

A3G500-AN33-03

## EC axial fan - HyBlade®

sickled blades (S series)



### ebm-papst Mulfingen GmbH & Co. KG

Bachmühle 2 · D-74673 Mulfingen

Phone +49 7938 81-0

Fax +49 7938 81-110

info1@de.ebmpapst.com

www.ebmpapst.com

Limited partnership · Headquarters Mulfingen  
County court Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen  
County court Stuttgart · HRB 590142



### Nominal data

|                          |                   |            |
|--------------------------|-------------------|------------|
| Type                     | A3G500-AN33-03    |            |
| Motor                    | M3G112-GA         |            |
| Phase                    |                   | 3~         |
| Nominal voltage          | VAC               | 400        |
| Nominal voltage range    | VAC               | 380 .. 480 |
| Frequency                | Hz                | 50/60      |
| Type of data definition  |                   | ml         |
| Speed                    | min <sup>-1</sup> | 1600       |
| Power input              | W                 | 980        |
| Current draw             | A                 | 1.6        |
| 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

|                       |        |
|-----------------------|--------|
| Installation category | A      |
| Efficiency category   | Static |
| Variable speed drive  | Yes    |
| Specific ratio*       | 1.00   |

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

|                                |                   | Actual | Request 2013 | Request 2015 |
|--------------------------------|-------------------|--------|--------------|--------------|
| Overall efficiency $\eta_{es}$ |                   | 43.5   | 29.7         | 33.7         |
| Efficiency grade N             |                   | 49.8   | 36           | 40           |
| Power input $P_{ed}$           | kW                | 1      |              |              |
| Air flow $q_v$                 | m³/h              | 6630   |              |              |
| Pressure increase $p_{fs}$     | Pa                | 218    |              |              |
| Speed n                        | min <sup>-1</sup> | 1610   |              |              |

