

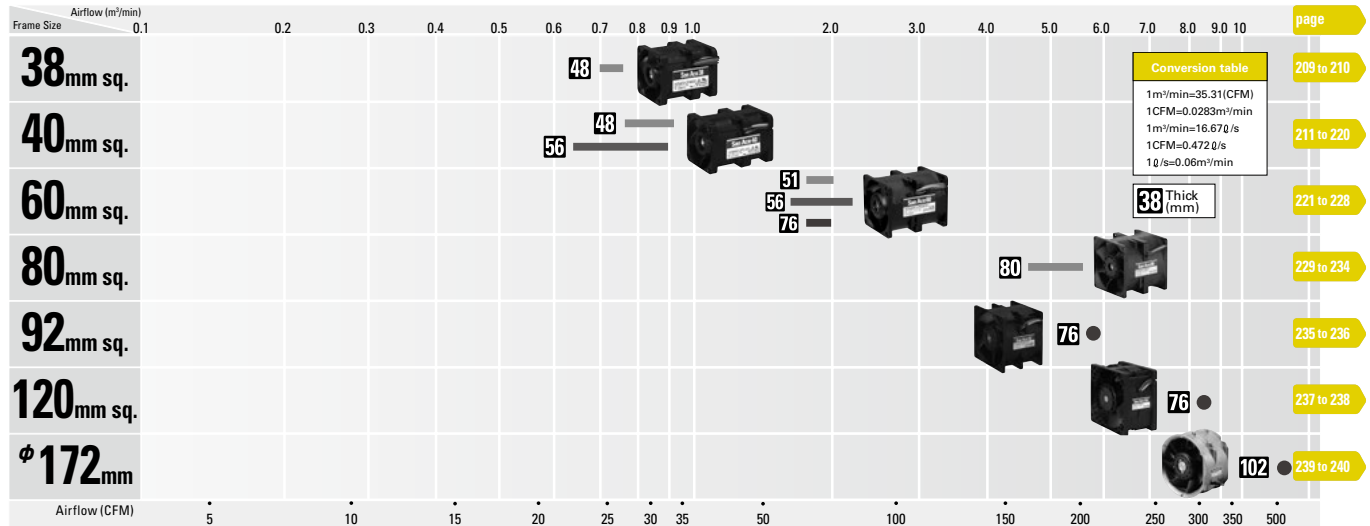
Counter Rotating Fan

Counter rotating fans feature high airflow and high static pressure.

Related product

Long Life Counter Rotating Fan ⇒ pp. 327, 333

Domain Diagram



Model Numbering System

Not every combination of the following codes or characters is available. Contact us for an available combination.

9CRA

Type name / frame material
 9CR / Plastics
 Aluminum
 9CRA / Plastics
 9CRB / Plastics
 9CRE / Aluminum
 9CRD / Plastics
 9CRF / Plastics

04

Frame size
 03 : 38×38mm
 04 : 40×40mm
 06 : 60×60mm
 08 : 80×80mm
 12 : 120×120mm
 57 : φ172mm×150mm (sidecut)

12

Voltage
 12 : 12V
 48 : 48V

K

Speed code
 J, G, S, H, K
 etc

4

Frame thickness
 0 : 76mm thick
 4 : 48mm thick
 5 : 56mm thick,
 51mm thick
 6 : 56mm thick
 8 : 80mm thick
 9 : 102mm thick

01

Sensor specifications
 01 : With a pulse sensor
 02 : Without a sensor
 D01 : With a lock sensor

Fans with PWM control function

Example :

9CRA

Type name / frame material
 9CRA / Plastics

03

Frame size
 03 : 38×38mm

12

Voltage
 12 : 12V

P

PWM control function

4

Frame thickness

K

Speed code

03

Individual customer's spec
 2 or 3 digits

How to Read Specifications

DC Fan											DC	
Model No.	① Rated Voltage [V]	② Operating Voltage Range [V]	③ Rated Current [A]	④ Rated Input [W]	⑤ Rated Speed [min ⁻¹]	⑥ Max. Airflow [m ³ /min] [CFM]		⑦ Max. Static Pressure [Pa] [inchH ₂ O]		⑧ SPL [dB(A)]	⑨ Operating Temperature [°C]	⑩ Expected Life [h]
9GA0412G7001	12	7 to 13.8	0.17	2.04	13,100	0.36	12.7	192	0.77	42	-20 to +70	40,000/60°C (70,000/40°C)

- ① Rated Voltage This is the necessary voltage to drive the fan. 12VDC, 24VDC and 48VDC are available.
- ② Operating Voltage Range The voltage range over which fan operation is guaranteed
- ③ Rated Current The current value during the fan's rated operation without load
- ④ Rated Input The input value during the fan's rated operation without load
- ⑤ Rated Speed The rotating speed during the fan's rated operation without load
- ⑥ Max. Airflow The maximum air volume that the fan can output during rated operation (according to the company's dual-chamber device).
The volume of air generated by the fan in a given time period
- ⑦ Max. Static Pressure The maximum static pressure value that the fan can output during rated operation (according to the company's dual-chamber device). The static pressure is the fan's force to propel air by overcoming the resistance of the device that uses the fan when it propels air.
- ⑧ SPL "SPL" is Sound Pressure Level. The noise level during the fan's rated operation.
Please refer to the technical material section for the method used to measure the noise level.
- ⑨ Operating Temperature The temperature range over which fan operation is guaranteed (Non- condensing)
- ⑩ Expected Life The fan's expected operating life when the fan operates continuously at the rated voltage at a temperature of 60°C and at relative humidity of 90%. Expected life at 40°C ambient is just reference value.
Please refer to the technical material section for the expected operating life.

DC Fan Common Specifications

Material Frame,Impeller:Plastics / Frame:Aluminum,Impeller:Plastics

* For details, refer to the appropriate page.

Expected Life Varies for each model (L10:Survival rate:90% at 60°C ,rated voltage, and continuously run in a free air state)

* Splash proof fan: Varies for each model (Indoor, L10:Survival rate:90% at 60°C ,rated voltage, and continuously run in a free air state)

Motor Protection Burnout protection at locked rotor condition and Reverse polarity protection

Dielectric Strength AC50/60Hz 500VAC 1minute(between lead conductor and frame)

Insulation Resistance 10M Ω or more at 500VDC megger (between lead conductor and frame)

Sound Pressure Level(SPL) Expressed as the value at 1m from air inlet side

Lead Wire For details, refer to the appropriate page.

Overheating protection function

Protection Functions:

If the fan blades are restricted, an overcurrent occurs and leads to a rise in the fan coil temperature. This can result in reduced performance, damage, or a fire. To prevent this from occurring, SANYO DENKI's fans incorporate an overheating protection function. Refer to the catalog for the types of protection functions.

Burnout protection function at locked rotor condition

- Current cutoff system

If the fan blades are restricted, the coil current is cut off at regular cycles to prevent overheating of the coil. When the hindrance is removed, the fan restarts automatically.

Reverse polarity protection function

No problem about fan even if positive & negative lead are connected in reverse.

However, when wiring fans with sensors or PWM speed control function, connecting positive and negative leads in reverse may damage the fans.

38mm sq.

San Ace 38



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

38×38×48mm (Mass : 80g) **9CRA type**

Specifications

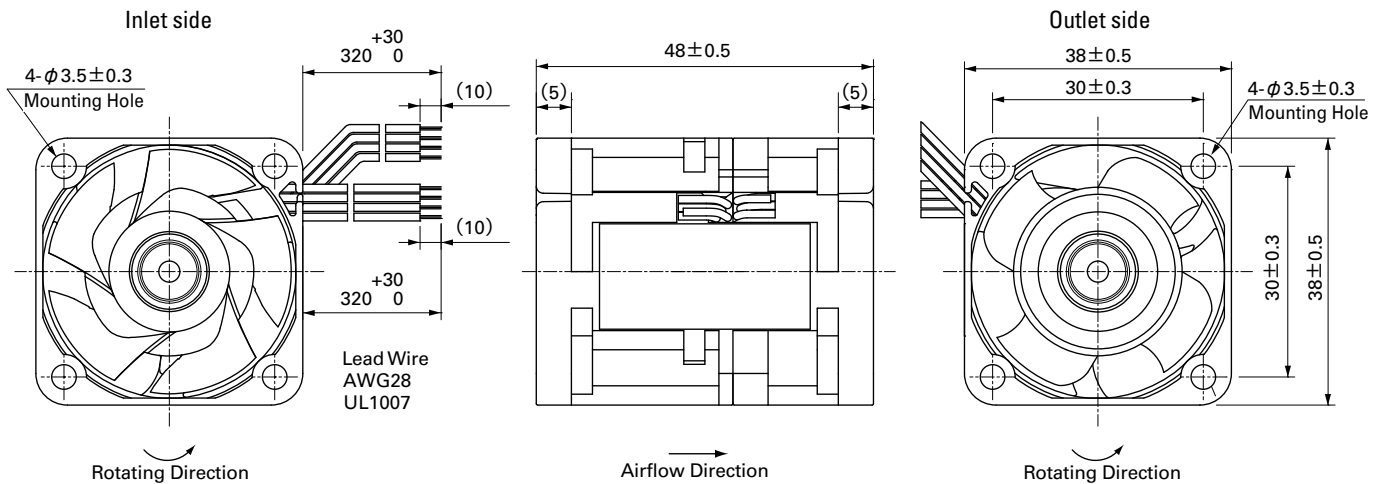
The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRA0312P4K03	12	10.8 to 13.2	100	1.5	18.0	17,600	14,520	0.77	27.2	700.0	2.81	64	-20 to +70	40,000/60°C
			0	0.2	2.4	5,280	4,200	0.22	7.8	54.9	0.22	33		
9CRA0312P4J03			100	1.1	13.2	16,000	13,200	0.7	24.7	560.0	2.25	62		
			0	0.18	2.2	4,800	3,960	0.21	7.4	50.4	0.20	31		

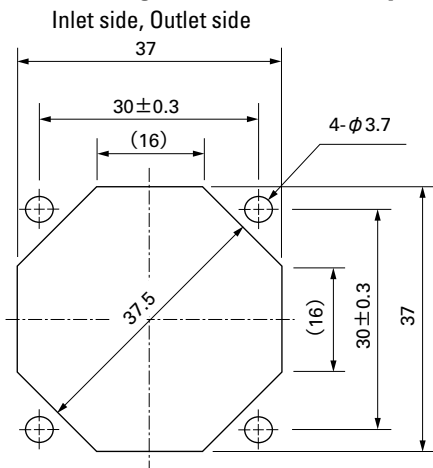
*PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 501).

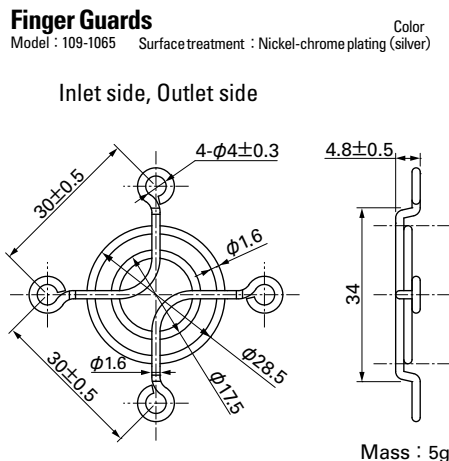
Dimensions (unit: mm)



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

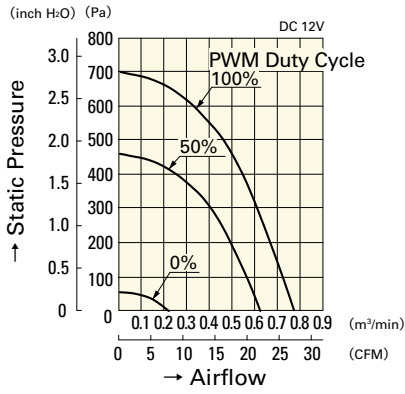


Options (unit: mm)

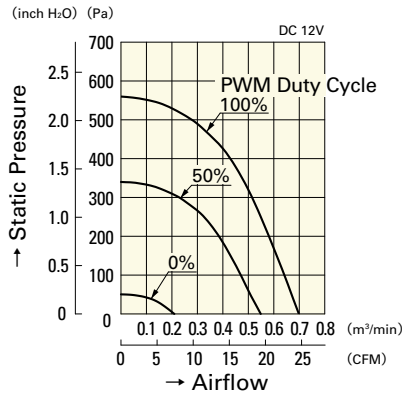


Airflow - Static Pressure Characteristics

PWM Duty Cycle

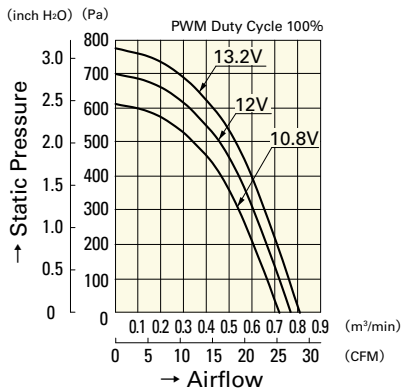


9CRA0312P4K03

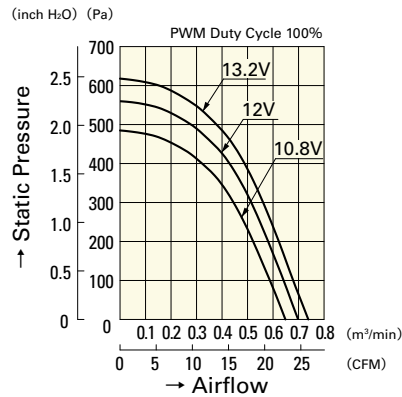


9CRA0312P4J03

Operating Voltage Range

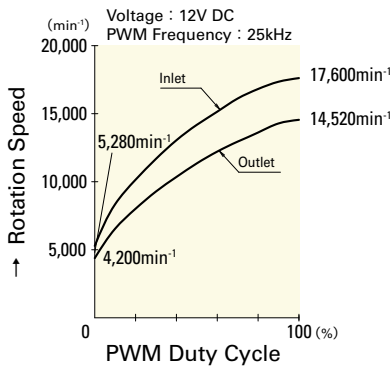


9CRA0312P4K03

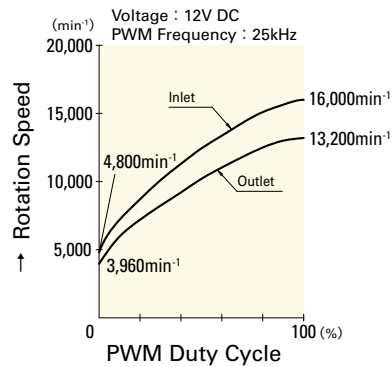


9CRA0312P4J03

PWM Duty - Speed Characteristics Example



9CRA0312P4K03



9CRA0312P4J03

40_{mm sq.}

San Ace 40



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

40×40×48mm (Mass : 80g) 9CRA type

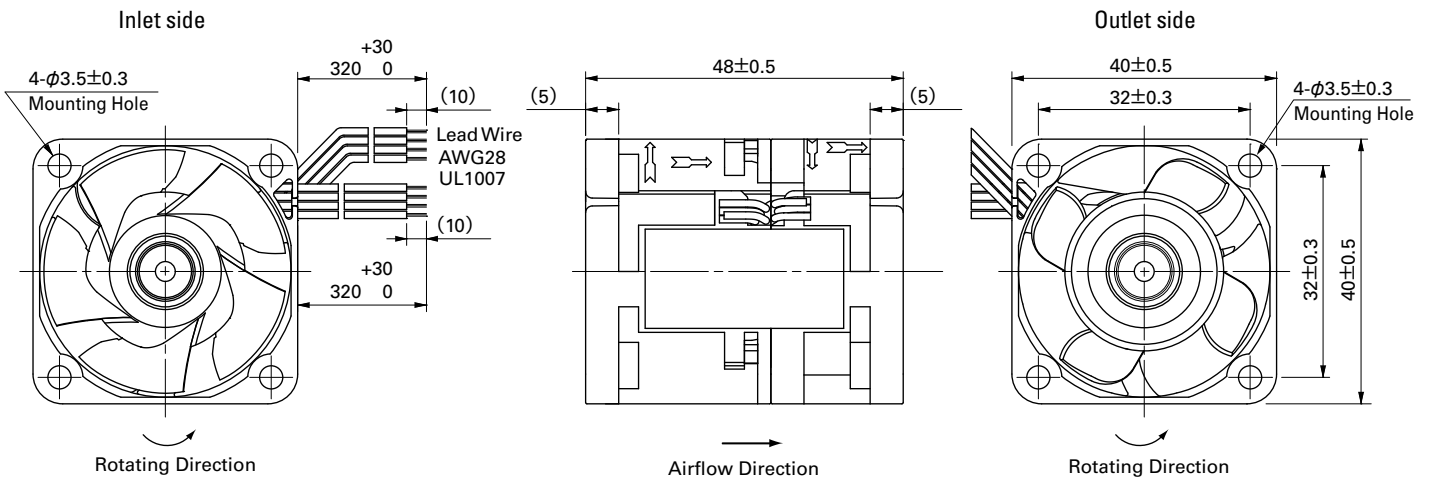
Specifications The following nos. have PWM controls and pulse sensors.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9CRA0412P4K03	12	10.8 to 13.2	100	1.60	19.20	17,500 11,700	0.920 32.50	650.0 2.610	64	-20 to +70	40,000/60°C
			0	0.19	2.28	5,250 3,510	0.276 9.75	58.5 0.235	33		
9CRA0412P4J03			100	1.20	14.40	16,200 10,800	0.850 30.00	560.0 2.250	62		
			0	0.15	1.80	4,500 3,000	0.236 8.33	43.2 0.173	28		
9CRA0412P4G03			100	1.00	12.00	14,700 9,800	0.770 27.20	460.0 1.850	59		
			0	0.15	1.80	4,410 2,940	0.231 8.16	41.4 0.166	28		

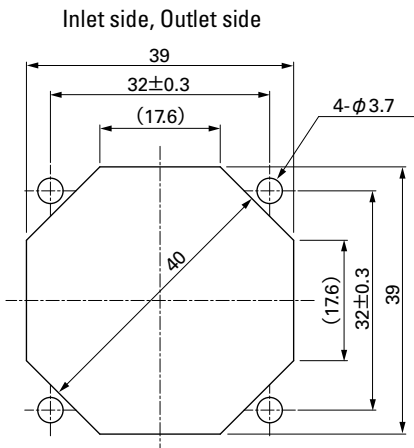
*PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 501).

