

Вентилятор sanyo denki san ace , Минск тел. +375447584780

www.fotorele.net www.tiristor.by радиодетали, электронные компоненты

email minsk17@tut.by tel.+375 29 758 47 80 МТС

каталог, описание, технические, характеристики, datasheet, параметры, маркировка, габариты, фото

QR код



9GT type

Wide Temperature Range Fan DC

These fans achieve an operating temperature range of -40°C to +85°C. They operate in a wide temperature range, serving in various applications where conventional fans could not be used. They are suitable for refrigerators and freezers, lighting devices, communications devices, PV inverters, and rapid EV charging stations.

40mm sq. to 120mm sq.
⇒pp. 359 to 370



9AD type

ACDC Fan AC

This fan operates by internally converting AC power into DC power. It provides the superior performance of a DC fan with the flexibility of AC input.

92x92x38mm
⇒pp. 413 to 416

120x120x38mm
⇒pp. 417 to 420



9RF type

Reversible Flow Fan DC

Multiple fans are usually used to blow air in both directions to ventilate houses, and to cool drink vending machines, and food display cases. With reversible flow fans, the wind direction can be switched so fewer fans are required.

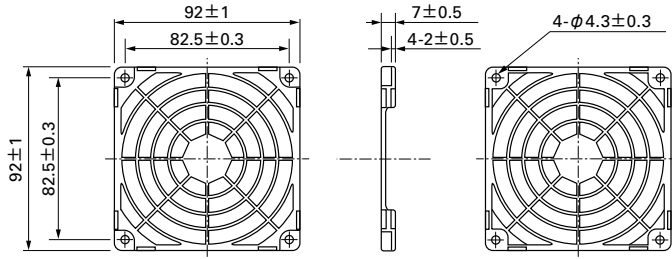
φ136x28mm
⇒pp. 243 to 244



Options (unit: mm)

Resin Finger Guards

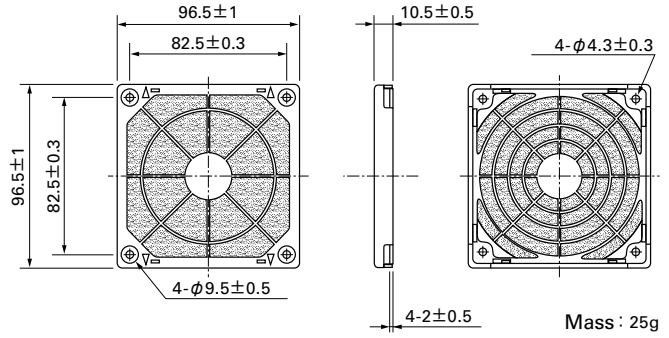
Model : 109-1001G



Mass : 12g

Resin Filter Kits

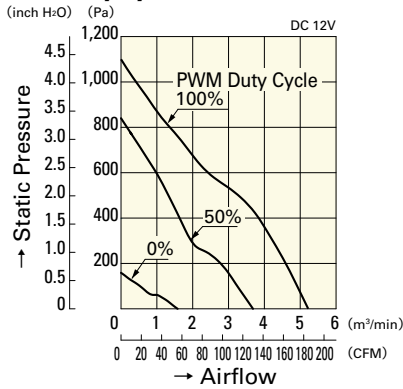
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



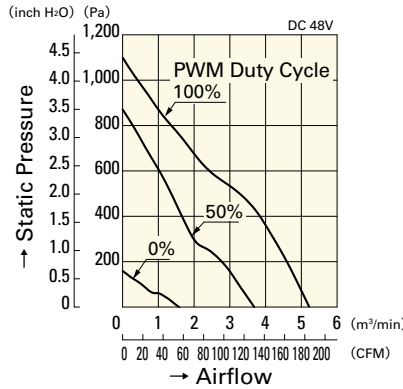
Mass : 25g

Airflow - Static Pressure Characteristics

PWM Duty Cycle

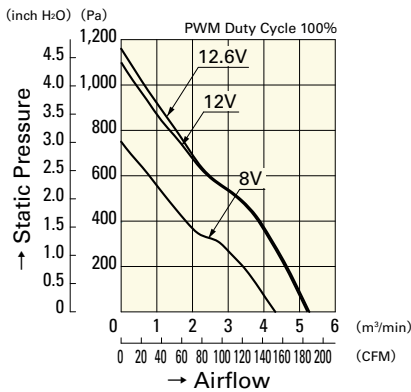


9HV0912P1G001

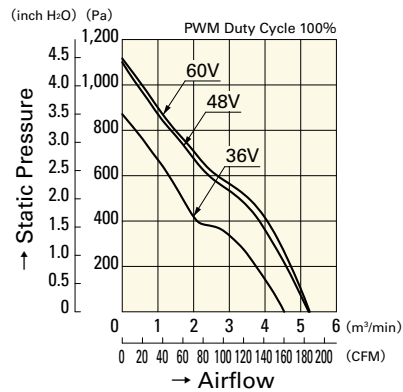


9HV0948P1G001

Operating Voltage Range

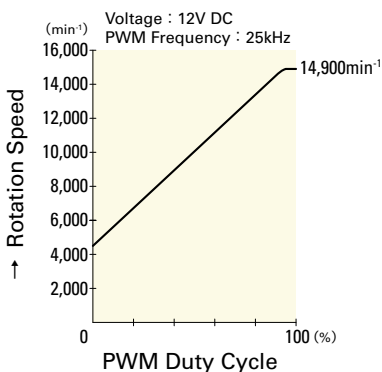


9HV0912P1G001

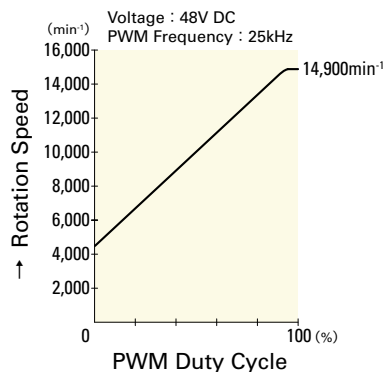


9HV0948P1G001

PWM Duty - Speed Characteristics Example



9HV0912P1G001



9HV0948P1G001

92mm sq.

San Ace 92



General Specifications

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

92×92×38mm (Mass : 250g) **9GV type** 

Specifications

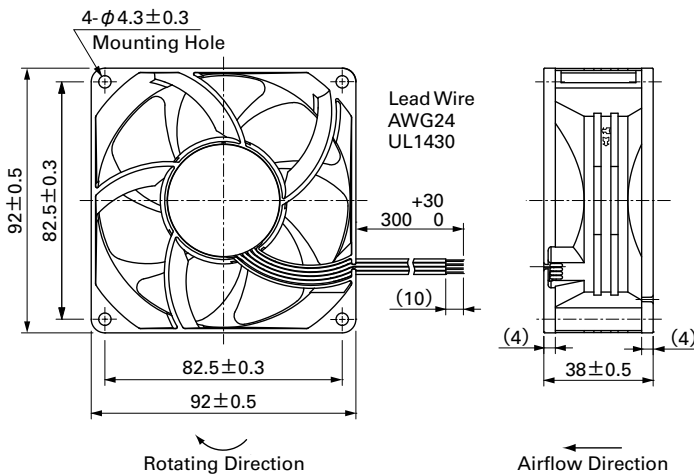
The following nos. **have PWM controls, pulse sensors, and ribs.** For ribless, append "1" to the model no.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]		
9GV0912P1G03	12	10.8 to 13.2	100	4.10	49.2	9,000	5.35 189.0	430.0 1.73	68	-20 to +70	40,000/60°C		
			0	0.33	4.0	2,900	1.72 60.8	44.6 0.18	37				
10.2 to 13.8		100	3.50	42.0	8,500	5.05 178.0	385.0 1.55	64	-10 to +70				
		0	0.29	3.5	2,700	1.60 56.5	38.8 0.16	34					
9GV0912P1F03		48	40.8 to 55.2	100	1.9	22.8	7,000	4.15 146.6	261 1.05			59	-20 to +70
				0	0.16	1.92	2,200	1.3 45.9	25.7 0.1			31	
9GV0948P1H03	100		0.82	39.4	8,500	5.05 178.0	385.0 1.55	64	-20 to +70				
			0	0.14	6.7	4,000	2.37 83.7	85.2 0.34		45			
9GV0948P1F03	100		0.48	23.04	7,000	4.15 146.6	261 1.05	59	-10 to +70				
			0	0.12	5.76	3,500	2.07 73.1	65.2 0.26		42			

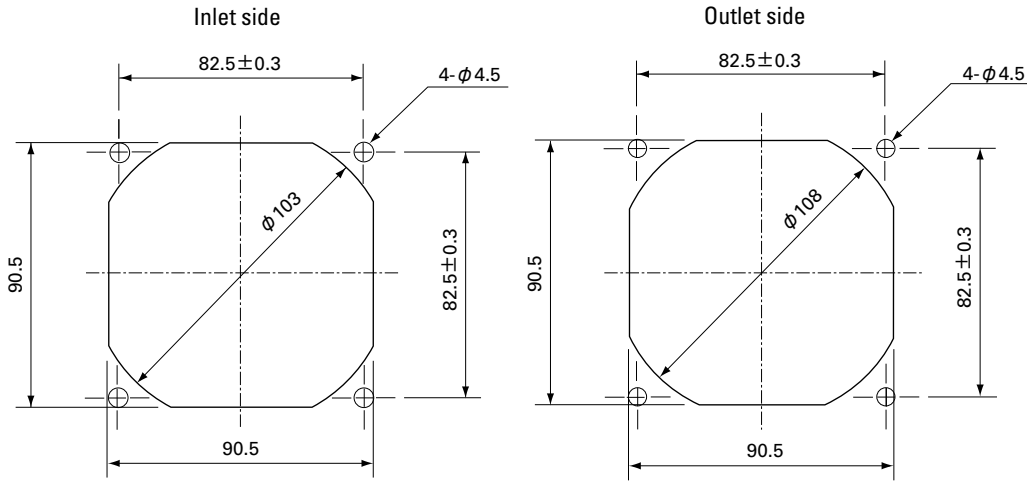
*PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (pp. 507 to 508).

Dimensions (unit: mm) (With ribs)



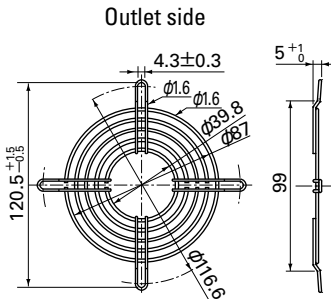
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

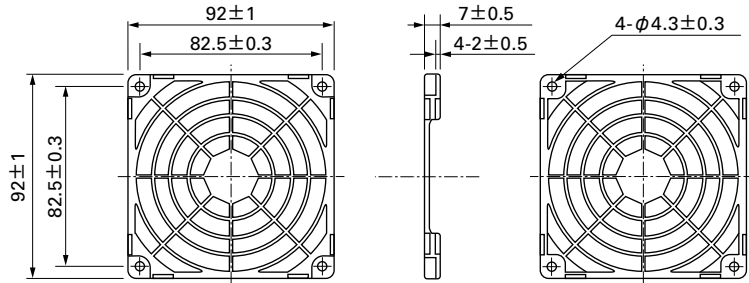
Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color



Mass : 22g

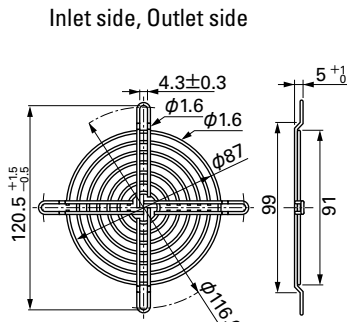
Resin Finger Guards

Model : 109-1001G



Mass : 12g

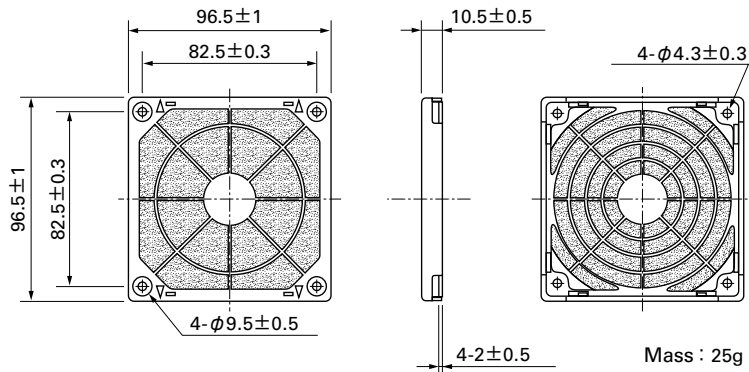
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)



Mass : 29g

Resin Filter Kits

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



Mass : 25g

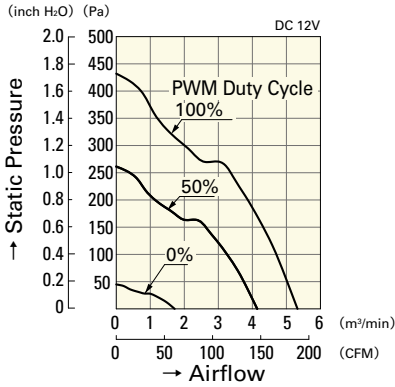
92mm sq.

San Ace 92

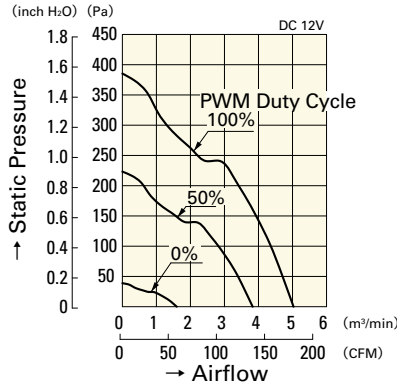
92×92×38mm [Mass : 250g]

Airflow - Static Pressure Characteristics

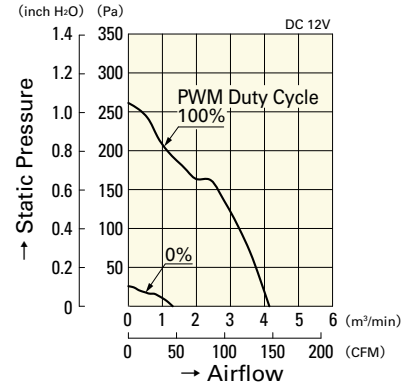
PWM Duty Cycle



9GV0912P1G03

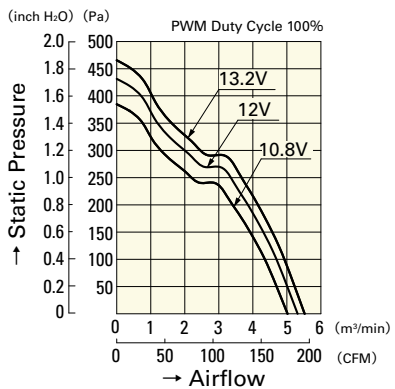


9GV0912P1H03

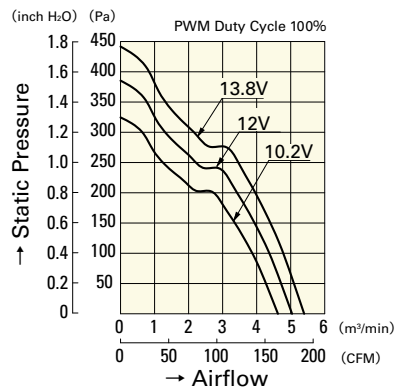


9GV0912P1F03

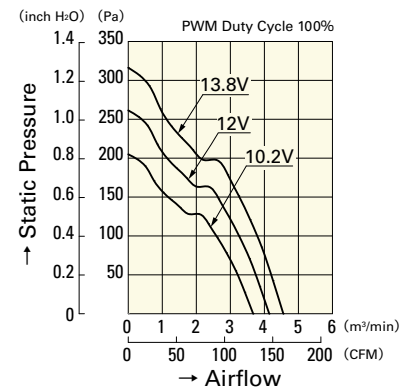
Operating Voltage Range



9GV0912P1G03

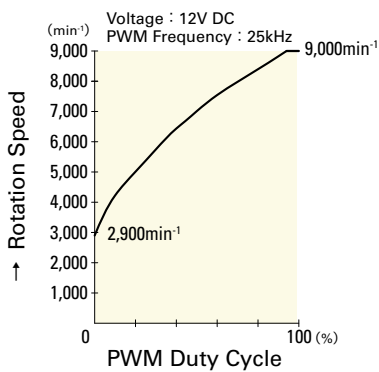


9GV0912P1H03

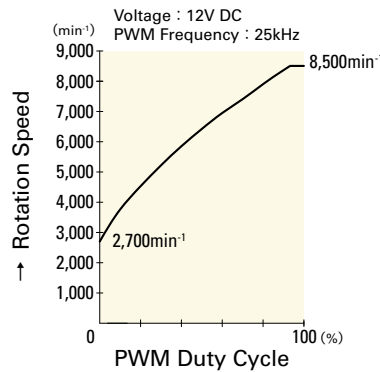


9GV0912P1F03

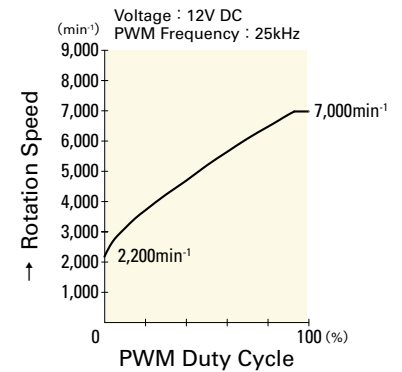
PWM Duty - Speed Characteristics Example



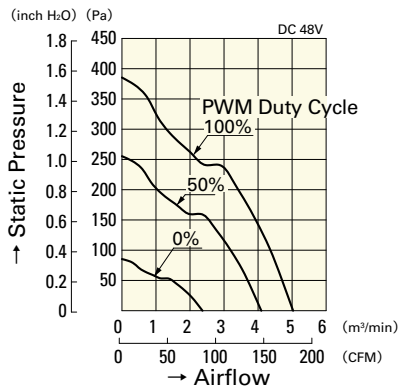
9GV0912P1G03



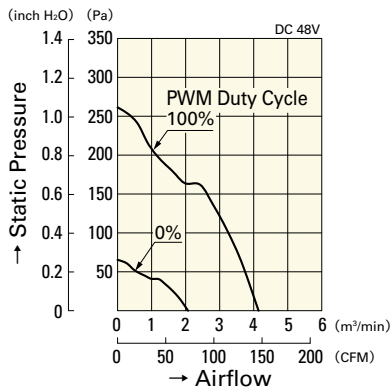
9GV0912P1H03



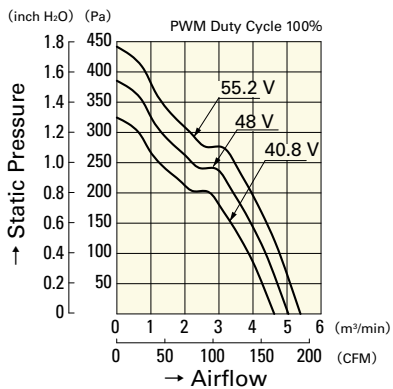
9GV0912P1F03



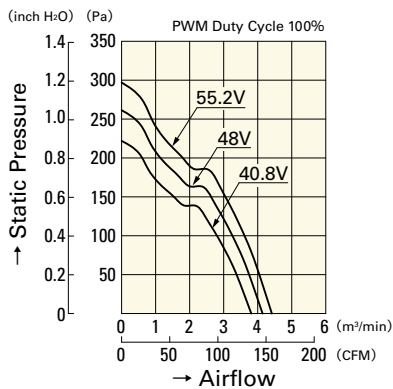
9GV0948P1H03



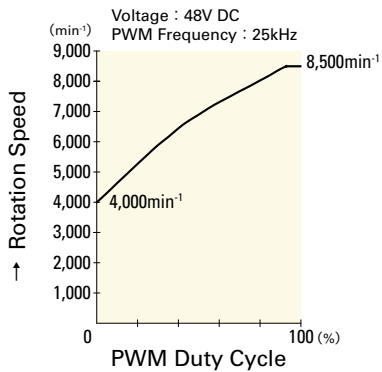
9GV0948P1F03



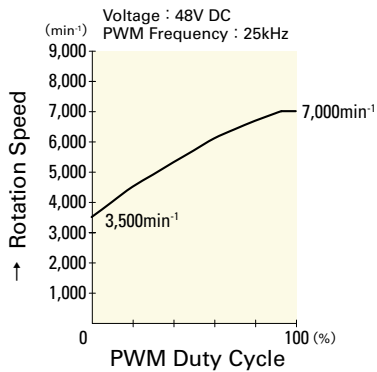
9GV0948P1H03



9GV0948P1F03



9GV0948P1H03



9GV0948P1F03

92mm sq.

San Ace 92



General Specifications

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

92×92×38mm (Mass : 180g) **9G type**

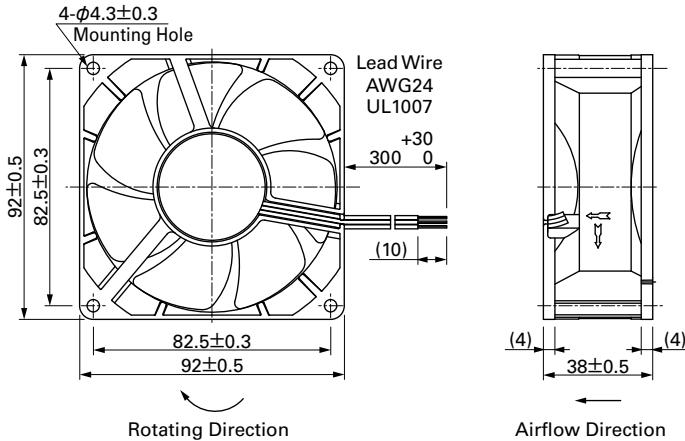
Specifications

The following nos. **have pulse sensors and ribs**. For ribless, append "1" to the model no.

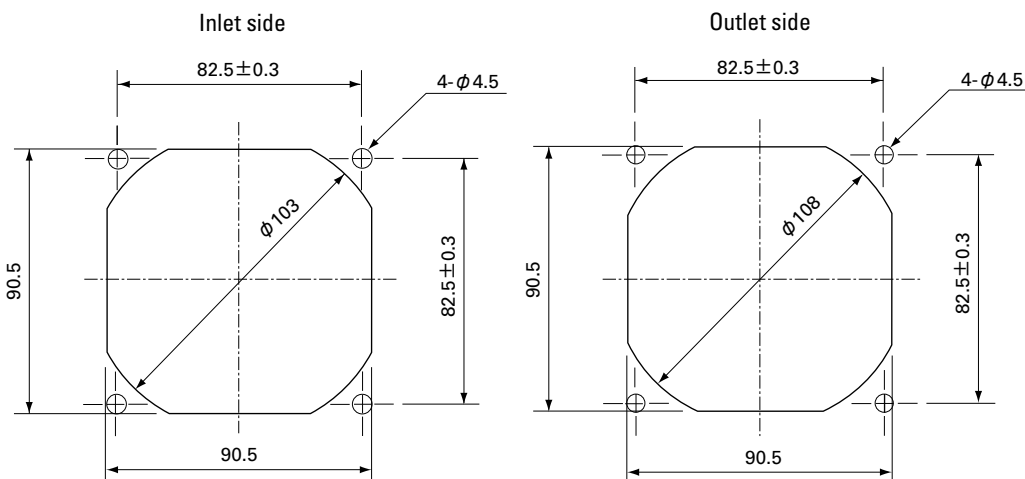
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9G0912G101	12	7.0 to 13.8	1.1	13.2	5,000	3.10 110	150 0.602	50	-20 to +60	40,000/60°C
9G0912H101			0.58	6.96	4,000	2.54 90	100 0.402	43		
9G0924G101	24	20.4 to 27.6	0.55	13.2	5,000	3.10 110	150 0.602	50		
9G0924H101			0.3	7.2	4,000	2.54 90	100 0.402	43		
9G0948J101	48	40.8 to 55.2	0.32	15.36	5,500	3.41 120.49	178 0.715	55	-20 to +70	40,000/60°C
9G0948G101			0.27	12.96	5,000	3.10 110	150 0.602	50	-20 to +60	
9G0948H101			0.16	7.68	4,000	2.54 90	100 0.402	43		

Other sensor specifications are available as options. Please refer to the index (pp. 502 to 503).

Dimensions (unit: mm) (With ribs)



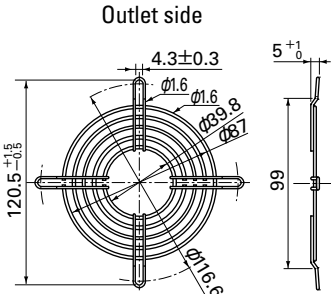
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

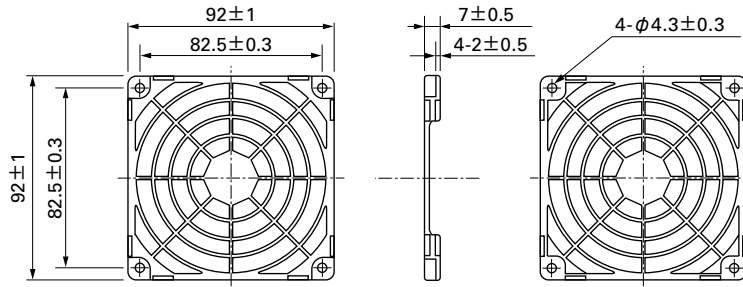
Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color : Nickel-chrome plating (silver)



Mass : 22g

Resin Finger Guards

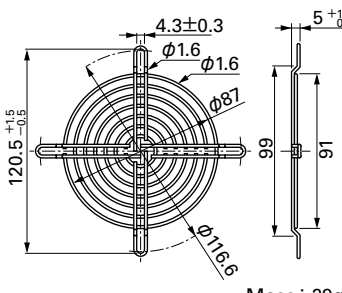
Model : 109-1001G



Mass : 12g

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

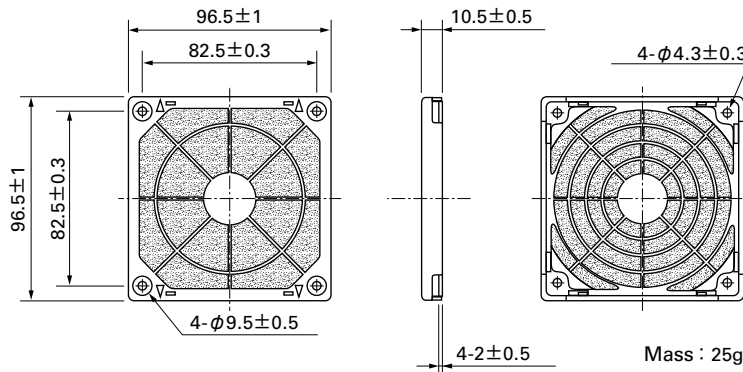
Inlet side, Outlet side



Mass : 29g

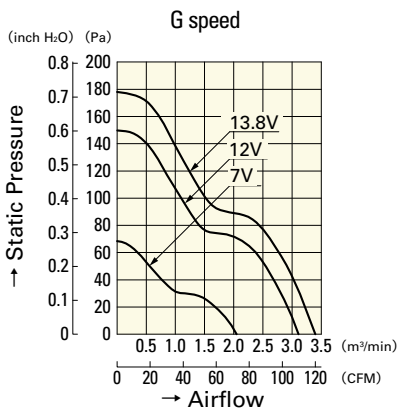
Resin Filter Kits

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

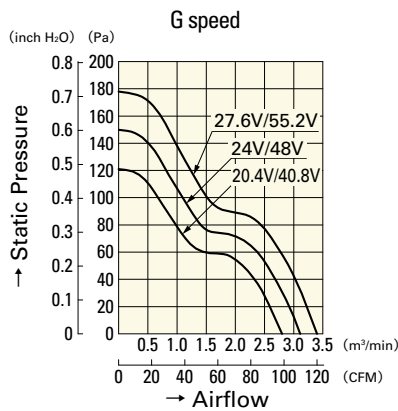


Mass : 25g

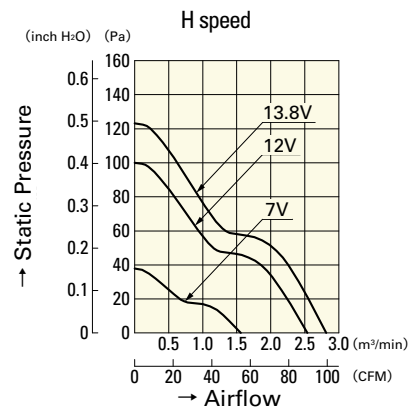
Airflow - Static Pressure Characteristics



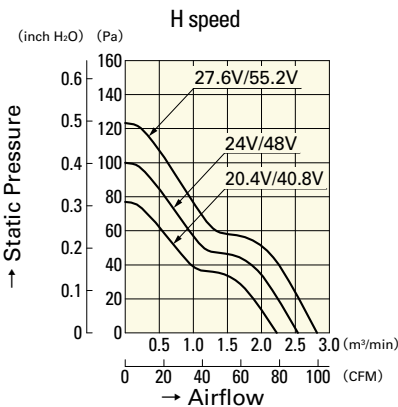
9G0912G101



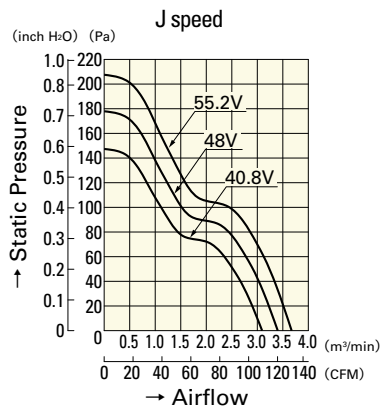
9G0924G101
9G0948G101



9G0912H101



9G0924H101
9G0948H101



9G0948J101

120mm sq.

San Ace 120



General Specifications

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

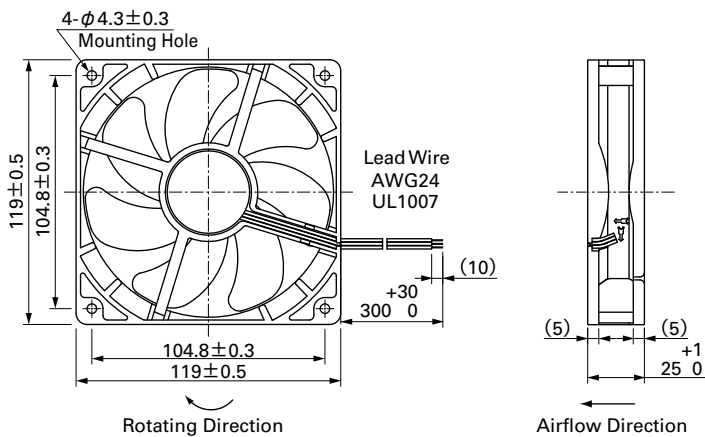
120×120×25mm (Mass : 140g) **9S type** **Silent Fan**

Specifications The following nos. **have pulse sensors and ribs.** For ribless, append "1" to the model no.

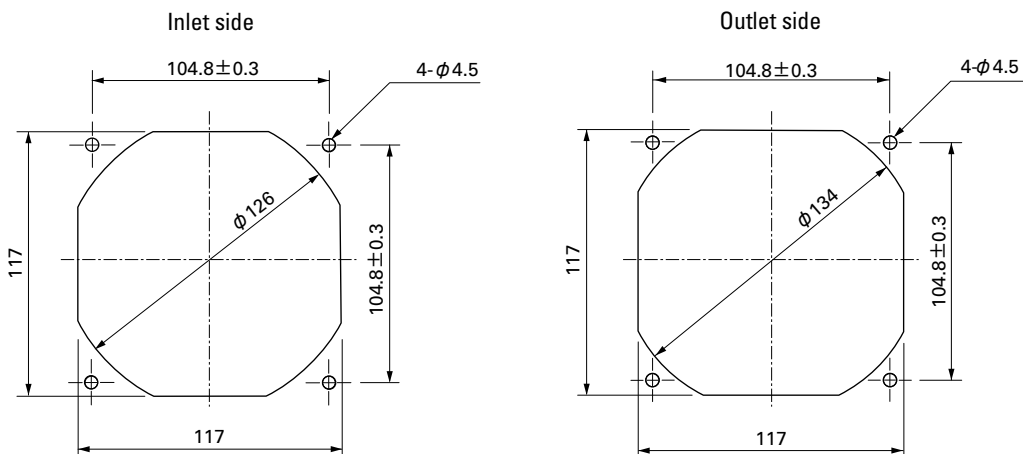
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9S1212H401	12	5.0 to 13.2	0.39	4.68	2,700	2.45 86.5	45.2 0.18	36	-10 to +60	40,000/60°C
9S1212F401		5.0 to 13.8	0.19	2.28	2,200	2.00 70.6	30.0 0.12	30		
9S1212M401		6.0 to 13.8	0.13	1.56	1,850	1.66 58.6	22.7 0.09	24		
9S1212L401		7.0 to 13.8	0.08	0.96	1,500	1.36 48.1	14.9 0.06	17		
9S1224M401	24	14 to 26.4	0.06	1.44	1,850	1.66 58.6	22.7 0.090	24		

Other sensor specifications are available as options. Please refer to the index (p. 510).

Dimensions (unit: mm) (With ribs)



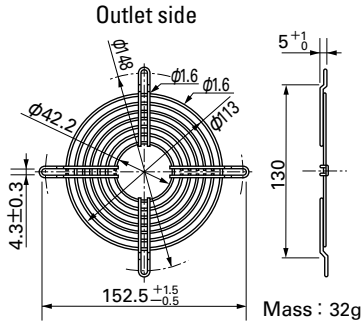
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

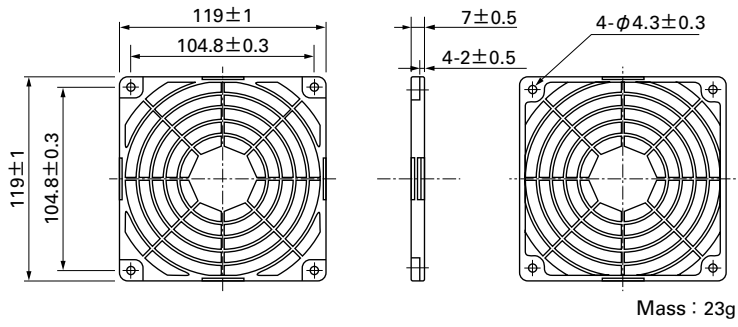
Finger Guards

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



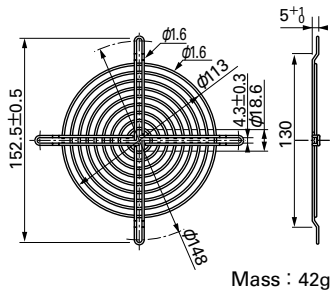
Resin Finger Guards

Model : 109-1000G



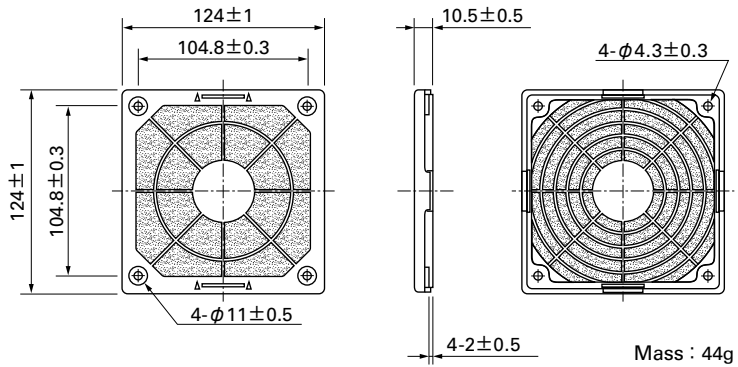
Model : 109-019E Surface treatment : Nickel-chrome plating (silver) Color
 : 109-019K : Cation electropainting (black)

Inlet side, Outlet side

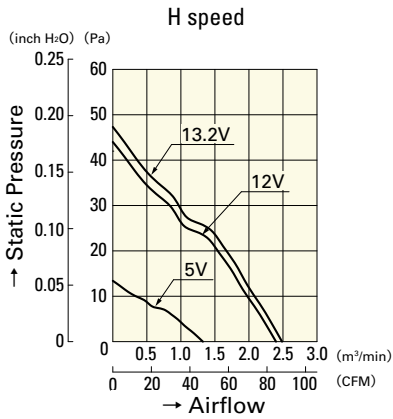


Resin Filter Kits

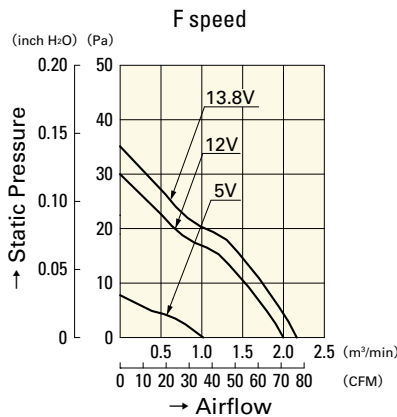
Model : 109-1000F13 (13PPI), 109-1000F20 (20PPI)
 : 109-1000F30 (30PPI), 109-1000F40 (40PPI)



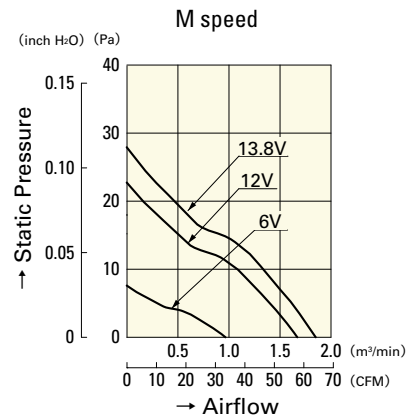
Airflow - Static Pressure Characteristics



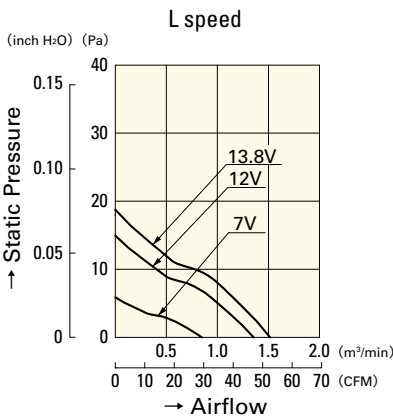
9S1212H401



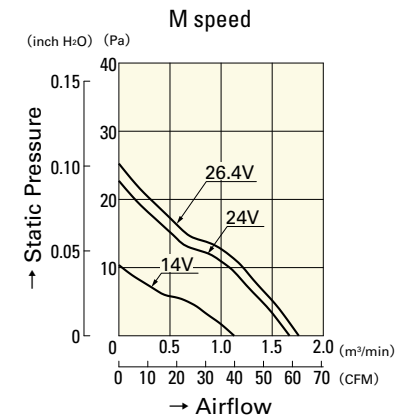
9S1212F401



9S1212M401



9S1212L401



9S1224M401

120mm sq.

San Ace 120



General Specifications

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

120×120×25mm (Mass : 260g) **9GV type**

Specifications

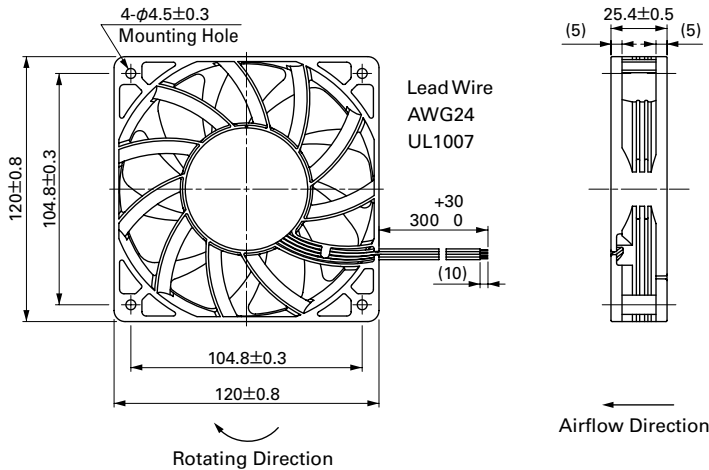
The following nos. **have PWM controls, pulse sensors, and ribs.** For ribless, append "1" to the model no.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GV1212P4G01	12	10.2 to 13.8	100	1.68	20.16	5,100	4.83 171	224 0.90	58	-20 to +70	40,000/60°C
			0	0.18	2.16	1,650	1.56 55.1	23.5 0.09	30		
9GV1224P4G01	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		
9GV1248P4J01	48	40.8 to 55.2	100	0.5	24.00	5,400	5.11 180	251 1.01	59		
			0	0.15	7.20	3,000	2.84 100	77.5 0.31	47		
9GV1248P4G01	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	48	40.8 to 60.0	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		

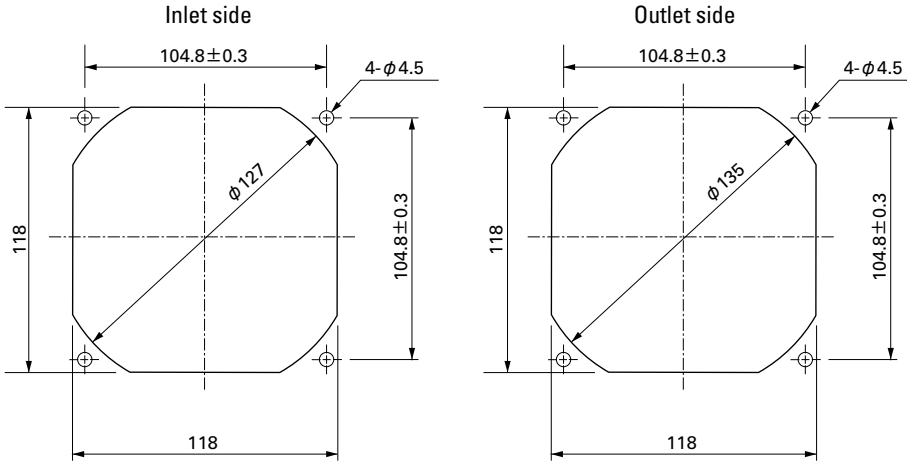
*PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 508).

Dimensions (unit: mm) (With ribs)



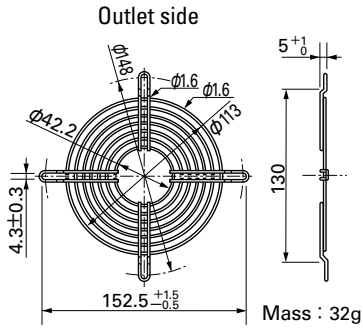
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

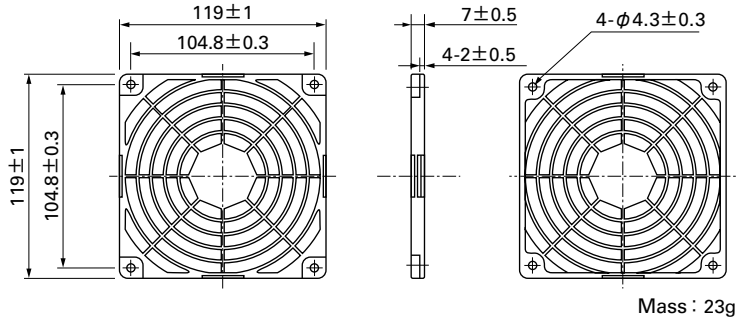
Finger Guards

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

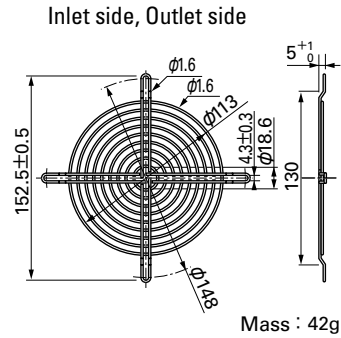


Resin Finger Guards

Model : 109-1000G

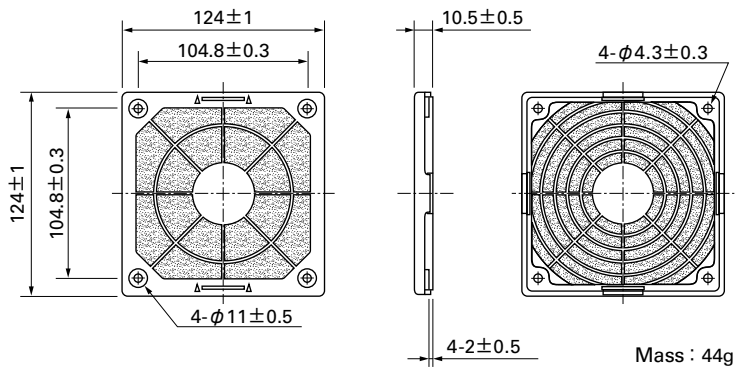


Model : 109-019E Surface treatment : Nickel-chrome plating (silver) Color : 109-019K : Cation electropainting (black)



Resin Filter Kits

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



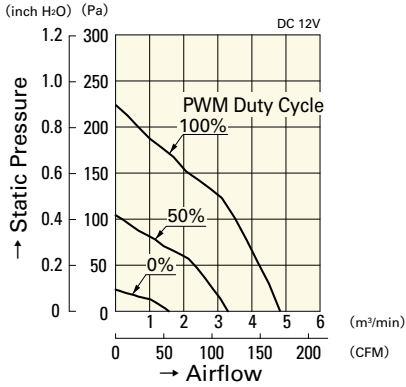
120mm sq.

San Ace 120

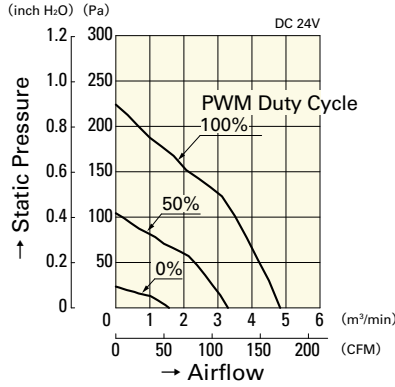
120×120×25mm [Mass : 260g]

Airflow - Static Pressure Characteristics

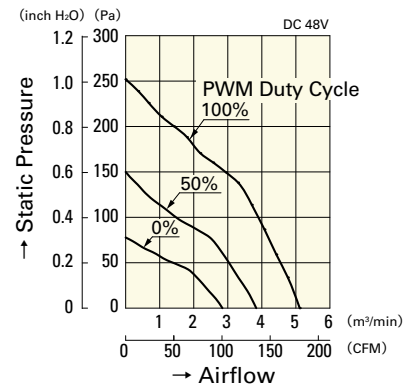
PWM Duty Cycle



9GV1212P4G01

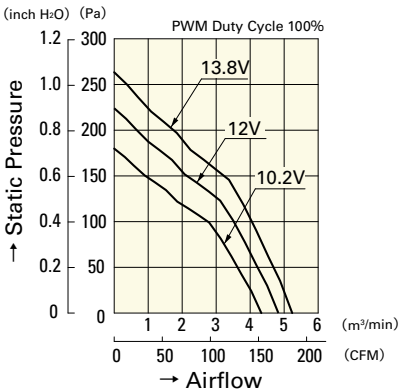


9GV1224P4G01

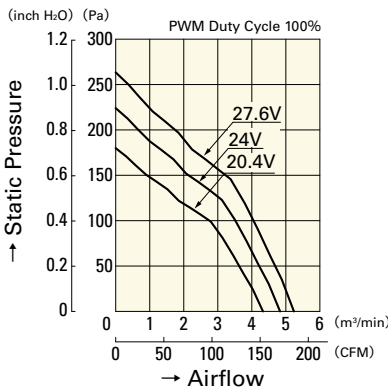


9GV1248P4J01

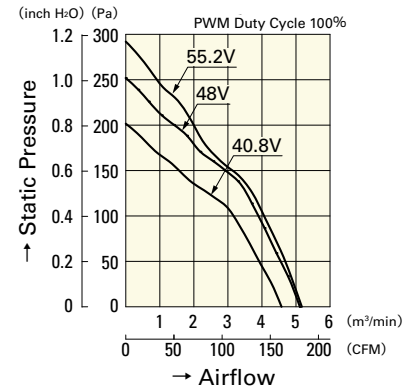
Operating Voltage Range



9GV1212P4G01

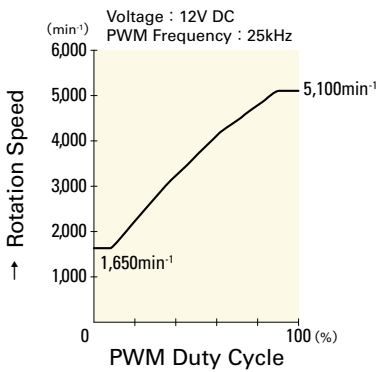


9GV1224P4G01

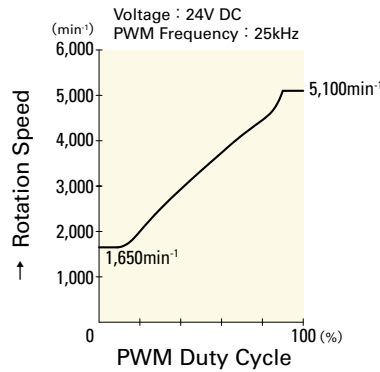


9GV1248P4J01

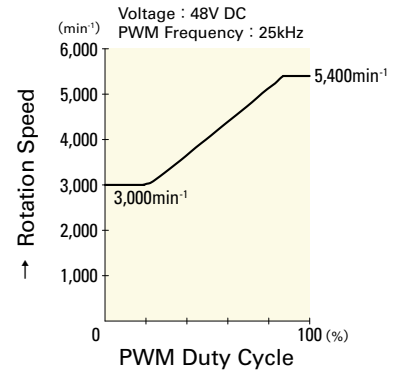
PWM Duty - Speed Characteristics Example



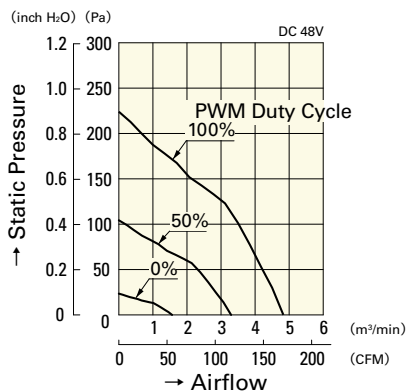
9GV1212P4G01



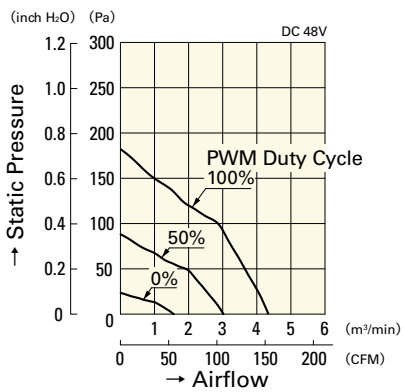
9GV1224P4G01



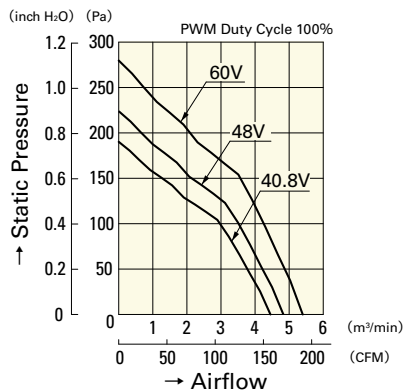
9GV1248P4J01



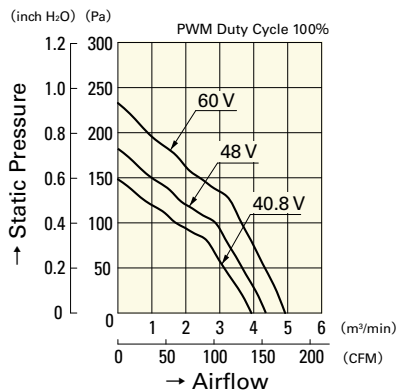
9GV1248P4G01



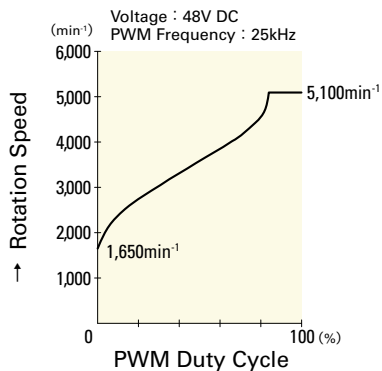
9GV1248P4H01



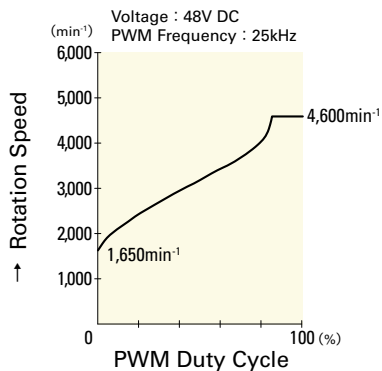
9GV1248P4G01



9GV1248P4H01



9GV1248P4G01



9GV1248P4H01

120 mm sq.

San Ace 120



Model no. 9G1212B401 is not certified.

General Specifications

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

120×120×25mm (Mass : 240g) **9G type** 

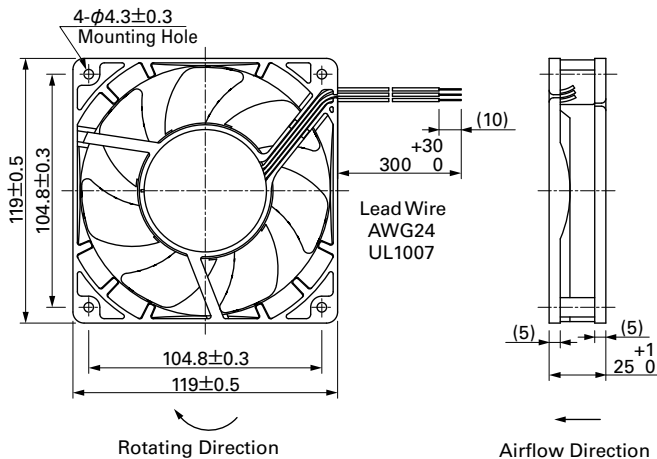
Specifications

The following nos. **have pulse sensors and ribs**. For ribless, append "1" to the model no.

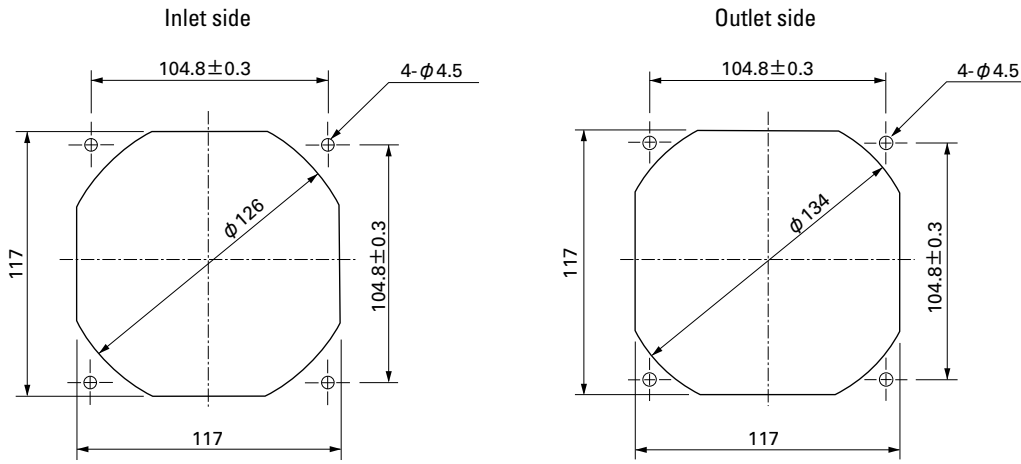
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9G1212G401	12	10.2 to 13.8	0.90	10.8	4,100	3.68 130	120 0.482	51	-20 to +70	40,000/60°C
9G1212E401			0.58	6.96	3,650	3.25 115	98 0.394	48		
9G1212A401			0.40	4.80	3,150	2.83 100	77 0.309	44		
9G1212H401		6 to 13.8	0.31	3.72	2,850	2.50 88	64 0.257	40		
9G1212F401		7 to 13.8	0.19	2.28	2,250	1.98 70	42 0.169	35		
9G1212M401		0.14	1.68	1,950	1.66 59	31 0.124	29			
9G1212B401		10.2 to 13.8	0.06	0.72	1,000	0.88 31	9.6 0.039	18		
9G1224G401	24	20.4 to 27.6	0.47	11.28	4,100	3.68 130	120 0.482	51		
9G1224E401			0.37	8.88	3,650	3.25 115	98 0.394	48		
9G1224A401			0.21	5.04	3,150	2.83 100	77 0.309	44		
9G1224H401		12 to 27.6	0.17	4.08	2,850	2.50 88	64 0.257	40		
9G1224F401		20.4 to 27.6	0.10	2.40	2,250	1.98 70	42 0.169	35		
9G1224M401		0.08	1.92	1,950	1.66 59	31 0.124	29			
9G1248G401	48	40.8 to 55.2	0.23	11.04	4,100	3.68 130	120 0.482	51		
9G1248E401			0.16	7.68	3,650	3.25 115	98 0.394	48		
9G1248A401			0.13	6.24	3,150	2.83 100	77 0.309	44		
9G1248H401			0.10	4.80	2,850	2.50 88	64 0.257	40		
9G1248F401			0.06	2.88	2,250	1.98 70	42 0.169	35		
9G1248M401			0.05	2.40	1,950	1.66 59	31 0.124	29		

Other sensor specifications are available as options. Please refer to the index (pp. 503 to 504).

Dimensions (unit: mm) (With ribs)



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

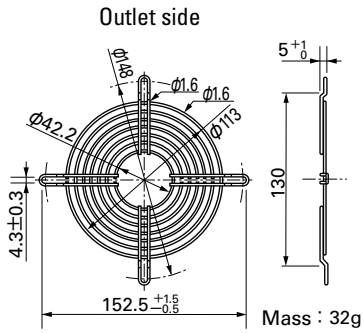


Options (unit: mm)

Finger Guards

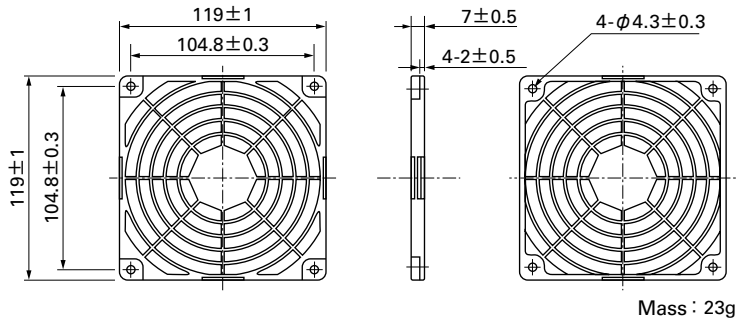
Model : 109-019C Surface treatment : Nickel-chrome plating (silver)
 : 109-019H : Cation electropainting (black)

Color



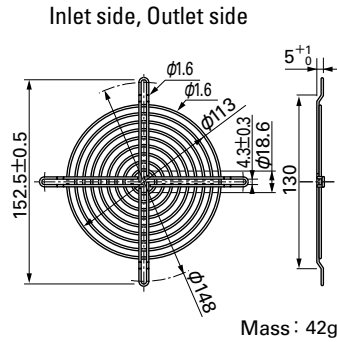
Resin Finger Guards

Model : 109-1000G



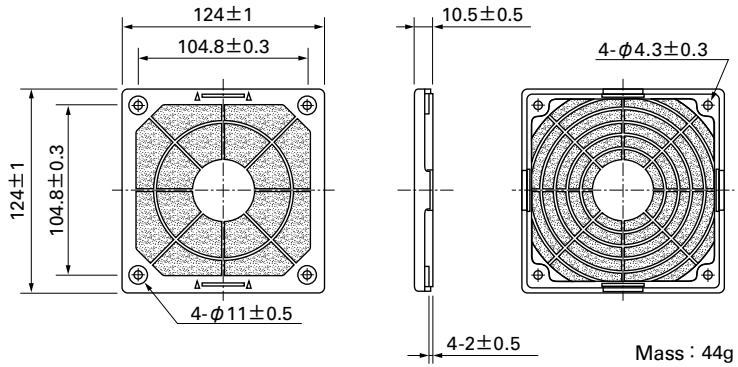
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
 : 109-019K : Cation electropainting (black)

Color



Resin Filter Kits

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

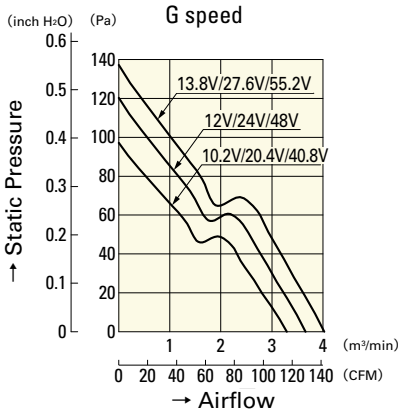


120mm sq.

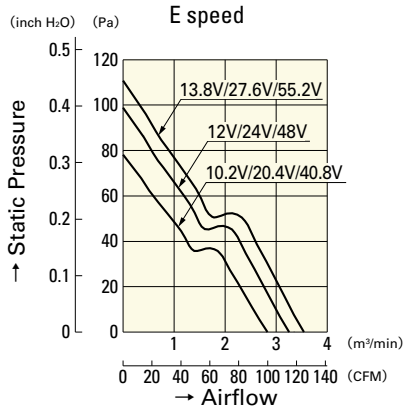
San Ace 120

120×120×25mm [Mass : 240g]

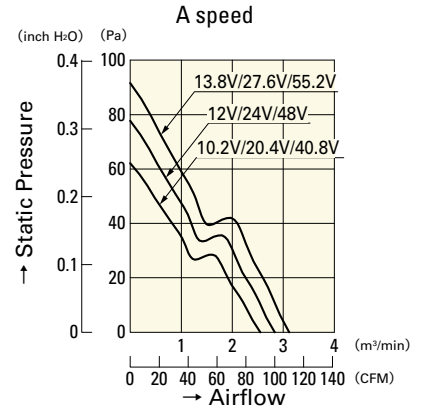
Airflow - Static Pressure Characteristics



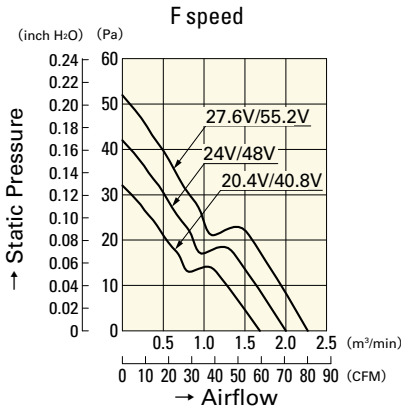
9G1212G401
9G1224G401
9G1248G401



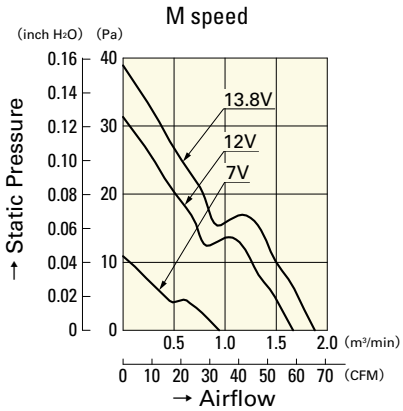
9G1212E401
9G1224E401
9G1248E401



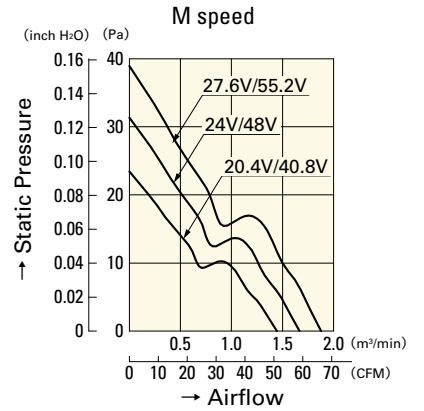
9G1212A401
9G1224A401
9G1248A401



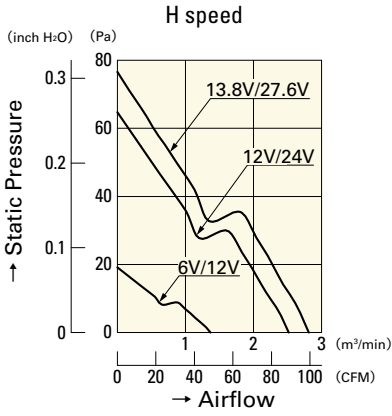
9G1224F401
9G1248F401



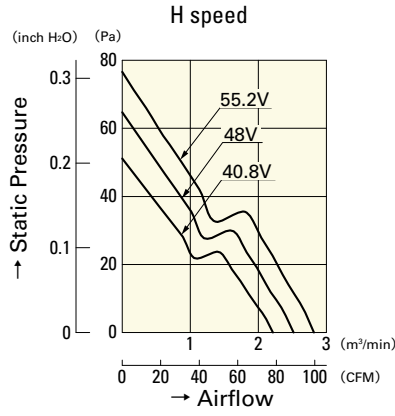
9G1212M401



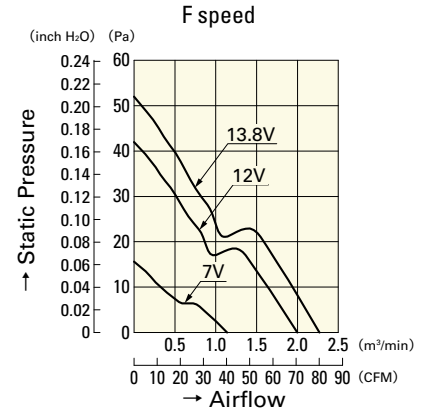
9G1224M401
9G1248M401



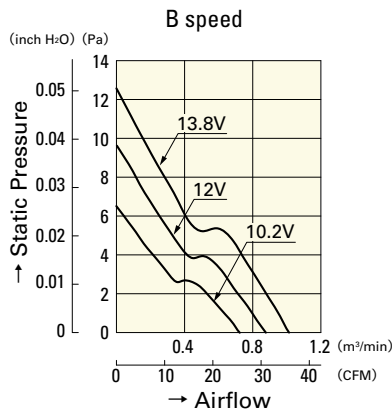
9G1212H401
9G1224H401



9G1248H401



9G1212F401



9G1212B401

120 mm sq.

San Ace 120



General Specifications

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

120×120×38mm (Mass : 460g) **9HV type**

Specifications

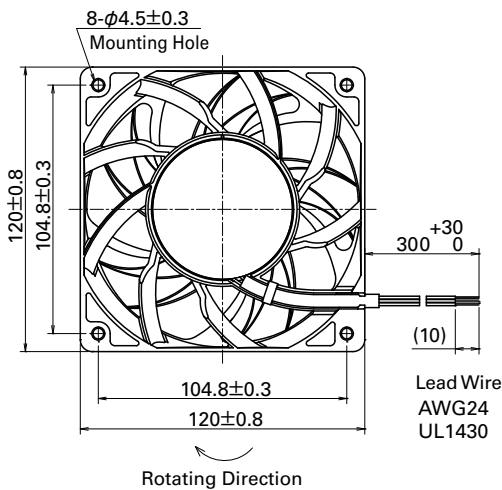
The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9HV1224P1A001	24	21.6 to 26.4	100	2.4	57.6	9,600	7.0 247	950 3.82	71	-20 to +70	40,000/60°C (70,000/40°C)
0			0.37	8.88	3,800	2.7 95	161 0.65	46			
9HV1248P1G001	48	36 to 60	100	2.0	96	11,500	8.3 293	1,300 5.22	75		
0			0.23	11	3,800	2.7 95	161 0.65	46			
100			1.4	67	10,000	7.2 254	1,050 4.22	72			
0			0.23	11	3,800	2.7 95	161 0.65	46			

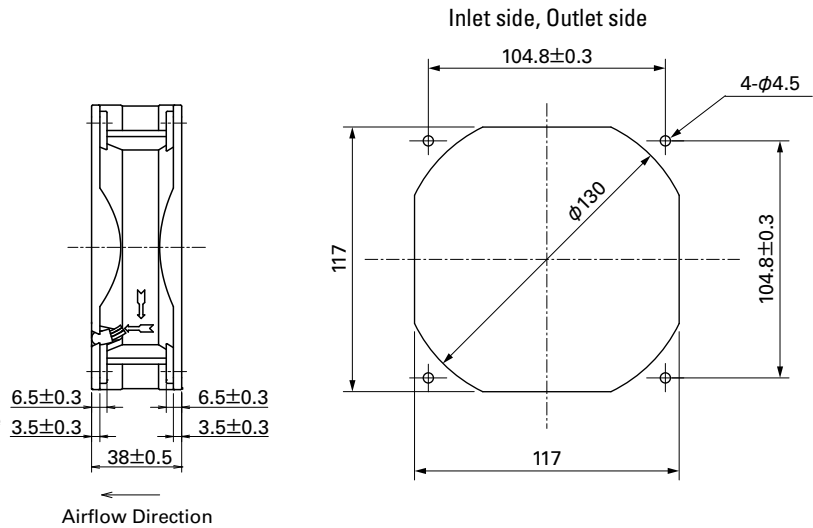
※PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 509).

Dimensions (unit: mm)



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

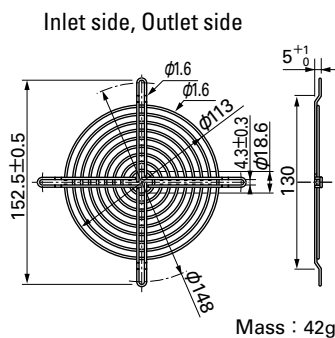
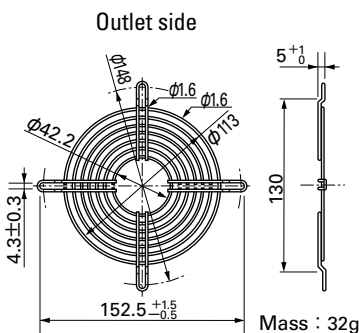


Options (unit: mm)

Finger Guards

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

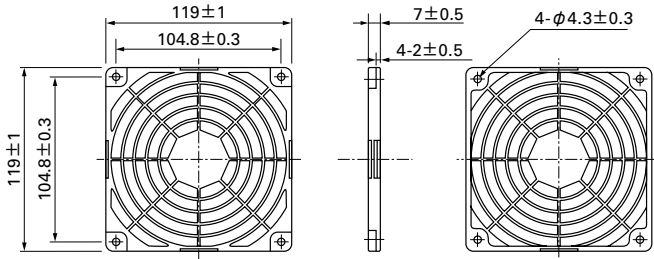
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

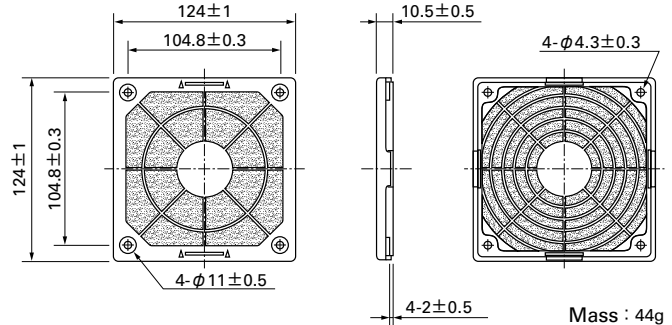
Model : 109-1000G



Mass : 23g

Resin Filter Kits

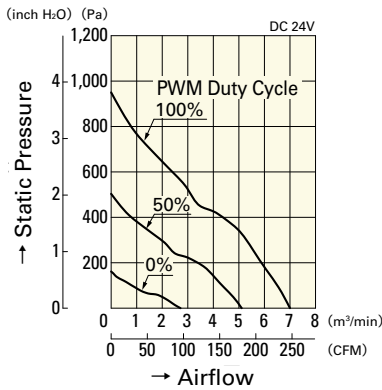
Model : 109-1000F13 (13PPI), 109-1000F20 (20PPI)
: 109-1000F30 (30PPI), 109-1000F40 (40PPI)



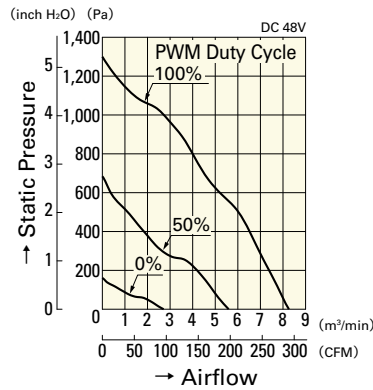
Mass : 44g

Airflow - Static Pressure Characteristics

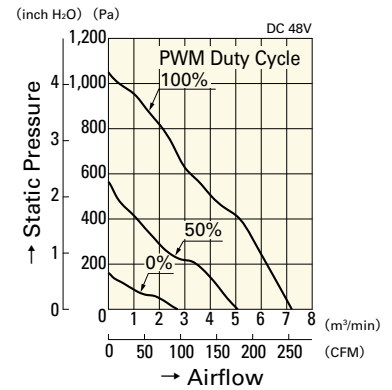
PWM Duty Cycle



9HV1224P1A001

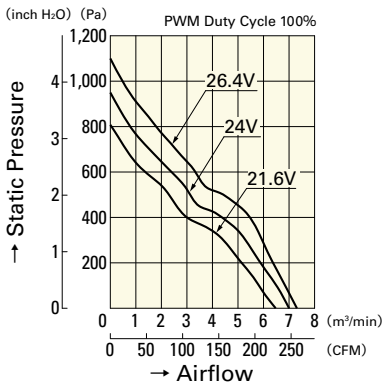


9HV1248P1G001

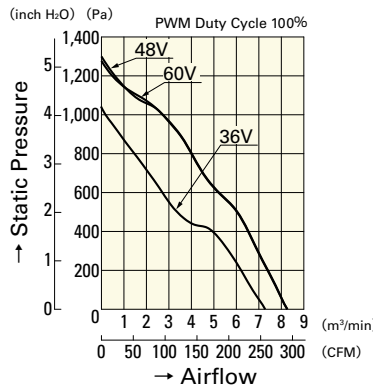


9HV1248P1H001

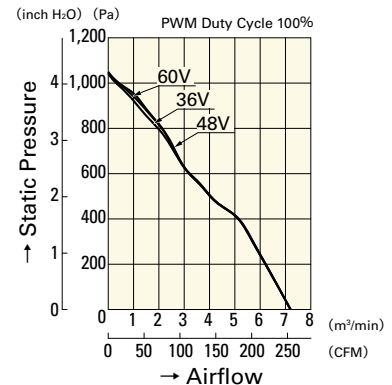
Operating Voltage Range



9HV1224P1A001

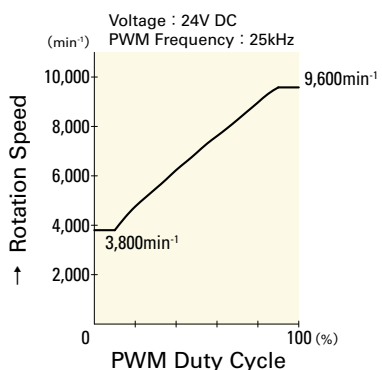


9HV1248P1G001

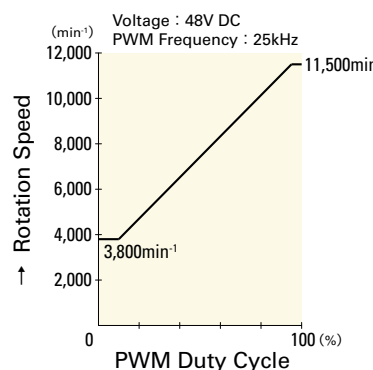


9HV1248P1H001

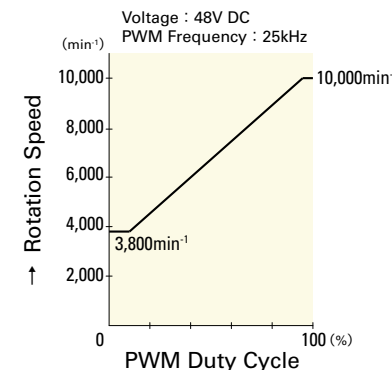
PWM Duty - Speed Characteristics Example



9HV1224P1A001



9HV1248P1G001



9HV1248P1H001

120 mm sq.

San Ace 120



General Specifications

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

120×120×38mm (Mass : 360g) **9GV type**

Specifications

The following nos. **have PWM controls, pulse sensors, and ribs.** For ribless, append "1" to the model no.

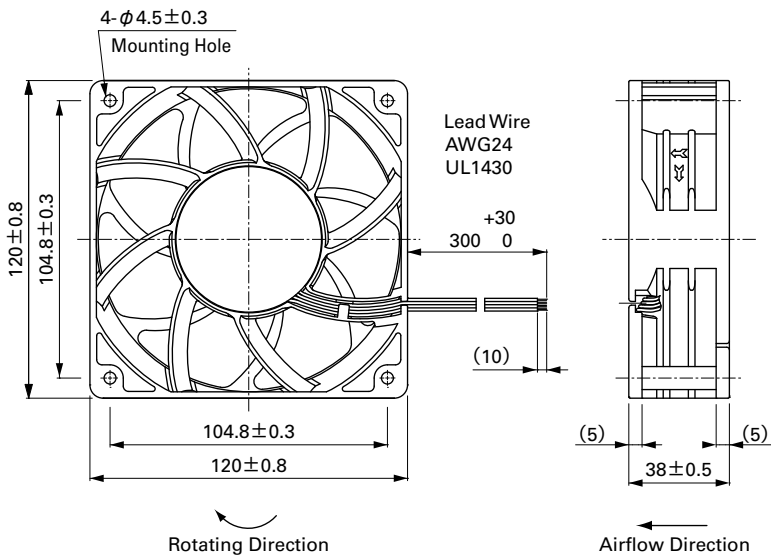
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GV1212P1J01	12	10.2 to 13.8	100	3.00	36.00	6,400	6.35 224.0	360.0 1.45	64	-20 to +70	40,000/60°C
			0	0.19	2.28	1,500	1.49 52.6	19.8 0.08	33		
9GV1212P1G01	12	10.2 to 13.8	100	2.1	25.2	5,500	5.45 192.6	265 1.06	60		
			0	0.19	2.28	1,500	1.49 52.6	19.8 0.08	33		
9GV1224P1J01 (Note)	24	20.4 to 27.6	100	1.5	36.00	6,400	6.35 224.0	360 1.45	64		
9GV1224P1H01 (Note)			100	0.8	19.2	5,200	5.16 182.3	237 0.95	58		
9GV1248P1J01	48	40.8 to 55.2	100	0.75	36.00	6,400	6.35 224.0	360.0 1.45	64		
			0	0.06	2.88	1,500	1.49 52.6	26.1 0.106	33		

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

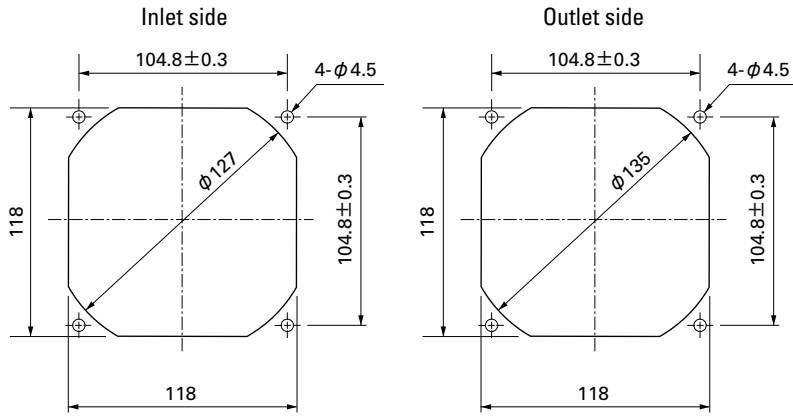
* PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 508).

