

# EC axial fan - HyBlade

sickled blades (S series)  
with full square nozzle

W3G910-GY21-71 ebmpapst Datasheet  
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## Nominal data

|                          |                   |            |
|--------------------------|-------------------|------------|
| Type                     | W3G910-GY21-71    |            |
| Motor                    | M3G150-IF         |            |
| Phase                    |                   | 3~         |
| Nominal voltage          | VAC               | 400        |
| Nominal voltage range    | VAC               | 380 .. 480 |
| Frequency                | Hz                | 50/60      |
| Type of data definition  |                   | ml         |
| Speed (rpm)              | min <sup>-1</sup> | 1050       |
| Power input              | W                 | 2570       |
| Current draw             | A                 | 3.9        |
| Max. back pressure       | Pa                | 220        |
| Min. ambient temperature | °C                | -25        |
| Max. ambient temperature | °C                | 60         |

ml = Max. load · me = Max. efficiency · fa = Running at free air · cs = Customer specs · cu = Customer unit  
Subject to alterations

## Data according to ErP directive

|                                   |   | Actual | Request 2015 |
|-----------------------------------|---|--------|--------------|
| 01 Overall efficiency $\eta_{es}$ | % | 54.8   | 36.1         |
| 02 Measurement category           |   | A      |              |
| 03 Efficiency category            |   | Static |              |
| 04 Efficiency grade N             |   | 58.7   | 40           |
| 05 Variable speed drive           |   | Yes    |              |

Data definition with optimum efficiency.  
The ErP data is determined using a motor-impeller combination in a standardised measurement configuration.

|                               |                   |       |
|-------------------------------|-------------------|-------|
| 09 Power input $P_{ed}$       | kW                | 2.47  |
| 09 Air flow $q_v$             | m³/h              | 22140 |
| 09 Pressure increase $p_{fs}$ | Pa                | 209   |
| 10 Speed (rpm) n              | min <sup>-1</sup> | 1045  |
| 11 Specific ratio*            |                   | 1.00  |

\* Specific ratio =  $1 + p_{fs} / 100\,000\text{ Pa}$

LU-178186



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## Technical features

|                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mass                                                               | 50 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Size                                                               | 910 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Surface of rotor                                                   | Coated in black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Material of electronics housing                                    | Die-cast aluminium, coated in black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Material of blades                                                 | Aluminium sheet insert, sprayed with PP plastic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Material of wall ring                                              | Sheet steel, galvanised and coated in black plastic (RAL 9005)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Material of guard grille                                           | Steel, coated in black plastic (RAL9005)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Number of blades                                                   | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Blade angle                                                        | -5°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Direction of air flow                                              | "V"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Direction of rotation                                              | Clockwise, seen on rotor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Type of protection                                                 | IP 55                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Insulation class                                                   | "F"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Humidity (F)/environmental protection class (H)                    | F4-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Note ambient temperature                                           | Occasional start-up between -40°C and -25°C is permissible.<br>For continuous operation at ambient temperatures below -25°C (e.g. refrigeration applications) we recommend our fan version with special low-temperature bearings.                                                                                                                                                                                                                                                                                                                                                                                     |
| Max. permissible ambient motor temp. (transp./ storage)            | +80 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Min. permissible ambient motor temp. (transp./storage)             | -40 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Mounting position                                                  | Shaft horizontal or rotor on bottom; rotor on top on request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Condensate discharge holes                                         | Rotor-side                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Operation mode                                                     | S1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Motor bearing                                                      | Ball bearing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Technical features                                                 | <ul style="list-style-type: none"> <li>- Output 10 VDC, max. 10 mA</li> <li>- Operation and alarm display</li> <li>- External 24 V input (programming)</li> <li>- External release input</li> <li>- Alarm relay</li> <li>- Integrated PID controller</li> <li>- Motor current limit</li> <li>- PFC, passive</li> <li>- RS485 MODBUS RTU</li> <li>- Soft start</li> <li>- Control input 0-10 VDC / PWM</li> <li>- Control interface with SELV potential safely disconnected from the mains</li> <li>- Over-temperature protected electronics / motor</li> <li>- Line undervoltage / phase failure detection</li> </ul> |
| EMC interference immunity                                          | Acc. to EN 61000-6-2 (industrial environment)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| EMC interference emission                                          | Acc. to EN 61000-6-3 (household environment), except EN 61000-3-2 for professionally used devices with a total rated power greater than 1 kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Touch current acc. IEC 60990 (measuring network Fig. 4, TN system) | <= 3.5 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Electrical leads                                                   | Via terminal box                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Motor protection                                                   | Reverse polarity and locked-rotor protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Protection class                                                   | I (if protective earth is connected by customer)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |



