

# EC axial fan - HyBlade

sickle-shaped blades (S series)  
Fan housing with guard grille

W3G630-GU31-08 ebmpapst Datasheet  
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## Nominal data

|                          |                   |            |
|--------------------------|-------------------|------------|
| Type                     | W3G630-GU31-08    |            |
| Motor                    | M3G150-IF         |            |
| Phase                    |                   | 3~         |
| Nominal voltage          | VAC               | 400        |
| Nominal voltage range    | VAC               | 380 .. 480 |
| Frequency                | Hz                | 50/60      |
| Method of obtaining data |                   | ml         |
| Status                   |                   | prelim.    |
| Speed (rpm)              | min <sup>-1</sup> | 1580       |
| Power consumption        | W                 | 3700       |
| Current draw             | A                 | 5.6        |
| Max. back pressure       | Pa                | 340        |
| Max. back pressure       | in. wg            | 1.36       |
| Min. ambient temperature | °C                | -40        |
| 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 $\eta_{es}$ | % | 37.7   | 36.8      | 09 Power consumption $P_{ed}$ | kW                | 3.15  |
| 02 Measurement category           |   | A      |           | 09 Air flow $q_v$             | m³/h              | 17710 |
| 03 Efficiency category            |   | Static |           | 09 Pressure increase $p_{fs}$ | Pa                | 231   |
| 04 Efficiency grade N             |   | 40.9   | 40        | 10 Speed (rpm) n              | min <sup>-1</sup> | 1580  |
| 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-205533



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## Technical description

|                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Size                                                                       | 630 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Motor size                                                                 | 150                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Rotor surface                                                              | Painted black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Electronics housing material                                               | Die-cast aluminum, painted gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 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                                                          | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Direction of rotation                                                      | Counterclockwise, viewed toward rotor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Degree of protection                                                       | IP55                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 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 °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>- Operation and alarm display with LED</li> <li>- External 15-50 VDC input (parameterization)</li> <li>- Alarm relay</li> <li>- Integrated PI controller</li> <li>- Configurable inputs/outputs (I/O)</li> <li>- MODBUS V6.0</li> <li>- Motor current limitation</li> <li>- RFID - ISO 15693 compatible</li> <li>- RS-485 MODBUS-RTU</li> <li>- Soft start</li> <li>- Voltage output 3.3-24 VDC, Pmax = 800 mW</li> <li>- Control interface with SELV potential safely disconnected from the mains</li> <li>- Thermal overload protection for electronics/motor</li> <li>- Line undervoltage / phase failure detection</li> </ul> |
| EMC immunity to interference                                               | According to EN 61000-6-2 (industrial environment)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| EMC interference emission                                                  | According to EN 61000-6-3 (household environment), except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system) | <= 3.5 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Electrical hookup                                                          | Terminal box with cable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Motor protection                                                           | Reverse polarity and locked-rotor protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Protection class                                                           | I (with customer connection of protective earth)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |



W3G630-GU31-08

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|                           |                                                               |
|---------------------------|---------------------------------------------------------------|
| Conformity with standards | EN 61800-5-1; CE                                              |
| Approval                  | UL 1004-7 + 60730-1; EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1 |

