

## Nominal data

|                          |                   |            |
|--------------------------|-------------------|------------|
| Type                     | K3G450-PA23-78    |            |
| Motor                    | M3G150-FF         |            |
| Phase                    |                   | 3~         |
| Nominal voltage          | VAC               | 400        |
| Nominal voltage range    | VAC               | 380 .. 480 |
| Frequency                | Hz                | 50/60      |
| Method of obtaining data |                   | ml         |
| Speed (rpm)              | min <sup>-1</sup> | 2140       |
| Power consumption        | W                 | 2900       |
| Current draw             | A                 | 4.5        |
| 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 $\eta_{es}$ | % | 70.1   | 56.3      |
| 02 Measurement category           |   | A      |           |
| 03 Efficiency category            |   | Static |           |
| 04 Efficiency grade N             |   | 75.8   | 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                | 2.89 |
| 09 Air flow $q_v$             | m <sup>3</sup> /h | 6655 |
| 09 Pressure increase $p_{fs}$ | Pa                | 1050 |
| 10 Speed (rpm) n              | min <sup>-1</sup> | 2155 |
| 11 Specific ratio*            |                   | 1.01 |

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

LU-175860



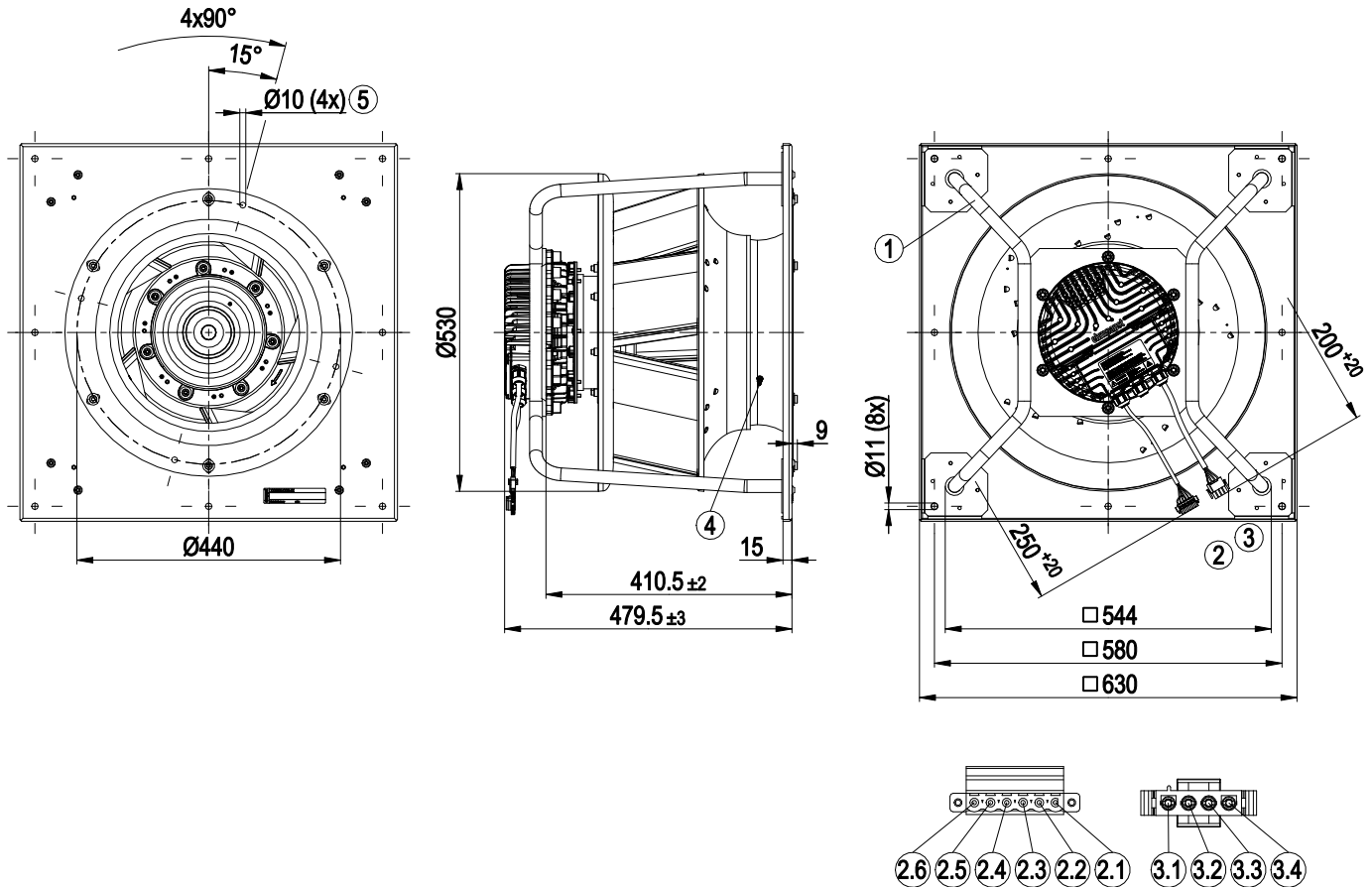
## Technical description

|                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weight                                                                     | 37.5 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Size                                                                       | 450 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Motor size                                                                 | 150                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Rotor surface                                                              | Painted black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Electronics housing material                                               | Die-cast aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Impeller material                                                          | Sheet aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Support plate material                                                     | Sheet steel, galvanized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Support bracket material                                                   | Steel, painted black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Inlet nozzle material                                                      | Sheet steel, galvanized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Number of blades                                                           | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 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                                                      | See product drawing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Condensation drainage holes                                                | On rotor side                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Mode                                                                       | S1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Motor bearing                                                              | Ball bearing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Technical