

## W3G800-GV01-91

II 2G Ex db eb ib IIB T3 Gb  
IBExU14ATEX1123 X /03

# EC axial panel fan - HyBlade

sickle-shaped blades (S series)  
with square full nozzle



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## Nominal data

|       |                |  |
|-------|----------------|--|
| Type  | W3G800-GV01-91 |  |
| Motor | M3G150-NA      |  |

|                       |     |            |
|-----------------------|-----|------------|
| Phase                 |     | 3~         |
| Nominal voltage       | VAC | 400        |
| Nominal voltage range | VAC | 380 .. 440 |
| Frequency             | Hz  | 50/60      |

|                          |                   |      |
|--------------------------|-------------------|------|
| Method of obtaining data |                   | ml   |
| Speed (rpm)              | min <sup>-1</sup> | 1090 |
| Power consumption        | W                 | 2750 |
| Current draw             | A                 | 4.2  |
| Max. back pressure       | Pa                | 250  |
| Max. back pressure       | in. wg            | 1    |
| Min. ambient temperature | °C                | -40  |
| Max. ambient temperature | °C                | 60   |

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

Occasional start-up at temperatures between -40 °C and -25 °C is permitted. For continuous operation at ambient temperatures below -25 °C (such as refrigeration applications), a fan design with special low-temperature bearings must be used.

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### Technical description

|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weight                                                     | 57.5 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Size                                                       | 800 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Motor size                                                 | 150                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Rotor surface                                              | Painted black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Electronics housing material                               | Die-cast aluminum, painted black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Blade material                                             | Sheet aluminum insert, 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Blade pitch                                                | 0°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Airflow direction                                          | V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Direction of rotation                                      | Clockwise, viewed toward rotor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Degree of protection                                       | IP44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Insulation class                                           | "F"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Moisture (F) / Environmental (H) protection class          | H2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Ambient temperature note                                   | Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), use must be made of a fan design with special low-temperature bearings.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Max. permitted ambient temp. for motor (transport/storage) | +80 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Min. permitted ambient temp. for motor (transport/storage) | -40 / -55 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Installation position                                      | Shaft horizontal with cable exit ±45° or rotor at bottom; rotor at top not permissible                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 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>- Output 20 VDC, max. 50 mA</li><li>- Output for slave 0-10 V</li><li>- Operation and alarm display</li><li>- Input for sensor 0-10 V or 4-20 mA</li><li>- External 24 V input (parameter setting)</li><li>- External release input</li><li>- Alarm relay</li><li>- Integrated PID controller</li><li>- Motor current limitation</li><li>- PFC, passive</li><li>- RS-485 MODBUS-RTU</li><li>- Soft start</li><li>- Control input 0-10 VDC / PWM</li><li>- Temperature derating</li><li>- Thermal overload protection for electronics/motor</li><li>- Line undervoltage / phase failure detection</li></ul> |
| Power Factor Correction (PFC)                              | Passive                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| EMC immunity to interference                               | According to EN 61000-6-2 (industrial environment)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| EMC interference emission                                  | According to EN 61000-6-4 (industrial environment)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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|                                                                            |                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system) | <= 3.5 mA                                                                                                                                                                                                          |
| Electrical hookup                                                          | Terminal box                                                                                                                                                                                                       |
| Motor protection                                                           | Reverse polarity and locked-rotor protection                                                                                                                                                                       |
| Protection class assignment                                                | I; If a protective earth is connected.<br>The built-in component has several local protection class assignments.<br>The final protection class is determined by the intended installation.                         |
| Conformity with standards                                                  | EN 14986; EN 60079-0; EN 60079-1; EN 60079-7; EN 60079-11; EN 61800-5-1; CE                                                                                                                                        |
| Comment on CE                                                              | Ecodesign Directive 2009/125/EC + Fan Directive (EC) No. 327/2011 does not apply, as the product is specially designed for operation in potentially explosive atmospheres within the meaning of Directive 94/9/EC. |
| Approval                                                                   | II 2G; EAC                                                                                                                                                                                                         |

