**R3G280-RV70-01**

# EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications



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## Nominal data

| | |
|---|---|
| **Type** | **R3G280-RV70-01** |
| **Motor** | **M3G074-CF** |

| | | |
|---|---|---|
| Nominal voltage | VDC | 110 |
| Nominal voltage range | VDC | 77 .. 137 |
| Method of obtaining data | | ml |
| Speed (rpm) | $min^{-1}$ | 1670 |
| Power consumption | W | 135 |
| Current draw | A | 1.25 |
| Min. ambient temperature | °C | -40 |
| Max. ambient temperature | °C | 50 |

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

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## Technical description

| | |
|---|---|
| **Weight** | 2.8 kg |
| **Size** | 280 mm |
| **Motor size** | 74 |
| **Rotor surface** | Painted black |
| **Electronics housing material** | Die-cast aluminum |
| **Impeller material** | PA plastic UL94 V0 |
| **Number of blades** | 6 |
| **Direction of rotation** | Clockwise, viewed toward rotor |
| **Degree of protection** | IP44; installation- and position-dependent as per EN 60034-5 |
| **Insulation class** | "B" |
| **Moisture (F) / Environmental (H) protection class** | H3 |
| **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** | - Output 10 VDC, max. 10 mA<br>- Alarm relay<br>- Run monitoring<br>- Power limiter<br>- Motor current limitation<br>- Soft start<br>- Control input 0-10 VDC / PWM<br>- Thermal overload protection for electronics/motor<br>- Reverse polarity protection |
| **Motor protection** | Thermal overload protector (TOP) internally connected |
| **With cable** | Variable |
| **Protection class** | I (with customer connection of protective earth) |
| **Conformity with standards** | EN 15085-1, CPC3: 2007; EN 45545-2, HL3: 2013; EN 50155: 2008; EN 61373:2010, Cat.1B; CE |
| **Approval** | EAC |
| **Comment** | Only suitable for indoor use; if supply potential (e.g. 230 VAC) is passed through the alarm relay, the SELV signal wires lose their property of reinforced insulation and they then have only basic insulation<br>The SELV property (reinforced insulation) is not lost when voltages of up to 110 VDC are passed through the alarm relay. |



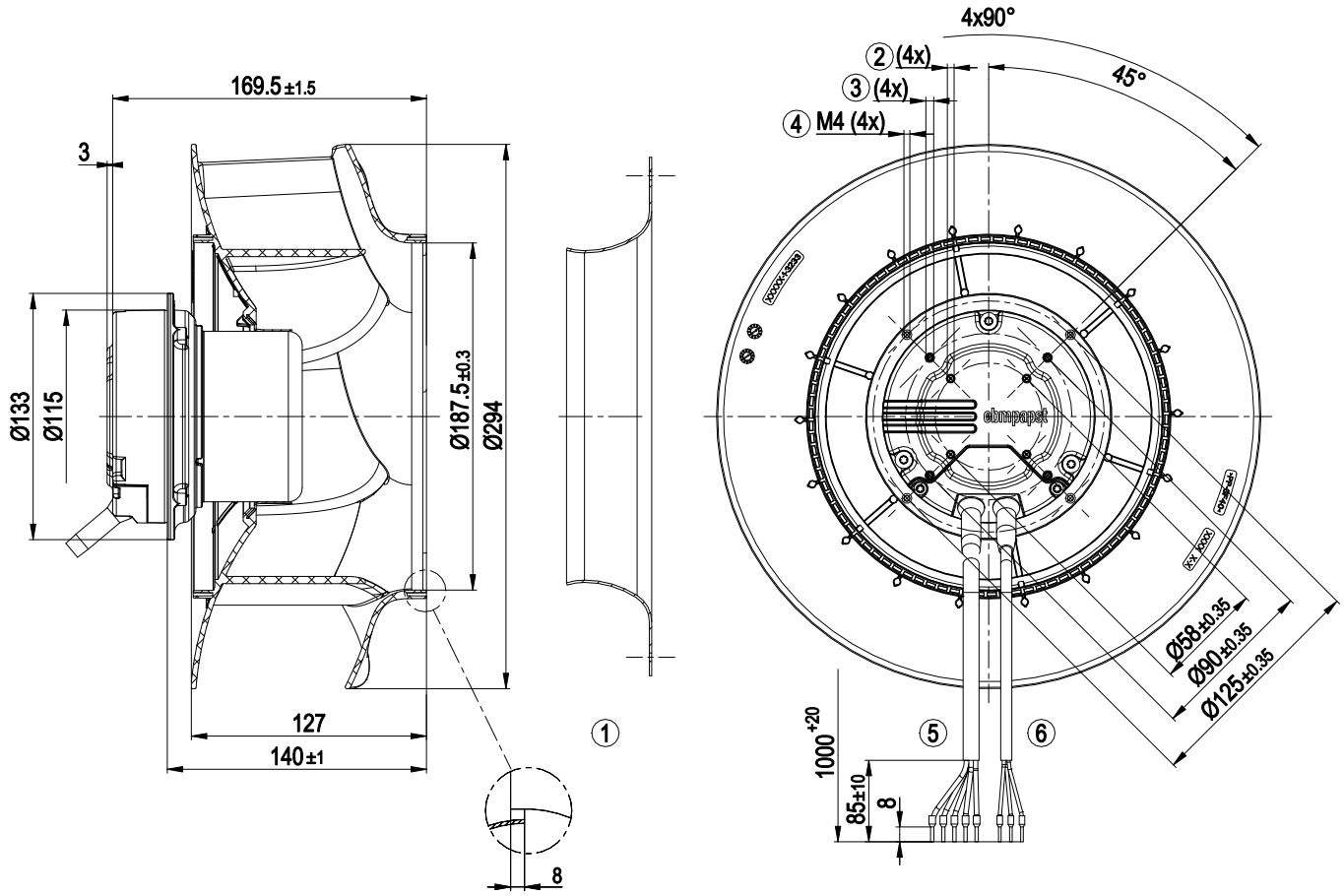
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## Product drawing