Dimensions (unit: mm) (With ribs)



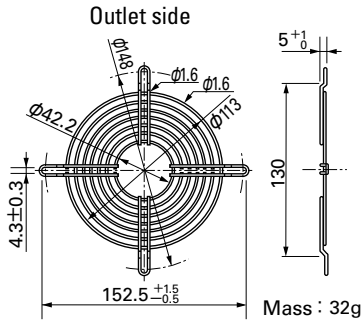
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

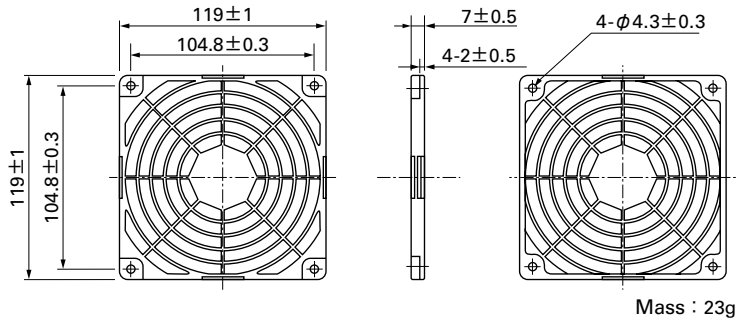
Finger Guards

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

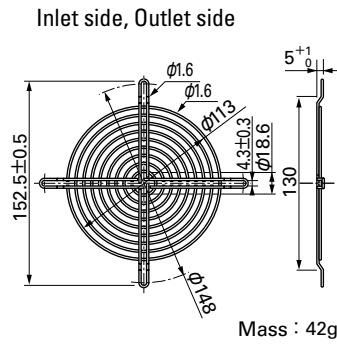


Resin Finger Guards

Model : 109-1000G

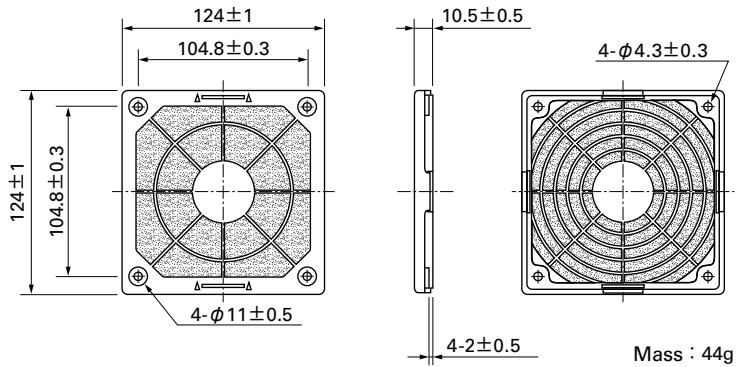


Model : 109-019E Surface treatment : Nickel-chrome plating (silver) Color : Silver
 : 109-019K : Cation electropainting (black)



Resin Filter Kits

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



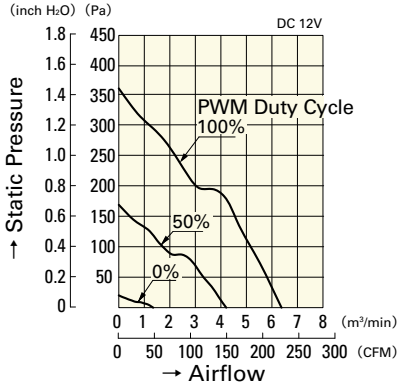
120mm sq.

San Ace 120

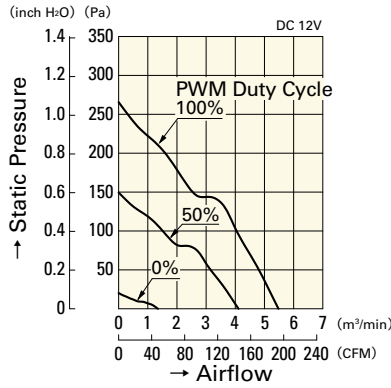
120×120×38mm [Mass : 360g]

Airflow - Static Pressure Characteristics

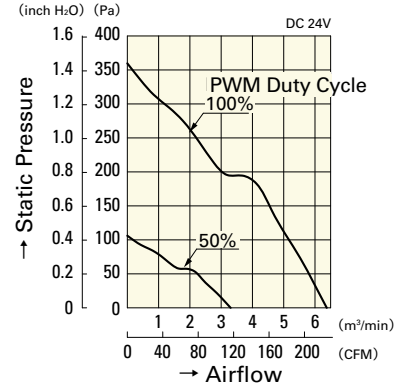
PWM Duty Cycle



9GV1212P1J01

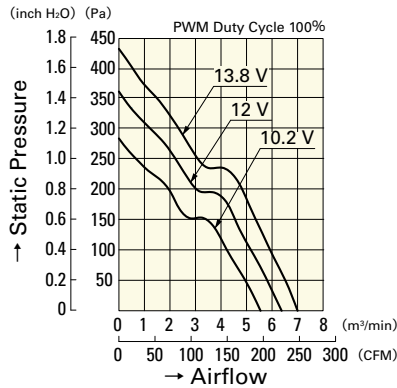


9GV1212P1G01

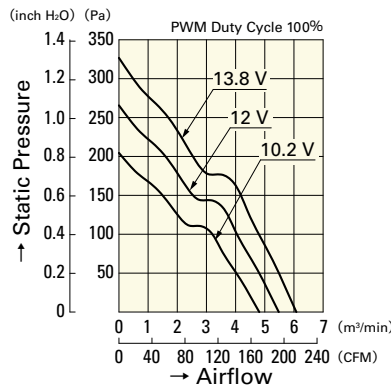


9GV1224P1J01

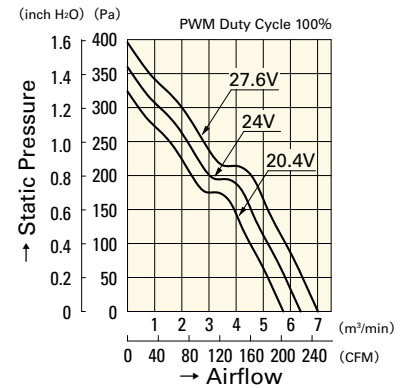
Operating Voltage Range



9GV1212P1J01

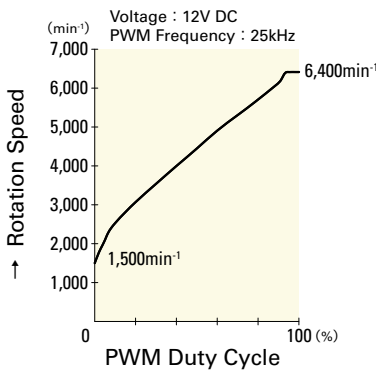


9GV1212P1G01

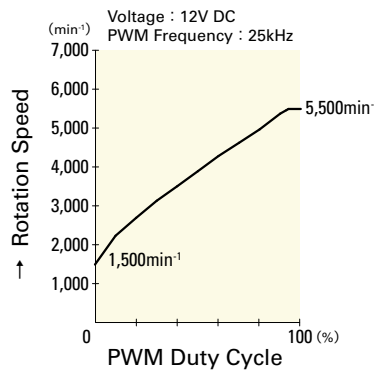


9GV1224P1J01

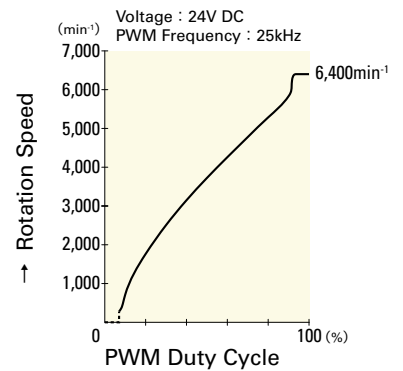
PWM Duty - Speed Characteristics Example



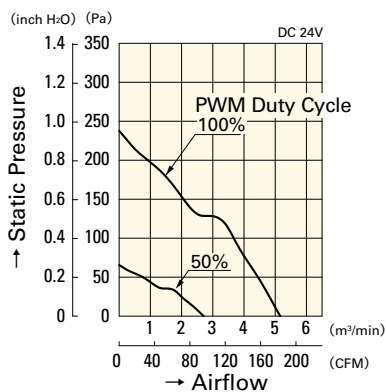
9GV1212P1J01



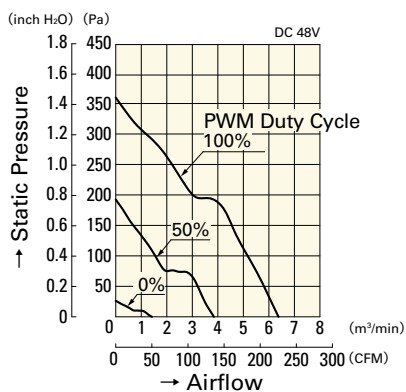
9GV1212P1G01



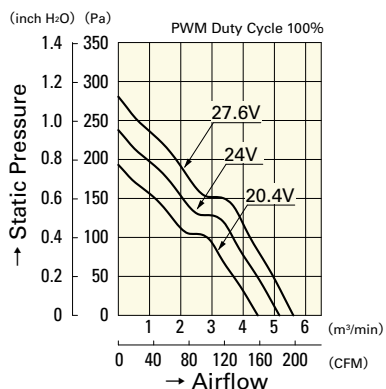
9GV1224P1J01



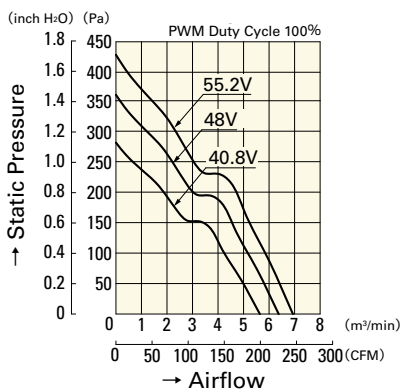
9GV1224P1H01



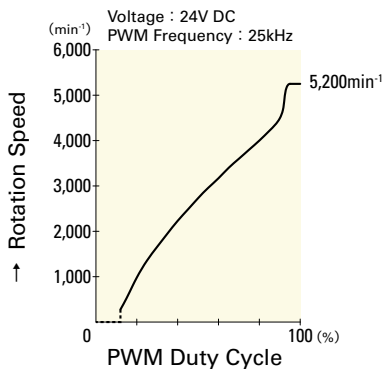
9GV1248P1J01



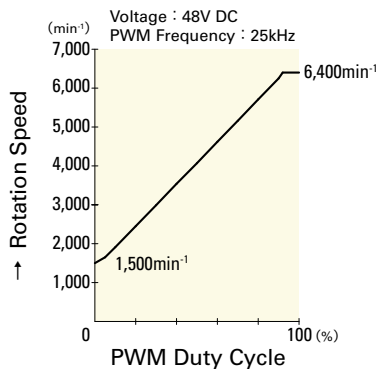
9GV1224P1H01



9GV1248P1J01



9GV1224P1H01



9GV1248P1J01

120mm sq.

San Ace 120



General Specifications

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

120×120×38mm (Mass : 330g) **9G type**

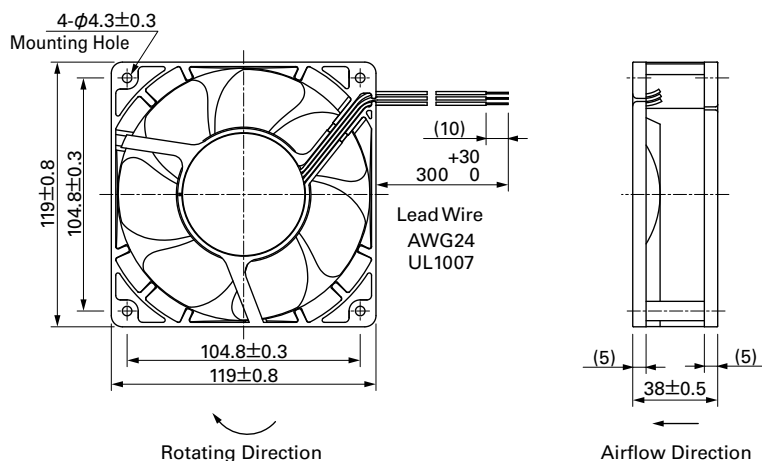
Specifications

The following nos. **have pulse sensors and ribs.** For ribless, append "1" to the model no.

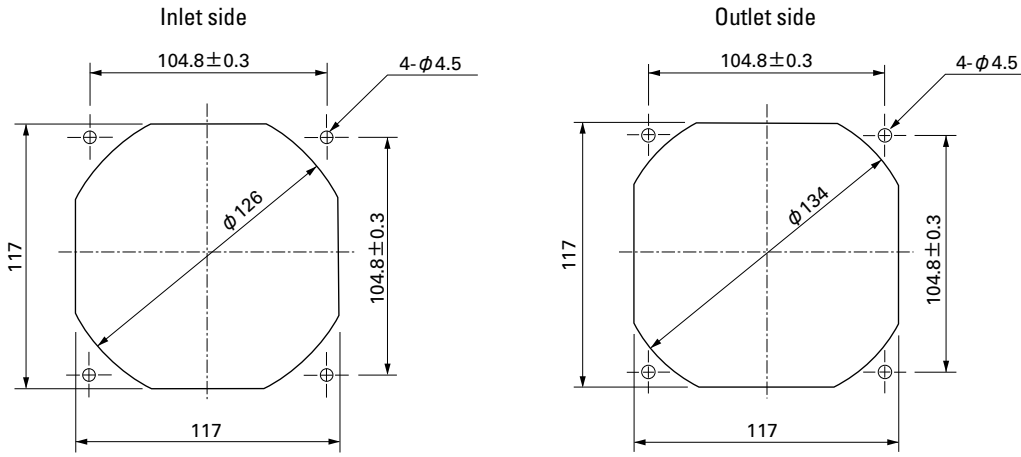
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9G1212G101	12	10.2 to 13.8	0.98	11.76	3,600	3.88 137	135 0.542	49	-20 to +70	40,000/60°C
9G1212E101			0.61	7.32	3,100	3.34 118	100 0.402	46		
9G1212H101		7 to 13.8	0.38	4.56	2,600	2.80 99	70.4 0.283	39		
9G1212F101			0.28	3.36	2,280	2.45 87	54.2 0.218	36		
9G1212M101			0.21	2.52	1,950	2.10 74	39.6 0.159	32		
9G1224G101	24	20.4 to 27.6	0.50	12	3,600	3.88 137	135 0.542	49		
9G1224E101			0.34	8.16	3,100	3.34 118	100 0.402	46		
9G1224H101		14 to 27.6	0.22	5.28	2,600	2.80 99	70.4 0.283	39		
9G1224F101			0.16	3.84	2,280	2.45 87	54.2 0.218	36		
9G1224M101			0.11	2.64	1,950	2.10 74	39.6 0.159	32		
9G1248G101	48	40.8 to 55.2	0.25	12	3,600	3.88 137	135 0.542	49		
9G1248E101			0.17	8.16	3,100	3.34 118	100 0.402	46		
9G1248H101			0.11	5.28	2,600	2.80 99	70.4 0.283	39		
9G1248F101			0.09	4.32	2,280	2.45 87	54.2 0.218	36		
9G1248M101			0.07	3.36	1,950	2.10 74	39.6 0.159	32		

Other sensor specifications are available as options. Please refer to the index (pp. 503 to 504).

Dimensions (unit: mm) (With ribs)



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

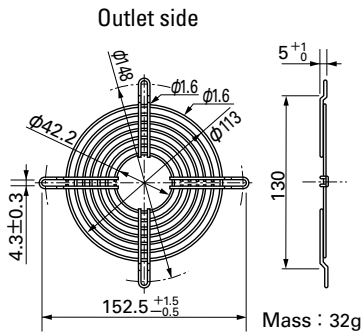


Options (unit: mm)

Finger Guards

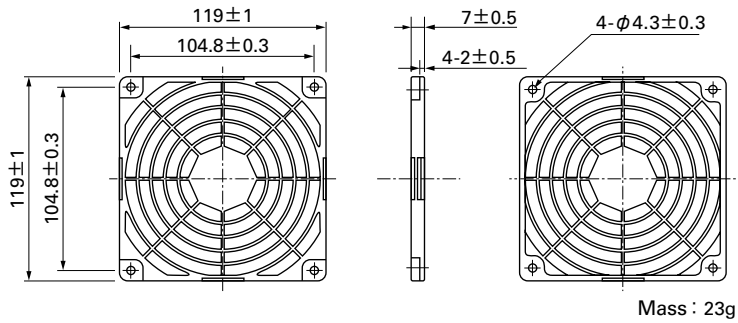
Model : 109-019C Surface treatment : Nickel-chrome plating (silver)
 : 109-019H : Cation electropainting (black)

Color



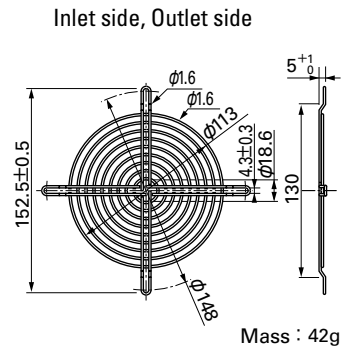
Resin Finger Guards

Model : 109-1000G



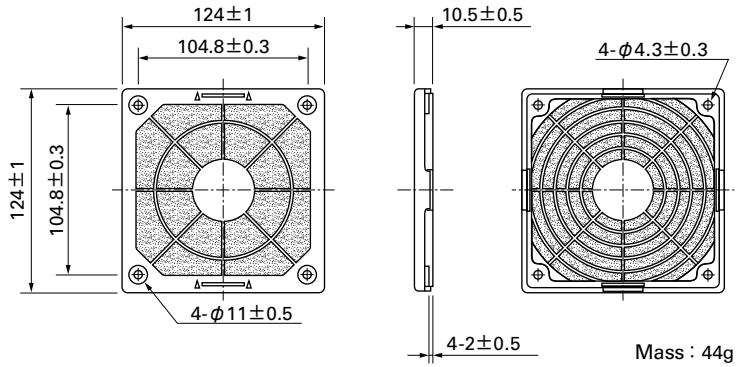
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
 : 109-019K : Cation electropainting (black)

Color



Resin Filter Kits

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

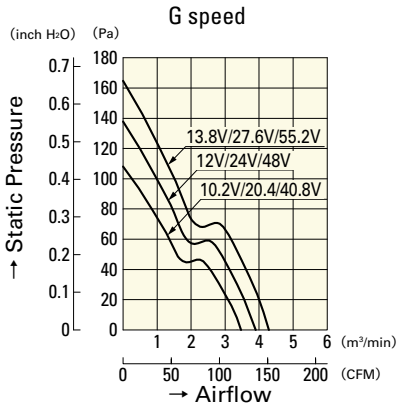


120mm sq.

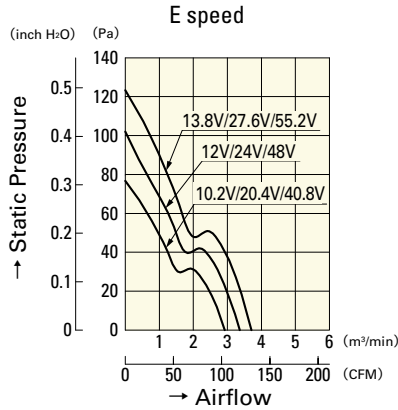
San Ace 120

120×120×38mm [Mass : 330g]

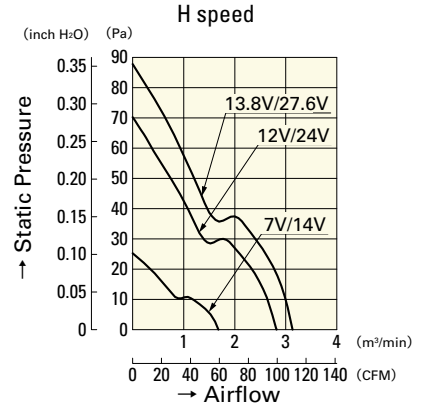
Airflow - Static Pressure Characteristics



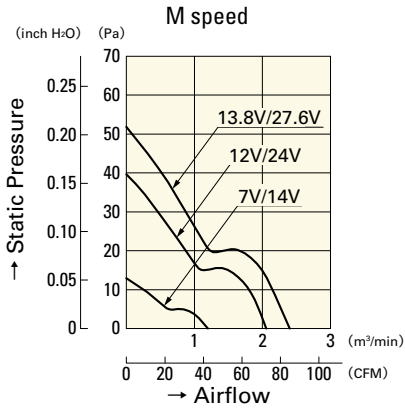
- 9G1212G101**
- 9G1224G101**
- 9G1248G101**



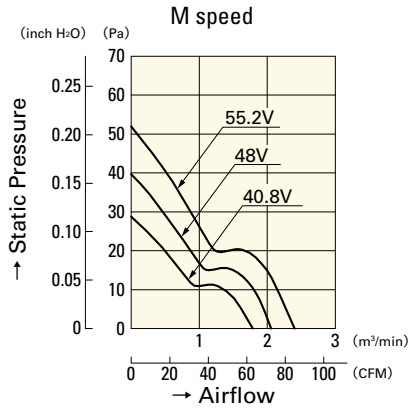
- 9G1212E101**
- 9G1224E101**
- 9G1248E101**



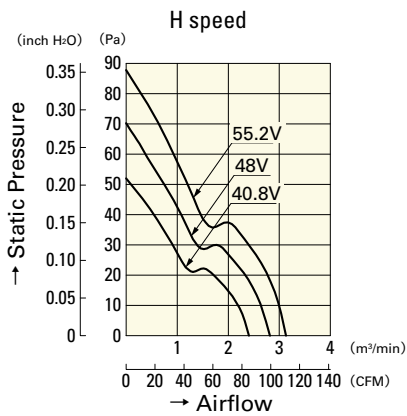
- 9G1212H101**
- 9G1224H101**



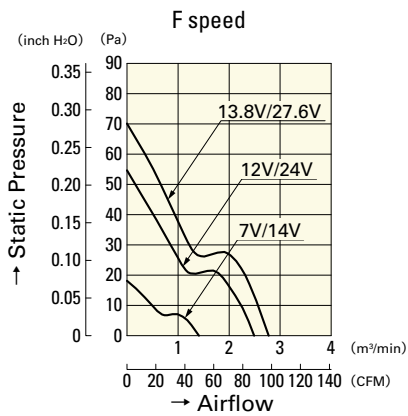
- 9G1212M101**
- 9G1224M101**



- 9G1248M101**

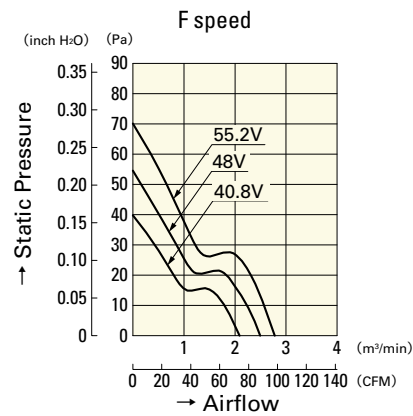


9G1248H101



9G1212F101

9G1224F101



9G1248F101

120 mm sq.

San Ace 120



Model no. 9SG1224H101 is not certified.

General Specifications

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

120×120×38mm (Mass : 400g) **9SG type**

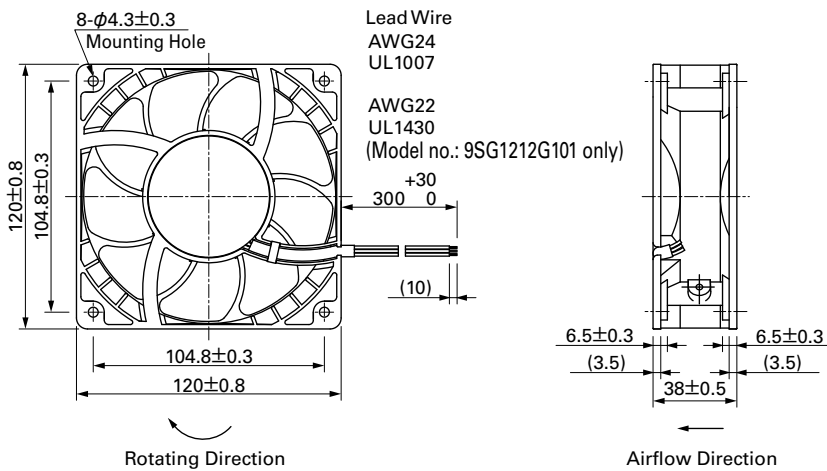
Specifications

The following nos. **have pulse sensors.**

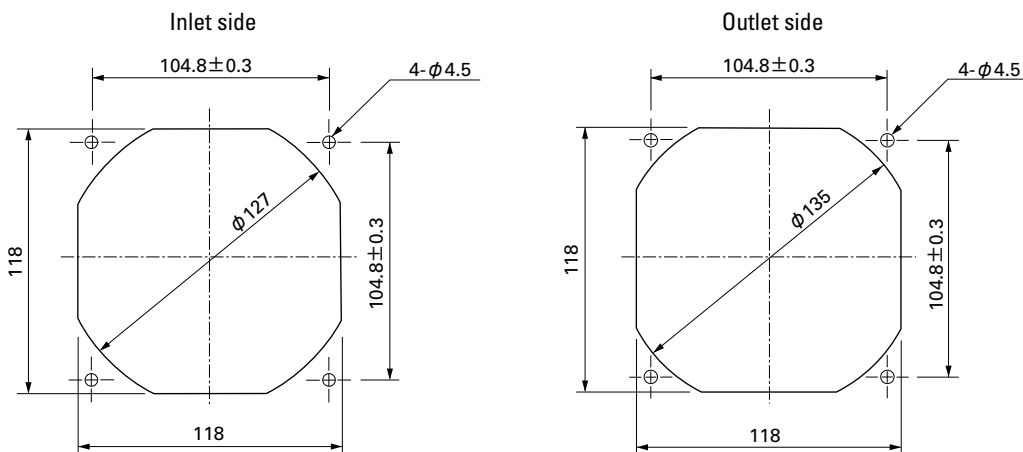
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9SG1212G101	12	10.2 to 13.8	4.0	48.0	6,000	7.35 260	340 1.37	64	- 20 to +70	40,000/60°C
9SG1224G101	24	20.4 to 27.6	2.0	48.0	6,000	7.35 260	340 1.37	64		
9SG1224H101			0.46	11.0	3,400	4.02 142	126 0.51	48		
9SG1248G101	48	40.8 to 55.2	1.0	48.0	6,000	7.35 260	340 1.37	64		

Other sensor specifications are available as options. Please refer to the index (p. 510).

Dimensions (unit: mm)



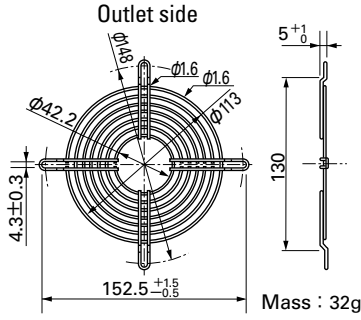
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

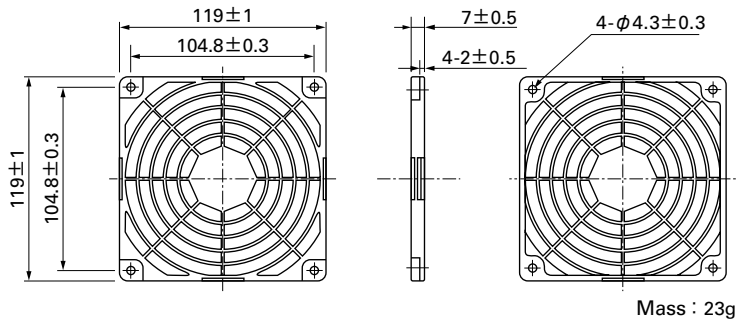
Finger Guards

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

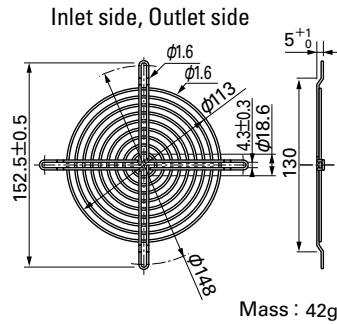


Resin Finger Guards

Model : 109-1000G

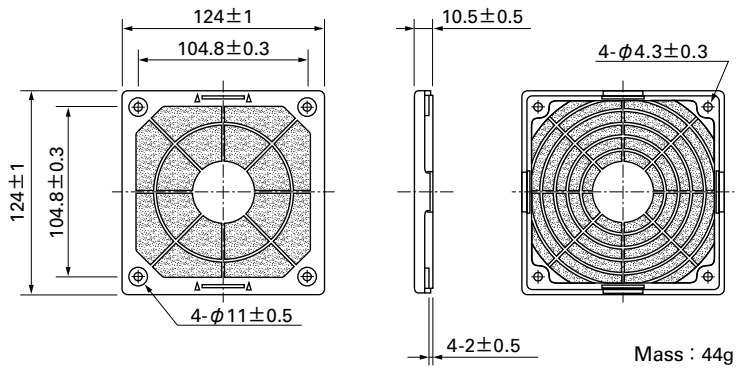


Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

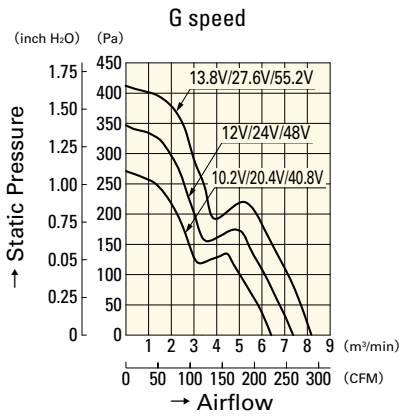


Resin Filter Kits

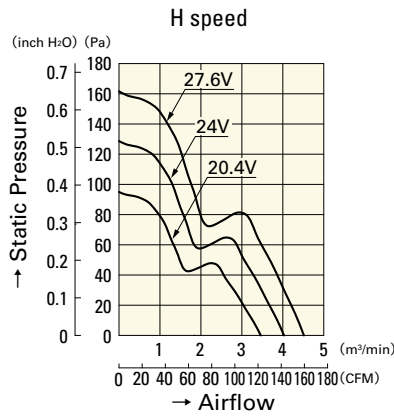
Model : 109-1000F13 (13PPI), 109-1000F20 (20PPI)
: 109-1000F30 (30PPI), 109-1000F40 (40PPI)



Airflow - Static Pressure Characteristics



9SG1212G101
9SG1224G101
9SG1248G101



9SG1224H101

127 mm sq.

San Ace 127



General Specifications

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

127×127×38mm (Mass : 350g) **9P type**

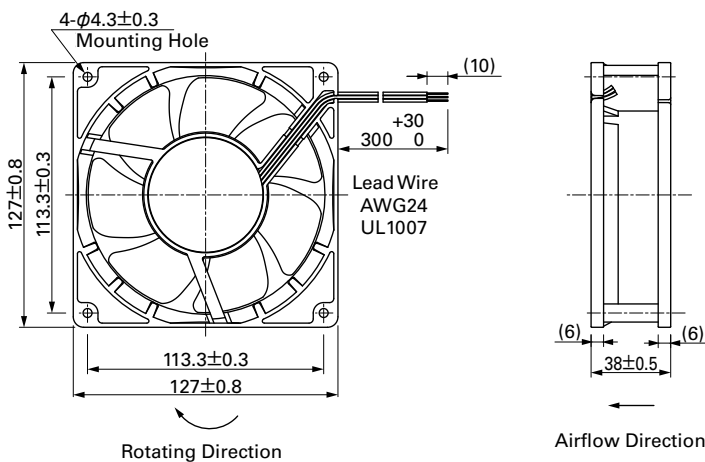
Specifications

The following nos. **have pulse sensors and ribs**. For ribless, append "1" to the model no.

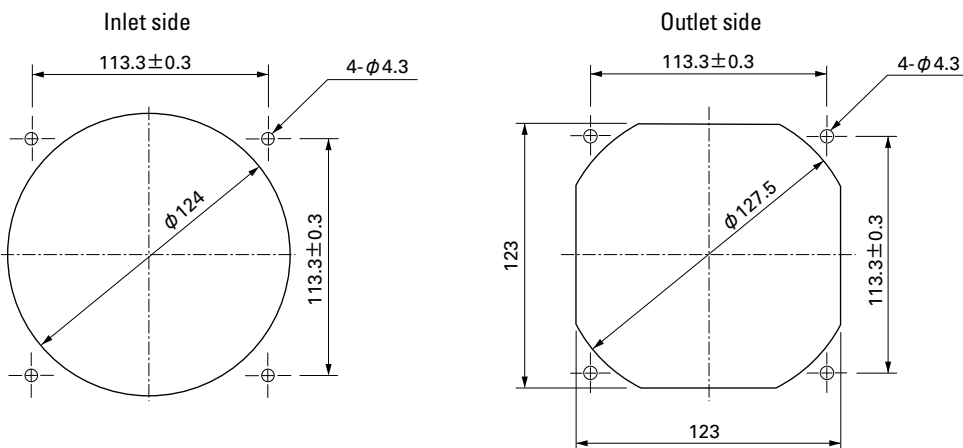
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109P1312S101	12	10.2 to 13.8	1.3	15.6	3,300	4.2 148	117.6 0.472	47	-20 to +60	40,000/60°C
109P1312H101			0.82	9.84	2,950	3.8 134	98 0.394	45		
109P1324S101	24	20.4 to 27.6	0.55	13.2	3,300	4.2 148	117.6 0.472	47		
109P1324H101			0.41	9.84	2,950	3.8 134	98 0.394	45		
109P1348S101	48	40.8 to 55.2	0.3	14.4	3,300	4.2 148	117.6 0.472	47		
109P1348H101			0.2	9.6	2,950	3.8 134	98 0.394	45		

Other sensor specifications are available as options. Please refer to the index (p. 498).

Dimensions (unit: mm) (With ribs)



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



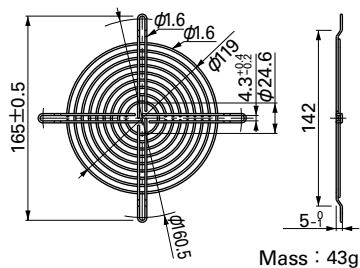
Options (unit: mm)

Finger Guards

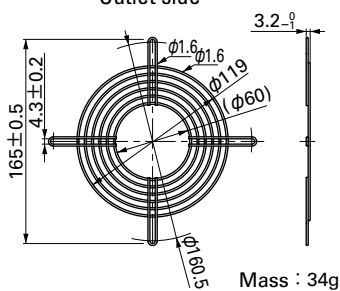
Model : 109-722 Surface treatment : Nickel-chrome plating (silver) Color (silver)

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

Inlet side, Outlet side

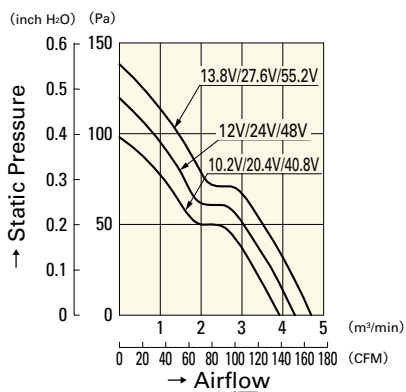


Outlet side

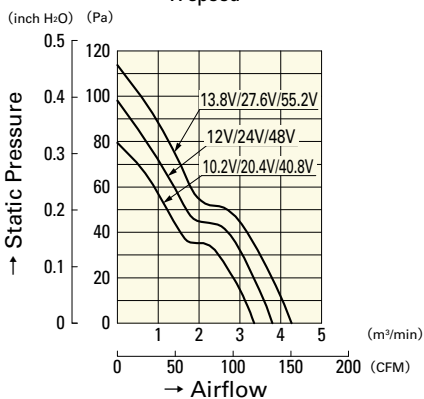


Airflow - Static Pressure Characteristics

S speed



H speed



109P1312S101

109P1324S101

109P1348S101

109P1312H101

109P1324H101

109P1348H101

127 mm sq.

San Ace 127



General Specifications

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

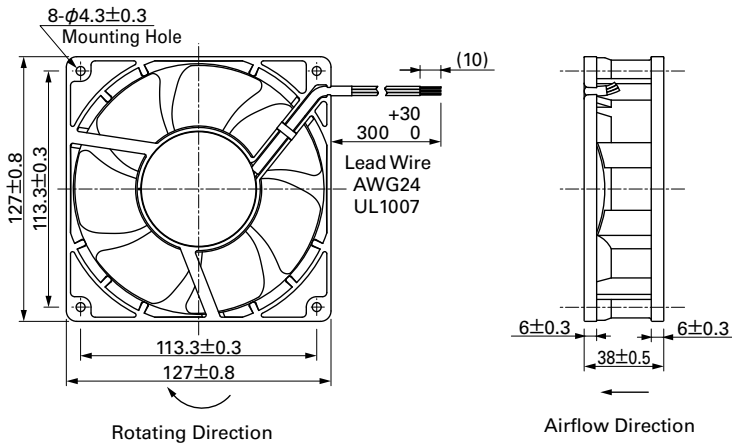
127×127×38mm (Mass : 400g) **9E type**

Specifications The following nos. have pulse sensors.

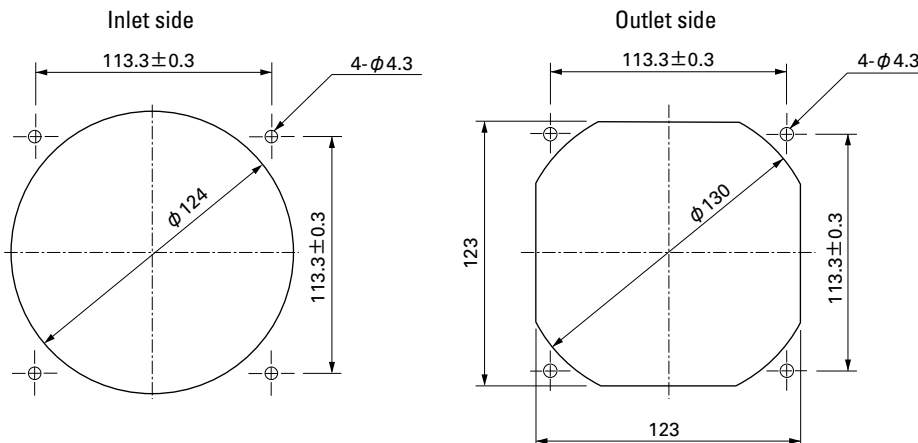
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109E1312A101	12	10.2 to 13.8	1.4	16.8	3,850	4.81 170	155 0.622	52	-20 to +70	60,000/60°C
109E1312S101			1.2	14.4	3,450	4.37 154	125 0.502	49		
109E1324G101	24	20.4 to 27.6	1.1	26.4	4,550	5.66 200	216 0.867	57	-20 to +60	40,000/60°C
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	-20 to +60	40,000/60°C
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		

Other sensor specifications are available as options. Please refer to the index (p. 495).

Dimensions (unit: mm)



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



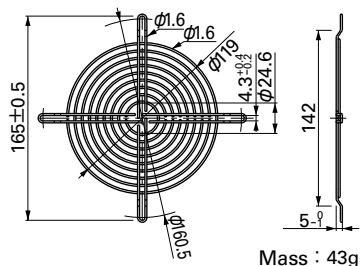
Options (unit: mm)

Finger Guards

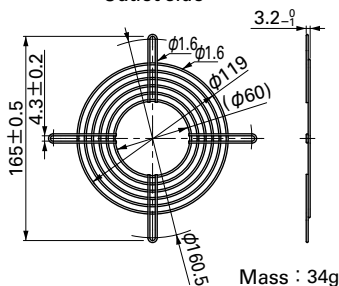
Model : 109-722 Surface treatment : Nickel-chrome plating (silver) Color (silver)

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

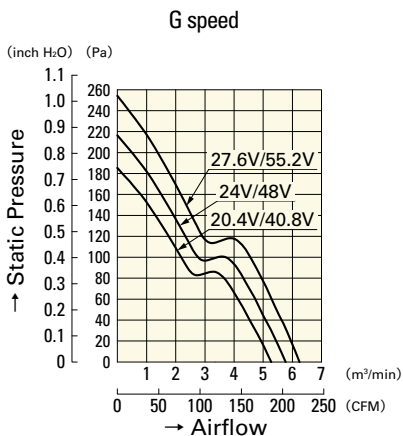
Inlet side, Outlet side



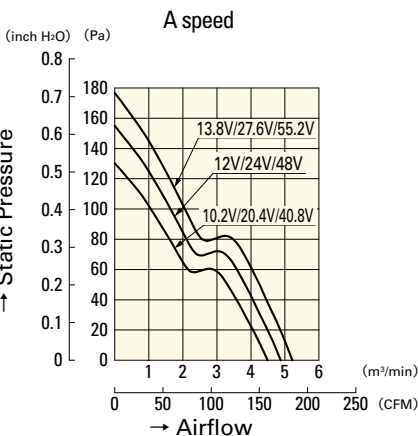
Outlet side



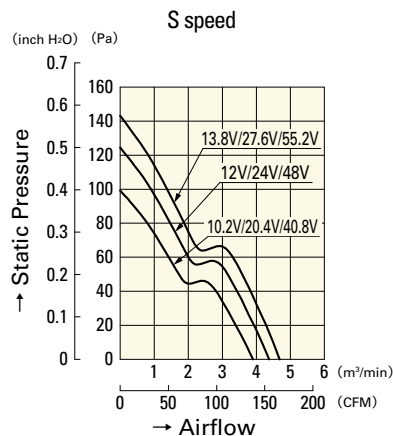
Airflow - Static Pressure Characteristics



- 109E1324G101
- 109E1348G101



- 109E1312A101
- 109E1324A101
- 109E1348A101



- 109E1312S101
- 109E1324S101
- 109E1348S101

140 mm sq.

San Ace 140



General Specifications

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

140×140×38mm (Mass : 630g) **9GV type**

Specifications

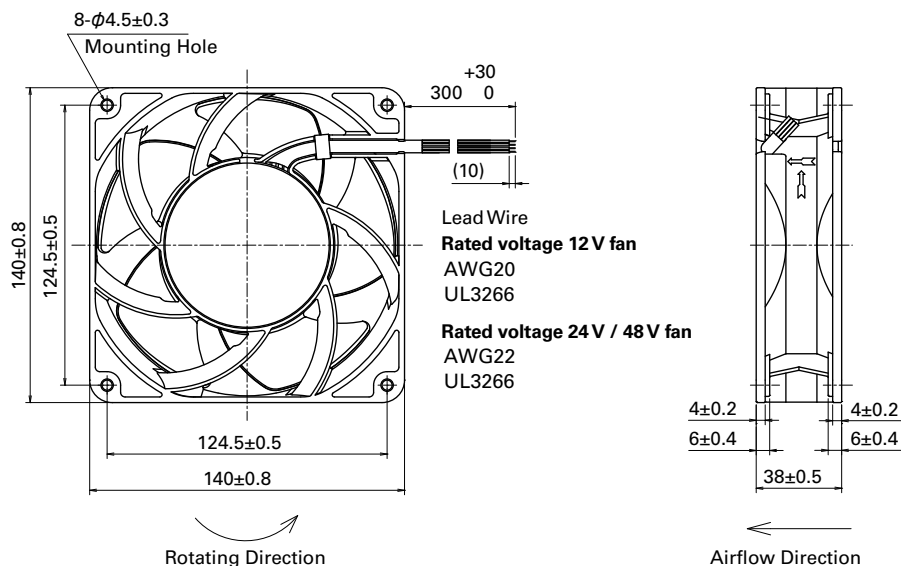
The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GV1412P1G001	12	10.8 to 13.2	100	4.6	55.20	7,600	8.80 310	640 2.57	70	-20 to +70	40,000/60°C
			20	0.26	3.12	2,300	2.66 93	80 0.32	39		
9GV1412P1S001			100	3.1	37.20	6,650	7.70 272	480 1.93	67		
			20	0.26	3.12	2,300	2.66 93	80 0.32	39		
9GV1412P1H001			100	1.7	20.40	5,200	6.00 212	300 1.20	62		
			20	0.26	3.12	2,300	2.66 93	80 0.32	39		
9GV1424P1G001	24	21.6 to 26.4	100	2.3	55.20	7,600	8.80 310	640 2.57	70		
			20	0.13	3.12	2,300	2.66 93	80 0.32	39		
9GV1424P1S001			100	1.55	37.20	6,650	7.70 272	480 1.93	67		
			20	0.13	3.12	2,300	2.66 93	80 0.32	39		
9GV1424P1H001			100	0.85	20.40	5,200	6.00 212	300 1.20	62		
			20	0.13	3.12	2,300	2.66 93	80 0.32	39		
9GV1448P1G001	48	36 to 60	100	1.15	55.20	7,600	8.80 310	640 2.57	70		
			20	0.11	5.28	2,300	2.66 93	80 0.32	39		
9GV1448P1S001			100	0.78	37.44	6,650	7.70 272	480 1.93	67		
			20	0.11	5.28	2,300	2.66 93	80 0.32	39		
9GV1448P1H001			100	0.42	20.16	5,200	6.00 212	300 1.20	62		
			20	0.11	5.28	2,300	2.66 93	80 0.32	39		

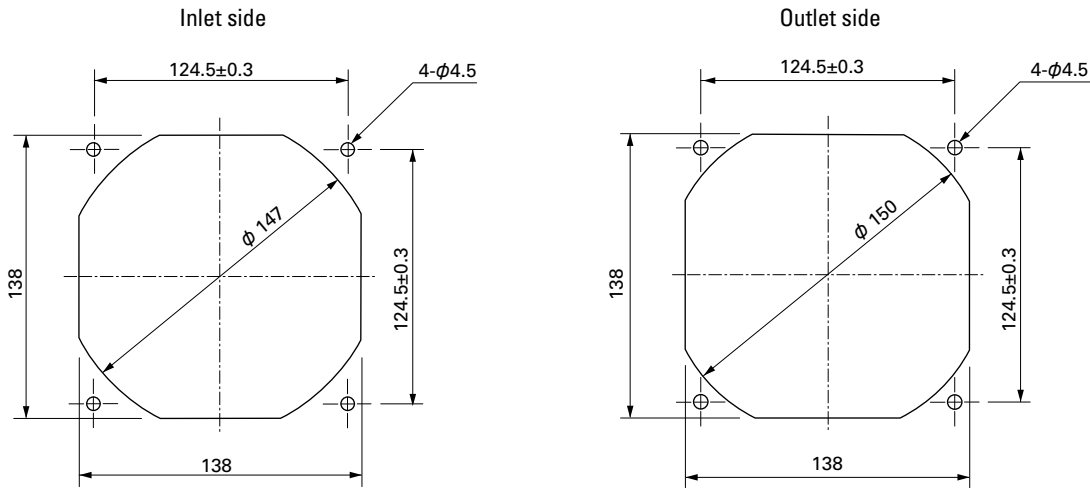
Note: Fan does not rotate when PWM duty cycle is 0%.

※PWM Frequency : 25kHz

Dimensions (unit: mm)



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



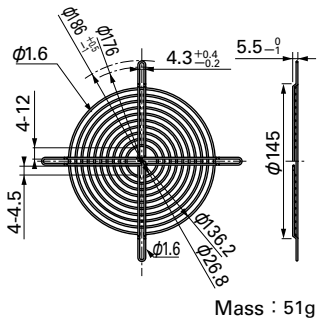
Options (unit: mm)

Finger Guards

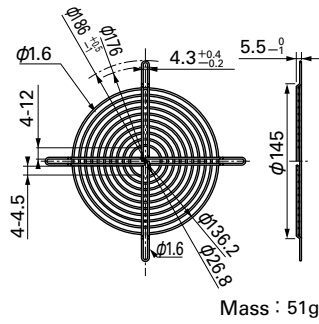
Model : 109-719 Surface treatment : Nickel-chrome plating (silver) Color

Model : 109-719H Surface treatment : Cation electropainting (black) Color

Inlet side, Outlet side



Inlet side, Outlet side



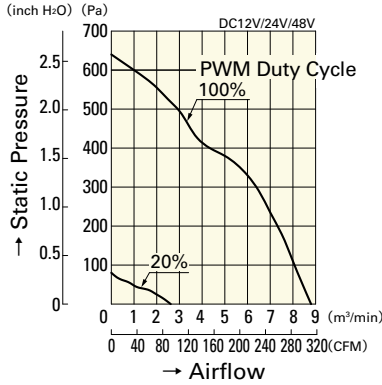
140mm sq.

San Ace 140

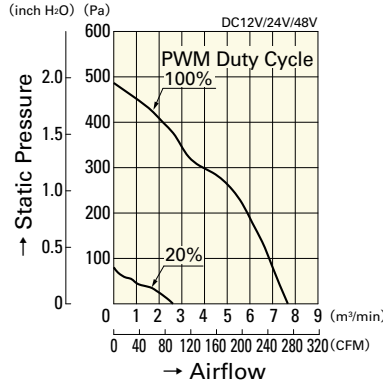
140×140×38mm [Mass : 630g]

Airflow - Static Pressure Characteristics

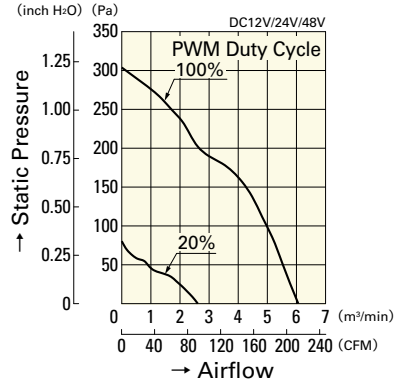
PWM Duty Cycle



9GV1412P1G001
9GV1424P1G001
9GV1448P1G001

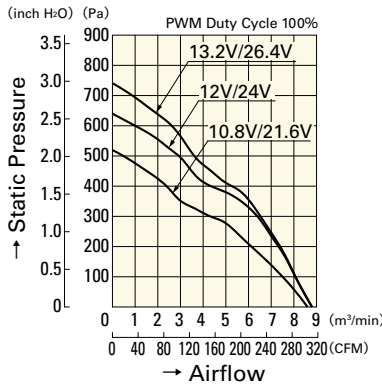


9GV1412P1S001
9GV1424P1S001
9GV1448P1S001

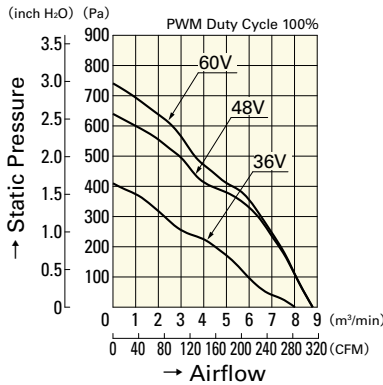


9GV1412P1H001
9GV1424P1H001
9GV1448P1H001

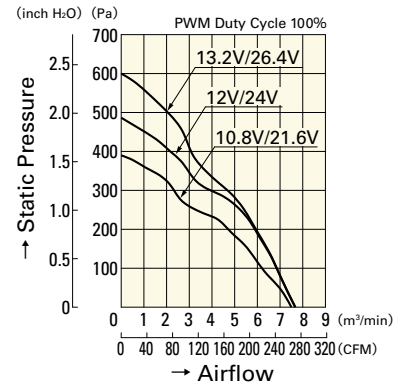
Operating Voltage Range



9GV1412P1G001
9GV1424P1G001

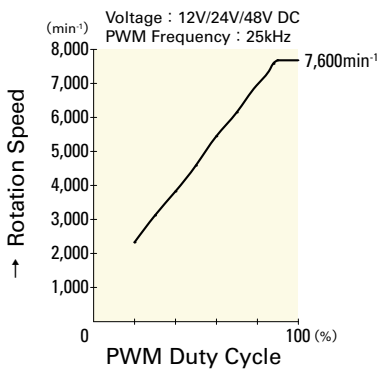


9GV1448P1G001

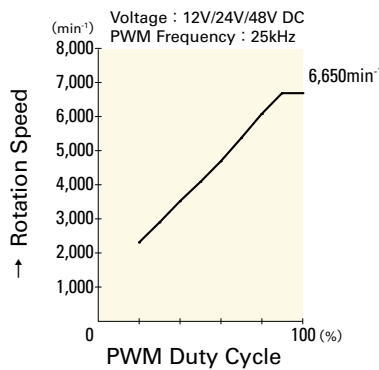


9GV1412P1S001
9GV1424P1S001

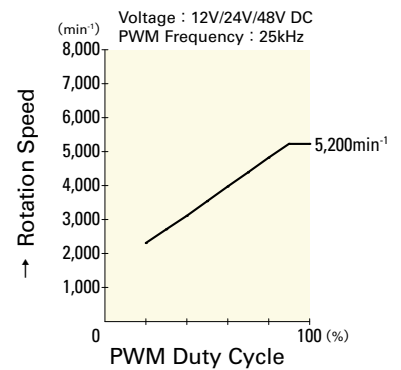
PWM Duty - Speed Characteristics Example



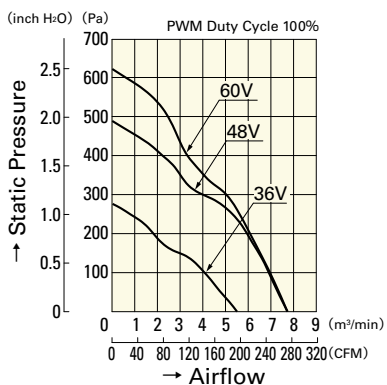
9GV1412P1G001
9GV1424P1G001
9GV1448P1G001



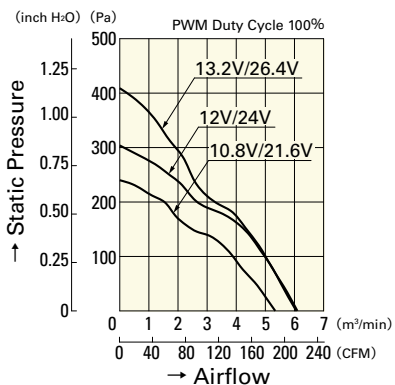
9GV1412P1S001
9GV1424P1S001
9GV1448P1S001



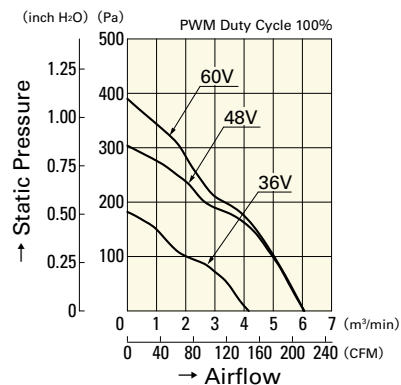
9GV1412P1H001
9GV1424P1H001
9GV1448P1H001



9GV1448P1S001



9GV1412P1H001
9GV1424P1H001



9GV1448P1H001

140mm sq.

San Ace 140



General Specifications

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

140×140×38mm (Mass : 450g) **9P type**

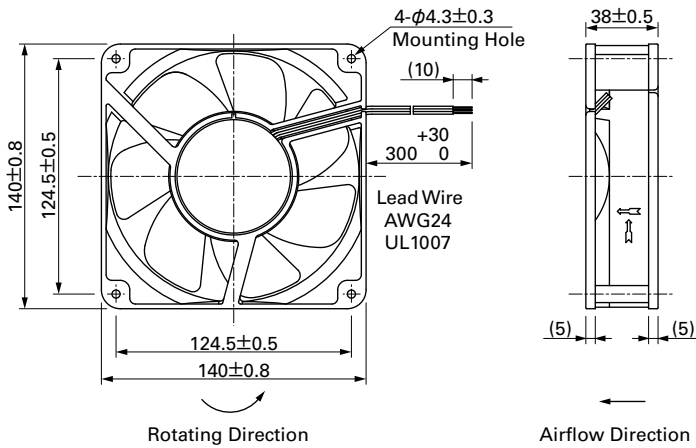
Specifications

The following nos. **have pulse sensors and ribs.**

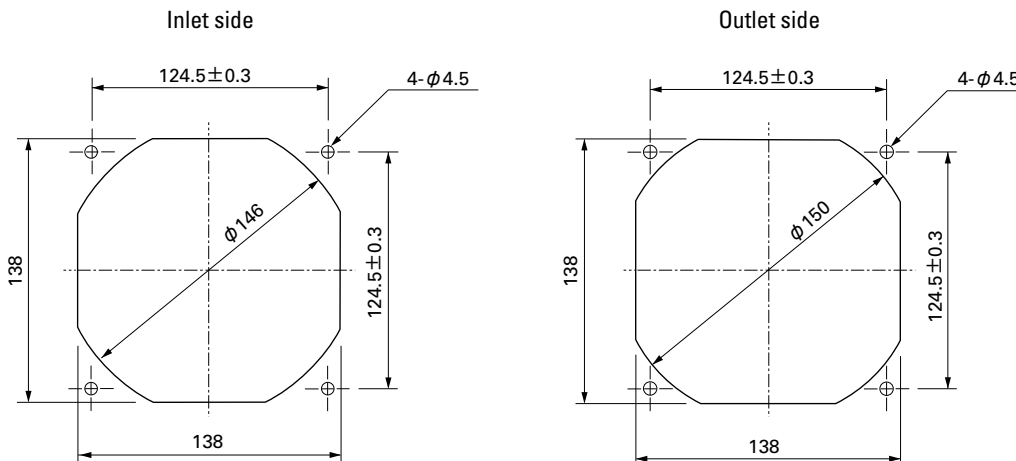
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109P1412H101	12	10.2 to 13.8	0.73	8.76	2,600	4.5 159	94 0.378	46	-20 to +70	40,000/60°C
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		

Other sensor specifications are available as options. Please refer to the index (p. 498).

Dimensions (unit: mm)



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



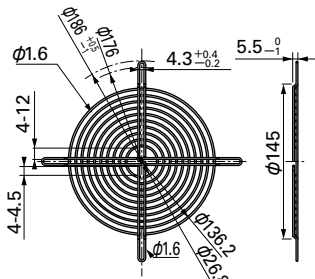
Options (unit: mm)

Finger Guards

Model : 109-719 Surface treatment : Nickel-chrome plating Color (silver)

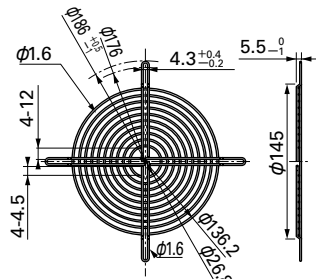
Model : 109-719H Surface treatment : Cation electropainting Color (black)

Inlet side, Outlet side



Mass : 51g

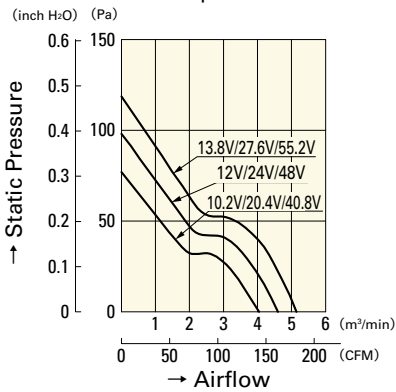
Inlet side, Outlet side



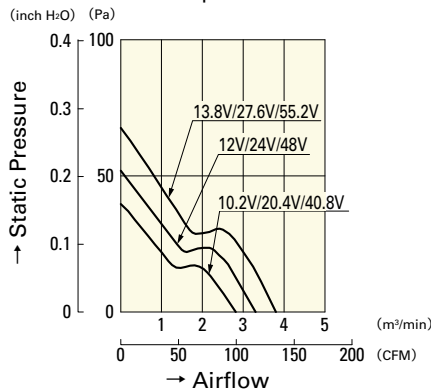
Mass : 51g

Airflow - Static Pressure Characteristics

H speed



M speed



109P1412H101

109P1424H101

109P1448H101

109P1412M101

109P1424M101

109P1448M101

150mm sq.

San Ace 150



General Specifications

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

150×150×50mm (Mass : 450g) **9GV type**

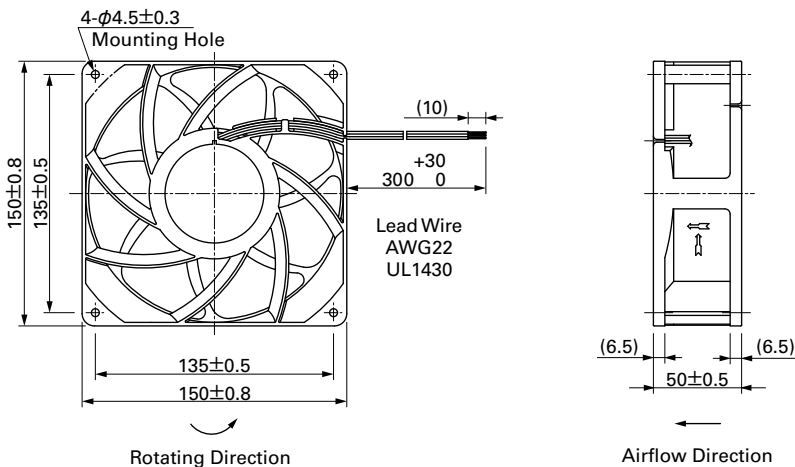
Specifications

The following nos. **have pulse sensors and ribs.** For ribless, append "1" to the model no.

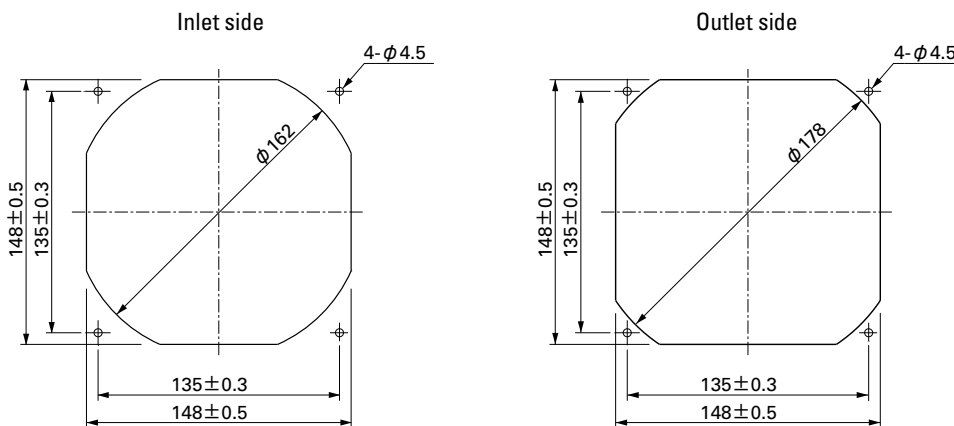
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GV1512H501	12	10.2 to 13.8	2.9	34.8	3,900	8.54	300	210	0.84	61
9GV1512M501			1.2	14.4	3,000	6.35	224	132	0.53	53
9GV1524M501	24	20.4 to 27.6	0.6	14.4	3,000	6.35	224	132	0.53	53

Other sensor specifications are available as options. Please refer to the index (p. 508).

Dimensions (unit: mm) (With ribs)



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



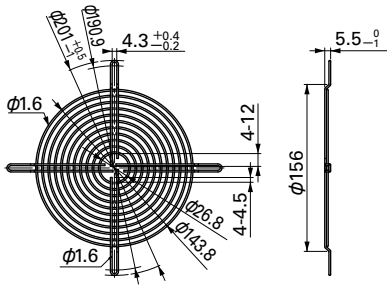
Options (unit: mm)

Finger Guards

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

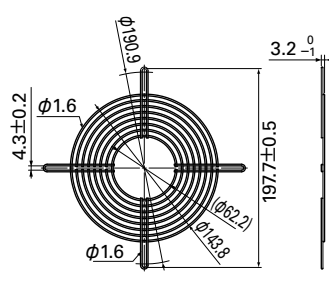
Model : 109-1052 Surface treatment : Nickel-chrome plating (silver) Color

Inlet side, Outlet side



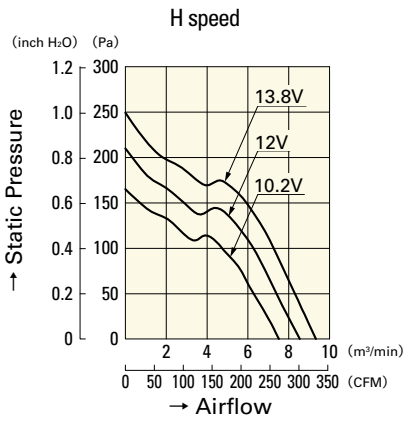
Mass : 63g

Outlet side

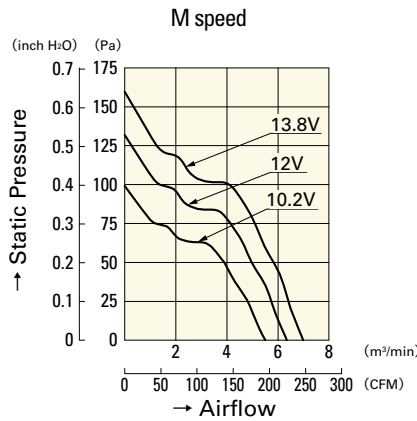


Mass : 53g

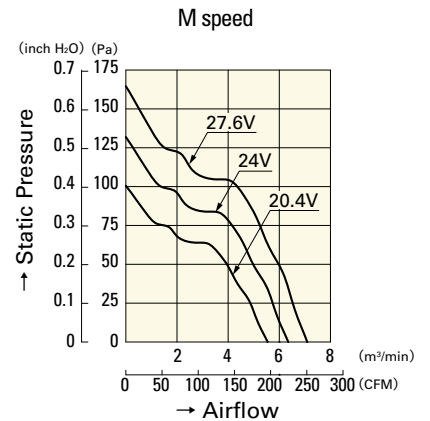
Airflow - Static Pressure Characteristics



9GV1512H501



9GV1512M501



9GV1524M501

φ172_{mm}

San Ace 172



General Specifications

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

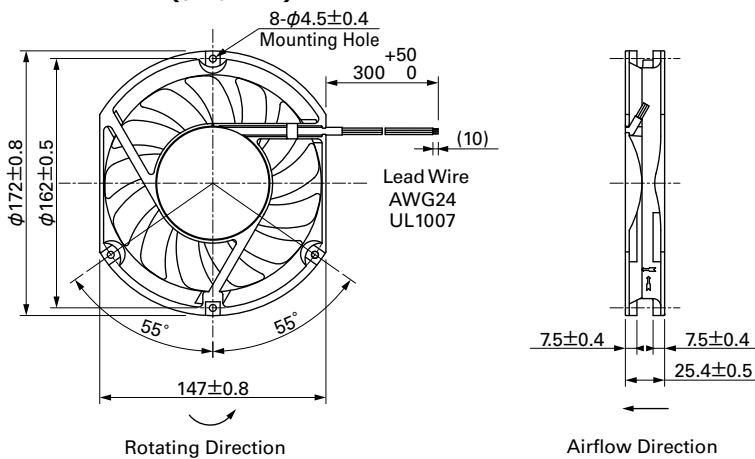
φ172mm × 147mm × 25mm (Mass : 500g) **9E type Sidecut type**

Specifications The following nos. have pulse sensors.

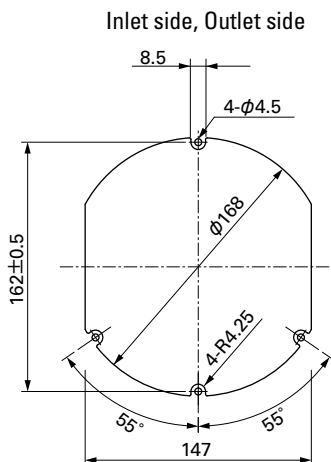
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109E4712M401	12	10.2 to 13.8	1.3	15.6	2,800	5.2 183	92 0.369	51	-20 to +60	40,000/60°C
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		

Other sensor specifications are available as options. Please refer to the index (pp. 495 to 496).

Dimensions (unit: mm)



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



Options (unit: mm)

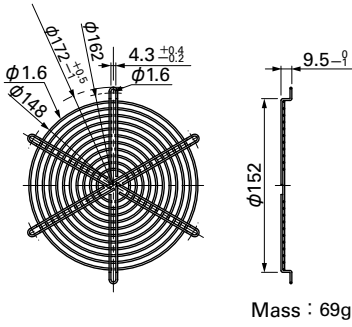
Finger Guards

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

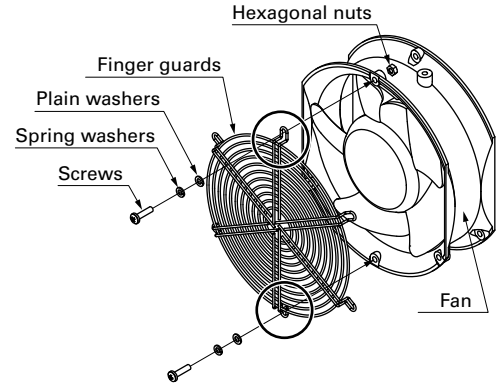
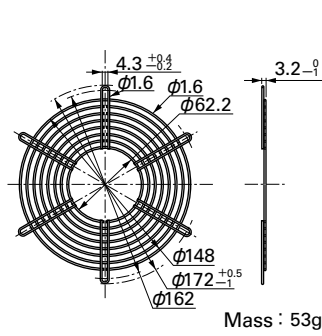
Model : 109-320 Surface treatment : Nickel-chrome plating (silver)

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

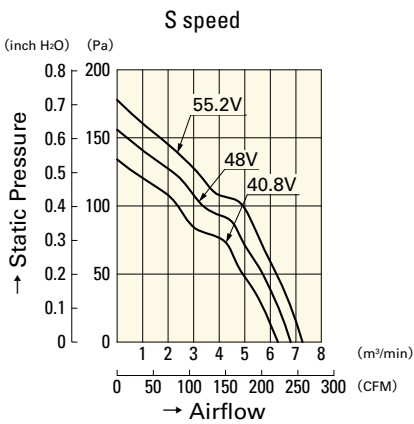
Inlet side, Outlet side



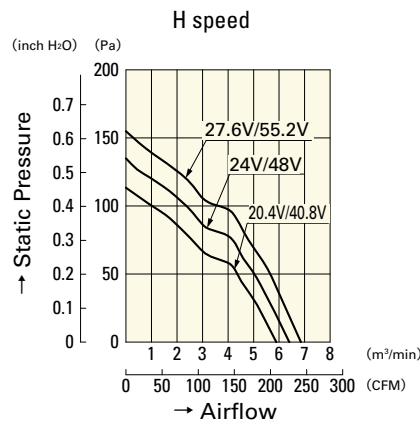
Outlet side



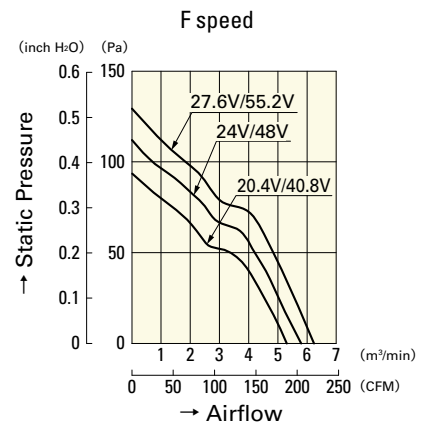
Airflow - Static Pressure Characteristics



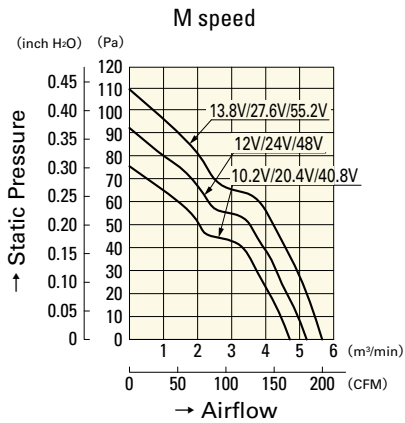
109E4748S401



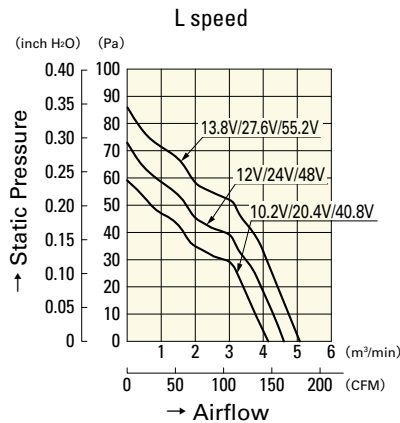
109E4724H401
109E4748H401



109E4724F401
109E4748F401



109E4712M401
109E4724M401
109E4748M401



109E4712L401
109E4724L401
109E4748L401

φ172_{mm}

San Ace 172



General Specifications

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

φ172mm × 150mm × 51mm [Mass : 800g]

9HV type Sidecut type



Specifications

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

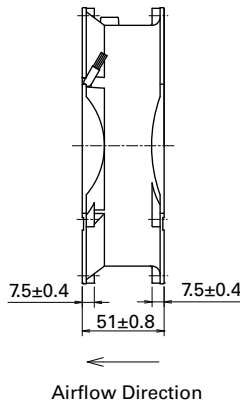
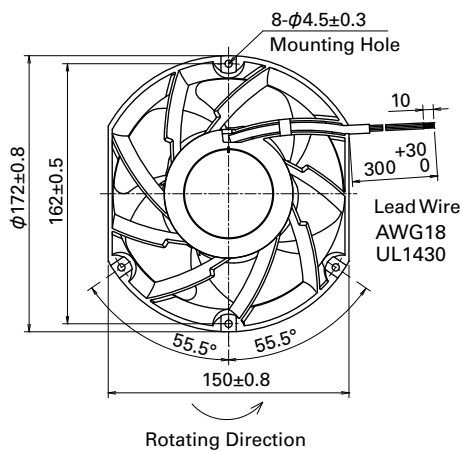
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9HV5724P5H001	24	16 to 30	100	5.0	120	8,000	12.3 434	1,000 4.02	77	-20 to +70	40,000/60°C (70,000/40°C)
			20	0.50	12.0	3,000	4.60 162	175 0.70	51		
9HV5748P5G001	48	36 to 72	100	5.0	240	10,500	16.1 568	1,600 6.43	83	-20 to +70	40,000/60°C (70,000/40°C)
			20	0.41	19.7	3,700	5.60 198	250 1.01	57		

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

※PWM Frequency : 25kHz

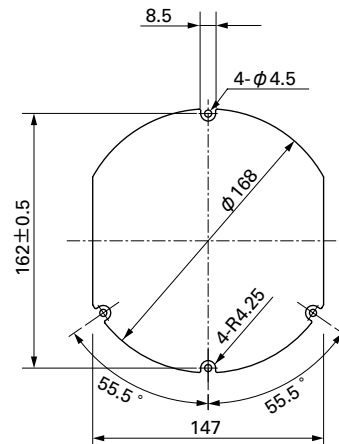
Other sensor specifications are available as options. Please refer to the index (p. 509).

Dimensions (unit: mm)



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

Inlet side, Outlet side



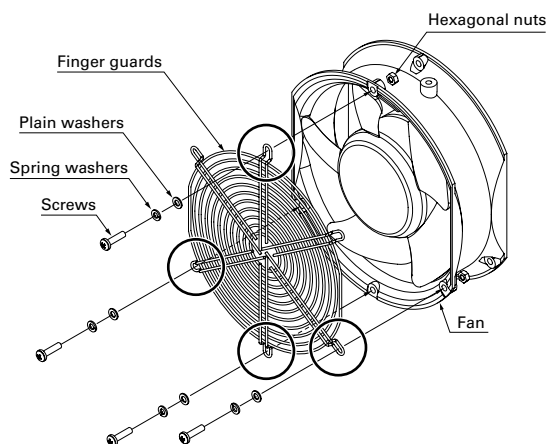
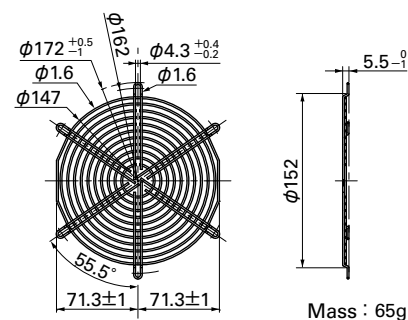
Options (unit: mm)

Finger Guards

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

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

Inlet side, Outlet side



Options (unit: mm)

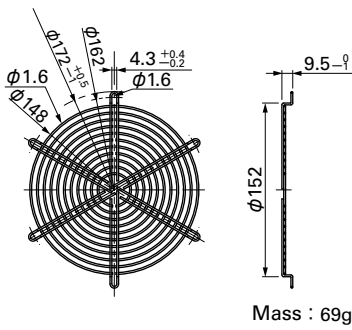
Finger Guards

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

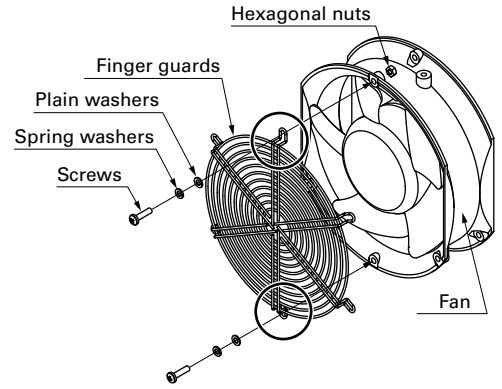
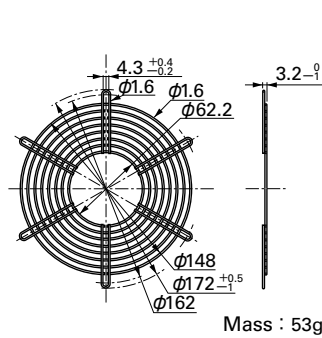
Model : 109-320 Surface treatment : Nickel-chrome plating (silver)

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

Inlet side, Outlet side

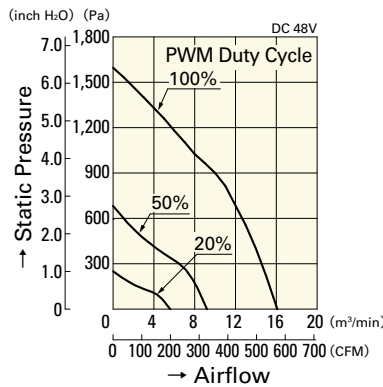
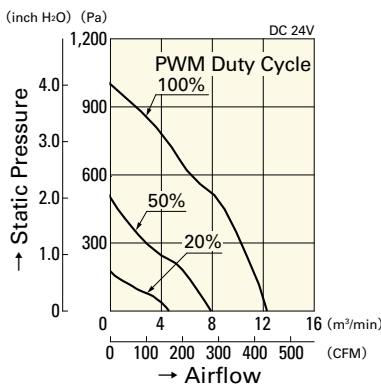


Outlet side



Airflow - Static Pressure Characteristics

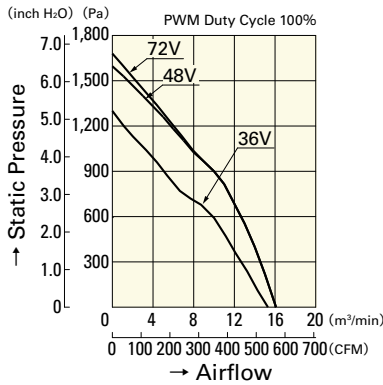
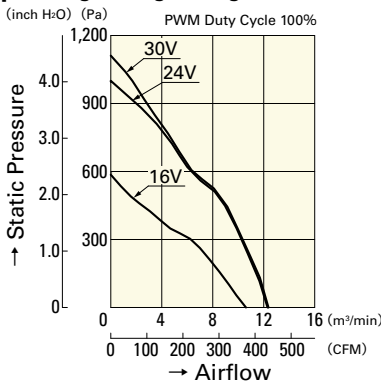
PWM Duty Cycle



9HV5724P5H001

9HV5748P5G001

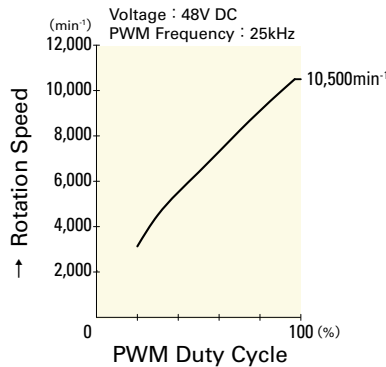
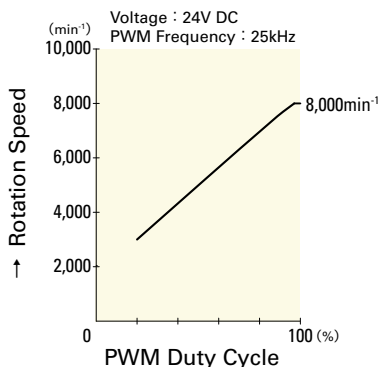
Operating Voltage Range



9HV5724P5H001

9HV5748P5G001

PWM Duty - Speed Characteristics Example



9HV5724P5H001

9HV5748P5G001

φ172mm

San Ace 172



General Specifications

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

φ172mm × 150mm × 51mm (Mass : 760g)

9SG type Sidecut type



Specifications

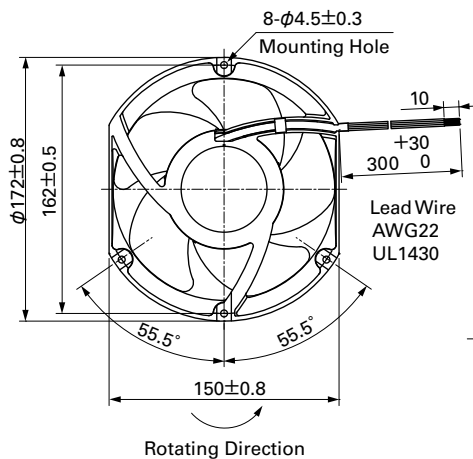
The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle [※] [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9SG5724P5H61	24	20.4 to 27.6	100	2.8	67.2	6,500	11.6 410	540 2.16	71	-20 to +70	40,000/60°C
			0	0.18	4.32	1,300	2.32 81.9	30 0.12	28		
9SG5748P5G01	48	36 to 72	100	2.91	140	8,600	15.46 546	1,000 4.02	78	-20 to +60	
			0	0.21	10.1	2,000	3.59 127	75.1 0.30	40		
9SG5748P5H01	48	36 to 72	100	1.62	78	6,500	11.60 410	770 3.09	71	-20 to +60	
			0	0.21	10.1	2,000	3.59 127	75.1 0.30	40		

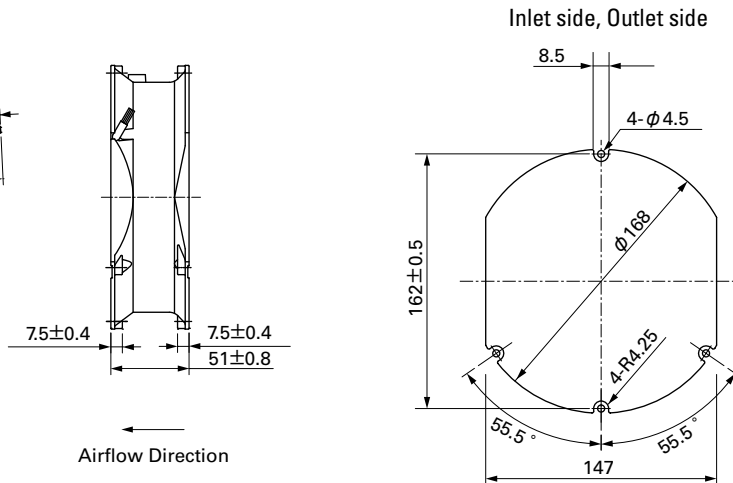
※PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 510).

