

San Ace

DC COOLING FAN

DC San Ace



2011

SANYO DENKI

San Ace COOLING SYSTEM

■ DC Fan

Cooling fan operating at 5V, 12V, 24V, and 48V DC
An extensive lineup of fans featuring large airflow and high static pressure
36mm sq. to $\phi 200$ mm.



■ Low Power Consumption Fan

Cooling fan features energy-saving while achieved high large air flow and high static pressure.
40mm sq. to 92mm sq.



■ Silent Fan

Cooling fan that decrease noise and vibration
60mm sq. to 120mm sq.



■ Splash Proof Fan

Cooling fan of IP54 and IP55 waterproof capability
60mm sq. to $\phi 172$ mm.



■ Splash Proof Centrifugal Fan

IP54 splash proof centrifugal fan
 $\phi 100$ mm to $\phi 175$ mm.



■ Oil Proof Fan

Cooling fan capable of operating in an oil-mist environment
40mm sq. to 120mm sq.



■ Long Life Fan

Cooling fan that has an expected life of 10 years
40mm sq. to $\phi 172$ mm.



■ Counter Rotating Fan

Airflow and static pressure become higher than two conventional products of the same size connected in a series
38mm sq. to 120mm sq.



■ Centrifugal Fan

Cooling fan blows air in a centrifugal course.
It features high static pressure.
 $\phi 100$ mm. to $\phi 175$ mm.



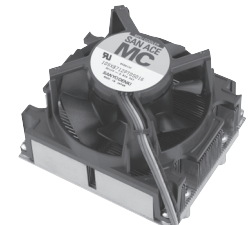
■ Blower

Cooling fan specialized for high static pressure
52mm to 160mm



■ CPU Cooler

Models for cooling CPU



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DC Fan

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52mm sq.	P.29 to 30
60mm sq.	P.31 to 48
80mm sq.	P.49 to 68
92mm sq.	P.69 to 80
120mm sq.	P.81 to 96
127mm sq.	P.97 to 100
140mm sq.	P.101 to 102
150mm sq.	P.103 to 104
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φ 200mm	P.117 to 120

Low Power Consumption Fan

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Silent Fan

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Splash Proof Fan

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Splash Proof Centrifugal Fan

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Oil Proof Fan

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80mm sq.	P.199 to 200
92mm sq.	P.201 to 204
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Long Life Fan

40mm sq.	P.207 to 208
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Counter Rotating Fan

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Centrifugal Fan

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Blower

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CPU Cooler

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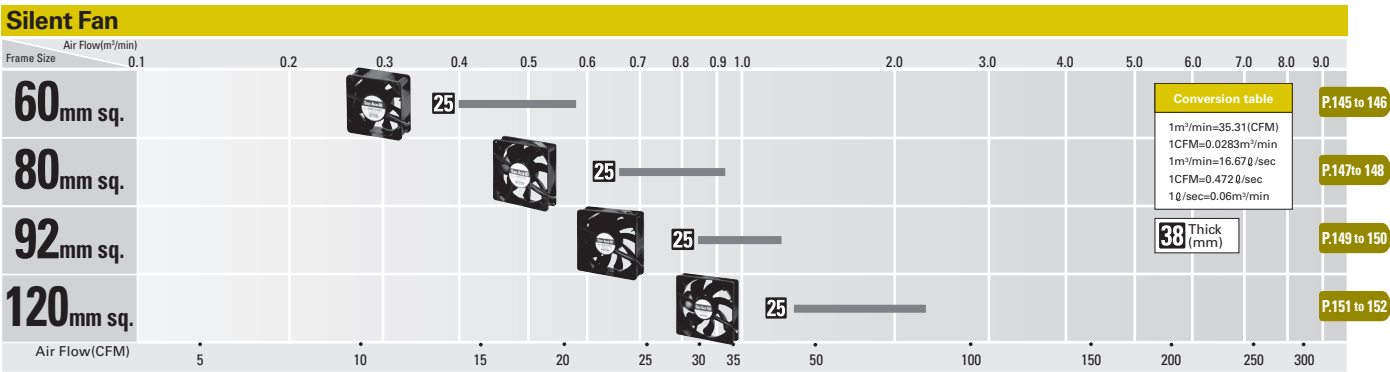
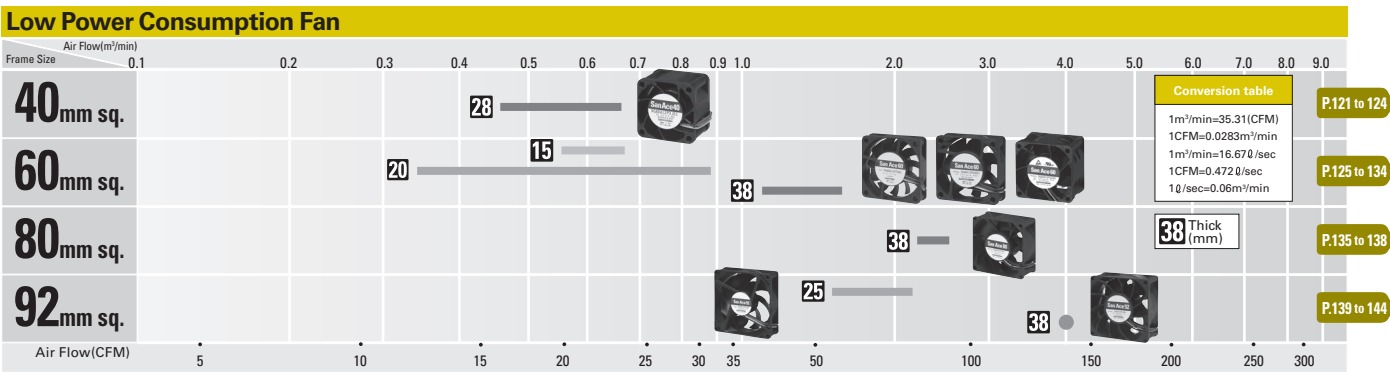
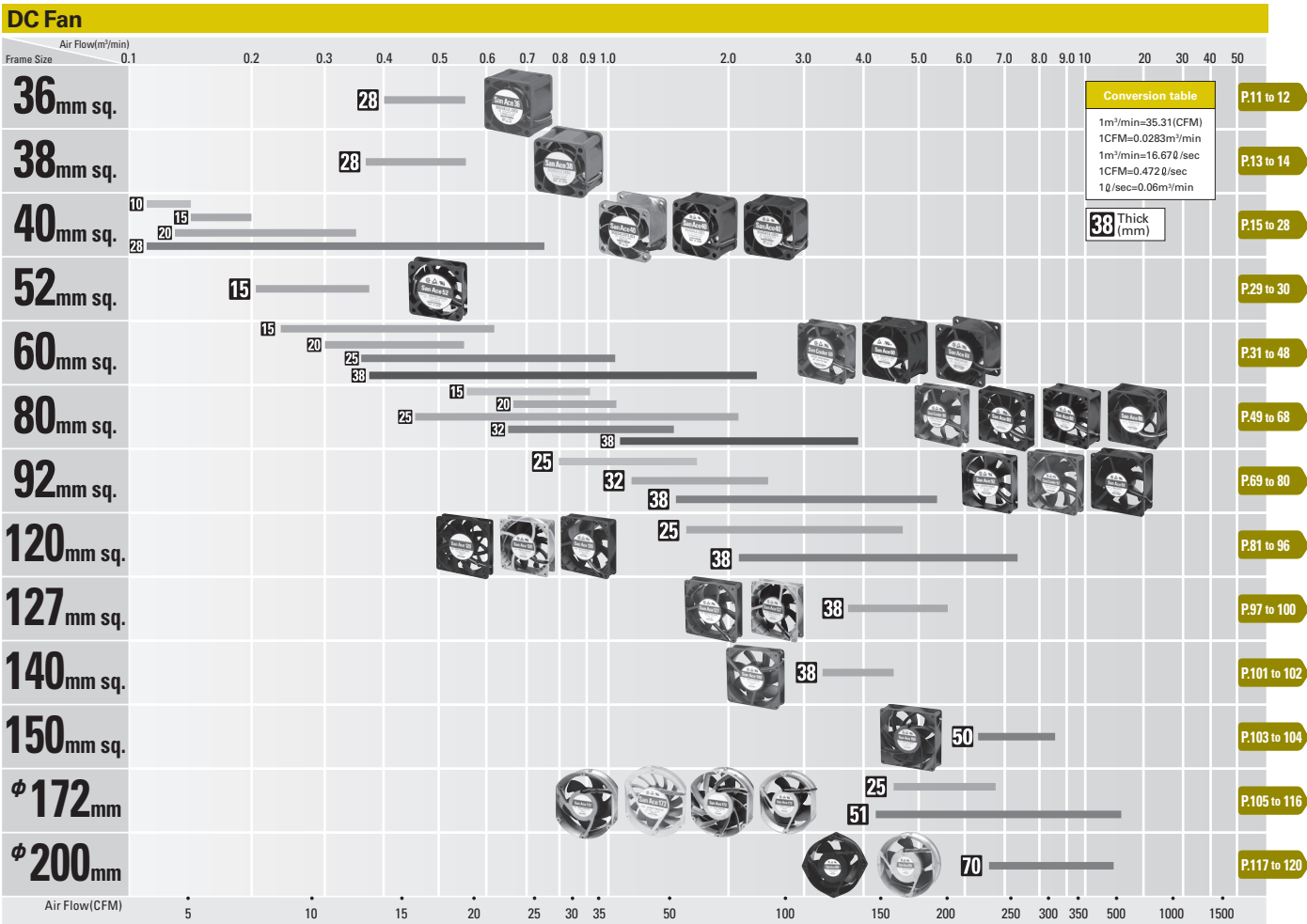
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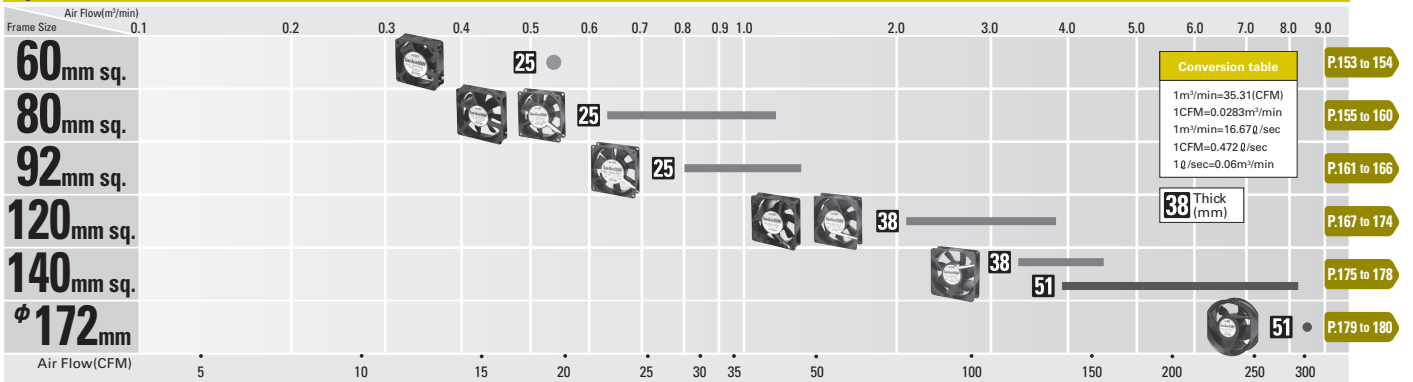
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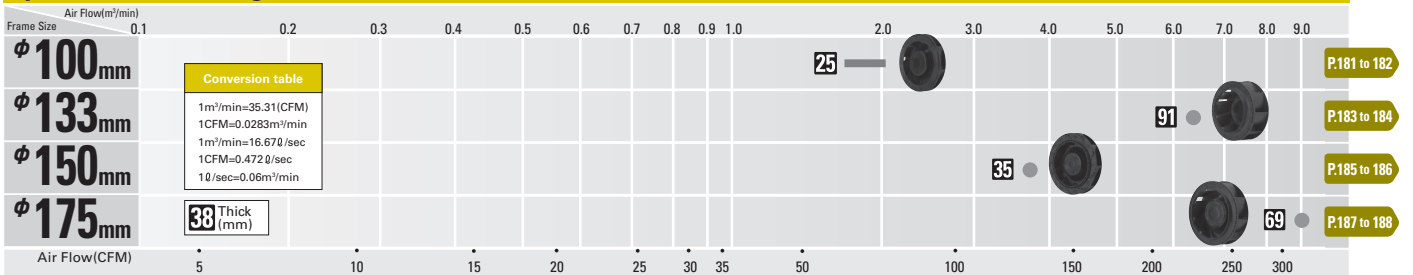
Domain Diagram



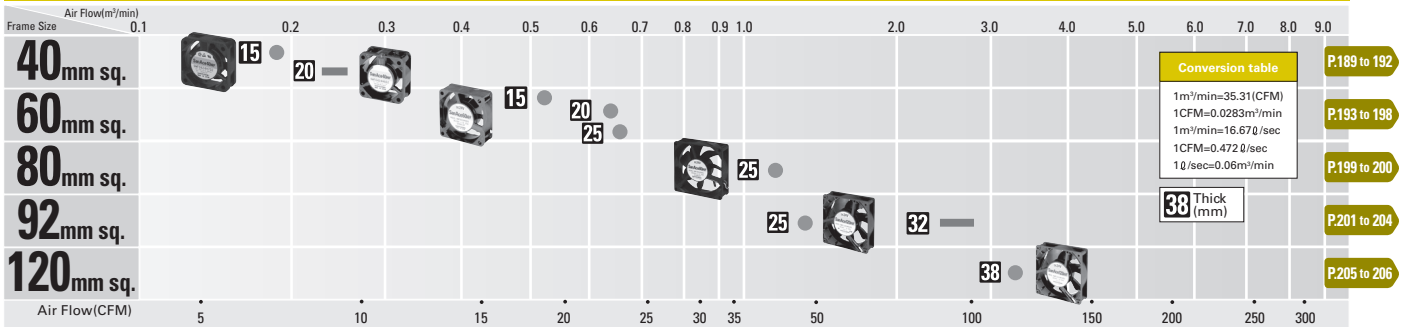
Splash Proof Fan



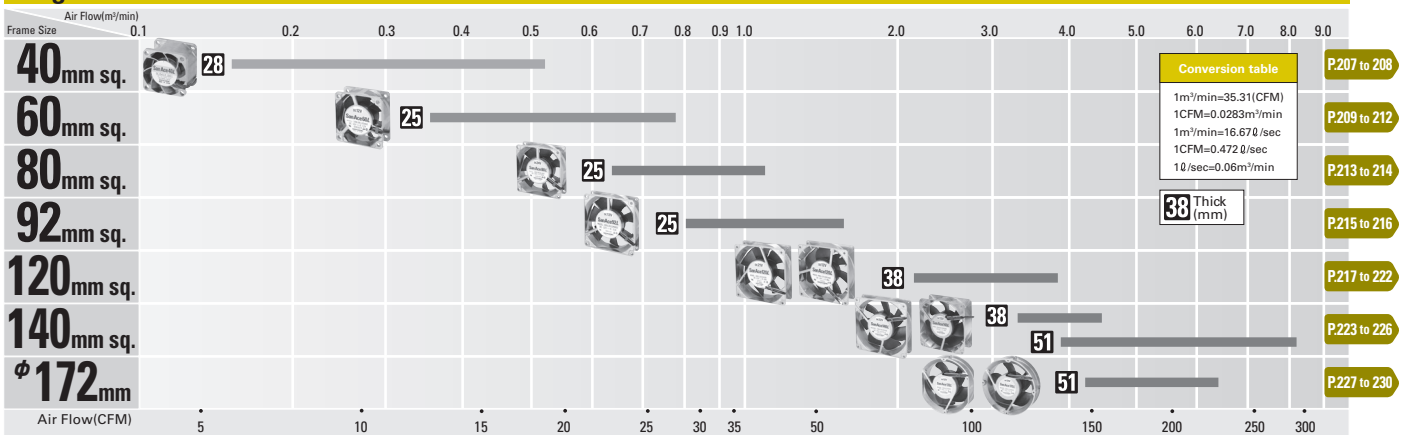
Splash Proof Centrifugal Fan



Oil Proof Fan



Long Life Fan



Part Numbering System

DC Fan

9GV	12	12	J	1	01	1
Series name / frame material 109P / Plastics 109R / Plastics 9GV / Plastics Aluminum 9GE / Aluminum 9G / Plastics 9A / Plastics 9SG / Aluminum 109E / Aluminum 9EC / Aluminum	Frame size 36 : 36×36mm 03 : 38×38mm 04 : 40×40mm 05 : 52×52mm 06 : 60×60mm 08 : 80×80mm 09 : 92×92mm 12 : 120×120mm 13 : 127×127mm 14 : 140×140mm 15 : 150×150mm 17 : ϕ 172mm 47 : ϕ 172mm×147mm(side cut) 57 : ϕ 172mm×150mm(side cut) 20 : ϕ 200mm	Voltage 05 : 5V 12 : 12V 24 : 24V 48 : 48V etc	Speed code A,B,C,D,E,F,G,H,J,K, L,M,S,W etc Two speed : MH, LM,HD,HE etc	Frame thickness 0 : 70mm 1 : 38mm thick 2 : 32mm thick 3 : 28mm thick 4 : 25mm thick 5 : 50mm thick 51mm thick 6 : 20mm thick 7 : 15mm thick 9 : 10mm thick	Sensor specifications 01 : With a pulse sensor 02 : Without a sensor D01 : With a lock sensor	Frame type Nil : Ribbed frame 1 : Ribless frame 3 : 40×40×28mm for 1U applications Plastics frame

Low Power Consumption Fan

9GA	06	12	H	6	001	
Series name / frame material 9GA / Plastics	Frame size 04 : 40×40mm 06 : 60×60mm 08 : 80×80mm 09 : 92×92mm 12 : 120×120mm	Voltage 12 : 12V 24 : 24V	Speed code J,G,H,M,S etc	Frame thickness 1 : 38mm thick 2 : 32mm thick 3 : 28mm thick 4 : 25mm thick 6 : 20mm thick 7 : 15mm thick	Individual customer's spec 2 or 3 digits	Frame type Nil : Ribless frame 1 : Ribless frame

Silent Fan

9S	06	12	H	4	01	
Series name / frame material 9S / Plastics	Frame size 06 : 60×60mm 08 : 80×80mm 09 : 92×92mm 12 : 120×120mm	Voltage 12 : 12V 24 : 24V	Speed code F,H,L,M etc	Frame thickness 4 : 25mm thick	Sensor specifications 01 : With a pulse sensor 02 : Without a sensor D01 : With a lock sensor	Frame form Nil : Ribbed 1 : Ribless

Splash Proof Fan

109W	12	12	H	1	01	
Series name / frame material 109W / Aluminum 9WS / Plastics 9WG / Aluminum 9WB / Aluminum 9WP / Plastics9WP	Frame size 06 : 60×60mm 08 : 80×80mm 09 : 92×92mm 12 : 120×120mm 14 : 140×140mm	Voltage 12 : 12V 24 : 24V 48 : 48V etc	Speed code A,D,E,F,G,H,J,L, M,S etc	Frame thickness 1 : 38mm thick 4 : 25mm thick 5 : 51mm thick	Sensor specifications 01 : With a pulse sensor 02 : Without a sensor D01 : With a lock sensor	Frame form Nil : Ribbed frame 1 : Ribless frame

Splash Proof Centrifugal Fan

9W1T	M	48	P	4	H	01
Series name / frame material 9W1T / Aluminum	Size M : ϕ 100mm J : ϕ 133mm N : ϕ 150mm G : ϕ 175mm	Voltage 24 : 24V 48 : 48V	PWM speed control function	Frame thickness 0 : 69mm thick MIN 1 : 35mm thick 4 : 25mm thick	Speed code H,G etc	Individual customer's spec 2 or 3 digits

Part Numbering System

Oil Proof Fan

9WF	12	24	H	1	01	
Series name / frame material 9WF / Plastics	Frame size 04 : 40×40mm 06 : 60×60mm 08 : 80×80mm 09 : 92×92mm 12 : 120×120mm	Voltage 24 : 24V	Speed code H	Frame thickness 1 : 38mm thick 2 : 32mm thick 4 : 25mm thick 6 : 20mm thick 7 : 15mm thick	Sensor specifications 01 : With a pulse sensor 02 : Without a sensor D01 : With a lock sensor	Frame form Nil : Ribbed frame

Long Life Fan

109L	12	12	H	1	01
Series name / frame material 109L / Aluminum 9LB / Aluminum 9GL / Aluminum 9L / Aluminum	Frame size 04 : 40×40mm 06 : 60×60mm 08 : 80×80mm 09 : 92×92mm 12 : 120×120mm 14 : 140×140mm 17 : ϕ 172mm 57 : ϕ 172mm×150mm(side cut)	Voltage 12 : 12V 24 : 24V 48 : 48V etc	Speed code E,F,G,H,J,L,M,S etc	Frame thickness 1 : 38mm thick 3 : 28mm thick 4 : 25mm thick 5 : 51mm thick	Sensor specifications 01 : With a pulse sensor 02 : Without a sensor D01 : With a lock sensor

Counter Rotating Fan

9CRA	04	12	K	4	01
Series name / frame material 9CR / Plastics 9CRA / Plastics 9CRE / Aluminum 9CRD / Plastics	Frame size 03 : 36×36mm 04 : 40×40mm 06 : 60×60mm 08 : 80×80mm 09 : 92×92mm 12 : 120×120mm	Voltage 12 : 12V	Speed code J,G,S,H,K etc	Frame thickness 0 : 76mm thick 4 : 48mm thick 5 : 56mm thick 8 : 80mm thick	Sensor specifications 01 : With a pulse sensor 02 : Without a sensor D01 : With a lock sensor

Centrifugal Fan

9T	M	48	P	4	H	
Series name / frame material 9T / Aluminum	Size M : ϕ 100mm J : ϕ 133mm N : ϕ 150mm G : ϕ 175mm	Voltage 24 : 24V 48 : 48V	PWM speed control function P	Frame thickness 0 : 69mm thick MIN 1 : 35mm thick 4 : 25mm thick	Speed code H,G etc	Individual customer's spec 2 or 3 digits

The meaning of the specifications

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9G0812G101	12	7 to 13.8	1.1	13.2	6,300	2.55 90	211 0.847	51	-10 to +70	40,000

- ① Rated Voltage This is the necessary voltage to drive the fan. DC12V, DC24V and DC48V are available.
Single-phase AC100V, AC115V, AC200V and AC230V are also available. (Please refer to AC fan catalogue.)
- 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 Air Flow 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 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 Page 290 for the method used to measure the noise.
- ⑨ Operating Temperature Range The temperature range over which fan operation is guaranteed (Non- condensing)
- ⑩ Life Expectancy 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%.
For details, please refer to Page 290.

Safety standards

List of safety standards acquired→Please refer to Page 301.

Description of safety standards

1. UL ratings (USA)



Underwriters Laboratories Inc. was established by the American Union of Fire Insurance Underwriters. The purpose of UL is to ensure safety of machines, equipment, and materials and protect human lives and property from fire and other accidents. To that end, UL has conducted numerous tests and extensive research and, as a result, set up UL ratings. Any seller of products in any of the majority of the states of the USA must produce their products according to the UL ratings, have them pass UL-specified safety inspections, and have them listed in UL's registration book. Therefore, to export and sell any product in the United States, one must in most cases apply for UL-listing.

Additionally, UL is accredited by The Standards Council of Canada (SCC) as both a Certification Organization (CO) and a Testing Organization (TO) and is officially recognized in all provinces and territories throughout Canada. Accordingly, our products can be tested by UL for compliance with Canadian safety standards. Certified products are entitled to display the C-UL Mark, which authorizes their use and sale in Canada. If products are deemed to be compliant with both U.S. and Canadian standards, then both the UL Mark and C-UL Mark can be displayed or a combination U.S. and Canadian mark (bottom left).

Our products are certified as satisfying all UL507 requirements.

2. CSA standards (Canada)



The Canadian Standards Association (CSA) was set up in response to the advice of the Canadian government. In Canada, the law prohibits the use and sale of any product other than those approved under CSA in terms of safety. CSA has set up CSA standards as inspection procedures and other requirements to ensure product safety.

Our products are certified as satisfying the CSA standard C22.2 No. 113.

3. EN standards (EU members)



In the EU territory, the harmonization of industrial standards and safety standards of different countries is under way. The unified standards are called Harmonized Standards. Each of these standards is marked EN above the standard number. EN standards offer the grounds in design and manufacture when one exports a product to the EU territory. In order for a product to receive a safety marking, the product must be found to conform to TÜV, VDE, or other relevant standard.

Our products are certified as satisfying all TÜV Rheinland EN60950 requirements.

4. Electrical Appliance and Material Safety Law



As of April 1, 2001, the Electrical Appliance and Material Control Law has been revised and reenacted as the Electrical Appliance and Material Safety Law.

AC fans are classified as 'Blowers' under 'Electric motor-operated appliances'. They are categorized as electrical products other than specific electrical appliances (with the exception of some models) and are required to be labeled to indicate PSE certification.

5. CE marking



To distribute their equipment in the EU territory, manufacturers are obligated to give a CE marking as proof that the equipment conforms to related EU directives. Manufacturers use EN standards as criteria of judgment as to whether the equipment satisfies the requirements of specific directives or, in the absence of applicable EN standards, they use IEC standards. Manufacturers then prepare a self-declaration to indicate that the equipment conforms to related directives and apply a CE marking. (Depending on the degree of risk of the equipment, some kinds of equipment are required to receive type tests conducted by certified authorities and, after a type test certificate is obtained, manufacturers make a self-declaration.)

Scope of application and compulsory timing of major EC directives

Machine directives (89/392/EEC, 91/368/EEC, and 93/44/EEC)

These directives apply to equipment that has a moving part that may injure humans. The directives generally apply to a wide range of machine tools and other industrial machines (became compulsory on January 1, 1995).

EMC directives (89/326/EEC and 92/31/EEC)

They apply to equipment which may be affected by electromagnetic interference (EMI) or has electromagnetic susceptibility (EMS) (became compulsory on January 1, 1996).

Low-voltage directive (73/23/EEC)

This directive applies to equipment that is used in an AC range between 50 and 1,000V and in a DC range between 75 and 1,500V (became compulsory on January 1, 1997).

JIS: Japanese Industrial Standards

Japan's national standards related to mining and manufacturing industries

IEC : International Electrotechnical Commission

This is an international commission on electrical standardization. This commission promotes the unification and cooperation of international standards related to electric and electronics engineering and issues IEC standards in order eventually to allow different countries to conform to the international standards.

DIN : Deutsches Institut für Normung e.V.

This is a German standards institute. The institute uses a wide-range set of standards covering many industrial sectors. The set of standards includes basic standards.

VDE : Verband Deutscher Elektrotechniker e.V.

It is a German association of electric engineers. VDE establishes safety standards related to electrical engineering and issues them as DIN-VDE standards.

RoHS directive

From Jan 2006, SANYO DENKI has produced in compliance with EU RoHS directive (*) that restricts usage of Specific hazardous substances (Cadmium, Lead, Mercury, Chromium hexavalent, PBD, PBDE) for electronic products.

All products on this catalog are compliant with EU RoHS directive.

(*) EU Directive 2002/95/EC

Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

36mm sq.**San Ace 36**

28mm thick (GV type)

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

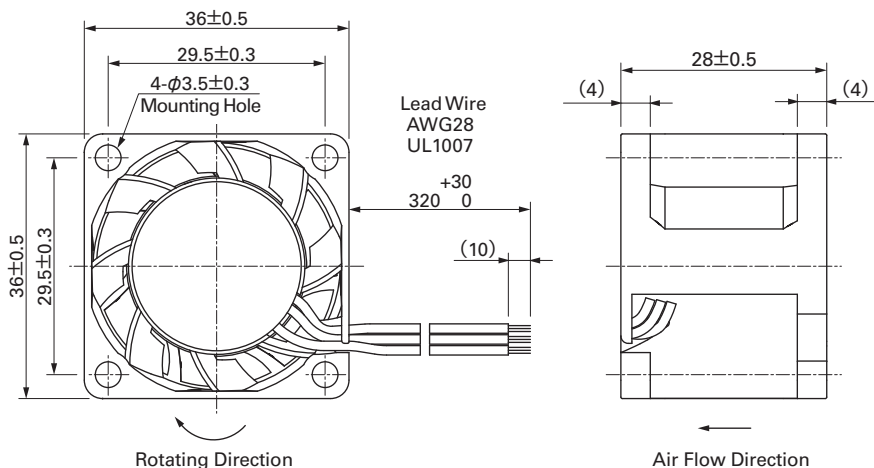
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black Sensor yellow
- Storage Temperature ... -30°C to +70°C (Non-condensing)

36×36×28mm (Mass : 46g)**GV type****Specifications**

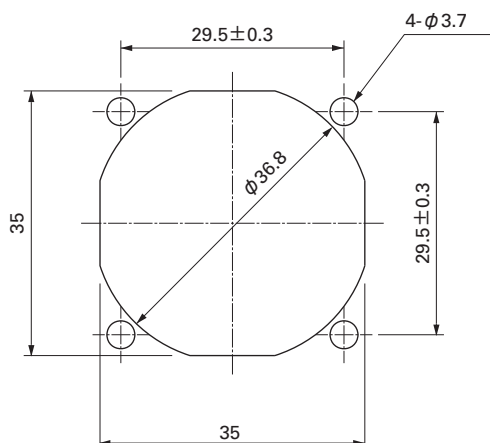
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL	Operating Temperature	Life Expectancy
						[m ³ /min]	[CFM]	[Pa]	[inchH ₂ O]	[dB(A)]	[°C]	[h]
9GV3612J301	12	7.0 to 13.2	0.75	9.0	19,000	0.55	19.4	525	2.108	58.5	-10 to +60	40,000
9GV3612G301			0.34	4.08	14,000	0.40	14.1	275	1.104	52.0		

Without Sensor Pulse Sensor Available in all models.Lock SensorPWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Inlet side, Outlet side

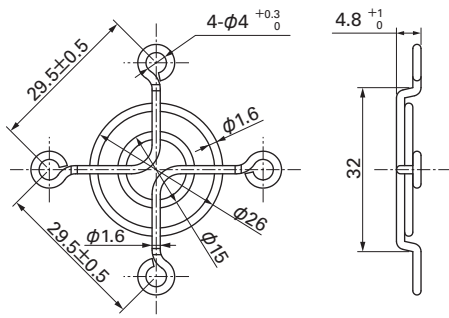


Options (Unit : mm)

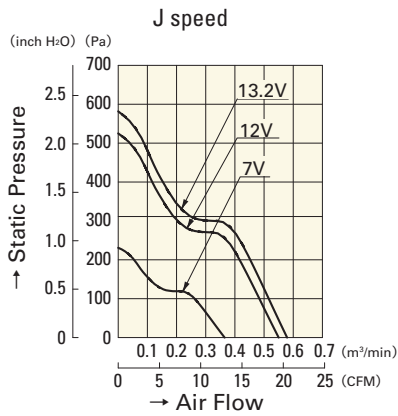
Finger guards

Model : 109-1050 Surface treatment : Nickel-chrome plating (silver) Color

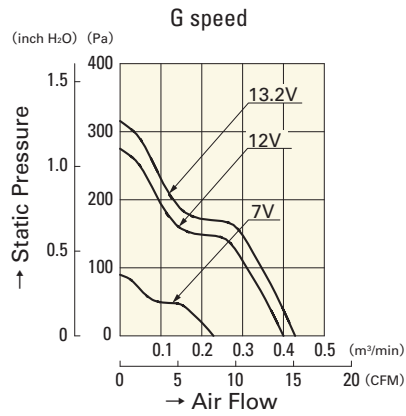
Inlet side, Outlet side



Air Flow - Static Pressure Characteristics



9GV3612J301



9GV3612G301

38mm sq.**San Ace 38**

28mm thick (GV type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

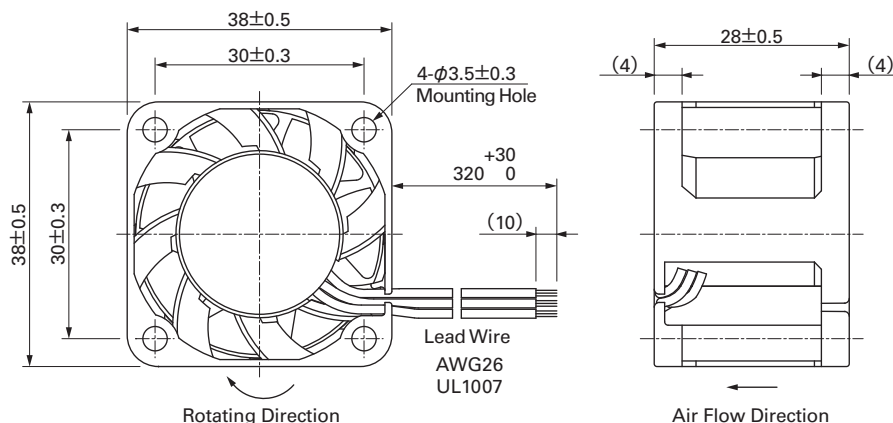
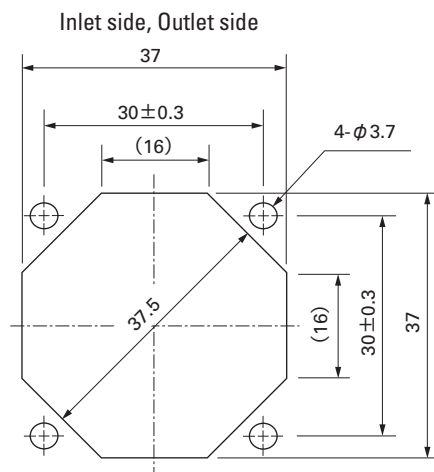
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

38×38×28mm (Mass : 50g)**GV type**
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GV0312J301(3011)	12	7 to 13.2	0.6	7.2	15,900	0.57	20	315	1.265	54	-10 to +60	40,000
9GV0312G301(3011)			0.4	4.8	13,500	0.48	17	230	0.924	50		
9GV0312E301(3011)		4.5 to 13.2	0.21	2.52	10,500	0.37	13.1	130	0.522	43		

Without Sensor Pulse Sensor Available in all models.
Lock SensorPWM Control

Please inquire as the availability of these functions depend on the model.

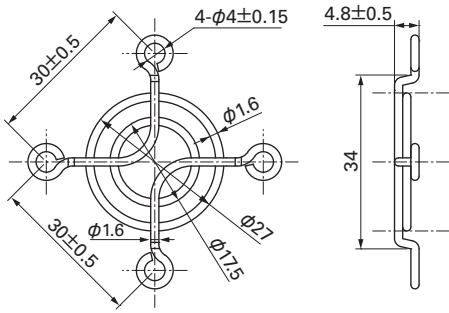
Dimensions (Unit : mm) (With ribs)

Reference dimension of mounting holes and vent opening (Unit : mm)


Options (Unit : mm)

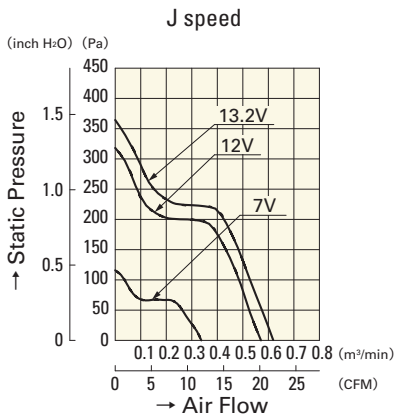
Finger guards

Model : 109-1065 Surface treatment : Nickel-chrome plating (silver) Color

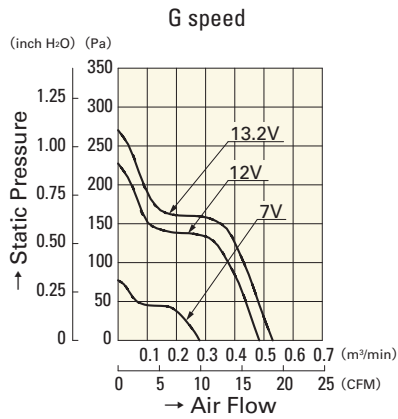
Inlet side, Outlet side



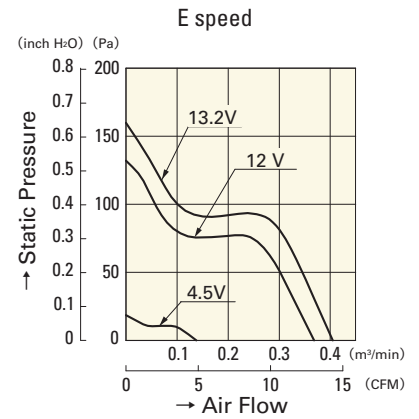
Air Flow - Static Pressure Characteristics



9GV0312J301



9GV0312G301



9GV0312E301

40mm sq.**San Ace 40**

10mm thick, 15mm thick, 20mm thick
 28mm thick (GE type)
 28mm thick (GV type), 28mm thick

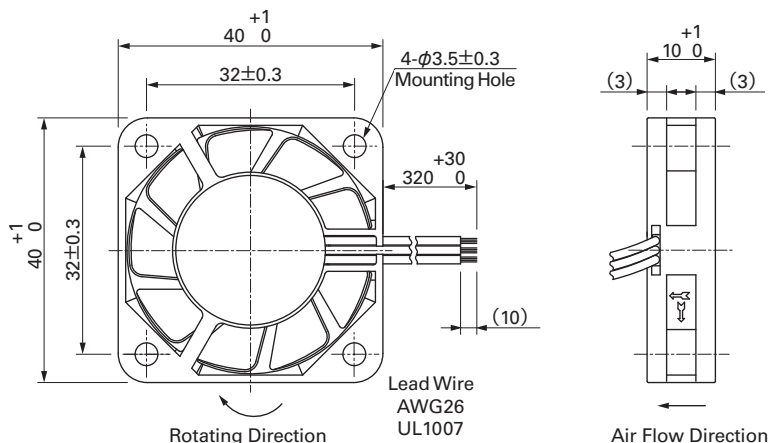
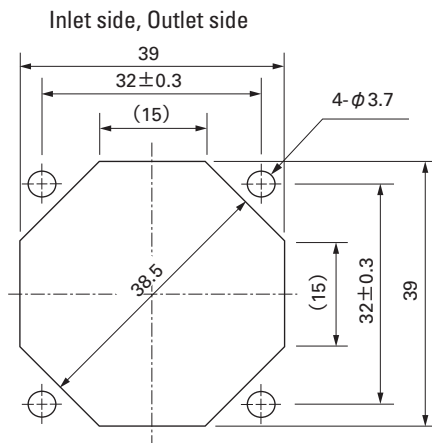
General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

**40×40×10**mm (Mass : 19g)**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P0405H901	5	4.5 to 5.5	0.16	0.8	6,200	0.15	5.3	41.2	0.165	25	-10 to +60	40,000
109P0405M901			0.11	0.55	5,000	0.12	4.2	27	0.108	21		
109P0412H901	12	7 to 13.8	0.07	0.84	6,200	0.15	5.3	41.2	0.165	25		
109P0412M901			0.06	0.72	5,000	0.12	4.2	27	0.108	21		

Without Sensor Pulse Sensor Available in all models.

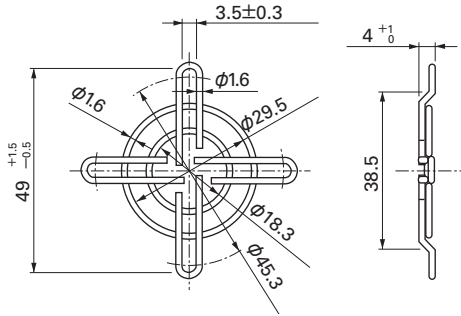
Lock Sensor Please inquire as the availability of these functions depend on the model.
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

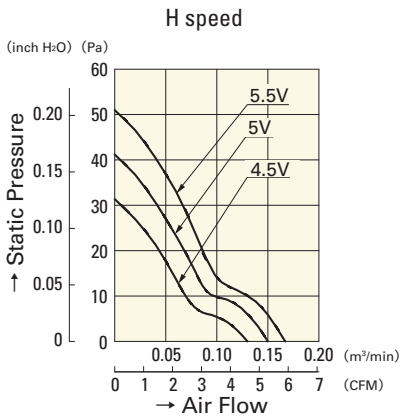
Finger guards

Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color

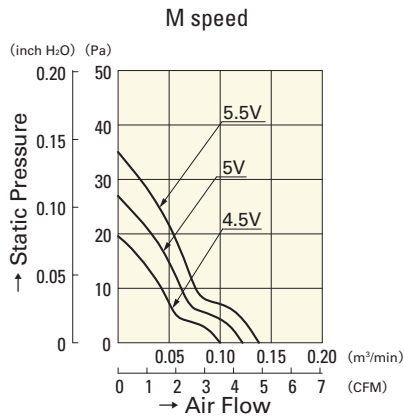
Inlet side, Outlet side



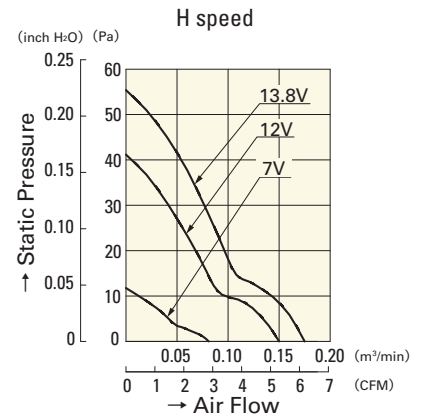
Air Flow - Static Pressure Characteristics



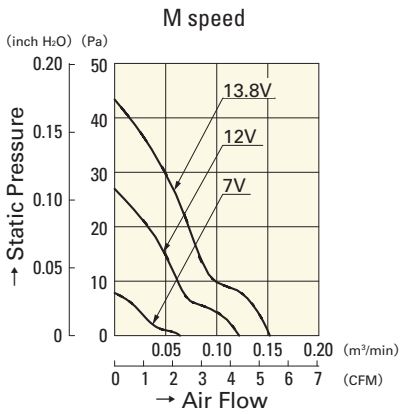
109P0405H901



109P0405M901



109P0412H901



109P0412M901

40mm sq.**San Ace 40**

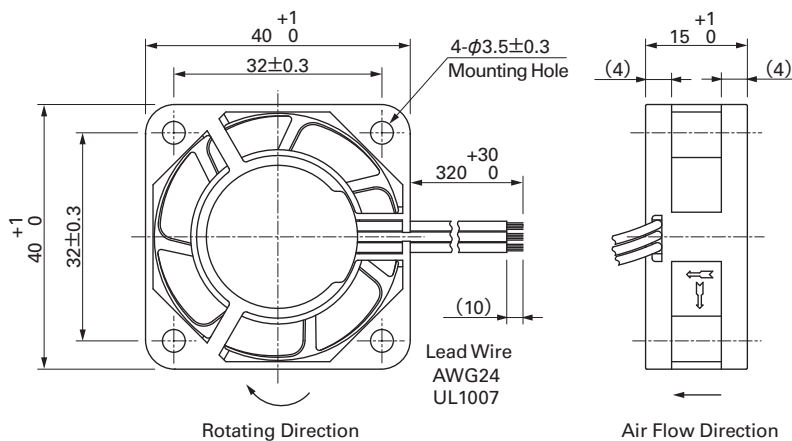
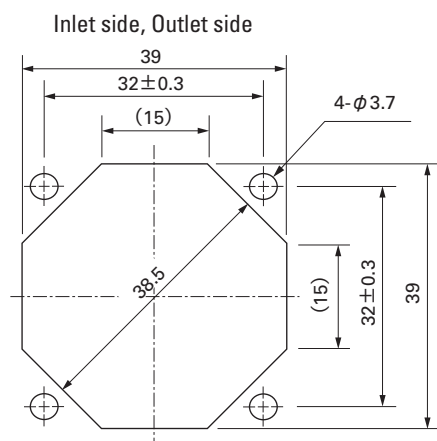
10mm thick, 15mm thick, 20mm thick
 28mm thick (GE type)
 28mm thick (GV type), 28mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

40×40×15mm (Mass : 32g)**Specifications**

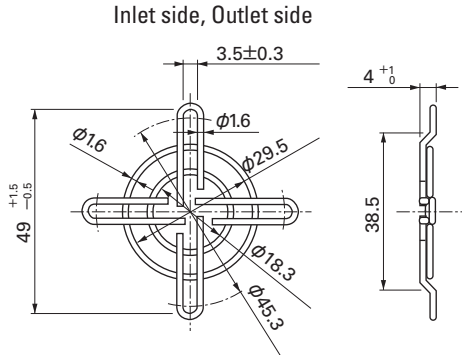
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [InchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P0405H701	5	4.5 to 5.5	0.28	1.4	7,700	0.18	6.4	75.5	0.303	28	— 10 to +60	60,000
109P0405M701			0.21	1.05	6,500	0.15	5.3	53	0.213	24		
109P0412S701	12	10.2 to 13.8	0.18	2.16	8,600	0.2	7.06	92.1	0.369	32	— 10 to +70	
109P0412H701			0.13	1.56	7,700	0.18	6.4	75.5	0.303	28		
109P0412M701			0.095	1.14	6,500	0.15	5.3	53	0.213	24		
109P0424H701	24	20.4 to 27.6	0.08	1.92	7,700	0.18	6.4	75.5	0.303	28		

Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)**

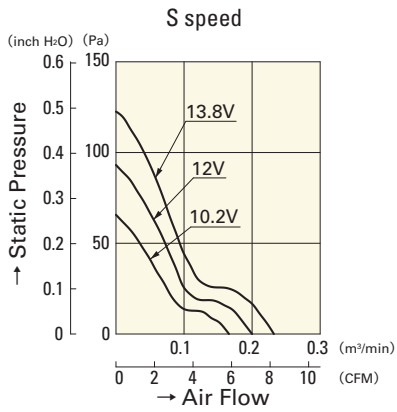
Options (Unit : mm)

Finger guards

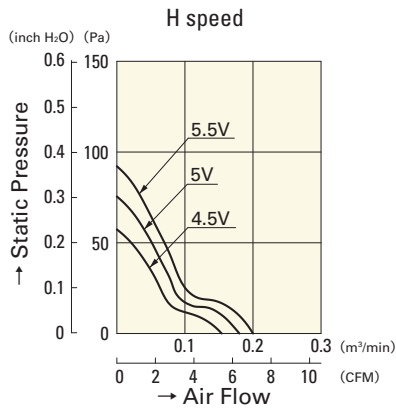
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color



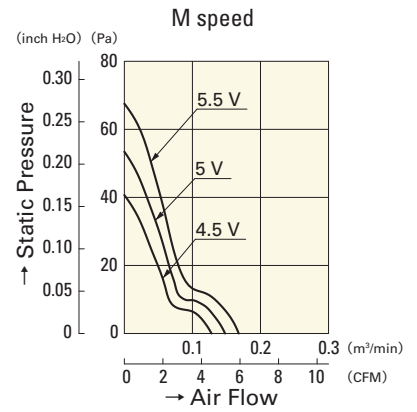
Air Flow - Static Pressure Characteristics



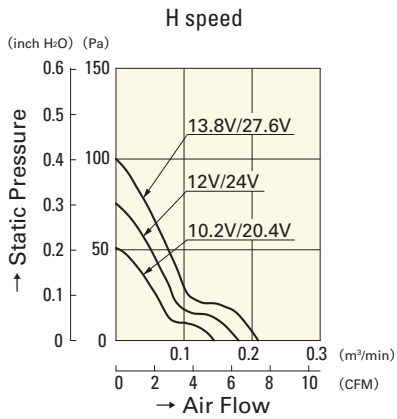
109P0412S701



109P0405H701

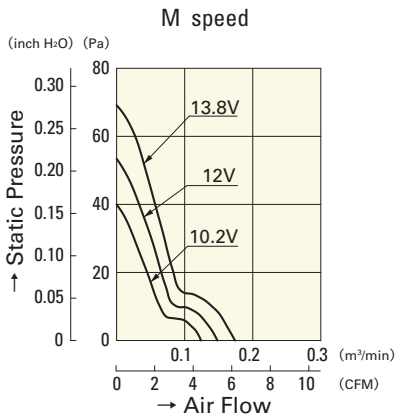


109P0405M701



109P0412H701

109P0424H701



109P0412M701

40mm sq.**San Ace 40**

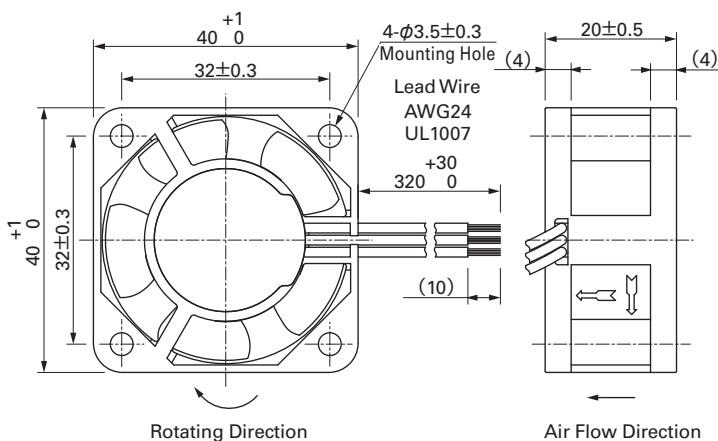
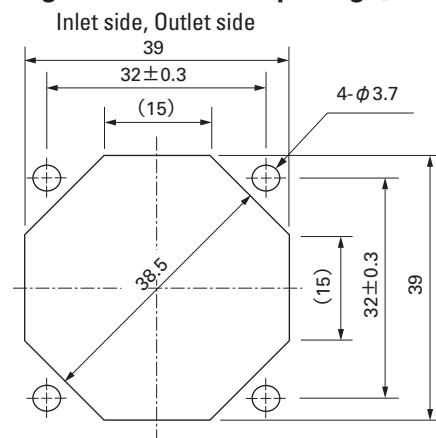
10mm thick, 15mm thick, 20mm thick
 28mm thick (GE type)
 28mm thick (GV type), 28mm thick

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

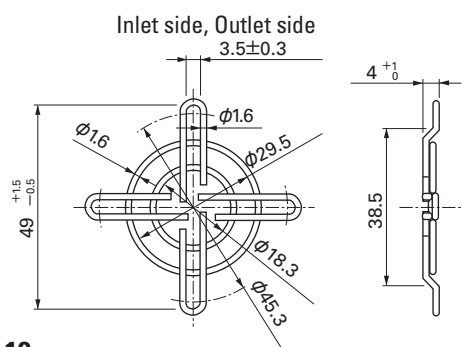
- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

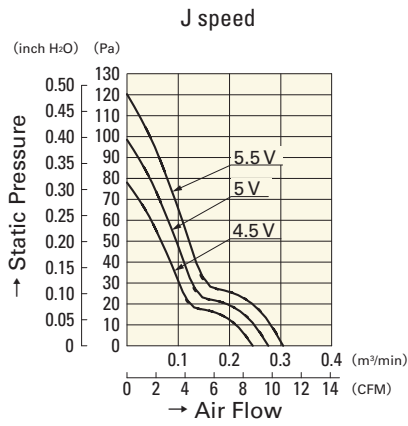
40×40×20mm (Mass : 45g)**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P0405J601	5	4.5 to 5.5	0.46	2.3	9,800	0.28	9.9	98.5	0.396	39	-10 to +70	40,000
109P0405H601			0.32	1.6	8,000	0.225	8.0	65.7	0.264	33		60,000
109P0405F601			0.25	1.25	6,500	0.183	6.5	45.1	0.181	28		
109P0405M601			0.12	0.60	5,000	0.136	4.8	26.5	0.106	24		
109P0412G601	12	7 to 13.8	0.28	3.36	12,500	0.35	12.4	153.8	0.618	44	-10 to +60	40,000
109P0412D601			0.18	2.16	11,000	0.31	10.9	124	0.498	42		60,000
109P0412H601			0.11	1.32	8,000	0.225	8.0	65.7	0.264	33	-10 to +70	
109P0412F601			0.09	1.08	6,500	0.183	6.5	45.1	0.181	28		
109P0412M601		8 to 13.8	0.06	0.72	5,000	0.136	4.8	26.5	0.106	24		
109P0424D601	24	12 to 27.6	0.13	3.12	11,000	0.31	10.9	124	0.498	42	-10 to +60	40,000
109P0424H601		12 to 27.6	0.07	1.68	8,300	0.233	8.2	69.6	0.280	35	-10 to +70	60,000
109P0424F601		14 to 27.6	0.06	1.44	6,500	0.183	6.5	45.1	0.181	28		

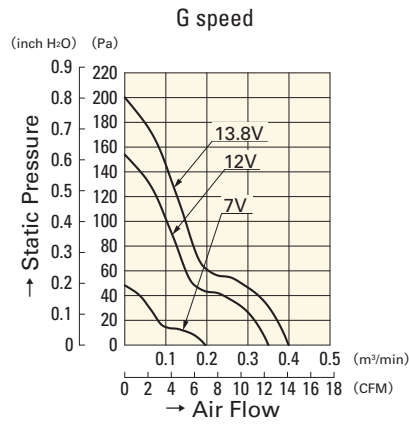
Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)****Options (Unit : mm)****Finger guards**

Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color

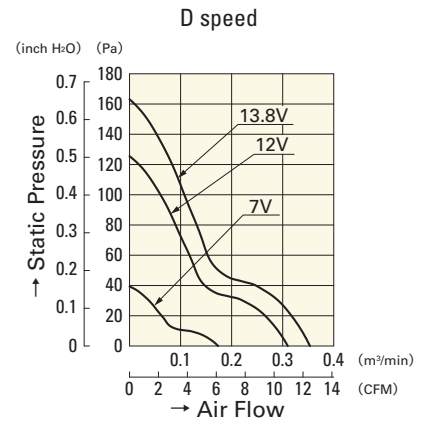




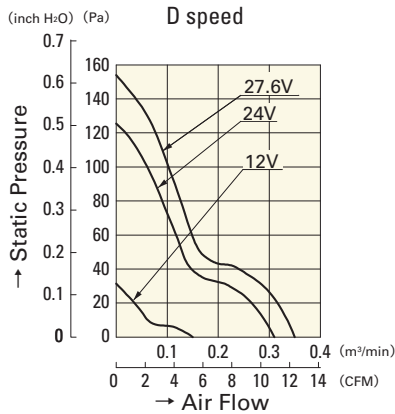
109P0405J601



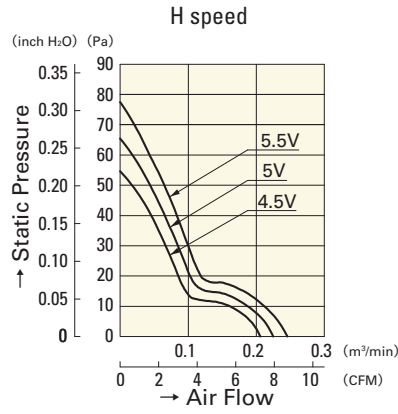
109P0412G601



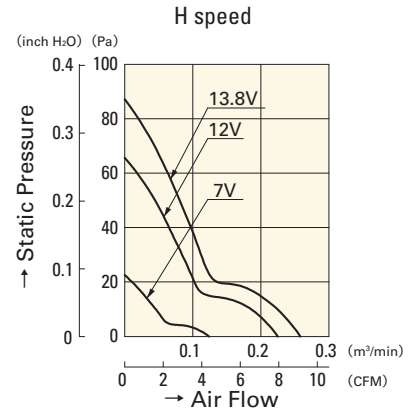
109P0412D601



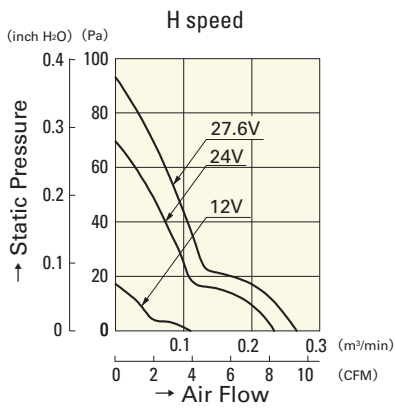
109P0424D601



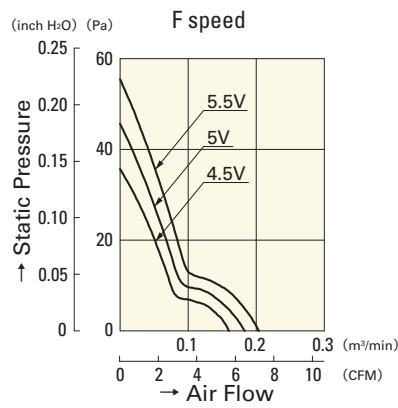
109P0405H601



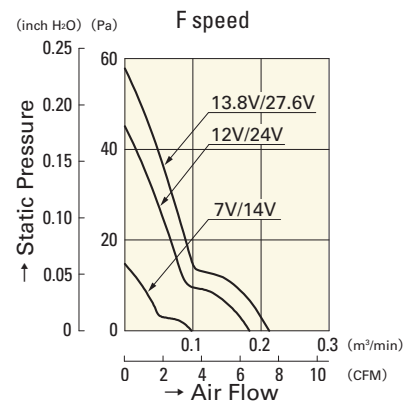
109P0412H601



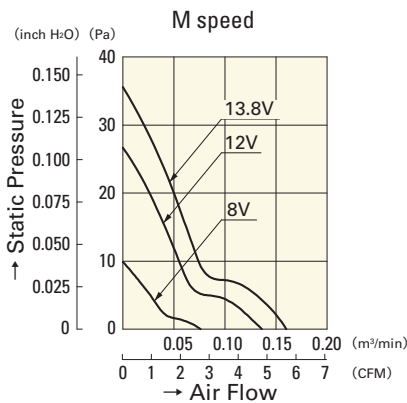
109P0424H601



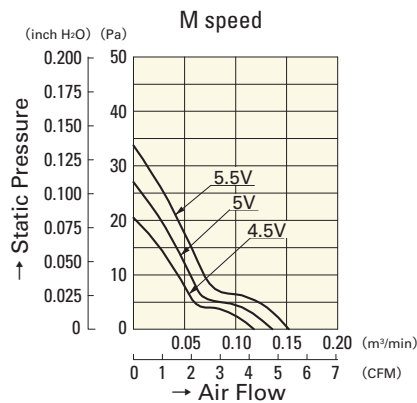
109P0405F601



109P0412F601
109P0424F601



109P0412M601



109P0405M601

40mm sq.**San Ace 40**

10mm thick, 15mm thick, 20mm thick
 28mm thick (GE type)
 28mm thick (GV type), 28mm thick



■ **General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (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)

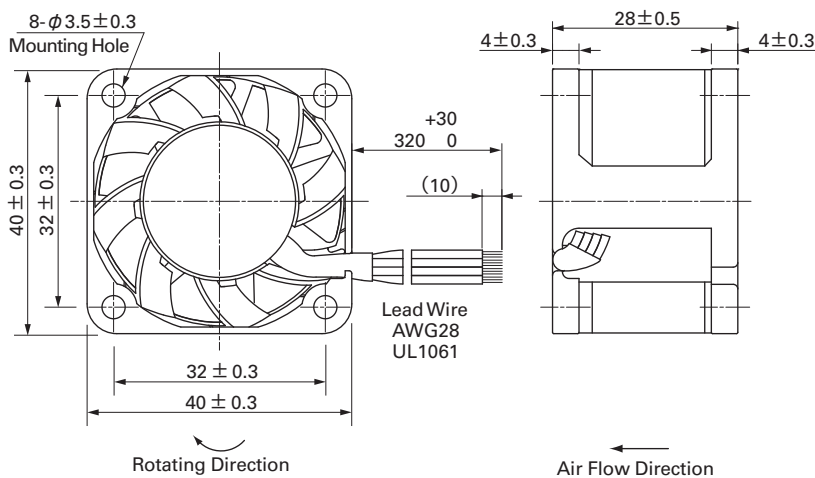
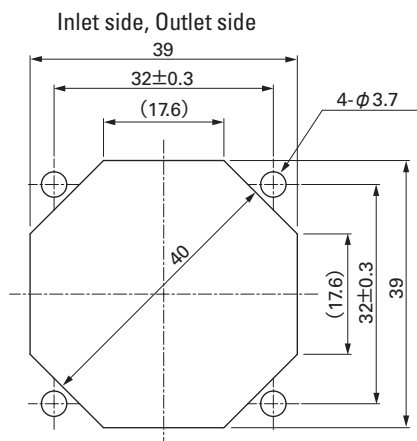
40×40×28mm (Mass : 55g)**Low vibration** **GE type**■ **Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GE0412P3K03	12	10.8 to 13.2	100	0.84	10.08	16,500	0.76	26.8	415	1.666	58	- 10 to +60	30,000
			0	0.07	0.84	3,000	0.13	4.6	13	0.052	17		
9GE0412P3J03			100	0.65	7.8	15,000	0.69	24.4	343.0	1.378	56		40,000
			0	0.05	0.6	2,650	0.12	4.2	10.7	0.042	14		
9GE0412P3G03			100	0.47	5.64	13,000	0.60	21.2	260	1.044	52		40,000
			0	0.05	0.6	2,400	0.11	3.9	8.2	0.033	13		

※PWM Frequency : 25kHz

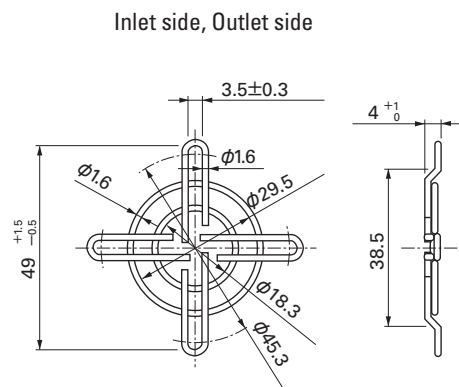
Without Sensor Pulse Sensor PWM Control Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.

■ **Dimensions (Unit : mm)**■ **Reference dimension of mounting holes and vent opening (Unit : mm)**■ **Options (Unit : mm)****Finger guards**

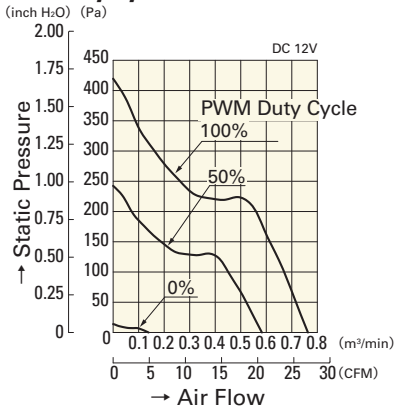
Model : 109-059

Color Surface treatment : Nickel-chrome plating (silver)

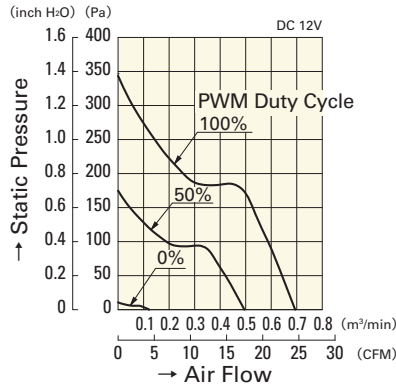


Air Flow - Static Pressure Characteristics

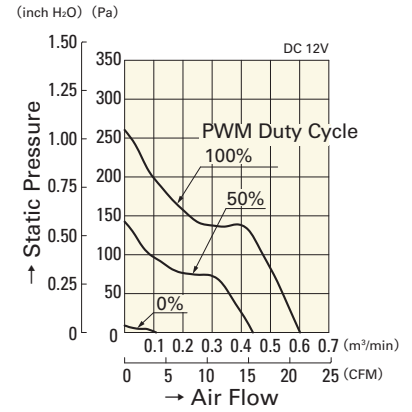
PWM Duty Cycle



9GE0412P3K03

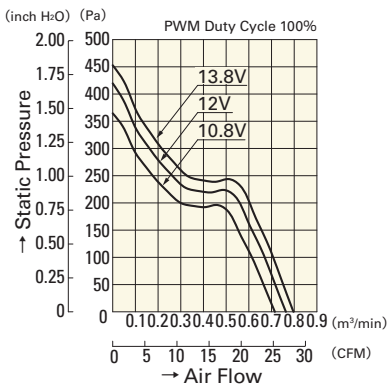


9GE0412P3J03

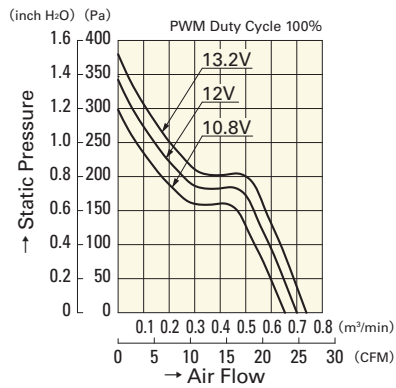


9GE0412P3G03

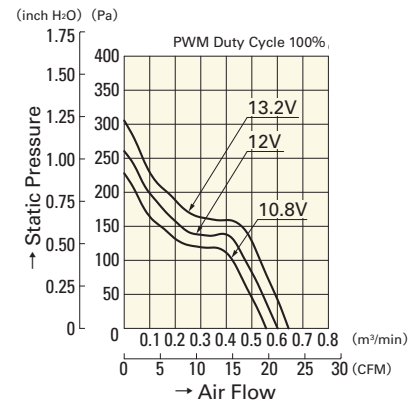
Operating Voltage Range



9GE0412P3K03

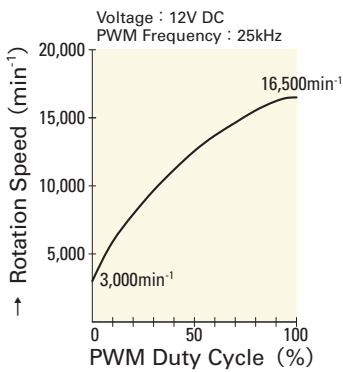


9GE0412P3J03

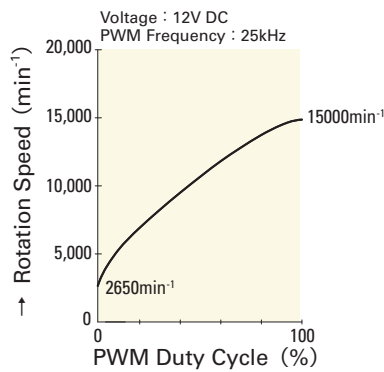


9GE0412P3G03

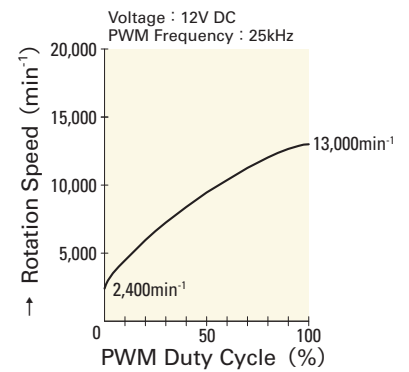
PWM Duty - Speed Characteristics Example



9GE0412P3K03



9GE0412P3J03



9GE0412P3G03

40mm sq.**San Ace 40**

10mm thick, 15mm thick, 20mm thick
 28mm thick (GE type)
 28mm thick (GV type), 28mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

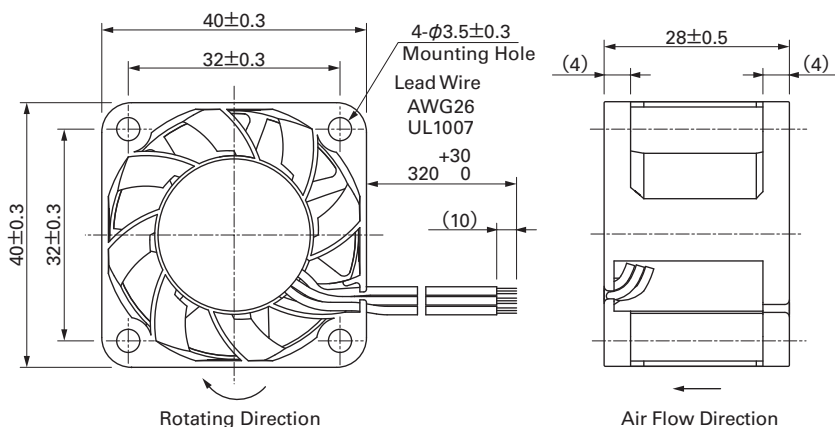
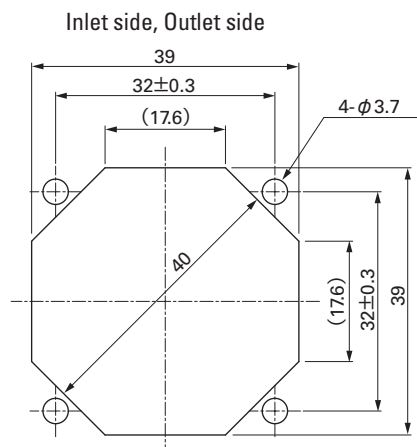
40×40×28mm [Mass : 50g]**GV type**
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GV0412K301(3011)	12	10.8 ~ 12.6	0.84	10.08	16,500	0.76	26.8	415	1.668	58	-10 ~ +60	30,000
9GV0412J301(3011)		7 ~ 13.2	0.60	7.20	14,700	0.68	24.0	330	1.325	55		40,000
9GV0412G301(3011)			0.47	5.64	13,000	0.60	21.1	260	1.044	52		

Without Sensor Pulse Sensor Available in all models.

Lock Sensor
PWM Control

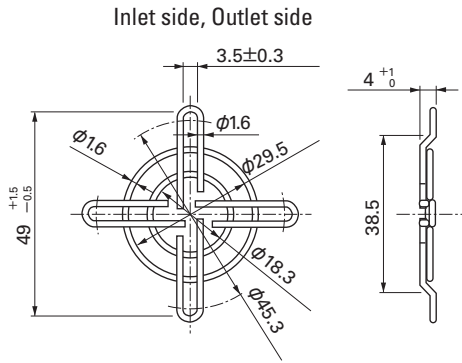
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)

Reference dimension of mounting holes and vent opening (Unit : mm)


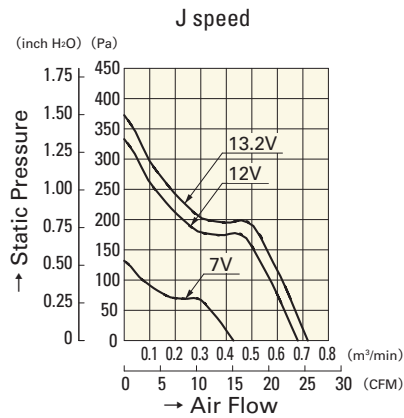
Options (Unit : mm)

Finger guards

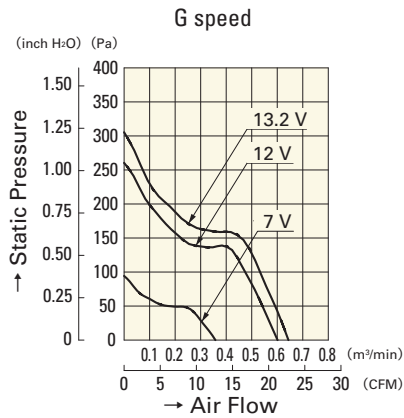
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color



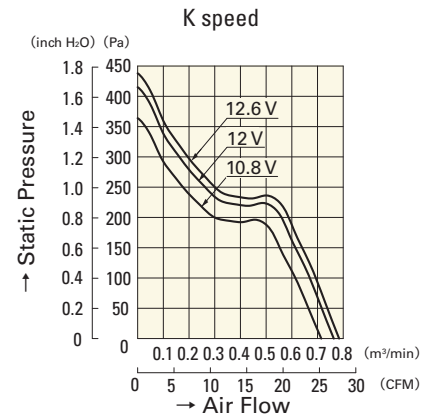
Air Flow - Static Pressure Characteristics



9GV0412J301(3011)



9GV0412G301(3011)



9GV0412K301(3011)

40mm sq.**San Ace 40**

10mm thick, 15mm thick, 20mm thick
 28mm thick (GE type)
 28mm thick (GV type), 28mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

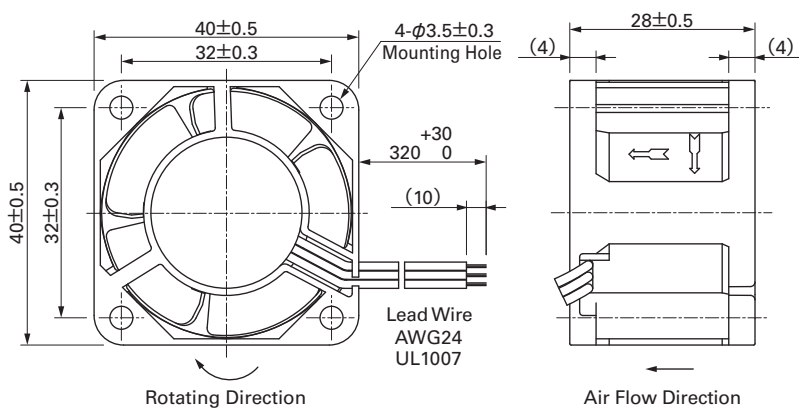
- Material..... Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature ... -30°C to +70°C (Non-condensing)

40×40×28mm (Mass : 52g)**Specifications**

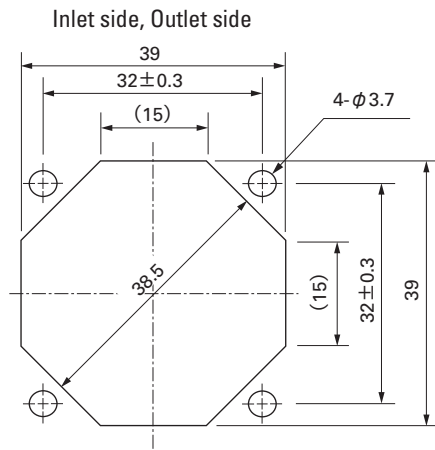
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P0405H3013	5	4.5 to 5.5	0.68	3.4	8,700	0.32	11.3	103	0.414	37	-10 to +70	40,000
109P0405F3013			0.28	1.4	6,700	0.244	8.6	58.8	0.236	30		60,000
109P0412K3013	12	8 to 13.2	0.55	6.6	15,500	0.59	21.0	340	1.365	50	-10 to +60	40,000
109P0412J3013			0.35	4.2	12,500	0.46	16.3	210	0.843	44		
109P0412G3013		7 to 13.2	0.31	3.72	11,500	0.42	14.8	179	0.719	42	-10 to +60	40,000
109P0412B3013			0.28	3.36	10,300	0.38	13.4	143	0.574	40		
109P0412H3013		7 to 13.8	0.195	2.34	8,700	0.32	11.3	103	0.414	37	-10 to +70	60,000
109P0412F3013			0.105	1.26	6,700	0.244	8.6	58.8	0.236	30		
109P0412M3013		10.2 to 13.8	0.045	0.54	4,100	0.15	5.3	21.6	0.087	20		
109P0424J3013			0.18	4.32	12,500	0.46	16.3	210	0.843	44	-10 to +60	40,000
109P0424G3013	24	12 to 26.4	0.19	4.56	11,500	0.42	14.8	179	0.719	42		
109P0424B3013			0.13	3.12	10,300	0.38	13.4	143	0.574	40	-10 to +70	60,000
109P0424H3013		12 to 27.6	0.095	2.28	8,700	0.32	11.3	103	0.414	37		
109P0424F3013		14 to 27.6	0.055	1.32	6,700	0.244	8.6	58.8	0.236	30		

Without Sensor Pulse Sensor Available in all models.Lock SensorPWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)

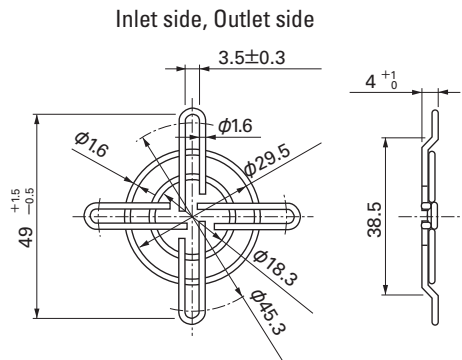
Reference dimension of mounting holes and vent opening (Unit : mm)

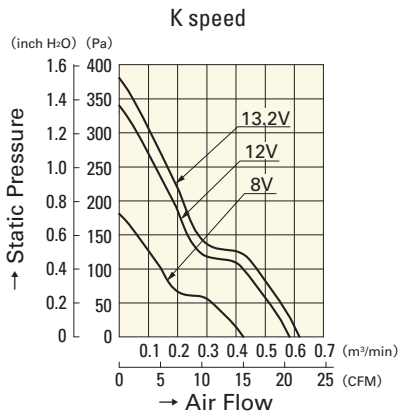
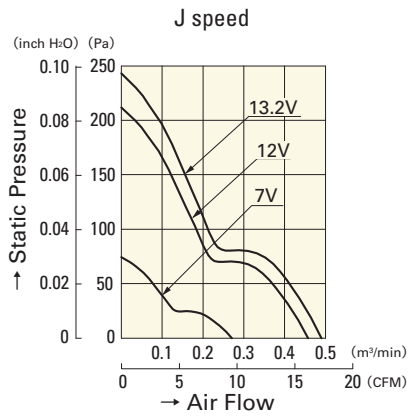
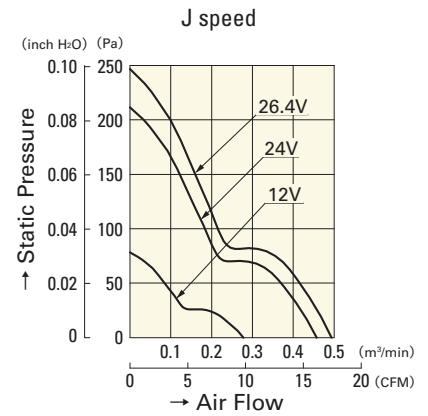
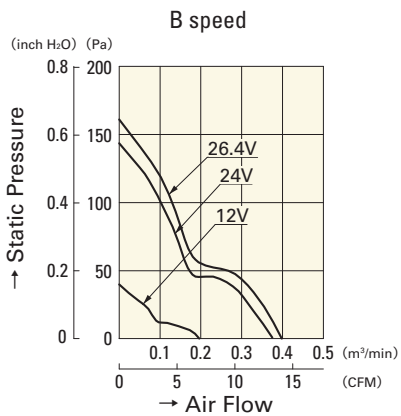
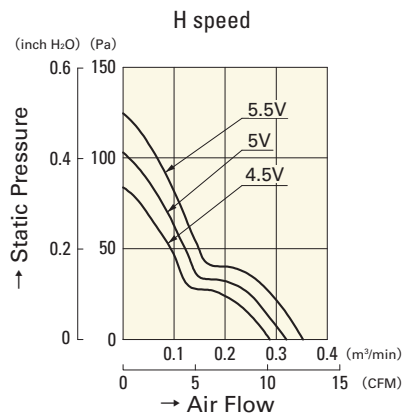
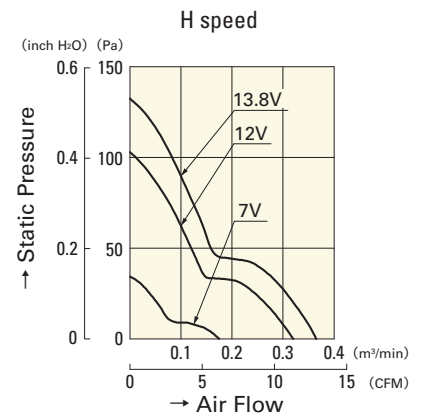
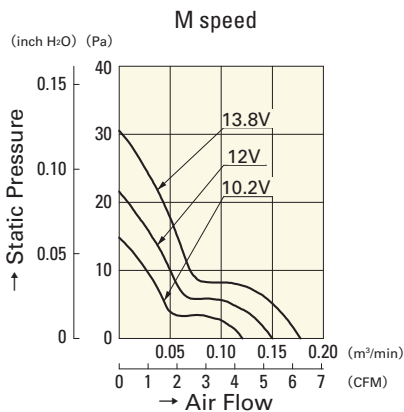


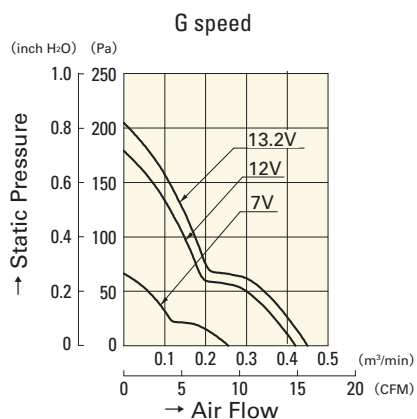
Options (Unit : mm)

Finger guards

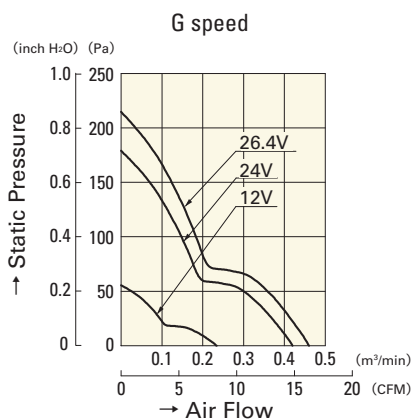
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color



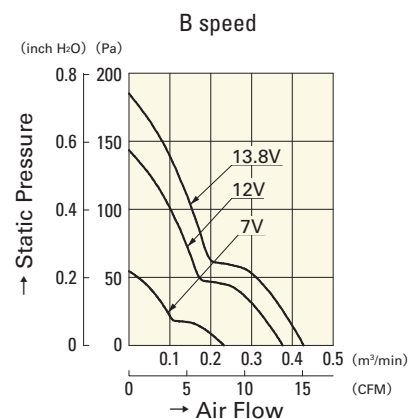
40mm sq.**San Ace 40****40×40×28mm** [Mass : 52g]**Air Flow - Static Pressure Characteristics****109P0412K3013****109P0412J3013****109P0424J3013****109P0424B3013****109P0405H3013****109P0412H3013****109P0412M3013**



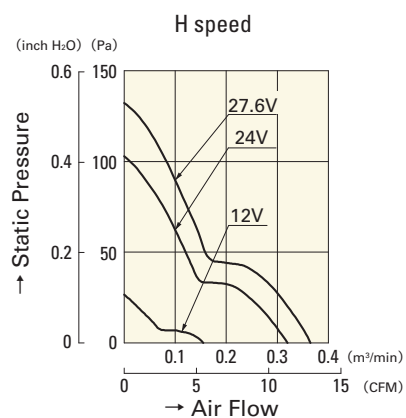
109P0412G3013



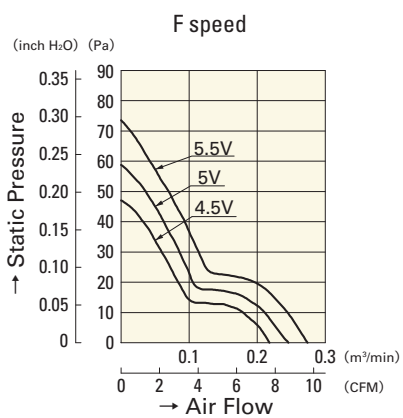
109P0424G3013



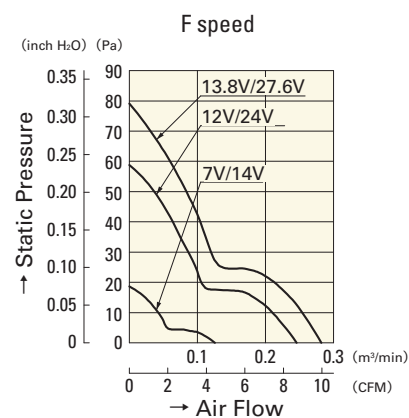
109P0412B3013



109P0424H3013



109P0405F3013



109P0412F3013

109P0424F3013

52mm sq.**San Ace 52**

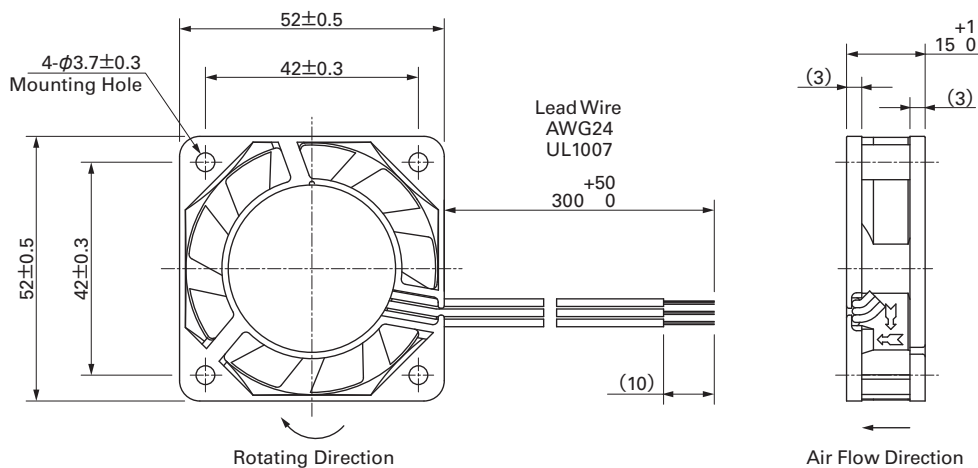
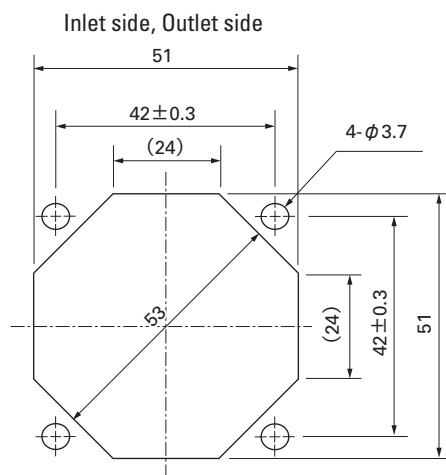
15mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

52×52×15mm (Mass : 55g)**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P0505M701	5	4.5 to 5.5	0.15	0.75	3,700	0.205	7.24	21.4	0.086	22	-10 to +70	60,000
109P0512A701	12	10.2 to 13.8	0.21	2.52	6,800	0.375	13.25	69.7	0.280	36		40,000
109P0512H701		7 to 13.8	0.10	1.20	4,600	0.255	9.00	31.9	0.128	27		60,000
109P0512M701			0.07	0.84	3,700	0.205	7.24	21.4	0.086	22		
109P0524A701	24	14 to 27.6	0.11	2.64	6,800	0.375	13.24	69.7	0.280	36	-10 to +60	40,000
109P0524H701			0.05	1.20	4,600	0.255	9.00	31.9	0.128	27		60,000
109P0524M701			0.04	0.96	3,700	0.205	7.24	21.4	0.086	22	-10 to +70	

Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)**

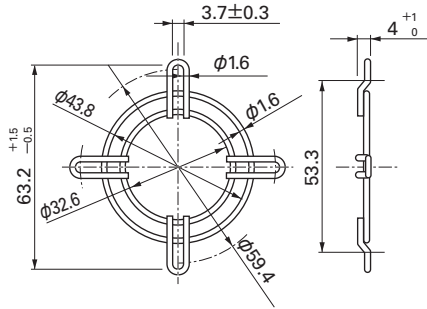
Options (Unit : mm)

Finger guards

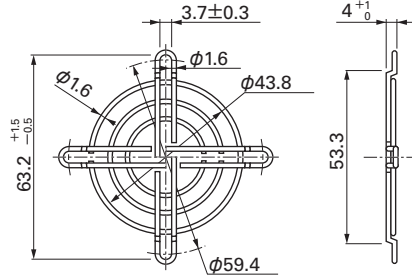
Model : 109-149 Surface treatment : Nickel-chrome plating (silver) Color

Model : 109-149E Surface treatment : Nickel-chrome plating (silver) Color

Outlet side

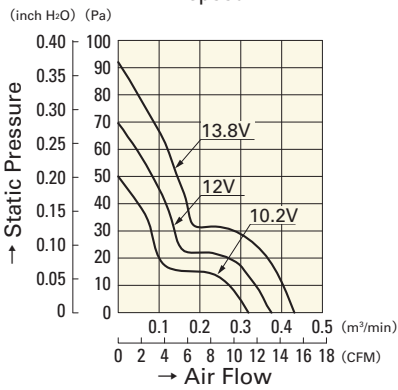


Inlet side, Outlet side



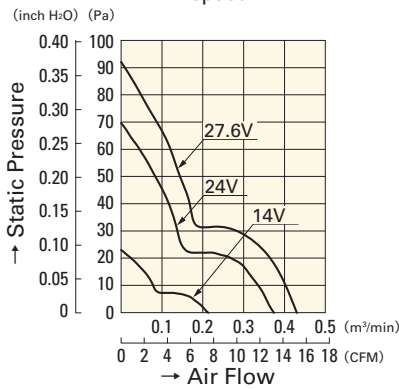
Air Flow - Static Pressure Characteristics

A speed



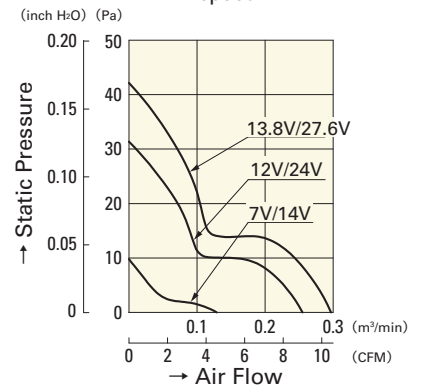
109P0512A701

A speed



109P0524A701

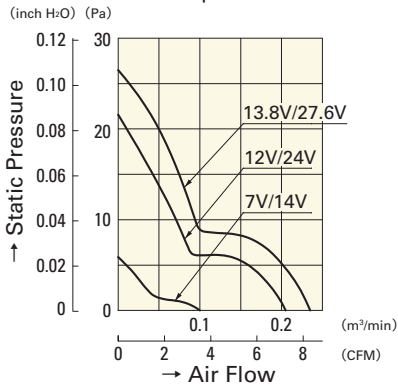
H speed



109P0512H701

109P0524H701

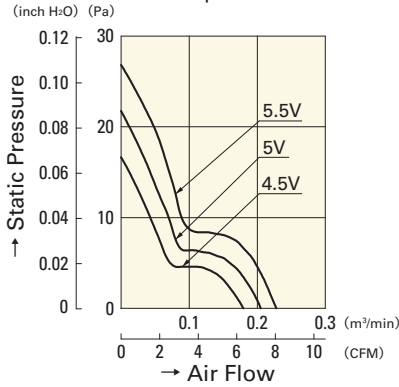
M speed



109P0512M701

109P0524M701

M speed



109P0505M701

60mm sq.**San Ace 60**

15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 38mm thick (GV type)
 38mm thick (G type)

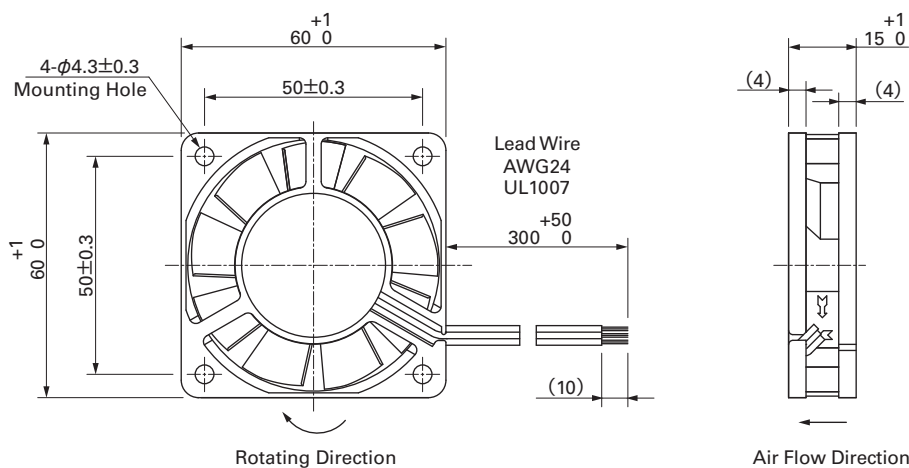

General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

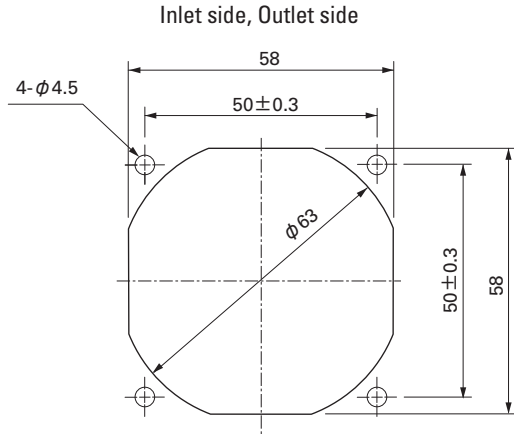
60×60×15mm [Mass : 60g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P0605H701	5	4.5 to 5.5	0.26	1.30	4,100	0.40	14.1	38.2	0.153	32	−10 to +70	60,000
109P0605M701			0.15	0.75	3,100	0.30	10.6	22.6	0.091	25		
109P0612K701	12	10.2 to 13.8	0.26	3.12	6,500	0.62	21.9	99.3	0.399	45	−10 to +60	40,000
109P0612S701			0.15	1.80	5,000	0.48	17.0	58.8	0.236	36		
109P0612H701		7 to 13.8	0.09	1.08	4,100	0.40	14.1	38.2	0.153	32	−10 to +70	60,000
109P0612M701		10.2 to 13.8	0.07	0.84	3,100	0.30	10.6	22.6	0.091	25		
109P0612B701			0.05	0.6	2,200	0.21	7.42	11.7	0.047	21		
109P0624J701		24	14 to 27.6	0.14	3.36	6,200	0.61	21.5	86.5	0.347	44	−10 to +60
109P0624S701	0.08			1.92	5,000	0.48	16.9	58.8	0.236	36	−10 to +70	
109P0624H701	0.06			1.44	4,100	0.40	14.1	38.2	0.153	32		−10 to +70
109P0624M701	20.4 to 27.6		0.04	0.96	3,100	0.30	10.6	22.6	0.091	25		

Without Sensor Pulse Sensor Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.
Dimensions (Unit : mm)

Reference dimension of mounting holes and vent opening (Unit : mm)

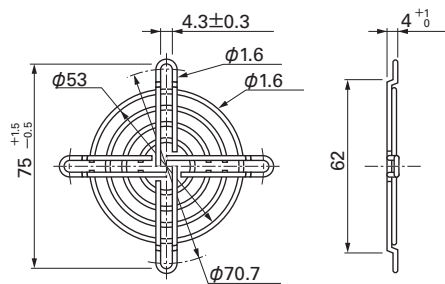


Options (Unit : mm)

Finger guards

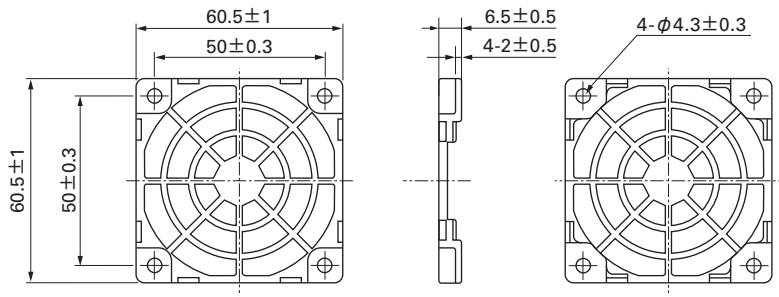
Model : 109-139E Surface treatment : Nickel-chrome plating (silver) Color : 109-139H : Cation electropainting (black)

Inlet side, Outlet side



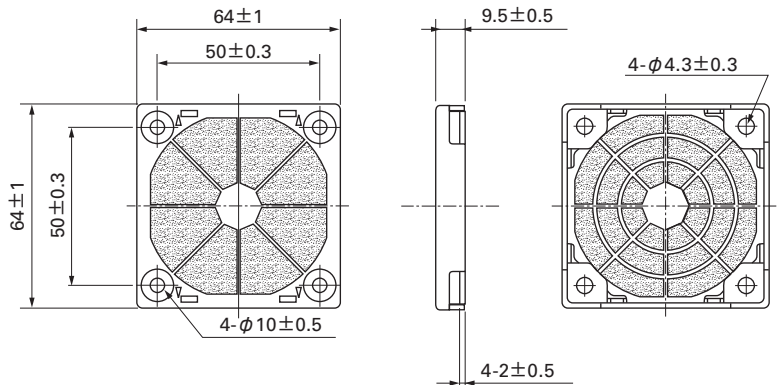
Resin finger guards

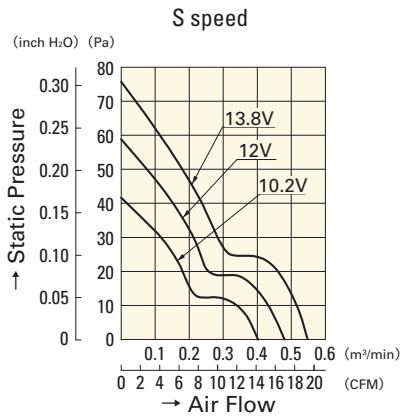
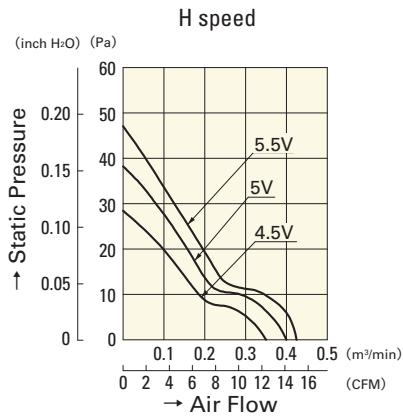
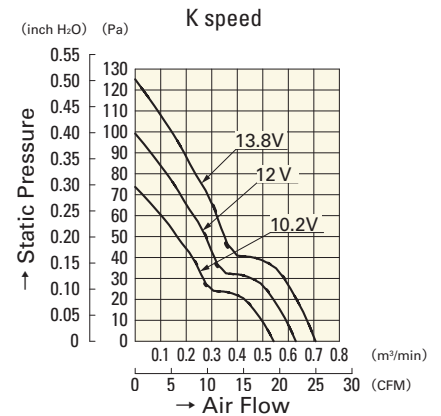
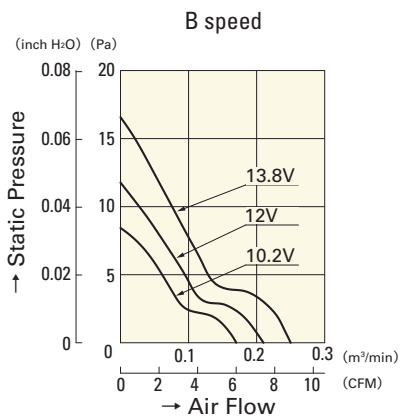
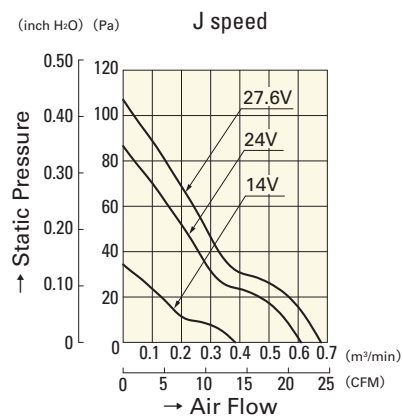
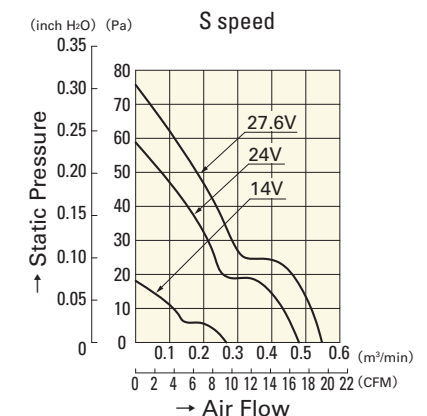
Model : 109-1003G

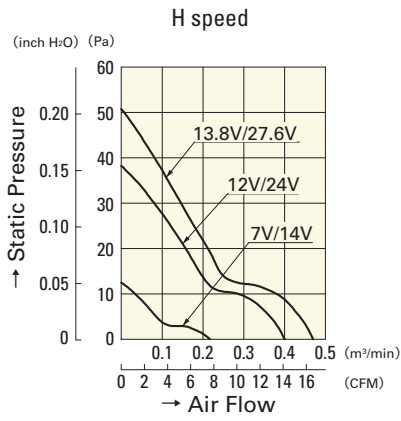


Resin filter kits

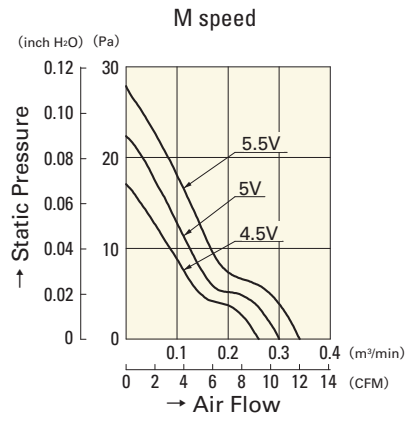
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



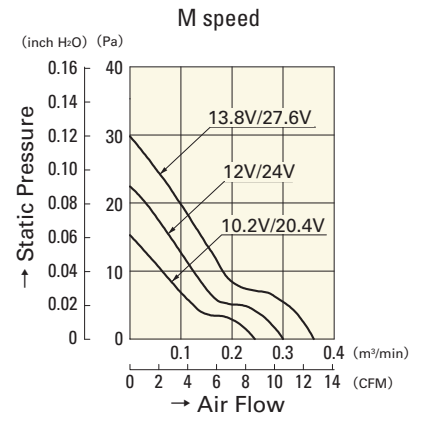
60mm sq.**San Ace 60****60×60×15mm** [Mass : 60g]**Air Flow - Static Pressure Characteristics****109P0612S701****109P0605H701****109P0612K701****109P0612B701****109P0624J701****109P0624S701**



109P0612H701
109P0624H701



109P0605M701



109P0612M701
109P0624M701

60mm sq.**San Ace 60**

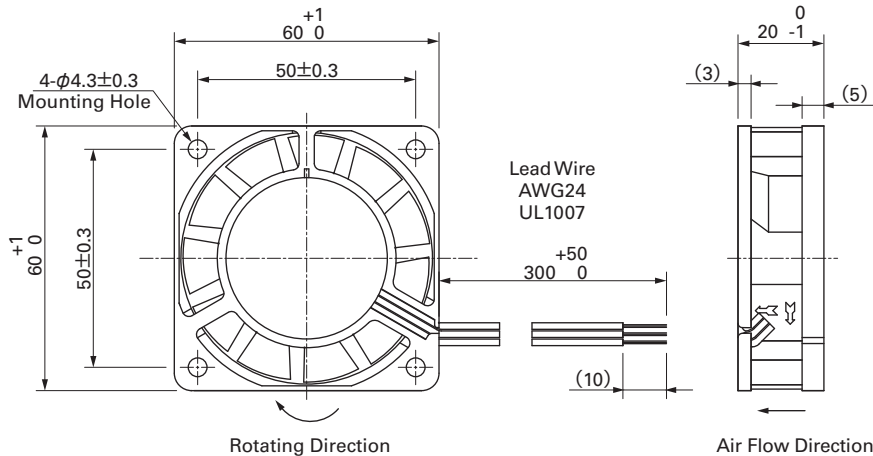
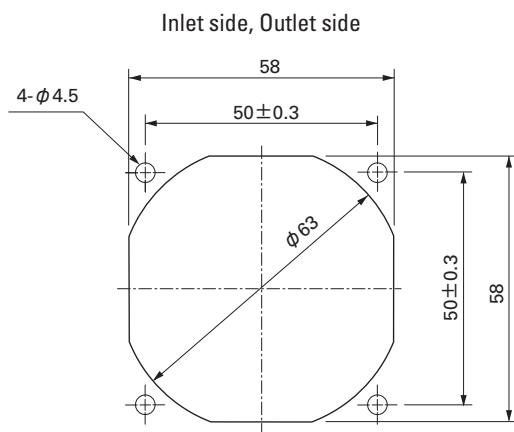
15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 38mm thick (GV type)
 38mm thick (G type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇄ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

60×60×20mm [Mass : 90g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P0612W601	12	6 to 16	0.13	1.56	4,200	0.42	14.8	31.9	0.128	31	-10 to +70	60,000
109P0612H601		10.2 to 13.8	0.13	1.56	4,200	0.42	14.8	31.9	0.128	31		
109P0612M601			0.09	1.08	3,200	0.30	10.6	18.8	0.076	25		
109P0624W601	24	12 to 30	0.07	1.68	4,200	0.42	14.8	31.9	0.128	31		
109P0624H601		20.4 to 27.6	0.07	1.68	4,200	0.42	14.8	31.9	0.128	31		
109P0624M601			0.05	1.20	3,200	0.30	10.6	18.8	0.076	25		
109P0648H601	48	43 to 53	0.07	3.36	5,600	0.55	19.4	52.9	0.212	41		40,000

Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)**

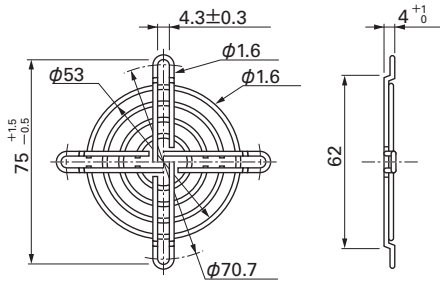
Options (Unit : mm)

Finger guards

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

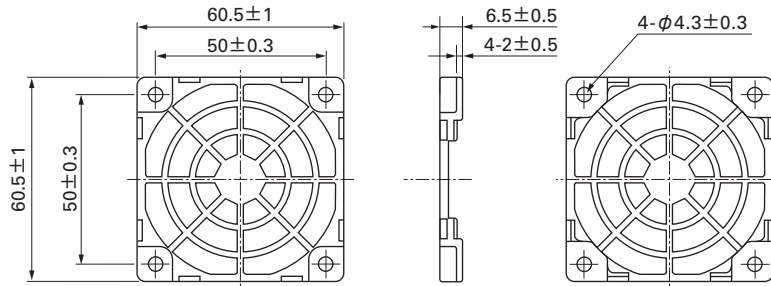
Color

Inlet side, Outlet side



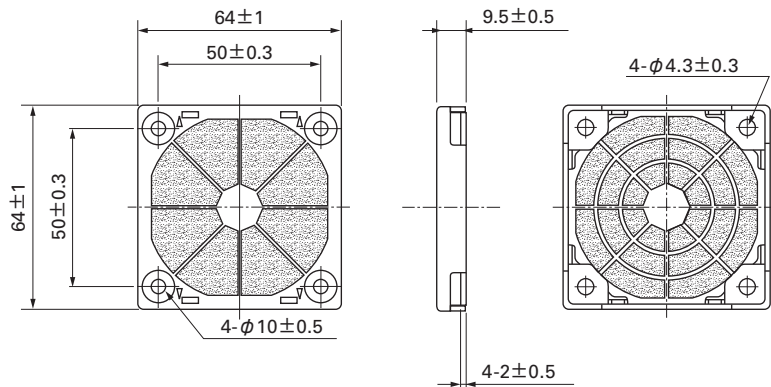
Resin finger guards

Model : 109-1003G



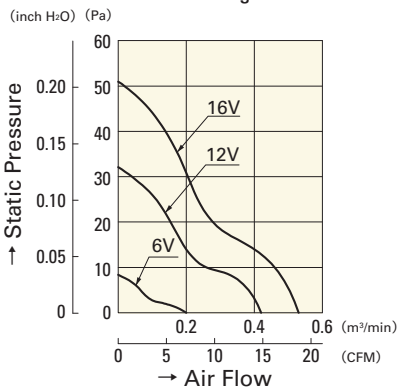
Resin filter kits

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



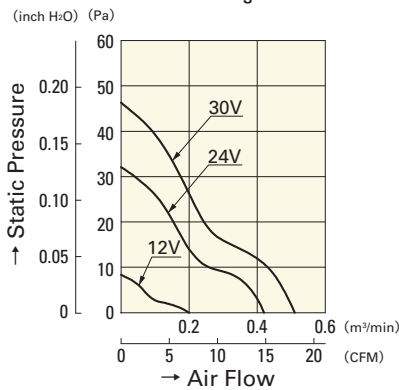
Air Flow - Static Pressure Characteristics

Wide range



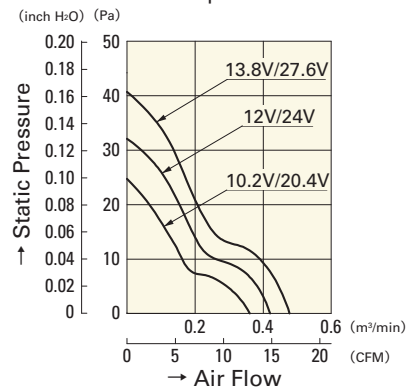
109P0612W601

Wide range



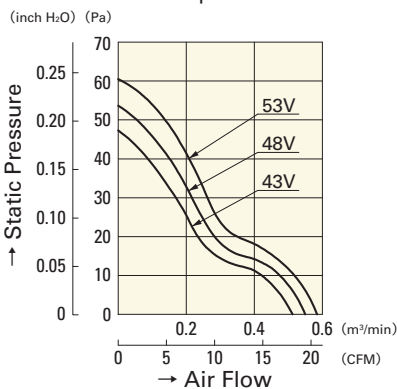
109P0624W601

H speed



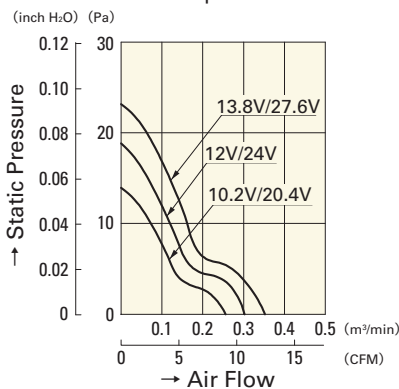
109P0612H601
109P0624H601

H speed



109P0648H601

M speed



109P0612M601
109P0624M601

60mm sq.**San Ace 60**

15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 38mm thick (GV type)
 38mm thick (G type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

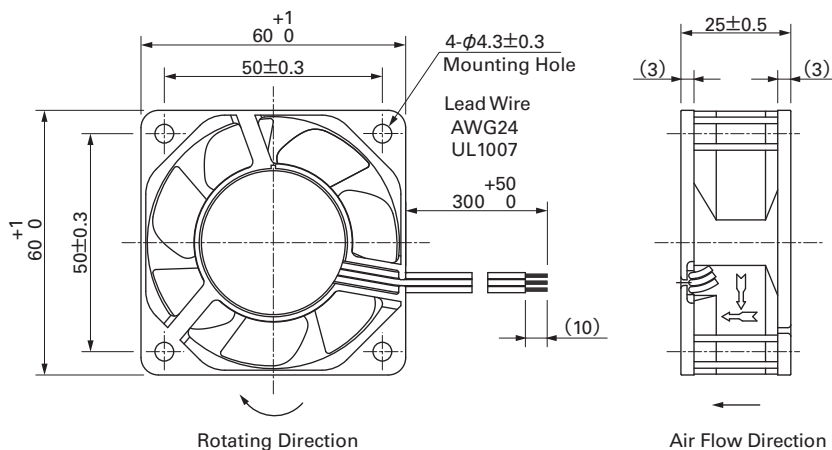
- Material..... Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature ... -30°C to +70°C (Non-condensing)

60×60×25mm [Mass : 90g]
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]	
109R0605H401(4011)	5	4.5 to 5.5	0.34	1.70	3,800	0.53	18.7	40.2	0.161	28	−10 to +70	60,000	
109R0605F401(4011)			0.20	1.00	3,200	0.44	15.5	29.4	0.118	24	−10 to +60		
109R0605M401(4011)			0.13	0.65	2,600	0.36	12.7	19.6	0.079	20	−10 to +70		
109R0612J401(4011)	12	10.8 to 13.2	0.47	5.64	7,600	1.05	37.1	155.0	0.622	44	−10 to +60	40,000	
109R0612G401(4011)			0.24	2.88	5,600	0.78	27.5	88.0	0.353	39	−10 to +70		60,000
109R0612D401(4011)		10.2 to 13.8	0.21	2.52	5,150	0.72	25.4	73.5	0.295	37			
109R0612S401(4011)			0.17	2.04	4,600	0.65	23.0	56.8	0.228	33			
109R0612H401(4011)		6 to 13.8	0.11	1.32	3,800	0.53	18.7	40.1	0.161	28			
109R0612F401(4011)			0.09	1.08	3,200	0.44	15.5	29.4	0.118	24			
109R0612M401(4011)		7 to 13.8	0.06	0.72	2,600	0.36	12.7	19.6	0.079	20			
109R0624J401(4011)		24	21.6 to 26.4	0.24	5.76	7,600	1.05	37.1	155.0	0.622		44	
109R0624G401(4011)			20.4 to 27.6	0.13	3.12	5,600	0.78	27.5	88.0	0.353	39	−10 to +70	60,000
109R0624D401(4011)	12 to 27.6		0.12	2.88	5,150	0.72	25.4	73.5	0.295	37			
109R0624S401(4011)			0.08	1.92	4,600	0.65	23.0	56.8	0.228	33			
109R0624H401(4011)			0.06	1.44	3,800	0.53	18.7	40.2	0.161	28			
109R0624F401(4011)			0.05	1.20	3,200	0.44	15.5	29.4	0.118	24			
109R0624M401(4011)	14 to 27.6		0.04	0.96	2,600	0.36	12.7	19.6	0.079	20			
109R0648J401(4011)	48	43.2 to 52.8	0.12	5.76	7,600	1.05	37.1	155.0	0.622	44	−10 to +60	40,000	
109R0648G401(4011)		43 to 53	0.07	3.36	5,600	0.78	27.5	88.0	0.353	39	−10 to +70		60,000
109R0648H401(4011)		40 to 53	0.04	1.92	3,800	0.53	18.7	40.2	0.161	28			

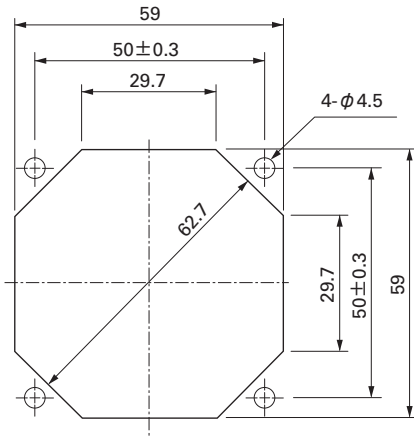
Without Sensor Pulse Sensor Available in all models.Lock SensorLow speed SensorPWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)


Reference dimension of mounting holes and vent opening (Unit : mm)

Inlet side, Outlet side

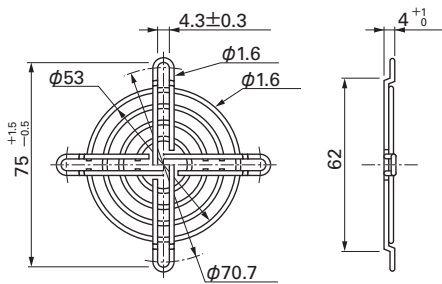


Options (Unit : mm)

Finger guards

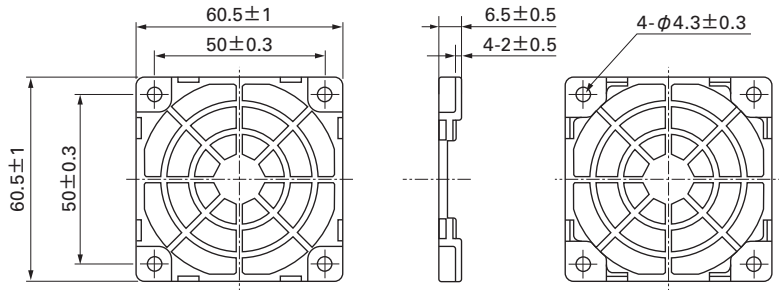
Model : 109-139E Surface treatment : Nickel-chrome plating (silver) Color : 109-139H : Cation electropainting (black)

Inlet side, Outlet side



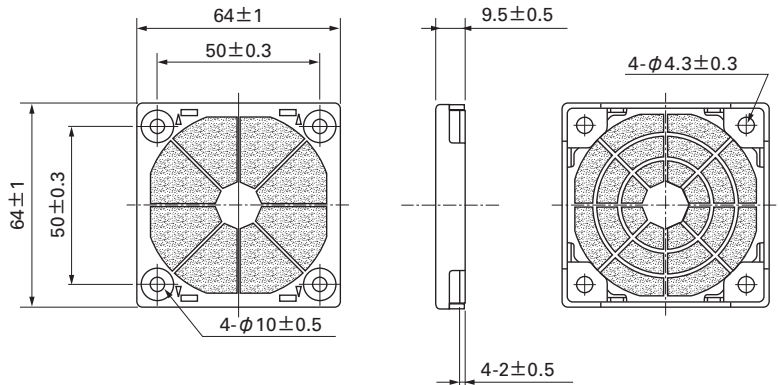
Resin finger guards

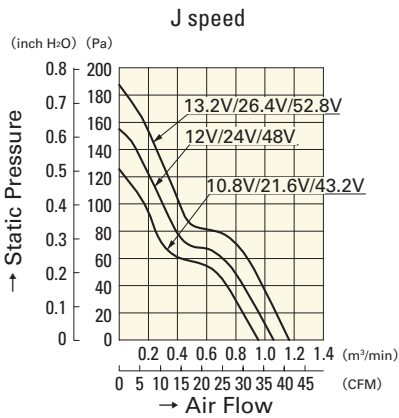
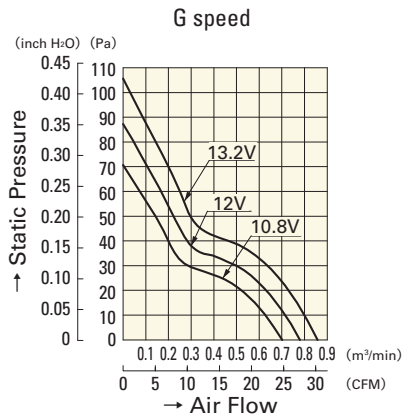
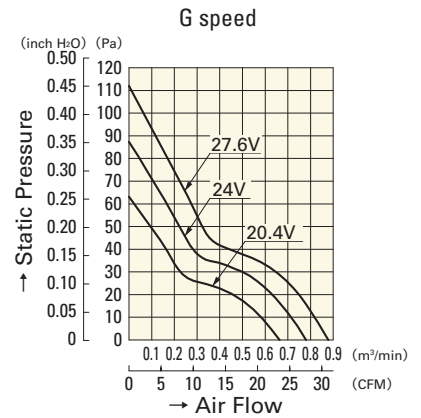
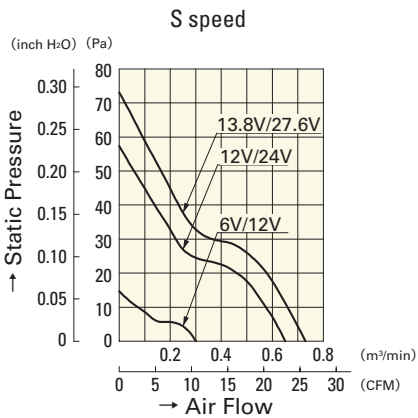
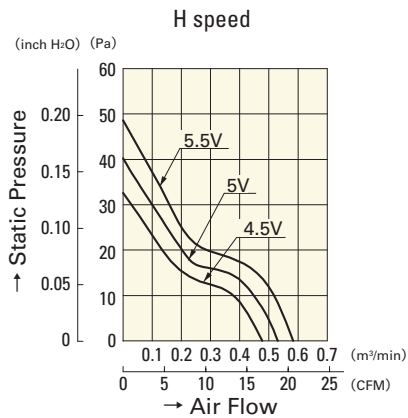
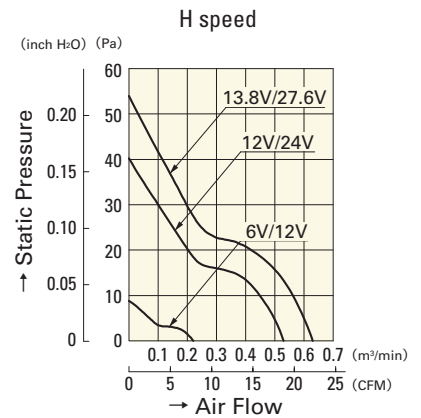
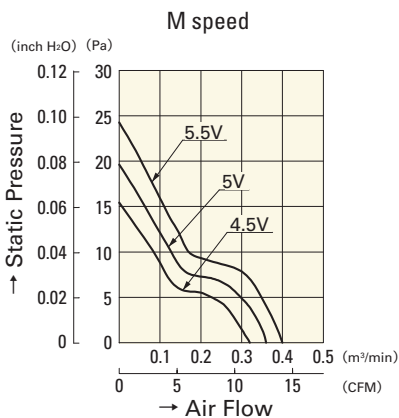
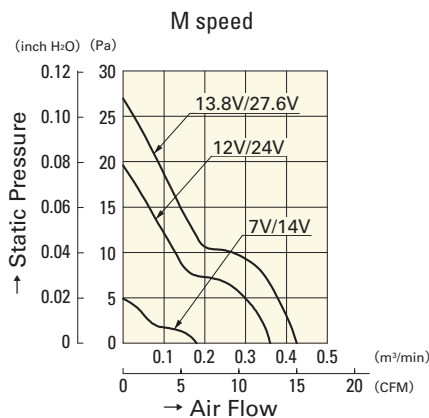
Model : 109-1003G

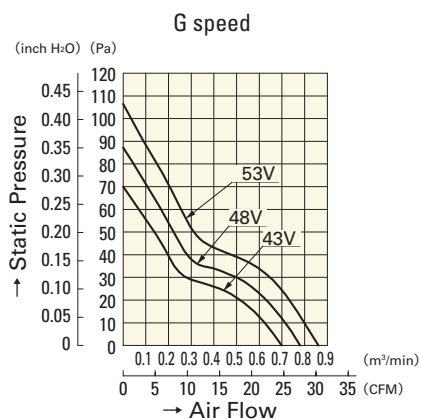


Resin filter kits

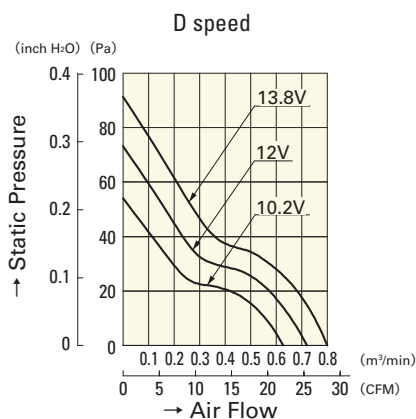
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



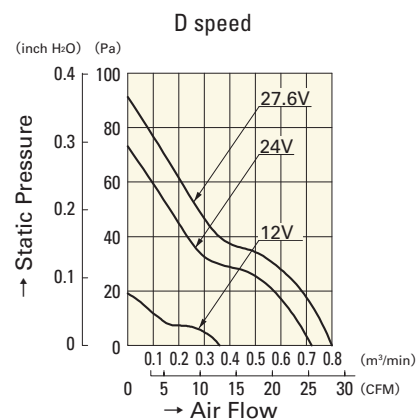
60mm sq.**San Ace 60****60×60×25mm** [Mass : 90g]**Air Flow - Static Pressure Characteristics****109R0612J401(4011)****109R0624J401(4011)****109R0648J401(4011)****109R0612G401(4011)****109R0624G401(4011)****109R0612S401(4011)****109R0624S401(4011)****109R0605H401(4011)****109R0612H401(4011)****109R0624H401(4011)****109R0605M401(4011)****109R0612M401(4011)****109R0624M401(4011)**



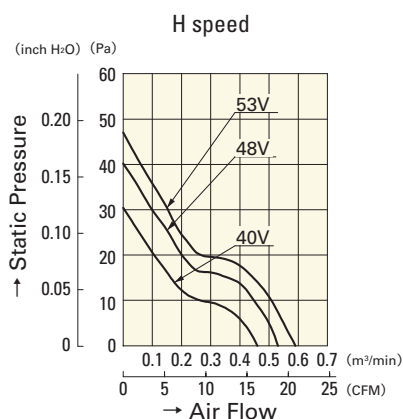
109R0648G401(4011)



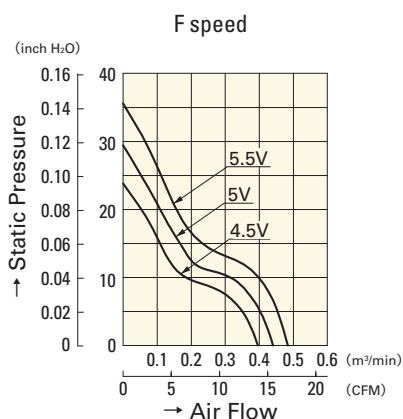
109R0612D401(4011)



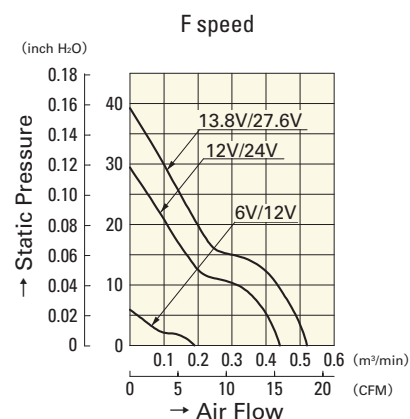
109R0624D401(4011)



109R0648H401(4011)



109R0605F401(4011)



109R0612F401(4011)

109R0624F401(4011)

60mm sq.**San Ace 60**

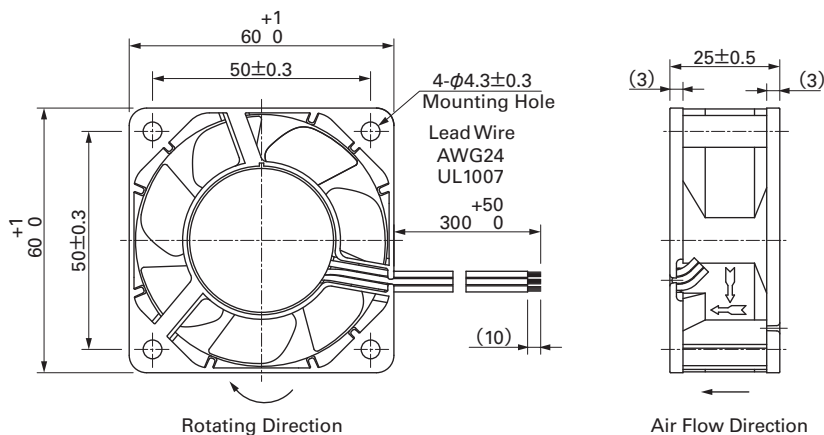
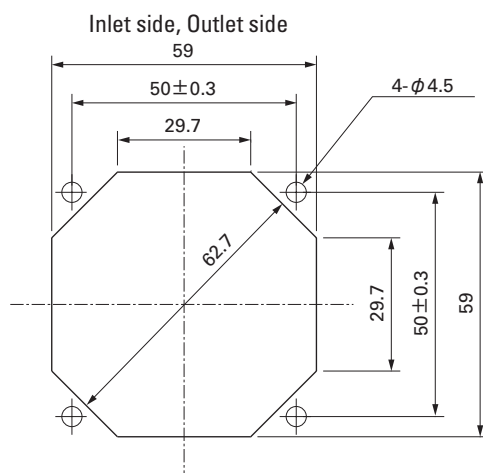
15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 38mm thick (GV type)
 38mm thick (G type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

60×60×25mm (Mass : 80g)**San Cooler**
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9A0612G401(4011)	12	6 to 13.2	0.24	2.88	5,600	0.78	27.6	87.3	0.351	39	-10 to +60	30,000
9A0612S401(4011)		6 to 13.8	0.17	2.04	4,600	0.65	23.0	56.8	0.228	33	-10 to +70	40,000
9A0612H401(4011)			0.11	1.32	3,800	0.53	18.7	40.2	0.161	28		
9A0612F401(4011)			0.09	1.08	3,200	0.44	15.5	29.4	0.118	24		
9A0612M401(4011)		7 to 13.8	0.06	0.72	2,600	0.36	12.7	19.6	0.079	20		
9A0624G401(4011)	24	12 to 27.6	0.13	3.12	5,600	0.78	27.6	87.3	0.351	39	-10 to +60	30,000
9A0624S401(4011)		12 to 27.6	0.08	1.92	4,600	0.65	23.0	56.8	0.228	33	-10 to +70	40,000
9A0624H401(4011)			0.06	1.44	3,800	0.53	18.7	40.2	0.161	28		
9A0624F401(4011)			0.05	1.2	3,200	0.44	15.5	29.4	0.118	24		
9A0624M401(4011)		14 to 27.6	0.04	0.96	2,600	0.36	12.7	19.6	0.079	20		

Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.
Dimensions (Unit : mm) (With ribs)

Reference dimension of mounting holes and vent opening (Unit : mm)


Options (Unit : mm)

Finger guards

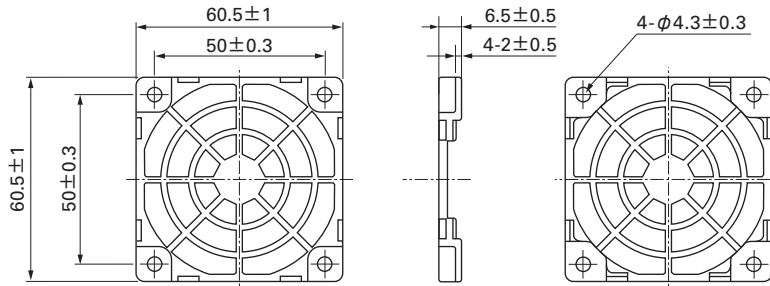
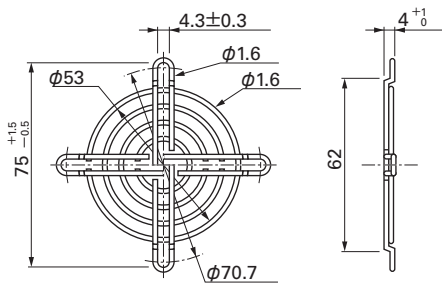
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)

Color

Resin finger guards

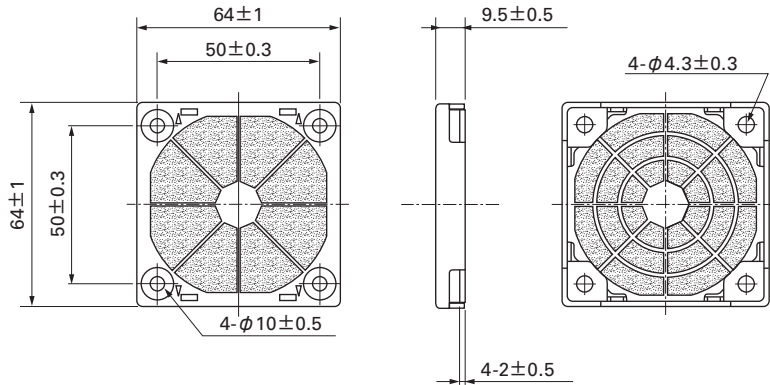
Model : 109-1003G

Inlet side, Outlet side

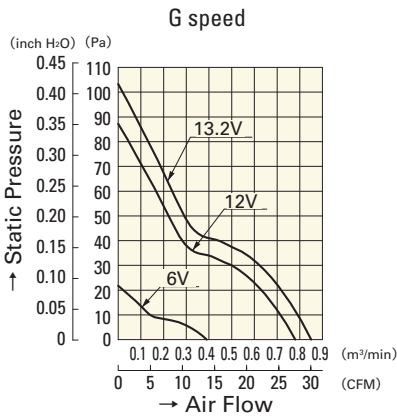


Resin filter kits

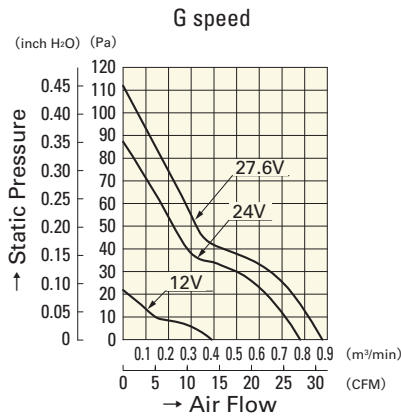
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



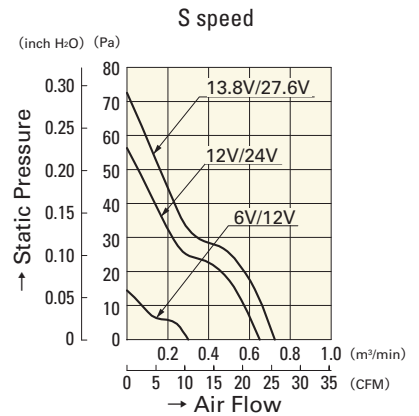
Air Flow - Static Pressure Characteristics



9A0612G401(4011)

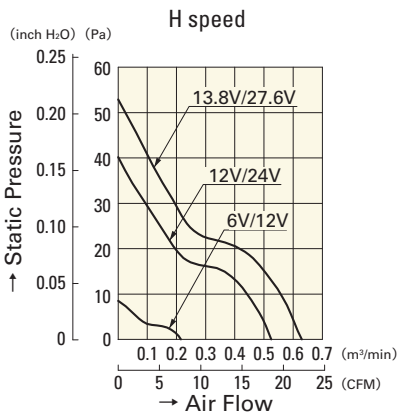


9A0624G401(4011)



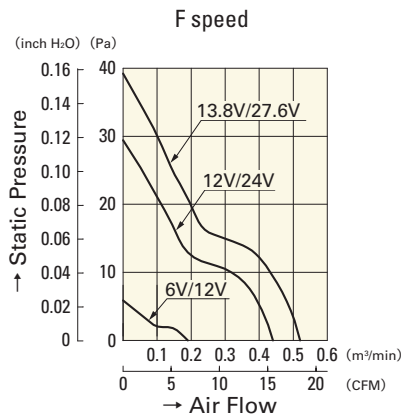
9A0612S401(4011)

9A0624S401(4011)



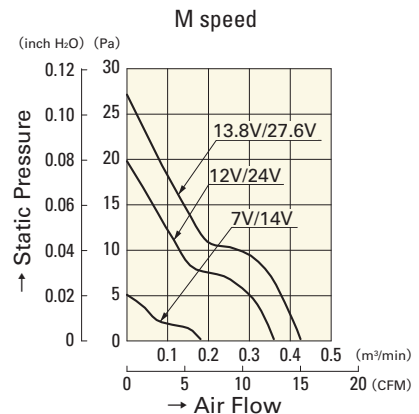
9A0612H401(4011)

9A0624H401(4011)



9A0612F401(4011)

9A0624F401(4011)



9A0612M401(4011)

9A0624M401(4011)

60mm

60mm sq.**San Ace 60**

15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 38mm thick (GV type)
 38mm thick (G type)



■ **General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (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)

60×60×38mm [Mass : 130g]**GV type**

■ **Specifications** The numbers in () represent ribless models.

