**D2E146-HT81-33**

# AC centrifugal fan

forward-curved, dual-intake

with housing (flange)

D2E146-HT81-33 ebmpapst Datasheet
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## Nominal data

| | |
|---|---|
| **Type** | **D2E146-HT81-33** |
| **Motor** | **M2E068-EC** |

| | | | |
|---|---|---|---|
| Phase | | 1~ | 1~ |
| Nominal voltage | VAC | 230 | 230 |
| Frequency | Hz | 50 | 60 |
| Method of obtaining data | | fa | ml |
| Valid for approval/standard | | - | - |
| Speed (rpm) | $min^{-1}$ | 1900 | 2150 |
| Power consumption | W | 365 | 400 |
| Current draw | A | 1.60 | 1.75 |
| Capacitor | µF | 8 | 8 |
| Capacitor voltage | VDB | 450 | 450 |
| Capacitor standard | | S2 (CE) | S2 (CE) |
| Min. back pressure | Pa | 0 | 250 |
| Min. back pressure | inH2O | 0 | 1 |
| Min. ambient temperature | °C | -25 | -25 |
| Max. ambient temperature | °C | 60 | 45 |
| Starting current | A | 1.8 | 1.9 |

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** | 3.5 kg |
| **Fan size** | 146 mm |
| **Rotor surface** | Partly cast in aluminum |
| **Terminal box material** | PP plastic, black |
| **Impeller material** | Sheet steel, hot-dip galvanized |
| **Housing material** | PP plastic, black |
| **Motor suspension** | Motor vibration-damped on both sides |
| **Direction of rotation** | Counterclockwise, viewed toward rotor |
| **Degree of protection** | IP20 |
| **Insulation class** | "F" |
| **Moisture (F) / Environmental (H) protection class** | H0 - dry environment |
| **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** | None, open rotor |
| **Mode** | S1 |
| **Motor bearing** | Ball bearing |
| **Speed levels** | 5 |
| **Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)** | < 0.75 mA |
| **Electrical hookup** | With plug; Via terminal box, capacitor integrated and connected |
| **Motor protection** | Thermal overload protector (TOP) with basic insulation |
| **With cable** | Variable |
| **Protection class** | I (with customer connection of protective earth) |
| **Motor capacitor according to EN 60252-1 in safety protection class** | S2 |
| **Conformity with standards** | EN 60335-1 |

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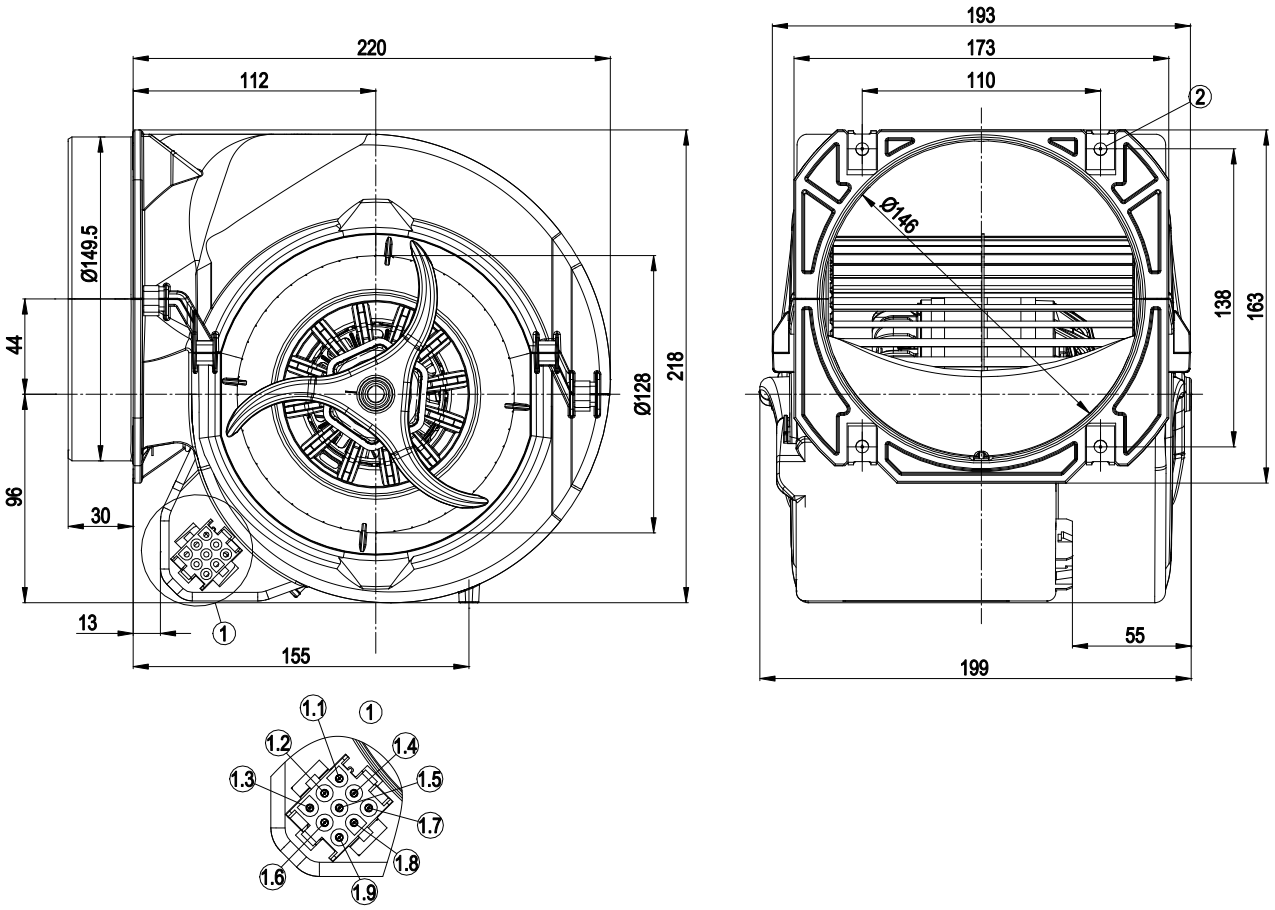
## Product drawing




