

R4D450-AK01-01

# AC centrifugal fan

backward curved, single inlet



## Nominal data

|                               |                   |      |      |      |      |
|-------------------------------|-------------------|------|------|------|------|
| Type                          | R4D450-AK01-01    |      |      |      |      |
| Motor                         | M4D110-GF         |      |      |      |      |
| Phase                         |                   | 3~   | 3~   | 3~   | 3~   |
| Nominal voltage               | VAC               | 230  | 230  | 400  | 400  |
| Connection                    |                   | Δ    | Δ    | Y    | Y    |
| Frequency                     | Hz                | 50   | 60   | 50   | 60   |
| Type of data definition       |                   | ml   | ml   | ml   | ml   |
| Valid for approval / standard |                   | CE   | CE   | CE   | CE   |
| Speed                         | min <sup>-1</sup> | 1350 | 1490 | 1350 | 1490 |
| Power input                   | W                 | 740  | 1090 | 740  | 1090 |
| Current draw                  | A                 | 2.6  | 3.32 | 1.5  | 1.92 |
| Min. back pressure            | Pa                | 0    | 0    | 0    | 0    |
| Min. ambient temperature      | °C                | -40  |      | -40  |      |
| Max. ambient temperature      | °C                | 80   | 50   | 80   | 50   |
| Starting current              | A                 | 17.5 | 16.8 | 10   | 9.6  |

ml = max. load · me = max. efficiency · fa = running at free air · cs = customer specs · cu = customer unit  
Subject to alterations

## Data according to ErP directive

|                       |        |
|-----------------------|--------|
| Installation category | A      |
| Efficiency category   | Static |
| Variable speed drive  | No     |
| Specific ratio*       | 1.00   |

\* Specific ratio = 1 + p<sub>fs</sub> / 100 000 Pa

|                                    |                   | Actual | Request 2013 | Request 2015 |
|------------------------------------|-------------------|--------|--------------|--------------|
| Overall efficiency η <sub>es</sub> |                   | 50     | 46           | 50           |
| Efficiency grade N                 |                   | 62     | 58           | 62           |
| Power input P <sub>e</sub>         | kW                | 0.72   |              |              |
| Air flow q <sub>v</sub>            | m³/h              | 3515   |              |              |
| Pressure increase p <sub>fs</sub>  | Pa                | 370    |              |              |
| Speed n                            | min <sup>-1</sup> | 1350   |              |              |

Data established at point of optimum efficiency



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## Technical features

|                                                                    |                                                              |
|--------------------------------------------------------------------|--------------------------------------------------------------|
| Mass                                                               | 12 kg                                                        |
| Size                                                               | 450 mm                                                       |
| Surface of rotor                                                   | Cast in aluminium                                            |
| Material of impeller                                               | Aluminium sheet                                              |
| Number of blades                                                   | 6                                                            |
| Direction of rotation                                              | Clockwise, seen on rotor                                     |
| Type of protection                                                 | IP 54                                                        |
| Insulation class                                                   | "F"                                                          |
| Humidity class                                                     | F3-1                                                         |
| Max. permissible ambient motor temp. (transp./ storage)            | + 80 °C                                                      |
| Min. permissible ambient motor temp. (transp./storage)             | - 40 °C                                                      |
| Mounting position                                                  | Shaft horizontal or rotor on bottom; rotor on top on request |
| Condensate discharge holes                                         | Rotor-side                                                   |
| Operation mode                                                     | S1                                                           |
| Motor bearing                                                      | Ball bearing                                                 |
| Touch current acc. IEC 60990 (measuring network Fig. 4, TN system) | <= 3.5 mA                                                    |
| Motor protection                                                   | Thermal overload protector (TOP) brought out                 |
| Protection class                                                   | I (if protective earth is connected by customer)             |
| Product conforming to standard                                     | EN 61800-5-1; CE                                             |
| Approval                                                           | CCC; GOST; VDE; UL 1004-1; CSA C22.2 Nr.100                  |

