**W3G910-KU25-03**

# EC axial fan - AxiBlade

sickled blades (S series)

with full square nozzle

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## Nominal data

| | |
|---|---|
| **Type** | **W3G910-KU25-03** |
| **Motor** | **M3G150-IF** |

| | | |
|---|---|---|
| Phase | | 3~ |
| Nominal voltage | VAC | 400 |
| Nominal voltage range | VAC | 380 .. 480 |
| Frequency | Hz | 50/60 |
| Type of data definition | | ml |
| Speed (rpm) | $min^{-1}$ | 980 |
| Power input | W | 2550 |
| Current draw | A | 3.9 |
| Max. back pressure | Pa | 220 |
| Min. ambient temperature | °C | -40 |
| 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

Occasional start-up between -40 °C and -25 °C is permissible. For continuous operation at ambient temperatures below -25 °C (such as refrigeration applications), a fan design with special low-temperature bearings must be used.

## Data in accordance with ecodesign regulation EU 327/2011 (prEN 17166)

| | | Actual | Request 2015 |
|---|---|---|---|
| 01 Overall efficiency $\eta_{es}$ | % | 53.2 | 36.1 |
| 02 Measurement category | | A | |
| 03 Efficiency category | | Static | |
| 04 Efficiency grade N | | 57.1 | 40 |
| 05 Variable speed drive | | Yes | |

| | | |
|---|---|---|
| 09 Power input $P_{ed}$ | kW | 2.38 |
| 09 Air flow $q_v$ | $m^3/h$ | 23685 |
| 09 Pressure increase $p_{fs}$ | Pa | 182 |
| 10 Speed (rpm) n | $min^{-1}$ | 980 |
| 11 Specific ratio* | | 1.00 |

Data definition with optimum efficiency.

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

LU-184391

The indicated efficiency values for obtaining conformity with the Ecodesign Directive EU 327/2011 were achieved with defined air conduction components (e.g. inlet nozzles).
The dimensions are to be requested from ebm-papst. If other air guide geometries are used on the installation side, the ebm-papst evaluation loses its validity/conformity must be confirmed again.

The product does not fall within the scope of Regulation (EU) 2019/1781 due to the exception specified in Article 2(2a) (motors completely integrated into a product).

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## Technical features

| | |
|---|---|
| **Mass** | 48 kg |
| **Size** | 910 mm |
| **Motor size** | 150 |
| **Surface of rotor** | Coated in black |
| **Material of electronics housing** | Die-cast aluminium, painted grey |
| **Material of impeller** | PP plastic |
| **Material of wall ring** | Sheet steel, galvanised and coated in black plastic (RAL 9005) |
| **Material of guard grille** | Steel, coated in black plastic (RAL9005) |
| **Number of blades** | 5 |
| **Blade angle** | 0° |
| **Direction of air flow** | V |
| **Direction of rotation** | Clockwise, seen on rotor |
| **Type of protection** | IP55 |
| **Insulation class** | "F" |
| **Humidity (F) / environmental protection class (H)** | H2 |
| **Note ambient temperature** | Occasional start-up between -40 °C and -25 °C is permissible. For continuous operation at ambient temperatures below -25 °C (e.g. refrigeration applications), a fan version with special low-temperature bearings must be used. |
| **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 |
| **Condensation drainage holes** | Rotor-side |
| **Operation mode** | S1 |
| **Motor bearing** | Ball bearing |
| **Technical features** | - Operation and alarm display via LED<br>- External 15-50 VDC input (parametrisation)<br>- Alarm relay<br>- Integrated PI controller<br>- Configurable inputs/outputs (I/O)<br>- MODBUS V6.3<br>- Motor current limit<br>- RS485 MODBUS RTU<br>- Soft start<br>- Voltage output 3.3-24 VDC, Pmax = 800 mW<br>- Control interface with SELV potential safely disconnected from the mains<br>- Over-temperature protected electronics / motor<br>- Line undervoltage / phase failure detection |
| **EMC interference immunity** | Acc. to EN 61000-6-2 (industrial environment) |
| **EMC interference emission** | Acc. to EN 61000-6-3 (household environment), except EN 61000-3-2 for professionally used devices with a total rated power greater than 1 kW |
| **Touch current acc. IEC 60990 (measuring network Fig. 4, TN system)** | <= 3.5 mA |
| **Electrical connection** | Terminal box |
| **Motor protection** | Reverse polarity and locked-rotor protection |



