2007/2008
Fans and Blowlers
GENERAL CATALOGUE

DC Silent Fans (Low Noise Axial Flow Fan)
DC Axial Fans
DC Centrifugal Blowlers
Variable-speed Fans and Blowlers
Customized Fans and Blowlers
AC Fans and Blowlers
A new series of Super Silent Blowers to meet your needs!

**E0525H and E0525K Series**
- **Dimensions:** 63 x 50 x 25 mm
- **Features:** Can achieve an airflow output equivalent to that of a 170 mm blower.

**E0818K Series**
- **Dimensions:** 87 x 54 x 18 mm
- **Features:** An intermediate blower between the conventional 170 mm and 194 mm blowers.

**E1232L Series**
- **Dimensions:** 119 mm or equivalent (actual dimensions 119 x 83 x 22 mm)
- **Features:** New version of conventional E1232H blower;

**E1331K Series**
- **Dimensions:** 126 x 71 x 22 mm
- **Features:** New version of conventional E1331H blower.

**E2271Z Series**
- **Dimensions:** 220 x 71 x 22 mm (Built-in type, no blower casing provided).

**Other Principal Additions**
- **Dimensions:** 126 x 22 x 22 mm

More versatile lineup of DC axial fans!

**DO925C Series**
- **Dimensions:** 92 x 25 mm
- **Features:** Next Generation Super Silent fans with high efficiency, low noise operation, energy saving, and easy to handle.

**G1715A**
- **Features:** Semi-customized products (PWM-controlled speed products, products for installation in special locations and other products).

Please visit our website for any technical inquiries or information.

For non-technical inquiries, contact our local Japan Servo sales office or distributor in your area.

This catalog contains only the latest standard products in the inventory and semi-standard products.

Contact your Japan Servo sales office or distributor for details about customized and semi-customized products.

Please visit our website for specifications and other information on former products released.

The dimensions, specifications, and components contained in this catalog are subject to change without prior notice due to further product improvements.

An electronic version of the catalog, containing 3D data of DC fans and blowers, can be forwarded upon request. Information can also be downloaded from the web2-CAD site (www.web2-CAD.co.jp).

Contact Japan Servo Co. or a distributor if you wish to obtain product samples.
High customer satisfaction achieved thanks to our quiet and energy efficient products with unsurpassed reliability and customizability.

Focusing on product development for computer-related equipment, the compact axial fans from Japan Servo are the result of technological innovations that minimize noise to the greatest possible extent. Japan Servo’s product designs incorporate several industry-firsts, including specially molded 3-dimensional blades, and silent fans with a unique intake shape. Market requirements are always researched and catered to in advance; meaning customers always receive products that perform well ahead of market norms.

Versatile lineups of axial fans and centrifugal blowers

Fans for high static pressure applications are also supplied as standard products. The aerodynamic characteristics required for fan motors differ depending on the equipment in which they are installed, but may roughly be grouped into airflow focus and pressure focus types respectively. The axial fans and centrifugal blowers (also called “centrifugal fans” and “syringe fans”), as fan motors of Japan Servo, fall into both the former and latter categories. Recently, Japan Servo has also developed pressure focus type axial fans, suitable for use in high static pressure regions, in response to diverse customer requirements.

As its name implies, an axial fan generates airflow in the motor axial direction. Airflow can be generated cylindrically from the propeller of the entire diameter of the fan, allowing considerable airflow generation. The axial fan sucks in air and pushes it out through the propeller blades, without large pressure (static pressure) output. The centrifugal blower, on the other hand, recovers the airflow released by the impeller blades in a centrifugal direction from the motor shaft center via the scroll casing (also called a “housing” or “frame”) and discharges it unidirectionally. This system effectively converts a centrifugal force into pressure, increasing the pressure (static pressure) to blow the air. However, only a limited airflow passes through the impeller, preventing a large airflow from being obtained.

Japan Servo rolls the former as fans and the latter as blowers, to easily distinguish the differences between the two types.

In addition to these two types, Japan Servo has recently released axial fans with features resembling those of the blower (high static pressure region fans, e.g. the G1751M series). These fans are attracting the attention of the IT industry and are highly regarded as quiet products, capable of saving energy with high-impedance equipment, with which conventional axial fans have not been efficient.

Our ceaseless quest to reduce noise

Japan Servo continues to introduce a never ending series of quiet products to the market. People know to talk to Japan Servo if low noise is a priority, and that reputation has grown over many years. Day and night, Japan Servo is active in the research and development of low noise technology. Japan Servo also swiftly introduced computational fluid dynamics (CFD) to deliver quiet fans and blowers that customers can use without worrying about designing noise reduction measures into their application.

Versatile lineup of energy saving products

The power consumption of fans may be problematic with some high airflow products and with large fans and blowers. When several units are used, a high capacity power source must be installed. Japan Servo markets a large variety of high-efficiency fan motors that can reduce the power capacity required for such machines.

Features of Japan Servo Co. Fans & Blowers

- Only highly reliable products are delivered to customers
  - With product liability in mind, it is the logical responsibility of manufacturers to supply highly reliable products that can be used by customers without any product safety worries. Products with new designs are only supplied to the market after their viability has been verified by subjecting them to various high-temperature life tests and proving that they are problem-free. Moreover, only high-reliability parts are used in the drive circuits of DC fans and blowers. Japan Servo develops and designs products by specifying the strictest denoting level in the industry.

- Customized and semi-customized product specifications
  - Products are supplied in optimum customized form for bulk purchases. Japan Servo is capable of swiftly accomplishing optimum designs by fully exploiting CFD technology. Japan Servo will propose optimum semi-customized fans and blowers by combining its large variety of customized parts. Let Japan Servo devise a suitable solution to meet your requirements.

- All Japan Servo catalog products conform to the EU RoHS Directive
  - All Japan Servo products conform to the EU RoHS Directive by restricting the contents of six specified hazardous substances (lead, mercury, cadmium, hexavalent chromium, PBD and PBDE) to below tolerable values. (All products produced from the beginning of January 2006 meet the RoHS Directive. Certain standard inventory products may include those produced in and before December 2005. Please specify in your purchase orders that only RoHS-compliant products should be shipped.) Japan Servo is also active in reducing another 18 hazardous substances.

- AC and DC fans
  - One of the prominent advantages of AC fans is the fact that they can be directly connected to an AC power supply. This DC fan boasts high motor efficiency and is power-saving, as well as generating less heat, allowing the weight of the motor and venturi case to be reduced. AC fans and blowers use AC induction motors and are suitable for constant speed operation. DC fans and blowers, meanwhile, use DC brushless motors and can have highly variable airflow. By varying the voltage supply, the speed is also easily adjustable. Standard DC fans and blowers regulated by variable-speed control are also available. See pages G-40, G-41, and G-58 for further details.

- Principal applications
  - Computers and peripheral terminal equipment | Servers
  - Personal computers | Computers | Audio equipment
  - Broadcasting equipment | Communication equipment
  - Industrial equipment | Medical equipment | Game machines

- Lineup of standard products and basic characteristics.

- List of fans and blowers with sensors.

- Mounting hole dimensions as examples for fan mounting. (Recommended shapes to maximize fan performance characteristics)

- Mounting holes, safety standards, 3D data.

- List of fans and blowers with sensors.

- Wiring connection to the power source. (See page G-15 for the wiring connection to the sensor)

- Fan/blower noise in free air state. (Static pressure 0 Pa) (This value is sometimes considerably higher when the fan or blower is installed in your equipment. See pages G-8 to G-10)

- List of model codes. (Product codes for which orders are accepted)

- Materials used, carbon specification. (See page G-17 for the material characteristics)

- Fan characteristics chart. (When the fan is installed in your equipment, determine the airflow at the free operating point)

- Important notes regarding the basic characteristics. (List of products which do not meet the standard life)

- Flange shape. (Select ribbed specification when screws are used)

- External dimensions, lead wire specifications.

- Current value in free air state. (This current at the operating point will be an increment of 20% or less of the rating with fans and will be below the rating with blowers. See page G-10)

- Operable voltage range. (For characteristics vary depending on the operating voltage. See page G-7)

- Startup current value. (Use to select the power source)

- Current value in free air state. (This current at the operating point will be an increment of 20% or less of the rating with fans and will be below the rating with blowers. See page G-10)

- Operable voltage range. (For characteristics vary depending on the operating voltage. See page G-7)

- Fan/blower noise in free air state. (Static pressure 0 Pa) (This value is sometimes considerably higher when the fan or blower is installed in your equipment. See pages G-8 to G-10)
### Motor Selection Guide (Fans)

**Selection from external dimensions and max. airflow**

<table>
<thead>
<tr>
<th>External Dimensions mm (inch)</th>
<th>Series</th>
<th>Page in Catalog</th>
</tr>
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<tbody>
<tr>
<td>12X0X0</td>
<td>D0410C</td>
<td>G-23</td>
</tr>
<tr>
<td>14X0X0</td>
<td>EUCGC</td>
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<td>G-70</td>
</tr>
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</table>

**Model code for DC fans and blowers (15-digit codes)**

- **Customized code**
  - A01: Standard type
  - A02: Modified type
- **Bearing**
  - B: Standard type
  - C: Ball bearing
- **Voltage**
  - 25: 3.5 DC V
  - 30: 4.3 DC V
  - 34: 5.4 DC V
  - 48: 6.8 DC V
- **Thickness (as mm)**
  - 0.8
- **Frame type**
  - A: Square metal vent
  - B: Round plastic vent
- **Frame dimensions (as mm)**
  - D: 21.1
  - E: 23.5
  - F: 26.0
- **Category**
  - D: DC fan
  - E: DC blower
  - F: High static pressure DC fan

**Data manufactured**
- A: January
- B: February
- C: March
- D: April
- E: May
- F: June
- G: July
- H: August
- I: September
- J: October
- K: November
- L: December

**Manufacturing lot No.**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<td>1238B24B5AZ00</td>
<td>Customized code: A01: Standard type, A02: Modified type, B: Ball bearing, Voltage: 25 DC V, Thickness: 0.8 mm, Frame type: A: Square metal vent, Frame dimensions: 21.1 x 23.5 x 26.0 mm, Category: DC fan</td>
</tr>
</tbody>
</table>

**Note**
- See 30 data of DC fans and blowers in the electronic catalog distributed separately or at the web site (http://www.servo.co.jp/).
AC/DC Axial Fans & Blowers

Technical Data

Characteristics of Fans and Blowers

■ Airflow - static pressure characteristics (PG characteristics)

1. Pressure loss (Ventilating resistance)

A force to obstruct the flow of air (pressure loss) is generated when air is channeled onto equipment, due to the parts layout and the shape of the air stream inside the equipment. This phenomenon is called ventilating resistance (also called “system impedance” and “channel resistance”). Air meets only modest resistance when it moves straight ahead within a wide space. (Fig. 1) When air passes through a narrow space or while the direction of an airflow changes, the ventilating resistance increases. (Fig. 2) The ventilating resistance increases further unless an outlet path (or a circulation path) is provided because an airflow cannot be created.

Ventilating resistance is small

Ventilating resistance is large

![Image 1](Fig. 1)
![Image 2](Fig. 2)

2. Differences in PQ characteristics of fans and blowers

As illustrated in Fig. 3, the PQ characteristics exhibit characteristic trends when a motor of equivalent power is used. The fan has a large airflow and its static pressure is 1/10 to 1/15 of that of the blower. The blower has large static pressure and its airflow is 1/10 to 1/15 that of the fan.

![Image 3](Fig. 3)

In the absence of a ventilating resistance (0 Pa), the max. airflow (QMax) flows, under circumstances where there are no objects located around the fan (This free air condition is the x-axis). However, this condition does not exist as long as a fan is assembled in equipment. The state showing considerable ventilating resistance and a lack of airflow corresponds to the y-axis in Fig. 3, and the airflow is zero because the air does not move. In this condition, there are obstacles in front and to the rear of a fan that prevent airflow or that shut off the circulation path of the air. This operating condition cannot be considered when a fan is used for cooling or ventilation purposes. (Continuing operation in this condition may damage the fan.)

The actual operating conditions vary between the two aforementioned extremes. If Fig. 3 plots four ventilating resistances (plotted via quadratic curves), Units of equipment containing either a fan or a blower have varying ventilating resistances, of which these four curves show typical examples. The airflow flowing into the equipment is at the intersection between the ventilating resistance curve and the PQ characteristics of the fan or the blower. The curve of Ventilating Resistance 1, which has the smallest inclination, is assumed to be the ventilating resistance of ordinary equipment. At the ventilating resistance, there are no large obstacles in front and to the rear of the fan and an adequate circulation path is provided. The fan can be operated most efficiently at this Ventilating Resistance 1, where about 80 % of the maximum fan airflow is possible. (Airflow of Q2P with a fan and of Q2B with a blower respectively)

![Image 4](Fig. 4)

The four curves, the airflow of any equipment that has Ventilating Resistance Curve 4, with the largest inclination, will be a fraction of the max. airflow, even though a high performance fan or blower is installed. In this condition, the airflow will be Q2B with a blower and Q1P with a fan, the airflow of the blower being larger.

The airflow of Ventilating Resistance Curves 2 and 3, in between, will also be airflows at the intersection with the respective PQ characteristics. Japan Servo supplies fans dedicated to a high static pressure region, with fan motors especially designed for intermediate ventilating resistances. As Fig. 4 explains, quieter and energy saving operations are more feasible in the high static pressure region compared with ordinary axial fans. (See page G-6)

3. Method for calculating the required fan airflow

The method to calculate the required airflows (ventilation rates) is described for the cooling of equipment which generates heat.

The airflow (ventilation rate) necessary for internal equipment cooling is calculated as follows. (Note: the entire heat is exhausted by ventilation airflow and heat from radiation or conduction is not taken into consideration)

\[
Q = \frac{W}{\rho \cdot C \cdot \Delta T}
\]

Where:

- \( Q \) = Required airflow (m³/min)
- \( W \) = Heat generation rate (W)
- \( \rho \) = Specific weight of air (kg/m³)
- \( C \) = Specific heat of air (kJ/kgK)
- \( \Delta T \) = Temperature rise of air (°C)

Example: When limiting to the limit air temperature rise inside equipment that generates 100 W heat, the following calculation formula is used:

\[
Q = \frac{100}{1200} = 0.083 \text{ m}³/\text{min} = 0.050 \text{ m}³/\text{min}
\]

An airflow of 0.50 m³/min or more is required. This calculation formula for the required airflows (ventilation rate) can be translated into a graph as shown in Fig. 5.

