**D3G180-HE09-02**

# EC centrifugal fan

forward-curved, dual-intake

with housing (flange)

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## Nominal data

| | |
|---|---|
| **Type** | **D3G180-HE09-02** |
| **Motor** | **M3G084-FA** |

| | | |
|---|---|---|
| Phase | | 1~ |
| Nominal voltage | VAC | 230 |
| Nominal voltage range | VAC | 200 .. 277 |
| Frequency | Hz | 50/60 |
| Method of obtaining data | | ml |
| Speed (rpm) | $min^{-1}$ | 2110 |
| Power consumption | W | 750 |
| Current draw | A | 3.3 |
| Min. back pressure | Pa | 240 |
| Min. back pressure | in. wg | 0.96 |
| Min. ambient temperature | °C | -25 |
| Max. ambient temperature | °C | 60 |
| Starting current | A | 3.1 |

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

| | | Actual | Req. 2015 |
|---|---|---|---|
| 01 Overall efficiency $\eta_{es}$ | % | 47.6 | 36.3 |
| 02 Measurement category | | A | |
| 03 Efficiency category | | Static | |
| 04 Efficiency grade N | | 55.3 | 44 |
| 05 Variable speed drive | | Yes | |

| | | |
|---|---|---|
| 09 Power consumption $P_{ed}$ | kW | 0.6 |
| 09 Air flow $q_v$ | $m^3/h$ | 1405 |
| 09 Pressure increase $p_{fs}$ | Pa | 665 |
| 10 Speed (rpm) n | $min^{-1}$ | 2600 |
| 11 Specific ratio* | | 1.01 |

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-169969

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## Technical description

| | |
|---|---|
| **Weight** | 10.1 kg |
| **Size** | 180 mm |
| **Motor size** | 84 |
| **Rotor surface** | Painted black |
| **Impeller material** | Sheet steel, galvanized |
| **Housing material** | Sheet steel, galvanized |
| **Motor suspension** | Motor mounted on brackets for one-sided vibration damping |
| **Direction of rotation** | Counterclockwise, viewed toward rotor |
| **Degree of protection** | IP54 |
| **Insulation class** | "F" |
| **Moisture (F) / Environmental (H) protection class** | H1 |
| **Max. permitted ambient temp. for motor (transport/storage)** | +85 °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** | - Output 10 VDC, max. 10 mA<br>- Operation and alarm display<br>- Tach output<br>- Alarm relay<br>- Integrated PID controller<br>- Power limiter<br>- Motor current limitation<br>- PFC, active<br>- RS-485 MODBUS-RTU<br>- Soft start<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 |
| **EMC immunity to interference** | According to EN 61000-6-2 (industrial environment) |
| **EMC circuit feedback** | According to EN 61000-3-2/3 |
| **EMC interference emission** | According to EN 61000-6-3 (household environment) |
| **Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)** | <= 3.5 mA |
| **Electrical hookup** | Plug |
| **Motor protection** | Thermal overload protector (TOP) internally connected |
| **With cable** | Variable |
| **Pollution degree** | 2 |
| **Protection class** | I (with customer connection of protective earth) |
| **Conformity with standards** | CE |
| **Approval** | EAC |
| **Comment** | Conformity with EN 61800-5-1 and EN 60335-1 in preparation |