Dimensions (unit: mm)



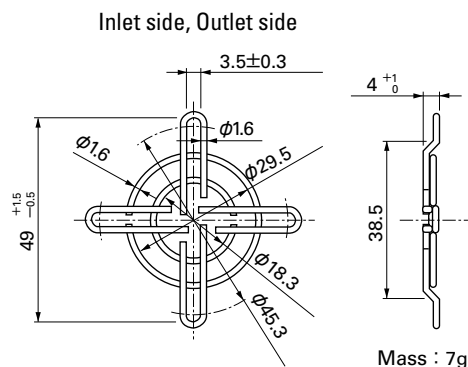
Reference Dimensions of mounting holes and vent opening (unit: mm)



Options (unit: mm)

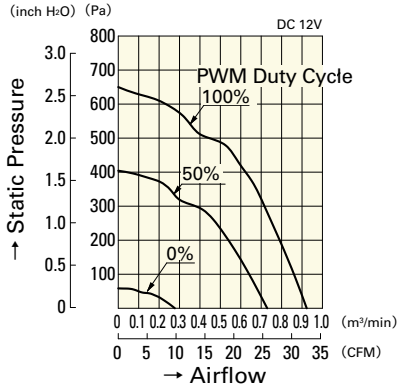
Finger Guards

Model : 109-059 Surface treatment : Nickel-chrome plating (silver)
: 109-059H : Cation electropainting (black)

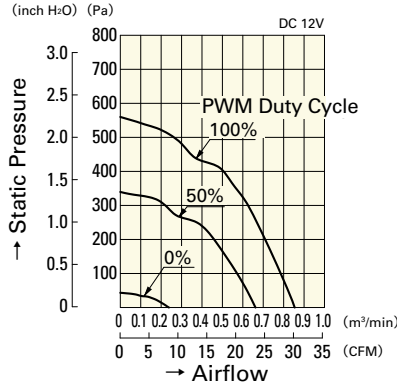


Airflow - Static Pressure Characteristics

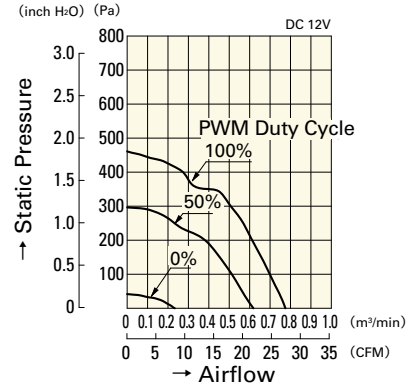
PWM Duty Cycle



9CRA0412P4K03

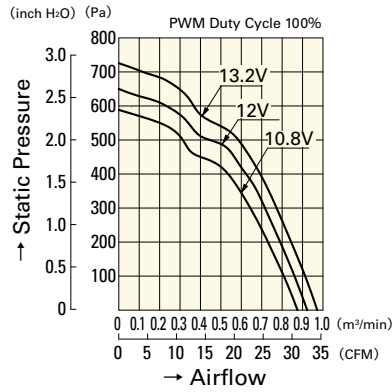


9CRA0412P4J03

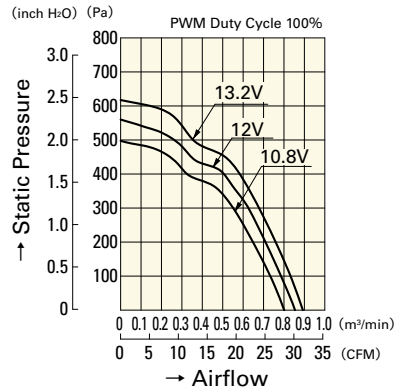


9CRA0412P4G03

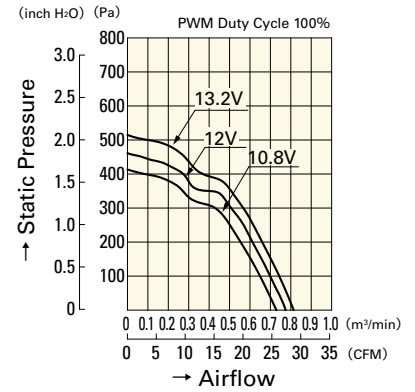
Operating Voltage Range



9CRA0412P4K03

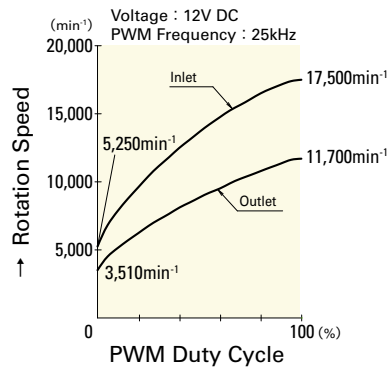


9CRA0412P4J03

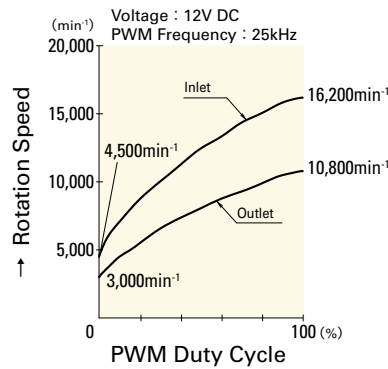


9CRA0412P4G03

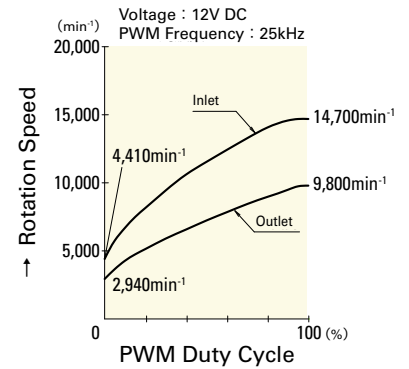
PWM Duty - Speed Characteristics Example



9CRA0412P4K03



9CRA0412P4J03



9CRA0412P4G03

40mm sq.

San Ace 40



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

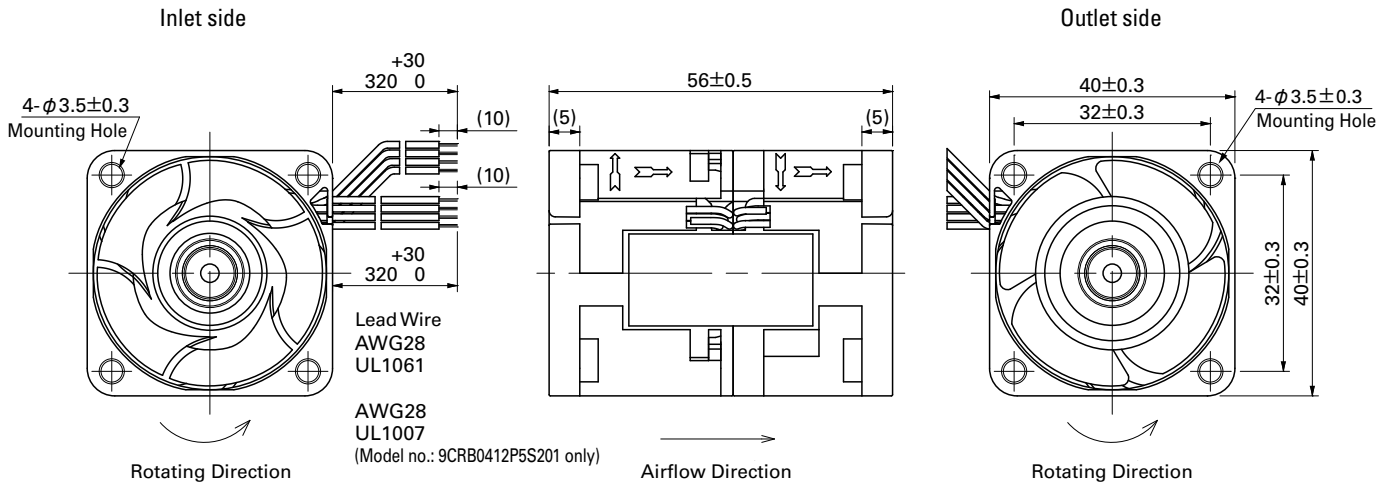
40×40×56mm (Mass : 100g) 9CRB type

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

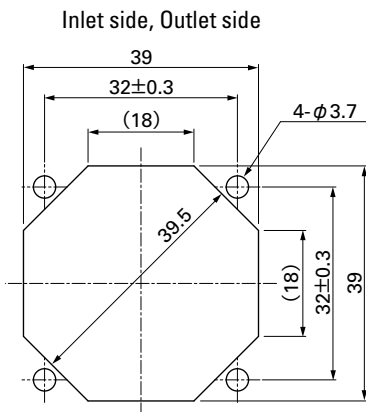
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRB0412P5S201	12	10.8 to 13.2	100	1.4	16.8	22,000	19,700	0.9	31.8	1,045	4.197	68	-20 to +70	40,000/60°C
			0	0.09	1.08	3,800	3,500	0.15	5.3	31	0.124	26		
9CRB0412P5K001			100	0.88	10.56	19,000	17,000	0.76	26.83	730	2.93	62		
			0	0.11	1.32	5,700	5,100	0.21	7.41	67	0.26	33		
9CRB0412P5J201			100	0.72	8.64	17,300	16,000	0.71	25.1	650	2.61	61		
			0	0.07	0.84	3,450	3,200	0.13	4.59	26	0.10	24		

*PWM Frequency : 25kHz

Dimensions (unit: mm)



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

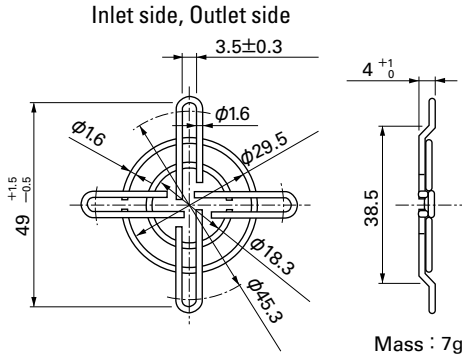


Options (unit: mm)

Finger Guards

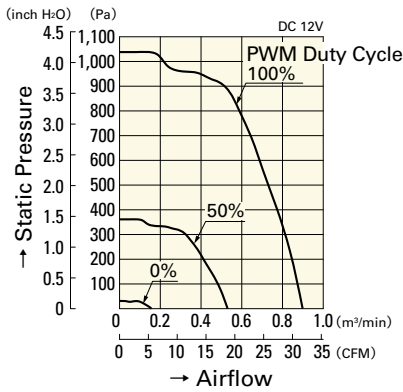
Model : 109-059 Surface treatment : Nickel-chrome plating (silver)
 : 109-059H : Cation electropainting (black)

Color

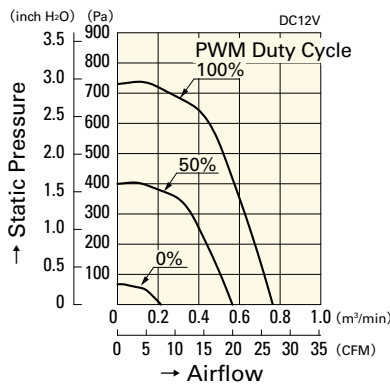


Airflow - Static Pressure Characteristics

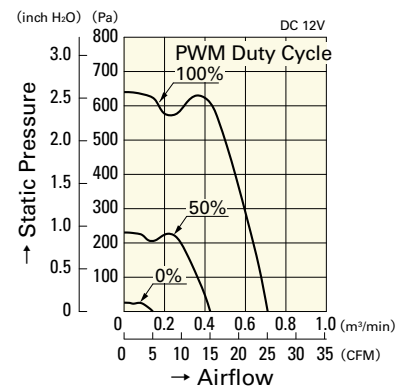
PWM Duty Cycle



9CRB0412P5S201

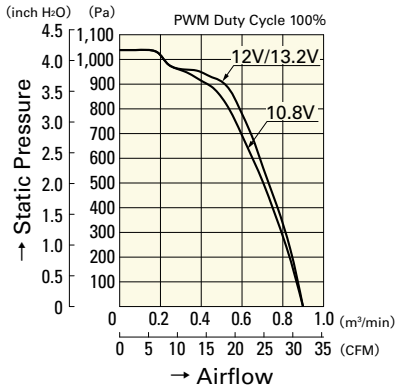


9CRB0412P5K001

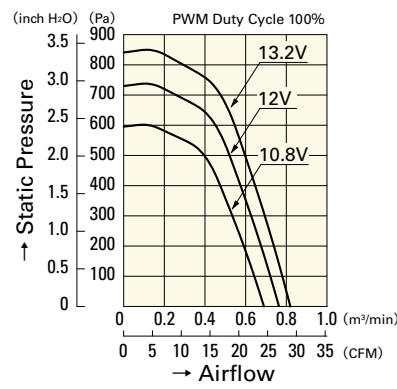


9CRB0412P5J201

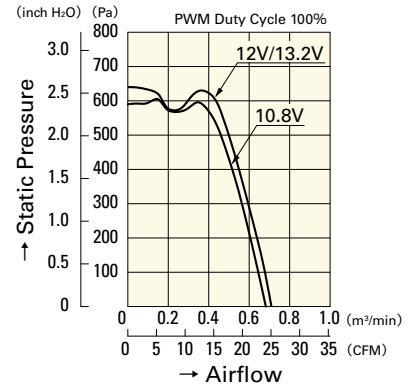
Operating Voltage Range



9CRB0412P5S201

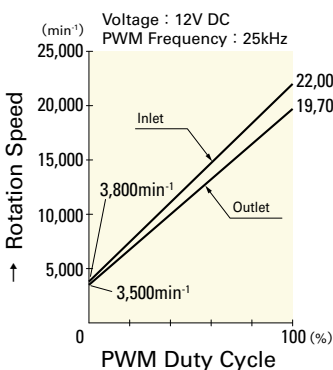


9CRB0412P5K001

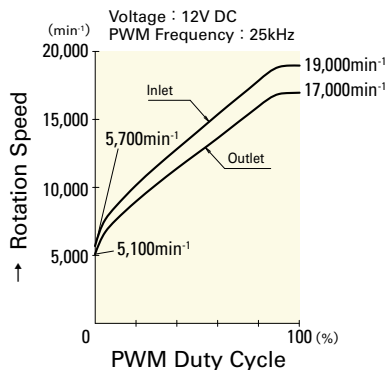


9CRB0412P5J201

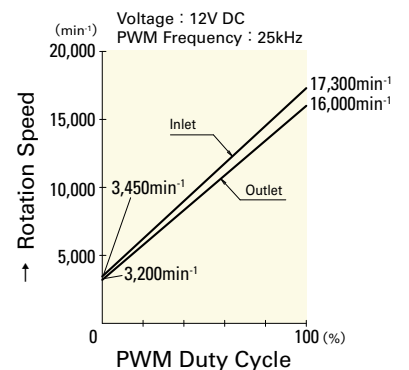
PWM Duty - Speed Characteristics Example



9CRB0412P5S201



9CRB0412P5K001



9CRB0412P5J201

40mm sq.