features                                                         | <ul style="list-style-type: none"> <li>- Output 10 VDC, max. 10 mA</li> <li>- Operation and alarm display</li> <li>- External 24 V input (parameter setting)</li> <li>- External release input</li> <li>- Alarm relay</li> <li>- Integrated PID controller</li> <li>- Motor current limitation</li> <li>- PFC, passive</li> <li>- RS-485 MODBUS-RTU</li> <li>- Soft start</li> <li>- Control input 0-10 VDC / PWM</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                                                          | Connector with cable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Motor protection                                                           | Reverse polarity and locked-rotor protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Protection class                                                           | I (with customer connection of protective earth)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Conformity with standards                                                  | EN 61800-5-1; CE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Approval                                                                   | EAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## EC centrifugal module - RadiPac

backward-curved, single-intake  
with support bracket

## Product drawing



|     |                                                                                                                                          |
|-----|------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request |
| 2   | Cable PVC AWG22, 6-pole connector housing Phoenix 1778027 (MSTB 2.5/6-STF-5.08), 6x crimped ferrules                                     |
| 2.1 | RSA                                                                                                                                      |
| 2.2 | RSB                                                                                                                                      |
| 2.3 | GND                                                                                                                                      |
| 2.4 | 0-10 V                                                                                                                                   |
| 2.5 | +10 V                                                                                                                                    |
| 2.6 | Bridge (GND)                                                                                                                             |
| 3   | Cable PVC AWG18, 4-pole connector housing TE 1-480702-0, 3x plug pin TE 926883-1 crimped, 1x plug pin TE 350654-1 crimped                |
| 3.1 | PE                                                                                                                                       |
| 3.2 | L3                                                                                                                                       |
| 3.3 | L2                                                                                                                                       |
| 3.4 | L1                                                                                                                                       |
| 4   | Inlet ring with pressure tap (k-factor: 240)                                                                                             |
| 5   | Attachment for inlet ring and FlowGrid                                                                                                   |

