**D2D146-BE01-17**

# AC centrifugal fan

forward-curved, dual-intake

with housing (flange), for rail applications

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## Nominal data

| **Type** | **D2D146-BE01-17** | | |
|---|---|---|---|
| **Motor** | **M2D068-EC** | | |
| Phase | | 3~ | 3~ |
| Nominal voltage | VAC | 400 | 460 |
| Wiring | | Y | Y |
| Frequency | Hz | 50 | 60 |
| Method of obtaining data | | ml/ce | ml/ce |
| Valid for approval/standard | | CE | CE |
| Speed (rpm) | $min^{-1}$ | 2600 | 2950 |
| Power consumption | W | 250 | 360 |
| Current draw | A | 0.46 | 0.5 |
| Min. back pressure | Pa | 385 | 500 |
| Min. back pressure | in. wg | 1.55 | 2.01 |
| Min. ambient temperature | °C | -25 | -25 |
| Max. ambient temperature | °C | 50 | 50 |
| Starting current | A | 1.35 | 1.4 |

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** | 4.57 kg |
| **Size** | 146 mm |
| **Motor size** | 68 |
| **Rotor surface** | Painted black |
| **Impeller material** | Sheet steel, galvanized |
| **Housing material** | Sheet steel, galvanized |
| **Direction of rotation** | Counterclockwise, 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** | Any |
| **Condensation drainage holes** | None |
| **Mode** | S1 |
| **Motor bearing** | Hybrid bearing |
| **Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)** | < 0.75 mA |
| **Motor protection** | Thermal overload protector (TOP) with basic insulation |
| **With cable** | Axial |
| **Protection class** | I (with customer connection of protective earth) |
| **Conformity with standards** | EN 60335-1 |
| **Approval** | EAC |
| **Comment** | Prerequisite for operation is a Class 1 vehicle electrical system architecture according to EN 50533 |



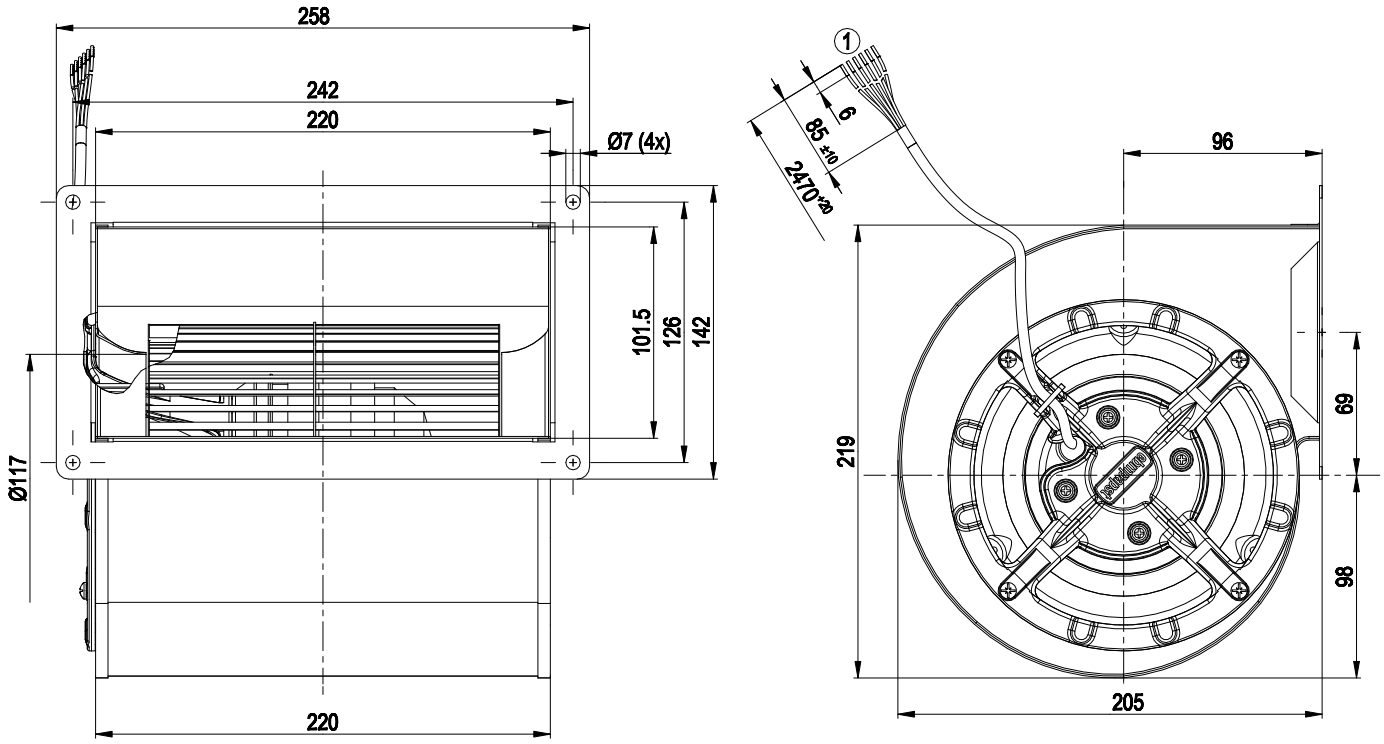
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## Product drawing




