




# 92x92x25 mm

San Cooler 92 9A type   



## General Specifications

- Material ..... Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life ..... See the table below. (L10 life: 90% survival rate for continuous operation in free air at 60°C, rated voltage)  
Expected life at 40°C is for reference only.
- Motor protection function ..... Locked rotor burnout protection, Reverse polarity protection  
For details, please refer to p. 573.
- 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
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black or Blue Sensor Yellow
- Mass ..... 100 g

## Specifications

The models listed below **have ribs and pulse sensors**. For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min <sup>-1</sup> ]	Max. airflow [m <sup>3</sup> /min] [CFM]	Max. static pressure [Pa] [inchH <sub>2</sub> O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9A0912G401	12	6 to 13.8	0.39	4.68	3900	1.76 62.1	66.5 0.267	43	-20 to +60	30000/60°C (53000/40°C)
9A0912S401			0.27	3.24	3550	1.66 58.6	56.1 0.225	39		
9A0912H401			0.21	2.52	3150	1.45 51.2	44 0.177	33		
9A0912F401			0.14	1.68	2650	1.24 43.8	32.2 0.129	30		
9A0912M401			0.12	1.44	2250	1.04 36.7	22.6 0.091	27		
9A0912L401		7 to 13.8	0.07	0.84	1750	0.8 28.2	13.4 0.054	23		
9A0924G401	24	12 to 27.6	0.19	4.56	3900	1.76 62.1	66.5 0.267	43	-20 to +60	30000/60°C (53000/40°C)
9A0924S401			0.15	3.6	3550	1.66 58.6	56.1 0.225	39		
9A0924H401			0.1	2.4	3150	1.45 51.2	44 0.177	33		
9A0924F401			0.08	1.92	2650	1.24 43.8	32.2 0.129	30		
9A0924M401			0.05	1.2	2250	1.04 36.7	22.6 0.091	27		
9A0924L401		14 to 27.6	0.04	0.96	1750	0.8 28.2	13.4 0.054	23		
9A0948S401	48	40.5 to 53	0.08	3.84	3550	1.66 58.6	56.1 0.225	39	-20 to +60	

The following sensor and control options are available for selection.

Available for all models. Without sensor

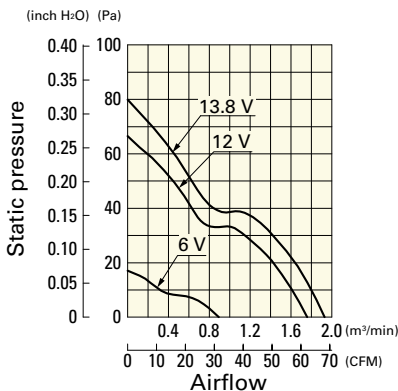
Differs according to the model. Refer to the table on p. 598. Lock sensor PWM control

The ⊗ mark indicates Short LeadTime Service applicable models. See p. 626 for details.