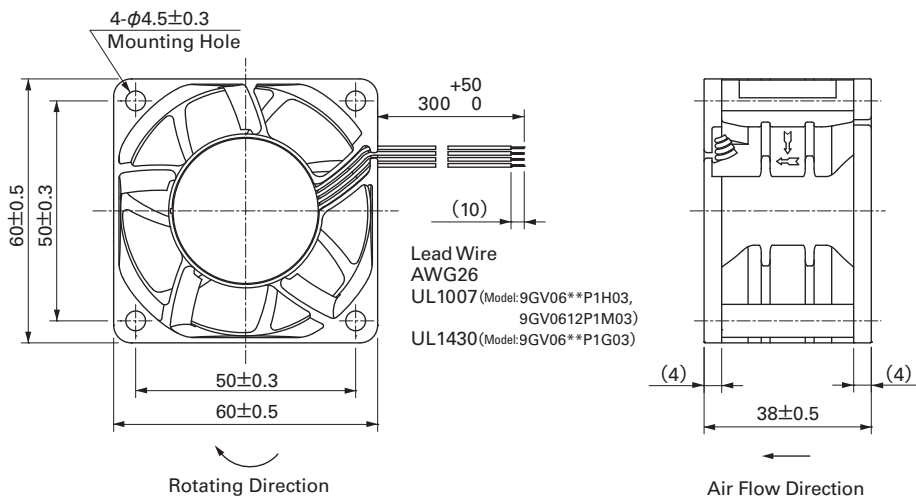
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature Range [°C]	Life Expectancy [h]
9GV0612P1G03(031)	12	8.0 to 13.8	100	2.8	33.6	16,000	2.37 84	751 3.02	66	-10 to +70	40,000
			0	0.12	1.5	3,100	0.44 15	26 0.10	25		
9GV0612P1H03(031)			100	2.0	24.0	14,500	2.15 76	617 2.48	63		
			0	0.1	1.2	2,700	0.40 14	21 0.09	22		
9GV0612P1M03(031)	24	20.4 to 27.6	100	1.5	18.0	13,000	1.93 68	496 1.99	60		
			0	0.08	1.0	2,500	0.38 13	18 0.07	19		
9GV0624P1G03(031)			100	1.4	33.6	16,000	2.37 84	751 3.02	66		
			0	0.12	2.88	6,000	0.89 31	105 0.42	38		
9GV0648P1H03(031)	48	38 to 57	100	0.5	24	14,500	2.15 76	617 2.48	63		
			0	0.08	3.84	6,000	0.89 31	105 0.42	38		

※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

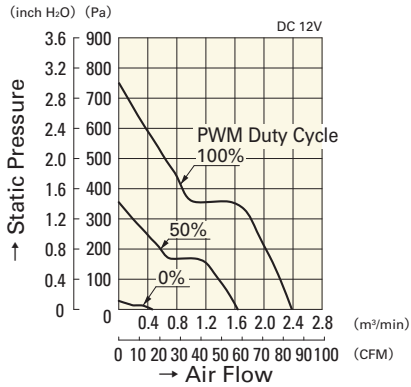
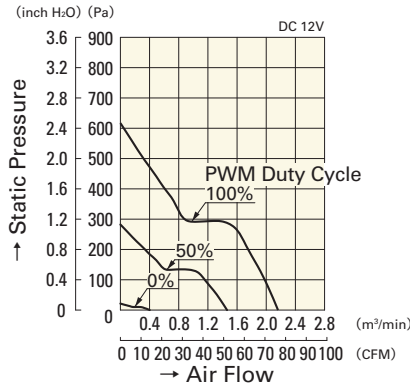
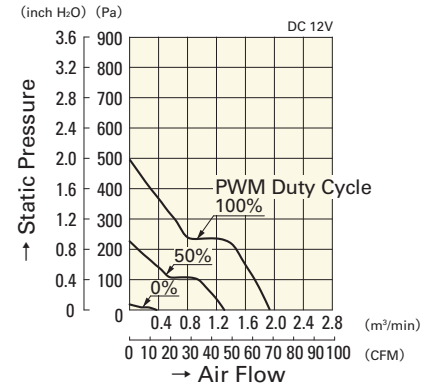
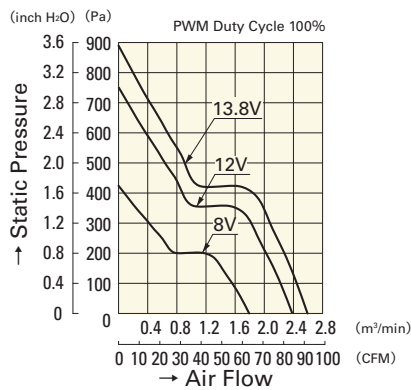
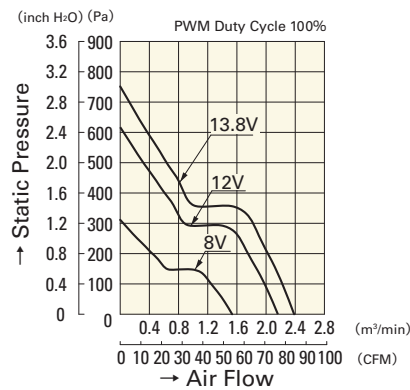
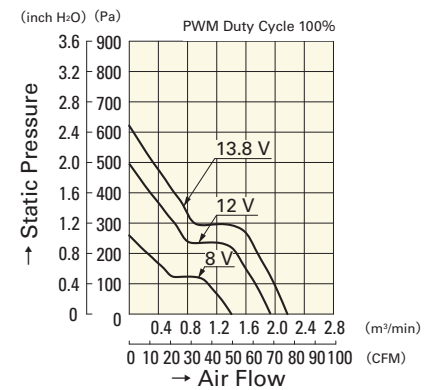
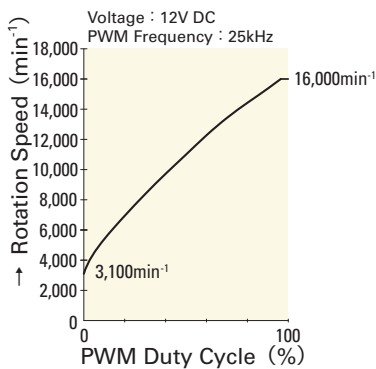
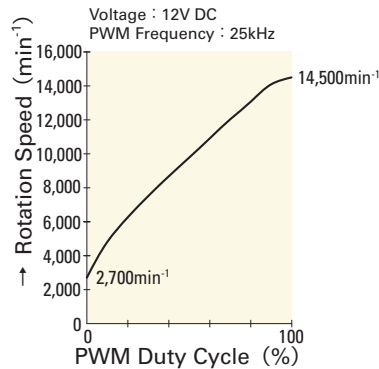
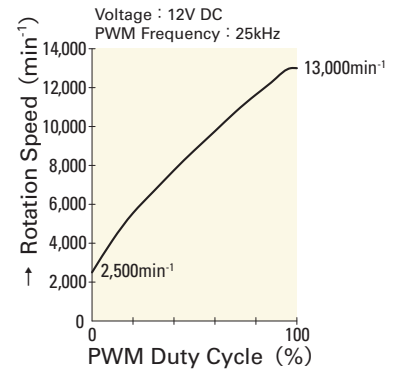
Lock Sensor Please inquire as the availability of these functions depend on the model.

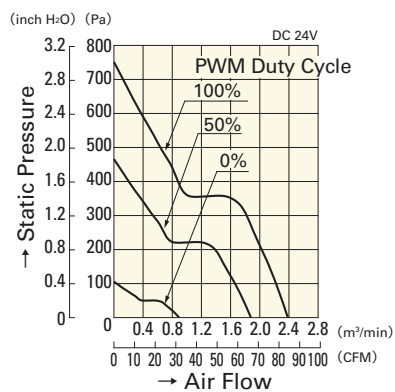
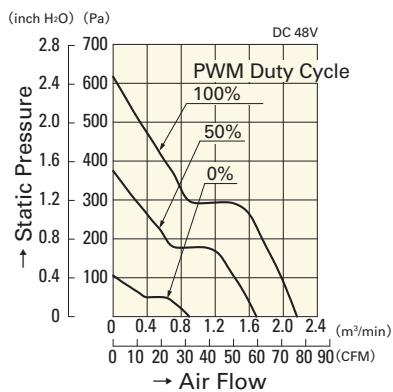
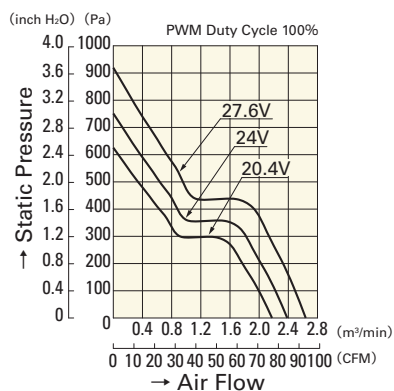
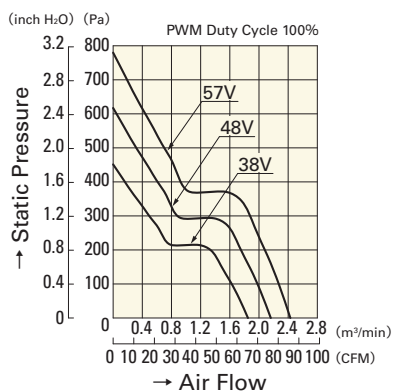
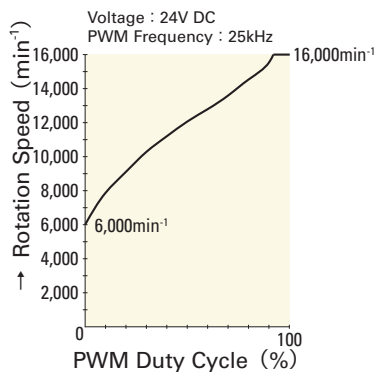
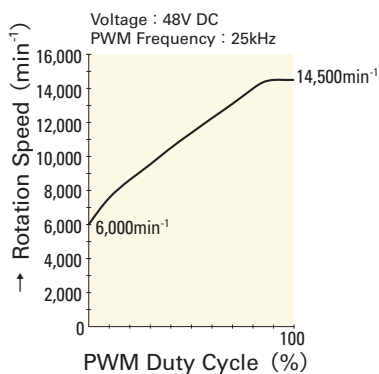
■ **Dimensions (Unit : mm)** (With ribs)



DC Fan 60mm



60mm sq.**San Ace 60****60×60×38mm** [Mass : 130g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GV0612P1G03(031)****9GV0612P1H03(031)****9GV0612P1M03(031)****Operating Voltage Range****9GV0612P1G03(031)****9GV0612P1H03(031)****9GV0612P1M03(031)****PWM Duty - Speed Characteristics Example****9GV0612P1G03(031)****9GV0612P1H03(031)****9GV0612P1M03(031)**

**9GV0624P1G03(031)****9GV0648P1H03(031)****9GV0624P1G03(031)****9GV0648P1H03(031)****9GV0624P1G03(031)****9GV0648P1H03(031)**

60mm sq.**San Ace 60**

15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 38mm thick (GV type)
 38mm thick (G type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

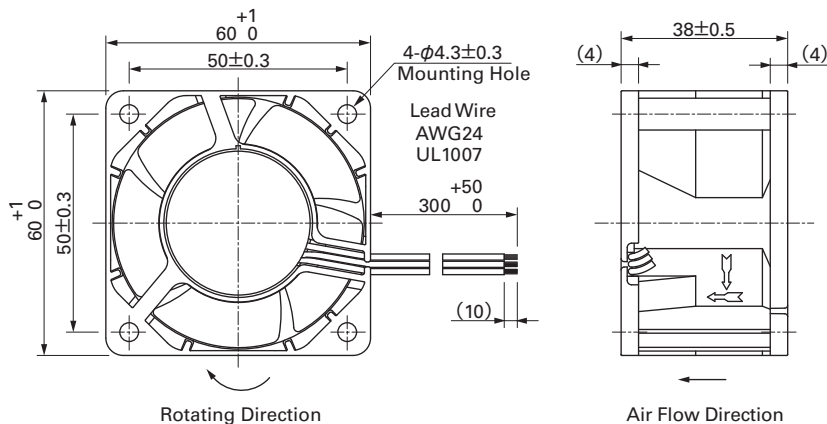
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

60×60×38mm [Mass : 110g]**G type**
Specifications The numbers in () represent ribless models.

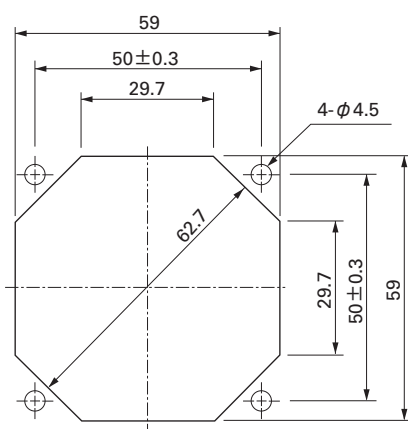
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9G0612G101(1011)	12	7.0 to 13.8	1.54	18.5	11,800	1.84 65	435 1.747	58	-10 to +70	40,000
9G0612S101(1011)			1.36	16.3	10,800	1.70 60	370 1.486	56		
9G0624G101(1011)	24	14.0 to 27.6	0.85	20.4	11,800	1.84 65	435 1.747	58		
9G0624S101(1011)			0.70	16.8	10,800	1.70 60	370 1.486	56		
9G0648G101(1011)	48	28 to 55.2	0.35	16.8	11,800	1.84 65	435 1.747	58		
9G0648S101(1011)			0.29	13.9	10,800	1.70 60	370 1.486	56		

Without Sensor Pulse Sensor Available in all models.
Lock SensorLow speed SensorPWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)

Reference dimension of mounting holes and vent opening (Unit : mm)

Inlet side, Outlet side



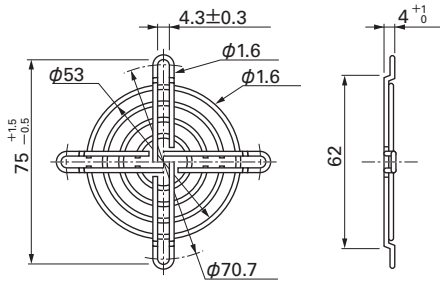
Options (Unit : mm)

Finger guards

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

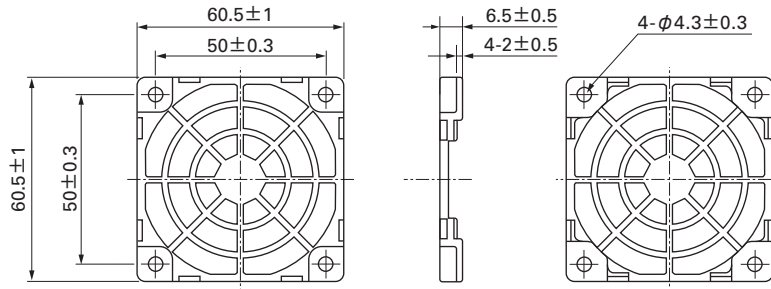
Color

Inlet side, Outlet side



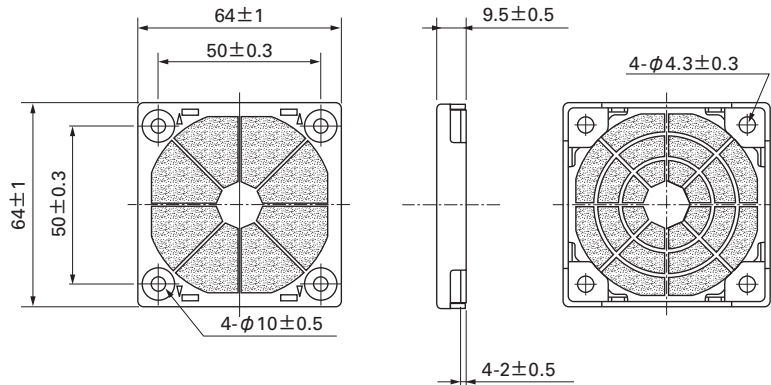
Resin finger guards

Model : 109-1003G

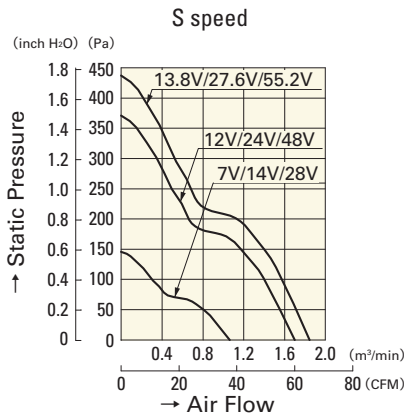
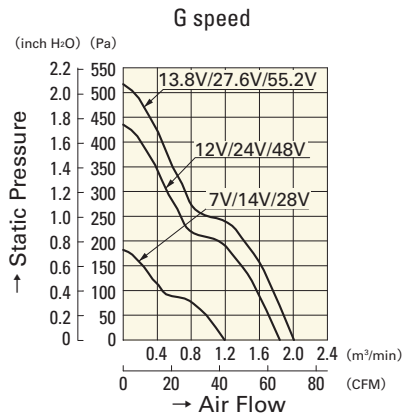


Resin filter kits

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



Air Flow - Static Pressure Characteristics



9G0612G101(1011)

9G0624G101(1011)

9G0648G101(1011)

9G0612S101(1011)

9G0624S101(1011)

9G0648S101(1011)

80mm sq.**San Ace 80**

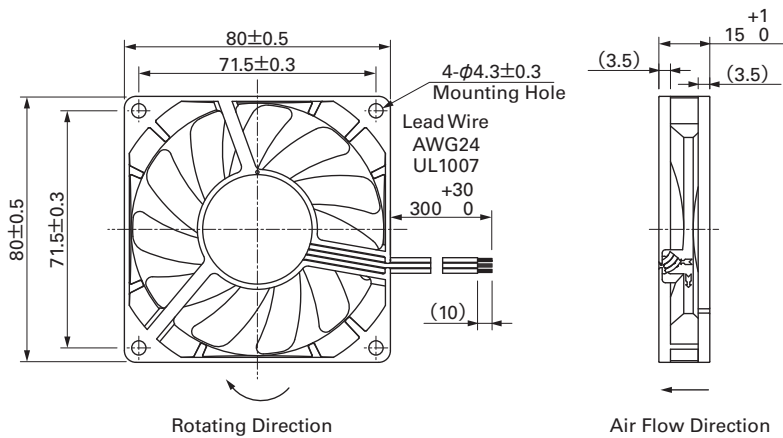
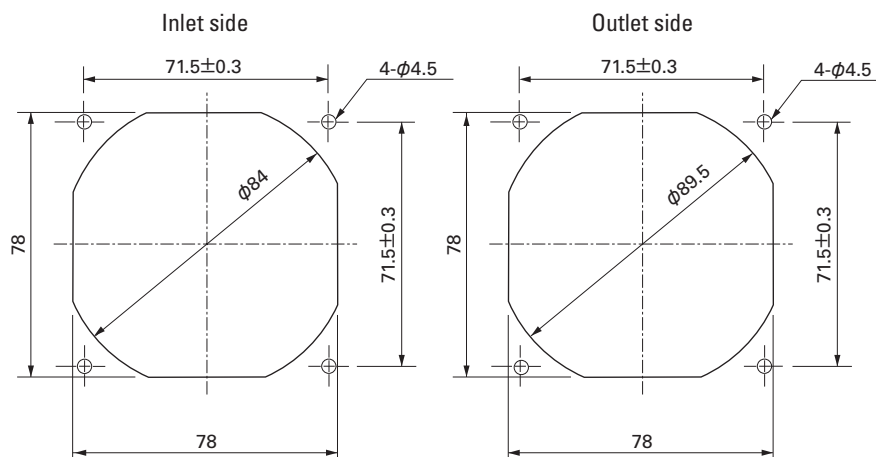
15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 32mm thick
 38mm thick (GV type), 38mm thick (G type)

General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

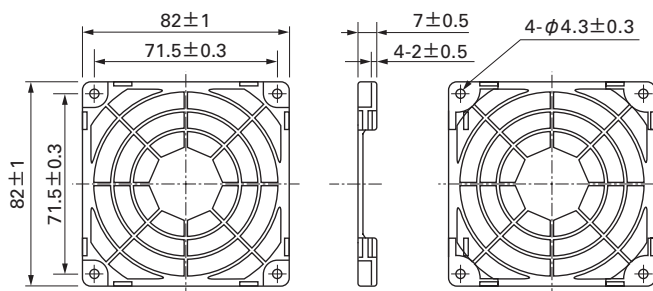
**80×80×15mm** (Mass : 68g)**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P0812H701	12	7 to 13.8	0.2	2.4	3,100	0.91	32.1	29.4	0.118	31	-10 to +70	40,000
109P0812M701			0.09	1.08	2,000	0.57	20.1	12.6	0.051	21		60,000
109P0824H701	24	14 to 27.6	0.1	2.4	3,100	0.91	32.1	29.4	0.118	31		40,000
109P0824M701			0.05	1.2	2,000	0.57	20.1	12.6	0.051	21		60,000

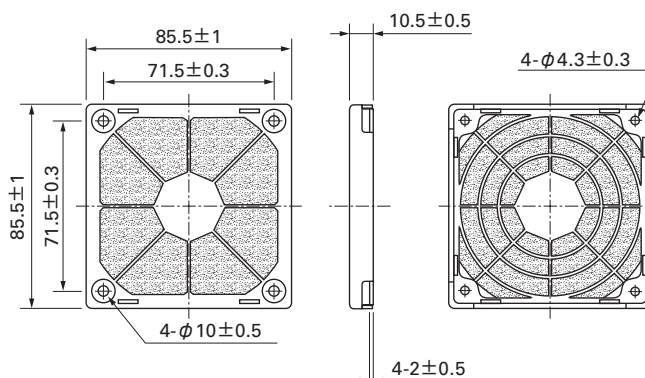
Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)**

DC Fan 80mm

Model : 109-1002G



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



H speed

(inch H₂O) (Pa)

→ Static Pressure

13.8V/27.6V

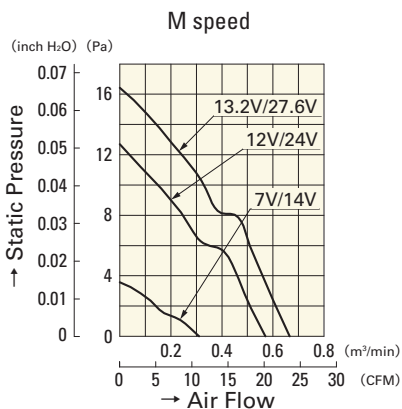
12V/24V

7V/14V

→ Air Flow

(m³/min) (CFM)

109P0824H701



109P0824M701

80mm sq.

San Ace 80

15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 32mm thick
 38mm thick (GV type), 38mm thick (G type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

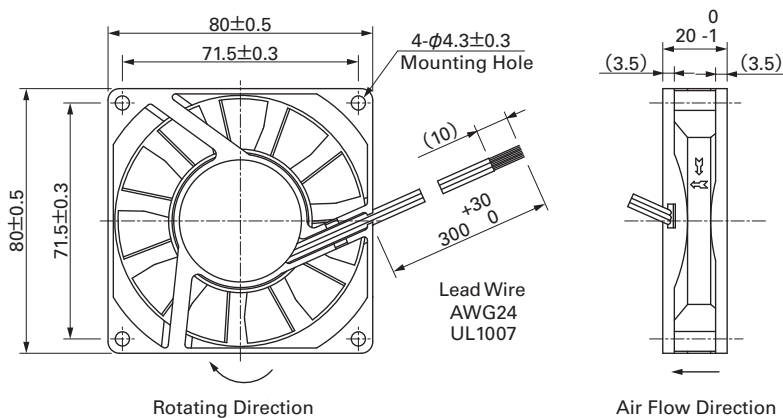
80×80×20mm [Mass : 100g]

Specifications

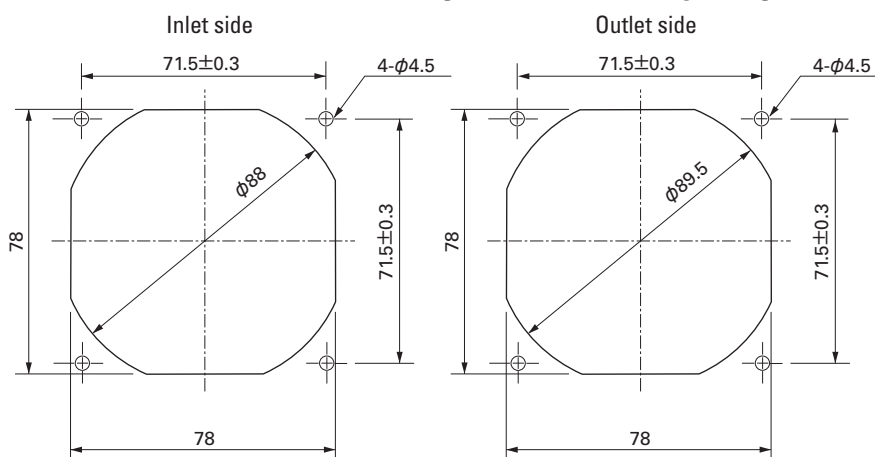
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P0812C601	12	10.2 to 13.8	0.29	3.48	3,700	1.07	37.8	46	0.185	39	-10 to +60	60,000
109P0812H601			0.21	2.52	2,900	0.84	29.7	29.4	0.118	31		
109P0812M601			0.13	1.56	2,300	0.67	23.7	18.6	0.075	25		
109P0824H601	24	20.4 to 27.6	0.12	2.88	2,900	0.84	29.7	29.4	0.118	31	-10 to +70	40,000
109P0824M601			0.07	1.68	2,300	0.67	23.7	18.6	0.075	25		
109P0848C601	48	38 to 57.6	0.08	3.84	3,700	1.07	37.8	46	0.185	39	-10 to +70	40,000
109P0848H601			0.05	2.4	2,900	0.84	29.7	29.4	0.118	31	-10 to +60	

Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



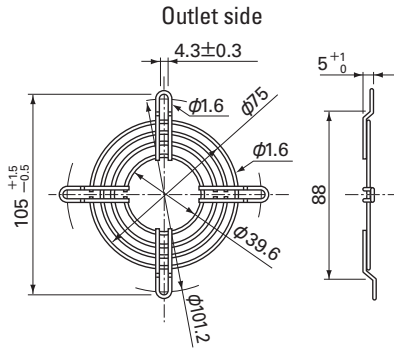
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

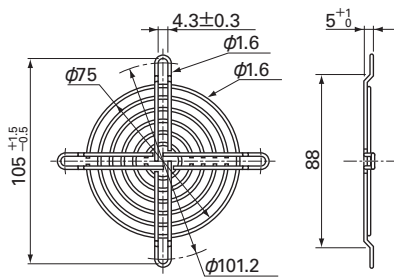
Finger guards

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



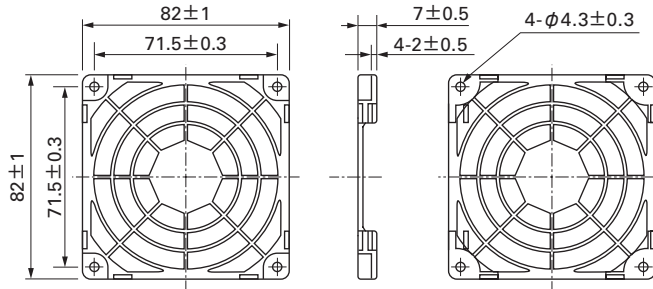
Model : 109-049E Color : Nickel-chrome plating (silver)
Surface treatment : Nickel-chrome plating (silver)
Model : 109-049H Color : Cation electropainting (black)
Surface treatment : Cation electropainting (black)

Inlet side, Outlet side



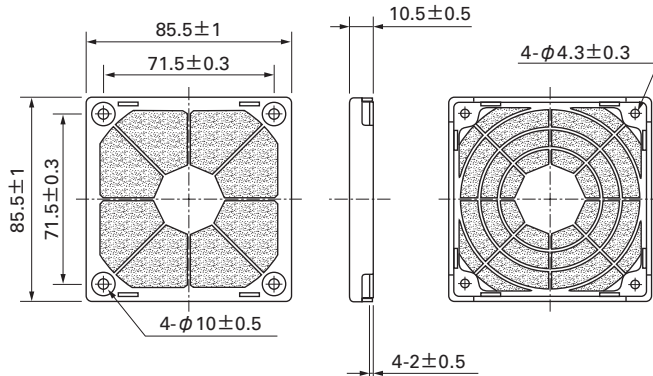
Resin finger guards

Model : 109-1002G

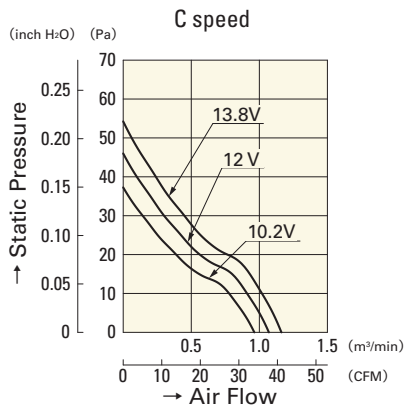


Resin filter kits

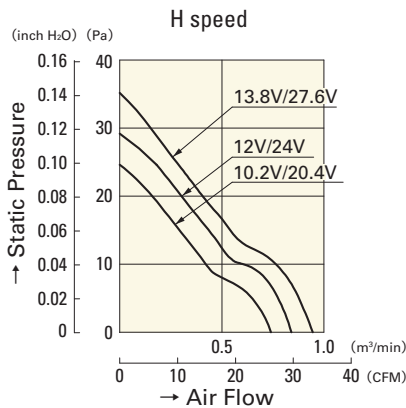
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
Model : 109-1002F30 (30PPI), 109-1002F40 (40PPI)



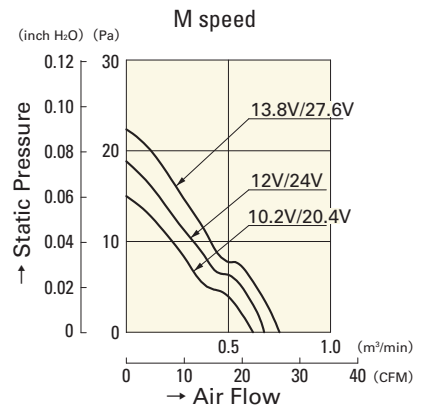
Air Flow - Static Pressure Characteristics



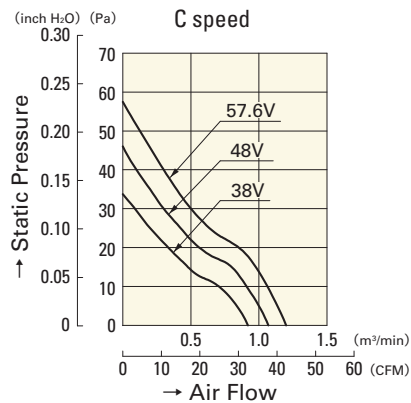
109P0812C601



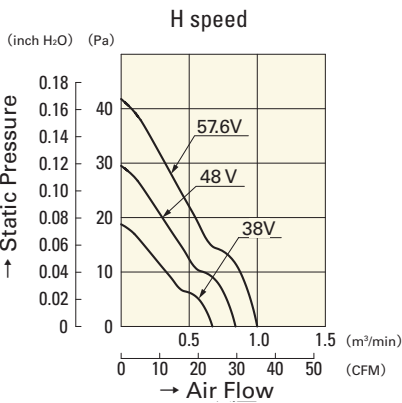
109P0812H601
109P0824H601



109P0812M601
109P0824M601



109P0848C601



109P0848H601

80mm sq.**San Ace 80**

15mm thick, 20mm thick, 25mm thick, 25mm thick (GV type)
 25mm thick (San Cooler), 32mm thick
 38mm thick (GV type), 38mm thick (G type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (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)

80×80×25mm [Mass : 125g]**GV type**

Specifications The numbers in () represent ribless models.

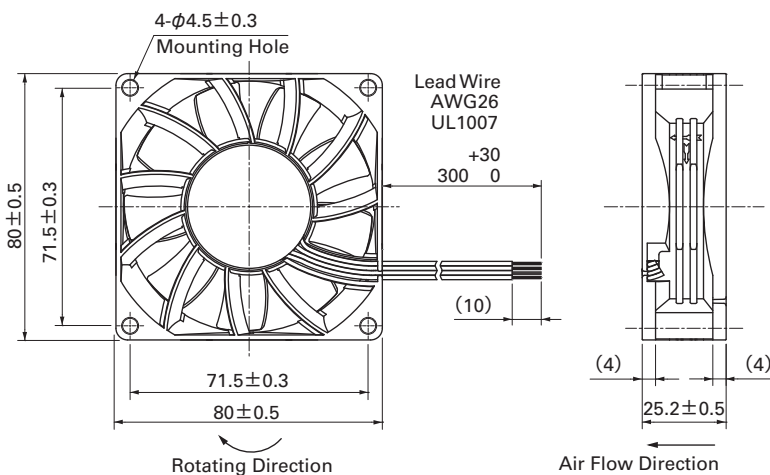
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GV0812P4K03(031)	12	10.2 to 13.8	100	0.87	10.4	5,600	2.12 74.8	173.0 0.69	52	-10 to +70	40,000
			0	0.10	1.2	1,400	0.53 18.7	10.8 0.04	18		
9GV0812P4J03(031)			100	0.47	5.6	4,500	1.72 60.7	110.0 0.44	46		
			0	0.07	0.8	1,200	0.46 16.2	7.8 0.03	14		
9GV0848P4K03	48	43 to 53	100	0.22	10.56	5,600	2.12 74.8	173.0 0.69	52		
			0	0.04	1.92	1,500	0.57 20.1	12.4 0.05	19		

※PWM Frequency : 25kHz

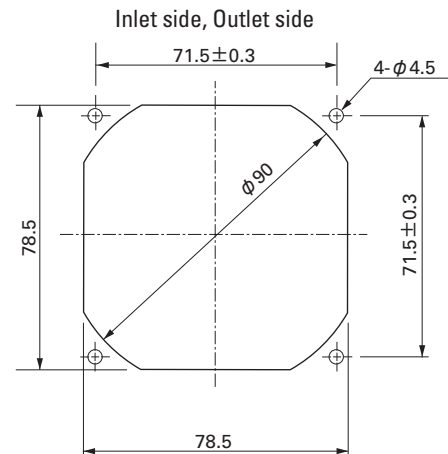
Without Sensor Pulse Sensor PWM Control Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)



Reference dimension of mounting holes and vent opening (Unit : mm)



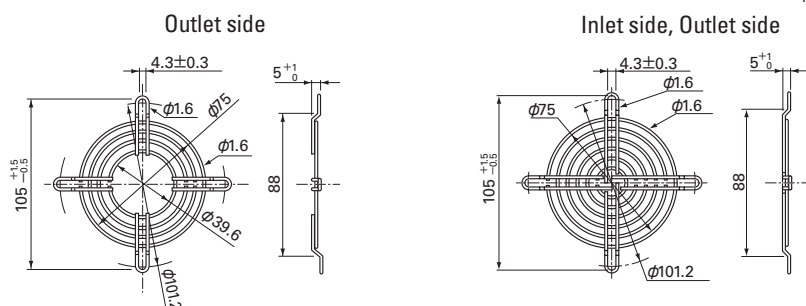
Options (Unit : mm)

Finger guards

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

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

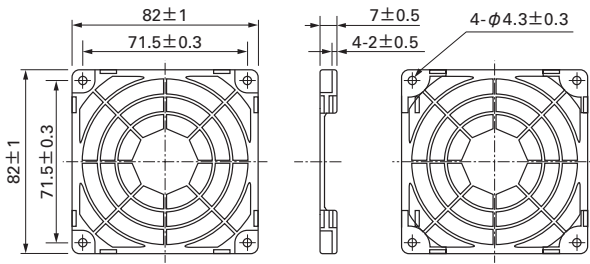
: 109-049H : Cation electropainting (black)



Options (Unit : mm)

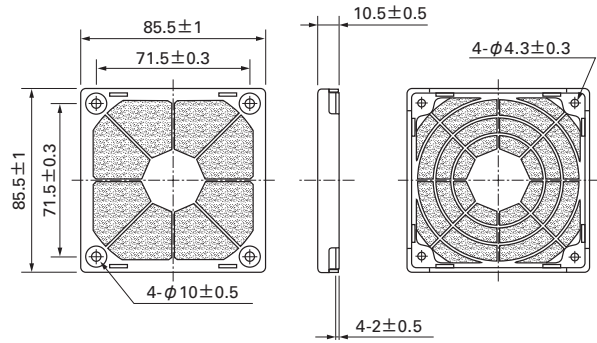
Resin finger guards

Model : 109-1002G



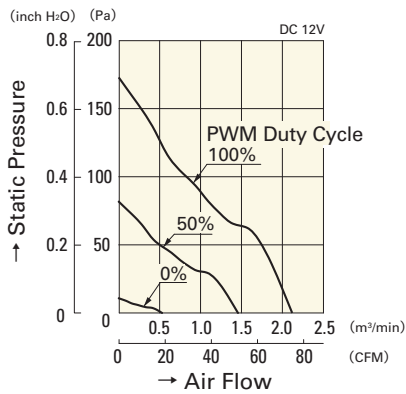
Resin filter kits

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

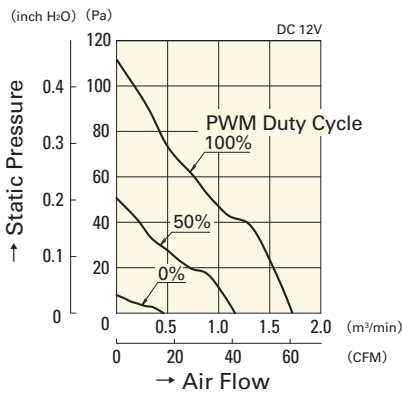


Air Flow - Static Pressure Characteristics

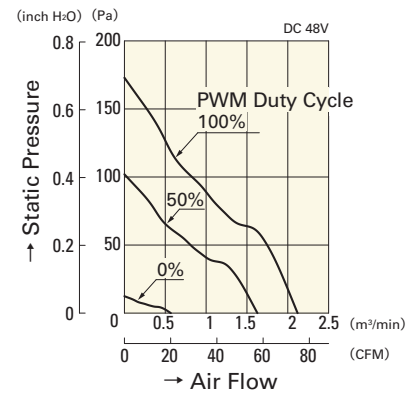
PWM Duty Cycle



9GV0812P4K03(031)

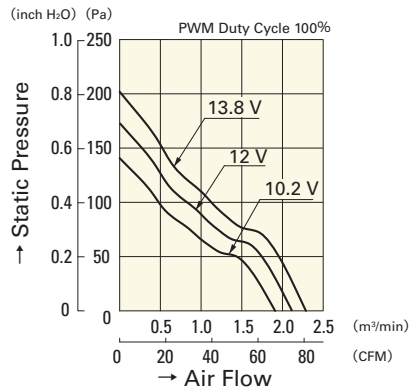


9GV0812P4J03(031)

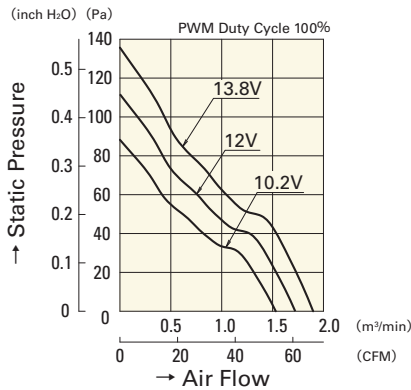


9GV0848P4K03

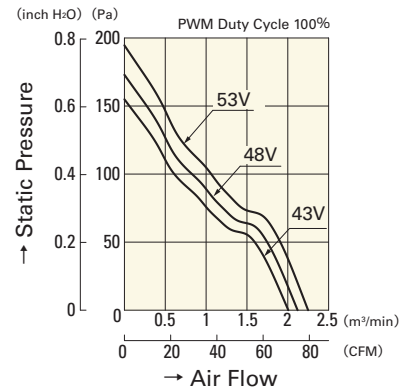
Operating Voltage Range



9GV0812P4K03(031)

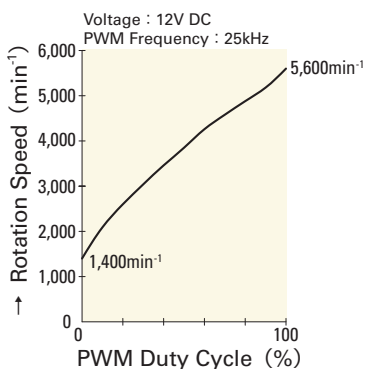


9GV0812P4J03(031)

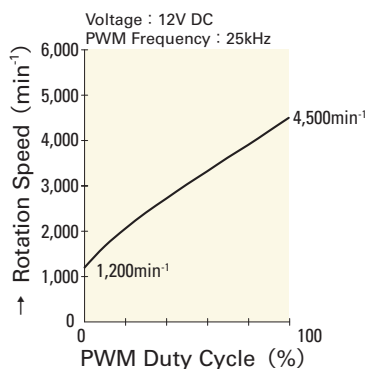


9GV0848P4K03

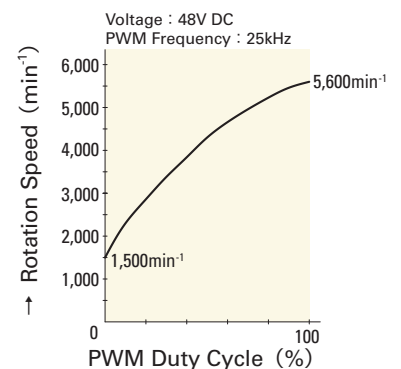
PWM Duty - Speed Characteristics Example



9GV0812P4K03(031)



9GV0812P4J03(031)



9GV0848P4K03

80mm sq.**San Ace 80**

15mm thick, 20mm thick, **25mm thick**
 25mm thick (San Cooler), 32mm thick
 38mm thick (GV type), 38mm thick (G type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

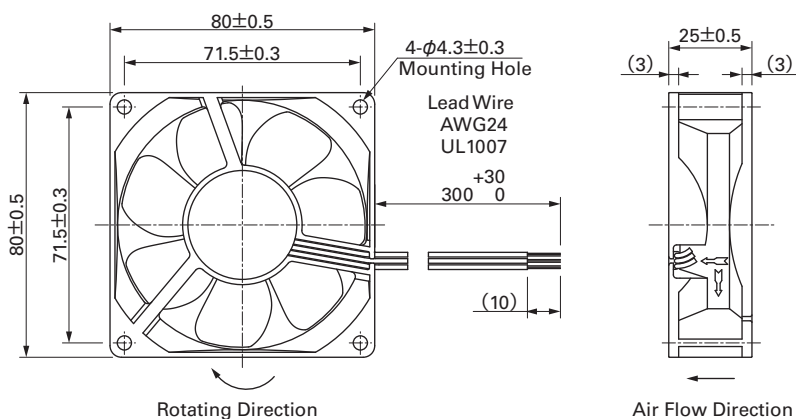
80×80×25mm [Mass : 110g]
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109R0805F401(4011)	5	4.5 to 5.5	0.25	1.25	2,600	0.92	32.5	28.4	0.114	26	-10 to +70	60,000
109R0805M401(4011)			0.17	0.85	2,350	0.83	29.3	22.5	0.090	23		
109R0812G401(4011)	12	10.8 to 13.2	0.37	4.44	4,500	1.50	53.0	80.4	0.323	40	-10 to +60	40,000
109R0812S401(4011)		6 to 13.8	0.18	2.16	3,400	1.20	42.4	48.0	0.193	34		
109R0812H401(4011)			0.13	1.56	2,900	1.03	36.4	35.3	0.142	29		
109R0812F401(4011)			0.11	1.32	2,600	0.92	32.5	28.4	0.114	26		
109R0812M401(4011)			0.09	1.08	2,350	0.83	29.3	22.5	0.090	23		
109R0812L401(4011)		7 to 13.8	0.06	0.72	1,850	0.65	23.0	14.7	0.059	20		
109R0824G401(4011)	24	20.4 to 26.4	0.20	4.80	4,500	1.50	53.0	80.4	0.323	40	-10 to +60	40,000
109R0824S401(4011)		12 to 27.6	0.10	2.40	3,400	1.20	42.4	48.0	0.193	34		
109R0824H401(4011)			0.07	1.68	2,900	1.03	36.4	35.3	0.142	29		
109R0824F401(4011)			0.06	1.44	2,600	0.92	32.5	28.4	0.114	26		
109R0824M401(4011)			0.05	1.20	2,350	0.83	29.3	22.5	0.090	23		
109R0824L401(4011)		14 to 27.6	0.04	0.96	1,850	0.65	23.0	14.7	0.059	20		
109R0848K401(4011)	48	40.8 to 55.2	0.10	4.80	4,600	1.56	55.1	88.4	0.355	41	-10 to +60	40,000
109R0848S401(4011)			0.06	2.88	3,400	1.20	42.4	48.0	0.193	34		

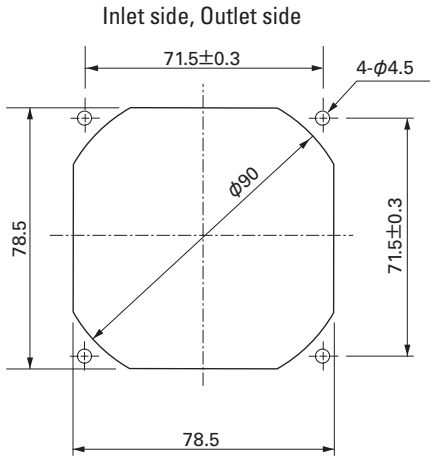
Without Sensor Pulse Sensor Available in all models.

Lock Sensor
Low speed Sensor
PWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)


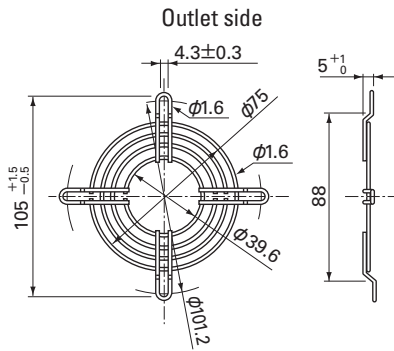
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

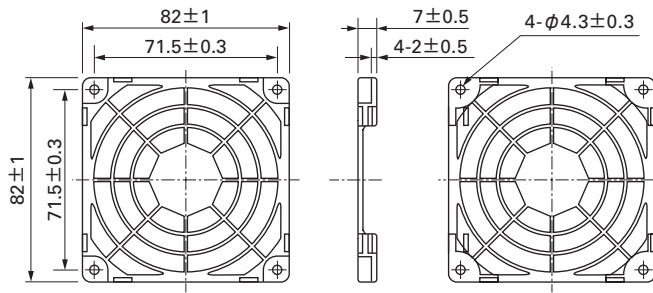
Finger guards

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



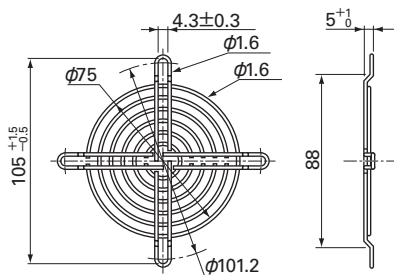
Resin finger guards

Model : 109-1002G



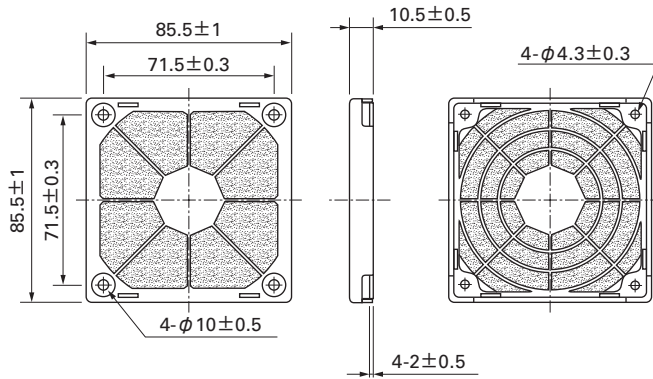
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color : Nickel-chrome plating (silver)
: 109-049H : Cation electropainting (black)

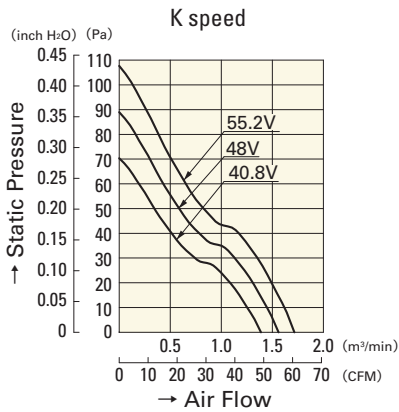
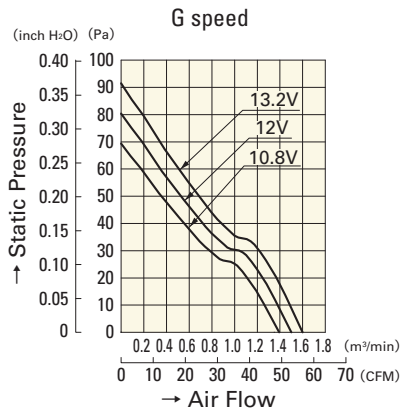
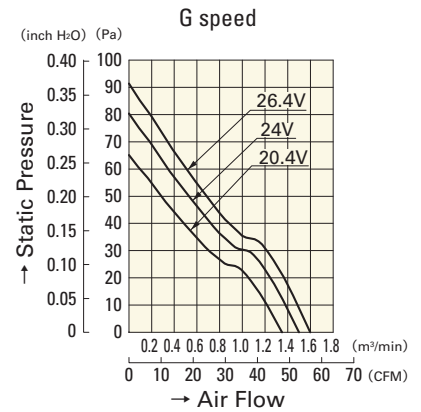
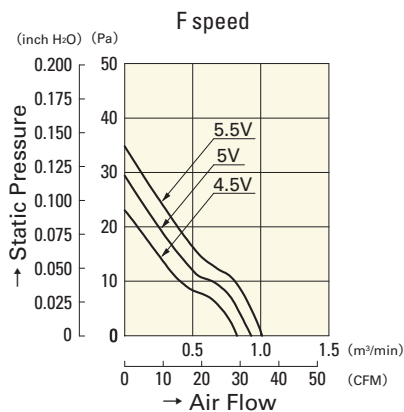
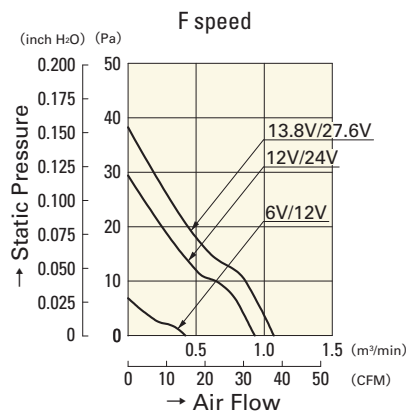
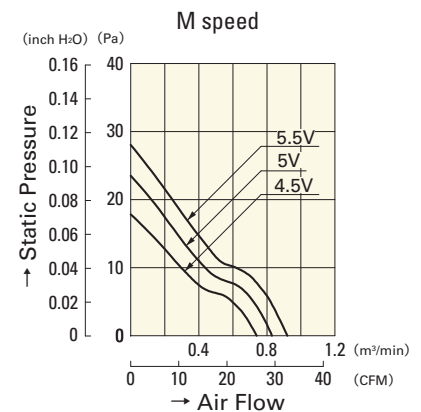
Inlet side, Outlet side

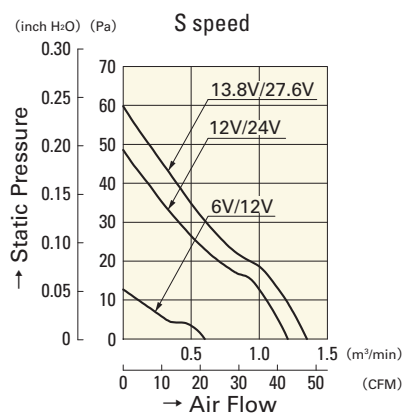


Resin filter kits

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

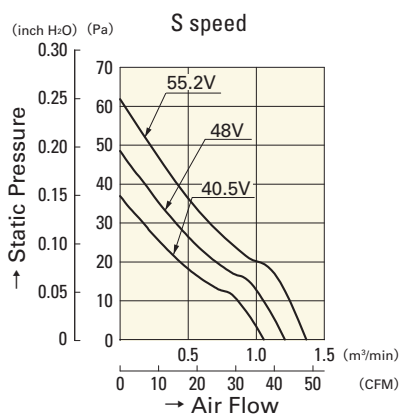


80mm sq.**San Ace 80****80×80×25mm** [Mass : 110g]**Air Flow - Static Pressure Characteristics****109R0848K401(4011)****109R0812G401(4011)****109R0824G401(4011)****109R0805F401(4011)****109R0812F401(4011)****109R0824F401(4011)****109R0805M401(4011)**

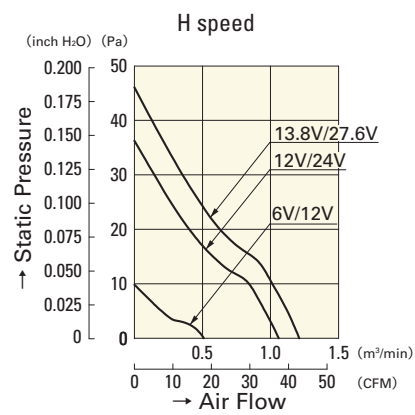


109R0812S401(4011)

109R0824S401(4011)

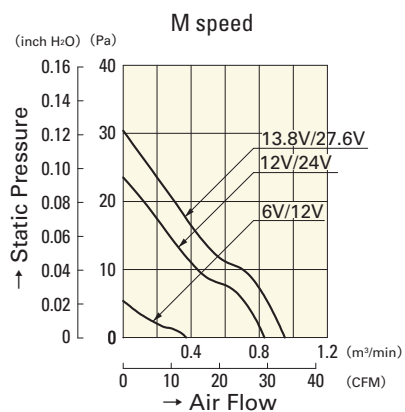


109R0848S401(4011)



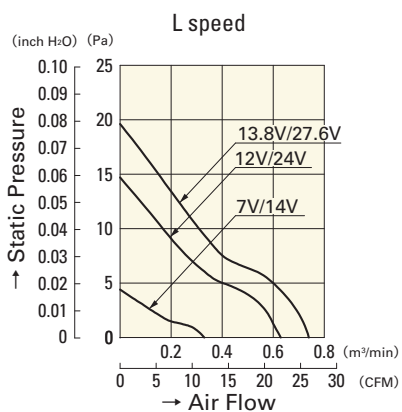
109R0812H401(4011)

109R0824H401(4011)



109R0812M401(4011)

109R0824M401(4011)



109R0812L401(4011)

109R0824L401(4011)

80mm sq.**San Ace 80**

15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 32mm thick
 38mm thick (GV type), 38mm thick (G type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature-30°C to +70°C (Non-condensing)

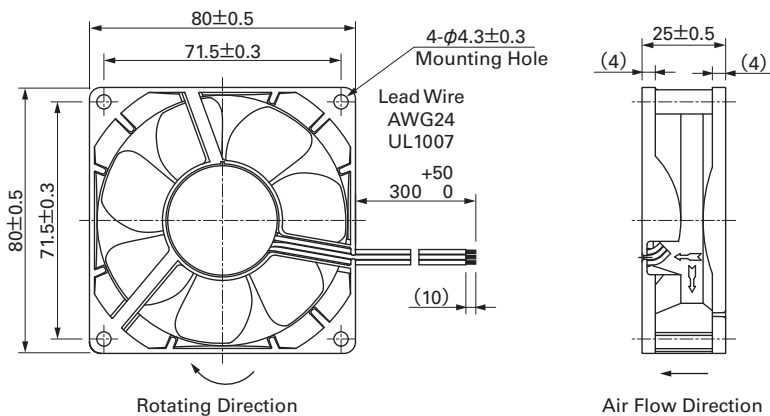
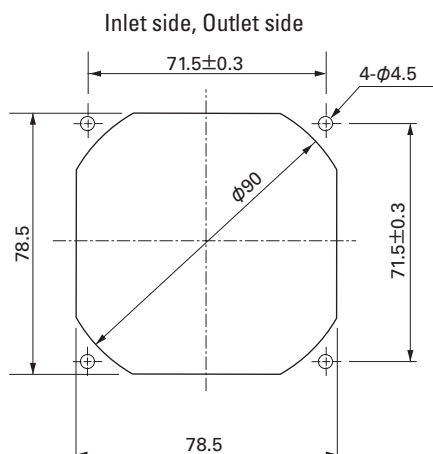
80×80×25mm [Mass : 90g]**San Cooler**
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9A0812G401(4011)	12	6 to 13.2	0.38	4.56	4,500	1.5	53.0	80.3	0.323	40	-10 to +60	30,000
9A0812S401(4011)		6 to 13.8	0.18	2.16	3,400	1.2	42.4	48	0.193	34	-10 to +70	40,000
9A0812H401(4011)			0.13	1.56	2,900	1.03	36.4	35.3	0.142	29		
9A0812F401(4011)			0.11	1.32	2,600	0.92	32.5	28.4	0.114	26		
9A0812M401(4011)			0.09	1.08	2,350	0.83	29.3	22.5	0.090	23		
9A0812L401(4011)		7 to 13.8	0.06	0.72	1,850	0.65	23.0	14.7	0.059	20		
9A0824G401(4011)	24	12 to 26.4	0.21	5.04	4,500	1.5	53.0	80.3	0.323	40	-10 to +60	30,000
9A0824S401(4011)		12 to 27.6	0.1	2.4	3,400	1.2	42.4	48	0.193	34	-10 to +70	40,000
9A0824H401(4011)			0.07	1.68	2,900	1.03	36.4	35.3	0.142	29		
9A0824F401(4011)			0.06	1.44	2,600	0.92	32.5	28.4	0.114	26		
9A0824M401(4011)			0.05	1.2	2,350	0.83	29.3	22.5	0.090	23		
9A0824L401(4011)		14 to 27.6	0.04	0.96	1,850	0.65	23.0	14.7	0.059	20		

Without Sensor Pulse Sensor Available in all models.

Lock Sensor
PWM Control

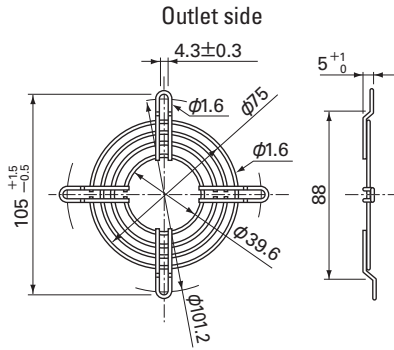
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)

Reference dimension of mounting holes and vent opening (Unit : mm)


Options (Unit : mm)

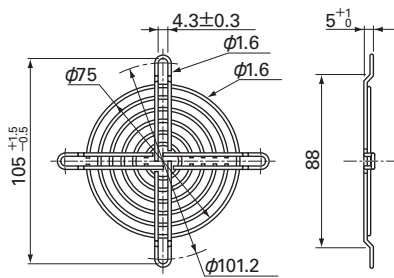
Finger guards

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



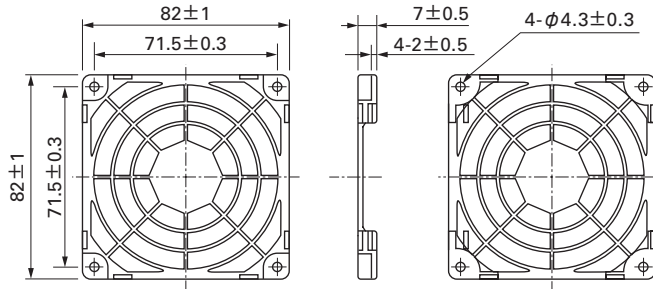
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)

Inlet side, Outlet side



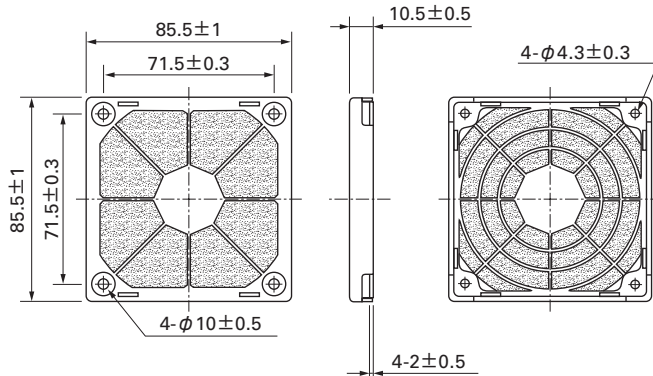
Resin finger guards

Model : 109-1002G

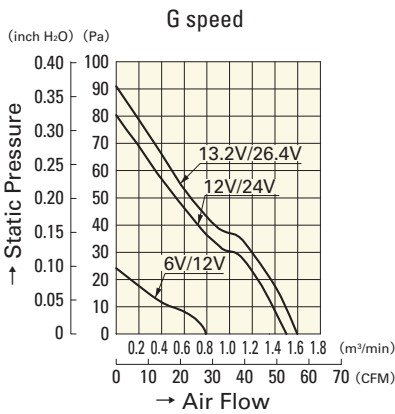


Resin filter kits

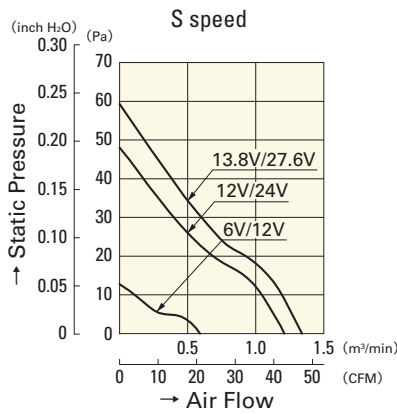
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



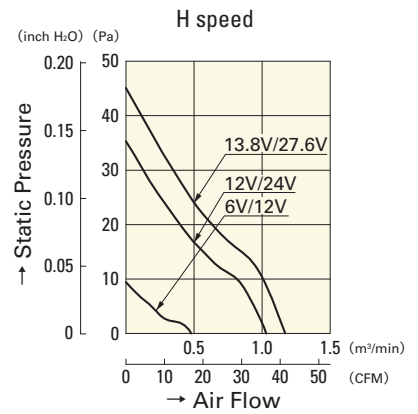
Air Flow - Static Pressure Characteristics



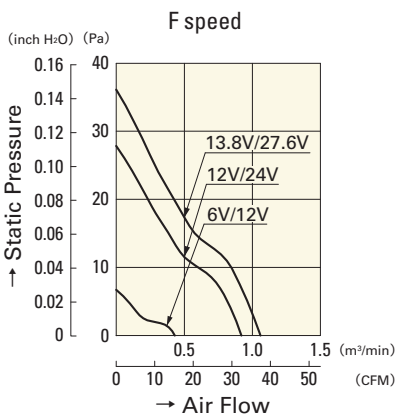
9A0812G401(4011)
9A0824G401(4011)



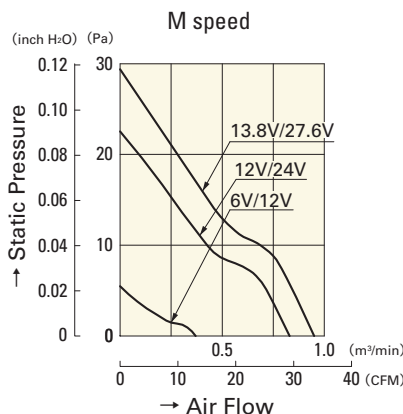
9A0812S401(4011)
9A0824S401(4011)



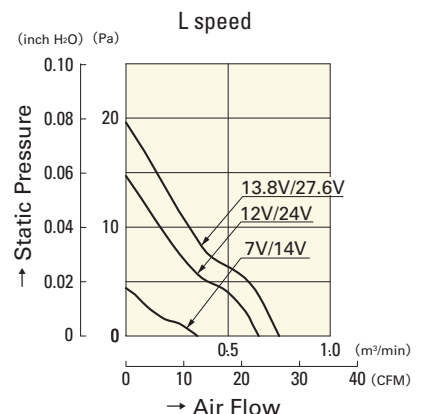
9A0812H401(4011)
9A0824H401(4011)



9A0812F401(4011)
9A0824F401(4011)



9A0812M401(4011)
9A0824M401(4011)



9A0812L401(4011)
9A0824L401(4011)

80mm sq.**San Ace 80**

15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 32mm thick
 38mm thick (GV type), 38mm thick (G type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

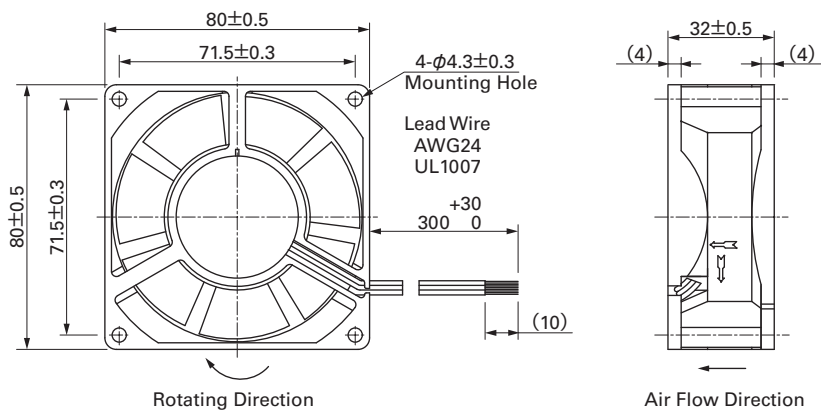
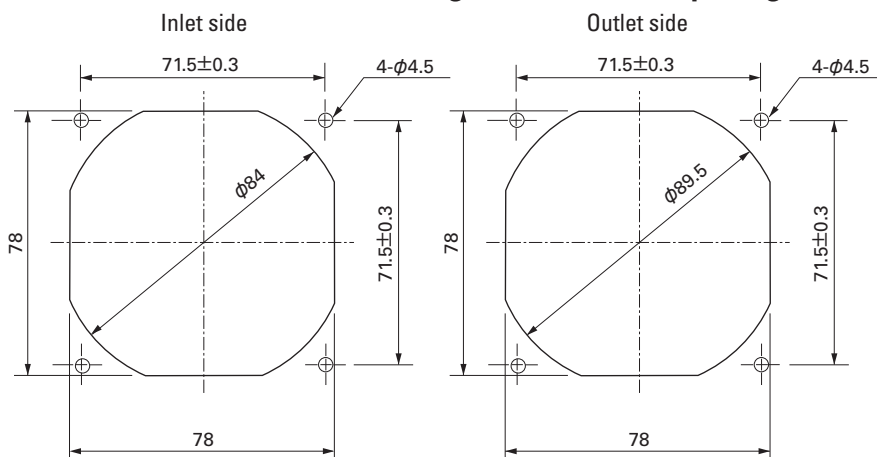
80×80×32mm [Mass : 150g]
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P0812A201(2011)	12	6 to 13.2	0.56	6.72	4,600	1.52	53.7	91.1	0.366	45	-10 to +55	40,000(+55°C)
109P0812H201(2011)		10.2 to 13.8	0.16	1.92	3,150	1.05	37.1	43.1	0.173	33	-10 to +70	40,000
109P0812M201(2011)			0.07	0.84	2,000	0.65	23.0	18.5	0.074	21	-10 to +70	60,000
109P0824A201(2011)	24	12 to 26.4	0.29	6.96	4,600	1.52	53.7	91.1	0.366	45	-10 to +60	40,000
109P0824H201(2011)		20.4 to 27.6	0.09	2.16	3,150	1.05	37.1	43.1	0.173	33	-10 to +70	40,000
109P0824M201(2011)			0.04	0.96	2,000	0.65	23.0	18.6	0.075	21	-10 to +70	60,000
109P0848H201(2011)	48	43 to 53	0.06	2.88	3,350	1.10	38.9	50.9	0.204	35	-10 to +70	40,000

Without Sensor Pulse Sensor Available in all models.

Lock Sensor
Low speed Sensor

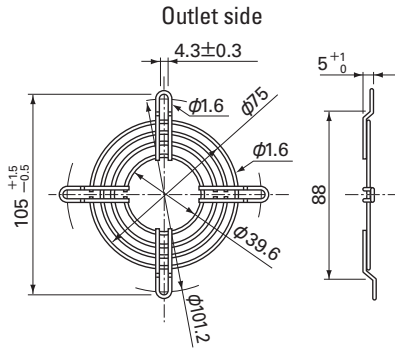
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)

Reference dimension of mounting holes and vent opening (Unit : mm)


Options (Unit : mm)

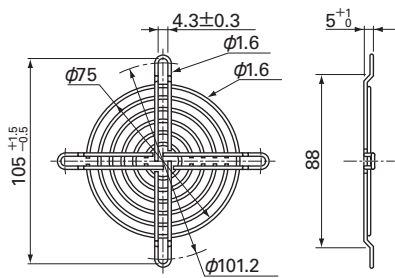
Finger guards

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



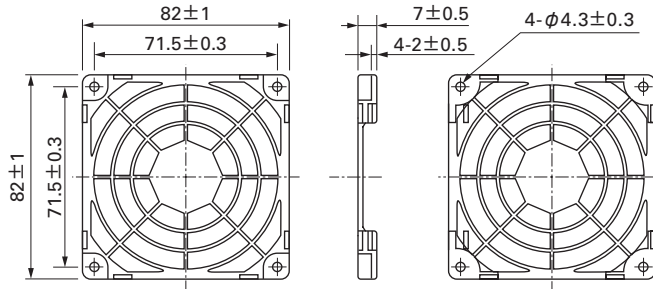
Model : 109-049E Surface treatment : Nickel-chrome plating (silver)
: 109-049H : Cation electropainting (black)

Inlet side, Outlet side



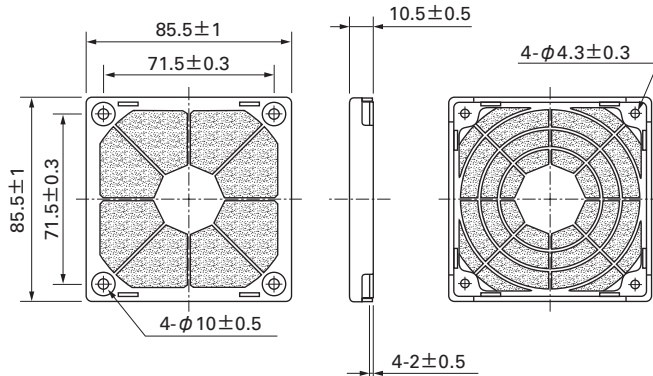
Resin finger guards

Model : 109-1002G

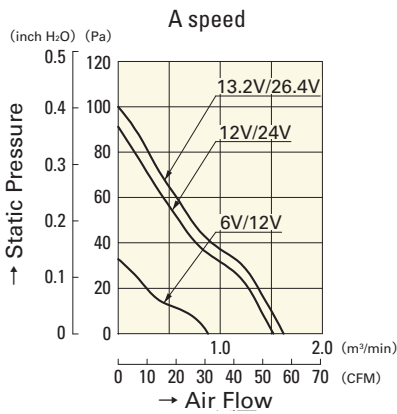


Resin filter kits

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

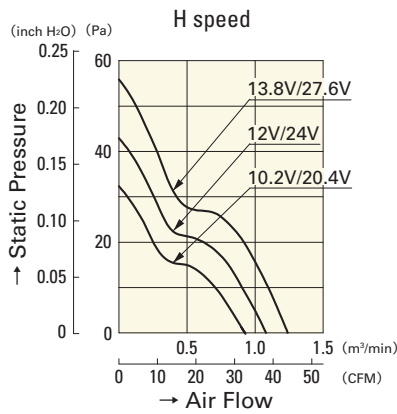


Air Flow - Static Pressure Characteristics



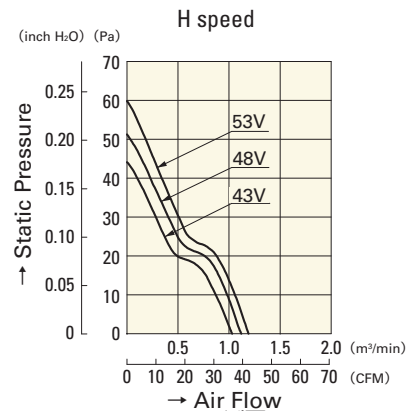
109P0812A201(2011)

109P0824A201(2011)

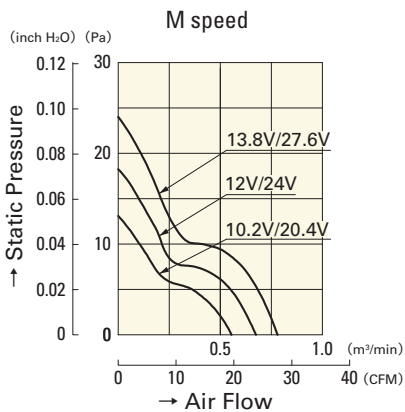


109P0812H201(2011)

109P0824H201(2011)



109P0848H201(2011)



109P0812M201(2011)

109P0824M201(2011)

80mm sq.**San Ace 80**

15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 32mm thick
 38mm thick (GV type), 38mm thick (G type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (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)

80×80×38mm (Mass : 220g)**GV type**

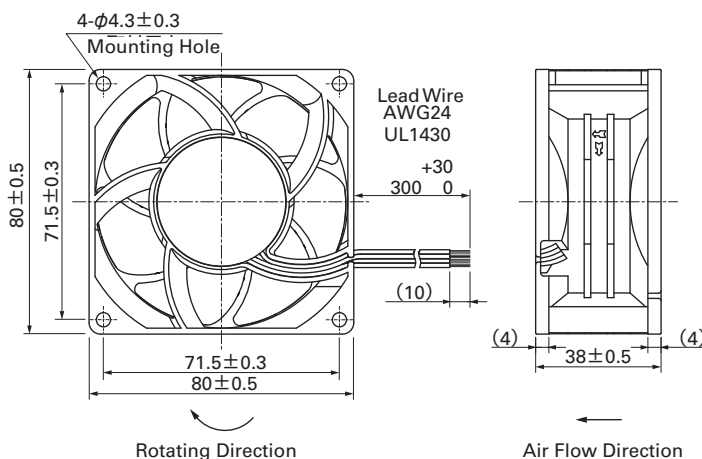
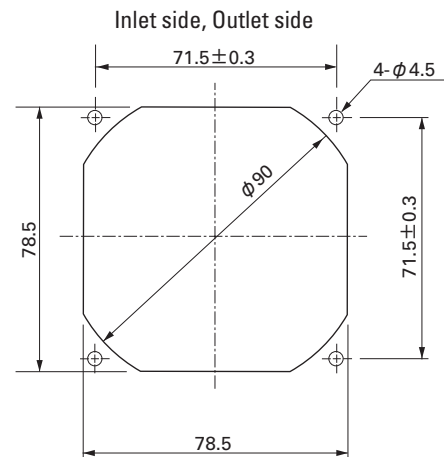
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GV0812P1G03(031)	12	10.8 to 13.2	100	3.80	45.60	10,200	3.90 138.0	490.0 1.97	65	-10 to +70	40,000
			0	0.32	3.84	3,000	1.15 40.6	42.4 0.17	34		
9GV0812P1H03(031)			100	3.00	36.00	9,700	3.70 131.0	440.0 1.77	63		
			0	0.20	2.40	2,900	1.11 39.2	39.0 0.16	34		
9GV0812P1F03		10.2 to 13.8	100	1.5	18	8,000	3.05 108.0	301.0 1.21	58		
			0	0.12	1.44	2,400	0.92 32.0	27.1 0.11	26		
9GV0812P1M03			100	0.75	9	6,000	2.29 81.0	169.0 0.68	51		
			0	0.09	1.08	1,700	0.65 23.0	13.6 0.05	19		
9GV0848P1G03	48	40.8 to 55.2	100	0.84	40.32	10,200	3.9 138.0	490.0 1.97	65	-10 to +70	40,000
			0	0.15	7.2	4,700	1.79 63.2	104.0 0.41	44		

※PWM Frequency : 25kHz

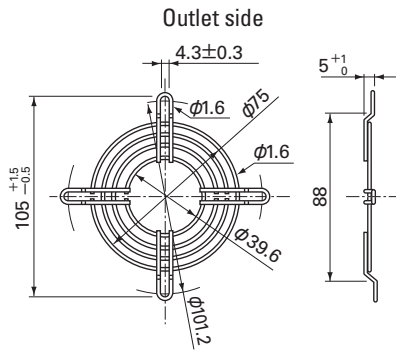
Without Sensor Pulse Sensor PWM Control Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.

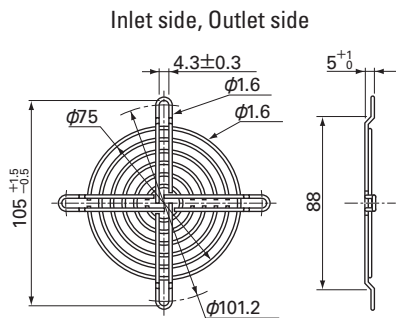
Dimensions (Unit : mm) (With ribs)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Finger guards

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

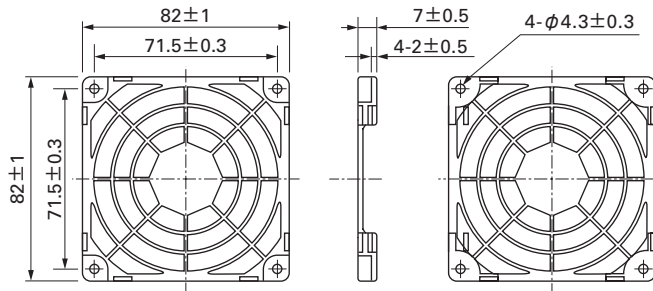


Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color (silver)
: 109-049H : Cation electropainting (black)



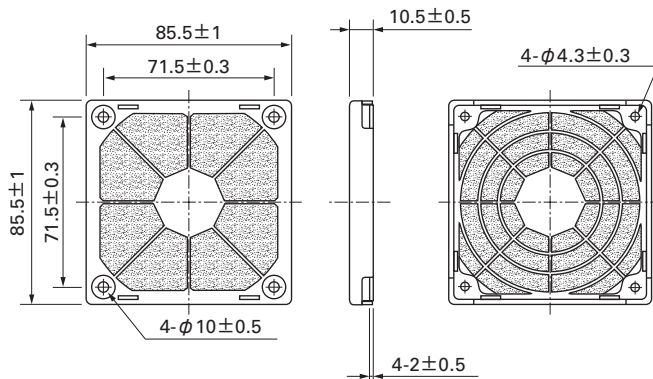
Resin finger guards

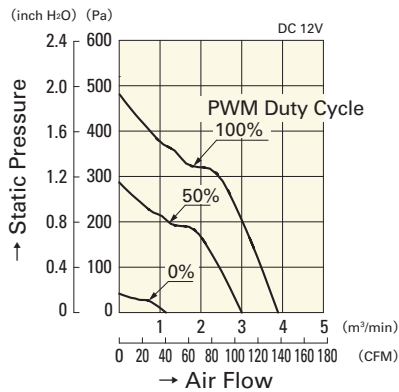
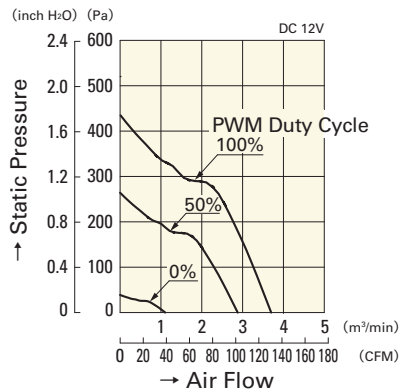
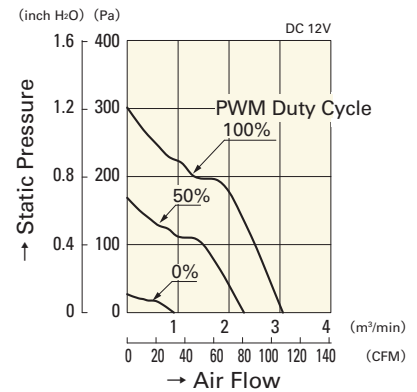
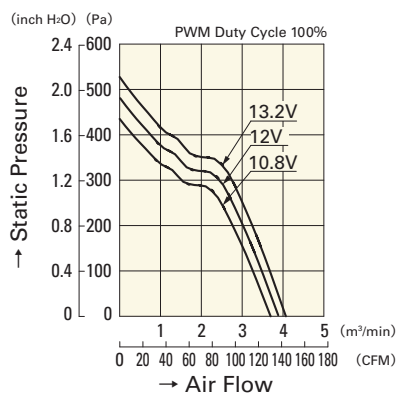
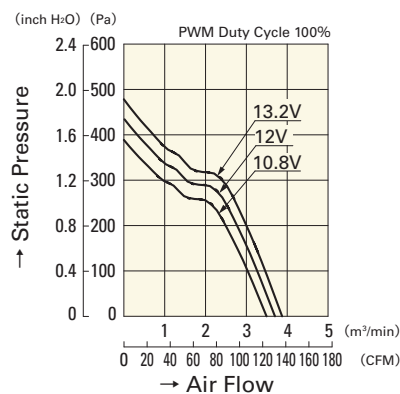
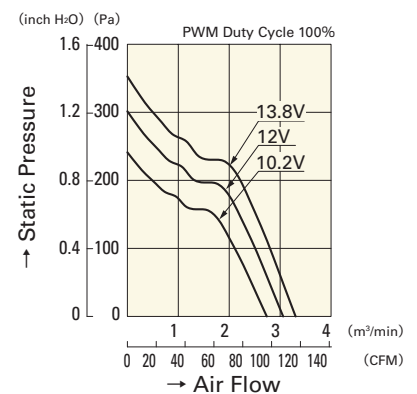
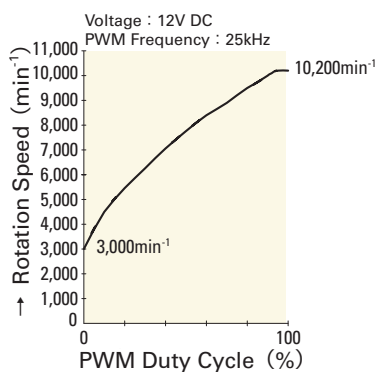
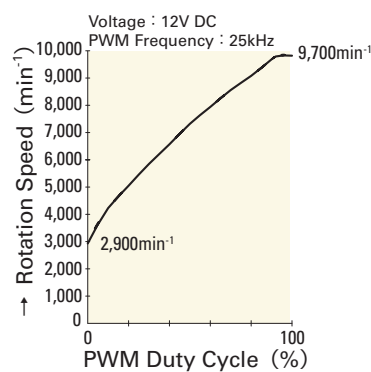
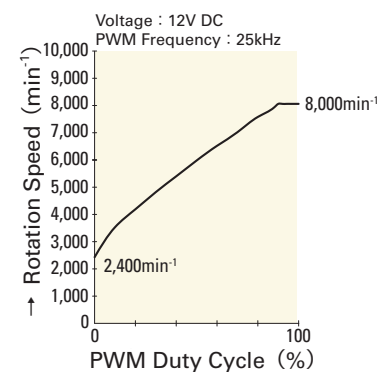
Model : 109-1002G

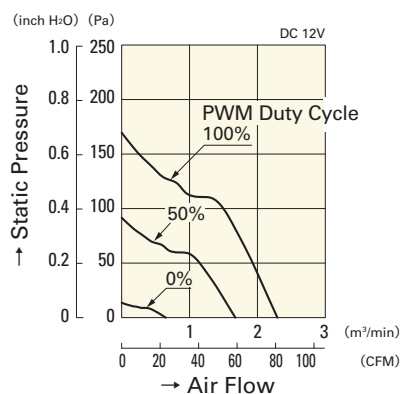


Resin filter kits

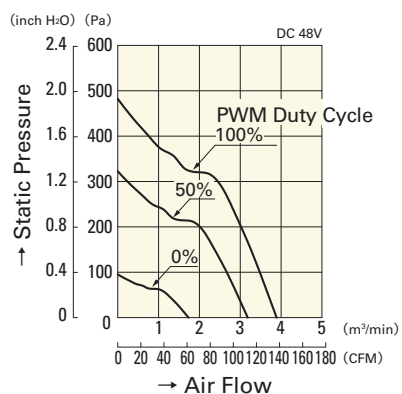
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



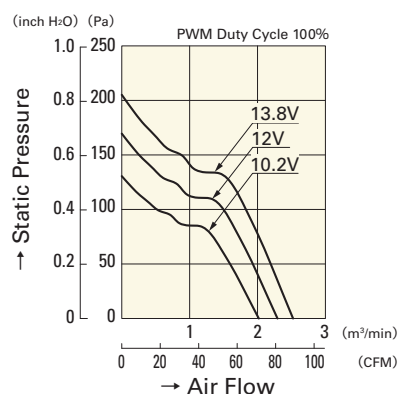
80mm sq.**San Ace 80****80×80×38mm** [Mass : 220g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GV0812P1G03(031)****9GV0812P1H03(031)****9GV0812P1F03****Operating Voltage Range****9GV0812P1G03(031)****9GV0812P1H03(031)****9GV0812P1F03****PWM Duty - Speed Characteristics Example****9GV0812P1G03(031)****9GV0812P1H03(031)****9GV0812P1F03**



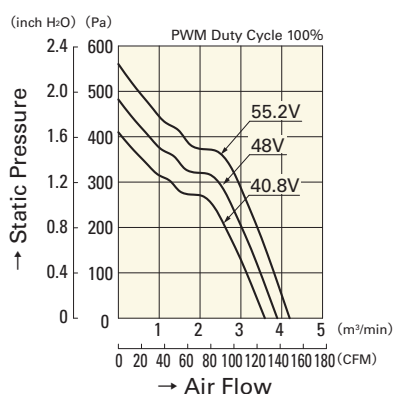
9GV0812P1M03



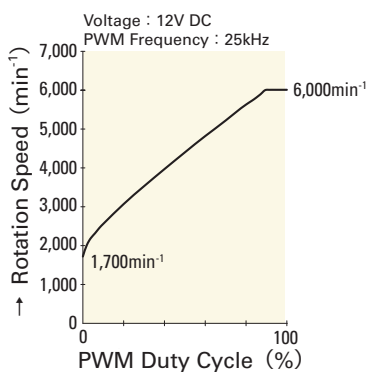
9GV0848P1G03



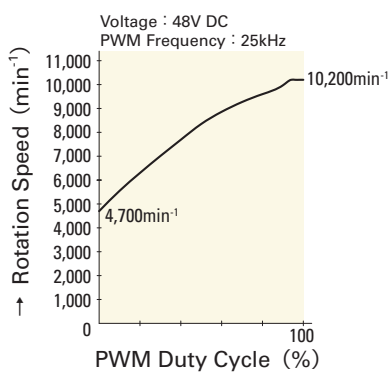
9GV0812P1M03



9GV0848P1G03



9GV0812P1M03



9GV0848P1G03

80mm sq.**San Ace 80**

15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 32mm thick
 38mm thick (GV type), 38mm thick (G type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

80×80×38mm [Mass : 170g]**G type**
Specifications The numbers in () represent ribless models.

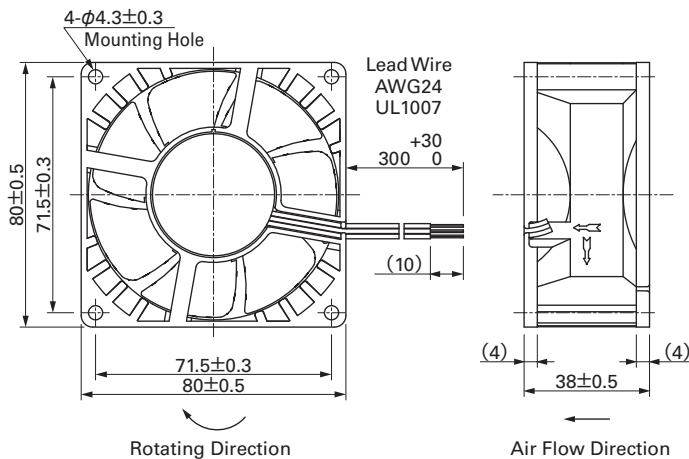
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9G0812K101(1011)	12	10.8 to 13.2	1.8	21.6	7,800	3.04 107.3	320 1.285	58	-10 to +60	40,000
9G0812G101(1011)		7 to 13.8	1.1	13.2	6,300	2.55 90	211 0.847	51		
9G0812H101(1011)			0.9	10.8	5,700	2.28 80	171 0.687	49		
9G0824G101(1011)	24	20.4 to 27.6	0.56	13.4	6,300	2.55 90	211 0.847	51		
9G0824H101(1011)			0.42	10.1	5,700	2.28 80	171 0.687	49		
9G0848G101(1011)	48	40.8 to 55.2	0.27	13.0	6,300	2.55 90	211 0.847	51		
9G0848H101(1011)			0.20	9.6	5,700	2.28 80	171 0.687	49		

Without SensorPulse Sensor

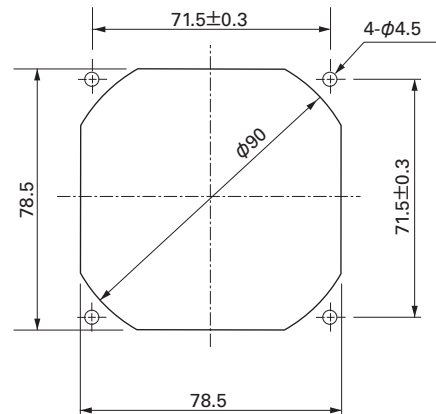
Available in all models.

Lock SensorPWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)

Reference dimension of mounting holes and vent opening (Unit : mm)

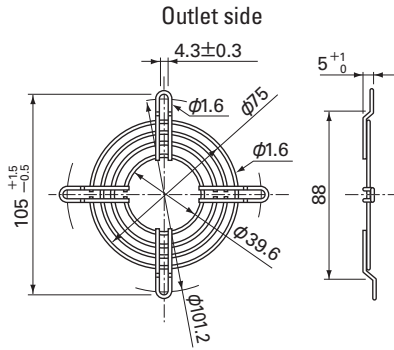
Inlet side, Outlet side



Options (Unit : mm)

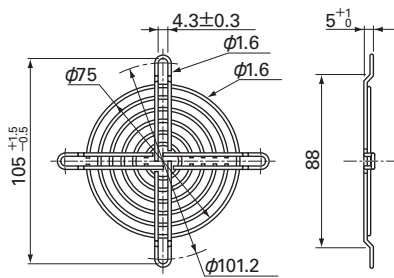
Finger guards

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



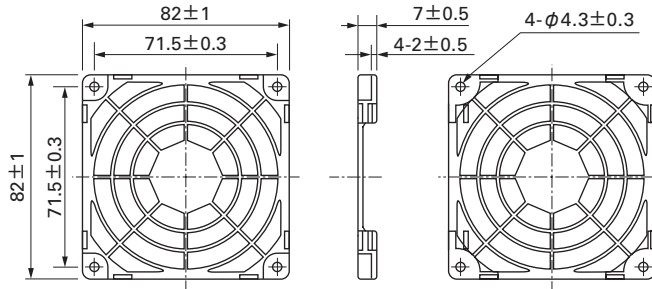
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)

Inlet side, Outlet side



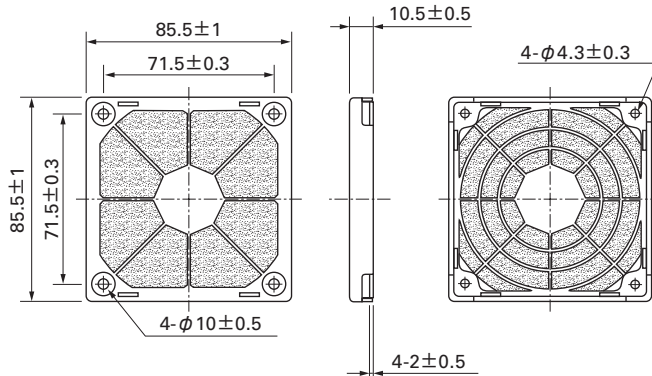
Resin finger guards

Model : 109-1002G

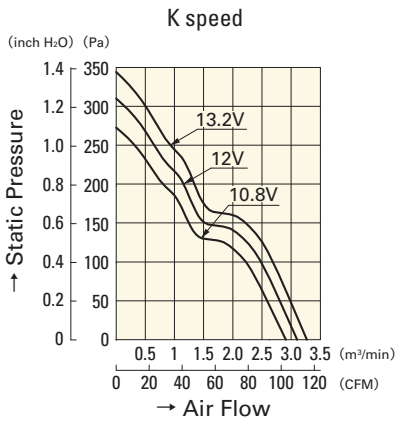


Resin filter kits

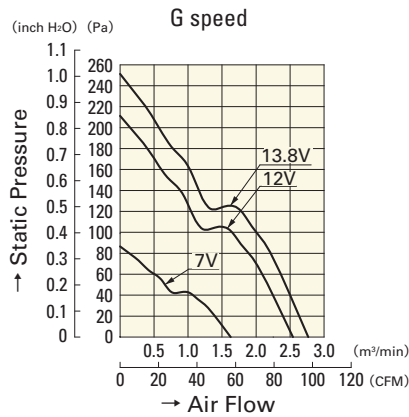
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



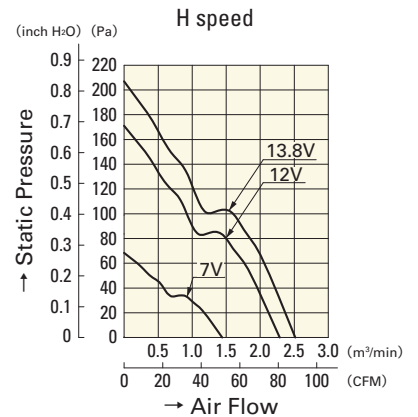
Air Flow - Static Pressure Characteristics



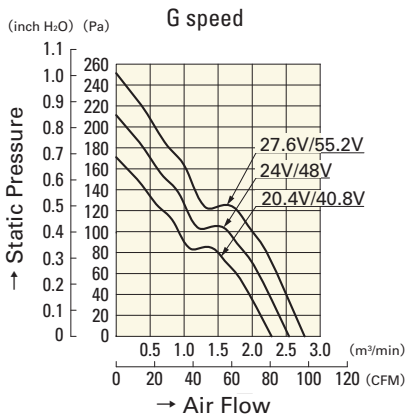
9G0812K101(1011)



9G0812G101(1011)

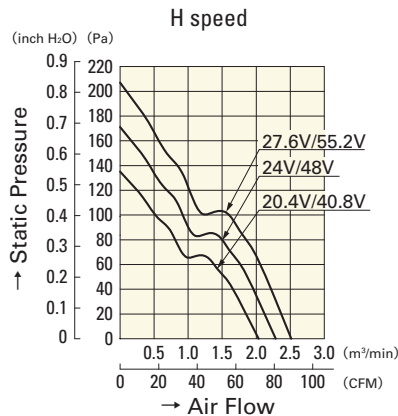


9G0812H101(1011)



9G0824G101(1011)

9G0848G101(1011)



9G0824H101(1011)

9G0848H101(1011)

92mm sq.

San Ace 92

25mm thick, 25mm thick (San Cooler)
 32mm thick (G type), 38mm thick (GV type)
 38mm thick (G type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

92×92×25mm (Mass : 150g)

Specifications The numbers in () represent ribless models.

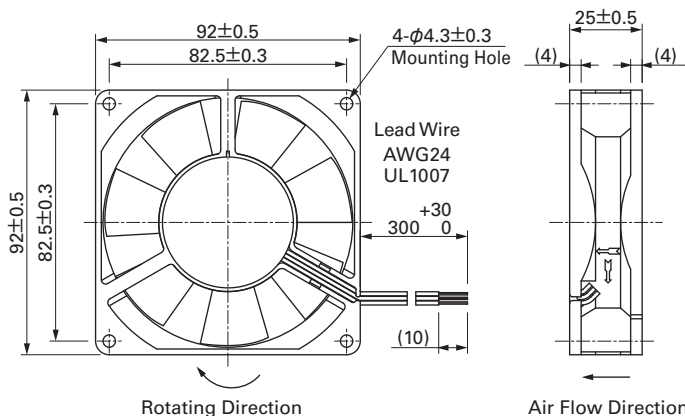
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P0912W401(4011)	12	6 to 16	0.21	2.52	2,850	1.45	51.2	45.1	0.181	33	-10 to +70	40,000
109P0912H401(4011)			0.21	2.52	2,850	1.45	51.2	45.1	0.181	33		
109P0912F401(4011)			0.14	1.68	2,450	1.24	43.8	32.3	0.130	30		
109P0912M401(4011)			0.1	1.2	2,100	1.04	36.7	23.5	0.094	27		
109P0912L401(4011)			0.07	0.84	1,700	0.8	28.3	16.7	0.067	23		
109P0924W401(4011)	24	12 to 30	0.12	2.88	2,850	1.45	51.2	45.1	0.181	33		
109P0924H401(4011)			0.12	2.88	2,850	1.45	51.2	45.1	0.181	33		
109P0924F401(4011)			0.08	1.92	2,450	1.24	43.8	32.3	0.130	30		
109P0924M401(4011)			0.06	1.44	2,100	1.04	36.7	23.5	0.094	27		
109P0924L401(4011)			0.05	1.2	1,700	0.8	28.3	16.7	0.067	23		
109P0948H401(4011)	48	43 to 53	0.06	2.88	2,850	1.45	51.2	45.1	0.181	33		

Without Sensor Pulse Sensor Available in all models.