Data established at point of optimum efficiency

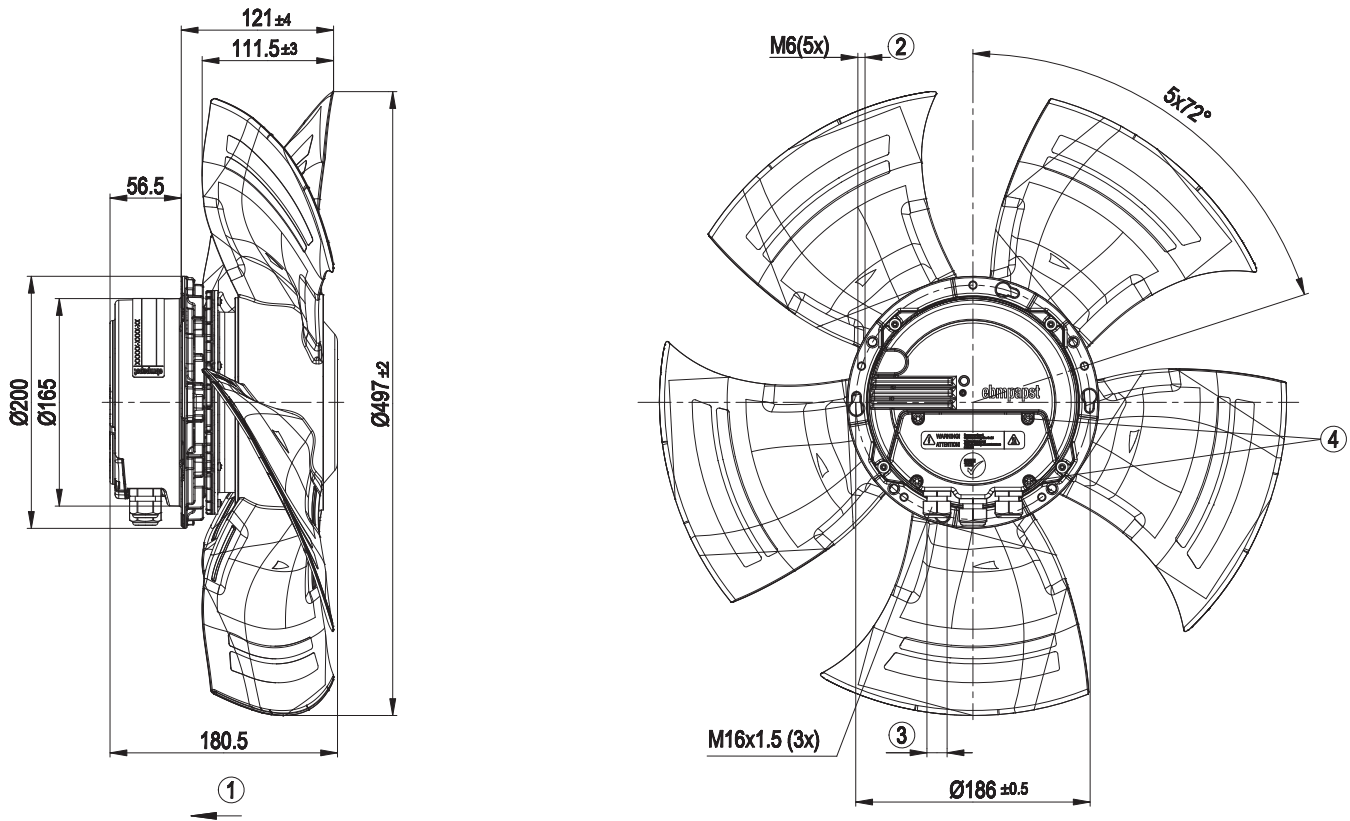


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## Technical features

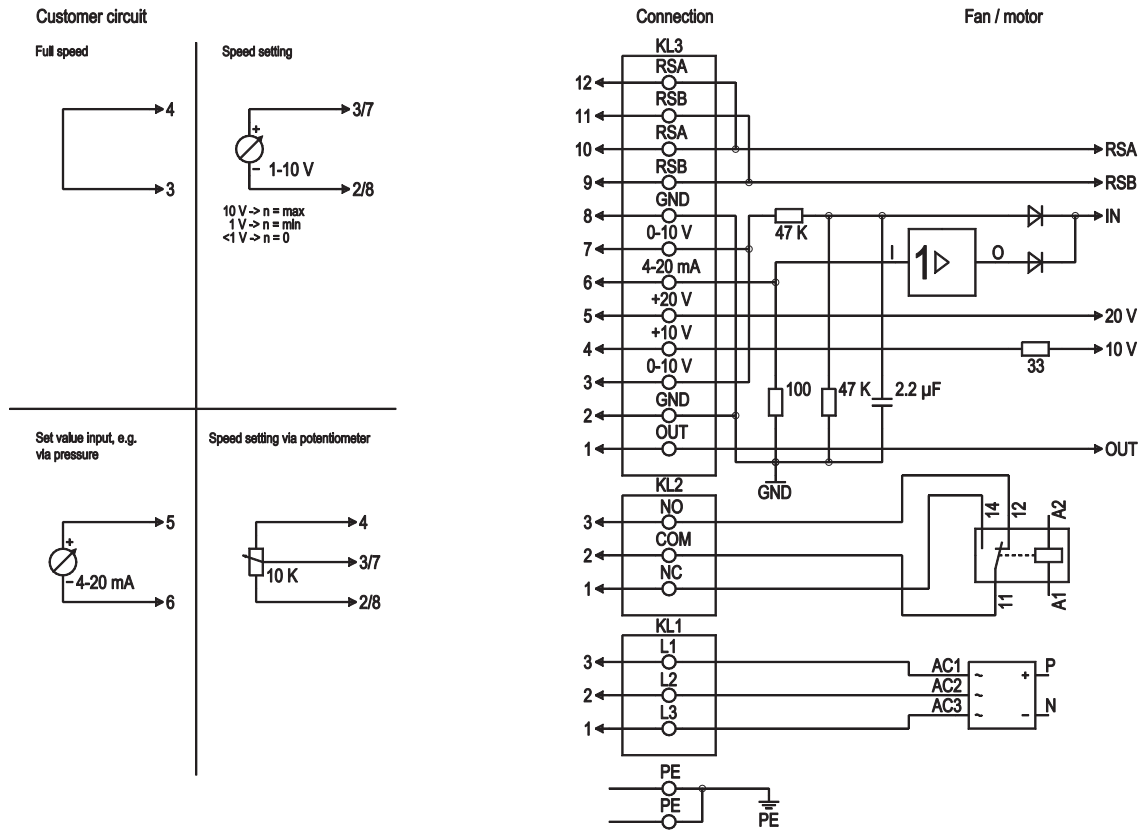
|                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mass                                                               | 9.4 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Size                                                               | 500 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Surface of rotor                                                   | Coated in black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 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 54                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Insulation class                                                   | "B"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Humidity class                                                     | F4-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 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                                                 | <ul style="list-style-type: none"> <li>- Output 10 VDC, max. 10 mA</li> <li>- Output 20 VDC, max. 50 mA</li> <li>- Output for slave 0-10 V</li> <li>- Input for sensor 0-10 V or 4-20 mA</li> <li>- Alarm relay</li> <li>- Integrated PID controller</li> <li>- Motor current limit</li> <li>- PFC, passive</li> <li>- RS485 ebmBUS</li> <li>- Soft start</li> <li>- Control input 0-10 VDC / PWM</li> <li>- Control interface with SELV potential safely disconnected from the mains</li> <li>- Over-temperature protected electronics / motor</li> <li>- Line undervoltage / phase failure detection</li> </ul> |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Cable exit                                                         | Variable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Protection class                                                   | I (if protective earth is connected by customer)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Product conforming to standard                                     | EN 61800-5-1; CE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Approval                                                           | GOST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## Product drawing



