**D2E146-HT67-98**

# AC centrifugal fan

forward curved, dual inlet

with housing (flange)

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ErP2013 EXCEEDS THE NORM

## Nominal data

| | |
|---|---|
| **Type** | **D2E146-HT67-98** |
| **Motor** | **M2E068-EC** |

| | | | |
|---|---|---|---|
| Phase | | 1~ | 1~ |
| Nominal voltage | VAC | 230 | 230 |
| Frequency | Hz | 50 | 60 |
| Type of data definition | | ml | ml |
| Valid for approval / standard | | CE | CE |
| Speed | $min^{-1}$ | 1850 | 2100 |
| Power input | W | 355 | 400 |
| Current draw | A | 1.55 | 1.75 |
| Motor capacitor | µF | 8 | 8 |
| Capacitor voltage | VDB | 450 | 450 |
| Capacitor standard | | P2 (CE) | P2 (CE) |
| Min. back pressure | Pa | 0 | 200 |
| Max. ambient temperature | °C | 55 | 50 |
| Starting current | A | 1.8 | 1.9 |

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 + $p_{fs}$ / 100 000 Pa

| | | Actual | Request 2013 | Request 2015 |
|---|---|---|---|---|
| Overall efficiency $\eta_{es}$ | | 29 | 27 | 34 |
| Efficiency grade N | | 39 | 37 | 44 |
| Power input $P_e$ | kW | 0.26 | | |
| Air flow $q_v$ | $m^3/h$ | 700 | | |
| Pressure increase $p_{fs}$ | Pa | 400 | | |
| Speed n | $min^{-1}$ | 2435 | | |

Data established at point of optimum efficiency



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## Technical features

| | |
|---|---|
| **Mass** | 3.4 kg |
| **Size** | 146 mm |
| **Surface of rotor** | Partially cast in aluminium |
| **Material of terminal box** | PP plastic, black |
| **Material of impeller** | Sheet steel, hot-galvanised |
| **Housing material** | PP plastic, black |
| **Motor suspension** | Motor anti-vibration mounted on both sides |
| **Direction of rotation** | Counter-clockwise, seen on rotor |
| **Type of protection** | IP 20 |
| **Insulation class** | "F" |
| **Humidity class** | F0 |
| **Max. permissible ambient motor temp. (transp./ storage)** | + 80 °C |
| **Min. permissible ambient motor temp. (transp./storage)** | - 40 °C |
| **Mounting position** | Any |
| **Condensate discharge holes** | None, open rotor |
| **Operation mode** | S1 |
| **Motor bearing** | Ball bearing |
| **Speed steps** | 4 |
| **Touch current acc. IEC 60990 (measuring network Fig. 4, TN system)** | < 0.75 mA |
| **Electrical leads** | Via terminal box, integrated capacitor connected via terminal box; With plug |
| **Motor protection** | Thermal overload protector (TOP) wired internally |
| **Cable exit** | Variable |
| **Protection class** | I (if protective earth is connected by customer) |
| **Product conforming to standard** | EN 60335-2-31; CE |
| **Approval** | VDE |



