# EC axial fan - AxiEco

with guard grille

S3G450-ZL11-M1 ebmpapst Datasheet
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Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRB 590142

## Nominal data

| | |
|---|---|
| **Type** | **S3G450-ZL11-M1** |
| **Motor** | **M3G084-GF** |

| | | |
|---|---|---|
| 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) | $min^{-1}$ | 1550 |
| Power consumption | W | 650 |
| Current draw | A | 1.0 |
| Max. back pressure | Pa | 220 |
| Max. back pressure | in. wg | 0.88 |
| 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

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

| | | Actual | Req. 2015 |
|---|---|---|---|
| 01 Overall efficiency $\eta_{es}$ | % | 49.4 | 32.4 |
| 02 Measurement category | | A | |
| 03 Efficiency category | | Static | |
| 04 Efficiency grade N | | 57 | 40 |
| 05 Variable speed drive | | Yes | |

| | | |
|---|---|---|
| 09 Power consumption $P_{ed}$ | kW | 0.63 |
| 09 Air flow $q_v$ | $m^3/h$ | 5170 |
| 09 Pressure increase $p_{fs}$ | Pa | 209 |
| 10 Speed (rpm) n | $min^{-1}$ | 1560 |
| 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 Pa

LU-209440

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## Technical description

| | |
|---|---|
| **Weight** | 9.5 kg |
| **Size** | 450 mm |
| **Motor size** | 84 |
| **Rotor surface** | Painted black |
| **Terminal box material** | PP plastic |
| **Electronics housing material** | Die-cast aluminum, painted black |
| **Impeller material** | PP plastic, galvanized sheet-metal plate |
| **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; (sealed) |
| **Technical features** | - Output 10 VDC, max. 10 mA<br>- Operation and alarm display<br>- External 24 V input (parameter setting)<br>- Alarm relay<br>- Integrated PID controller<br>- Motor current limitation<br>- PFC, passive<br>- RS-485 MODBUS-RTU<br>- Soft start<br>- EEPROM write cycles: 100,000 maximum<br>- Control input 0-10 VDC / PWM<br>- Control interface with SELV potential safely disconnected from the mains<br>- Thermal overload protection for electronics/motor<br>- Line undervoltage / phase failure detection |
| **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; CE |
| **Approval** | CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1 |
| **Comment** | Conformity with standard EN 60335-1 on request |

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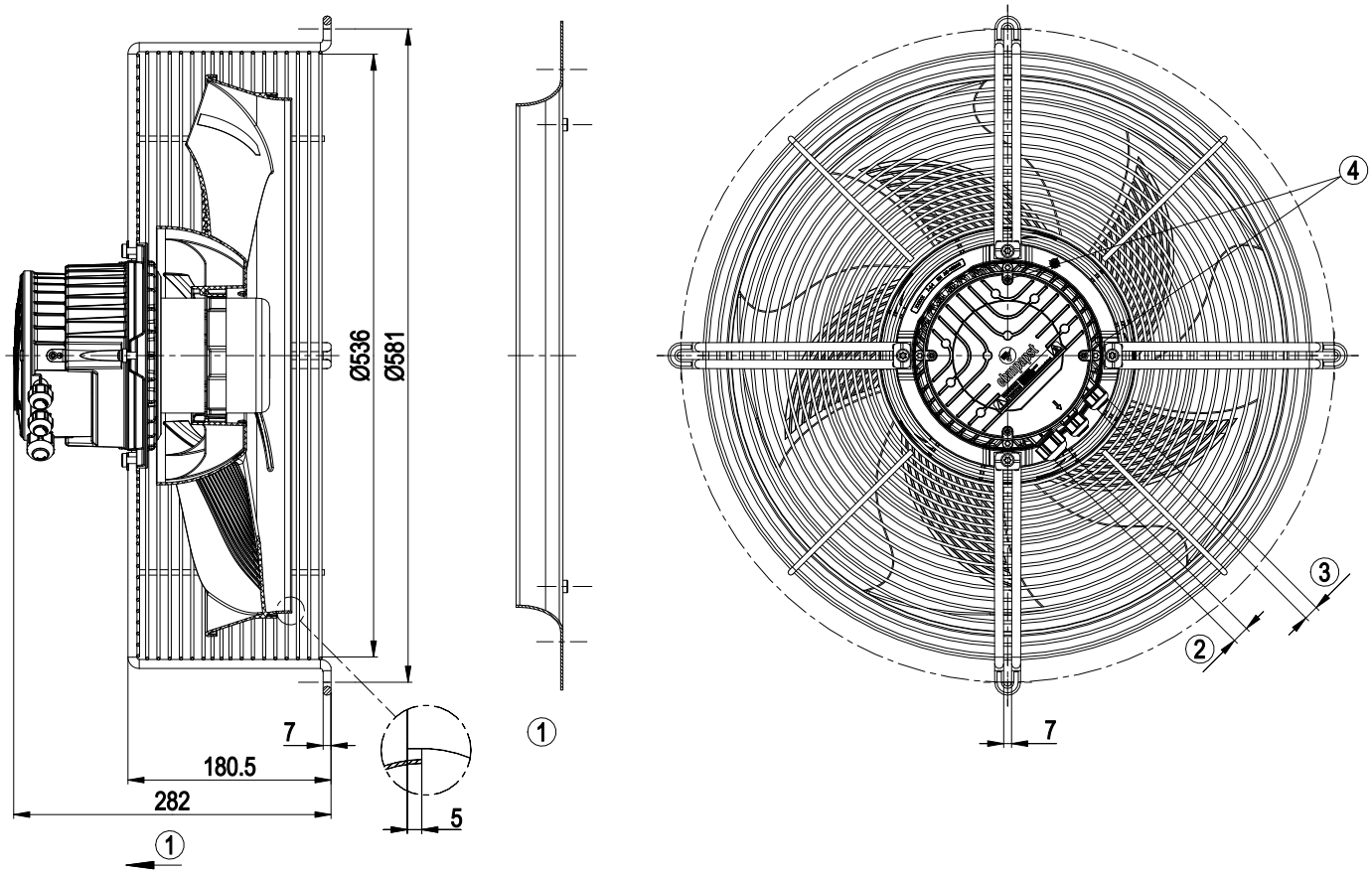
## Product drawing