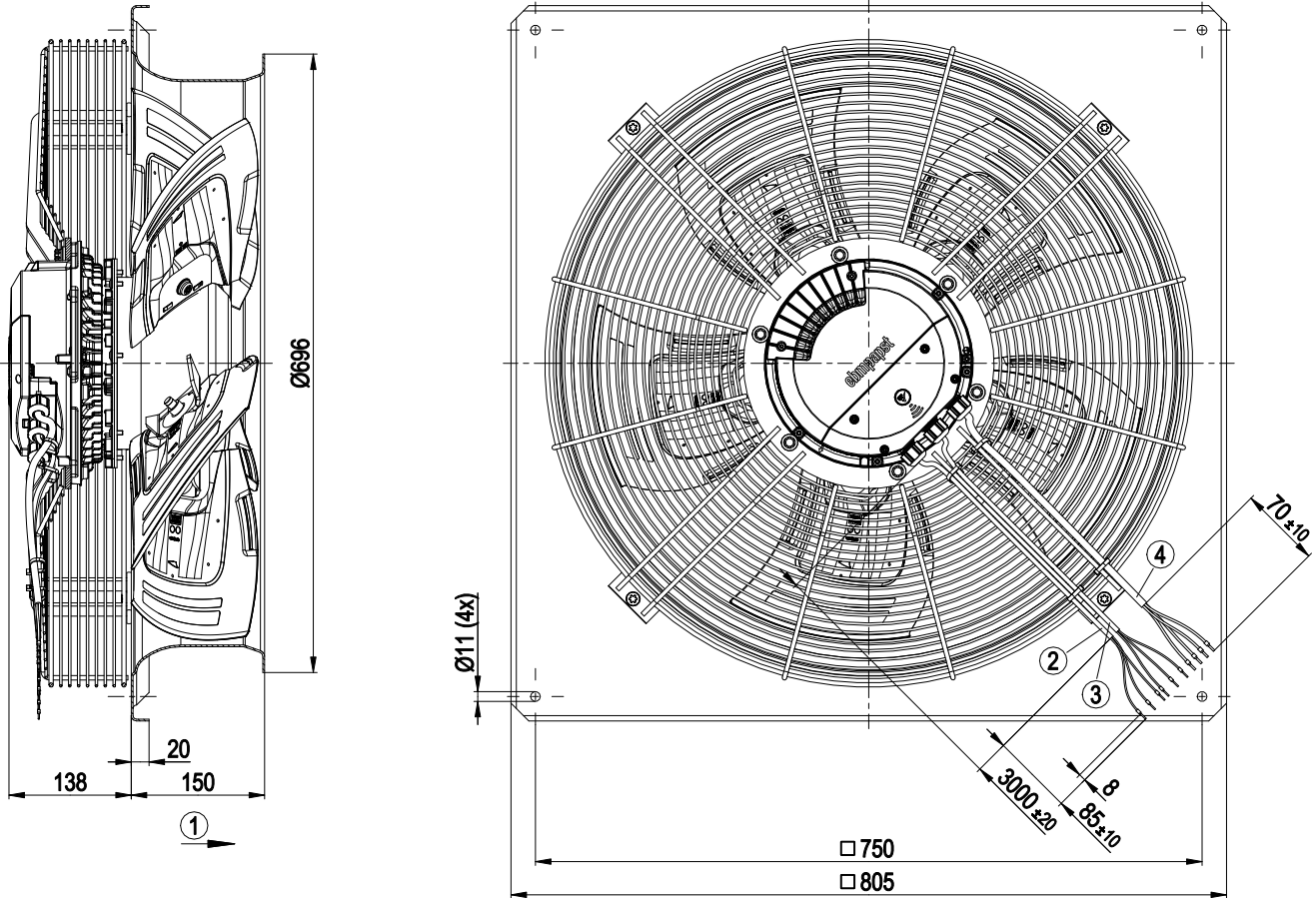


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## Product drawing



|   |                                                                          |
|---|--------------------------------------------------------------------------|
| 1 | Direction of air flow "A"                                                |
| 2 | Cable silicone 3x 0.34 mm <sup>2</sup><br>3x wire-end ferrule            |
| 3 | Cable silicone 3x 0.34 mm <sup>2</sup><br>3x wire-end ferrule            |
| 4 | Cable silicone 4x 1.5 mm <sup>2</sup><br>4x wire-end ferrule<br>PE=90 mm |