San Ace 40



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

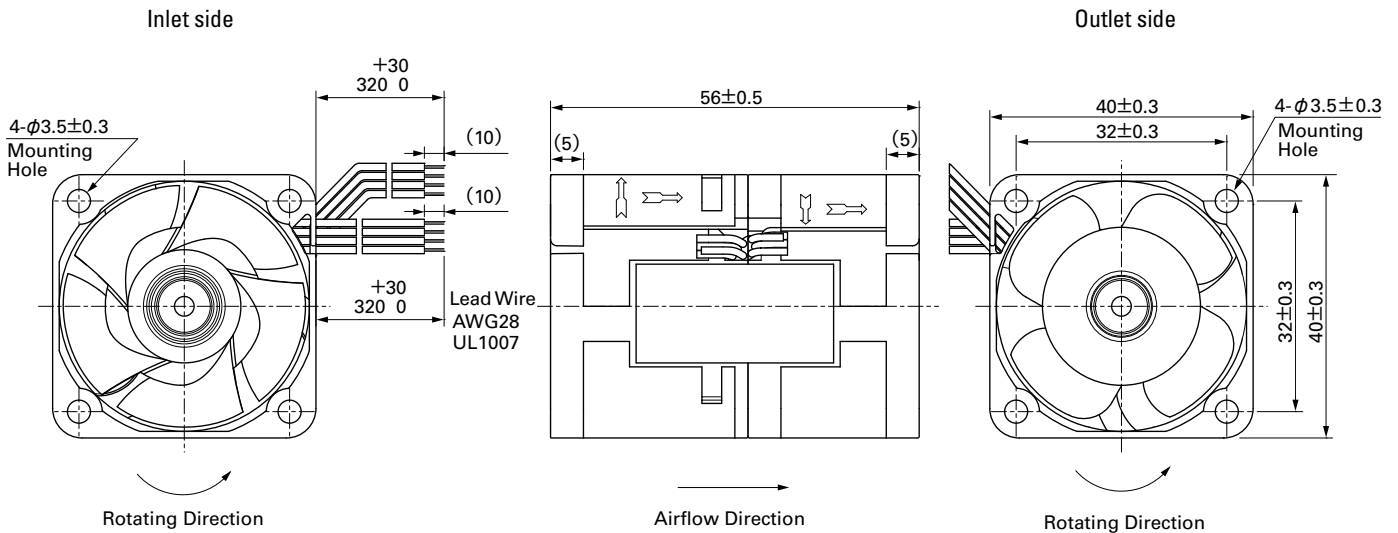
40×40×56mm (Mass : 90g) 9CRD type

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 ⁻¹] Inlet Outlet	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9CRD0412P5J03	12	10.8 to 13.2	100	1.15	13.8	19,000 12,600	0.87 30.72	630 2.53	61	-20 to +70	40,000/60°C
			0	0.12	1.44	3,700 2,500	0.15 5.30	25 0.10	22		
9CRD0412P5G03			100	0.90	10.8	16,700 11,250	0.77 27.19	500 2.01	58		
			0	0.10	1.2	3,350 2,250	0.13 4.59	21 0.08	21		
9CRD0412P5H03			100	0.60	7.2	15,000 10,000	0.70 24.72	410 1.65	56		
			0	0.09	1.08	3,000 2,000	0.12 4.24	16 0.06	20		
9CRD0412P5M03	100	0.52	6.24	14,000 9,300	0.65 22.95	360 1.45	54				
	0	0.07	0.84	2,000 1,300	0.07 2.47	7 0.03	15				

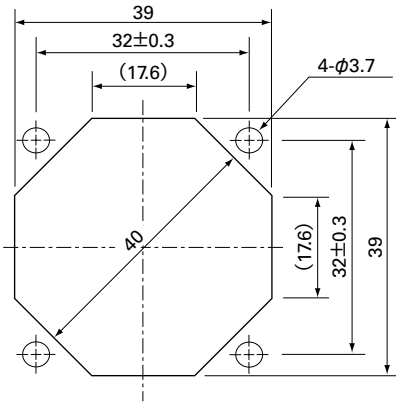
*PWM Frequency : 25kHz

Dimensions (unit: mm)



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

Inlet side, Outlet side

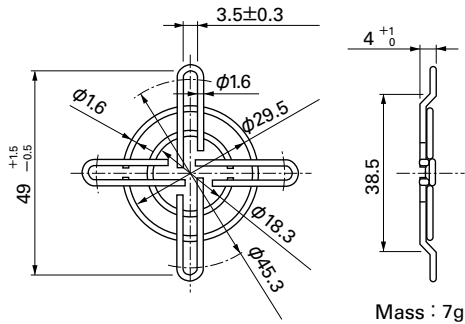


Options (unit: mm)

Finger Guards

Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color
 : 109-059H : Cation electropainting (black) : Cation electropainting (black)

Inlet side, Outlet side



Mass : 7g

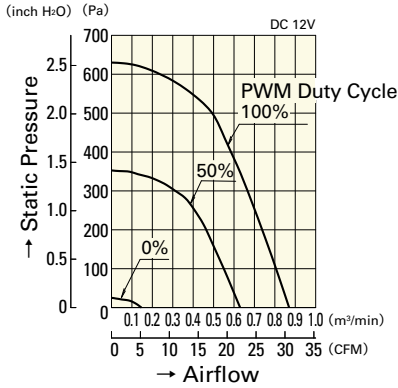
40mm sq.

San Ace 40

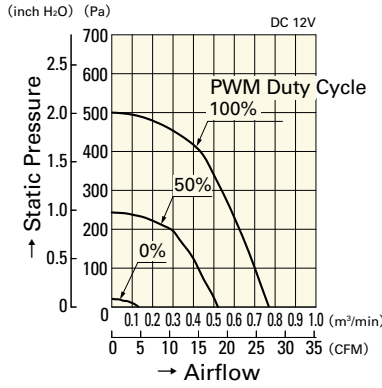
40×40×56mm [Mass : 90g]

Airflow - Static Pressure Characteristics

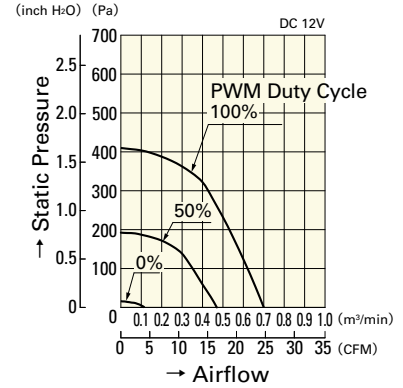
PWM Duty Cycle



9CRD0412P5J03

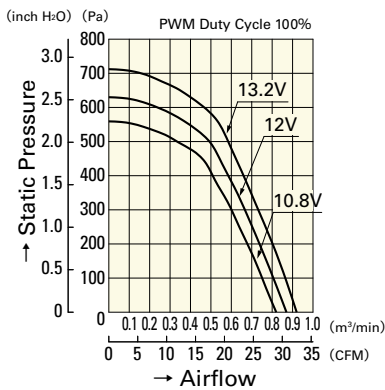


9CRD0412P5G03

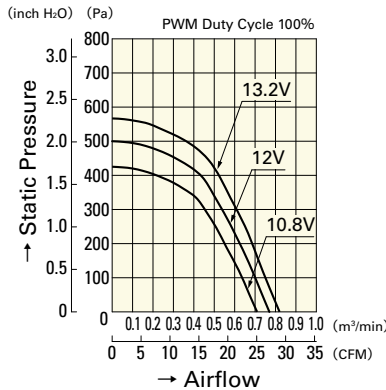


9CRD0412P5H03

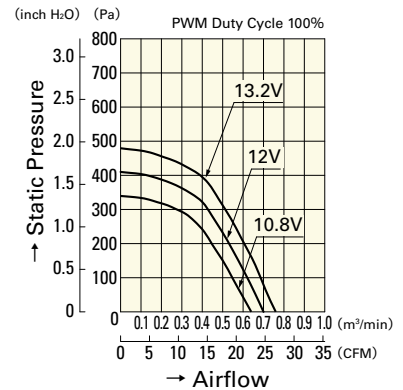
Operating Voltage Range



9CRD0412P5J03

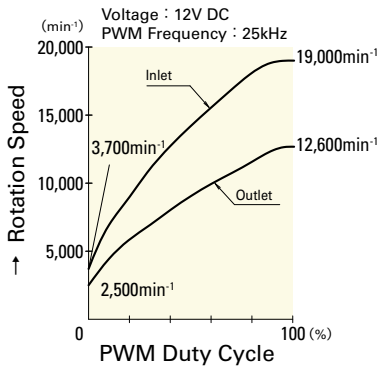


9CRD0412P5G03

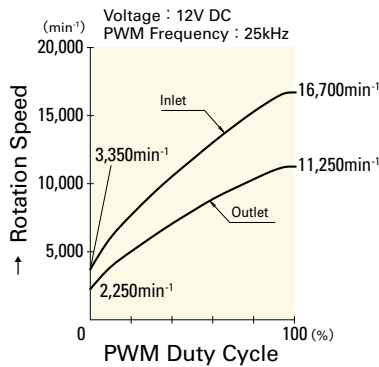


9CRD0412P5H03

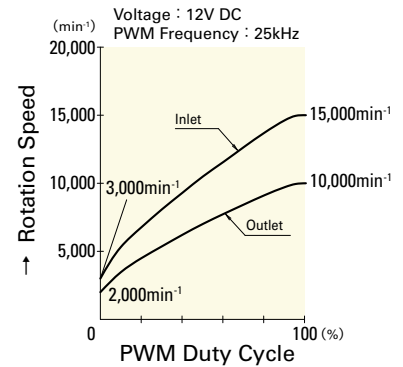
PWM Duty - Speed Characteristics Example



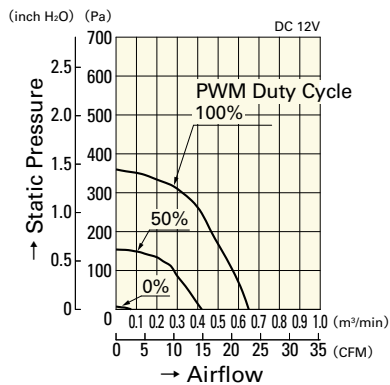
9CRD0412P5J03



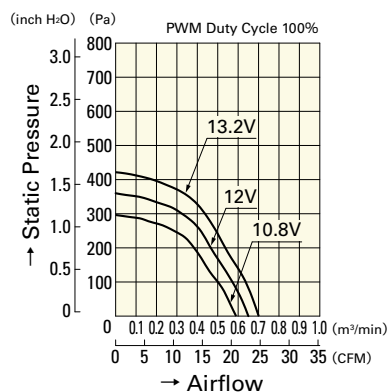
9CRD0412P5G03



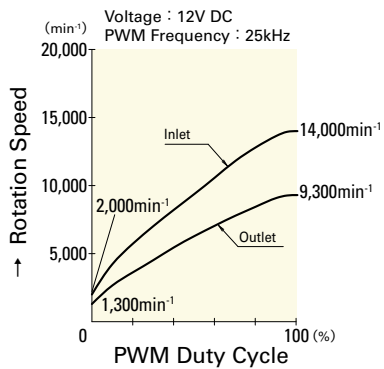
9CRD0412P5H03



9CRD0412P5M03



9CRD0412P5M03



9CRD0412P5M03

40 mm sq.

San Ace 40



General Specifications

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C , rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature ... -30°C to +70°C (Non-condensing)

40×40×56mm (Mass : 110g) **9CRE type** **Low vibration**

Specifications

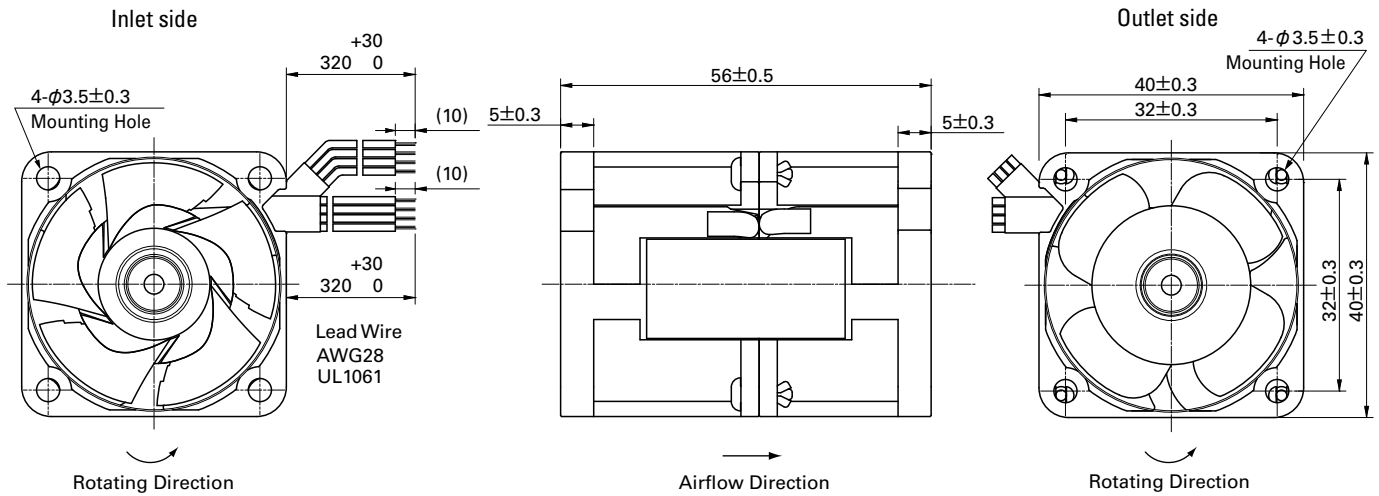
The following nos. have PWM controls and pulse sensors.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRE0412P5J03	12	10.8 to 13.2	100	1.4	16.8	15,800	12,200	0.90	31.8	570.0	2.290	62	-20 to +70	40,000/60°C
			0	0.1	1.2	2,850	2,250	0.12	4.2	13.7	0.055	20.5		

*PWM Frequency : 25kHz

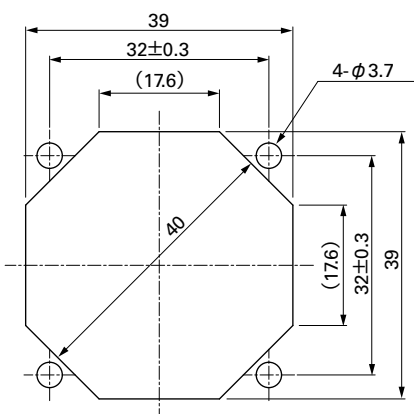
Other sensor specifications are available as options. Please refer to the index (p. 501).

Dimensions (unit: mm)



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

Inlet side, Outlet side



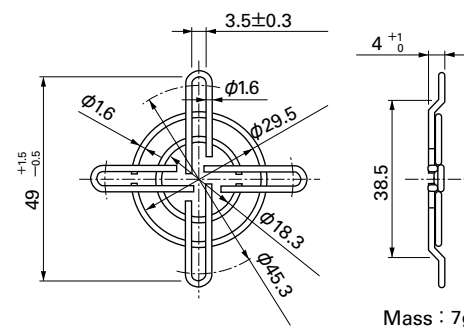
Options (unit: mm)

Finger Guards

Model : 109-059 Surface treatment : Nickel-chrome plating (silver)
 : 109-059H : Cation electropainting (black)

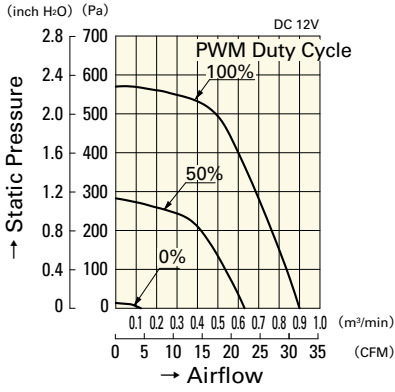
Color

Inlet side, Outlet side



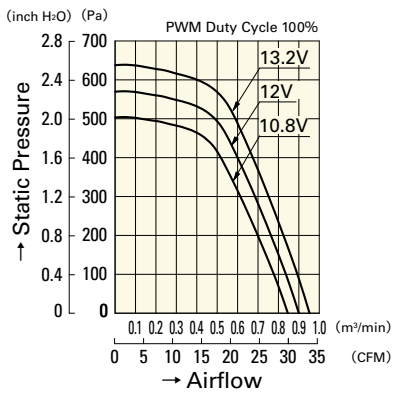
Airflow - Static Pressure Characteristics

PWM Duty Cycle



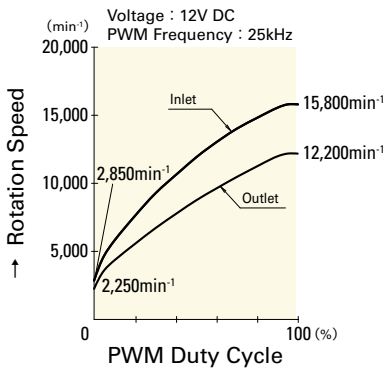
9CRE0412P5J03

Operating Voltage Range



9CRE0412P5J03

PWM Duty - Speed Characteristics Example



9CRE0412P5J03

60_{mm sq.}

San Ace 60



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

60×60×51mm (Mass : 180g) 9CR type

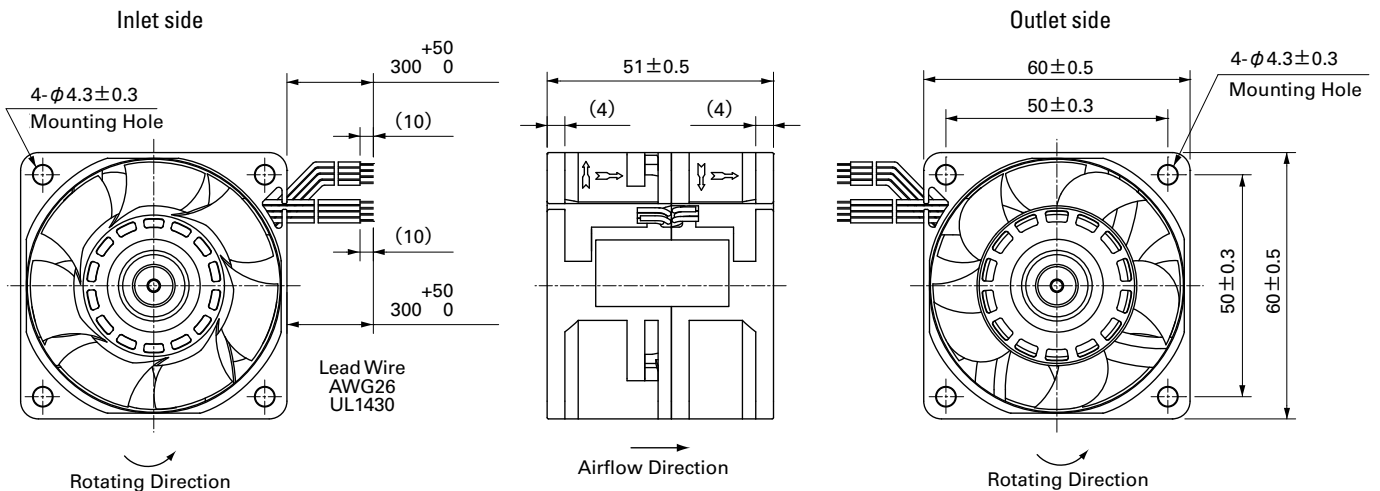
Specifications The following nos. have PWM controls and pulse sensors.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9CR0612P5G03	12	10.8 to 13.2	100	2.7	32.4	11,500 9,000	2.03 71.7	600 2.41	68	-20 to +70	40,000/60°C
			0	0.22	2.64	3,000 2,300	0.48 16.9	40 0.16	34		
9CR0612P5H03			100	2.0	24.0	10,500 8,200	1.85 65.4	500 2.01	65		
			0	0.22	2.64	3,000 2,300	0.48 16.9	40 0.16	34		

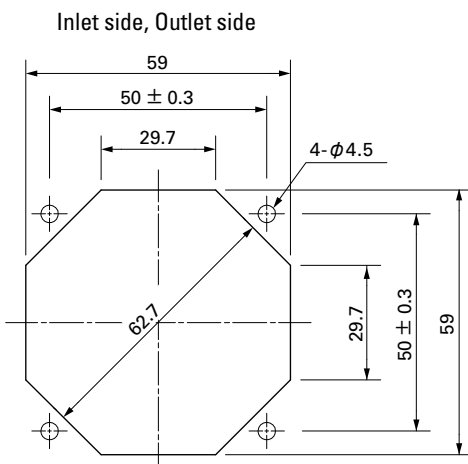
*PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 501).