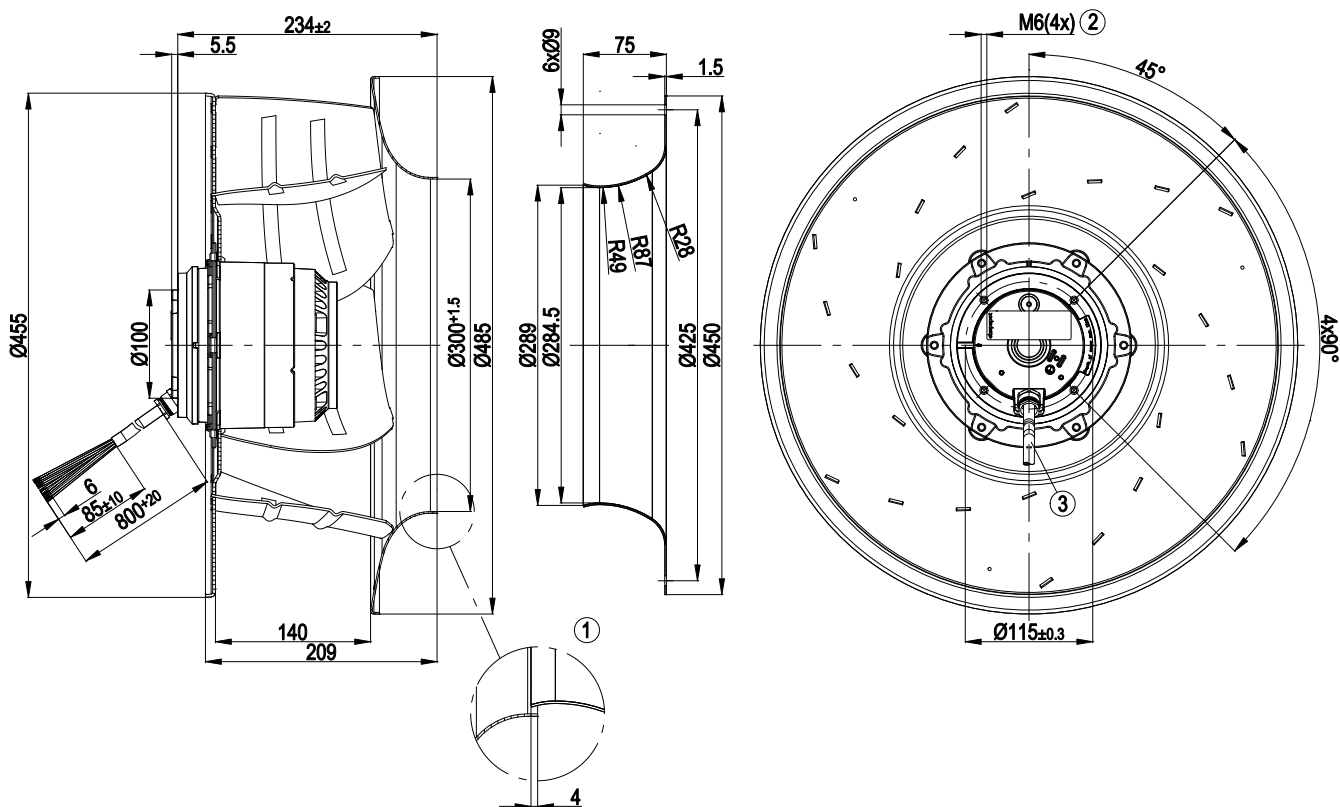


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## Product drawing



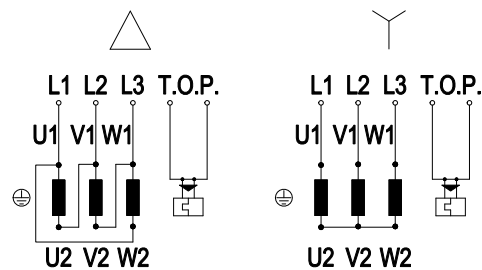
- |   |                                                                                                                          |
|---|--------------------------------------------------------------------------------------------------------------------------|
| 1 | Accessory part: inlet nozzle 63045-2-4013 not included in the standard scope of delivery; other inlet nozzles on request |
| 2 | Depth of screw max. 12 mm                                                                                                |
| 3 | Connection line silicone 9G0.75 mm², 9 x brass lead tips crimped                                                         |