Dimensions (unit: mm)



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

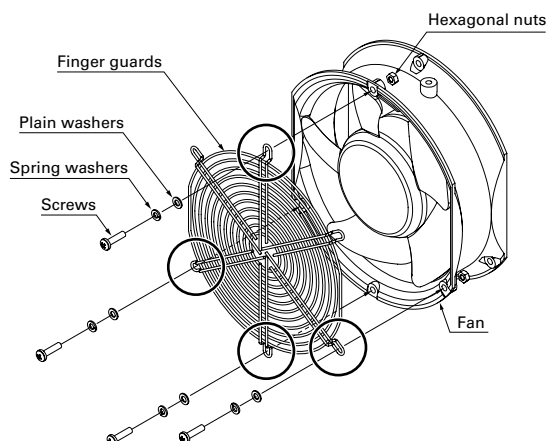
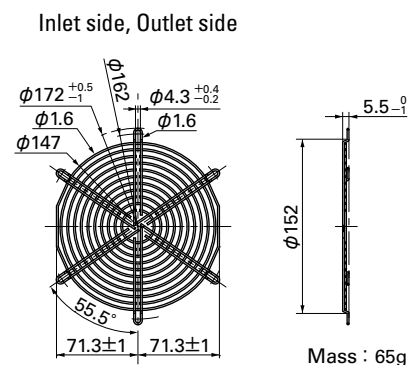


Options (unit: mm)

Finger Guards

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

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



Options (unit: mm)

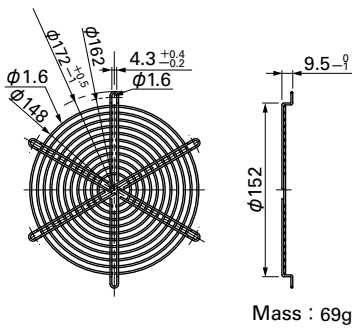
Finger Guards

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

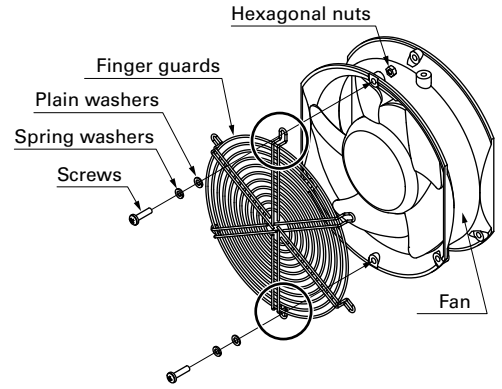
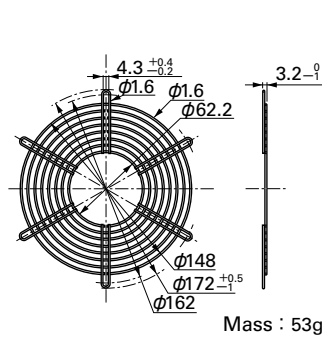
Model : 109-320 Surface treatment : Nickel-chrome plating (silver)

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

Inlet side, Outlet side

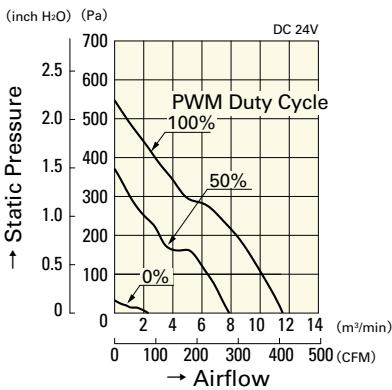


Outlet side

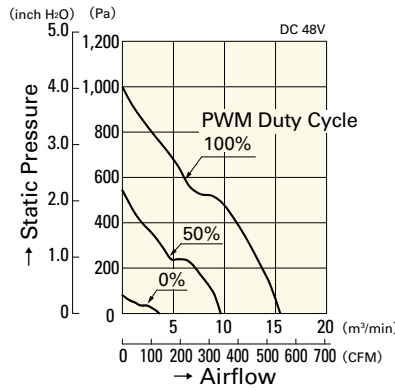


Airflow - Static Pressure Characteristics

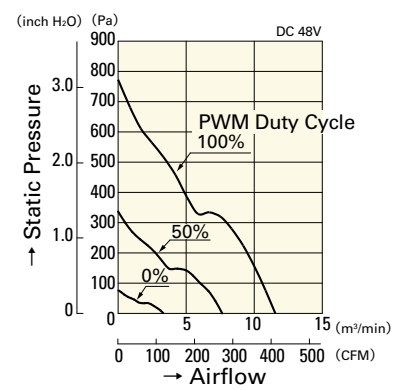
PWM Duty Cycle



9SG5724P5H61

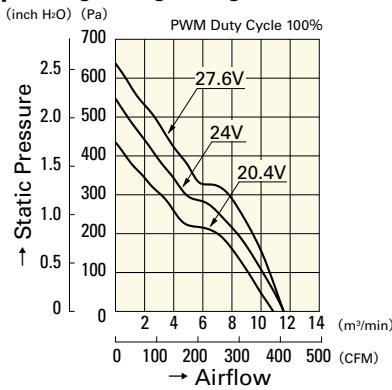


9SG5748P5G01

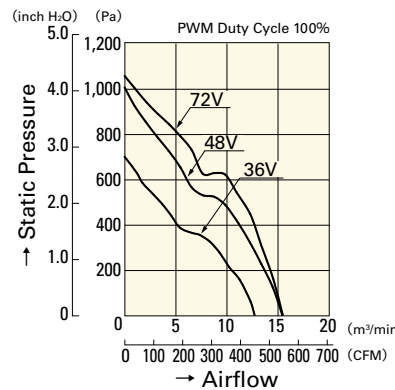


9SG5748P5H01

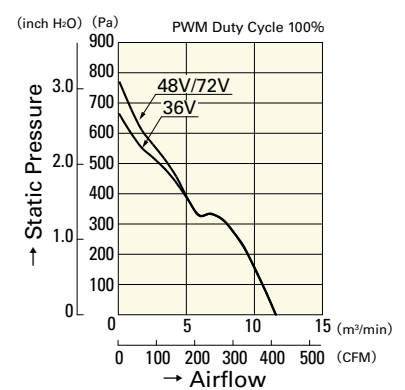
Operating Voltage Range



9SG5724P5H61

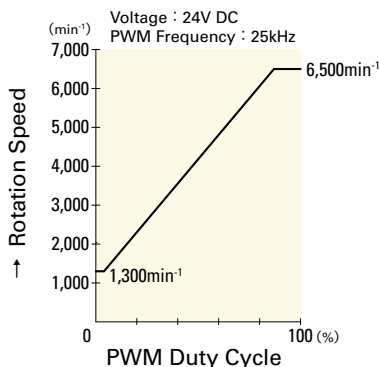


9SG5748P5G01

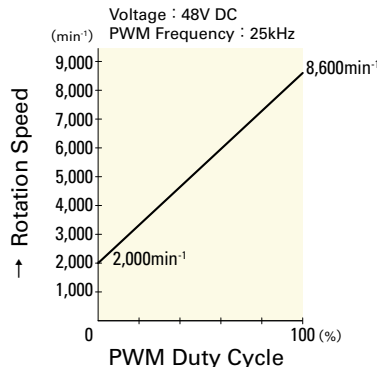


9SG5748P5H01

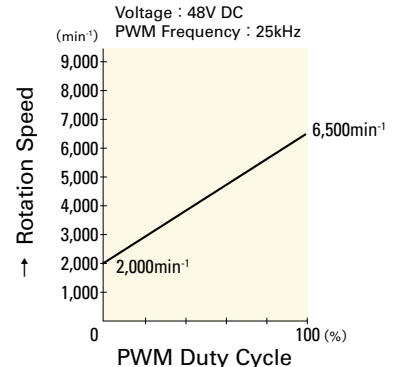
PWM Duty - Speed Characteristics Example



9SG5724P5H61



9SG5748P5G01



9SG5748P5H01

φ172mm

San Ace 172



General Specifications

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

φ172mm × 150mm × 51mm (Mass : 800g)

9GV type Sidecut type



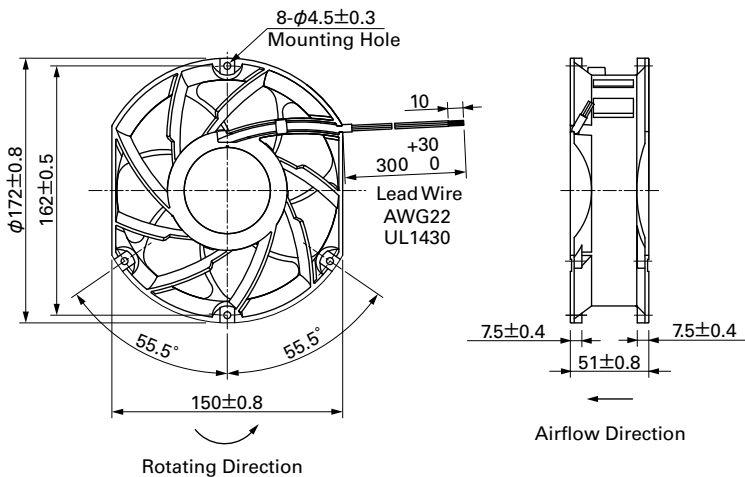
Specifications

The following nos. **have pulse sensors.**

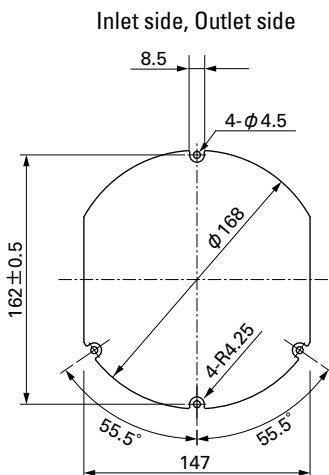
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GV5724H501	24	20.4 to 27.6	4.0	96	6,300	11.32 400	690 2,77	74	- 20 to +70	40,000/60°C
9GV5748H501	48	40.8 to 55.2	2.0	96						

Other sensor specifications are available as options. Please refer to the index (p. 508).

Dimensions (unit: mm)



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



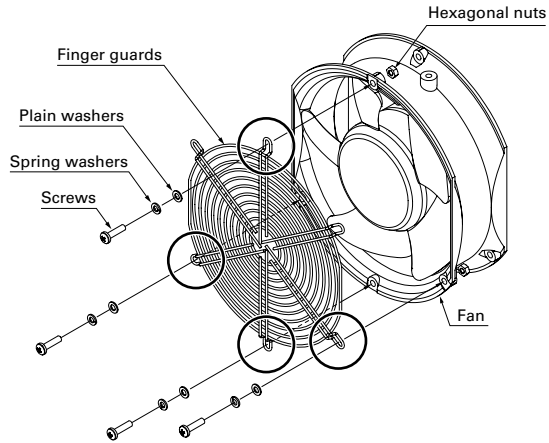
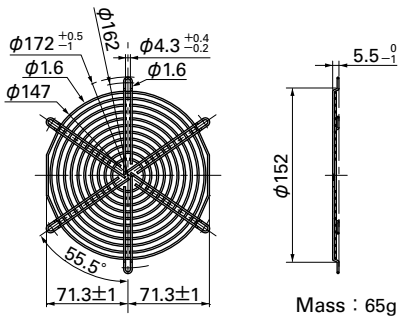
Options (unit: mm)

Finger Guards

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

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

Inlet side, Outlet side



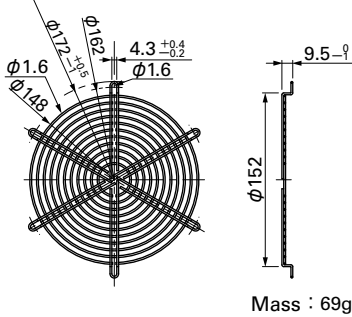
Finger Guards

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

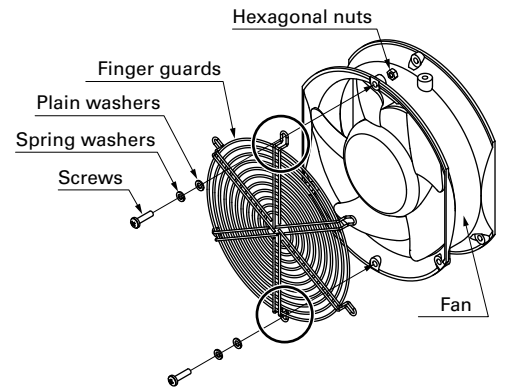
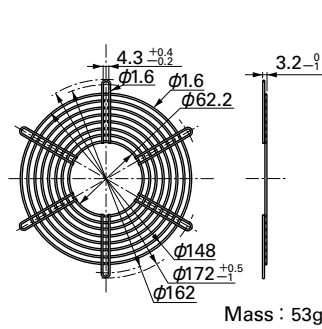
Model : 109-320 Color : Nickel-chrome plating (silver)
Surface treatment : Nickel-chrome plating (silver)

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

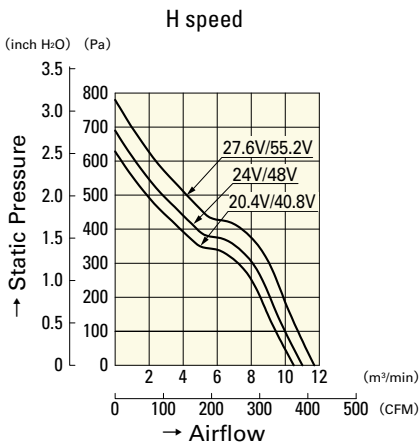
Inlet side, Outlet side



Outlet side



Airflow - Static Pressure Characteristics



9GV5724H501

9GV5748H501

φ172mm

San Ace 172



General Specifications

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

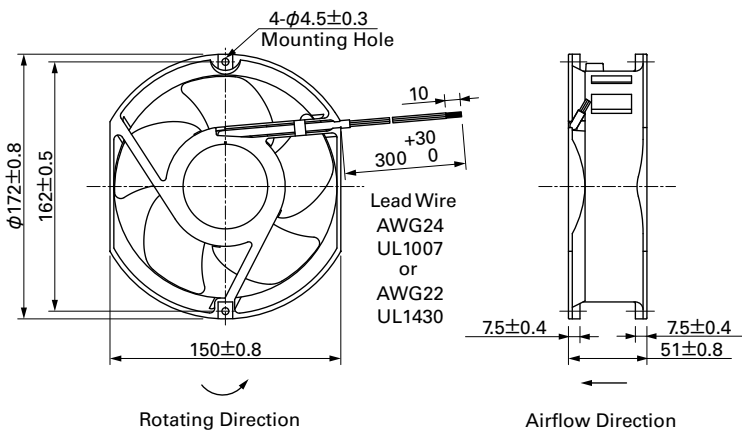
φ172mm × 150mm × 51mm (Mass : 760g) **9E type Sidecut type**

Specifications The following nos. have pulse sensors.

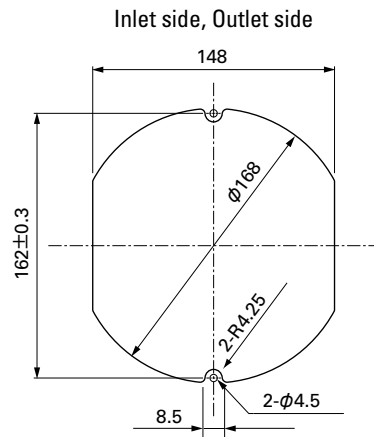
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109E5712K501	12	10.2 to 13.8	2.9	34.8	4,100	8.5 300	243.0 0.976	60	-20 to +60	40,000/60°C
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	-20 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	-20 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	-20 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	-20 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		

Other sensor specifications are available as options. Please refer to the index (p. 496).

Dimensions (unit: mm)



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



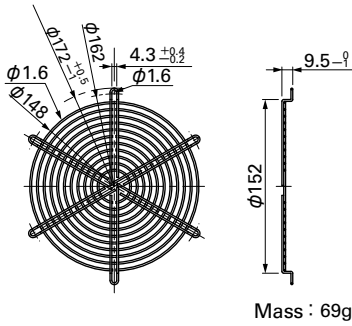
Options (unit: mm)

Finger Guards

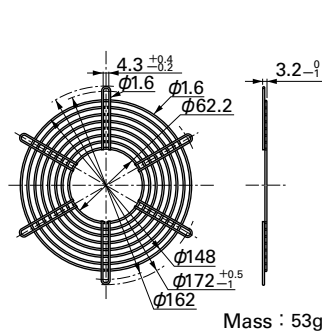
Model : 109-319E Surface treatment : Nickel-chrome plating (silver) Color : 109-319H : Cation electropainting (black)

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

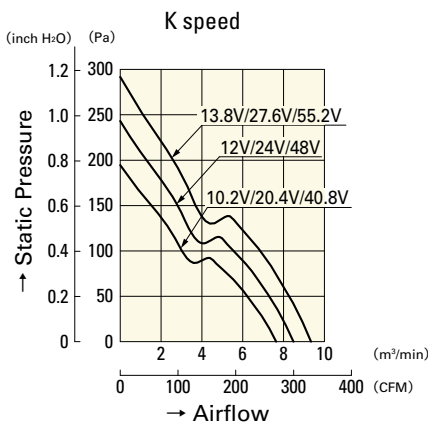
Inlet side, Outlet side



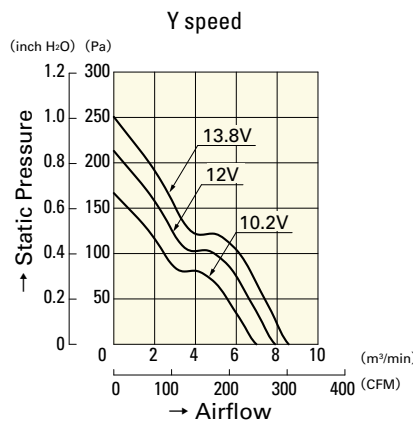
Outlet side



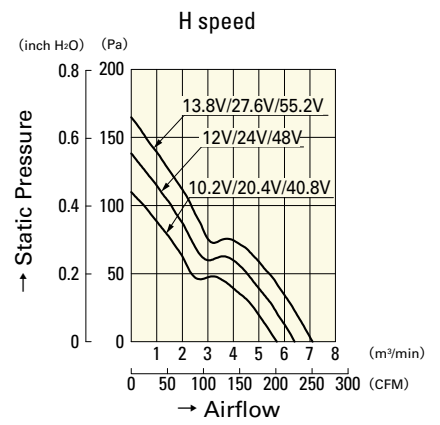
Airflow - Static Pressure Characteristics



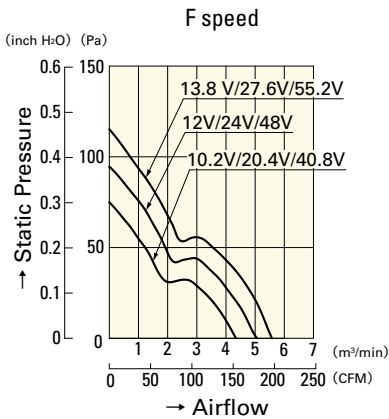
- 109E5712K501**
- 109E5724K501**
- 109E5748K501**



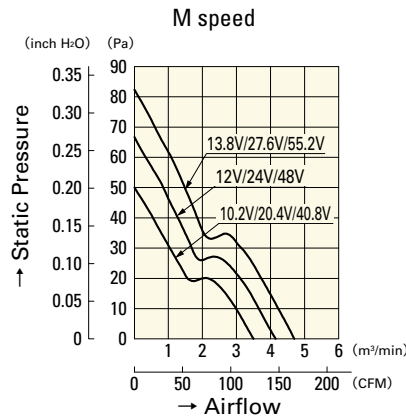
- 109E5712Y501**



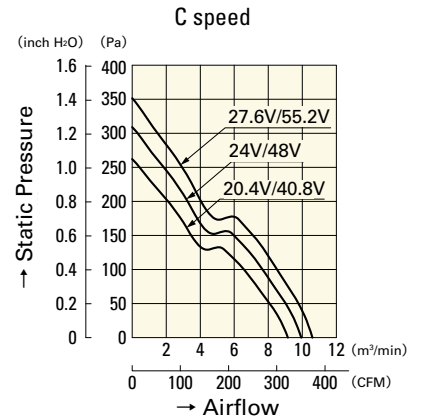
- 109E5712H501**
- 109E5724H501**
- 109E5748H501**



- 109E5712F501**
- 109E5724F501**
- 109E5748F501**



- 109E5712M501**
- 109E5724M501**
- 109E5748M501**



- 109E5724C501**
- 109E5748C501**

φ172mm

San Ace 172



General Specifications

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

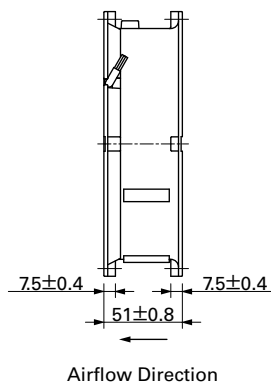
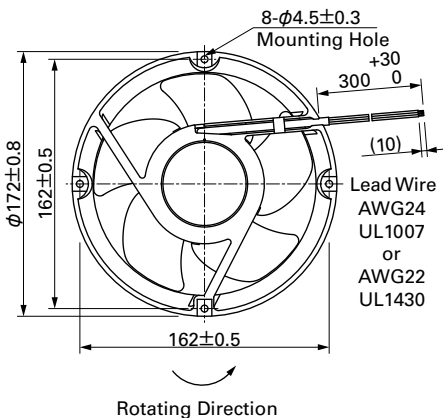
φ172mm×51mm (Mass : 780g) **9E type Round type**

Specifications The following nos. have pulse sensors.

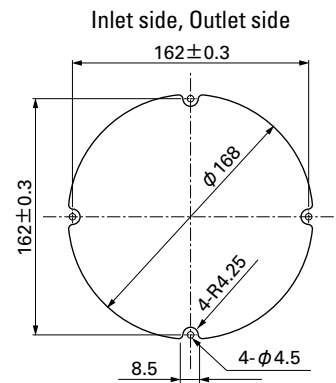
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109E1712K501	12	10.2 to 13.8	2.9	34.8	4,100	8.5 300	243.0 0.976	55	-20 to +60	40,000/60°C
109E1712Y501			2.3	27.6	3,800	7.8 276	210.0 0.843	53		
109E1712H501			1.2	14.4	3,050	6.4 226	137.2 0.551	47		
109E1712F501			0.9	10.8	2,500	5.1 180	95.0 0.382	42		
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		
109E1724F501			0.35	8.4	2,500	5.1 180	95 0.382	42		
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	-20 to +60	
109E1748K501			0.7	33.6	4,100	8.5 300	243.0 0.976	55	-20 to +70	
109E1748H501			0.28	13.44	3,050	6.4 226	137.2 0.551	47	-20 to +60	
109E1748F501			0.19	9.12	2,500	5.1 180	95 0.382	42	-20 to +60	
109E1748M501			0.11	5.28	2,000	4.2 148	67.6 0.271	36	-20 to +70	

Other sensor specifications are available as options. Please refer to the index (p. 495).

Dimensions (unit: mm)



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

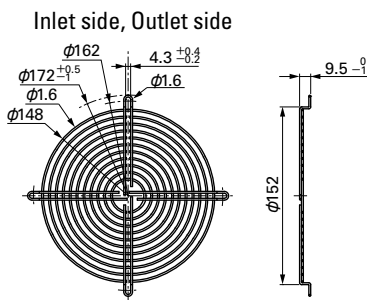


Options (unit: mm)

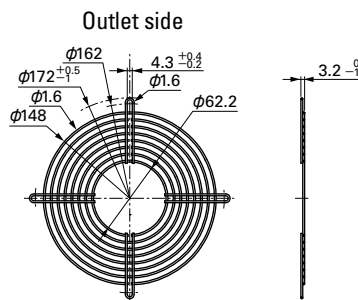
Finger Guards

Model : 109-1066 Surface treatment : Nickel-chrome plating (silver) Color

Model : 109-1068 Surface treatment : Nickel-chrome plating (silver) Color



Mass : 61g



Mass : 54g

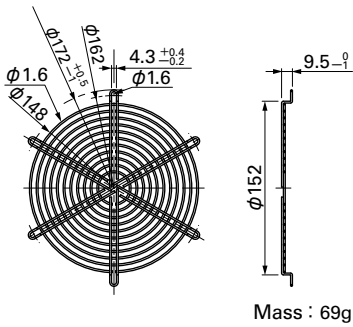
Options (unit: mm)

Finger Guards

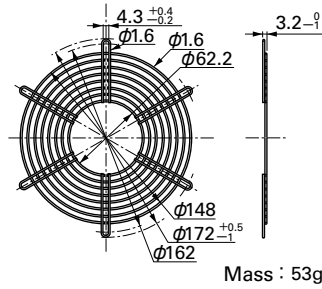
Color : 109-319E Surface treatment : Nickel-chrome plating (silver)
 : 109-319H Surface treatment : Cation electropainting (black)

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

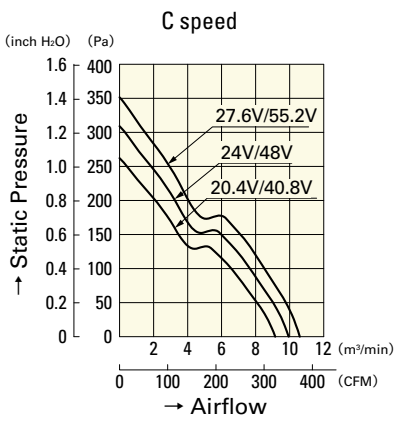
Inlet side, Outlet side



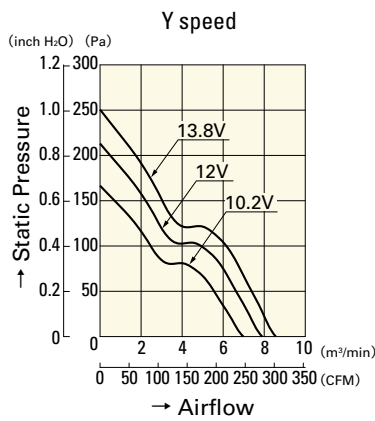
Outlet side



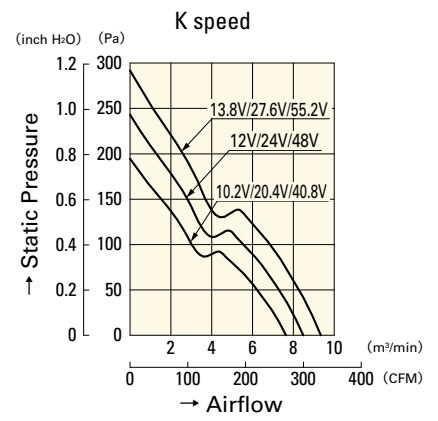
Airflow - Static Pressure Characteristics



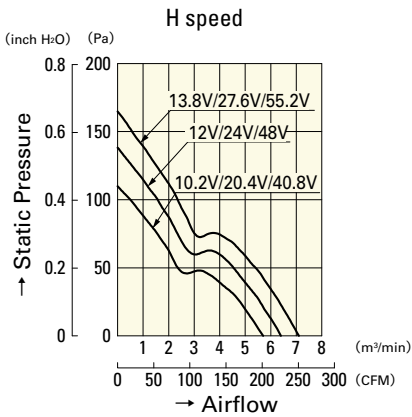
109E1724C501
109E1748C501



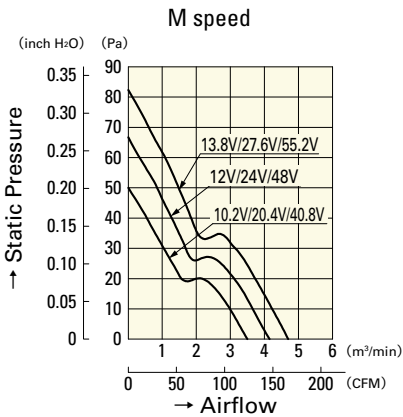
109E1712Y501



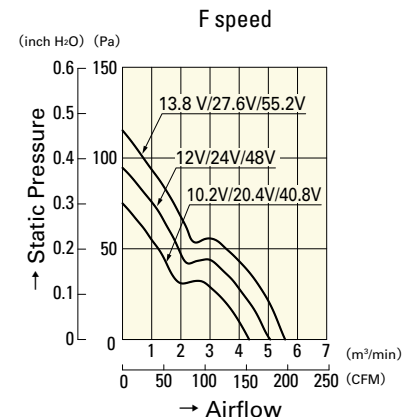
109E1712K501
109E1724K501
109E1748K501



109E1712H501
109E1724H501
109E1748H501



109E1712M501
109E1724M501
109E1748M501



109E1712F501
109E1724F501
109E1748F501

φ200mm

San Ace 200



General Specifications

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
 - Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
 - Lead Wire ⊕red ⊖black (Sensor) yellow (Control) brown
 - Storage Temperature -30°C to +70°C (Non-condensing)
- Power on when current is shut off. Do not power on 15s or more after power off.

φ200mm×70mm (Mass : 1800g) **9GV type**

Specifications

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

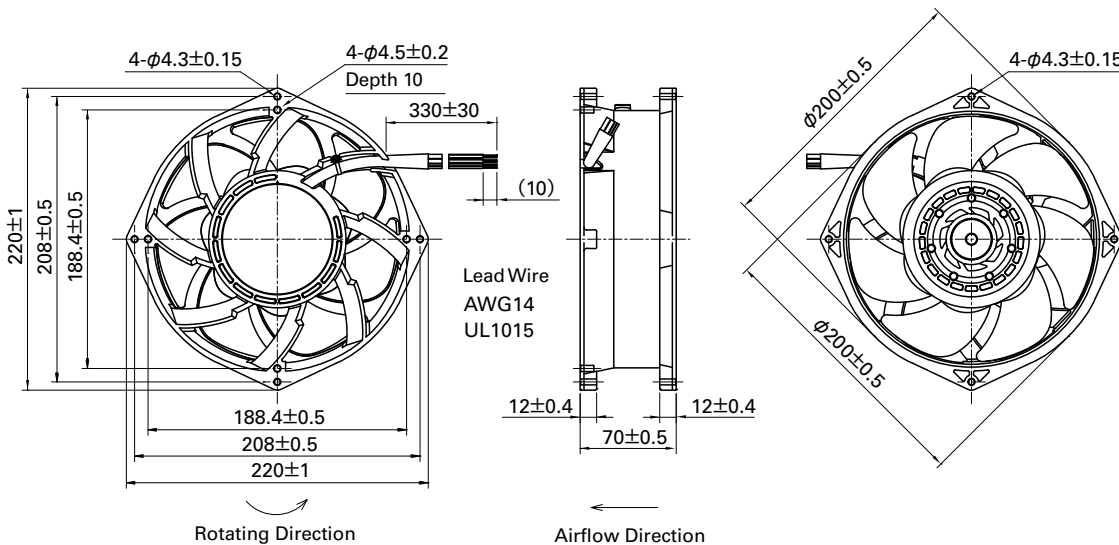
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GV2048P0G201 ^(Note)	48	36 to 72	100	12.5	600	8,000	31.5 1,112	1,400 5.62	81	-20 to +70	40,000/60°C (70,000/40°C)

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

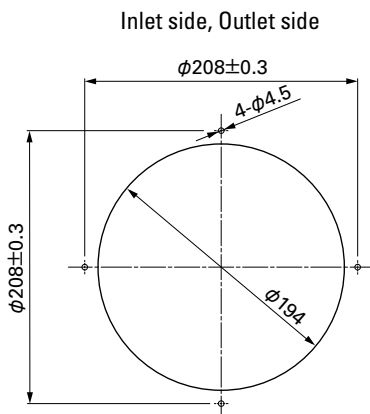
※PWM Frequency : 1kHz

Other sensor specifications are available as options. Please refer to the index (p. 508).

Dimensions (unit: mm)



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

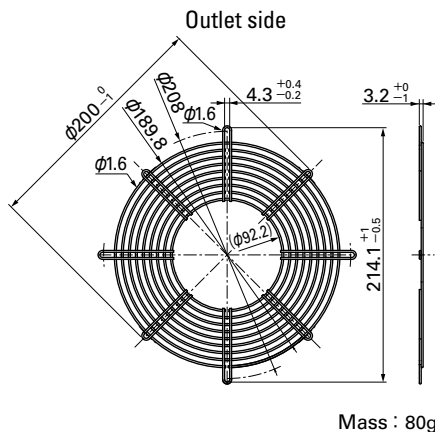
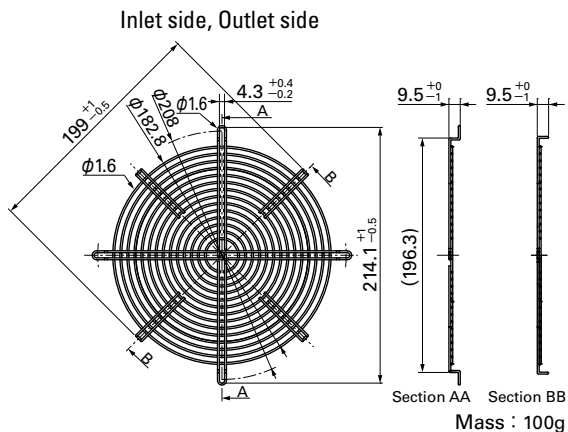


Options (unit: mm)

Finger Guards

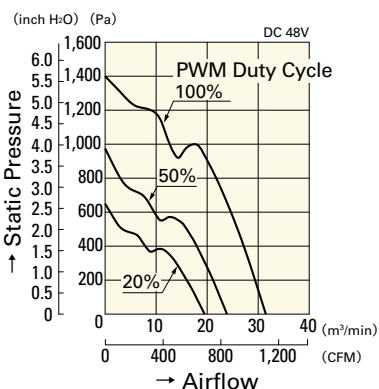
Model : 109-1102 Surface treatment : Nickel-chrome plating (silver) Color

Model : 109-1103 Surface treatment : Nickel-chrome plating (silver) Color



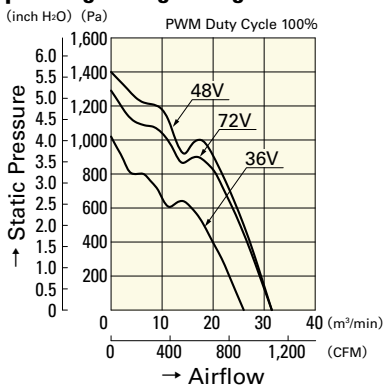
Airflow - Static Pressure Characteristics

PWM Duty Cycle



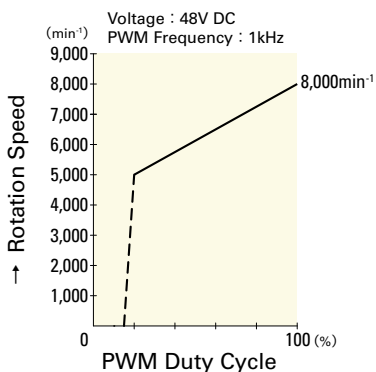
9GV2048P0G201

Operating Voltage Range



9GV2048P0G201

PWM Duty - Speed Characteristics Example



9GV2048P0G201

φ200mm

San Ace 200



Model no. 9EC2048J001 is not certified.

General Specifications

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected Life Refer to specifications (L10:Survival rate:90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕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 10s or more after power off.

φ200mm×70mm (Mass : 1800g) **9EC type**

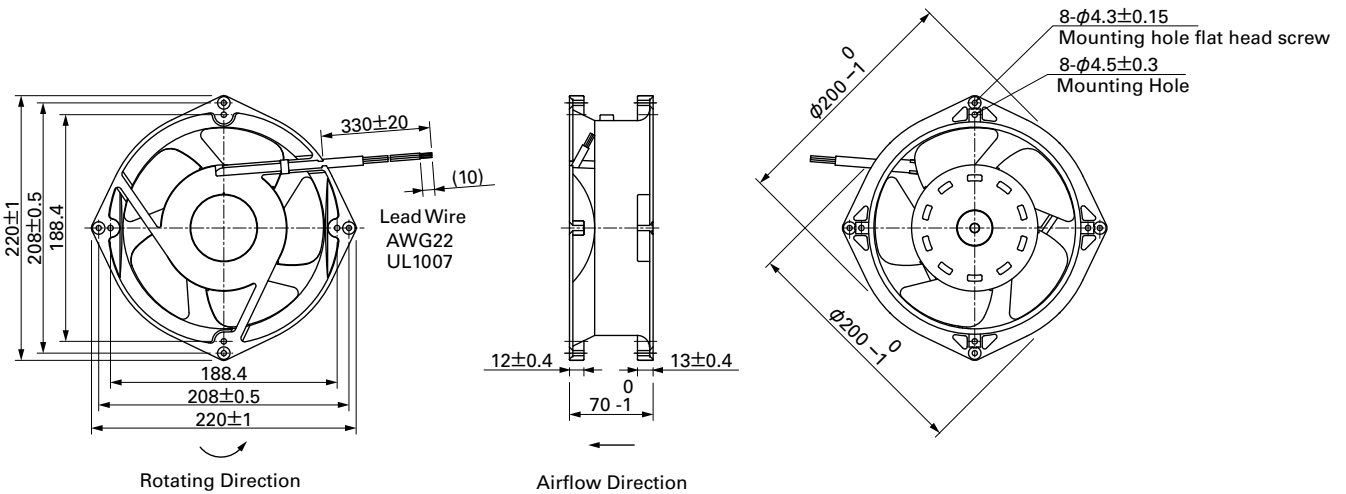
Specifications

The following nos. **have pulse sensors.**

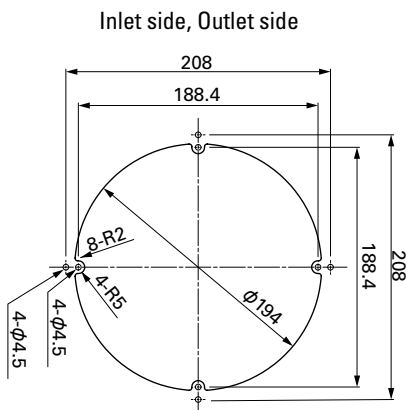
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9EC2024H001	24	20.4 to 26.4	2.0	48.0	3,600	11.0 388	360 1.446	60	-20 to +60	40,000/60°C
9EC2048J001	48	40.8 to 55.2	4.4	211.2	6,100	18.3 646	1,000 4.016	75		
9EC2048A001		43.0 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		

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

Dimensions (unit: mm)



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



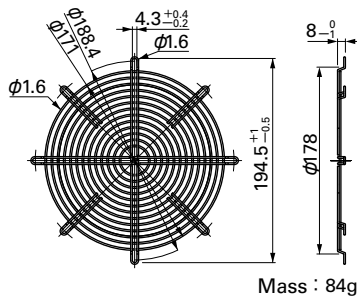
Options (unit: mm)

Finger Guards

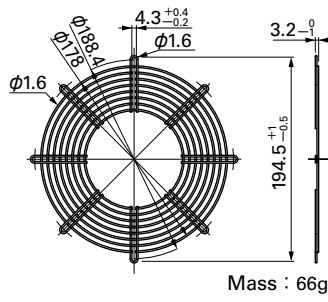
Model : 109-720 Surface treatment : Nickel-chrome plating (silver) Color : 109-720H Cation electropainting (black)

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

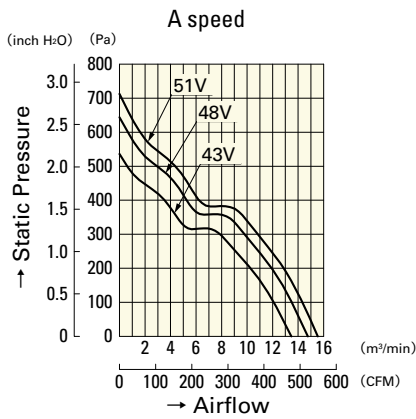
Inlet side, Outlet side



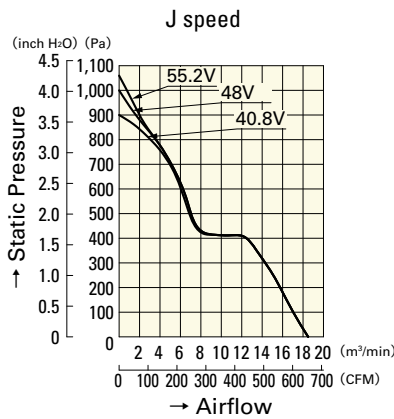
Outlet side



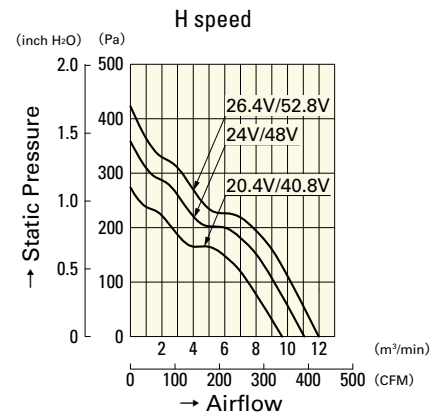
Airflow - Static Pressure Characteristics



9EC2048A001



9EC2048J001



9EC2024H001

9EC2048H001

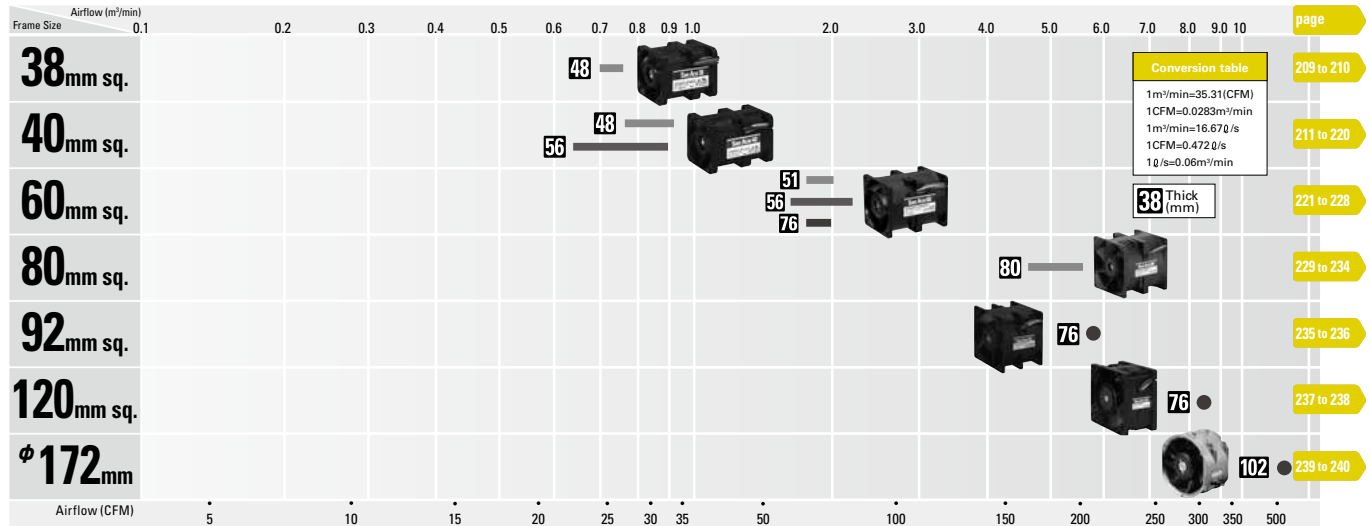
Counter Rotating Fan

Counter rotating fans feature high airflow and high static pressure.

Related product

Long Life Counter Rotating Fan ⇒ pp. 327, 333

Domain Diagram



Model Numbering System

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

9CRA	04	12	K	4	01
Type name / frame material 9CR / Plastics Aluminum 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 57 : φ172mm×150mm (sidecut)	Voltage 12 : 12V 48 : 48V	Speed code J, G, S, H, K etc	Frame thickness 0 : 76mm thick 4 : 48mm thick 5 : 56mm thick, 51mm thick 6 : 56mm thick 8 : 80mm thick 9 : 102mm thick	Sensor specifications 01 : With a pulse sensor 02 : Without a sensor D01 : With a lock sensor

Fans with PWM control function

Example :

9CRA	03	12	P	4	K	03
Type name / frame material 9CRA / Plastics	Frame size 03 : 38×38mm	Voltage 12 : 12V	PWM control function	Frame thickness	Speed code	Individual customer's spec 2 or 3 digits

How to Read Specifications

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

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

DC Fan Common Specifications

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

* For details, refer to the appropriate page.

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

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

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

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

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

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

Lead Wire For details, refer to the appropriate page.

Overheating protection function

Protection Functions:

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

Burnout protection function at locked rotor condition

- Current cutoff system

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

Reverse polarity protection function

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

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

38mm sq.

San Ace 38



General Specifications

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

38×38×48mm (Mass : 80g) **9CRA type**

Specifications

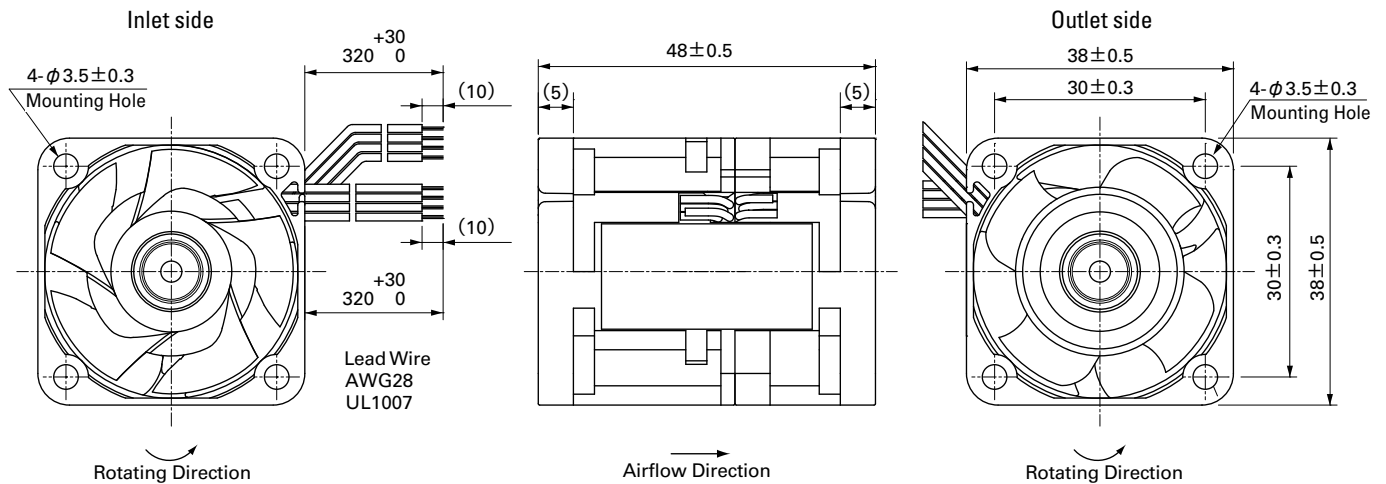
The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹] Inlet Outlet	Max. Airflow [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	-20 to +70	40,000/60°C
			0	0.2	2.4	5,280 4,200	0.22 7.8	54.9 0.22	33		
9CRA0312P4J03			100	1.1	13.2	16,000 13,200	0.7 24.7	560.0 2.25	62		
			0	0.18	2.2	4,800 3,960	0.21 7.4	50.4 0.20	31		

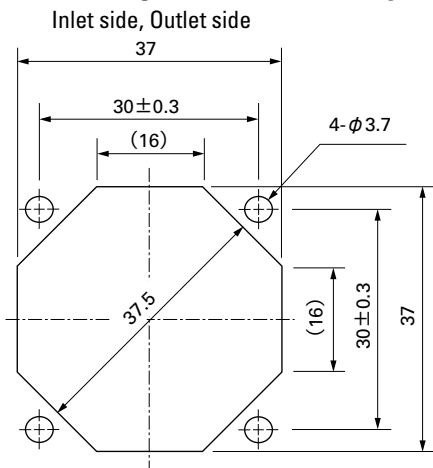
*PWM Frequency : 25kHz

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

Dimensions (unit: mm)

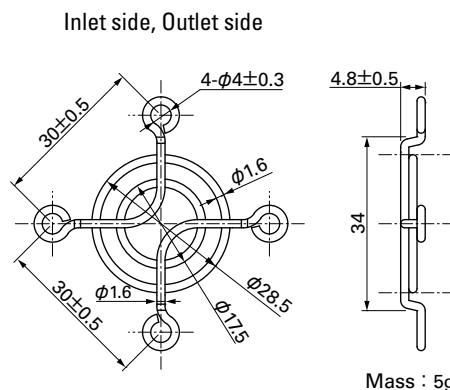


Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



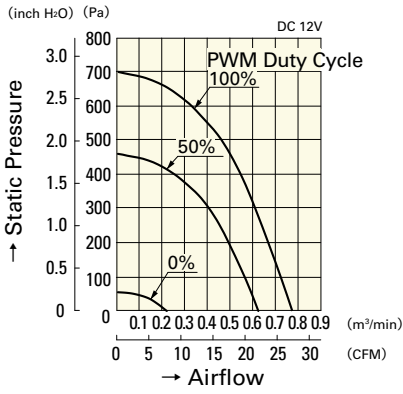
Options (unit: mm)

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

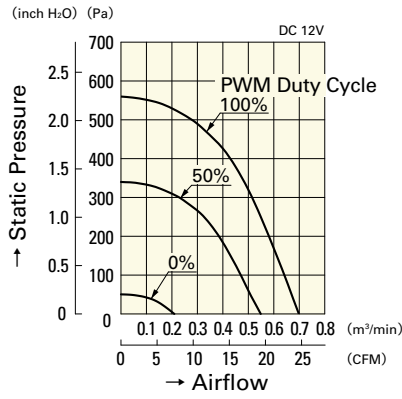


Airflow - Static Pressure Characteristics

PWM Duty Cycle

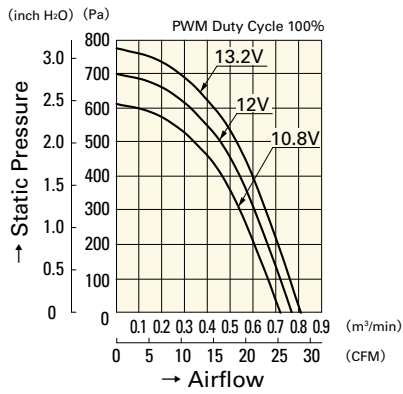


9CRA0312P4K03

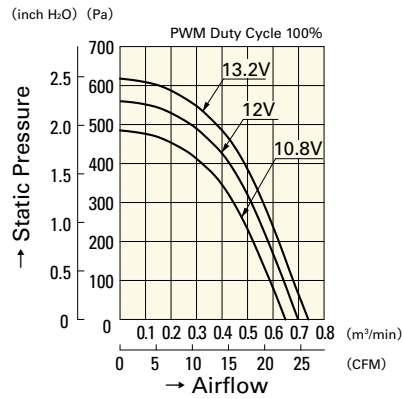


9CRA0312P4J03

Operating Voltage Range

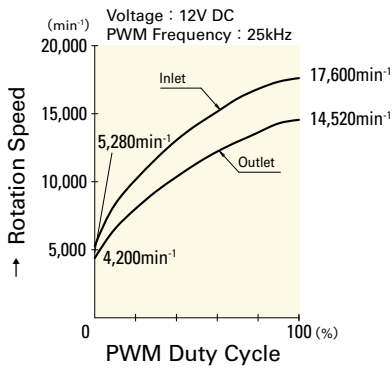


9CRA0312P4K03

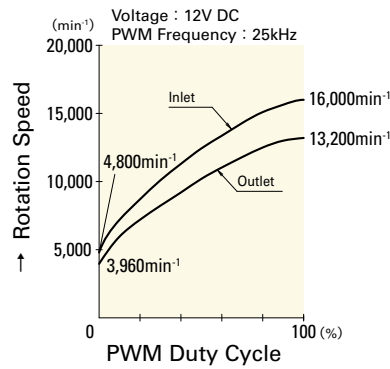


9CRA0312P4J03

PWM Duty - Speed Characteristics Example



9CRA0312P4K03



9CRA0312P4J03

40 mm sq.

San Ace 40



General Specifications

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

40×40×48mm (Mass : 80g) **9CRA type**

Specifications

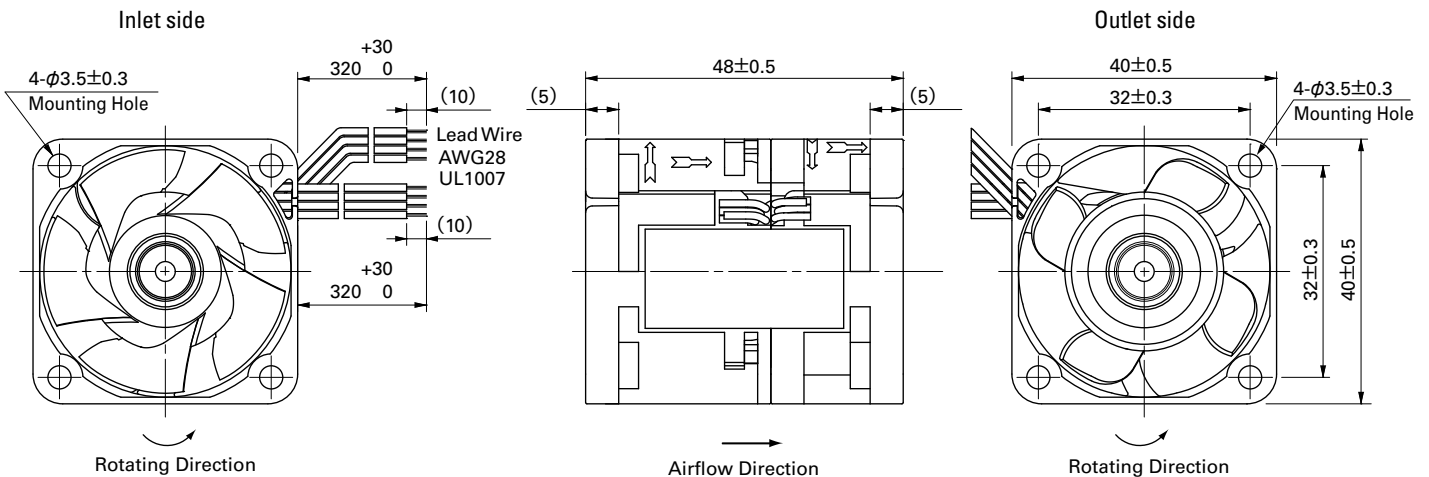
The following nos. **have PWM controls and pulse sensors.**

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

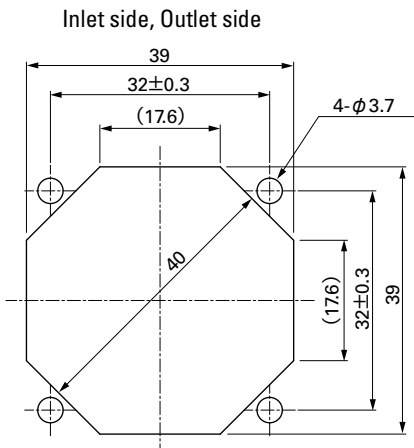
*PWM Frequency : 25kHz

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

Dimensions (unit: mm)



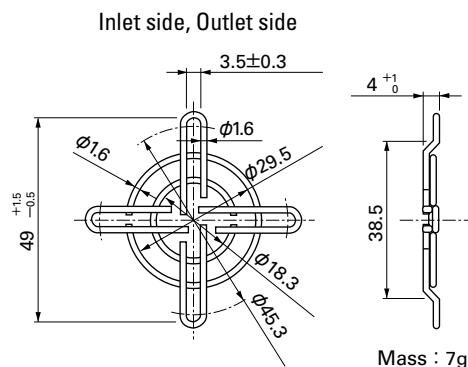
Reference Dimensions of mounting holes and vent opening (unit: mm)



Options (unit: mm)

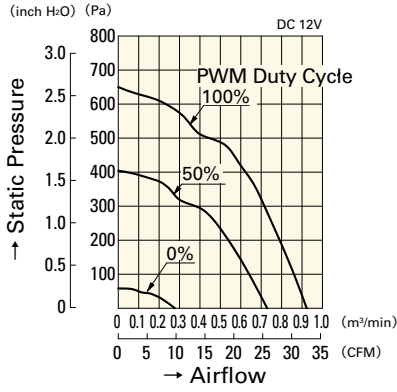
Finger Guards

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

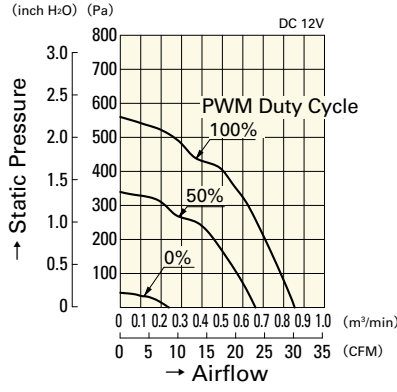


Airflow - Static Pressure Characteristics

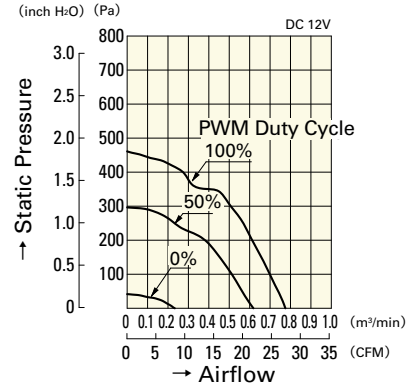
PWM Duty Cycle



9CRA0412P4K03

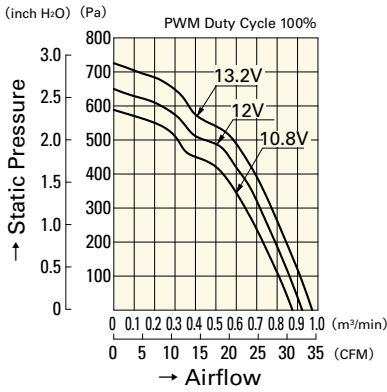


9CRA0412P4J03

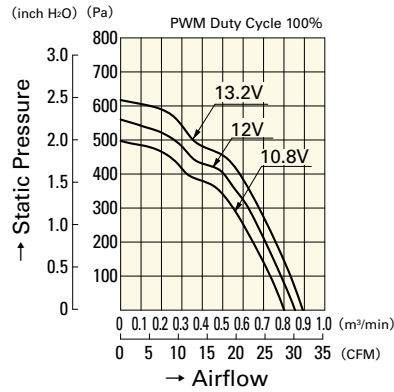


9CRA0412P4G03

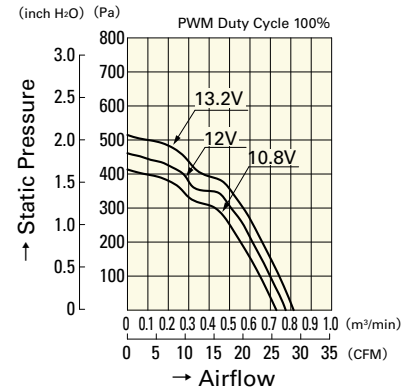
Operating Voltage Range



9CRA0412P4K03

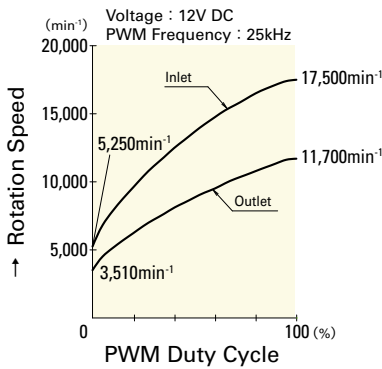


9CRA0412P4J03

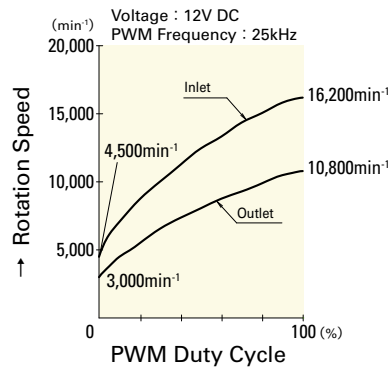


9CRA0412P4G03

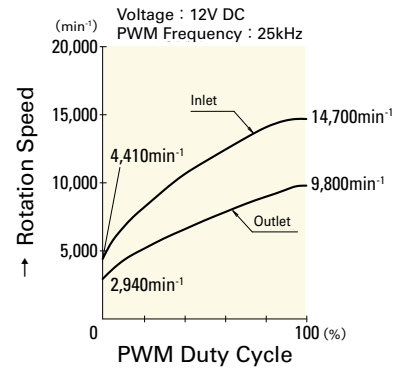
PWM Duty - Speed Characteristics Example



9CRA0412P4K03



9CRA0412P4J03



9CRA0412P4G03

40 mm sq.

San Ace 40



General Specifications

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

40×40×56mm (Mass : 100g) **9CRB type**

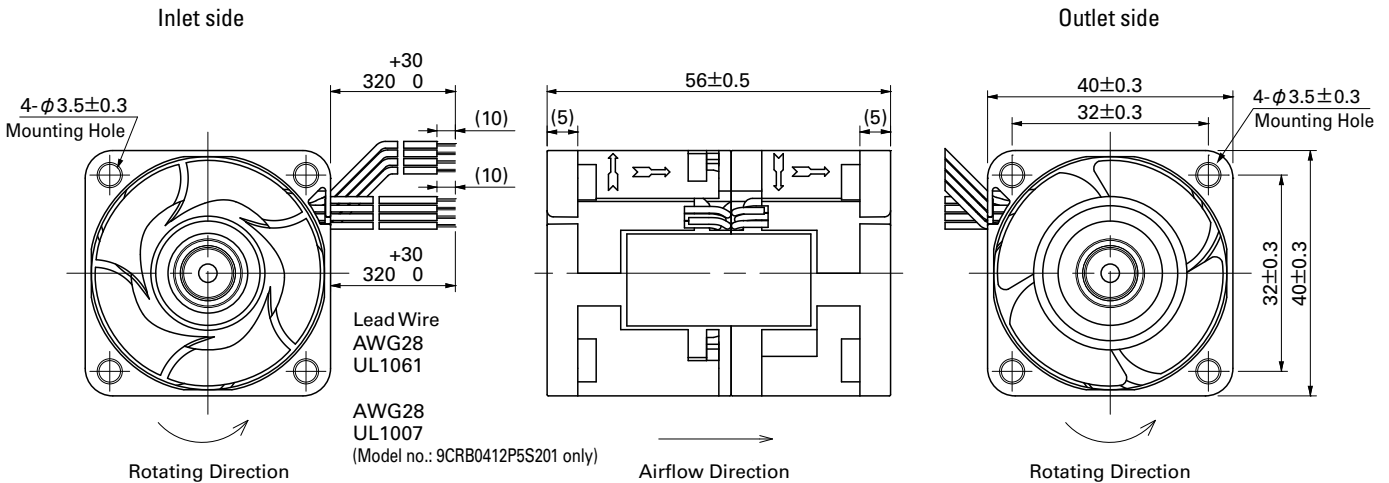
Specifications

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

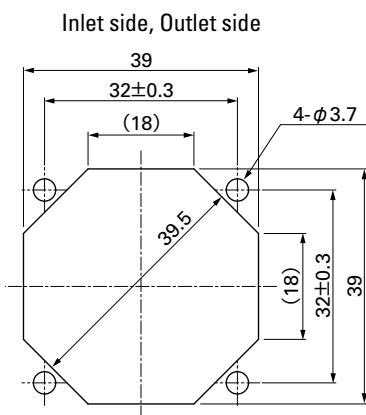
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRB0412P5S201	12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

*PWM Frequency : 25kHz

Dimensions (unit: mm)



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

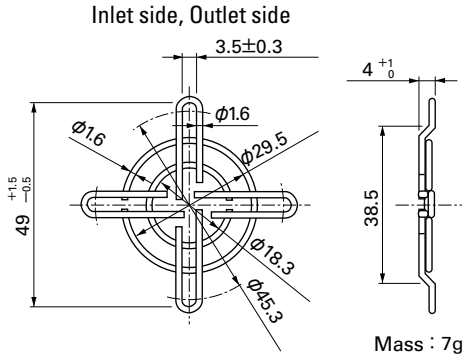


Options (unit: mm)

Finger Guards

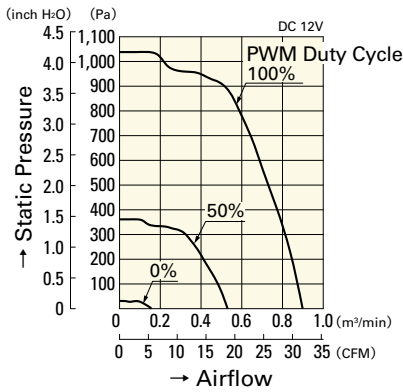
Model : 109-059 Surface treatment : Nickel-chrome plating (silver)
 : 109-059H : Cation electropainting (black)

Color

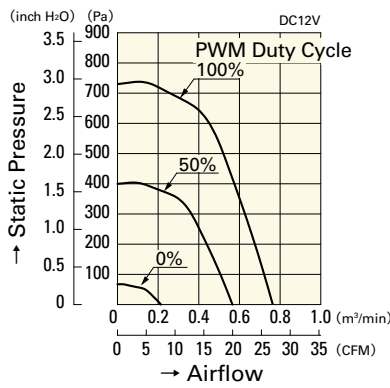


Airflow - Static Pressure Characteristics

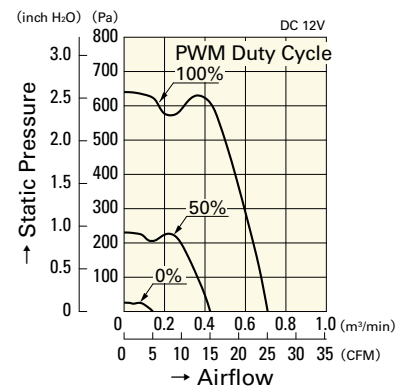
PWM Duty Cycle



9CRB0412P5S201

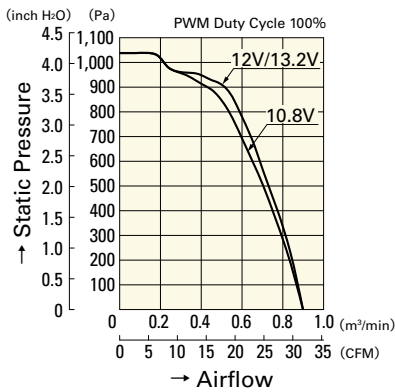


9CRB0412P5K001

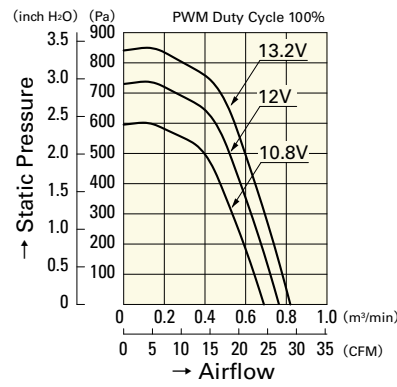


9CRB0412P5J201

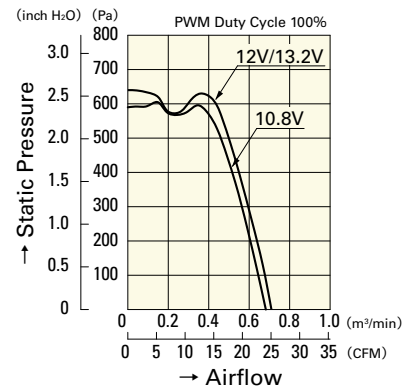
Operating Voltage Range



9CRB0412P5S201

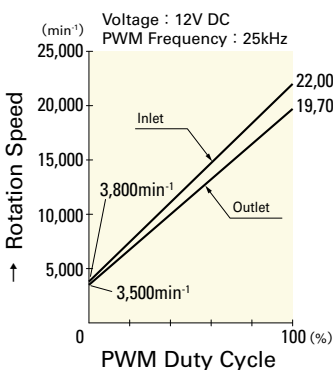


9CRB0412P5K001

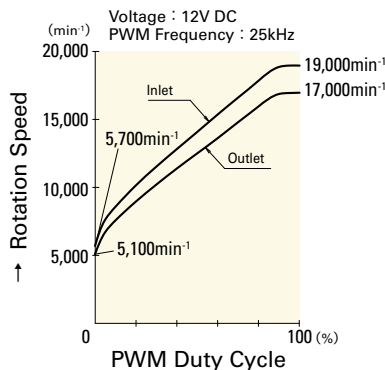


9CRB0412P5J201

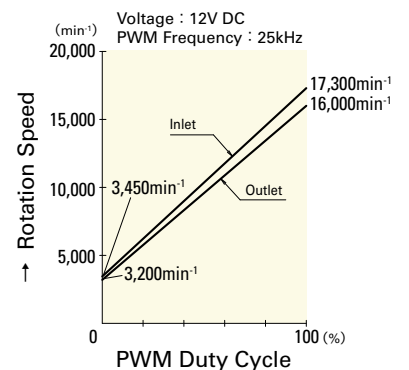
PWM Duty - Speed Characteristics Example



9CRB0412P5S201



9CRB0412P5K001



9CRB0412P5J201

40mm sq.

San Ace 40



General Specifications

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

40×40×56mm (Mass : 90g) **9CRD type**

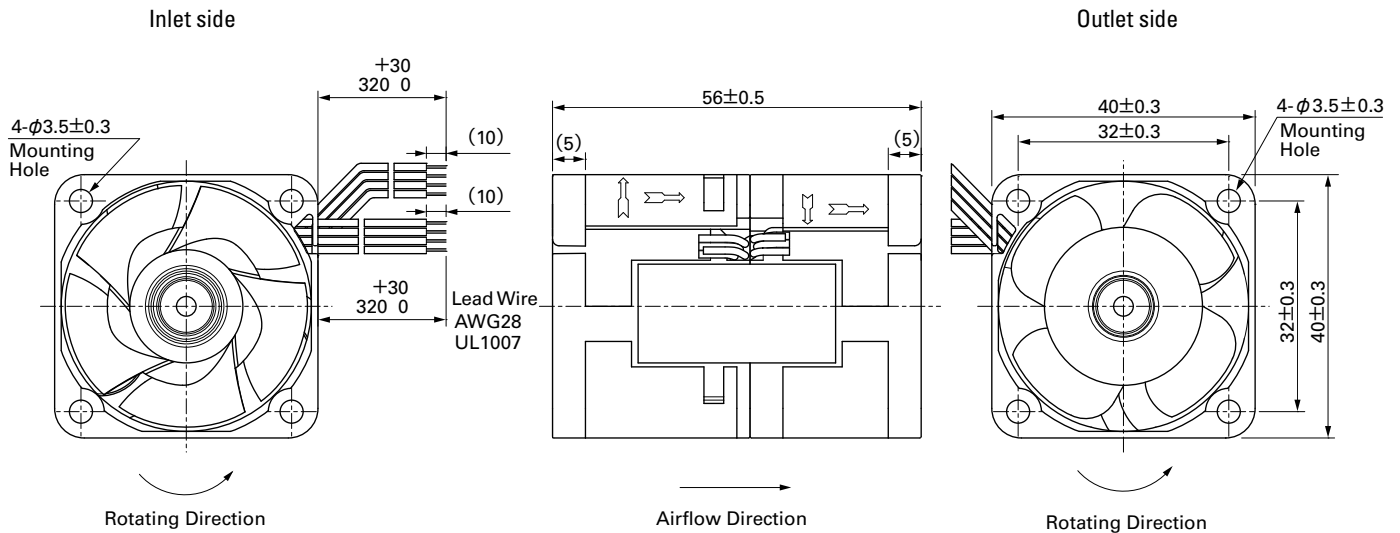
Specifications

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

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRD0412P5J03	12	10.8 to 13.2	100	1.15	13.8	19,000	12,600	0.87	30.72	630	2.53	61	-20 to +70	40,000/60°C
			0	0.12	1.44	3,700	2,500	0.15	5.30	25	0.10	22		
9CRD0412P5G03			100	0.90	10.8	16,700	11,250	0.77	27.19	500	2.01	58		
			0	0.10	1.2	3,350	2,250	0.13	4.59	21	0.08	21		
9CRD0412P5H03			100	0.60	7.2	15,000	10,000	0.70	24.72	410	1.65	56		
			0	0.09	1.08	3,000	2,000	0.12	4.24	16	0.06	20		
9CRD0412P5M03	100	0.52	6.24	14,000	9,300	0.65	22.95	360	1.45	54				
	0	0.07	0.84	2,000	1,300	0.07	2.47	7	0.03	15				

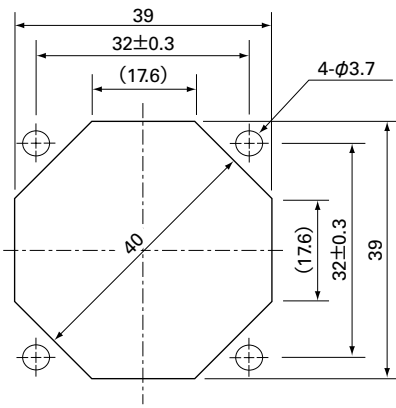
*PWM Frequency : 25kHz

Dimensions (unit: mm)



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

Inlet side, Outlet side

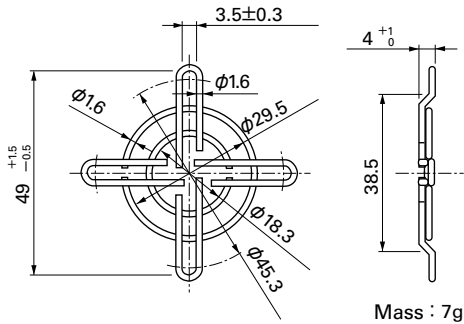


■ Options (unit: mm)

Finger Guards

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

Inlet side, Outlet side



Mass : 7g

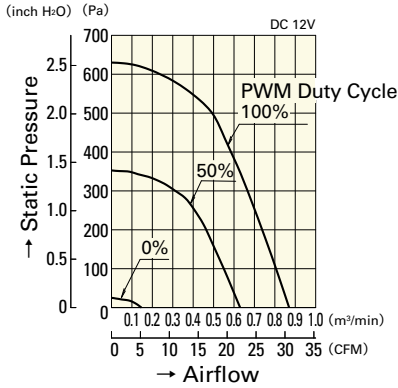
40mm sq.

San Ace 40

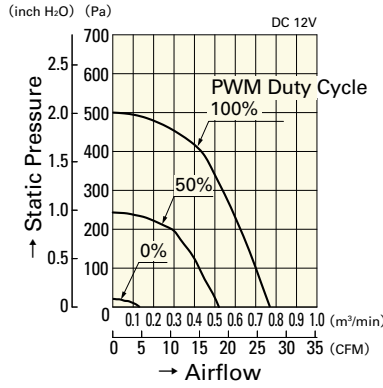
40×40×56mm [Mass : 90g]

Airflow - Static Pressure Characteristics

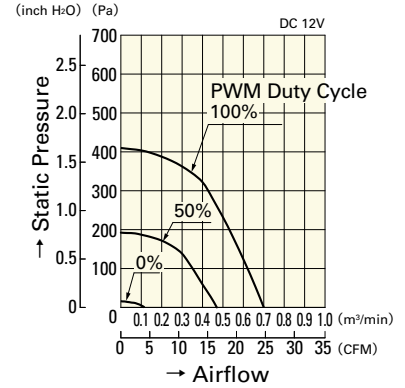
PWM Duty Cycle



9CRD0412P5J03

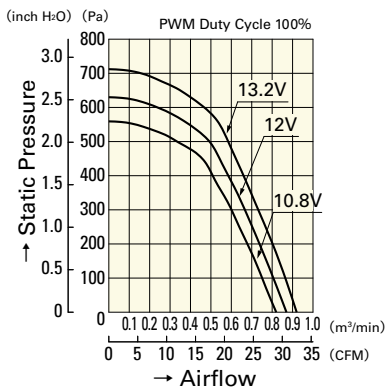


9CRD0412P5G03

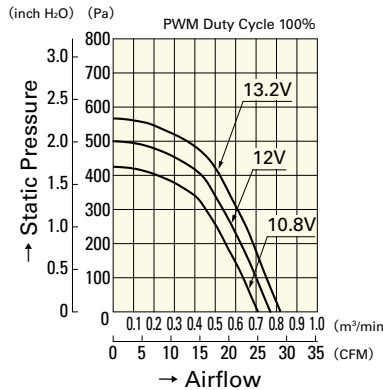


9CRD0412P5H03

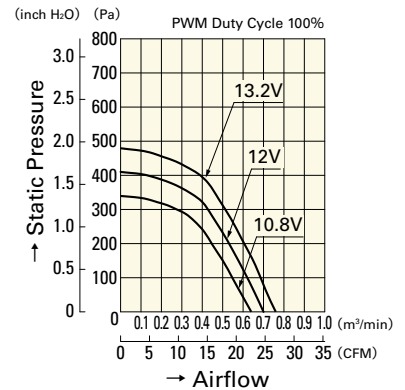
Operating Voltage Range



9CRD0412P5J03

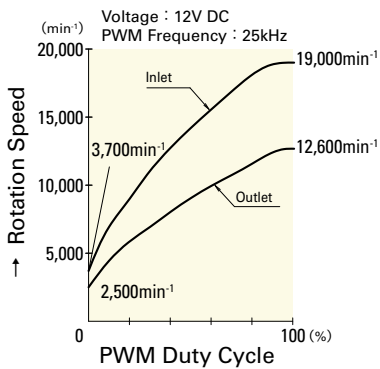


9CRD0412P5G03

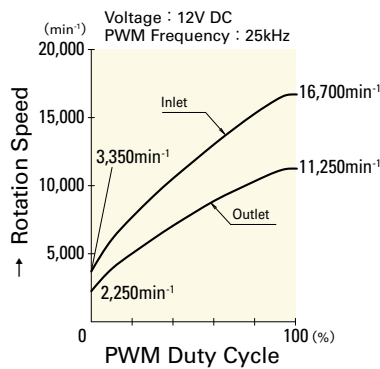


9CRD0412P5H03

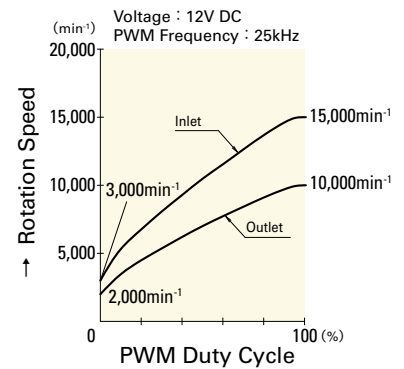
PWM Duty - Speed Characteristics Example



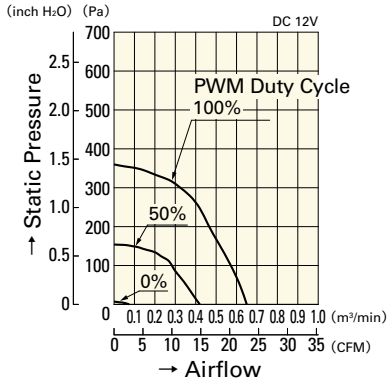
9CRD0412P5J03



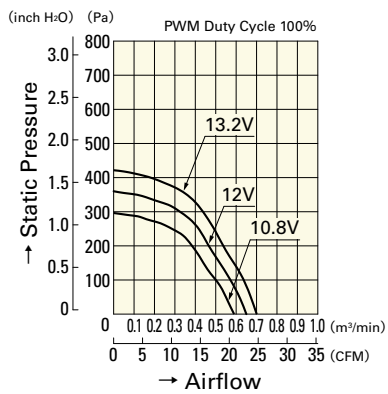
9CRD0412P5G03



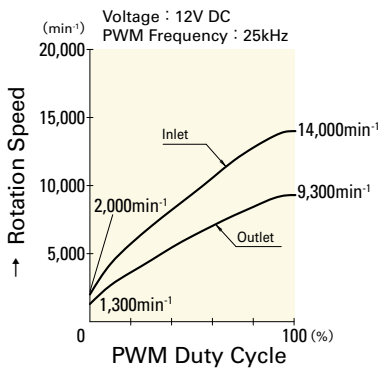
9CRD0412P5H03



9CRD0412P5M03



9CRD0412P5M03



9CRD0412P5M03

40 mm sq.

