**S4D500-CM09-10**

# AC axial fan - HyBlade

sickle-shaped blades (S series)

with guard grille for full nozzle

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General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRB 590142

## Nominal data

| | |
|---|---|
| **Type** | **S4D500-CM09-10** |
| **Motor** | **M4D110-GF** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Phase | | 3~ | 3~ | 3~ | 3~ | 3~ | 3~ | 3~ | 3~ |
| Nominal voltage | VAC | 400 | 400 | 400 | 400 | 460 | 460 | 480 | 480 |
| Wiring | | Δ | Y | Δ | Y | Δ | Y | Δ | Y |
| Frequency | Hz | 50 | 50 | 60 | 60 | 60 | 60 | 60 | 60 |
| Method of obtaining data | | ml | ml | ml | ml | ml | ml | ml | ml |
| Valid for approval/standard | | CE | CE | CE | CE | CE | CE | CE | CE |
| Speed (rpm) | $min^{-1}$ | 1350 | 1100 | 1510 | 1080 | 1570 | 1230 | 1590 | 1250 |
| Power consumption | W | 690 | 480 | 950 | 540 | 1030 | 670 | 1050 | 690 |
| Current draw | A | 1.34 | 0.81 | 1.6 | 0.96 | 1.56 | 0.97 | 1.57 | 0.98 |
| Max. back pressure | Pa | 155 | 105 | 145 | 75 | 158 | 97 | 160 | 100 |
| Max. back pressure | in. wg | 0.62 | 0.42 | 0.58 | 0.3 | 0.63 | 0.39 | 0.64 | 0.4 |
| Min. ambient temperature | °C | -40 | -40 | -40 | -40 | -40 | -40 | -40 | -40 |
| Max. ambient temperature | °C | 65 | 65 | 60 | 60 | 60 | 60 | 60 | 60 |
| Starting current | A | 6.5 | 2.2 | 5.9 | 2.0 | 7.4 | 2.4 | 7.5 | 2.5 |

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 $\eta_{es}$ | % | 33.4 | 32.6 |
| 02 Measurement category | | A | |
| 03 Efficiency category | | Static | |
| 04 Efficiency grade N | | 40.8 | 40 |
| 05 Variable speed drive | | No | |

| | | |
|---|---|---|
| 09 Power consumption $P_e$ | kW | 0.67 |
| 09 Air flow $q_v$ | $m^3/h$ | 5950 |
| 09 Pressure increase $p_{fs}$ | Pa | 137 |
| 10 Speed (rpm) n | $min^{-1}$ | 1355 |
| 11 Specific ratio* | | 1.00 |

Data obtained at optimum efficiency level.
The ErP data is determined using a motor-impeller combination in a standardized measurement setup.

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

LU-105632

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## Technical description

| | |
|---|---|
| **Weight** | 12 kg |
| **Fan size** | 500 mm |
| **Rotor surface** | Painted black |
| **Terminal box material** | PP plastic |
| **Blade material** | Press-fitted sheet steel blank, sprayed with PP plastic |
| **Guard grille material** | Steel, coated with black plastic (RAL 9005) |
| **Number of blades** | 5 |
| **Airflow direction** | "V" |
| **Direction of rotation** | Counterclockwise, viewed toward rotor |
| **Degree of protection** | IP54 |
| **Insulation class** | "F" |
| **Moisture (F) / Environmental (H) protection class** | F4-1 |
| **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** | On rotor side |
| **Mode** | S1 |
| **Motor bearing** | Ball bearing |
| **Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)** | <= 3.5 mA |
| **Electrical hookup** | Via terminal box |
| **Motor protection** | Thermal overload protector (TOP) with basic insulation |
| **Protection class** | I (with customer connection of protective earth) |
| **Conformity with standards** | EN 60034-1 (2010); EN 61800-5-1; CE |
| **Approval** | VDE; EAC |



