

R3G280-RR03-H1

EC centrifugal fan - RadiCal

backward-curved, single-intake



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Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

| | | |
|--------------------------|-------------------|------------|
| Type | R3G280-RR03-H1 | |
| Motor | M3G084-DF | |
| 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 | 2700 |
| Power consumption | W | 500 |
| Current draw | A | 2.2 |
| Min. ambient temperature | °C | -25 |
| 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

| | | Actual | Req. 2015 |
|-----------------------------------|---|--------|-----------|
| 01 Overall efficiency η_{es} | % | 67.3 | 48.4 |
| 02 Measurement category | | A | |
| 03 Efficiency category | | Static | |
| 04 Efficiency grade N | | 80.9 | 62 |
| 05 Variable speed drive | | Yes | |

Data obtained at optimum efficiency level.

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

| | | |
|-------------------------------|-------------------|------|
| 09 Power consumption P_{ed} | kW | 0.51 |
| 09 Air flow q_v | m ³ /h | 2105 |
| 09 Pressure increase p_{fs} | Pa | 535 |
| 10 Speed (rpm) n | min ⁻¹ | 2695 |
| 11 Specific ratio* | | 1.01 |

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

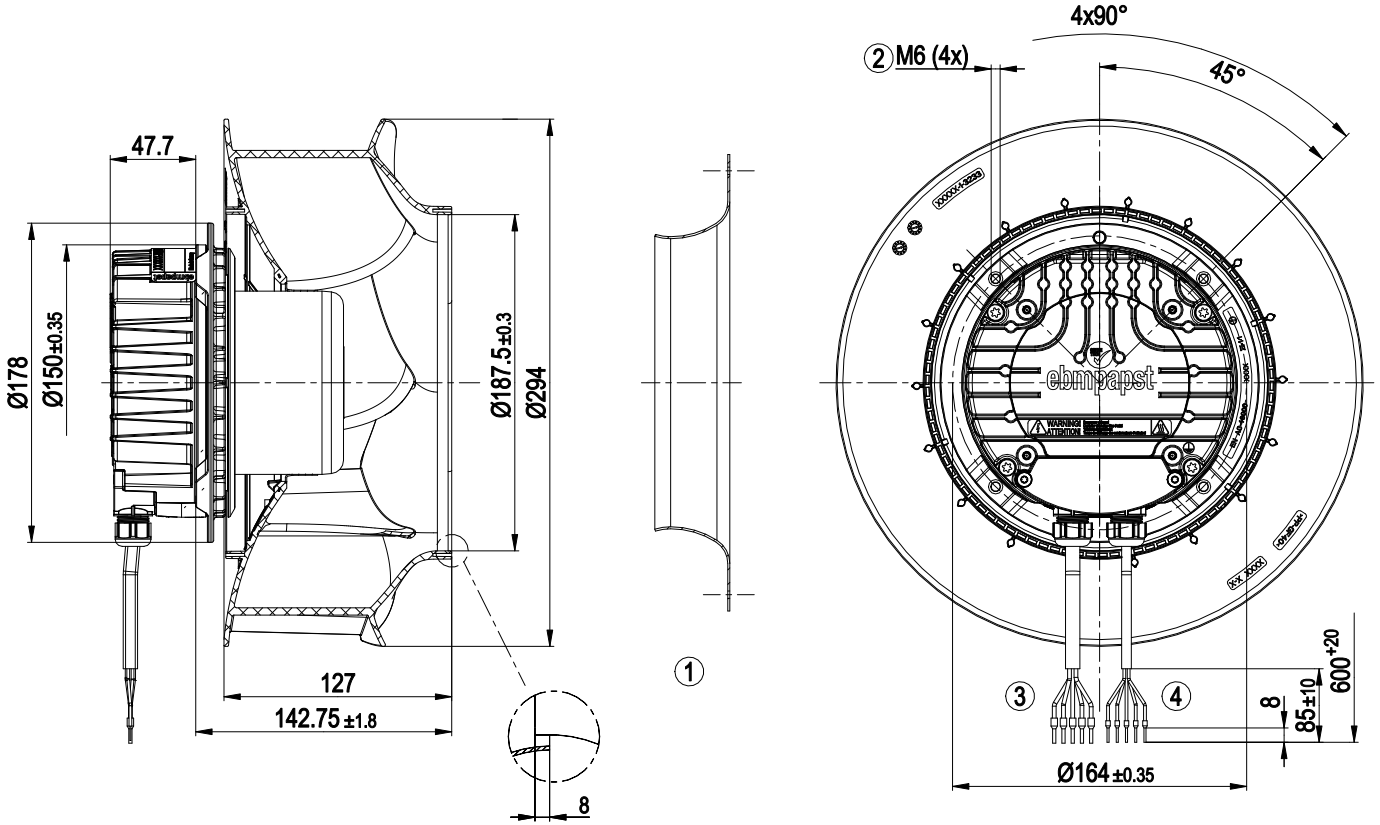
LU-149673



Technical description

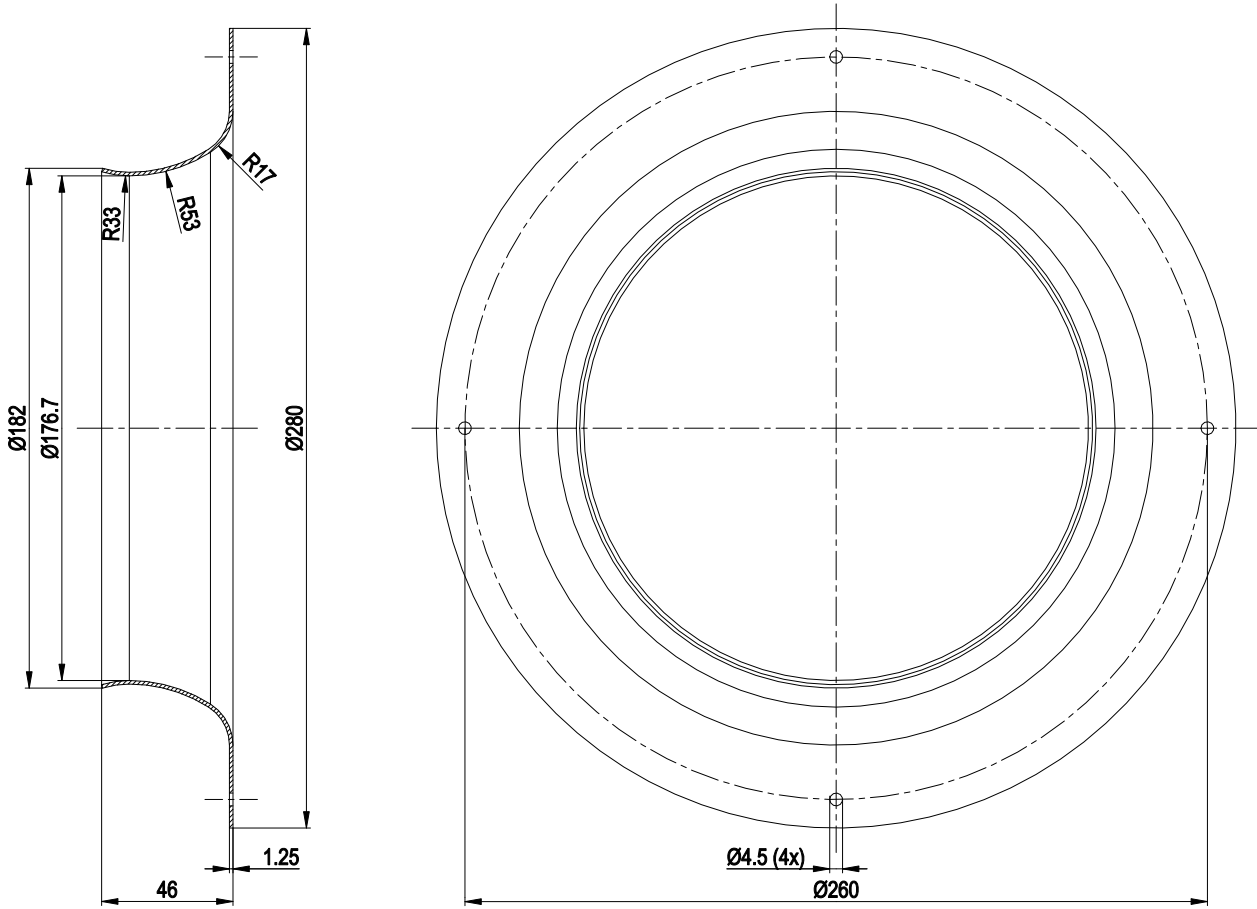
| | |
|--|--|
| Weight | 5 kg |
| Size | 280 mm |
| Motor size | 84 |
| Rotor surface | Painted black |
| Impeller material | PP plastic |
| Housing material | Die-cast aluminum |
| Number of blades | 6 |
| Direction of rotation | Clockwise, viewed toward rotor |
| Degree of protection | IP55 |
| Insulation class | "F" |
| Moisture (F) / Environmental (H) protection class | H1 |
| 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"> - Output 10 VDC, max. 10 mA - Operation and alarm display - Alarm relay - Integrated PID controller - Power limiter - Motor current limitation - PFC, active - RS-485 MODBUS-RTU - Soft start - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from supply - Thermal overload protection for electronics/motor - 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 |
| Motor protection | Thermal overload protector (TOP) internally connected |
| With cable | Variable |
| Protection class | I (if protective earth is connected by customer to the housing's connection point) |
| Conformity with standards | EN 61800-5-1; EN 60335-1; CE |
| Approval | CSA C22.2 No. 77 + CAN/CSA-E60730-1; CCC; EAC; UL 1004-7 + 60730 |