## Airflow - Static Pressure Characteristics

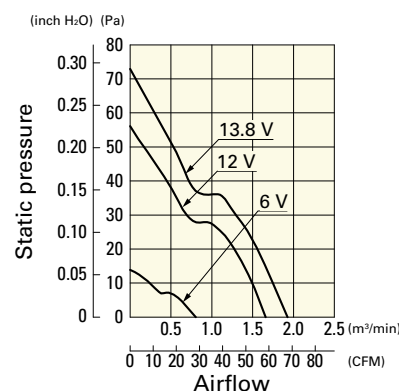
**9A0912G401** With pulse sensor

Operating voltage range



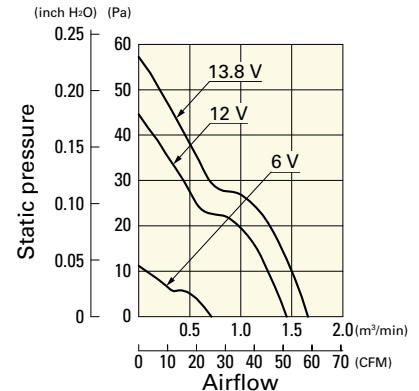
**9A0912S401** With pulse sensor

Operating voltage range



**9A0912H401** With pulse sensor

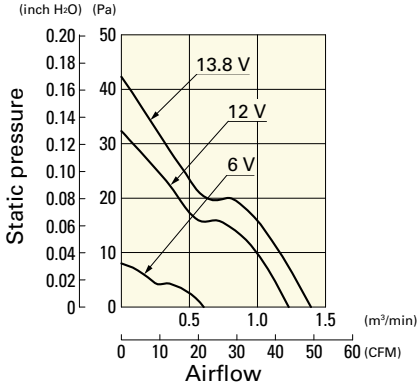
Operating voltage range



**Airflow - Static Pressure Characteristics**

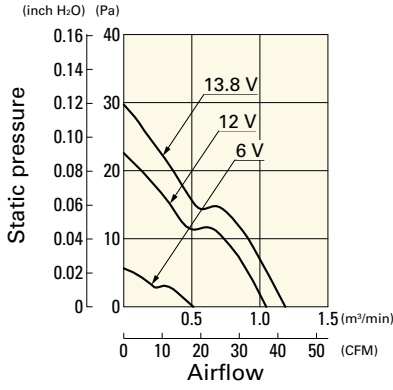
**9A0912F401** With pulse sensor

Operating voltage range



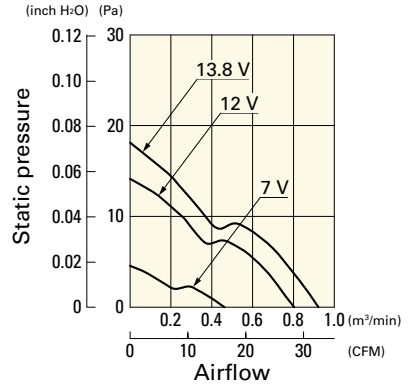
**9A0912M401** With pulse sensor

Operating voltage range



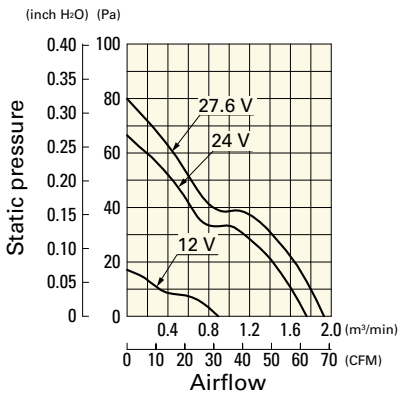
**9A0912L401** With pulse sensor

Operating voltage range



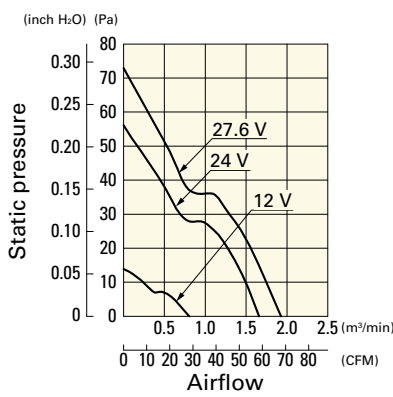
**9A0924G401** With pulse sensor

Operating voltage range



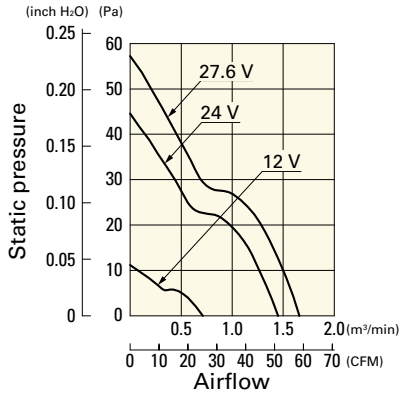
**9A0924S401** With pulse sensor

Operating voltage range



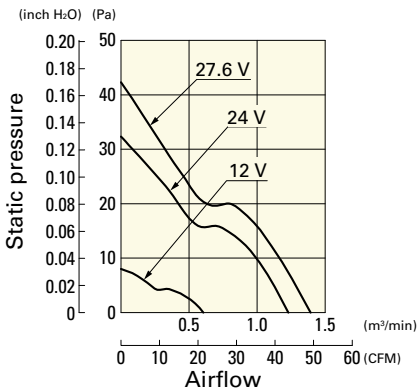
**9A0924H401** With pulse sensor

Operating voltage range



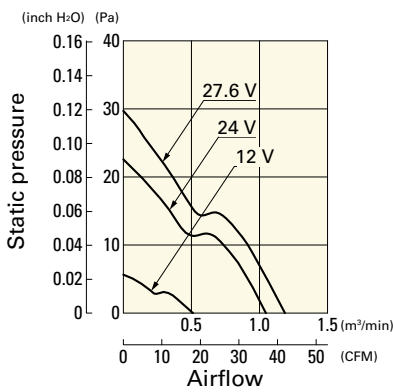
**9A0924F401** With pulse sensor

Operating voltage range



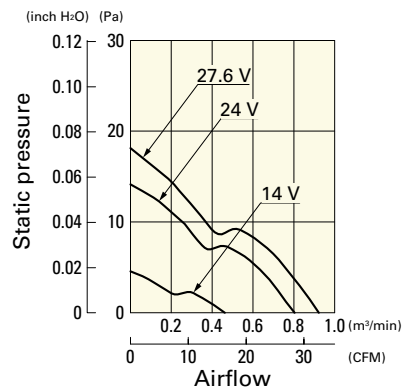
**9A0924M401** With pulse sensor

Operating voltage range



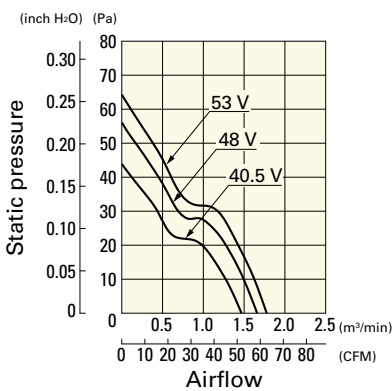
**9A0924L401** With pulse sensor

Operating voltage range

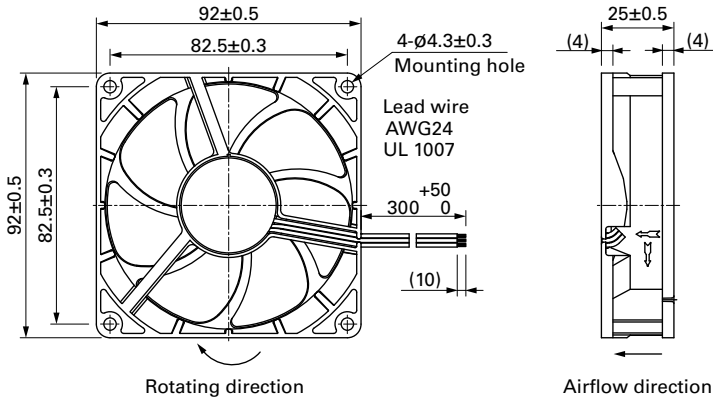


**9A0948S401** With pulse sensor

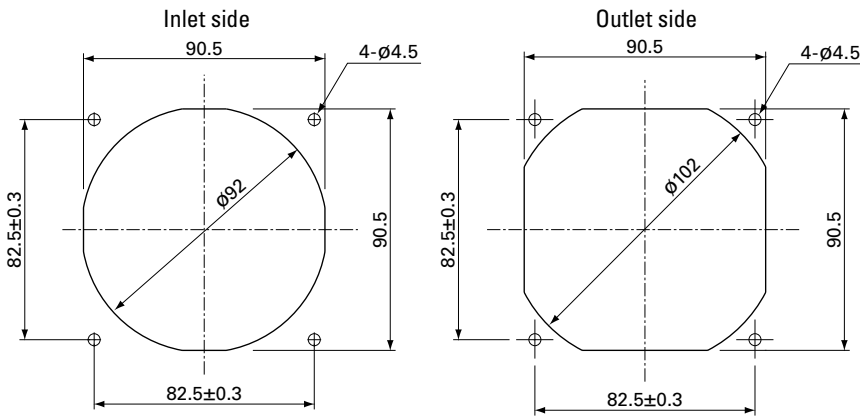
Operating voltage range



**Dimensions (unit: mm)** (With ribs)



**Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)**



**Options**

**Finger guards**

page: p. 558

Model no.: 109-099E, 109-099H, 109-099C

**Resin finger guards**

page: p. 565

Model no.: 109-1001G


**Resin filter kits**

page: p. 566

Model no.: 109-1001F13 (13PPI), 109-1001F20 (20PPI),  
109-1001F30 (30PPI), 109-1001F40 (40PPI)



# 120×120×25 mm

**San Ace 120 9GA** type Low Power Consumption Fan 

## General Specifications

- Material ..... Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life ..... See the table below. (L10 life: 90% survival rate for continuous operation in free air at 60°C, rated voltage)  
Expected life at 40°C is for reference only.
- Motor protection function ..... Locked rotor burnout protection, Reverse polarity protection  
For details, please refer to p. 573.
- 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
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black (Sensor) Yellow (Control) Brown  
(For models without PWM control function, there is no speed control wiring.)
- Mass ..... 280 g

## 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.

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle [%]	Rated current [A]	Rated input [W]	Rated speed [min <sup>-1</sup> ]	Max. airflow [m <sup>3</sup> /min] [CFM]	Max. static pressure [Pa] [inchH <sub>2</sub> O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
» 9GA1212P4G001	12	10.2 to 13.8	100	0.93	11.16	6400	3.8 134	365 1.47	57	-20 to +70	40000/60°C (70000/40°C)
» 9GA1212P4S001			25	0.16	1.92	2550	1.5 53	60 0.24	34		
» 9GA1224P4G001	24	20.4 to 27.6	100	0.47	11.28	6400	3.8 134	365 1.47	57		
» 9GA1224P4S001			25	0.1	2.4	2550	1.5 53	60 0.24	34		
» 9GA1248P4G001	48	40.8 to 53	100	0.24	11.52	6400	3.8 134	365 1.47	57		
» 9GA1248P4S001			25	0.08	3.84	2550	1.5 53	60 0.24	34		

\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

The following sensor and control options are available for selection.

Available for all models. **Pulse sensor**

Differs according to the model. Refer to the table on p. 605. **Without sensor** **Lock sensor**

The models listed below **have ribs and pulse sensors.** For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min <sup>-1</sup> ]	Max. airflow [m <sup>3</sup> /min] [CFM]	Max. static pressure [Pa] [inchH <sub>2</sub> O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
» 9GA1212G4001	12	7 to 13.8	0.93	11.16	6400	3.8 134	365 1.47	57	-20 to +70	40000/60°C (70000/40°C)
» 9GA1212S4001			0.61	7.32	5400	3.2 113	260 1.04	54		
» 9GA1224G4001	24	14 to 27.6	0.47	11.28	6400	3.8 134	365 1.47	57		
» 9GA1224S4001			0.31	7.44	5400	3.2 113	260 1.04	54		
» 9GA1248G4001	48	36 to 53	0.24	11.52	6400	3.8 134	365 1.47	57		
» 9GA1248S4001			0.16	7.68	5400	3.2 113	260 1.04	54		

The following sensor and control options are available for selection.

Available for all models. **PWM control**

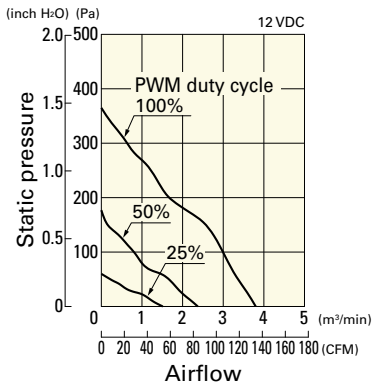
Differs according to the model. Refer to the table on p. 605. **Without sensor** **Lock sensor**

The » mark indicates Short LeadTime Service applicable models. See p. 626 for details.

