**A3G500-BM03-M1**

# EC axial fan - HyBlade

sickled blades (S series)

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## Nominal data

| | |
|---|---|
| **Type** | **A3G500-BM03-M1** |
| **Motor** | **M3G084-GF** |

| | | |
|---|---|---|
| Phase | | 3~ |
| Nominal voltage | VAC | 400 |
| Nominal voltage range | VAC | 380 .. 480 |
| Frequency | Hz | 50/60 |
| Type of data definition | | ml |
| Speed (rpm) | $min^{-1}$ | 1370 |
| Power input | W | 630 |
| Current draw | A | 1.0 |
| Max. back pressure | Pa | 150 |
| Min. ambient temperature | °C | -25 |
| Max. ambient temperature | °C | 60 |

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

| | | Actual | Request 2015 |
|---|---|---|---|
| 01 Overall efficiency $\eta_{es}$ | % | 42.4 | 32.4 |
| 02 Measurement category | | A | |
| 03 Efficiency category | | Static | |
| 04 Efficiency grade N | | 50 | 40 |
| 05 Variable speed drive | | Yes | |

| | | |
|---|---|---|
| 09 Power input $P_{ed}$ | kW | 0.64 |
| 09 Air flow $q_v$ | $m^3/h$ | 5650 |
| 09 Pressure increase $p_{fs}$ | Pa | 159 |
| 10 Speed (rpm) n | $min^{-1}$ | 1370 |
| 11 Specific ratio* | | 1.00 |

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

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

LU-162566

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## Technical features

| | |
|---|---|
| **Mass** | 5.3 kg |
| **Size** | 500 mm |
| **Surface of rotor** | Coated in black |
| **Material of terminal box** | PP plastic |
| **Material of electronics housing** | Die-cast aluminium, coated in black |
| **Material of blades** | Press-fitted sheet steel blank, sprayed with PP plastic |
| **Number of blades** | 5 |
| **Direction of air flow** | "V" |
| **Direction of rotation** | Counter-clockwise, seen on rotor |
| **Type of protection** | IP 55 |
| **Insulation class** | "F" |
| **Humidity (F)/environmental protection class (H)** | F4-1 |
| **Note ambient temperature** | Occasional start-up between -40°C and -25°C is permissible.<br>For continuous operation at ambient temperatures below -25°C (e.g. refrigeration applications) we recommend our fan version with special low-temperature bearings. |
| **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 bottom; rotor on top on request |
| **Condensate discharge holes** | Rotor-side |
| **Operation mode** | S1 |
| **Motor bearing** | Ball bearing |
| **Technical features** | - Output 10 VDC, max. 10 mA<br>- Operation and alarm display<br>- External 24 V input (programming)<br>- Alarm relay<br>- Integrated PID controller<br>- Motor current limit<br>- PFC, passive<br>- RS485 MODBUS RTU<br>- Soft start<br>-Maximum EEPROM write cycles 100,000<br>- Control input 0-10 VDC / PWM<br>- Control interface with SELV potential safely disconnected from the mains<br>- Temperature derating<br>- Over-temperature protected electronics / motor<br>- Line undervoltage / phase failure detection |
| **EMC interference immunity** | Acc. to EN 61000-6-2 (industrial environment) |
| **EMC harmonics** | Acc. to EN 61000-3-2/3 |
| **EMC interference emission** | Acc. to EN 61000-6-3 (household environment) |
| **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) wired internally |
| **Protection class** | I (if protective earth is connected by customer) |
| **Product conforming to standard** | EN 61800-5-1; CE |



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| | |
|---|---|
| **Approval** | C22.2 Nr.77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730; CCC |