![Image 5](Fig. 5)

Air temperature rise and required airflow

4. Fan and blower selection

The required airflow and ventilating resistance of equipment must be determined when selecting a fan or a blower. However, accurate determination of a ventilating resistance is difficult. In general you can select a fan’s max. airflow by multiplying the required airflow by 1.3 to 1.5. (The following figure (Fig. 6) shows the case of an air channel with an area approximately equal to that of the fan.)

If an adequate air channel is not available due to a high density of mounted parts in the fan with a max. airflow of more than twice the times the required airflow is sometimes needed. In this case, a special fan for a high static pressure region or a blower is recommended.

The following methods are used to accurately determine the ventilating resistance of equipment:

1. Send the equipment to a fan manufacturer and ask them to measure the ventilating resistance.
2. If 3D CAD equipment is available, ask the fan manufacturer to calculate the resistance.
3. Install a fan or a blower, whose relationship between the PQ characteristics and speed is already known, within the equipment and determine the ventilating resistance by measuring the speed.

5. PQ characteristics via the parallel or serial operations of axial fans

Parallel operation of 2 fans

When two fans are operated in parallel, only the max. airflow will double. Intersections QF1 and QF2 with ventilating resistance curves of the equipment will be the airflow actually flowing. This mode is advantageous when wishing to increase the airflow of equipment with only modeled ventilating resistance.

Serial operation of 2 fans

When two fans are operated in series (stacked), only the maximum static pressure will increase by 1.5 times. Intersections QP1 and QP2 with ventilating resistance curves of the equipment will be the airflow actually flowing. This mode is advantageous when wishing to increase the airflow of equipment with high ventilating resistance.

6. Voltage imposed on fan and blower and PQ characteristics

DC powered fans and blowers have the following relationship between the imposed voltage and the PQ characteristics. The following information will be useful when fine tuning performance or when using a fan or a blower for experimental purposes.

(Note: Only test operation is allowed to be used outside of the specified voltage range. Note that this information is not applicable to AC powered fans, nor to certain DC fans. [Example: SADC fans] Please check the product information pages.)

The speeds of fans and blowers vary in proportion of the voltage. Varying the voltage \( 10 \% \) will also cause the speed to vary by \( \pm 10 \% \). The speed affects the static pressure and airflow as follows. The static pressure varies based on the square of the speed and the airflow varies in proportion of the speed. Varying voltage \( 10 \% \) will cause the maximum static pressure to vary \( \pm 21 \% \), and the max. airflow to vary by \( \pm 10 \% \). (See Fig. 10)

An understanding of these relationships will allow free adjustment of the PQ characteristics during fan and blower operation.

7. Performance degradation of PQ characteristics when options are installed

Options such as a fan guard and filter are sometimes installed for safety. These options, however, increase the ventilating resistance and noise. A fan guard has slight ventilation resistance and noise, but a filter has a large ventilation resistance (10-20 dB). In particularly, options should be installed more than 10 mm away from the fan to minimize the increase in noise.

Using a 120 mm x 183 mm AC fan (CNS3B3) as an example, fluctuations of the PQ characteristics when options are installed are plotted in Figs. 12 and 13.
8. Unit conversion tables of PQ characteristics

At present, the PQ characteristics are expressed in Japan by Pa (static pressure) and m³/min (airflow). Use the following conversion tables for conversion between CPM, which is used in some countries, and between the units previously used in Japan.

<table>
<thead>
<tr>
<th>Fan Model</th>
<th>CPM</th>
<th>m³/min</th>
<th>m³/s</th>
<th>l/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A</td>
<td>100</td>
<td>12.5</td>
<td>0.02</td>
<td>2.16</td>
</tr>
<tr>
<td>Type B</td>
<td>150</td>
<td>18.7</td>
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<td>3.21</td>
</tr>
<tr>
<td>Type C</td>
<td>200</td>
<td>25.0</td>
<td>0.10</td>
<td>5.26</td>
</tr>
</tbody>
</table>

9. Measurement method of PQ characteristics

The aerodynamic characteristic measuring apparatus is illustrated in Fig. 14. This apparatus conforms to the ANSI/AMCA Standard 210-85, as well as JIS B 8330 (Testing methods for turbo-fans).

It is very difficult to measure PQ performance with high accuracy and the various measuring equipment used by fan manufacturers feature a wide range of accuracy. For this reason, simultaneous acquisition of comparable data obtained by the same measuring apparatus is recommended when verification of strict variation in performance is desired. Japan Servo also measures the comparative data of fans manufactured by other fan manufacturers as a customer service - please make use of this.

5. Noise calculation

Noise is a sound pressure value measured in a position where the energy of a sound source arrives. It is called a sound pressure level (SPL) and is expressed in dB.

If the sound energy increases 10 times, the sound level increases 10 dB and 60 dB represents sound pressure energy that is 10000 times that of 20 dB.

The total noise of several fans is calculated as follows: (Noise of individual fans = L1, L2, L3

Total noise (L) = 10 log (10L1+10L2+10L3+10L4+10L5+10L6)

Example: If four fans individually emit noise of 30 dB, 35 dB, 40 dB and 45 dB, the total noise of the four fans will be:

L = 10 log (10³+10⁴+10⁵+10⁶) = 10 log 1028 = 46.6 dB

If all three fans emit 40 dB, their total noise will be:

L = 10 log (10⁴+10⁴+10⁴) = 40×10 log 10 = 44.8 dB

The noise can be calculated from the following graph in Fig. 16.

6. Speed and noise value

A fan’s noise value is the total of the aerodynamic and motor noise. Most noise is aerodynamic in nature, except in products with a low speed.

The speed and noise value vary in proportion to the 2.5th power of the propeller diameter as follows:

Noise (dB) = Speed² / 10²

7. Propeller diameter and noise level

The fan noise is strongly linked to the propeller size. Comparing the noise of fans with equivalent speed, the noise theoretically varies to the seventh power of the propeller diameter as follows:

In reality, the propeller shape is not symmetric and calculations cannot be performed as explained in the theory. However, the noise value with equivalent airflow rate will be as shown in the following table, indicating that a larger fan will reduce noise. (Value calculated based on the theory that the airflow varies to the third power of the propeller diameter)

DB2 = DB1 + 7.6 log (DB2/DB1)

DB1: Noise value when the speed is D1

DB2: Noise value when the speed is D2

8. Object distance and noise value

The noise value (SPL) decreases as the sound source becomes distant while the fan noise value varies in proportion to the square of the distance and can be expressed by the following formula: (When the reflection sound to nearby walls is ignored)

DB2 = DB1 - 20 log (D2/D1)

DB1: Noise value when the distance from the sound source is D1

DB2: Noise value when the distance from the sound source is D2
10. Fan guards increase noise

When mounted directly onto a fan, a fan guard increases noise by about 5 dB. Install a fan guard more than 10 mm from equipment to reduce the increase in noise.

11. Equipment resonance with fan

The fan contains a motor that causes mechanical vibration and electrical vibration, which sometimes causes equipment containing a fan to resonate. This problem can be solved by combining the following methods:
1) Cut off the vibration transfer route to equipment by providing a rubber vibration isolator or other cushioning.
2) Change the natural frequency of equipment by changing the board thickness or rigidity of the equipment.
3) Change to a low-vibration fan (customized product), in which case consult Japan Servo for more information.

12. Quiet operation by Silent Fan

The rotating sound (blade sound) is the principal factor generating the noise of ordinary square axial fans.

The frequency characteristic of these fans peaks at the number of blades $x$ speed and the related high frequency component. This is mainly caused by periodic fluctuations of blade lift due to non-uniform airflow (turbulence), caused by an object on the upstream side of the fan and attributed to the shape of the fan venturi.

The Japan Servo Silent Fans, part of the range of axial fans with a unique venturi shape, are renowned for their particular quietness. Compared with conventional square-venturi Japan Servo products, the noise emitted by the silent fans are 5 dB to 8 dB lower. To prevent non-uniform airflow on the intake side of the fan, the venturi mounting flange has a single flange on the outlet side only, as illustrated in Fig. 19. The intake flow velocity and direction of the fan are made constant through analysis of the air intake flow to prevent separation of flow from the peripheral parts of the venturi, thereby achieving exceptional quietness. Due to the design preventing flow disturbance on the intake side when a fan is mounted, a premium silence effect is achieved by conventional square fans is achieved.

Comparison of noise generating sources

- **Silent Fan**
  - Intake air flows in a fixed direction and at a constant flow velocity along the arc on the edge, hardly producing any noisy eddy turbulence.

- **Square Venturi Fan**
  - The airflow on the intake side is not constant. Differences in flow velocity and direction cause shear flow and trigger periodic lift fluctuations, leading to noise generation.

The air separation phenomenon occurs in the edge part, which is the thinnest part of the square venturi and round intake side, generating many eddy turbulences and increasing propeller resistance, thereby causing noise.

(Note: In recent years further progress in CFD (Computational Fluid Dynamics) technology has enabled the development of new concepts to retard shear flows. These concepts will be applied to our easy-to-use square fans to substantially reduce noise. Be sure to look for these new products coming soon.)

Life of fans and blowers

The life of fans is solely dependent on bearings. The bearing load $P$ in relation to the basic rated load $C$ is $P / C$ (meaning $P$ is a great deal smaller than $C$). Therefore we can say that grease life determines the fan life. Grease life is significantly affected by ambient temperature. The fans of Japan Servo feature a special design that minimizes grease temperature rise as illustrated below.

- **AC fan**
  - The fan motor contains two parts which generate heat, namely, the stator and rotor. The AC fan holds a bearing in a dedicated sleeve to help retard the transfer of heat generated by the rotor, and limit the temperature rises of the bearing.

- **DC fan**
  - The DC fan has an external rotor structure and the temperature of the bearing is significantly affected by stator temperature. When the speed rank rises, the motor temperature also rises, thereby increasing the heat transfer to the bearing. Japan Servo fans feature a high-efficiency circuit and low motor losses to keep the bearing temperature below the preset temperature, thereby ensuring a long life.

The bearing temperature differs depending on the structure, materials and other factors and life varies to some extent. However, the life expectancy as illustrated in Fig. 23 is the basic data.

Japan Servo accepts inquiries and orders for semi-customized products (long-life products) featuring a reduction in bearing temperature increase. Please contact Japan Servo for further information.

The life expectancy curve that is common to AC and DC fans is plotted in Fig. 23. (The curve represents the life expectancy based on a survival rate of 90 % and is not the guaranteed life. Japan Servo will provide the MTTF (mean time to failure) data upon request.)

(Note: This life expectancy curve has been prepared based on the results of life tests conducted at a rated voltage in a free air condition in an environmental test room with a negligible amount of dust. When using the fans in your application please take into consideration the actual operating conditions and safety factors. Some of the products contained in the catalogs do not meet the foregoing life expectancy data. Products which do not meet the standard life are listed on the product information pages.)

Applicable standards

Japan Servo fans and blowers have been accepted in certification tests for Japanese and overseas safety standards for use in various applications. (Please inquire to Japan Servo for standards that are not included in the following.)

- **Electrical Appliance and Material Safety Law (Japan)**
  - The AC fans that fall under the scope of the Electrical Appliance and Material Safety Law are manufactured in compliance with its technical standard. AC fans are classified as fans and blowers in one of 480 electrical appliance item categories other than specified electrical appliances. The marking of the (PS)E mark is a legal obligation. See page G-60 and subsequent pages for Japan Servo products with the (PS)E mark. Power plug cords are classified as specified electrical appliances and the marking of the (PS)E mark is a legal obligation. (See page G-74.)

- **Certification test by the UL Standard**
  - Japan Servo fans and blowers have been accepted in certification tests under the fan and blower safety test standard UL-507.73 of UNDERWRITERS LABORATORIES INC., the electrical appliance safety inspection organization of the United States. Products that are accepted in certification tests are marked with the mark on their nameplates and model names are registered, to attest that they are certified products.

  - Certification test by the CSA Standard
    - Japan Servo fans and blowers have been accepted in certification tests, based on general specification requirements and rules to prevent overheating inside motors under fan and blower safety test standard CSA STANDARDS C22.2 nos. 113 and 0.077 of the CANADIAN STANDARDS ASSOCIATION, the electrical appliance safety inspection organization of Canada. Products that are accepted in certification tests are marked with the mark, to attest that they are certified products under the CSA standards.

- **Certification test by TUV**
  - Japan Servo fans and blowers have been accepted in safety certification tests based on the Business-Use Electrical Equipment Standard EN60335 and the YDE Standard No. 0800608.81 of T RHEINLAND e.V., the industrial electrical appliance safety inspection organization of Germany. Products that are accepted in certification tests are marked with the mark on their nameplates and model names are registered, to attest that they are certified products under the TUV standards.

  - As under the UL and CSA standards, safety verification is performed by ensuring the materials used, electrical characteristics and other items pass strict factory test inspection.

- **Certification test by TUV**
  - Japan Servo fans and blowers have been accepted in safety certification tests based on the Business-Use Electrical Equipment Standard EN60335 and the YDE Standard No. 0800608.81 of T RHEINLAND e.V., the industrial electrical appliance safety inspection organization of Germany. Products that are accepted in certification tests are marked with the mark, to attest that they are certified products under the TUV standards.

  - As with the UL and CSA standards, safety verification is performed by ensuring the materials used, electrical characteristics and other items pass strict factory test inspection.

- **Certification test by TUV**
  - As under the UL and CSA standards, safety verification is performed by ensuring the materials used, electrical characteristics and other items pass strict factory test inspection.

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  - As under the UL and CSA standards, safety verification is performed by ensuring the materials used, electrical characteristics and other items pass strict factory test inspection.
Fans & Blowers

Common electrical specifications (Operational cautions)

- **Insulation class**
  The insulation class of AC and DC fans and the blowers of Japan Servo meet the heat resistance performance of Class E (120 °C) under JIS C 4004 (Rotating electrical machines - General), CLASS A (105 °C) under the UL 703 standard, CLASS A (105 °C) under the CSA-C22.2 standard, and DIN IEC695/IEC60068 standard and CLASS E (100 °C) under the VDE0700 standard.

- **Dielectric strength**
  The AC fans and blowers of Japan Servo satisfy 1500 V 50 Hz for one minute or 1800 V 50 Hz for one second. Dielectric strength tests under JIS C 4004 specify a voltage impression of “2 x rated voltage + 1000 V.”
  The DC fans and blowers of Japan Servo are accepted in withstand voltage tests of 500 V 50 Hz for one minute or 600 V 50 Hz for one second. The interrupting current of 5 mA is set for the dielectric strength tests.
  Dielectric strengths are tested between the power terminal of the fan/blower or lead wire conductor (two lead wires tied together) and metal frame (or other metal part) using a dielectric strength tester.