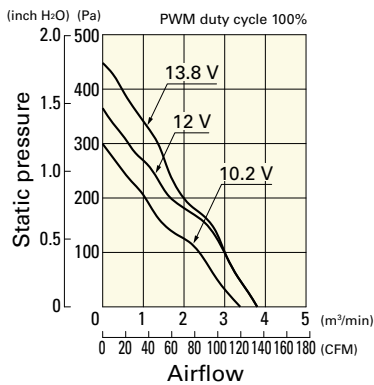
**Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example**

**9GA1212P4G001** With pulse sensor with PWM control function

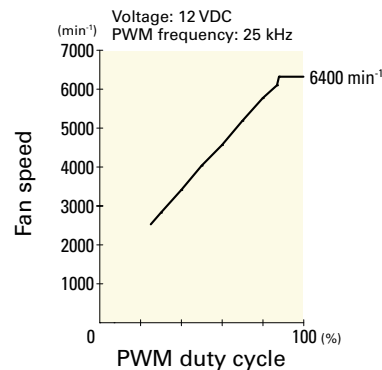
PWM duty cycle



Operating voltage range

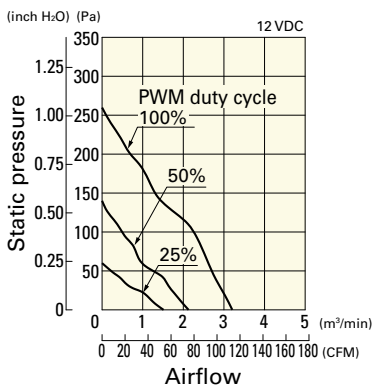


PWM duty - Speed characteristics example

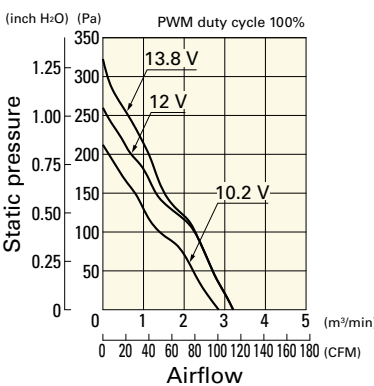


**9GA1212P4S001** With pulse sensor with PWM control function

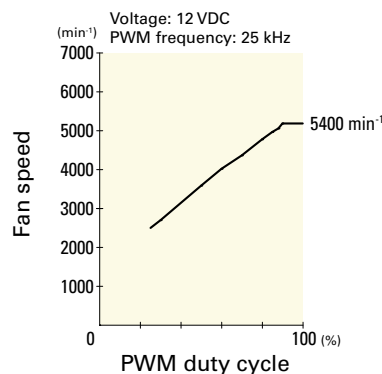
PWM duty cycle



Operating voltage range

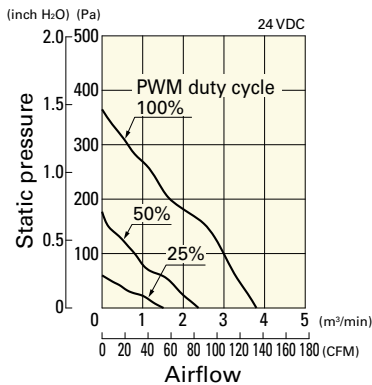


PWM duty - Speed characteristics example

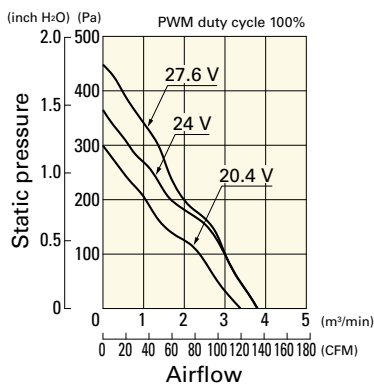


**9GA1224P4G001** With pulse sensor with PWM control function

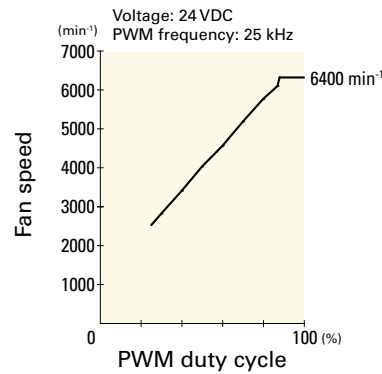
PWM duty cycle



Operating voltage range

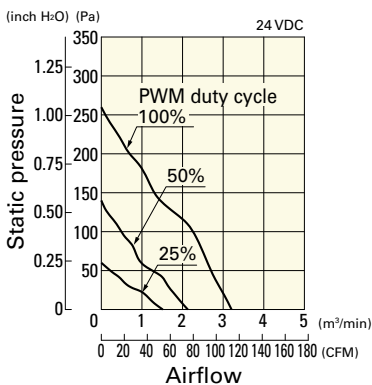


PWM duty - Speed characteristics example

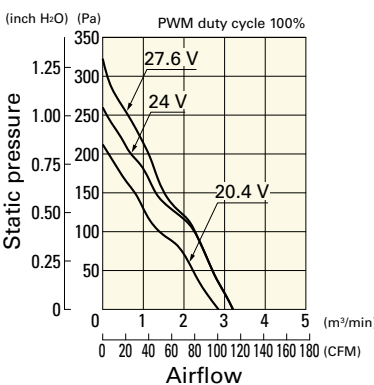


**9GA1224P4S001** With pulse sensor with PWM control function

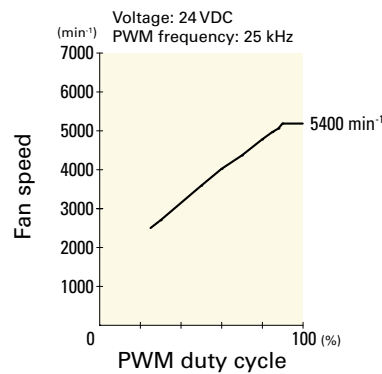
PWM duty cycle



Operating voltage range



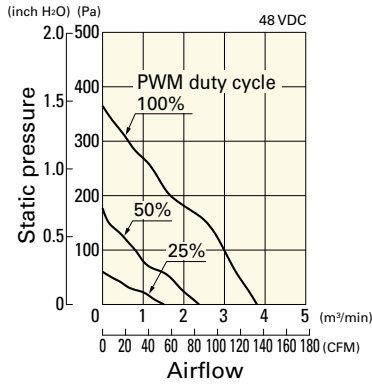
PWM duty - Speed characteristics example



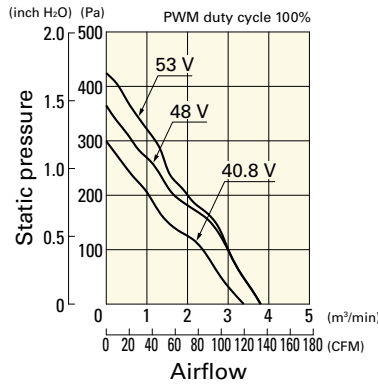
### Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9GA1248P4G001** With pulse sensor with PWM control function