| | |
|---|---|
| 1 | Airflow direction "V" |
| 2 | Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8±0.3 Nm (use must be made of seal provided)<br>Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8±0.3 Nm |
| 3 | Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8±0.3 Nm (use must be made of seal provided)<br>Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8±0.3 Nm |
| 4 | Tightening torque 1.5 ± 0.2 Nm |
| 5 | Accessory part: Inlet ring 45100-2-4013 not included in scope of delivery |

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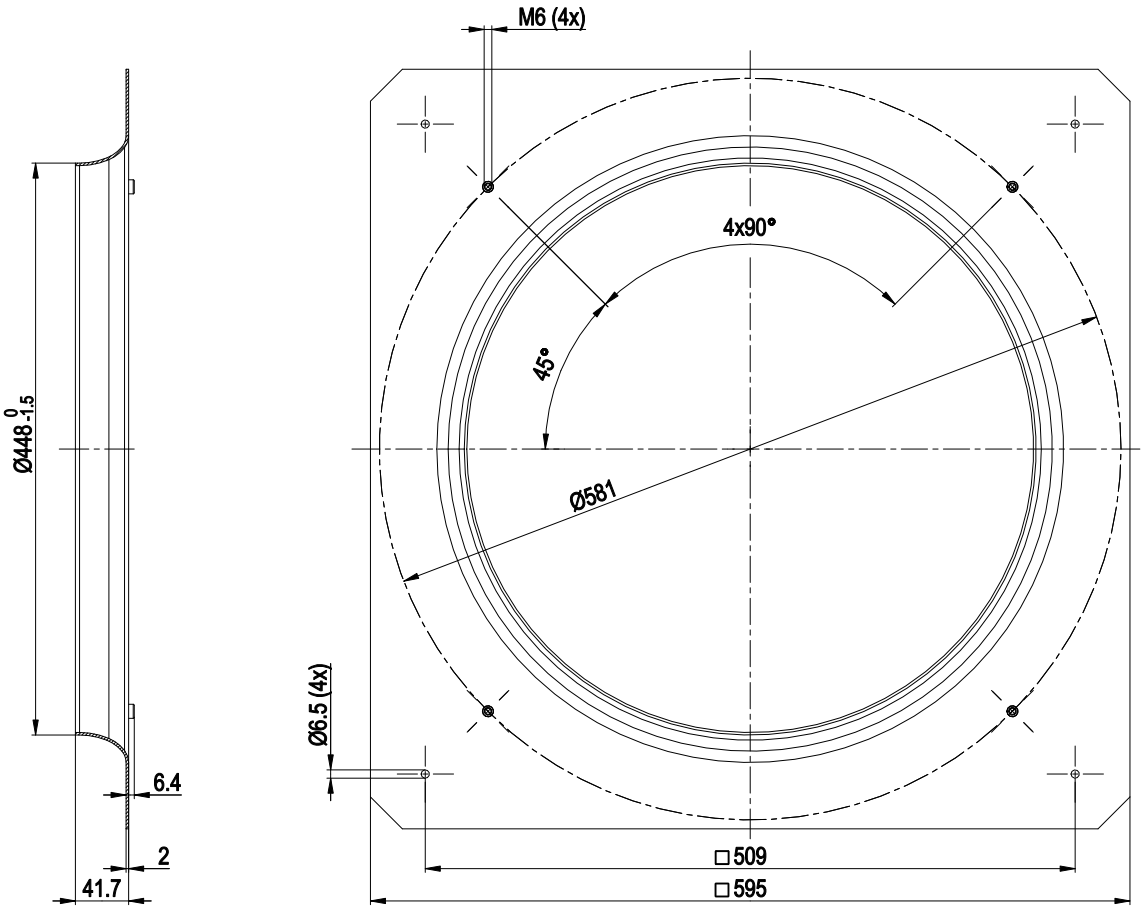
## Accessory part