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| | |
|---|---|
| **Safety classification** | I; If a protective earth is connected by the customer<br>This component to be built-in can have several local protection class ratings. The specification refers to the basic design of this component.<br>The final protection class is based on the intended installation and connection of the component. |
| **Product conforming to standard** | EN 61800-5-1; CE |
| **Standard conformity** | UKCA |
| **Approval** | UL 1004-7 + 60730-1; CSA C22.2 no. 77 + CAN/CSA-E60730-1; EAC |
| **Remark** | Perm. operating altitude up to max. 4000 m above sea level as per DIN 61800-5-1_2008_Sect. 4.3.6.4.1 Overvoltage category II.<br>Up to 2000 m above sea level Overvoltage category III applies. |



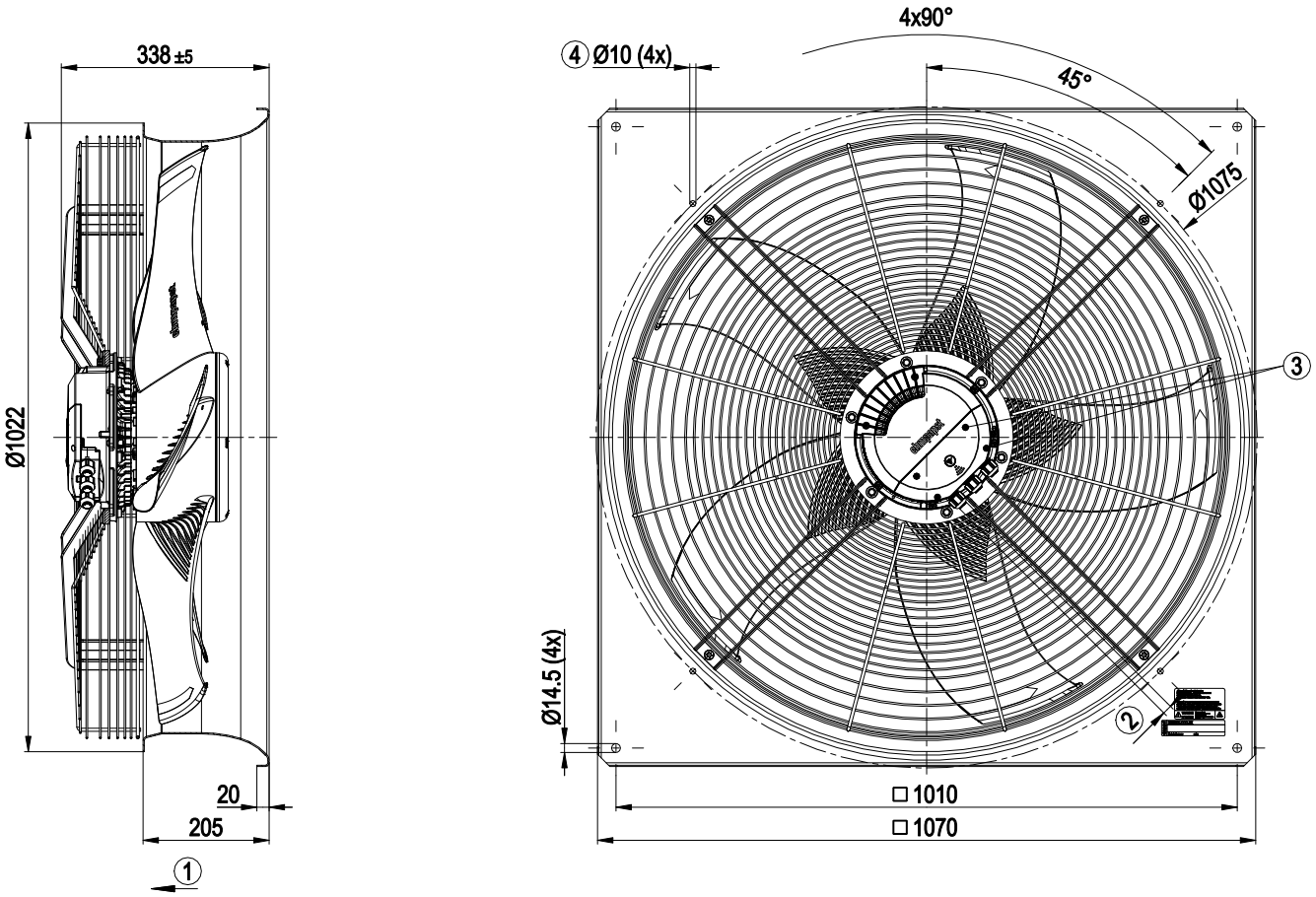
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## Product drawing




