

# AC axial fan

sickled blades (S series)

with full round nozzle, Transformator fan

W6D500-CG03-80 ebmpapst Datasheet

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## Nominal data

|                               |                   |      |      |      |      |      |      |
|-------------------------------|-------------------|------|------|------|------|------|------|
| Type                          | W6D500-CG03-80    |      |      |      |      |      |      |
| Motor                         | M6D110-EF         |      |      |      |      |      |      |
| Phase                         |                   | 3~   | 3~   | 3~   | 3~   | 3~   | 3~   |
| Nominal voltage               | VAC               | 400  | 400  | 400  | 400  | 480  | 480  |
| Connection                    |                   | Δ    | Y    | Δ    | Y    | Δ    | Y    |
| Frequency                     | Hz                | 50   | 50   | 60   | 60   | 60   | 60   |
| Type of data definition       |                   | fa   | fa   | fa   | fa   | fa   | fa   |
| Valid for approval / standard |                   | CE   | CE   | CE   | CE   | CE   | CE   |
| Speed                         | min <sup>-1</sup> | 945  | 830  | 1080 | 865  | 1115 | 960  |
| Power input                   | W                 | 250  | 175  | 340  | 240  | 380  | 280  |
| Current draw                  | A                 | 0.70 | 0.31 | 0.69 | 0.42 | 0.75 | 0.41 |
| Max. back pressure            | Pa                | 75   | 50   | 90   | 45   | 100  | 60   |
| Max. ambient temperature      | °C                | 90   | 90   | 75   | 75   | 75   | 75   |
| Starting current              | A                 | 2.5  | 0.85 | 2.3  | 0.8  | 2.8  | 0.95 |

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 =  $1 + p_b / 100\,000\text{ Pa}$

|                                |                   | Actual | Request 2013 | Request 2015 |
|--------------------------------|-------------------|--------|--------------|--------------|
| Overall efficiency $\eta_{es}$ | %                 | 26.9   | 26.3         | 30.3         |
| Efficiency grade N             |                   | 36.6   | 36           | 40           |
| Power input $P_e$              | kW                | 0.29   |              |              |
| Air flow $q_v$                 | m <sup>3</sup> /h | 4285   |              |              |
| Pressure increase $p_{fs}$     | Pa                | 67     |              |              |
| Speed n                        | min <sup>-1</sup> | 925    |              |              |

Data definition with optimum efficiency.  
The ErP data is determined using a motor-impeller combination in a standardised measurement configuration.