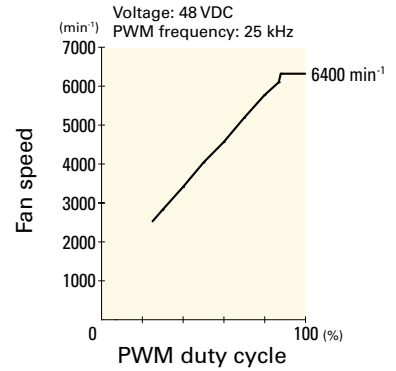
PWM duty cycle



Operating voltage range

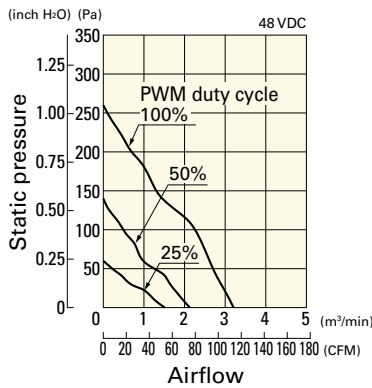


PWM duty - Speed characteristics example

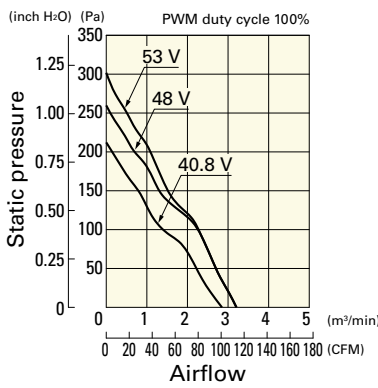


**9GA1248P4S001** With pulse sensor with PWM control function

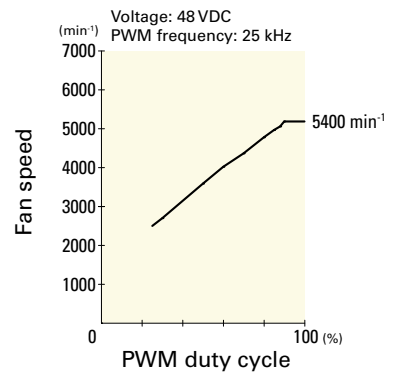
PWM duty cycle



Operating voltage range



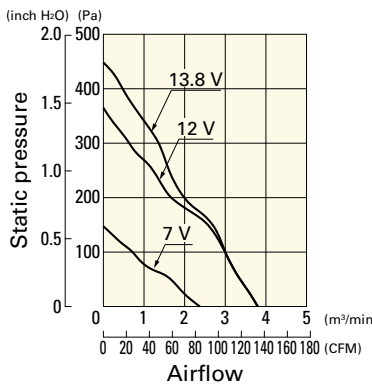
PWM duty - Speed characteristics example



### Airflow - Static Pressure Characteristics

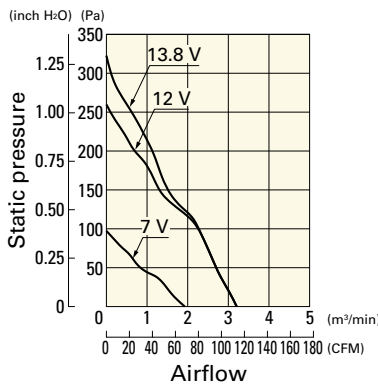
**9GA1212G4001** With pulse sensor

Operating voltage range



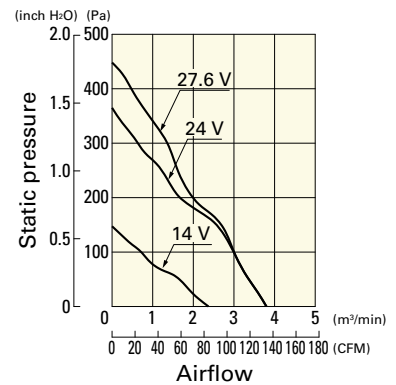
**9GA1212S4001** With pulse sensor

Operating voltage range



**9GA1224G4001** With pulse sensor

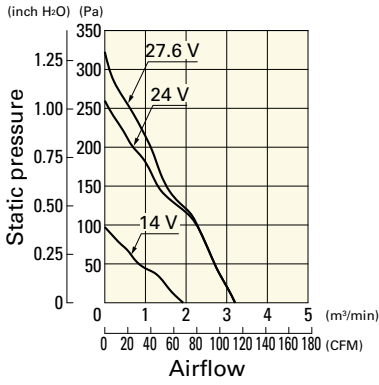
Operating voltage range



**Airflow - Static Pressure Characteristics**

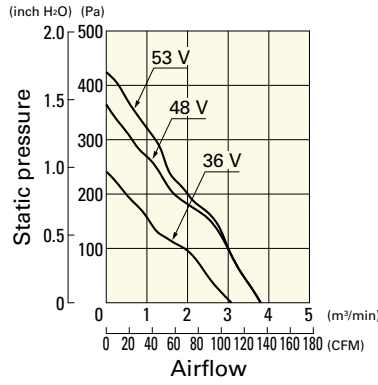
**9GA1224S4001** With pulse sensor

Operating voltage range



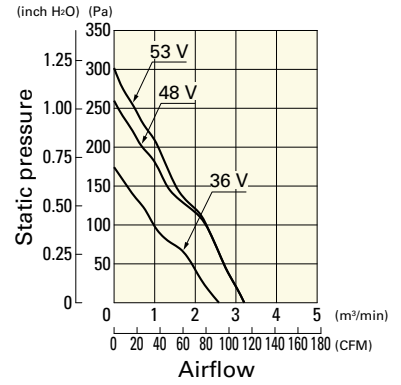
**9GA1248G4001** With pulse sensor

Operating voltage range

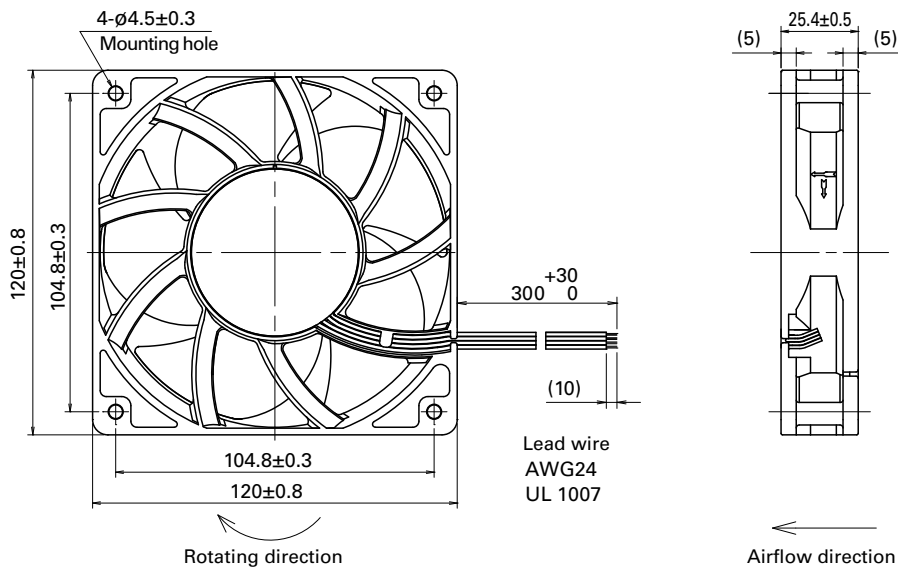


**9GA1248S4001** With pulse sensor

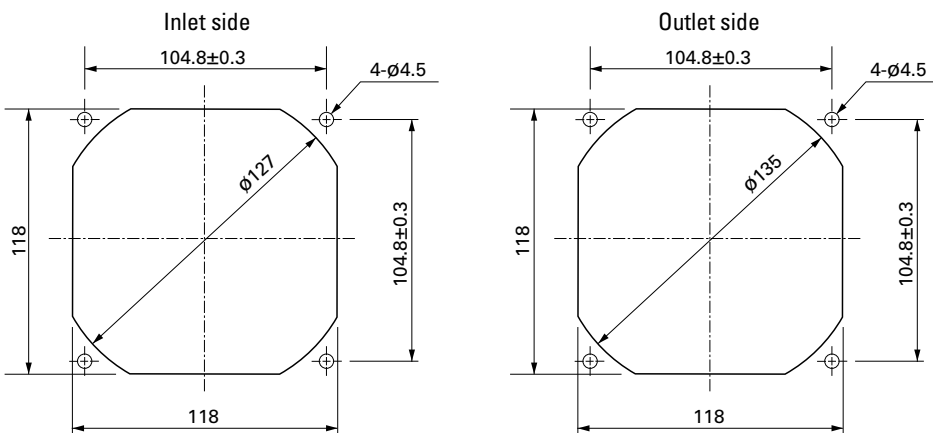
Operating voltage range



**Dimensions (unit: mm)** (With pulse sensor with PWM control function)



**Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)**



**Options**

Finger guards

page: p. 559

Model no.: 109-019E, 109-019K, 109-019C, 109-019H

Resin finger guards

page: p. 565

Model no.: 109-1000G

Resin filter kits

page: p. 566

Model no.: 109-1000F13 (13PPI), 109-1000F20 (20PPI),  
109-1000F30 (30PPI), 109-1000F40 (40PPI)