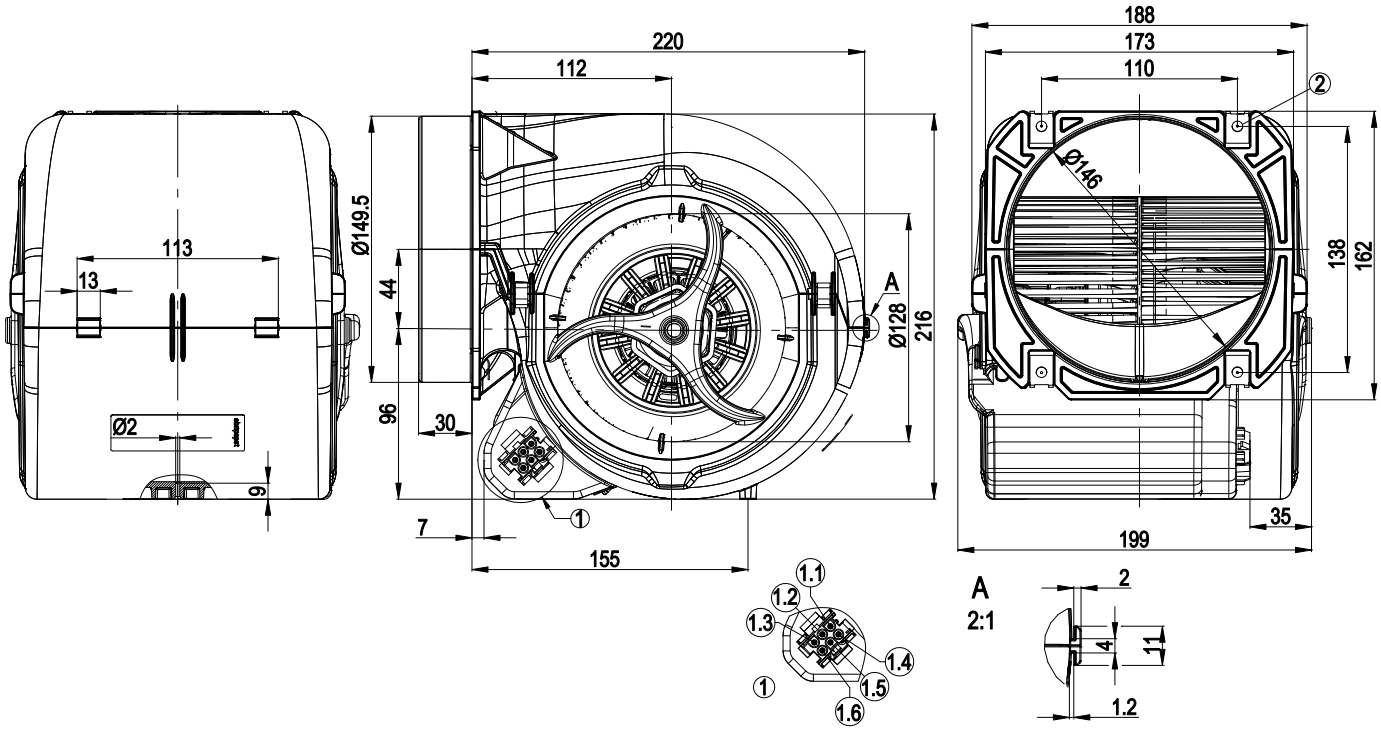
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## Product drawing




| | |
|---|---|
| 1 | AMP Universal Mate-N-Lok coded plug system; connector shell: AMP 926 682-3; 6x plug pin: AMP 926 886-1 |
| 1.1 | L = step 1 |
| 1.2 | L = step 2 |
| 1.3 | L = stage 3 |
| 1.4 | L = step 4 |
| 1.5 | N |
| 1.6 | PE |
| 2 | 4 x sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus thickness of mounting material) |



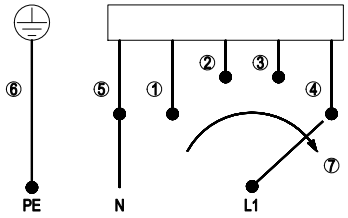
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## Connection screen




When changing speeds, switch must break the circuit

| | | | | | |
|---|---|---|---|---|---|
| 1 | Step 1 (min.) | 2 | Step 2 | 3 | Step 3 |
| 4 | Step 4 (max.) | 5 | N | 6 | PE protective earth |
| 7 | Speed increase | | | | |