LU-104095



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## Technical features

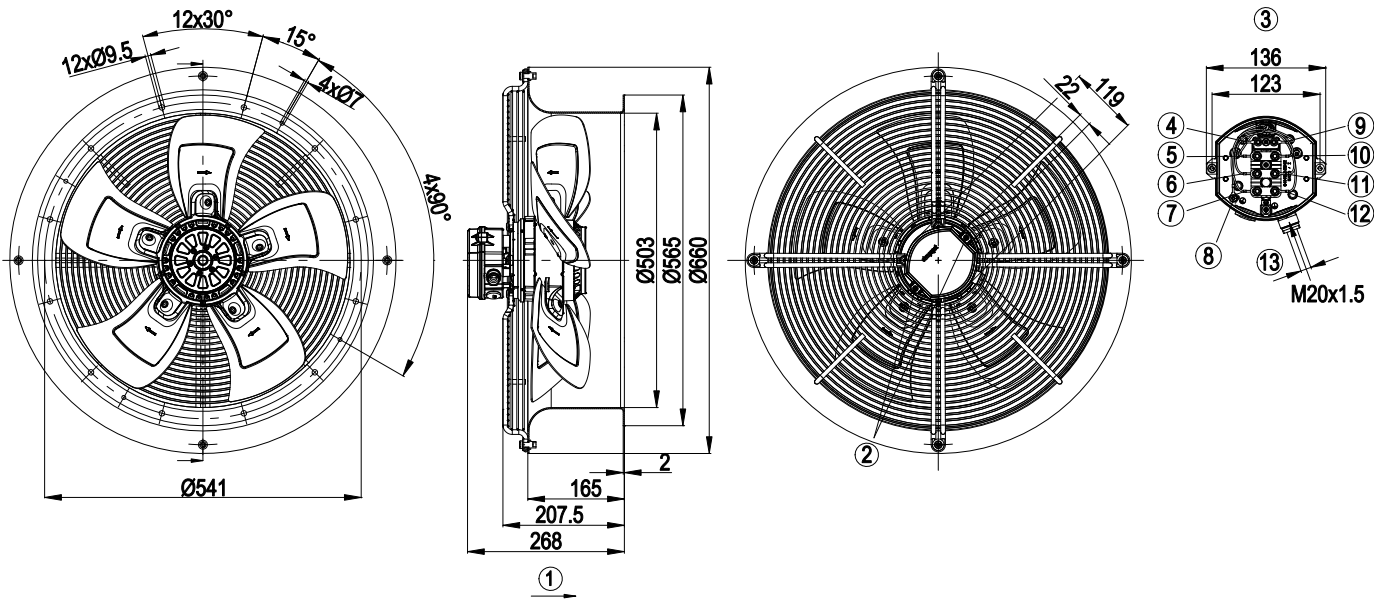
|                                                                    |                                                                              |
|--------------------------------------------------------------------|------------------------------------------------------------------------------|
| Mass                                                               | 21.3 kg                                                                      |
| Size                                                               | 500 mm                                                                       |
| Surface of rotor                                                   | Coated in black                                                              |
| Material of terminal box                                           | Die-cast aluminium, coated in black                                          |
| Material of blades                                                 | Aluminium sheet, coated in black                                             |
| Material of wall ring                                              | Sheet steel, pre-galvanised and plastic-coated in white aluminium (RAL 9006) |
| Material of guard grille                                           | Steel, galvanised and plastic-coated in white aluminium (RAL 9006)           |
| Number of blades                                                   | 5                                                                            |
| Blade angle                                                        | 0°                                                                           |
| Direction of air flow                                              | "A"                                                                          |
| Direction of rotation                                              | Clockwise, seen on rotor                                                     |
| Type of protection                                                 | IP 54                                                                        |
| Insulation class                                                   | "F"                                                                          |
| Humidity class                                                     | F4-2                                                                         |
| 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 top; rotor on bottom on request                 |
| Condensate discharge holes                                         | On the stator side                                                           |
| Operation mode                                                     | S1                                                                           |
| Motor bearing                                                      | Ball bearing                                                                 |
| Touch current acc. IEC 60990 (measuring network Fig. 4, TN system) | <= 3.5 mA                                                                    |
| Electrical leads                                                   | Via terminal box                                                             |
| Motor protection                                                   | Thermal overload protector (TOP) brought out                                 |
| Cable exit                                                         | Axial                                                                        |
| Protection class                                                   | I (if protective earth is connected by customer)                             |
| Product conforming to standard                                     | EN 61800-5-1; CE                                                             |
| Approval                                                           | EAC; VDE                                                                     |



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## Product drawing



|    |                                                                             |
|----|-----------------------------------------------------------------------------|
| 1  | Direction of air flow "A"                                                   |
| 2  | Tightening torque $2.0 \pm 0.2$ Nm                                          |
| 3  | Illustration without terminal box cover                                     |
| 4  | grey                                                                        |
| 5  | white                                                                       |
| 6  | green                                                                       |
| 7  | yellow                                                                      |
| 8  | green/yellow                                                                |
| 9  | grey                                                                        |
| 10 | brown                                                                       |
| 11 | light blue                                                                  |
| 12 | black                                                                       |
| 13 | Cable diameter: min. 10 mm, max. 12 mm; tightening torque: $2.0 \pm 0.2$ Nm |

