

# EC axial fan - HyBlade

sickled blades (S series)

A3G560-AN33-24 ebmpapst Datasheet  
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## Nominal data

|                          |                   |       |
|--------------------------|-------------------|-------|
| Type                     | A3G560-AN33-24    |       |
| Motor                    | M3G112-GA         |       |
| Phase                    |                   | 1~    |
| Nominal voltage          | VAC               | 230   |
| Frequency                | Hz                | 50/60 |
| Type of data definition  |                   | ml    |
| Speed (rpm)              | min <sup>-1</sup> | 1160  |
| Power input              | W                 | 720   |
| Current draw             | A                 | 3.3   |
| Max. back pressure       | Pa                | 87    |
| 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 $\eta_{es}$ | % | 38.9   | 32.9         |
| 02 Measurement category           |   | A      |              |
| 03 Efficiency category            |   | Static |              |
| 04 Efficiency grade N             |   | 46     | 40           |
| 05 Variable speed drive           |   | Yes    |              |

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

|                               |                   |      |
|-------------------------------|-------------------|------|
| 09 Power input $P_{ed}$       | kW                | 0.75 |
| 09 Air flow $q_v$             | m³/h              | 6325 |
| 09 Pressure increase $p_{fs}$ | Pa                | 153  |
| 10 Speed (rpm) n              | min <sup>-1</sup> | 1145 |
| 11 Specific ratio*            |                   | 1.00 |