Inlet ring 45100-2-4013

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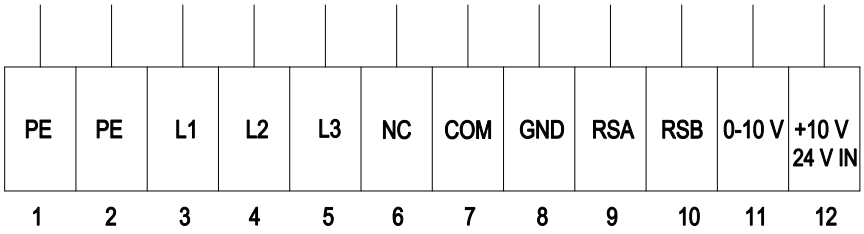
## Connection diagram




| No. | Conn. | Designation | Function/assignment |
|---|---|---|---|
| | 1 | PE | Protective earth |
| | 2 | PE | Protective earth |
| | 3 | L1 | Power supply |
| | 4 | L2 | Power supply |
| | 5 | L3 | Power supply |
| | 6 | NC | Status relay, floating status contact, break for failure,<br>contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on supply side and basic insulation on control interface side |
| | 7 | COM | Status relay, floating status contact, break for failure,<br>contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on supply side and basic insulation on control interface side |
| | 8 | GND | Reference ground for control interface, SELV |
| | 9 | RSA | RS485 interface for MODBUS, RSA; SELV |
| | 10 | RSB | RS485 interface for MODBUS, RSB; SELV |
| | 11 | 0-10 V | Analog input (set value) SELV, 0-10 V, Ri = 100 kΩ, adjustable curve |
| | 12 | +10 V | Fixed voltage output 10 VDC, SELV, +10 V ±3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. pot);<br>fixed voltage input 24 VDC for setting parameters via MODBUS without line voltage supply |

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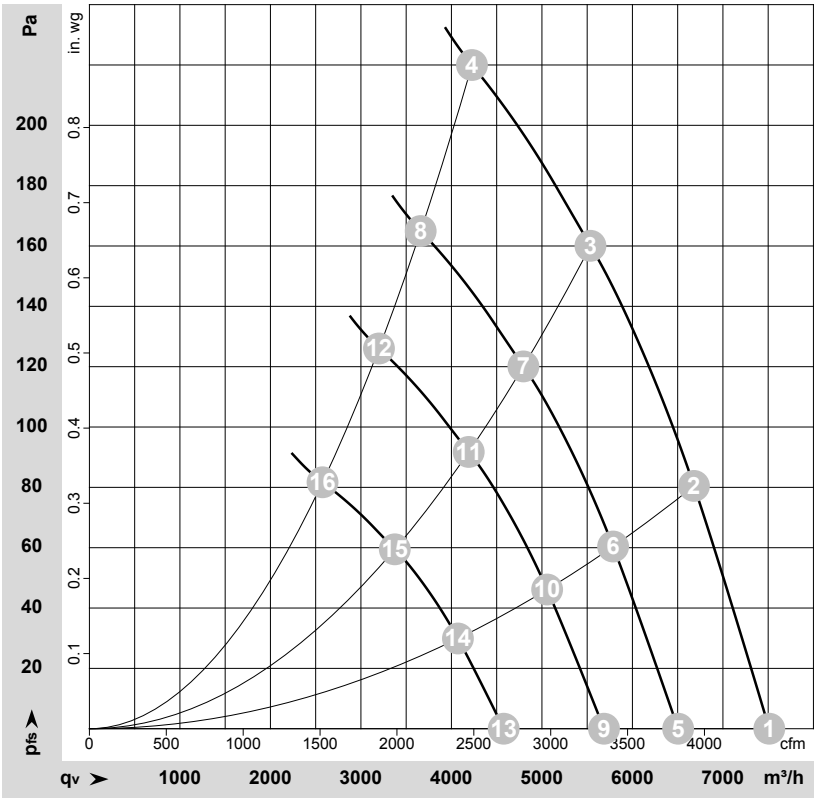
## Curves: Air performance 50 Hz




ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-209417-1

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 | $P_{ed}$ | I | $LpA_{in}$ | $LwA_{in}$ | $LwA_{out}$ | $q_V$ | $p_{fs}$ | $q_V$ | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | V | Hz | $min^{-1}$ | W | A | dB(A) | dB(A) | dB(A) | $m^3/h$ | Pa | cfm | in. wg |
| 1 | 3~ | 400 | 50 | 1550 | 479 | 0.77 | 70 | 76 | 80 | 7510 | 0 | 4420 | 0.00 |
| 2 | 3~ | 400 | 50 | 1550 | 558 | 0.89 | 67 | 74 | 78 | 6680 | 80 | 3930 | 0.32 |
| 3 | 3~ | 400 | 50 | 1550 | 627 | 0.99 | 65 | 72 | 77 | 5535 | 160 | 3260 | 0.64 |
| 4 | 3~ | 400 | 50 | 1550 | 650 | 1.00 | 67 | 74 | 79 | 4225 | 220 | 2490 | 0.88 |
| 5 | 3~ | 400 | 50 | 1350 | 311 | 0.50 | 66 | 73 | 76 | 6505 | 0 | 3830 | 0.00 |
| 6 | 3~ | 400 | 50 | 1350 | 363 | 0.58 | 63 | 70 | 74 | 5785 | 60 | 3405 | 0.24 |
| 7 | 3~ | 400 | 50 | 1350 | 407 | 0.64 | 62 | 69 | 73 | 4795 | 120 | 2820 | 0.48 |
| 8 | 3~ | 400 | 50 | 1350 | 429 | 0.67 | 63 | 70 | 75 | 3660 | 165 | 2155 | 0.66 |
| 9 | 3~ | 400 | 50 | 1180 | 208 | 0.34 | 63 | 69 | 73 | 5685 | 0 | 3345 | 0.00 |
| 10 | 3~ | 400 | 50 | 1180 | 242 | 0.39 | 60 | 67 | 71 | 5060 | 46 | 2975 | 0.18 |
| 11 | 3~ | 400 | 50 | 1180 | 272 | 0.43 | 58 | 65 | 70 | 4190 | 92 | 2465 | 0.37 |
| 12 | 3~ | 400 | 50 | 1180 | 286 | 0.45 | 60 | 67 | 72 | 3200 | 126 | 1885 | 0.51 |
| 13 | 3~ | 400 | 50 | 950 | 108 | 0.18 | 57 | 64 | 68 | 4580 | 0 | 2695 | 0.00 |
| 14 | 3~ | 400 | 50 | 950 | 126 | 0.20 | 55 | 61 | 65 | 4070 | 30 | 2395 | 0.12 |
| 15 | 3~ | 400 | 50 | 950 | 142 | 0.22 | 53 | 60 | 64 | 3375 | 59 | 1985 | 0.24 |
| 16 | 3~ | 400 | 50 | 950 | 149 | 0.23 | 54 | 61 | 66 | 2575 | 82 | 1515 | 0.33 |

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · $P_{ed}$ = Power consumption · I = Current draw · $LpA_{in}$ = Sound pressure level intake side · $LwA_{in}$ = Sound power level intake side $LwA_{out}$ = Sound power level outlet side · $q_V$ = Air flow · $p_{fs}$ = Pressure increase