| | |
|---|---|
| 1 | Direction of air flow "V" |
| 2 | Cable diameter min. 4 mm, max. 10 mm, tightening torque 4±0.6 Nm |
| | (The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may need to be adapted) |
| 3 | Tightening torque 1.5±0.2 Nm |
| 4 | Attachment holes for FlowGrid (91000-2-2957 not included in scope of delivery) |



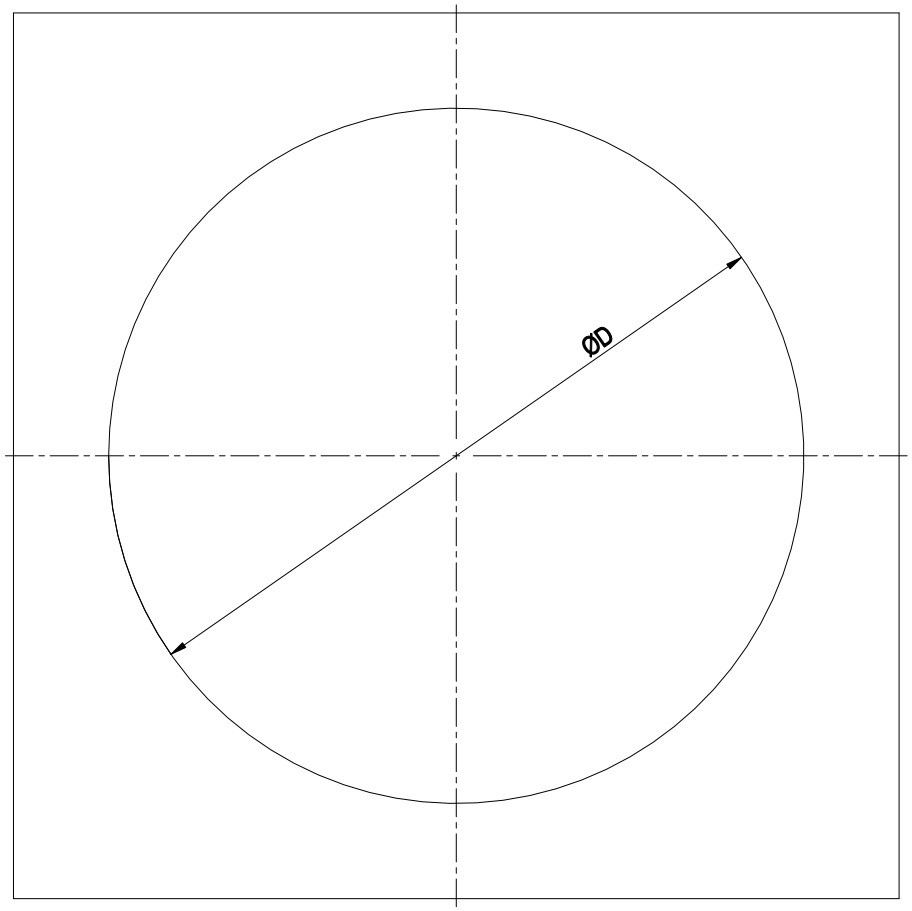
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## Mounting dimensions




| | |
|---|---|
| | Diameter of the necessary recess for mounting the wall ring in the end device |
| | BG630: D = Ø785 mm |
| | BG710: D = Ø830 mm |
| | BG800: D = Ø950 mm |
| | BG910: D = Ø1050 mm |