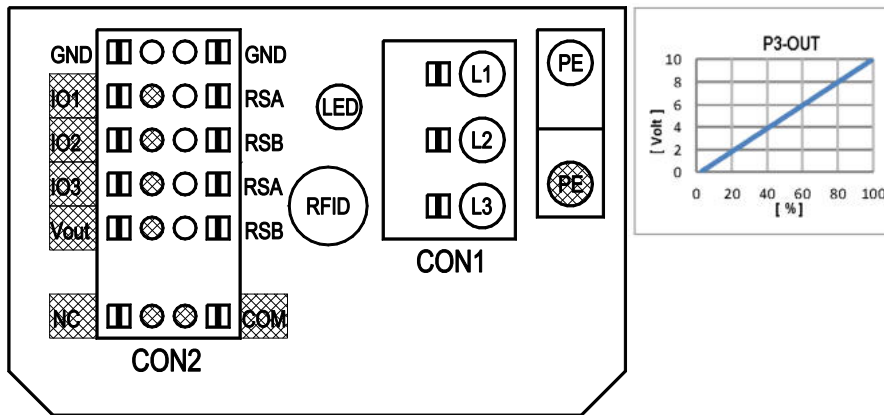


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## Connection diagram



shaded gray => not brought out via leads

| No.  | Conn. | Designation | Color        | Function/assignment                                                                                                                                                                                                                                                                                                                             |
|------|-------|-------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4    | CON1  | L1          | black        | Power supply, phase, see nameplate for voltage range                                                                                                                                                                                                                                                                                            |
| 4    | CON1  | L2          | brown        | Power supply, phase, see nameplate for voltage range                                                                                                                                                                                                                                                                                            |
| 4    | CON1  | L3          | light blue   | Power supply, phase, see nameplate for voltage range                                                                                                                                                                                                                                                                                            |
| 4    | PE    | PE          | green/yellow | Protective earth                                                                                                                                                                                                                                                                                                                                |
| 2, 3 | CON2  | RSA         | 2x yellow    | RS485 interface for MODBUS, RSA; SELV                                                                                                                                                                                                                                                                                                           |
| 2, 3 | CON2  | RSB         | 2x red       | RS485 interface for MODBUS, RSB; SELV                                                                                                                                                                                                                                                                                                           |
| 2, 3 | CON2  | GND         | 2x blue      | Reference ground for control interface, SELV                                                                                                                                                                                                                                                                                                    |
| -    | CON2  | IO1         | -            | Function parameterizable (see "Optional interface functions" table)<br>Factory setting:<br>Digital input - high active, function: Disable input, SELV<br>- inactive: Pin open or applied voltage < 1.5 VDC<br>- active: applied voltage 3.5-50 VDC<br>Reset function: Triggering of error reset on change of state from "enabled" to "disabled" |
| -    | CON2  | IO2         | -            | Function parameterizable (see "Optional interface functions" table)<br>Factory setting:<br>Analog input 0-10 V/PWM, Ri=100 KΩ, function: Actual value<br>SELV                                                                                                                                                                                   |
| -    | CON2  | IO3         | -            | Function parameterizable (see "Optional interface functions" table)<br>Factory setting:<br>Analog output 0-10 V, max. 5 mA, function: Fan modulation level<br>Characteristic curve parameterizable (see output characteristic curve P3-OUT), SELV                                                                                               |
| -    | CON2  | Vout        | -            | Voltage output 3.3-24 VDC ±5%, Pmax=800 mW, voltage parameterizable<br>Factory setting: 10 VDC<br>short-circuit-proof, supply for external devices, SELV<br>alternatively: 15-50 VDC input for parameterization via MODBUS without line voltage                                                                                                 |
| -    | CON2  | COM         | -            | Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) / min. 10 mA, reinforced insulation on supply side and on control interface side                                                                                                                                                                   |
| -    | CON2  | NC          | -            | Status relay, floating status contact, break for failure                                                                                                                                                                                                                                                                                        |
|      |       | LED         |              | green: status = good, ready for operation<br>orange: status = warning<br>red: status = failure                                                                                                                                                                                                                                                  |
|      |       | P3-OUT      |              | Output characteristic curve                                                                                                                                                                                                                                                                                                                     |



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## Terminal/plug assignment

|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|---------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------|----------------------|------------|------------|------------|------------|------------|------------|------------|---------------------------------|---------------------------------|----------|----------|----------|----------|----------|----------------------------------|--|--|--|
| configurable IO functions: normal / inverse |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
| CON2                                        | configurable IO mode  | electrical specification                                                                                         | MODBUS Register for IO mode configuration                                                                  | D158 [0]   | source: set value    | D101 [...] | D147 [...] | D104 [...] | D12E [...] | D148 [...] | D16C [...] | D16A [...] | (selected directly via IO mode) | (selected directly via IO mode) | OUTPUT   |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            | source: sensor value | D101 [...] | D147 [...] | D104 [...] | D12E [...] | D148 [...] | D16C [...] | D16A [...] | switch: tach out                | signal: fan modulation level %  | D130 [0] | D130 [1] | D130 [2] | D130 [5] | D00C [1] | pulse output for auto-addressing |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
| IO1                                         |                       |                                                                                                                  |                                                                                                            | D158 [2]   | source: set value    | D101 [...] |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
| IO2                                         |                       |                                                                                                                  |                                                                                                            | D159 [0]   | source: set value    | D101 [...] |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
| IO3                                         |                       |                                                                                                                  |                                                                                                            | D15A [0]   | source: set value    | D101 [...] |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
| IO3                                         |                       |                                                                                                                  |                                                                                                            | D15A [7]   | source: set value    | D101 [...] |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
| RSA<br>RSB                                  | RS485 bus connection, |                                                                                                                  |                                                                                                            | D15A [4]   | source: set value    | D101 [...] |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
| Yout                                        | voltage output        | voltage parameterizable 3.3...24VDC +/- 5.5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV | alternatively: input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage | D16E [...] | source: set value    | D101 [...] |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |
|                                             |                       |                                                                                                                  |                                                                                                            |            |                      |            |            |            |            |            |            |            |                                 |                                 |          |          |          |          |          |                                  |  |  |  |

