

# EC axial fan - HyBlade

sickle-shaped blades (S series)

with square full nozzle

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## Nominal data

|                          |                   |            |
|--------------------------|-------------------|------------|
| Type                     | W3G910-GA79-41    |            |
| Motor                    | M3G112-EA         |            |
| Phase                    |                   | 1~         |
| Nominal voltage          | VAC               | 230        |
| Nominal voltage range    | VAC               | 200 .. 277 |
| Frequency                | Hz                | 50/60      |
| Method of obtaining data |                   | ml         |
| Status                   |                   | prelim.    |
| Speed (rpm)              | min <sup>-1</sup> | 450        |
| Power consumption        | W                 | 250        |
| Current draw             | A                 | 1.1        |
| Max. back pressure       | Pa                | 40         |
| Max. back pressure       | in. wg            | 0.16       |
| Min. ambient temperature | °C                | -25        |
| Max. ambient temperature | °C                | 60         |

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · oe = Customer equipment  
Subject to change

## Data according to Commission Regulation (EU) 327/2011 (EN 17166)

|                                   |   | Actual | Req. 2015 |                               |                   |      |
|-----------------------------------|---|--------|-----------|-------------------------------|-------------------|------|
| 01 Overall efficiency $\eta_{es}$ | % | 42.5   | 29.8      | 09 Power consumption $P_{ed}$ | kW                | 0.24 |
| 02 Measurement category           |   | A      |           | 09 Air flow $q_v$             | m <sup>3</sup> /h | 9320 |
| 03 Efficiency category            |   | Static |           | 09 Pressure increase $p_{fs}$ | Pa                | 37   |
| 04 Efficiency grade N             |   | 52.7   | 40        | 10 Speed (rpm) n              | min <sup>-1</sup> | 450  |
| 05 Variable speed drive           |   | Yes    |           | 11 Specific ratio*            |                   | 1.00 |

Data obtained at optimum efficiency level.

The ErP data is determined using a motor-impeller combination in a standardized measurement setup.

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

LU-159895



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## Technical description

|                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weight                                                                     | 32.5 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Size                                                                       | 910 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Motor size                                                                 | 112                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Rotor surface                                                              | Painted black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Electronics housing material                                               | Die-cast aluminum, painted black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Blade material                                                             | Press-fitted sheet steel blank, sprayed with PP plastic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Fan housing material                                                       | Sheet steel, galvanized and coated with black plastic (RAL 9005)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Guard grille material                                                      | Steel, coated with black plastic (RAL 9005)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Number of blades                                                           | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Airflow direction                                                          | V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Direction of rotation                                                      | Clockwise, viewed toward rotor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Degree of protection                                                       | IP55                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Insulation class                                                           | "F"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Moisture (F) / Environmental (H) protection class                          | H2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Max. permitted ambient temp. for motor (transport/storage)                 | +80 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Min. permitted ambient temp. for motor (transport/storage)                 | -40 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Installation position                                                      | Shaft horizontal or rotor on bottom; rotor on top on request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Condensation drainage holes                                                | On rotor side                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 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>- Alarm relay</li> <li>- Integrated PID controller</li> <li>- Power limiter</li> <li>- Motor current limitation</li> <li>- PFC, active</li> <li>- RS-485 MODBUS-RTU</li> <li>- Soft start</li> <li>- Control input 0-10 VDC / PWM</li> <li>- Control interface with SELV potential safely disconnected from supply</li> <li>- Thermal overload protection for electronics/motor</li> <li>- Line undervoltage / phase failure detection</li> </ul> |
| Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system) | <= 3.5 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Electrical hookup                                                          | Terminal box                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Motor protection                                                           | Thermal overload protector (TOP) internally connected                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Protection class                                                           | I (with customer connection of protective earth)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Conformity with standards                                                  | EN 61800-5-1; EN 60335-1; CE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Approval                                                                   | UL 1004-7 + 60730-1; EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