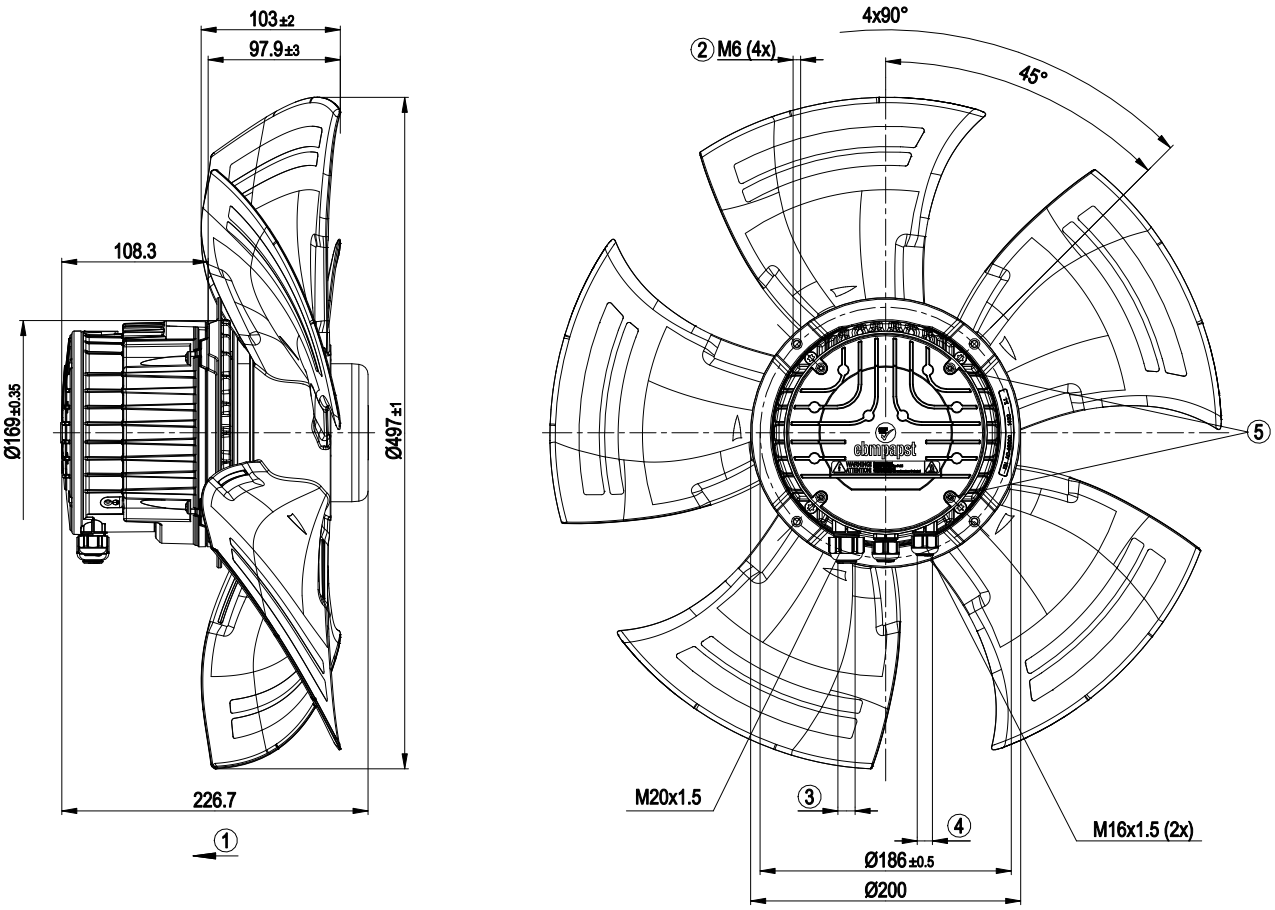


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## Product drawing




| | |
|---|---|
| 1 | Direction of air flow "V" |
| 2 | Thread reach max. 16 mm |
| 3 | Cable diameter min. 8 mm, max. 12 mm, tightening torque 2.5±0.4 Nm |
| 4 | Cable diameter min. 6 mm, max. 10 mm, tightening torque 2.5±0,4 Nm<br>Cable diameter min. 4 mm, max. 7 mm, tightening torque 2.5±0.4 Nm (use must be made of sealing ring provided) |
| 5 | Tightening torque 1.5±0.2 Nm |

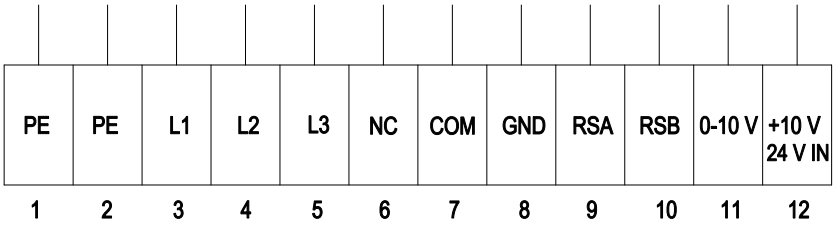


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## Connection screen




| No. | Conn. | Designation | Function / assignment |
|---|---|---|---|
| | 1 | PE | Protective earth |
| | 2 | PE | Protective earth |
| | 3 | L1 | Power supply |
| | 4 | L2 | Power supply |
| | 5 | L3 | Power supply |
| | 6 | NC | Status relay, floating status contact, break for failure,<br>contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on mains side and basic insulation on control interface side |
| | 7 | COM | Status relay, floating status contact, break for failure,<br>contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on mains side and basic insulation on control interface side |
| | 8 | GND | Signal ground for control interface, SELV |
| | 9 | RSA | RS-485 interface for MODBUS, RSA; SELV |
| | 10 | RSB | RS-485 interface for MODBUS, RSB; SELV |
| | 11 | 0-10 V | Analogue input (set value) SELV, 0-10 V, Ri=100kΩ, parametrisable curve |
| | 12 | +10 V | Fixed voltage output 10 VDC, SELV, +10 V +/-3%, max. 10 mA short-circuit-proof, power supply for ext. devices (e.g. potentiometer);<br>Fixed voltage input 24 VDC for parameter setting via MODBUS without mains power supply |