Product drawing



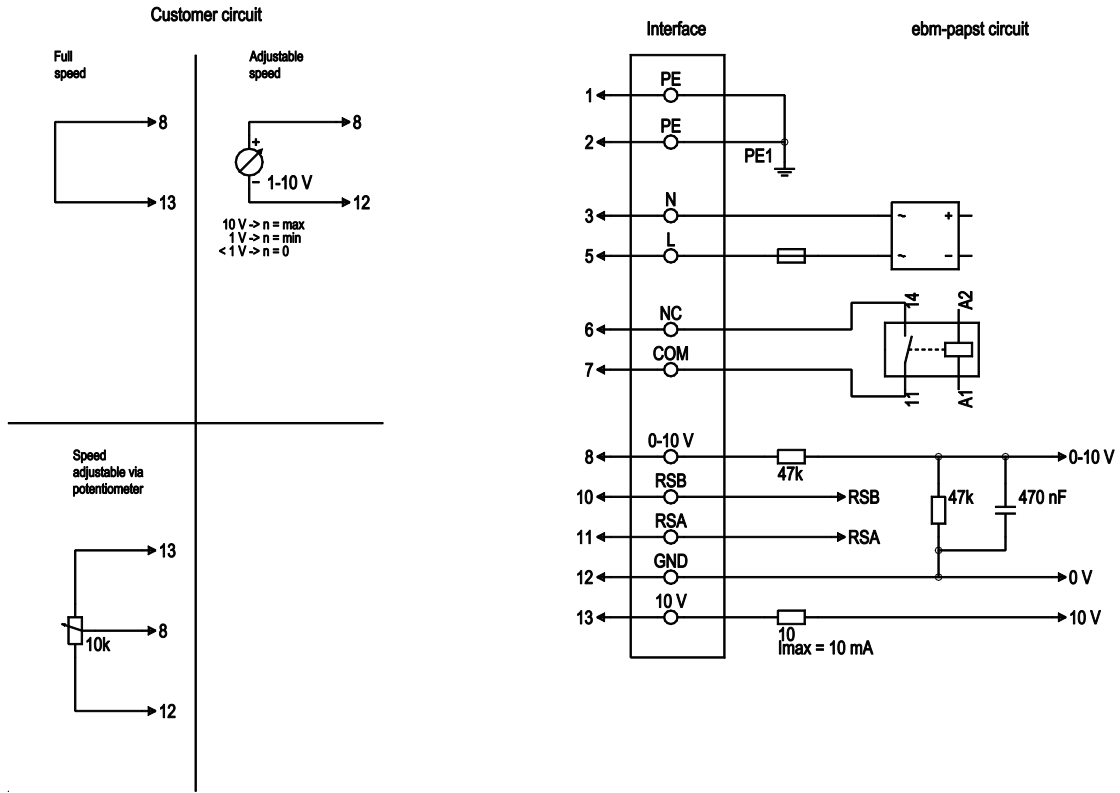
| | |
|---|---|
| 1 | Accessory part: inlet ring 28000-2-4013 not included in scope of delivery |
| 2 | Max. clearance for screw 16 mm |
| 3 | Cable PVC AWG18 5x wire-end ferrule |
| 4 | Cable PVC AWG22 5x wire-end ferrule |