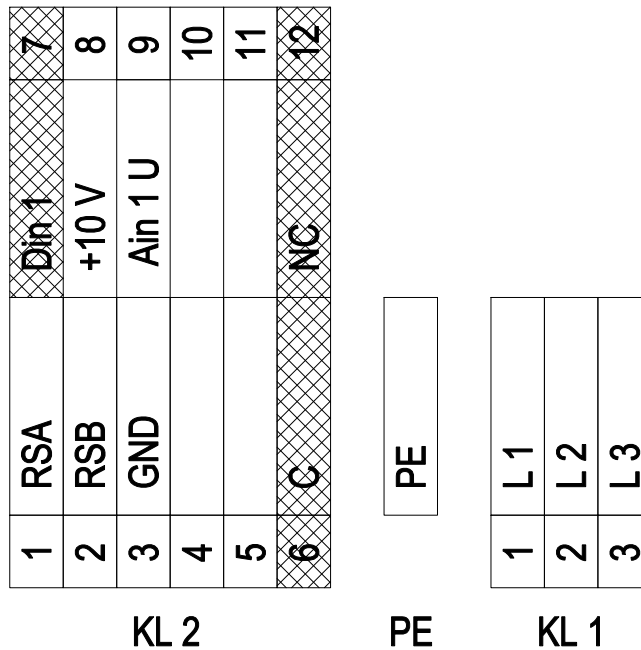


## EC centrifugal module - RadiPac

backward-curved, single-intake

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## Connection diagram

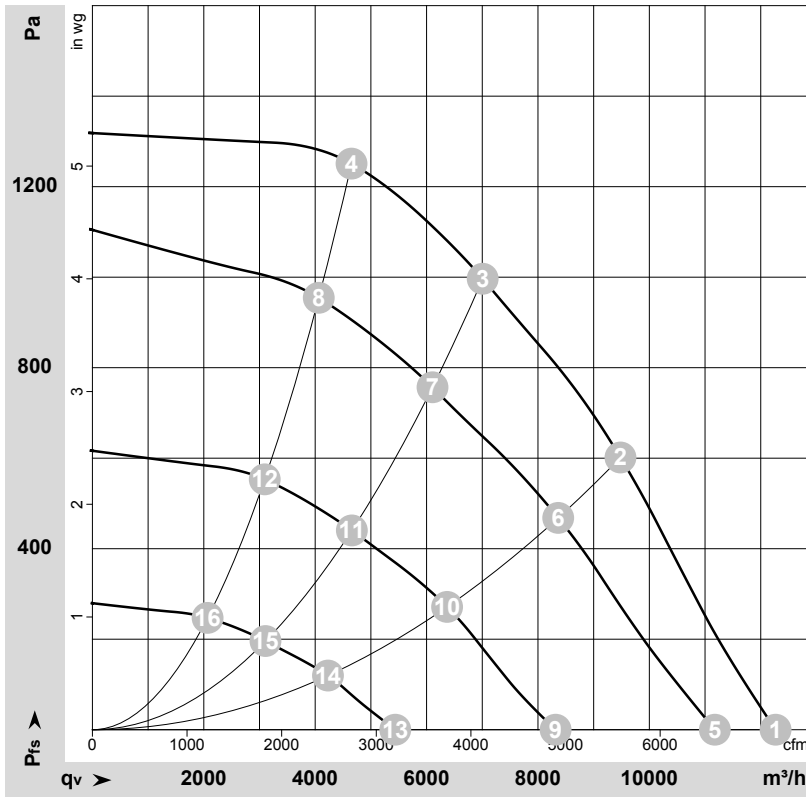


shaded gray =&gt; not brought out via leads

| No.  | Conn. | Designation | Function/assignment                                                                                                                                                                                                     |
|------|-------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KL 1 | 1     | L1          | Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz                                                                                                                                                           |
| KL 1 | 2     | L2          | Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz                                                                                                                                                           |
| KL 1 | 3     | L3          | Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz                                                                                                                                                           |
| PE   |       | PE          | Ground connection, PE connection                                                                                                                                                                                        |
| KL 2 | 1     | RSA         | Bus connection RS485, RSA, MODBUS-RTU; SELV                                                                                                                                                                             |
| KL 2 | 2     | RSB         | Bus connection RS485, RSB, MODBUS-RTU; SELV                                                                                                                                                                             |
| KL 2 | 3     | GND         | Reference ground for control interface; SELV                                                                                                                                                                            |
| KL2  | 4     |             | not used                                                                                                                                                                                                                |
| KL2  | 5     |             | not used                                                                                                                                                                                                                |
| KL2  | 6     | C           | Status relay, floating status contact, break for failure; contact rating 250 VAC / max. 2 A (AC1) / min. 10 mA                                                                                                          |
| KL 2 | 7     | Din1        | Digital input 1 enable electronics,<br>Enable: Pin open or applied voltage 5-50 VDC<br>Disable: Bridge to GND or applied voltage < 1 VDC<br>Reset function: Triggers software reset after a level change to < 1 V; SELV |
| KL 2 | 8     | + 10 V      | Fixed voltage output 10 VDC, +10 V $\pm$ 3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. pot); SELV<br>Or: +24 VDC input for parameter setting via MODBUS without line voltage             |
| KL 2 | 9     | Ain1 U      | Analog input 1 (set value) 0-10 V, Ri = 100 k $\Omega$ , adjustable curve; SELV                                                                                                                                         |
| KL2  | 10    |             | not used                                                                                                                                                                                                                |
| KL2  | 11    |             | not used                                                                                                                                                                                                                |
| KL2  | 12    | NC          | Status relay, floating status contact; break for failure                                                                                                                                                                |



