,4 W<br>+- 17,5 % | 1,6 W<br>+- 12,5 % | 2,1 W<br>+- 15 % |
| Current consumption<br>Tolerance | Δp = 0<br>0010 | I | 30 mA<br>+- 17,5 % | 65 mA<br>+- 12,5 % | 75 mA<br>+- 15 % |
| Speed<br>Tolerance | Δp = 0<br>0010 | n | 1.350 1/min<br>+- 12,5 % | 2.650 1/min<br>+- 7,5 % | 3.000 1/min<br>+- 10 % |
| Starting current consumption | | | | 400 mA | |

### 3.2 Electrical Features

| | | |
|---|---|---|
| Electronic function | None | |
| Reversed polarity protection<br>Max. residual current at $U_N$ | Rectifying diode<br>$I_F$ < 100 uA | |
| Locked rotor protection | Auto restart | |
| Locked rotor current at $U_N$ | $I_{block}$ approx. 450 mA | |
| Clock signal at locked rotor | $t_3$ / $t_4$ typical: 0,4 s / 5 s | |

locked Rotor at 24V
Startup current at 24V; 0-2650 rpm
Typical running current at 24V - free blowing, 2650 rpm

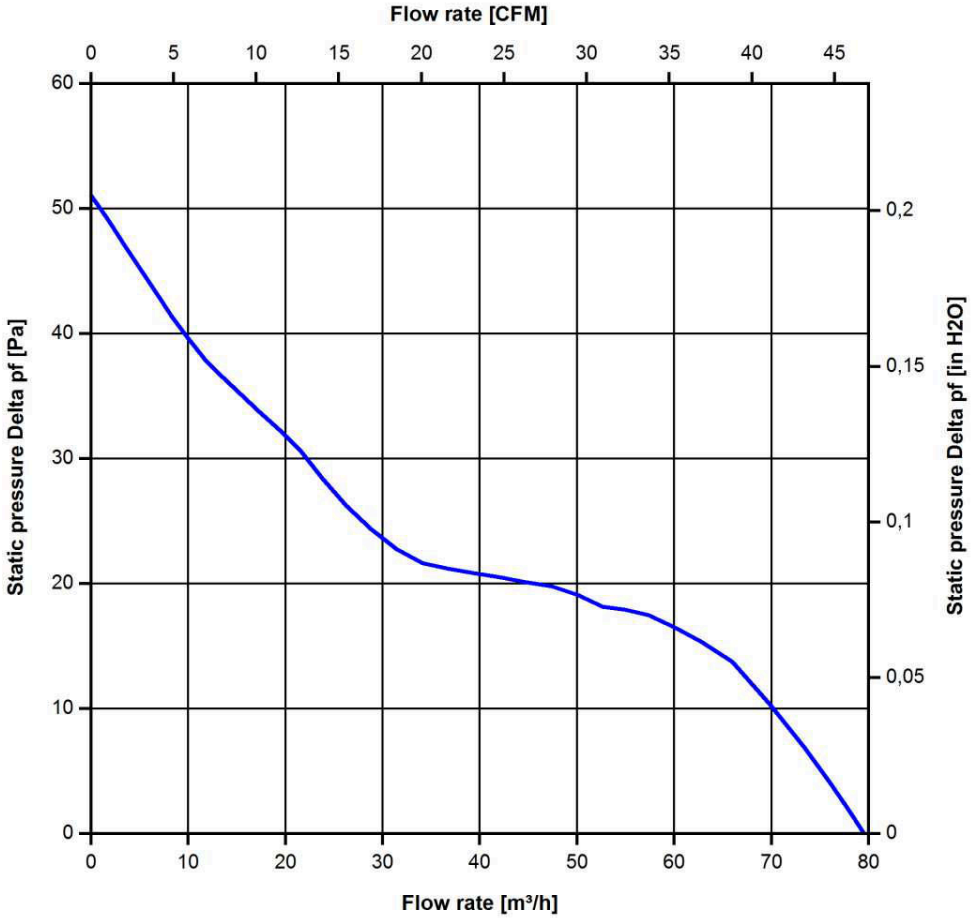
### 3.3 Aerodynamics

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

| | | |
|---|---|---|
| Max. free-air flow (Δp = 0 / $\dot{V}$ = max.) | 80,0 m3/h | |
| Max. static pressure (Δp = max. / $\dot{V}$ =0) | 50 Pa | |



### 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)<br>Measured in a semianechoic 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 |

| | | |
|---|---|---|
| Optimal operating point | 69,0 m3/h @ 10 Pa | |
| Sound power level at the optimal operating point | 4,7 bel(A) | |
| Sound pressure level at free air flow, measured in rubber bands | 33,0 dB(A) | |