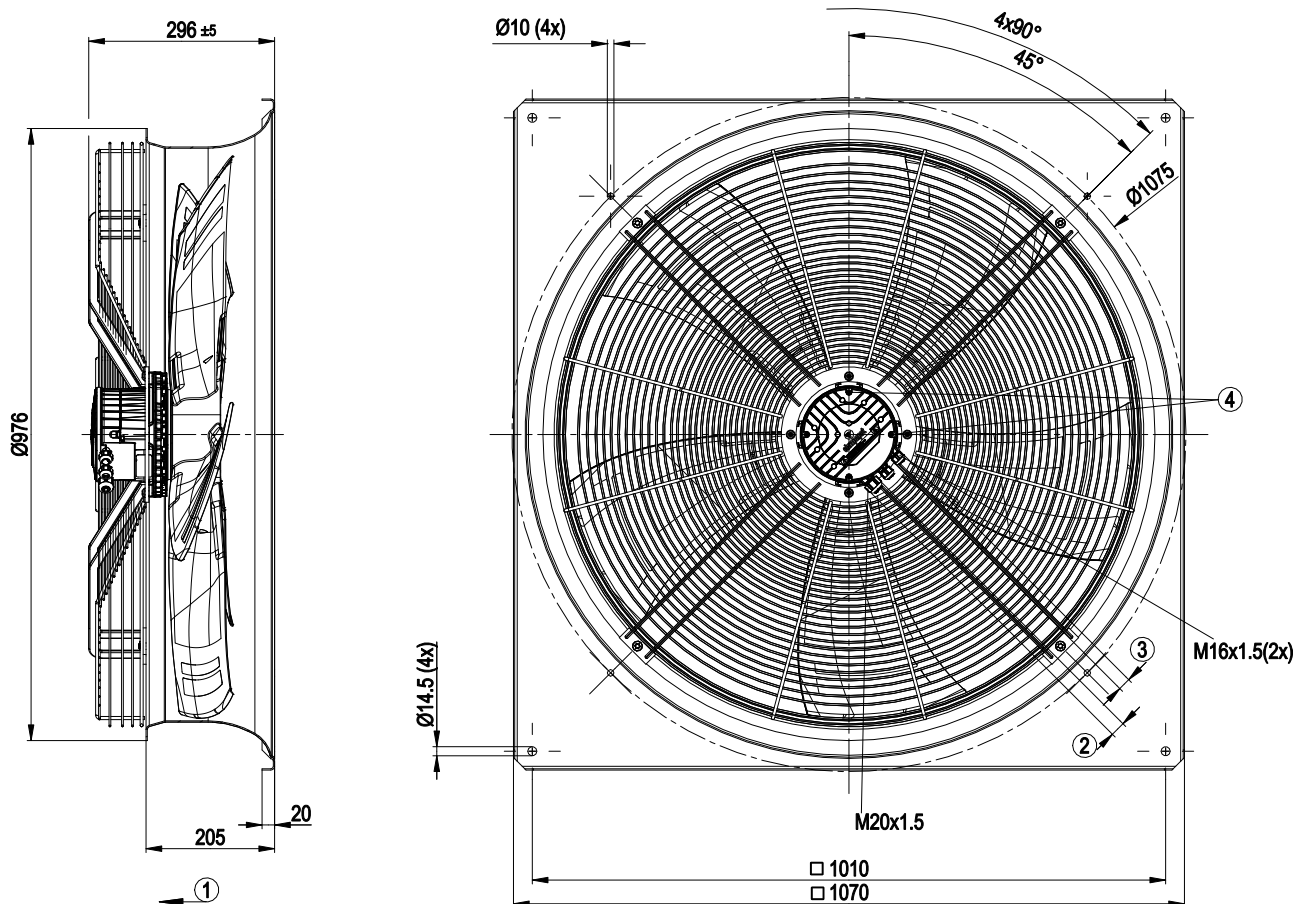


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## Product drawing



|   |                                                                                                                                                                                          |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Direction of air flow "V"                                                                                                                                                                |
| 2 | Cable diameter min. 8 mm, max. 12 mm, tightening torque $1.8 \pm 0.3$ Nm (use must be made of seal provided)<br>Cable diameter min. 4 mm, max. 10 mm, tightening torque $1.8 \pm 0.3$ Nm |
| 3 | Cable diameter min. 6 mm, max. 10 mm, tightening torque $1.8 \pm 0.3$ Nm (use must be made of seal provided)<br>Cable diameter min. 4 mm, max. 7 mm, tightening torque $1.8 \pm 0.3$ Nm  |
| 4 | Tightening torque $1.5 \pm 0.2$ Nm                                                                                                                                                       |

