

San Ace

DC COOLING FAN

DC San Ace



2012

SANYO DENKI

San Ace COOLING SYSTEMS

This DC fan series provides high quality and high reliability and features an extensive lineup of fans.

Low Power Consumption Fan

These fans greatly reduce power consumption while also providing large airflow and high static pressure. Power consumption is reduced up to a maximum of approximately 60% in comparison with our current fans.[※]
40mm sq. to 92mm sq.

※ 52mm sq. × 15mm thick Model No.: 9GA0512P7A001



Silent Fan

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



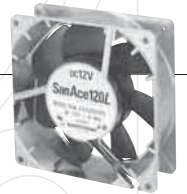
DC Fan

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 ϕ 200mm.



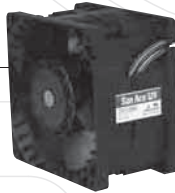
Long Life Fan

Cooling fan with Max. 200,000 hours of expected life
40mm sq. to ϕ 172mm.



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.
 ϕ 100mm to ϕ 175mm



Splash Proof Fan

Cooling fan of IP54 and IP55 waterproof capability
60mm sq. to ϕ 172mm.



Blower

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



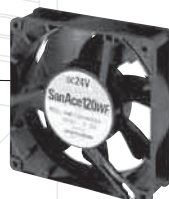
Splash Proof Centrifugal Fan

IP54 splash proof centrifugal fan
 ϕ 100mm to ϕ 175mm.



Oil Proof Fan

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



CPU Cooler

Models for cooling CPU



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Low Power Consumption Fan

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Silent Fan

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DC Fan

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Counter Rotating 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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Long Life Fan

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Centrifugal Fan

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Blower

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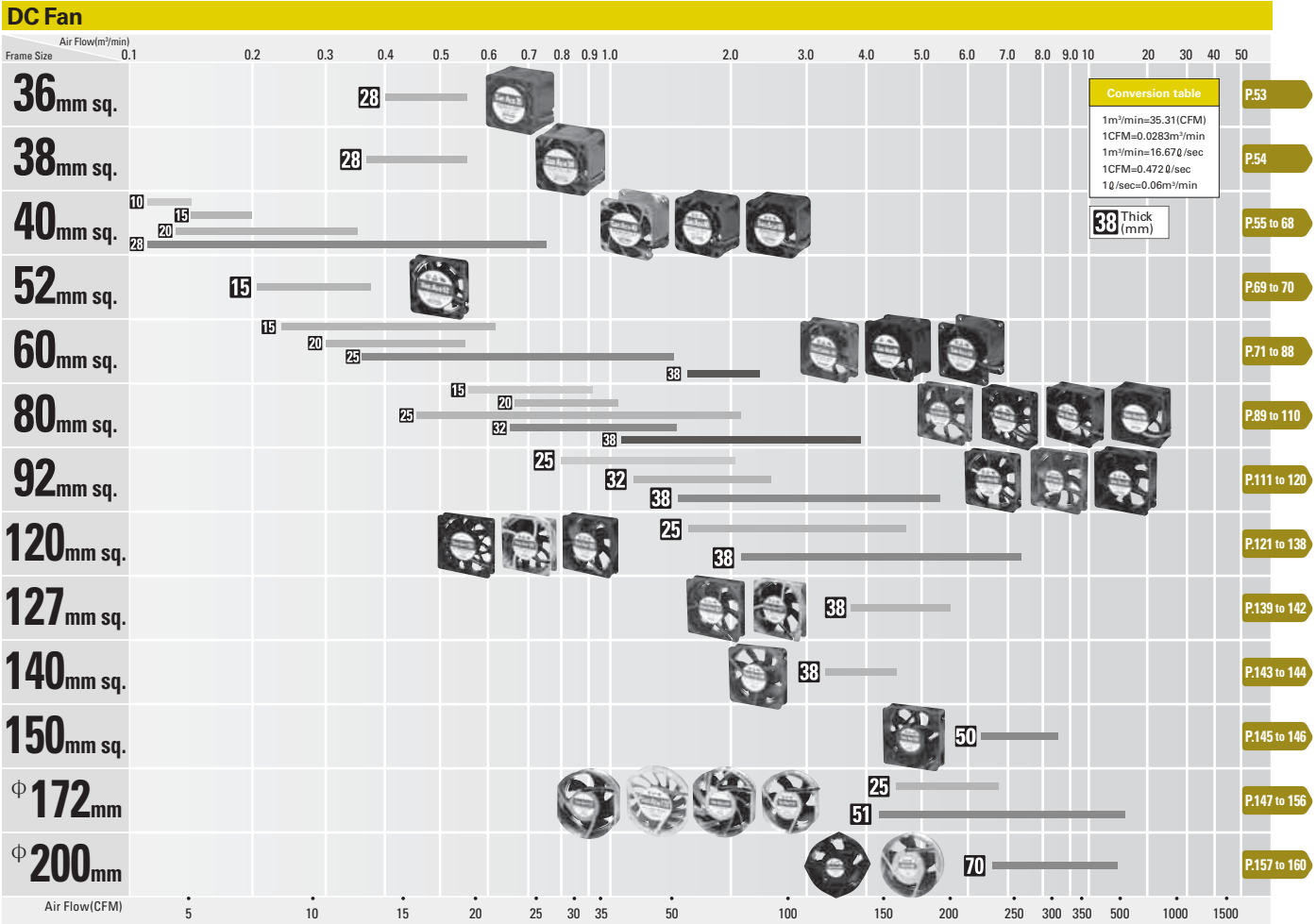
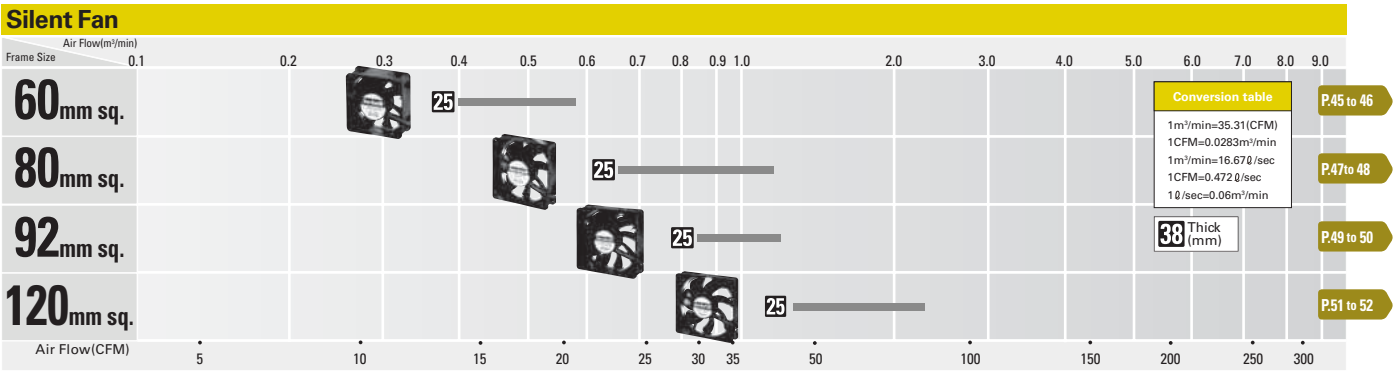
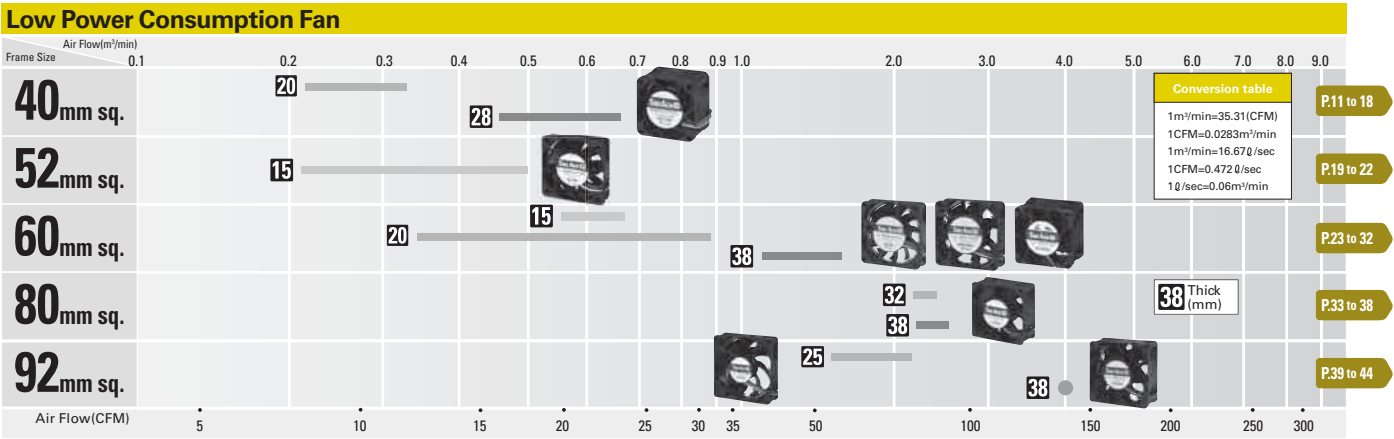
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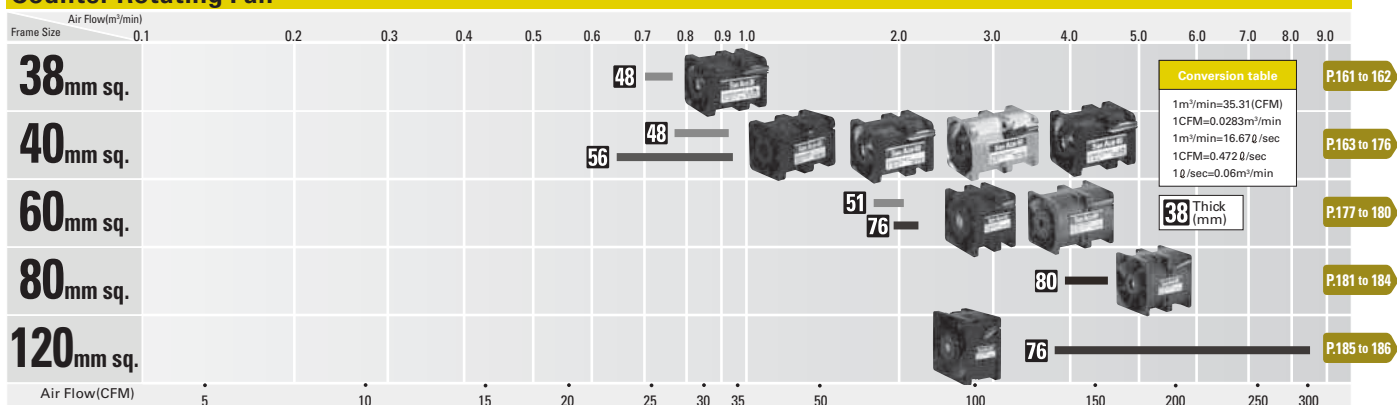
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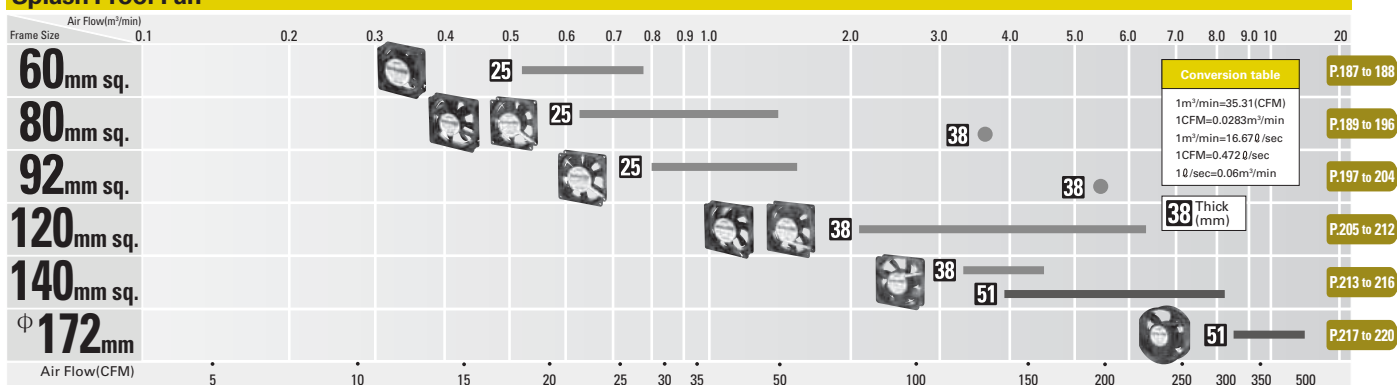
Domain Diagram



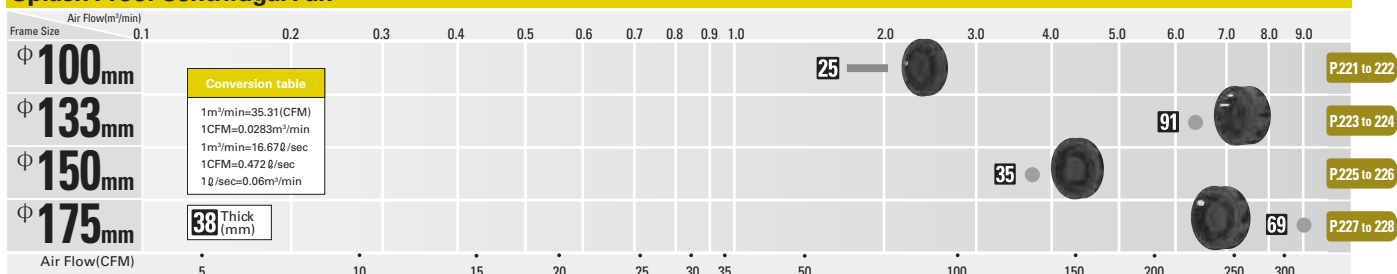
Counter Rotating Fan



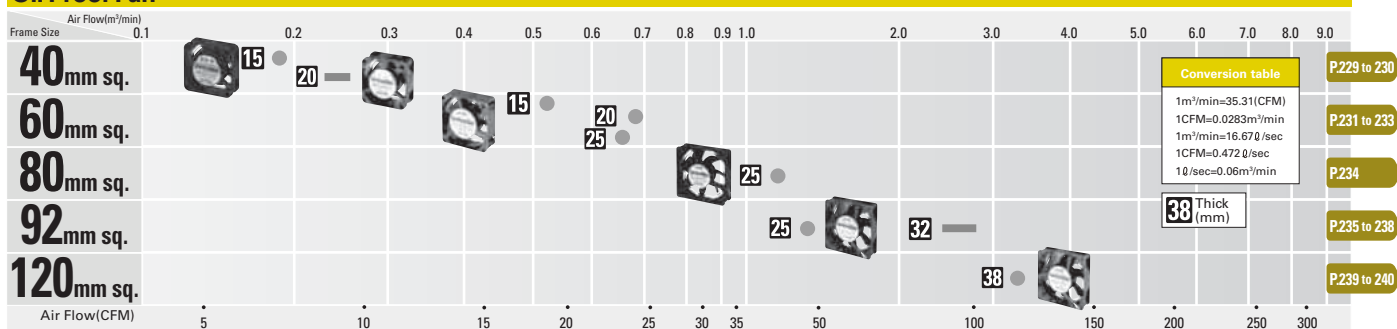
Splash Proof Fan



Splash Proof Centrifugal Fan

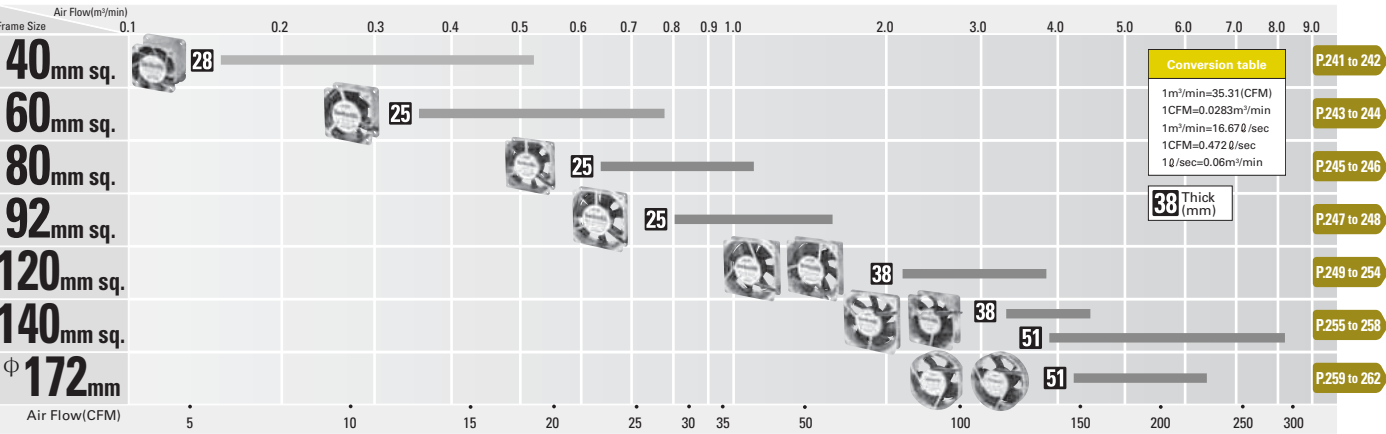


Oil Proof Fan

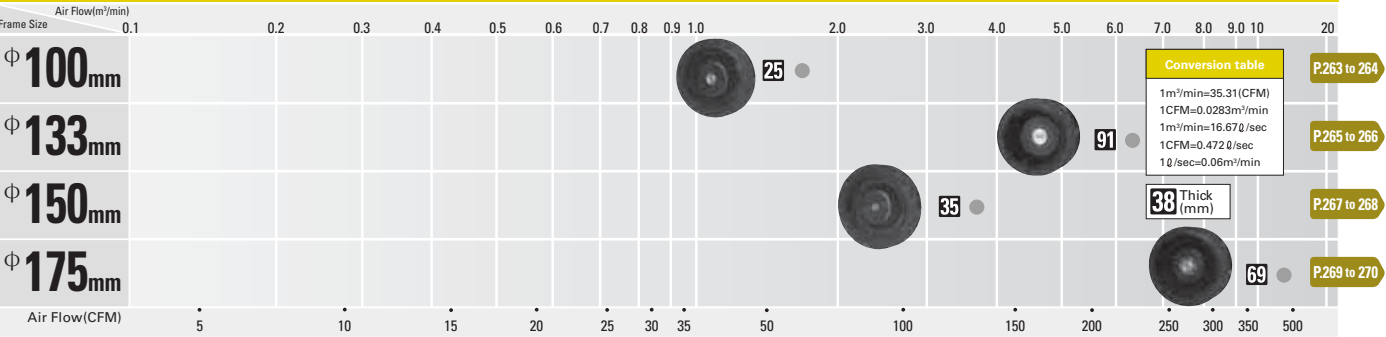


Domain Diagram

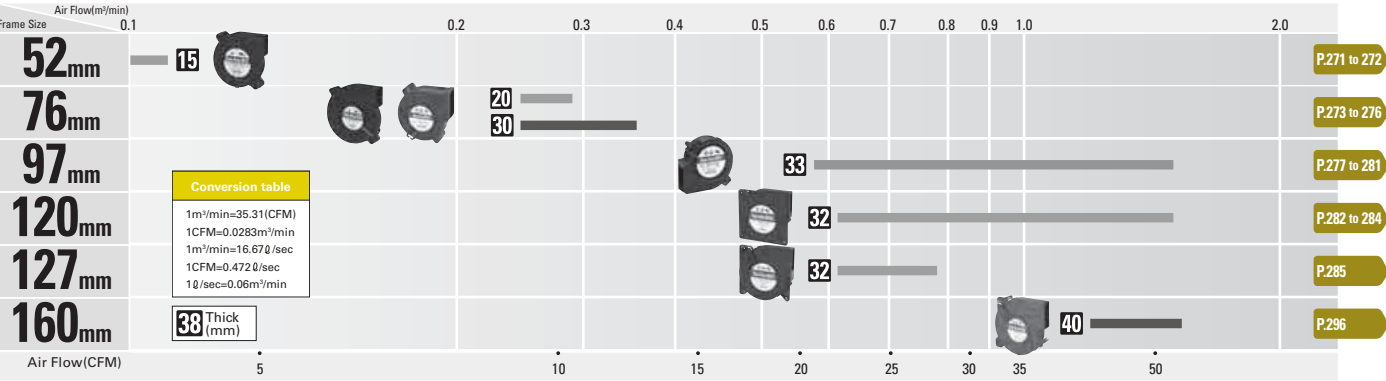
Long Life Fan



Centrifugal Fan



Blower



Part Numbering System

Low Power Consumption Fan

9GA	06	12	H	6	001	
Series name / frame material 9GA / Plastics	Frame size 04 : 40×40mm 05 : 52×52mm 06 : 60×60mm 08 : 80×80mm 09 : 92×92mm	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 form Nil : Ribbed 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 frame 1 : Ribless frame

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 form Nil : Plastics frame: Ribbed frame Aluminum frame: Ribless frame 1 : Plastics frame: Ribless frame 3 : 40×40×28mm for 1U applications Plastics frame

Counter Rotating Fan

9CRA	04	12	K	4	01
Series name / frame material 9CR / Plastics 9CRA / Plastics 9CRB / Plastics 9CRE / Aluminum 9CRD / Plastics 9CRF / Plastics	Frame size 03 : 38×38mm 04 : 40×40mm 06 : 60×60mm 08 : 80×80mm 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

Part Numbering System

Splash Proof Fan

9WS	12	12	H	1	01	
Series name / frame material 109W / Aluminum 9WS / Plastics 9WE / Aluminum 9WG / Aluminum 9WB / Aluminum 9WP / Plastics 9WP / Plastics 9WV / Plastics	Frame size 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 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 : Plastics frame: Ribbed frame Aluminum frame: Ribless frame 1 : Plastics frame: 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 H	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

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

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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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 Max. 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 Max. Static Pressure..... The maximum static pressure value that the fan can output during rated operation
(according to the company's dual-chamber device). The static pressure is the fan's force to propel air by
overcoming the resistance of the device that uses the fan when it propels air.
- ⑧ SPL "SPL" is Sound Pressure Level. The noise level during the fan's rated operation.
Please refer to Page 296 for the method used to measure the noise.
- ⑨ Operating Temperature Range The temperature range over which fan operation is guaranteed (Non- condensing)
- ⑩ Expected Life The fan's expected operating life when the fan operates continuously at the rated voltage at a temperature
of 60°C and at relative humidity of 90%.
For details, please refer to Page 296.

Safety standards

List of safety standards acquired→Please refer to Page 307

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, PBB, 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

40mm sq.

San Ace 40

20mm thick (GA type), 28mm thick (GA type)



■ **General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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)

40×40×20mm [Mass : 35g]

GA type

High air flow



Specifications

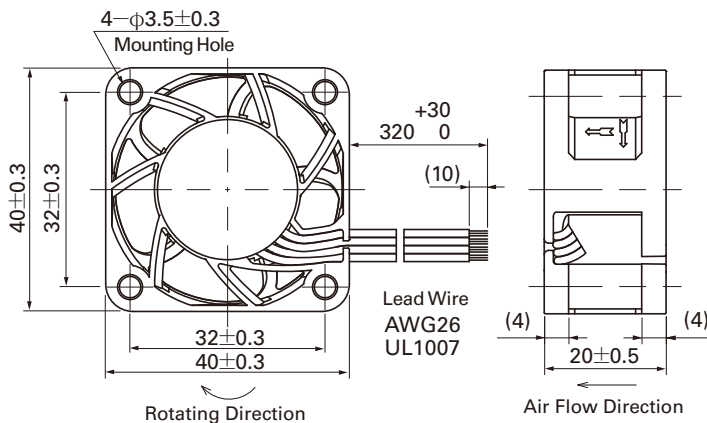
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]	
9GA0405P6H001 ^(Note)	5	4.5 to 5.5	100	0.35	1.75	12,400	0.33	11.7	191	0.77	40	-10 to +70	40,000	
9GA0405P6F001 ^(Note)			100	0.18	0.9	8,000	0.21	7.4	79.5	0.32	28		60,000	
9GA0412P6G001	12	10.2 to 13.8	100	0.23	2.76	16,000	0.42	14.8	318	1.28	47		40,000	
			0	0.04	0.48	3,800	0.10	3.5	17.9	0.07	14			
9GA0412P6H001			100	0.14	1.68	12,400	0.33	11.7	191	0.77	40		60,000	
			0	0.04	0.48	3,800	0.10	3.5	17.9	0.07	14			
9GA0412P6F001			100	0.08	0.96	8,000	0.21	7.4	79.5	0.32	28			
			0	0.03	0.36	2,200	0.06	2.1	6.0	0.02	10			
9GA0424P6G001 ^(Note)	24	20.4 to 27.6	100	0.13	3.12	16,000	0.42	14.8	318	1.28	47		40,000	
9GA0424P6H001 ^(Note)			100	0.08	1.92	12,400	0.33	11.7	191	0.77	40		60,000	
9GA0424P6F001 ^(Note)			100	0.04	0.96	8,000	0.21	7.4	79.5	0.32	28			

Note: Rated voltage 5V and 24V fans do not rotate when PWM duty cycle is 0%.

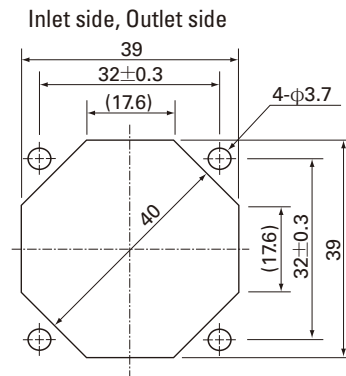
※PWM Frequency : 25kHz

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

Dimensions (Unit : mm)



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



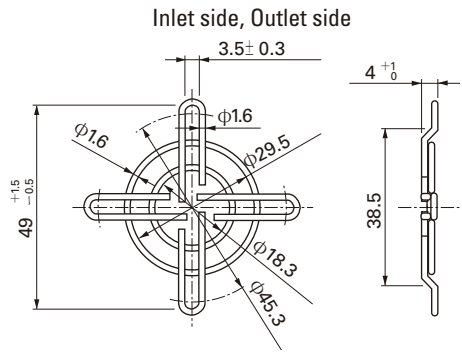
Options (Unit : mm)

Finger guards

Model : 109-059

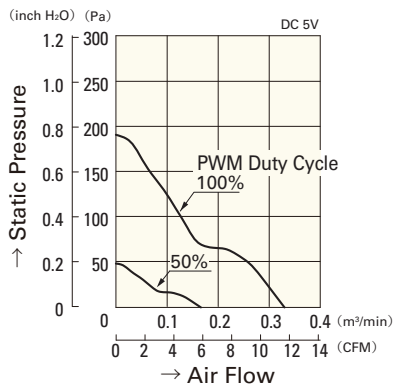
Surface treatment : Nickel-chrome plating (silver)

Color

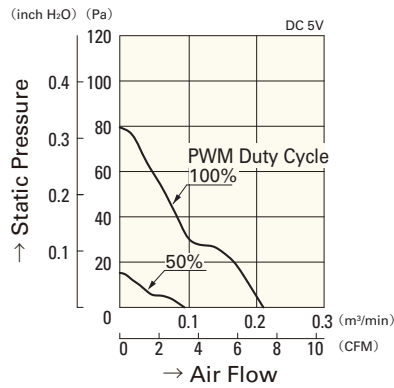


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

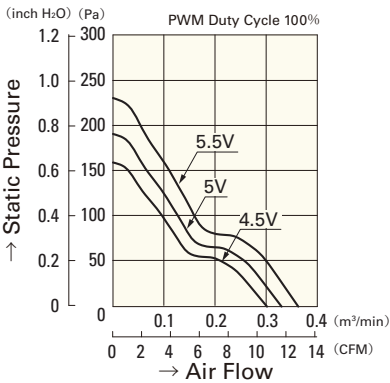


9GA0405P6H001

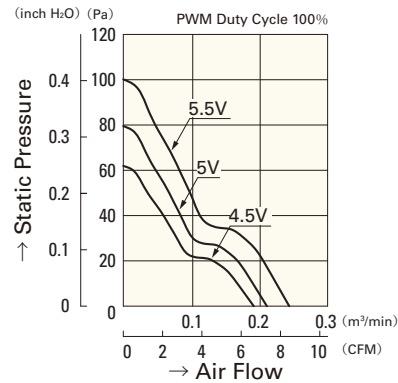


9GA0405P6F001

Operating Voltage Range

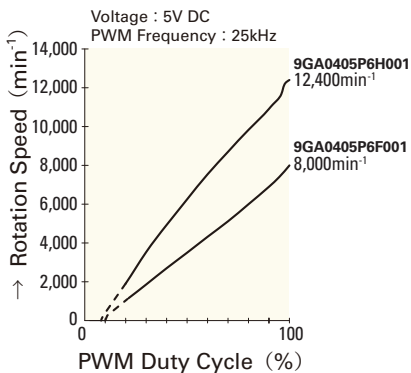


9GA0405P6H001



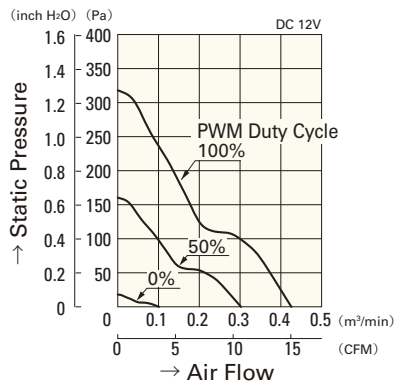
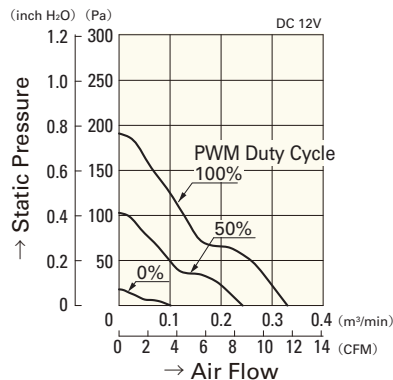
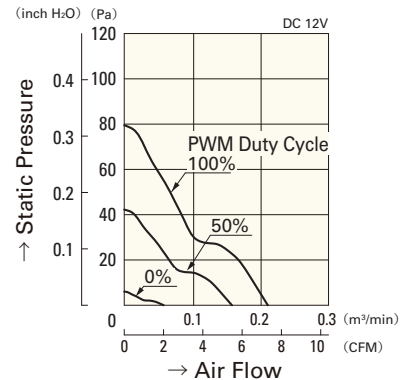
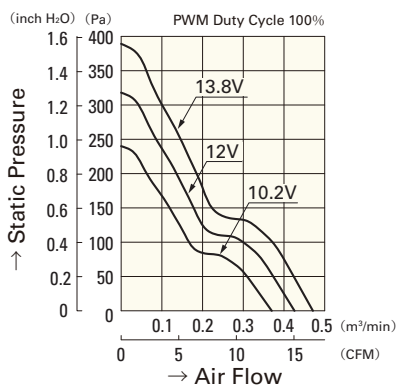
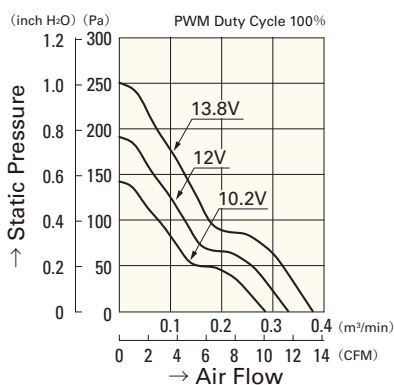
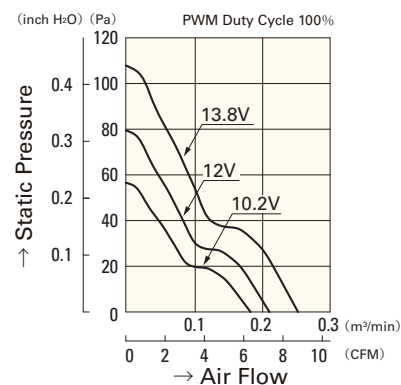
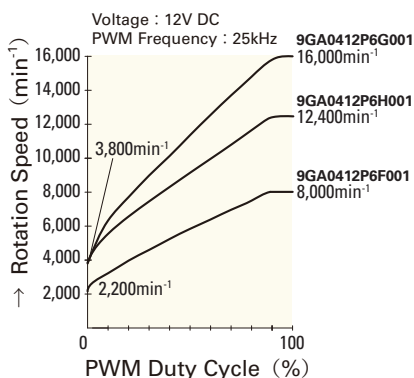
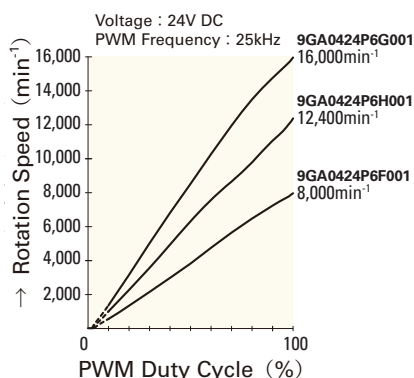
9GA0405P6F001

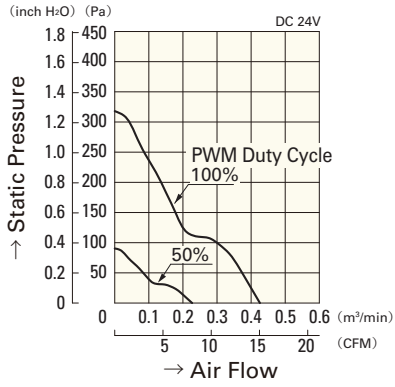
PWM Duty - Speed Characteristics Example



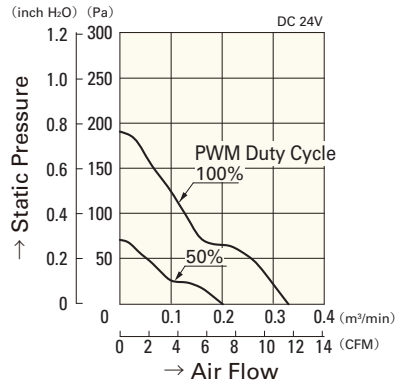
9GA0405P6H001

9GA0405P6F001

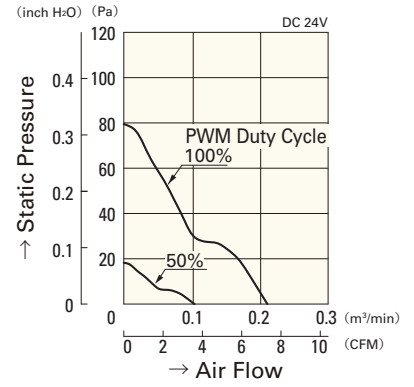
40mm sq.**San Ace 40****40×40×20mm** [Mass : 35g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GA0412P6G001****9GA0412P6H001****9GA0412P6F001****Operating Voltage Range****9GA0412P6G001****9GA0412P6H001****9GA0412P6F001****PWM Duty - Speed Characteristics Example****9GA0412P6G001****9GA0412P6H001****9GA0412P6F001****9GA0424P6G001****9GA0424P6H001****9GA0424P6F001**



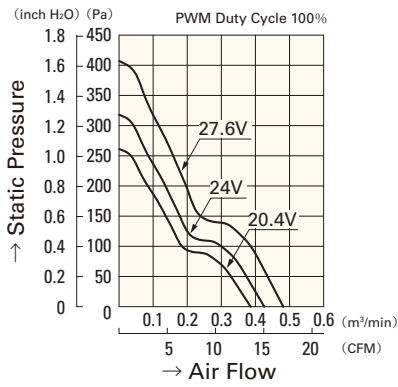
9GA0424P6G001



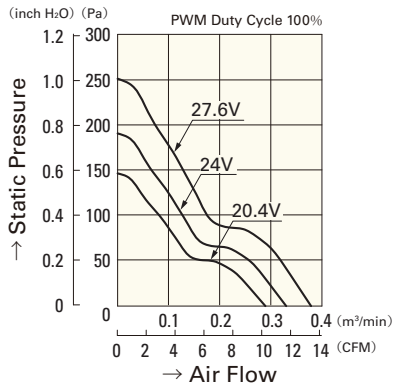
9GA0424P6H001



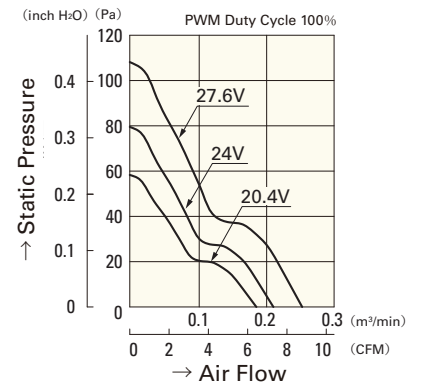
9GA0424P6F001



9GA0424P6G001



9GA0424P6H001



9GA0424P6F001

40mm sq.

San Ace 40

20mm thick (GA type), 28mm thick (GA type)



■ General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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



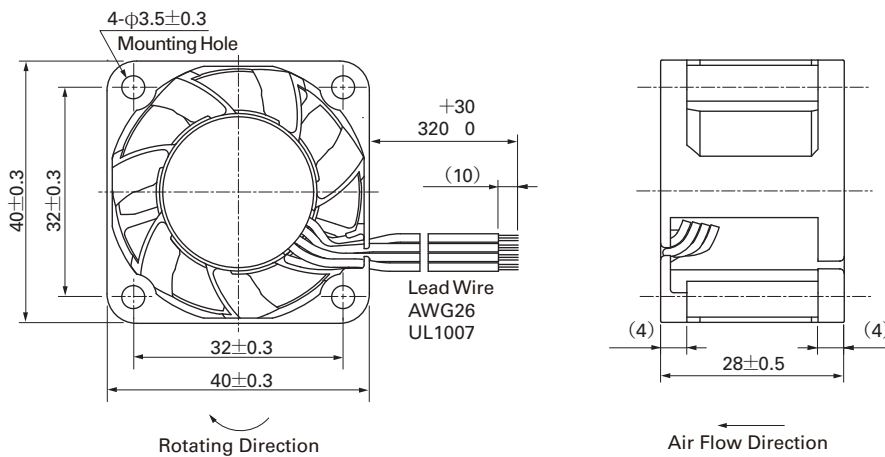
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

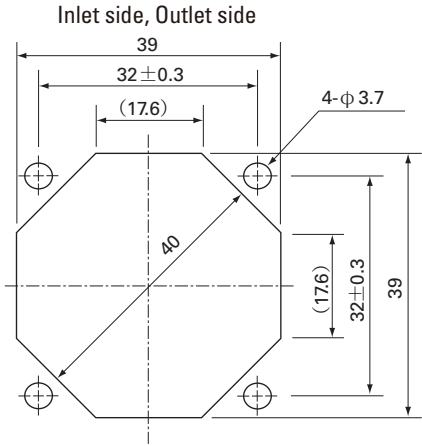
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)

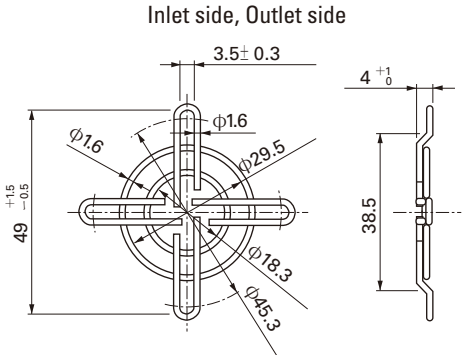


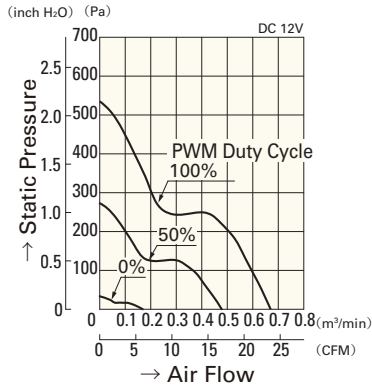
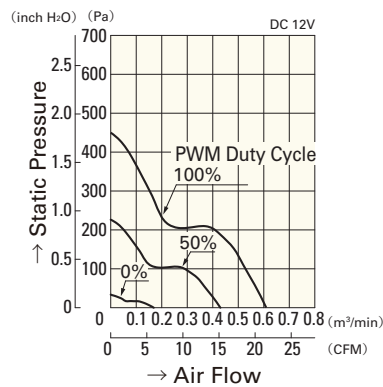
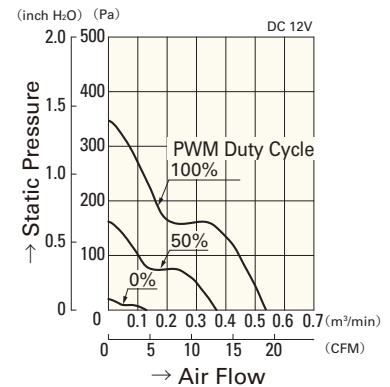
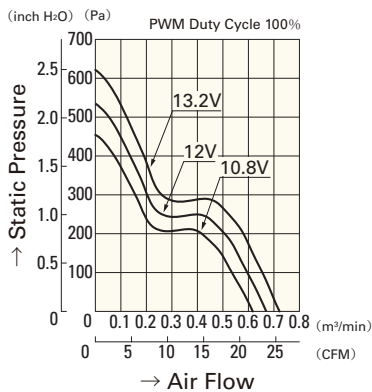
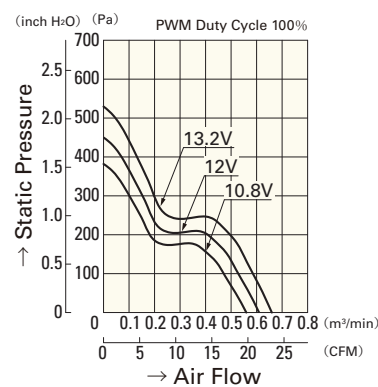
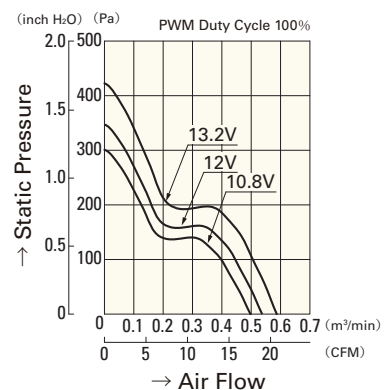
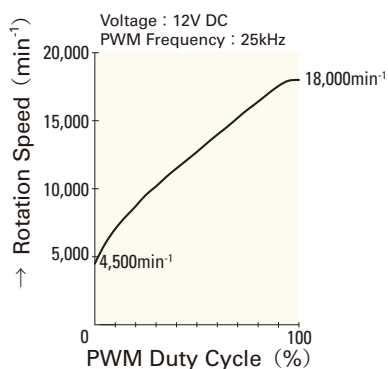
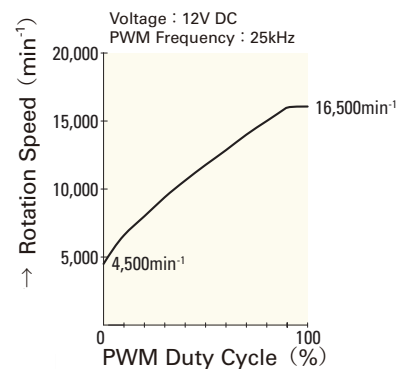
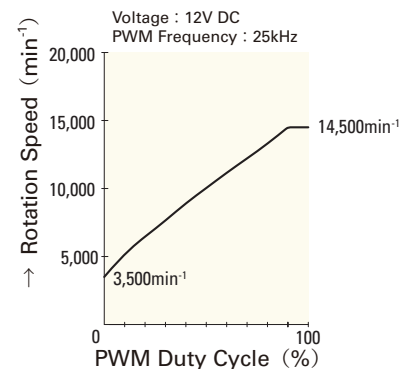
■ Reference dimension of mounting holes and vent opening (Unit : mm)

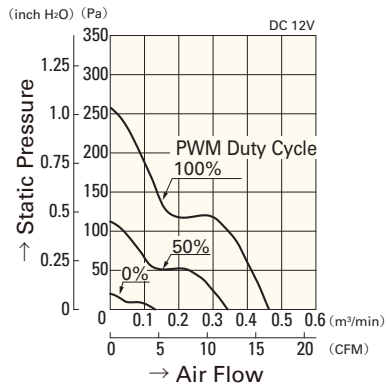


■ Options (Unit : mm)

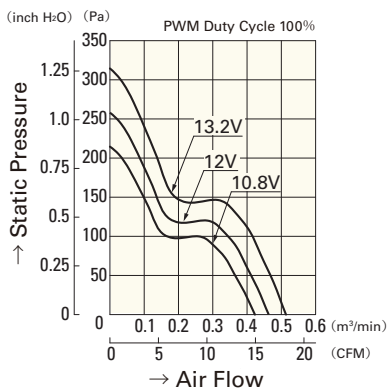
Finger guards
 Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color



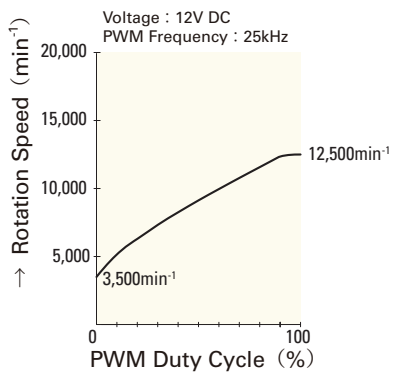
40mm sq.**San Ace 40****40×40×28mm** [Mass : 53g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GA0412P3J01****9GA0412P3G01****9GA0412P3H01****Operating Voltage Range****9GA0412P3J01****9GA0412P3G01****9GA0412P3H01****PWM Duty - Speed Characteristics Example****9GA0412P3J01****9GA0412P3G01****9GA0412P3H01**



9GA0412P3M01



9GA0412P3M01



9GA0412P3M01

52mm sq.

San Ace 52

15mm thick (GA type)



■ **General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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)

52×52×15mm (Mass : 40g)

GA type



Specifications

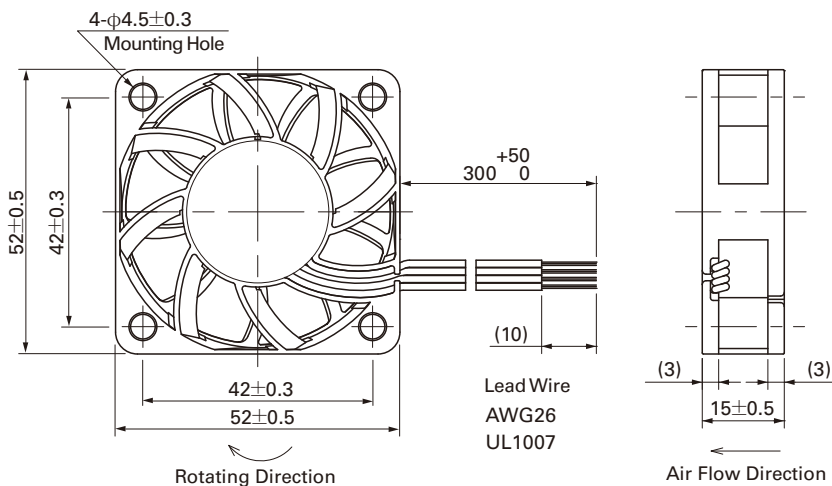
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note②} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GA0512P7G001	12	10.2 to 13.8	100	0.13	1.56	7,800	0.50 17.7	91.5 0.367	38	-10 to +70	40,000
9GA0512P7A001				0.08	0.96	6,300	0.40 14.1	59 0.237	32		
9GA0512P7H001				0.05	0.60	4,300	0.275 9.7	27.5 0.110	22		
9GA0512P7M001				0.04	0.48	3,400	0.215 7.6	17 0.068	16		
9GA0524P7G001	24	20.4 to 27.6	100	0.07	1.68	7,800	0.50 17.7	91.5 0.367	38		
9GA0524P7A001				0.05	1.20	6,300	0.40 14.1	59.0 0.237	32		
9GA0524P7H001				0.03	0.72	4,300	0.275 9.7	27.5 0.110	22		
9GA0524P7M001				0.02	0.48	3,400	0.215 7.6	17.0 0.068	16		

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

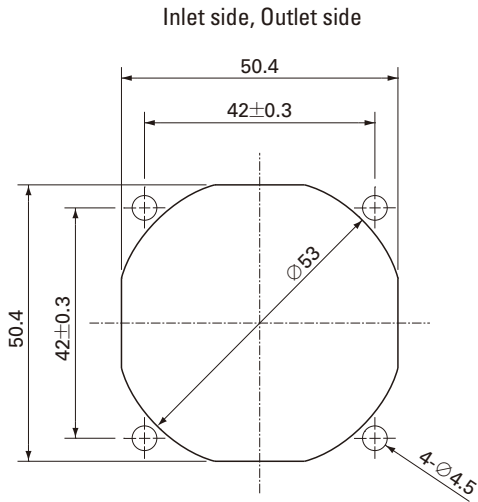
※PWM Frequency : 25kHz

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)

Finger guards

Model : 109-149

Surface treatment : Nickel-chrome plating (silver)

Color

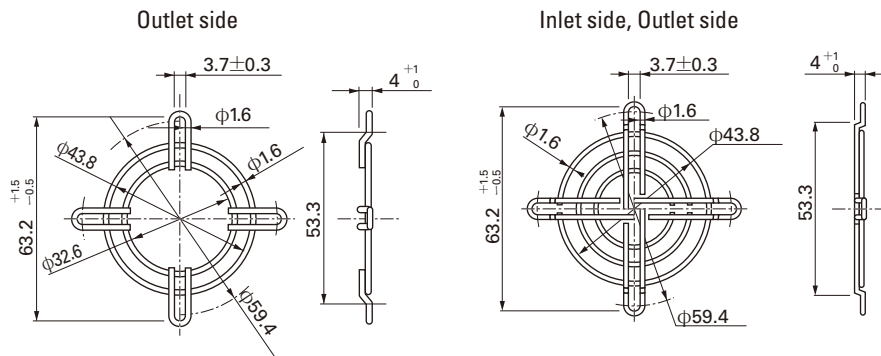
(silver)

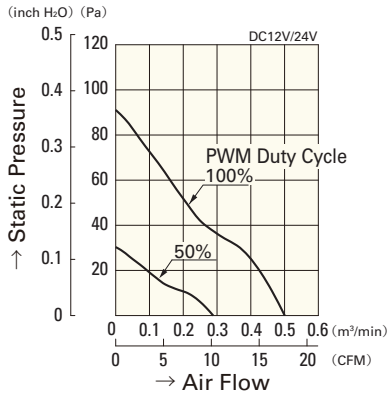
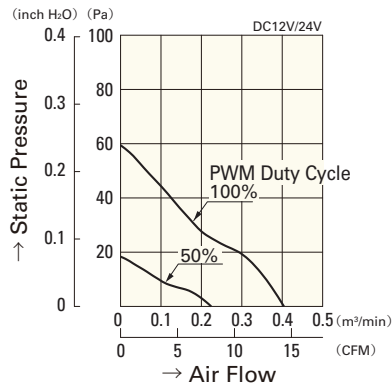
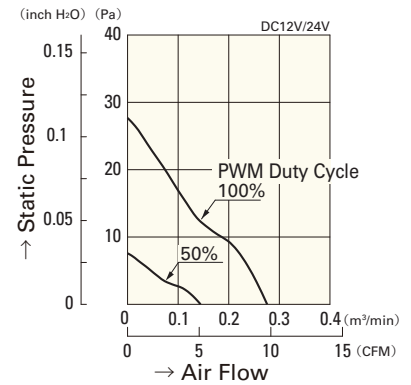
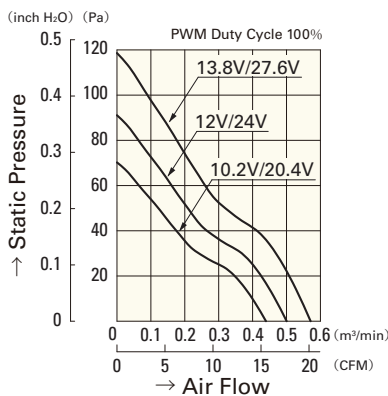
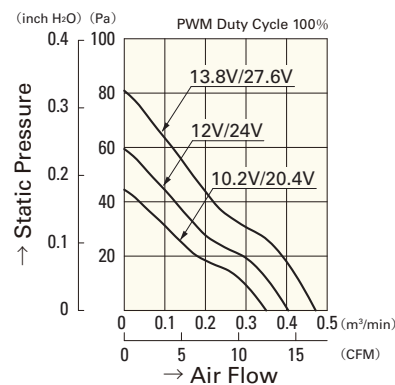
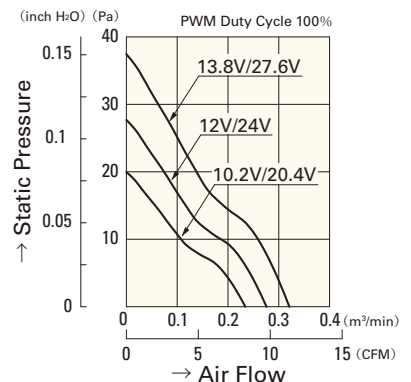
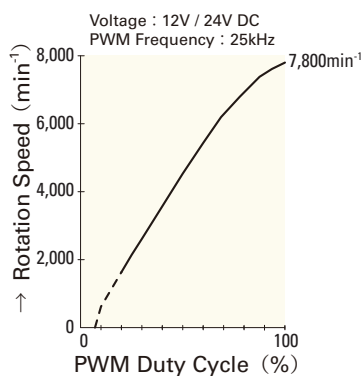
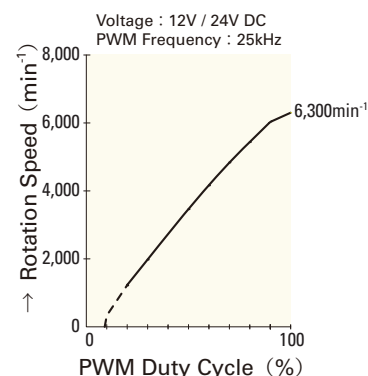
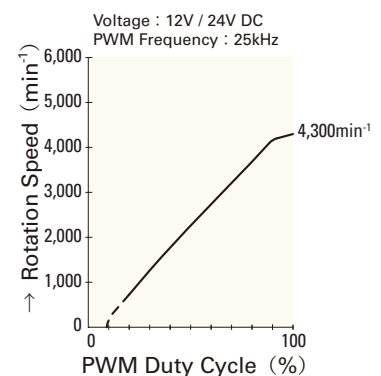
Model : 109-149E

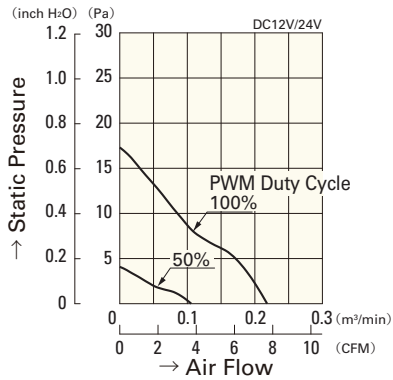
Surface treatment : Nickel-chrome plating (silver)

Color

(silver)

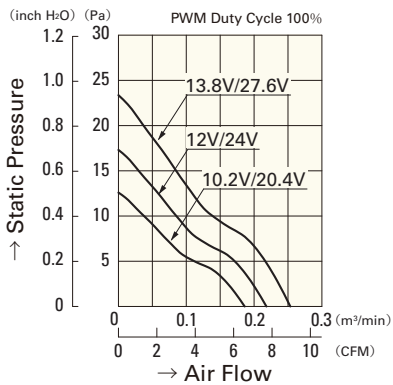


52mm sq.**San Ace 52****52×52×15mm** [Mass : 40g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GA0512P7G001****9GA0524P7G001****9GA0512P7A001****9GA0524P7A001****9GA0512P7H001****9GA0524P7H001****Operating Voltage Range****9GA0512P7G001****9GA0524P7G001****9GA0512P7A001****9GA0524P7A001****9GA0512P7H001****9GA0524P7H001****PWM Duty - Speed Characteristics Example****9GA0512P7G001****9GA0524P7G001****9GA0512P7A001****9GA0524P7A001****9GA0512P7H001****9GA0524P7H001**



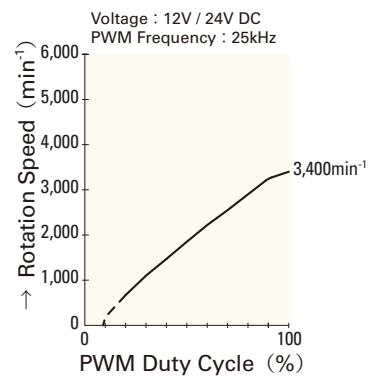
9GA0512P7M001

9GA0524P7M001



9GA0512P7M001

9GA0524P7M001



9GA0512P7M001

9GA0524P7M001

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 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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 × 15mm [Mass : 50g]

GA type



Specifications

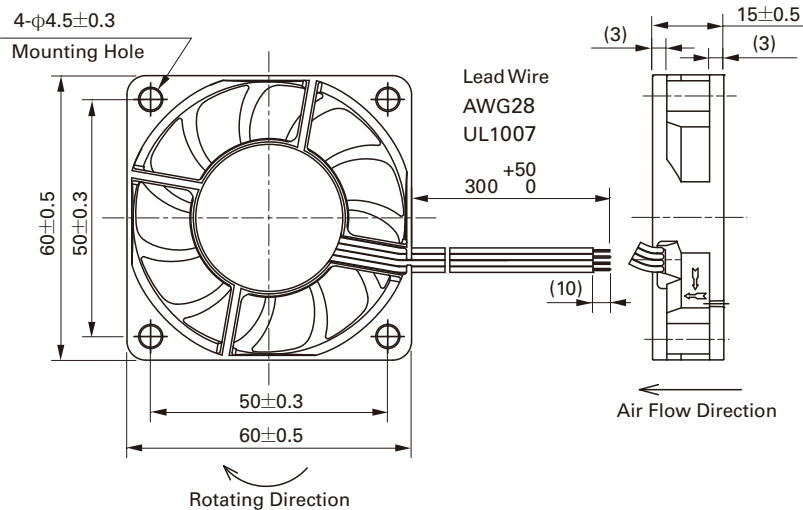
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^{Typ} [h]
9GA0612P7G01	12	10.2 to 13.8	100	0.16	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.

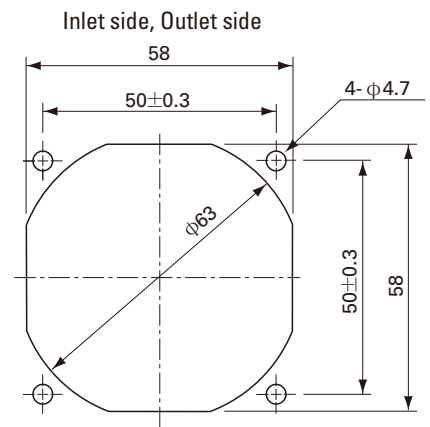
※PWM Frequency : 25kHz

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

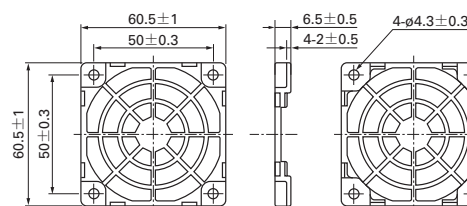
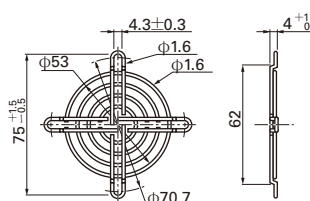
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)

Color

Resin finger guards

Model : 109-1003G

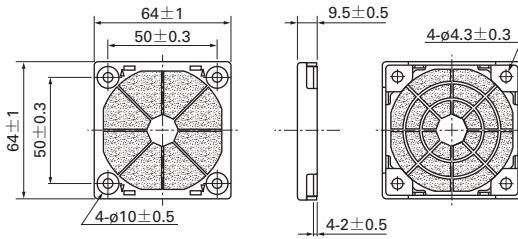
Inlet side, Outlet side



Options (Unit : mm)

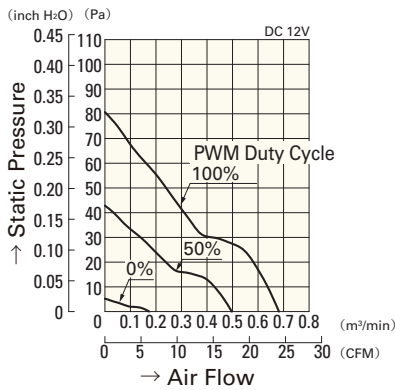
Resin filter kits

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

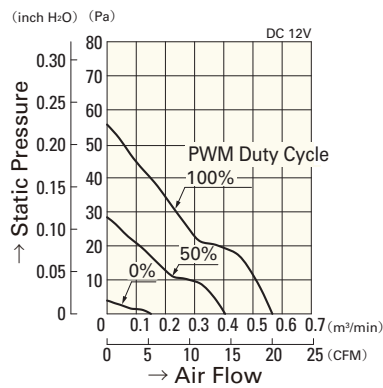


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

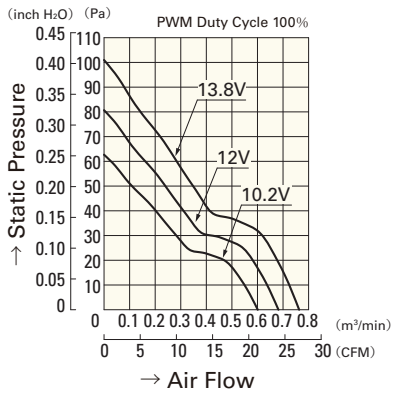


9GA0612P7G01

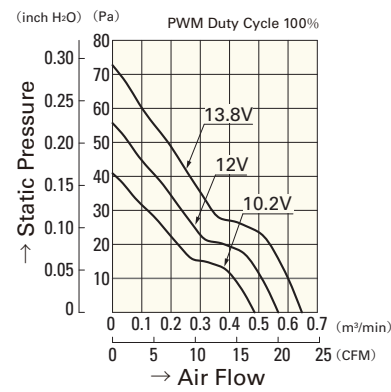


9GA0612P7H01

Operating Voltage Range

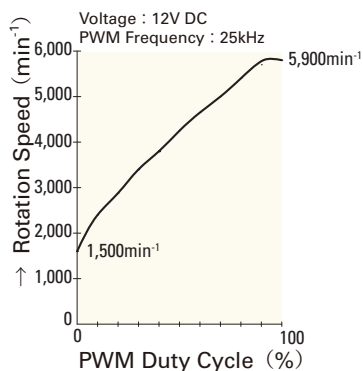


9GA0612P7G01

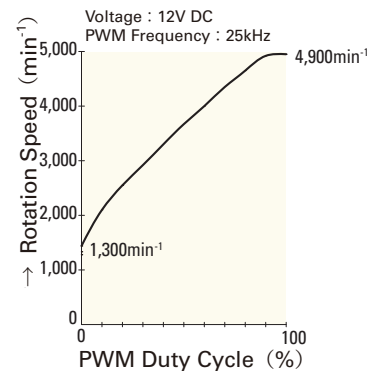


9GA0612P7H01

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 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^{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

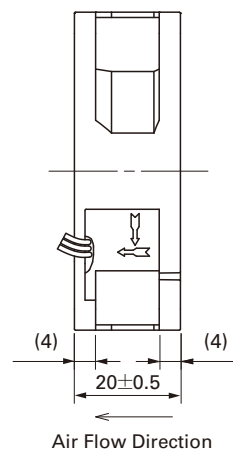
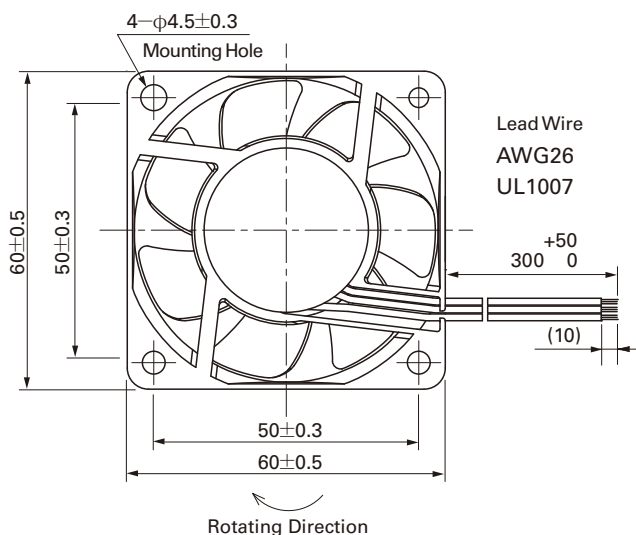
With pulse sensor

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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.

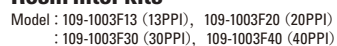
Dimensions (Unit : mm)



Low Power Consumption Fan 60mm

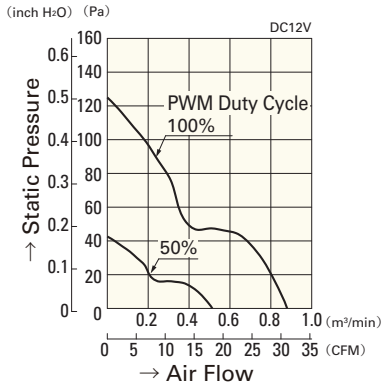


Inlet side, Outlet side

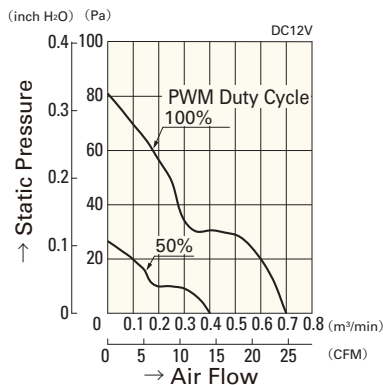


60mm sq.**San Ace 60****60×60×20mm** [Mass : 70g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle**

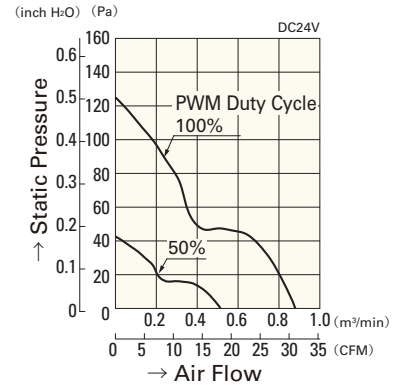
With PWM speed control function • With pulse sensor

**9GA0612P6G001**

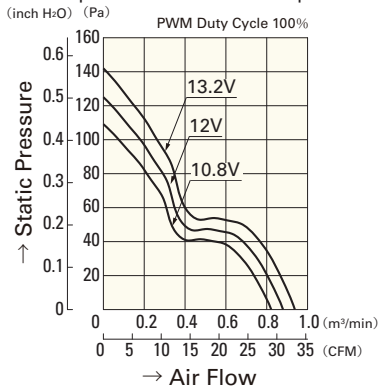
With PWM speed control function • With pulse sensor

**9GA0612P6S001**

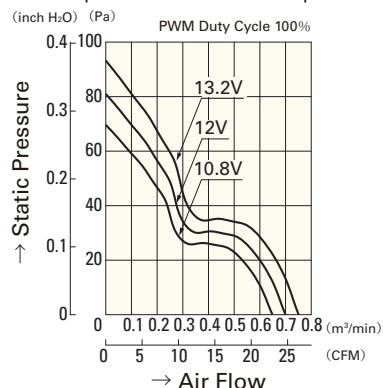
With PWM speed control function • With pulse sensor

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

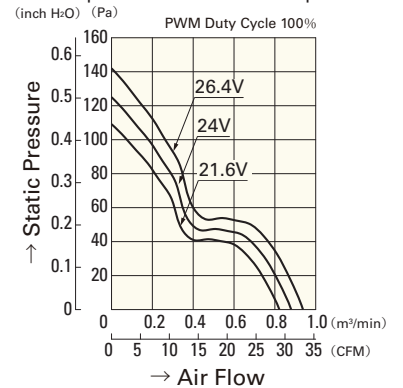
With PWM speed control function • With pulse sensor

**9GA0612P6G001**

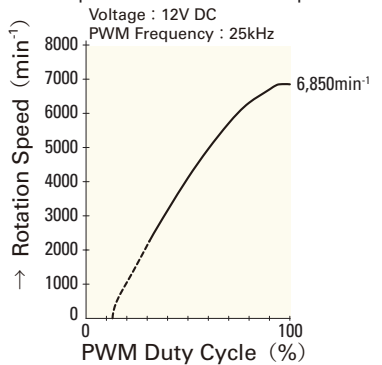
With PWM speed control function • With pulse sensor

**9GA0612P6S001**

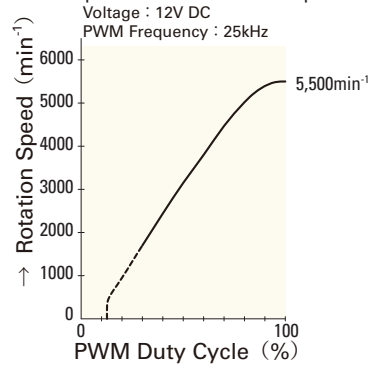
With PWM speed control function • With pulse sensor

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

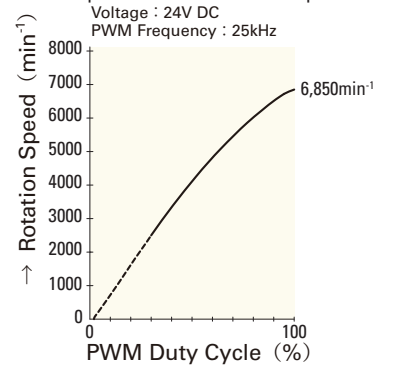
With PWM speed control function • With pulse sensor

**9GA0612P6G001**

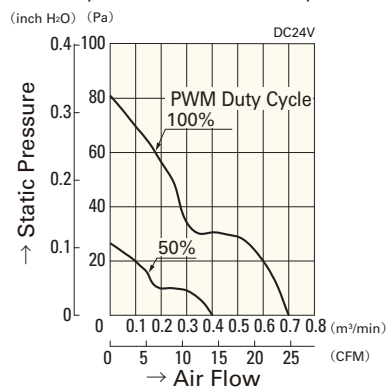
With PWM speed control function • With pulse sensor

**9GA0612P6S001**

With PWM speed control function • With pulse sensor

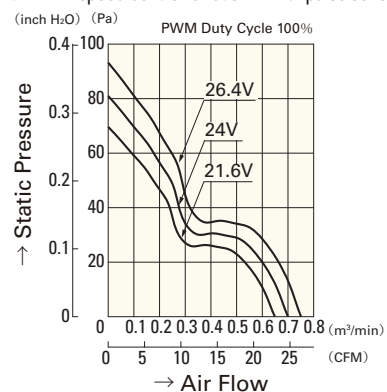
**9GA0624P6G001**

With PWM speed control function • With pulse sensor



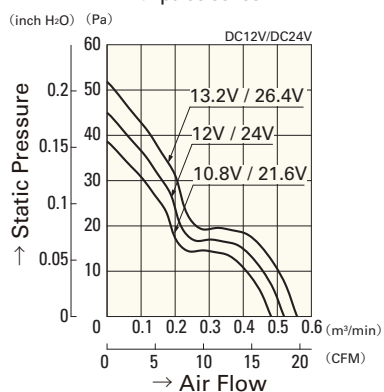
9GA0624P6S001

With PWM speed control function • With pulse sensor



9GA0624P6S001

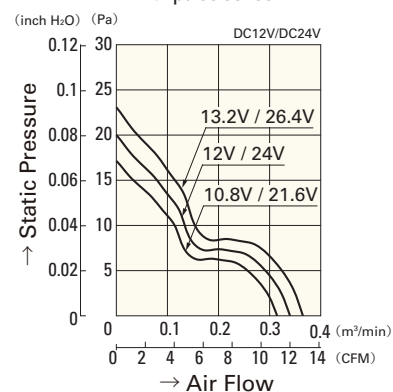
With pulse sensor



9GA0612H6001

9GA0624H6001

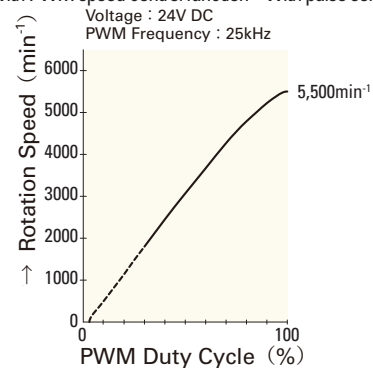
With pulse sensor



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 297

With PWM speed control function Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^{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			

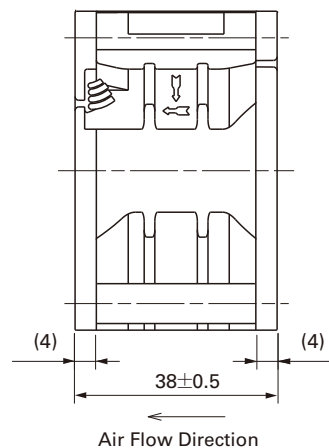
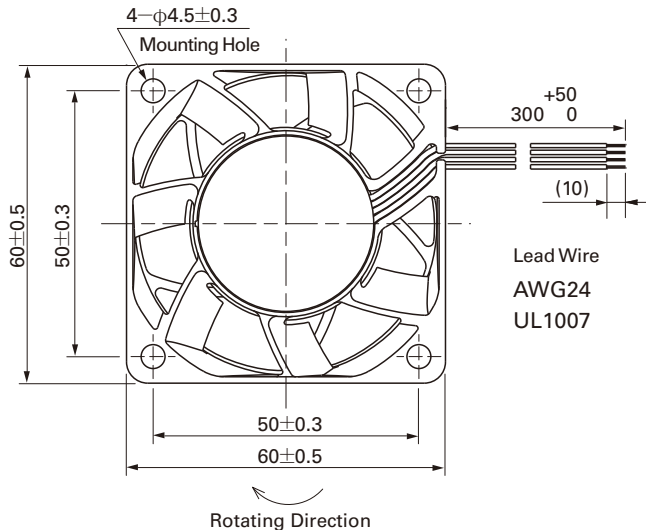
Note 1: 9GA0612P1J03(031), 9GA0612P1K03(031), 9GA0612P1H03(031) does not rotate when PWM duty cycle is 0%.

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

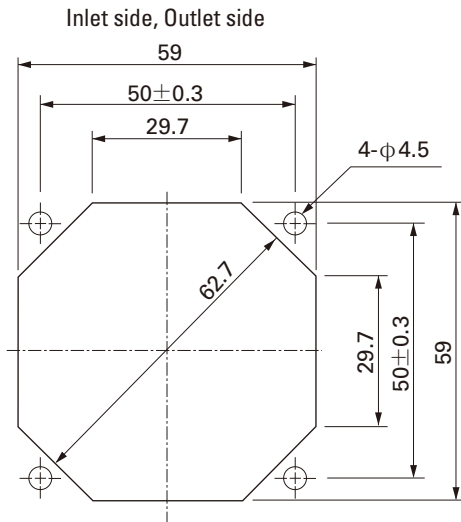
※PWM Frequency : 25kHz

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)

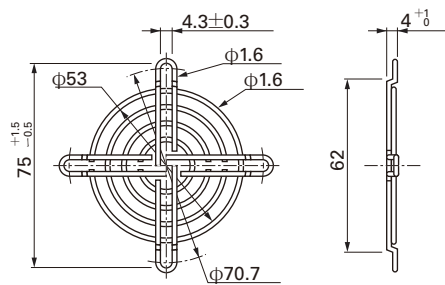


Options (Unit : mm)

Finger guards

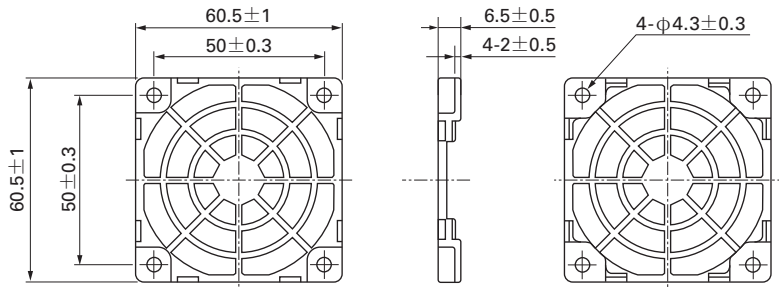
Model : 109-139E Surface treatment : Nickel-chrome plating (silver) Color : 109-139H : Cation electropainting (black)

Inlet side, Outlet side



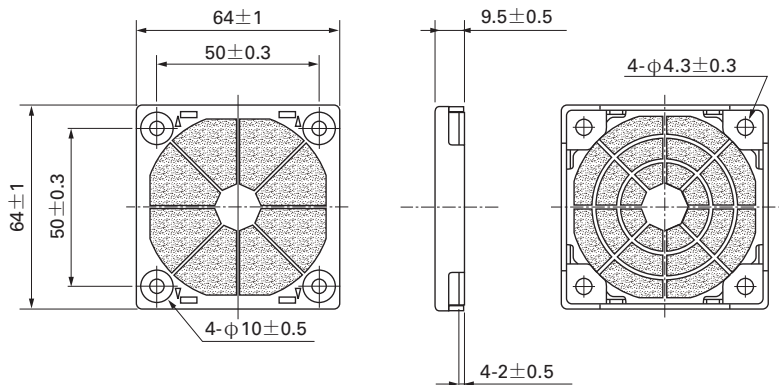
Resin finger guards

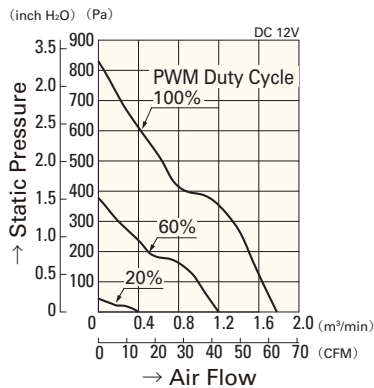
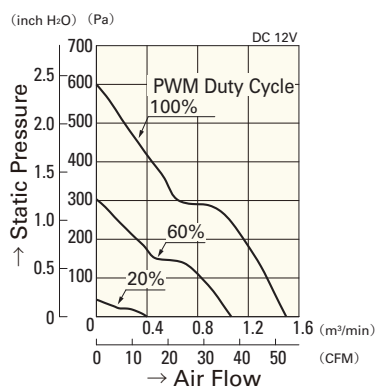
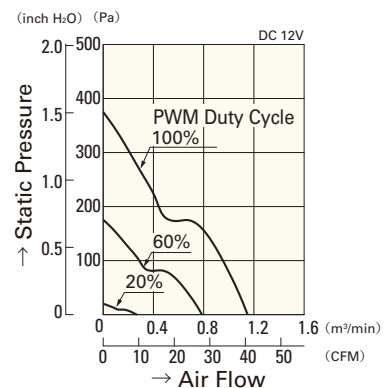
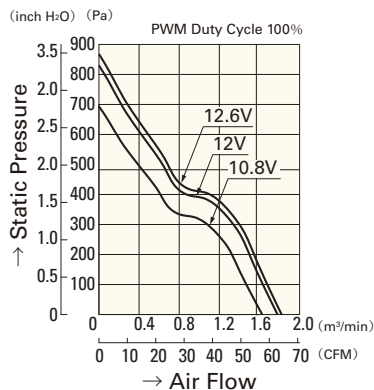
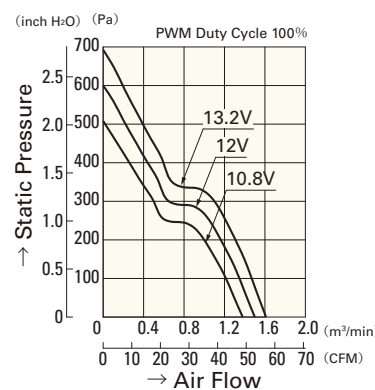
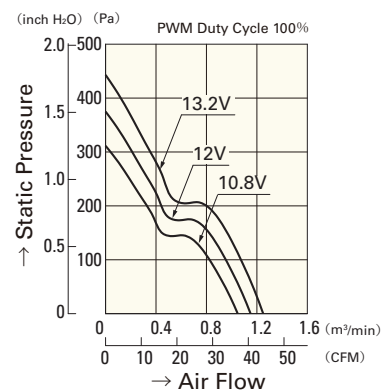
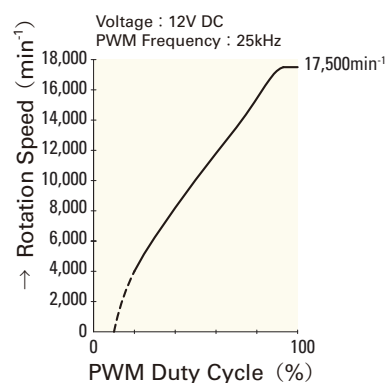
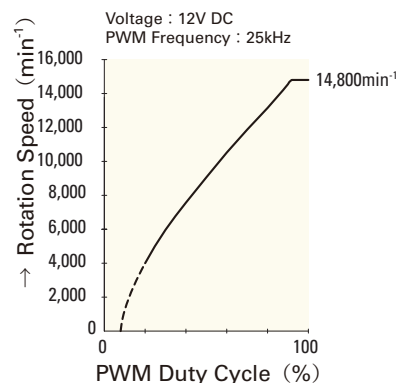
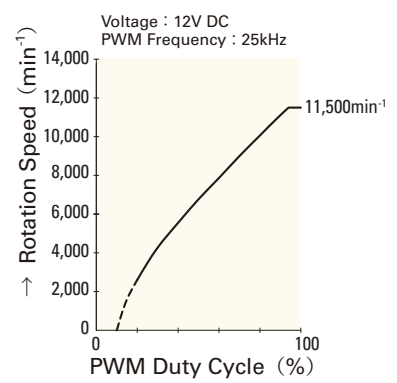
Model : 109-1003G

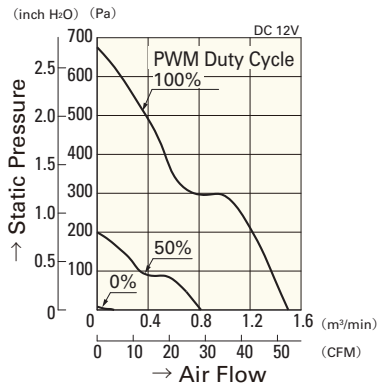


Resin filter kits

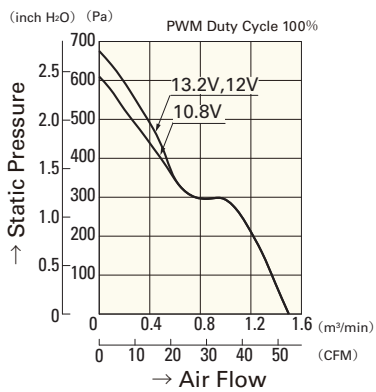
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



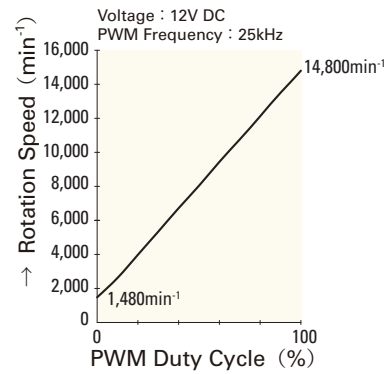
60mm sq.**San Ace 60****60×60×38mm** [Mass : 130g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GA0612P1J03(031)****9GA0612P1K03(031)****9GA0612P1H03(031)****Operating Voltage Range****9GA0612P1J03(031)****9GA0612P1K03(031)****9GA0612P1H03(031)****PWM Duty - Speed Characteristics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



9GA0612P1K60(601)



9GA0612P1K60(601)



9GA0612P1K60(601)

80mm sq.

San Ace 80

32mm thick (GA type), 38mm thick (GA type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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)

80×80×32mm [Mass : 130g]

GA type

High air flow



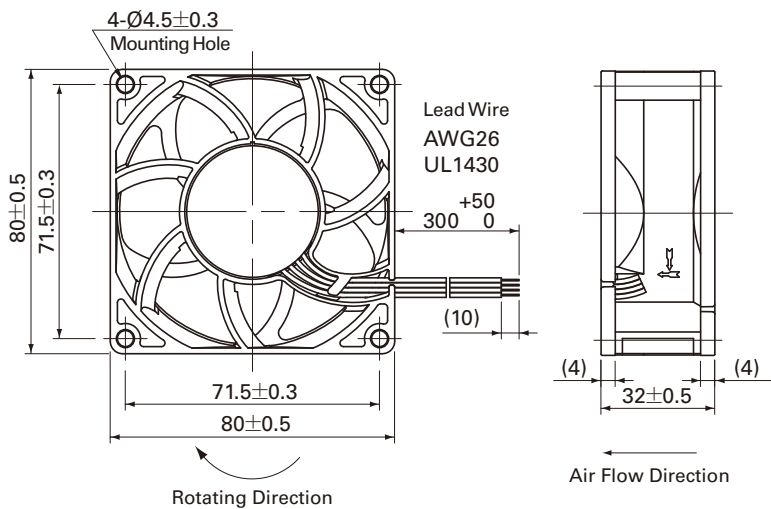
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GA0812P2S001(0011)	12	10.2 to 13.8	100	0.83	9.96	9,700	2.45 86.5	360 1.45	57	-10 to +70	40,000
			0	0.08	0.96	2,800	0.71 25.1	30 0.12	24		
9GA0812P2H001(0011)			100	0.59	7.08	8,700	2.20 77.7	294 1.18	54		
			0	0.05	0.6	2,600	0.66 23.3	26 0.105	21		
9GA0824P2S001(0011)	24	20.4 to 27.6	100	0.42	10.1	9,700	2.45 86.5	360 1.45	57		
			0	0.05	1.2	2,800	0.71 25.1	30 0.12	24		

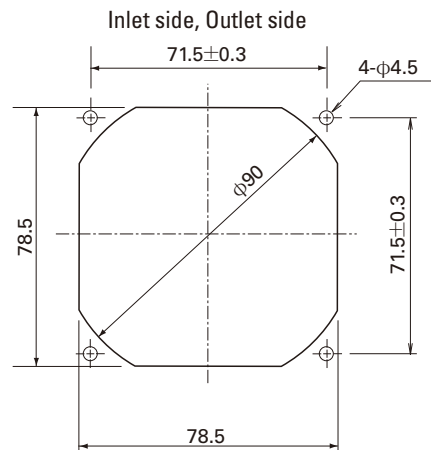
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)



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

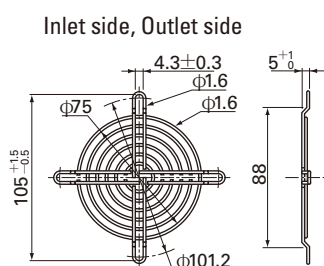
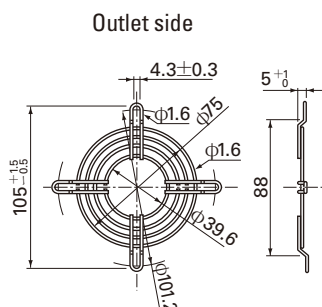


Options (Unit : mm)

Finger guards

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

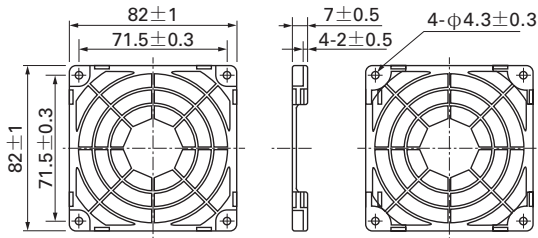
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)



Options (Unit : mm)

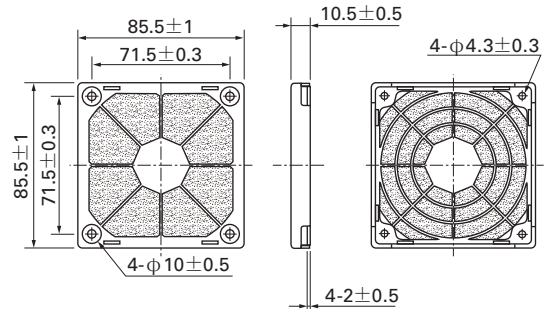
Resin finger guards

Model : 109-1002G



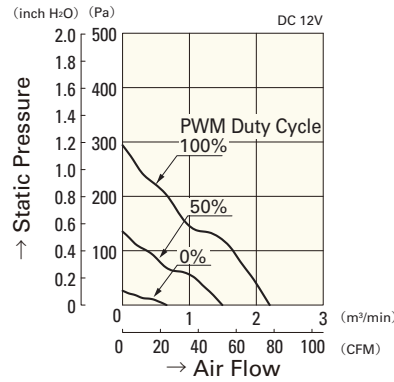
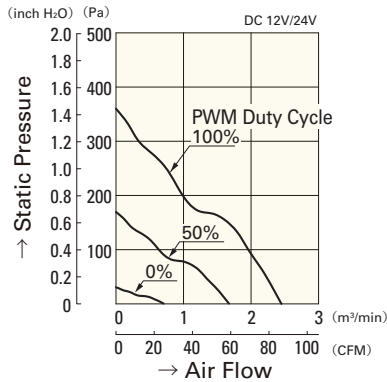
Resin filter kits

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



Air Flow - Static Pressure Characteristics

PWM Duty Cycle

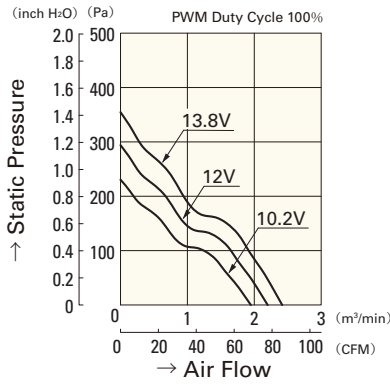
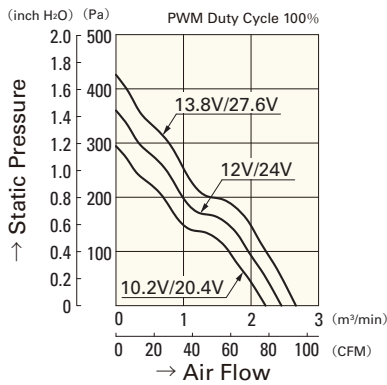


9GA0812P2S001(0011)

9GA0812P2H001(0011)

9GA0824P2S001(0011)

Operating Voltage Range

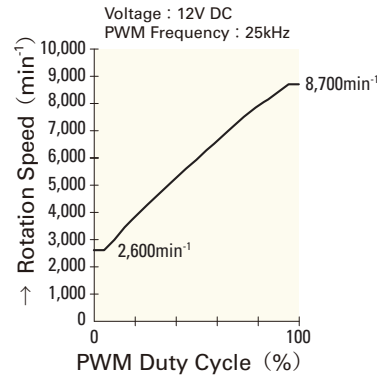
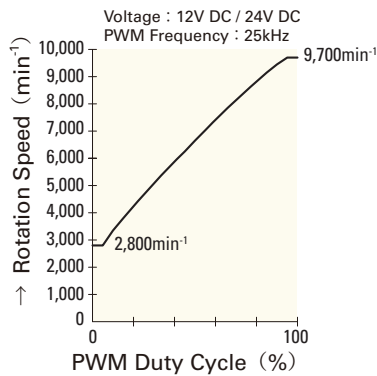


9GA0812P2S001(0011)

9GA0812P2H001(0011)

9GA0824P2S001(0011)

PWM Duty - Speed Characteristics Example



9GA0812P2S001(0011)

9GA0812P2H001(0011)

9GA0824P2S001(0011)

80mm sq.

San Ace 80

32mm thick (GA type), 38mm thick (GA type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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.

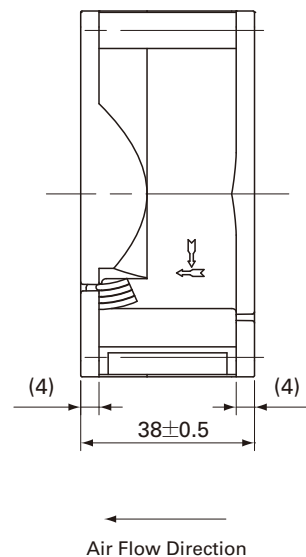
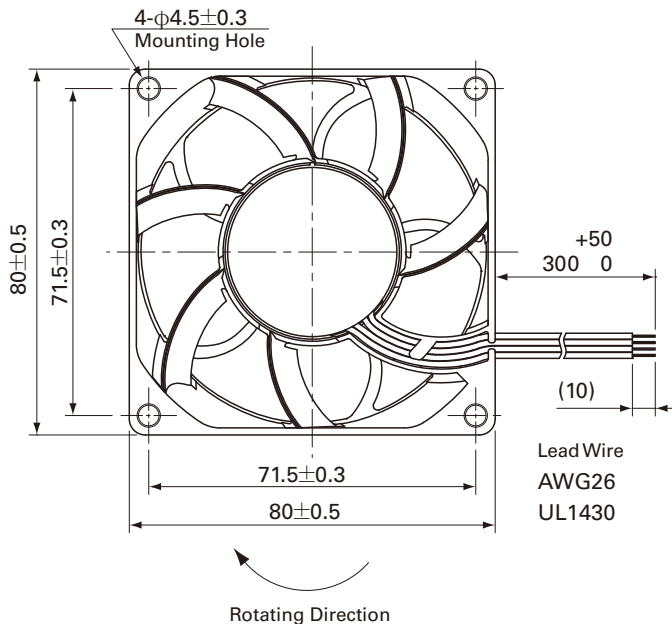
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^(Note) [h]
9GA0812P1S61(611)	12	10.8 to 13.2	100	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.

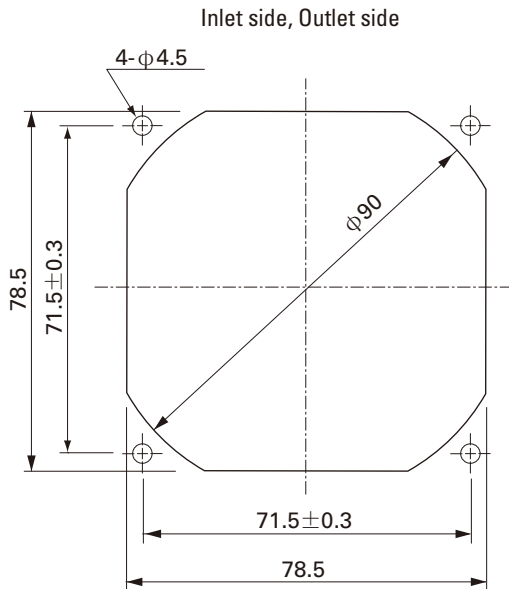
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)



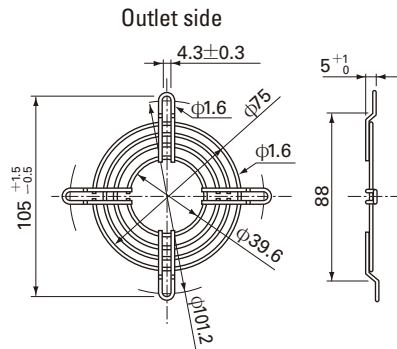
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

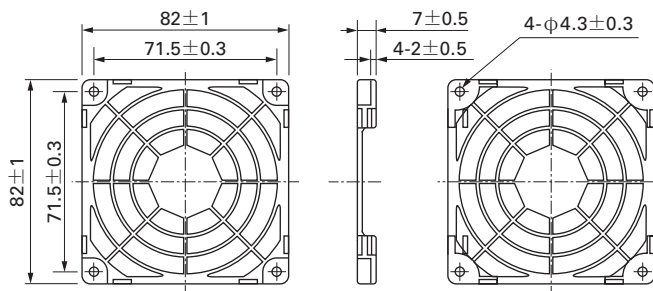
Finger guards

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

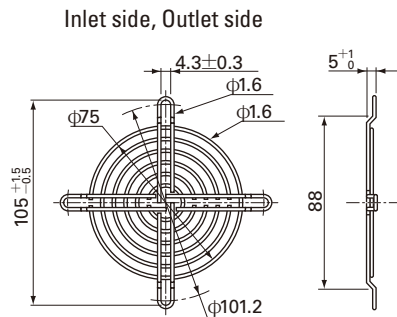


Resin finger guards

Model : 109-1002G

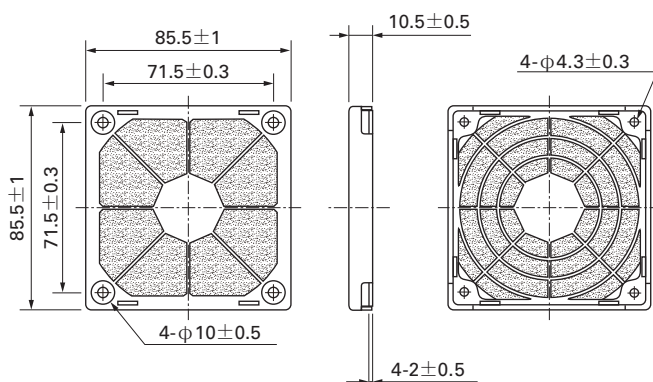


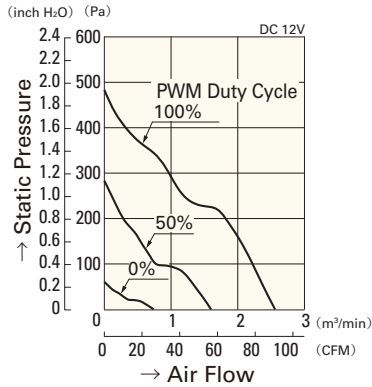
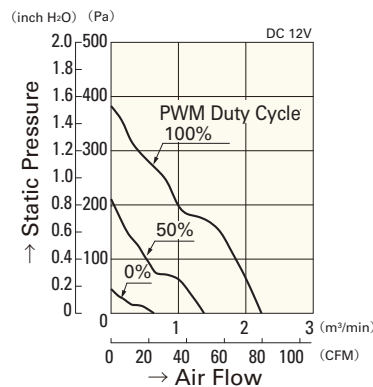
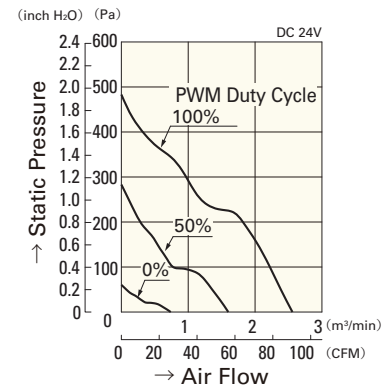
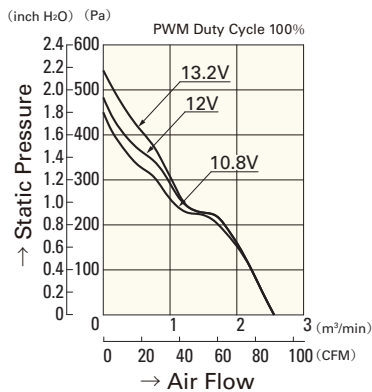
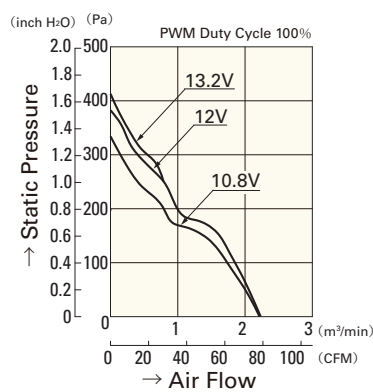
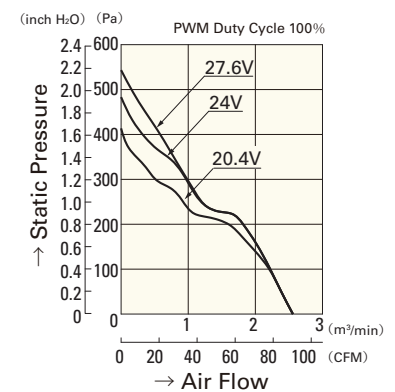
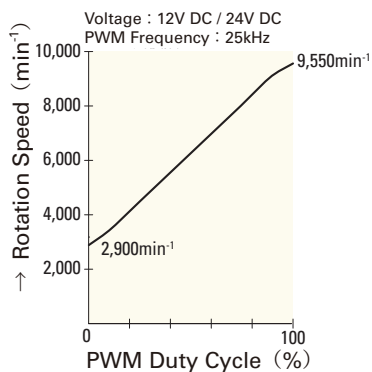
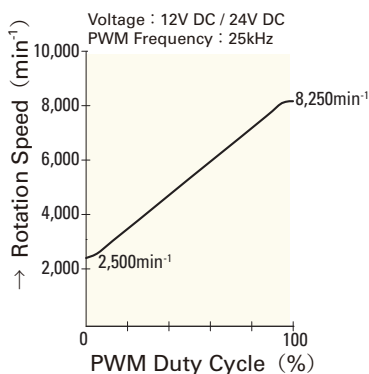
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)

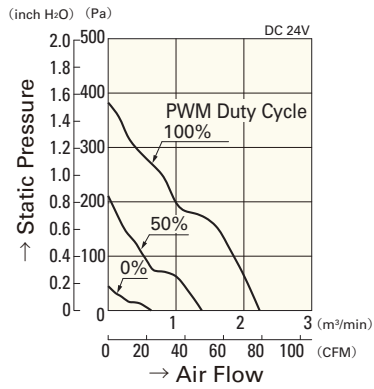


Resin filter kits

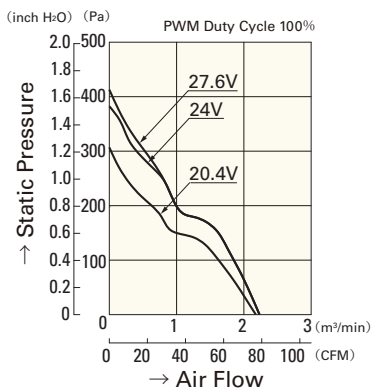
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



80mm sq.**San Ace 80****80×80×38mm** [Mass : 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), 38mm thick (GA type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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



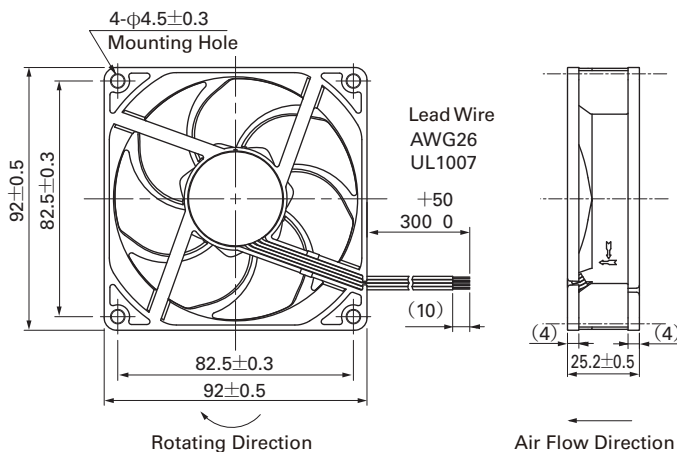
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

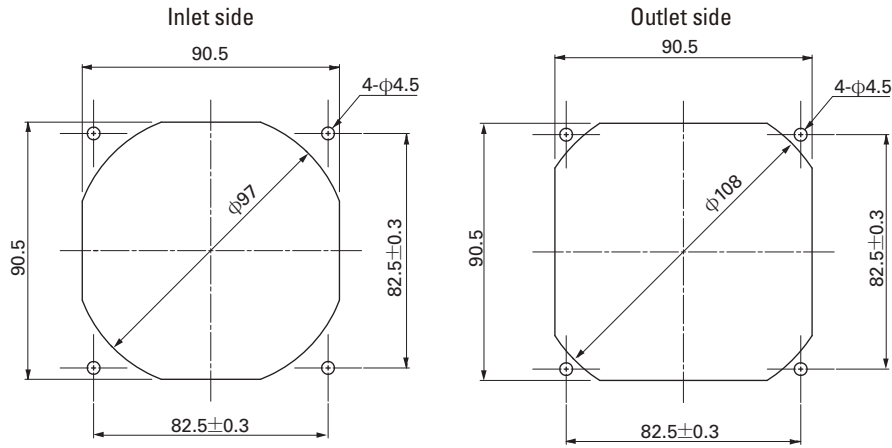
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm) (With ribs)



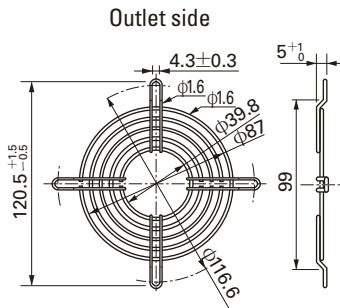
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

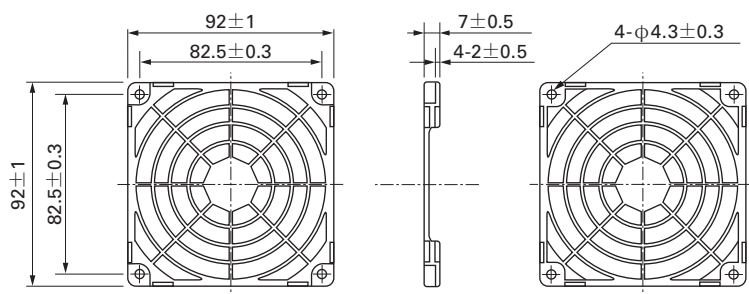
Finger guards

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

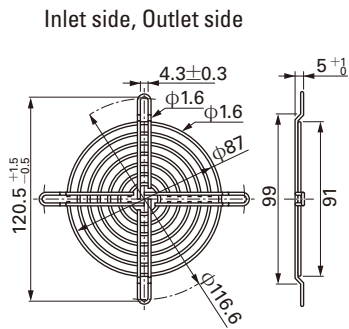


Resin finger guards

Model : 109-1001G

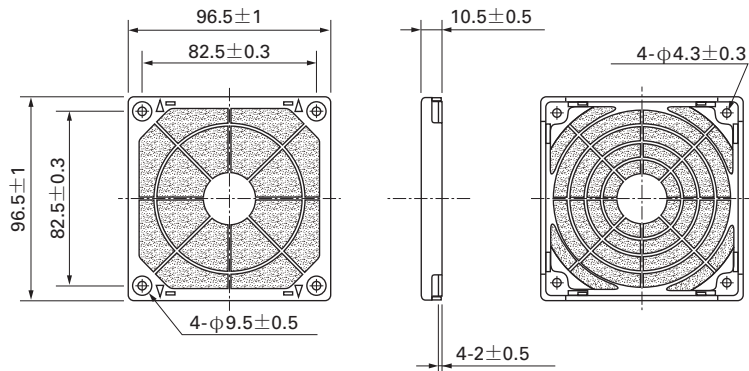


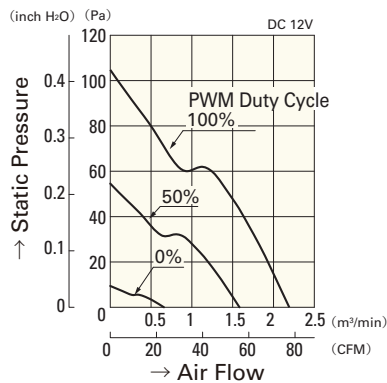
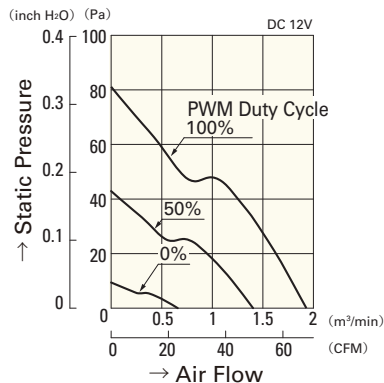
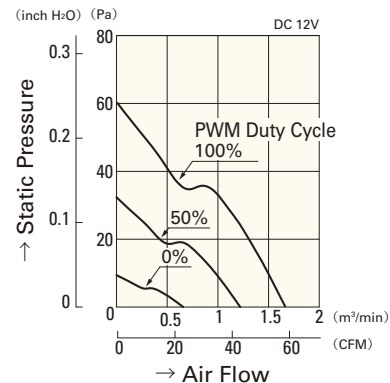
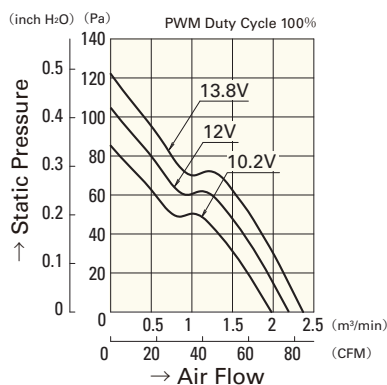
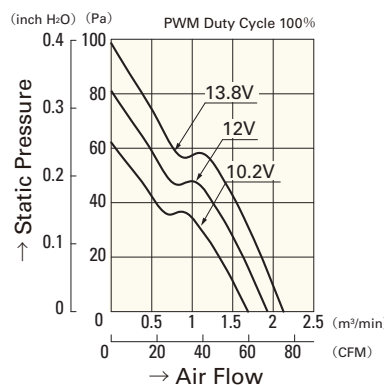
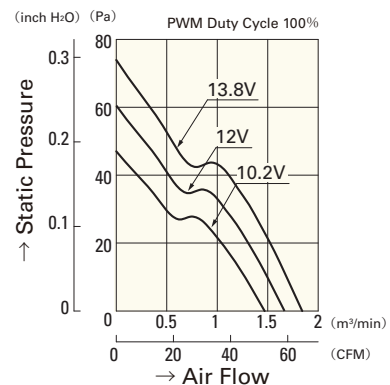
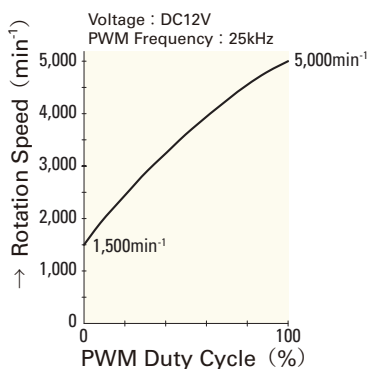
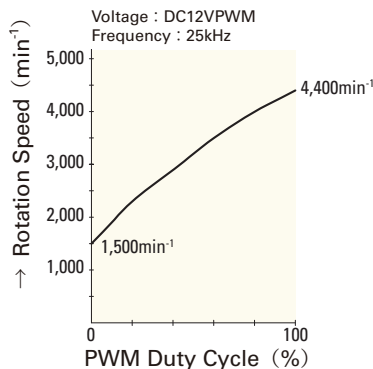
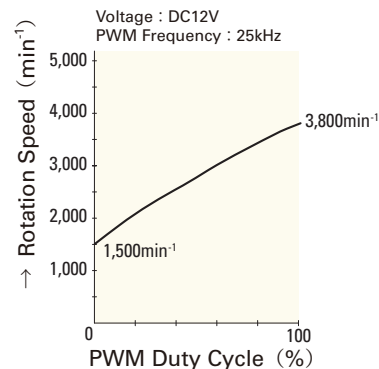
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color : Nickel-chrome plating (silver)
Model : 109-099H Surface treatment : Cation electropainting (black) Color : Cation electropainting (black)

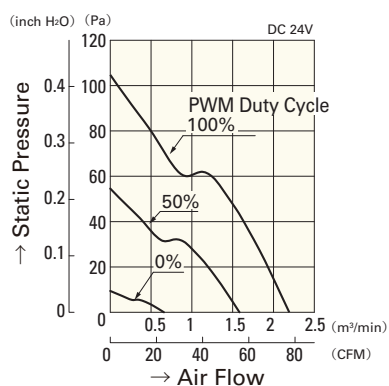
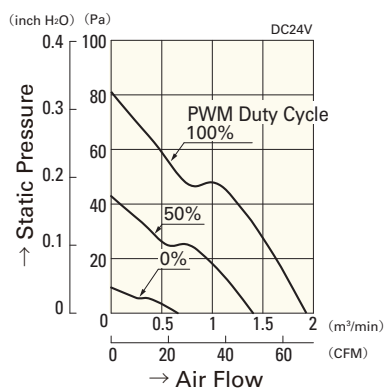
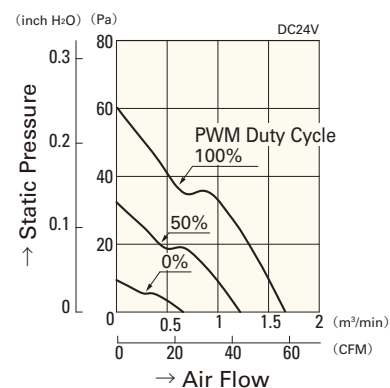
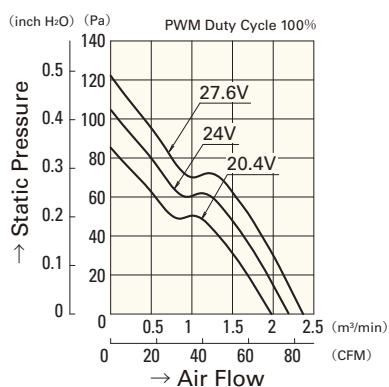
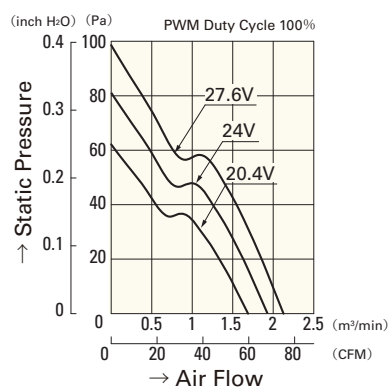
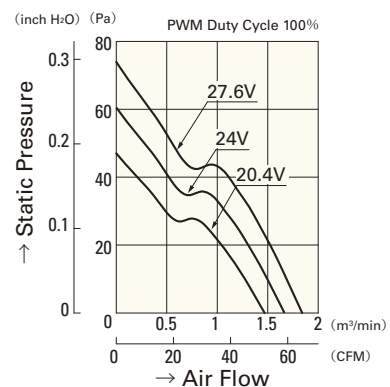
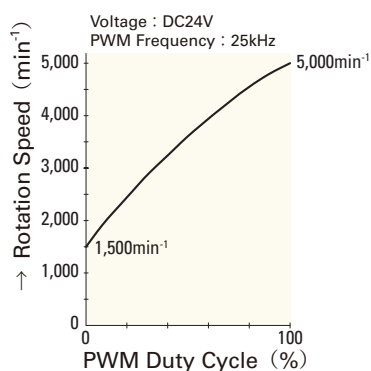
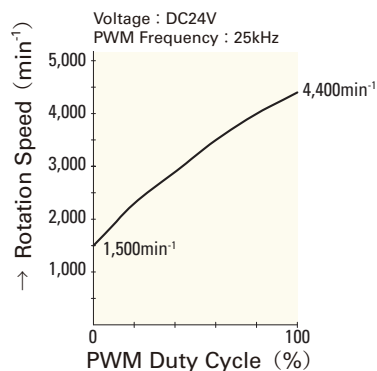
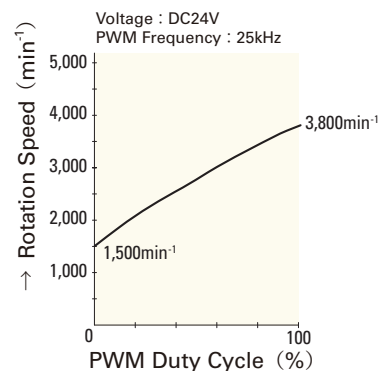


Resin filter kits

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

25mm thick (GA type), 38mm thick (GA type)



General Specifications

With a pulse sensor

Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function

⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1Min.)
- Expected Life 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^(Note2) [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		
9GA0948P1H03 ^(Note1)	48	40.8 to 55.2	100	0.55	26.4	9,700	4.00 141	500 2.01	63		40,000

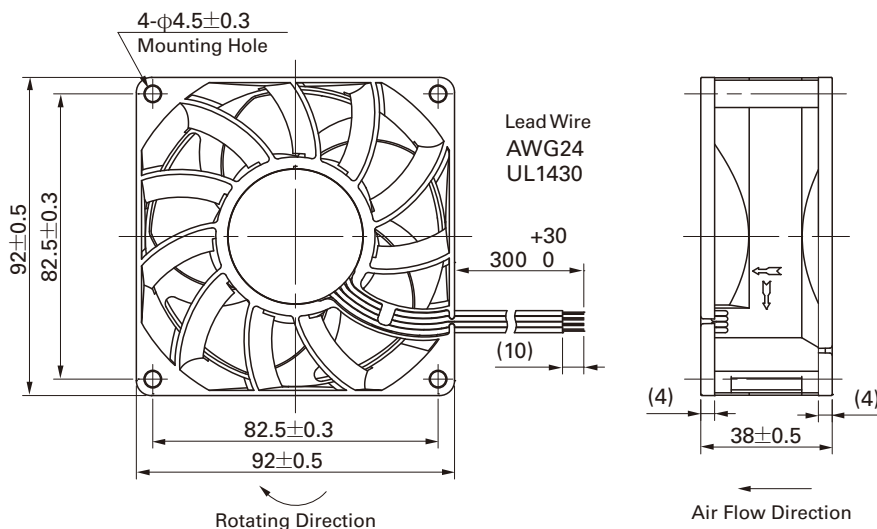
Note 1: Rated voltage 48V fans do not rotate when PWM duty cycle is 0%.

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

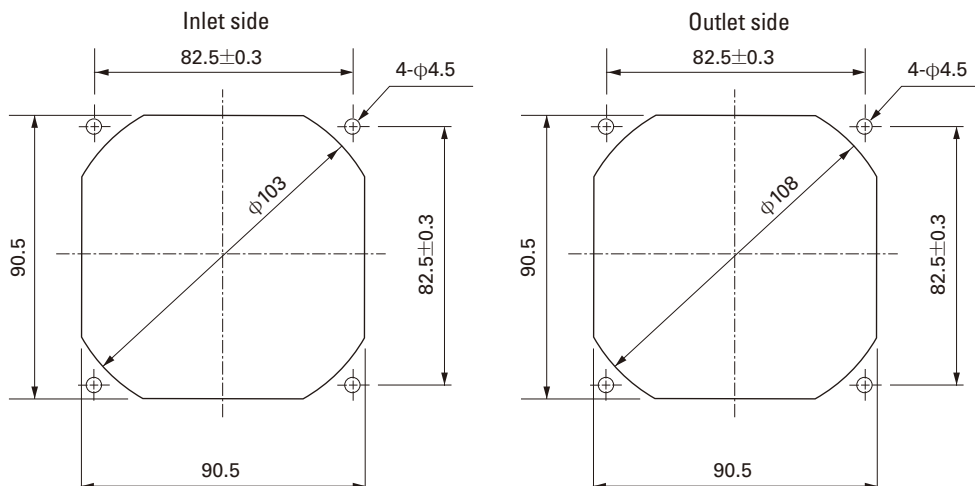
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm) (With ribs)



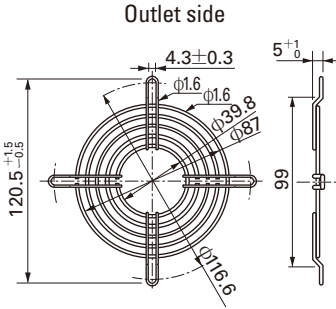
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

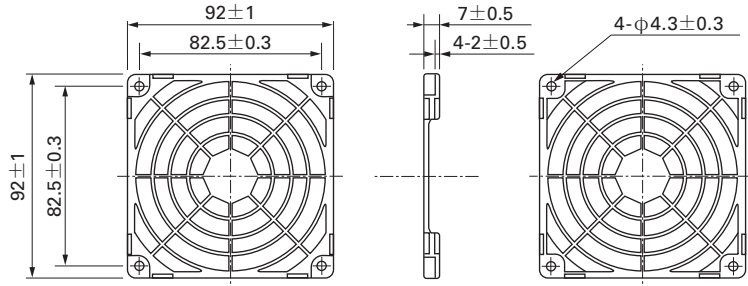
Finger guards

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



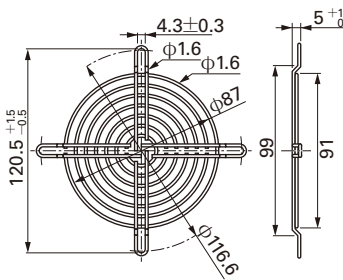
Resin finger guards

Model : 109-1001G



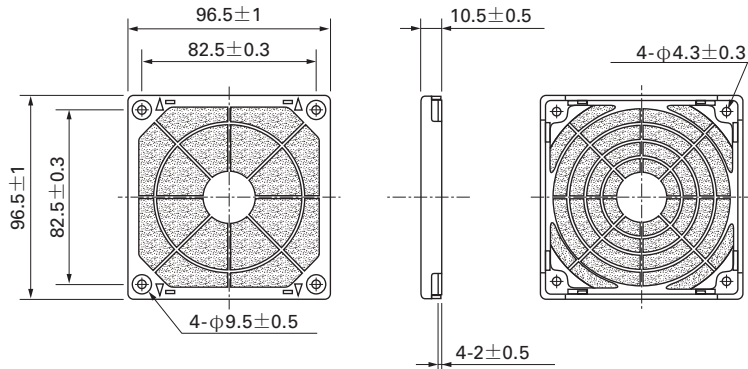
Model : 109-099E Surface treatment : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side



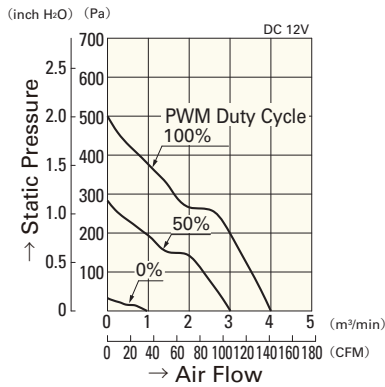
Resin filter kits

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



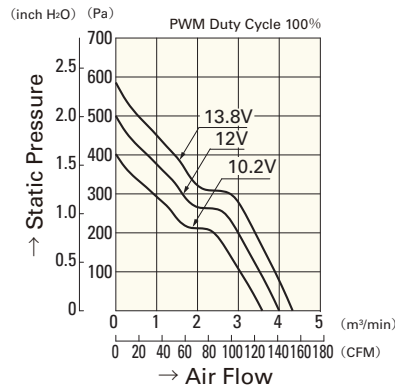
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



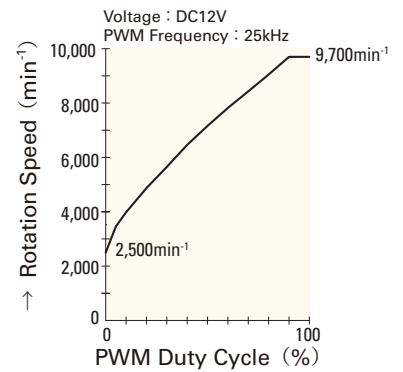
9GA0912P1H03(031)

Operating Voltage Range

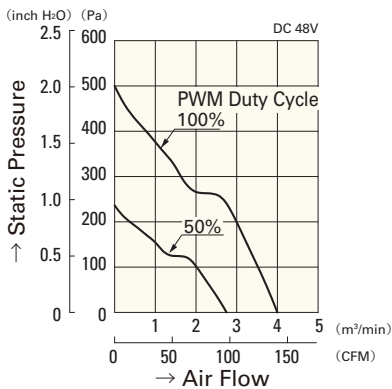


9GA0912P1H03(031)

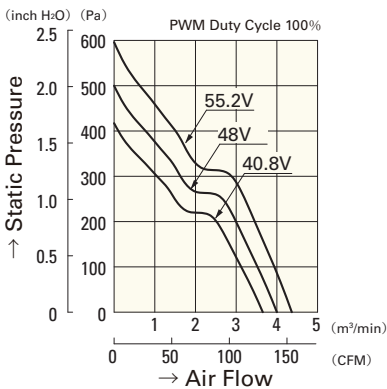
PWM Duty - Speed Characteristics Example



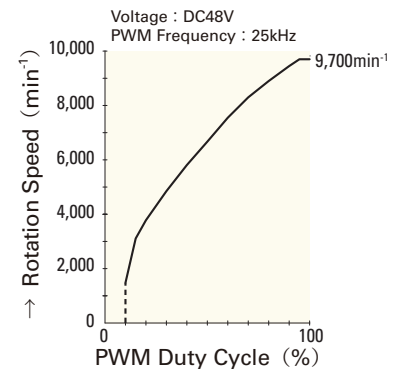
9GA0912P1H03(031)



9GA0948P1H03



9GA0948P1H03



9GA0948P1H03

60mm sq.