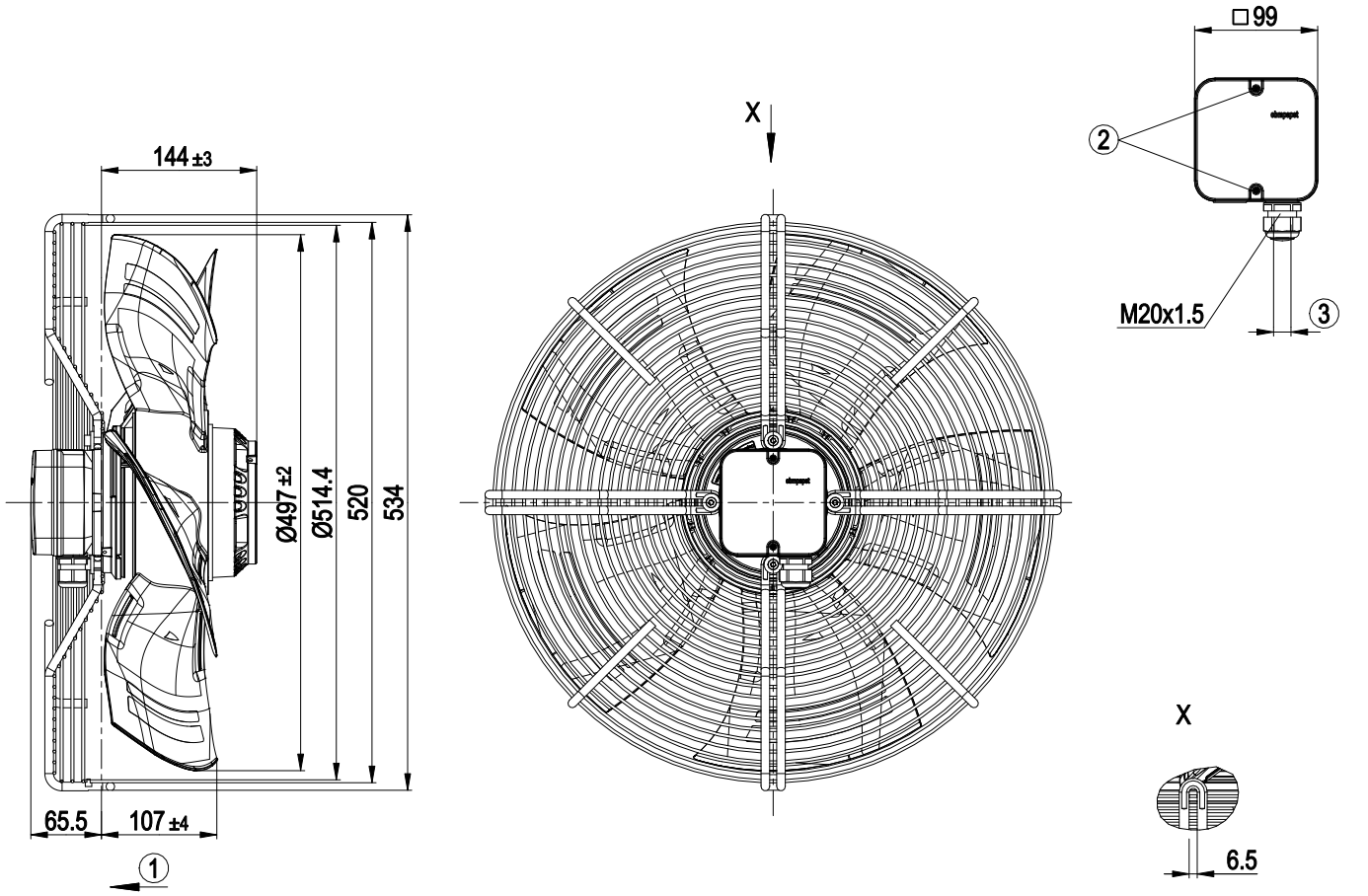
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## Product drawing




| | |
|---|---|
| 1 | Airflow direction "V" |
| 2 | Tightening torque 1.5 ± 0.2 Nm |
| 3 | Cable diameter min. 6 mm, max. 12 mm, tightening torque 2 ± 0.3 Nm |



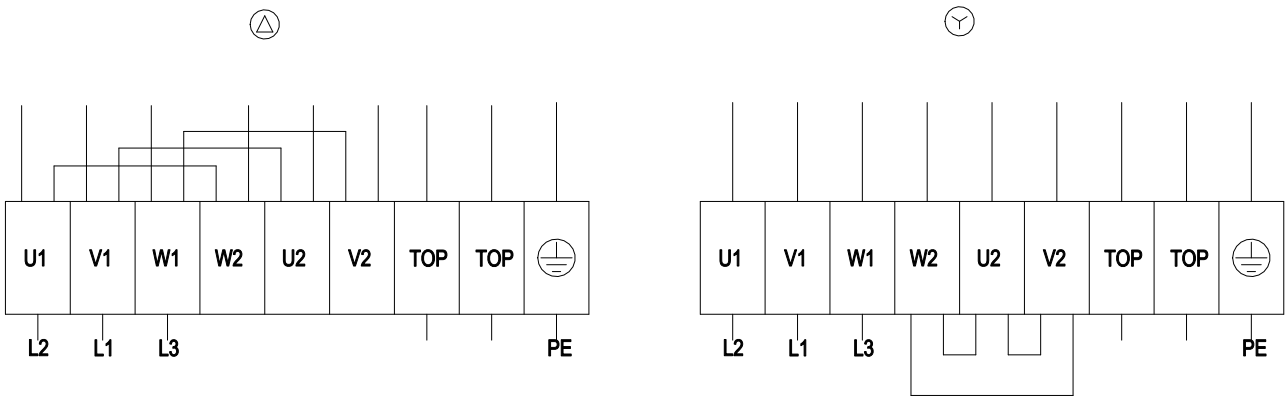
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## Connection diagram