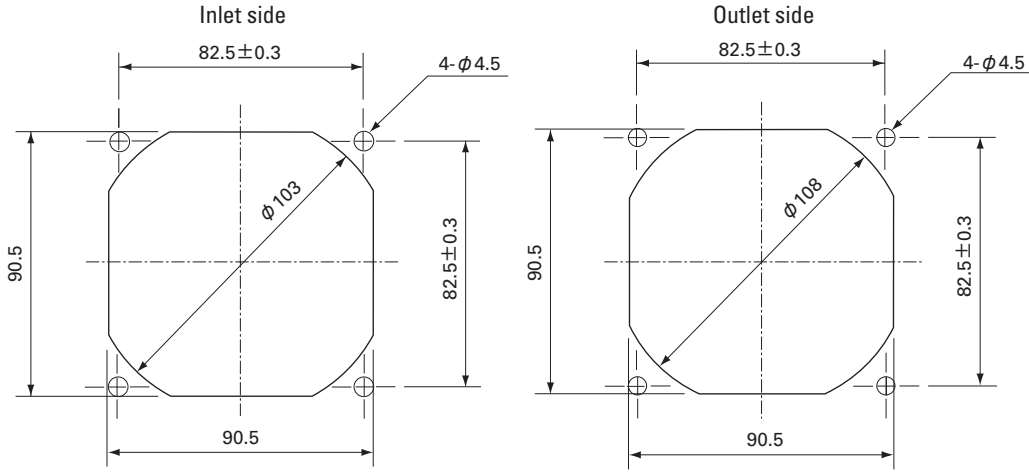
Lock Sensor
Low speed Sensor

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)



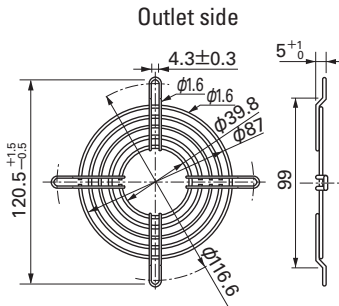
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

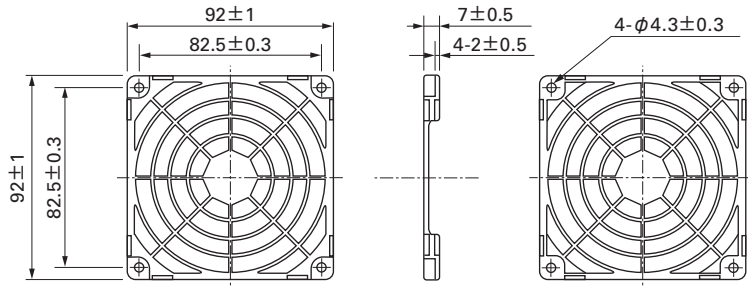
Finger guards

Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color : Silver



Resin finger guards

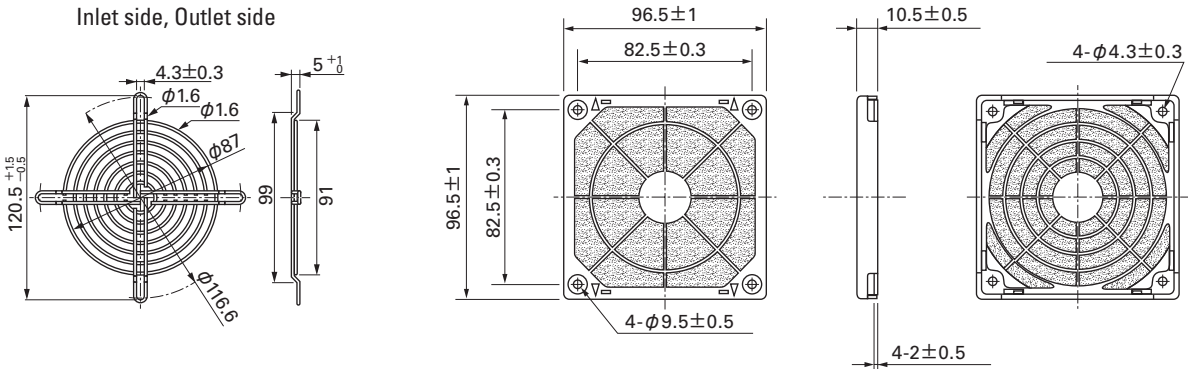
Model : 109-1001G

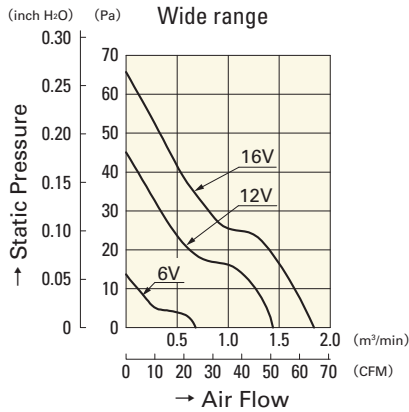
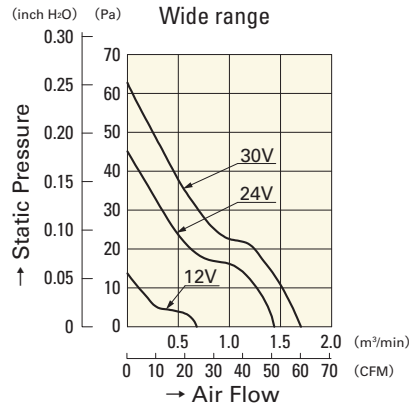
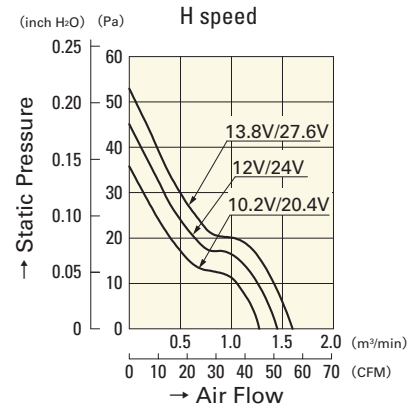
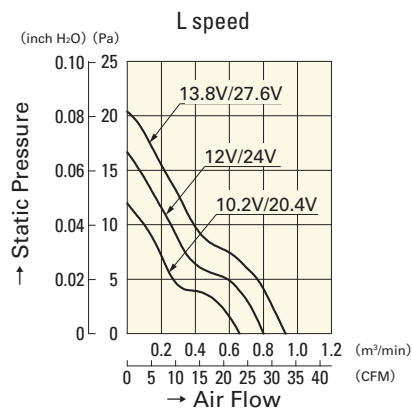


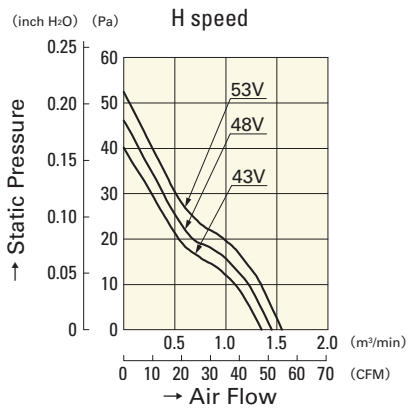
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color : Silver
Model : 109-099H Surface treatment : Cation electropainting (black) Color : Black

Resin filter kits

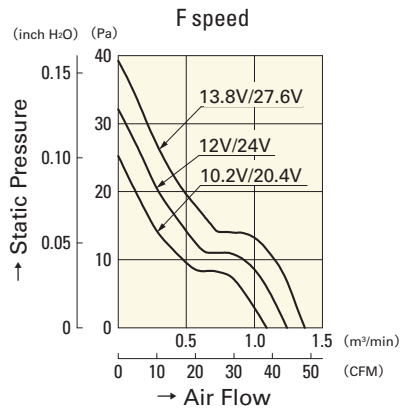
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
Model : 109-1001F30 (30PPI), 109-1001F40 (40PPI)



92mm sq.**San Ace 92****92×92×25mm** [Mass : 150g]**Air Flow - Static Pressure Characteristics****109P0912W401(4011)****109P0924W401(4011)****109P0912H401(4011)****109P0924H401(4011)****109P0912L401(4011)****109P0924L401(4011)**

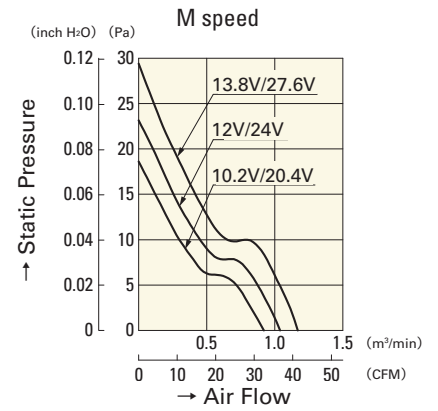


109P0948H401(4011)



109P0912F401(4011)

109P0924F401(4011)



109P0912M401(4011)

109P0924M401(4011)

92mm sq.**San Ace 92**

25mm thick, 25mm thick (San Cooler)
 32mm thick (G type), 38mm thick (GV type)
 38mm thick (G type)

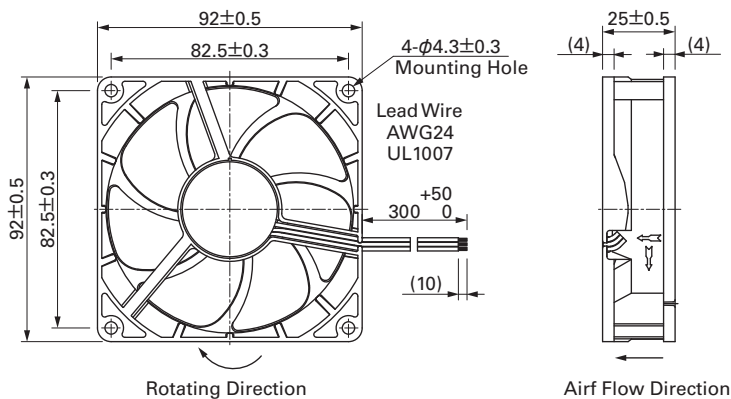
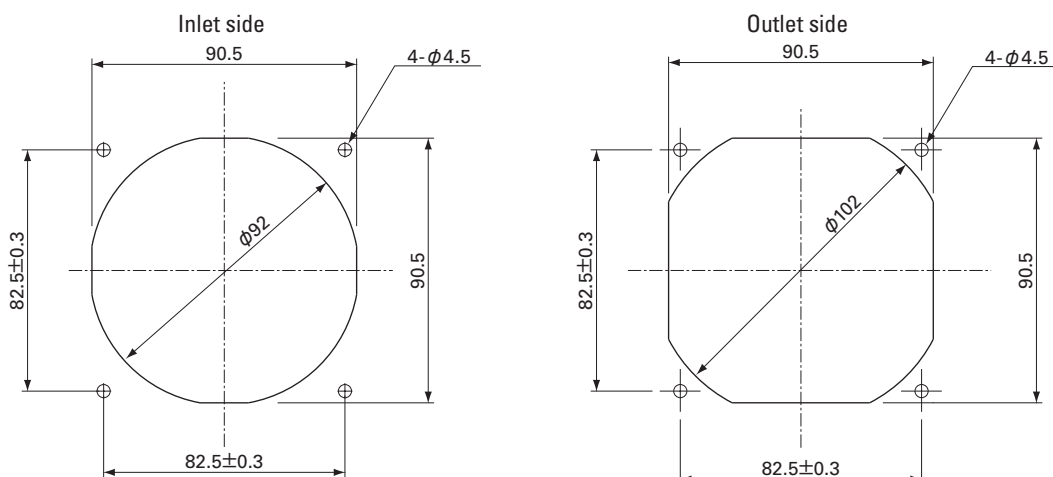

General Specifications With a pulse sensor Specifications for pulse sensors ⇄ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

92×92×25mm (Mass : 100g)**San Cooler**
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]		
9A0912G401(4011)	12	6 to 13.8	0.39	4.68	3,900	1.76	62.1	66.5	0.267	43	-10 to +60	30,000		
9A0912S401(4011)			0.27	3.24	3,550	1.66	58.6	56.1	0.225	39				
9A0912H401(4011)			0.21	2.52	3,150	1.45	51.2	44	0.177	33				
9A0912F401(4011)			0.14	1.68	2,650	1.24	43.8	32.2	0.129	30				
9A0912M401(4011)			0.12	1.44	2,250	1.04	36.7	22.6	0.091	27				
9A0912L401(4011)		7 to 13.8	0.07	0.84	1,750	0.8	28.2	13.4	0.054	23	-10 to +70	40,000		
9A0924G401(4011)	24	12 to 27.6	0.19	4.56	3,900	1.76	62.1	66.5	0.267	43			-10 to +60	30,000
9A0924S401(4011)			0.15	3.6	3,550	1.66	58.6	56.1	0.225	39				
9A0924H401(4011)			0.1	2.4	3,150	1.45	51.2	44	0.177	33				
9A0924F401(4011)			0.08	1.92	2,650	1.24	43.8	32.2	0.129	30				
9A0924M401(4011)			0.05	1.2	2,250	1.04	36.7	22.6	0.091	27				
9A0924L401(4011)		14 to 27.6	0.04	0.96	1,750	0.8	28.2	13.4	0.054	23	-10 to +70	40,000		

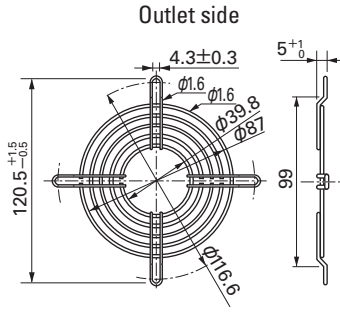
Without Sensor Pulse Sensor Available in all models. Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)

Reference dimension of mounting holes and vent opening (Unit : mm)


Options (Unit : mm)

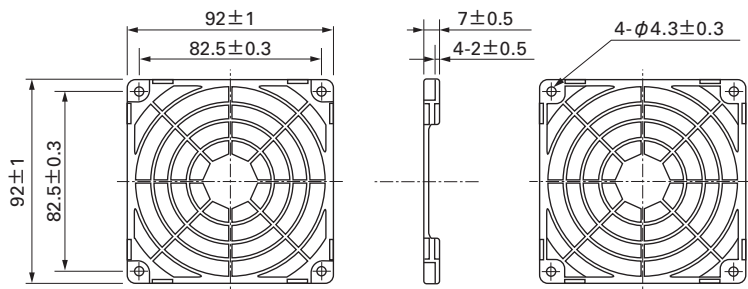
Finger guards

Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color : Nickel-chrome plating (silver)



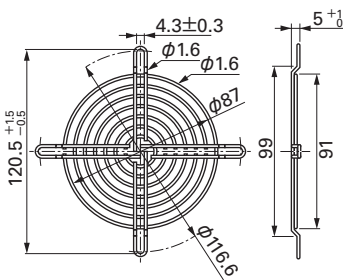
Resin finger guards

Model : 109-1001G



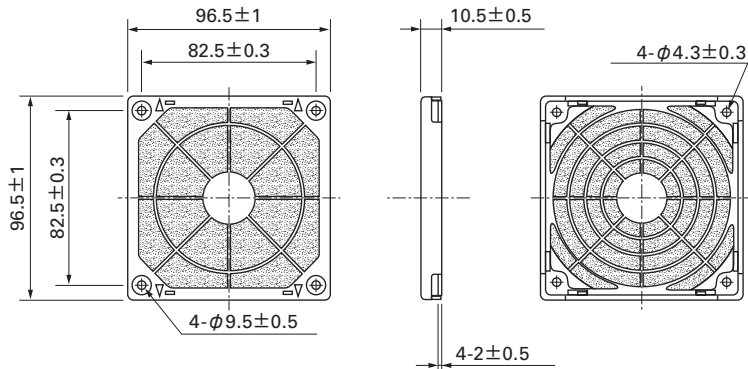
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side

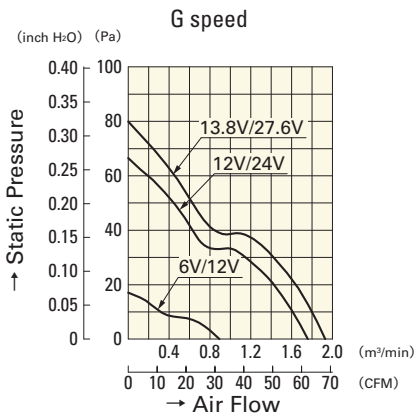


Resin filter kits

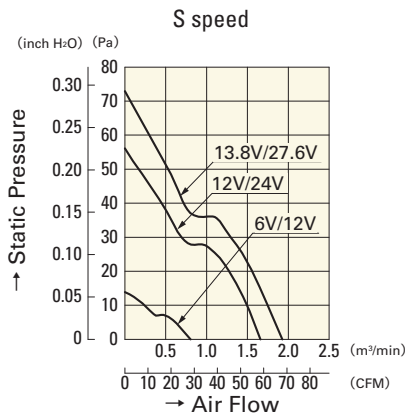
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



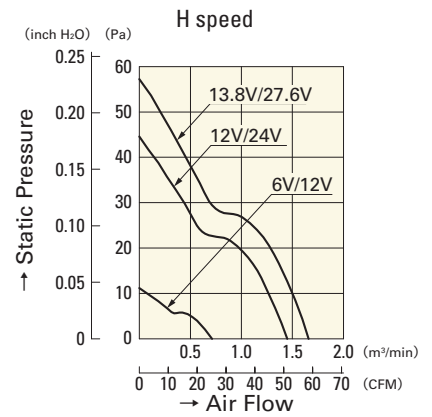
Air Flow - Static Pressure Characteristics



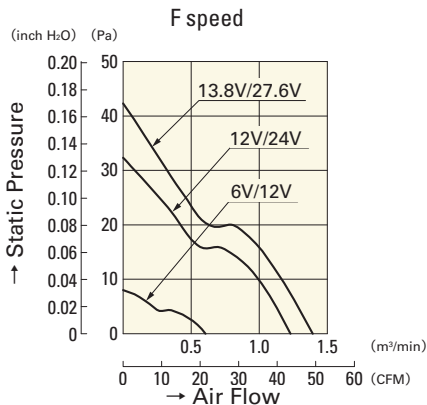
9A0912G401(4011)
9A0924G401(4011)



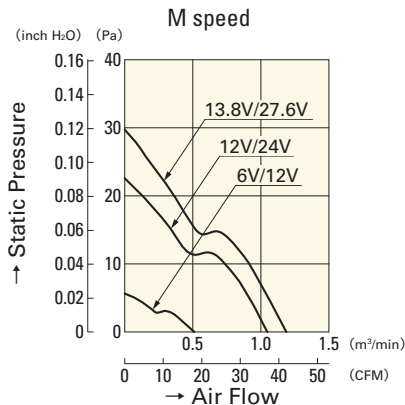
9A0912S401(4011)
9A0924S401(4011)



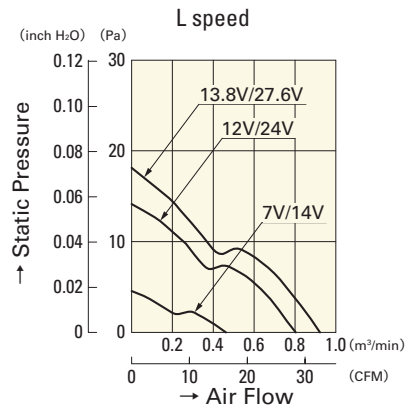
9A0912H401(4011)
9A0924H401(4011)



9A0912F401(4011)
9A0924F401(4011)



9A0912M401(4011)
9A0924M401(4011)



9A0912L401(4011)
9A0924L401(4011)

92mm sq.**San Ace 92**

25mm thick, 25mm thick (San Cooler)

32mm thick (G type), 38mm thick (GV type)

38mm thick (G type)

**General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇔ Refer to Page 291

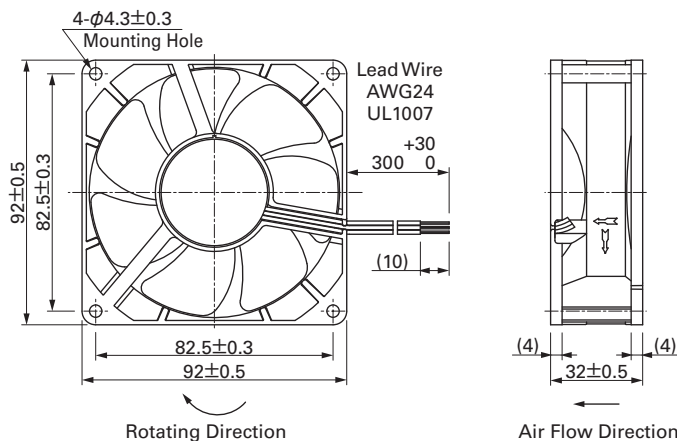
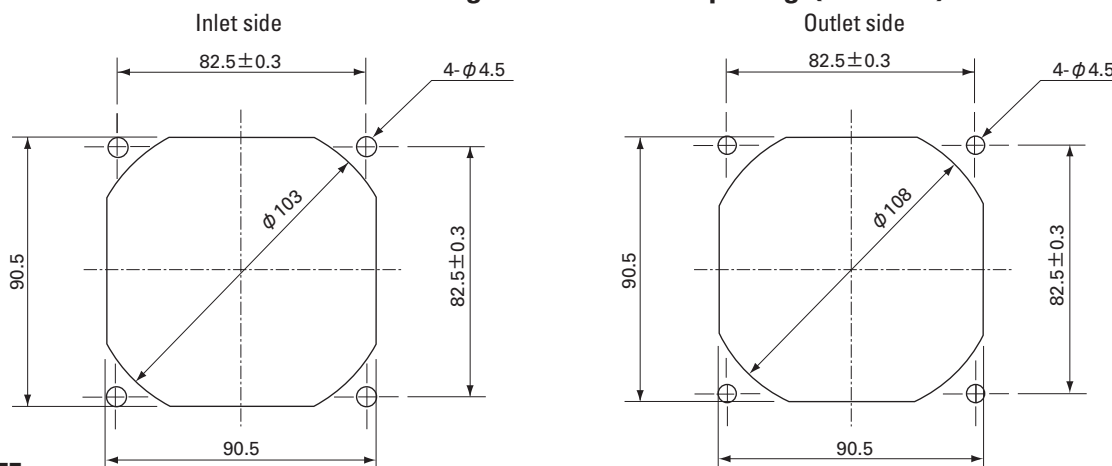
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue (Sensor) yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

92×92×32mm (Mass : 170g)**G type****Specifications** The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]		
9G0912A201(2011)	12	10.2 to 13.8	0.58	6.96	4,300	2.50	88.3	115	0.462	44	- 10 to +70	40,000		
9G0912S201(2011)			0.38	4.56	3,500	2.00	70.7	77	0.309	38				
9G0912H201(2011)			0.23	2.76	2,850	1.59	56.2	51	0.205	32				
9G0912M201(2011)			0.13	1.56	2,100	1.20	42.4	27	0.108	25				
9G0924A201(2011)	24	20.4 to 27.6	0.30	7.20	4,300	2.50	88.3	115	0.462	44	-10 to +60		40,000	
9G0924S201(2011)			0.19	4.56	3,500	2.00	70.7	77	0.309	38				
9G0924H201(2011)			0.12	2.88	2,850	1.59	56.2	51	0.205	32				
9G0924M201(2011)			0.08	1.92	2,100	1.20	42.4	27	0.108	25				
9G0948A201(2011)	48	40.8 to 55.2	0.16	7.68	4,300	2.50	88.3	115	0.462	44	- 10 to +70			40,000
9G0948S201(2011)			0.11	5.28	3,500	2.00	70.7	77	0.309	38				
9G0948H201(2011)			0.08	3.84	2,850	1.59	56.2	51	0.205	32				
9G0948M201(2011)			0.05	2.40	2,100	1.20	42.4	27	0.108	25				

Without Sensor **Pulse Sensor** Available in all models.**Lock Sensor****Low speed Sensor****PWM Control**

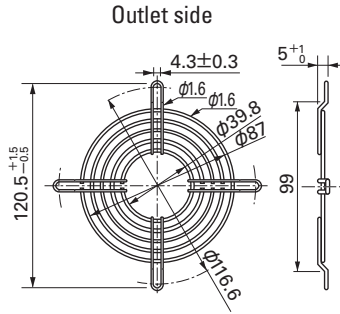
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

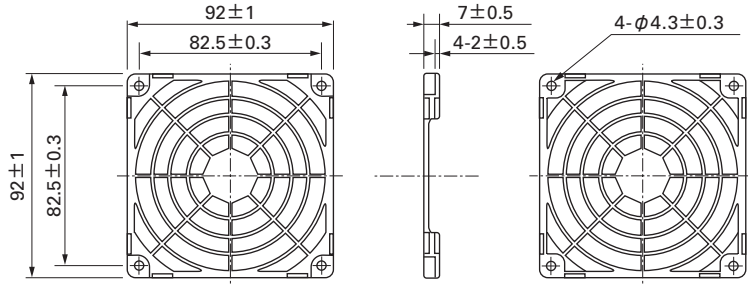
Finger guards

Model : 109-099C Color : Nickel-chrome plating (silver)

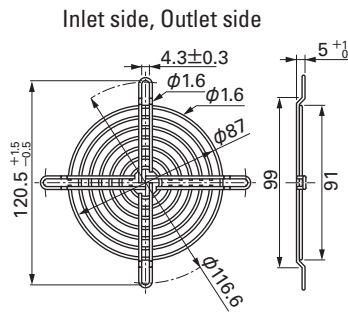


Resin finger guards

Model : 109-1001G

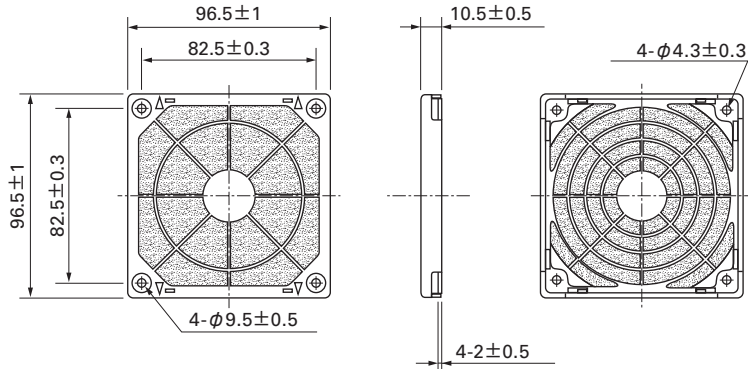


Model : 109-099E Surface treatment : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)

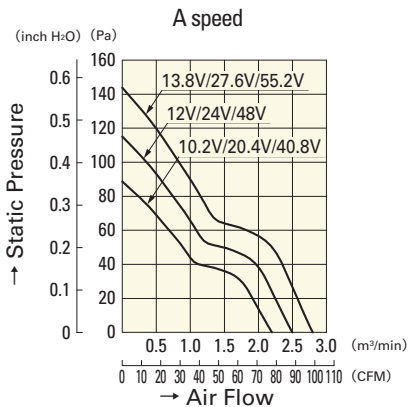


Resin filter kits

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



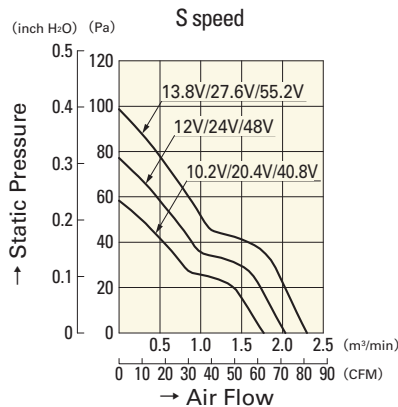
Air Flow - Static Pressure Characteristics



9G0912A201(2011)

9G0924A201(2011)

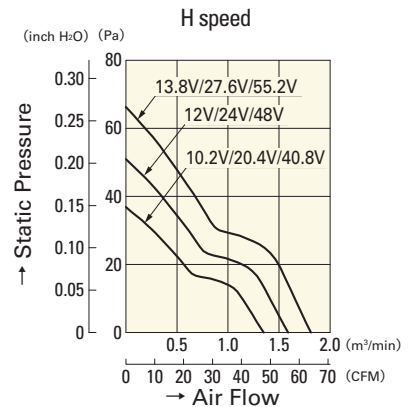
9G0948A201(2011)



9G0912S201(2011)

9G0924S201(2011)

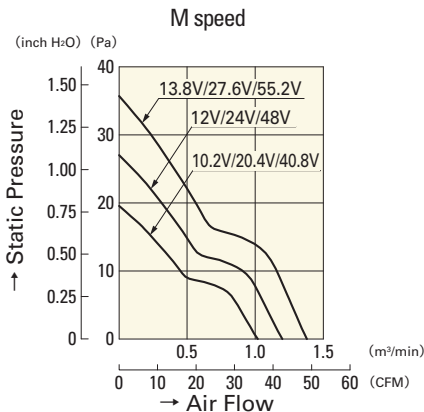
9G0948S201(2011)



9G0912H201(2011)

9G0924H201(2011)

9G0948H201(2011)



9G0912M201(2011)

9G0924M201(2011)

9G0948M201(2011)

92mm sq.**San Ace 92**

25mm thick, 25mm thick (San Cooler)
 32mm thick (G type), 38mm thick (GV type)
 38mm thick (G type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (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)

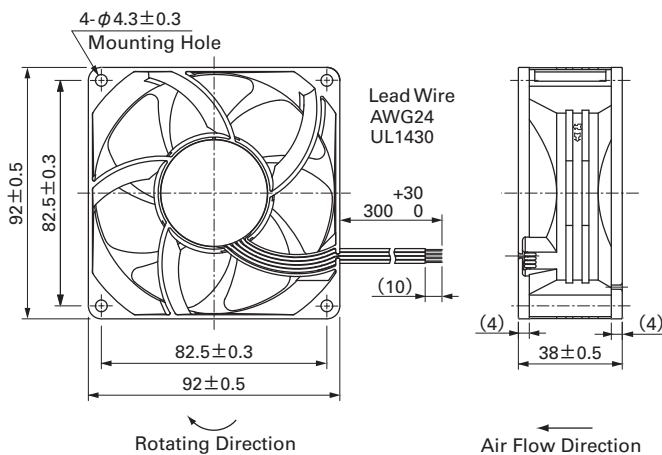
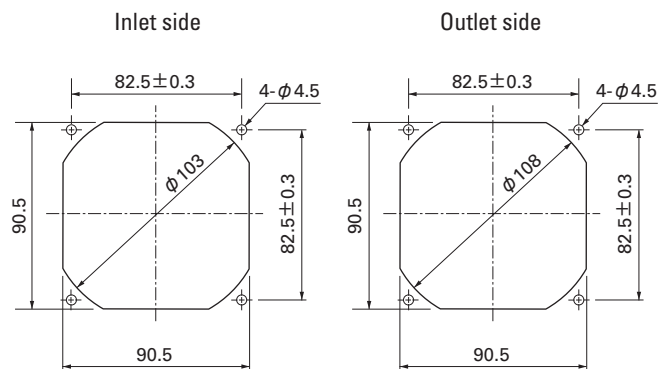
92×92×38mm (Mass : 250g)**GV type**

Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GV0912P1G03(031)	12	10.8 to 13.2	100	4.10	49.2	9,000	5.35	189.0	430.0	1.73	68	-10 to +70	40,000
			0	0.33	4.0	2,900	1.72	60.8	44.6	0.18	37		
9GV0912P1H03(031)		10.2 to 13.8	100	3.50	42.0	8,500	5.05	178.0	385.0	1.55	64		
			0	0.29	3.5	2,700	1.60	56.5	38.8	0.16	34		
9GV0948P1H03(031)	48	40.8 to 55.2	100	0.82	39.4	8,500	5.05	178.0	385.0	1.55	64		
			0	0.14	6.7	4,000	2.37	83.7	85.2	0.34	45		

※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

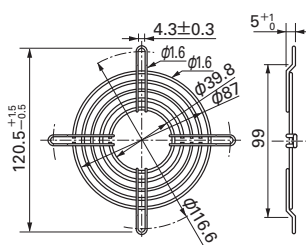
Dimensions (Unit : mm) (With ribs)**Reference dimension of mounting holes and vent opening (Unit : mm)****Options (Unit : mm)****Finger guards**

Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color

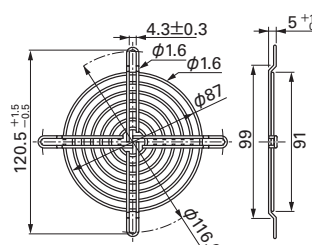
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color

: 109-099H : Cation electropainting (black)

Outlet side

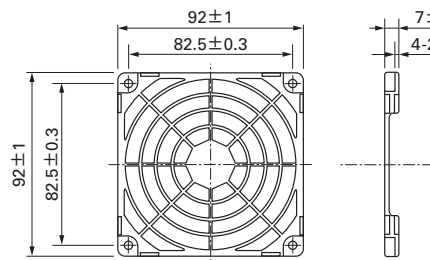


Inlet side, Outlet side

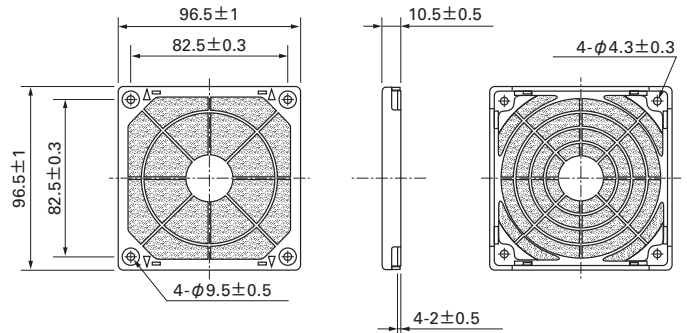


Resin finger guards

Model : 109-1001G

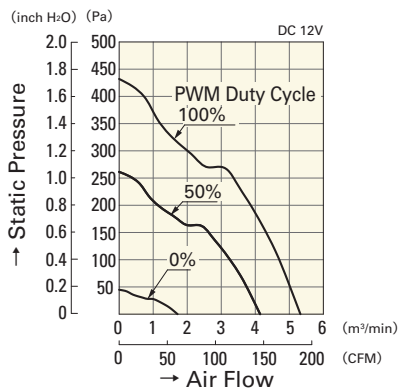


Resin filter kits

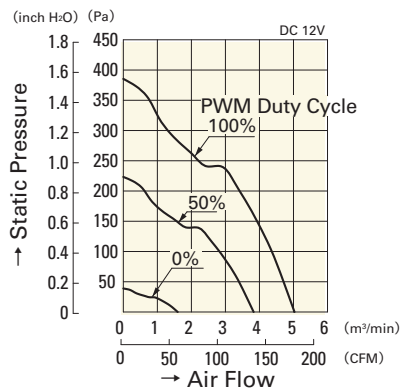
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)

Air Flow - Static Pressure Characteristics

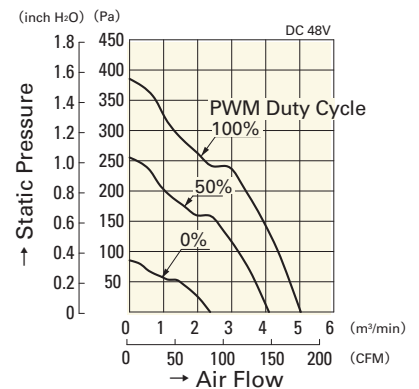
PWM Duty Cycle



9GV0912P1G03(031)

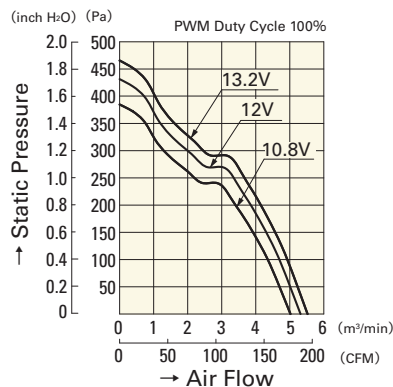


9GV0912P1H03(031)

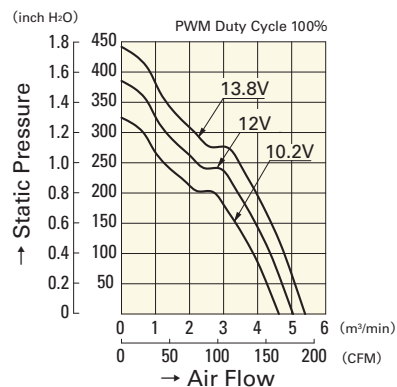


9GV0948P1H03(031)

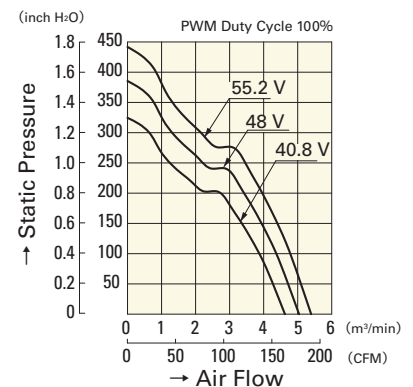
Operating Voltage Range



9GV0912P1G03(031)

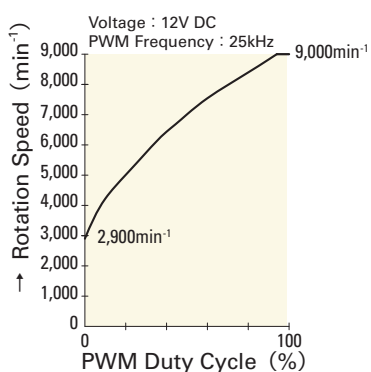


9GV0912P1H03(031)

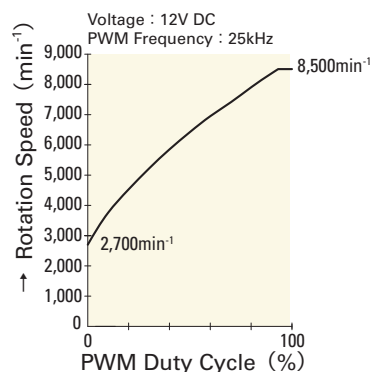


9GV0948P1H03(031)

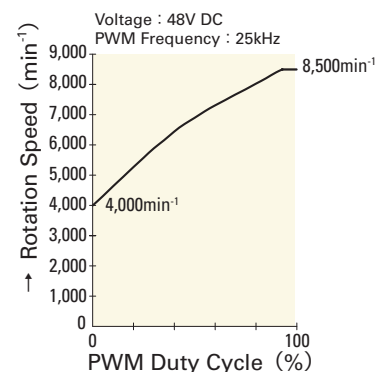
PWM Duty - Speed Characteristics Example



9GV0912P1G03(031)



9GV0912P1H03(031)



9GV0948P1H03(031)

92mm sq.**San Ace 92**

25mm thick, 25mm thick (San Cooler)
 32mm thick (G type), 38mm thick (GV type)
 38mm thick (G type)

General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black (Sensor) yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

**92×92×38mm** (Mass : 180g)**G type****Specifications** The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9G0912G101(1011)	12	7.0 to 13.8	1.1	13.2	5,000	3.10	110	150	0.602	50	-10 to +60	40,000
9G0912H101(1011)			0.58	6.96	4,000	2.54	90	100	0.402	43		
9G0924G101(1011)	24	20.4 to 27.6	0.55	13.2	5,000	3.10	110	150	0.602	50		
9G0924H101(1011)			0.3	7.2	4,000	2.54	90	100	0.402	43		
9G0948G101(1011)	48	40.8 to 55.2	0.27	12.96	5,000	3.10	110	150	0.602	50		
9G0948H101(1011)			0.16	7.68	4,000	2.54	90	100	0.402	43		

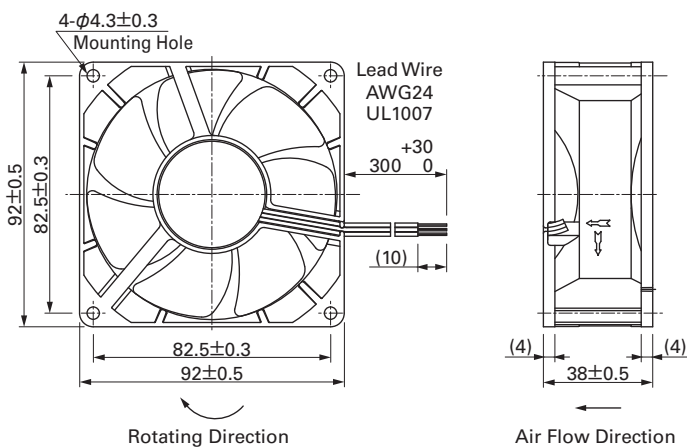
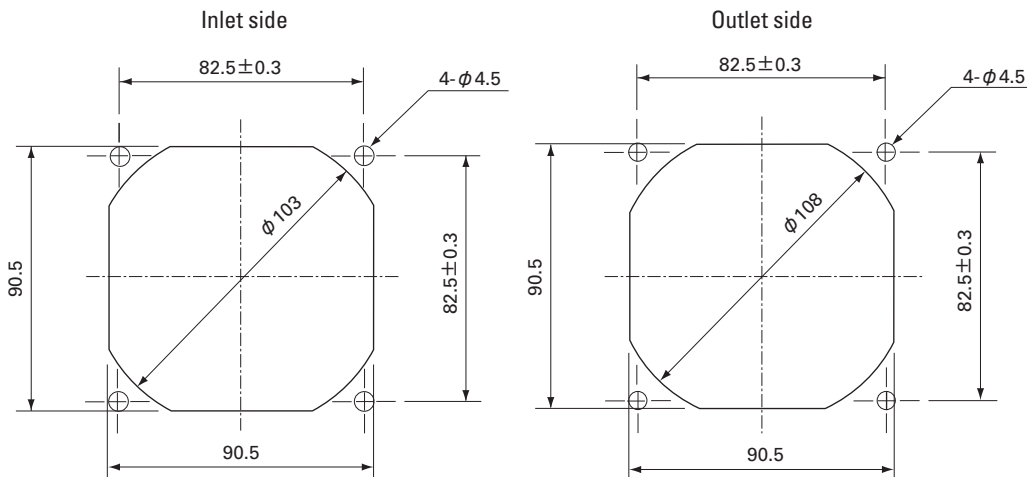
Without Sensor Pulse Sensor Available in all models.

Lock Sensor

Low speed Sensor

PWM Control

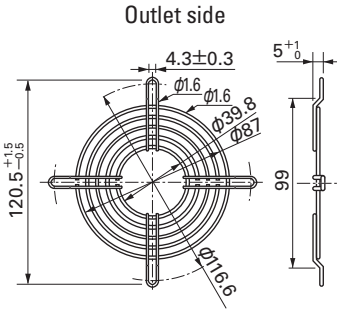
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

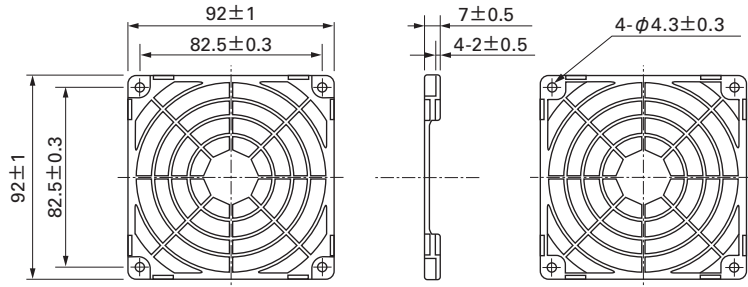
Finger guards

Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color



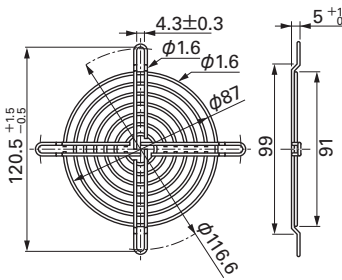
Resin finger guards

Model : 109-1001G



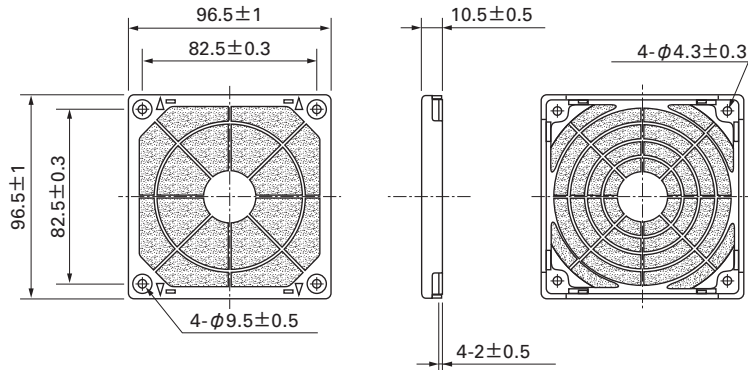
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side

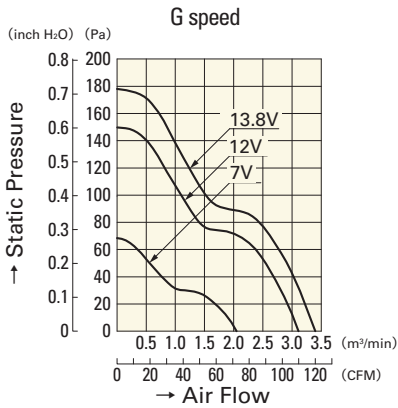


Resin filter kits

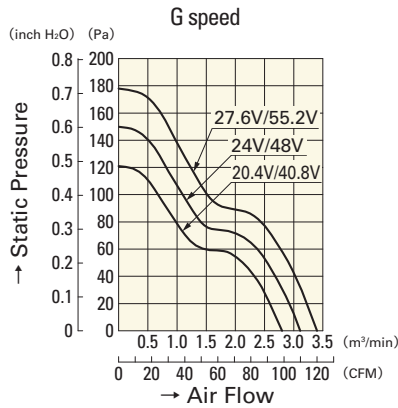
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



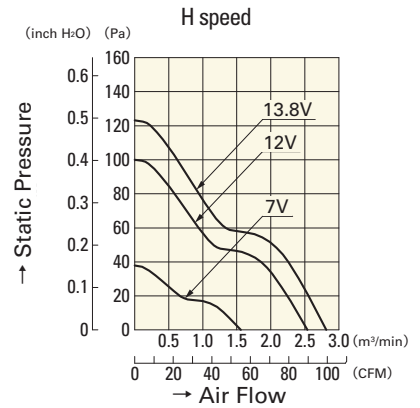
Air Flow - Static Pressure Characteristics



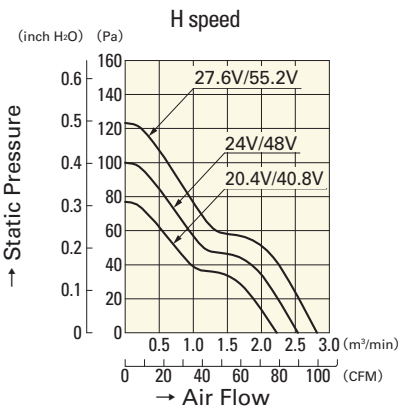
9G0912G101(1011)



9G0924G101(1011)
9G0948G101(1011)



9G0912H101(1011)



9G0924H101(1011)
9G0948H101(1011)

120mm sq.**San Ace 120**

25mm thick (GV type), 25mm thick (G type)
 38mm thick (GV type), 38mm thick (G type)
 38mm thick (SG type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (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)

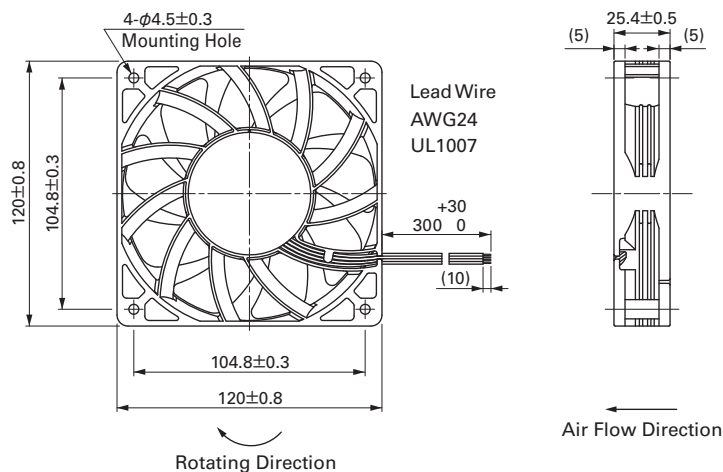
120×120×25mm (Mass : 260g)**GV type** 

Specifications The numbers in () represent ribless models.

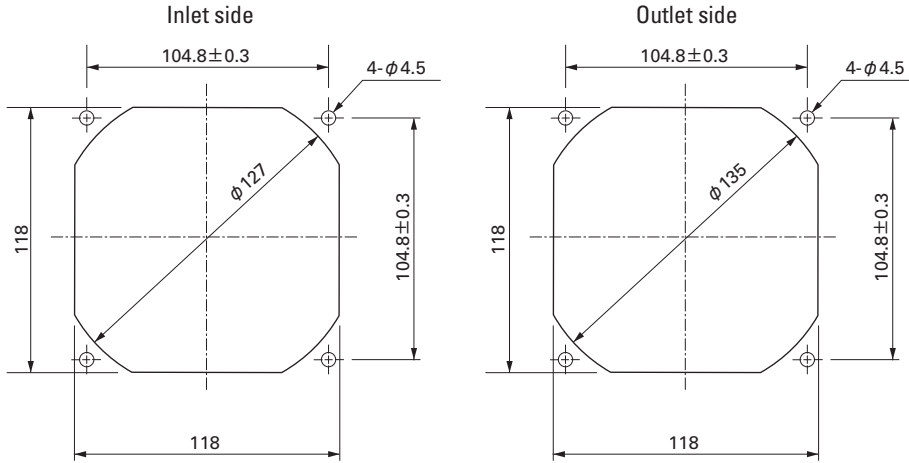
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GV1212P4G01(011)	12	10.2 to 13.8	100	1.68	20.16	5,100	4.83	171	224	0.90	58	-10 to +70	40,000
			0	0.18	2.16	1,650	1.56	55.1	23.5	0.09	30		
9GV1224P4G01(011)	24	20.4 to 27.6	100	0.84	20.16	5100	4.83	171	224	0.90	58		
			0	0.13	3.12	1650	1.56	55.1	23.5	0.09	30		
9GV1248P4G01(011)	48	40.8 to 60.0	100	0.42	20.16	5,100	4.83	171	224	0.90	58		
			0	0.07	3.36	1,650	1.56	55.1	23.5	0.09	30		
9GV1248P4H01(011)			100	0.33	15.84	4,600	4.35	154	182	0.73	55		
			0	0.07	3.36	1,650	1.56	55.1	23.5	0.09	30		

※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm) (With ribs)

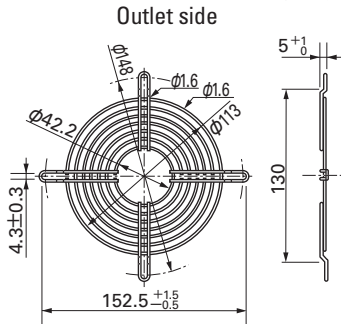
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

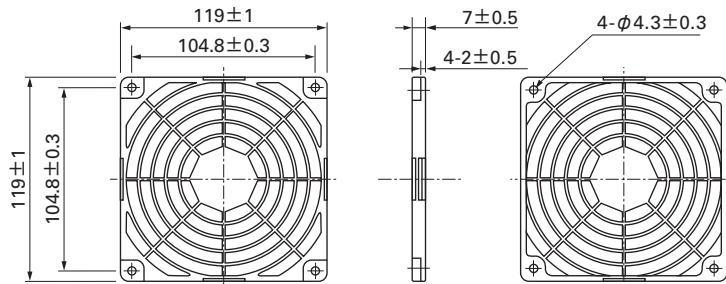
Finger guards

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

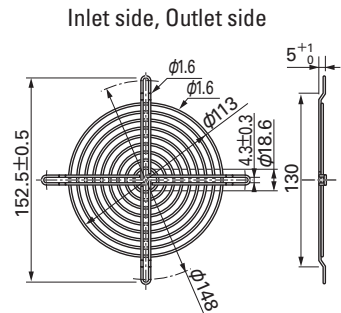


Resin finger guards

Model : 109-1000G

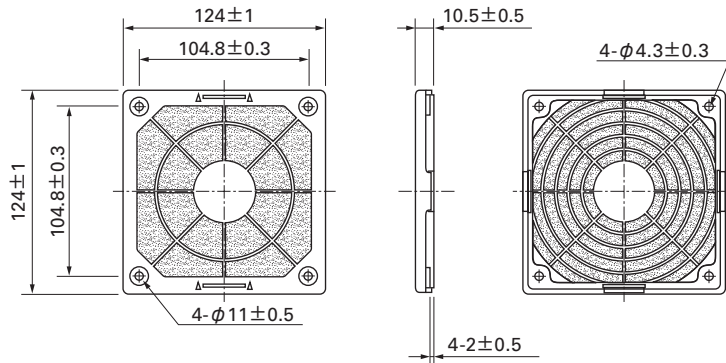


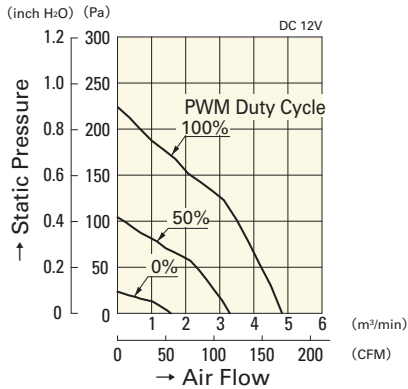
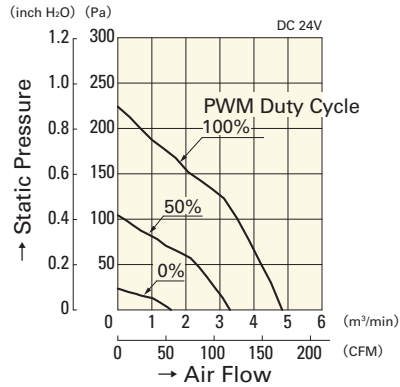
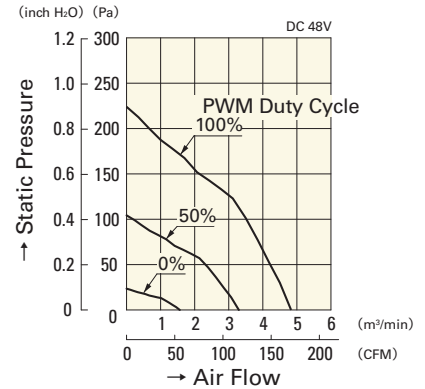
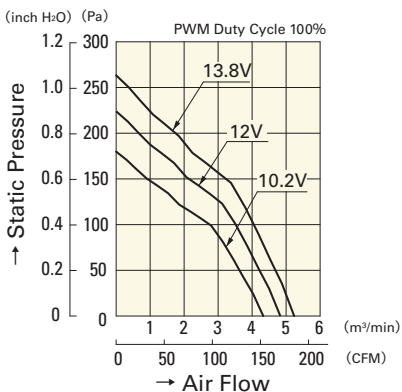
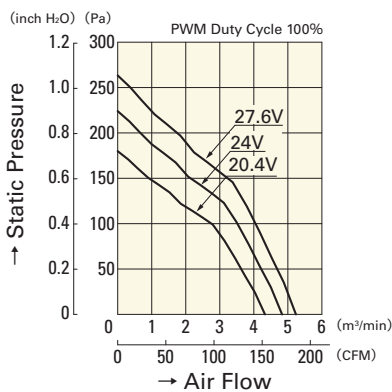
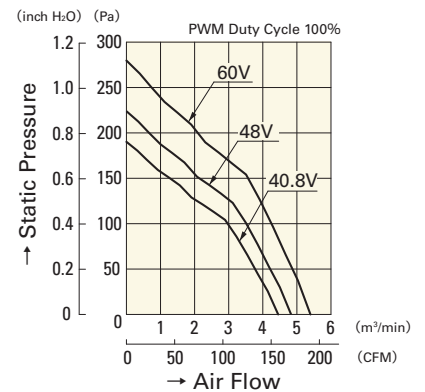
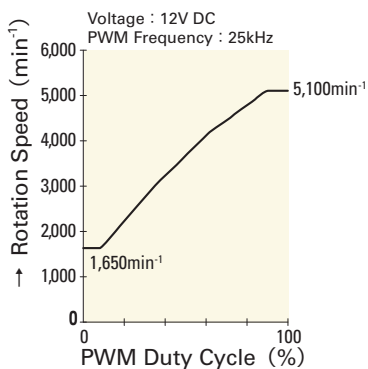
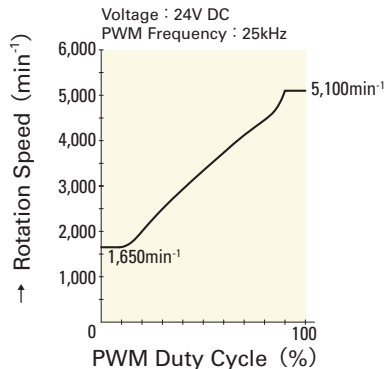
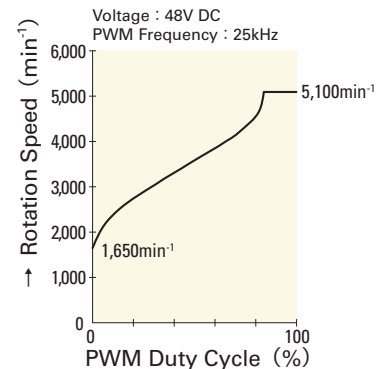
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

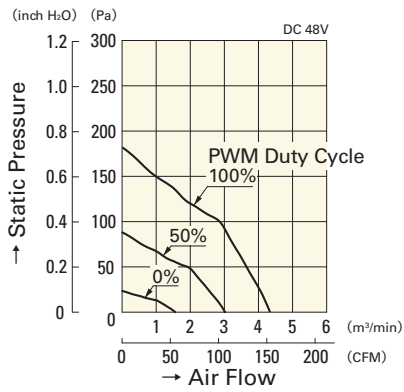


Resin filter kits

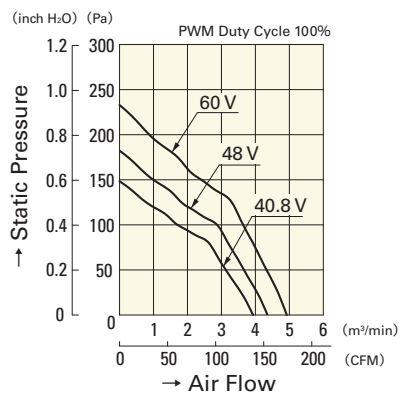
Model : 109-1000F13 (13PPI), 109-1000F20 (20PPI)
: 109-1000F30 (30PPI), 109-1000F40 (40PPI)



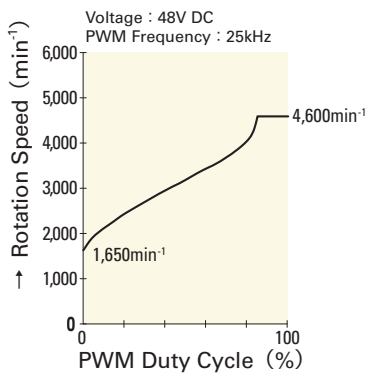
120mm sq.**San Ace 120****120×120×25mm** [Mass : 260g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GV1212P4G01(011)****9GV1224P4G01****9GV1248P4G01(011)****Operating Voltage Range****9GV1212P4G01(011)****9GV1224P4G01****9GV1248P4G01(011)****PWM Duty - Speed Characteristics Example****9GV1212P4G01(011)****9GV1224P4G01****9GV1248P4G01(011)**



9GV1248P4H01(011)



9GV1248P4H01(011)



9GV1248P4H01(011)

120mm sq.**San Ace 120**

25mm thick (G type), 38mm thick (GV type)
 38mm thick (G type), 38mm thick (SG type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

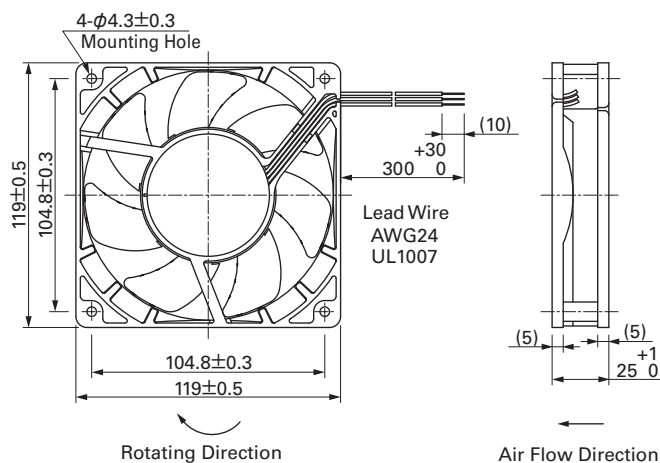
120×120×25mm [Mass : 240g] G type
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9G1212G401(4011)	12	10.2 to 13.8	0.90	10.8	4,100	3.68 130	120 0.482	51	-10 to +70	40,000
9G1212E401(4011)			0.58	6.96	3,650	3.25 115	98 0.394	48		
9G1212A401(4011)			0.40	4.80	3,150	2.83 100	77 0.309	44		
9G1212H401(4011)		6 to 13.8	0.31	3.72	2,850	2.50 88	64 0.257	40		
9G1212F401(4011)			0.19	2.28	2,250	1.98 70	42 0.169	35		
9G1212M401(4011)			0.14	1.68	1,950	1.66 58	31 0.124	29		
9G1224G401(4011)	24	20.4 to 27.6	0.47	11.28	4,100	3.68 130	120 0.482	51		
9G1224E401(4011)			0.37	8.88	3,650	3.25 115	98 0.394	48		
9G1224A401(4011)			0.21	5.04	3,150	2.83 100	77 0.309	44		
9G1224H401(4011)		12 to 27.6	0.17	4.08	2,850	2.50 88	64 0.257	40		
9G1224F401(4011)			0.10	2.40	2,250	1.98 70	42 0.169	35		
9G1224M401(4011)			0.08	1.92	1,950	1.66 58	31 0.124	29		
9G1248G401(4011)	48	40.8 to 55.2	0.23	11.04	4,100	3.68 130	120 0.482	51		
9G1248E401(4011)			0.16	7.68	3,650	3.25 115	98 0.394	48		
9G1248A401(4011)			0.13	6.24	3,150	2.83 100	77 0.309	44		
9G1248H401(4011)			0.10	4.80	2,850	2.50 88	64 0.257	40		
9G1248F401(4011)			0.06	2.88	2,250	1.98 70	42 0.169	35		
9G1248M401(4011)			0.05	2.40	1,950	1.66 58	31 0.124	29		

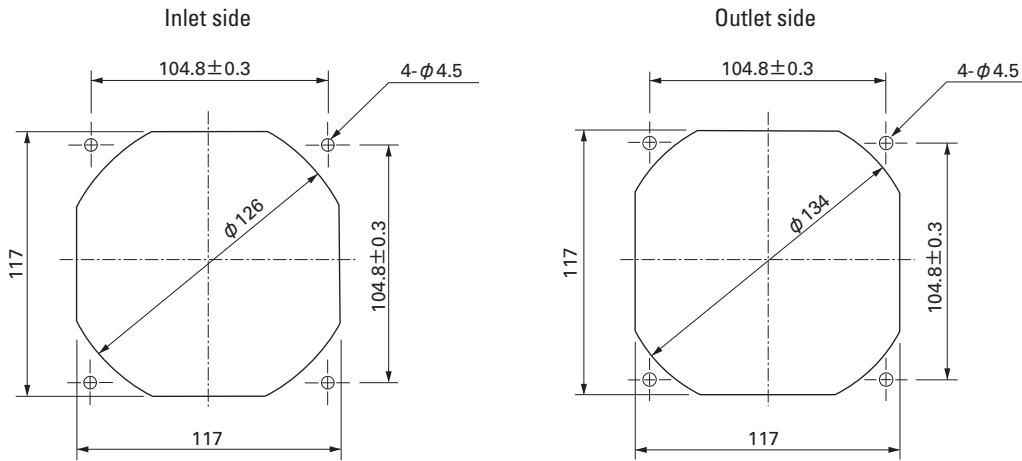
Without Sensor Pulse Sensor Available in all models.

Lock Sensor
Low speed Sensor
PWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)


Reference dimension of mounting holes and vent opening (Unit : mm)

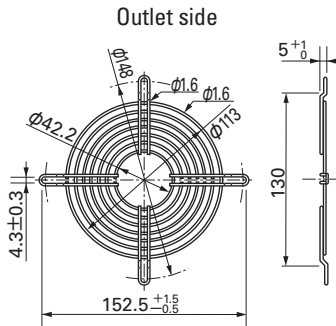


Options (Unit : mm)

Finger guards

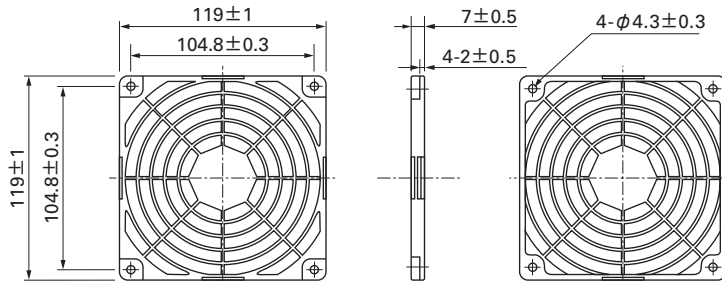
Model : 109-019C Surface treatment : Nickel-chrome plating (silver)
: 109-019H : Cation electropainting (black)

Color



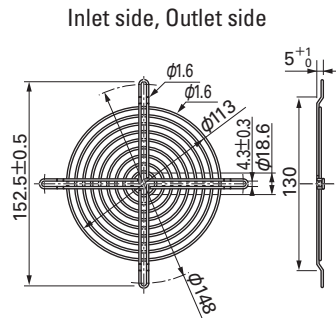
Resin finger guards

Model : 109-1000G



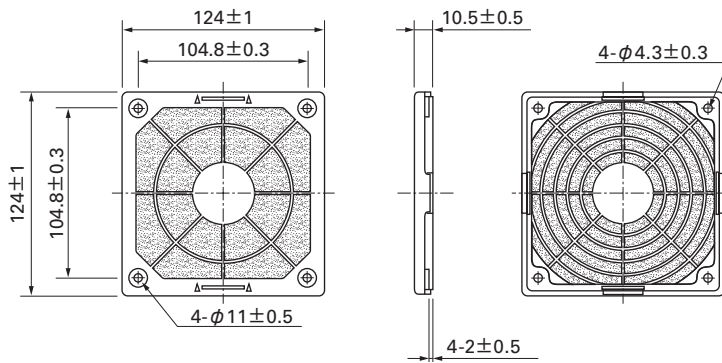
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

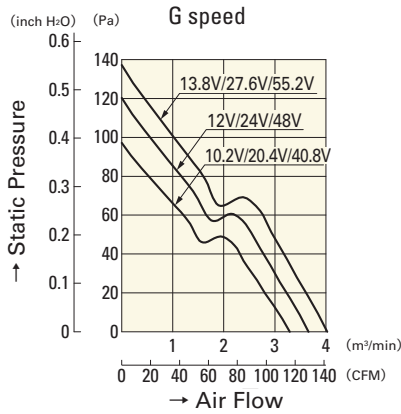
Color



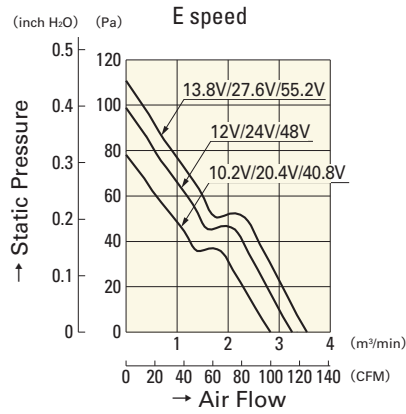
Resin filter kits

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

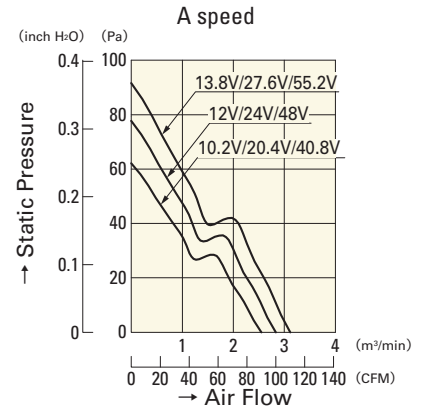


120mm sq.**San Ace 120****120×120×25mm** [Mass : 240g]**Air Flow - Static Pressure Characteristics**

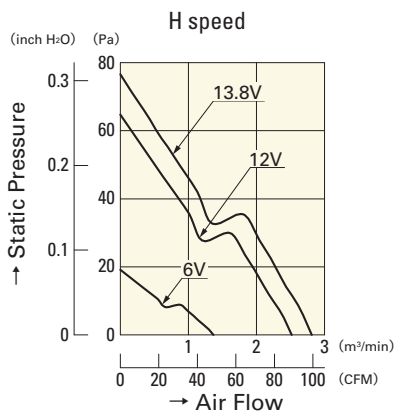
9G1212G401(4011)
9G1224G401(4011)
9G1248G401(4011)



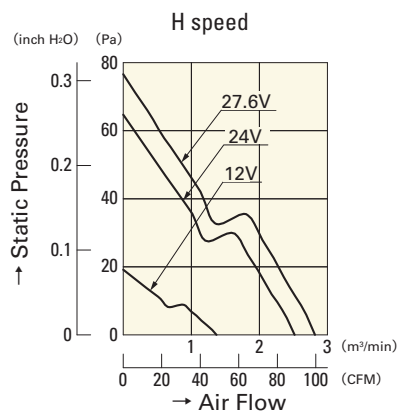
9G1212E401(4011)
9G1224E401(4011)
9G1248E401(4011)



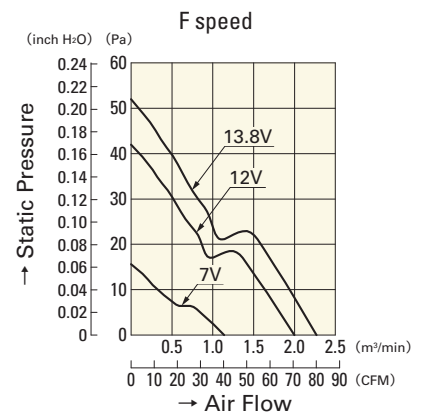
9G1212A401(4011)
9G1224A401(4011)
9G1248A401(4011)



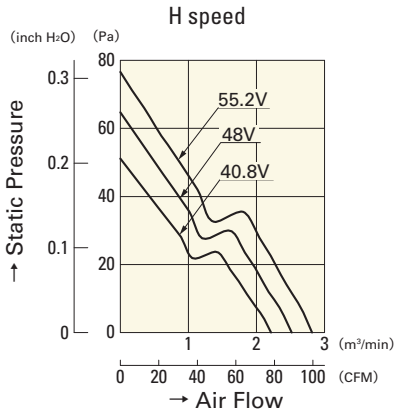
9G1212H401(4011)



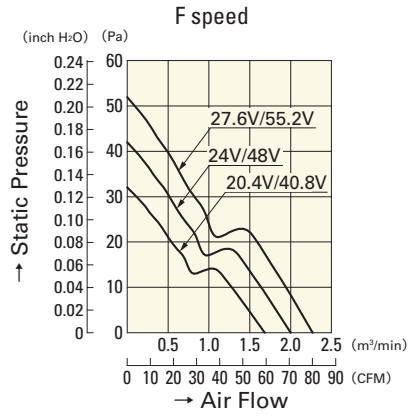
9G1224H401(4011)



9G1212F401(4011)

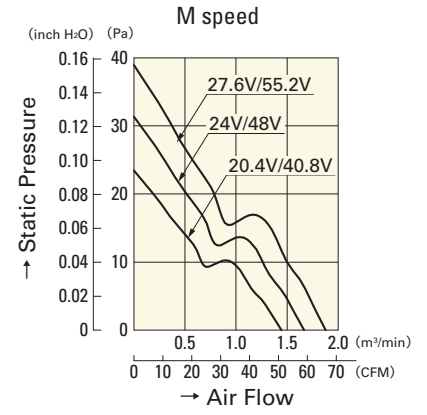


9G1248H401(4011)



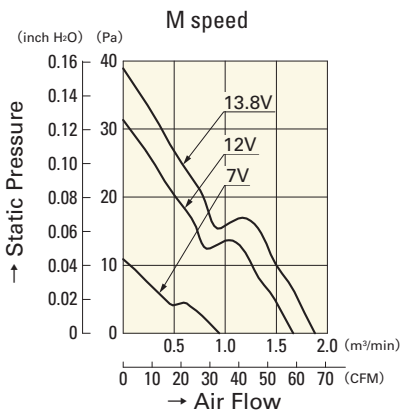
9G1224F401(4011)

9G1248F401(4011)



9G1224M401(4011)

9G1248M401(4011)



9G1212M401(4011)

120mm sq.**San Ace 120**

25mm thick (G type), 38mm thick (GV type)
 38mm thick (G type), 38mm thick (SG type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material..... Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (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)

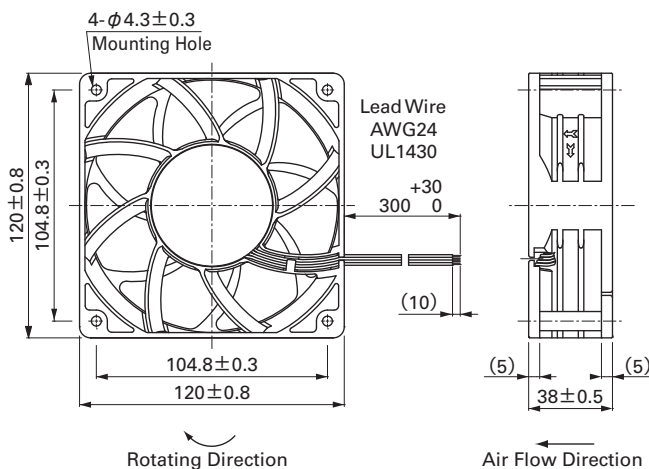
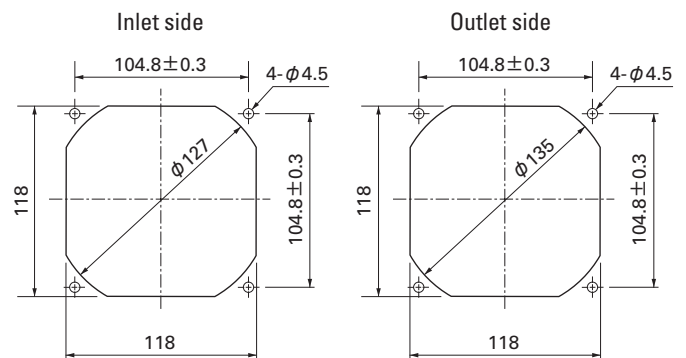
120×120×38mm (Mass : 360g)**GV type**

Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GV1212P1J01(011)	12	10.2 to 13.8	100	3.00	36.00	6,400	6.35 224.0	360.0 1.45	64	-10 to +70	40,000
			0	0.19	2.28	1,500	1.49 52.6	19.8 0.08	33		
9GV1248P1J01(011)	48	40.8 to 55.2	100	0.75	36	6,400	6.35 224.0	360.0 1.45	64		
			0	0.06	2.88	1,500	1.49 52.6	26.1 0.106	33		

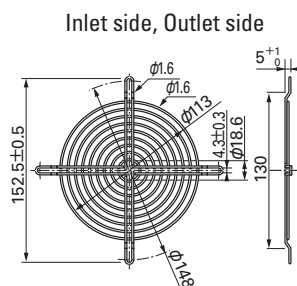
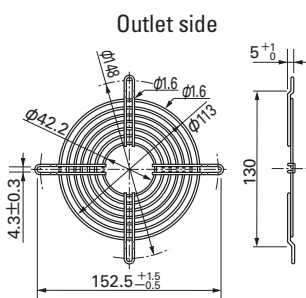
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm) (With ribs)**Reference dimension of mounting holes and vent opening (Unit : mm)****Options (Unit : mm)****Finger guards**

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

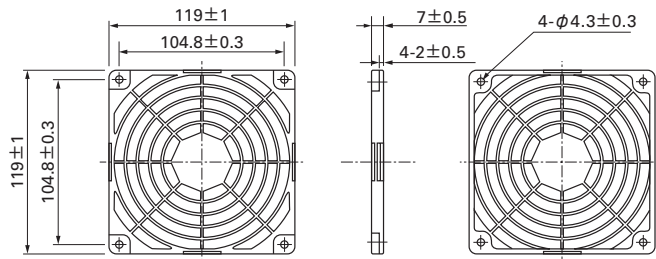
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
 : 109-019K : Cation electropainting (black)



Options (Unit : mm)

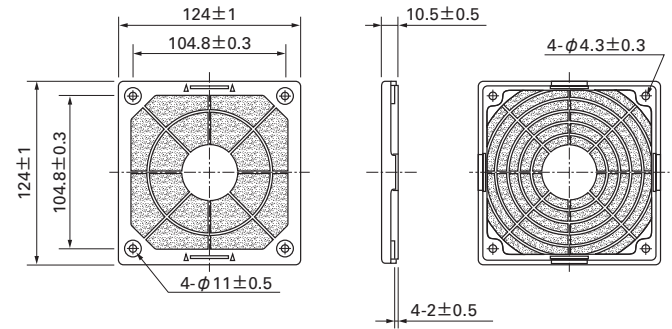
Resin finger guards

Model : 109-1000G



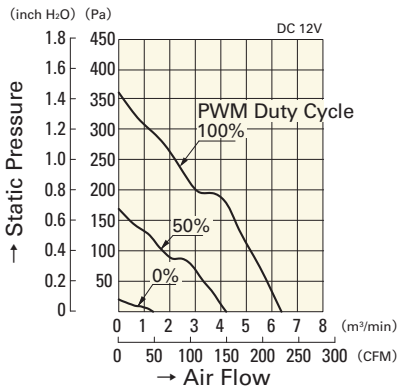
Resin filter kits

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

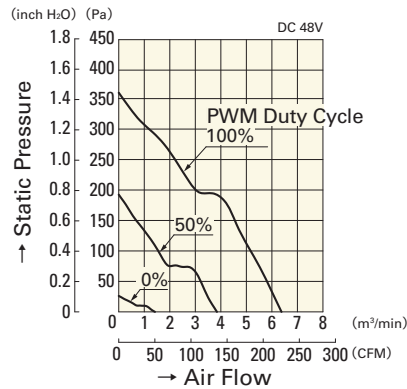


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

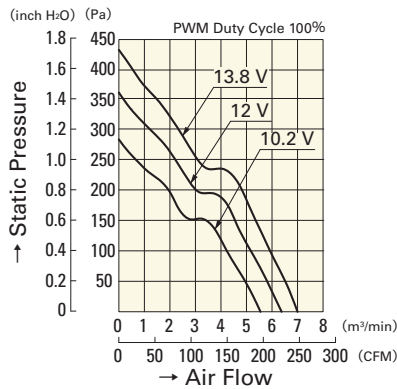


9GV1212P1J01(011)

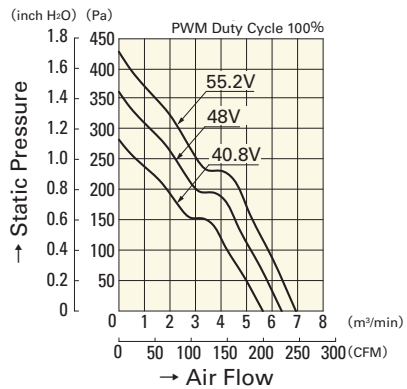


9GV1248P1J01

Operating Voltage Range

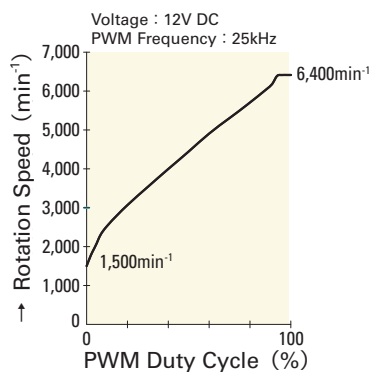


9GV1212P1J01(011)

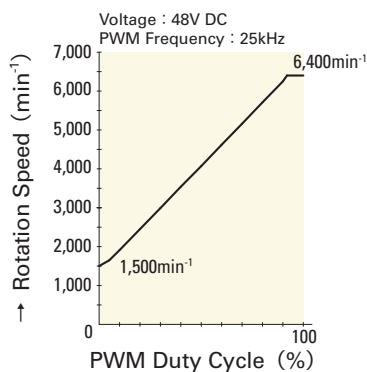


9GV1248P1J01

PWM Duty - Speed Characteristics Example



9GV1212P1J01(011)



9GV1248P1J01

120mm sq.**San Ace 120**

25mm thick (G type), 38mm thick (GV type)
 38mm thick (G type), 38mm thick (SG type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

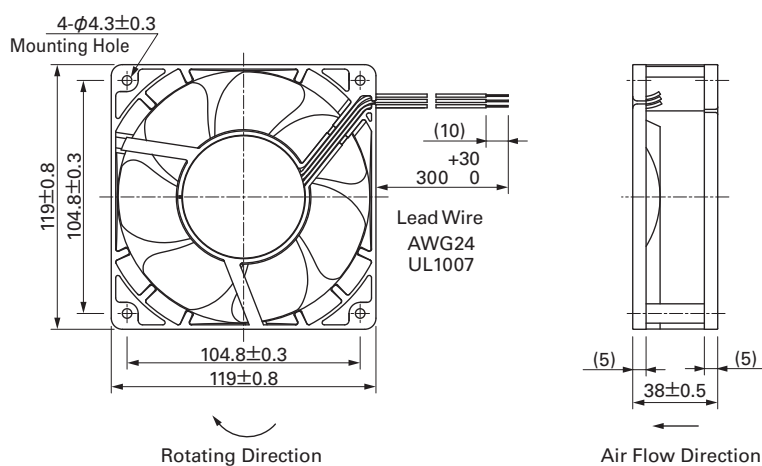
- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

120×120×38mm [Mass : 330g]**G type**
Specifications The numbers in () represent ribless models.

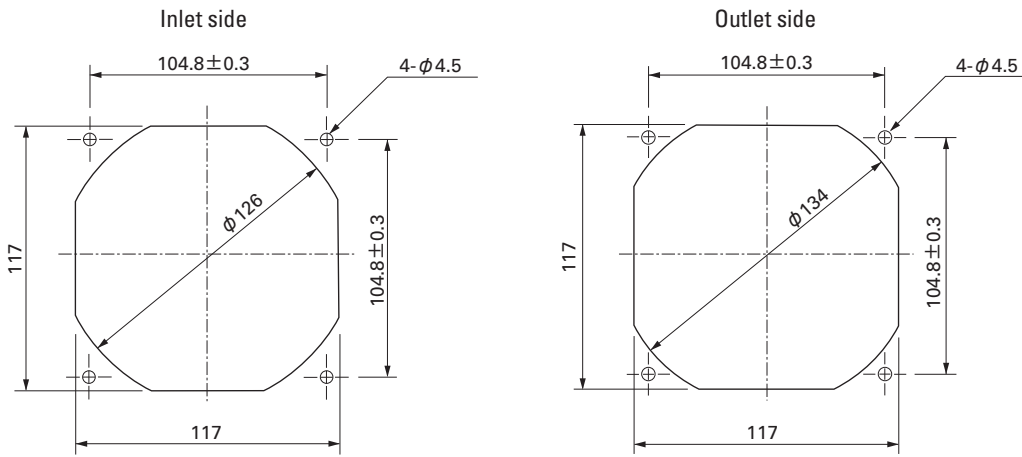
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9G1212G101(1011)	12	10.2 to 13.8	0.98	11.76	3,600	3.88	137	135	0.542	49	-10 to +70	40,000
9G1212E101(1011)			0.61	7.32	3,100	3.34	118	100	0.402	46		
9G1212H101(1011)		7 to 13.8	0.38	4.56	2,600	2.80	99	70.4	0.283	39		
9G1212F101(1011)			0.28	3.36	2,280	2.45	87	54.2	0.218	36		
9G1212M101(1011)			0.21	2.52	1,950	2.10	74	39.6	0.159	32		
9G1224G101(1011)	24	20.4 to 27.6	0.50	12	3,600	3.88	137	135	0.542	49		
9G1224E101(1011)			0.34	8.16	3,100	3.34	118	100	0.402	46		
9G1224H101(1011)		14 to 27.6	0.22	5.28	2,600	2.80	99	70.4	0.283	39		
9G1224F101(1011)			0.16	3.84	2,280	2.45	87	54.2	0.218	36		
9G1224M101(1011)			0.11	2.64	1,950	2.10	74	39.6	0.159	32		
9G1248G101(1011)	48	40.8 to 55.2	0.25	12	3,600	3.88	137	135	0.542	49		
9G1248E101(1011)			0.17	8.16	3,100	3.34	118	100	0.402	46		
9G1248H101(1011)			0.11	5.28	2,600	2.80	99	70.4	0.283	39		
9G1248F101(1011)			0.09	4.32	2,280	2.45	87	54.2	0.218	36		
9G1248M101(1011)			0.07	3.36	1,950	2.10	74	39.6	0.159	32		

Without Sensor Pulse Sensor Available in all models.Lock SensorLow speed SensorPWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)


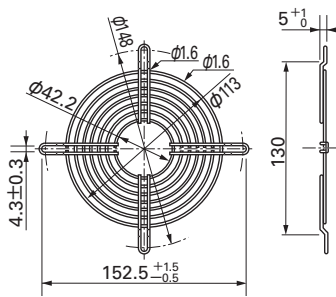
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

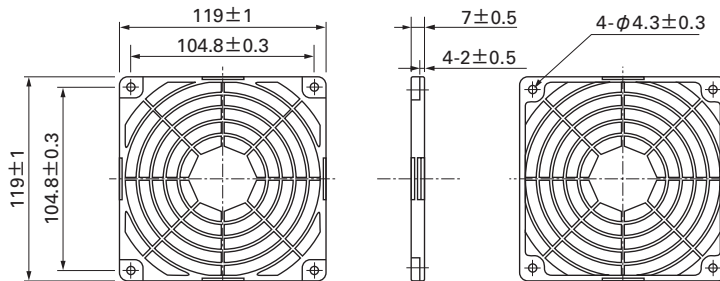
Finger guards

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



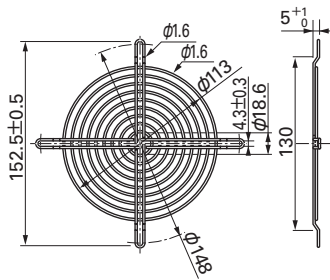
Resin finger guards

Model : 109-1000G



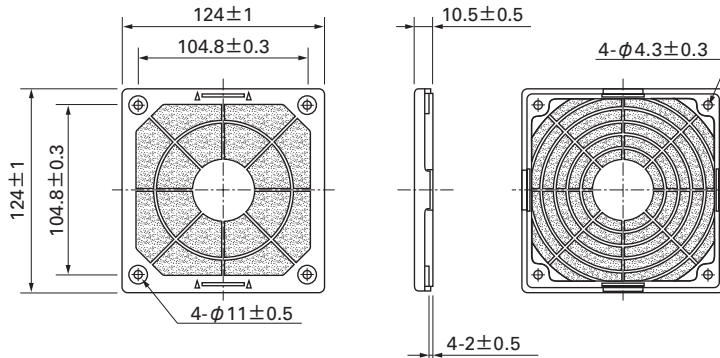
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

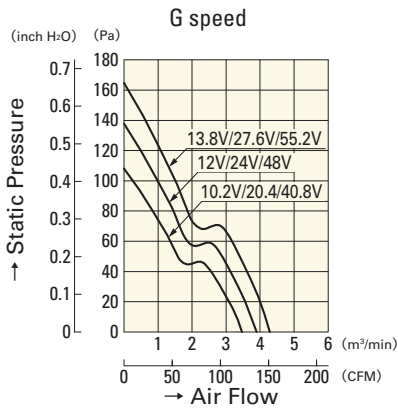
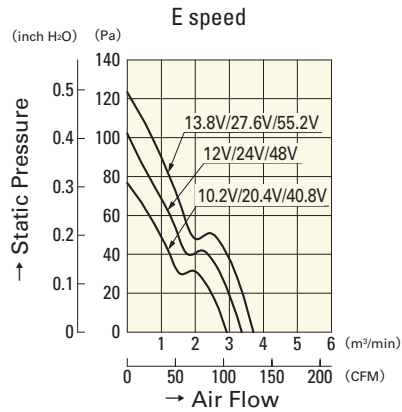
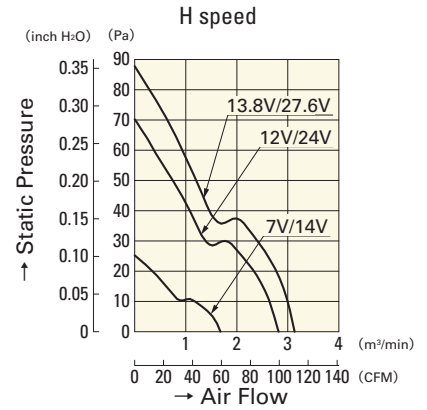
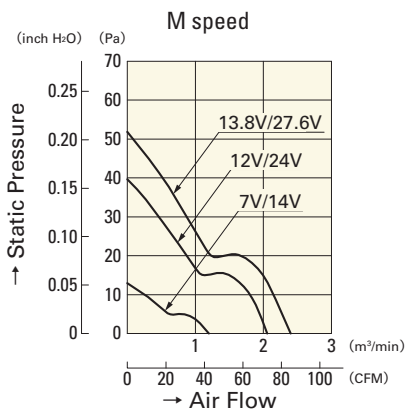
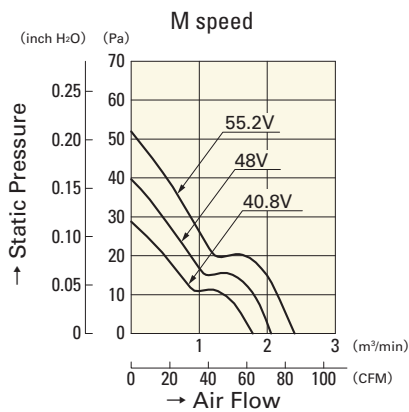
Inlet side, Outlet side

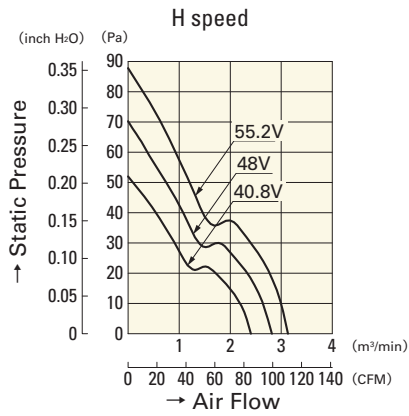


Resin filter kits

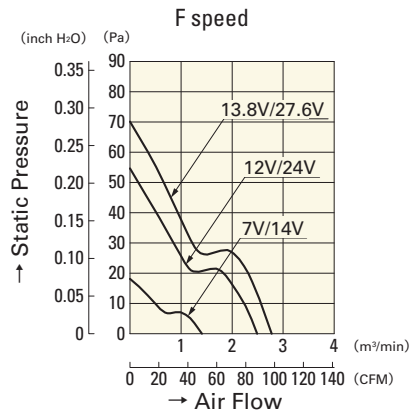
Model : 109-1000F13 (13PPI), 109-1000F20 (20PPI)
: 109-1000F30 (30PPI), 109-1000F40 (40PPI)



120mm sq.**San Ace 120****120×120×38mm** [Mass : 330g]**Air Flow - Static Pressure Characteristics****9G1212G101(1011)****9G1224G101(1011)****9G1248G101(1011)****9G1212E101(1011)****9G1224E101(1011)****9G1248E101(1011)****9G1212H101(1011)****9G1224H101(1011)****9G1212M101(1011)****9G1224M101(1011)****9G1248M101(1011)**

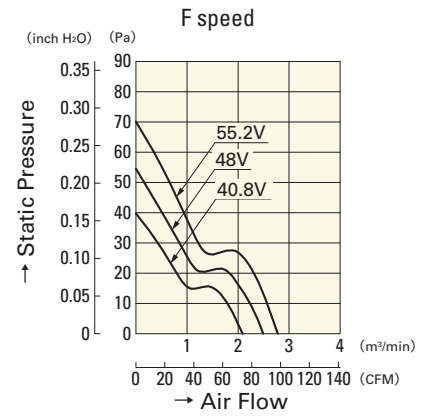


9G1248H101(1011)



9G1212F101(1011)

9G1224F101(1011)



9G1248F101(1011)

120mm sq.**San Ace 120**25mm thick (G type), 38mm thick (GV type)
38mm thick (G type), 38mm thick (SG type)**General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue (Sensor) yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

120×120×38mm [Mass : 400g]**SG type****Specifications**

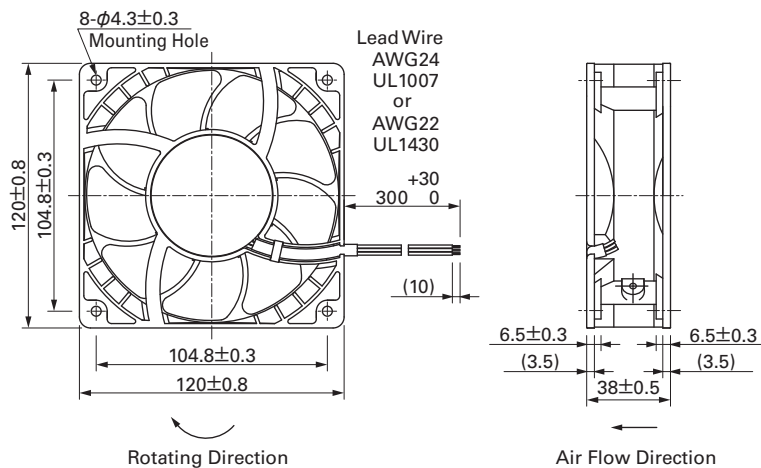
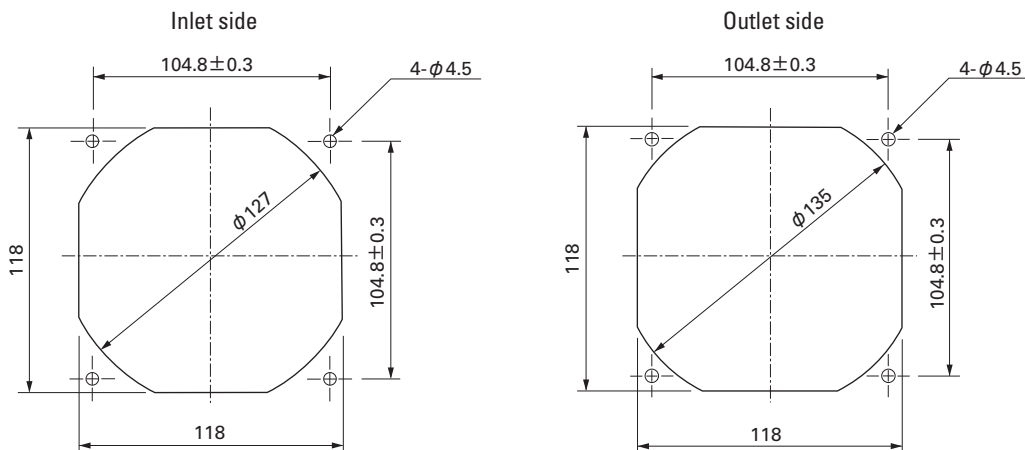
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9SG1212G101	12	10.2 to 13.8	4.0	48.0	6,000	7.35	260	340	1.37	64	- 10 to +70	40,000
9SG1224G101	24	20.4 to 27.6	2.0	48.0	6,000	7.35	260	340	1.37	64		
9SG1248G101	48	40.8 to 55.2	1.0	48.0	6,000	7.35	260	340	1.37	64		

Without Sensor**Pulse Sensor**

Available in all models.

Low speed Sensor**PWM Control**

Please inquire as the availability of these functions depend on the model.

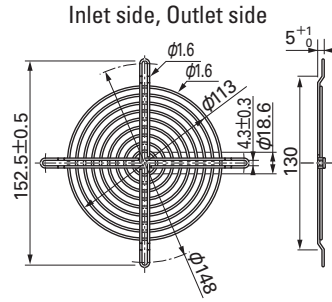
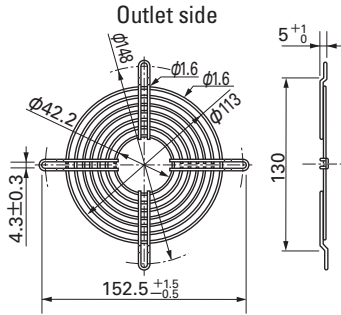
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

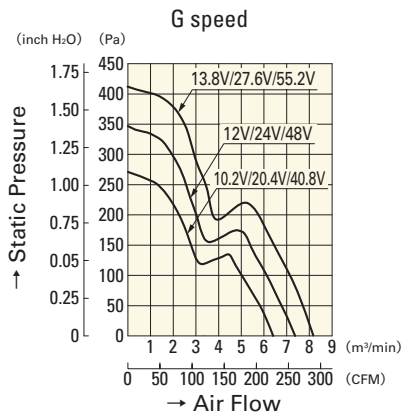
Finger guards

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

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



Air Flow - Static Pressure Characteristics



9SG1212G101

9SG1224G101

9SG1248G101

127 mm sq.**San Ace 127**

38mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

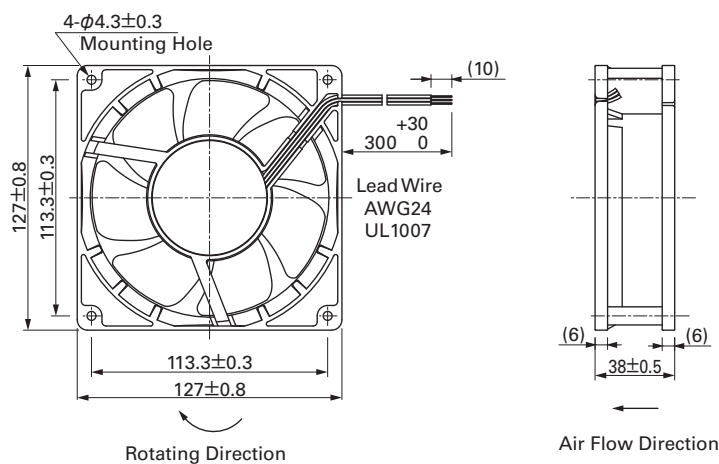
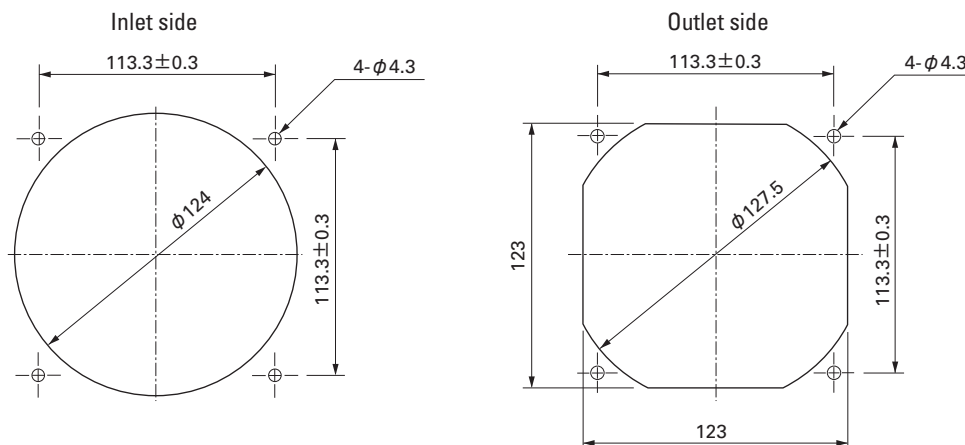
127×127×38mm [Mass : 350g]
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P1312S101(1011)	12	10.2 to 13.8	1.3	15.6	3,300	4.2	148	117.6	0.472	47	-10 to +60	40,000
109P1312H101(1011)			0.82	9.84	2,950	3.8	134	98	0.394	45		
109P1324S101(1011)	24	20.4 to 27.6	0.55	13.2	3,300	4.2	148	117.6	0.472	47		
109P1324H101(1011)			0.41	9.84	2,950	3.8	134	98	0.394	45		
109P1348S101(1011)	48	40.8 to 55.2	0.3	14.4	3,300	4.2	148	117.6	0.472	47		
109P1348H101(1011)			0.2	9.6	2,950	3.8	134	98	0.394	45		

Without Sensor Pulse Sensor Available in all models.

Lock Sensor
Low speed Sensor

Please inquire as the availability of these functions depend on the model.

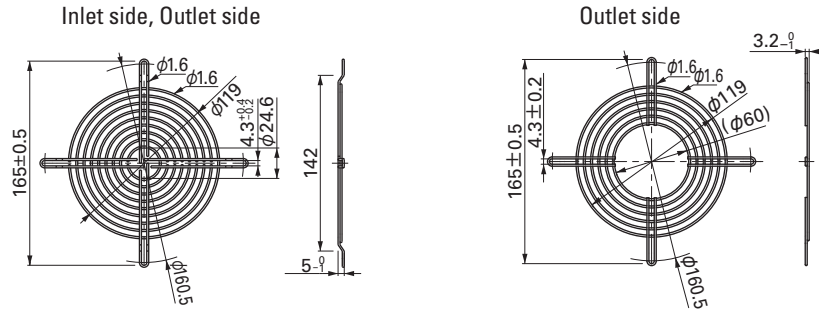
Dimensions (Unit : mm) (With ribs)

Reference dimension of mounting holes and vent opening (Unit : mm)


Options (Unit : mm)

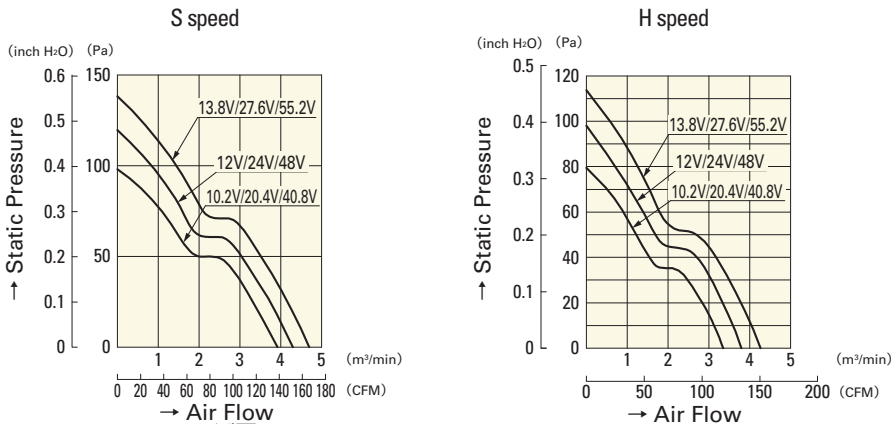
Finger guards

Model : 109-722 Surface treatment : Nickel-chrome plating (silver) Color

Model : 109-723 Surface treatment : Nickel-chrome plating (silver) Color



Air Flow - Static Pressure Characteristics



109P1312S101 (1011)

109P1324S101 (1011)

109P1348S101 (1011)

109P1312H101 (1011)

109P1324H101 (1011)

109P1348H101 (1011)

127 mm sq.**San Ace 127**

38mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇄ Refer to Page 291

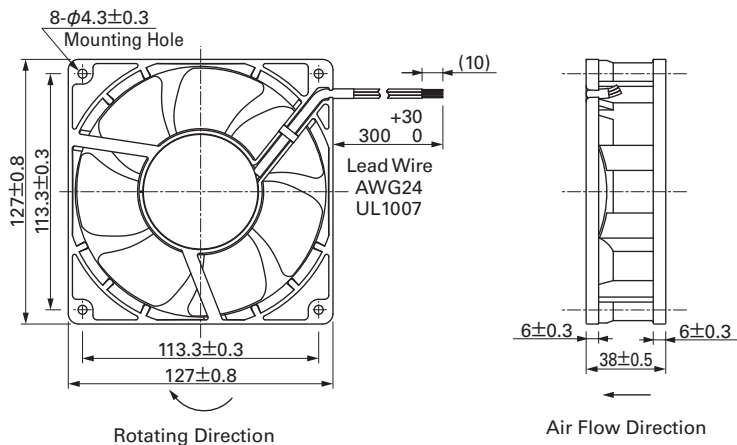
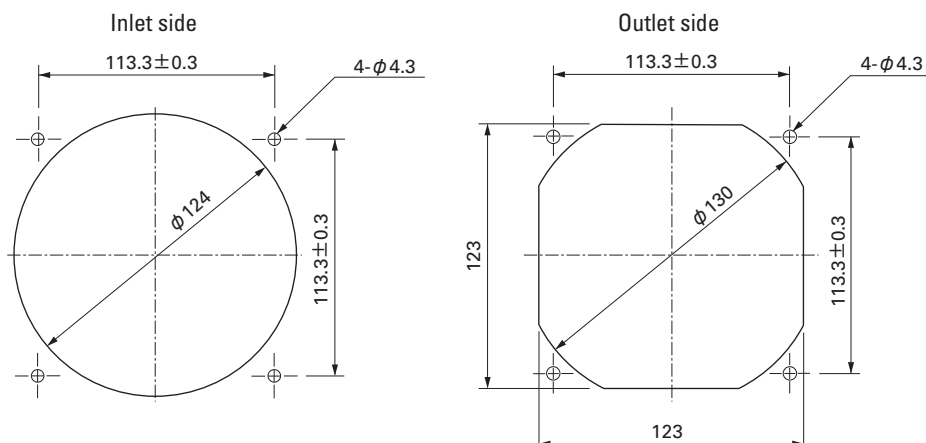
- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

127×127×38mm [Mass : 400g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109E1312A101	12	10.2 to 13.8	1.4	16.8	3,850	4.81	170	155	0.622	52	-10 to +70	60,000
109E1312S101			1.2	14.4	3,450	4.37	154	125	0.502	49		
109E1324G101	24	20.4 to 27.6	1.1	25.1	4,550	5.66	200	216	0.867	57	-10 to +60	40,000
109E1324A101			0.7	16.8	3,850	4.81	170	155	0.622	52		
109E1324S101			0.53	12.7	3,450	4.37	154	125	0.502	49		
109E1348G101	48	40.8 to 55.2	0.54	25.9	4,550	5.66	200	216	0.867	57	-10 to +60	40,000
109E1348A101			0.36	17.3	3,850	4.81	170	155	0.622	52		
109E1348S101			0.28	13.4	3,450	4.37	154	125	0.502	49		

Without Sensor Pulse Sensor Available in all models.Lock SensorLow speed Sensor

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

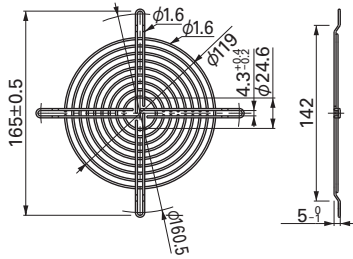
Finger guards

Model : 109-722 Surface treatment : Nickel-chrome plating (silver) Color

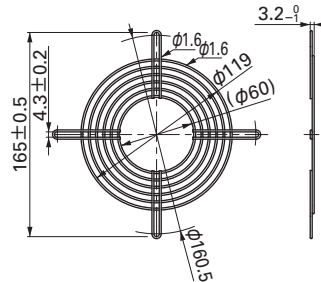
Model : 109-723

Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side

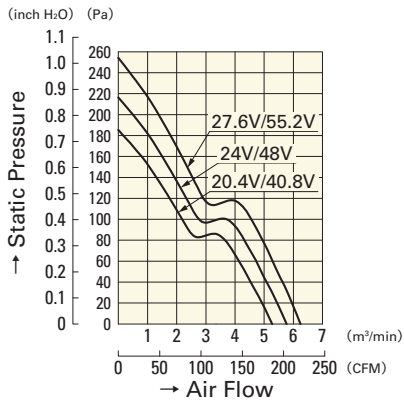


Outlet side



Air Flow - Static Pressure Characteristics

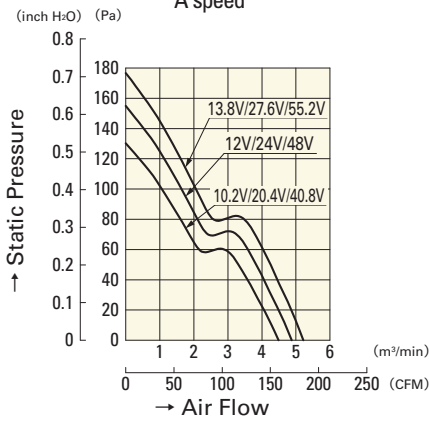
G speed



109E1324G101

109E1348G101

A speed

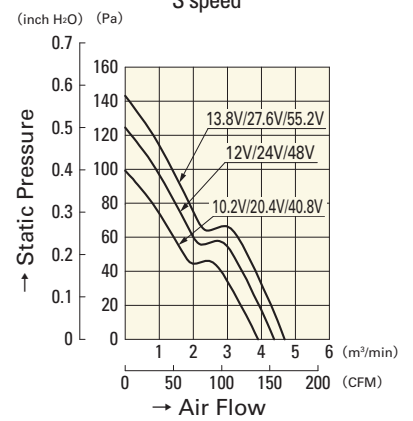


109E1312A101

109E1324A101

109E1348A101

S speed



109E1312S101

109E1324S101

109E1348S101

140mm sq.**San Ace 140**

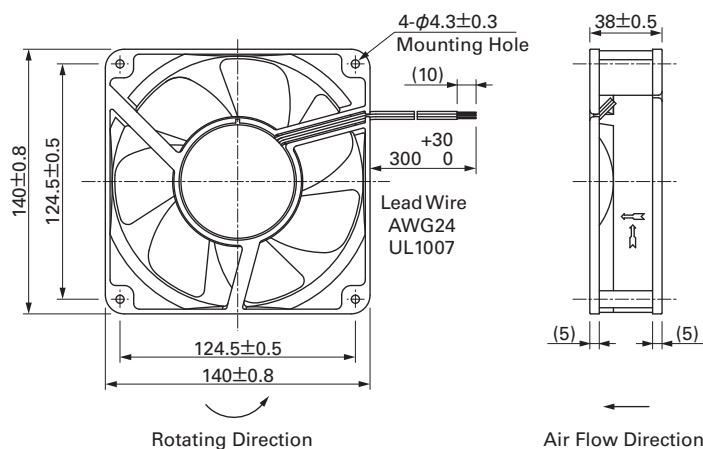
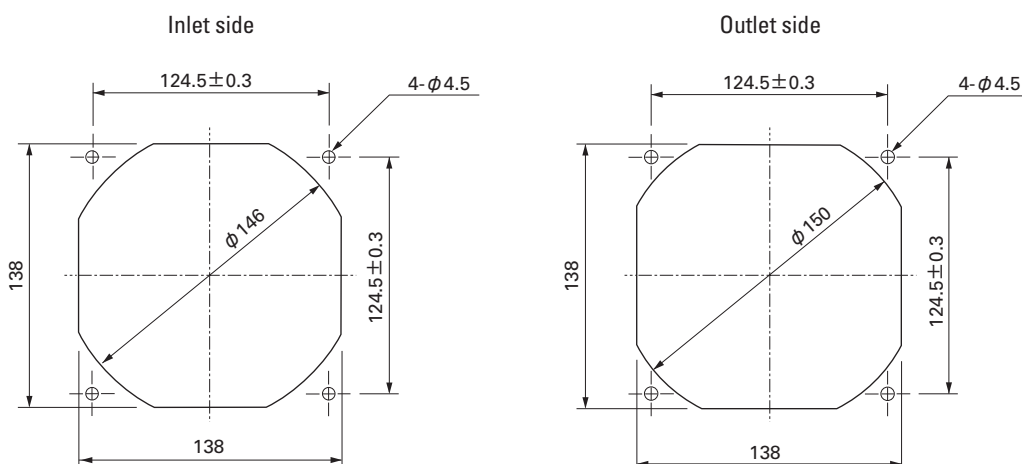
38mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

140×140×38mm [Mass : 450g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109P1412H101	12	10.2 to 13.8	0.73	8.76	2,600	4.5	159	94	0.378	46	-10 to +70	40,000
109P1412M101			0.33	3.96	1,900	3.3	117	52	0.209	38		
109P1424H101	24	20.4 to 27.6	0.37	8.88	2,600	4.5	159	94	0.378	46		
109P1424M101			0.16	3.84	1,900	3.3	117	52	0.209	38		
109P1448H101	48	40.8 to 55.2	0.2	9.6	2,600	4.5	159	94	0.378	46		
109P1448M101			0.09	4.32	1,900	3.3	117	52	0.209	38		

Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)**

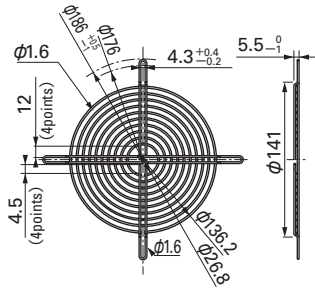
Options (Unit : mm)

Finger guards

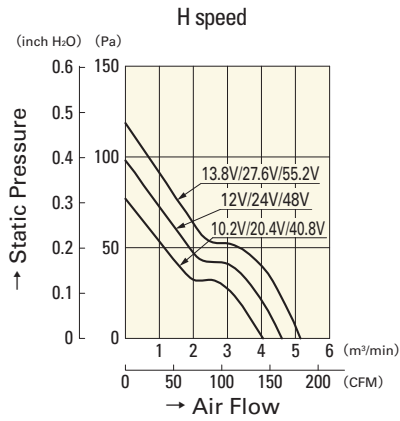
Model : 109-719 Surface treatment : Nickel-chrome plating (silver)
: 109-719H : Cation electropainting (black)

Color

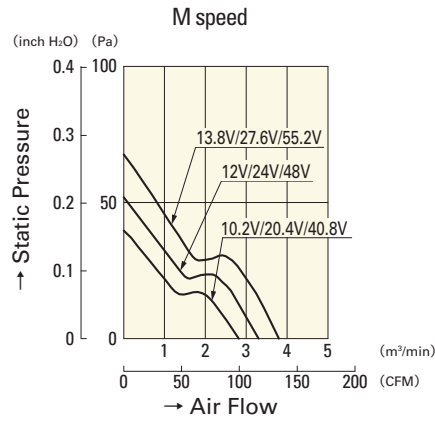
Inlet side, Outlet side



Air Flow - Static Pressure Characteristics



109P1412H101
109P1424H101
109P1448H101



109P1412M101
109P1424M101
109P1448M101

150mm sq.**San Ace 150**

50mm thick (GV type)

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue (Sensor) yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

150×150×50mm [Mass : 450g]**GV type****Specifications** The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
						[m ³ /min]	[CFM]	[Pa]	[inchH ₂ O]			
9GV1512H501(5011)	12	10.2 to 13.8	2.9	34.8	3,900	8.54	300	210	0.84	61	-10 to +70	40,000
9GV1512M501(5011)			1.2	14.4	3,000	6.35	224	132	0.53	53		

Without Sensor

Pulse Sensor

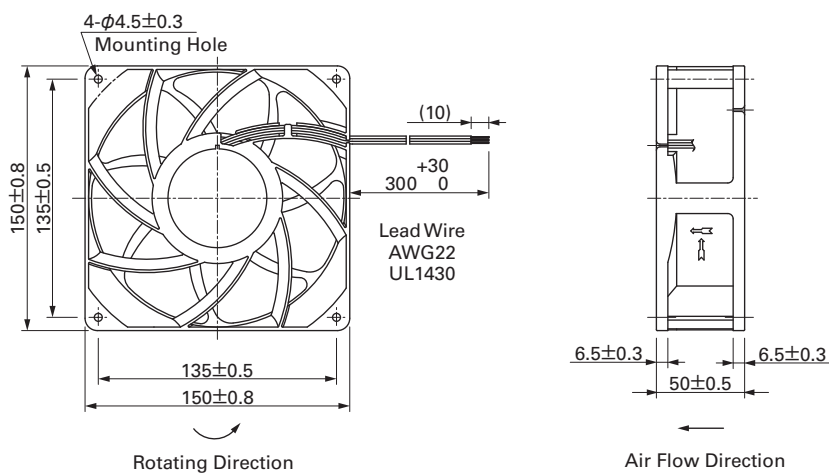
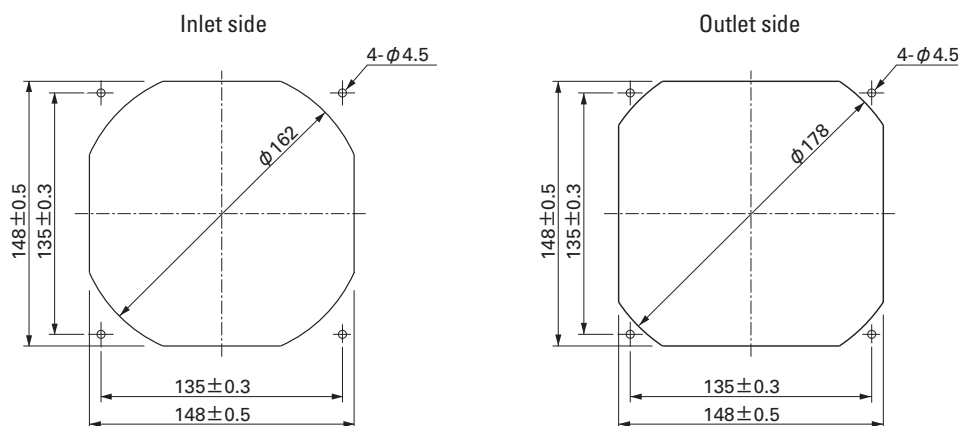
Available in all models.

Lock Sensor

Low speed Sensor

PWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)**Reference dimension of mounting holes and vent opening (Unit : mm)**

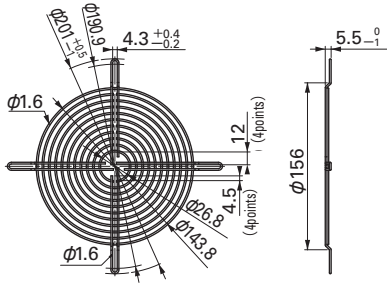
Options (Unit : mm)

Finger guards

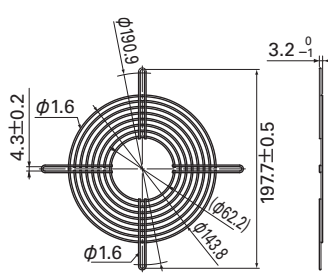
Model : 109-1051 Surface treatment : Nickel-chrome plating (silver) Color

Model : 109-1052 Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side

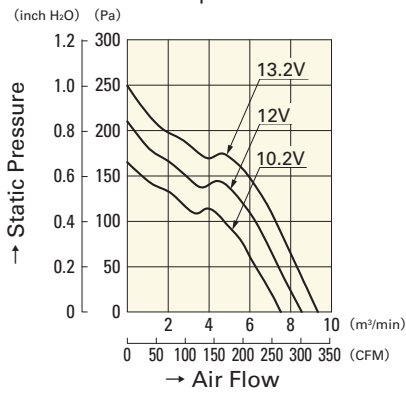


Outlet side



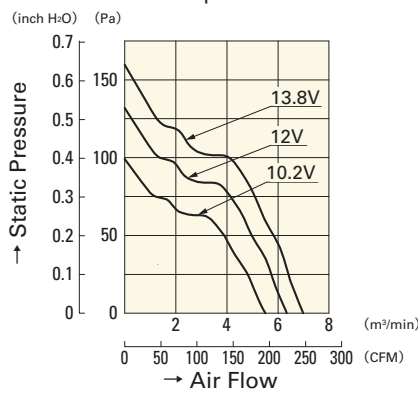
Air Flow - Static Pressure Characteristics

H speed



9GV1512H501(5011)

M speed



9GV1512M501(5011)

$\phi 172$ mm

San Ace 172

25mm thick(Sidecut type), 51mm thick(Sidecut type SG type)
 51mm thick(Sidecut type GV type)
 51mm thick(Sidecut type), 51mm thick(Round type)



- **General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 291
- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
 - Life Expectancy Varies for each model (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
 - Lead Wire ⊕red ⊖black or blue **Sensor** yellow
 - Storage Temperature ... -30°C to +70°C (Non-condensing)

$\phi 172$ mm×25mm (Mass : 500g)

SideCut type

Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109E4712M401	12	10.2 to 13.8	1.3	15.6	2,800	5.2	183	92	0.369	51	-10 to +60	40,000
109E4712L401			1.0	12.0	2,500	4.6	162	73	0.293	48		
109E4724H401			1.0	24.0	3,400	6.4	226	135	0.542	57		
109E4724F401	24	20.4 to 27.6	0.79	19.0	3,100	5.8	204	112	0.450	54		
109E4724M401			0.58	13.9	2,800	5.2	183	92	0.369	51		
109E4724L401			0.44	10.6	2,500	4.6	162	73	0.293	48		
109E4748S401	48	40.8 to 55.2	0.62	29.8	3,650	6.8	240	156	0.627	58		
109E4748H401			0.52	25.0	3,400	6.4	226	135	0.542	57		
109E4748F401			0.40	19.2	3,100	5.8	204	112	0.450	54		
109E4748M401			0.32	15.4	2,800	5.2	183	92	0.369	51		
109E4748L401			0.25	12.0	2,500	4.6	162	73	0.293	48		

Without Sensor **Pulse Sensor** Available in all models.

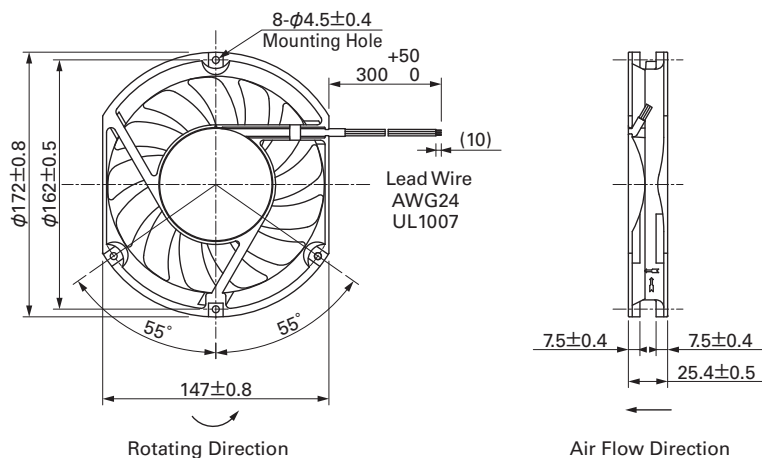
Lock Sensor

Low speed Sensor

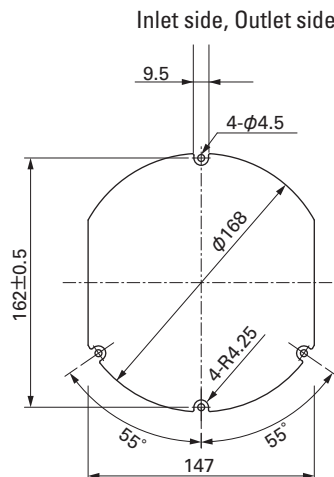
PWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)



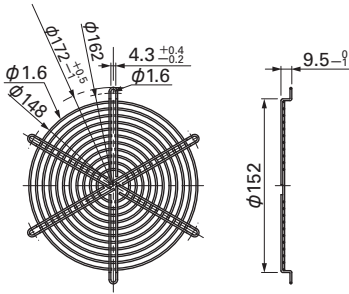
Options (Unit : mm)

Finger guards

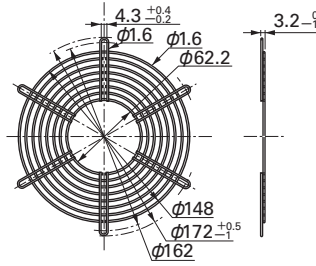
Model : 109-319E Surface treatment : Nickel-chrome plating (silver) Color : 109-319H : Cation electropainting (black)

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

Inlet side, Outlet side

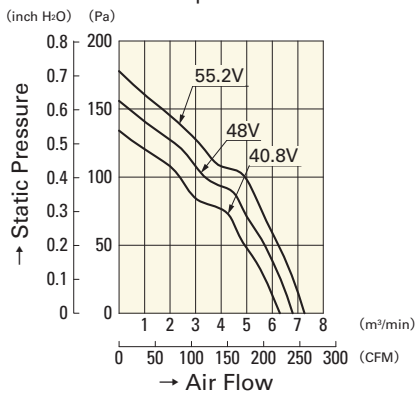


Outlet side



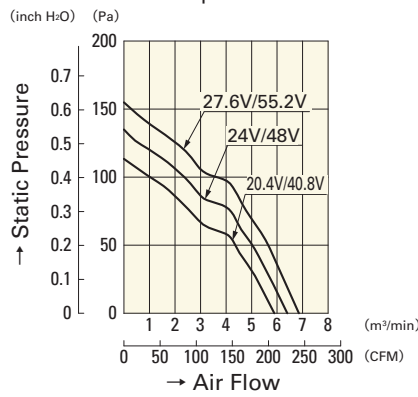
Air Flow - Static Pressure Characteristics

S speed



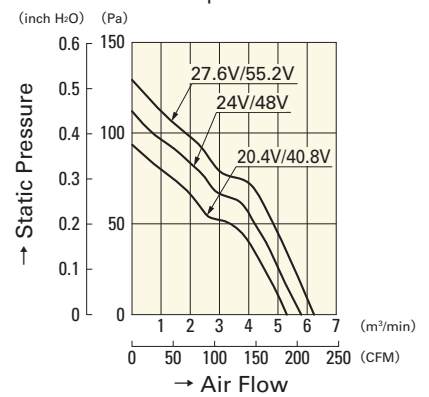
109E4748S401

H speed



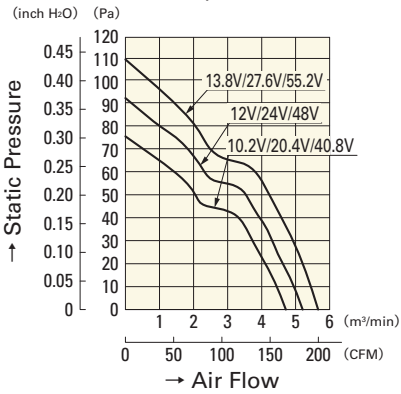
109E4724H401
109E4748H401

F speed



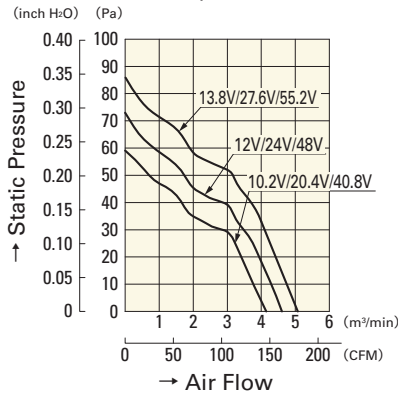
109E4724F401
109E4748F401

M speed



109E4712M401
109E4724M401
109E4748M401

L speed



109E4712L401
109E4724L401
109E4748L401

φ172mm**San Ace 172**

25mm thick(Sidecut type), 51mm thick(Sidecut type SG type)

51mm thick(Sidecut type GV type)

51mm thick(Sidecut type), 51mm thick(Round type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

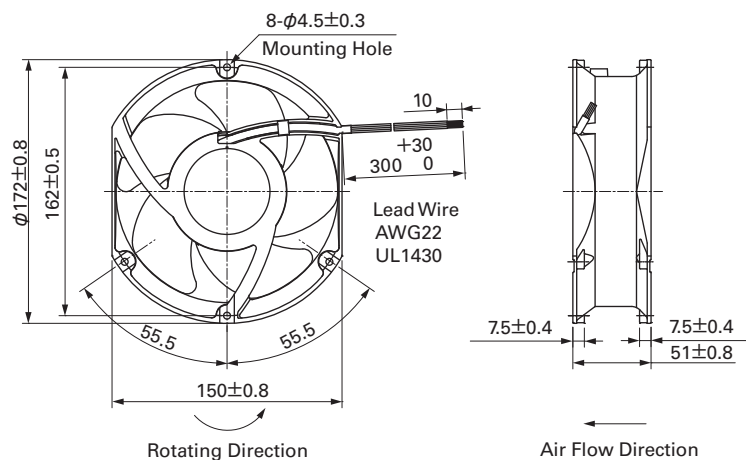
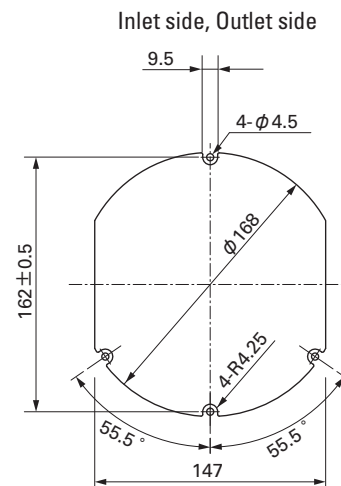
- Material.....Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Life Expectancy.....Varies for each model (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire.....⊕red ⊖black (Sensor) yellow (Control) brown
- Storage Temperature.....-30°C to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

φ172mm×51mm (Mass : 760g)**SideCut type SG type****Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9SG5748P5G01	48	36 to 72	100	2.91	140	8,600	15.46 546	1000 4.02	78	-10 to +60	40,000
			0	0.21	10.1	2,000	3.59 127	75.1 0.30	40		
9SG5748P5H01			100	1.62	78	6,500	11.60 410	770 3.09	71		
			0	0.21	10.1	2,000	3.59 127	75.1 0.30	40		

※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

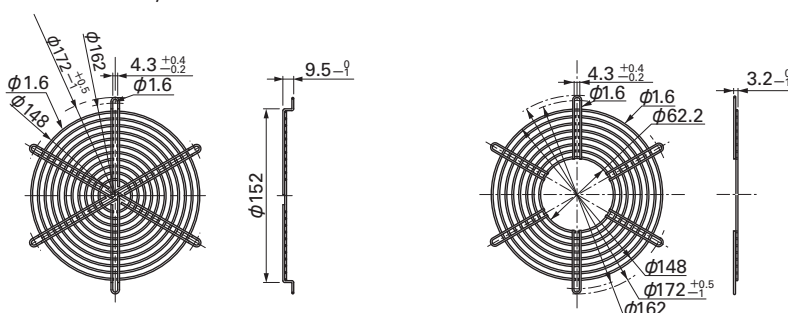
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)****Options (Unit : mm)****Finger guards**

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

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

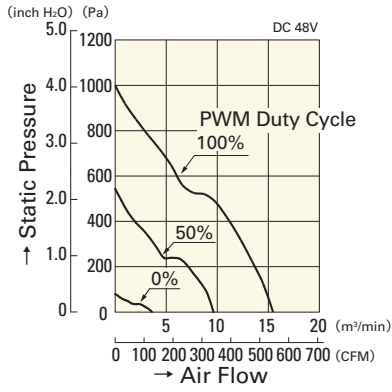
Inlet side, Outlet side

Outlet side

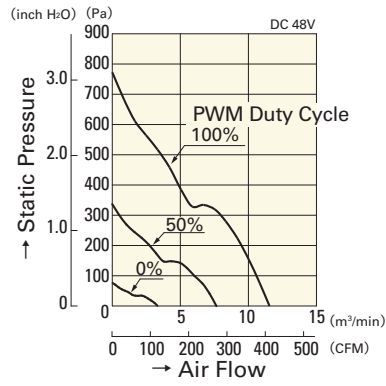


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

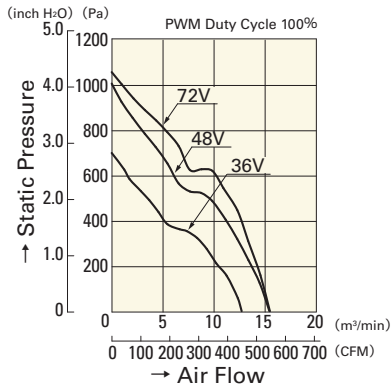


9SG5748P5G01

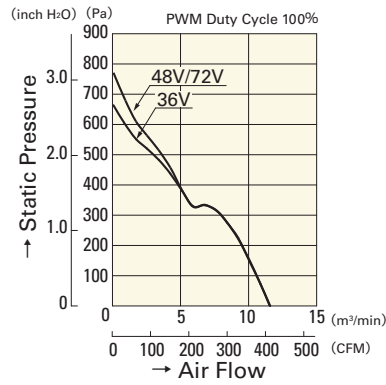


9SG5748P5H01

Operating Voltage Range

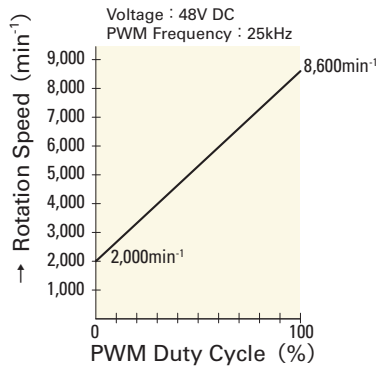


9SG5748P5G01

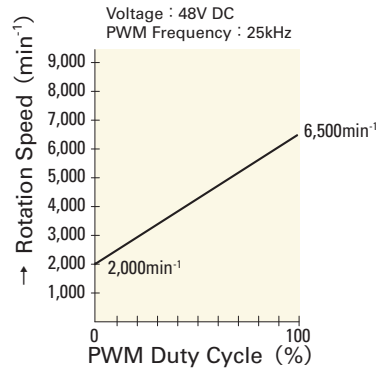


9SG5748P5H01

PWM Duty - Speed Characteristics Example



9SG5748P5G01



9SG5748P5H01

$\phi 172$ mm

San Ace 172

25mm thick(Sidecut type), 51mm thick(Sidecut type SG type)

51mm thick(Sidecut type GV type)

51mm thick(Sidecut type), 51mm thick(Round type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

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

$\phi 172$ mm×51mm (Mass : 800g)

SideCut type**GV type**

Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GV5724H501	24	20.4 to 27.6	4.0	96	6,300	11.32	400	690	2,77	74	- 10 to +70	40,000
9GV5748H501	48	40.8 to 55.2	2.0	96								

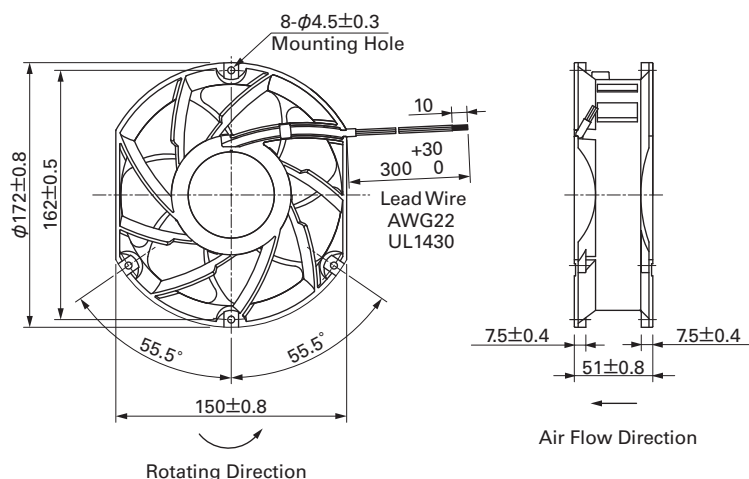
Without Sensor**Pulse Sensor**

Available in all models.