San Ace 60

25mm thick (S type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

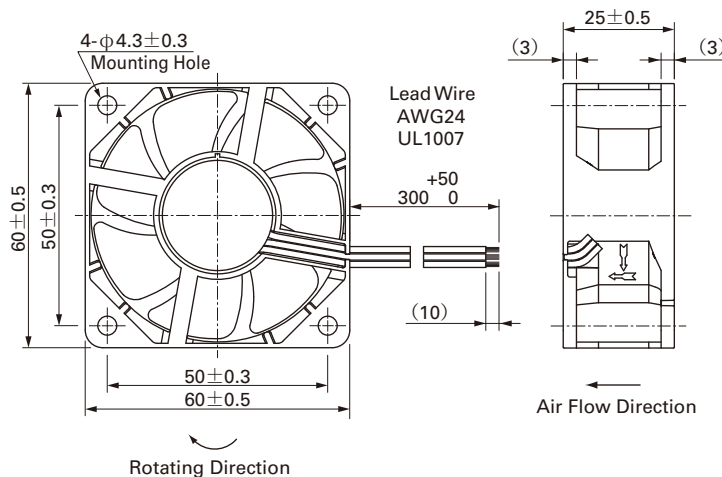
Without Sensor **Pulse Sensor** Available in all models.

Lock Sensor

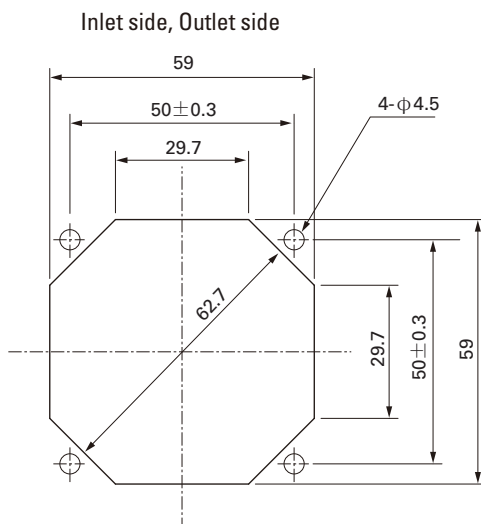
PWM Control

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)



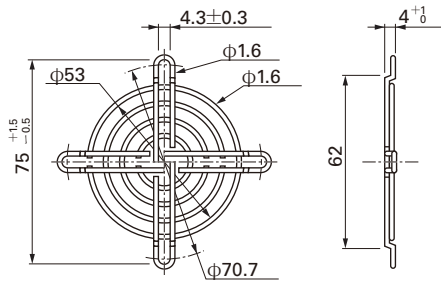
Options (Unit : mm)

Finger guards

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

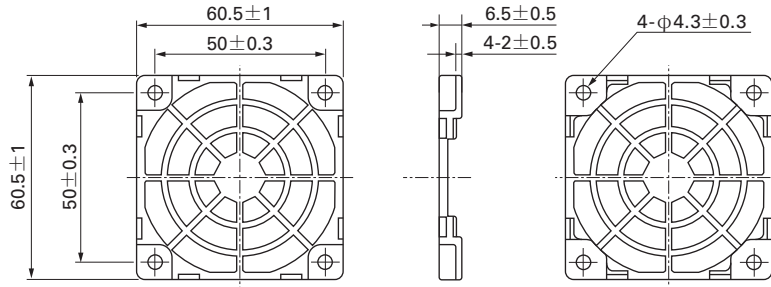
Color

Inlet side, Outlet side



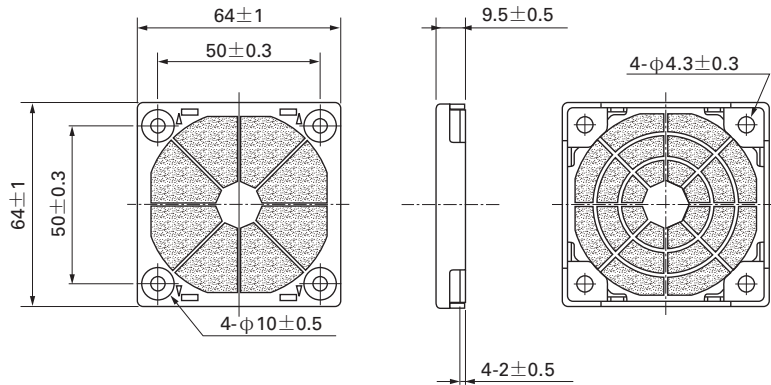
Resin finger guards

Model : 109-1003G

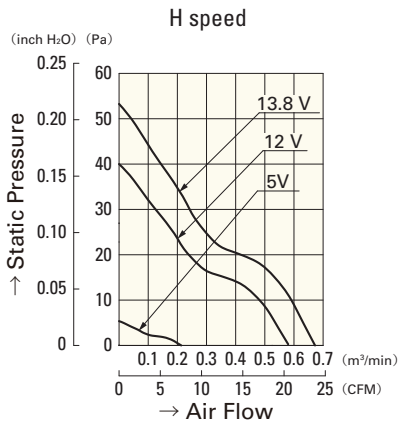


Resin filter kits

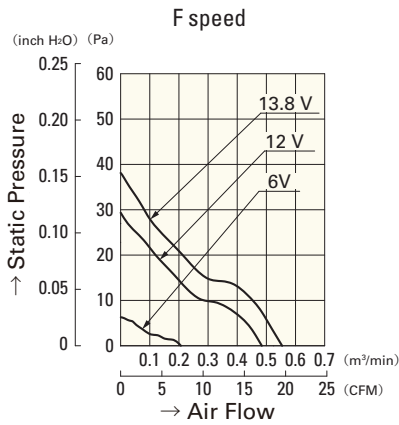
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



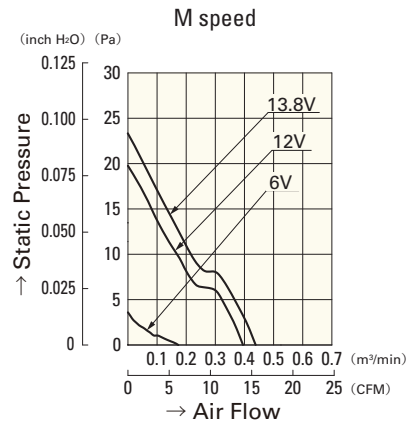
Air Flow - Static Pressure Characteristics



9S0612H401(4011)



9S0612F401(4011)



9S0612M401(4011)

60mm

80mm sq.

San Ace 80

25mm thick (S type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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 × 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9S0812H401(4011)	12	4.5 to 13.2	0.23	2.76	3,400	1.12	39.5	52.15	0.20	31
9S0812F401(4011)		5.0 to 13.8	0.11	1.32	2,800	0.93	32.8	35.5	0.143	24
9S0812M401(4011)		6.0 to 13.8	0.08	0.96	2,500	0.83	29.3	27.5	0.110	22
9S0812L401(4011)	24	10 to 26.4	0.05	0.60	2,000	0.66	23.3	18.1	0.073	16
9S0824M401(4011)			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

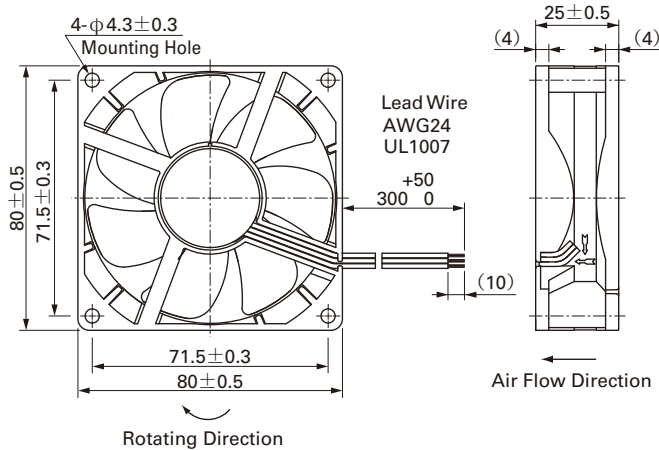
Without Sensor **Pulse Sensor** Available in all models.

Lock Sensor

PWM Control

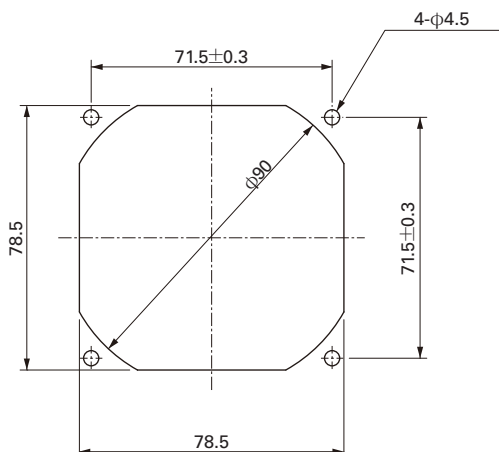
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)



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

Inlet side, Outlet side



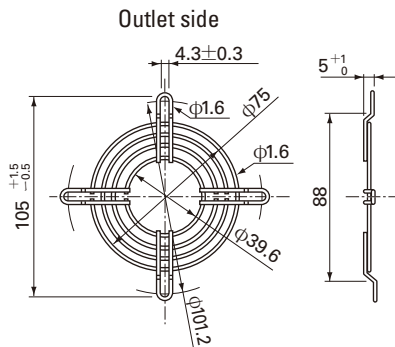
Finger guards

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

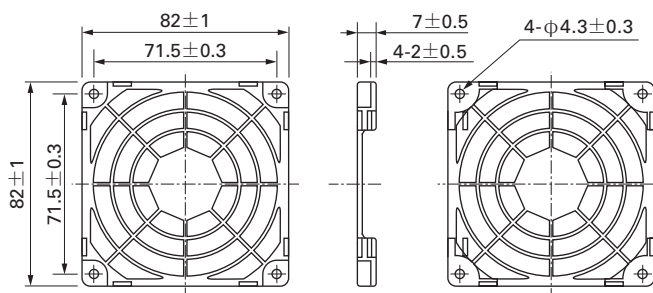
Color

Resin finger guards

Model : 109-1002G

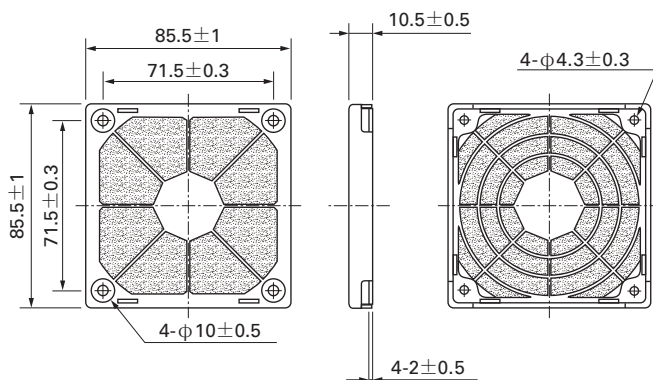
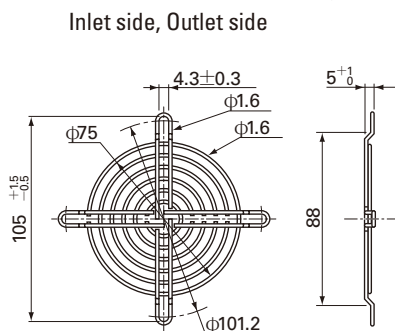


Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)

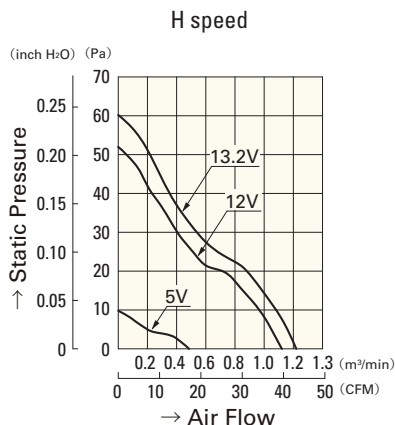


Resin filter kits

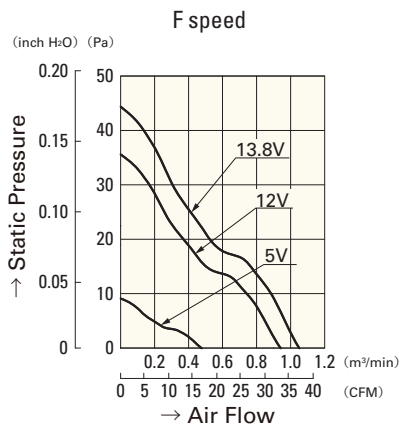
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



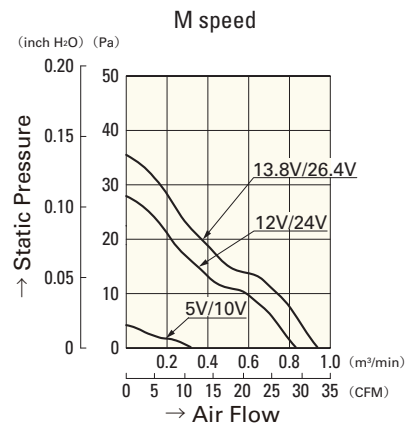
Air Flow - Static Pressure Characteristics



9S0812H401(4011)

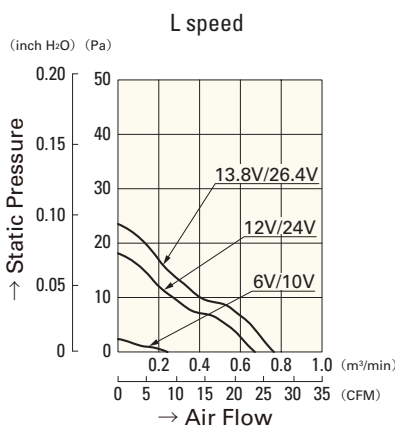


9S0812F401(4011)



9S0812M401(4011)

9S0824M401(4011)



9S0812L401(4011)

9S0824L401(4011)

92mm sq.

San Ace 92

25mm thick (S type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9S0912F401(4011)	12	5.0 to 13.8	0.14	1.68	2,650	1.26	44.5	30.0	-10 to +70	40,000
9S0912M401(4011)			0.11	1.32	2,250	1.07	37.8	21.6		
9S0912L401(4011)		6.0 to 13.8	0.07	0.84	1,750	0.83	29.3	13.1		
9S0924F401(4011)	24	14 to 26.4	0.09	2.16	2,650	1.26	44.5	30		
9S0924M401(4011)			0.07	1.68	2,250	1.07	37.8	21.6		
9S0924L401(4011)			0.04	0.96	1,750	0.83	29.3	13.1		

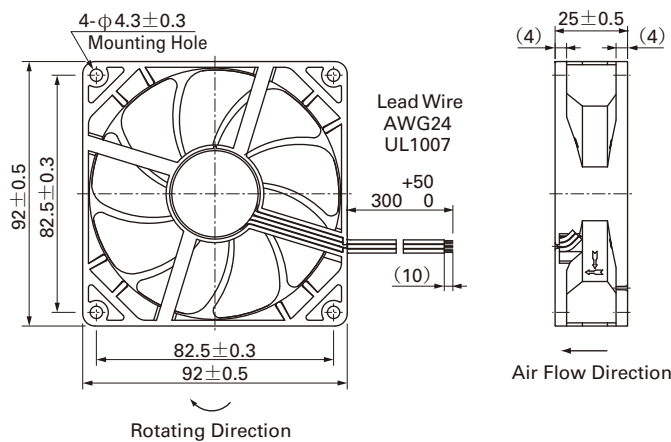
Without Sensor Pulse Sensor Available in all models.

Lock Sensor

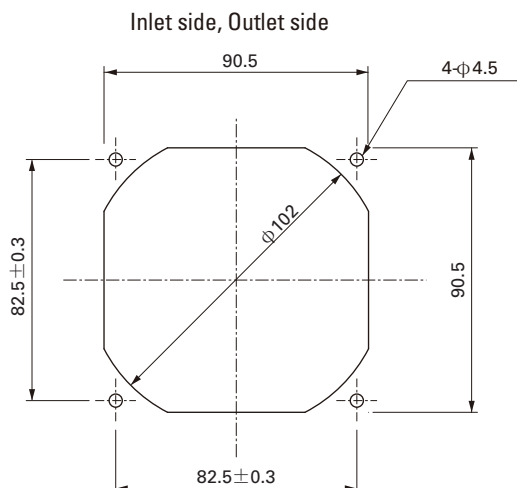
PWM Control

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

Dimensions (Unit : mm) (With ribs)



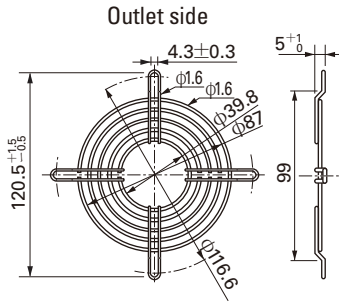
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

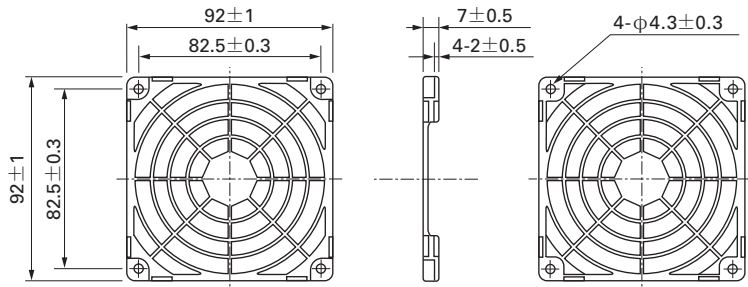
Finger guards

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

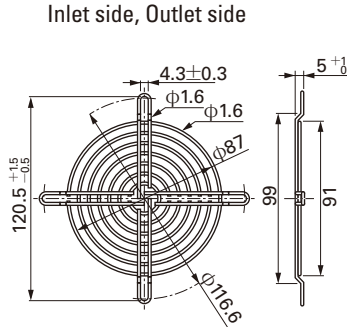


Resin finger guards

Model : 109-1001G

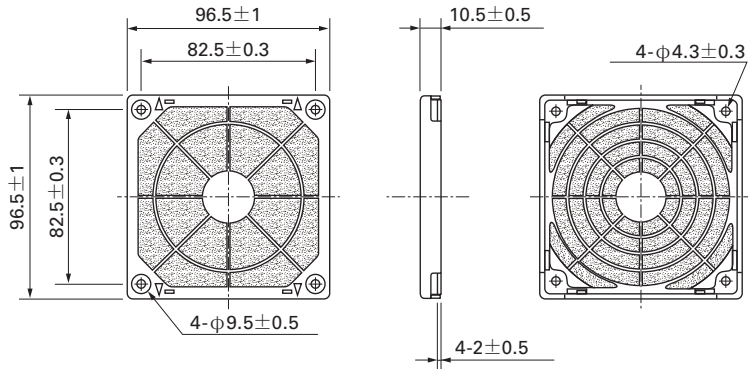


Model : 109-099E Surface treatment : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)

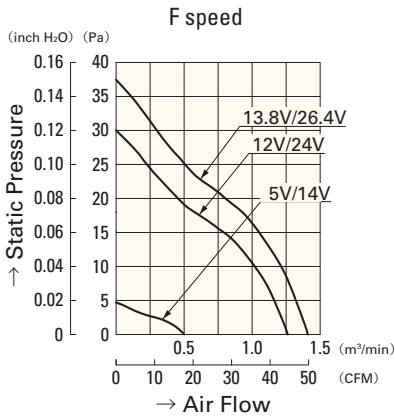


Resin filter kits

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

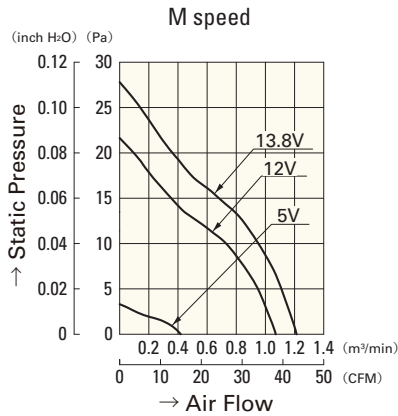


Air Flow - Static Pressure Characteristics

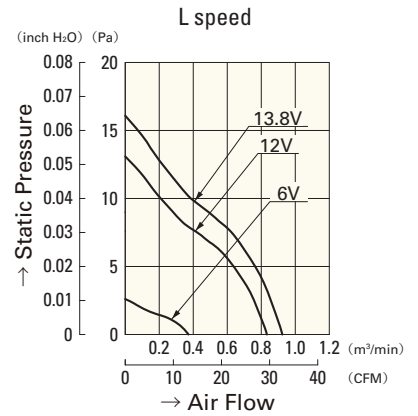


9S0912F401(4011)

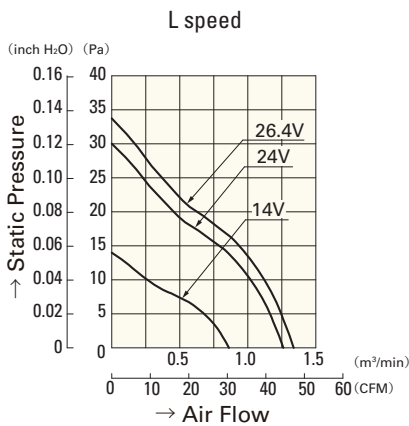
9S0924F401(4011)



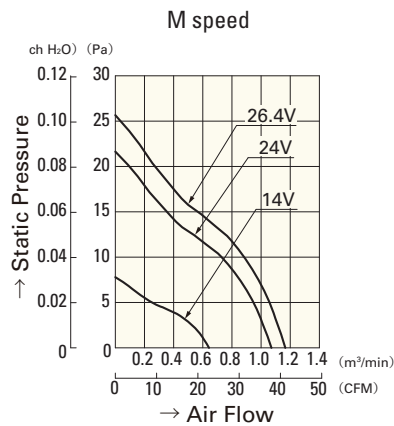
9S0912M401(4011)



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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9S1212H401(4011)	12	5.0 to 13.2	0.39	4.68	2,700	2.45	86.5	45.2	0.18	36	—10 to +60	40,000
9S1212F401(4011)		5.0 to 13.8	0.19	2.28	2,200	2.00	70.6	30.0	0.12	30	—10 to +70	
9S1212M401(4011)		6.0 to 13.8	0.13	1.56	1,850	1.66	58.6	22.7	0.09	24		
9S1212L401(4011)		7.0 to 13.8	0.08	0.96	1,500	1.36	48.1	14.9	0.06	17		

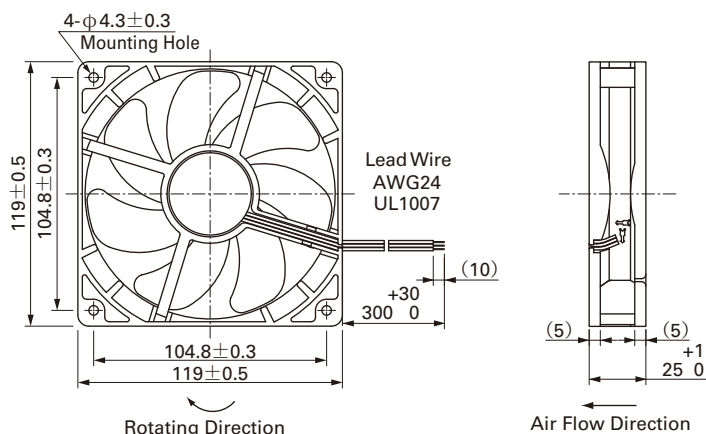
Without Sensor **Pulse Sensor** Available in all models.

Lock Sensor

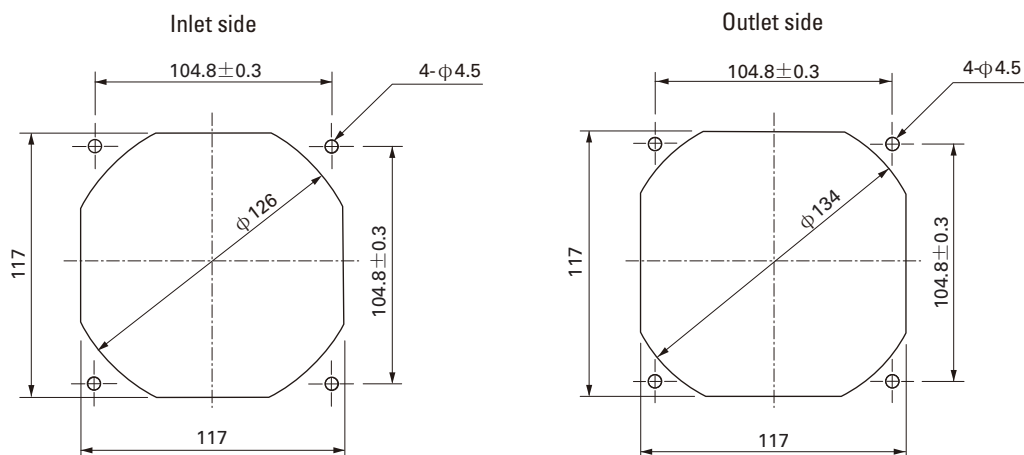
PWM Control

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

Dimensions (Unit : mm) (With ribs)

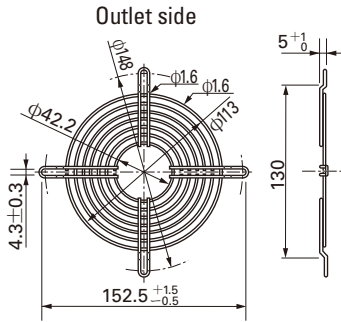


Reference dimension of mounting holes and vent opening (Unit : mm)

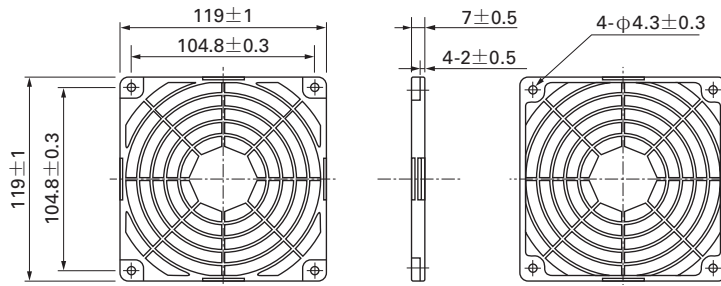


Finger guards

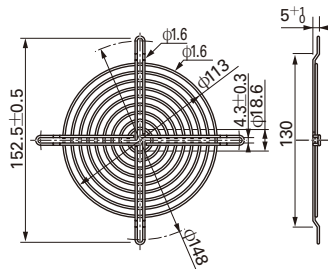
Model : 109-019C Surface treatment : Nickel-chrome plating (silver)
 : 109-019H : Cation electropainting (black)

**Resin finger guards**

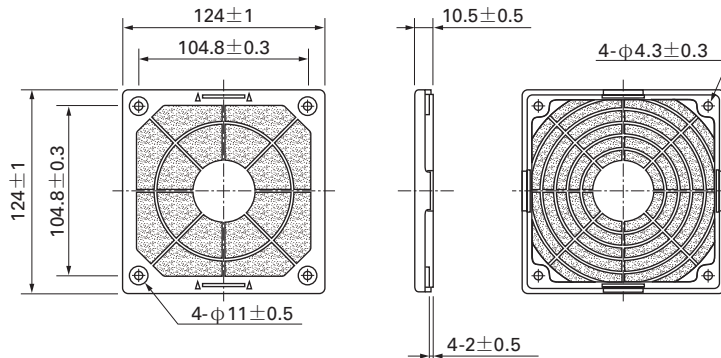
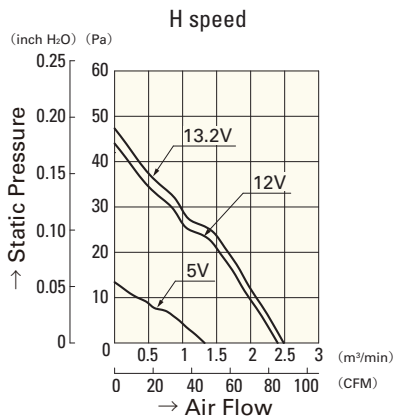
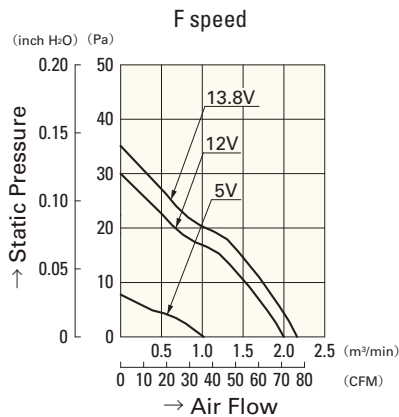
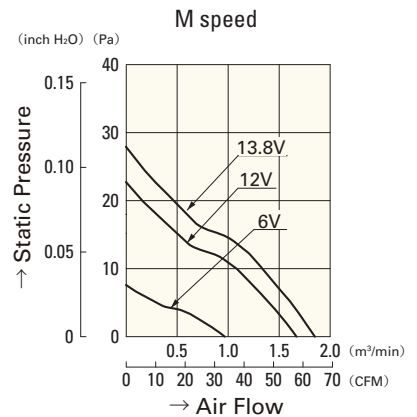
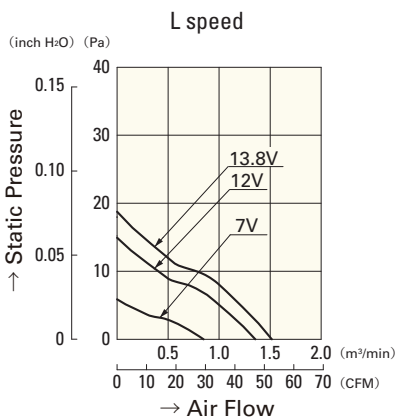
Model : 109-1000G



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)

**Air Flow - Static Pressure Characteristics****9S1212H401(4011)****9S1212F401(4011)****9S1212M401(4011)****9S1212L401(4011)**

36mm sq.**San Ace 36**

28mm thick (GV type)

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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**

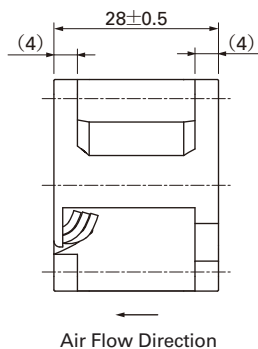
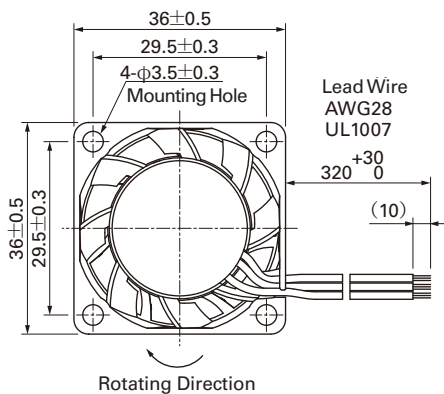
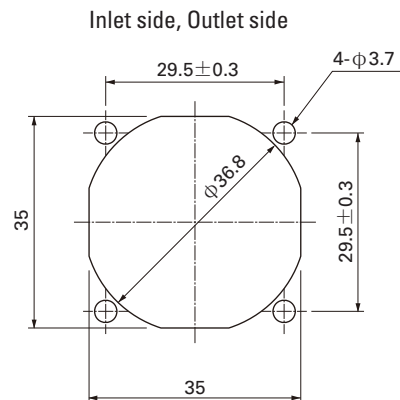
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GV3612J301	12	7.0 to 13.2	0.75	9.0	19,000	0.55 19.4	525 2.108	58.5	-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.

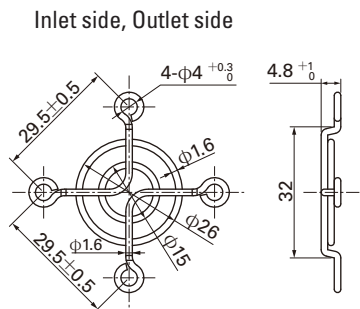
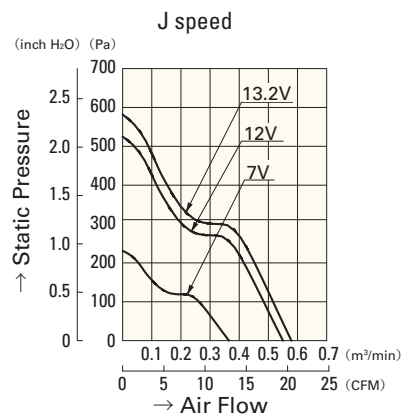
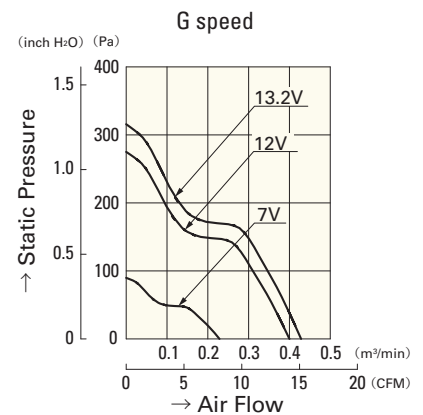
Lock Sensor

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

**Air Flow - Static Pressure Characteristics****9GV3612J301****9GV3612G301**

38mm sq.**San Ace 38**

28mm thick (GV type)



DC Fan 36mm/38mm

General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

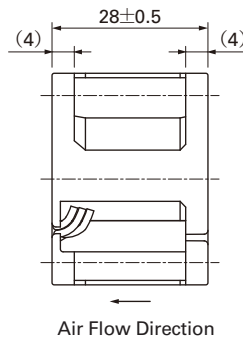
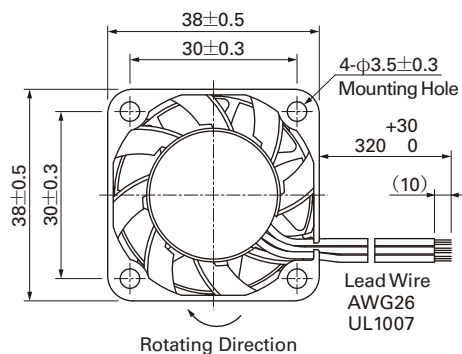
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black (Sensor) yellow
- Storage Temperature -30°C to +70°C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

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

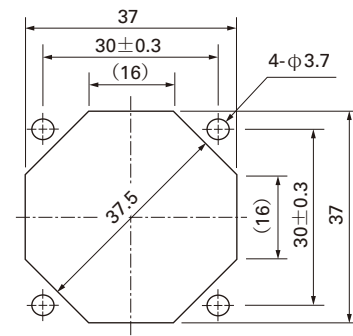
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GV0312J301(3011)	12	7 to 13.2	0.6	7.2	15,900	0.57	20	315	1.265	54
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 Sensor****PWM Control**

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

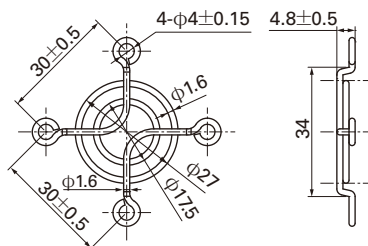
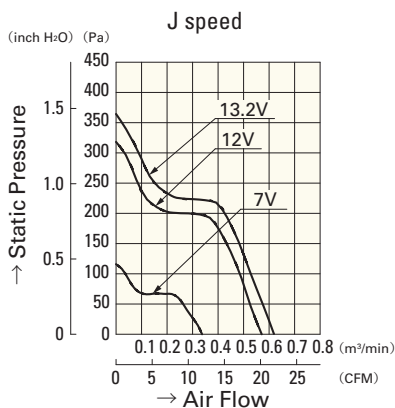
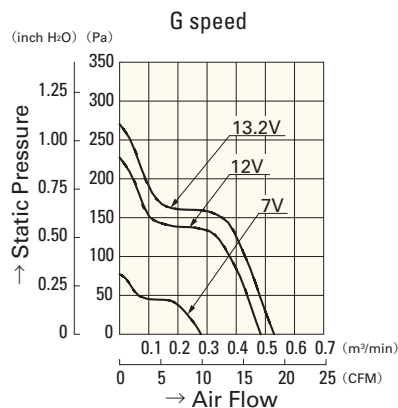
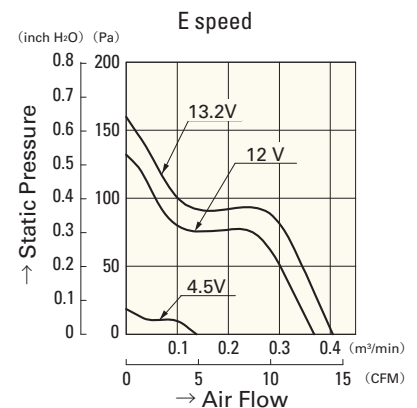
Dimensions (Unit : mm) (With ribs)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Inlet side, Outlet side

**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**

38mm

40mm sq.**San Ace 40**

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

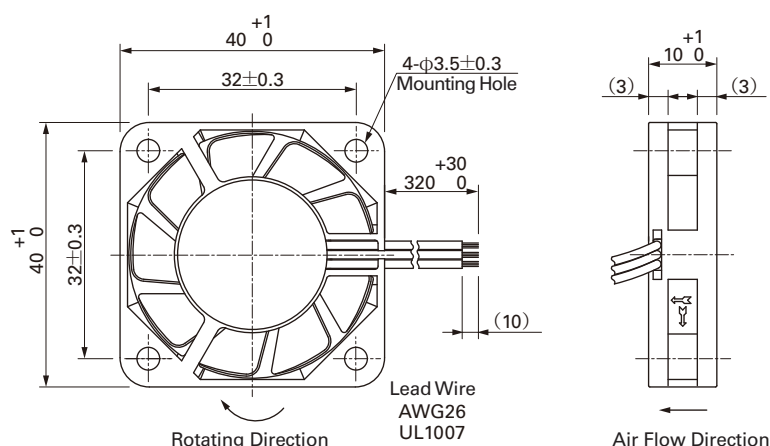
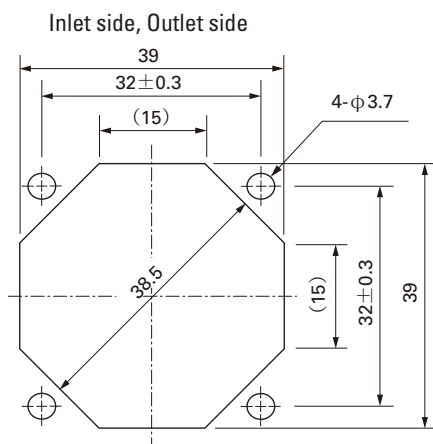
General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109P0405H901	5	4.5 to 5.5	0.16	0.8	6,200	0.15	5.3	41.2	-10 to +60	40,000
109P0405M901			0.11	0.55	5,000	0.12	4.2	27		
109P0412H901	12	7 to 13.8	0.07	0.84	6,200	0.15	5.3	41.2		
109P0412M901			0.06	0.72	5,000	0.12	4.2	27		

Without Sensor Pulse Sensor Available in all models.

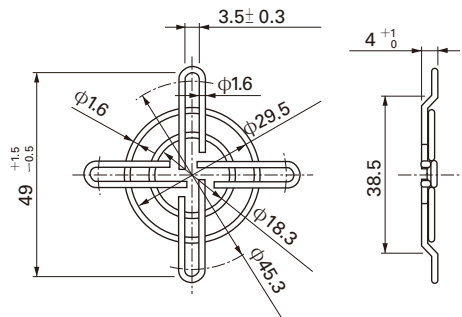
Lock Sensor Please inquire as the availability of these functions depend on the model.
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

Finger guards

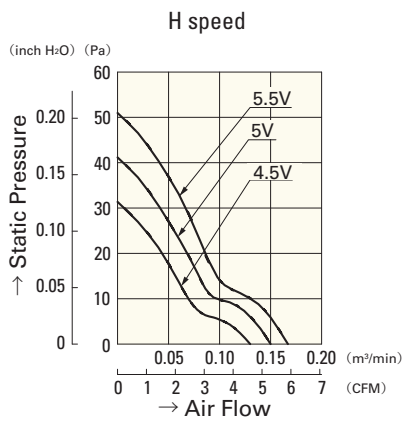
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side

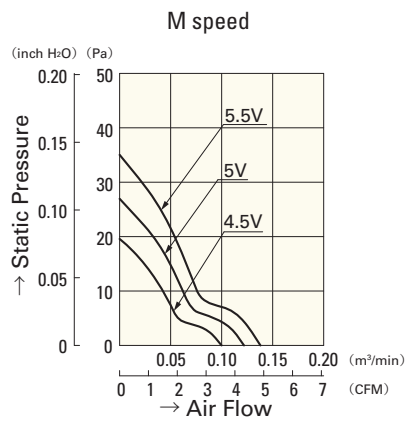


DC Fan 40mm

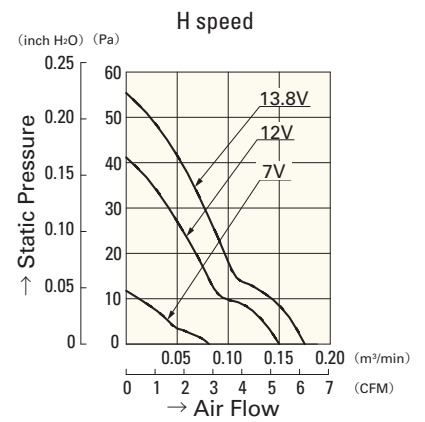
Air Flow - Static Pressure Characteristics



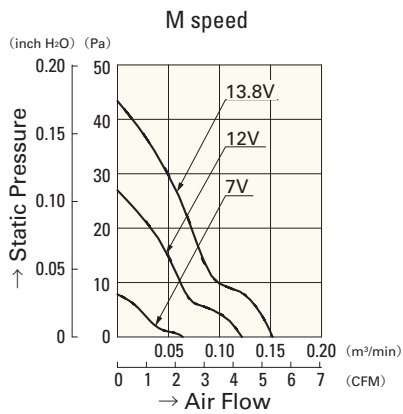
109P0405H901



109P0405M901



109P0412H901



109P0412M901

40mm

40mm sq.**San Ace 40**

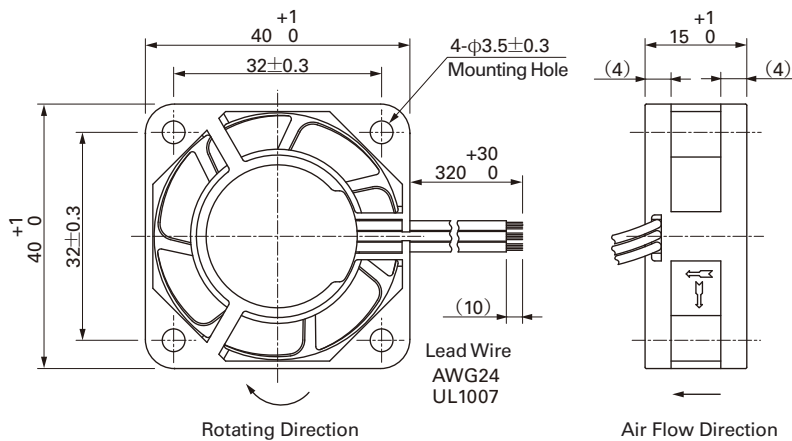
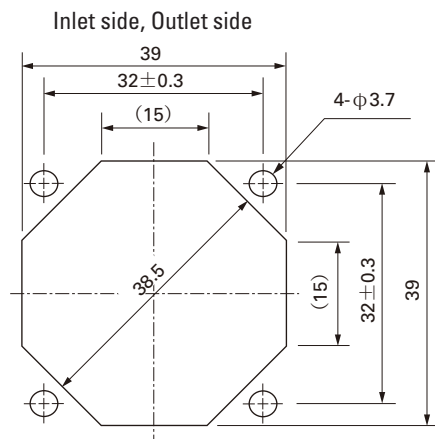
10mm thick, 15mm thick, 20mm thick
 28mm thick (GE type)
 28mm thick (GV type), 28mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

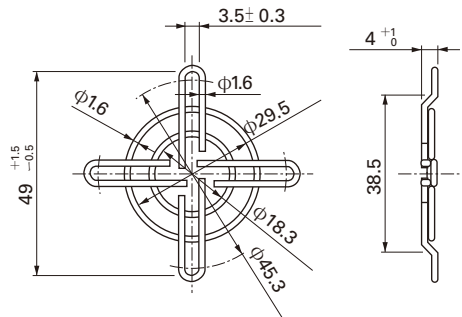
Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

Finger guards

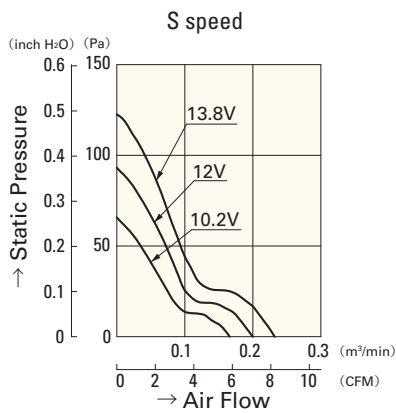
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side

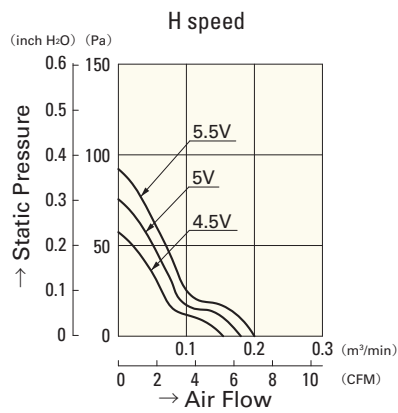


DC Fan 40mm

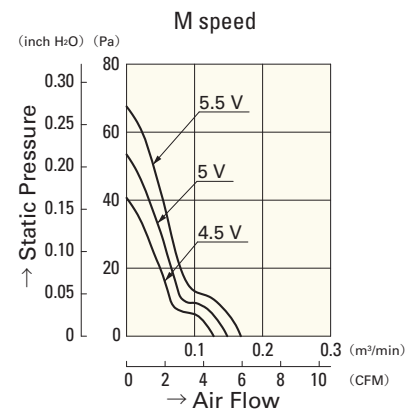
Air Flow - Static Pressure Characteristics



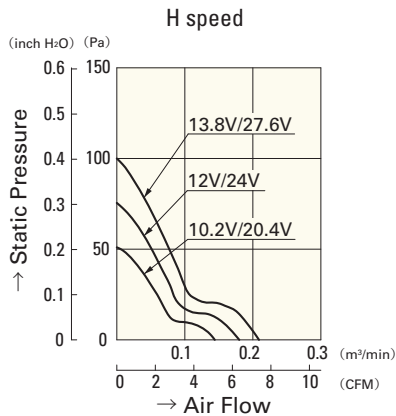
109P0412S701



109P0405H701

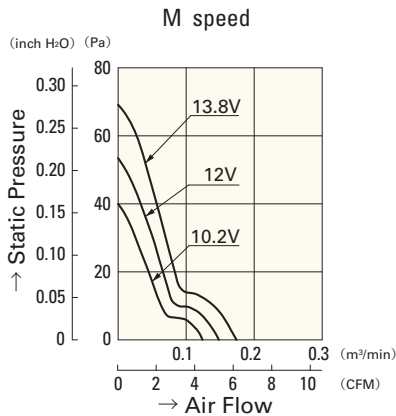


109P0405M701



109P0412H701

109P0424H701



109P0412M701

40mm

40mm sq.**San Ace 40**

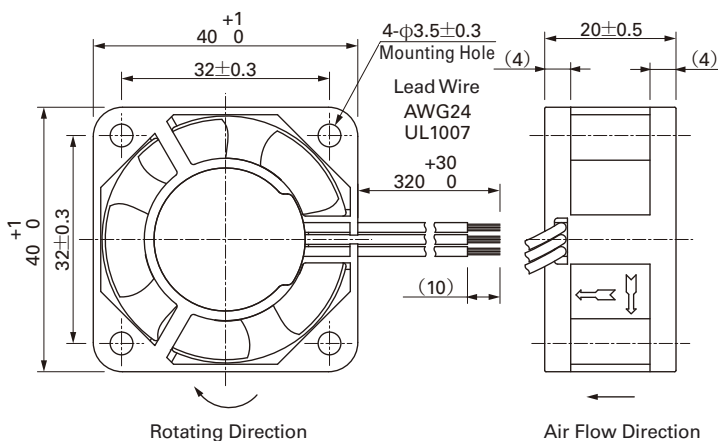
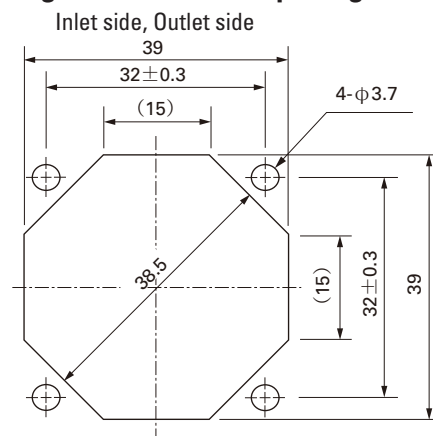
10mm thick, 15mm thick, 20mm thick
 28mm thick (GE type)
 28mm thick (GV type), 28mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

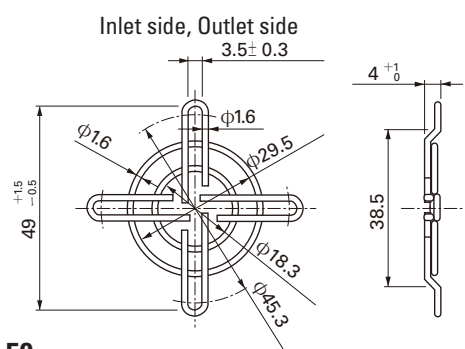
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to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

40×40×20mm [Mass : 45g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109P0405J601	5	4.5 to 5.5	0.46	2.3	9,800	0.28	9.9	98.5	-10 to +70	40,000
109P0405H601			0.32	1.6	8,000	0.225	8.0	65.7		
109P0405F601			0.25	1.25	6,500	0.183	6.5	45.1		60,000
109P0405M601			0.12	0.60	5,000	0.136	4.8	26.5		
109P0412G601	12	7 to 13.8	0.28	3.36	12,500	0.35	12.4	153.8	-10 to +60	40,000
109P0412D601			0.18	2.16	11,000	0.31	10.9	124		
109P0412H601			0.11	1.32	8,000	0.225	8.0	65.7		60,000
109P0412F601			0.09	1.08	6,500	0.183	6.5	45.1		
109P0412M601		8 to 13.8	0.06	0.72	5,000	0.136	4.8	26.5	-10 to +70	
109P0424D601	24	12 to 27.6	0.13	3.12	11,000	0.31	10.9	124	-10 to +60	40,000
109P0424H601		12 to 27.6	0.07	1.68	8,300	0.233	8.2	69.6	-10 to +70	60,000
109P0424F601		14 to 27.6	0.06	1.44	6,500	0.183	6.5	45.1		

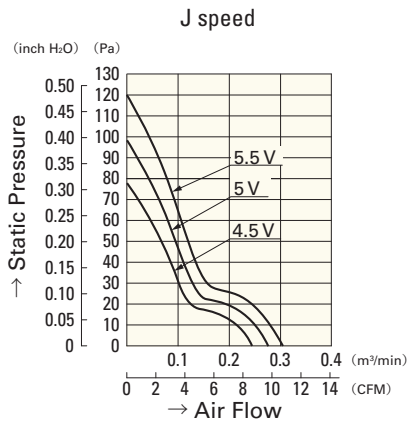
Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)****Options (Unit : mm)****Finger guards**

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

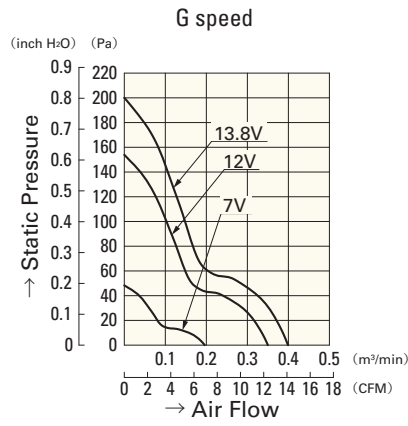


Air Flow - Static Pressure Characteristics

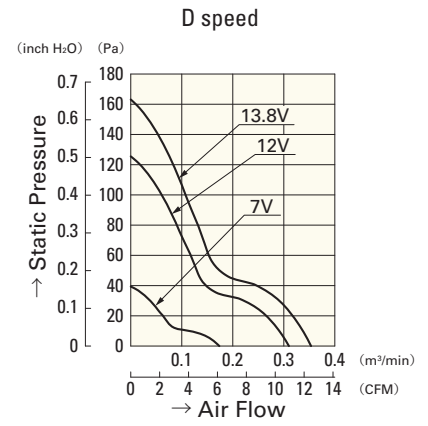
DC Fan 40mm



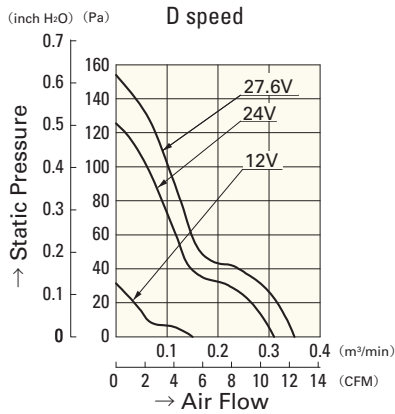
109P0405J601



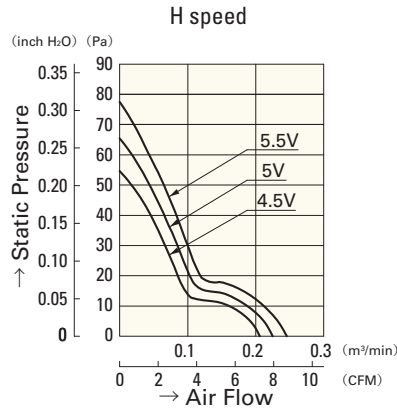
109P0412G601



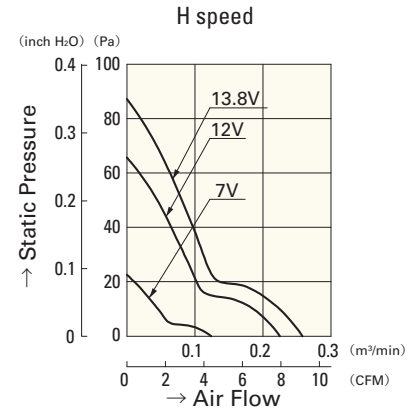
109P0412D601



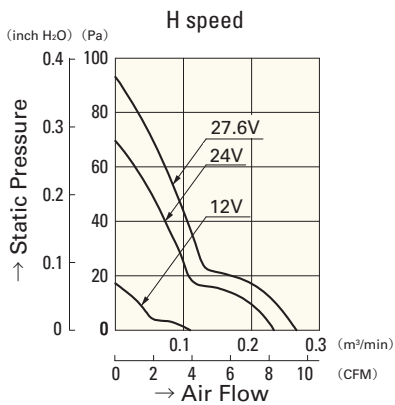
109P0424D601



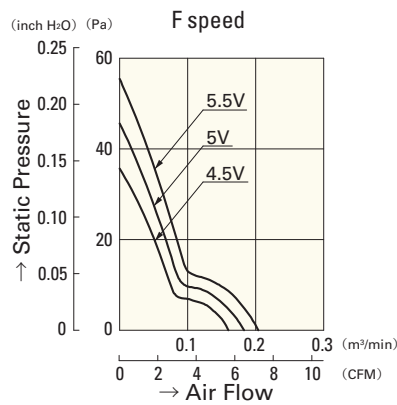
109P0405H601



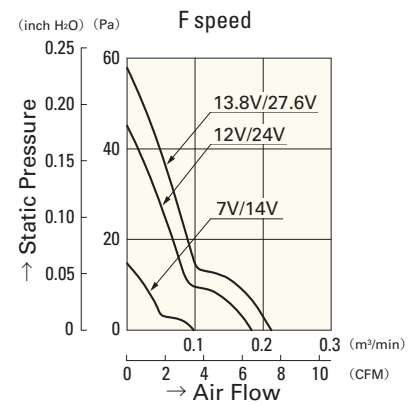
109P0412H601



109P0424H601

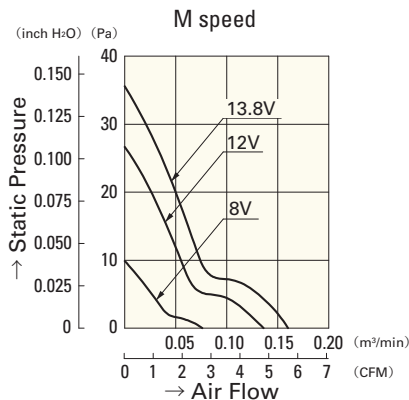


109P0405F601

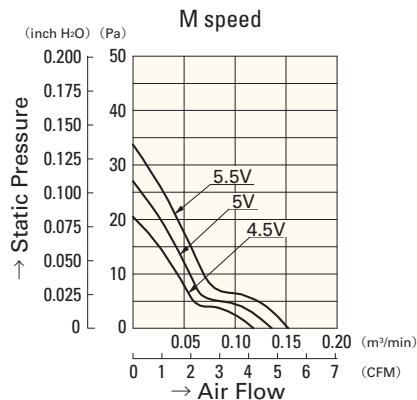


109P0412F601

109P0424F601



109P0412M601



109P0405M601

40mm

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 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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)

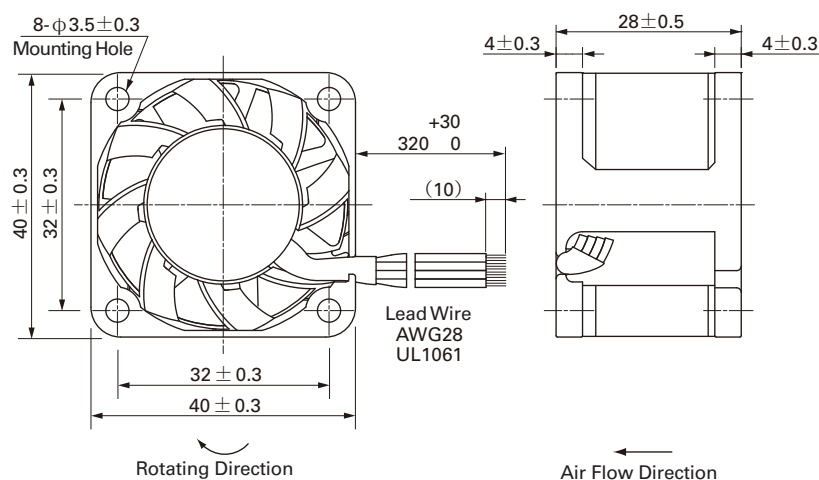
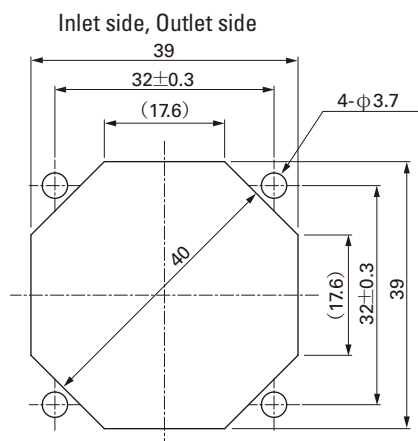
40 × 40 × 28mm [Mass : 55g]**Low vibration** **GE type**■ **Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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.

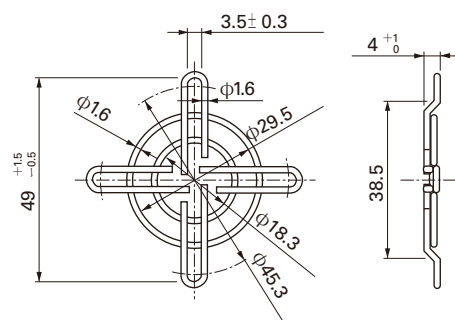
Lock Sensor Please inquire as the availability of these functions depend on the model.

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

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

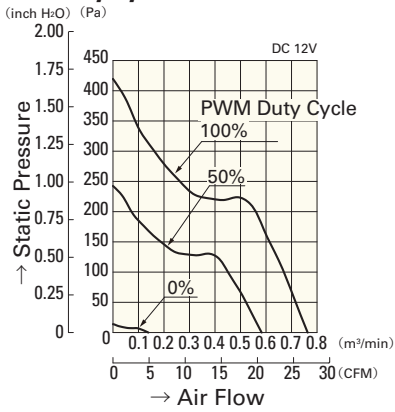
Color

Inlet side, Outlet side

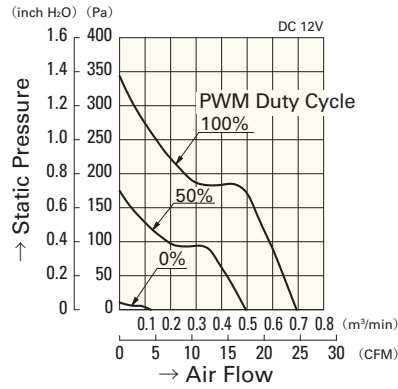


Air Flow - Static Pressure Characteristics

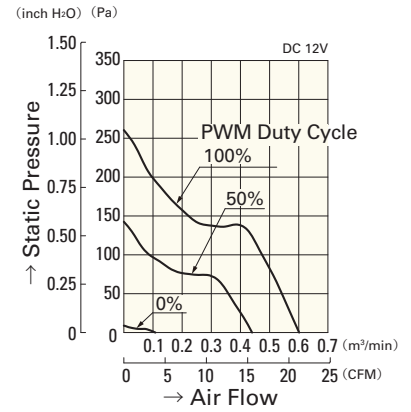
PWM Duty Cycle



9GE0412P3K03



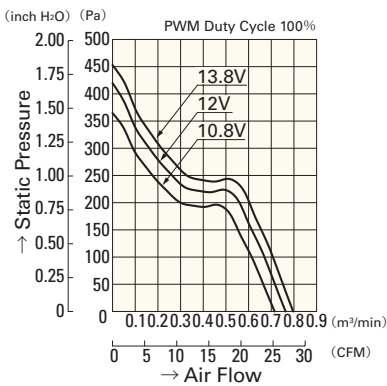
9GE0412P3J03



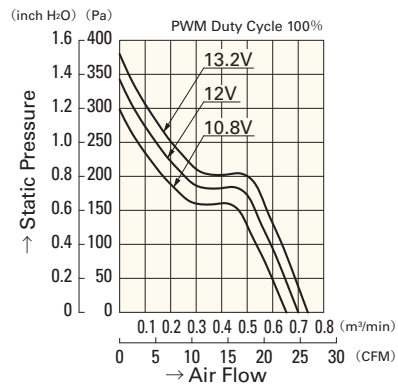
9GE0412P3G03

DC Fan 40mm

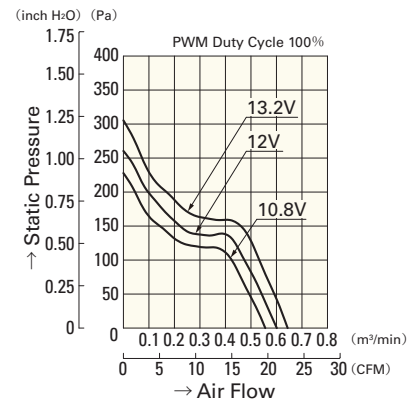
Operating Voltage Range



9GE0412P3K03

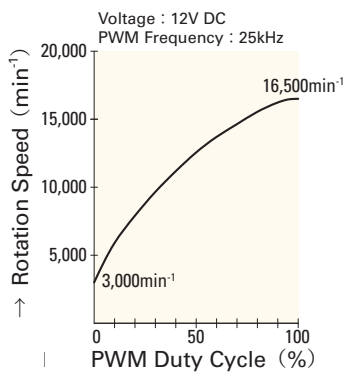


9GE0412P3J03

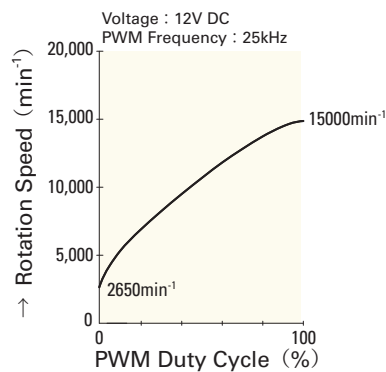


9GE0412P3G03

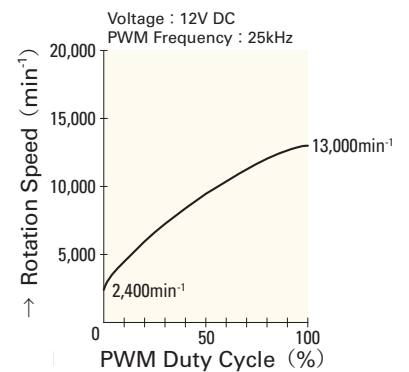
PWM Duty - Speed Characteristics Example



9GE0412P3K03



9GE0412P3J03



9GE0412P3G03

40mm

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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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)

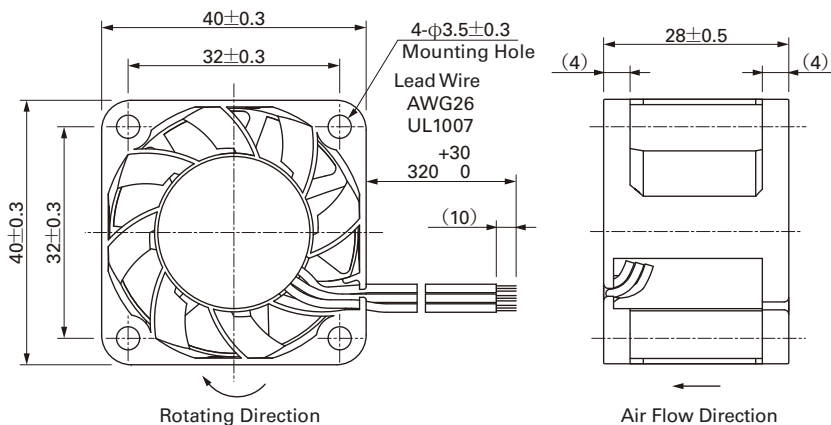
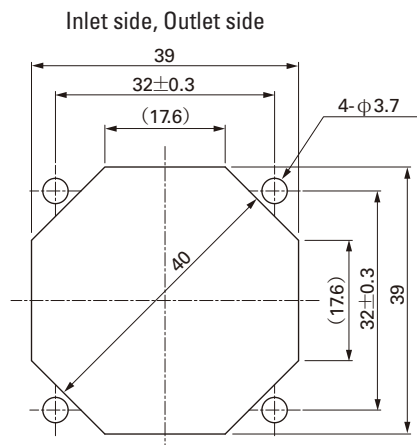
40 × 40 × 28mm [Mass : 50g]**GV type**
Specifications The numbers in () represent ribless models.

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

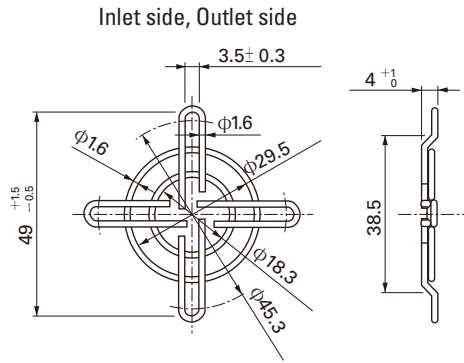
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)

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


Options (Unit : mm)

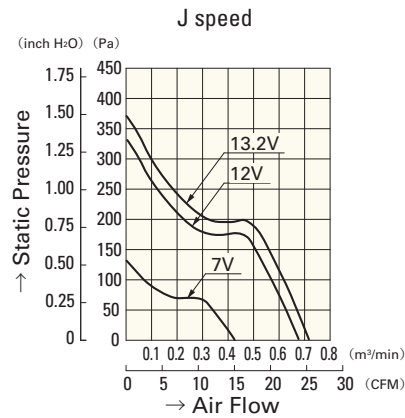
Finger guards

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

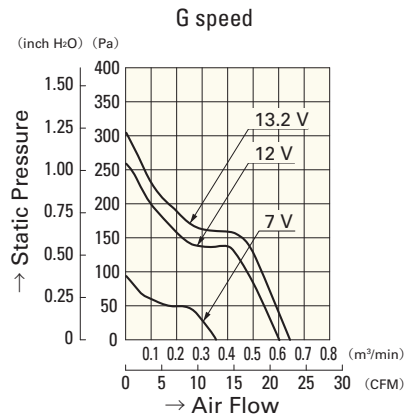


DC Fan 40mm

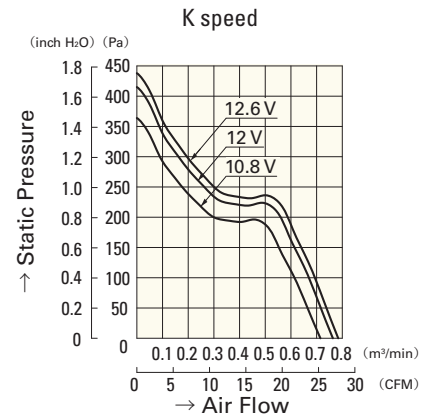
Air Flow - Static Pressure Characteristics



9GV0412J301(3011)



9GV0412G301(3011)



9GV0412K301(3011)

40mm

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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

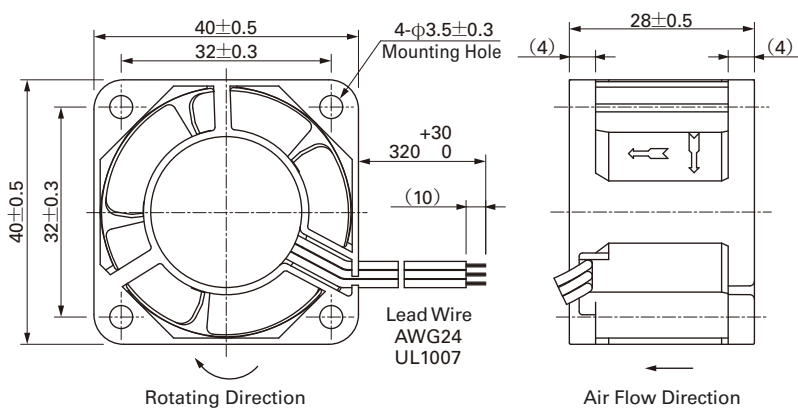
40×40×28mm [Mass : 52g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		7 to 13.2	0.35	4.2	12,500	0.46 16.3	210 0.843	44		
109P0412G3013			0.31	3.72	11,500	0.42 14.8	179 0.719	42		
109P0412B3013		7 to 13.8	0.28	3.36	10,300	0.38 13.4	143 0.574	40	-10 to +70	60,000
109P0412H3013			0.195	2.34	8,700	0.32 11.3	103 0.414	37		
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	24	12 to 26.4	0.18	4.32	12,500	0.46 16.3	210 0.843	44	-10 to +60	40,000
109P0424G3013			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		
109P0424H3013		12 to 27.6	0.095	2.28	8,700	0.32 11.3	103 0.414	37	-10 to +70	60,000
109P0424F3013		14 to 27.6	0.055	1.32	6,700	0.244 8.6	58.8 0.236	30		

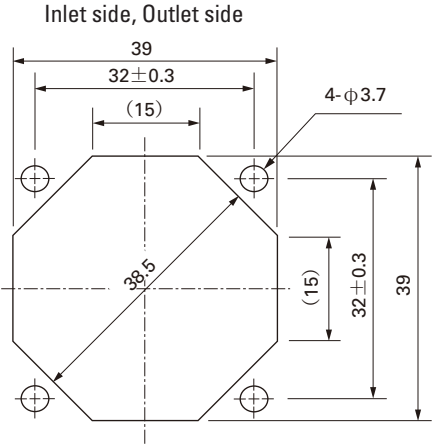
Without Sensor Pulse Sensor Available in all models.

Lock Sensor
PWM Control

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

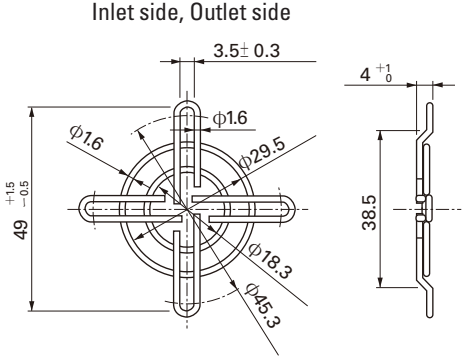
Dimensions (Unit : mm)

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



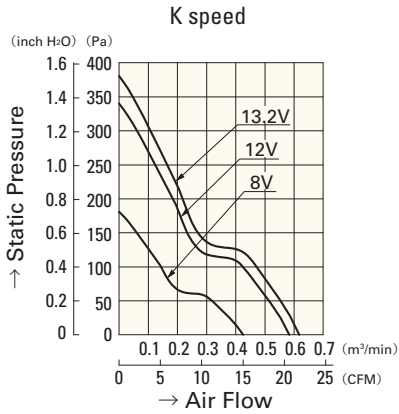
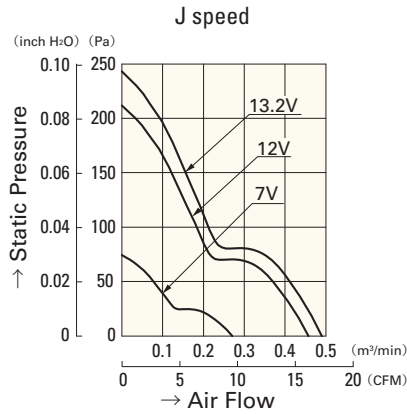
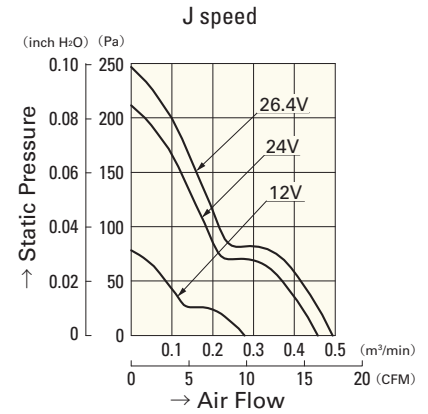
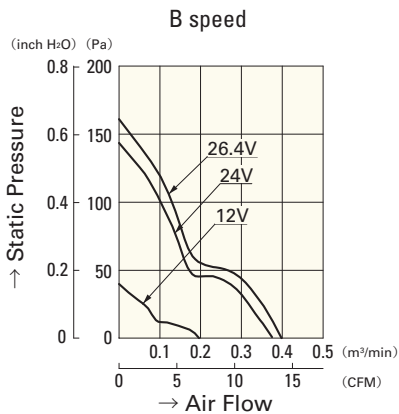
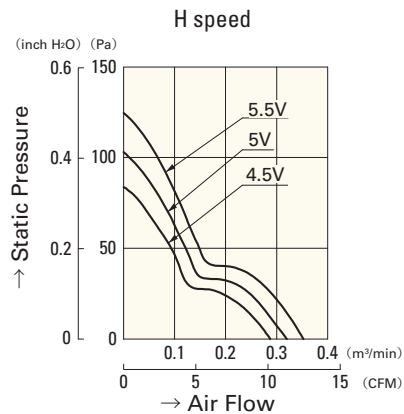
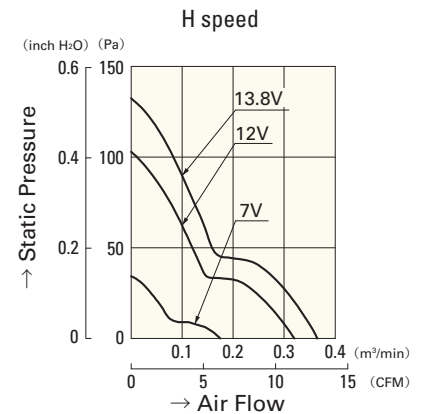
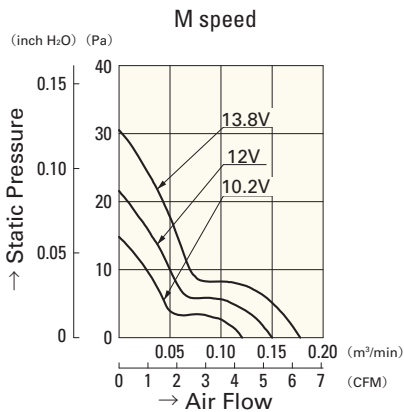
■ Options (Unit : mm)

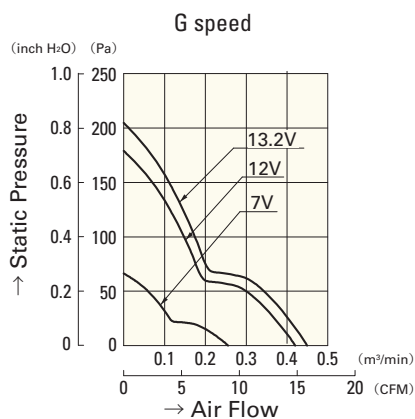
Finger guards
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color



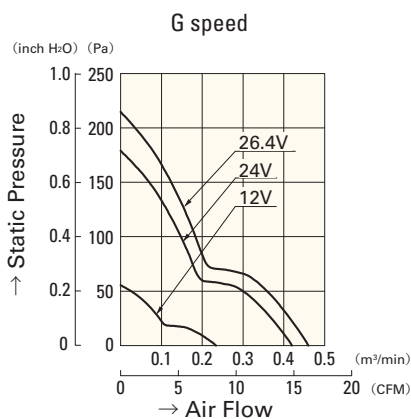
DC Fan 40mm

40mm

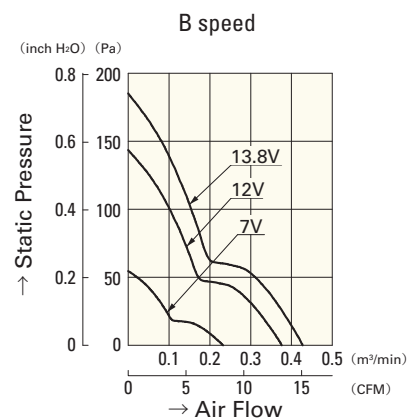
40mm sq.**San Ace 40****40×40×28mm** [Mass : 52g]**Air Flow - Static Pressure Characteristics****109P0412K3013****109P0412J3013****109P0424J3013****109P0424B3013****109P0405H3013****109P0412H3013****109P0412M3013**



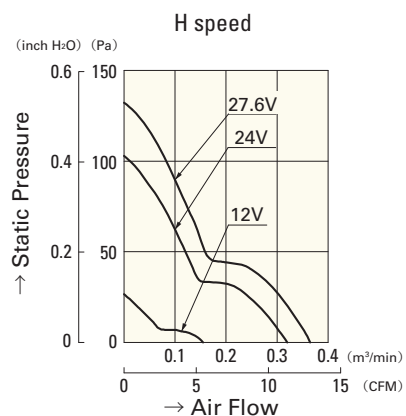
109P0412G3013



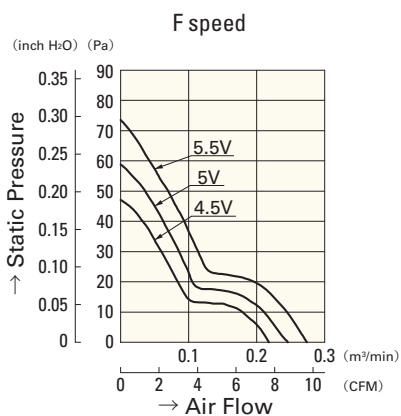
109P0424G3013



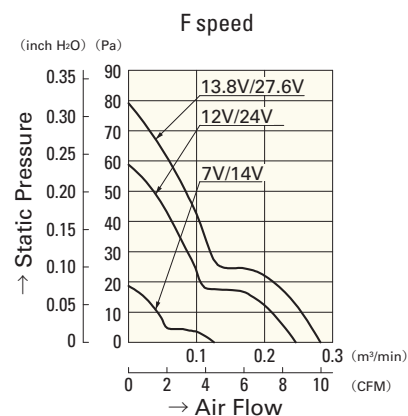
109P0412B3013



109P0424H3013



109P0405F3013



109P0412F3013

109P0424F3013

52mm sq.**San Ace 52**

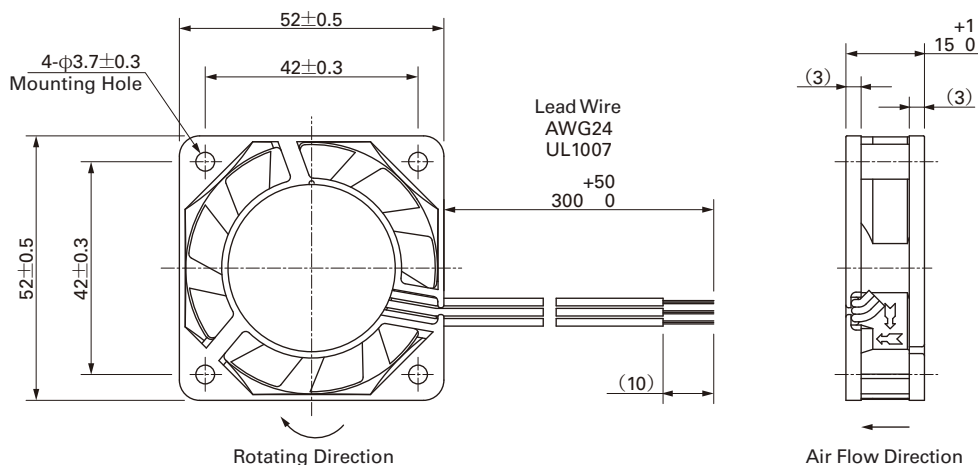
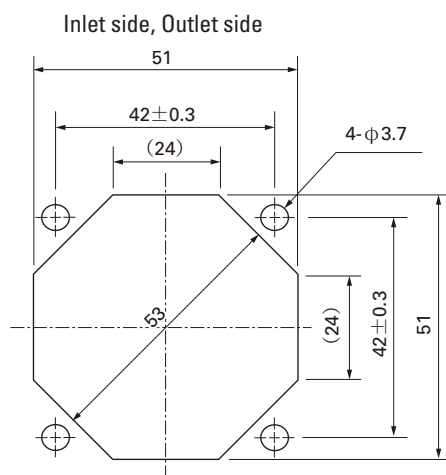
15mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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	-10 to +70	60,000
109P0524M701			0.04	0.96	3,700	0.205 7.24	21.4 0.086	22		

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)**

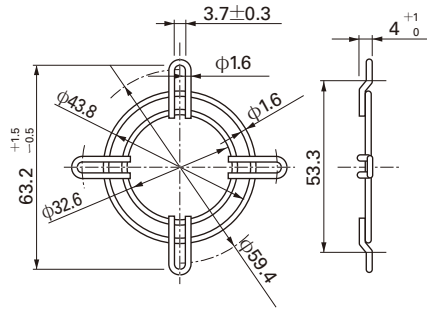
Options (Unit : mm)

Finger guards

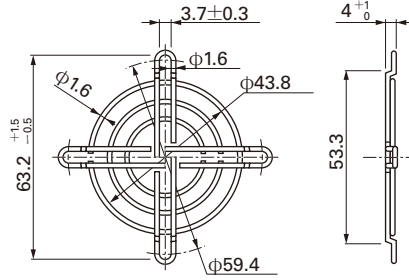
Model : 109-149 Surface treatment : Nickel-chrome plating (silver) Color

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

Outlet side



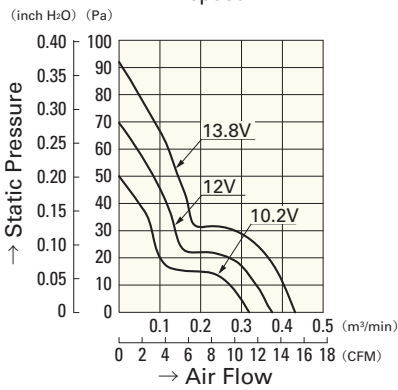
Inlet side, Outlet side



DC Fan 52mm

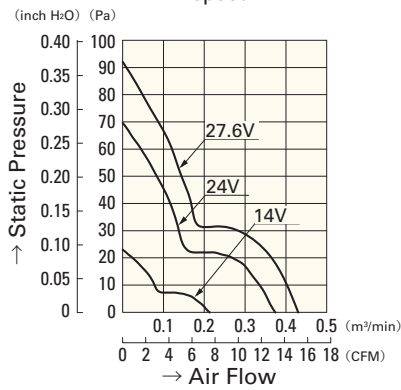
Air Flow - Static Pressure Characteristics

A speed



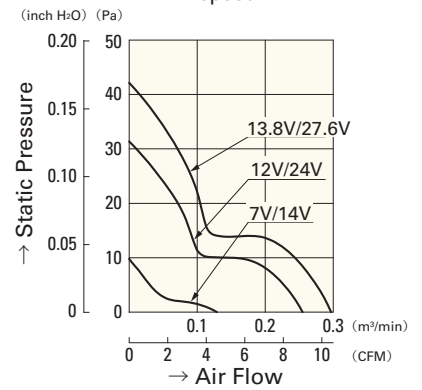
109P0512A701

A speed



109P0524A701

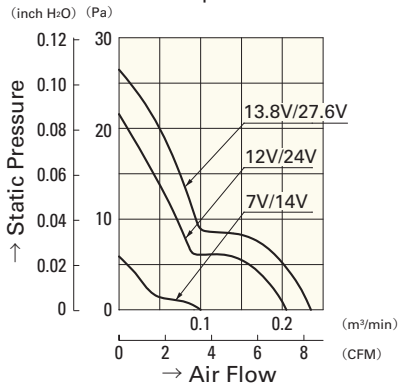
H speed



109P0512H701

109P0524H701

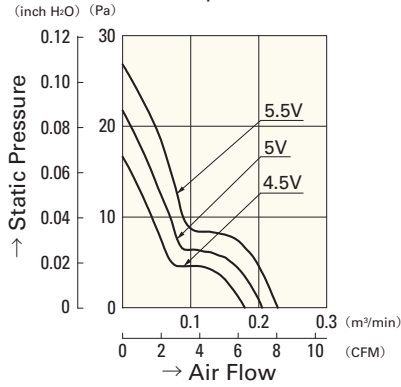
M speed



109P0512M701

109P0524M701

M speed



109P0505M701

52mm

60mm sq.

San Ace 60

15mm thick, 20mm thick, 25mm thick (G type)
 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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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]

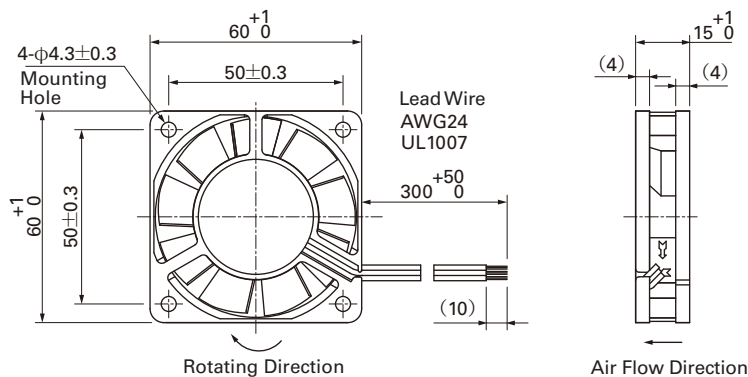
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		60,000
109P0612M701			0.07	0.84	3,100	0.30 10.6	22.6 0.091	25		
109P0612B701		10.2 to 13.8	0.05	0.6	2,200	0.21 7.42	11.7 0.047	21		40,000
109P0624J701			0.14	3.36	6,200	0.61 21.5	86.5 0.347	44		
109P0624S701	24	14 to 27.6	0.08	1.92	5,000	0.48 16.9	58.8 0.236	36	-10 to +70	60,000
109P0624H701			0.06	1.44	4,100	0.40 14.1	38.2 0.153	32		
109P0624M701		20.4 to 27.6	0.04	0.96	3,100	0.30 10.6	22.6 0.091	25		

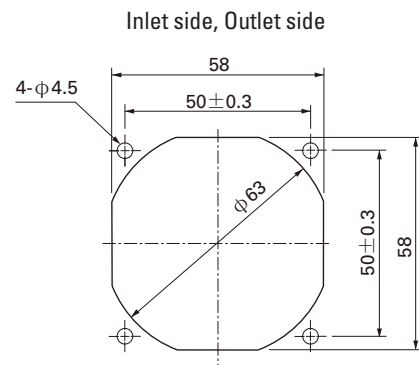
Without Sensor Pulse Sensor Available in all models.

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

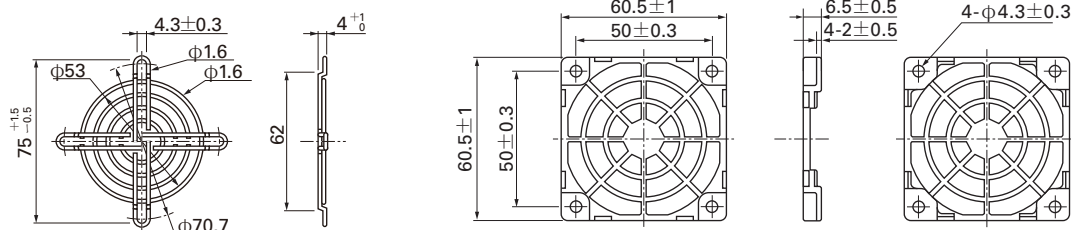
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
 : 109-139H : Cation electropainting (black)

Color

Resin finger guards

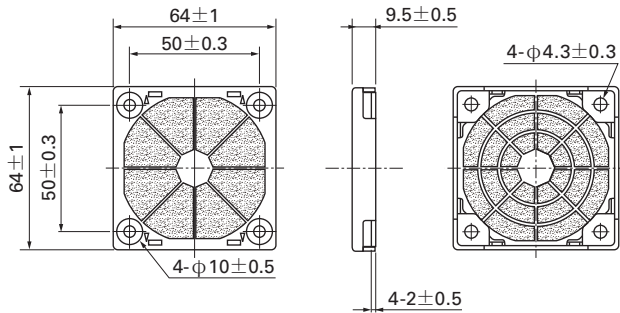
Model : 109-1003G

Inlet side, Outlet side

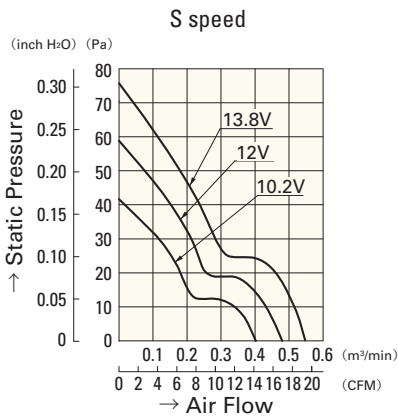


Resin filter kits

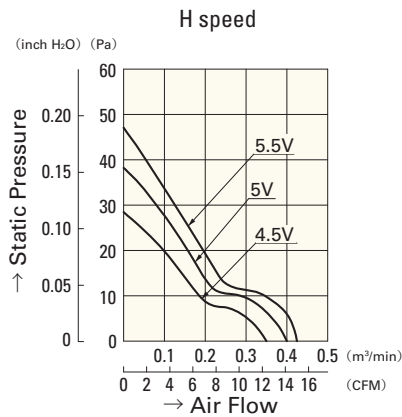
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



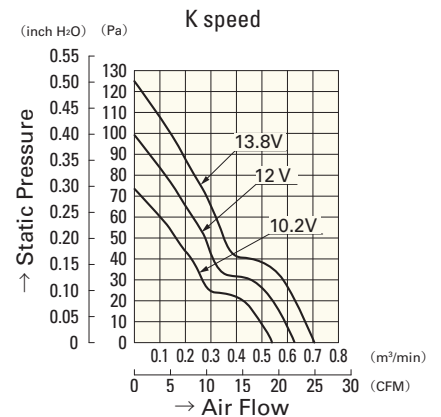
Air Flow - Static Pressure Characteristics



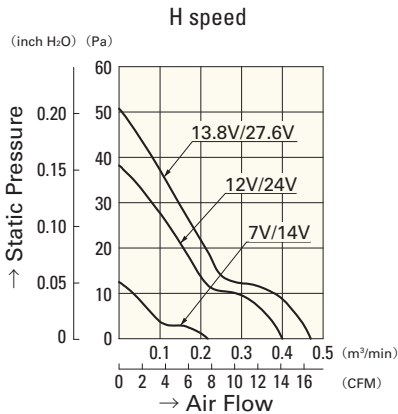
109P0612S701



109P0605H701

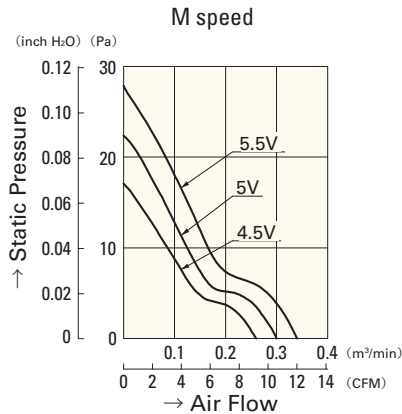


109P0612K701

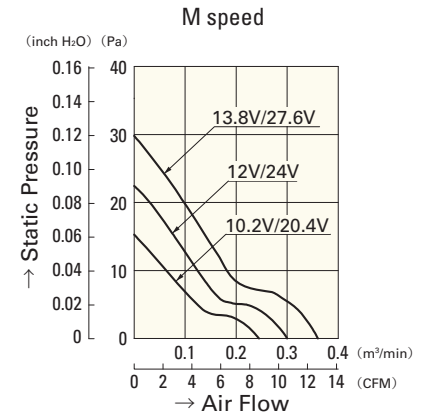


109P0612H701

109P0624H701

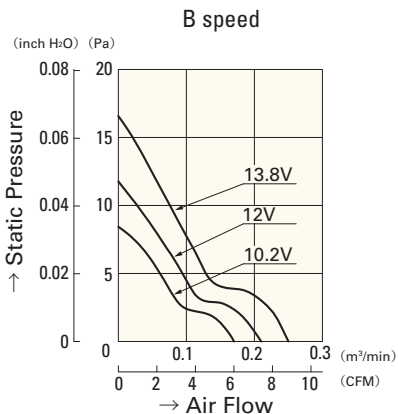


109P0605M701

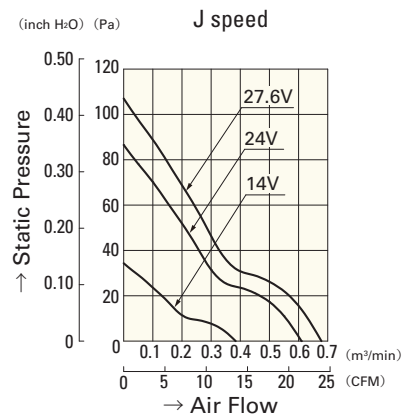


109P0612M701

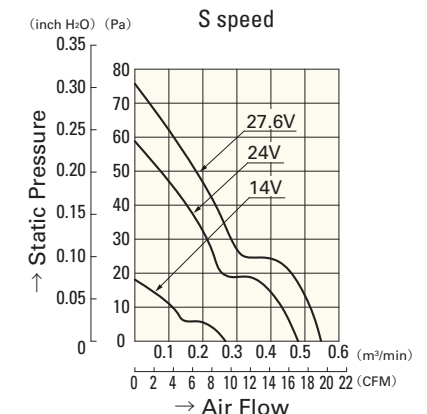
109P0624M701



109P0612B701



109P0624J701



109P0624S701

60mm sq.**San Ace 60**

15mm thick, 20mm thick, 25mm thick (G type)
 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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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

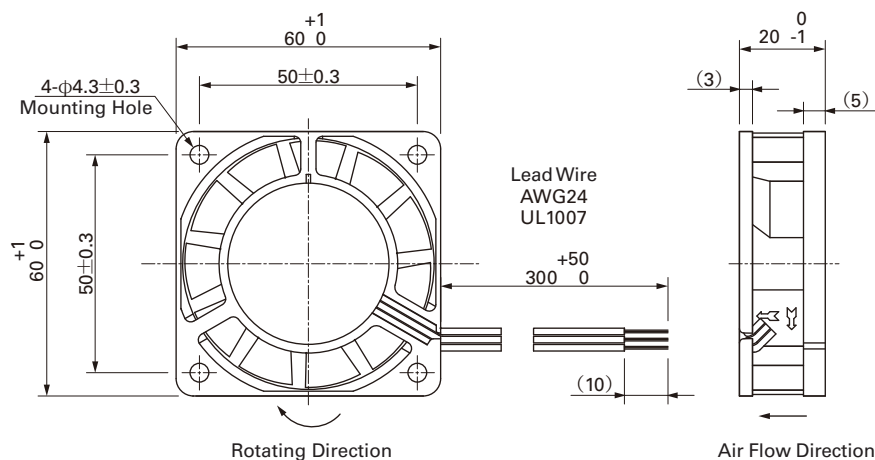
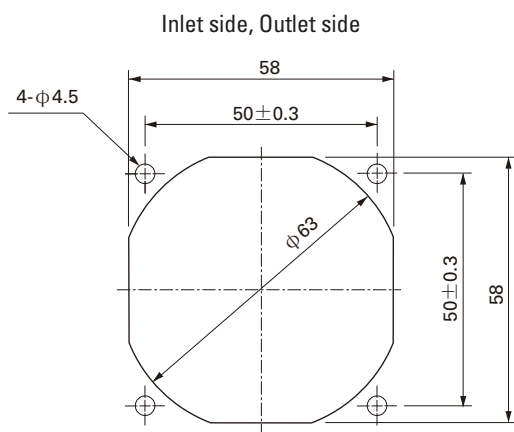
Without Sensor

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)**

60mm sq.**San Ace 60**

15mm thick, 20mm thick, 25mm thick (G type)
 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 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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 × 25mm [Mass : 90g]**G type**

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

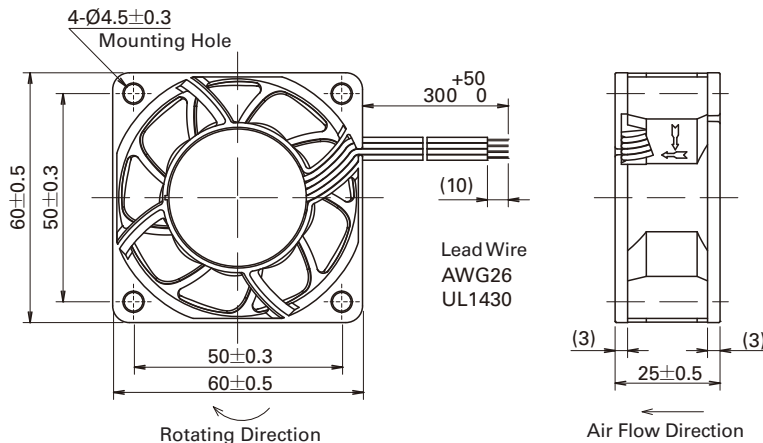
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature Range [°C]	Expected Life ^{Model} [h]
9G0612P4S001(0011)	12	10.2 to 13.8	100	0.67	8.04	11,000	1.4 49.4	300 1.20	53	-10 to +70	40,000/60°C (70,000/40°C)
			0	0.07	0.84	3,300	0.42 14.8	27 0.11	19		
9G0612P4H001(0011)			100	0.50	6.00	9,500	1.21 42.7	224 0.90	49		
			0	0.06	0.72	2,850	0.36 12.7	20.2 0.08	18		
9G0624P4S001(0011)	24	20.4 to 27.6	100	0.34	8.16	11,000	1.4 49.4	300 1.20	53		
			0	0.04	0.96	3,300	0.42 14.8	27 0.11	19		
9G0624P4H001(0011)			100	0.25	6.00	9,500	1.21 42.7	224 0.90	49		
			0	0.04	0.96	2,850	0.36 12.7	20.2 0.08	18		
9G0648P4S001(0011)	48	36 to 72	100	0.18	8.64	11,000	1.4 49.4	305 1.22	53		
			0	0.02	0.96	3,300	0.42 14.8	27.4 0.11	19		

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

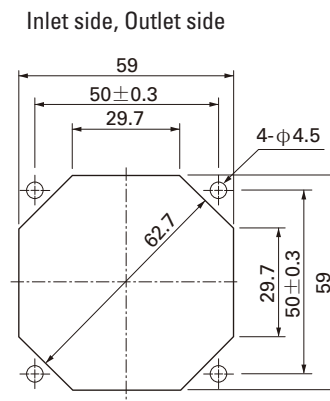
※PWM Frequency : 25kHz

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)

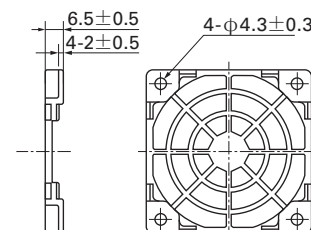
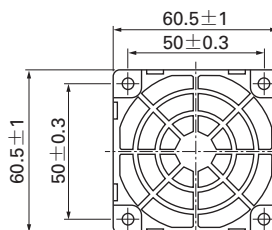
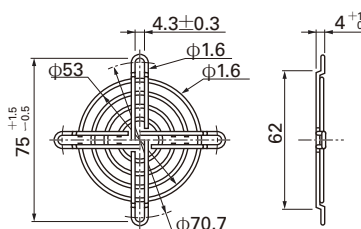
Finger guards

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

Resin finger guards

Model : 109-1003G

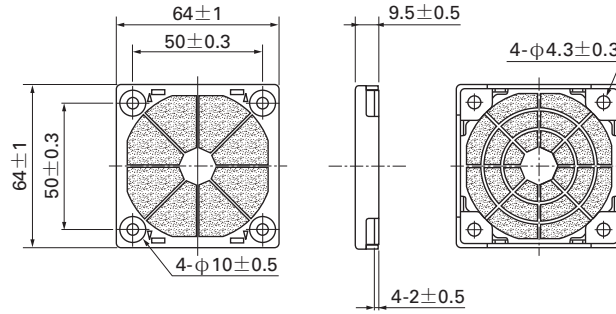
Inlet side, Outlet side



Options (Unit : mm)

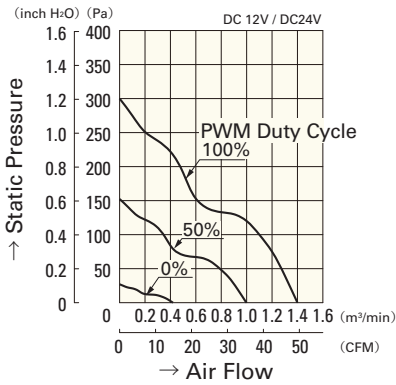
Resin filter kits

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

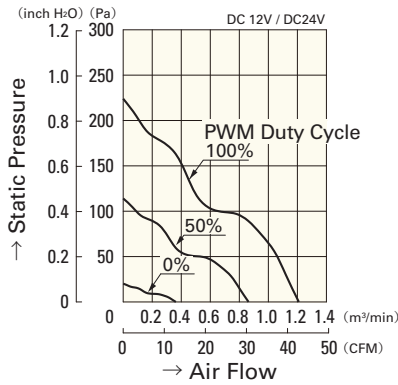


Air Flow - Static Pressure Characteristics

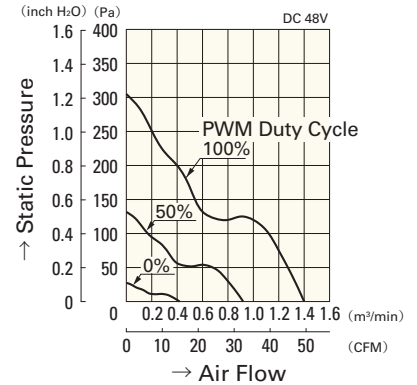
PWM Duty Cycle



9G0612P4S001(0011)
9G0624P4S001(0011)

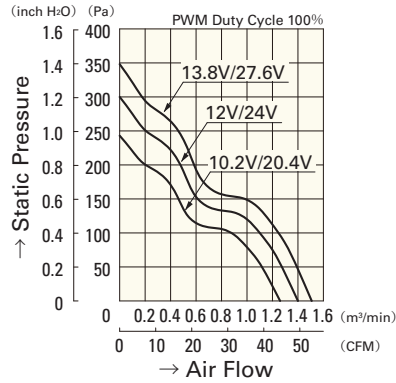


9G0612P4H001(0011)
9G0624P4H001(0011)

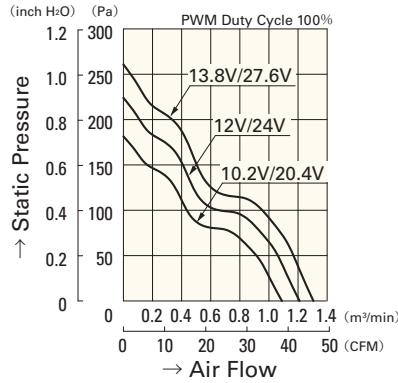


9G0648P4S001(0011)

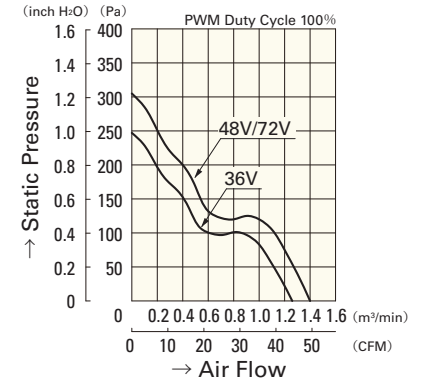
Operating Voltage Range



9G0612P4S001(0011)
9G0624P4S001(0011)

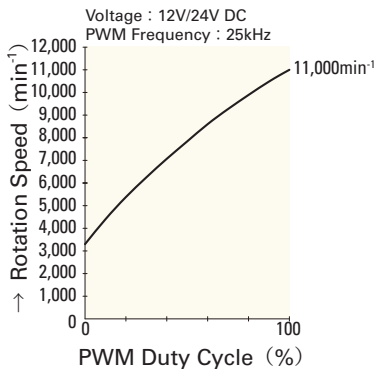


9G0612P4H001(0011)
9G0624P4H001(0011)

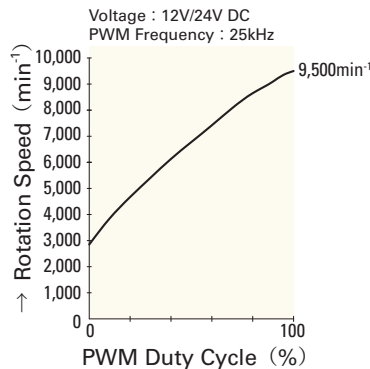


9G0648P4S001(0011)

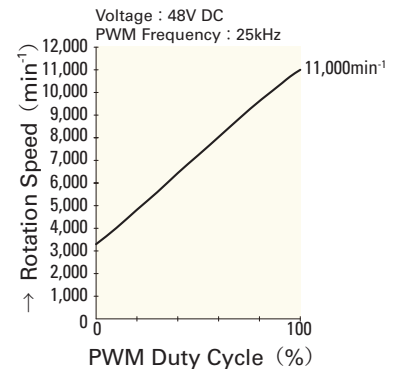
PWM Duty - Speed Characteristics Example



9G0612P4S001(0011)
9G0624P4S001(0011)



9G0612P4H001(0011)
9G0624P4H001(0011)



9G0648P4S001(0011)

60mm sq.

San Ace 60

15mm thick, 20mm thick, 25mm thick (G type)

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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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 : 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]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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	1.06 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	
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	1.06 37.1	155.0 0.622	44	−10 to +60	40,000
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	
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	1.06 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	
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.

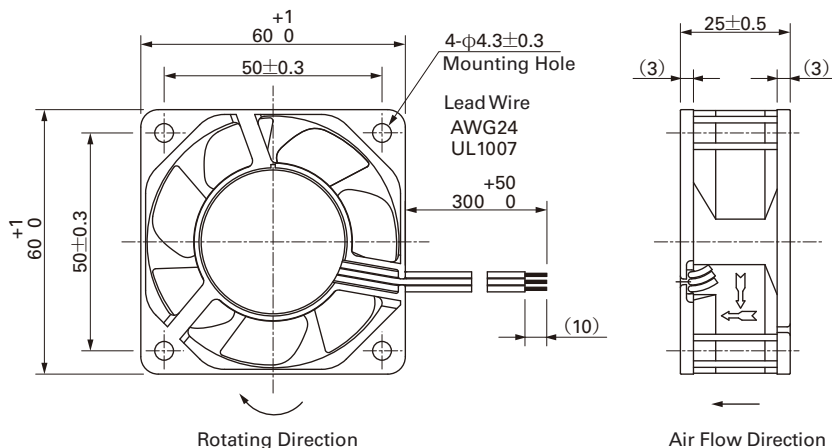
Lock Sensor

Low speed Sensor

PWM Control

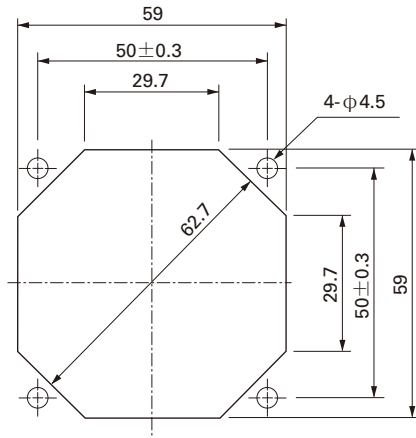
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)

 (With ribs)

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

Inlet side, Outlet side

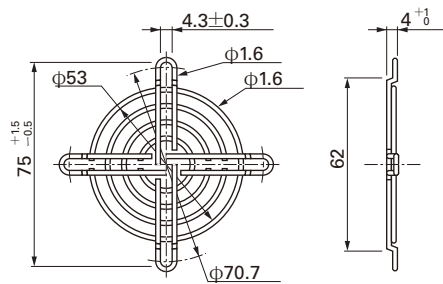


Options (Unit : mm)

Finger guards

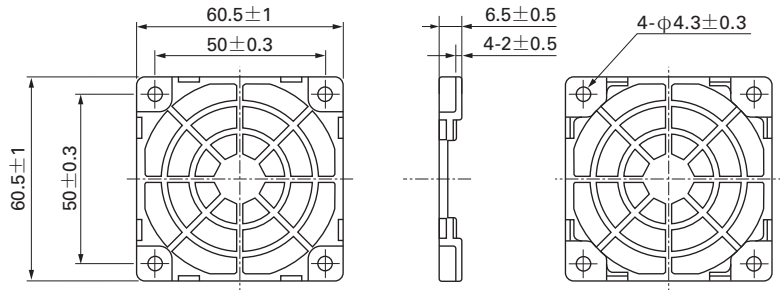
Model : 109-139E Surface treatment : Nickel-chrome plating (silver) Color : 109-139H : Cation electropainting (black)

Inlet side, Outlet side



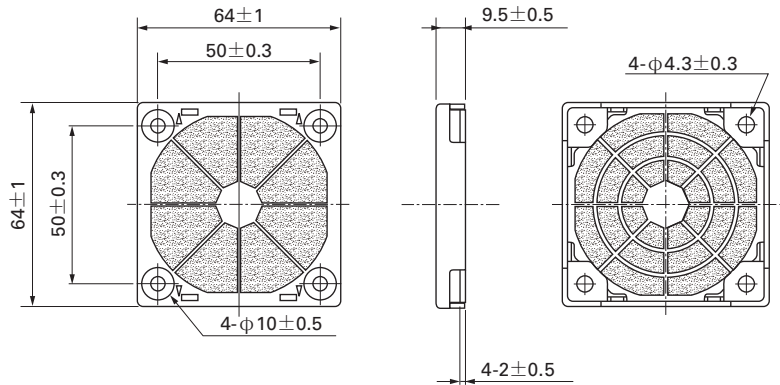
Resin finger guards

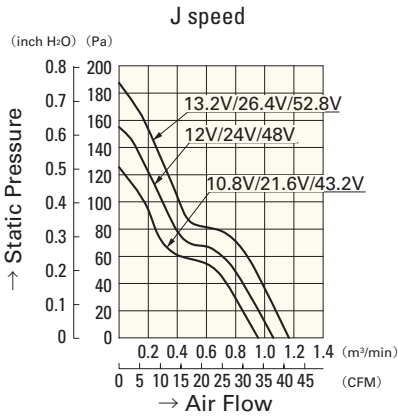
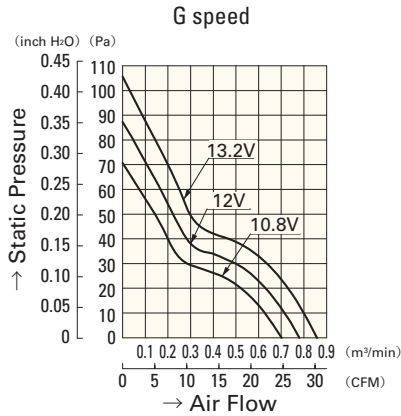
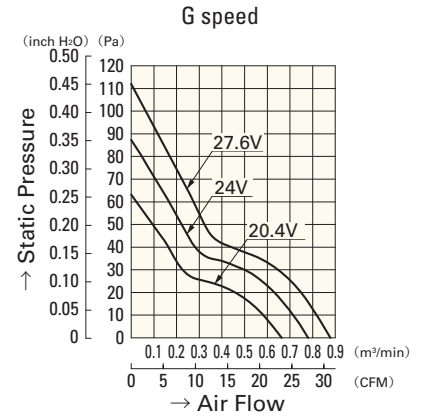
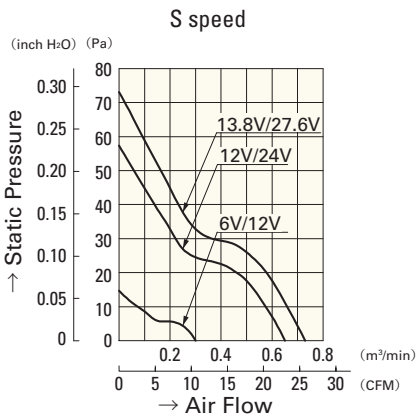
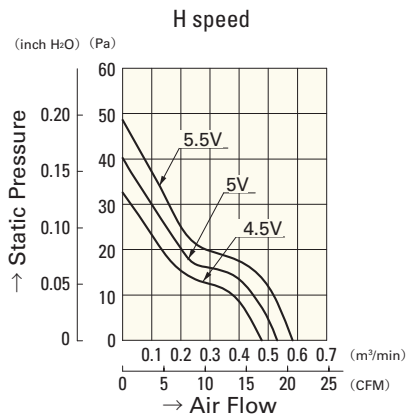
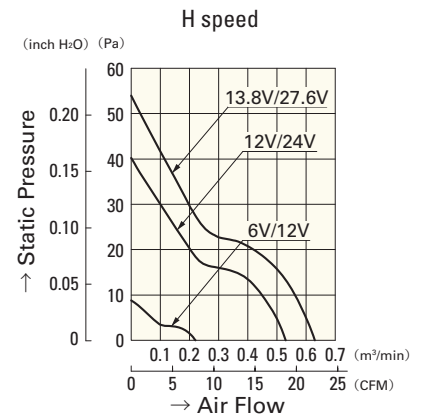
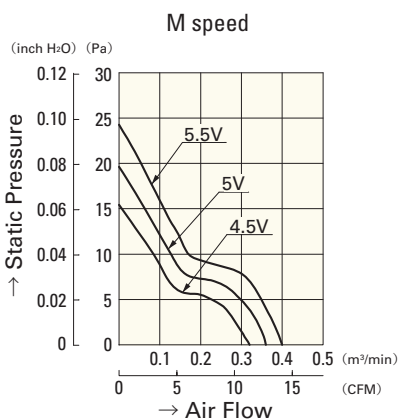
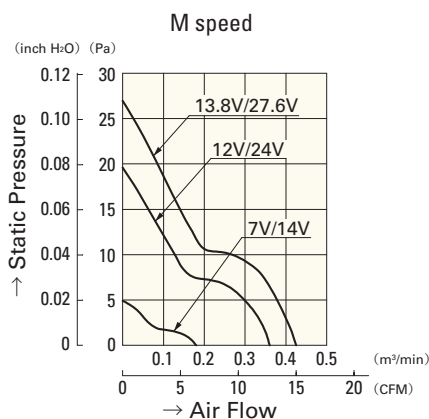
Model : 109-1003G

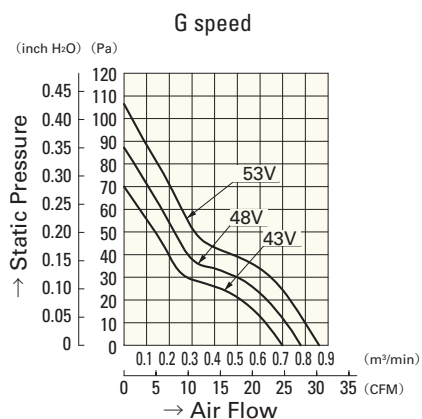


Resin filter kits

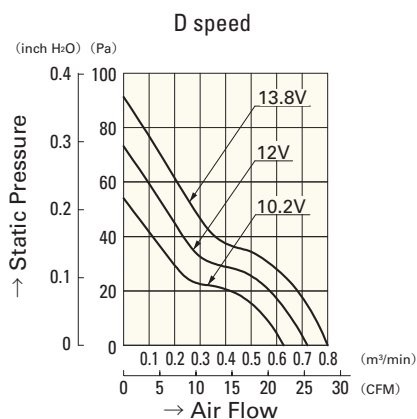
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



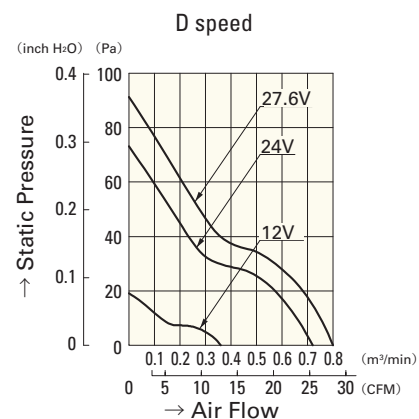
60mm sq.**San Ace 60****60×60×25mm** [Mass : 90g]**Air Flow - Static Pressure Characteristics****109R0612J401(4011)****109R0624J401(4011)****109R0648J401(4011)****109R0612G401(4011)****109R0624G401(4011)****109R0612S401(4011)****109R0624S401(4011)****109R0605H401(4011)****109R0612H401(4011)****109R0624H401(4011)****109R0605M401(4011)****109R0612M401(4011)****109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



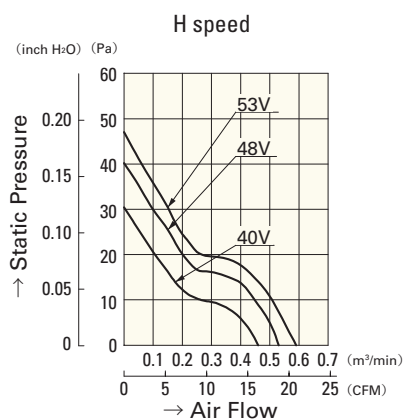
109R0648G401(4011)



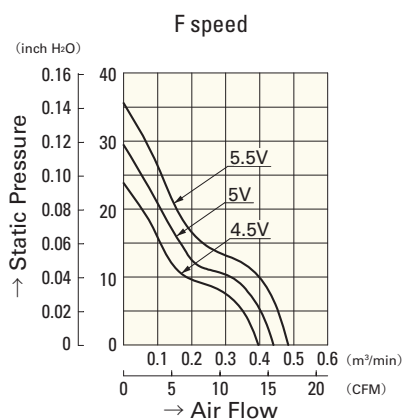
109R0612D401(4011)



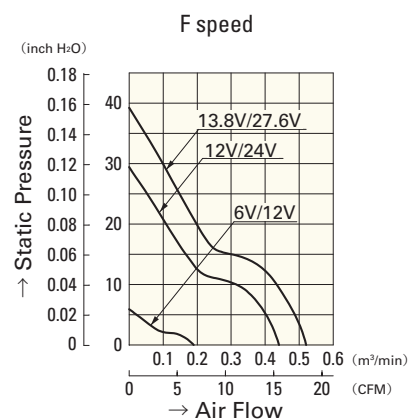
109R0624D401(4011)



109R0648H401(4011)



109R0605F401(4011)



109R0612F401(4011)

109R0624F401(4011)

60mm sq.**San Ace 60**

15mm thick, 20mm thick, 25mm thick (G type)
 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 297

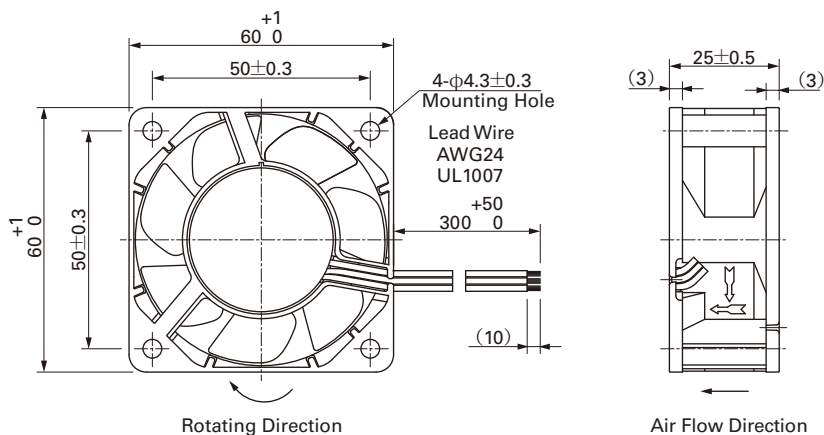
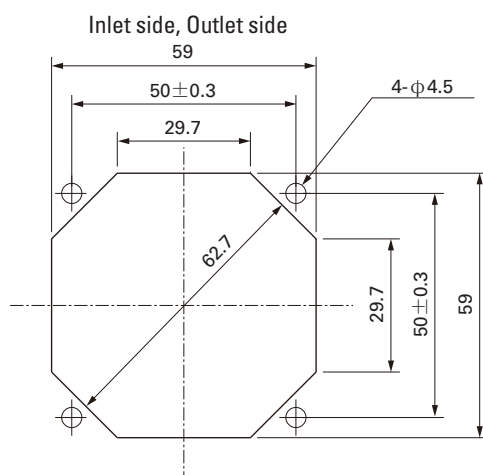
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to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

60 × 60 × 25mm [Mass : 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		
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		
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

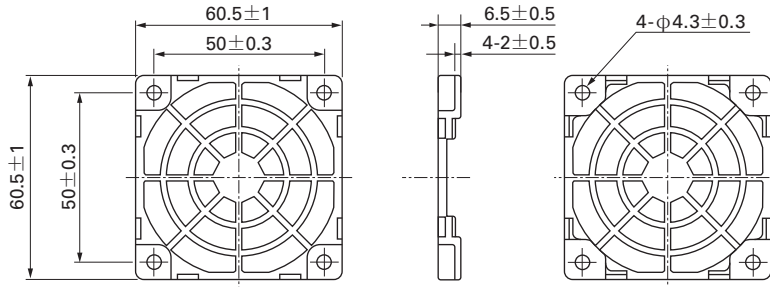
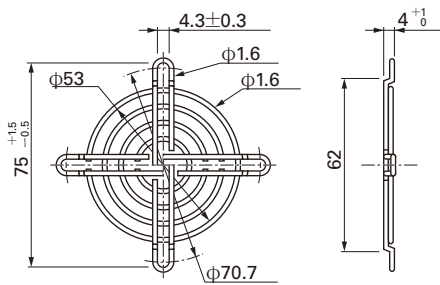
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)

Color

Resin finger guards

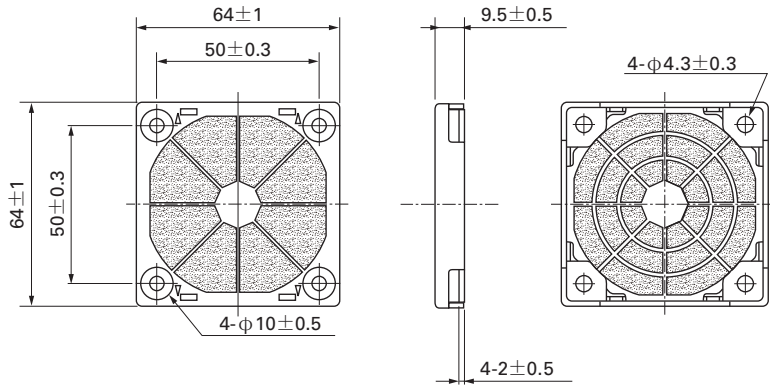
Model : 109-1003G

Inlet side, Outlet side



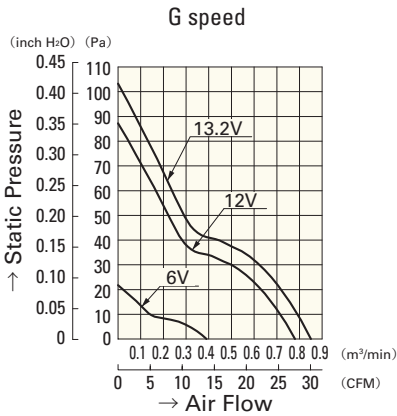
Resin filter kits

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

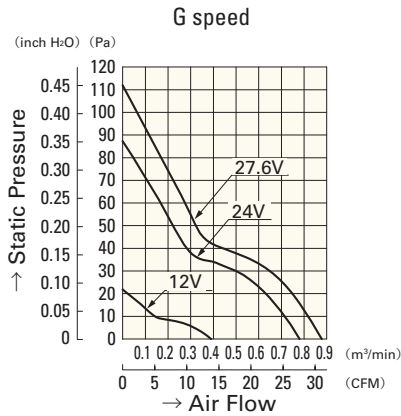


DC Fan 60mm

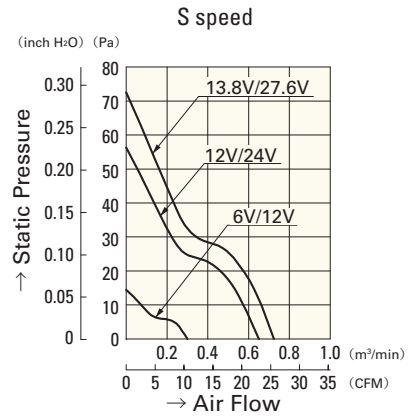
Air Flow - Static Pressure Characteristics



9A0612G401(4011)

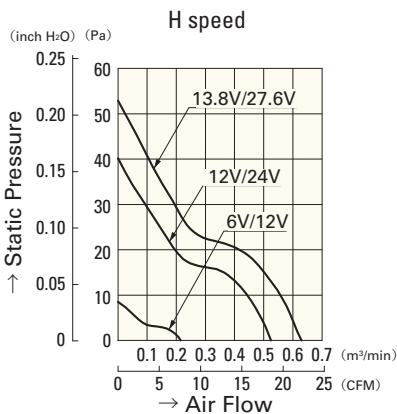


9A0624G401(4011)



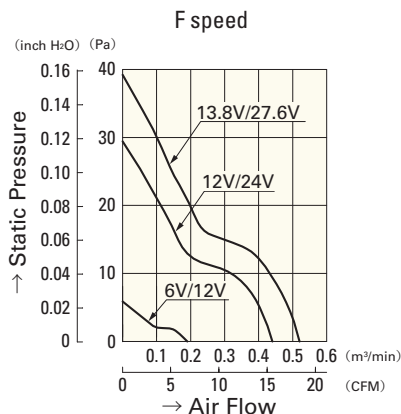
9A0612S401(4011)

9A0624S401(4011)



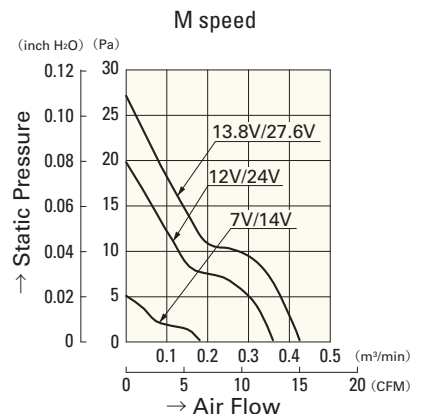
9A0612H401(4011)

9A0624H401(4011)



9A0612F401(4011)

9A0624F401(4011)



9A0612M401(4011)

9A0624M401(4011)

60mm

60mm sq.