| | |
|---|---|
| 1 | Coded plug system: 9-pole connector housing tyco 927231-5, 7x plug pin tyco 926886-1 |
| 1.1 | L = step 1 |
| 1.2 | L = step 2 |
| 1.3 | L = step 3 |
| 1.4 | L = step 4 |
| 1.5 | L = step 5 |
| 1.6 | TW |
| 1.7 | TW |
| 1.8 | N |
| 1.9 | Protective earth |
| 2 | 4x sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus material thickness of mounting) |

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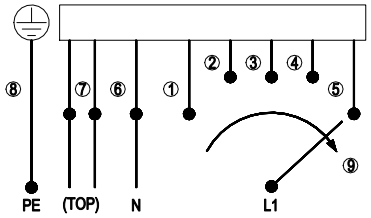
## Connection diagram




| | | | | | |
|---|---|---|---|---|---|
| 1 | Step 1 (min.) | 2 | Step 2 | 3 | Step 3 |
| 4 | Step 4 | 5 | Step 5 (max.) | 6 | N |
| 7 | TOP 2x | 8 | Protective earth | 9 | Speed increasing |

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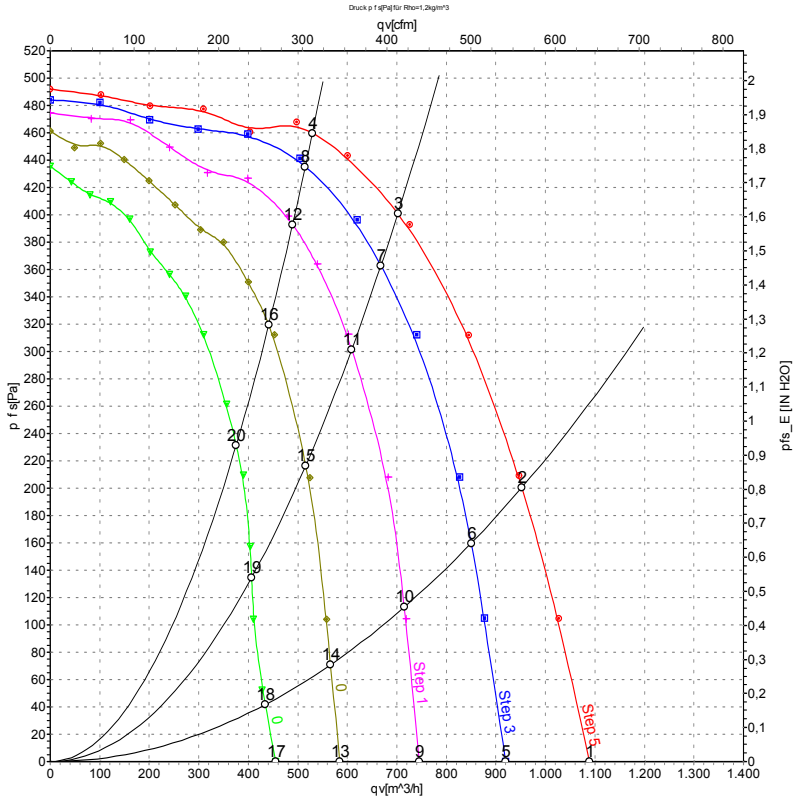
## Curves: Air performance 50 Hz