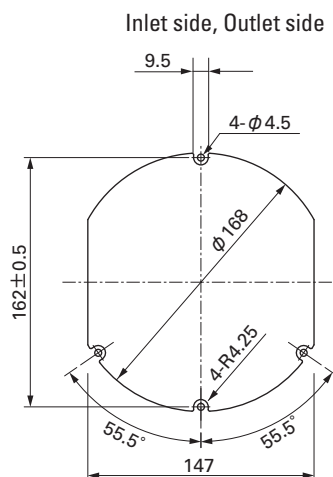
Lock Sensor**Low speed Sensor****PWM Control**

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)



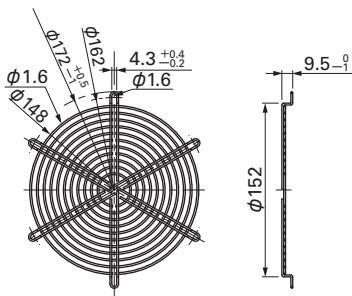
Options (Unit : mm)

Finger guards

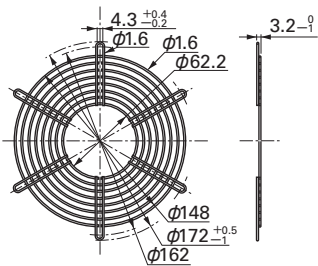
Model : 109-319E Surface treatment : Nickel-chrome plating (silver) Color
: 109-319H : Cation electropainting (black)

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

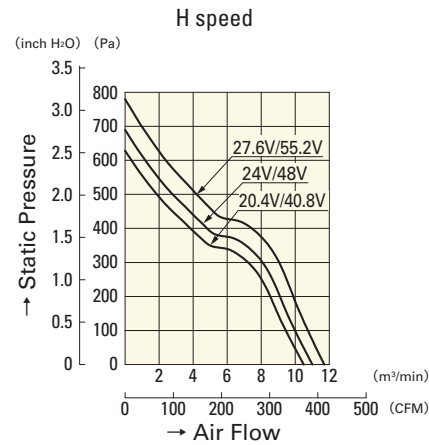
Inlet side, Outlet side



Outlet side



Air Flow - Static Pressure Characteristics



9GV5724H501

9GV5748H501

$\phi 172$ mm

San Ace 172

25mm thick(Sidecut type), 51mm thick(Sidecut type SG type)

51mm thick(Sidecut type GV type)

51mm thick(Sidecut type), 51mm thick(Round type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material: Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy: Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire: ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature: -30°C to +70°C (Non-condensing)

$\phi 172$ mm × 51mm (Mass : 760g)

SideCut type

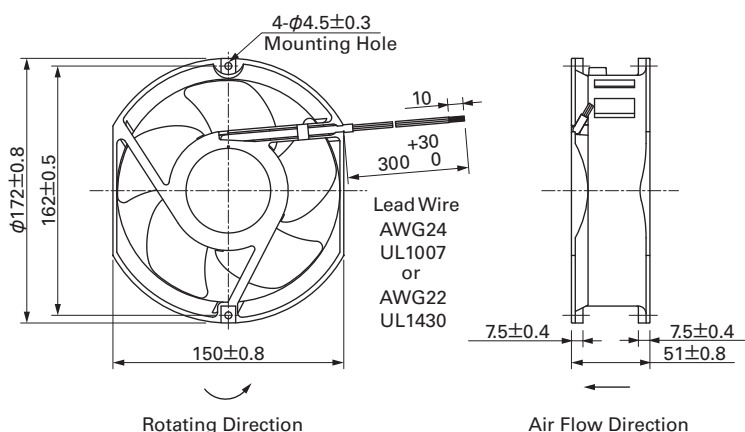
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109E5712K501	12	10.2 to 13.8	2.9	34.8	4,100	8.5	300	243.0	0.976	60	-10 to +60	40,000
109E5712Y501			2.3	27.6	3,800	8	282	210	0.84	60		
109E5712H501			1.2	14.4	3,050	6.4	226	137.2	0.551	52	-10 to +70	
109E5712F501			0.68	8.16	2,500	5.1	180	95	0.38	47		
109E5712M501			0.48	5.76	2,000	4.2	148	67.6	0.271	41		
109E5724C501	24	20.4 to 27.6	2.3	55.2	4,800	9.9	350	308.0	1.237	66	-10 to +70	
109E5724K501			1.3	31.2	4,100	8.5	300	243.0	0.976	60		
109E5724H501			0.58	13.92	3,050	6.4	226	137.2	0.551	52		
109E5724F501			0.35	8.4	2,500	5.1	180	95	0.38	47		
109E5724M501			0.2	4.8	2,000	4.2	148	67.6	0.271	41		
109E5748C501	48	40.8 to 55.2	1.2	57.6	4,800	9.9	350	308.0	1.237	66	-10 to +60	
109E5748K501			0.7	33.6	4,100	8.5	300	243.0	0.976	60		
109E5748H501			0.28	13.44	3,050	6.4	226	137.2	0.551	52	-10 to +70	
109E5748F501			0.19	9.12	2,500	5.1	180	95	0.38	47		
109E5748M501			0.11	5.28	2,000	4.2	148	67.6	0.271	41		

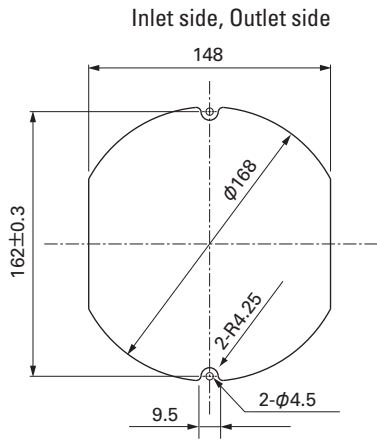
Without Sensor Pulse Sensor Available in all models.Lock SensorLow speed SensorPWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)



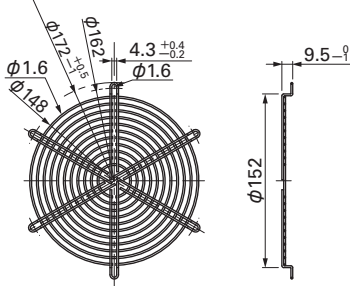
Options (Unit : mm)

Finger guards

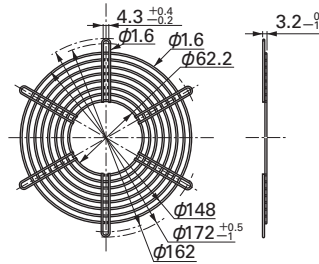
Model : 109-319E Surface treatment : Nickel-chrome plating (silver) Color : 109-319H : Cation electropainting (black)

Model : 109-320 Surface treatment : Nickel-chrome plating (silver) Color : 109-320H : Cation electropainting (black)

Inlet side, Outlet side



Outlet side

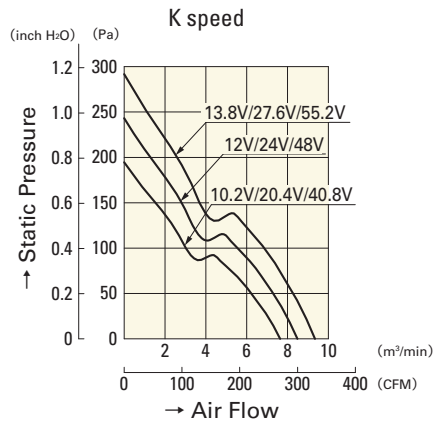


$\phi 172$ mm

San Ace 172

$\phi 172$ mm $\times$ 51mm (Mass : 760g)

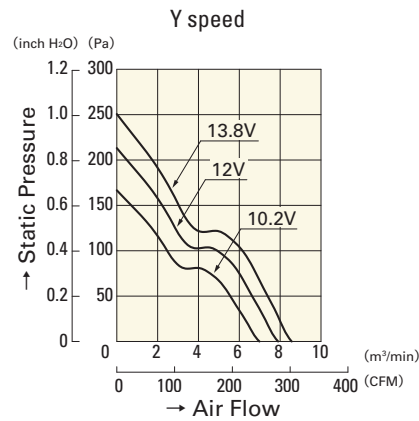
Air Flow - Static Pressure Characteristics



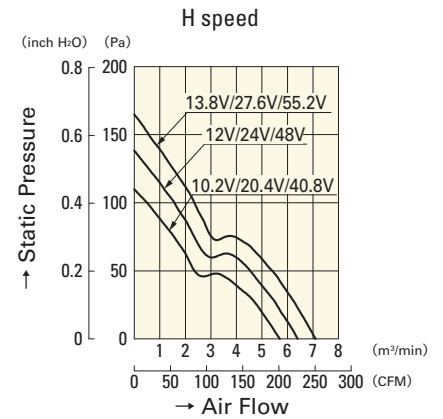
109E5712K501

109E5724K501

109E5748K501



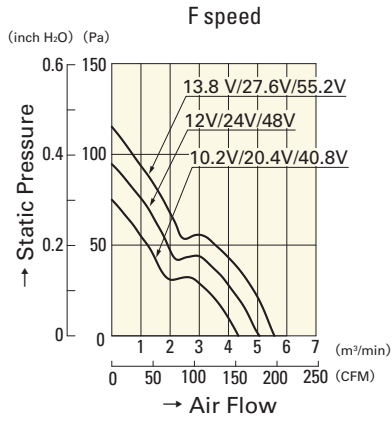
109E5712Y501



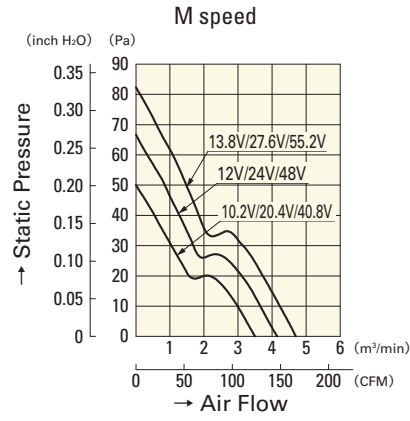
109E5712H501

109E5724H501

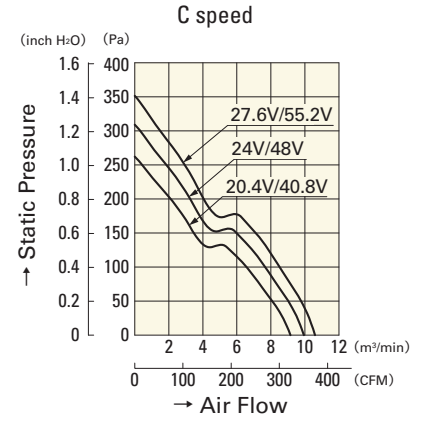
109E5748H501



109E5712F501
109E5724F501
109E5748F501



109E5712M501
109E5724M501
109E5748M501



109E5724C501
109E5748C501

$\phi 172$ mm

San Ace 172

25mm thick(Sidecut type), 51mm thick(Sidecut type SG type)
 51mm thick(Sidecut type GV type)
 51mm thick(Sidecut type), 51mm thick(Round type)



- General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 291
- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
 - Life ExpectancyVaries for each model (L10:Survival rate:90% at 60°C ,
 rated voltage, and continuously run in a free air state)
 - Lead Wire ⊕red ⊖black or blue **Sensor** yellow
 - Storage Temperature ...-30°C to +70°C (Non-condensing)

$\phi 172$ mm×51mm (Mass : 780g)

Round type

Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]	
109E1712K501	12	10.2 to 13.8	2.9	34.8	4,100	8.5	300	243.0	0.976	55	−10 to +60	40,000	
109E1712H501			1.2	14.4	3,050	6.4	226	137.2	0.551	47			
109E1712M501			0.48	5.76	2,000	4.2	148	67.6	0.271	36			
109E1724C501	24	20.4 to 27.6	2.3	55.2	4,800	9.9	350	308.0	1.237	60	−10 to +70		
109E1724K501			1.3	31.2	4,100	8.5	300	243.0	0.976	55			
109E1724H501			0.58	13.92	3,050	6.4	226	137.2	0.551	47			
109E1724M501			0.2	4.8	2,000	4.2	148	67.6	0.271	36			
109E1748C501	48	40.8 to 55.2	1.2	57.6	4,800	9.9	350	308.0	1.237	60			
109E1748K501			0.7	33.6	4,100	8.5	300	243.0	0.976	55	−10 to +60		
109E1748H501			0.28	13.44	3,050	6.4	226	137.2	0.551	47	−10 to +70		
109E1748M501			0.11	5.28	2,000	4.2	148	67.6	0.271	36			

Without Sensor **Pulse Sensor** Available in all models.

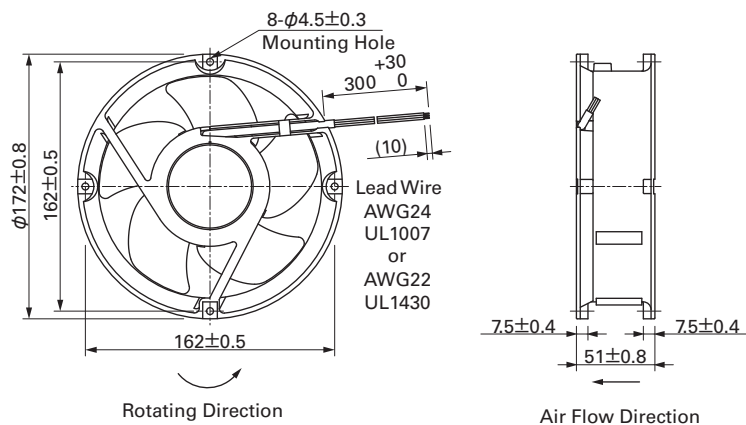
Lock Sensor

Low speed Sensor

PWM Control

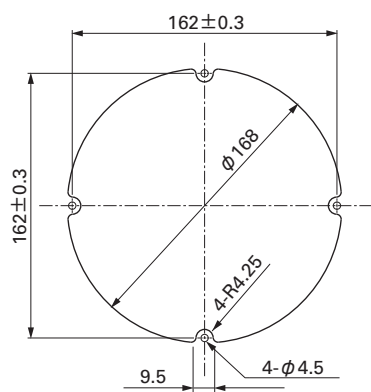
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)

Inlet side, Outlet side



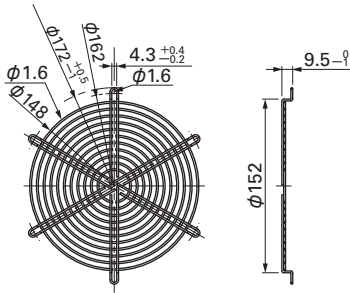
Options (Unit : mm)

Finger guards

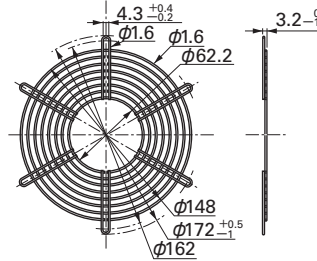
Model : 109-319E Surface treatment : Nickel-chrome plating (silver) Color : 109-319H : Cation electropainting (black)

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

Inlet side, Outlet side

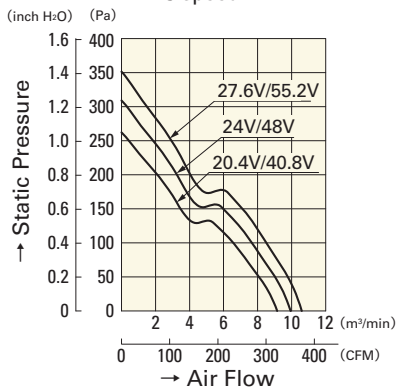


Outlet side



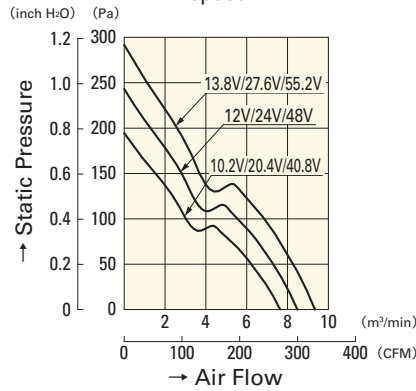
Air Flow - Static Pressure Characteristics

C speed



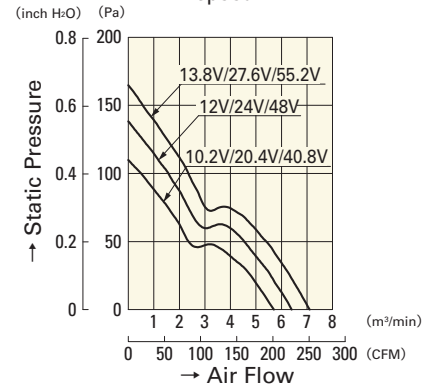
109E1724C501
109E1748C501

K speed



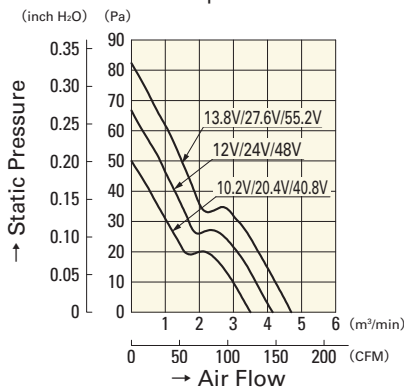
109E1712K501
109E1724K501
109E1748K501

H speed



109E1712H501
109E1724H501
109E1748H501

M speed



109E1712M501
109E1724M501
109E1748M501

ϕ 200mm

San Ace 200

70mm thick (Round type)

70mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue (Sensor) yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

Power on when current is shut off. Do not power on 10sec or more after power off.

ϕ 200mm × 70mm (Mass : 1800g) **Round type**

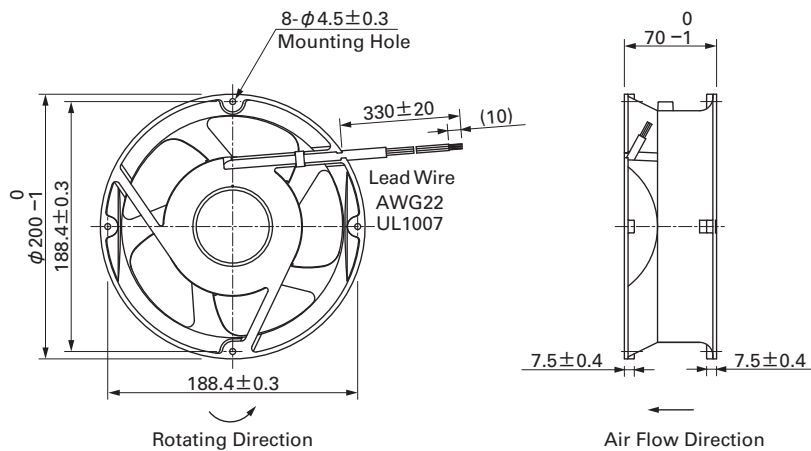
Specifications The MH speed and AS speed are two speeds.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109E2024H001	24	20.4 to 27.6	1.0	24	2,600	8.2	289.5	192	0.771	51	-10 to +70	40,000
109E2024S001		21.6 to 26.4	1.9	45.6	3,200	10.45	369	287.1	1.153	57		
109E2024MH001		20.4 to 27.6	1.0	24	2,600	8.2	289.5	192	0.771	51		
			0.63	15.12	2,100	6.7	236.6	115.4	0.463	45		
109E2024AS001		21.6 to 26.4	1.9	45.6	3,200	10.45	369	287.1	1.153	57		
			1.4	33.6	2,800	9	317.8	217.5	0.873	54		

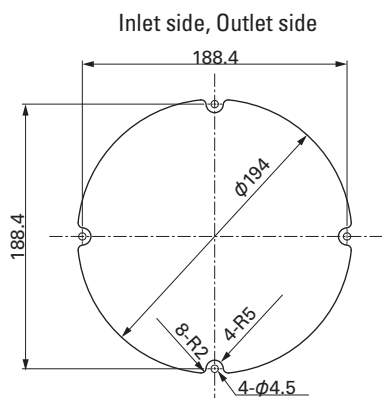
Without Sensor **Pulse Sensor** Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)



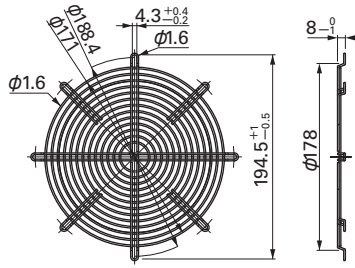
Options (Unit : mm)

Finger guards

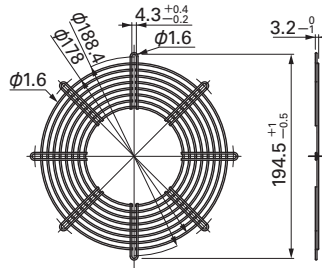
Model : 109-720 Surface treatment : Nickel-chrome plating (silver) Color : 109-720H : Cation electropainting (black)

Model : 109-721 Surface treatment : Nickel-chrome plating (silver) Color : 109-721H : Cation electropainting (black)

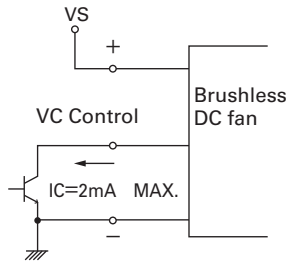
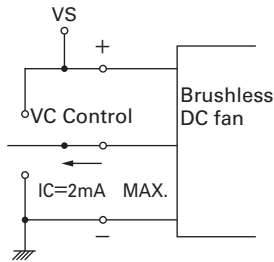
Inlet side, Outlet side



Outlet side

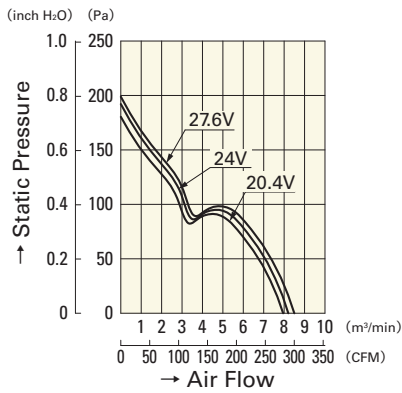


Signal connection type



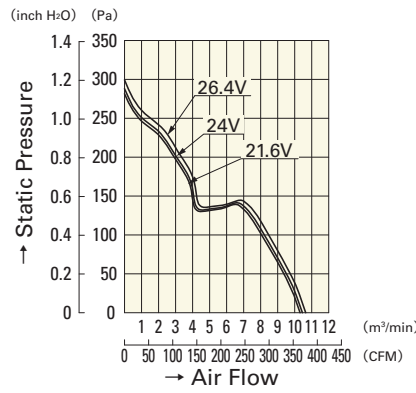
Air Flow - Static Pressure Characteristics

H speed



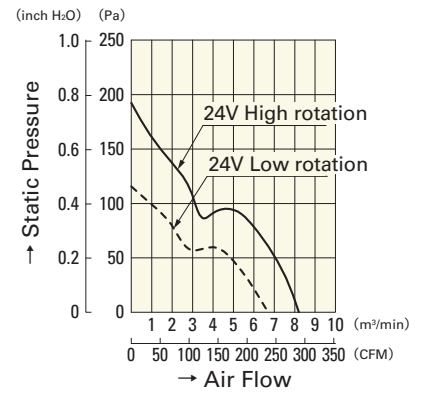
109E2024H001

S speed



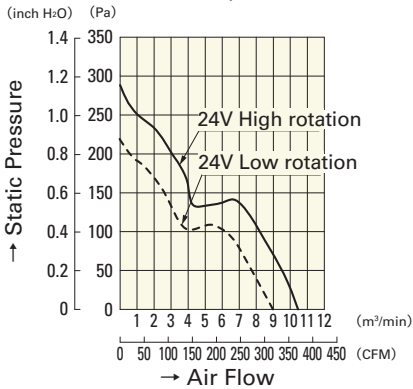
109E2024S001

MH Two-speed



109E2024MH001

AS Two-speed



109E2024AS001

ϕ 200mm

San Ace 200

70mm thick (Round type)

70mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

Power on when current is shut off. Do not power on 10sec or more after power off.

ϕ 200mm × 70mm

 (Mass : 1800g)

Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9EC2024H001	24	20.4 to 26.4	2.0	48.0	3,600	11.0	388	360	1.446	60	-10 to +60	40,000
9EC2048A001	48	43 to 51.0	2.2	105.6	4,800	14.7	519	640	2.570	68		
9EC2048H001		40.8 to 52.8	1.2	57.6	3,600	11.0	388	360	1.446	60		

Without Sensor

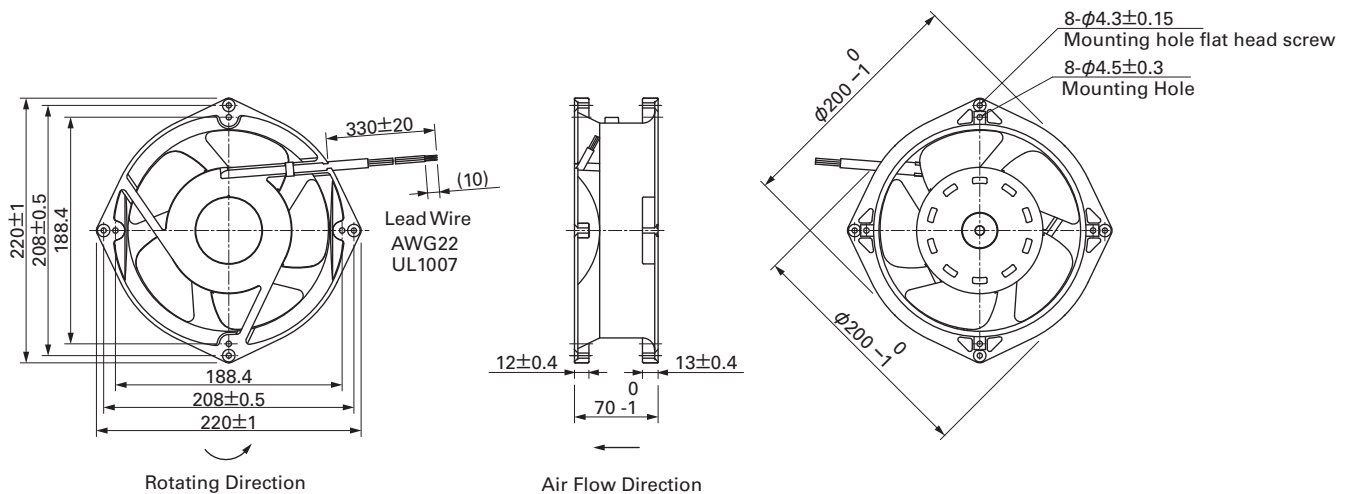
Pulse Sensor

Available in all models.

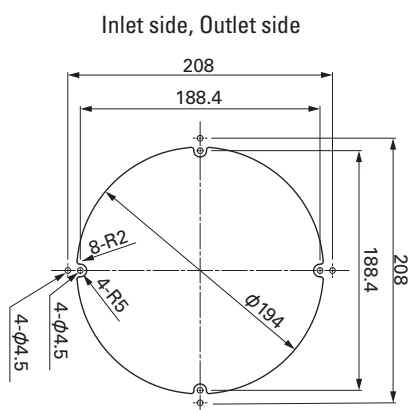
Lock Sensor

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)



40mm sq.**San Ace 40**

28mm thick (GA type)



■ **General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

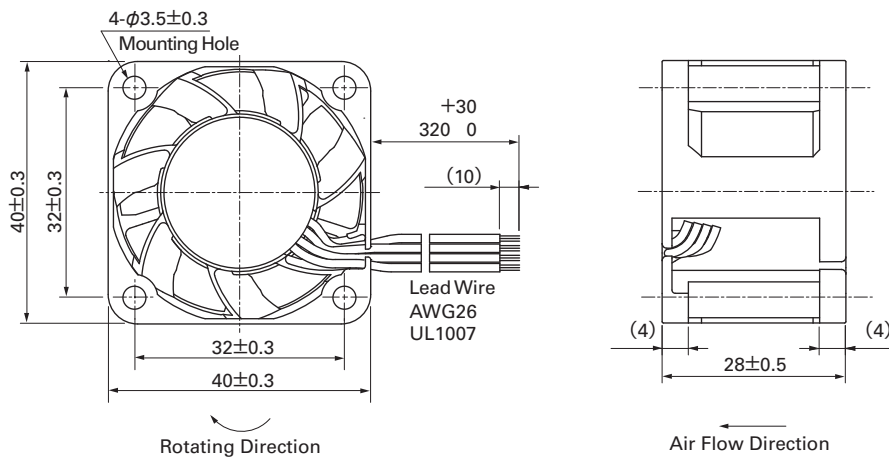
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black (Sensor) yellow (Control) brown
- Storage Temperature -30°C to +70°C (Non-condensing)

40×40×28mm [Mass : 53g]**GA type**■ **Specifications**

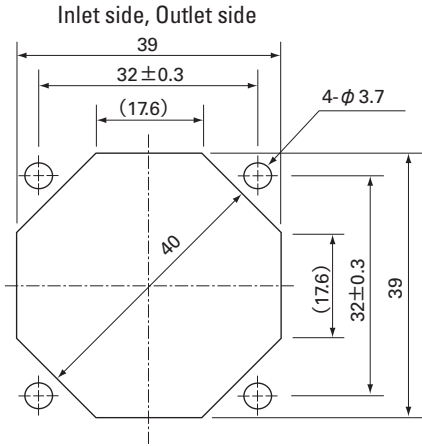
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GA0412P3J01	12	10.8 to 13.2	100	0.49	5.88	18,000	0.67	23.7	535	2.15	54	-10 to +70	40,000
			0	0.05	0.6	4,500	0.16	5.7	33	0.13	22		
9GA0412P3G01			100	0.39	4.68	16,500	0.61	21.5	450	1.81	53		
			0	0.05	0.6	4,500	0.16	5.7	33	0.13	22		
9GA0412P3H01			100	0.28	3.36	14,500	0.54	19.1	347	1.39	50		
			0	0.04	0.48	3,500	0.13	4.6	20	0.08	17		
9GA0412P3M01			100	0.21	2.52	12,500	0.46	16.2	258	1.04	47		
			0	0.04	0.48	3,500	0.13	4.6	20	0.08	17		

※PWM Frequency : 25kHz

Without Sensor **Pulse Sensor** **PWM Control** Available in all models.

■ **Dimensions (Unit : mm)**

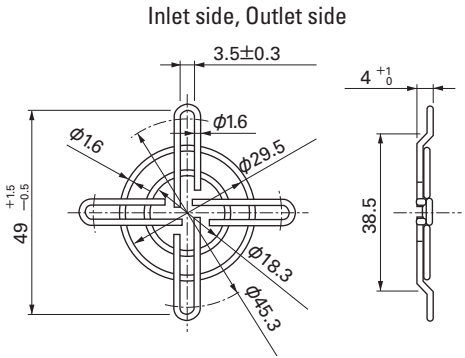
■ Reference dimension of mounting holes and vent opening (Unit : mm)

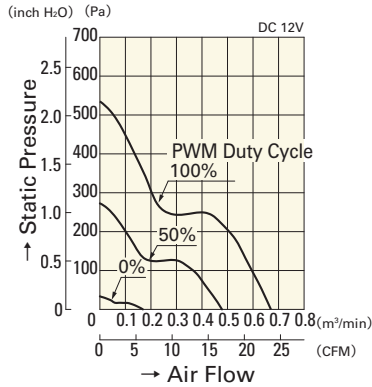
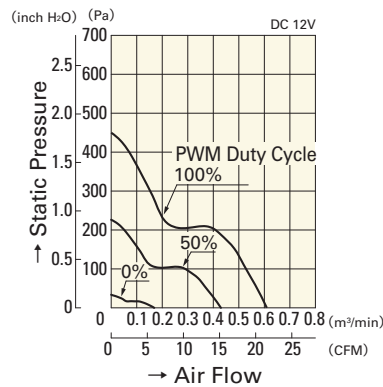
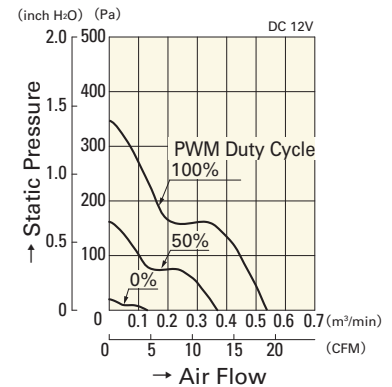
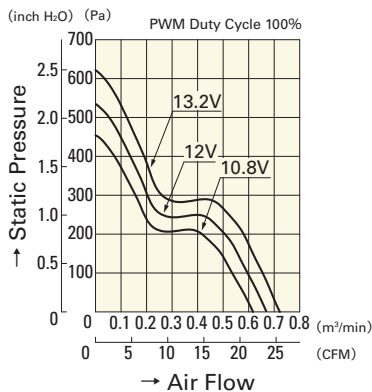
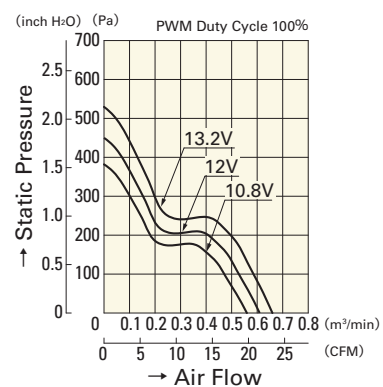
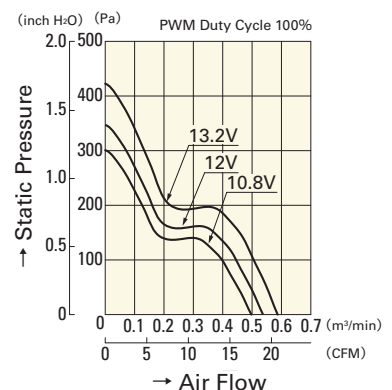
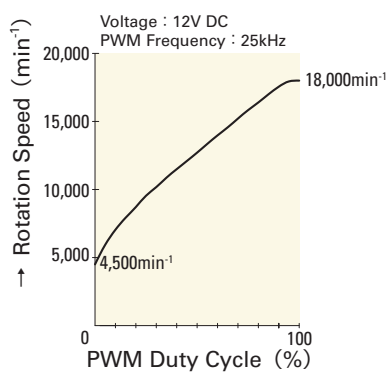
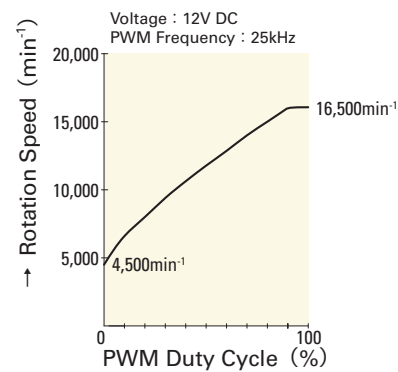
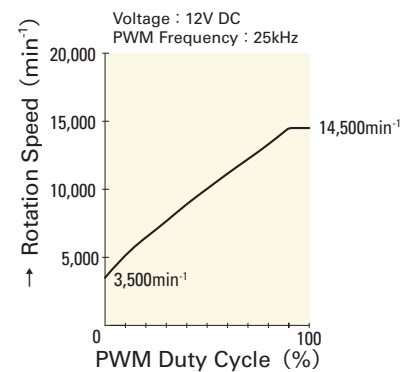


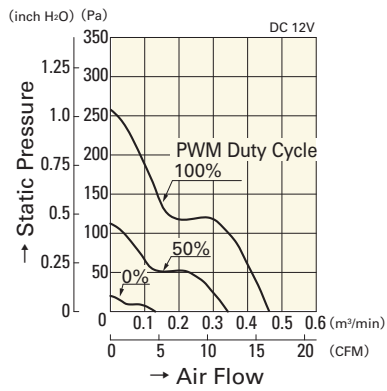
■ Options (Unit : mm)

Finger guards

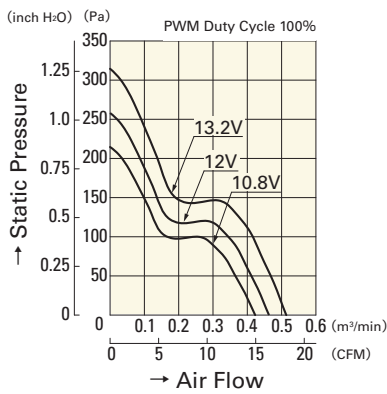
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color (silver)



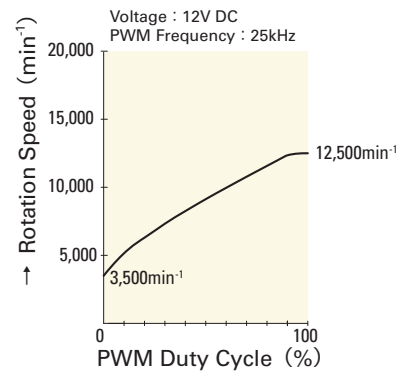
40mm sq.**San Ace 40****40×40×28mm** [Mass : 53g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GA0412P3J01****9GA0412P3G01****9GA0412P3H01****Operating Voltage Range****9GA0412P3J01****9GA0412P3G01****9GA0412P3H01****PWM Duty - Speed Characteristics Example****9GA0412P3J01****9GA0412P3G01****9GA0412P3H01**



9GA0412P3M01



9GA0412P3M01



9GA0412P3M01

60mm sq.

San Ace 60

15mm thick (GA type)

20mm thick (GA type)

38mm thick (GA type)

General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (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)



60×60×15mm (Mass : 50g)

GA type



Specifications

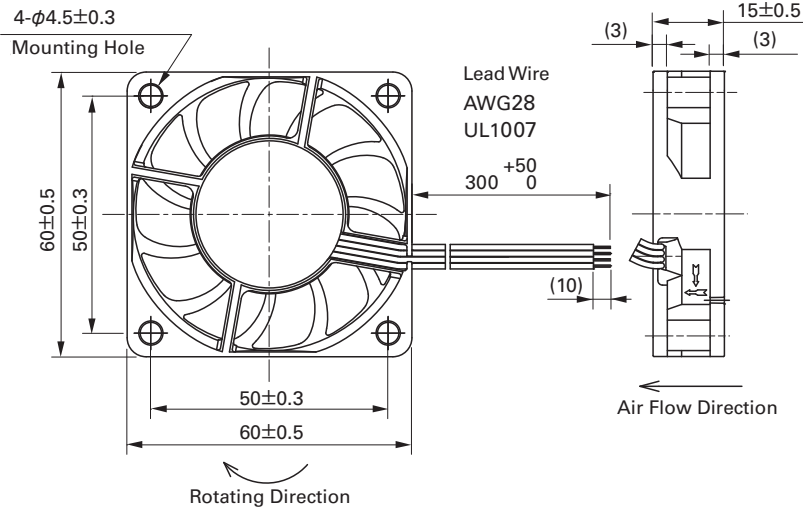
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy ^{note} [h]
9GA0612P7G01	12	10.2 to 13.8	100	0.16	1.92	5,900	0.68 24	80 0.320	38	-10 to +70	40,000/60°C (70,000/40°C)
			0	0.05	0.60	1,500	0.17 6.0	5.2 0.020	10		
9GA0612P7H01			100	0.10	1.2	4,900	0.56 19.7	55.6 0.223	34		
			0	0.03	0.36	1,300	0.15 5.3	3.9 0.015	8		

Note: Expected life at 40 degreeC ambient is just reference value.

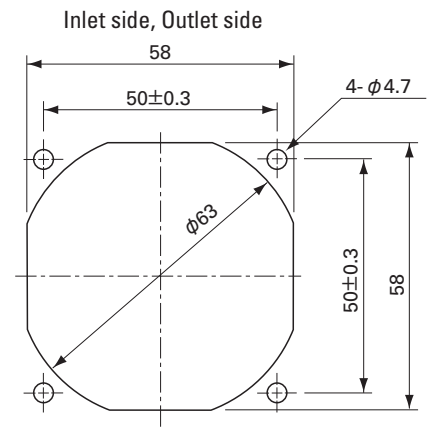
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

Finger guards

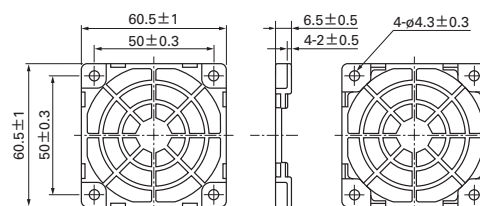
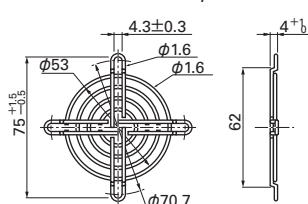
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)

Color

Resin finger guards

Model : 109-1003G

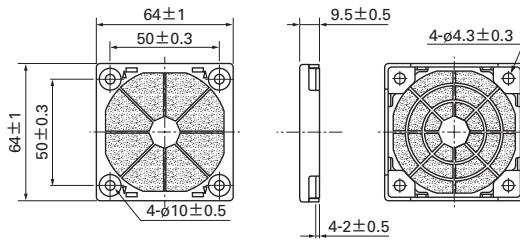
Inlet side, Outlet side



Options (Unit : mm)

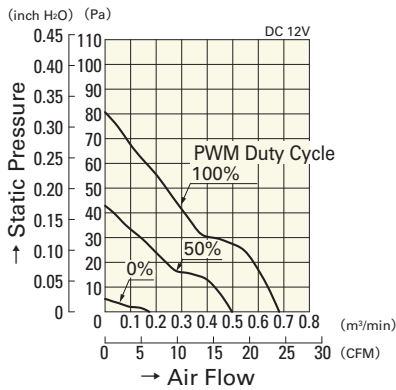
Resin filter kits

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

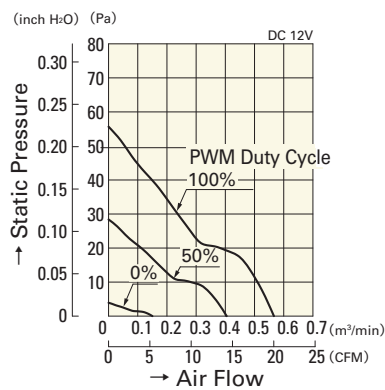


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

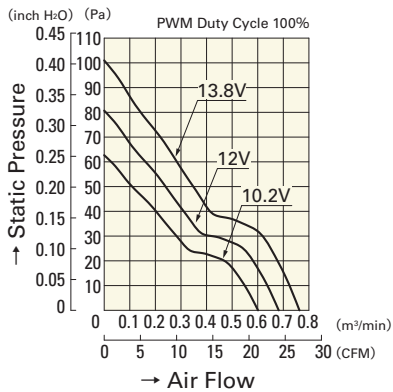


9GA0612P7G01

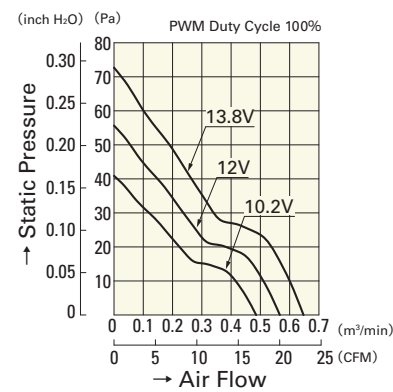


9GA0612P7H01

Operating Voltage Range

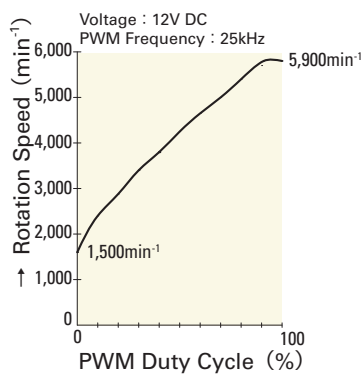


9GA0612P7G01

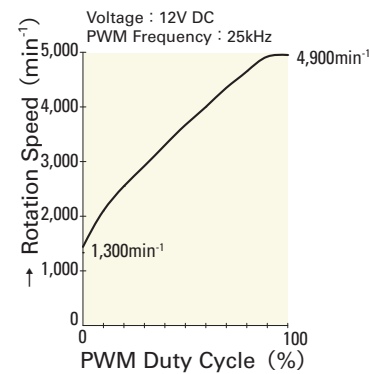


9GA0612P7H01

PWM Duty - Speed Characteristics Example



9GA0612P7G01



9GA0612P7H01

60mm sq.**San Ace 60**

15mm thick (GA type)

20mm thick (GA type)

38mm thick (GA type)



■ **General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (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)

60×60×20mm [Mass : 70g]**GA type**

■ **Specifications With PWM speed control function • With pulse sensor**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy ^{Note2)} [h]
9GA0612P6G001	12	10.8 to 13.2	100	0.26	3.12	6,850	0.88 31.1	125 0.50	43	-10 to +70	40,000/60°C (70,000/40°C)
9GA0612P6S001			100	0.15	1.80	5,500	0.70 24.7	81 0.33	36		
9GA0624P6G001	24	21.6 to 26.4	100	0.12	2.88	6,850	0.88 31.1	125 0.50	43		
9GA0624P6S001			100	0.07	1.68	5,500	0.70 24.7	81 0.33	36		

Note 1: Fan does not rotate when PWM duty cycle is 0%.

Note 2: Expected life at 40 degreeC ambient is just reference value.

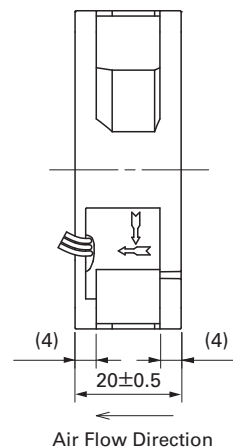
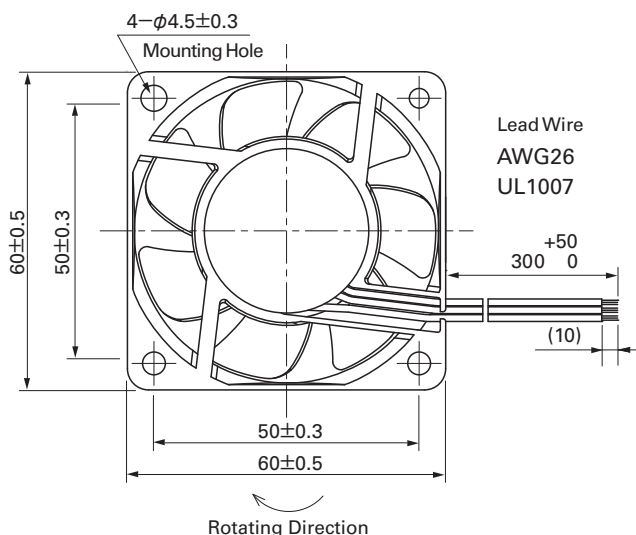
※PWM Frequency : 25kHz

With pulse sensor

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GA0612H6001	12	10.8 to 13.2	0.09	1.08	4,100	0.52 18.4	45 0.18	29	-10 to +70	60,000
9GA0612M6001			0.05	0.60	2,700	0.34 12.0	20 0.08	18		
9GA0624H6001	24	21.6 to 26.4	0.04	0.96	4,100	0.52 18.4	45 0.18	29		
9GA0624M6001			0.03	0.72	2,700	0.34 12.0	20 0.08	18		

Without Sensor **Pulse Sensor** Available in all models.

PWM Control Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)

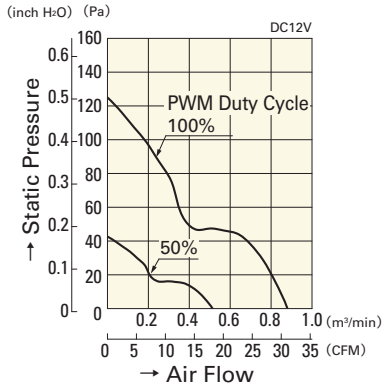
Low Power Consumption Fan 60mm



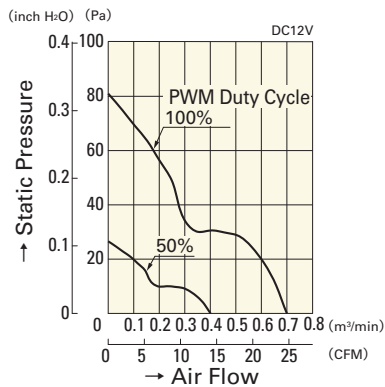
128

60mm sq.**San Ace 60****60×60×20mm** [Mass : 70g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle**

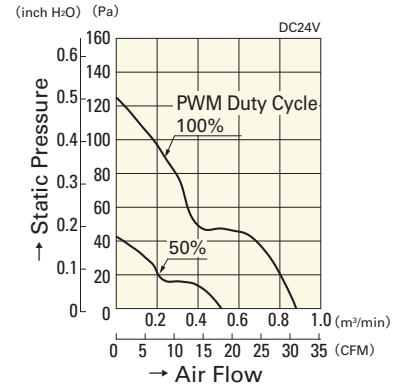
With PWM speed control function · With pulse sensor

**9GA0612P6G001**

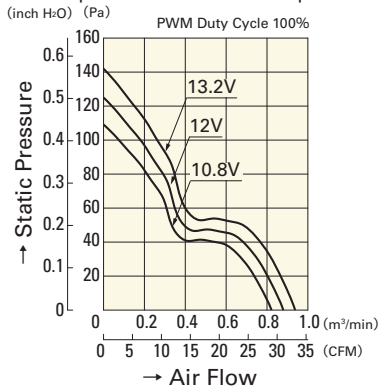
With PWM speed control function · With pulse sensor

**9GA0612P6S001**

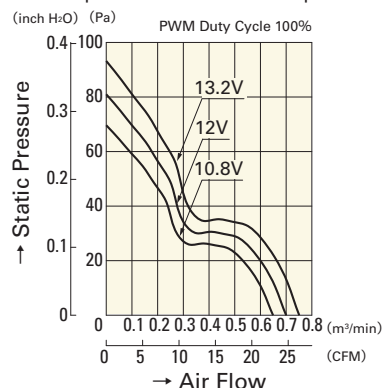
With PWM speed control function · With pulse sensor

**9GA0624P6G001****Operating Voltage Range**

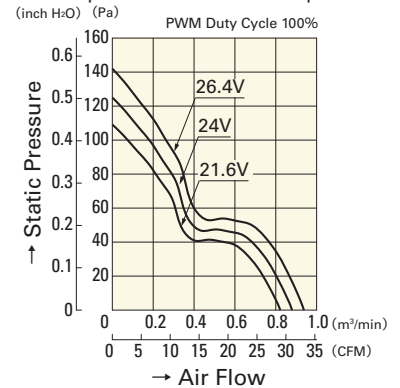
With PWM speed control function · With pulse sensor

**9GA0612P6G001**

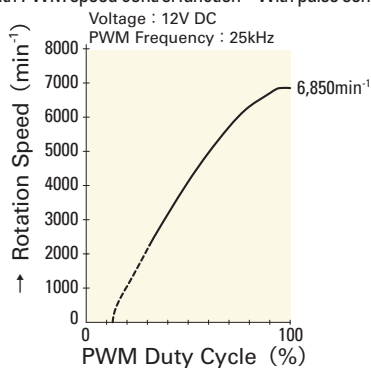
With PWM speed control function · With pulse sensor

**9GA0612P6S001**

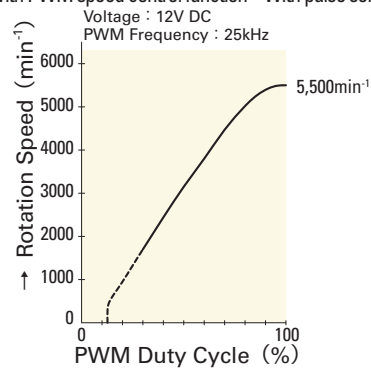
With PWM speed control function · With pulse sensor

**9GA0624P6G001****PWM Duty - Speed Characteristics Example**

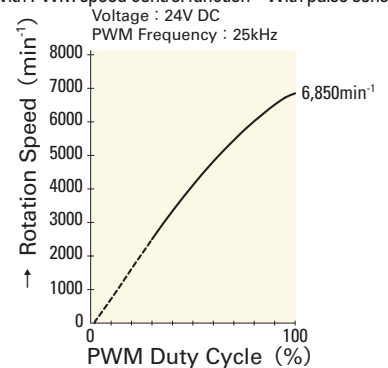
With PWM speed control function · With pulse sensor

**9GA0612P6G001**

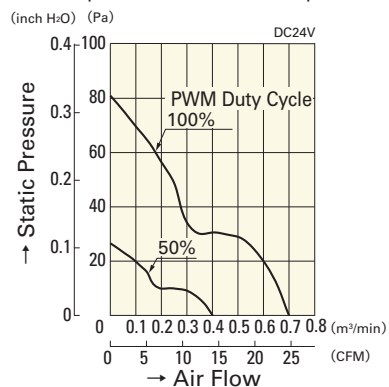
With PWM speed control function · With pulse sensor

**9GA0612P6S001**

With PWM speed control function · With pulse sensor

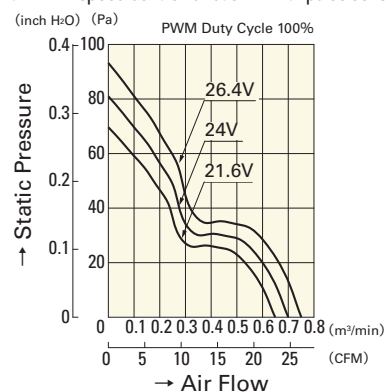
**9GA0624P6G001**

With PWM speed control function • With pulse sensor



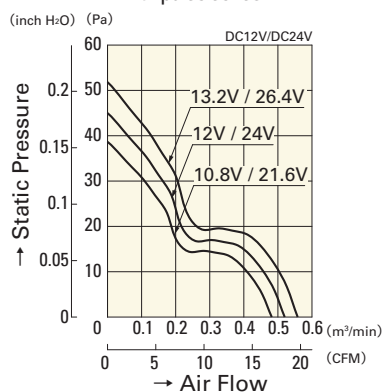
9GA0624P6S001

With PWM speed control function • With pulse sensor



9GA0624P6S001

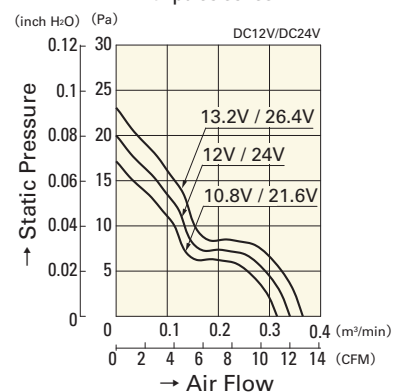
With pulse sensor



9GA0612H6001

9GA0624H6001

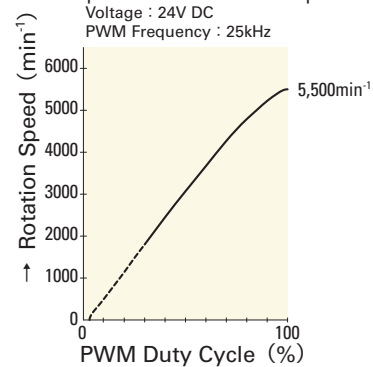
With pulse sensor



9GA0612M6001

9GA0624M6001

With PWM speed control function • With pulse sensor



9GA0624P6S001

60mm sq.**San Ace 60**

15mm thick (GA type)

20mm thick (GA type)

38mm thick (GA type)



■ **General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

With PWM speed control function Refer to Page 293

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (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)

60×60×38mm (Mass : 130g)**GA type**

■ **Specifications** The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [InchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy ^{Note2)} [h]
9GA0612P1J03(031)	12	10.8 to 12.6	100	1.50	18.00	17,500	1.75	62	820	3.3	63	-10 to +60	30,000
20			0.10	1.20	4,000	0.40	14	43	0.17	24			
9GA0612P1K03(031)		10.8 to 13.2	100	0.95	11.40	14,800	1.50	53	600	2.4	59	-10 to +70	40,000/60°C (70,000/40°C)
20			0.10	1.20	4,000	0.40	14	43	0.17	24			
9GA0612P1H03(031)			100	0.55	6.60	11,500	1.15	40	375	1.5	52		
20			0.06	0.72	2,600	0.27	9.5	20	0.08	19			
9GA0612P1K60(601)			100	0.95	11.40	14,800	1.50	53	675	2.7	59	-10 to +60	
0			0.05	0.60	1,480	0.134	4.7	8.3	0.03	16			

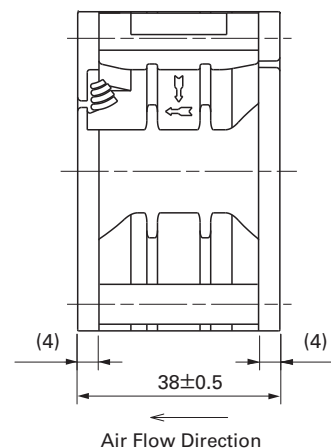
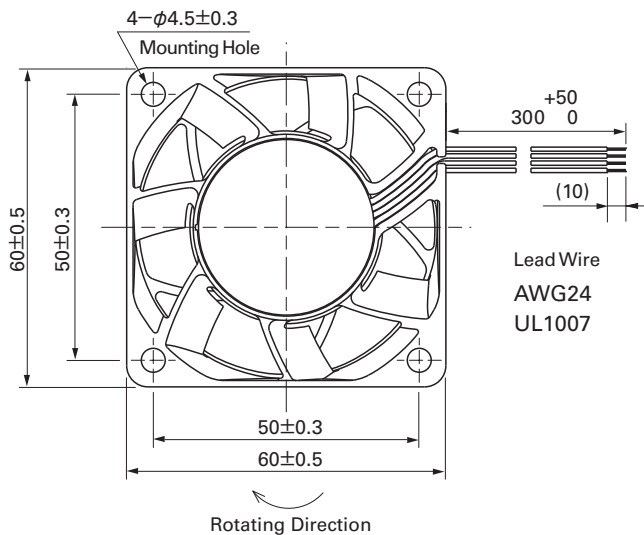
Note 1: 9GA0612P1J03(031), 9GA0612P1K03(031), 9GA0612P1H03(031) does not rotate when PWM duty cycle is 0%.

Note 2: Expected life at 40 degreeC ambient is just reference value.

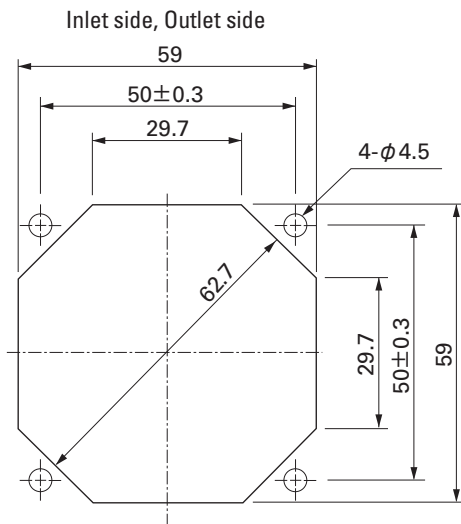
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

■ **Dimensions (Unit : mm)** (With ribs)



Reference dimension of mounting holes and vent opening (Unit : mm)

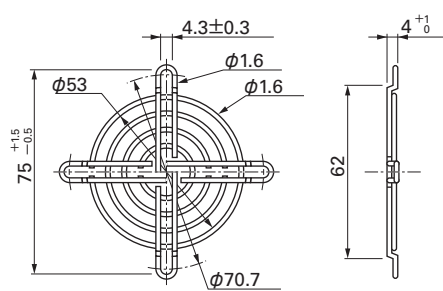


Options (Unit : mm)

Finger guards

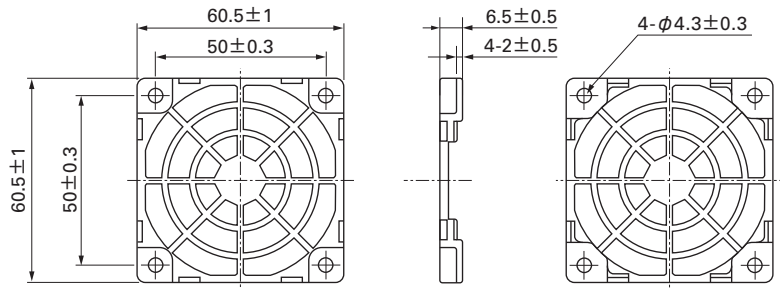
Model : 109-139E Surface treatment : Nickel-chrome plating (silver) Color : 109-139H : Cation electropainting (black)

Inlet side, Outlet side



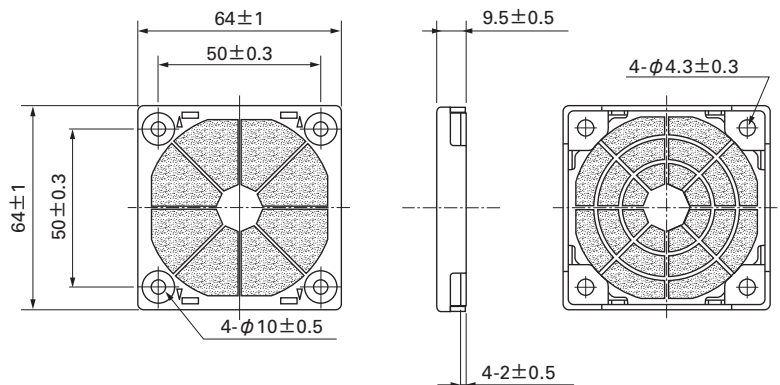
Resin finger guards

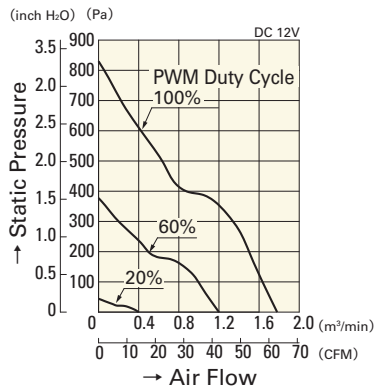
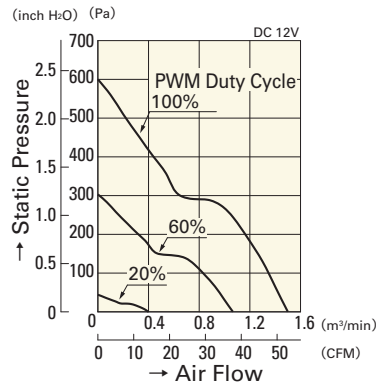
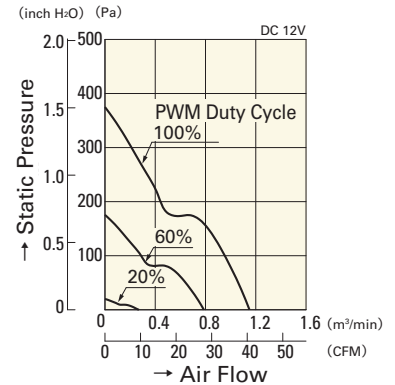
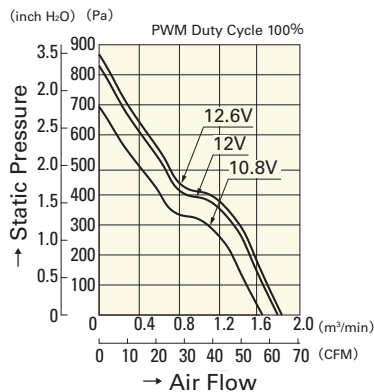
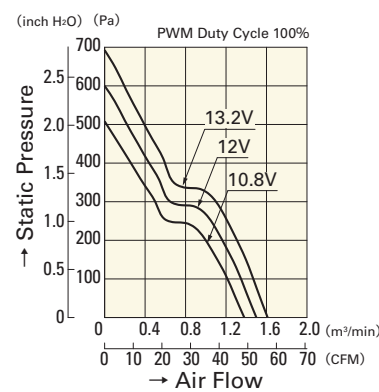
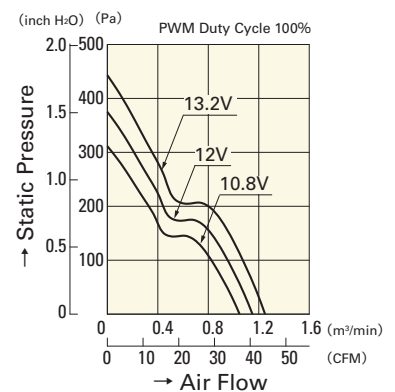
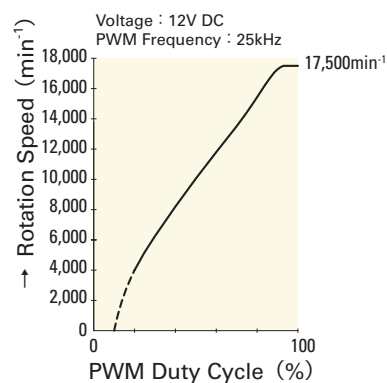
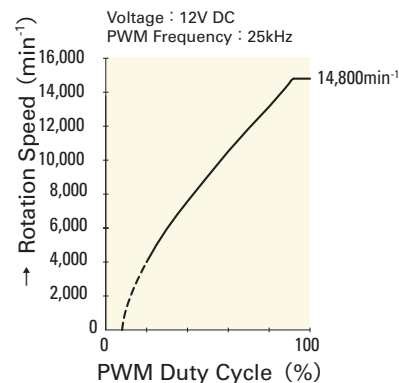
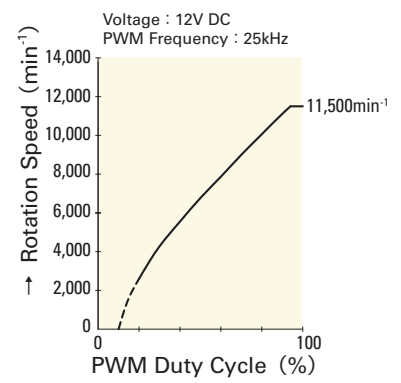
Model : 109-1003G

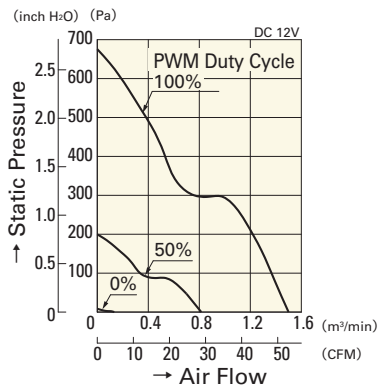


Resin filter kits

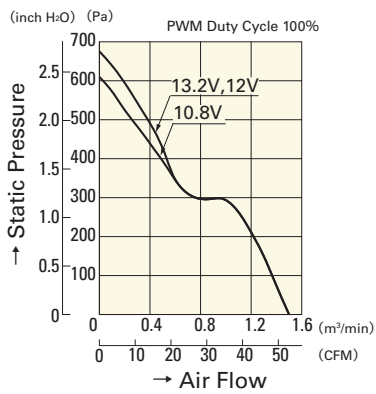
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



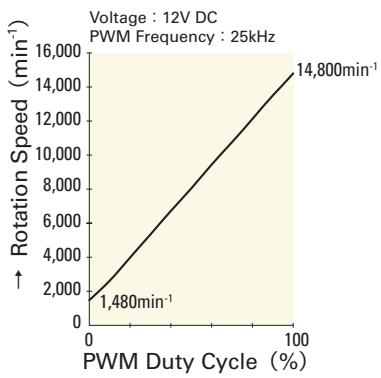
60mm sq.**San Ace 60****60×60×38mm** [Mass : 130g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GA0612P1J03(031)****9GA0612P1K03(031)****9GA0612P1H03(031)****Operating Voltage Range****9GA0612P1J03(031)****9GA0612P1K03(031)****9GA0612P1H03(031)****PWM Duty - Speed Characteristics Example****9GA0612P1J03(031)****9GA0612P1K03(031)****9GA0612P1H03(031)**



9GA0612P1K60(601)



9GA0612P1K60(601)



9GA0612P1K60(601)

80mm sq.**San Ace 80**

38mm thick (GA type)



■ **General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (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)

80×80×38mm (Mass : 160g)**GA type**

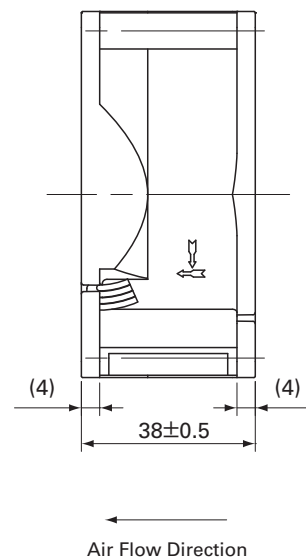
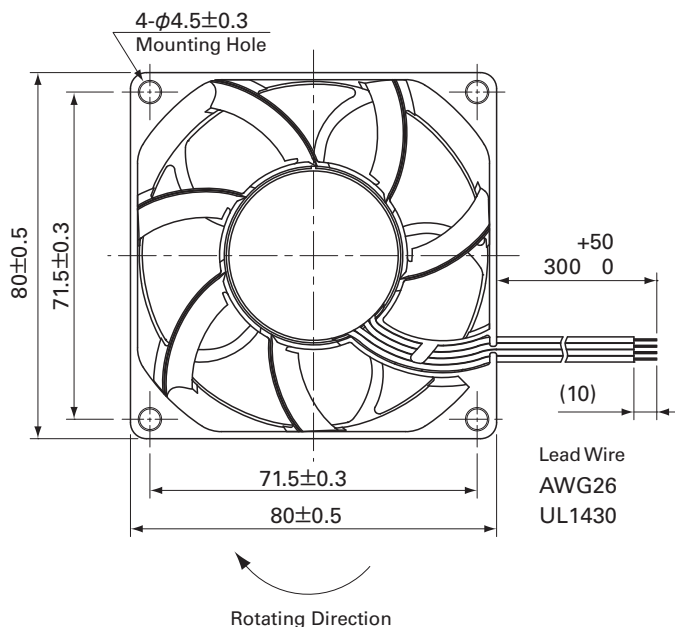
■ **Specifications** The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy ^(Note) [h]
9GA0812P1S61(611)	12	10.8 to 13.2	100	0.94	11.28	9,550	2.6	91.8	480	1.93	59	-10 to +70	40,000/60°C (70,000/40°C)
			0	0.1	1.2	2,900	0.74	26.1	60	0.24	27		
9GA0812P1H61(611)			100	0.6	7.2	8,250	2.25	79.4	380	1.53	55		
			0	0.08	0.96	2,500	0.64	22.6	45	0.18	24		
9GA0824P1S61(611)	24	20.4 to 27.6	100	0.47	11.28	9,550	2.6	91.8	480	1.93	59		
			0	0.06	1.44	2,900	0.74	26.1	60	0.24	27		
9GA0824P1H61(611)			100	0.3	7.2	8,250	2.25	79.4	380	1.53	55		
			0	0.05	1.2	2,500	0.64	22.6	45	0.18	24		

Note: Expected life at 40 degreeC ambient is just reference value.

※PWM Frequency : 25kHz

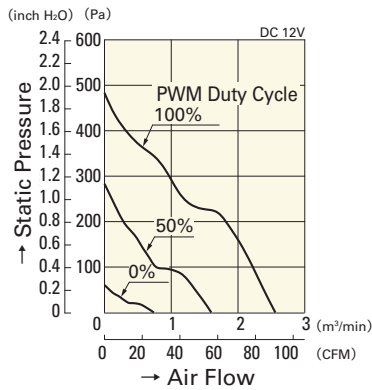
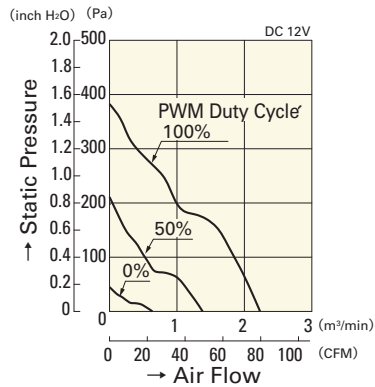
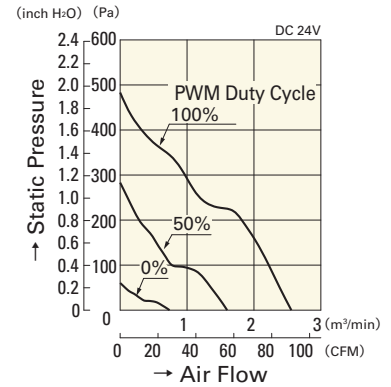
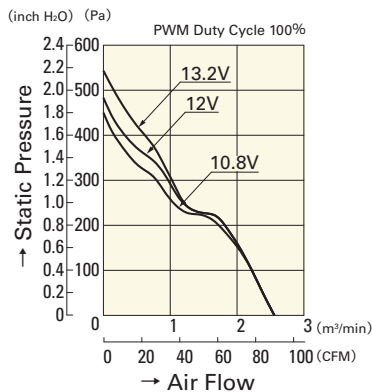
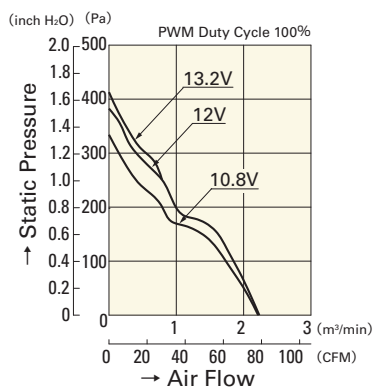
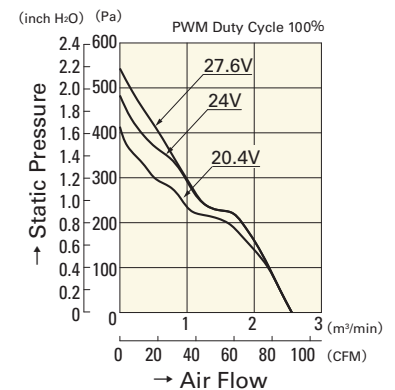
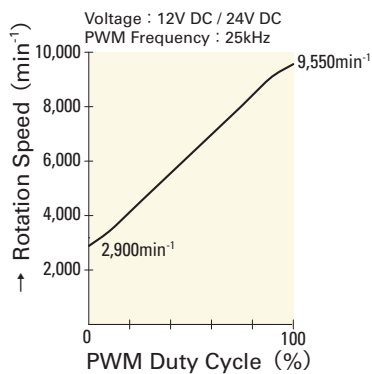
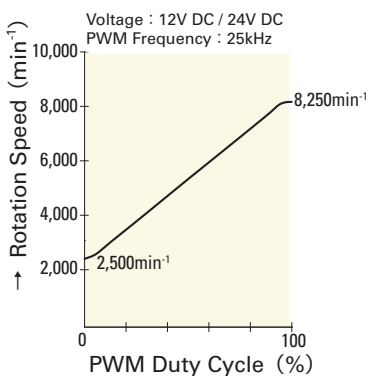
Without Sensor Pulse Sensor PWM Control Available in all models.

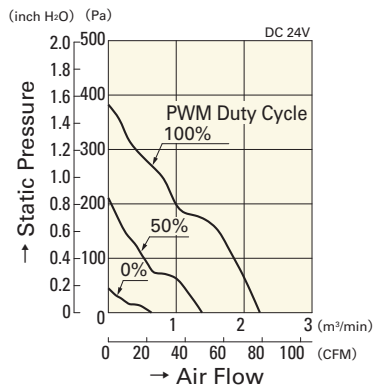
Dimensions (Unit : mm)

Low Power Consumption Fan 80mm

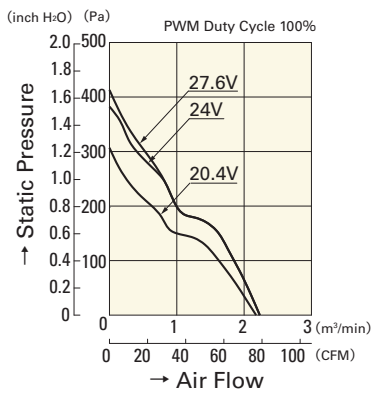


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80mm sq.**San Ace 80****80×80×38mm** [Mass : 160g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GA0812P1S61(611)****9GA0812P1H61(611)****9GA0824P1S61(611)****Operating Voltage Range****9GA0812P1S61(611)****9GA0812P1H61(611)****9GA0824P1S61(611)****PWM Duty - Speed Characteristics Example****9GA0812P1S61(611)****9GA0824P1S61(611)****9GA0812P1H61(611)****9GA0824P1H61(611)**



9GA0824P1H61(611)



9GA0824P1H61(611)

92mm sq.**San Ace 92**

25mm thick (GA type)



■ **General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (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)

92×92×25mm (Mass : 125g)**GA type**

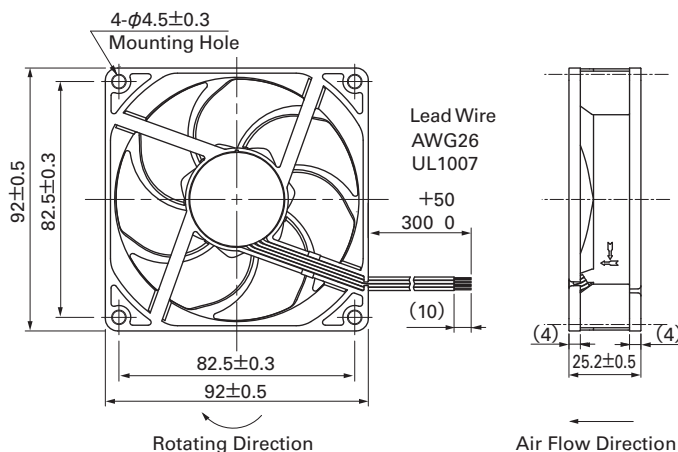
■ **Specifications** The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9GA0912P4J03(031)	12	10.2 to 13.8	100	0.39	4.68	5,000	2.20 77.7	105 0.42	43	-10 to +70	60,000
			0	0.06	0.72	1,500	0.66 23.3	9.5 0.04	14		
9GA0912P4G03(031)			100	0.28	3.36	4,400	1.93 68.2	81 0.33	39		
			0	0.06	0.72	1,500	0.66 23.3	9.5 0.04	14		
9GA0912P4S03(031)			100	0.2	2.4	3,800	1.67 59.0	60.6 0.24	35		
			0	0.06	0.72	1,500	0.66 23.3	9.5 0.04	14		
9GA0924P4J03(031)	24	20.4 to 27.6	100	0.2	4.80	5,000	2.20 77.7	105 0.42	43		
			0	0.04	0.96	1,500	0.66 23.3	9.5 0.04	14		
9GA0924P4G03(031)			100	0.15	3.60	4,400	1.93 68.2	81 0.33	39		
			0	0.04	0.96	1,500	0.66 23.3	9.5 0.04	14		
9GA0924P4S03(031)			100	0.12	2.88	3,800	1.67 59.0	60.6 0.24	35		
			0	0.04	0.96	1,500	0.66 23.3	9.5 0.04	14		

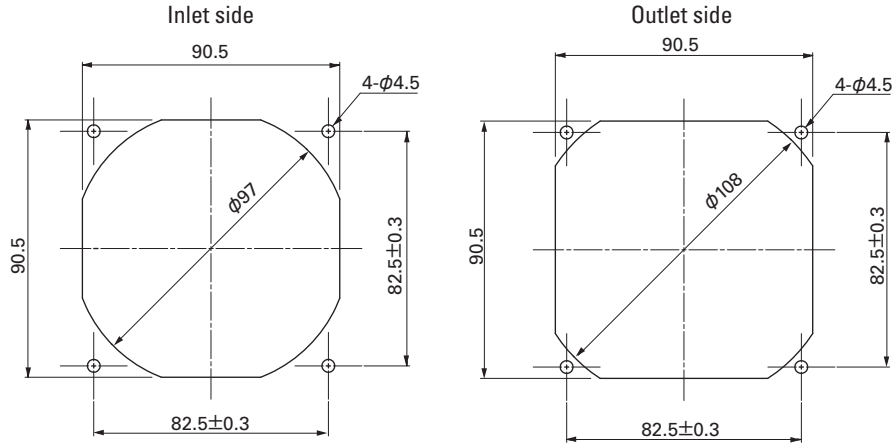
※PWM Frequency : 25kHz

Without Sensor **Pulse Sensor** **PWM Control** Available in all models.

■ **Dimensions (Unit : mm)** (With ribs)



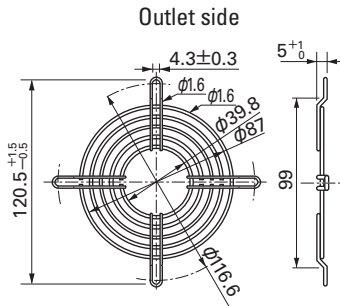
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

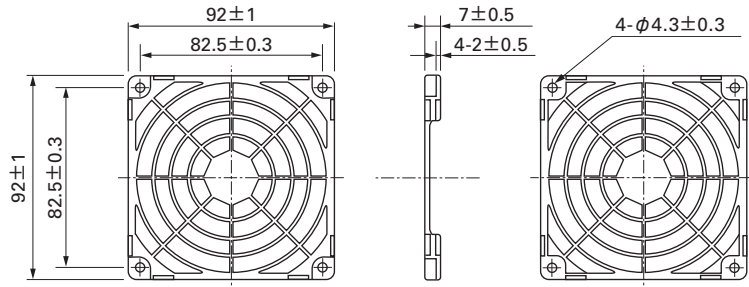
Finger guards

Model : 109-099C Color : Nickel-chrome plating (silver)

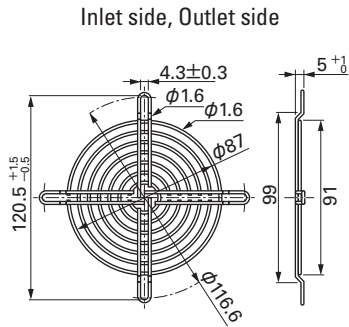


Resin finger guards

Model : 109-1001G

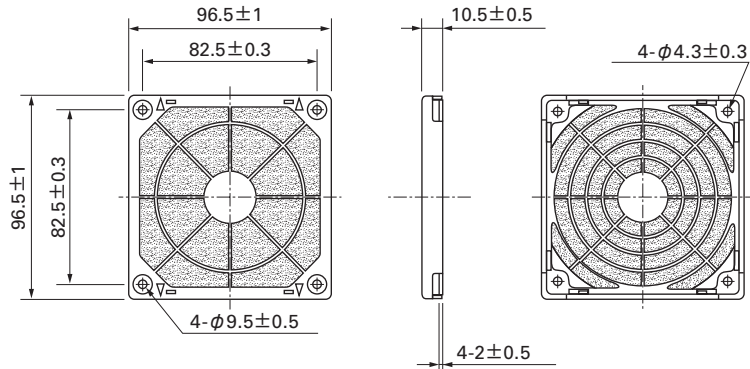


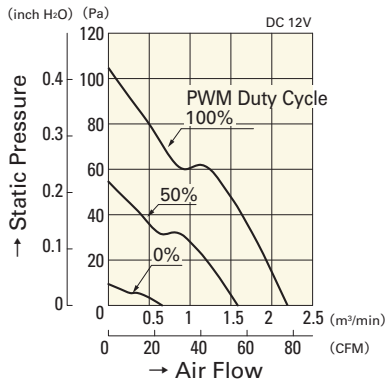
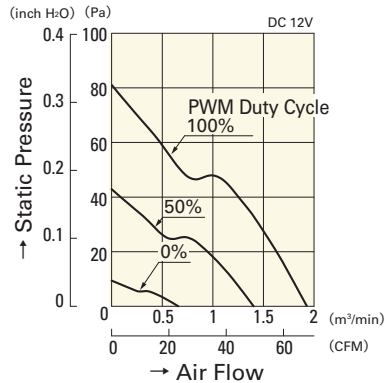
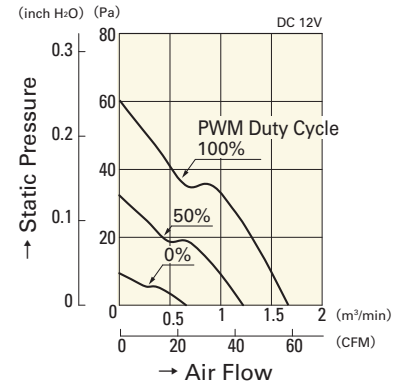
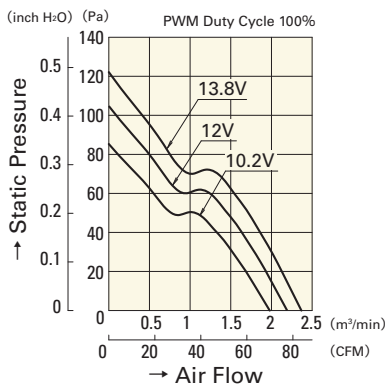
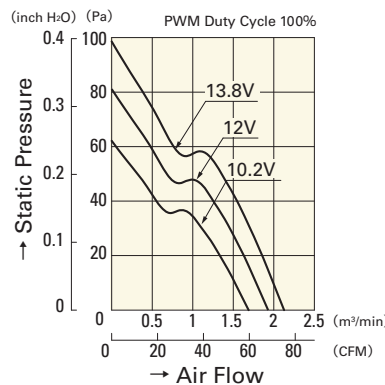
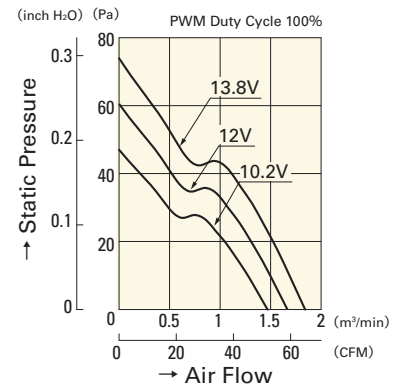
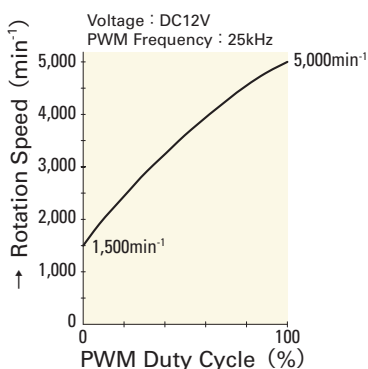
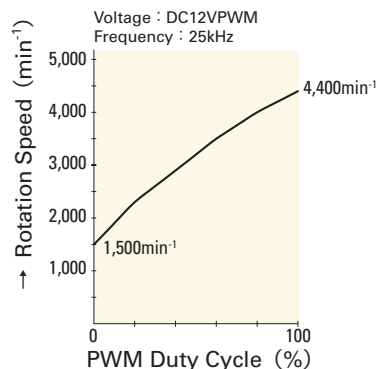
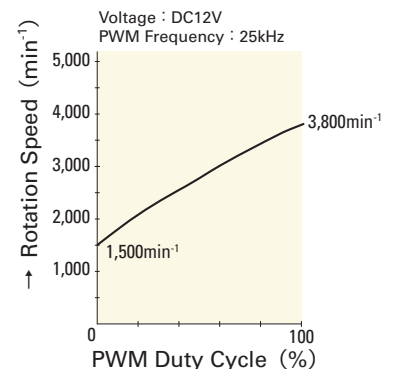
Model : 109-099E Color : Nickel-chrome plating (silver)
Model : 109-099H : Cation electropainting (black)

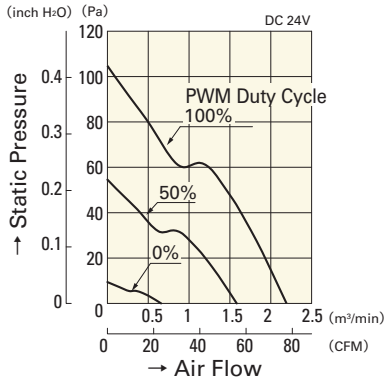


Resin filter kits

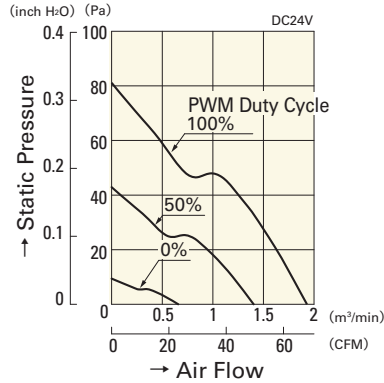
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
Model : 109-1001F30 (30PPI), 109-1001F40 (40PPI)



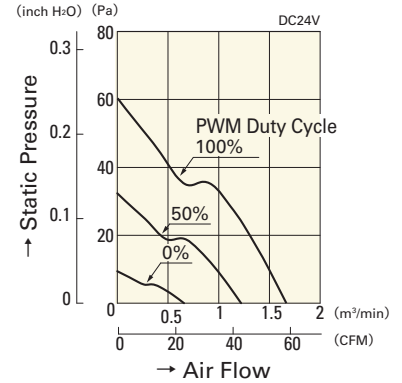
92mm sq.**San Ace 92****92×92×25mm** [Mass : 125g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GA0912P4J03(031)****9GA0912P4G03(031)****9GA0912P4S03(031)****Operating Voltage Range****9GA0912P4J03(031)****9GA0912P4G03(031)****9GA0912P4S03(031)****PWM Duty - Speed Characteristics Example****9GA0912P4J03(031)****9GA0912P4G03(031)****9GA0912P4S03(031)**



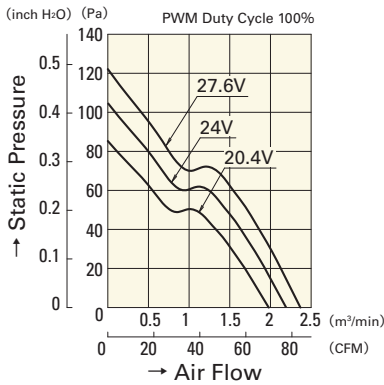
9GA0924P4J03(031)



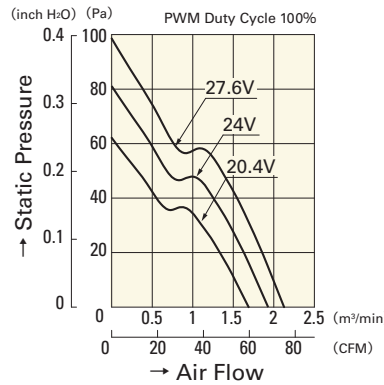
9GA0924P4G03(031)



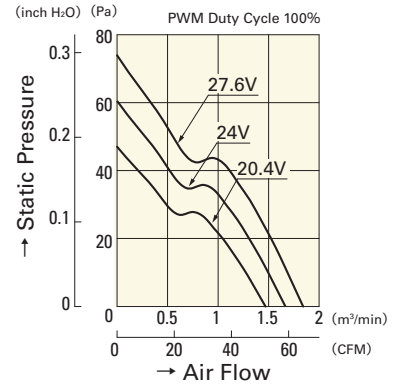
9GA0924P4S03(031)



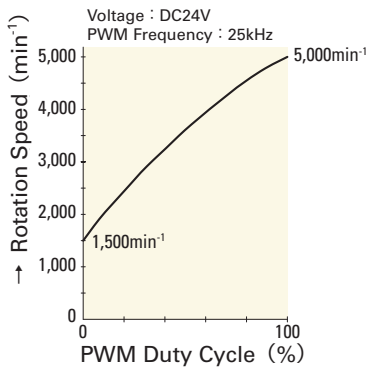
9GA0924P4J03(031)



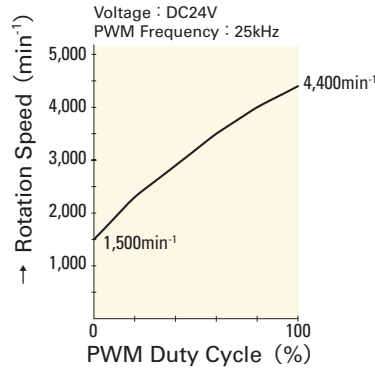
9GA0924P4G03(031)



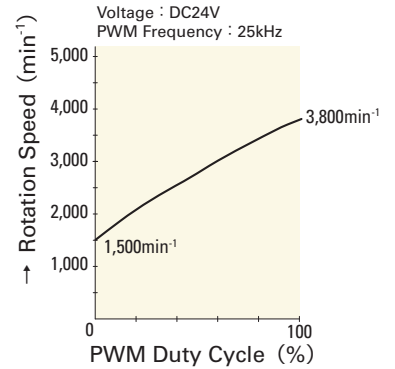
9GA0924P4S03(031)



9GA0924P4J03(031)



9GA0924P4G03(031)



9GA0924P4S03(031)

92mm sq.**San Ace 92**

38mm thick (GA type)



■ **General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1Min.)
- Life Expectancy Varies for each model (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)

92×92×38mm (Mass : 240g)**GA type**

■ **Specifications** The numbers in () represent ribless models.

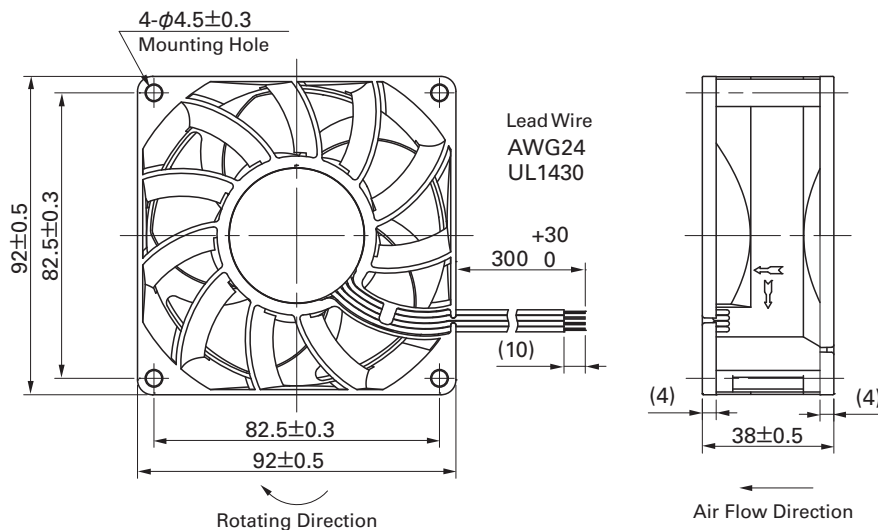
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy ^(Note) [h]
9GA0912P1H03(031)	12	10.2 to 13.8	100	2.10	25.2	9,700	4.00 141	500 2.01	63	-10 to +70	40,000/60°C (70,000/40°C)
			0	0.16	1.92	2,500	0.97 34.3	33.0 0.13	29		

Note : Expected life at 40 degreeC ambient is just reference value.

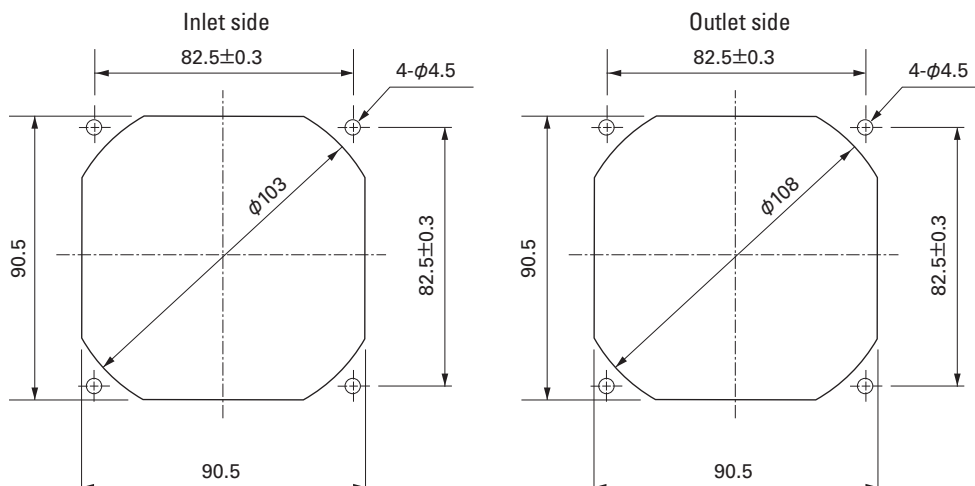
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

■ **Dimensions (Unit : mm)** (With ribs)



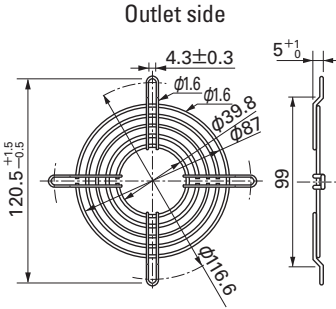
■ **Reference dimension of mounting holes and vent opening (Unit : mm)**



Options (Unit : mm)

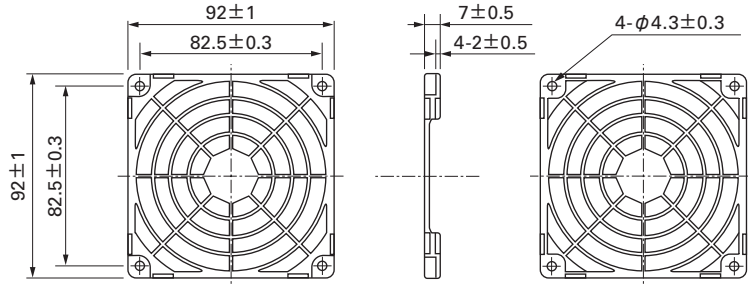
Finger guards

Model : 109-099C Color : Nickel-chrome plating (silver)



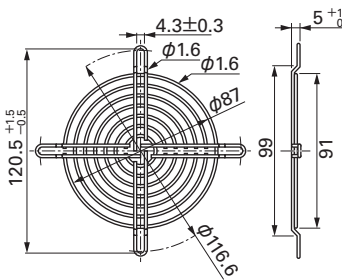
Resin finger guards

Model : 109-1001G



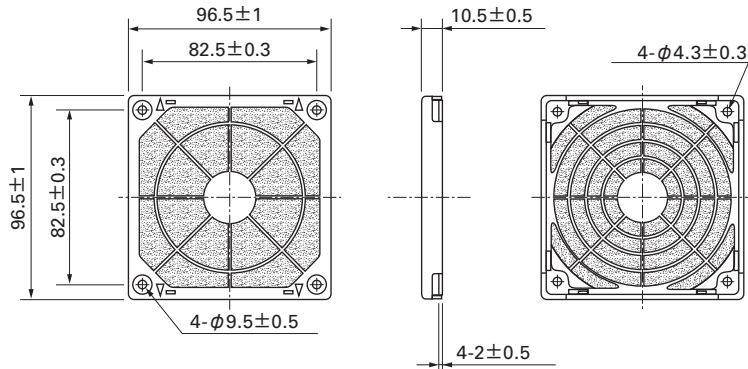
Model : 109-099E Surface treatment : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side



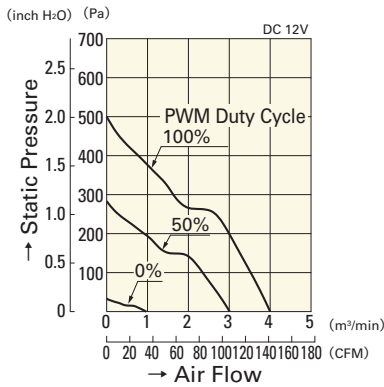
Resin filter kits

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



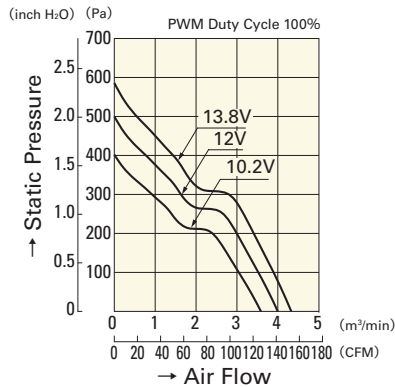
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



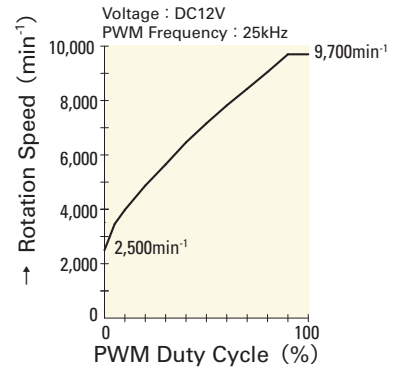
9GA0912P1H03(031)

Operating Voltage Range



9GA0912P1H03(031)

PWM Duty - Speed Characteristics Example



9GA0912P1H03(031)

60mm sq.**San Ace 60**

25mm thick (S type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

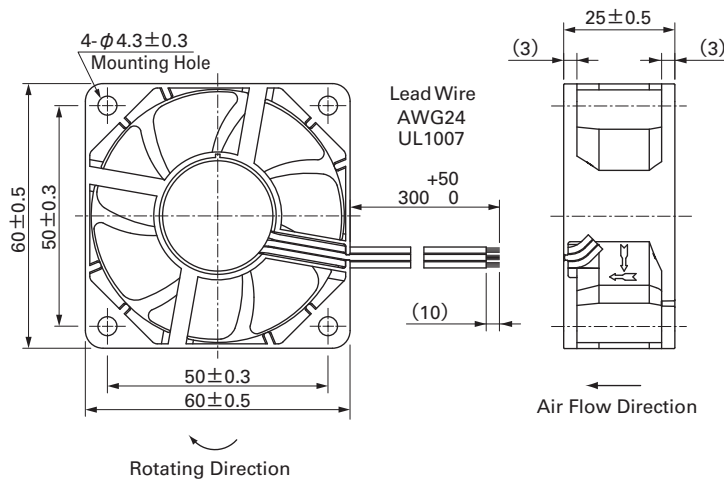
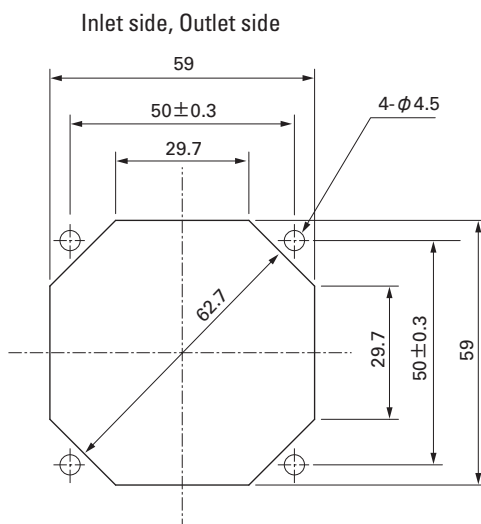
60×60×25mm (Mass : 55g)**S type**
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9S0612H401(4011)	12	5.0 to 13.8	0.11	1.32	3,900	0.58	20.5	40.0	0.16	24	-10 to +70	40,000
9S0612F401(4011)		6.0 to 13.8	0.08	0.96	3,300	0.49	17.3	29.3	0.12	20		
9S0612M401(4011)			0.07	0.84	2,700	0.40	14.1	19.7	0.08	16		

Without Sensor
Pulse Sensor Available in all models.

Lock Sensor
PWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)

Reference dimension of mounting holes and vent opening (Unit : mm)


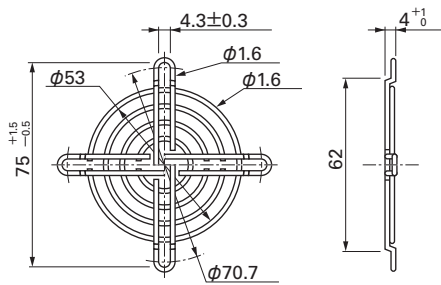
Options (Unit : mm)

Finger guards

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

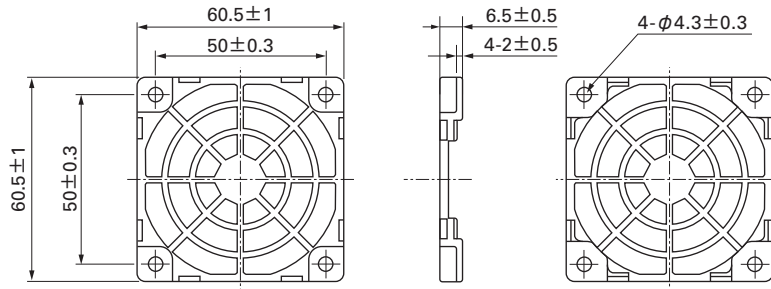
Color

Inlet side, Outlet side



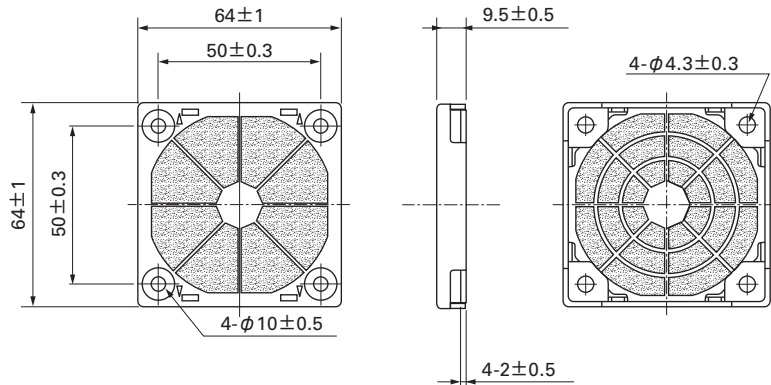
Resin finger guards

Model : 109-1003G

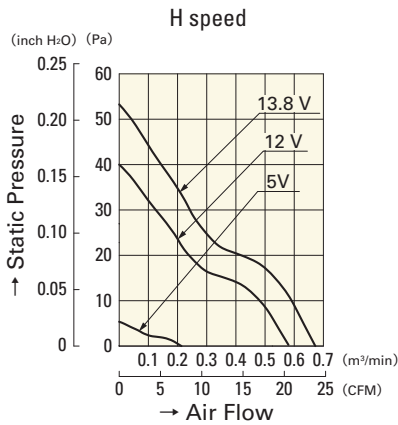


Resin filter kits

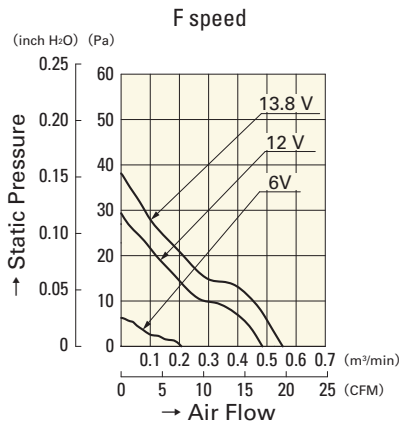
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



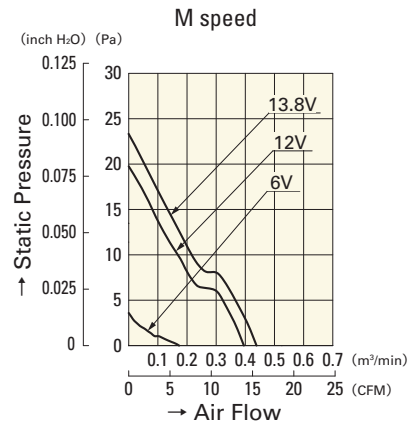
Air Flow - Static Pressure Characteristics



9S0612H401(4011)



9S0612F401(4011)



9S0612M401(4011)

Silent Fan 60mm

60mm

80mm sq.

San Ace 80

25mm thick (S type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

80×80×25mm (Mass : 75g)

S type

Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
						[m³/min]	[CFM]	[Pa]	[inchH ₂ O]			
9S0812F401(4011)	12	5.0 to 13.8	0.11	1.32	2,800	0.93	32.8	35.5	0.143	24	-10 to +70	40,000
9S0812M401(4011)			0.08	0.96	2,500	0.83	29.3	27.5	0.110	22		
9S0812L401(4011)		6.0 to 13.8	0.05	0.60	2,000	0.66	23.3	18.1	0.073	16		
9S0824M401(4011)	24	10 to 26.4	0.06	1.44	2,500	0.83	29.3	27.5	0.110	22		
9S0824L401(4011)			0.04	0.96	2,000	0.66	23.3	18.1	0.073	16		

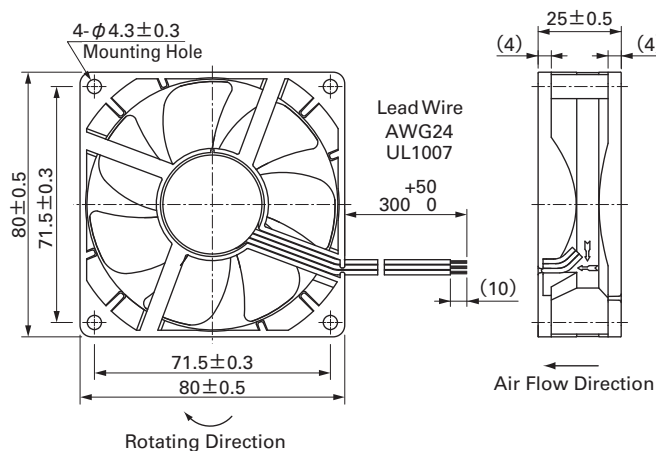
Without Sensor **Pulse Sensor** Available in all models.

Lock Sensor

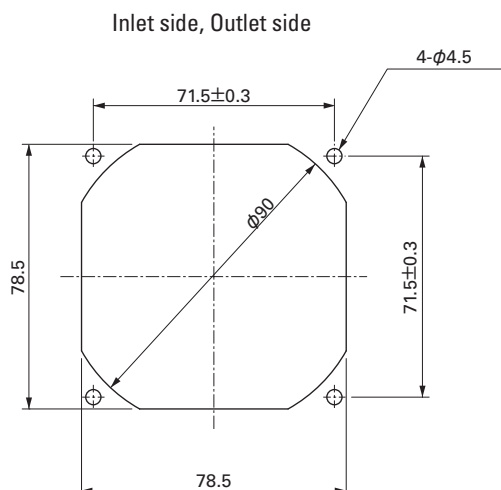
PWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)



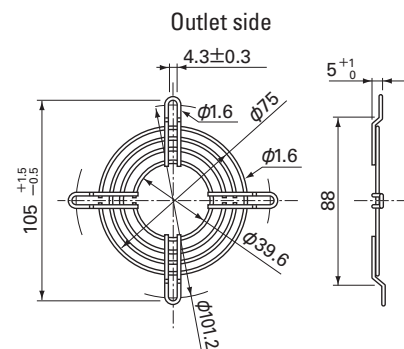
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

Finger guards

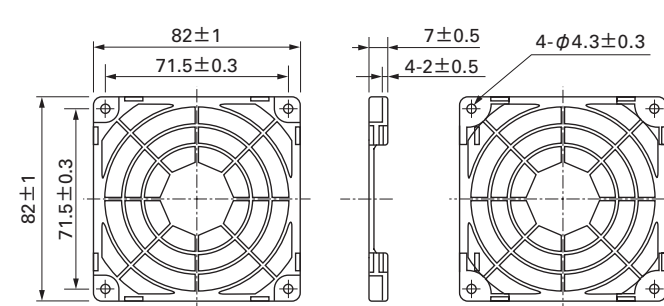
Model : 109-049C Color : Nickel-chrome plating (silver)
Surface treatment : Nickel-chrome plating (silver)



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

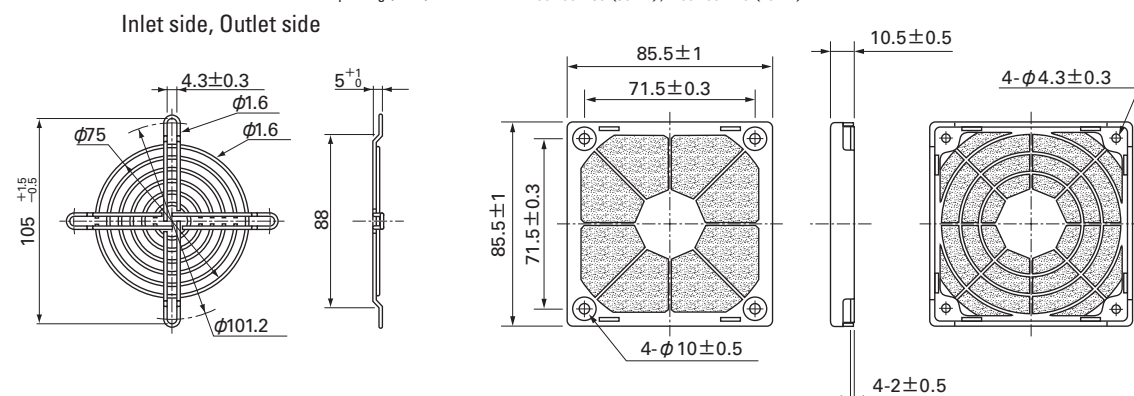
Resin finger guards

Model : 109-1002G

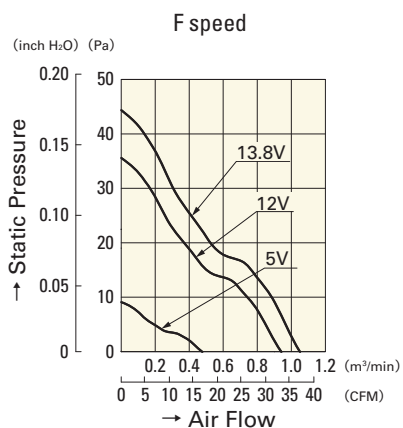


Resin filter kits

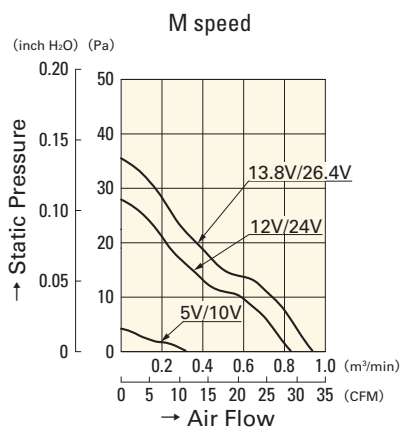
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
Model : 109-1002F30 (30PPI), 109-1002F40 (40PPI)



Air Flow - Static Pressure Characteristics

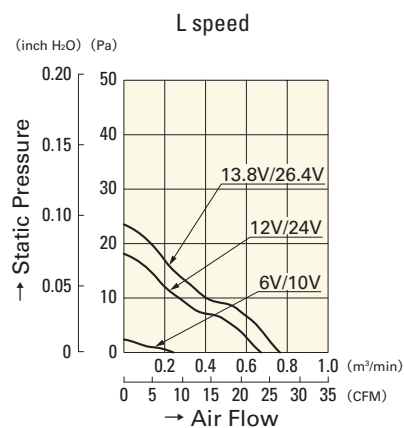


9S0812F401(4011)



9S0812M401(4011)

9S0824M401(4011)



9S0812L401(4011)

9S0824L401(4011)

Silent Fan 80mm

80mm

92mm sq.

San Ace 92

25mm thick (S type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

92×92×25mm (Mass : 100g)

S type

Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9S0912F401(4011)	12	5.0 to 13.8	0.14	1.68	2,650	1.26	44.5	30.0	0.120	27	-10 to +70	40,000
9S0912M401(4011)			0.11	1.32	2,250	1.07	37.8	21.6	0.087	22		
9S0912L401(4011)		6.0 to 13.8	0.07	0.84	1,750	0.83	29.3	13.1	0.053	17		
9S0924F401(4011)	24	14 to 26.4	0.09	2.16	2,650	1.26	44.5	30	0.12	27		
9S0924M401(4011)			0.07	1.68	2,250	1.07	37.8	21.6	0.087	22		
9S0924L401(4011)			0.04	0.96	1,750	0.83	29.3	13.1	0.053	17		

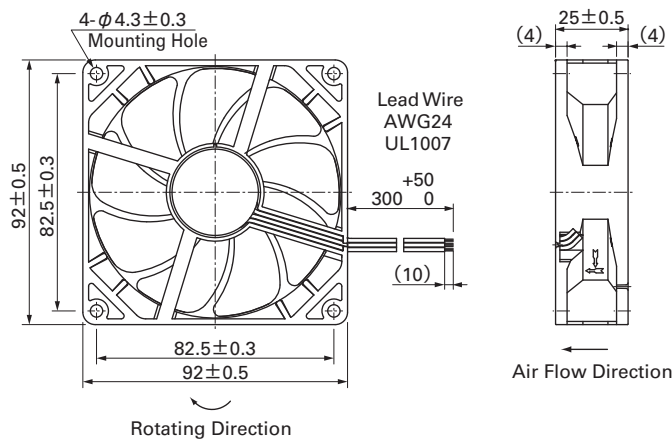
Without Sensor **Pulse Sensor** Available in all models.

Lock Sensor

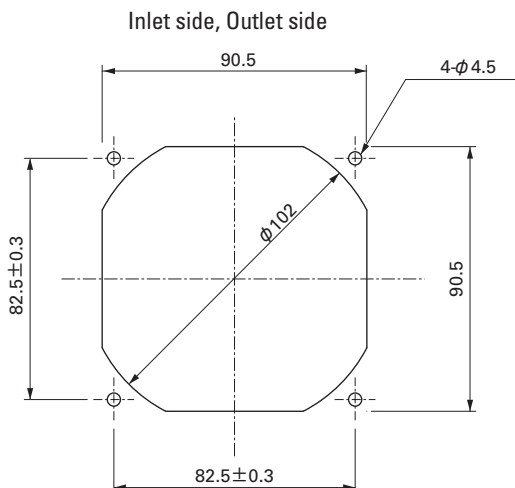
PWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)



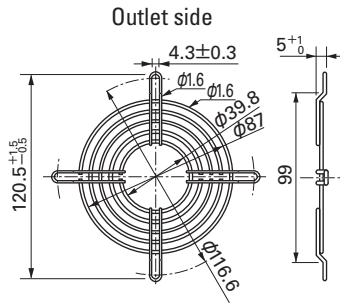
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

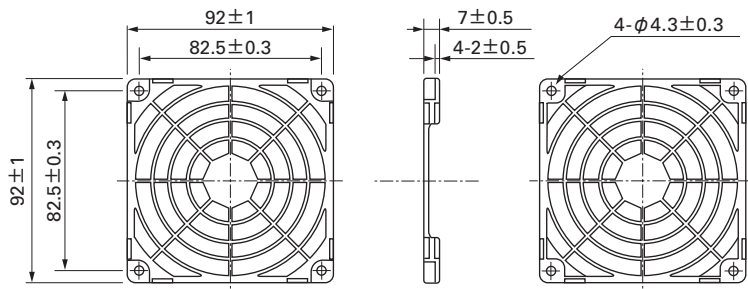
Finger guards

Model : 109-099C Color : Nickel-chrome plating (silver)



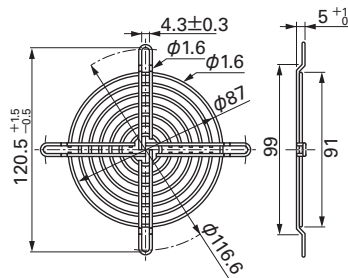
Resin finger guards

Model : 109-1001G



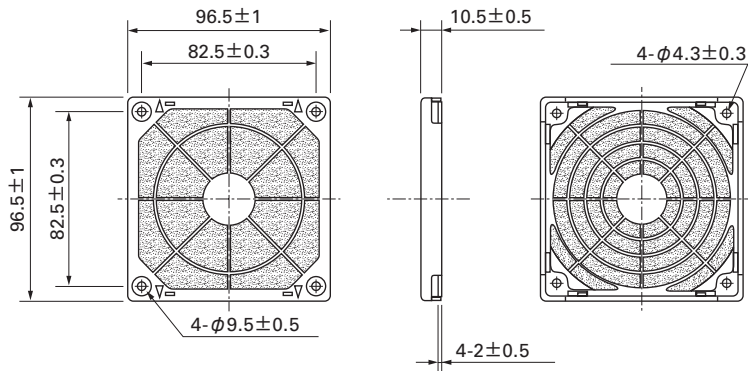
Model : 109-099E Surface treatment : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side

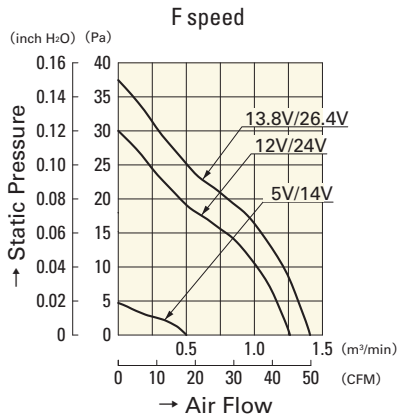


Resin filter kits

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

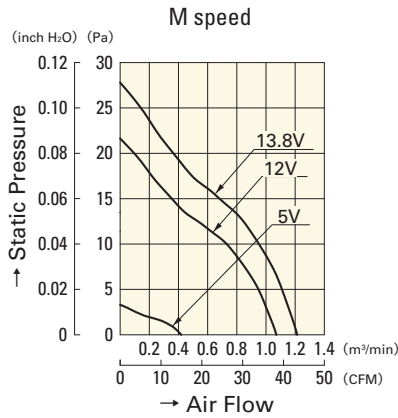


Air Flow - Static Pressure Characteristics

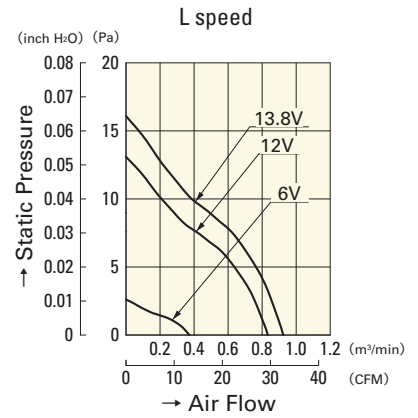


9S0912F401(4011)

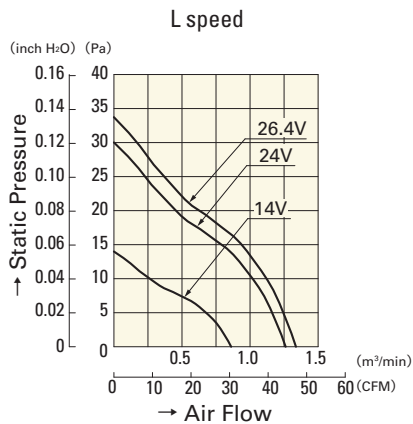
9S0924F401(4011)



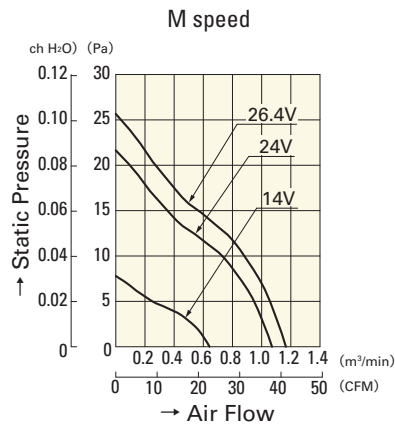
9S0912M401(4011)



9S0912L401(4011)



9S0924L401(4011)



9S0924M401(4011)

120mm sq.

San Ace 120

25mm thick (S type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

120×120×25mm [Mass : 140g]

S type

Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9S1212H401(4011)	12	5.0 ~ 13.2	0.39	4.68	2,700	2.45	86.5	45.2	0.18	36	-10 ~ +60	40,000
9S1212F401(4011)		5.0 ~ 13.8	0.19	2.28	2,200	2.00	70.6	30.0	0.12	30	-10 ~ +70	
9S1212M401(4011)		6.0 ~ 13.8	0.13	1.56	1,850	1.66	58.6	22.7	0.09	24		
9S1212L401(4011)		7.0 ~ 13.8	0.08	0.96	1,500	1.36	48.1	14.9	0.06	17		

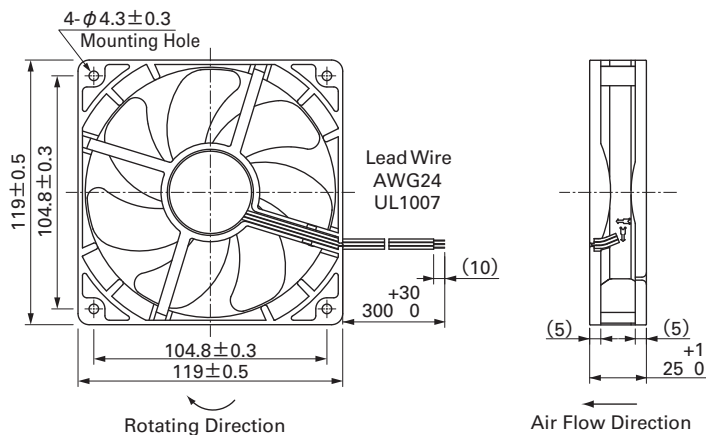
Without Sensor **Pulse Sensor** Available in all models.