- **Insulation resistance**
  The insulation resistance of the AC and DC fans and blowers of Japan Servo is 10 MΩ or higher at 500 V DC between the power terminal or lead wire conductor and frame. Insulation resistance tests are conducted between the power terminal of the fan/blower or lead wire conductor (two lead wires tied together) and metal frame (or other metal part) using an insulation resistance tester.

- **Electrical performance**
  The values described in the catalog are average values. Please request Japan Servo to send a product drawing or delivery specification for products when wishing to confirm standard values.

- **Temperature protection**
  Two methods are used to protect the temperature of the windings of AC fans and blowers, namely, impedance protection and thermal protection. These two methods are used differently depending on the type of motor used.

Vital Precautions for DC Fans and Blowers

- **Impedance protection method**
  This method is generally used with shaded pole induction motors. Temperature increase is limited below a preset value by impedance (AC resistance) natural to the motor windings. In particular, the UL standard specifies that motors must not burn out when the rotor is operated for 18 days at normal temperature (24 °C). Japan Servo fans and blowers meet this standard. Those products that are controlled by the Electrical Appliance and Material Safety Law of Japan are designed to limit coil temperature rises to less than 75 K.
  The impedance protection method is effective only within the usage range. Note that smoke will be generated and ignition caused if a high voltage is impressed.

- **Thermal protection method**
  This method is used with motors of a capacitor phase advancing type or triple-phase induction motors. Embedding a bimetal switch with a contact in the motor winding part, the current is shut off when the preset winding temperature is exceeded, to prevent burning caused by abnormal overheating of the motor.
  The windings of DC fans and blowers are protected against abnormal temperature rises by automatic reset, by shutting off the current if it detects a locked state or by current limiting automatic reset. This method involves the energizing circuit being turned off by a lock detection function inside the motor drive circuit when the fan is locked, shutting off (or limiting) the current.

- **Dealing of the alarm output lead wires**
  Inadvertently using a tester or other apparatus with a sensor lead wire will cause overcurrent to flow to the sensor circuit inside the motor, potentially causing a circuit fault. Pay attention to the permissible current and prevent any overcurrent from flowing. Contact Japan Servo if it becomes necessary to connect an LED or relay directly to a sensor lead wire. (There are products that allow a current larger than the permissible current described on page G-15 depending on conditions.)

- **Power supply selection for DC fans and blowers**
  Select a power source that supplies smooth power (ripples within ± 5 %, peak within operating voltage). Significant line noise (including surge voltage) causes circuit faults. Make it a point to check line noise after assembling a fan.
  Select a power source remembering that a current 2 to 5 times the rated current flows at startup. (If an inrush current (normally less than 10 A) poses a problem, measure it and take action accordingly.)
  The operating current peaks when the motor load is largest (at maximum static pressure for fans and in free air condition for blowers). When assembled, the current sometimes exceeds the rated current (fans or smaller blowers). (See the diagrams below.)
  When current is flowing, connect all terminals from the fan motor before turning it on. Imperfect wiring connection or a wiring change while the power is turned on will damage the circuit inside the fan or cause it to deteriorate.

- **DUTY (PWM) control of DC fans and blowers**
  The locking protection circuit does not function properly if variable-speed operation is performed through DUTY (PWM pulse width modulation) control of the power lead wire using a speed controller sold on the market or other device. The alarm output does not function properly with fans that are installed with sensors. As mentioned earlier, caution should also be exercised with surge voltage that occurs during ON-OFF switching in DUTY control. Please note that this operating method increases fan vibration, increasing the likelihood of abnormal sounds due to vibration. Dedicated fans and blowers are recommended for variable-speed operations. (See pages G-40, G-41, G-58, and G-59.)

- **Connect multiple DC fans and blowers in parallel**
  Connect multiple fans and blowers in parallel to the power supply. A serial connection (example: two 12 V products connected serially to a 24 V power supply) will cause the voltage for each product to fluctuate, resulting in a drastic excess of the usage range and circuit failure. Please direct your questions or inquiries to Japan Servo Sales or to the Japan Servo website.
AC/DC Axial Fans & Blowers

Technical Data

DC axial fans & blowers with sensors

The DC fans and blowers of Japan Servo have a function to send an alarm signal when the fan motor revolutions slow down. Several systems are used to cut off the power supply by this alarm signal, with three different types of sensors available. Select the right type of sensor in accordance with the purpose of use. The lead wire for the sensor is yellow. The output type is an open collector output for all three types.

1. Lock detection type (Product code: S)
   - The output signal indicates an [L] state (transistor is ON) while the propeller is rotating, changing to an [H] state (transistor is OFF) less than five seconds after the propeller stops rotating. The propeller automatically restarts operation within five seconds when the lock is unlocked ([H] → [L]). If the pull-up voltage is low, the [H] state (transistor is OFF) will engage in less than five seconds even when the power is turned off.
   - Specification: Vcc = 28 V max (55.2 V max for 48 V products) IC = 5 mA max (Vcc (AKT) = 0.4 V max)

2. Pulse output type (Product code: P)
   - A rectangular wave of two pulses will be output for each turn of the propeller while the propeller is rotating, outputting two types of signal depending on the propeller position when the propeller is locked. (See the note below)
   - Specification: Vcc = 28 V max (55.2 V max for 48 V products) IC = 5 mA max (Vcc (AKT) = 0.4 V max)

   OUTPUT SIGNAL WAVEFORM WHEN THE FAN IS STOPPED
   "The following two types of waveform are output, depending on the blade position when the propeller is stopped:
   Pulse output of high - constant or resetting (0.05 sec to 2 sec)

3. Speed detection type (Product code: Q)
   - The output signal indicates the [H] state when the propeller revolutions are slower than the preset speed, changing to the [L] state when the propeller revolutions exceed the preset speed.
   - Products with a reversed output waveform are also available, suitable for a wide range of uses when several fans are installed. Contact Japan Servo for further information. (Former code: SQ, new code (15 - digit code products): R)

   OUTPUT SIGNAL WAVEFORM WHEN THE FAN IS STOPPED
   "The following two types of waveform are output, depending on the blade position when the propeller is stopped:
   Pulse output of high - constant or resetting (0.05 sec to 2 sec)

AC & DC Fans & Blowers with Sensors

Technical Data

• Specification: Vcc = 28 V max (55.2 V max for 48 V products) IC = 5 mA max (Vcc (AKT) = 0.4 V max)

Note: The output waveform for type SQ (R) will be reversed. The speed setting for the output waveform will halve the output speed. For more detailed information, please request a product delivery specification from Japan Servo.

Operational and handling precautions

By equipping the motor with a rotation detection function, the AC fans of Japan Servo have a system to send an alarm signal when the fan motor revolutions slow down and to cut off the system power supply. In 1988, Japan Servo developed a system to output an alarm signal by detecting the lowering of generated voltage by installing a tachometer generator with the cooling fan and this system has since been incorporated in Japan Servo products. The output type of the alarm signal is an open collector output.

1. Operating environment
   - The permissible range of AC fans and blowers is ±10 % of the rated voltage. Operations outside of the rated frequency result in considerable fluctuations in performance and life. Operations in an acoustical environment (example: two 100 V products connected serially to a 200 V power supply) will increase the imposed voltage beyond the permissible range and should be avoided.
   - Use a sufficiently smooth power supply with DC fans and blowers. Ripple of 5 % or less, and peak within the usage range) The usage range differs from one product to another. Check it on the product information pages.

3. Installation orientation
   - There are no installation orientation limits for products containing ball bearings. Operate fans and blowers in compliance with the operating environment temperature and other conditions. Contact Japan Servo for further information on confirmation is needed.

Handling precautions

The fan motors of Japan Servo contain double side shielded precision ball bearings. Dropping the product could result in abnormal noise (broken shaft) due to the bearing failure during operation. Exercise care when handling the product as follows:
1. Product falling: Avoid dropping the product from a height of 5 cm or higher.
2. Falling of crated product: Avoid dropping a crated product from a height of 30 cm or higher.
3. Storage and stacking of crated products: Stacked products may be stacked up to seven layers. Take sufficient precautionary measures to prevent getting them wet.

Fan installation: Exercise caution as follows when installing a fan on a panel or elsewhere.
1) Clamping of both flanges: The permissible tightening torque of M4 screws is 8 kgf cm with an AC fan that has a metal vent and up to 10 kgf cm with a DC fan that has flange ribs. Screws through flanges are not acceptable for the DC flange type. Use reinforcing spacers (for the KUCO and ODCM series) to tighten the double flanges on these products. (See page 0-75.)
2) Clamping of single flange: The permissible tightening torque of screws when the installation surface is flat is 10 kgf cm to 14 kgf cm for both AC and DC fans.
3) Avoid contact with a propeller or impeller when mounting the intake side of fans and blowers. Excessive screw tightening will result in contact with a deformed venturi or housing.

Fan operational precautions

- Strive to ensure the channel shape is as smooth as possible to avoid stagnation in the airflow.
- Make the flow velocity larger around the object for which cooling is desired.
- Place the fan on the downstream side when cooling to cool the entire space inside the equipment.
- An upward flow in conjunction with the ascension of heated air is recommended for airflow inside equipment.
- Take actions to mitigate the impacts of fans and for reverse flow in the event of failure where multiple fans are installed.

1. When placing an object on the fan intake side, try to maintain a distance of more than half a blade diameter.
2. The pressure varies on the fan intake and outlet sides. The leakage of air from the outlet side causes noise. Minimize air leakout from the intake side when installing a fan.
3. Design the channel (circulation path) selecting a good flow direction in terms of both noise and PQ characteristics.

Ventilation design can be expressed by the following formula:

\[ P = 0.000243Q \]  

A reduction of Al (the channel cross sectional area) is critical. Avoid any sharp change in the cross sectional area in the flow direction.

Avoid any sharp change in flow direction.

Avoid placing a printed circuit board and other parts orthogonal to the flow direction.

4. Drill fan mounting holes to ensure the smooth flow of air to reduce noise by referring to the recommended dimensions for fan mounting holes on the fan or blower’s catalog page.

Operational and handling precautions

Operate fans and blowers at an ambient temperature between -10 °C and 60 °C and relative humidity of less than 90 %. Latch output is not used so malfunction by electrical noise can be ruled out. However, note that the semiconductor devices in the internal circuitry may be damaged by electrical noise and high voltage. No delay circuit is provided so a control signal is output on startup. As when operating and handling the fan, exercise caution to avoid dropping and exposing the blower to shock and vibration.

Sensor connection

1. A sensor is available with the AC and DC products only.
**SKUD series** 92 × 100 × 25 mm

**Standard specification**

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**General specification**

- **Materials Used**
  - Venturi: ABS and PBT synthetic resins
  - Propeller: ABS and PBT synthetic resins
- **Motor**
  - Brushless DC motor; Protection type: Current shut off by detecting lock state, automatically reset
- **Common Spec.**
  - See pages G-11, G-12, G-13.

**Standard air and static pressure characteristics (At rated voltage)**

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**External dimensions in mm (inches)**

- **Lead wire type**
- **External dimensions in mm (inches)**

**Wiring connection diagram**

**Mounting hole dimensions in mm (inches)**

**DC axial fan with sensor**

- **Rated Voltage**
  - 12 V
- **Model Code**
  - SKUD12U7
  - SKUD12H7
  - SKUD12D4

**Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.**

**The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586.**

**An electronic version of the Japan Servo catalog can be forwarded upon request. 3D data is also available at our web2-CAD site (www.web2cad.co.jp).**
### SCUDM series  
![Image](image-url)

#### DC Silent Fan

**G-19**

**DC MOLD SILENT**

Max. airflow: 2.4 m³/min  
Max. static pressure: 57 Pa  
Mass: 175 g

**Fan model code**

- SCUDM12B4
- SCUDM12B4P
- SCUDM12B4S
- SCUDM12D4
- SCUDM12D4P
- SCUDM12D4S
- SCUDM24B4
- SCUDM24B4P
- SCUDM24B4S
- SCUDM24D4
- SCUDM24D4P
- SCUDM24D4S

**General specification**

- Materials Used: Ventur: ABS and PBT synthetic resin  
  Propeller: ABS and PBT synthetic resin  
  Bearing: Both side shielded ball bearing
- Motor: Brushless DC motor. Protection type: Current cutoff by detecting lock state, automatically reset
- Common Elec. Spec: see pages G-11, G-12, G-13
- Standard Carton: 10 to a carton of (450 x 380 x 320) mm, mass 12 kg
- MM nuts pockets provided 4 places for easy mounting. (The customer to provide nuts)

### SCUD series  
![Image](image-url)

#### DC Silent Fan

**G-19**

**DC SILENT 25**

Max. airflow: 2.4 m³/min  
Max. static pressure: 57 Pa  
Mass: 230 g

**Fan model code**

- SCUD12B4
- SCUD12B4P
- SCUD12B4S
- SCUD12D4
- SCUD12D4P
- SCUD12D4S
- SCUD24B4
- SCUD24B4P
- SCUD24B4S
- SCUD24D4
- SCUD24D4P
- SCUD24D4S

**General specification**

- Materials Used: Ventur: Aluminum alloy die castings  
  Propeller: ABS and PBT synthetic resin  
  Bearing: Both side shielded ball bearing
- Motor: Brushless DC motor. Protection type: Current cutoff by detecting lock state, automatically reset
- Common Elec. Spec: see pages G-11, G-12, G-13
- Standard Carton: 10 to a carton of (450 x 380 x 320) mm, mass 7 kg
- MM nuts pockets provided 4 places for easy mounting. (The customer to provide nuts)

### Mounting hole dimensions in mm (inch)

**G-19**

**DC axial fan with sensor**

**Rated Voltage**

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<tr>
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<td>SCUD24D4S</td>
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</table>

#### Wiring connection diagram

**Options sold separately**

- Guard: F2050L guard (Outlet side)  
- Guard: SCU guard (Inlet side)

**Mounting hole dimensions in mm (inch)**

**G-19**

**DC axial fan with sensor**

**Rated Voltage**

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An electronic version of the Japan Servo catalog can be forwarded upon request. 3D data is also available at our web2-CAD site (www.web2cad.co.jp).

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**Figures in the table are average measured values.** Please request the product delivery specification when preparing a purchase specification.

The characteristics are the values at rated voltage (12 V or 24 V), and normal temperature and humidity.

The life expectancy of SCUDM-B speed products at rated voltage and in continuous operation is 20,000 hours at 60°C. (40,000 hours for other products)
Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.

The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586. An electronic version of the Japan Servo catalog can be forwarded upon request. 3D data is also available at our web2-CAD site (www.web2cad.co.jp).
Figures in the table are average measured values. Please request the product delivery specification when preparing a purchase specification.