| | |
|---|---|
| 1 | Accessory part: inlet ring 28000-2-4013 not included in scope of delivery |
| 2 | Tapping hole prepared for self-tapping M4 screw, max. screw-in depth 8 mm |
| 3 | Tapping hole prepared for self-tapping M4 screw, max. screw-in depth 6 mm |
| 4 | Max. clearance for screw 10 mm |
| 5 | Cable, halogen-free, railway application EN 45545, 5G 1.0 mm² |
| | 5x wire-end ferrule |
| 6 | Cable, halogen-free, railway application EN 45545, 3x 0.33 mm² |
| | 3x wire-end ferrule |



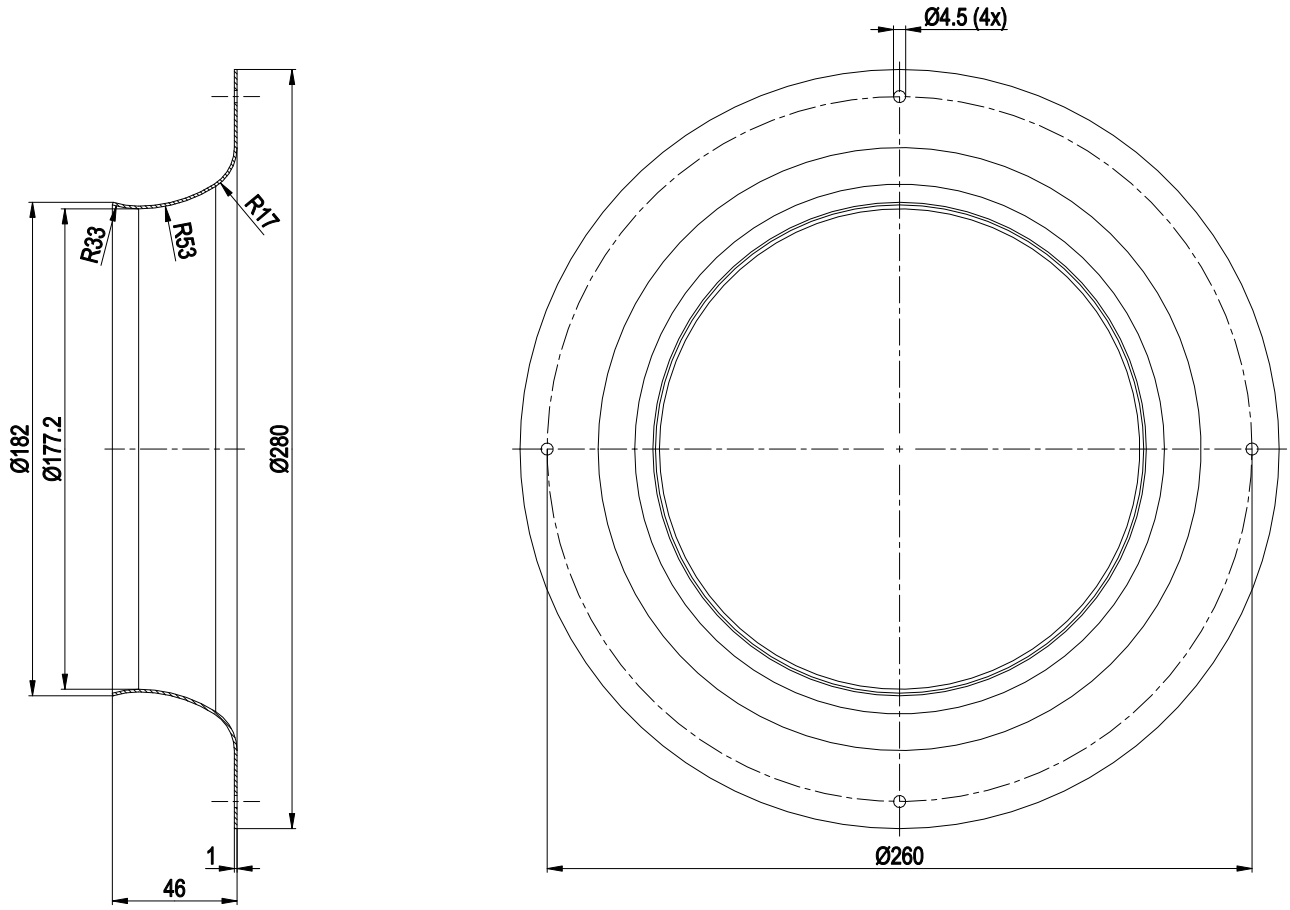
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## Accessory part