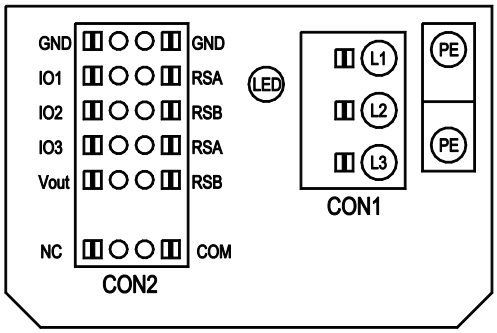
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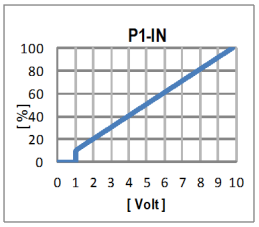
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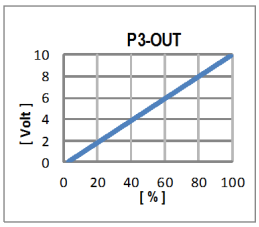
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## Connection screen




| No. | Conn. | Designation | Function / assignment |
|---|---|---|---|
| | CON1 | L1, L2, L3 | Power supply, phase, see type plate for voltage range |
| | PE | PE | Protective earth |
| | CON2 | RSA | RS-485 interface for MODBUS, RSA; SELV |
| | CON2 | RSB | RS-485 interface for MODBUS, RSB; SELV |
| | CON2 | GND | Signal ground for control interface, SELV |
| | CON2 | IO1 | Function parametrisable (see “Optional interface functions” table)<br>Factory setting:<br>Digital input - high active, function: Disable input, SELV<br>- inactive: Pin open or applied voltage < 1.5 VDC<br>- active: applied voltage 3.5-50 VDC<br>Reset function: fault reset triggered by status change from enabled to disabled |
| | CON2 | IO2 | Function parametrisable (see “Optional interface functions” table)<br>Factory setting:<br>Analogue input 0-10 V / PWM, Ri=100 kΩ, function: Set value<br>Curve parametrisable (see input curve P1-IN), SELV |
| | CON2 | IO3 | Function parametrizable (see “Optional interface functions” table)<br>Factory setting:<br>Analogue output 0-10 V, max. 5 mA, function: Fan modulation level<br>Curve parametrizable (see output curve P3-OUT), SELV |
| | CON2 | Vout | Voltage output 3.3-24 VDC +/-5%, Pmax=800 mW, voltage parametrisable<br>Factory setting: 10 VDC<br>short-circuit-proof, supply for external devices, SELV<br>alternatively: 15-50 VDC input for parametrisation via MODBUS without mains power |
| | CON2 | COM | Status relay, floating status contact, common connection, contact rating 250 VAC/max. 2 A (AC1) min. 10 mA, reinforced insulation with respect to mains and control interface |
| | CON2 | NC | Status relay, floating status contact, break for failure |
| | | LED | green = OK status, ready for operation<br>orange = Warning status<br>red = Error status |
| | | P1-IN | Input curve |
| | | P3-OUT | Output curve |