Lock Sensor

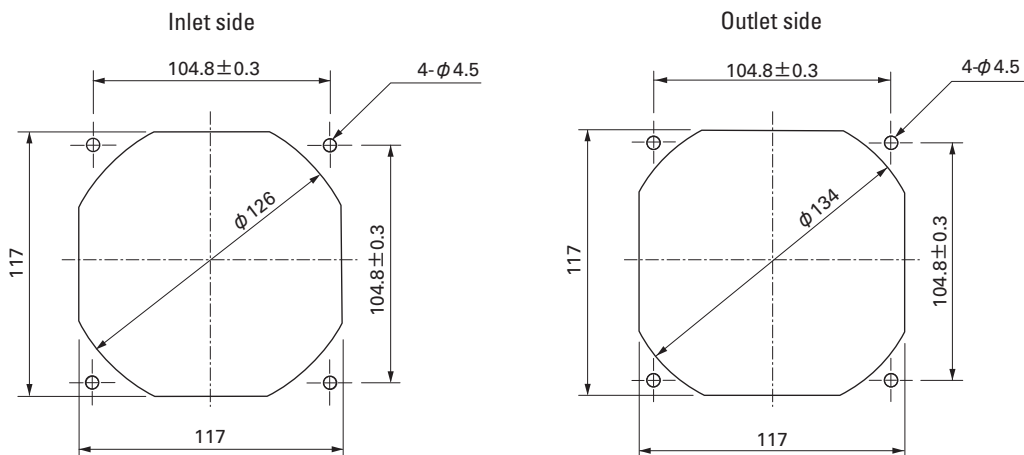
PWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)



Reference dimension of mounting holes and vent opening (Unit : mm)

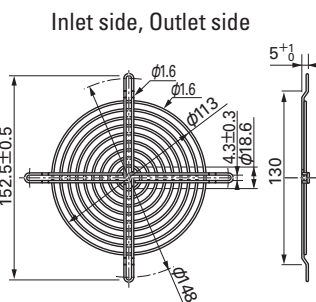
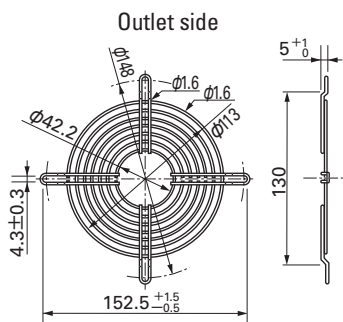


Options (Unit : mm)

Finger guards

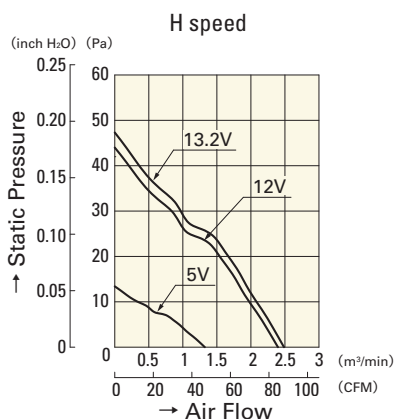
Model : 109-019C Surface treatment : Nickel-chrome plating (silver) Color : 109-019H : Cation electropainting (black)

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

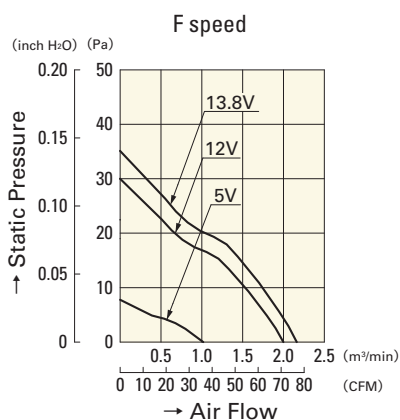


Silent Fan 120mm

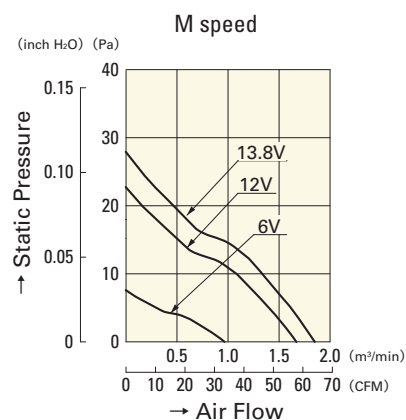
Air Flow - Static Pressure Characteristics



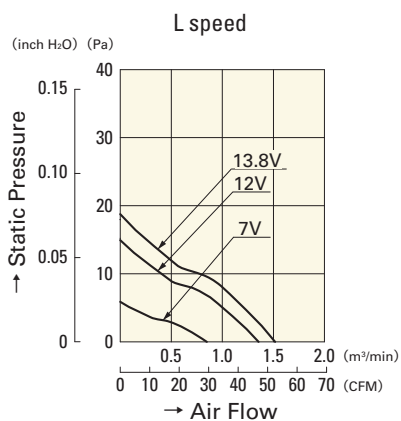
9S1212H401(4011)



9S1212F401(4011)



9S1212M401(4011)



9S1212L401(4011)

120mm

60mm sq.

San Ace 60W

25mm thick(WP type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller:Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black (Sensor) yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

60×60×25mm

(Mass : 110g)

IP 55 Dust resistant device with protection against water jets

WPtype

Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
						[m³/min]	[CFM]	[Pa]	[inchH ₂ O]			
9WP0612H401(4011)	12	10.2 to 13.8	0.11	1.32	3,800	0.53	18.7	40.2	0.161	28	- 10 to +70	60,000
9WP0624H401(4011)	24	20.4 to 27.6	0.06	1.44	3,800	0.53	18.7	40.2	0.161	28		
9WP0648H401(4011)	48	40 to 53	0.04	1.92	3,800	0.53	18.7	40.2	0.161	28		

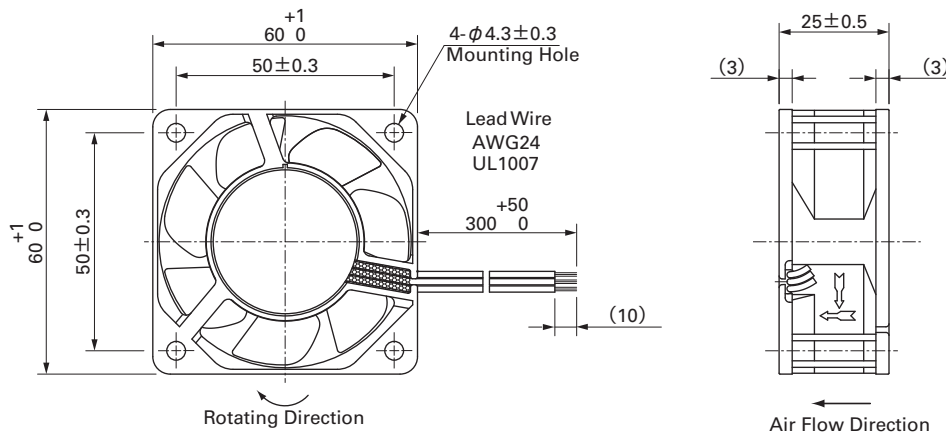
Without Sensor **Pulse Sensor** Available in all models.

Lock Sensor

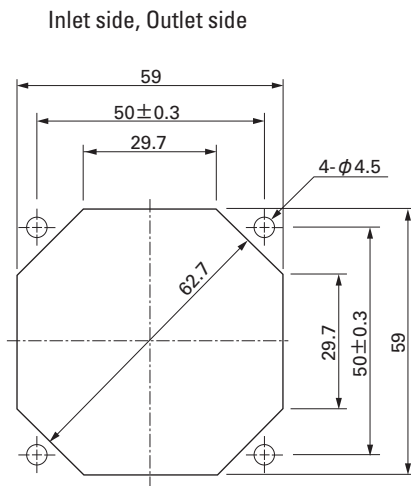
PWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)



Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

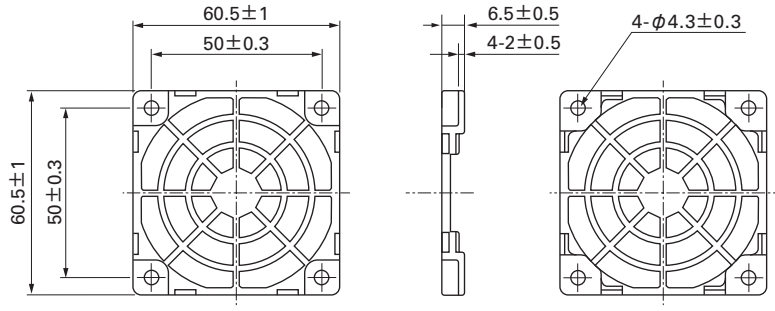
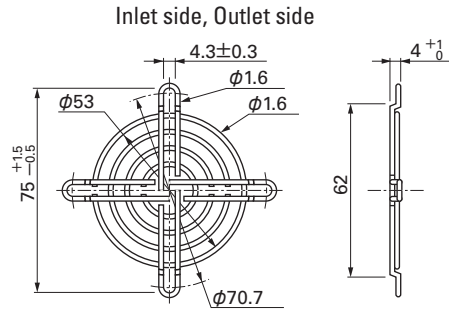
Finger guards

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

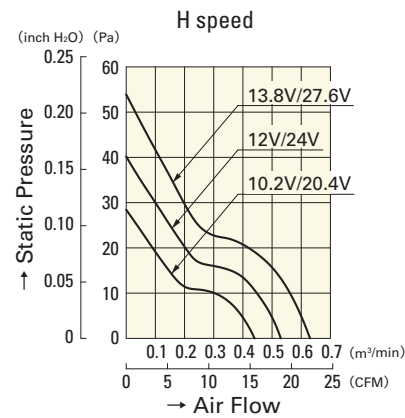
Color

Resin Finger guards

Model : 109-1003G

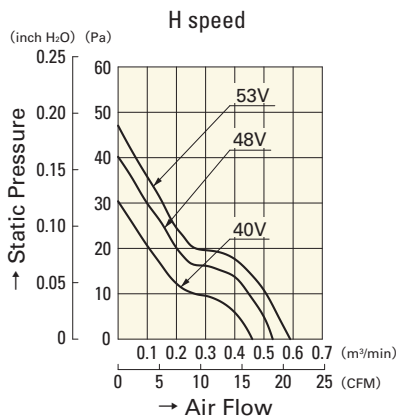


Air Flow - Static Pressure Characteristics



9WP0612H401(4011)

9WP0624H401(4011)



9WP0648H401(4011)

80mm sq.

San Ace 80W

25mm thick
25mm thick(WP type)
25mm thick(WS type)



- **General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291
- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
 - Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
 - Lead Wire⊕red ⊖black Sensor yellow
 - Storage Temperature ...-30°C to +70°C (Non-condensing)

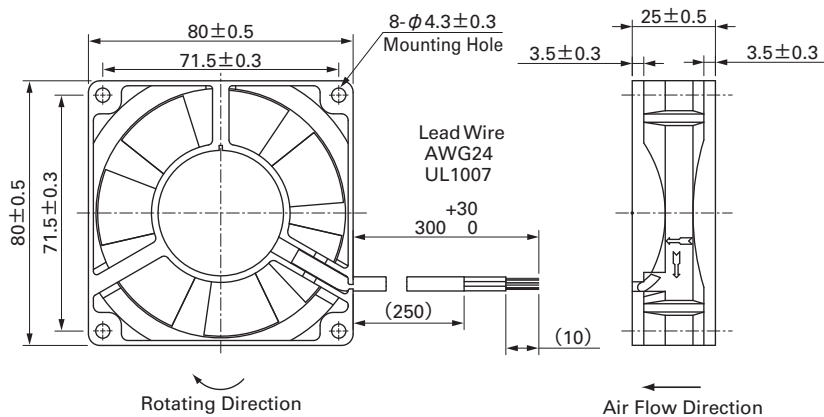
80×80×25mm (Mass : 170g) **IP 55** Dust resistant device with protection against water jets

Specifications

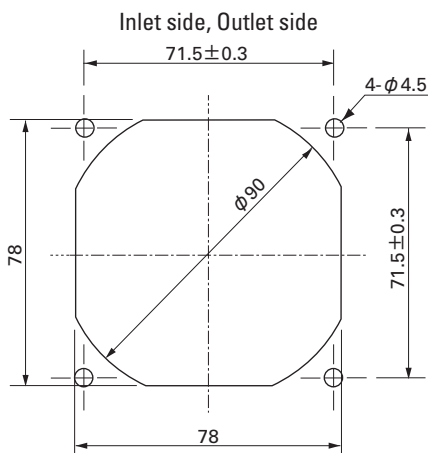
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109W0812H401-U	12	10.2 to 13.8	0.18	2.16	3,000	1.06	37.4	39.2	0.157	32	- 10 to + 70	100,000
109W0812F401-U			0.14	1.68	2,700	0.93	32.8	32.3	0.130	29		
109W0812M401-U			0.10	1.20	2,400	0.83	29.3	26.5	0.106	26		
109W0812L401-U			0.08	0.96	1,900	0.63	22.2	16.7	0.067	22		
109W0824H401-U	24	20.4 to 27.6	0.09	2.16	3,000	1.06	37.4	39.2	0.157	32		
109W0824F401-U			0.08	1.92	2,700	0.93	32.8	32.3	0.130	29		
109W0824M401-U			0.07	1.68	2,400	0.83	29.3	26.5	0.106	26		
109W0824L401-U			0.05	1.20	1,900	0.63	22.2	16.7	0.067	22		
109W0848H401-U	48	40.8 to 55.2	0.06	2.88	3,150	1.10	38.8	43.1	0.173	34		

Without Sensor Pulse Sensor Available in all models. Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



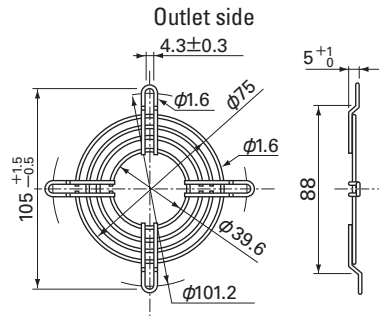
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

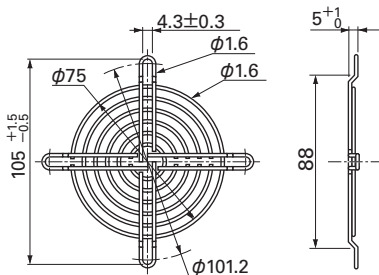
Finger guards

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



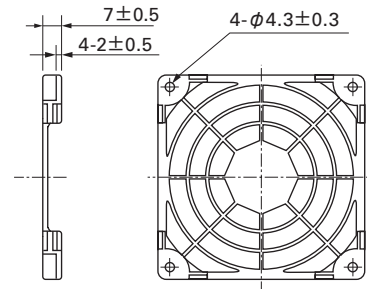
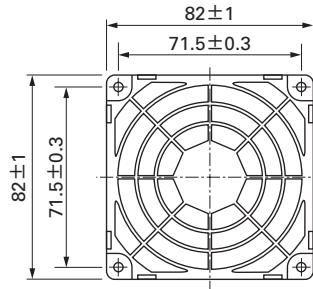
Model : 109-049E Color
Surface treatment : Nickel-chrome plating (silver)
: 109-049H : Cation electropainting (black)

Inlet side, Outlet side



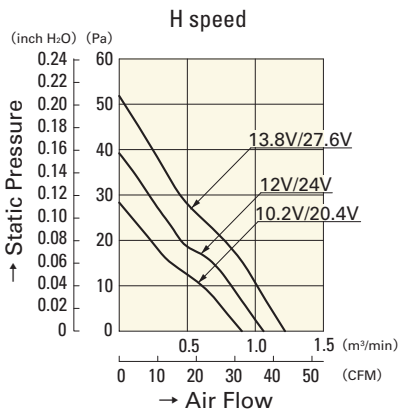
Resin Finger guards

Model : 109-1002G

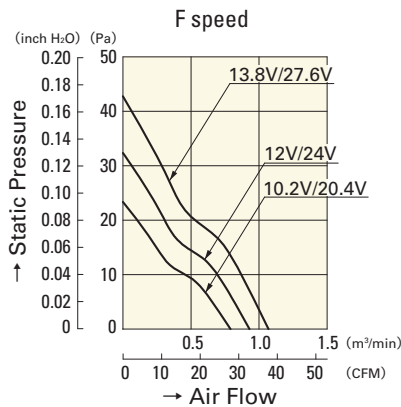


Splash Proof Fan 80mm

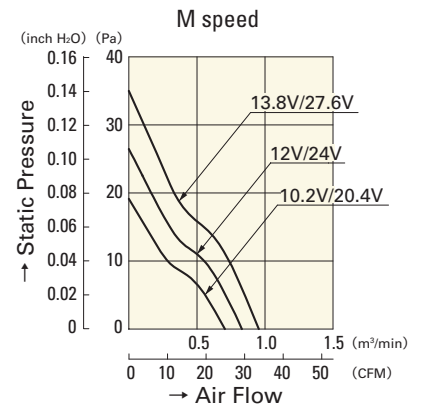
Air Flow - Static Pressure Characteristics



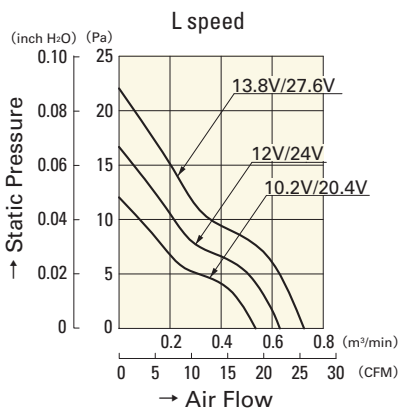
109W0812H401-U
109W0824H401-U



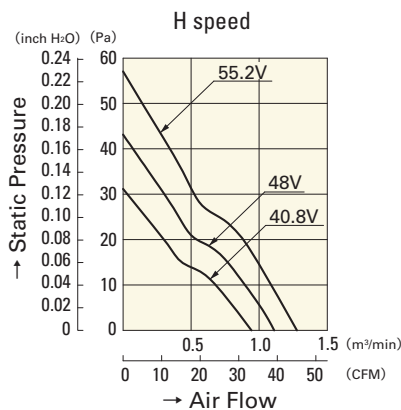
109W0812F401-U
109W0824F401-U



109W0812M401-U
109W0824M401-U



109W0812L401-U
109W0824L401-U



109W0848H401-U

80mm

80mm sq.

San Ace 80W

25mm thick
25mm thick(WP type)
25mm thick(WS type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller:Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
- Lead Wire⊕red ⊖black Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

80×80×25mm [Mass : 130g]

IP 55 Dust resistant device with protection against water jets

WPtype

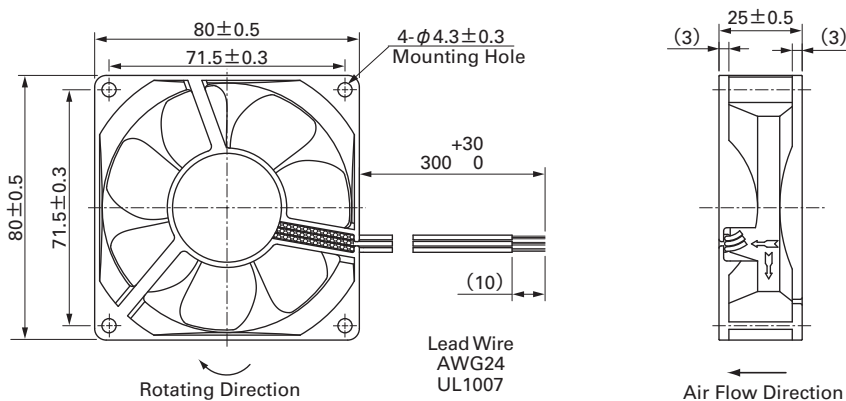
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9WP0812H401(4011)	12	10.2 to 13.8	0.13	1.56	2,900	1.03	36.4	35.3	0.142	29	- 10 to + 70	60,000
9WP0824H401(4011)	24	20.4 to 27.6	0.07	1.68	2,900	1.03	36.4	35.3	0.142	29		60,000
9WP0848S401(4011)	48	40.8 to 55.2	0.06	2.88	3,400	1.20	42.4	48.0	0.193	34		40,000

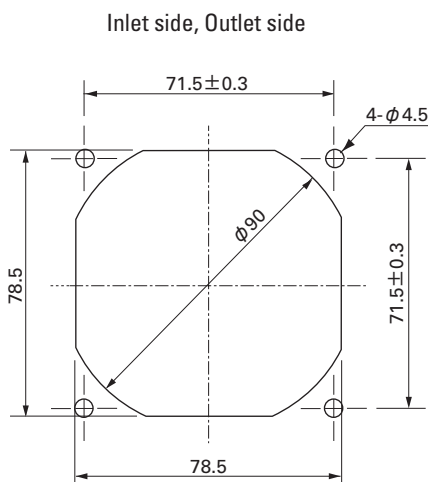
Without Sensor **Pulse Sensor** Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)



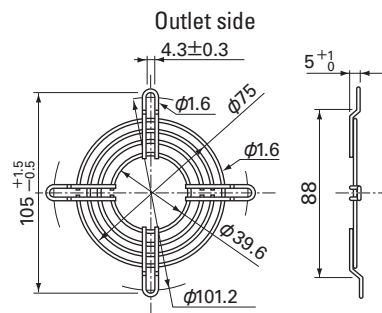
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

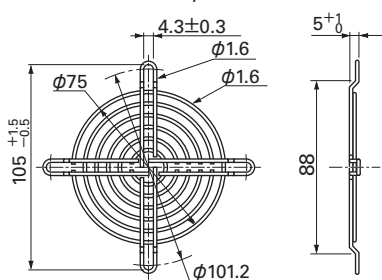
Finger guards

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



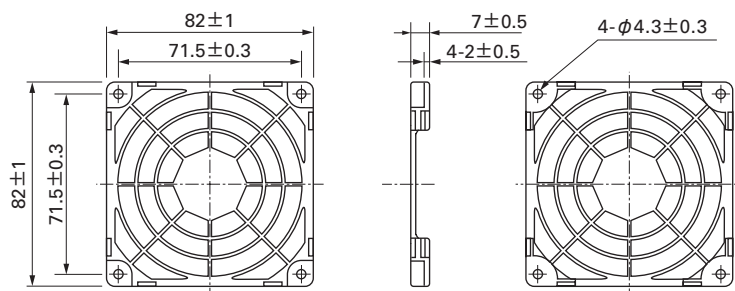
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color (silver)
Model : 109-049H Surface treatment : Cation electropainting (black) Color (black)

Inlet side, Outlet side



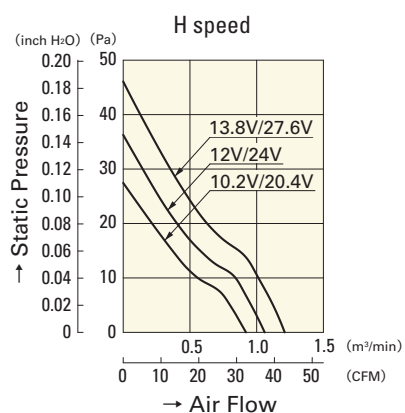
Resin Finger guards

Model : 109-1002G



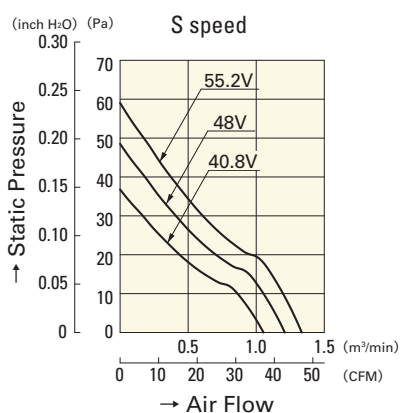
Splash Proof Fan 80mm

Air Flow - Static Pressure Characteristics



9WP0812H401(4011)

9WP0824H401(4011)



9WP0848S401(4011)

80mm sq.

San Ace 80W

25mm thick
25mm thick(WP type)
25mm thick(WS type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller:Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60℃ ,
rated voltage,and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30℃ to +70℃ (Non-condensing)

80×80×25mm

[Mass : 120g]

IP 54 Dust resistant device with protection against water spray

WStype

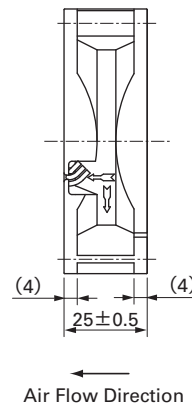
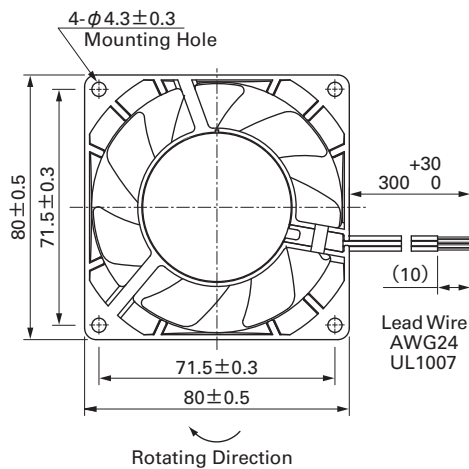
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [℃]	Life Expectancy [h]
9WS0812H401(4011)	12	10.2 to 13.8	0.16	1.92	3,100	0.94	33.2	45.1	0.181	32	- 10 to + 70	40,000
9WS0812F401(4011)			0.13	1.56	2,700	0.83	29.3	34.3	0.138	28		
9WS0812M401(4011)			0.1	1.2	2,200	0.65	23.0	23.5	0.094	23		
9WS0824H401(4011)	24	20.4 to 27.6	0.09	2.16	3,100	0.94	33.2	45.1	0.181	32		
9WS0824F401(4011)			0.07	1.68	2,700	0.83	29.3	34.3	0.138	28		
9WS0824M401(4011)			0.05	1.2	2,200	0.65	23.0	23.5	0.094	23		

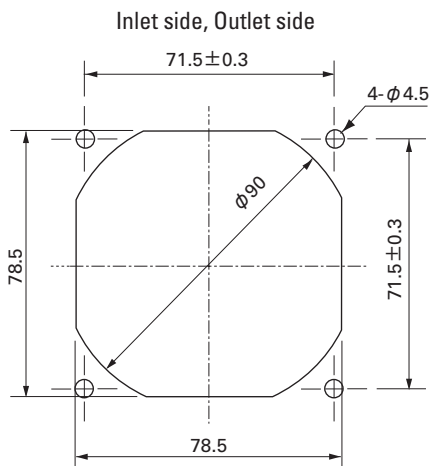
Without Sensor Pulse Sensor Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)



Reference dimension of mounting holes and vent opening (Unit : mm)



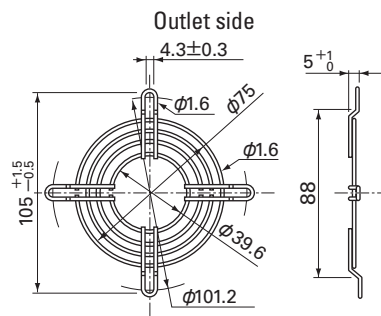
Options (Unit : mm)

Finger guards

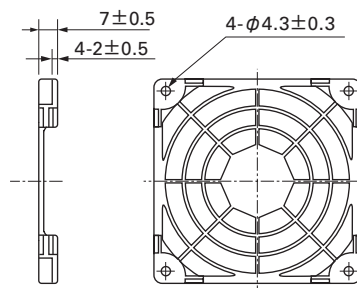
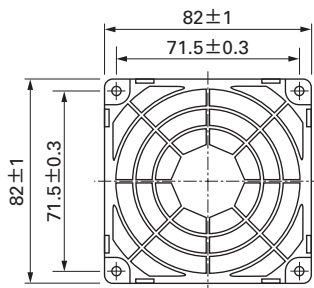
Model : 109-049C Surface treatment : Nickel-chrome plating (silver) Color

Resin Finger guards

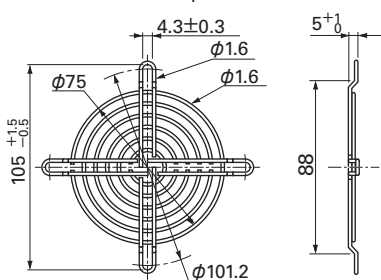
Model : 109-1002G



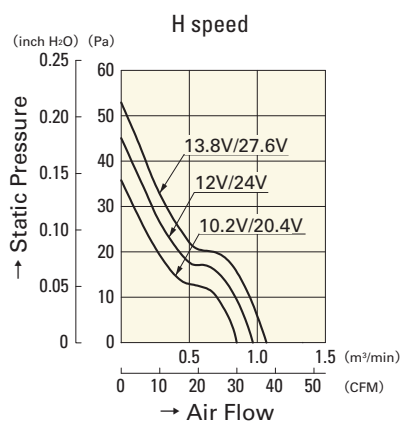
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)



Inlet side, Outlet side

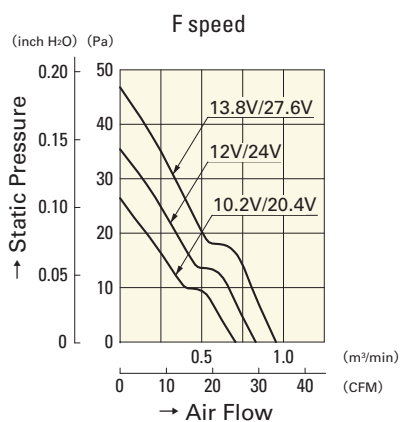


Air Flow - Static Pressure Characteristics



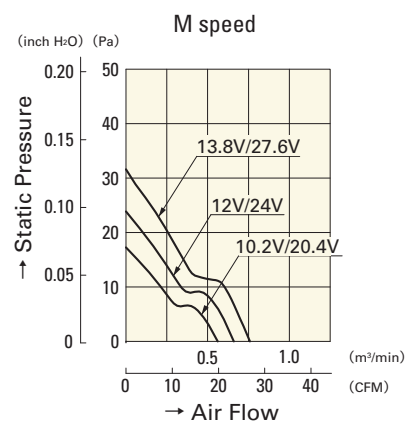
9WS0812H401(4011)

9WS0824H401(4011)



9WS0812F401(4011)

9WS0824F401(4011)



9WS0812M401(4011)

9WS0824M401(4011)

92mm sq.

San Ace 92W

25mm thick
25mm thick(WS type),
25mm thick(WP type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature ... -30°C to +70°C (Non-condensing)

92×92×25mm (Mass : 190g)

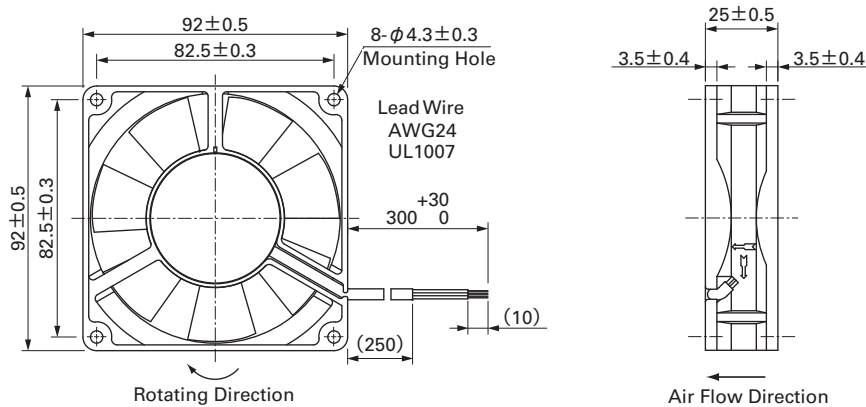
IP 55 Dust resistant device with protection against water jets

Specifications

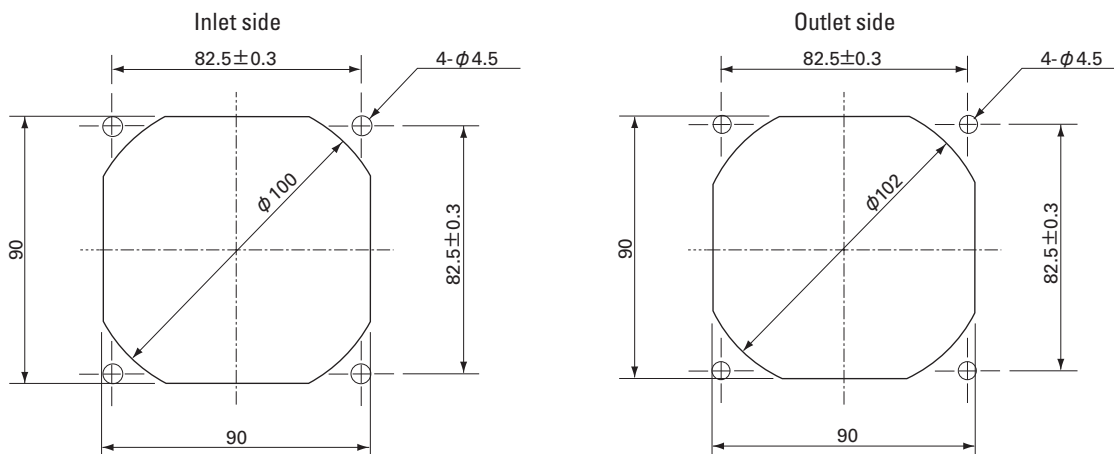
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109W0912H401-U	12	10.2 to 13.8	0.21	2.52	2,850	1.38	48.7	45.1	0.181	33	- 10 to + 70	100,000
109W0912F401-U			0.14	1.68	2,450	1.18	41.7	32.3	0.130	30		
109W0912M401-U			0.11	1.32	2,100	1.01	35.7	23.5	0.094	27		
109W0912L401-U			0.08	0.96	1,700	0.80	28.2	16.7	0.067	23		
109W0924H401-U	24	20.4 to 27.6	0.12	2.88	2,850	1.38	48.7	45.1	0.181	33		
109W0924F401-U			0.08	1.92	2,450	1.18	41.7	32.3	0.130	30		
109W0924M401-U			0.06	1.44	2,100	1.01	35.7	23.5	0.094	27		
109W0924L401-U			0.05	1.2	1,700	0.80	28.2	16.7	0.067	23		
109W0948H401-U	48	40.8 to 55.2	0.06	2.88	2,850	1.38	48.7	45.1	0.181	33		

Without Sensor Pulse Sensor Available in all models. Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



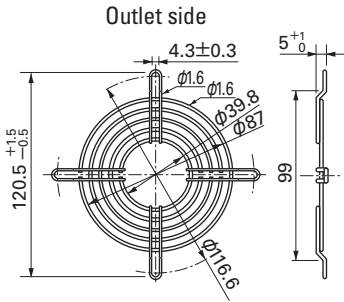
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

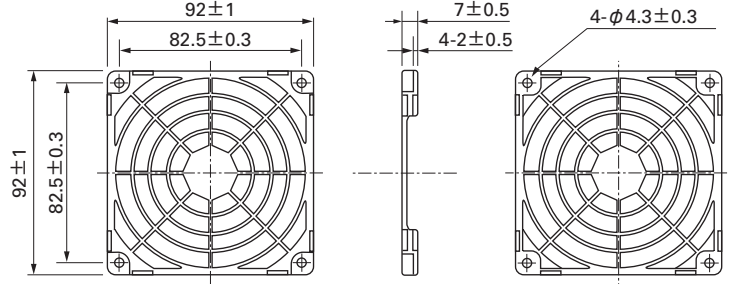
Finger guards

Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color

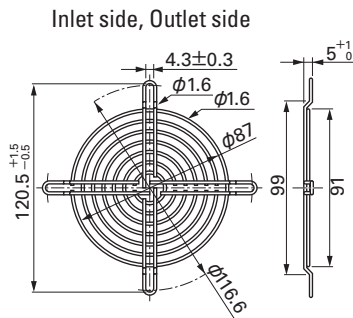


Resin Finger guards

Model : 109-1001G

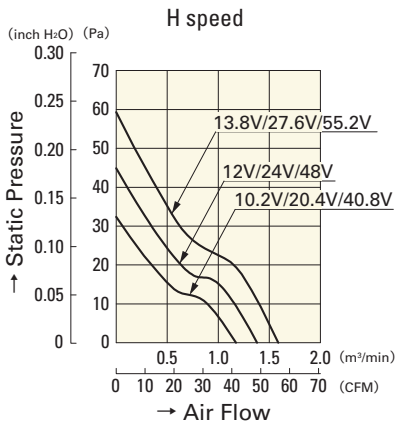


Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)

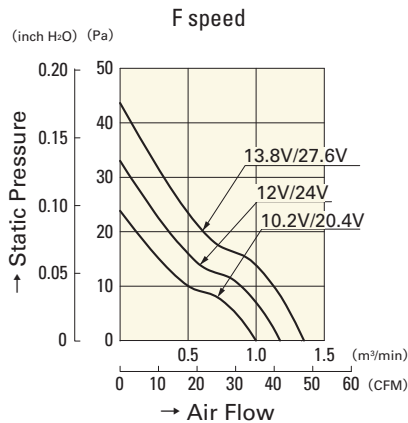


Splash Proof Fan 92mm

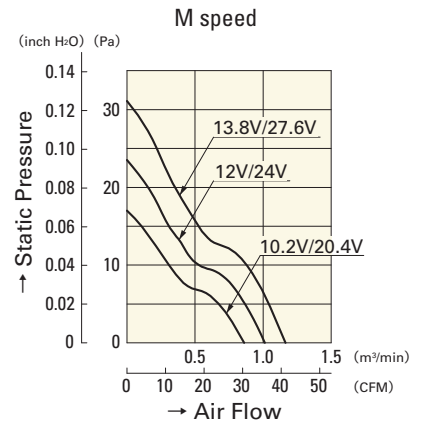
Air Flow - Static Pressure Characteristics



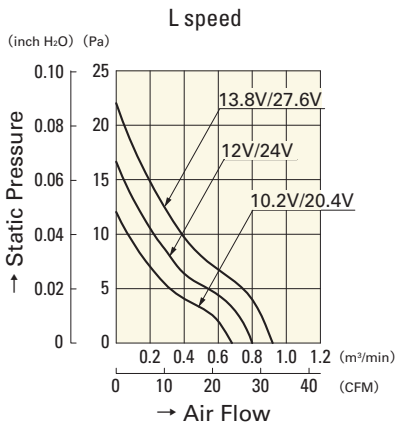
109W0912H401-U
109W0924H401-U
109W0948H401-U



109W0912F401-U
109W0924F401-U



109W0912M401-U
109W0924M401-U



109W0912L401-U
109W0924L401-U

92mm

92mm sq.

San Ace 92W

25mm thick
25mm thick(WS type)
25mm thick(WP type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller:Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60℃ ,
rated voltage,and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30℃ to +70℃ (Non-condensing)

92×92×25mm (Mass : 150g)

IP 54 Dust resistant device with protection against water spray

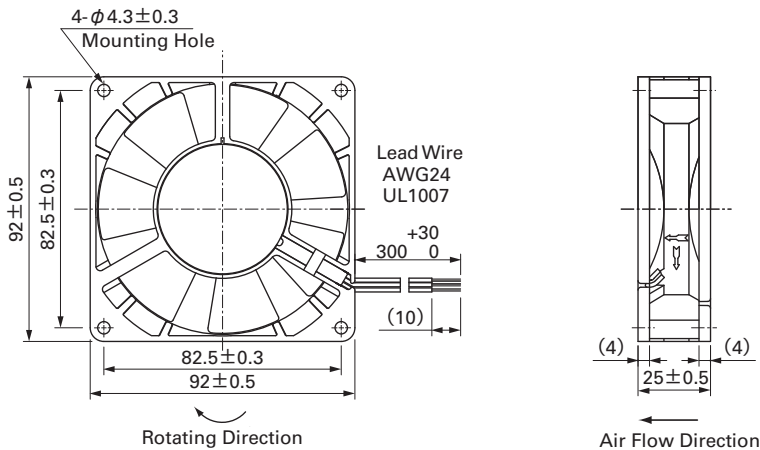
WStype

Specifications

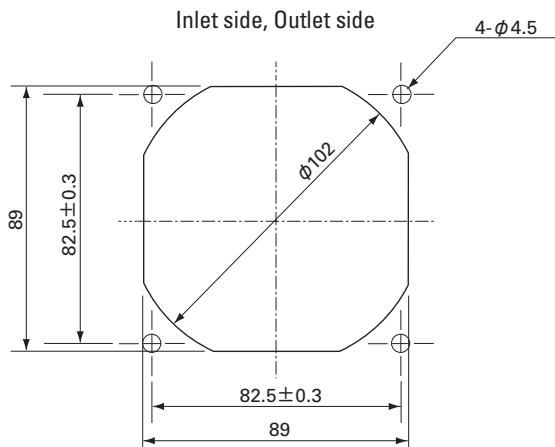
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [℃]	Life Expectancy [h]
9WS0912H401	12	10.2 to 13.8	0.17	2.04	2,850	1.38	48.7	45.1	0.181	33	- 10 to + 70	40,000
9WS0912F401			0.13	1.56	2,450	1.18	41.7	32.3	0.130	30		
9WS0912M401			0.1	1.2	2,100	1.01	35.7	23.5	0.094	27		
9WS0912L401			0.06	0.72	1,700	0.8	28.2	16.7	0.067	23		
9WS0924H401	24	20.4 to 27.6	0.1	2.4	2,850	1.38	48.7	45.1	0.181	33		
9WS0924F401			0.07	1.68	2,450	1.18	41.7	32.3	0.130	30		
9WS0924M401			0.06	1.44	2,100	1.01	35.7	23.5	0.094	27		
9WS0924L401			0.05	1.2	1,700	0.8	28.2	16.7	0.067	23		

Without Sensor **Pulse Sensor** Available in all models. **Lock Sensor** Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



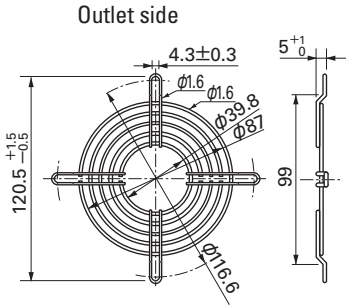
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

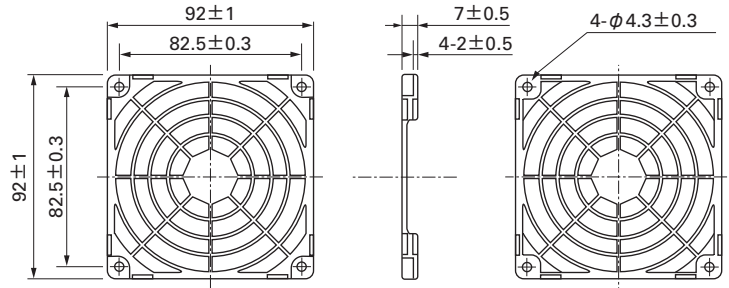
Finger guards

Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color



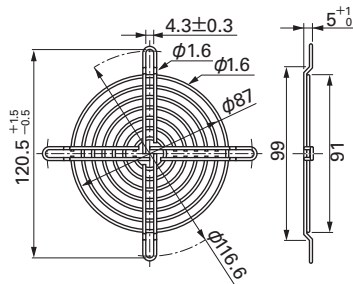
Resin Finger guards

Model : 109-1001G

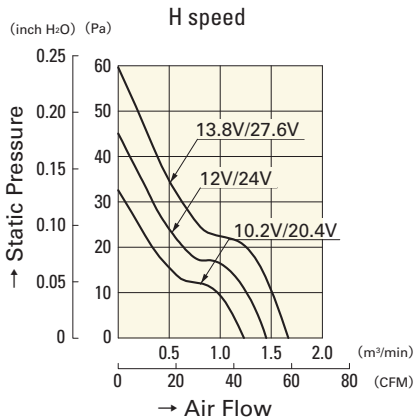


Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side

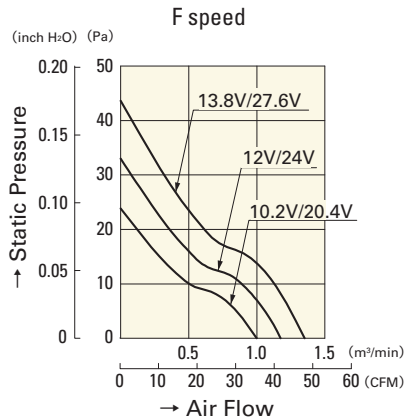


Air Flow - Static Pressure Characteristics



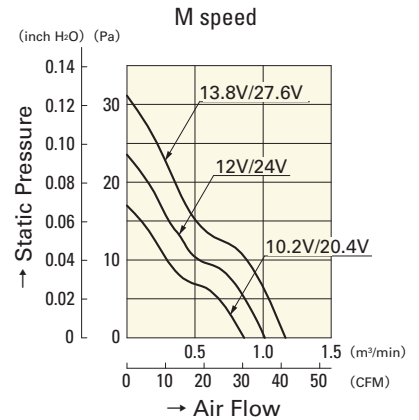
9WS0912H401

9WS0924H401



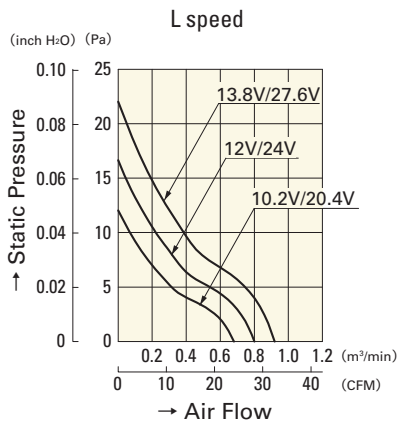
9WS0912F401

9WS0924F401



9WS0912M401

9WS0924M401



9WS0912L401

9WS0924L401

92mm sq.

San Ace 92W

25mm thick
25mm thick(WS type)
25mm thick(WP type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller:Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

92×92×25mm [Mass : 120g]

IP 55 Dust resistant device with protection against water jets

WPtype

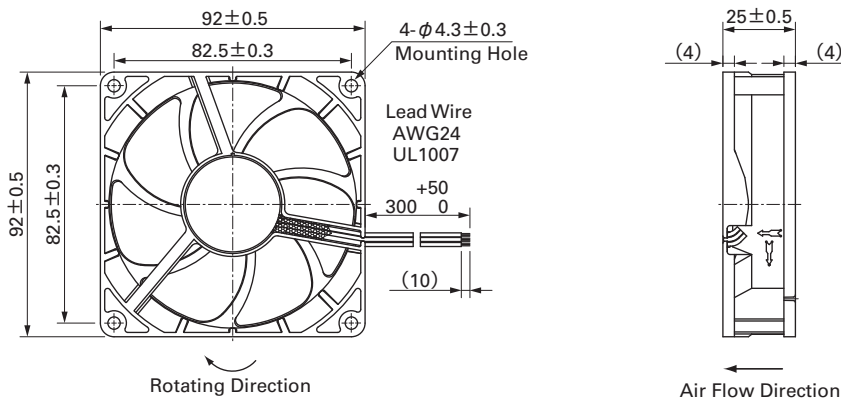
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
						[m³/min]	[CFM]	[Pa]	[inchH ₂ O]			
9WP0924F401	24	12 to 27.6	0.08	1.92	2,650	1.24	43.8	32.2	0.129	30	- 10 to + 70	40,000
9WP0924B401			0.05	1.20	2,000	0.90	31.8	18.0	0.072	23		

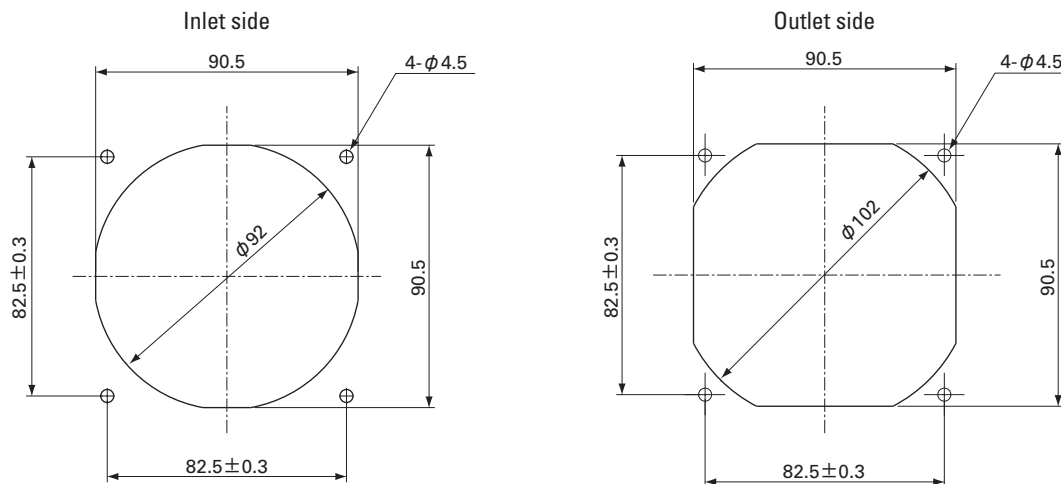
Without Sensor Pulse Sensor Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



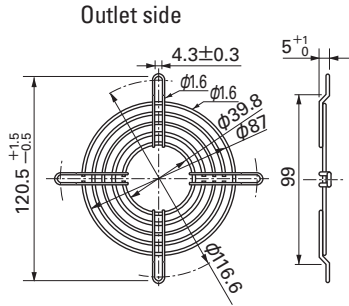
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

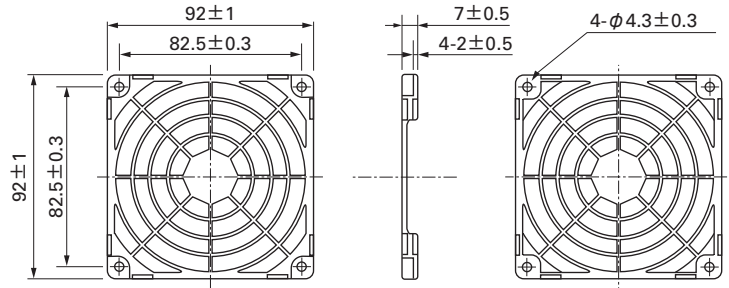
Finger guards

Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color (silver)



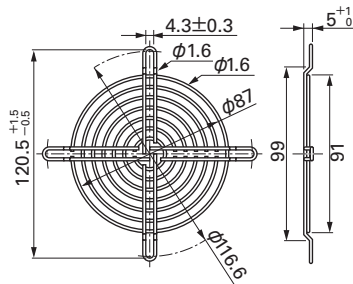
Resin Finger guards

Model : 109-1001G

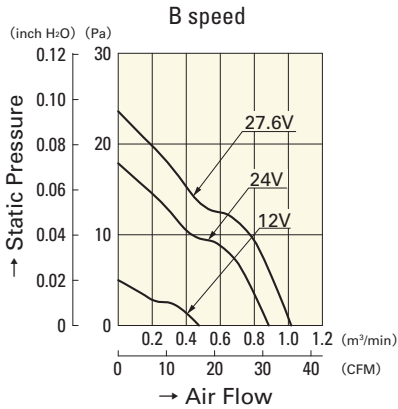


Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color (silver)
: 109-099H : Cation electropainting (black)

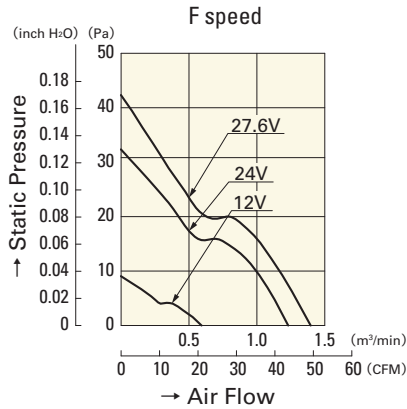
Inlet side, Outlet side



Air Flow - Static Pressure Characteristics



9WP0924B401



9WP0924F401

120mm sq.

San Ace 120W

38mm thick(WP type)
38mm thick(WG type)
38mm thick(WS type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller:Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
- Lead Wire⊕red ⊖black Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

120×120×38mm [Mass : 360g]

IP 55 Dust resistant device with protection against water jets

WPtype

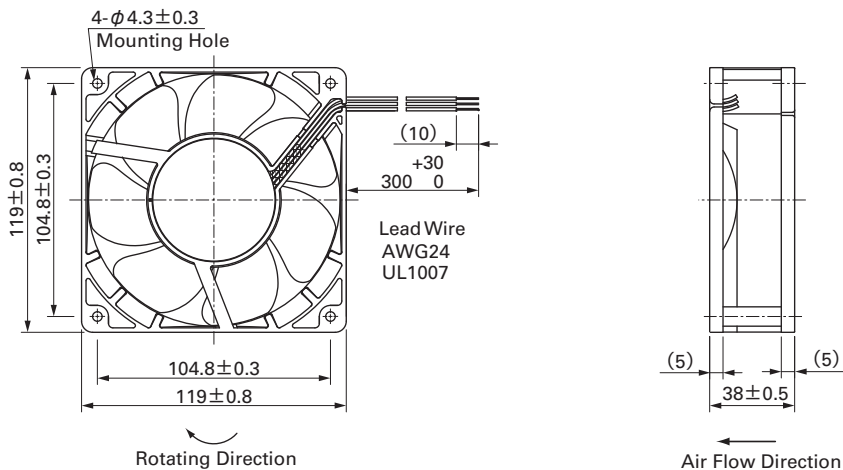
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9WP1212H101(1011)	12	7 to 13.8	0.38	4.56	2,600	2.80	99	70.4	0.283	39	- 10 to + 70	40,000
9WP1224H101(1011)	24	14 to 27.6	0.22	5.28	2,600	2.80	99	70.4	0.283	39		
9WP1248H101(1011)	48	40.8 to 55.2	0.11	5.28	2,600	2.80	99	70.4	0.283	39		

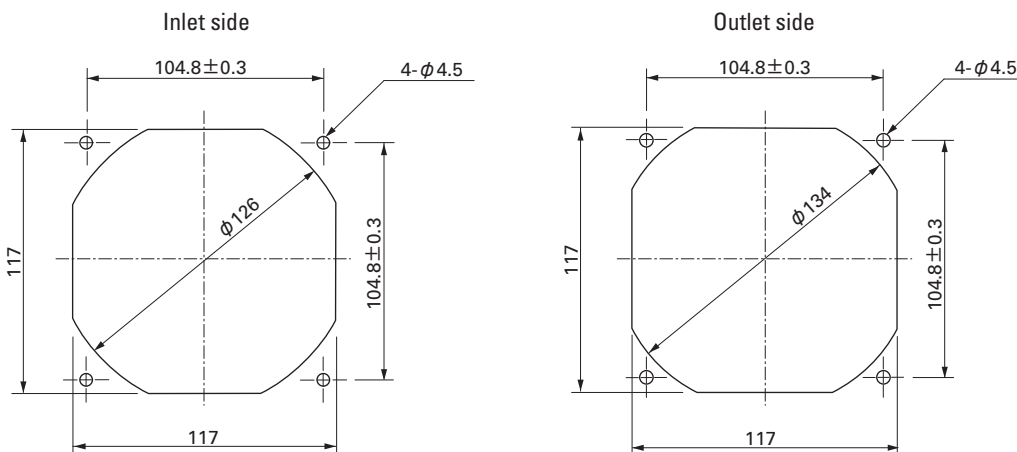
Without Sensor **Pulse Sensor** Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)



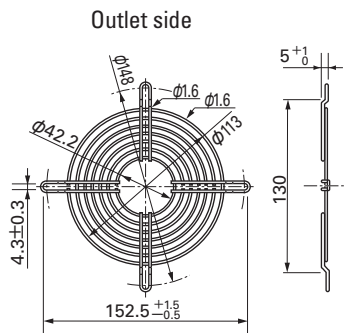
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

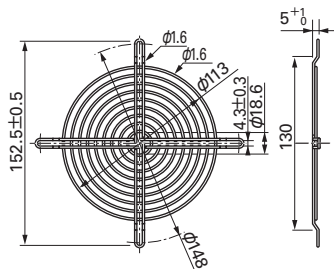
Finger guards

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



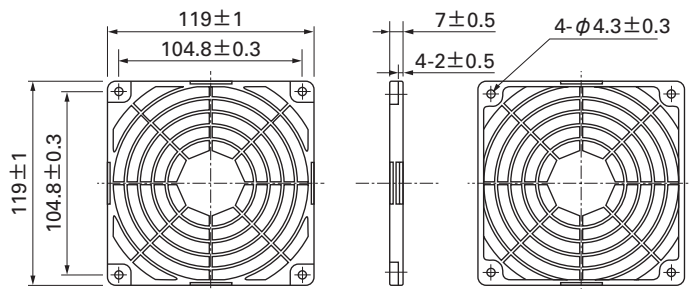
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

Inlet side, Outlet side



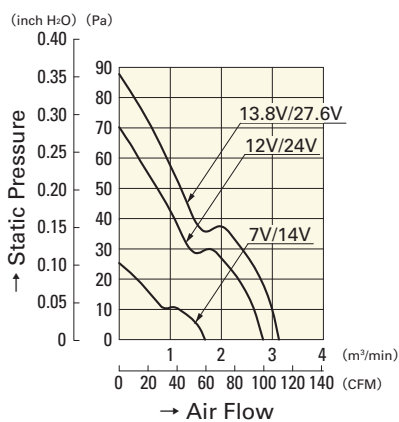
Resin Finger guards

Model : 109-1000G



Air Flow - Static Pressure Characteristics

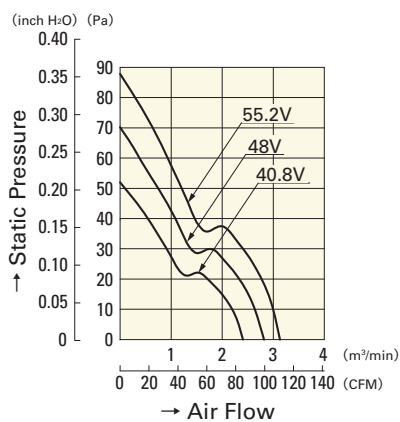
H speed



9WP1212H101(1011)

9WP1224H101(1011)

H speed



9WP1248H101(1011)

120mm sq.

San Ace 120W

38mm thick(WP type)
38mm thick(WG type)
38mm thick(WS type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60℃ ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30℃ to +70℃ (Non-condensing)

120×120×38mm [Mass : 410g]

IP 55 Dust resistant device with protection against water jets

WG type

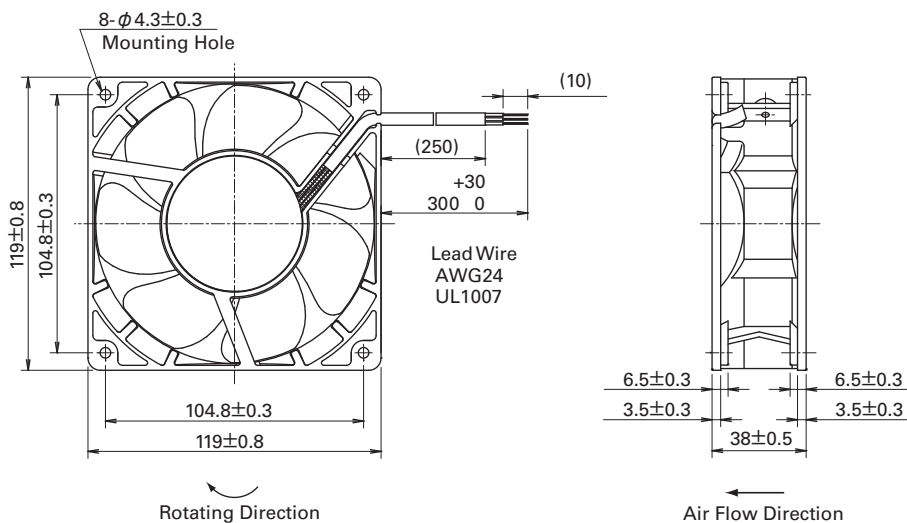
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [℃]	Life Expectancy [h]
9WG1212G101-E	12	10.2 to 13.8	0.98	11.76	3,600	3.88	137	135	0.542	49	- 10 to + 70	80,000
9WG1212E101-E			0.61	7.32	3,100	3.34	118	100	0.402	46		
9WG1212H101-E		7 to 13.8	0.38	4.56	2,600	2.80	99	70.4	0.283	39		100,000
9WG1212F101-E			0.28	3.36	2,280	2.45	87	54.2	0.218	36		
9WG1212M101-E			0.21	2.52	1,950	2.10	74	39.6	0.159	32		
9WG1224G101-E	24	20.4 to 27.6	0.50	12	3,600	3.88	137	135	0.542	49		80,000
9WG1224E101-E			0.34	8.16	3,100	3.34	118	100	0.402	46		
9WG1224H101-E		14 to 27.6	0.22	5.28	2,600	2.80	99	70.4	0.283	39		100,000
9WG1224F101-E			0.16	3.84	2,280	2.45	87	54.2	0.218	36		
9WG1224M101-E			0.11	2.64	1,950	2.10	74	39.6	0.159	32		
9WG1248G101-E	48	40.8 to 55.2	0.25	12	3,600	3.88	137	135	0.542	49		80,000
9WG1248E101-E			0.17	8.16	3,100	3.34	118	100	0.402	46		
9WG1248H101-E			0.11	5.28	2,600	2.80	99	70.4	0.283	39		100,000
9WG1248F101-E			0.09	4.32	2,280	2.45	87	54.2	0.218	36		
9WG1248M101-E			0.07	3.36	1,950	2.10	74	39.6	0.159	32		

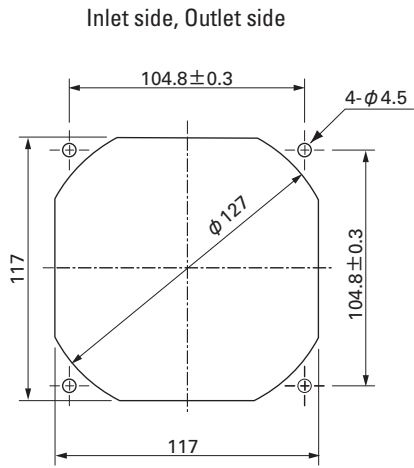
Without Sensor Pulse Sensor Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



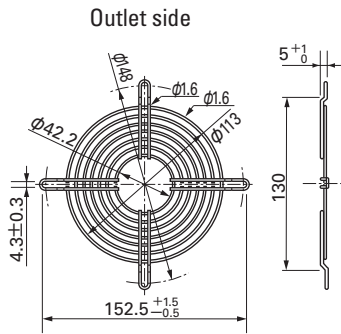
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

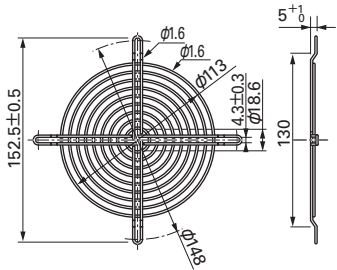
Finger guards

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



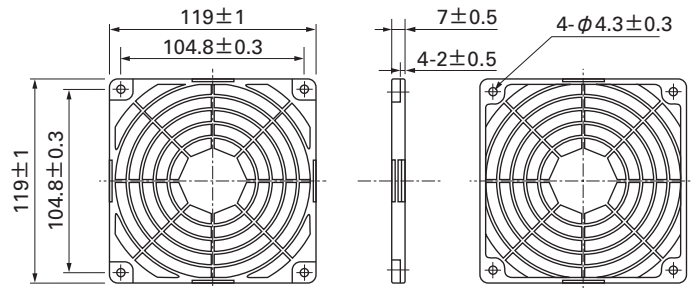
Model : 109-019E Surface treatment : Nickel-chrome plating (silver) Color
: 109-019K : Cation electropainting (black)

Inlet side, Outlet side



Resin Finger guards

Model : 109-1000G

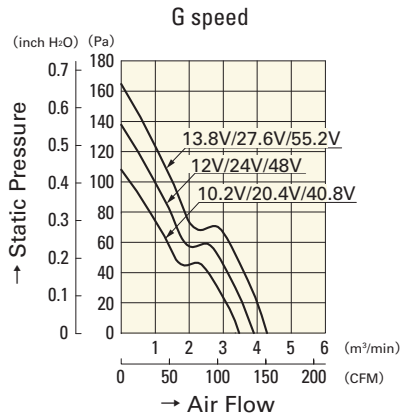


120mm sq.

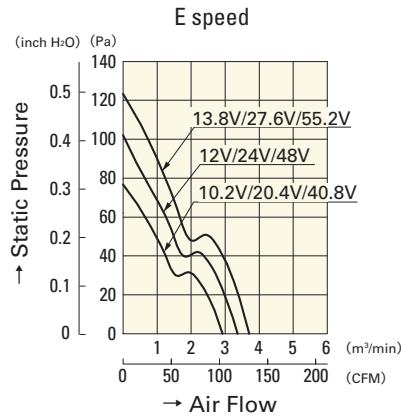
San Ace 120W

120×120×38mm [Mass : 410g]

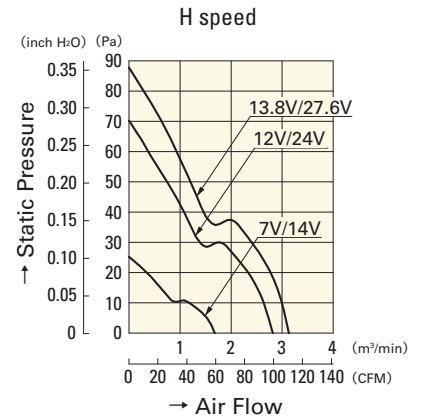
Air Flow - Static Pressure Characteristics



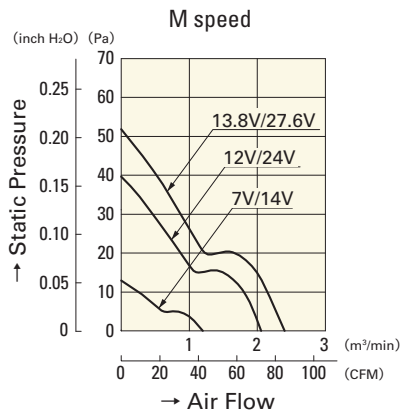
9WG1212G101-E
9WG1224G101-E
9WG1248G101-E



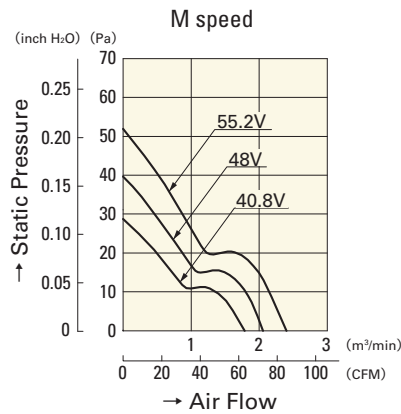
9WG1212E101-E
9WG1224E101-E
9WG1248E101-E



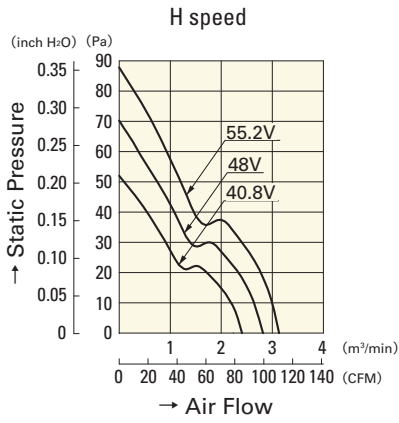
9WP1212H101-E
9WP1224H101-E



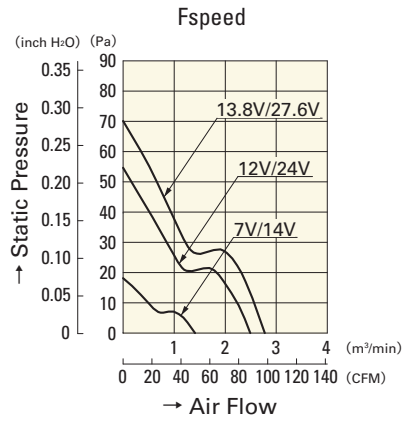
9WG1212M101-E
9WG1224M101-E



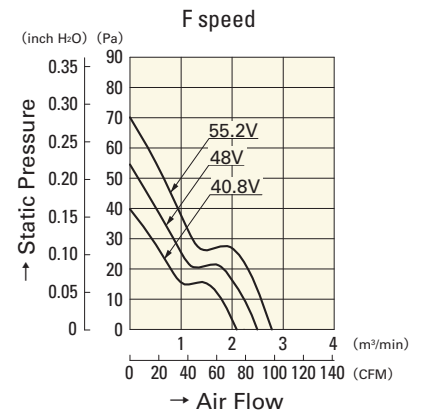
9WG1248M101-E



9WG1248H101-E



9WG1212F101-E
9WG1224F101-E



9WG1248F101-E

120mm sq.

San Ace 120W

38mm thick(WP type)
38mm thick(WG type)
38mm thick(WS type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller:Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60℃ ,
rated voltage,and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30℃ to +70℃ (Non-condensing)

120×120×38mm (Mass : 260g)

IP 54 Dust resistant device with protection against water spray

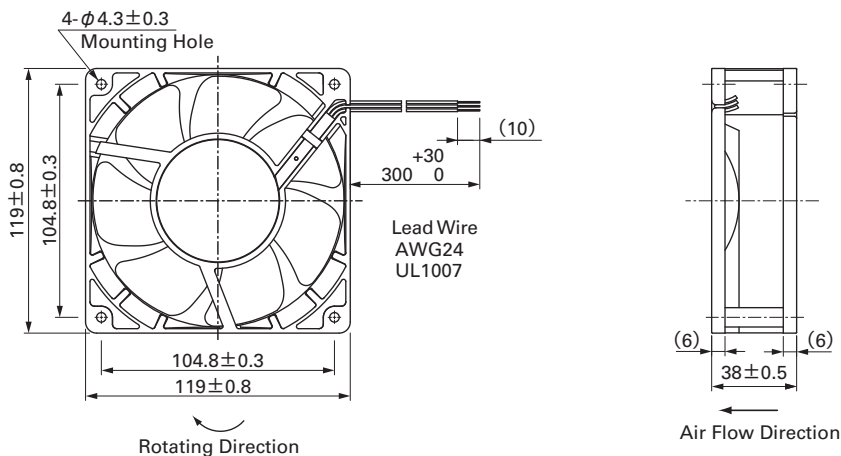
WStype

Specifications The numbers in () represent ribless models.

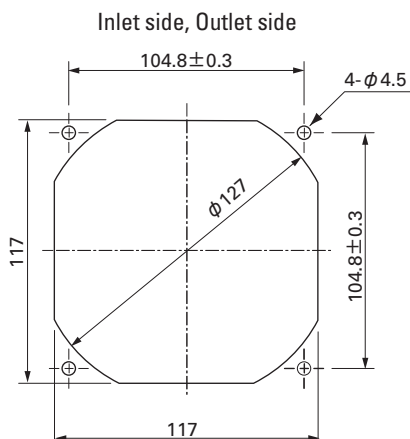
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [℃]	Life Expectancy [h]
9WS1212H101(1011)	12	6 to 13.2	0.47	5.64	2,600	2.9	102.4	67.62	0.272	39	- 10 to + 60	40,000
9WS1212M101(1011)		6 to 13.8	0.23	2.76	1,950	2.2	77.7	42.14	0.169	32	- 10 to + 70	
9WS1224H101(1011)	24	12 to 26.4	0.23	5.52	2,600	2.9	102.4	67.62	0.272	39	- 10 to + 60	
9WS1224M101(1011)		12 to 27.6	0.13	3.12	1,950	2.2	77.7	42.14	0.169	32	- 10 to + 70	
9WS1248H101(1011)	48	40.8 to 52.8	0.13	6.24	2,600	2.9	102.4	67.62	0.272	39	- 10 to + 60	
9WS1248M101(1011)		40.8 to 55.2	0.07	3.36	1,950	2.2	77.7	42.14	0.169	32	- 10 to + 70	

Without Sensor Pulse Sensor Available in all models. Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)



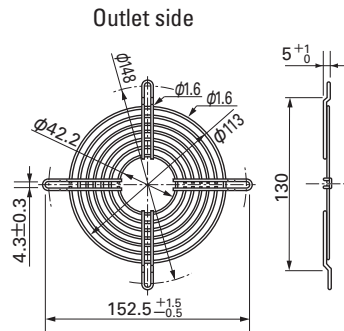
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

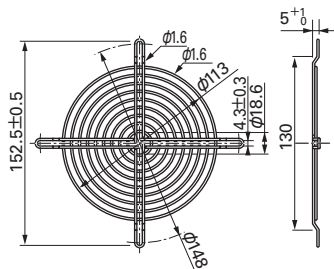
Finger guards

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



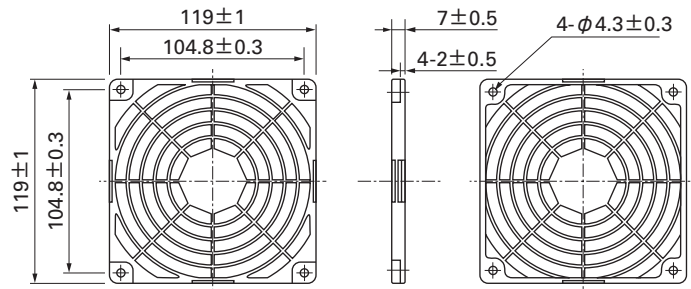
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

Inlet side, Outlet side

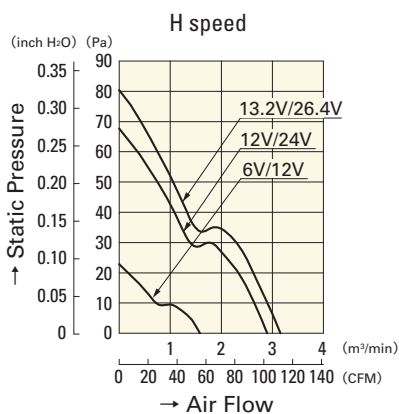


Resin Finger guards

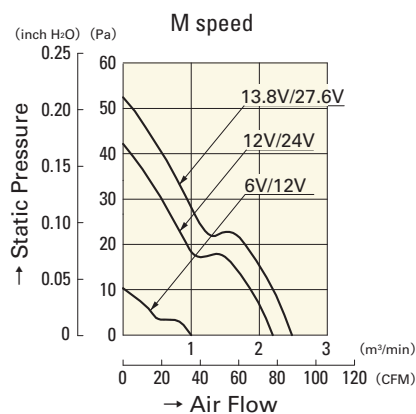
Model : 109-1000G



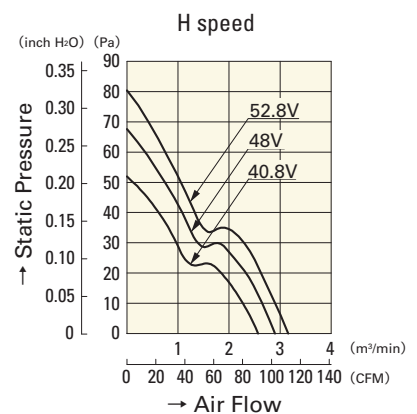
Air Flow - Static Pressure Characteristics



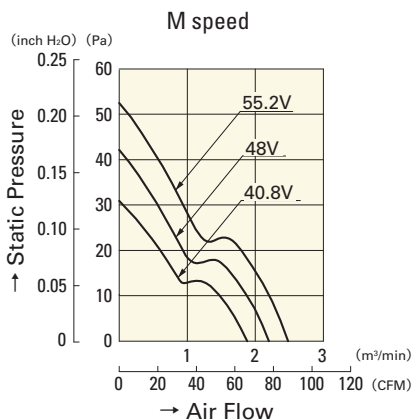
9WS1212H101(1011)
9WS1224H101(1011)



9WS1212M101(1011)
9WS1224M101(1011)



9WS1248H101(1011)



9WS1248M101(1011)

140mm sq.

San Ace 140W

38mm thick, 51mm thick(WB type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

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

140×140×38mm (Mass : 650g)

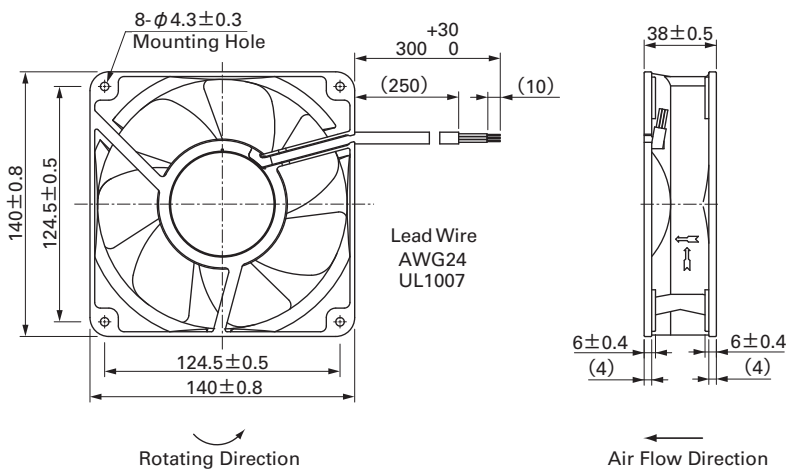
IP 55 Dust resistant device with protection against water jets

Specifications

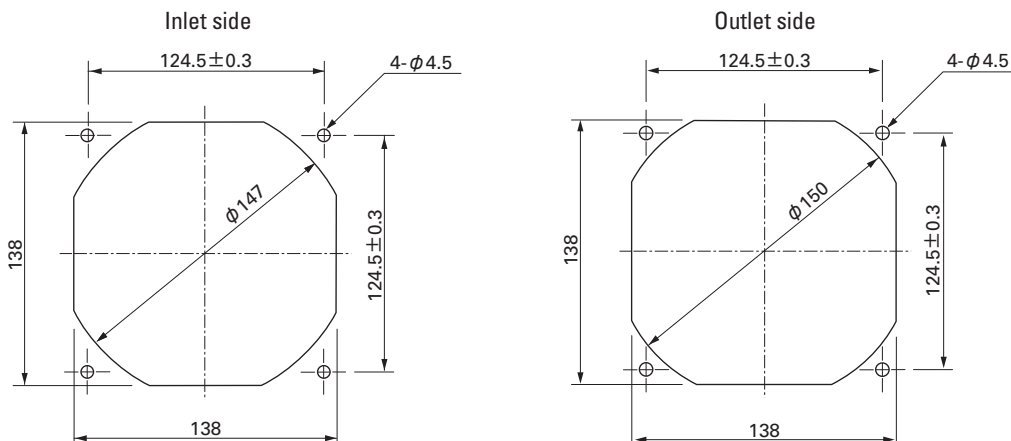
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109W1412H101-U	12	10.2 to 13.8	0.73	8.76	2,600	4.5	159	98	0.394	46	- 10 to + 60	100,000
109W1412M101-U			0.3	3.6	1,900	3.3	117	52	0.209	38		
109W1424H101-U	24	20.4 to 27.6	0.37	8.88	2,600	4.5	159	98	0.394	46		
109W1424M101-U			0.16	3.84	1,900	3.3	117	52	0.209	38		
109W1448H101-U	48	40.8 to 55.2	0.2	9.6	2,600	4.5	159	98	0.394	46		
109W1448M101-U			0.09	4.32	1,900	3.3	117	52	0.209	38		

Without Sensor **Pulse Sensor** Available in all models. **Lock Sensor** Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)



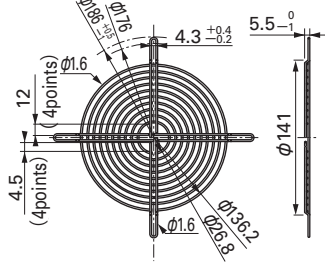
Options (Unit : mm)

Finger guards

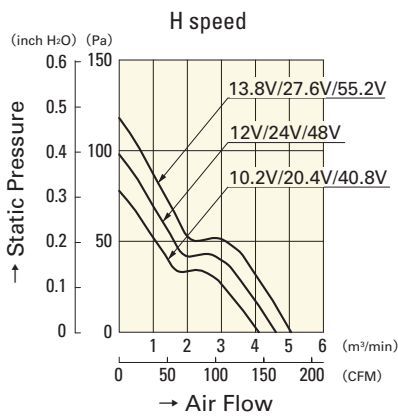
Model : 109-719 Surface treatment : Nickel-chrome plating (silver)
: 109-0719H : Cation electropainting (black)

Color

Inlet side, Outlet side



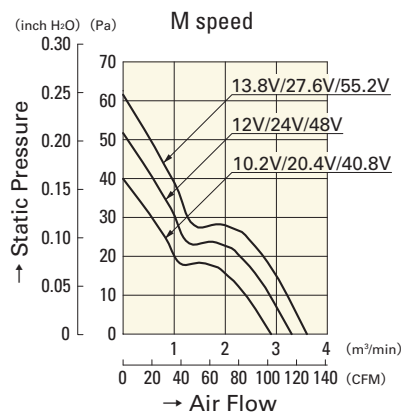
Air Flow - Static Pressure Characteristics



109W1412H101-U

109W1424H101-U

109W1448H101-U



109W1412M101-U

109W1424M101-U

109W1448M101-U

140mm sq.

San Ace 140W

38mm thick, 51mm thick(WB type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material.....Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60℃ ,
rated voltage,and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30℃ to +70℃ (Non-condensing)

140×140×51mm [Mass : 700g]

IP 55 Dust resistant device with protection against water jets

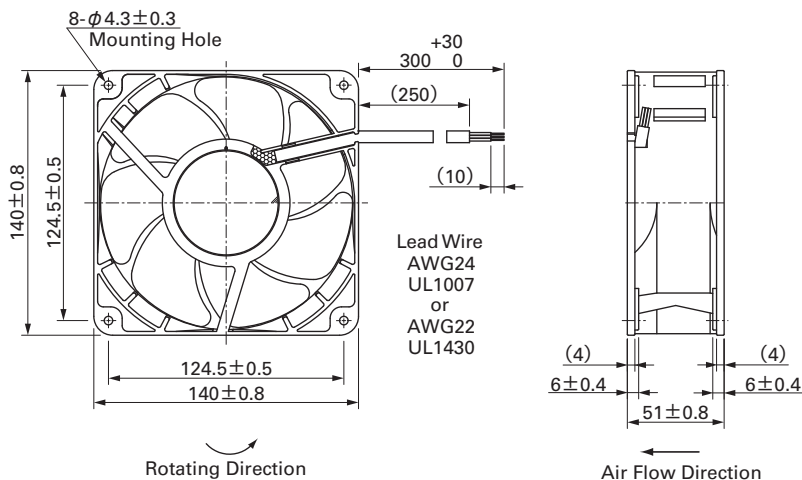
WBtype

Specifications

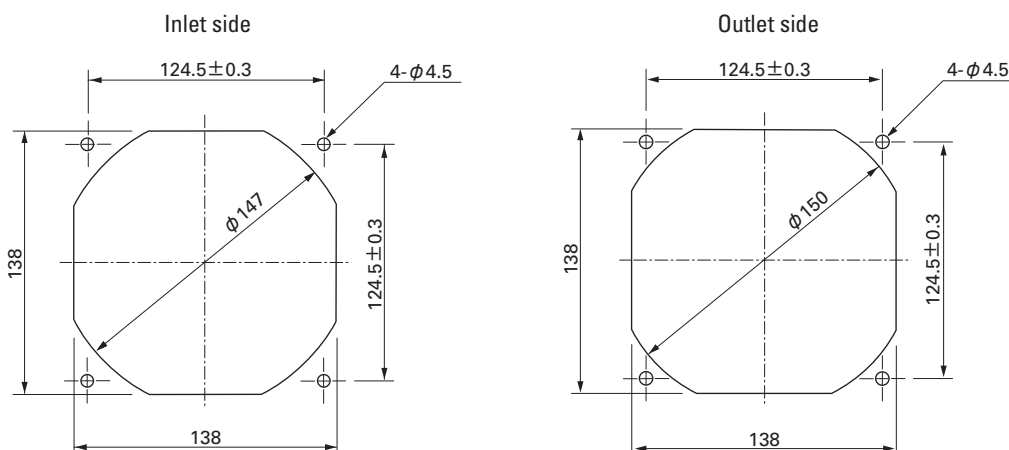
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [℃]	Life Expectancy [h]
9WB1412S501	12	10.2 to 13.8	2.7	32.4	4,200	8.1	286	240	0.964	57	- 10 to + 70	60,000
9WB1412H501			1.25	15	3,100	5.9	208	130	0.522	49		100,000
9WB1412M501			0.46	5.52	2,050	3.9	138	63	0.253	39		
9WB1424H501	24	20.4 to 27.6	0.6	14.4	3,100	5.9	208	130	0.522	49		
9WB1424M501			0.22	5.28	2,050	3.9	138	63	0.253	39		
9WB1448S501	48	40.8 to 55.2	0.71	34.08	4,200	8.1	286	240	0.964	57		60,000
9WB1448H501			0.27	12.96	3,100	5.9	208	130	0.522	49		100,000

Without Sensor **Pulse Sensor** Available in all models. **Lock Sensor** Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)



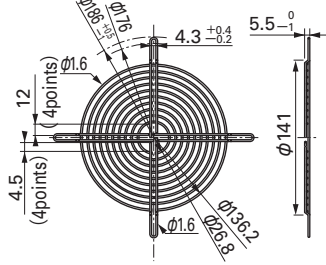
Options (Unit : mm)

Finger guards

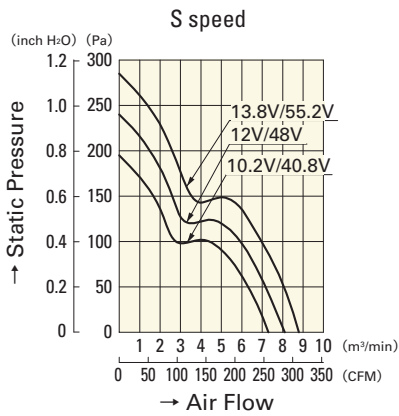
Model : 109-719 Surface treatment : Nickel-chrome plating (silver)
: 109-0719H : Cation electropainting (black)

Color

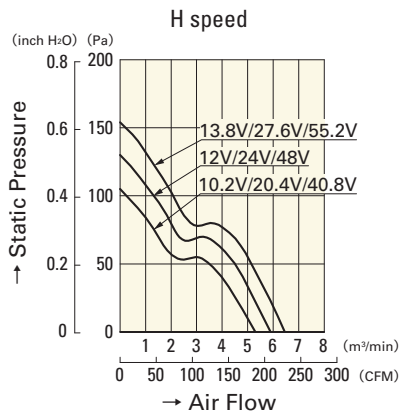
Inlet side, Outlet side



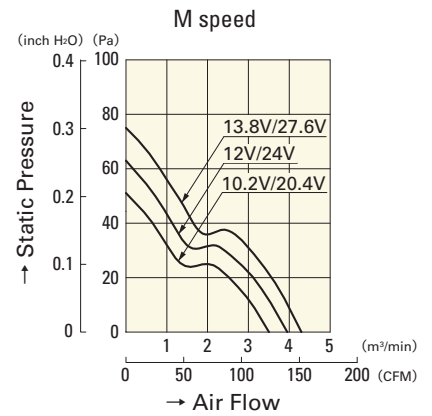
Air Flow - Static Pressure Characteristics



9WB1412S501
9WB1448S501



9WB1412H501
9WB1424H501
9WB1448H501



9WB1412M501
9WB1424M501

φ172mm

San Ace 172W

51mm thick(WE type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60℃ ,
rated voltage,and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30℃ to +70℃ (Non-condensing)

φ172mm×51mm (Mass : 860g)

SideCut type

IP 55 Dust resistant device with protection against water jets

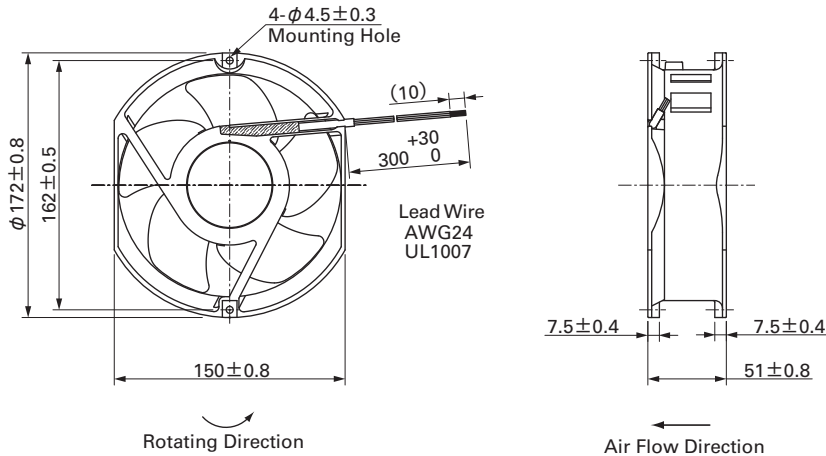
WE type

Specifications

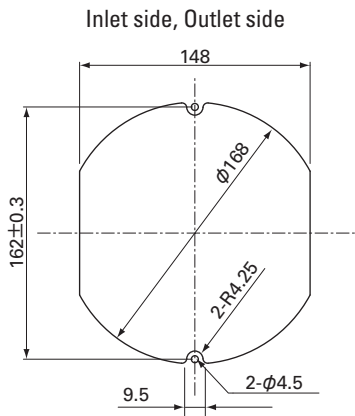
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [℃]	Life Expectancy [h]
9WE5724K501	24	20.4 to 27.6	1.3	31.2	4,100	8.5 300	243 0.976	60	- 10 to + 60	40,000
9WE5748K501	48	40.8 to 55.2	0.7	33.6	4,100	8.5 300	243 0.976	60		40,000

Without Sensor **Pulse Sensor** Available in all models.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)



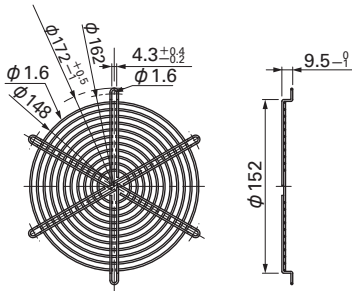
Options (Unit : mm)

Finger guards

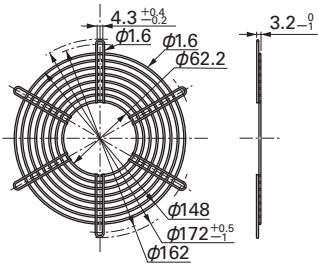
Model : 109-319E Surface treatment : Nickel-chrome plating (silver) Color
: 109-319H : Cation electropainting (black)

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

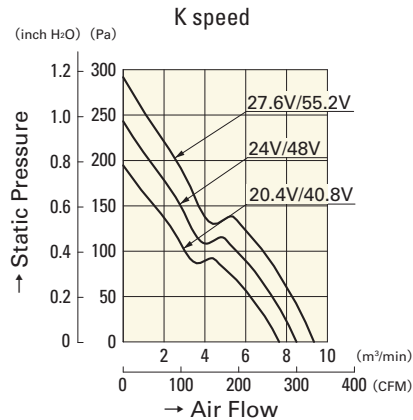
Inlet side, Outlet side



Outlet side



Air Flow - Static Pressure Characteristics



9WE5724K501
9WE5748K501

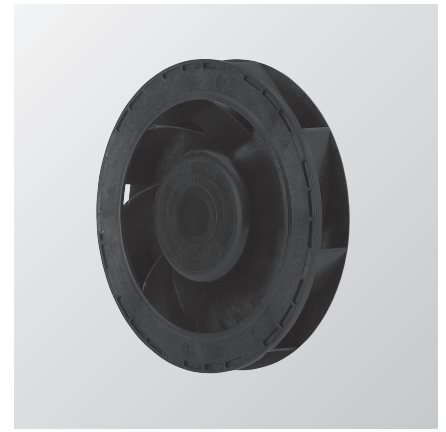
Splash Proof Fan 172mm

172mm

φ100mm

San Ace 100W

25mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material..... Motor case: Aluminum (Black Painting),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (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)

φ100mm×25mm (Mass : 160g) **IP 54** Dust resistant device with protection against water spray

Specifications When our inlet nozzle [Option (Model NO. : 109-1080)] is mounted.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{*)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy ^{*)} [h]	
9W1TM48P4G01	48	36 to 60	100 ^{*)}	0.36	17.28	7,400	2.03	71.7	708	2.84	65	- 10 to +70	40,000/60°C (70,000/40°C)	
9W1TM48P4H01			100	0.22	10.56	6,400	1.77	62.5	560	2.25	60			
			0	0.04	1.92	2,000	0.51	18.0	48	0.19	34			

Note 1: Fan does not rotate when PWM duty cycle is 0%.

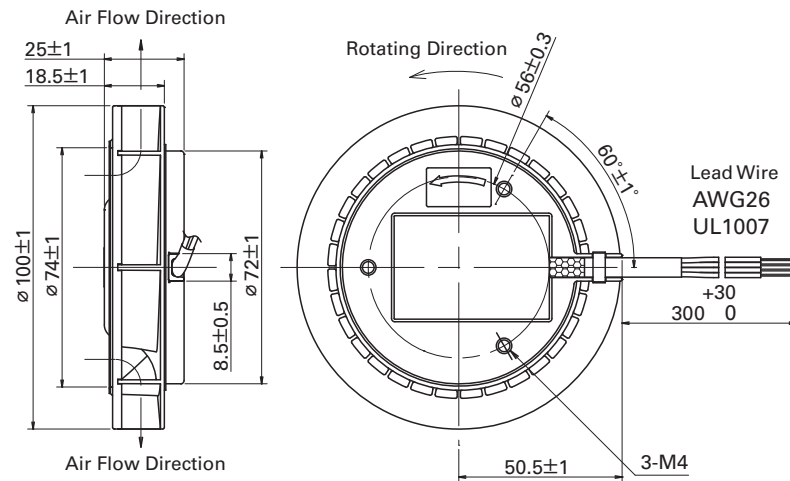
Note 2: Expected life at 40 degreeC ambient is just reference value.

Max input is 9W1TM48P4G01 : 22W, 9W1TM48P4H01 : 14W at rated voltage.

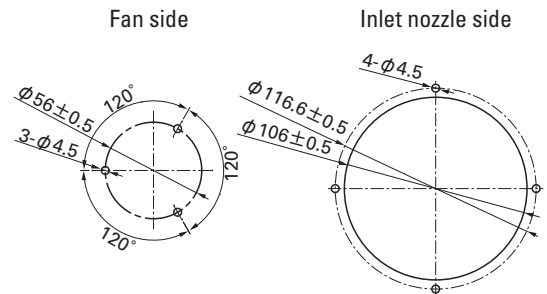
※ PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)



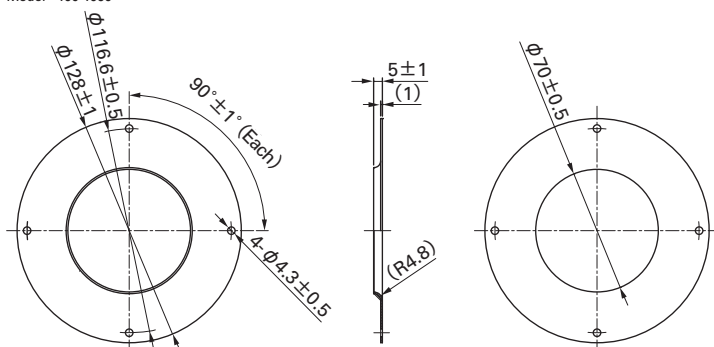
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

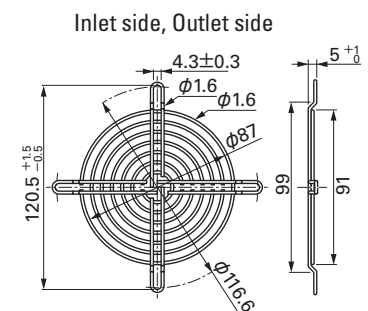
Inlet nozzle

Model : 109-1080



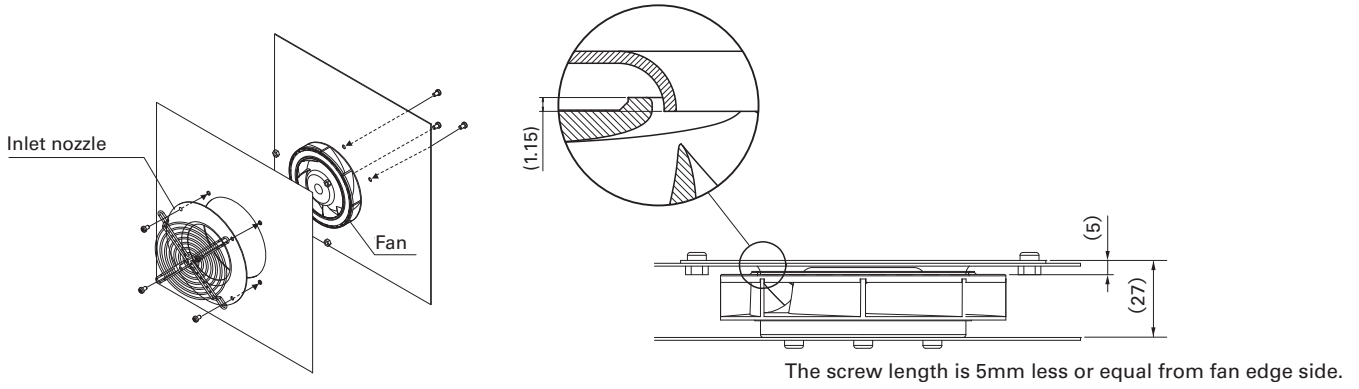
Finger guards

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



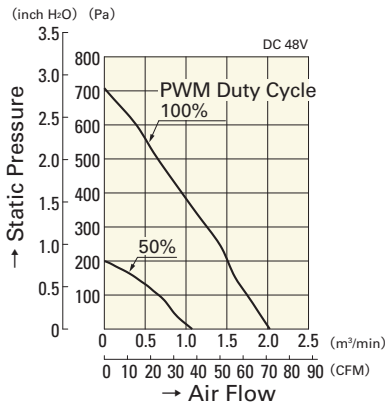
Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

Reference diagram for mounting

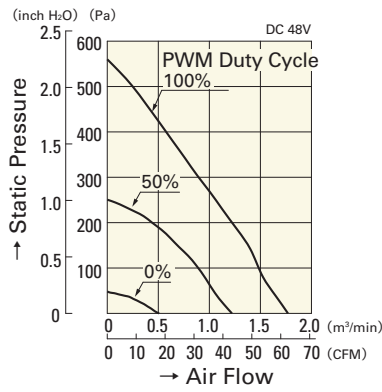


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

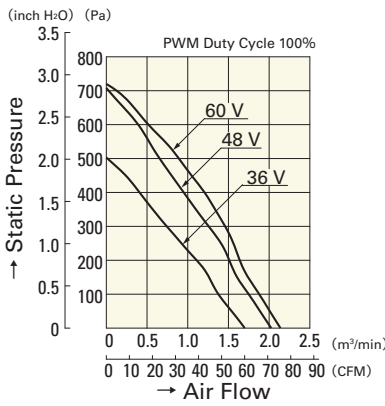


9W1TM48P4G01

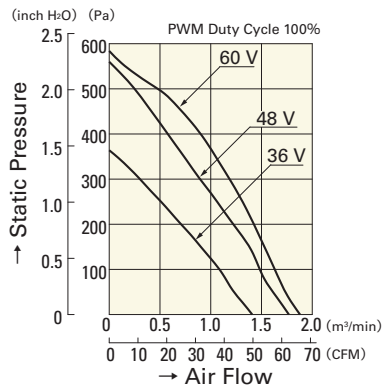


9W1TM48P4H01

Operating Voltage Range

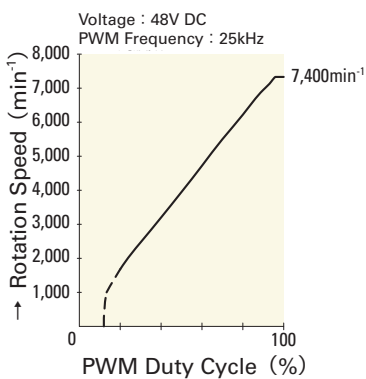


9W1TM48P4G01

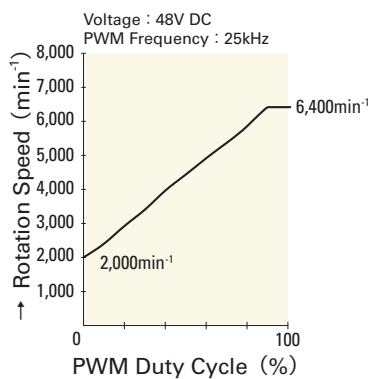


9W1TM48P4H01

PWM Duty - Speed Characteristics Example



9W1TM48P4G01

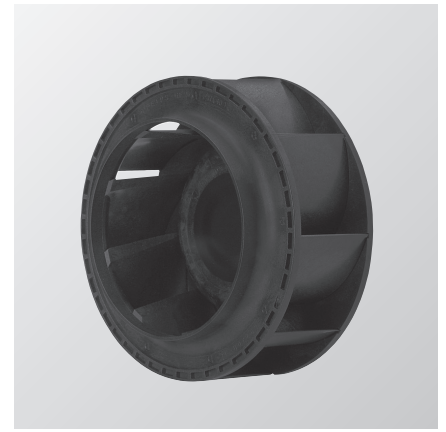


9W1TM48P4H01

φ133mm

San Ace 133W

91mm thick



General Specifications

With a pulse sensor

Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function

⇨ Refer to Page 293

- Material.....Motor case: Aluminum (Black Painting),
Impeller:Plastics (Flammability: UL94V-1 MIN.)
- Life ExpectancyVaries for each model (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)

φ133mm×91mm (Mass : 720g)

IP 54

Dust resistant device with protection against water spray

Specifications

When our inletnozzle [Option (Model : 109-1069)] is mounted.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy ^{Note2)} [h]
9W1TJ48P0H61	48	36 to 60	100	0.55	26.4	4,150	6.39 225	395 1.59	61	-10 to +70	40,000/60°C (70,000/40°C)

Note 1: Fan does not rotate when PWM duty cycle is 0%.

Note 2: Expected life at 40 degreeC ambient is just reference value.
Max input is 45W at rated voltage.

※PWM Frequency : 25kHz

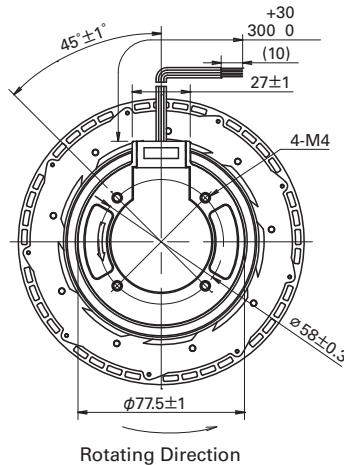
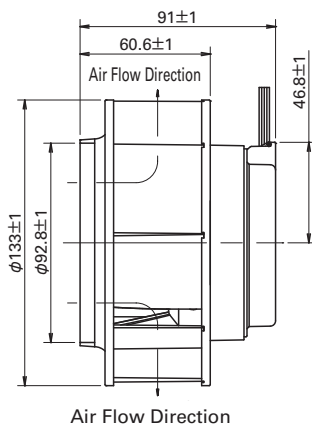
Without Sensor

Pulse Sensor

PWM Control

Available in all models.

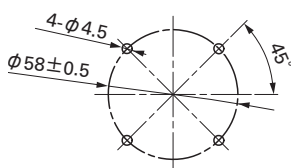
Dimensions (Unit : mm)



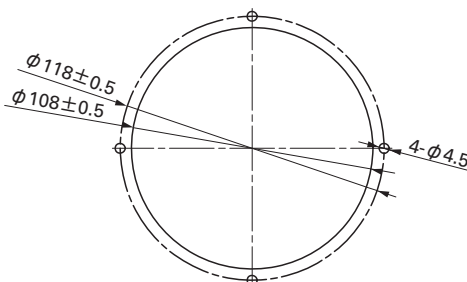
Lead Wire
AWG24
UL1430

Reference dimension of mounting holes and vent opening (Unit : mm)

Fan side



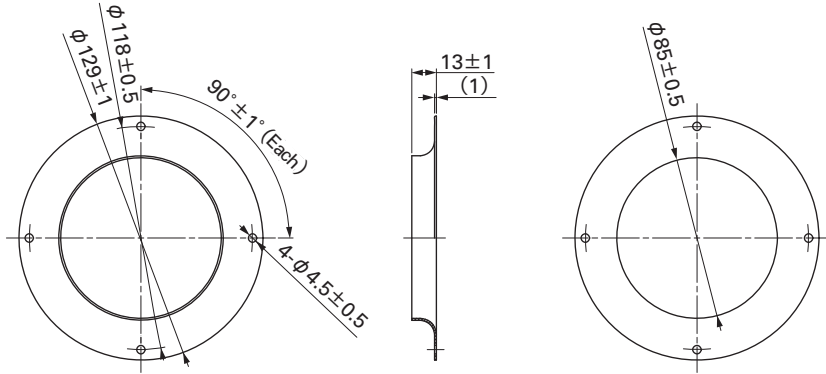
Inlet nozzle side



Options (Unit : mm)

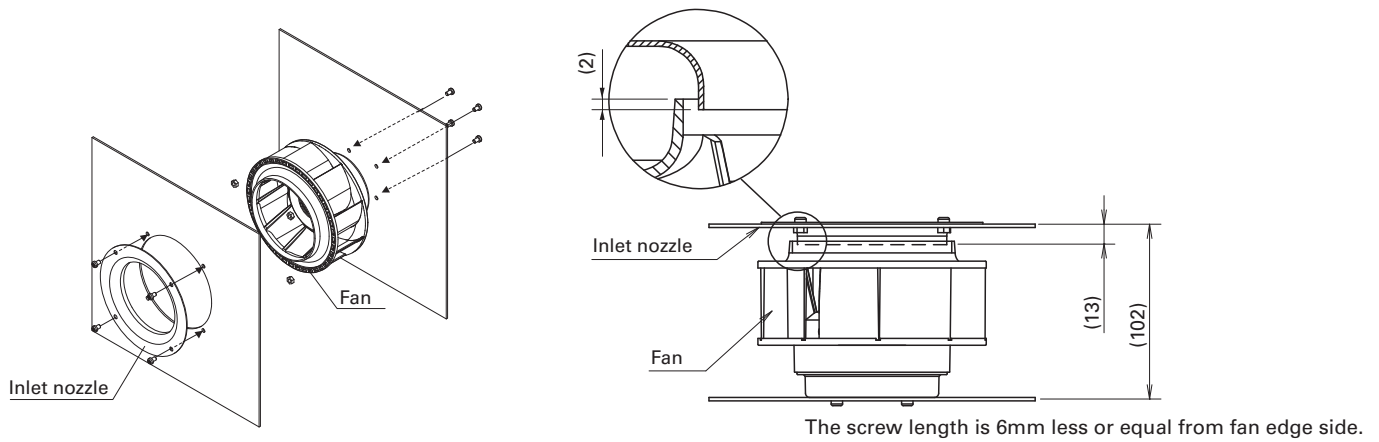
Inlet nozzle

Model : 109-1069



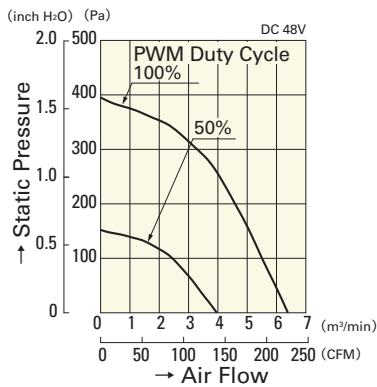
Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

Reference diagram for mounting



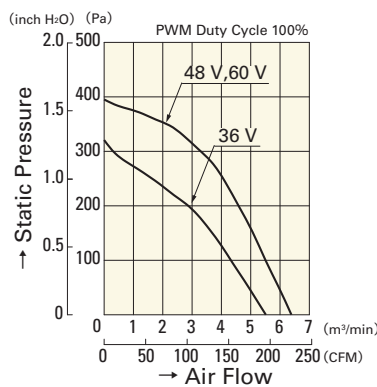
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



9W1TJ48P0H61

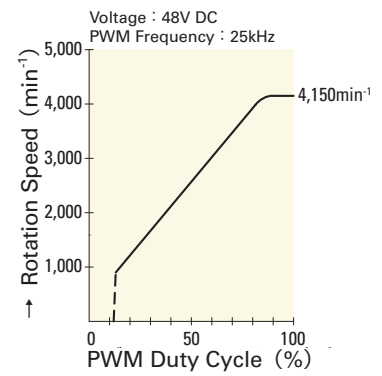
Operating Voltage Range



9W1TJ48P0H61

PWM Duty

Speed Characteristics Example

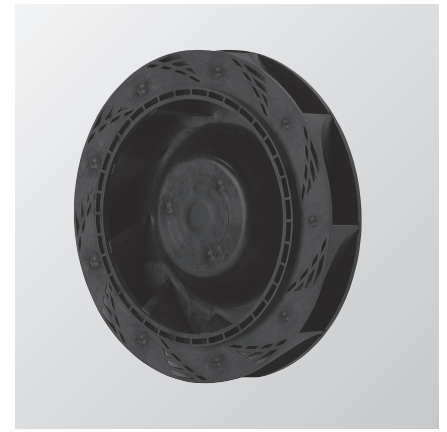


9W1TJ48P0H61

φ150mm

San Ace 150W

35mm thick



General Specifications

With a pulse sensor

Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function

⇨ Refer to Page 293

- Material.....Motor case: Aluminum (Black Painting),
Impeller:Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (L10:Survival rate: 90% at 60℃ ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black (Sensor) yellow (Control) brown
- Storage Temperature ...-30℃ to +70℃ (Non-condensing)

φ150mm×35mm (Mass : 330g)

IP 54

Dust resistant device with protection against water spray

Specifications

When our inletnozzle [Option (Model : 109-1081)] is mounted.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [℃]	Life Expectancy ^{Note2)} [h]
9W1TN48P1H01	48	36.0 to 55.2	100	0.32	15.4	3,800	3.83	135	390	1.57	59	-10 to +70	40,000/60℃ (70,000/40℃)

Note 1: Fan does not rotate when PWM duty cycle is 0%.

Note 2: Expected life at 40 degreeC ambient is just reference value.
Max input is 22W at rated voltage.

※PWM Frequency : 25kHz

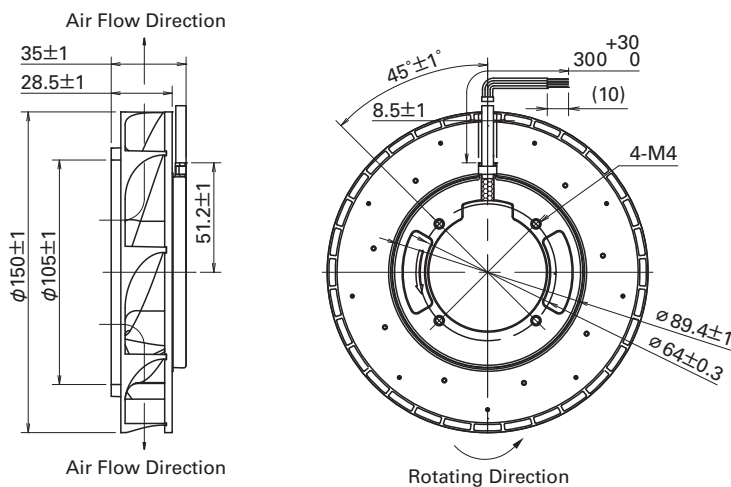
Without Sensor

Pulse Sensor

PWM Control

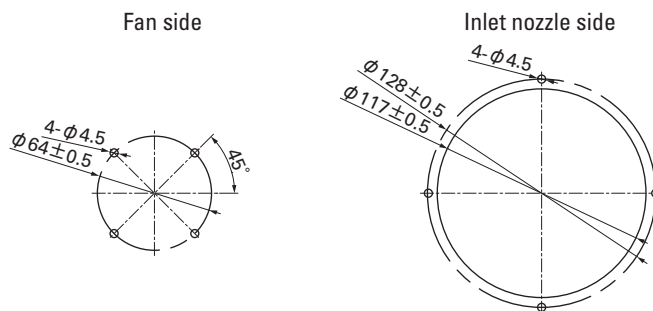
Available in all models.

Dimensions (Unit : mm)



Lead Wire
AWG24
UL1061

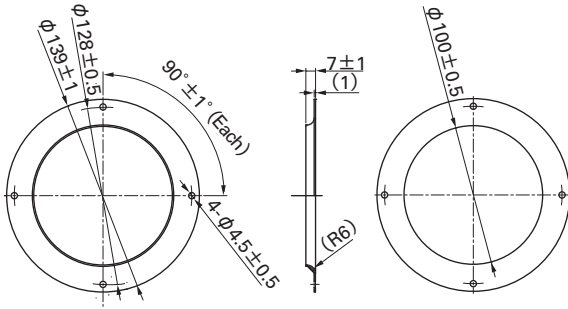
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

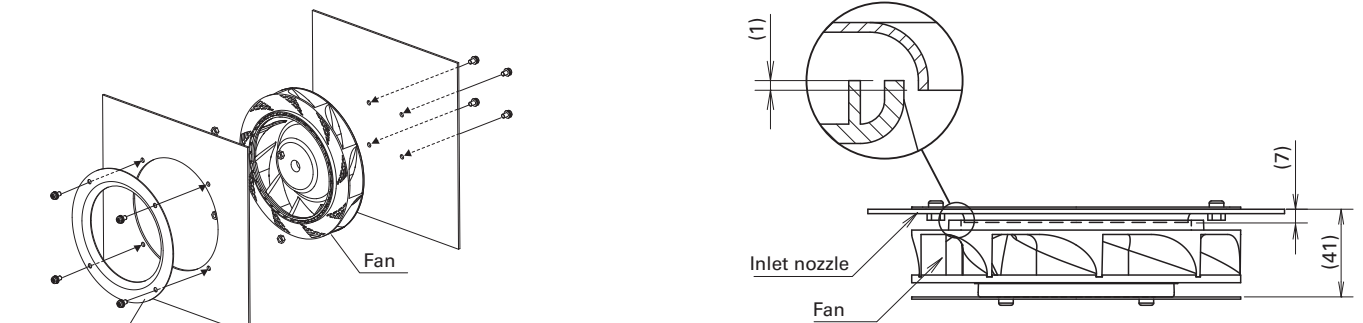
Inlet nozzle

Model : 109-1081



Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

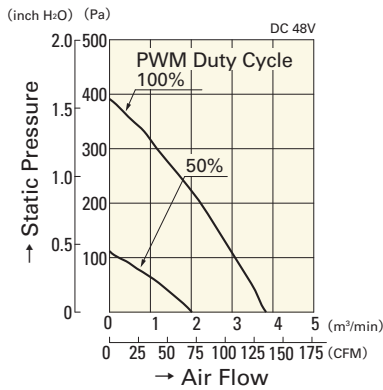
Reference diagram for mounting



Screw length should be 4 mm or more but not exceeding 6 mm from fan edge face.

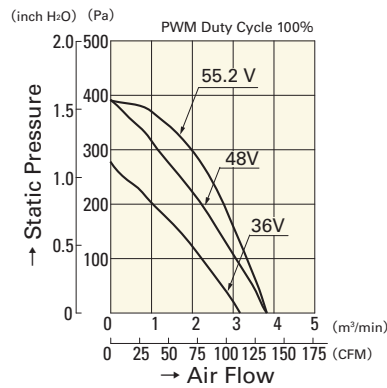
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



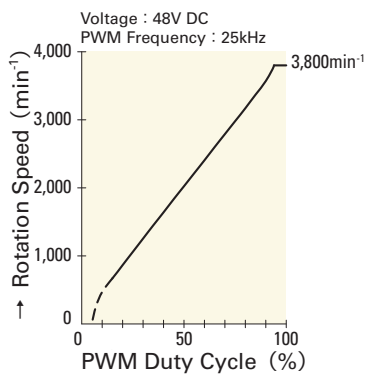
9W1TN48P1H01

Operating Voltage Range



9W1TN48P1H01

PWM Duty Speed Characteristics Example



9W1TN48P1H01

φ175mm

San Ace 175W

69mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material..... Motor case: Aluminum (Black Painting),
Impeller:Plastics (Flammability: UL94V-1Min.)
- Life ExpectancyVaries for each model (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)

φ175mm×69mm (Mass : 760g) **IP 54** Dust resistant device with protection against water spray

Specifications When inlet nozzle [Option (Model : 109-1073)] is mounted.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9W1TG48P0H61	48	36 to 60	100	0.65	31.2	3,100	9.0	318	360	1.44	64	-10 to +70	40,000/60°C (70,000/40°C)

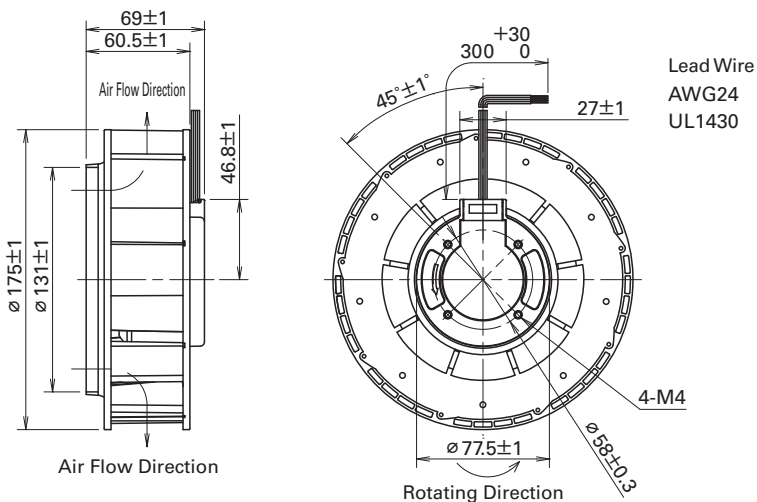
Note 1: Fan does not rotate when PWM duty cycle is 0%.

Note 2: Expected life at 40 degreeC ambient is just reference value.
Max input is 60W at rated voltage.

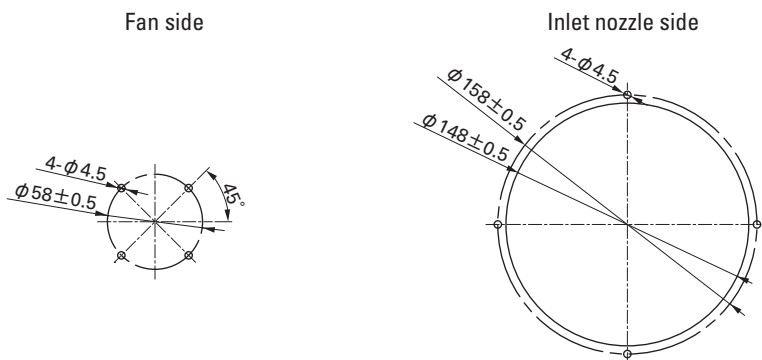
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)



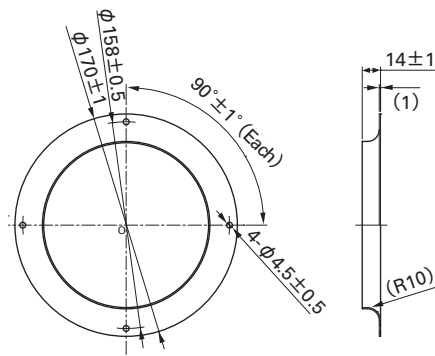
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

Inlet nozzle

Model : 109-1073



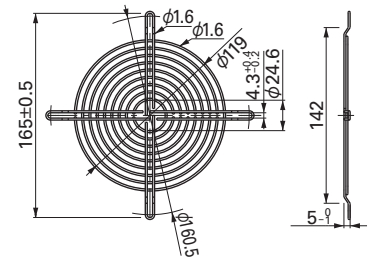
Finger guards

Model : 109-722

Surface treatment : Nickel-chrome plating (silver)

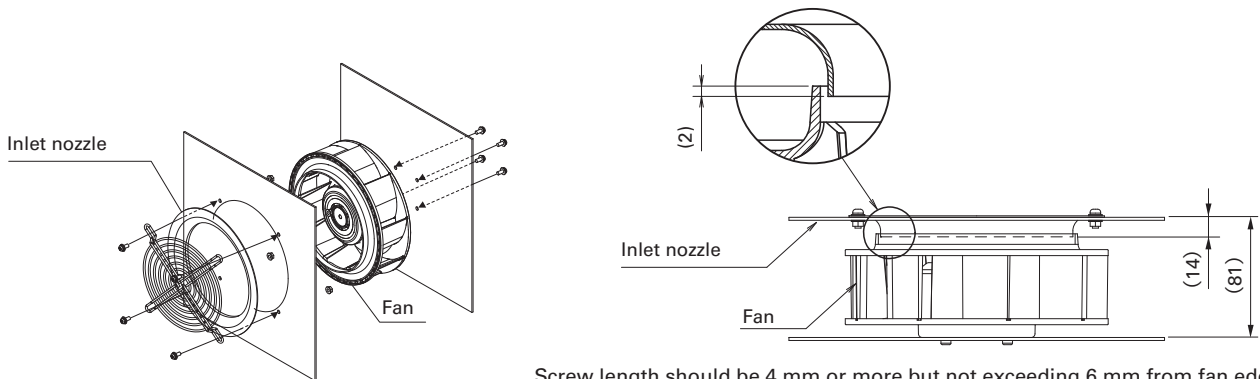
Color

Inlet side, Outlet side



Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

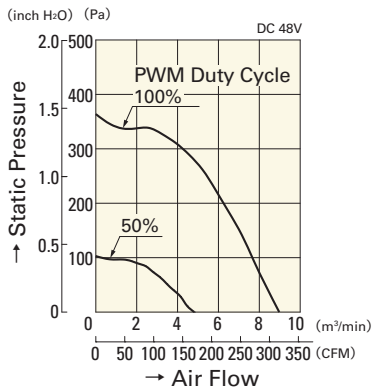
Reference diagram for mounting



Screw length should be 4 mm or more but not exceeding 6 mm from fan edge face. To prevent screw from losing, use plain washer and spring washer.

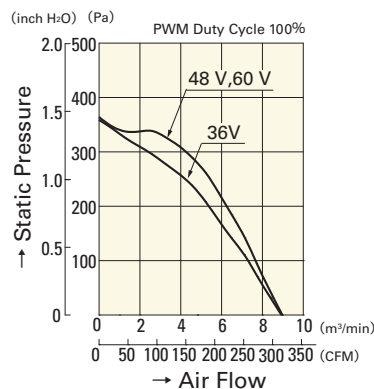
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



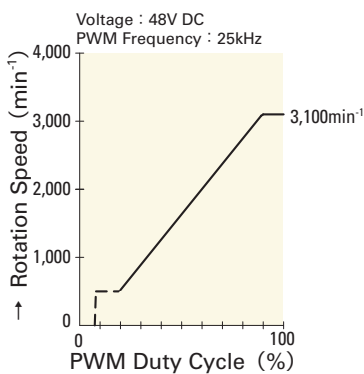
9W1TG48P0H61

Operating Voltage Range



9W1TG48P0H61

PWM Duty Speed Characteristics Example



9W1TG48P0H61

40mm sq.**San Ace 40WF**

15mm thick, 20mm thick

**General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇔ Refer to Page 291

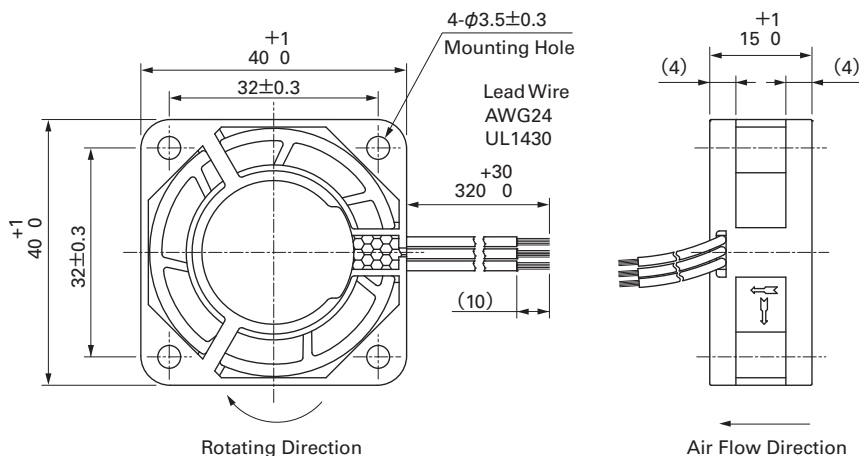
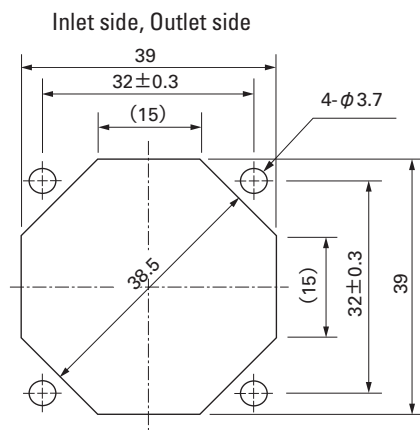
- Material.....Frame: Plastics (Flammability: UL94V-0)
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black **Sensor** yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

The product can be used in an oil mist environment*

*Environment where machining oil mist is scattered.
Usage of this product requires an evaluation with the oil that will be used.