The characteristics are the values at rated voltage (5 V or 12 V), and normal temperature and humidity.

The life expectancy of EUDC12Z8 at rated voltage and in continuous operation is 30,000 hours at 60°C. (40,000 hours for other products at 60°C.)

Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.

An electronic version of the Japan Servo catalog can be forwarded upon request. 3D data is also available at our web2-CAD site (www.web2cad.co.jp).
Common to D515C/D620C Series

Wiring connection diagram

Mounting hole dimensions in mm (inches) (Recommendation)

DC Axial Fan D620C

- **Standard specification**
  - Max. Airflow (m³/min): 40
  - Max. Static Pressure (Pa): 30
  - Max. Speed ( rpm): 24,000
  - Voltage Spec.: 12V or 24V
  - Current (mA): 100
  - Model Code: D620C-10/02
  - Operating Temp. Range: -10°C to 60°C

- **External dimensions in mm (inches)**
  - Lead wire type

DC Axial Fan TUDC series

- **Standard specification**
  - Max. Airflow (m³/min): 25
  - Max. Static Pressure (Pa): 20
  - Max. Speed ( rpm): 24,000
  - Voltage Spec.: 12V or 24V
  - Current (mA): 50
  - Model Code: TUDC12B4
  - Operating Temp. Range: -20°C to 70°C

- **External dimensions in mm (inches)**
  - Lead wire type

- **General specification**
  - Materials Used:
    - Venturi: ABS and PBT synthetic resins
    - Propeller: ABS and PBT synthetic resins
    - Motor: Brushless DC motor
  - Protection Type: IP54
  - Motor Speed: 12,000 rpm
  - Mounting hole dimensions in mm (inches)
  - Wiring connection diagram
  - Commutation: Brushless type
  - Power source: 12V or 24V
  - Guard: PG5 device

- **Features**
  - Variations in air volume measured values. Please request the product delivery specification when preparing a purchase specification.
  - The characteristics are the values at rated voltage (12V or 24V), and normal temperature and humidity.

- **Applications**
  - Small space ventilation
  - Cooling of electronic equipment
  - Outdoor cooling applications

- **Options**
  - 3D data is available at our web2-CAD site (www.web2cad.co.jp)
  - An electronic version of the Japan Servo catalog can be forwarded upon request.
Figure 1: The characteristics are the values at rated voltage (12 V or 24 V), and normal temperature and humidity.


d| Brushless DC Axial Fans & Blowers

- **PUDC series**: 80 X 25 mm
- **D0815C / D0820C / D0832C series**: 80 X 15 mm / 80 X 20 mm / 80 X 32 mm

### D0815C

- **Max. Airflow**: 1.04 m³/min
- **Max. Static Pressure**: 28.4 Pa
- **Max. Mass**: 85 g

### D0820C

- **Max. Airflow**: 1.04 m³/min
- **Max. Static Pressure**: 28.4 Pa
- **Max. Mass**: 100 g

### D0832C

- **Max. Airflow**: 1.04 m³/min
- **Max. Static Pressure**: 28.4 Pa
- **Max. Mass**: 150 g

**General Specification**

- **Venturi shape**
- **Materials Used**:
  - ABS and PVC synthetic resins
  - Propeller: ABS and PBT synthetic resins
- **Motor**: Brushless DC motor, Protection type: Current shut-off by detecting lock state, automatically reset
- **Standard Condition**:
  - 20 ± 5°C (245 × 385 × 200) mm, mass 15 kg

**External Dimensions**

- **Load wire type**
  - AWG24 UL-1007 or UL3326
  - Color: Red, Blue
  - Black (PUDC-D4: Blue)

**Wiring connection diagram**

- **Mounting hole dimensions**
  - Optional separately: Guide, Lock bolt, Filter, Fitting

**Common to D0815C/D0820C/D0832C Series**

- **Wiring connection diagram**
- **Mounting hole dimensions in mm (inch) [Recommendation]**

---

**Note**: The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586. Please contact Japan Servo during your product planning and development stage.
Figures in the table are average measured values. Please request the product delivery specification when preparing a purchase specification.

The characteristics are the values at rated voltage (12 V, 24 V, or 48 V), and normal temperature and humidity.

The life expectancy of KUDC-U speed products at rated voltage and in continuous operation is 30,000 hours at 60

circumferential speed. (When using devices other than those recommended by Japan Servo, please contact Japan Servo for further information.)

An electronic version of the Japan Servo catalog can be forwarded upon request. 3D data is also available at our web2-CAD site (www.web2cad.co.jp).

Product debut scheduled for spring of 2007

- Box-type silent axial fans with an innovative concept (design focusing on sound quality after embedding in equipment); optimizing all components by fully utilizing know-how in computational fluid dynamics (CFD).
- "Low Vibration Super Silent Fan" with a wide silent range, best fitting all applications and enhances the high added value of embedded equipment.
Figures in the table are average measured values. Please request the product delivery specification when preparing a purchase specification.

The characteristics are the values at rated voltage (12 V or 24 V), and normal temperature and humidity.
### CNDC series \(120 \times 38 \text{ mm}\)

#### General specification

**Features**
- Power saving
- Low noise
- High airflow models, featuring an aerodynamic design
- Inheriting the design concept of Silent Fans and incorporating a newly developed high-efficiency motor.
- Interchangeable with currently installed box fans.

**Fan model code**
- CNDC12B7
- CNDC12D7
- CNDC12Z7
- CNDC24B7
- CNDC24D7
- CNDC24Z7
- CNDC48B7
- CNDC48D7
- CNDC48Z7

**With Spacer**
- Venturi shape
- Brushless DC motor. Protection type: Current short-circuit by detection link state, automatically reset

**Common Code**
- The unit of the table is average measured values. Please request the product delivery specification when preparing a purchase specification.
- The characteristics are the values at rated voltage (12 V or 48 V), and normal temperature and humidity.

**External dimensions in mm (inches)**

**Wiring connection diagram**

**Mounting hole dimensions (in mm) (Recommendation)**

#### Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>No. of Blades</th>
<th>Noise Level (dB)</th>
<th>Speed (m/s)</th>
<th>Voltage Spec.</th>
<th>Current (mA)</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4</td>
<td>155</td>
<td>0.64</td>
<td>52</td>
<td>3800</td>
<td>11.2</td>
<td>CNDC12U7</td>
</tr>
<tr>
<td>4.0</td>
<td>141</td>
<td>0.56</td>
<td>51</td>
<td>3550</td>
<td>9.1</td>
<td>CNDC12W7</td>
</tr>
<tr>
<td>3.5</td>
<td>124</td>
<td>0.42</td>
<td>49</td>
<td>3200</td>
<td>7.4</td>
<td>CNDC12X7</td>
</tr>
<tr>
<td>2.8</td>
<td>99</td>
<td>0.28</td>
<td>40</td>
<td>2600</td>
<td>5.6</td>
<td>CNDC12Y7</td>
</tr>
<tr>
<td>2.1</td>
<td>74</td>
<td>0.18</td>
<td>32</td>
<td>1920</td>
<td>4.2</td>
<td>CNDC12Z7</td>
</tr>
</tbody>
</table>

**Special air and static pressure characteristics (At rated voltage)**

- **Lead wire type**
  - Lead wire spec: AWG24 UL1027 or UL3266
  - Color (-) Black (CNDC: D7/ Blue)

- **Mounting hole dimensions**
  - Options (sold separately)
    - Guard: F120UL guard
    - Filter: F120UL filter
    - Spacer: Flange spacer CNDC

- **Wiring connection diagram**

- **Mounting hole dimensions (in mm) (Recommendation)**

#### CNDC series \(120 \times 38 \times 60 \text{ mm}\)

##### Venturi shape

- Use the venturi product with spacer when the venturi is mounted with screws. (The spacer is indicated in the model code by the letter ‘V’.)

- **External dimensions in mm (inches)**

- **Wiring connection diagram**

- **Mounting hole dimensions (in mm) (Recommendation)**

#### Standard air and static pressure characteristics (At rated voltage)**

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>No. of Blades</th>
<th>Noise Level (dB)</th>
<th>Speed (m/s)</th>
<th>Voltage Spec.</th>
<th>Current (mA)</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>155</td>
<td>0.64</td>
<td>52</td>
<td>3800</td>
<td>11.2</td>
<td>CNDC12U7</td>
<td></td>
</tr>
<tr>
<td>141</td>
<td>0.56</td>
<td>51</td>
<td>3550</td>
<td>9.1</td>
<td>CNDC12W7</td>
<td></td>
</tr>
<tr>
<td>124</td>
<td>0.42</td>
<td>49</td>
<td>3200</td>
<td>7.4</td>
<td>CNDC12X7</td>
<td></td>
</tr>
<tr>
<td>99</td>
<td>0.28</td>
<td>40</td>
<td>2600</td>
<td>5.6</td>
<td>CNDC12Y7</td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>0.18</td>
<td>32</td>
<td>1920</td>
<td>4.2</td>
<td>CNDC12Z7</td>
<td></td>
</tr>
</tbody>
</table>

**Silent, low vibration and energy saving fans with a max. airflow of 2.8 m/min can be customized (variable speed available only for 12 V specification). Contact Japan Servo for further information.**
**Brushless DC Fans & Blowers**

**D1238B series [120 x 38 mm]**

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>CFM</th>
<th>Pa</th>
<th>m³/min</th>
<th>Speed (rpm)</th>
<th>Voltage (V)</th>
<th>Current (mA)</th>
<th>Model Code</th>
<th>Operating Temp. Range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.0</td>
<td>630</td>
<td>112</td>
<td>500</td>
<td>1200</td>
<td>12</td>
<td>24</td>
<td>D1238B48BA7Z-00</td>
<td>-20 ~ +70</td>
</tr>
<tr>
<td>19.7</td>
<td>670</td>
<td>123</td>
<td>540</td>
<td>1500</td>
<td>12</td>
<td>24</td>
<td>D1238B48BA7Z-00</td>
<td>-20 ~ +70</td>
</tr>
<tr>
<td>21.1</td>
<td>720</td>
<td>130</td>
<td>580</td>
<td>1800</td>
<td>12</td>
<td>24</td>
<td>D1238B48BA7Z-00</td>
<td>-20 ~ +70</td>
</tr>
</tbody>
</table>

**D1338B series [127 x 38 mm]**

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>CFM</th>
<th>Pa</th>
<th>m³/min</th>
<th>Speed (rpm)</th>
<th>Voltage (V)</th>
<th>Current (mA)</th>
<th>Model Code</th>
<th>Operating Temp. Range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.8</td>
<td>205</td>
<td>185</td>
<td>0.74</td>
<td>3400</td>
<td>5</td>
<td>48</td>
<td>D1338B58BA7Z-00</td>
<td>-20 ~ +70</td>
</tr>
<tr>
<td>5</td>
<td>225</td>
<td>170</td>
<td>0.60</td>
<td>3300</td>
<td>5</td>
<td>48</td>
<td>D1338B58BA7Z-00</td>
<td>-20 ~ +70</td>
</tr>
<tr>
<td>4.6</td>
<td>160</td>
<td>130</td>
<td>0.52</td>
<td>3200</td>
<td>5</td>
<td>48</td>
<td>D1338B58BA7Z-00</td>
<td>-20 ~ +70</td>
</tr>
</tbody>
</table>

**Fan model code**

- D1238B12B7A5-00
- D1238B12B7AZ-00
- D1238B12B9AP-00
- D1238B12B9AS-00
- D1238B12B9AZ-00
- D1238B24B9AP-00
- D1238B24B9AS-00
- D1238B24B9AZ-00
- D1238B48B9AP-00
- D1238B48B9AS-00
- D1238B48B9AZ-00

**Materials Used**

- Venturi: Aluminum alloy die castings
- Propeller: ABS and PBT synthetic resins
- Bearing: Both side shielded ball bearing

**General specification**

- Brushless DC motor, Protection type: Overcurrent detection and automatic resuming by current limiting

**External dimensions in (mm) (Inch) (mm) (Inch)**

**Wiring connection diagram**

**Mounting hole dimensions in (mm) (Inch)**

- Power source (+): Red
- Power source (-): Black
- Sensor output: Yellow

**Options (sold separately)**

- Guard: F120JL guard
- Filter: F120 filter

**External dimensions in (mm) (Inch)**

**Wiring connection diagram**

**Mounting hole dimensions in (mm) (Inch)**

**Options (sold separately)**

- Guard: F121A.L guard

**Customized fans with a higher airflow are also available. Please contact Japan Servo for more information.**

---

**G-34**

**Fans & Blowers**

**Brushless DC Fans & Blowers**

**D1238B series [120 x 38 mm]**

**D1338B series [127 x 38 mm]**

**General specification**

- Venturi: Aluminum alloy die castings
- Propeller: ABS and PBT synthetic resins
- Bearing: Both side shielded ball bearing

**External dimensions in (mm) (Inch) (mm) (Inch)**

**Wiring connection diagram**

**Mounting hole dimensions in (mm) (Inch)**

**Options (sold separately)**

- Guard: F121A.L guard

---

**G-34**

**Fans & Blowers**

**G-35**

**Fans & Blowers**
**D1338S series □ 127 × 38 mm**

### Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow (m³/min)</th>
<th>CFM</th>
<th>Max. Static Pressure</th>
<th>Pressure (Pa)</th>
<th>Noise (dB)</th>
<th>Speed (r/min)</th>
<th>Voltage Spec.</th>
<th>Current mA</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>127 × 38 mm (5.0” × 1.5”)</td>
<td>400</td>
<td>100</td>
<td>105-115</td>
<td>53</td>
<td>24,000</td>
<td>10.7</td>
<td>36-38.2</td>
<td>D1338S48B7AZ-00</td>
</tr>
</tbody>
</table>

- Figures in the table are average measured values. Please request the product delivery specification when preparing a purchase specification.

- The characteristics are the values at rated voltage (48 V), and normal temperature and humidity.

