# 4114 NHU-295

**INDEX**

## 1 General

| | | |
|---|---|---|
| Fan type | Fan | |
| Rotational direction looking at rotor | clockwise | |
| Airflow direction | Air intake 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 | 0,420 kg | |
| Housing material | Metal | |
| Impeller material | Plastic | |
| Max. torque when mounted across both mounting flanges<br>Screw size | wire outlet corner: 450 Ncm<br>remaining corners: 600 Ncm<br>ISO 4762 - M4 degreased, without an additional brace and without washer | |

### 2.2 Connections

| | | |
|---|---|---|
| Electrical connection | Wires | |
| Length of lead wire<br>Tolerance | 600 mm<br>+- 10,0 mm | |
| Wire gauge (AWG) | 24 | |
| Insulation diameter | 1,55 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 | 16,0 V | | 30,0 V |
| Nominal voltage | $\Delta p = 0$ | $U_N$ | | 24,0 V | |
| Power consumption<br>Tolerance | $\Delta p = 0$<br>0001 | P | 5,6 W<br>+- 25,0 % | 11,5 W<br>+- 25,0 % | 13,1 W<br>+- 25,0 % |
| Current consumption<br>Tolerance | $\Delta p = 0$<br>0001 | I | 350 mA<br>+- 25,0 % | 480 mA<br>+- 25,0 % | 435 mA<br>+- 25,0 % |
| Speed<br>Tolerance | $\Delta p = 0$<br>0001 | n | 3.300 1/min<br>+- 10,0 % | 4.400 1/min<br>+- 3,0 % | 4.400 1/min<br>+- 3,0 % |
| Starting current consumption | | | | 2.400 mA | |

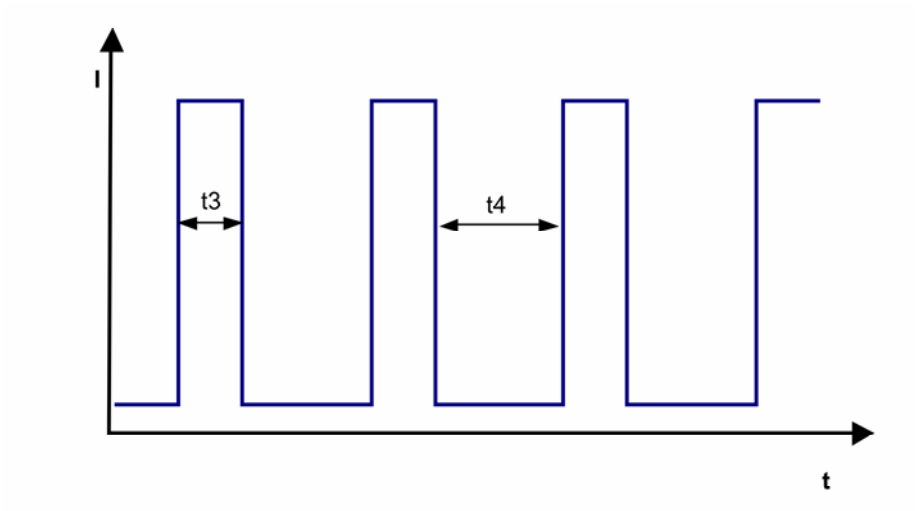
### 3.3 Operating Data - Electrical Interface -Output

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

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

### 3.4 Electrical Features

| | | |
|---|---|---|
| Electronic function | Speed-Controlled | |
| Reversed polarity protection<br>Max. residual current at Un | Rectifying diode<br>IF <= 500 uA | |
| Locked rotor protection | Auto restart | |
| Locked rotor current at Un | approx. 2.400 mA | |
| Clock signal t3/t4 at locked rotor | Typical: 0,4 s / 10 s | |