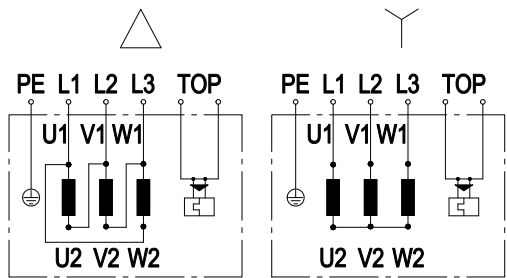


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Connection screen

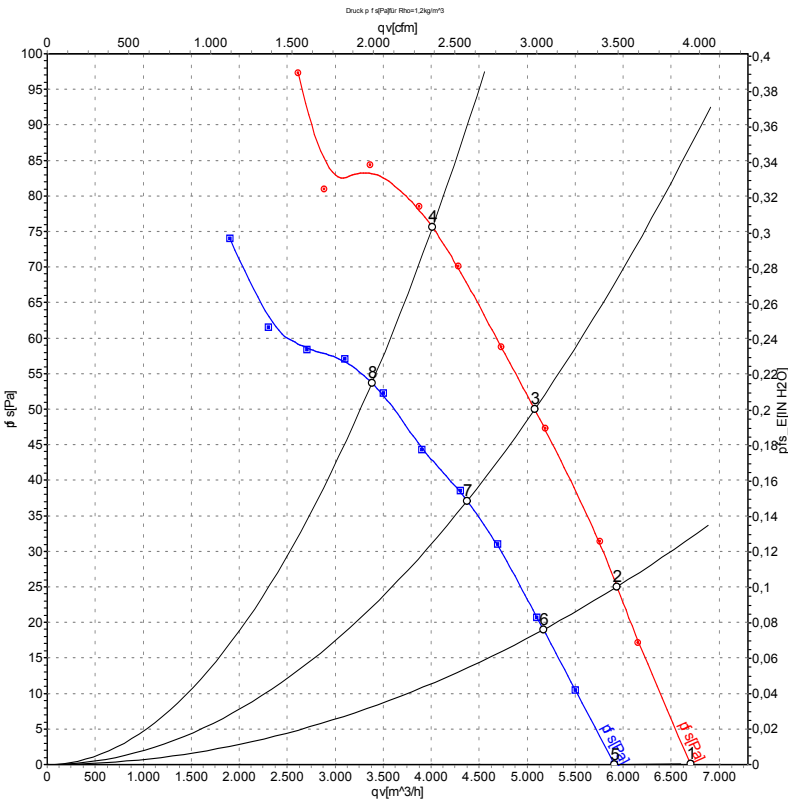


|    |                  |    |                 |     |        |
|----|------------------|----|-----------------|-----|--------|
| Δ  | Delta connection | Y  | Star connection | L1  | black  |
| L2 | blue             | L3 | brown           | U1  | black  |
| V1 | blue             | W1 | brown        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