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

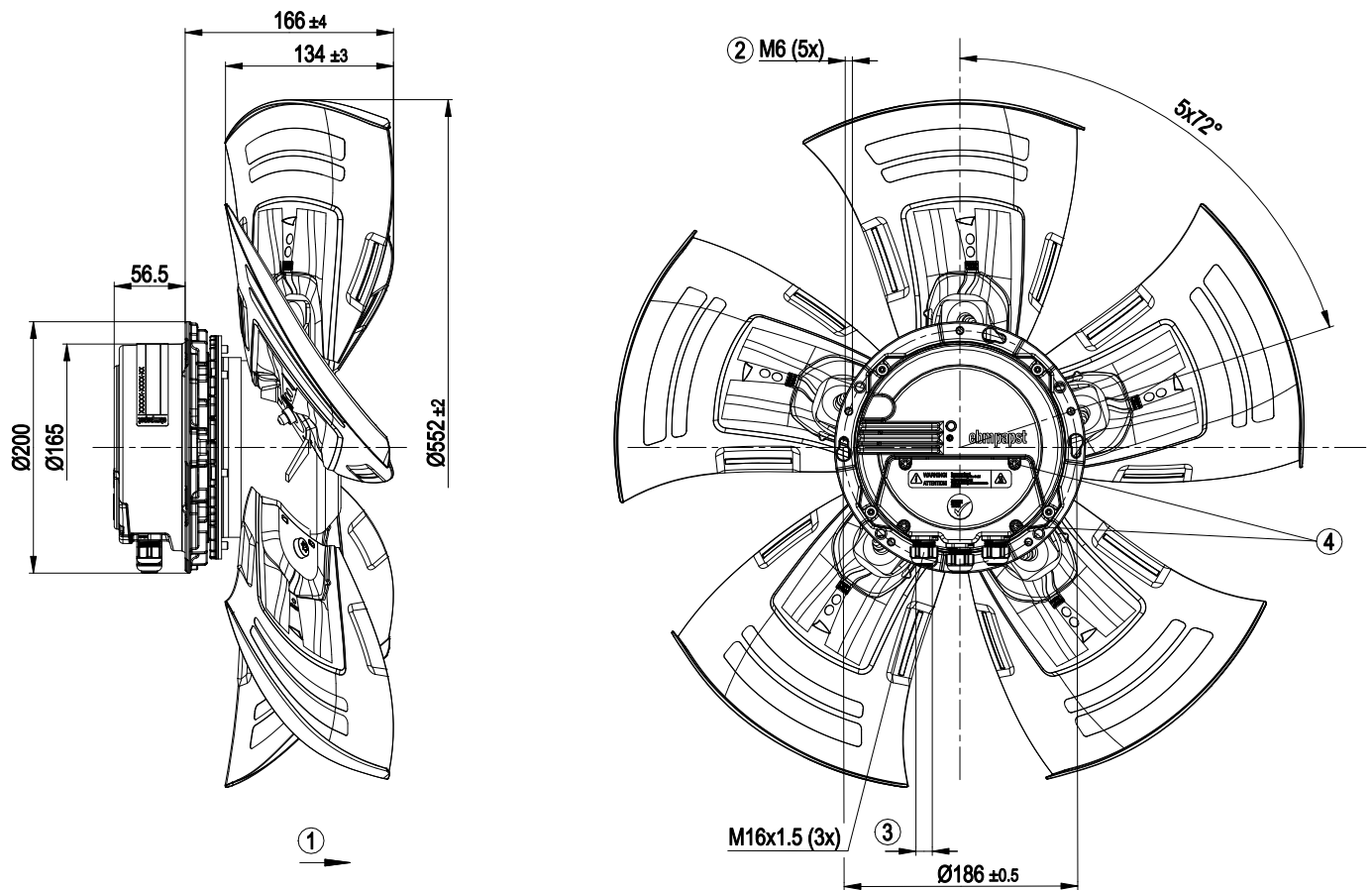
LU-171421



## Technical features

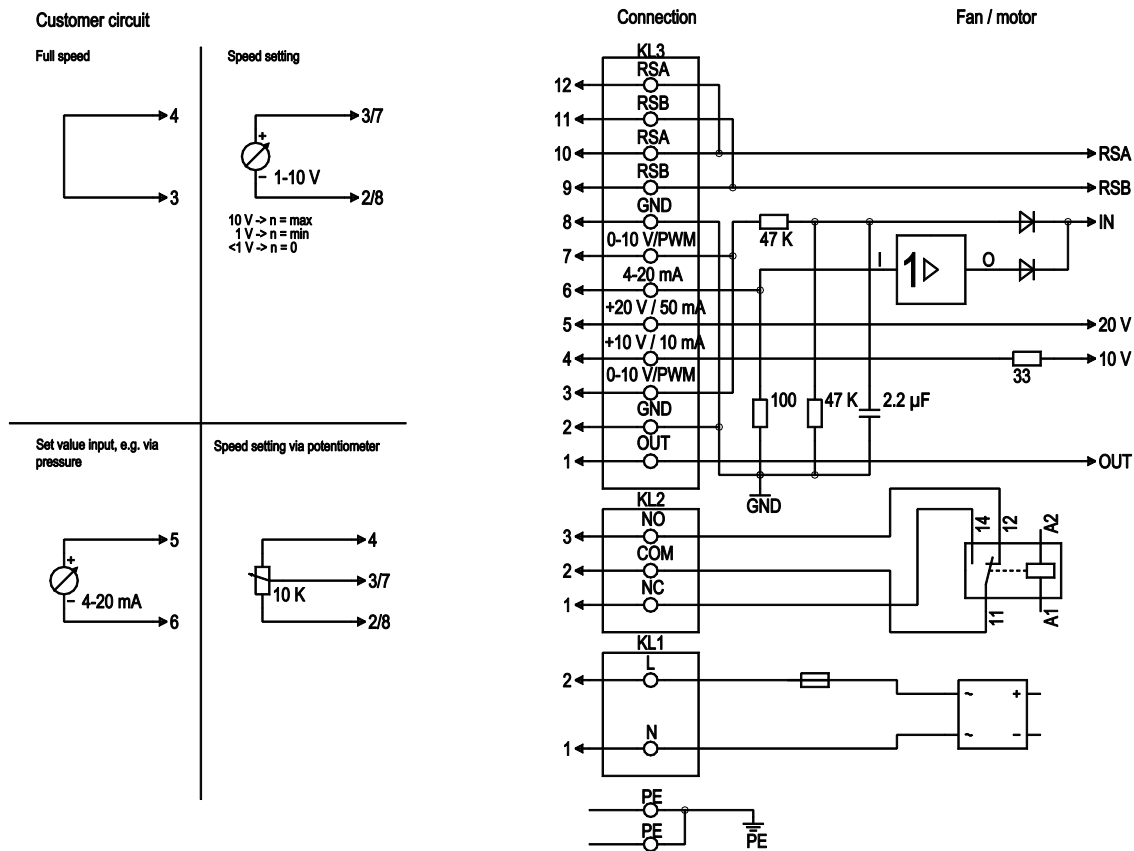
|                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mass                                                               | 9.9 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Size                                                               | 560 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Surface of rotor                                                   | Coated in black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Material of electronics housing                                    | Die-cast aluminium, coated in black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Material of blades                                                 | Aluminium sheet insert, sprayed with PP plastic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 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                                                   | "B"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Humidity (F)/environmental protection class (H)                    | 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 10-0 V or 20-4 mA</li> <li>- Alarm relay</li> <li>- Integrated PID controller</li> <li>- Motor current limit</li> <li>- PFC, active</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> |
| 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                                                           | EAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## Product drawing