San Ace 40



General Specifications

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

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

Specifications

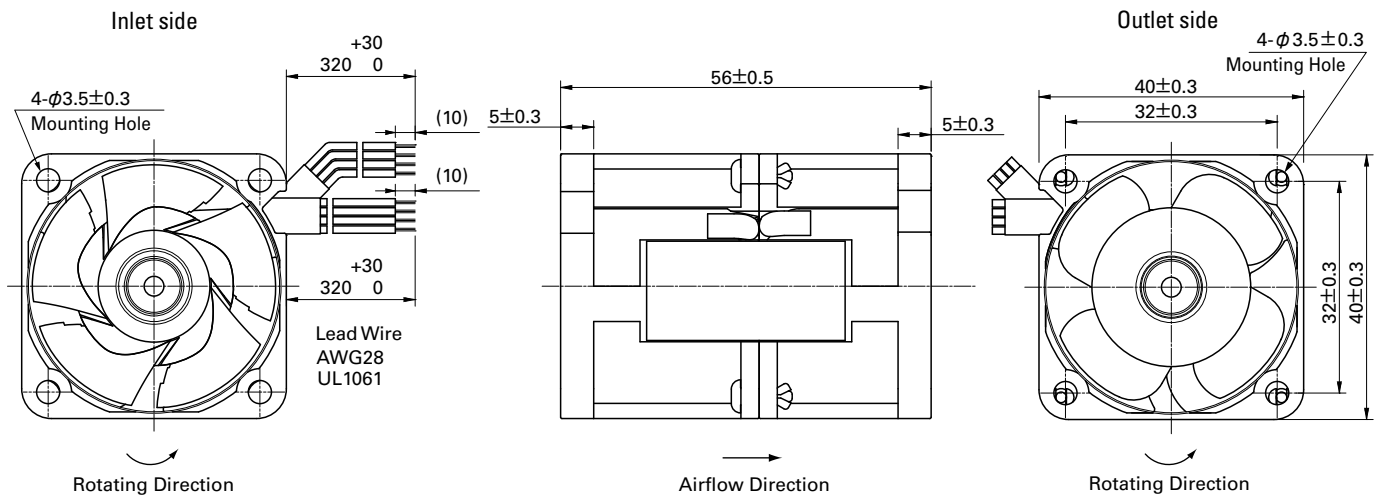
The following nos. have PWM controls and pulse sensors.

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

*PWM Frequency : 25kHz

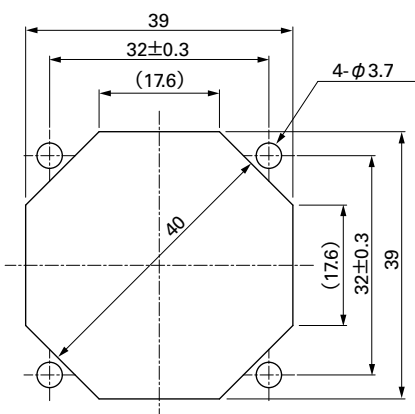
Other sensor specifications are available as options. Please refer to the index (p. 501).

Dimensions (unit: mm)



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

Inlet side, Outlet side



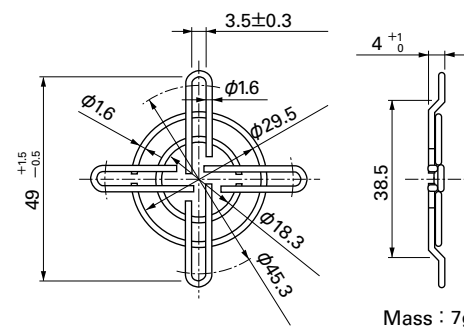
Options (unit: mm)

Finger Guards

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

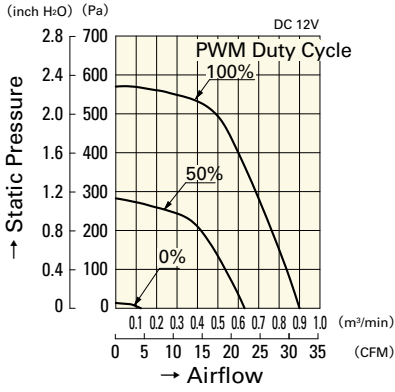
Color

Inlet side, Outlet side



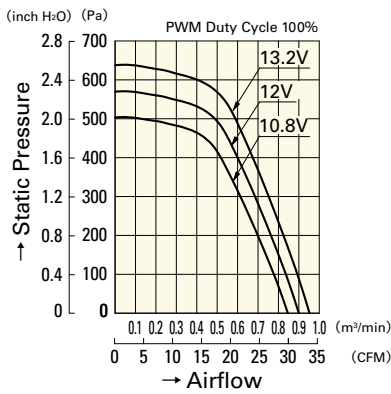
Airflow - Static Pressure Characteristics

PWM Duty Cycle



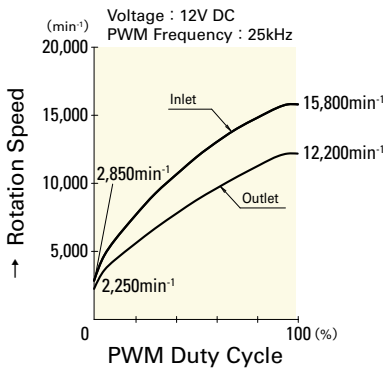
9CRE0412P5J03

Operating Voltage Range



9CRE0412P5J03

PWM Duty - Speed Characteristics Example



9CRE0412P5J03

60mm sq.

San Ace 60



General Specifications

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

60×60×51mm (Mass : 180g) 9CR type

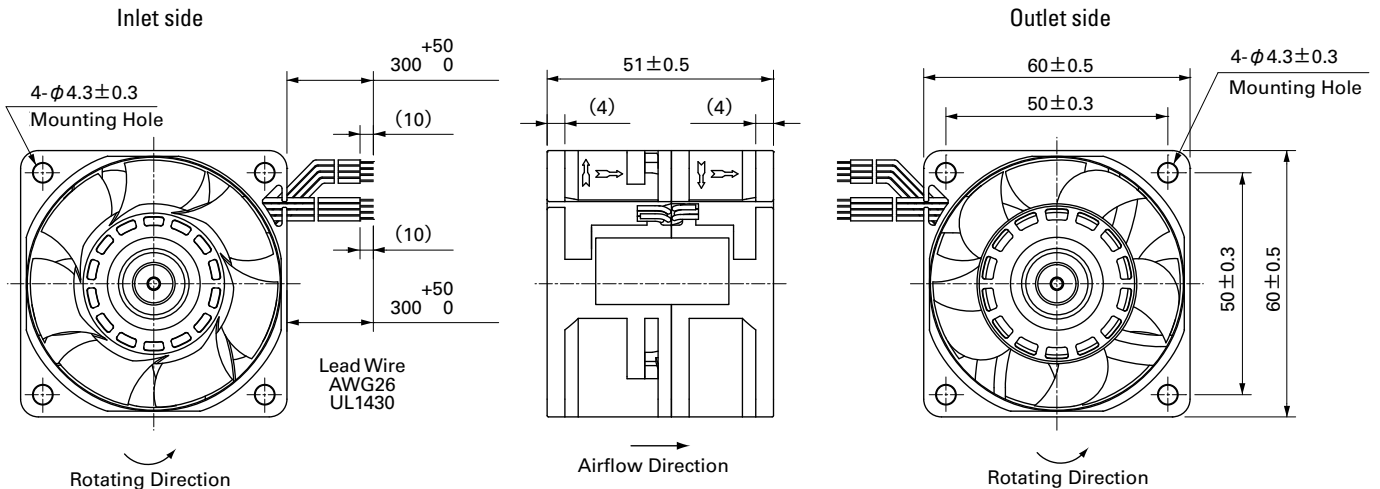
Specifications The following nos. have PWM controls and pulse sensors.

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

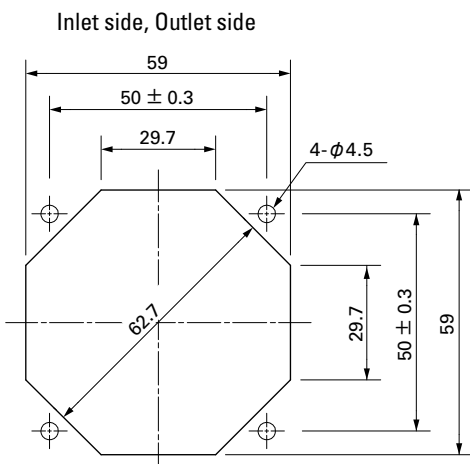
*PWM Frequency : 25kHz

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

Dimensions (unit: mm)



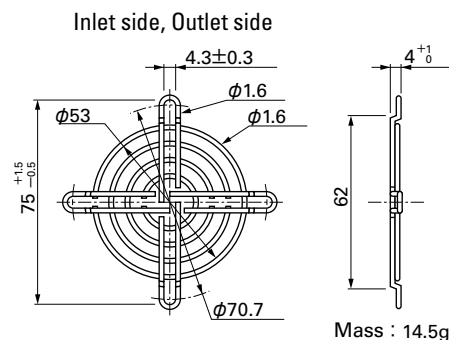
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

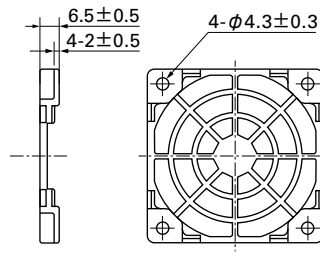
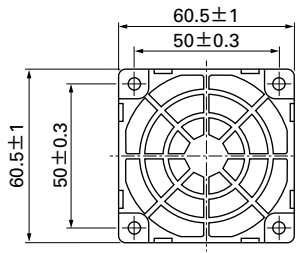
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
 : 109-139H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

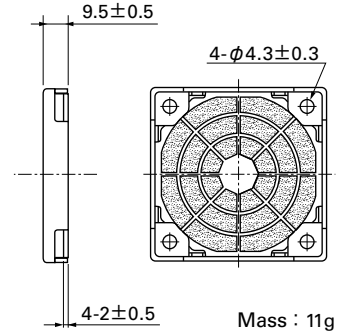
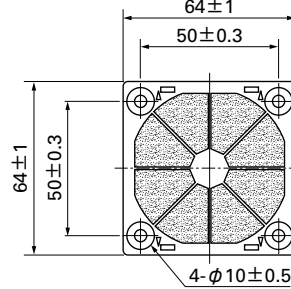
Model : 109-1003G



Mass : 7g

Resin Filter Kits

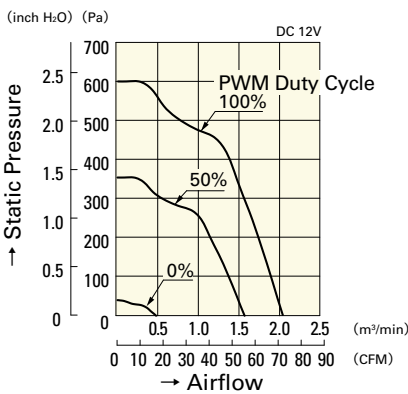
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



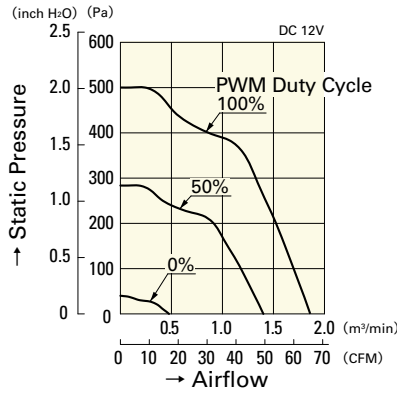
Mass : 11g

Airflow - Static Pressure Characteristics

PWM Duty Cycle

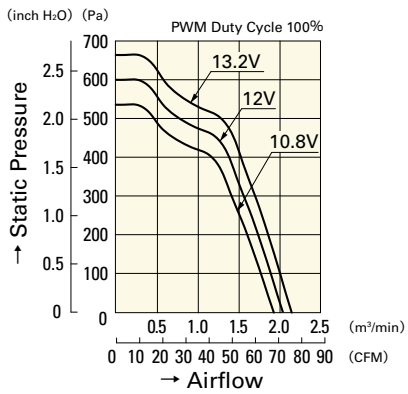


9CR0612P5G03

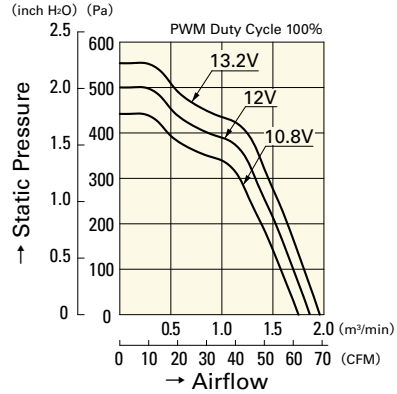


9CR0612P5H03

Operating Voltage Range

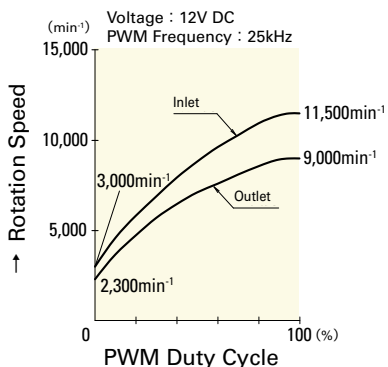


9CR0612P5G03

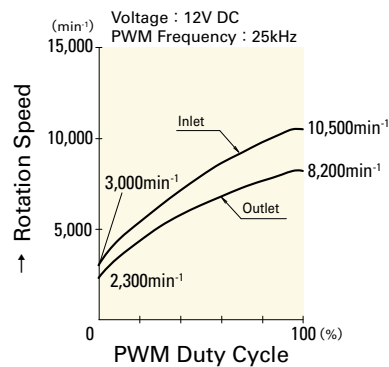


9CR0612P5H03

PWM Duty - Speed Characteristics Example



9CR0612P5G03



9CR0612P5H03

60mm sq.

San Ace 60



General Specifications

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

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

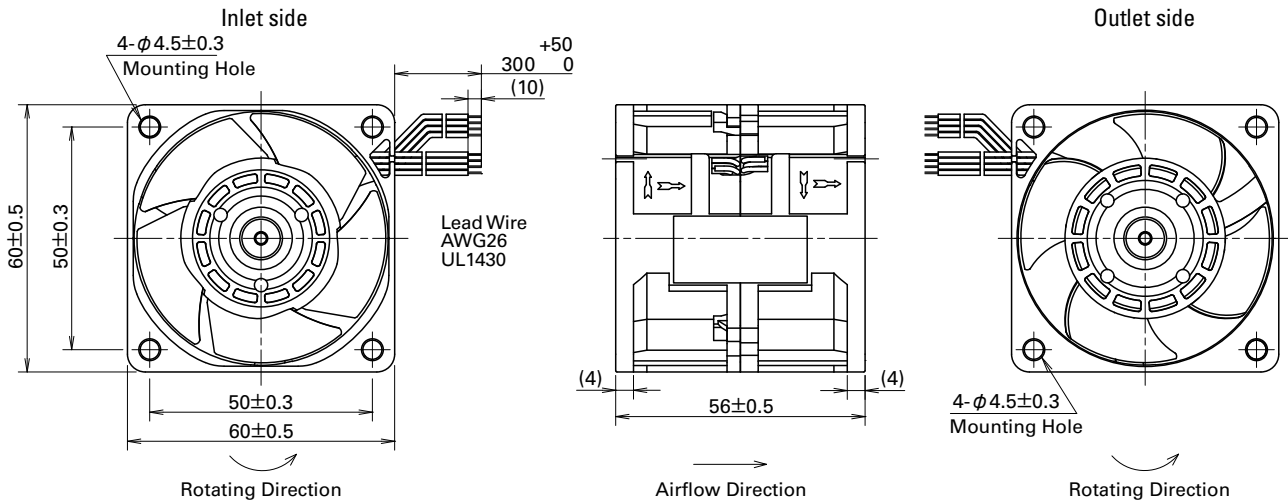
Specifications

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

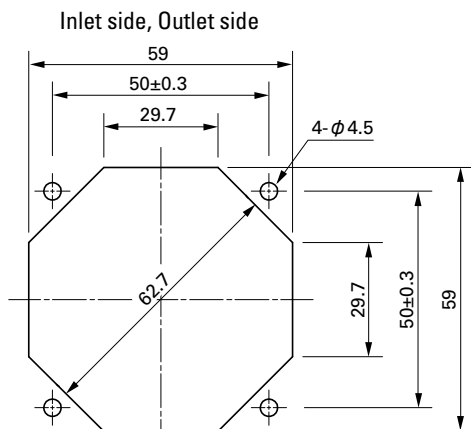
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRA0612P6K001	12	10.8 to 13.2	100	3.10	37.2	18,300	15,800	2.28	80.5	1,130	4.54	73	-20 to +70	30,000/60°C
			0	0.17	2.0	3,800	3,300	0.47	16.6	49	0.20	35		
100			2.30	27.6	16,800	14,500	2.10	74.2	950	3.82	70	40,000/60°C (70,000/40°C)		
0			0.15	1.8	3,800	3,300	0.47	16.6	49	0.20	35			
9CRA0612P6J001			100	1.30	15.6	13,500	11,400	1.65	58.3	620	2.49			65
			0	0.10	1.2	3,000	2,500	0.36	12.7	31	0.12			29

*PWM Frequency : 25kHz

Dimensions (unit: mm)



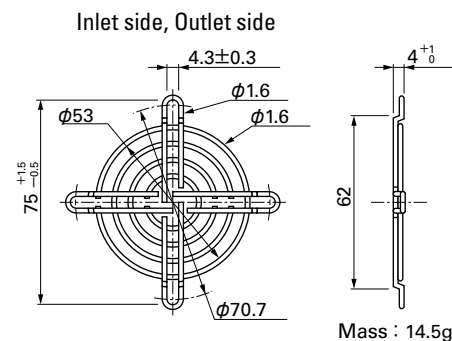
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

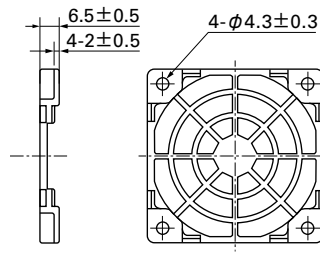
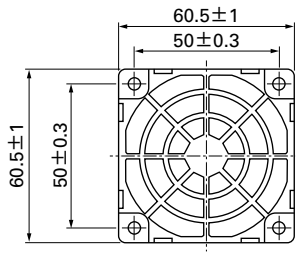
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

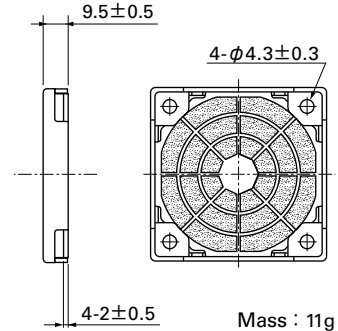
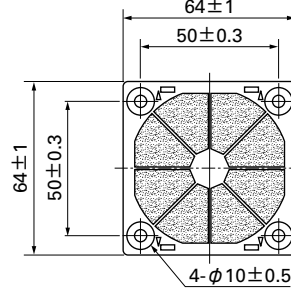
Model : 109-1003G



Mass : 7g

Resin Filter Kits

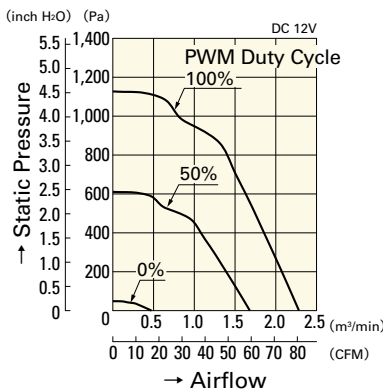
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



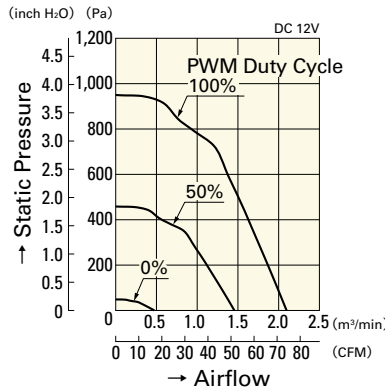
Mass : 11g

Airflow - Static Pressure Characteristics

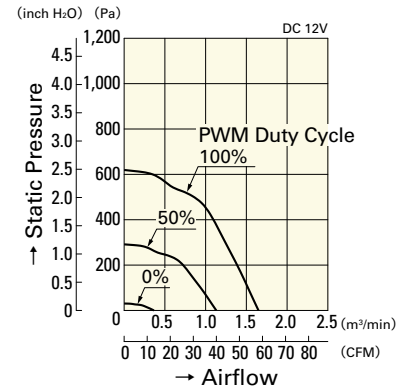
PWM Duty Cycle



9CRA0612P6K001

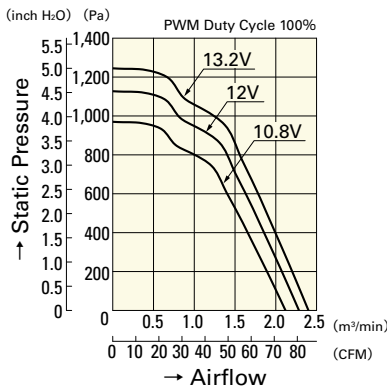


9CRA0612P6J001

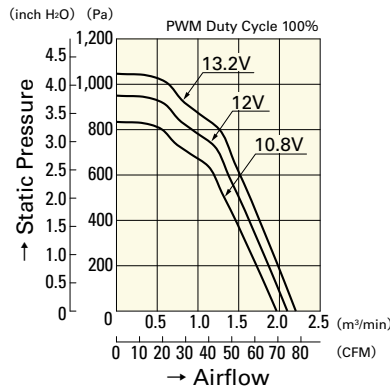


9CRA0612P6G001

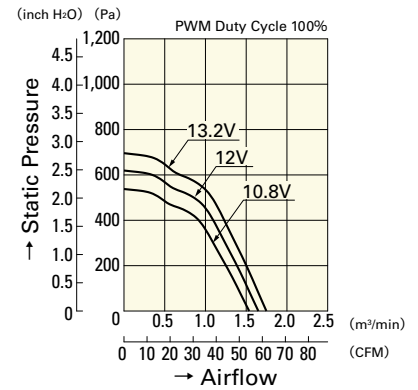
Operating Voltage Range



9CRA0612P6K001

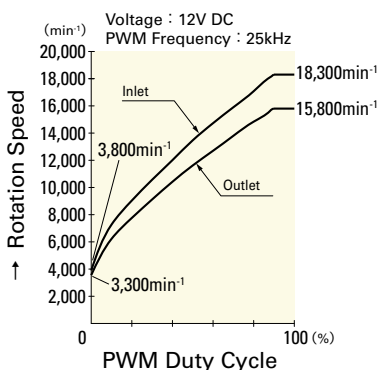


9CRA0612P6J001

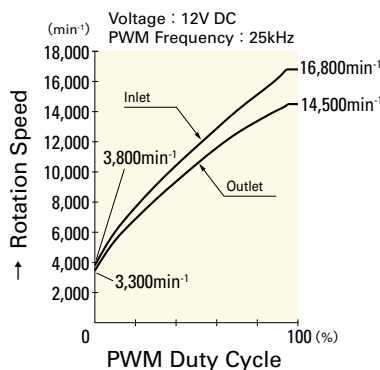


9CRA0612P6G001

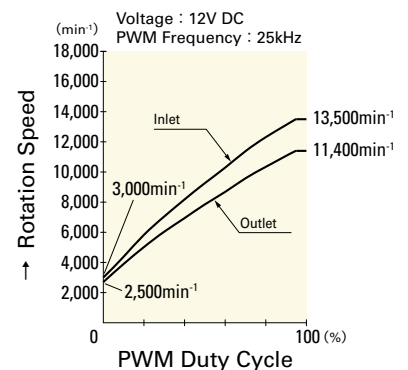
PWM Duty - Speed Characteristics Example



9CRA0612P6K001



9CRA0612P6J001



9CRA0612P6G001

60_{mm sq.}

San Ace 60



General Specifications

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

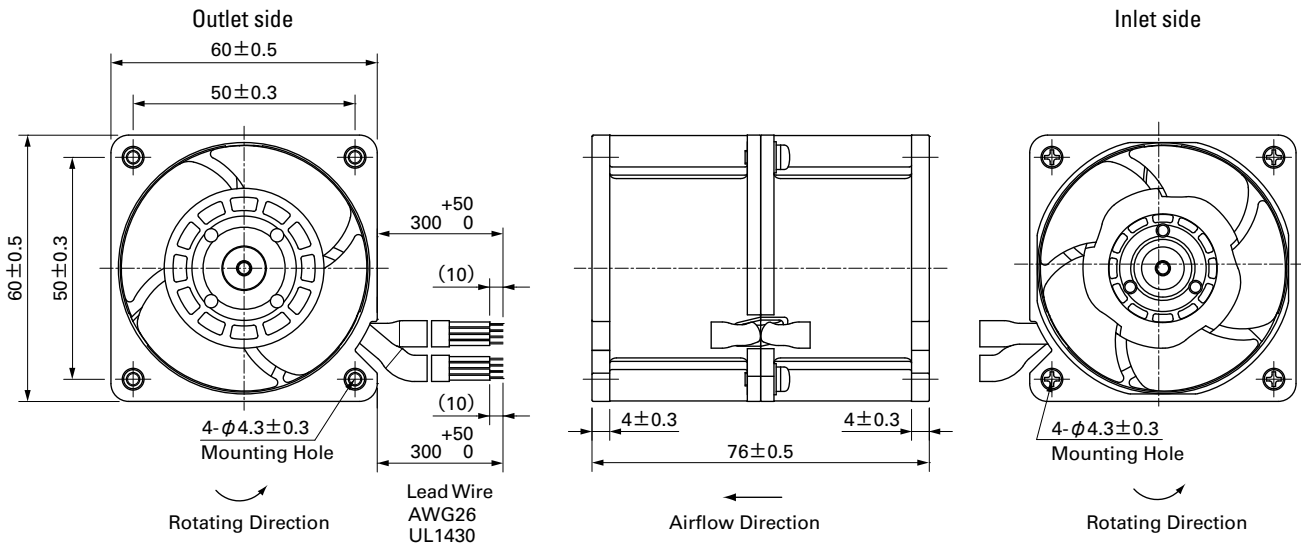
60×60×76mm (Mass : 300g) 9CRE type Low vibration

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

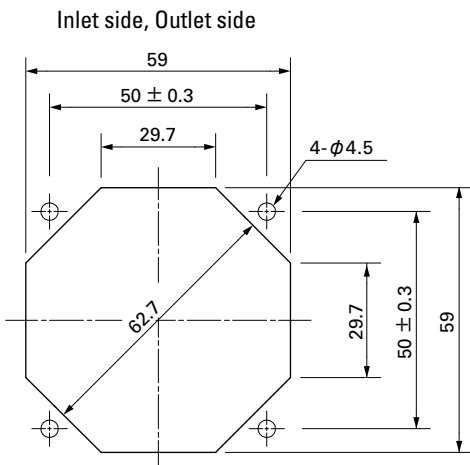
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRE0612P0G001	12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

*PWM Frequency : 25kHz

Dimensions (unit: mm)

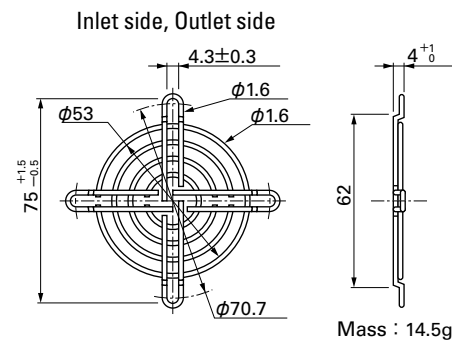


Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

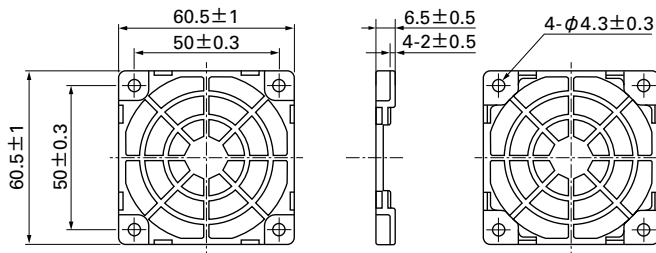
Finger Guards
 Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
 : 109-139H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

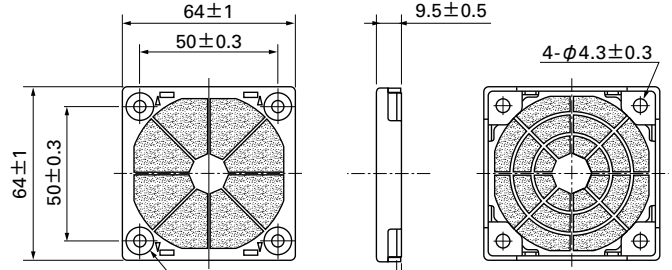
Model : 109-1003G



Mass : 7g

Resin Filter Kits

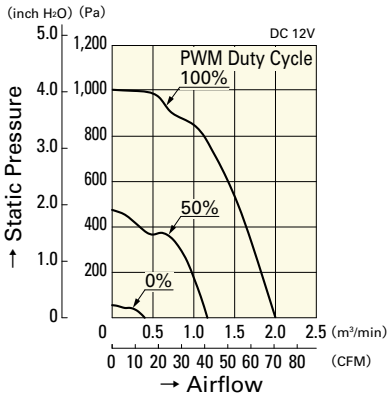
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



Mass : 11g

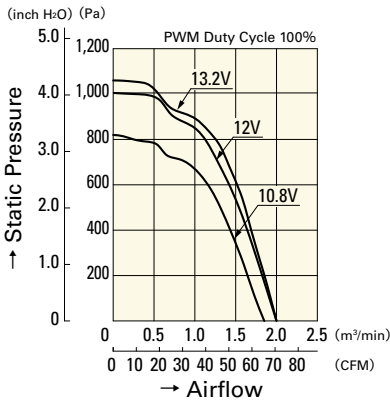
Airflow - Static Pressure Characteristics

PWM Duty Cycle



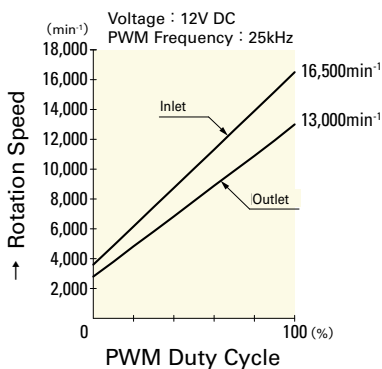
9CRE0612P0G001

Operating Voltage Range



9CRE0612P0G001

PWM Duty - Speed Characteristics Example



9CRE0612P0G001

60mm sq.

San Ace 60



General Specifications

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

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

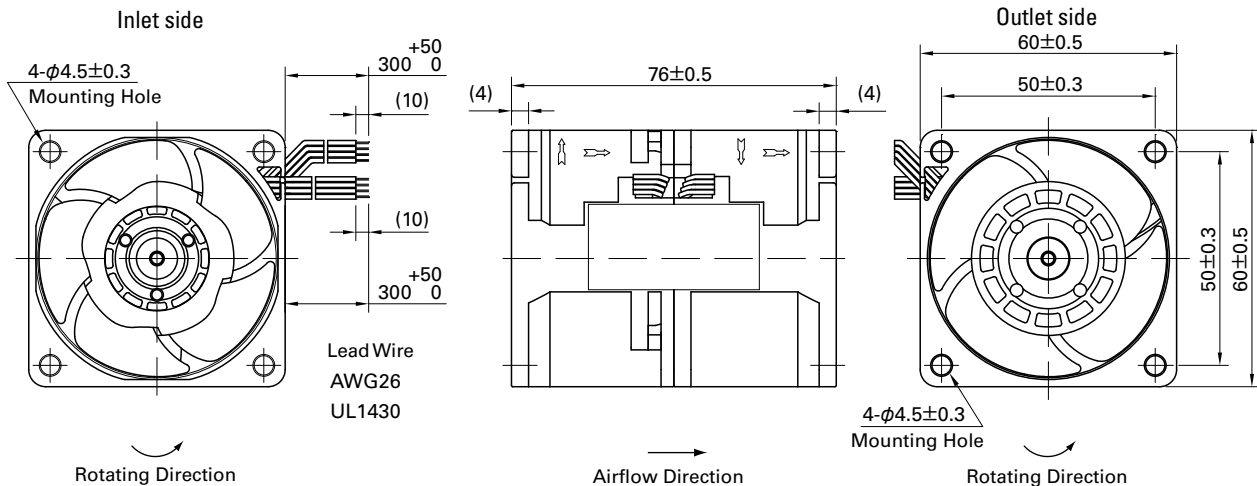
Specifications

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

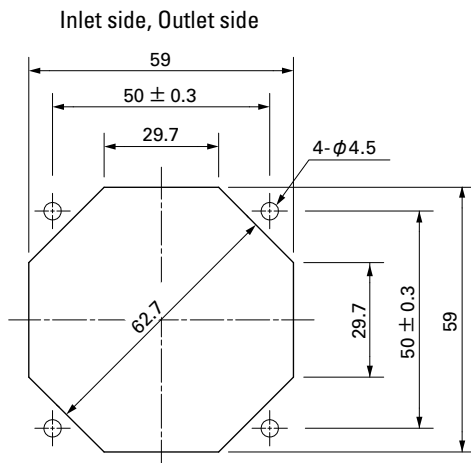
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRA0612P0G001	12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

*PWM Frequency : 25kHz

Dimensions (unit: mm)



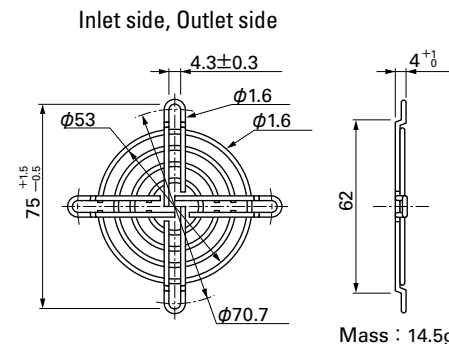
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

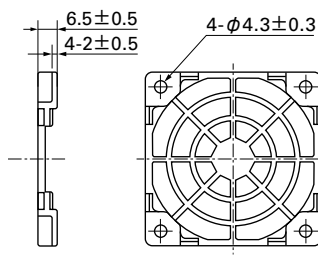
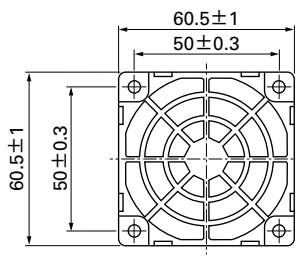
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

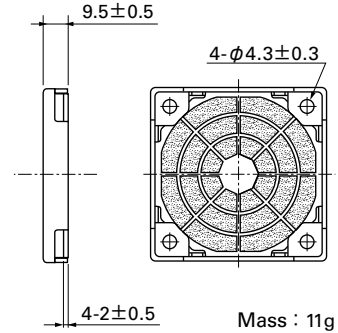
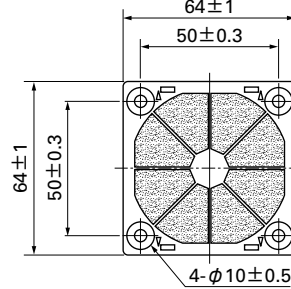
Model : 109-1003G



Mass : 7g

Resin Filter Kits

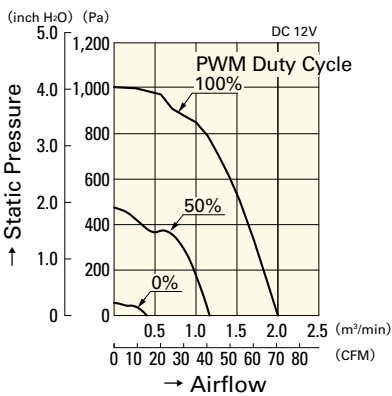
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



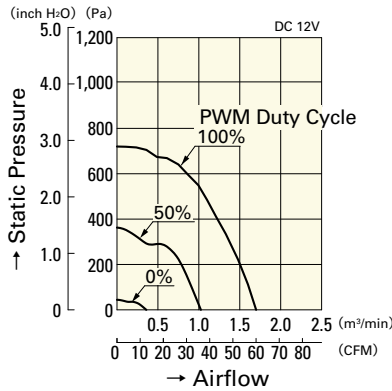
Mass : 11g

Airflow - Static Pressure Characteristics

PWM Duty Cycle

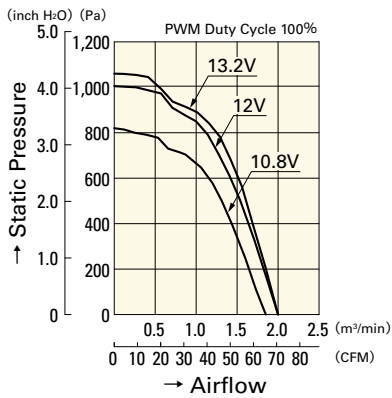


9CRA0612P0G001

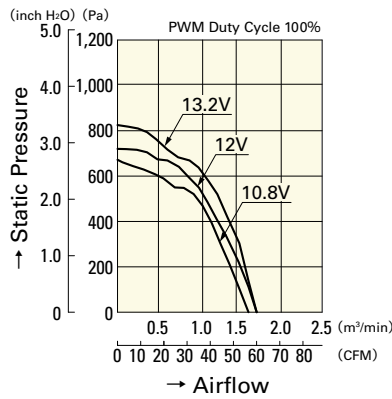


9CRA0612P0S001

Operating Voltage Range

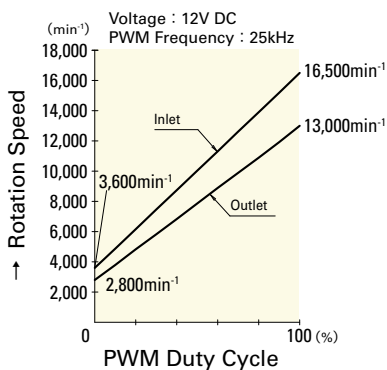


9CRA0612P0G001

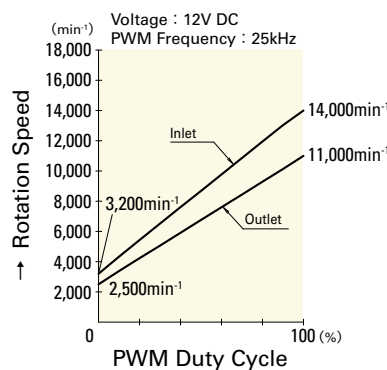


9CRA0612P0S001

PWM Duty - Speed Characteristics Example



9CRA0612P0G001



9CRA0612P0S001

80 mm sq.

San Ace 80



General Specifications

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

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

Specifications

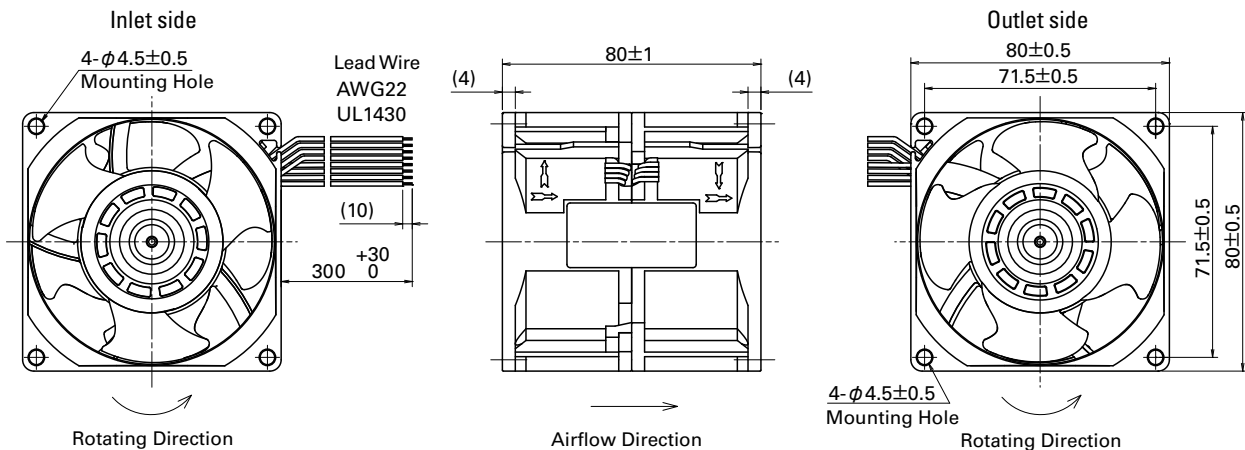
The following nos. **have PWM controls and pulse sensors.**

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

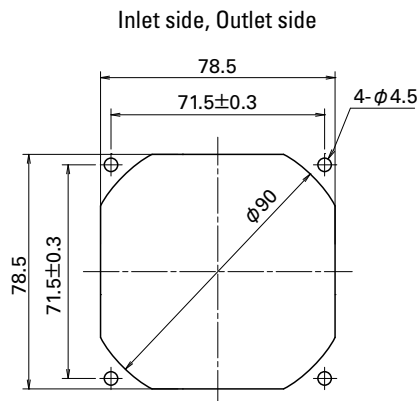
Note: Fan does not rotate when PWM duty cycle is 0%.

※PWM Frequency : 25kHz

Dimensions (unit: mm)



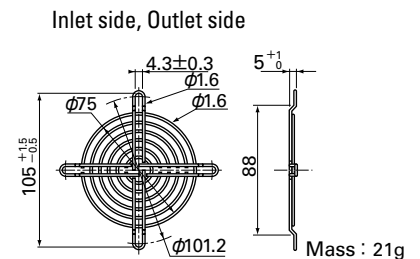
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

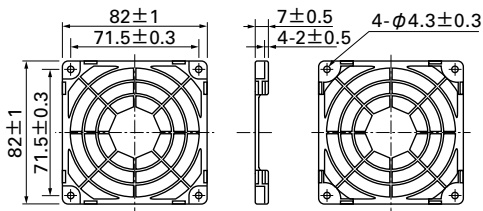
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

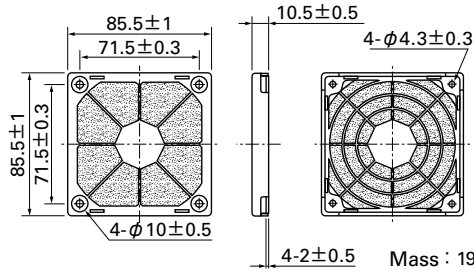
Model : 109-1002G



Mass : 10g

Resin Filter Kits

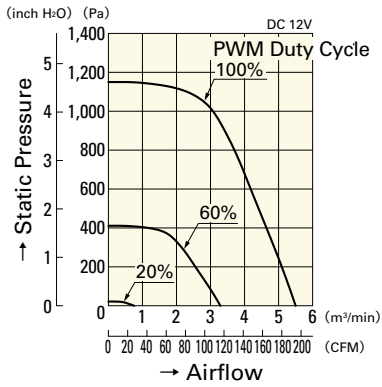
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



Mass : 19g

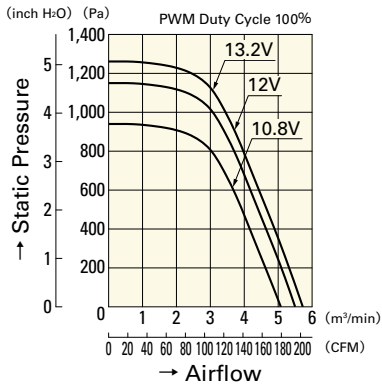
Airflow - Static Pressure Characteristics

PWM Duty Cycle



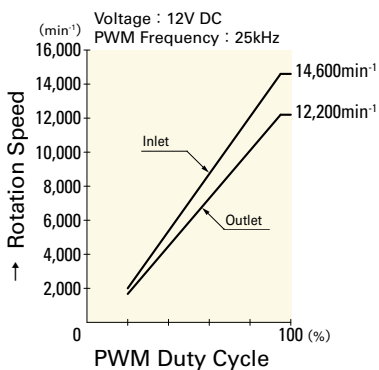
9CRB0812P8G001

Operating Voltage Range



9CRB0812P8G001

PWM Duty - Speed Characteristics Example



9CRB0812P8G001

80mm sq.

San Ace 80L



General Specifications

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

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

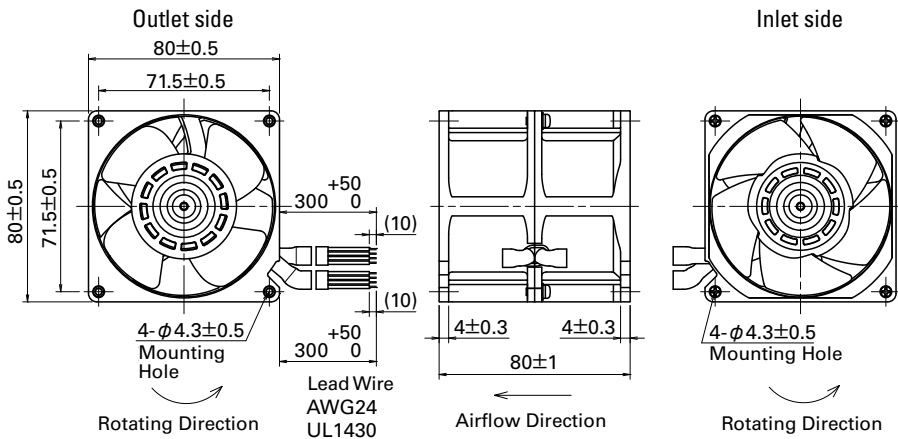
Specifications

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

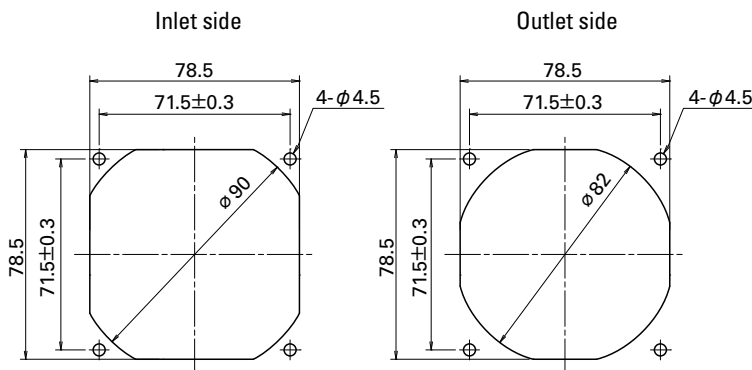
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRE0812P8G001	12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

*PWM Frequency : 25kHz

Dimensions (unit: mm)



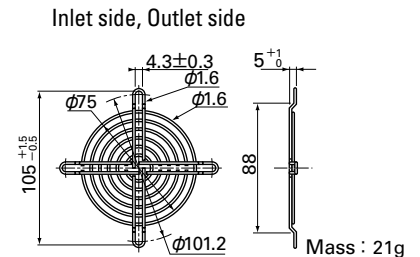
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

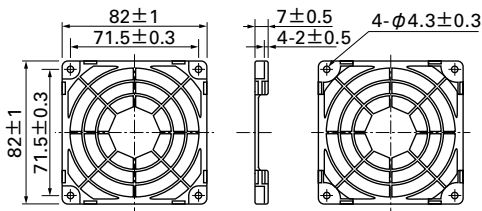
Model : 109-049E Surface treatment : Nickel-chrome plating (silver)
: 109-049H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

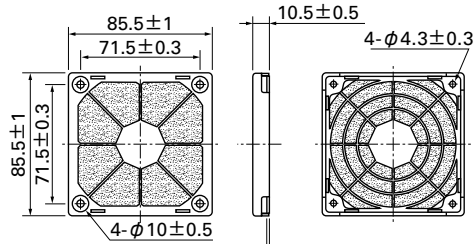
Model : 109-1002G



Mass : 10g

Resin Filter Kits

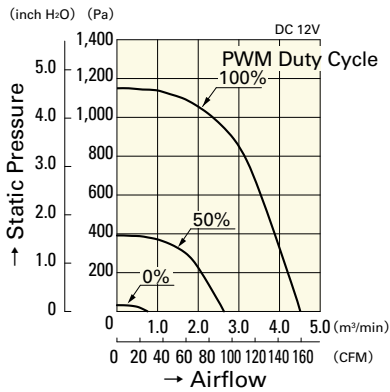
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



Mass : 19g

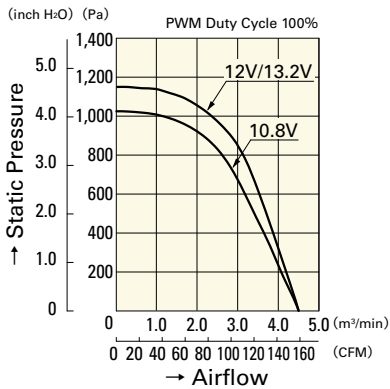
Airflow - Static Pressure Characteristics

PWM Duty Cycle



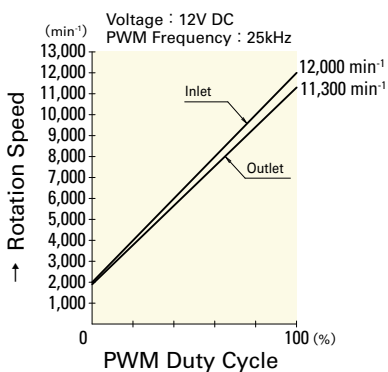
9CRE0812P8G001

Operating Voltage Range



9CRE0812P8G001

PWM Duty - Speed Characteristics Example



9CRE0812P8G001

80 mm sq.

San Ace 80



General Specifications

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

80×80×80mm (Mass : 450g) **9CRA type**

Specifications

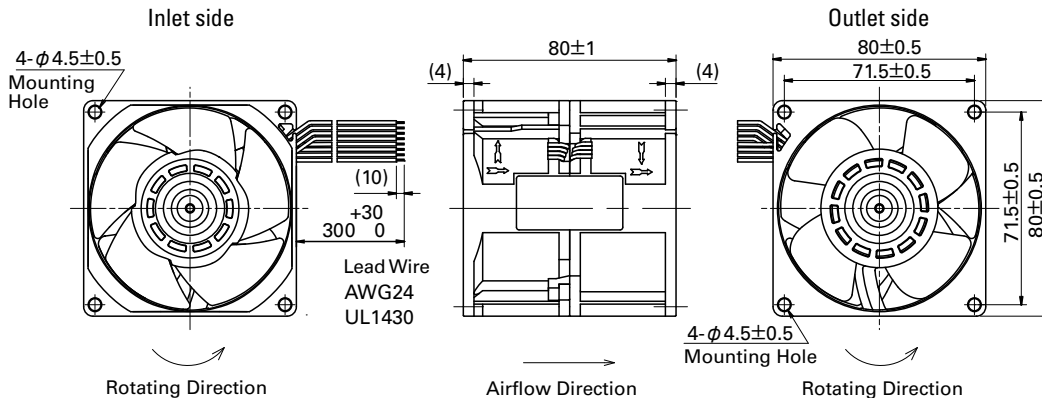
The following nos. **have PWM controls and pulse sensors.**

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

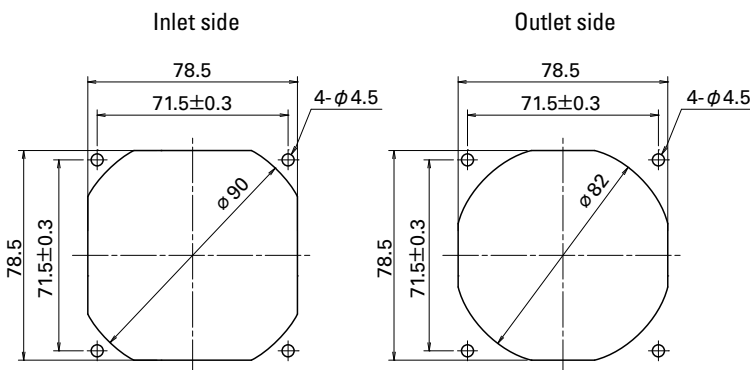
*PWM Frequency : 25kHz

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

Dimensions (unit: mm)



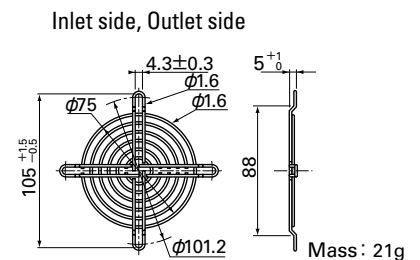
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

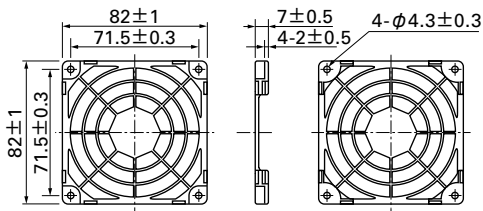
- Model : 109-049E Surface treatment : Nickel-chrome plating (silver)
- Model : 109-049H Surface treatment : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

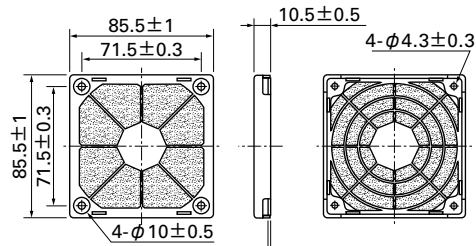
Model : 109-1002G



Mass : 10g

Resin Filter Kits

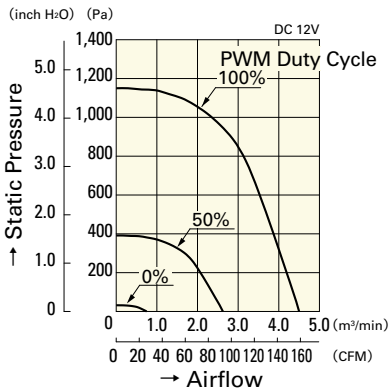
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



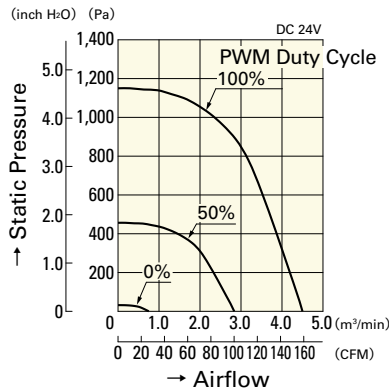
Mass : 19g

Airflow - Static Pressure Characteristics

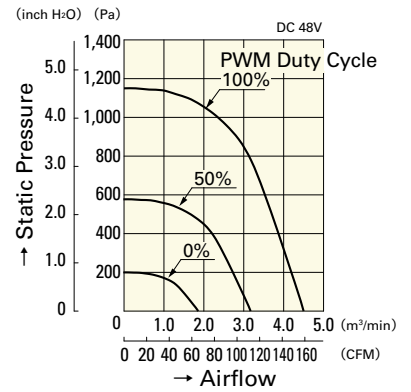
PWM Duty Cycle



9CRA0812P8G001

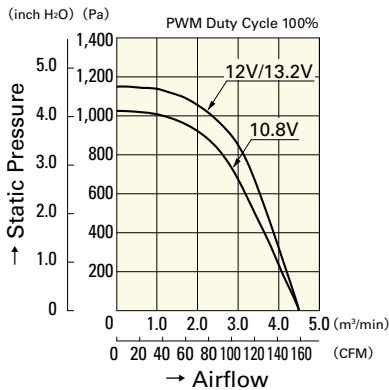


9CRA0824P8G001

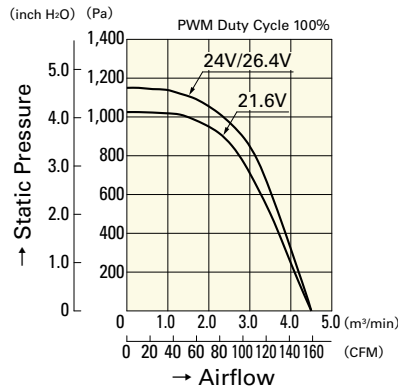


9CRA0848P8G001

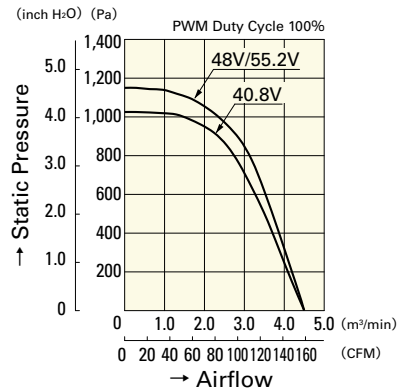
Operating Voltage Range



9CRA0812P8G001

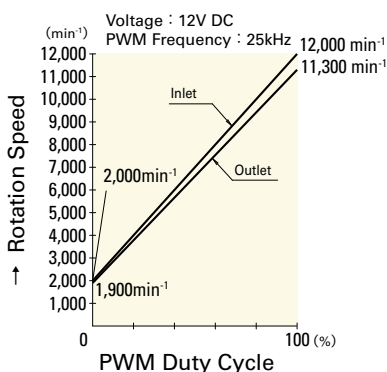


9CRA0824P8G001

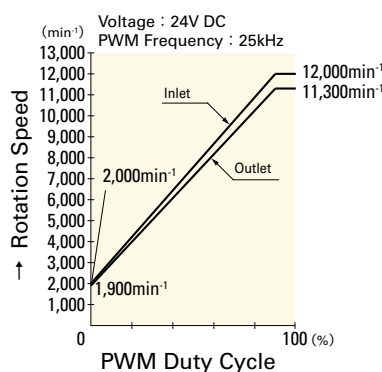


9CRA0848P8G001

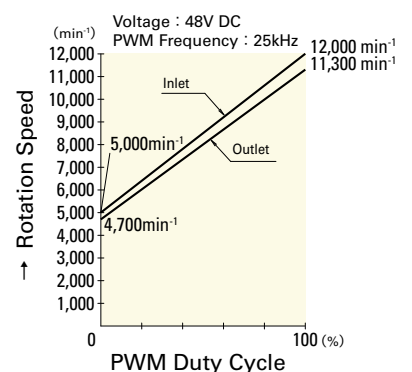
PWM Duty - Speed Characteristics Example



9CRA0812P8G001



9CRA0824P8G001



9CRA0848P8G001

92 mm sq.

San Ace 92



General Specifications

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

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

Specifications

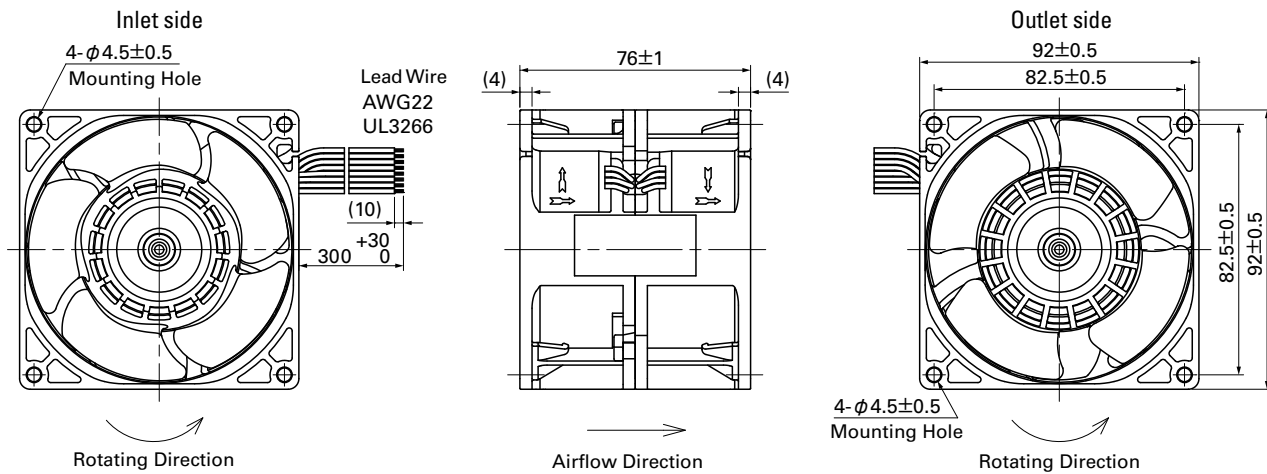
The following nos. **have PWM controls and pulse sensors.**

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

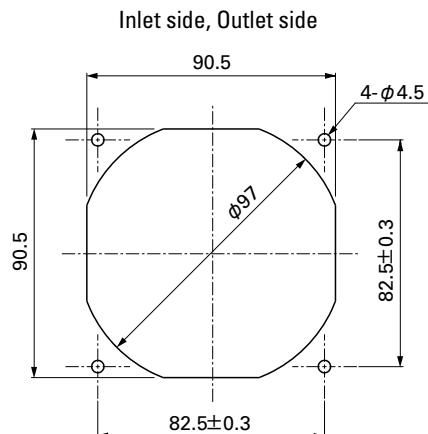
Note: Fan does not rotate when PWM duty cycle is 0%.

*)PWM Frequency : 25kHz

Dimensions (unit: mm)



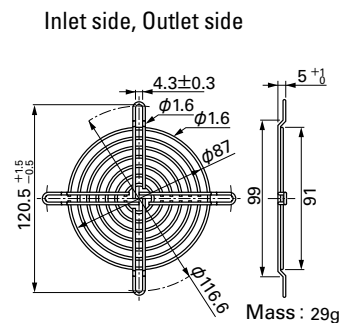
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

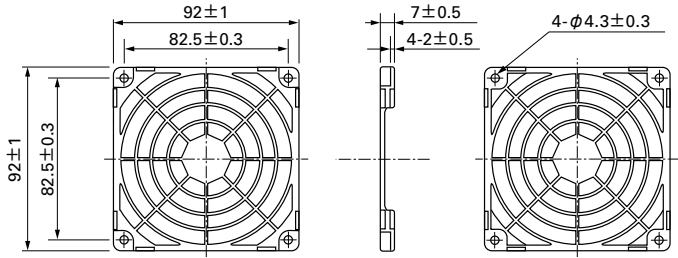
Model : 109-099E Surface treatment : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

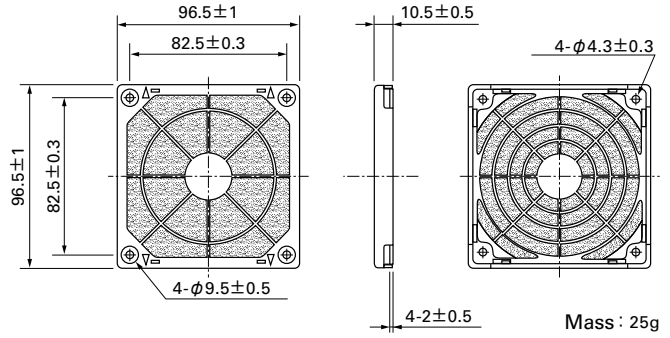
Model : 109-1001G



Mass : 12g

Resin Filter Kits

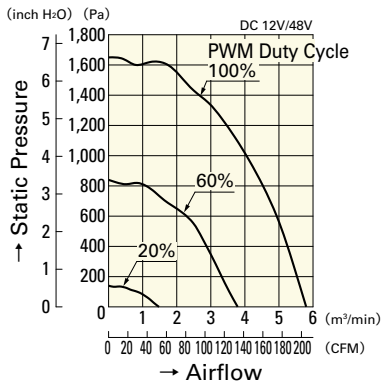
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



Mass : 25g

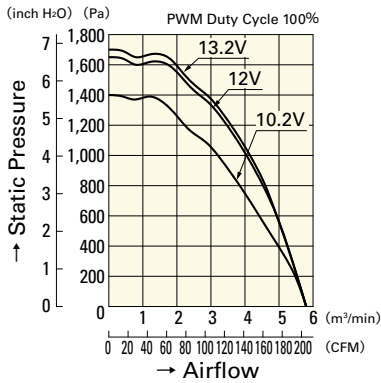
Airflow - Static Pressure Characteristics

PWM Duty Cycle

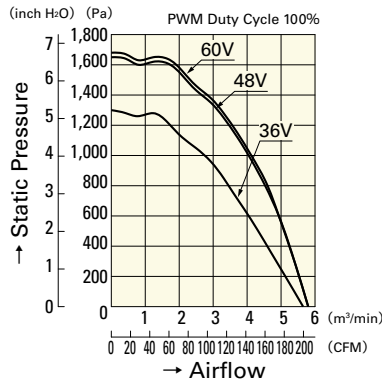


9CRA0912P0G001
9CRA0948P0G601

Operating Voltage Range

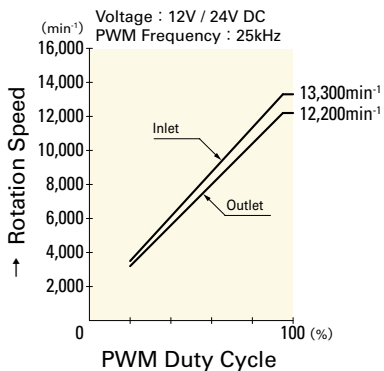


9CRA0912P0G001



9CRA0948P0G601

PWM Duty - Speed Characteristics Example



9CRA0912P0G001
9CRA0948P0G601

120mm sq.

San Ace 120



General Specifications

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

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

Specifications

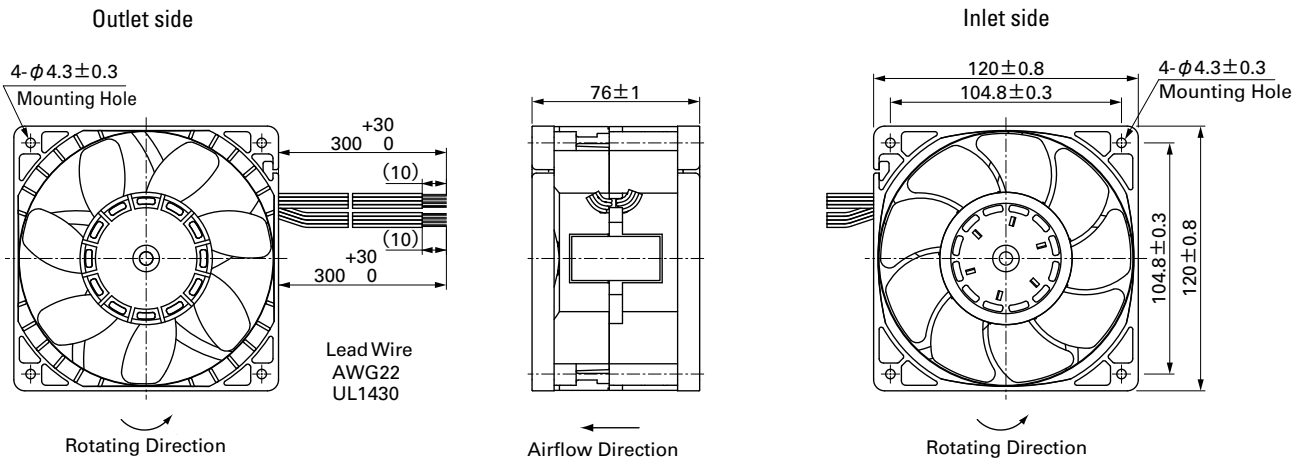
The following nos. **have PWM controls and pulse sensors.**

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

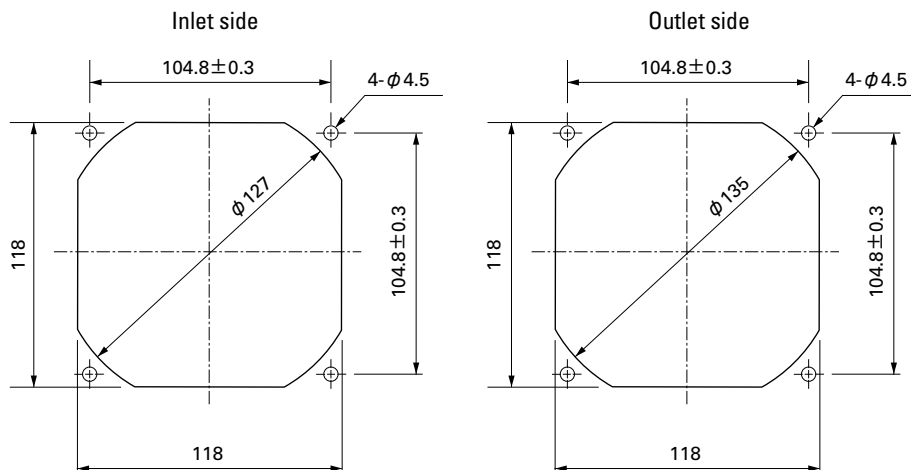
*PWM Frequency : 25kHz

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

Dimensions (unit: mm)



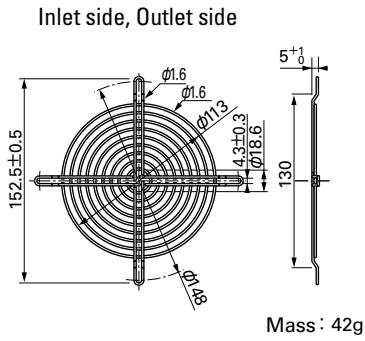
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

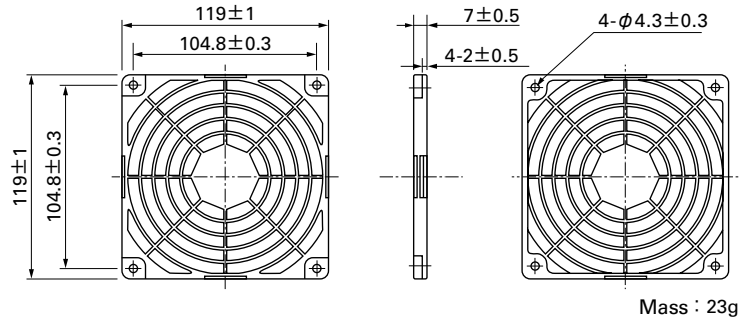
Finger Guards

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



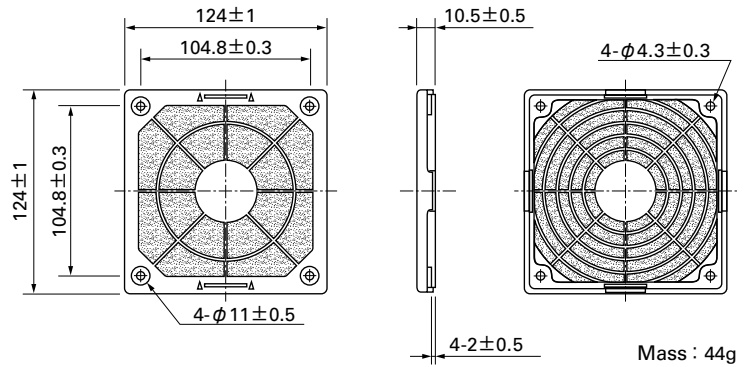
Resin Finger Guards

Model : 109-1000G



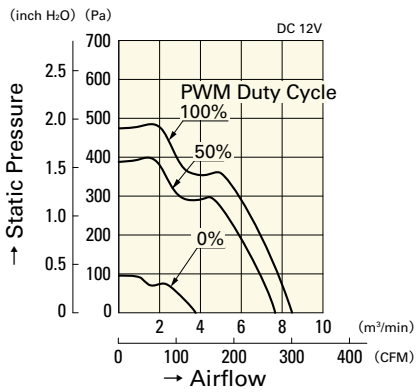
Resin Filter Kits

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



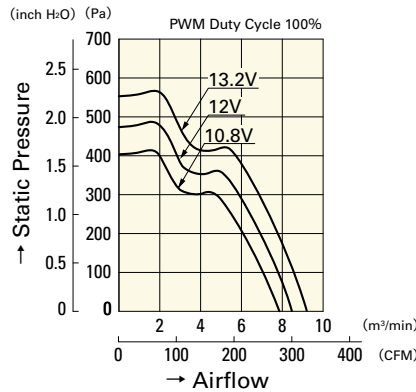
Airflow - Static Pressure Characteristics

PWM Duty Cycle



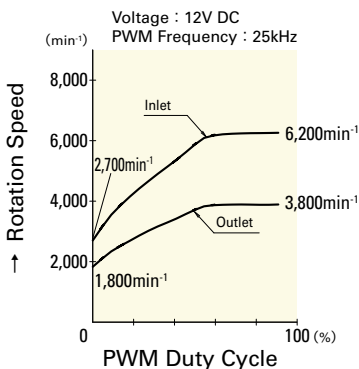
9CR1212P0G03

Operating Voltage Range



9CR1212P0G03

PWM Duty Speed Characteristics Example



9CR1212P0G03

φ172_{mm}

San Ace 172



General Specifications

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

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

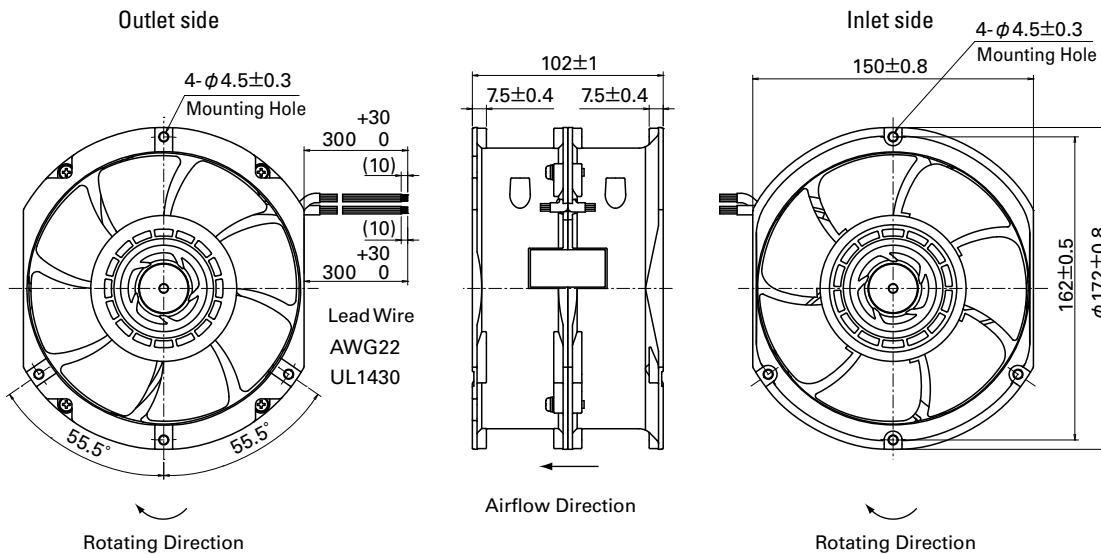
Specifications

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

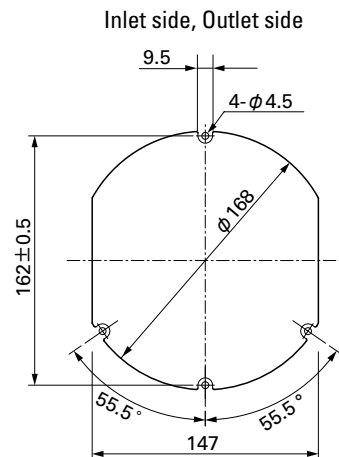
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CR5748P9G001	48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

*PWM Frequency : 25kHz

Dimensions (unit: mm)



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

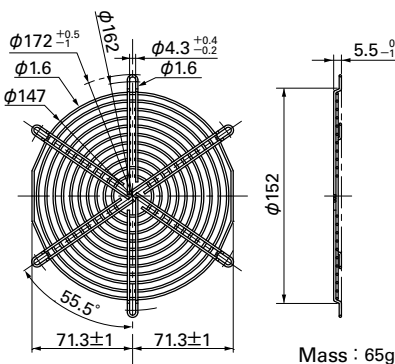


Options (unit: mm)

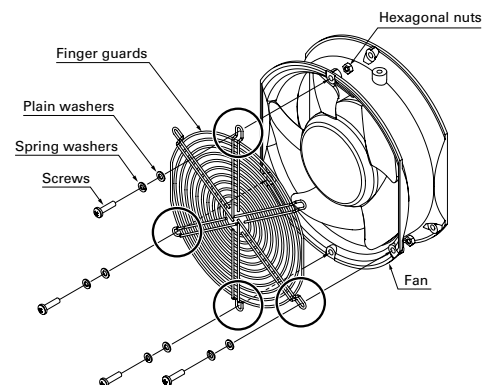
Finger Guards

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

Inlet side, Outlet side



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



Options (unit: mm)

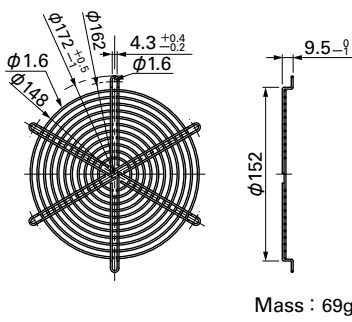
Finger Guards

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

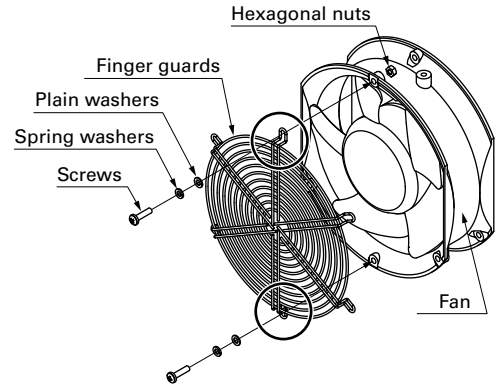
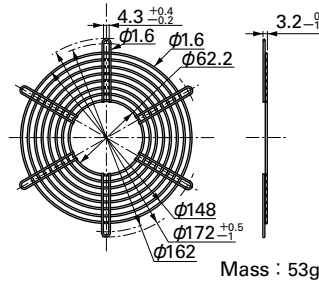
Color
 Model : 109-320 Surface treatment : Nickel-chrome plating (silver)

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

Inlet side, Outlet side

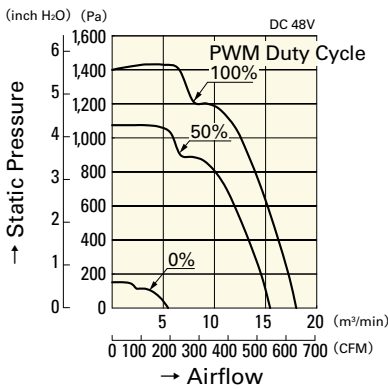


Outlet side



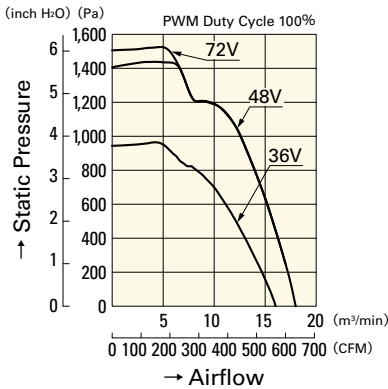
Airflow - Static Pressure Characteristics

PWM Duty Cycle



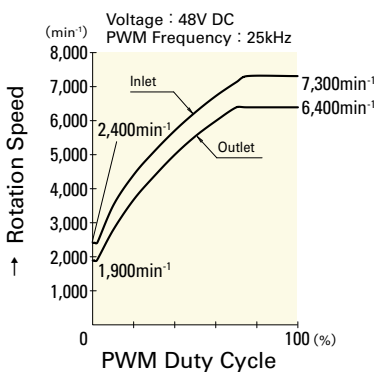
9CR5748P9G001

Operating Voltage Range



9CR5748P9G001

PWM Duty - Speed Characteristics Example

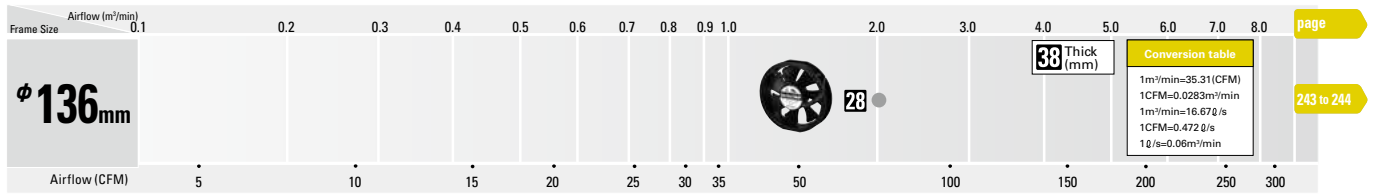


9CR5748P9G001

Reversible Flow Fan

The wind directions can be switched with these fans. Equivalent cooling performance can be obtained in both directions.