San Ace 60

15mm thick, 20mm thick, 25mm thick (G type)
 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 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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.

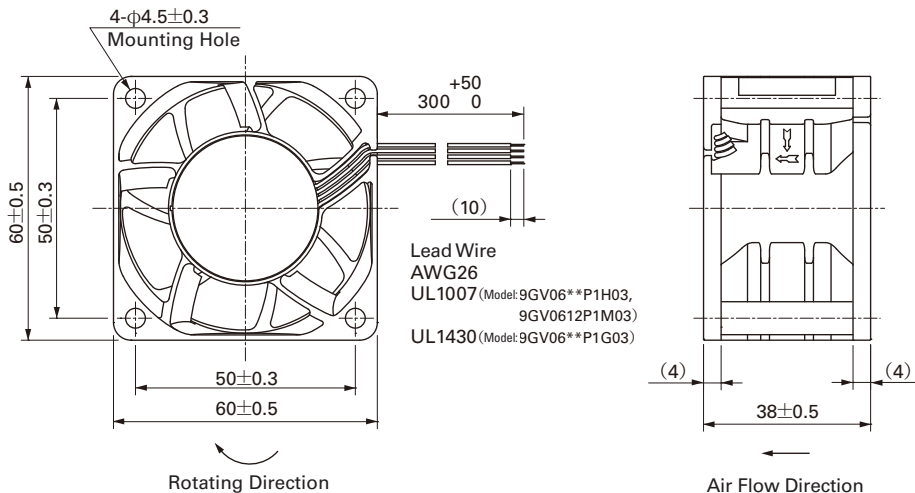
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature Range [°C]	Expected Life [h]
9GV0612P1G03(031)	12	8.0 to 13.8	100	2.8	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

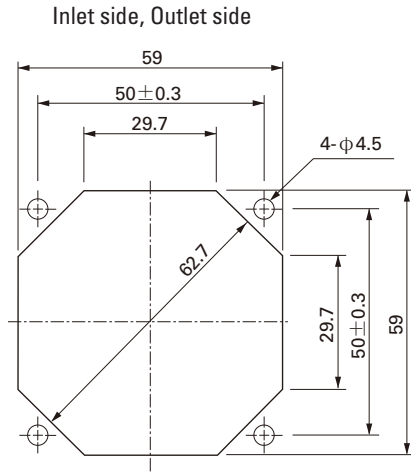
Without Sensor Pulse Sensor PWM Control Available in all models.

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

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



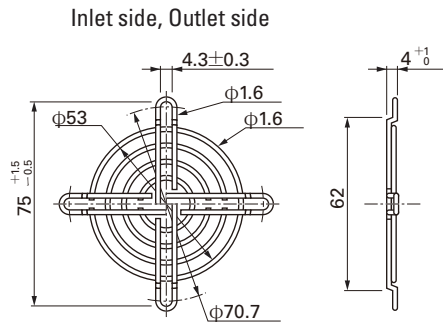
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

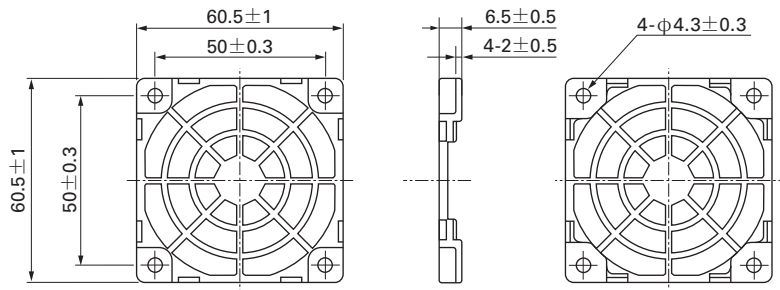
Finger guards

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



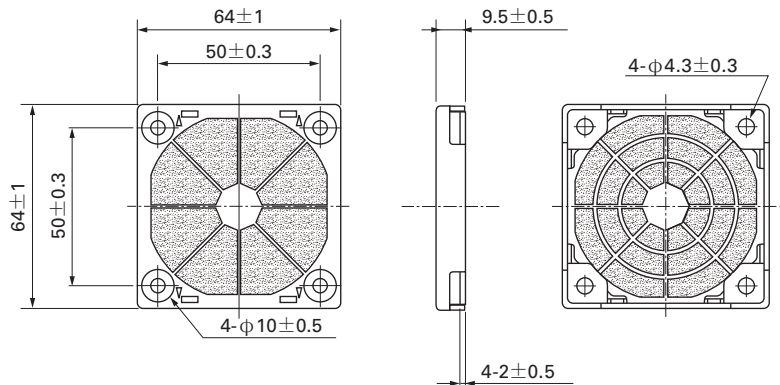
Resin finger guards

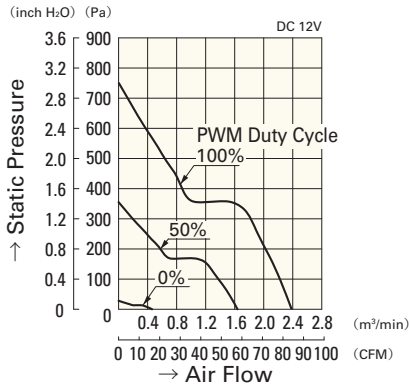
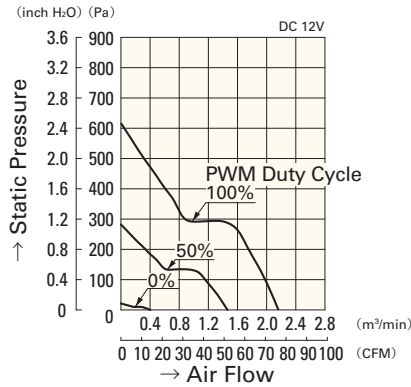
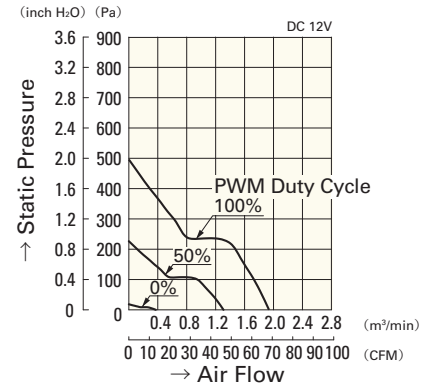
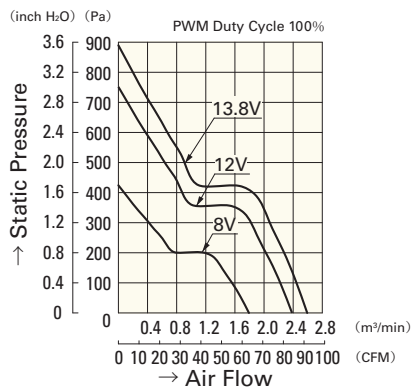
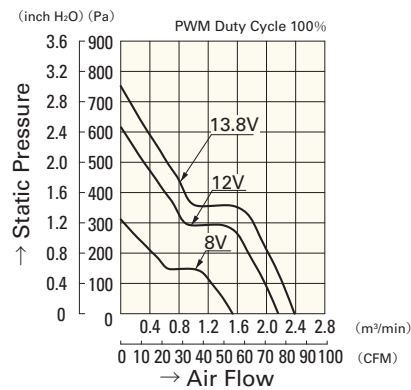
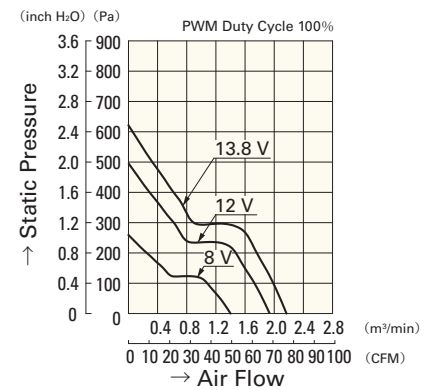
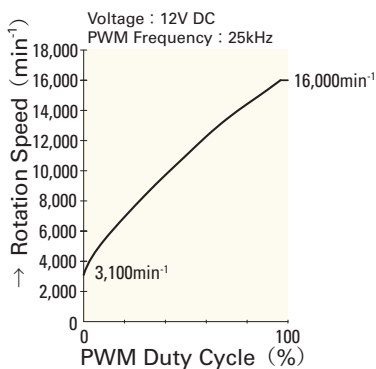
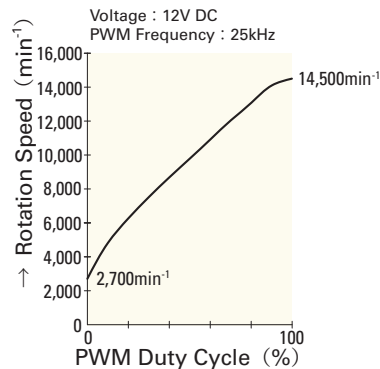
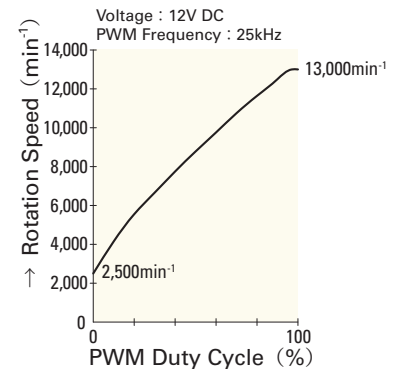
Model : 109-1003G

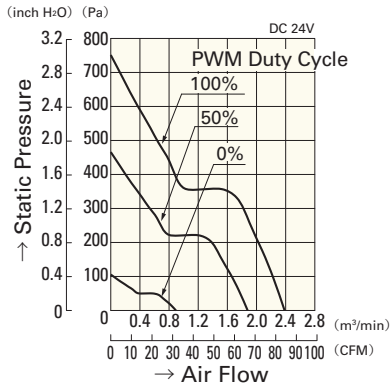


Resin filter kits

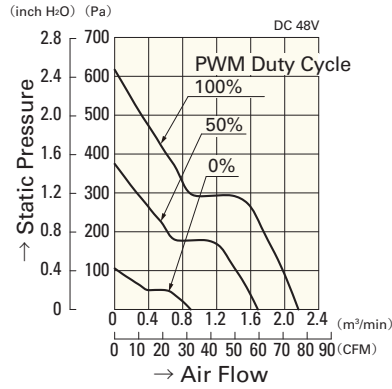
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



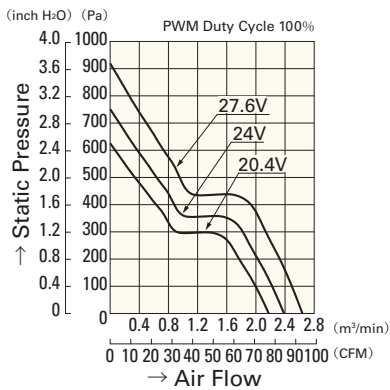
60mm sq.**San Ace 60****60×60×38mm** [Mass : 130g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GV0612P1G03(031)****9GV0612P1H03(031)****9GV0612P1M03(031)****Operating Voltage Range****9GV0612P1G03(031)****9GV0612P1H03(031)****9GV0612P1M03(031)****PWM Duty - Speed Characteristics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



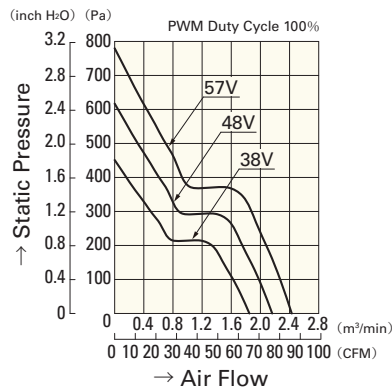
9GV0624P1G03(031)



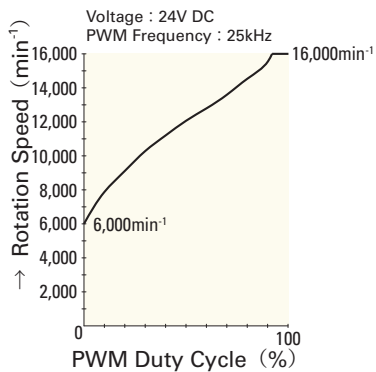
9GV0648P1H03(031)



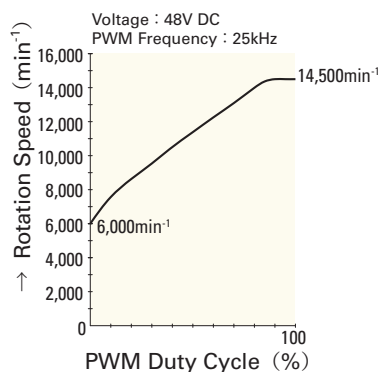
9GV0624P1G03(031)



9GV0648P1H03(031)



9GV0624P1G03(031)



9GV0648P1H03(031)

60mm sq.**San Ace 60**

15mm thick, 20mm thick, 25mm thick (G type)
 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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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)

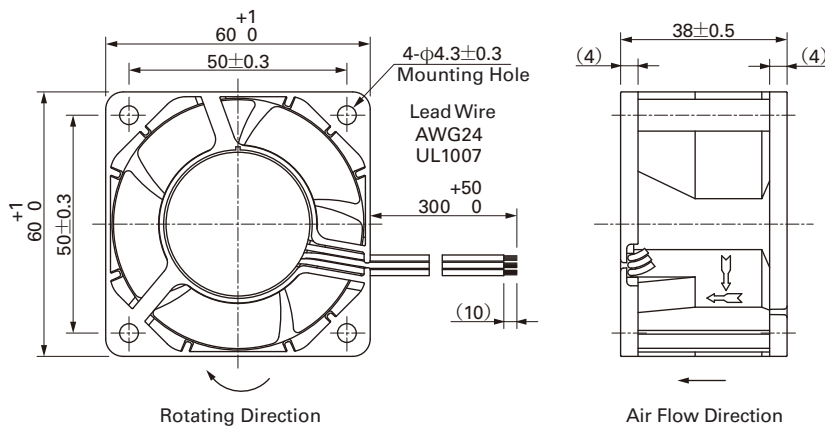
60 × 60 × 38mm [Mass : 110g]**G type**
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		
9G0624H101(1011)			0.57	13.68	9,800	1.54 54.4	304.6 1.223	54		
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		

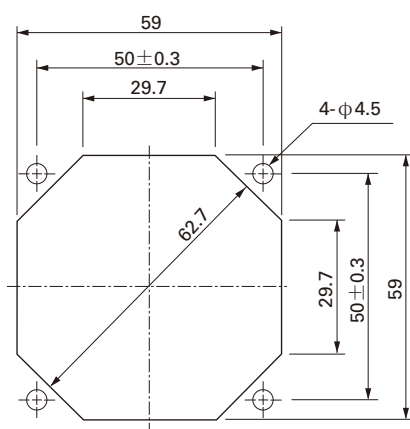
Without Sensor Pulse Sensor Available in all models.

Lock 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)

Inlet side, Outlet side



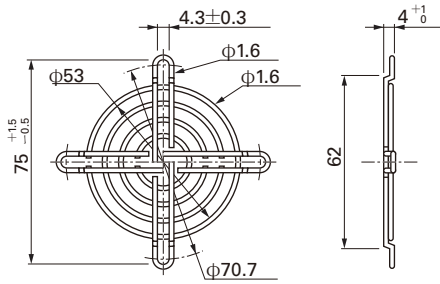
Options (Unit : mm)

Finger guards

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

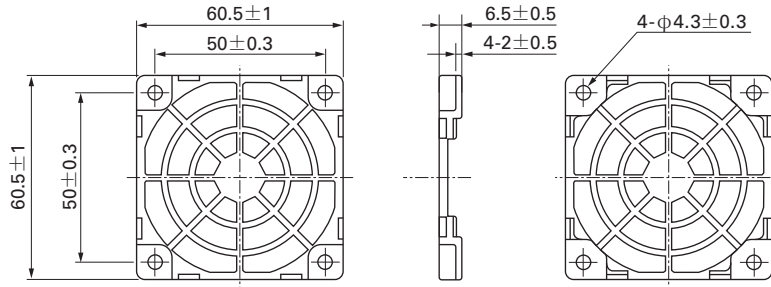
Color

Inlet side, Outlet side



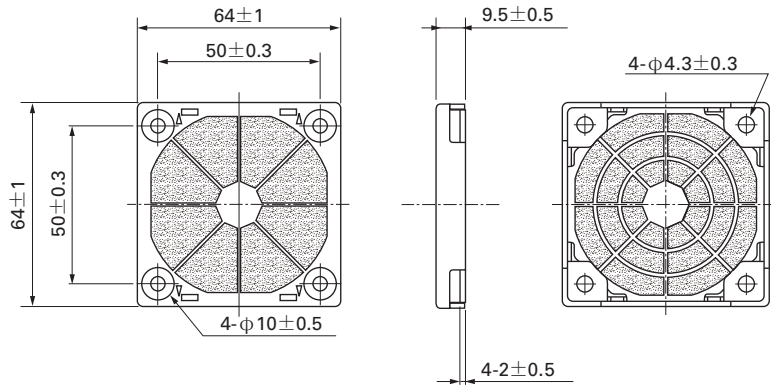
Resin finger guards

Model : 109-1003G

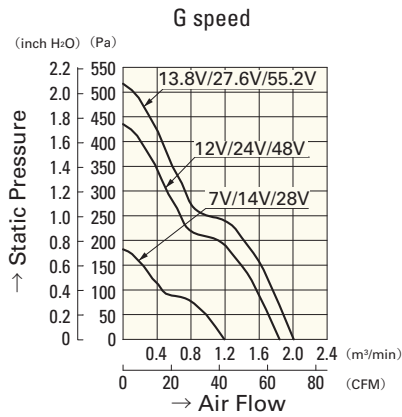


Resin filter kits

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



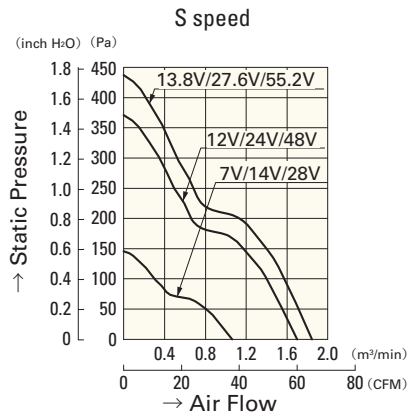
Air Flow - Static Pressure Characteristics



9G0612G101(1011)

9G0624G101(1011)

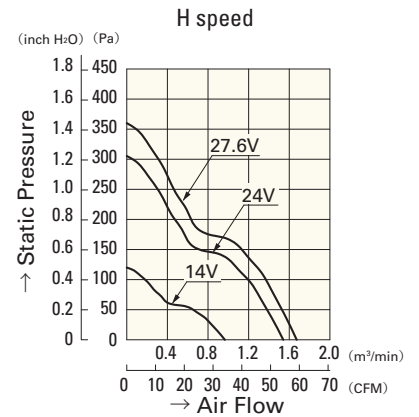
9G0648G101(1011)



9G0612S101(1011)

9G0624S101(1011)

9G0648S101(1011)



9G0624H101(1011)

DC Fan 60mm

60mm

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)

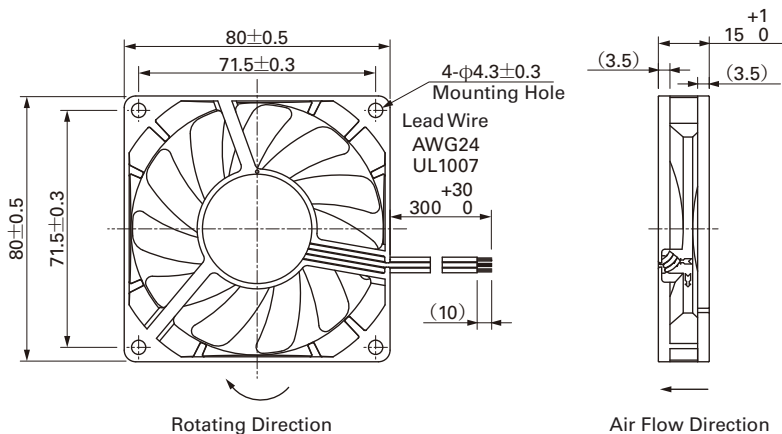
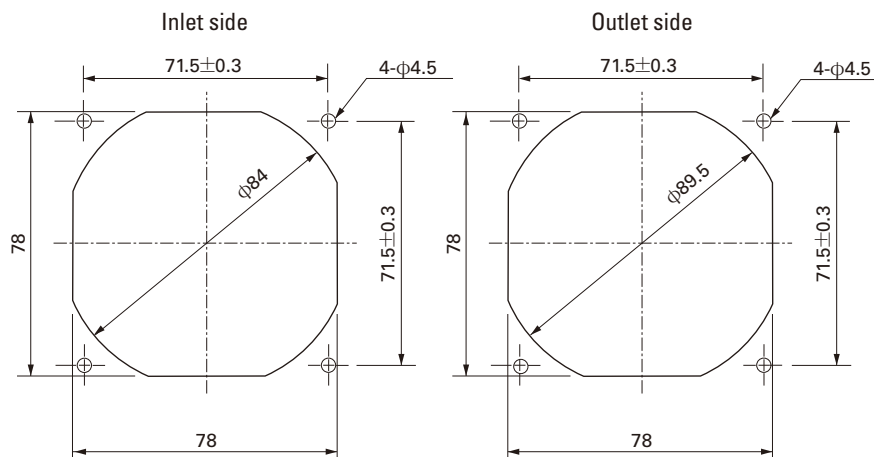
General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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 × 15**mm [Mass : 68g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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

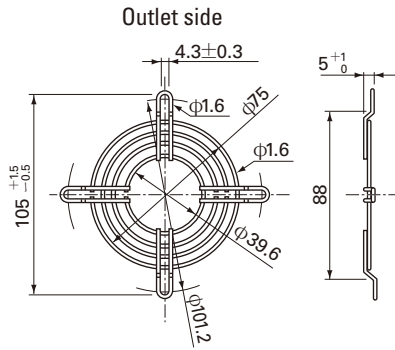
Without Sensor Pulse Sensor Available in all models.

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)**

Options (Unit : mm)

Finger guards

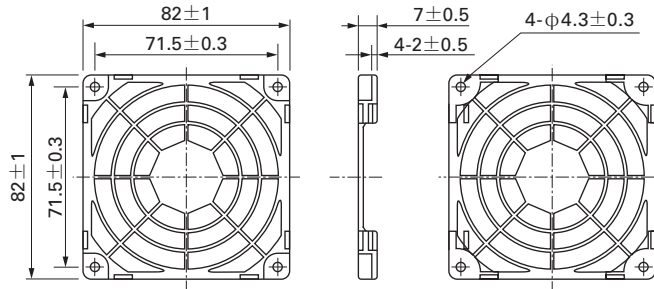
Model : 109-049C Color : Nickel-chrome plating (silver)



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

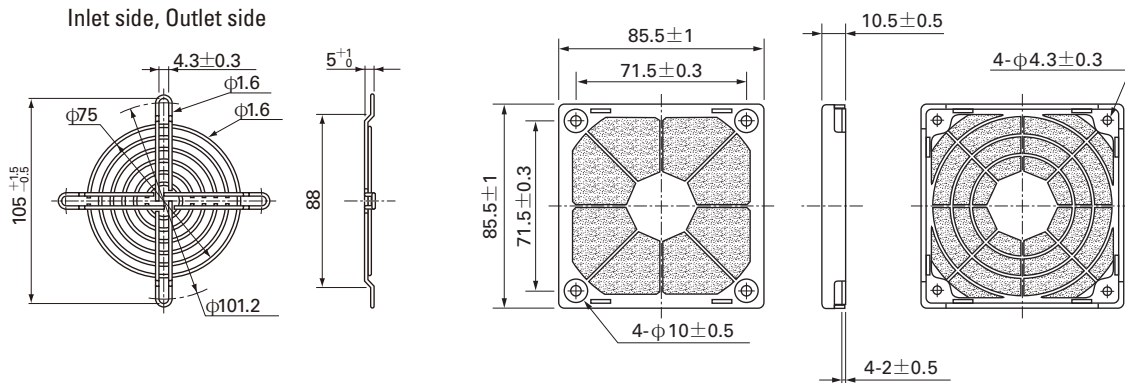
Resin finger guards

Model : 109-1002G

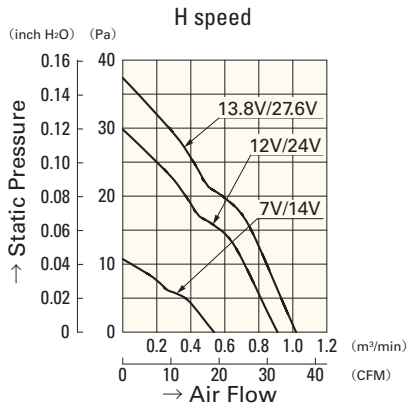


Resin filter kits

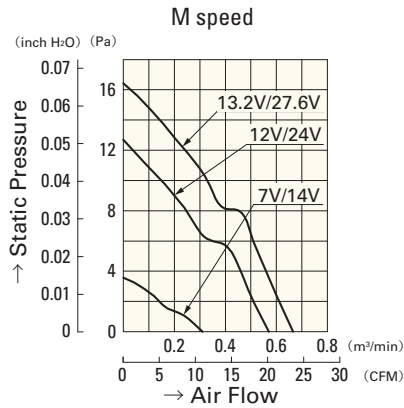
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



Air Flow - Static Pressure Characteristics



109P0812H701
109P0824H701



109P0812M701
109P0824M701

DC Fan 80mm

80mm

80mm sq.**San Ace 80**

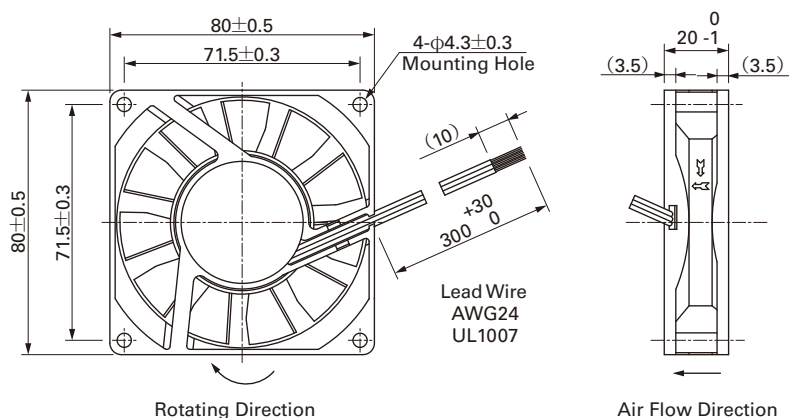
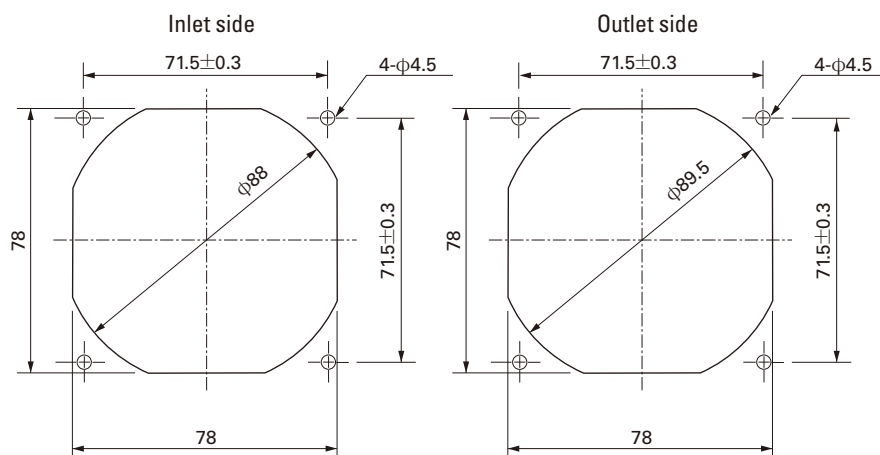
15mm thick, 20mm thick, 25mm thick
 25mm thick (San Cooler), 32mm thick
 38mm thick (GV type), 38mm thick (G type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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**

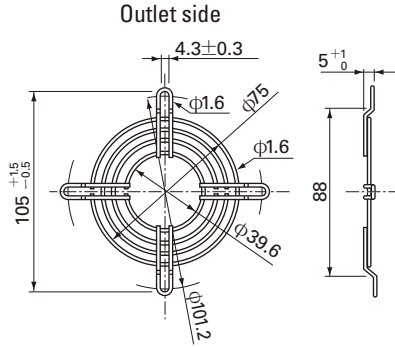
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109P0812C601	12	10.2 to 13.8	0.29	3.48	3,700	1.07 37.8	46 0.185	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)

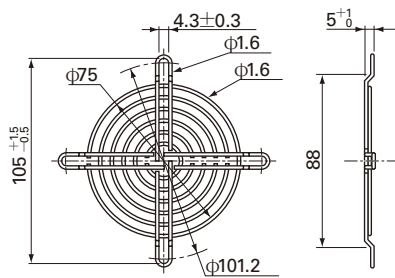
Finger guards

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



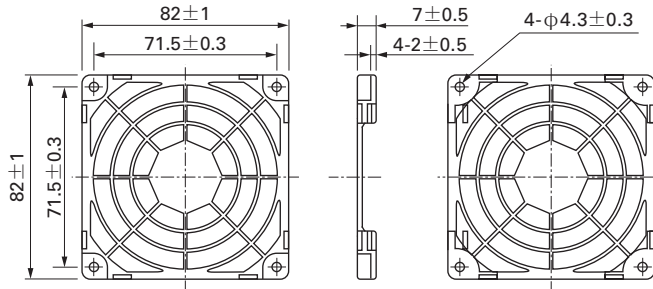
Model : 109-049E Color
Surface treatment : Nickel-chrome plating (silver)
Model : 109-049H : Cation electropainting (black)

Inlet side, Outlet side



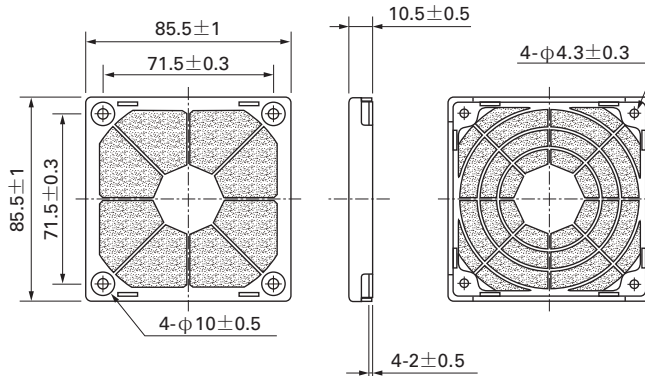
Resin finger guards

Model : 109-1002G

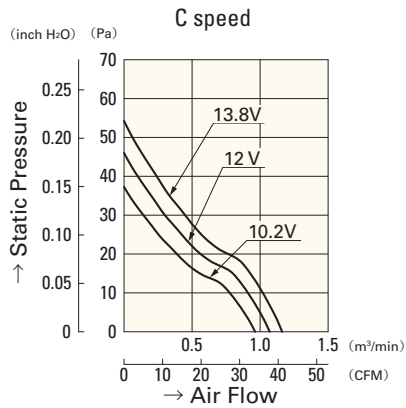


Resin filter kits

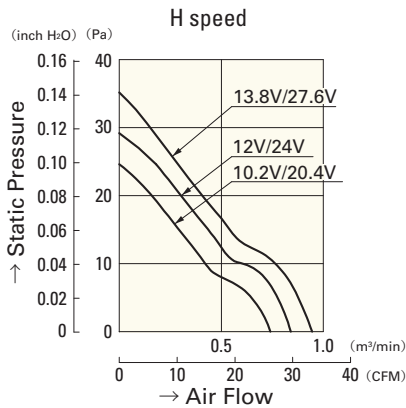
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
Model : 109-1002F30 (30PPI), 109-1002F40 (40PPI)



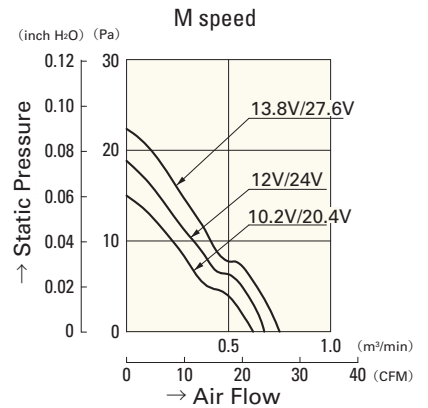
Air Flow - Static Pressure Characteristics



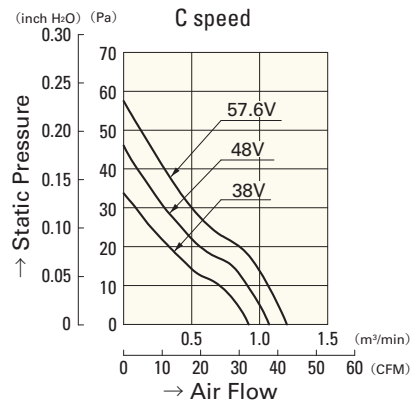
109P0812C601



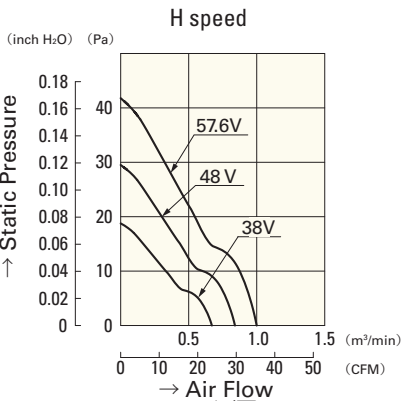
109P0812H601
109P0824H601



109P0812M601
109P0824M601



109P0848C601



109P0848H601

DC Fan 80mm

80mm

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 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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.

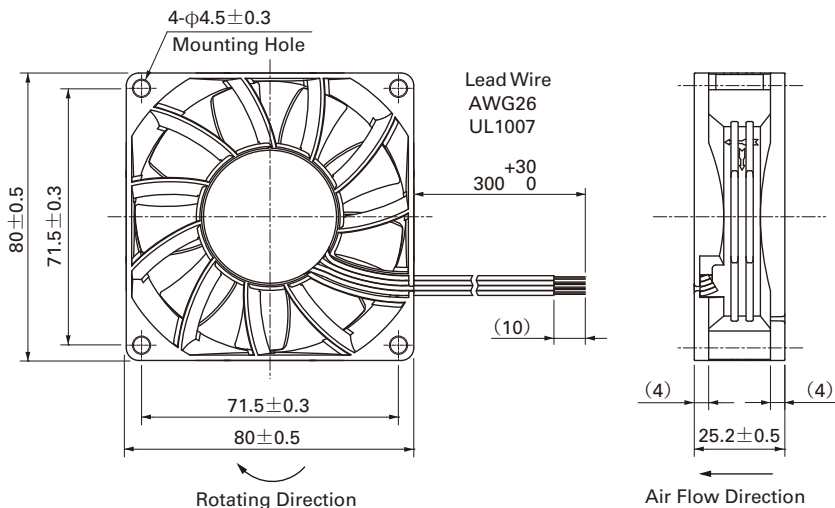
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GV0812P4K03(031)	12	10.2 to 13.8	100	0.87	10.4	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		
9GV0824P4K01(011)	24	20.4 to 27.6	100	0.44	10.56	5,600	2.12 74.8	173 0.69	52		
			0	0.06	1.44	1,400	0.53 18.7	10.8 0.04	18		
9GV0848P4K03(031)	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

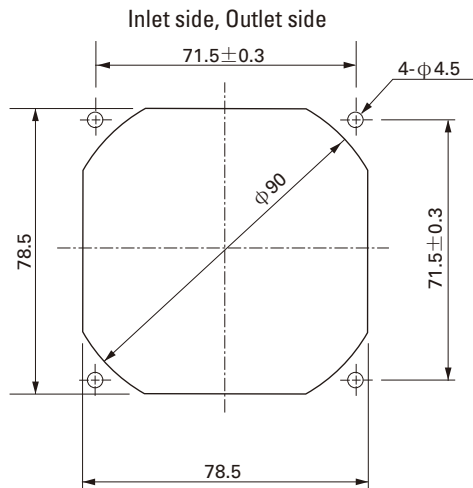
Without Sensor Pulse Sensor PWM Control Available in all models.

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)

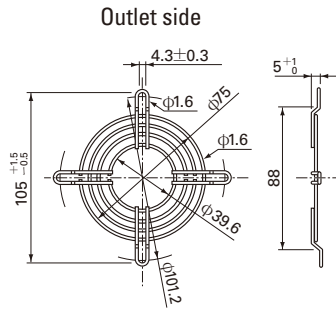


DC Fan 80mm

Options (Unit : mm)

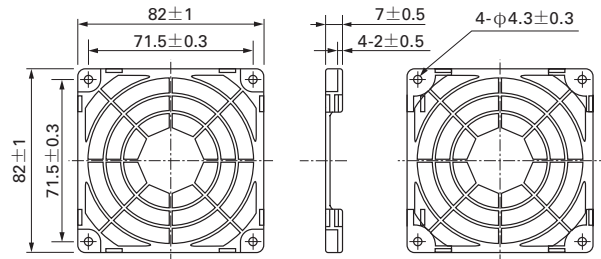
Finger guards

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



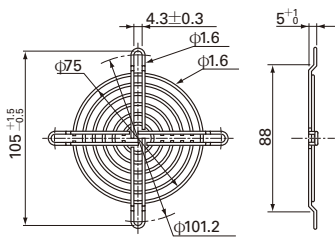
Resin finger guards

Model : 109-1002G



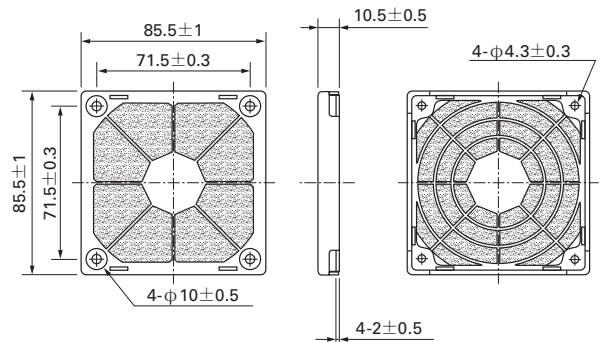
Model : 109-049E Color : Nickel-chrome plating (silver)
Model : 109-049H Color : Cation electropainting (black)

Inlet side, Outlet side

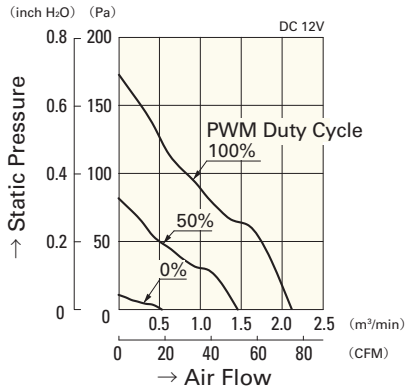
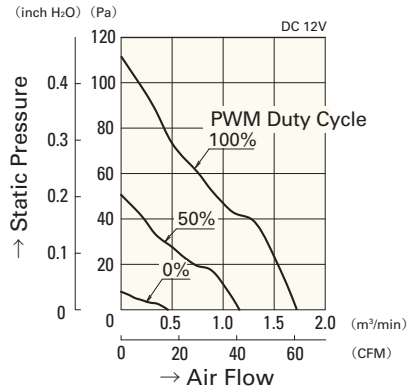
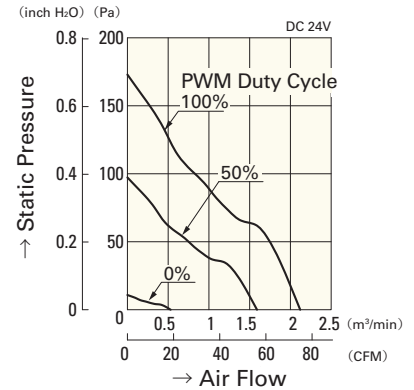
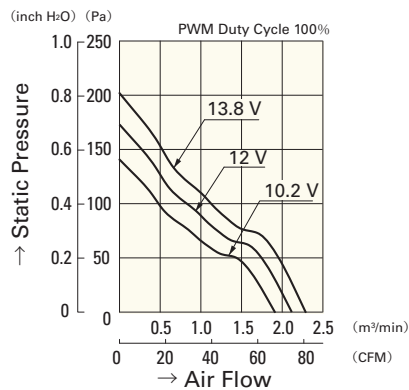
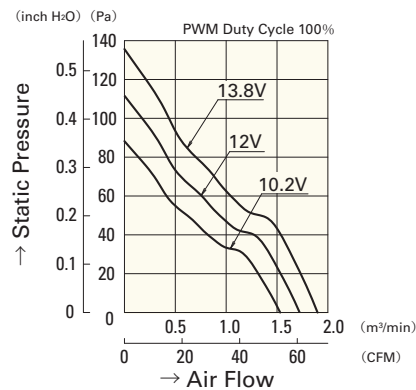
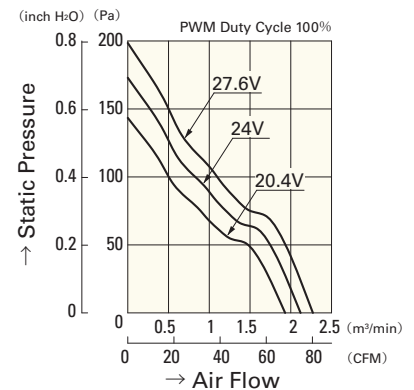
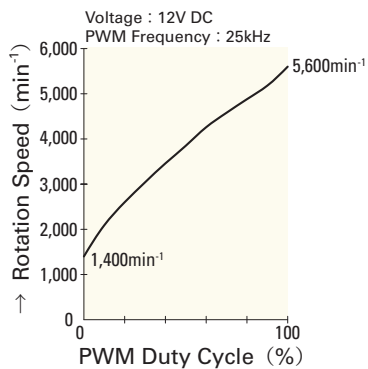
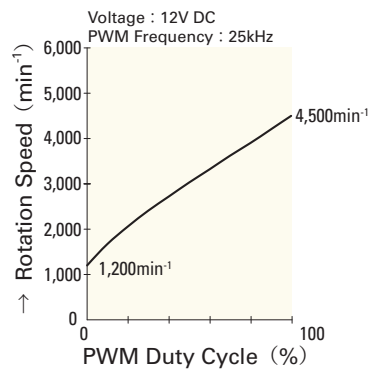
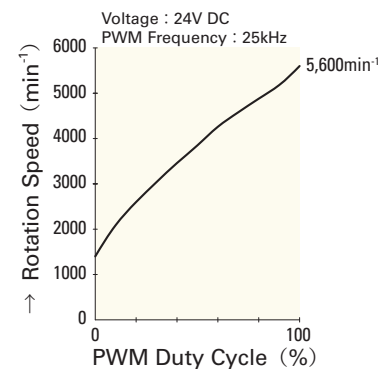


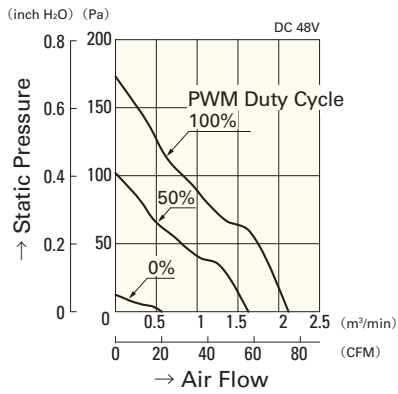
Resin filter kits

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

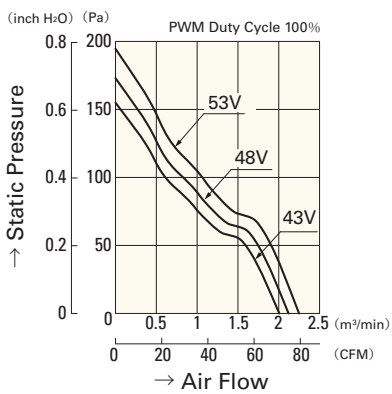


80mm

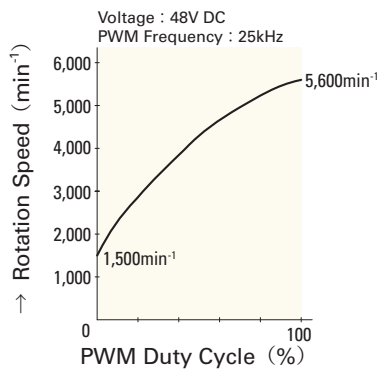
80mm sq.**San Ace 80****80×80×25mm** [Mass : 125g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GV0812P4K03(031)****9GV0812P4J03(031)****9GV0824P4K01(011)****Operating Voltage Range****9GV0812P4K03(031)****9GV0812P4J03(031)****9GV0824P4K01(011)****PWM Duty - Speed Characteristics Example****9GV0812P4K03(031)****9GV0812P4J03(031)****9GV0824P4K01(011)**



9GV0848P4K03(031)



9GV0848P4K03(031)



9GV0848P4K03(031)

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)

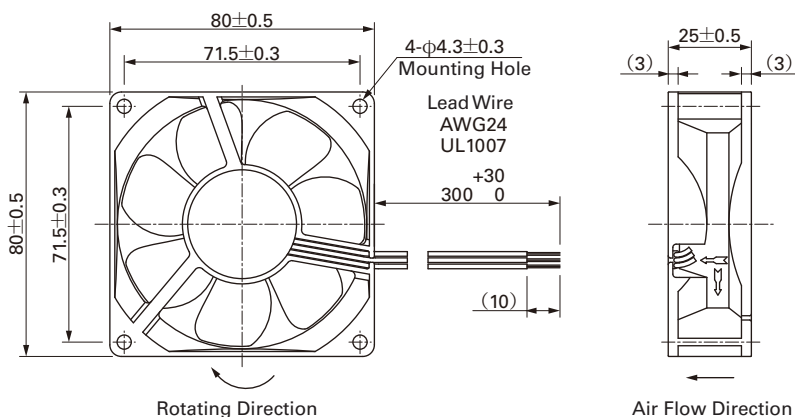

General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

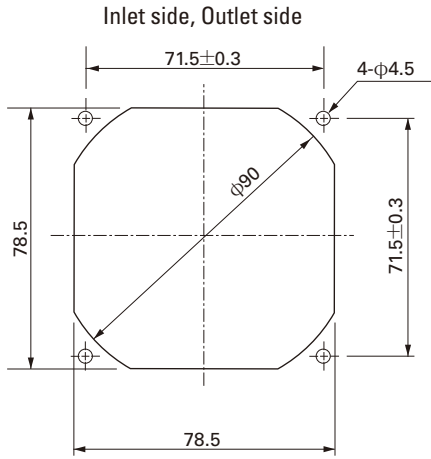
80 × 80 × 25mm [Mass : 110g]
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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	-10 to +70	60,000

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)


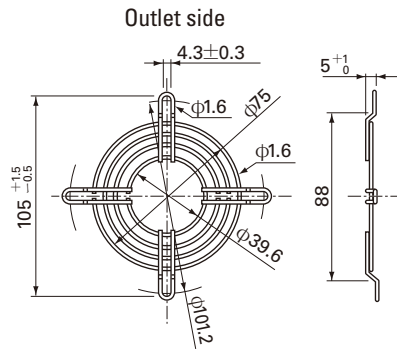
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

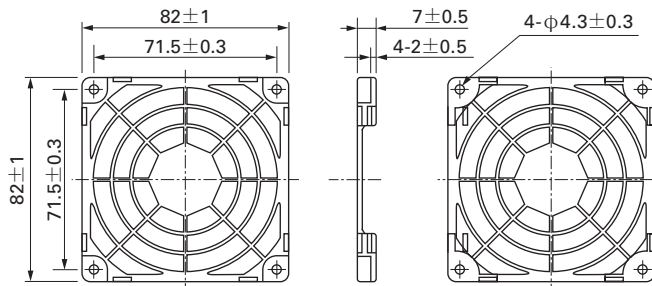
Finger guards

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



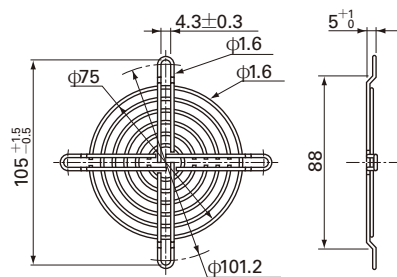
Resin finger guards

Model : 109-1002G



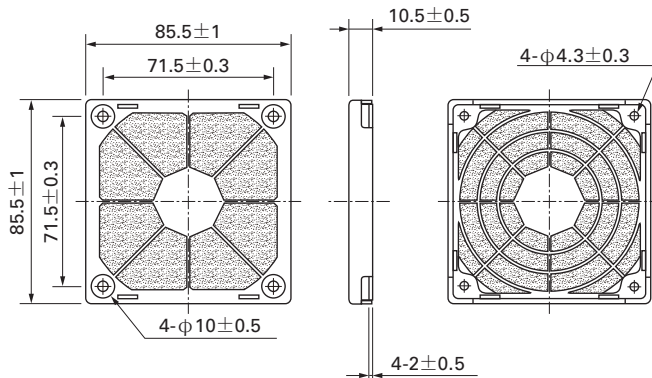
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color : Nickel-chrome plating (silver)
Model : 109-049H Surface treatment : Cation electropainting (black) Color : Cation electropainting (black)

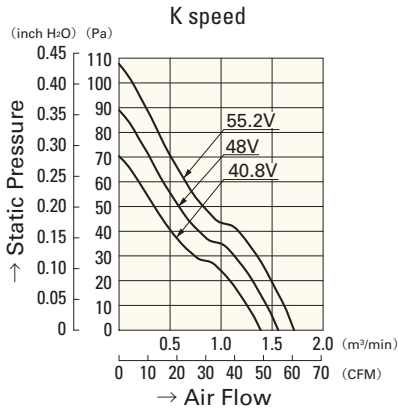
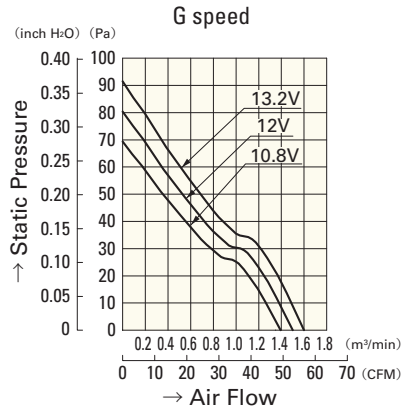
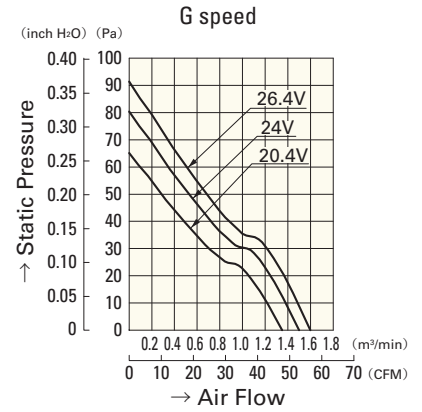
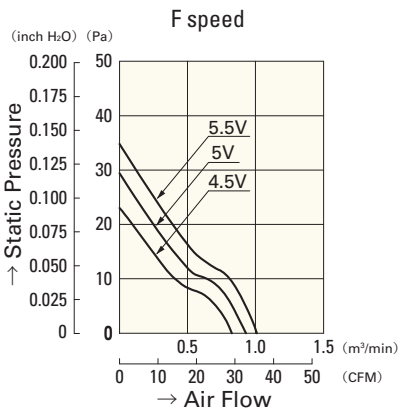
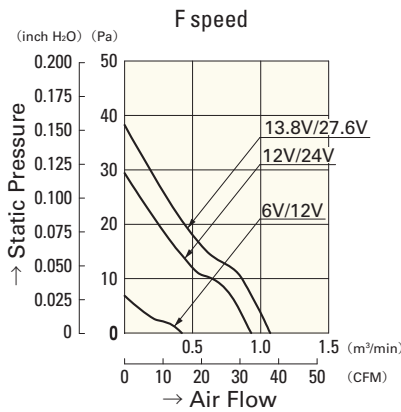
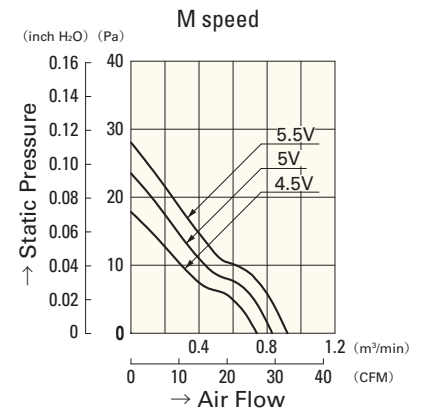
Inlet side, Outlet side

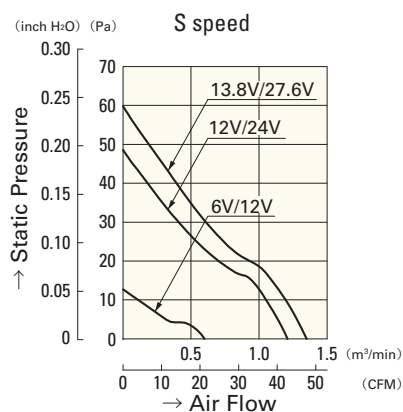


Resin filter kits

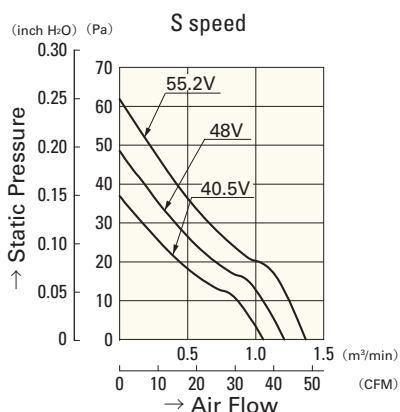
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
Model : 109-1002F30 (30PPI), 109-1002F40 (40PPI)



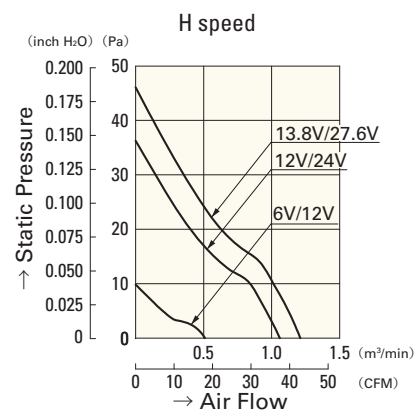
80mm sq.**San Ace 80****80×80×25mm** [Mass : 110g]**Air Flow - Static Pressure Characteristics****109R0848K401(4011)****109R0812G401(4011)****109R0824G401(4011)****109R0805F401(4011)****109R0812F401(4011)**
109R0824F401(4011)**109R0805M401(4011)**



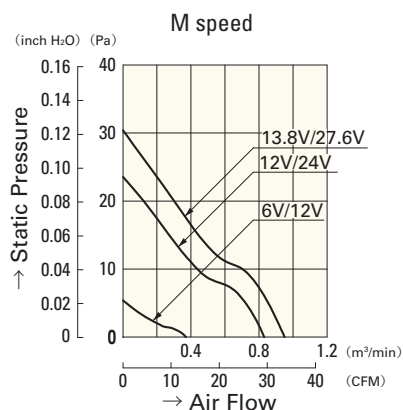
109R0812S401(4011)
109R0824S401(4011)



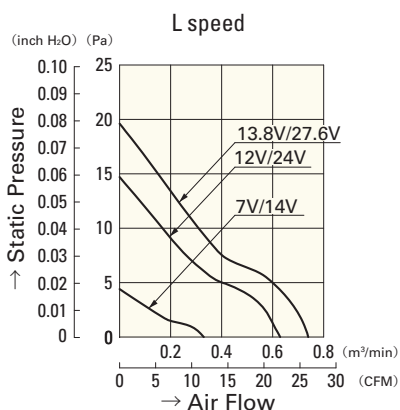
109R0848S401(4011)



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 297

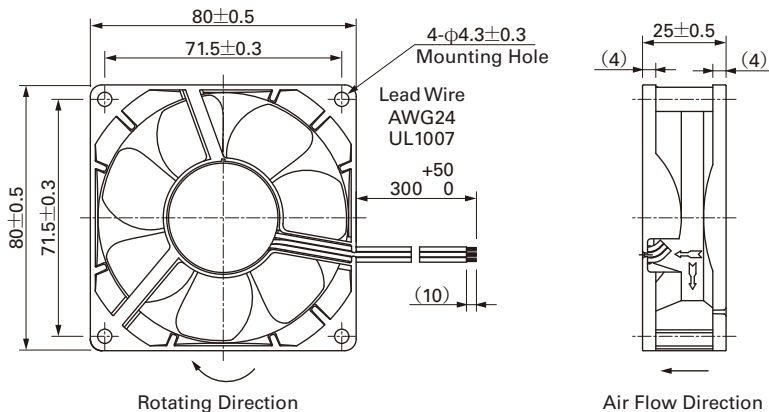
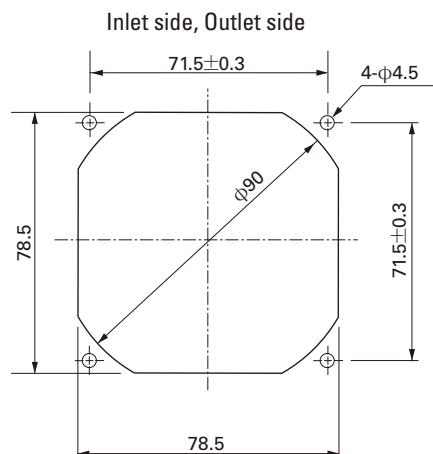
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to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

80 × 80 × 25mm [Mass : 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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 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)

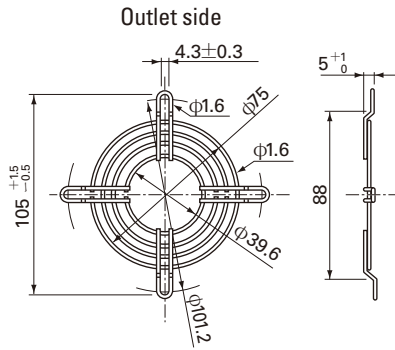
Finger guards

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

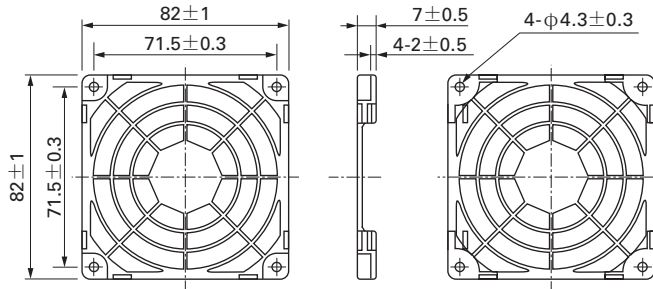
Color

Resin finger guards

Model : 109-1002G

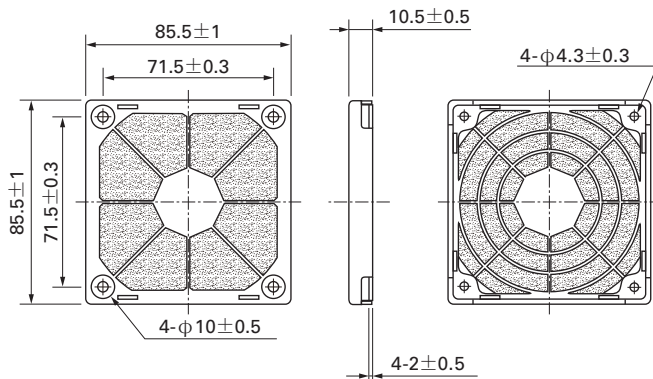
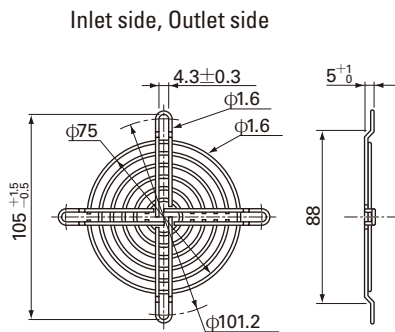


Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)

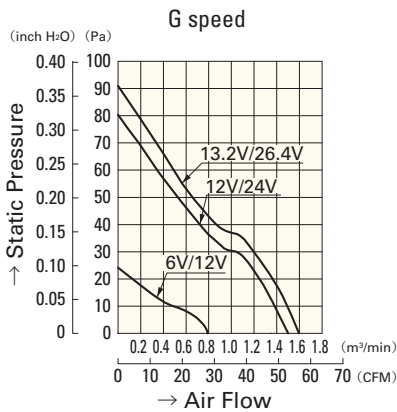


Resin filter kits

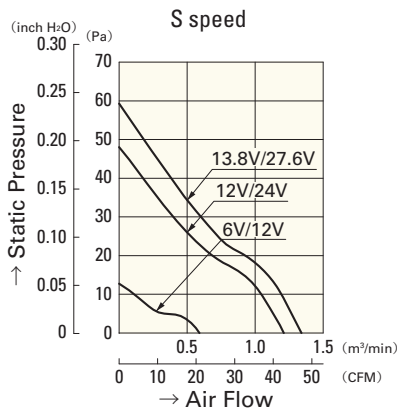
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



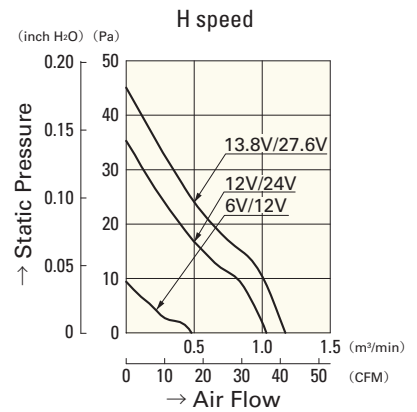
Air Flow - Static Pressure Characteristics



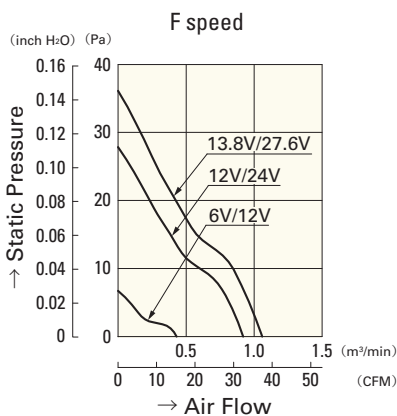
9A0812G401(4011)
9A0824G401(4011)



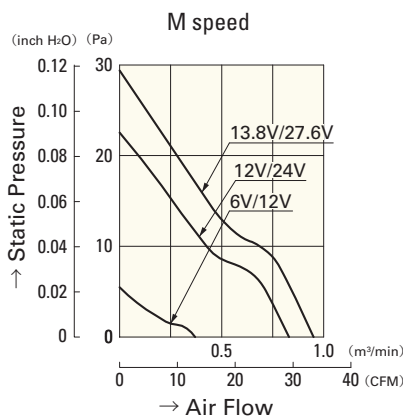
9A0812S401(4011)
9A0824S401(4011)



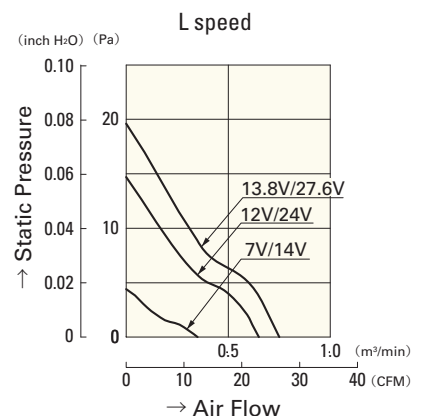
9A0812H401(4011)
9A0824H401(4011)



9A0812F401(4011)
9A0824F401(4011)



9A0812M401(4011)
9A0824M401(4011)



9A0812L401(4011)
9A0824L401(4011)

DC Fan 80mm

80mm

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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

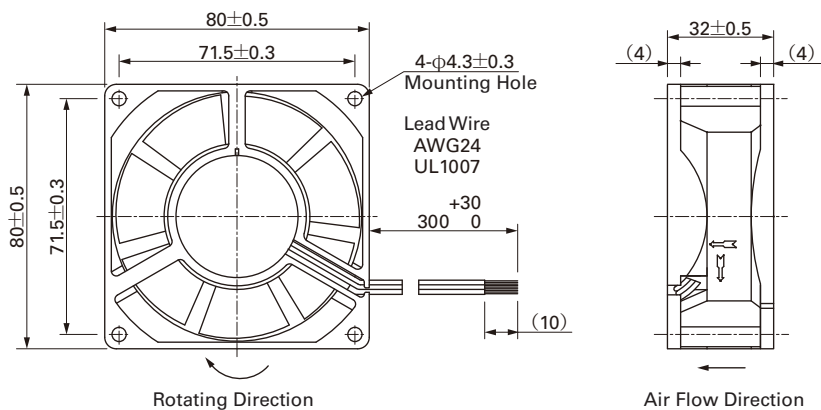
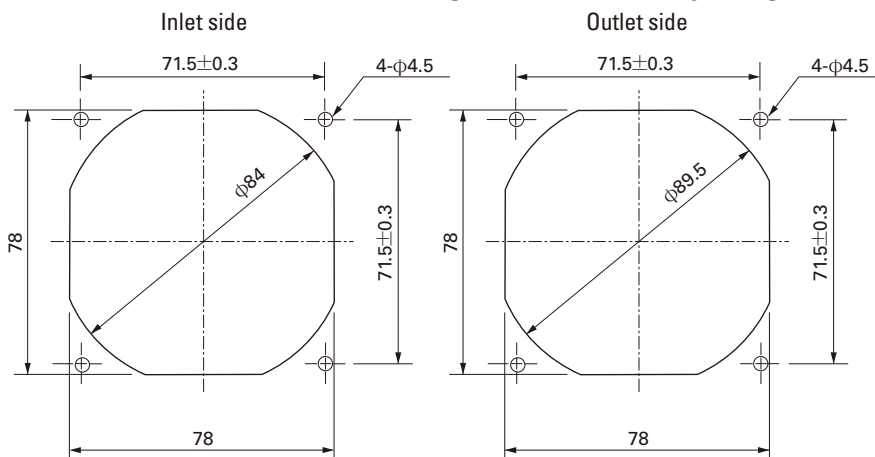
80 × 80 × 32mm [Mass : 150g]
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		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		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)


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 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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 : 220g]**GV type**

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

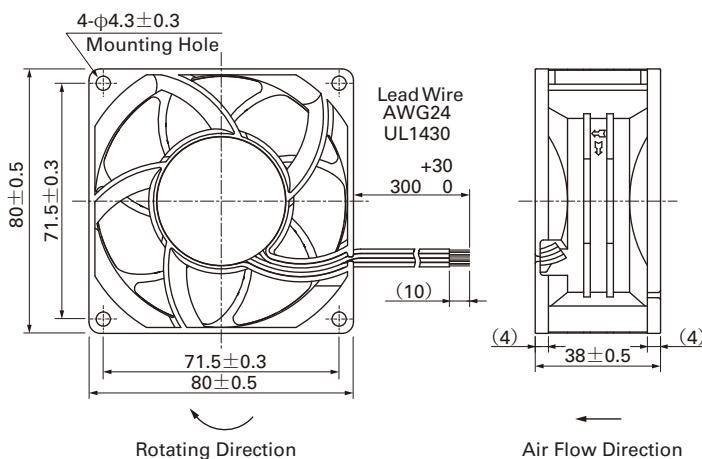
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GV0812P1G03(031)	12	10.8 to 13.2	100	3.80	45.60	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		
			0	0.15	7.2	4,700	1.79 63.2	104.0 0.41	44		

※PWM Frequency : 25kHz

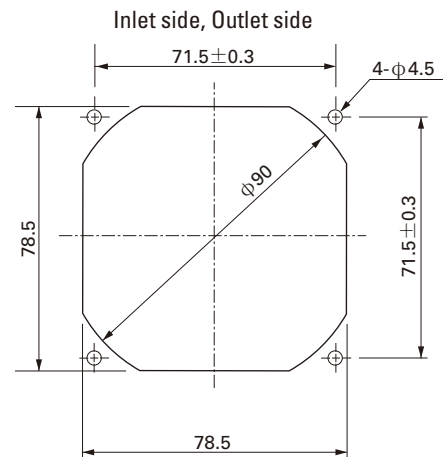
Without Sensor Pulse Sensor PWM Control Available in all models.

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

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

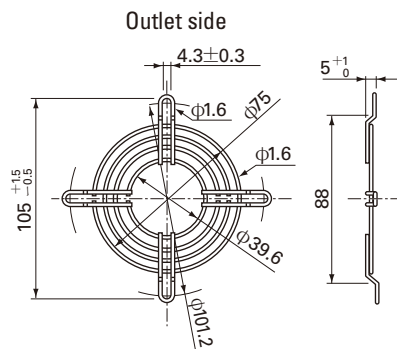


■ **Reference dimension of mounting holes and vent opening (Unit : mm)**



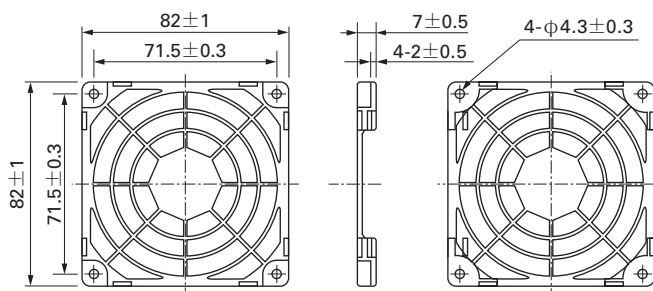
Finger guards

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

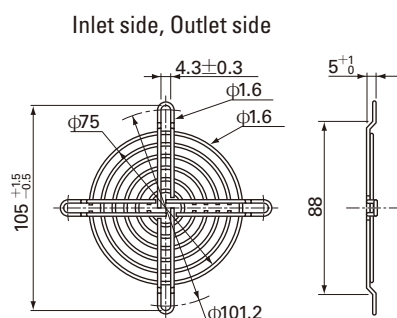


Resin finger guards

Model : 109-1002G

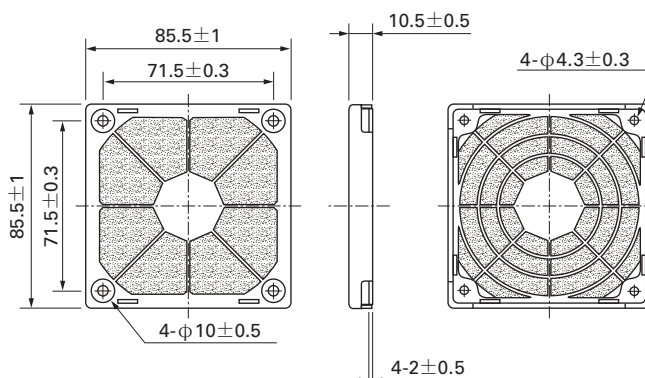


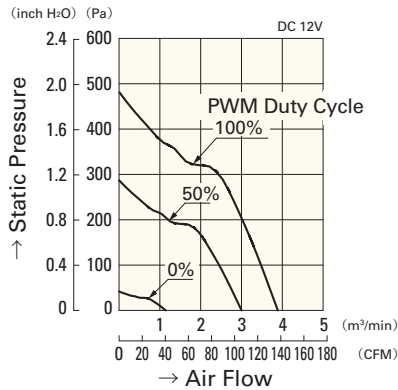
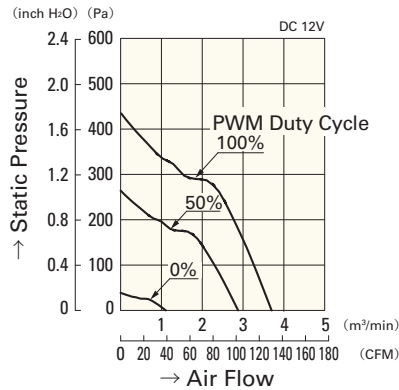
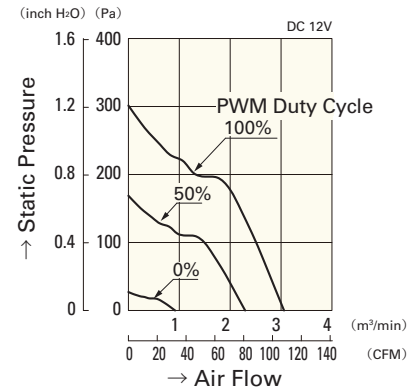
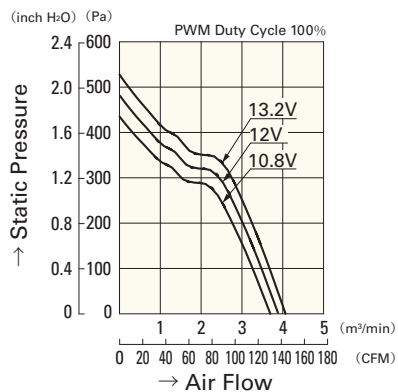
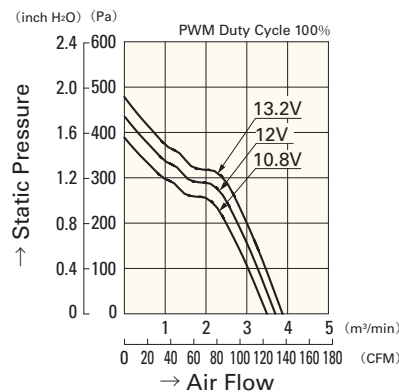
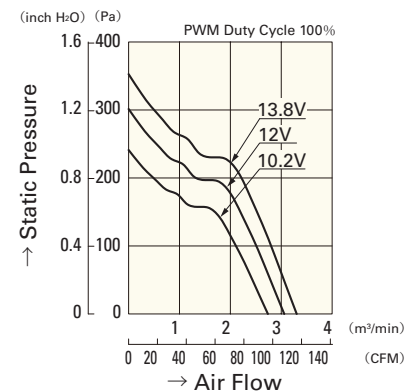
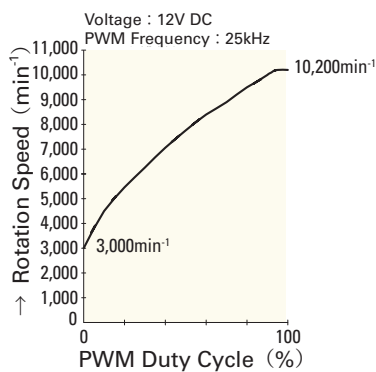
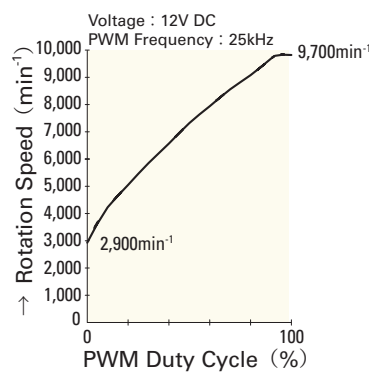
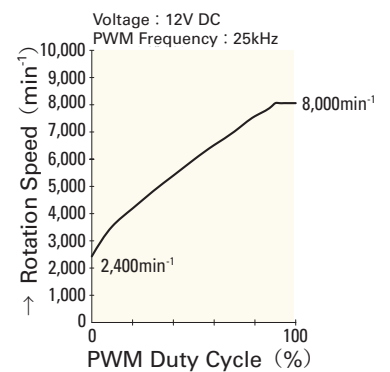
Model : 109-049E Color : Nickel-chrome plating (silver)
: 109-049H : Cation electropainting (black)

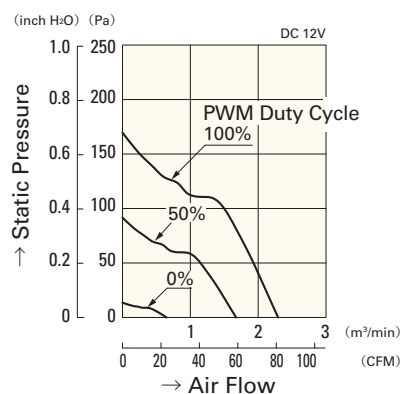


Resin filter kits

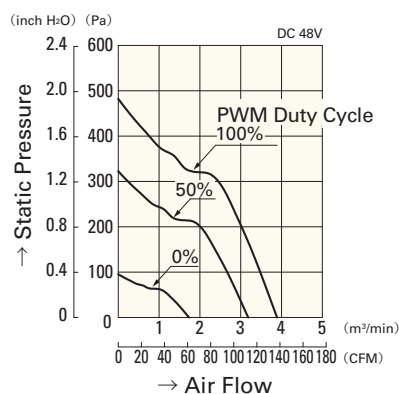
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



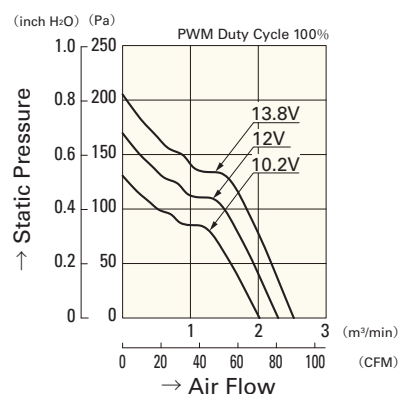
80mm sq.**San Ace 80****80×80×38mm** [Mass : 220g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GV0812P1G03(031)****9GV0812P1H03(031)****9GV0812P1F03****Operating Voltage Range****9GV0812P1G03(031)****9GV0812P1H03(031)****9GV0812P1F03****PWM Duty - Speed Characteristics Example****9GV0812P1G03(031)****9GV0812P1H03(031)****9GV0812P1F03**



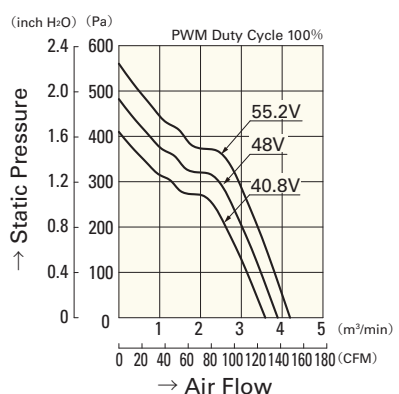
9GV0812P1M03



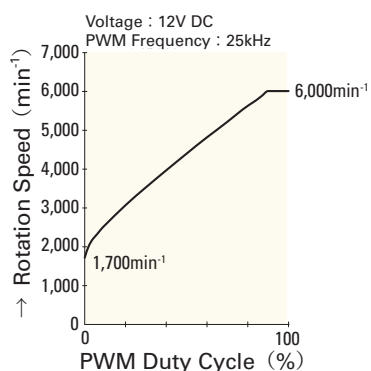
9GV0848P1G03



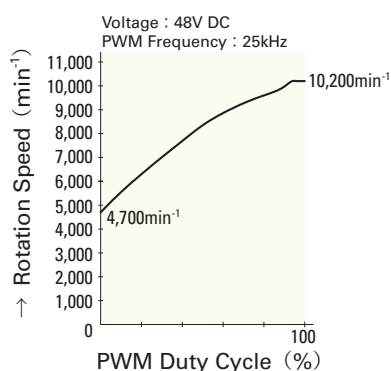
9GV0812P1M03



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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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 Sensor

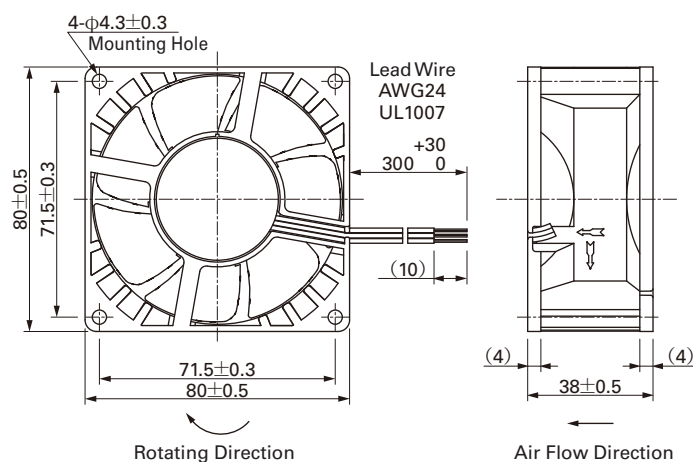
Pulse Sensor

Available in all models.

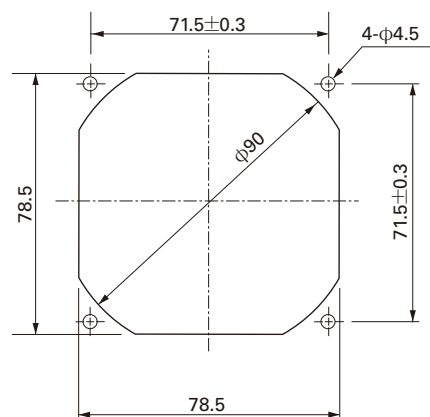
Lock Sensor

PWM Control

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

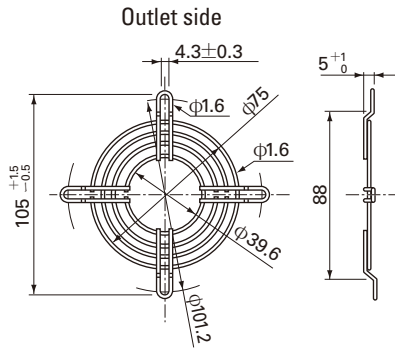
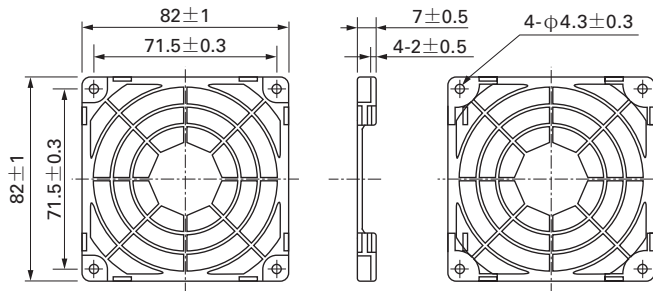
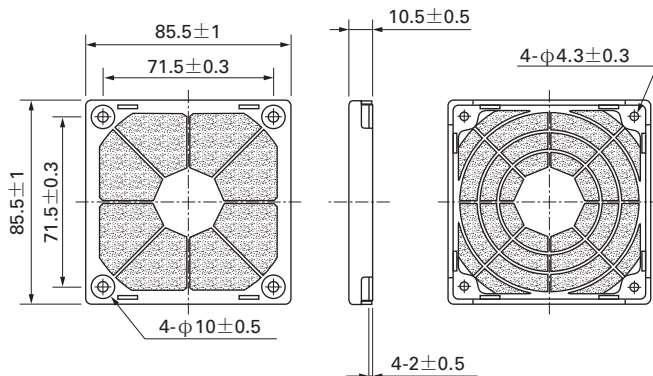
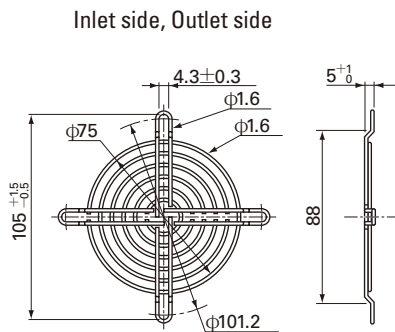
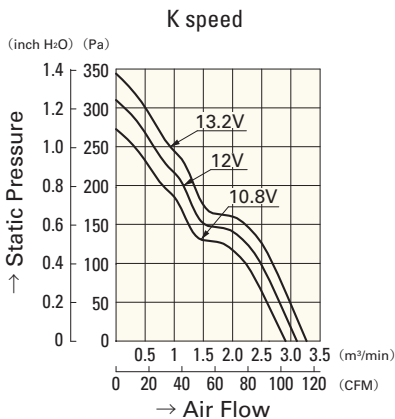
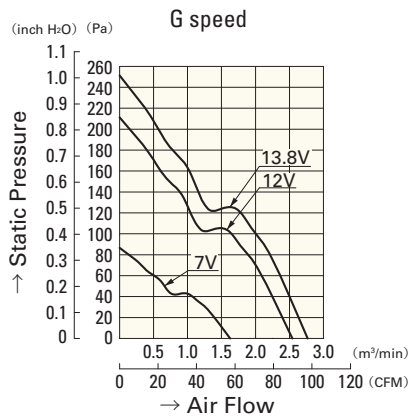
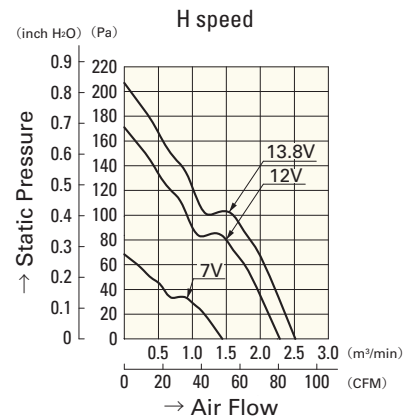
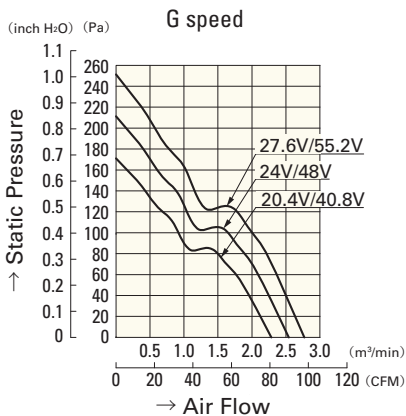
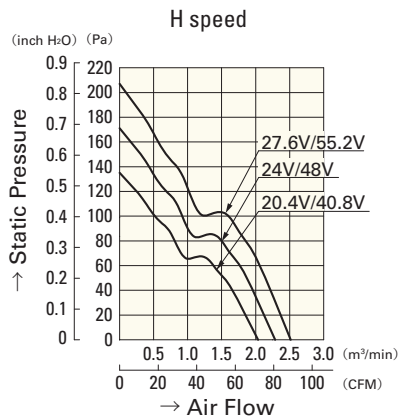
Dimensions (Unit : mm) (With ribs)

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

Inlet side, Outlet side



Finger guardsModel : 109-049C Color
Surface treatment : Nickel-chrome plating (silver)**Resin finger guards**

Model : 109-1002G

Model : 109-049E Color
Surface treatment : Nickel-chrome plating (silver)
: 109-049H : Cation electropainting (black)**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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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 : 150g]
Specifications The numbers in () represent ribless models.

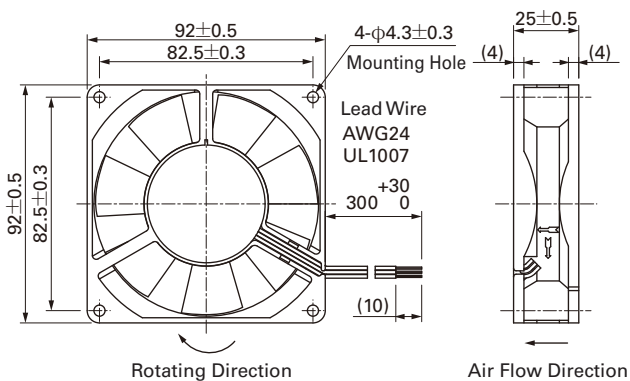
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109P0912J401	12	6 to 13.8	0.56	6.72	4,300	2.03	71.6	92.2 0.37	47	40,000
109P0912W401(4011)		6 to 16	0.21	2.52	2,850	1.45	51.2	45.1 0.181	33	
109P0912H401(4011)		10.2 to 13.8	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	
109P0924J401(4011)	24	12 to 26.4	0.28	6.72	4,300	2.03	71.6	92.2 0.37	47	40,000
109P0924W401(4011)		12 to 30	0.12	2.88	2,850	1.45	51.2	45.1 0.181	33	
109P0924H401(4011)		20.4 to 27.6	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.

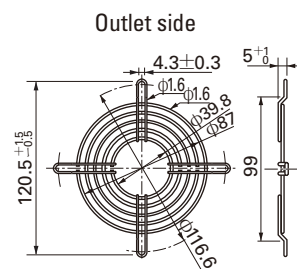
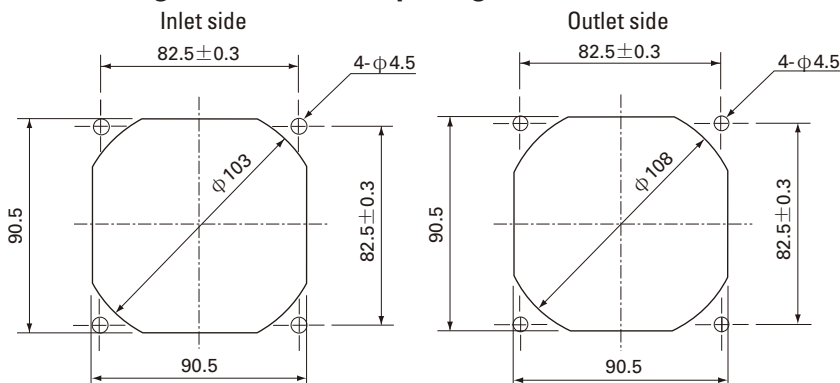
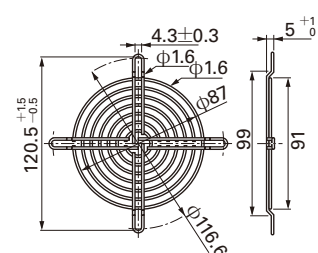
Lock Sensor

Low speed Sensor

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

Dimensions (Unit : mm) (With ribs)

Options (Unit : mm)
Finger guards

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


Reference dimension of mounting holes and vent opening (Unit : mm)
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
109-099H : Cation electropainting (black)**Inlet side, Outlet side**

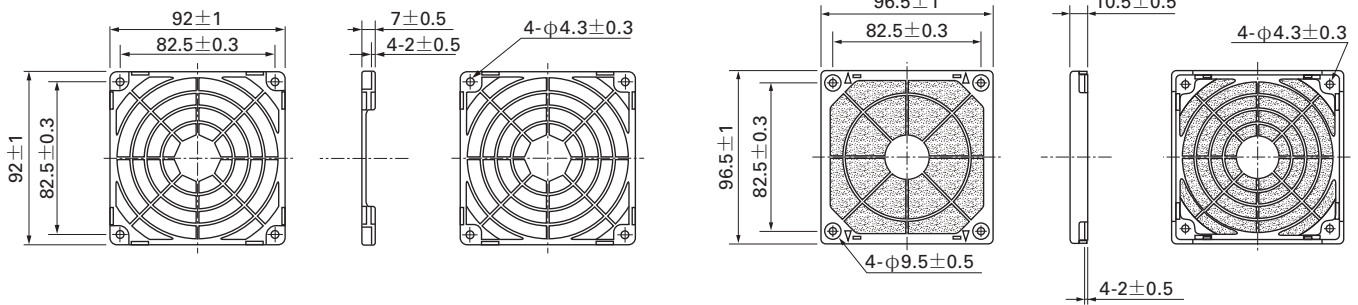
Options (Unit : mm)

Resin finger guards

Model : 109-1001G

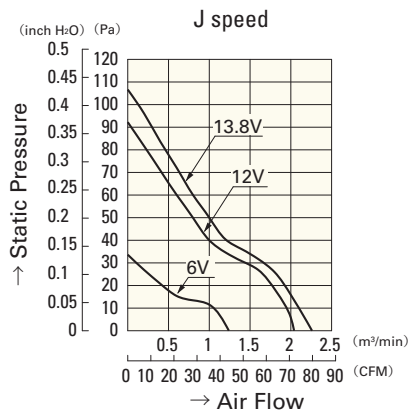
Resin filter kits

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

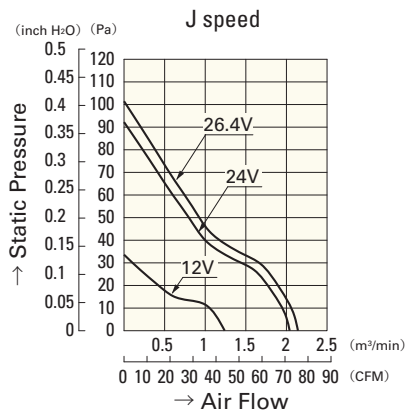


DC Fan 92mm

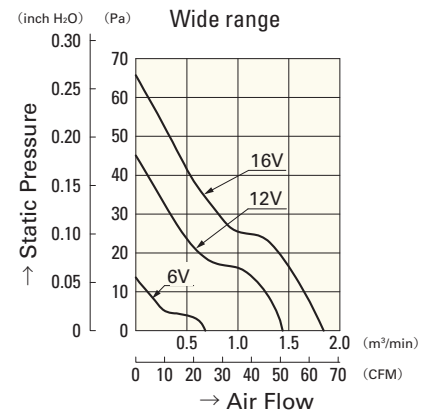
Air Flow - Static Pressure Characteristics



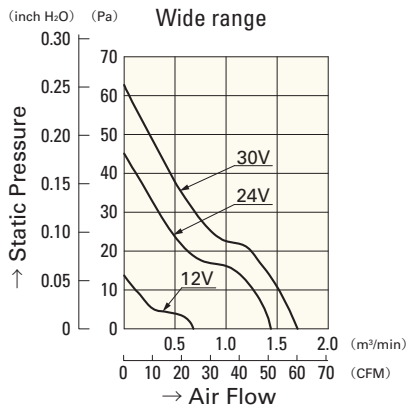
109P0912J401(4011)



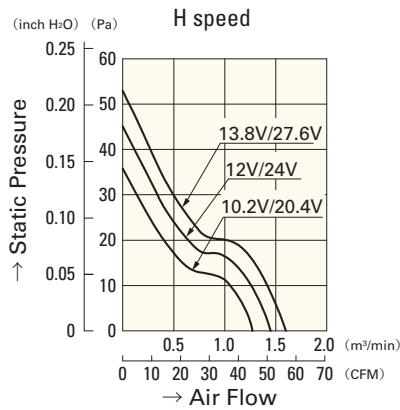
109P0924J401(4011)



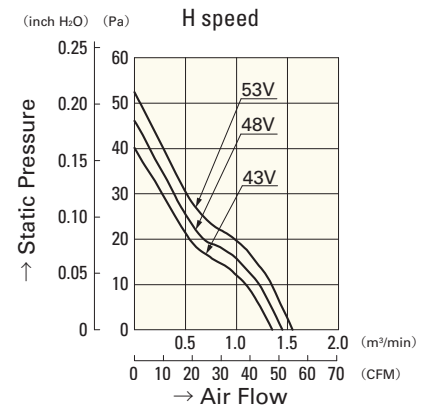
109P0912W401(4011)



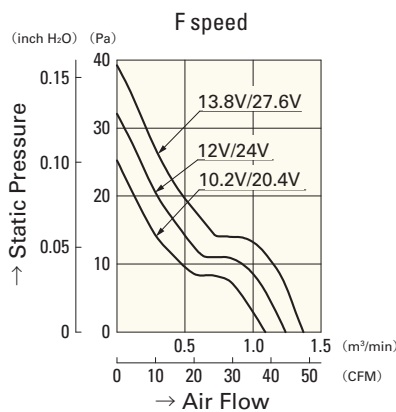
109P0924W401(4011)



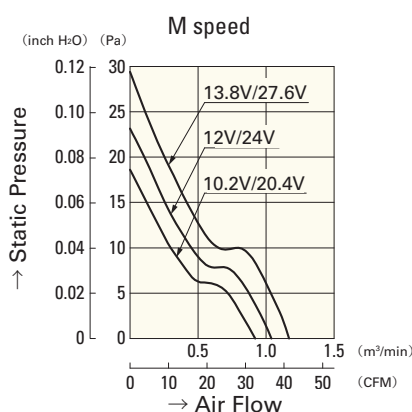
109P0912H401(4011)
109P0924H401(4011)



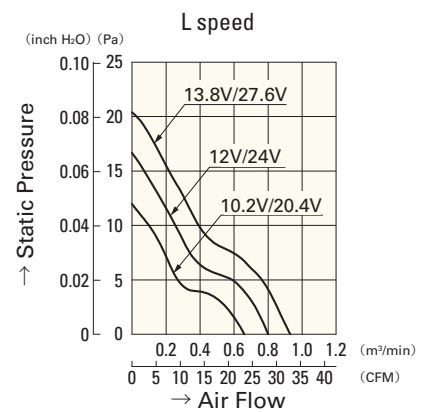
109P0948H401(4011)



109P0912F401(4011)
109P0924F401(4011)



109P0912M401(4011)
109P0924M401(4011)



109P0912L401(4011)
109P0924L401(4011)

92mm

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 297

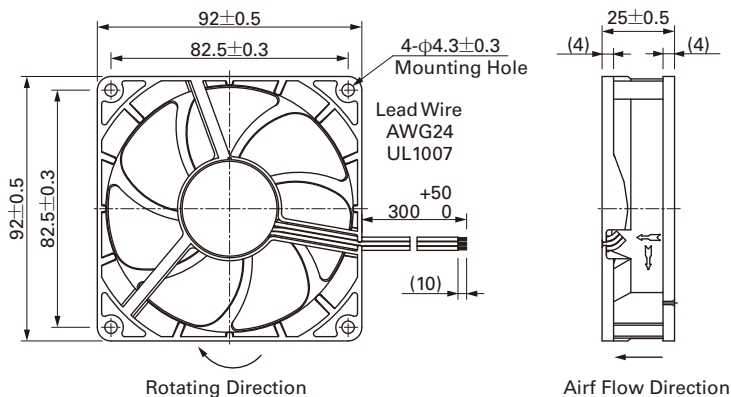
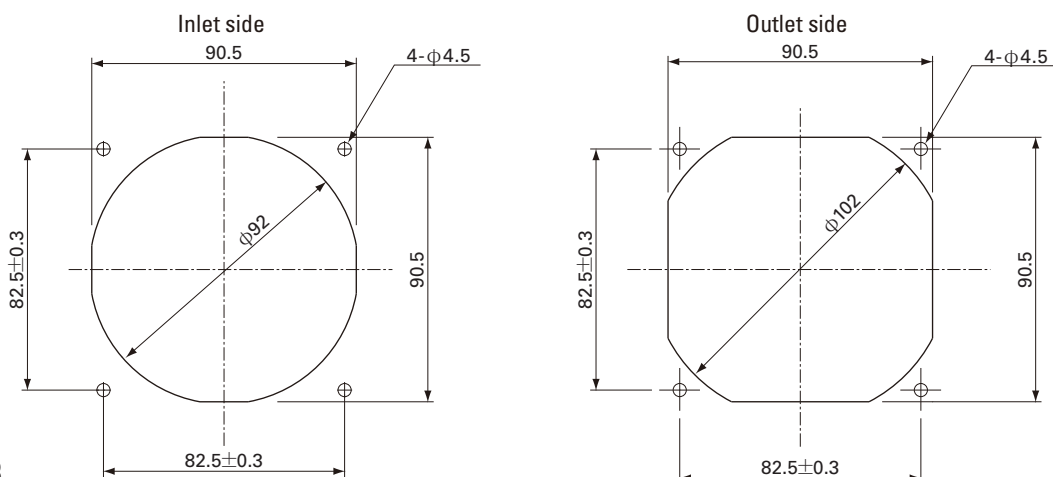
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue (Sensor) yellow
- Storage Temperature -30°C to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

92 × 92 × 25mm [Mass : 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]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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	−10 to +70	40,000
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		
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	−10 to +70	40,000
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		

Without Sensor Pulse Sensor Available in all models.

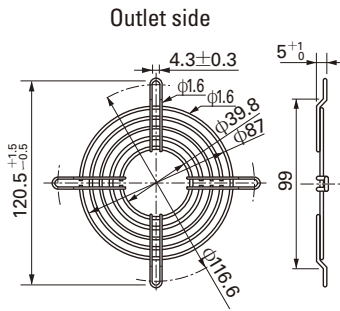
Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)

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


Options (Unit : mm)

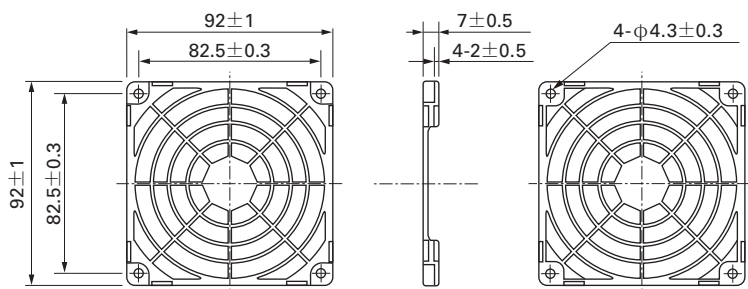
Finger guards

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



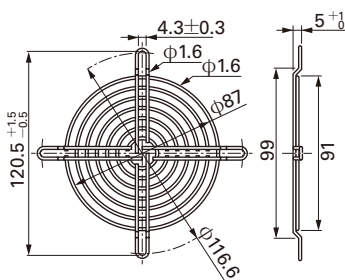
Resin finger guards

Model : 109-1001G



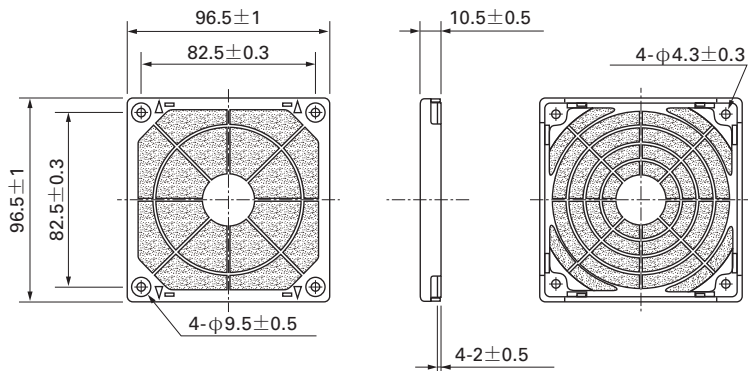
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side

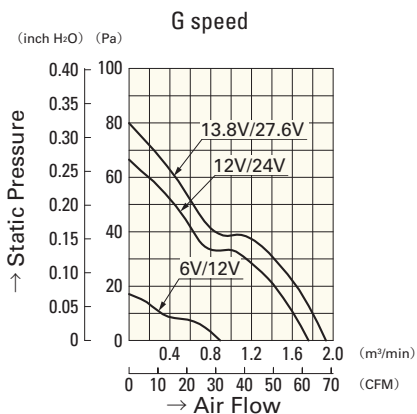


Resin filter kits

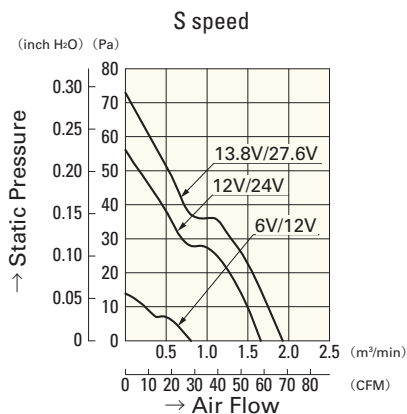
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



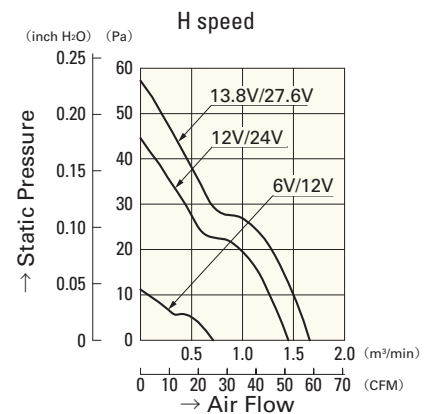
Air Flow - Static Pressure Characteristics



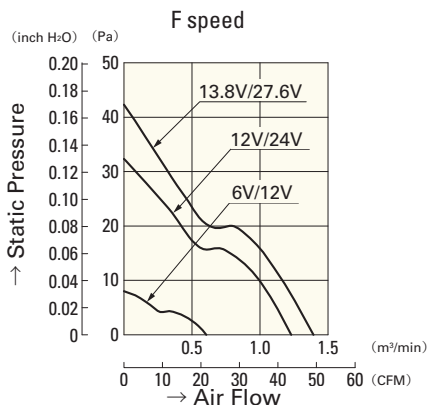
9A0912G401(4011)
9A0924G401(4011)



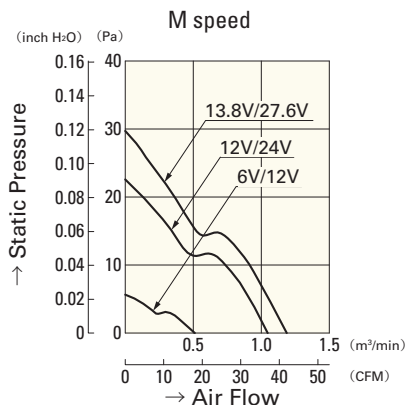
9A0912S401(4011)
9A0924S401(4011)



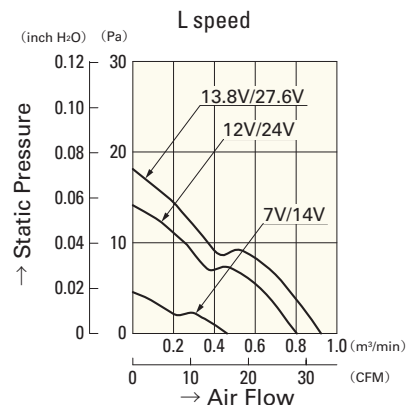
9A0912H401(4011)
9A0924H401(4011)



9A0912F401(4011)
9A0924F401(4011)



9A0912M401(4011)
9A0924M401(4011)



9A0912L401(4011)
9A0924L401(4011)

DC Fan 92mm

92mm

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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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	−10 to +70			
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
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				

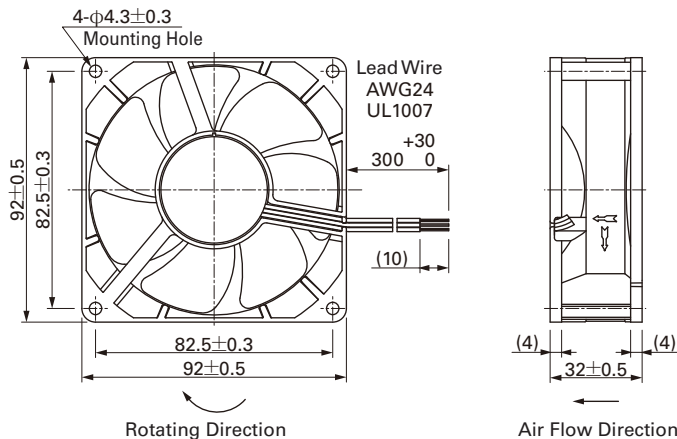
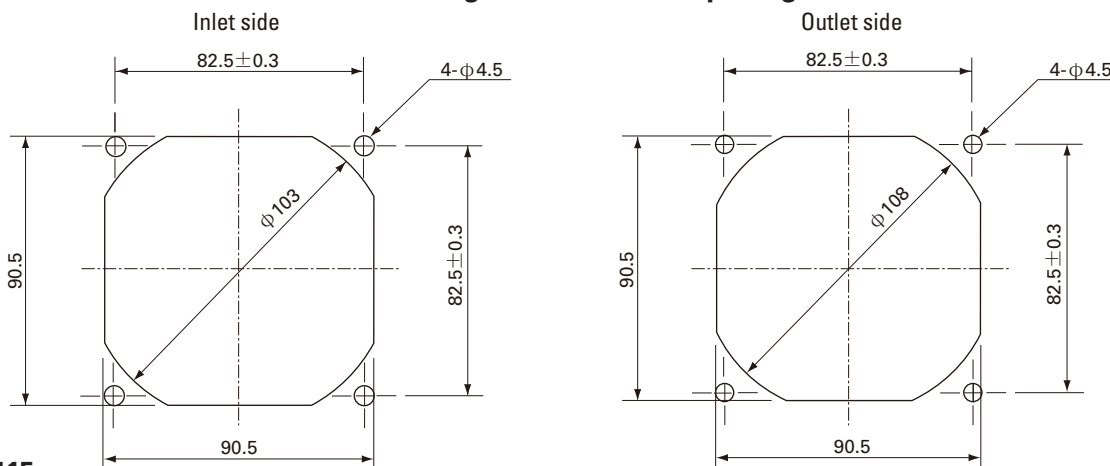
Without Sensor Pulse Sensor Available in all models.

Lock Sensor

Low speed Sensor

PWM Control

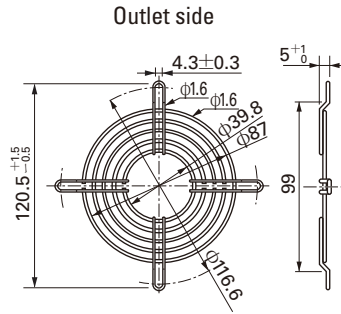
Please inquire as the availability of these functions depend on the model.

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

Options (Unit : mm)

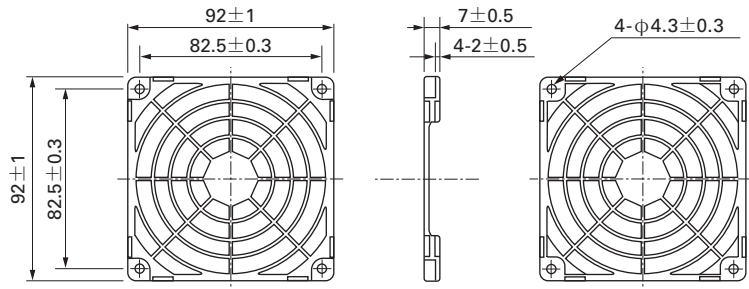
Finger guards

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

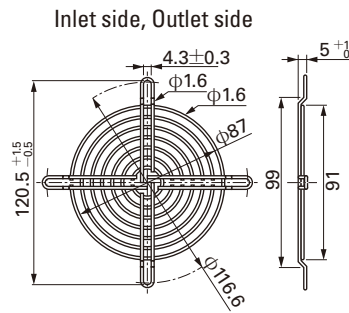


Resin finger guards

Model : 109-1001G

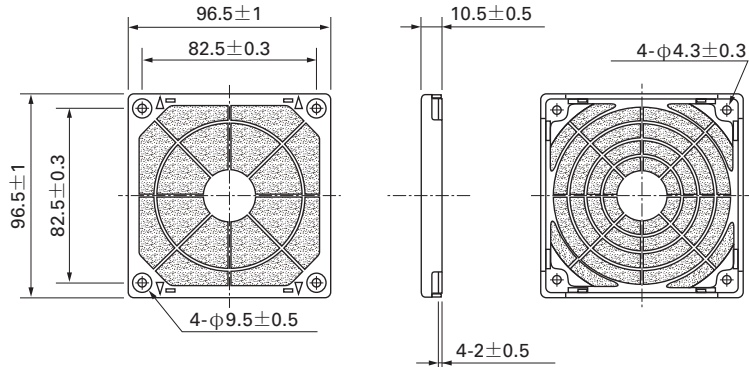


Model : 109-099E Surface treatment : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)

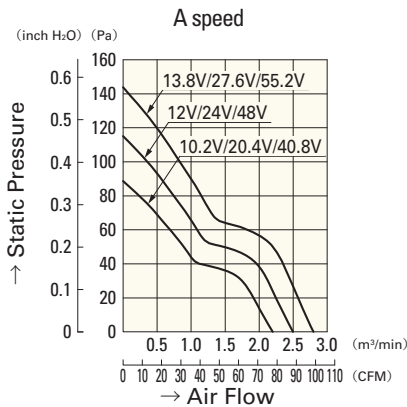


Resin filter kits

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



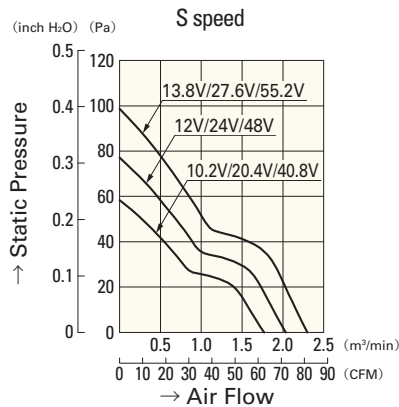
Air Flow - Static Pressure Characteristics



9G0912A201(2011)

9G0924A201(2011)

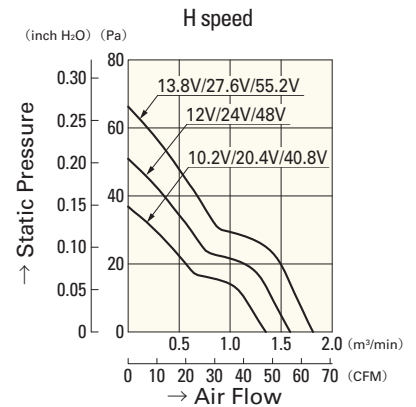
9G0948A201(2011)



9G0912S201(2011)

9G0924S201(2011)

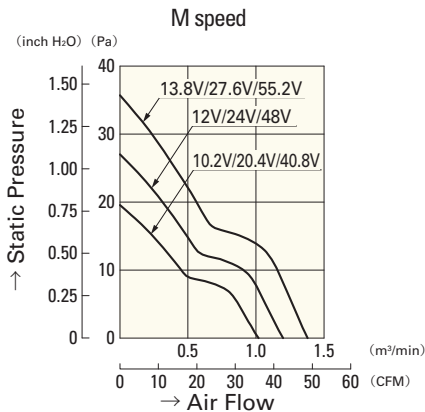
9G0948S201(2011)



9G0912H201(2011)

9G0924H201(2011)

9G0948H201(2011)



9G0912M201(2011)

9G0924M201(2011)

9G0948M201(2011)

DC Fan 92mm

92mm

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 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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 : 250g]**GV type**

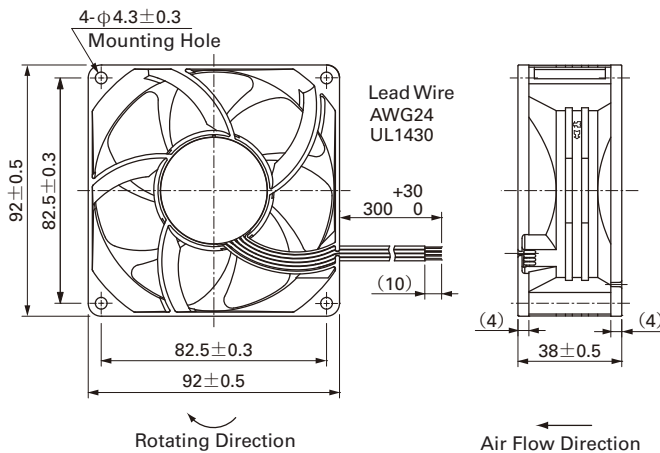
■ **Specifications** The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

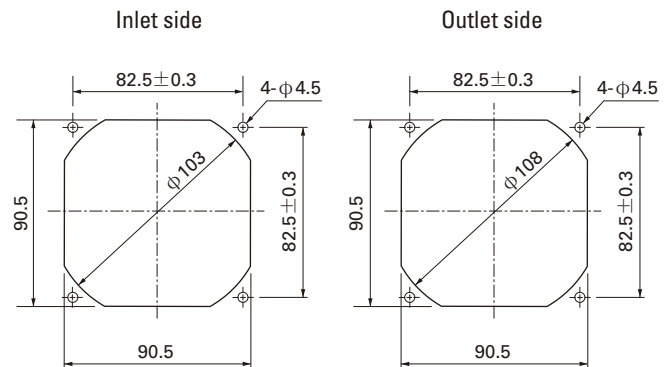
※PWM Frequency : 25kHz

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)**

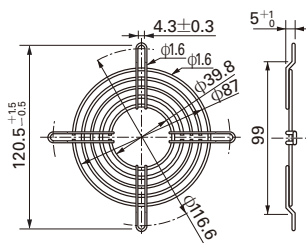
Finger guards

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

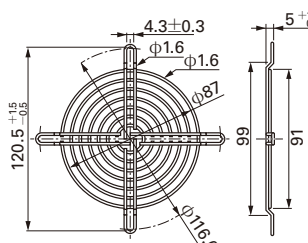
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color

: 109-099H : Cation electropainting (black)

Outlet side



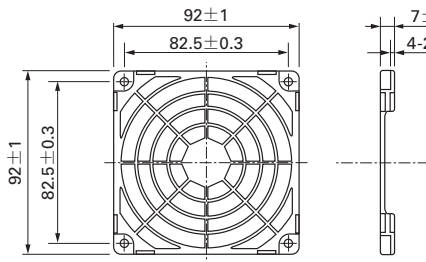
Inlet side, Outlet side



Options (Unit : mm)

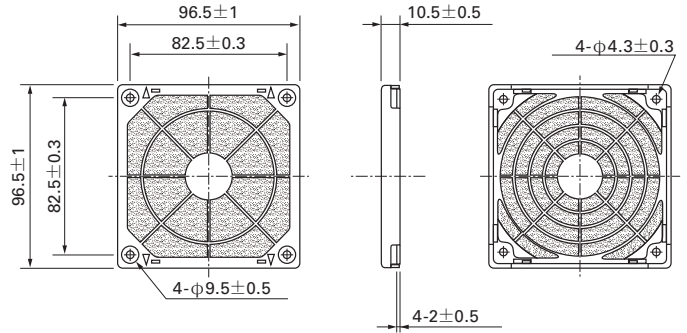
Resin finger guards

Model : 109-1001G



Resin filter kits

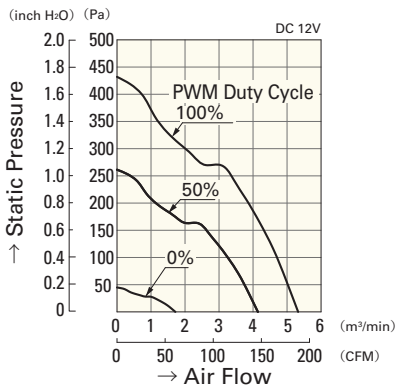
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



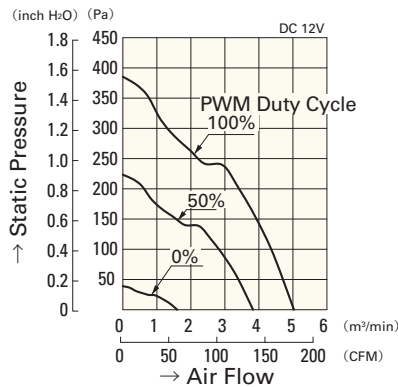
DC Fan 92mm

Air Flow - Static Pressure Characteristics

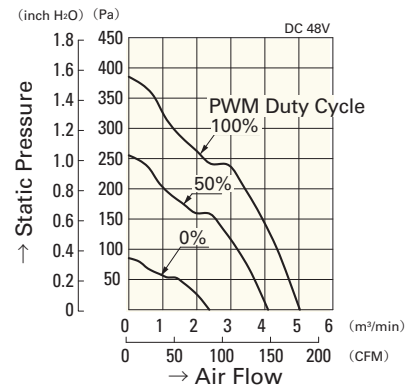
PWM Duty Cycle



9GV0912P1G03(031)

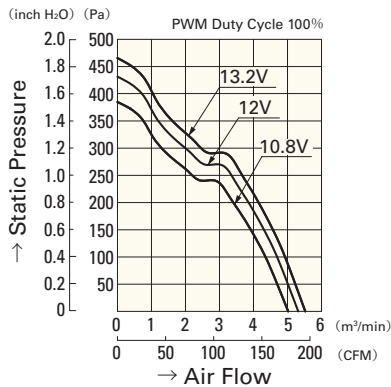


9GV0912P1H03(031)

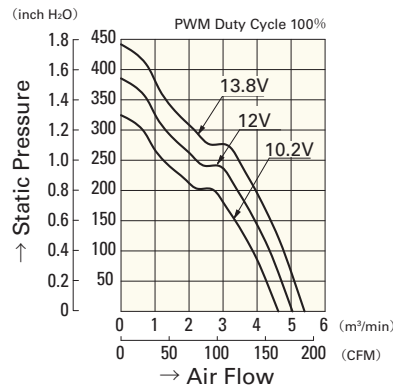


9GV0948P1H03(031)

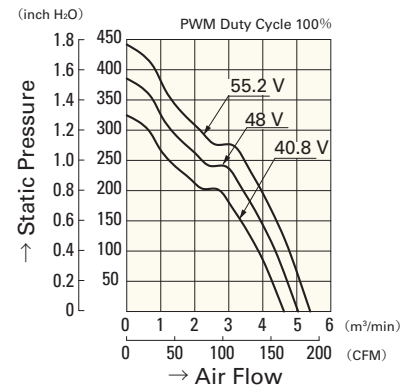
Operating Voltage Range



9GV0912P1G03(031)

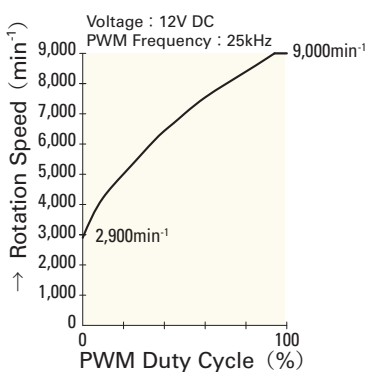


9GV0912P1H03(031)

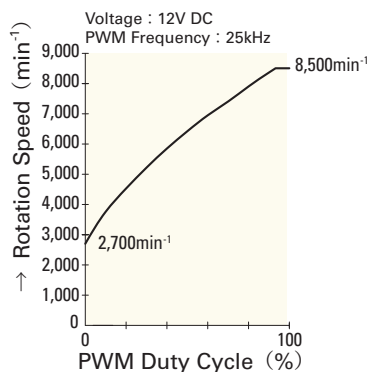


9GV0948P1H03(031)

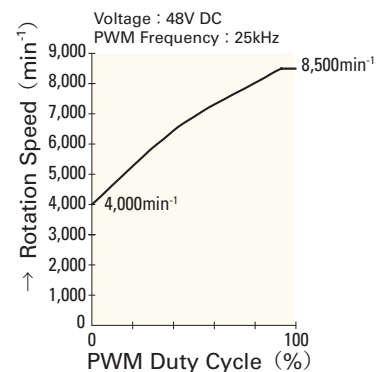
PWM Duty - Speed Characteristics Example



9GV0912P1G03(031)



9GV0912P1H03(031)

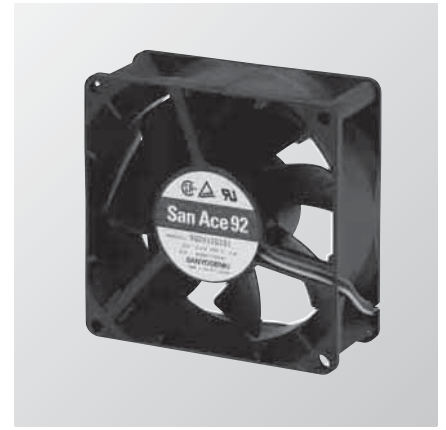


9GV0948P1H03(031)

92mm

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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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)

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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

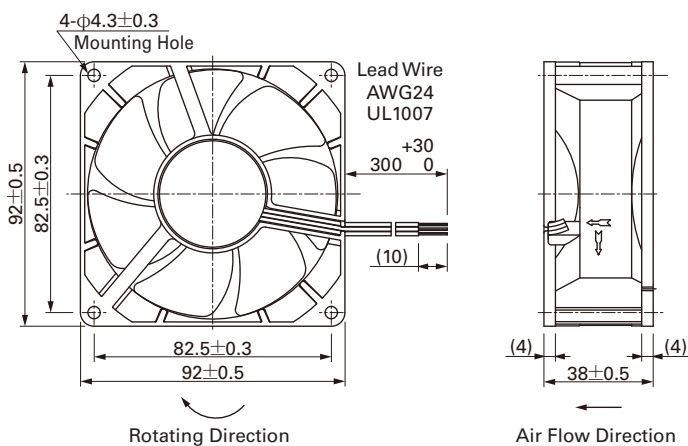
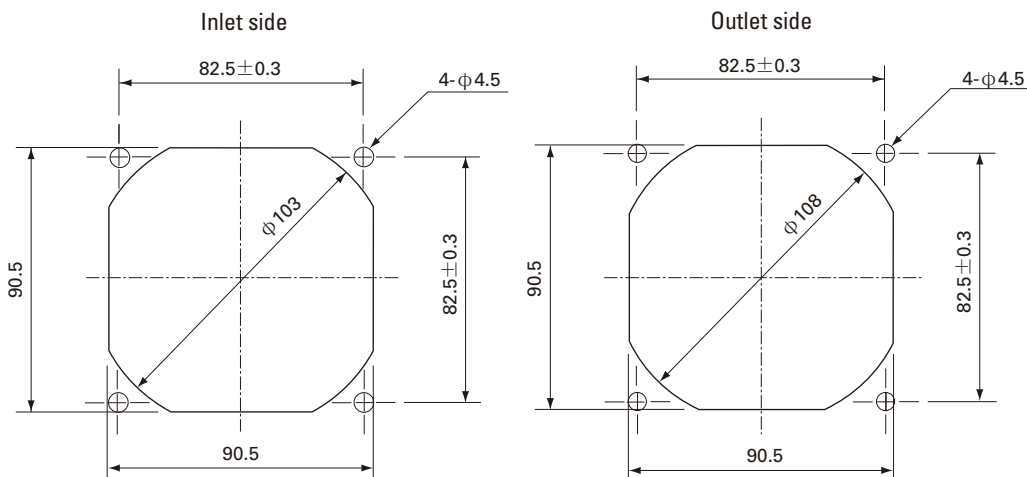
Without Sensor Pulse Sensor Available in all models.