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Charts: Air flow 50 Hz



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

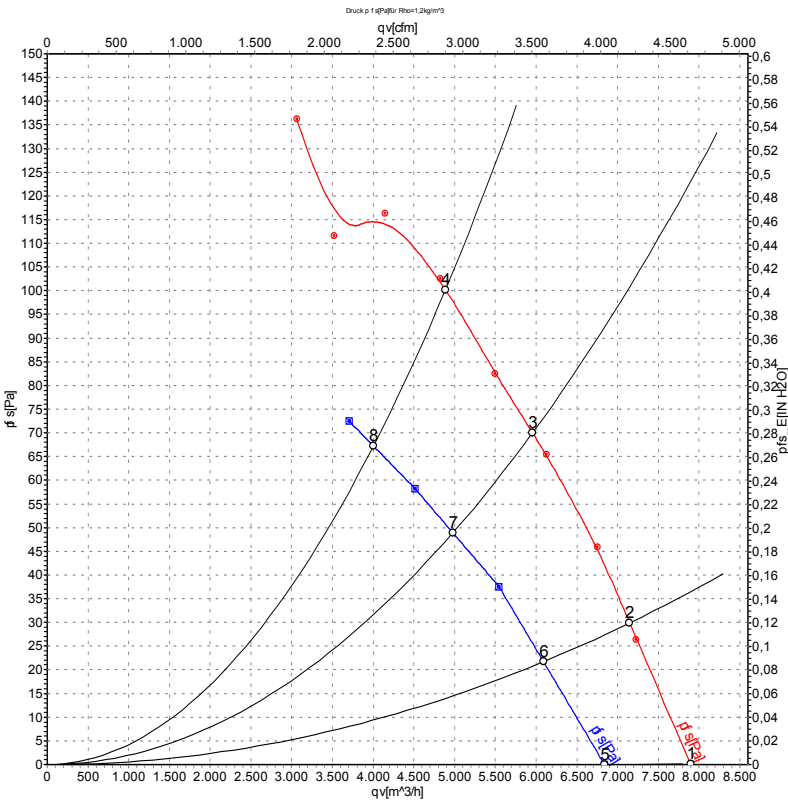
|   | Conn. | U   | f  | n                 | P <sub>e</sub> | I    | L <sub>pA<sub>in</sub></sub> | L <sub>wA<sub>in</sub></sub> | L <sub>wA<sub>out</sub></sub> | qv   | p <sub>fs</sub> |
|---|-------|-----|----|-------------------|----------------|------|------------------------------|------------------------------|-------------------------------|------|-----------------|
|   |       | V   | Hz | min <sup>-1</sup> | W              | A    | dB(A)                        | dB(A)                        | dB(A)                         | m³/h | Pa              |
| 1 | Δ     | 400 | 50 | 945               | 242            | 0.68 | 63                           | 69                           | 69                            | 6700 | 0               |
| 2 | Δ     | 400 | 50 | 935               | 263            | 0.68 | 64                           | 70                           | 70                            | 5935 | 25              |
| 3 | Δ     | 400 | 50 | 930               | 283            | 0.69 | 64                           | 70                           | 69                            | 5080 | 50              |
| 4 | Δ     | 400 | 50 | 920               | 310            | 0.75 | 64                           | 71                           | 71                            | 4015 | 75              |
| 5 | Y     | 400 | 50 | 835               | 174            | 0.31 | 61                           | 67                           | 66                            | 5910 | 0               |
| 6 | Y     | 400 | 50 | 815               | 189            | 0.33 | 61                           | 67                           | 67                            | 5170 | 19              |
| 7 | Y     | 400 | 50 | 795               | 201            | 0.34 | 60                           | 66                           | 66                            | 4375 | 37              |
| 8 | Y     | 400 | 50 | 775               | 220            | 0.36 | 60                           | 66                           | 66                            | 3380 | 54              |

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  
L<sub>wA<sub>out</sub></sub> = Sound power level outlet side · qv = Air flow · p<sub>fs</sub> = Pressure increase



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Charts: Air flow 60 Hz



Air performance measured as per ISO 5801  
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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  
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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    | LpA <sub>in</sub> | LwA <sub>in</sub> | LwA <sub>out</sub> | qv   | p <sub>fs</sub> |
|---|-------|-----|----|-------------------|----------------|------|-------------------|-------------------|--------------------|------|-----------------|
|   |       | V   | Hz | min <sup>-1</sup> | W              | A    | dB(A)             | dB(A)             | dB(A)              | m³/h | Pa              |
| 1 | Δ     | 480 | 60 | 1115              | 375            | 0.72 | 67                | 73                | 72                 | 7900 | 0               |
| 2 | Δ     | 480 | 60 | 1110              | 403            | 0.74 | 67                | 73                | 73                 | 7145 | 30              |
| 3 | Δ     | 480 | 60 | 1095              | 442            | 0.77 | 67                | 73                | 73                 | 5955 | 70              |
| 4 | Δ     | 480 | 60 | 1085              | 480            | 0.84 | 68                | 74                | 74                 | 4885 | 100             |
| 5 | Y     | 480 | 60 | 965               | 277            | 0.39 | 64                | 70                | 69                 | 6840 | 0               |
| 6 | Y     | 480 | 60 | 940               | 293            | 0.41 | 64                | 70                | 70                 | 6090 | 22              |
| 7 | Y     | 480 | 60 | 910               | 314            | 0.44 | 63                | 69                | 69                 | 4980 | 49              |
| 8 | Y     | 480 | 60 | 890               | 330            | 0.48 | 63                | 69                | 69                 | 4005 | 67              |

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