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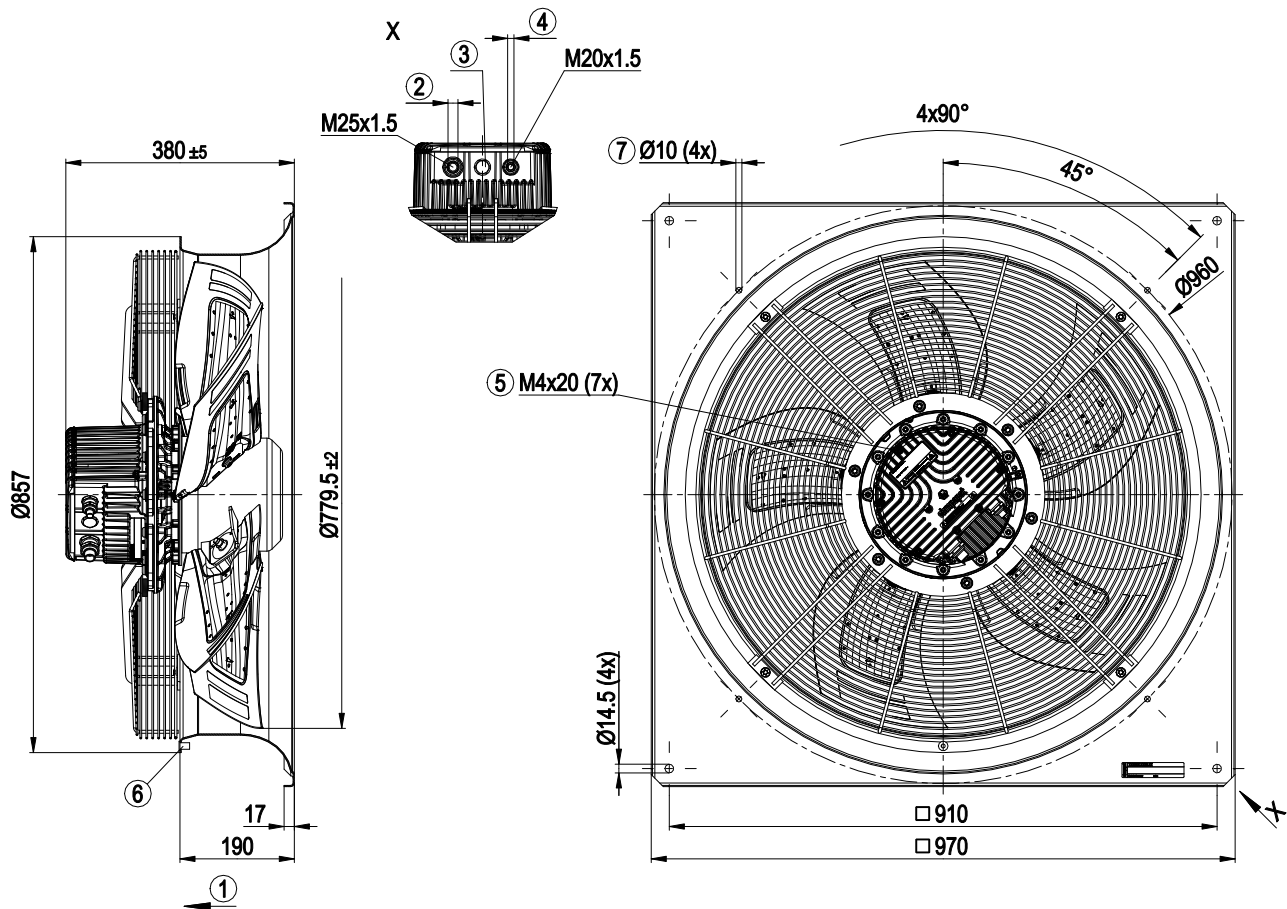