Dimensions (unit: mm)



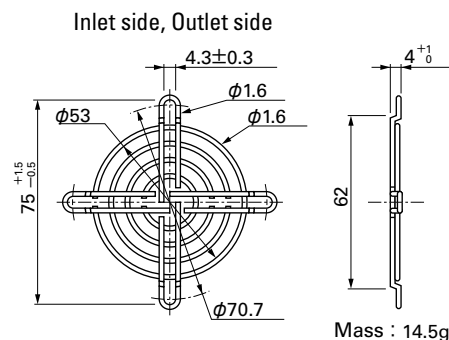
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)

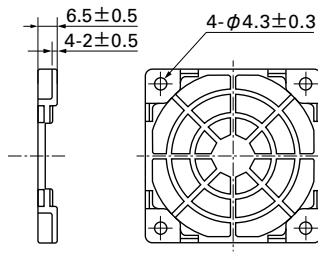
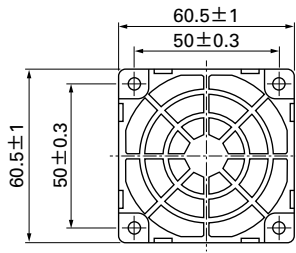


Mass : 14.5g

Options (unit: mm)

Resin Finger Guards

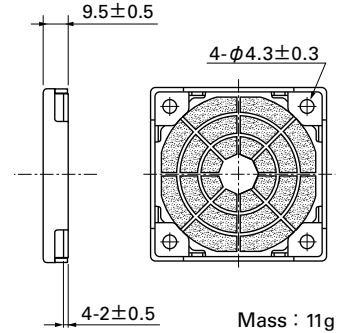
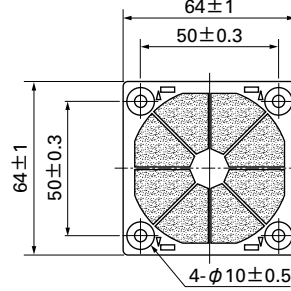
Model : 109-1003G



Mass : 7g

Resin Filter Kits

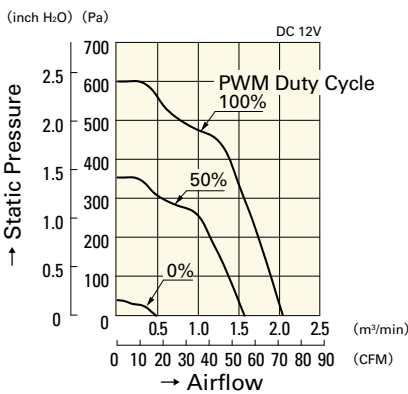
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



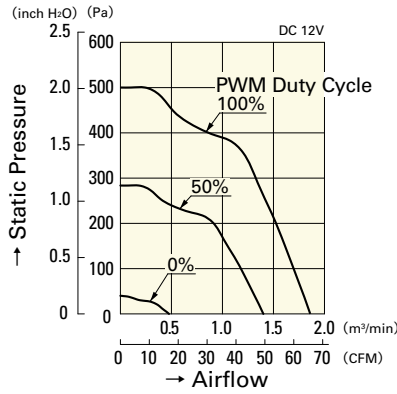
Mass : 11g

Airflow - Static Pressure Characteristics

PWM Duty Cycle

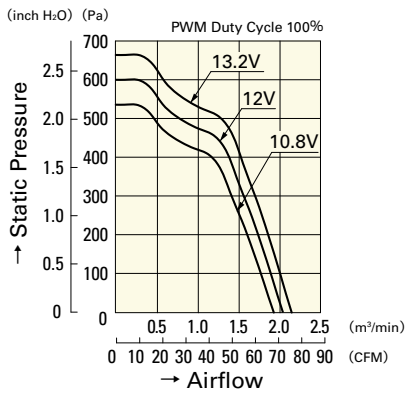


9CR0612P5G03

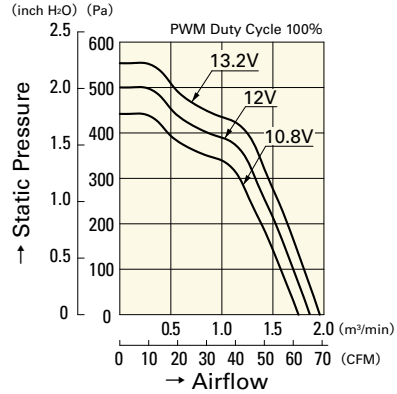


9CR0612P5H03

Operating Voltage Range

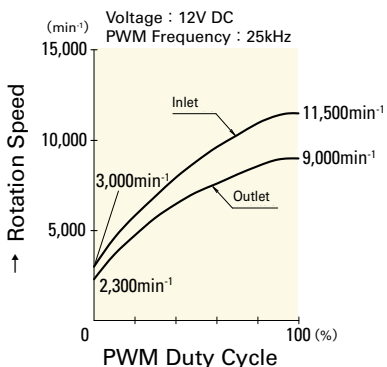


9CR0612P5G03

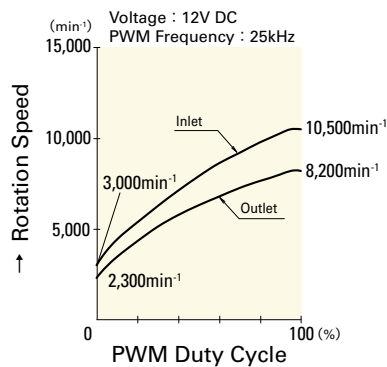


9CR0612P5H03

PWM Duty - Speed Characteristics Example



9CR0612P5G03



9CR0612P5H03

60mm sq.

San Ace 60



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

60×60×56mm (Mass : 200g) **9CRA type**

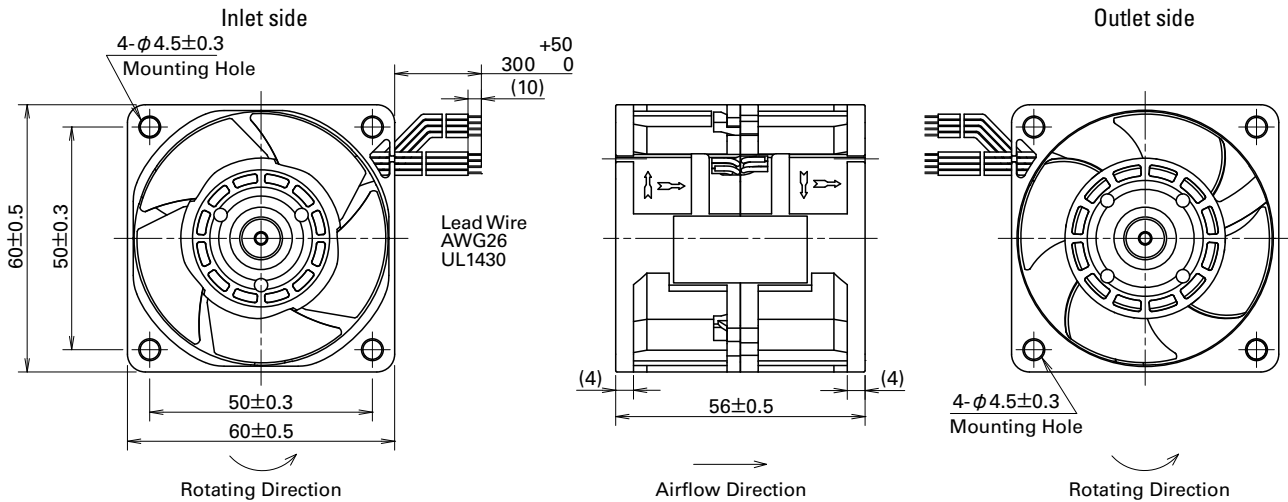
Specifications

The following nos. **have PWM controls and pulse sensors.**

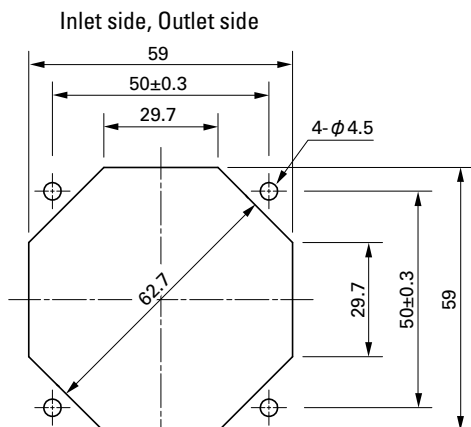
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRA0612P6K001	12	10.8 to 13.2	100	3.10	37.2	18,300	15,800	2.28	80.5	1,130	4.54	73	-20 to +70	30,000/60°C
			0	0.17	2.0	3,800	3,300	0.47	16.6	49	0.20	35		
9CRA0612P6J001			100	2.30	27.6	16,800	14,500	2.10	74.2	950	3.82	70		
			0	0.15	1.8	3,800	3,300	0.47	16.6	49	0.20	35		
9CRA0612P6G001			100	1.30	15.6	13,500	11,400	1.65	58.3	620	2.49	65		
			0	0.10	1.2	3,000	2,500	0.36	12.7	31	0.12	29		

*PWM Frequency : 25kHz

Dimensions (unit: mm)



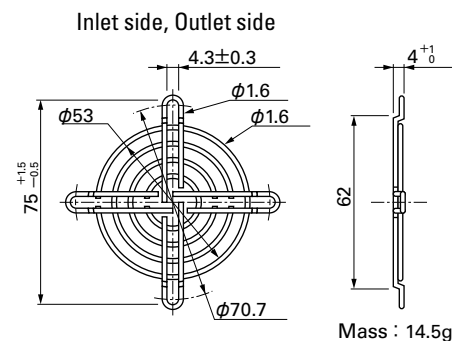
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

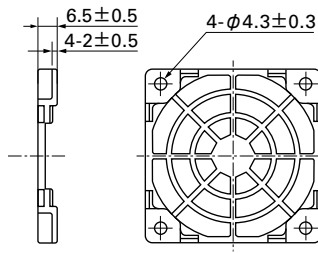
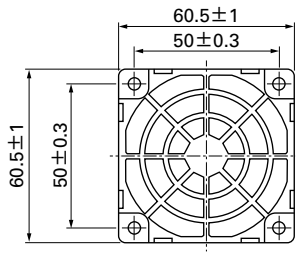
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

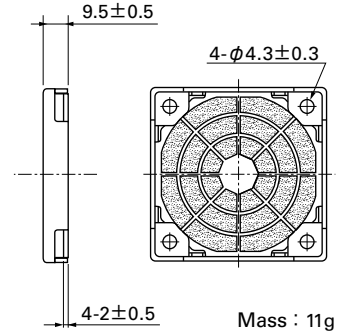
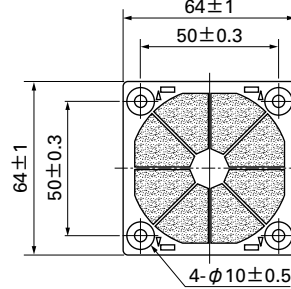
Model : 109-1003G



Mass : 7g

Resin Filter Kits

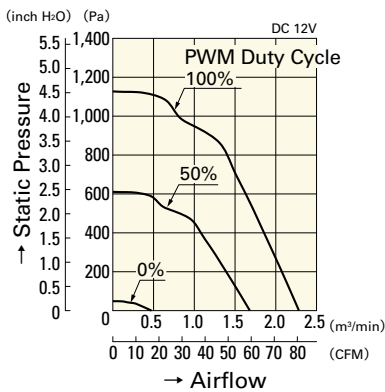
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



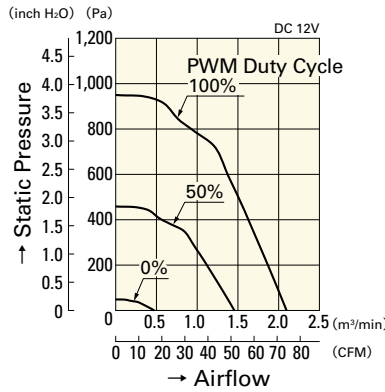
Mass : 11g

Airflow - Static Pressure Characteristics

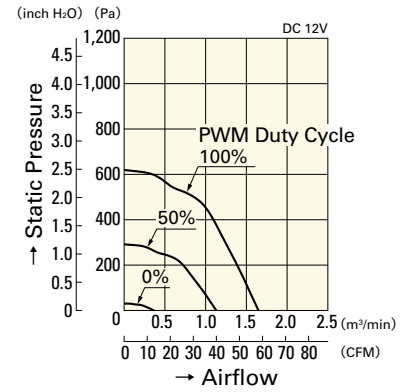
PWM Duty Cycle



9CRA0612P6K001

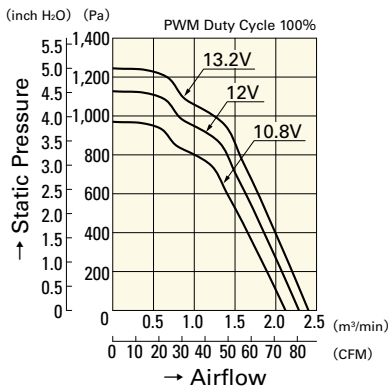


9CRA0612P6J001

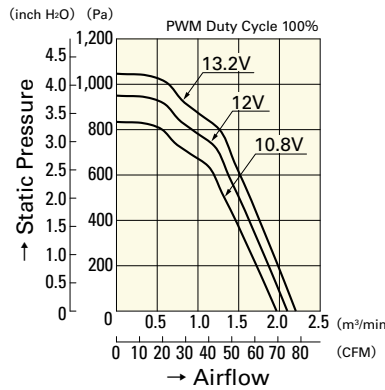


9CRA0612P6G001

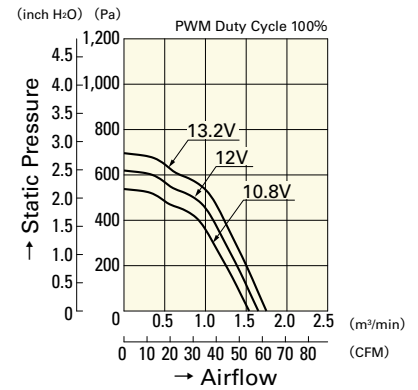
Operating Voltage Range



9CRA0612P6K001

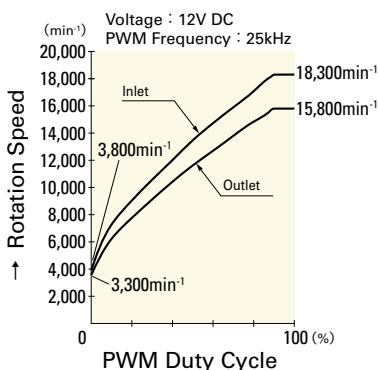


9CRA0612P6J001

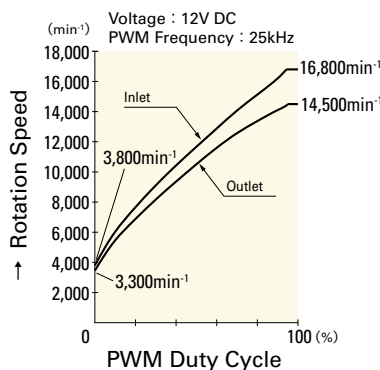


9CRA0612P6G001

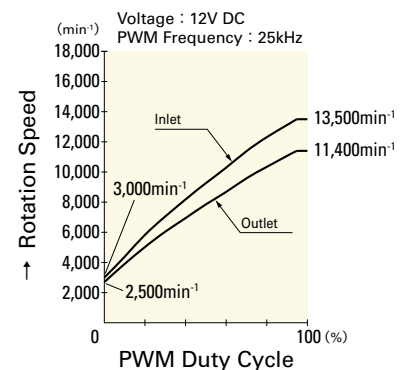
PWM Duty - Speed Characteristics Example



9CRA0612P6K001



9CRA0612P6J001



9CRA0612P6G001

60mm sq.