Lock Sensor

Low speed Sensor

PWM Control

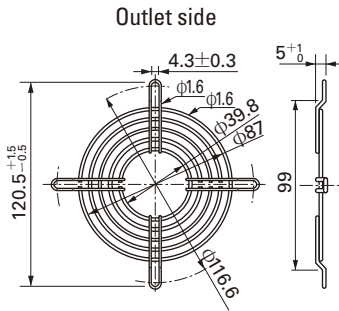
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm) (With ribs)

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


Options (Unit : mm)

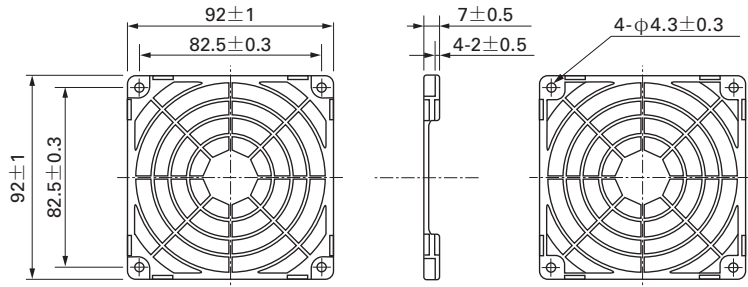
Finger guards

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



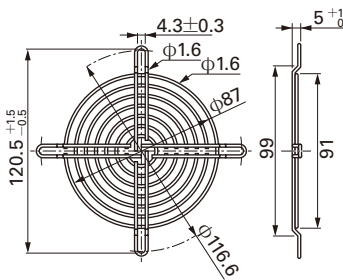
Resin finger guards

Model : 109-1001G



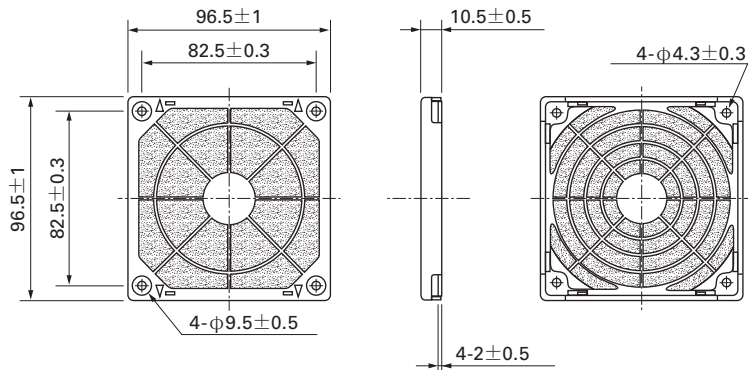
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side

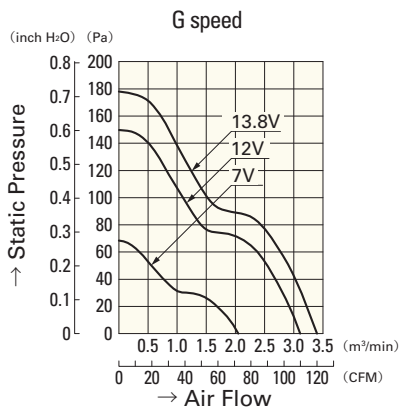


Resin filter kits

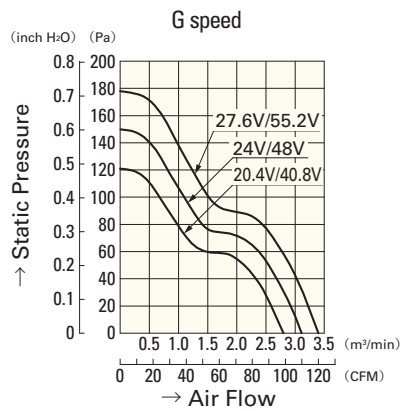
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



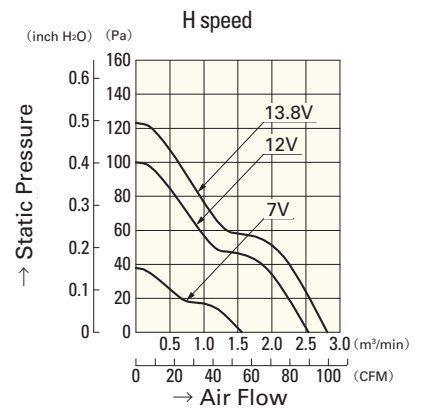
Air Flow - Static Pressure Characteristics



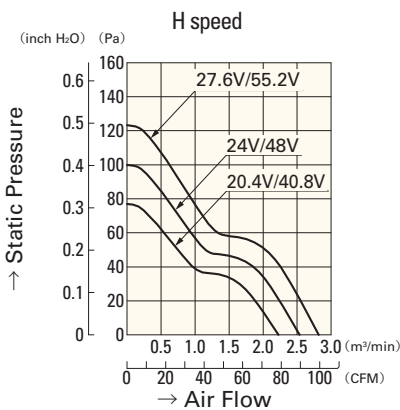
9G0912G101(1011)



9G0924G101(1011)
9G0948G101(1011)



9G0912H101(1011)



9G0924H101(1011)
9G0948H101(1011)

DC Fan 92mm

92mm

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 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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** 

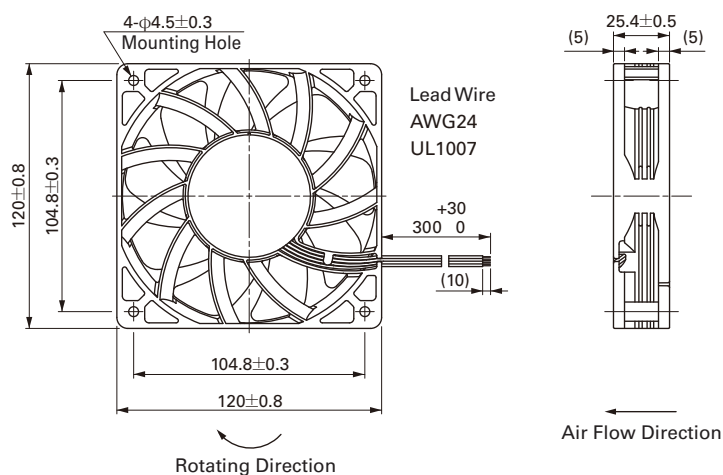
■ **Specifications** The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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	5,100	4.83 171	224 0.90	58		
			0	0.13	3.12	1,650	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		

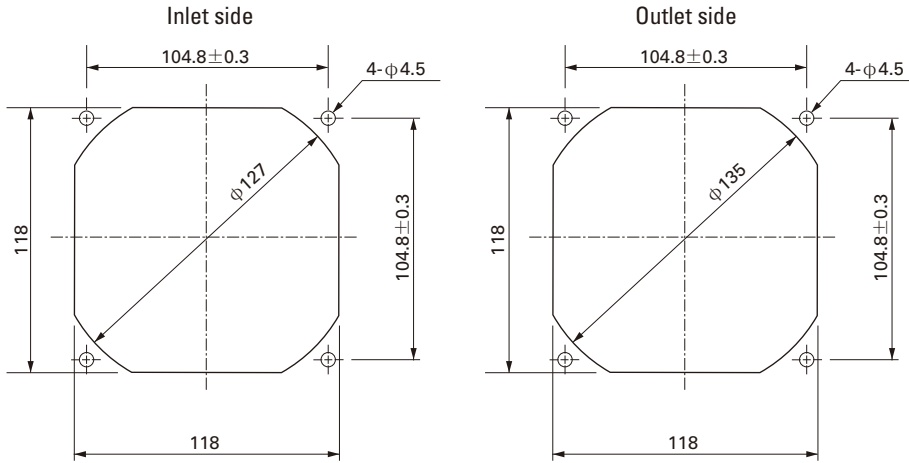
※ PWM Frequency : 25kHz

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

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



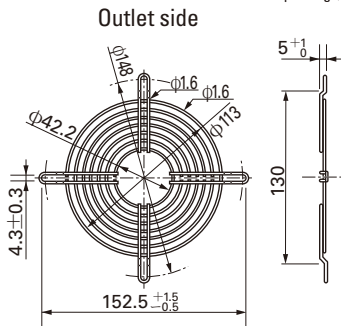
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

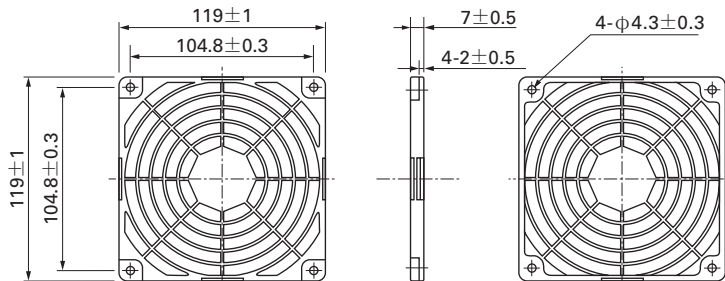
Finger guards

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

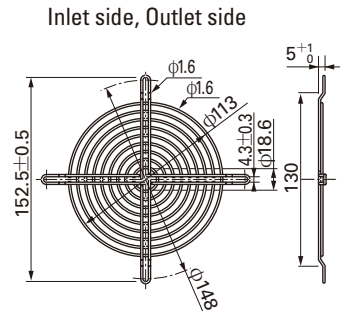


Resin finger guards

Model : 109-1000G

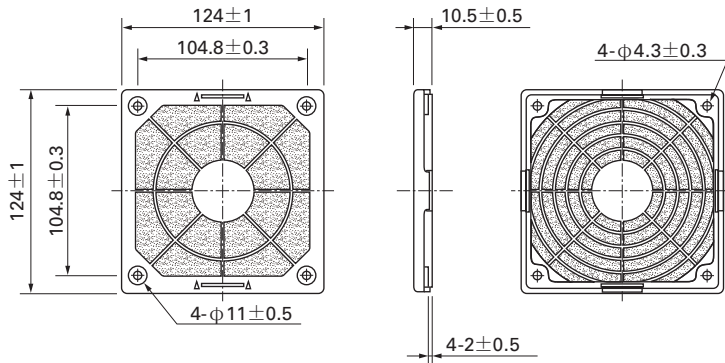


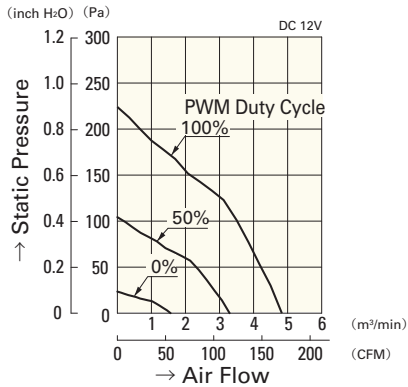
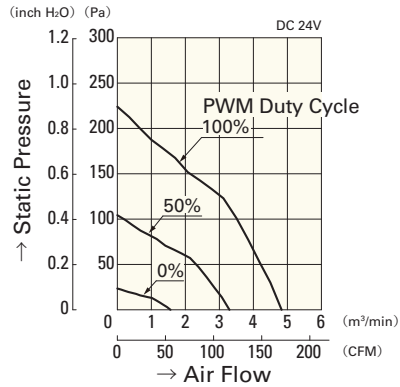
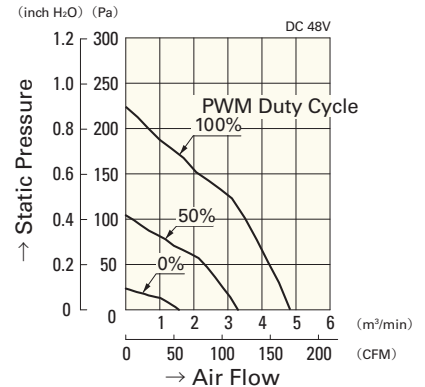
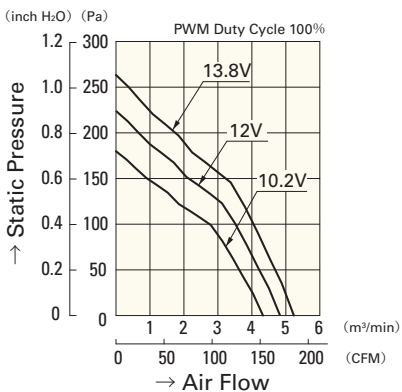
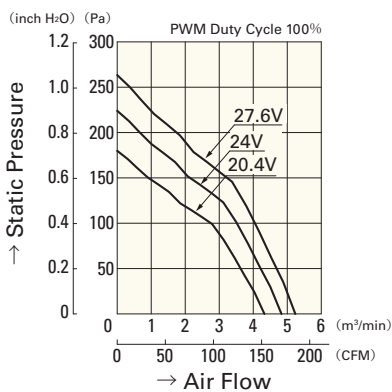
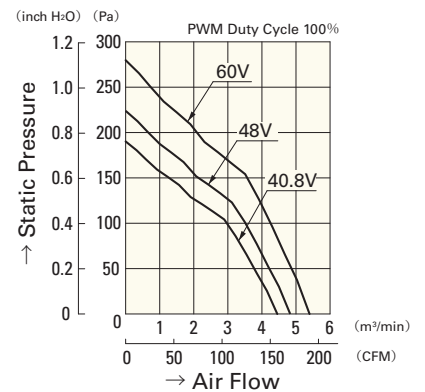
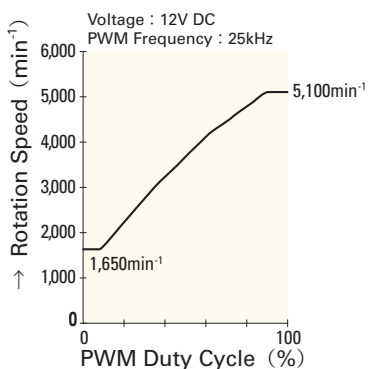
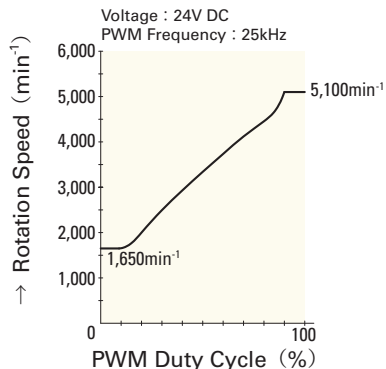
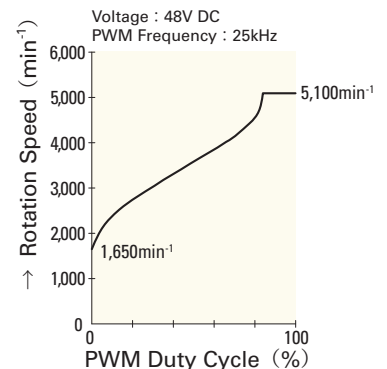
Model : 109-019E Surface treatment : Nickel-chrome plating (silver) Color
: 109-019K : Cation electropainting (black)

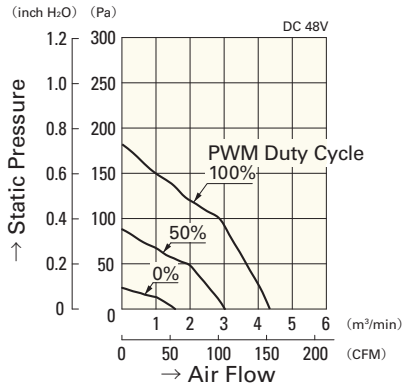


Resin filter kits

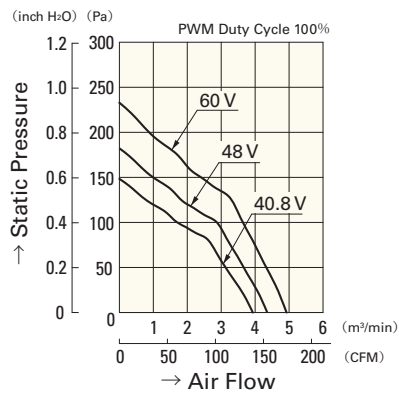
Model : 109-1000F13 (13PPI), 109-1000F20 (20PPI)
: 109-1000F30 (30PPI), 109-1000F40 (40PPI)



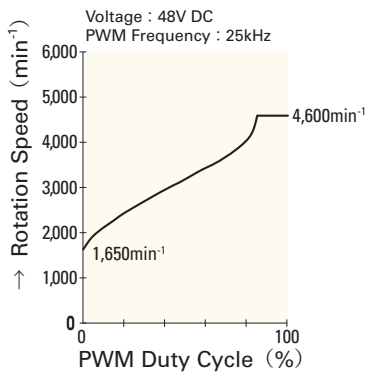
120mm sq.**San Ace 120****120 × 120 × 25mm** [Mass : 260g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GV1212P4G01(011)****9GV1224P4G01****9GV1248P4G01(011)****Operating Voltage Range****9GV1212P4G01(011)****9GV1224P4G01****9GV1248P4G01(011)****PWM Duty - Speed Characteristics Example****9GV1212P4G01(011)****9GV1224P4G01****9GV1248P4G01(011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



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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

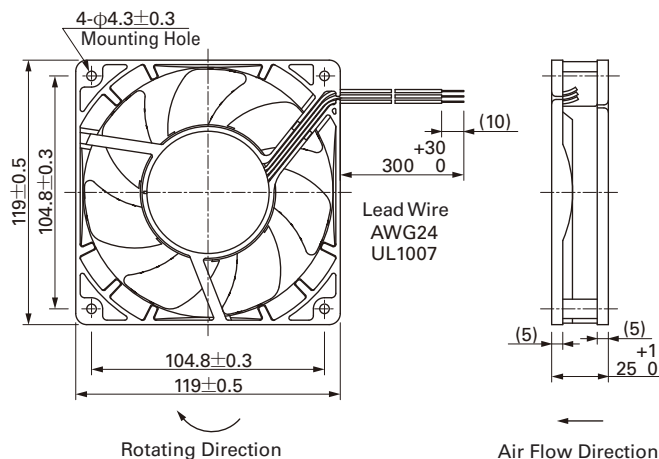
120 × 120 × 25mm [Mass : 240g] **G type**
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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)		7 to 13.8	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)		20.4 to 27.6	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		

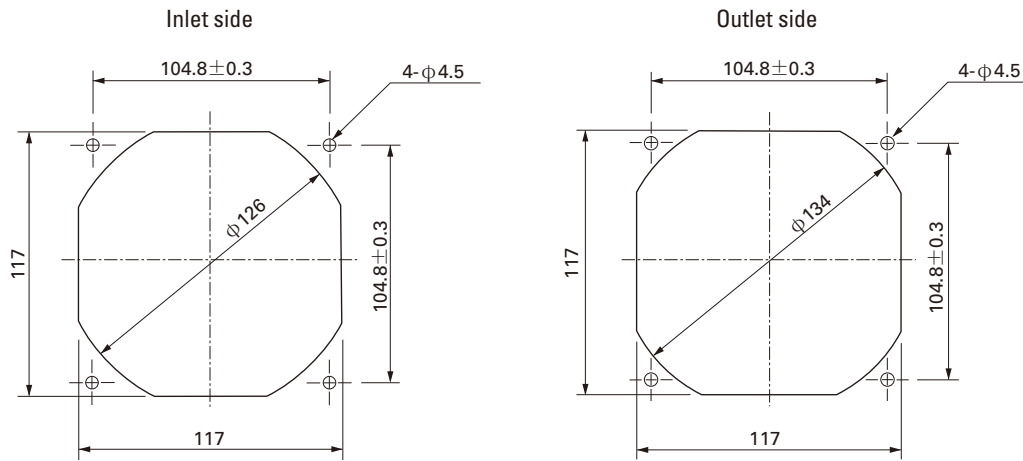
Without Sensor Pulse Sensor Available in all models.

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)



DC Fan 120mm

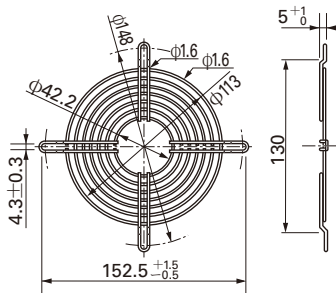
Options (Unit : mm)

Finger guards

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

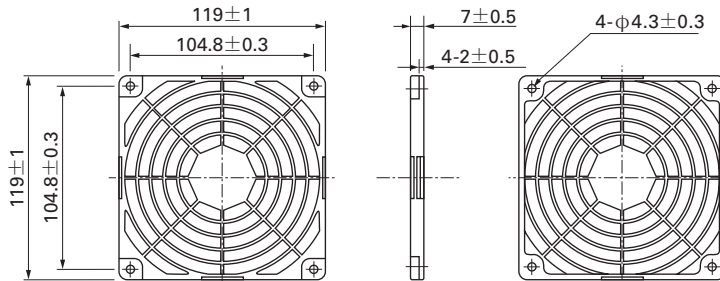
Color

Outlet side



Resin finger guards

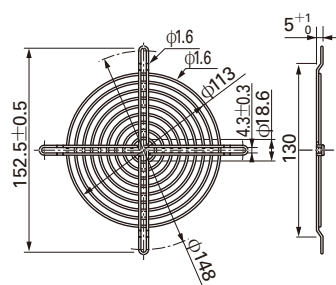
Model : 109-1000G



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

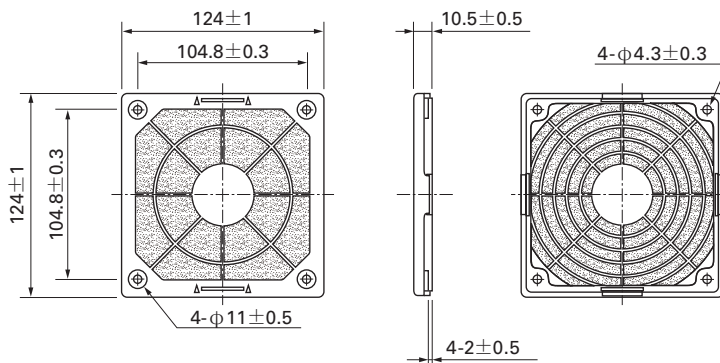
Color

Inlet side, Outlet side

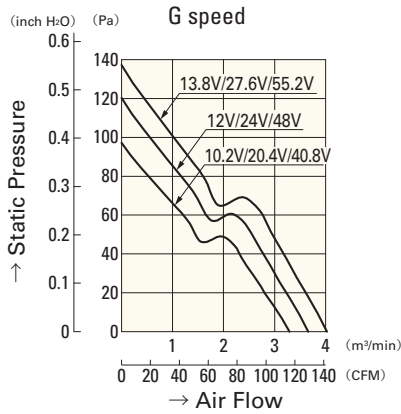


Resin filter kits

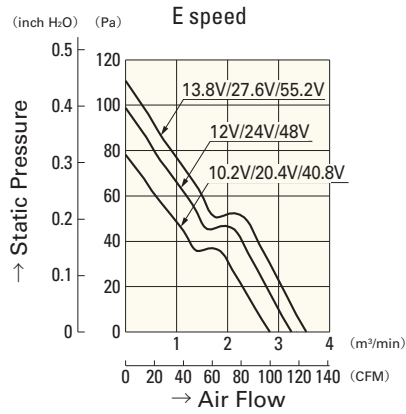
Model : 109-1000F13 (13PPI), 109-1000F20 (20PPI)
: 109-1000F30 (30PPI), 109-1000F40 (40PPI)



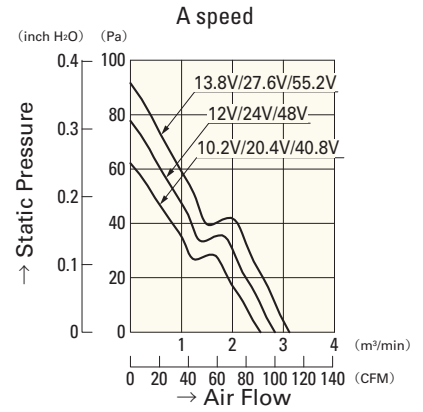
126mm

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

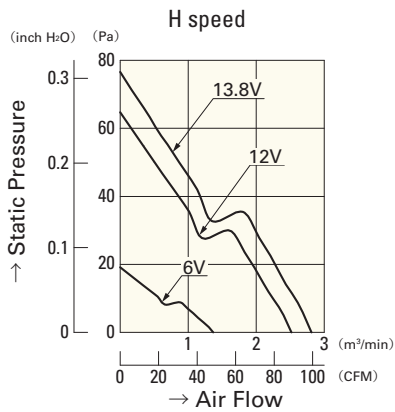
9G1212G401(4011)
9G1224G401(4011)
9G1248G401(4011)



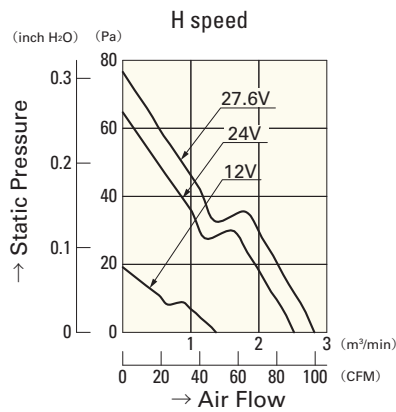
9G1212E401(4011)
9G1224E401(4011)
9G1248E401(4011)



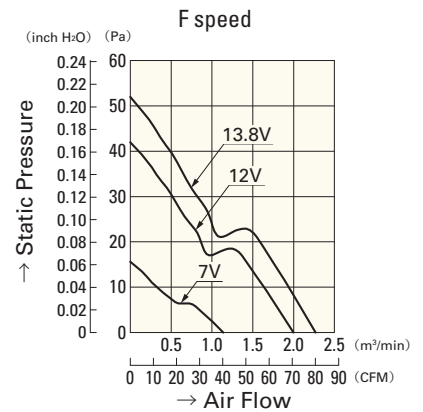
9G1212A401(4011)
9G1224A401(4011)
9G1248A401(4011)



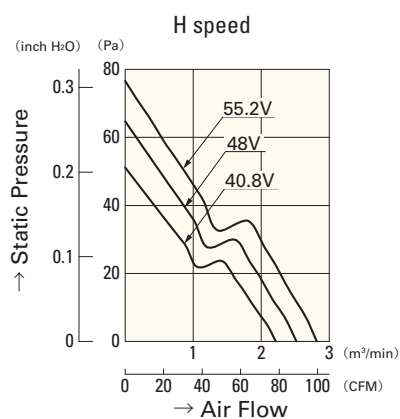
9G1212H401(4011)



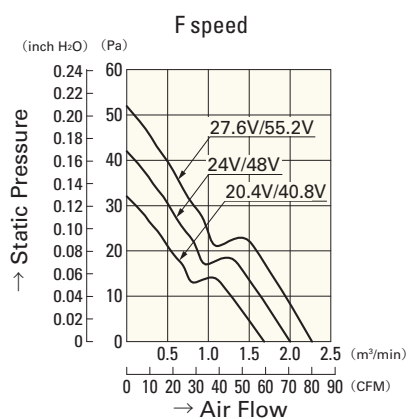
9G1224H401(4011)



9G1212F401(4011)

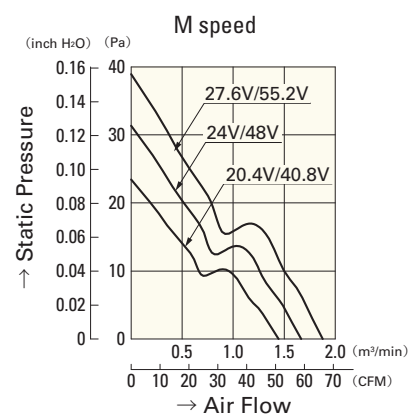


9G1248H401(4011)



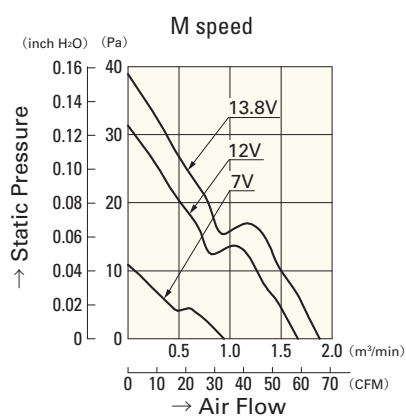
9G1224F401(4011)

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 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

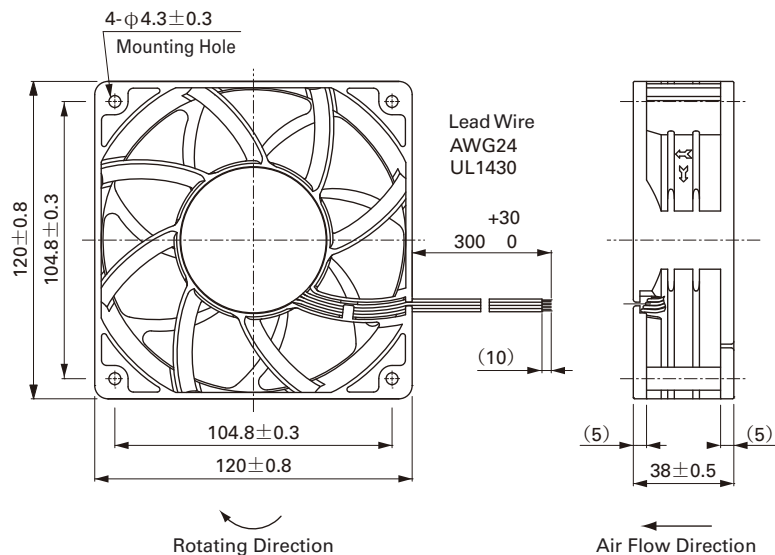
120 × 120 × 38mm [Mass : 360g]**GV type**
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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
9GV1224P1J01(011) ^(Note)	24	20.4 to 27.6	0	0.19	2.28	1,500	1.49 52.6	19.8 0.08	33		
9GV1224P1H03(031) ^(Note)			100	1.5	36	6,400	6.35 224.3	360 1.44	64		
9GV1248P1J01(011)	48	40.8 to 55.2	100	0.8	19.2	5,200	5.37 189	263 1.05	58		
			0	0.75	36	6,400	6.35 224.0	360.0 1.45	64		
				0.06	2.88	1,500	1.49 52.6	26.1 0.106	33		

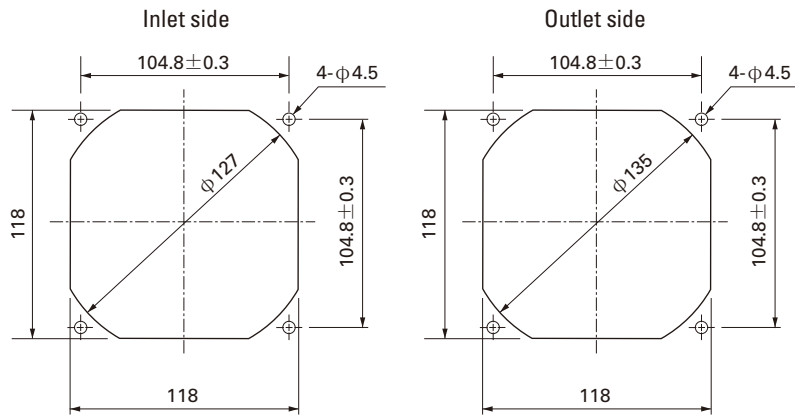
Note: Rated voltage 24V fans do not rotate when PWM duty cycle is 0%.

※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)

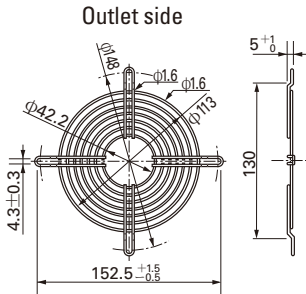


DC Fan 120mm

Options (Unit : mm)

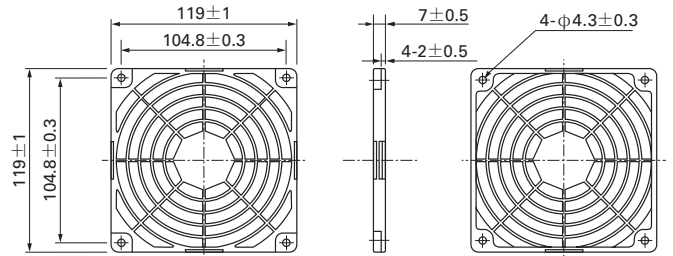
Finger guards

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

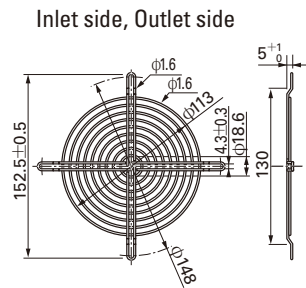


Resin finger guards

Model : 109-1000G

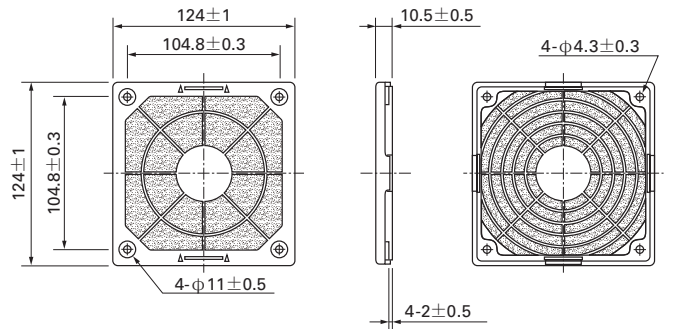


Model : 109-019E Surface treatment : Nickel-chrome plating (silver) Color
: 109-019K : Cation electropainting (black)

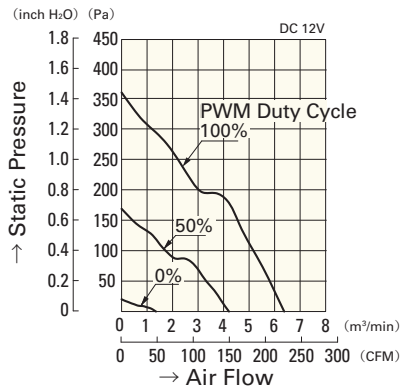
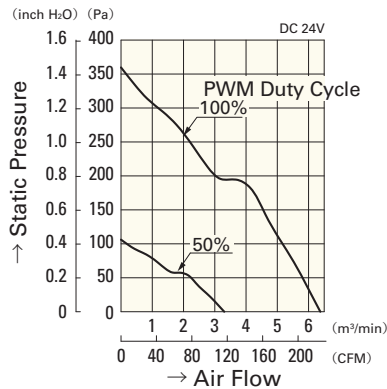
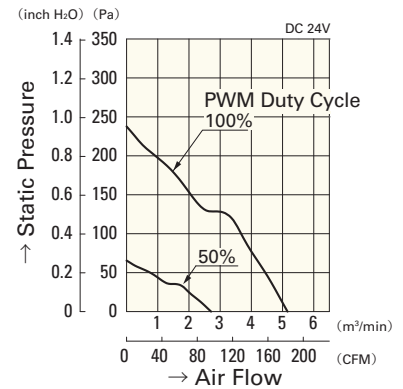
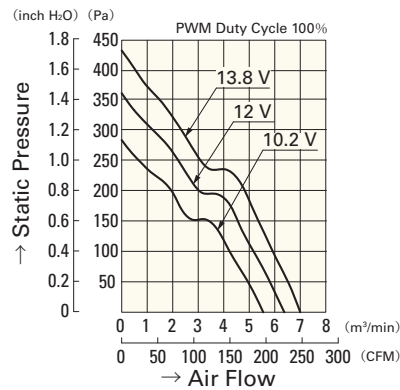
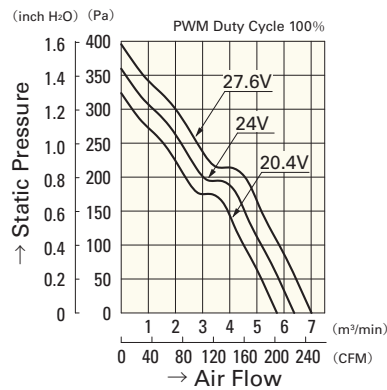
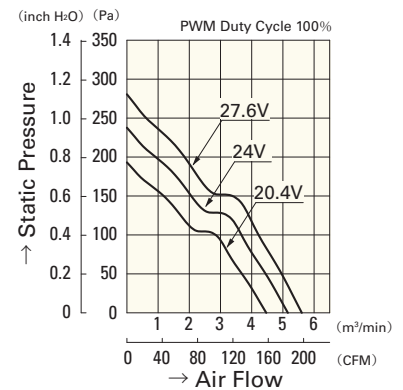
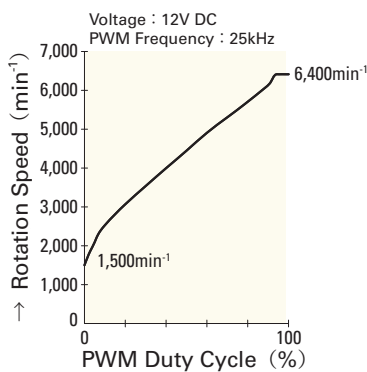
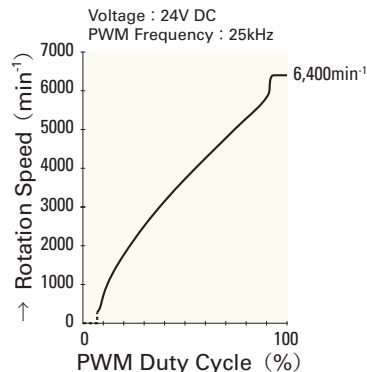
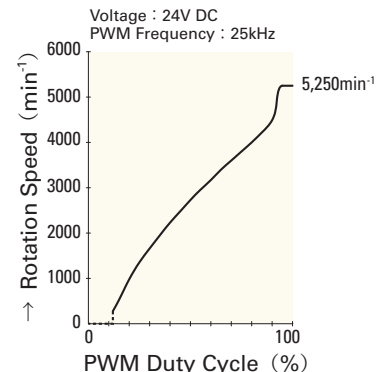


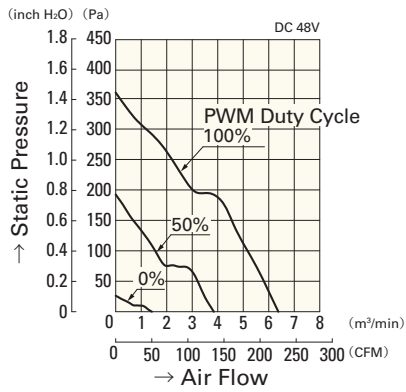
Resin filter kits

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

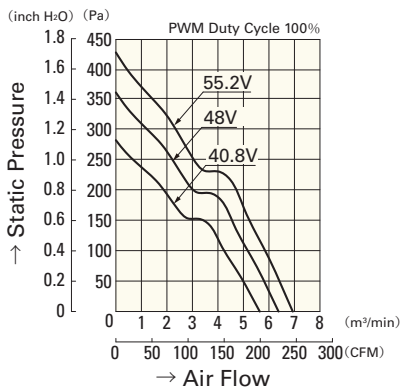


120mm

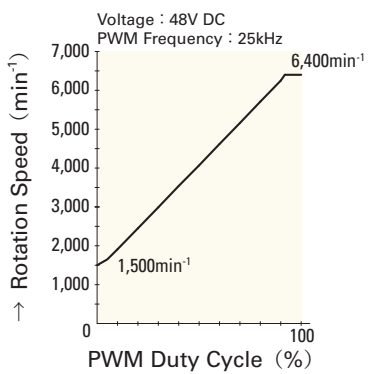
120mm sq.**San Ace 120****120 × 120 × 38mm** [Mass : 360g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9GV1212P1J01(011)****9GV1224P1J01(011)****9GV1224P1H03(031)****Operating Voltage Range****9GV1212P1J01(011)****9GV1224P1J01(011)****9GV1224P1H03(031)****PWM Duty - Speed Characteristics Example****9GV1212P1J01(011)****9GV1224P1J01(011)****9GV1224P1H03(031)**



9GV1248P1J01(011)



9GV1248P1J01(011)



9GV1248P1J01(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 297

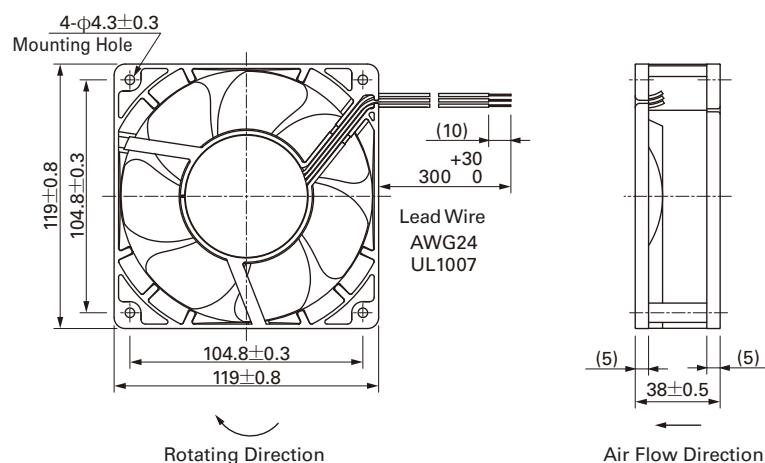
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to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

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

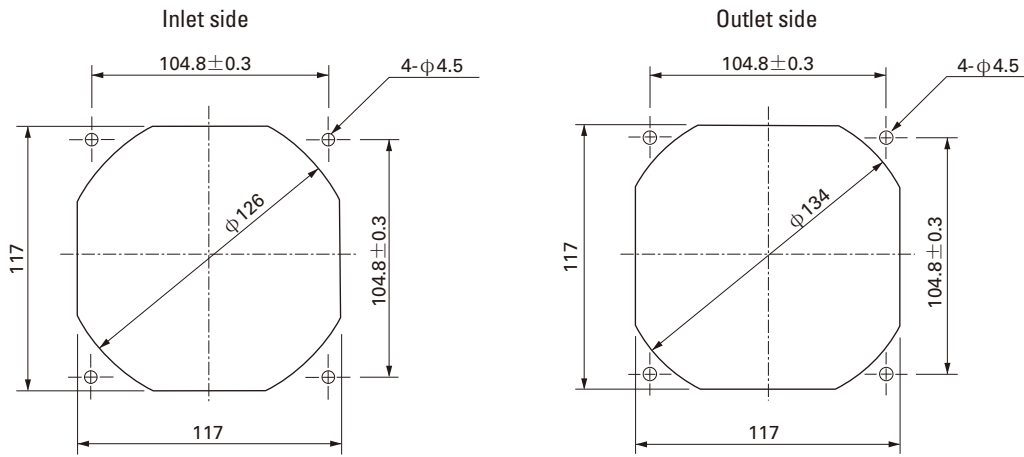
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9G1212G101(1011)	12	10.2 to 13.8	0.98	11.76	3,600	3.88	137	135	0.542	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)



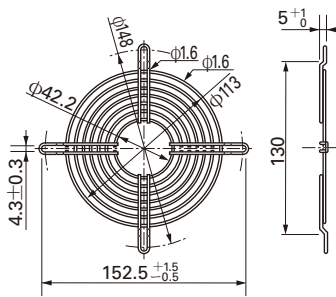
DC Fan 120mm

Options (Unit : mm)

Finger guards

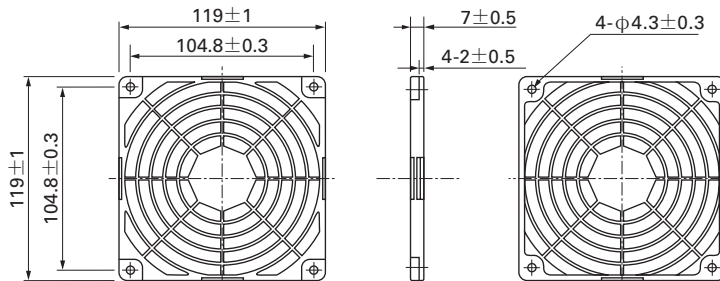
Model : 109-019C Surface treatment : Nickel-chrome plating (silver)
: 109-019H : Cation electropainting (black)

Outlet side



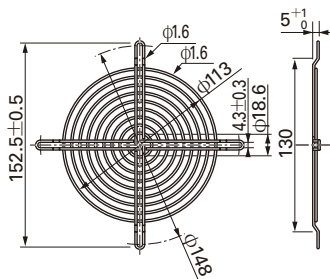
Resin finger guards

Model : 109-1000G



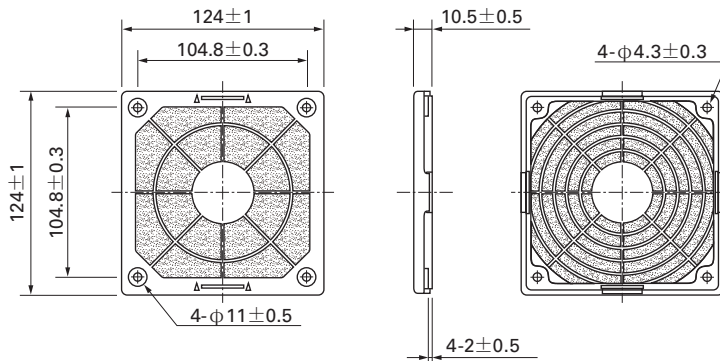
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

Inlet side, Outlet side

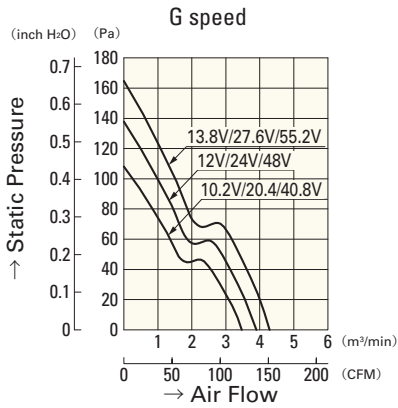
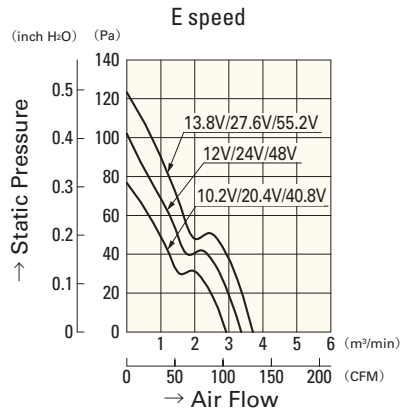
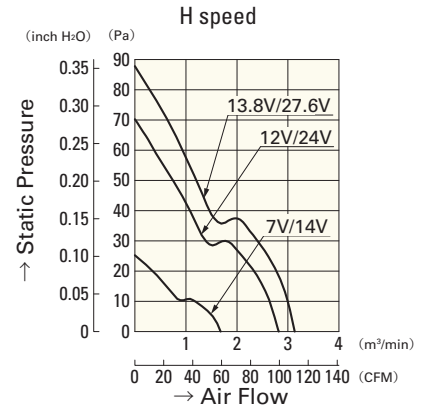
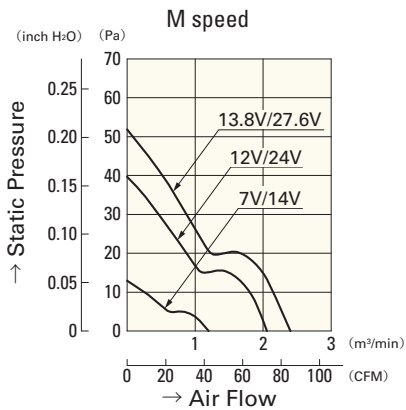
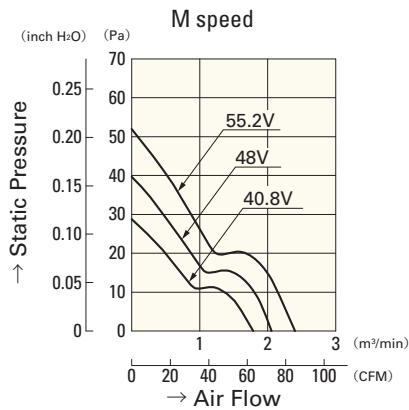


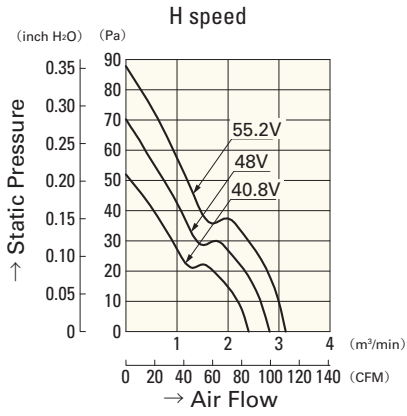
Resin filter kits

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

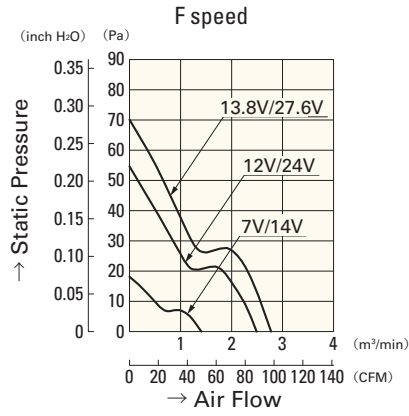


120mm

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)**

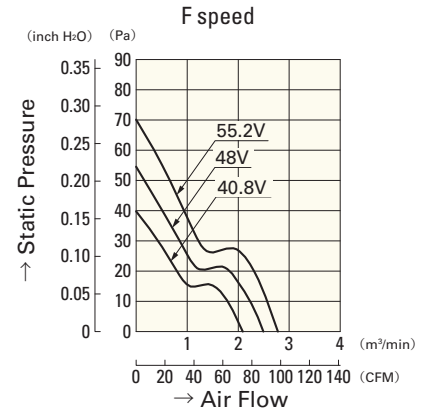


9G1248H101(1011)



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 297

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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**

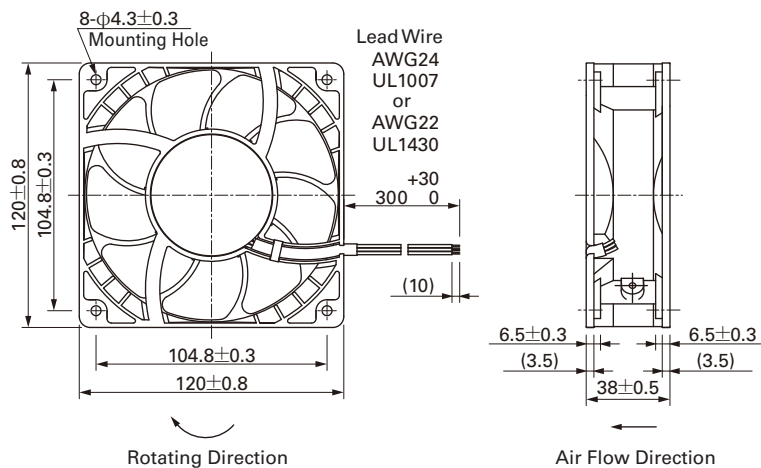
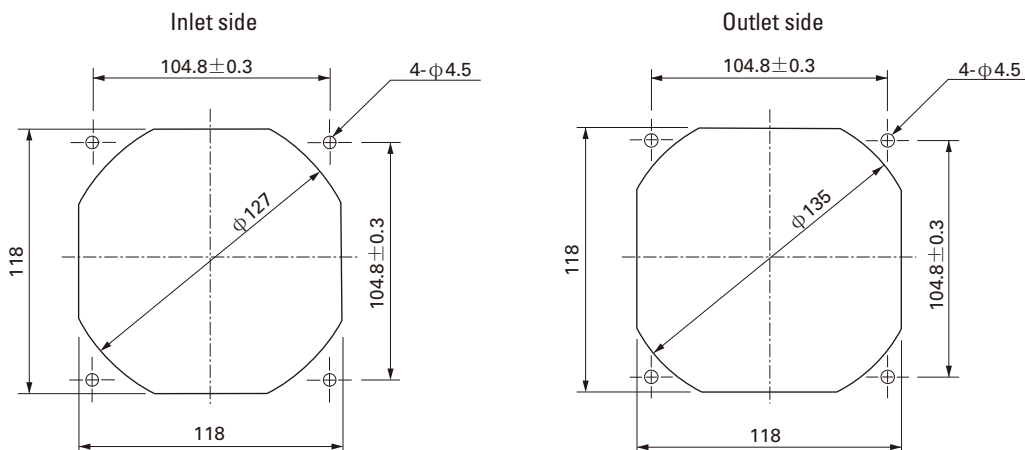
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9SG1212G101	12	10.2 to 13.8	4.0	48.0	6,000	7.35	260	340	1.37	64	- 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 SensorPulse Sensor

Available in all models.

Low speed SensorPWM Control

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

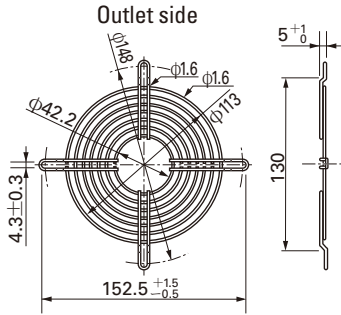
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

Finger guards

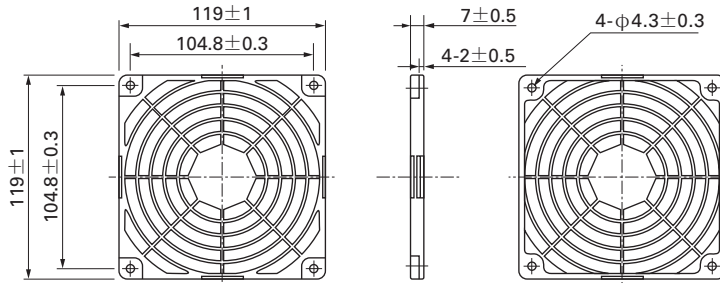
Model : 109-019C Surface treatment : Nickel-chrome plating (silver)
: 109-019H : Cation electropainting (black)

Color



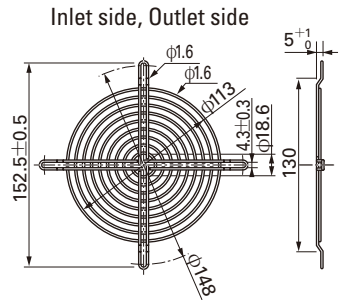
Resin finger guards

Model : 109-1000G



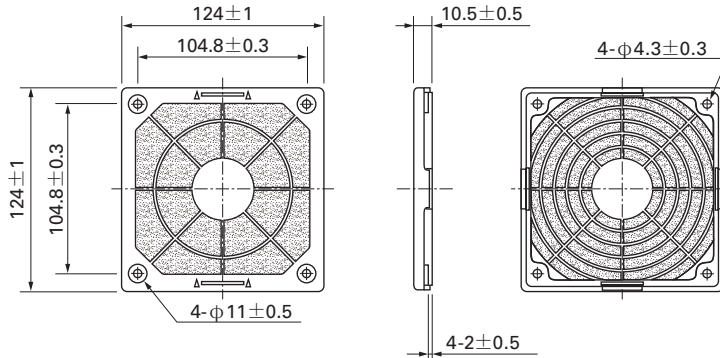
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

Color

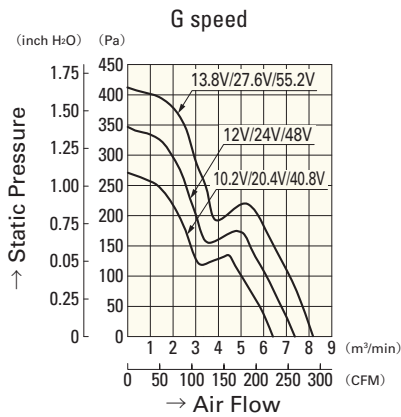


Resin filter kits

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



Air Flow - Static Pressure Characteristics



9SG1212G101

9SG1224G101

9SG1248G101

DC Fan 120mm

120mm

127 mm sq.**San Ace 127**

38mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

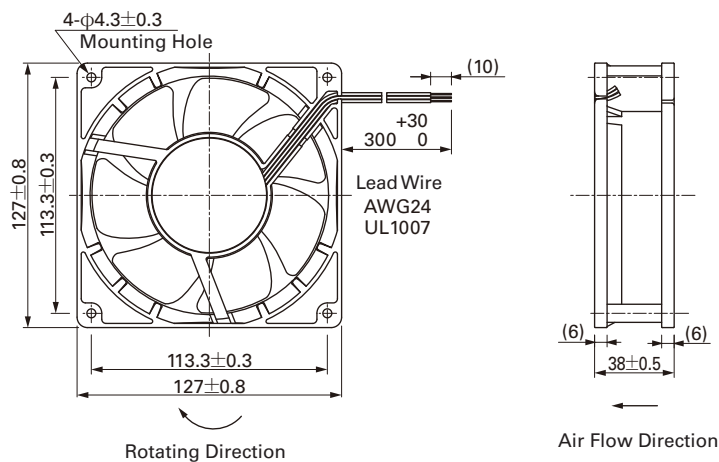
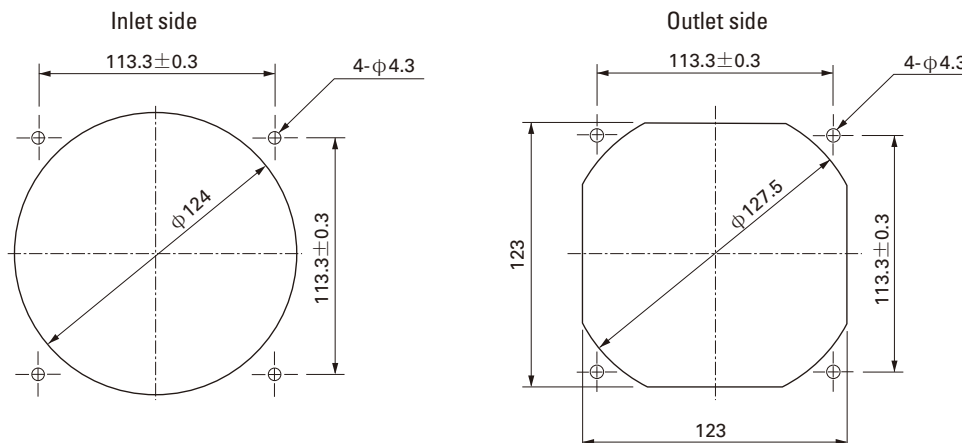
127 × 127 × 38mm [Mass : 350g]
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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)

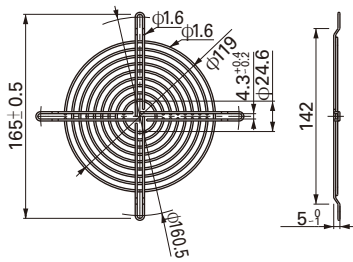
Finger guards

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

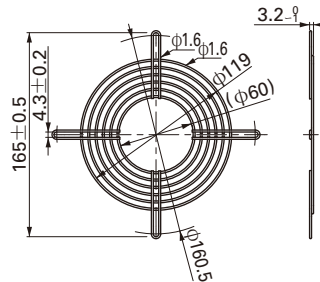
Model : 109-723

Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side



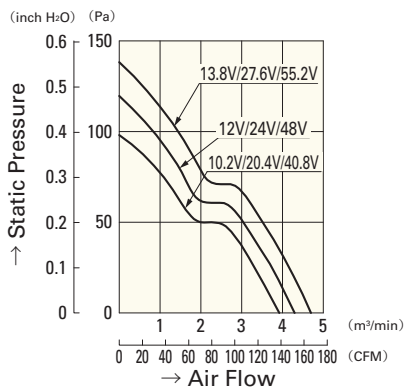
Outlet side



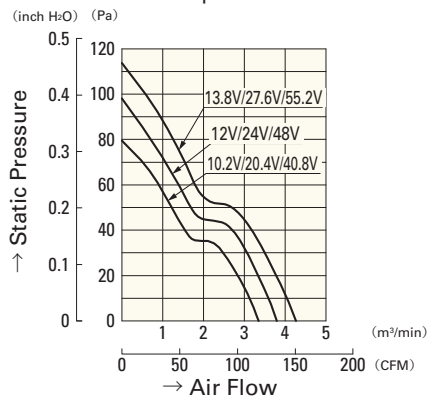
DC Fan 127mm

Air Flow - Static Pressure Characteristics

S speed



H speed



109P1312S101 (1011)

109P1324S101 (1011)

109P1348S101 (1011)

109P1312H101 (1011)

109P1324H101 (1011)

109P1348H101 (1011)

127mm

127 mm sq.**San Ace 127**

38mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

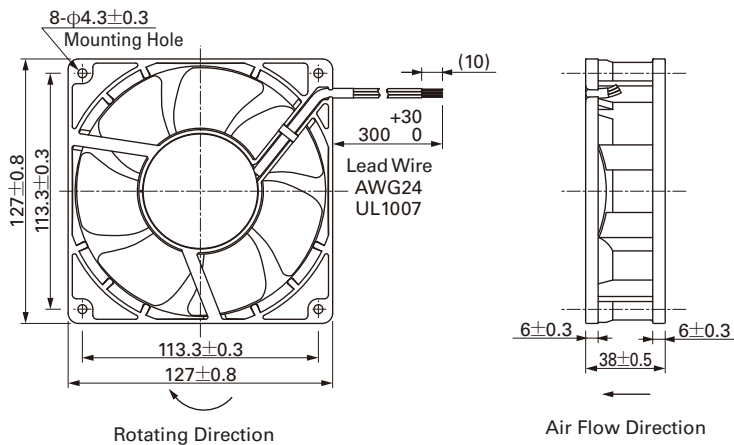
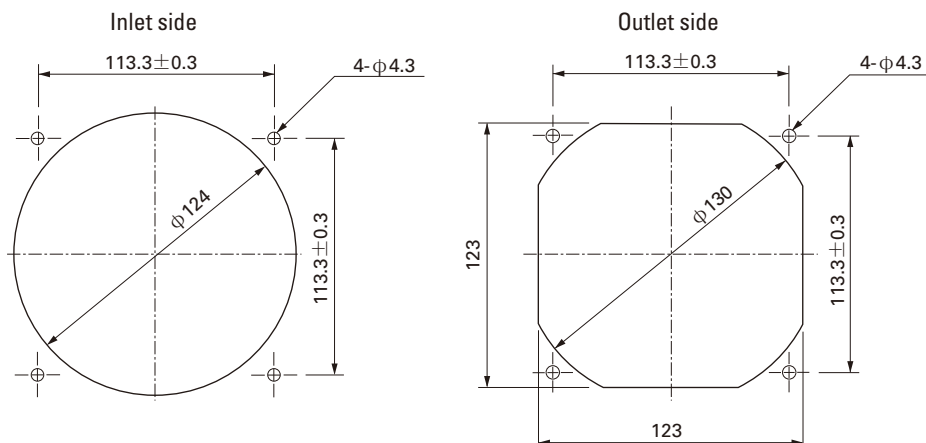
- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue (Sensor) yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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 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)

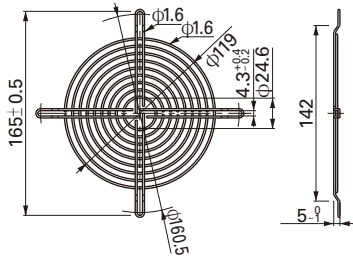
Finger guards

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

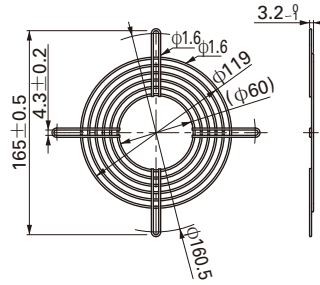
Model : 109-723

Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side



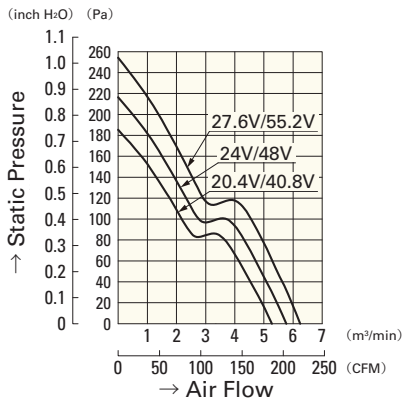
Outlet side



DC Fan 127mm

Air Flow - Static Pressure Characteristics

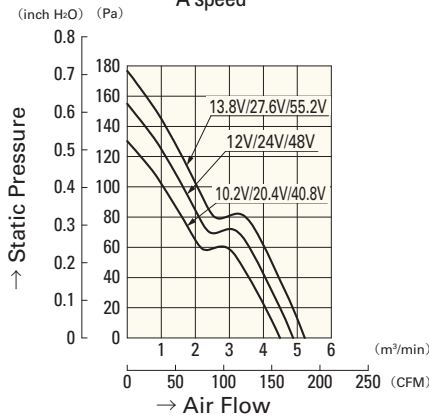
G speed



109E1324G101

109E1348G101

A speed

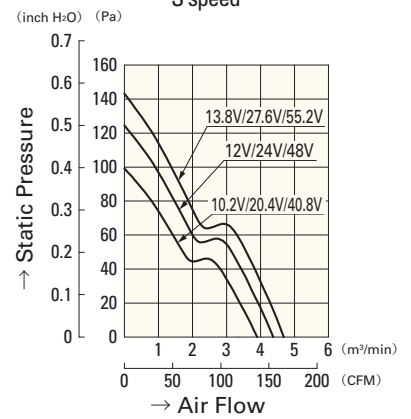


109E1312A101

109E1324A101

109E1348A101

S speed



109E1312S101

109E1324S101

109E1348S101

127mm

140mm sq.**San Ace 140**

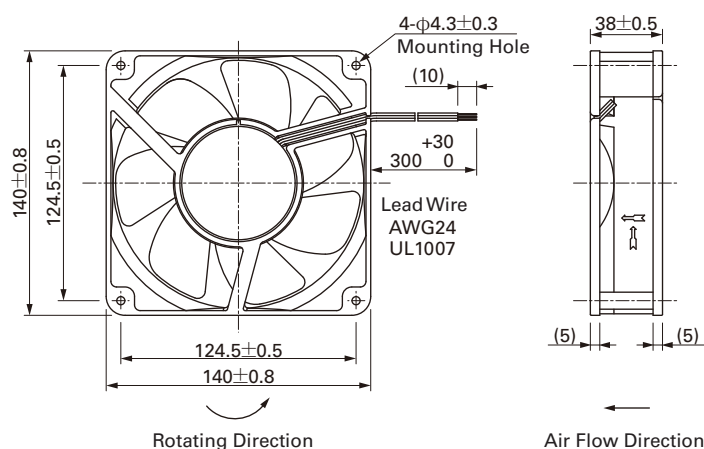
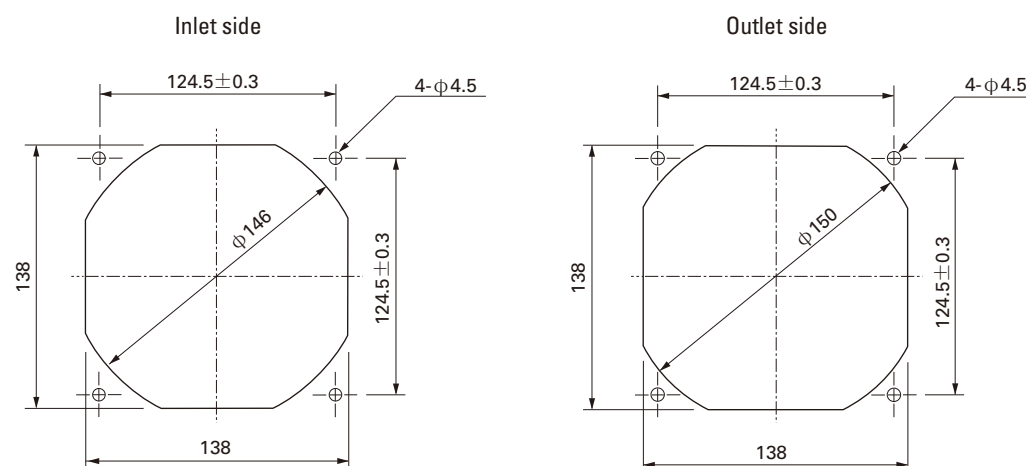
38mm thick


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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 : 450g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

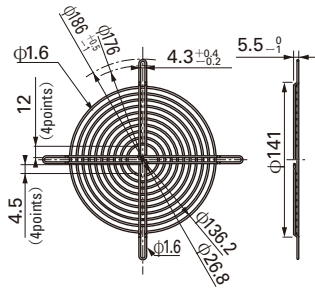
Without Sensor Pulse Sensor Available in all models.Lock Sensor Please inquire as the availability of these functions depend on the model.**Dimensions (Unit : mm)****Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

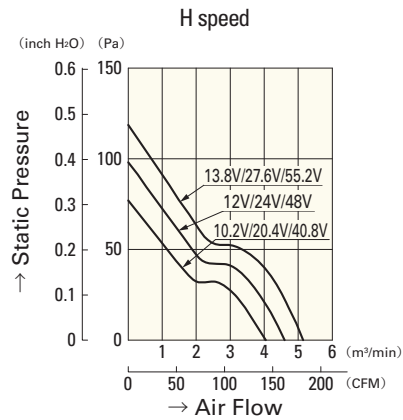
Finger guards

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

Inlet side, Outlet side



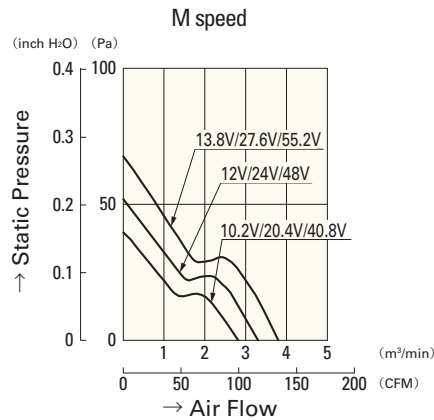
Air Flow - Static Pressure Characteristics



109P1412H101

109P1424H101

109P1448H101



109P1412M101

109P1424M101

109P1448M101

DC Fan 140mm

140mm

150mm sq.**San Ace 150**

50mm thick (GV type)


General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

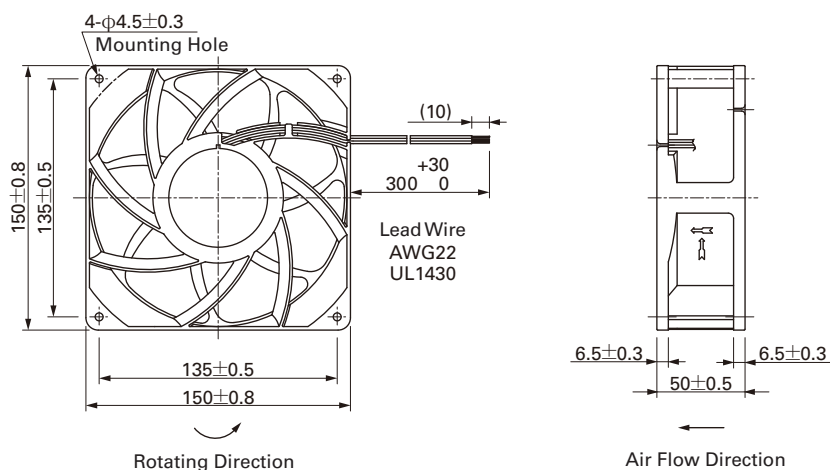
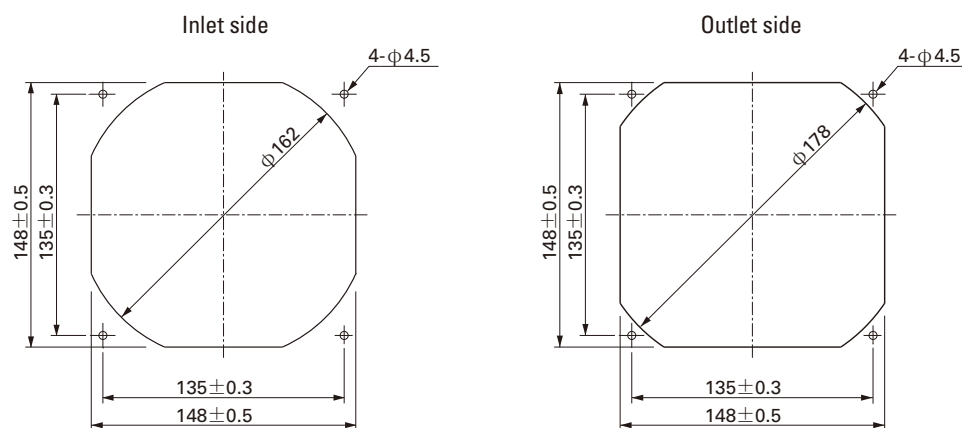
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to +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]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
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 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)


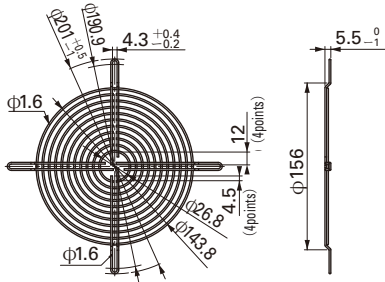
Options (Unit : mm)

Finger guards

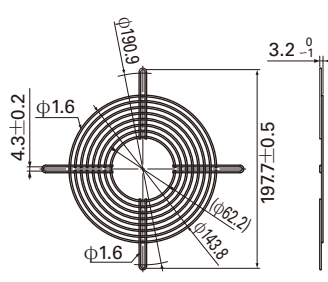
Model : 109-1051 Surface treatment : Nickel-chrome plating (silver) Color

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

Inlet side, Outlet side

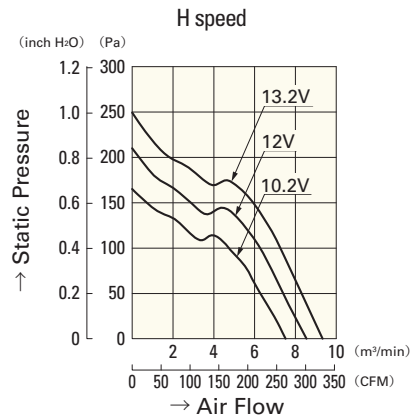


Outlet side

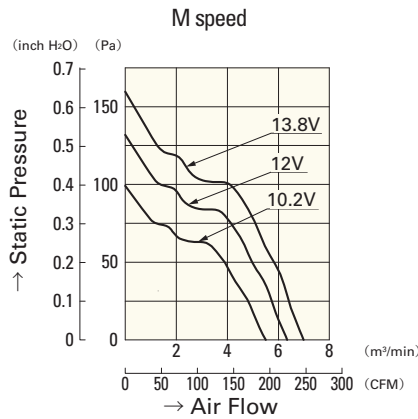


DC Fan 150mm

Air Flow - Static Pressure Characteristics



9GV1512H501(5011)



9GV1512M501(5011)

150mm

ϕ 172mm

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 297
- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
 - Expected Life 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)

ϕ 172mm × 147mm × 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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	24	20.4 to 27.6	1.0	24.0	3,400	6.4 226	135 0.542	57		
109E4724F401			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.

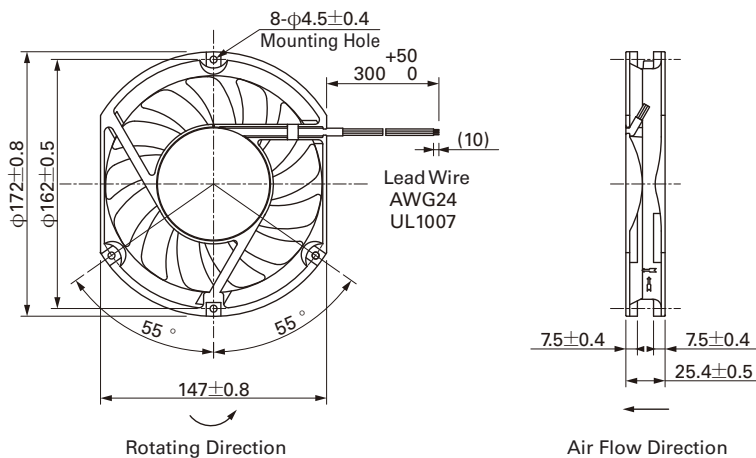
Lock Sensor

Low speed Sensor

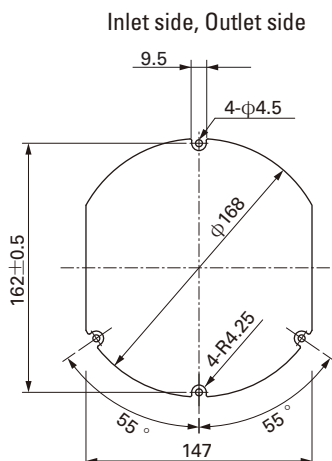
PWM Control

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)

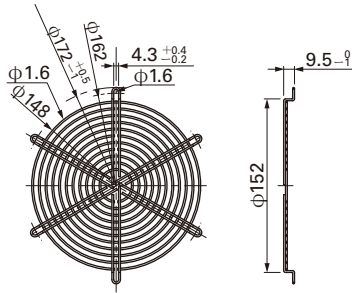


Options (Unit : mm)

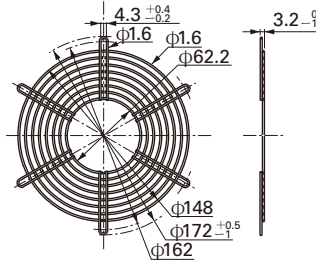
Finger guards

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

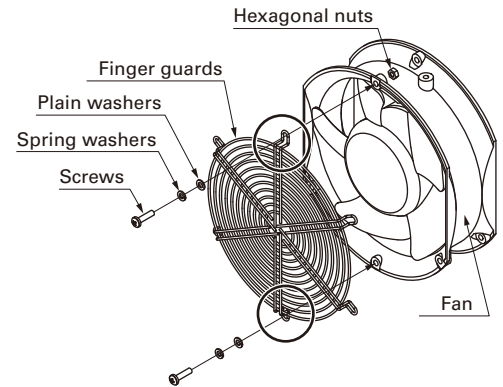
Inlet side, Outlet side



Outlet side

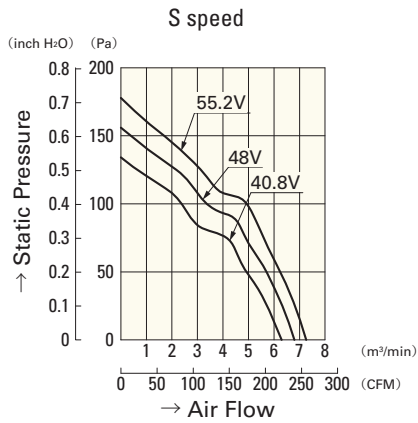


For the finger guard for a 172mm fan, fix the finger guard to two holes as shown in the diagram. Do not fix it to any other holes.

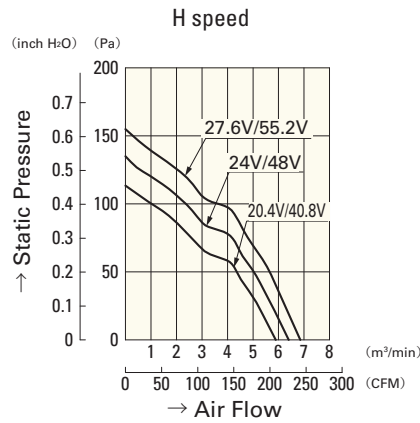


DC Fan 172mm

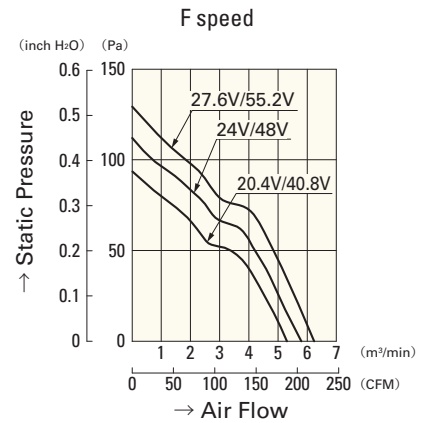
Air Flow - Static Pressure Characteristics



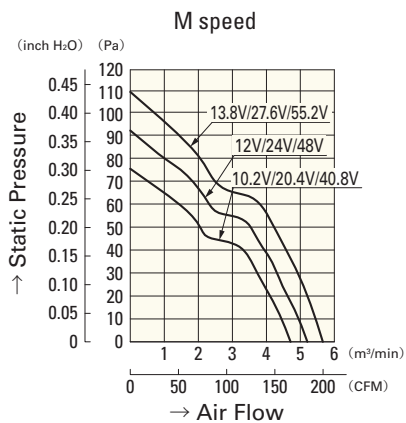
109E4748S401



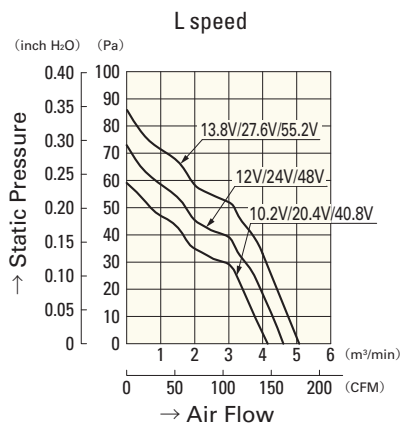
109E4724H401
109E4748H401



109E4724F401
109E4748F401



109E4712M401
109E4724M401
109E4748M401



109E4712L401
109E4724L401
109E4748L401

172mm

ϕ 172mm

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 $\Rightarrow$ Refer to Page 297

With PWM speed control function $\Rightarrow$ Refer to Page 299

- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Expected Life 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)

ϕ 172mm $\times$ 150mm $\times$ 51mm (Mass : 760g) **SideCut type** **SG type**

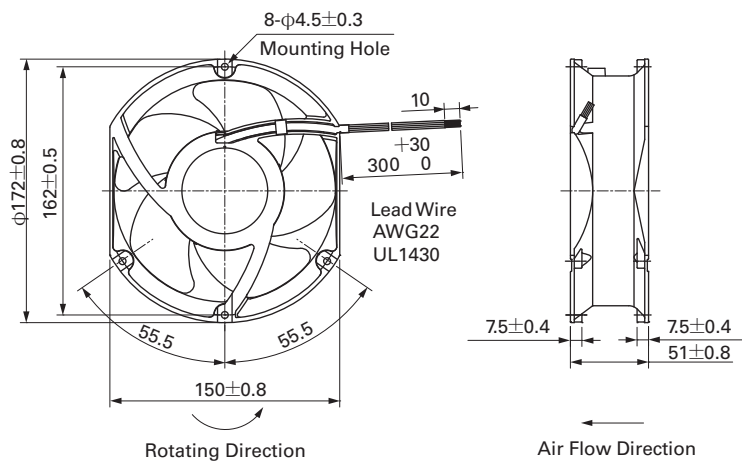
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9SG5724P5H61	24	20.4 to 27.6	100	2.8	67.2	6,500	11.6	410	540	2.16	71	−10 to +70	40,000
			0	0.18	4.32	1,300	2.32	81.9	30	0.12	30		
9SG5748P5G01	48	36 to 72	100	2.91	140	8,600	15.46	546	1,000	4.02	78	−10 to +60	
			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		

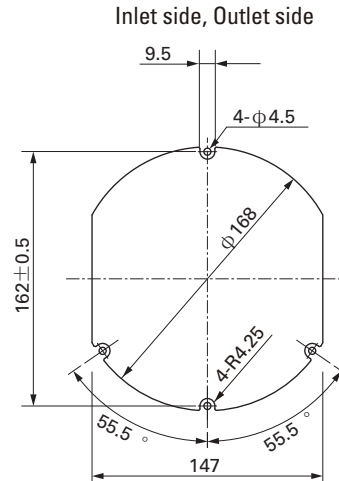
※PWM Frequency : 25kHz

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)

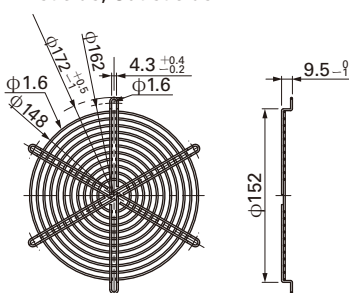
Finger guards

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

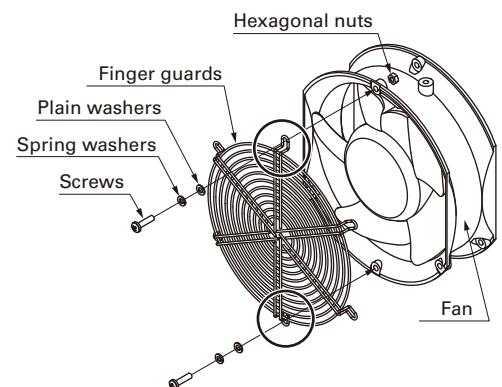
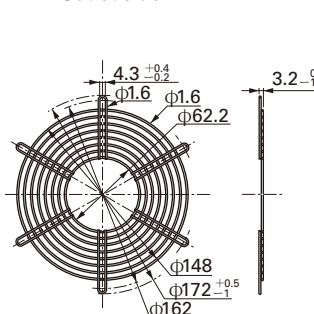
Model : 109-320 Surface treatment : Nickel-chrome plating (silver) Color :

For the finger guard for a 172mm fan, fix the finger guard to two holes as shown in the diagram. Do not fix it to any other holes.

Inlet side, Outlet side

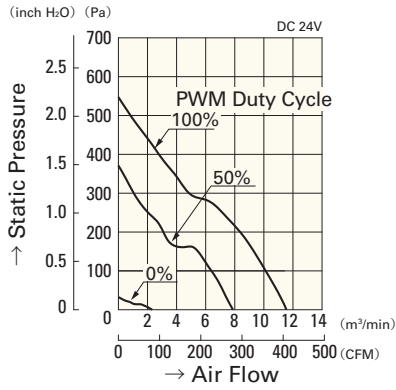


Outlet side

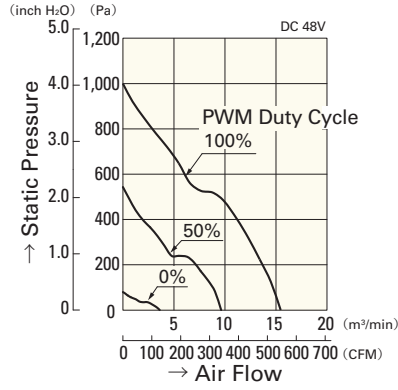


Air Flow - Static Pressure Characteristics

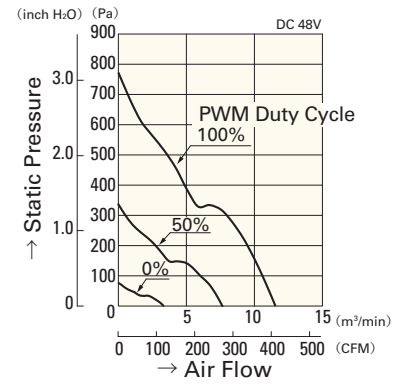
PWM Duty Cycle



9SG5724P5H61

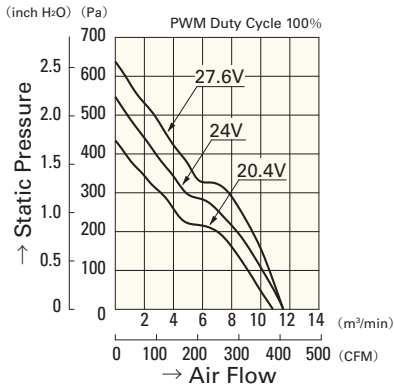


9SG5748P5G01

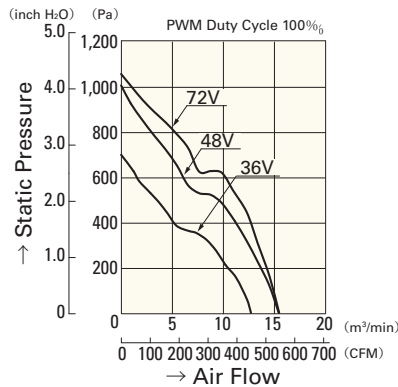


9SG5748P5H01

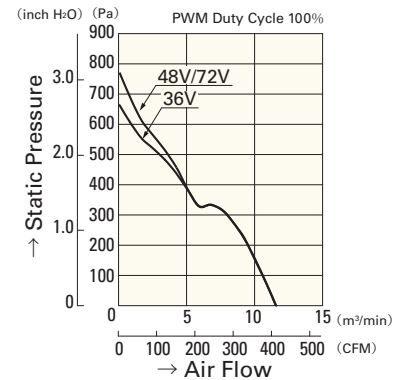
Operating Voltage Range



9SG5724P5H61

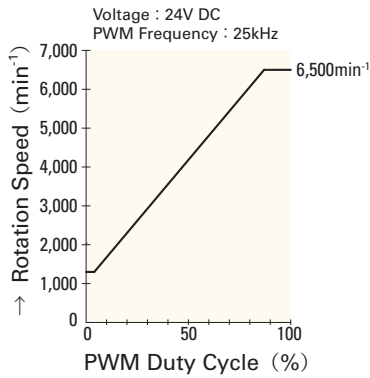


9SG5748P5G01

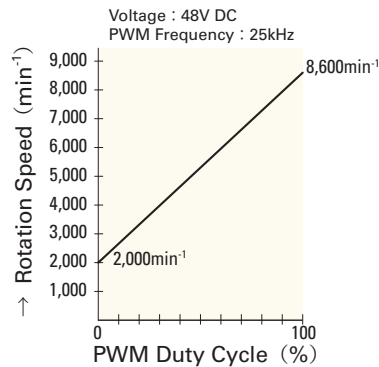


9SG5748P5H01

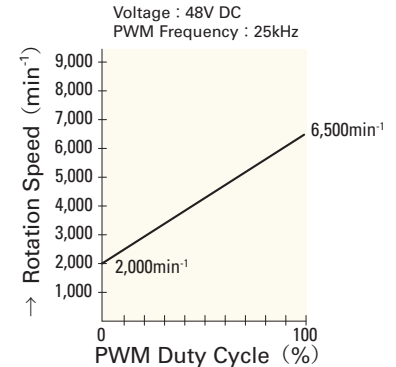
PWM Duty - Speed Characteristics Example



9SG5724P5H61



9SG5748P5G01



9SG5748P5H01

DC Fan 172mm

172mm

ϕ 172mm

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 297

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

ϕ 172mm × 150mm × 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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.

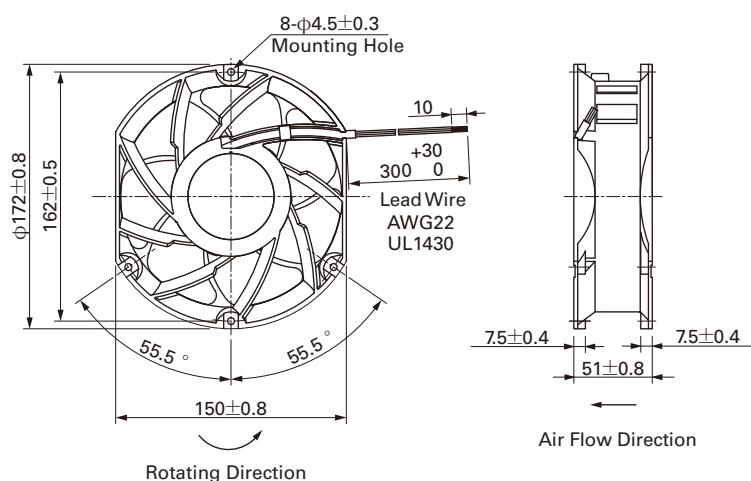
Lock Sensor

Low speed Sensor

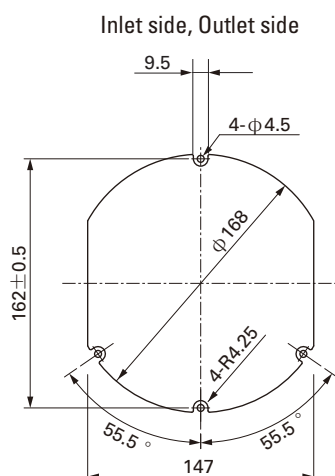
PWM Control

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)

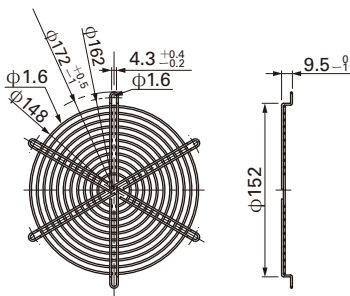


Options (Unit : mm)

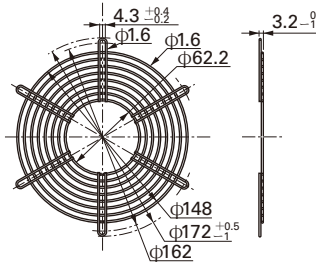
Finger guards

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

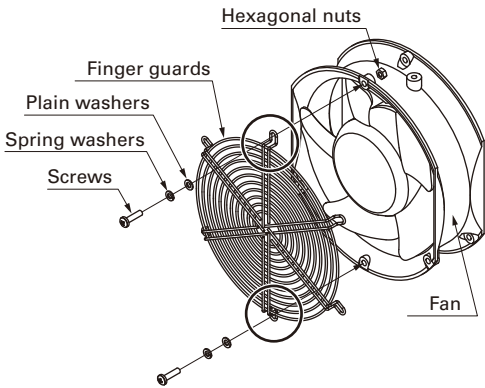
Inlet side, Outlet side



Outlet side

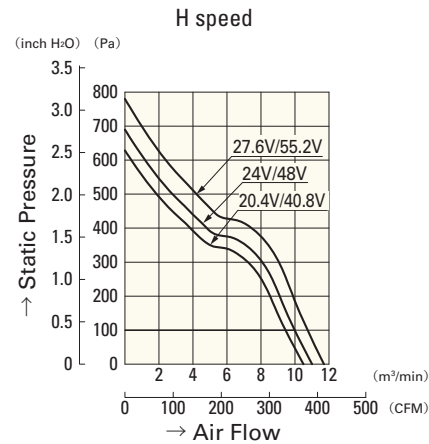


For the finger guard for a 172mm fan, fix the finger guard to two holes as shown in the diagram. Do not fix it to any other holes.



DC Fan 172mm

Air Flow - Static Pressure Characteristics



9GV5724H501

9GV5748H501

172mm

ϕ 172mm

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 297

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

ϕ 172mm × 150mm × 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]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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.

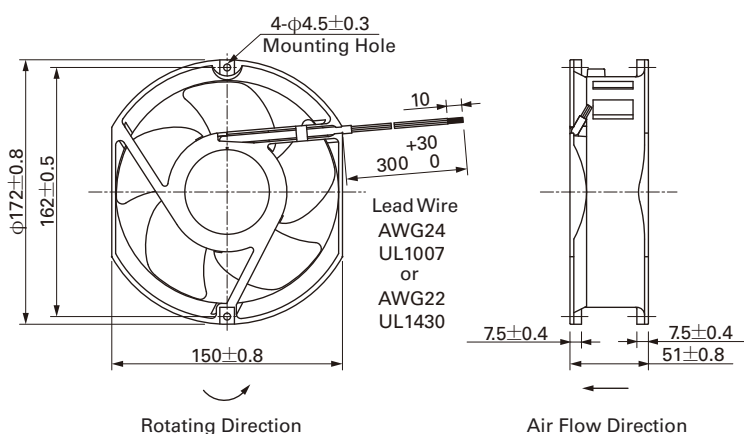
Lock Sensor

Low speed Sensor

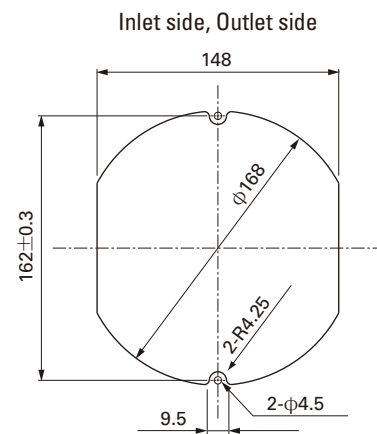
PWM Control

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)
: 109-319H : Cation electropainting (black)

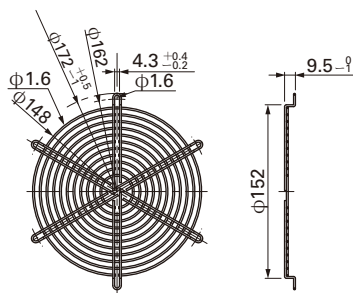
Color

Model : 109-320

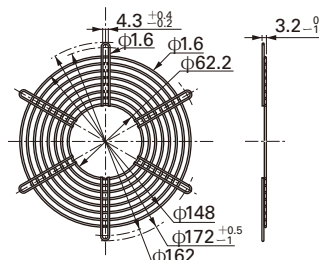
Surface treatment : Nickel-chrome plating (silver)

Color

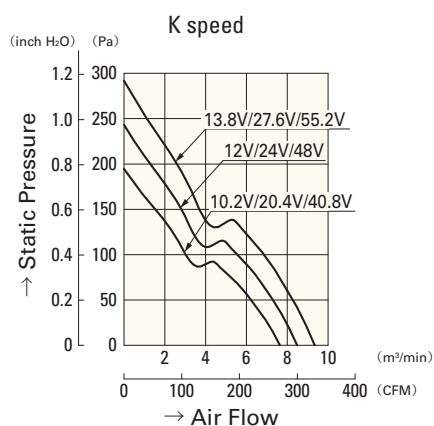
Inlet side, Outlet side



Outlet side



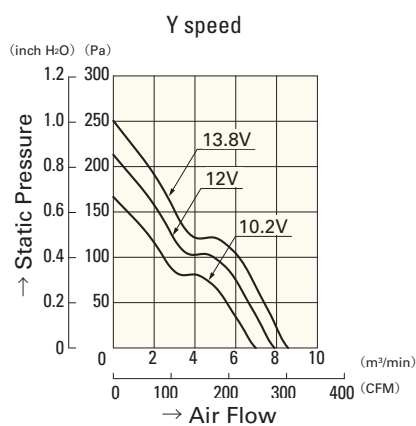
Air Flow - Static Pressure Characteristics



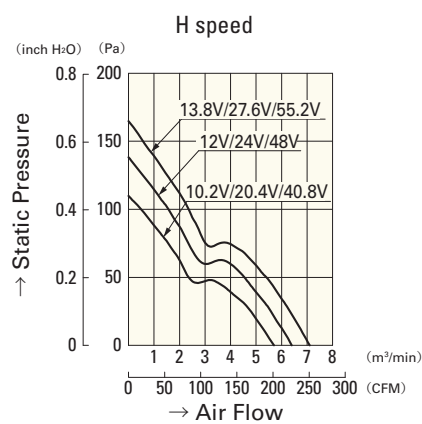
109E5712K501

109E5724K501

109E5748K501



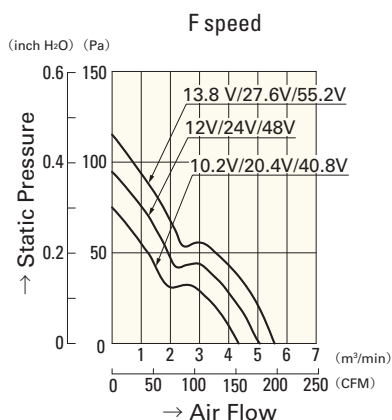
109E5712Y501



109E5712H501

109E5724H501

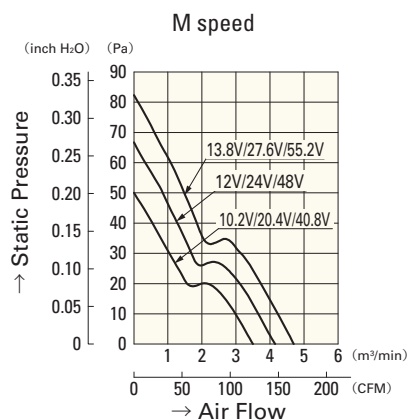
109E5748H501



109E5712F501

109E5724F501

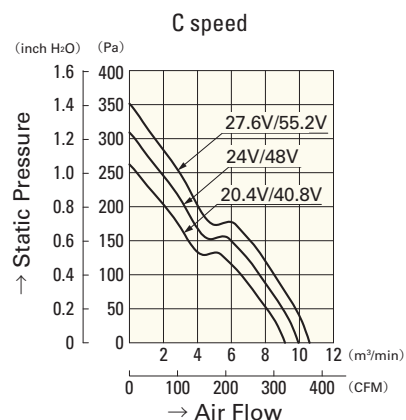
109E5748F501



109E5712M501

109E5724M501

109E5748M501



109E5724C501

109E5748C501

DC Fan 172mm

172mm

ϕ 172mm

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 297
- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
 - Expected Life 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)

ϕ 172mm × 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]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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	−10 to +70	
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		
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	−10 to +60	
109E1748K501			0.7	33.6	4,100	8.5	300	243.0	0.976	55		
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.

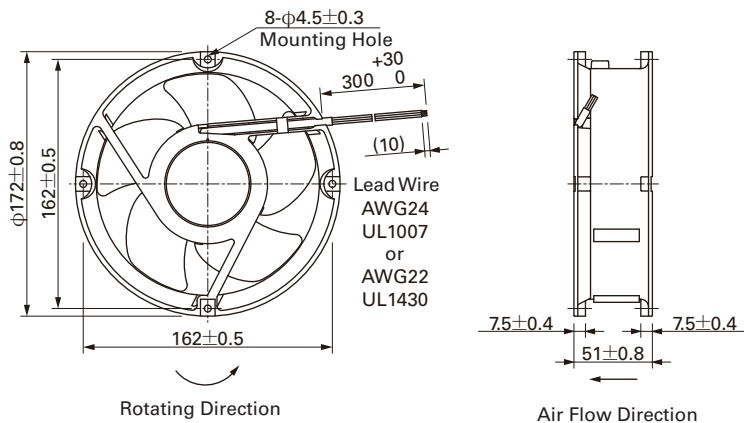
Lock Sensor

Low speed Sensor

PWM Control

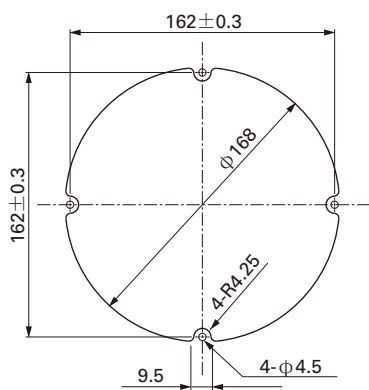
Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)



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

Inlet side, Outlet side



Options (Unit : mm)

Finger guards

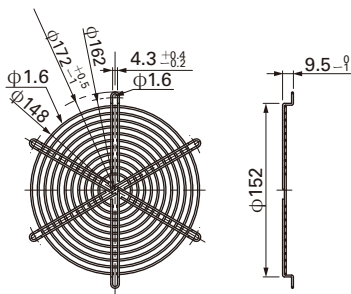
Model : 109-319E Surface treatment : Nickel-chrome plating (silver)
: 109-319H : Cation electropainting (black)

Color

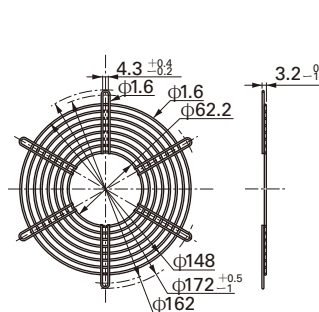
Model : 109-320 Surface treatment : Nickel-chrome plating (silver)

Color

Inlet side, Outlet side

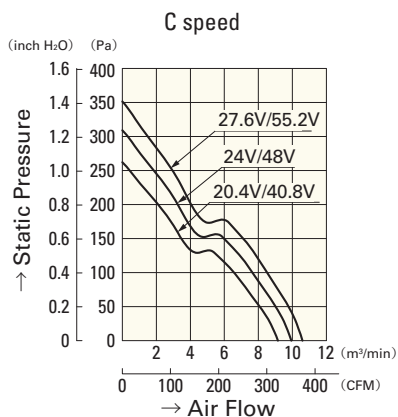


Outlet side

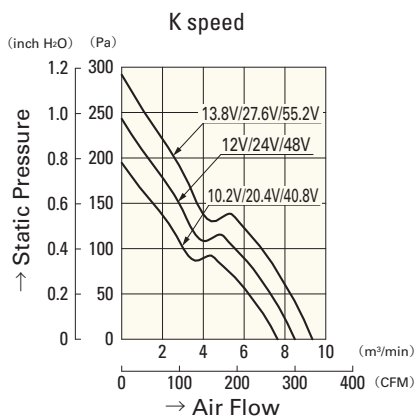


DC Fan 172mm

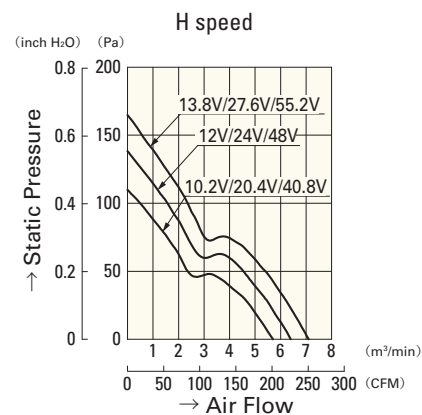
Air Flow - Static Pressure Characteristics



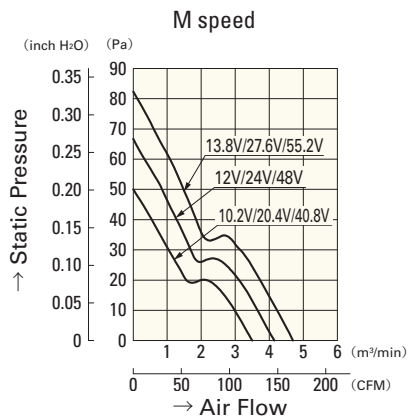
109E1724C501
109E1748C501



109E1712K501
109E1724K501
109E1748K501



109E1712H501
109E1724H501
109E1748H501



109E1712M501
109E1724M501
109E1748M501

172mm

ϕ 200mm

San Ace 200

70mm thick (Round type)

70mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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.

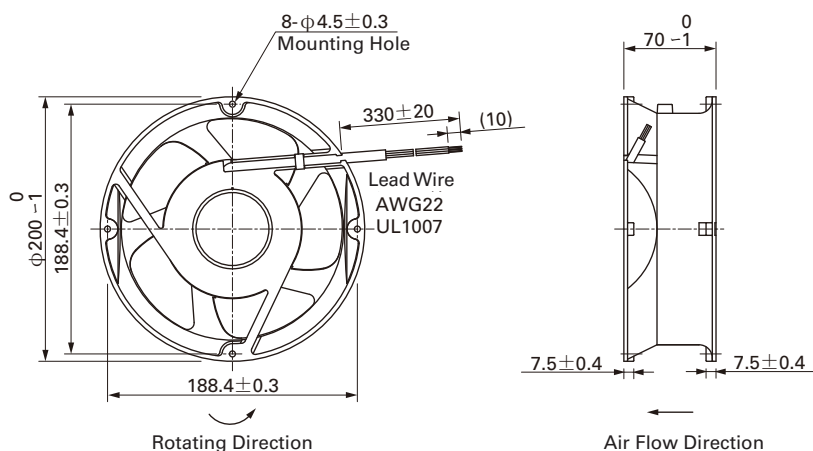
ϕ 200mm × 70mm (Mass : 1800g) **Round type**

Specifications The MH speed and AS speed are two speeds.

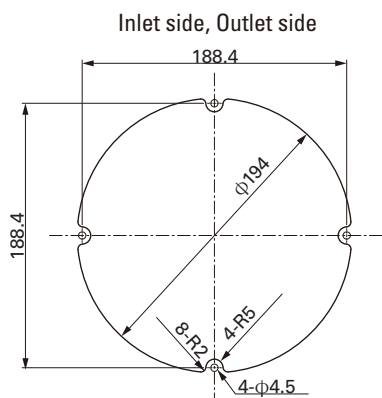
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109E2024H001	24	20.4 to 27.6	1.0	24	2,600	8.2	289.5	192	0.771	51	−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)



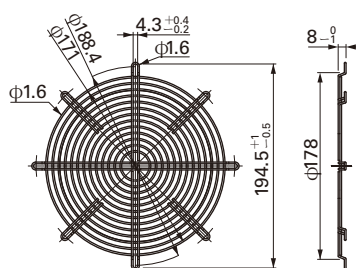
Options (Unit : mm)

Finger guards

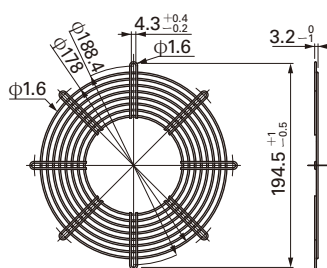
Model : 109-720 Surface treatment : Nickel-chrome plating (silver)
: 109-720H : Cation electropainting (black)

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

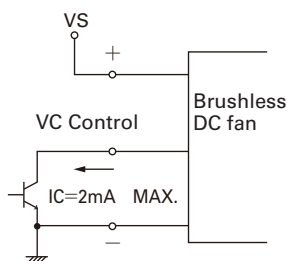
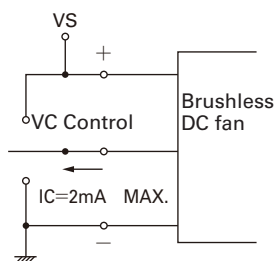
Inlet side, Outlet side



Outlet side

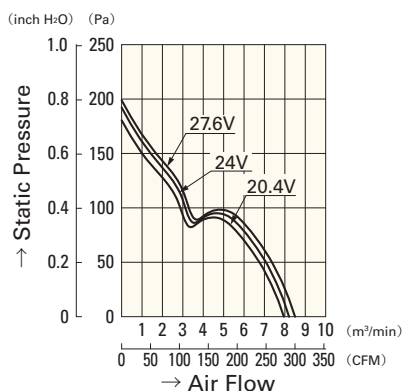


Signal connection type



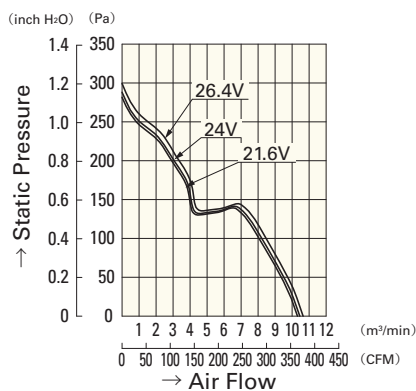
Air Flow - Static Pressure Characteristics

H speed



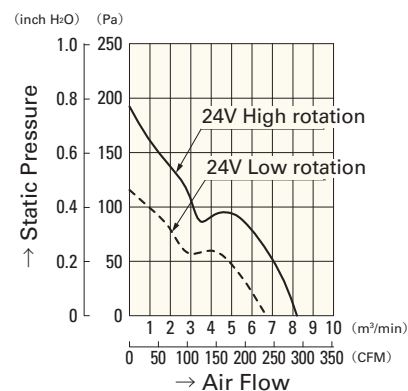
109E2024H001

S speed



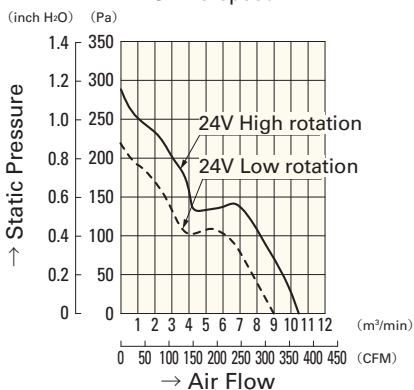
109E2024S001

MH Two-speed



109E2024MH001

AS Two-speed



109E2024AS001

DC Fan 200mm

200mm

ϕ 200mm

San Ace 200

70mm thick (Round type)
70mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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]

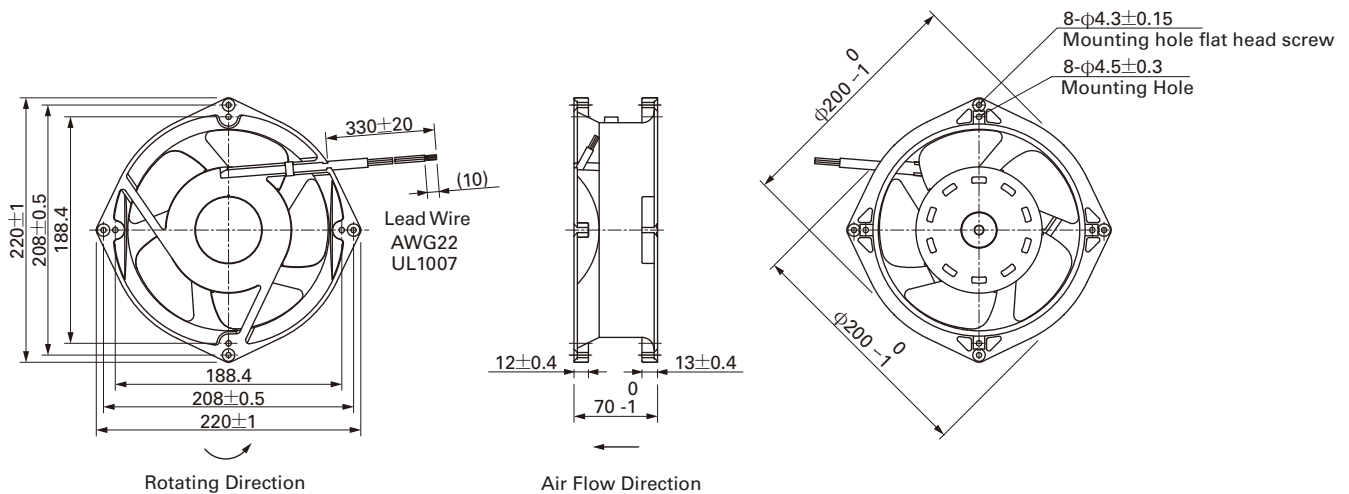
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

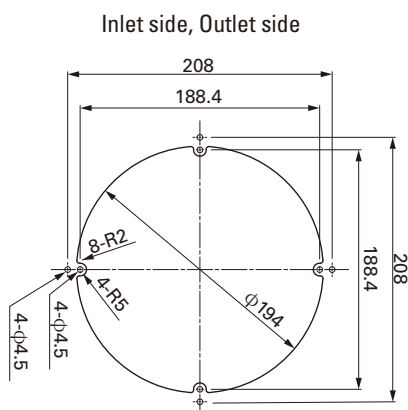
Without Sensor **Pulse Sensor** Available in all models.