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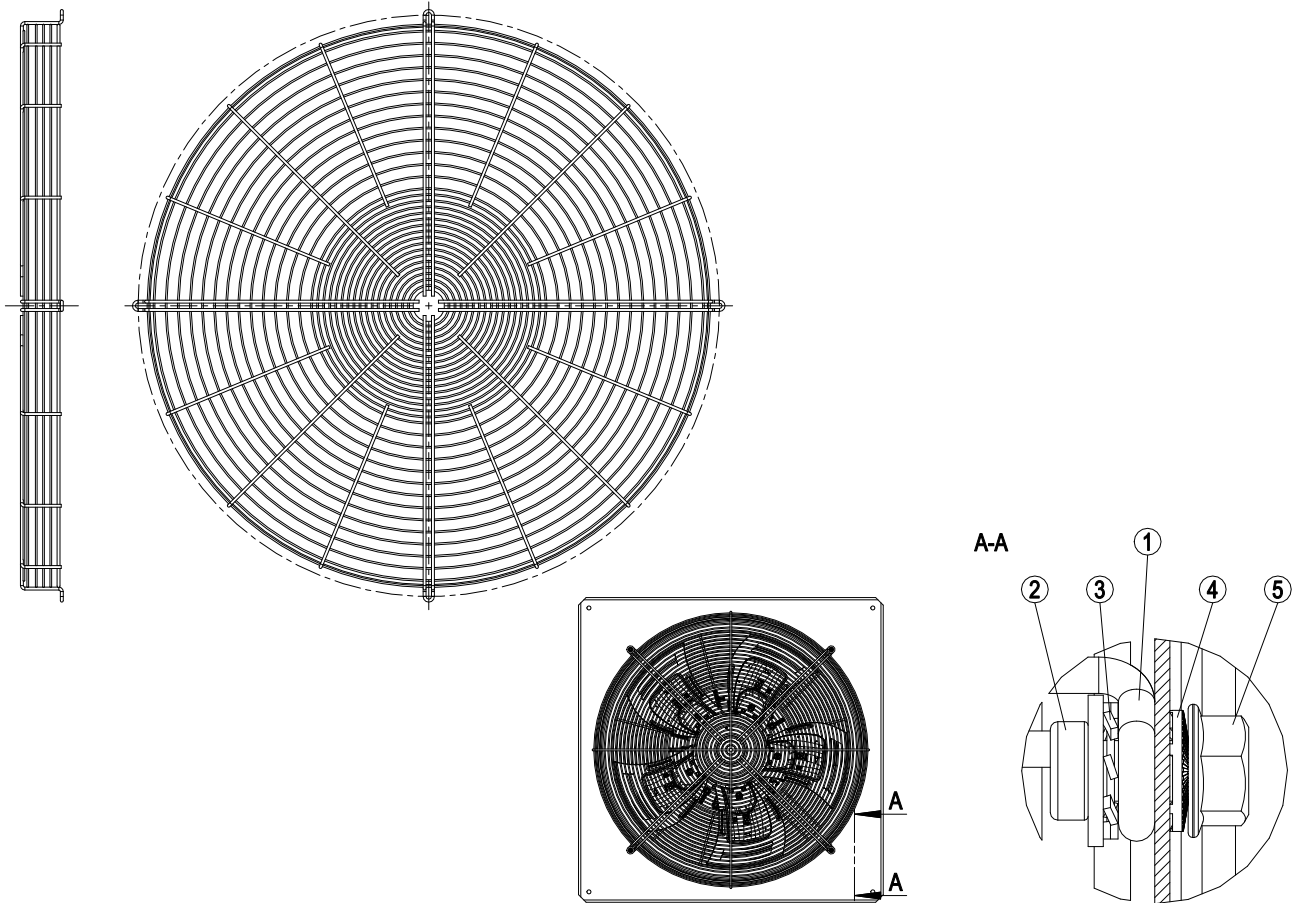