San Ace 60



General Specifications

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

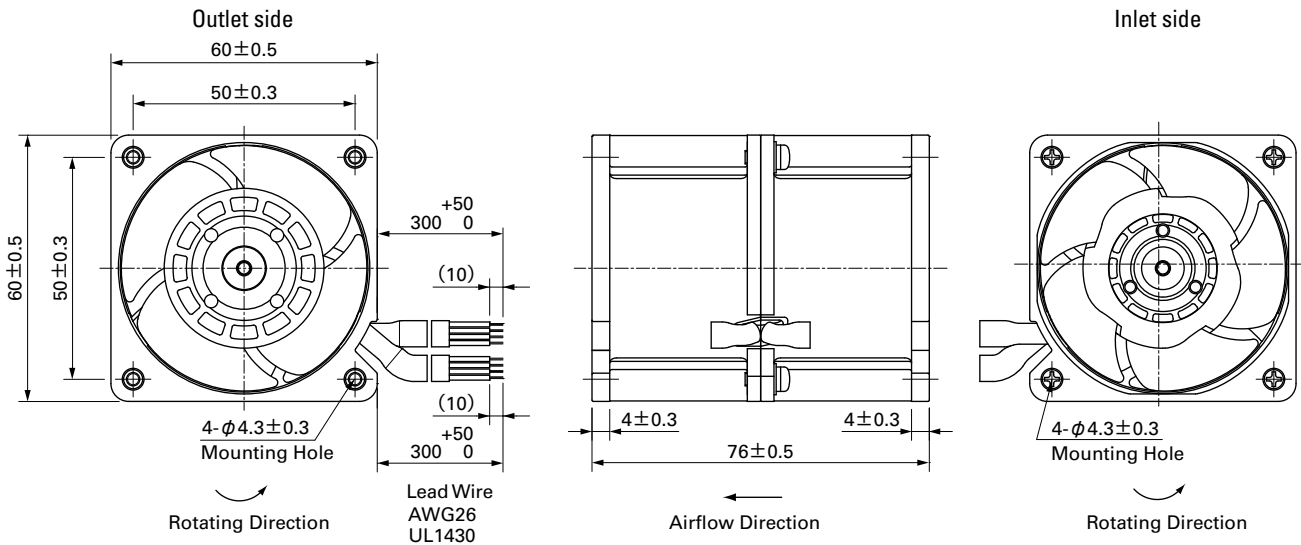
60×60×76mm (Mass : 300g) 9CRE type Low vibration

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

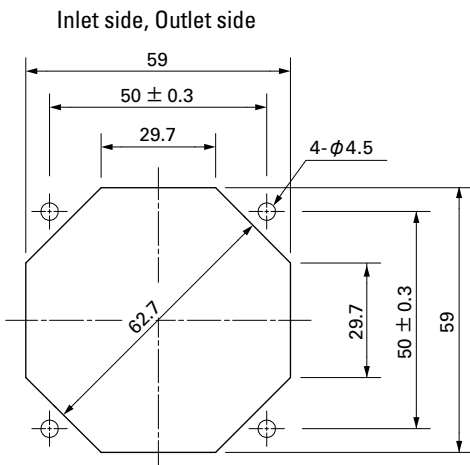
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRE0612P0G001	12	10.8 to 13.2	100	2.3	27.6	16,500	13,000	2.0	70.6	1,000	4.0	66	-20 to +70	40,000/60°C (70,000/40°C)
			0	0.22	2.7	3,600	2,800	0.43	15.1	47.6	0.19	32		

*PWM Frequency : 25kHz

Dimensions (unit: mm)

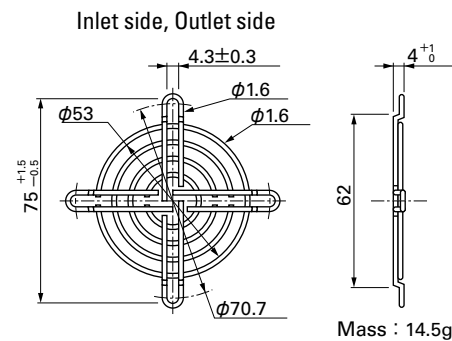


Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

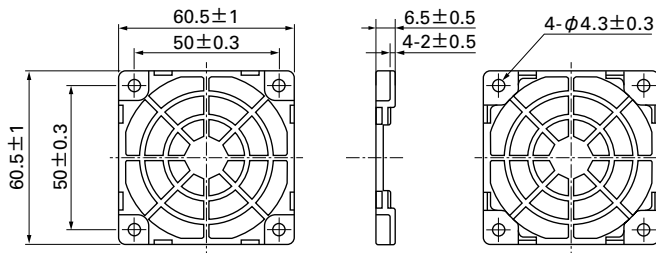
Finger Guards
 Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
 : 109-139H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

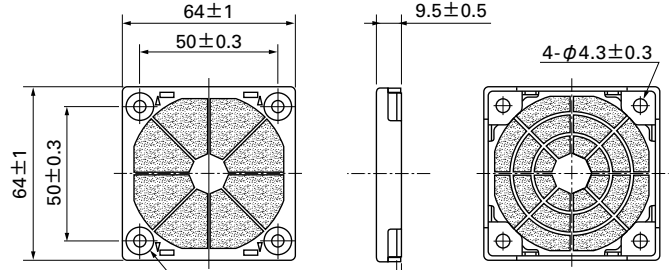
Model : 109-1003G



Mass : 7g

Resin Filter Kits

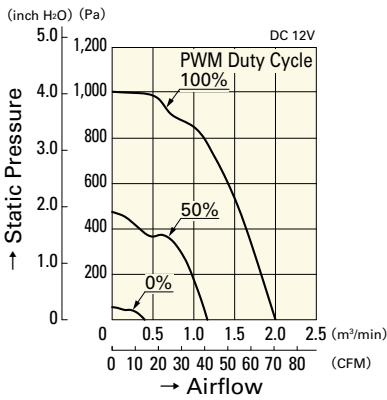
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



Mass : 11g

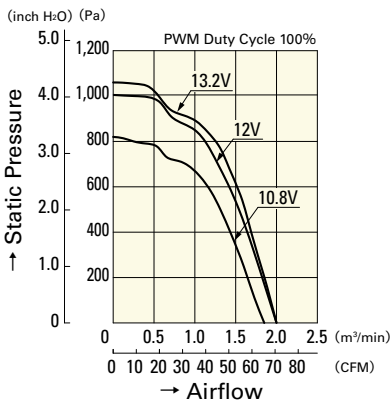
Airflow - Static Pressure Characteristics

PWM Duty Cycle



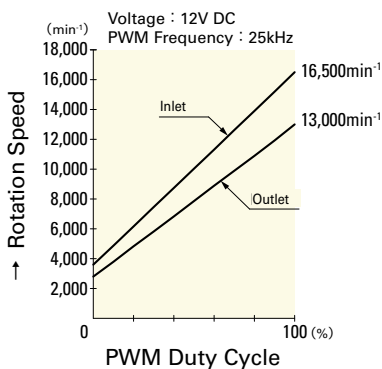
9CRE0612P0G001

Operating Voltage Range



9CRE0612P0G001

PWM Duty - Speed Characteristics Example



9CRE0612P0G001

60mm sq.

San Ace 60



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

60×60×76mm (Mass : 270g) **9CRA type**

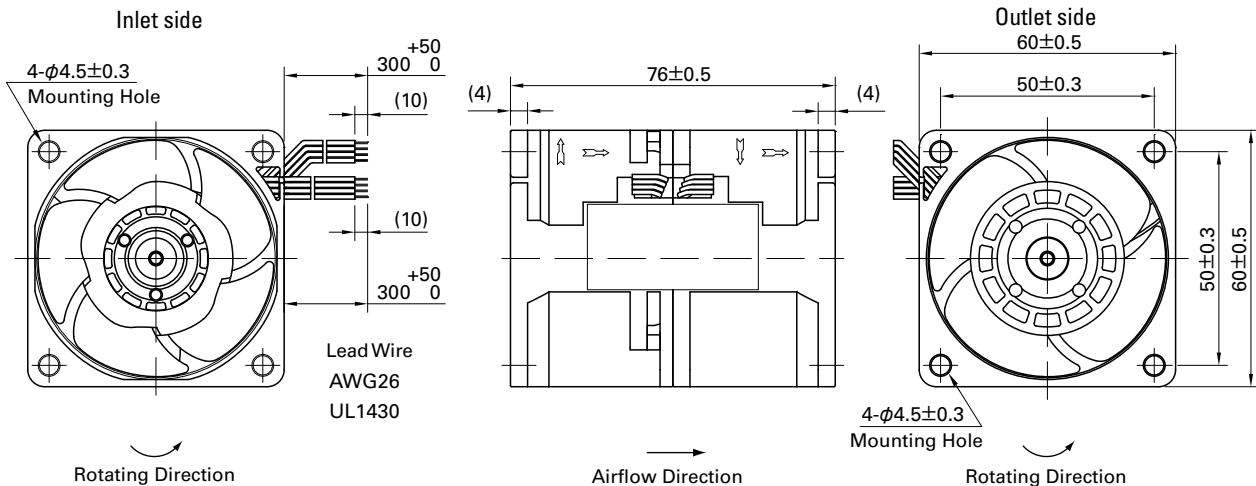
Specifications

The following nos. **have PWM controls and pulse sensors.**

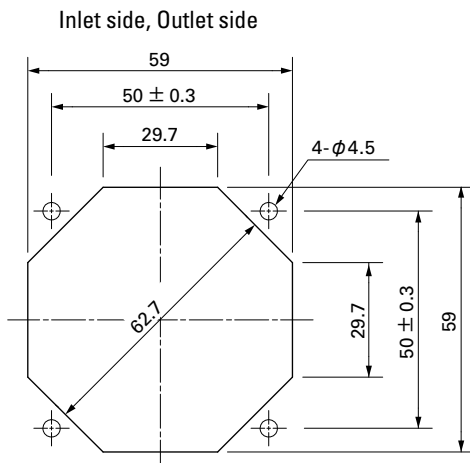
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRA0612P0G001	12	10.8 to 13.2	100	2.3	27.6	16,500	13,000	2.0	70.6	1,000	4.0	66	-20 to +70	40,000/60°C (70,000/40°C)
			0	0.22	2.7	3,600	2,800	0.43	15.1	47.6	0.19	32		
100			1.5	18.0	14,000	11,000	1.7	60.0	720	2.89	63			
0			0.17	2.1	3,200	2,500	0.38	13.4	37.6	0.15	29			
9CRA0612P0S001														

*PWM Frequency : 25kHz

Dimensions (unit: mm)



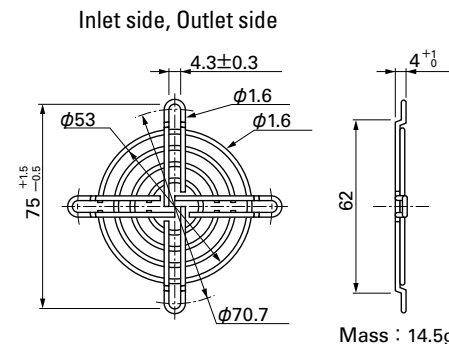
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)

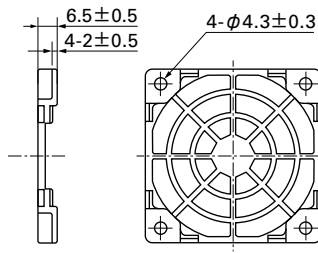
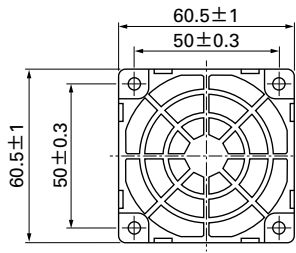


Color : Nickel-chrome plating (silver)
: Cation electropainting (black)
Mass : 14.5g

Options (unit: mm)

Resin Finger Guards

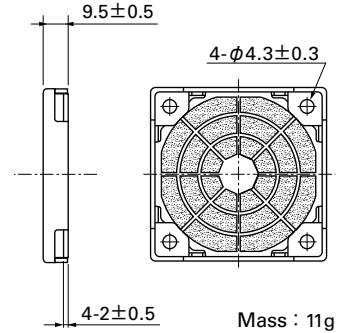
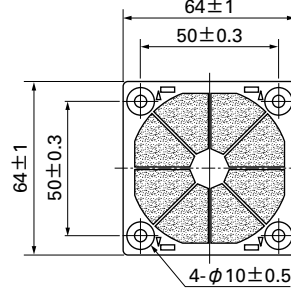
Model : 109-1003G



Mass : 7g

Resin Filter Kits

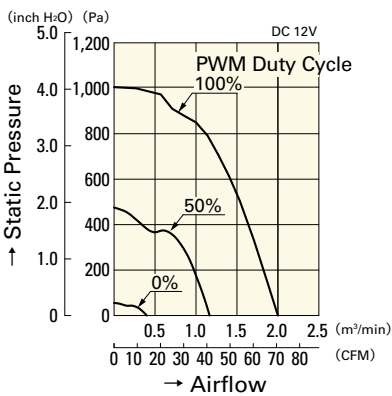
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



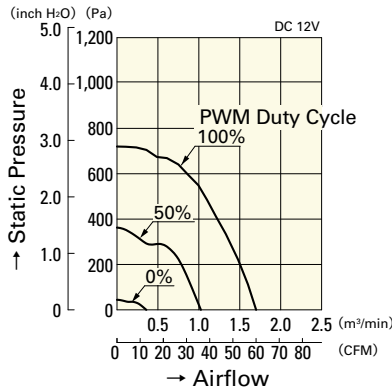
Mass : 11g

Airflow - Static Pressure Characteristics

PWM Duty Cycle

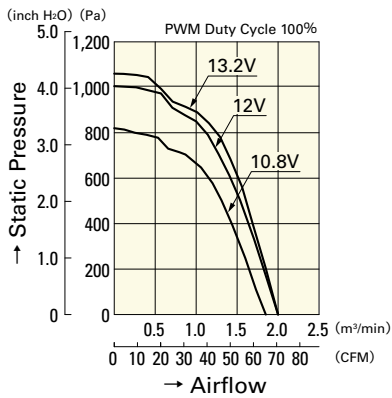


9CRA0612P0G001

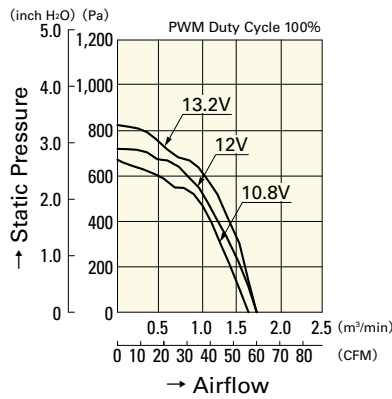


9CRA0612P0S001

Operating Voltage Range

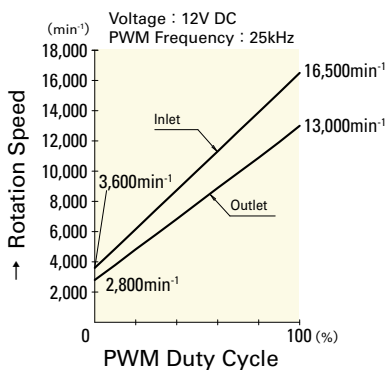


9CRA0612P0G001

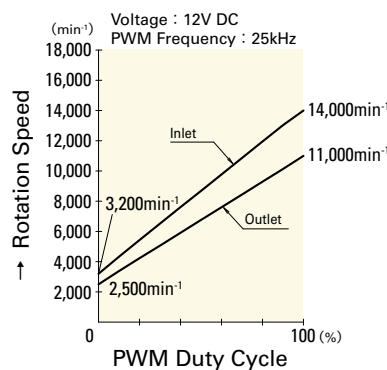


9CRA0612P0S001

PWM Duty - Speed Characteristics Example



9CRA0612P0G001



9CRA0612P0S001

80mm sq.

San Ace 80



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

80×80×80mm (Mass : 430g) **9CRB type**

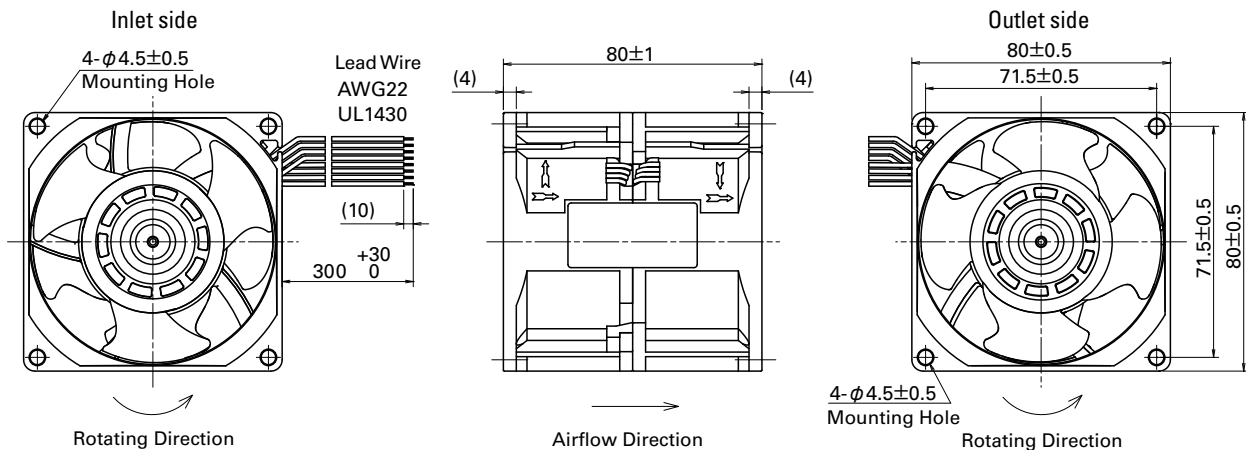
Specifications The following nos. have PWM controls and pulse sensors.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note#} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9CRB0812P8G001	12	10.8 to 13.2	100	9.2	110.4	14,600 12,200	5.5 194	1,150 4.6	80	-20 to +70	40,000/60°C (70,000/40°C)
			20	0.17	2.04	2,000 1,670	0.7 24.7	21.6 0.09	24		

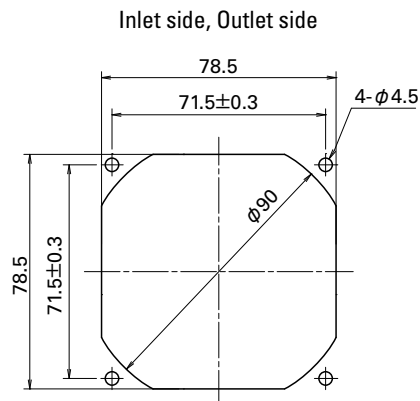
Note: Fan does not rotate when PWM duty cycle is 0%.