## 4 Environment

### 4.1 General

| | | |
|---|---|---|
| Min. permitted ambient temperature TU min. | -20 °C | |
| Max. permitted ambient temperature TU max. | 75 °C | |
| Min. permitted storage temperature TL min. | -40 °C | |
| Max. permitted storage temperature TL max. | 80 °C | |

### 4.2 Climatic Requirements

| | | |
|---|---|---|
| IP-protection type (certified) | IP 68 (for fan only, not for connector if applicable) **) | |
| Humidity requirements | humid temperature, cyclic; according to DIN EN 60068-2-38, 10 cycle and condensation water check; according to DIN EN ISO 6270-2, 14 days | |
| Salt fog requirements | Salt fog, cylic, in operation; according to DIN EN 60068-2-52; 10 cycles | |

Permitted application area:
The product is for the use in open and unsheltered areas. Direct exposure to water as well as saline ambient conditions are allowed provided that this does not prevent the normal operation.

Pollution degree 4 (according DIN EN 60664-1)
It occurs permanent conductivity caused by conductive dust, rain or moisture.

**) The specification of the IP protection refers to the conditions mentioned in certification of the fan. The above mentioned short description of the protection scope is not final. For detailed information of the respective protection scope and definitions, see certification as well as DIN EN 60529 (protection by housings) and ISO 20653 (for vehicles) with the letter K.

**Short description of the IP-protection type:**
Solid particle Protection: Dust tight.
Protection against deliberate contact: Protected against contact to hazardous parts with a wire.
Protection against water: The fan test according to IP68 (Based on IEC 60529), is conducted in non-operating mode. The fan is tested by a complete immersion in water for a period of 2h at a water-level of 1,2m. Electrical connections are not immersed since they are customer specific.

### 4.3 Mechanical Requirements

| severity level | Vibration (sinusoidal) | |
|---|---|---|
| 1 G | Vibration (sinusoidal) in use<br>IEC 60068-2-6<br>Displacement / frequency range<br>Acceleration / frequency range<br>Sweep rate<br>Sweep cycles<br>Duration<br>Axes of vibration | <br>Vibration (sinusoidal)<br>0,075 mm / 10-58, 58-10 Hz<br>1 G / 58-500-58 Hz<br>1 Oct./min<br>10<br>2 hrs.<br>3 |

| severity level | stationary use | | |
|---|---|---|---|
| 1 | storage / transportation | Random vibration not in use<br>IEC 60068-2-64<br>Frequency range / ASD<br><br>$G_{RMS}$<br>Axes of vibration<br>Test duration | <br>Random vibration<br>5 - 20 Hz : 1,0 $m^2$ / $s^3$<br>20 - 500 Hz : - 3 dB / Oct<br>0,91 G<br>3<br>3 x 5 h |
| | storage / transportation | Bump not in use<br>IEC 60068-2-29<br>Shock spectrum<br>Acceleration<br>Duration<br>Number of bumps (+X, -X, -Y, +Y, -Z, +Z)<br>Total bumps | <br>Bump<br>half sine<br>18 G<br>6 ms<br>100 in each direction<br>600 |
| | stationary use | Random vibration in use<br>IEC 60068-2-64<br>Frequency range / ASD<br><br><br>$G_{RMS}$<br>Axes of vibration<br>Test duration | <br>Random vibration<br>5 - 20 Hz : 2,0 $m^2$ / $s^3$<br>20- 150 Hz : - 3 dB / Oct<br>0,83 G<br>3<br>3 x 5 h |
| | stationary use | Bump in use<br>IEC 60068-2-29<br>Shock spectrum<br>Acceleration<br>Duration<br>Number of bumps (+X, -X, -Y, +Y, -Z, +Z)<br>Total bumps | <br>Bump<br>half sine<br>5 G<br>11 ms<br>100 in each direction<br>600 |

## 5 Safety

### 5.1 Electrical Safety

| | | |
|---|---|---|
| Dielectric strength<br>DIN EN 62368 and DIN EN 60335<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. | <br><br>500 VAC / 1 Min.<br><br><br><br>Not applicable | |
| 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 | |