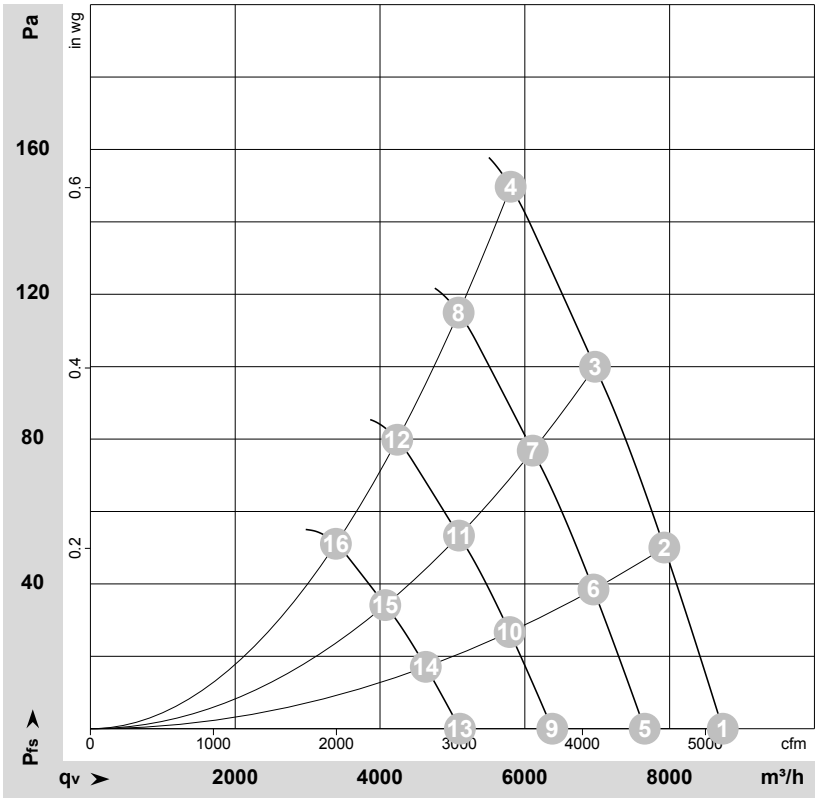


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## Charts: Air flow 50 Hz




ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-162566-1

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

| | Conn. | U | f | n | $P_{ed}$ | 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 | inH2O |
| 1 | Δ | 400 | 50 | 1370 | 471 | 0.77 | 66 | 73 | 73 | 8735 | 0 | 5140 | 0.00 |
| 2 | Δ | 400 | 50 | 1370 | 537 | 0.86 | 64 | 71 | 70 | 7925 | 50 | 4665 | 0.20 |
| 3 | Δ | 400 | 50 | 1370 | 591 | 0.94 | 63 | 70 | 70 | 6970 | 100 | 4100 | 0.40 |
| 4 | Δ | 400 | 50 | 1370 | 630 | 1.00 | 65 | 72 | 71 | 5805 | 150 | 3415 | 0.60 |
| 5 | Δ | 400 | 50 | 1200 | 317 | 0.52 | 63 | 69 | 69 | 7655 | 0 | 4505 | 0.00 |
| 6 | Δ | 400 | 50 | 1200 | 361 | 0.58 | 61 | 67 | 67 | 6950 | 40 | 4090 | 0.16 |
| 7 | Δ | 400 | 50 | 1200 | 398 | 0.64 | 60 | 66 | 66 | 6110 | 77 | 3595 | 0.31 |
| 8 | Δ | 400 | 50 | 1200 | 430 | 0.68 | 62 | 69 | 68 | 5085 | 116 | 2995 | 0.47 |
| 9 | Δ | 400 | 50 | 1000 | 184 | 0.30 | 58 | 65 | 65 | 6380 | 0 | 3755 | 0.00 |
| 10 | Δ | 400 | 50 | 1000 | 209 | 0.34 | 56 | 63 | 63 | 5790 | 28 | 3410 | 0.11 |
| 11 | Δ | 400 | 50 | 1000 | 230 | 0.37 | 55 | 62 | 62 | 5090 | 53 | 2995 | 0.21 |
| 12 | Δ | 400 | 50 | 1000 | 249 | 0.40 | 57 | 64 | 63 | 4240 | 81 | 2495 | 0.33 |
| 13 | Δ | 400 | 50 | 800 | 94 | 0.15 | 53 | 59 | 59 | 5105 | 0 | 3005 | 0.00 |
| 14 | Δ | 400 | 50 | 800 | 107 | 0.17 | 50 | 57 | 57 | 4630 | 18 | 2725 | 0.07 |
| 15 | Δ | 400 | 50 | 800 | 118 | 0.19 | 49 | 56 | 56 | 4075 | 34 | 2395 | 0.14 |
| 16 | Δ | 400 | 50 | 800 | 127 | 0.20 | 52 | 58 | 58 | 3390 | 52 | 1995 | 0.21 |

Conn. = Connection · U = Supply voltage · f = Frequency · n = Speed (rpm) · $P_{ed}$ = Power input · I = Current draw · $LpA_{in}$ = Sound pressure level inlet side · $LwA_{in}$ = Sound power level inlet side $LwA_{out}$ = Sound power level outlet side · $q_V$ = Air flow · $p_{fs}$ = Pressure increase



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