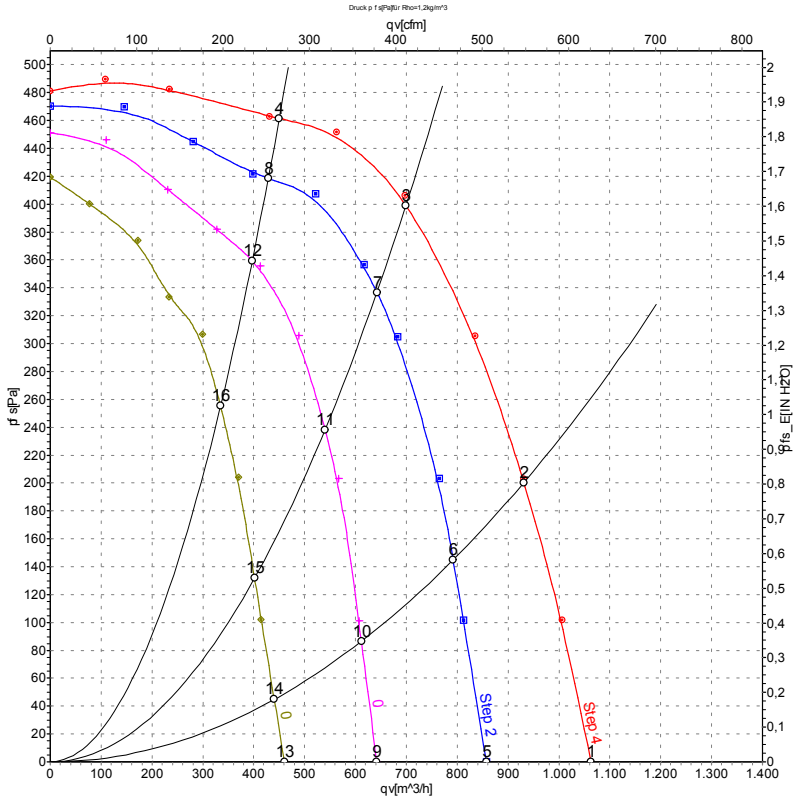
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## Charts: Air flow 50 Hz




Measurement: LU-45713
Measurement: LU-45715
Measurement: LU-45717
Measurement: LU-45719

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: LwA measured as per ISO 13347 / LpA 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

| | Stage | U | f | n | $P_e$ | I | qv | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|
| | | V | Hz | $min^{-1}$ | W | A | $m^3/h$ | Pa |
| 1 | 4 | 230 | 50 | 1850 | 355 | 1.55 | 1060 | 0 |
| 2 | 4 | 230 | 50 | 2150 | 318 | 1.38 | 930 | 200 |
| 3 | 4 | 230 | 50 | 2435 | 268 | 1.16 | 700 | 400 |
| 4 | 4 | 230 | 50 | 2610 | 227 | 0.99 | 450 | 460 |
| 5 | 3 | 230 | 50 | 1550 | 286 | 1.27 | 855 | 0 |
| 6 | 3 | 230 | 50 | 1850 | 261 | 1.18 | 790 | 145 |
| 7 | 3 | 230 | 50 | 2235 | 222 | 1.03 | 640 | 337 |
| 8 | 3 | 230 | 50 | 2515 | 179 | 0.87 | 430 | 418 |
| 9 | 2 | 230 | 50 | 1195 | 233 | 1.06 | 640 | 0 |
| 10 | 2 | 230 | 50 | 1455 | 222 | 1.02 | 610 | 88 |
| 11 | 2 | 230 | 50 | 1890 | 196 | 0.94 | 540 | 239 |
| 12 | 2 | 230 | 50 | 2315 | 158 | 0.81 | 395 | 360 |
| 13 | 1 | 230 | 50 | 875 | 195 | 0.89 | 460 | 0 |
| 14 | 1 | 230 | 50 | 1055 | 191 | 0.88 | 440 | 45 |
| 15 | 1 | 230 | 50 | 1420 | 179 | 0.84 | 400 | 132 |
| 16 | 1 | 230 | 50 | 1965 | 151 | 0.76 | 335 | 255 |

U = Supply voltage · f = Frequency · n = Speed · $P_e$ = Power input · I = Current draw · qv = Air flow · $p_{fs}$ = Pressure increase