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Connection screen



Note: Direction of rotation changes when two phases are reversed

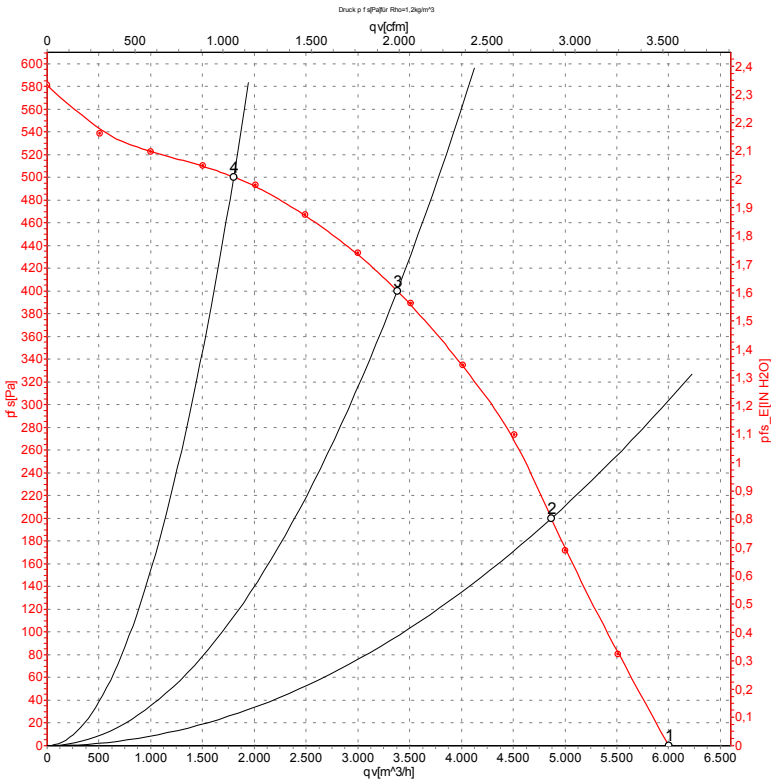
|    |                  |    |                 |     |       |
|----|------------------|----|-----------------|-----|-------|
| Δ  | Delta-connection | Y  | Star connection | L1  | black |
| L2 | blue             | L3 | brown           | U1  | black |
| V1 | blue             | W1 | brown           | U2  | green |
| V2 | white            | W2 | yellow          | TOP | grey  |



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Charts: Air flow 50 Hz



Measurement: LU-101530

Air performance measured as per ISO 5801 Installation category A. For detailed information on the measuring set-up, please contact ebm-papst. Suction-side noise levels: L<sub>wA</sub> measured as per ISO 13347 / L<sub>pA</sub> measured with 1m distance to fan axis. The values given are valid under the measuring conditions mentioned above and may vary according to the actual installation situation. With any deviation from the standard set-up, the specific values have to be checked and reviewed with the unit installed.