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)



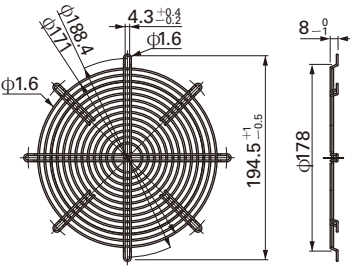
Options (Unit : mm)

Finger guards

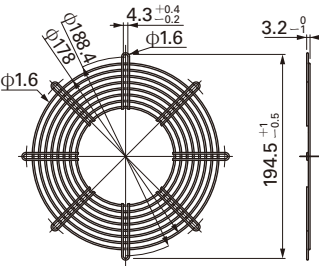
Model : 109-720 Surface treatment : Nickel-chrome plating (silver) Color : 109-720H : Cation electropainting (black)

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

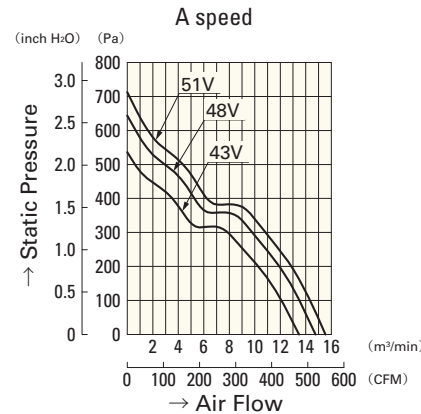
Inlet side, Outlet side



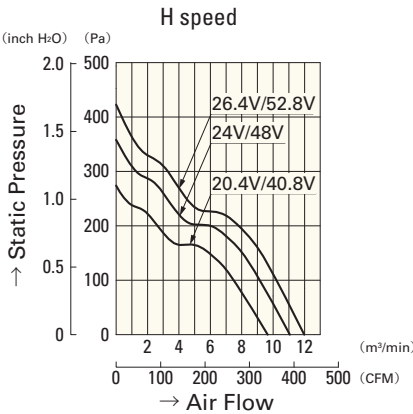
Outlet side



Air Flow - Static Pressure Characteristics



9EC2048A001



9EC2024H001

9EC2048H001

DC Fan 200mm

200mm

38mm sq.**San Ace 38**

48mm thick (CRA type)


General Specifications
With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

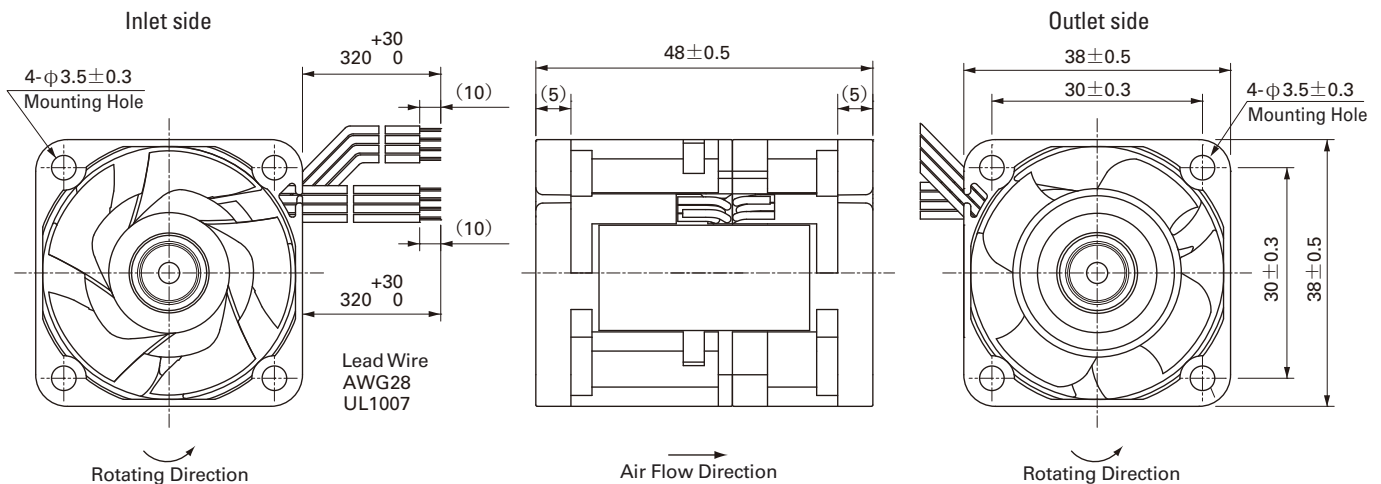
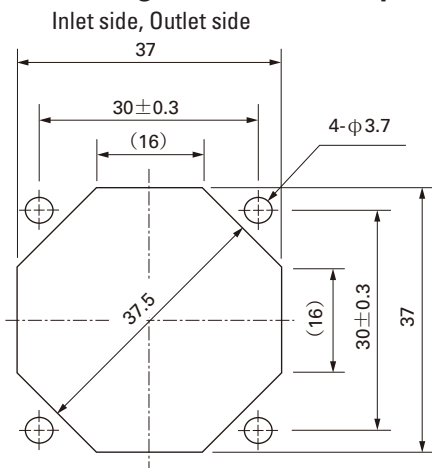
With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

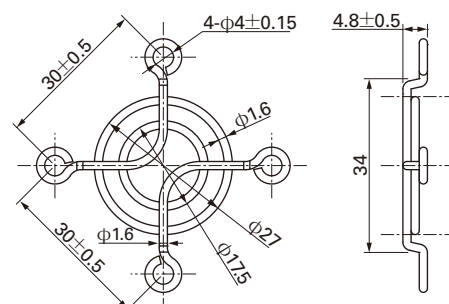
※PWM Frequency : 25kHz

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)

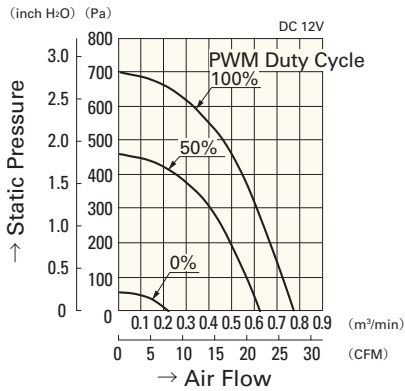
Color

Inlet side, Outlet side

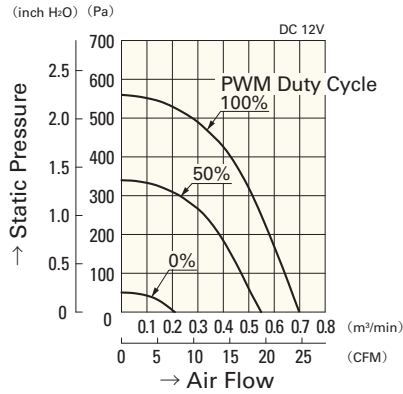


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

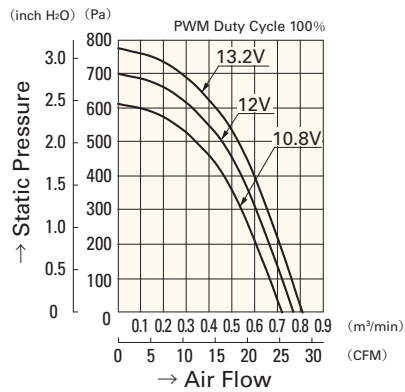


9CRA0312P4K03

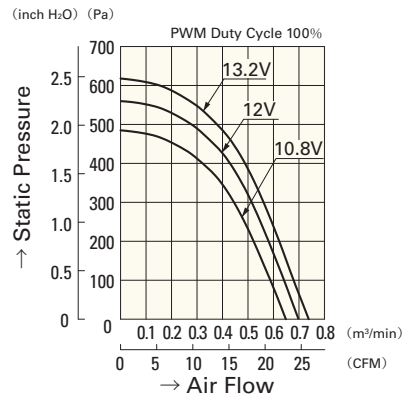


9CRA0312P4J03

Operating Voltage Range

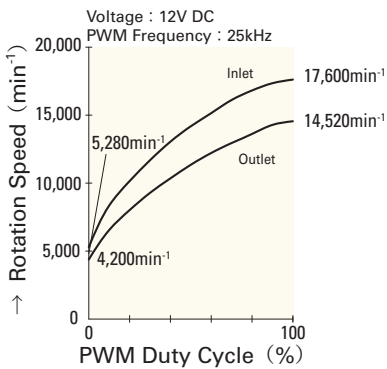


9CRA0312P4K03

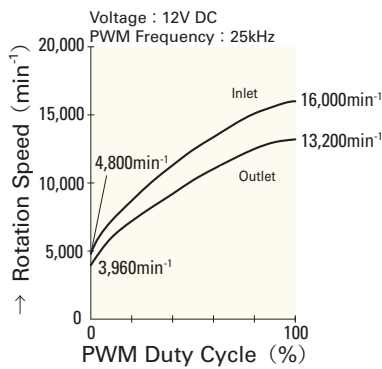


9CRA0312P4J03

PWM Duty - Speed Characteristics Example



9CRA0312P4K03



9CRA0312P4J03

40mm sq.**San Ace 40**

48mm thick (CRA type), 56mm thick (CRB type)
 56mm thick (CRF 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 297

With PWM speed control function ⇨ Refer to Page 299

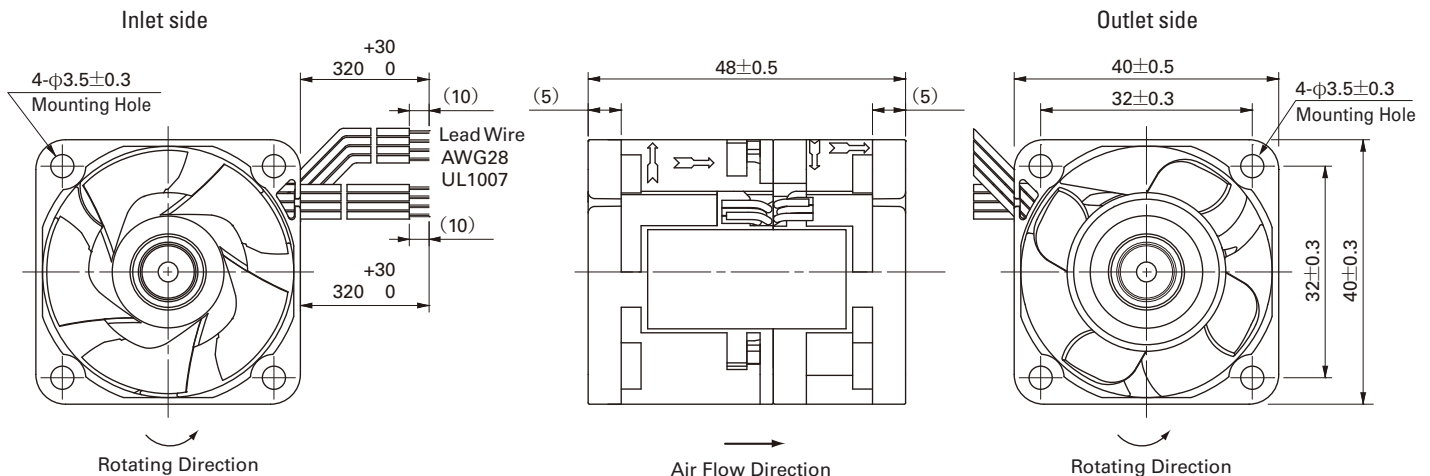
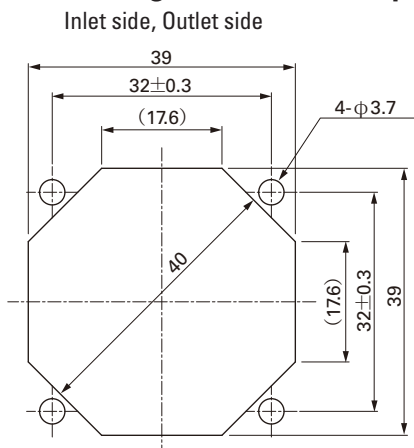
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕ red ⊖ black (Sensor) yellow (Control) brown
Outlet ⊕ orange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

40×40×48mm [Mass : 80g]**CRA type**■ **Specifications**

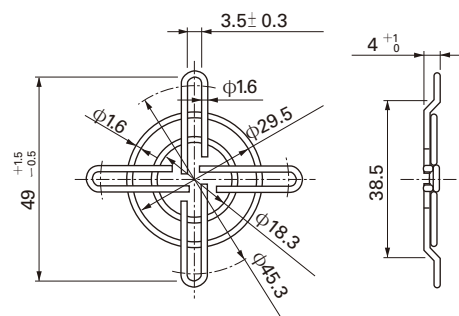
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9CRA0412P4K03	12	10.8 to 13.2	100	1.60	19.20	17,500 11,700	0.920 32.50	650.0 2.610	64	-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

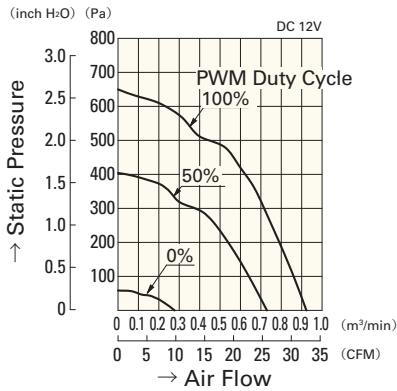
Without Sensor Pulse Sensor PWM Control Available in all models.

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

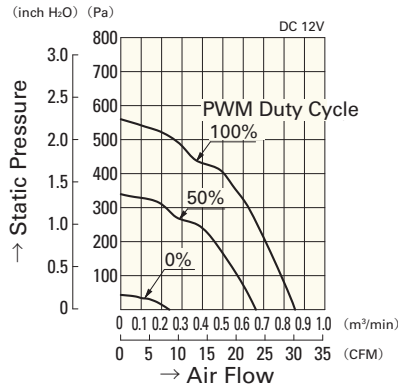
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side

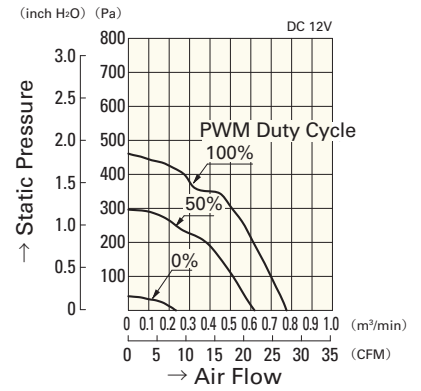
PWM Duty Cycle



9CRA0412P4K03

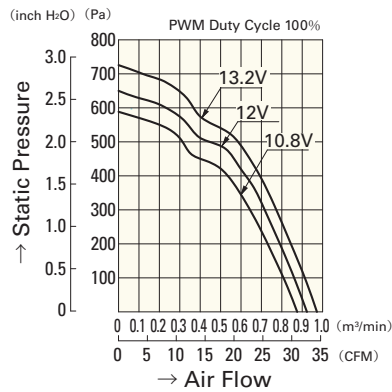


9CRA0412P4J03

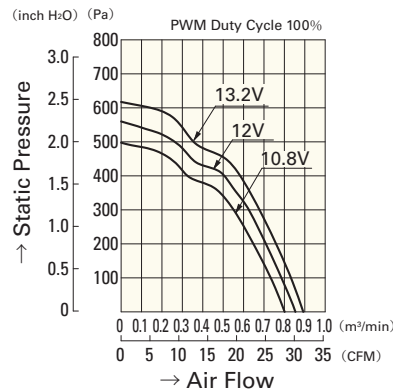


9CRA0412P4G03

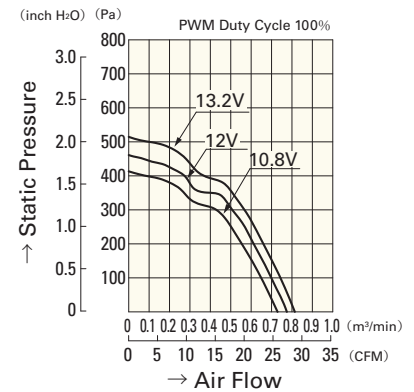
Operating Voltage Range



9CRA0412P4K03

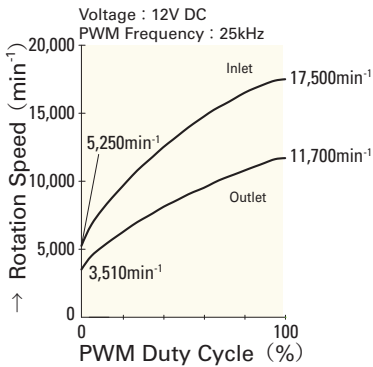


9CRA0412P4J03

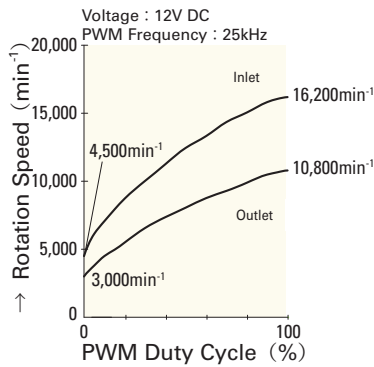


9CRA0412P4G03

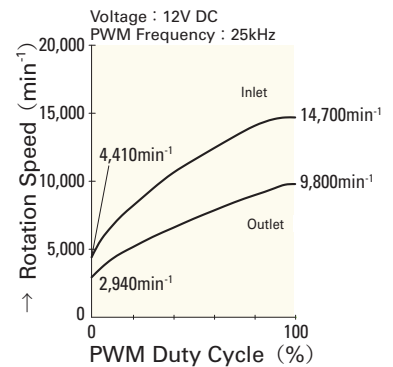
PWM Duty - Speed Characteristics Example



9CRA0412P4K03



9CRA0412P4J03



9CRA0412P4G03

40mm sq.**San Ace 40**

48mm thick (CRA type), 56mm thick (CRB type)
 56mm thick (CRF 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 297

With PWM speed control function ⇨ Refer to Page 299

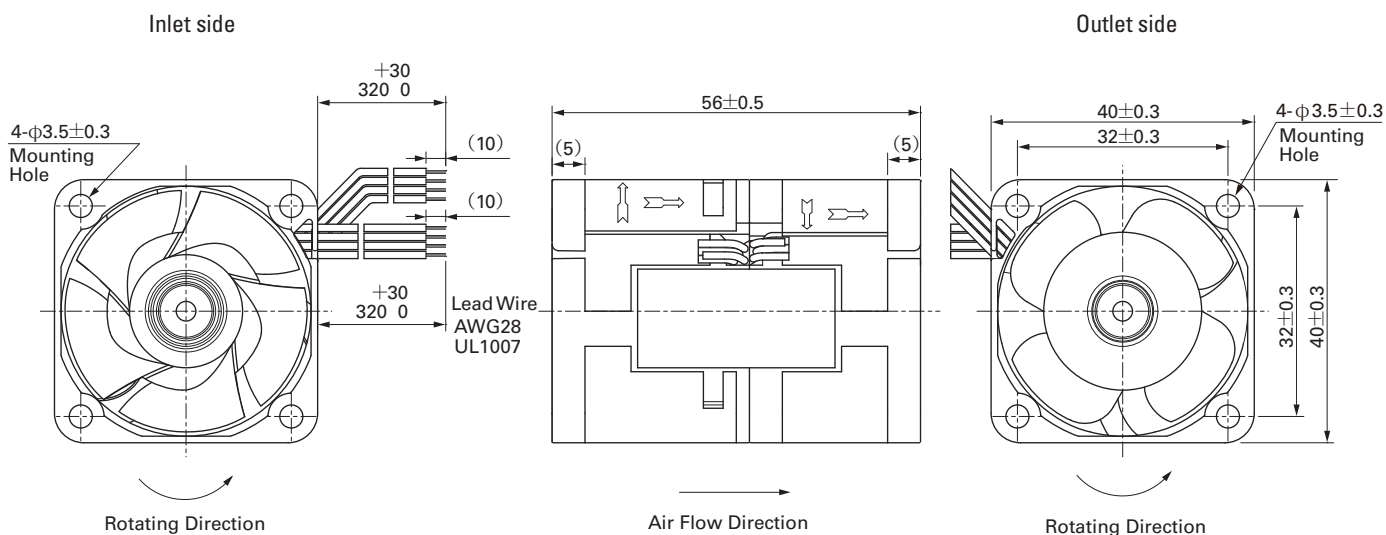
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕ red ⊖ black (Sensor) yellow (Control) brown
Outlet ⊕ orange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

40 × 40 × 56mm (Mass : 90g) **CRD type**
■ **Specifications**

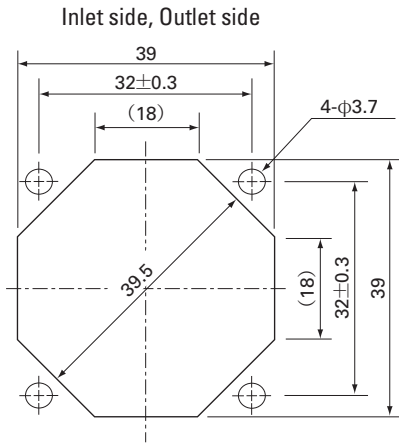
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹] Inlet Outlet	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9CRD0412P5J03	12	10.8 to 13.2	100	1.15	13.8	19,000 12,600	0.87 30.72	630 2.53	61	-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)**

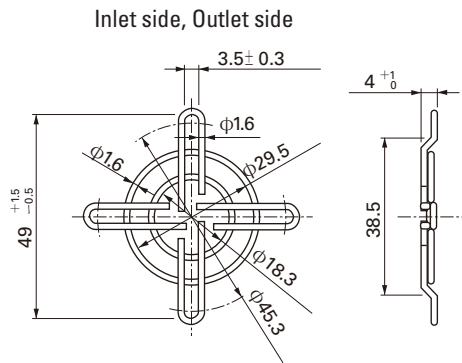
Reference dimension of mounting holes and vent opening (Unit : mm)

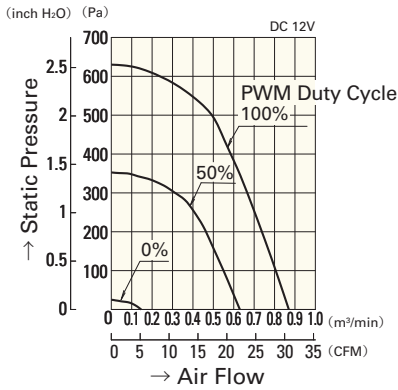
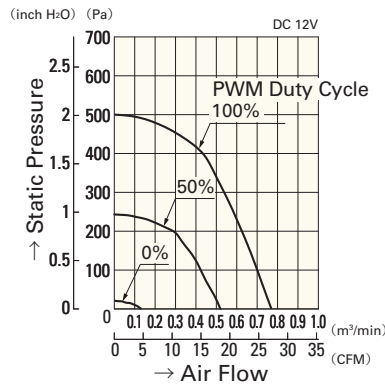
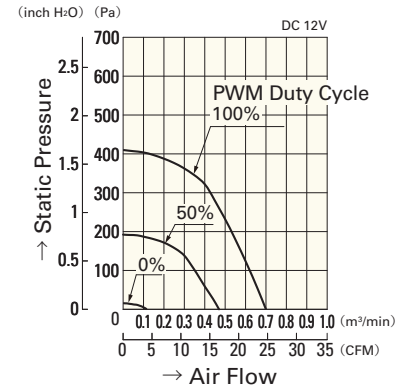
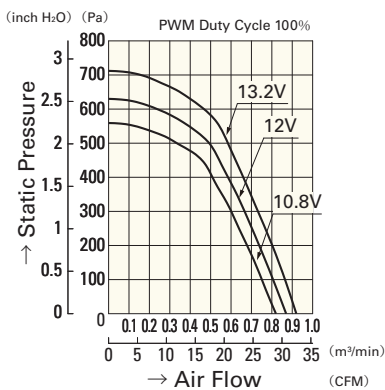
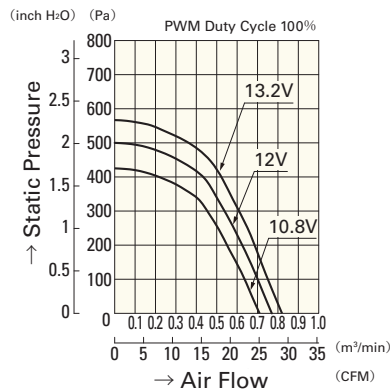
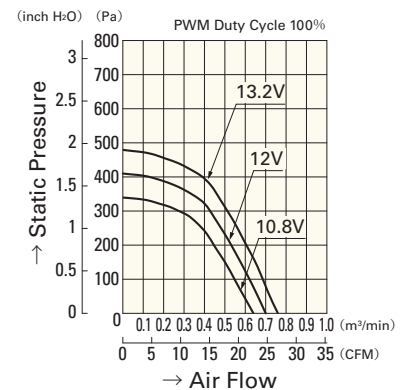
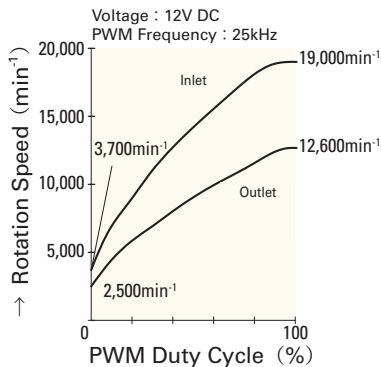
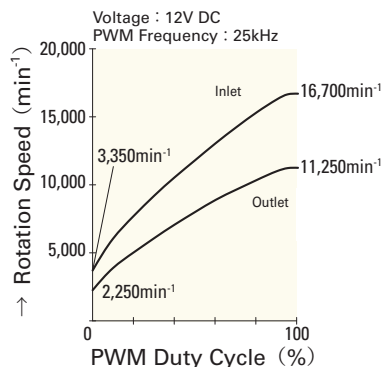
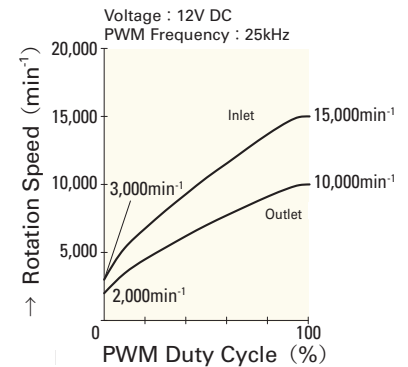


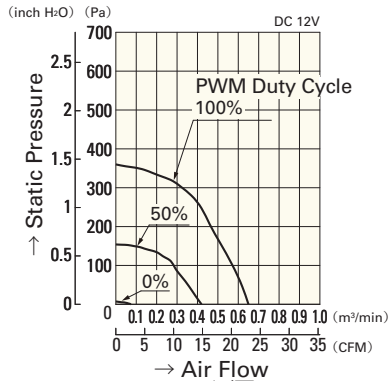
Options (Unit : mm)

Finger guards

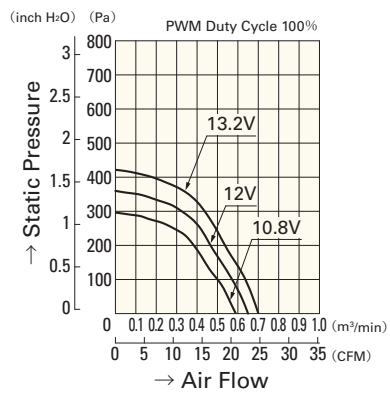
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color



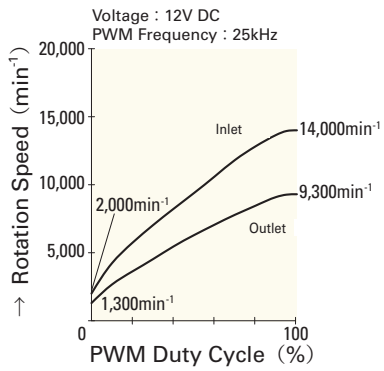
40mm sq.**San Ace 40****40×40×56mm** [Mass : 90g]**Air Flow - Static Pressure Characteristics****PWM Duty Cycle****9CRD0412P5J03****9CRD0412P5G03****9CRD0412P5H03****Operating Voltage Range****9CRD0412P5J03****9CRD0412P5G03****9CRD0412P5H03****PWM Duty - Speed Characteristics Example****9CRD0412P5J03****9CRD0412P5G03****9CRD0412P5H03**



9CRD0412P5M03



9CRD0412P5M03



9CRD0412P5M03

40mm sq.**San Ace 40**

48mm thick (CRA type), 56mm thick (CRB type)
 56mm thick (CRF 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 297

With PWM speed control function ⇨ Refer to Page 299

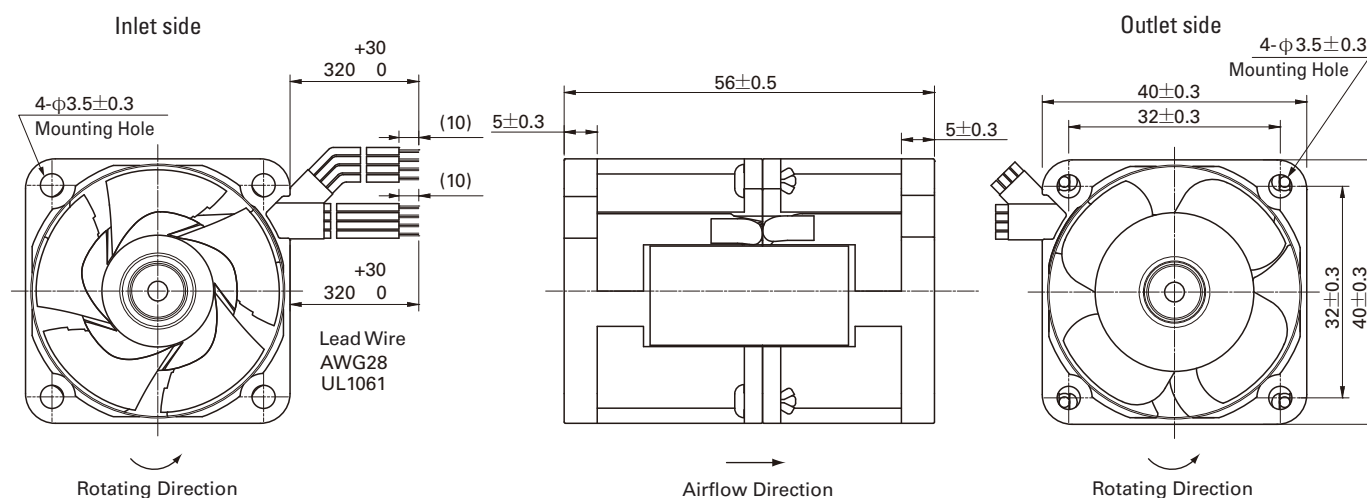
- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Varies for each model (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black (Sensor) yellow (Control) brown
Outlet ⊕orange ⊖gray (Sensor) purple (Control)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

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

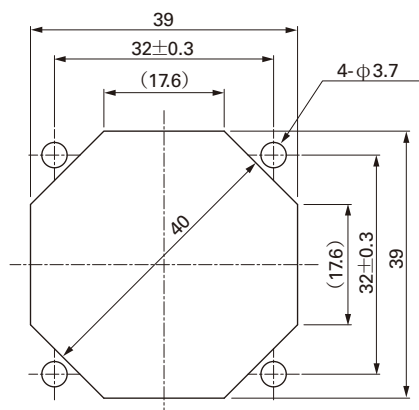
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹] Inlet Outlet	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9CRE0412P5J03	12	10.8 to 13.2	100	1.4	16.8	15,800 12,200	0.90 31.8	570.0 2.290	62	-10 to +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.

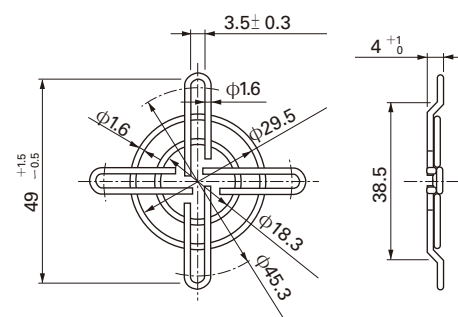
■ **Dimensions (Unit : mm)**■ **Reference dimension of mounting holes and vent opening (Unit : mm)**

Inlet side, Outlet side

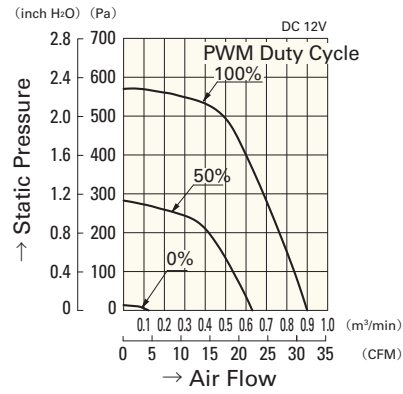
■ **Options (Unit : mm)****Finger guards**

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

Inlet side, Outlet side

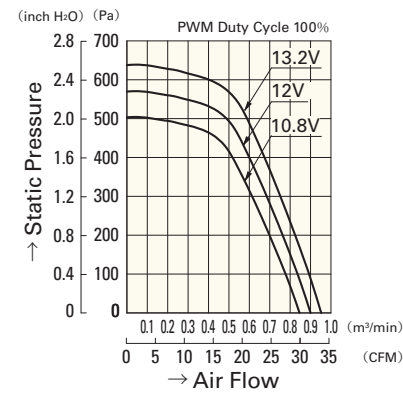


PWM Duty Cycle



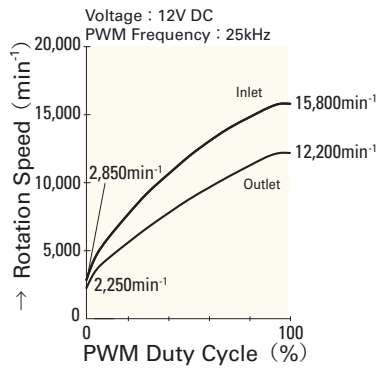
9CRE0412P5J03

Operating Voltage Range



9CRE0412P5J03

■ PWM Duty - Speed Characteristics Example



9CRE0412P5J03

40mm sq.**San Ace 40**

48mm thick (CRA type), 56mm thick (CRB type)
 56mm thick (CRF 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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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)

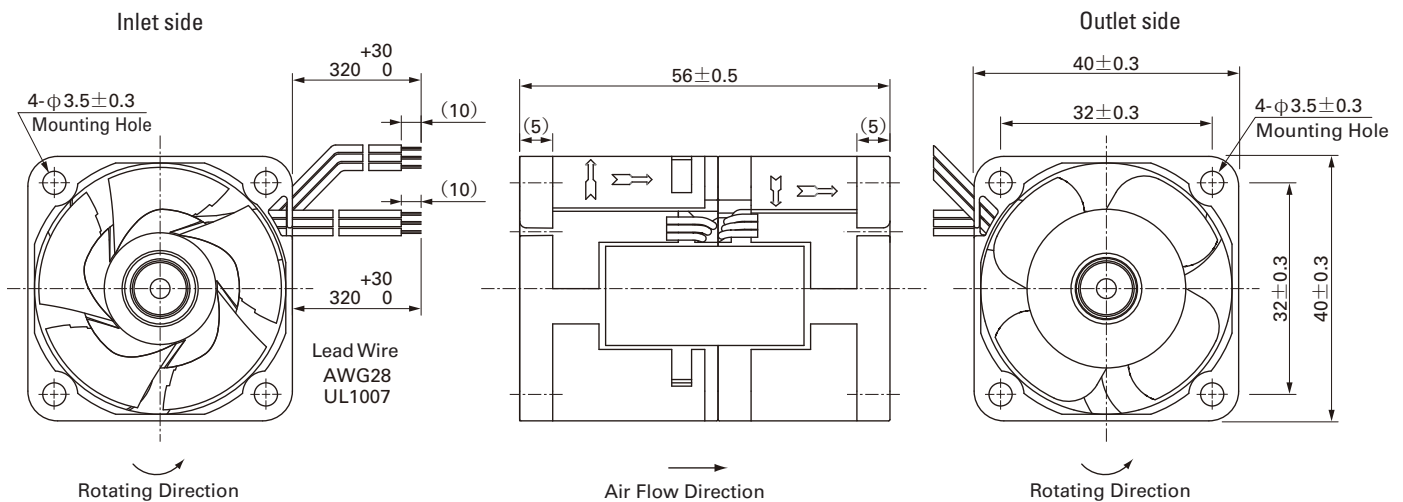
40 × 40 × 56mm [Mass : 90g]**CRA type****Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9CRA0412K501	12	10.8 to 12.6	1.8	21.6	17,000 13,000	0.95 33.5	650 2.61	65	-10 to +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		

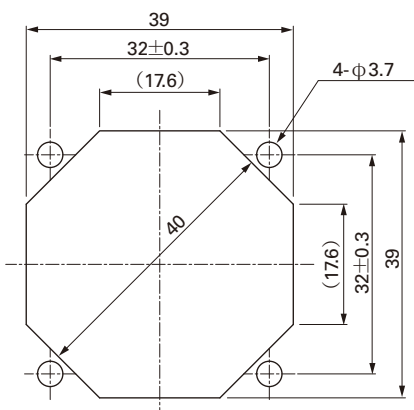
※PWM Frequency : 25kHz

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)**

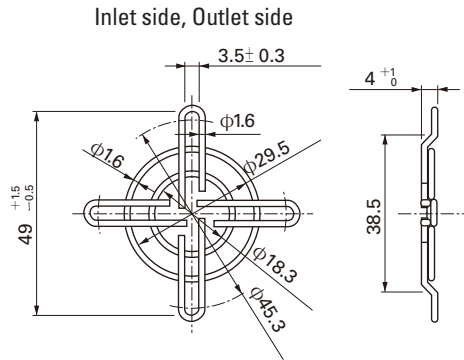
Inlet side, Outlet side



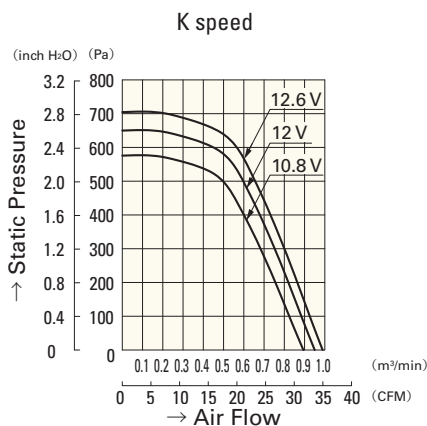
Options (Unit : mm)

Finger guards

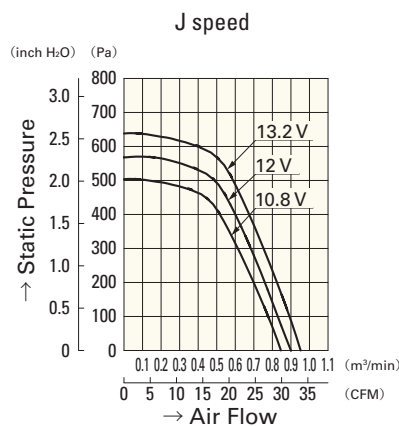
Model : 109-059 Color Surface treatment : Nickel-chrome plating (silver)



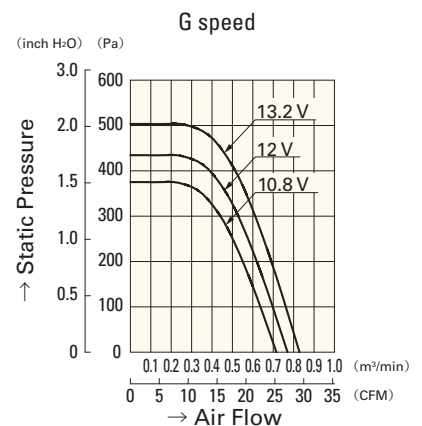
Air Flow - Static Pressure Characteristics



9CRA0412K501



9CRA0412J501



9CRA0412G501

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 297

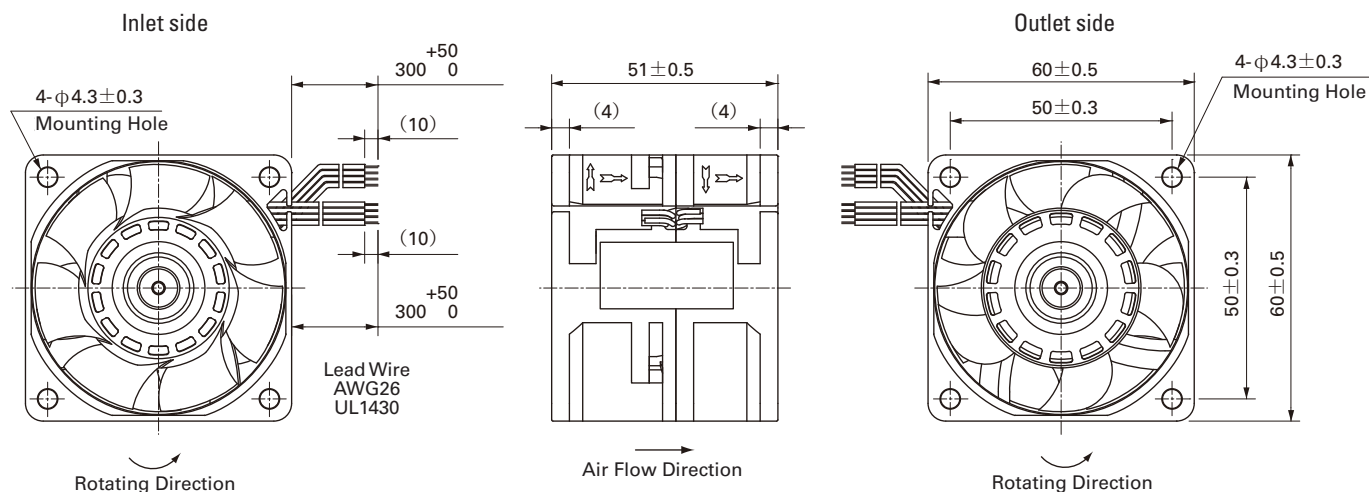
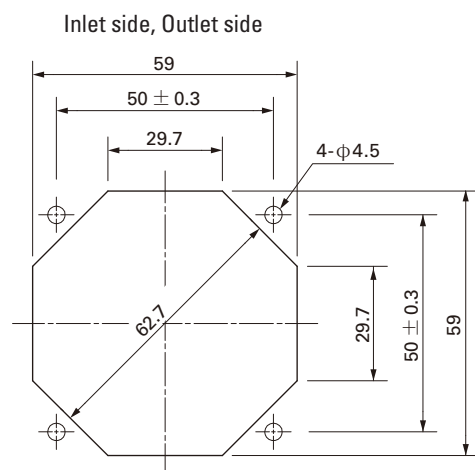
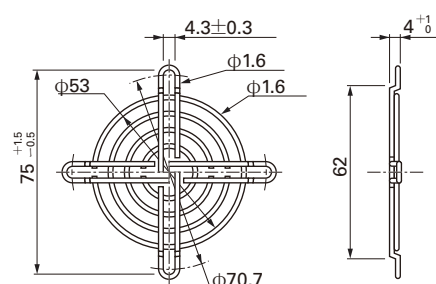
With PWM speed control function
 ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

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]		Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9CR0612P5G03	12	10.8 to 13.2	100	2.7	32.4	11,500	9,000	2.03	71.7	600	2.41	68	-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		

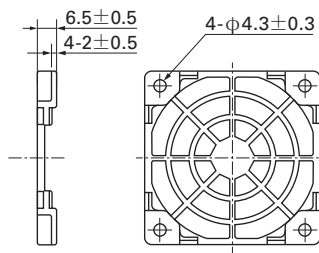
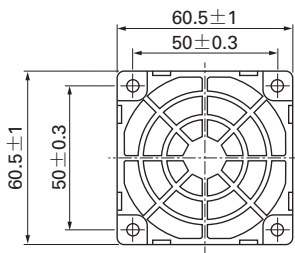
※PWM Frequency : 25kHz

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)

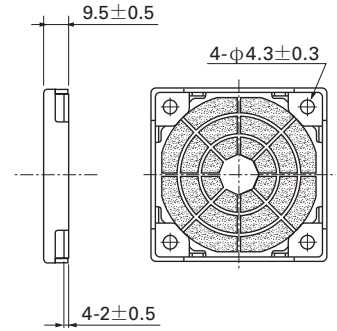
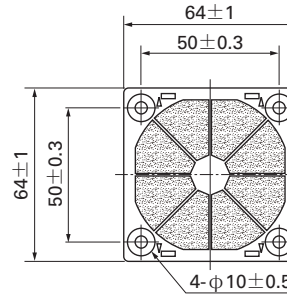
Resin finger guards

Model : 109-1003G



Resin filter kits

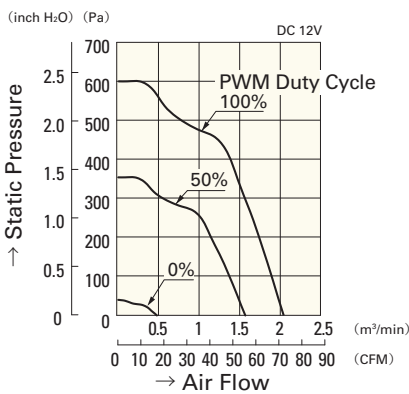
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



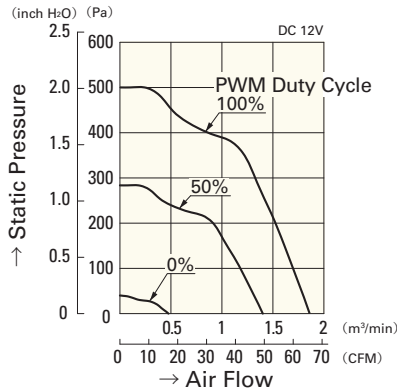
Counter Rotating Fan 60mm

Air Flow - Static Pressure Characteristics

PWM Duty Cycle

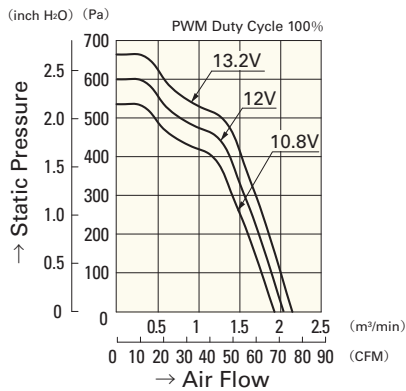


9CR0612P5G03

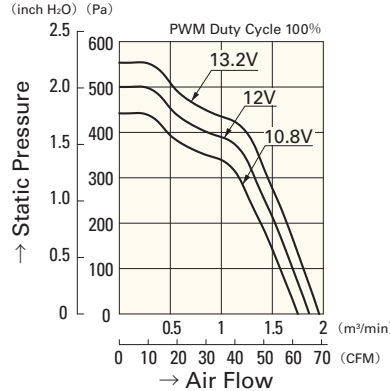


9CR0612P5H03

Operating Voltage Range

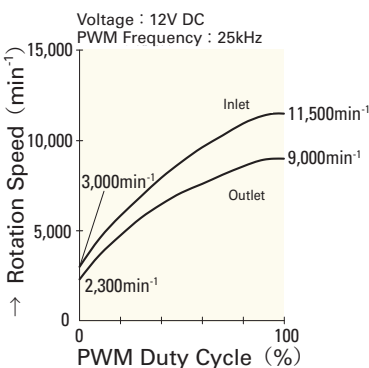


9CR0612P5G03

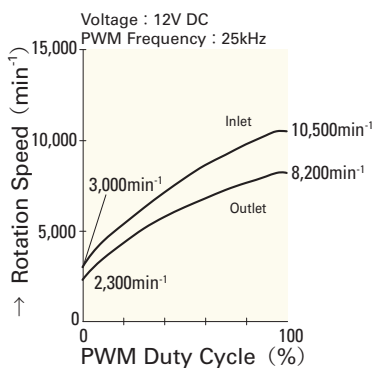


9CR0612P5H03

PWM Duty - Speed Characteristics Example



9CR0612P5G03



9CR0612P5H03

60mm

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 297

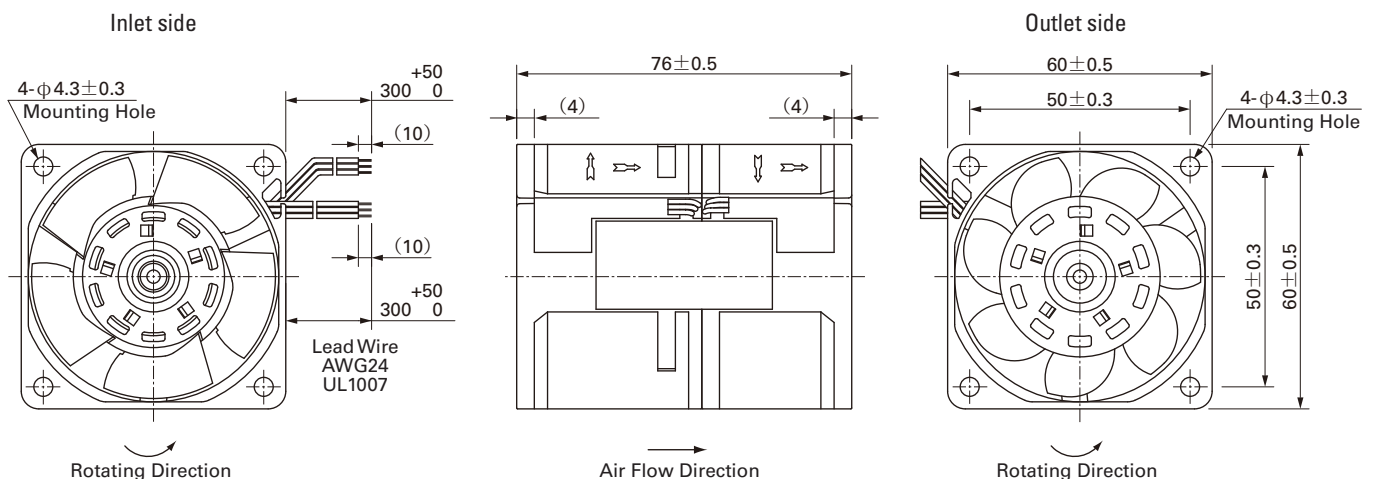
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black Sensor yellow
Outlet ⊕orange ⊖gray Sensor purple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

60 × 60 × 76mm [Mass : 230g]**CR type****Specifications**

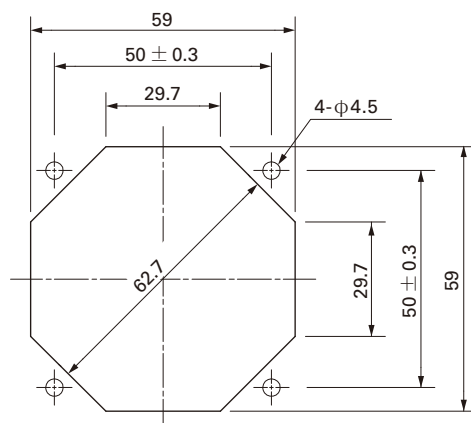
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹] Inlet Outlet	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9CR0612S001	12	10.8 to 13.2	3.2	38.4	11,500 7,000	2.26 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 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



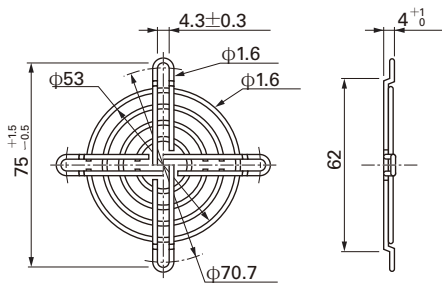
Options (Unit : mm)

Finger guards

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

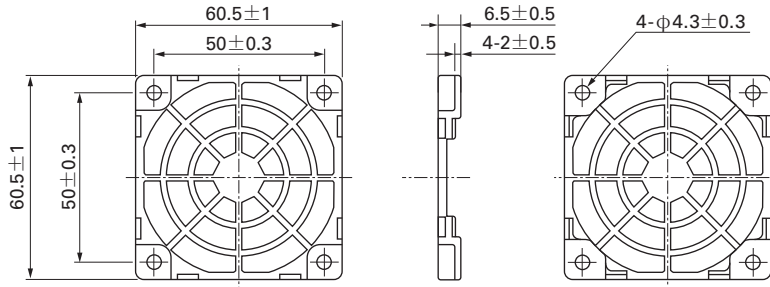
Color

Inlet side, Outlet side



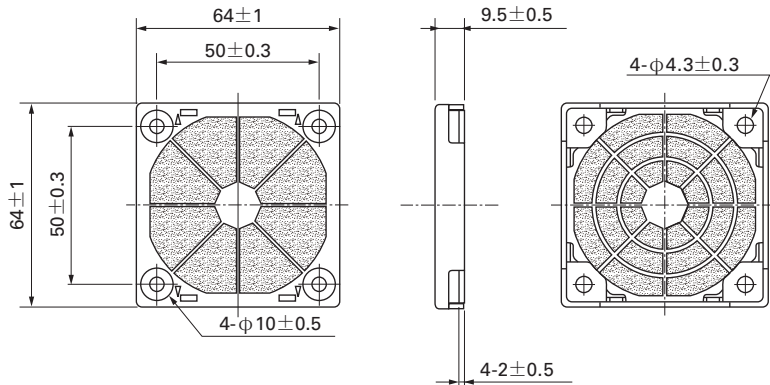
Resin finger guards

Model : 109-1003G

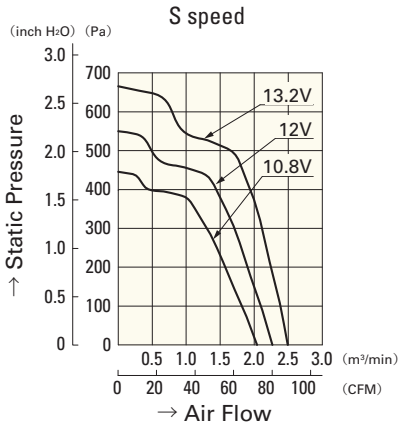


Resin filter kits

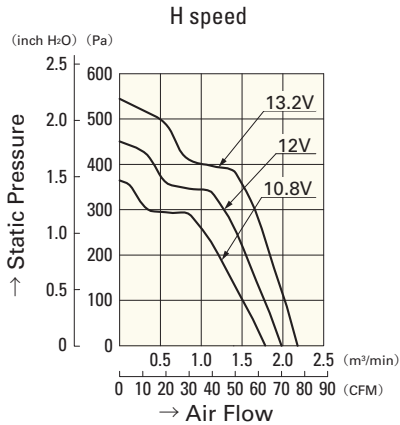
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



Air Flow - Static Pressure Characteristics



9CR0612S001



9CR0612H001

80mm sq.**San Ace 80**

80mm thick (CRA type), 80mm thick (CR type)


General Specifications
With a pulse sensor
 Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function
 ⇨ Refer to Page 299

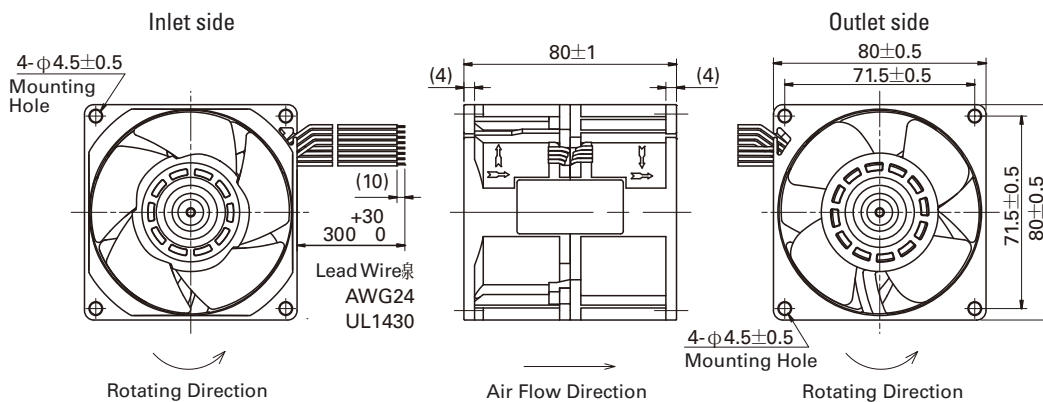
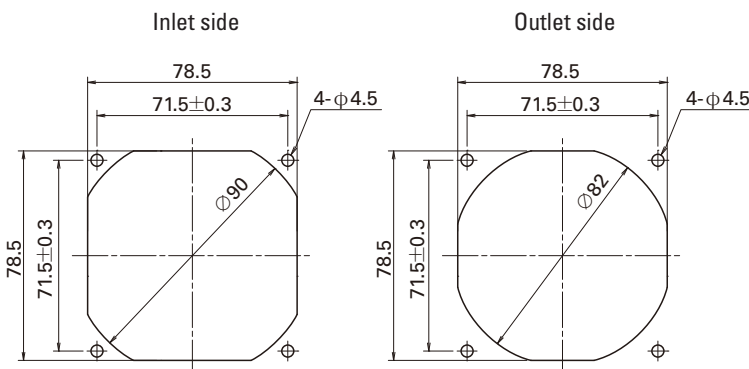
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕ red ⊖ black Sensor yellow Control brown
Outlet ⊕ orange ⊖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

80 × 80 × 80mm (Mass : 450g) CRA type
Specifications

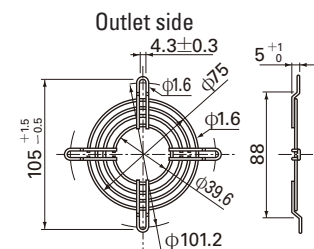
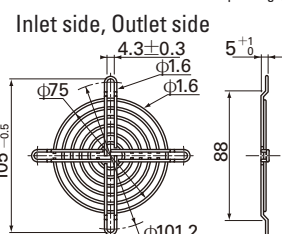
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle※ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹] Inlet Outlet	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^{Model} [h]
9CRA0812P8G001	12	10.8 to 13.2	100	5.3	63.6	12,000 11,300	4.5 158.9	1,150 4.62	76	-10 to +70	40,000/60°C (70,000/40°C)
			0	0.2	2.4	2,000 1,900	0.74 26.1	31.9 0.13	30		
9CRA0848P8G001	48	40.8 to 55.2	100	1.32	63.4	12,000 11,300	4.5 158.9	1,150 4.62	76		
			0	0.29	13.9	5,000 4,700	1.88 66.2	200 0.80	52		

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**

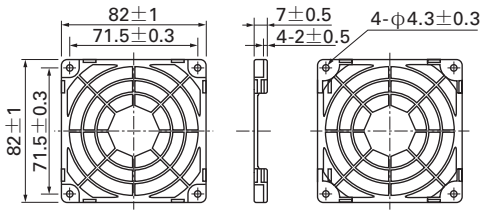
Model : 109-049C Surface treatment : Nickel-chrome plating (silver) Color

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

Options (Unit : mm)

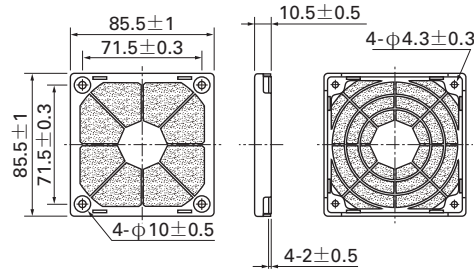
Resin finger guards

Model : 109-1002G



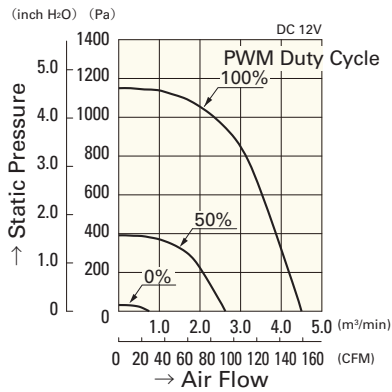
Resin filter kits

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

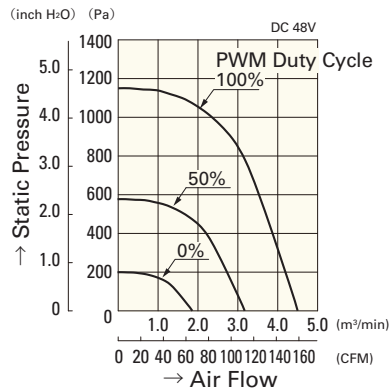


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

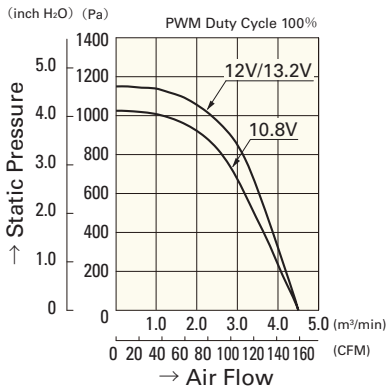


9CRA0812P8G001

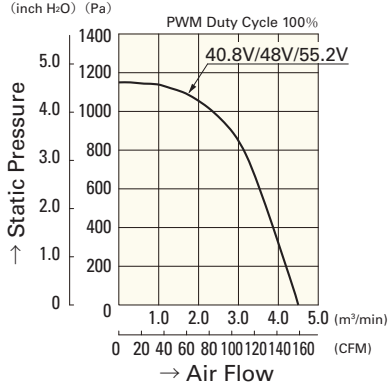


9CRA0848P8G001

Operating Voltage Range

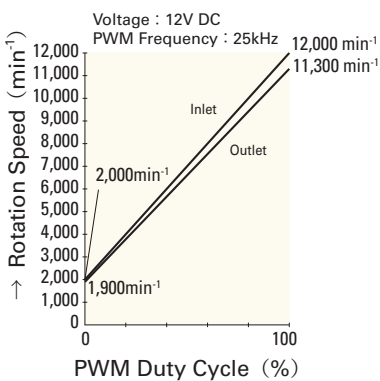


9CRA0812P8G001

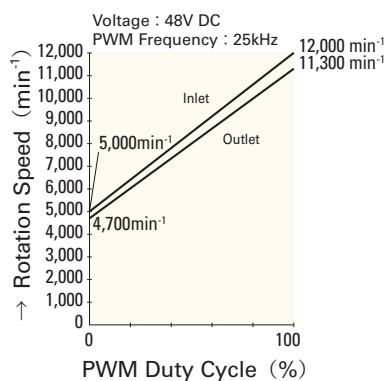


9CRA0848P8G001

PWM Duty - Speed Characteristics Example



9CRA0812P8G001



9CRA0848P8G001

80mm sq.**San Ace 80**

80mm thick (CRA type), 80mm thick (CR type)

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

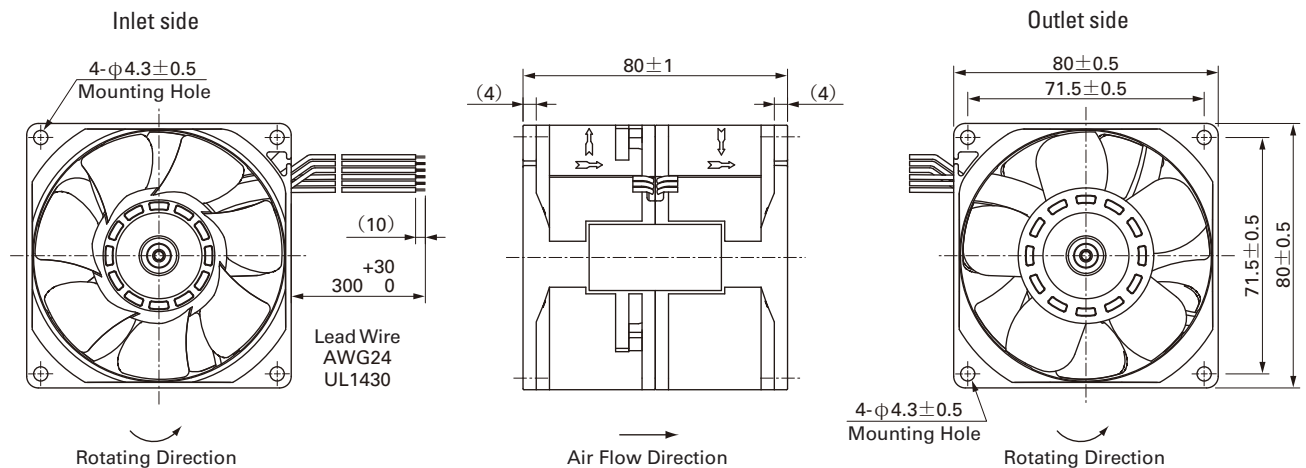
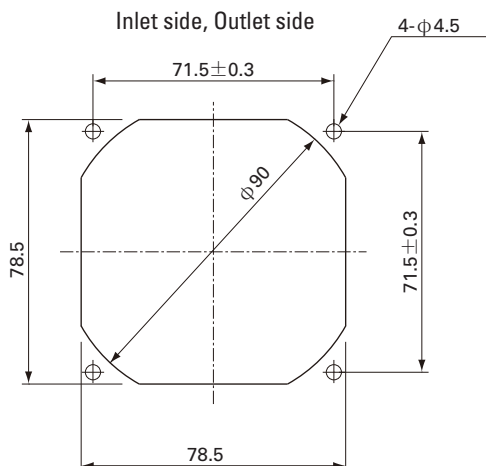
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire Inlet ⊕red ⊖black Sensor yellow
Outlet ⊕orange ⊖gray Sensor purple
- 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]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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 Sensor****PWM Control**

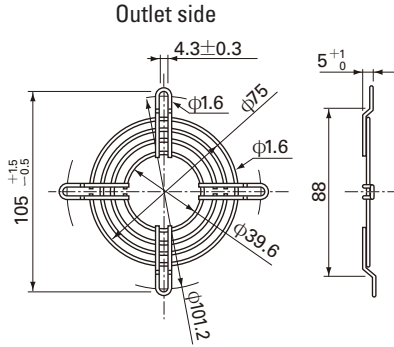
Please inquire as the availability of these functions depend on the model.

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

Options (Unit : mm)

Finger guards

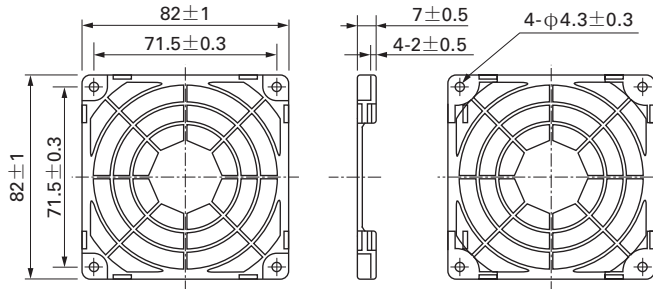
Model : 109-049C Surface treatment : Nickel-chrome plating (silver) Color : Nickel-chrome plating (silver)



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

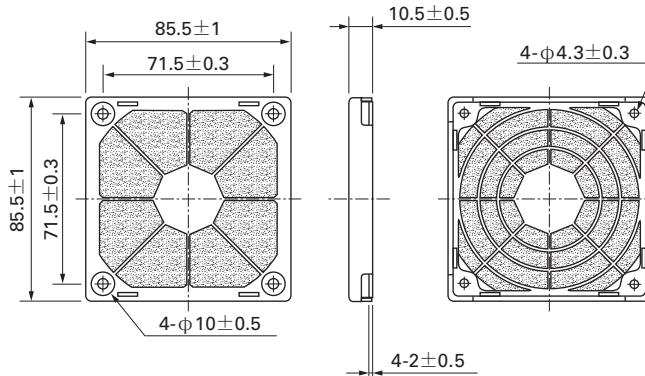
Resin finger guards

Model : 109-1002G



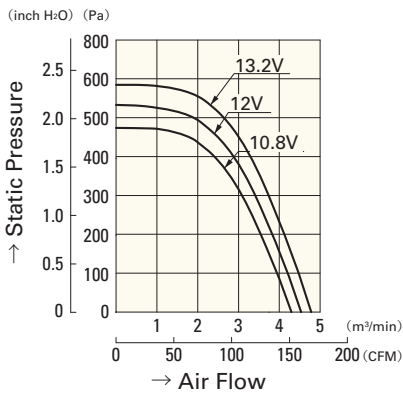
Resin filter kits

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



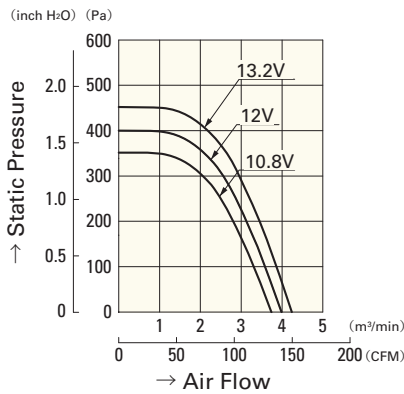
Air Flow - Static Pressure Characteristics

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 297

With PWM speed control function
 ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

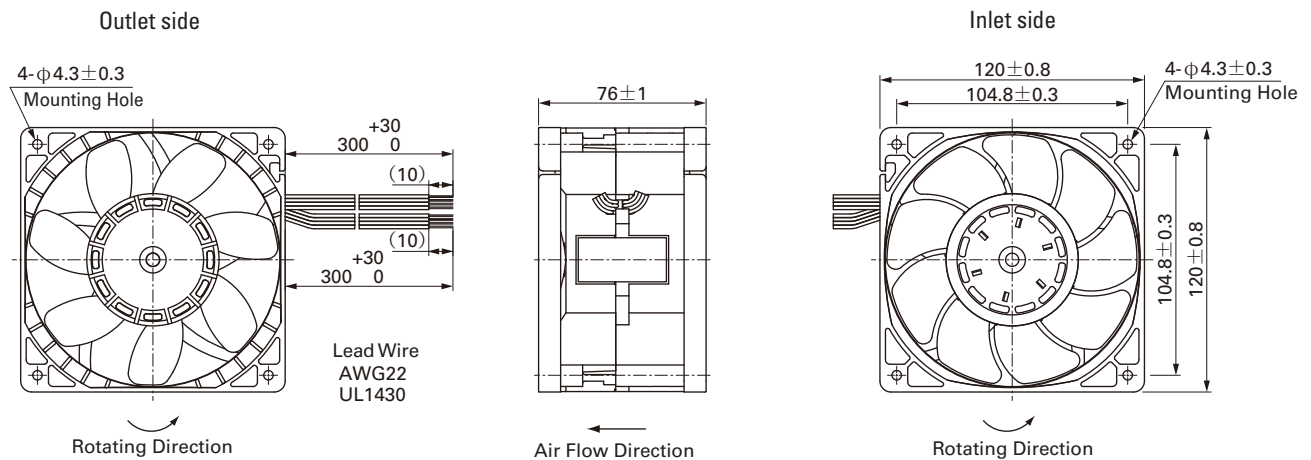
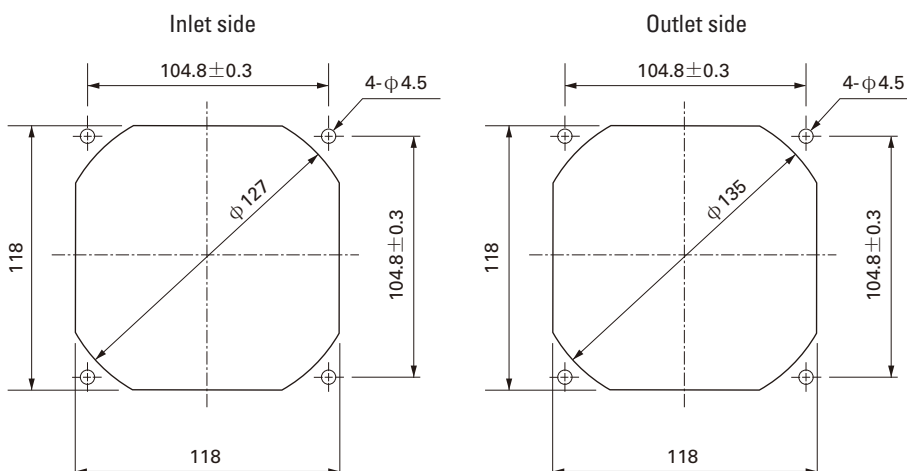
120 × 120 × 76mm

[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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

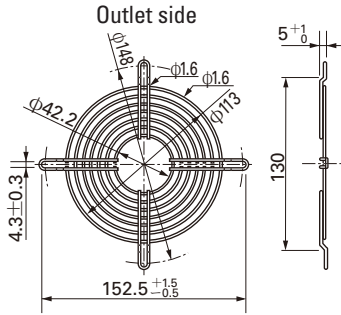
※PWM Frequency : 25kHz

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)

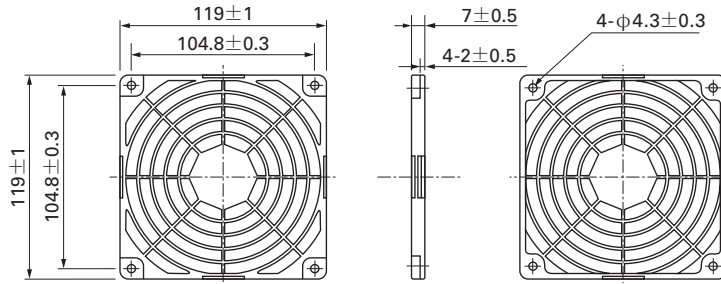
Finger guards

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



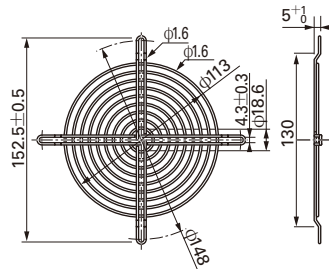
Resin finger guards

Model : 109-1000G



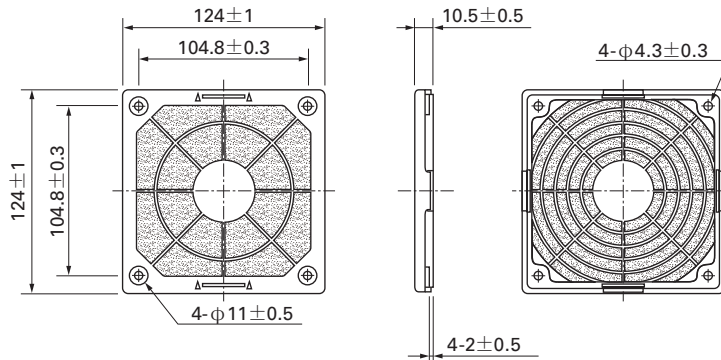
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

Inlet side, Outlet side



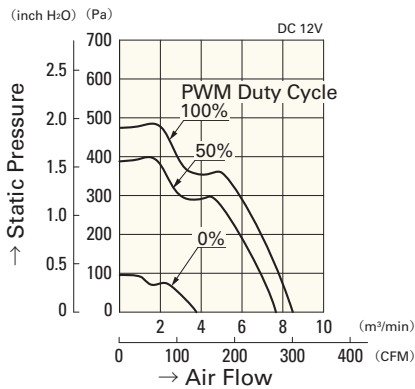
Resin filter kits

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



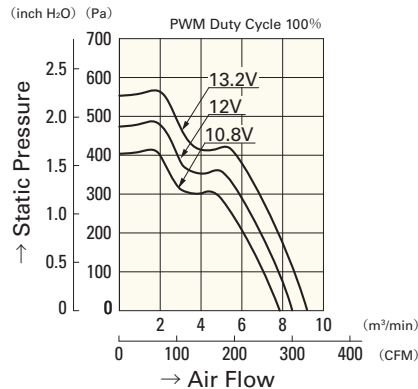
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



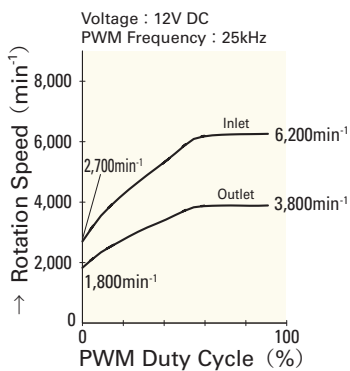
9CR1212P0G03

Operating Voltage Range



9CR1212P0G03

PWM Duty Speed Characteristics Example



9CR1212P0G03

60mm sq.

San Ace 60W

25mm thick(WP type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

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

WP 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]	Max. Air Flow		Max. Static Pressure		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WP0612G401(4011)	12	10.2 to 13.2	0.21	2.52	5,600	0.78	27.5	88.0	0.353	39	- 10 to +60	40,000
9WP0612H401(4011)		10.2 to 13.8	0.11	1.32	3,800	0.53	18.7	40.2	0.161	28		
9WP0624H401(4011)	24	20.4 to 27.6	0.06	1.44	3,800	0.53	18.7	40.2	0.161	28	- 10 to +70	60,000
9WP0648H401(4011)	48	40 to 53	0.04	1.92	3,800	0.53	18.7	40.2	0.161	28		

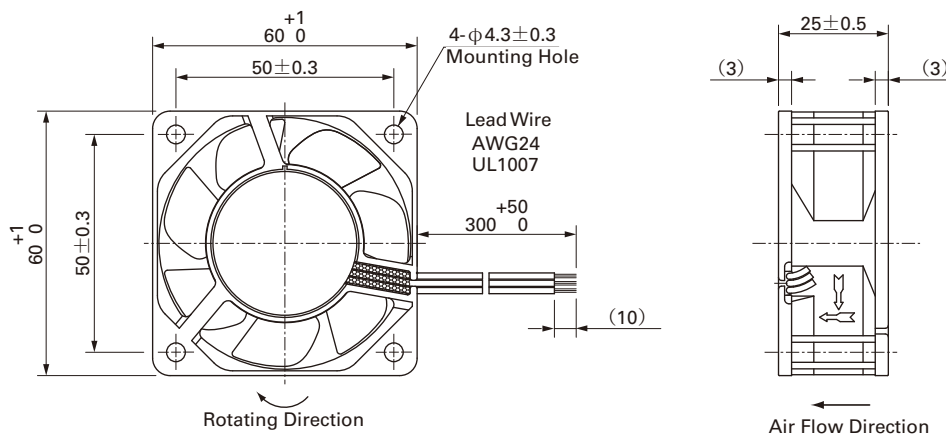
Without Sensor **Pulse Sensor** Available in all models.

Lock Sensor

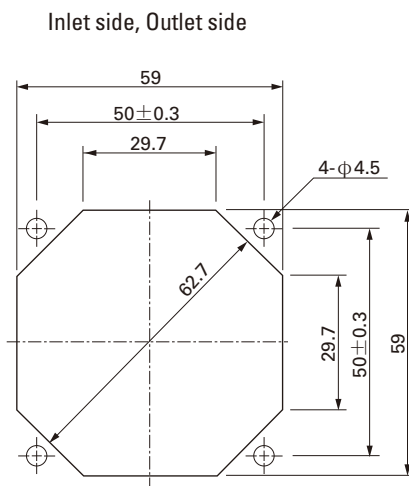
PWM Control

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)

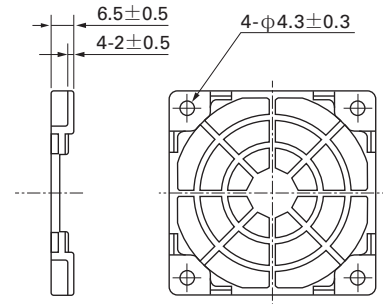
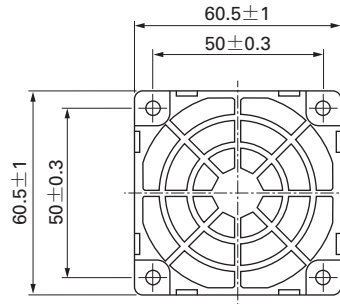
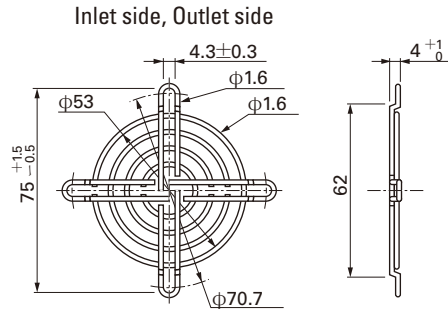
Finger guards

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

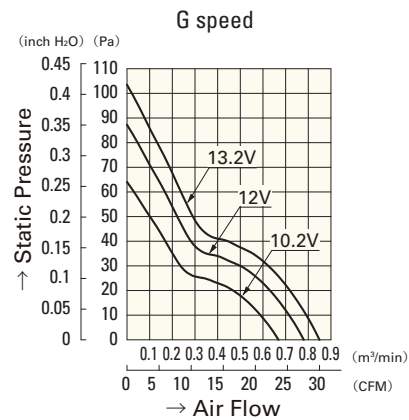
Color

Resin Finger guards

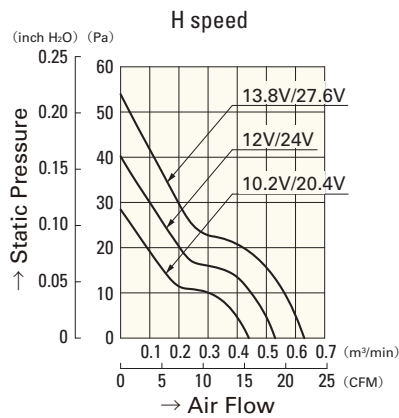
Model : 109-1003G



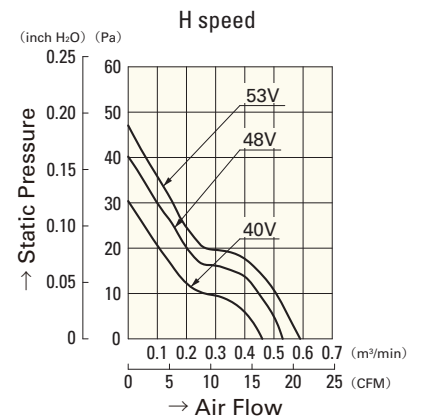
Air Flow - Static Pressure Characteristics



9WP0612G401(4011)



9WP0612H401(4011)
9WP0624H401(4011)



9WP0648H401(4011)

80mm sq.

San Ace 80W

25mm thick, 25mm thick(WP type)
25mm thick(WS type), 38mm thick(WV type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 297

- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model(Indoor, 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

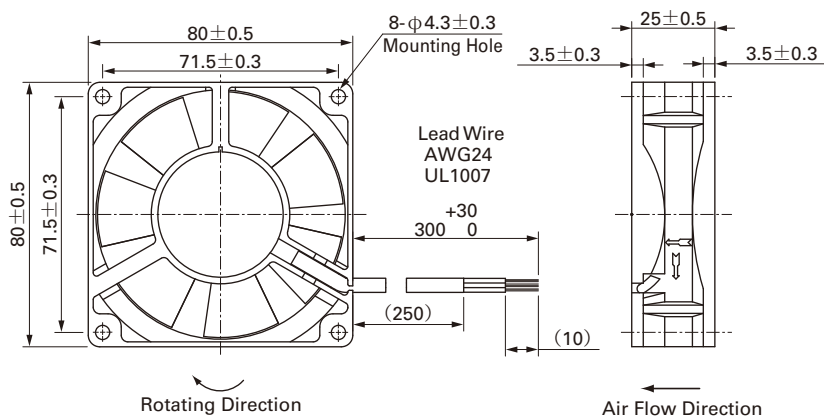
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

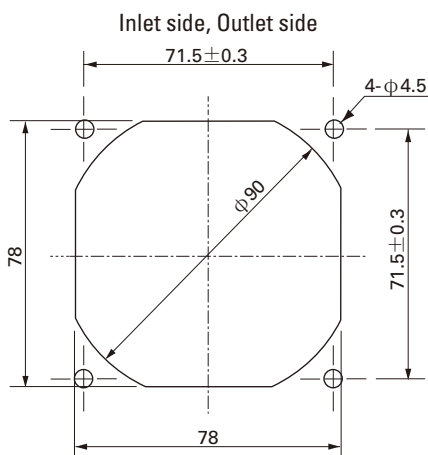
Without Sensor **Pulse Sensor** Available in all models.

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

Dimensions (Unit : mm)



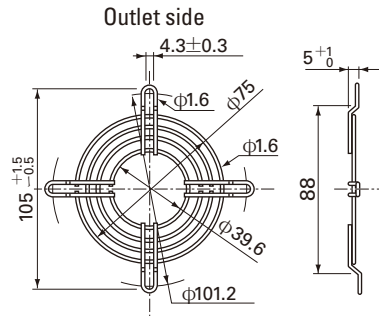
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

Finger guards

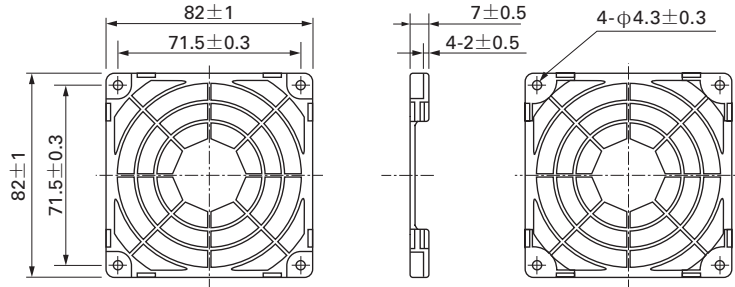
Model : 109-049C Color
Surface treatment : Nickel-chrome plating (silver)



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

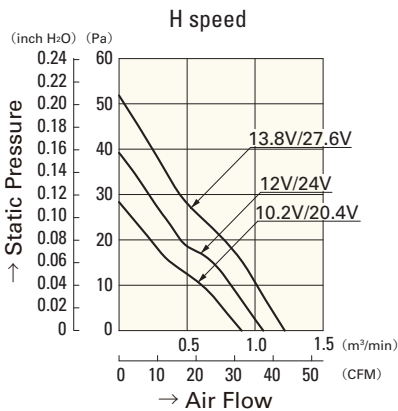
Resin Finger guards

Model : 109-1002G

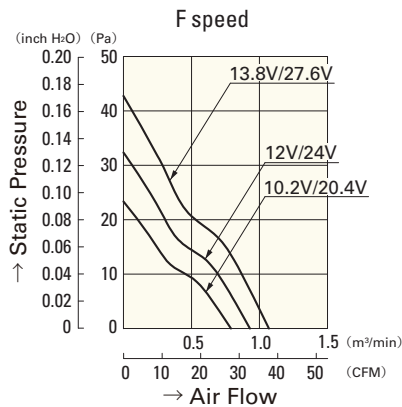


Splash Proof Fan 80mm

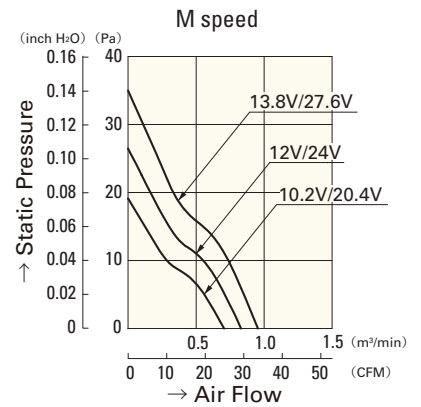
Air Flow - Static Pressure Characteristics



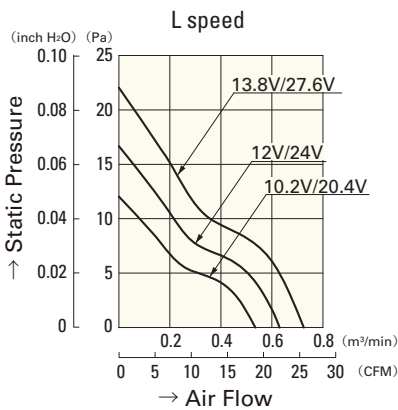
109W0812H401-U
109W0824H401-U



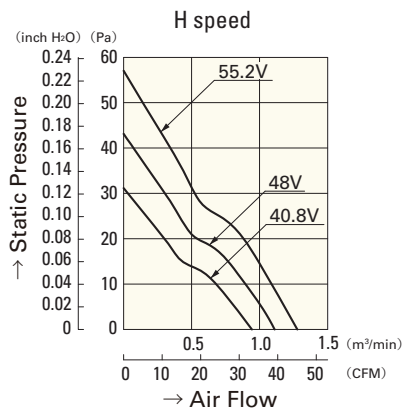
109W0812F401-U
109W0824F401-U



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), 38mm thick(WV type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

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

WP type

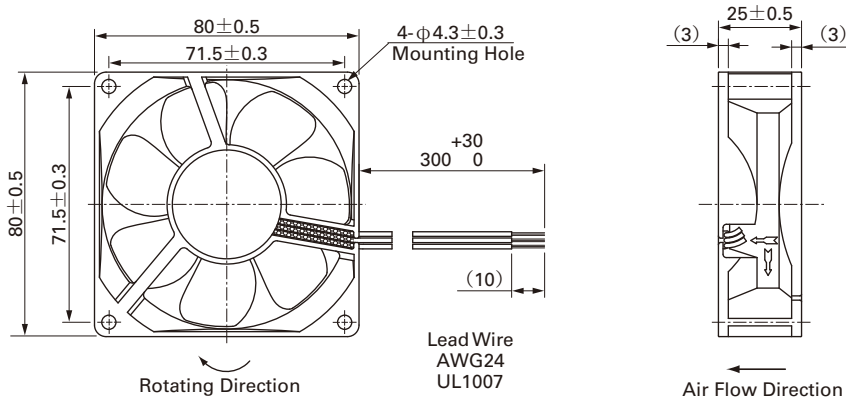
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WP0812G401(4011)	12	10.8 to 13.2	0.38	4.56	4,500	1.50 53	80.4 0.323	40	-10 to +60	40,000
9WP0812H401(4011)		10.2 to 13.8	0.13	1.56	2,900	1.03 36.4	35.3 0.142	29		
9WP0824H401(4011)	24	20.4 to 27.6	0.07	1.68	2,900	1.03 36.4	35.3 0.142	29	-10 to +70	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		

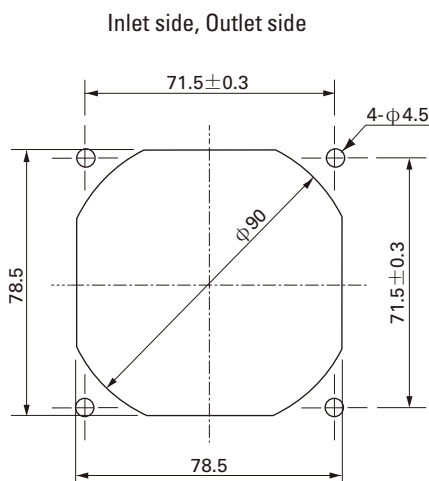
Without Sensor **Pulse Sensor** Available in all models.

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)

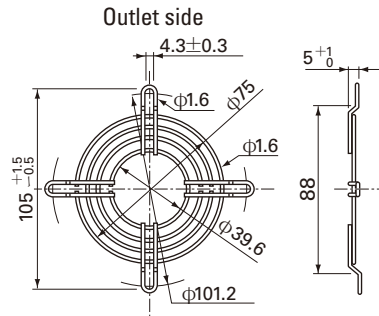
Finger guards

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

Color

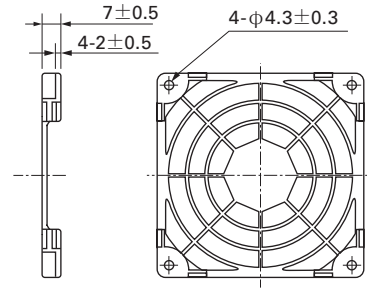
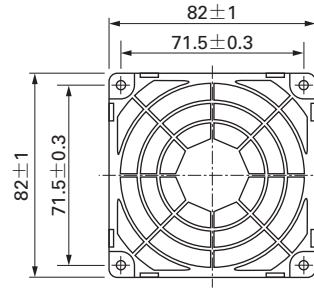
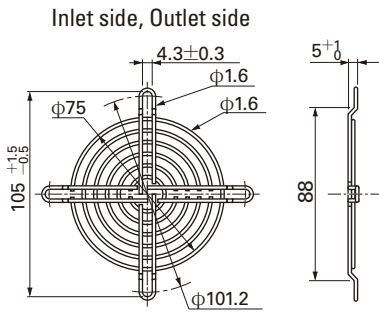
Resin Finger guards

Model : 109-1002G



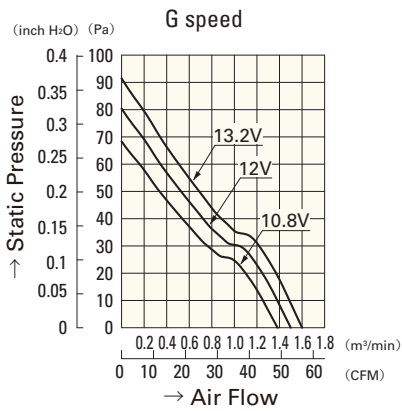
Model : 109-049E Surface treatment : Nickel-chrome plating (silver)
: 109-049H : Cation electropainting (black)

Color

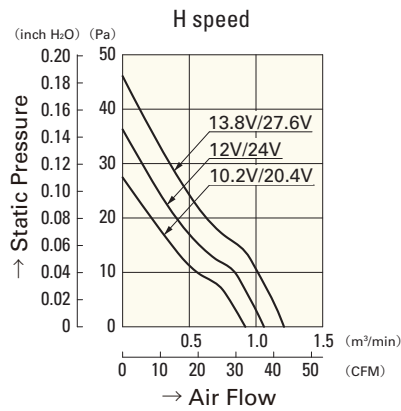


Splash Proof Fan 80mm

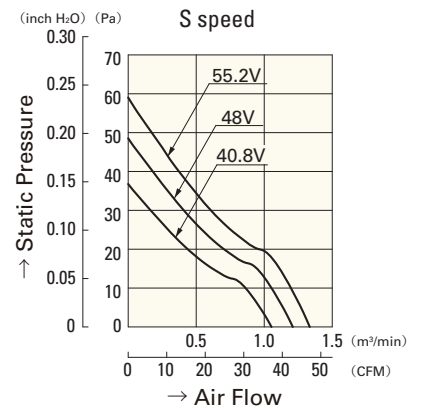
Air Flow - Static Pressure Characteristics



9WP0812G401(4011)



9WP0812H401(4011)
9WP0824H401(4011)



9WP0848S401(4011)

80mm

80mm sq.

San Ace 80W

25mm thick, 25mm thick(WP type)
25mm thick(WS type), 38mm thick(WV type)



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (Indoor, 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 : 120g]

IP 54 Dust resistant device with protection against water spray

WStype

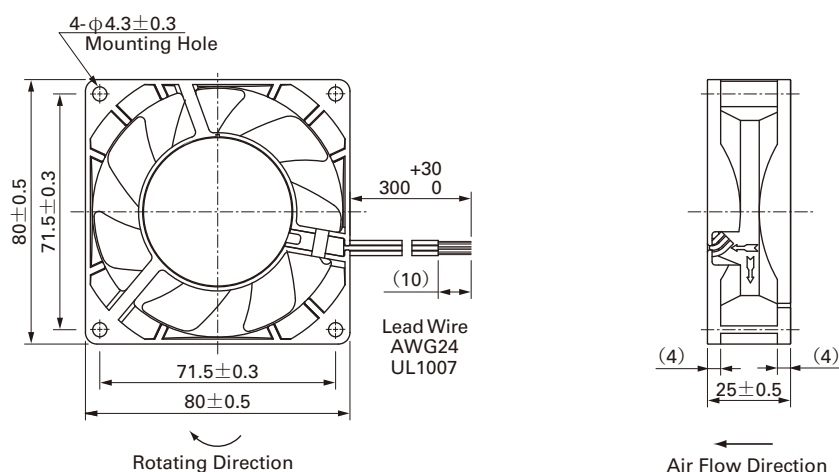
Specifications The numbers in () represent ribless models.

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

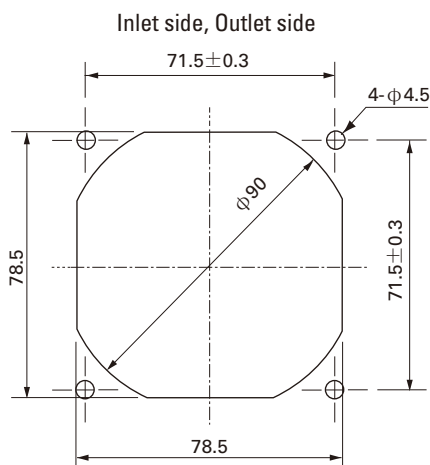
Without Sensor **Pulse Sensor** Available in all models.

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)



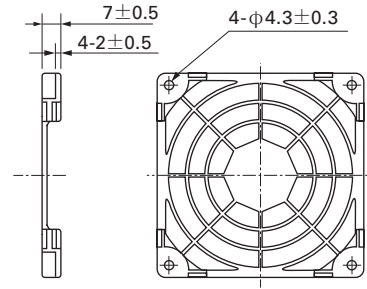
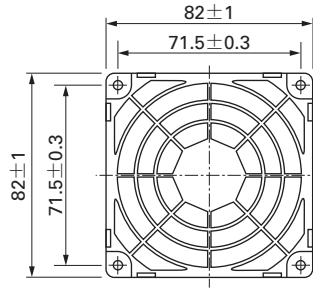
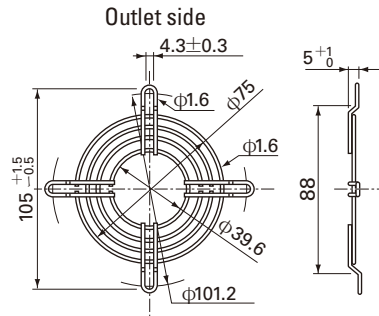
Options (Unit : mm)

Finger guards

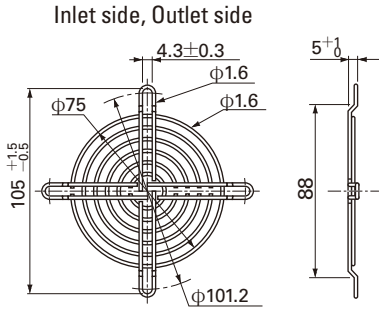
Model : 109-049C Surface treatment : Nickel-chrome plating (silver) Color

Resin Finger guards

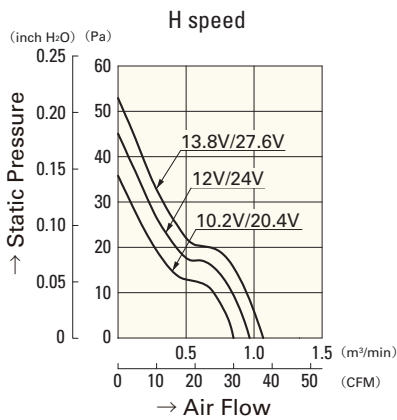
Model : 109-1002G



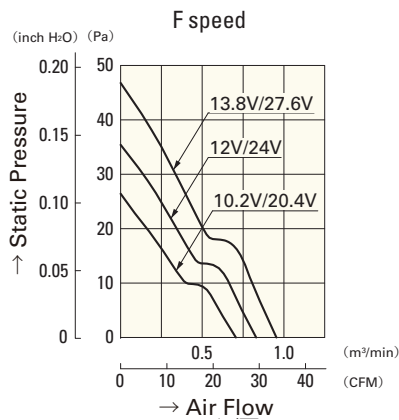
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)



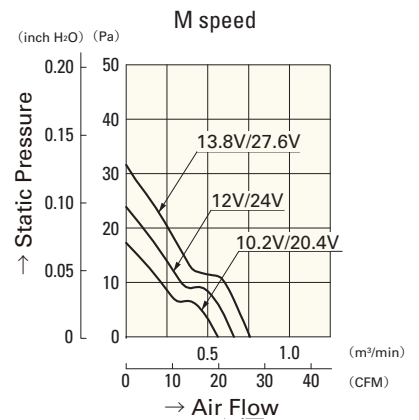
Air Flow - Static Pressure Characteristics



9WS0812H401(4011)
9WS0824H401(4011)



9WS0812F401(4011)
9WS0824F401(4011)



9WS0812M401(4011)
9WS0824M401(4011)

80mm sq.

San Ace 80W

25mm thick, 25mm thick(WP type)
25mm thick(WS type), 38mm thick(WV type)



■ **General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

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

80 × 80 × 38mm (Mass : 235g)

IP 55 Dust resistant device with protection against water jets

WV type

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

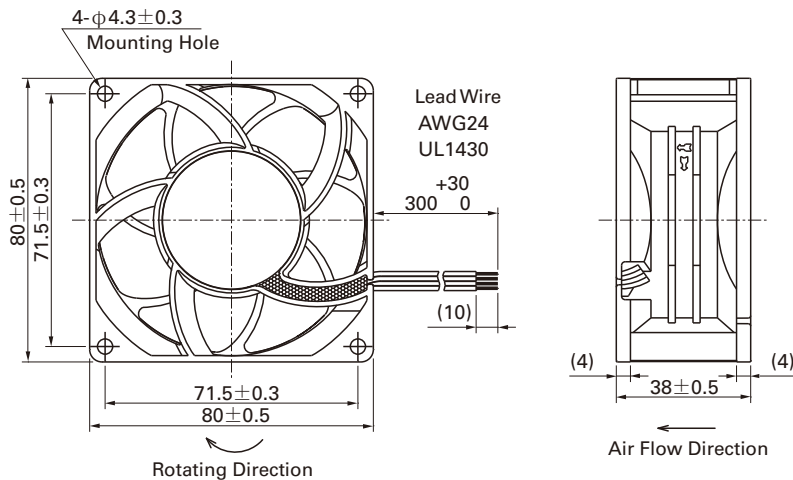
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^{Note} [h]
9WV0848P1H001(0011)	48	40.8 to 52.8	100	0.75	36	9,700	3.7 131	440 1.77	63	-10 to +70	40,000/60°C (70,000/40°C)
			0	0.15	7.2	4,500	1.72 60.8	94.7 0.38	43		

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

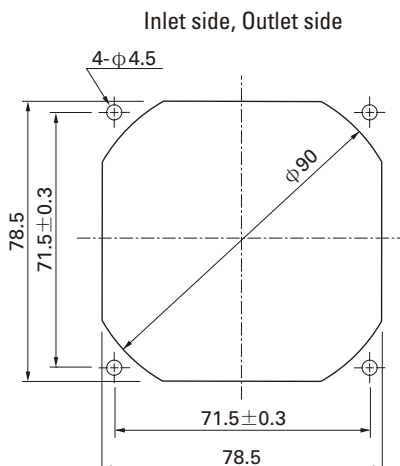
※PWM Frequency : 25kHz

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)



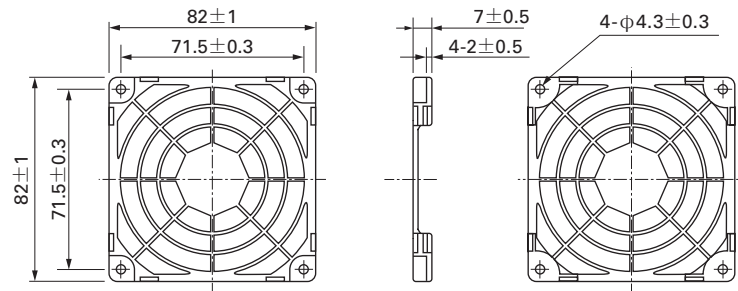
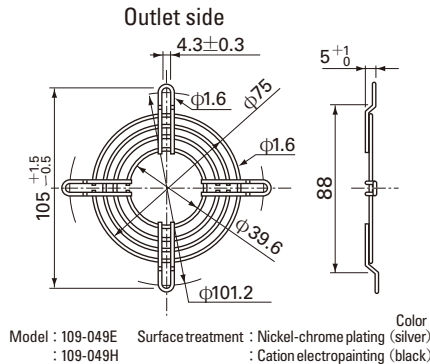
Options (Unit : mm)

Finger guards

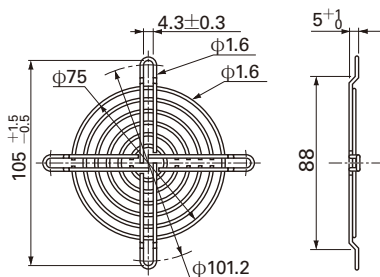
Model : 109-049C Color : Nickel-chrome plating (silver)

Resin Finger guards

Model : 109-1002G

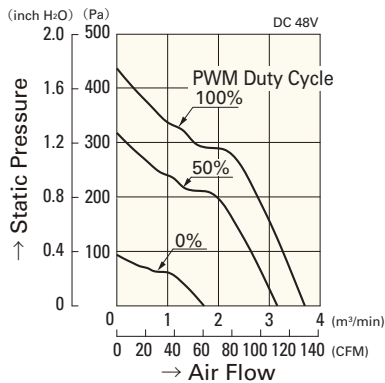


Inlet side, Outlet side

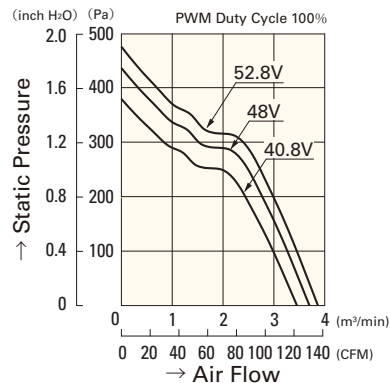


Air Flow - Static Pressure Characteristics

PWM Duty Cycle



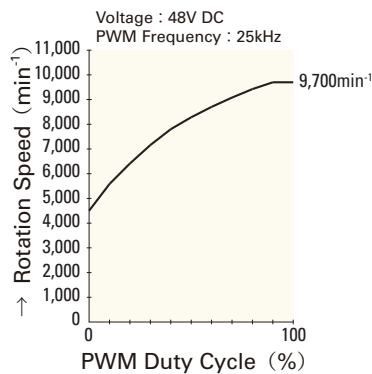
Operating Voltage Range



9WV0848P1H001(0011)

9WV0848P1H001(0011)

PWM Duty - Speed Characteristics Example



9WV0848P1H001(0011)

92mm sq.

San Ace 92W

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



- **General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 297
- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
 - Expected Life Varies for each model (Indoor, 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]

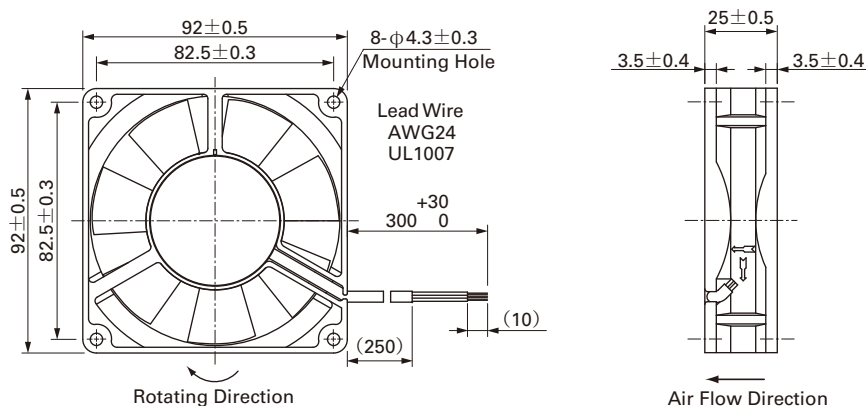
IP 55 Dust resistant device with protection against water jets

Specifications

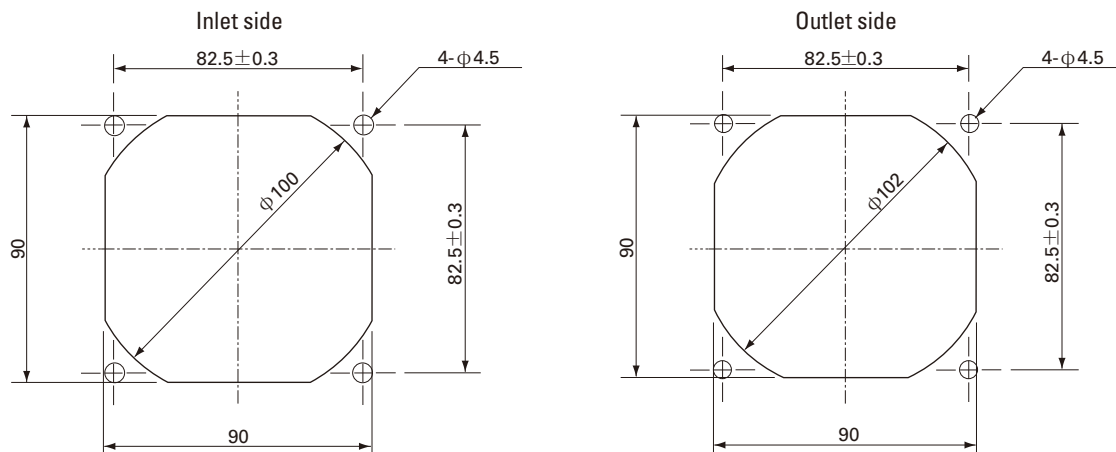
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109W0912H401-U	12	10.2 to 13.8	0.21	2.52	2,850	1.38 48.7	45.1 0.181	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)



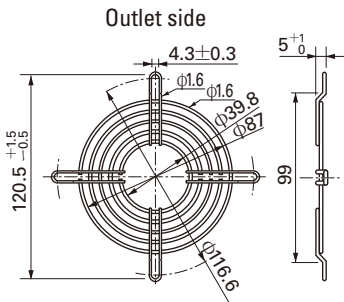
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

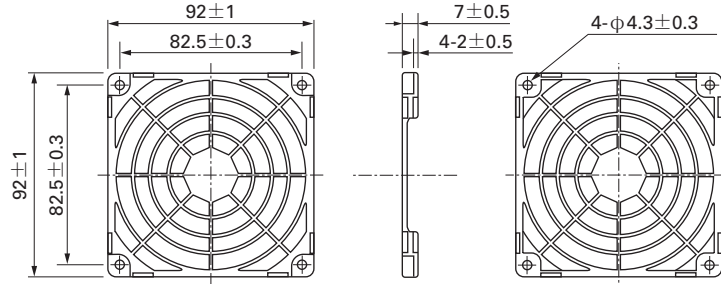
Finger guards

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



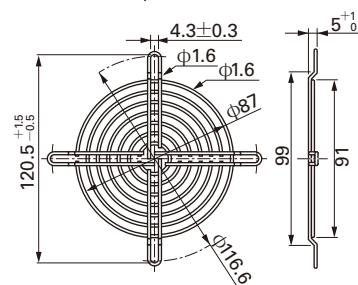
Resin Finger guards

Model : 109-1001G

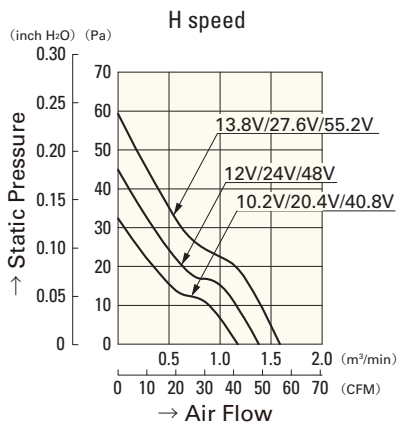


Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side



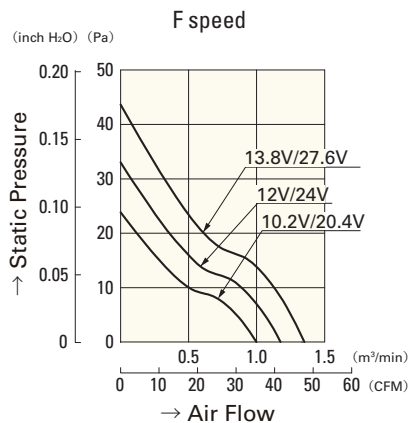
Air Flow - Static Pressure Characteristics



109W0912H401-U

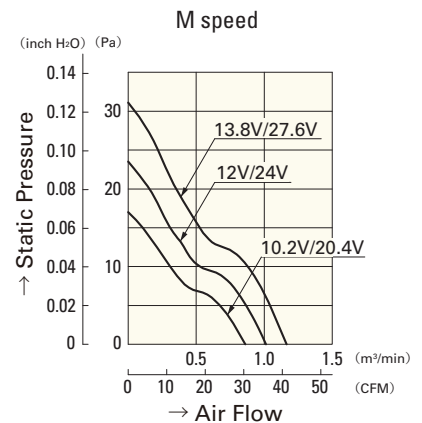
109W0924H401-U

109W0948H401-U



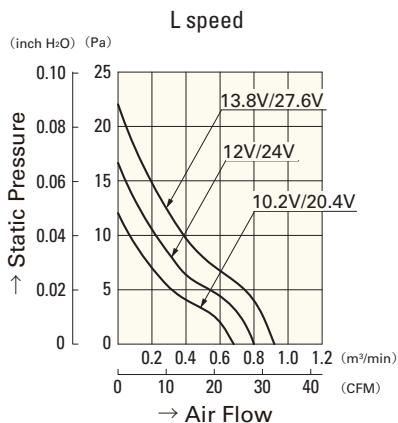
109W0912F401-U

109W0924F401-U



109W0912M401-U

109W0924M401-U



109W0912L401-U

109W0924L401-U

92mm sq.

San Ace 92W

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



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

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

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]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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

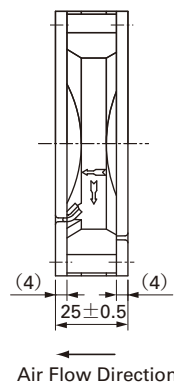
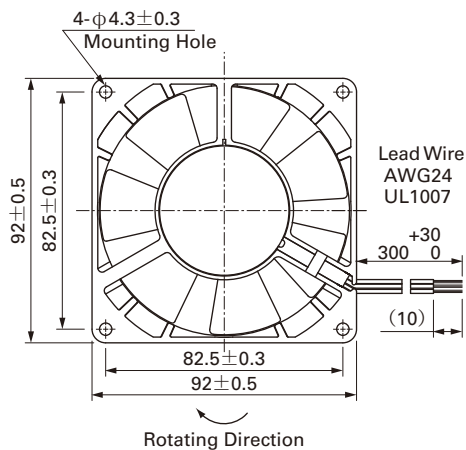
Pulse Sensor

Available in all models.

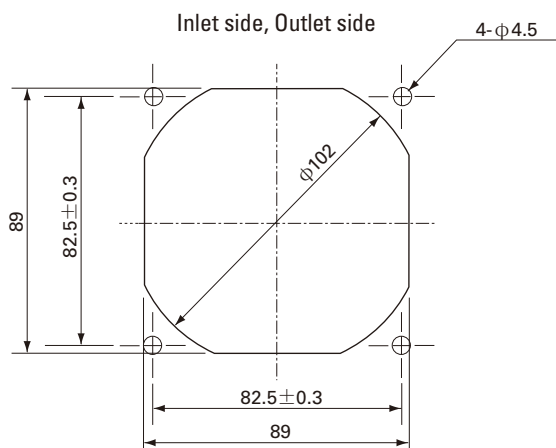
Lock Sensor

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

Dimensions (Unit : mm)



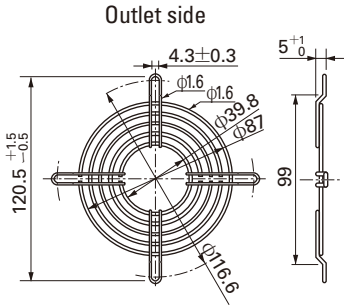
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

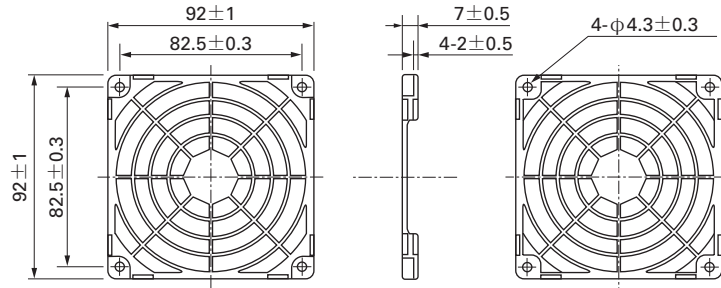
Finger guards

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



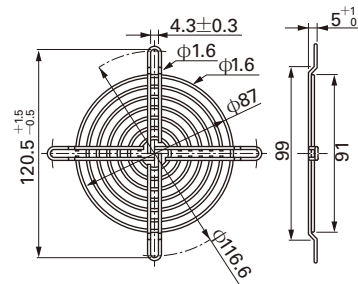
Resin Finger guards

Model : 109-1001G

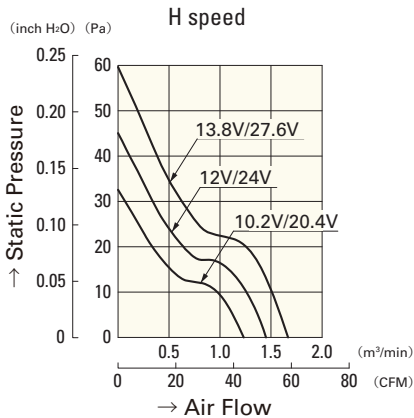


Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)

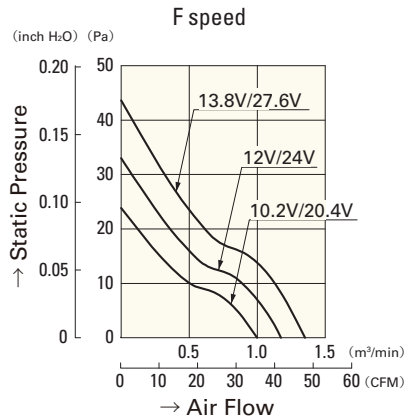
Inlet side, Outlet side



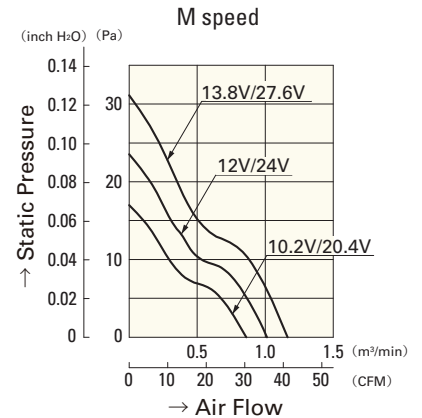
Air Flow - Static Pressure Characteristics



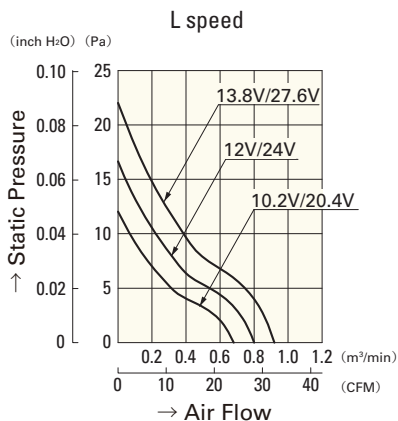
9WS0912H401
9WS0924H401



9WS0912F401
9WS0924F401



9WS0912M401
9WS0924M401



9WS0912L401
9WS0924L401

92mm sq.

San Ace 92W

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



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

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

WP type

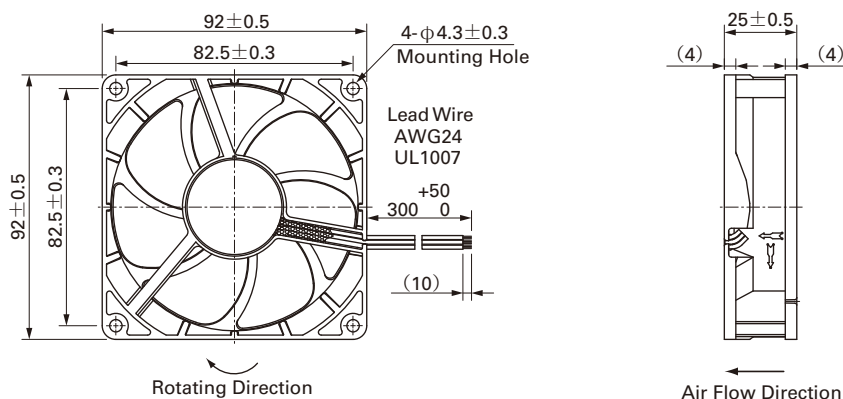
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WP0912F401	12	6 to 13.8	0.14	1.68	2,650	1.24 43.8	32.2 0.129	30	- 10 to + 70	40,000
9WP0924S401	24	12 to 27.6	0.15	3.6	3,550	1.66 58.6	57.7 0.231	39		
9WP0924H401			0.1	2.4	3,150	1.45 51.2	44 0.177	33		
9WP0924F401			0.08	1.92	2,650	1.24 43.8	32.2 0.129	30		
9WP0924B401			0.05	1.20	2,000	0.90 31.8	18.0 0.072	23		

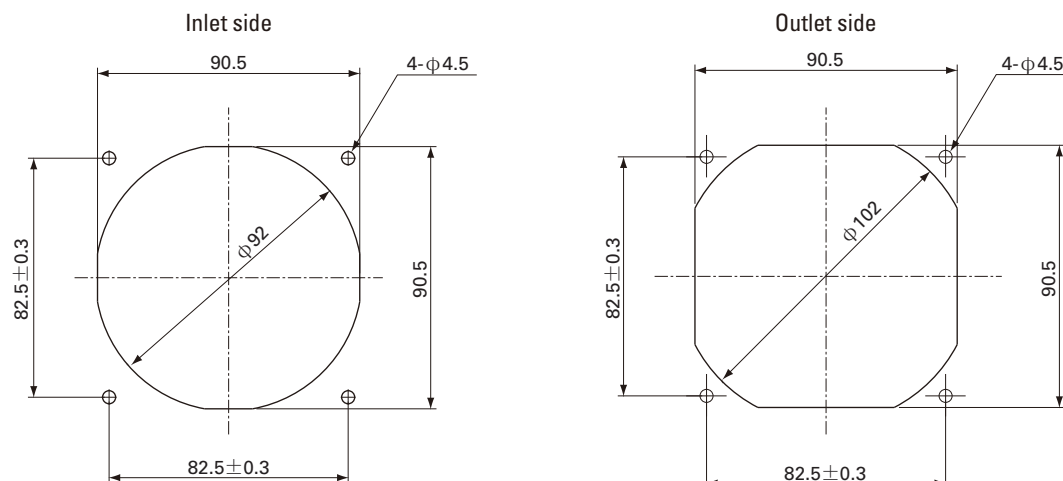
Without Sensor Pulse Sensor Available in all models.

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

Dimensions (Unit : mm)



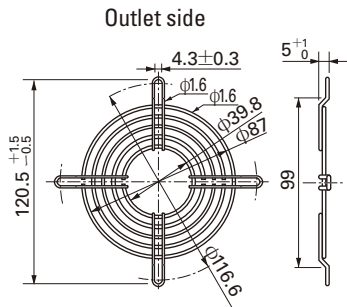
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

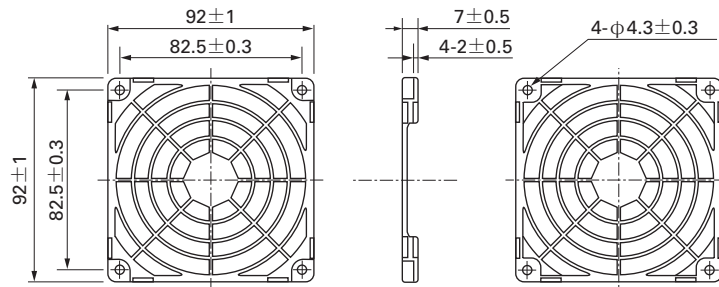
Finger guards

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



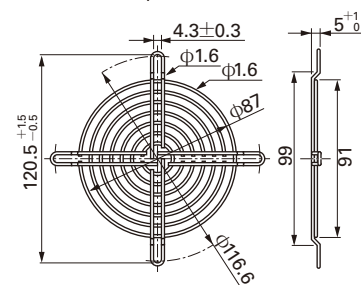
Resin Finger guards

Model : 109-1001G

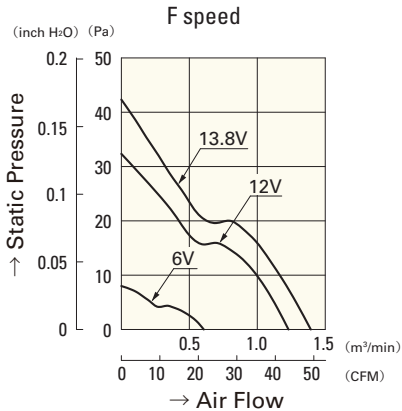


Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)

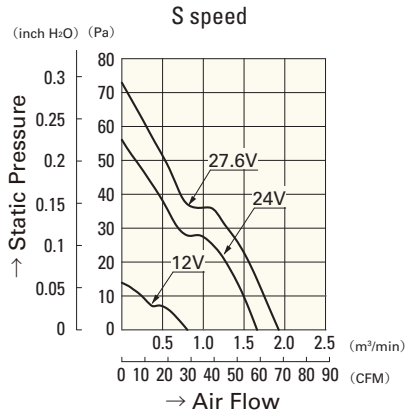
Inlet side, Outlet side



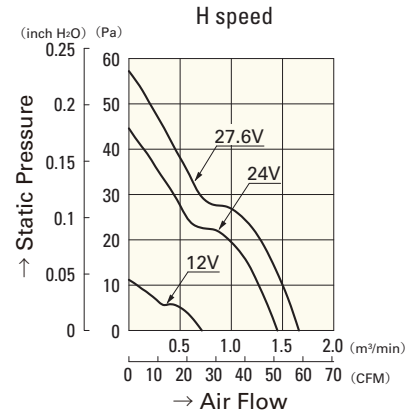
Air Flow - Static Pressure Characteristics



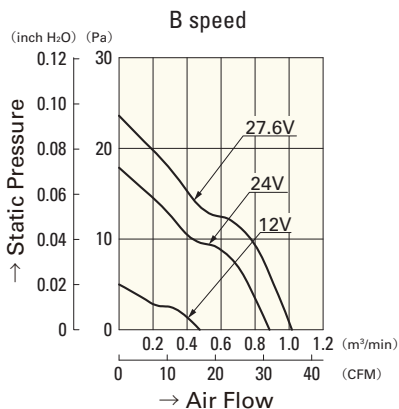
9WP0912F401



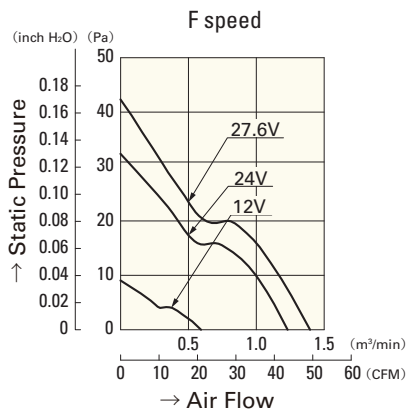
9WP0924S401



9WP0924H401



9WP0924B401



9WP0924F401

92mm sq.