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## Terminal/pin assignment

| CON2 | configurable IO mode | electrical specification | MODBUS Register for IO mode configuration | configurable IO functions: normal / inverse | INPUT: source: set value | INPUT: source: sensor value | INPUT: switch: parameter set: #1 / #2 | INPUT: switch: control function: heating (pos.) / cooling (neg.) | INPUT: switch: direction of rotation: cw / ccw | INPUT: switch: set value source | INPUT: switch: fan enable / disable | OUTPUT: signal: tach out (selected directly via IO mode) | OUTPUT: signal: diagnostics out (selected directly via IO mode) | OUTPUT: signal: fan modulation level % D130 [0] | OUTPUT: signal: actual speed D130 [1] | OUTPUT: signal: system modulation level % D130 [2] | OUTPUT: signal: remote control output 0-10V D130 [5] | pulse input for auto-adressing D00C [1] | pulse output for auto-adressing D130 [4] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IO1 | ○ **Din1 (active high)**: digital input | active: applied voltage 3,5-50VDC, SELV<br>not active: pin open or applied voltage < 1,5VDC | D158 [0] | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | | | | |
| | ○ **Ain1 0-10V/PWM**: analog input | Ri = 100K, characteristic curve parameterizable, $f_{PWM}$ = 1k..10KHz, SELV | D158 [2] | | ○ | ○ | | | | | | | | | | | | | |
| | ○ **Tach out** (open collector output) | Umax = 50VDC, Imax = 20mA, SELV | D158 [5] | | | | | | | | | ○ | | | | | | | |
| | ○ **Diagnostics out** (open collector output) | Umax = 50VDC, Imax = 20mA, SELV | D158 [6] | | | | | | | | | | ○ | | | | | | |
| IO2 | ○ **Din2 (active high)**: digital input | active: applied voltage 3,5-50VDC, SELV<br>not active: pin open or applied voltage < 1,5VDC | D159 [0] | | | | ○ | ○ | ○ | ○ | ○ | | | | | | | | |
| | ○ **Ain2 0-10V/PWM**: analog input | Ri = 100K, characteristic curve parameterizable, $f_{PWM}$ = 1k..10KHz, SELV | D159 [2] | | | ○ | | | | | | | | | | | | | |
| | ○ **Ain2 4-20mA**: analog input | Ri = 125R, characteristic curve parameterizable, SELV | D159 [3] | | | | | | | | | | | | | | | | |
| IO3 | ○ **Din3 (active high)**: digital input | active: applied voltage 3,5-50VDC, SELV<br>not active: pin open or applied voltage < 1,5VDC | D15A [0] | | | | ○ | ○ | ○ | ○ | ○ | | | | | | | | |
| | ○ **Din3 (active low)**: digital input | active: applied voltage < 1,5VDC, SELV<br>not active: pin open or applied voltage 3,5-50VDC | D15A [1] | | | | | | | | | | | | | | | | |
| | ○ **PWMin3**: digital input, idle level high | PWM = 40Hz- 10kHz, characteristics parameterizable<br>active: pin open or applied voltage 3,5-50VDC<br>not active: applied voltage < 1,5VDC, SELV | D15A [7] | | ○ | | | | | | | | | | | | | | |
| | ○ **PWMin3**: digital input, idle level low | 40Hz- 10kHz, characteristics parameterizable<br>active: applied voltage 3,5-50VDC<br>not active: pin open or applied voltage < 1,5VDC, SELV | D15A [8] | | ○ | | | | | | | | | | | | | | |
| | ○ **Aout3 0-10V**: analog output | function parameterizable, max. 5mA, max output frequency 300Hz, SELV | D15A [4] | | | | | | | | | | | ○ | | ○ | ○ | | ○ |
| | ○ **Tacho out** (pulses), analog output | 0-10V max. 5mA, max output frequency 300Hz, SELV | D15A [5] | | | | | | | | | ○ | | | | | | | |
| | ○ **Diagnostics out** (pulses) | 0-10V max. 5mA, max output frequency 300Hz, SELV | D15A [6] | | | | | | | | | | ○ | | | | | | |
| RSA<br>RSB | RS485 bus connection, | MODBUS RTU, specification V6.3, SELV | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | | | | |
| Vout | voltage output | voltage parameterizable 3,3...24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV | D16E [...] | | | | | | | | | | | | | | | | |
| | alternatively: Input auxillary power supply for parameterization via RS485/MODBUS RTU without line voltage | 15...50VDC | | | | | | | | | | | | | | | | | |