### General specification

- Materials Used:
  - Vertical: Aluminum alloy die castings
  - Propeller: ABS and PET synthetic resin coating
  - Bearing: Both side shielded ball bearing

<table>
<thead>
<tr>
<th>Fan model code</th>
<th>D1338S48B7AZ-00</th>
<th>D1338S48B7AS-00</th>
<th>D1338S48B7AP-00</th>
</tr>
</thead>
</table>

### Standard airflow and static pressure characteristics (At rated voltage)

- **By double chamber method**

### External dimensions in mm (inches)

- **Lead wire type**

### Wiring connection diagram

**DC axial fan with sensor**

- Power source (+) Red
- Power source (-) Black
- Sensor output: Yellow
- When sensor is installed:
  - Power source (+) Red
  - Power source (-) Black

**Options (sold separately)**

- Guard: F107U, guard

---

**D1725M series □ 172 × 47 × 25 mm**

### Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow (m³/min)</th>
<th>CFM</th>
<th>Max. Static Pressure</th>
<th>Pressure (Pa)</th>
<th>Noise (dB)</th>
<th>Speed (r/min)</th>
<th>Voltage Spec.</th>
<th>Current mA</th>
<th>Model Code</th>
<th>Operating Temp. Range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ 172 × 47 × 25 (6.8&quot;) × (1.8&quot;)</td>
<td>360</td>
<td>100</td>
<td>105-115</td>
<td>53</td>
<td>24,000</td>
<td>10.7</td>
<td>36-38.2</td>
<td>D1725M48B7AZ-00</td>
<td>-30 -+60</td>
</tr>
<tr>
<td>(̴̸̼̼̽)</td>
<td>250</td>
<td>100</td>
<td>105-115</td>
<td>53</td>
<td>24,000</td>
<td>10.7</td>
<td>36-38.2</td>
<td>D1725M48B7AZ-00</td>
<td>-30 -+60</td>
</tr>
</tbody>
</table>

### General specification

- Materials Used:
  - Vertical: Aluminum alloy die castings
  - Propeller: ABS and PET synthetic resin coating
  - Bearing: Both side shielded ball bearing

### Standard airflow and static pressure characteristics (At rated voltage)

- **By double chamber method**

### External dimensions in mm (inches)

- **Lead wire type**

### Wiring connection diagram

**DC axial fan with sensor**

- Power source (+) Red
- Power source (-) Black or blue

---

**Notes:**

- Japan Servo can meet most of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.
**PADC series ** **472 × 51 mm**

### Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>Max. Static Pressure</th>
<th>Voltage V.</th>
<th>Current mA</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2</td>
<td>380</td>
<td>0.53</td>
<td>64</td>
<td>4800</td>
</tr>
<tr>
<td>9</td>
<td>318</td>
<td>0.51</td>
<td>68</td>
<td>4200</td>
</tr>
<tr>
<td>8</td>
<td>282</td>
<td>0.95</td>
<td>37</td>
<td>5300</td>
</tr>
<tr>
<td>8.6</td>
<td>240</td>
<td>0.71</td>
<td>54</td>
<td>4200</td>
</tr>
<tr>
<td>8</td>
<td>205</td>
<td>0.56</td>
<td>49.5</td>
<td>3200</td>
</tr>
<tr>
<td>6.8</td>
<td>149</td>
<td>0.28</td>
<td>2400</td>
<td>5</td>
</tr>
</tbody>
</table>

Fan model code  
MADC12B4  
MADC12D4  
MADC12H7  
MADC12HP  
MADC12Z4  
MADC48B4  
MADC48H4  
MADC48S7  
MADC48U7  
MADC48Z4  

### General specification

**Materials Used**  
Venturi: Aluminum alloy die castings  
Propeller: ABS and PBT synthesized resin  
Motor: Brushless DC motor  
Protection type: Overcurrent detection and automatic restarting by current limiting

**Standard Carton**  
12 is a carton of (450 x 380 x 220) mm, mass 10 kg

__External dimensions (in inches)__

**Lead wire type**  
Wiring connection diagram

Mounting hole dimensions (in mm) (Recommendation)

---

**PADC series**  
**472 × 51 mm**

### Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>Max. Static Pressure</th>
<th>Voltage V.</th>
<th>Current mA</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2</td>
<td>380</td>
<td>0.53</td>
<td>64</td>
<td>4800</td>
</tr>
<tr>
<td>9</td>
<td>318</td>
<td>0.51</td>
<td>68</td>
<td>4200</td>
</tr>
<tr>
<td>8</td>
<td>282</td>
<td>0.95</td>
<td>37</td>
<td>5300</td>
</tr>
<tr>
<td>8.6</td>
<td>240</td>
<td>0.71</td>
<td>54</td>
<td>4200</td>
</tr>
<tr>
<td>8</td>
<td>205</td>
<td>0.56</td>
<td>49.5</td>
<td>3200</td>
</tr>
<tr>
<td>6.8</td>
<td>149</td>
<td>0.28</td>
<td>2400</td>
<td>5</td>
</tr>
</tbody>
</table>

Fan model code  
MADC12B4  
MADC12D4  
MADC12H7  
MADC12HP  
MADC12Z4  
MADC48B4  
MADC48H4  
MADC48S7  
MADC48U7  
MADC48Z4  

### General specification

**Materials Used**  
Venturi: Aluminum alloy die castings  
Propeller: ABS and PBT synthesized resin  
Motor: Brushless DC motor  
Protection type: Overcurrent detection and automatic restarting by current limiting

**Standard Carton**  
12 is a carton of (450 x 380 x 220) mm, mass 10 kg

__External dimensions (in inches)__

**Lead wire type**  
Wiring connection diagram

Mounting hole dimensions (in mm) (Recommendation)

---

**Note:** The PADC series is being revised to the D1751S series in the near future. The new series of fans feature a max. airflow of 14 w/min and a noise reduction of 3 dB. Please contact Japan Servo for more information.
**G0938 Series □ 92 × 38 mm**

**Standard specification**

<table>
<thead>
<tr>
<th>Max. airflow</th>
<th>No. of pieces</th>
<th>Noise</th>
<th>Speed</th>
<th>Voltage spec.</th>
<th>Current mA</th>
<th>Damping range</th>
<th>Model code</th>
</tr>
</thead>
<tbody>
<tr>
<td>m³/min</td>
<td>Pa</td>
<td>dB</td>
<td>m/min</td>
<td>V</td>
<td>mA</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>Max. 138</td>
<td>460</td>
<td>1.97</td>
<td>63</td>
<td>7500</td>
<td>12</td>
<td>8.4-13.2</td>
<td>G0938B12BBZP-00</td>
</tr>
<tr>
<td>3.9</td>
<td>3.25</td>
<td>2000</td>
<td>460</td>
<td>12</td>
<td>8.4-13.2</td>
<td>G0938B12BBZP-00</td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>3.25</td>
<td>2000</td>
<td>460</td>
<td>12</td>
<td>8.4-13.2</td>
<td>G0938B12BBZP-00</td>
<td></td>
</tr>
<tr>
<td>-20 ~ +50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**External dimensions in mm (inches)**
- Lead wire type

![Diagram of G0938B large]  
**PWM speed control specification**

For cooling and/or ventilating in electronic cabinets which have high resistance to air flow (system impedance). The G0938 is designed using a digital analysis system to maximize cooling efficiency and minimize noise during operation.  

- Unique formed fixed blades designed by digital engineering:  
  - Controls spread of air stream.  
  - When two G0938 fans are stacked, the static pressure is almost doubled.  
  - It is suitable for use in highly reliable/redundant designs; the trend of cooling systems.  
  - To ensure correct installation and smooth operation please obtain a drawing for approval or reference drawing from Japan Servo Co.

---

**G1238 Series □ 120 × 38 mm**

**Standard specification**

<table>
<thead>
<tr>
<th>Max. airflow</th>
<th>No. of pieces</th>
<th>Noise</th>
<th>Speed</th>
<th>Voltage spec.</th>
<th>Current mA</th>
<th>Damping range</th>
<th>Model code</th>
</tr>
</thead>
<tbody>
<tr>
<td>m³/min</td>
<td>Pa</td>
<td>dB</td>
<td>m/min</td>
<td>V</td>
<td>mA</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>Max. 261</td>
<td>520</td>
<td>2.09</td>
<td>67</td>
<td>6300</td>
<td>12</td>
<td>8.6-13.8</td>
<td>G1238B12BBZP-00</td>
</tr>
<tr>
<td>7.4</td>
<td>355.2</td>
<td>1100</td>
<td>2000</td>
<td>46</td>
<td>35-55.2</td>
<td>G1238B12BBZP-00</td>
<td></td>
</tr>
<tr>
<td>6.3</td>
<td>223</td>
<td>415</td>
<td>1.67</td>
<td>64</td>
<td>1230</td>
<td>2000</td>
<td>G1238B12BBZP-00</td>
</tr>
<tr>
<td>-20 ~ +60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**External dimensions in mm (inches)**
- Lead wire type

![Diagram of G1238B large]  
**PWM speed control specification**

For cooling and/or ventilating in electronic cabinets which have high resistance to air flow (system impedance). The G1238 is designed using a digital analysis system to maximize cooling efficiency and minimize noise during operation.  

- Unique formed fixed blades designed by digital engineering:  
  - Controls spread of air stream.  
  - When two G1238 fans are stacked, the static pressure is almost doubled.  
  - It is suitable for use in highly reliable/redundant designs; the trend of cooling systems.  
  - To ensure correct installation and smooth operation please obtain a drawing for approval or reference drawing from Japan Servo Co.
# Brushless DC Fans & Blowers

## G1751M series 172 X 160 X 51 mm

### Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>Intake/Exhaust Noise</th>
<th>Speed</th>
<th>Current mA</th>
<th>Model Code</th>
<th>Operating temp. range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFM Pa</td>
<td>dBA</td>
<td>rpm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.2</td>
<td>955</td>
<td>460</td>
<td>36-50</td>
<td>G1751M48B5AZ-00</td>
<td>20 ~ +50</td>
</tr>
<tr>
<td>9.2</td>
<td>1032</td>
<td>460</td>
<td>36-48</td>
<td>G1751M48B4AZ-00</td>
<td>20 ~ +50</td>
</tr>
<tr>
<td>8.3</td>
<td>993</td>
<td>460</td>
<td>36-48</td>
<td>G1751M48B3AZ-00</td>
<td>20 ~ +50</td>
</tr>
</tbody>
</table>

### Materials Used
- Vent: Aluminum alloy die castings
- Propeller: ABS and PST synthetic resins
- Bearing: Both side shielded ball bearing

### General specification
- Standard airflow and static pressure characteristics (At rated voltage) (By double chamber method)
- **Lead wire type**

### Wiring connection diagram

**Mounting hole dimensions** (Recommandation)

### External dimensions in mm (inches)

**External dimensions** in mm (inches)

- **Lead wire type**

- **Mounting hole dimensions** (Recommandation)

**G1751M series** has been designed for use in high static pressure regions, with a quieter and lower input compared with the SADC and BADC series. The BADC series is recommended for use in high airflow regions. (See Fig. 4 on page G.4.)

### DC axial fan with sensor

- **Sensor type**
- **Rated Volt**
- **Model Code**

- **SADC series** 200 X 70 mm

### Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>Intake/Exhaust Noise</th>
<th>Speed</th>
<th>Current mA</th>
<th>Model Code</th>
<th>Operating temp. range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFM Pa</td>
<td>dBA</td>
<td>rpm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>353</td>
<td>214</td>
<td>0.66</td>
<td>SADC242ZSP</td>
<td>20 ~ +70</td>
</tr>
<tr>
<td>9</td>
<td>318</td>
<td>251</td>
<td>0.81</td>
<td>SADC242ZSP</td>
<td>20 ~ +70</td>
</tr>
<tr>
<td>7.5</td>
<td>265</td>
<td>153</td>
<td>0.62</td>
<td>SADC242ZSP</td>
<td>20 ~ +70</td>
</tr>
</tbody>
</table>

### Materials Used
- Vent: Aluminum alloy die castings
- Propeller: ABS and PST synthetic resins
- Bearing: Both side shielded ball bearing

### General specification
- Standard airflow and static pressure characteristics (At rated voltage) (By double chamber method)
- **Lead wire type**

### Wiring connection diagram

**Mounting hole dimensions**

**External dimensions** in mm (inches)

**Options (sold separately)** - Guard: F2000UL guard

### DC axial fan & sensor

**Sensor type**

**Rated Volt**

**Model Code**

- **Japan Servo** can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo directly for your production planning and development stage.

- **Japan Servo** can send an electronic version of their catalog upon request. 3D data is also available at their www.web2cad.co.jp site.

- **Japan Servo** can also handle many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo directly for your production planning and development stage.

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- **Japan Servo** can also handle many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo directly for your production planning and development stage.
**E0525H/K series**  \[48 \times 25 \text{ mm}\]

**Super Silent Blowers**

- **Max. Airflow**: 0.22 m³/min
- **Max. Static Pressure**: 200 Pa
- **Max. Mass**: 30 g

**Features**
- The E0515H series is a brushless DC fan and blower with high pressure and low noise level.
- The JF0525K series is a brushless DC motor with high pressure and low noise level.

**General specification**

- **Materials Used**: ABS and PBT synthetic resin bodies, impeller: ABS and PBT synthetic resins, bearing: Both side shielded ball bearing
- **Motor**: Brushless DC motor. Protection type: Current cut-off by detecting lock state, automatically reset

**Standard airflow and static pressure characteristics (At rated voltage)**

<table>
<thead>
<tr>
<th>Voltage (V)</th>
<th>Current (μA)</th>
<th>Max. Airflow (m³/min)</th>
<th>Max. Static Pressure (Pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>0.09</td>
<td>0.15</td>
<td>150</td>
</tr>
</tbody>
</table>

**External dimensions in mm (inches)**

- **Lead wire type (E0525H)**
  - **Lead wire spec**: UL3365 AWG26
  - **Color**: (•) Red, (••) Black

**Wiring connection diagram**

- **Power source**: (+) Red, (–) Black

**Super silent blower with sensor**

- **Rated VA**: 12 V

- **Model Code**: E0515H12B8AZ-00, E0515H24B8AZ-00, E0515H12B7AZ-00, E0515H24B7AZ-00, E0515H12B5AZ-00, E0515H24B5AZ-00

**Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above and other modifications. Please contact Japan Servo during your product planning and development stage.**

**The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586.**

**An electronic version of the Japan Servo catalog can be forwarded upon request. 3D data is also available at our web site (www.web2cad.co.jp).**
**Brushless DC Fans & Blowers**

### E0720H series 70 x 70 x 20 mm

#### Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>No. of Blades</th>
<th>Voltage Spec.</th>
<th>Current mA</th>
<th>Model Code</th>
<th>Operating temp. range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.29</td>
<td>10.2</td>
<td>300</td>
<td>1.21</td>
<td>4T450</td>
<td>E0720H12B8AZ-00</td>
</tr>
<tr>
<td>0.25</td>
<td>9.5</td>
<td>250</td>
<td>1.42</td>
<td>4400</td>
<td>E0720H12B7AT-00</td>
</tr>
<tr>
<td>0.27</td>
<td>8.8</td>
<td>210</td>
<td>0.84</td>
<td>4050</td>
<td>E0720H12B5AZ-00</td>
</tr>
</tbody>
</table>

#### General specification

- **Materials Used**
  - Ventil: ABS and PET synthetic resins
  - Impeller: ABS and PET synthetic resins
  - Bearing: Both side shielded ball bearing

- **Standard Cartesian**
  - 50 to a carton of (450 x 380 x 298) mm, max. 8 kg

#### Standard airflow and static pressure characteristics (At rated voltage)

- **Lead wire type**

#### Wiring connection diagram

- **Power source (+): Red**
- **Sensor output: Yellow**
- **When sensor is installed: Power source (+): Black**

### E0720L series 72 x 72 x 20 mm

#### Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>No. of Blades</th>
<th>Voltage Spec.</th>
<th>Current mA</th>
<th>Model Code</th>
<th>Operating temp. range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.31</td>
<td>10.9</td>
<td>285</td>
<td>1.07</td>
<td>41</td>
<td>E0720L12B8AZ-00</td>
</tr>
<tr>
<td>0.33</td>
<td>10.9</td>
<td>285</td>
<td>0.98</td>
<td>4400</td>
<td>E0720L12B8AZ-00</td>
</tr>
<tr>
<td>0.27</td>
<td>9.5</td>
<td>190</td>
<td>0.78</td>
<td>2200</td>
<td>E0720L12B7AZ-00</td>
</tr>
</tbody>
</table>

#### General specification

- **Materials Used**
  - Ventil: ABS and PET synthetic resins
  - Impeller: ABS and PET synthetic resins
  - Bearing: Both side shielded ball bearing

- **Standard Cartesian**
  - 50 to a carton of (450 x 380 x 298) mm, max. 8 kg

### Super Silent Blowers

#### E0720H

- Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.