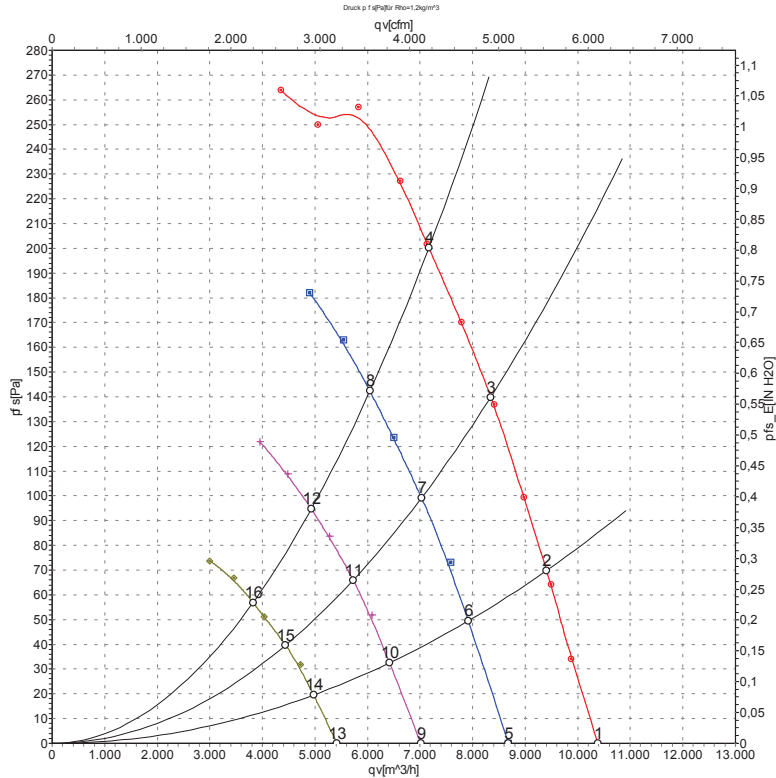
|   |                                                                      |
|---|----------------------------------------------------------------------|
| 1 | Direction of air flow "V"                                            |
| 2 | Depth of screw max. 16 mm                                            |
| 3 | Cable diameter: min. 4 mm, max. 10 mm; tightening torque: 2.5±0.4 Nm |
| 4 | Tightening torque 3.5±0.5 Nm                                         |