Inlet ring 28000-2-4013



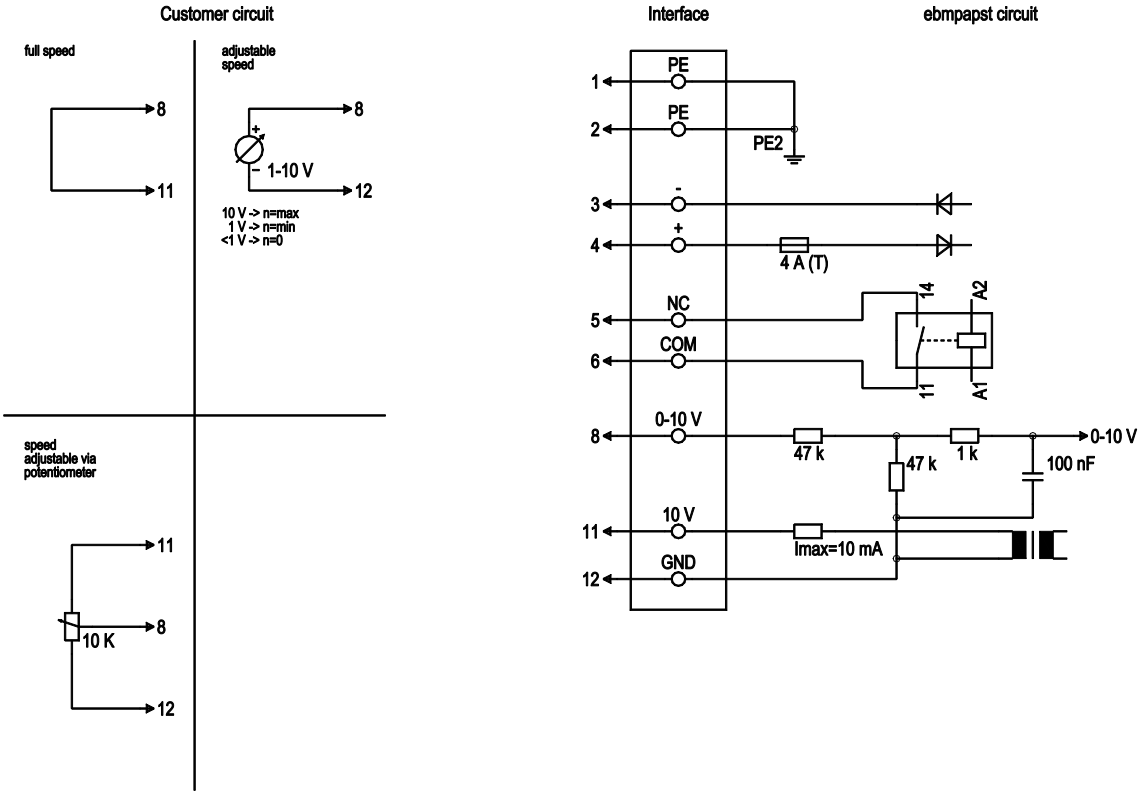
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## Connection diagram




| No. | Conn. | Designation | Color | Function/assignment |
|---|---|---|---|---|
| 1 | 1, 2 | PE | green/yellow | Protective earth |
| 1 | 3 | - | blue | Power supply, GND (110 VDC) |
| 1 | 4 | + | red | Power supply, 110 VDC |
| 1 | 5 | NC | white 2 | Floating status contact (0.3 A - 110 VDC, 1 A - 60 VDC, 3 A - 30 VDC), closed at n >= 100 rpm, break for failure |
| 1 | 6 | COM | white 1 | Floating status contact, closed at n >= 100 rpm, break for failure |
| 2 | 8 | 0-10 V | yellow | Control input, set value 0-10 VDC, impedance 100 kΩ, SELV |
| 2 | 11 | 10 VDC | red | Voltage output 10 VDC (±3%), max. 10 mA, power supply for external devices (e.g. potentiometer), SELV |
| 2 | 12 | GND | blue | Reference ground for control interface (SELV) |