Domain Diagram



Model Numbering System

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

9RF	13	12	P	3	H	001
Type name / frame material 9RF / Plastics	Frame size 13: ϕ 136mm	Voltage 12: 12V 24: 24V	PWM control function	Frame thickness 3: 28mm thick	Speed code	Individual customer's spec

How to Read Specifications

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

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

DC Fan Common Specifications

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

* For details, refer to the appropriate page.

Expected LifeVaries 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 ProtectionBurnout protection at locked rotor condition and Reverse polarity protection

Dielectric StrengthAC50/60Hz 500VAC 1minute(between lead conductor and frame)

Insulation Resistance10M Ω or more at 500VDC megger (between lead conductor and frame)

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

Lead WireFor details, refer to the appropriate page.

Overheating protection function

Protection Functions:

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

Burnout protection function at locked rotor condition

- Current cutoff system

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

Reverse polarity protection function

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

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

φ136mm

San Ace 136RF



General Specifications

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

φ136mm×28mm (Mass : 220g) **9RF type**

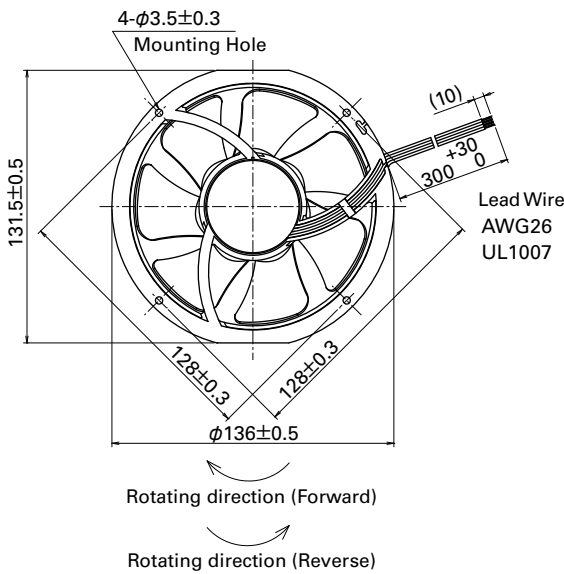
Specifications

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

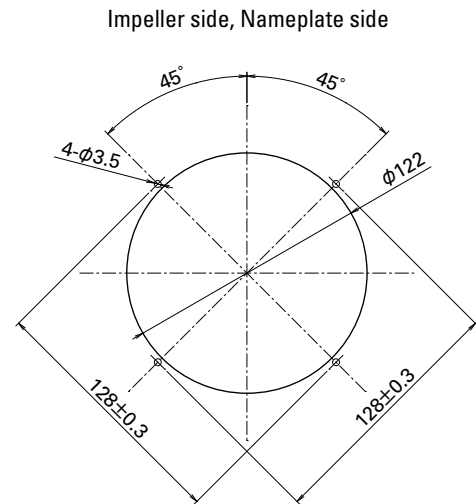
Model No.	Airflow direction	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9RF1312P3H001	Forward	12	10.2 to 13.8	100	0.15	1.8	3,100	2.00	70.7	102	-20 to +70	40,000/60°C (70,000/40°C)
	Reverse			0				2.00	70.7	104		
9RF1324P3H001	Forward	24	20.4 to 27.6	100	0.09	2.2	3,100	2.00	70.7	102		
	Reverse			0				2.00	70.7	104		

※PWM Frequency : 25kHz

Dimensions (unit: mm)



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

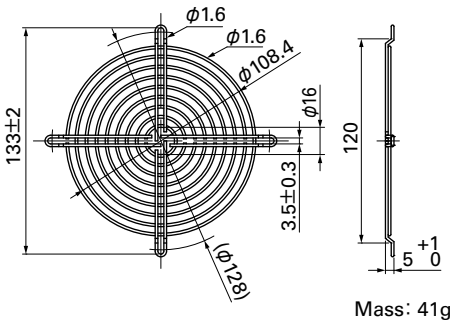


Options (unit: mm)

Finger Guards

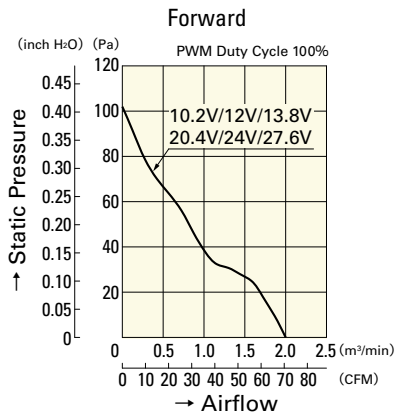
Model : 109-1139 Surface treatment : Nickel-chrome plating (silver) Color

Impeller side, Nameplate side



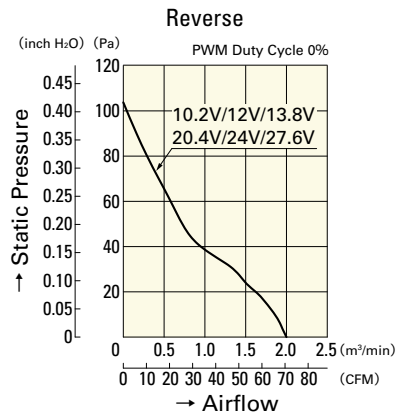
Airflow - Static Pressure Characteristics

Operating Voltage Range



9RF1312P3H001

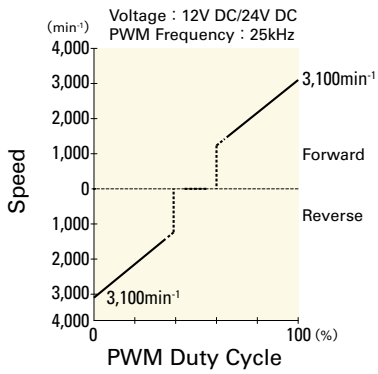
9RF1324P3H001



9RF1312P3H001

9RF1324P3H001

PWM Duty - Speed Characteristics Example



9RF1312P3H001

9RF1324P3H001

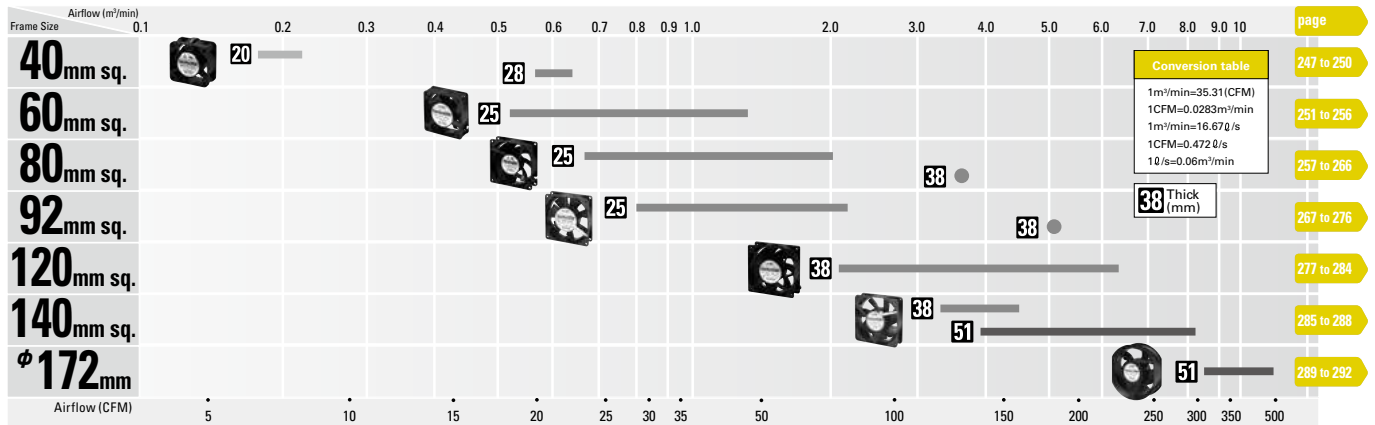
Splash Proof Fan

Cooling fan of IP54, IP55 and IP68 waterproof capability.

Related product

Splash Proof Centrifugal Fan ⇒ p. 293
Oil Proof Fan ⇒ p. 303

Domain Diagram



Model Numbering System

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

9WS	12	12	H	1	01	
Type name / frame material 109W / Aluminum 9WS / Plastics 9WE / Aluminum 9WG / Aluminum 9WB / Aluminum 9WP / Plastics 9WV / Plastics Aluminum 9WL / Aluminum	Frame size 04 : 40×40mm 06 : 60×60mm 08 : 80×80mm 09 : 92×92mm 12 : 120×120mm 14 : 140×140mm 17 : φ172mm 57 : φ172mm×150mm (sidecut)	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 6 : 20mm 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

Fans with PWM control function

Example :

9WV	08	48	P	1	H	001	
Type name / frame material 9WV / Plastics Aluminum	Frame size 08 : 80×80mm	Voltage 48 : 48V	PWM control function	Frame thickness	Speed code	Individual customer's spec 2 or 3 digits	Frame form Nil : Plastics frame: Ribbed frame Aluminum frame: Ribless frame

Ingress protection ratings (IP code)

■ IP Codes used by SANYO DENKI express the level of protection that internal electrical components (for fans: electrical components and motor coils) have against solid objects, water, and access to hazardous parts.

San Ace Splash Proof fans feature high protection levels.

■ Definition of Ingress Protection (IP Code)

Ingress Protection (IP Code) is defined in IEC (International Electrotechnical Commission) 60529* DEGREES OF PROTECTION PROVIDED BY ENCLOSURES (IP Code). *IEC 60529:2001

I P X X

Second digit: Protection against water

First digit: Protection against solid objects and access to hazardous parts

*For details, please refer to p. 483.

How to Read Specifications

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

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

DC Fan Common Specifications

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

* For details, refer to the appropriate page.

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

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

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

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

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

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

Lead Wire For details, refer to the appropriate page.

Overheating protection function

Protection Functions:

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

Burnout protection function at locked rotor condition

- Current cutoff system

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

Reverse polarity protection function

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

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

40 mm sq.

San Ace 40W



General Specifications

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

40×40×20 mm (Mass : 50g) **IP 68** **9WP** type

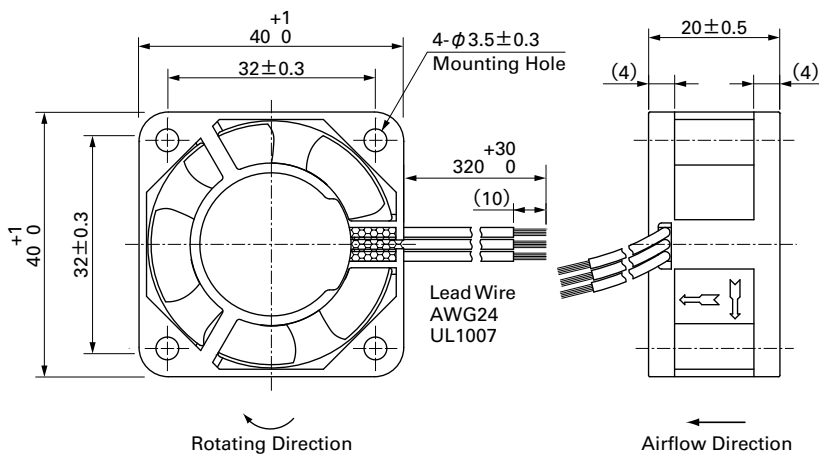
Specifications

The following nos. have pulse sensors and ribs.

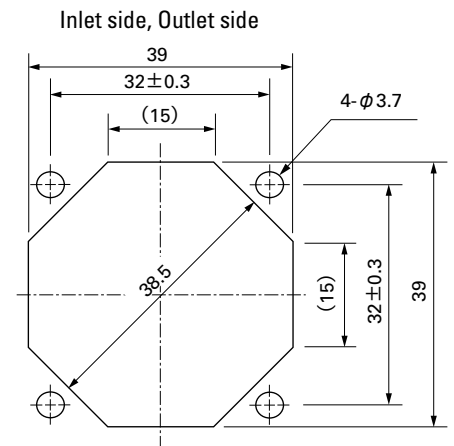
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WP0412H6001	12	7 to 13.8	0.1	1.2	8,000	0.225 8.0	65.7 0.264	33	-10 to +60	40,000/60°C (70,000/40°C)
9WP0412F6001			0.06	0.72	6,500	0.183 6.5	45.1 0.181	28		

Other sensor specifications are available as options. Please refer to the index (p. 512).

Dimensions (unit: mm) (With ribs)



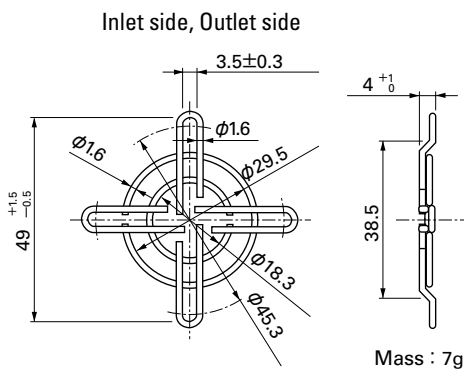
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



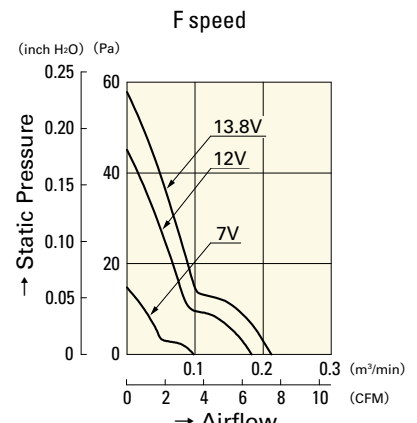
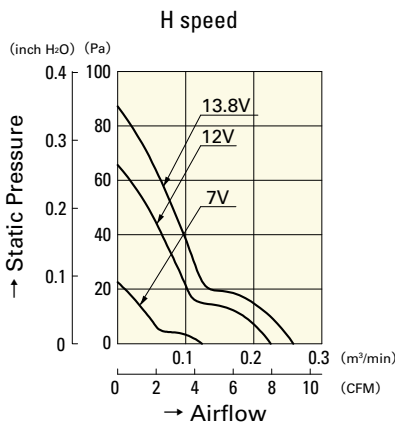
Options (unit: mm)

Finger Guards

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



Airflow - Static Pressure Characteristics



9WP0412H6001

9WP0412F6001

40mm sq.

San Ace 40W



DC
Splash Proof Fan 40mm

General Specifications

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

40×40×28mm (Mass : 70g) **IP 68** **9WL type** **High Airflow Long Life Fan**

Specifications

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

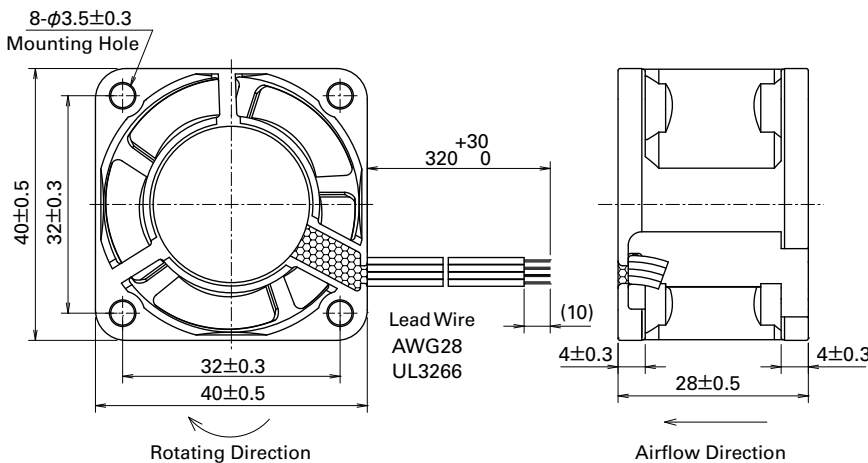
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle [Hz] [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WL0412P3J001	12	10.8 to 13.2	100	0.52	6.24	17,500	0.63 22.2	400 1.61	51	-20 to +70	150,000/60°C
			20	0.06	0.72	3,600	0.13 4.6	16.9 0.07	20		
9WL0412P3G001			100	0.40	4.80	15,500	0.56 19.7	310 1.24	47		
			20	0.06	0.72	3,300	0.12 4.2	14.0 0.06	18		
9WL0424P3J001	24	21.6 to 26.4	100	0.26	6.24	17,500	0.63 22.2	400 1.61	51		
			20	0.04	0.96	4,000	0.14 5.1	20.9 0.08	22		
9WL0424P3G001			100	0.20	4.80	15,500	0.56 19.7	310 1.24	47		
			20	0.04	0.96	3,000	0.11 3.8	11.6 0.05	16		

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

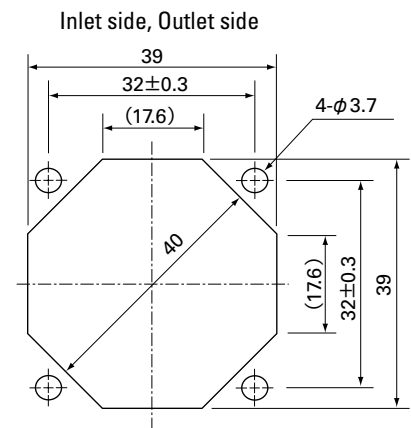
※PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



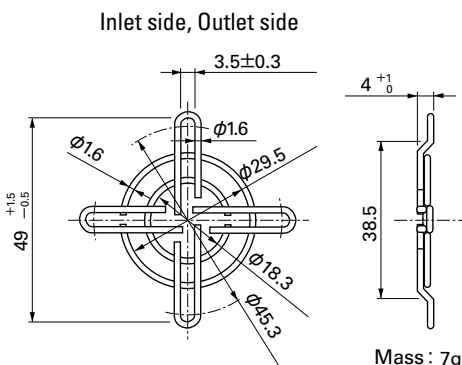
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

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



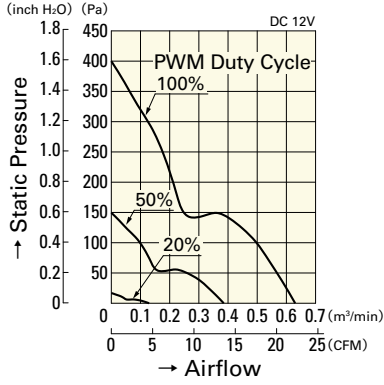
40mm sq.

San Ace 40W

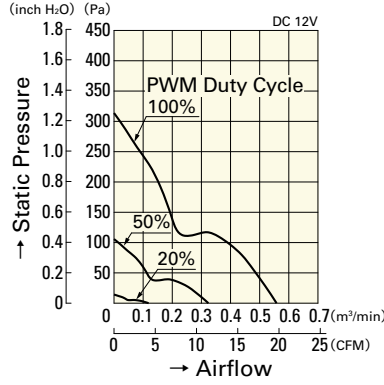
40×40×28mm [Mass : 70g]

Airflow - Static Pressure Characteristics

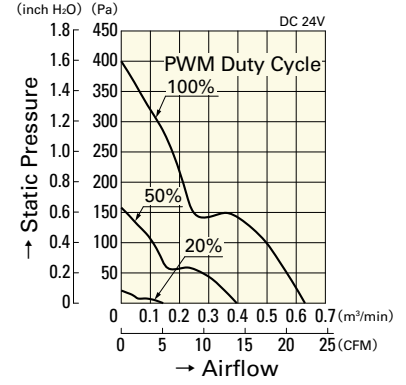
PWM Duty Cycle



9WL0412P3J001

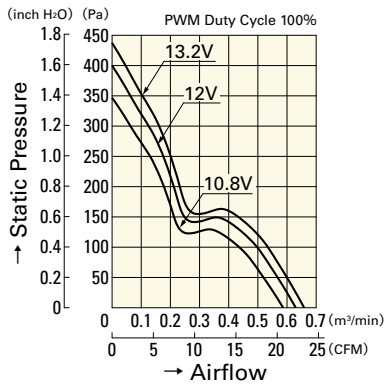


9WL0412P3G001

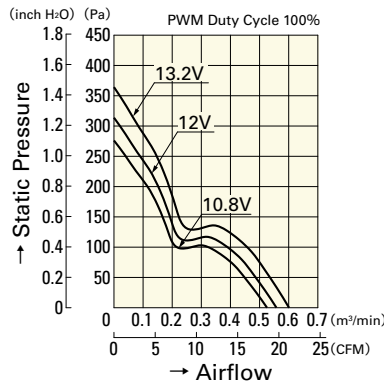


9WL0424P3J001

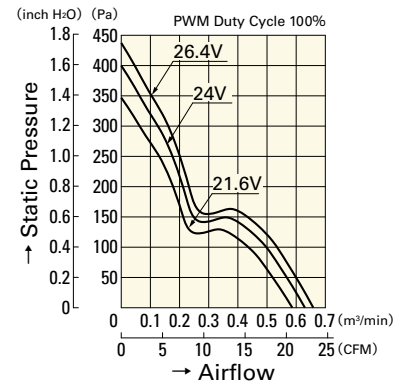
Operating Voltage Range



9WL0412P3J001

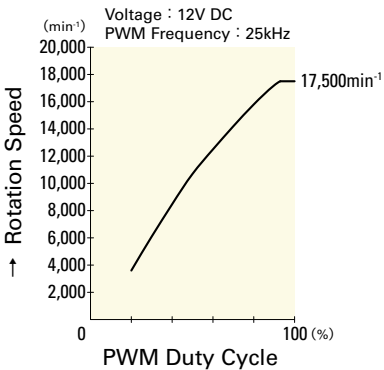


9WL0412P3G001

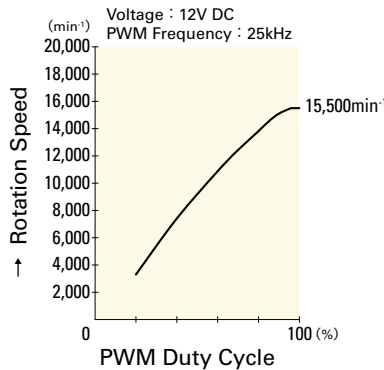


9WL0424P3J001

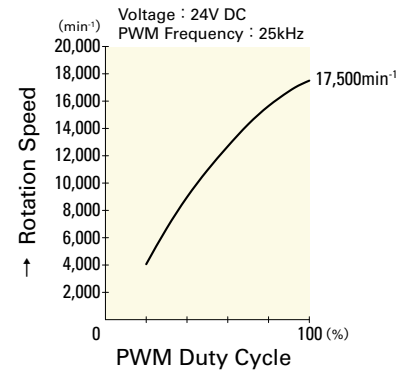
PWM Duty - Speed Characteristics Example



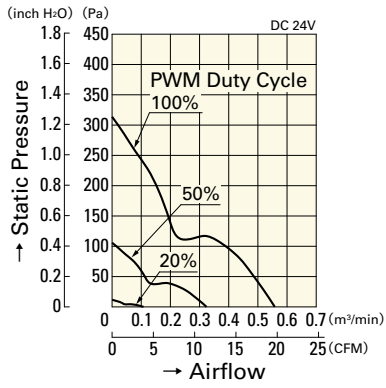
9WL0412P3J001



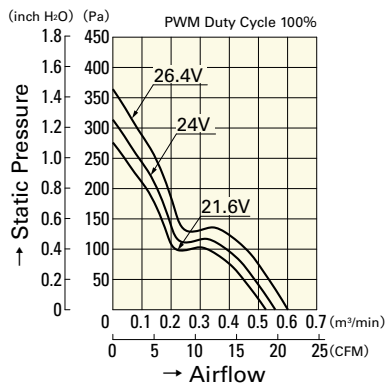
9WL0412P3G001



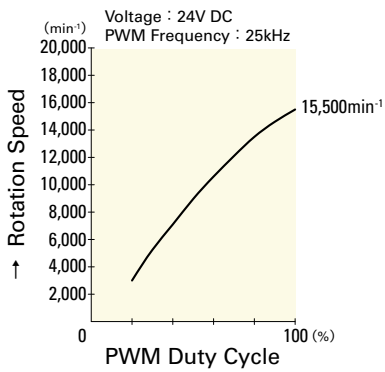
9WL0424P3J001



9WL0424P3G001



9WL0424P3G001



9WL0424P3G001

60mm sq.

San Ace 60W



General Specifications

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

60×60×25mm (Mass : 110g) **IP 68** **9WL type** **High Airflow Long Life Fan**

Specifications

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

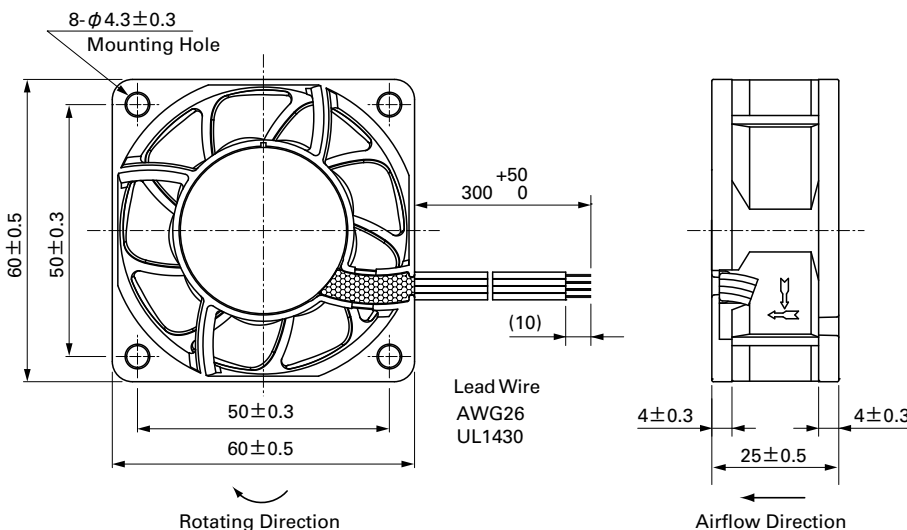
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle (%)	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WL0612P4S001	12	10.8 to 13.2	100	0.67	8.04	11,000	1.40 49.4	300 1.204	53	-20 to +70	180,000/60°C
			20	0.06	0.72	2,900	0.36 12.7	20.8 0.083	20		
9WL0612P4J001			100	0.39	4.68	8,650	1.10 38.8	182 0.730	47		
			20	0.03	0.36	1,150	0.13 4.8	3.3 0.013	14		
9WL0612P4H001			100	0.17	2.04	6,150	0.78 27.5	97 0.389	36		
			20	0.03	0.36	1,350	0.17 6.0	4.7 0.018	14		
9WL0624P4S001	24	21.6 to 26.4	100	0.34	8.16	11,000	1.40 49.4	300 1.204	53		
			20	0.03	0.72	2,900	0.36 12.7	20.8 0.083	20		
9WL0624P4J001			100	0.19	4.56	8,650	1.10 38.8	182 0.730	47		
			20	0.02	0.48	2,200	0.28 9.8	12.0 0.048	17		
9WL0624P4H001			100	0.08	1.92	6,150	0.78 27.5	97 0.389	36		
			20	0.02	0.48	1,300	0.16 5.6	4.3 0.017	14		

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

※PWM Frequency : 25kHz

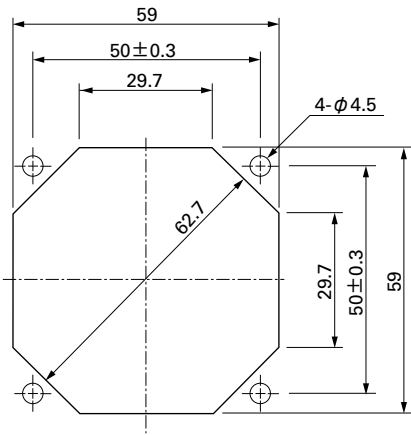
Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



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

Inlet side, Outlet side



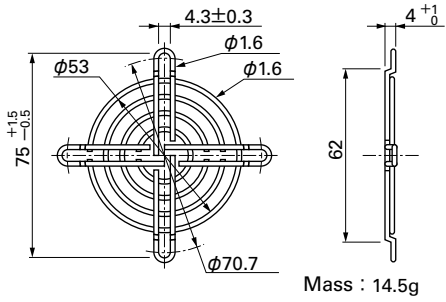
Options (unit: mm)

Finger Guards

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

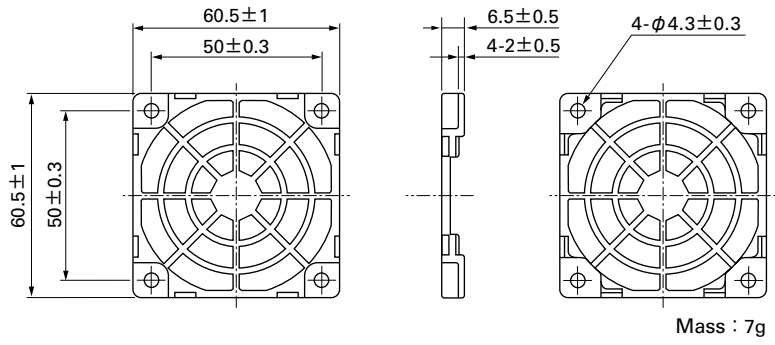
Color

Inlet side, Outlet side



Resin Finger Guards

Model : 109-1003G



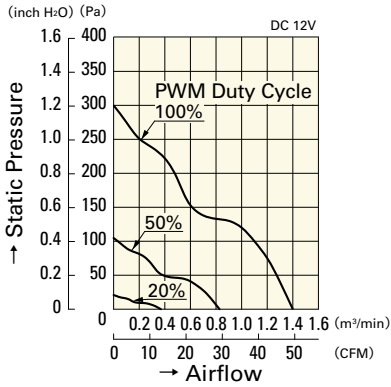
60mm sq.

San Ace 60W

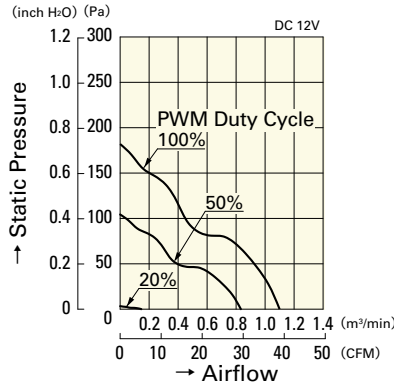
60×60×25mm [Mass : 120g]

Airflow - Static Pressure Characteristics

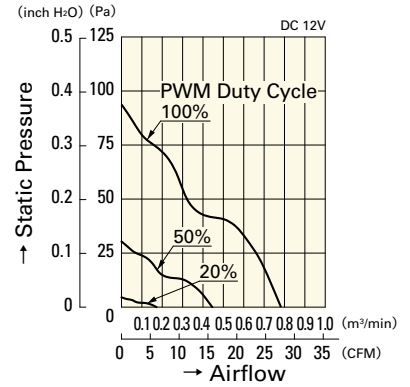
PWM Duty Cycle



9WL0612P4S001

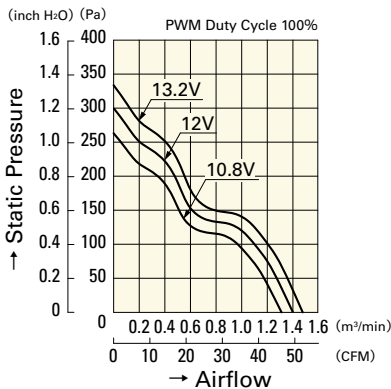


9WL0612P4J001

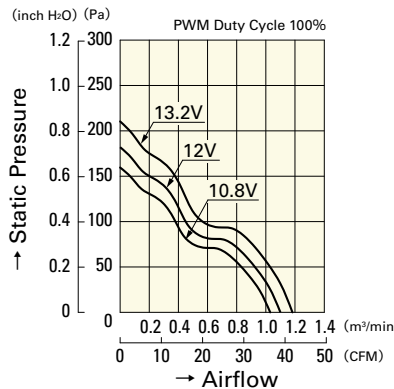


9WL0612P4H001

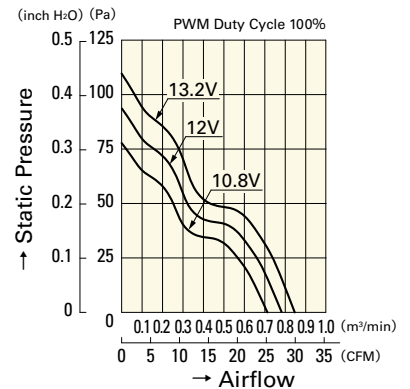
Operating Voltage Range



9WL0612P4S001

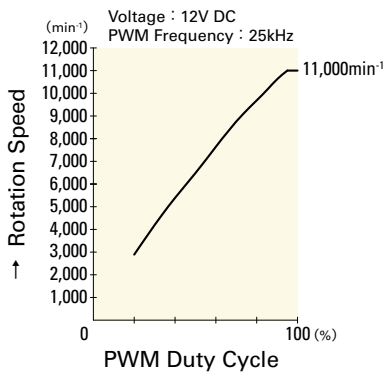


9WL0612P4J001

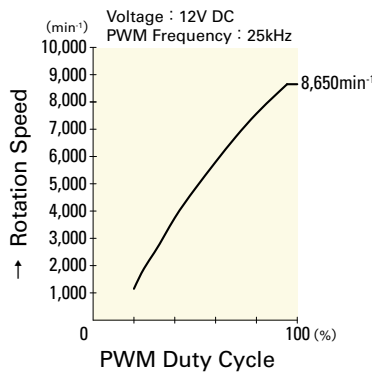


9WL0612P4H001

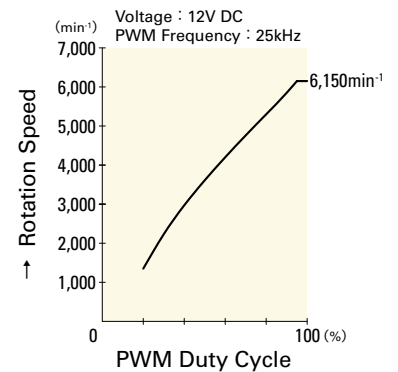
PWM Duty - Speed Characteristics Example



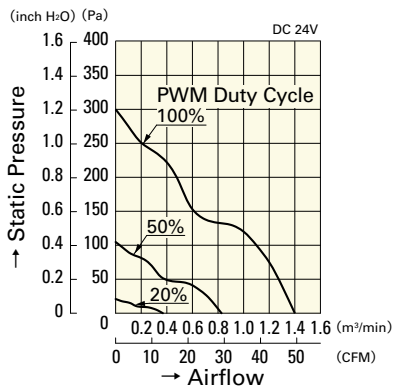
9WL0612P4S001



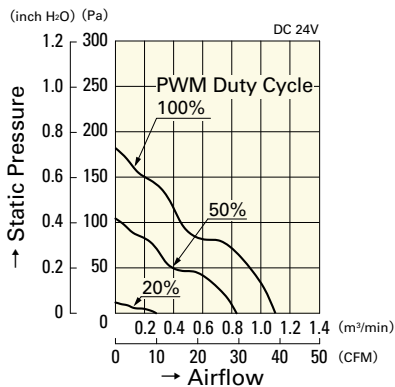
9WL0612P4J001



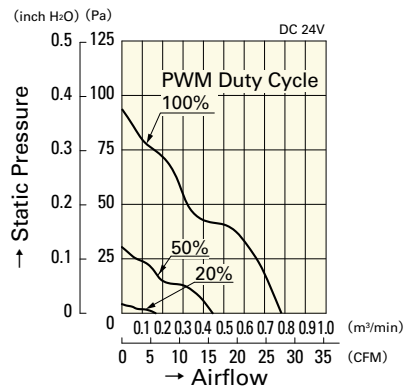
9WL0612P4H001



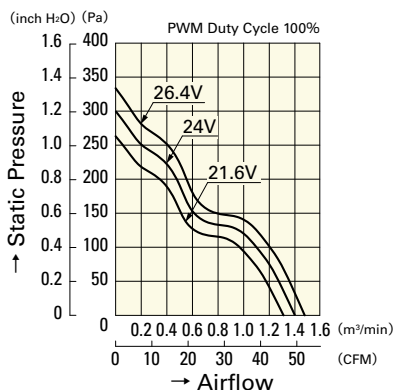
9WL0624P4S001



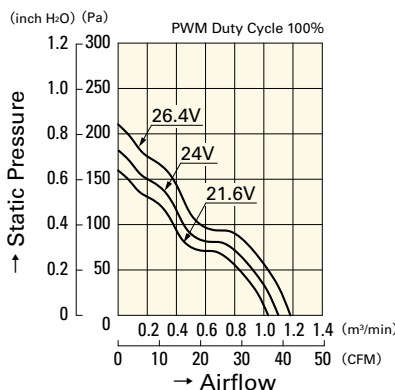
9WL0624P4J001



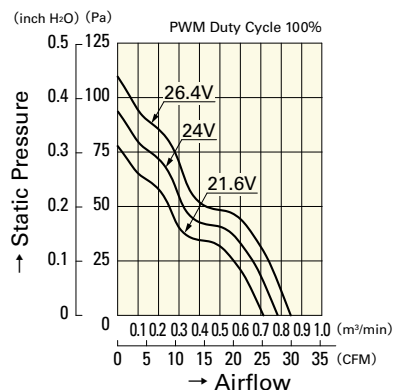
9WL0624P4H001



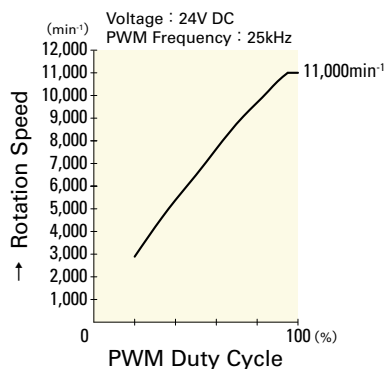
9WL0624P4S001



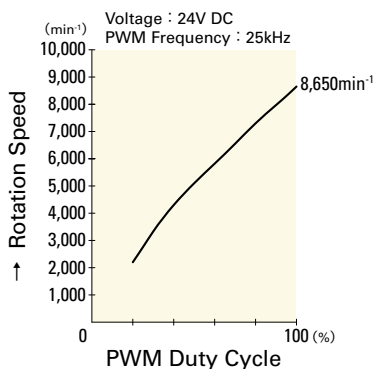
9WL0624P4J001



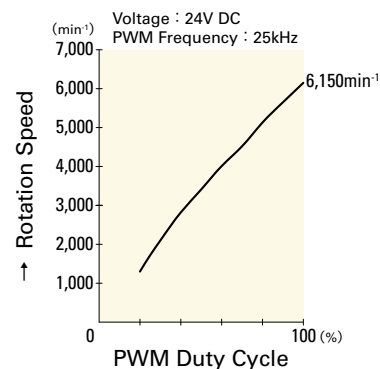
9WL0624P4H001



9WL0624P4S001



9WL0624P4J001



9WL0624P4H001

60mm sq.

San Ace 60W



General Specifications

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

60×60×25mm (Mass : 110g) **IP 68** **9WP** type

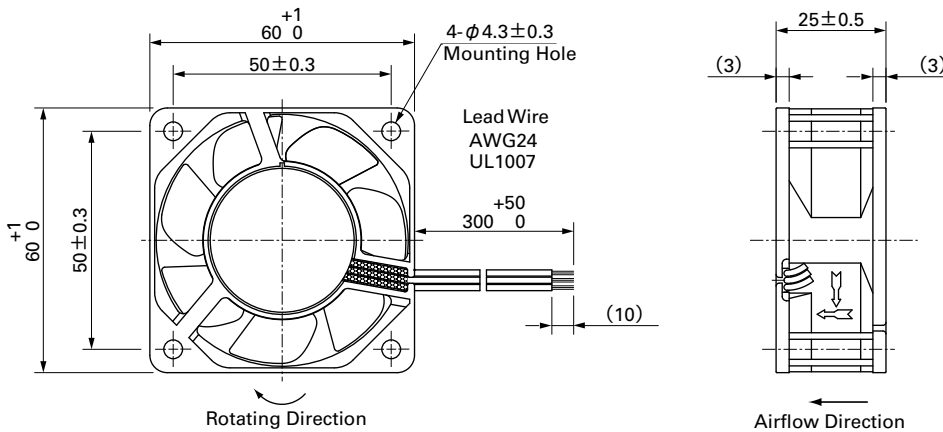
Specifications

The following nos. **have pulse sensors and ribs**. For ribless, append "1" to the model no.

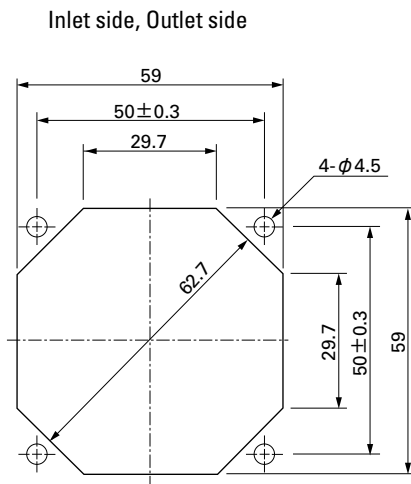
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]		
9WP0612G401	12	10.2 to 13.2	0.21	2.52	5,600	0.78	27.5	87.3	0.351	39	-20 to +60	40,000/60°C
9WP0612D401			0.21	2.52	5,150	0.72	25	73.5	0.30	37	-20 to +70	60,000/60°C
9WP0612H401		0.11	1.32	3,800	0.53	18.7	40.2	0.161	28	-20 to +60	40,000/60°C	
9WP0624J401	24	21.6 to 26.4	0.2	4.8	7,600	1.06	37.1	155.0	0.622	44	-20 to +60	40,000/60°C
9WP0624G401			0.13	3.12	5,600	0.78	27.5	87.3	0.351	39	-20 to +70	60,000/60°C
9WP0624H401		0.06	1.44	3,800	0.53	18.7	40.2	0.161	28	-20 to +60	40,000/60°C	
9WP0648H401	48	40 to 53	0.04	1.92	3,800	0.53	18.7	40.2	0.161	28	-20 to +70	60,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 512).

Dimensions (unit: mm) (With ribs)



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



Options (unit: mm)

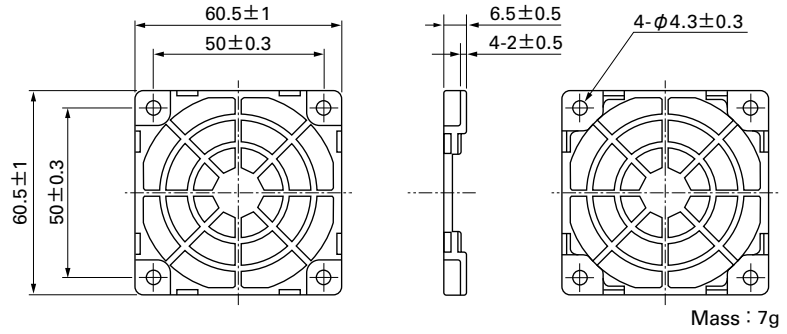
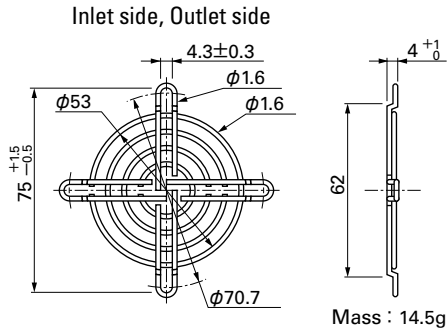
Finger Guards

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

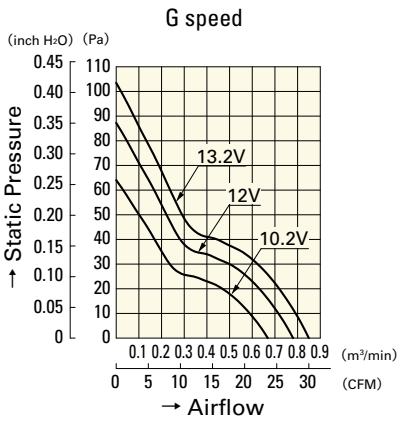
Color

Resin Finger Guards

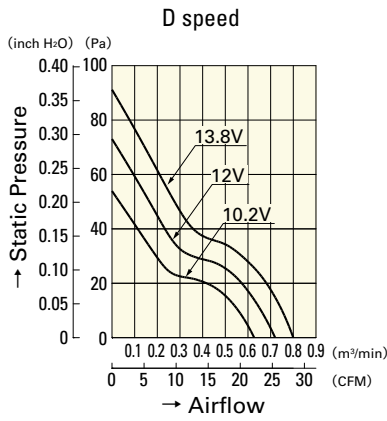
Model : 109-1003G



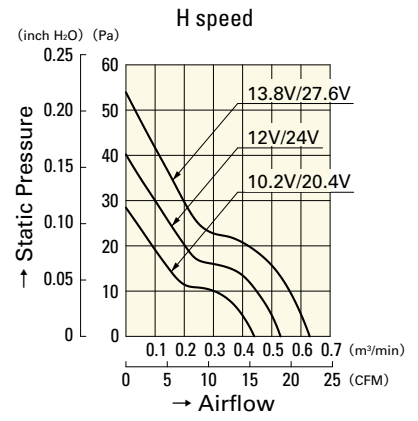
Airflow - Static Pressure Characteristics



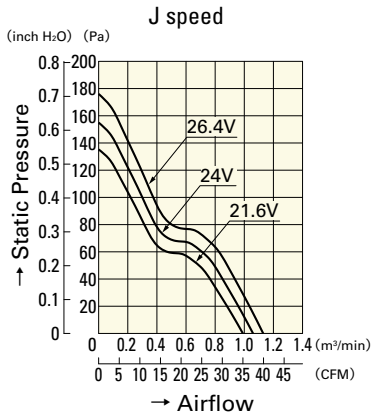
9WP0612G401



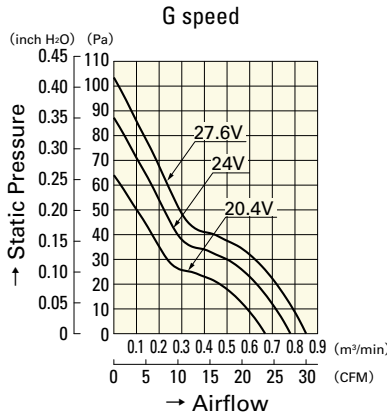
9WP0612D401



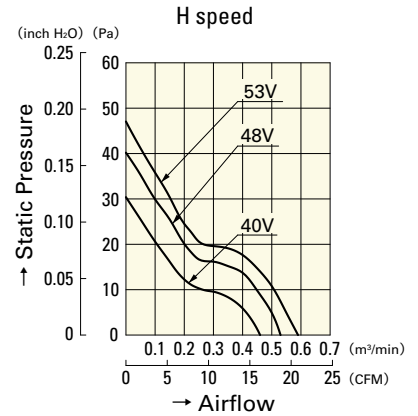
9WP0612H401
9WP0624H401



9WP0624J401



9WP0624G401



9WP0648H401

80 mm sq.

San Ace 80W



General Specifications

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

80×80×25mm (Mass : 150g)

IP68

9WL_{type}

High Airflow Long Life Fan



Specifications

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

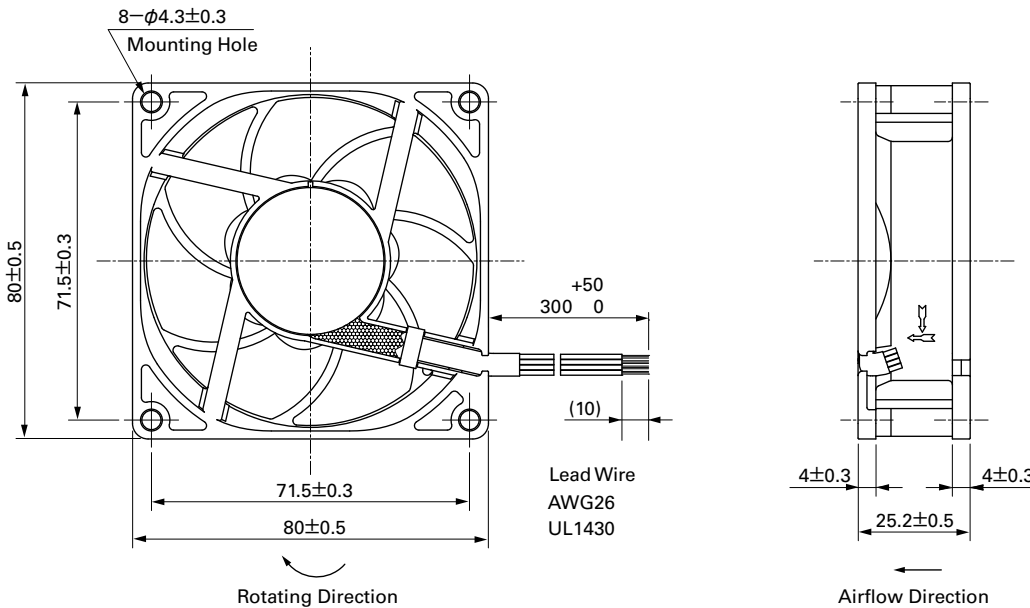
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Min/Max} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WL0812P4J001	12	10.8 to 13.2	100	0.6	7.2	7,400	2.07 73.0	177 0.71	49	-20 to +70	180,000/60°C
			20	0.06	0.72	1,800	0.50 17.6	10.4 0.04	16		
9WL0812P4G001			100	0.30	3.60	5,500	1.54 54.3	98 0.39	43		
			25	0.05	0.60	1,400	0.39 13.7	6.3 0.02	14		
9WL0812P4H001			100	0.12	1.44	3,700	1.03 36.3	44 0.17	31		
			25	0.04	0.48	1,100	0.30 10.5	3.9 0.01	13		
9WL0824P4J001	24	21.6 to 26.4	100	0.28	6.72	7,400	2.07 73.0	177 0.71	49		
			20	0.05	1.20	2,400	0.67 23.6	18.6 0.07	22		
9WL0824P4G001			100	0.14	3.36	5,500	1.54 54.3	98 0.39	43		
			20	0.02	0.48	1,200	0.33 11.6	4.6 0.01	13		
9WL0824P4H001			100	0.05	1.2	3,700	1.03 36.3	44 0.17	31		
			30	0.02	0.48	1,100	0.30 10.5	3.9 0.01	13		

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

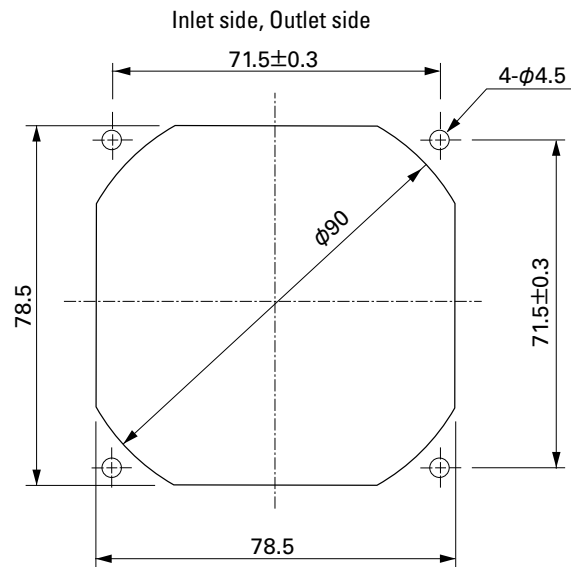
※PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (pp. 511 to 512).

Dimensions (unit: mm)



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



Options (unit: mm)

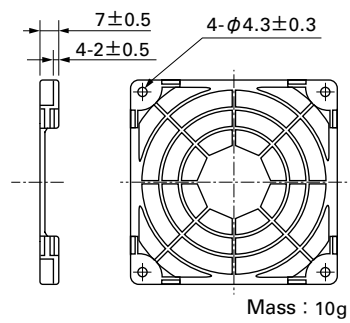
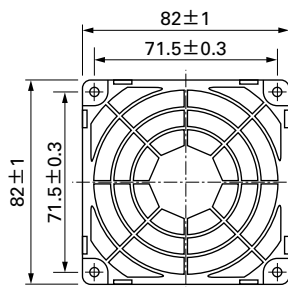
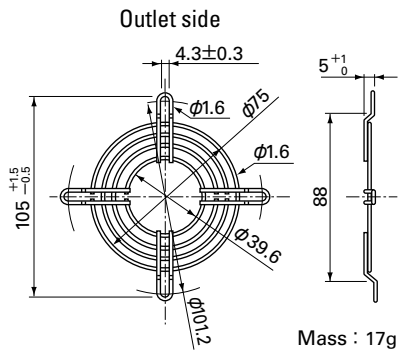
Finger Guards

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

Color

Resin Finger Guards

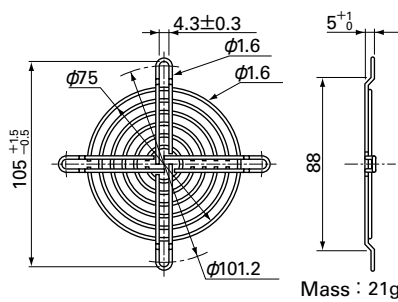
Model : 109-1002G



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

Color

Inlet side, Outlet side



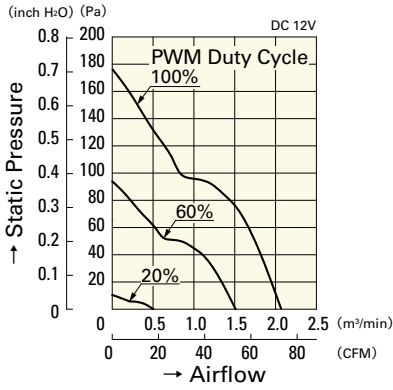
80mm sq.

San Ace 80W

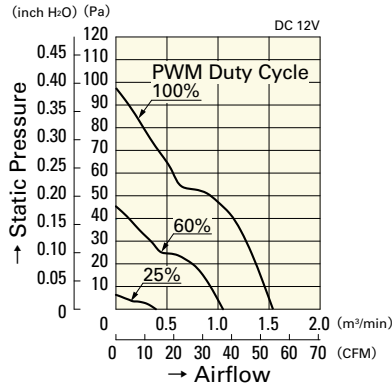
80×80×25mm [Mass : 150g]

Airflow - Static Pressure Characteristics

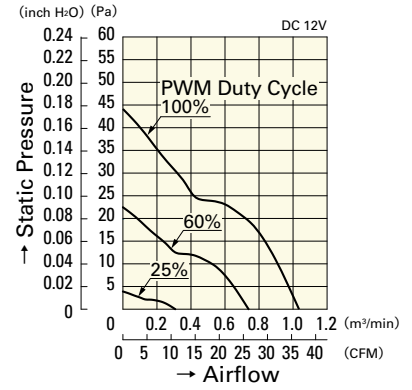
PWM Duty Cycle



9WL0812P4J001

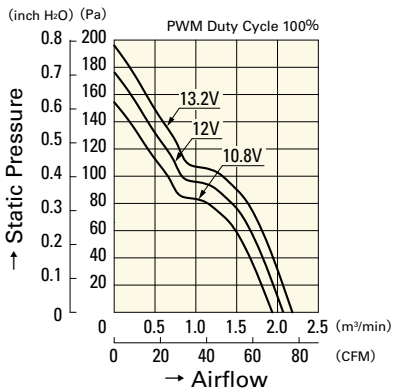


9WL0812P4G001

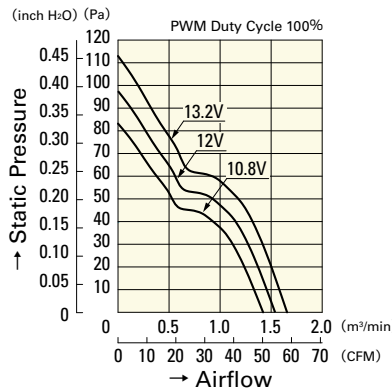


9WL0812P4H001

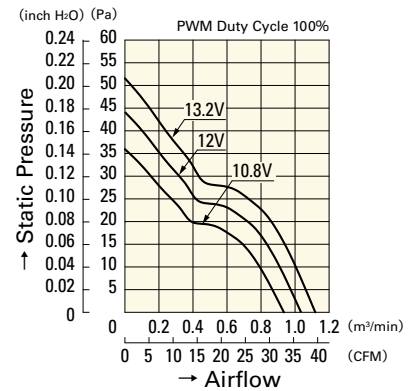
Operating Voltage Range



9WL0812P4J001

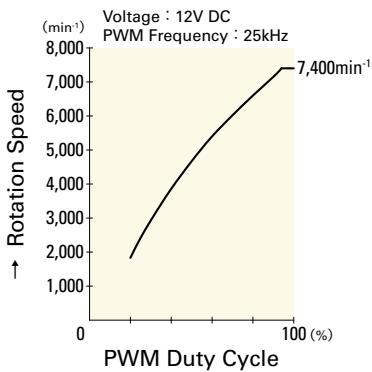


9WL0812P4G001

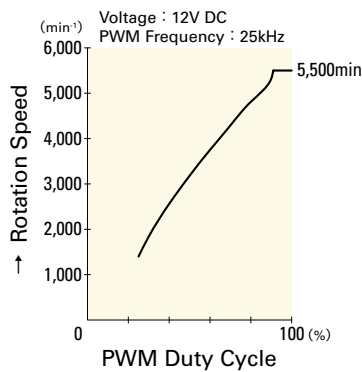


9WL0812P4H001

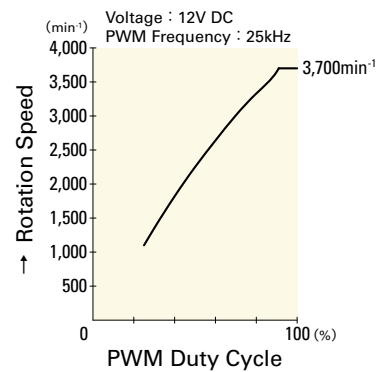
PWM Duty - Speed Characteristics Example



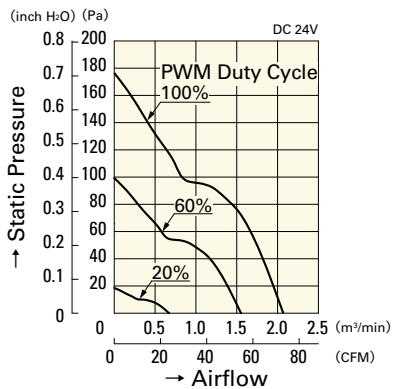
9WL0812P4J001



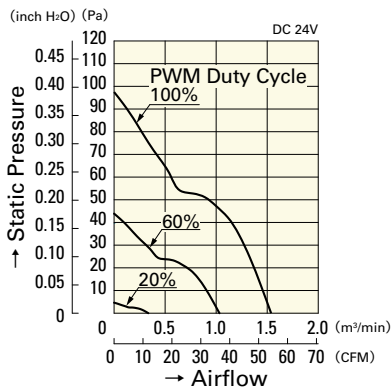
9WL0812P4G001



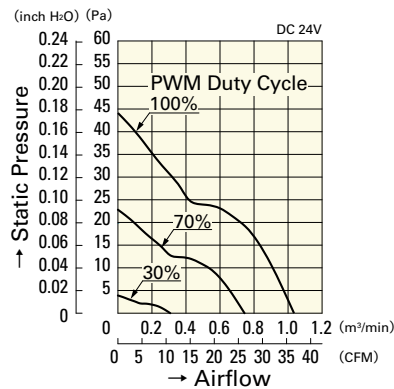
9WL0812P4H001



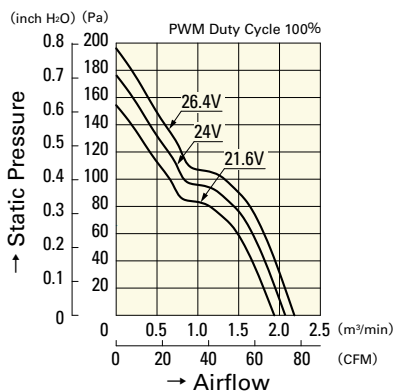
9WL0824P4J001



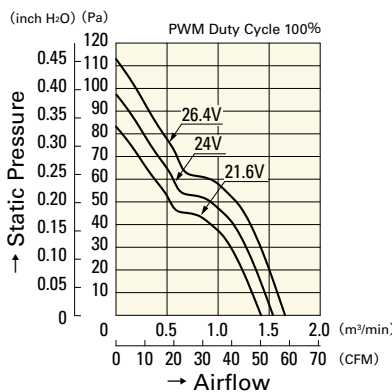
9WL0824P4G001



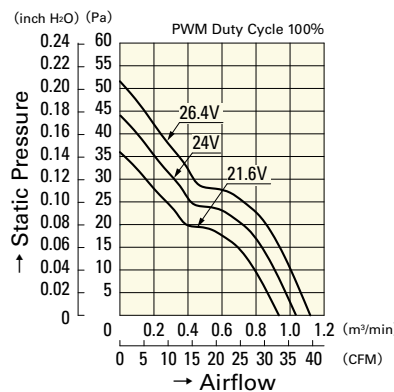
9WL0824P4H001



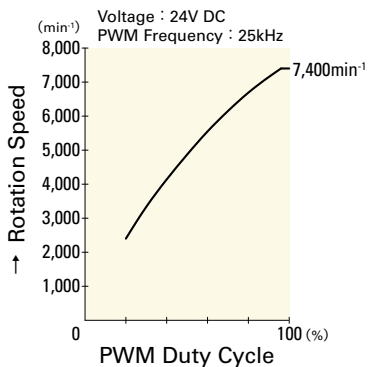
9WL0824P4J001



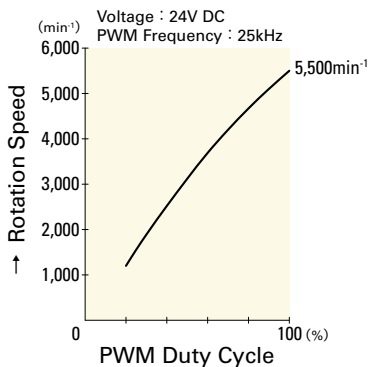
9WL0824P4G001



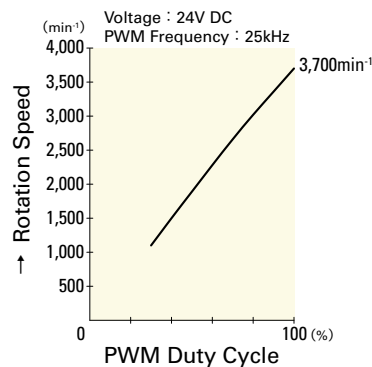
9WL0824P4H001



9WL0824P4J001



9WL0824P4G001



9WL0824P4H001

80 mm sq.

San Ace 80W



General Specifications

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

80×80×25 mm (Mass : 130g) **IP 68** **9WP** type

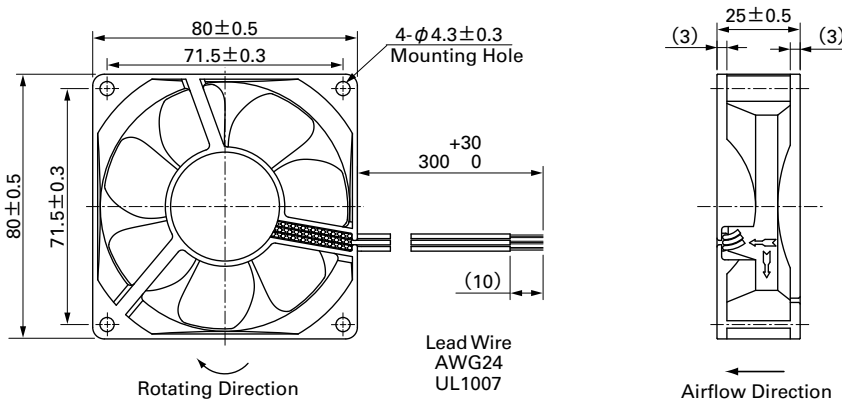
Specifications

The following nos. **have pulse sensors and ribs**. For ribless, append "1" to the model no.

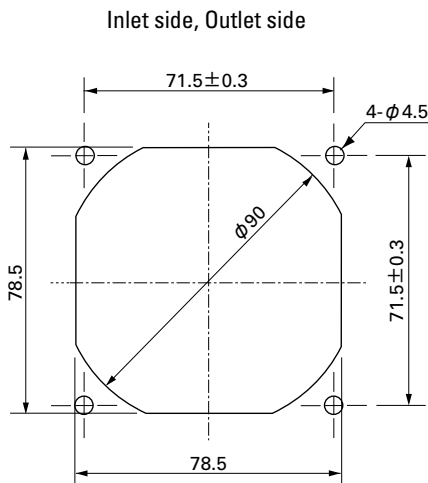
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WP0812G401	12	10.8 to 13.2	0.38	4.56	4,500	1.50 53	80.4 0.323	40	-20 to +60	40,000/60°C
9WP0812H401		10.2 to 13.8	0.13	1.56	2,900	1.03 36.4	35.3 0.142	29		60,000/60°C
9WP0824S401	24	20.4 to 27.6	0.1	2.4	3,400	1.20 42.4	48.0 0.193	34		40,000/60°C
9WP0824H401			0.07	1.68	2,900	1.03 36.4	35.3 0.142	29		60,000/60°C
9WP0848S401	48	40.8 to 55.2	0.06	2.88	3,400	1.20 42.4	48.0 0.193	34		40,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 512).

Dimensions (unit: mm) (With ribs)



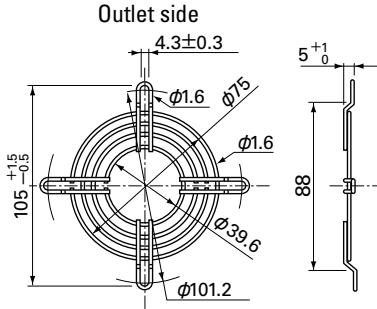
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

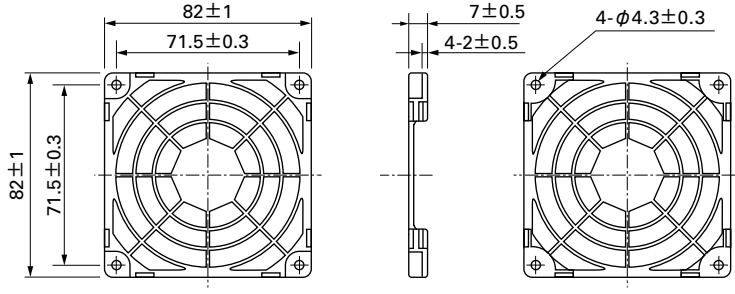
Model : 109-049C Surface treatment : Nickel-chrome plating (silver) Color : Silver



Mass : 17g

Resin Finger Guards

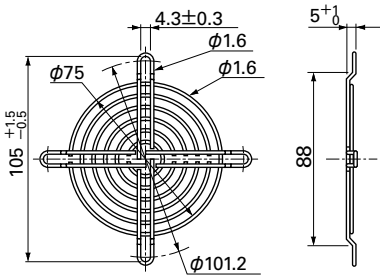
Model : 109-1002G



Mass : 10g

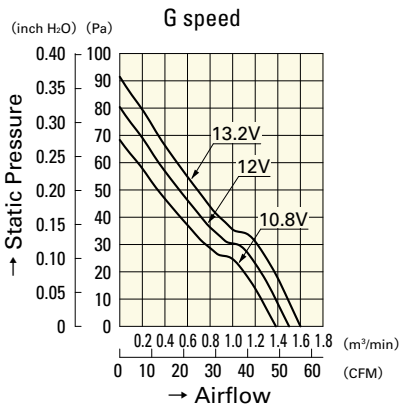
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color : Silver
 : 109-049H : Cation electropainting (black)

Inlet side, Outlet side

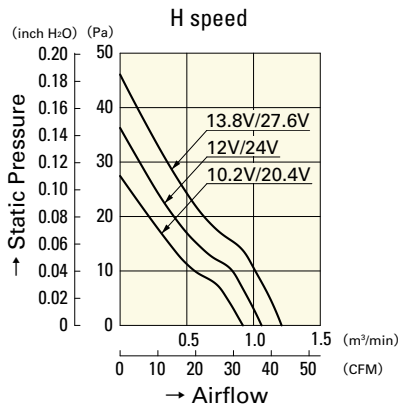


Mass : 21g

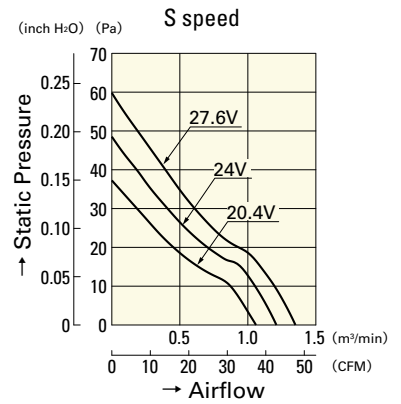
Airflow - Static Pressure Characteristics



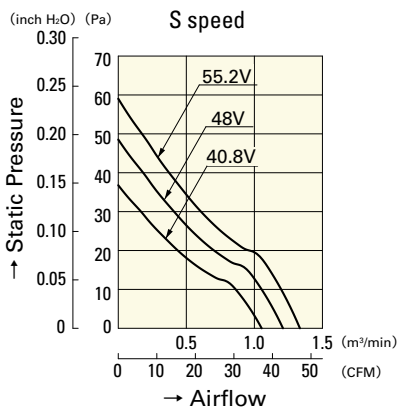
9WP0812G401



9WP0812H401
9WP0824H401



9WP0824S401



9WP0848S401

80mm sq.

San Ace 80WS



General Specifications

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

80×80×25mm (Mass : 120g) **IP 54** **9WS** type

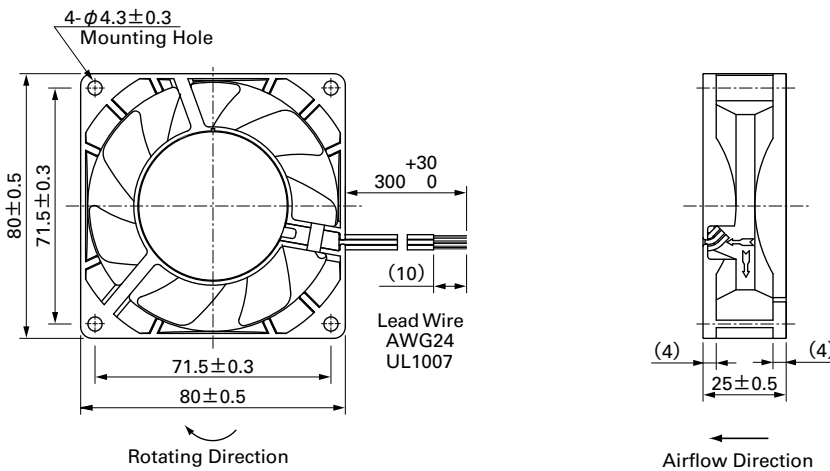
Specifications

The following nos. **have pulse sensors and ribs**. For ribless, append "1" to the model no.

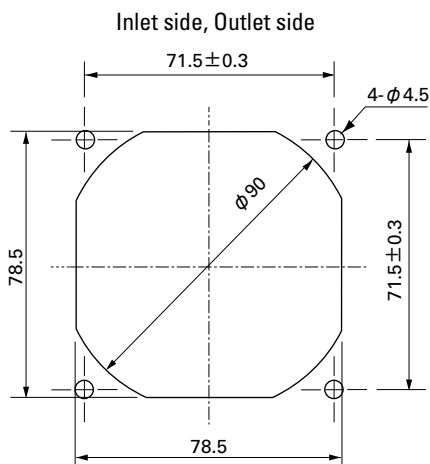
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]	
9WS0812H401	12	10.2 to 13.8	0.16	1.92	3,100	0.94	33.2	45.1	0.181	- 20 to + 70	40,000/60°C
9WS0812F401			0.13	1.56	2,700	0.83	29.3	34.3	0.138		
9WS0812M401			0.1	1.2	2,200	0.65	23.0	23.5	0.094		
9WS0824H401	24	20.4 to 27.6	0.09	2.16	3,100	0.94	33.2	45.1	0.181	- 20 to + 70	40,000/60°C
9WS0824F401			0.07	1.68	2,700	0.83	29.3	34.3	0.138		
9WS0824M401			0.05	1.2	2,200	0.65	23.0	23.5	0.094		

Other sensor specifications are available as options. Please refer to the index (pp. 512 to 513).

Dimensions (unit: mm) (With ribs)



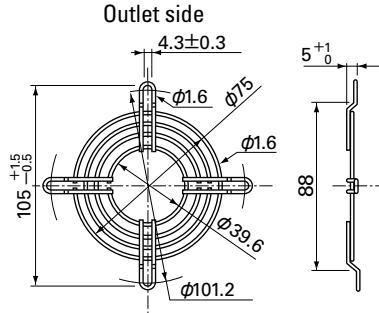
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

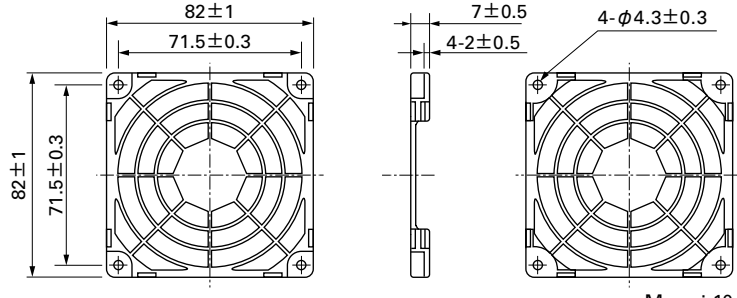
Model : 109-049C Color Surface treatment : Nickel-chrome plating (silver)



Mass : 17g

Resin Finger Guards

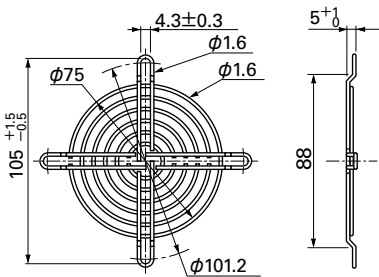
Model : 109-1002G



Mass : 10g

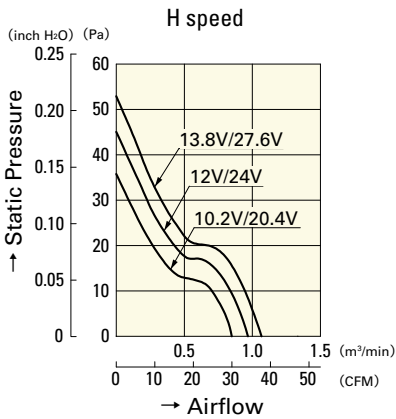
Model : 109-049E Color Surface treatment : Nickel-chrome plating (silver)
Model : 109-049H Color Surface treatment : Cation electropainting (black)

Inlet side, Outlet side

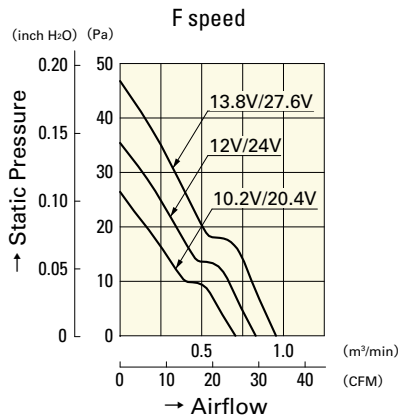


Mass : 21g

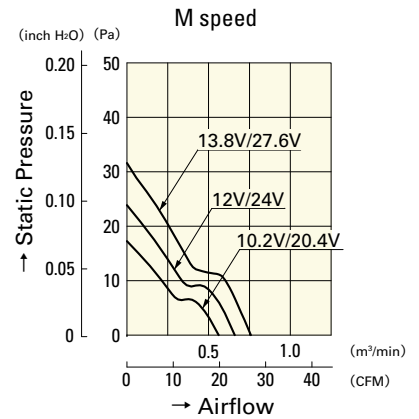
Airflow - Static Pressure Characteristics



9WS0812H401
9WS0824H401



9WS0812F401
9WS0824F401



9WS0812M401
9WS0824M401

80 mm sq.

San Ace 80W



General Specifications

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

80×80×38mm (Mass : 235g) **IP 68** **9WV**type

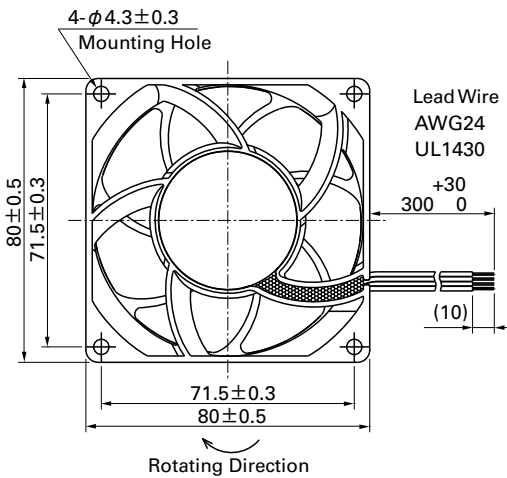
Specifications The following nos. **have PWM controls, pulse sensors, and ribs.** For ribless, append "1" to the model no.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WV0812P1M001	12	10.2 to 13.8	100	0.75	9	6,000	2.29 80.9	169 0.68	51	-20 to +70	40,000/60°C (70,000/40°C)
			0	0.09	1.08	1,700	0.65 23	13.6 0.05	19		
9WV0848P1H001	48	40.8 to 52.8	100	0.75	36	9,700	3.7 131	440 1.77	63	-20 to +70	40,000/60°C (70,000/40°C)
			0	0.15	7.2	4,500	1.72 60.7	94.7 0.38	43		

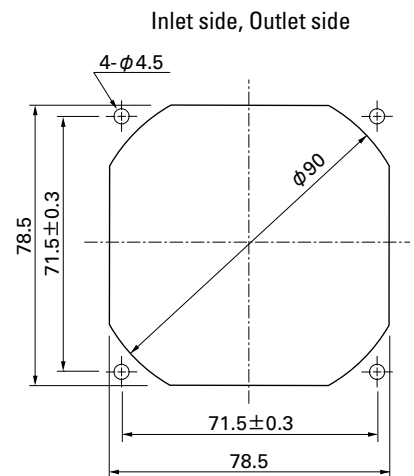
*PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 513).