**120**mm sq.

# San Ace 120W



## General Specifications

- Material ..... Frame: Aluminum,  
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life ..... Refer to specifications (Indoor, L10: Survival rate: 90% at 60°C ,  
rated voltage, and continuously run in a free air state)
- Lead Wire ..... ⊕red ⊖black (Sensor) yellow (Control) brown
- Storage Temperature ..... -30°C to +70°C (Non-condensing)

**120×120×38mm** (Mass : 440g) **IP 68** **9WV type**

## Specifications The following nos. have PWM controls and pulse sensors.

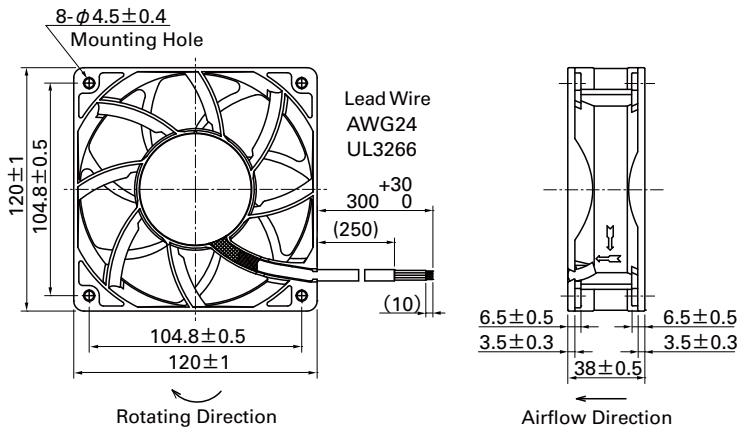
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min <sup>-1</sup> ]	Max. Airflow [m <sup>3</sup> /min] [CFM]	Max. Static Pressure [Pa] [inchH <sub>2</sub> O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WV1212P1J001	12	10.2 to 13.8	100 0	3 0.2	36 2.4	6,400 1,500	6.35 224.0 1.49 52.6	360 1.45 19.8 0.080	64 33	-20 to +70	60,000/60°C
9WV1224P1J601	24	20.4 to 27.6	100 0	1.5 0.12	36 2.88	6,400 1,500	6.35 224.0 1.49 52.6	360 1.450 26.1 0.105	64 33		
9WV1224P1H001 <sup>(Note)</sup>			100	0.80	19.2	5,200	5.16 182	237 0.95	58		
9WV1248P1J001	48	40.8 to 55.2	100 0	0.65 0.06	31.2 2.88	6,400 1,500	6.35 224.0 1.49 52.6	360 1.45 26.1 0.105	64 33		

Note: Fan does not rotate when PWM duty cycle is 0%.

※PWM Frequency : 25kHz

Models without sensors, or with pulse sensors (no PWM control function), or lock sensors are available as options. Please refer to the index (p. 483).

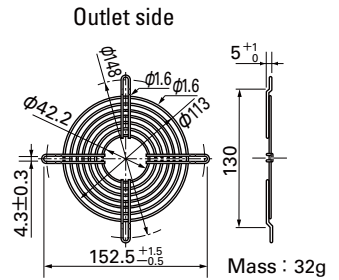
## Dimensions (unit: mm)



## Options (unit: mm)

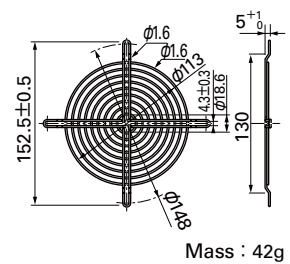
### Finger Guards

Model : 109-019C Surface treatment : Nickel-chrome plating (silver)  
: 109-019H : Cation electropainting (black)

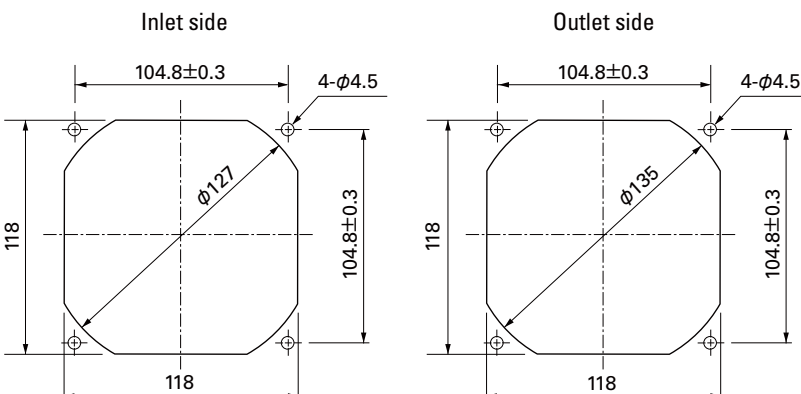


Model : 109-019E Surface treatment : Nickel-chrome plating (silver)  
: 109-019K : Cation electropainting (black)

### Inlet side, Outlet side



## Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)

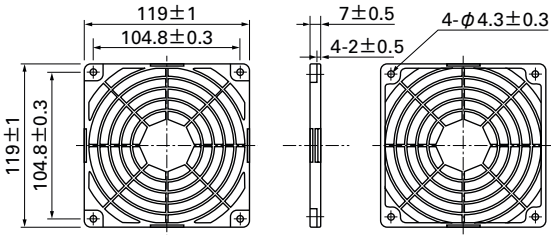




Options (unit: mm)