※PWM Frequency : 25kHz

Dimensions (unit: mm)



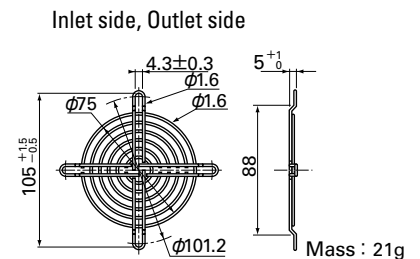
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

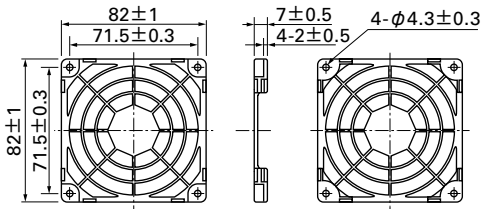
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

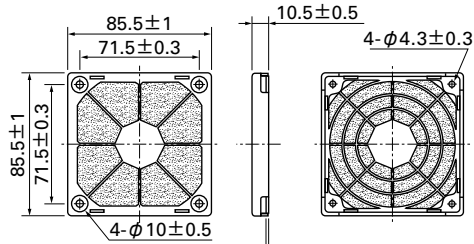
Model : 109-1002G



Mass : 10g

Resin Filter Kits

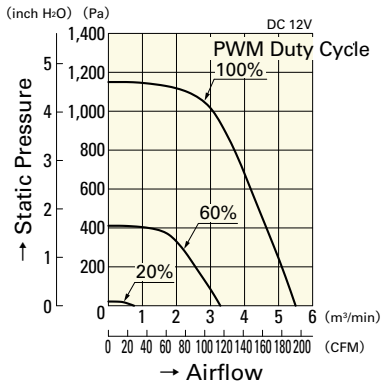
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



Mass : 19g

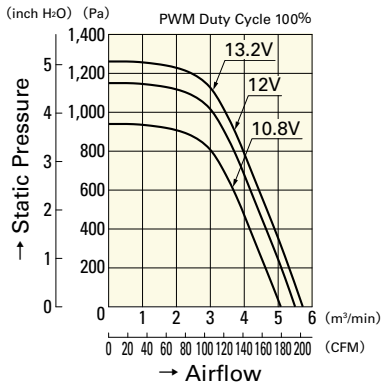
Airflow - Static Pressure Characteristics

PWM Duty Cycle



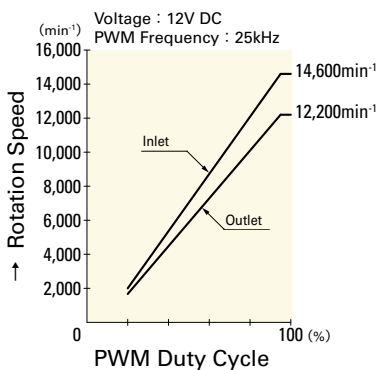
9CRB0812P8G001

Operating Voltage Range



9CRB0812P8G001

PWM Duty - Speed Characteristics Example



9CRB0812P8G001

80 mm sq.

San Ace 80L



General Specifications

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

80×80×80mm (Mass : 490g) **9CRE type** **Low vibration**

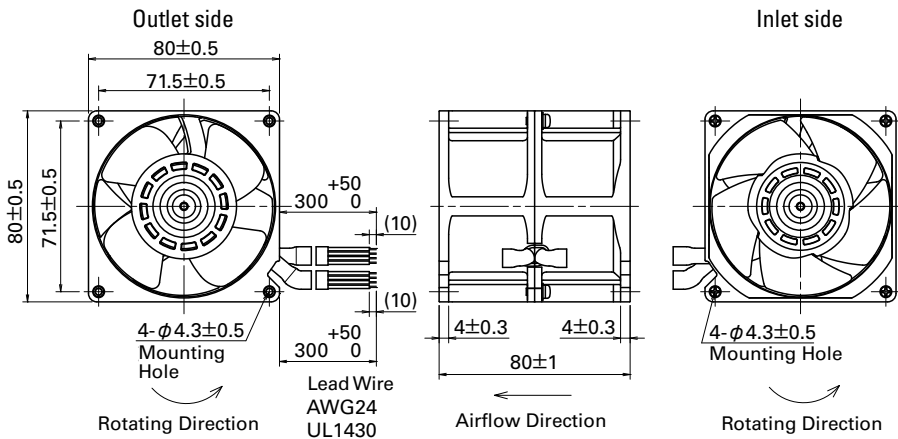
Specifications

The following nos. **have PWM controls and pulse sensors.**

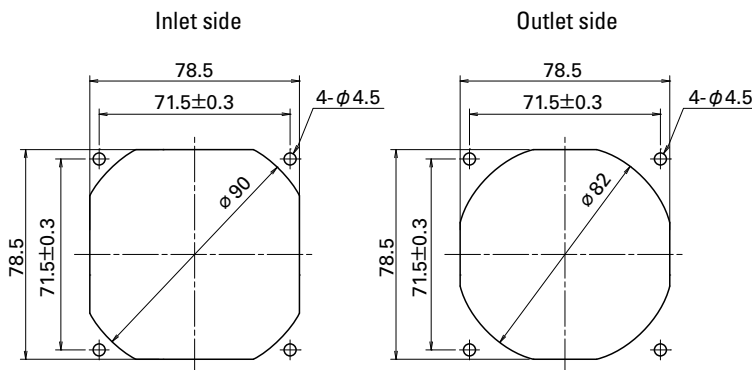
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRE0812P8G001	12	10.8 to 13.2	100	5.3	63.6	12,000	11,300	4.5	158.9	1,150	4.62	76	-20 to +70	40,000/60°C (70,000/40°C)
			0	0.2	2.4	2,000	1,900	0.74	26.1	31.9	0.130	30		

*PWM Frequency : 25kHz

Dimensions (unit: mm)



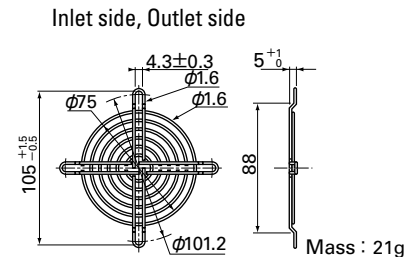
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

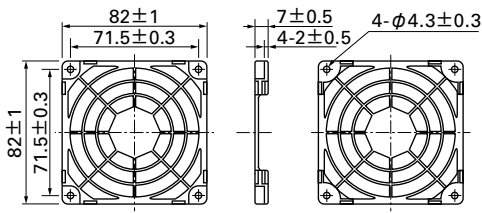
Model : 109-049E Surface treatment : Nickel-chrome plating (silver)
: 109-049H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

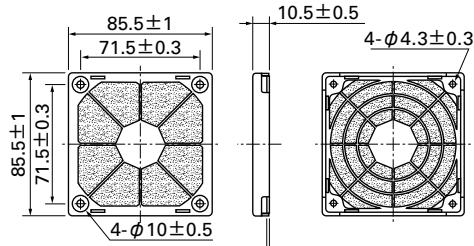
Model : 109-1002G



Mass : 10g

Resin Filter Kits

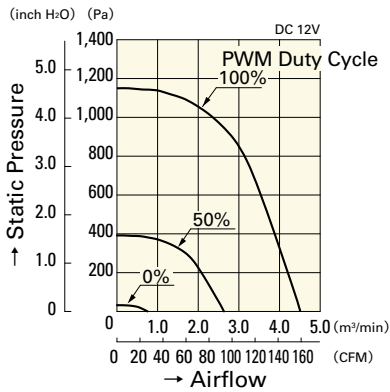
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



Mass : 19g

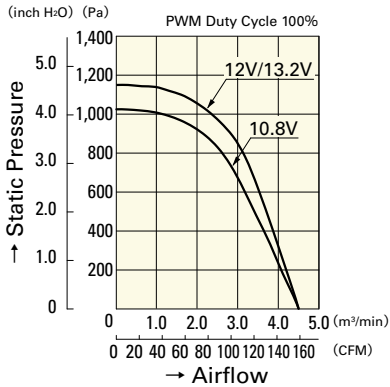
Airflow - Static Pressure Characteristics

PWM Duty Cycle



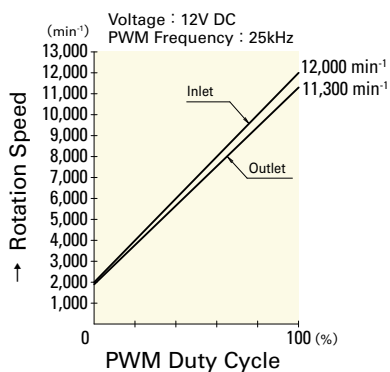
9CRE0812P8G001

Operating Voltage Range



9CRE0812P8G001

PWM Duty - Speed Characteristics Example



9CRE0812P8G001

80mm sq.

San Ace 80



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

80×80×80mm (Mass : 450g) 9CRA type

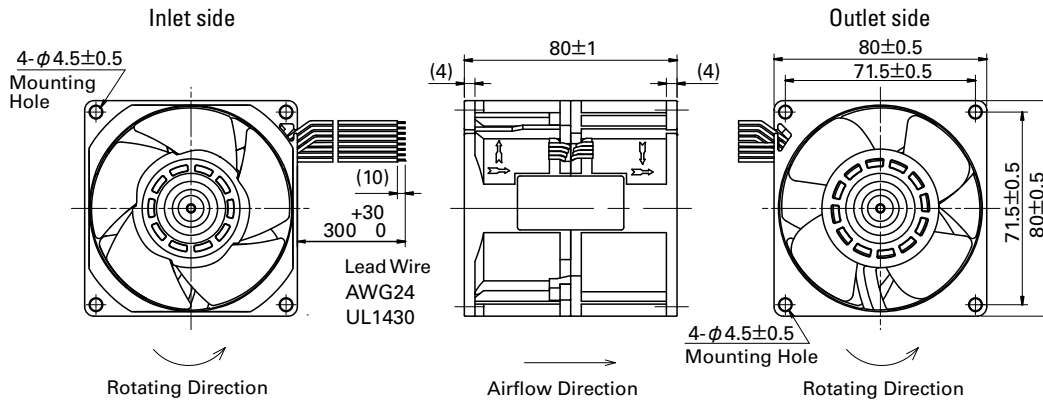
Specifications The following nos. have PWM controls and pulse sensors.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRA0812P8G001	12	10.8 to 13.2	100	5.3	63.6	12,000	11,300	4.5	158.9	1,150	4.62	76	-20 to +70	40,000/60°C (70,000/40°C)
			0	0.2	2.4	2,000	1,900	0.74	26.1	31.9	0.13	30		
9CRA0824P8G001	24	21.6 to 26.4	100	2.65	63.6	12,000	11,300	4.5	158.9	1,150	4.62	76		
			0	0.09	2.16	2,000	1,900	0.74	26.1	31.9	0.13	30		
9CRA0848P8G001	48	40.8 to 55.2	100	1.32	63.4	12,000	11,300	4.5	158.9	1,150	4.62	76		
			0	0.29	13.9	5,000	4,700	1.88	66.2	200	0.80	52		

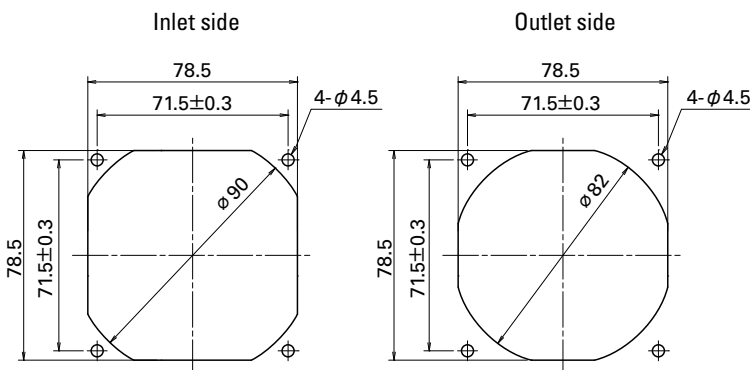
*PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 501).

Dimensions (unit: mm)



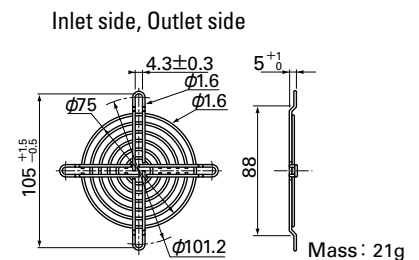
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

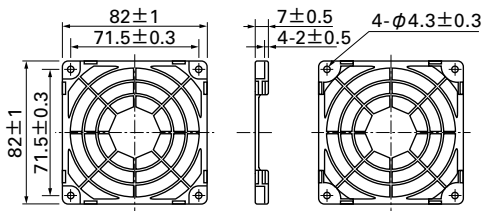
Model : 109-049E Surface treatment : Nickel-chrome plating (silver)
: 109-049H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

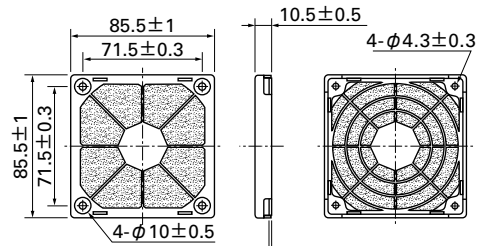
Model : 109-1002G



Mass : 10g

Resin Filter Kits

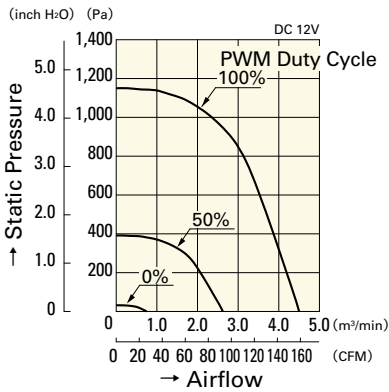
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



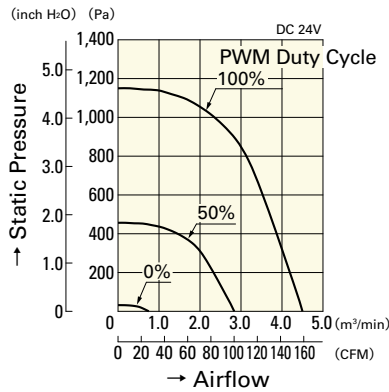
Mass : 19g

Airflow - Static Pressure Characteristics

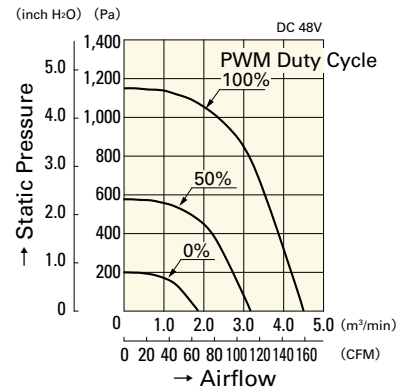
PWM Duty Cycle



9CRA0812P8G001

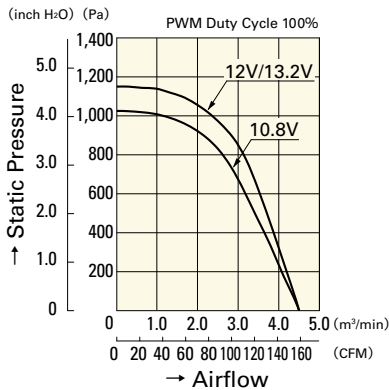


9CRA0824P8G001

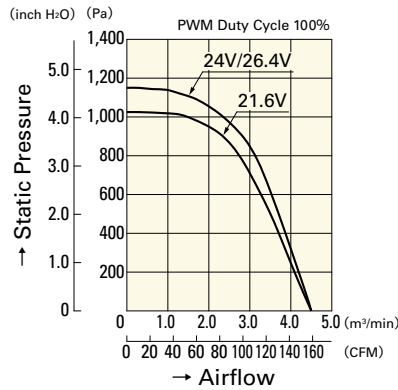


9CRA0848P8G001

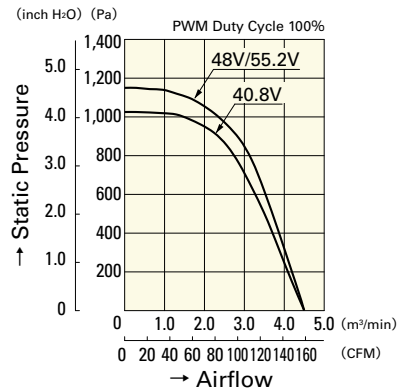
Operating Voltage Range



9CRA0812P8G001

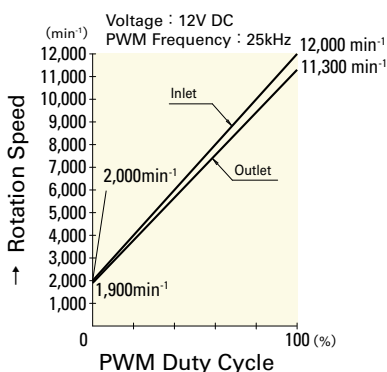


9CRA0824P8G001

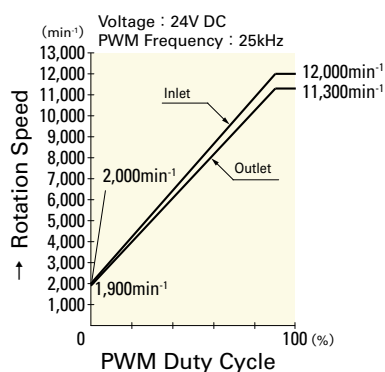


9CRA0848P8G001

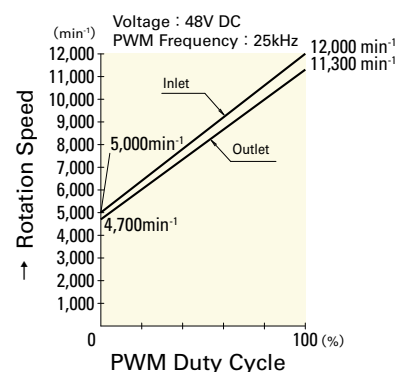
PWM Duty - Speed Characteristics Example



9CRA0812P8G001



9CRA0824P8G001



9CRA0848P8G001

92mm sq.

