San Ace 92  
9HV type

High Static Pressure Fan

Features

High Static Pressure and High Airflow
This fan delivers a maximum static pressure of 280 Pa, and a maximum airflow of 3.35 m³/min.* Compared with the current model,** the maximum static pressure has increased by 2.7 times and maximum airflow has increased by 1.5 times.

High Energy Efficiency and Low Noise
The PWM control function enables the control of fan speed, contributing to lowering noise and improving energy efficiency of devices.

92 x 92 x 25 mm

Specifications

The models listed below have ribs and pulse sensors with PWM control function. For models without ribs, append “1” to the end of model numbers.

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>9HV0912P4G001</td>
<td>12</td>
<td>10.2 to 13.8</td>
<td>100</td>
<td>1.23</td>
<td>14.76</td>
<td>7350</td>
<td>3.35</td>
<td>118</td>
<td>280</td>
<td>1.12</td>
<td>56</td>
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<tr>
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<td>0.12</td>
<td>1.44</td>
<td>2200</td>
<td>1.0</td>
<td>35.3</td>
<td>25</td>
<td>0.1</td>
<td>26</td>
<td></td>
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<tr>
<td>9HV0924P4G001</td>
<td>24</td>
<td>20.4 to 27.6</td>
<td>100</td>
<td>0.61</td>
<td>14.64</td>
<td>7350</td>
<td>3.35</td>
<td>118</td>
<td>280</td>
<td>1.12</td>
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</tr>
<tr>
<td>9HV0924P4H001</td>
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<td>0.06</td>
<td>1.44</td>
<td>2200</td>
<td>1.0</td>
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<tr>
<td>9HV0924P4G001</td>
<td>20</td>
<td>0.05</td>
<td>1.2</td>
<td>1700</td>
<td>0.77</td>
<td>27.2</td>
<td>15</td>
<td>0.06</td>
<td>20</td>
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* PWM frequency: 25 kHz. Fan does not rotate when PWM duty cycle is 0%.

Models with the following sensor specifications are also available as options: Without sensor, Lack sensor

Common Specifications

- Material: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life: Refer to specifications (L10 life: 90% survival rate for continuous operation in free air at 60°C, rated voltage)
- Motor protection system: Current blocking function and reverse polarity protection
- Dielectric strength: 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance: 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL): At 1 m away from the air inlet
- Operating temperature: Refer to specifications (Non-condensing)
- Storage temperature: -30 to +70°C (Non-condensing)
- Lead wire: Red, Black, Sensor, Yellow, Control, Brown
- Mass: 150 g

* For model no.: 9HV0912P4G001, 9HV0924P4G001
** Current model: San Ace 92°9GA type 92 x 92 x 25 mm DC Fan (model no.: 9GA0912P4J03, 9GA0924P4J03).
### Airflow - Static Pressure Characteristics

- **PWM duty cycle**

![Graph showing airflow and static pressure characteristics for PWM duty cycle.](image)

- **Operating voltage range**

![Graph showing airflow and static pressure characteristics for operating voltage range.](image)

### PWM Duty - Speed Characteristics Example

- **Voltage: 12/24 VDC**
  
  PWM frequency: 25 kHz

![Graph showing fan speed versus PWM duty cycle.](image)
- **PWM Input Signal Example**

  **Input signal waveform**

  $V_{IH}$  
  $V_{IL}$

  When the control terminal is open, fan speed is the same as when PWM duty cycle is 100%.
  Either TTL input, open collector or open drain can be used for PWM control input signal.

- **Example of Connection Schematic**

- **Specifications for Pulse Sensors**

  **Output circuit: Open collector**

  **Rated voltage 12 V fan**
  $V_{CE} = +13.8$ V max.
  $I_c = 5$ mA max. ($V_{OL} = V_{CE}$ (SAT) = 0.6 V max.)

  **Rated voltage 24 V fan**
  $V_{CE} = +27.6$ V max.
  $I_c = 5$ mA max. ($V_{OL} = V_{CE}$ (SAT) = 0.6 V max.)

  **Output waveform (Need pull-up resistor)**

  In case of steady running

  $T_{1u} \equiv \frac{1}{4} T_S$  
  $T_{1u} \equiv \frac{1}{4} T_S = 60/4N$ (s)  
  $N = \text{Fan speed (min}^{-1})$

  - **PWM Duty - Speed Characteristics Example**

  - **9HV0912P4G001**
  - **9HV0924P4G001**
  - **9HV0912P4H001**
  - **9HV0924P4H001**
## Dimensions (unit: mm)

<table>
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<tr>
<th>Component</th>
<th>Inlet Side</th>
<th>Outlet Side</th>
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<tbody>
<tr>
<td>Mounting hole</td>
<td>90.5 x 92.5 ±0.5</td>
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</tr>
<tr>
<td>Vent opening</td>
<td>82.5 ±0.3</td>
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</tr>
<tr>
<td>Lead wire AWG 26 UL 1430</td>
<td>92 ±0.5</td>
<td>92 ±0.5</td>
</tr>
<tr>
<td>Diameter</td>
<td>102</td>
<td>97</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>4-ø4.5±0.3</td>
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## Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)

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**Notice**
- Please read the “Safety Precautions” on our website before using the product.
- The products shown in this catalog are subject to Japanese Export Control Law. Diversion contrary to the law of exporting country is prohibited.
- For protecting fan bearings against electrolytic corrosion near strong electromagnetic noise sources, we provide effective countermeasures such as Electrolytic Corrosion Proof Fans and EMC guards. Contact us for details.

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