W3G910-GY21-71

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|                                |                  |
|--------------------------------|------------------|
| Product conforming to standard | EN 61800-5-1; CE |
| Approval                       | EAC              |

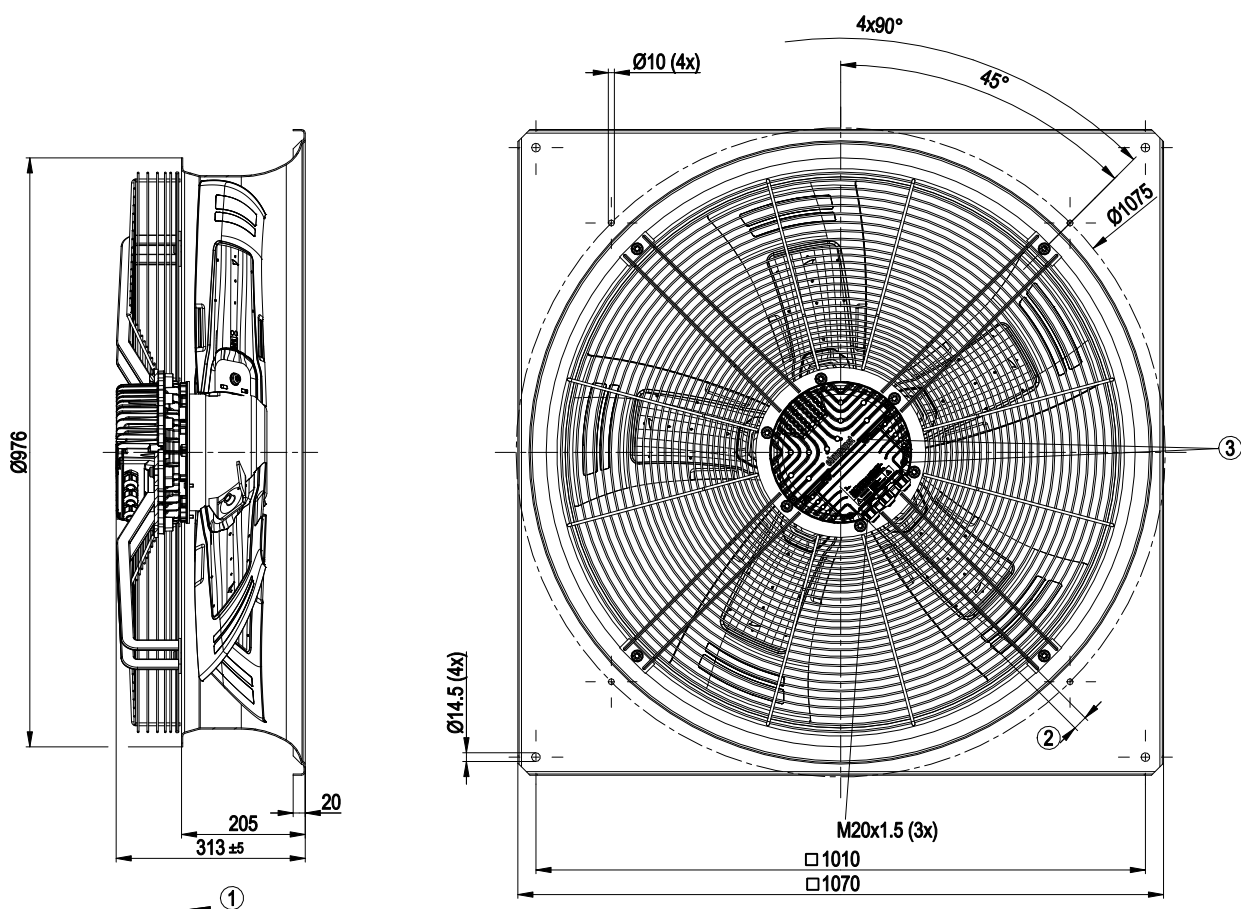


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## Product drawing



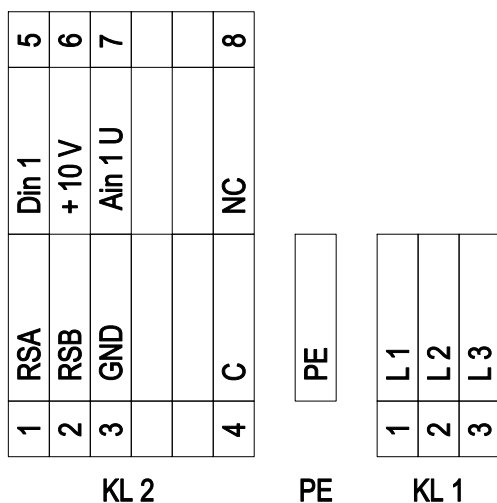
|   |                                                                        |
|---|------------------------------------------------------------------------|
| 1 | Direction of air flow "V"                                              |
| 2 | Cable diameter min. 4 mm, max. 10 mm, tightening torque $4 \pm 0.6$ Nm |
| 3 | Tightening torque $3.5 \pm 0.5$ Nm                                     |

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## Connection screen



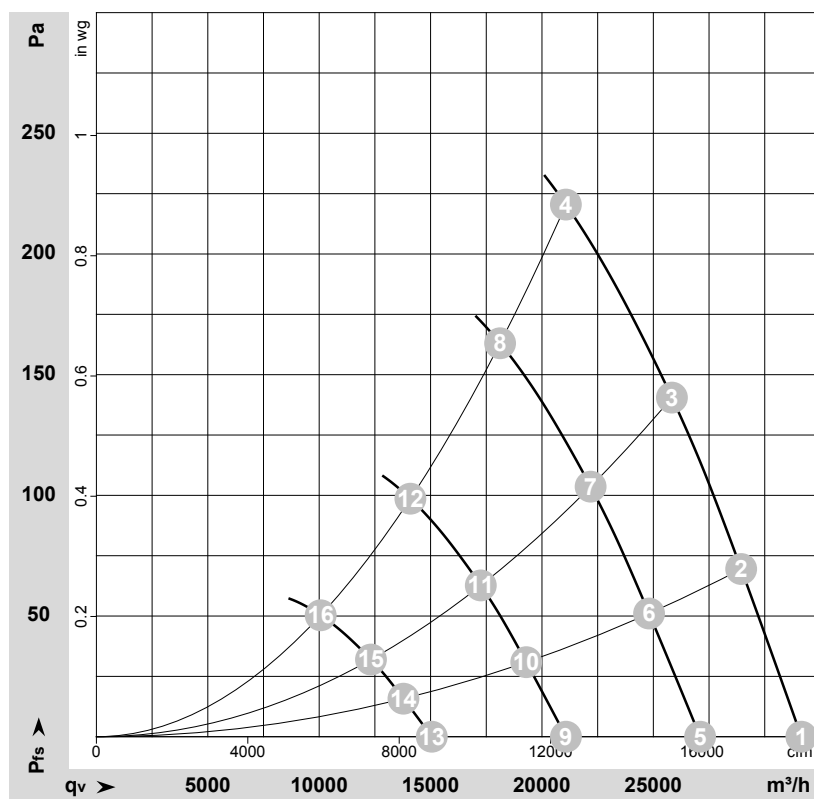
| No.  | Conn. | Designation | Function / assignment                                                                                                                                                                                                          |
|------|-------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KL 1 | 1     | L1          | Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz                                                                                                                                                                |
| KL 1 | 2     | L2          | Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz                                                                                                                                                                |
| KL 1 | 3     | L3          | Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz                                                                                                                                                                |
| PE   |       | PE          | Earth connection, PE connection                                                                                                                                                                                                |