San Ace 92W

25mm thick, 25mm thick(WP type)
25mm thick(WS type), 38mm thick(WV type)



■ **General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

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

92×92×38mm [Mass : 265g]

IP 55 Dust resistant device with protection against water jets

WV type

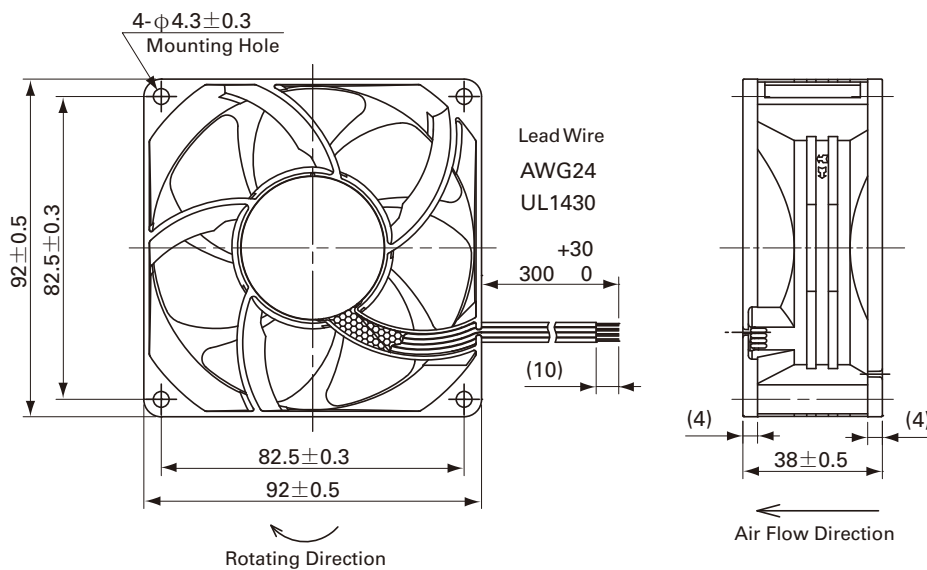
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WV0948P1H001	48	40.8 to 52.8	100	0.82	39.4	8,500	5.05 178	385 1.55	64	-10 to +70	30,000
			0	0.14	6.7	4,000	2.37 83.7	85.2 0.34	45		

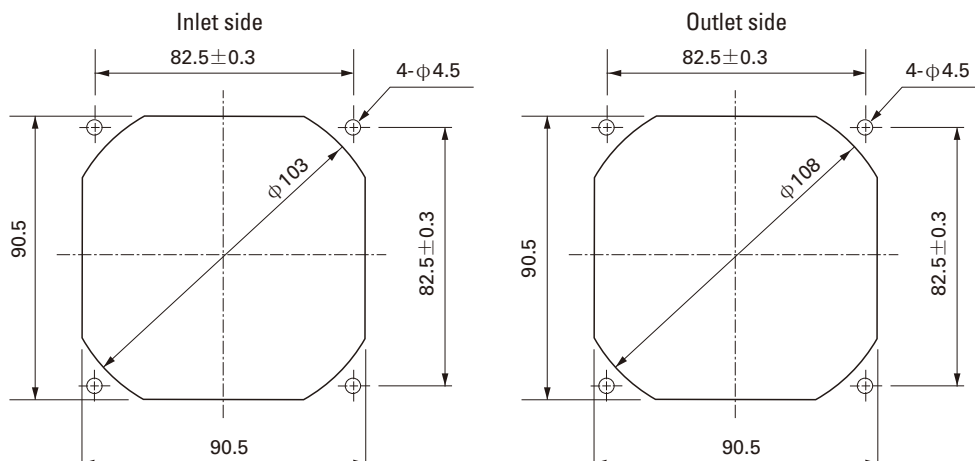
※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)



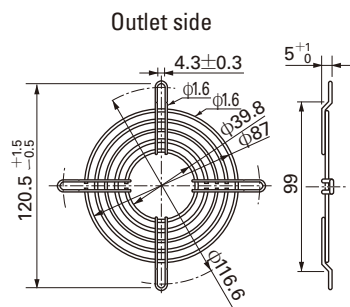
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

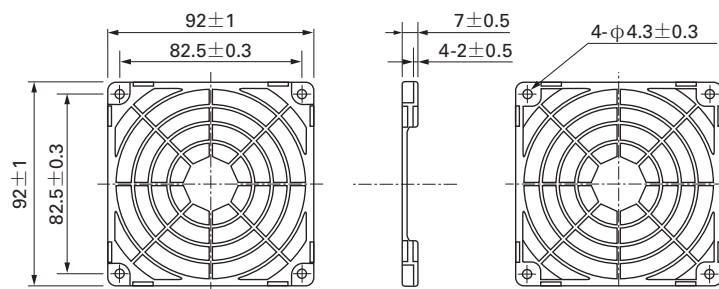
Finger guards

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



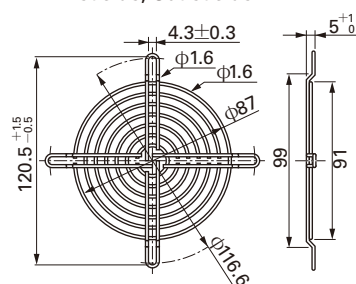
Resin Finger guards

Model : 109-1001G



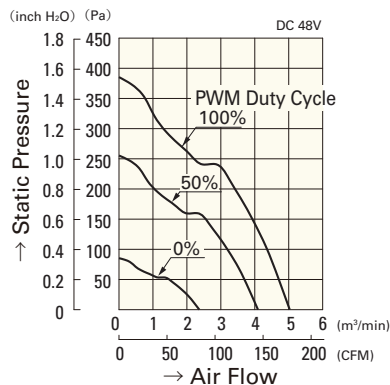
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side



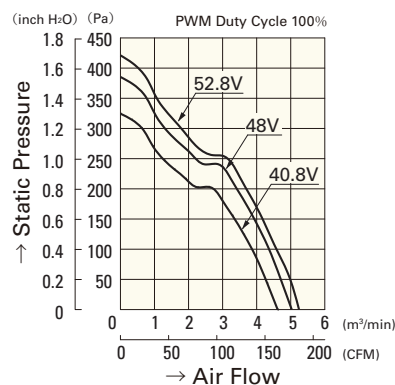
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



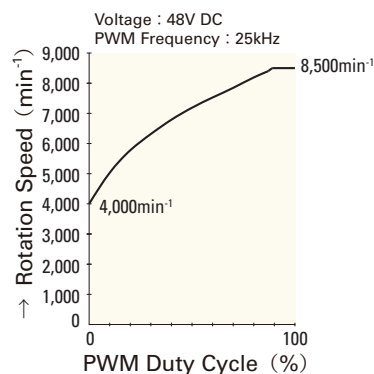
9WV0948P1H001

Operating Voltage Range



9WV0948P1H001

PWM Duty - Speed Characteristics Example



9WV0948P1H001

120mm sq.

San Ace 92W

38mm thick(WV type), 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 297

With PWM speed control function ⇨ Refer to Page 299

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

120 × 120 × 38mm [Mass : 440g]

IP 55 Dust resistant device with protection against water jets

WV type



Specifications

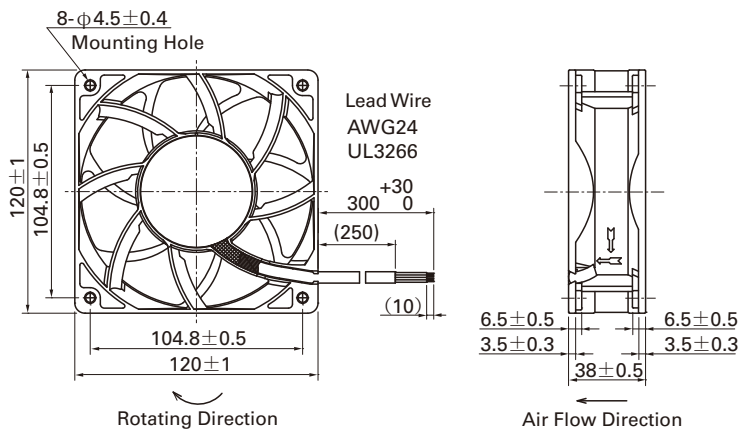
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WV1224P1H001 ^{Note)}	24	20.4 to 27.6	100	0.80	19.2	5,200	5.16 182	237 0.95	58	-10 to +70	60,000
9WV1248P1J001	48	40.8 to 55.2	100	0.65	31.2	6,400	6.35 224	360 1.45	64		
			0	0.06	2.88	1,500	1.49 52.6	26.1 0.106	33		

Note: Rated voltage 12V fans do not rotate when PWM duty cycle is 0%.

※PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)

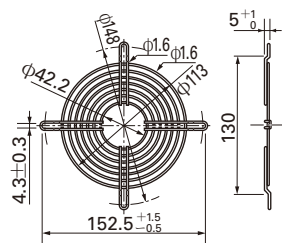


Options (Unit : mm)

Finger guards

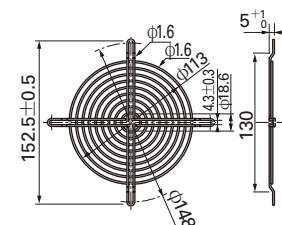
Model : 109-019C Surface treatment : Nickel-chrome plating (silver)
: 109-019H : Cation electropainting (black)

Outlet side

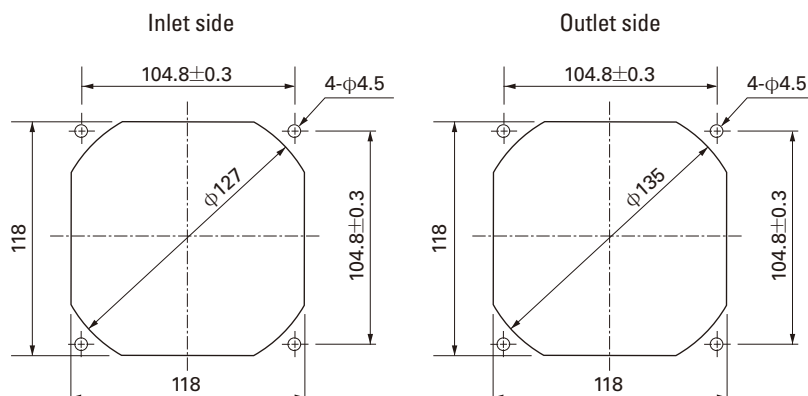


Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

Inlet side, Outlet side

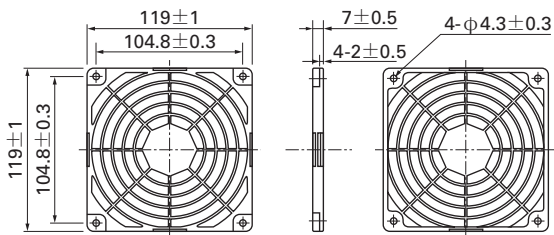


Reference dimension of mounting holes and vent opening (Unit : mm)



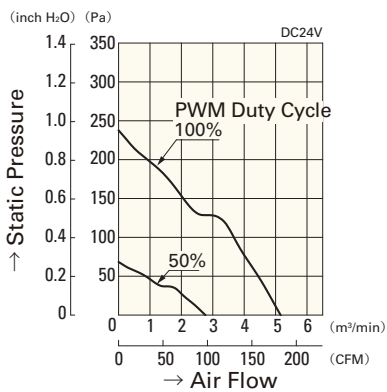
Resin Finger guards

Model : 109-1000G

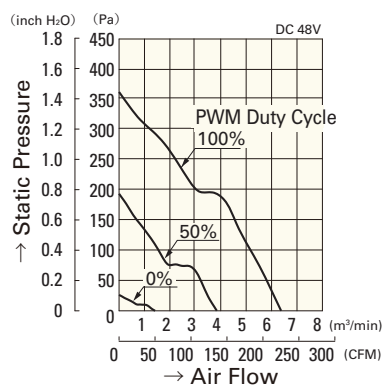


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

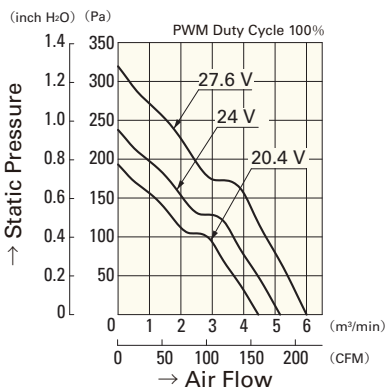


9WV1224P1H001

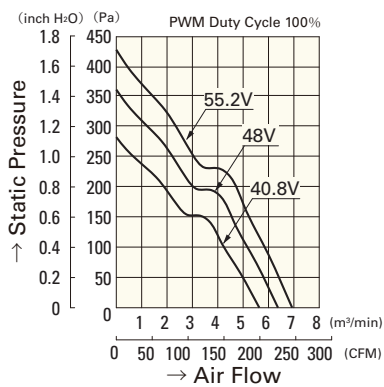


9WV1248P1J001

Operating Voltage Range

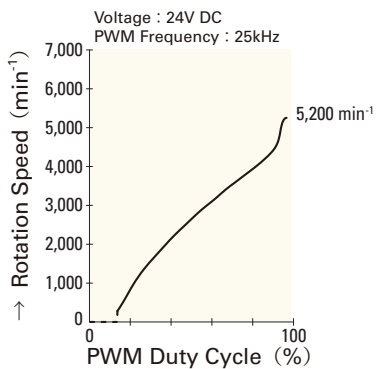


9WV1224P1H001

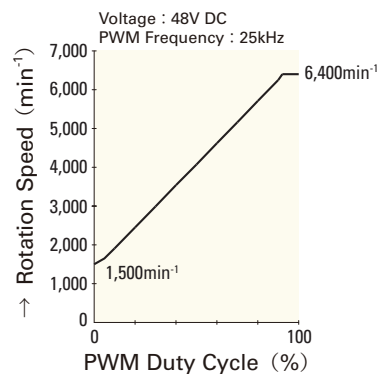


9WV1248P1J001

PWM Duty - Speed Characteristics Example



9WV1224P1H001



9WV1248P1J001

120mm sq.

San Ace 120W

38mm thick(WV type), 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 297

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

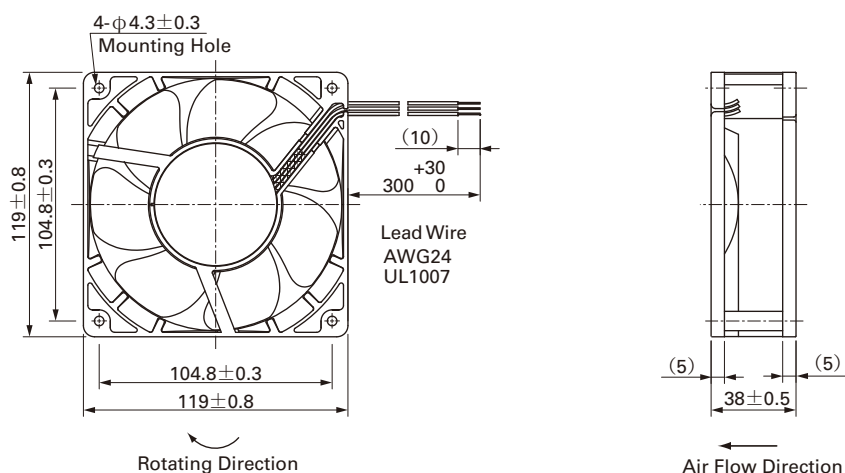
WP type

Specifications The numbers in () represent ribless models.

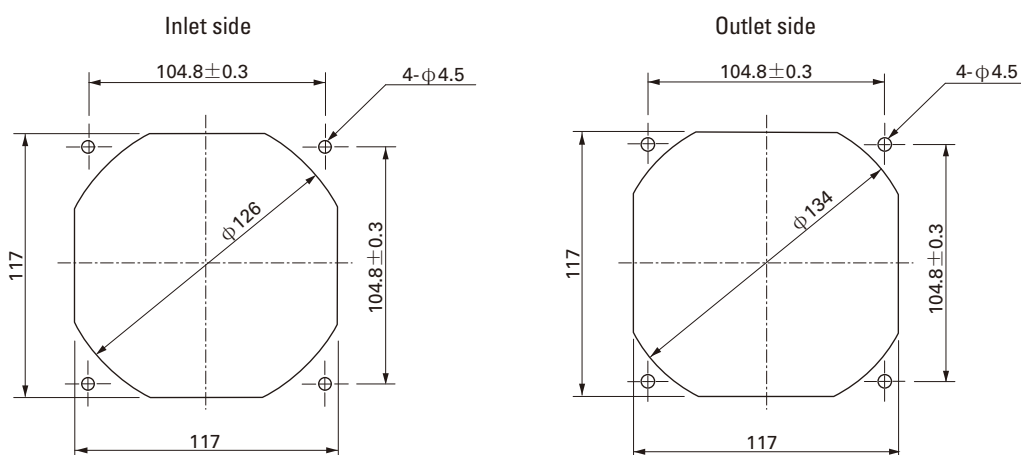
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WP1212H101(1011)	12	7 to 13.8	0.38	4.56	2,600	2.80 99	70.4 0.283	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)



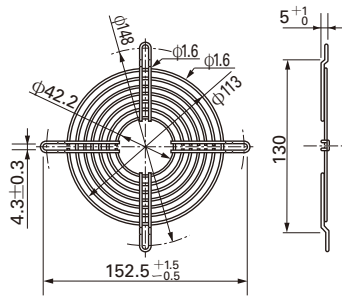
Options (Unit : mm)

Finger guards

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

Color

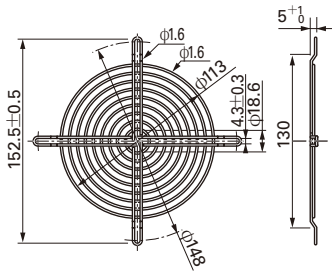
Outlet side



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

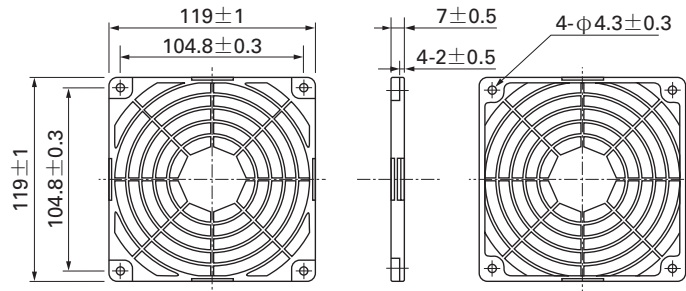
Color

Inlet side, Outlet side



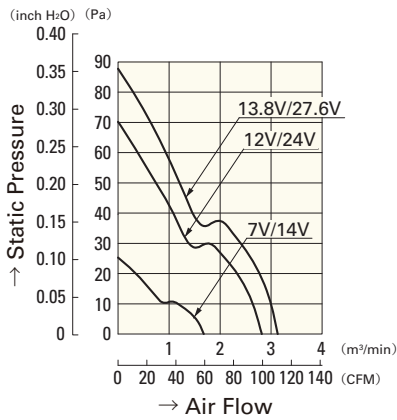
Resin Finger guards

Model : 109-1000G



Air Flow - Static Pressure Characteristics

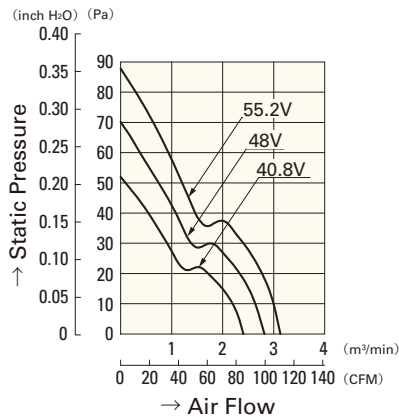
H speed



9WP1212H101(1011)

9WP1224H101(1011)

H speed



9WP1248H101(1011)

120mm sq.

San Ace 120W

38mm thick(WV type), 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 297

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (Indoor, 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 : 410g]

IP 55 Dust resistant device with protection against water jets

WG type

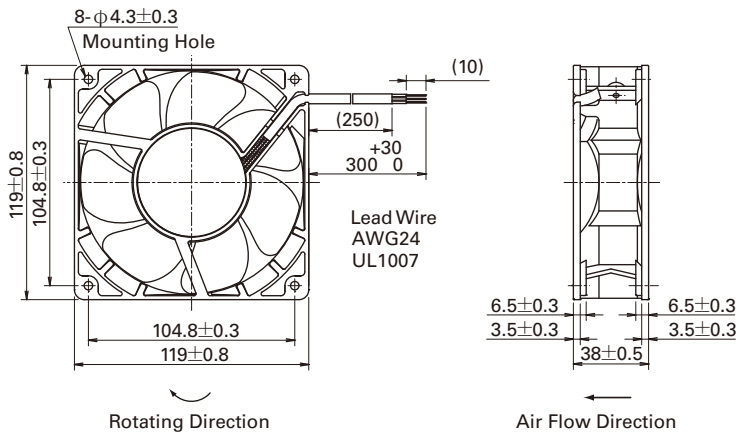
Specifications

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

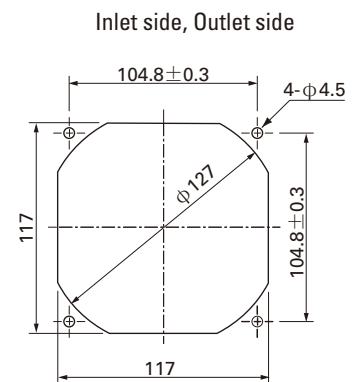
Without Sensor **Pulse Sensor** Available in all models.

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)

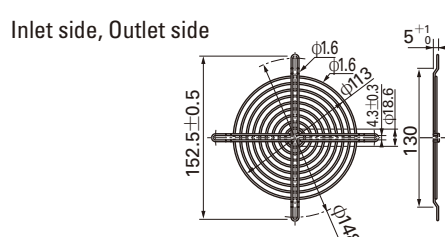
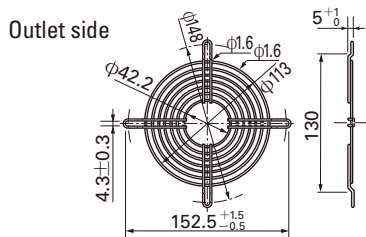


Options (Unit : mm)

Finger guards

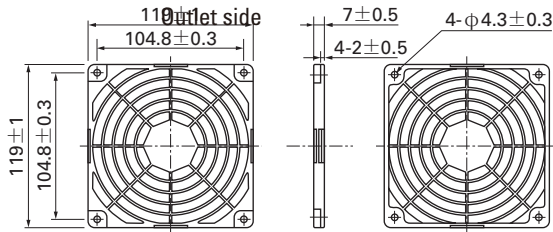
Model : 109-019C Surface treatment : Nickel-chrome plating (silver)
Model : 109-019H Surface treatment : Cation electropainting (black)

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

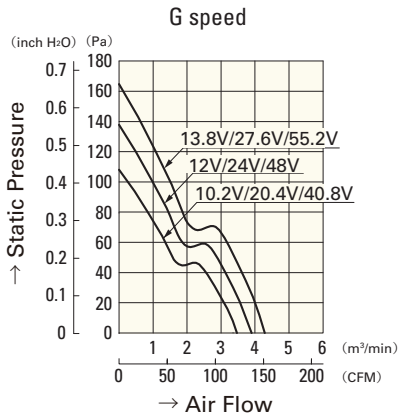
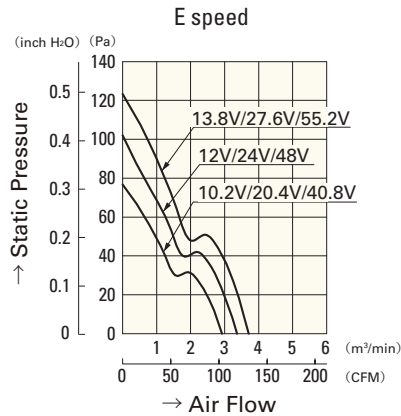
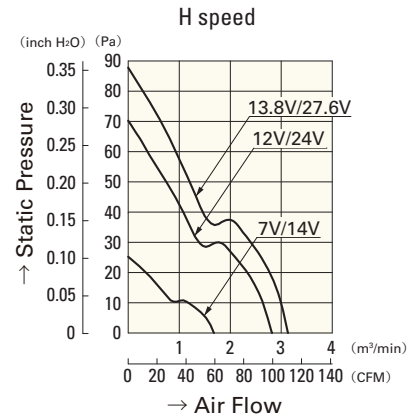
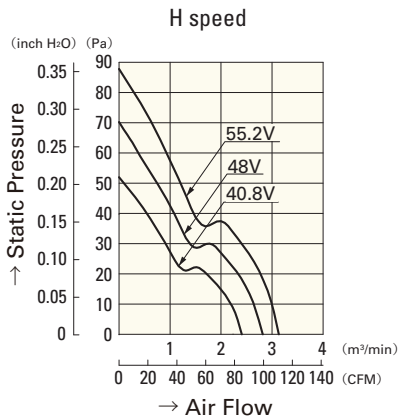
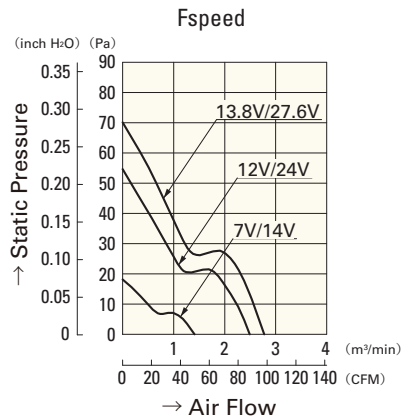
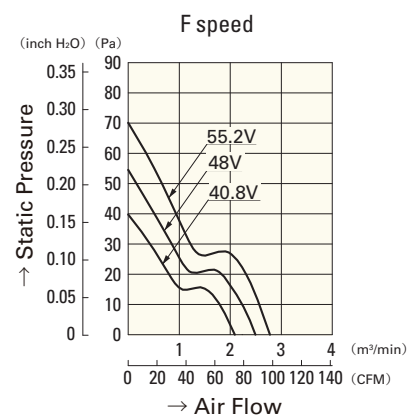
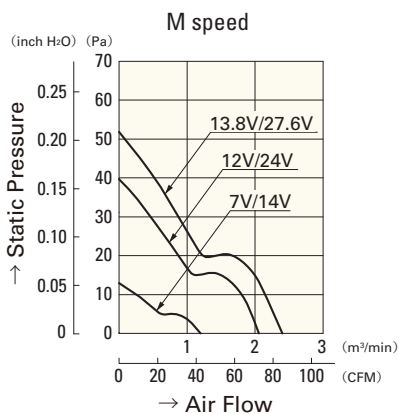
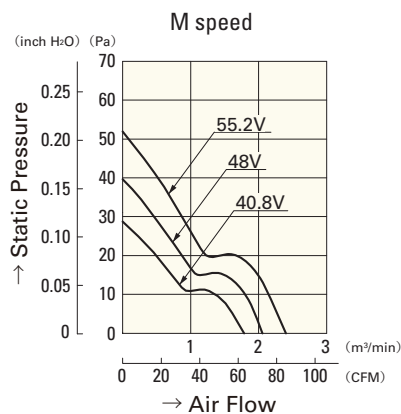


Resin Finger guards

Model : 109-1000G



Air Flow - Static Pressure Characteristics

**9WG1212G101-E****9WG1224G101-E****9WG1248G101-E****9WG1212E101-E****9WG1224E101-E****9WG1248E101-E****9WP1212H101-E****9WP1224H101-E****9WG1248H101-E****9WG1212F101-E****9WG1224F101-E****9WG1248F101-E****9WG1212M101-E****9WG1224M101-E****9WG1248M101-E**

120mm sq.

San Ace 120W

38mm thick(WV type), 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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (Indoor, 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 : 260g]

IP 54 Dust resistant device with protection against water spray

WS type

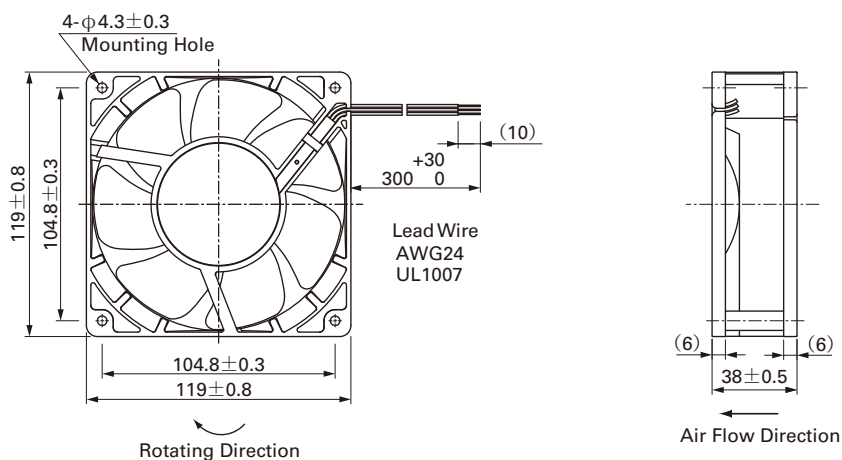
Specifications The numbers in () represent ribless models.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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	

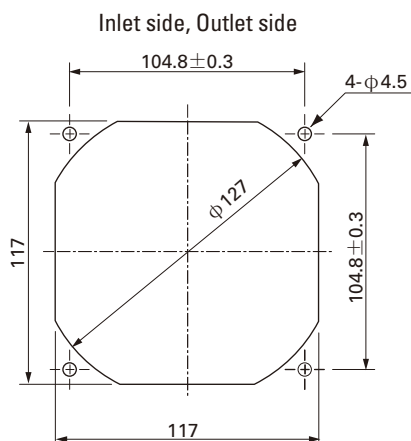
Without Sensor **Pulse Sensor** Available in all models.

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

Dimensions (Unit : mm) (With ribs)



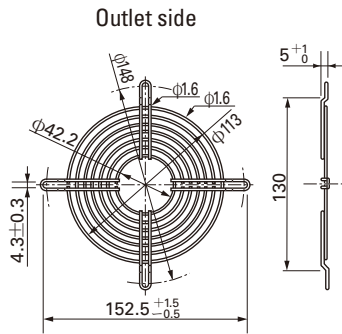
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

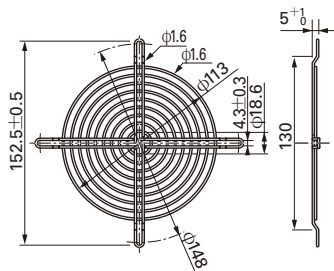
Finger guards

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



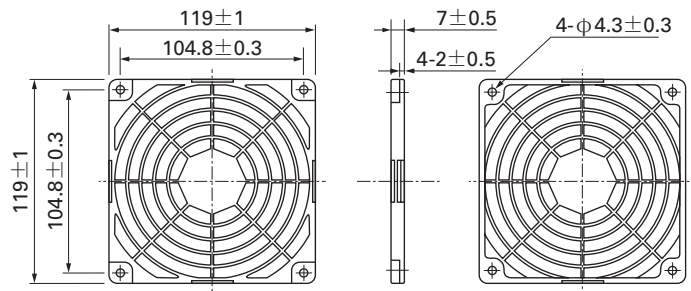
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

Inlet side, Outlet side

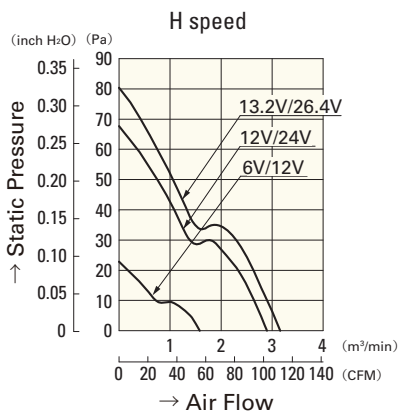


Resin Finger guards

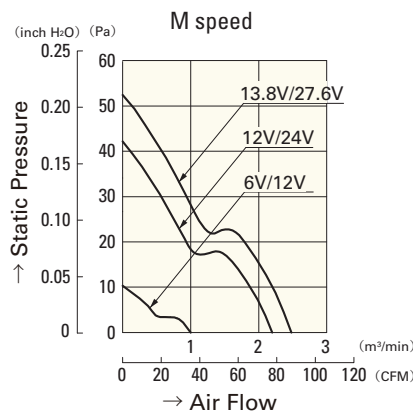
Model : 109-1000G



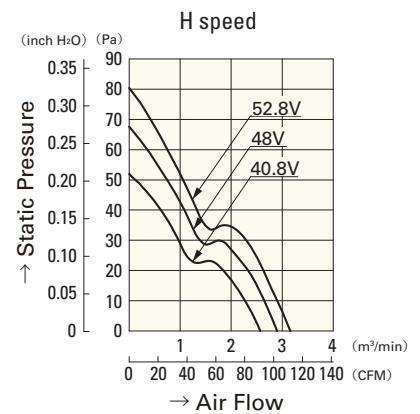
Air Flow - Static Pressure Characteristics



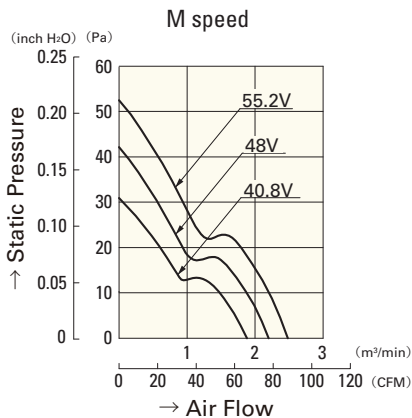
9WS1212H101(1011)
9WS1224H101(1011)



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 297

- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model(Indoor, 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]

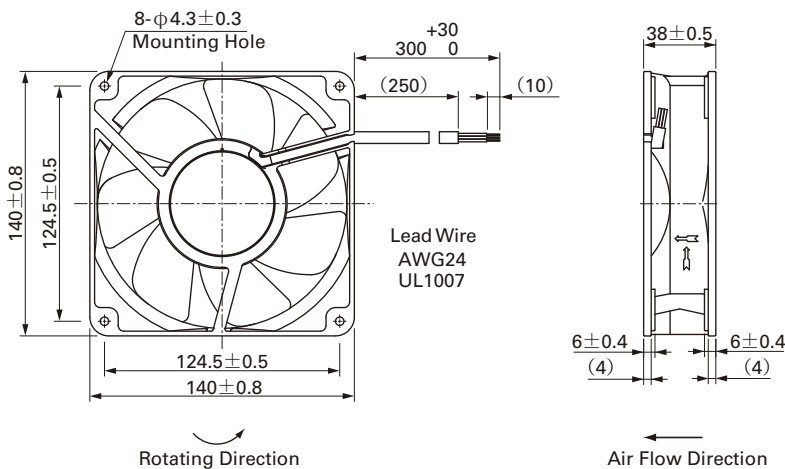
IP 55 Dust resistant device with protection against water jets

Specifications

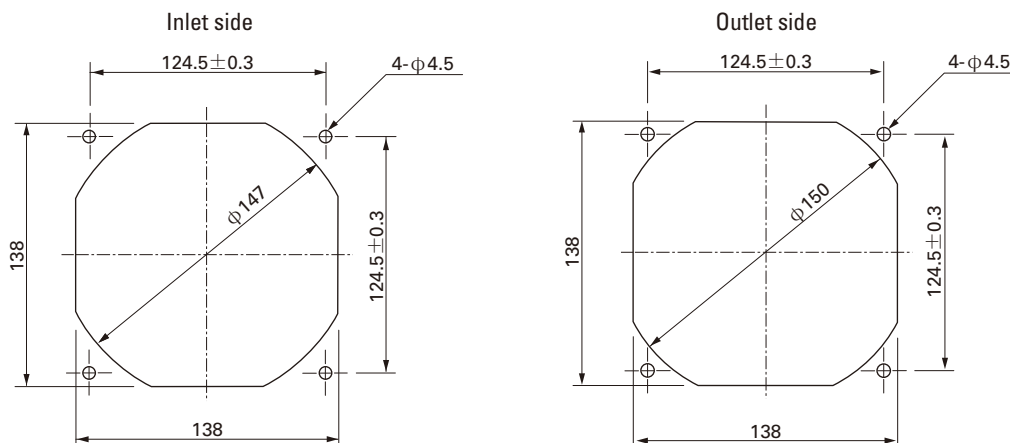
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109W1412H101-U	12	10.2 to 13.8	0.73	8.76	2,600	4.5 159	98 0.394	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)



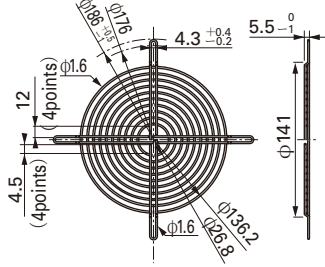
Options (Unit : mm)

Finger guards

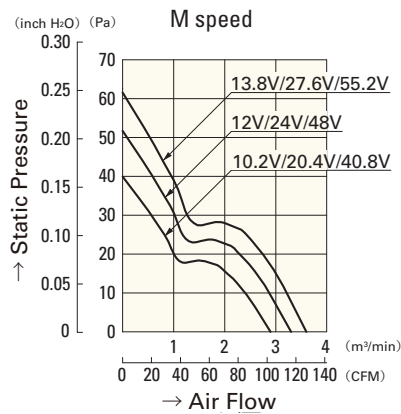
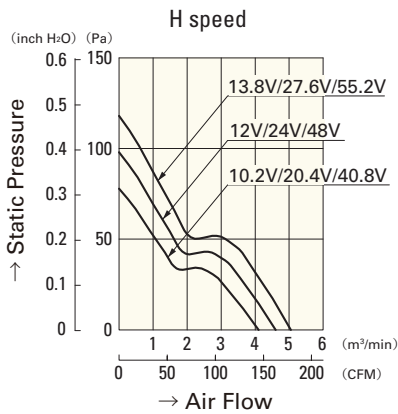
Model : 109-719 Surface treatment : Nickel-chrome plating (silver)
: 109-0719H : Cation electropainting (black)

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 297

- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model(Indoor, 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 : 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]	Max. Air Flow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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

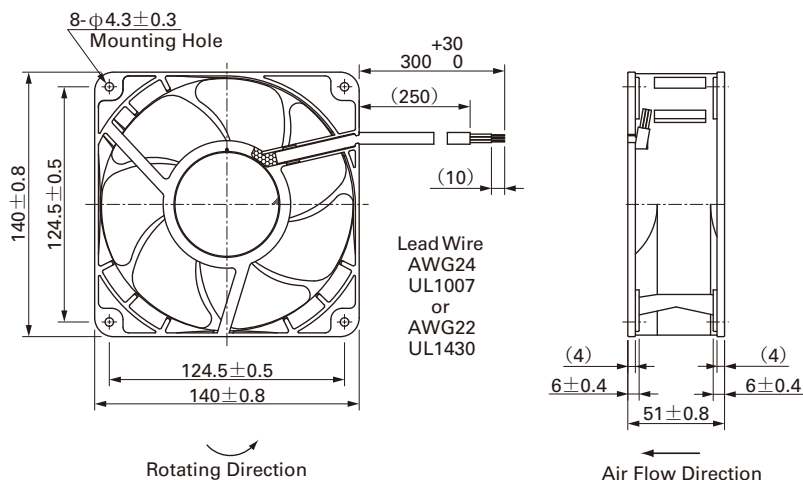
Pulse Sensor

Available in all models.

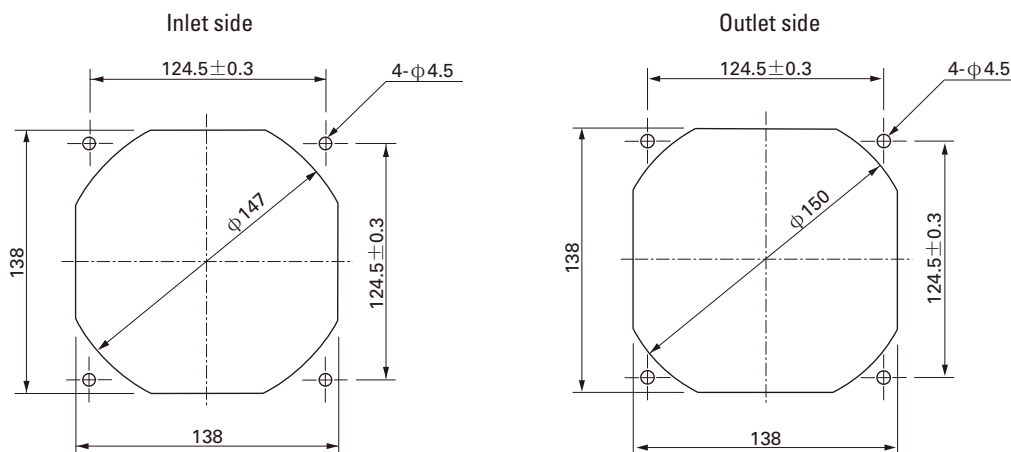
Lock Sensor

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)



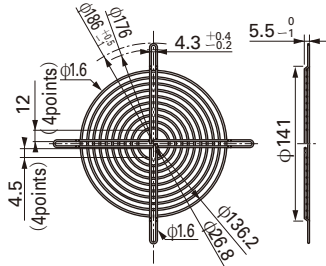
Options (Unit : mm)

Finger guards

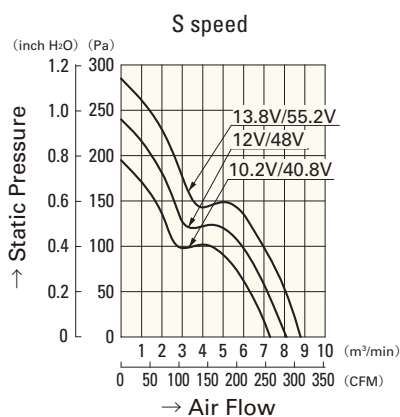
Model : 109-719 Surface treatment : Nickel-chrome plating (silver)
: 109-0719H : Cation electropainting (black)

Color

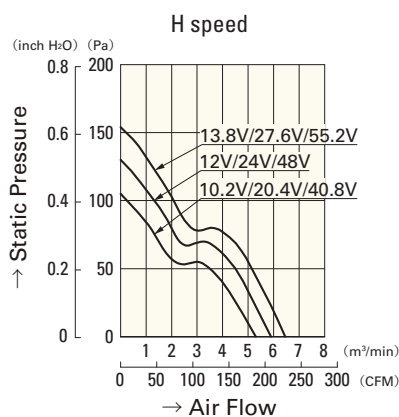
Inlet side, Outlet side



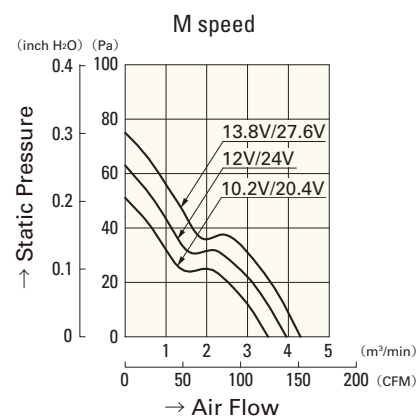
Air Flow - Static Pressure Characteristics



9WB1412S501
9WB1448S501



9WB1412H501
9WB1424H501
9WB1448H501



9WB1412M501
9WB1424M501

φ 172mm

San Ace 172W

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



■ **General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

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

φ 172mm × 150mm × 51mm (Mass : 860g) **SideCut type** **IP 55** Dust resistant device with protection against water jets **WGtype**

Specifications

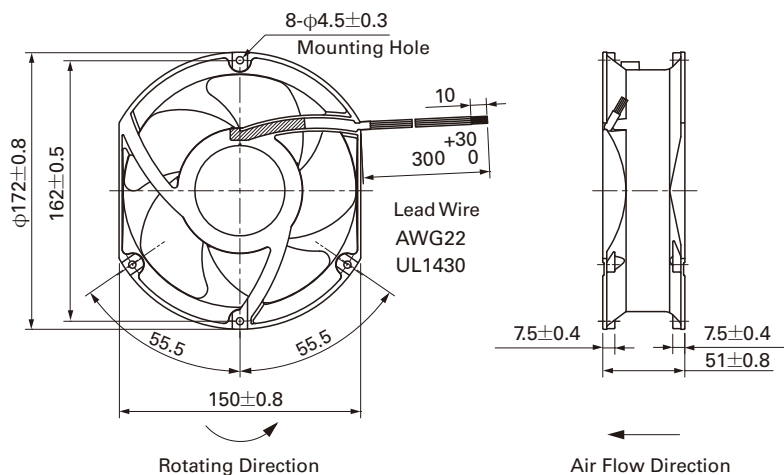
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^{Note)} [h]
9WG5748P5G001	48	40.8 to 55.2	100	2.91	140.0	8,600	15.46 546	1000 4.02	78	-10 to +70	40,000/60°C (70,000/40°C)
			0	0.21	10.1	2,000	3.59 127	75.1 0.30	40		
9WG5748P5H001			100	1.62	78.0	6,500	11.60 410	770 3.09	71		
			0	0.21	10.1	2,000	3.59 127	75.1 0.30	40		

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

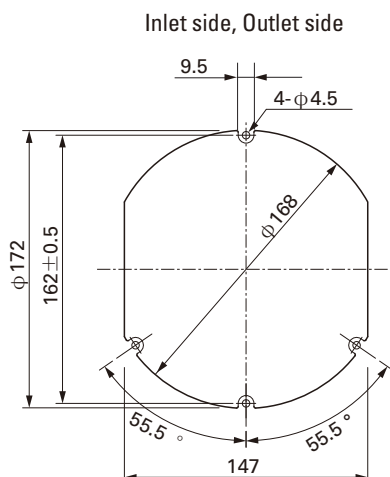
※PWM Frequency : 25kHz

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)

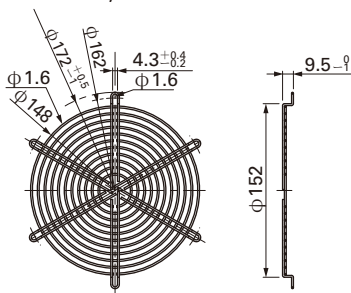
Finger guards

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

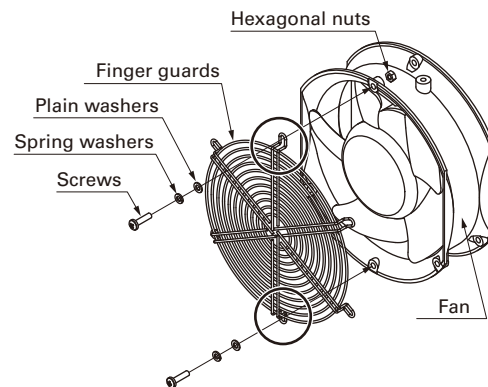
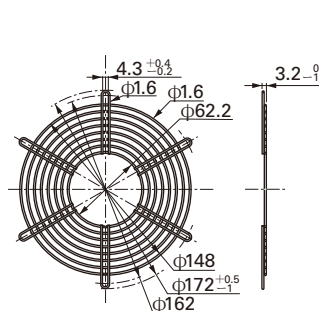
Model : 109-320 Surface treatment : Nickel-chrome plating (silver) Color :

For the finger guard for a 172mm fan, fix the finger guard to two holes as shown in the diagram. Do not fix it to any other holes.

Inlet side, Outlet side

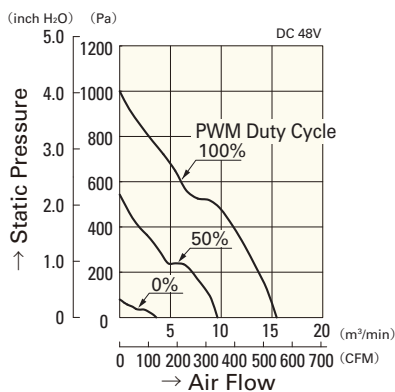


Outlet side

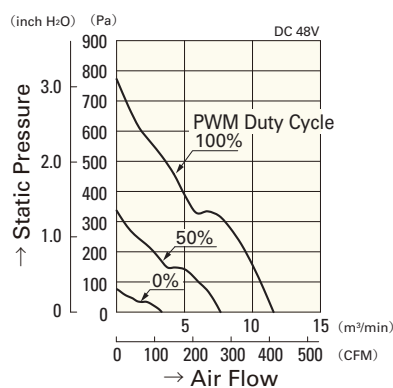


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

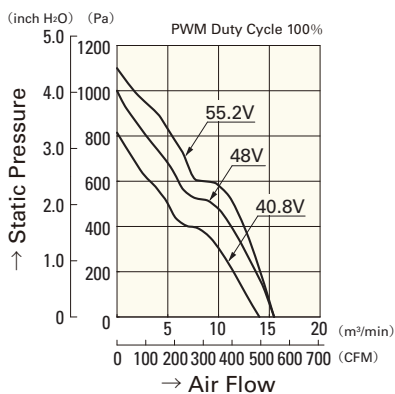


9WG5748P5G001

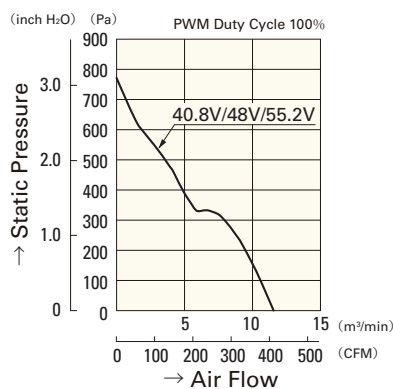


9WG5748P5H001

Operating Voltage Range

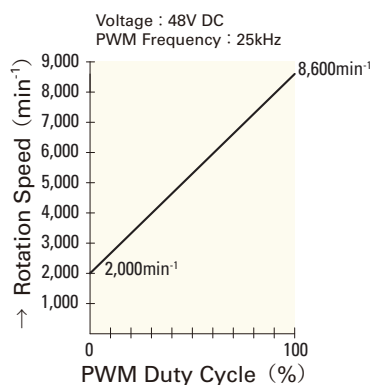


9WG5748P5G001

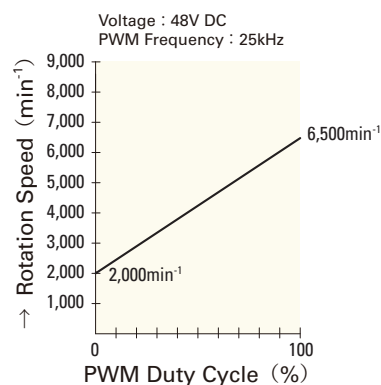


9WG5748P5H001

PWM Duty - Speed Characteristics Example



9WG5748P5G001



9WG5748P5H001

Splash Proof Fan

φ172mm

San Ace 172W

51mm thick(Sidecut type WE type),

51mm thick(Round type WE type)

General Specifications **With a pulse sensor** Specifications for pulse sensors ➞ Refer to Page 297

- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Expected LifeVaries for each model(Indoor, 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)



φ **172mm** × **150mm** × **51mm** [Mass : 860g] **SideCut type** **IP 55** Dust resistant device with protection against water jets **WE type** —

■ Specifications

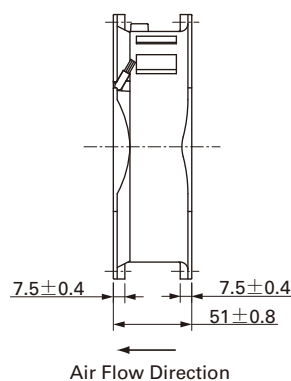
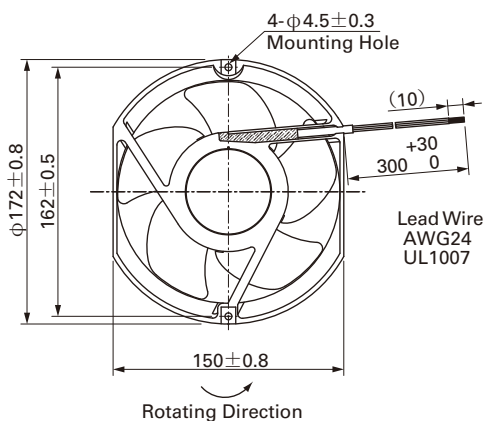
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WE5724K501	24	20.4 to 27.6	1.3	31.2	4,100	8.5 300	243 0.976	60	− 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

Pulse Sensor

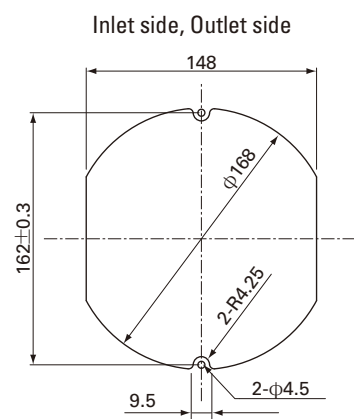
Available in all models.

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)



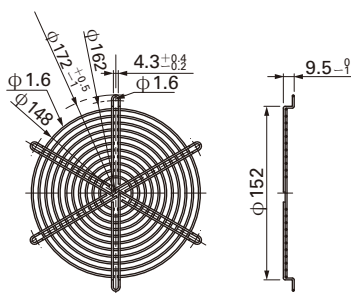
■ **Options (Unit : mm)**

Finger guards

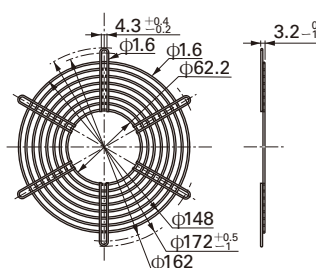
Model : 109-319E Surface treatment : Nickel-chrome plating (silver)
: 109-319H : Cation electropainting (black)

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

Inlet side, Outlet side



Outlet side



Air Flow - Static Pressure Characteristics

Graph showing Static Pressure (Pa) vs. Air Flow (CFM) for K speed. The graph plots three curves for different voltages: 27.6V/55.2V, 24V/48V, and 20.4V/40.8V. The y-axis represents Static Pressure in Pa (0 to 300) and inch H₂O (0 to 1.2). The x-axis represents Air Flow in CFM (0 to 400) and m³/min (0 to 10). All curves show a decrease in static pressure as air flow increases, with higher voltages resulting in higher static pressure for the same air flow.

9WE5724K501

9WE5748K501

ϕ 172_{mm}

San Ace 172W

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

General Specifications **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model(Indoor, 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 : 890g]

Round type

IP 55

Dust resistant device with protection against water jets

WEtype

■ Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WE1724K501	24	20.4 to 27.6	0.13	31.2	4,100	8.5 300.1	243 0.97	55	− 10 to + 60	40,000

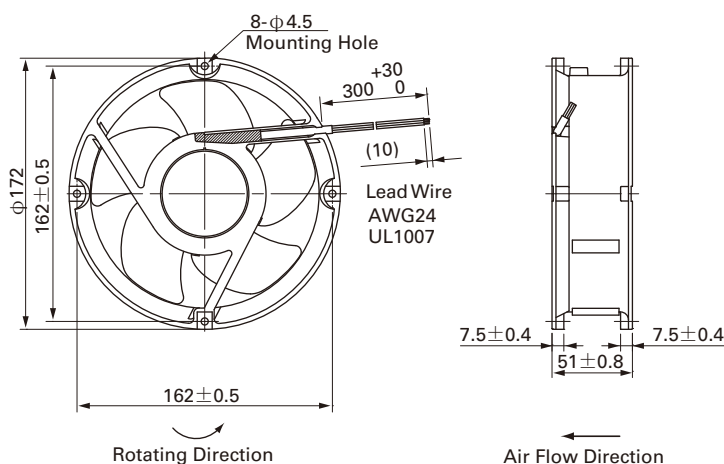
Without Sensor

Pulse Sensor

Available in all models.

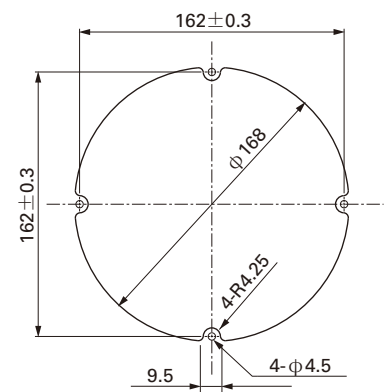
Please inquire as the availability of these functions depend on the model.

■ Dimensions (Unit : mm)



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

Inlet side, Outlet side



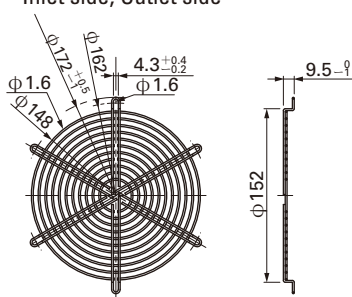
■ **Options (Unit : mm)**

Finger guards

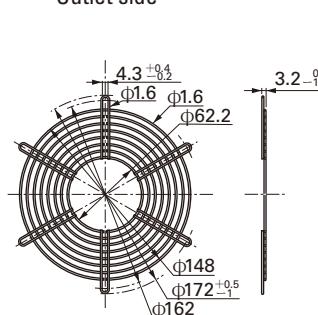
Model : 109-319E Surface treatment : Nickel-chrome plating (silver)
: 109-319H : Cation electropainting (black)

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

Inlet side, Outlet side

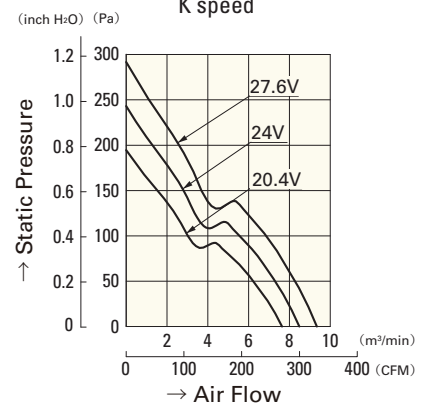


Outlet side



Air Flow - Static Pressure Characteristics

K speed

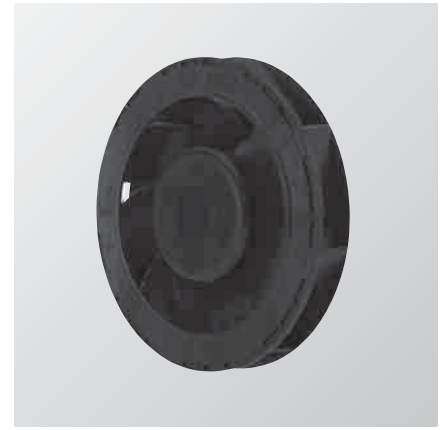


9WE1724K501

Φ 100mm

San Ace 100W

25mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

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

Φ 100mm × 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]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^{※※} [h]		
9W1TM48P4G01	48	36 to 60	100 ^{Note1)}	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%.

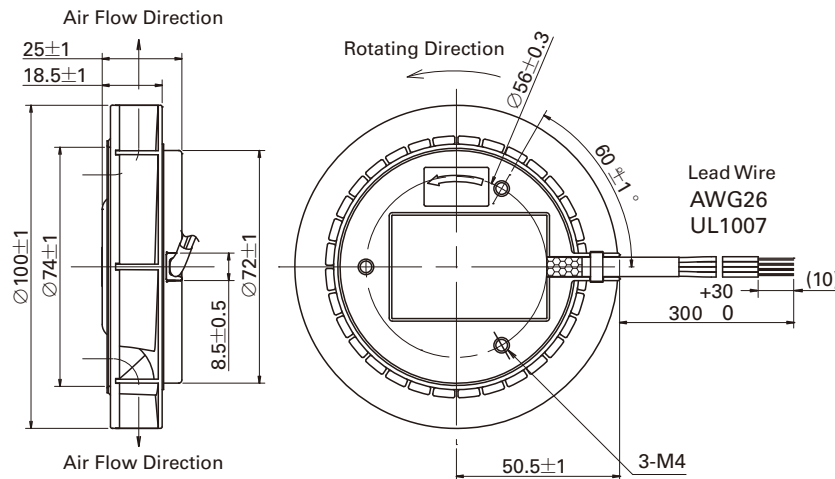
Note 2: Expected life at 40 degreeC ambient is just reference value.

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

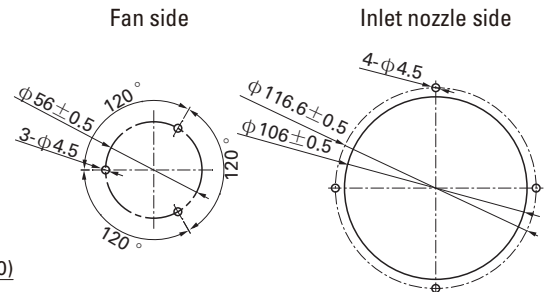
※ PWM Frequency : 25kHz

Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)



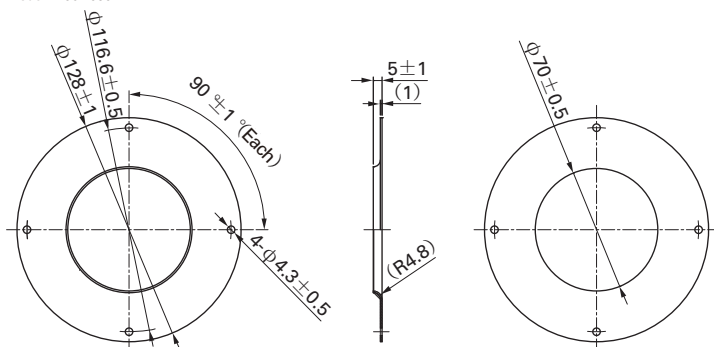
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

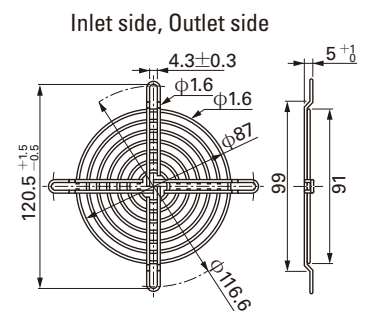
Inlet nozzle

Model : 109-1080



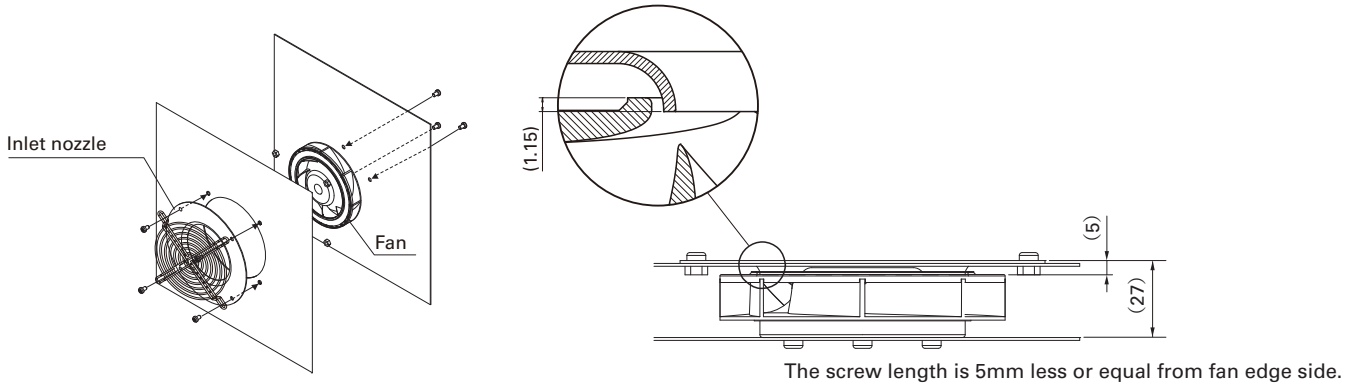
Finger guards

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



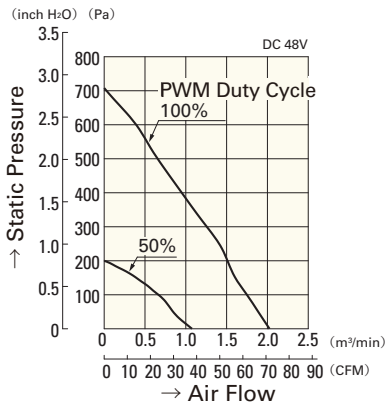
Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

Reference diagram for mounting

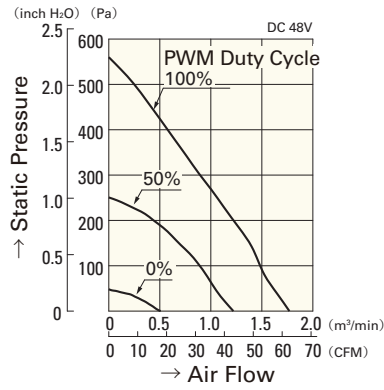


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

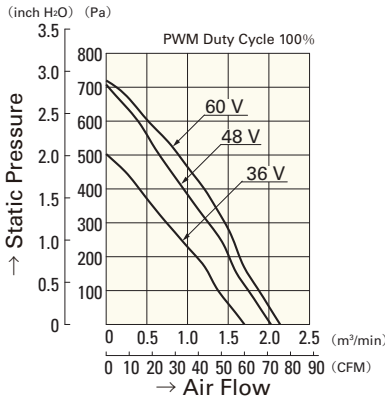


9W1TM48P4G01

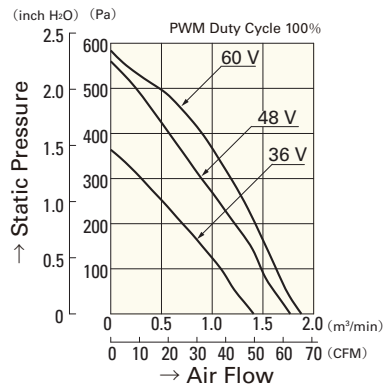


9W1TM48P4H01

Operating Voltage Range

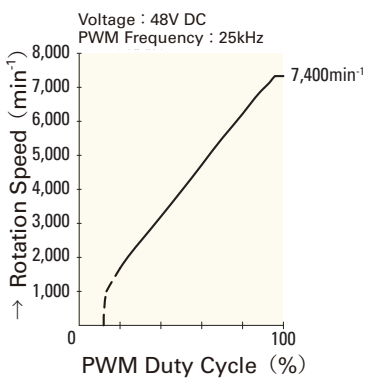


9W1TM48P4G01

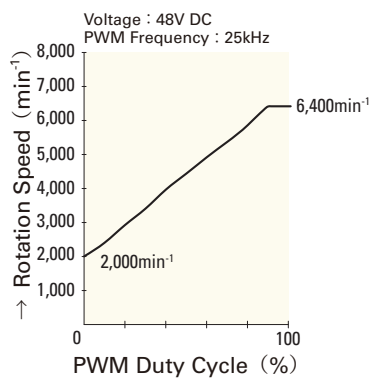


9W1TM48P4H01

PWM Duty - Speed Characteristics Example



9W1TM48P4G01

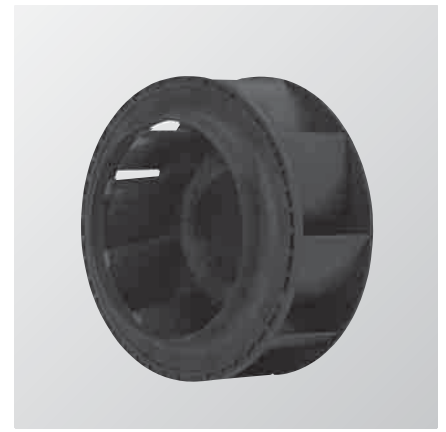


9W1TM48P4H01

Φ **133**mm

San Ace 133W

91mm thick



General Specifications

With a pulse sensor

Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function

⇨ Refer to Page 299

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

Φ **133mm** × **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 cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^{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

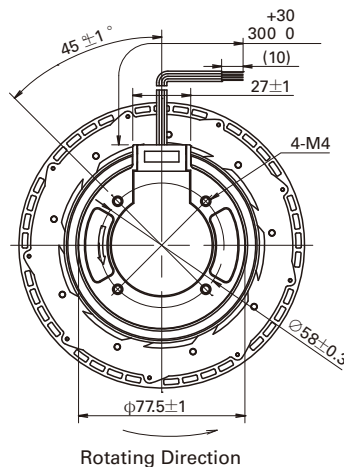
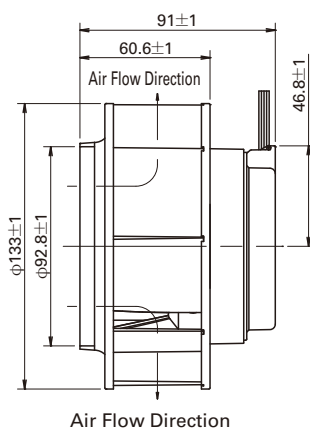
Without Sensor

Pulse Sensor

PWM Control

Available in all models.

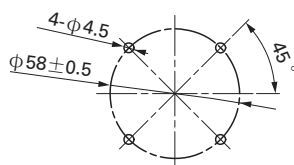
Dimensions (Unit : mm)



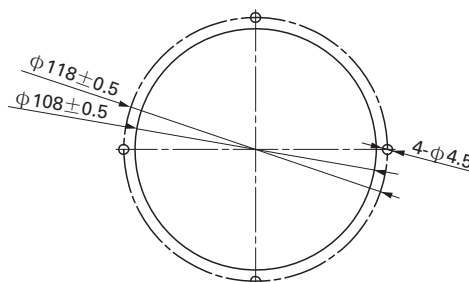
Lead Wire
AWG24
UL1430

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

Fan side



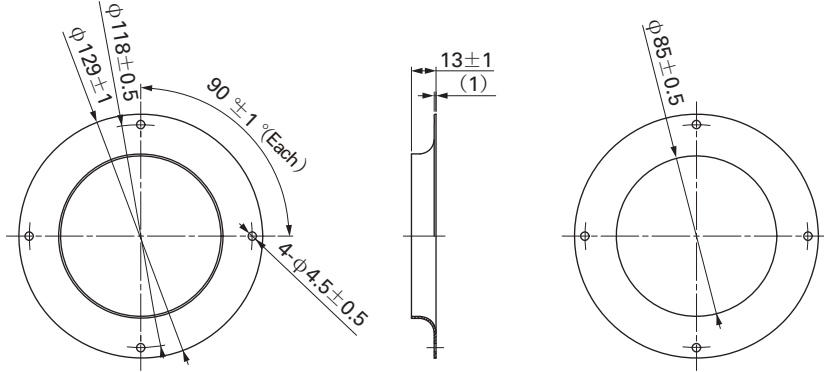
Inlet nozzle side



Options (Unit : mm)

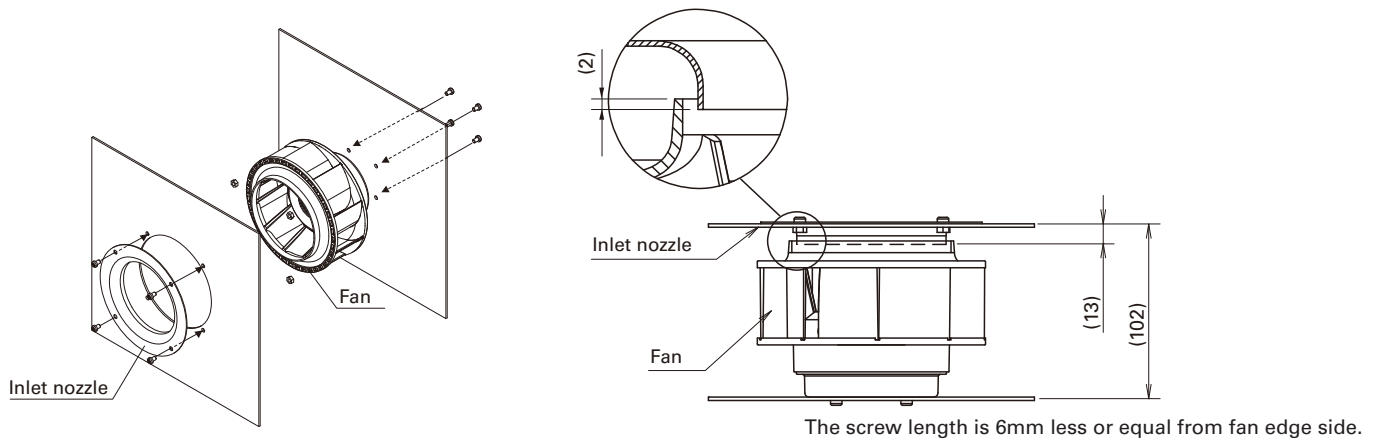
Inlet nozzle

Model : 109-1069



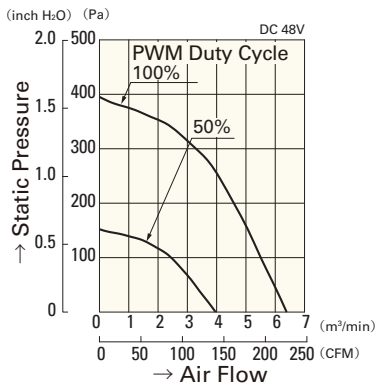
Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

Reference diagram for mounting



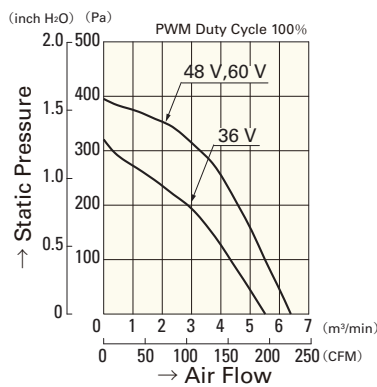
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



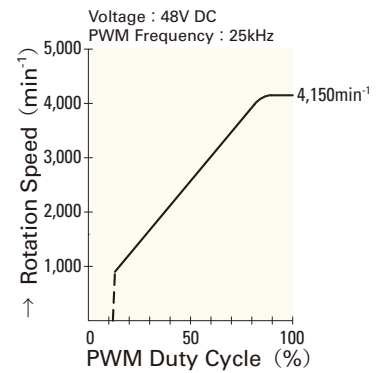
9W1TJ48P0H61

Operating Voltage Range



9W1TJ48P0H61

PWM Duty Speed Characteristics Example



9W1TJ48P0H61

Φ 150mm

San Ace 150W

35mm thick



General Specifications

With a pulse sensor

Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function

⇨ Refer to Page 299

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

Φ 150mm × 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 ¹⁾ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life ²⁾ [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°C (70,000/40°C)

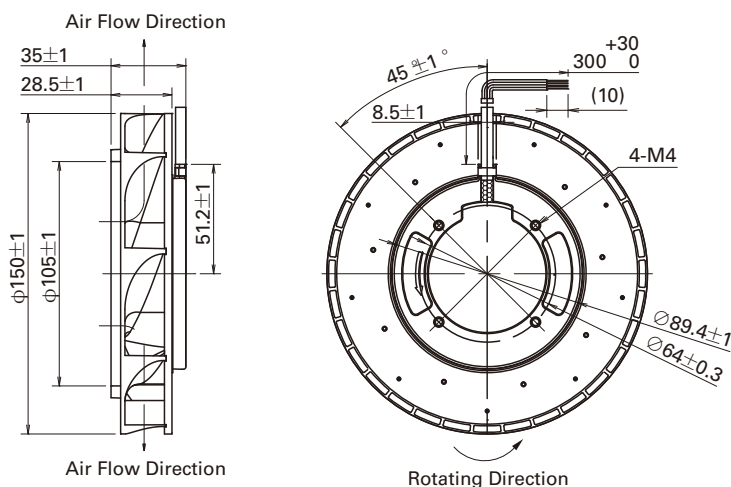
Note 1: Fan does not rotate when PWM duty cycle is 0%.

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

※PWM Frequency : 25kHz

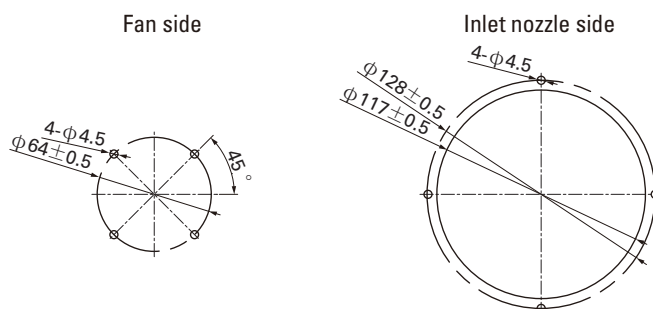
Without Sensor Pulse Sensor PWM Control Available in all models.

Dimensions (Unit : mm)



Lead Wire
AWG24
UL1061

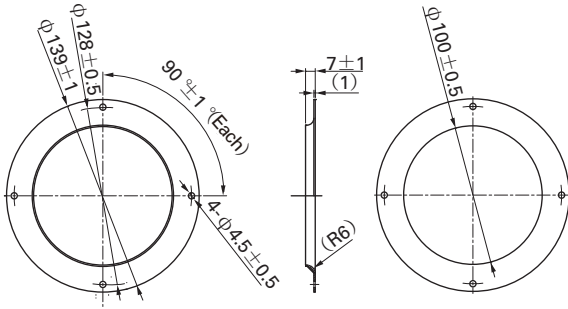
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

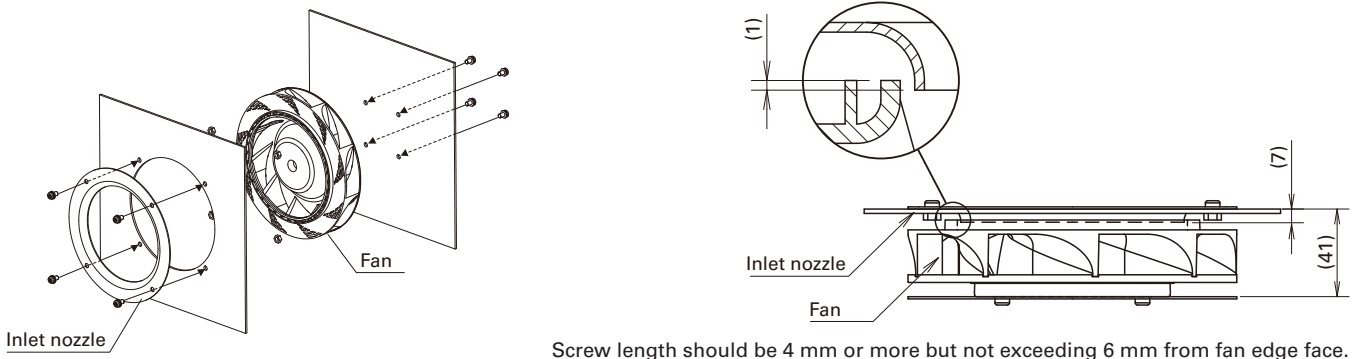
Inlet nozzle

Model : 109-1081



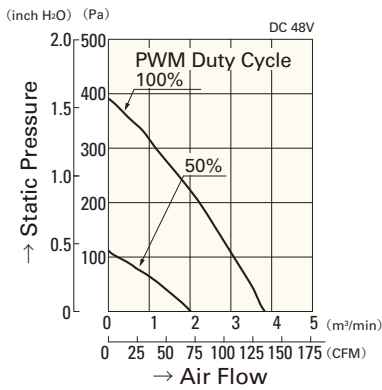
Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

Reference diagram for mounting



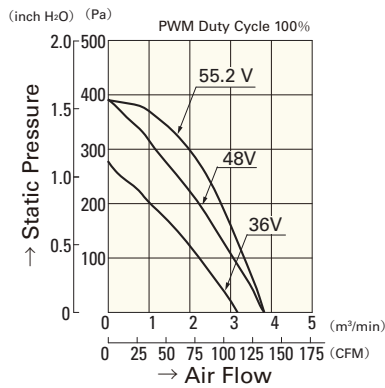
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



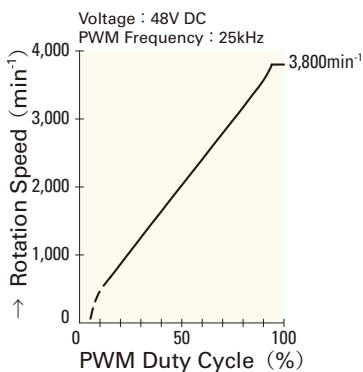
9W1TN48P1H01

Operating Voltage Range



9W1TN48P1H01

PWM Duty Speed Characteristics Example

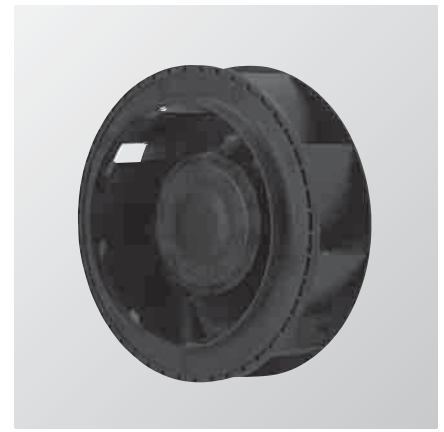


9W1TN48P1H01

Φ **175**mm

San Ace 175W

69mm thick



General Specifications

With a pulse sensor

Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function

⇨ Refer to Page 299

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

Φ **175**mm × **69**mm [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]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^{*)} [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)

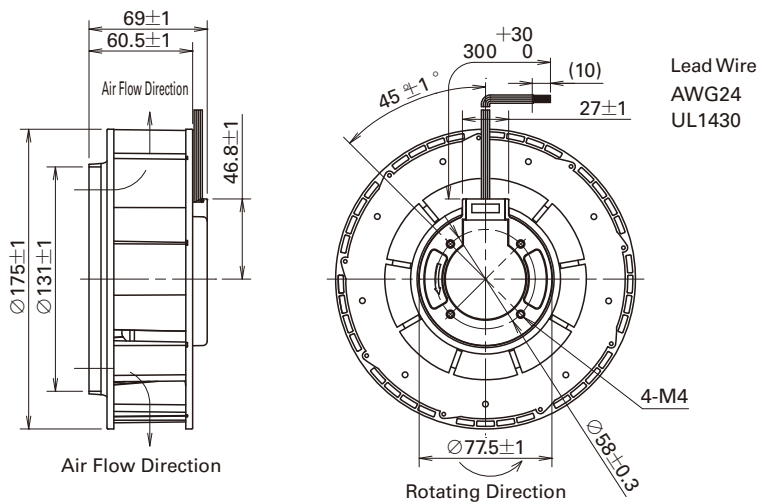
Note 1: Fan does not rotate when PWM duty cycle is 0%.

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.

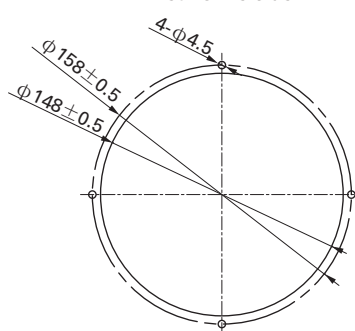
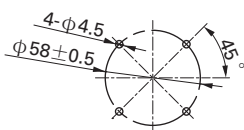
Dimensions (Unit : mm)



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

Fan side

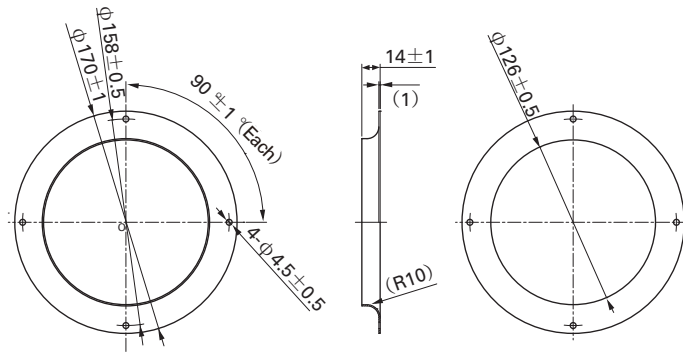
Inlet nozzle side



Options (Unit : mm)

Inlet nozzle

Model : 109-1073

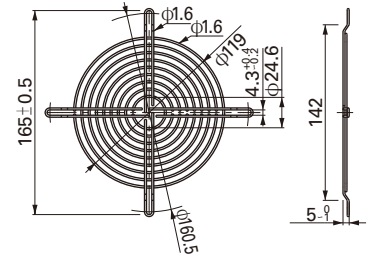


Finger guards

Model : 109-722

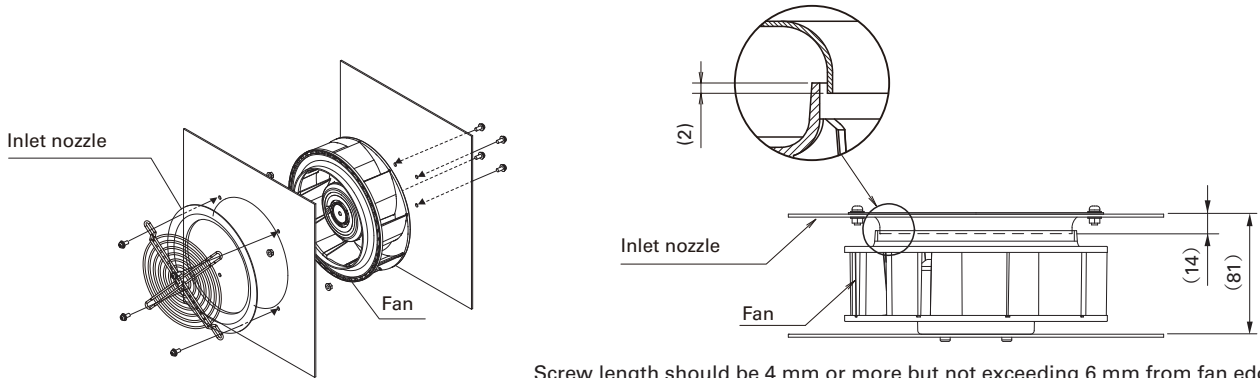
Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side



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

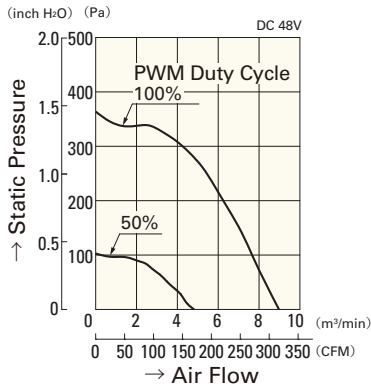
Reference diagram for mounting



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.

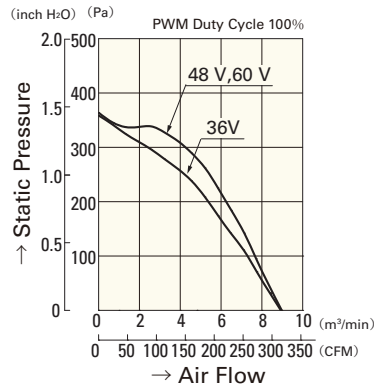
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



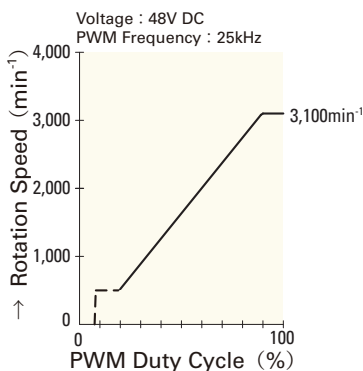
9W1TG48P0H61

Operating Voltage Range



9W1TG48P0H61

PWM Duty Speed Characteristics Example



9W1TG48P0H61

40_{mm sq.}

San Ace 40WF

15mm thick, 20mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0)
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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.

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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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

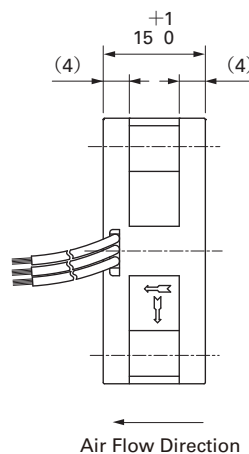
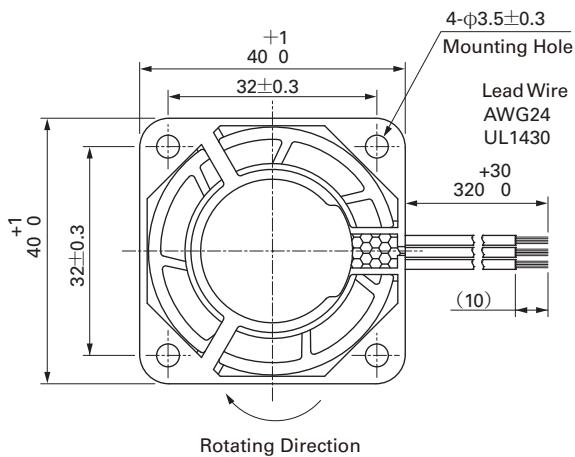
Pulse Sensor

Available in all models.

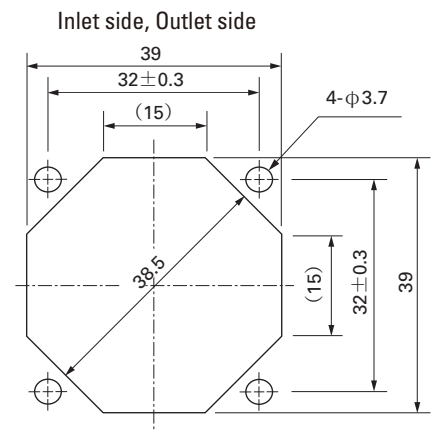
Lock Sensor

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)



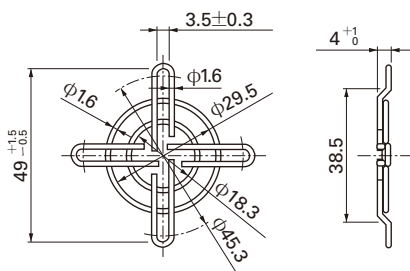
Options (Unit : mm)

Finger guards

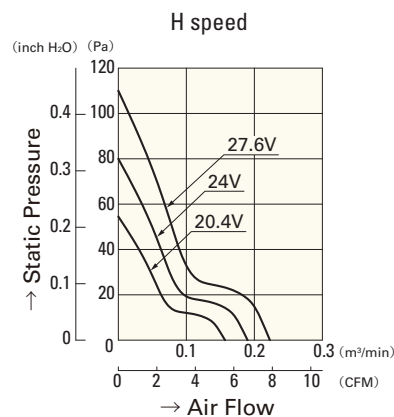
Model : 109-059 Surface treatment : Nickel-chrome plating (silver)

Color

Inlet side, Outlet side



Air Flow - Static Pressure Characteristics



9WF0424H701

40mm sq.

San Ace 40WF

15mm thick, 20mm thick



General Specifications

With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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

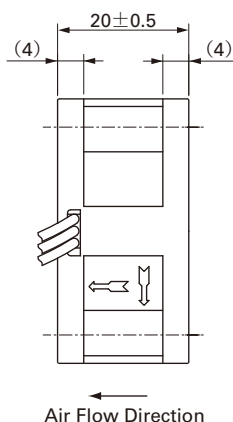
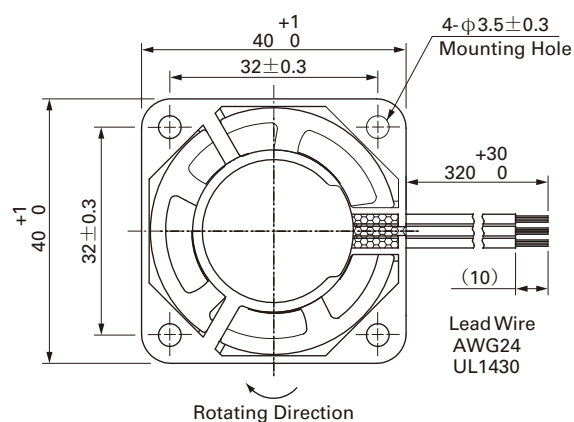
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

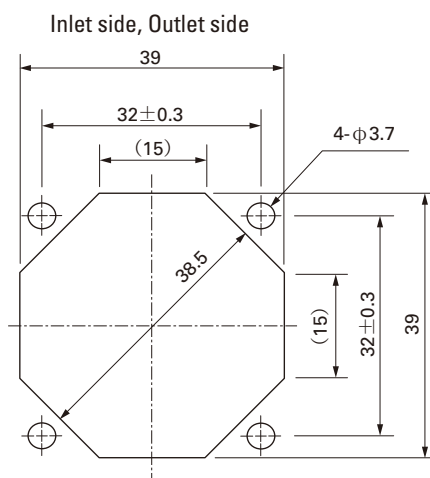
Without Sensor Pulse Sensor Available in all models.

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

Dimensions (Unit : mm)



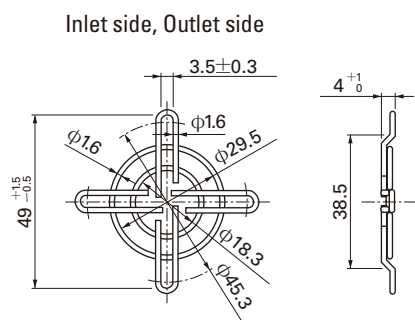
Reference dimension of mounting holes and vent opening (Unit : mm)



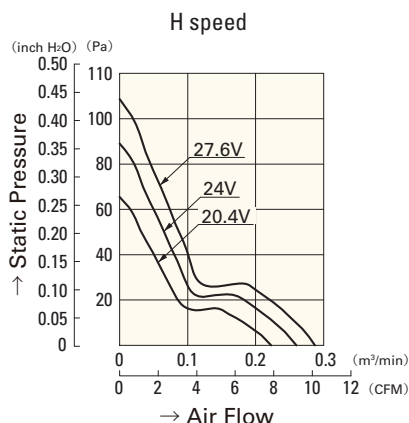
Options (Unit : mm)

Finger guards

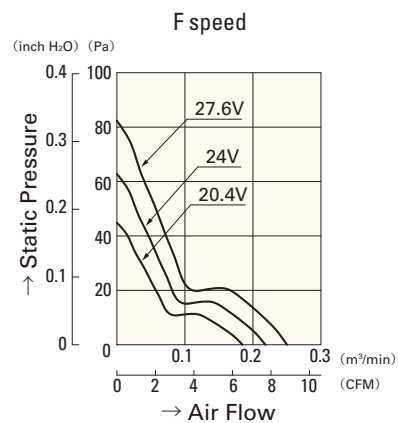
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color



Air Flow - Static Pressure Characteristics



9WF0424H601



9WF0424F601

60_{mm sq.}

San Ace 60WF

15mm thick, 20mm thick, 25mm thick



General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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 × 15_{mm}

[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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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

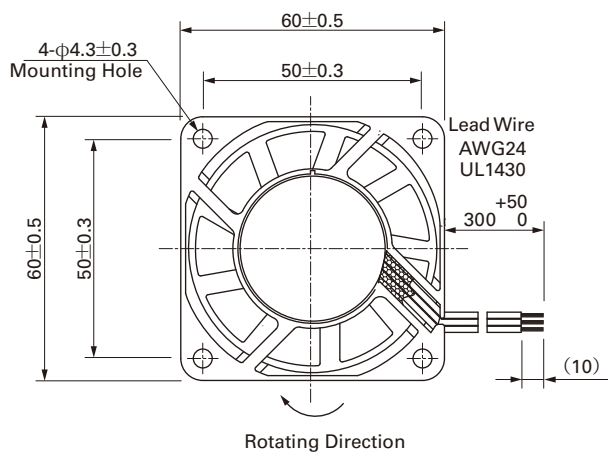
Pulse Sensor

Available in all models.

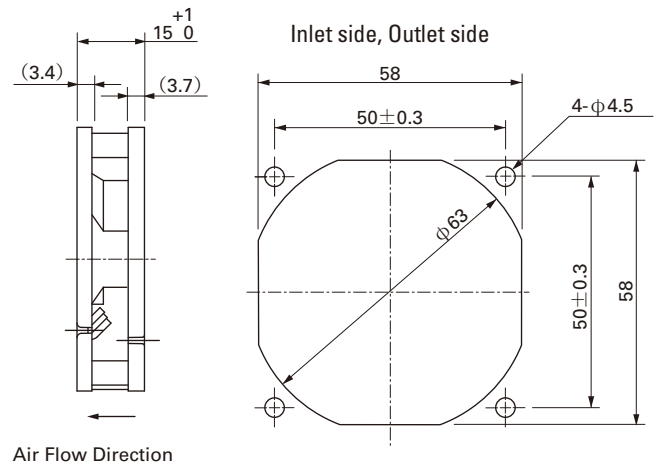
Lock Sensor

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)

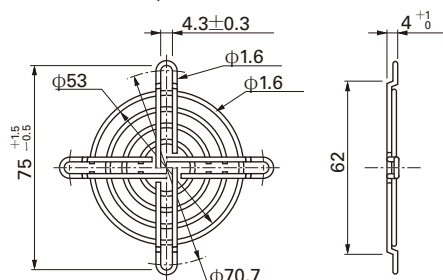


Options (Unit : mm)

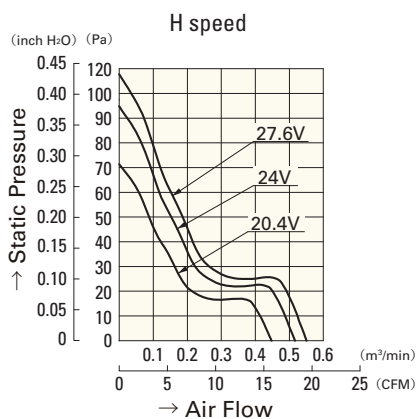
Finger guards

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

Inlet side, Outlet side



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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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 × 20mm (Mass : 80g)

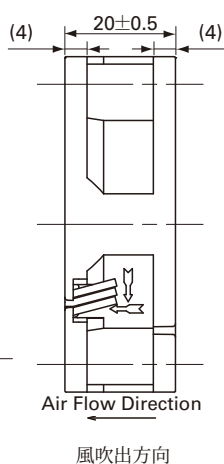
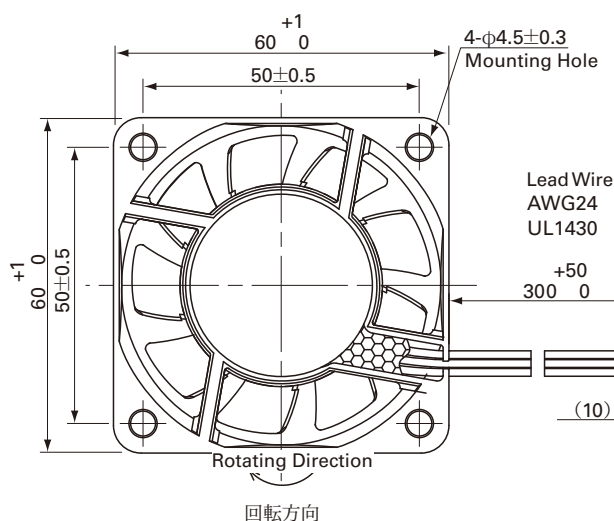
IP 55 Dust resistant device with protection against water jets

Specifications

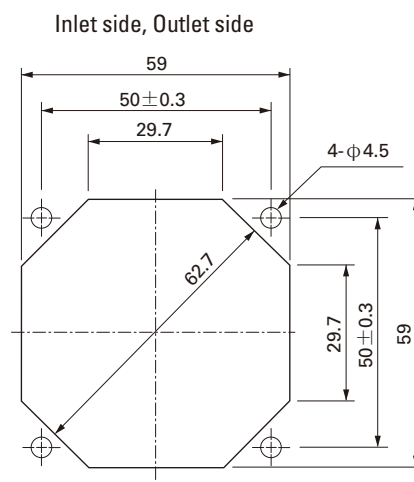
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0624H601	24	12 to 27.6	0.15	3.6	6,600	0.69 24.3	114 0.46	42	-10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

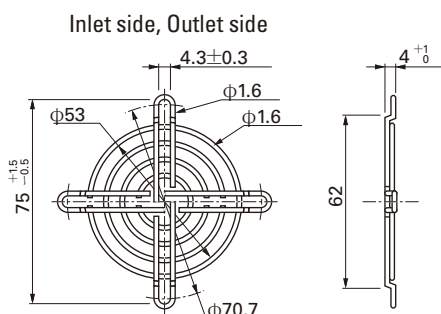


Options (Unit : mm)

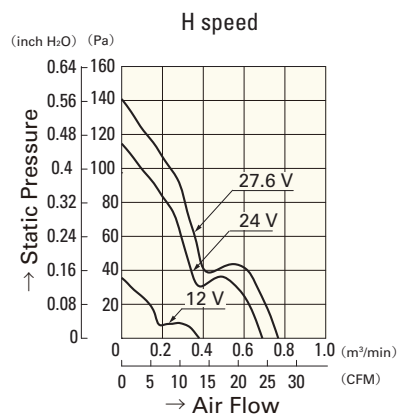
Finger guards

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

Color



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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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**

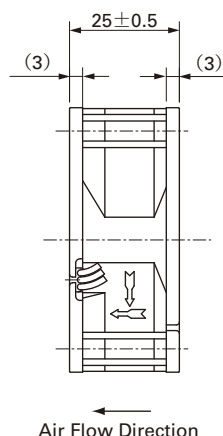
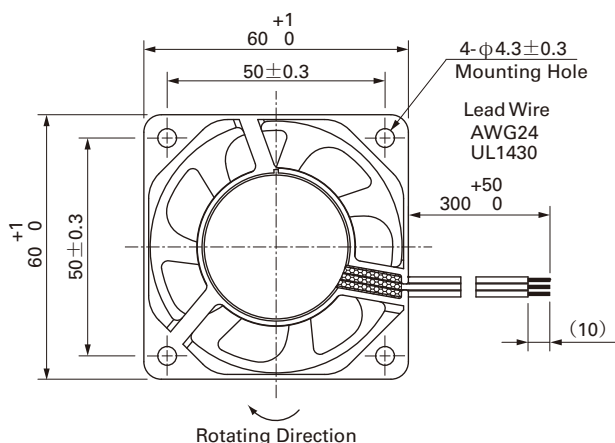
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0624H401	24	20.4 to 27.6	0.15	3.6	6,500	0.67 23.6	97 0.390	41	-10 to +70	40,000

Without SensorPulse Sensor

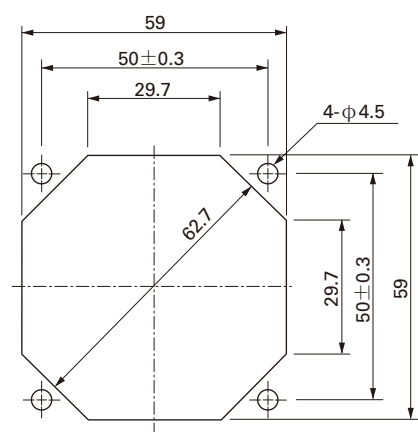
Available in all models.

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)**

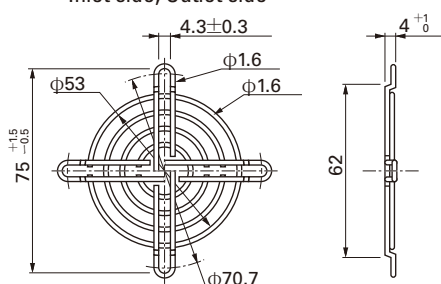
Inlet side, Outlet side

**Options (Unit : mm)****Finger guards**

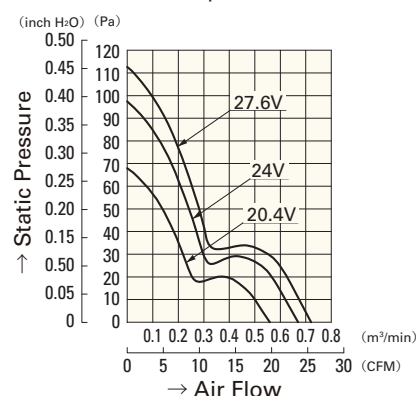
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)

Color

Inlet side, Outlet side

**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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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.

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

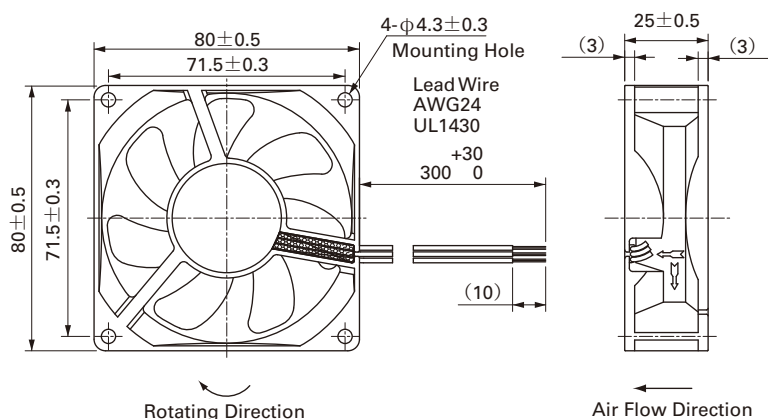
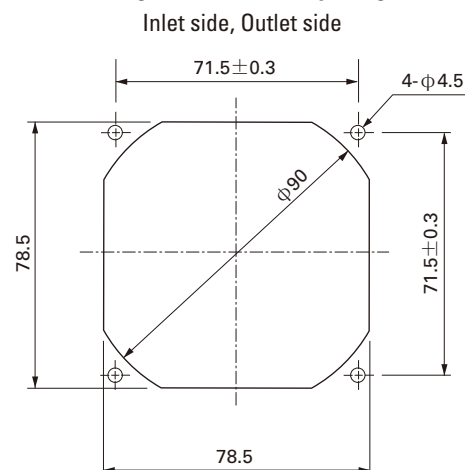
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0824S401	24	20.4 to 27.6	0.16	3.84	4,000	1.2 42.3	58 0.232	38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

Without SensorPulse Sensor

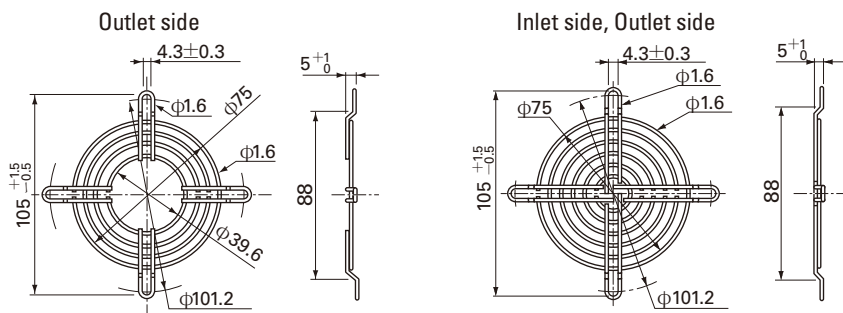
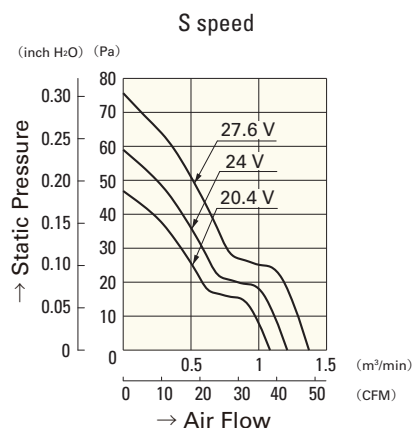
Available in all models.

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

Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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**

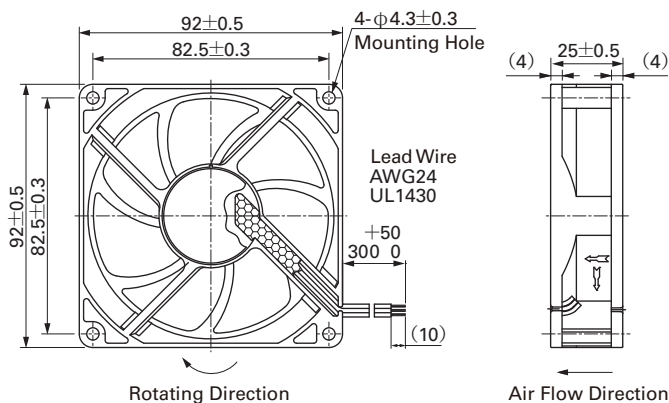
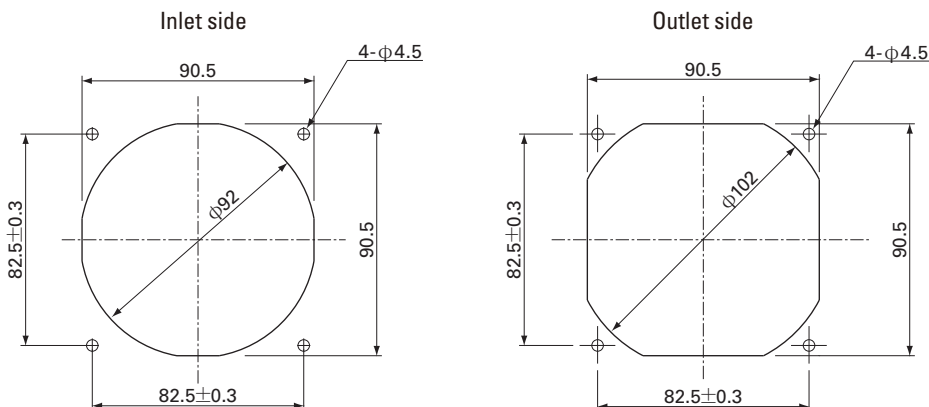
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0924H401	24	20.4 to 27.6	0.13	3.12	3,900	1.45 51.2	66 0.26	42.5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

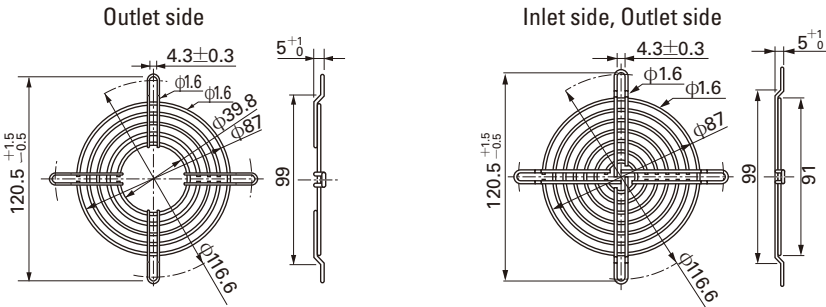
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

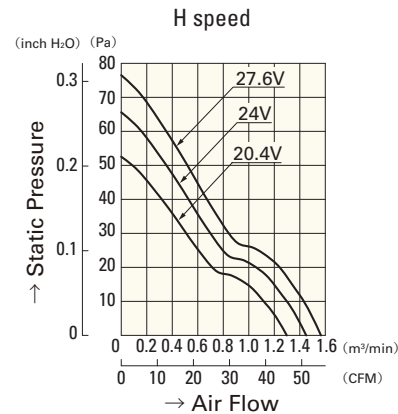
Finger guards

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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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)

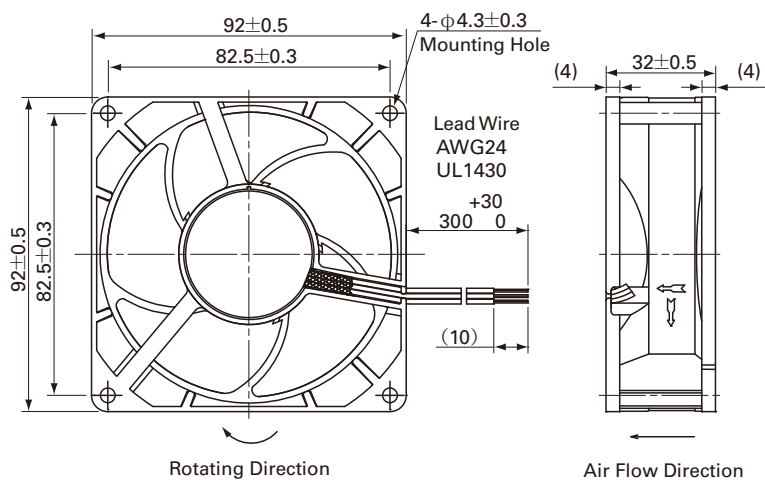
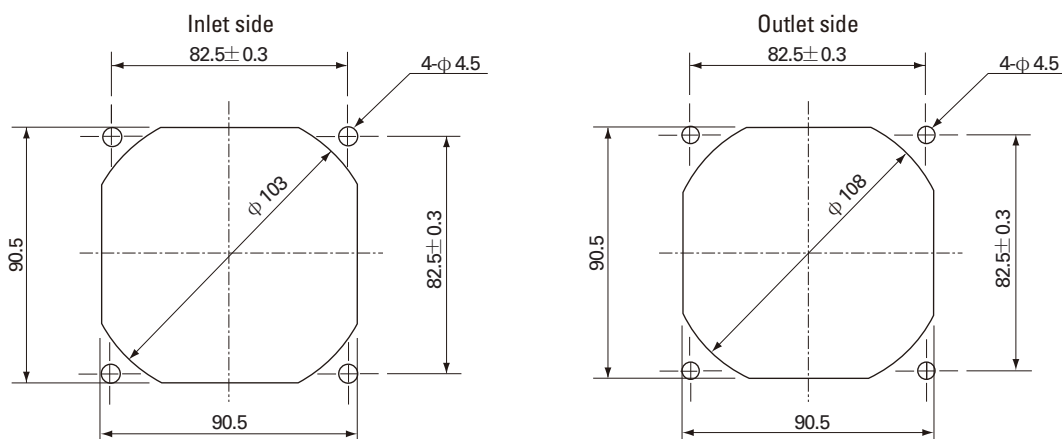
The product can be used in an oil mist environment*

*Environment where machining oil mist is scattered.

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

92 × 92 × 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

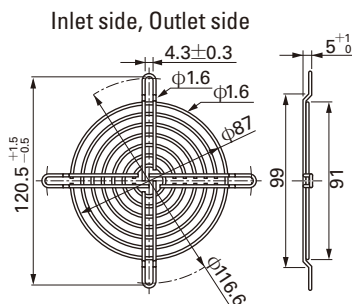
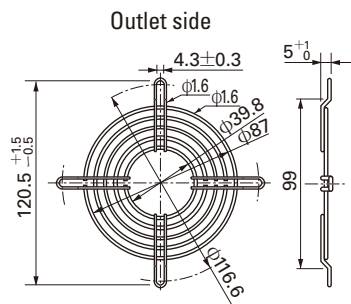
Without Sensor Pulse Sensor Available in all models.
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

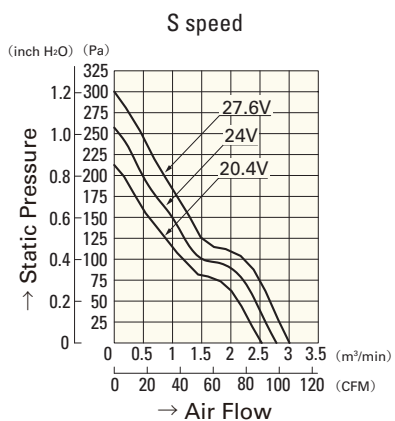
Finger guards

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

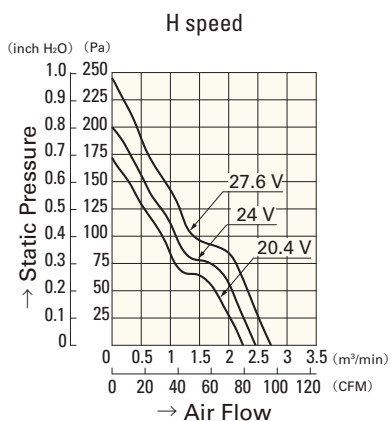
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)



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 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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.

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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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

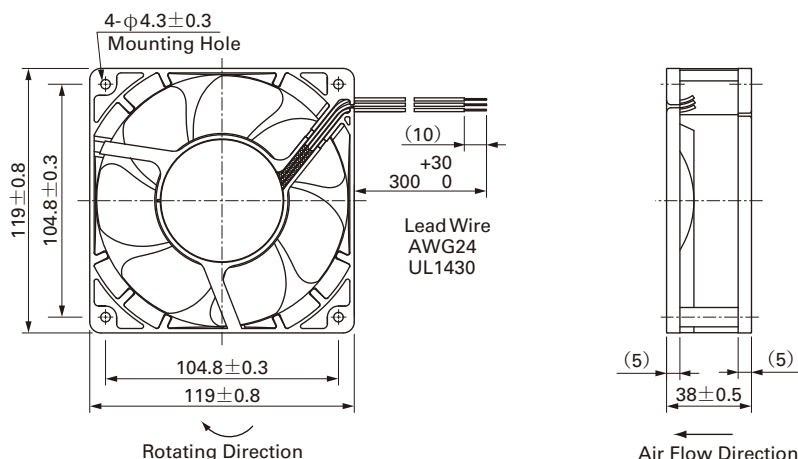
Pulse Sensor

Available in all models.

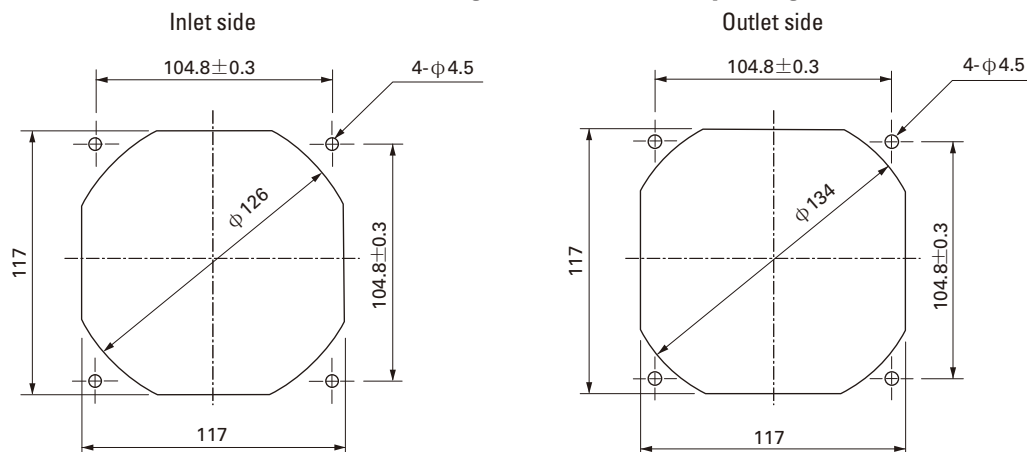
Lock Sensor

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)

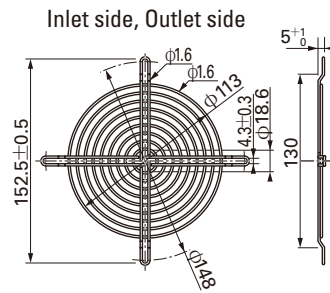
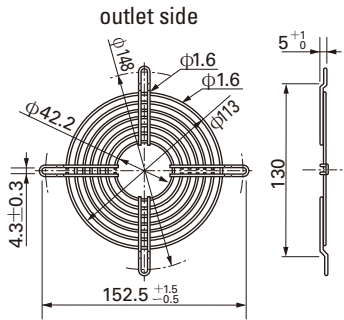


Options (Unit : mm)

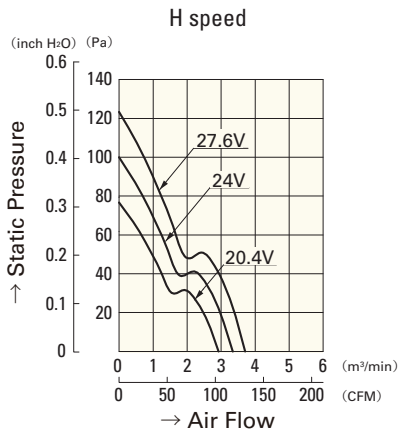
Finger guards

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 297

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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)

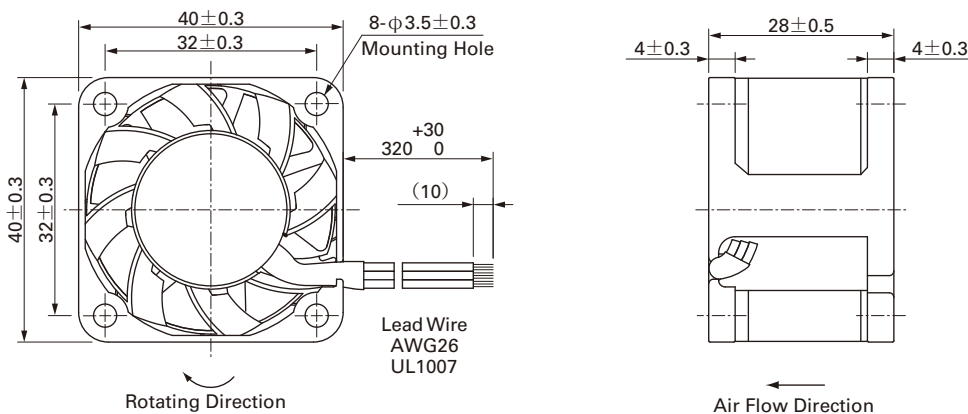
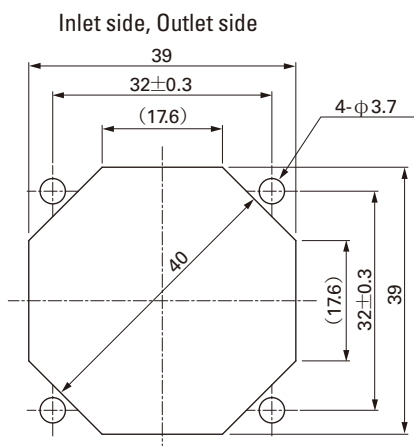
40×40×28mm [Mass : 55g]


Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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.