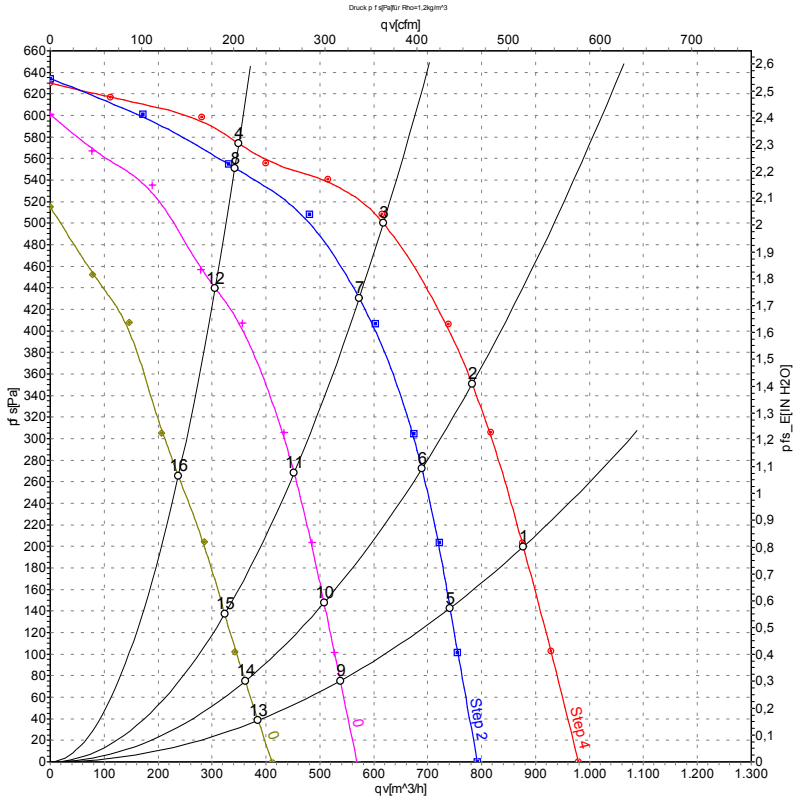
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## Charts: Air flow 60 Hz




Measurement: LU-45714
Measurement: LU-45716
Measurement: LU-45718
Measurement: LU-45720

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: LwA measured as per ISO 13347 / LpA 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

| | Stage | U | f | n | $P_e$ | I | qv | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|
| | | V | Hz | $min^{-1}$ | W | A | $m^3/h$ | Pa |
| 1 | 4 | 230 | 60 | 2100 | 400 | 1.75 | 875 | 200 |
| 2 | 4 | 230 | 60 | 2360 | 384 | 1.67 | 780 | 350 |
| 3 | 4 | 230 | 60 | 2685 | 360 | 1.58 | 620 | 500 |
| 4 | 4 | 230 | 60 | 2935 | 335 | 1.48 | 350 | 575 |
| 5 | 3 | 230 | 60 | 1780 | 296 | 1.37 | 740 | 143 |
| 6 | 3 | 230 | 60 | 2085 | 284 | 1.34 | 690 | 273 |
| 7 | 3 | 230 | 60 | 2495 | 260 | 1.29 | 575 | 432 |
| 8 | 3 | 230 | 60 | 2870 | 226 | 1.22 | 345 | 552 |
| 9 | 2 | 230 | 60 | 1325 | 228 | 1.10 | 540 | 75 |
| 10 | 2 | 230 | 60 | 1560 | 222 | 1.09 | 510 | 148 |
| 11 | 2 | 230 | 60 | 1990 | 210 | 1.07 | 450 | 268 |
| 12 | 2 | 230 | 60 | 2575 | 181 | 1.02 | 305 | 439 |
| 13 | 1 | 230 | 60 | 950 | 187 | 0.92 | 385 | 38 |
| 14 | 1 | 230 | 60 | 1105 | 185 | 0.91 | 360 | 74 |
| 15 | 1 | 230 | 60 | 1400 | 180 | 0.90 | 325 | 137 |
| 16 | 1 | 230 | 60 | 1985 | 165 | 0.88 | 240 | 265 |

U = Supply voltage · f = Frequency · n = Speed · $P_e$ = Power input · I = Current draw · qv = Air flow · $p_{fs}$ = Pressure increase



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