| | |
|---|---|
| 1 | Cable, halogen-free, railway application EN 45545, 6G 0.5 mm² |
| | 6x splice |



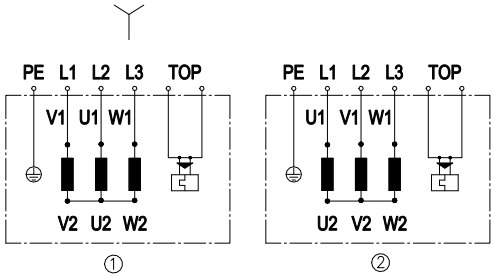
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## Connection diagram




Change of rotation direction by reversing two phases

| | |
|---|---|
| | Three-phase motor |
| Y | Star connection |
| 1 | Counterclockwise operation |
| L1 | = V1 = blue |
| L2 | = U1 = black |
| L3 | = W1 = brown |
| 2 | Clockwise operation |
| L1 | = U1 = black |
| L2 | = V1 = blue |
| L3 | = W1 = brown |
| PE | green/yellow |
| TOP | 2x gray |



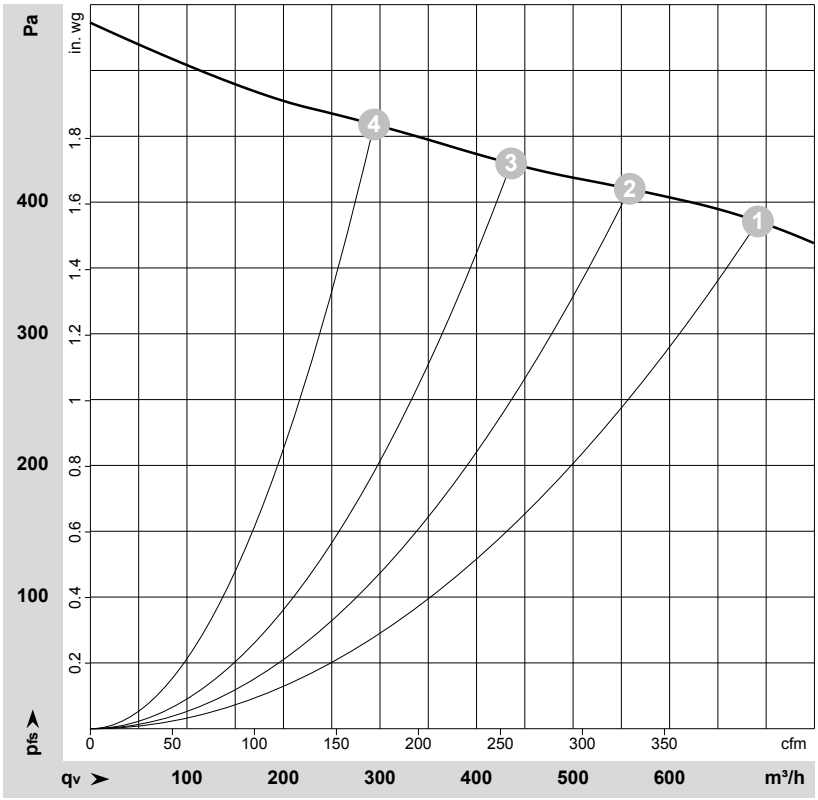
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# AC centrifugal fan