Resin Finger Guards

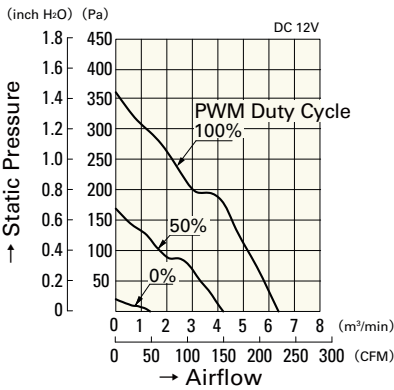
Model : 109-1000G



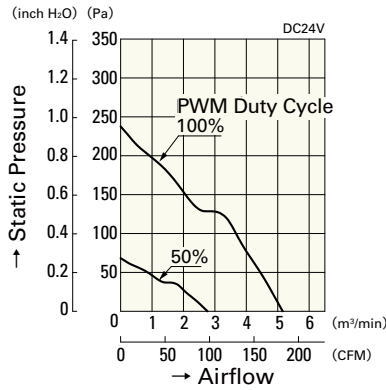
Mass : 23g

Airflow - Static Pressure Characteristics

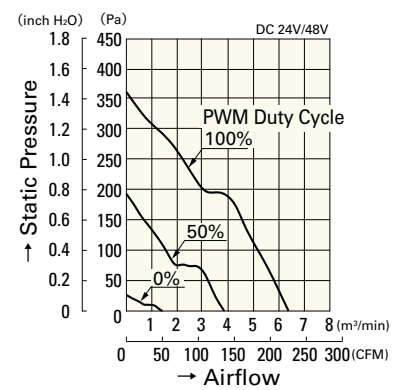
PWM Duty Cycle



9WV1212P1J001

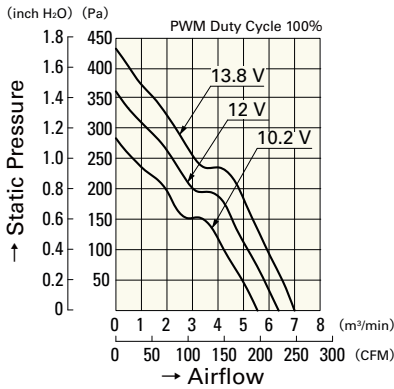


9WV1224P1H001

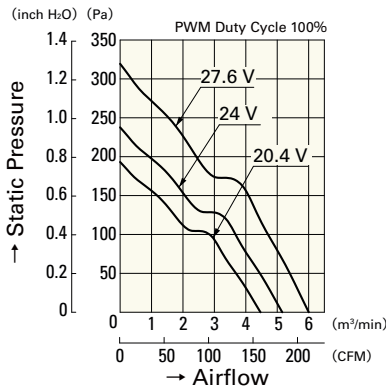


9WV1224P1J601  
9WV1248P1J001

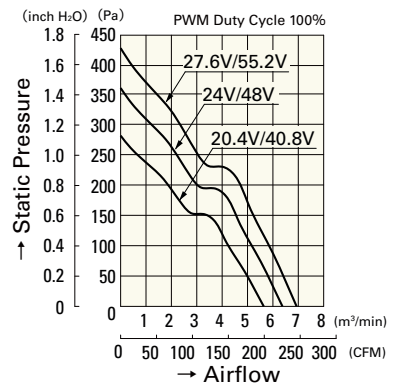
Operating Voltage Range



9WV1212P1J001

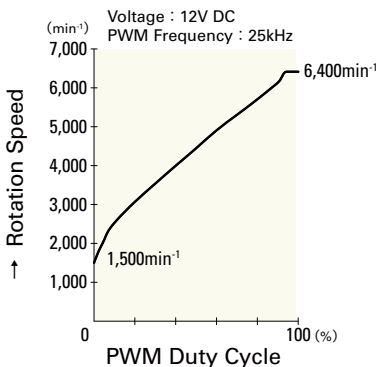


9WV1224P1H001

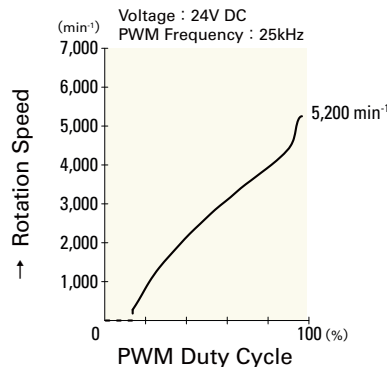


9WV1224P1J601  
9WV1248P1J001

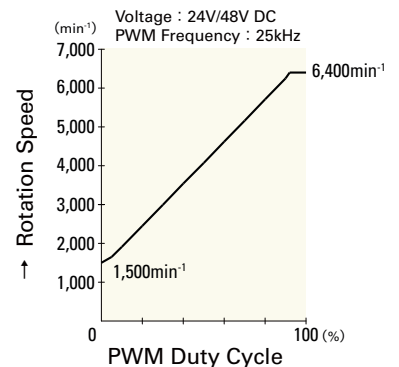
PWM Duty - Speed Characteristics Example



9WV1212P1J001






9WV1224P1H001



9WV1224P1J601  
9WV1248P1J001



# 140x140x51 mm

San Ace 140W 9WL type   

## General Specifications

- Material ..... Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life ..... See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage) Expected life at 40°C is for reference only.
- Motor protection function ..... Locked rotor burnout protection, Reverse polarity protection  
For details, please refer to p. 573.
- 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
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black (Sensor) Yellow (Control) Brown  
(For models without PWM control function, there is no speed control wiring.)
- Mass ..... 930 g
- Ingress protection ..... IP68

## Specifications

The models listed below **have pulse sensors with PWM control function.**

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min <sup>-1</sup> ]	Max. airflow [m <sup>3</sup> /min] [CFM]	Max. static pressure [Pa] [inchH <sub>2</sub> O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]		
9WL1412P5G001	12	10.2 to 13.8	100	5.16	62	7500	9.0 318	655 2.63	69	-20 to +70	100000/60°C (135000/40°C)		
			20	0.31	3.72	2300	2.75 97	80 0.32	38				
9WL1412P5S001			100	1.83	22	5000	6.0 212	295 1.18	57				
			20	0.31	3.72	2300	2.75 97	80 0.32	38				
9WL1424P5G001			24	20.4 to 27.6	100	2.58	62	7500	9.0 318			655 2.63	69
					20	0.16	3.84	2300	2.75 97			80 0.32	38
9WL1424P5S001	100	0.91			22	5000	6.0 212	295 1.18	57				
	20	0.16			3.84	2300	2.75 97	80 0.32	38				
9WL1448P5G001	48	40.8 to 55.2			100	1.29	62	7500	9.0 318			655 2.63	69
					20	0.12	5.76	2300	2.75 97			80 0.32	38
9WL1448P5S001			100	0.45	22	5000	6.0 212	295 1.18	57				
			20	0.12	5.76	2300	2.75 97	80 0.32	38				

\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

The following sensor and control options are available for selection.

Differs according to the model. Refer to the table on p. 612. **Pulse sensor** **Lock sensor**

The models listed below **have pulse sensors.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min <sup>-1</sup> ]	Max. airflow [m <sup>3</sup> /min] [CFM]	Max. static pressure [Pa] [inchH <sub>2</sub> O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WL1412A5001	12	10.2 to 13.8	2.61	31.4	5700	6.9 243.8	500 2	61	-20 to +70	100000/60°C (135000/40°C)
9WL1412H5001			1	12	4100	4.9 173.1	260 1.04	52		
9WL1412M5001			0.43	5.16	2600	3.1 109.5	100 0.4	40		
9WL1424A5001	24	20.4 to 27.6	1.21	29.10	5700	6.9 243.8	540 2.17	61		
9WL1424H5001			0.55	13.2	4100	4.9 173.1	260 1.04	52		
9WL1424M5001			0.23	5.52	2600	3.1 109.5	100 0.4	40		
9WL1448A5001	48	40.8 to 55.2	0.66	31.7	5700	6.9 243.8	540 2.17	61		
9WL1448H5001			0.31	14.9	4100	4.9 173.1	260 1.04	52		
9WL1448M5001			0.15	7.2	2600	3.1 109.5	100 0.4	40		

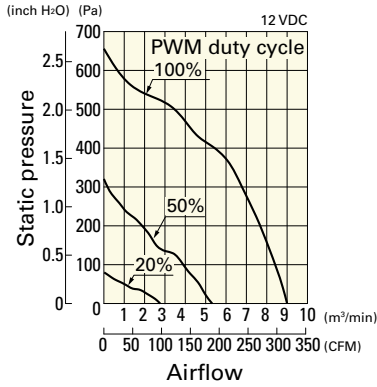
The following sensor and control options are available for selection.

Available for all models. **Without sensor** **Lock sensor**

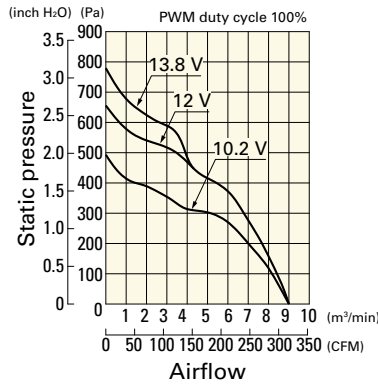
**Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example**