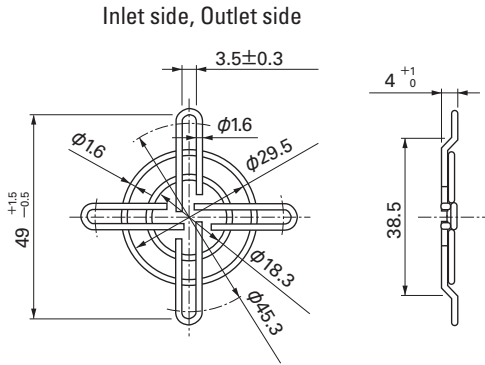
40×40×15mm (Mass : 35g)**IP 55** Dust resistant device with protection against water jets**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9WF0424H701	24	20.4 to 27.6	0.085	2.04	11,300	0.195	6.9	80	0.32	38	-10 to +70	40,000

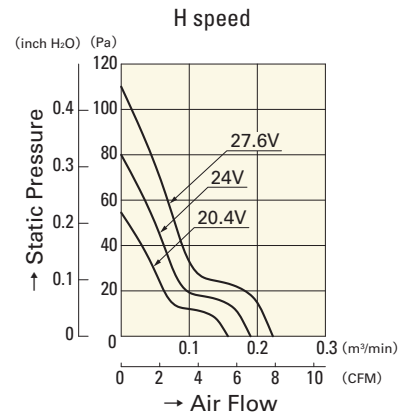
Without Sensor **Pulse Sensor** Available in all models.**Lock Sensor** Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

Finger guards
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color



Air Flow - Static Pressure Characteristics



9WF0424H701

Oil Proof Fan 40mm

40mm

40mm sq.**San Ace 40WF**

15mm thick, 20mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

The product can be used in an oil mist environment*

*Environment where machining oil mist is scattered.
Usage of this product requires an evaluation with the oil that will be used.

40×40×20mm (Mass : 50g)**IP 55** Dust resistant device with protection against water jets**Specifications**

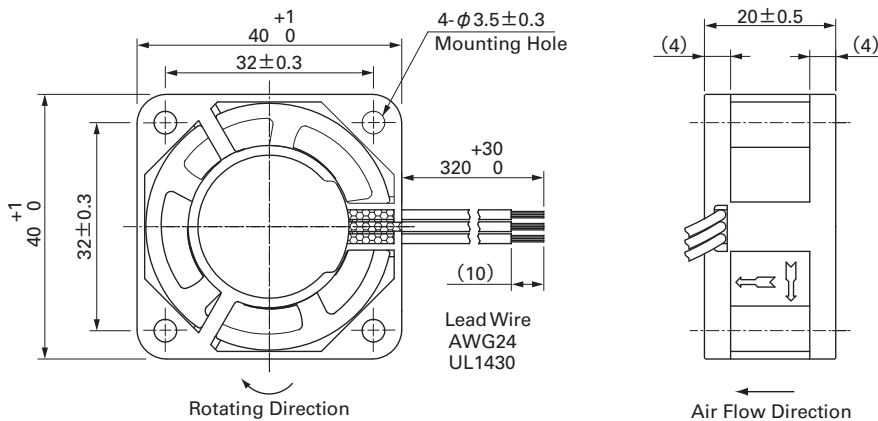
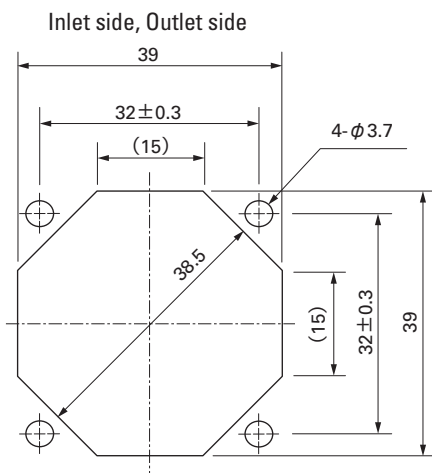
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9WF0424H601	24	20.4 to 27.6	0.11	2.64	13,100	0.26	9.2	90	0.361	42	-10 to +70	40,000
9WF0424F601			0.076	1.82	11,000	0.22	7.77	62.8	0.252	37		

Without SensorPulse Sensor

Available in all models.

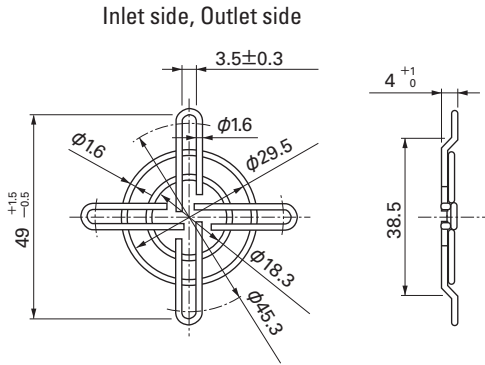
Lock Sensor

Please inquire as the availability of these functions depend on the model.

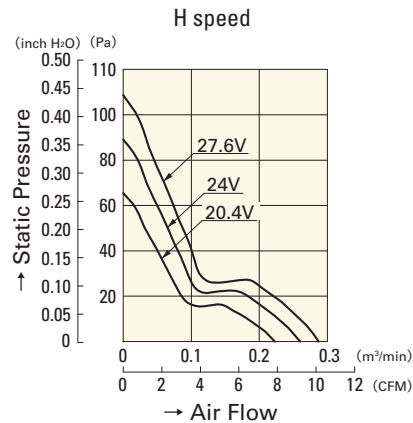
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

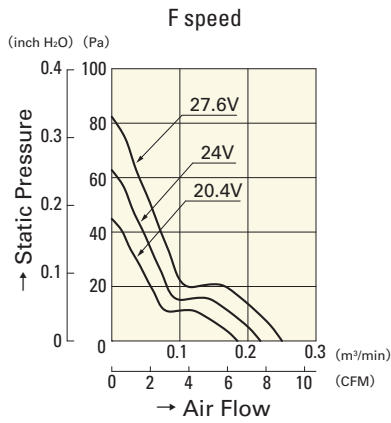
Finger guards
 Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color



Air Flow - Static Pressure Characteristics



9WF0424H601



9WF0424F601

60mm sq.

San Ace 60WF

15mm thick, 20mm thick, 25mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

The product can be used in an oil mist environment*

*Environment where machining oil mist is scattered.
Usage of this product requires an evaluation with the oil that will be used.

60×60×15mm (Mass : 62g)

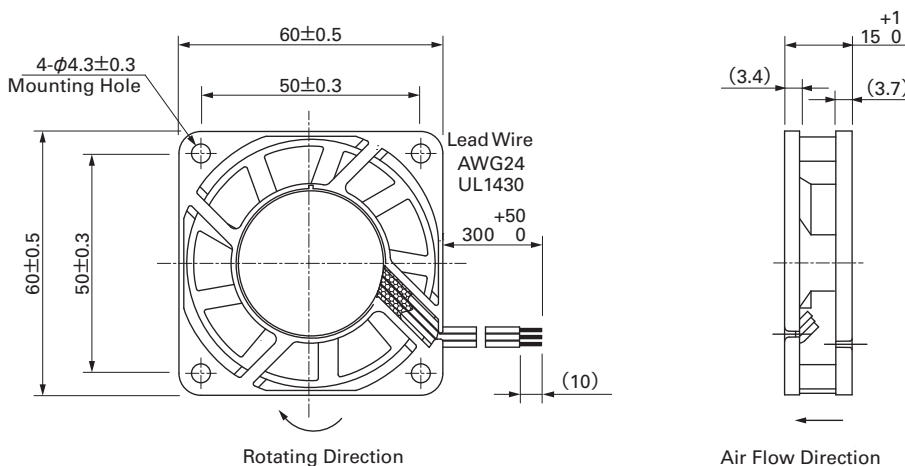
IP 55 Dust resistant device with protection against water jets

Specifications

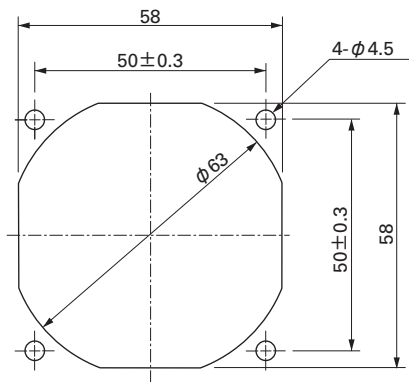
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9WF0624H701	24	20.4 to 27.6	0.12	2.88	6,800	0.52	18.36	95	0.38	44	- 10 to + 70	40,000

Without Sensor Pulse Sensor Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)

Reference dimension of mounting holes and vent opening (Unit : mm)

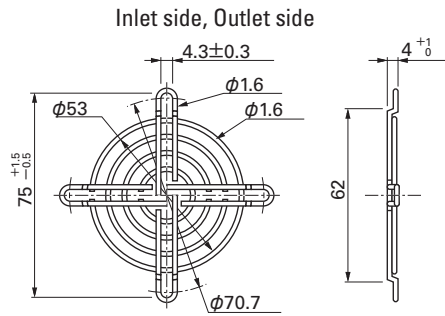
Inlet side, Outlet side



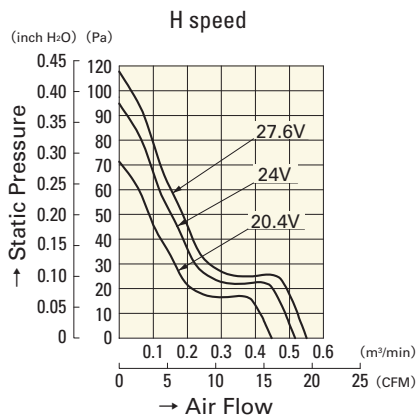
Options (Unit : mm)

Finger guards

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



Air Flow - Static Pressure Characteristics



9WF0624H701

60mm sq.**San Ace 60WF**

15mm thick, 20mm thick, 25mm thick

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

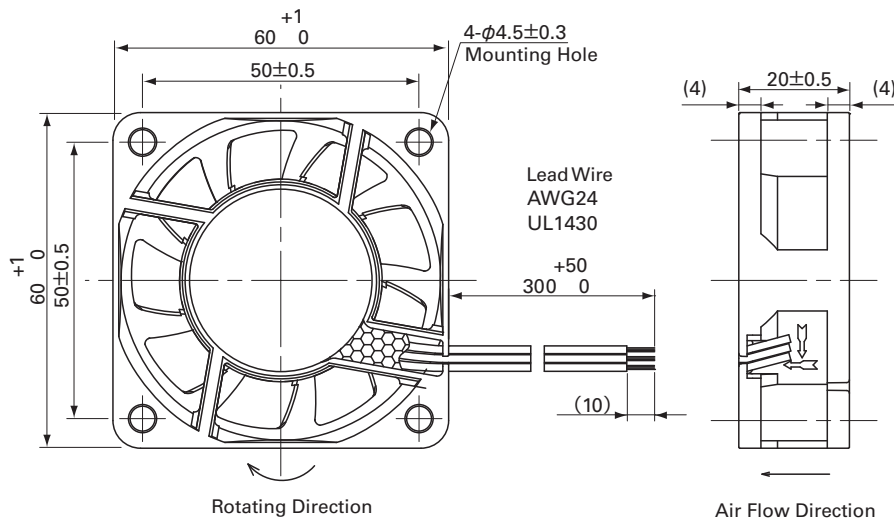
- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

The product can be used in an oil mist environment*

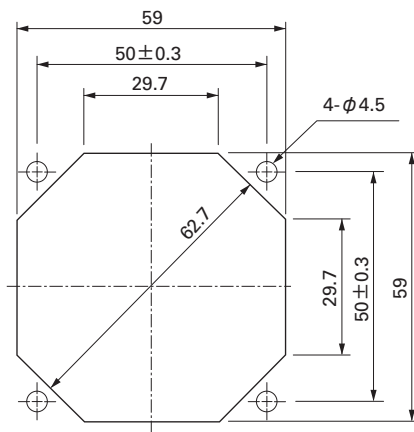
*Environment where machining oil mist is scattered.
Usage of this product requires an evaluation with the oil that will be used.

60×60×20mm (Mass : 80g)**IP 55** Dust resistant device with protection against water jets**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL	Operating Temperature	Life Expectancy
						[m ³ /min]	[CFM]	[Pa]	[inchH ₂ O]	[dB(A)]	[°C]	[h]
9WF0624H601	24	12 to 27.6	0.15	3.6	6,600	0.69	24.3	114	0.46	42	-10 to +70	40,000

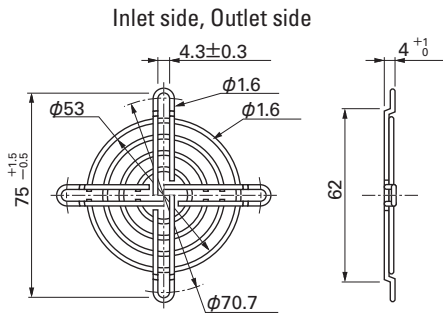
Without Sensor Pulse Sensor Available in all models.
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Inlet side, Outlet side

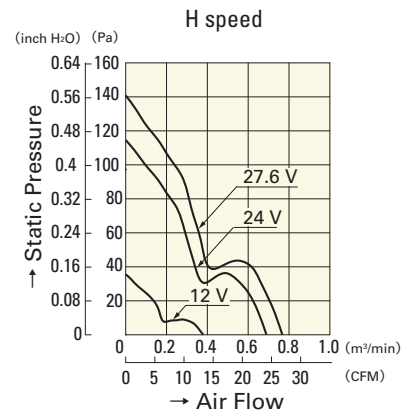


Options (Unit : mm)

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



Air Flow - Static Pressure Characteristics



9WF0624H601

60mm sq.**San Ace 60WF**

15mm thick, 20mm thick, 25mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

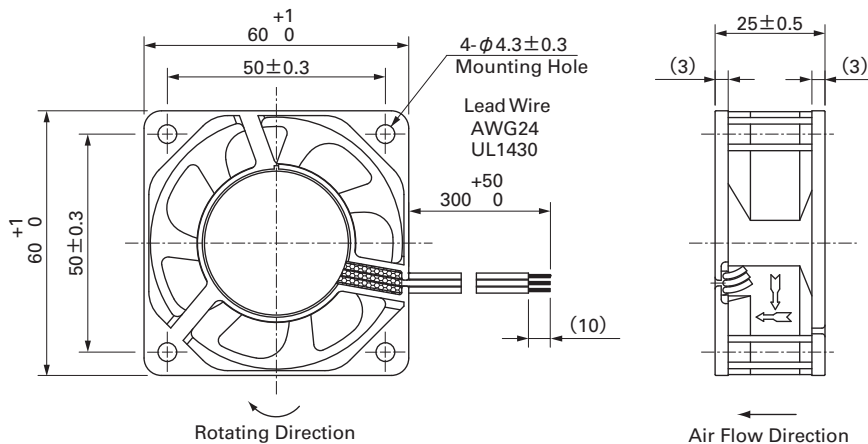
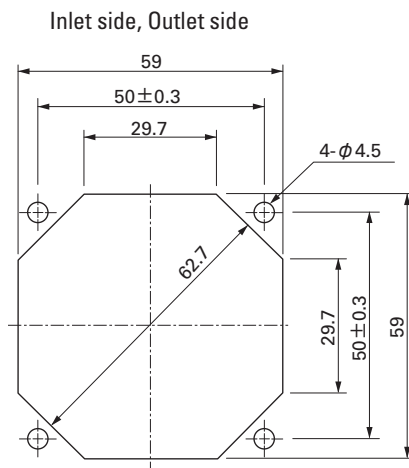
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

The product can be used in an oil mist environment*

*Environment where machining oil mist is scattered.
Usage of this product requires an evaluation with the oil that will be used.

60×60×25mm (Mass : 110g)**IP 55** Dust resistant device with protection against water jets**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL	Operating Temperature [°C]	Life Expectancy [h]
						[m³/min]	[CFM]	[Pa]	[inchH ₂ O]	[dB(A)]		
9WF0624H401	24	20.4 to 27.6	0.15	3.6	6,500	0.67	23.6	97	0.390	41	- 10 to + 70	40,000

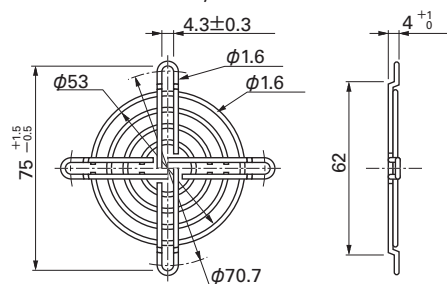
Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

Finger guards

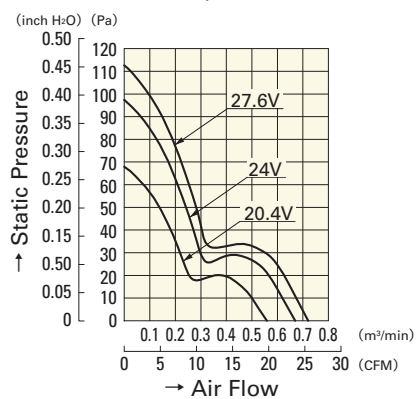
Model : 109-139E Surface treatment : Nickel-chrome plating (silver) Color
: 109-139H : Cation electropainting (black)

Inlet side, Outlet side



Air Flow - Static Pressure Characteristics

H speed



9WF0624H401

80mm sq.**San Ace 80WF**

25mm thick

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

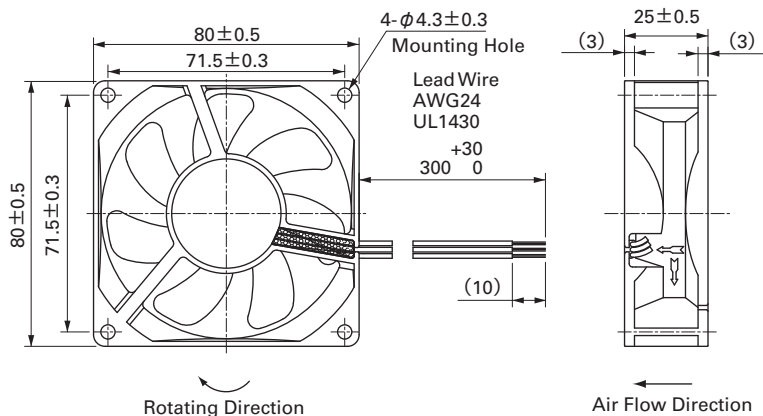
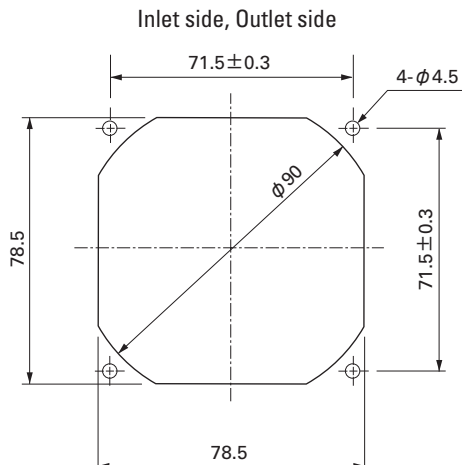
- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

The product can be used in an oil mist environment*

*Environment where machining oil mist is scattered.
Usage of this product requires an evaluation with the oil that will be used.

80×80×25mm (Mass : 130g)**IP 55** Dust resistant device with protection against water jets**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9WF0824S401	24	20.4 to 27.6	0.16	3.84	4,000	1.2	42.3	58	0.232	38	-10 to +70	40,000

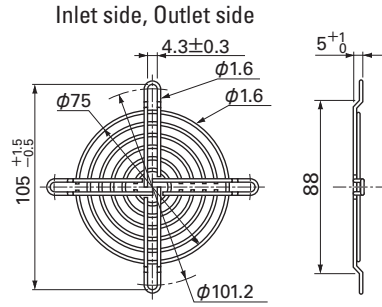
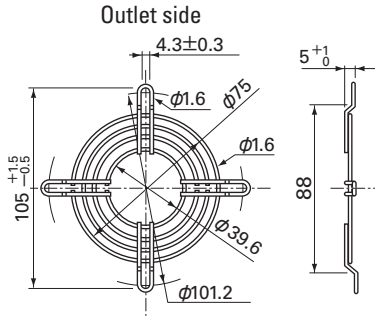
Without Sensor **Pulse Sensor** Available in all models.**Lock Sensor** Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

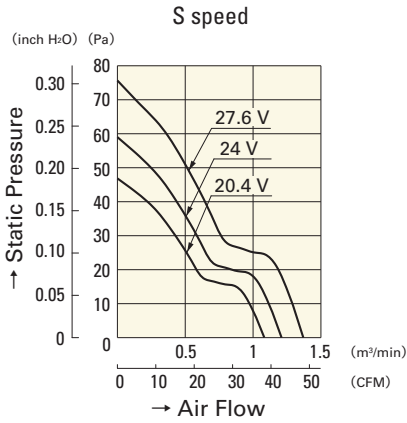
Finger guards

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

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



Air Flow - Static Pressure Characteristics



9WF0824S401

92mm sq.**San Ace 92WF**

25mm thick, 32mm thick

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

The product can be used in an oil mist environment*

*Environment where machining oil mist is scattered.
Usage of this product requires an evaluation with the oil that will be used.

92×92×25mm (Mass : 120g)**IP 55** Dust resistant device with protection against water jets**Specifications**

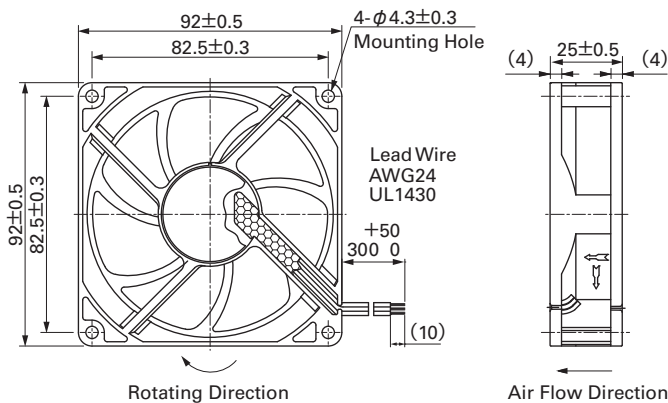
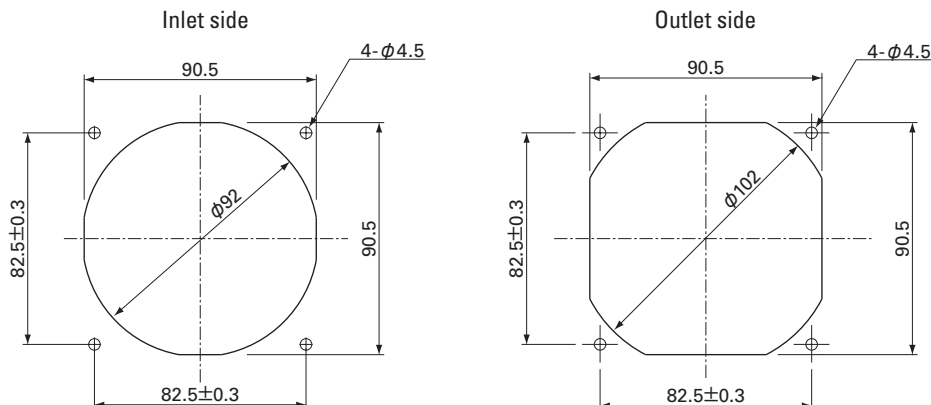
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9WF0924H401	24	20.4 to 27.6	0.13	3.12	3,900	1.45	51.2	66	0.26	42.5	-10 to +70	40,000

Without SensorPulse Sensor

Available in all models.

Lock Sensor

Please inquire as the availability of these functions depend on the model.

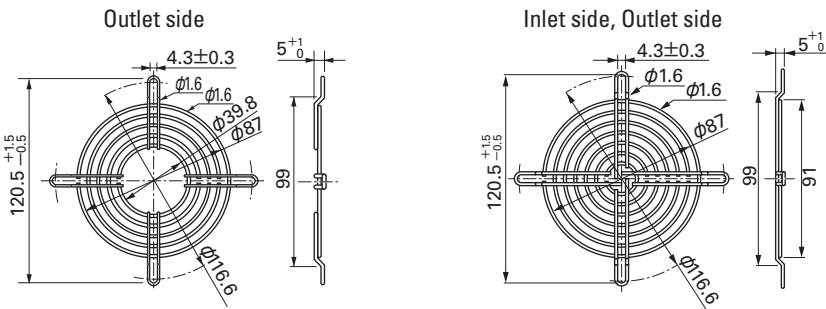
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

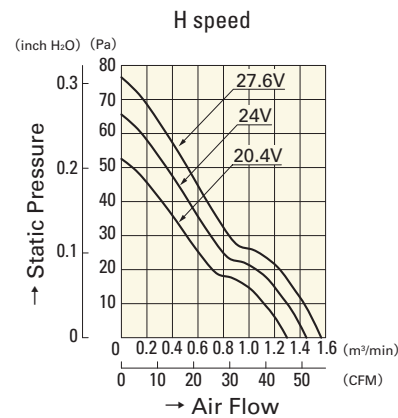
Finger guards

Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color

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



Air Flow - Static Pressure Characteristics



9WF0924H401

Oil Proof Fan 92mm

92mm

92mm sq.**San Ace 92WF**

25mm thick, 32mm thick

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

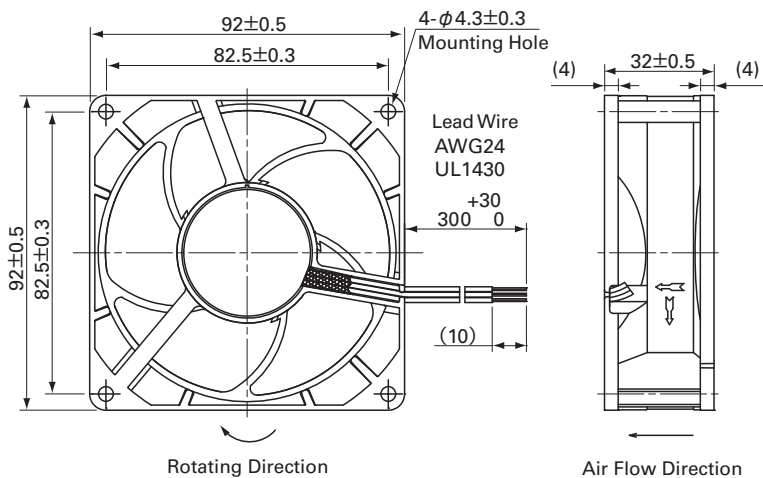
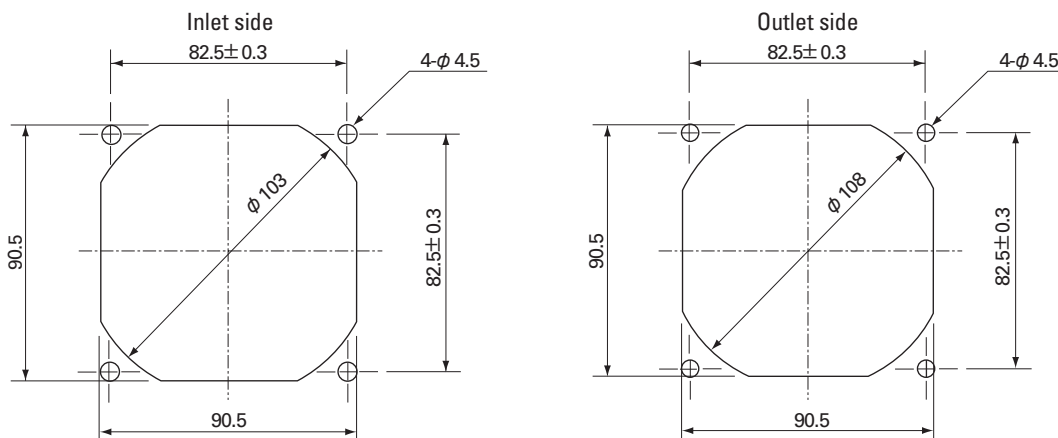
The product can be used in an oil mist environment*

*Environment where machining oil mist is scattered.

Usage of this product requires an evaluation with the oil that will be used.

92×92×32mm (Mass : 185g)**IP 55** Dust resistant device with protection against water jets**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9WF0924S201	24	20.4 to 27.6	0.5	12	7,300	2.8	98.86	255	1.02	58	-10 to +70	40,000
9WF0924H201			0.35	8.4	6,500	2.45	86.5	200	0.8	56		

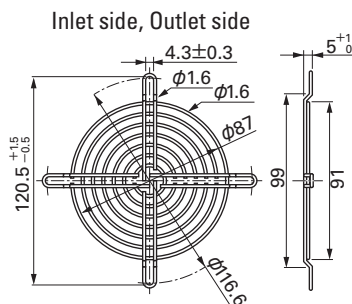
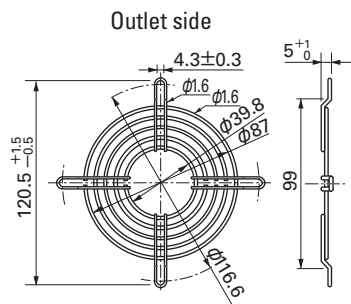
Without Sensor
Pulse Sensor
 Available in all models.
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

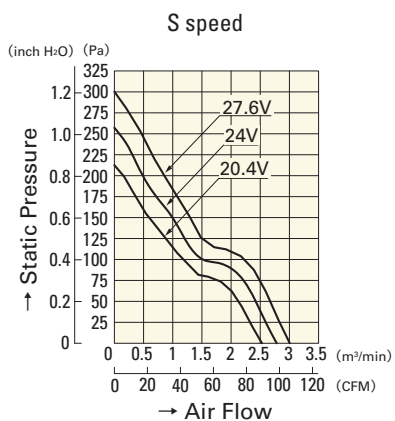
Finger guards

Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color

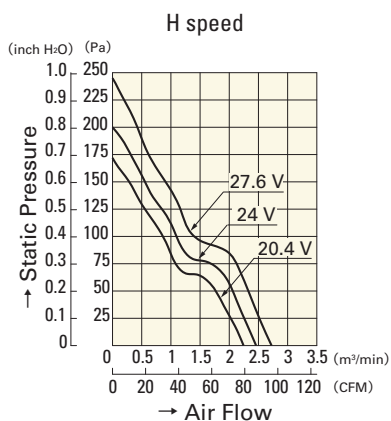
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)



Air Flow - Static Pressure Characteristics



9WF0924S201



9WF0924H201

120mm sq.

San Ace 120WF

38mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
- Lead Wire⊕red ⊖black Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

The product can be used in an oil mist environment*

*Environment where machining oil mist is scattered.
Usage of this product requires an evaluation with the oil that will be used.

120×120×38mm

 (Mass : 355g)

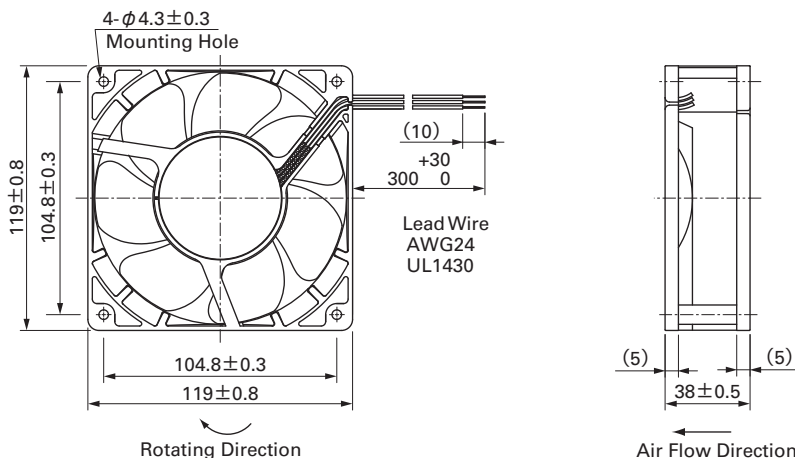
IP 55 Dust resistant device with protection against water jets

Specifications

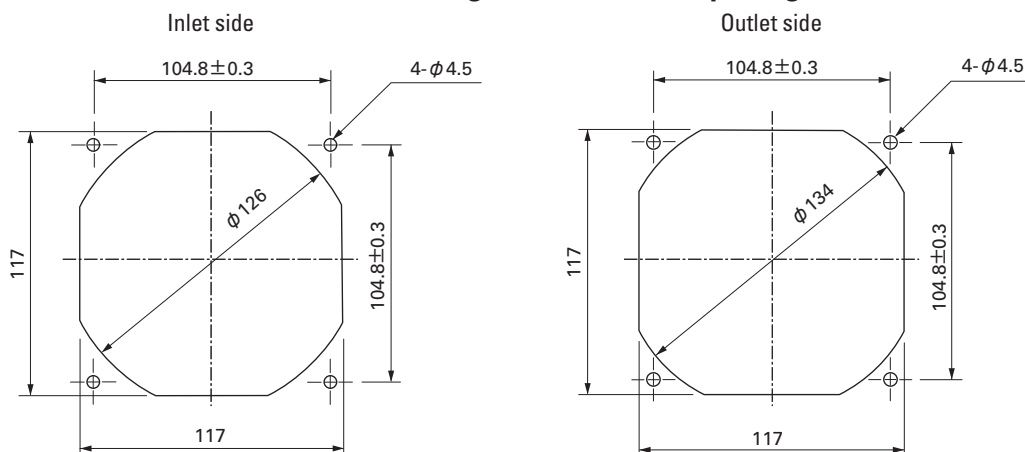
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9WF1224H101	24	20.4 to 27.6	0.32	7.68	3,100	3.34	118	100	0.402	46	- 10 to + 70	40,000

Without Sensor **Pulse Sensor** Available in all models. **Lock Sensor** Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)

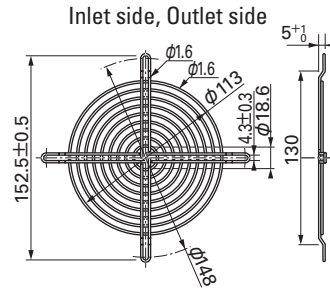
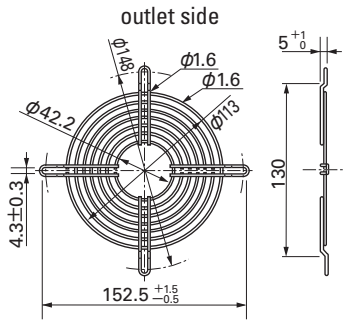


Options (Unit : mm)

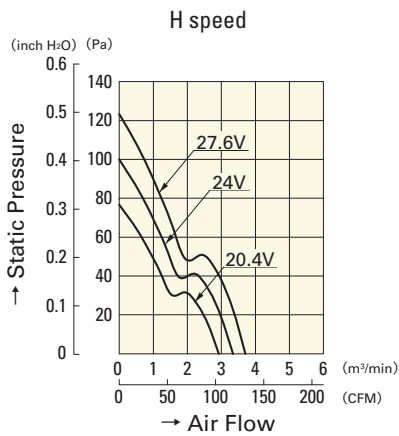
Finger guards

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

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



Air Flow - Static Pressure Characteristics



9WF1224H101

40mm sq.**San Ace 40L**

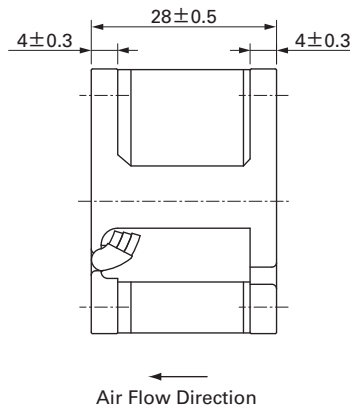
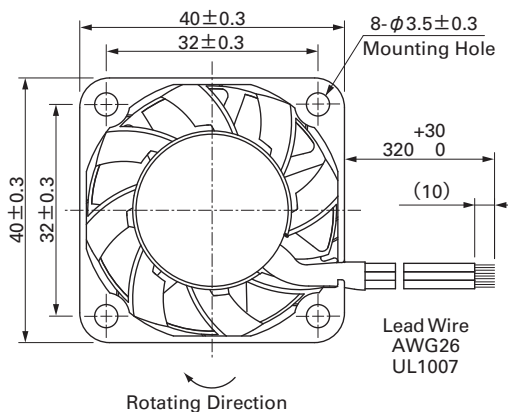
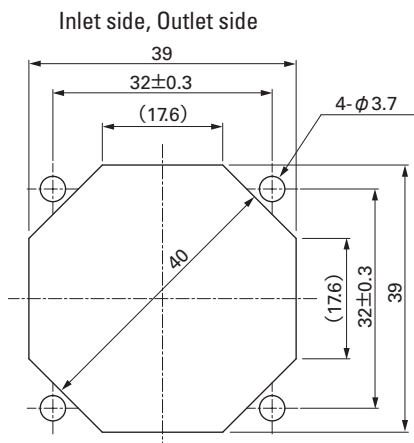
28mm thick

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

40×40×28mm (Mass : 55g)**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9L0412J301	12	10.2 to 13.8	0.31	3.72	11,700	0.52	18.4	206	0.827	48	-10 to +70	100,000
9L0412H301			0.15	1.80	8,400	0.37	13.1	106	0.426	40		
9L0412M301			0.045	0.54	4,000	0.16	5.65	24	0.096	19		

Without Sensor **Pulse Sensor** Available in all models.**Lock Sensor** Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)**

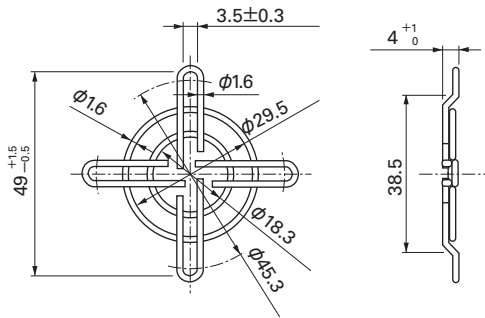
Options (Unit : mm)

Finger guards

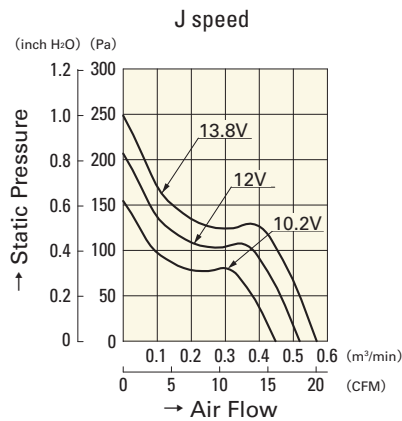
Model : 109-059 Surface treatment : Nickel-chrome plating (silver)

Color

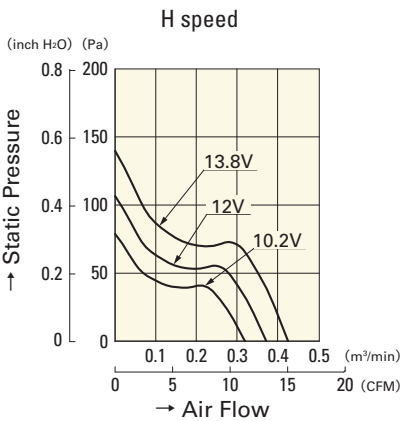
Inlet side, Outlet side



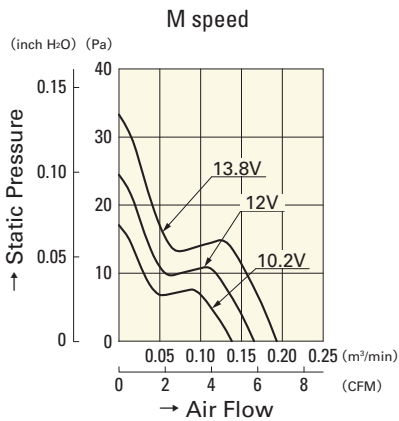
Air Flow - Static Pressure Characteristics



9L0412J301



9L0412H301



9L0412M301

Long Life Fan 40mm

40mm

60mm sq.**San Ace 60L**

25mm thick



- **General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇔ Refer to Page 291
- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
 - Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
 - Lead Wire ⊕ red ⊖ black or blue **Sensor** yellow
 - Storage Temperature -30°C to +70°C (Non-condensing)

60×60×25mm [Mass : 100g]■ **Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109L0612G401	12	10.2 to 13.8	0.24	2.88	5,600	0.78	27.5	87.3	0.351	39	- 10 to + 70	100,000
109L0612S401			0.17	2.04	4,600	0.65	23.0	57.3	0.230	33		
109L0612H401			0.11	1.32	3,800	0.53	18.7	40.2	0.161	28		
109L0612F401			0.09	1.08	3,200	0.44	15.5	29.4	0.118	24		
109L0612M401			0.06	0.72	2,600	0.36	12.7	19.6	0.079	20		
109L0624S401	24	20.4 to 27.6	0.08	1.92	4,600	0.65	23.0	57.3	0.230	33		
109L0624H401			0.06	1.44	3,800	0.53	18.7	40.2	0.161	28		
109L0624F401			0.05	1.20	3,200	0.44	15.5	29.4	0.118	24		
109L0624M401			0.04	0.96	2,600	0.36	12.7	19.6	0.079	20		
109L0648G401	48	40.8 to 55.2	0.07	3.36	5,600	0.78	27.5	87.3	0.351	39		
109L0648H401		40 to 53	0.04	1.92	3,800	0.53	18.7	40.2	0.161	28		

Without Sensor

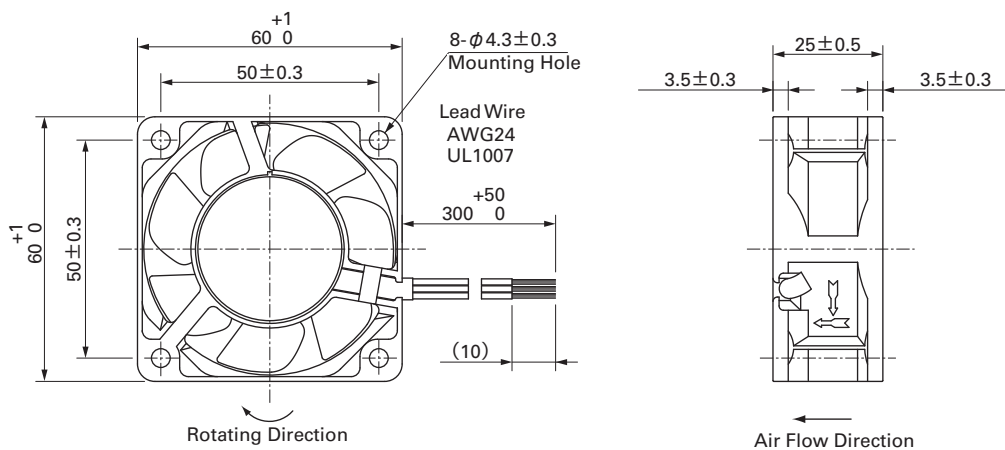
Pulse Sensor

Available in all models.

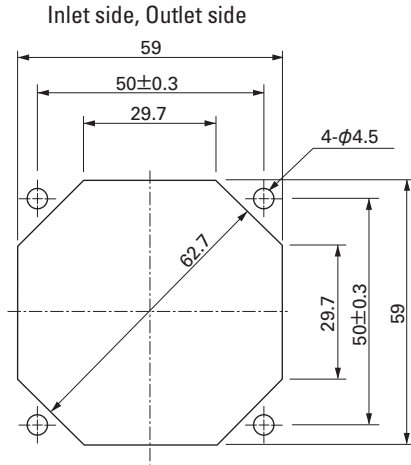
Lock Sensor

Low speed Sensor

Please inquire as the availability of these functions depend on the model.

■ **Dimensions (Unit : mm)**

Reference dimension of mounting holes and vent opening (Unit : mm)

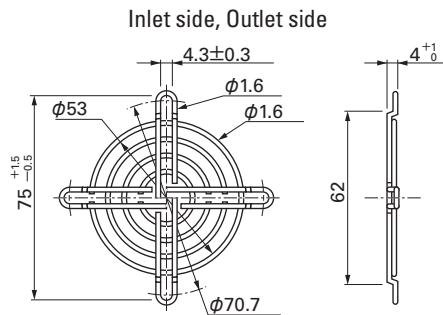


Options (Unit : mm)

Finger guards

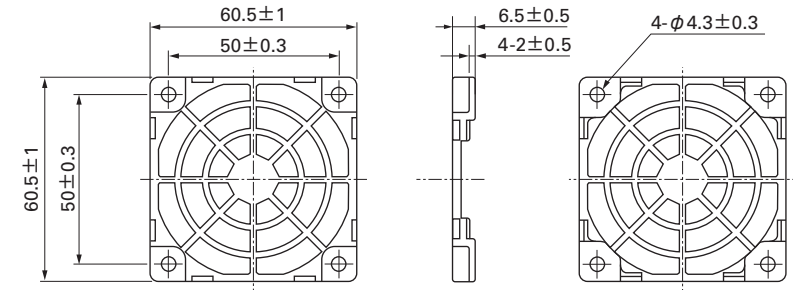
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
 : 109-139H : Cation electropainting (black)

Color
 (silver)
 (black)



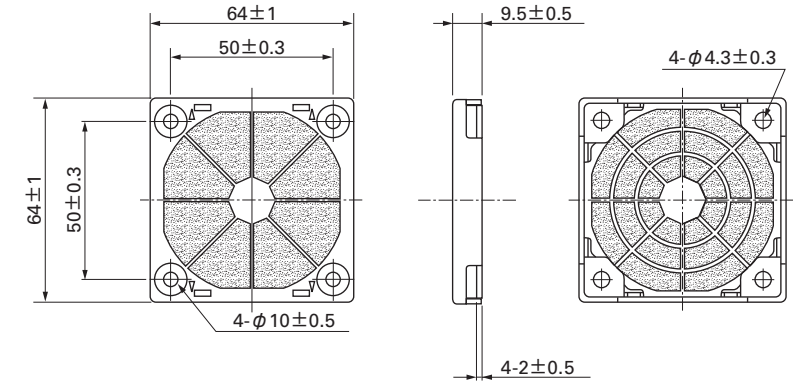
Resin Finger guards

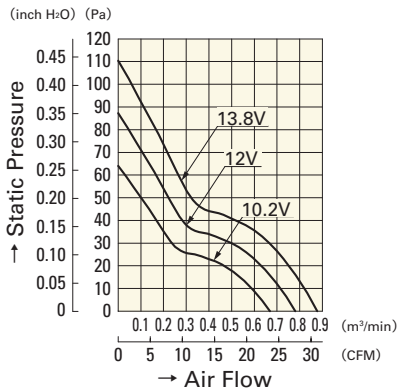
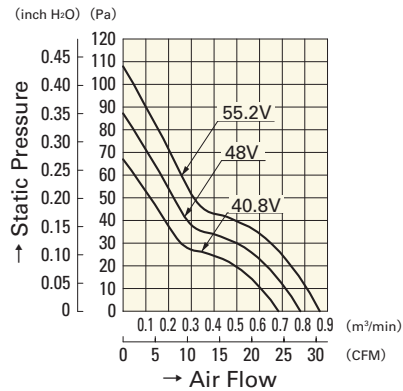
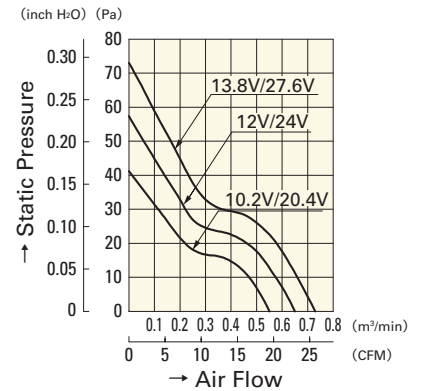
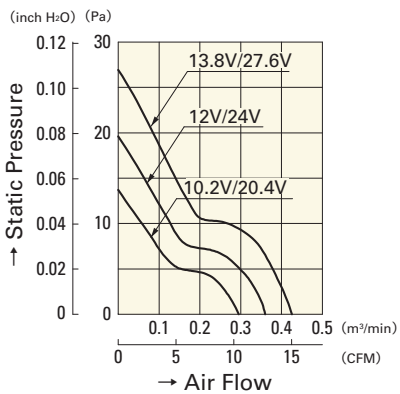
Model : 109-1003G

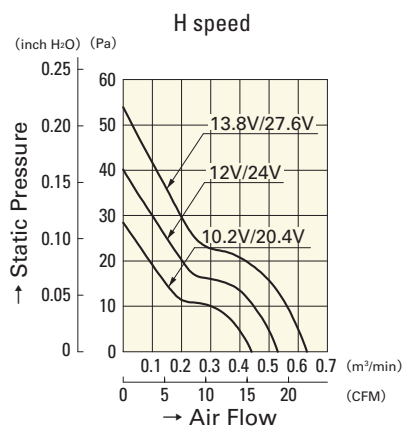


Resin filter kits

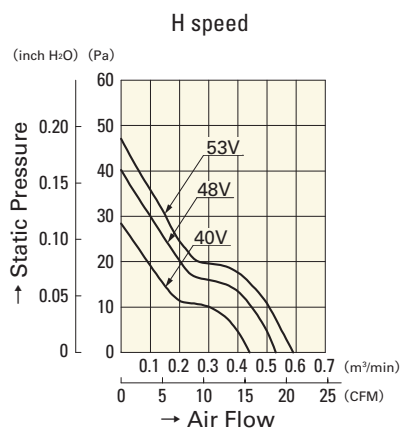
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
 : 109-1003F30 (30PPI), 109-1003F40 (40PPI)



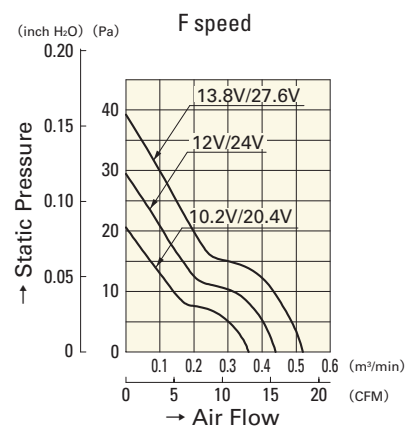
60mm sq.**San Ace 60L****60×60×25mm** [Mass : 100g]**Air Flow - Static Pressure Characteristics****G speed****109L0612G401****G speed****109L0648G401****S speed****109L0612S401****109L0624S401****M speed****109L0612M401****109L0624M401**



109L0612H401
109L0624H401



109L0648H401



109L0612F401
109L0624F401

Long Life Fan 60mm

60mm

80mm sq.**San Ace 80L**

25mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

80×80×25mm [Mass : 150g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
						[m³/min]	[CFM]	[Pa]	[inchH ₂ O]			
109L0812S401	12	10.2 to 13.8	0.26	3.12	3,400	1.2	42.4	50	0.2	37	- 10 to + 70	100,000
109L0812H401			0.18	2.16	3,000	1.06	37.4	39.2	0.157	32		
109L0812F401			0.14	1.68	2,700	0.93	32.8	32.3	0.130	29		
109L0812M401			0.1	1.2	2,400	0.83	29.3	26.5	0.106	26		
109L0812L401			0.08	0.96	1,900	0.63	22.2	16.7	0.067	22		
109L0824S401	24	20.4 to 27.6	0.11	2.64	3,400	1.2	42.4	50	0.2	37		
109L0824H401			0.09	2.16	3,000	1.06	37.4	39.2	0.157	32		
109L0824F401			0.08	1.92	2,700	0.93	32.8	32.3	0.130	29		
109L0824M401			0.07	1.68	2,400	0.83	29.3	26.5	0.106	26		
109L0824L401			0.05	1.2	1,900	0.63	22.2	16.7	0.067	22		
109L0848H401	48	40.8 to 55.2	0.06	2.88	3,150	1.1	38.8	43.1	0.173	34		

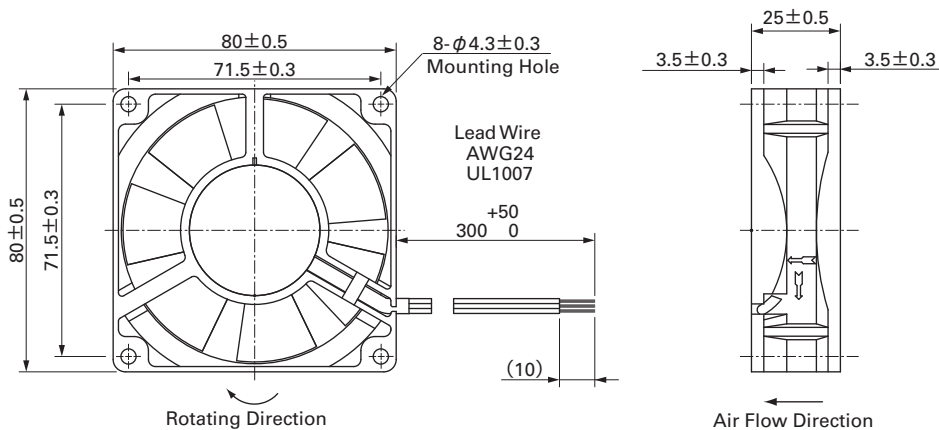
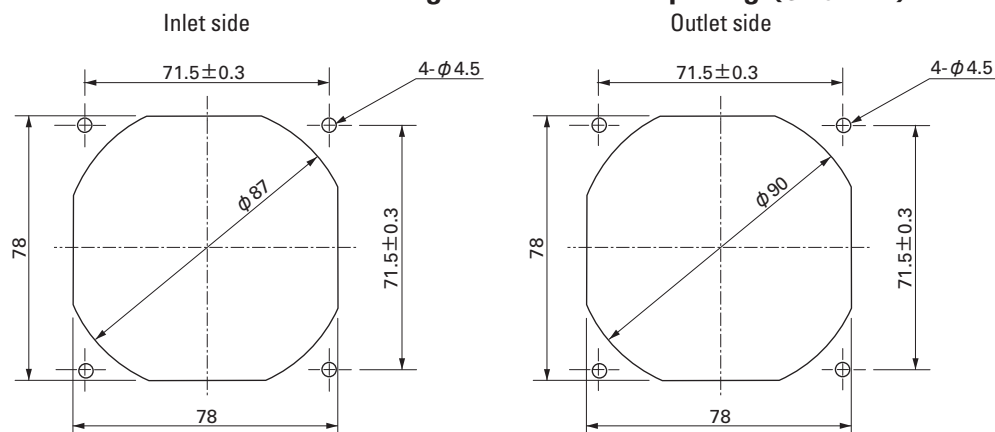
Without Sensor

Pulse Sensor

Available in all models.

Lock SensorLow speed Sensor

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

92mm sq.**San Ace 92L**

25mm thick

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

92×92×25mm [Mass : 170g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
						[m ³ /min]	[CFM]	[Pa]	[inchH ₂ O]			
109L0912S401	12	10.2 to 13.8	0.32	3.84	3,500	1.69	59.7	66.6	0.267	39	- 10 to + 70	100,000
109L0912H401			0.21	2.52	2,850	1.38	48.7	45.1	0.181	33		
109L0912F401			0.14	1.68	2,450	1.18	41.7	32.3	0.130	30		
109L0912M401			0.11	1.32	2,100	1.01	35.7	23.5	0.094	27		
109L0912L401			0.08	0.96	1,700	0.80	28.2	16.7	0.067	23		
109L0924H401	24	20.4 to 27.6	0.12	2.88	2,850	1.38	48.7	45.1	0.181	33		
109L0924F401			0.08	1.92	2,450	1.18	41.7	32.3	0.130	30		
109L0924M401			0.06	1.44	2,100	1.01	35.7	23.5	0.094	27		
109L0924L401			0.05	1.2	1,700	0.80	28.2	16.7	0.067	23		
109L0948C401	48	43 to 53	0.1	4.8	3,400	1.65	58.3	64.2	0.258	38		80,000
109L0948H401		40.8 to 55.2	0.06	2.88	2,850	1.38	48.7	45.1	0.181	33		100,000

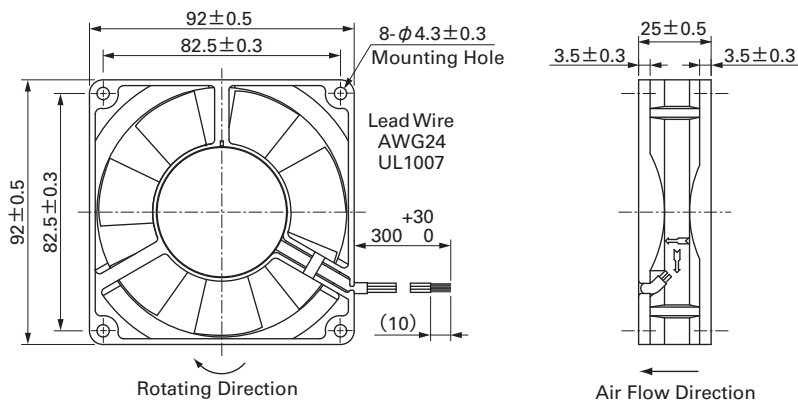
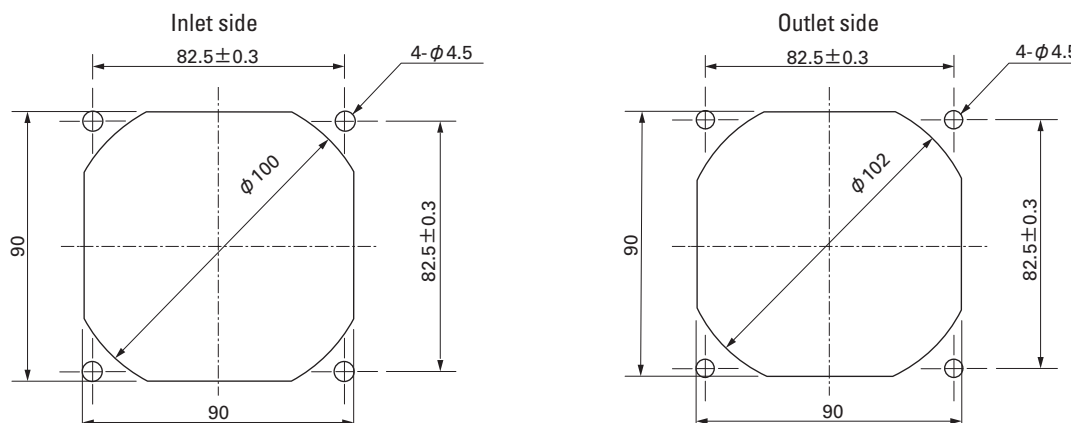
Without Sensor

Pulse Sensor

Available in all models.

Lock SensorLow speed Sensor

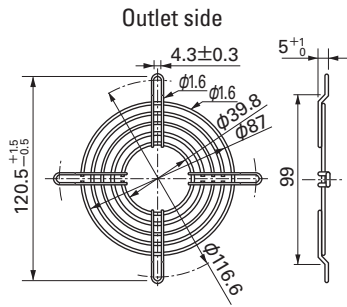
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

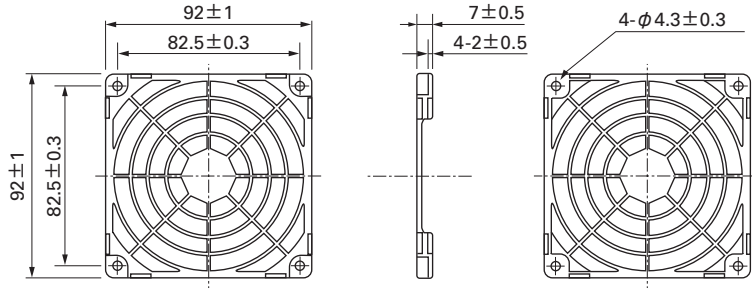
Finger guards

Model : 109-099C Color : Nickel-chrome plating (silver)

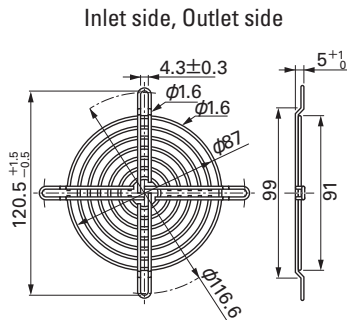


Resin Finger guards

Model : 109-1001G

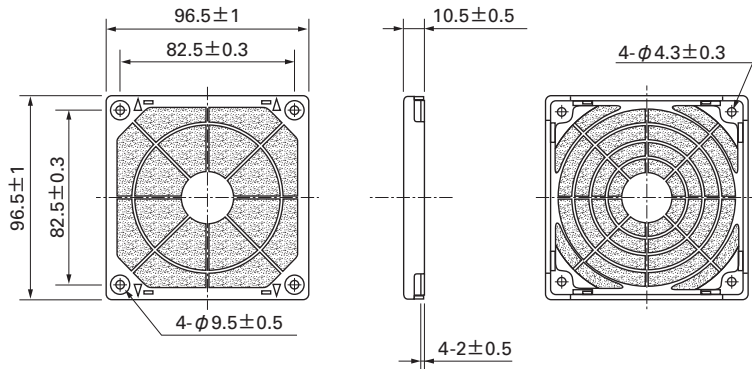


Model : 109-099E Color : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)

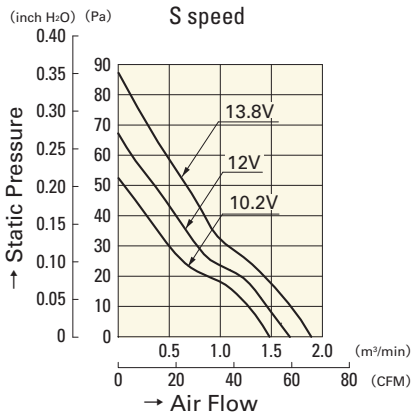


Resin filter kits

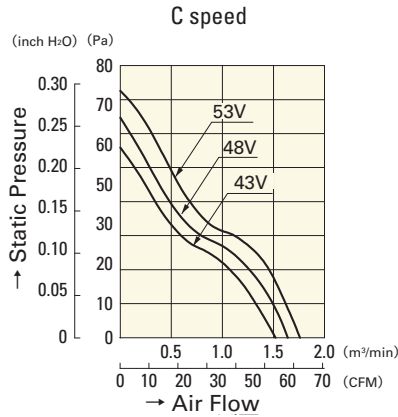
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



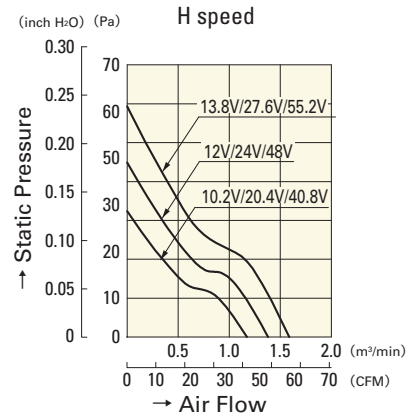
Air Flow - Static Pressure Characteristics



109L0912S401



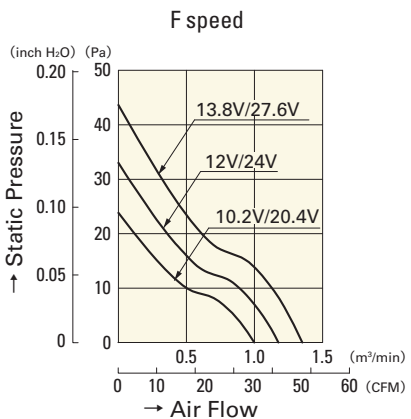
109L0948C401



109L0912H401

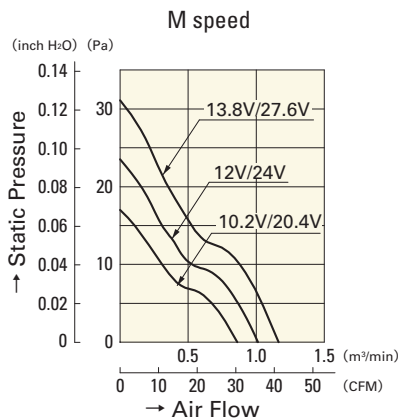
109L0924H401

109L0948H401



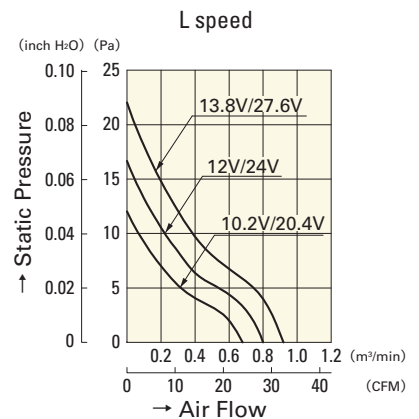
109L0912F401

109L0924F401



109L0912M401

109L0924M401



109L0912L401

109L0924L401

Long Life Fan 92mm

92mm

120mm sq.**San Ace 120L****38mm thick(LB type)****38mm thick(GL type)****General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇔ Refer to Page 291

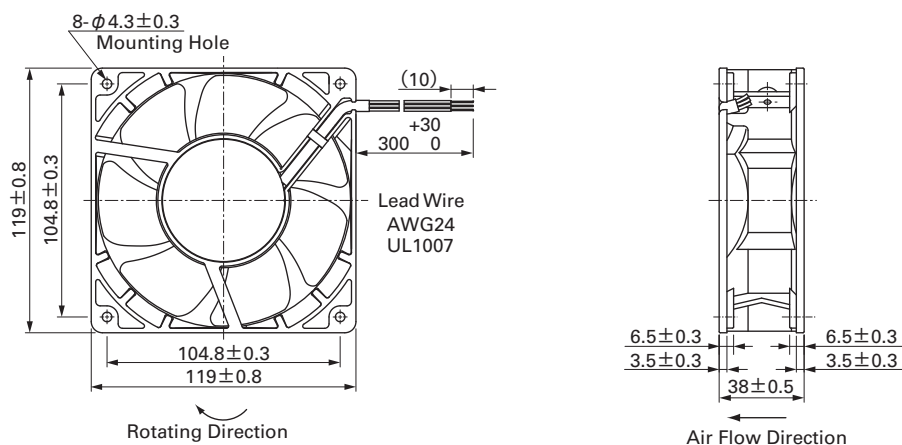
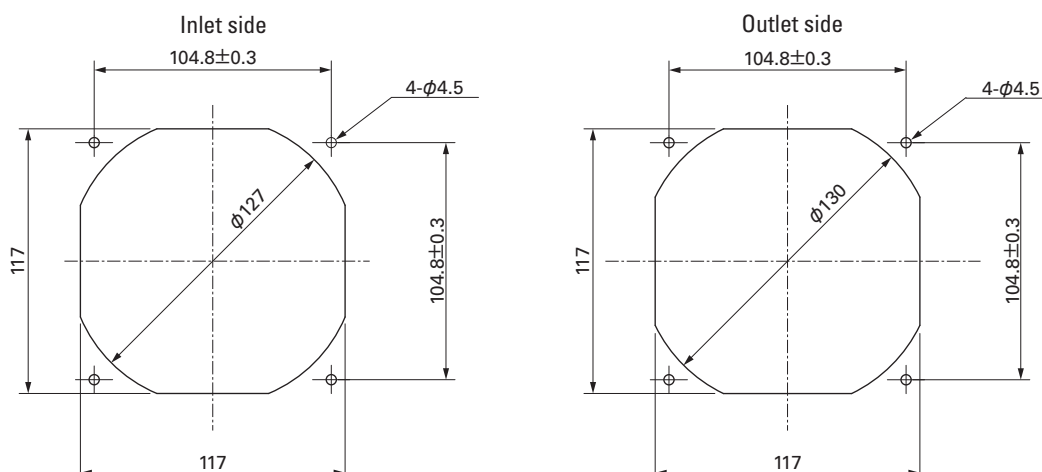
- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue **Sensor** yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

**120×120×38mm** [Mass : 370g] **LB type****Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9LB1212H101	12	10.2 to 13.8	0.39	4.68	2,600	2.9	102.4	67.62	0.272	39	- 10 to + 70	200,000
9LB1212M101			0.22	2.64	2,000	2.2	77.7	42.14	0.169	32		
9LB1224H101	24	20.4 to 27.6	0.19	4.56	2,600	2.9	102.4	67.62	0.272	39		
9LB1224M101			0.11	2.64	2,000	2.2	77.7	42.14	0.169	32		
9LB1248H101	48	40.8 to 55.2	0.11	5.28	2,600	2.9	102.4	67.62	0.272	39		
9LB1248M101			0.06	2.88	2,000	2.2	77.7	42.14	0.169	32		

Without Sensor **Pulse Sensor** Available in all models.**Lock Sensor****Low speed Sensor**

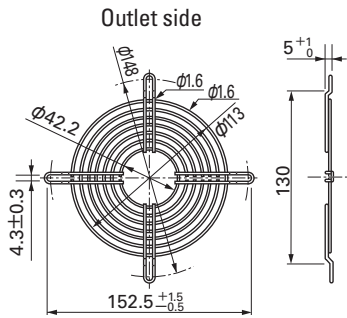
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

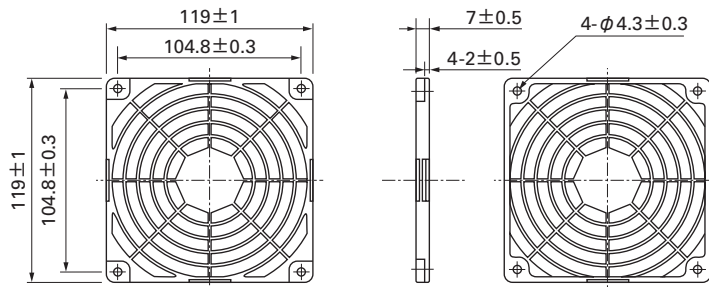
Finger guards

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

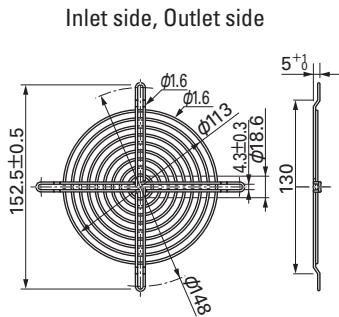


Resin Finger guards

Model : 109-1000G

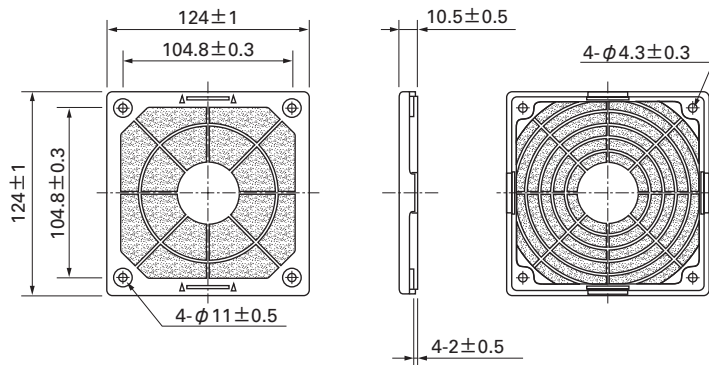


Model : 109-019E Surface treatment : Nickel-chrome plating (silver) Color : 109-019K : Cation electropainting (black)

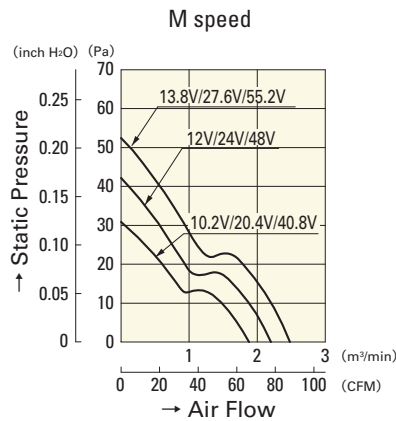
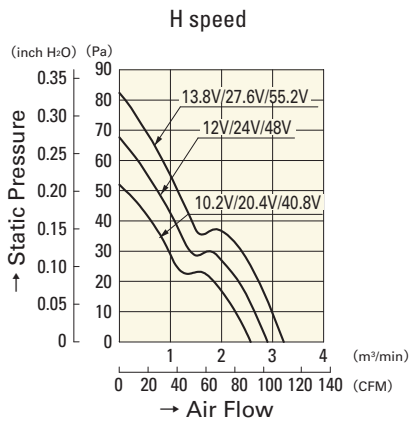


Resin filter kits

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



Air Flow - Static Pressure Characteristics



9LB1212H101

9LB1224H101

9LB1248H101

9LB1212M101

9LB1224M101

9LB1248M101

120mm sq.**San Ace 120L**

38mm thick(LB type)

38mm thick(GL type)

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

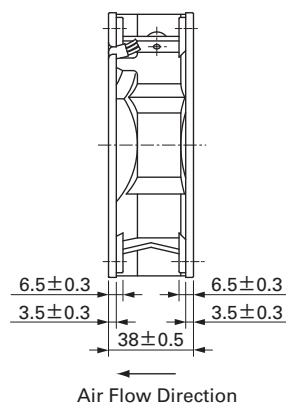
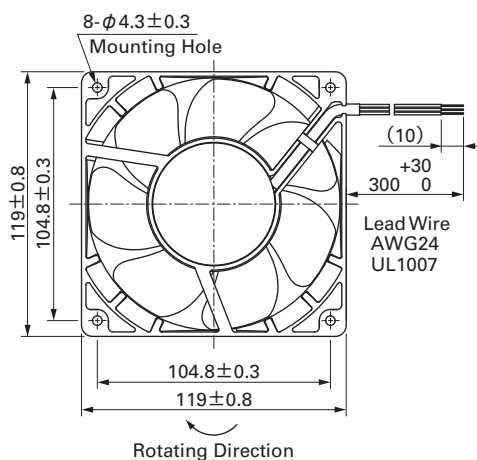
- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60℃ ,
rated voltage,and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30℃ to +70℃ (Non-condensing)

120×120×38mm (Mass : 370g)**GL type****Specifications**

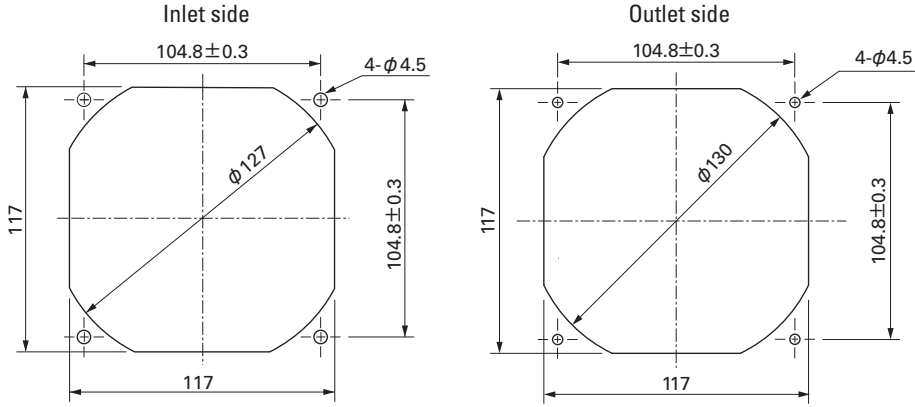
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [℃]	Life Expectancy [h]
						[m ³ /min]	[CFM]	[Pa]	[inchH ₂ O]			
9GL1212G101	12	10.2 to 13.8	0.98	11.8	3,600	3.88	137	135	0.542	49	- 10 to + 70	80,000
9GL1212E101			0.61	7.32	3,100	3.34	118	100	0.402	46		
9GL1212H101		7 to 13.8	0.38	4.56	2,600	2.80	99	70.4	0.283	39		100,000
9GL1212F101			0.28	3.36	2,280	2.45	87	54.2	0.218	36		
9GL1212M101			0.21	2.52	1,950	2.10	74	39.6	0.159	32		
9GL1224G101	24	20.4 to 27.6	0.50	12.0	3,600	3.88	137	135	0.542	49		80,000
9GL1224E101			0.34	8.16	3,100	3.34	118	100	0.402	46		
9GL1224H101		14 to 27.6	0.22	5.28	2,600	2.80	99	70.4	0.283	39		100,000
9GL1224F101			0.16	3.84	2,280	2.45	87	54.2	0.218	36		
9GL1224M101			0.11	2.64	1,950	2.10	74	39.6	0.159	32		
9GL1248G101	48	40.8 to 55.2	0.25	12.0	3,600	3.88	137	135	0.542	49		80,000
9GL1248E101			0.17	8.16	3,100	3.34	118	100	0.402	46		
9GL1248H101			0.11	5.28	2,600	2.80	99	70.4	0.283	39		100,000
9GL1248F101			0.09	4.32	2,280	2.45	87	54.2	0.218	36		
9GL1248M101			0.07	3.36	1,950	2.10	74	39.6	0.159	32		

Without Sensor **Pulse Sensor** Available in all models.**Lock Sensor****Low speed Sensor****PWM Control**

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)

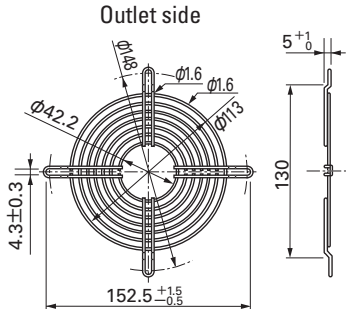
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

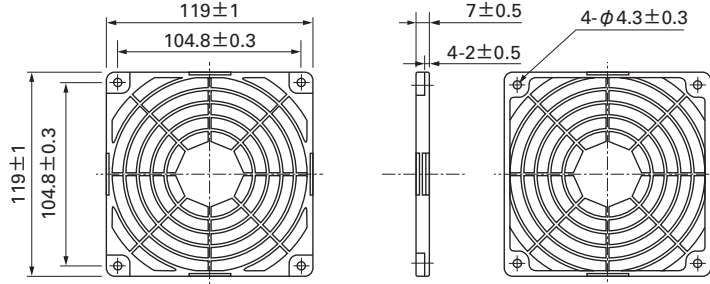
Finger guards

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

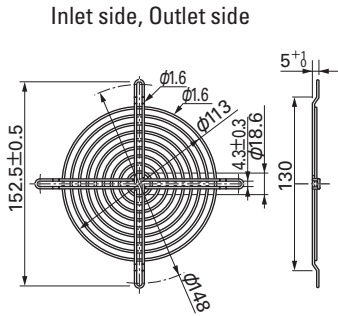


Resin Finger guards

Model : 109-1000G

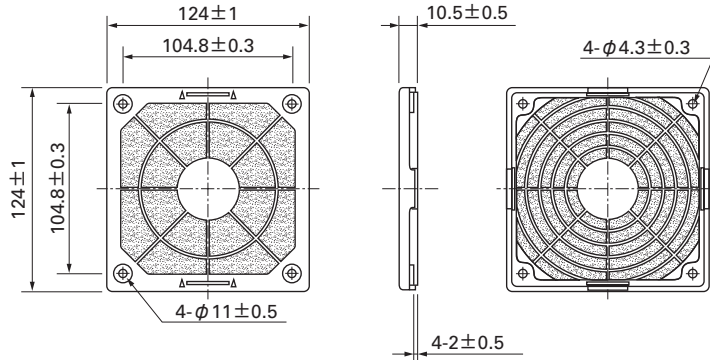


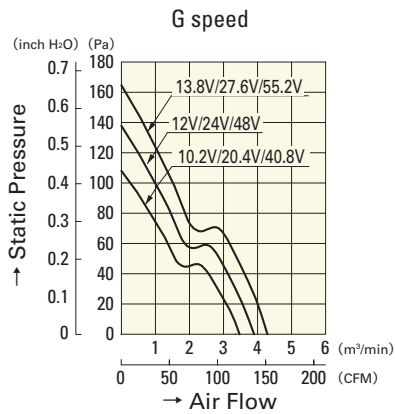
Model : 109-019E Surface treatment : Nickel-chrome plating (silver) Color : 109-019K : Cation electropainting (black)



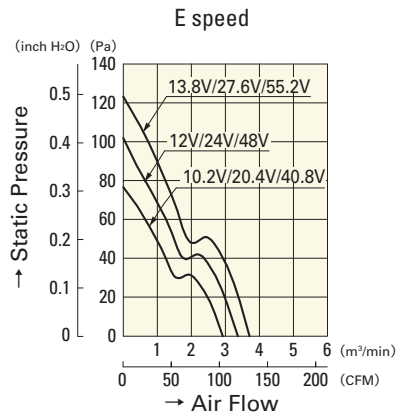
Resin filter kits

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

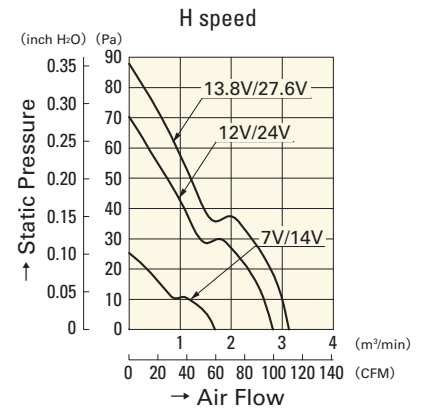


120mm sq.**San Ace 120L****120×120×38mm** [Mass : 370g]**Air Flow - Static Pressure Characteristics**

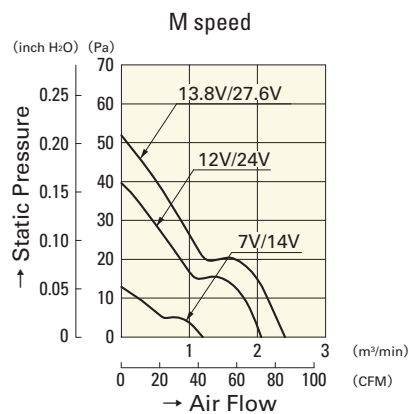
9GL1212G101
9GL1224G101
9GL1248G101



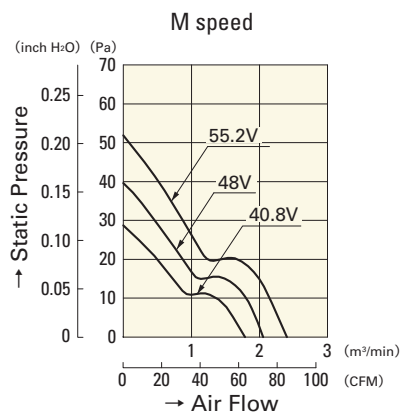
9GL1212E101
9GL1224E101
9GL1248E101



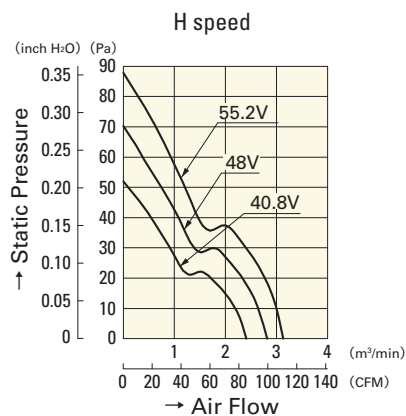
9GL1212H101
9GL1224H101



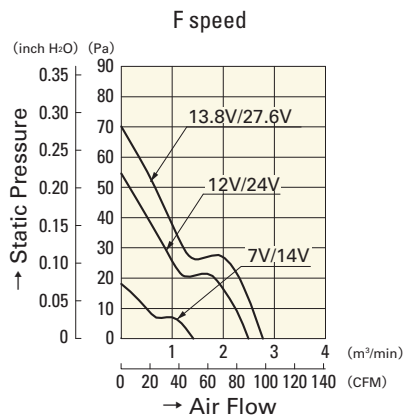
9GL1212M101
9GL1224M101



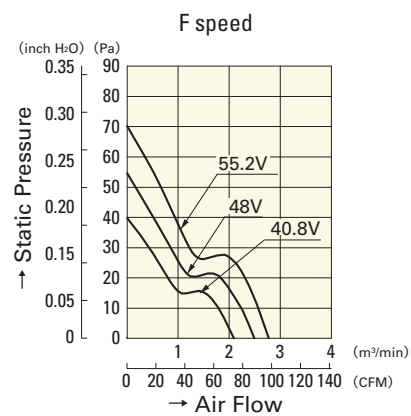
9GL1248M101



9GL1248H101



9GL1212F101
9GL1224F101



9GL1248F101

Long Life Fan 120mm

120mm

140mm sq.**San Ace 140L****38mm thick**
51mm thick(LB type)**General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

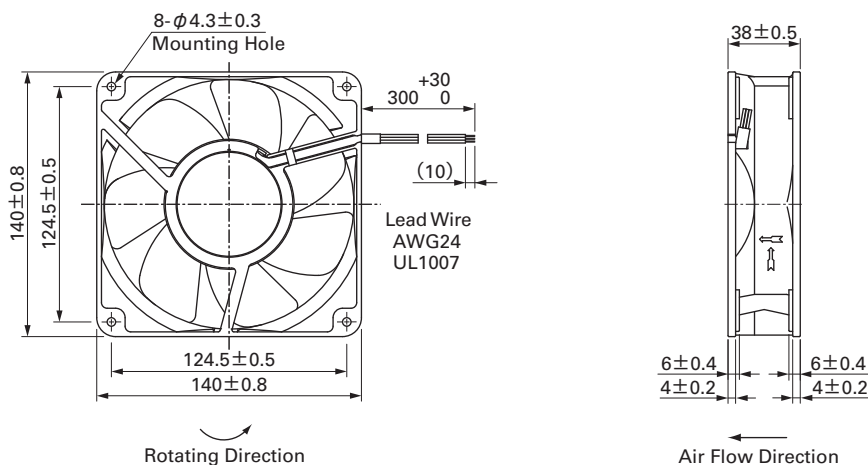
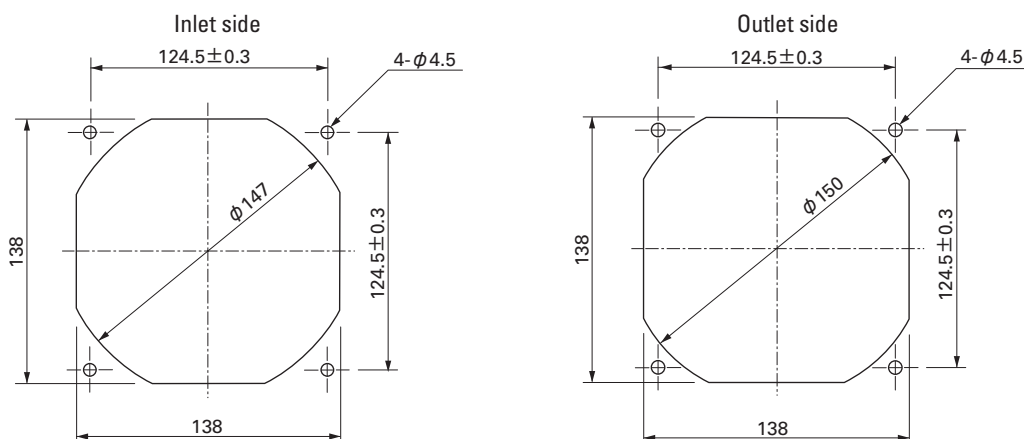
- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model(L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

140×140×38mm [Mass : 600g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
						[m ³ /min]	[CFM]	[Pa]	[inchH ₂ O]			
109L1412H101	12	10.2 to 13.8	0.73	8.76	2,600	4.5	159	98	0.394	46	- 10 to + 70	100,000
109L1412M101			0.3	3.6	1,900	3.3	117	52	0.209	38		
109L1424H101	24	20.4 to 27.6	0.37	8.88	2,600	4.5	159	98	0.394	46		
109L1424M101			0.16	3.84	1,900	3.3	117	52	0.209	38		
109L1448H101	48	40.8 to 55.2	0.2	9.6	2,600	4.5	159	98	0.394	46		
109L1448M101			0.09	4.32	1,900	3.3	117	52	0.209	38		

Without Sensor **Pulse Sensor** Available in all models.**Lock Sensor****Low speed Sensor**

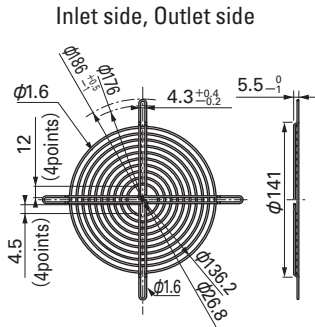
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

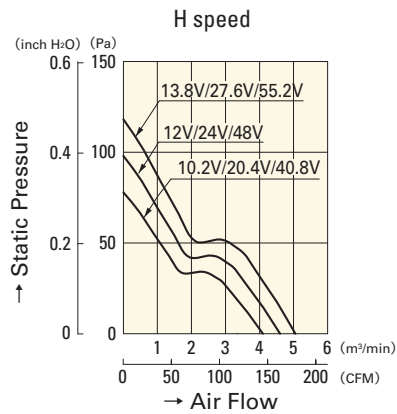
Options (Unit : mm)

Finger guards

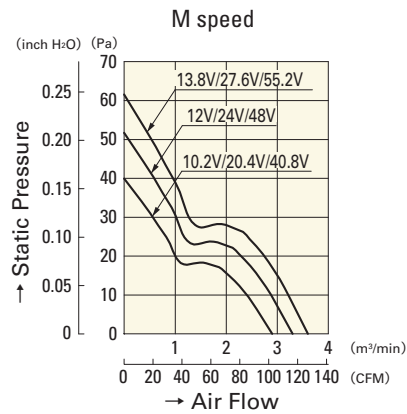
Model : 109-719 Surface treatment : Nickel-chrome plating (silver)
 : 109-719H : Cation electropainting (black)



Air Flow - Static Pressure Characteristics



- 109L1412H101
- 109L1424H101
- 109L1448H101



- 109L1412M101
- 109L1424M101
- 109L1448M101

140mm sq.**San Ace 140L**

38mm thick

51mm thick(LB type)

General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

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

**140×140×51mm** [Mass : 610g]**LB type****Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
						[m³/min]	[CFM]	[Pa]	[inchH ₂ O]			
9LB1412S501	12	10.2 to 13.8	2.7	32.4	4,200	8.1	286	240	0.964	57	- 10 to + 70	60,000
9LB1412H501			1.25	15.0	3,100	5.9	208	130	0.522	49		100,000
9LB1412M501			0.46	5.5	2,050	3.9	138	63	0.253	39		60,000
9LB1424S501	24	20.4 to 27.6	1.38	33.1	4,200	8.1	286	240	0.964	57		100,000
9LB1424H501			0.60	14.4	3,100	5.9	208	130	0.522	49		60,000
9LB1424M501			0.22	5.3	2,050	3.9	138	63	0.253	39		100,000
9LB1448S501	48	40.8 to 55.2	0.71	34.1	4,200	8.1	286	240	0.964	57		60,000
9LB1448H501			0.27	13.0	3,100	5.9	208	130	0.522	49		100,000
9LB1448M501			0.12	5.8	2,050	3.9	138	63	0.253	39		

Without Sensor

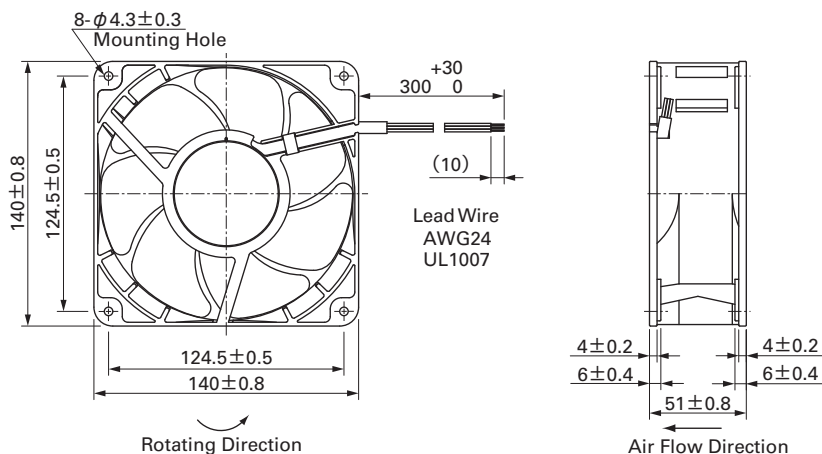
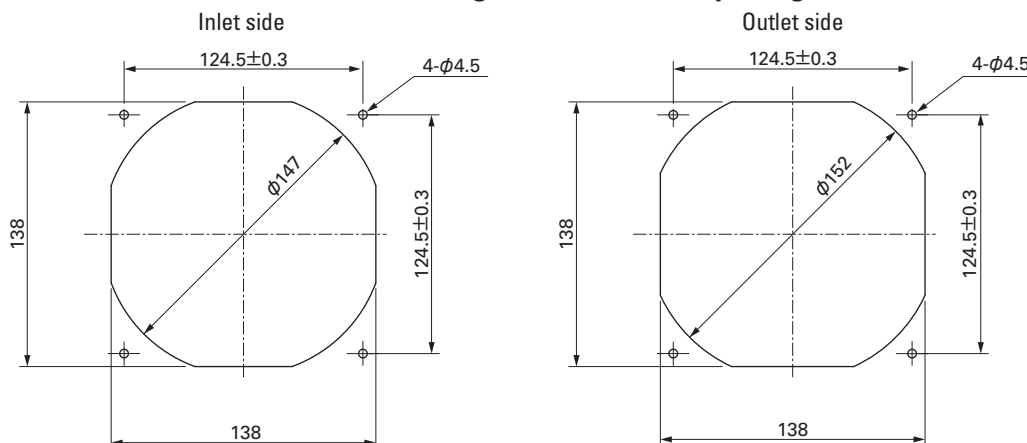
Pulse Sensor

Available in all models.

Lock Sensor

Low speed Sensor

Please inquire as the availability of these functions depend on the model.

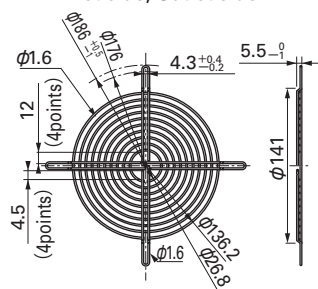
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Finger guards

Finger guards

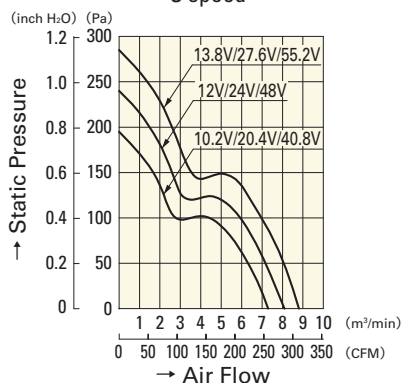
Model : 109-719	Surface treatment : Nickel-chrome plating	Color (silver)
: 109-719H	: Cation electropainting	(black)

Inlet side, Outlet side



Air Flow - Static Pressure Characteristics

S speed

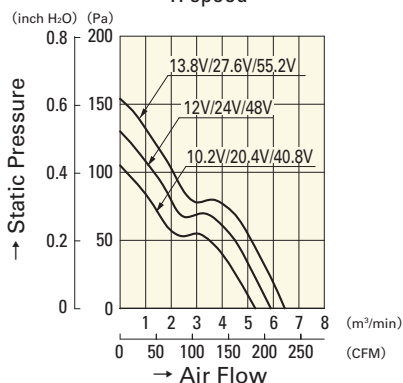


9LB1412S501

9LB1424S501

9LB1448S501

H speed

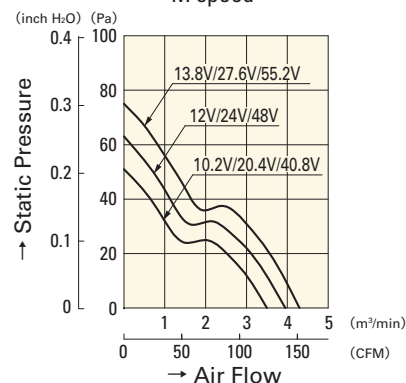


9LB1412H501

9LB1424H501

9LB1448H501

M speed



9LB1412M501

9LB1424M501

9LB1448M501

$\phi 172$ mm

San Ace 172L

51mm thick(Sidecut type)

51mm thick(Round type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature ... -30°C to +70°C (Non-condensing)

$\phi 172$ mm×51mm

 (Mass : 760g)

SideCut type

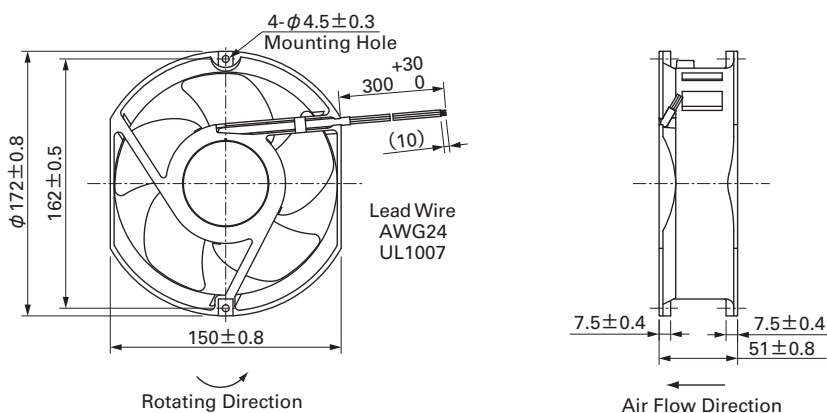
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109L5712H501	12	10.2 to 13.8	1.2	14.4	3,050	6.4	226	137.2	0.551	52	- 10 to + 70	100,000
109L5712M501			0.48	5.76	2,000	4.2	148	67.6	0.271	41		
109L5724H501	24	20.4 to 27.6	0.58	13.92	3,050	6.4	226	137.2	0.551	52		
109L5724M501			0.2	4.80	2,000	4.2	148	67.6	0.271	41		
109L5748H501	48	40.8 to 55.2	0.28	13.44	3,050	6.4	226	137.2	0.551	52		
109L5748M501			0.11	5.28	2,000	4.2	148	67.6	0.271	41		

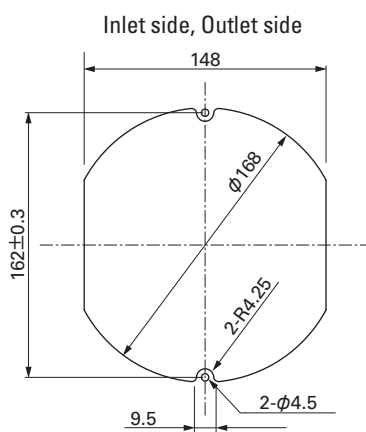
Without Sensor Pulse Sensor Available in all models.Lock SensorLow speed Sensor

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)



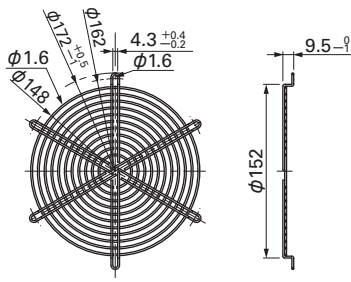
Options (Unit : mm)

Finger guards

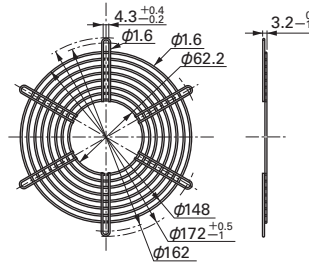
Model : 109-319E Surface treatment : Nickel-chrome plating (silver) Color
: 109-319H : Cation electropainting (black)

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

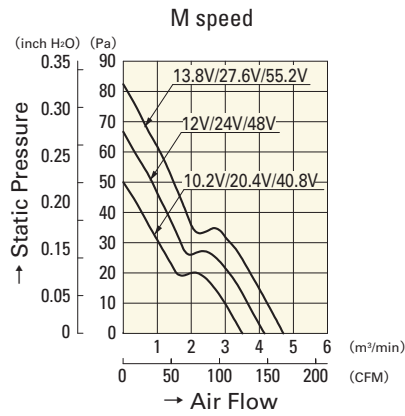
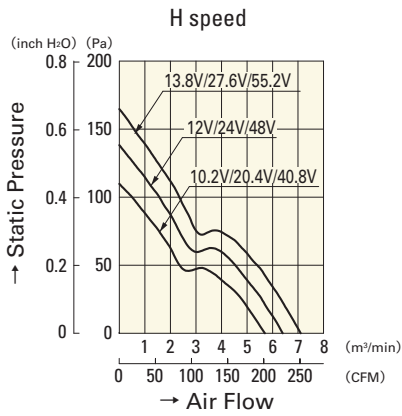
Inlet side, Outlet side



Outlet side



Air Flow - Static Pressure Characteristics



109L5712H501

109L5724H501

109L5748H501

109L5712M501

109L5724M501

109L5748M501

$\phi 172$ mm

San Ace 172L

51mm thick(Sidecut type)

51mm thick(Round type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

$\phi 172$ mm×51mm

 (Mass : 780g)

Round type

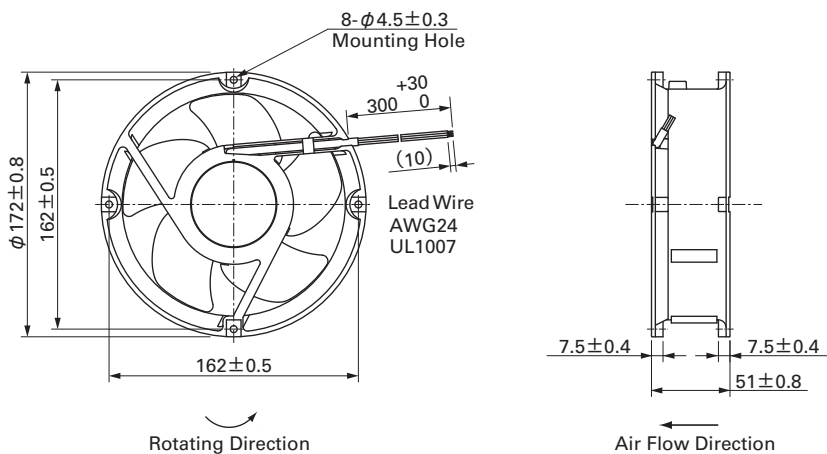
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109L1712H501	12	10.2 to 13.8	1.2	14.4	3,050	6.4	226	137.2	0.551	47	- 10 to + 70	100,000
109L1712M501			0.48	5.76	2,000	4.2	148	67.6	0.271	36		
109L1724H501	24	20.4 to 27.6	0.58	13.92	3,050	6.4	226	137.2	0.551	47		
109L1724M501			0.2	4.80	2,000	4.2	148	67.6	0.271	36		
109L1748H501	48	40.8 to 55.2	0.28	13.44	3,050	6.4	226	137.2	0.551	47		
109L1748M501			0.11	5.28	2,000	4.2	148	67.6	0.271	36		

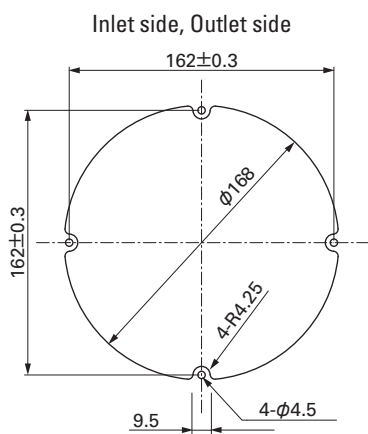
Without Sensor Pulse Sensor Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

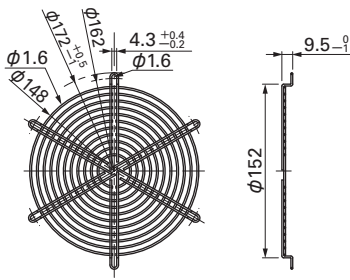
Finger guards

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

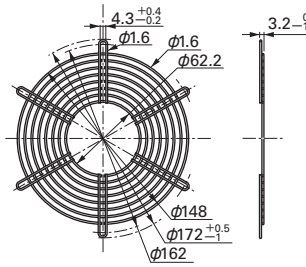
Model : 109-320

Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side

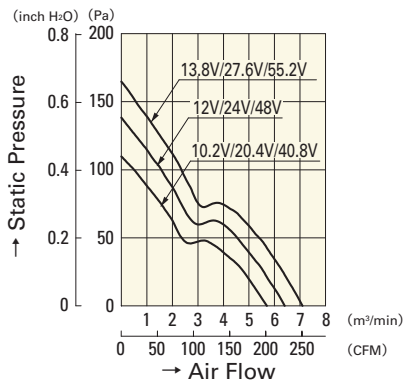


Outlet side



Air Flow - Static Pressure Characteristics

H speed

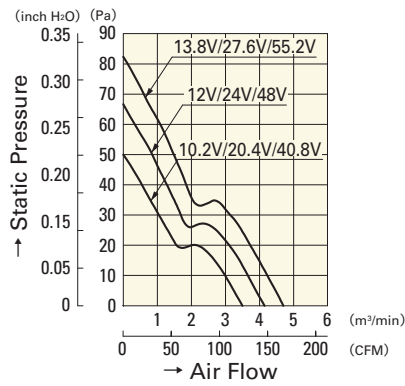


109L1712H501

109L1724H501

109L1748H501

M speed



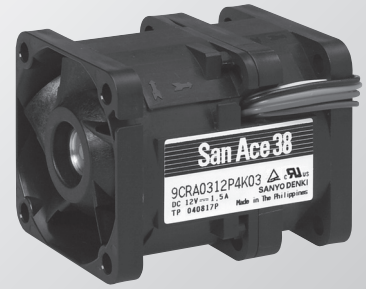
109L1712M501

109L1724M501

109L1748M501

38mm sq.**San Ace 38**

48mm thick (CRA type)



■ **General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

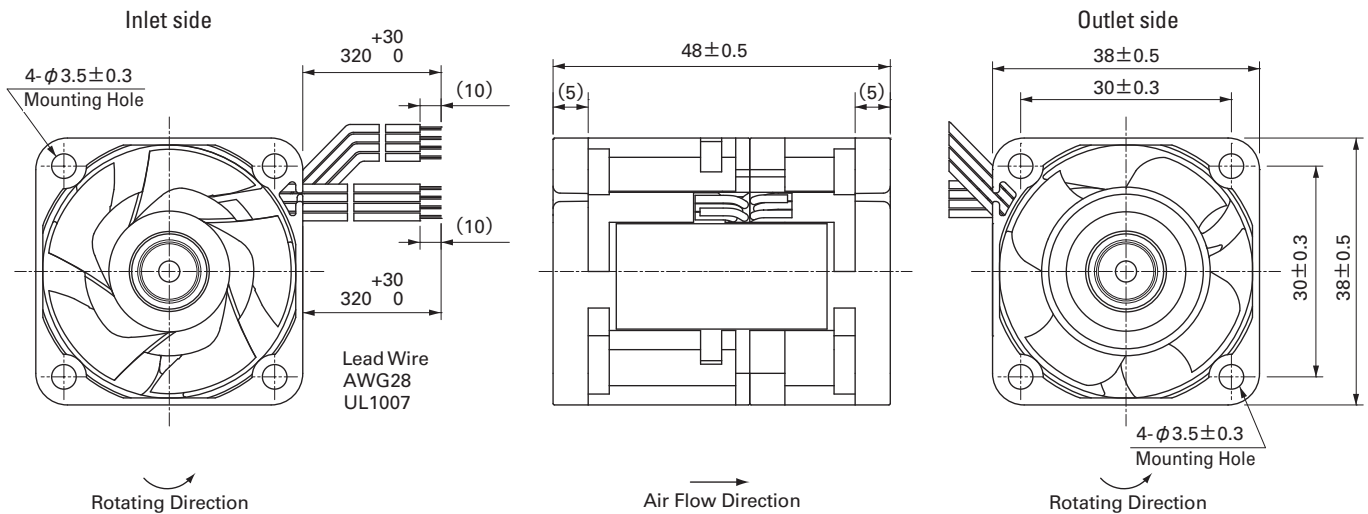
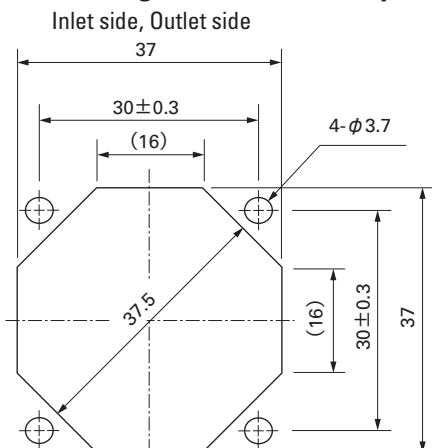
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕ red ⊖ black (Sensor) yellow (Control) brown
Outlet ⊕ orange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

38×38×48mm [Mass : 80g]**CRA type**■ **Specifications**

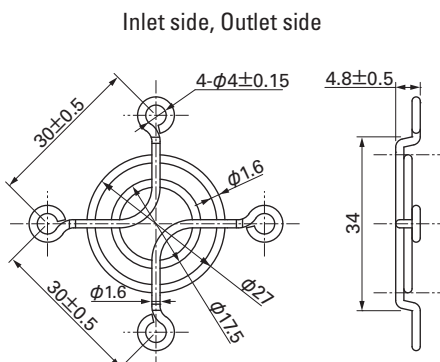
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹] Inlet Outlet	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9CRA0312P4K03	12	10.8 to 13.2	100	1.5	18.0	17,600 14,520	0.77 27.2	700.0 2.81	64	-10 to +70	30,000
			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		40,000
			0	0.18	2.2	4,800 3,960	0.21 7.4	50.4 0.20	31		

※PWM Frequency : 25kHz

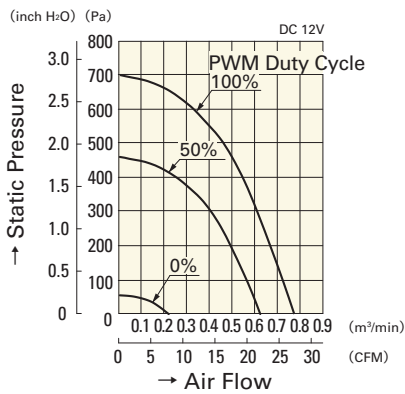
Without Sensor Pulse Sensor PWM Control Available in all models.

■ **Dimensions (Unit : mm)**■ **Reference dimension of mounting holes and vent opening (Unit : mm)**■ **Options (Unit : mm)****Finger guards**

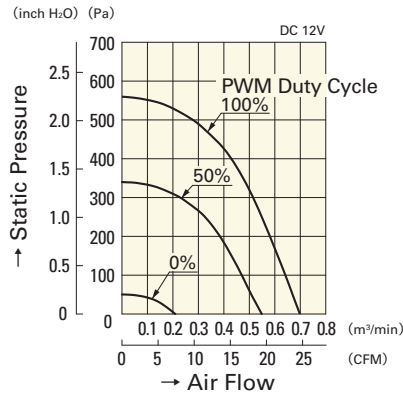
Model : 109-1065 Surface treatment : Nickel-chrome plating (silver) Color



PWM Duty Cycle

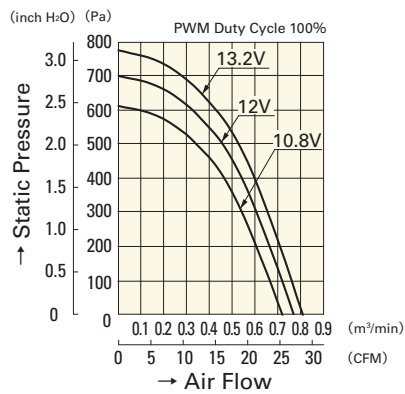


9CRA0312P4K03

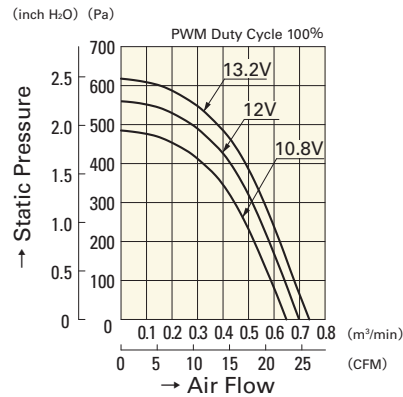


9CRA0312P4J03

Operating Voltage Range

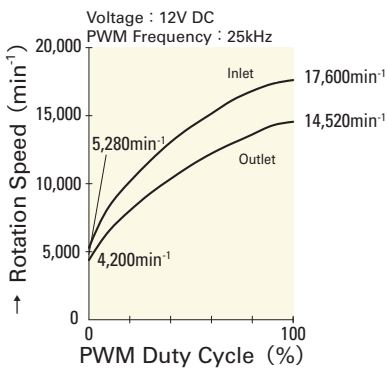


9CRA0312P4K03

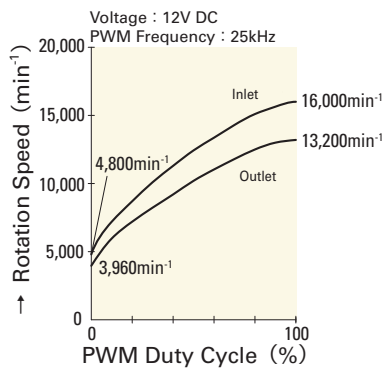


9CRA0312P4J03

PWM Duty - Speed Characteristics Example



9CRA0312P4K03



9CRA0312P4J03

40mm sq.**San Ace 40**48mm thick (CRA type) , 56mm thick (CRD type)
56mm thick (CRE type) , 56mm thick (CRA type)**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

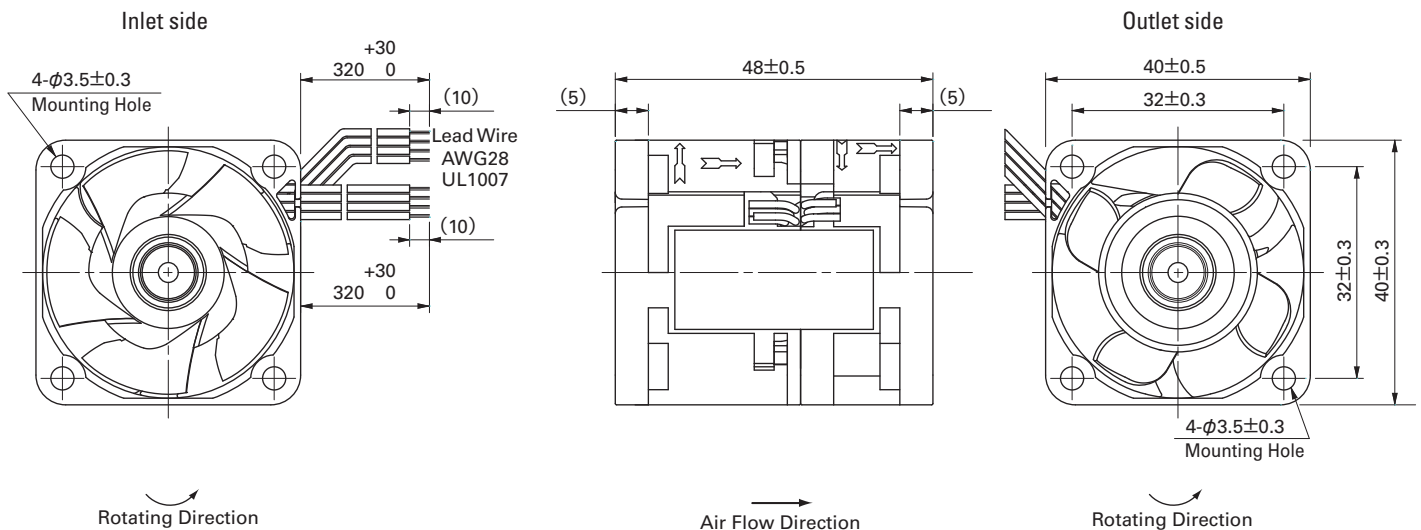
- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead WireInlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange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

40×40×48mm (Mass : 80g)**CRA type****Specifications**

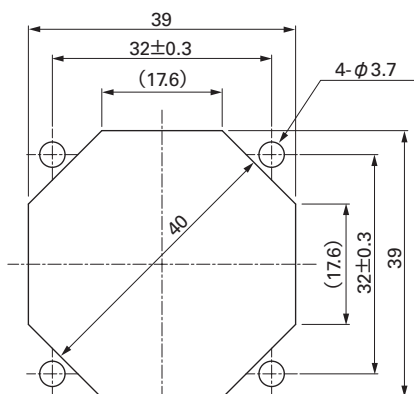
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹] Inlet Outlet	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [InchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9CRA0412P4K03	12	10.8 to 13.2	100	1.60	19.20	17,500 11,700	0.920 32.50	650.0 2.610	64	-10 to +70	30,000
			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		40,000
			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		40,000
			0	0.15	1.80	4,410 2,940	0.231 8.16	41.4 0.166	28		

※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

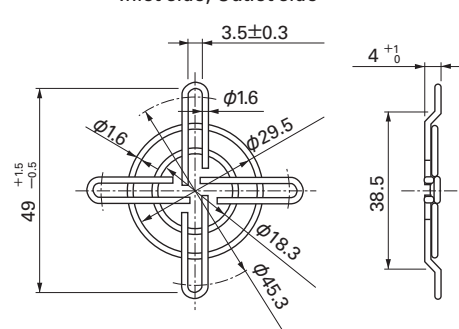
Inlet side, Outlet side

**Options (Unit : mm)****Finger guards**

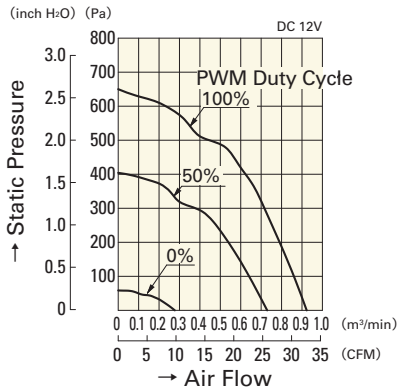
Model : 109-059 Surface treatment : Nickel-chrome plating (silver)

Color

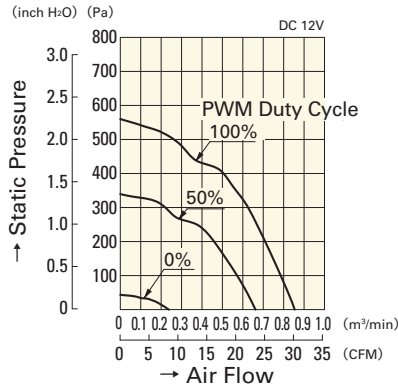
Inlet side, Outlet side



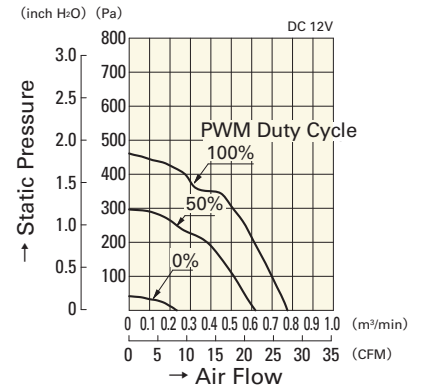
PWM Duty Cycle



9CRA0412P4K03

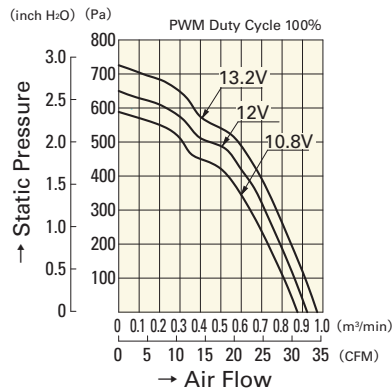


9CRA0412P4J03

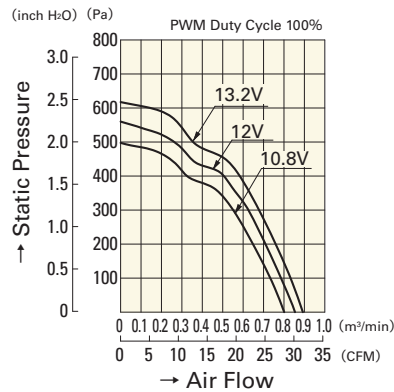


9CRA0412P4G03

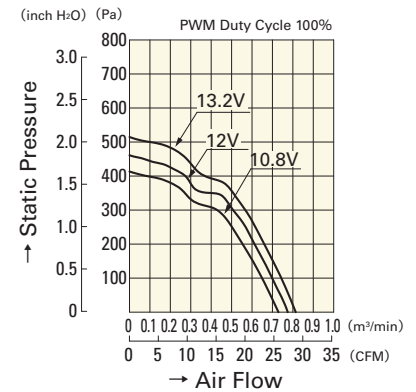
Operating Voltage Range



9CRA0412P4K03

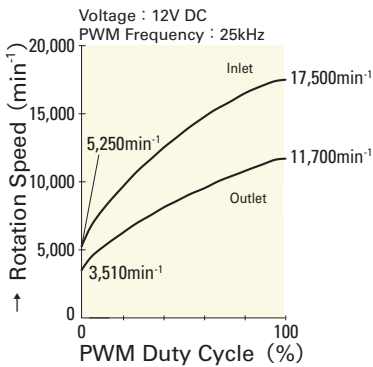


9CRA0412P4J03

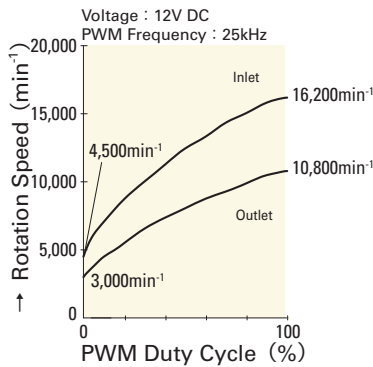


9CRA0412P4G03

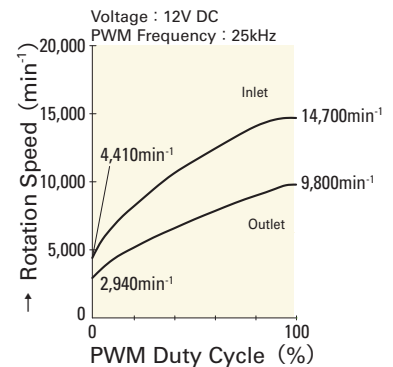
PWM Duty - Speed Characteristics Example



9CRA0412P4K03



9CRA0412P4J03



9CRA0412P4G03

40mm sq.**San Ace 40**48mm thick (CRA type) , 56mm thick (CRD type)
56mm thick (CRE type) , 56mm thick (CRA type)
General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

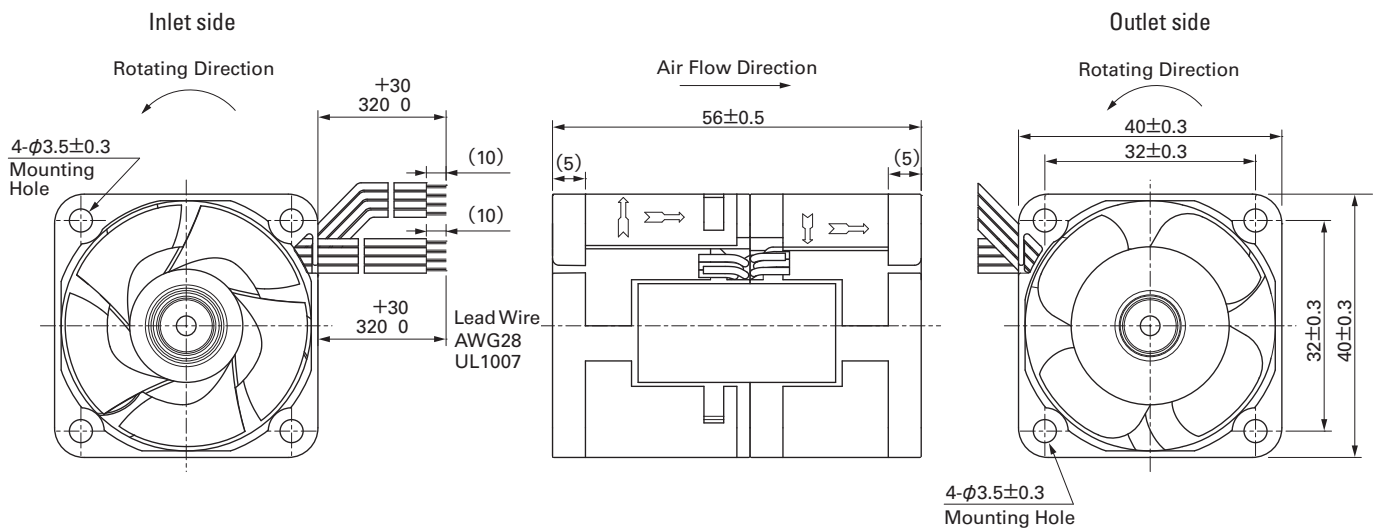
- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller:Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead WireInlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange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

40×40×56mm (Mass : 90g) **CRD type****Specifications**

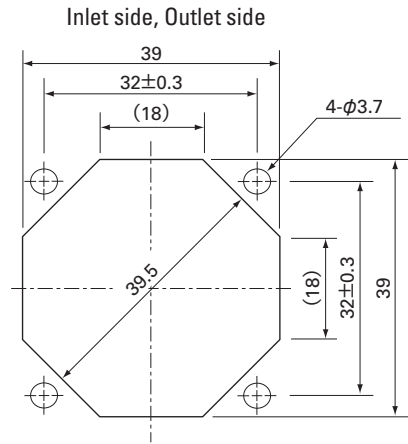
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹] Inlet Outlet	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9CRD0412P5J03	12	10.8 to 13.2	100	1.15	13.8	19,000 12,600	0.87 30.72	630 2.53	61	-10 to +70	30,000
			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		40,000
			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

Without Sensor Pulse Sensor PWM Control Available in all models.