- The listed products are registered in the following overseas standards files: UL, EN, CDA, UL, TÜV, VDE, IEC, etc.
## Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>No. Batt./Month</th>
<th>Pressure dB</th>
<th>Speed</th>
<th>Voltage Spec. V</th>
<th>Current mA</th>
<th>Model Code</th>
<th>Operating temp. Range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.33</td>
<td>11.6</td>
<td>180</td>
<td>0.72</td>
<td>48</td>
<td>4500</td>
<td>SMBD12H4</td>
<td>-20 ~ +60</td>
</tr>
<tr>
<td>0.27</td>
<td>9.5</td>
<td>118</td>
<td>0.47</td>
<td>43</td>
<td>3600</td>
<td>SMBD12Z4</td>
<td>-20 ~ +60</td>
</tr>
<tr>
<td>0.24</td>
<td>8.5</td>
<td>88</td>
<td>0.35</td>
<td>41</td>
<td>3400</td>
<td>SMBD24B4</td>
<td>-20 ~ +60</td>
</tr>
</tbody>
</table>

- **Materials Used**
  - Venturi: ABS and PST synthetic resins
  - Impeller: ABS and PST synthetic resins
  - Bearing: Both side shielded ball bearing
- **Motor**
  - Brushless DC motor, Protection type: Current shut off by detecting lock static, automatically reset
- **Standard Airflow**
  - 20 to a chart of 450 x 383 x 300 mm, max 9 kg

## General specification

- **Japan Servo** can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.

- The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586.

- An electronic version of the Japan Servo catalog can be forwarded upon request. 3D data is also available at our web2-CAD site (www.web2cad.co.jp).

## External dimensions in mm (inches)

### Lead wire type

![External dimensions diagram](image)

- **Lead wire length** 300 mm
- **Sensor output** Yellow
- **Power source** (-) Black

### Wiring connection diagram

![Wiring connection diagram](image)

- **Power source** (+) Red
- **Sensor output** Yellow
- **Power source** (-) Black

- **DC centrifugal blower with sensor**
  - Rated 12 V
  - Model Code: MBDC12B4
  - MBDC12B6
  - MBDC12H4
  - MBDC12Z4
  - MBDC24B4
  - MBDC24B6
  - MBDC24H4

- **DC centrifugal blower with sensor**
  - Rated 24 V
  - Model Code: MBDC24B4
  - MBDC24B6

- **Notes**
  - Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.
  - The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586.
  - An electronic version of the Japan Servo catalog can be forwarded upon request. 3D data is also available at our web2-CAD site (www.web2cad.co.jp).
**SFBD series 30 × 30**

**Standard specification**

<table>
<thead>
<tr>
<th>Model Code</th>
<th>Operating temp. range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFBD12B4</td>
<td>20 ~ +60</td>
</tr>
<tr>
<td>SFBD12B4H5</td>
<td>20 ~ +60</td>
</tr>
<tr>
<td>SFBD12H7</td>
<td>20 ~ +60</td>
</tr>
<tr>
<td>SFBD12H7T</td>
<td>20 ~ +60</td>
</tr>
<tr>
<td>SFBD12Z7</td>
<td>20 ~ +60</td>
</tr>
<tr>
<td>SFBD12Z7T</td>
<td>20 ~ +60</td>
</tr>
<tr>
<td>SFBD24B4</td>
<td>20 ~ +60</td>
</tr>
<tr>
<td>SFBD24B4H5</td>
<td>20 ~ +60</td>
</tr>
<tr>
<td>SFBD24H7</td>
<td>20 ~ +60</td>
</tr>
<tr>
<td>SFBD24H7T</td>
<td>20 ~ +60</td>
</tr>
<tr>
<td>SFBD24Z7</td>
<td>20 ~ +60</td>
</tr>
<tr>
<td>SFBD24Z7T</td>
<td>20 ~ +60</td>
</tr>
</tbody>
</table>

**Fan model code**

<table>
<thead>
<tr>
<th>SFBD12B4</th>
<th>SFBD12B4H5</th>
<th>SFBD12H7</th>
<th>SFBD12H7T</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFBD12Z7</td>
<td>SFBD12Z7T</td>
<td>SFBD24B4</td>
<td>SFBD24B4H5</td>
</tr>
<tr>
<td>SFBD24H7</td>
<td>SFBD24H7T</td>
<td>SFBD24Z7</td>
<td>SFBD24Z7T</td>
</tr>
</tbody>
</table>

**General specification**

- **Materials Used**
  - Ventil: ABS and PBT synthetic resins
  - Impeller: ABS and PBT synthetic resins
  - Bearing: Both side shielded ball bearing

- **Motor**
  - Brushless DC motor, Protection type: Current shut off by detecting lock state, automatically reset

- **Common Elec. Spec.**
  - See pages 11, 12, 13, 14

- **E0818K12B5AZ-00**
  - Fan model code
  - Max. static pressure: 240 Pa
  - Max. static pressure: 50 Pa

- **Standard airflow and static pressure characteristics (At rated voltage)**
  - By double chamber method
  - Airflow: [0.1, 0.2, 0.3] m³/min
  - Static pressure: [0, 50, 100, 150, 200, 250] Pa

- **External dimensions in mm (inches)**
  - Lead wire type
  - [Dimensions]

- **Wiring connection diagram**
  - [Diagram]

- **External dimensions in mm (inches)**
  - Lead wire type
  - [Dimensions]

- **DC Centrifugal Blowers**

- **SFBD BLOWER**

- **E0818K series 18 × 18**

- **Standard specification**

<table>
<thead>
<tr>
<th>Model Code</th>
<th>Operating temp. range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>G-50</td>
<td>-20 ~ +70</td>
</tr>
<tr>
<td>G-51</td>
<td>-20 ~ +70</td>
</tr>
</tbody>
</table>

- **Materials Used**
  - Ventil: ABS and PBT synthetic resins
  - Impeller: ABS and PBT synthetic resins
  - Bearing: Both side shielded ball bearing

- **Motor**
  - Brushless DC motor, Protection type: Current shut off by detecting lock state, automatically reset

- **Common Elec. Spec.**
  - See pages 11, 12, 13, 14

- **E0818K12B5AZ-00**
  - Fan model code
  - Max. static pressure: 240 Pa
  - Max. static pressure: 50 Pa

- **Standard airflow and static pressure characteristics (At rated voltage)**
  - By double chamber method
  - Airflow: [0.1, 0.2, 0.3] m³/min
  - Static pressure: [0, 50, 100, 150, 200, 250] Pa

- **External dimensions in mm (inches)**
  - Lead wire type
  - [Dimensions]

- **Wiring connection diagram**
  - [Diagram]

- **External dimensions in mm (inches)**
  - Lead wire type
  - [Dimensions]

- **DC Centrifugal Blower with sensor**

- **Facts**

- **Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.**

- **The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586.**

- **Customizing to the sleeve bearing specification also accepted depending on the intended purchase quantity. Contact Japan Servo for further information.**

- **An electronic version of the Japan Servo catalog can be forwarded upon request. 3D data is also available at our web2-CAD site (www.web2cad.co.jp).**
**Super Silent Fan E1027H**

### General specification

**Materials Used:**
- Venturi: ABS and PBT synthetic resins
- Impeller: ABS and PBT synthetic resins
- Bearing: Both side shielded ball bearing

**Motor:**
- Brushless DC motor
- Protection type: Current shunt
- On/off by detecting lock state, automatically reset

**Common Elec. Spec.:**
- See pages G-11, G-12, G-13.

### Standard airflow and static pressure characteristics (At rated voltage)

<table>
<thead>
<tr>
<th>Fan model code</th>
<th>Model Code</th>
<th>Operating Ambient Temperature</th>
<th>Lead wire type</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1027HBA-04</td>
<td>E1027HBA-04</td>
<td>76000°F</td>
<td>Red</td>
</tr>
<tr>
<td>E1027HBA-05</td>
<td>E1027HBA-05</td>
<td>76000°F</td>
<td>Black</td>
</tr>
</tbody>
</table>

**Wiring connection diagram**

**Super silent fan with sensor**

- Rated V: 12 V
- Model Code: E1027HBA-04

**Note:**
- Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.
- The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586.

---

**Super Silent Fan E1033H/Y**

### General specification

**Materials Used:**
- Venturi: ABS and PBT synthetic resins
- Impeller: ABS and PBT synthetic resins
- Bearing: Both side shielded ball bearing

**Motor:**
- Brushless DC motor
- Protection type: Current shunt
- On/off by detecting lock state, automatically reset

**Common Elec. Spec.:**
- See pages G-11, G-12, G-13.

### Standard airflow and static pressure characteristics (At rated voltage)

<table>
<thead>
<tr>
<th>Fan model code</th>
<th>Model Code</th>
<th>Operating Ambient Temperature</th>
<th>Lead wire type</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1033HBA-04</td>
<td>E1033HBA-04</td>
<td>76000°F</td>
<td>Red</td>
</tr>
<tr>
<td>E1033HBA-05</td>
<td>E1033HBA-05</td>
<td>76000°F</td>
<td>Black</td>
</tr>
</tbody>
</table>

**Wiring connection diagram**

**Super silent fan with sensor**

- Rated V: 12 V
- Model Code: E1033HBA-04

**Note:**
- Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.
- The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586.
**Brushless DC Fans & Blowers**

**E1232L series** \(119 \times 117 \times 32\) mm

- **Super Silent Fan E1232L**
  - Max. airflow: 1.13 m³/min
  - Max. static pressure: 460 Pa
  - Mass: 220 g

**General specification**

- Fan model code: E1232L12B5AP-00
- E1232L12B6AZ-00
- E1232L12B7AZ-00
- E1232L12B9AZ-00
- E1232L24B5AP-00
- E1232L24B6AZ-00
- E1232L24B7AZ-00
- E1232L24B9AZ-00

**Standard specification**

<table>
<thead>
<tr>
<th>Speed (m/min)</th>
<th>Voltage Spec. (V)</th>
<th>Current mA</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>28.4-13.2</td>
<td>700</td>
<td>E1232L12B5AZ-00</td>
</tr>
<tr>
<td>24</td>
<td>28.4-26.4</td>
<td>630</td>
<td>E1232L24B5AZ-00</td>
</tr>
<tr>
<td>48</td>
<td>28.4-51.8</td>
<td>500</td>
<td>E1232L24B9AZ-00</td>
</tr>
</tbody>
</table>

**External dimensions in mm (Inches)**

- **Lead wire type**

**Wiring connection diagram**

- Power source (+) Red
- Ground (-) Black
- Sensor output/White

- When sensor is installed: Power source (+) Red, Ground (-) Black

---

**Brushless DC Fans & Blowers**

**E1331K series** \(126 \times 127 \times 31\) mm

- **Super Silent Fan E1331K**
  - Max. airflow: 1.60 m³/min
  - Max. static pressure: 460 Pa
  - Mass: 250 g

**General specification**

- Fan model code: E1331K12B5AZ-00
- E1331K12B6AZ-00
- E1331K12B7AZ-00
- E1331K12B9AZ-00
- E1331K24B5AZ-00
- E1331K24B6AZ-00
- E1331K24B7AZ-00
- E1331K24B9AZ-00

**Standard specification**

<table>
<thead>
<tr>
<th>Speed (m/min)</th>
<th>Voltage Spec. (V)</th>
<th>Current mA</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>18.4-15.2</td>
<td>1100</td>
<td>E1331K12B5AZ-00</td>
</tr>
<tr>
<td>24</td>
<td>18.4-30.4</td>
<td>530</td>
<td>E1331K24B5AZ-00</td>
</tr>
<tr>
<td>48</td>
<td>18.4-60.8</td>
<td>450</td>
<td>E1331K24B9AZ-00</td>
</tr>
</tbody>
</table>

**External dimensions in mm (Inches)**

- **Lead wire type**

**Wiring connection diagram**

- Power source (+) Red
- Power source (-) Black

---

**Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.**

The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586.


**E1540H series 150 x 152 x 40 mm**

**Standard specification**

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>16.1 m³/min</th>
<th>Voltage Spec.</th>
<th>12 VDC</th>
<th>Current mA</th>
<th>Model Code</th>
<th>Operating Temp. Range C°</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>71</td>
<td>430</td>
<td>1.73</td>
<td>1.76</td>
<td>E1540H12B7AZ-00</td>
<td>-20 ~ +70</td>
</tr>
<tr>
<td>1.65</td>
<td>58</td>
<td>270</td>
<td>1.39</td>
<td>1.63</td>
<td>E1540H12B5AZ-00</td>
<td>-20 ~ +70</td>
</tr>
</tbody>
</table>

**General specification**

- **Features:**
  - ABS and PBT synthetic resin
  - Bearing: Both side shielded ball bearing

- **Common Specification:**
  - IP67 (40°C x 25°C x 250 mm, max. 1 kg)

**Standard airflow and static pressure characteristics (At rated voltage)**

- **Lead wire color:**
  - Red
  - Black

**External dimensions in mm (inches)**

<table>
<thead>
<tr>
<th>Lead wire type</th>
<th>E1540H 12B5AZ-00</th>
<th>E1540H 12B7AZ-00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width (mm)</td>
<td>126</td>
<td>126</td>
</tr>
<tr>
<td>Height (mm)</td>
<td>152</td>
<td>152</td>
</tr>
<tr>
<td>Depth (mm)</td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>

**Wiring connection diagram**

- Power source: (+) Red
- Sensor output: Yellow
- When sensor is installed: Power source: (+) Black

**E1540H specifications:**

- Rated Vol: 12 VDC
- Model Code: E1540H12B5AZ-00
- E1540H12B7AZ-00
- E1540H12B5AP-00
- E1540H12B7AP-00

**Notes:**

- Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.
- The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586.
- An electronic version of the Japan Servo catalog can be forwarded upon request. 3D data is also available at our web2-CAD site (www.web2cad.co.jp).