**9WL1412P5G001** With pulse sensor with PWM control function

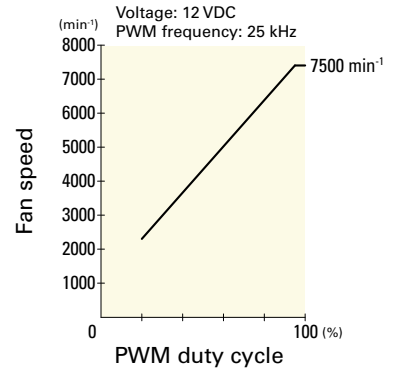
PWM duty cycle



Operating voltage range

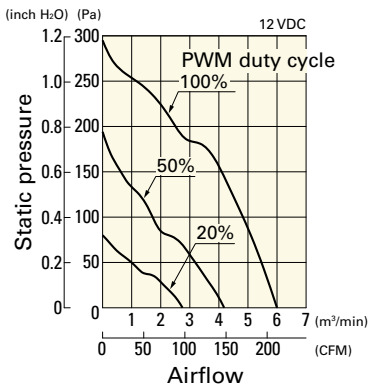


PWM duty - Speed characteristics example

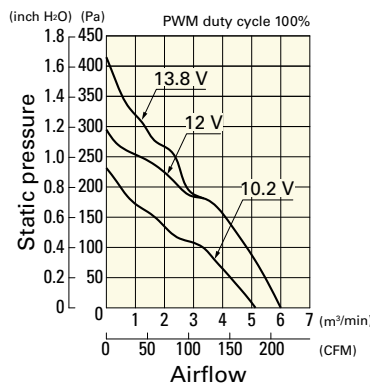


**9WL1412P5S001** With pulse sensor with PWM control function

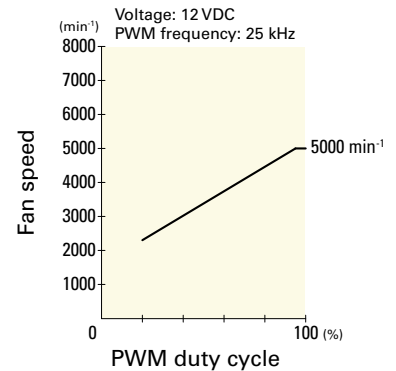
PWM duty cycle



Operating voltage range

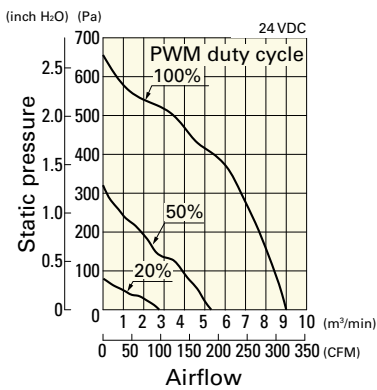


PWM duty - Speed characteristics example

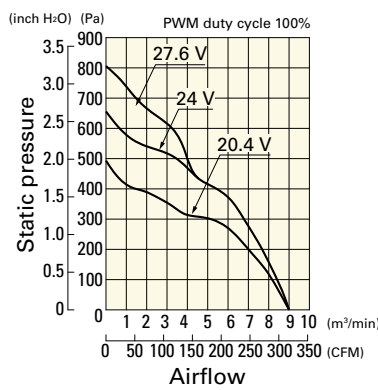


**9WL1424P5G001** With pulse sensor with PWM control function

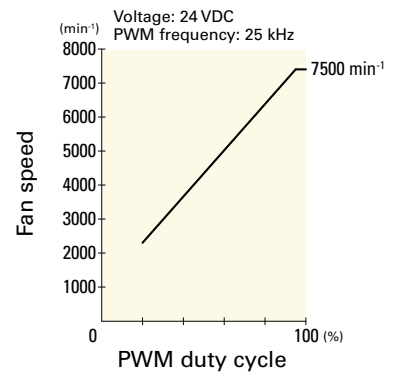
PWM duty cycle



Operating voltage range

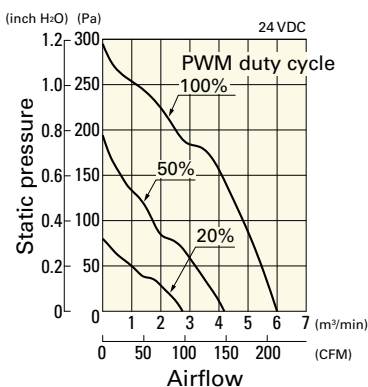


PWM duty - Speed characteristics example

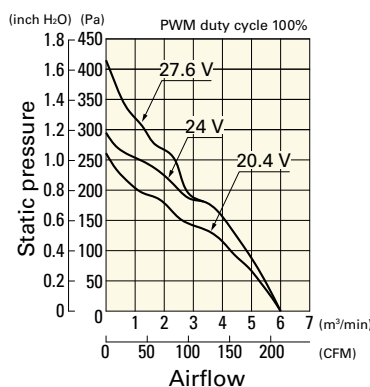


**9WL1424P5S001** With pulse sensor with PWM control function

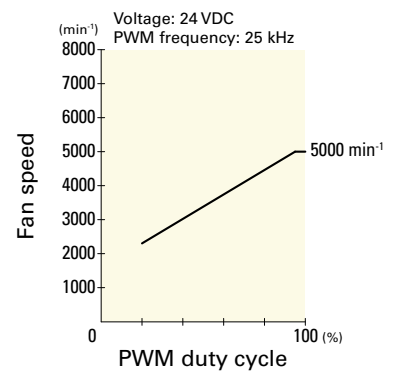
PWM duty cycle



Operating voltage range



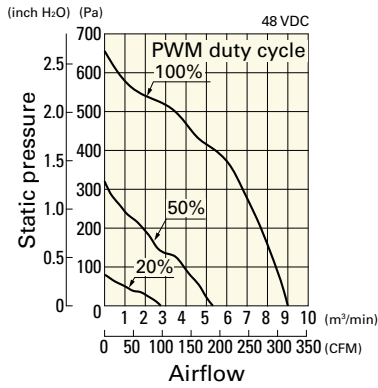
PWM duty - Speed characteristics example



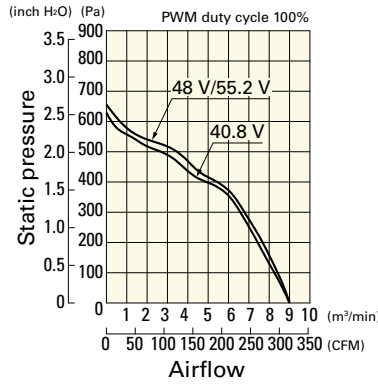
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9WL1448P5G001** With pulse sensor with PWM control function

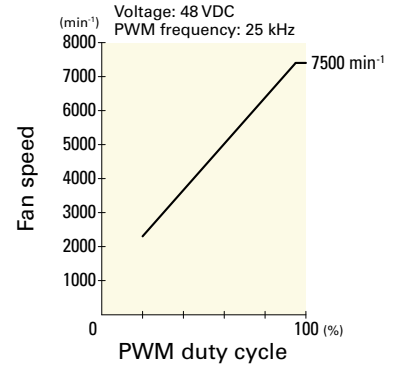
PWM duty cycle



Operating voltage range

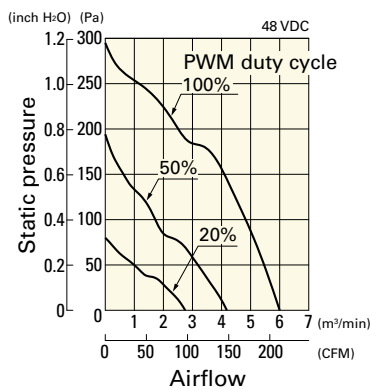


PWM duty - Speed characteristics example

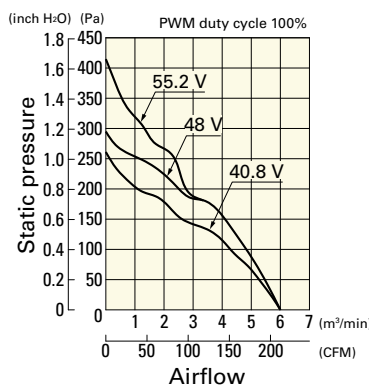


**9WL1448P5S001** With pulse sensor with PWM control function

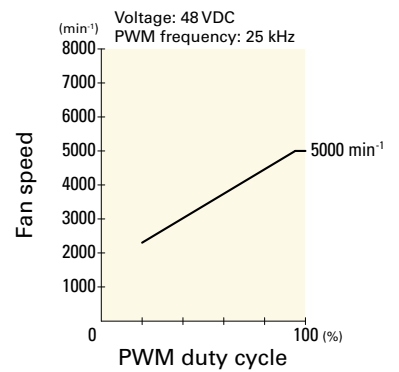
PWM duty cycle



Operating voltage range



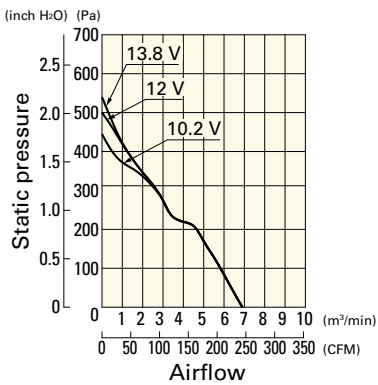
PWM duty - Speed characteristics example