| KL 2 | 1     | RSA         | Bus connection RS-485, RSA, MODBUS RTU; SELV                                                                                                                                                                                   |
| KL 2 | 2     | RSB         | Bus connection RS-485, RSB, MODBUS RTU; SELV                                                                                                                                                                                   |
| KL 2 | 3     | GND         | Signal ground for control interface; SELV                                                                                                                                                                                      |
| KL2  | 4     | C           | Status relay; floating status contact; changeover contact; common connection; contact rating 250 VAC / 2 A (AC1)                                                                                                               |
| KL 2 | 5     | Din1        | Digital input 1 enabling of electronics,<br>enabling: open pin or applied voltage 5-50 VDC<br>disabling: bridge to GND or applied voltage <1 VDC<br>reset function: triggers software reset after a level change to <1 V; SELV |
| KL 2 | 6     | + 10 V      | Fixed voltage output 10 VDC; +10 V -3 %, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. potentiometer); SELV<br>Alternative: +24 VDC input for parametrisation via MODBUS without mains power        |
| KL 2 | 7     | Ain1 U      | Analogue input 1 (set value) 0-10 V, Ri=100 kΩ, parametrisable curve; SELV                                                                                                                                                     |
| KL2  | 8     | NC          | Status relay, floating status contact; break for failure                                                                                                                                                                       |