**E2271Z series 220 x 71 mm**

**Standard specification**

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>18.7 m³/min</th>
<th>Voltage Spec.</th>
<th>24 VDC</th>
<th>Current mA</th>
<th>Model Code</th>
<th>Operating Temp. Range C°</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8</td>
<td>650</td>
<td>650</td>
<td>2.6</td>
<td>1.7</td>
<td>E2271Z24B7AP-00</td>
<td>-20 ~ +80</td>
</tr>
<tr>
<td>1.75</td>
<td>580</td>
<td>470</td>
<td>2.5</td>
<td>1.7</td>
<td>E2271Z24B5AP-00</td>
<td>-20 ~ +80</td>
</tr>
</tbody>
</table>

**General specification**

- **Materials Used:**
  - Vent: Aluminum die castings.
  - Impeller: ABS and PBT synthetic resin.
  - Bearing: Both side shielded ball bearing.

- **Motor:**
  - Brushless DC motor.

- **Certification:**
  - UL/CSA: E48889, TA49399.

**Features**

- **Large airflow, high static pressure backward blowers without housing.**
- A low noise effect can be achieved by combining an inlet ring.

**Fan model code:**

- E2271Z24B7AP-00

**External dimensions in mm (inches)**

- Lead wire type: Red
- Sensor output: Yellow
- When sensor is installed: Power source: (+) Black

**Wiring connection diagram**

- Power source: (+) Red
- Sensor output: Yellow
- When sensor is installed: Power source: (+) Black

**Options (sold separately):**

- E2271 inlet ring

**Super silent fan with sensor**

- Rated Vol: 12 VDC
- Model Code: E2271Z24B7AP-00

**Notes:**

- This product features a large airflow and high static pressure without using a housing. A standard specification is ensured if installed complying with the foregoing bell mouth shape and its position.
- See page G-73 for detailed dimensions of the inlet bell mouth.
- A bell mouth fitting accessory (product code E2271 Inlet Ring) is available as an option. (See page G-73.)
- Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.
- The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586.

**Contact Japan Servo for further information.**
**Variable-Speed Fans and Blowers**

**Lineup of PWM variable-speed semi-standard products**

- A PWM signal from the customer equipment is input to the control line (blue) of the fan motor for variable-speed operation of fans and blowers. (Input and noise can be reduced when the internal temperature of the customer equipment is low, such as during idling.)

**Sizes**

<table>
<thead>
<tr>
<th>Axial fans:</th>
<th>60 mm</th>
<th>72 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blower:</td>
<td>70 mm</td>
<td>220 mm</td>
</tr>
</tbody>
</table>

**Characteristics for reference**

(The characteristics are typical characteristics and their curves will differ, depending on the particular model)

- Standard values for PWM control signal - speed specification (at rated voltage, open, and normal temperature and humidity)

**Semi-standard products (Products in regular production)**

<table>
<thead>
<tr>
<th>Size</th>
<th>Model Code</th>
<th>Max. Airflow</th>
<th>Max. Static Pressure</th>
<th>Noise dB</th>
<th>Speed</th>
<th>Voltage Spec.</th>
<th>Operating temp. range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>120×38 mm</td>
<td>G1236B4487ZP-00</td>
<td>4.4</td>
<td>156</td>
<td>170</td>
<td>0.68</td>
<td>54</td>
<td>4000</td>
</tr>
<tr>
<td>92×38 mm</td>
<td>G936B1487ZP-00</td>
<td>3.9</td>
<td>138</td>
<td>400</td>
<td>1.97</td>
<td>63</td>
<td>7500</td>
</tr>
<tr>
<td>120×38 mm</td>
<td>G1236B4488ZP-00</td>
<td>3.6</td>
<td>127</td>
<td>440</td>
<td>1.77</td>
<td>61</td>
<td>7000</td>
</tr>
</tbody>
</table>

**Fully customized products**

- Fully customized products will be manufactured to optimally match your equipment for high volume needs. (more than 10,000 units/month) for home appliances such as refrigerators, air conditioners and washing machines and for industrial machinery and information communication equipment, including open showcases, power sources and computer-related equipment. Please contact Japan Servo for more information.

**Semi-customized products**

- Semi-customized products, including the following, will be manufactured by combining a large variety of components available to Japan Servo. Please contact Japan Servo for more information.

1. For operation in a high-temperature atmosphere of 80 °C.
2. Long life products (60,000 hours or longer at 60 °C, 100,000 hours at 50 °C).
3. Energy saving products (30 % to 50 % less input compared with conventional products) products (Outdoor installation and in a high-humidity environment)
4. Variable-speed products (PWM, voltage or resistance value command, dual-speed products)
5. For fans with high static pressure regions (92 mm sq. x 38 mm thick, 120 mm sq. x 38 mm thick, 172 mm dia.)
6. Fans tailored to voltage command control and resistance value command (also available)
7. To ensure correct installation and smooth operation please obtain a drawing for approval or reference drawing from Japan Servo Co.

**Fan tray units**

- Tray units fitted with a standard or semi-customized fans.
- Tray shape designed, manufactured and tailored to customer specifications.

**Fully customized products example 1**

**Fully customized products example 2**

**Fully customized products example 3**

---

*The lineup of variable-speed fans and blowers will be expanded regularly. Visit the Japan Servo Website for information on the speed lineup.*

*Direct your inquiry to Japan Servo for customization, including fan types, products tailored to voltage command control and resistance value command control are also available.*

*To ensure correct installation and smooth operation please obtain a drawing for approval or reference drawing from Japan Servo Co.*
**SCNA series** 120 x 128 x 25 mm

### Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow (m³/min)</th>
<th>Min. Static Pressure (Pa)</th>
<th>Rotor Dia (mm)</th>
<th>Speed (m/s)</th>
<th>Rated Vol. (%)</th>
<th>Input W</th>
<th>Current (mA)</th>
<th>Guard Type</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>47</td>
<td>67</td>
<td>24.5</td>
<td>100</td>
<td>150</td>
<td>113</td>
<td>SCNU59B5</td>
<td>G-61 SCNU59B5</td>
</tr>
<tr>
<td>2.2</td>
<td>46</td>
<td>78</td>
<td>29.0</td>
<td>100</td>
<td>200</td>
<td>113</td>
<td>SCNU59B5</td>
<td>G-61 SCNU59B5</td>
</tr>
<tr>
<td>1.3</td>
<td>40</td>
<td>51</td>
<td>31.3</td>
<td>100</td>
<td>150</td>
<td>113</td>
<td>SCNU49B5</td>
<td>G-61 SCNU49B5</td>
</tr>
<tr>
<td>1.45</td>
<td>45</td>
<td>51</td>
<td>31.3</td>
<td>100</td>
<td>200</td>
<td>113</td>
<td>SCNU49B5</td>
<td>G-61 SCNU49B5</td>
</tr>
</tbody>
</table>

**General specification**

- **Vent:** Aluminum alloy die-casting
- **Motor:** Shaded pole induction motor
- **Protection type:** Impedance protection
- **Common Exc./Spec.**
  - Voltage: 100 V
  - Rated current: 10.7 A
  - Rated speed: 100 rpm
- **Standard Condition**
  - Air temperature: 20 °C ~ +60 °C
  - Air pressure: 90% ± 10%

The guard for the intake side (SCU guard) can be mounted with one touch without using a tool.

### External dimensions (in mm) (Recommendation)

<table>
<thead>
<tr>
<th>Airflow (m³/min)</th>
<th>Width (mm)</th>
<th>Height (mm)</th>
<th>Depth (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>20</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>1.0</td>
<td>26</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>1.5</td>
<td>35</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

### Mounting hole dimensions (in mm) (Recommendation)

<table>
<thead>
<tr>
<th>Airflow (m³/min)</th>
<th>Hole Diameter (mm)</th>
<th>Hole Distance (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>5.5</td>
<td>9.5</td>
</tr>
<tr>
<td>1.0</td>
<td>5.5</td>
<td>9.5</td>
</tr>
<tr>
<td>1.5</td>
<td>5.5</td>
<td>9.5</td>
</tr>
</tbody>
</table>

**Options (solidly)**

- Guard: F120L (Outlet side)
- Guard: SCU guard (Intake side)

**Fan model code**

- SCNU25B5
- SCNU47F5
- SCNU48F5
- SCNU52B5
- SCNU55B5
- SCNU60B5

**Engine**

- Motor: Servo
- Voltage: 100 V
- Rated current: 10.7 A
- Rated speed: 100 rpm

---

**SCNA series** 120 x 128 x 38 mm

### Standard specification

<table>
<thead>
<tr>
<th>Max. Airflow (m³/min)</th>
<th>Min. Static Pressure (Pa)</th>
<th>Rotor Dia (mm)</th>
<th>Speed (m/s)</th>
<th>Rated Vol. (%)</th>
<th>Input W</th>
<th>Current (mA)</th>
<th>Guard Type</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>32</td>
<td>60</td>
<td>31.3</td>
<td>100</td>
<td>150</td>
<td>113</td>
<td>SCNU49B5</td>
<td>G-61 SCNU49B5</td>
</tr>
<tr>
<td>2.2</td>
<td>38</td>
<td>76</td>
<td>31.3</td>
<td>100</td>
<td>200</td>
<td>113</td>
<td>SCNU49B5</td>
<td>G-61 SCNU49B5</td>
</tr>
<tr>
<td>1.3</td>
<td>25</td>
<td>51</td>
<td>31.3</td>
<td>100</td>
<td>150</td>
<td>113</td>
<td>SCNU49B5</td>
<td>G-61 SCNU49B5</td>
</tr>
<tr>
<td>1.45</td>
<td>29</td>
<td>51</td>
<td>31.3</td>
<td>100</td>
<td>200</td>
<td>113</td>
<td>SCNU49B5</td>
<td>G-61 SCNU49B5</td>
</tr>
</tbody>
</table>

**General specification**

- **Vent:** Aluminum alloy die-casting
- **Motor:** Shaded pole induction motor
- **Protection type:** Impedance protection
- **Common Exc./Spec.**
  - Voltage: 100 V
  - Rated current: 10.7 A
  - Rated speed: 100 rpm
- **Standard Condition**
  - Air temperature: 20 °C ~ +60 °C
  - Air pressure: 90% ± 10%

The guard for the intake side (SCU guard) can be mounted with one touch without using a tool.

### External dimensions (in mm) (Recommendation)

<table>
<thead>
<tr>
<th>Airflow (m³/min)</th>
<th>Width (mm)</th>
<th>Height (mm)</th>
<th>Depth (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>20</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>1.0</td>
<td>26</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>1.5</td>
<td>35</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

### Mounting hole dimensions (in mm) (Recommendation)

<table>
<thead>
<tr>
<th>Airflow (m³/min)</th>
<th>Hole Diameter (mm)</th>
<th>Hole Distance (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>5.5</td>
<td>9.5</td>
</tr>
<tr>
<td>1.0</td>
<td>5.5</td>
<td>9.5</td>
</tr>
<tr>
<td>1.5</td>
<td>5.5</td>
<td>9.5</td>
</tr>
</tbody>
</table>

**Options (solidly)**

- Guard: F120L (Outlet side)
- Guard: SCU guard (Intake side)

**Fan model code**

- SCNU25B5
- SCNU47F5
- SCNU48F5
- SCNU52B5
- SCNU55B5
- SCNU60B5

**Engine**

- Motor: Servo
- Voltage: 100 V
- Rated current: 10.7 A
- Rated speed: 100 rpm
**AC Axial Fans & Blowers**

### VENUS 25

**General specification**
- **Materials Used**
  - Venturi: Aluminum alloy die casting
  - Propeller: Glass fiber reinforced polycarbonate resin
- **Motor**
  - Blower type: Reduction motor
- **Safety Level**
  - Rated voltage: 110V (J.70 T)
- **Standard Current**
  - To a current of 0.250 to 0.360 A, mass 11 kg

### Standard airflow and static pressure characteristics (At rated voltage)

<table>
<thead>
<tr>
<th>Model</th>
<th>Flow rate (m³/min)</th>
<th>Static pressure (mmH₂O)</th>
<th>Motor voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VE 955</td>
<td>955</td>
<td>55</td>
<td>110</td>
</tr>
<tr>
<td>VE 1595</td>
<td>1595</td>
<td>95</td>
<td>110</td>
</tr>
</tbody>
</table>

### External dimensions (in inches)
- **Lead wire type**
- **Mounting hole dimensions** (in mm)

### Mounting hole dimensions (in mm) (Recommendation)

**Options (sold separately)**
- Guard: F40UL guard
- Filter: F80 filter

### KOALA 25

**General specification**
- **Materials Used**
  - Venturi: Aluminum alloy die casting
  - Propeller: Glass fiber reinforced polycarbonate resin
- **Motor**
  - Blower type: Reduction motor
- **Safety Level**
  - Rated voltage: 110V (J.70 T)
- **Standard Current**
  - To a current of 0.250 to 0.360 A, mass 11 kg

### Standard airflow and static pressure characteristics (At rated voltage)

<table>
<thead>
<tr>
<th>Model</th>
<th>Flow rate (m³/min)</th>
<th>Static pressure (mmH₂O)</th>
<th>Motor voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WE 955</td>
<td>955</td>
<td>55</td>
<td>110</td>
</tr>
<tr>
<td>WE 1595</td>
<td>1595</td>
<td>95</td>
<td>110</td>
</tr>
</tbody>
</table>

### External dimensions (in mm)
- **Terminal type** (2 terminals with grounding) (VE 955, VE 1595)

### Mounting hole dimensions (in mm) (Recommendation)

**Options (sold separately)**
- Guard: F40UL guard
- Filter: F80 filter
- Power code: T2P1 code, D2P1 code, UL2P1 code

---

*Figures in the table are average measured values. Please request the product delivery specification when preparing a purchase specification.*

*The symbols in the standards column indicate that they are registered in the following standards: U: UL E48889, T: TÜV R60229-60302, V: VDE 3019UG