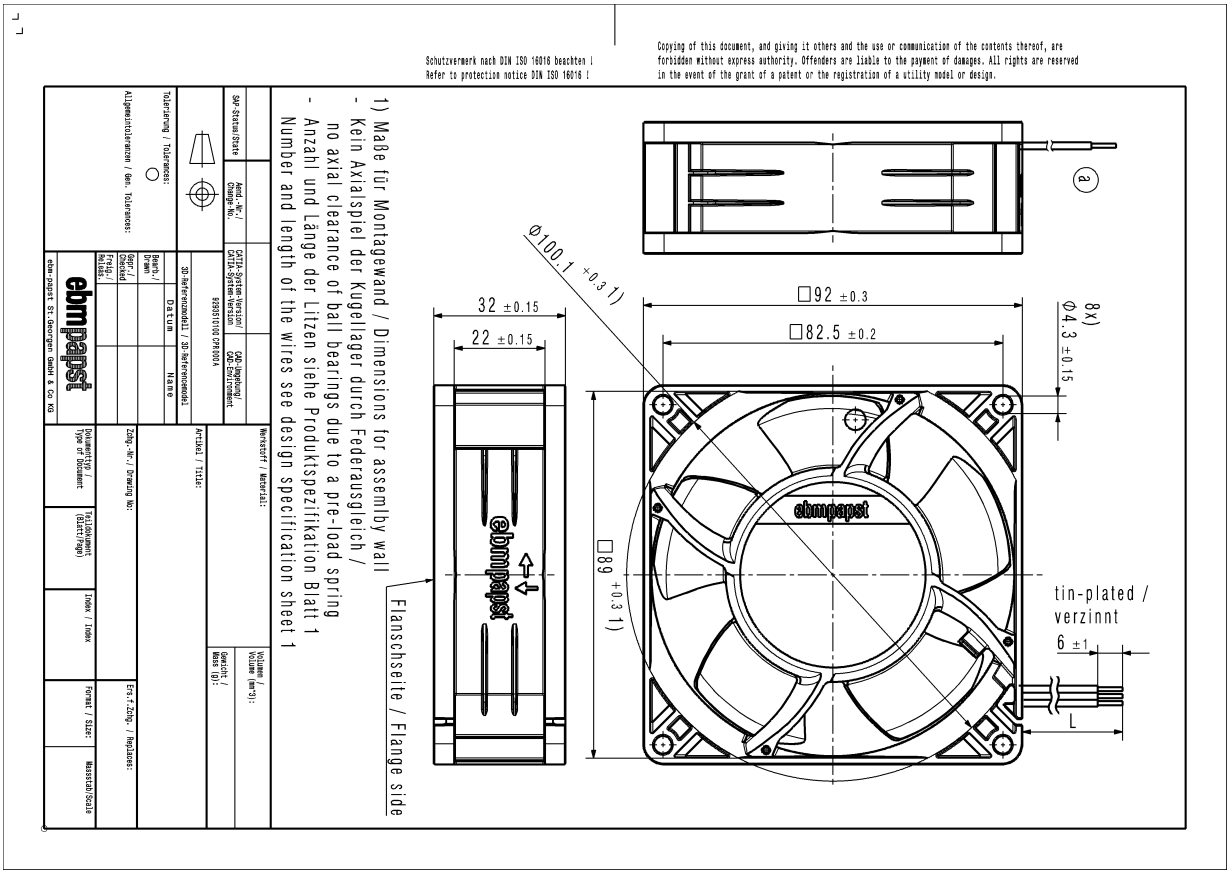
### 5.2 Approval Tests

| | | |
|---|---|---|
| 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 62368 - Audio/video, information and communication technology equipment |
| CSA | Canadian Standards Association | Yes / CSA audited by UL according to 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 | 77.500 h | |
| Life expectancy L10 at TU max. | 30.000 h | |
| Life expectancy L10 acc. to IPC 9591 at TU = 40 °C | 130.000 h | |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1) Maße für Montagewand / Dimensions for assembly wall
- Kein Axialspiel der Kugellager durch Federausgleich /
no axial clearance of ball bearings due to a pre-load spring
- Anzahl und Länge der Litzen siehe Produktspezifikation Blatt 1
Number and length of the wires see design specification sheet 1
Flanschseite / Flange side
Ø100.1 +0.3 1)
32 ±0.15
22 ±0.15
□92 ±0.3
□82.5 ±0.2
8x) Ø4.3 ±0.15
□89 +0.3 1)
tin-plated / verzinnt
6 ±1
L
ebmpapst
ebm-papst St. Georgen GmbH & Co. KG
Allgemeintoleranzen / Gen. Tolerances:
Toleranzfeld / Tolerances:
Bearb./ Drawn
Datum
Name
Freig./ Released
Oberstad
Artikel / Title:
Werkstoff / Material:
Volumen / Volume (cm^3):
Gewicht / Mass (g):
Zeichn.-Nr./ Drawing No:
Ers.f.Zchg. / Replaces:
Dokumentart / Type of Document
Blattformat (Euro-Norm)
Format / Size:
Maßstab/Scale
1:1
A4