## Product drawing



|   |                                                                                                            |
|---|------------------------------------------------------------------------------------------------------------|
| 1 | Direction of air flow "V"                                                                                  |
| 2 | Cable diameter min. 10 mm, max. 16 mm, tightening torque $6 \pm 0.6$ Nm; standard value depending on cable |
| 3 | Screw plug M20 x 1.5                                                                                       |
| 4 | Cable diameter min. 10 mm, max. 14 mm, tightening torque $6 \pm 0.6$ Nm; standard value depending on cable |
| 5 | Terminal box fastening screws, M4 x 20, tightening torque $3.5 \pm 0.5$ Nm                                 |
| 6 | Ground connection point M8 (functional ground for discharge of electrostatic charges, no protective earth) |
| 7 | Mounting holes for the optionally available guard grill (60803-2-4039)                                     |

## Accessory part



This drawing shows how to install the guard grille with the article numbers specified in the product drawing. The necessary bolts, nuts and washers are available from ebm-papst.

1 Guard grill for protection against accidental contact

2 Bolt M8x18 micro-encapsulated

3 Toothed lock washer

4 Contact washer (only necessary at one fixing point)

5 Nut M8

Attention! The guard grille may only be fastened to the four fastening points marked in the product drawing.

Use the fastening components available from ebm-papst for assembly.

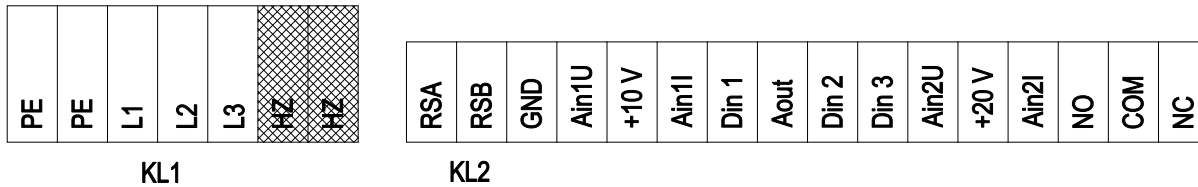
At one mounting point, the contact washer (4) must also be inserted between the housing and the nut.

Tighten the bolts to a torque of  $20 \text{ Nm} \pm 3 \text{ Nm}$ .

If a guard grille other than that specified in the product drawing is installed, the operator must ensure proper installation according to the ATEX directive.

In particular, it must be ensured that the necessary distance from rotating parts is observed and that static charge that arises is safely dissipated. If you have any questions, please contact ebm-papst.

## Connection diagram



Shaded =&gt; terminals not used

| No. | Conn. | Designation | Function/assignment                                                                                                                                                                                                                                                                                                    |
|-----|-------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   |       | PE          | Ground connection, PE connection                                                                                                                                                                                                                                                                                       |
| 1   |       | L1          | Supply connection, power supply 3-phase 380-440 VAC, 50/60 Hz                                                                                                                                                                                                                                                          |
| 1   |       | L2          | Supply connection, power supply 3-phase 380-440 VAC, 50/60 Hz                                                                                                                                                                                                                                                          |
| 1   |       | L3          | Supply connection, power supply 3-phase 380-440 VAC, 50/60 Hz                                                                                                                                                                                                                                                          |
| 1   |       | HZ          | not used (optional: internal heating element)                                                                                                                                                                                                                                                                          |
| 2   |       | RSA         | Bus connection RS485, RSA, MODBUS RTU; double terminal point (SELV)                                                                                                                                                                                                                                                    |
| 2   |       | RSB         | Bus connection RS485, RSB, MODBUS RTU; double terminal point (SELV)                                                                                                                                                                                                                                                    |
| 2   |       | GND         | Reference ground for control interface (SELV)                                                                                                                                                                                                                                                                          |
| 2   |       | Ain1 U      | Analog input 1, set value: 0-10 V, Ri = 100 kΩ, adjustable curve, only usable as alternative to input Ain1 I; SELV                                                                                                                                                                                                     |
| 2   |       | +10 V       | Fixed voltage output 10 VDC, +10 V ±3%, max. 10 mA, short-circuit-proof power supply for external devices (e.g. pot); SELV                                                                                                                                                                                             |
| 2   |       | Ain1 I      | Analog input 1, set value: 4-20 mA, Ri = 100 Ω, adjustable curve, only usable as alternative to input Ain1 U; SELV                                                                                                                                                                                                     |
| 2   |       | Din 1       | Digital input 1: enable electronics,<br>enable: pin open or applied voltage 5-50 VDC<br>disable: bridge to GND or applied voltage < 1 VDC<br>reset function: triggers software reset after a level change to < 1 VDC; SELV                                                                                             |
| 2   |       | Aout        | Analog output 0-10 VDC, max. 5 mA, output of current motor modulation level / motor speed<br>adjustable curve; SELV                                                                                                                                                                                                    |
| 2   |       | Din 2       | Digital input 2: Switching parameter sets 1/2, according to EEPROM setting, the valid or used parameter set can be selected via bus or via digital input DIN2.<br>Parameter set 1: pin open or applied voltage 5-50 VDC<br>Parameter set 2: bridge to GND or applied voltage < 1 VDC; SELV                             |
| 2   |       | Din 3       | Digital input 3: Direction of action of integrated controller, according to EEPROM setting, the direction of action of the integrated controller can be selected as normal/inverse via bus or digital input<br>Normal: Pin open or applied voltage 5-50 VDC<br>Inverse: Bridge to GND or applied voltage < 1 VDC; SELV |
| 2   |       | Ain2 U      | Analog input 2, measured value: 0-10 V, Ri = 100 kΩ, adjustable curve, only usable as alternative to input Ain2 I; SELV                                                                                                                                                                                                |
| 2   |       | +20 V       | Fixed voltage output 20 VDC, +20 V ±25/-10%, max. 50 mA, short-circuit-proof power supply for external devices (e.g. sensors); SELV<br>or: +24 VDC input for parameter setting via MODBUS without line voltage                                                                                                         |
| 2   |       | Ain2 I      | Analog input 2, measured value: 4-20 mA, Ri = 100 Ω, adjustable curve, only usable as alternative to input Ain2 U; SELV                                                                                                                                                                                                |
| 2   |       | NO          | Status relay, floating status contact; make for failure                                                                                                                                                                                                                                                                |
| 2   |       | COM         | Status relay, floating status contact, common connection, contact rating 250 VAC / max. 2 A (AC1) / min. 10 mA                                                                                                                                                                                                         |