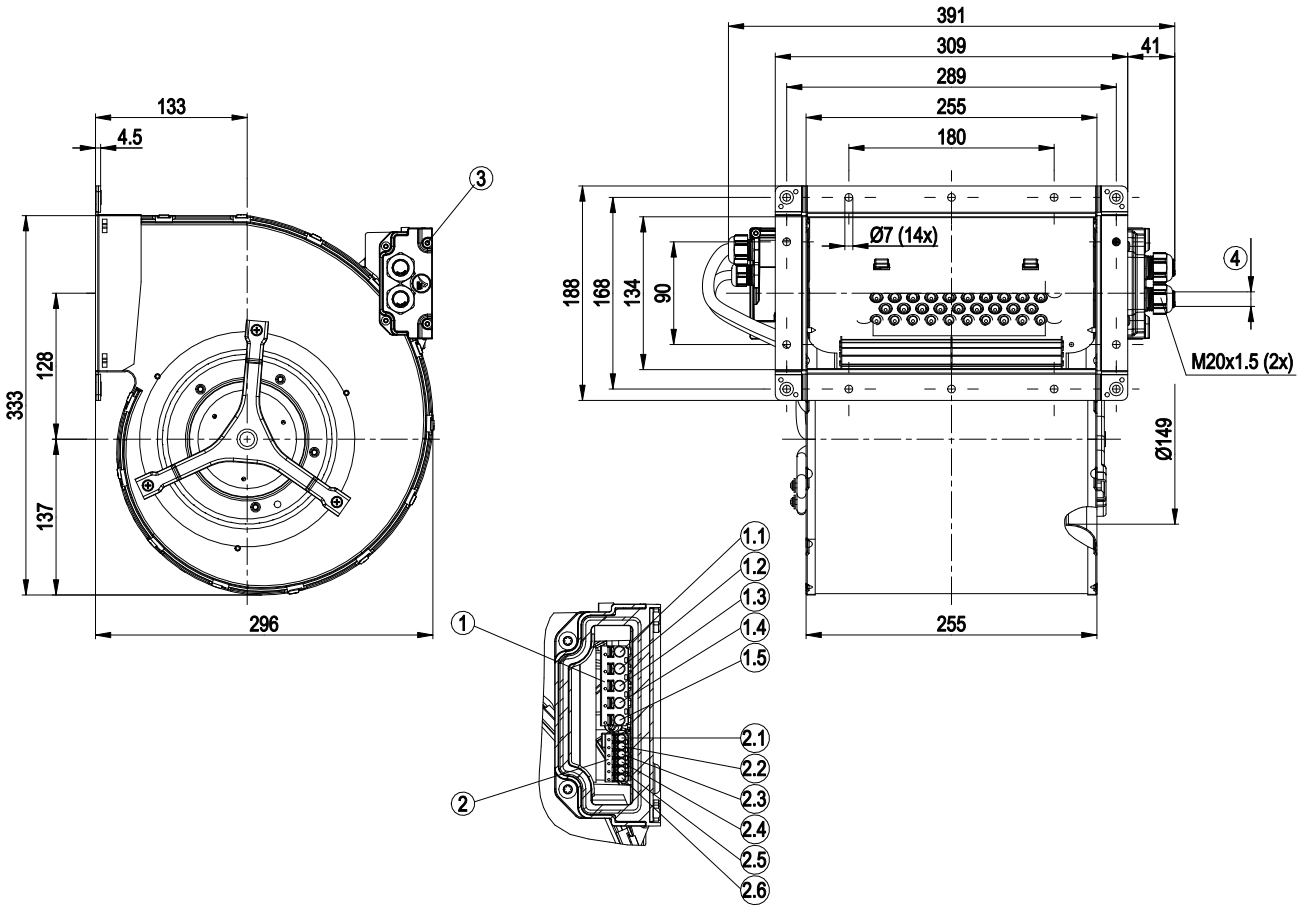
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## Product drawing




| | |
|---|---|
| 1 | Terminal 1 |
| 1.1 | PE |
| 1.2 | L |
| 1.3 | N |
| 1.4 | NC |
| 1.5 | COM |
| 2 | Terminal 2 |
| 2.1 | 0-10 V |
| 2.2 | +10 V |
| 2.3 | GND |
| 2.4 | RSA |
| 2.5 | RSB |
| 2.6 | Tach |
| 3 | Tightening torque 3 ± 0.5 Nm |
| 4 | Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8±0.3 Nm<br>Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8±0.3 Nm (use must be made of seal provided) |