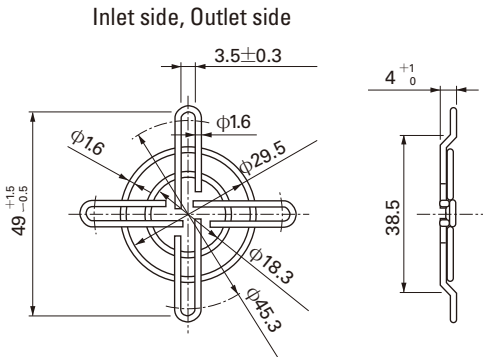
Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)

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


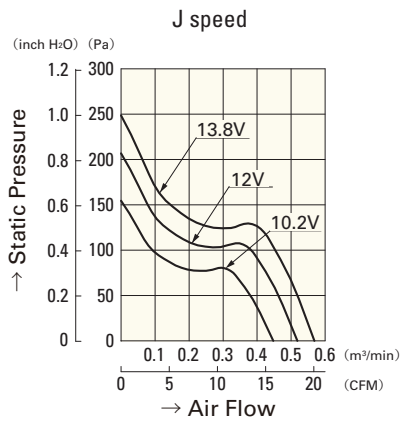
Options (Unit : mm)

Finger guards

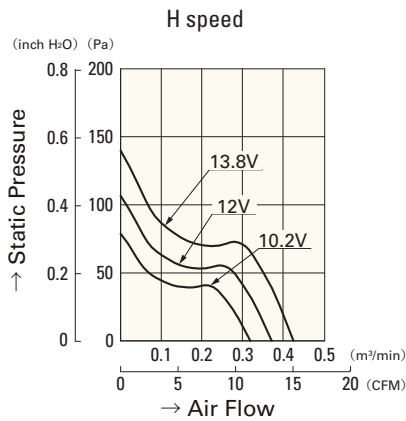
Model : 109-059 Surface treatment : Nickel-chrome plating (silver) Color



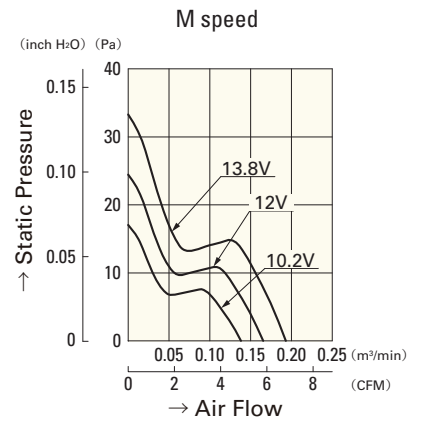
Air Flow - Static Pressure Characteristics



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 297

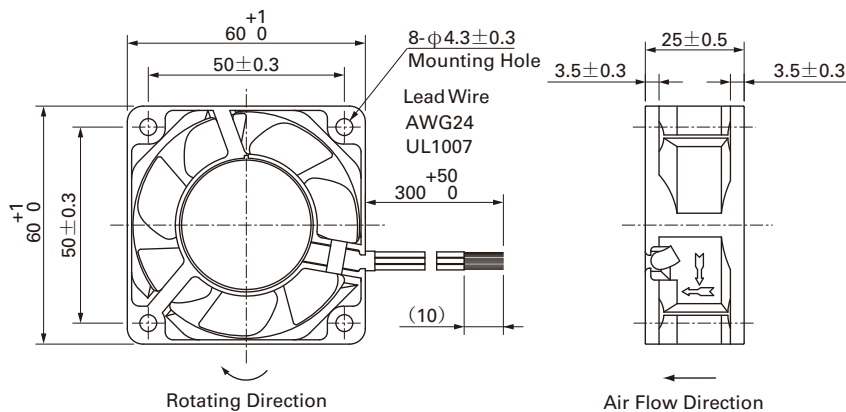
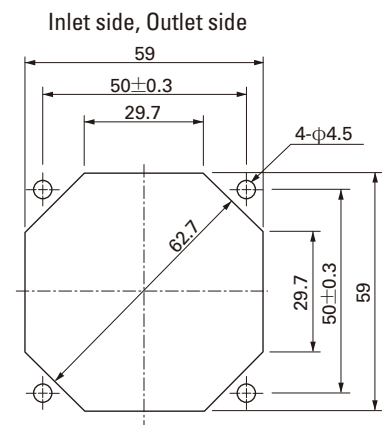
- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109L0612G401	12	10.2 to 13.8	0.24	2.88	5,600	0.78	27.5	87.3	0.351	39
109L0612S401			0.17	2.04	4,600	0.65	23.0	56.8	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	56.8	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 SensorLow speed Sensor

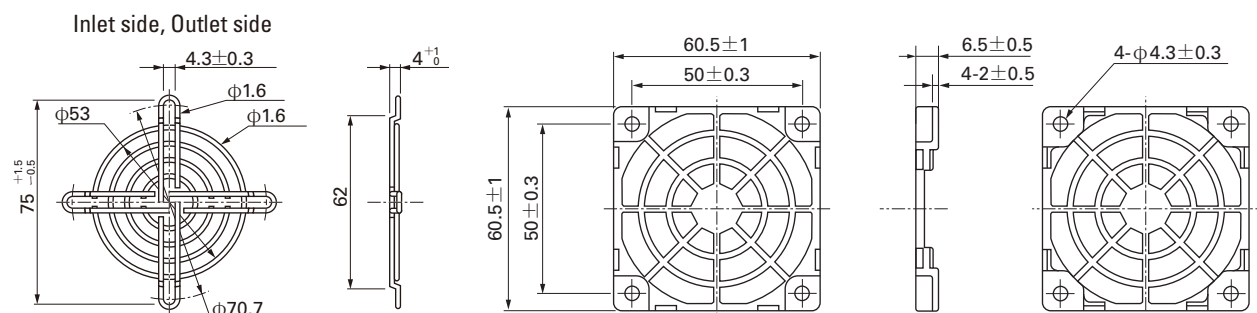
Please inquire as the availability of these functions depend on the model.

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

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

Resin Finger guards

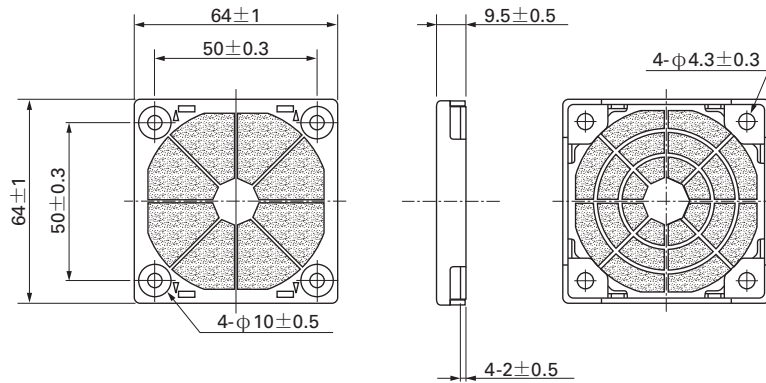
Model : 109-1003G



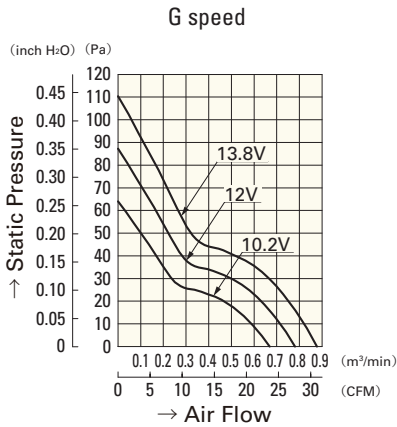
Options (Unit : mm)

Resin filter kits

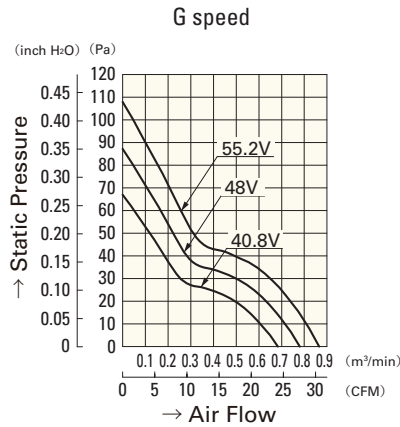
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



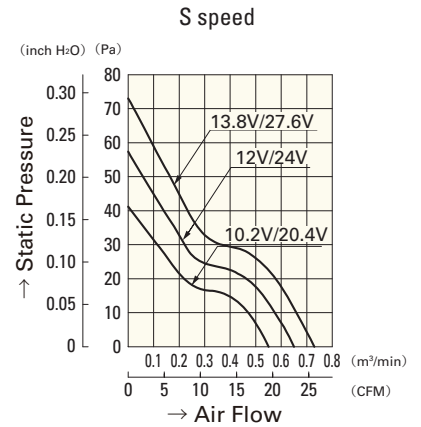
Air Flow - Static Pressure Characteristics



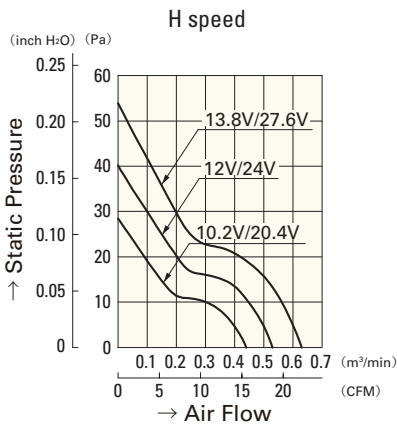
109L0612G401



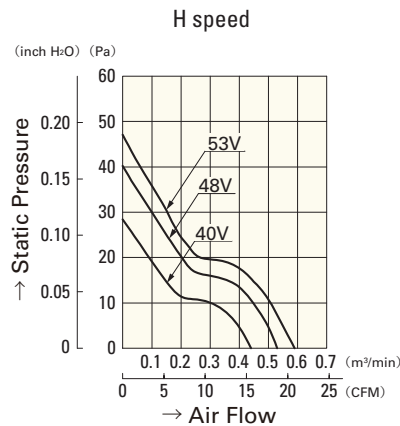
109L0648G401



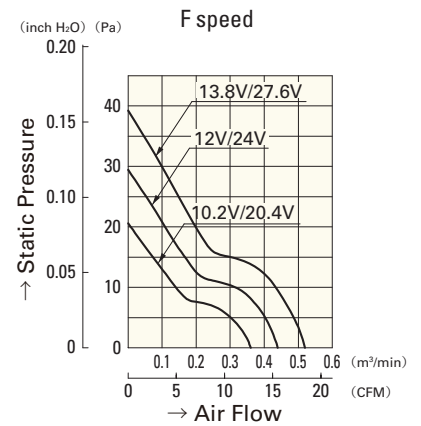
109L0612S401
109L0624S401



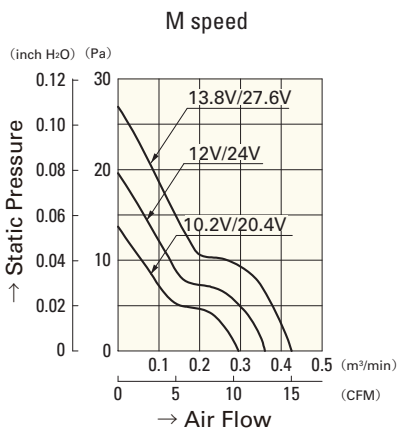
109L0612H401
109L0624H401



109L0648H401



109L0612F401
109L0624F401



109L0612M401
109L0624M401

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 297

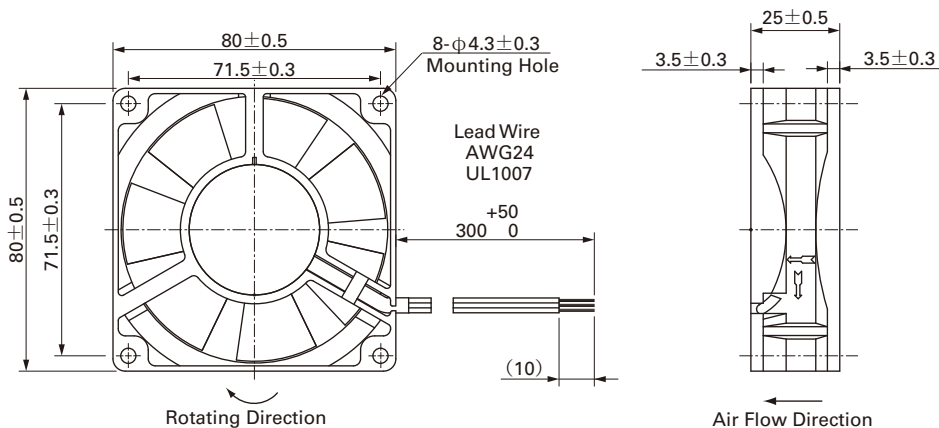
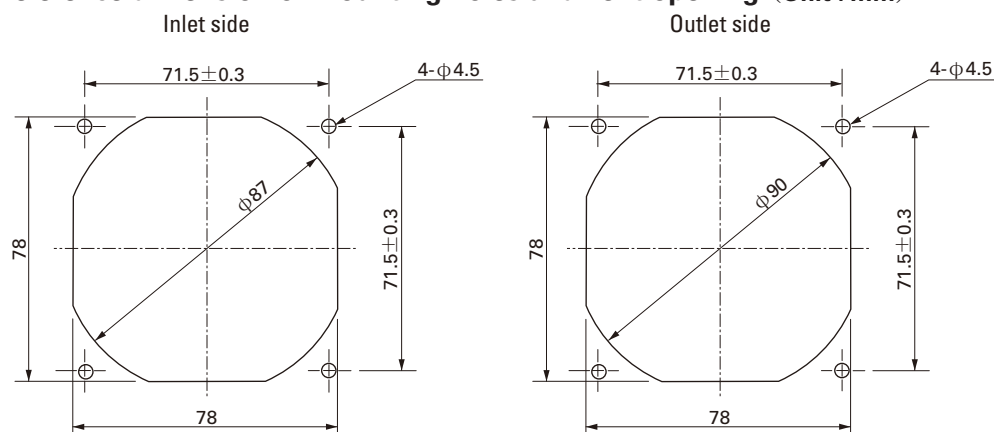
- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
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

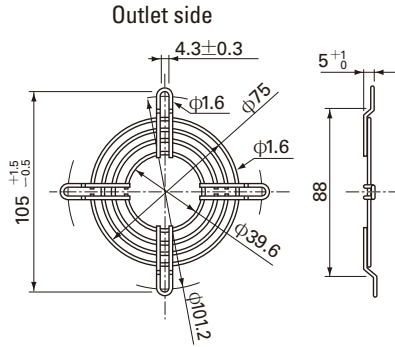
Please inquire as the availability of these functions depend on the model.

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

Options (Unit : mm)

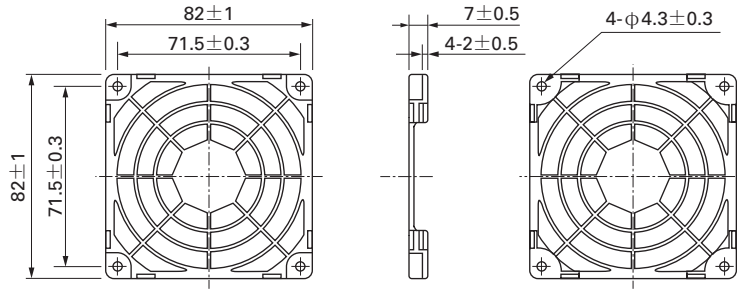
Finger guards

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

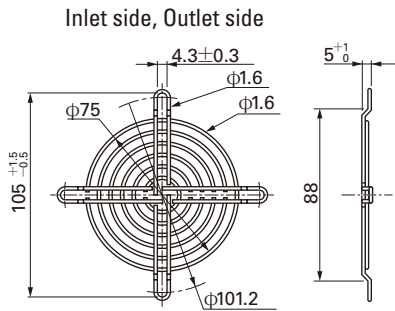


Resin Finger guards

Model : 109-1002G

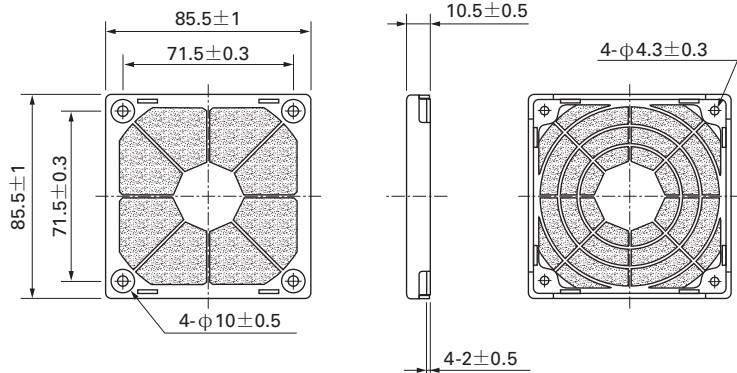


Model : 109-049E Color
Surface treatment : Nickel-chrome plating (silver)
: 109-049H : Cation electropainting (black)

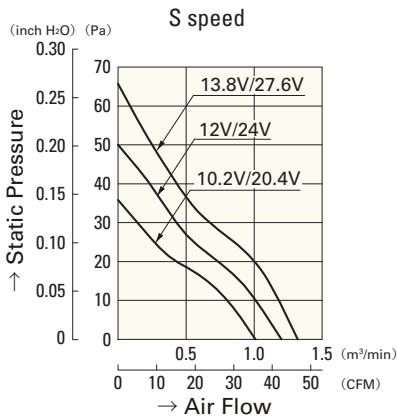


Resin filter kits

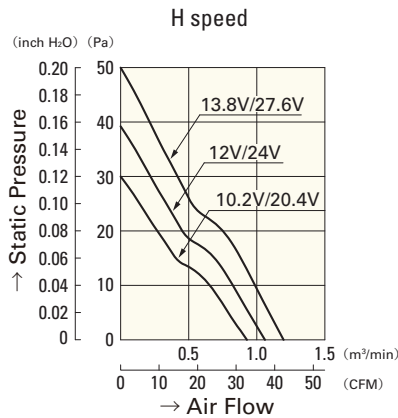
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



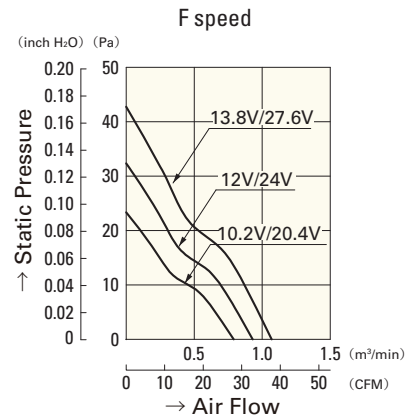
Air Flow - Static Pressure Characteristics



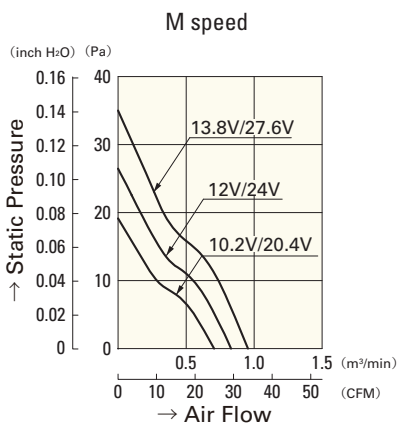
109L0812S401
109L0824S401



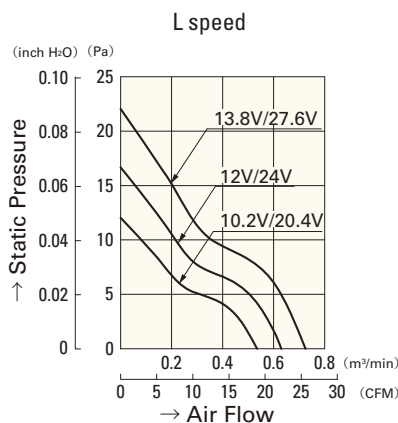
109L0812H401
109L0824H401



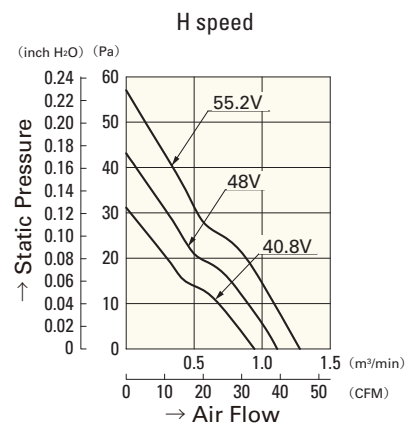
109L0812F401
109L0824F401



109L0812M401
109L0824M401



109L0812L401
109L0824L401



109L0848H401

Long Life Fan 80mm

80mm

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

25mm thick

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

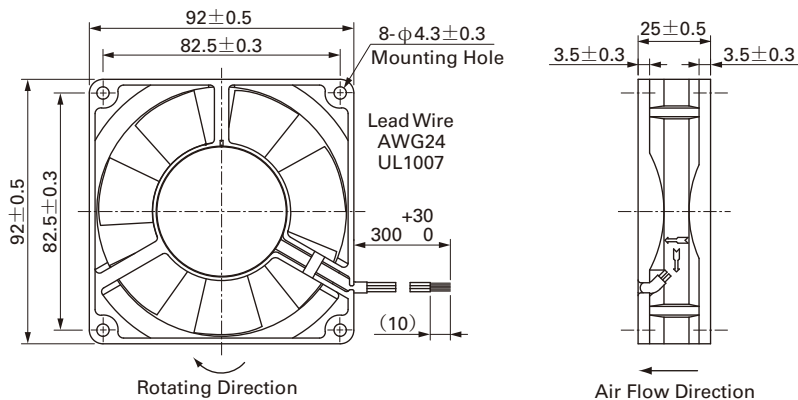
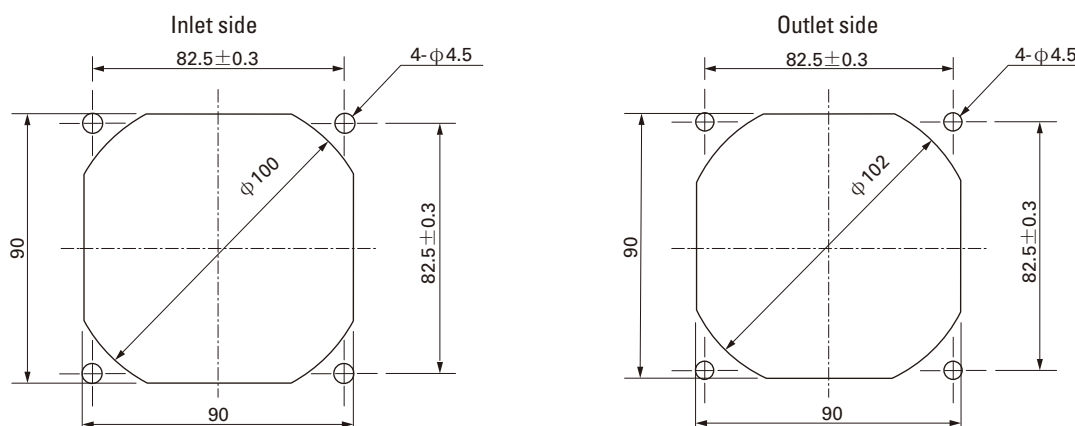
- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕ red ⊖ black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109L0912S401	12	10.2 to 13.8	0.32	3.84	3,500	1.69	59.7	66.6	- 10 to + 70	100,000
109L0912H401			0.21	2.52	2,850	1.38	48.7	45.1		
109L0912F401			0.14	1.68	2,450	1.18	41.7	32.3		
109L0912M401			0.11	1.32	2,100	1.01	35.7	23.5		
109L0912L401			0.08	0.96	1,700	0.80	28.2	16.7		
109L0924H401	24	20.4 to 27.6	0.12	2.88	2,850	1.38	48.7	45.1		
109L0924F401			0.08	1.92	2,450	1.18	41.7	32.3		
109L0924M401			0.06	1.44	2,100	1.01	35.7	23.5		
109L0924L401			0.05	1.2	1,700	0.80	28.2	16.7		
109L0948C401	48	43 to 53	0.1	4.8	3,400	1.65	58.3	64.2		80,000
109L0948H401		40.8 to 55.2	0.06	2.88	2,850	1.38	48.7	45.1		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)**

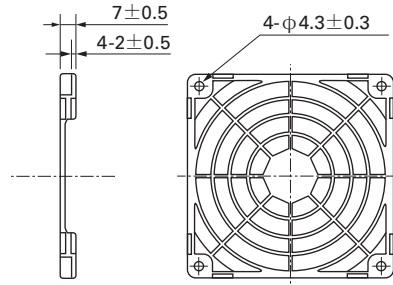
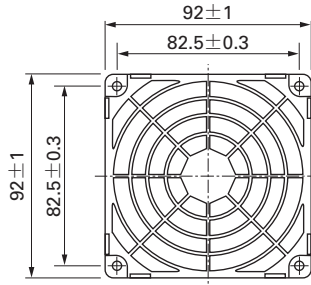
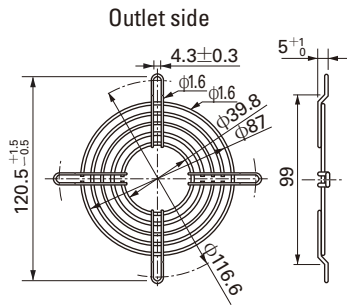
Options (Unit : mm)

Finger guards

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

Resin Finger guards

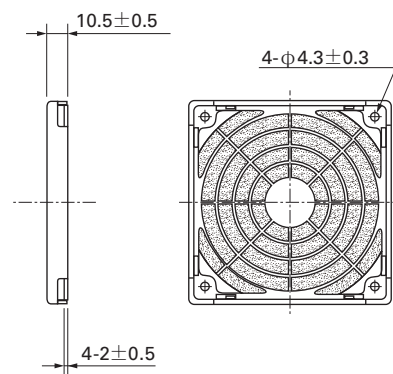
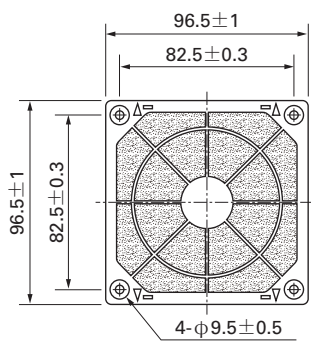
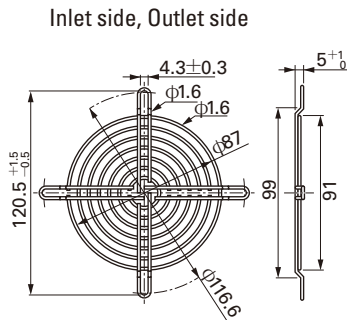
Model : 109-1001G



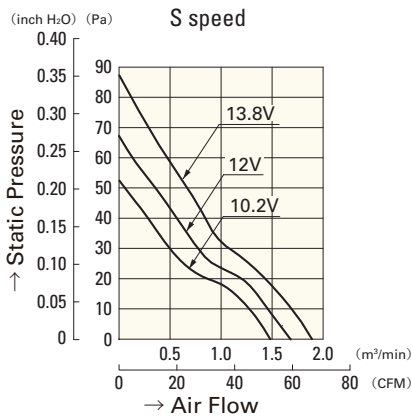
Model : 109-099E Color Surface treatment : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)

Resin filter kits

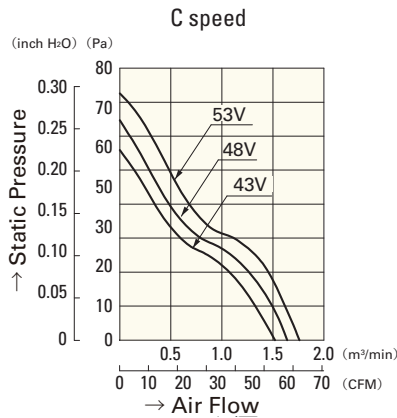
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



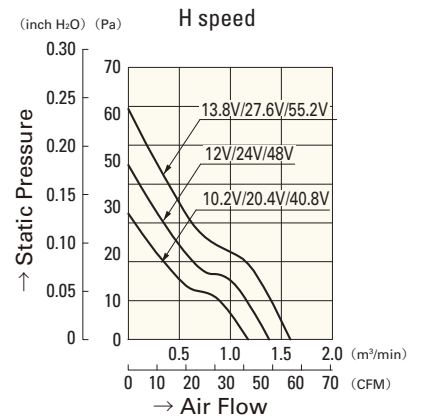
Air Flow - Static Pressure Characteristics



109L0912S401



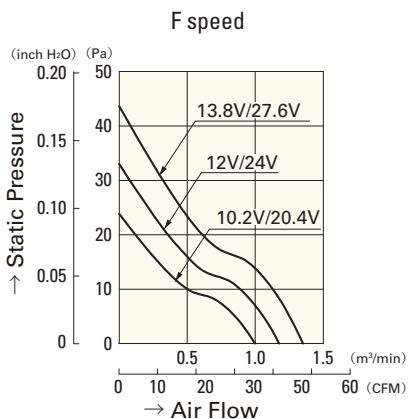
109L0948C401



109L0912H401

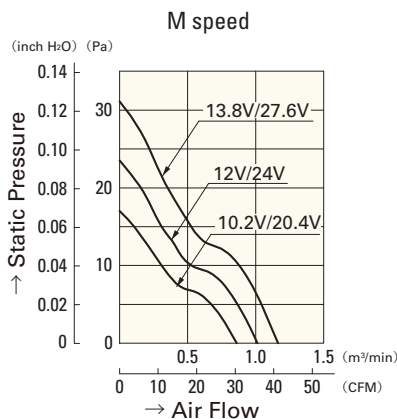
109L0924H401

109L0948H401



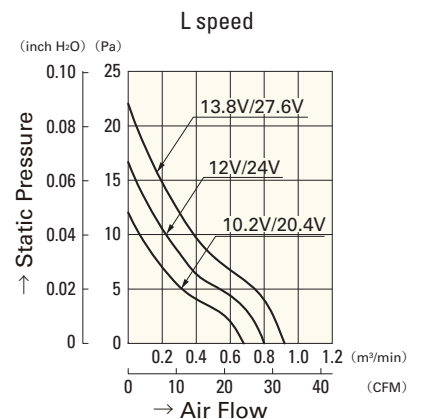
109L0912F401

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 297

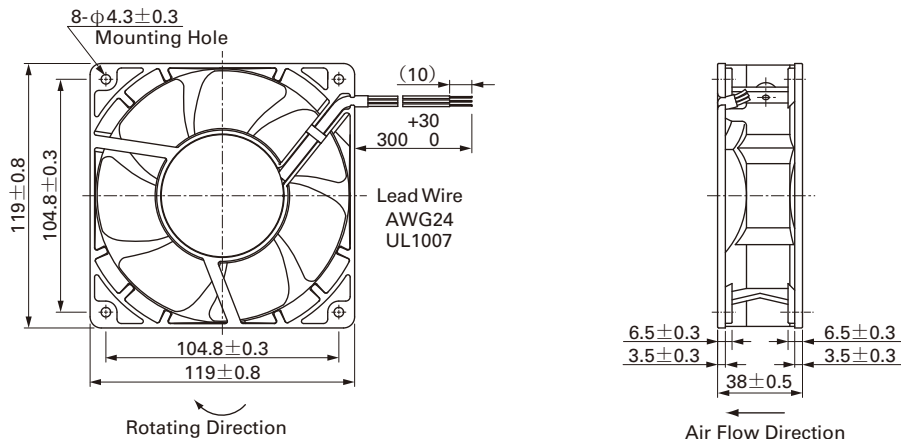
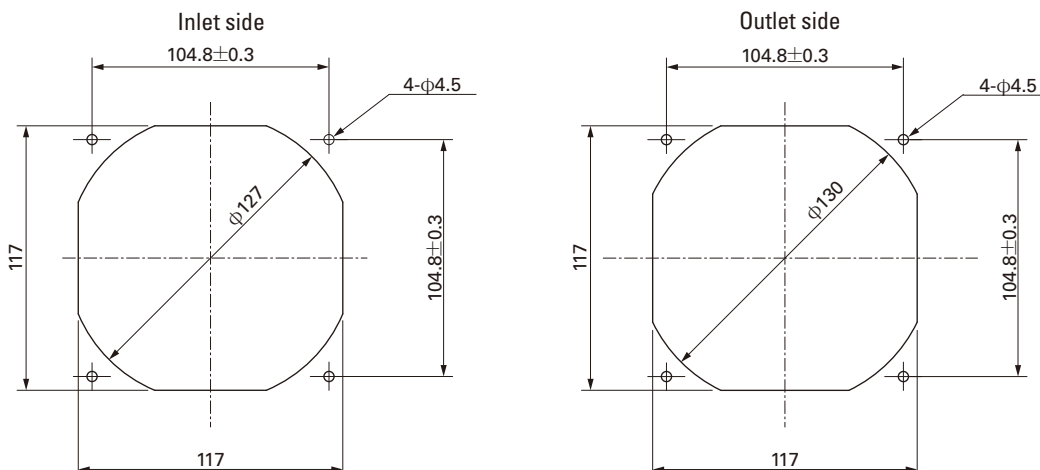
- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		
9LB1224S101	24	20.4 to 27.6	0.46	11.04	3,500	3.88 137.0	120.8 0.48	48		100,000
9LB1224H101			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		200,000
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**

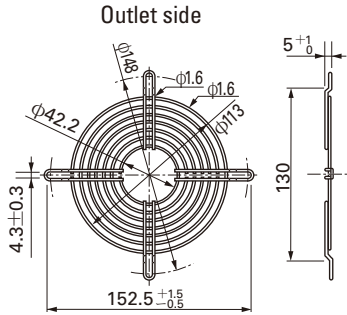
Please inquire as the availability of these functions depend on the model.

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

Options (Unit : mm)

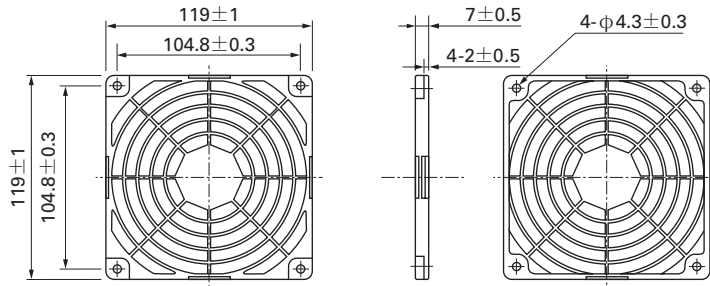
Finger guards

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



Resin Finger guards

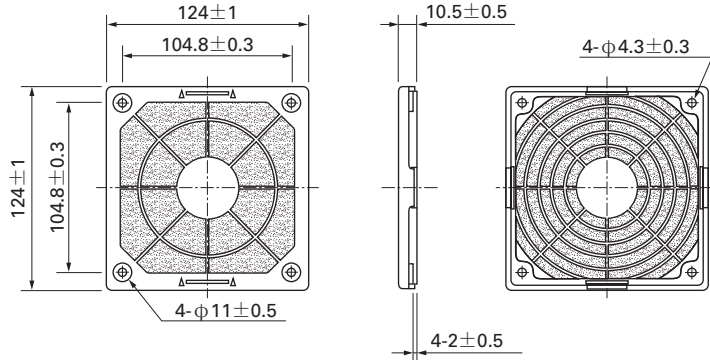
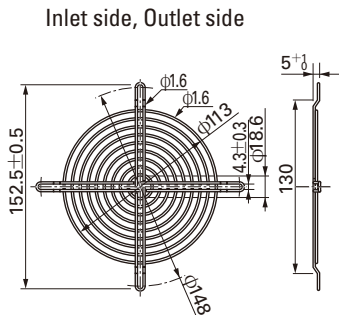
Model : 109-1000G



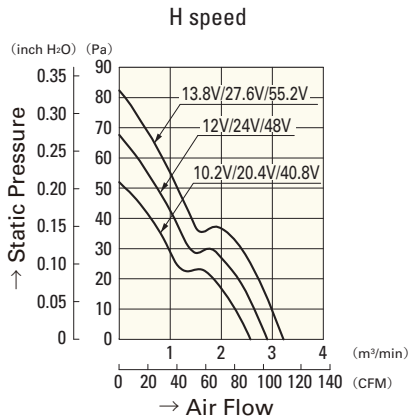
Model : 109-019E Surface treatment : Nickel-chrome plating (silver) Color
: 109-019K : Cation electropainting (black)

Resin filter kits

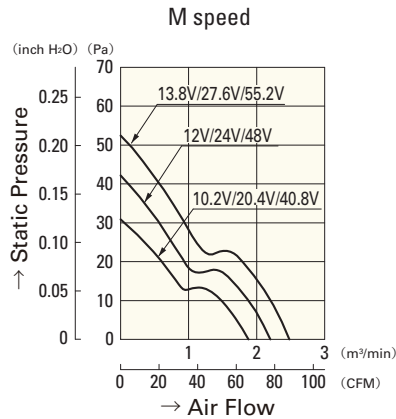
Model : 109-1000F13 (13PPI), 109-1000F20 (20PPI)
: 109-1000F30 (30PPI), 109-1000F40 (40PPI)



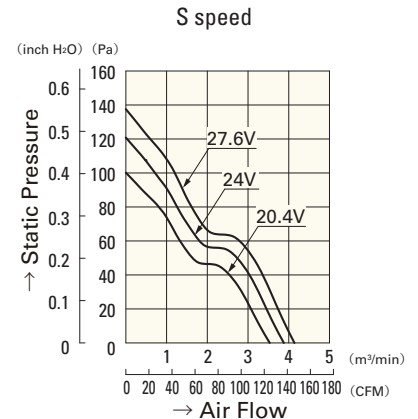
Air Flow - Static Pressure Characteristics



9LB1212H101
9LB1224H101
9LB1248H101



9LB1212M101
9LB1224M101
9LB1248M101



9LB1224S101

Long Life Fan 120mm

120mm

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 297

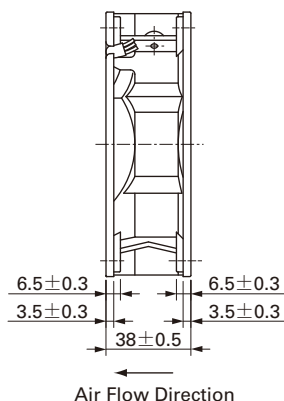
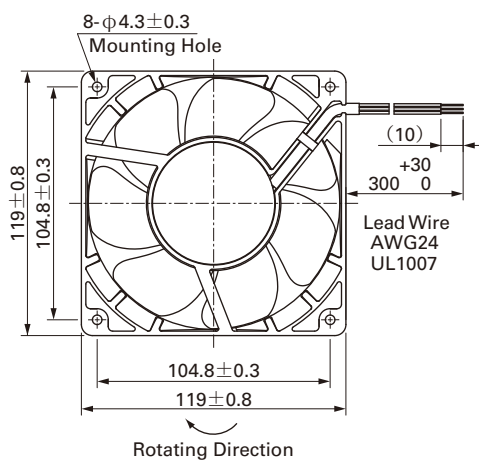
- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature ... -30°C to +70°C (Non-condensing)

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

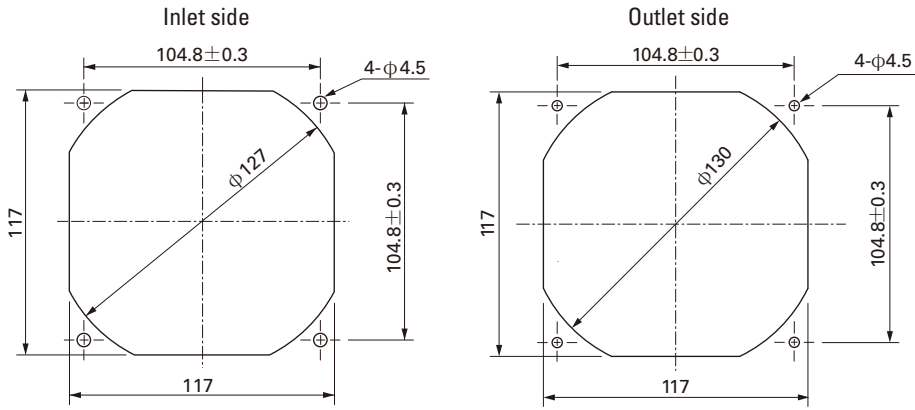
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GL1212G101	12	10.2 to 13.8	0.98	11.8	3,600	3.88 137	135 0.542	49	- 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 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)



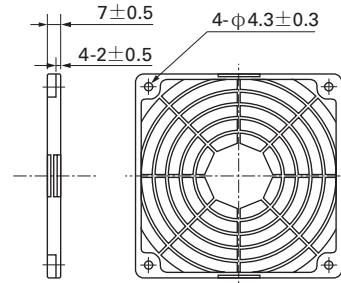
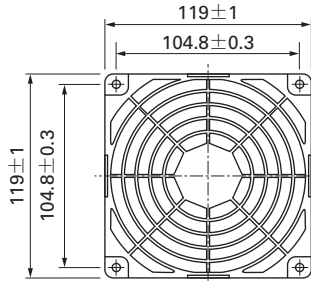
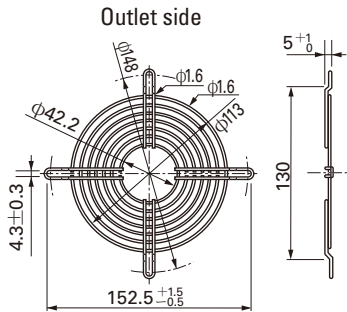
Options (Unit : mm)

Finger guards

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

Resin Finger guards

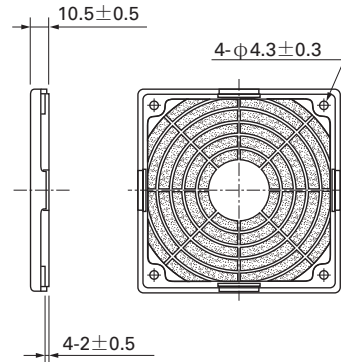
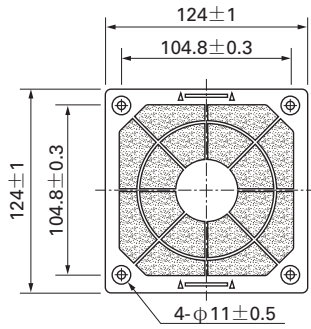
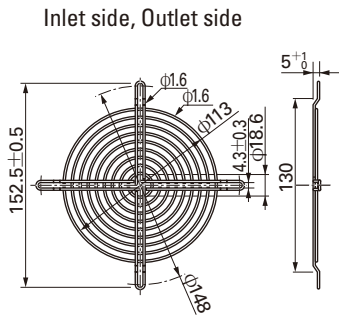
Model : 109-1000G

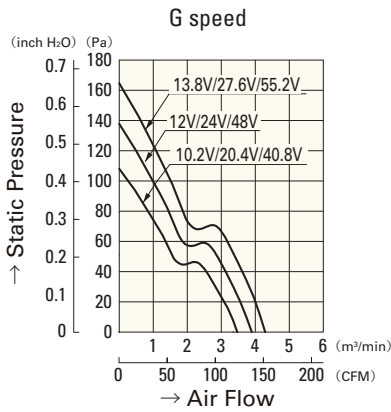


Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
 : 109-019K : Cation electropainting (black)

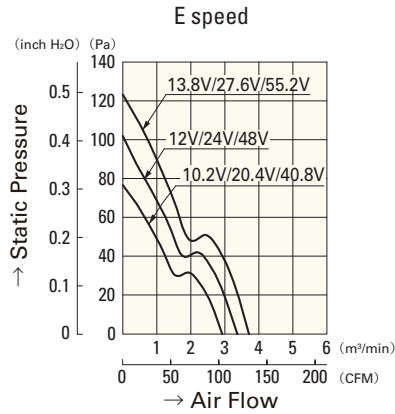
Resin filter kits

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

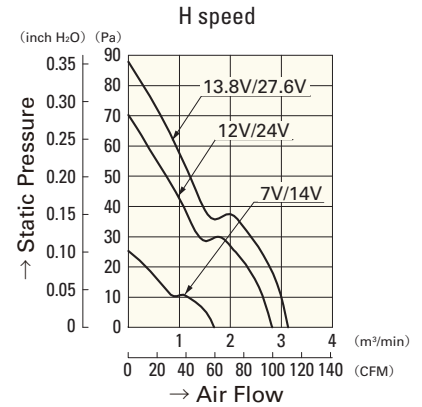


120mm sq.**San Ace 120L****120 × 120 × 38mm** [Mass : 370g]**Air Flow - Static Pressure Characteristics**

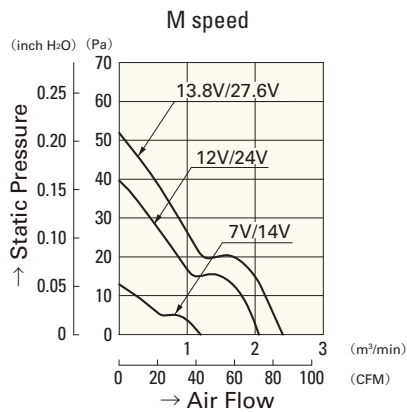
9GL1212G101
9GL1224G101
9GL1248G101



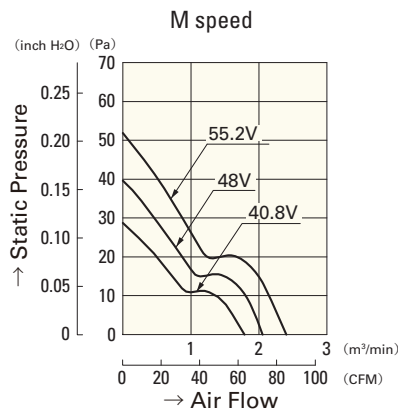
9GL1212E101
9GL1224E101
9GL1248E101



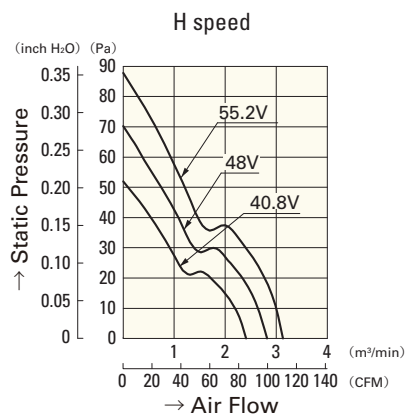
9GL1212H101
9GL1224H101



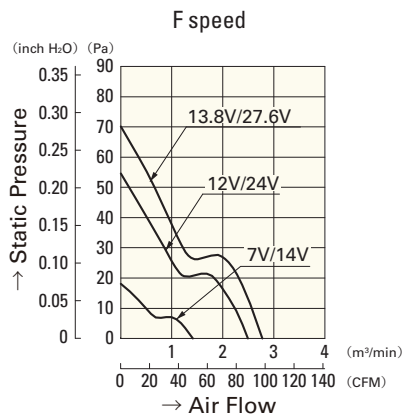
9GL1212M101
9GL1224M101



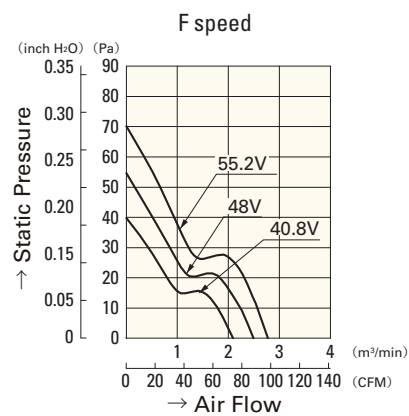
9GL1248M101



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 297

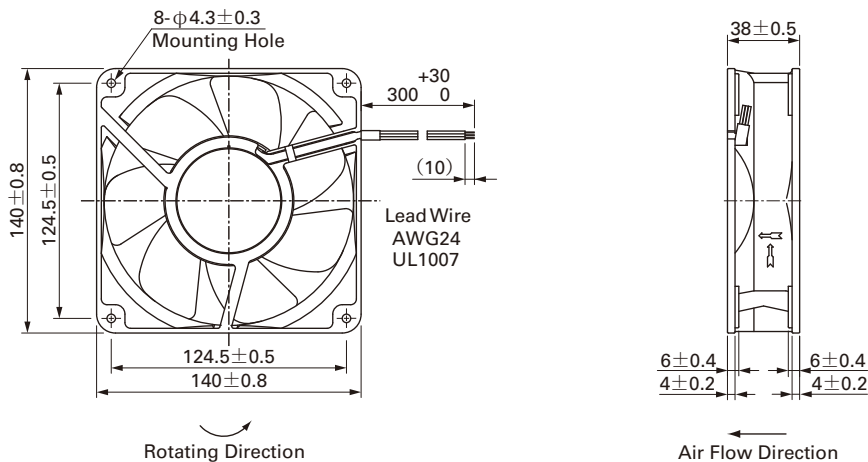
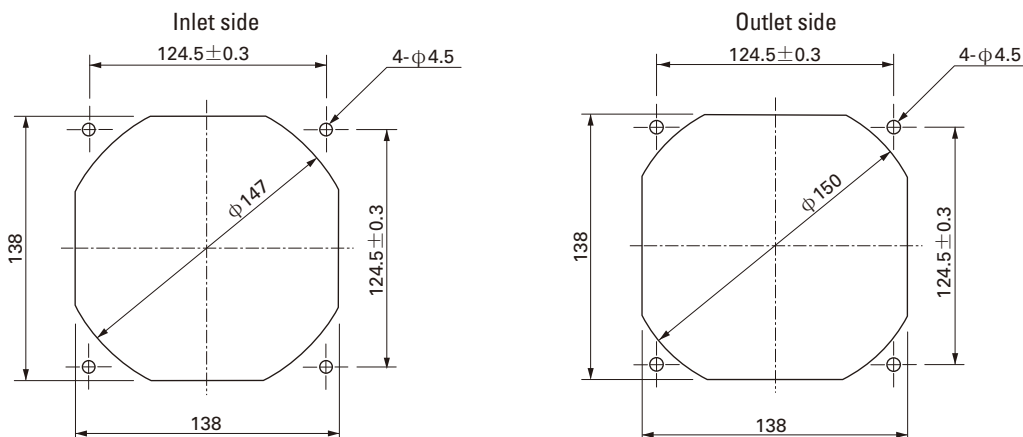
- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model(L10:Survival rate: 90% at 60°C ,
rated voltage,and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue (Sensor) yellow
- Storage Temperature -30°C to +70°C (Non-condensing)

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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109L1412H101	12	10.2 to 13.8	0.73	8.76	2,600	4.6 159	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	4.6 159	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	4.6 159	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.

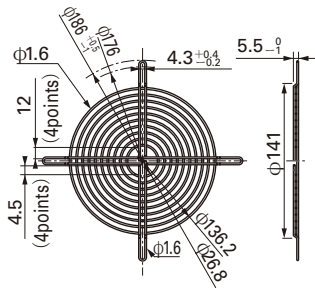
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

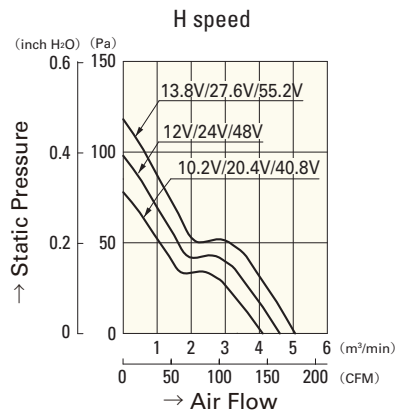
Finger guards

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

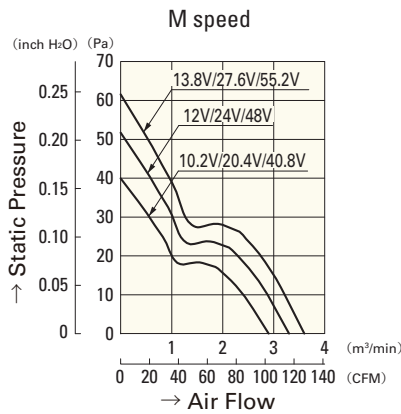
Inlet side, Outlet side



Air Flow - Static Pressure Characteristics



109L1412H101
109L1424H101
109L1448H101



109L1412M101
109L1424M101
109L1448M101

Long Life Fan 140mm

140mm

140mm sq.**San Ace 140L**

38mm thick

51mm thick(LB type)


General Specifications
With a pulse sensor
 Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Expected Life 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)

140×140×51mm [Mass : 610g]**LB type****Specifications**

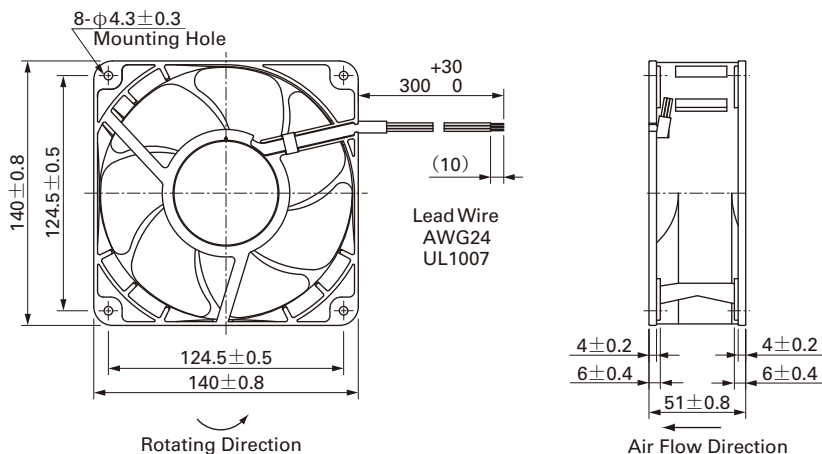
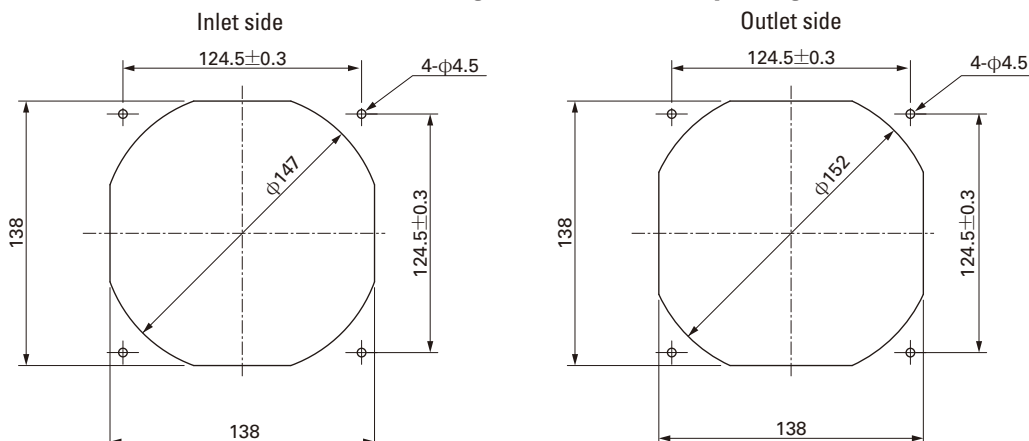
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9LB1412S501	12	10.2 to 13.8	2.7	32.4	4,200	8.1 286	240 0.964	57	- 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.

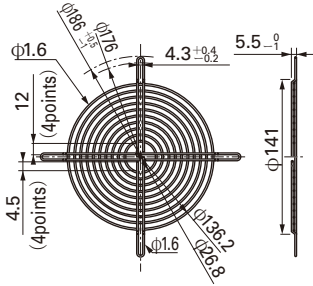
Dimensions (Unit : mm)**Reference dimension of mounting holes and vent opening (Unit : mm)**

Options (Unit : mm)

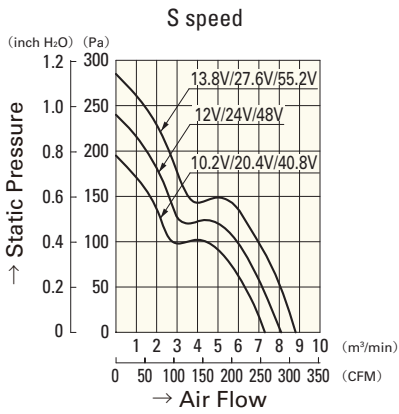
Finger guards

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

Inlet side, Outlet side



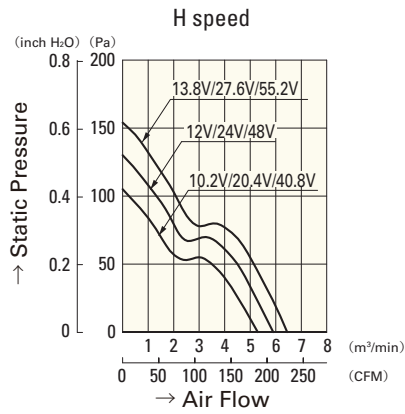
Air Flow - Static Pressure Characteristics



9LB1412S501

9LB1424S501

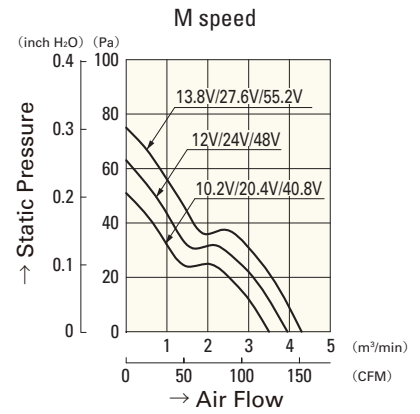
9LB1448S501



9LB1412H501

9LB1424H501

9LB1448H501



9LB1412M501

9LB1424M501

9LB1448M501

Long Life Fan 140mm

140mm

$\phi 172$ 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 297

- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Expected Life 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 × 150mm × 51mm [Mass : 760g] **SideCut type**

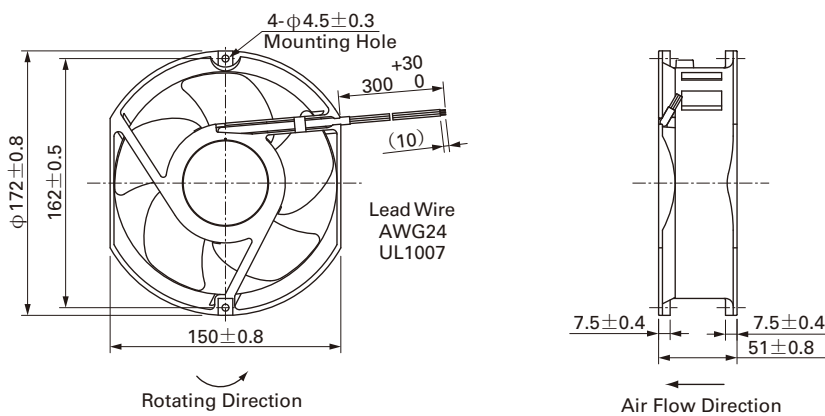
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

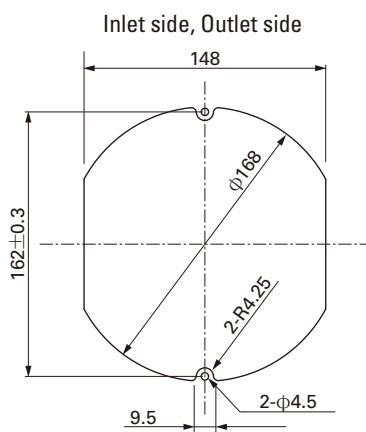
Without Sensor **Pulse Sensor** Available in all models.**Lock Sensor****Low speed Sensor**

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)



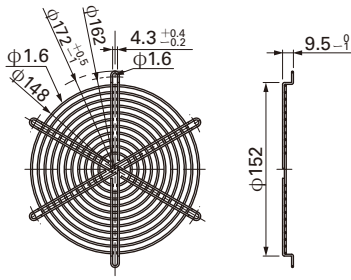
Options (Unit : mm)

Finger guards

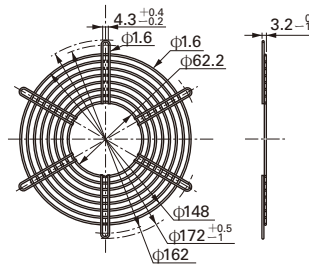
Model : 109-319E Surface treatment : Nickel-chrome plating (silver) Color
: 109-319H : Cation electropainting (black)

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

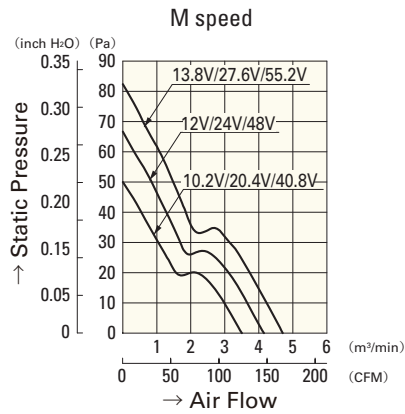
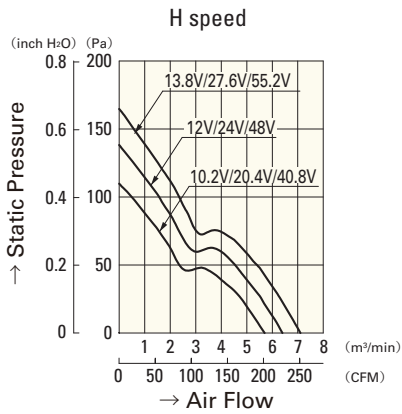
Inlet side, Outlet side



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 297

- Material Frame: Aluminum, Impeller:Plastics (Flammability: UL94V-1)
- Expected Life 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

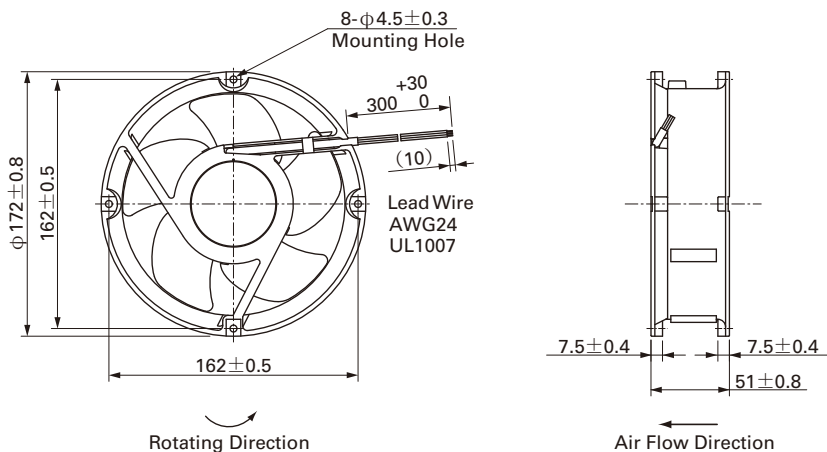
Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

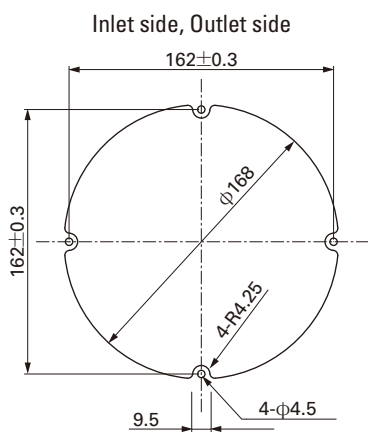
Without Sensor **Pulse Sensor** Available in all models.

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)



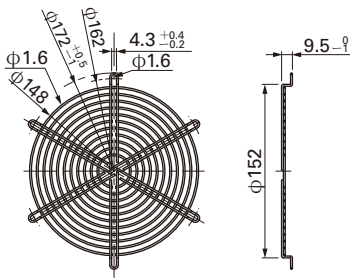
Options (Unit : mm)

Finger guards

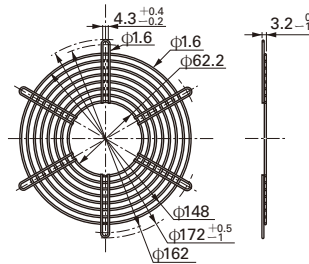
Model : 109-319E Surface treatment : Nickel-chrome plating (silver) Color
: 109-319H : Cation electropainting (black)

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

Inlet side, Outlet side

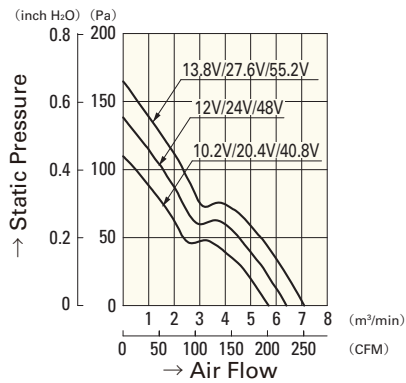


Outlet side

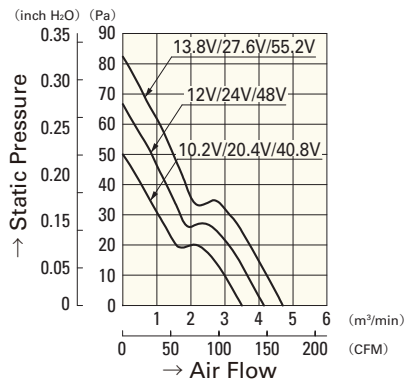


Air Flow - Static Pressure Characteristics

H speed



M speed



109L1712H501

109L1724H501

109L1748H501

109L1712M501

109L1724M501

109L1748M501

$\phi 100$ mm

San Ace C100

25mm thick



General Specifications **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Aluminum,
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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)

$\phi 100$ mm × 25mm [Mass : 150g] 

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

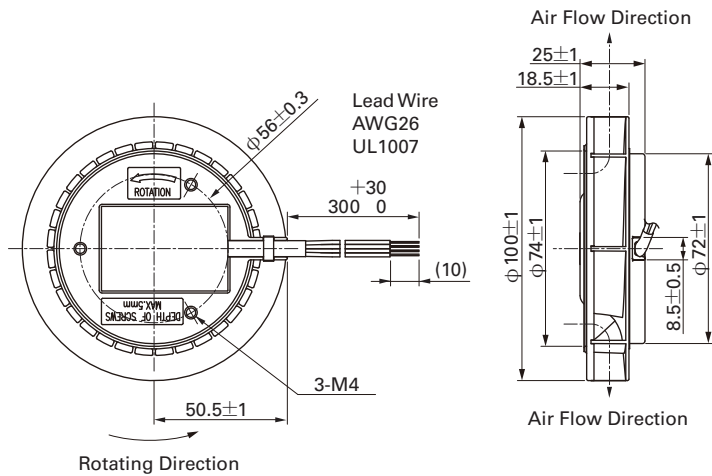
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle [※] [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9TM48P4H01	48	36 to 60	100	0.22	10.56	6,400	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.

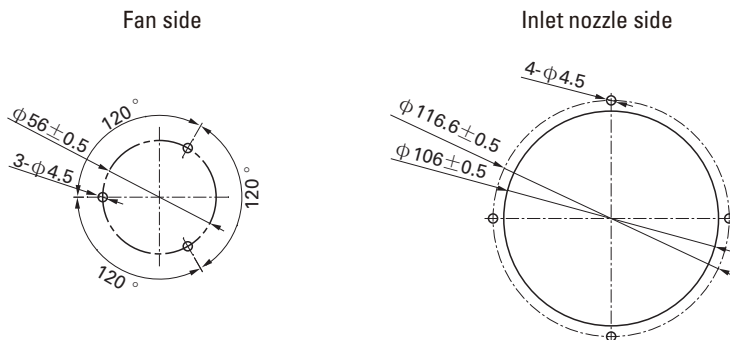
※ PWM Frequency : 25kHz

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

Dimensions (Unit : mm)



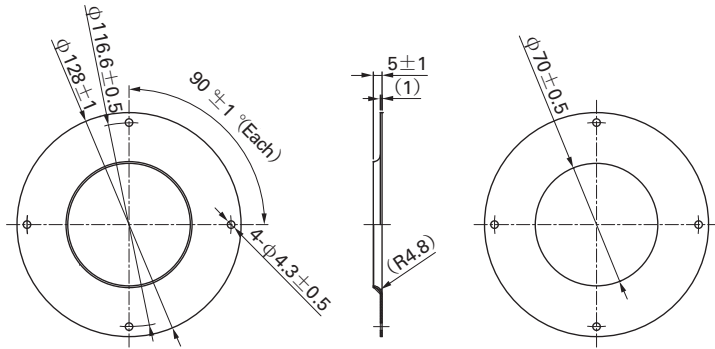
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

Inlet nozzle

Model : 109-1080

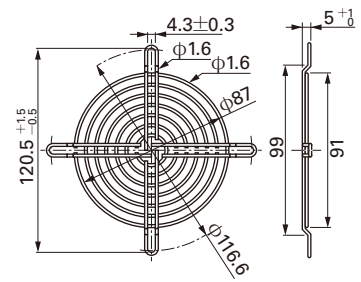


Finger guards

Model : 109-099E
: 109-099H

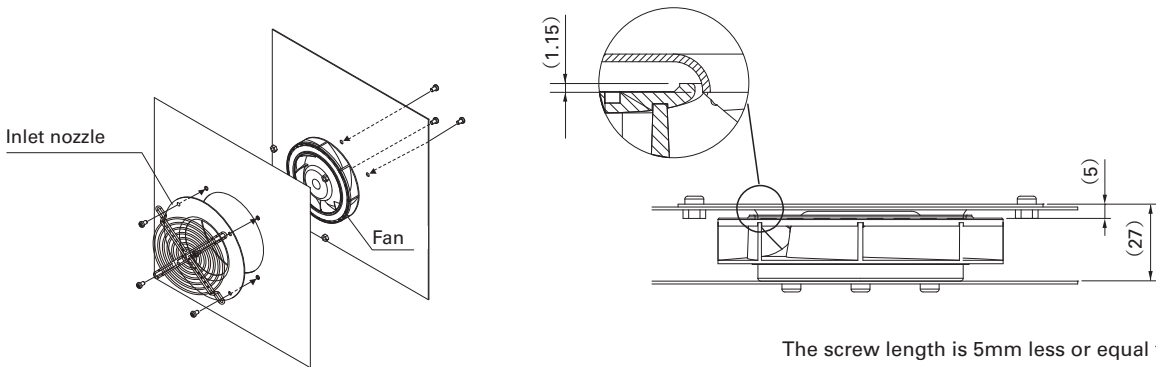
Color
Surface treatment : Nickel-chrome plating (silver)
: Cation electropainting (black)

Inlet side, Outlet side



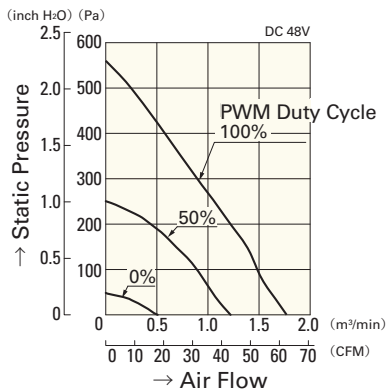
Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

Reference diagram for mounting



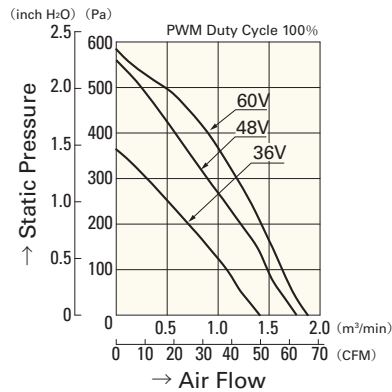
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



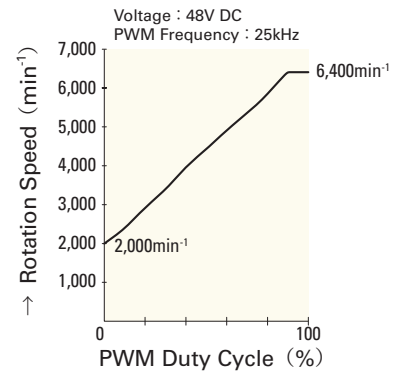
9TM48P4H01

Operating Voltage Range



9TM48P4H01

PWM Duty - Speed Characteristics Example

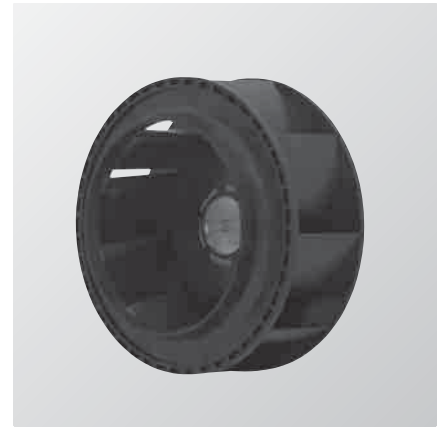


9TM48P4H01

$\phi 133$ mm

San Ace C133

91mm thick



■ **General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Aluminum,
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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.

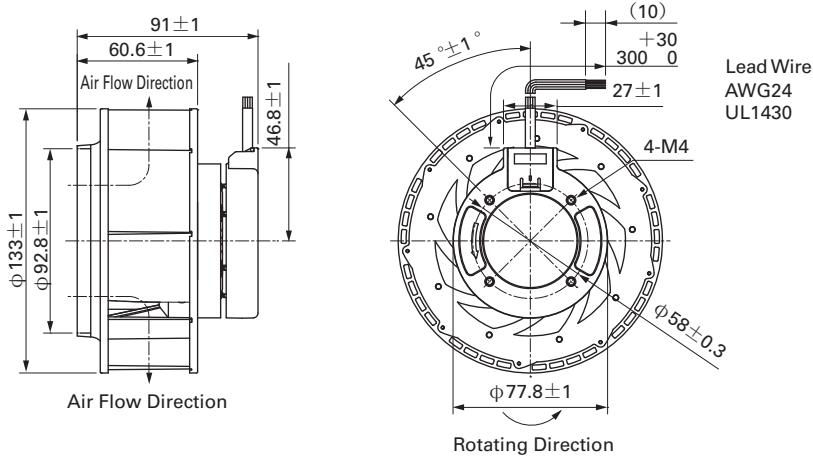
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle [duty cycle (%)]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9TJ24P0H61	24	20.4 to 27.6	100	1.2	28.8	4,150	6.39 226	395 1.59	61	-10 to +70	40,000
9TJ48P0H01	48	36 to 72	100	0.55	26.4	4,150	6.39 225	395 1.59	61		

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

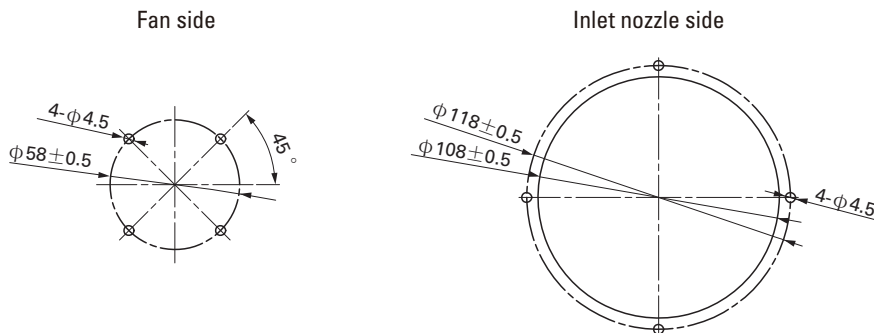
※ PWM Frequency : 25kHz

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

■ Dimensions (Unit : mm)



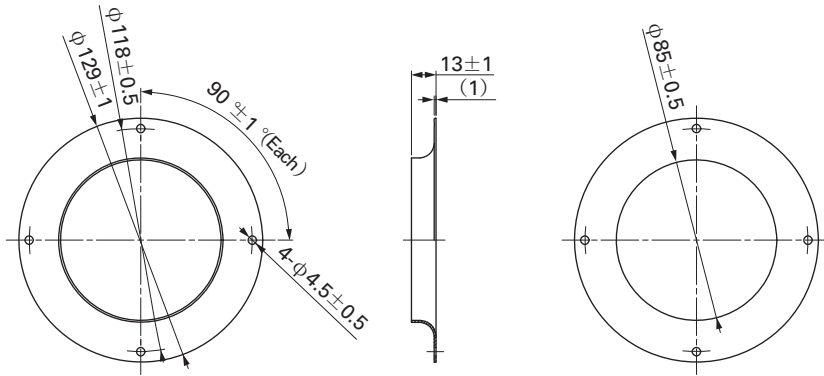
■ Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

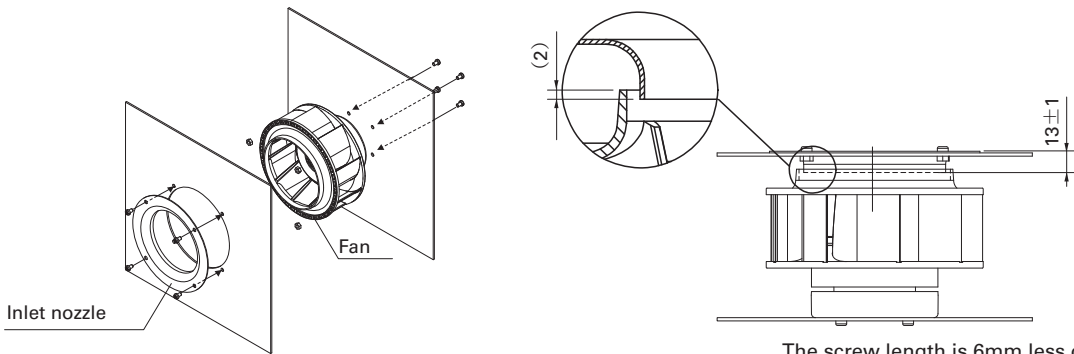
Inlet nozzle

Model : 109-1069



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

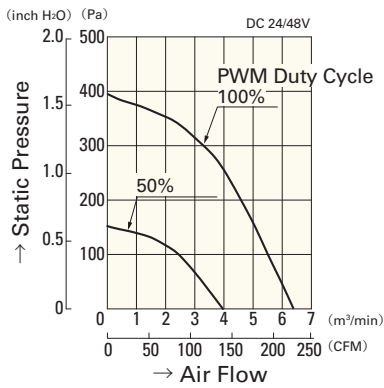
Reference diagram for mounting



The screw length is 6mm less or equal from fan edge side.

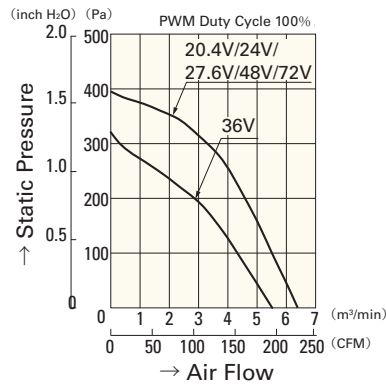
Air Flow - Static Pressure Characteristics

PWM Duty Cycle



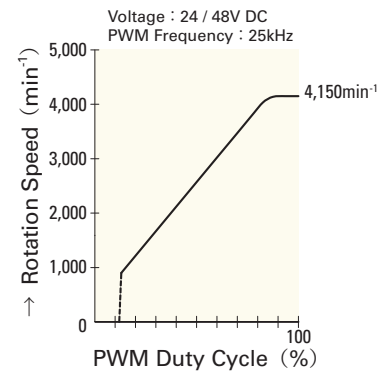
9TJ24P0H61
9TJ48P0H01

Operating Voltage Range



9TJ24P0H61
9TJ48P0H01

PWM Duty Speed Characteristics Example



9TJ24P0H61
9TJ48P0H01

$\phi 150$ mm

San Ace C150

35mm thick



■ **General Specifications** **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ⇨ Refer to Page 299

- Material Frame: Aluminum,
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life 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 cycle ⁽¹⁾ [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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		

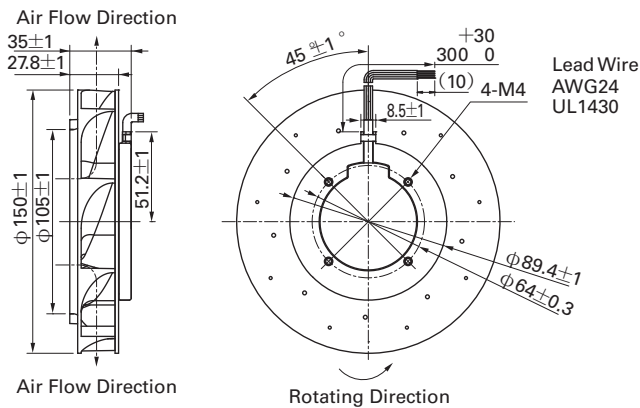
Note 1 : Fan does not rotate when PWM duty cycle is 0%.

Note 2 : Max input is 9TN24P1H01 : 21.4W, 9TN48P1H01 : 22W.

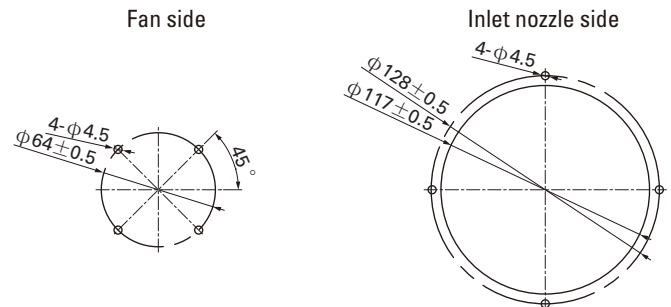
※PWM Frequency : 25kHz

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

Dimensions (Unit : mm)



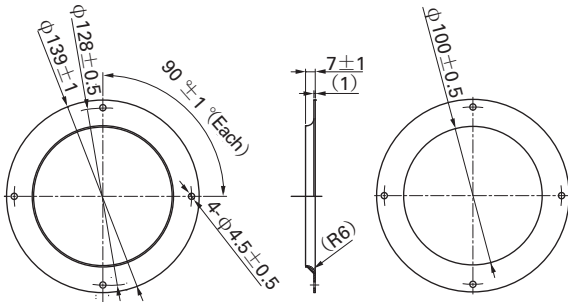
Reference dimension of mounting holes and vent opening (Unit : mm)



Options (Unit : mm)

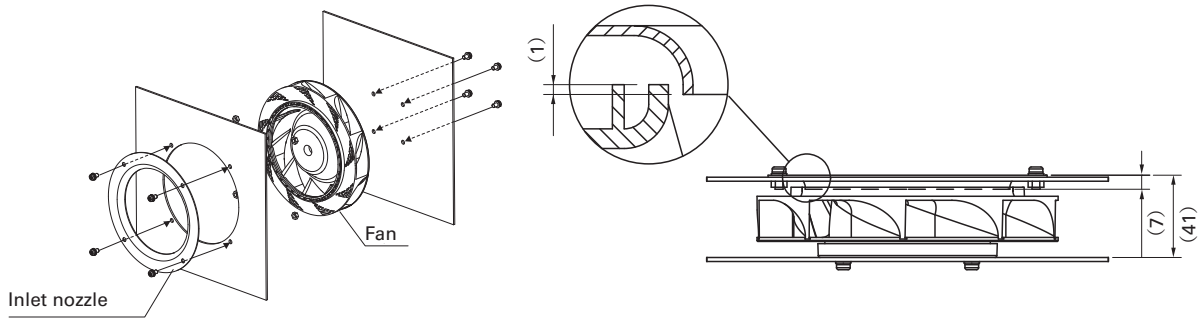
Inlet nozzle

Model : 109-1081



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

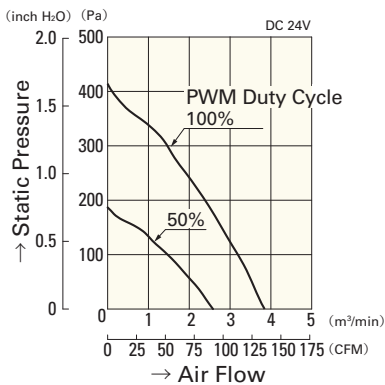
Reference diagram for mounting



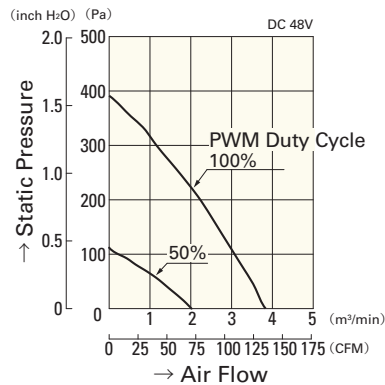
Screw length should be 4 mm or more but not exceeding 6 mm from fan edge face.

Air Flow - Static Pressure Characteristics

PWM Duty Cycle

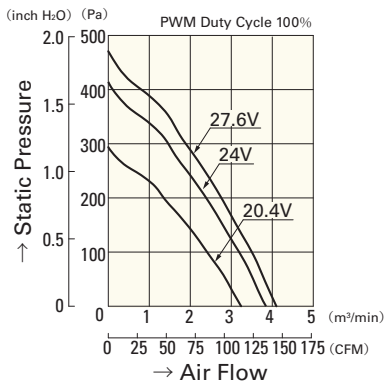


9TN24P1H01

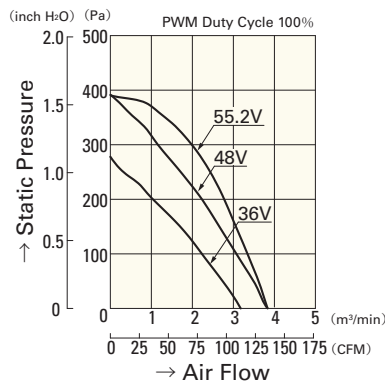


9TN48P1H01

Operating Voltage Range

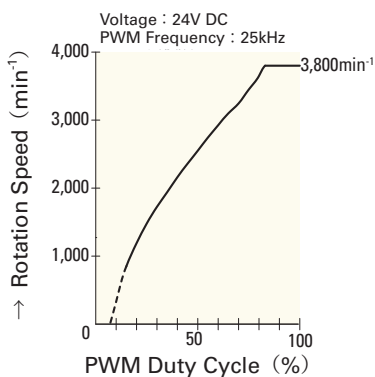


9TN24P1H01

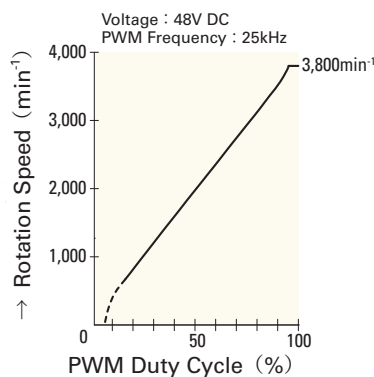


9TN48P1H01

PWM Duty - Speed Characteristics Example



9TN24P1H01



9TN48P1H01

Centrifugal Fan

φ175mm

69mm thick



General Specifications **With a pulse sensor** Specifications for pulse sensors ⇨ Refer to Page 297

With PWM speed control function ➡ Refer to Page 299

- Material Frame: Aluminum,
Impeller:Plastics (Flammability: UL94V-1Min.)
- Expected LifeVaries 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)

φ **175mm** × **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)2)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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	

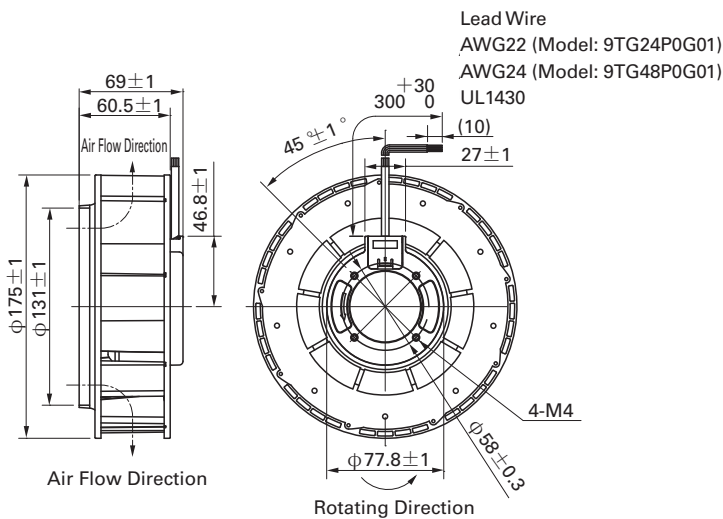
Note 1 : Fan does not rotate when PWM duty cycle is 0% .

Note 2 : Max input is 130 W at rated voltage.

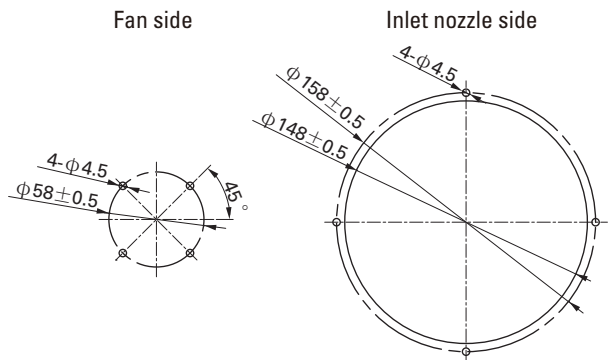
※PWM Frequency : 25kHz

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

■ Dimensions (Unit : mm)



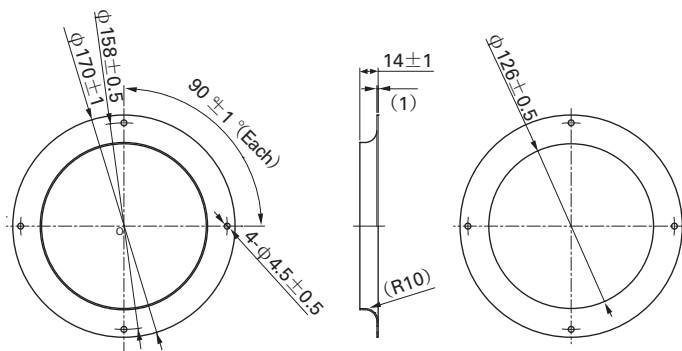
Reference dimension of mounting holes and vent opening (Unit : mm)



■ **Options (Unit : mm)**

Inlet nozzle

Model : 109-1073

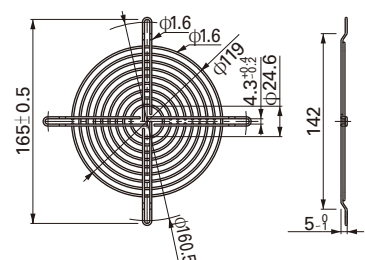


Finger guards

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

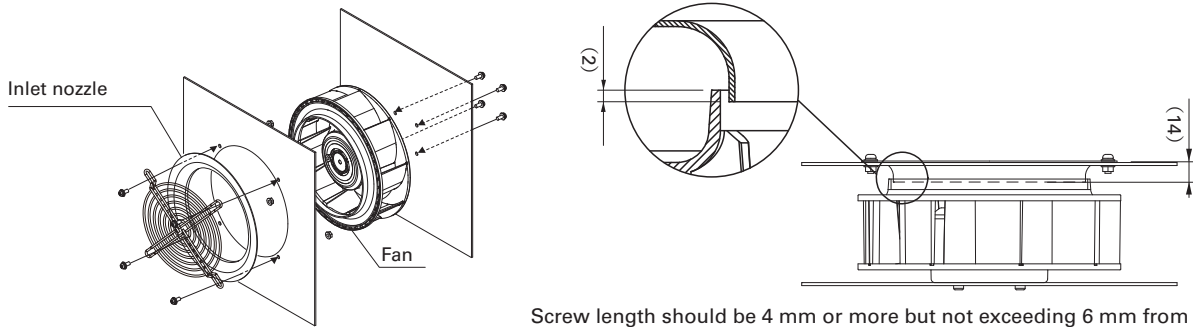
(silver)

Inlet side, Outlet side



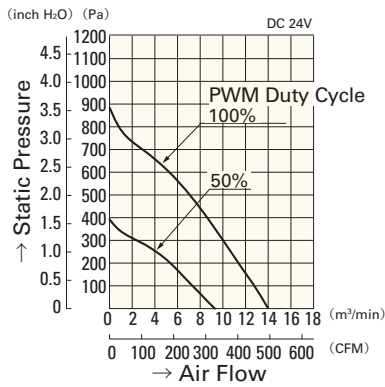
Inlet nozzle : Nozzle mounted in fan inlet side to adjust the flow of introduced air

Reference diagram for mounting

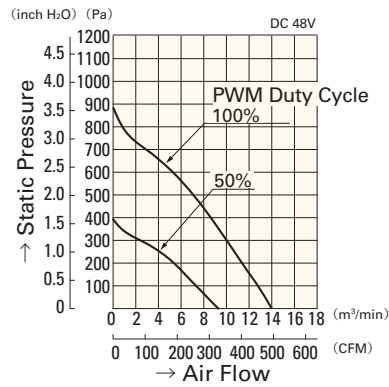


Air Flow - Static Pressure Characteristics

PWM Duty Cycle

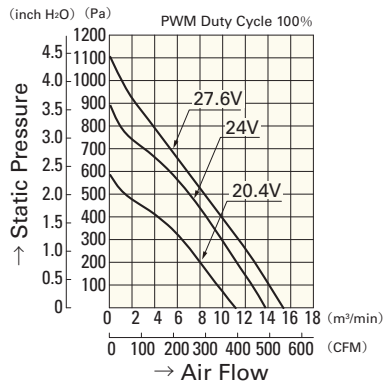


9TG24P0G01

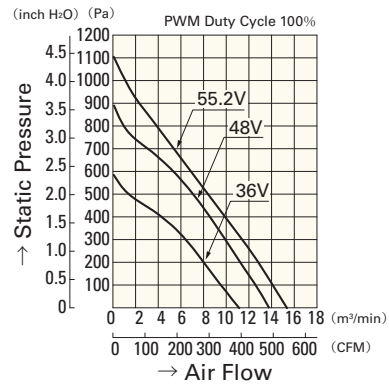


9TG48P0G01

Operating Voltage Range

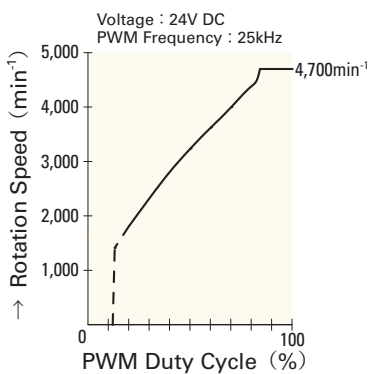


9TG24P0G01

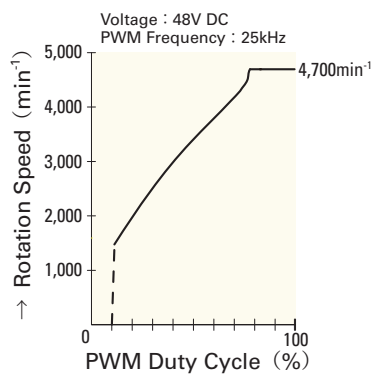


9TG48P0G01

PWM Duty - Speed Characteristics Example



9TG24P0G01



9TG48P0G01

76_{mm}

San Ace B76

20mm thick
30mm thick
General Specifications With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

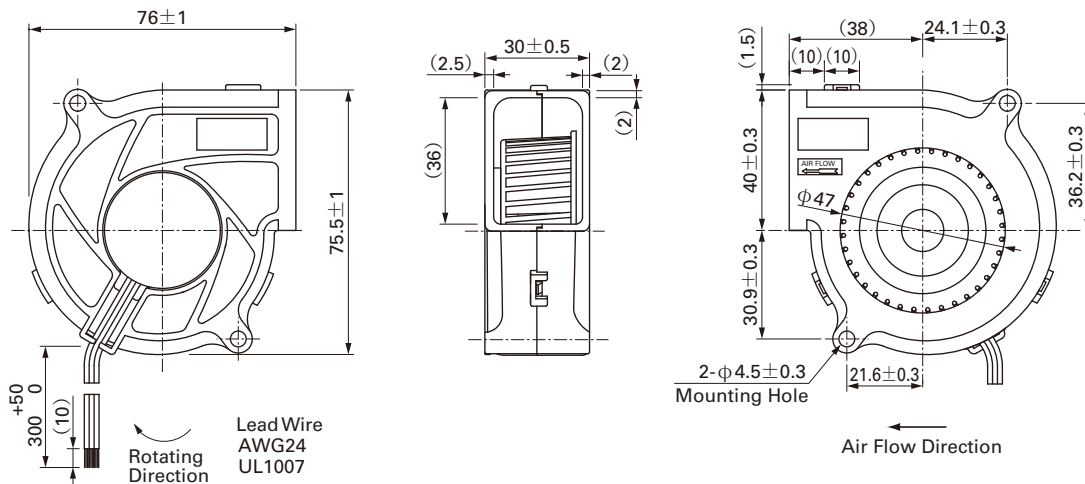
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue Sensor yellow
- Storage Temperature -30°C to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

76_{mm} × 30_{mm} [Mass : 100g]
Specifications

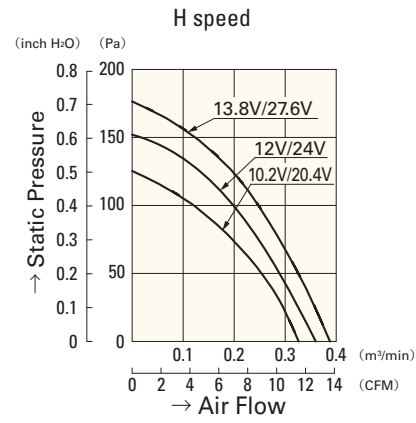
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109BD12HC2	12	10.2 to 13.8	0.37	4.44	3,000	0.36	12.7	151.9	0.610	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.

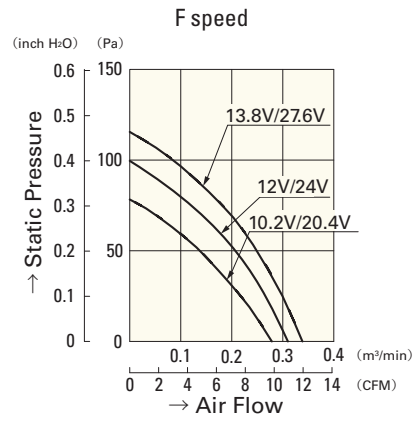
Lock Sensor Please inquire as the availability of these functions depend on the model.

Dimensions (Unit : mm)


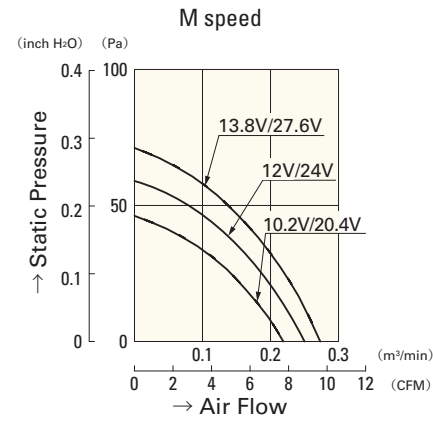
Air Flow - Static Pressure Characteristics



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 297

With PWM speed control function
 ⇨ Refer to Page 299

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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 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]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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
9BMB12P2F01		10.2 to 13.8	100	0.9	10.8	4,500	1.04 36.7	410 1.64	56		
9BMB24P2G01	24	21.6 to 26.4	100	0.83	19.92	5,750	1.34 47.32	760 3.052	61		
9BMB24P2K01			100	1.62	38.88	6,850	1.61 56.9	1,280 5.14	66		

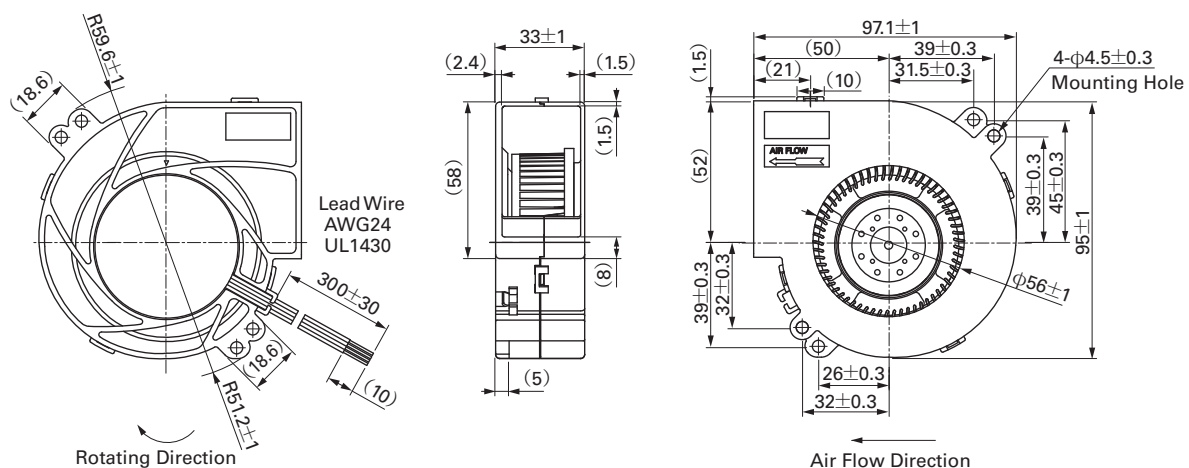
Note 1 : Fan does not rotate when PWM duty cycle is 0% .

※PWM Frequency : 25kHz

With pulse sensor

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9BMB12G201	12	7 to 13.8	1.80	21.6	5,750	1.34 47.3	760 3.052	61	-10 to +70	40,000
9BMB12S201			1.40	16.8	5,250	1.22 43.1	610 2.450	59		
9BMB12H201			1.10	13.2	4,850	1.11 39.2	490 1.968	57		
9BMB12F201			0.90	10.8	4,500	1.04 36.7	410 1.647	56		
9BMB24G201	24	12 to 26.4	0.83	19.9	5,750	1.34 47.3	760 3.052	61		
9BMB24S201			0.70	16.8	5,250	1.22 43.1	610 2.450	59		
9BMB24H201			0.55	13.2	4,850	1.11 39.2	490 1.968	57		
9BMB24F201			0.45	10.8	4,500	1.04 36.7	410 1.647	56		

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.

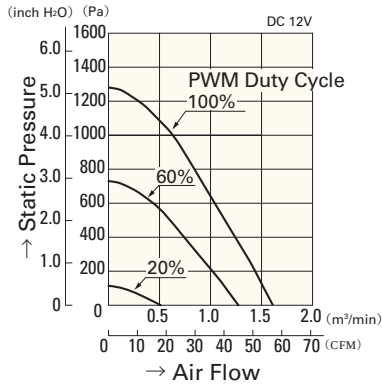
Dimensions (Unit : mm)
 (With PWM speed control function · With pulse sensor)


Air Flow - Static Pressure Characteristics

PWM Duty - Speed Characteristics Example

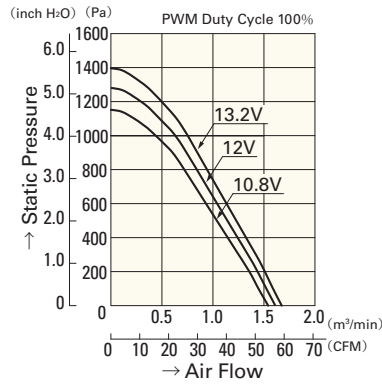
PWM Duty Cycle

With PWM speed control function • With pulse sensor

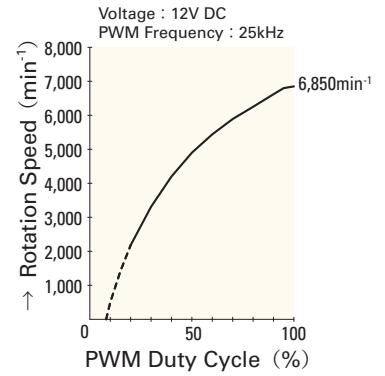


Operating Voltage Range

With PWM speed control function • With pulse sensor

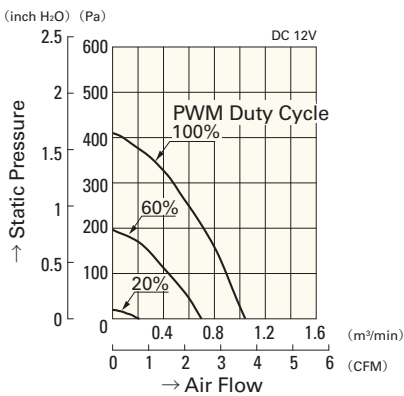


With PWM speed control function • With pulse sensor

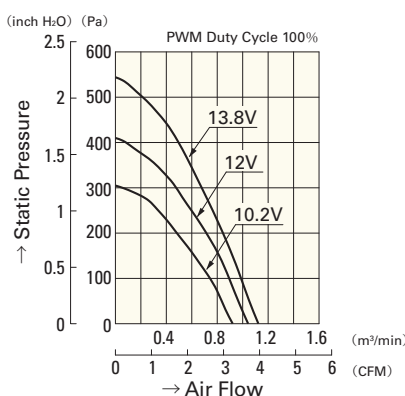


9BMB12P2K01

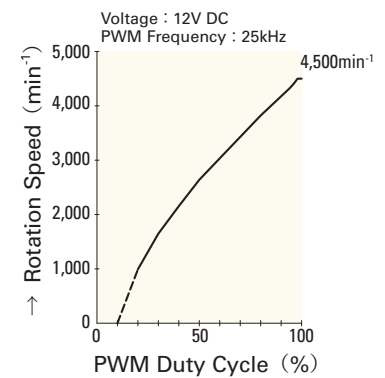
With PWM speed control function • With pulse sensor



With PWM speed control function • With pulse sensor

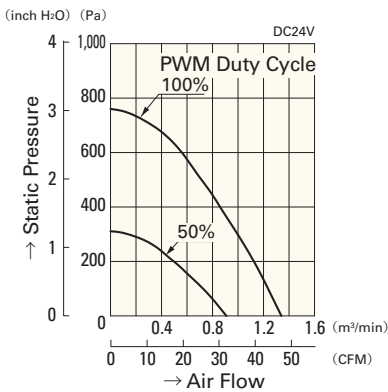


With PWM speed control function • With pulse sensor

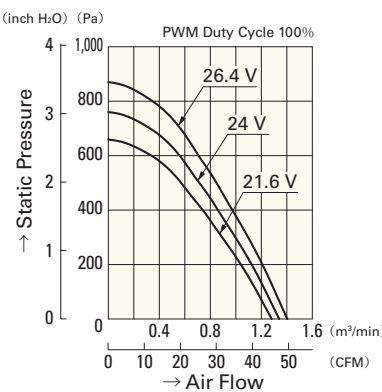


9BMB12P2F01

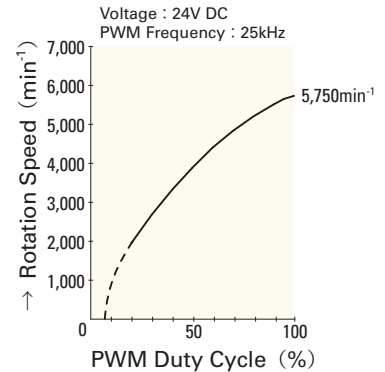
With PWM speed control function • With pulse sensor



With PWM speed control function • With pulse sensor

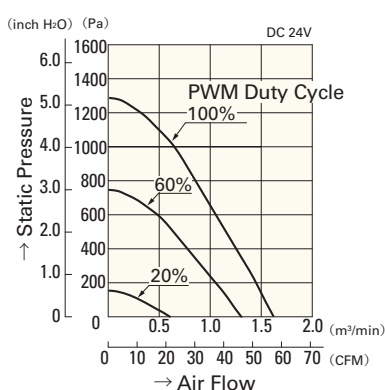


With PWM speed control function • With pulse sensor

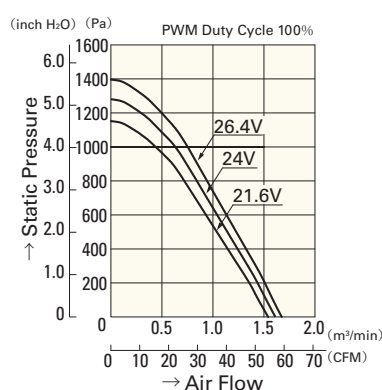


9BMB24P2G01

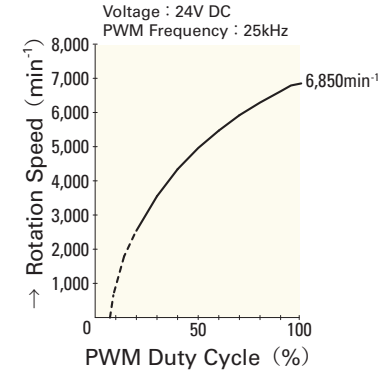
With PWM speed control function • With pulse sensor



With PWM speed control function • With pulse sensor



With PWM speed control function • With pulse sensor



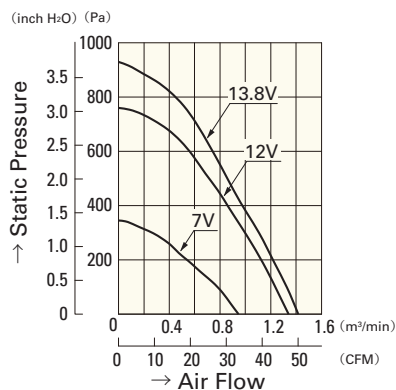
9BMB24P2K01

Blower 97mm

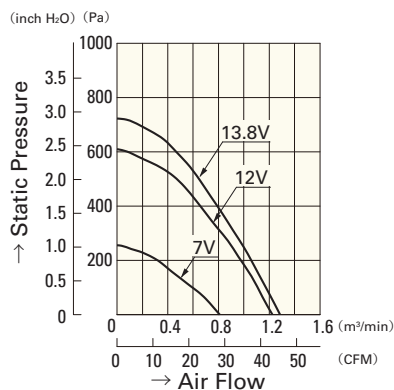
97mm

97mm**San Ace B97****97mm × 33mm** [Mass : 190g]**Air Flow - Static Pressure Characteristics****Operating Voltage Range**

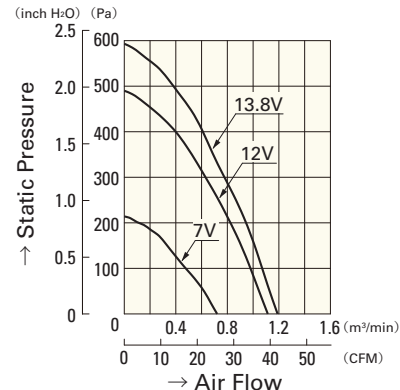
With pulse sensor

**9BMB12G201**

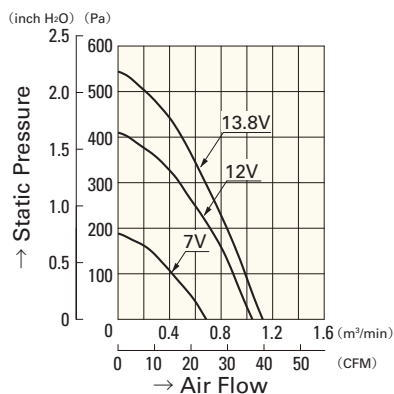
With pulse sensor

**9BMB12S201**

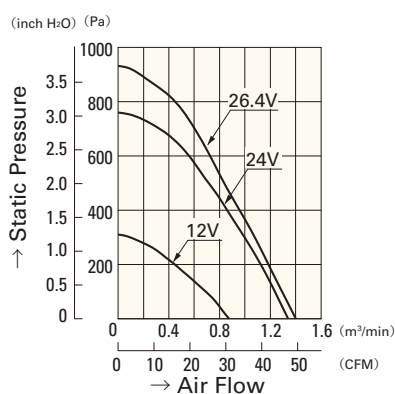
With pulse sensor

**9BMB12H201**

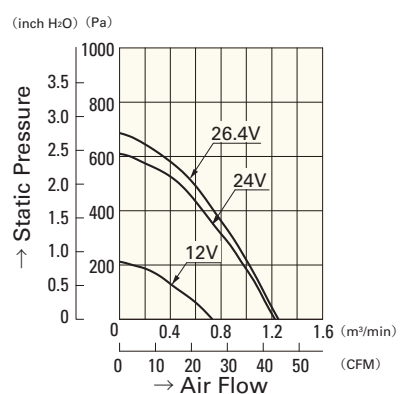
With pulse sensor

**9BMB12F201**

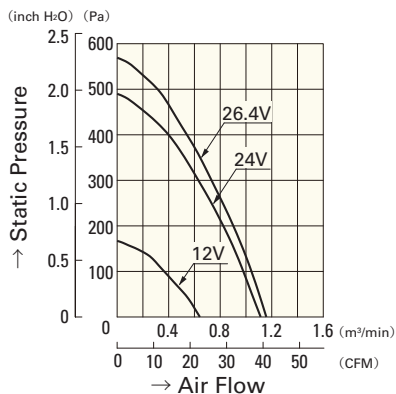
With pulse sensor

**9BMB24G201**

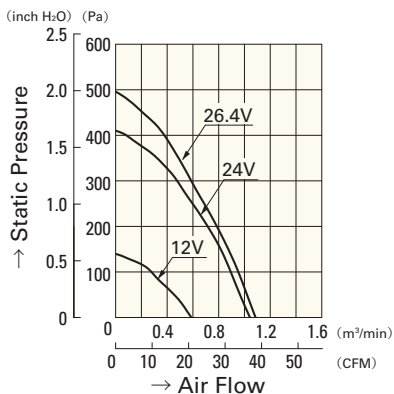
With pulse sensor

**9BMB24S201**

With pulse sensor

**9BMB24H201**

With pulse sensor

**9BMB24F201**

120mm**San Ace B120**

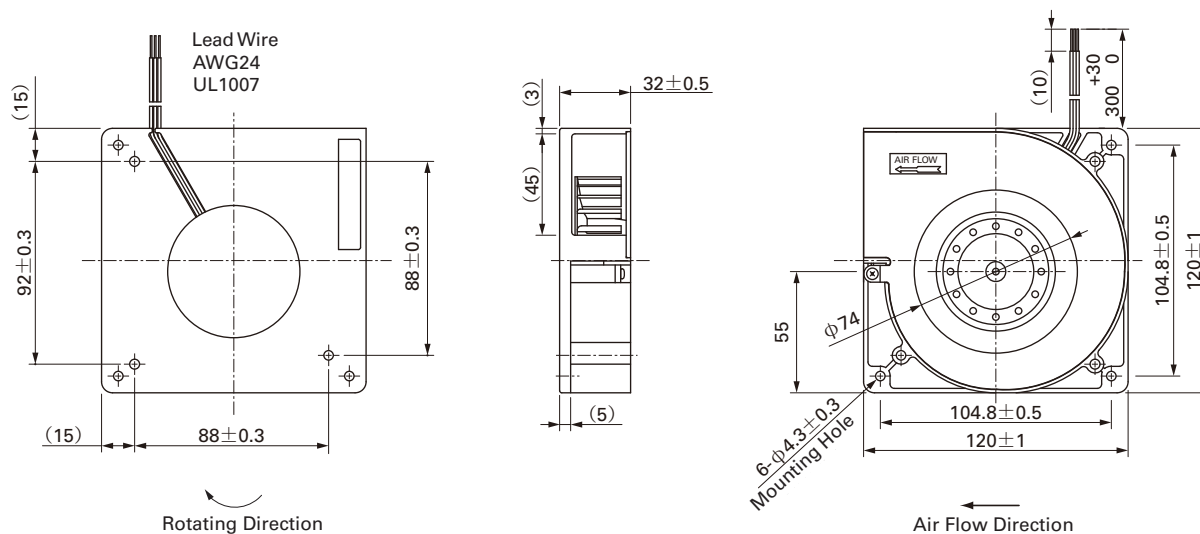
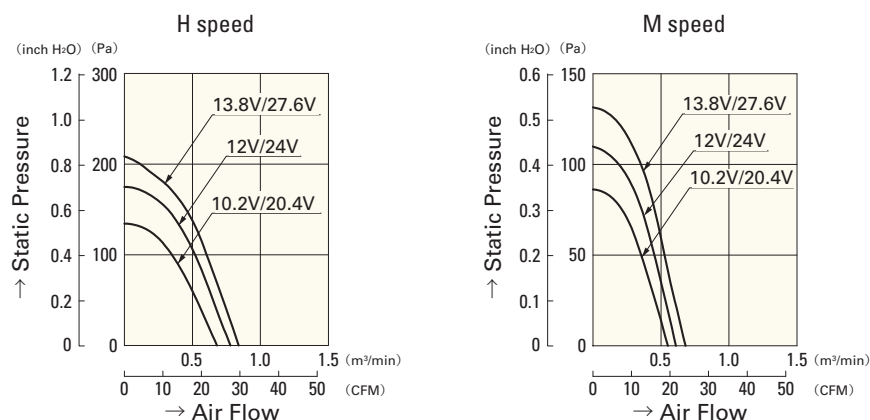
32mm thick

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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

32mm thick



With PWM speed control function ➡ Refer to Page 299

- 120mm×32mm** [Mass : 340g] ECO PRODUCTS

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^(nom) [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life ^(nom) [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		

※PWM Frequency : 25kHz

Without Sensor | **Pulse Sensor**

Lead Wire
AWG24
UL1430

300+30
10

32±1
(28)
(2)

(2)

(63.7)

(5)

Air Flow Direction

120±1
(56)
(75)
3-R5
105±0.3
(63.8)
92±0.3
92±0.3
120±1
(15)
(22)
(7.5)
(15)
(22.5)

88±0.3
65±0.3
(71.7)
0.8
AIRFLOW

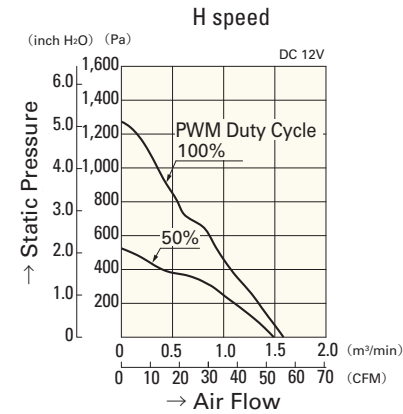
φ77±0.5
9-φ4.3±0.2
Mounting Hole

105±0.3
88±0.3
90±0.3

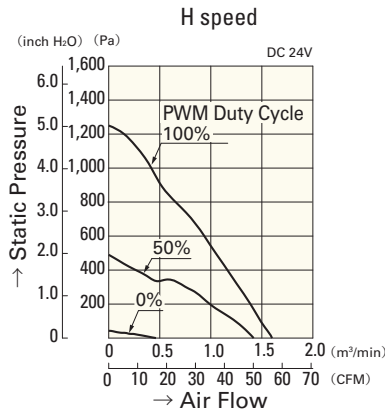
Rotating Direction

■ Air Flow - Static Pressure Characteristics

PWM Duty Cycle

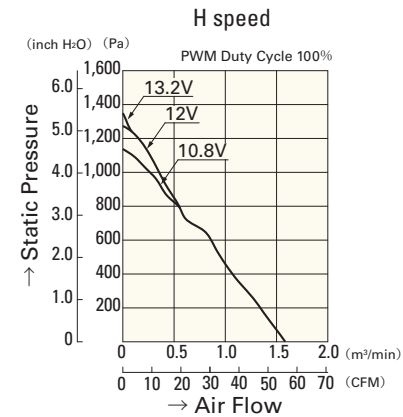


9BFB12P2H003

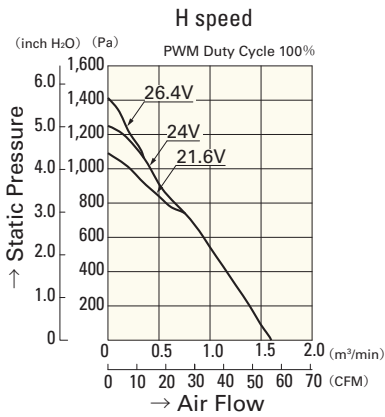


9BFB24P2H003

Operating Voltage Range

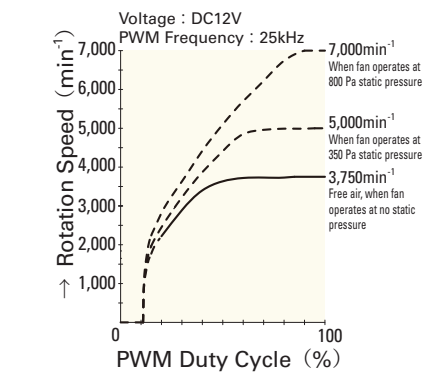


9BFB12P2H003

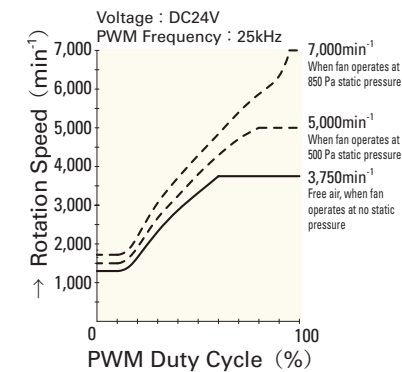


9BFB24P2H003

■ PWM Duty - Speed Characteristics Example



9BFB12P2H003



9BFB24P2H003

Blower 120mm

120mm

127mm**San Ace B127**

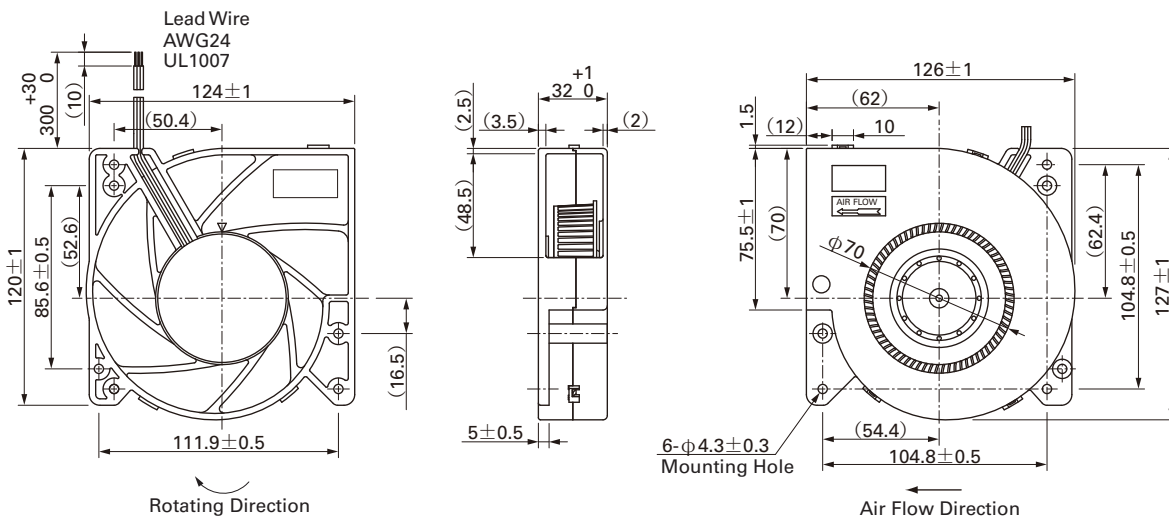
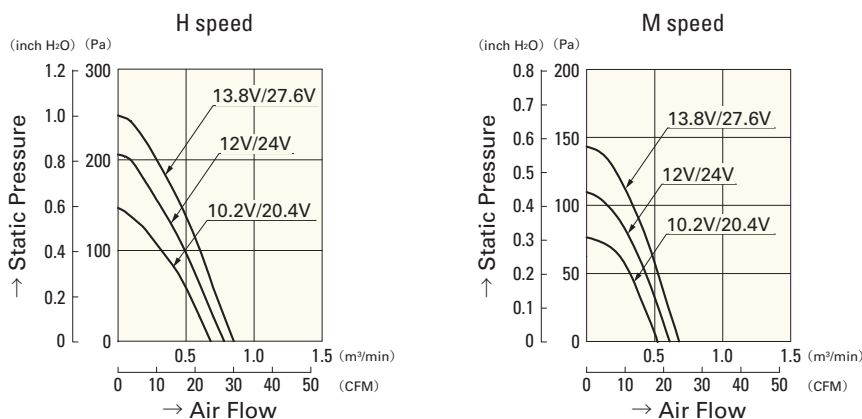
32mm thick

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇔ Refer to Page 297

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life 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)

127mm × 32mm [Mass : 290g]**Specifications**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [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

160mm**San Ace B160**

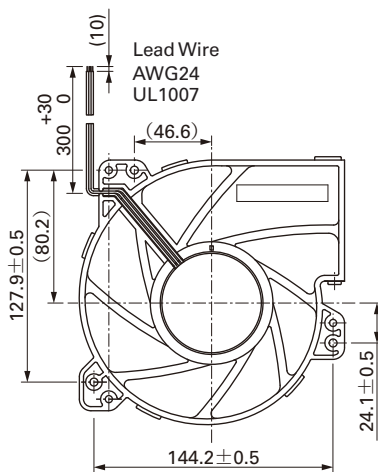
40mm thick

**General Specifications** With a pulse sensor Specifications for pulse sensors ⇨ Refer to Page 297

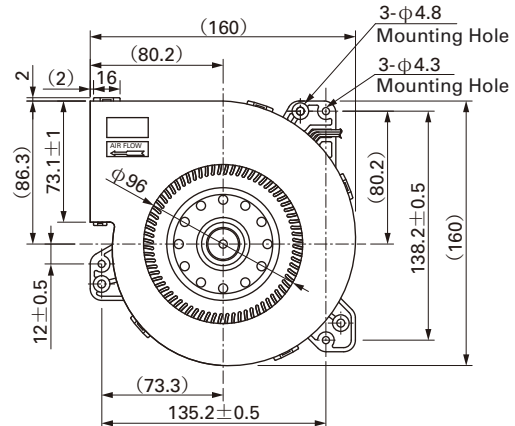
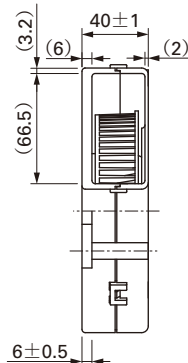
- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Varies for each model (L10: Survival rate: 90% at 60°C,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕red ⊖black or blue (Sensor) yellow
- Storage Temperature -30°C to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

160mm × 40mm [Mass : 580g]**Specifications**

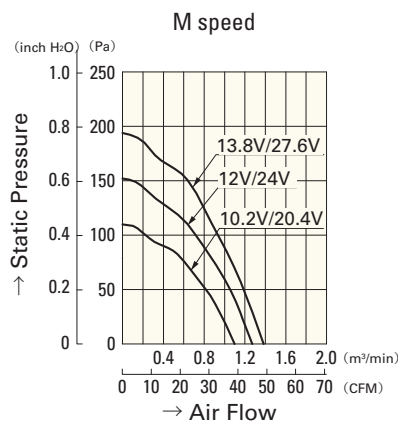
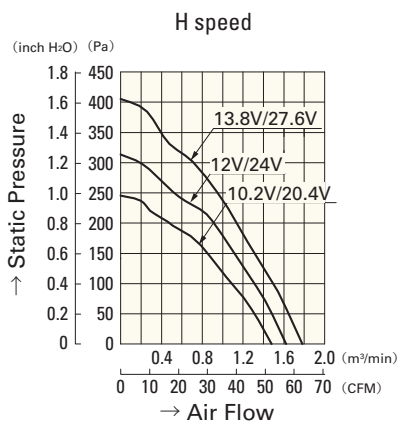
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109BG12HC1	12	10.2 to 13.8	1.3	15.6	2,300	1.62	57.2	313.6	1.259	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)**

Rotating Direction

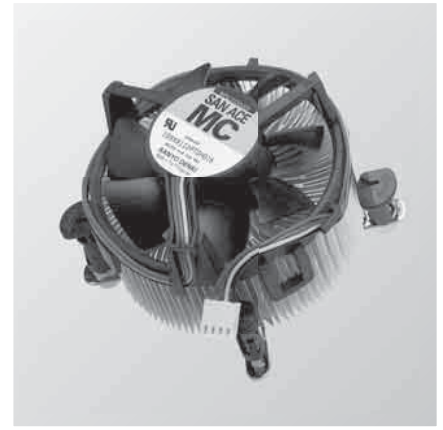


Air Flow Direction

Air Flow - Static Pressure Characteristics
109BG12HC1
109BG24HC1
109BG12MC1
109BG24MC1

Intel® 775-land LGA Package CPU Cooler

SAN ACE MC



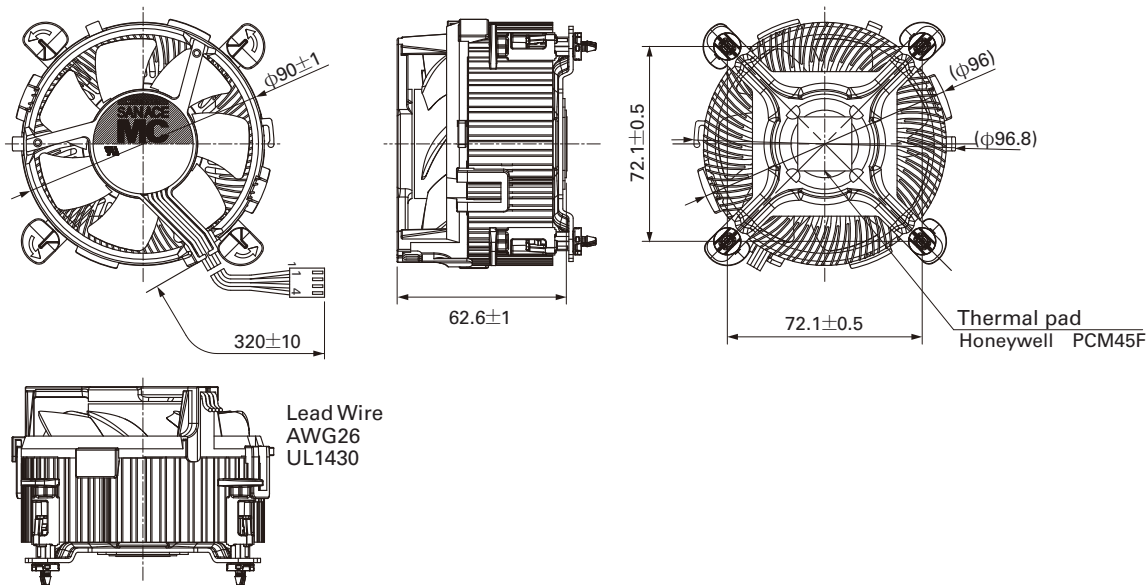
General Specifications

- 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

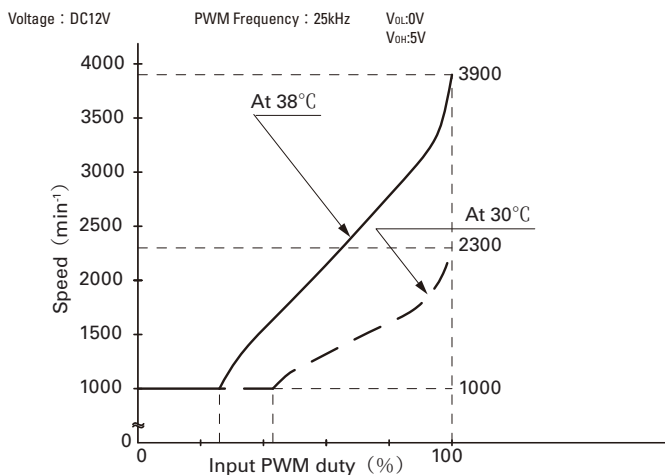
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Speed [min ⁻¹]	θ c-a Thermal Resistance [K/W]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109X9112PT0H016	12	10.8 to 13.2	0.31	3,900	0.266	42	0 to +70	40,000
				2,300	0.320	27		

Dimensions (Unit : mm)



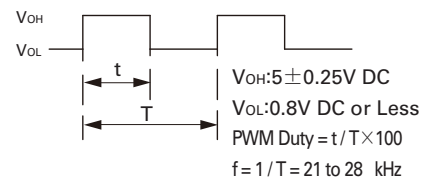
Fan speed characteristics

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



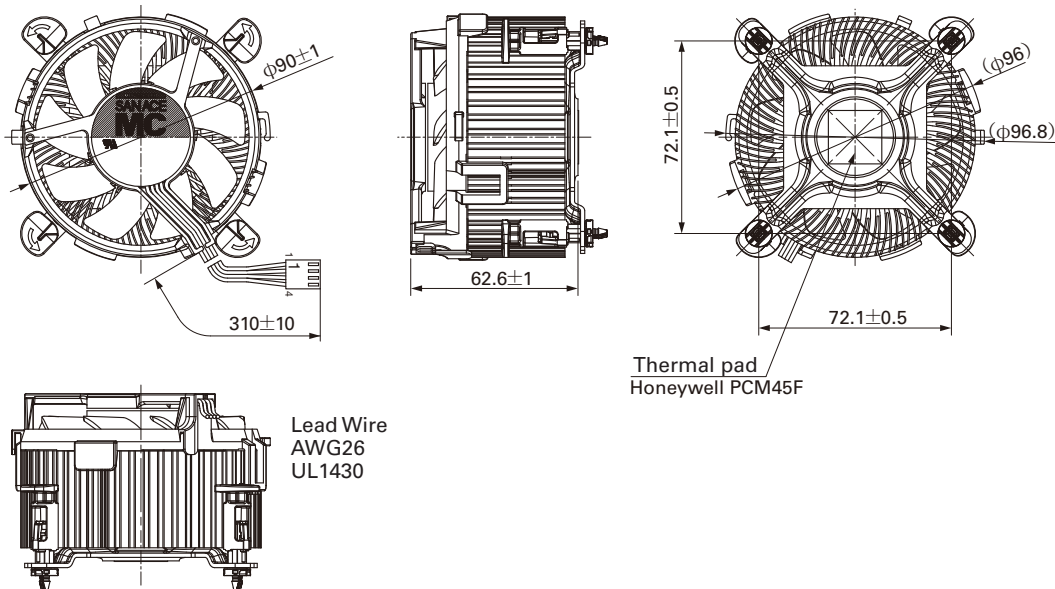
General Specifications

- 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

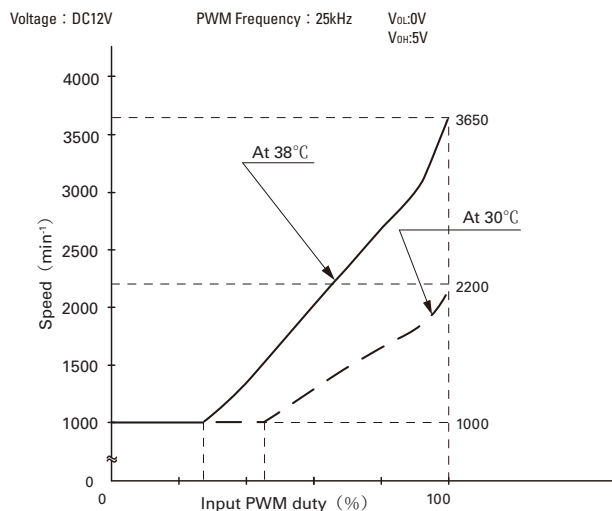
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Speed [min ⁻¹]	θ c-a Thermal Resistance [K/W]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109X9212PT0H016	12	10.8 to 13.2	0.28	3,650	0.276	42	0 to +70	40,000
				2,200	0.340	28		

Dimensions (Unit : mm)



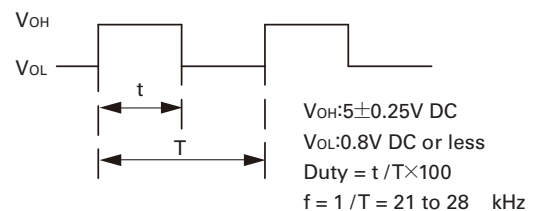
Fan speed characteristics

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 299

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)		Max. Air Flow		Max. Static Pressure		SPL [dB(A)]	Expected Life [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
60 × 60 × 38mm	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

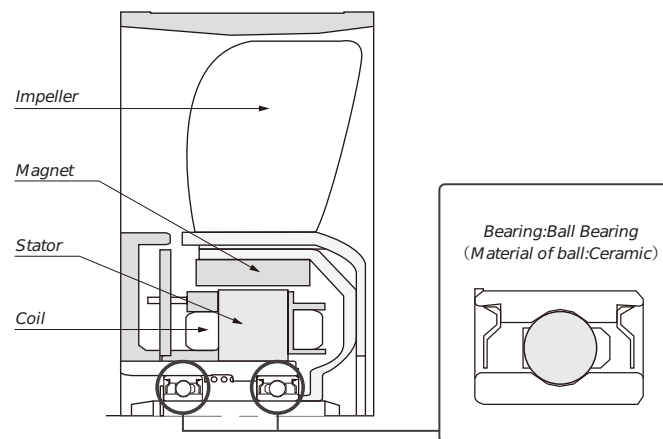
Custom Product

Electrolytic Corrosion Proof Fans

Technical Material
Refer to page 302

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.
Manufacturable to meet specifications of all San Ace series fans.