## Connection screen



| No. | Pin     | Signal     | Function / assignment                                                                                                                                                                         |
|-----|---------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PE  |         | PE         | Protective earth connection                                                                                                                                                                   |
| KL1 | 1, 2, 3 | L1, L2, L3 | Supply voltage, 50/60 Hz                                                                                                                                                                      |
| KL2 | 1       | NC         | Floating status message contact, normally closed connection; break for failure                                                                                                                |
| KL2 | 2       | COM        | Floating status message contact, changeover contact, common connection (2 A, max. 250 VAC, min. 10 mA, AC1)                                                                                   |
| KL2 | 3       | NO         | Floating status message contact, normally open connection; make for failure                                                                                                                   |
| KL3 | 1       | OUT        | Analog output, 0-10 VDC, max. 3 mA, SELV, output of the current level control coefficient:<br>1 V equates to 10% level control coefficient.<br>10 V equate to 100% level control coefficient. |
| KL3 | 2, 8    | GND        | Reference mass for control interface, SELV                                                                                                                                                    |
| KL3 | 3, 7    | 0-10 V     | Use control / actual value input 0-10 VDC, impedance 100 kΩ only as alternative to 4-20 mA input, SELV                                                                                        |
| KL3 | 4       | +10 V      | Voltage output 10 VDC (+/-3%), max. 10 mA, supply voltage for external devices (e.g. potentiometers), SELV                                                                                    |
| KL3 | 5       | +20 V      | Voltage output 20 VDC (+25%/-10%), max. 50 mA, supply voltage for external devices (e.g. sensors), SELV                                                                                       |
| KL3 | 6       | 4-20 mA    | Use control / actual value input 4-20 mA, impedance 100 Ω, only as alternative to 0-10 V input, SELV                                                                                          |
| KL3 | 9, 11   | RSB        | RS485 interface for ebmBus, RSB, SELV                                                                                                                                                         |
| KL3 | 10, 12  | RSA        | RS485 interface for ebmBus, RSA, SELV                                                                                                                                                         |

## Charts: Air flow 50 Hz



Measurement: LU-121588  
 Measurement: LU-125150  
 Measurement: LU-125151  
 Measurement: LU-125149

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

|    | U   | f  | n                 | P <sub>ed</sub> | I    | LpA <sub>in</sub> | LwA <sub>in</sub> | LwA <sub>out</sub> | qv    | p <sub>s</sub> |
|----|-----|----|-------------------|-----------------|------|-------------------|-------------------|--------------------|-------|----------------|
|    | V   | Hz | min <sup>-1</sup> | W               | A    | dB(A)             | dB(A)             | dB(A)              | m³/h  | Pa             |
| 1  | 400 | 50 | 1600              | 734             | 1.16 | 72                | 80                | 80                 | 10390 | 0              |
| 2  | 400 | 50 | 1600              | 827             | 1.33 | 70                | 77                | 77                 | 9405  | 70             |
| 3  | 400 | 50 | 1600              | 907             | 1.41 | 68                | 75                | 75                 | 8345  | 140            |
| 4  | 400 | 50 | 1600              | 980             | 1.60 | 68                | 76                | 75                 | 7170  | 200            |
| 5  | 400 | 50 | 1350              | 434             | 0.78 | 69                | 76                | 76                 | 8680  | 0              |
| 6  | 400 | 50 | 1350              | 489             | 0.85 | 66                | 73                | 73                 | 7915  | 51             |
| 7  | 400 | 50 | 1350              | 538             | 0.91 | 64                | 71                | 71                 | 7025  | 99             |
| 8  | 400 | 50 | 1350              | 577             | 0.95 | 64                | 71                | 71                 | 6045  | 142            |
| 9  | 400 | 50 | 1100              | 256             | 0.51 | 64                | 72                | 71                 | 7015  | 0              |
| 10 | 400 | 50 | 1100              | 282             | 0.55 | 62                | 69                | 68                 | 6420  | 33             |
| 11 | 400 | 50 | 1100              | 308             | 0.60 | 59                | 67                | 66                 | 5730  | 66             |
| 12 | 400 | 50 | 1100              | 329             | 0.64 | 59                | 66                | 65                 | 4930  | 95             |
| 13 | 400 | 50 | 850               | 133             | 0.31 | 60                | 67                | 66                 | 5415  | 0              |
| 14 | 400 | 50 | 850               | 145             | 0.32 | 57                | 64                | 63                 | 4975  | 20             |
| 15 | 400 | 50 | 850               | 155             | 0.34 | 55                | 62                | 61                 | 4445  | 40             |
| 16 | 400 | 50 | 850               | 163             | 0.36 | 53                | 60                | 60                 | 3820  | 57             |

U = Supply voltage · f = Frequency · n = Speed · P<sub>ed</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>s</sub> = Pressure increase