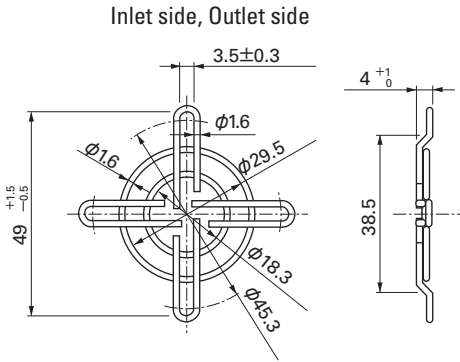
Dimensions (Unit : mm)

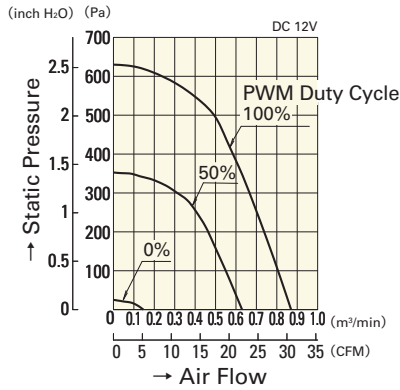
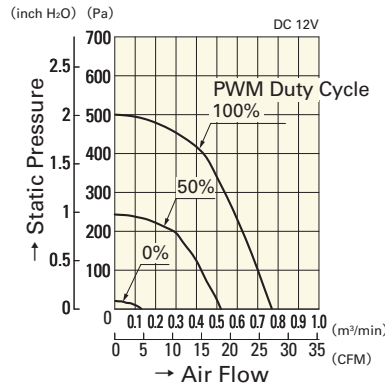
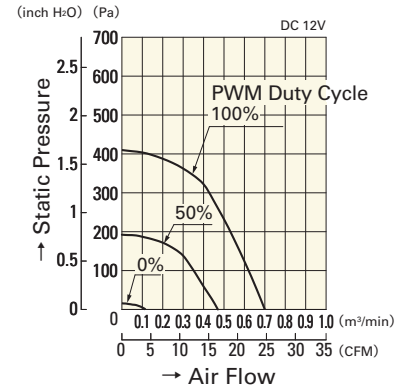
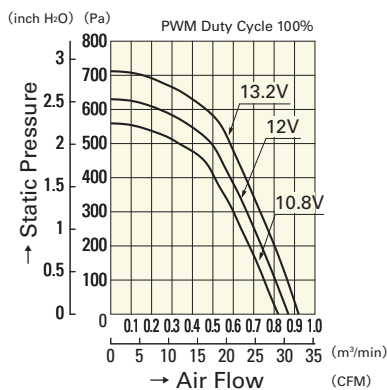
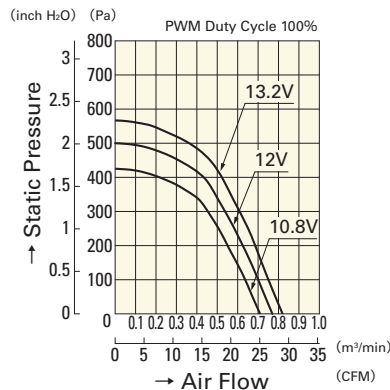
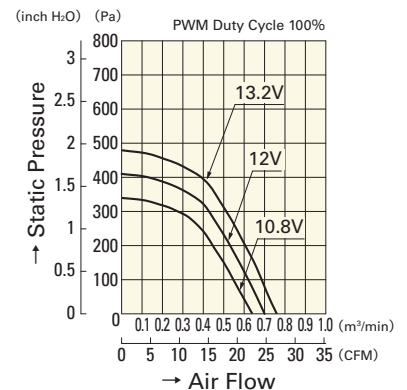
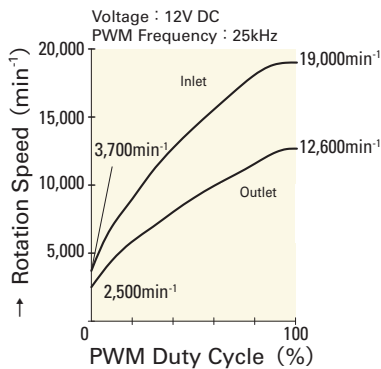
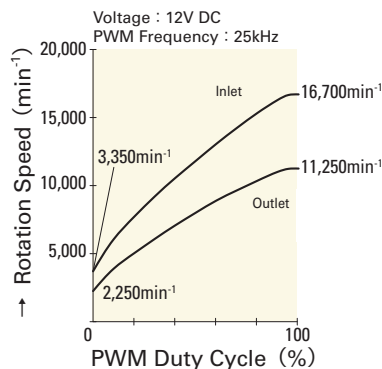
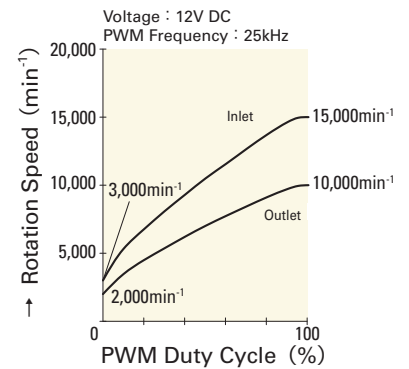
■ Reference dimension of mounting holes and vent opening (Unit : mm)

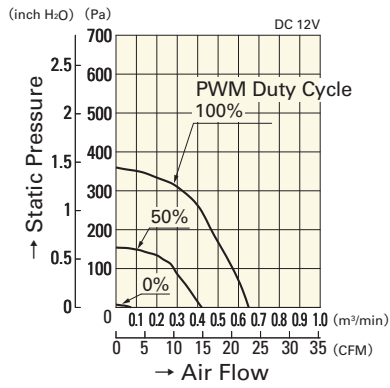


■ Options (Unit : mm)

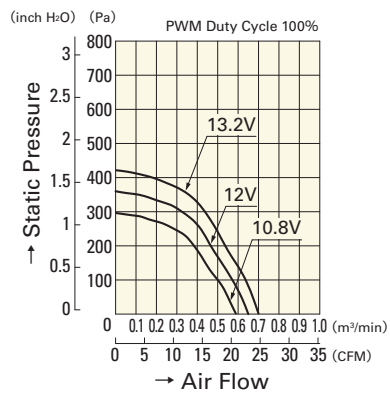
Finger guards
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color



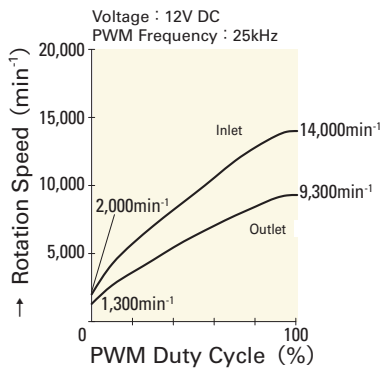
40mm sq.**San Ace 40****40×40×56mm** [Mass : 90g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9CRD0412P5J03****9CRD0412P5G03****9CRD0412P5H03****Operating Voltage Range****9CRD0412P5J03****9CRD0412P5G03****9CRD0412P5H03****PWM Duty - Speed Characteristics Example****9CRD0412P5J03****9CRD0412P5G03****9CRD0412P5H03**



9CRD0412P5M03



9CRD0412P5M03



9CRD0412P5M03

40mm sq.**San Ace 40**48mm thick (CRA type) , 56mm thick (CRD type)
56mm thick (CRE type) , 56mm thick (CRA type)**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

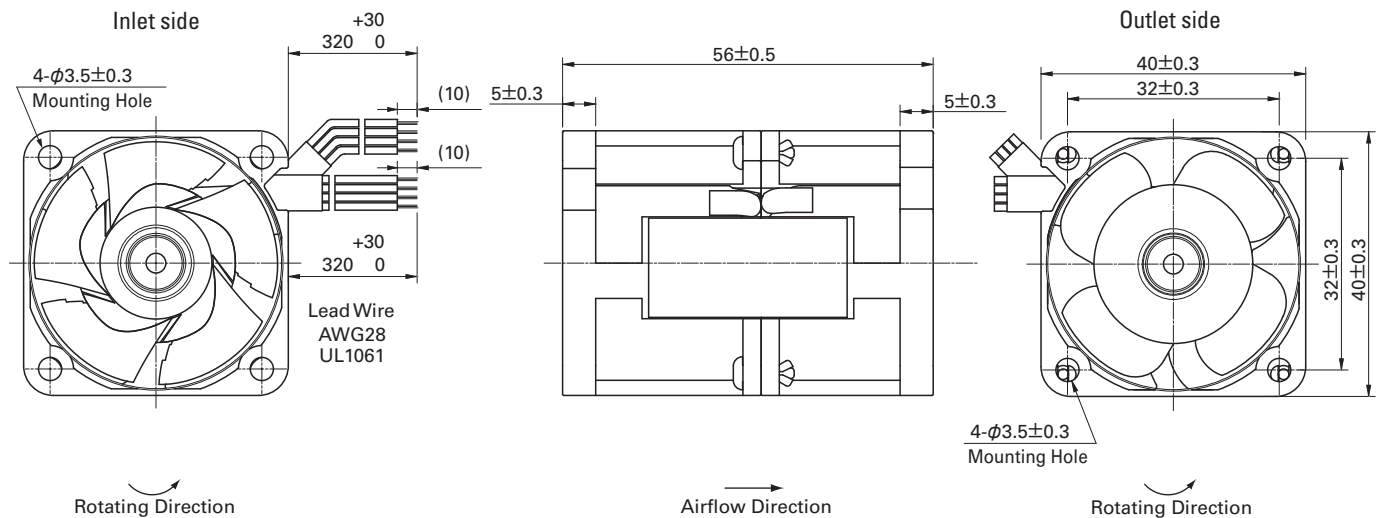
- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control)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

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

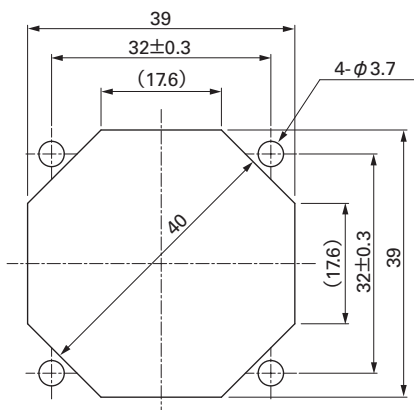
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹] Inlet Outlet	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9CRE0412P5J03	12	10.8 ~ 13.2	100	1.4	16.8	15,800 12,200	0.90 31.8	570.0 2.290	62	-10 ~ +70	40,000
			0	0.1	1.2	2,850 2,250	0.12 4.2	13.7 0.055	21		

※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

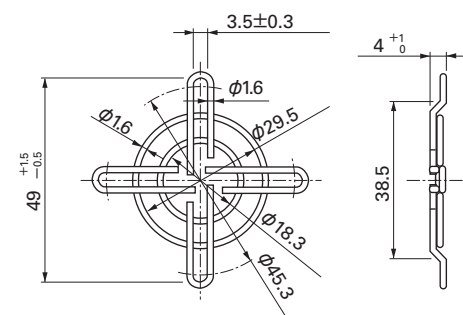
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Inlet side, Outlet side

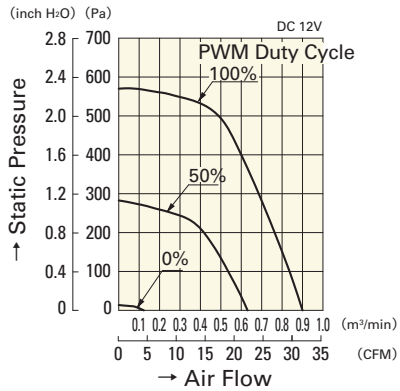
**Options (Unit : mm)****Finger guards**

Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side

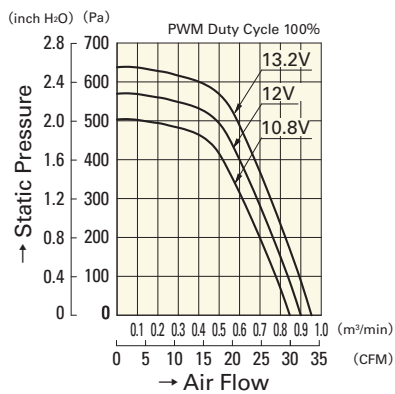


PWM Duty Cycle



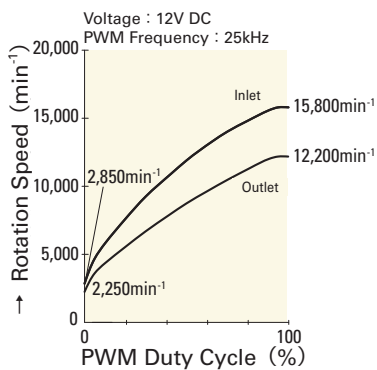
9CRE0412P5J03

Operating Voltage Range



9CRE0412P5J03

PWM Duty - Speed Characteristics Example



9CRE0412P5J03

40mm sq.**San Ace 40**48mm thick (CRA type) , 56mm thick (CRD type)
56mm thick (CRE type) , 56mm thick (CRA type)**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead WireInlet ⊕red ⊖black Sensor yellow
Outlet ⊕orange ⊖gray Sensor purple
- Storage Temperature ...-30°C to +70°C (Non-condensing)

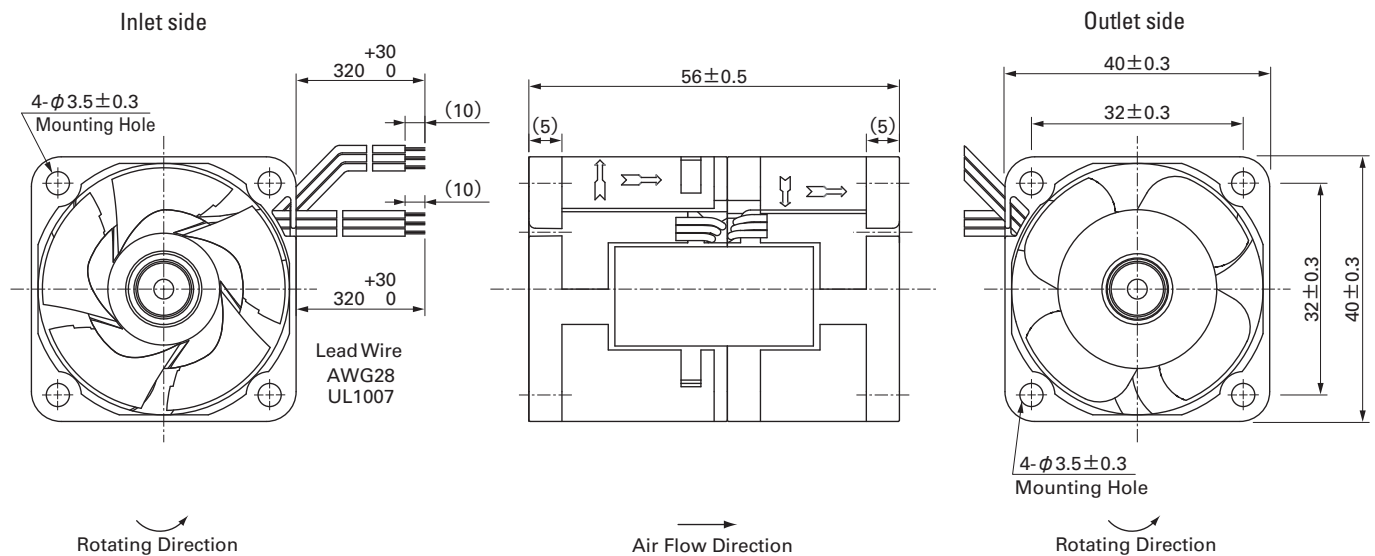
40×40×56mm (Mass : 90g)**CRA type****Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹] Inlet Outlet	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9CRA0412K501	12	10.8 ~ 12.6	1.8	21.6	17,000 13,000	0.95 33.5	650 2.61	65	-10 ~ +60	30,000
9CRA0412J501		10.8 to 13.2	1.4	16.8	15,800 12,200	0.90 31.8	570 2.29	62	-10 to +70	40,000
9CRA0412G501			1.0	12.0	14,000 10,400	0.77 27.2	435 1.75	59		

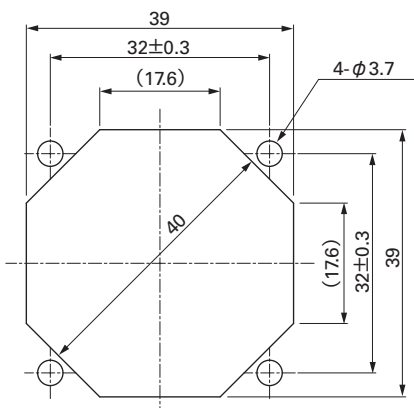
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor Available in all models.Lock SensorPWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Inlet side, Outlet side



60mm sq.**San Ace 60**

51mm thick (CR type) , 76mm thick (CR type)

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

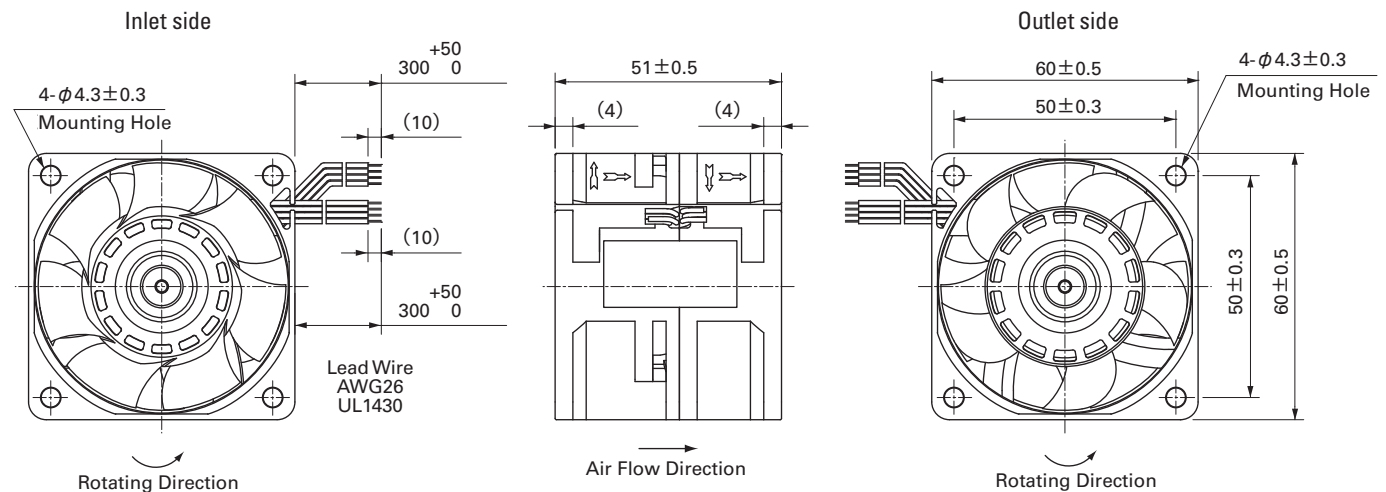
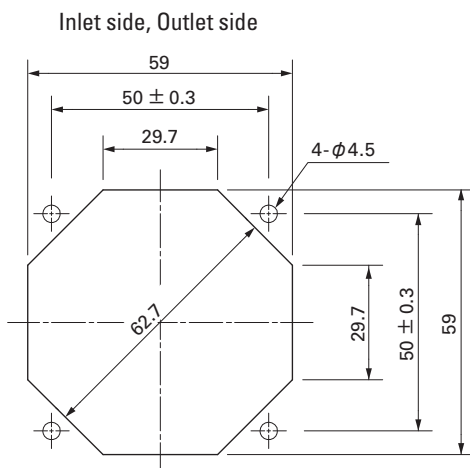
- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead WireInlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange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

60×60×51mm (Mass : 180g)**CR type****Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]	
						Inlet	Outlet							
9CR0612P5G03	12	10.8 to 13.2	100	2.7	32.4	11,500	9,000	2.03	71.7	600	2.41	68	-10 to +70	40,000
			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		

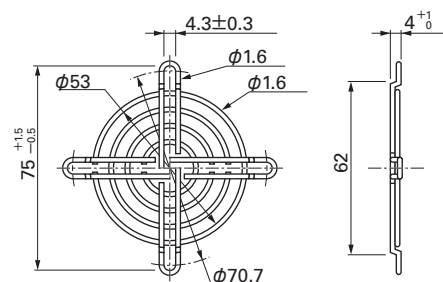
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)**Reference dimension 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)

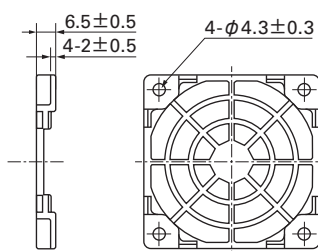
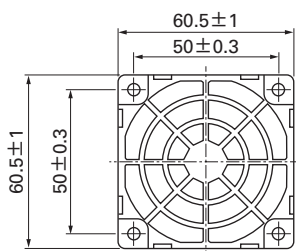
Inlet side, Outlet side



Options (Unit : mm)

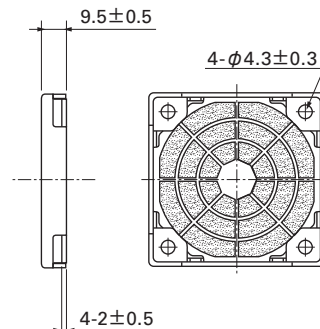
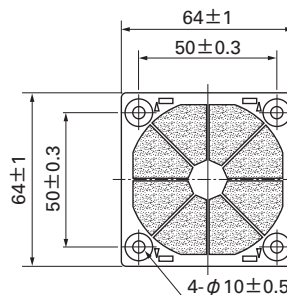
Resin finger guards

Model : 109-1003G



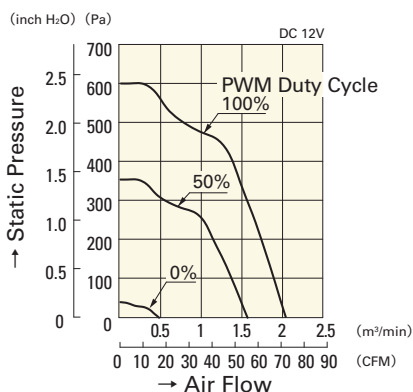
Resin filter kits

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

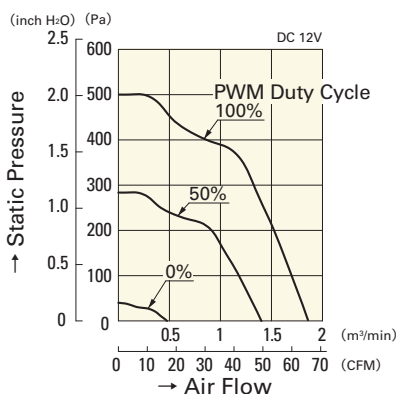


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

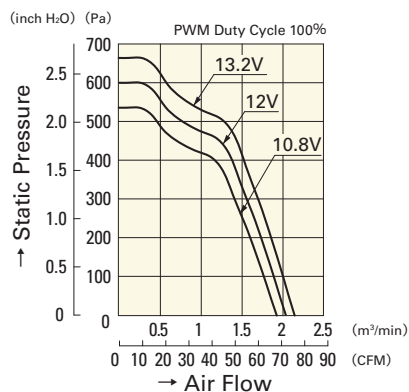


9CR0612P5G03

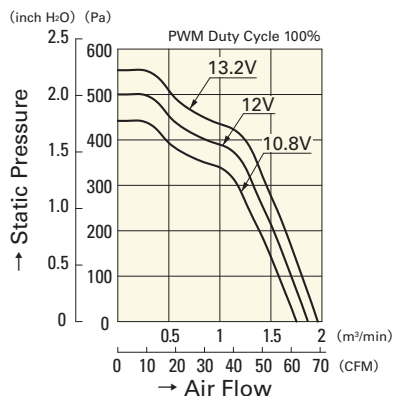


9CR0612P5H03

Operating Voltage Range

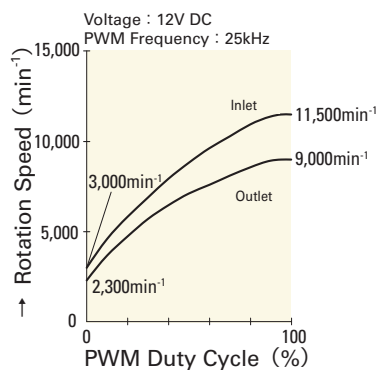


9CR0612P5G03

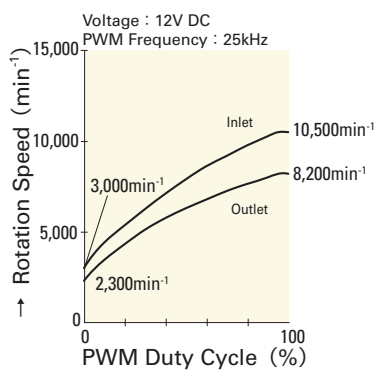


9CR0612P5H03

PWM Duty - Speed Characteristics Example



9CR0612P5G03



9CR0612P5H03

60mm sq.**San Ace 60**

51mm thick (CR type) , 76mm thick (CR type)

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead WireInlet ⊕red ⊖black Sensor yellow
Outlet ⊕orange ⊖gray Sensor purple
- Storage Temperature ...-30°C to +70°C (Non-condensing)

60×60×76mm (Mass : 230g)**CR type****Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹] Inlet Outlet	Air Flow [m ³ /min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9CR0612S001	12	10.8 to 13.2	3.2	38.4	11,500 7,000	2.26 80	550 2.21	66	-10 to +60	40,000
9CR0612H001			2.7	32.4	10,300 6,500	1.98 70	450 1.81	64		

Without Sensor

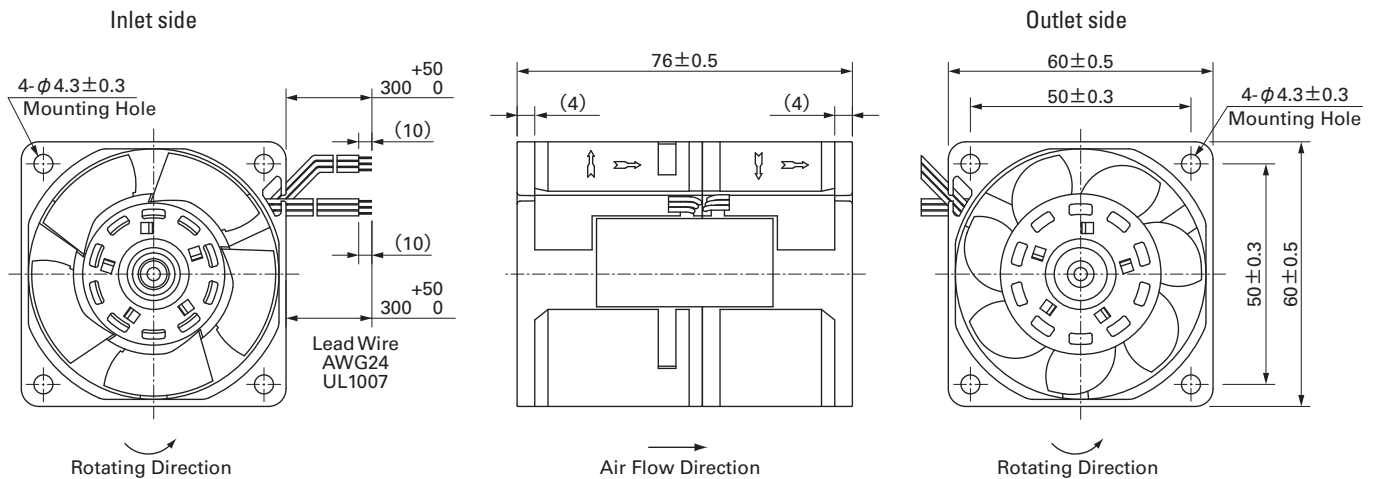
Pulse Sensor

Available in all models.

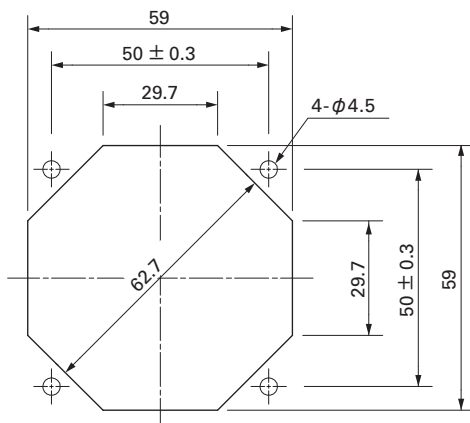
Lock Sensor

PWM Control

Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Inlet side, Outlet side

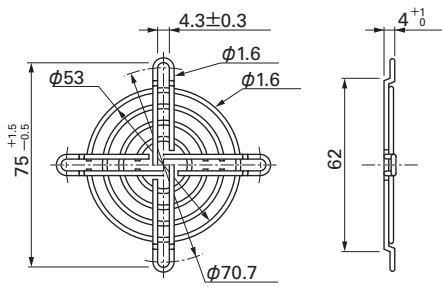


Options (Unit : mm)

Finger guards

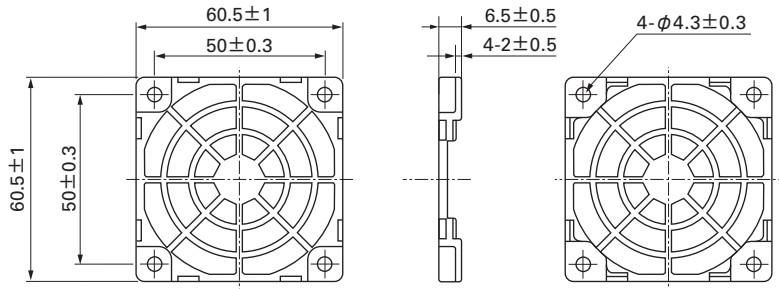
Model : 109-139E Surface treatment : Nickel-chrome plating (silver) Color
: 109-139H : Cation electropainting (black)

Inlet side, Outlet side



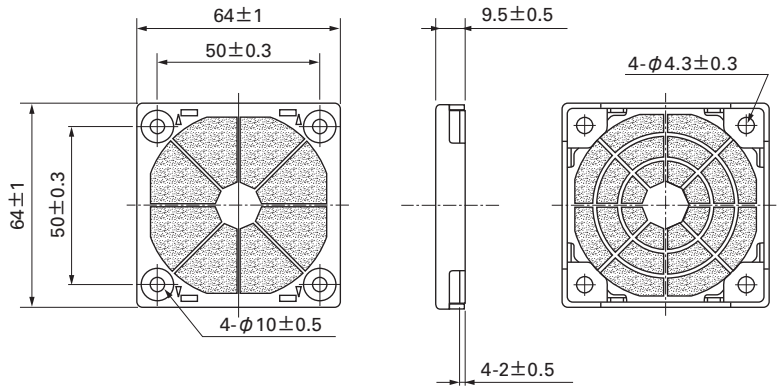
Resin finger guards

Model : 109-1003G

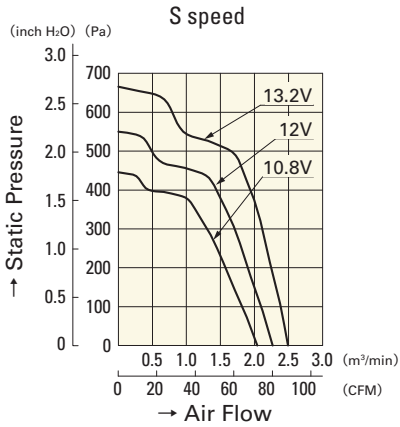


Resin filter kits

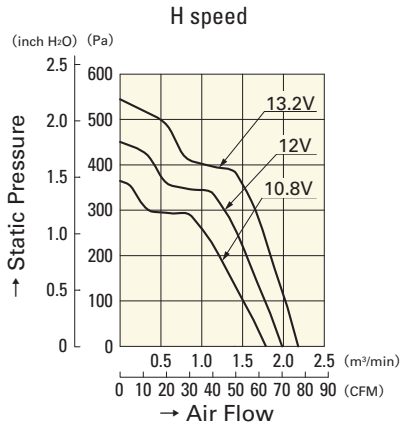
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



Air Flow - Static Pressure Characteristics



9CR0612S001



9CR0612H001

80mm sq.**San Ace 80**

80mm thick (CR type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

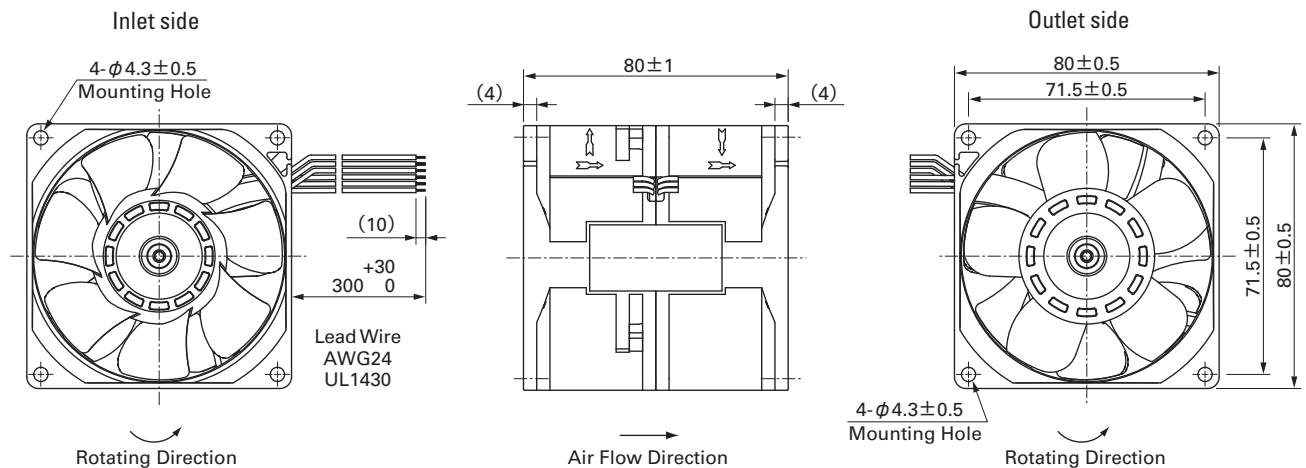
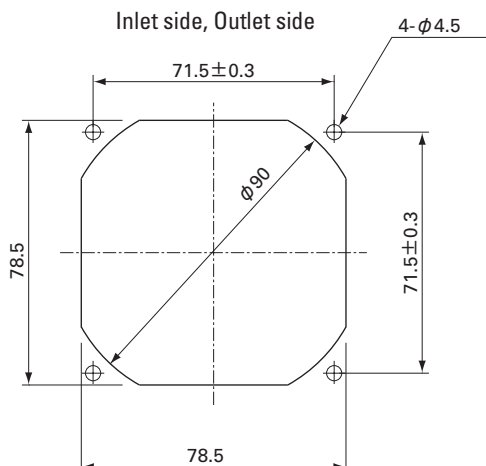
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black Sensor yellow
Outlet ⊕orange ⊖gray Sensor purple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

80×80×80mm (Mass : 350g)**CR type****Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9CR0812S801	12	10.8 to 13.2	5.5	66.0	8,000	5,300	4.53	160	520	2.09	71	-10 to +60	40,000
9CR0812H801			3.6	43.2	7,000	4,600	3.97	140	400	1.61	68		

Without Sensor Pulse Sensor Available in all models.Lock SensorPWM Control

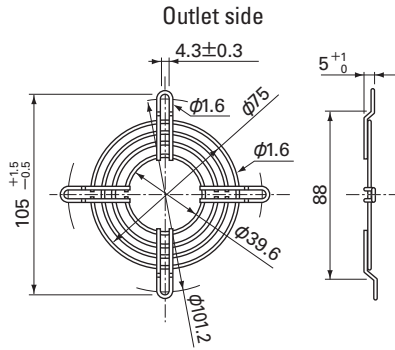
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

Finger guards

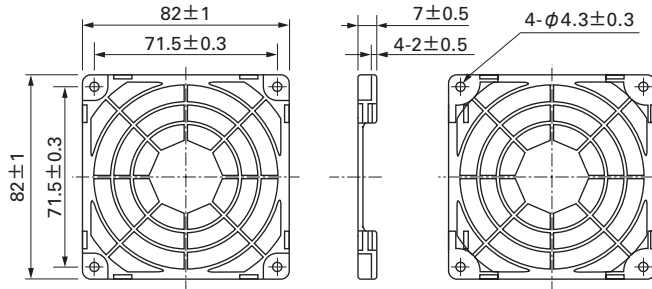
Model : 109-049C Surface treatment : Nickel-chrome plating (silver) Color (silver)



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

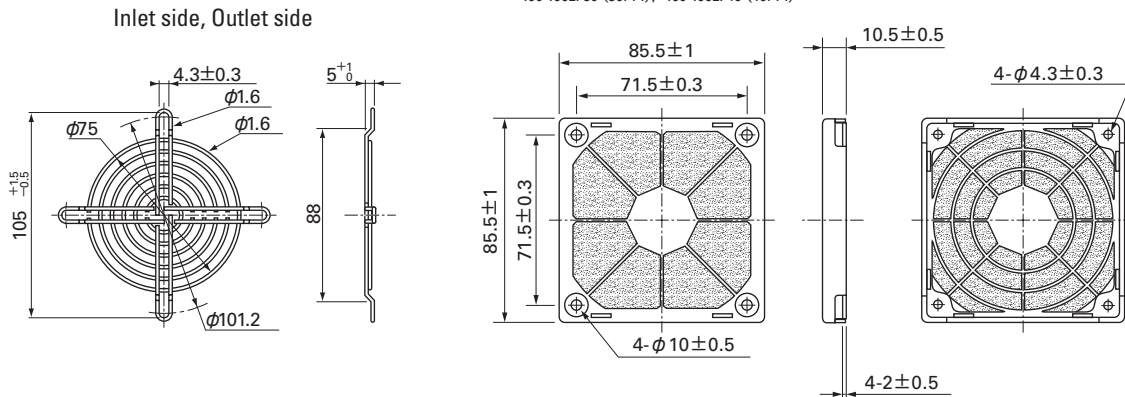
Resin finger guards

Model : 109-1002G



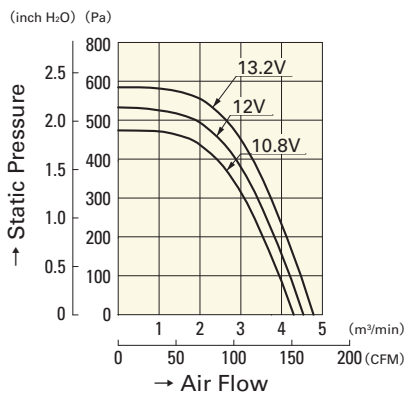
Resin filter kits

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



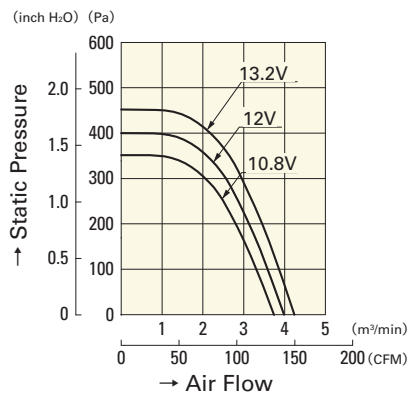
Air Flow - Static Pressure Characteristics

S speed



9CR0812S801

H speed



9CR0812H801

120mm sq.**San Ace 120**

76mm thick (CR type)


General Specifications
With a pulse sensor
 Specifications for pulse sensors ⇨ Refer to Page 291

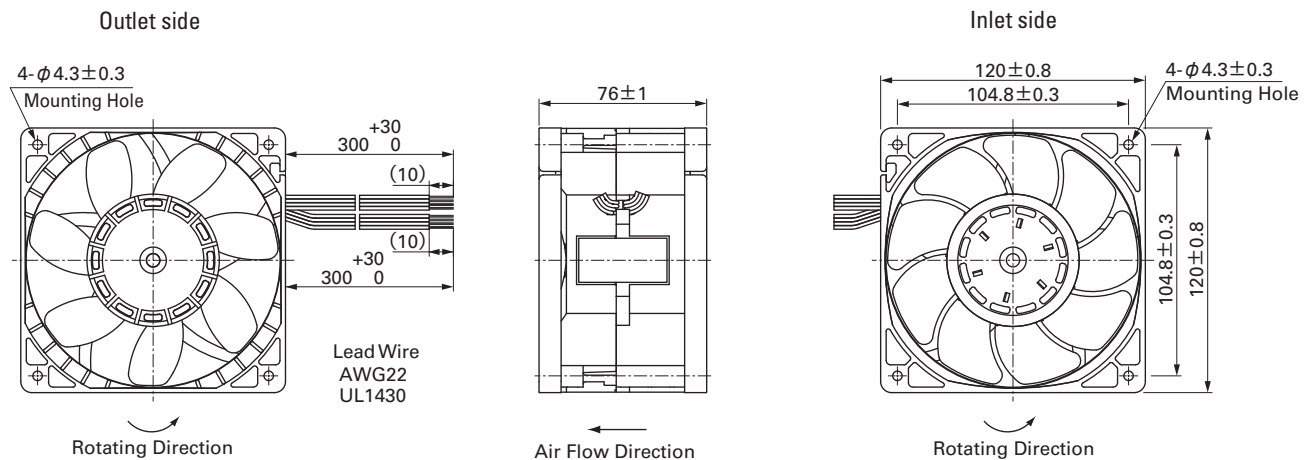
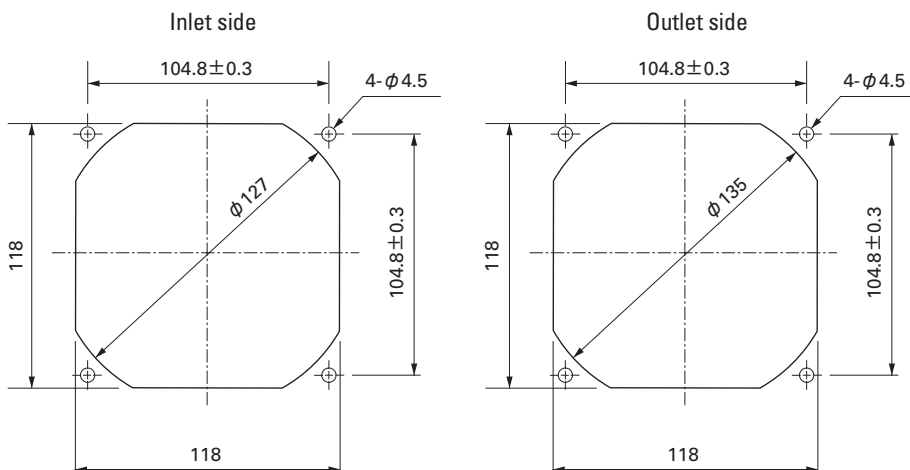
With PWM speed control function
 ⇨ Refer to Page 293

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (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]**CR type****Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [InchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9CR1212P0G03	12	10.8 to 13.2	100	7.2	86.4	6,200	3,800	8.5	300	480	1.93	70	-10 to +60	40,000
			0	1.1	13.2	2,700	1,800	3.8	134	95	0.38	51		

※PWM Frequency : 25kHz

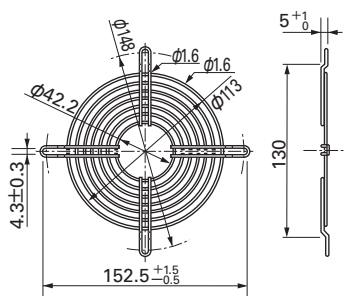
Without Sensor
Pulse Sensor
PWM Control
 Available in all models.
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

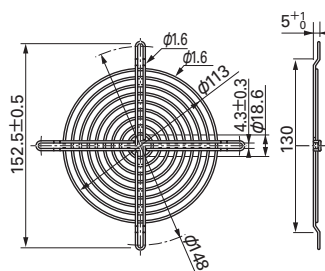
Finger guards

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)

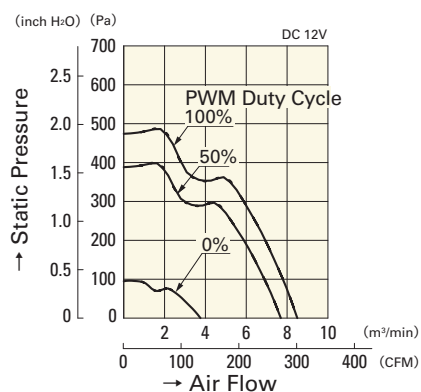


Inlet side, Outlet side



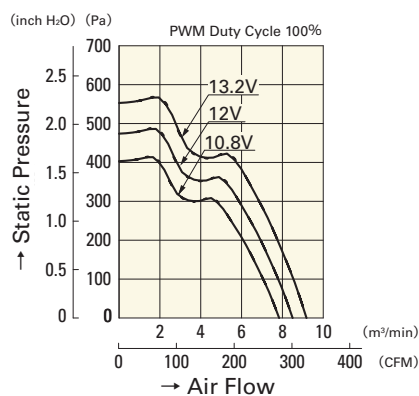
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



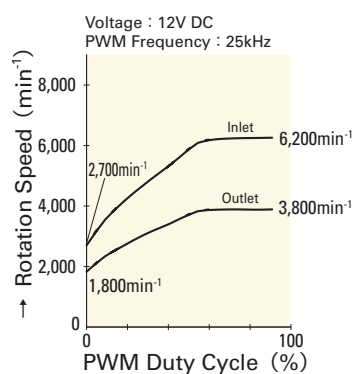
9CR1212P0G03

Operating Voltage Range



9CR1212P0G03

PWM Duty Speed Characteristics Example



9CR1212P0G03

$\phi 100$ mm

San Ace C100

25mm thick



General Specifications **With a pulse sensor** Specifications for pulse sensors $\Rightarrow$ Refer to Page 291

With PWM speed control function $\Rightarrow$ Refer to Page 293

- Material Frame: Aluminum,
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire $\oplus$ red $\ominus$ black **Sensor** yellow **Control** brown
- Storage Temperature -30°C to +70°C (Non-condensing)

$\phi 100$ mm $\times$ 25mm [Mass : 150g] 

Specifications When our inlet nozzle [Option (Model NO. : 109-1080)] is mounted.

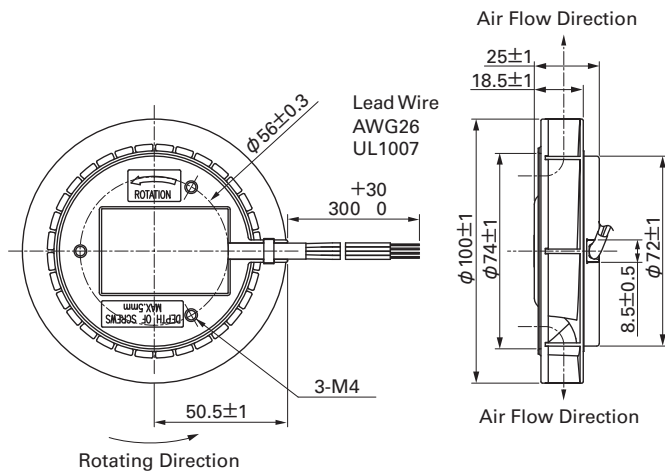
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9TM48P4H01	48	36 to 60	100	0.22	10.56	6,400	1.77	62.5	560	2.25	60	-10 to +70	40,000
			0	0.04	1.92	2,000	0.51	18.0	48	0.19	34		

Note : Max input is 14 W at rated voltage.

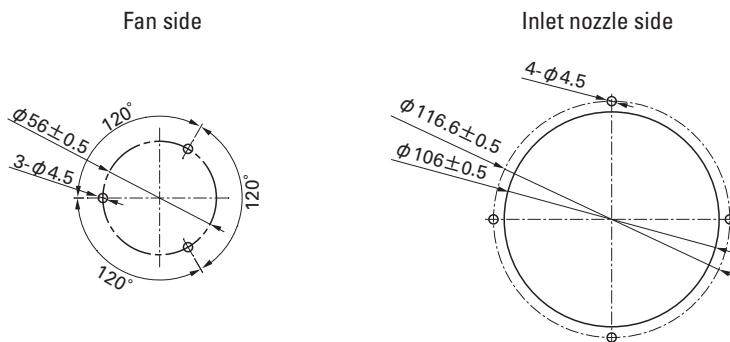
※ PWM Frequency : 25kHz

Without Sensor **Pulse Sensor** **PWM Control** Available in all models.

Dimensions (Unit : mm)



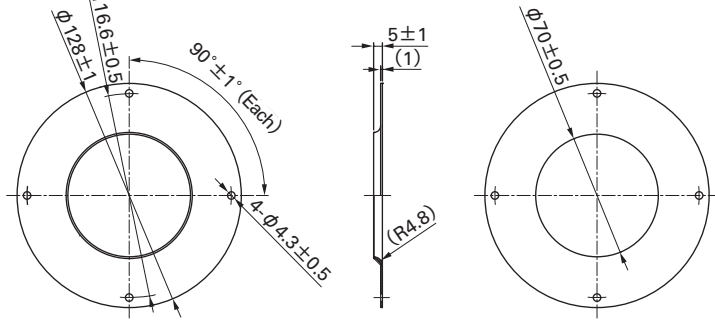
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

Inlet nozzle

Model : 109-1080

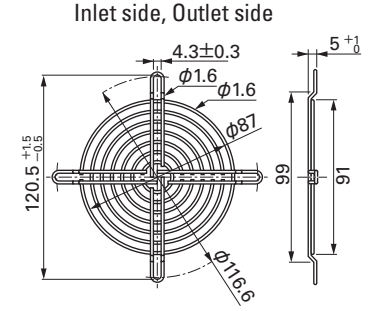


Finger guards

Model : 109-099E

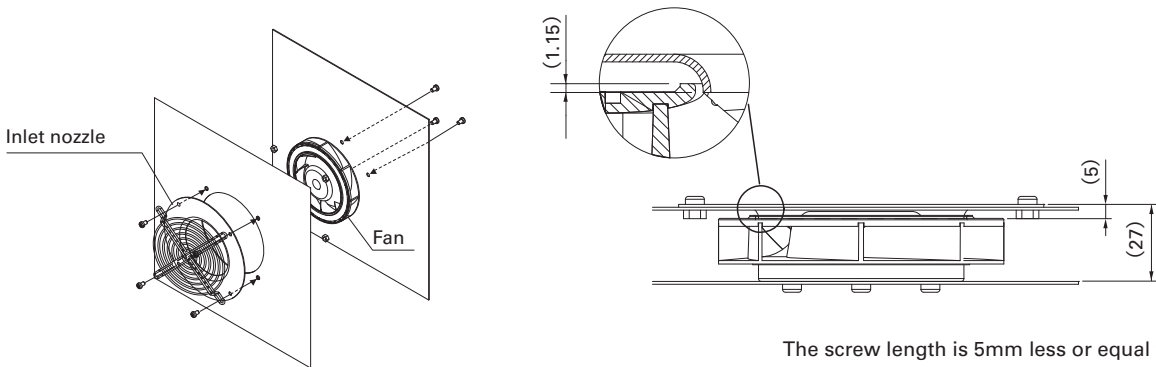
: 109-099H

Color
Surface treatment : Nickel-chrome plating (silver)
: Cation electropainting (black)



Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

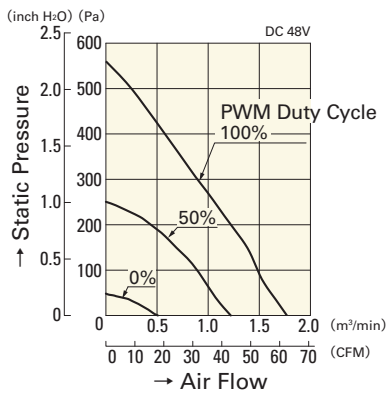
Reference diagram for mounting



The screw length is 5mm less or equal from fan edge side.

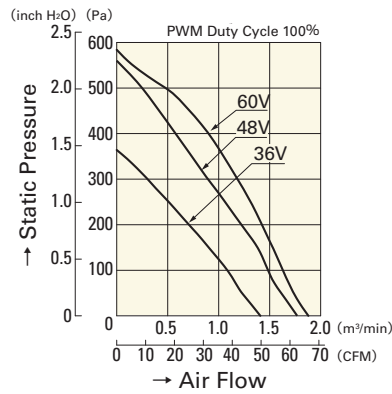
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



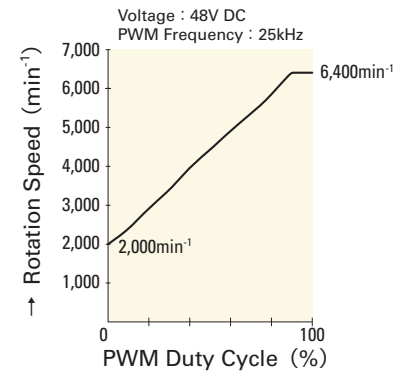
9TM48P4H01

Operating Voltage Range



9TM48P4H01

PWM Duty - Speed Characteristics Example

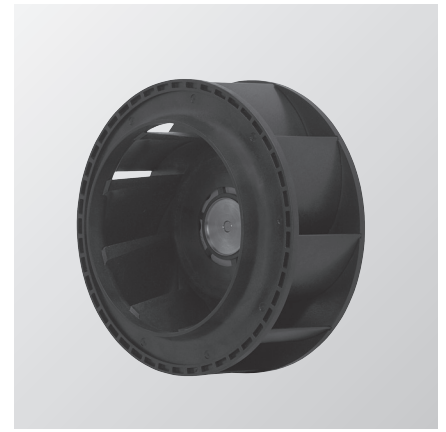


9TM48P4H01

$\phi 133$ mm

San Ace C133

91mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Aluminum,
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (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)

$\phi 133$ mm × 91mm (Mass : 660g)



Specifications When our inlet nozzle [Option (Model : 109-1069)] is mounted.

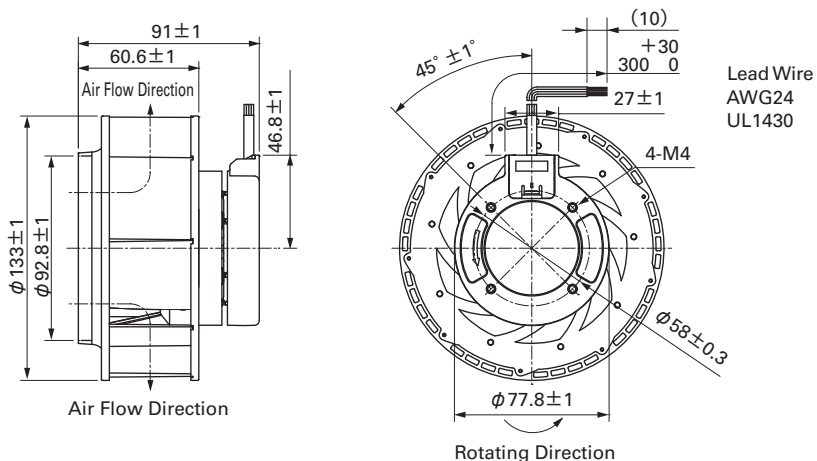
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9TJ48P0H01	48	36 to 72	100	0.55	26.4	4,150	6.39 225	395 1.59	61	-10 to +70	40,000

Note 1 : Fan does not rotate when PWM duty cycle is 0%.

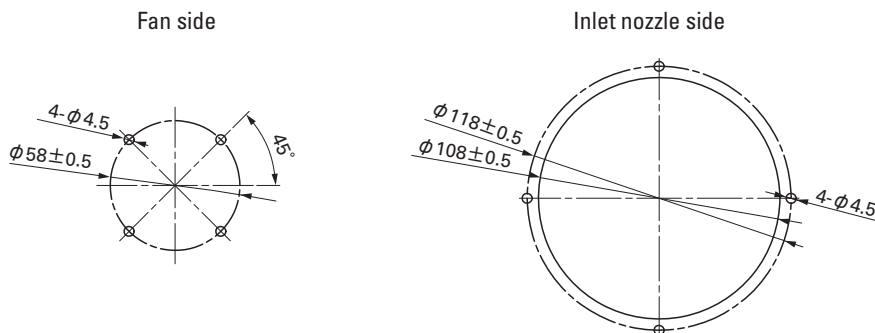
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)



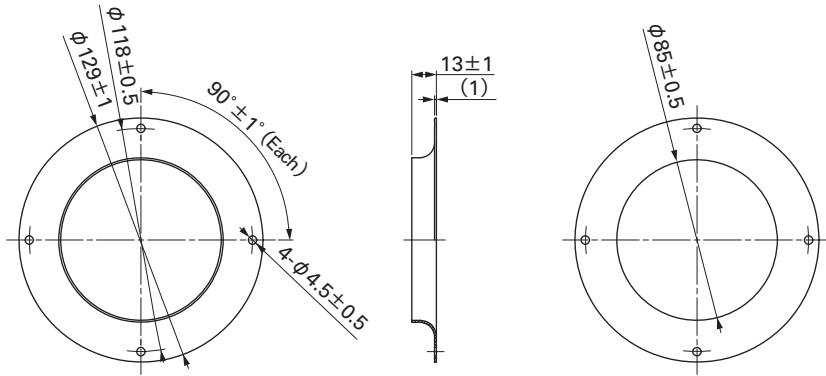
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

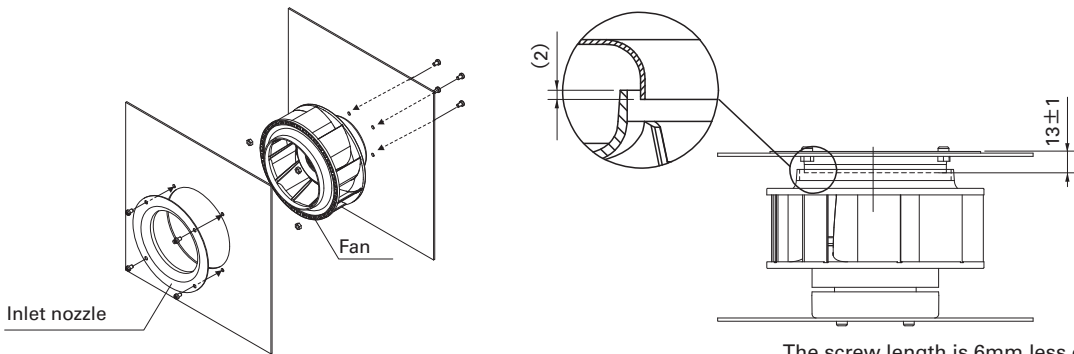
Inlet nozzle

Model : 109-1069



Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

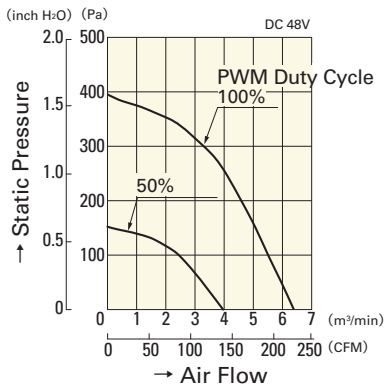
Reference diagram for mounting



The screw length is 6mm less or equal from fan edge side.

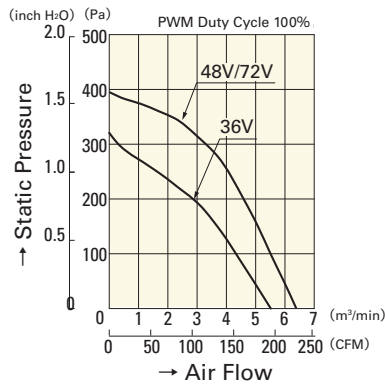
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



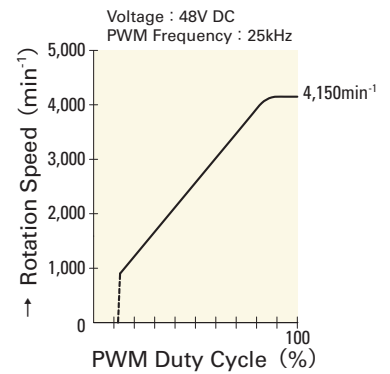
9TJ48P0H01

Operating Voltage Range



9TJ48P0H01

PWM Duty Speed Characteristics Example



9TJ48P0H01

$\phi 150$ mm

San Ace C150

35mm thick



General Specifications **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Aluminum,
Impeller: Plastics (Flammability: UL94V-0)
- Life Expectancy Varies for each model (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)

$\phi 150$ mm × 35mm [Mass : 330g] 

Specifications When our inlet nozzle [Option (Model : 109-1081)] is mounted.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL	Operating Temperature	Life Expectancy
	[V]	[V]		[A]	[W]	[min ⁻¹]	[m ³ /min]	[CFM]	[Pa]	[inchH ₂ O]	[dB(A)]	[°C]	[h]
9TN24P1H01	24	20.4 to 27.6	100	0.62	14.9	3,800	3.83	135	410	1.65	59	-10 to +70	40,000
9TN48P1H01	48	36.0 to 55.2	100	0.32	15.4	3,800	3.83	135	390	1.57	59		

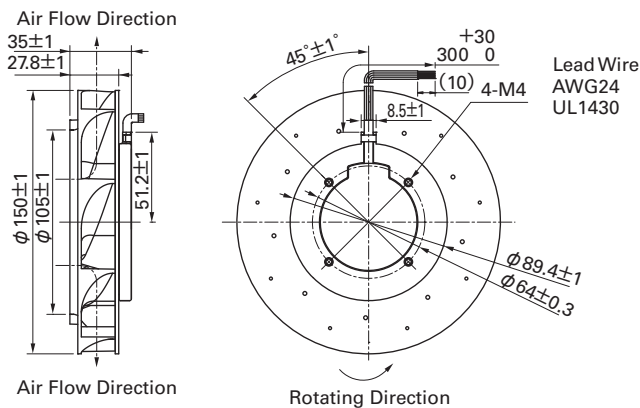
Note 1 : Fan does not rotate when PWM duty cycle is 0%.

Note 2 : Max input is 9TN24P1H01 : 21.4W, 9TN48P1H01 : 22W.

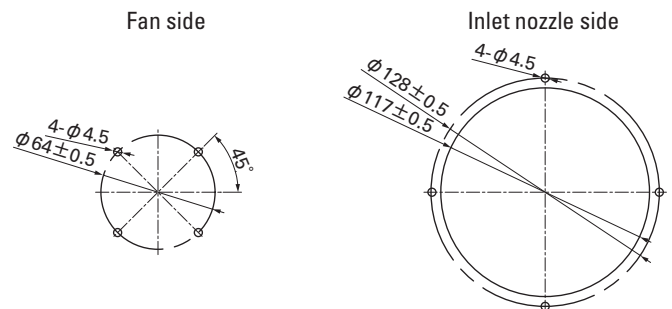
※PWM Frequency : 25kHz

Without Sensor **Pulse Sensor** **PWM Control** Available in all models.

Dimensions (Unit : mm)



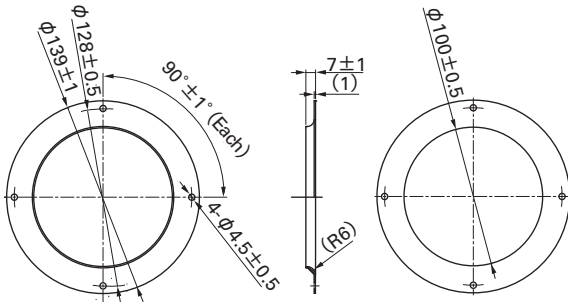
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

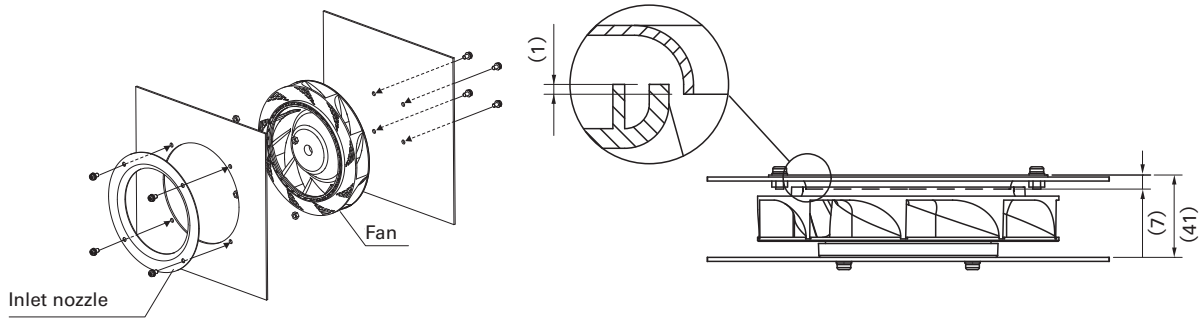
Inlet nozzle

Model : 109-1081



Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

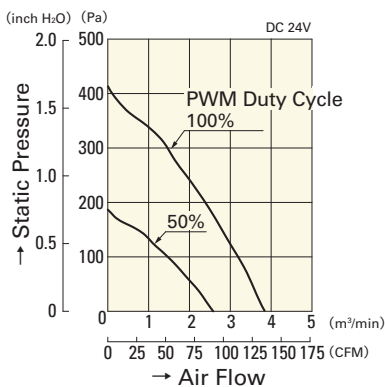
Reference diagram for mounting



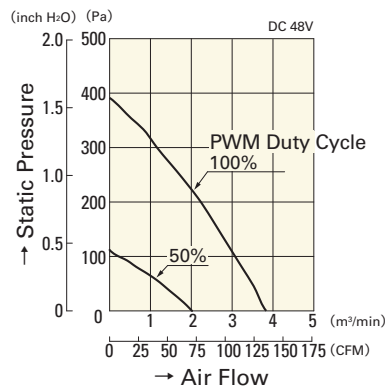
Screw length should be 4 mm or more but not exceeding 6 mm from fan edge face.

Air Flow - Static Pressure Characteristics

PWM Duty Cycle

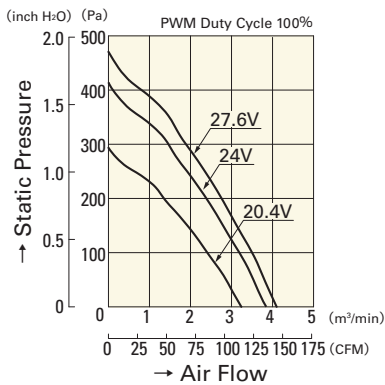


9TN24P1H01

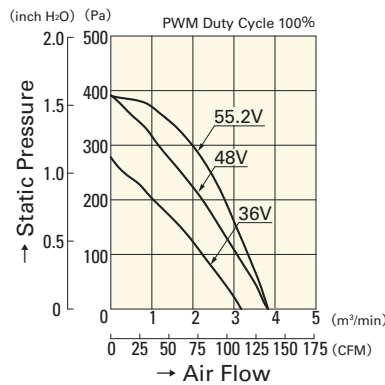


9TN48P1H01

Operating Voltage Range

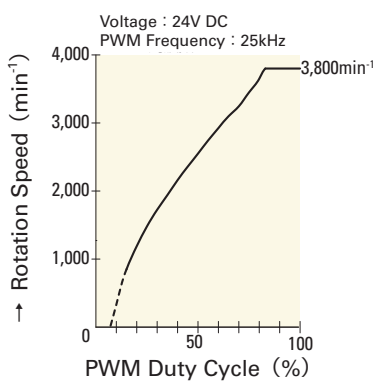


9TN24P1H01

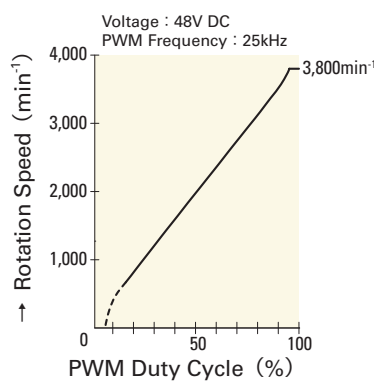


9TN48P1H01

PWM Duty - Speed Characteristics Example



9TN24P1H01

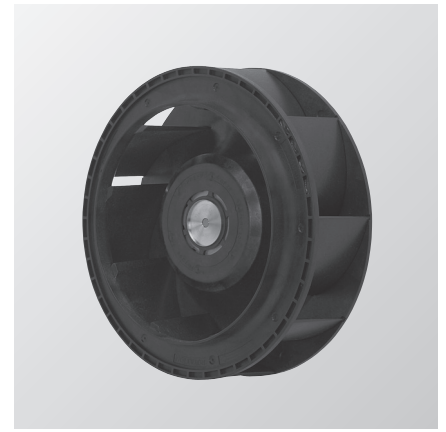


9TN48P1H01

$\phi 175$ mm

San Ace C175

69mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Aluminum,
Impeller: Plastics (Flammability: UL94V-1Min.)
- Life Expectancy Varies for each model (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)

$\phi 175$ mm × 69mm

[Mass : 750g]



Specifications When inlet nozzle [Option (Model : 109-1073)] is mounted.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]	Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9TG24P0G01	24	20.4 to 27.6	100	3.9	93.6	4,700	14.0 494.7	885 3.55	73	-10 to +60	40,000
9TG48P0G01	48	36 to 55.2		1.95	93.6					-10 to +70	

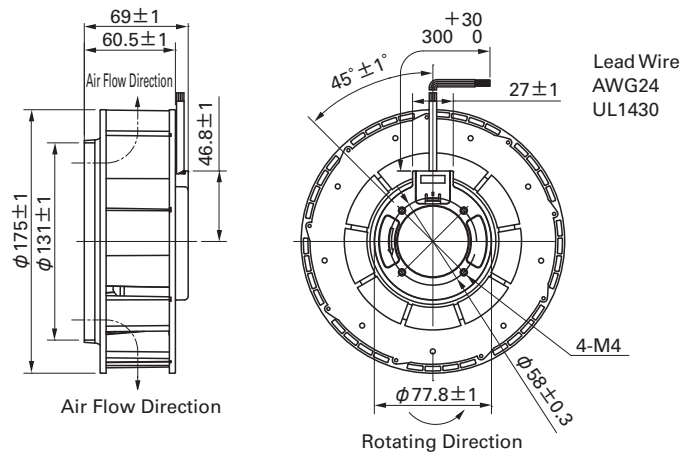
Note 1 : Fan does not rotate when PWM duty cycle is 0%.

Note 2 : Max input is 130 W at rated voltage.

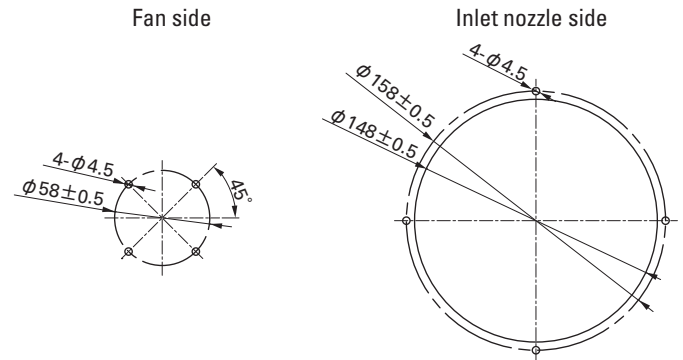
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)



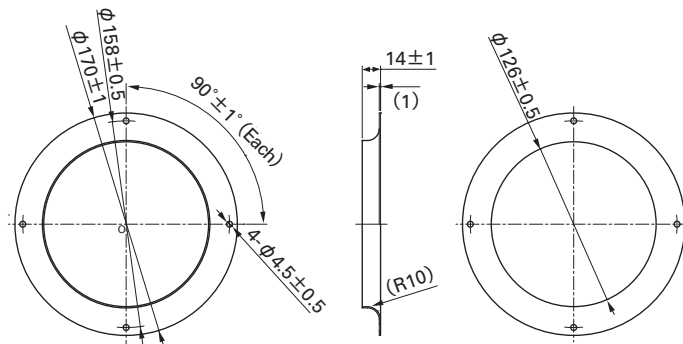
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

Inlet nozzle

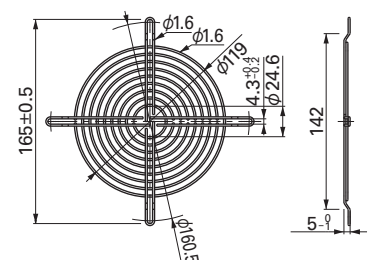
Model : 109-1073



Finger guards

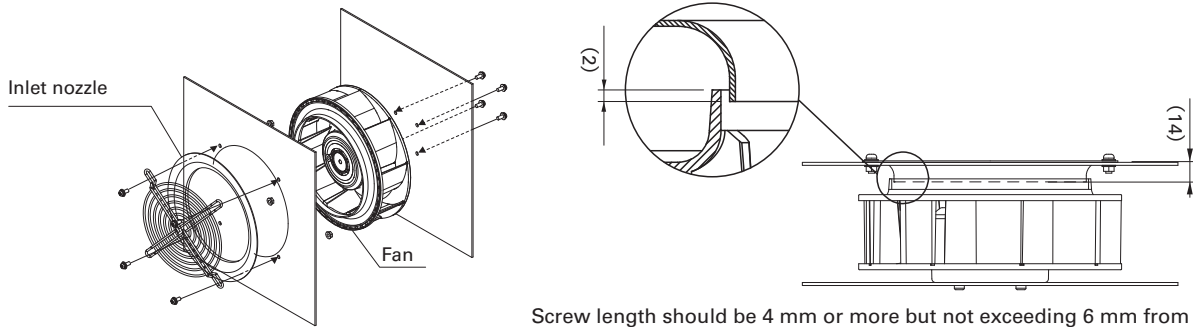
Model : 109-722 Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side



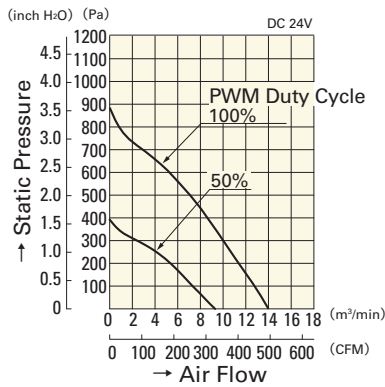
Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

Reference diagram for mounting

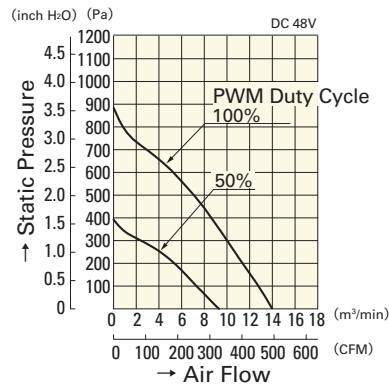


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

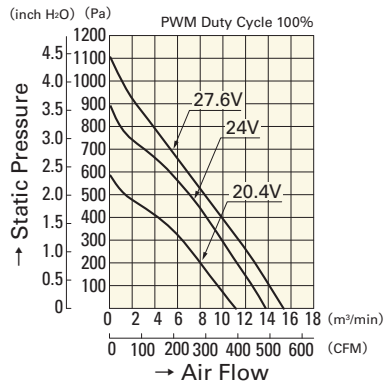


9TG24P0G01

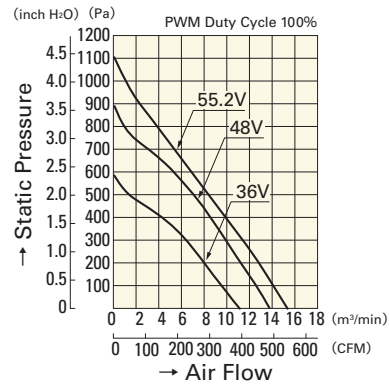


9TG48P0G01

Operating Voltage Range

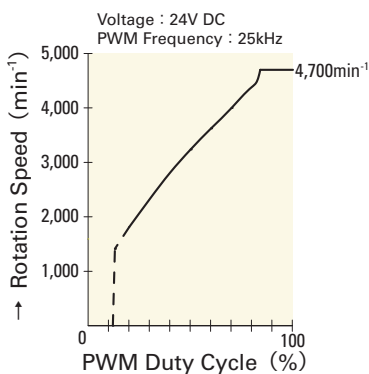


9TG24P0G01

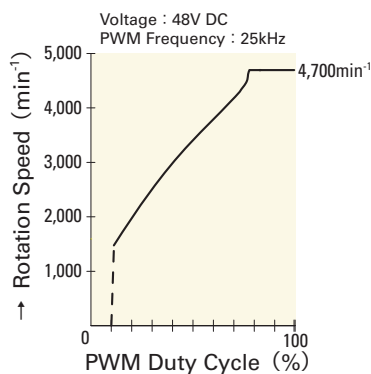


9TG48P0G01

PWM Duty - Speed Characteristics Example



9TG24P0G01



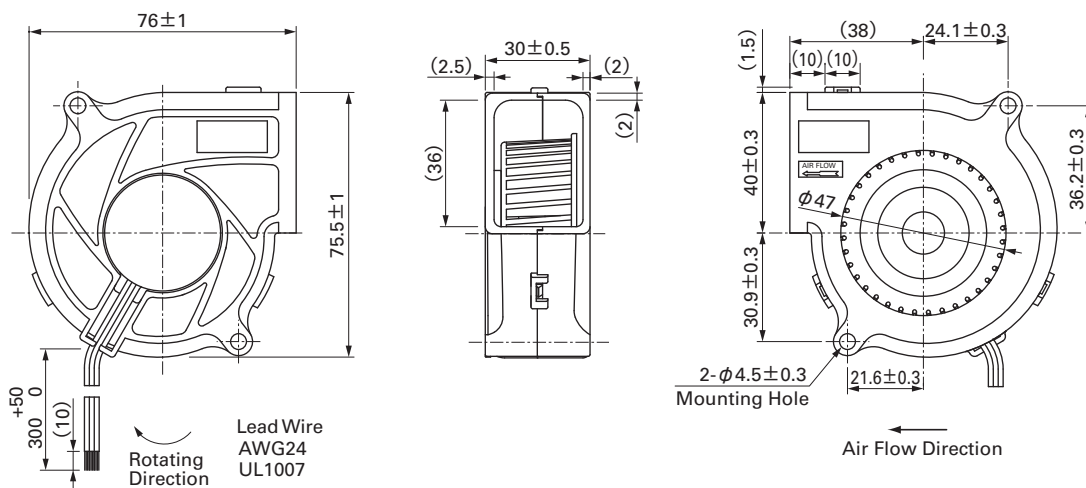
9TG48P0G01

76mm**San Ace B76**20mm thick
30mm thick
General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

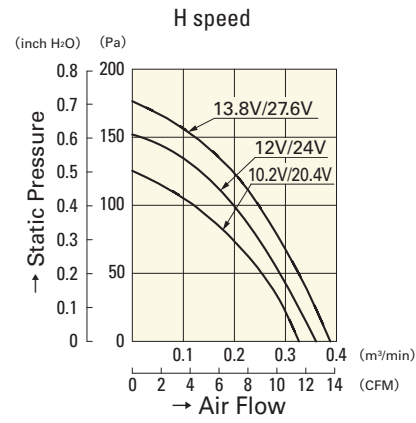
- Material..... Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

76mm×30mm [Mass : 100g]**Specifications**

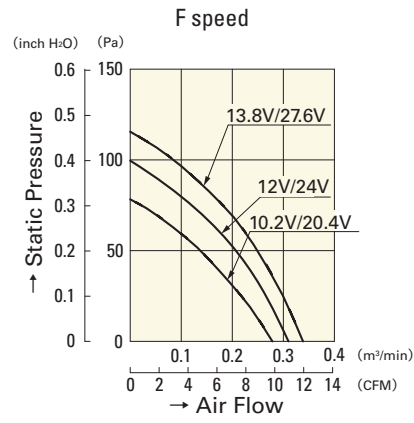
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109BD12HC2	12	10.2 to 13.8	0.37	4.44	3,000	0.36	12.7	151.9	0.610	41.5	-10 to +60	40,000
109BD12FC2			0.27	3.24	2,600	0.31	10.9	98	0.394	37	-10 to +70	
109BD12MC2			0.14	1.68	2,100	0.25	8.8	58.8	0.236	32.5	-10 to +60	
109BD24HC2	24	20.4 to 27.6	0.17	4.08	3,000	0.36	12.7	151.9	0.610	41.5	-10 to +60	
109BD24FC2			0.14	3.36	2,600	0.31	10.9	98	0.394	37	-10 to +70	
109BD24MC2			0.10	2.40	2,100	0.25	8.8	58.8	0.236	32.5	-10 to +70	

Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)**

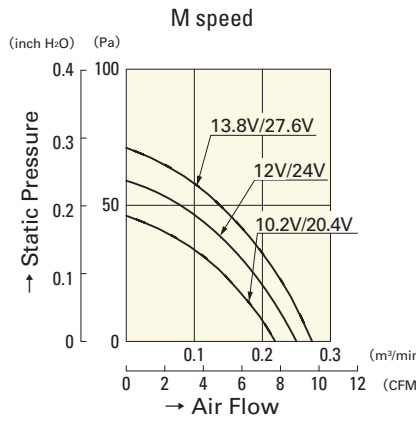
Air Flow - Static Pressure Characteristics



109BD12HC2
109BD24HC2



109BD12FC2
109BD24FC2



109BD12MC2
109BD24MC2

Blower 76mm

76mm

97mm

San Ace B97

33mm thick



■ **General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

With PWM speed control function ⇨ Refer to Page 293

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (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)

97mm×33mm (Mass : 190g)



■ Specifications

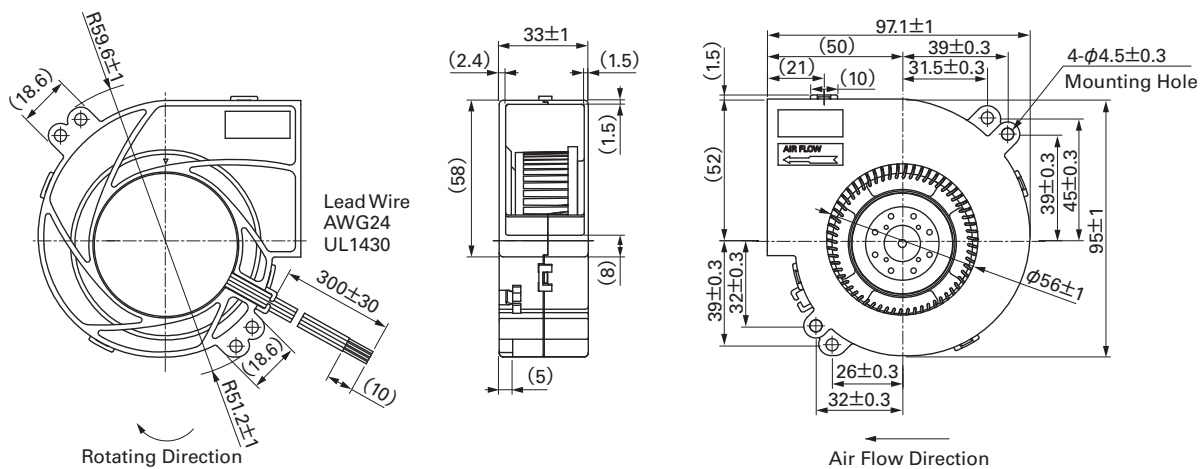
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle (Note1) [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9BMB12P2K01	12	10.8 to 13.2	100	3.4	40.8	6,850	1.61	56.9	1,280	5.14	66	-10 to +70	40,000
9BMB24P2K01	24	21.6 to 26.4	100	1.62	38.88	6,850	1.61	56.9	1,280	5.14	66		

Note 1 : Fan does not rotate when PWM duty cycle is 0% .

※PWM Frequency : 25kHz

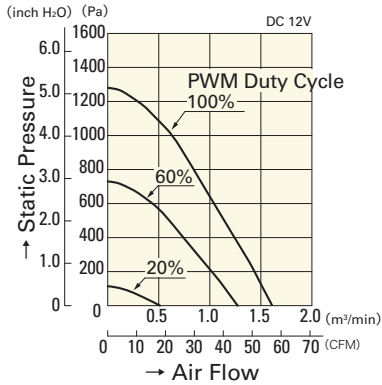
Without Sensor Pulse Sensor PWM Control Available in all models. Lock Sensor Low speed Sensor Please inquire as the availability of these functions depend on the model.

■ Dimensions (Unit : mm)

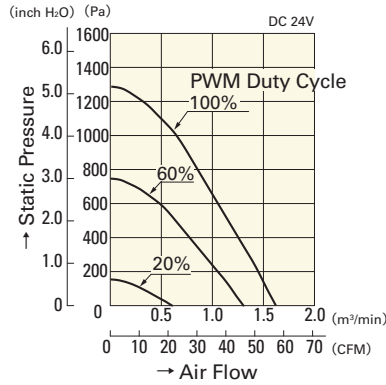


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

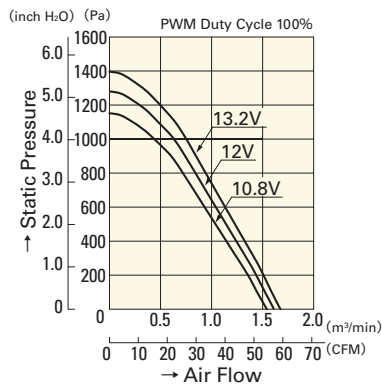


9BMB12P2K01

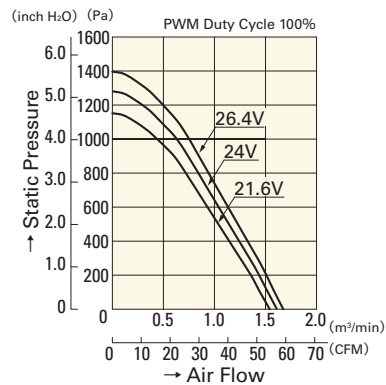


9BMB24P2K01

Operating Voltage Range

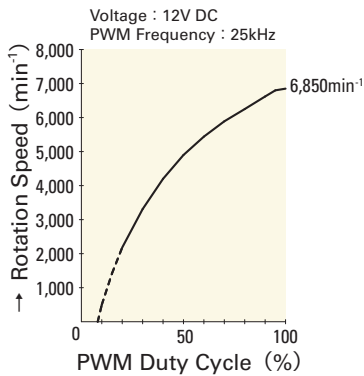


9BMB12P2K01

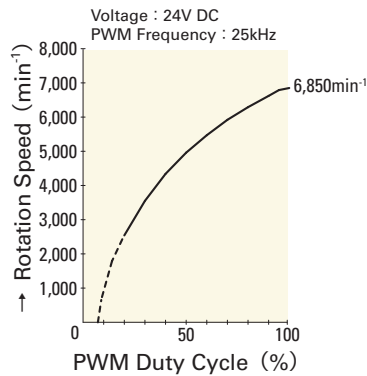


9BMB24P2K01

PWM Duty - Speed Characteristics Example



9BMB12P2K01



9BMB24P2K01

97mm**San Ace B97****33mm thick**
General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 291

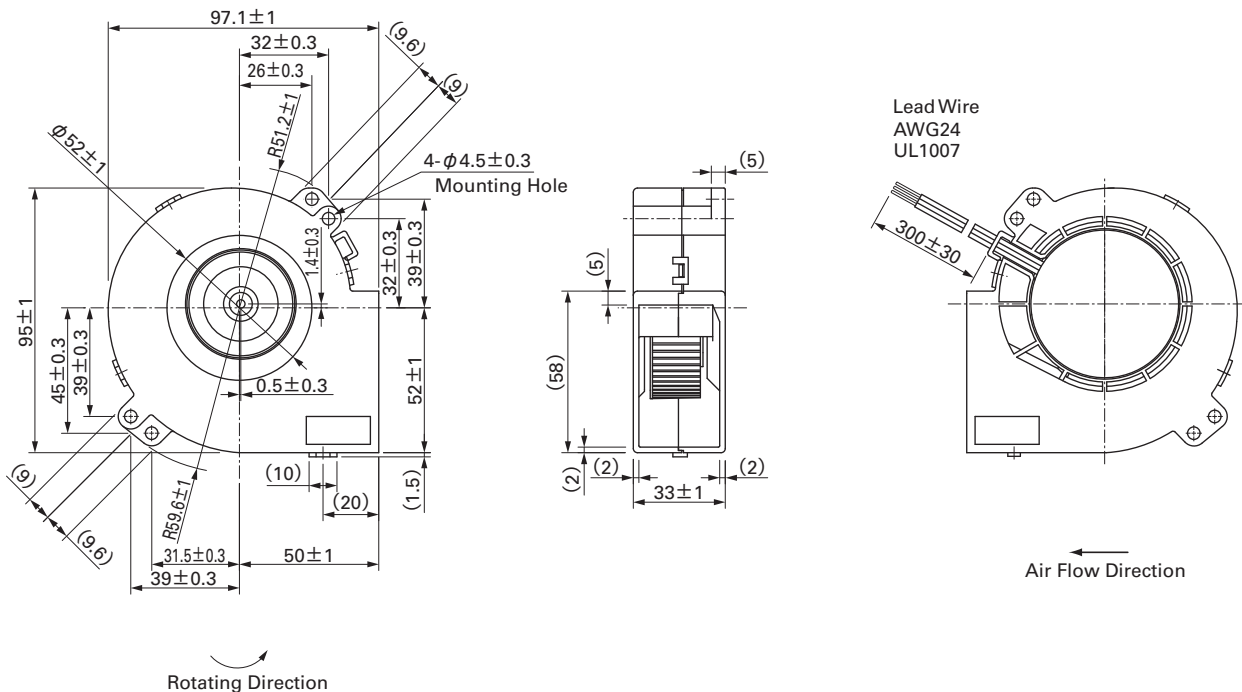
- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Life ExpectancyVaries for each model(L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black Sensor yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

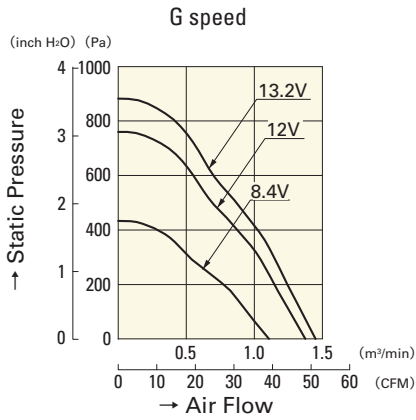
97mm×33mm [Mass : 170g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
9BAM12GC2	12	8.4 to 13.2	1.85	22.2	5,800	1.37	48.4	760	3.052	62	- 10 to + 60	40,000
9BAM12SC2			1.45	17.4	5,300	1.25	44.2	610	2.450	60		
9BAM12HC2			1.20	14.4	4,700	1.10	38.9	490	1.968	58		
9BAM12FC2			0.98	11.8	4,300	1.00	35.3	410	1.647	56		
9BAM24GC2	24	12.0 to 26.4	0.90	21.6	5,800	1.37	48.4	760	3.052	62		
9BAM24SC2			0.71	17.0	5,300	1.25	44.2	610	2.450	60		
9BAM24HC2		14.4 to 26.4	0.60	14.4	4,700	1.10	38.9	490	1.968	58		
9BAM24FC2			0.49	11.8	4,300	1.00	35.3	410	1.647	56		

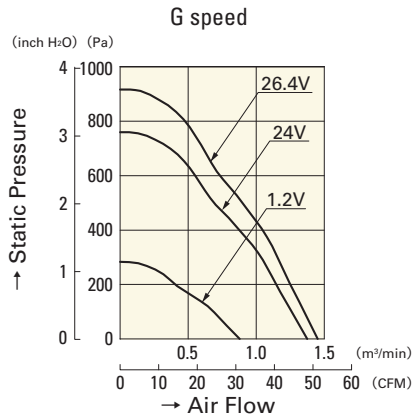
Without Sensor Pulse Sensor Available in all models.Lock SensorPWM Control

Please inquire as the availability of these functions depend on the model.

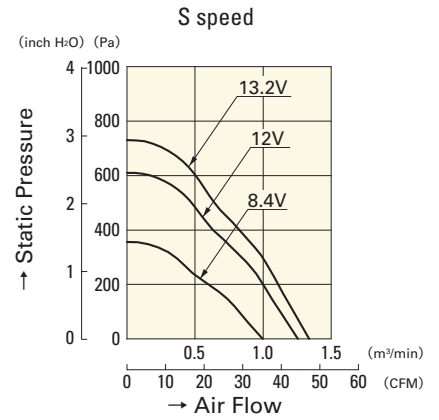
Dimensions (Unit : mm)



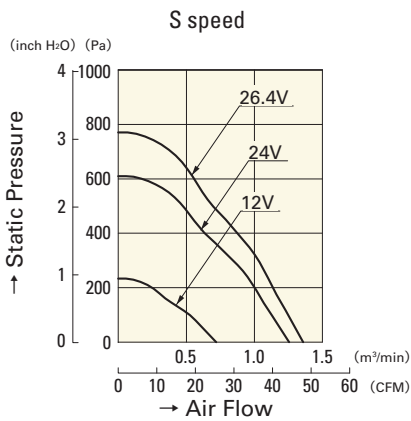
9BAM12GC2



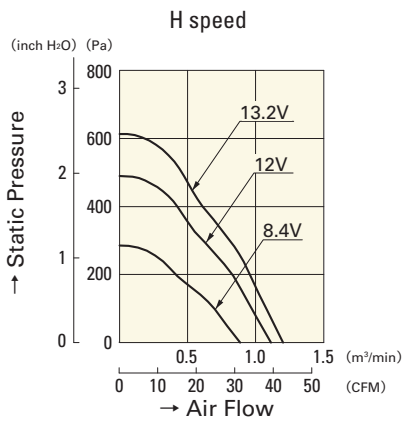
9BAM24GC2



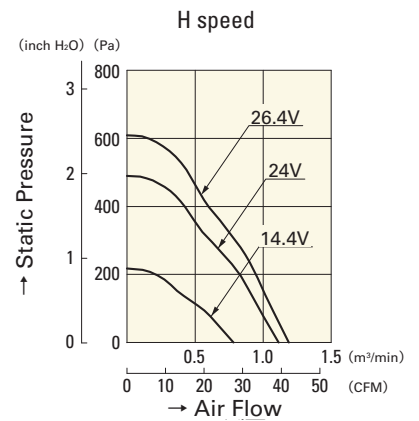
9BAM12SC2



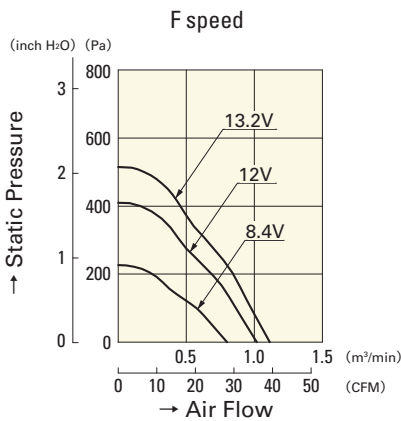
9BAM24SC2



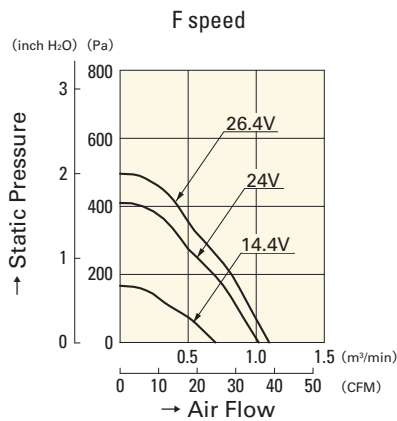
9BAM12HC2



9BAM24HC2



9BAM12FC2



9BAM24FC2

120mm**San Ace B120**

32mm thick

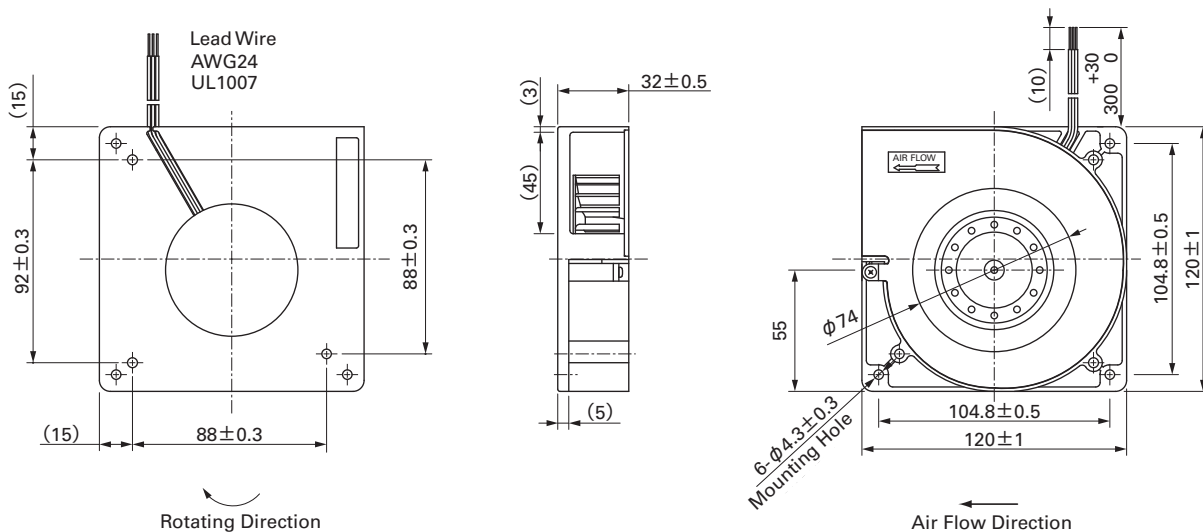

General Specifications
With a pulse sensor
 Specifications for pulse sensors ⇨ Refer to Page 291

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

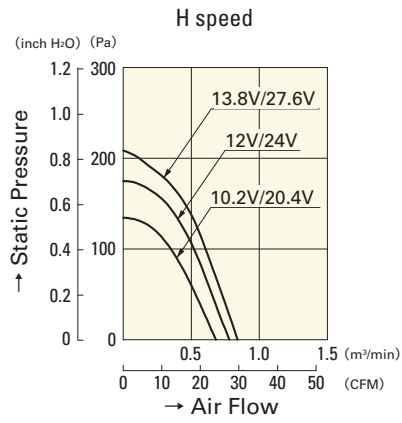
120mm × 32mm (Mass : 270g)**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109BF12HC2	12	10.2 to 13.8	0.6	7.2	2,400	0.78	27.5	175.4	0.704	52	- 10 to + 60	40,000
109BF12MC2			0.32	3.84	1,900	0.61	21.5	109.8	0.441	44		
109BF24HC2	24	20.4 to 27.6	0.3	7.2	2,400	0.78	27.5	175.4	0.704	52		
109BF24MC2			0.16	3.84	1,900	0.61	21.5	109.8	0.441	44		

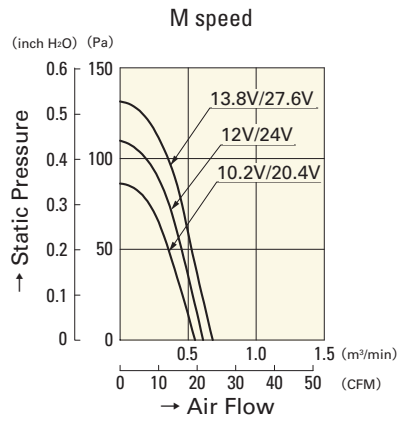
Without Sensor
Pulse Sensor
 Available in all models.

Lock Sensor
 Please inquire as the availability of these functions depend on the model.
Dimensions (Unit : mm)

Air Flow - Static Pressure Characteristics



109BF12HC2
109BF24HC2



109BF12MC2
109BF24MC2

Blower 120mm

120mm

32mm thick



With PWM speed control function ➡ Refer to Page 293

- 120mm×32mm** [Mass : 340g]

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ⁽¹⁾ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy ⁽²⁾ [h]
9BFB12P2H003	12	10.8 to 13.2	100	2.3	27.6	3,750	1.6	56.5	1,250	5.02	62	- 20 to +70	40,000/60°C (70,000/40°C)
9BFB24P2H003	24	21.6 to 26.4	100	1.1	26.4	3,750	1.6	56.5	1,250	5.02	62		
			0	0.12	2.88	1,300	0.46	16.2	43	0.17	41		

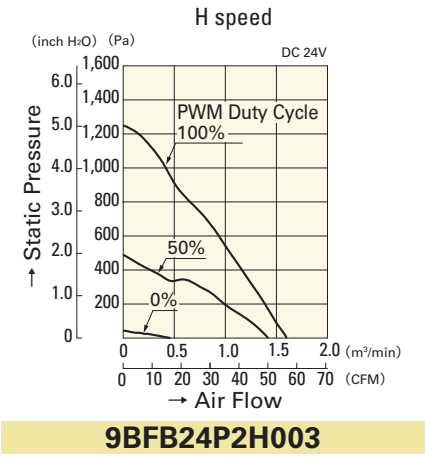
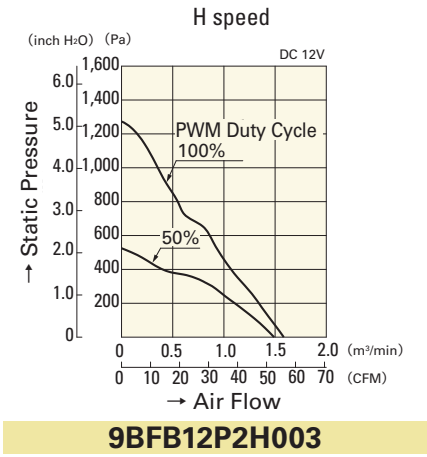
Note 2 : Expected life at 40 degreeC ambient is just reference value.

■ Dimensions (Unit : mm)

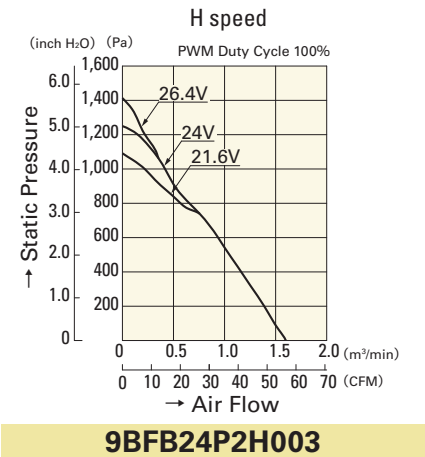
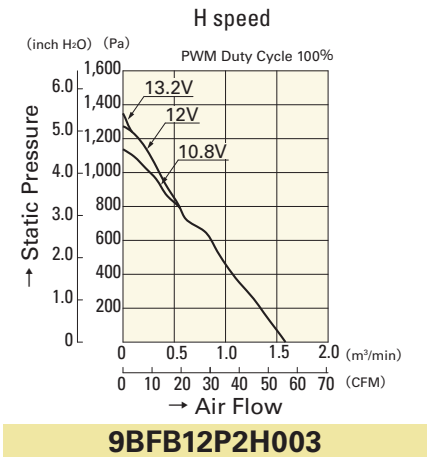


Air Flow - Static Pressure Characteristics

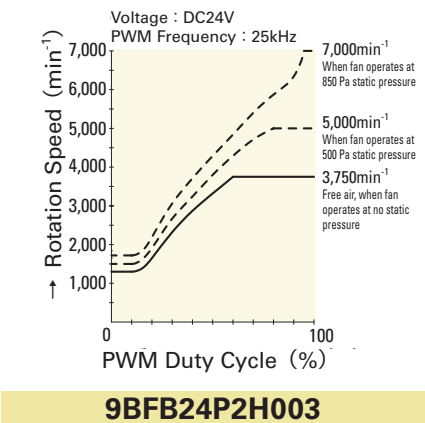
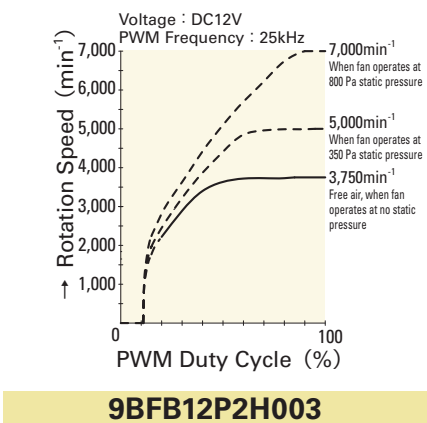
PWM Duty Cycle



Operating Voltage Range



PWM Duty - Speed Characteristics Example



Blower 120mm

120mm

127mm**San Ace B127**

32mm thick

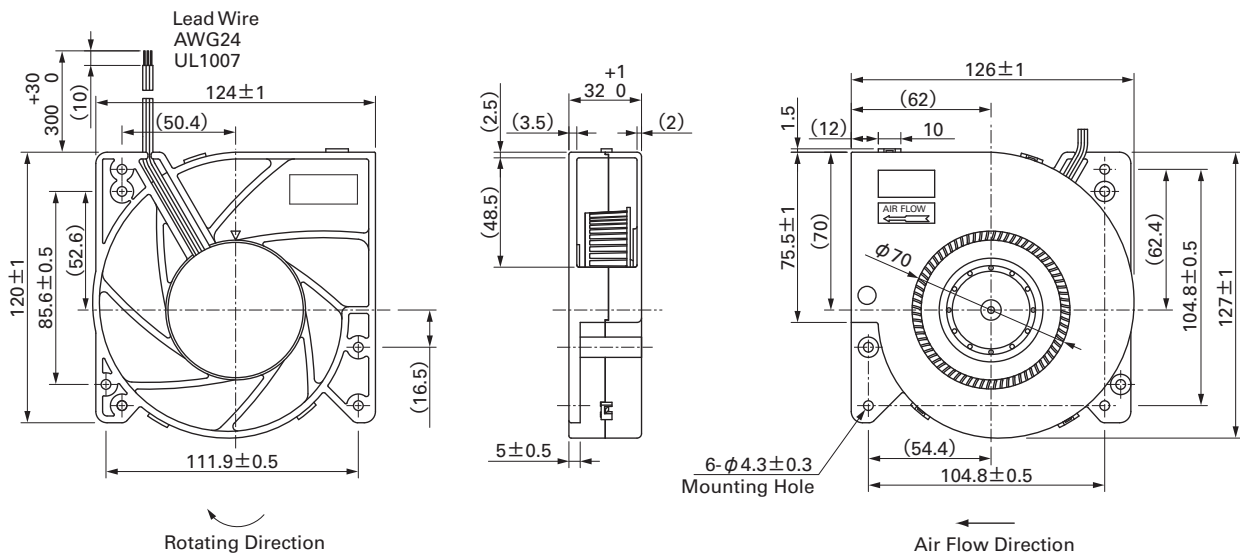

General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

- Material..... Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life ExpectancyVaries for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

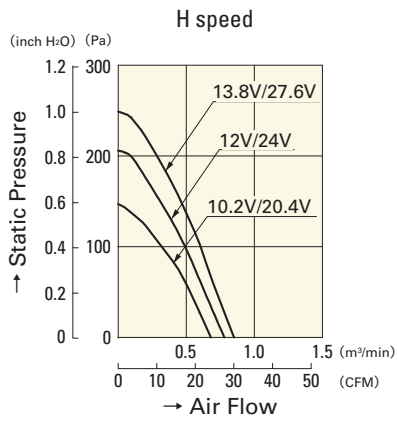
127mm×32mm [Mass : 290g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m³/min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109BJ12HC2	12	10.2 to 13.8	0.52	6.24	2,400	0.78	27.5	205.8	0.826	46	− 10 to + 70	40,000
109BJ12MC2			0.29	3.48	1,900	0.61	21.5	109.8	0.441	40		
109BJ24HC2	24	20.4 to 27.6	0.26	6.24	2,400	0.78	27.5	205.8	0.826	46	− 10 to + 60	
109BJ24MC2			0.15	3.6	1,900	0.61	21.5	109.8	0.441	40		

Without Sensor Pulse Sensor Available in all models.

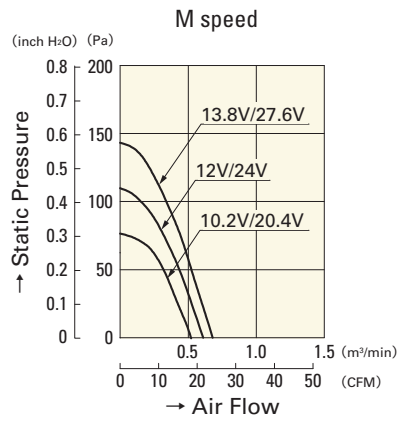
Lock Sensor Please inquire as the availability of these functions depend on the model.
Dimensions (Unit : mm)

Air Flow - Static Pressure Characteristics



109BJ12HC2

109BJ24HC2



109BJ12MC2

109BJ24MC2

Blower 127mm

127mm

160mm**San Ace B160**

40mm thick

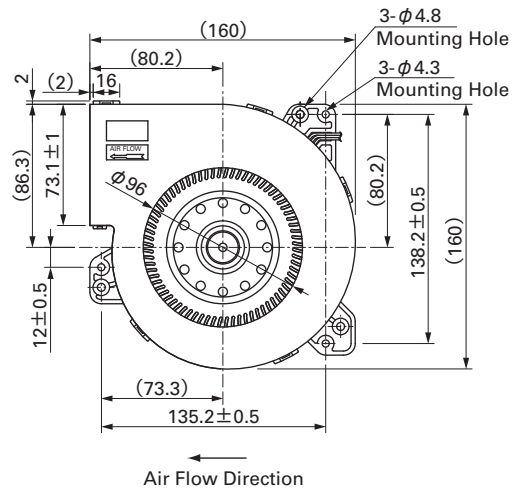
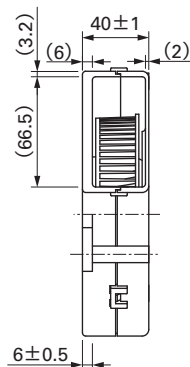
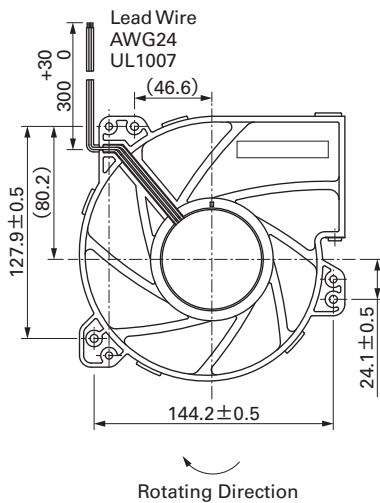

General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 291

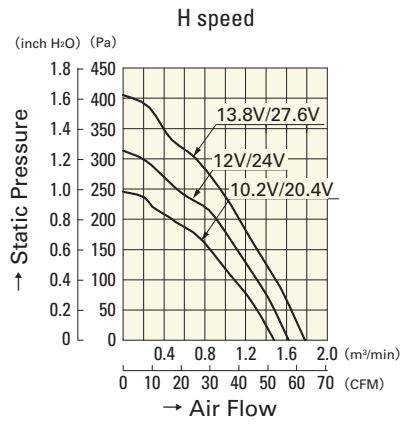
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

160mm × 40mm (Mass : 580g)**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow		Static Pressure		SPL	Operating Temperature	Life Expectancy
						[m ³ /min]	[CFM]	[Pa]	[inchH ₂ O]	[dB(A)]	[°C]	[h]
109BG12HC1	12	10.2 to 13.8	1.3	15.6	2,300	1.62	57.2	313.6	1.259	55	- 10 to + 60	40,000
109BG12MC1			0.64	7.68	1,800	1.26	44.5	156.8	0.629	50		
109BG24HC1	24	20.4 to 27.6	0.62	14.88	2,300	1.62	57.2	313.6	1.259	55		
109BG24MC1			0.31	7.44	1,800	1.26	44.5	156.8	0.629	50		

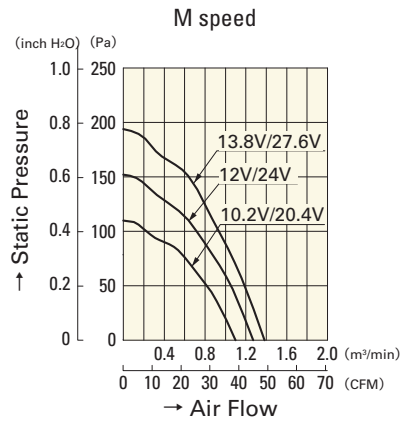
Without Sensor Pulse Sensor Available in all models.

Lock Sensor Please inquire as the availability of these functions depend on the model.
Dimensions (Unit : mm)



109BG12HC1

109BG24HC1



109BG12MC1

109BG24MC1

Intel® Xeon® Processor in the 771-land LGA Package CPU Cooler

SAN ACE MC



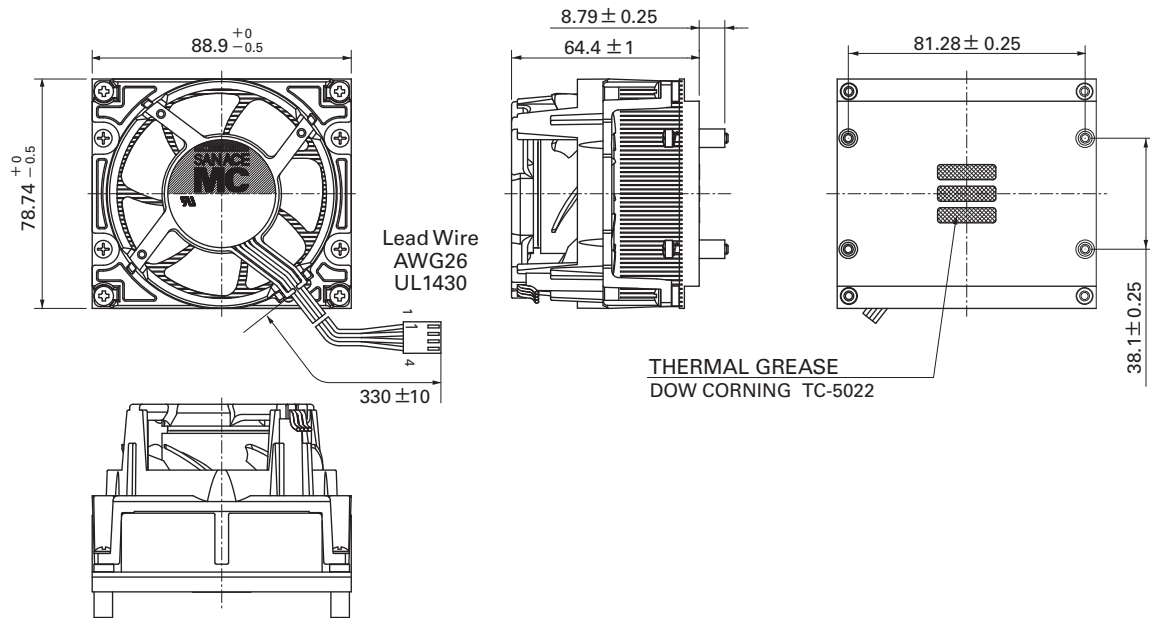
General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1) Heatsink: Copper
- Lead Wire ⊕yellow (Connector No.2 side) ⊖black (Connector No.1 side)
Sensor green (Connector No.3 side)
Control blue (Connector No.4 side)
- Connector Molex P/N 47054-1000 or Wieson 2510C888-001
- Contact Molex P/N 5159PBT or Equivalent or Wieson 2511-T1
- Mass 730g

Specifications

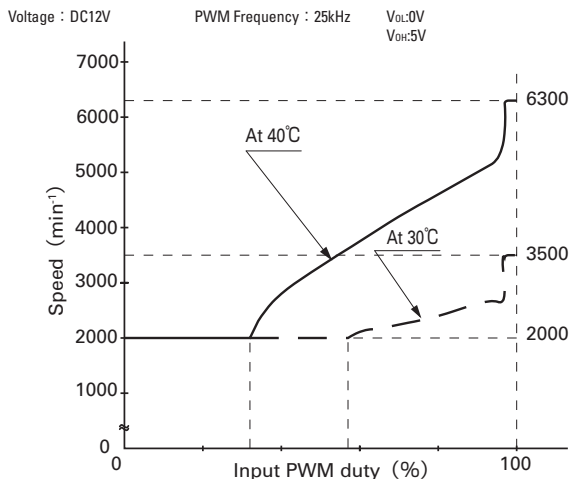
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Speed [min ⁻¹]	θ _{c-a} Thermal Resistance [K/W]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109X8712PT0S016	12	10.8 to 13.2	0.82	6,300	0.229	55	0 to +70	40,000
				3,500	0.305	39		

Dimensions (Unit : mm)



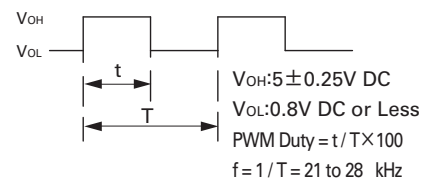
Fan speed characteristics

Control input PWM duty - Fan speed characteristics



PWM Waveform of control input

(PWM signal input : between blue lead wire and black lead wire)



Control input Current

I_{SOURCE} MAX.: 5 mA (AT 0V CONTROL VOLTAGE)

Intel® 775-land LGA Package CPU Cooler

SAN ACE MC



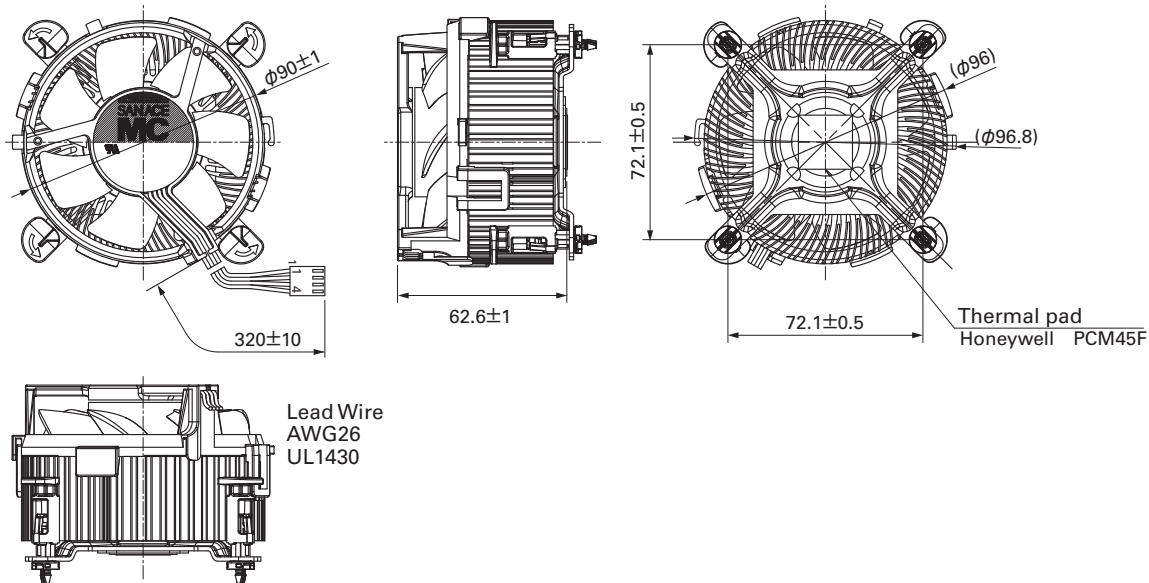
General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1) Heatsink: Aluminum (Core: Copper)
- Lead Wire ⊕yellow (Connector No.2 side) ⊖black (Connector No.1 side)
Sensor green (Connector No.3 side)
Control blue (Connector No.4 side)
- Connector Molex P/N 47054-1000 or Wieson 2510C888-001
- Contact Molex P/N 5159PBT or Equivalent or Wieson 2511-T1
- Mass 575g

Specifications

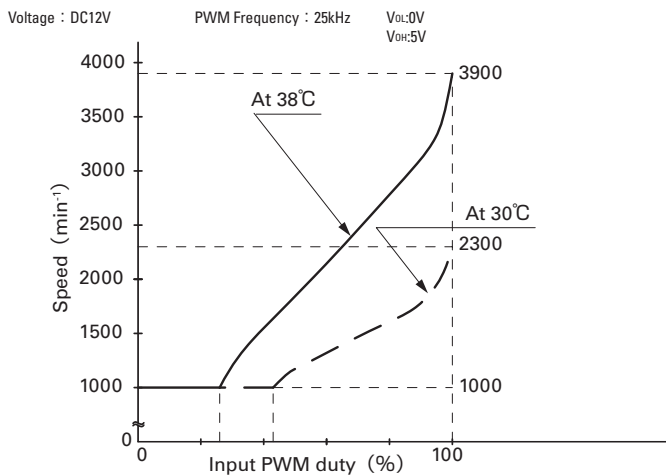
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Speed [min ⁻¹]	θ _{c-a} Thermal Resistance [K/W]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109X9112PT0H016	12	10.8 to 13.2	0.31	3,900	0.266	42	0 to +70	40,000
				2,300	0.320	27		

Dimensions (Unit : mm)



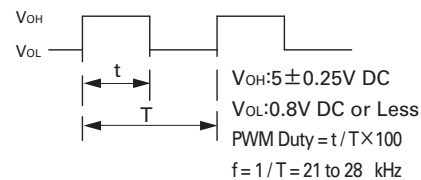
Fan speed characteristics

Control input PWM duty - Fan speed characteristics



PWM Waveform of control input

(PWM signal input : between blue lead wire and black lead wire)



Control input Current

I_{SOURCE} MAX.:5 mA (AT 0V CONTROL VOLTAGE)
I_{SINK} MAX.:5 mA (AT 5V CONTROL VOLTAGE)

Intel® Pentium® 4 Processor (775-land LGA Package) CPU Cooler

SAN ACE MC



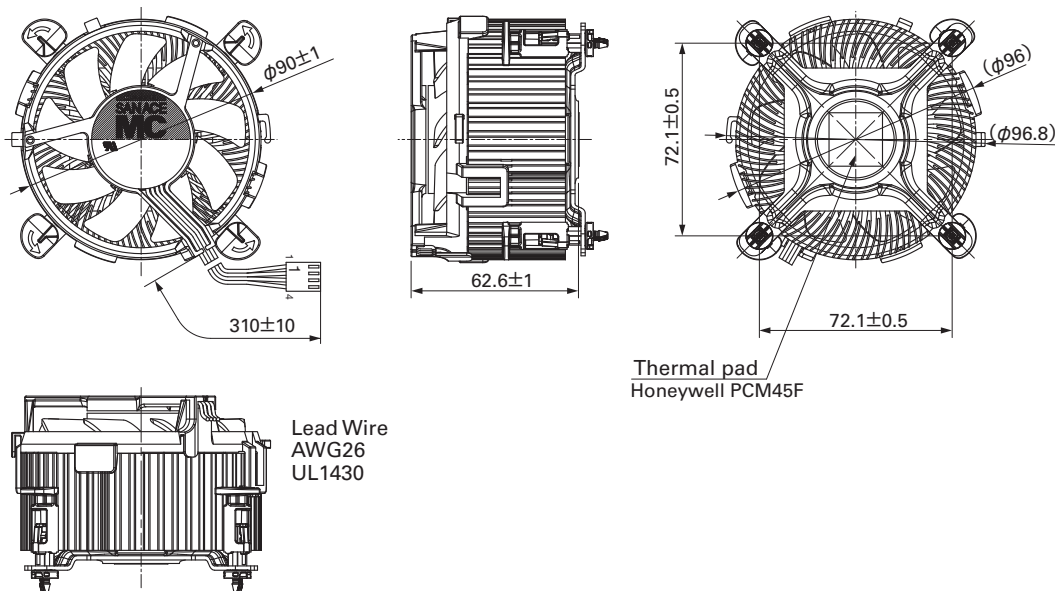
General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1) Heatsink: Aluminum (Core: Copper)
- Lead Wire ⊕yellow (Connector No.2 side) ⊖black (Connector No.1 side)
Sensor green (Connector No.3 side)
Control blue (Connector No.4 side)
- Connector..... Molex P/N 47054-1000 or Wieson 2510C888-001
- Contact Molex P/N 5159PBT or Equivalent or Wieson 2511-T1
- Mass 490g

Specifications

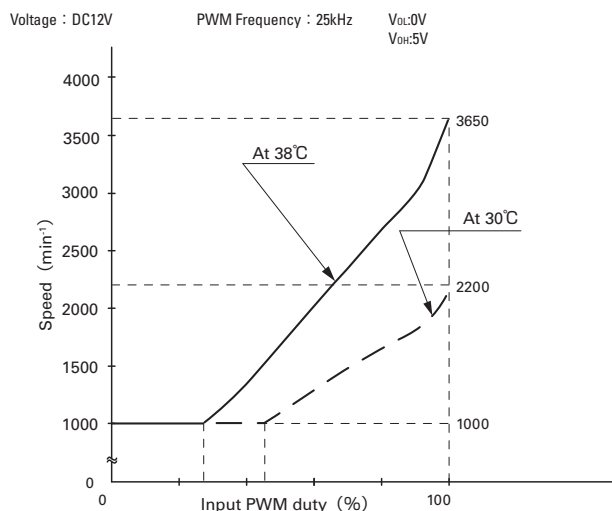
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Speed [min ⁻¹]	θ _{c-a} Thermal Resistance [K/W]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
109X9212PT0H016	12	10.8 to 13.2	0.28	3,650	0.276	42	0 to +70	40,000
				2,200	0.340	28		

Dimensions (Unit : mm)



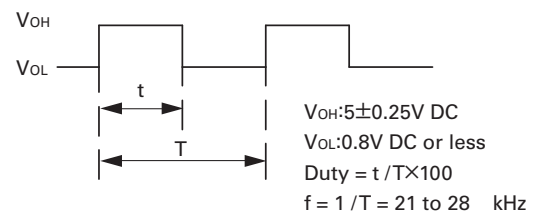
Fan speed characteristics

Control input PWM duty - Fan speed characteristics



PWM Waveform of control input

(PWM signal input : between blue lead wire and black lead wire)



Control input Current

I_{SOURCE} MAX.:5 mA (AT 0V CONTROL VOLTAGE)
I_{SINK} MAX.:5 mA (AT 5V CONTROL VOLTAGE)

Fans with PWM speed control function

Technical Material
Refer to page 293

There are following part numbers except ones with **With PWM speed control function** marking in the text.