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## Curves: Air performance 50 Hz




ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-106174-1

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 | $P_e$ | I | $q_V$ | $p_{fs}$ | $q_V$ | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | V | Hz | $min^{-1}$ | W | A | $m^3/h$ | Pa | cfm | in. wg |
| 1 | Y | 400 | 50 | 2600 | 250 | 0.46 | 690 | 385 | 405 | 1.55 |
| 2 | Y | 400 | 50 | 2675 | 210 | 0.44 | 560 | 410 | 330 | 1.65 |
| 3 | Y | 400 | 50 | 2715 | 188 | 0.42 | 435 | 430 | 255 | 1.73 |
| 4 | Y | 400 | 50 | 2775 | 159 | 0.40 | 295 | 460 | 175 | 1.85 |

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · $P_e$ = Power consumption · I = Current draw · $q_V$ = Air flow · $p_{fs}$ = Pressure increase



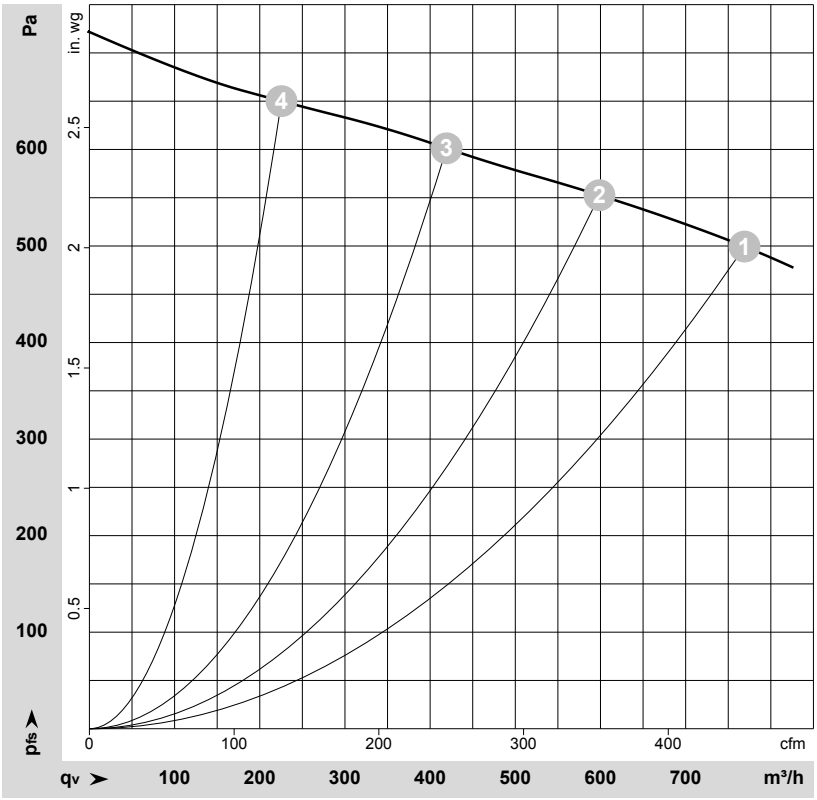
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## Curves: Air performance 60 Hz




ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-213828-1

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 | $P_e$ | I | $q_V$ | $p_{fs}$ | $q_V$ | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | V | Hz | $min^{-1}$ | W | A | $m^3/h$ | Pa | cfm | in. wg |
| 1 | Y | 460 | 60 | 2950 | 360 | 0.50 | 770 | 500 | 455 | 2.01 |
| 2 | Y | 460 | 60 | 3100 | 301 | 0.45 | 600 | 550 | 355 | 2.21 |
| 3 | Y | 460 | 60 | 3220 | 249 | 0.40 | 420 | 600 | 245 | 2.41 |
| 4 | Y | 460 | 60 | 3350 | 184 | 0.34 | 225 | 650 | 130 | 2.61 |

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · $P_e$ = Power consumption · I = Current draw · $q_V$ = Air flow · $p_{fs}$ = Pressure increase



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