Measurement: LU-61067-1
Measurement: LU-61069-1
Measurement: LU-61071-1
Measurement: LU-61073-1
Measurement: LU-61075-1

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

| | Stage | 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 | inH2O |
| 1 | 5 | 230 | 50 | 1900 | 365 | 1.60 | 1090 | 0 | 640 | 0.00 |
| 2 | 5 | 230 | 50 | 2205 | 324 | 1.41 | 950 | 200 | 560 | 0.80 |
| 3 | 5 | 230 | 50 | 2490 | 271 | 1.18 | 700 | 400 | 415 | 1.61 |
| 4 | 5 | 230 | 50 | 2615 | 242 | 1.05 | 530 | 460 | 310 | 1.85 |
| 5 | 4 | 230 | 50 | 1660 | 307 | 1.36 | 920 | 0 | 540 | 0.00 |
| 6 | 4 | 230 | 50 | 1985 | 281 | 1.26 | 850 | 160 | 500 | 0.64 |
| 7 | 4 | 230 | 50 | 2365 | 234 | 1.08 | 670 | 363 | 395 | 1.46 |
| 8 | 4 | 230 | 50 | 2540 | 204 | 0.96 | 515 | 437 | 305 | 1.75 |
| 9 | 3 | 230 | 50 | 1365 | 266 | 1.19 | 745 | 0 | 440 | 0.00 |
| 10 | 3 | 230 | 50 | 1700 | 248 | 1.14 | 715 | 117 | 420 | 0.47 |
| 11 | 3 | 230 | 50 | 2175 | 211 | 1.01 | 610 | 304 | 360 | 1.22 |
| 12 | 3 | 230 | 50 | 2415 | 180 | 0.90 | 490 | 394 | 290 | 1.58 |
| 13 | 2 | 230 | 50 | 1090 | 230 | 1.05 | 585 | 0 | 345 | 0.00 |
| 14 | 2 | 230 | 50 | 1350 | 221 | 1.02 | 565 | 73 | 335 | 0.29 |
| 15 | 2 | 230 | 50 | 1855 | 196 | 0.93 | 515 | 221 | 305 | 0.89 |
| 16 | 2 | 230 | 50 | 2190 | 170 | 0.85 | 440 | 321 | 260 | 1.29 |
| 17 | 1 | 230 | 50 | 865 | 205 | 0.93 | 455 | 0 | 270 | 0.00 |
| 18 | 1 | 230 | 50 | 1040 | 200 | 0.92 | 435 | 40 | 255 | 0.16 |
| 19 | 1 | 230 | 50 | 1460 | 186 | 0.87 | 405 | 135 | 240 | 0.54 |
| 20 | 1 | 230 | 50 | 1865 | 167 | 0.81 | 375 | 232 | 220 | 0.93 |