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| No. | Conn. | Designation | Function/assignment                                      |
|-----|-------|-------------|----------------------------------------------------------|
| 2   |       | NC          | Status relay; floating status contact, break for failure |

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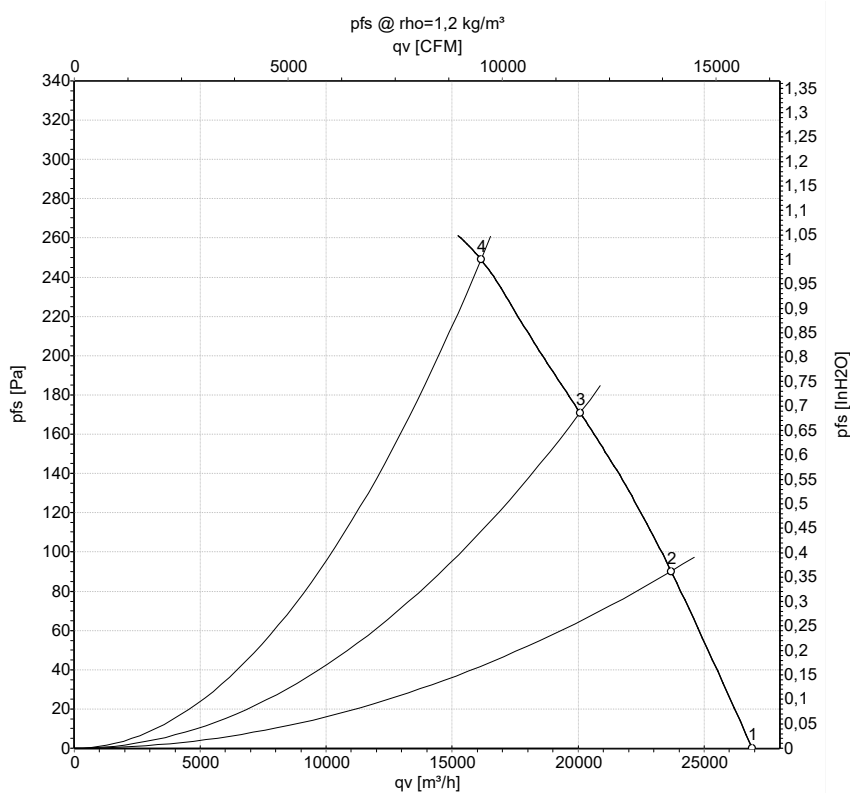
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### Curves: Air performance 50 Hz



Measurement: LU-161777-1  
Date: 2014-02-28  
Housing: 38802-2-4037

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)              | m³/h           | Pa              | cfm            | in. wg          |
| 1 | 400 | 50 | 1090              | 1956            | 2.97 | 74                | 81                | 81                 | 26915          | 0               | 15840          | 0.00            |
| 2 | 400 | 50 | 1090              | 2266            | 3.43 | 76                | 83                | 82                 | 23695          | 90              | 13945          | 0.36            |
| 3 | 400 | 50 | 1090              | 2487            | 3.75 | 78                | 85                | 83                 | 20080          | 170             | 11820          | 0.68            |
| 4 | 400 | 50 | 1090              | 2750            | 4.20 | 81                | 88                | 87                 | 16140          | 250             | 9500           | 1.00            |

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