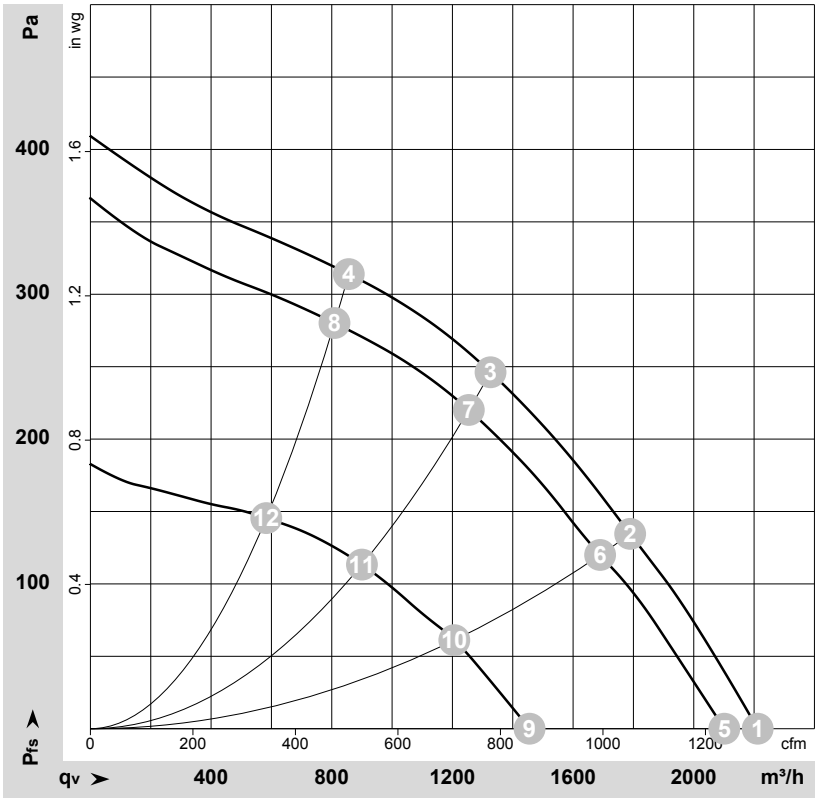
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## Curves: Air performance




ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-170613-1
Measurement: LU-170589-1
Measurement: LU-170612-1

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

| | U | n | $P_{ed}$ | I | $LpA_{in}$ | $LwA_{in}$ | $q_V$ | $p_{fs}$ | $q_V$ | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | V | $min^{-1}$ | W | A | dB(A) | dB(A) | $m^3/h$ | Pa | cfm | in. wg |
| 1 | 137 | 1835 | 129 | 0.94 | 66 | 73 | 2210 | 0 | 1300 | 0.00 |
| 2 | 137 | 1795 | 150 | 1.10 | 60 | 67 | 1790 | 135 | 1055 | 0.54 |
| 3 | 137 | 1770 | 160 | 1.17 | 57 | 64 | 1325 | 246 | 780 | 0.99 |
| 4 | 137 | 1790 | 150 | 1.09 | 57 | 65 | 855 | 314 | 505 | 1.26 |
| 5 | 110 | 1730 | 109 | 0.99 | 64 | 71 | 2100 | 0 | 1235 | 0.00 |
| 6 | 110 | 1690 | 126 | 1.15 | 59 | 66 | 1690 | 120 | 995 | 0.48 |
| 7 | 110 | 1670 | 135 | 1.25 | 56 | 63 | 1255 | 220 | 740 | 0.88 |
| 8 | 110 | 1695 | 129 | 1.18 | 56 | 63 | 810 | 280 | 475 | 1.12 |
| 9 | 77 | 1240 | 42 | 0.55 | | | 1455 | 0 | 855 | 0.00 |
| 10 | 77 | 1215 | 52 | 0.67 | | | 1205 | 62 | 710 | 0.25 |
| 11 | 77 | 1210 | 53 | 0.69 | | | 900 | 114 | 530 | 0.46 |
| 12 | 77 | 1220 | 50 | 0.65 | | | 585 | 145 | 345 | 0.58 |

U = Voltage · 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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