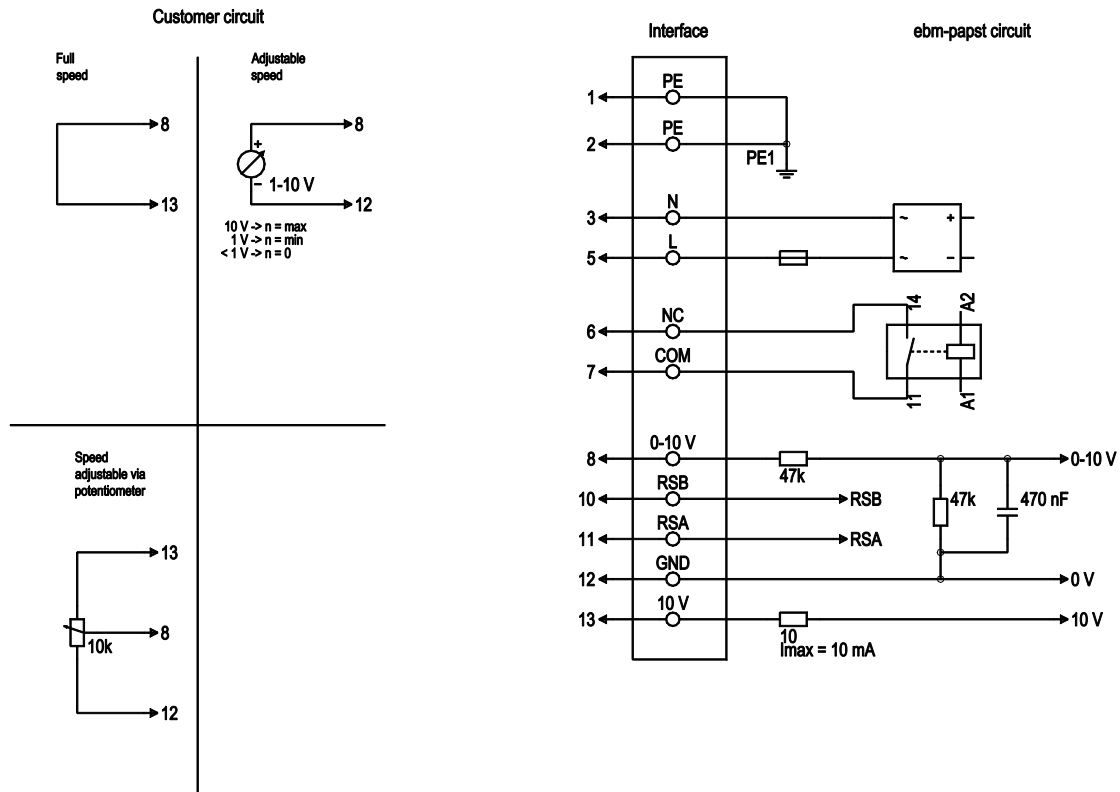


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## Connection diagram



| No. | Conn. | Designation | Color        | Function/assignment                                                                                                                                                                           |
|-----|-------|-------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | 1, 2  | PE          | green/yellow | Protective earth                                                                                                                                                                              |
| 1   | 3     | N           | blue         | Power supply, neutral conductor, 50/60 Hz                                                                                                                                                     |
| 1   | 5     | L           | black        | Power supply, phase, 50/60 Hz                                                                                                                                                                 |
| 1   | 6     | NC          | white 1      | Status relay, floating status contact; break for failure, contact rating 250 VAC / 2A (AC1) / min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side |
| 1   | 7     | COM         | white 2      | Status relay, floating status contact; common connection, contact rating 250 VAC / 2A (AC1) / min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side |
| 2   | 8     | 0-10V       | yellow       | Analog input (set value); 0-10 V; $R_i = 100\text{ k}\Omega$ ; adjustable curve                                                                                                               |
| 2   | 10    | RSB         | brown        | RS485 interface for MODBUS, RSB                                                                                                                                                               |
| 2   | 11    | RSA         | white        | RS485 interface for MODBUS, RSA                                                                                                                                                               |
| 2   | 12    | GND         | blue         | Reference ground for control interface, SELV                                                                                                                                                  |
| 2   | 13    | +10V        | red          | Fixed voltage output 10 VDC, +10 V $\pm 3\%$ ; max. 10 mA; short-circuit-proof; power supply for external devices (e.g. pot)                                                                  |