○ configurable option

For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.3



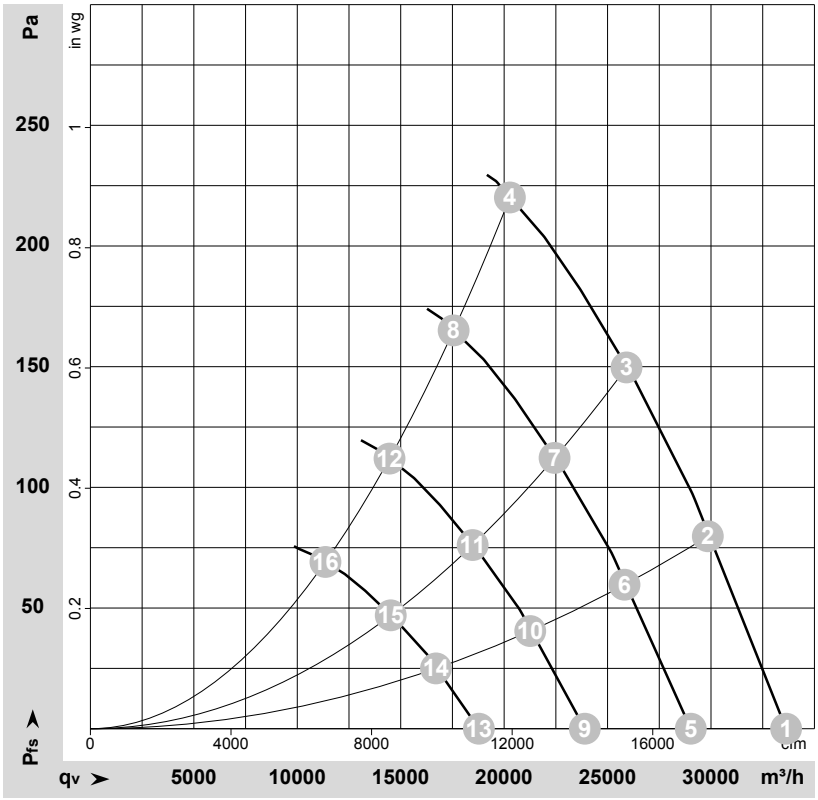
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## Charts: Air flow 50 Hz




ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-184391-1

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 | $P_{ed}$ | 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 | in. wg |
| 1 | 400 | 50 | 980 | 1563 | 2.50 | 72 | 79 | 80 | 33630 | 0 | 19795 | 0.00 |
| 2 | 400 | 50 | 980 | 1938 | 3.04 | 69 | 76 | 77 | 29845 | 80 | 17565 | 0.32 |
| 3 | 400 | 50 | 980 | 2245 | 3.49 | 70 | 77 | 77 | 25915 | 150 | 15255 | 0.60 |
| 4 | 400 | 50 | 980 | 2550 | 3.90 | 75 | 82 | 82 | 20280 | 220 | 11935 | 0.88 |
| 5 | 400 | 50 | 850 | 1004 | 1.60 | 68 | 75 | 76 | 29025 | 0 | 17080 | 0.00 |
| 6 | 400 | 50 | 850 | 1255 | 1.97 | 66 | 73 | 74 | 25820 | 61 | 15195 | 0.24 |
| 7 | 400 | 50 | 850 | 1457 | 2.27 | 67 | 73 | 74 | 22440 | 112 | 13205 | 0.45 |
| 8 | 400 | 50 | 850 | 1663 | 2.57 | 72 | 78 | 79 | 17560 | 165 | 10335 | 0.66 |
| 9 | 400 | 50 | 700 | 561 | 0.90 | 63 | 70 | 71 | 23900 | 0 | 14070 | 0.00 |
| 10 | 400 | 50 | 700 | 701 | 1.10 | 61 | 68 | 69 | 21260 | 41 | 12515 | 0.16 |
| 11 | 400 | 50 | 700 | 814 | 1.27 | 62 | 68 | 69 | 18480 | 76 | 10875 | 0.31 |
| 12 | 400 | 50 | 700 | 929 | 1.44 | 67 | 74 | 74 | 14460 | 112 | 8510 | 0.45 |
| 13 | 400 | 50 | 550 | 272 | 0.43 | 57 | 64 | 65 | 18780 | 0 | 11055 | 0.00 |
| 14 | 400 | 50 | 550 | 340 | 0.53 | 55 | 62 | 63 | 16705 | 26 | 9835 | 0.10 |
| 15 | 400 | 50 | 550 | 395 | 0.61 | 56 | 62 | 63 | 14520 | 47 | 8545 | 0.19 |
| 16 | 400 | 50 | 550 | 451 | 0.70 | 61 | 67 | 68 | 11360 | 69 | 6685 | 0.28 |

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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