Photo shows 38×38×28mm fan.

Available size and example of characteristics

Please inquire our sales department for specifications other than the following.

ClosedLoop ...Closed Loop Control (No mark denotes open loop control.)

Size (mm)	Model No.	Frame material	Voltage [V]	PWM Frequency [kHz]	Current [A]	Rated Speed (min ⁻¹)		Airflow		Static Pressure		SPL [dB(A)]	Life Expectancy [h]
						Duty Cycle 0%	Duty Cycle 100%	[m ³ /min]	[CFM]	[Pa]	[inchH ₂ O]		
36 × 36 × 28mm	9GV3612P3J03	Plastics	12	25.0	0.75	3,200	19,000	0.55	19.42	525	2.11	58.5	40,000
	9GV3612P3G03	Plastics	12	25.0	0.34	3,200	14,000	0.4	14.12	275	1.10	52	40,000
38 × 38 × 28mm	9GV0312P3J03	Plastics	12	25.0	0.6	3,000	15,900	0.57	20.13	315	1.27	54	40,000
40 × 40 × 28mm	109P0412P3J033	Plastics	12	25.0	0.41	0	12,500	0.46	16.24	210	0.84	44	40,000
	109P0412P3G033	Plastics	12	25.0	0.39	0	11,500	0.42	14.83	179	0.72	42	40,000
	9PH0412P3K033	Plastics	12	25.0	0.5	3,200	15,500	0.59	20.83	340	1.37	50	40,000
	9GV0412P3J02	Plastics	12	25.0	0.6	2,650	14,700	0.68	24.01	330	1.33	55	40,000
	9GV0412P3K03	Plastics	12	25.0	0.84	3,000	16,500	0.76	26.8	415	1.67	58	30,000
	9GV0412P3J03	Plastics	12	25.0	0.6	2,650	14,700	0.68	24.01	330	1.33	55	40,000
	9GV0412P3G03	Plastics	12	25.0	0.47	2,400	13,000	0.6	21.19	260	1.04	52	40,000
	9CRA0412P5J03	Plastics	12	25.0	1.4	Inlet : 2,850 outlet : 2,250	Inlet : 15,800 outlet : 12,200	0.9	31.78	570	2.29	62	40,000
40 × 40 × 56mm	9CRA0412P5K03	Plastics	12	25.0	1.8	Inlet : 3,050 outlet : 2,300	Inlet : 17,000 outlet : 13,000	0.95	33.5	650	2.61	65	30,000
	9CR0412P5S03	Plastics	12	25.0	0.88	Inlet : 3,300 outlet : 2,000	Inlet : 15,800 outlet : 10,600	0.7	24.72	450	1.81	57.5	40,000
	9CRA0412P5G03	Plastics	12	25.0	1	Inlet : 2,800 outlet : 2,150	Inlet : 14,000 outlet : 10,400	0.77	27.19	435	1.75	59	40,000
	9AH0612P4G03	Plastics	12	25.0	0.21	1,120	5,600	0.78	27.54	87.3	0.35	39	30,000
60 × 60 × 25mm	9AH0612P4H05	Plastics	12	25.0	0.11	0	3,800	0.53	18.71	40.2	0.16	28	40,000
	9G0612P1G03	Plastics	12	25.0	1.54	3,550	11,800	1.84	64.97	435	1.75	58	40,000
	9G0612P1G04 ClosedLoop	Plastics	12	25.0	1.54	0	11,800	1.84	64.97	435	1.75	58	40,000
	9G0612P1M03	Plastics	12	25.0	0.35	1,200	6,000	0.94	33.19	112	0.45	41	40,000
60 × 60 × 76mm	9CR0612P0S03	Plastics	12	25.0	3.2	Inlet : 1,300 outlet : 800	Inlet : 11,500 outlet : 7,000	2.26	79.8	550	2.21	66	40,000
	9CR0612P0H03	Plastics	12	25.0	2.7	Inlet : 1,200 outlet : 800	Inlet : 10,300 outlet : 6,500	1.98	69.91	450	1.81	64	40,000
80 × 80 × 15mm	9PH0812P7S06	Plastics	12	1.8	0.26	1,000	4,000	1.17	41.31	49.6	0.20	40	40,000
80 × 80 × 25mm	9AH0812P4H04	Plastics	12	25.0	0.11	0	2,900	1.03	36.37	35.3	0.14	29	40,000
80 × 80 × 38mm	9G0812P1G04	Plastics	12	25.0	1.1	1,200	6,300	2.55	90.04	211	0.85	51	40,000
	9G0812P1H03	Plastics	12	25.0	0.9	1,000	5,700	2.28	80.51	171	0.69	49	40,000
	9G0848P1G03	Plastics	48	25.0	0.27	1,500	6,300	2.55	90.04	211	0.85	51	40,000
80 × 80 × 80mm	9CR0848P8S03	Plastics	48	25.0	1.29	Inlet : 2,000 outlet : 1,300	Inlet : 8,000 outlet : 5,300	4.53	159.95	520	2.09	71	40,000
92 × 92 × 25mm	9AH0912P4G03	Plastics	12	25.0	0.3	700	3,900	1.76	62.15	66.5	0.27	43	30,000
	9AH0912P4H03	Plastics	12	25.0	0.17	600	3,150	1.45	51.20	44	0.18	33	40,000
92 × 92 × 32mm	9G0912P2G03	Plastics	12	25.0	0.88	1,200	5,000	2.84	100.28	146	0.59	50	40,000
	9G0912P2B03	Plastics	12	25.0	0.52	1,200	4,000	2.27	80.15	93.4	0.38	43	40,000
92 × 92 × 38mm	9G0912P1G03	Plastics	12	25.0	1.1	1,000	5,000	3.1	109.46	150	0.60	50	40,000
120 × 120 × 25mm	9G1212P4G03	Plastics	12	25.0	0.9	1,000	4,100	3.68	129.94	120	0.48	51	40,000
	9G1212P4G031	Plastics	12	25.0	0.9	1,000	4,100	3.68	129.94	120	0.48	51	40,000
120 × 120 × 38mm	9SG1212P1G01	Aluminum	12	16.0	4	3,900 (Duty cycle 50%)	6,000	7.35	259.53	340	1.37	64	40,000
	9SG1224P1G01	Aluminum	24	16.0	2	3,600 (Duty cycle 50%)	6,000	7.35	259.53	340	1.37	64	40,000
	9SG1248P1G01	Aluminum	48	16.0	1	3,600 (Duty cycle 50%)	6,000	7.35	259.53	340	1.37	64	40,000
150 × 150 × 50mm	9GV1512P5M03	Plastics	12	25.0	1.2	650	3,000	6.35	224.22	132	0.53	53	40,000
φ 172mm × 51mm thick Side Cut Type	109E5712P5K04 ClosedLoop	Aluminum	12	25.0	3.2	0	4,100	8.5	300.14	243	0.98	60	40,000
B97mm × 33mm	9BAM12P2G09	Plastics	12	25.0	2.7	2,800	6,000	1.4	49.43	835	3.35	64	40,000

- Rated current, maximum air flow, maximum static pressure, and sound pressure level are the values given when duty cycle 100%.
- Storage temperature is -30°C to +70°C. For operating temperature range, see individual specification sheet.
- Switching with the PWM control may affect the sensor output. • Specifications may be changed without notice.

Cooling Fan Units

Features

We provide assembled fan units in accordance with the specification or requirements of the equipment.
For use in communications equipment, servers, storage systems.



Example of application : Cooling Fan Unit



Example of application : Cooling Fan Unit for 1U Server

Lineup



DC Cooling Fan DC San Ace
36mm sq. to 140mm sq. / $\varnothing$ 172mm to $\varnothing$ 200mm



Splash proof Fan San Ace W/ WS
60mm sq. to 140mm sq. / $\varnothing$ 172mm



Blower San Ace B
76mm to 160mm



Long Life Fan San Ace L
40mm sq. to 140mm sq. / $\varnothing$ 172mm

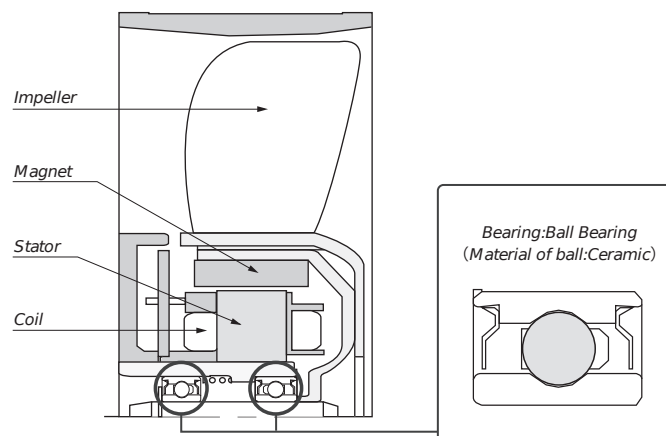
●We can provide fans with PWM control function, thermal speed controlled fans and more.

Electrolytic Corrosion Proof Fans

Technical Material
Refer to page 296

Features

- This cooling fan prevents electrolytic corrosion of bearings even under conditions where electromagnetic noise is generated.
- Electrolytic corrosion of ball bearings is prevented by using ceramic balls in ball bearings. The ceramic material is an insulating material.



Caution

Electrolytic Corrosion Proof Fan has been designed to prevent the electrolytic corrosion of ball bearings in the fan, but this does not guarantee that the fan will operate normally under conditions where there is strong electromagnetic noise. Please be sure to fully evaluate the value of fan malfunction due to noise in advance.

Lineup

Manufacturable to meet specifications of all San Ace series fans.



DC Cooling Fan DC San Ace
36mm sq. to 140mm sq. / ϕ 172mm to ϕ 200mm



Splash proof Fan San Ace W/WS
60mm sq. to 140mm sq. / ϕ 172mm

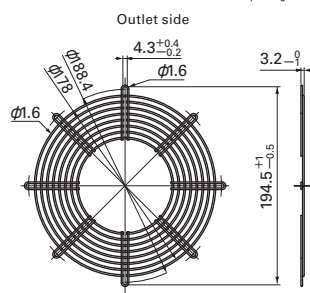


Long Life Fan San Ace L
40mm sq. to 140mm sq. / ϕ 172mm

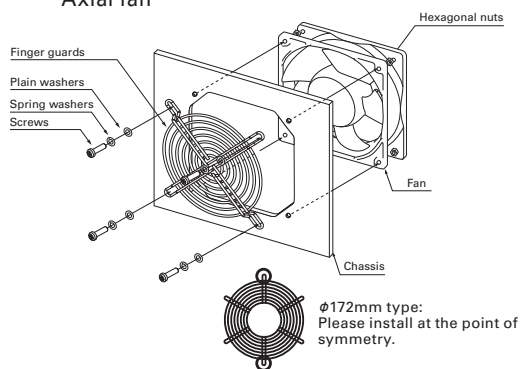
Mounting example

Φ200mm type

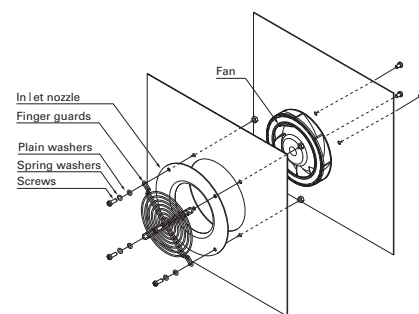
Model : 109-721 Surface treatment: Nickel-chrome plating (silver)
: 109-721H : Cation electropainting (black)



Axial fan



Centrifugal fan



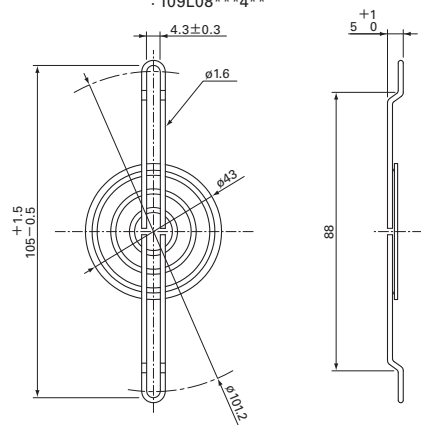
EMC guards

Dimensions (Unit : mm)

80mm sq. type

Model : 109-1038 Surface treatment : Nickel-chrome plating (silver)
Color (silver)

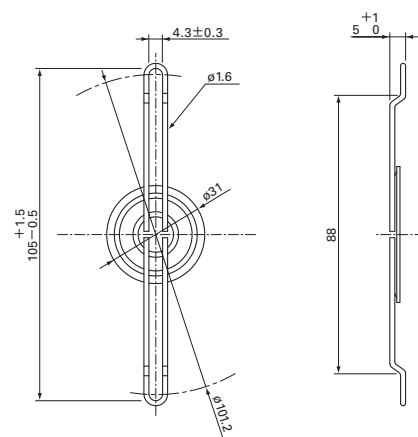
Applicable Model : 109P08***6**/109P08***2**
: 109L08***4**



80mm sq. type

Model : 109-1039 Surface treatment : Nickel-chrome plating (silver)
Color (silver)

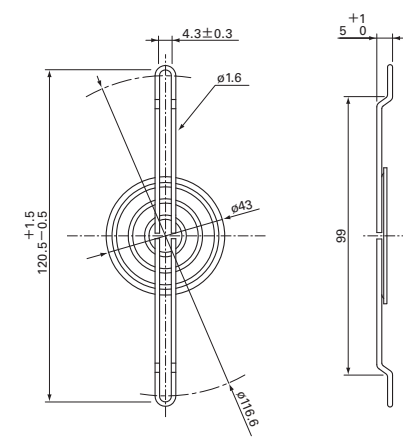
Applicable Model : 109P08***7**/109R08***4**/9A08***4**



92mm sq. type

Model : 109-1040 Surface treatment : Nickel-chrome plating (silver)
Color (silver)

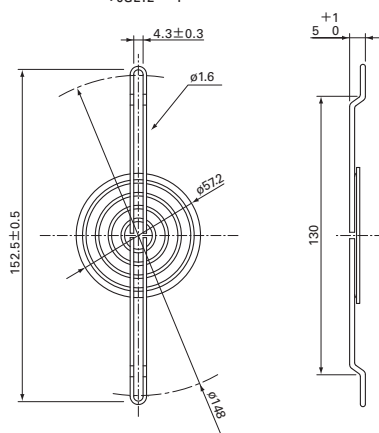
Applicable Model : 109P09***4**/109L09***4**



120mm sq. type

Model : 109-1037 Surface treatment : Nickel-chrome plating (silver)
Color (silver)

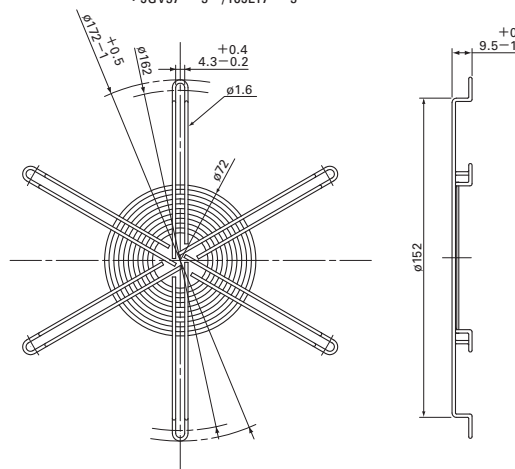
Applicable Model : 109P12***4**/9G12***4**/109R12***1**
: 9G12***1**/109L12***1**/9LB12***1**
: 9GL12***1**



Φ172mm type

Model : 109-1036 Surface treatment : Nickel-chrome plating (silver)
Color (silver)

Applicable Model : 109E47***4**/109E17***5**/109E57***5**
: 9GV57***5**/109L17***5**



Option

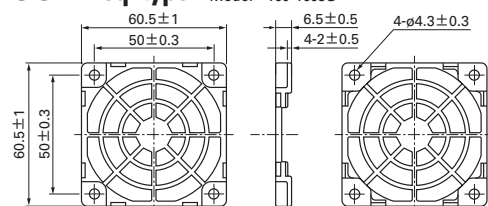
Resin finger guards

Material Frame : (SPS + PS alloy) Resin UL File No.E48268 94V-0

Dimensions(Unit : mm)

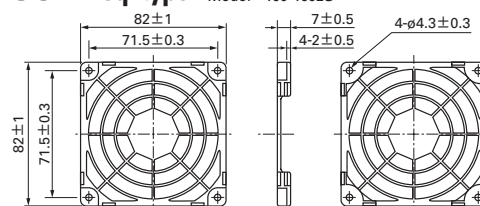
60mm sq. type

Model : 109-1003G



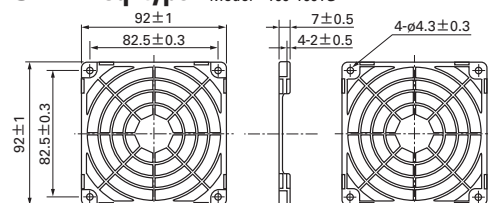
80mm sq. type

Model : 109-1002G



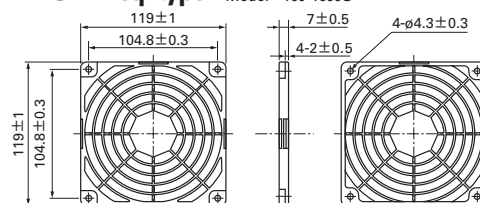
92mm sq. type

Model : 109-1001G



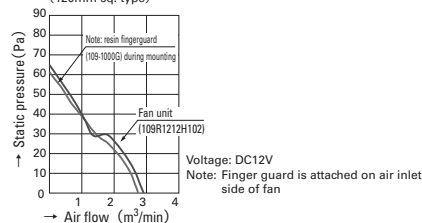
120mm sq. type

Model : 109-1000G

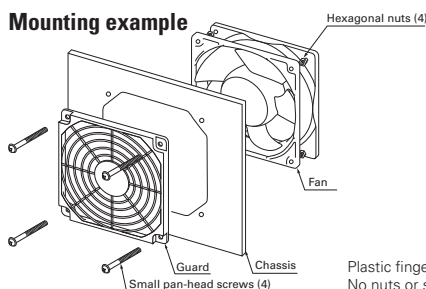


Air Flow and Static Pressure Characteristics

Measured using Sanyo airflow chamber (120mm sq. type)



Mounting example



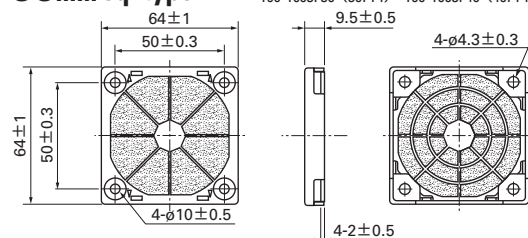
Plastic finger guards are placed on both the intake and exhaust sides of the fan. No nuts or screws for use in attachment included.

Resin filter kits

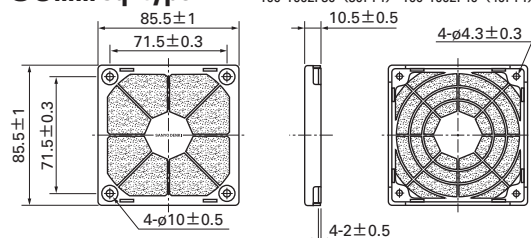
Material Guard,cover : (SPS + PS alloy) Resin UL File No.E48268 94V-0
Filter : Polyurethane foam UL File No.E74916(S) 94HF-1

Dimensions(Unit : mm)

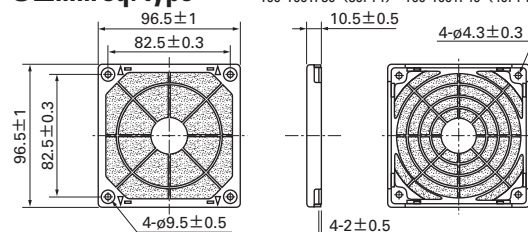
60mm sq. type

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

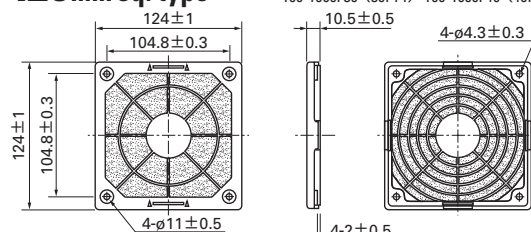
80mm sq. type

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

92mm sq. type

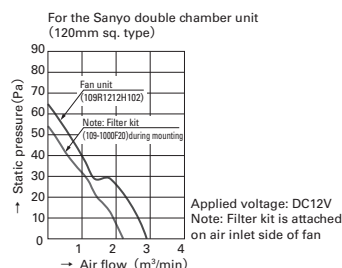
Model : 109-1001F13 (13PPI) 109-1001F20 (20PPI)
: 109-1001F30 (30PPI) : 109-1001F40 (40PPI)

120mm sq. type

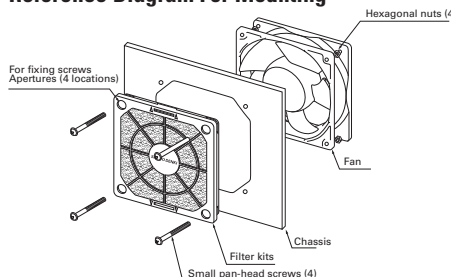
Model : 109-1000F13 (13PPI) 109-1000F20 (20PPI)
: 109-1000F30 (30PPI) 109-1000F40 (40PPI)

PPI Particles Per Inch : Indicates the number of holes per inch. Note that the higher the number, the finer the grain of the sponge.

Air Flow and Static Pressure Characteristics



Reference Diagram For Mounting



Replacement filter (5 sheets each)

60mm sq. type	80mm sq. type
109-1003M13 (13PPI)	109-1002M13 (13PPI)
109-1003M20 (20PPI)	109-1002M20 (20PPI)
109-1003M30 (30PPI)	109-1002M30 (30PPI)
109-1003M40 (40PPI)	109-1002M40 (40PPI)
92mm sq. type	120mm sq. type
109-1001M13 (13PPI)	109-1000M13 (13PPI)
109-1001M20 (20PPI)	109-1000M20 (20PPI)
109-1001M30 (30PPI)	109-1000M30 (30PPI)
109-1001M40 (40PPI)	109-1000M40 (40PPI)

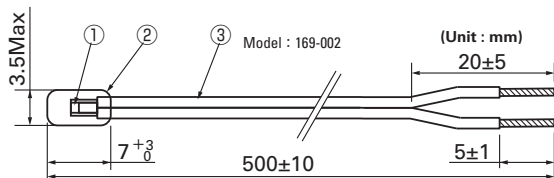
●This Filter Kit is composed of 3 components, including a guard, a filter and a cover. It is delivered as a finished product at delivery. It can be mounted at once. It is mounted by inserting a screw in the apertures of the cover. ●The filter and cover can be easily removed from the guard with one touch. There is no need for fan removal when undertaking maintenance. ●Operating temperature limit is between -10°C to +60°C (non condensing). ●The filter will deteriorate with age, and the level of deterioration will vary upon usage conditions. Please be aware that the filter has a greater tendency to deteriorate under high temperature and humidity. For long-term storage, please store under the temperature range of 10°C to 30°C, humidity range of 20% to 65%. Usage and storage period is approximately 2 years. ●Cooling ability decreases with filter contamination due to clogging. Filter replacement is recommended approximately every six months of usage, but please replace the filter if deterioration or clogging is seen at inspection. ●When replacing the filter, please use genuine Sanyo Denki filters. ●Do not water-wash the filter. ●Avoid use and storage under high temperature or humidity, direct sunlight or exposure to ultraviolet light, or in corrosive gas. ●No nuts or screws for use in attachment included.

Recommended connectors for DC fans

Manufacturer	2 pins Housing model number	3 pins Housing model number	4 pins Housing model number	Contact model number
MOLEX	22-01-1022:P/N 5051-02	22-01-1032:P/N 5051-03 22-01-3037:P/N 2695-03RP	22-01-1042:P/N 5051-04	08-70-0064:P/N 5159T 08-70-0048:P/N 5159PBT 39-00-0372:P/N 2759T 43030-0001 43030-0002 43030-0003 50802-9001
	43025-0200	—	43025-0400	08-70-1039:P/N 5263PBT 39-00-0059:P/N 5556PBT 39-00-0038:P/N 5556T
	51191-0200	51191-0300	51191-0400	170262-1 179227-1
	50-37-5023:P/N 5264-02	50-37-5033:P/N 5264-03	50-37-5043:P/N 5264-04	DF1B-2428PCF
	39-01-2020:P/N 5557-02R	—	39-01-2040:P/N 5557-04R	DF3-EP2428PCF
Tyco Electronics AMP	171822-2 179228-2	171822-3 179228-3	171822-4 179228-4	IL-C2-1-10000 IL-G-C2-SC-10000
Hirose	DF1B-2EP-2.5RC DF3-2EP-2C DF3AA-2EP-2C	DF1B-3EP-2.5RC DF3-3EP-2C DF3AA-3EP-2C	— DF3-4EP-2C DF3AA-4EP-2C	SEH-001T-P0.6
Japan Aviation Electronics Industry	IL-2S-S3L-(N) IL-G-2S-S3C2-SA	IL-3S-S3L-(N) IL-G-3S-S3C2-SA	IL-4S-S3L-(N) IL-G-4S-S3C2-SA	SPH-002T-P0.5S SXH-001T-P0.6 SXH-001GU-P0.6 SYM-001T-P0.6
Japan Solderless Terminals	EHR-2 SMP-02V-BC SMP-02V-NC H2P-SHF-AA PHR-2 XAP-02V-1 XMP-02V XHP-2 SMR-02V-B SMR-02V-N	EHR-3 SMP-03V-BC SMP-03V-NC H3P-SHF-AA PHR-3 XAP-03V-1 XMP-03V XHP-3 SMR-03V-B SMR-03V-N	EHR-4 SMP-04V-BC — — PHR-4 XAP-04V-1 — XHP-4 SMR-04V-B SMR-04V-N	SHF-001T-0.8BS

Note : The specifications in this table are for reference purposes only. When selecting, please check catalogs of each brand.

Thermistor



Number	Name	Standards, materials, etc.
①	Thermistor	Chip
②	Insulated cord	Epoxy resin
③	Lead	UL2555 CSA TR-64 AWG#28 (blue)

Item	Spec
2-1	Resistance R25 6.8KΩ±3%
2-2	B constant B25/50 3950K±2%
2-3	Maximum 188mW(25°C under still air)
2-4	Insulation resistance 100MΩ or more(500 VDC megger)
2-5	Dielectric strength No problem(1,500 VAC, 1 minute)
2-6	Operating temperature range -30°C to +80°C
2-7	Storage temperature range -40°C to +100°C

Manufactured by OHIZUMI MGF CO.,LTD.

IC L8730 for DC fan sensor

Characteristics

Startup delay

L8730 doesn't output signal until fan normally runs after start-up

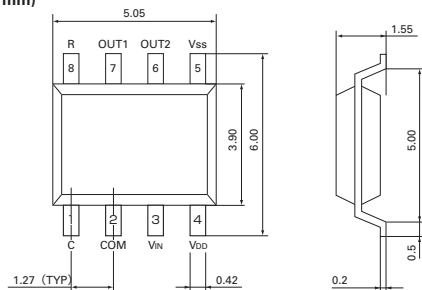
Input type

Single input: L8730 can input digital signal of Vov and GND

Supply voltage range

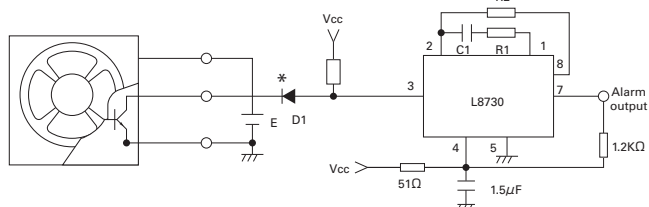
+5V±0.5V

Dimensions(Unit : mm)



Application

Use it for your receiving circuit of a our DC fan (with a pulse sensor).



Output current

10mA max.(sink/Open drain output) The output with latch is also available

Noise margin

Malfunction-protective circuit in embedded

Model

Stick type (set of 95): L8730-1

Reel type (set of 1,500): L8730-2

E: Power supply for fan drive circuit
Vcc:5V±0.5V
At normal speed [H]:Vcc
At abnormal speed [L]: 0.5V MAX.

Trip speed min ¹	C1 PF	R1 KΩ	R2 KΩ	Startup delay sec
850	1,100	22	68	19.5
1,700	560	22	68	10
2,700	330	22	68	6

Overview and characteristics of fan

Overview

Fan motor is widely used to extend life of your system by cooling off heat of the system that many electrical components are mounted in a very high density and dissipating heat. Since we Sanyo Denki developed "San Ace" which is the first AC fan in Japan in 1965, we have increased fan motor lineup until now meeting customer's needs rapidly based on our tremendous career. We Sanyo Denki will continue to develop new fans with large air flow, low noise, low vibration, and energy-saving design.

Characteristics

We can roughly divide fan into two types which are AC and DC.

AC Fans

Sanyo Denki succeeded in the mass-production of AC fans in 1965. Sanyo Denki was the first Japanese manufacturer to have succeeded at this.

- High performance
- High reliability
- Safety

DC Fans

Sanyo Denki succeeded in the mass-production of DC fans in 1982.

- High performance
- Low power consumption
- Low vibration
- Low leakage of flux
- High reliability

Sanyo Denki currently has a wider variety of products like Long Life Fan, CPU cooler, Splash Proof Fan, and Oil Proof Fan etc to meet all customer needs.

Guideline in selecting a fan

How to select an appropriate fan

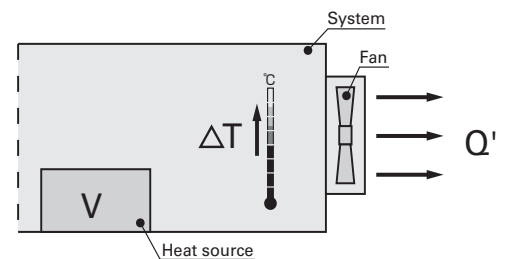
The following example is a guideline regarding how to select an appropriate fan for cooling your system

1. Determining of your system specifications and conditions

Determine the temperature rise inside your system and obtain the total heating value inside your system on the basis of its inputs and outputs.

Example

- V : Total heating value of your system (W) =100 (W)
 ΔT : Inside temperature rise (K) =15 (K)



2. Calculating the Required Air flow for Cooling

After the equipment specifications and conditions of your system have been determined, calculate required air flow to meet the conditions. (Note that the formula shown below only applies when the heat radiation is performed only by cooling air from the fan.)

Example

Q': Motion air flow (m³/min)

$$Q' = \frac{V}{20\Delta T} = \frac{100 \text{ (W)}}{20 \times 15 \text{ (K)}} \approx 0.33 \text{ (m}^3/\text{min)}$$

3. Selecting the Fan

After the motion air flow has been calculated, select an appropriate fan motor based on the value. The motion air flow when the fan motor is actually mounted in your system can be obtained using the air flow-static pressure characteristics curve and system impedance. However, the system impedance cannot be measured without a measuring equipment, so fan with 1.5 to 2 times higher air flow than the actual Max air flow should be selected (operating air flow is one-third to two-thirds of maximum air flow).

Example

Q: Maximum air flow (m³/min)

$$Q' = Q \times 2/3$$

$$Q = Q' \times 3/2 = 0.33 \times 3/2 \approx 0.5 \text{ (m}^3/\text{min)}$$

Next, In case that you select a fan having an air flow of 0.5 (m³/min) or more and a appropriate size for the space inside your system.

For example, If you need a fan of 60mm square, 25mm thickness and 12V, you should select is 109R0612H402 (maximum air flow = 0.53m³/min).

4. Confirming the Selected Fan

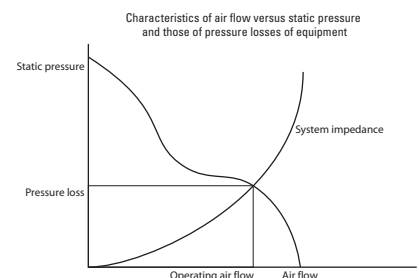
Calculate the temperature rise inside your sysetem when your sysetem having 100 (W) of total heating value is forcefully cooled down by a 109R0612H402 fan.

Example

$$Q' = Q \times 2/3 = 0.53 \times 2/3 \approx 0.353 \text{ (m}^3/\text{min)}$$

$$\Delta T = V / 20Q' = 100 \text{ (W)} / 20 \times 0.353 \text{ (m}^3/\text{min)} \approx 14.2 \text{ (K)}$$

From the above, the temperature rise inside your system is calculated as 14.2 (K) .



Since the value obtained from the above equation is only a rough target, final fan selection should be based on your actual installation test.

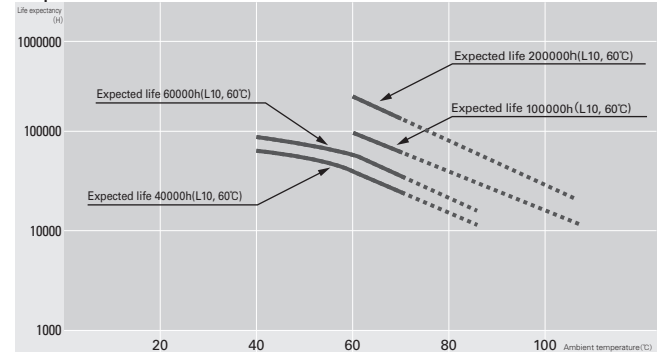
Characteristics calculation method and description

Reliability and Life Expectancy

A fan motor generally cools itself as well. The temperature rise of the motor is relatively low and the temperature rise of the grease in the bearings is also low, so expected life is longer than general some other motors. Since the service life of bearings is a theoretical value that applies when they are ideally lubricated, the life of lubricant can be regarded as expected life of the fan. DC fan consumes less power and its temperature rise of bearing is very low, thus its expected life is 40,000 hours at an ambient temperature of 60°C (60,000 hours for some models). Sanyo Denki also has a line-up of long life fans that has 200,000 hours life and 100,000 hours life at an ambient temperature 60°C with an even more enhanced structure and material. When the measurement conditions are: L10 (the remaining product life in the lifespan test is 90%), with an atmospheric temperature of 60 degrees, at the rated voltage, and continuously run in a free air state. The table below indicates the relationship between ambient temperature and expected life estimated on the basis of our life tests and same other tests conducted by Sanyo Denki. An accelerated life test

is conducted on the basis of the concept that the expected life halves as the ambient temperature rises by about 15°C (within the operating temperature range of lubricant.)

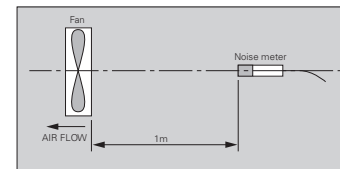
Expected life of DC Fans



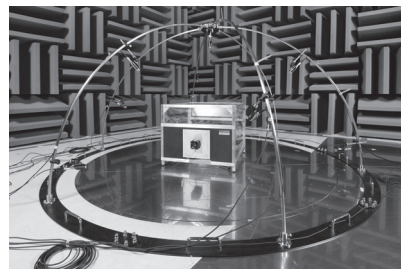
Rated voltage, continuously run in a free air state, survival rate of 90%

Noise characteristics

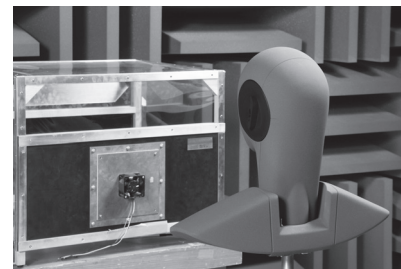
Noise is average value that measured at 1 meter away from air intake side of fan that is suspended on special frame in anechoic chamber (as per JIS B 8330).



Acoustic radio wave anechoic chamber



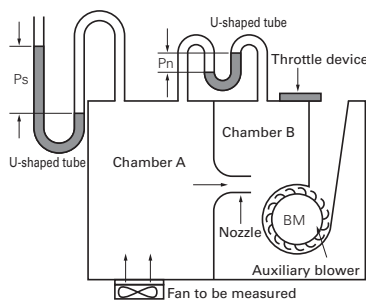
Noise characteristic measurement equipment



Measuring air flow and static pressure

It is very difficult to measure air flow and static pressure. In fact, the performance curve may vary greatly according to the type of measuring equipment.

The commonly-used type of measuring equipment is a wind tunnel using a Pitot tube. Sanyo Denki uses a very precise method using double chamber equipped with many nozzles.



Double chamber measuring equipment

$$Q = 60A\bar{v} \text{ (A)}$$

where

Q = air flow (m^3/min)

A = cross sectional area of nozzle = $\frac{\pi}{4}D^2$ (m^2)

D = nozzle diameter

$\bar{v}$ = average air flow velocity of nozzle = $\sqrt{2g\frac{P_n}{\gamma}}$ (m/sec)

γ : Air specific gravity (kg/m^3)

($\gamma = 1.2 \text{ kg/m}^3$ at 20°C , 1 atmospheric pressure)

g = acceleration of gravity = 9.8 (m/sec^2)

P_n = differential pressure ($\text{mm H}_2\text{O}$)

P_s = static pressure ($\text{mm H}_2\text{O}$)

The measuring equipment using double chamber is method to be calculated from air flow goes through nozzle and differential pressure between pressure of inside of chamber (P_s) and atmospheric pressure by measuring differential pressure between air intake and exhaust of nozzle (P_n).

Conversion Table

Static pressure

1mm H_2O = 0.0394inch H_2O

1mm H_2O = 9.8Pa (Pascal)

1inch H_2O = 25.4mm H_2O

1Pa = 0.102mm H_2O

1inch H_2O = 249Pa

Air flow

1 m^3/min = 35.31 ft^3/min (CFM)

1CFM = 0.0283 m^3/min

1 m^3/min = 16.67 ℓ /sec

1CFM = 0.472 ℓ /sec

1 ℓ /sec = 0.06 m^3/min

DC Fan Common Specifications

Material	Frame,Impeller:Plastics / Frame:Aluminum,Impeller:Plastics * CPU cooler excluded. For details, refer to the appropriate page.
Life Expectancy	Varies for each model(L10:Survival rate:90% at 60℃ ,rated voltage,and continuously run in a free air state)
Motor Protection	Burnout protection at locked rotor condition and Reverse polarity protection
Dielectric Strength	DC Fan AC50/60Hz 500VAC 1minute(between lead conductor and frame) CPU Cooler AC50/60Hz 500VAC 1minute(between input terminal and frame)
Insulation Resistance	10MΩ or more at 500VDC megger (between lead conductor and frame)
Sound Pressure Level(SPL)	Expressed as the value at 1m from air inlet side * Liquid Cooling Solution System: Expressed as the value at 1m from radiator surface.
Storage Temperature	-30℃ to +70℃ (Non-condensing)
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. (For the San Ace 200 <Model.No:109E20*****> , however, the power needs to be turned off and on again to restart.).

Reverse polarity protection function

No problem about fan even if positive & negative lead are connected in reverse.
(However fans with sensor & speed control are excluded.)

Specifications for DC fan sensors

Pulse sensor (Tach output type) example

Pulse sensor outputs two pulse waves per revolution of fan, and it is good to detect fan speed. Pulse sensors can be incorporated in all kinds of DC fans.

* Noise from inside the fan or from external devices may effect sensor output.

Contact us for more information.

The special IC that detects a pulse sensor and raises the alarm is available. Refer to page 288.

● Typical standard model: 9G1212H101.

Output circuit

Open collector

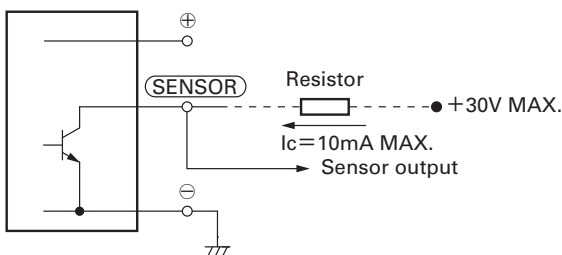
Specifications

$V_{CE} = +30V$ MAX.

(For a 48V-rated fan: $V_{ce} = +60V$ MAX.)

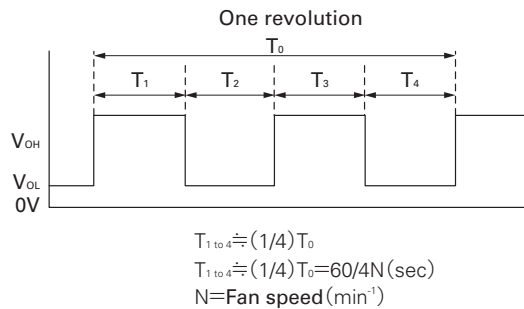
$I_c = 10mA$ MAX. [$V_{ol} = V_{ce} (SAT) = 0.4V$ or less]

Inside of DC fan



Output waveform(Need pull-up resistor)

In case of steady running



* If you want detailed specifications that apply when the rotor is locked, please contact Sanyo Denki.

Locked rotor sensor (rotation/lock detection type) example

Locked rotor sensor outputs fan status signals. It is good to check whether the fan is running or locked

- * Noise from inside the fan or from external devices may effect sensor output.
- * Regarding details of the reverse logic and specifications of lock sensor output signals, please contact Sanyo Denki.
- * Lock sensor can not be used in some models. Contact us for more information.

● Typical standard model: 9G1212H1D01.

Output circuit

Open collector

Specifications

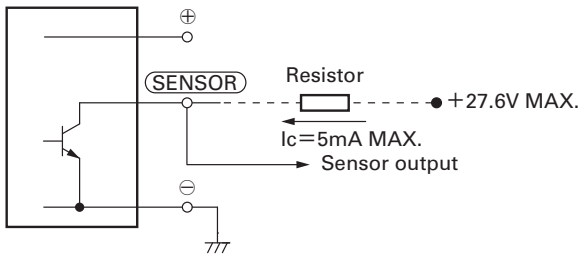
$V_{CE} = +27.6V$ MAX.

For a 48V fan $V_{CE} = +60V$ MAX.

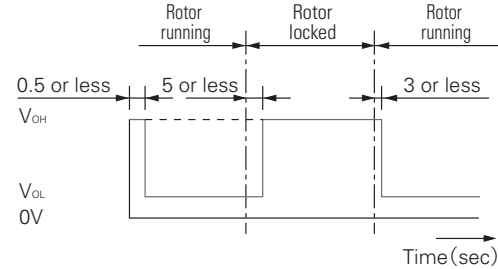
$I_C = 5mA$ MAX. [$V_{OL} = V_{CE} (SAT) = 0.6V$ or less]

For a 48V fan: $V_{CE} (SAT) = 0.4V$ or less

Inside of DC fan



Output waveform (Need pull-up resistor)



Note: The output is completely at V_{OL} with 0.5 seconds or less after power-up.

Low-speed sensor (rotating speed detection type) example

Low-speed sensor outputs a signal when fan speed goes down to trip point or less. It is good to detect cooling degradation of fan.

- * Noise from inside the fan or from external devices may effect sensor output, please.
 - * If you want detailed specification and reverse signal output, please contact Sanyo Denki.
- (typical standard model: 109R1212H1H01)
- * Low-speed sensors can not be used in some models. Contact us for more information.

● Typical standard model: 9G1212H1H01.

Output circuit

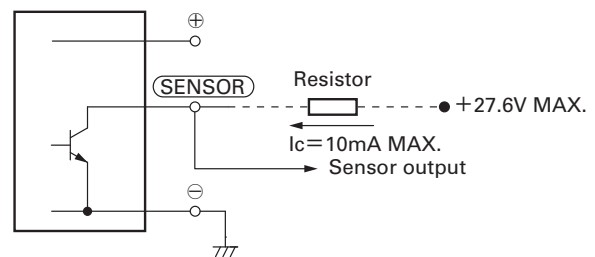
Open collector

Specifications

$V_{CE} = 27.6V$ MAX.

$I_C = 10mA$ MAX. [$V_{OL} = V_{CE} (SAT) = 0.5V$ or less]

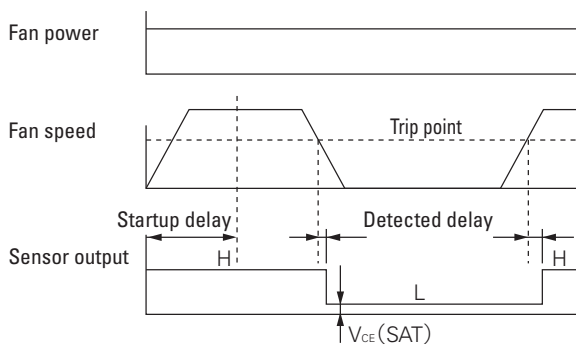
Inside of DC fan



Sensor scheme

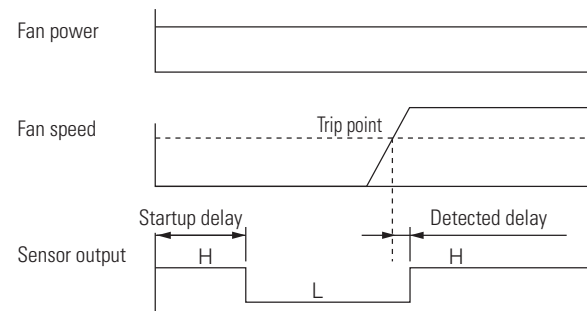
Example 1:

In case steady running



Example 2:

In case that the rotor is locked when the fan motor is turned on and released after the start-up delay time.



DC Fan Common Specifications

PWM Speed Control Function

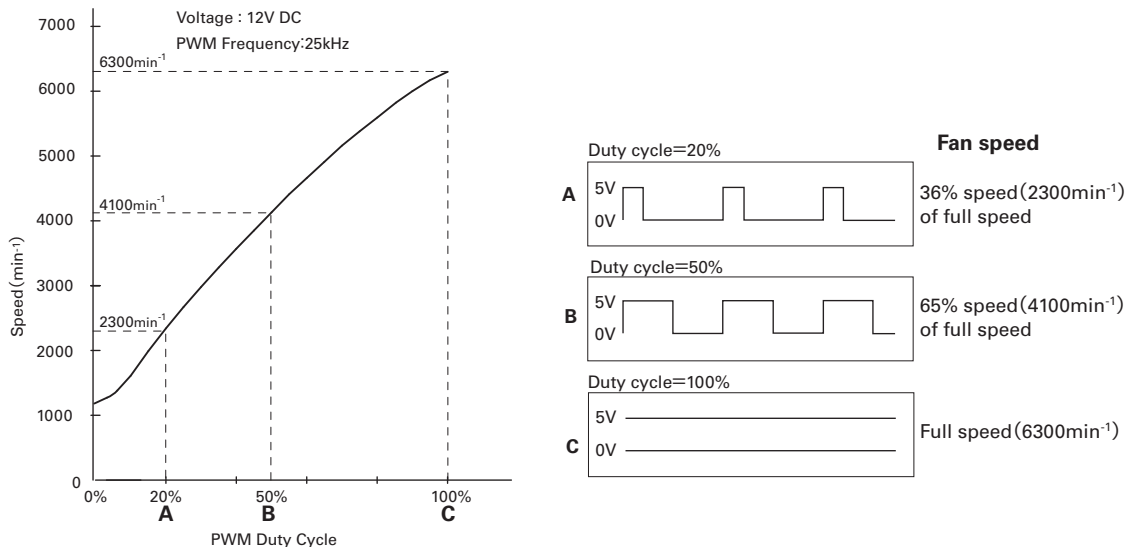
The PWM Control function is a function that externally controls the rotation speed of the fan by changing the duty of the input pulse signal between the control terminal and GND.

It regulates optimum airflow for efficient cooling when necessary, and is effective for lowering power consumption and reducing equipment noise level.

* Some models can not have Pulse Width Modulation Speed Control Features. Contact us for more information.

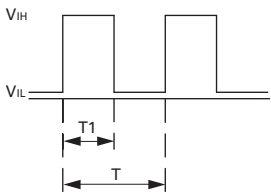
● Typical standard model: 9GV0812P4K03

PWM Duty - Speed Characteristics



PWM Input Signal

Input Signal Wave Form



$V_{IH} = 4.75\text{V to } 5.25\text{V}$

$V_{IL} = 0\text{V to } 0.4\text{V}$

$\text{PWM Duty Cycle}(\%) = \frac{T_1}{T} \times 100$

$\text{PWM Frequency } 25 \text{ (kHz)} = \frac{1}{T}$

Source Current (I_{source}) : 1mA Max. at control voltage 0V

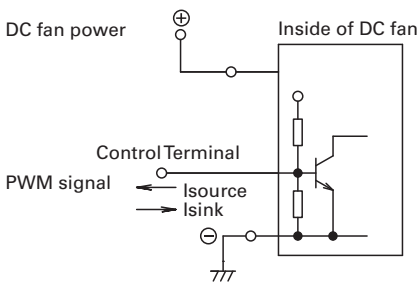
Sink Current (I_{sink}) : 1mA Max. at control voltage 5.25V

Control Terminal Voltage : 5.25V Max. (When control terminal is opened)

When the control lead wire is open, speed is same as one at 100% PWM duty cycle.

Fan speed could be controlled by PWM input signal of either TTL input or open collector, drain input.

Connection Schematic



Source Current (I_{source}) : 1mA Max. at control voltage 0V

Sink Current (I_{sink}) : 1mA Max. at control voltage 5.25V

Control Terminal Voltage : 5.25V Max. (When control terminal is opened)

Splash Proof Fan

"IPXX" Protection Grade

- IP code is laid down in "Degrees of protection provided by enclosures (IP Code) " on JIS C 0920 and IEC 60529.
- IP code is defined as "A coding system to indicate the degree of protection provided by an enclosure against access to hazardous parts, ingress of solid foreign objects, ingress of water and to give additional information in connection with such a protection"
- Regarding IP code, the first numeral indicates the degree of protection against access to hazardous parts and ingress of solid foreign objects. The second numeral indicates the degree of protection against the ingress of water.

I P X X

4: Protected against splashing water

(Water splashed against the enclosure from any direction shall have no harmful effects)

5: Protected against water jets

(Water projected in jets against the enclosure from any direction shall have no harmful effects)

5: Dust-Protected

(Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety.)

First characteristics

Degree	Type	Description
0	No protected device	Rotating device without special protection.
1	Semi-protected device	Rotating device with protection against solid objects of 50mm or larger
2	Protected device	Rotating device with protection against solid objects of 12mm or larger
3	Shielded device	Rotating device with protection against solid objects of 2.5mm or larger
4	Totally shielded device	Rotating device with protection against solid objects of 1mm or larger
5	Dust resistant device	Rotating device with protection against harmful dust ingress (dust protected)
6	Dust-proof device	Rotating device with totally protection against any dust ingress (dust tight)

Second characteristics

Degree	Type	Description
0	No protected device	Rotating device without special protection.
1	Drip-proof device (Grade I)	Rotating device with protection against falling water from the vertical
2	Drip-proof device (Grade II)	Rotating device with protection against falling water to a maximum of 15° from the vertical
3	Rain-proof device	Rotating device with protection against rain to a maximum of 60° from the vertical
4	Splash-proof device	Rotating device with protection against water sprays from any direction.
5	Jet-proof device	Rotating device with protection against water jets from any direction.
6	Water resistant device	Rotating device with protection against powerful water jets from any direction and no water ingress inside of the device.
7	Water immersion-proof device	Rotating device with protection against the effects of temporary immersion in water under specific test condition.
8	Submergence-proof device	Rotating device with protection against the effects of permanent immersion in water of specific water pressure.

Thermal speed controlled fans with an external or built-in thermistor

External thermistor type

1. Overview

For thermal speed controlled fans with an external thermistor, just connect a specified thermistor (or a specified thermistor and a resistor) between the control wire and the negative wire indicated in Fig. 1, it will enable the fan speed to change automatically according to a predetermined temperature speed specification and according to temperature changes in an environment where the thermistor is equipped. (Please refer to Fig. 2)

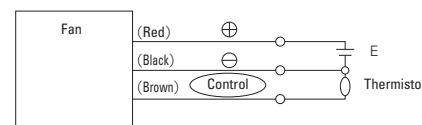


Fig. 1

A thermistor can therefore be installed at an appropriate position inside your equipment to monitor the internal temperature changes due to changes in ambient temperature and heatup status (load status) of the equipment. Automatic monitoring can then specify low speed when the thermistor detects a temperature below TL, high speed when it detects a temperature above TH, and a speed according to the temperature when it detects a temperature between TL and TH.

Thus, the fan detects its own operational status and determines the operating conditions.

As a result, the thermal speed controlled fan with an external thermistor is designed that temperature changes according to the ambient temperature and operational status of the equipment are detected by the thermistor to control the fan's air flow (speed), and is near-ideal particularly in designing silent equipment. The fan thus meets the three requirements: silence, energy-saving, and long life.

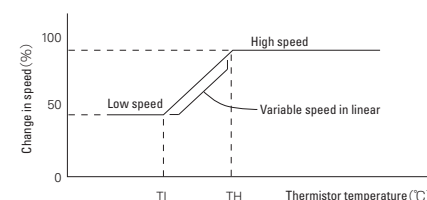
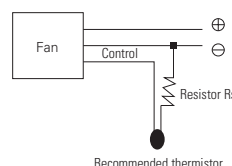


Fig. 2

2. Setting temperatures (TL and TH) in low and high speed

The standard products listed in this catalog are designed to run at a low speed at 28°C or below and run at a high speed at 35°C or more when a recommended thermistor is connected between the control wire and the negative wire.

These temperatures (TL and TH) can be changed (as indicated in Table 1) by inserting a resistor in series with the thermistor.



Resistance Rs (Ω)	Temperature setting (°C)	TL	TH
0	28	35	
0.8K	31.5	40	
1.5K	35	45	
2.0K	38	50	
2.4K	40.5	55	
2.75K	43	60	

* For the resistor Rs, use a resistor rated at no less than 1/8W.

* Manufactured by OHIZUMI MGF CO., LTD.

3. If you wish to obtain low or high speed in a process of testing by using a larger equipment regardless of the thermistor temperature:

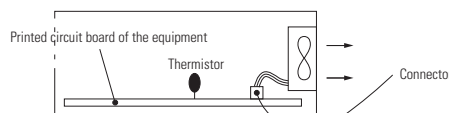
Low speed : Instead of the thermistor, connect a 10 KΩ resistor between the control wire and the negative wire.

High speed : Connect the control wire directly to the negative wire.

4. Connecting the fan to the thermistor

Sanyo Denki recommends to use connectors, including the power lead of the fan.

Example of Typical connections : place a thermistor on the printed circuit board and connect the fan's power lead and control lead to the circuit pattern by means of connectors.



Recommended connectors	
Manufacturer	Model (3-pole)
Japan Solderless Terminals	XHP-3, SMR-3V-N
Japan Aviation Electronics Industry	ILG-3S-S3C2-SA
Japan AMP	171822-3
Molex Japan	51191-0300

5. Typical applications of thermal speed controlled fans with an external thermistor

Here are typical applications of a thermal speed controlled fan with a power supply where two 109P1212H402 fans are used (Fig. 5).

(1) The fan selected was a 109P1212T4H12 thermal speed controlled fan having a performance equal to that of conventional fans at high speed.

(2) The relationship between the temperatures of important components and those of the cooling fin can be measured with varied loads on the equipment and varied air flows of the fan. Since a correlation was determined, the thermistor can then be placed on the cooling fin, one of the important components.

(3) Next, in view of the thermal design conditions of the equipment, the fan is set to high speed at an ambient temperature of 30°C and an equipment load of 100%.

(4) At an ambient temperature of 30°C and an equipment load of 100%, the temperature of the cooling fin was 48°C and the surface temperature of the thermistor placed on the cooling fin was 45°C when the fan was running at high speed. It was therefore decided to add a 1.5 KΩ resistor in series with the thermistor according to Table 1. In this case, the thermistor temperature is 35°C and the fan runs at low (see Table 1 and Fig. 6).

(5) Test results as installed on equipment: The thermal speed controlled fan displayed its full effect, thus being greatly advantageous in noise reduction. The ambient temperature during the test was 29°C.

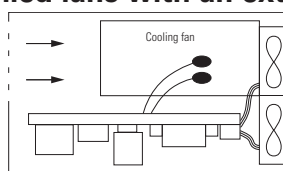


Fig. 5

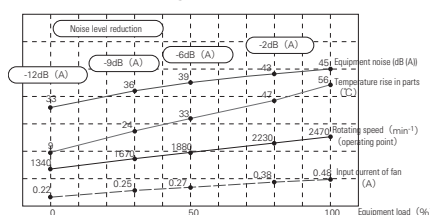


Fig. 7

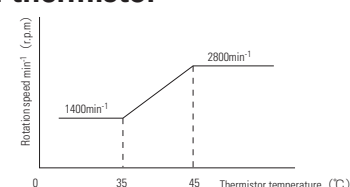


Fig. 6

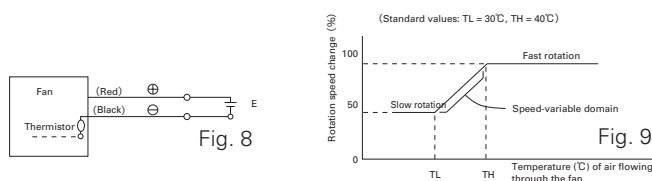
* An ideal drop in the fan noise level was achieved according to the equipment load. When the equipment load was 0, the noise was 12dB (A) lower than in the case of conventional models.

* The current consumption of the fan was 54% lower than in the case of conventional models when the equipment load was 0.

* The noise level is expected to decline further at lower ambient temperatures.

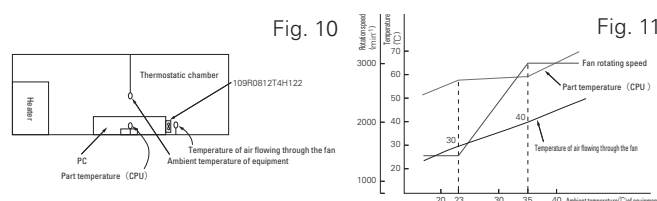
1. Overview

Thermal speed controlled fans with a built-in thermistor are designed that the fan itself contains a thermistor as indicated in Fig. 8. As illustrated in Fig. 9, the temperature of the air flowing through the fan motor is detected and the fan's speed changes automatically according to changes in that temperature.



2. Typical applications of thermal speed controlled fans with a built-in thermistor

Fig. 11 indicates measurements taken when a 109R0812T4H122 fan is mounted on equipment (a PC) is tested in the state as illustrated in Fig. 10.



UPS, inverter, rectifier, high-voltage power supply, etc.

Cautions for use of a cooling fan in the vicinity of a power switching circuit (prevention of electrolytic corrosion)

Custom Product
Refer to page 300

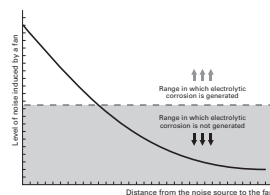
If a fan is installed near a large-power or high-voltage switching circuit, the heavy electromagnetic noise resulting from electromagnetic induction in such circuits or the influence of high-frequency noise imposed through the power line of the fan may induce current through the shaft bearing of the fan. Such current may damage the oil film on the bearing and even the friction surface of the bearing. This adverse effect is known as "electrolytic corrosion of the fan." Electrolytic corrosion affects the smooth revolution of the fan and may reduce its service life. An audible symptom is unusual noise emitted from the fan. This adverse effect is often observed and may partly be explained by the practice of mounting high-density parts, which reduces the gap between the switching circuits and the fan and the use of higher switching frequencies apt to provoke induction. Data processing/communications devices that operate at low voltages are not liable to electrolytic corrosion since they generate less electromagnetic noise.

A Case of Electrolytic Corrosion

Fans without anti-corrosion features installed near components that generate electromagnetic noise, such as inverter controllers, are liable to experience electrolytic corrosion.

No.	Use	Period until the occurrence of unusual noise
1	Switching power supply	6 months to 2 years
2	UPS	6 months to 2 years
3	General-purpose inverter	1 to 1.5 years
4	Air cleaner	2 to 3 months
5	Inverter for LCDs	6 months

The curve shown in the graph below represents the relationship between the level of the electromagnetic noise induced by a fan and the distance from the fan to the noise source.



Occurrence of electrolytic corrosion Pattern 1

- (1) The fan gets charged with high-frequency electricity by high-frequency noise (electric field/magnetic field) generated in the switching circuit.
- (2) Because of high-frequency electricity charged in the fan, an electric current flows through the bearing of the fan.
- (3) The electric current breaks the oil membrane on the surface of the bearing and the bearing gets abraded (electrolytically corroded).
- (4) This symptom often occurs in equipment in which switching circuits are sped up and implemented in high density.
- (5) Countermeasure 1: To provide a shield plate (Note 1) inside the fan (The plate should be such that does not interfere with air flow).
- (6) Countermeasure 2: To use a fan with ceramic bearings.

Occurrence of electrolytic corrosion Pattern 2

- (1) High-frequency electricity flows from the circuit board into the inside of the fan superimposed with the power line for the fan.
- (2) High-frequency electricity that has entered into the fan flows through the bearing.
- (3) Oil membrane on the surface of the bearing gets broken and the bearing gets abraded (electrolytically corroded).
- (4) Countermeasure 1: To remove high-frequency component between terminals "a" and "b", "a" and "e" and "b" and "e" of the power supply for the fan, or to insert a filter (Note 2) into the power line for the fan.
- (5) Countermeasure 2: To use a fan with ceramic bearings
- (6) Cables should be twisted in order to decrease induction to the power line for the fan.

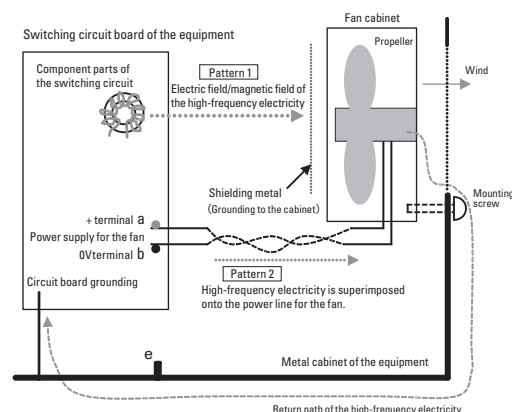
Note 1 : Shielding metal plate

As an electromagnetic shield metal, "EMC Guard" is available from our company. <http://www.sanyodenki.co.jp/product/newfan/indexf.html>

Certain shielding effect can be expected from mounting a general-purpose finger guard inside the fan. In each case, grounding to the cabinet is required.

Note2 : Filter

Insert a common mode filter when the high-frequency electricity is superimposed on both lines "a" and "b" in the same phase and, if not, insert a normal mode filter.



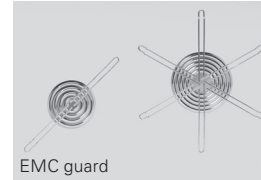
Measures against Electrolytic Corrosion

- (1) Relocate fans far from all electromagnetic noise sources.
- (2) Use anti-corrosion fans equipped with ceramic bearings. → Refer to page 300
- (3) Attach an EMC guard to ordinary fans.
- (4) As a power supply, the fan is wired from a circuit for which noise is not superimposed.

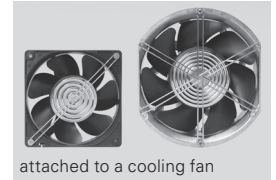
*The EMC guard could be effective against electromagnetic noise caused by radiation, but against heavy electromagnetic noise (electromagnetic induction) and conductive noise from the power supply line for a fan, we recommend the use of an "anti-electrolytic corrosion fan" with ceramic bearing.

What is an EMC guard ?

It is a metallic piece that protects materials from the adverse effects of electromagnetic noise sources. It provides electromagnetic shielding. It is attached to the casing of a device by means of the fan fixing screw(s). Ground the devices equipped with an EMC guard.



EMC guard



attached to a cooling fan

EMC guard

Dimensions(mm)	Thickness(mm)	Fan	EMC guards				
		Representative model numbers	109-1036	109-1037	109-1038	109-1039	109-1040
φ172 φ172×150	51	109L17***5**	✓				
		9GV57***5**	✓				
		109E57***5**	✓				
		109E17***5**	✓				
	25	109E47***4**	✓				
□120	38	9GL12***1**		✓			
		9LB12***1**		✓			
		109L12***1**		✓			
		9G12***1**		✓			
		109R12***1**		✓			
	25	9G12***4**		✓			
		109P12***4**		✓			
□92	25	109L09***4**					✓
		109P09***4**					✓
		109P08***2**			✓		
□80	25	109L08***4**			✓		
		109R08***4**				✓	
		9A08***4**				✓	
	20	109P08***6**			✓		
	15	109P08***7**				✓	

EMC:Electro Magnetic Compatibility, or a capability of a system when its performance is not affected by an electromagnetic environment.

Solution (3) takes effect in ordinary cases. You can choose from among EMC guards of different sizes.

Example: We chose solution (3) because the electromagnetic noise emitted by our UPS, which induces current up to the fan, is not excessive.

The ceramic material used for the bearing in solution (2) prevents current from flowing in it. Strong electromagnetic noise (electromagnetic induction) will not damage the bearing. So, we recommend solution (2) for an environment with heavy electromagnetic noise.

Operating precautions

Storage temperature

There is no performance problem when the system is used at between -30°C and +70°C . There is a possibility that same problem of lubricant and insulation inside motor might occur by condensing due to rapid surrounding temperature change. Therefore, please take care of non-condensing using desiccant or something during fan is in storage.

Tightening Torque

This shows the recommended values for the tightening torque when installing the fans. If the tightening torque is higher than the recommended values, the fan can be deformed or damaged.

Use care when tightening. Also, be sure to always use a fan with a ribbed structure when using screws to pass through and secure the fan.

Recommended screw torques

Fans : 0.44N · m (4.5kgf · cm) or less (with M3 screws)
(Applies to fan motors of 52mm×52mm MAX.)

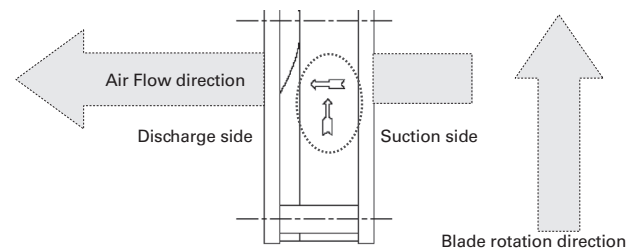
Fans : 0.78N · m (8kgf · cm) or less (with M4 screws)
(Applies to fan motors of 60mm×60mm MAX.)

Fans : 0.98N · m (10kgf · cm) or less (with M4 screws)
(φ200mm)

Fans : 0.75N · m (7.35kgf · cm) or less (with M4 screws)
(φ220mm)

Installation

There are no limitations on the installation direction of fans or blowers. Fans have symbols on the fan indicating the airflow direction and blade rotation direction. When installing, use these symbols to check the airflow direction.

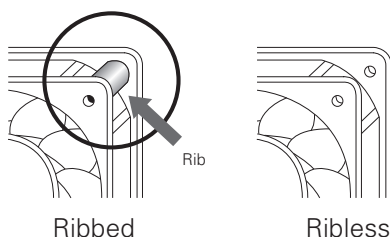


Symbols indicating the fan airflow direction and blade rotation direction

Comparison of ribbed and ribless structures

Regarding plastic frame, we have a option ribbed and ribless about mounting. Please use preferred type up to your application. Please use ribbed fan in case that you hook fan up clamping either side fan mounting hole target. (According to the model, only models with or without ribs are available.)

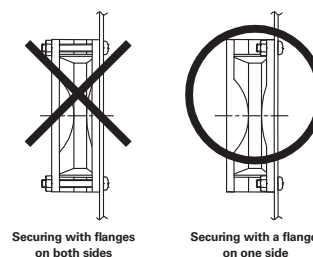
*Use a fan with a rib structure when using a screw for piercing.



Ribbed

Ribless

· When securing screws to ribless plastic frame models, use a flange to secure on one side.



Securing with flanges on both sides

Securing with a flange on one side

Handling precautions

The fan motor is equipped with a precision ball bearing. Therefore, please handle the motors carefully in order not to shock the bearings.

Safety Precautions

- In order to ensure that this product is used safely, be sure that you read and understand the following precautions fully and use the product only as directed.
- Be sure to read these Safety Precautions carefully before installing, connecting, operating, maintaining, or inspecting this product. Follow all the precautions and directions given here.
- This product has been designed and manufactured for use as a device to be used in general industrial machinery, and may not be used as a standalone product.
- The product of our company (hereafter called the product) falls into the category of the products specified in the Attached List 1, Item 16 (Class 84, Item 14) of the Export Trade Control Ordinance. To export the product as an individual part or to export a product into which the product is assembled, the "Information Requirements" and "Objective Requirements" that the Ministry of Economy, Trade and Industry established based on the "Catchall Controls" must be studied for applicability. Based on information on applicability and specified requirements, appropriate export formalities must be performed.

In order to prevent any possible bodily injury or damage to property or equipment, the following precautions for ensuring safety are displayed according to the following two ranks of importance:

 Danger	Handling or using the product improperly and in disregard of the instructions with this mark might result in serious bodily injury or death.
 Warning	Handling or using the product improperly and in disregard of the instructions with this mark might result in bodily injury or physical amage.

※ Note: Items marked "Warning" might also result in serious bodily injury or death in some circumstances. Always follow the instructions for items marked "Danger" .

Descriptions of the precautions to be taken to ensure safety are given below.

Danger

- If the product is used in medical appliances or other types of equipment that affect people's lives, sufficient safety-related evaluations and preparations must be made in advance, and the product or the type of equipment into which the product is assembled must be used on the user's own responsibility.
- If the product is used in types of equipment that have a strong social and public impact, sufficient prior evaluations and safety-related evaluations and preparations must be made, and the product or the type of equipment into which the product is assembled must be used on the user's own responsibility.
- If the product is used in an environment where there are vibrations, for example, in a car or aboard a ship, sufficient prior evaluations and safety-related evaluations and preparations must be made, and the product or the piece of equipment into which the product is assembled must be used on the user's own responsibility.
- Connect all wires properly and securely. Failure to do so might result in burns, fire, or exposure to electrical shock.
- If there are any grounding taps or wires, attach all grounds securely. Failure to do so might result in exposure to electrical shock.
- Never use in explosive atmosphere, as doing so might result in fires, burns, or bodily injury.
- Never operate with any live wires exposed, as doing so might result in electrical shock.
- Never allow any persons or objects to approach or come into contact with the rotor while in operation, as doing so might result in damage or personal injury.
- Turn off the power and stop using the product immediately if you notice any sparks, smoke, odd odors, sounds, or anything unusual during operation. Failure to do so might result in fire, burns, or electrical shock.
- Never allow the product to fall, topple over, or otherwise be subjected to excessive shocks when moving it, as doing so might result in product breakdown or substandard operation.
- The product should be handled only by personnel with sufficient training and knowledge and under the responsibility of the end user.
- Never attempt to disassemble, repair, or alter this product in any way, as doing so might result in fire, burns, or electrical shock.

Warning

Handling

- Installation, placement, connections, wiring, or relocation of the product should be performed by knowledgeable or correctly licensed personnel. Never perform such work while the product is live as this might lead to injury, electrical shock, burns, or fire.
- Do not use the fan if not fixed or stand in hand.
- Never allow yourself to come into contact with the ends of wires or plugs when measuring the insulation resistance or dielectric strength voltage. This might result in electrical shock.
- Never attempt to disassemble or alter this product in any way. Doing so might invalidate any warranties concerning the functions or performance of the product, and might also result in fire, burns, bodily injury, or electrical shock.

Instruction

- If the fan stops during operation, give proper consideration to the device for its protection.
- Never use the product at voltages, temperatures, or any other settings which exceed those given in the product specifications. This might result in substandard operation, breakdown, fire, bodily injury, or electrical shock.
- The fan may fail to operate properly if there is insufficient power capacity, because the starting current is several times larger than the rated current will flow at the moment of the voltage is supplied to the fan. Be sure to inquire about startup current levels for individual models.
- Do not control the speed of the fan by changing power voltage. It may cause fan failure.
- Start up all fans at the same possible timing if two or more fans which wind interferes with each other are installed in the device.
If the fan is exposed to wind from other fans at start up, it may cause fan failure or the fan may not start up correctly.
- Never insert or remove any lead wires or connectors while the power is turned on. When inserting or removing plugs or connections, always be sure to first check that the power has been turned off and hold the housing of the plug or connector when doing so. Failure to do so might result in damage or exposure to electrical shock.
- Do not remove the lead wire of the DC fan from the frame hook. It may scratch and damage the surface of the lead wire.
- Never remove the product identification plate or install the product so that the identification cannot be seen after installation. This could result in the product being improperly used, and subsequently result in fires.
- Do not push the nameplate of the DC fan with strong force. The nameplate may break and touch the shaft.
- The product might become damaged if foreign objects or external forces are allowed to interfere with normal fan operation.
- Do not implement ON-OFF of power supply in negative line. That might cause damage of the fan.

Installation

- When fixing this product into place, be sure to take into consideration the product's weight, the vibrations generated during operation, and all other relevant factors. Failure to do so might cause the product or parts of it to fall out of position, resulting in bodily injury or malfunction of the product.
- Be sure to check the direction of installation (i.e., the fan), as failing to do so might result in bodily injury or mechanical breakdown.
- In order to ensure that the product operates properly, allow spaces for ventilation and take whatever steps necessary to prevent the entry of foreign objects. Failure to do so might result in bodily injury or mechanical breakdown.
- When fixing the fan with screws, make sure the screw and sheet metal do not deform the frame of the fan before operation. If the frame of the fan is deformed, mechanical failure may be occurred or specified performance may not be generated.
- When fixing the fan with screws, ensure the screwing torque. If the screwing torque is over the recommended torque, fan frame may be deformed or damaged. Use a ribbed frame when using screw for piercing. In order to prevent from losing screw, please use plain washer and spring lock washer. For screwing torque of each fan type, contact SANYO DENKI or SANYO DENKI distributor.
- When fixing the fan with self-tapping screws, fan frame may be damaged.

Warning

- When excessive shock is attacked to fan, impeller may be protruded from the surface of fan frame. Make sure that impeller does not touch cover such as finger guard and mounting plate. Do not give excessive shock to fan to avoid fan failure and deteriorate of fan performance.
- Pulling or pinching the lead wires could result in damage to the wire, and you should avoid placing excessive stresses on these wires. The device should also be installed so that the lead wires are not allowed to come into contact with the rotor or blades. Failure to do so might result in damage or exposure to electrical shock.
- Take proper precautions against static electricity when making electrical connections. Failure to do so might cause the breakdown of the fan or device.
- Install a finger guard or other cover if there is any danger of fingers, hands or objects coming into contact with the rotor or blades. Failure to do so might result in bodily injury or mechanical breakdown.
- Install the finger guard, filter, and plate to the fan in the correct position while avoiding touching of the rotor blade. Avoiding this will prevent device failure. Please use Sanyo Denki genuine finger guards and filter kits.

Installation of Centrifugal Fan

- The fan shall be fixed with screws. For screw size of each fan type, refer to drawing or catalog.
- Do not use the screws with length over the depth of mounting screw. Fan might not be fixed by damaging threaded hole. For depth of mounting screw of each fan type, refer to drawing or catalogue.
- When fixing the fan with screws, ensure the screwing torque. If the screwing torque is over the recommended torque, threaded holes may be damaged. Also, in order to prevent from losing screw, please use plain washer and spring lock washer. For screwing torque of each fan type, contact SANYO DENKI or SANYO DENKI distributor.
- When excessive shock is given to fan, impeller may be protruded. Make sure that impeller does not touch cover such as inlet nozzle and finger guard, and mounting plate. For positional relation among the fan, inlet nozzle, and plate of each fan type, refer to drawing or catalog.
- Install the inlet nozzle, finger guard, and plate to the fan in the correct position while avoiding touching of the rotor blade. Avoiding this will prevent device failure. Please use Sanyo Denki genuine inlet nozzle.

Environment of usage

- The product must not be used or stored in a flammable or corrosive gas atmosphere, in a place where water or oil splashes (not applicable to Splash Proof or Oil Proof Fans), in a place where there is much dust or humidity, in a place where condensation occurs, in a place where the product is exposed to radioactive rays or is in direct sunlight, in a place where a salty sea breeze blows or seawater splashes, or in an environment where the product may be contaminated by such corrosive materials as sulfurous water, sulfurous volcanic ash, organic solvents, acidic chemicals, alkali chemicals, etc., such hazardous substances as nuclear fuel materials, etc. If it is used or stored in such places or environments, there is the possibility that a fire may occur, the product may malfunction or its performance may deteriorate.
- Avoid using or storing the product in locations and an environment where it could be constantly exposed to vibrations, strong shocks, magnetic or electromagnetic noise, and which the electromagnetic noise overlaps into power voltage. This might result in product breakdown or substandard operation.
- Avoid using or storing the product under environments where rapidly changed such as thermal and humidity change. This might result in product breakdown or deterioration.

Maintenance

- Maintenance and inspections should always be performed by personnel with sufficient training and knowledge. Failure to do so might result in fire, burns, bodily injury, or electrical shock.
- Never perform any maintenance or inspections while the product is in operation. Also note that the blades continue to rotate for some time immediately after operation ceases. You should always be sure to check to see that all rotating parts have come to a stop before beginning work.
- Never use gasoline, paint thinner, benzene, or any other organic solvents to clean the product as this could result in the deformation or substandard operation.

Model No. Index / Safety standard list

DC Fan

Model No.	Frame Size	UL	CSA	TÜV	page
9GV3612J301	36×36×28mm	✓	✓	✓	11
9GV3612G301	36×36×28mm	✓	✓	✓	11
9GV0312J301(3011)	38×38×28mm	✓	✓	✓	13
9GV0312G301(3011)	38×38×28mm	✓	✓	✓	13
9GV0312E301(3011)	38×38×28mm	✓	✓	✓	13
109P0405H901	40×40×10mm	✓	✓	✓	15
109P0405M901	40×40×10mm	✓	✓	✓	15
109P0412H901	40×40×10mm	✓	✓	✓	15
109P0412M901	40×40×10mm	✓	✓	✓	15
109P0405H701	40×40×15mm	✓	✓	✓	17
109P0405M701	40×40×15mm	✓	✓	✓	17
109P0412S701	40×40×15mm	✓	✓	✓	17
109P0412H701	40×40×15mm	✓	✓	✓	17
109P0412M701	40×40×15mm	✓	✓	✓	17
109P0424H701	40×40×15mm	✓	✓	✓	17
109P0405J601	40×40×20mm	✓	✓	✓	19
109P0405H601	40×40×20mm	✓	✓	✓	19
109P0405F601	40×40×20mm	✓	✓	✓	19
109P0405M601	40×40×20mm	✓	✓	✓	19
109P0412G601	40×40×20mm	✓	✓	✓	19
109P0412D601	40×40×20mm	✓	✓	✓	19
109P0412H601	40×40×20mm	✓	✓	✓	19
109P0412F601	40×40×20mm	✓	✓	✓	19
109P0412M601	40×40×20mm	✓	✓	✓	19
109P0424D601	40×40×20mm	✓	✓	✓	19
109P0424H601	40×40×20mm	✓	✓	✓	19
109P0424F601	40×40×20mm	✓	✓	✓	19
9GE0412P3K03	40×40×28mm	✓	✓	✓	21
9GE0412P3J03	40×40×28mm	✓	✓	✓	21
9GE0412P3G03	40×40×28mm	✓	✓	✓	21
9GV0412K301(3011)	40×40×28mm	✓	✓	✓	23
9GV0412J301(3011)	40×40×28mm	✓	✓	✓	23
9GV0412G301(3011)	40×40×28mm	✓	✓	✓	23
109P0405H3013	40×40×28mm	✓	✓	✓	25
109P0405F3013	40×40×28mm	✓	✓	✓	25
109P0412K3013	40×40×28mm	✓	✓	✓	25
109P0412J3013	40×40×28mm	✓	✓	✓	25
109P0412G3013	40×40×28mm	✓	✓	✓	25
109P0412B3013	40×40×28mm	✓	✓	✓	25
109P0412H3013	40×40×28mm	✓	✓	✓	25
109P0412F3013	40×40×28mm	✓	✓	✓	25
109P0412M3013	40×40×28mm	✓	✓	✓	25
109P0424J3013	40×40×28mm	✓	✓	✓	25
109P0424G3013	40×40×28mm	✓	✓	✓	25
109P0424B3013	40×40×28mm	✓	✓	✓	25
109P0424H3013	40×40×28mm	✓	✓	✓	25
109P0424F3013	40×40×28mm	✓	✓	✓	25
109P0505M701	52×52×15mm	✓	✓	✓	29
109P0512A701	52×52×15mm	✓	✓	✓	29
109P0512H701	52×52×15mm	✓	✓	✓	29
109P0512M701	52×52×15mm	✓	✓	✓	29
109P0524A701	52×52×15mm	✓	✓	✓	29
109P0524H701	52×52×15mm	✓	✓	✓	29
109P0524M701	52×52×15mm	✓	✓	✓	29
109P0605H701	60×60×15mm	✓	✓	✓	31
109P0605M701	60×60×15mm	✓	✓	✓	31
109P0612K701	60×60×15mm	—	—	—	31

Standard name	Certification number
UL	E46810
CSA	172248

※TÜV certification numbers differ by model.

※The contents of this catalog is as of September 2010.

Please ask us about new products that we released after September 2010 if you want

Model No.	Frame Size	UL	CSA	TÜV	page
109P0612S701	60×60×15mm	✓	✓	✓	31
109P0612H701	60×60×15mm	✓	✓	✓	31
109P0612M701	60×60×15mm	✓	✓	✓	31
109P0612B701	60×60×15mm	✓	✓	✓	31
109P0624J701	60×60×15mm	✓	✓	✓	31
109P0624S701	60×60×15mm	✓	✓	✓	31
109P0624H701	60×60×15mm	✓	✓	✓	31
109P0624M701	60×60×15mm	✓	✓	✓	31
109P0612W601	60×60×20mm	✓	✓	✓	35
109P0612H601	60×60×20mm	✓	✓	✓	35
109P0612M601	60×60×20mm	✓	✓	✓	35
109P0624W601	60×60×20mm	✓	✓	✓	35
109P0624H601	60×60×20mm	✓	✓	✓	35
109P0624M601	60×60×20mm	✓	✓	✓	35
109P0648H601	60×60×20mm	✓	✓	✓	35
109R0605H401(4011)	60×60×25mm	✓	✓	✓	37
109R0605F401(4011)	60×60×25mm	✓	✓	✓	37
109R0605M401(4011)	60×60×25mm	✓	✓	✓	37
109R0612J401(4011)	60×60×25mm	✓	✓	✓	37
109R0612G401(4011)	60×60×25mm	✓	✓	✓	37
109R0612D401(4011)	60×60×25mm	✓	✓	✓	37
109R0612S401(4011)	60×60×25mm	✓	✓	✓	37
109R0612H401(4011)	60×60×25mm	✓	✓	✓	37
109R0612F401(4011)	60×60×25mm	✓	✓	✓	37
109R0612M401(4011)	60×60×25mm	✓	✓	✓	37
109R0624J401(4011)	60×60×25mm	✓	✓	✓	37
109R0624G401(4011)	60×60×25mm	✓	✓	✓	37
109R0624D401(4011)	60×60×25mm	✓	✓	✓	37
109R0624S401(4011)	60×60×25mm	✓	✓	✓	37
109R0624H401(4011)	60×60×25mm	✓	✓	✓	37
109R0624F401(4011)	60×60×25mm	✓	✓	✓	37
109R0624M401(4011)	60×60×25mm	✓	✓	✓	37
109R0648J401(4011)	60×60×25mm	✓	✓	✓	37
109R0648G401(4011)	60×60×25mm	✓	✓	✓	37
109R0648H401(4011)	60×60×25mm	✓	✓	✓	37
9A0612G401(4011)	60×60×25mm	✓	✓	✓	41
9A0612S401(4011)	60×60×25mm	✓	✓	✓	41
9A0612H401(4011)	60×60×25mm	✓	✓	✓	41
9A0612F401(4011)	60×60×25mm	✓	✓	✓	41
9A0612M401(4011)	60×60×25mm	✓	✓	✓	41
9A0624G401(4011)	60×60×25mm	✓	✓	✓	41
9A0624S401(4011)	60×60×25mm	✓	✓	✓	41
9A0624H401(4011)	60×60×25mm	✓	✓	✓	41
9A0624F401(4011)	60×60×25mm	✓	✓	✓	41
9A0624M401(4011)	60×60×25mm	✓	✓	✓	41
9GV0612P1G03(031)	60×60×38mm	✓	✓	✓	43
9GV0612P1H03(031)	60×60×38mm	✓	✓	✓	43
9GV0612P1M03(031)	60×60×38mm	✓	✓	✓	43
9GV0624P1G03(031)	60×60×38mm	✓	✓	✓	43
9GV0648P1H03(031)	60×60×38mm	✓	✓	✓	43
9G0612G101(1011)	60×60×38mm	✓	✓	✓	47
9G0612S101(1011)	60×60×38mm	✓	✓	✓	47
9G0624G101(1011)	60×60×38mm	✓	✓	✓	47
9G0624S101(1011)	60×60×38mm	—	—	—	47
9G0648G101(1011)	60×60×38mm	✓	✓	✓	47
9G0648S101(1011)	60×60×38mm	✓	✓	✓	47
109P0812H701	80×80×15mm	✓	✓	✓	49
109P0812M701	80×80×15mm	✓	✓	✓	49
109P0824H701	80×80×15mm	✓	✓	✓	49
109P0824M701	80×80×15mm	✓	✓	✓	49
109P0812C601	80×80×20mm	—	—	—	51
109P0812H601	80×80×20mm	✓	✓	✓	51
109P0812M601	80×80×20mm	✓	✓	✓	51
109P0824H601	80×80×20mm	✓	✓	✓	51
109P0824M601	80×80×20mm	✓	✓	✓	51
109P0848C601	80×80×20mm	✓	✓	✓	51

DC Fan

Model No.	Frame Size	UL	CSA	TÜV	page
9G1248F101(1011)	120x120x38mm	✓	✓	✓	91
9G1248M101(1011)	120x120x38mm	✓	✓	✓	91
9SG1212G101	120x120x38mm	✓	✓	✓	95
9SG1224G101	120x120x38mm	✓	✓	✓	95
9SG1248G101	120x120x38mm	✓	✓	✓	95
109P1312S101(1011)	127x127x38mm	✓	✓	✓	97
109P1312H101(1011)	127x127x38mm	✓	✓	✓	97
109P1324S101(1011)	127x127x38mm	✓	✓	✓	97
109P1324H101(1011)	127x127x38mm	✓	✓	✓	97
109P1348S101(1011)	127x127x38mm	✓	✓	✓	97
109P1348H101(1011)	127x127x38mm	✓	✓	✓	97
109E1312A101	127x127x38mm	✓	✓	✓	99
109E1312S101	127x127x38mm	✓	✓	✓	99
109E1324G101	127x127x38mm	✓	✓	✓	99
109E1324A101	127x127x38mm	✓	✓	✓	99
109E1324S101	127x127x38mm	✓	✓	✓	99
109E1348G101	127x127x38mm	✓	✓	✓	99
109E1348A101	127x127x38mm	✓	✓	✓	99
109E1348S101	127x127x38mm	✓	✓	✓	99
109P1412H101	140x140x38mm	✓	✓	✓	101
109P1412M101	140x140x38mm	✓	✓	✓	101
109P1424H101	140x140x38mm	✓	✓	✓	101
109P1424M101	140x140x38mm	✓	✓	✓	101
109P1448H101	140x140x38mm	✓	✓	✓	101
109P1448M101	140x140x38mm	✓	✓	✓	101
9GV1512H501(5011)	150x150x50mm	✓	✓	✓	103
9GV1512M501(5011)	150x150x50mm	✓	✓	✓	103
109E4712M401	φ172mmx25mm	✓	✓	✓	105
109E4712L401	φ172mmx25mm	✓	✓	✓	105
109E4724H401	φ172mmx25mm	✓	✓	✓	105
109E4724F401	φ172mmx25mm	✓	✓	✓	105
109E4724M401	φ172mmx25mm	✓	✓	✓	105
109E4724L401	φ172mmx25mm	✓	✓	✓	105
109E4748S401	φ172mmx25mm	✓	✓	✓	105
109E4748H401	φ172mmx25mm	✓	✓	✓	105
109E4748F401	φ172mmx25mm	✓	✓	✓	105
109E4748M401	φ172mmx25mm	✓	✓	✓	105
109E4748L401	φ172mmx25mm	✓	✓	✓	105
9SG5748P5G01	φ172mmx51mm	✓	✓	✓	107
9SG5748P5H01	φ172mmx51mm	✓	✓	✓	107
9GV5724H501	φ172mmx51mm	✓	✓	✓	109
9GV5748H501	φ172mmx51mm	✓	✓	✓	109
109E5712K501	φ172mmx51mm	✓	✓	✓	111
109E5712Y501	φ172mmx51mm	✓	✓	✓	111
109E5712H501	φ172mmx51mm	✓	✓	✓	111
109E5712F501	φ172mmx51mm	✓	✓	✓	111
109E5712M501	φ172mmx51mm	✓	✓	✓	111
109E5724C501	φ172mmx51mm	✓	✓	✓	111
109E5724K501	φ172mmx51mm	✓	✓	✓	111
109E5724H501	φ172mmx51mm	✓	✓	✓	111
109E5724F501	φ172mmx51mm	✓	✓	✓	111
109E5724M501	φ172mmx51mm	✓	✓	✓	111
109E5748C501	φ172mmx51mm	✓	✓	✓	111
109E5748K501	φ172mmx51mm	✓	✓	✓	111
109E5748H501	φ172mmx51mm	✓	✓	✓	111
109E5748F501	φ172mmx51mm	✓	✓	✓	111
109E5748M501	φ172mmx51mm	✓	✓	✓	111
109E1712K501	φ172mmx51mm	✓	✓	✓	115
109E1712H501	φ172mmx51mm	✓	✓	✓	115
109E1712M501	φ172mmx51mm	✓	✓	✓	115
109E1724C501	φ172mmx51mm	✓	✓	✓	115
109E1724K501	φ172mmx51mm	✓	✓	✓	115
109E1724H501	φ172mmx51mm	✓	✓	✓	115
109E1724M501	φ172mmx51mm	✓	✓	✓	115
109E1748C501	φ172mmx51mm	✓	✓	✓	115
109E1748K501	φ172mmx51mm	✓	✓	✓	115

Model No.	Frame Size	UL	CSA	TÜV	page
109E1748H501	φ172mmx51mm	✓	✓	✓	115
109E1748M501	φ172mmx51mm	✓	✓	✓	115
109E2024H001	φ200mmx70mm	✓	✓	✓	117
109E2024S001	φ200mmx70mm	✓	✓	✓	117
109E2024MH001	φ200mmx70mm	✓	✓	✓	117
109E2024AS001	φ200mmx70mm	✓	✓	✓	117
9EC2024H001	φ200mmx70mm	✓	✓	✓	119
9EC2048A001	φ200mmx70mm	✓	✓	✓	119
9EC2048H001	φ200mmx70mm	✓	✓	✓	119

Low Power Consumption Fan

Model No.	Frame Size	UL	CSA	TÜV	page
9GA0412P3J01	40x40x28mm	✓	✓	✓	121
9GA0412P3G01	40x40x28mm	✓	✓	✓	121
9GA0412P3H01	40x40x28mm	✓	✓	✓	121
9GA0412P3M01	40x40x28mm	✓	✓	✓	121
9GA0612P7G01	60x60x15mm	✓	✓	✓	125
9GA0612P7H01	60x60x15mm	✓	✓	✓	125
9GA0612P6G001	60x60x20mm	✓	✓	✓	127
9GA0612P6S001	60x60x20mm	—	—	—	127
9GA0624P6G001	60x60x20mm	—	—	—	127
9GA0624P6S001	60x60x20mm	—	—	—	127
9GA0612H6001	60x60x20mm	—	—	—	127
9GA0612M6001	60x60x20mm	—	—	—	127
9GA0624H6001	60x60x20mm	—	—	—	127
9GA0624M6001	60x60x20mm	—	—	—	127
9GA0612P1J03(031)	60x60x38mm	✓	✓	✓	131
9GA0612P1K03(031)	60x60x38mm	✓	✓	✓	131
9GA0612P1H03(031)	60x60x38mm	✓	✓	✓	131
9GA0612P1K60(601)	60x60x38mm	✓	✓	✓	131
9GA0812P1S61(611)	80x80x38mm	✓	✓	✓	135
9GA0812P1H61(611)	80x80x38mm	✓	✓	✓	135
9GA0824P1S61(611)	80x80x38mm	✓	✓	✓	135
9GA0824P1H61(611)	80x80x38mm	✓	✓	✓	135
9GA0912P4J03(031)	92x92x25mm	✓	✓	✓	139
9GA0912P4G03(031)	92x92x25mm	✓	✓	✓	139
9GA0912P4S03(031)	92x92x25mm	✓	✓	✓	139
9GA0924P4J03(031)	92x92x25mm	✓	✓	✓	139
9GA0924P4G03(031)	92x92x25mm	✓	✓	✓	139
9GA0924P4S03(031)	92x92x25mm	✓	✓	✓	139
9GA0912P1H03(031)	92x92x38mm	✓	✓	✓	143

Silent Fan

Model No.	Frame Size	UL	CSA	TÜV	page
9S0612H401(4011)	60x60x25mm	✓	✓	✓	145
9S0612F401(4011)	60x60x25mm	✓	✓	✓	145
9S0612M401(4011)	60x60x25mm	✓	✓	✓	145
9S0812F401(4011)	80x80x25mm	✓	✓	✓	147
9S0812M401(4011)	80x80x25mm	✓	✓	✓	147
9S0812L401(4011)	80x80x25mm	✓	✓	✓	147
9S0824M401(4011)	80x80x25mm	✓	✓	✓	147
9S0824L401(4011)	80x80x25mm	✓	✓	✓	147
9S0912F401(4011)	92x92x25mm	✓	✓	✓	149
9S0912M401(4011)	92x92x25mm	✓	✓	✓	149
9S0912L401(4011)	92x92x25mm	✓	✓	✓	149
9S0924F401(4011)	92x92x25mm	✓	✓	✓	149
9S0924M401(4011)	92x92x25mm	✓	✓	✓	149
9S0924L401(4011)	92x92x25mm	✓	✓	✓	149
9S1212H401(4011)	120x120x25mm	✓	✓	✓	151
9S1212F401(4011)	120x120x25mm	✓	✓	✓	151
9S1212M401(4011)	120x120x25mm	✓	✓	✓	151
9S1212L401(4011)	120x120x25mm	✓	✓	✓	151

Splash Proof Fan

Model No.	Frame Size	UL	CSA	TÜV	page
9WP0612H401(4011)	60×60×25mm	✓	✓	✓	153
9WP0624H401(4011)	60×60×25mm	✓	✓	✓	153
9WP0648H401(4011)	60×60×25mm	✓	✓	✓	153
109W0812H401-U	80×80×25mm	✓	✓	✓	155
109W0812F401-U	80×80×25mm	✓	✓	✓	155
109W0812M401-U	80×80×25mm	✓	✓	✓	155
109W0812L401-U	80×80×25mm	✓	✓	✓	155
109W0824H401-U	80×80×25mm	✓	✓	✓	155
109W0824F401-U	80×80×25mm	✓	✓	✓	155
109W0824M401-U	80×80×25mm	✓	✓	✓	155
109W0824L401-U	80×80×25mm	✓	✓	✓	155
109W0848H401-U	80×80×25mm	✓	✓	✓	155
9WP0812H401(4011)	80×80×25mm	✓	✓	✓	157
9WP0824H401(4011)	80×80×25mm	✓	✓	✓	157
9WP0848S401(4011)	80×80×25mm	✓	✓	✓	157
9WS0812H401(4011)	80×80×25mm	✓	✓	✓	159
9WS0812F401(4011)	80×80×25mm	✓	✓	✓	159
9WS0812M401(4011)	80×80×25mm	✓	✓	✓	159
9WS0824H401(4011)	80×80×25mm	✓	✓	✓	159
9WS0824F401(4011)	80×80×25mm	✓	✓	✓	159
9WS0824M401(4011)	80×80×25mm	✓	✓	✓	159
109W0912H401-U	92×92×25mm	✓	✓	✓	161
109W0912F401-U	92×92×25mm	✓	✓	✓	161
109W0912M401-U	92×92×25mm	✓	✓	✓	161
109W0912L401-U	92×92×25mm	✓	✓	✓	161
109W0924H401-U	92×92×25mm	✓	✓	✓	161
109W0924F401-U	92×92×25mm	✓	✓	✓	161
109W0924M401-U	92×92×25mm	✓	✓	✓	161
109W0924L401-U	92×92×25mm	✓	✓	✓	161
109W0948H401-U	92×92×25mm	✓	✓	✓	161
9WS0912H401	92×92×25mm	✓	✓	✓	163
9WS0912F401	92×92×25mm	✓	✓	✓	163
9WS0912M401	92×92×25mm	✓	✓	✓	163
9WS0912L401	92×92×25mm	✓	✓	✓	163
9WS0924H401	92×92×25mm	✓	✓	✓	163
9WS0924F401	92×92×25mm	✓	✓	✓	163
9WS0924M401	92×92×25mm	✓	✓	✓	163
9WS0924L401	92×92×25mm	✓	✓	✓	163
9WP0924F401	92×92×25mm	✓	✓	✓	165
9WP0924B401	92×92×25mm	✓	✓	✓	165
9WP1212H101(1011)	120×120×38mm	✓	✓	✓	167
9WP1224H101(1011)	120×120×38mm	✓	✓	✓	167
9WP1248H101(1011)	120×120×38mm	✓	✓	✓	167
9WG1212G101-E	120×120×38mm	✓	✓	✓	169
9WG1212E101-E	120×120×38mm	✓	✓	✓	169
9WG1212H101-E	120×120×38mm	✓	✓	✓	169
9WG1212F101-E	120×120×38mm	✓	✓	✓	169
9WG1212M101-E	120×120×38mm	✓	✓	✓	169
9WG1224G101-E	120×120×38mm	✓	✓	✓	169
9WG1224E101-E	120×120×38mm	✓	✓	✓	169
9WG1224H101-E	120×120×38mm	✓	✓	✓	169
9WG1224F101-E	120×120×38mm	✓	✓	✓	169
9WG1224M101-E	120×120×38mm	✓	✓	✓	169
9WG1248G101-E	120×120×38mm	✓	✓	✓	169
9WG1248E101-E	120×120×38mm	✓	✓	✓	169
9WG1248H101-E	120×120×38mm	✓	✓	✓	169
9WG1248F101-E	120×120×38mm	✓	✓	✓	169
9WG1248M101-E	120×120×38mm	✓	✓	✓	169
9WS1212H101(1011)	120×120×38mm	✓	✓	✓	173
9WS1212M101(1011)	120×120×38mm	✓	✓	✓	173
9WS1224H101(1011)	120×120×38mm	✓	✓	✓	173
9WS1224M101(1011)	120×120×38mm	✓	✓	✓	173
9WS1248H101(1011)	120×120×38mm	✓	✓	✓	173
9WS1248M101(1011)	120×120×38mm	✓	✓	✓	173
109W1412H101-U	140×140×38mm	✓	✓	✓	175
109W1412M101-U	140×140×38mm	✓	✓	✓	175

Model No.	Frame Size	UL	CSA	TÜV	page
109W1424H101-U	140×140×38mm	✓	✓	✓	175
109W1424M101-U	140×140×38mm	✓	✓	✓	175
109W1448H101-U	140×140×38mm	✓	✓	✓	175
109W1448M101-U	140×140×38mm	✓	✓	✓	175
9WB1412S501	140×140×51mm	✓	✓	✓	177
9WB1412H501	140×140×51mm	✓	✓	✓	177
9WB1412M501	140×140×51mm	✓	✓	✓	177
9WB1424H501	140×140×51mm	✓	✓	✓	177
9WB1424M501	140×140×51mm	✓	✓	✓	177
9WB1448S501	140×140×51mm	✓	✓	✓	177
9WB1448H501	140×140×51mm	✓	✓	✓	177
9WE5724K501	φ 172mm×51mm	✓	✓	✓	179
9WE5748K501	φ 172mm×51mm	✓	✓	✓	179

Splash Proof Centrifugal Fan

Model No.	Frame Size	UL	CSA	TÜV	page
9W1TM48P4G01	φ 100mm×25mm	✓	✓	✓	181
9W1TM48P4H01	φ 100mm×25mm	—	—	—	181
9W1TJ48P0H61	φ 133mm×91mm	—	—	—	183
9W1TN48P1H01	φ 150mm×35mm	✓	✓	✓	185
9W1TG48P0H61	φ 175mm×69mm	✓	✓	✓	187

Oil Proof Fan

Model No.	Frame Size	UL	CSA	TÜV	page
9WF0424H701	40×40×15mm	✓	✓	✓	189
9WF0424H601	40×40×20mm	✓	✓	✓	191
9WF0424F601	40×40×20mm	✓	✓	✓	191
9WF0624H701	60×60×15mm	✓	✓	✓	193
9WF0624H601	60×60×20mm	✓	✓	✓	195
9WF0624H401	60×60×25mm	✓	✓	✓	197
9WF0824S401	80×80×25mm	✓	✓	✓	199
9WF0924H401	92×92×25mm	✓	✓	✓	201
9WF0924S201	92×92×32mm	✓	✓	✓	203
9WF0924H201	92×92×32mm	✓	✓	✓	203
9WF1224H101	120×120×38mm	✓	✓	✓	205

Long Life Fan

Model No.	Frame Size	UL	CSA	TÜV	page
9L0412J301	40×40×28mm	✓	✓	✓	207
9L0412H301	40×40×28mm	✓	✓	✓	207
9L0412M301	40×40×28mm	✓	✓	✓	207
109L0612G401	60×60×25mm	✓	✓	✓	209
109L0612S401	60×60×25mm	✓	✓	✓	209
109L0612H401	60×60×25mm	✓	✓	✓	209
109L0612F401	60×60×25mm	✓	✓	✓	209
109L0612M401	60×60×25mm	✓	✓	✓	209
109L0624S401	60×60×25mm	✓	✓	✓	209
109L0624H401	60×60×25mm	✓	✓	✓	209
109L0624F401	60×60×25mm	✓	✓	✓	209
109L0624M401	60×60×25mm	✓	✓	✓	209
109L0648G401	60×60×25mm	✓	✓	✓	209
109L0648H401	60×60×25mm	✓	✓	✓	209
109L0812S401	80×80×25mm	✓	✓	✓	213
109L0812H401	80×80×25mm	✓	✓	✓	213
109L0812F401	80×80×25mm	✓	✓	✓	213
109L0812M401	80×80×25mm	✓	✓	✓	213
109L0812L401	80×80×25mm	✓	✓	✓	213
109L0824S401	80×80×25mm	✓	✓	✓	213
109L0824H401	80×80×25mm	✓	✓	✓	213
109L0824F401	80×80×25mm	✓	✓	✓	213
109L0824M401	80×80×25mm	✓	✓	✓	213
109L0824L401	80×80×25mm	✓	✓	✓	213
109L0848H401	80×80×25mm	✓	✓	✓	213

Model No.	Frame Size	UL	CSA	TÜV	page
109BF24MC2	120mm×32mm	✓	✓	✓	271
9BFB12P2H003	120mm×32mm	—	—	—	273
9BFB24P2H003	120mm×32mm	—	—	—	273
109BJ12HC2	127mm×32mm	✓	✓	✓	275
109BJ12MC2	127mm×32mm	✓	✓	✓	275
109BJ24HC2	127mm×32mm	✓	✓	✓	275
109BJ24MC2	127mm×32mm	✓	✓	✓	275
109BG12HC1	160mm×40mm	✓	✓	✓	277
109BG12MC1	160mm×40mm	✓	✓	✓	277
109BG24HC1	160mm×40mm	✓	✓	✓	277
109BG24MC1	160mm×40mm	✓	✓	✓	277

CPU Cooler

Model No.	Frame Size	UL	CSA	TÜV	page
109X8712PT0S016	78.7mm×88.9mm	✓	—	—	279
109X9112PT0H016	φ 90mm	✓	—	—	280
109X9212PT0H016	φ 90mm	✓	—	—	281

Finger guards

Model No.	Size	Thickness	page
109-1050	36mm sq. type	4.8mm	285
109-1065	38mm sq. type	4.8mm	285
109-059	40mm sq. type	4mm	285
109-149	52mm sq. type	4mm	285
109-149E	52mm sq. type	4mm	285
109-139E	60mm sq. type	4mm	285
109-139H	60mm sq. type	4mm	285
109-049C	80mm sq. type	5mm	285
109-049E	80mm sq. type	5mm	285
109-049H	80mm sq. type	5mm	285
109-099C	92mm sq. type	5mm	285
109-099E	92mm sq. type	5mm	285
109-099H	92mm sq. type	5mm	285
109-019C	120mm sq. type	5mm	285
109-019H	120mm sq. type	5mm	285
109-019E	120mm sq. type	5mm	285
109-019K	120mm sq. type	5mm	285
109-722	127mm sq. type	5mm	285
109-723	127mm sq. type	3.2mm	285
109-719	140mm sq. type	5.5mm	285
109-719H	140mm sq. type	5.5mm	285
109-1051	150mm sq. type	5.5mm	285
109-1052	150mm sq. type	3.2mm	285
109-319E	φ 172mm type	9.5mm	285
109-319H	φ 172mm type	9.5mm	285
109-320	φ 172mm type	3.2mm	285
109-720	φ 200mm type	8mm	285
109-720H	φ 200mm type	8mm	285
109-721	φ 200mm type	3.2mm	286
109-721H	φ 200mm type	3.2mm	286

EMC guards

Model No.	Size	Thickness	page
109-1038	80mm sq. type	5mm	286
109-1039	80mm sq. type	5mm	286
109-1040	92mm sq. type	5mm	286
109-1037	120mm sq. type	5mm	286
109-1036	φ 172mm type	9.5mm	286

Resin Finger guards

Model No.	Size	Thickness	page
109-1003G	60mm sq. type	6.5mm	287
109-1002G	80mm sq. type	7mm	287
109-1001G	92mm sq. type	7mm	287
109-1000G	120mm sq. type	7mm	287

Resin filter kits

Model No.	Size	Thickness	page
109-1003F13	60mm sq. type	9.5mm	287
109-1003F20	60mm sq. type	9.5mm	287
109-1003F30	60mm sq. type	9.5mm	287
109-1003F40	60mm sq. type	9.5mm	287
109-1002F13	80mm sq. type	10.5mm	287
109-1002F20	80mm sq. type	10.5mm	287
109-1002F30	80mm sq. type	10.5mm	287
109-1002F40	80mm sq. type	10.5mm	287
109-1001F13	92mm sq. type	10.5mm	287
109-1001F20	92mm sq. type	10.5mm	287
109-1001F30	92mm sq. type	10.5mm	287
109-1001F40	92mm sq. type	10.5mm	287
109-1000F13	120mm sq. type	10.5mm	287
109-1000F20	120mm sq. type	10.5mm	287
109-1000F30	120mm sq. type	10.5mm	287
109-1000F40	120mm sq. type	10.5mm	287

Recommended connectors for DC fans ····· 288p

Thermistor ····· 288p

IC L8730 for DC fan sensor ····· 288p

Discontinued model in this catalog

Discontinued model in this catalog are listed below.

Please contact us for details of them.

■ Thermal Speed Controlled Fan

Size	Model No.	Frame material	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
52 × 52 × 15mm	109P0512T7H12	Plastics	12	10.2 to 13.8	0.13	1.56	4,600	0.255	9.0	31.9	0.128	27	- 10 to + 70	60,000
					0.09	1.08	2,300	0.13	4.6	8.8	0.035	17		
52 × 52 × 15mm	109P0512T7H122	Plastics	12	10.2 to 13.8	0.13	1.56	4,900	0.27	9.5	36.2	0.145	28	- 10 to + 70	60,000
					0.09	1.08	2,400	0.14	4.9	9.6	0.039	17		
60 × 60 × 15mm	109P0612T7H12	Plastics	12	10.2 to 13.8	0.12	1.44	4,100	0.4	14.1	38.2	0.153	32	- 10 to + 70	60,000
					0.08	0.96	2,050	0.2	7.1	9.3	0.037	18		
60 × 60 × 15mm	109P0612T7H122	Plastics	12	10.2 to 13.8	0.12	1.44	4,300	0.42	14.8	42.0	0.169	32	- 10 to + 70	60,000
					0.08	0.96	2,100	0.2	7.0	9.7	0.039	18		
60 × 60 × 20mm	109P0612T6H12	Plastics	12	10.2 to 13.8	0.15	1.8	4,200	0.42	14.8	31.9	0.128	31	- 10 to + 70	60,000
					0.10	1.2	2,100	0.21	7.4	8.8	0.035	21		
60 × 60 × 20mm	109P0612T6H122	Plastics	12	10.2 to 13.8	0.15	1.8	4,400	0.44	15.5	35.0	0.141	33	- 10 to + 70	60,000
					0.10	1.2	2,150	0.22	7.8	9.2	0.037	21		
60 × 60 × 25mm	109R0612T4H12(121)	Plastics	12	10.2 to 13.8	0.13	1.56	3,800	0.53	18.7	40.2	0.161	28	- 10 to + 60	60,000
					0.10	1.20	1,900	0.26	9.2	9.8	0.039	15		
60 × 60 × 25mm	109R0612T4H122(123)	Plastics	12	10.2 to 13.8	0.13	1.56	3,950	0.55	19.4	41.8	0.168	28	- 10 to + 60	60,000
					0.10	1.20	1,950	0.27	9.5	10.3	0.041	15		
80 × 80 × 20mm	109P0812T6H12	Plastics	12	10.2 to 13.8	0.18	2.16	2,900	0.84	29.7	29.4	0.118	31	- 10 to + 60	60,000
					0.1	1.2	1,450	0.42	14.8	7.4	0.030	18		
80 × 80 × 20mm	109P0812T6H122	Plastics	12	10.2 to 13.8	0.18	2.16	3,050	0.88	31.0	32.5	0.131	32	- 10 to + 60	60,000
					0.1	1.2	1,450	0.42	14.8	7.4	0.030	20		
80 × 80 × 25mm	109R0812T4H12(121)	Plastics	12	10.2 to 13.8	0.14	1.68	2,900	1.03	36.4	35.3	0.142	29	- 10 to + 60	60,000
					0.09	1.08	1,450	0.51	18.0	8.8	0.035	14		
80 × 80 × 25mm	109R0812T4H122(123)	Plastics	12	10.2 to 13.8	0.14	1.68	3,000	1.07	37.8	37.7	0.151	29	- 10 to + 60	60,000
					0.09	1.08	1,450	0.51	18.0	8.8	0.035	14		
92 × 92 × 25mm	109P0912T4H12(121)	Plastics	12	10.2 to 13.8	0.2	2.4	2,850	1.45	51.2	45.1	0.181	33	- 10 to + 60	40,000
					0.1	1.2	1,400	0.71	25.0	11.3	0.045	18		
92 × 92 × 25mm	109P0912T4H122(123)	Plastics	12	10.2 to 13.8	0.2	2.4	3,000	1.52	53.7	50.0	0.201	35	- 10 to + 60	40,000
					0.1	1.2	1,400	0.71	25.0	11.3	0.045	18		
120 × 120 × 25mm	109P1212T4H12(121)	Plastics	12	10.2 to 13.8	0.55	6.6	2,800	2.5	88.3	53.9	0.216	40	- 10 to + 60	40,000
					0.22	2.64	1,400	1.25	44.1	13.7	0.055	25		
120 × 120 × 25mm	109P1212T4H122(123)	Plastics	12	10.2 to 13.8	0.55	6.6	2,800	2.5	88.3	53.9	0.216	40	- 10 to + 60	40,000
					0.22	2.64	1,400	1.25	44.1	13.7	0.055	25		
120 × 120 × 38mm	109R1212T1H12(121)	Plastics	12	10.2 to 13.8	0.48	5.75	2,600	2.9	102.4	64.7	0.260	39	- 10 to + 60	40,000
					0.23	2.76	1,300	1.4	49.4	16.2	0.065	24		
120 × 120 × 38mm	109R1212T1H122(123)	Plastics	12	10.2 to 13.8	0.48	5.75	2,600	2.9	102.4	64.7	0.260	39	- 10 to + 60	40,000
					0.23	2.76	1,300	1.4	49.4	16.2	0.065	24		

■ CPU Cooler Intel® Processor

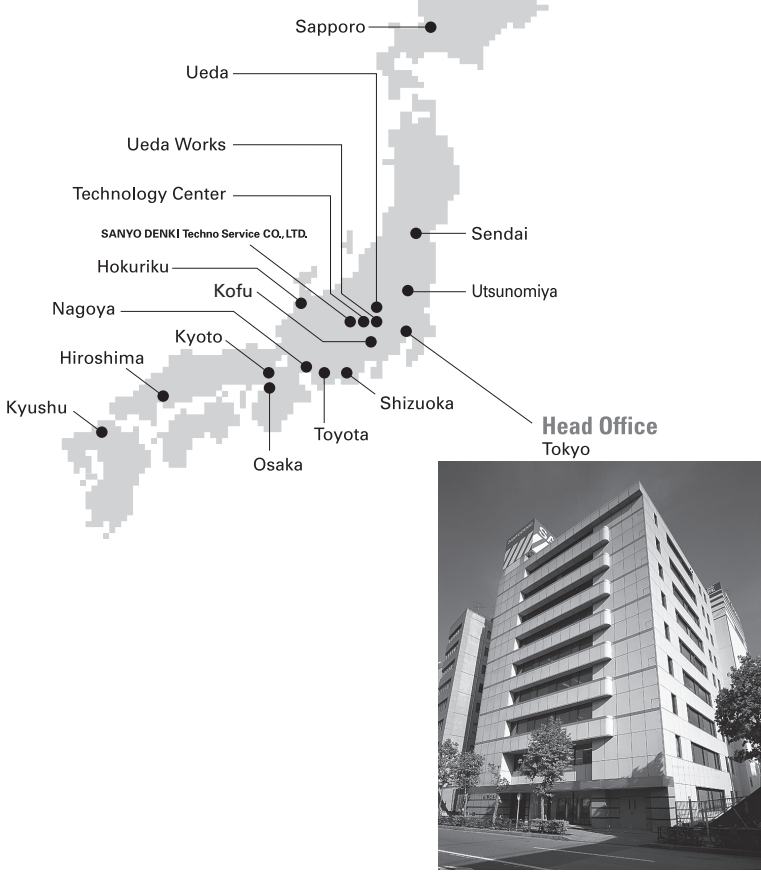
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478	109X9912T0D516	Plastics	12	9 to 13.8	0.44	5,200	0.28	44	0 to + 70	40,000
						2,570	0.385	26		
478	109X9912T0S016	Plastics	12	9 to 13.8	0.48	5,400	0.295	45	0 to + 70	40,000
						2,610	0.42	28		
478	109X9912S0016	Plastics	12	9 to 13.8	0.48	5,400	0.295	45	0 to + 70	40,000
478	109X9812T0H016	Plastics	12	9 to 13.8	0.21	3,900	0.42	39	0 to + 60	40,000
						2,600	0.49	26		
478	109X9812H0016	Plastics	12	9 to 13.8	0.21	3,900	0.42	39	0 to + 60	40,000
478	109X9412G4016	Plastics	12	7 to 13.2	0.29	7,600	0.435	52	0 to + 70	40,000
423	109X9612S5016	Plastics	12	9 to 13.8	0.23	5,000	0.44	40	0 to + 70	40,000
FC-PGA-2	109X7612H1176	Plastics	12	7 to 13.8	0.1	3,900	0.59	31	0 to + 70	40,000
FC-PGA-2	109X7412S4016	Plastics	12	7 to 13.8	0.22	6,000	0.625	42	0 to + 70	40,000
FC-PGA	109X6512A2016	Plastics	12	7 to 13.8	0.07	4,800	1.15	35	0 to + 70	40,000

■ Liquid Cooling Solution System

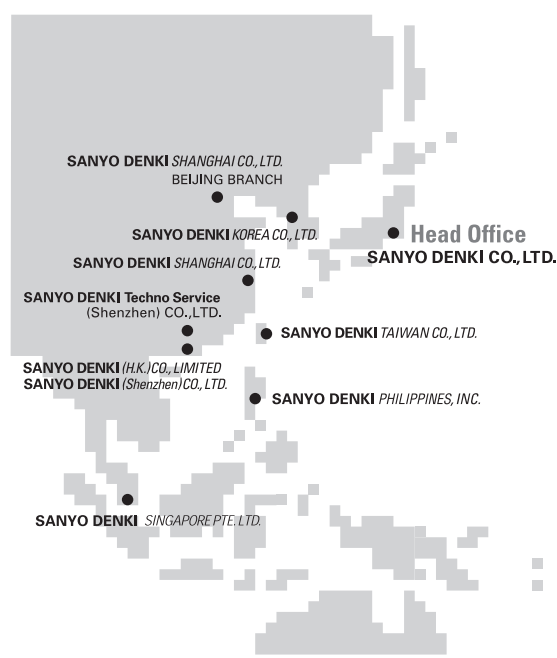
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		Fan	Pump	Fan	Pump	Fan	Pump				
109-LC1-001	12	7 to 12.6	7 to 12.6	0.30	0.13	2,400	2,000	0.220	42	0 to + 60	40,000
						1,300	2,000	0.255	28		

• Storage temperature is -30°C to +70°C.

JAPAN



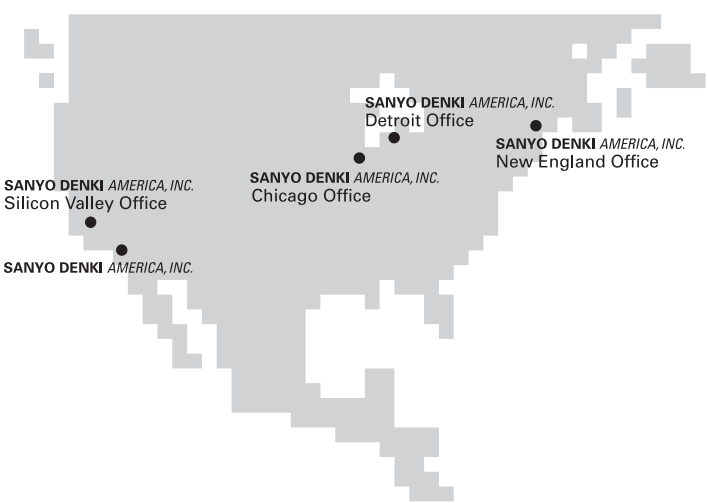
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