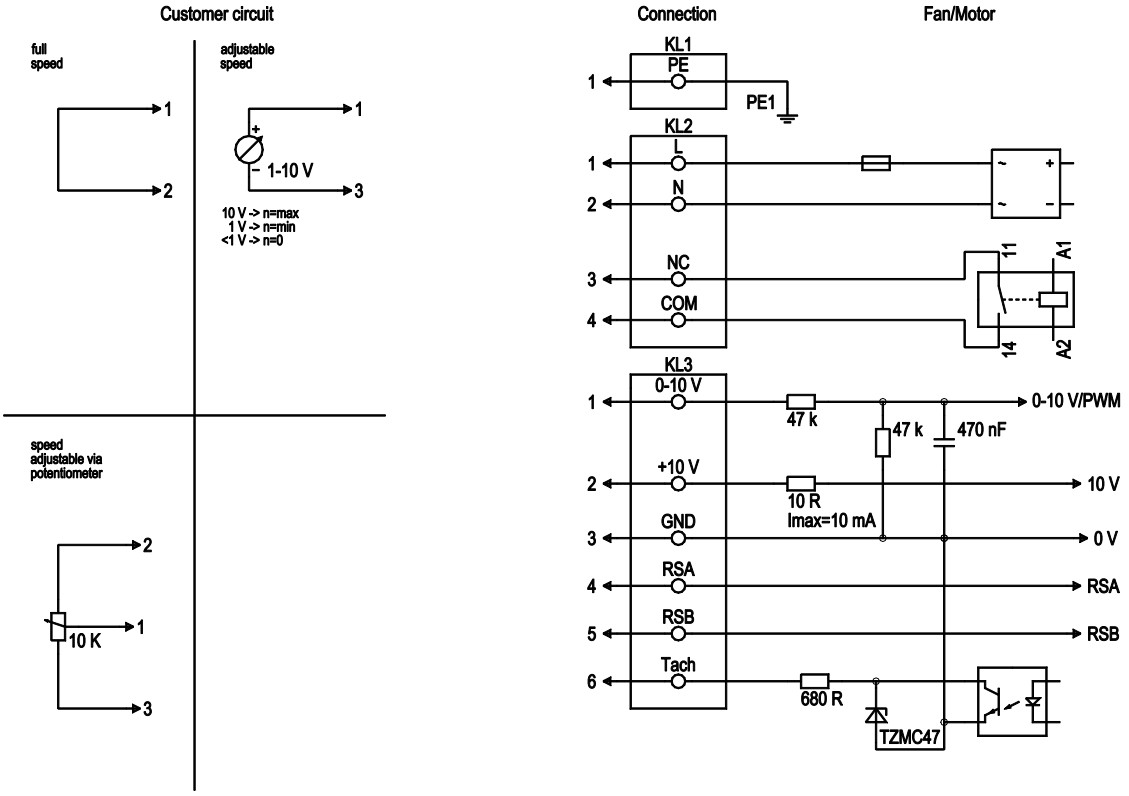
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## Connection diagram




| No. | Conn. | Designation | Function/assignment |
|---|---|---|---|
| KL1 | 1 | PE | Protective earth |
| KL2 | 2 | L | Power supply, phase, 50/60 Hz |
| KL2 | 3 | N | Power supply, neutral conductor, 50/60 Hz |
| KL2 | 4 | NC | Status relay, floating status contact, break for failure, contact rating 250 VAC/2 A (AC1) min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side |
| KL2 | 5 | COM | Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; basic insulation on supply side and reinforced insulation on control interface side |
| KL3 | 1 | 0-10 V | Analog input (set value), 0-10 V, Ri = 100 kΩ, adjustable curve, SELV |
| KL3 | 2 | +10 V | Fixed voltage output 10 VDC, SELV |
| KL3 | 3 | GND | Reference ground for control interface, SELV |
| KL3 | 4 | RSA | RS485 interface for MODBUS, RSA; SELV |
| KL3 | 5 | RSB | RS485 interface for MODBUS, RSB; SELV |
| KL3 | 6 | Tacho | Tach output, open collector, 1 pulse per revolution, Isink max = 10 mA, SELV |