Dimensions (unit: mm) (With ribs)



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

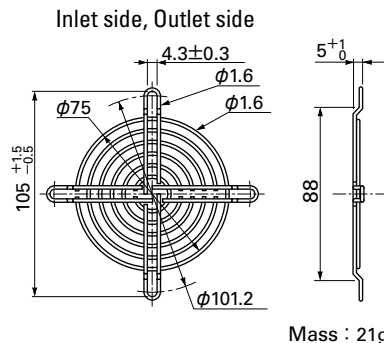
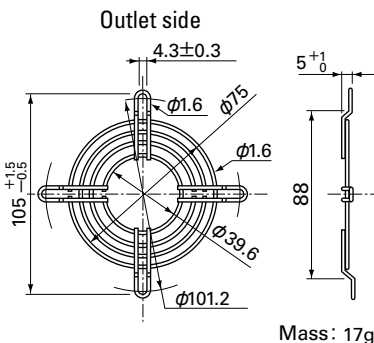


Options (unit: mm)

Finger Guards

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

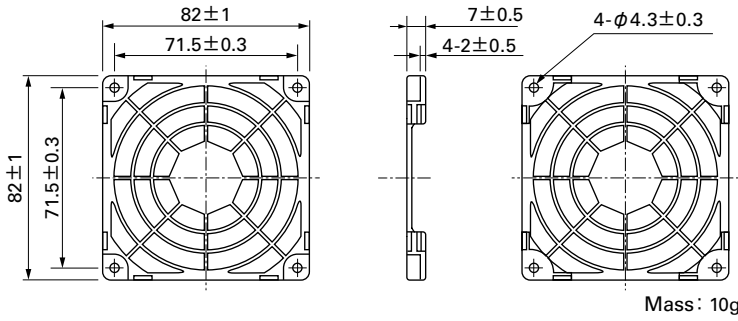
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)



Options (unit: mm)

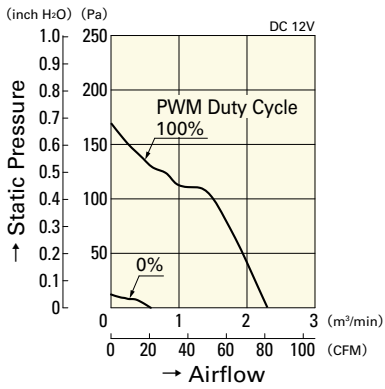
Resin Finger Guards

Model : 109-1002G

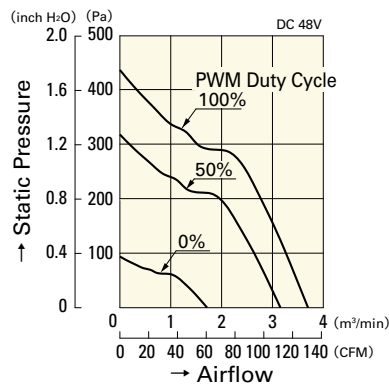


Airflow - Static Pressure Characteristics

PWM Duty Cycle

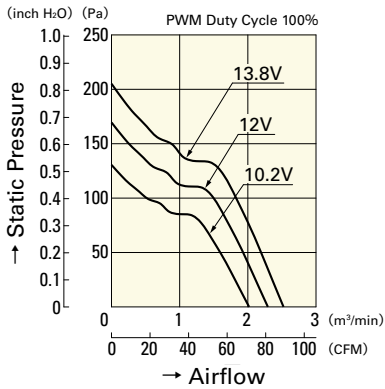


9WV0812P1M001

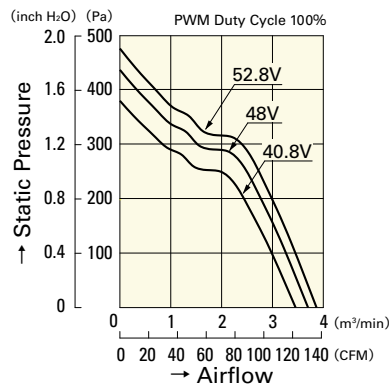


9WV0848P1H001

Operating Voltage Range

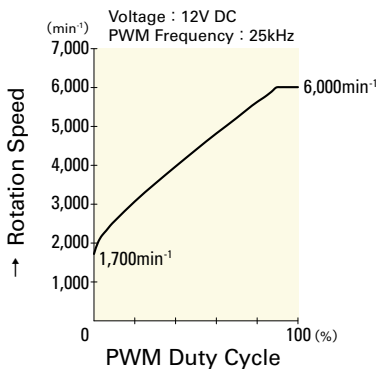


9WV0812P1M001

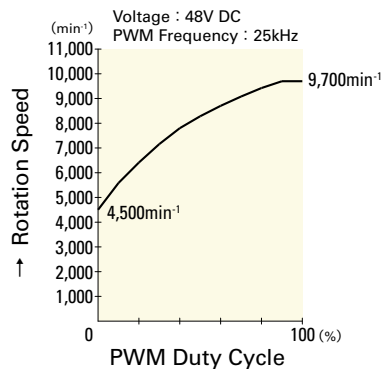


9WV0848P1H001

PWM Duty - Speed Characteristics Example



9WV0812P1M001



9WV0848P1H001

92mm sq.

San Ace 92W



General Specifications

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

92×92×25mm (Mass : 170g)

IP 68

9WL type

High Airflow Long Life Fan



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

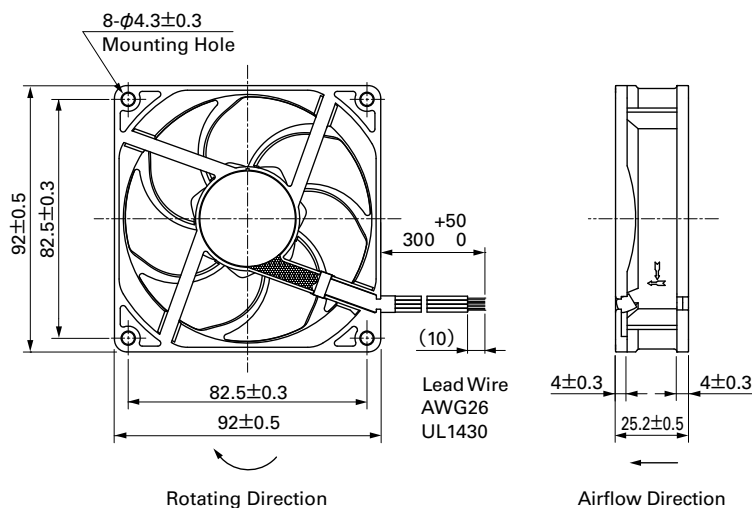
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note 1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature Range [°C]	Expected Life [h]		
9WL0912P4J001	12	10.8 to 13.2	100	0.42	5.04	5,000	2.2 77.7	105 0.42	44	-20 to +70	180,000/60°C		
			20	0.04	0.48	1,200	0.52 18.4	6.04 0.024	11				
9WL0912P4G001			100	0.30	3.60	4,400	1.93 68.2	81 0.33	40				
			20	0.04	0.48	1,000	0.43 15.1	4.18 0.016	8				
9WL0912P4S001			100	0.22	2.64	3,850	1.69 59.7	62.1 0.25	37				
			30	0.04	0.48	1,400	0.61 21.5	8.21 0.032	13				
9WL0912P4H001			100	0.15	1.80	3,150	1.38 48.7	41.6 0.17	32				
			30	0.04	0.48	1,100	0.48 16.9	5.07 0.020	9				
9WL0924P4J001			24	21.6 to 26.4	100	0.21	5.04	5,000	2.2 77.7			105 0.42	44
					20	0.02	0.48	1,100	0.48 16.9			5.07 0.020	9
9WL0924P4S001					100	0.11	2.64	3,850	1.69 59.7			62.1 0.25	37
					30	0.02	0.48	1,300	0.57 20.1			7.08 0.028	12
9WL0924P4H001	100	0.07			1.68	3,150	1.38 48.7	41.6 0.17	32				
	30	0.02			0.48	1,000	0.43 15.1	4.18 0.016	8				

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

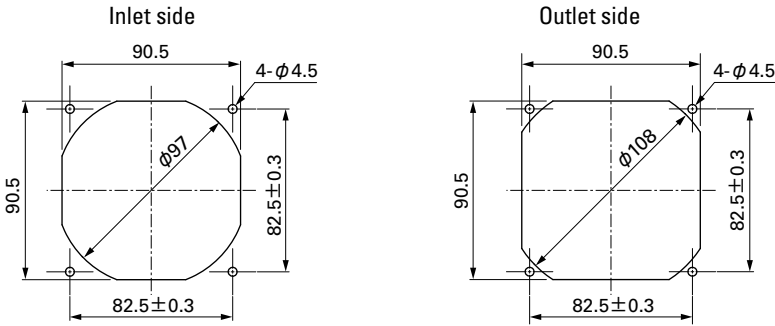
※PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 512).

Dimensions (unit: mm)



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

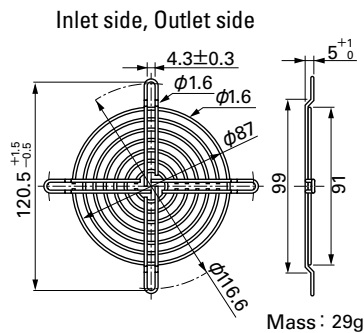
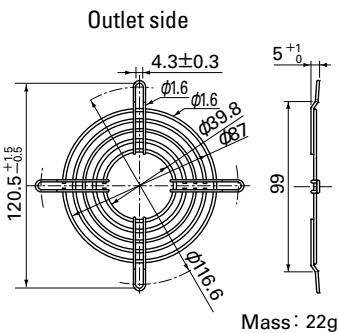


Options (unit: mm)

Finger Guards

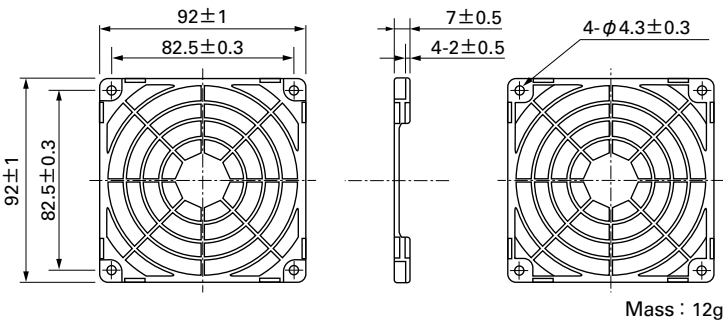
Model : 109-099C Color Surface treatment : Nickel-chrome plating (silver)

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



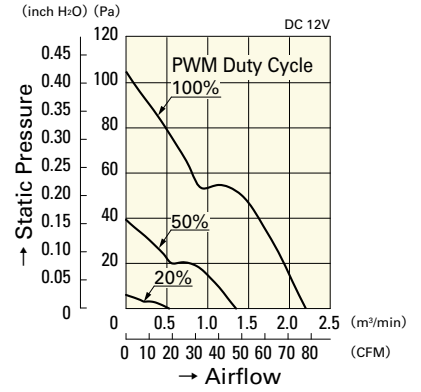
Resin Finger Guards

Model : 109-1001G



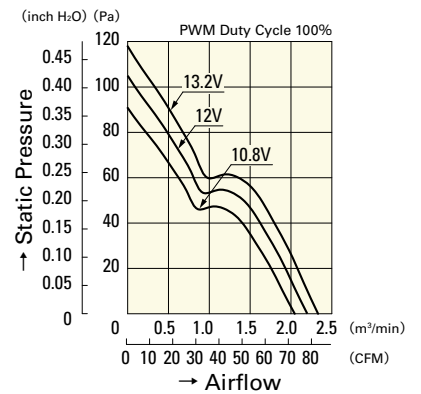
Airflow - Static Pressure Characteristics

PWM Duty Cycle



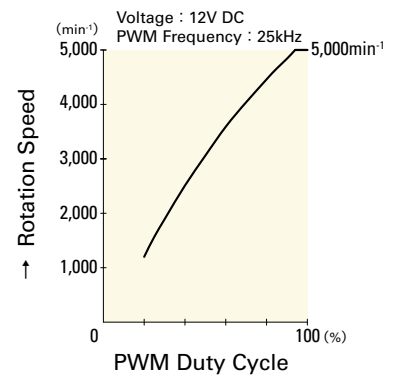
9WL0912P4J001

Operating Voltage Range



9WL0912P4J001

PWM Duty - Speed Characteristics Example



9WL0912P4J001

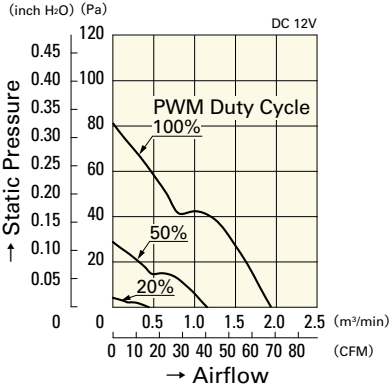
92mm sq.

San Ace 92W

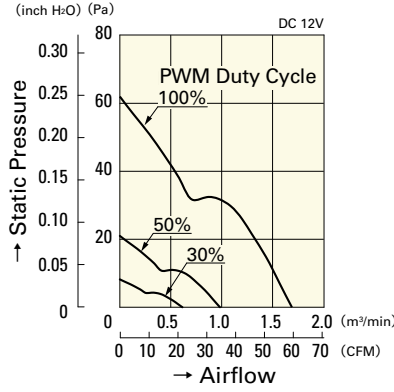
92×92×25mm [Mass : 170g]

Airflow - Static Pressure Characteristics

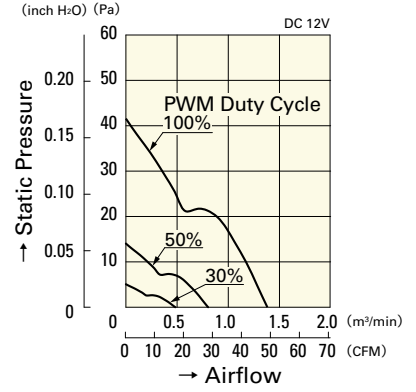
PWM Duty Cycle



9WL0912P4G001

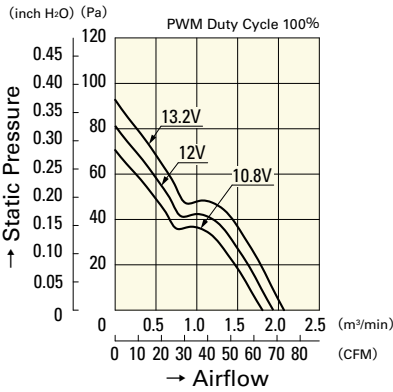


9WL0912P4S001

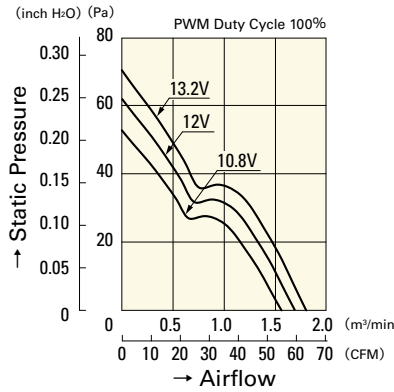


9WL0912P4H001

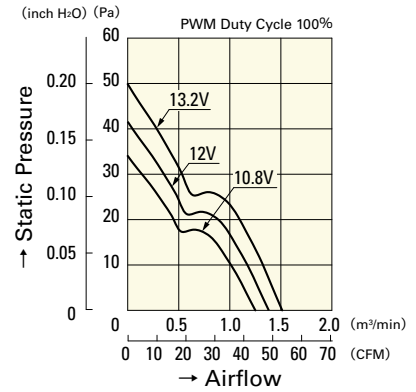
Operating Voltage Range



9WL0912P4G001

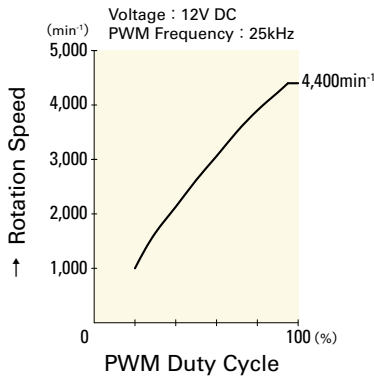


9WL0912P4S001

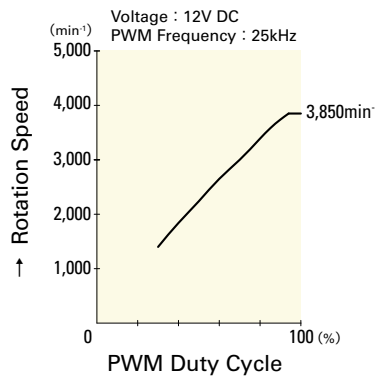


9WL0912P4H001

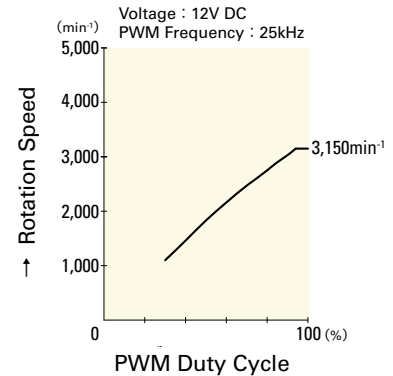
PWM Duty - Speed Characteristics Example



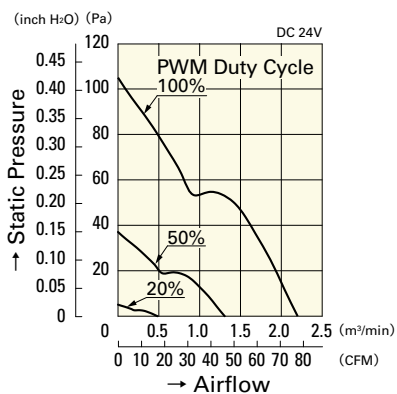
9WL0912P4G001



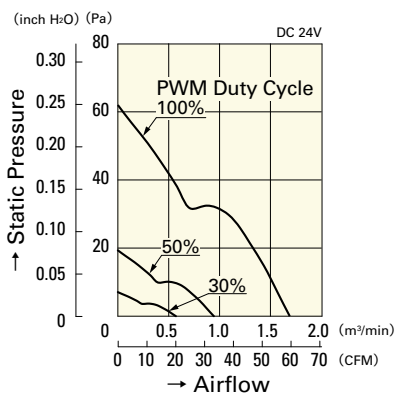
9WL0912P4S001



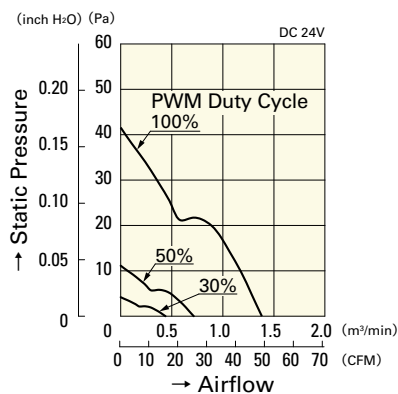
9WL0912P4H001



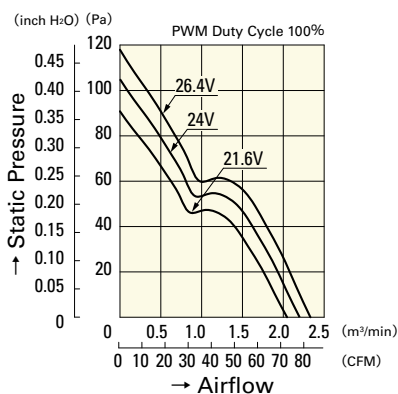
9WL0924P4J001



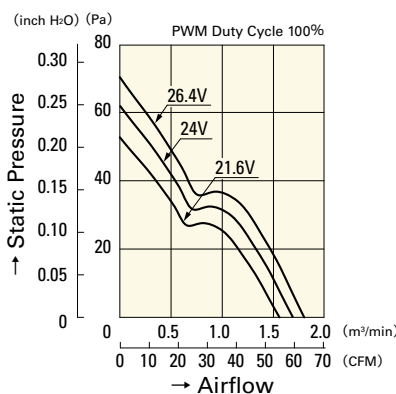
9WL0924P4S001



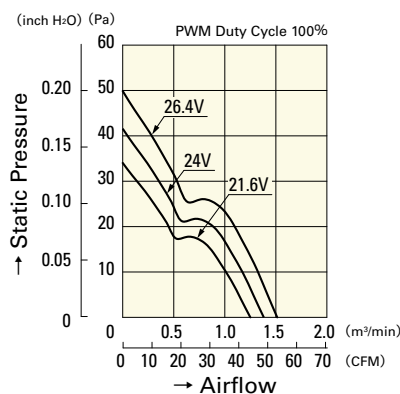
9WL0924P4H001



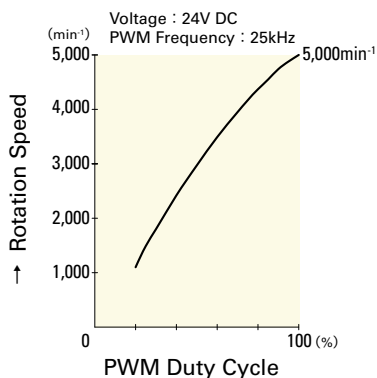
9WL0924P4J001



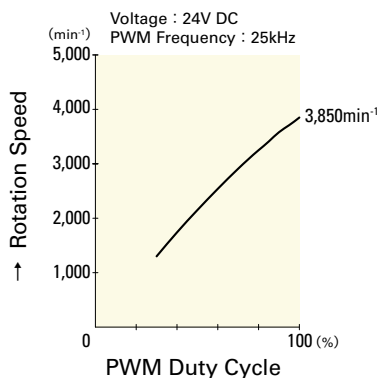
9WL0924P4S001



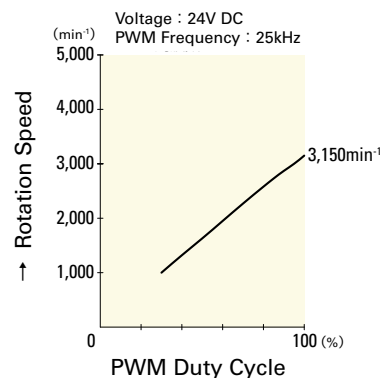
9WL0924P4H001



9WL0924P4J001



9WL0924P4S001



9WL0924P4H001

92mm sq.

San Ace 92WS



General Specifications

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

92×92×25mm (Mass : 150g) **IP 54** **9WS** type

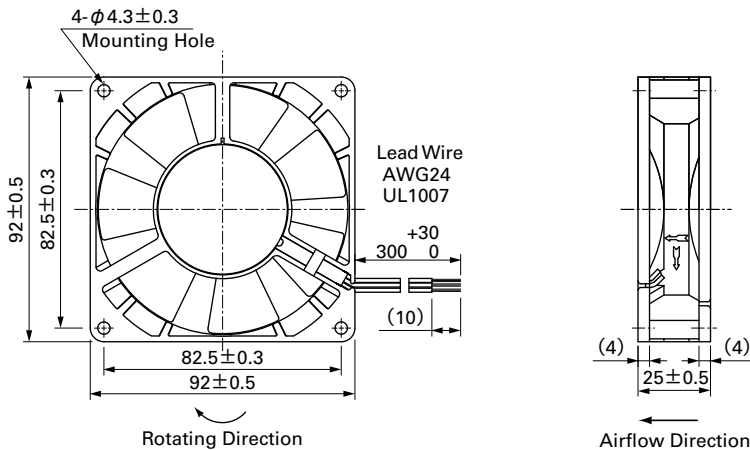
Specifications

The following nos. have pulse sensors and ribs.

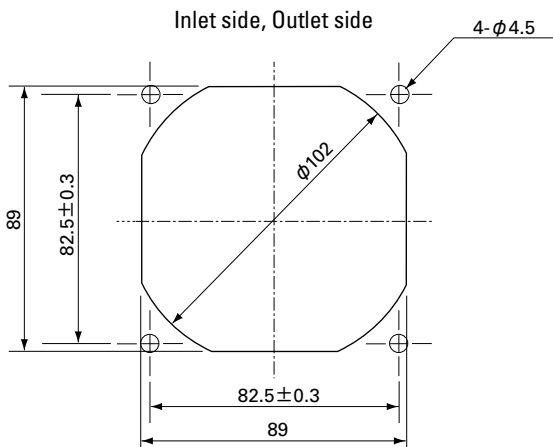
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WS0912H401	12	10.2 to 13.8	0.17	2.04	2,850	1.38	48.7	45.1	0.181	33
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

Other sensor specifications are available as options. Please refer to the index (p. 513).

Dimensions (unit: mm)



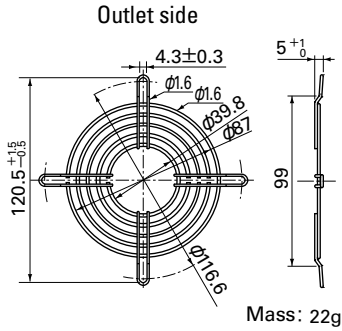
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

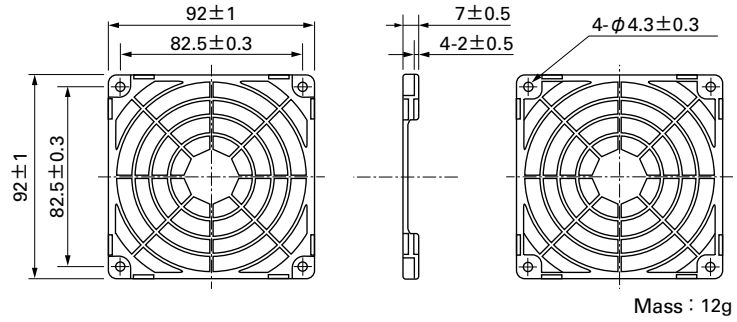
Finger Guards

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



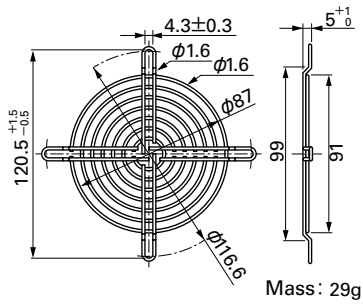
Resin Finger Guards

Model : 109-1001G

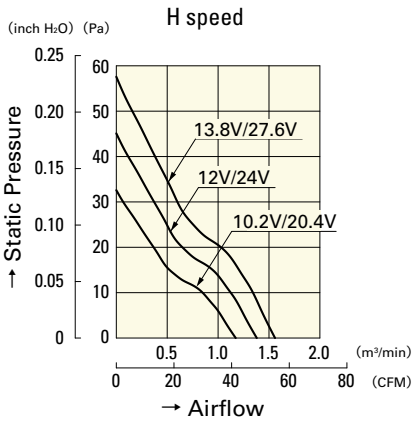


Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color : Nickel-chrome plating (silver)
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side

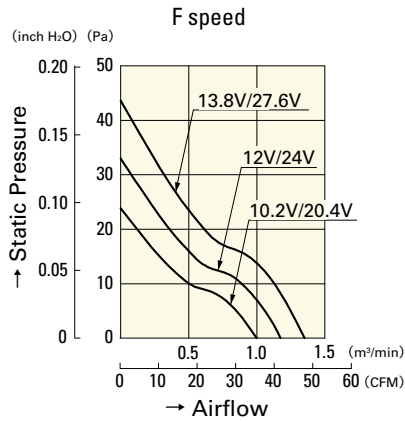


Airflow - Static Pressure Characteristics



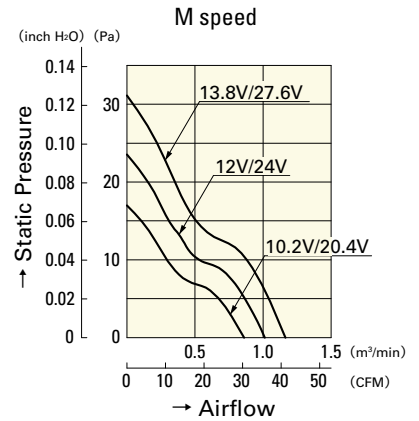
9WS0912H401

9WS0924H401



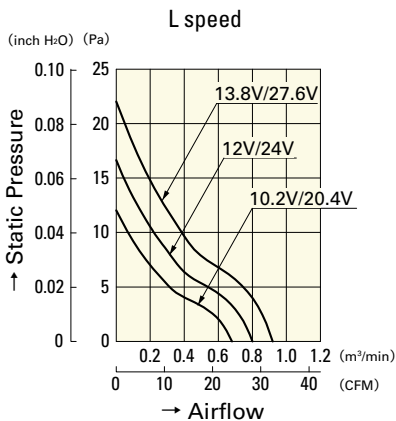
9WS0912F401

9WS0924F401



9WS0912M401

9WS0924M401



9WS0912L401

9WS0924L401

92mm sq.

San Ace 92W



Model no. 9WP0912S401, 9WP0912F401, 9WP0924S401 are not certified.

General Specifications

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

92×92×25mm (Mass : 120g) **IP 68** **9WP**type

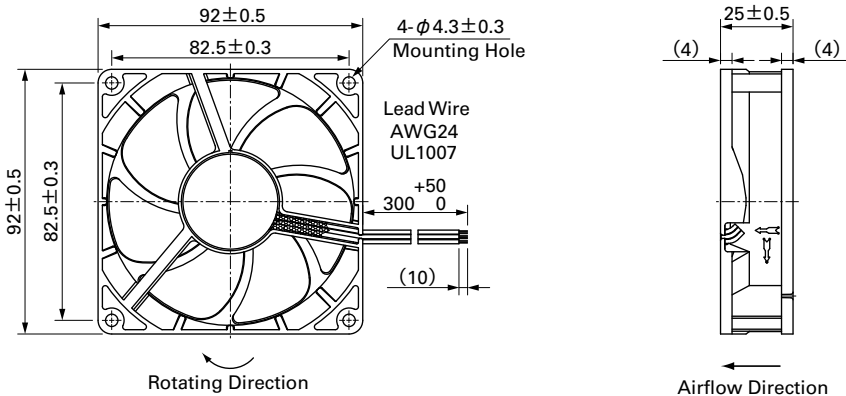
Specifications

The following nos. **have pulse sensors and ribs**. For ribless, append "1" to the model no.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]		
9WP0912S401	12	6 to 13.8	0.27	3.24	3,550	1.66	58.6	56.1	0.225	-20 to +70	40,000/60°C	
9WP0912F401			0.14	1.68	2,650	1.24	43.8	32.2	0.129			
9WP0924G401	24	12 to 27.6	0.19	4.56	3,900	1.76	62.2	66.5	0.267			43
9WP0924S401			0.15	3.6	3,550	1.66	58.6	56.1	0.225			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	-10 to +70	

Other sensor specifications are available as options. Please refer to the index (p. 512).

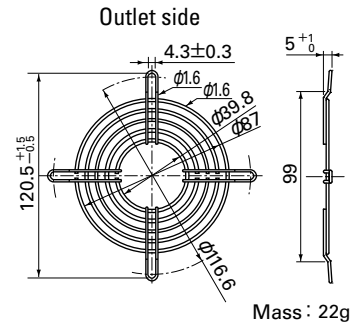
Dimensions (unit: mm)



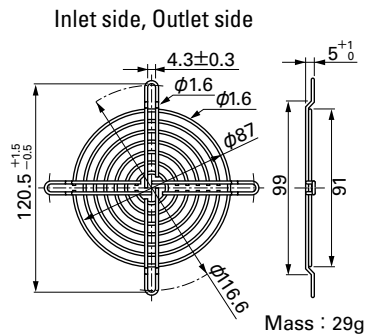
Options (unit: mm)

Finger Guards

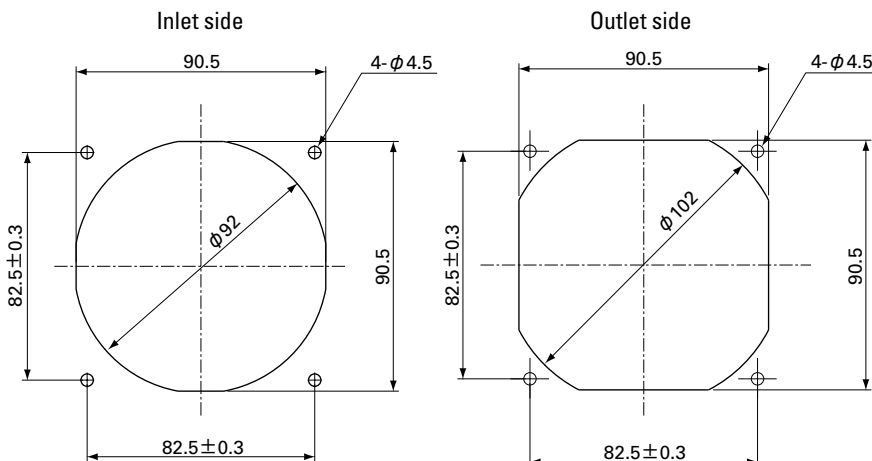
Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color



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



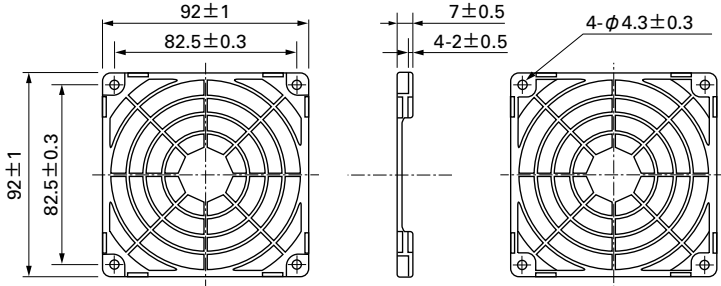
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

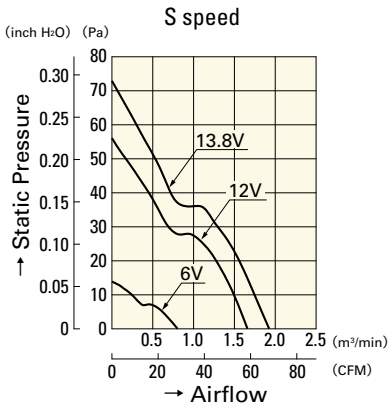
Resin Finger Guards

Model : 109-1001G

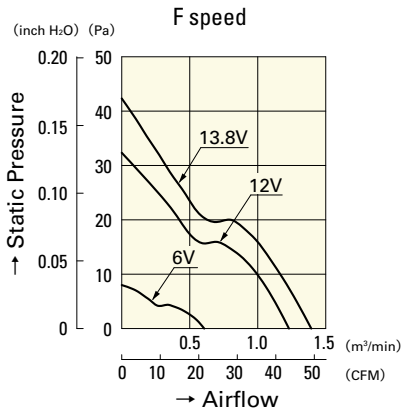


Mass : 12g

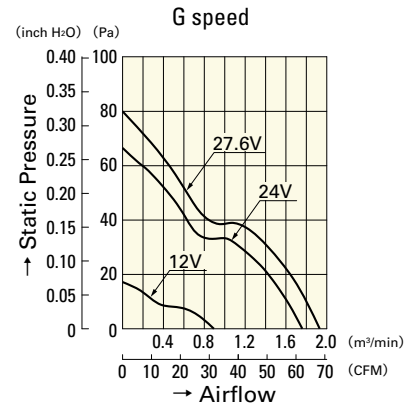
Airflow - Static Pressure Characteristics



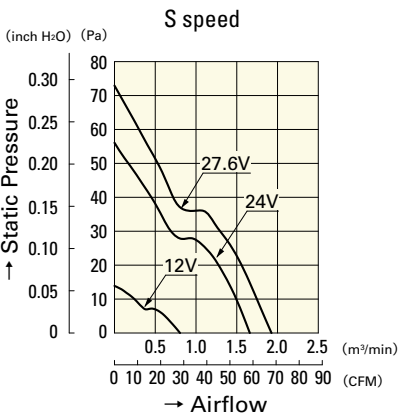
9WP0912S401



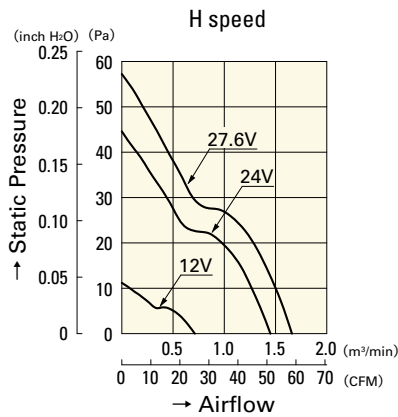
9WP0912F401



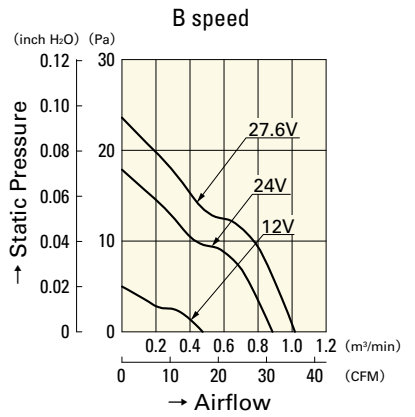
9WP0924G401



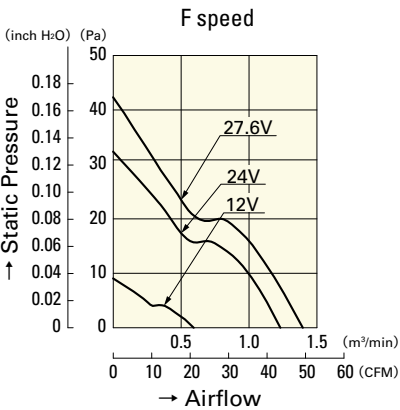
9WP0924S401



9WP0924H401



9WP0924B401



9WP0924F401

92mm sq.

San Ace 92W



General Specifications

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

92×92×38mm (Mass : 265g) **IP 68** **9WV** type

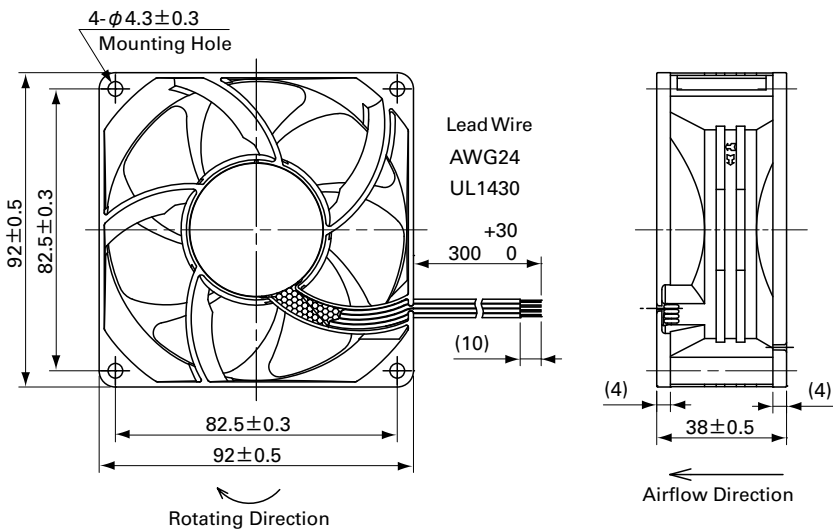
Specifications

The following nos. have PWM controls, pulse sensors, and ribs.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WV0924P1H001	24	20.4 to 26.4	100	1.6	38.4	8,500	5.05 178	385 1.55	64	-20 to +60	30,000/60°C
			20	0.16	3.84	3,000	1.78 62.9	47.9 0.19	38		
9WV0948P1H001	48	40.8 to 52.8	100	0.82	39.4	8,500	5.05 178	385 1.55	64	-20 to +70	30,000/60°C
			0	0.14	6.7	4,000	2.37 83.7	85.2 0.34	45		

*PWM Frequency : 25kHz

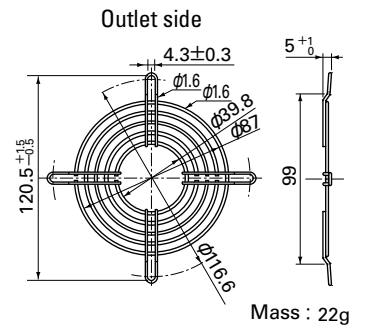
Dimensions (unit: mm)



Options (unit: mm)

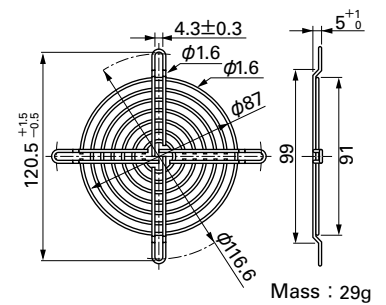
Finger Guards

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

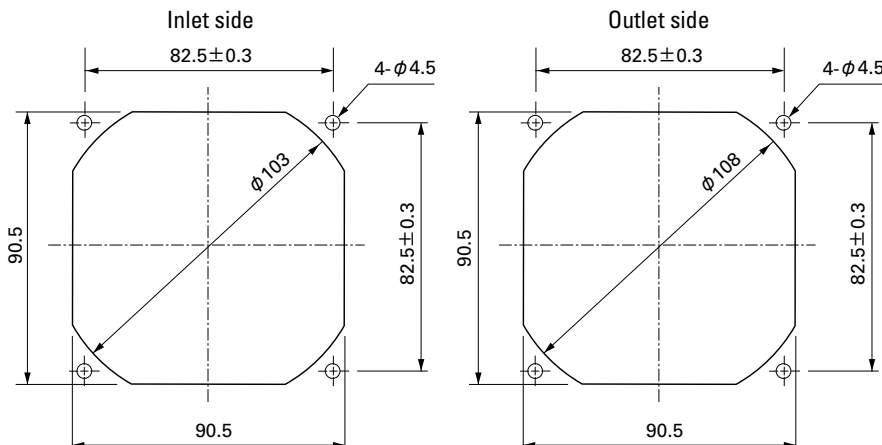


Model : 109-099E Surface treatment : Nickel-chrome plating Color (silver)
: 109-099H : Cation electropainting (black)

Inlet side, Outlet side



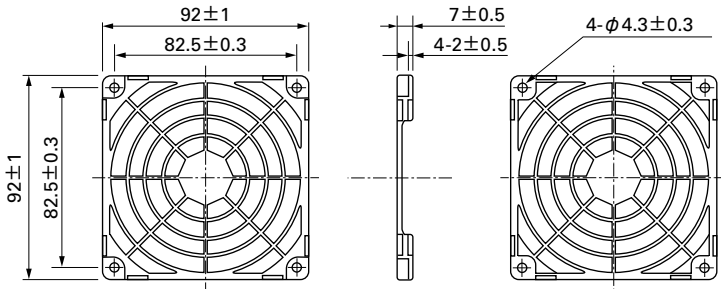
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Resin Finger Guards

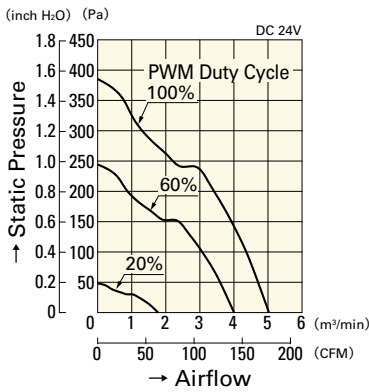
Model : 109-1001G



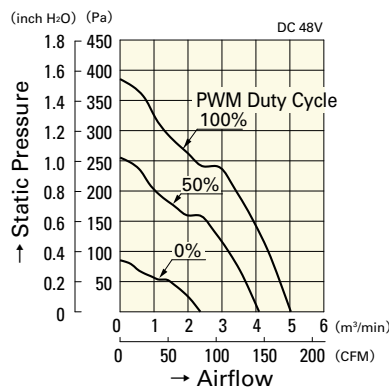
Mass : 12g

Airflow - Static Pressure Characteristics

PWM Duty Cycle

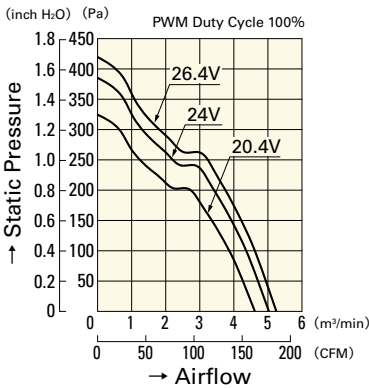


9WV0924P1H001

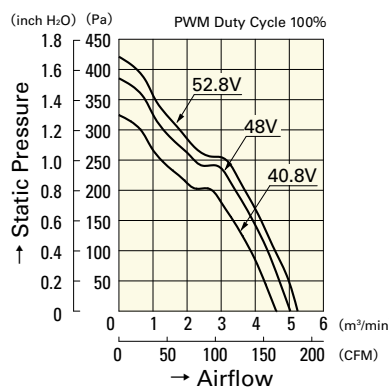


9WV0948P1H001

Operating Voltage Range

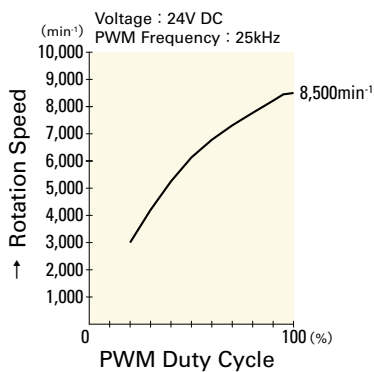


9WV0924P1H001

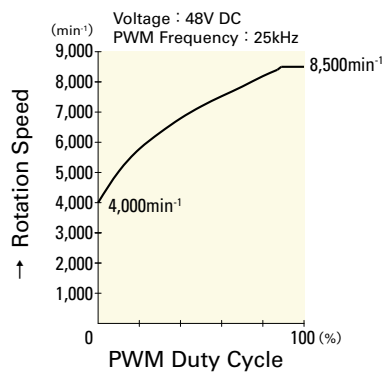


9WV0948P1H001

PWM Duty - Speed Characteristics Example



9WV0924P1H001



9WV0948P1H001

120mm sq.

San Ace 120W



General Specifications

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

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

Specifications

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

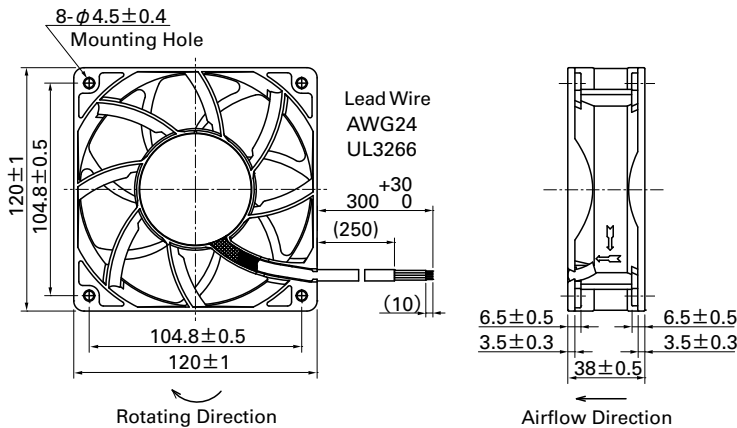
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WV1212P1J001	12	10.2 to 13.8	100	3	36	6,400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

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

※PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 513).

Dimensions (unit: mm)

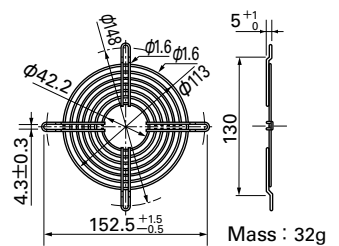


Options (unit: mm)

Finger Guards

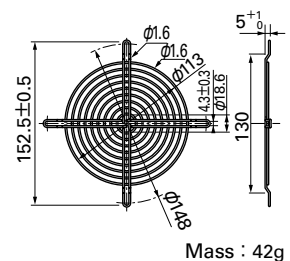
Model : 109-019C Surface treatment : Nickel-chrome plating (silver)
: 109-019H : Cation electropainting (black)

Outlet side

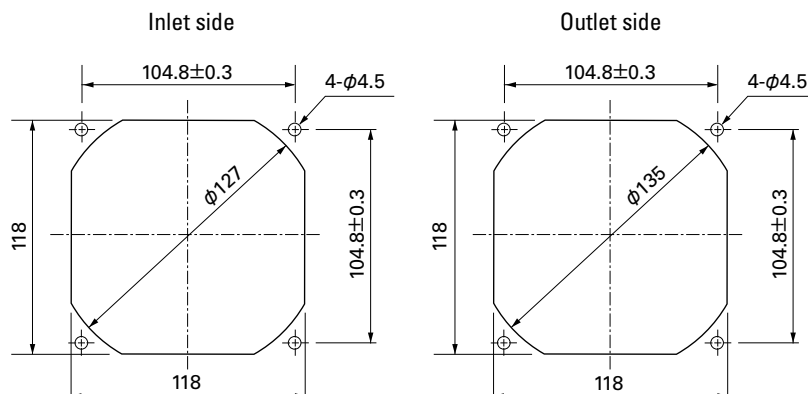


Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
: 109-019K : Cation electropainting (black)

Inlet side, Outlet side



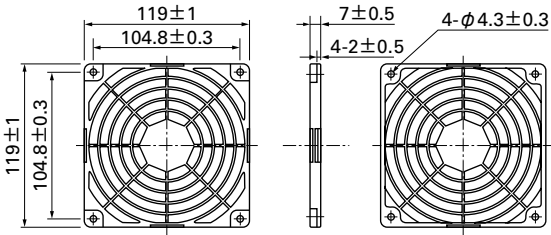
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Resin Finger Guards

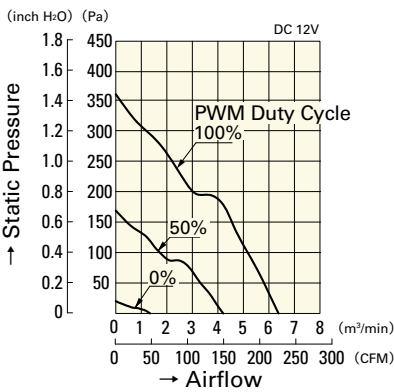
Model : 109-1000G



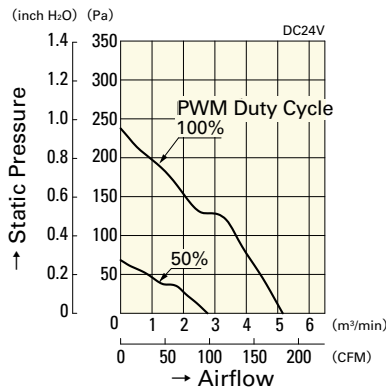
Mass : 23g

Airflow - Static Pressure Characteristics

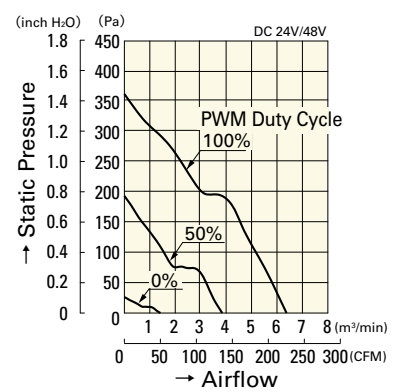
PWM Duty Cycle



9WV1212P1J001

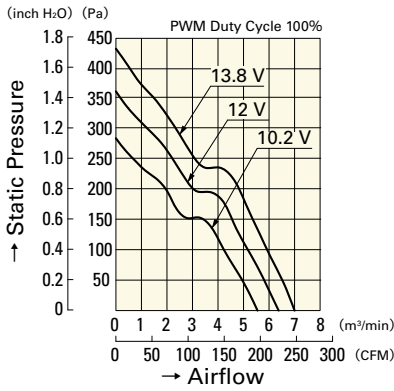


9WV1224P1H001

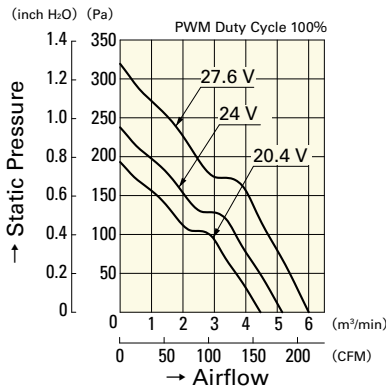


9WV1224P1J601
9WV1248P1J001

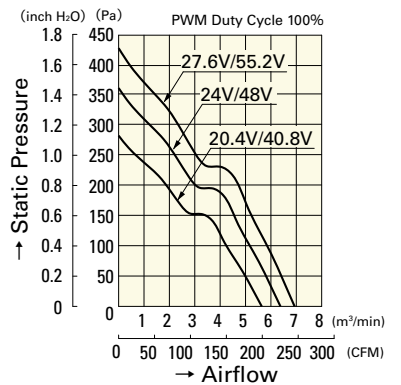
Operating Voltage Range



9WV1212P1J001

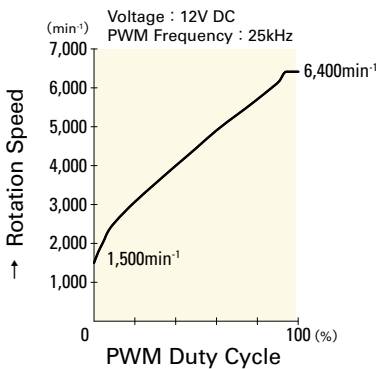


9WV1224P1H001

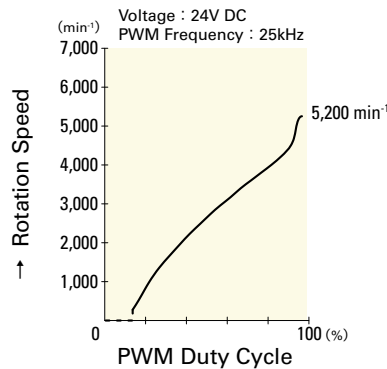


9WV1224P1J601
9WV1248P1J001

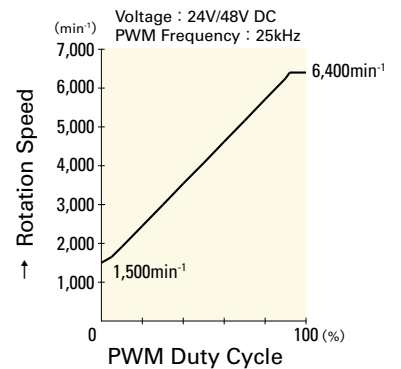
PWM Duty - Speed Characteristics Example



9WV1212P1J001



9WV1224P1H001



9WV1224P1J601
9WV1248P1J001

120mm sq.

San Ace 120W



General Specifications

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

120×120×38mm (Mass : 360g) **IP 68** **9WP** type

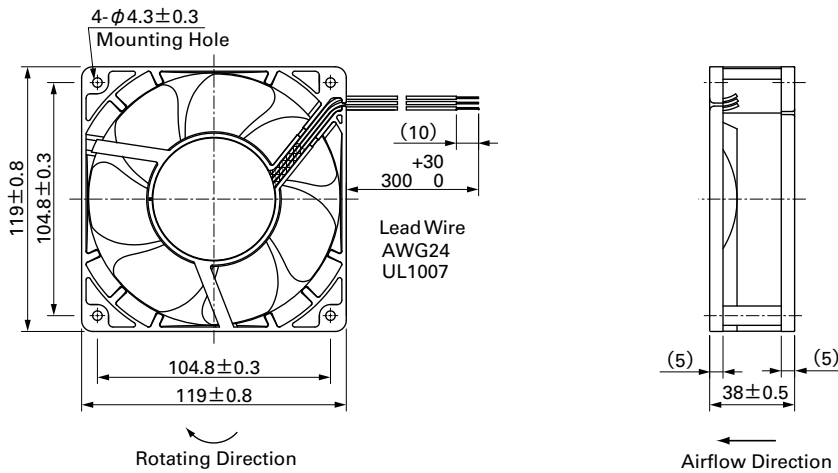
Specifications

The following nos. **have pulse sensors and ribs**. For ribless, append "1" to the model no.

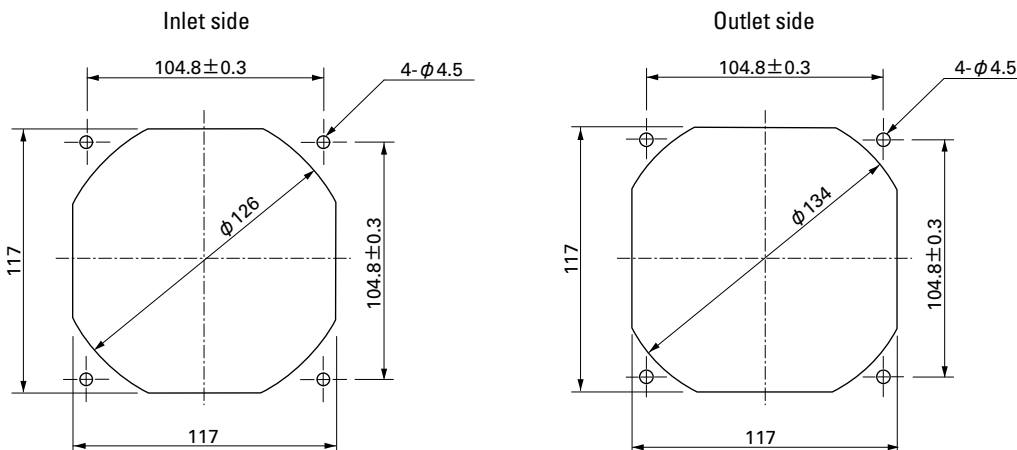
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WP1212H101	12	7.0 to 13.8	0.38	4.56	2,600	2.80	99	70.4	0.283	39
9WP1212L101		10.2 to 13.8	0.14	1.68	1,500	1.62	57.2	23.4	0.094	26
9WP1224H101	24	14.0 to 27.6	0.22	5.28	2,600	2.80	99	70.4	0.283	39
9WP1248H101	48	40.8 to 55.2	0.11	5.28	2,600	2.80	99	70.4	0.283	39

Other sensor specifications are available as options. Please refer to the index (p. 512).

Dimensions (unit: mm) (With ribs)



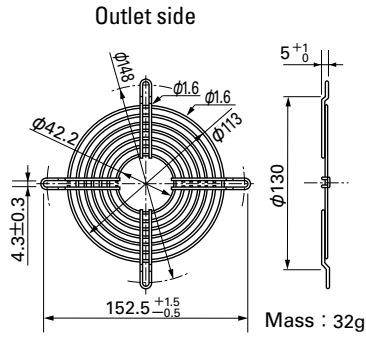
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

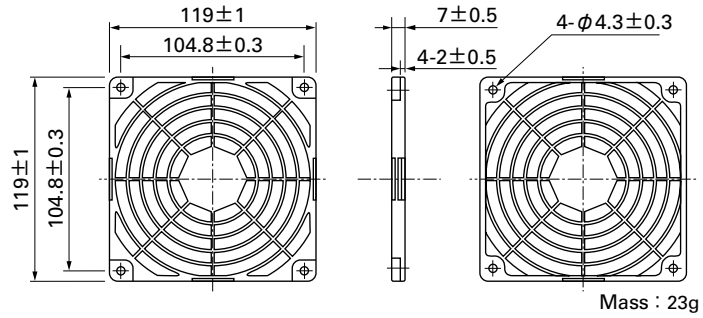
Finger Guards

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



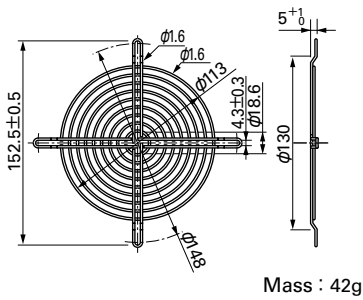
Resin Finger Guards

Model : 109-1000G



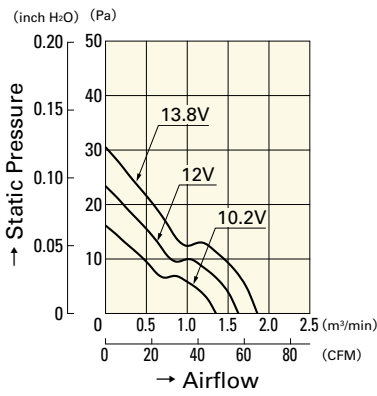
Model : 109-019E Surface treatment : Nickel-chrome plating (silver) Color (silver)
 : 109-019K : Cation electropainting (black)

Inlet side, Outlet side



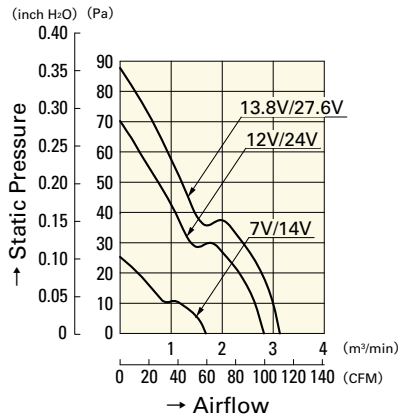
Airflow - Static Pressure Characteristics

L speed



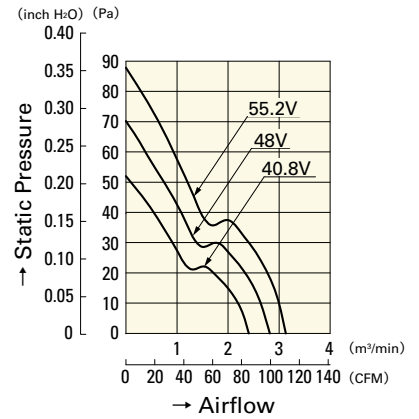
9WP1212L101

H speed



9WP1212H101
9WP1224H101

H speed



9WP1248H101

120 mm sq.

San Ace 120W



General Specifications

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

120×120×38mm [Mass : 410g] **IP 55** **9WG type**

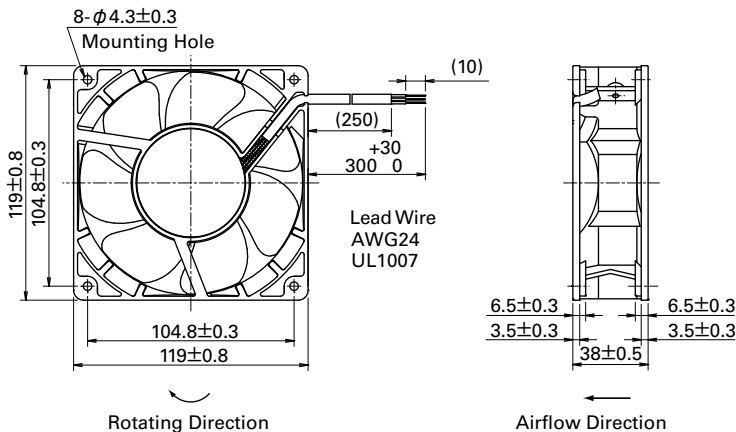
Specifications

The following nos. have pulse sensors.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]	
9WG1212G101-E	12	10.2 to 13.8	0.98	11.76	3,600	3.88 137	135 0.542	49	- 20 to + 70	80,000/60°C	
9WG1212E101-E			0.61	7.32	3,100	3.34 118	100 0.402	46		100,000/60°C	
9WG1212H101-E		7 to 13.8	0.38	4.56	2,600	2.80 99	70.4 0.283	39		80,000/60°C	
9WG1212F101-E			0.28	3.36	2,280	2.45 87	54.2 0.218	36		100,000/60°C	
9WG1212M101-E			0.21	2.52	1,950	2.10 74	39.6 0.159	32		80,000/60°C	
9WG1224G101-E	24	20.4 to 27.6	0.50	12	3,600	3.88 137	135 0.542	49		- 20 to + 70	80,000/60°C
9WG1224E101-E			0.34	8.16	3,100	3.34 118	100 0.402	46			100,000/60°C
9WG1224H101-E		14 to 27.6	0.22	5.28	2,600	2.80 99	70.4 0.283	39			80,000/60°C
9WG1224F101-E			0.16	3.84	2,280	2.45 87	54.2 0.218	36			100,000/60°C
9WG1224M101-E			0.11	2.64	1,950	2.10 74	39.6 0.159	32			80,000/60°C
9WG1248G101-E	48	40.8 to 55.2	0.25	12	3,600	3.88 137	135 0.542	49	- 20 to + 70		80,000/60°C
9WG1248E101-E			0.17	8.16	3,100	3.34 118	100 0.402	46			100,000/60°C
9WG1248H101-E			0.11	5.28	2,600	2.80 99	70.4 0.283	39			80,000/60°C
9WG1248F101-E			0.09	4.32	2,280	2.45 87	54.2 0.218	36			100,000/60°C
9WG1248M101-E			0.07	3.36	1,950	2.10 74	39.6 0.159	32			80,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)

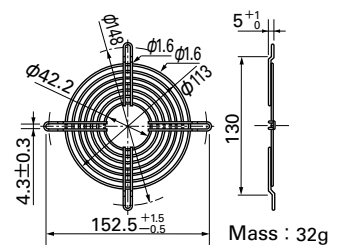


Options (unit: mm)

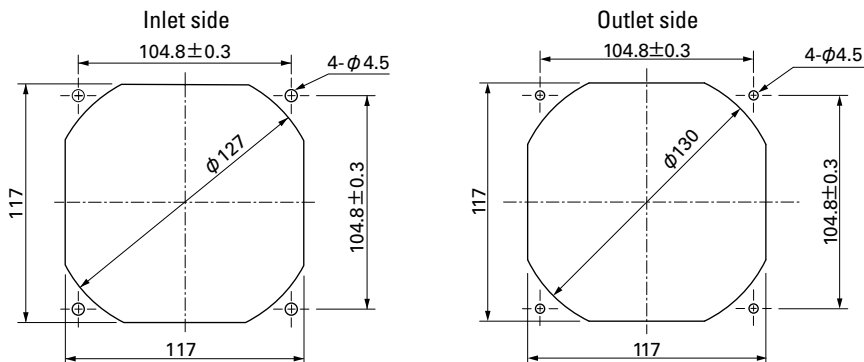
Finger Guards

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

Outlet side

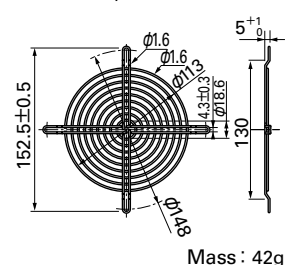


Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



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

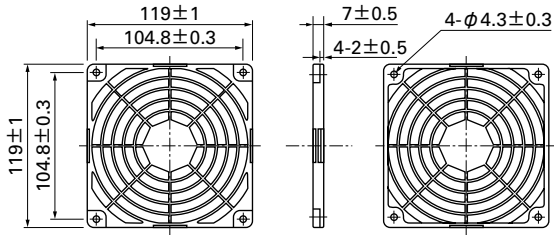
Inlet side, Outlet side



Options (unit: mm)

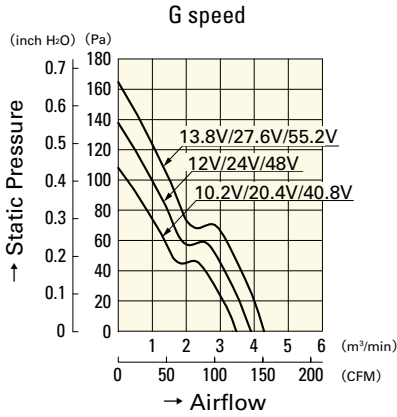
Resin Finger Guards

Model : 109-1000G

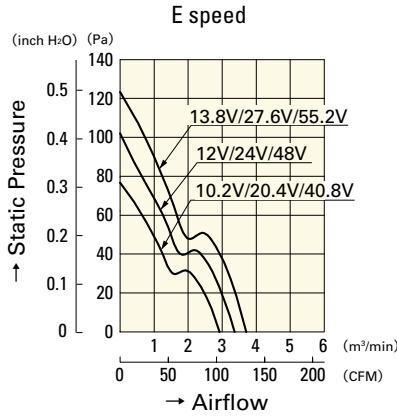


Mass : 23g

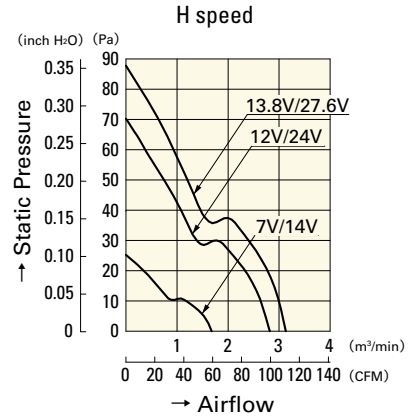
Airflow - Static Pressure Characteristics



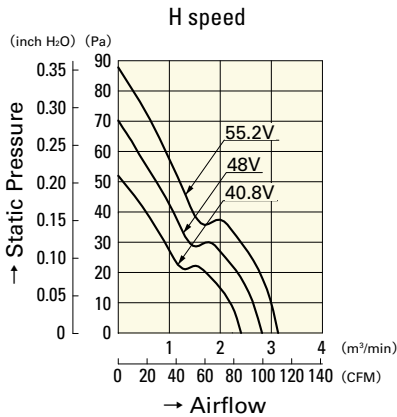
9WG1212G101-E
9WG1224G101-E
9WG1248G101-E



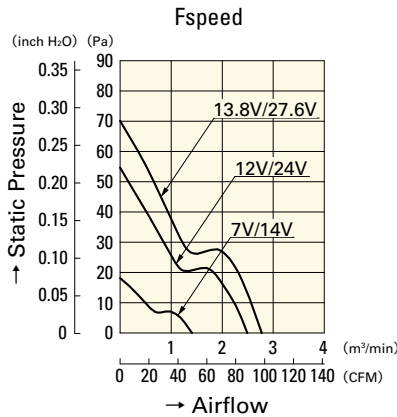
9WG1212E101-E
9WG1224E101-E
9WG1248E101-E



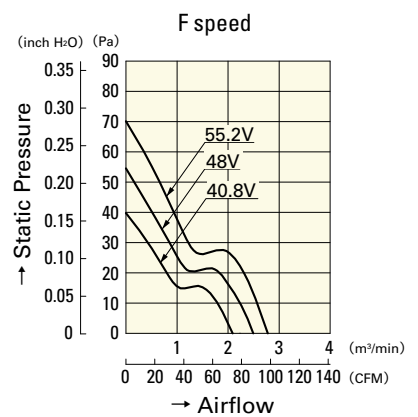
9WG1212H101-E
9WG1224H101-E



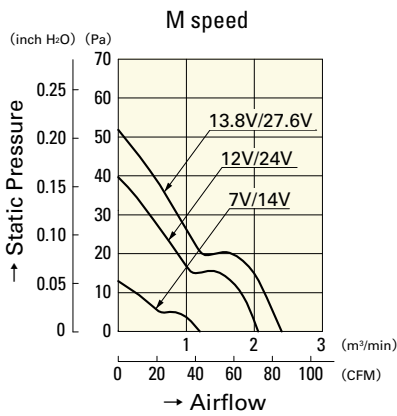
9WG1248H101-E



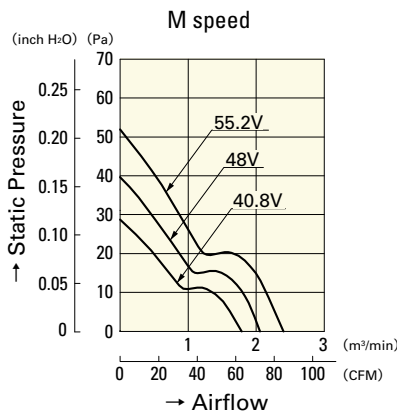
9WG1212F101-E
9WG1224F101-E



9WG1248F101-E



9WG1212M101-E
9WG1224M101-E



9WG1248M101-E

120mm sq.

San Ace 120WS



General Specifications

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

120×120×38mm (Mass : 260g) **IP 54** **9WS type**

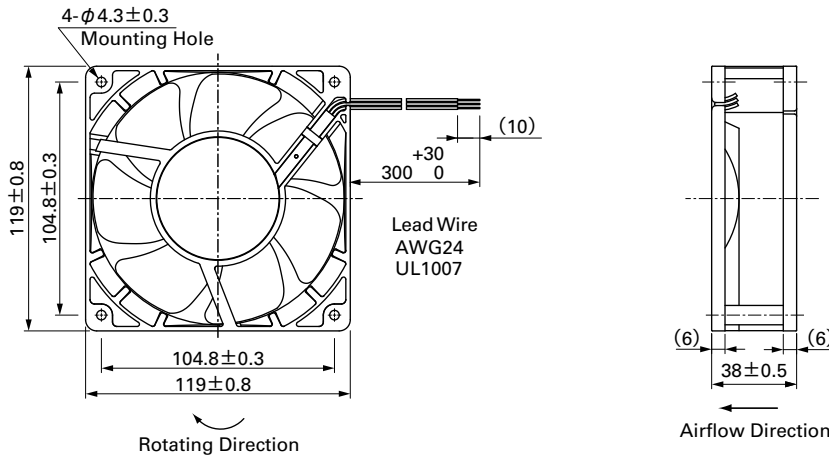
Specifications

The following nos. **have pulse sensors and ribs**. For ribless, append "1" to the model no.

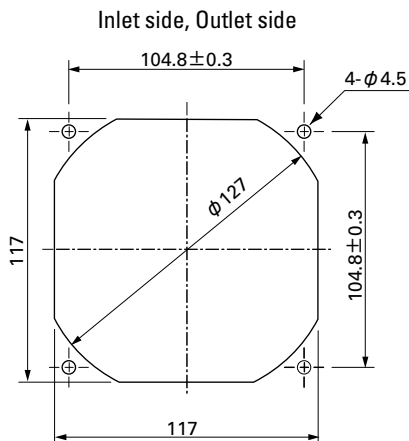
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WS1212H101	12	6 to 13.2	0.47	5.64	2,600	2.9 102.4	67.62 0.272	39	- 20 to + 60	40,000/60°C
9WS1212M101		6 to 13.8	0.23	2.76	1,950	2.2 77.7	42.14 0.169	32	- 20 to + 70	
9WS1224H101	24	12 to 26.4	0.23	5.52	2,600	2.9 102.4	67.62 0.272	39	- 20 to + 60	
9WS1224M101		12 to 27.6	0.13	3.12	1,950	2.2 77.7	42.14 0.169	32	- 20 to + 70	
9WS1248H101	48	40.8 to 52.8	0.13	6.24	2,600	2.9 102.4	67.62 0.272	39	- 20 to + 60	
9WS1248M101		40.8 to 55.2	0.07	3.36	1,950	2.2 77.7	42.14 0.169	32	- 20 to + 70	

Other sensor specifications are available as options. Please refer to the index (p. 513).

Dimensions (unit: mm) (With ribs)



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

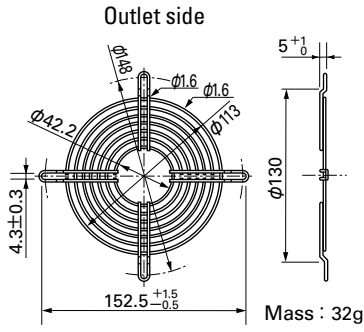


Options (unit: mm)

Finger Guards

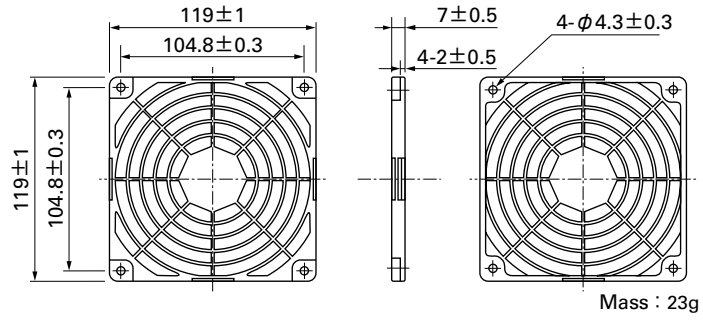
Model : 109-019C Surface treatment : Nickel-chrome plating (silver)
 : 109-019H : Cation electropainting (black)

Color



Resin Finger Guards

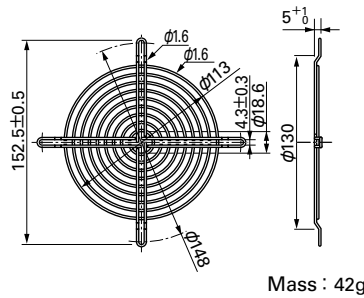
Model : 109-1000G



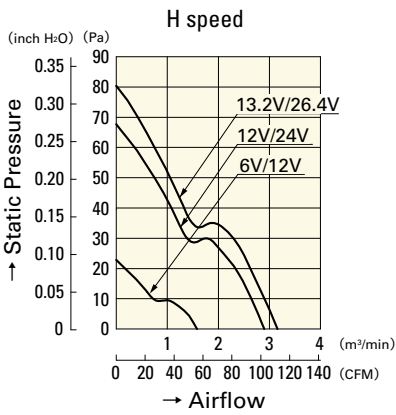
Model : 109-019E Surface treatment : Nickel-chrome plating (silver)
 : 109-019K : Cation electropainting (black)

Color

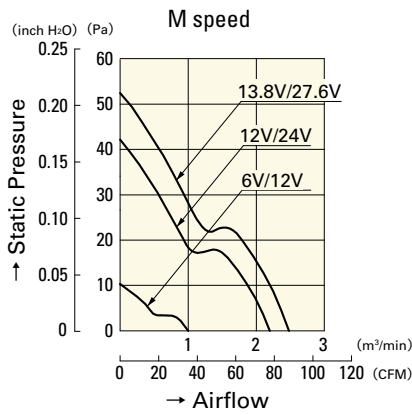
Inlet side, Outlet side



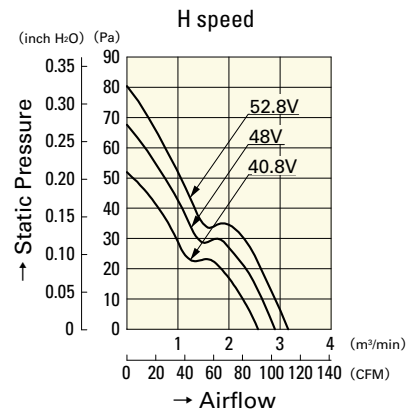
Airflow - Static Pressure Characteristics



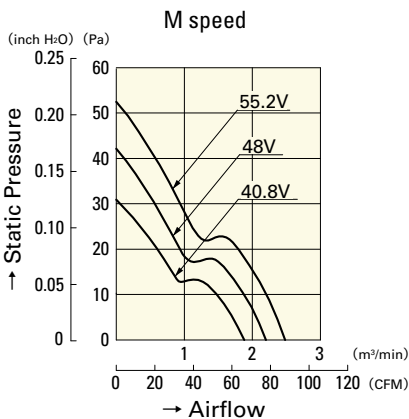
9WS1212H101
9WS1224H101



9WS1212M101
9WS1224M101



9WS1248H101



9WS1248M101

DC

Splash Proof Fan 120mm

140 mm sq.