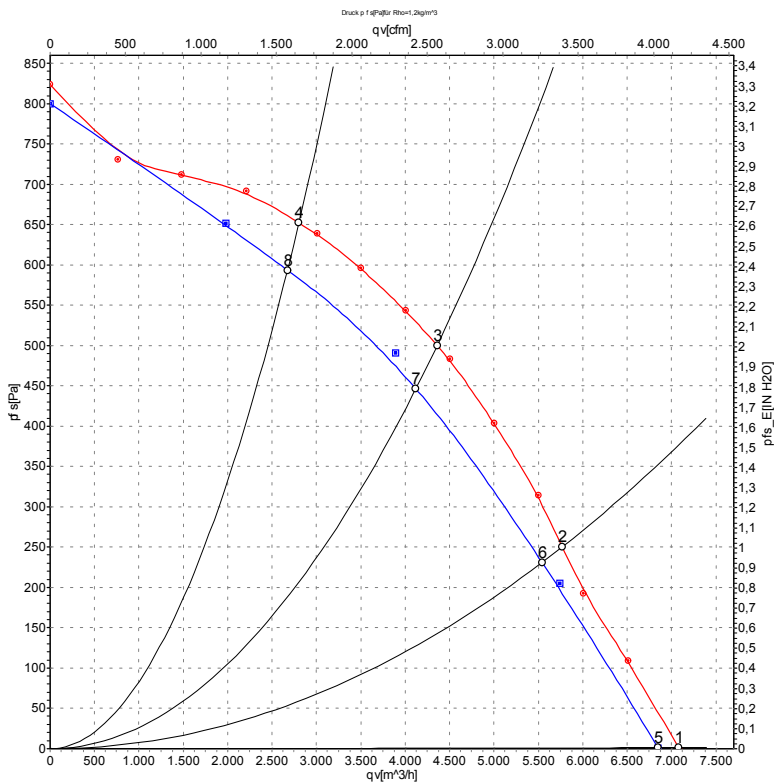
Measured values

|   | Conn. | U   | f  | n                 | P <sub>e</sub> | I    | L <sub>pA<sub>in</sub></sub> | L <sub>wA<sub>in</sub></sub> | q <sub>v</sub> | p <sub>ts</sub> |
|---|-------|-----|----|-------------------|----------------|------|------------------------------|------------------------------|----------------|-----------------|
|   |       | V   | Hz | min <sup>-1</sup> | W              | A    | dB(A)                        | dB(A)                        | m³/h           | Pa              |
| 1 | Y     | 400 | 50 | 1395              | 566            | 1.26 | 71                           | 79                           | 6000           | 0               |
| 2 | Y     | 400 | 50 | 1365              | 670            | 1.37 | 66                           | 75                           | 4870           | 200             |
| 3 | Y     | 400 | 50 | 1350              | 740            | 1.50 | 63                           | 70                           | 3380           | 400             |
| 4 | Y     | 400 | 50 | 1375              | 617            | 1.31 | 68                           | 76                           | 1800           | 500             |

Conn. = Connection · U = Supply voltage · f = Frequency · n = Speed · P<sub>e</sub> = Power input · I = Current draw · L<sub>pA<sub>in</sub></sub> = Sound pressure level inlet side · L<sub>wA<sub>in</sub></sub> = Sound power level inlet side  
q<sub>v</sub> = Air flow · p<sub>ts</sub> = Pressure increase



## Charts: Air flow 60 Hz



Measurement: LU-101532  
Measurement: LU-101546

Air performance measured as per ISO 5801 Installation category A. For detailed information on the measuring set-up, please contact ebm-papst. Suction-side noise levels: L<sub>wA</sub> measured as per ISO 13347 / L<sub>pA</sub> measured with 1m distance to fan axis. The values given are valid under the measuring conditions mentioned above and may vary according to the actual installation situation. With any deviation from the standard set-up, the specific values have to be checked and reviewed with the unit installed.

## Measured values

|   | Conn. | U   | f  | n                 | P <sub>e</sub> | I    | L <sub>pA<sub>in</sub></sub> | L <sub>wA<sub>in</sub></sub> | qv                | p <sub>s</sub> |
|---|-------|-----|----|-------------------|----------------|------|------------------------------|------------------------------|-------------------|----------------|
|   |       | V   | Hz | min <sup>-1</sup> | W              | A    | dB(A)                        | dB(A)                        | m <sup>3</sup> /h | Pa             |
| 1 | Y     | 480 | 60 | 1640              | 918            | 1.49 | 75                           | 83                           | 7080              | 0              |
| 2 | Y     | 480 | 60 | 1605              | 1084           | 1.67 | 71                           | 79                           | 5770              | 250            |
| 3 | Y     | 480 | 60 | 1580              | 1200           | 1.85 | 67                           | 75                           | 4360              | 500            |
| 4 | Y     | 480 | 60 | 1600              | 1100           | 1.68 | 70                           | 78                           | 2800              | 650            |
| 5 | Y     | 400 | 60 | 1575              | 845            | 1.50 | 74                           | 82                           | 6845              | 0              |
| 6 | Y     | 400 | 60 | 1530              | 973            | 1.71 | 69                           | 77                           | 5540              | 235            |
| 7 | Y     | 400 | 60 | 1490              | 1090           | 1.92 | 65                           | 74                           | 4120              | 456            |
| 8 | Y     | 400 | 60 | 1530              | 970            | 1.67 | 69                           | 77                           | 2675              | 594            |

Conn. = Connection · U = Supply voltage · f = Frequency · n = Speed · P<sub>e</sub> = Power input · I = Current draw · L<sub>pA<sub>in</sub></sub> = Sound pressure level inlet side · L<sub>wA<sub>in</sub></sub> = Sound power level inlet side  
qv = Air flow · p<sub>s</sub> = Pressure increase