| | | | | | |
|---|---|---|---|---|---|
| Δ | Delta connection | Y | Star connection | L1 | = V1 = blue |
| L2 | = U1 = black | L3 | = W1 = brown | W2 | yellow |
| U2 | green | V2 | white | TOP | 2x gray |
| PE | green/yellow | | | | |



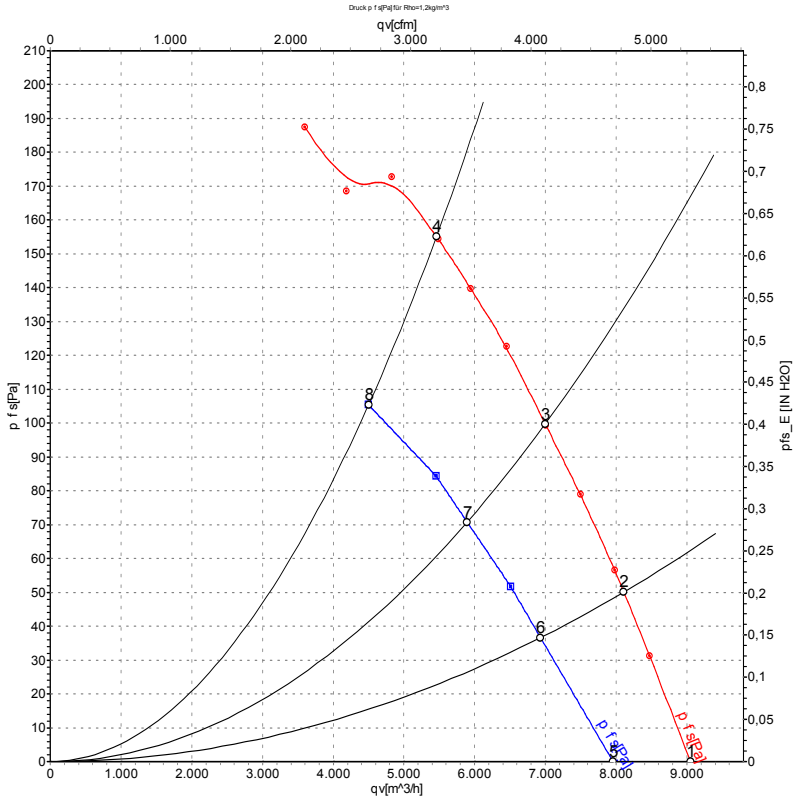
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## Curves: Air performance 50 Hz




Measurement: LU-105632-1
Measurement: LU-106081-1

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 | $LpA_{in}$ | $LwA_{in}$ | $LwA_{out}$ | $q_V$ | $p_{fs}$ | $q_V$ | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | V | Hz | $min^{-1}$ | W | A | dB(A) | dB(A) | dB(A) | $m^3/h$ | Pa | cfm | in. wg |
| 1 | Δ | 400 | 50 | 1395 | 504 | 1.13 | 68 | 75 | 75 | 9050 | 0 | 5325 | 0.00 |
| 2 | Δ | 400 | 50 | 1380 | 570 | 1.19 | 65 | 72 | 72 | 8110 | 50 | 4775 | 0.20 |
| 3 | Δ | 400 | 50 | 1365 | 628 | 1.26 | 64 | 71 | 71 | 6995 | 100 | 4120 | 0.40 |
| 4 | Δ | 400 | 50 | 1350 | 690 | 1.34 | 65 | 72 | 72 | 5460 | 155 | 3215 | 0.62 |
| 5 | Y | 400 | 50 | 1220 | 386 | 0.65 | 65 | 72 | 72 | 7955 | 0 | 4680 | 0.00 |
| 6 | Y | 400 | 50 | 1180 | 418 | 0.70 | 62 | 69 | 69 | 6930 | 37 | 4080 | 0.15 |
| 7 | Y | 400 | 50 | 1140 | 449 | 0.75 | 60 | 67 | 67 | 5895 | 71 | 3470 | 0.29 |
| 8 | Y | 400 | 50 | 1100 | 480 | 0.81 | 59 | 67 | 66 | 4500 | 105 | 2650 | 0.42 |