*Products conforming to the specifications of the Electrical Appliance and Material Safety Law (Japan) can be used in case the products are assembled in electric appliances used in Japan. (Products marked with the PSB mark)*

*Products conforming to the specifications of the Electrical Appliance and Material Safety Law (Japan) can be used in case the products are assembled in electric appliances used in Japan. (Products marked with the PSB mark)*
**AC Axial Fans & Blowers**

**KA series** 2 x 38 mm

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>Max. Static Pressure</th>
<th>Sound Power</th>
<th>Speed</th>
<th>Input Power</th>
<th>Lock</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>39</td>
<td>62</td>
<td>0.25</td>
<td>31</td>
<td>2050</td>
<td>0.26</td>
</tr>
<tr>
<td>1.3</td>
<td>46</td>
<td>60</td>
<td>0.32</td>
<td>38</td>
<td>3300</td>
<td>0.31</td>
</tr>
</tbody>
</table>

- **Standard airflow and static pressure characteristics (At rated voltage)**

- **External dimensions** (in mm)
  - Lead wire type (KA): [4 x 0.3 x 0.5]
  - Terminal type (KA): [4 x 0.3 x 0.5]

- **Mounting hole dimensions** (in mm) [Recommendation]

**AC Axial Fans & Blowers**

**CU series** 2 x 25 mm

<table>
<thead>
<tr>
<th>Max. Airflow</th>
<th>Max. Static Pressure</th>
<th>Sound Power</th>
<th>Speed</th>
<th>Input Power</th>
<th>Lock</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.9</td>
<td>67</td>
<td>53</td>
<td>0.21</td>
<td>21</td>
<td>40</td>
<td>2550</td>
</tr>
<tr>
<td>2.2</td>
<td>78</td>
<td>56</td>
<td>0.23</td>
<td>24</td>
<td>40</td>
<td>3500</td>
</tr>
</tbody>
</table>

- **General specification**

- **Materials Used**
  - Propeller: Polypropylene
  - Frame: Double-sided shielded ball bearing

- **Motor**
  - Shielded-pole induction motor
  - Protection type: Impedance protection

- **Common Elect. Spec.**
  - See page G-12

- **Usage Range**
  - Rated voltage: 110 V

- **Standard Carbon**
  - 4.5 x 150 mm, mass 10 kg

- **Standard airflow and static pressure characteristics (At rated voltage)**

**External dimensions** (in mm)

- **Lead wire type (CU): [4 x 0.3 x 0.5]**
- **Terminal type (CU): [4 x 0.3 x 0.5]**

**Mounting hole dimensions** (in mm) [Recommendation]
### AC Axial Fans & Blowers

**Central Series**

<table>
<thead>
<tr>
<th>Model Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN115SB2</td>
<td>115 mm Axial Fan</td>
</tr>
<tr>
<td>CN25B</td>
<td>250 mm Axial Fan</td>
</tr>
<tr>
<td>CN47D2</td>
<td>470 mm Axial Fan</td>
</tr>
<tr>
<td>CN115D5</td>
<td>115 mm Axial Fan</td>
</tr>
<tr>
<td>CN60B3</td>
<td>600 mm Axial Fan</td>
</tr>
<tr>
<td>CN115B5</td>
<td>115 mm Axial Fan</td>
</tr>
<tr>
<td>CN60B5</td>
<td>600 mm Axial Fan</td>
</tr>
</tbody>
</table>

### General specification

- **Materials Used:**
  - Impeller: Glass fiber reinforced polycarbonate resin
  - Bearing: Double-disk shields ball bearings

- **Motor:**
  - Squirrel-cage induction motor
  - Protection type: IP54

### Standard air pressure and static pressure characteristics (AT rated voltage)

<table>
<thead>
<tr>
<th>Airflow (m³/min)</th>
<th>Static pressure (Pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
</tr>
</tbody>
</table>

### External dimensions (mm)

- **Lead wire type (CN 115B5):**
  - Lead wire length: 1000 mm
  - Terminal length: 1000 mm

- **Mounting hole dimensions (mm):**
  - (Recommended)
  - Options (solidly sold)
    - Guard: F120LA guard
    - Filter: F120 filter
    - Power code: T2P1 code, D2P1 code, UL2P1 code (2 terminals)
    - D2P1 code, UL2P1 code (3 terminals)

### MA series

<table>
<thead>
<tr>
<th>Model Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA47B3</td>
<td>470 mm Axial Fan</td>
</tr>
<tr>
<td>MA55B3</td>
<td>550 mm Axial Fan</td>
</tr>
<tr>
<td>MA77B3</td>
<td>770 mm Axial Fan</td>
</tr>
</tbody>
</table>

### General specification

- **Material used:**
  - Impeller: Aluminum alloy die-casting
  - Capacitor cover: Glass fiber reinforced polycarbonate resin
  - Capacitor: MR capacitor
  - Bearing: Double-disk shields ball bearing

- **Motor:**
  - Capacitor phase advancing type induction motor
  - Protection type: Thermal protection

### Standard air pressure and static pressure characteristics (AT rated voltage)

<table>
<thead>
<tr>
<th>Airflow (m³/min)</th>
<th>Static pressure (Pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
</tr>
</tbody>
</table>

### External dimensions (mm)

- **Mounting hole dimensions (mm):**
  - (Recommended)
  - Options (solidly sold)
    - Guard: GUARD 172
    - Power code: T2P1 code, D2P1 code, UL2P1 code

---

*Figures in the table are average measured values. Please request the product delivery specification when preparing a purchase specification.*

*Products conforming to the specifications of the Electrical Appliance and Material Safety Law (Japan) can be used in case the products are assembled in electric appliances used in Japan. (Products marked with the (PS)E mark)*

*The symbols in the standards column denote that they are registered in the following standards files, U: UL E48889, C: CSA LR49399, LR108118 T: TUV R60229-60302*
**AC Axial Fans & Blowers**

**PA Series 172×51 mm**

<table>
<thead>
<tr>
<th>Fan model code</th>
<th>Max. Airflow (m³/min)</th>
<th>Max. Static Pressure (Pa)</th>
<th>Input Power (W)</th>
<th>Current (mA)</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA2B3</td>
<td>194</td>
<td>132</td>
<td>46</td>
<td>2850</td>
<td>PA2B3</td>
</tr>
<tr>
<td>PA4B3</td>
<td>229</td>
<td>186</td>
<td>65</td>
<td>3400</td>
<td>PA4B3</td>
</tr>
<tr>
<td>PA5B3</td>
<td>292</td>
<td>225</td>
<td>76</td>
<td>4200</td>
<td>PA5B3</td>
</tr>
<tr>
<td>PA6B3</td>
<td>332</td>
<td>260</td>
<td>76</td>
<td>4200</td>
<td>PA6B3</td>
</tr>
</tbody>
</table>

*General specification*

- **Centrifugal**: Aluminum alloy die casting, impeller: ABS and PBT synthetic resin
- **Impeller cover**: Glass fiber reinforced polycarbonate resin
- **Motor**: Capacitor phase advancing type induction motor
  - Protection type: Thermal protection

**Standard airflow and static pressure characteristics (AI rated voltage)**

- **PA**: 3B
- **PA**: 3B

**External dimensions in mm (inches)**

- **Terminal type**
  - **2-pin terminal** (1.5±0.17mm, 15±0.5mm)
  - **3-pin terminal** (6.3±0.17mm, 15±0.5mm)

**Mounting hole dimensions in mm (inches)**

- **4 point mounting**
- **3 point mounting**

**Options (sold separately)**

- **Power cord**: T2P1 code, D2P1 code, UL2P1 code

---

**AC Axial Fans & Blowers**

**AS Series 160 × 62 mm**

<table>
<thead>
<tr>
<th>Fan model code</th>
<th>Max. Airflow (m³/min)</th>
<th>Max. Static Pressure (Pa)</th>
<th>Input Power (W)</th>
<th>Current (mA)</th>
<th>Model Code</th>
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</thead>
<tbody>
<tr>
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<td>240</td>
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<td>54</td>
<td>61</td>
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<tr>
<td>AS2B61S</td>
<td>240</td>
<td>134</td>
<td>54</td>
<td>61</td>
<td>AS2B61S</td>
</tr>
<tr>
<td>AS2B61T</td>
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<td>134</td>
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<td>AS2B61T</td>
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<tr>
<td>AS2B61S</td>
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<td>AS2B61S</td>
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<tr>
<td>AS2B61T</td>
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<td>134</td>
<td>54</td>
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<td>AS2B61T</td>
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<tr>
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<td>175</td>
<td>66</td>
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<td>175</td>
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<td>290</td>
<td>175</td>
<td>66</td>
<td>81</td>
<td>AS60B61T</td>
</tr>
</tbody>
</table>

*General specification*

- **Impeller**: Aluminum alloy die casting, Shock baking paint
- **Impeller cover**: Glass fiber reinforced polycarbonate resin
- **Motor**: Capacitor phase advancing type induction motor
  - Protection type: Thermal protection

**External dimensions in mm (inches)**

- **Lead wire type**
  - **2-pin terminal**
  - **3-pin terminal**
- **Mounting hole dimensions in mm (inches)**
  - **4 point mounting**
  - **3 point mounting**

**Sensor connection diagram**

---

*Figures in the table are average measured values. Please request the product delivery specification when preparing a purchase specification.*

*The symbols in the standards column denote that they are registered in the following standards files, U: UL E48889, C: CSA LR49399

*Products conforming to the specifications of the Electrical Appliance and Material Safety Law (Japan) can be used in case the products are assembled in electric appliances used in Japan. (Products marked with the (PS)E mark)*
**PL Series □ 180 □ 100 mm**

### Standard specification

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<td>PL105B3S</td>
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<tr>
<td>12.2 431</td>
<td>218</td>
<td>0.8</td>
<td>3000</td>
<td>110</td>
<td></td>
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<td>PL125B3S</td>
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</table>

### Capacitor (Normally included)

- **PL105B3S, PL125B3S**

### External dimensions in mm (inches)

#### Terminal type

- **Recommmendation**

### Mounting hole dimensions in mm (inches)

#### Vertical: 5.5 x F

### External dimensions in mm (inches)

#### Vertical: 6.5 x F

---

**CB Series □ 125 □ 180 □ 41 mm**

### Standard specification

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<thead>
<tr>
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<td>88</td>
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### Capacitor (Normally included)

- **CB125B3**

### External dimensions in mm (inches)

#### Vertical: 6.5 x F
## Guards (Options)

### F60P Guard
- **Material:** Polycarbonate (black) UL94V-2
- **Weight:** 4 g

### F60UL Guard
- **Material:** Mild steel wire 1.6 dia. Surface treatment: Nickel-chromium plating
- **Weight:** 12 g

### F80UL Guard
- **Material:** Mild steel wire 1.6 dia. Surface treatment: Nickel-chromium plating
- **Weight:** 14 g

### F92UL Guard
- **Material:** Mild steel wire 1.6 dia. Surface treatment: Nickel-chromium plating
- **Weight:** 16 g

### F120UL Guard
- **Material:** Mild steel wire 1.6 dia. Surface treatment: Nickel-chromium plating
- **Weight:** 23 g

### GUARD 172
- **Material:** Mild steel wire 2 dia. Surface treatment: Nickel-chromium plating

### F180UL Guard
- **Material:** Mild steel wire 1.6 dia. Surface treatment: Nickel-chromium plating

### List of mating fan series

#### GUARD 172

<table>
<thead>
<tr>
<th>SCU</th>
<th>F90</th>
<th>F92</th>
<th>F93</th>
<th>F94</th>
<th>F95</th>
<th>F96</th>
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<td>SCN</td>
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</tbody>
</table>

### Flange spacer

- Insert a flange spacer into the ribs of a venturi.

### Inlet ring

- Material: Galvanized steel sheet

### List of mating series

#### Filter

<table>
<thead>
<tr>
<th>Filter</th>
<th>F90</th>
<th>F92</th>
<th>F93</th>
<th>F94</th>
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<td>✓</td>
<td>SCU</td>
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</tbody>
</table>

### List of filtering media

- PUDD: Polyurethane
- PDUC: Poly (vinyl chloride) copolymer
- CNDC: Polypropylene
- CHDC: Polycarbonate
- MDUC: Poly (vinyl chloride) homopolymer
- CANC: Olefin copolymer

### List of guarding media

- UPDC: Polyurethane
- PDUC: Poly (vinyl chloride) copolymer
- ANDC: Poly (vinyl chloride) homopolymer
- CANC: Olefin copolymer
- CNDM: Polypropylene copolymer
Plug Cords (Options)

**Plug cords for AC fans**
(Common specification: Rated 3 A, voltage 250 V, dielectric strength 1 minute at 1500 V 50 Hz)

**D2P1 cord (Mass 35 g)**
Certified under the Electrical Appliance and Material Safety Law (Japan) (<PSE> mark approved)
Cord: 0.18 dia. 30 conductors Black, heat resistant vinyl

**UL2P1 cord (Mass 41 g)**
UL standard product (UL file No. E78112)
Cord: 0.16 dia. 41 conductors
Black, heat resistant vinyl

**T2P1 cord**
For wiring inside equipment
Cord: 0.18 dia. 30 conductors
Black, heat resistant vinyl

**D3P1 cord (Mass 59 g)**
Certified under the Electrical Appliance and Material Safety Law (Japan) (<PSE> mark approved)
Cord: For power feeding 0.18 dia. 30 conductors Black, heat resistant vinyl
For grounding 0.18 dia. 50 conductors Black, heat resistant vinyl

**UL3P1 cord (Mass 60 g)**
UL standard product (UL file No. E78112)
Cord: For power feeding 0.16 dia. 41 conductors Black, heat resistant vinyl
For grounding 0.16 dia, AWG18 green/yellow spiral, heat resistant vinyl

**PL sensor 1 cord**
 Connector HG (Plug)
 AMP-1-492702-C
 Not used 3

**PL4P1 cord**
 Connector HG (Plug)
 AMP-1-492702-C

---

List of mating fan series

<table>
<thead>
<tr>
<th>Cord</th>
<th>T2P1</th>
<th>D2P1</th>
<th>D3P1</th>
<th>UL2P1</th>
<th>UL3P1</th>
<th>PL4P1</th>
<th>PL sensor</th>
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<td>☑</td>
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<td>〇</td>
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</tr>
</tbody>
</table>

---

Plug cords for DC fans

**DCLD030ST-ZZ01** (S sensor output cord)

**DCLD030PT-ZZ01** (P sensor output cord)

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Component (Model Code) | Mating Model Code
---|---
DCLD030ST-ZZ01 | E1033H□□B□AM-04
DCLD030PT-ZZ01 |