San Ace 92



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

92×92×76mm (Mass : 510g) **9CRA type**

Specifications

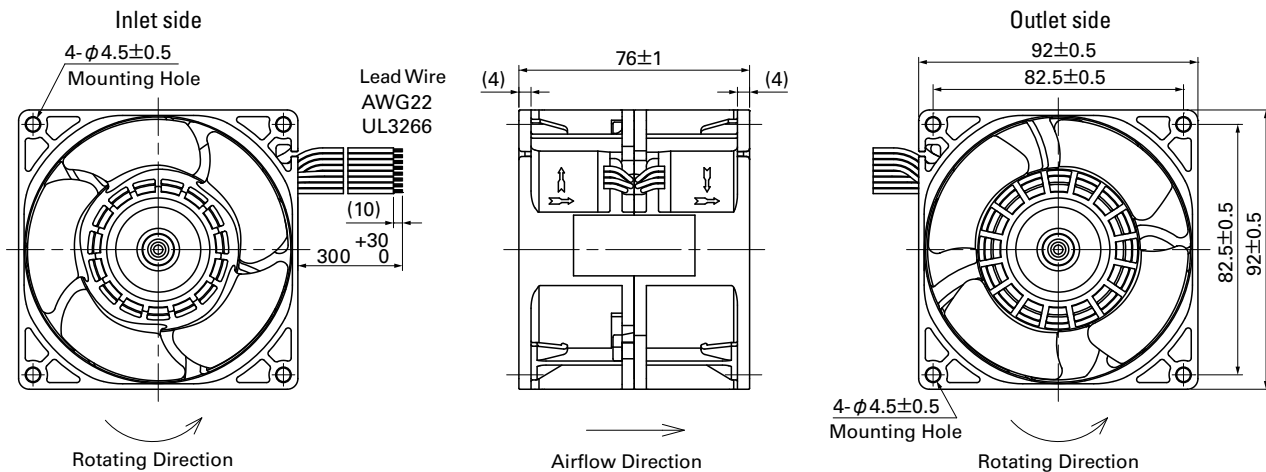
The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Notes)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRA0912P0G001	12	10.2 to 13.2	100	9.0	108.0	13,300	12,200	5.8	205	1,650	6.63	81	-20 to +70	40,000/60°C (70,000/40°C)
			20	0.42	5.04	3,500	3,200	1.48	52.3	140	0.56	47		
9CRA0948P0G601	48	36 to 60	100	2.2	105.6	13,300	12,200	5.8	205	1,650	6.63	81	-20 to +70	40,000/60°C (70,000/40°C)
			20	0.15	7.20	3,500	3,200	1.48	52.3	140	0.56	47		

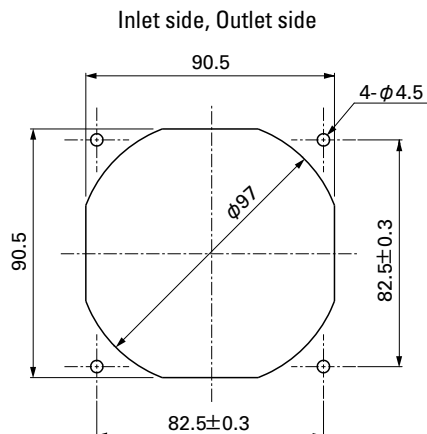
Note: Fan does not rotate when PWM duty cycle is 0%.

*PWM Frequency : 25kHz

Dimensions (unit: mm)



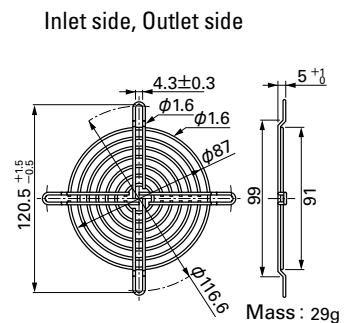
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

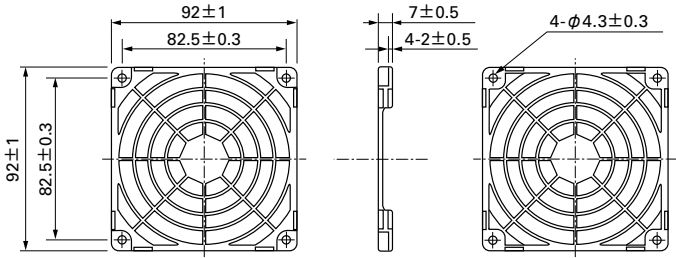
Model : 109-099E Surface treatment : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

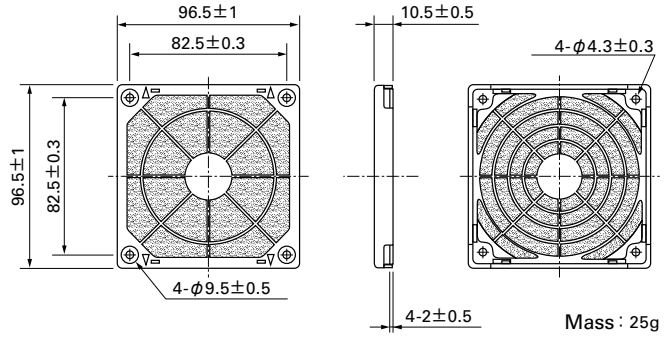
Model : 109-1001G



Mass : 12g

Resin Filter Kits

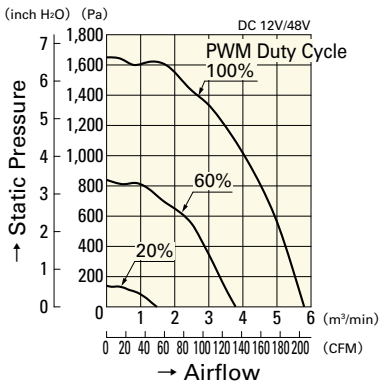
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



Mass : 25g

Airflow - Static Pressure Characteristics

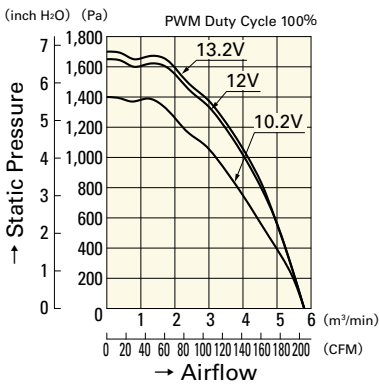
PWM Duty Cycle



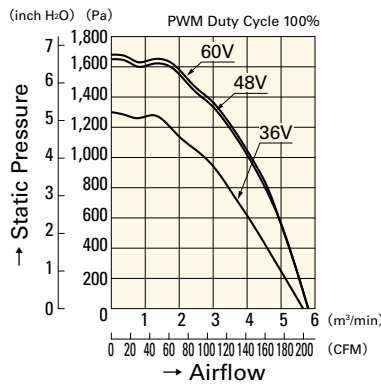
9CRA0912P0G001

9CRA0948P0G601

Operating Voltage Range

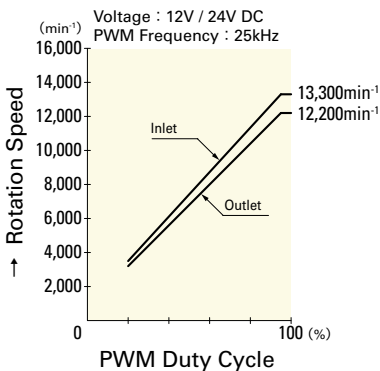


9CRA0912P0G001



9CRA0948P0G601

PWM Duty - Speed Characteristics Example



9CRA0912P0G001

9CRA0948P0G601

120mm sq.

San Ace 120



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

120×120×76mm (Mass : 670g) **9CR type**

Specifications

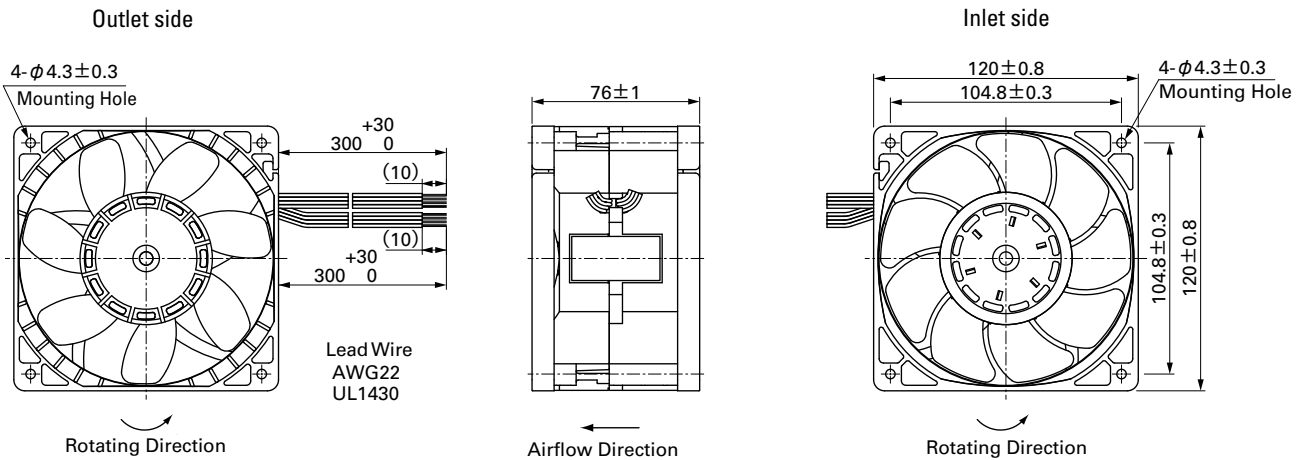
The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchtH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CR1212P0G03	12	10.8 to 13.2	100	7.2	86.4	6,200	3,800	8.5	300	480	1.93	70	-20 to +60	40,000/60°C
			0	1.1	13.2	2,700	1,800	3.8	134	95	0.38	51		

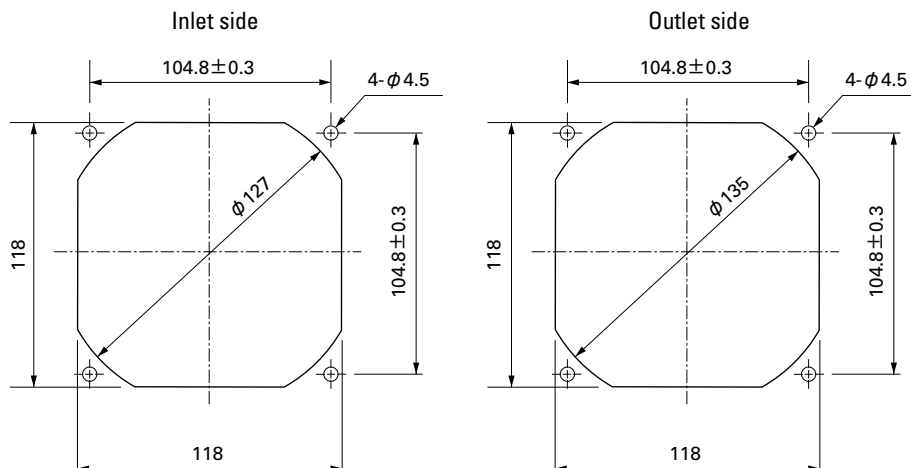
*PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 501).

Dimensions (unit: mm)



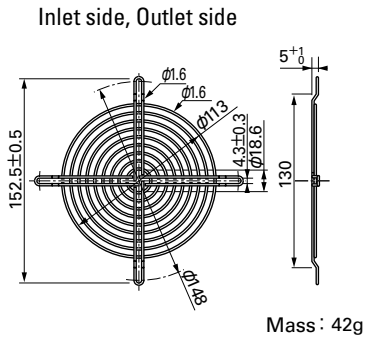
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

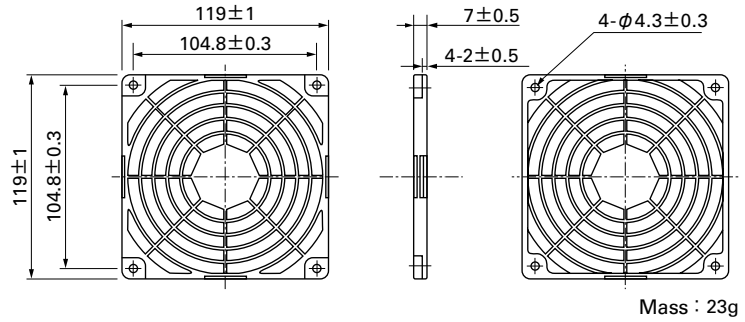
Finger Guards

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



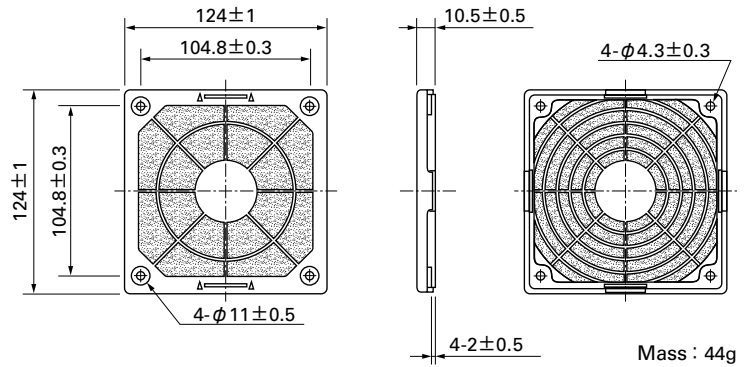
Resin Finger Guards

Model : 109-1000G



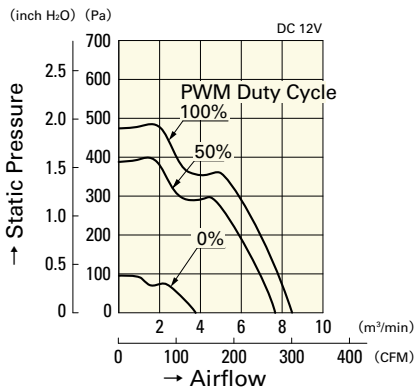
Resin Filter Kits

Model : 109-1000F13 (13PPI), 109-1000F20 (20PPI)
 : 109-1000F30 (30PPI), 109-1000F40 (40PPI)



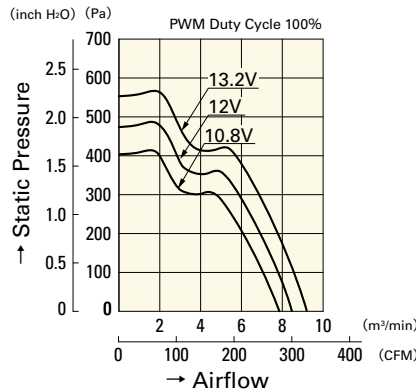
Airflow - Static Pressure Characteristics

PWM Duty Cycle



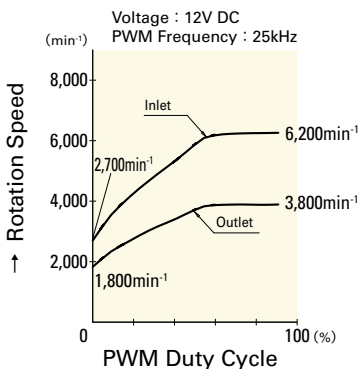
9CR1212P0G03

Operating Voltage Range



9CR1212P0G03

PWM Duty Speed Characteristics Example



9CR1212P0G03

φ172_{mm}

San Ace 172



General Specifications

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C , rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control) white
- Storage Temperature -30°C to +70°C (Non-condensing)

φ172mm × 150mm × 102mm (Mass : 1,600g) **9CR type**

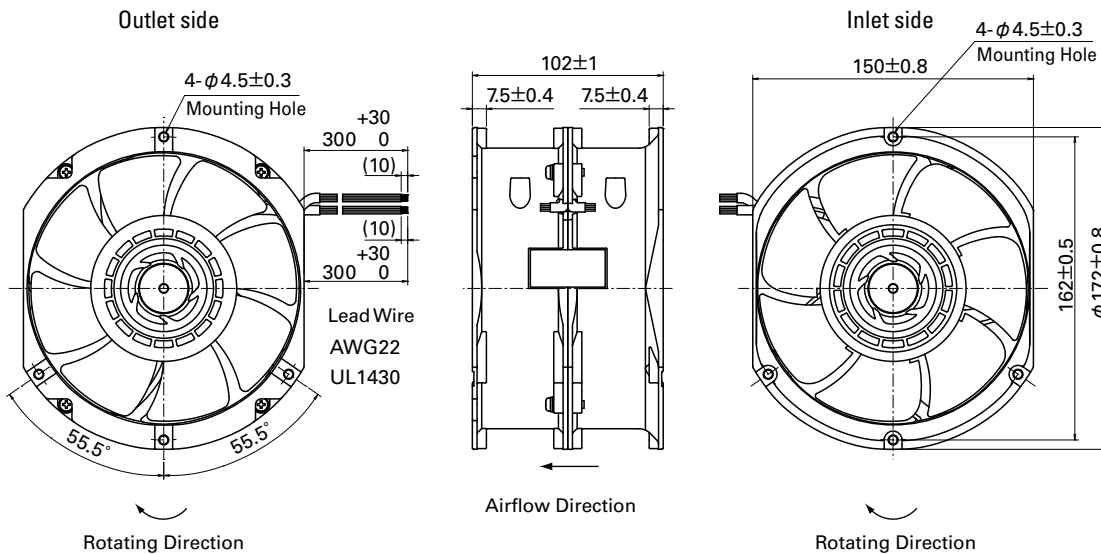
Specifications

The following nos. **have PWM controls and pulse sensors.**

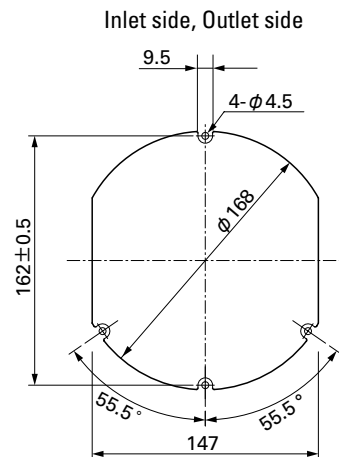
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CR5748P9G001	48	36 to 72	100	5.5	264	7,300	6,400	18	636	1,400	5.62	83	-20 to +70	40,000/60°C
			0	0.5	24	2,400	1,900	5.5	194.3	152	0.61	54		

*PWM Frequency : 25kHz

Dimensions (unit: mm)



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

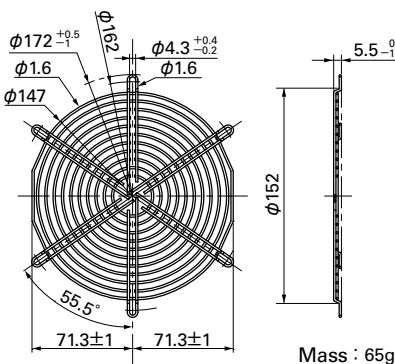


Options (unit: mm)

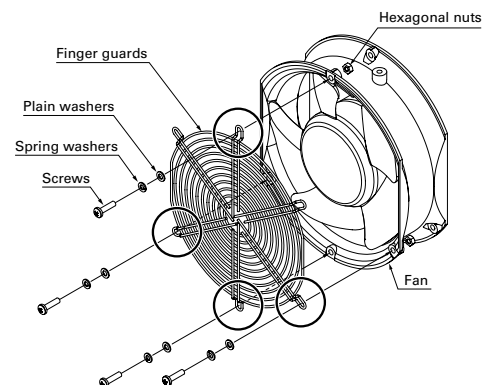
Finger Guards

Model : 109-319J Color Surface treatment : Nickel-chrome plating (silver)

Inlet side, Outlet side



Finger guard 109-319J should be mounted with four holes as in the drawing.