## Curves: Air performance 50 Hz



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

Measurement: LU-175860-1

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   | f  | n                 | P <sub>ed</sub> | I    | LpA <sub>in</sub> | LwA <sub>in</sub> | LwA <sub>out</sub> | q <sub>v</sub>    | P <sub>fs</sub> | q <sub>v</sub> | P <sub>fs</sub> |
|----|-----|----|-------------------|-----------------|------|-------------------|-------------------|--------------------|-------------------|-----------------|----------------|-----------------|
|    | V   | Hz | min <sup>-1</sup> | W               | A    | dB(A)             | dB(A)             | dB(A)              | m <sup>3</sup> /h | Pa              | cfm            | in. wg          |
| 1  | 400 | 50 | 2140              | 1709            | 2.69 | 89                | 96                | 95                 | 12265             | 0               | 7220           | 0.00            |
| 2  | 400 | 50 | 2140              | 2655            | 4.09 | 78                | 85                | 88                 | 9480              | 600             | 5580           | 2.41            |
| 3  | 400 | 50 | 2140              | 2900            | 4.50 | 74                | 81                | 87                 | 7010              | 1000            | 4125           | 4.01            |
| 4  | 400 | 50 | 2140              | 2763            | 4.25 | 79                | 86                | 90                 | 4655              | 1250            | 2740           | 5.02            |
| 5  | 400 | 50 | 1960              | 1302            | 2.11 | 86                | 93                | 93                 | 11175             | 0               | 6580           | 0.00            |
| 6  | 400 | 50 | 1890              | 1825            | 2.87 | 74                | 82                | 85                 | 8365              | 469             | 4925           | 1.88            |
| 7  | 400 | 50 | 1875              | 1938            | 3.03 | 71                | 78                | 83                 | 6105              | 757             | 3595           | 3.04            |
| 8  | 400 | 50 | 1885              | 1851            | 2.90 | 75                | 82                | 87                 | 4065              | 954             | 2390           | 3.83            |
| 9  | 400 | 50 | 1470              | 580             | 1.14 | 79                | 87                | 87                 | 8315              | 0               | 4895           | 0.00            |
| 10 | 400 | 50 | 1435              | 827             | 1.45 | 68                | 75                | 79                 | 6370              | 272             | 3750           | 1.09            |
| 11 | 400 | 50 | 1430              | 879             | 1.52 | 65                | 72                | 77                 | 4660              | 440             | 2740           | 1.77            |
| 12 | 400 | 50 | 1435              | 840             | 1.47 | 68                | 75                | 80                 | 3095              | 553             | 1820           | 2.22            |
| 13 | 400 | 50 | 980               | 208             | 0.57 | 66                | 75                | 76                 | 5440              | 0               | 3200           | 0.00            |
| 14 | 400 | 50 | 960               | 277             | 0.69 | 57                | 65                | 69                 | 4230              | 121             | 2490           | 0.49            |
| 15 | 400 | 50 | 955               | 295             | 0.72 | 56                | 63                | 68                 | 3110              | 196             | 1830           | 0.79            |
| 16 | 400 | 50 | 960               | 283             | 0.70 | 58                | 65                | 70                 | 2070              | 247             | 1215           | 0.99            |

U = Voltage · f = Frequency · n = Speed (rpm) · P<sub>ed</sub> = Power consumption · I = Current draw · LpA<sub>in</sub> = Sound pressure level intake side · LwA<sub>in</sub> = Sound power level intake side  
 LwA<sub>out</sub> = Sound power level outlet side · q<sub>v</sub> = Air flow · P<sub>fs</sub> = Pressure increase