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## Charts: Air flow 50 Hz



$$\rho = 1.15 \text{ kg/m}^3 \pm 2 \%$$

Measurement: LU-178186-1

Air performance measured as per ISO 5801 Installation category A. For detailed information on the measuring set-up, please contact ebm-papst. Suction-side noise levels: LwA measured as per ISO 13347 / LpA measured with 1m distance to fan axis. The values given are valid under the measuring conditions mentioned above and may vary according to the actual installation situation. With any deviation from the standard set-up, the specific values have to be checked and reviewed with the unit installed.

## Measured values

|    | U   | f  | n                 | P <sub>ed</sub> | I    | LpA <sub>in</sub> | LwA <sub>in</sub> | LwA <sub>out</sub> | q <sub>v</sub>    | P <sub>fs</sub> | q <sub>v</sub> | P <sub>fs</sub>    |
|----|-----|----|-------------------|-----------------|------|-------------------|-------------------|--------------------|-------------------|-----------------|----------------|--------------------|
|    | V   | Hz | min <sup>-1</sup> | W               | A    | dB(A)             | dB(A)             | dB(A)              | m <sup>3</sup> /h | Pa              | cfm            | inH <sub>2</sub> O |
| 1  | 400 | 50 | 1050              | 1523            | 2.43 | 75                | 82                | 82                 | 31645             | 0               | 18625          | 0.00               |
| 2  | 400 | 50 | 1050              | 1882            | 2.95 | 73                | 81                | 80                 | 28940             | 70              | 17035          | 0.28               |
| 3  | 400 | 50 | 1050              | 2195            | 3.41 | 71                | 79                | 79                 | 25835             | 140             | 15205          | 0.56               |
| 4  | 400 | 50 | 1050              | 2570            | 3.90 | 75                | 82                | 82                 | 21075             | 220             | 12405          | 0.88               |
| 5  | 400 | 50 | 900               | 957             | 1.53 | 71                | 78                | 78                 | 27100             | 0               | 15950          | 0.00               |
| 6  | 400 | 50 | 900               | 1184            | 1.86 | 69                | 77                | 77                 | 24810             | 52              | 14600          | 0.21               |
| 7  | 400 | 50 | 900               | 1390            | 2.16 | 67                | 75                | 75                 | 22185             | 105             | 13060          | 0.42               |
| 8  | 400 | 50 | 900               | 1608            | 2.49 | 71                | 78                | 78                 | 18120             | 163             | 10665          | 0.65               |
| 9  | 400 | 50 | 700               | 450             | 0.72 | 64                | 72                | 72                 | 21075             | 0               | 12405          | 0.00               |
| 10 | 400 | 50 | 700               | 557             | 0.87 | 63                | 70                | 70                 | 19295             | 31              | 11355          | 0.12               |
| 11 | 400 | 50 | 700               | 654             | 1.02 | 61                | 69                | 69                 | 17255             | 63              | 10155          | 0.25               |
| 12 | 400 | 50 | 700               | 756             | 1.17 | 64                | 72                | 71                 | 14095             | 99              | 8295           | 0.40               |
| 13 | 400 | 50 | 500               | 164             | 0.26 | 56                | 64                | 63                 | 15055             | 0               | 8860           | 0.00               |
| 14 | 400 | 50 | 500               | 203             | 0.32 | 54                | 62                | 62                 | 13780             | 16              | 8110           | 0.06               |
| 15 | 400 | 50 | 500               | 238             | 0.37 | 53                | 60                | 60                 | 12325             | 32              | 7255           | 0.13               |
| 16 | 400 | 50 | 500               | 276             | 0.43 | 56                | 63                | 63                 | 10065             | 50              | 5925           | 0.20               |

U = Supply voltage · f = Frequency · n = Speed (rpm) · P<sub>ed</sub> = Power input · I = Current draw · LpA<sub>in</sub> = Sound pressure level inlet side · LwA<sub>in</sub> = Sound power level inlet side · LwA<sub>out</sub> = Sound power level outlet side  
q<sub>v</sub> = Air flow · P<sub>fs</sub> = Pressure increase