Options (unit: mm)

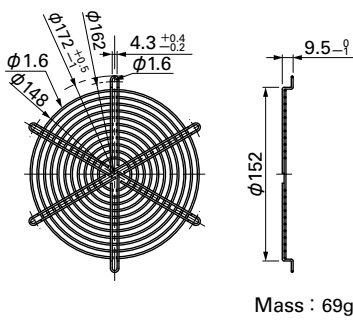
Finger Guards

Color
 Model : 109-319E Surface treatment : Nickel-chrome plating (silver)
 : 109-319H : Cation electropainting (black)

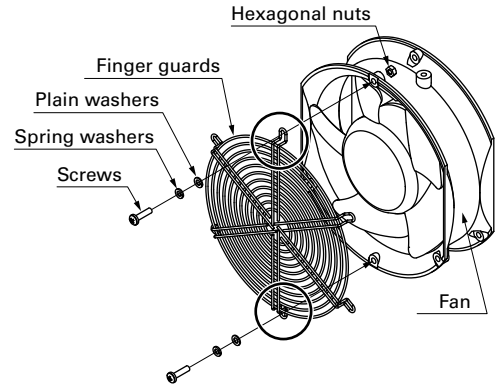
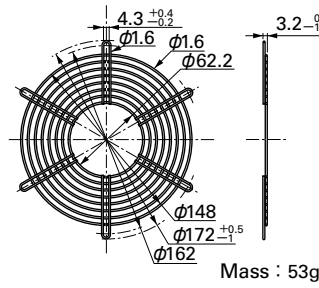
Color
 Model : 109-320 Surface treatment : Nickel-chrome plating (silver)

Finger guards 109-319E, 109-319H, and 109-320 should be mounted with two holes as in the drawing and do not use any other holes.

Inlet side, Outlet side

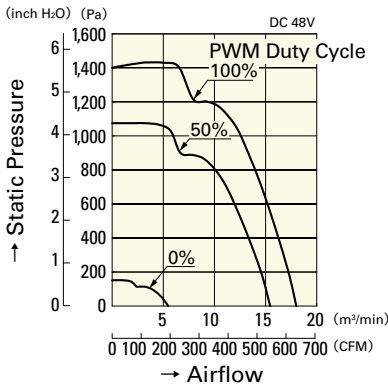


Outlet side



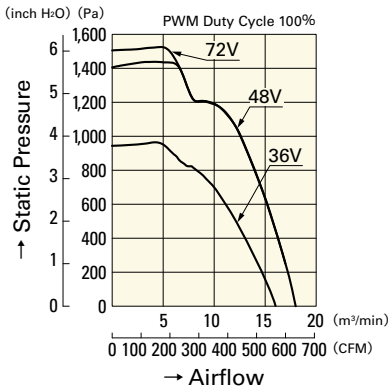
Airflow - Static Pressure Characteristics

PWM Duty Cycle



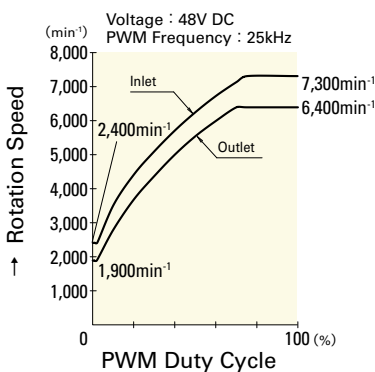
9CR5748P9G001

Operating Voltage Range



9CR5748P9G001

PWM Duty - Speed Characteristics Example



9CR5748P9G001

60mm sq.

San Ace 60L



General Specifications

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

60×60×76mm (Mass : 300g) **9CRL type** **Counter Rotating**

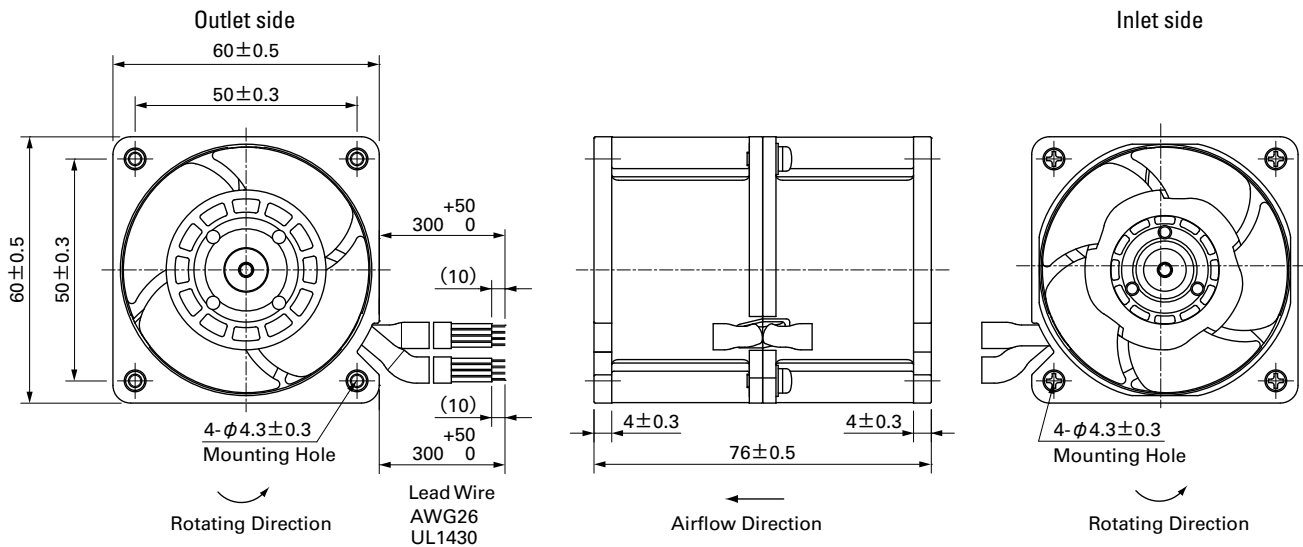
Specifications

The following nos. **have PWM controls and pulse sensors.**

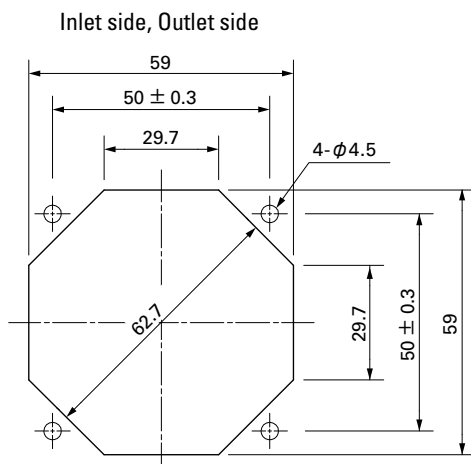
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]		Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
			100	0			Inlet	Outlet	2.0	70.6	1000	4.0			
9CRL0612P0G001	12	10.8 to 13.2	100	0	2.3	27.6	16,500	13,000	2.0	70.6	1000	4.0	66	-20 to +70	130,000/60°C
					0.22	2.7	3,600	2,800	0.43	15.1	47.6	0.19	32		

*PWM Frequency : 25kHz

Dimensions (unit: mm)



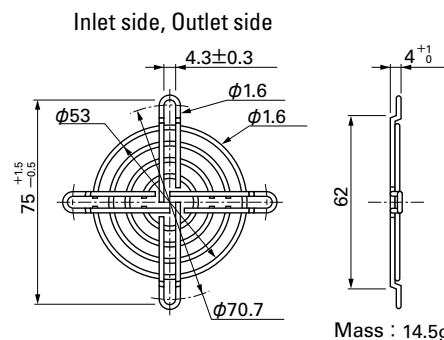
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)

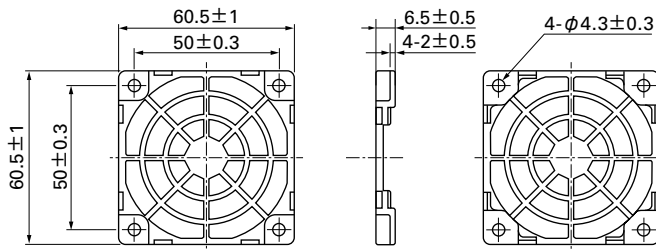


Mass : 14.5g

Options (unit: mm)

Resin Finger Guards

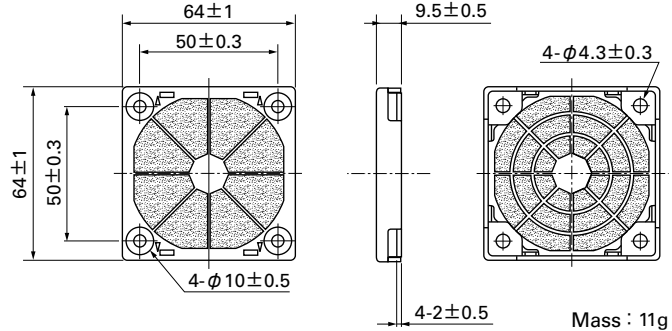
Model : 109-1003G



Mass : 7g

Resin Filter Kits

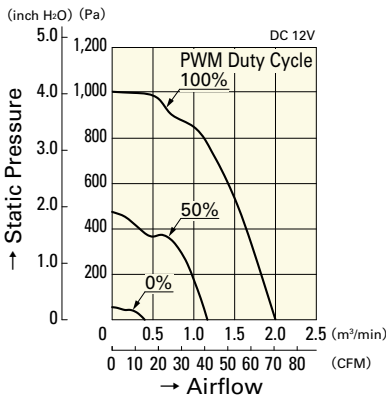
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



Mass : 11g

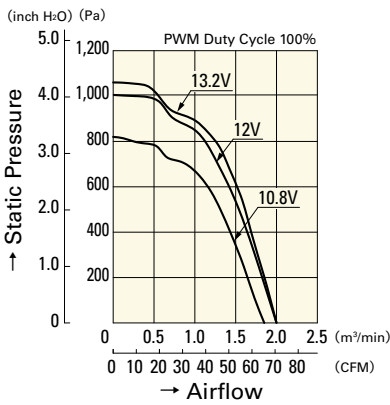
Airflow - Static Pressure Characteristics

PWM Duty Cycle



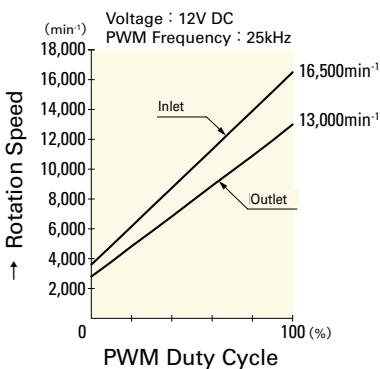
9CRL0612P0G001

Operating Voltage Range



9CRL0612P0G001

PWM Duty - Speed Characteristics Example



9CRL0612P0G001

80 mm sq.

San Ace 80L



General Specifications

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

80×80×80 mm (Mass : 490g) **9CRL type** **Counter Rotating**



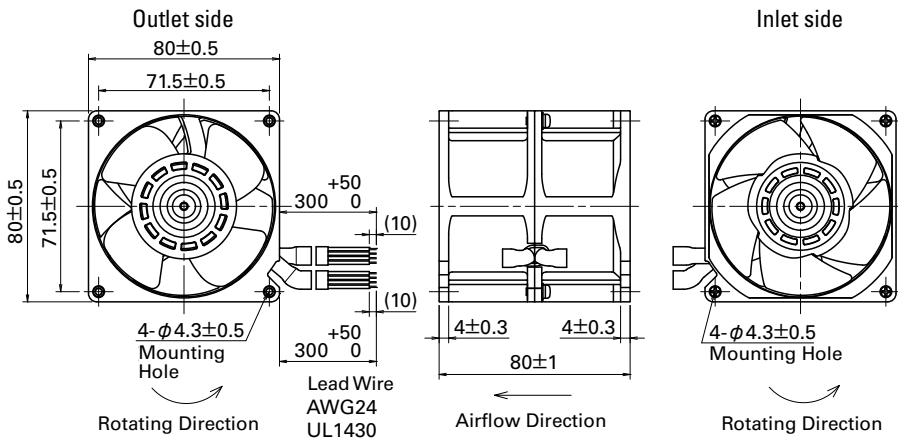
Specifications

The following nos. **have PWM controls and pulse sensors.**

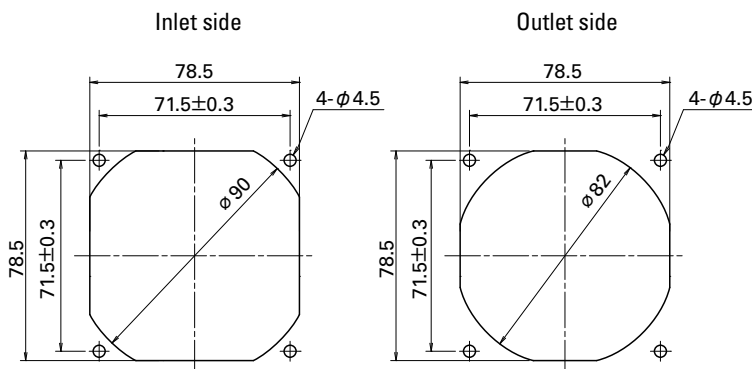
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRL0812P8G001	12	10.8 to 13.2	100	5.3	63.6	12,000	11,300	4.5	158.9	1,150	4.62	76	-20 to +70	130,000/60°C
			0	0.2	2.4	2,000	1,900	0.74	26.1	31.9	0.13	30		

※PWM Frequency : 25kHz

Dimensions (unit: mm)



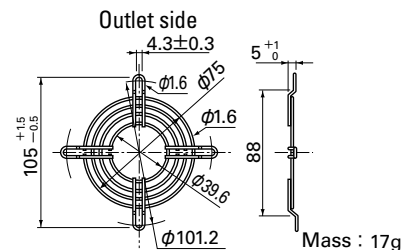
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



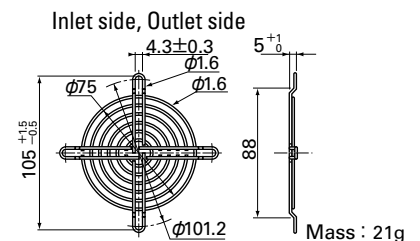
Options (unit: mm)

Finger Guards

Model : 109-049C Surface treatment : Nickel-chrome plating (silver) Color



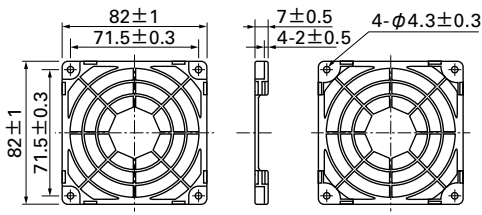
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

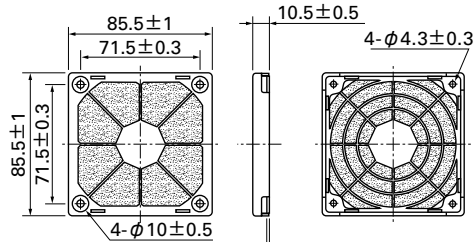
Model : 109-1002G



Mass : 10g

Resin Filter Kits

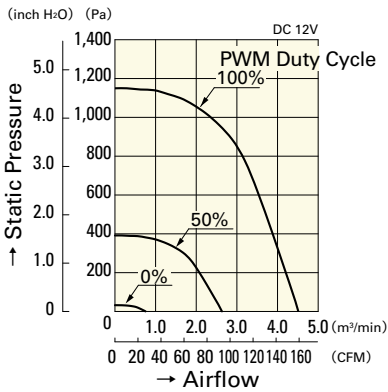
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



Mass : 19g

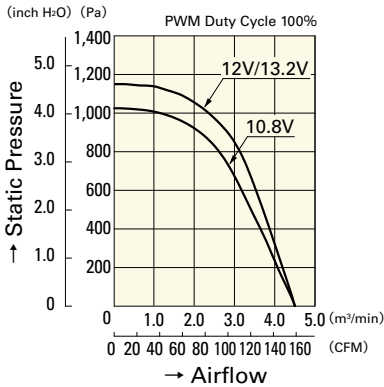
Airflow - Static Pressure Characteristics

PWM Duty Cycle



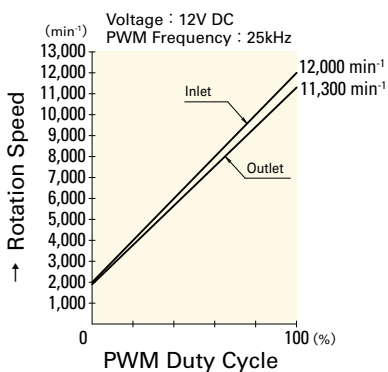
9CRL0812P8G001

Operating Voltage Range



9CRL0812P8G001

PWM Duty - Speed Characteristics Example



9CRL0812P8G001

DC
Long Life Fan 80mm