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.

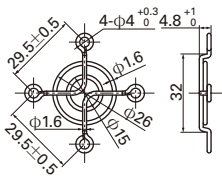
Finger guards

Dimensions(Unit : mm)

36mm sq. type

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

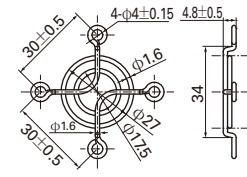
Inlet side, Outlet side



38mm sq. type

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

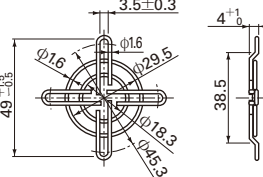
Inlet side, Outlet side



40mm sq. type

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

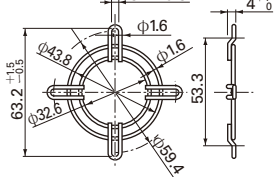
Inlet side, Outlet side



52mm sq. type

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

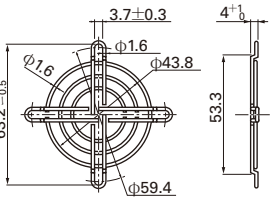
Outlet side



52mm sq. type

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

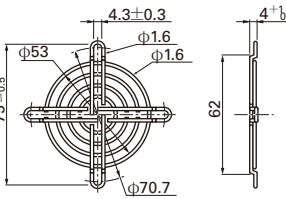
Inlet side, Outlet side



60mm sq. type

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

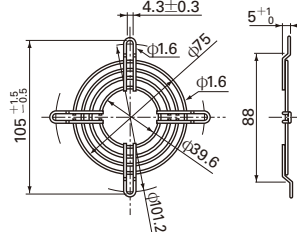
Inlet side, Outlet side



80mm sq. type

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

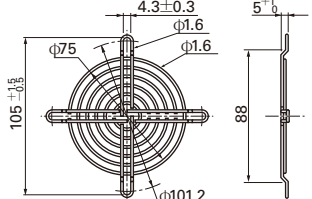
Outlet side



80mm sq. type

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

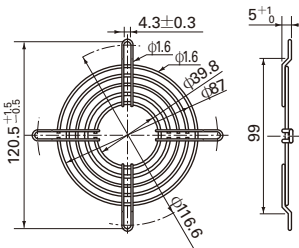
Inlet side, Outlet side



92mm sq. type

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

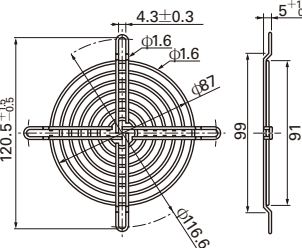
Outlet side



92mm sq. type

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

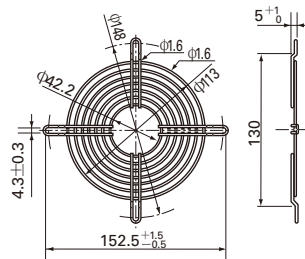
Inlet side, Outlet side



120mm sq. type

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

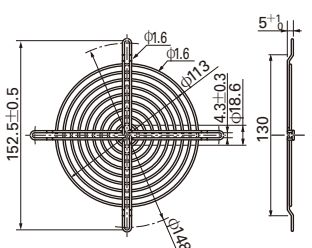
Outlet side



120mm sq. type

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

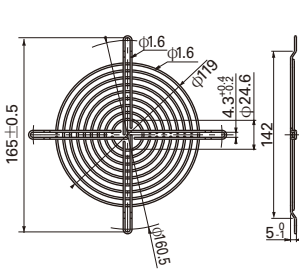
Inlet side, Outlet side



127mm sq. type

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

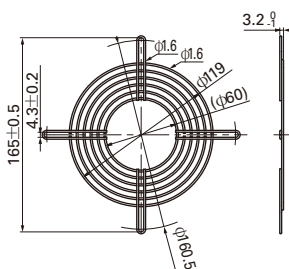
Inlet side, Outlet side



127mm sq. type

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

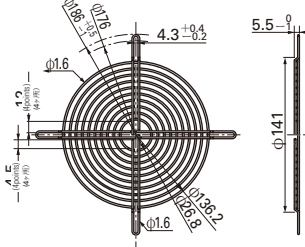
Outlet side



140mm sq. type

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

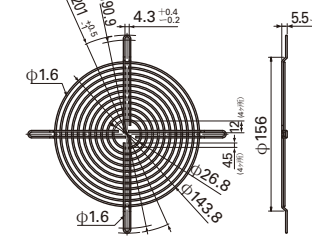
Inlet side, Outlet side



150mm sq. type

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

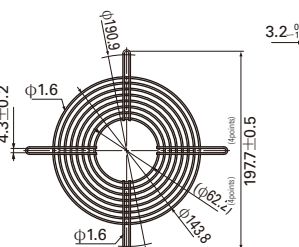
Inlet side, Outlet side



150mm sq. type

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

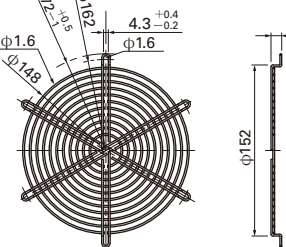
Outlet side



φ172mm type

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

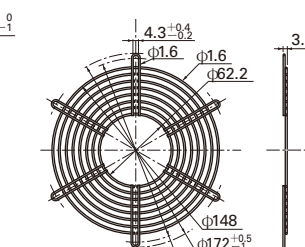
Inlet side, Outlet side



φ172mm type

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

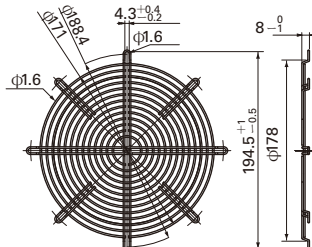
Outlet side



φ200mm type

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

Inlet side, Outlet side



Finger guards

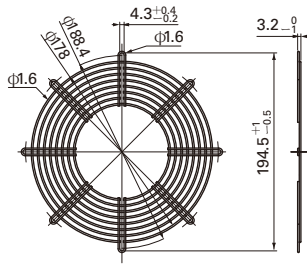
Mounting example

Φ200mm type

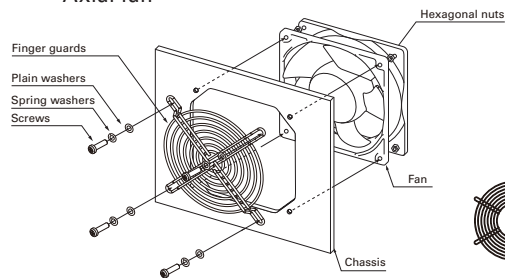
Model : 109-721 Surface treatment: Nickel-chrome plating (silver)
: 109-721H Cation electropainting (black)

Color

Outlet side

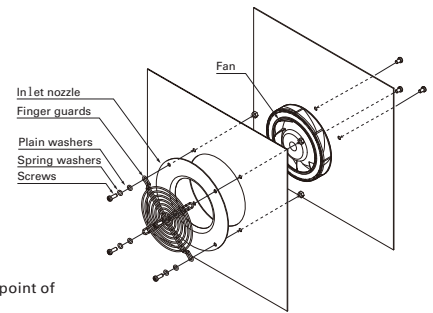


Axial fan



Φ172mm type:
Please install at the point of
symmetry.

Centrifugal fan



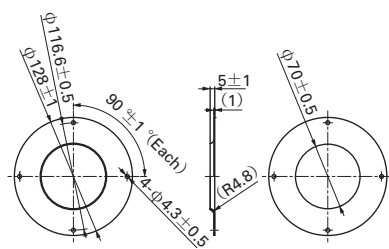
Inlet nozzle for centrifugal fan and splash proof centrifugal fan

Nozzle mounted in fan inlet side to adjust the flow of introduced air.

Dimensions(Unit : mm)

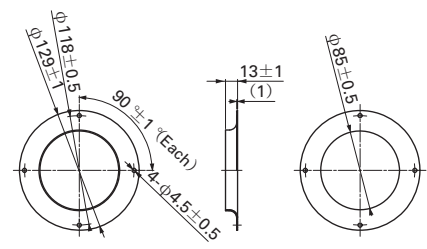
Φ100mm type

Model : 109-1080



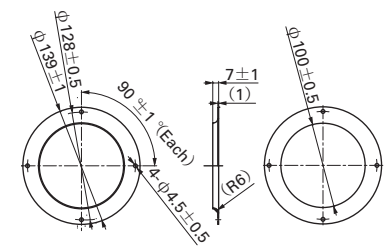
Φ133mm type

Model : 109-1069



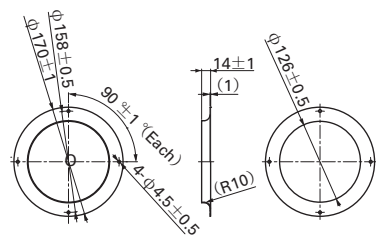
Φ150mm type

Model : 109-1081



Φ175mm type

Model : 109-1073



EMC guards

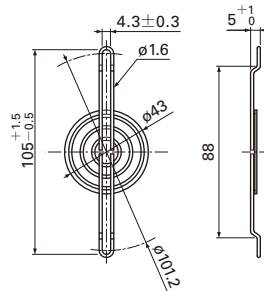
Dimensions(Unit : mm)

80mm sq. type

Model : 109-1038 Surface treatment: Nickel-chrome plating (silver)

Applicable Model : 109P08***6**/109P08***2**
: 109L08***4**

Color

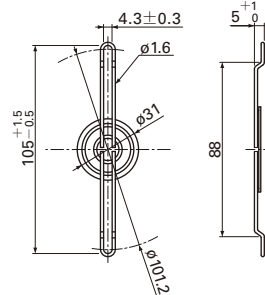


80mm sq. type

Model : 109-1039 Surface treatment: Nickel-chrome plating (silver)

Applicable Model : 109P08***7**/109R08***4**/9A08***4**

Color

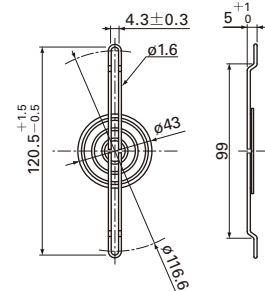


92mm sq. type

Model : 109-1040 Surface treatment: Nickel-chrome plating (silver)

Applicable Model : 109P09***4**/109L09***4**

Color

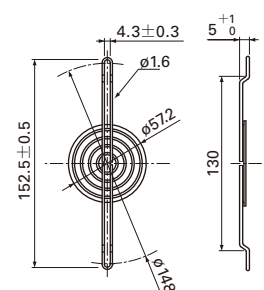


120mm sq. type

Model : 109-1037 Surface treatment: Nickel-chrome plating (silver)

Applicable Model : 109P12***4**/9G12***4**/109R12***1**
: 9G12***1**/109L12***1**/9LB12***1**
: 9GL12***1**

Color

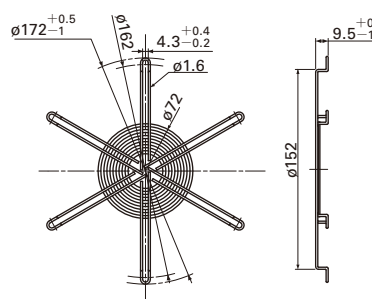


Φ172mm type

Model : 109-1036 Surface treatment: Nickel-chrome plating (silver)

Applicable Model : 109E47***4**/109E17***5**/109E57***5**
: 9GV57***5**/109L17***5**

Color



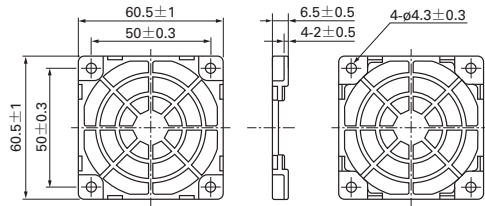
Resin finger guards

Dimensions(Unit : mm)

Material Frame : (SPS+PS alloy) Resin UL File No.E48268 94V-0

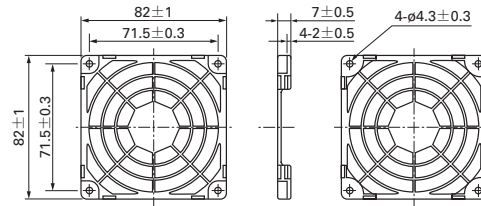
60mm sq. type

Model : 109-1003G



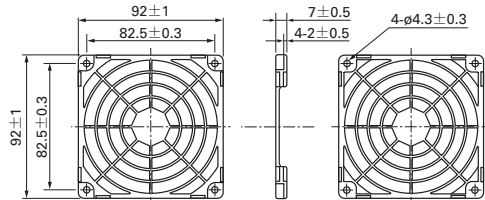
80mm sq. type

Model : 109-1002G



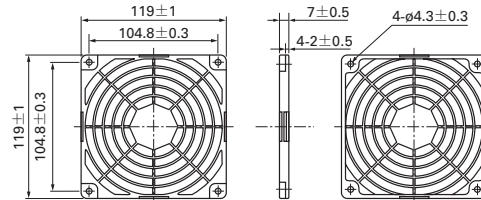
92mm sq. type

Model : 109-1001G

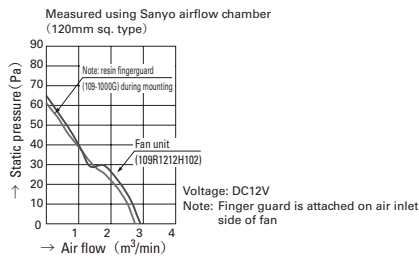


120mm sq. type

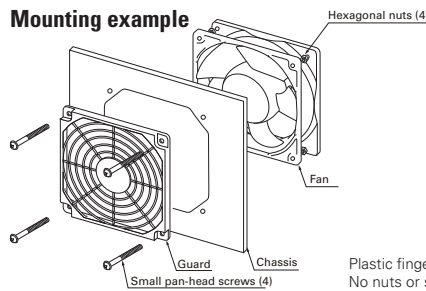
Model : 109-1000G



Air Flow and Static Pressure Characteristics



Mounting example



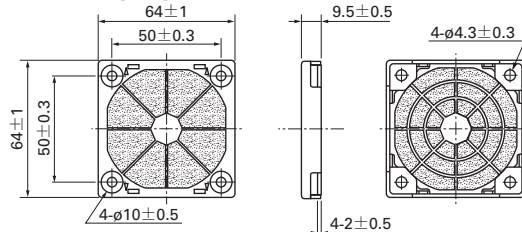
Plastic finger guards are placed on both the intake and exhaust sides of the fan. No nuts or screws for use in attachment included.

Resin filter kits

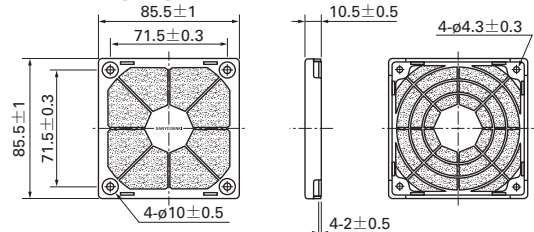
Dimensions(Unit : mm)

Material Guard,cover : (SPS+PS alloy) Resin UL File No.E48268 94V-0
Filter : Polyurethane foam UL File No.E74916(S) 94HF-1

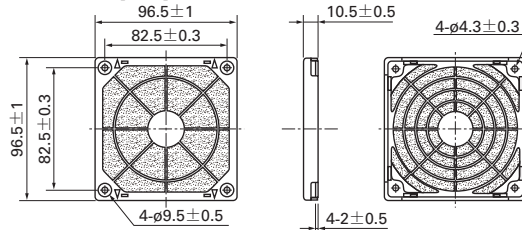
60mm sq. type

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

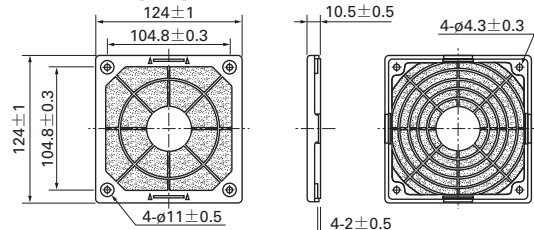
80mm sq. type

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

92mm sq. type

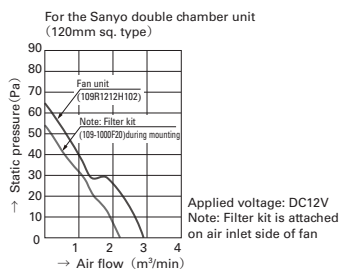
Model : 109-1001F13 (13PPI) 109-1001F20 (20PPI)
: 109-1001F30 (30PPI) 109-1001F40 (40PPI)

120mm sq. type

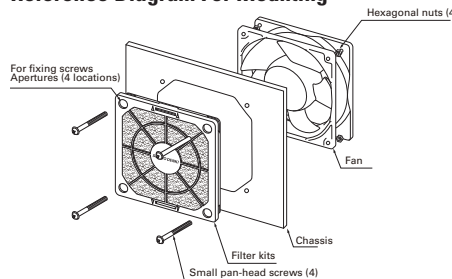
Model : 109-1000F13 (13PPI) 109-1000F20 (20PPI)
: 109-1000F30 (30PPI) 109-1000F40 (40PPI)

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)

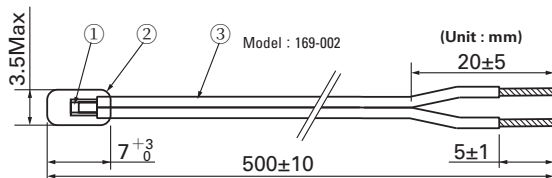
● Filter kit is one of the option to keep air in the chassis clean filtering dust in external atmosphere when pulling-air cooling is implemented. The filter kit is hooked up through mounting hole of fan frame with screw as well as finger guard. Some performances (airflow & static pressure) of the fan motor decreases when filter kit is hooked up. ● 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, saving assembly time when mounting. It can be 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. 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
	43025-0200	—	43025-0400	43030-0001 43030-0002 43030-0003
	51191-0200	51191-0300	51191-0400	50802-9001
	50-37-5023:P/N 5264-02	50-37-5033:P/N 5264-03	50-37-5043:P/N 5264-04	08-70-1039:P/N 5263PBT 39-00-0059:P/N 5556PBT
	39-01-2020:P/N 5557-02R	—	39-01-2040:P/N 5557-04R	39-00-0038:P/N 5556T
Tyco Electronics AMP	171822-2	171822-3	171822-4	170262-1
	179228-2	179228-3	179228-4	179227-1
Hirose	DF1B-2EP-2.5RC	DF1B-3EP-2.5RC	—	DF1B-2428PCF
	DF3-2EP-2C	DF3-3EP-2C	DF3-4EP-2C	DF3-EP2428PCF
	DF3AA-2EP-2C	DF3AA-3EP-2C	DF3AA-4EP-2C	
Japan Aviation Electronics Industry	IL-2S-S3L-(N)	IL-3S-S3L-(N)	IL-4S-S3L-(N)	IL-C2-1-10000
	IL-G-2S-S3C2-SA	IL-G-3S-S3C2-SA	IL-G-4S-S3C2-SA	IL-G-C2-SC-10000
Japan Solderless Terminals	EHR-2	EHR-3	EHR-4	SEH-001T-P0.6
	SMP-02V-BC	SMP-03V-BC	SMP-04V-BC	SHF-001T-0.8BS
	SMP-02V-NC	SMP-03V-NC	—	
	H2P-SHF-AA	H3P-SHF-AA	—	
	PHR-2	PHR-3	PHR-4	SPH-002T-P0.5S
	XAP-02V-1	XAP-03V-1	XAP-04V-1	SLA-001T-P0.6
	XMP-02V	XMP-03V	—	SXH-001T-P0.6
	XHP-2	XHP-3	XHP-4	
	SMR-02V-B	SMR-03V-B	SMR-04V-B	SYM-001T-P0.6
	SMR-02V-N	SMR-03V-N	SMR-04V-N	

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

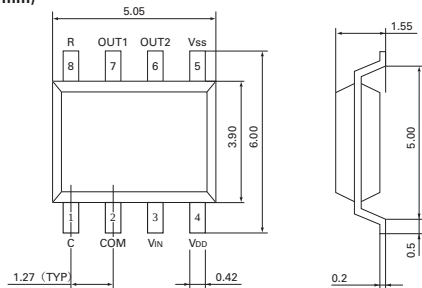
Input type

Single input: L8730 can input digital signal of Vov and GND

Supply voltage range

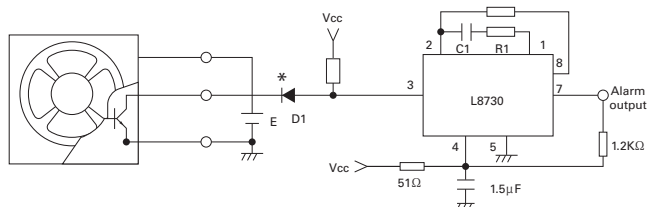
+5V±0.5V

Dimensions(Unit : mm)



Application

Use it for your receiving circuit of a our DC fan (with a pulse sensor).



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

A cooling fan 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 high 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

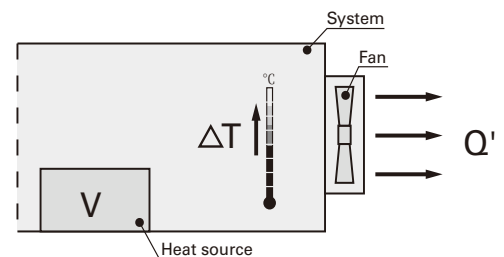
The following example is a guideline regarding how to select an appropriate fan for cooling your system

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)

$$Q' = \frac{V}{20\Delta T} = \frac{100 \text{ (W)}}{20 \times 15 \text{ (K)}} = 0.33 \text{ (m}^3\text{/min)}$$

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)

$$Q' = Q \times 2/3$$

$$Q = Q' \times 3/2 = 0.33 \times 3/2 = 0.5 \text{ (m}^3\text{/min)}$$

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

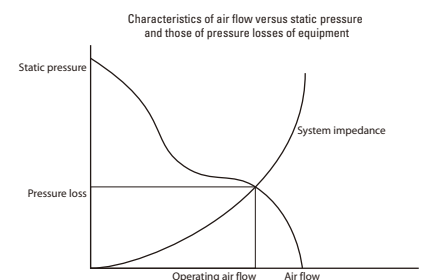
Calculate the temperature rise inside your sysetem when your sysetem having 100 (W) of total heating value is forcefully cooled down by a 109R0612H402 fan.

Example

$$Q' = Q \times 2/3 = 0.53 \times 2/3 = 0.353 \text{ (m}^3\text{/min)}$$

$$\Delta T = V/20Q' = 100 \text{ (W)} / 20 \times 0.353 \text{ (m}^3\text{/min)} = 14.2 \text{ (K)}$$

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.

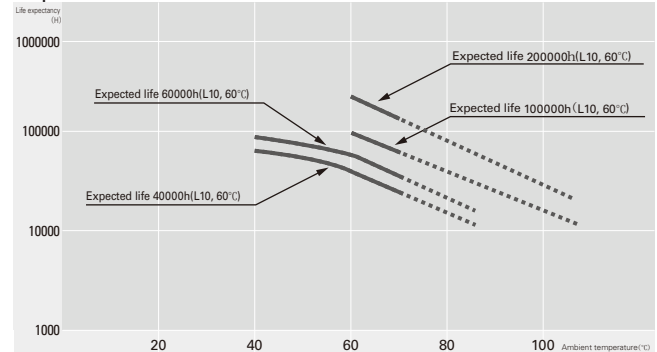
Characteristics calculation method and description

Reliability and Life Expectancy

A cooling fan 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.)

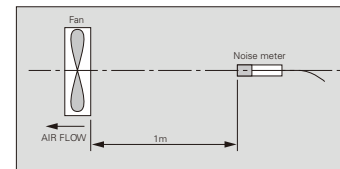
Expected life of DC Fans



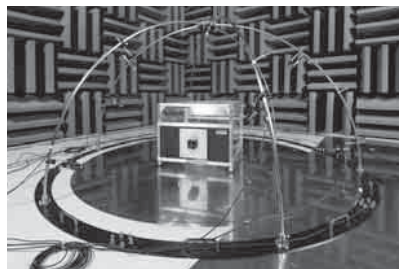
Rated voltage, continuously run in a free air state, survival rate of 90%

Noise characteristics

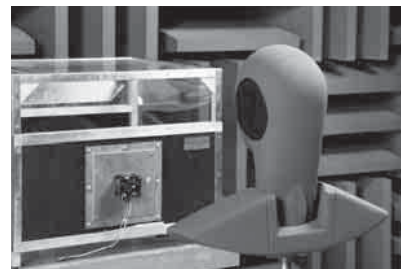
Noise is average value that measured at 1 meter away from air intake side of fan that is suspended on special frame in anechoic chamber (as per JIS B 8330).



Acoustic radio wave anechoic chamber



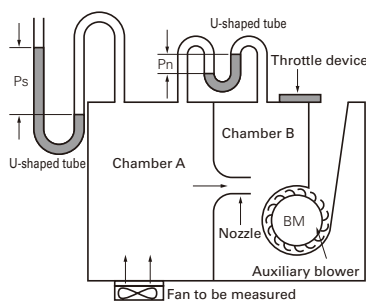
Noise characteristic measurement equipment



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 = $\frac{\pi}{4}D^2 \text{ (m}^2\text{)}$

D = nozzle diameter

$\bar{v}$ = average air flow velocity of nozzle = $\sqrt{2g\frac{P_n}{\gamma}} \text{ (m/sec)}$

γ : Air specific gravity (kg/m^3)

($\gamma = 1.2 \text{ kg/m}^3$ at 20°C , 1 atmospheric pressure)

g = acceleration of gravity = $9.8 \text{ (m/sec}^2\text{)}$

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°C ,rated voltage,and continuously run in a free air state)
	* Splash proof fan: Varies for each model(Indoor, L10:Survival rate:90% at 60 °C ,rated voltage,and continuously run in a free air state)
Motor Protection	Burnout protection at locked rotor condition and Reverse polarity protection
Dielectric Strength	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
Storage Temperature	-30°C to +70°C (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 294.

- Typical standard model: 9G1212H101.

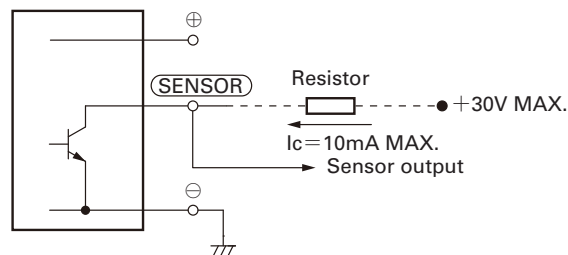
Output circuit

Open collector

Specifications

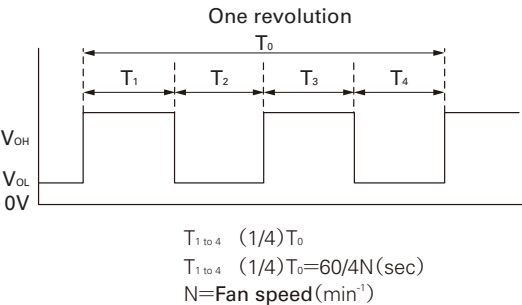
$V_{CE} = +30V$ MAX.
(For a 48V-rated fan: $V_{ce} = +60V$ MAX.)
 $I_c = 10mA$ MAX. [$V_{ol} = V_{ce}$ (SAT) = 0.4V or less]

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

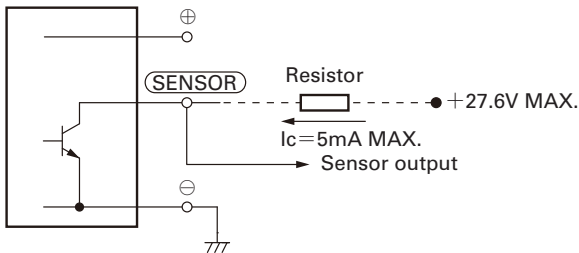
$V_{CE} = +27.6V$ MAX.

For a 48V fan $V_{CE} = +60V$ MAX.

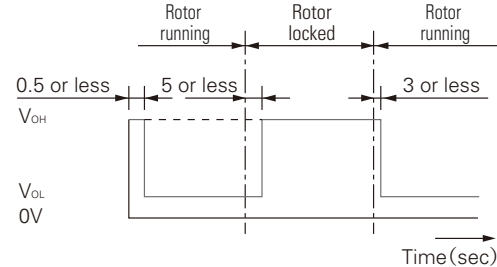
$I_C = 5mA$ MAX. [$V_{OL} = V_{CE} (SAT) = 0.6V$ or less]

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

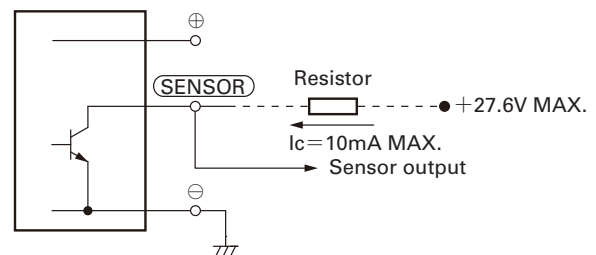
Open collector

Specifications

$V_{CE} = 27.6V$ MAX.

$I_C = 10mA$ MAX. [$V_{OL} = V_{CE} (SAT) = 0.5V$ or less]

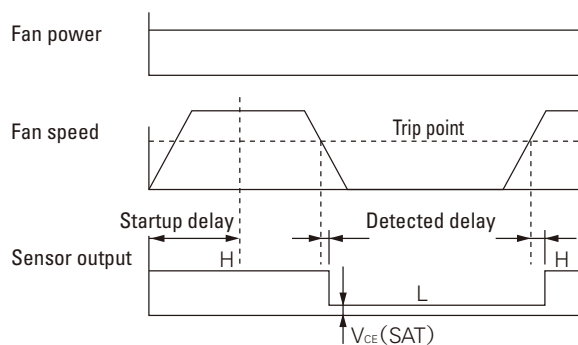
Inside of DC fan



Sensor scheme

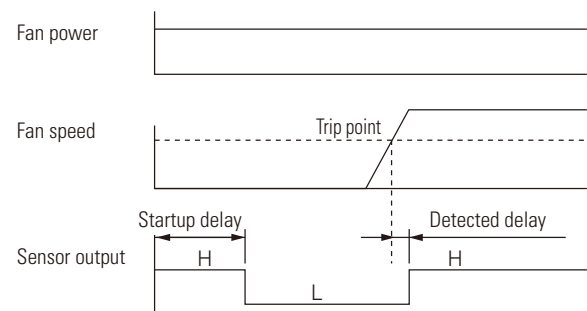
Example 1:

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.



PWM Speed Control Function

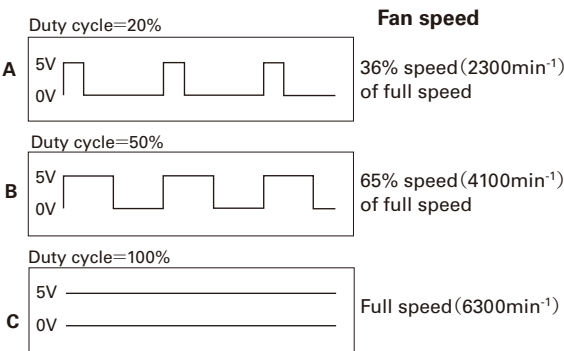
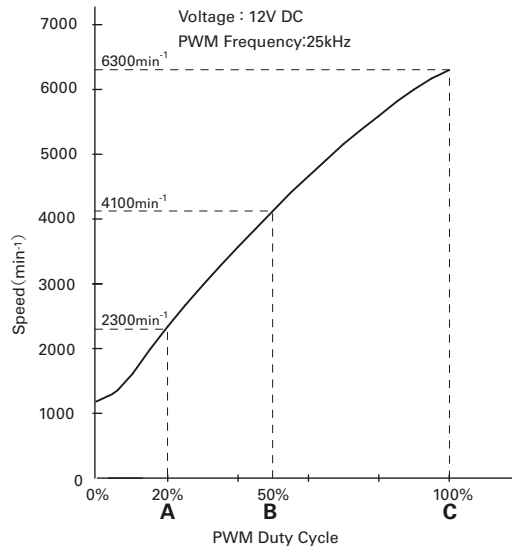
The PWM speed control function is a function that externally controls the rotation speed of the fan by changing the duty of the input pulse signal between the control terminal and GND.

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 PWM speed control function. Contact us for more information.

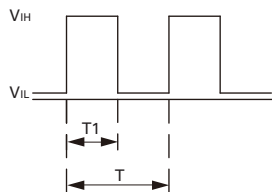
● Typical standard model: 9GV0812P4K03

PWM Duty - Speed Characteristics



PWM Input Signal

Input Signal Wave Form



$V_{IH} = 4.75V \text{ to } 5.25V$

$V_{IL} = 0V \text{ to } 0.4V$

$PWM \text{ Duty Cycle}(\%) = \frac{T_1}{T} \times 100$

$PWM \text{ Frequency } 25 \text{ (kHz)} = \frac{1}{T}$

Source Current (I source) : 1mA Max. at control voltage 0V

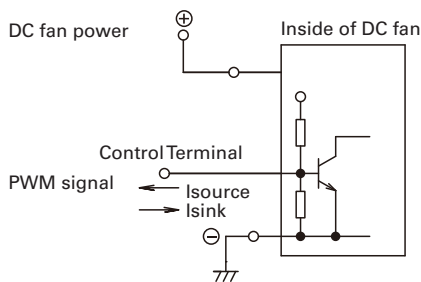
Sink Current (I sink) : 1mA Max. at control voltage 5.25V

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.

This fan speed should be controlled by PWM input signal of either TTL input or open collector, drain input.

Example of Connection Schematic



Source Current (I source) : 1mA Max. at control voltage 0V

Sink Current (I sink) : 1mA Max. at control voltage 5.25V

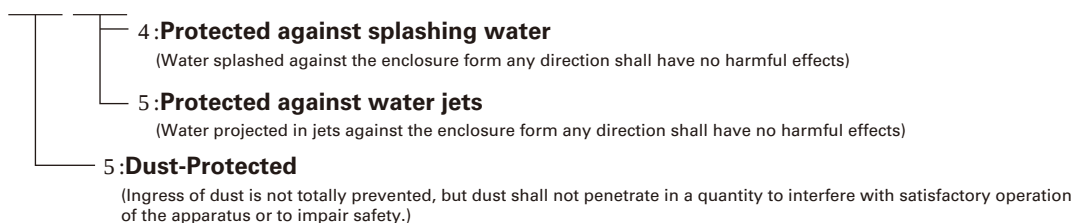
Control Terminal Voltage : 5.25V Max. (When control terminal is opened)

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



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)

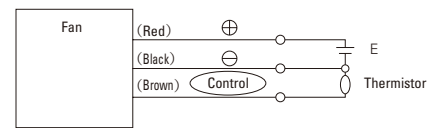


Fig. 1

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.

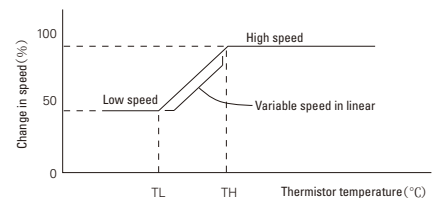
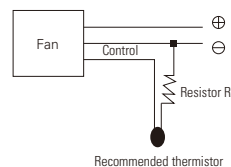


Fig. 2

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:

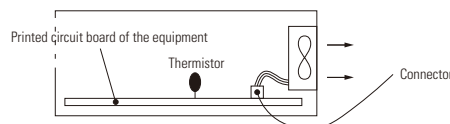
Low speed : Instead of the thermistor, connect a 10 KΩ resistor between the control wire and the negative wire.

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.

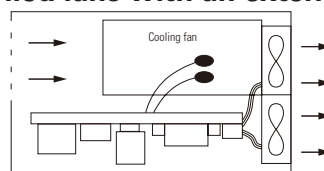


Fig. 5

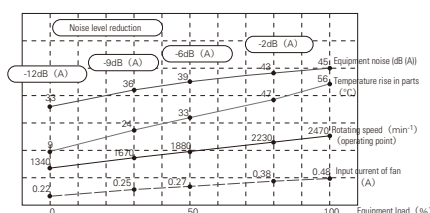


Fig. 7

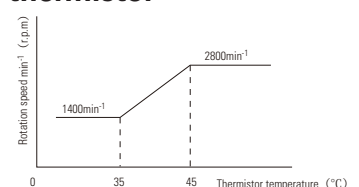


Fig. 6

* 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.

Built-in thermistor type

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.

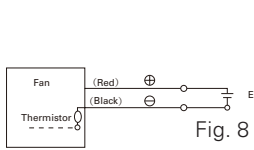


Fig. 8

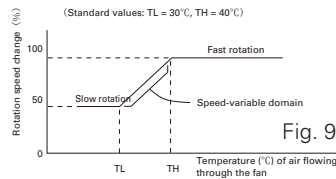


Fig. 9

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.

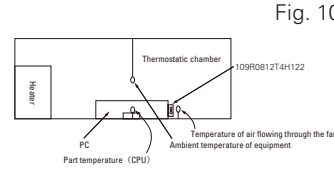


Fig. 10

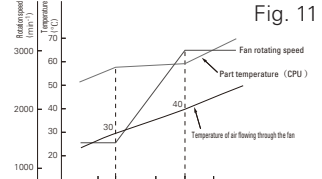


Fig. 11

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 290

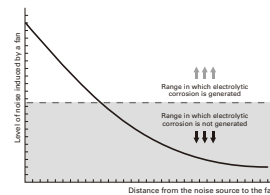
If a fan is installed near a large-power or high-voltage switching circuit, the heavy electromagnetic noise resulting from electromagnetic induction in such circuits or the influence of high-frequency noise imposed through the power line of the fan may induce current through the shaft bearing of the 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.

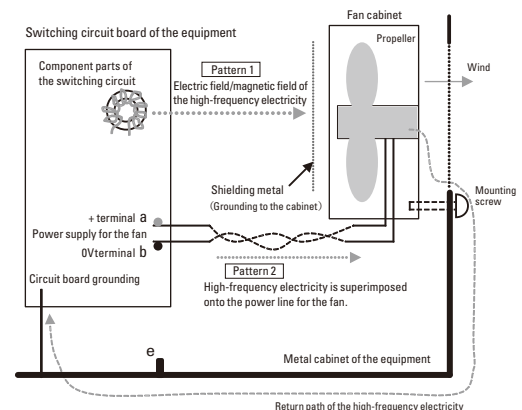
Note 1: Shielding metal plate

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.

Note 2: 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.



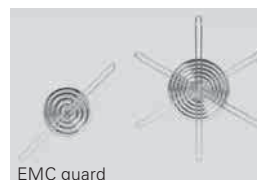
Measures against Electrolytic Corrosion

- (1) Relocate fans far from all electromagnetic noise sources.
- (2) Use anti-corrosion fans equipped with ceramic bearings. → Refer to page 290
- (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.

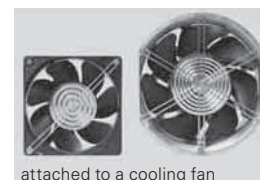
*The EMC guard could be effective against electromagnetic noise caused by radiation, but against heavy electromagnetic noise (electromagnetic induction) and conductive noise from the power supply line for a fan, we recommend the use of an "anti-electrolytic corrosion fan" with ceramic bearing.

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**	✓				
		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**			✓		
		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.

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.

Recommended screw torque

This shows the recommended values for the screw 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.

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)

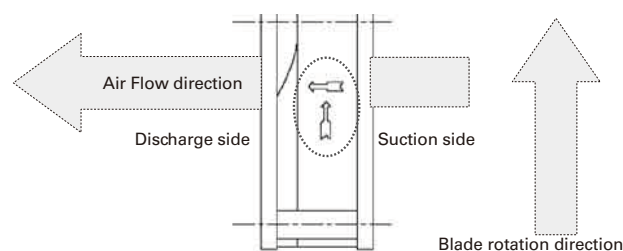
(φ200mm)

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.



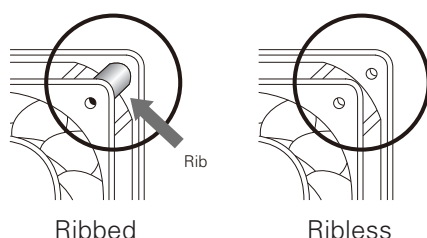
Symbols indicating the fan airflow direction and blade rotation direction

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.)

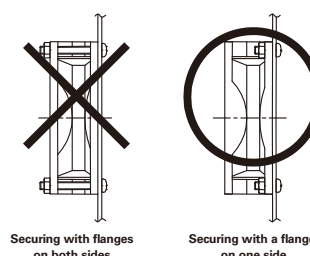
*Use a fan with a rib structure when using a screw for piercing.

• When securing screws to ribless plastic frame models, use a flange to secure on one side.



Ribbed

Ribless



Securing with flanges on both sides

Securing with a flange on one side

Fan mounting using self-tapping screw

Installing self-tapping screws into the plastic frame of the fan may split or deform it.

If you use self-tapping screws, use screws that are recommended by our company, and refer to our recommended screw torques and recommended pilot hole shapes. Pay close attention to the operating precautions and fully understand your equipment before you use it.

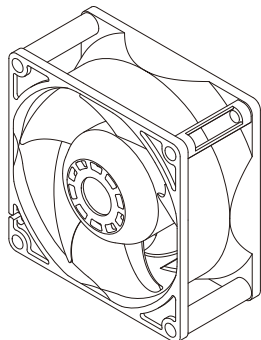


Fig. A: Ribbed fan

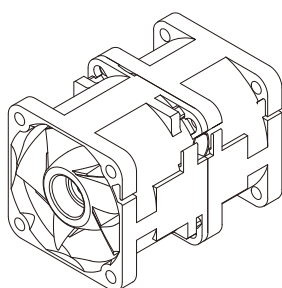


Fig. B: Counter rotating fan

	Fan mounting hole diameter [mm]	Recommended screw torque [N·m]
Ribbed fan (Fig. A)	Ø3.5, Ø4.3, Ø4.5	0.8 Max.
Counter rotating fan (Fig. B)	Ø3.5, Ø4.3	0.6 Max.

Recommended self-tapping screws

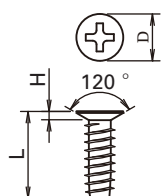
• Material: Steel

• Plating: Trivalent chromating plating

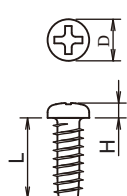
Unit: mm

Fan mounting hole diameter	Self-tapping screw model No.	Nominal screw diameter	Length [L]	Head shape	Flat-head/pan-head dimensions		
					Head diameter [D]	Height of head [H]	Cross recess No.
Ø3.5	SY-NS020412P11	4	12	Flat	6.2	1.1 Max.	2
	SY-NS010412P11	4	12	Pan	5.5	2.0	2
Ø4.3	SY-NS024812P15	4.8	12	Flat	6.8	1.2 Max.	2
	SY-NS014812P15	4.8	12	Pan	7.0	2.6	2
Ø4.5	SY-NS020512P15	5	12	Flat	6.8	1.2 Max.	2
	SY-NS010512P15	5	12	Pan	7.0	2.6	2

Head shape: Flat



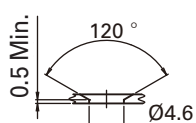
Head shape: Pan



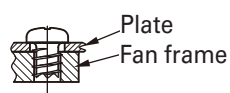
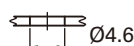
Recommended pilot hole shape

[For nominal diameter 4mm]

Self-tapping screw model No.
SY-NS020412P11



Self-tapping screw model No.
SY-NS010412P11

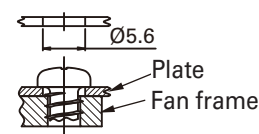
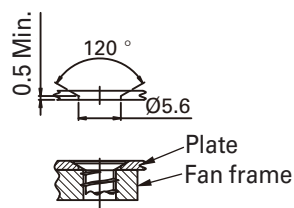


Minimum mounting plate thickness: T=1.2mm

[For nominal diameters of 4.8mm and 5mm]

Self-tapping screw model No.
SY-NS024812P15
SY-NS020512P15

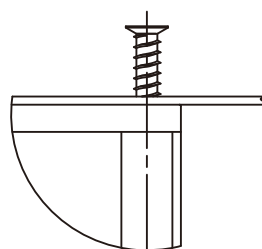
Self-tapping screw model No.
SY-NS014812P15
SY-NS010512P15



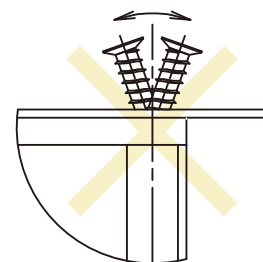
Minimum mounting plate thickness: T=1.2mm

Operating precautions

- Place the self-tapping screw so that it is vertical and centered with the frame mounting hole (Fig. A) and then screw it in. The self-tapping screw could deform or split the frame if you screw it into the frame when the screw is not vertical.
- Screw in the self-tapping screw with the center of the mounting hole on the fan and the center of the pilot hole on the mounting plate aligned (Fig. B). Misaligned holes could lead to the frame being deformed or split.

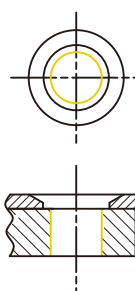


Vertically placed screw

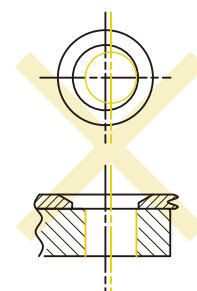


Inclined screw

Fig. A



Aligned and centered holes



Misaligned holes

Fig. B

- Never use self-tapping screws to mount a fan with a ribless frame (not including counter rotating fan).
- Tightening the screw beyond the recommended screw torque could deform or split the frame.
- With flat-head screws, failure to use the recommended pilot hole shape will cause interference between the flat-head screw and fan frame which could split the frame.
- Do not use self-tapping screws to mount the finger guard on the fan. Using self-tapping screws could deform or split the frame.

Recommended screw manufacturer

SAIMA CORPORATION

2-9-17 Tsujido Fujisawa Kanagawa 251-0047 JAPAN

TEL:+81-466-36-3656 FAX:+81-466-36-0009

<http://www.saima.co.jp/English/>

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 damage.

※ 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.
- Dispose of the product as industrial waste. Please contact your local government office for further details about disposal.

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 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 screw torque, fan frame may be deformed or damaged. Use a ribbed frame when using screw for piercing. In order to prevent from loosening 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 screw torque, threaded holes may be damaged. Also, in order to prevent from loosening 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.	Category	Frame Size	UL	CSA	TÜV	page
109L5712M501	Long Life Fan	φ172mm×150mm×51mm	✓	✓	✓	259
109L5724H501	Long Life Fan	φ172mm×150mm×51mm	✓	✓	✓	259
109L5724M501	Long Life Fan	φ172mm×150mm×51mm	✓	✓	✓	259
109L5748H501	Long Life Fan	φ172mm×150mm×51mm	✓	✓	✓	259
109L5748M501	Long Life Fan	φ172mm×150mm×51mm	✓	✓	✓	259
109P0405F3013	DC	40×40×28mm	✓	✓	✓	65
109P0405F601	DC	40×40×20mm	✓	✓	✓	59
109P0405H3013	DC	40×40×28mm	✓	✓	✓	65
109P0405H601	DC	40×40×20mm	✓	✓	✓	59
109P0405H701	DC	40×40×15mm	✓	✓	✓	57
109P0405H901	DC	40×40×10mm	✓	✓	✓	55
109P0405J601	DC	40×40×20mm	✓	✓	✓	59
109P0405M601	DC	40×40×20mm	✓	✓	✓	59
109P0405M701	DC	40×40×15mm	✓	✓	✓	57
109P0405M901	DC	40×40×10mm	✓	✓	✓	55
109P0412B3013	DC	40×40×28mm	✓	✓	✓	65
109P0412D601	DC	40×40×20mm	✓	✓	✓	59
109P0412F3013	DC	40×40×28mm	✓	✓	✓	65
109P0412F601	DC	40×40×20mm	✓	✓	✓	59
109P0412G3013	DC	40×40×28mm	✓	✓	✓	65
109P0412G601	DC	40×40×20mm	✓	✓	✓	59
109P0412H3013	DC	40×40×28mm	✓	✓	✓	65
109P0412H601	DC	40×40×20mm	✓	✓	✓	59
109P0412H701	DC	40×40×15mm	✓	✓	✓	57
109P0412H901	DC	40×40×10mm	✓	✓	✓	55
109P0412J3013	DC	40×40×28mm	✓	✓	✓	65
109P0412K3013	DC	40×40×28mm	✓	✓	✓	65
109P0412M3013	DC	40×40×28mm	✓	✓	✓	65
109P0412M601	DC	40×40×20mm	✓	✓	✓	59
109P0412M701	DC	40×40×15mm	✓	✓	✓	57
109P0412M901	DC	40×40×10mm	✓	✓	✓	55
109P0412S701	DC	40×40×15mm	✓	✓	✓	57
109P0424B3013	DC	40×40×28mm	✓	✓	✓	65
109P0424D601	DC	40×40×20mm	✓	✓	✓	59
109P0424F3013	DC	40×40×28mm	✓	✓	✓	65
109P0424F601	DC	40×40×20mm	✓	✓	✓	59
109P0424G3013	DC	40×40×28mm	✓	✓	✓	65
109P0424H3013	DC	40×40×28mm	✓	✓	✓	65
109P0424H601	DC	40×40×20mm	✓	✓	✓	59
109P0424H701	DC	40×40×15mm	✓	✓	✓	57
109P0424J3013	DC	40×40×28mm	✓	✓	✓	65
109P0505M701	DC	52×52×15mm	✓	✓	✓	69
109P0512A701	DC	52×52×15mm	✓	✓	✓	69
109P0512H701	DC	52×52×15mm	✓	✓	✓	69
109P0512M701	DC	52×52×15mm	✓	✓	✓	69
109P0524A701	DC	52×52×15mm	✓	✓	✓	69
109P0524H701	DC	52×52×15mm	✓	✓	✓	69
109P0524M701	DC	52×52×15mm	✓	✓	✓	69
109P0605H701	DC	60×60×15mm	✓	✓	✓	71
109P0605M701	DC	60×60×15mm	✓	✓	✓	71
109P0612B701	DC	60×60×15mm	✓	✓	✓	71
109P0612H601	DC	60×60×20mm	✓	✓	✓	73
109P0612H701	DC	60×60×15mm	✓	✓	✓	71
109P0612K701	DC	60×60×15mm	—	—	—	71
109P0612M601	DC	60×60×20mm	✓	✓	✓	73
109P0612M701	DC	60×60×15mm	✓	✓	✓	71
109P0612S701	DC	60×60×15mm	✓	✓	✓	71
109P0612W601	DC	60×60×20mm	✓	✓	✓	73
109P0624H601	DC	60×60×20mm	✓	✓	✓	73
109P0624H701	DC	60×60×15mm	✓	✓	✓	71
109P0624J701	DC	60×60×15mm	✓	✓	✓	71
109P0624M601	DC	60×60×20mm	✓	✓	✓	73
109P0624M701	DC	60×60×15mm	✓	✓	✓	71
109P0624S701	DC	60×60×15mm	✓	✓	✓	71
109P0624W601	DC	60×60×20mm	✓	✓	✓	73
109P0648H601	DC	60×60×20mm	✓	✓	✓	73

Model No.	Category	Frame Size	UL	CSA	TÜV	page
109P0812A201(2011)	DC	80×80×32mm	✓	✓	✓	103
109P0812C601	DC	80×80×20mm	—	—	—	91
109P0812H201(2011)	DC	80×80×32mm	✓	✓	✓	103
109P0812H601	DC	80×80×20mm	✓	✓	✓	91
109P0812H701	DC	80×80×15mm	✓	✓	✓	89
109P0812M201(2011)	DC	80×80×32mm	✓	✓	✓	103
109P0812M601	DC	80×80×20mm	✓	✓	✓	91
109P0812M701	DC	80×80×15mm	✓	✓	✓	89
109P0824A201(2011)	DC	80×80×32mm	✓	✓	✓	103
109P0824H201(2011)	DC	80×80×32mm	✓	✓	✓	103
109P0824H601	DC	80×80×20mm	✓	✓	✓	91
109P0824H701	DC	80×80×15mm	✓	✓	✓	89
109P0824M201(2011)	DC	80×80×32mm	✓	✓	✓	103
109P0824M601	DC	80×80×20mm	✓	✓	✓	91
109P0824M701	DC	80×80×15mm	✓	✓	✓	89
109P0848C601	DC	80×80×20mm	✓	✓	✓	91
109P0848H201(2011)	DC	80×80×32mm	✓	✓	✓	103
109P0848H601	DC	80×80×20mm	✓	✓	✓	91
109P0912F401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P0912H401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P0912J401	DC	92×92×25mm	✓	✓	✓	111
109P0912L401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P0912M401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P0912W401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P0924F401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P0924H401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P0924J401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P0924L401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P0924M401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P0924W401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P0948H401(4011)	DC	92×92×25mm	✓	✓	✓	111
109P1312H101(1011)	DC	127×127×38mm	✓	✓	✓	139
109P1312S101(1011)	DC	127×127×38mm	✓	✓	✓	139
109P1324H101(1011)	DC	127×127×38mm	✓	✓	✓	139
109P1324S101(1011)	DC	127×127×38mm	✓	✓	✓	139
109P1348H101(1011)	DC	127×127×38mm	✓	✓	✓	139
109P1348S101(1011)	DC	127×127×38mm	✓	✓	✓	139
109P1412H101	DC	140×140×38mm	✓	✓	✓	143
109P1412M101	DC	140×140×38mm	✓	✓	✓	143
109P1424H101	DC	140×140×38mm	✓	✓	✓	143
109P1424M101	DC	140×140×38mm	✓	✓	✓	143
109P1448H101	DC	140×140×38mm	✓	✓	✓	143
109P1448M101	DC	140×140×38mm	✓	✓	✓	143
109R0605F401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0605H401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0605M401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0612D401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0612F401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0612G401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0612H401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0612J401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0612M401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0612S401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0624D401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0624F401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0624G401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0624H401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0624J401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0624M401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0624S401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0648G401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0648H401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0648J401(4011)	DC	60×60×25mm	✓	✓	✓	77
109R0805F401(4011)	DC	80×80×25mm	✓	✓	✓	97
109R0805M401(4011)	DC	80×80×25mm	✓	✓	✓	97
109R0812F401(4011)	DC	80×80×25mm	✓	✓	✓	97

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Model No.	Category	Frame Size	UL	CSA	TÜV	page
9GV0612P1G03(031)	DC	60×60×38mm	✓	✓	✓	83
9GV0612P1H03(031)	DC	60×60×38mm	✓	✓	✓	83
9GV0612P1M03(031)	DC	60×60×38mm	✓	✓	✓	83
9GV0624P1G03(031)	DC	60×60×38mm	✓	✓	✓	83
9GV0648P1H03(031)	DC	60×60×38mm	✓	✓	✓	83
9GV0812P1F03	DC	80×80×38mm	✓	✓	✓	105
9GV0812P1G03(031)	DC	80×80×38mm	✓	✓	✓	105
9GV0812P1H03(031)	DC	80×80×38mm	✓	✓	✓	105
9GV0812P1M03	DC	80×80×38mm	✓	✓	✓	105
9GV0812P4J03(031)	DC	80×80×25mm	✓	✓	✓	93
9GV0812P4K03(031)	DC	80×80×25mm	✓	✓	✓	93
9GV0824P4K01(011)	DC	80×80×25mm	✓	✓	✓	93
9GV0848P1G03	DC	80×80×38mm	✓	✓	✓	105
9GV0848P4K03(031)	DC	80×80×25mm	✓	✓	✓	93
9GV0912P1G03(031)	DC	92×92×38mm	✓	✓	✓	117
9GV0912P1H03(031)	DC	92×92×38mm	✓	✓	✓	117
9GV0948P1H03(031)	DC	92×92×38mm	✓	✓	✓	117
9GV1212P1J01(011)	DC	120×120×38mm	✓	✓	✓	129
9GV1212P4G01(011)	DC	120×120×25mm	✓	✓	✓	121
9GV1224P1H03(031)	DC	120×120×38mm	✓	✓	✓	129
9GV1224P1J01(011)	DC	120×120×38mm	✓	✓	✓	129
9GV1224P4G01(011)	DC	120×120×25mm	✓	✓	✓	121
9GV1248P1J01(011)	DC	120×120×38mm	✓	✓	✓	129
9GV1248P4G01(011)	DC	120×120×25mm	✓	✓	✓	121
9GV1248P4H01(011)	DC	120×120×25mm	✓	✓	✓	121
9GV1512H501(5011)	DC	150×150×50mm	✓	✓	✓	145
9GV1512M501(5011)	DC	150×150×50mm	✓	✓	✓	145
9GV3612G301	DC	36×36×28mm	✓	✓	✓	53
9GV3612J301	DC	36×36×28mm	✓	✓	✓	53
9GV5724H501	DC	φ172mm×150mm×51mm	✓	✓	✓	151
9GV5748H501	DC	φ172mm×150mm×51mm	✓	✓	✓	151
9L0412H301	Long Life Fan	40×40×28mm	✓	✓	✓	241
9L0412J301	Long Life Fan	40×40×28mm	✓	✓	✓	241
9L0412M301	Long Life Fan	40×40×28mm	✓	✓	✓	241
9LB1212H101	Long Life Fan	120×120×38mm	✓	✓	✓	249
9LB1212M101	Long Life Fan	120×120×38mm	✓	✓	✓	249
9LB1224H101	Long Life Fan	120×120×38mm	✓	✓	✓	249
9LB1224M101	Long Life Fan	120×120×38mm	✓	✓	✓	249
9LB1224S101	Long Life Fan	120×120×38mm	✓	✓	✓	249
9LB1248H101	Long Life Fan	120×120×38mm	✓	✓	✓	249
9LB1248M101	Long Life Fan	120×120×38mm	✓	✓	✓	249
9LB1412H501	Long Life Fan	140×140×51mm	✓	✓	✓	257
9LB1412M501	Long Life Fan	140×140×51mm	✓	✓	✓	257
9LB1412S501	Long Life Fan	140×140×51mm	✓	✓	✓	257
9LB1424H501	Long Life Fan	140×140×51mm	✓	✓	✓	257
9LB1424M501	Long Life Fan	140×140×51mm	✓	✓	✓	257
9LB1424S501	Long Life Fan	140×140×51mm	✓	✓	✓	257
9LB1448H501	Long Life Fan	140×140×51mm	✓	✓	✓	257
9LB1448M501	Long Life Fan	140×140×51mm	✓	✓	✓	257
9LB1448S501	Long Life Fan	140×140×51mm	✓	✓	✓	257
9S0612F401(4011)	Silent Fan	60×60×25mm	✓	✓	✓	45
9S0612H401(4011)	Silent Fan	60×60×25mm	✓	✓	✓	45
9S0612M401(4011)	Silent Fan	60×60×25mm	✓	✓	✓	45
9S0812F401(4011)	Silent Fan	80×80×25mm	✓	✓	✓	47
9S0812H401(4011)	Silent Fan	80×80×25mm	✓	✓	—	47
9S0812L401(4011)	Silent Fan	80×80×25mm	✓	✓	✓	47
9S0812M401(4011)	Silent Fan	80×80×25mm	✓	✓	✓	47
9S0824L401(4011)	Silent Fan	80×80×25mm	✓	✓	✓	47
9S0824M401(4011)	Silent Fan	80×80×25mm	✓	✓	✓	47
9S0912F401(4011)	Silent Fan	92×92×25mm	✓	✓	✓	49
9S0912L401(4011)	Silent Fan	92×92×25mm	✓	✓	✓	49
9S0912M401(4011)	Silent Fan	92×92×25mm	✓	✓	✓	49
9S0924F401(4011)	Silent Fan	92×92×25mm	✓	✓	✓	49
9S0924L401(4011)	Silent Fan	92×92×25mm	✓	✓	✓	49
9S0924M401(4011)	Silent Fan	92×92×25mm	✓	✓	✓	49
9S1212F401(4011)	Silent Fan	120×120×25mm	✓	✓	✓	51

Model No.	Category	Frame Size	UL	CSA	TÜV	page
9S1212H401(4011)	Silent Fan	120×120×25mm	✓	✓	✓	51
9S1212L401(4011)	Silent Fan	120×120×25mm	✓	✓	✓	51
9S1212M401(4011)	Silent Fan	120×120×25mm	✓	✓	✓	51
9SG1212G101	DC	120×120×38mm	✓	✓	✓	137
9SG1224G101	DC	120×120×38mm	✓	✓	✓	137
9SG1248G101	DC	120×120×38mm	✓	✓	✓	137
9SG5724P5H61	DC	φ172mm×150mm×51mm	✓	✓	✓	149
9SG5748P5G01	DC	φ172mm×150mm×51mm	✓	✓	✓	149
9SG5748P5H01	DC	φ172mm×150mm×51mm	✓	✓	✓	149
9TG24P0G01	Centrifugal Fan	φ175mm×69mm	✓	✓	✓	269
9TG48P0G01	Centrifugal Fan	φ175mm×69mm	✓	✓	✓	269
9TJ24P0H61	Centrifugal Fan	φ133mm×91mm	✓	✓	✓	265
9TJ48P0H01	Centrifugal Fan	φ133mm×91mm	✓	✓	✓	265
9TM48P4H01	Centrifugal Fan	φ100mm×25mm	✓	✓	✓	263
9TN24P1H01	Centrifugal Fan	φ150mm×35mm	✓	✓	✓	267
9TN48P1H01	Centrifugal Fan	φ150mm×35mm	✓	✓	✓	267
9W1TG48P0H61	Splash Proof Centrifugal Fan	φ175mm×69mm	✓	✓	✓	227
9W1TJ48P0H61	Splash Proof Centrifugal Fan	φ133mm×91mm	—	—	—	223
9W1TM48P4G01	Splash Proof Centrifugal Fan	φ100mm×25mm	✓	✓	✓	221
9W1TM48P4H01	Splash Proof Centrifugal Fan	φ100mm×25mm	—	—	—	221
9W1TN48P1H01	Splash Proof Centrifugal Fan	φ150mm×35mm	✓	✓	✓	225
9WB1412H501	Splash Proof Fan	140×140×51mm	✓	✓	✓	215
9WB1412M501	Splash Proof Fan	140×140×51mm	✓	✓	✓	215
9WB1412S501	Splash Proof Fan	140×140×51mm	✓	✓	✓	215
9WB1424H501	Splash Proof Fan	140×140×51mm	✓	✓	✓	215
9WB1424M501	Splash Proof Fan	140×140×51mm	✓	✓	✓	215
9WB1448H501	Splash Proof Fan	140×140×51mm	✓	✓	✓	215
9WB1448S501	Splash Proof Fan	140×140×51mm	✓	✓	✓	215
9WE1724K501	Splash Proof Fan	φ172mm×51mm	✓	✓	✓	220
9WE5724K501	Splash Proof Fan	φ172mm×150mm×51mm	✓	✓	✓	219
9WE5748K501	Splash Proof Fan	φ172mm×150mm×51mm	✓	✓	✓	219
9WF0424F601	Oil Proof Fan	40×40×20mm	✓	✓	✓	230
9WF0424H601	Oil Proof Fan	40×40×20mm	✓	✓	✓	230
9WF0424H701	Oil Proof Fan	40×40×15mm	✓	✓	✓	229
9WF0624H401	Oil Proof Fan	60×60×25mm	✓	✓	✓	233
9WF0624H601	Oil Proof Fan	60×60×20mm	✓	✓	✓	232
9WF0624H701	Oil Proof Fan	60×60×15mm	✓	✓	✓	231
9WF0824S401	Oil Proof Fan	80×80×25mm	✓	✓	✓	234
9WF0924H201	Oil Proof Fan	92×92×32mm	✓	✓	✓	237
9WF0924H401	Oil Proof Fan	92×92×25mm	✓	✓	✓	235
9WF0924S201	Oil Proof Fan	92×92×32mm	✓	✓	✓	237
9WF1224H101	Oil Proof Fan	120×120×38mm	✓	✓	✓	239
9WVG1212E101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1212F101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1212G101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1212H101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1212M101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1224E101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1224F101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1224G101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1224H101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1224M101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1248E101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1248F101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1248G101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1248H101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG1248M101-E	Splash Proof Fan	120×120×38mm	✓	✓	✓	209
9WVG5748P5G001	Splash Proof Fan	φ172mm×150mm×51mm	—	—	—	217
9WVG5748P5H001	Splash Proof Fan	φ172mm×150mm×51mm	—	—	—	217
9WVP0612G401(4011)	Splash Proof Fan	60×60×25mm	✓	✓	✓	187
9WVP0612H401(4011)	Splash Proof Fan	60×60×25mm	✓	✓	✓	187
9WVP0624H401(4011)	Splash Proof Fan	60×60×25mm	✓	✓	✓	187
9WVP0648H401(4011)	Splash Proof Fan	60×60×25mm	✓	✓	✓	187
9WVP0812G401(4011)	Splash Proof Fan	80×80×25mm	✓	✓	✓	191
9WVP0812H401(4011)	Splash Proof Fan	80×80×25mm	✓	✓	✓	191
9WVP0824H401(4011)	Splash Proof Fan	80×80×25mm	✓	✓	✓	191

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9WP0848S401(4011)	Splash Proof Fan	80×80×25mm	✓	✓	✓	191
9WP0912F401	Splash Proof Fan	92×92×25mm	—	—	—	201
9WP0924B401	Splash Proof Fan	92×92×25mm	✓	✓	✓	201
9WP0924F401	Splash Proof Fan	92×92×25mm	✓	✓	✓	201
9WP0924H401	Splash Proof Fan	92×92×25mm	—	—	—	201
9WP0924S401	Splash Proof Fan	92×92×25mm	—	—	—	201
9WP1212H101(1011)	Splash Proof Fan	120×120×38mm	✓	✓	✓	207
9WP1224H101(1011)	Splash Proof Fan	120×120×38mm	✓	✓	✓	207
9WP1248H101(1011)	Splash Proof Fan	120×120×38mm	✓	✓	✓	207
9WS0812F401(4011)	Splash Proof Fan	80×80×25mm	✓	✓	✓	193
9WS0812H401(4011)	Splash Proof Fan	80×80×25mm	✓	✓	✓	193
9WS0812M401(4011)	Splash Proof Fan	80×80×25mm	✓	✓	✓	193
9WS0824F401(4011)	Splash Proof Fan	80×80×25mm	✓	✓	✓	193
9WS0824H401(4011)	Splash Proof Fan	80×80×25mm	✓	✓	✓	193
9WS0824M401(4011)	Splash Proof Fan	80×80×25mm	✓	✓	✓	193
9WS0912F401	Splash Proof Fan	92×92×25mm	✓	✓	✓	199
9WS0912H401	Splash Proof Fan	92×92×25mm	✓	✓	✓	199
9WS0912L401	Splash Proof Fan	92×92×25mm	✓	✓	✓	199
9WS0912M401	Splash Proof Fan	92×92×25mm	✓	✓	✓	199
9WS0924F401	Splash Proof Fan	92×92×25mm	✓	✓	✓	199
9WS0924H401	Splash Proof Fan	92×92×25mm	✓	✓	✓	199
9WS0924L401	Splash Proof Fan	92×92×25mm	✓	✓	✓	199
9WS0924M401	Splash Proof Fan	92×92×25mm	✓	✓	✓	199
9WS1212H101(1011)	Splash Proof Fan	120×120×38mm	✓	✓	✓	211
9WS1212M101(1011)	Splash Proof Fan	120×120×38mm	✓	✓	✓	211
9WS1224H101(1011)	Splash Proof Fan	120×120×38mm	✓	✓	✓	211
9WS1224M101(1011)	Splash Proof Fan	120×120×38mm	✓	✓	✓	211
9WS1248H101(1011)	Splash Proof Fan	120×120×38mm	✓	✓	✓	211
9WS1248M101(1011)	Splash Proof Fan	120×120×38mm	✓	✓	✓	211
9WV0848P1H001(0011)	Splash Proof Fan	80×80×38mm	✓	✓	✓	195
9WV0948P1H001	Splash Proof Fan	92×92×38mm	✓	✓	✓	203
9WV1224P1H001	Splash Proof Fan	120×120×38mm	✓	✓	✓	205
9WV1248P1J001	Splash Proof Fan	120×120×38mm	✓	✓	✓	205

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60×60×20mm	Oil Proof Fan	9WF0624H601	✓	✓	✓	232
60×60×25mm	DC	9G0612P4H001(0011)	✓	✓	✓	75
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60×60×25mm	DC	9G0624P4S001(0011)	✓	✓	✓	75
60×60×25mm	DC	9G0648P4S001(0011)	✓	✓	✓	75
60×60×25mm	DC	109R0605F401(4011)	✓	✓	✓	77
60×60×25mm	DC	109R0605H401(4011)	✓	✓	✓	77
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60×60×25mm	DC	109R0612D401(4011)	✓	✓	✓	77
60×60×25mm	DC	109R0612F401(4011)	✓	✓	✓	77
60×60×25mm	DC	109R0612G401(4011)	✓	✓	✓	77
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60×60×25mm	DC	109R0624D401(4011)	✓	✓	✓	77
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60×60×25mm	DC	109R0624S401(4011)	✓	✓	✓	77
60×60×25mm	DC	109R0648G401(4011)	✓	✓	✓	77
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60×60×25mm	DC	9A0612F401(4011)	✓	✓	✓	81
60×60×25mm	DC	9A0612G401(4011)	✓	✓	✓	81
60×60×25mm	DC	9A0612H401(4011)	✓	✓	✓	81
60×60×25mm	DC	9A0612M401(4011)	✓	✓	✓	81
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60×60×25mm	DC	9A0624F401(4011)	✓	✓	✓	81
60×60×25mm	DC	9A0624G401(4011)	✓	✓	✓	81
60×60×25mm	DC	9A0624H401(4011)	✓	✓	✓	81
60×60×25mm	DC	9A0624M401(4011)	✓	✓	✓	81
60×60×25mm	DC	9A0624S401(4011)	✓	✓	✓	81
60×60×25mm	Silent Fan	9S0612M401(4011)	✓	✓	✓	45
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60×60×25mm	Splash Proof Fan	9WP0612G401(4011)	✓	✓	✓	187
60×60×25mm	Splash Proof Fan	9WP0612H401(4011)	✓	✓	✓	187
60×60×25mm	Long Life Fan	109L0612F401	✓	✓	✓	243
60×60×25mm	Long Life Fan	109L0612G401	✓	✓	✓	243
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60×60×25mm	Silent Fan	9S0612F401(4011)	✓	✓	✓	45
60×60×25mm	Silent Fan	9S0612H401(4011)	✓	✓	✓	45
60×60×25mm	Splash Proof Fan	9WP0624H401(4011)	✓	✓	✓	187
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60×60×38mm	DC	9G0612G101(1011)	✓	✓	✓	87
60×60×38mm	DC	9G0612S101(1011)	✓	✓	✓	87
60×60×38mm	DC	9G0624G101(1011)	✓	✓	✓	87
60×60×38mm	DC	9G0624H101(1011)	✓	✓	✓	87
60×60×38mm	DC	9G0624S101(1011)	—	—	—	87
60×60×38mm	DC	9G0648G101(1011)	✓	✓	✓	87
60×60×38mm	DC	9G0648S101(1011)	✓	✓	✓	87
60×60×38mm	Low Power Consumption Fan	9GA0612P1H03(031)	✓	✓	✓	29
60×60×38mm	Low Power Consumption Fan	9GA0612P1J03(031)	✓	✓	✓	29

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60×60×38mm	Low Power Consumption Fan	9GA0612P1K03(031)	✓	✓	✓	29
60×60×38mm	Low Power Consumption Fan	9GA0612P1K60(601)	✓	✓	✓	29
60×60×38mm	DC	9GV0612P1G03(031)	✓	✓	✓	83
60×60×38mm	DC	9GV0612P1H03(031)	✓	✓	✓	83
60×60×38mm	DC	9GV0612P1M03(031)	✓	✓	✓	83
60×60×38mm	DC	9GV0624P1G03(031)	✓	✓	✓	83
60×60×38mm	DC	9GV0648P1H03(031)	✓	✓	✓	83
60×60×51mm	Counter Rotating Fan	9CR0612P5G03	✓	✓	✓	177
60×60×51mm	Counter Rotating Fan	9CR0612P5H03	✓	✓	✓	177
60×60×76mm	Counter Rotating Fan	9CR0612H001	✓	✓	✓	179
60×60×76mm	Counter Rotating Fan	9CR0612S001	✓	✓	✓	179
80×80×15mm	DC	109P0812H701	✓	✓	✓	89
80×80×15mm	DC	109P0812M701	✓	✓	✓	89
80×80×15mm	DC	109P0824H701	✓	✓	✓	89
80×80×15mm	DC	109P0824M701	✓	✓	✓	89
80×80×20mm	DC	109P0812C601	—	—	—	91
80×80×20mm	DC	109P0812H601	✓	✓	✓	91
80×80×20mm	DC	109P0812M601	✓	✓	✓	91
80×80×20mm	DC	109P0824H601	✓	✓	✓	91
80×80×20mm	DC	109P0824M601	✓	✓	✓	91
80×80×20mm	DC	109P0848C601	✓	✓	✓	91
80×80×20mm	DC	109P0848H601	✓	✓	✓	91
80×80×25mm	DC	109R0805F401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0805M401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0812F401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0812G401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0812H401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0812L401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0812M401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0812S401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0824F401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0824G401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0824H401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0824L401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0824M401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0824S401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0848K401(4011)	✓	✓	✓	97
80×80×25mm	DC	109R0848S401(4011)	✓	✓	✓	97
80×80×25mm	Splash Proof Fan	109V0812L401-U	✓	✓	✓	189
80×80×25mm	Splash Proof Fan	109V0812M401-U	✓	✓	✓	189
80×80×25mm	Splash Proof Fan	109V0824F401-U	✓	✓	✓	189
80×80×25mm	Splash Proof Fan	109V0824H401-U	✓	✓	✓	189
80×80×25mm	Splash Proof Fan	109V0824L401-U	✓	✓	✓	189
80×80×25mm	Splash Proof Fan	109V0824M401-U	✓	✓	✓	189
80×80×25mm	Splash Proof Fan	109V0848H401-U	✓	✓	✓	189
80×80×25mm	DC	9A0812F401(4011)	✓	✓	✓	101
80×80×25mm	DC	9A0812G401(4011)	✓	✓	✓	101
80×80×25mm	DC	9A0812H401(4011)	✓	✓	✓	101
80×80×25mm	DC	9A0812L401(4011)	✓	✓	✓	101
80×80×25mm	DC	9A0812M401(4011)	✓	✓	✓	101
80×80×25mm	DC	9A0812S401(4011)	✓	✓	✓	101
80×80×25mm	DC	9A0824F401(4011)	✓	✓	✓	101
80×80×25mm	DC	9A0824G401(4011)	✓	✓	✓	101
80×80×25mm	DC	9A0824H401(4011)	✓	✓	✓	101
80×80×25mm	DC	9A0824L401(4011)	✓	✓	✓	101
80×80×25mm	DC	9A0824M401(4011)	✓	✓	✓	101
80×80×25mm	DC	9A0824S401(4011)	✓	✓	✓	101
80×80×25mm	DC	9GV0812P4J03(031)	✓	✓	✓	93
80×80×25mm	DC	9GV0812P4K03(031)	✓	✓	✓	93
80×80×25mm	DC	9GV0824P4K01(011)	✓	✓	✓	93
80×80×25mm	DC	9GV0848P4K03(031)	✓	✓	✓	93
80×80×25mm	Silent Fan	9S0812H401(4011)	✓	✓	—	47
80×80×25mm	Silent Fan	9S0824L401(4011)	✓	✓	✓	47
80×80×25mm	Silent Fan	9S0824M401(4011)	✓	✓	✓	47
80×80×25mm	Oil Proof Fan	9WF0824S401	✓	✓	✓	234
80×80×25mm	Splash Proof Fan	9WP0812G401(4011)	✓	✓	✓	191

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80×80×25mm	Splash Proof Fan	9WP0812H401(4011)	✓	✓	✓	191
80×80×25mm	Splash Proof Fan	9WP0824H401(4011)	✓	✓	✓	191
80×80×25mm	Splash Proof Fan	9WP0848S401(4011)	✓	✓	✓	191
80×80×25mm	Splash Proof Fan	9WS0812F401(4011)	✓	✓	✓	193
80×80×25mm	Splash Proof Fan	9WS0812H401(4011)	✓	✓	✓	193
80×80×25mm	Splash Proof Fan	9WS0812M401(4011)	✓	✓	✓	193
80×80×25mm	Splash Proof Fan	9WS0824F401(4011)	✓	✓	✓	193
80×80×25mm	Splash Proof Fan	9WS0824H401(4011)	✓	✓	✓	193
80×80×25mm	Splash Proof Fan	9WS0824M401(4011)	✓	✓	✓	193
80×80×25mm	Long Life Fan	109L0812F401	✓	✓	✓	245
80×80×25mm	Long Life Fan	109L0812H401	✓	✓	✓	245
80×80×25mm	Long Life Fan	109L0812L401	✓	✓	✓	245
80×80×25mm	Long Life Fan	109L0812M401	✓	✓	✓	245
80×80×25mm	Long Life Fan	109L0812S401	✓	✓	✓	245
80×80×25mm	Long Life Fan	109L0824F401	✓	✓	✓	245
80×80×25mm	Long Life Fan	109L0824H401	✓	✓	✓	245
80×80×25mm	Long Life Fan	109L0824L401	✓	✓	✓	245
80×80×25mm	Long Life Fan	109L0824M401	✓	✓	✓	245
80×80×25mm	Long Life Fan	109L0824S401	✓	✓	✓	245
80×80×25mm	Long Life Fan	109L0848H401	✓	✓	✓	245
80×80×25mm	Splash Proof Fan	109W0812F401-U	✓	✓	✓	189
80×80×25mm	Splash Proof Fan	109W0812H401-U	✓	✓	✓	189
80×80×25mm	Silent Fan	9S0812F401(4011)	✓	✓	✓	47
80×80×25mm	Silent Fan	9S0812L401(4011)	✓	✓	✓	47
80×80×25mm	Silent Fan	9S0812M401(4011)	✓	✓	✓	47
80×80×32mm	DC	109P0812A201(2011)	✓	✓	✓	103
80×80×32mm	DC	109P0812H201(2011)	✓	✓	✓	103
80×80×32mm	DC	109P0812M201(2011)	✓	✓	✓	103
80×80×32mm	DC	109P0824A201(2011)	✓	✓	✓	103
80×80×32mm	DC	109P0824H201(2011)	✓	✓	✓	103
80×80×32mm	DC	109P0824M201(2011)	✓	✓	✓	103
80×80×32mm	DC	109P0848H201(2011)	✓	✓	✓	103
80×80×32mm	Low Power Consumption Fan	9GA0812P2H001(0011)	✓	✓	✓	33
80×80×32mm	Low Power Consumption Fan	9GA0812P2S001(0011)	✓	✓	✓	33
80×80×32mm	Low Power Consumption Fan	9GA0824P2S001(0011)	✓	✓	✓	33
80×80×38mm	DC	9G0812G101(1011)	✓	✓	✓	109
80×80×38mm	DC	9G0812H101(1011)	✓	✓	✓	109
80×80×38mm	DC	9G0812K101(1011)	✓	✓	✓	109
80×80×38mm	DC	9G0824G101(1011)	✓	✓	✓	109
80×80×38mm	DC	9G0824H101(1011)	✓	✓	✓	109
80×80×38mm	DC	9G0848G101(1011)	✓	✓	✓	109
80×80×38mm	DC	9G0848H101(1011)	✓	✓	✓	109
80×80×38mm	Low Power Consumption Fan	9GA0812P1H61(611)	✓	✓	✓	35
80×80×38mm	Low Power Consumption Fan	9GA0812P1S61(611)	✓	✓	✓	35
80×80×38mm	Low Power Consumption Fan	9GA0824P1H61(611)	✓	✓	✓	35
80×80×38mm	Low Power Consumption Fan	9GA0824P1S61(611)	✓	✓	✓	35
80×80×38mm	DC	9GV0812P1F03	✓	✓	✓	105
80×80×38mm	DC	9GV0812P1G03(031)	✓	✓	✓	105
80×80×38mm	DC	9GV0812P1H03(031)	✓	✓	✓	105
80×80×38mm	DC	9GV0812P1M03	✓	✓	✓	105
80×80×38mm	DC	9GV0848P1G03	✓	✓	✓	105
80×80×38mm	Splash Proof Fan	9WV0848P1H001(0011)	✓	✓	✓	195
80×80×80mm	Counter Rotating Fan	9CRA0812P8G001	✓	✓	✓	181
80×80×80mm	Counter Rotating Fan	9CRA0848P8G001	—	—	—	181
80×80×80mm	Counter Rotating Fan	9CR0812H801	✓	✓	✓	183
80×80×80mm	Counter Rotating Fan	9CR0812S801	✓	✓	✓	183
92×92×25mm	DC	109P0912F401(4011)	✓	✓	✓	111
92×92×25mm	DC	109P0912H401(4011)	✓	✓	✓	111
92×92×25mm	DC	109P0912J401	✓	✓	✓	111
92×92×25mm	DC	109P0912L401(4011)	✓	✓	✓	111
92×92×25mm	DC	109P0912M401(4011)	✓	✓	✓	111
92×92×25mm	DC	109P0912W401(4011)	✓	✓	✓	111
92×92×25mm	DC	109P0924F401(4011)	✓	✓	✓	111
92×92×25mm	DC	109P0924H401(4011)	✓	✓	✓	111
92×92×25mm	DC	109P0924J401(4011)	✓	✓	✓	111
92×92×25mm	DC	109P0924L401(4011)	✓	✓	✓	111

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92×92×25mm	DC	109P0924M401(4011)	✓	✓	✓	111
92×92×25mm	DC	109P0924W401(4011)	✓	✓	✓	111
92×92×25mm	DC	109P0948H401(4011)	✓	✓	✓	111
92×92×25mm	Splash Proof Fan	109W0912L401-U	✓	✓	✓	197
92×92×25mm	Splash Proof Fan	109W0912M401-U	✓	✓	✓	197
92×92×25mm	Splash Proof Fan	109W0924F401-U	✓	✓	✓	197
92×92×25mm	Splash Proof Fan	109W0924H401-U	✓	✓	✓	197
92×92×25mm	Splash Proof Fan	109W0924L401-U	✓	✓	✓	197
92×92×25mm	Splash Proof Fan	109W0924M401-U	✓	✓	✓	197
92×92×25mm	Splash Proof Fan	109W0948H401-U	✓	✓	✓	197
92×92×25mm	DC	9A0912F401(4011)	✓	✓	✓	113
92×92×25mm	DC	9A0912G401(4011)	✓	✓	✓	113
92×92×25mm	DC	9A0912H401(4011)	✓	✓	✓	113
92×92×25mm	DC	9A0912L401(4011)	✓	✓	✓	113
92×92×25mm	DC	9A0912M401(4011)	✓	✓	✓	113
92×92×25mm	DC	9A0912S401(4011)	✓	✓	✓	113
92×92×25mm	DC	9A0924F401(4011)	✓	✓	✓	113
92×92×25mm	DC	9A0924G401(4011)	✓	✓	✓	113
92×92×25mm	DC	9A0924H401(4011)	✓	✓	✓	113
92×92×25mm	DC	9A0924L401(4011)	✓	✓	✓	113
92×92×25mm	DC	9A0924M401(4011)	✓	✓	✓	113
92×92×25mm	DC	9A0924S401(4011)	✓	✓	✓	113
92×92×25mm	Silent Fan	9S0912F401(4011)	✓	✓	✓	49
92×92×25mm	Silent Fan	9S0912L401(4011)	✓	✓	✓	49
92×92×25mm	Silent Fan	9S0912M401(4011)	✓	✓	✓	49
92×92×25mm	Silent Fan	9S0924F401(4011)	✓	✓	✓	49
92×92×25mm	Silent Fan	9S0924L401(4011)	✓	✓	✓	49
92×92×25mm	Silent Fan	9S0924M401(4011)	✓	✓	✓	49
92×92×25mm	Oil Proof Fan	9WF0924H401	✓	✓	✓	235
92×92×25mm	Splash Proof Fan	9WP0912F401	—	—	—	201
92×92×25mm	Splash Proof Fan	9WP0924B401	✓	✓	✓	201
92×92×25mm	Splash Proof Fan	9WP0924F401	✓	✓	✓	201
92×92×25mm	Splash Proof Fan	9WP0924H401	—	—	—	201
92×92×25mm	Splash Proof Fan	9WP0924S401	—	—	—	201
92×92×25mm	Splash Proof Fan	9WS0912F401	✓	✓	✓	199
92×92×25mm	Splash Proof Fan	9WS0912H401	✓	✓	✓	199
92×92×25mm	Splash Proof Fan	9WS0912L401	✓	✓	✓	199
92×92×25mm	Splash Proof Fan	9WS0912M401	✓	✓	✓	199
92×92×25mm	Splash Proof Fan	9WS0924F401	✓	✓	✓	199
92×92×25mm	Splash Proof Fan	9WS0924H401	✓	✓	✓	199
92×92×25mm	Splash Proof Fan	9WS0924L401	✓	✓	✓	199
92×92×25mm	Splash Proof Fan	9WS0924M401	✓	✓	✓	199
92×92×25mm	Long Life Fan	109L0912F401	✓	✓	✓	247
92×92×25mm	Long Life Fan	109L0912H401	✓	✓	✓	247
92×92×25mm	Long Life Fan	109L0912L401	✓	✓	✓	247
92×92×25mm	Long Life Fan	109L0912M401	✓	✓	✓	247
92×92×25mm	Long Life Fan	109L0912S401	✓	✓	✓	247
92×92×25mm	Long Life Fan	109L0924F401	✓	✓	✓	247
92×92×25mm	Long Life Fan	109L0924H401	✓	✓	✓	247
92×92×25mm	Long Life Fan	109L0924L401	✓	✓	✓	247
92×92×25mm	Long Life Fan	109L0924M401	✓	✓	✓	247
92×92×25mm	Long Life Fan	109L0948C401	✓	✓	✓	247
92×92×25mm	Long Life Fan	109L0948H401	✓	✓	✓	247
92×92×25mm	Splash Proof Fan	109W0912F401-U	✓	✓	✓	197
92×92×25mm	Splash Proof Fan	109W0912H401-U	✓	✓	✓	197
92×92×25mm	Low Power Consumption Fan	9GA0912P4G03(031)	✓	✓	✓	39
92×92×25mm	Low Power Consumption Fan	9GA0912P4J03(031)	✓	✓	✓	39
92×92×25mm	Low Power Consumption Fan	9GA0912P4S03(031)	✓	✓	✓	39
92×92×25mm	Low Power Consumption Fan	9GA0924P4G03(031)	✓	✓	✓	39
92×92×25mm	Low Power Consumption Fan	9GA0924P4J03(031)	✓	✓	✓	39
92×92×25mm	Low Power Consumption Fan	9GA0924P4S03(031)	✓	✓	✓	39
92×92×32mm	DC	9G0912A201(2011)	✓	✓	✓	115
92×92×32mm	DC	9G0912H201(2011)	✓	✓	✓	115
92×92×32mm	DC	9G0912M201(2011)	✓	✓	✓	115
92×92×32mm	DC	9G0912S201(2011)	✓	✓	✓	115
92×92×32mm	DC	9G0924A201(2011)	✓	✓	✓	115

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92×92×32mm	DC	9G0924H201(2011)	✓	✓	✓	115
92×92×32mm	DC	9G0924M201(2011)	✓	✓	✓	115
92×92×32mm	DC	9G0924S201(2011)	✓	✓	✓	115
92×92×32mm	DC	9G0948A201(2011)	✓	✓	✓	115
92×92×32mm	DC	9G0948H201(2011)	✓	✓	✓	115
92×92×32mm	DC	9G0948M201(2011)	✓	✓	✓	115
92×92×32mm	DC	9G0948S201(2011)	✓	✓	✓	115
92×92×32mm	Oil Proof Fan	9WV0924H201	✓	✓	✓	237
92×92×32mm	Oil Proof Fan	9WV0924S201	✓	✓	✓	237
92×92×38mm	DC	9G0912G101(1011)	✓	✓	✓	119
92×92×38mm	DC	9G0912H101(1011)	✓	✓	✓	119
92×92×38mm	DC	9G0924G101(1011)	✓	✓	✓	119
92×92×38mm	DC	9G0924H101(1011)	✓	✓	✓	119
92×92×38mm	DC	9G0948G101(1011)	✓	✓	✓	119
92×92×38mm	DC	9G0948H101(1011)	✓	✓	✓	119
92×92×38mm	Low Power Consumption Fan	9GA0912P1H03(031)	✓	✓	✓	43
92×92×38mm	Low Power Consumption Fan	9GA0948P1H03	✓	✓	✓	43
92×92×38mm	DC	9GV0912P1G03(031)	✓	✓	✓	117
92×92×38mm	DC	9GV0912P1H03(031)	✓	✓	✓	117
92×92×38mm	DC	9GV0948P1H03(031)	✓	✓	✓	117
92×92×38mm	Splash Proof Fan	9WV0948P1H001	✓	✓	✓	203
120×120×25mm	DC	9G1212A401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1212E401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1212F401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1212G401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1212H401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1212M401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1224A401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1224E401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1224F401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1224G401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1224H401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1224M401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1248A401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1248E401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1248F401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1248G401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1248H401(4011)	✓	✓	✓	125
120×120×25mm	DC	9G1248M401(4011)	✓	✓	✓	125
120×120×25mm	DC	9GV1212P4G01(011)	✓	✓	✓	121
120×120×25mm	DC	9GV1224P4G01(011)	✓	✓	✓	121
120×120×25mm	DC	9GV1248P4G01(011)	✓	✓	✓	121
120×120×25mm	DC	9GV1248P4H01(011)	✓	✓	✓	121
120×120×25mm	Silent Fan	9S1212F401(4011)	✓	✓	✓	51
120×120×25mm	Silent Fan	9S1212H401(4011)	✓	✓	✓	51
120×120×25mm	Silent Fan	9S1212L401(4011)	✓	✓	✓	51
120×120×25mm	Silent Fan	9S1212M401(4011)	✓	✓	✓	51
120×120×38mm	DC	9G1212E101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1212F101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1212G101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1212H101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1212M101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1224E101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1224F101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1224G101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1224H101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1224M101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1248E101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1248F101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1248G101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1248H101(1011)	✓	✓	✓	133
120×120×38mm	DC	9G1248M101(1011)	✓	✓	✓	133
120×120×38mm	DC	9GV1212P1J01(011)	✓	✓	✓	129
120×120×38mm	DC	9GV1224P1H03(031)	✓	✓	✓	129
120×120×38mm	DC	9GV1224P1J01(011)	✓	✓	✓	129
120×120×38mm	DC	9GV1248P1J01(011)	✓	✓	✓	129

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120×120×38mm	DC	9SG1212G101	✓	✓	✓	137
120×120×38mm	DC	9SG1224G101	✓	✓	✓	137
120×120×38mm	DC	9SG1248G101	✓	✓	✓	137
120×120×38mm	Oil Proof Fan	9WV1224H101	✓	✓	✓	239
120×120×38mm	Splash Proof Fan	9WV1224P1H001	✓	✓	✓	205
120×120×38mm	Splash Proof Fan	9WV1248P1J001	✓	✓	✓	205
120×120×38mm	Long Life Fan	9GL1212E101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1212F101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1212G101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1212H101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1212M101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1224E101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1224F101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1224G101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1224H101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1224M101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1248E101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1248F101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1248G101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1248H101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9GL1248M101	✓	✓	✓	251
120×120×38mm	Long Life Fan	9LB1212H101	✓	✓	✓	249
120×120×38mm	Long Life Fan	9LB1212M101	✓	✓	✓	249
120×120×38mm	Long Life Fan	9LB1224H101	✓	✓	✓	249
120×120×38mm	Long Life Fan	9LB1224M101	✓	✓	✓	249
120×120×38mm	Long Life Fan	9LB1224S101	✓	✓	✓	249
120×120×38mm	Long Life Fan	9LB1248H101	✓	✓	✓	249
120×120×38mm	Long Life Fan	9LB1248M101	✓	✓	✓	249
120×120×38mm	Splash Proof Fan	9WG1212E101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1212F101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1212G101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1212H101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1212M101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1224E101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1224F101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1224G101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1224H101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1224M101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1248E101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1248F101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1248G101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1248H101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WG1248M101-E	✓	✓	✓	209
120×120×38mm	Splash Proof Fan	9WP1212H101(1011)	✓	✓	✓	207
120×120×38mm	Splash Proof Fan	9WP1224H101(1011)	✓	✓	✓	207
120×120×38mm	Splash Proof Fan	9WP1248H101(1011)	✓	✓	✓	207
120×120×38mm	Splash Proof Fan	9WS1212H101(1011)	✓	✓	✓	211
120×120×38mm	Splash Proof Fan	9WS1212M101(1011)	✓	✓	✓	211
120×120×38mm	Splash Proof Fan	9WS1224H101(1011)	✓	✓	✓	211
120×120×38mm	Splash Proof Fan	9WS1224M101(1011)	✓	✓	✓	211
120×120×38mm	Splash Proof Fan	9WS1248H101(1011)	✓	✓	✓	211
120×120×38mm	Splash Proof Fan	9WS1248M101(1011)	✓	✓	✓	211
120×120×76mm	Counter Rotating Fan	9CR1212P0G03	✓	✓	✓	185
127×127×38mm	DC	109E1312A101	✓	✓	✓	141
127×127×38mm	DC	109E1312S101	✓	✓	✓	141
127×127×38mm	DC	109E1324A101	✓	✓	✓	141
127×127×38mm	DC	109E1324G101	✓	✓	✓	141
127×127×38mm	DC	109E1324S101	✓	✓	✓	141
127×127×38mm	DC	109E1348A101	✓	✓	✓	141
127×127×38mm	DC	109E1348G101	✓	✓	✓	141
127×127×38mm	DC	109E1348S101	✓	✓	✓	141
127×127×38mm	DC	109P1312H101(1011)	✓	✓	✓	139
127×127×38mm	DC	109P1312S101(1011)	✓	✓	✓	139
127×127×38mm	DC	109P1324H101(1011)	✓	✓	✓	139
127×127×38mm	DC	109P1324S101(1011)	✓	✓	✓	139
127×127×38mm	DC	109P1348H101(1011)	✓	✓	✓	139

Index by Frame Size/Safety Standards List - Axial Fan

Frame Size	Category	Model No.	UL	CSA	TÜV	page
127×127×38mm	DC	109P1348S101(1011)	✓	✓	✓	139
140×140×38mm	DC	109P1412H101	✓	✓	✓	143
140×140×38mm	DC	109P1412M101	✓	✓	✓	143
140×140×38mm	DC	109P1424H101	✓	✓	✓	143
140×140×38mm	DC	109P1424M101	✓	✓	✓	143
140×140×38mm	DC	109P1448H101	✓	✓	✓	143
140×140×38mm	DC	109P1448M101	✓	✓	✓	143
140×140×38mm	Long Life Fan	109L1412H101	✓	✓	✓	255
140×140×38mm	Long Life Fan	109L1412M101	✓	✓	✓	255
140×140×38mm	Long Life Fan	109L1424H101	✓	✓	✓	255
140×140×38mm	Long Life Fan	109L1424M101	✓	✓	✓	255
140×140×38mm	Long Life Fan	109L1448H101	✓	✓	✓	255
140×140×38mm	Long Life Fan	109L1448M101	✓	✓	✓	255
140×140×38mm	Splash Proof Fan	109W1412H101-U	✓	✓	✓	213
140×140×38mm	Splash Proof Fan	109W1412M101-U	✓	✓	✓	213
140×140×38mm	Splash Proof Fan	109W1424H101-U	✓	✓	✓	213
140×140×38mm	Splash Proof Fan	109W1424M101-U	✓	✓	✓	213
140×140×38mm	Splash Proof Fan	109W1448H101-U	✓	✓	✓	213
140×140×38mm	Splash Proof Fan	109W1448M101-U	✓	✓	✓	213
140×140×51mm	Long Life Fan	9LB1412H501	✓	✓	✓	257
140×140×51mm	Long Life Fan	9LB1412M501	✓	✓	✓	257
140×140×51mm	Long Life Fan	9LB1412S501	✓	✓	✓	257
140×140×51mm	Long Life Fan	9LB1424H501	✓	✓	✓	257
140×140×51mm	Long Life Fan	9LB1424M501	✓	✓	✓	257
140×140×51mm	Long Life Fan	9LB1424S501	✓	✓	✓	257
140×140×51mm	Long Life Fan	9LB1448H501	✓	✓	✓	257
140×140×51mm	Long Life Fan	9LB1448M501	✓	✓	✓	257
140×140×51mm	Long Life Fan	9LB1448S501	✓	✓	✓	257
140×140×51mm	Splash Proof Fan	9WB1412H501	✓	✓	✓	215
140×140×51mm	Splash Proof Fan	9WB1412M501	✓	✓	✓	215
140×140×51mm	Splash Proof Fan	9WB1412S501	✓	✓	✓	215
140×140×51mm	Splash Proof Fan	9WB1424H501	✓	✓	✓	215
140×140×51mm	Splash Proof Fan	9WB1424M501	✓	✓	✓	215
140×140×51mm	Splash Proof Fan	9WB1448H501	✓	✓	✓	215
140×140×51mm	Splash Proof Fan	9WB1448S501	✓	✓	✓	215
150×150×50mm	DC	9GV1512H501(5011)	✓	✓	✓	145
150×150×50mm	DC	9GV1512M501(5011)	✓	✓	✓	145
φ172mm×147mm×25mm	DC	109E4712L401	✓	✓	✓	147
φ172mm×147mm×25mm	DC	109E4712M401	✓	✓	✓	147
φ172mm×147mm×25mm	DC	109E4724F401	✓	✓	✓	147
φ172mm×147mm×25mm	DC	109E4724H401	✓	✓	✓	147
φ172mm×147mm×25mm	DC	109E4724L401	✓	✓	✓	147
φ172mm×147mm×25mm	DC	109E4724M401	✓	✓	✓	147
φ172mm×147mm×25mm	DC	109E4748F401	✓	✓	✓	147
φ172mm×147mm×25mm	DC	109E4748H401	✓	✓	✓	147
φ172mm×147mm×25mm	DC	109E4748L401	✓	✓	✓	147
φ172mm×147mm×25mm	DC	109E4748M401	✓	✓	✓	147
φ172mm×147mm×25mm	DC	109E4748S401	✓	✓	✓	147
φ172mm×150mm×51mm	Splash Proof Fan	9WVG5748P5G001	—	—	—	217
φ172mm×150mm×51mm	Splash Proof Fan	9WVG5748P5H001	—	—	—	217
φ172mm×150mm×51mm	DC	109E5712F501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5712H501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5712K501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5712M501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5712Y501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5724C501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5724F501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5724H501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5724K501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5724M501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5748C501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5748F501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5748H501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5748K501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	109E5748M501	✓	✓	✓	153
φ172mm×150mm×51mm	DC	9GV5724H501	✓	✓	✓	151

Frame Size	Category	Model No.	UL	CSA	TÜV	page
φ172mm×150mm×51mm	DC	9GV5748H501	✓	✓	✓	151
φ172mm×150mm×51mm	DC	9SG5724P5H61	✓	✓	✓	149
φ172mm×150mm×51mm	DC	9SG5748P5G01	✓	✓	✓	149
φ172mm×150mm×51mm	DC	9SG5748P5H01	✓	✓	✓	149
φ172mm×51mm	Splash Proof Fan	9WE1724K501	✓	✓	✓	220
φ172mm×150mm×51mm	Splash Proof Fan	9WE5724K501	✓	✓	✓	219
φ172mm×150mm×51mm	Splash Proof Fan	9WE5748K501	✓	✓	✓	219
φ172mm×51mm	DC	109E1712H501	✓	✓	✓	155
φ172mm×51mm	DC	109E1712K501	✓	✓	✓	155
φ172mm×51mm	DC	109E1712M501	✓	✓	✓	155
φ172mm×51mm	DC	109E1724C501	✓	✓	✓	155
φ172mm×51mm	DC	109E1724H501	✓	✓	✓	155
φ172mm×51mm	DC	109E1724K501	✓	✓	✓	155
φ172mm×51mm	DC	109E1724M501	✓	✓	✓	155
φ172mm×51mm	DC	109E1748C501	✓	✓	✓	155
φ172mm×51mm	DC	109E1748H501	✓	✓	✓	155
φ172mm×51mm	DC	109E1748K501	✓	✓	✓	155
φ172mm×51mm	DC	109E1748M501	✓	✓	✓	155
φ172mm×51mm	Long Life Fan	109L1712H501	✓	✓	✓	261
φ172mm×51mm	Long Life Fan	109L1712M501	✓	✓	✓	261
φ172mm×51mm	Long Life Fan	109L1724H501	✓	✓	✓	261
φ172mm×51mm	Long Life Fan	109L1724M501	✓	✓	✓	261
φ172mm×51mm	Long Life Fan	109L1748H501	✓	✓	✓	261
φ172mm×51mm	Long Life Fan	109L1748M501	✓	✓	✓	261
φ172mm×150mm×51mm	Long Life Fan	109L5712H501	✓	✓	✓	259
φ172mm×150mm×51mm	Long Life Fan	109L5712M501	✓	✓	✓	259
φ172mm×150mm×51mm	Long Life Fan	109L5724H501	✓	✓	✓	259
φ172mm×150mm×51mm	Long Life Fan	109L5724M501	✓	✓	✓	259
φ172mm×150mm×51mm	Long Life Fan	109L5748H501	✓	✓	✓	259
φ172mm×150mm×51mm	Long Life Fan	109L5748M501	✓	✓	✓	259
φ200mm×70mm	DC	109E2024AS001	✓	✓	✓	157
φ200mm×70mm	DC	109E2024H001	✓	✓	✓	157
φ200mm×70mm	DC	109E2024MH001	✓	✓	✓	157
φ200mm×70mm	DC	109E2024S001	✓	✓	✓	157
φ200mm×70mm	DC	9EC2024H001	✓	✓	✓	159
φ200mm×70mm	DC	9EC2048A001	✓	✓	✓	159
φ200mm×70mm	DC	9EC2048H001	✓	✓	✓	159

Index by Frame Size/Safety Standards List Option

Model No.	Category	Matching Fan Size	page
109-1050	Finger guards	36mm sq. type	291
109-1065	Finger guards	38mm sq. type	291
109-059	Finger guards	40mm sq. type	291
109-149	Finger guards	52mm sq. type	291
109-149E	Finger guards	52mm sq. type	291
109-1003F13	Resin filter kits	60mm sq. type	293
109-1003F20	Resin filter kits	60mm sq. type	293
109-1003F30	Resin filter kits	60mm sq. type	293
109-1003F40	Resin filter kits	60mm sq. type	293
109-1003G	Resin Finger guards	60mm sq. type	293
109-139E	Finger guards	60mm sq. type	291
109-139H	Finger guards	60mm sq. type	291
109-049C	Finger guards	80mm sq. type	291
109-049E	Finger guards	80mm sq. type	291
109-049H	Finger guards	80mm sq. type	291
109-1002F13	Resin filter kits	80mm sq. type	293
109-1002F20	Resin filter kits	80mm sq. type	293
109-1002F30	Resin filter kits	80mm sq. type	293
109-1002F40	Resin filter kits	80mm sq. type	293
109-1002G	Resin Finger guards	80mm sq. type	293
109-1038	EMC guards	80mm sq. type	292
109-1039	EMC guards	80mm sq. type	292
109-099C	Finger guards	92mm sq. type	291
109-099E	Finger guards	92mm sq. type	291
109-099H	Finger guards	92mm sq. type	291
109-1001F13	Resin filter kits	92mm sq. type	293
109-1001F20	Resin filter kits	92mm sq. type	293
109-1001F30	Resin filter kits	92mm sq. type	293
109-1001F40	Resin filter kits	92mm sq. type	293
109-1001G	Resin Finger guards	92mm sq. type	293
109-1040	EMC guards	92mm sq. type	292
109-1080	Inlet nozzle for centrifugal fan and splash proof centrifugal fan	φ 100mm sq. type	292
109-019C	Finger guards	120mm sq. type	291
109-019E	Finger guards	120mm sq. type	291
109-019H	Finger guards	120mm sq. type	291
109-019K	Finger guards	120mm sq. type	291
109-1000F13	Resin filter kits	120mm sq. type	293
109-1000F20	Resin filter kits	120mm sq. type	293
109-1000F30	Resin filter kits	120mm sq. type	293
109-1000F40	Resin filter kits	120mm sq. type	293
109-1000G	Resin Finger guards	120mm sq. type	293
109-1037	EMC guards	120mm sq. type	292
109-722	Finger guards	127mm sq. type	291
109-723	Finger guards	127mm sq. type	291
109-1069	Inlet nozzle for centrifugal fan and splash proof centrifugal fan	φ 133mm sq. type	292
109-719	Finger guards	140mm sq. type	291
109-719H	Finger guards	140mm sq. type	291
109-1051	Finger guards	150mm sq. type	291
109-1052	Finger guards	150mm sq. type	291
109-1081	Inlet nozzle for centrifugal fan and splash proof centrifugal fan	φ 150mm sq. type	292
109-1036	EMC guards	φ 172mm sq. type	292
109-319E	Finger guards	φ 172mm sq. type	291
109-319H	Finger guards	φ 172mm sq. type	291
109-320	Finger guards	φ 172mm sq. type	291
109-1073	Inlet nozzle for centrifugal fan and splash proof centrifugal fan	φ 175mm sq. type	292
109-720	Finger guards	φ 200mm sq. type	291
109-720H	Finger guards	φ 200mm sq. type	291
109-721	Finger guards	φ 200mm sq. type	292
109-721H	Finger guards	φ 200mm sq. type	292

Recommended connectors for DC fans ····· 294p

Thermistor ····· 294p

IC L8730 for DC fan sensor ····· 294p

Deleted models in this catalog

Following models were deleted in this latest version of catalog.

However, these models are not discontinued product.

Please contact us for further assistance if necessary.

■ Thermal Speed Controlled Fan

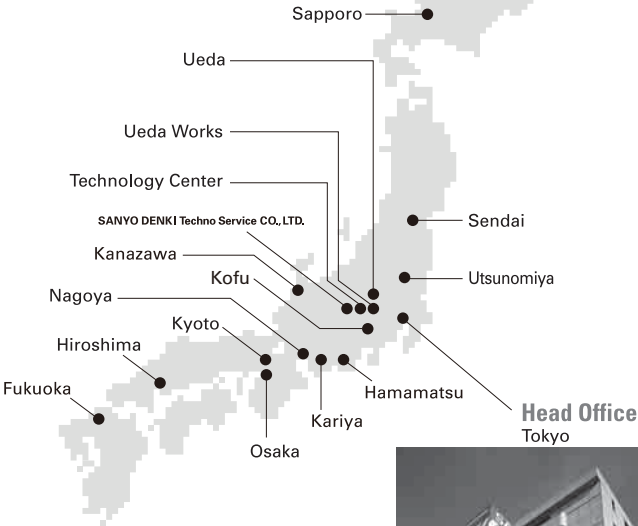
Size	Model No.	Frame material	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Air Flow [m ³ /min] [CFM]		Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
52 × 52 × 15mm	109P0512T7H12	Plastics	12	10.2 to 13.8	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

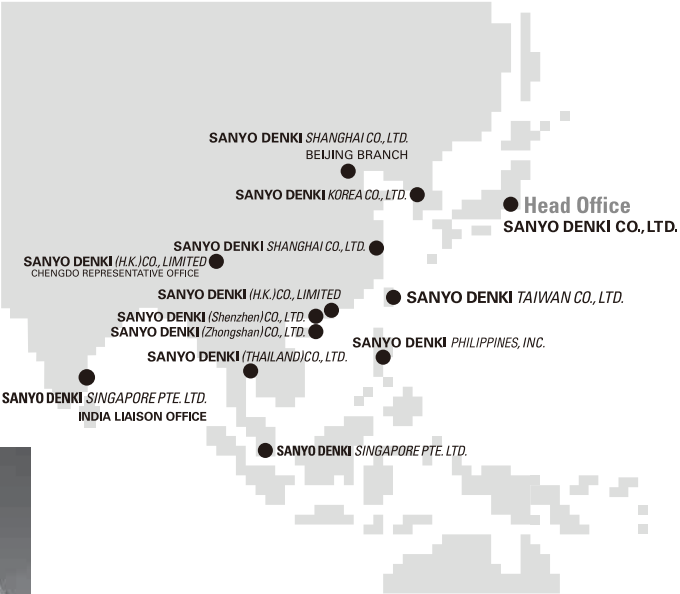
Socket	Model No.	Frame material	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Speed [min ⁻¹]	θ _{ca} Thermal Resistance [K/W]	SPL [dB(A)]	Operating Temperature [°C]	Life Expectancy [h]
478	109X9912T0D516	Plastics	12	9 to 13.8	0.44	5,200	0.28	44	0 to + 70	40,000
						2,570	0.385	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

• Storage temperature is -30°C to +70°C.

JAPAN



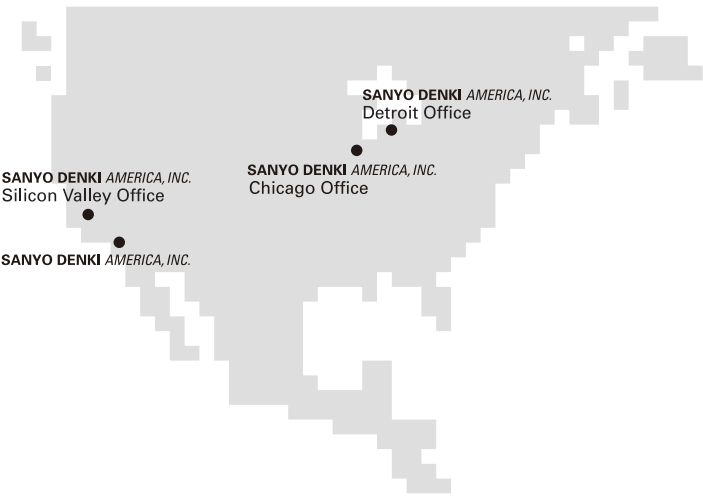
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EUROPE



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