I
t3
t4
t

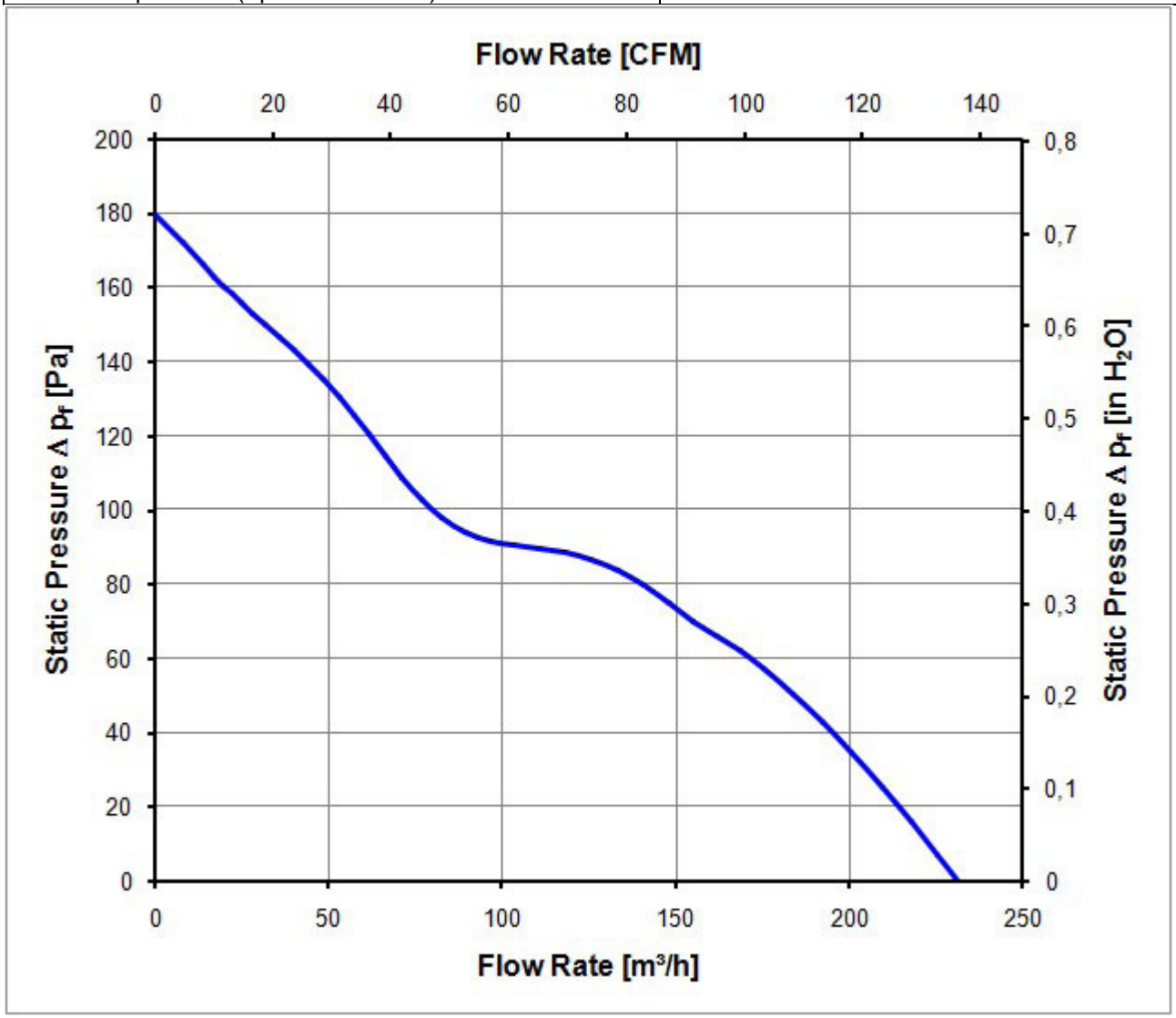
### 3.5 Aerodynamic

| | |
|---|---|
| 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. |

a.) Operation condition:

| |
|---|
| 4.400 1/min at free air flow |

| | | |
|---|---|---|
| Max. free-air flow (Δp = 0 / V̇ = max.) | 227,0 m3/h | |
| Max. static pressure (Δp = max. / V̇ =0) | 180 Pa | |




### 3.6 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 semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) |

For further measurement conditions see section 3.5

a.) Operation condition:

| |
|---|
| 4.400 1/min at free air flow |

| | | |
|---|---|---|
| Optimal operating point | 130,0 m3/h @ 79 Pa | |
| Sound power level at the optimal operating point | 6,2 bel(A) | |
| Sound pressure level at free air flow, measured in rubber bands | 56,0 dB(A) | |

## 4 Environment

### 4.1 General

| | | |
|---|---|---|
| Min. permitted ambient temperature TU min. | -20 °C | |
| Max. permitted ambient temperature TU max. | 55 °C | |
| Min. permitted storage temperature TL min. | -40 °C | |
| Max. permitted storage temperature TL max. | 80 °C | |

### 4.2 Climatic requirements*)

| | | |
|---|---|---|
| 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 | |
| Water exposure | Splash water check IPX4; according to DIN EN 60529 VDE 0470, not certified | |
| Radiation exposure | Solar radiation; according to DIN EN 60068-2-5 | |
| Dust requirements | Dust check IP5X; according to DIN EN 60529 VDE 0470, not certified | |
| Salt fog requirements | None | |
| Harmful gas requirements | None | |

*) Permittet application area:
The product is for the use in partial sheltered rooms or open, roofed areas. Directly exposure to water is allowed in so far as this doesn´t prevent the normal operation. Saline ambient conditions must be avoid.
Pollution degree 3 (according DIN EN 60664-1)
It occurs conductive pollution or dry non-conductive pollution occurs that becomes conductive due to condensation.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>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 / 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 | 70.000 h | |
| Life expectancy L10 at TU max. | 50.000 h | |
| Life expectancy L10 Delta (40 °C) | 142.500 h | |