configurable option

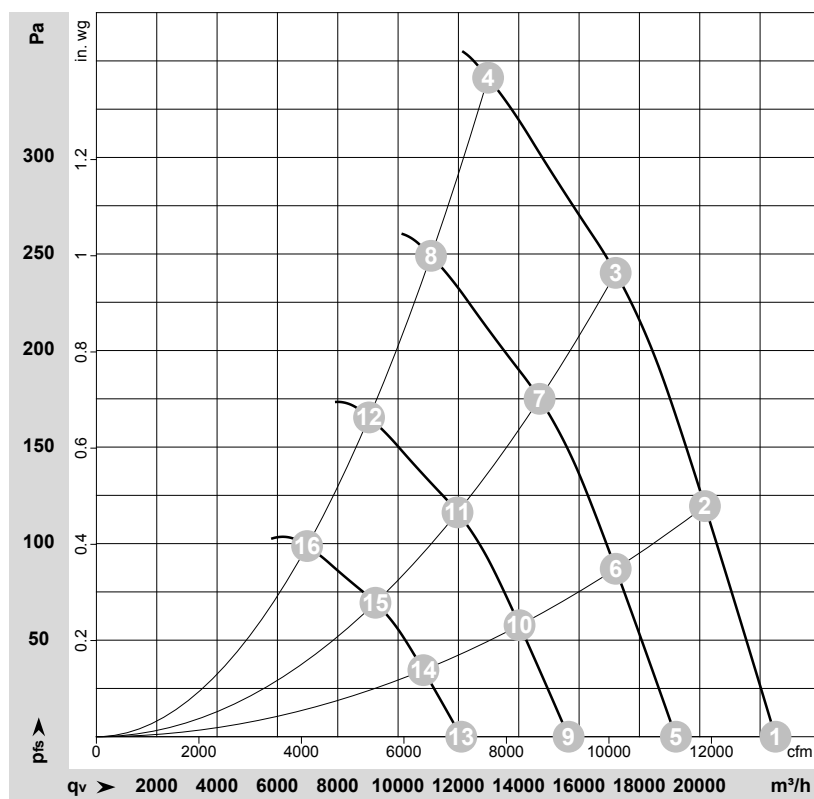
For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.0

○ configurable option

For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.0



## Curves: Air performance 50 Hz



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

Measurement: LU-205533-1

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

|    | Wired | U   | f  | n                 | P <sub>ed</sub> | I    | q <sub>v</sub>    | p <sub>fs</sub> | q <sub>v</sub> | p <sub>fs</sub> |
|----|-------|-----|----|-------------------|-----------------|------|-------------------|-----------------|----------------|-----------------|
|    |       | V   | Hz | min <sup>-1</sup> | W               | A    | m <sup>3</sup> /h | Pa              | cfm            | in. wg          |
| 1  | 3~    | 400 | 50 | 1580              | 2604            | 4.02 | 22510             | 0               | 13250          | 0.00            |
| 2  | 3~    | 400 | 50 | 1580              | 2879            | 4.43 | 20170             | 120             | 11875          | 0.48            |
| 3  | 3~    | 400 | 50 | 1580              | 3210            | 4.92 | 17215             | 240             | 10130          | 0.96            |
| 4  | 3~    | 400 | 50 | 1580              | 3700            | 5.60 | 12985             | 340             | 7645           | 1.36            |
| 5  | 3~    | 400 | 50 | 1350              | 1618            | 2.50 | 19210             | 0               | 11305          | 0.00            |
| 6  | 3~    | 400 | 50 | 1350              | 1789            | 2.75 | 17215             | 89              | 10130          | 0.36            |
| 7  | 3~    | 400 | 50 | 1350              | 1996            | 3.06 | 14690             | 176             | 8645           | 0.71            |
| 8  | 3~    | 400 | 50 | 1350              | 2346            | 3.58 | 11090             | 249             | 6530           | 1.00            |
| 9  | 3~    | 400 | 50 | 1100              | 875             | 1.35 | 15650             | 0               | 9210           | 0.00            |
| 10 | 3~    | 400 | 50 | 1100              | 968             | 1.49 | 14025             | 59              | 8255           | 0.24            |
| 11 | 3~    | 400 | 50 | 1100              | 1080            | 1.66 | 11970             | 117             | 7045           | 0.47            |
| 12 | 3~    | 400 | 50 | 1100              | 1269            | 1.94 | 9040              | 166             | 5320           | 0.67            |
| 13 | 3~    | 400 | 50 | 850               | 404             | 0.62 | 12095             | 0               | 7120           | 0.00            |
| 14 | 3~    | 400 | 50 | 850               | 447             | 0.69 | 10840             | 35              | 6380           | 0.14            |
| 15 | 3~    | 400 | 50 | 850               | 498             | 0.76 | 9250              | 70              | 5445           | 0.28            |
| 16 | 3~    | 400 | 50 | 850               | 586             | 0.89 | 6985              | 99              | 4110           | 0.40            |

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P<sub>ed</sub> = Power consumption · I = Current draw · q<sub>v</sub> = Air flow · p<sub>fs</sub> = Pressure increase