San Ace 140W



General Specifications

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

140×140×38mm (Mass : 650g) **IP 68** **9W** type

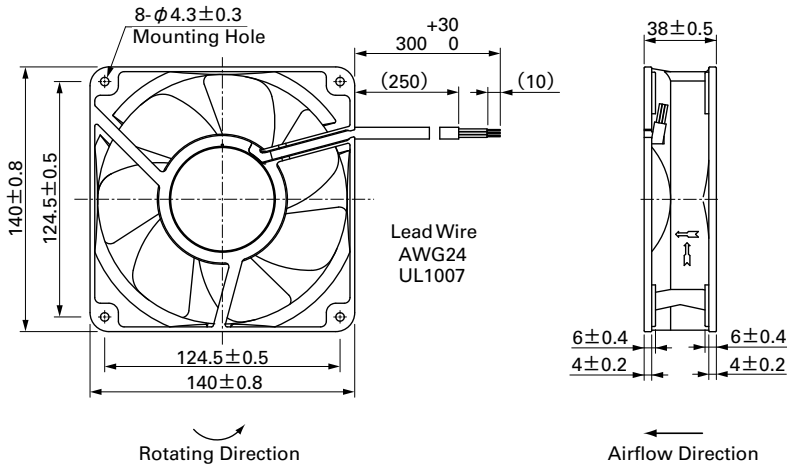
Specifications

The following nos. **have pulse sensors.**

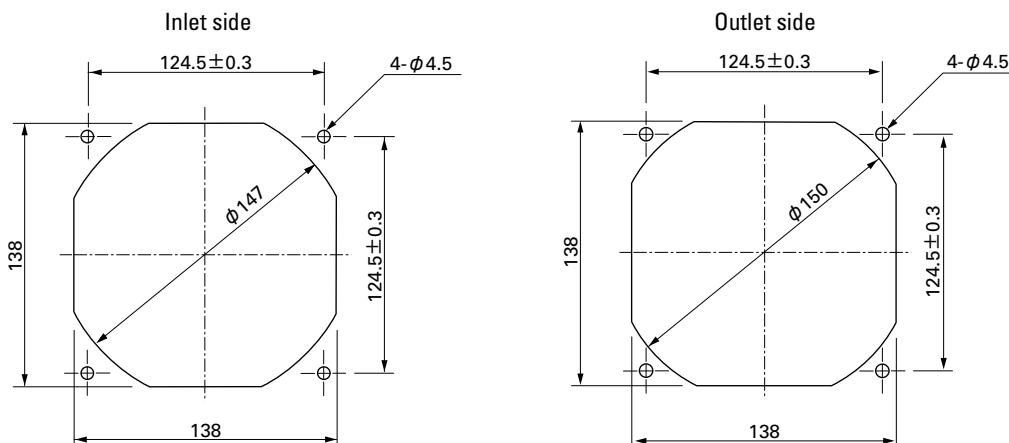
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109W1412H101-U	12	10.2 to 13.8	0.73	8.76	2,600	4.5 159	98 0.394	46	- 20 to + 70	100,000/60°C
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	4.6 159	98 0.394	46		
109W1448M101-U			0.09	4.32	1,900	3.3 117	52 0.209	38		

Other sensor specifications are available as options. Please refer to the index (p. 499).

Dimensions (unit: mm)



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



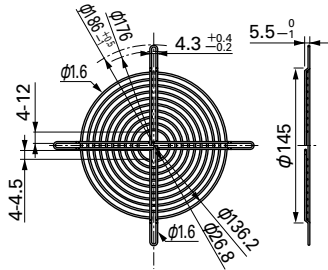
Options (unit: mm)

Finger Guards

Model : 109-719 Surface treatment : Nickel-chrome plating Color (silver)

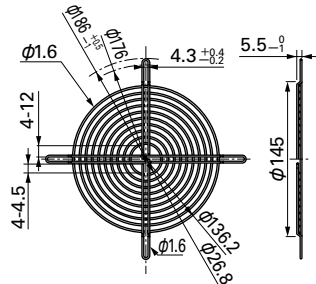
Model : 109-719H Surface treatment : Cation electropainting Color (black)

Inlet side, Outlet side



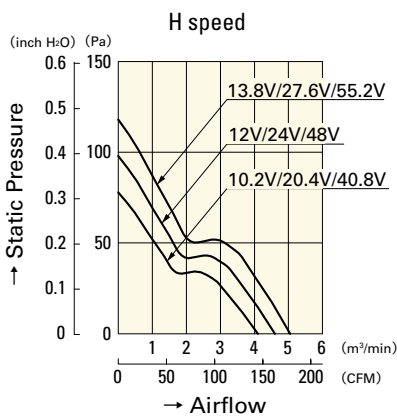
Mass : 51g

Inlet side, Outlet side



Mass : 51g

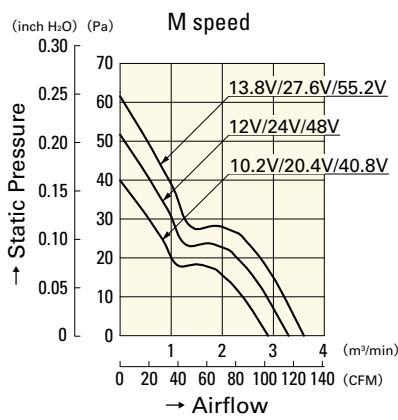
Airflow - Static Pressure Characteristics



109W1412H101-U

109W1424H101-U

109W1448H101-U



109W1412M101-U

109W1424M101-U

109W1448M101-U

140mm sq.

San Ace 140W



General Specifications

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

140×140×51mm (Mass : 700g) **IP 68** **9WB type**

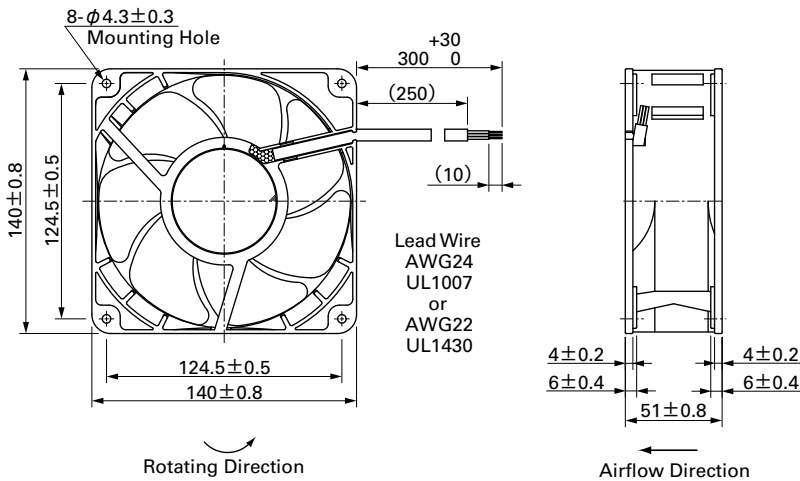
Specifications

The following nos. have pulse sensors.

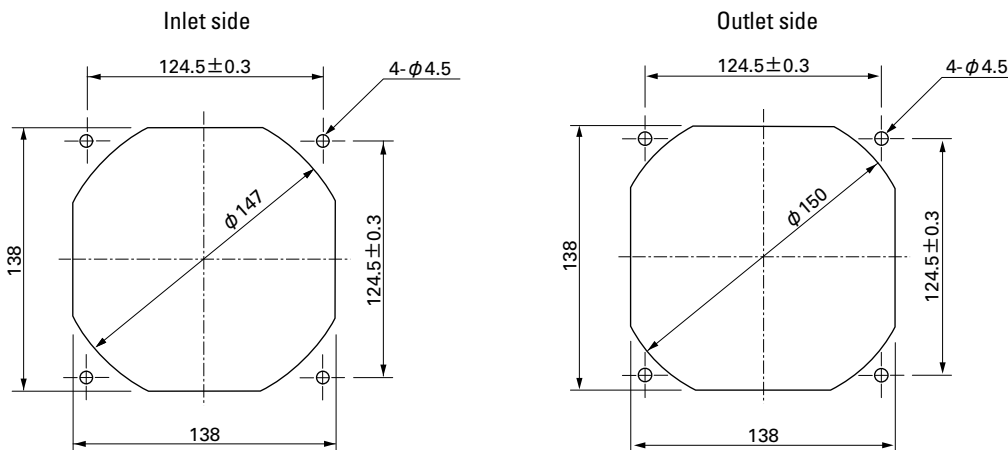
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WB1412S501	12	10.2 to 13.8	2.7	32.4	4,200	8.1 286.2	240 0.96	57	- 20 to + 70	60,000/60°C
9WB1412H501			1.25	15	3,100	5.9 208.5	130 0.52	49		100,000/60°C
9WB1412M501			0.46	5.52	2,050	3.9 138	63 0.25	39		100,000/60°C
9WB1424H501	24	20.4 to 27.6	0.6	14.4	3,100	5.9 208.5	130 0.52	49		60,000/60°C
9WB1424M501			0.22	5.28	2,050	3.9 138	63 0.25	39		100,000/60°C
9WB1448S501	48	40.8 to 55.2	0.71	34.08	4,200	8.1 286.2	240 0.96	57		60,000/60°C
9WB1448H501			0.27	12.96	3,100	5.9 208.5	130 0.52	49	100,000/60°C	

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



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



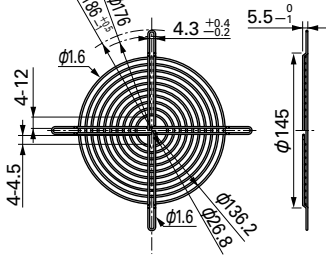
Options (unit: mm)

Finger Guards

Model : 109-719 Surface treatment : Nickel-chrome plating Color (silver)

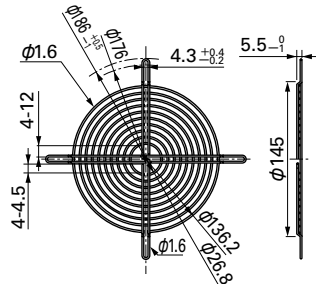
Model : 109-719H Surface treatment : Cation electropainting Color (black)

Inlet side, Outlet side



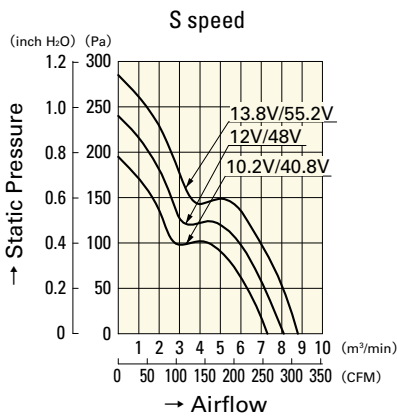
Mass : 51g

Inlet side, Outlet side

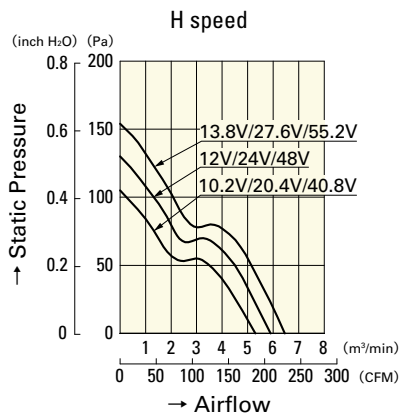


Mass : 51g

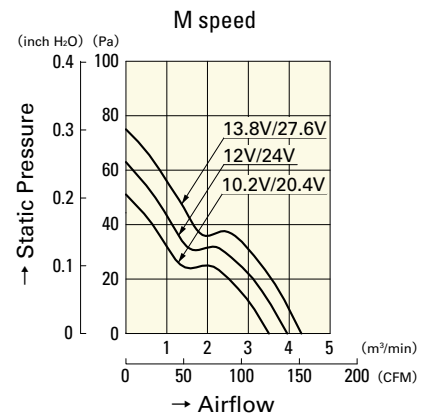
Airflow - Static Pressure Characteristics



9WB1412S501
9WB1448S501



9WB1412H501
9WB1424H501
9WB1448H501



9WB1412M501
9WB1424M501

Splash Proof Fan

φ **172**mm

San Ace 172W



General Specifications

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

φ **172mm** × **150mm** × **51mm** (Mass : 860g) **IP 68** **9WG type** **Sidecut type**

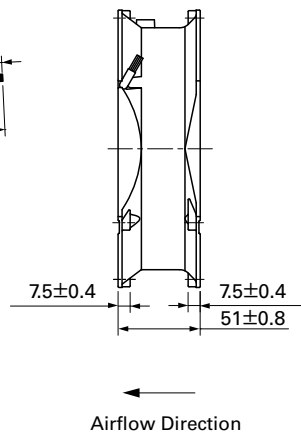
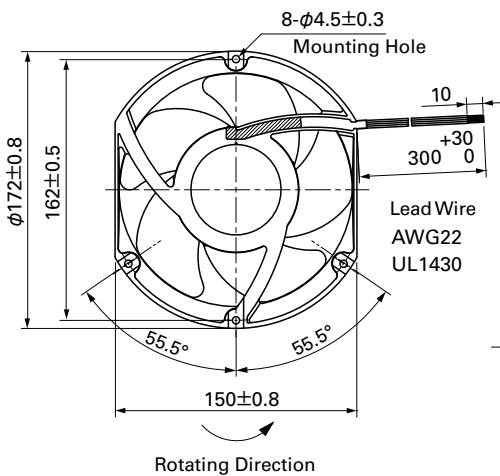
Specifications The following nos. have PWM controls and pulse sensors.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WG5748P5G001	48	40.8 to 55.2	100	2.91	140.0	8,600	15.46 546	1,000 4.02	78	-20 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		

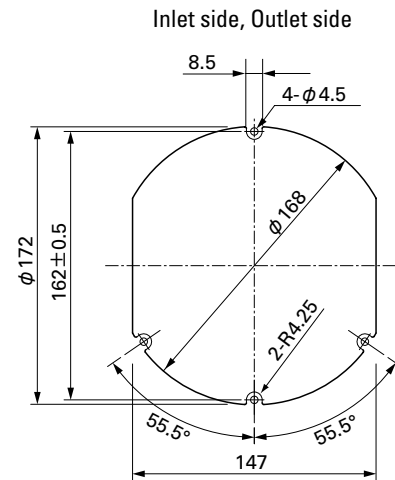
※PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



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



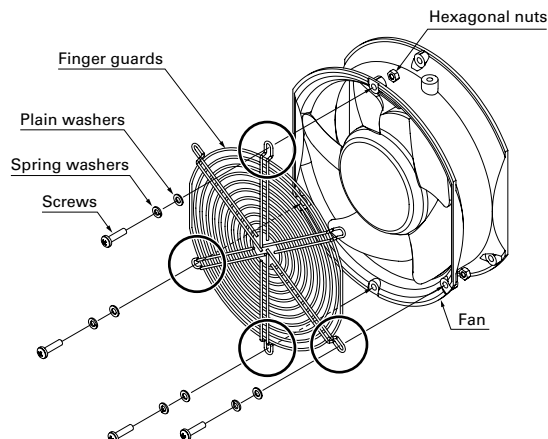
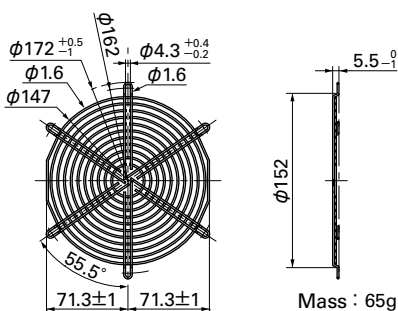
Options (unit: mm)

Finger Guards

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

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

Inlet side, Outlet side



Options (unit: mm)

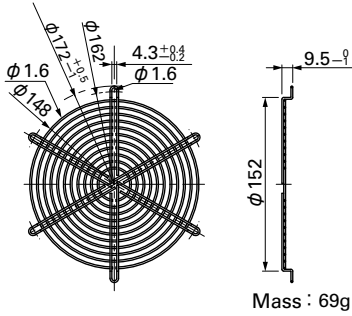
Finger Guards

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

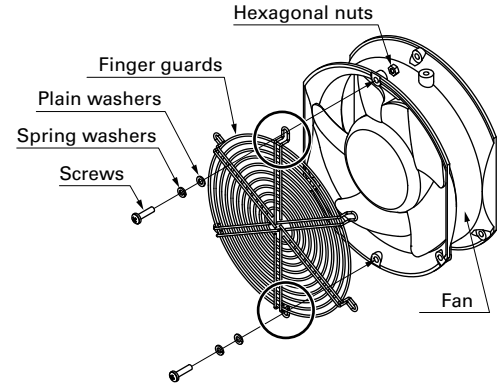
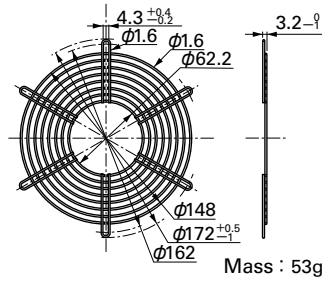
Model : 109-320 Surface treatment : Nickel-chrome plating Color : (silver)

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

Inlet side, Outlet side

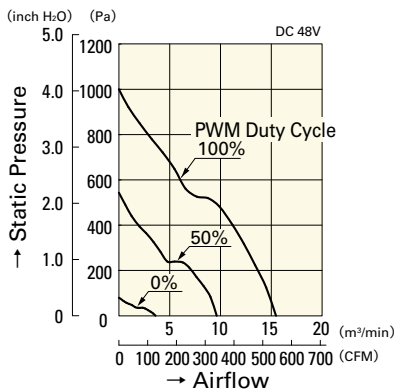


Outlet side

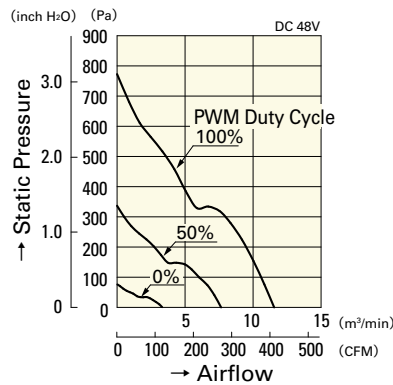


Airflow - Static Pressure Characteristics

PWM Duty Cycle

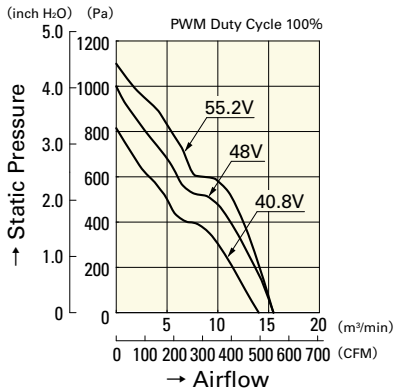


9WG5748P5G001

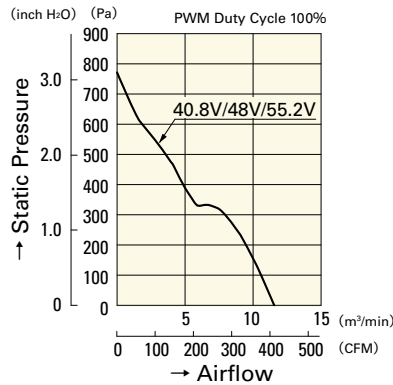


9WG5748P5H001

Operating Voltage Range

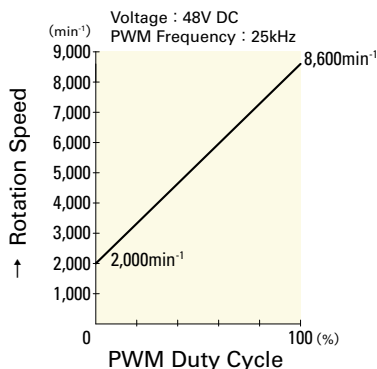


9WG5748P5G001

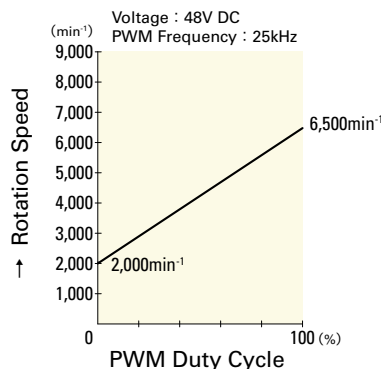


9WG5748P5H001

PWM Duty - Speed Characteristics Example



9WG5748P5G001



9WG5748P5H001

φ 172mm

San Ace 172W



General Specifications

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

φ 172mm × 150mm × 51mm (Mass : 860g) **IP 68** **9WE type** **Sidecut type**

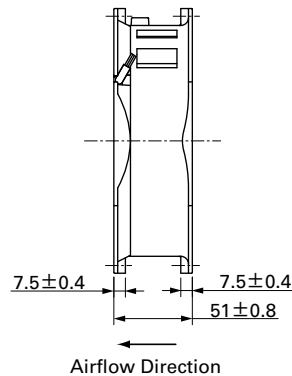
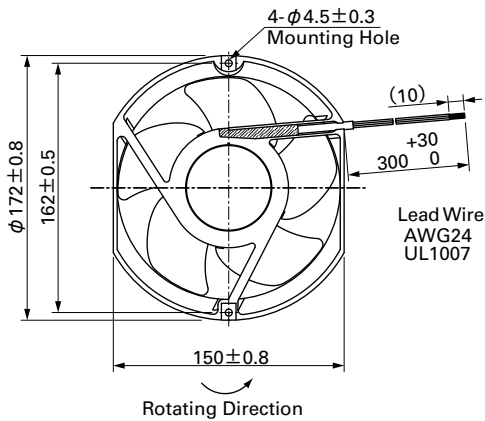
Specifications

The following nos. **have pulse sensors.**

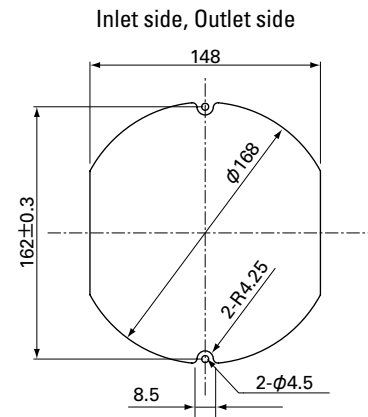
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WE5724K501	24	20.4 to 27.6	1.3	31.2	4,100	8.5 300	243 0.976	60	- 20 to + 60	40,000/60°C
9WE5748K501	48	40.8 to 55.2	0.7	33.6	4,100	8.5 300	243 0.976	60		40,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



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



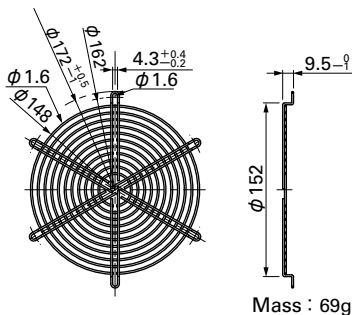
Options (unit: mm)

Finger Guards

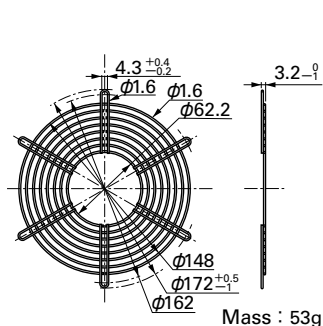
Model : 109-319E Surface treatment : Nickel-chrome plating (silver) Color : 109-319H : Cation electropainting (black)

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

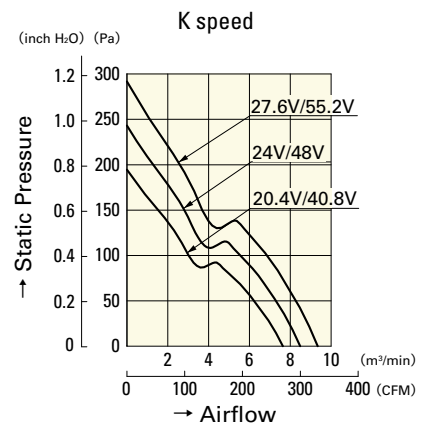
Inlet side, Outlet side



Outlet side



Airflow - Static Pressure Characteristics



9WE5724K501
9WE5748K501

φ172mm

San Ace 172W



DC
Splash Proof Fan 172mm

General Specifications

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

φ172mm×51mm (Mass : 890g) **IP 68** **9WE type** **Round type**

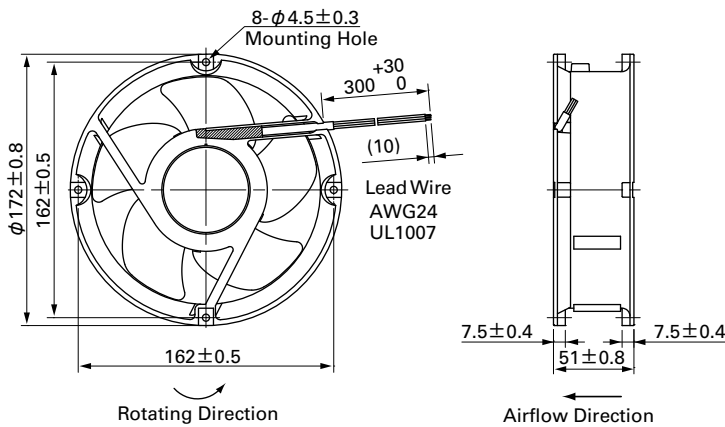
Specifications

The following nos. have pulse sensors.

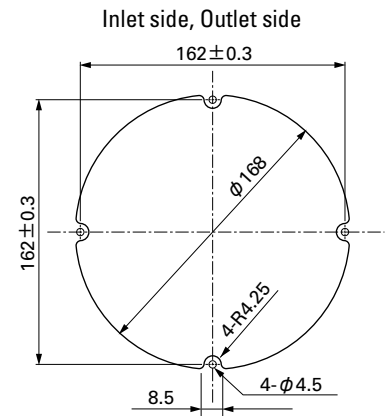
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WE1724K501	24	20.4 to 27.6	1.3	31.2	4,100	8.5 300.1	243 0.97	55	- 20 to + 60	40,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



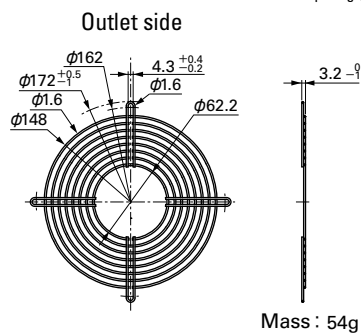
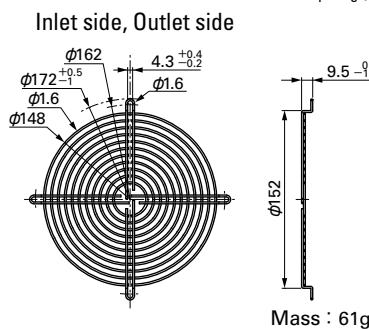
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



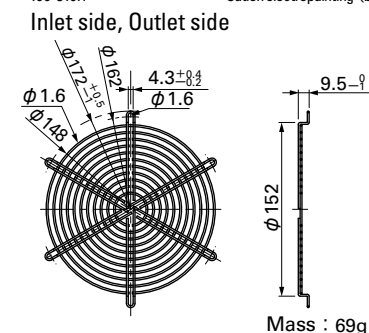
Options (unit: mm)

Finger Guards

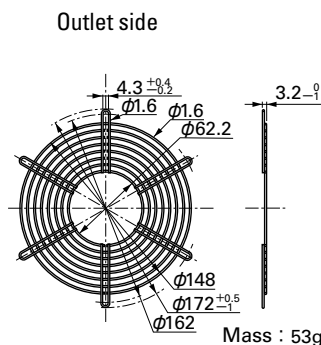
Model : 109-1066 Surface treatment : Nickel-chrome plating (silver) Color : silver
Model : 109-1068 Surface treatment : Nickel-chrome plating (silver) Color : silver



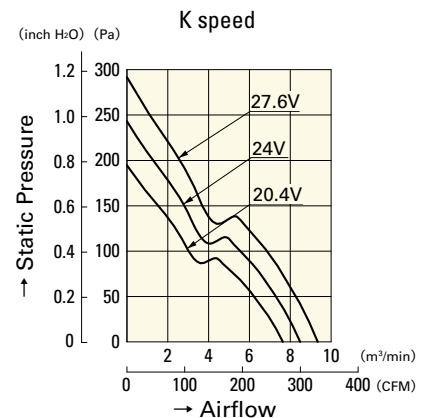
Model : 109-319E Surface treatment : Nickel-chrome plating (silver) Color : silver
Model : 109-319H Surface treatment : Cation electropainting (black) Color : black



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



Airflow - Static Pressure Characteristics



9WE1724K501

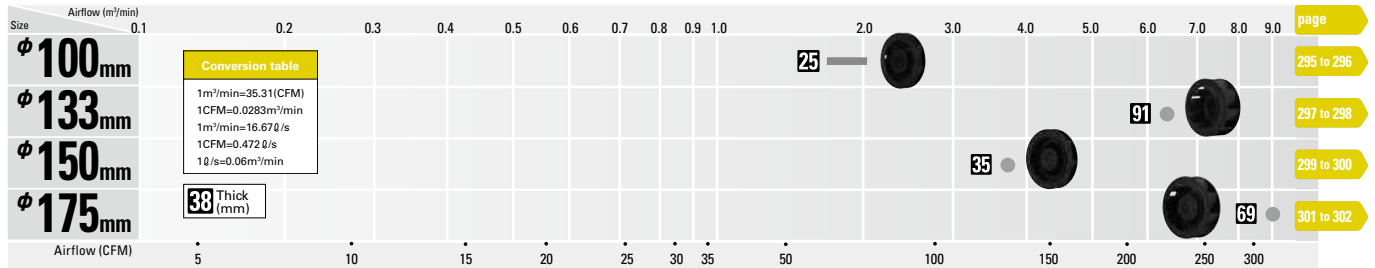
Splash Proof Centrifugal Fan

Centrifugal fans of IP54 waterproof capability.

Related product

Splash Proof Fan ⇒ p. 245 Centrifugal Fan ⇒ p. 371
Oil Proof Fan ⇒ p. 303

Domain Diagram



Model Numbering System

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

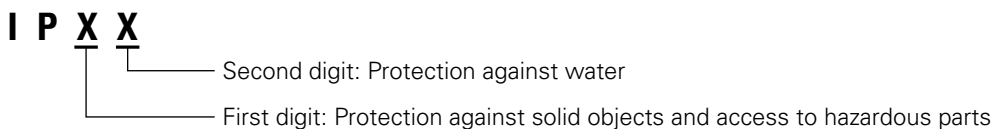
9W1T	M	48	P	4	H	01
Type name 9W1T: Splash Proof Centrifugal Fan	Impeller size M : φ100mm J : φ133mm N : φ150mm G : φ175mm	Voltage 24 : 24V 48 : 48V	PWM control function P	Frame thickness 0 : 69mm thick MIN 1 : 35mm thick 4 : 25mm thick	Speed code H,G etc	Individual customer's spec 2 or 3 digits

Ingress protection ratings (IP code)

IP Codes used by SANYO DENKI express the level of protection that internal electrical components (for fans: electrical components and motor coils) have against solid objects, water, and access to hazardous parts. San Ace Splash Proof Centrifugal fans feature high protection levels.

Definition of Ingress Protection (IP Code)

Ingress Protection (IP Code) is defined in IEC (International Electrotechnical Commission) 60529* DEGREES OF PROTECTION PROVIDED BY ENCLOSURES (IP Code). *IEC 60529:2001



First digit	Definition
0	No protection
1	Protection against solid objects > 50 mm
2	Protection against solid objects > 12.5 mm
3	Protection against solid objects > 2.5 mm
4	Protection against solid objects > 1 mm
5	Protection against a level of dust that could hinder operation or impair safety
6	Complete protection against dust

Second digit	Definition
0	No protection
1	Protection against dripping water
2	Protection against water spray up to 15°
3	Protection against spraying water
4	Protection against splashing water
5	Protection against low pressure water jets
6	Protection against high pressure water jets
7	Protection against temporary immersion in water
8	Protection against submersion in water

How to Read Specifications

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

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

DC Fan Common Specifications

- Material** Frame,Impeller:Plastics / Frame:Aluminum,Impeller:Plastics
* For details, refer to the appropriate page.
- Expected Life**Varies for each model (L10:Survival rate:90% at 60°C ,rated voltage, and continuously run in a free air state)
* Splash proof fan: Varies for each model (Indoor, L10:Survival rate:90% at 60°C ,rated voltage, and continuously run in a free air state)
- Motor Protection** Burnout protection at locked rotor condition and Reverse polarity protection
- Dielectric Strength**AC50/60Hz 500VAC 1minute(between lead conductor and frame)
- Insulation Resistance**10M Ω or more at 500VDC megger (between lead conductor and frame)
- Sound Pressure Level(SPL)** ..Expressed as the value at 1m from air inlet side
- Lead Wire**For details, refer to the appropriate page.

Overheating protection function

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

Burnout protection function at locked rotor condition

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

Reverse polarity protection function

No problem about fan even if positive & negative lead are connected in reverse.
However, when wiring fans with sensors or PWM speed control function, connecting positive and negative leads in reverse may damage the fans.

φ 100 mm

San Ace 100W



General Specifications

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

φ 100mm × 25mm (Mass : 160g) **IP 54** **9W1T** type

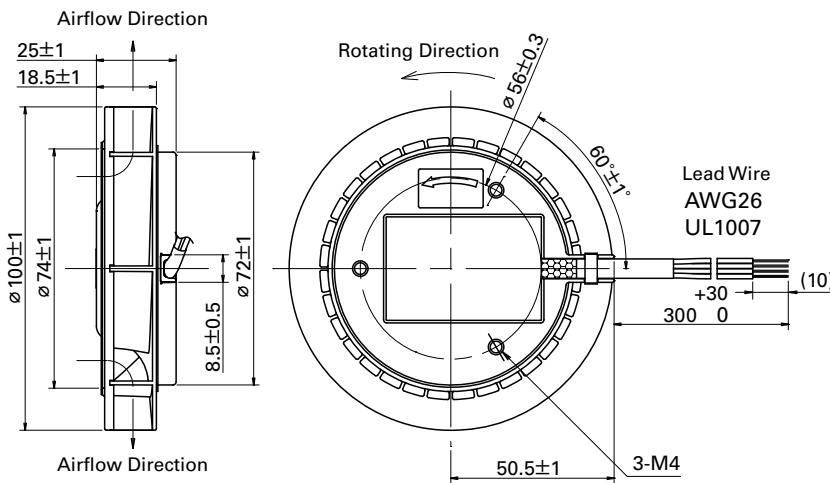
Specifications When our inlet nozzle [Option (Model : 109-1080)] is mounted. The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9W1TM48P4G01 ^{Note}	48	36 to 60	100	0.36	17.28	7,400	2.03 71.7	708 2.84	65	-20 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		

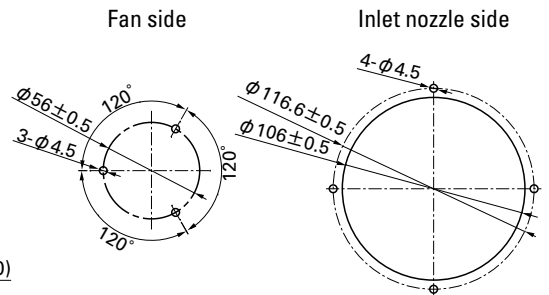
Note: Fan does not rotate when PWM duty cycle is 0%.
Max input of 9W1TM48P4G01 : 22W, 9W1TM48P4H01 : 14W at rated voltage.

※ PWM Frequency : 25kHz

Dimensions (unit: mm)



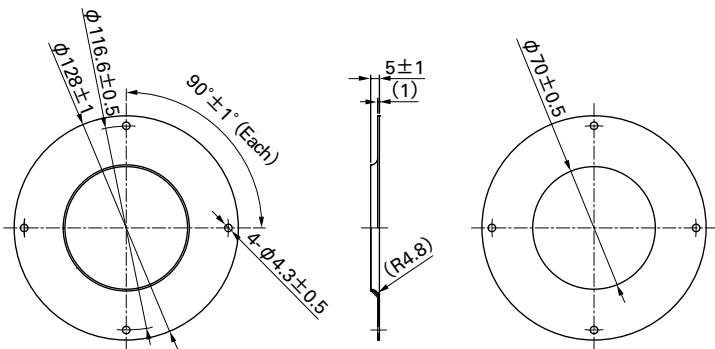
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

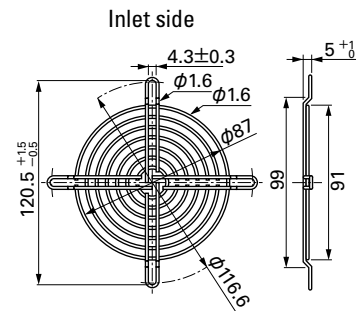
Inlet Nozzle

Model : 109-1080



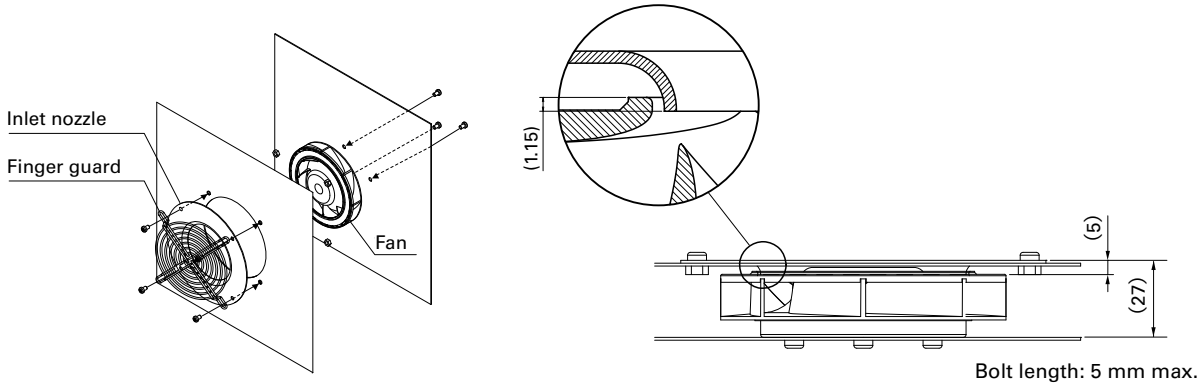
Finger Guards

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



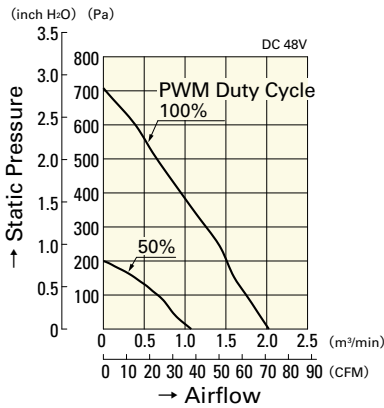
Inlet nozzle: Equipment to be mounted in inlet side for adjusting incoming airflow.

Reference Diagram for Mounting

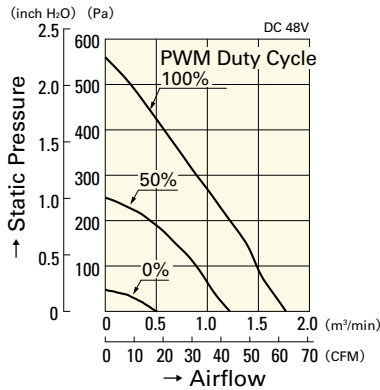


Airflow - Static Pressure Characteristics

PWM Duty Cycle

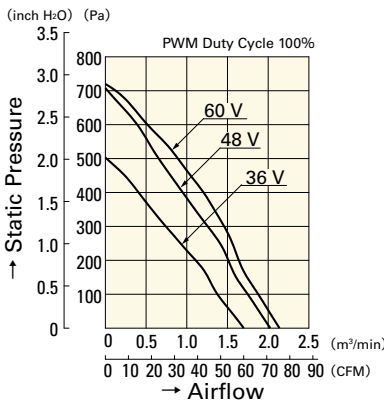


9W1TM48P4G01

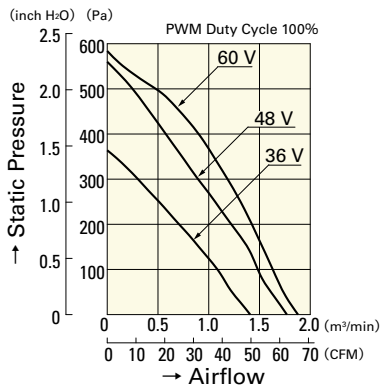


9W1TM48P4H01

Operating Voltage Range

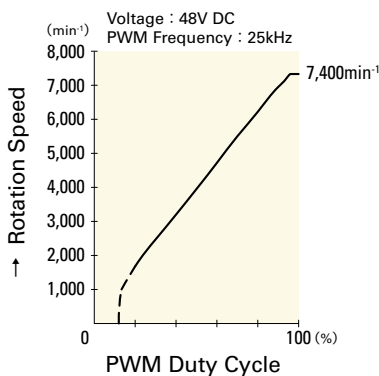


9W1TM48P4G01

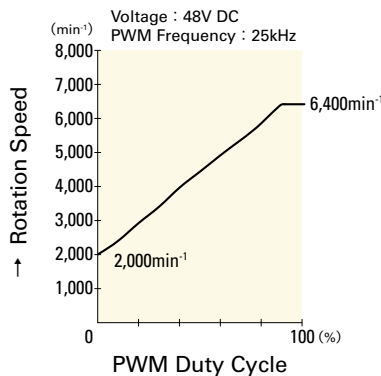


9W1TM48P4H01

PWM Duty - Speed Characteristics Example



9W1TM48P4G01



9W1TM48P4H01

φ133mm

San Ace 133W



General Specifications

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

φ133mm×91mm (Mass : 720g) **IP 54 9W1T type**

Specifications

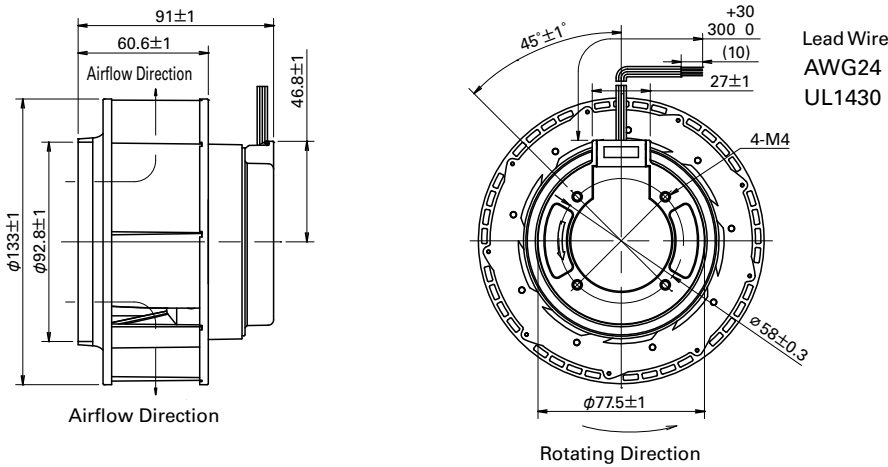
When our inletnozzle [Option (Model : 109-1069)] is mounted. The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note①} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9W1TJ24P0H61	24	20.4 to 27.6	100	1.2	28.8	4,150	6.39 225	395 1.59	61	-20 to +70	40,000/60°C (70,000/40°C)
9W1TJ48P0H61	48	36 to 60	100	0.55	26.4	4,150	6.39 225	395 1.59	61		

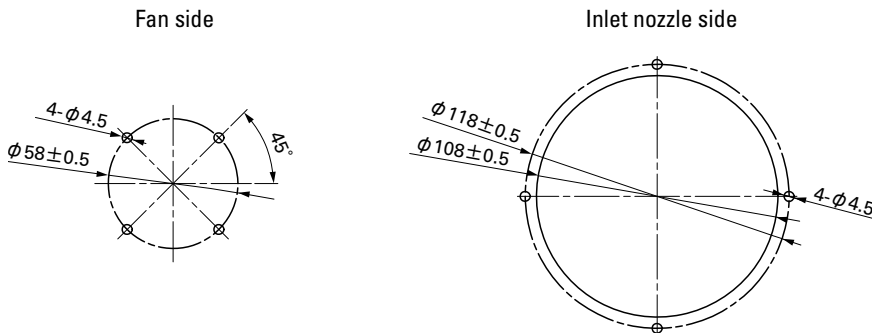
Note: Fan does not rotate when PWM duty cycle is 0%.
Max input is 45W at rated voltage.

※PWM Frequency : 25kHz

Dimensions (unit: mm)



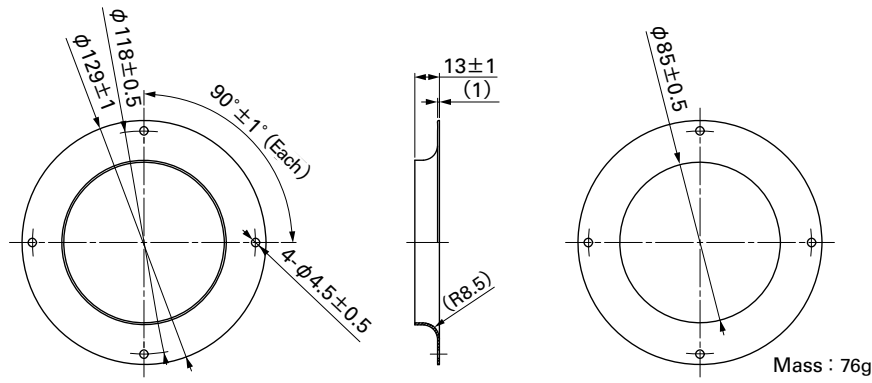
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

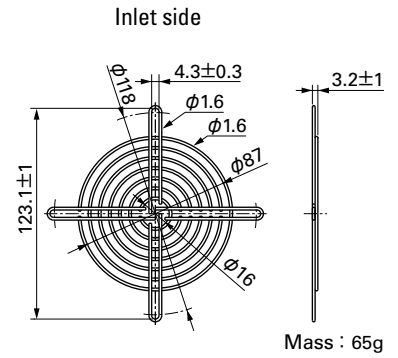
Inlet Nozzle

Model: 109-1069 Material: Steel sheet Surface treatment: Electro nickel plating (silver)
 : 109-1069H : Steel sheet : Cation electropainting (black)



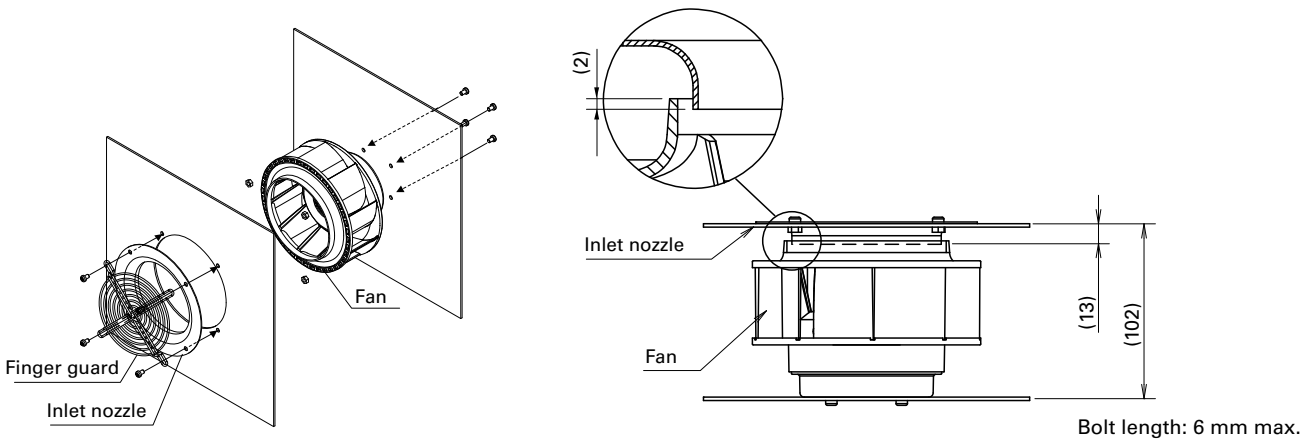
Finger Guards

Color: Nickel-chrome plating (silver)
 Model: 109-1112 Surface treatment: Nickel-chrome plating (silver)



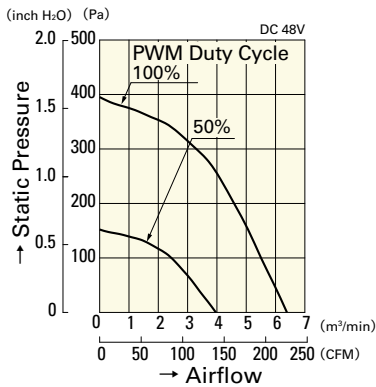
Inlet nozzle: Equipment to be mounted in inlet side for adjusting incoming airflow.

Reference Diagram for Mounting

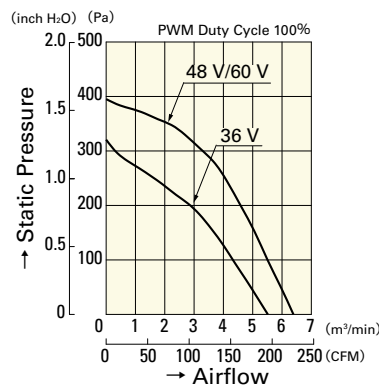


Airflow - Static Pressure Characteristics

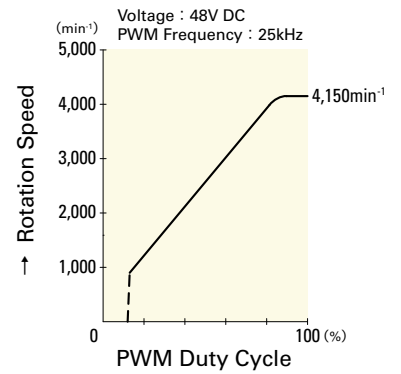
PWM Duty Cycle



Operating Voltage Range



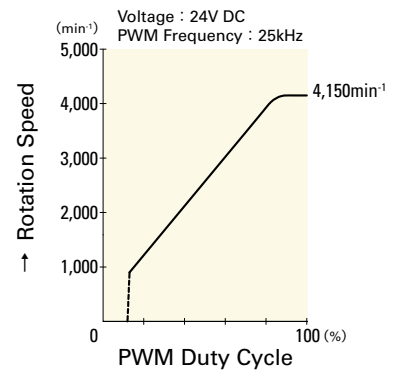
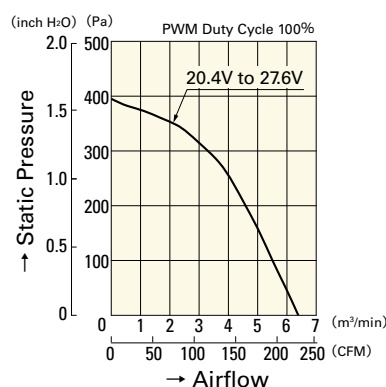
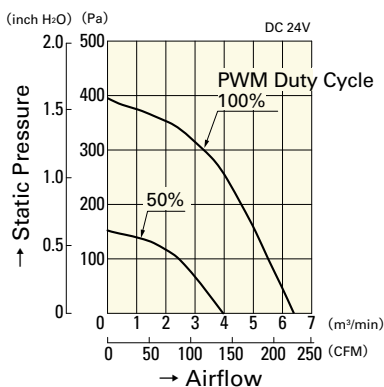
PWM Duty Speed Characteristics Example



9W1TJ48P0H61

9W1TJ48P0H61

9W1TJ48P0H61



9W1TJ24P0H61

9W1TJ24P0H61

9W1TJ24P0H61

φ 150_{mm}

San Ace 150W



General Specifications

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

φ 150mm × 35mm (Mass : 330g) **IP 54 9W1T type**

Specifications

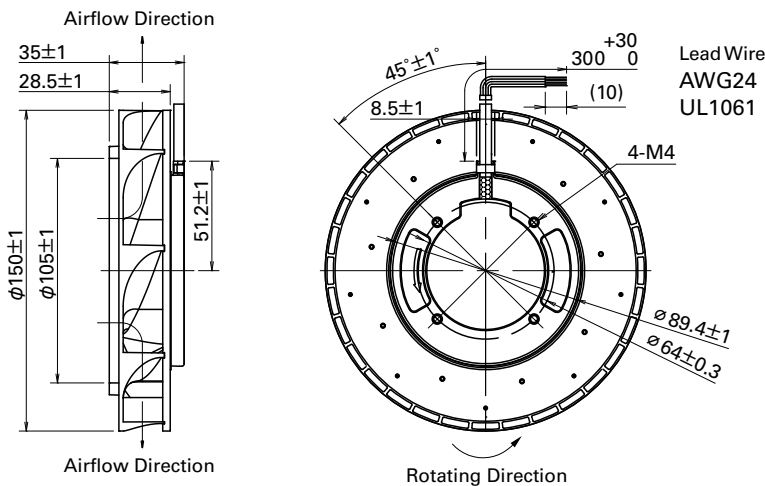
When our inletnozzle [Option (Model : 109-1081)] is mounted. The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle [※] [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9W1TN48P1H01	48	36.0 to 55.2	100	0.32	15.4	3,800	3.83 135	390 1.57	59	-20 to +70	40,000/60°C (70,000/40°C)

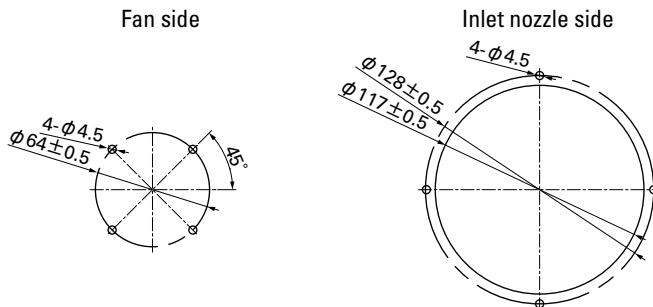
Note: Fan does not rotate when PWM duty cycle is 0%.
Max input is 22W at rated voltage.

※PWM Frequency : 25kHz

Dimensions (unit: mm)



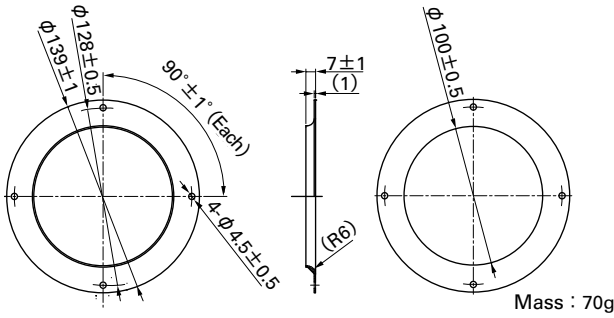
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Inlet Nozzle

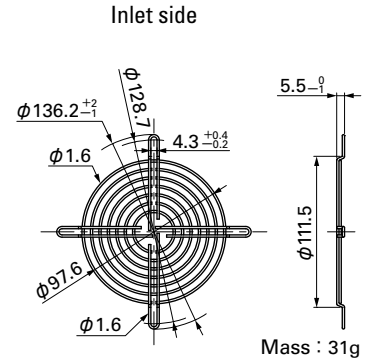
Model : 109-1081 Material : Steel sheet Surface treatment : Electro nickel plating (silver)
 : 109-1081H : Steel sheet : Cation electropainting (black)



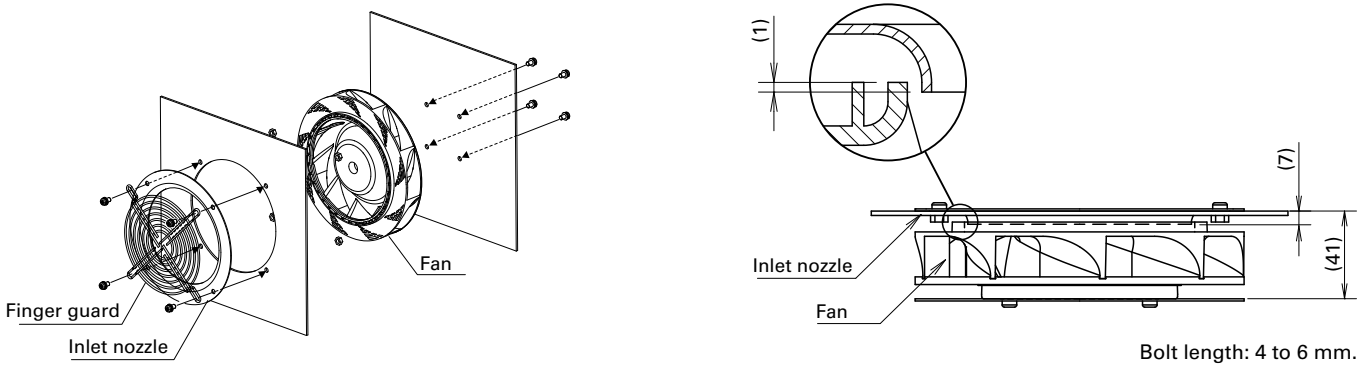
Inlet nozzle: Equipment to be mounted in inlet side for adjusting incoming airflow.

Finger Guards

Model : 109-1104 Surface treatment : Nickel-chrome plating (silver) Color (silver)
 : 109-1104H : Cation electropainting (black)

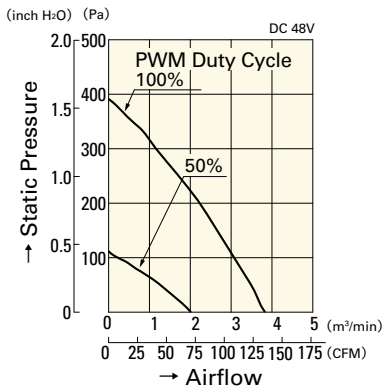


Reference Diagram for Mounting



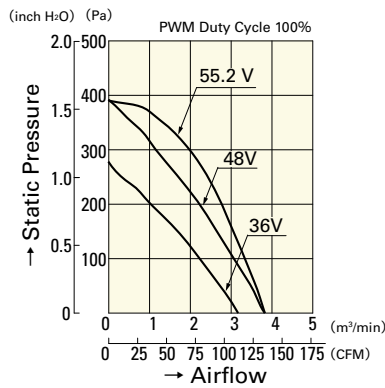
Airflow - Static Pressure Characteristics

PWM Duty Cycle



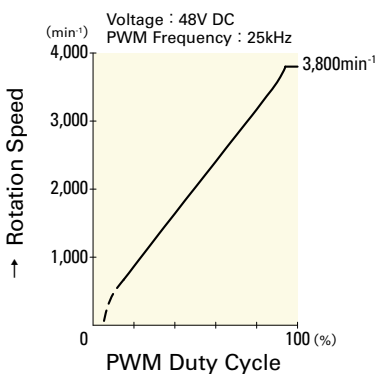
9W1TN48P1H01

Operating Voltage Range



9W1TN48P1H01

PWM Duty Speed Characteristics Example



9W1TN48P1H01

φ 175mm

San Ace 175W



General Specifications

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

φ 175mm × 69mm (Mass : 760g) **IP 54 9W1T type**

Specifications

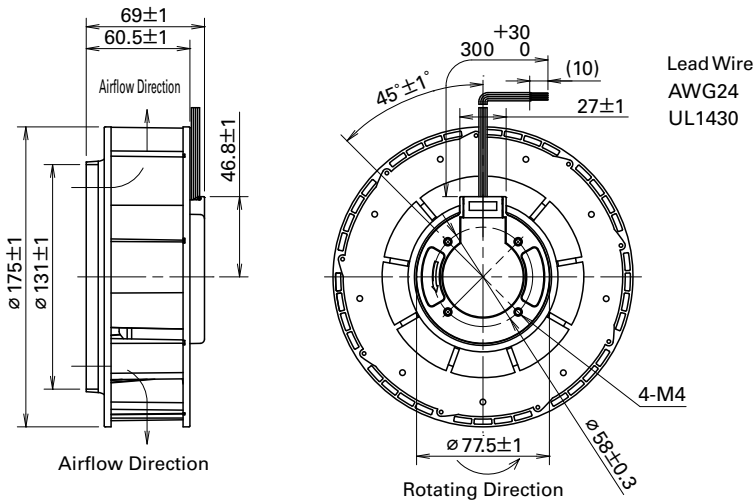
When inlet nozzle [Option (Model : 109-1073)] is mounted. The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{*)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9W1TG48P0H61	48	36 to 60	100	0.65	31.2	3,100	9.0 318	360 1.44	64	-20 to +70	40,000/60°C (70,000/40°C)

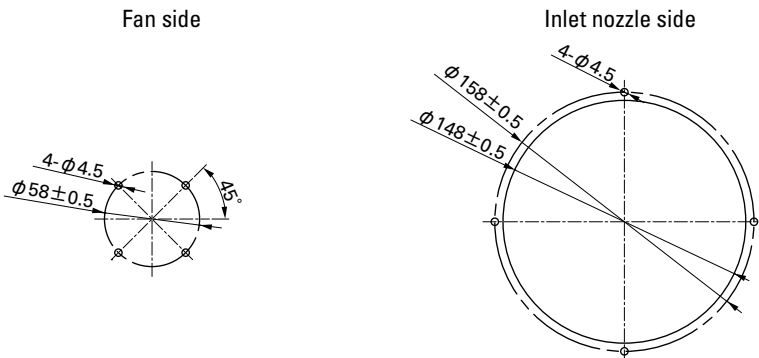
Note: Fan does not rotate when PWM duty cycle is 0%.
Max input is 60W at rated voltage.

*)PWM Frequency : 25kHz

Dimensions (unit: mm)



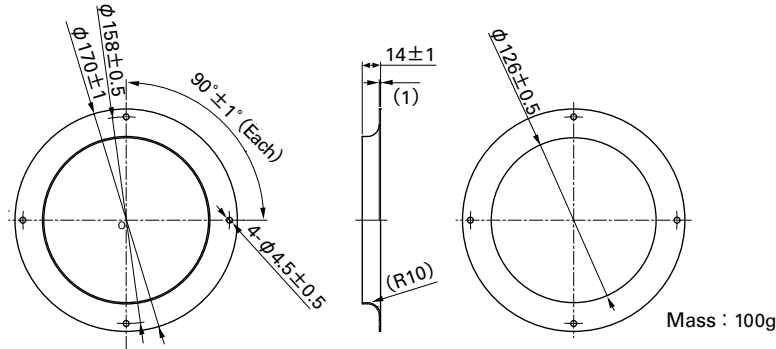
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

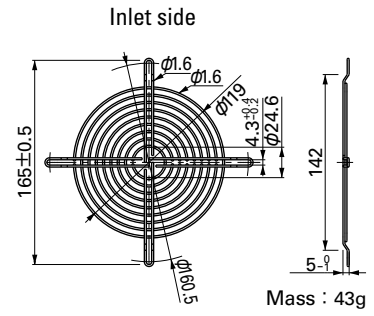
Inlet Nozzle

Model : 109-1073 Material : Steel sheet Surface treatment : Electro nickel plating (silver)
 : 109-1073H : Steel sheet : Cation electropainting (black)



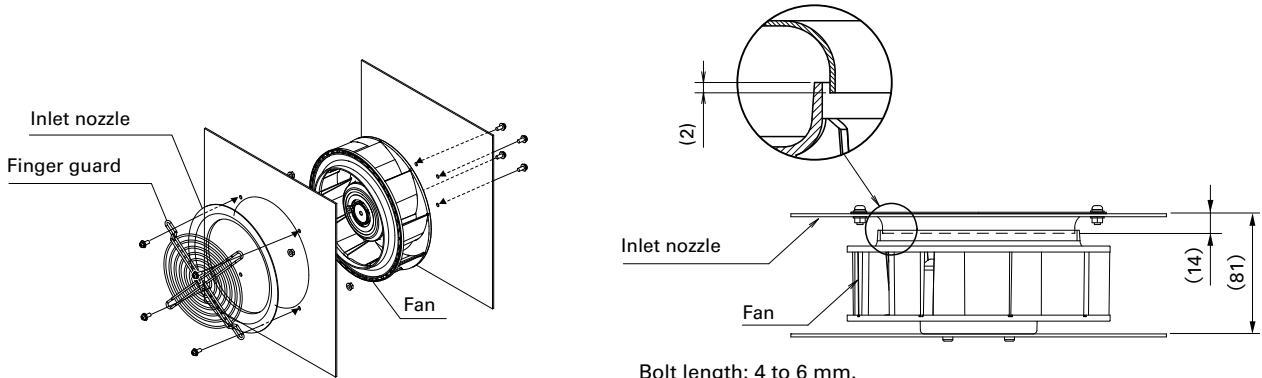
Finger Guards

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



Inlet nozzle: Equipment to be mounted in inlet side for adjusting incoming airflow.

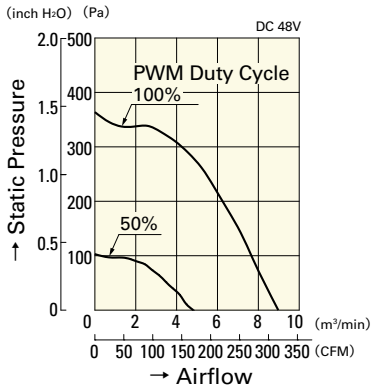
Reference Diagram for Mounting



Bolt length: 4 to 6 mm.
 To prevent bolts from loosening, use plain washers and spring washers.

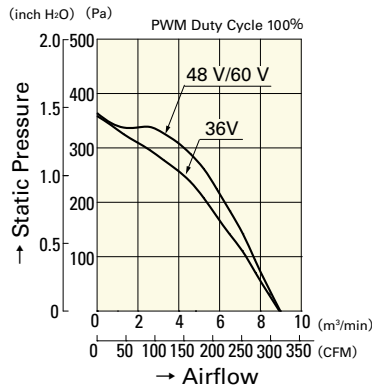
Airflow - Static Pressure Characteristics

PWM Duty Cycle



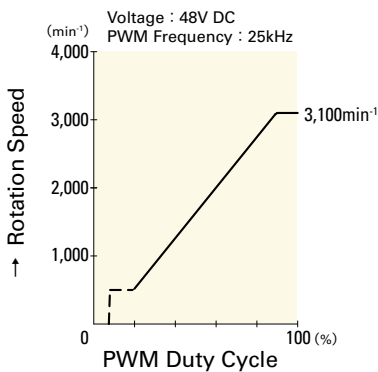
9W1TG48P0H61

Operating Voltage Range



9W1TG48P0H61

PWM Duty Speed Characteristics Example



9W1TG48P0H61

Oil Proof Fan

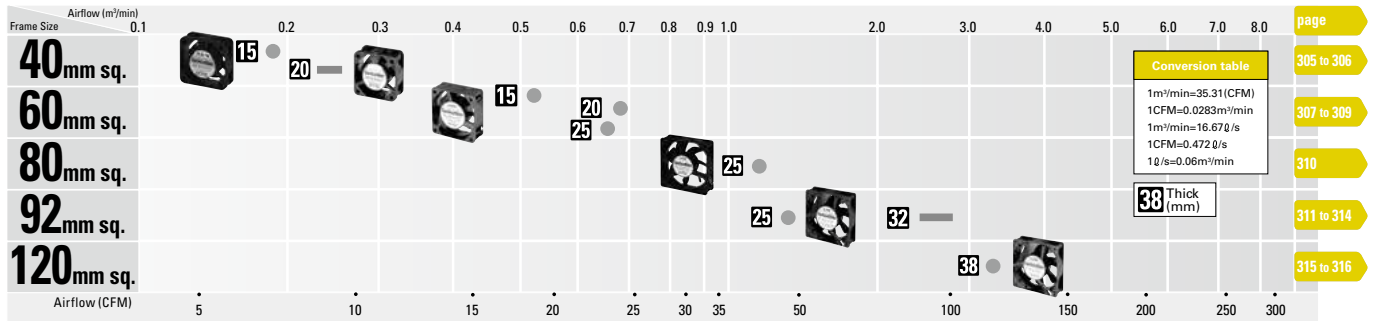
Cooling fan capable of operating in an oil-mist environment.

Related product

Splash Proof Fan ⇒ p. 245

Splash Proof Centrifugal Fan ⇒ p. 293

Domain Diagram



Model Numbering System

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

9WF	12	24	H	1	01	
Type 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

How to Read Specifications

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

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

DC Fan Common Specifications

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

* For details, refer to the appropriate page.

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

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

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

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

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

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

Lead Wire For details, refer to the appropriate page.

Overheating protection function

Protection Functions:

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

Burnout protection function at locked rotor condition

- Current cutoff system

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

Reverse polarity protection function

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

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

40mm sq.

San Ace 40WF



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0)
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕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) **9WF type**

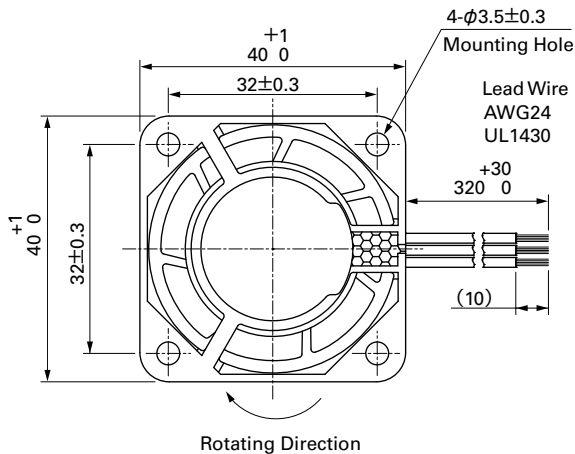
Specifications

The following nos. **have pulse sensors and ribs.**

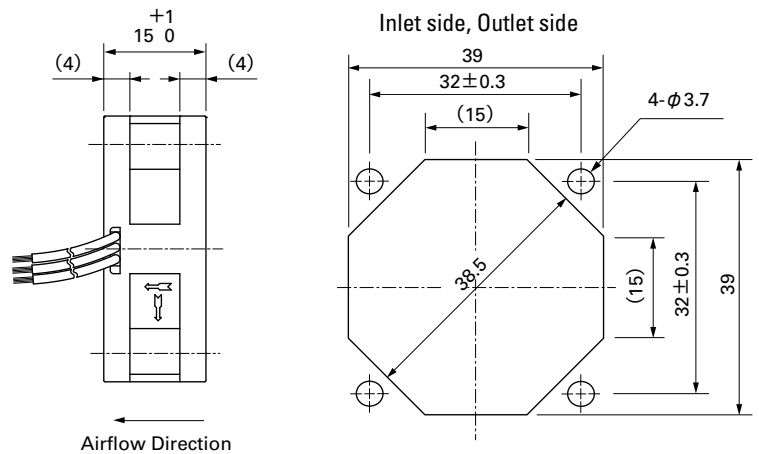
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0424H701	24	20.4 to 27.6	0.085	2.04	11,300	0.195 6.9	80 0.32	38	-20 to +70	40,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



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

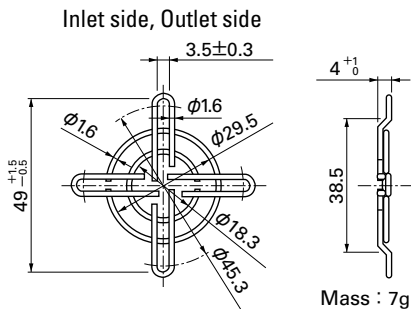


Options (unit: mm)

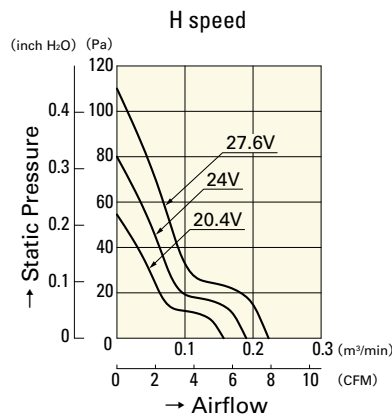
Finger Guards

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

Color



Airflow - Static Pressure Characteristics



9WF0424H701

40mm sq.

San Ace 40WF



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0), Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕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.

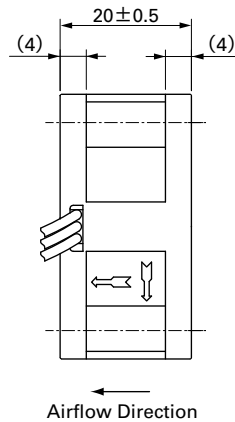
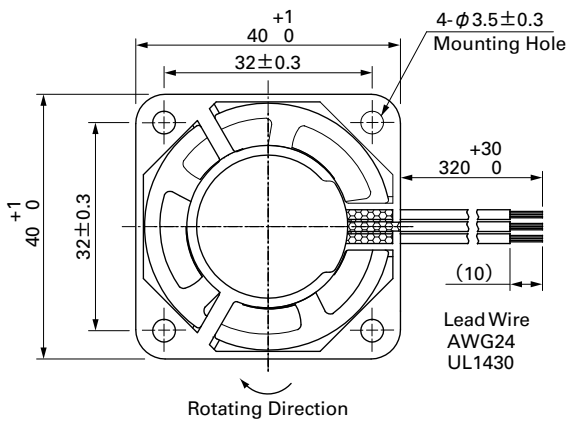
40×40×20mm (Mass : 50g) 9WF type

Specifications The following nos. have pulse sensors and ribs.

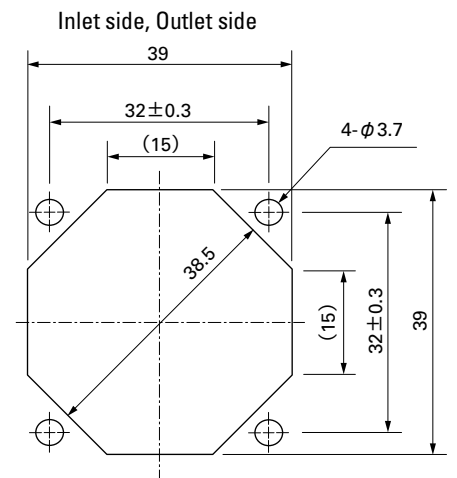
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0424H601	24	20.4 to 27.6	0.11	2.64	13,100	0.26 9.2	90 0.361	42	-20 to +70	40,000/60°C
9WF0424F601			0.076	1.82	11,000	0.22 7.77	62.8 0.252	37		

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



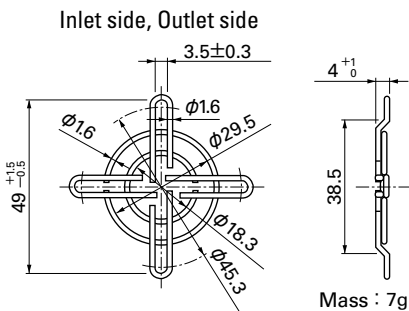
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



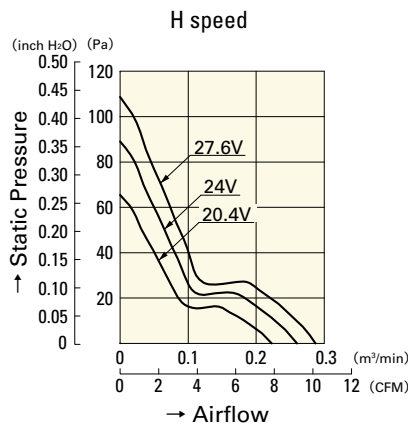
Options (unit: mm)

Finger Guards

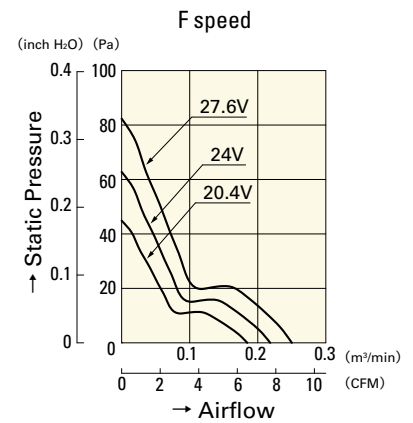
Model : 109-059 Surface treatment : Nickel-chrome plating (silver)
: 109-059H : Cation electroplating (black)



Airflow - Static Pressure Characteristics



9WF0424H601



9WF0424F601

60 mm sq.

San Ace 60WF



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0), Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕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) **9WF** type

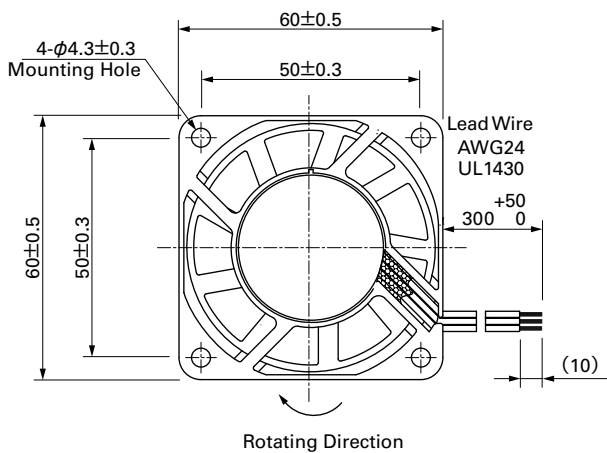
Specifications

The following nos. **have pulse sensors and ribs.**

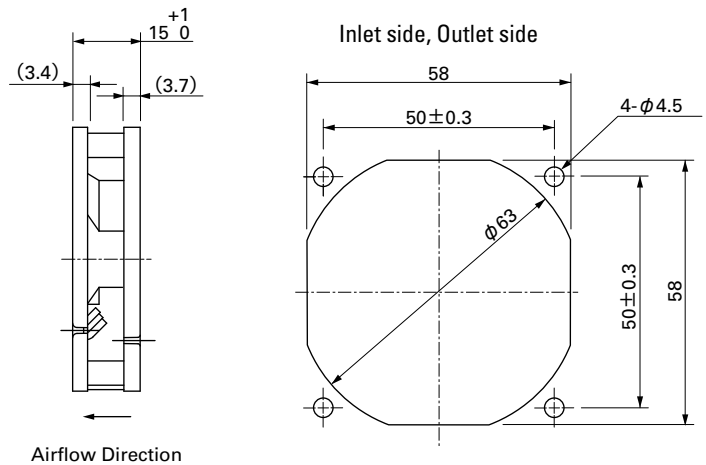
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0624H701	24	20.4 to 27.6	0.12	2.88	6,800	0.52 18.3	95 0.38	44	- 20 to + 70	40,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



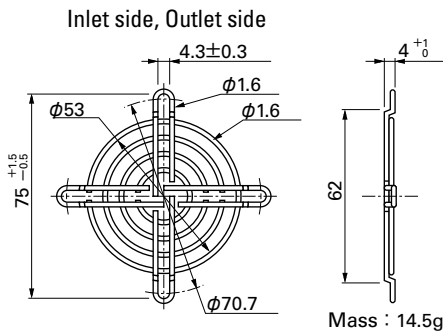
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



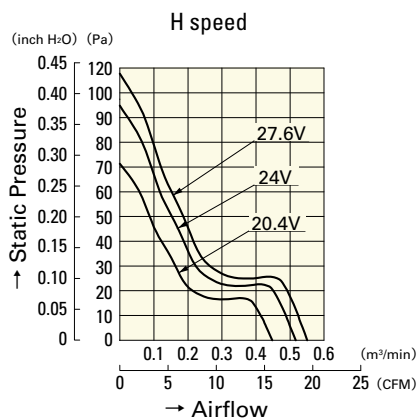
Options (unit: mm)

Finger Guards

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



Airflow - Static Pressure Characteristics



9WF0624H701

60mm sq.

San Ace 60WF



General Specifications

- Material: Frame: Plastics (Flammability: UL94V-0), Impeller: Plastics (Flammability: UL94V-0)
- Expected Life: Refer to specifications (L10:Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire: ⊕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.

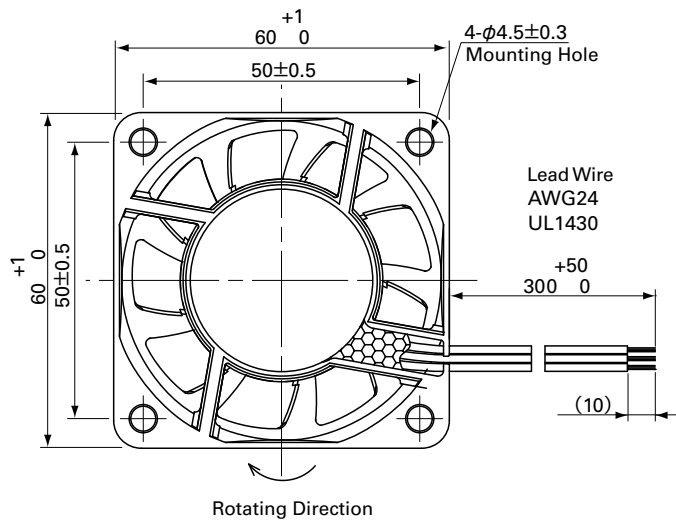
60×60×20mm (Mass : 80g) 9WF type

Specifications The following nos. have pulse sensors and ribs.