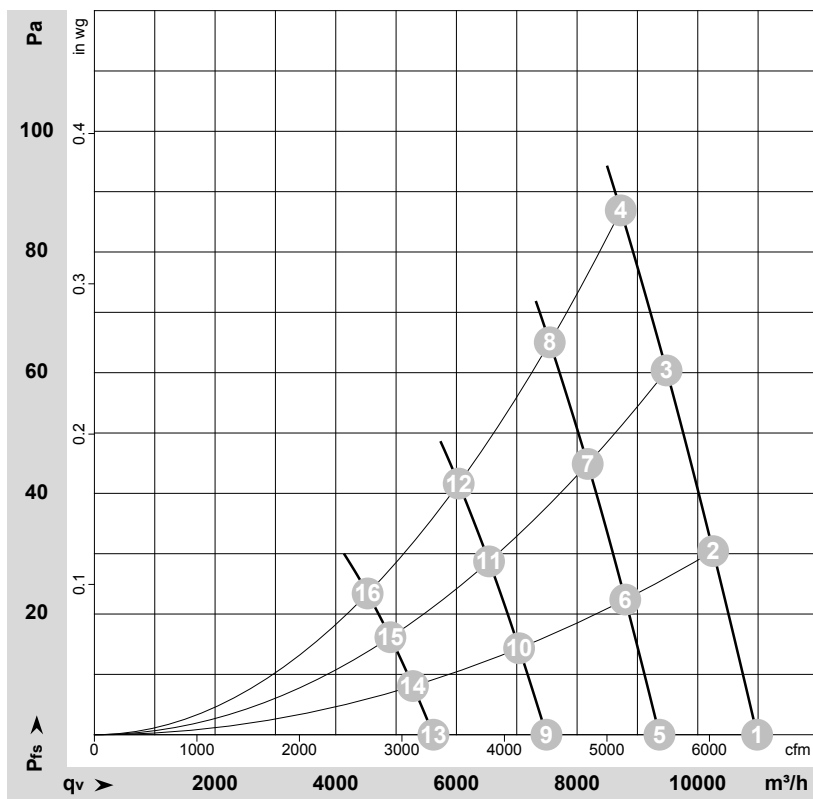
|   |                                                                    |
|---|--------------------------------------------------------------------|
| 1 | Direction of air flow "A"                                          |
| 2 | Thread reach max. 16 mm                                            |
| 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. | Conn.  | Designation | Function / assignment                                                                                                                                                                                            |
|-----|--------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PE  |        | PE          | Protective earth connection                                                                                                                                                                                      |
| KL1 | 1, 2   | N, L        | Supply voltage, 50/60 Hz                                                                                                                                                                                         |
| KL2 | 1      | NC          | Floating status message contact, normally closed connection                                                                                                                                                      |
| 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                                                                                                                                                        |
| KL3 | 1      | OUT         | Analogue output, 0-10 VDC, max. 3 mA, SELV,<br>Output of the current motor level control coefficient:<br>1 V corresponds to 10% level control coefficient,<br>10 V correspond 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 ext. devices (e.g. potentiometer), SELV                                                                                                            |
| KL3 | 5      | +20 V       | Voltage output 20 VDC (+25%/-10%), max. 50 mA, supply voltage for ext. 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