## Airflow - Static Pressure Characteristics

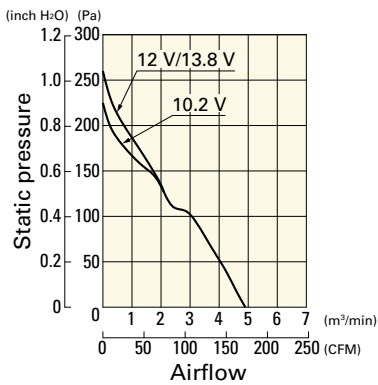
**9WL1412A5001** With pulse sensor

Operating voltage range



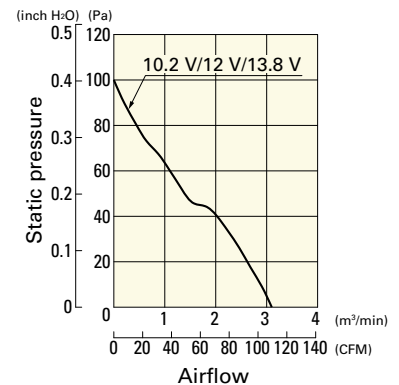
**9WL1412H5001** With pulse sensor

Operating voltage range



**9WL1412M5001** With pulse sensor

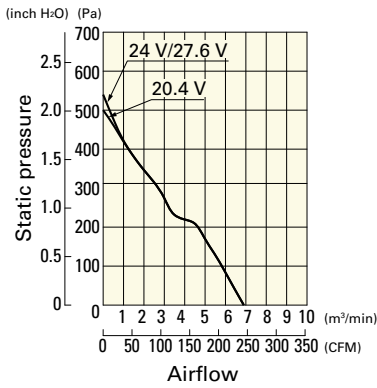
Operating voltage range



**Airflow - Static Pressure Characteristics**

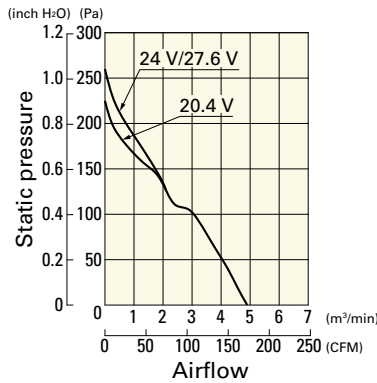
**9WL1424A5001** With pulse sensor

Operating voltage range



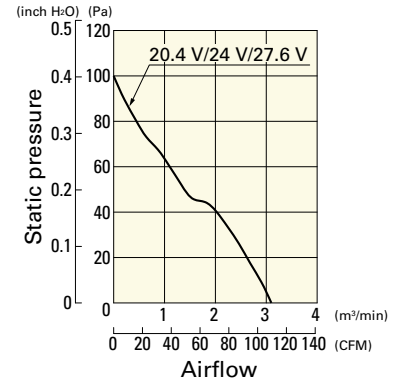
**9WL1424H5001** With pulse sensor

Operating voltage range



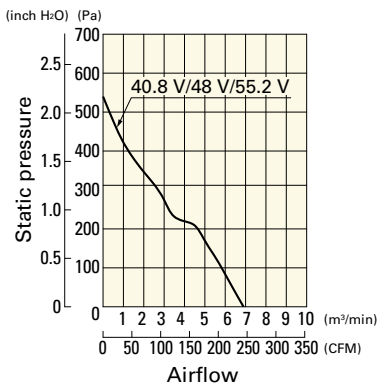
**9WL1424M5001** With pulse sensor

Operating voltage range



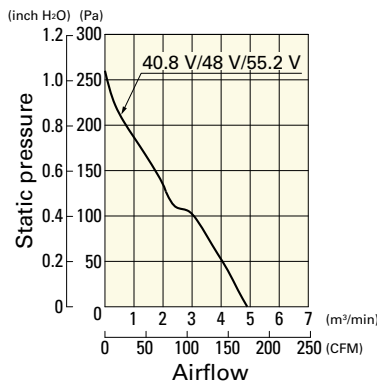
**9WL1448A5001** With pulse sensor

Operating voltage range



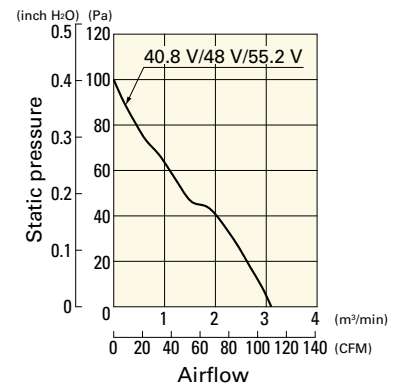
**9WL1448H5001** With pulse sensor

Operating voltage range

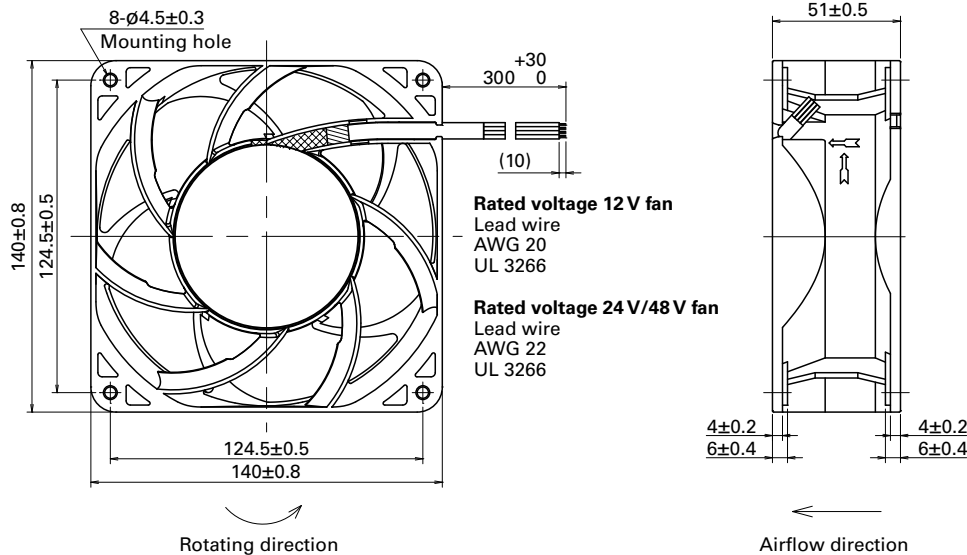


**9WL1448M5001** With pulse sensor

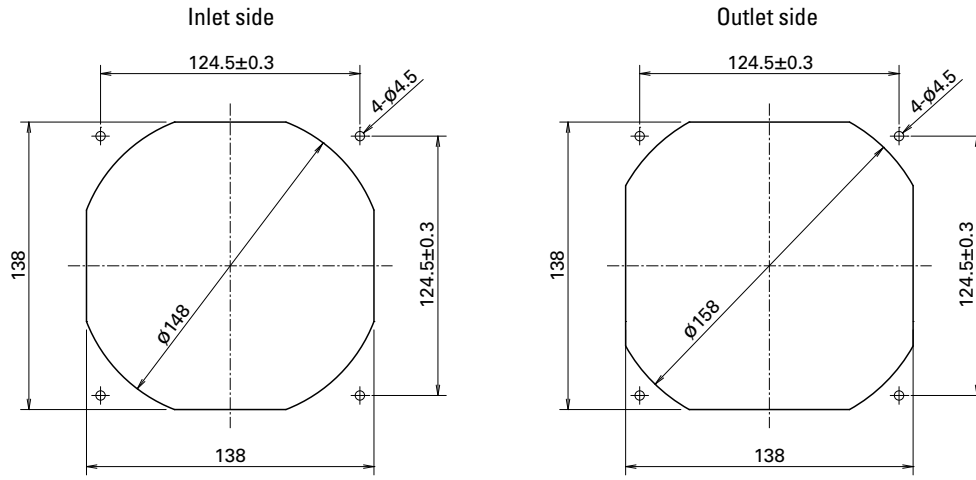
Operating voltage range



**Dimensions (unit: mm)**



■ Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



■ Options

Finger guards

page: p. 559

Model no.: 109-719, 109-719H