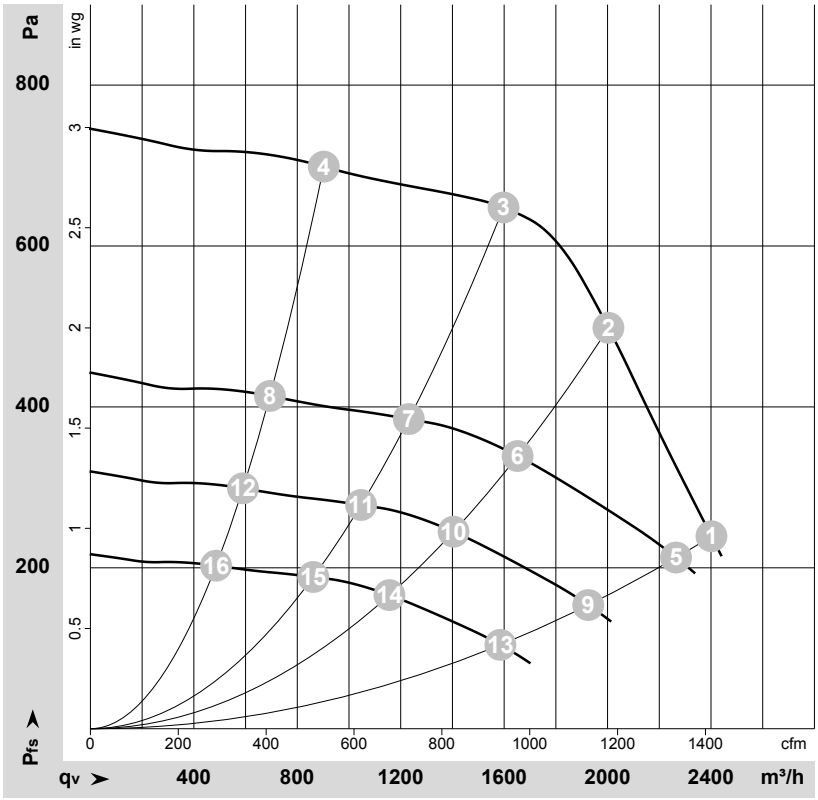
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## Curves: Air performance 50 Hz




ρ = 1.175 kg/m³ ± 2 %

Measurement: LU-169969-1

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 | $LpA_{in}$ | $LwA_{in}$ | $q_V$ | $p_{fs}$ | $q_V$ | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | V | Hz | $min^{-1}$ | W | A | dB(A) | dB(A) | $m^3/h$ | Pa | cfm | in. wg |
| 1 | Y | 230 | 50 | 2110 | 750 | 3.30 | 72 | 84 | 2400 | 240 | 1415 | 0.96 |
| 2 | Y | 230 | 50 | 2425 | 750 | 3.30 | 71 | 83 | 2005 | 500 | 1180 | 2.01 |
| 3 | Y | 230 | 50 | 2600 | 675 | 2.96 | 71 | 82 | 1600 | 650 | 940 | 2.61 |
| 4 | Y | 230 | 50 | 2600 | 434 | 1.92 | 69 | 80 | 900 | 700 | 530 | 2.81 |
| 5 | Y | 230 | 50 | 2000 | 629 | 2.75 | 70 | 82 | 2265 | 216 | 1335 | 0.87 |
| 6 | Y | 230 | 50 | 2000 | 419 | 1.83 | 66 | 78 | 1650 | 341 | 970 | 1.37 |
| 7 | Y | 230 | 50 | 2000 | 308 | 1.35 | 64 | 75 | 1230 | 385 | 725 | 1.55 |
| 8 | Y | 230 | 50 | 2000 | 198 | 0.88 | 62 | 74 | 695 | 414 | 410 | 1.66 |
| 9 | Y | 230 | 50 | 1700 | 386 | 1.69 | 66 | 78 | 1925 | 156 | 1135 | 0.63 |
| 10 | Y | 230 | 50 | 1700 | 257 | 1.13 | 62 | 74 | 1405 | 246 | 825 | 0.99 |
| 11 | Y | 230 | 50 | 1700 | 189 | 0.83 | 60 | 71 | 1045 | 278 | 615 | 1.12 |
| 12 | Y | 230 | 50 | 1700 | 121 | 0.54 | 58 | 70 | 590 | 299 | 345 | 1.20 |
| 13 | Y | 230 | 50 | 1400 | 216 | 0.94 | 61 | 73 | 1585 | 106 | 935 | 0.43 |
| 14 | Y | 230 | 50 | 1400 | 144 | 0.63 | 57 | 69 | 1155 | 167 | 680 | 0.67 |
| 15 | Y | 230 | 50 | 1400 | 106 | 0.46 | 55 | 66 | 860 | 189 | 505 | 0.76 |
| 16 | Y | 230 | 50 | 1400 | 68 | 0.30 | 53 | 65 | 485 | 203 | 285 | 0.81 |

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
$q_V$ = Air flow · $p_{fs}$ = Pressure increase



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