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

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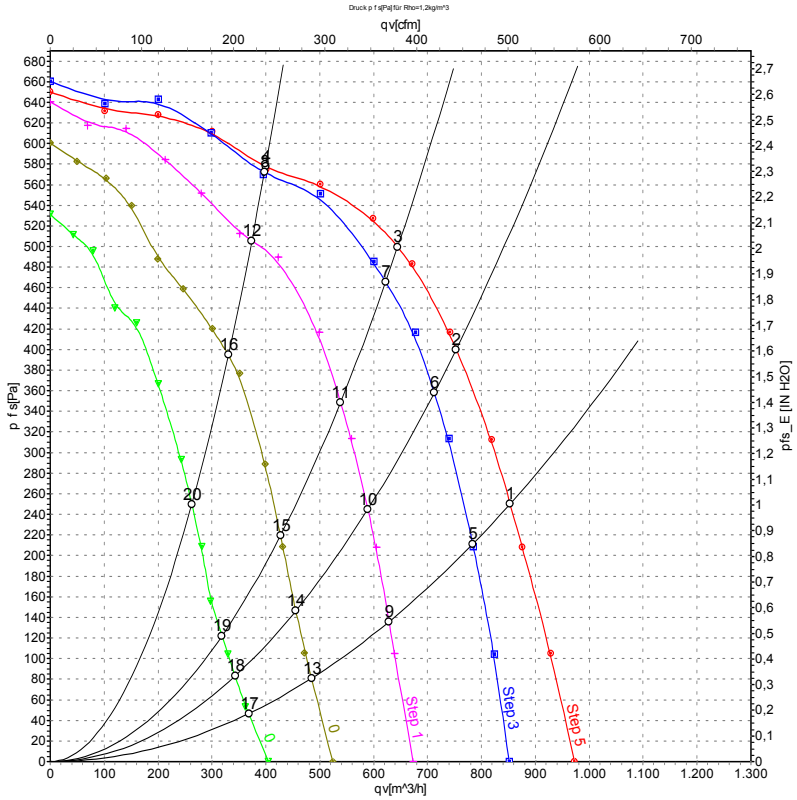
## Curves: Air performance 60 Hz




Measurement: LU-61068-1
Measurement: LU-61070-1
Measurement: LU-61072-1
Measurement: LU-61074-1
Measurement: LU-61076-1

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

| | Stage | 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 | inH2O |
| 1 | 5 | 230 | 60 | 2150 | 400 | 1.75 | 855 | 250 | 500 | 1.00 |
| 2 | 5 | 230 | 60 | 2500 | 380 | 1.66 | 755 | 400 | 445 | 1.61 |
| 3 | 5 | 230 | 60 | 2710 | 366 | 1.60 | 645 | 500 | 380 | 2.01 |
| 4 | 5 | 230 | 60 | 2990 | 334 | 1.48 | 400 | 575 | 235 | 2.31 |
| 5 | 4 | 230 | 60 | 2045 | 327 | 1.50 | 785 | 213 | 460 | 0.86 |
| 6 | 4 | 230 | 60 | 2365 | 311 | 1.45 | 715 | 358 | 420 | 1.44 |
| 7 | 4 | 230 | 60 | 2630 | 291 | 1.40 | 620 | 466 | 365 | 1.87 |
| 8 | 4 | 230 | 60 | 2985 | 254 | 1.30 | 400 | 569 | 235 | 2.28 |
| 9 | 3 | 230 | 60 | 1660 | 269 | 1.27 | 630 | 136 | 370 | 0.55 |
| 10 | 3 | 230 | 60 | 1975 | 258 | 1.25 | 590 | 245 | 345 | 0.98 |
| 11 | 3 | 230 | 60 | 2285 | 244 | 1.22 | 540 | 349 | 315 | 1.40 |
| 12 | 3 | 230 | 60 | 2795 | 208 | 1.14 | 375 | 505 | 220 | 2.03 |
| 13 | 2 | 230 | 60 | 1275 | 226 | 1.09 | 485 | 79 | 285 | 0.32 |
| 14 | 2 | 230 | 60 | 1540 | 221 | 1.08 | 455 | 146 | 270 | 0.59 |
| 15 | 2 | 230 | 60 | 1835 | 214 | 1.06 | 425 | 220 | 250 | 0.88 |
| 16 | 2 | 230 | 60 | 2465 | 186 | 1.01 | 330 | 395 | 195 | 1.59 |
| 17 | 1 | 230 | 60 | 1030 | 194 | 0.95 | 370 | 45 | 215 | 0.18 |
| 18 | 1 | 230 | 60 | 1200 | 191 | 0.94 | 345 | 83 | 200 | 0.33 |
| 19 | 1 | 230 | 60 | 1390 | 188 | 0.94 | 320 | 122 | 185 | 0.49 |
| 20 | 1 | 230 | 60 | 2000 | 172 | 0.91 | 265 | 250 | 155 | 1.00 |

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