Wired = Wiring · U = Power supply · f = Frequency · n = Speed (rpm) · $P_e$ = Power consumption · I = Current draw · $LpA_{in}$ = Sound pressure level intake side · $LwA_{in}$ = Sound power level intake side
$LwA_{out}$ = Sound power level outlet side · $q_V$ = Air flow · $p_{fs}$ = Pressure increase



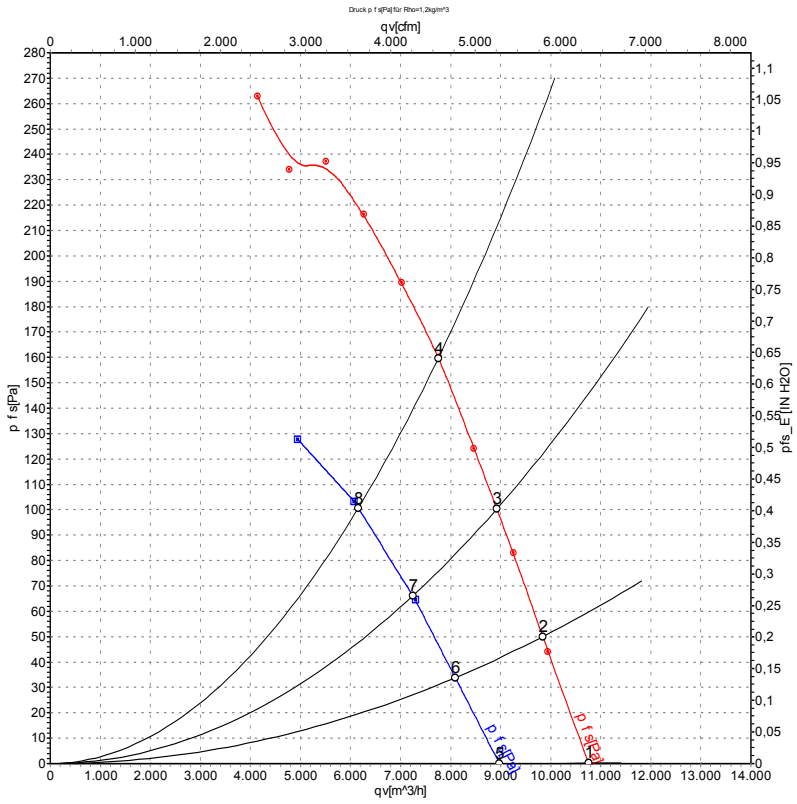
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## Curves: Air performance 60 Hz




Measurement: LU-105633-1
Measurement: LU-106114-1

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 | $LpA_{in}$ | $LwA_{in}$ | $LwA_{out}$ | $q_V$ | $p_{fs}$ | $q_V$ | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | V | Hz | $min^{-1}$ | W | A | dB(A) | dB(A) | dB(A) | $m^3/h$ | Pa | cfm | in. wg |
| 1 | Δ | 480 | 60 | 1645 | 824 | 1.32 | 71 | 78 | 79 | 10760 | 0 | 6335 | 0.00 |
| 2 | Δ | 480 | 60 | 1630 | 895 | 1.39 | 69 | 76 | 77 | 9840 | 50 | 5790 | 0.20 |
| 3 | Δ | 480 | 60 | 1610 | 969 | 1.47 | 68 | 75 | 75 | 8925 | 100 | 5250 | 0.40 |
| 4 | Δ | 480 | 60 | 1590 | 1050 | 1.57 | 67 | 75 | 75 | 7755 | 160 | 4565 | 0.64 |
| 5 | Y | 480 | 60 | 1375 | 599 | 0.84 | 67 | 74 | 75 | 8975 | 0 | 5280 | 0.00 |
| 6 | Y | 480 | 60 | 1330 | 632 | 0.89 | 65 | 72 | 72 | 8095 | 34 | 4765 | 0.14 |
| 7 | Y | 480 | 60 | 1290 | 662 | 0.93 | 63 | 70 | 70 | 7245 | 66 | 4265 | 0.26 |
| 8 | Y | 480 | 60 | 1250 | 690 | 0.98 | 62 | 69 | 68 | 6160 | 100 | 3625 | 0.40 |

Wired = Wiring · U = Power supply · f = Frequency · n = Speed (rpm) · $P_e$ = Power consumption · I = Current draw · $LpA_{in}$ = Sound pressure level intake side · $LwA_{in}$ = Sound power level intake side
$LwA_{out}$ = Sound power level outlet side · $q_V$ = Air flow · $p_{fs}$ = Pressure increase



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