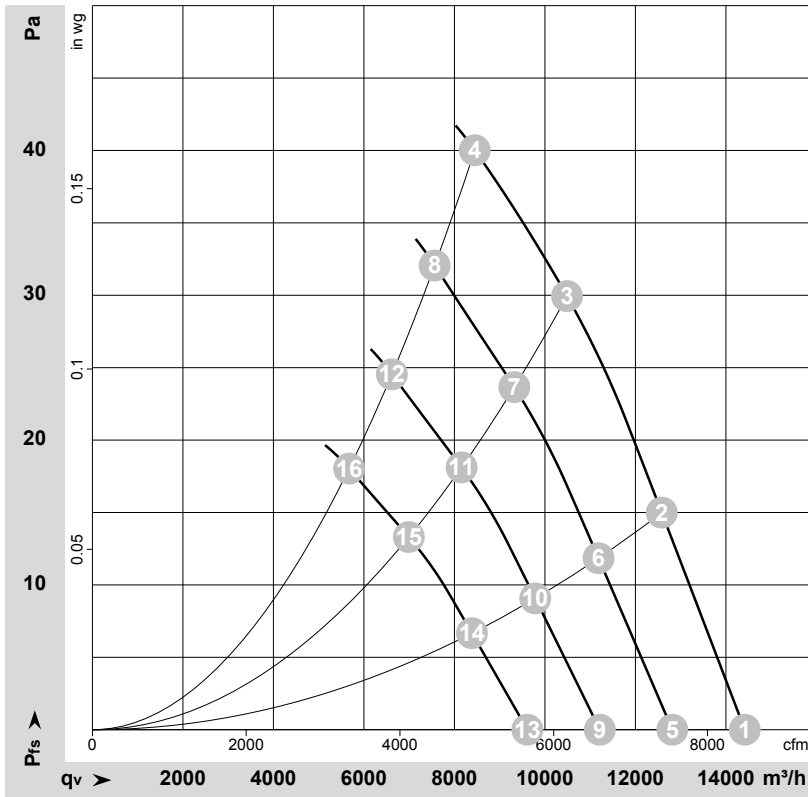


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## Curves: Air performance 50 Hz



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

Measurement: LU-159895-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

## 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            | in. wg          |
| 1  | 230 | 50 | 450               | 154             | 0.73 | 54                | 61                | 60                 | 14415             | 0               | 8485           | 0.00            |
| 2  | 230 | 50 | 450               | 193             | 0.88 | 53                | 59                | 58                 | 12580             | 15              | 7405           | 0.06            |
| 3  | 230 | 50 | 450               | 226             | 1.02 | 52                | 58                | 58                 | 10490             | 30              | 6175           | 0.12            |
| 4  | 230 | 50 | 450               | 250             | 1.10 | 53                | 60                | 60                 | 8450              | 40              | 4975           | 0.16            |
| 5  | 230 | 50 | 400               | 108             | 0.51 | 51                | 58                | 57                 | 12815             | 0               | 7545           | 0.00            |
| 6  | 230 | 50 | 400               | 135             | 0.62 | 50                | 56                | 55                 | 11185             | 12              | 6585           | 0.05            |
| 7  | 230 | 50 | 400               | 159             | 0.72 | 49                | 55                | 55                 | 9325              | 24              | 5485           | 0.10            |
| 8  | 230 | 50 | 400               | 176             | 0.79 | 50                | 58                | 57                 | 7565              | 32              | 4450           | 0.13            |
| 9  | 230 | 50 | 350               | 72              | 0.34 | 48                | 54                | 54                 | 11215             | 0               | 6600           | 0.00            |
| 10 | 230 | 50 | 350               | 91              | 0.42 | 47                | 53                | 52                 | 9785              | 9               | 5760           | 0.04            |
| 11 | 230 | 50 | 350               | 106             | 0.48 | 45                | 52                | 51                 | 8160              | 18              | 4800           | 0.07            |
| 12 | 230 | 50 | 350               | 118             | 0.53 | 47                | 54                | 54                 | 6620              | 25              | 3895           | 0.10            |
| 13 | 230 | 50 | 300               | 46              | 0.22 | 44                | 50                | 50                 | 9610              | 0               | 5655           | 0.00            |
| 14 | 230 | 50 | 300               | 57              | 0.26 | 43                | 49                | 48                 | 8390              | 7               | 4935           | 0.03            |
| 15 | 230 | 50 | 300               | 67              | 0.30 | 42                | 48                | 47                 | 6990              | 13              | 4115           | 0.05            |
| 16 | 230 | 50 | 300               | 74              | 0.33 | 43                | 50                | 50                 | 5670              | 18              | 3340           | 0.07            |

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