$$\rho = 1.15 \text{ kg/m}^3 \pm 2 \%$$

Measurement: LU-171421-1

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

|    | U   | f  | n                 | P <sub>ed</sub> | I    | LpA <sub>in</sub> | LwA <sub>in</sub> | LwA <sub>out</sub> | q <sub>v</sub>    | P <sub>fs</sub> | q <sub>v</sub> | P <sub>fs</sub>    |
|----|-----|----|-------------------|-----------------|------|-------------------|-------------------|--------------------|-------------------|-----------------|----------------|--------------------|
|    | V   | Hz | min <sup>-1</sup> | W               | A    | dB(A)             | dB(A)             | dB(A)              | m <sup>3</sup> /h | Pa              | cfm            | inH <sub>2</sub> O |
| 1  | 230 | 50 | 1175              | 637             | 2.78 | 68                | 75                | 74                 | 10985             | 0               | 6465           | 0.00               |
| 2  | 230 | 50 | 1165              | 669             | 2.92 | 68                | 75                | 74                 | 10255             | 30              | 6035           | 0.12               |
| 3  | 230 | 50 | 1160              | 696             | 3.04 | 67                | 73                | 73                 | 9485              | 60              | 5580           | 0.24               |
| 4  | 230 | 50 | 1160              | 720             | 3.30 | 65                | 72                | 71                 | 8725              | 87              | 5135           | 0.35               |
| 5  | 230 | 50 | 1000              | 395             | 1.72 | 64                | 71                | 70                 | 9365              | 0               | 5510           | 0.00               |
| 6  | 230 | 50 | 1000              | 423             | 1.85 | 64                | 71                | 70                 | 8800              | 23              | 5180           | 0.09               |
| 7  | 230 | 50 | 1000              | 446             | 1.95 | 63                | 70                | 69                 | 8175              | 45              | 4810           | 0.18               |
| 8  | 230 | 50 | 1000              | 466             | 2.04 | 61                | 68                | 68                 | 7545              | 66              | 4440           | 0.26               |
| 9  | 230 | 50 | 800               | 202             | 0.88 | 58                | 65                | 64                 | 7490              | 0               | 4410           | 0.00               |
| 10 | 230 | 50 | 800               | 217             | 0.95 | 58                | 65                | 64                 | 7040              | 15              | 4145           | 0.06               |
| 11 | 230 | 50 | 800               | 228             | 1.00 | 57                | 64                | 63                 | 6540              | 29              | 3850           | 0.12               |
| 12 | 230 | 50 | 800               | 239             | 1.04 | 56                | 63                | 62                 | 6040              | 42              | 3555           | 0.17               |
| 13 | 230 | 50 | 600               | 85              | 0.37 | 51                | 58                | 57                 | 5620              | 0               | 3305           | 0.00               |
| 14 | 230 | 50 | 600               | 91              | 0.40 | 51                | 58                | 57                 | 5280              | 8               | 3105           | 0.03               |
| 15 | 230 | 50 | 600               | 96              | 0.42 | 50                | 57                | 56                 | 4905              | 16              | 2890           | 0.06               |
| 16 | 230 | 50 | 600               | 101             | 0.44 | 49                | 55                | 55                 | 4530              | 24              | 2665           | 0.10               |

U = Supply voltage · f = Frequency · n = Speed (rpm) · 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  
q<sub>v</sub> = Air flow · P<sub>fs</sub> = Pressure increase