Accessory part



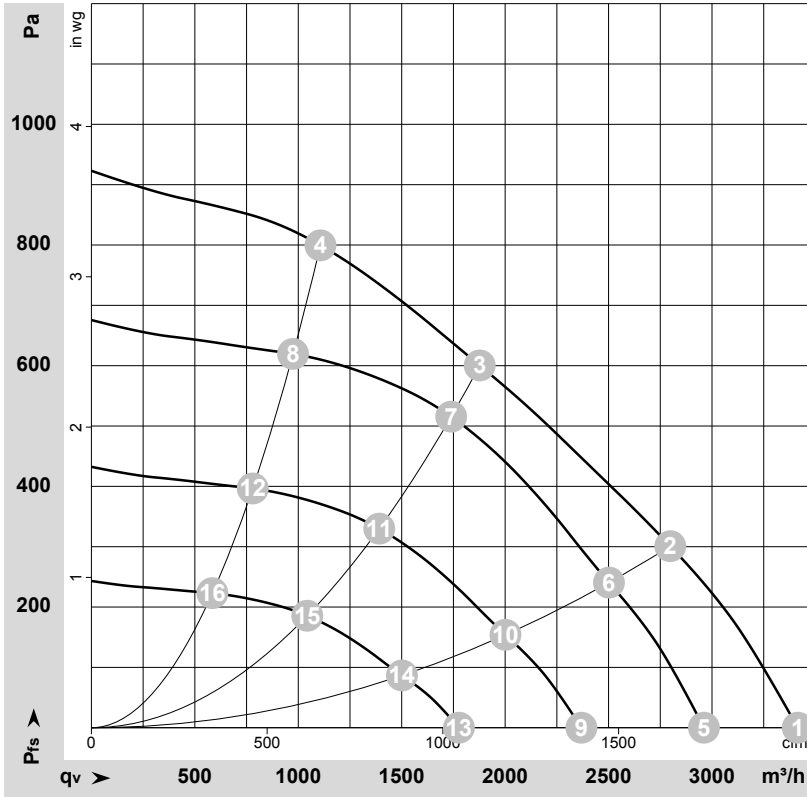
Accessory part: inlet ring 28000-2-4013 not included in scope of delivery

Connection diagram



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

Curves: Air performance 50 Hz



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

Measurement: LU-149673-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebmpapst. 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 _{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 | 230 | 50 | 2885 | 460 | 2.01 | 77 | 85 | 3415 | 0 | 2010 | 0.00 |
| 2 | 230 | 50 | 2795 | 500 | 2.20 | 72 | 80 | 2800 | 300 | 1645 | 1.20 |
| 3 | 230 | 50 | 2700 | 500 | 2.20 | 66 | 73 | 1875 | 600 | 1105 | 2.41 |
| 4 | 230 | 50 | 2840 | 500 | 2.20 | 72 | 79 | 1105 | 800 | 650 | 3.21 |
| 5 | 230 | 50 | 2500 | 300 | 1.31 | 74 | 81 | 2960 | 0 | 1745 | 0.00 |
| 6 | 230 | 50 | 2500 | 367 | 1.60 | 69 | 77 | 2500 | 240 | 1475 | 0.96 |
| 7 | 230 | 50 | 2500 | 410 | 1.78 | 64 | 71 | 1740 | 516 | 1025 | 2.07 |
| 8 | 230 | 50 | 2500 | 343 | 1.50 | 68 | 76 | 975 | 620 | 575 | 2.49 |
| 9 | 230 | 50 | 2000 | 154 | 0.67 | 68 | 76 | 2370 | 0 | 1395 | 0.00 |
| 10 | 230 | 50 | 2000 | 188 | 0.82 | 64 | 71 | 2000 | 154 | 1180 | 0.62 |
| 11 | 230 | 50 | 2000 | 210 | 0.91 | 58 | 66 | 1390 | 331 | 820 | 1.33 |
| 12 | 230 | 50 | 2000 | 176 | 0.77 | 63 | 70 | 780 | 397 | 460 | 1.59 |
| 13 | 230 | 50 | 1500 | 65 | 0.28 | 61 | 68 | 1775 | 0 | 1045 | 0.00 |
| 14 | 230 | 50 | 1500 | 79 | 0.35 | 57 | 64 | 1500 | 87 | 885 | 0.35 |
| 15 | 230 | 50 | 1500 | 88 | 0.39 | 51 | 59 | 1045 | 186 | 615 | 0.75 |
| 16 | 230 | 50 | 1500 | 74 | 0.32 | 55 | 63 | 585 | 223 | 345 | 0.90 |

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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