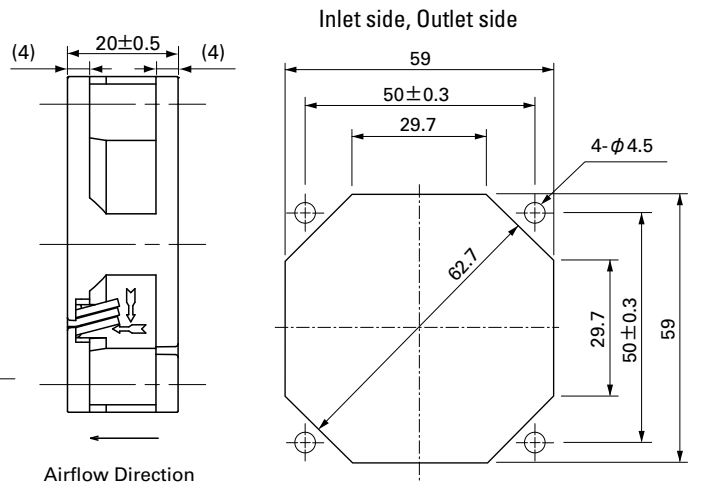
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0624H601	24	12 to 27.6	0.15	3.6	6,600	0.69 24.3	114 0.45	42	-20 to +70	40,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



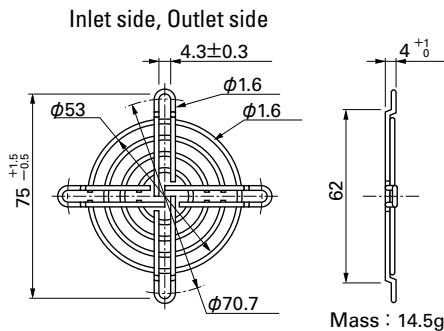
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



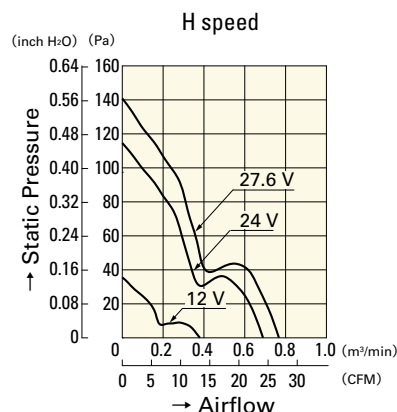
Options (unit: mm)

Finger Guards

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



Airflow - Static Pressure Characteristics



9WF0624H601

60mm sq.

San Ace 60WF



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0), Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕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) **9WF**type

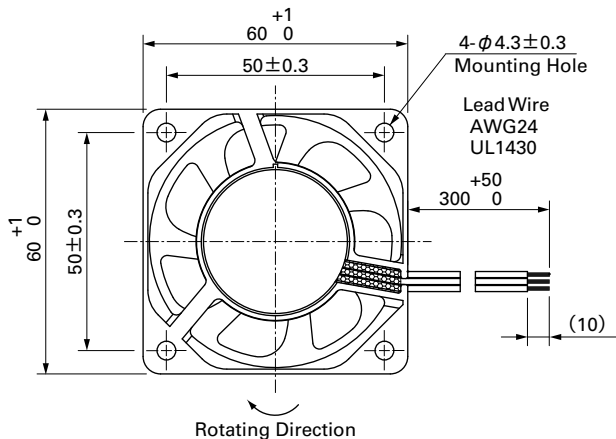
Specifications

The following nos. **have pulse sensors and ribs.**

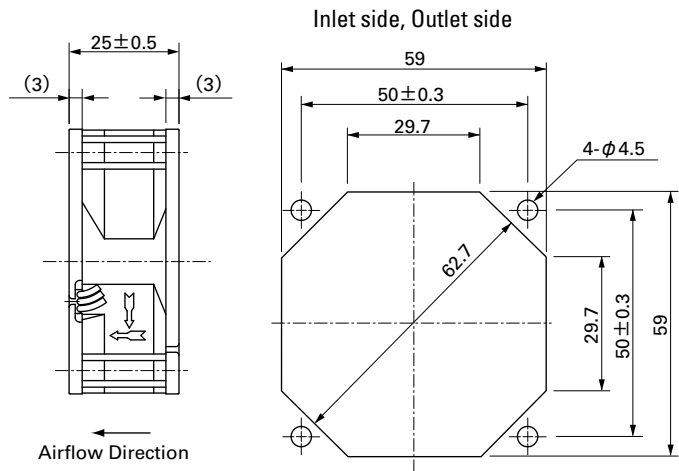
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0624H401	24	20.4 to 27.6	0.15	3.6	6,500	0.67 23.6	97 0.38	41	- 20 to + 70	40,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



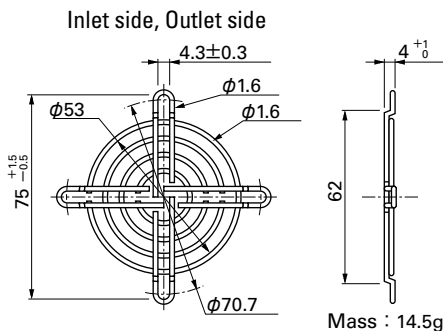
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



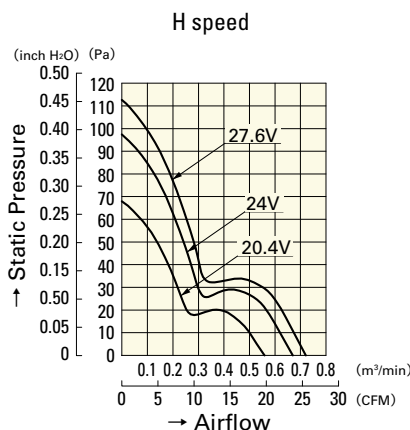
Options (unit: mm)

Finger Guards

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



Airflow - Static Pressure Characteristics



9WF0624H401

80mm sq.

San Ace 80WF



General Specifications

- Material..... Frame: Plastics (Flammability: UL94V-0), Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate: 90% at 60°C , rated voltage, and continuously run in a free air state)
- Lead Wire ⊕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.

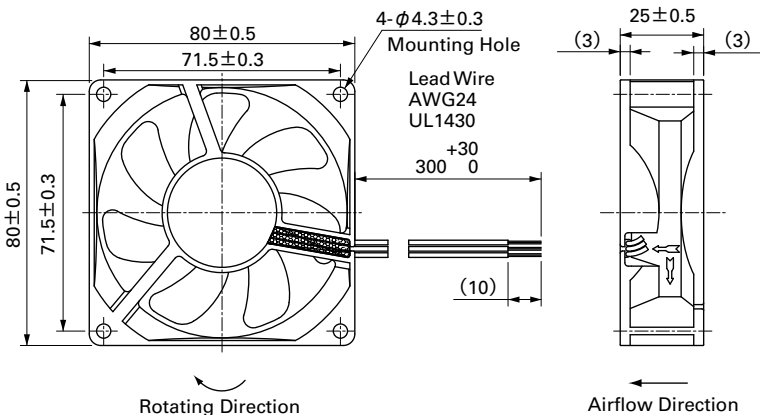
80×80×25mm (Mass : 130g) 9WF type

Specifications The following nos. have pulse sensors and ribs.

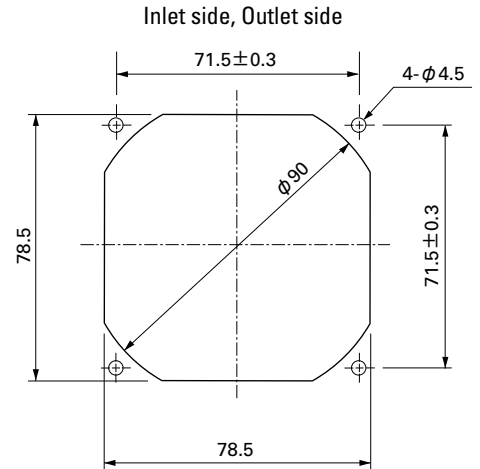
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0824S401	24	20.4 to 27.6	0.16	3.84	4,000	1.2 42.4	58 0.23	38	-20 to +70	40,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



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

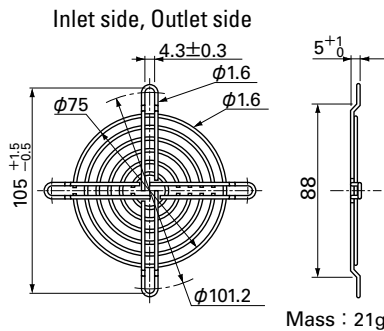
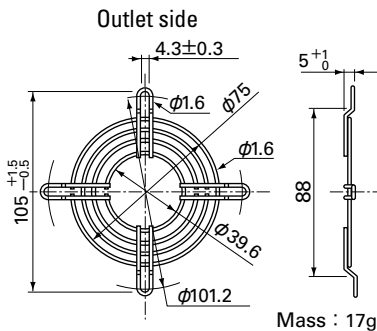


Options (unit: mm)

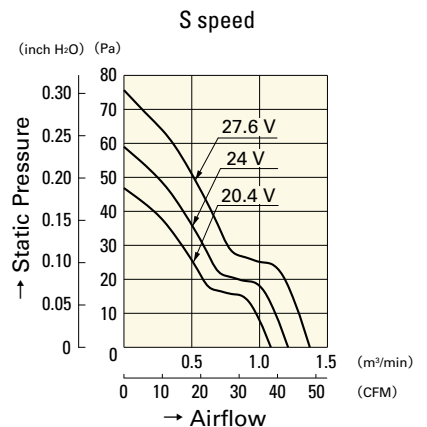
Finger Guards

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

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



Airflow - Static Pressure Characteristics



9WF0824S401

92mm sq.

San Ace 92WF



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire ⊕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.

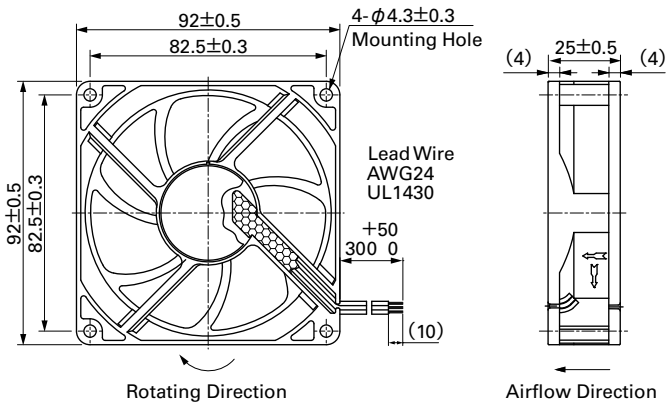
92×92×25mm (Mass : 120g) **9WF** type

Specifications The following nos. **have pulse sensors and ribs.** For ribless, append "1" to the model no.

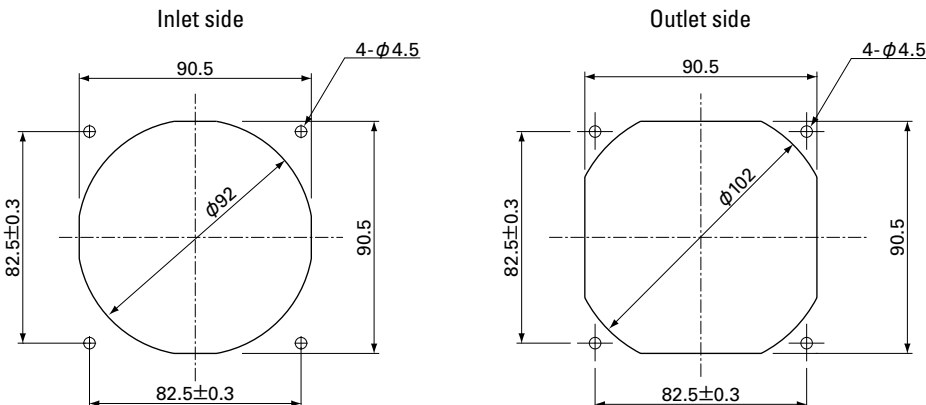
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0924H401	24	20.4 to 27.6	0.13	3.12	3,900	1.45 51.2	66 0.26	42.5	-20 to +70	40,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



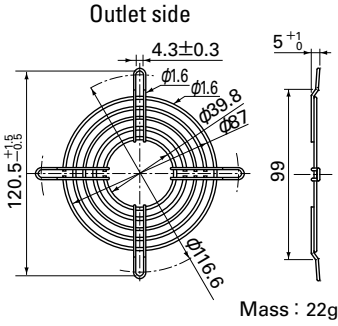
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



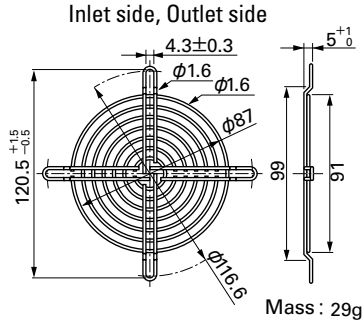
Options (unit: mm)

Finger Guards

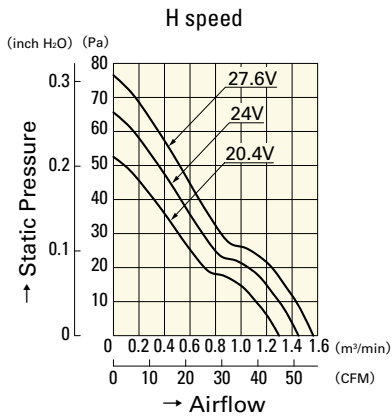
Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color



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



Airflow - Static Pressure Characteristics



9WF0924H401

DC

Oil Proof Fan 92mm

92mm sq.

San Ace 92WF



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0), Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕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.

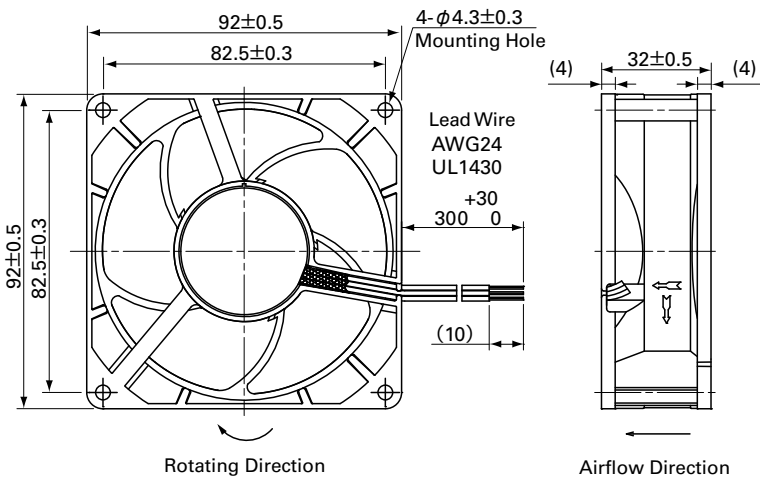
92×92×32mm [Mass : 185g] **9WF** type

Specifications The following nos. **have pulse sensors and ribs.** For ribless, append "1" to the model no.

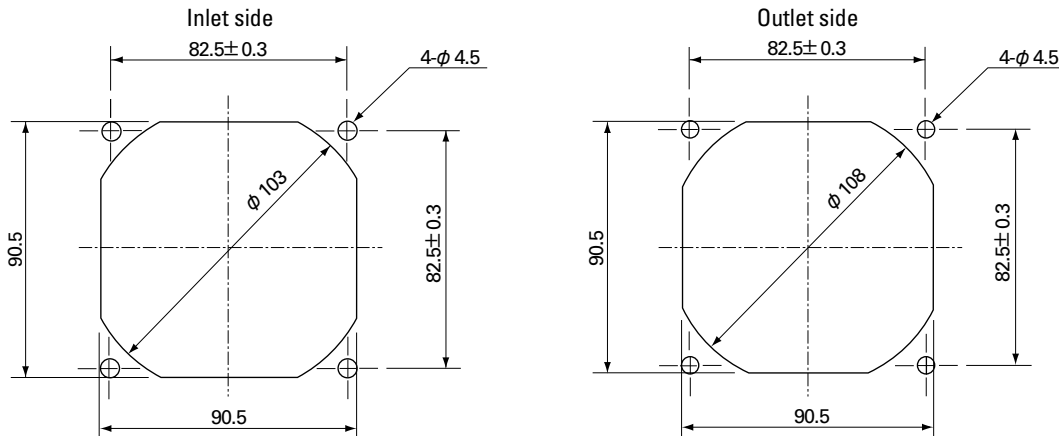
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF0924S201	24	20.4 to 27.6	0.5	12	7,300	2.8 98.9	255 1.02	58	-20 to +70	40,000/60°C
9WF0924H201			0.35	8.4	6,500	2.45 86.5	200 0.8	56		

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



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

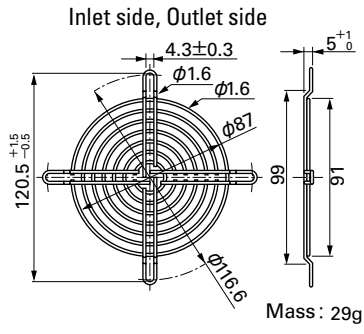
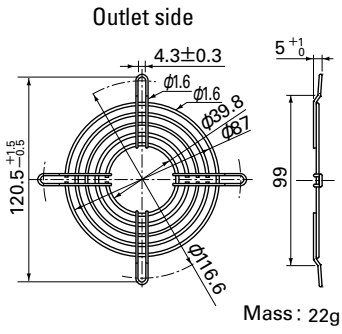


Options (unit: mm)

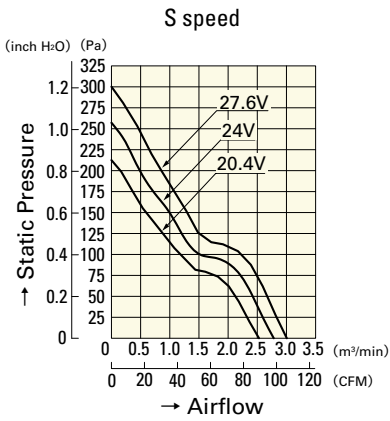
Finger Guards

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

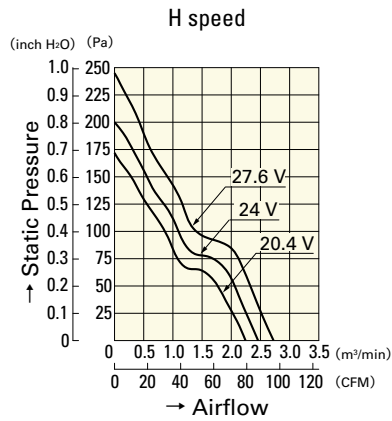
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color
: 109-099H : Cation electropainting (black)



Airflow - Static Pressure Characteristics



9WF0924S201



9WF0924H201

120mm sq.

San Ace 120WF



General Specifications

- Material Frame: Plastics (Flammability: UL94V-0), Impeller: Plastics (Flammability: UL94V-0)
- Expected Life Refer to specifications (L10:Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Lead Wire ⊕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.

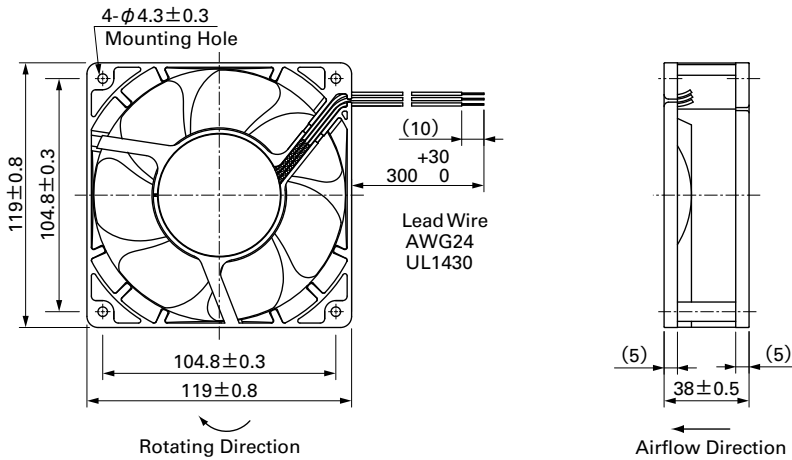
120×120×38mm (Mass : 355g) **9WF type**

Specifications The following nos. have pulse sensors and ribs.

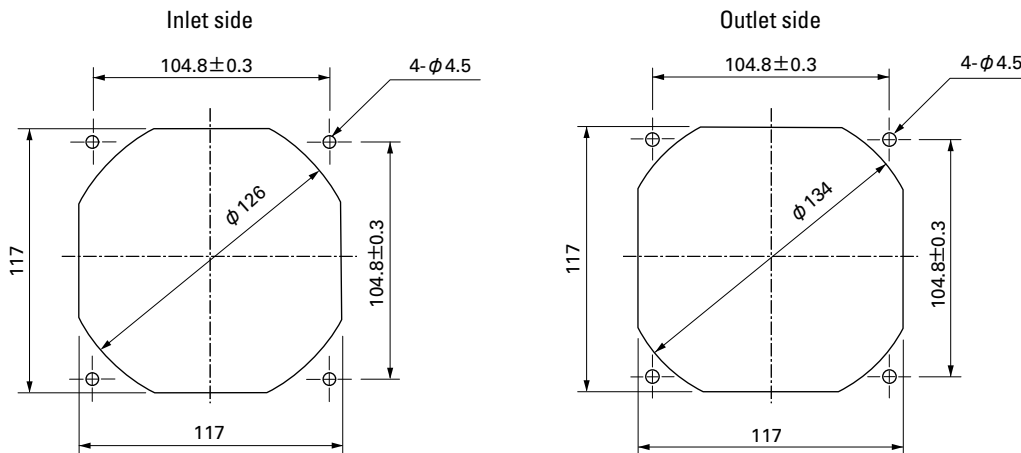
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9WF1224H101	24	20.4 to 27.6	0.32	7.68	3,100	3.34 118	100 0.40	46	- 20 to + 70	40,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 511).

Dimensions (unit: mm)



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

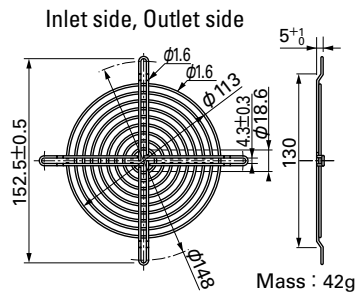
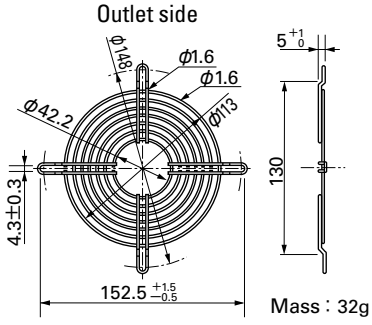


Options (unit: mm)

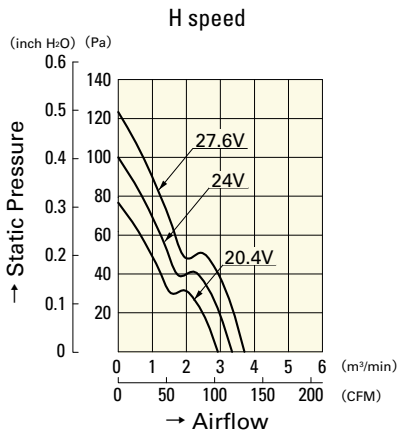
Finger Guards

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)



Airflow - Static Pressure Characteristics



9WF1224H101

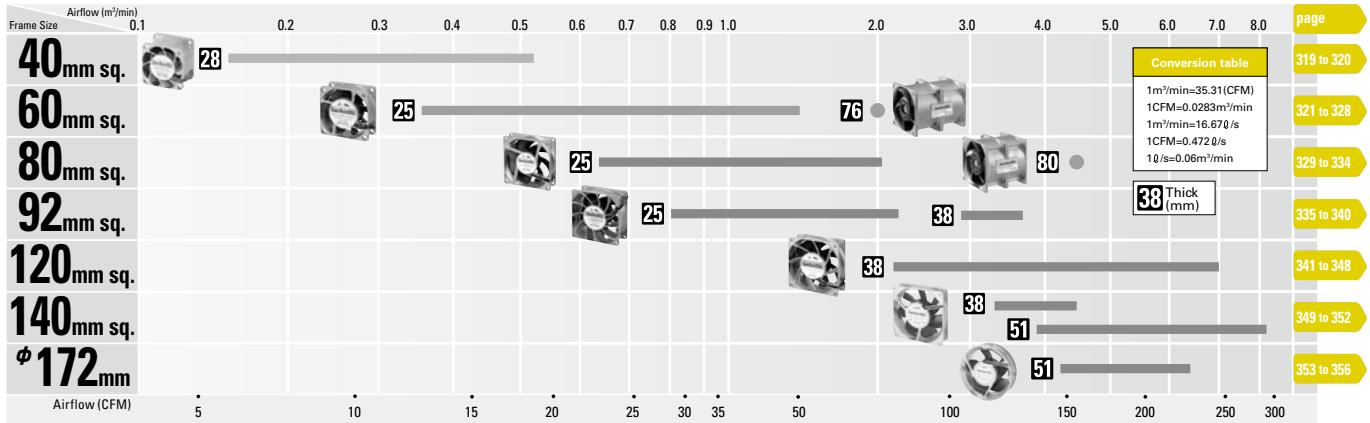
Long Life Fan

Cooling fan with Max. 200,000 hours of expected life.

Related product

Splash Proof, Long Life Fan ⇒ pp. 248, 251, 257, 267

Domain Diagram



Model Numbering System

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

109L	12	12	H	1	01
Type name / frame material 109L / Aluminum 9LB / Aluminum 9GL / Aluminum 9L / Aluminum 9LG / Aluminum 9CRL / Aluminum	Frame size 04: 40×40mm 06: 60×60mm 08: 80×80mm 09: 92×92mm 12: 120×120mm 14: 140×140mm 17: φ172mm 57: φ172mm×150mm (sidecut)	Voltage 12: 12V 24: 24V 48: 48V etc	Speed code E, F, G, H, J, L, M, S etc	Frame thickness 0: 76mm thick 1: 38mm thick 3: 28mm thick 4: 25mm thick 5: 51mm thick 8: 80mm thick	Sensor specifications 01: With a pulse sensor 02: Without a sensor D01: With a lock sensor

Fans with PWM control function

Example :

9LG	06	12	P	4	S	001
Type name / frame material 9LG / Aluminum	Frame size 06: 60×60mm	Voltage 12: 12V	PWM control function	Frame thickness 4: 25mm thick	Speed code	Individual customer's spec 2 or 3 digits

How to Read Specifications

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

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

DC Fan Common Specifications

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

* For details, refer to the appropriate page.

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

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

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

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

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

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

Lead Wire For details, refer to the appropriate page.

Overheating protection function

Protection Functions:

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

Burnout protection function at locked rotor condition

- Current cutoff system

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

Reverse polarity protection function

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

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

40 mm sq.

San Ace 40L



General Specifications

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

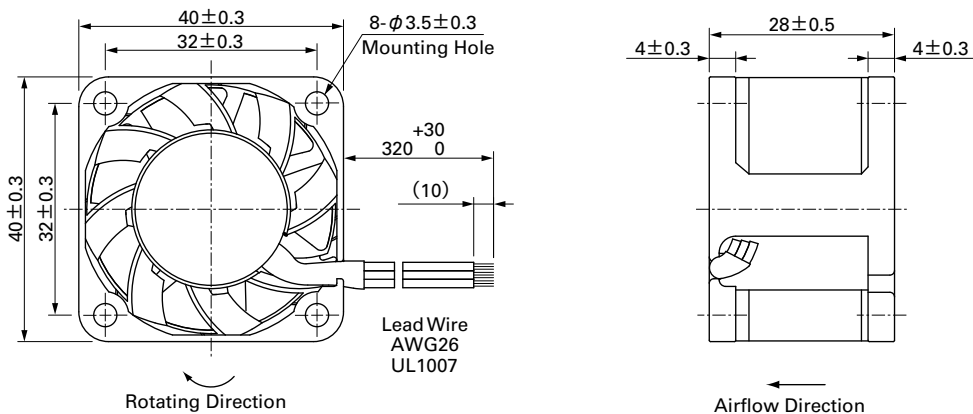
40×40×28mm (Mass : 55g) **9L type**

Specifications The following nos. have pulse sensors.

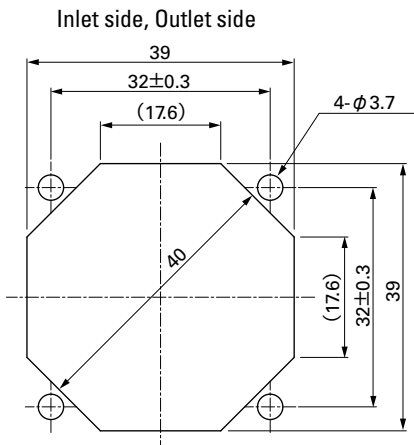
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9L0412J301	12	10.2 to 13.8	0.31	3.72	11,700	0.52 18.4	206 0.827	48	-20 to +70	100,000/60°C
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		

Other sensor specifications are available as options. Please refer to the index (p. 509).

Dimensions (unit: mm)



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



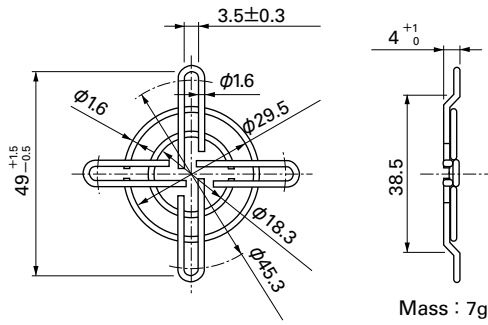
Options (unit: mm)

Finger Guards

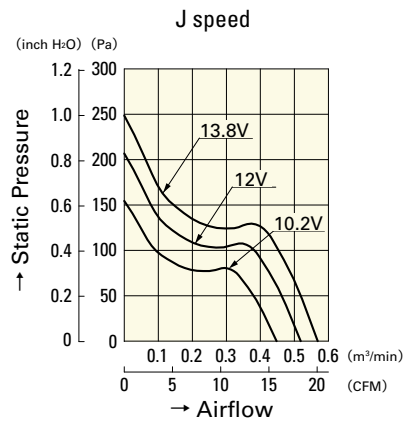
Model : 109-059 Surface treatment : Nickel-chrome plating (silver)
 : 109-059H : Cation electropainting (black)

Color

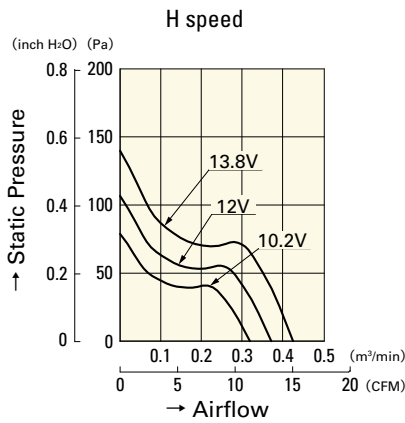
Inlet side, Outlet side



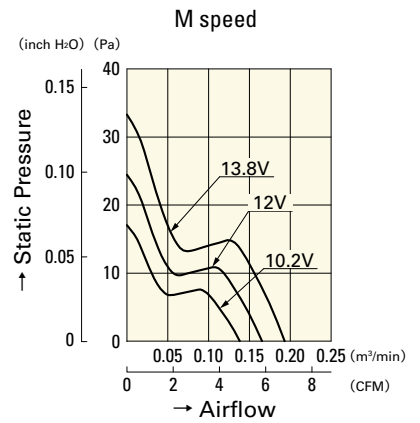
Airflow - Static Pressure Characteristics



9L0412J301



9L0412H301



9L0412M301

DC
Long Life Fan 40mm

60mm sq.

San Ace 60L



General Specifications

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

60×60×25mm (Mass : 100g) **9LG type** **High Airflow**

Specifications

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

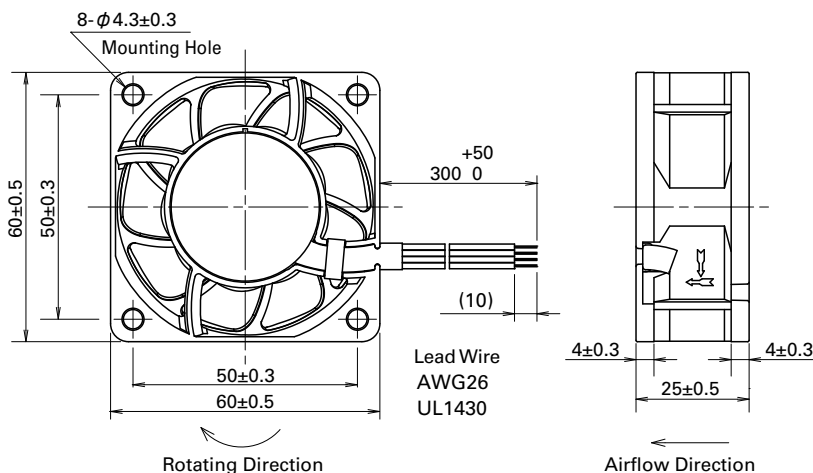
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]		
9LG0612P4S001	12	10.8 to 13.2	100	0.67	8.04	11,000	1.40 49.4	300 1.204	53	-20 to +70	180,000/60°C		
			20	0.06	0.72	2,900	0.36 12.7	20.8 0.083	20				
9LG0612P4J001			100	0.39	4.68	8,650	1.10 38.8	182 0.730	47				
			20	0.03	0.36	1,150	0.13 4.8	3.3 0.013	14				
9LG0612P4H001			100	0.17	2.04	6,150	0.78 27.5	97 0.389	35				
			20	0.03	0.36	1,350	0.17 6.0	4.7 0.018	14				
9LG0612P4M001			100	0.09	1.08	4,200	0.53 18.7	45 0.180	24				
			20	0.03	0.36	900	0.11 3.8	2.0 0.008	14				
9LG0624P4S001			24	21.6 to 26.4	100	0.34	8.16	11,000	1.40 49.4			300 1.204	53
					20	0.03	0.72	2,900	0.36 12.7			20.8 0.083	20
9LG0624P4J001					100	0.19	4.56	8,650	1.10 38.8			182 0.730	47
					20	0.02	0.48	2,200	0.28 9.8			12.0 0.048	17
9LG0624P4H001	100	0.08			1.92	6,150	0.78 27.5	97 0.389	35				
	20	0.02			0.48	1,300	0.16 5.6	4.3 0.017	14				
9LG0624P4M001	100	0.04			0.96	4,200	0.53 18.7	45 0.180	24				
	20	0.01			0.24	800	0.10 3.5	1.6 0.006	14				
9LG0648P4S001	48	36 to 72			100	0.18	8.64	11,000	1.40 49.4	305 1.224	53		
					20	0.02	0.96	2,900	0.36 12.7	20.8 0.083	20		
9LG0648P4J001					100	0.10	4.80	8,650	1.10 38.8	182 0.730	47		
					20	0.02	0.96	2,100	0.26 9.1	10.7 0.042	17		
9LG0648P4H001			100	0.06	2.88	6,150	0.78 27.5	97 0.389	35				
			20	0.02	0.96	1,000	0.12 4.2	2.5 0.010	14				
9LG0648P4M001			100	0.04	1.92	4,200	0.53 18.7	45 0.180	24				
			20	0.02	0.96	650	0.08 2.8	1.0 0.004	14				

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

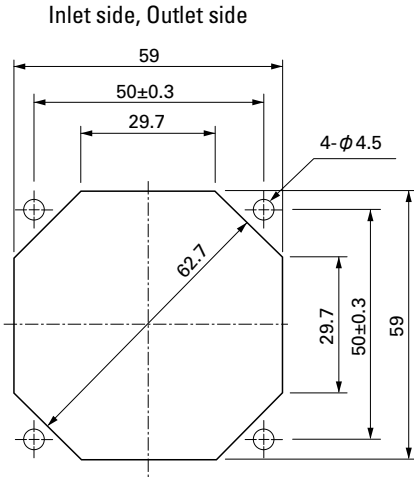
※PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 509).

Dimensions (unit: mm)



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



Options (unit: mm)

Finger Guards

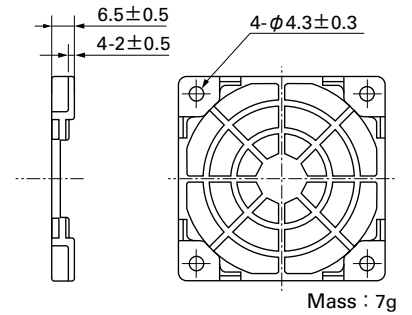
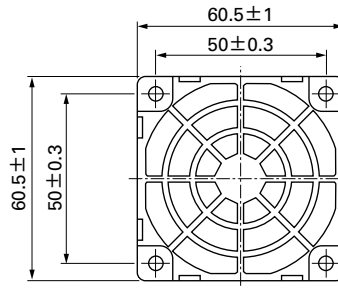
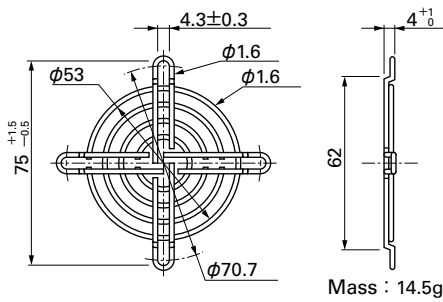
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
 : 109-139H : Cation electropainting (black)

Color

Resin Finger Guards

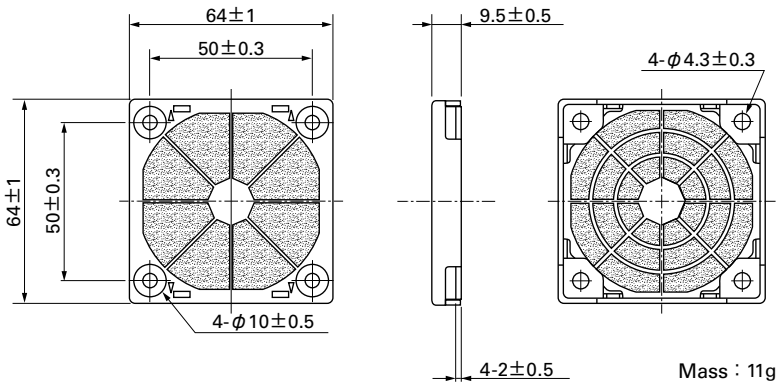
Model : 109-1003G

Inlet side, Outlet side



Resin Filter Kits

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



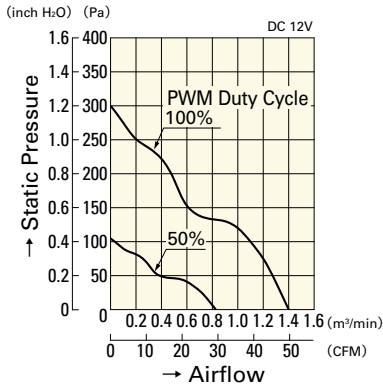
60mm sq.

San Ace 60L

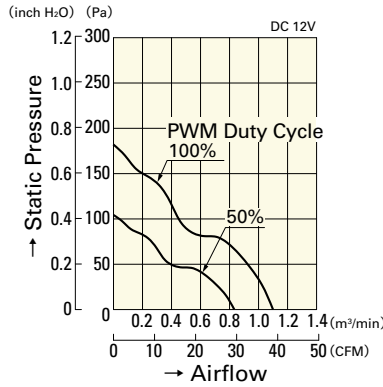
60×60×25mm [Mass : 100g]

Airflow - Static Pressure Characteristics

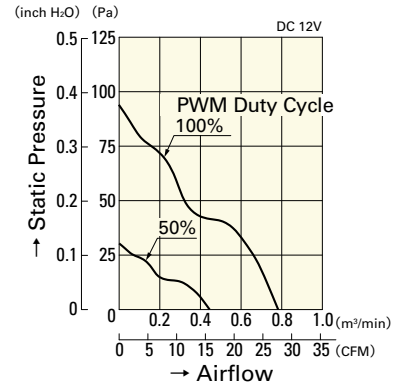
PWM Duty Cycle



9LG0612P4S001

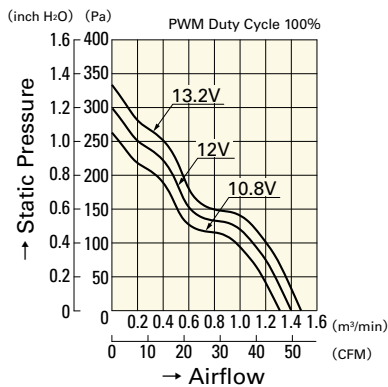


9LG0612P4J001

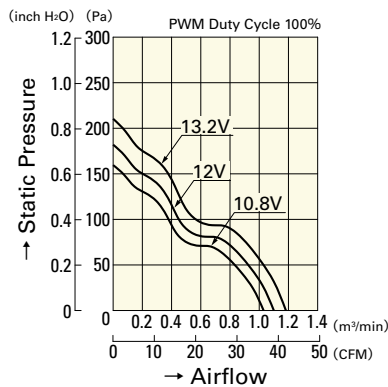


9LG0612P4H001

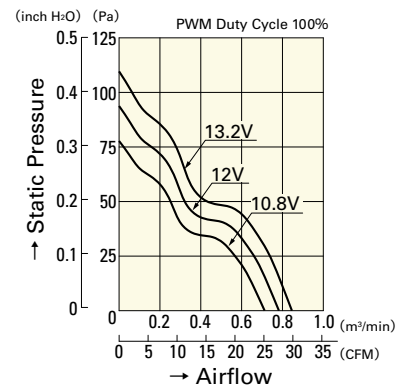
Operating Voltage Range



9LG0612P4S001

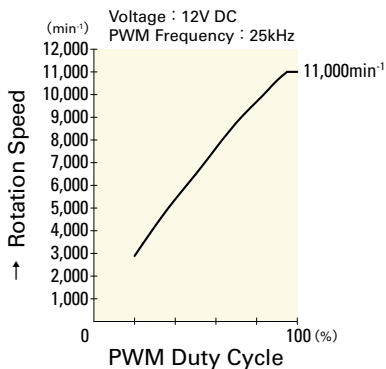


9LG0612P4J001

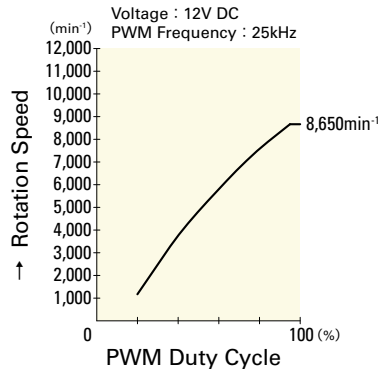


9LG0612P4H001

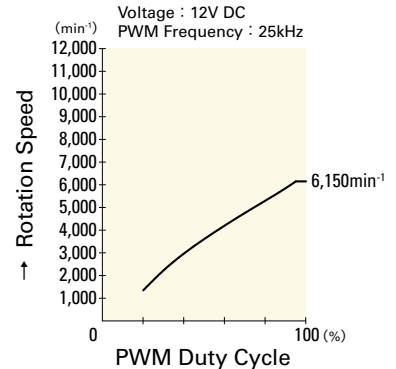
PWM Duty - Speed Characteristics Example



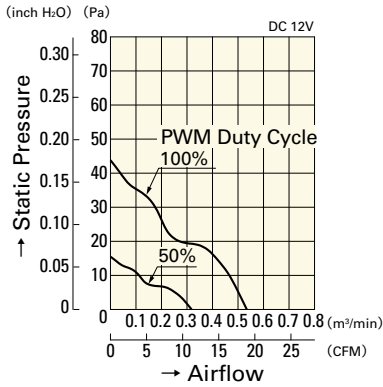
9LG0612P4S001



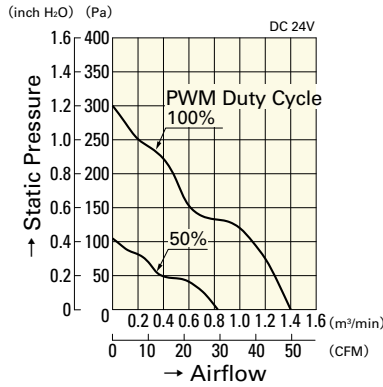
9LG0612P4J001



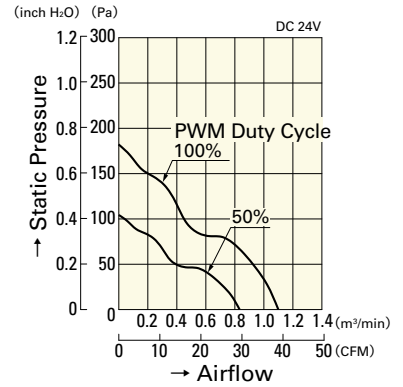
9LG0612P4H001



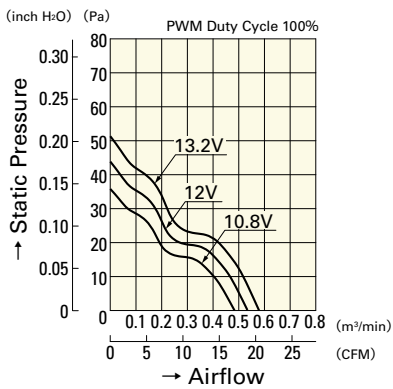
9LG0612P4M001



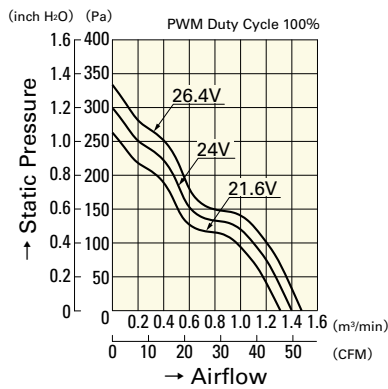
9LG0624P4S001



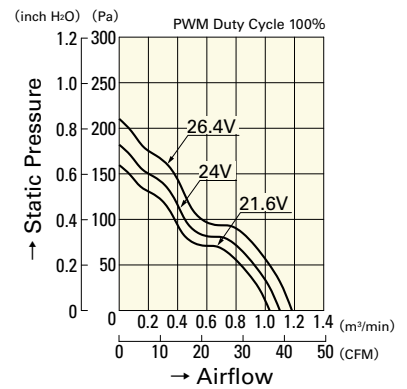
9LG0624P4J001



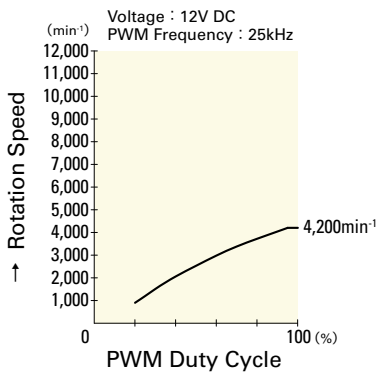
9LG0612P4M001



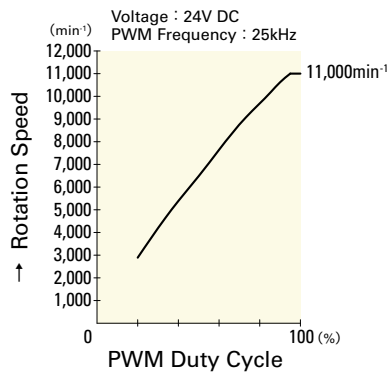
9LG0624P4S001



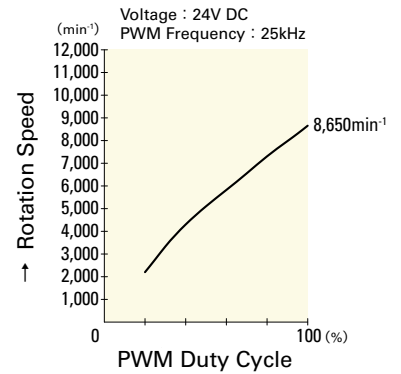
9LG0624P4J001



9LG0612P4M001



9LG0624P4S001



9LG0624P4J001

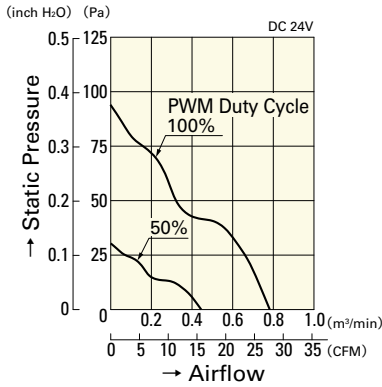
60mm sq.

San Ace 60L

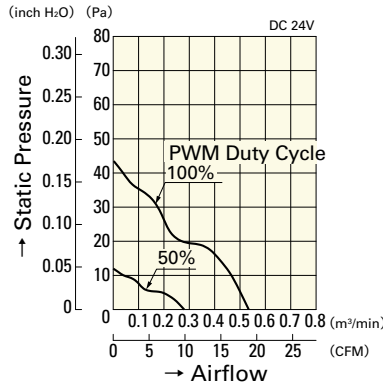
60×60×25mm [Mass : 100g]

Airflow - Static Pressure Characteristics

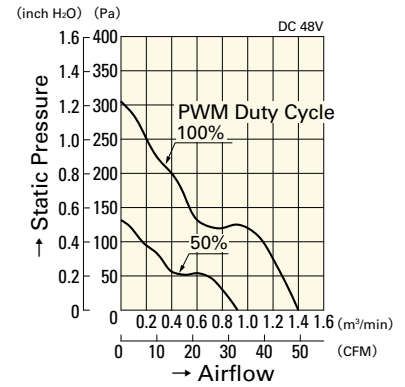
PWM Duty Cycle



9LG0624P4H001

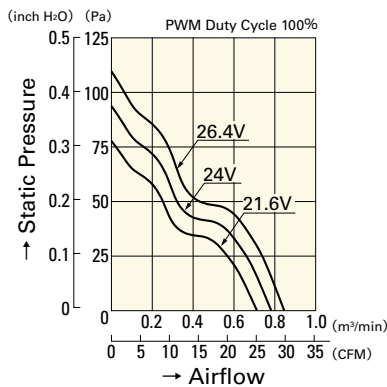


9LG0624P4M001

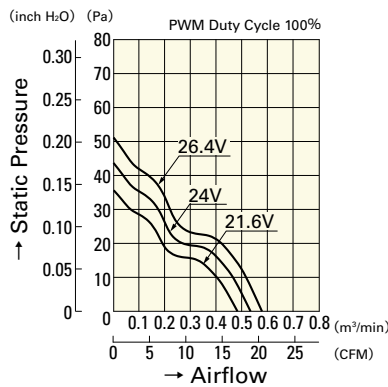


9LG0648P4S001

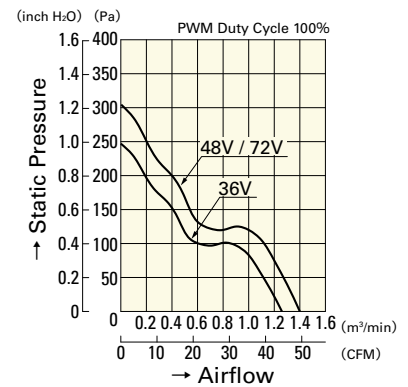
Operating Voltage Range



9LG0624P4H001

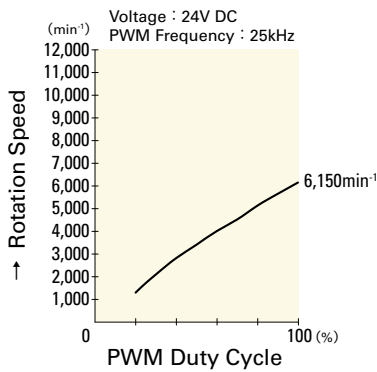


9LG0624P4M001

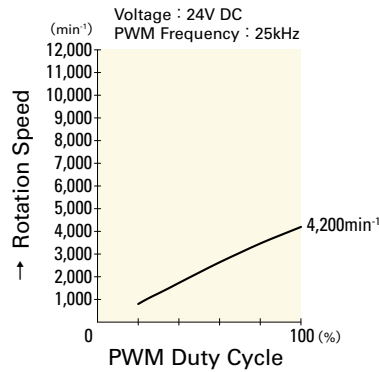


9LG0648P4S001

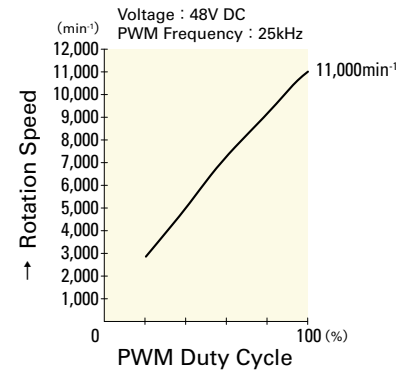
PWM Duty - Speed Characteristics Example



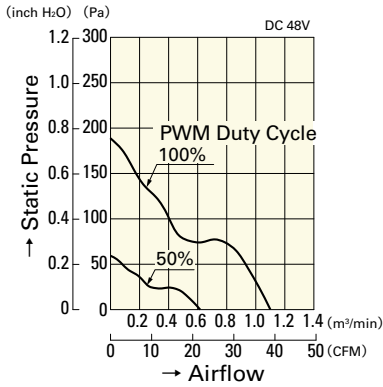
9LG0624P4H001



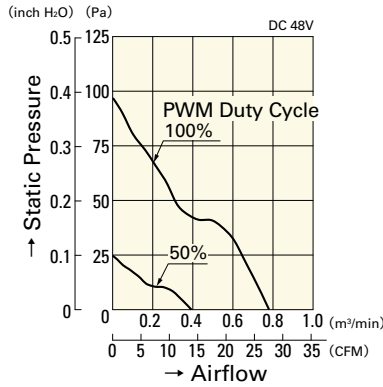
9LG0624P4M001



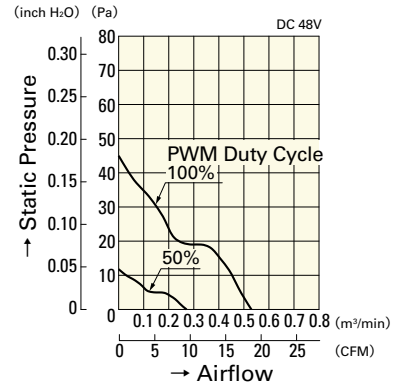
9LG0648P4S001



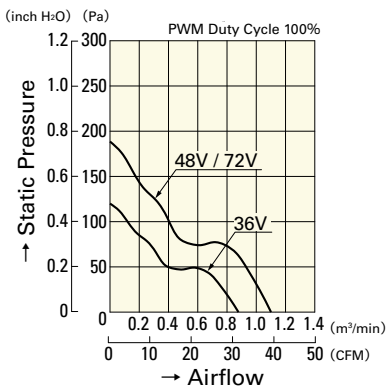
9LG0648P4J001



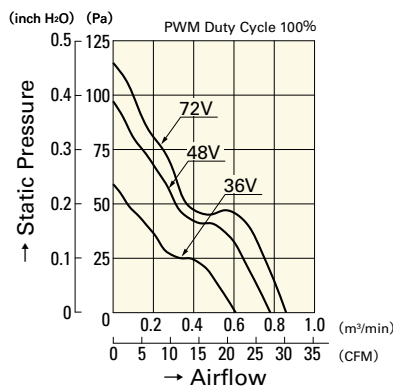
9LG0648P4H001



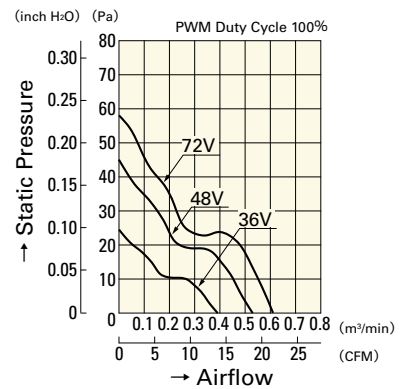
9LG0648P4M001



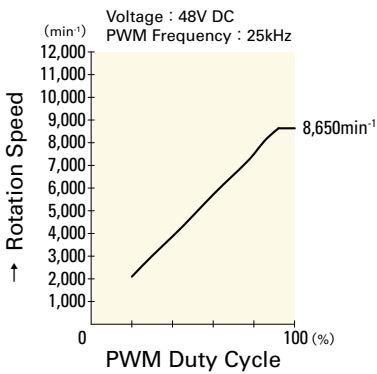
9LG0648P4J001



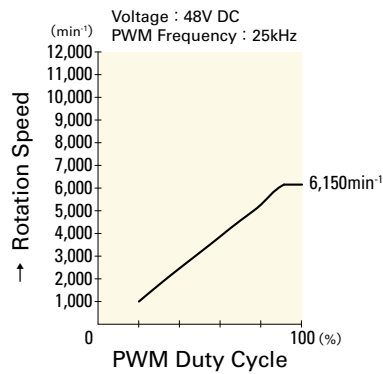
9LG0648P4H001



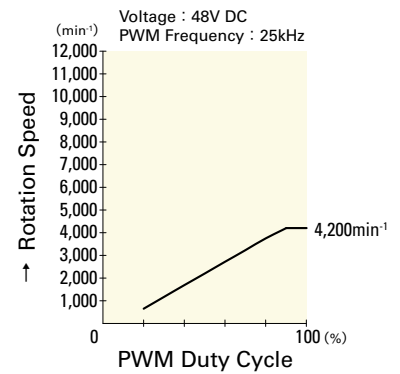
9LG0648P4M001



9LG0648P4J001



9LG0648P4H001



9LG0648P4M001

60mm sq.

San Ace 60L



General Specifications

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

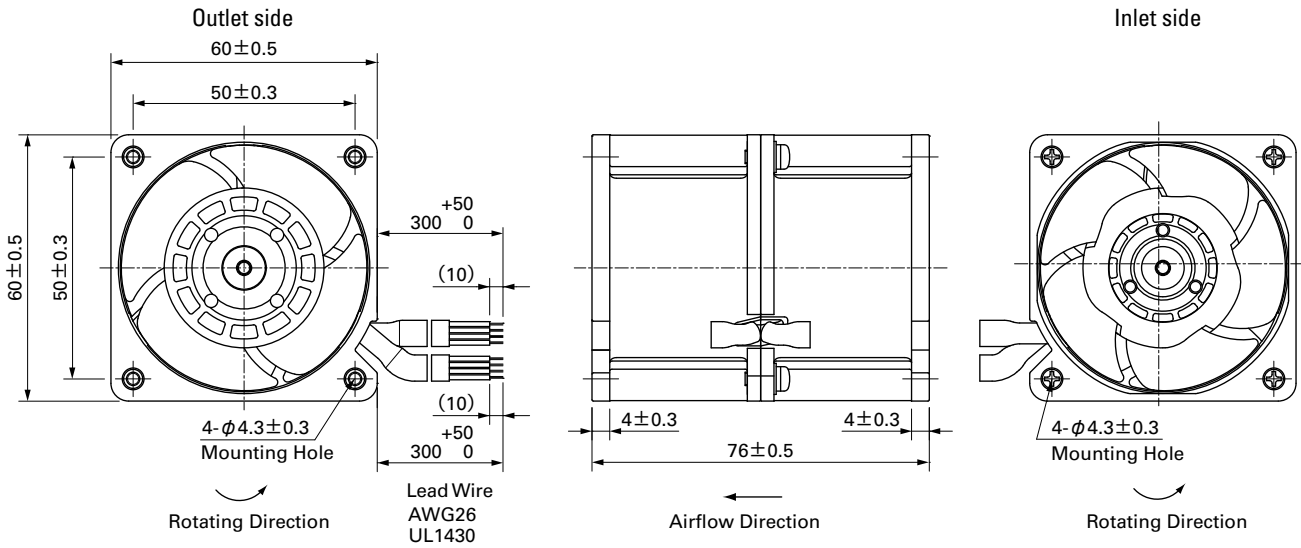
60×60×76mm (Mass : 300g) 9CRL type Counter Rotating

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

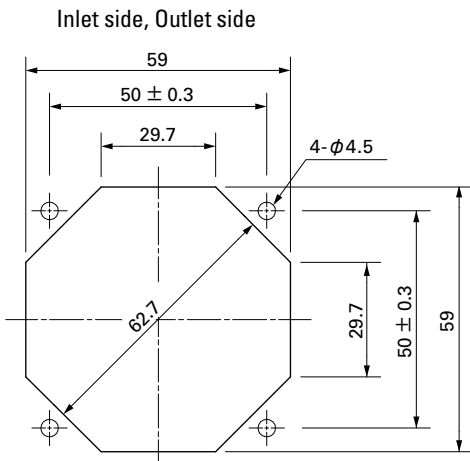
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]		Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
			100	0			Inlet	Outlet	2.0	70.6	1000	4.0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

*PWM Frequency : 25kHz

Dimensions (unit: mm)



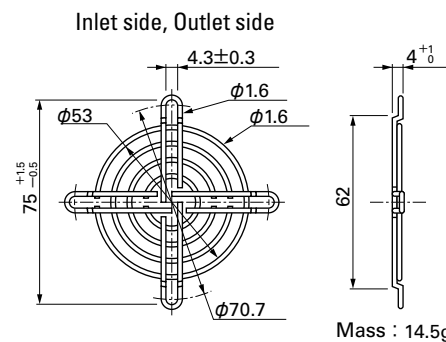
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

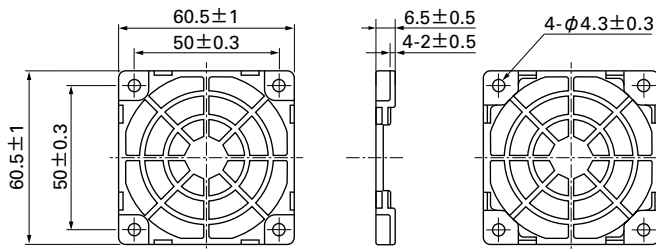
Model : 109-139E Surface treatment : Nickel-chrome plating (silver)
: 109-139H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

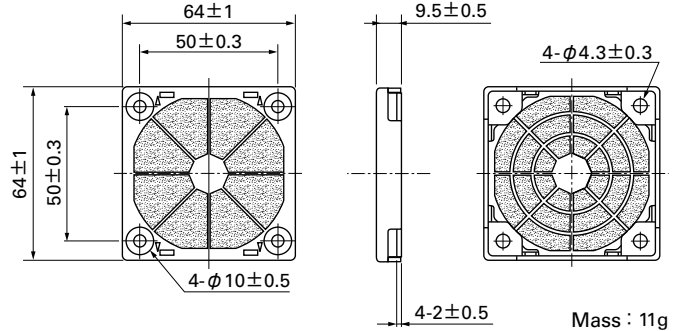
Model : 109-1003G



Mass : 7g

Resin Filter Kits

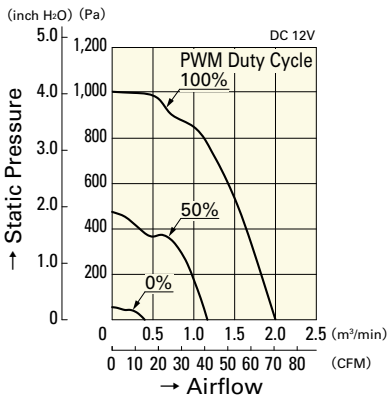
Model : 109-1003F13 (13PPI), 109-1003F20 (20PPI)
: 109-1003F30 (30PPI), 109-1003F40 (40PPI)



Mass : 11g

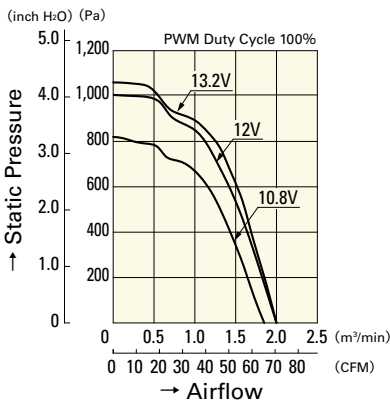
Airflow - Static Pressure Characteristics

PWM Duty Cycle



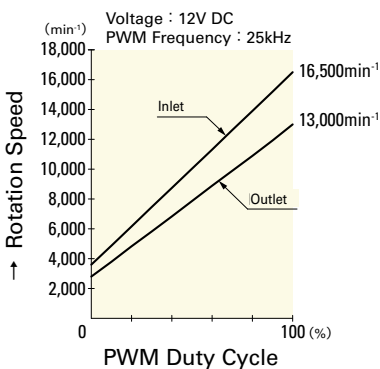
9CRL0612P0G001

Operating Voltage Range



9CRL0612P0G001

PWM Duty - Speed Characteristics Example



9CRL0612P0G001

DC

Long Life Fan 60mm

80mm sq.

San Ace 80L



General Specifications

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

80×80×25mm (Mass : 130g) **9LG type** **High Airflow**

Specifications

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

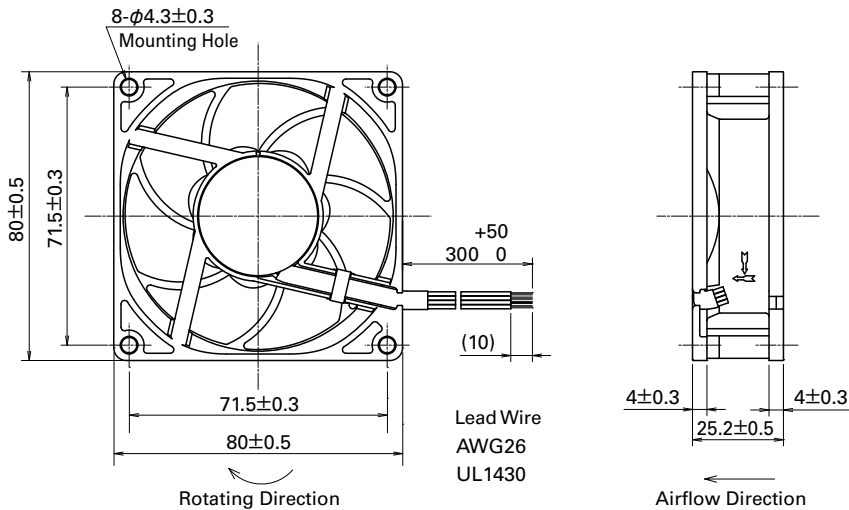
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9LG0812P4J001	12	10.8 to 13.2	100	0.6	7.2	7,400	2.07 73.0	177 0.71	49	-20 to +70	180,000/60°C
			20	0.06	0.72	1,800	0.50 17.6	10.4 0.04	16		
9LG0812P4G001			100	0.30	3.60	5,500	1.54 54.3	98 0.39	43		
			25	0.05	0.60	1,400	0.39 13.7	6.3 0.02	14		
9LG0812P4H001			100	0.12	1.44	3,700	1.03 36.3	44 0.17	31		
			25	0.04	0.48	1,100	0.30 10.5	3.9 0.01	13		
9LG0824P4J001	24	21.6 to 26.4	100	0.28	6.72	7,400	2.07 73.0	177 0.71	49		
			20	0.05	1.20	2,400	0.67 23.6	18.6 0.07	22		
9LG0824P4G001			100	0.14	3.36	5,500	1.54 54.3	98 0.39	43		
			20	0.02	0.48	1,200	0.33 11.6	4.6 0.01	13		
9LG0824P4H001			100	0.05	1.2	3,700	1.03 36.3	44 0.17	31		
			30	0.02	0.48	1,100	0.30 10.5	3.9 0.01	13		

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

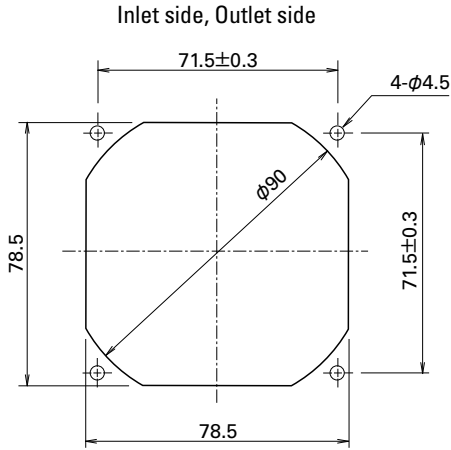
※PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 509).

Dimensions (unit: mm)



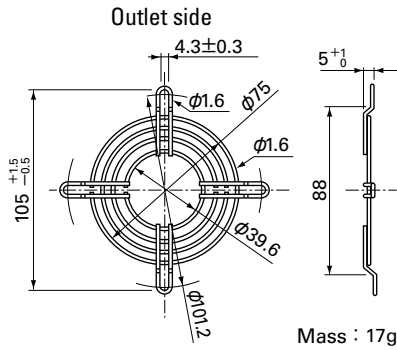
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

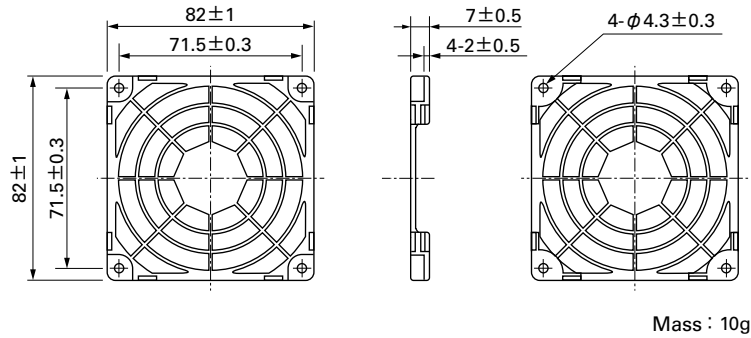
Finger Guards

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

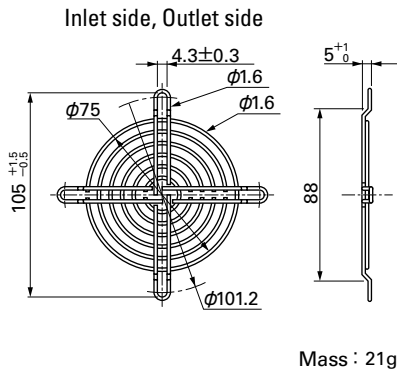


Resin Finger Guards

Model : 109-1002G

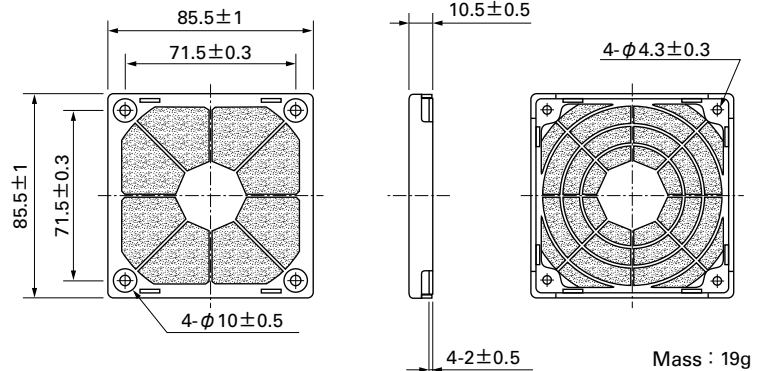


Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color : Nickel-chrome plating (silver)
: 109-049H : Cation electropainting (black)



Resin Filter Kits

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



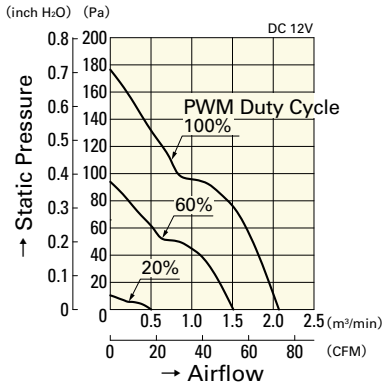
80mm sq.

San Ace 80L

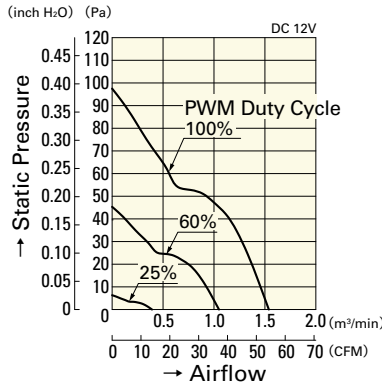
80×80×25mm [Mass : 130g]

Airflow - Static Pressure Characteristics

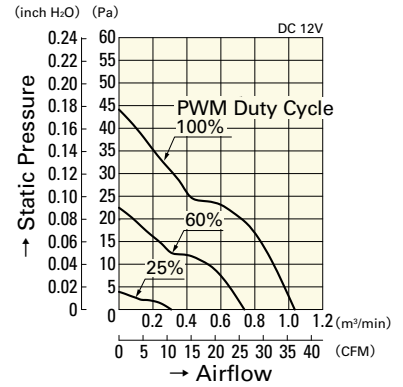
PWM Duty Cycle



9LG0812P4J001

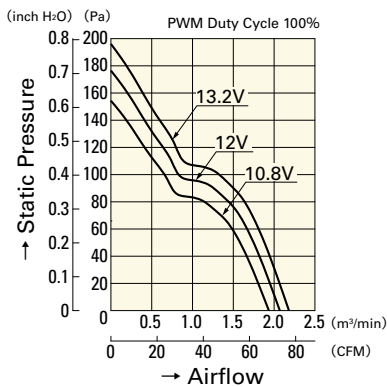


9LG0812P4G001

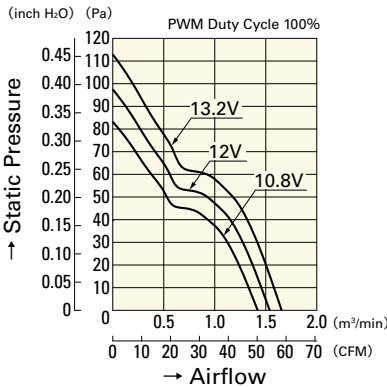


9LG0812P4H001

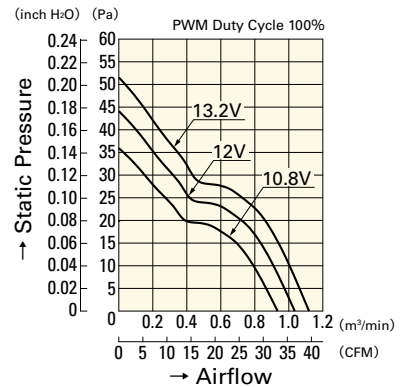
Operating Voltage Range



9LG0812P4J001

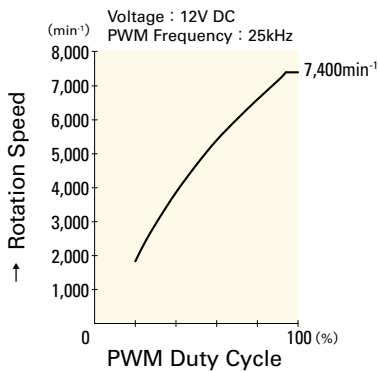


9LG0812P4G001

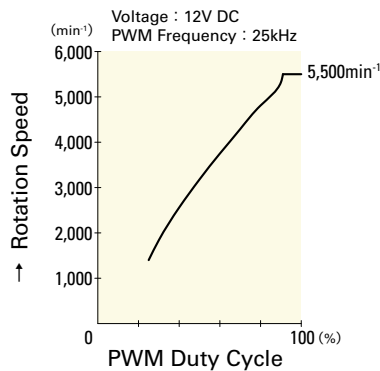


9LG0812P4H001

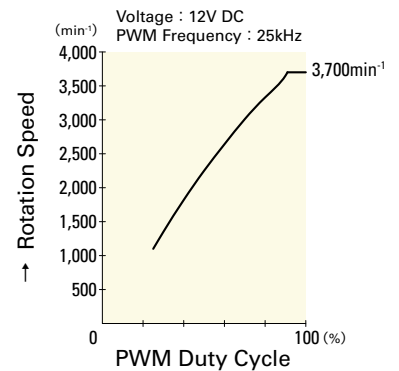
PWM Duty - Speed Characteristics Example



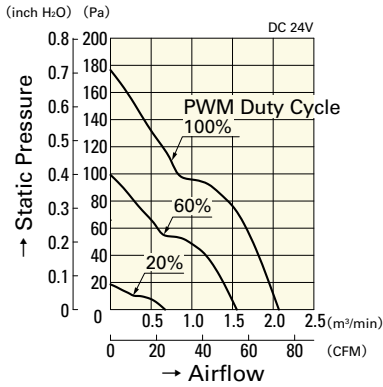
9LG0812P4J001



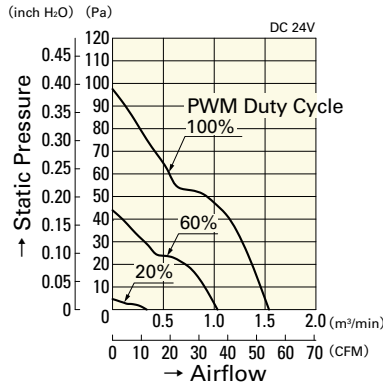
9LG0812P4G001



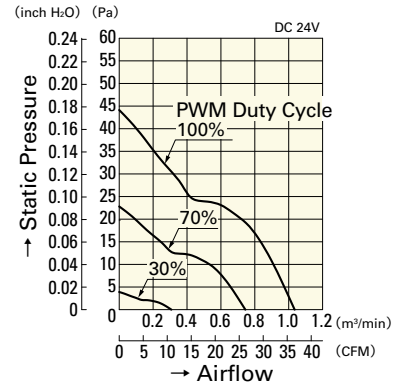
9LG0812P4H001



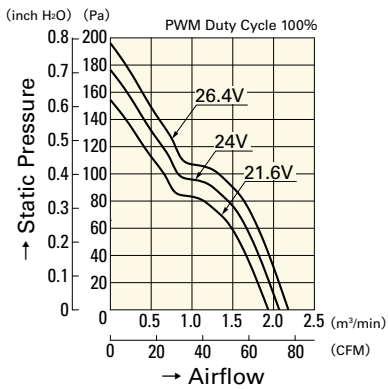
9LG0824P4J001



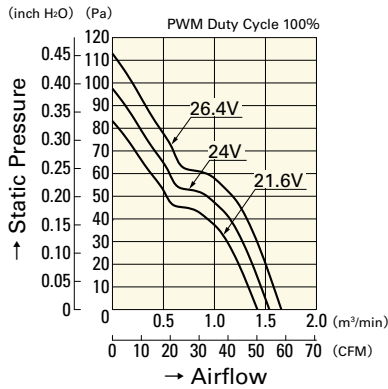
9LG0824P4G001



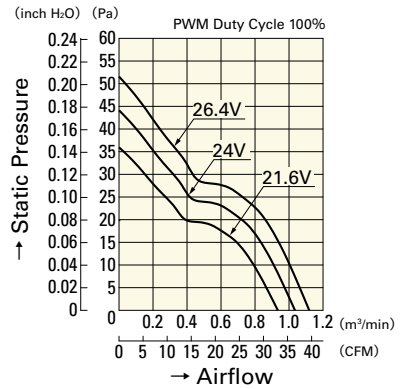
9LG0824P4H001



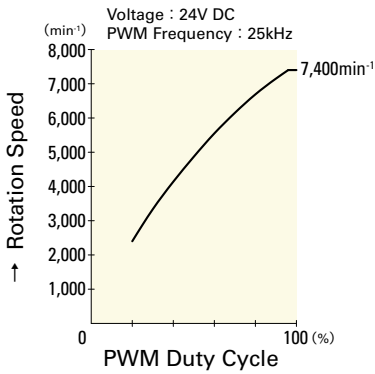
9LG0824P4J001



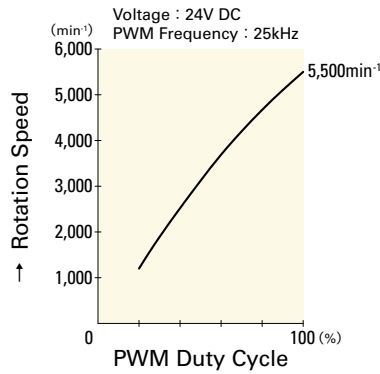
9LG0824P4G001



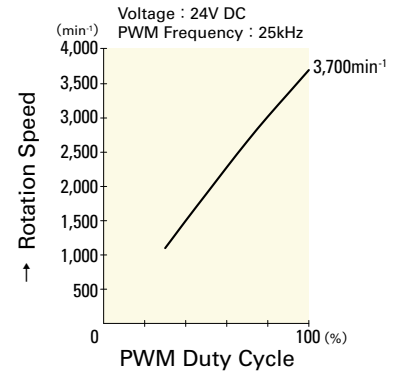
9LG0824P4H001



9LG0824P4J001



9LG0824P4G001



9LG0824P4H001

80 mm sq.

San Ace 80L



General Specifications

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

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



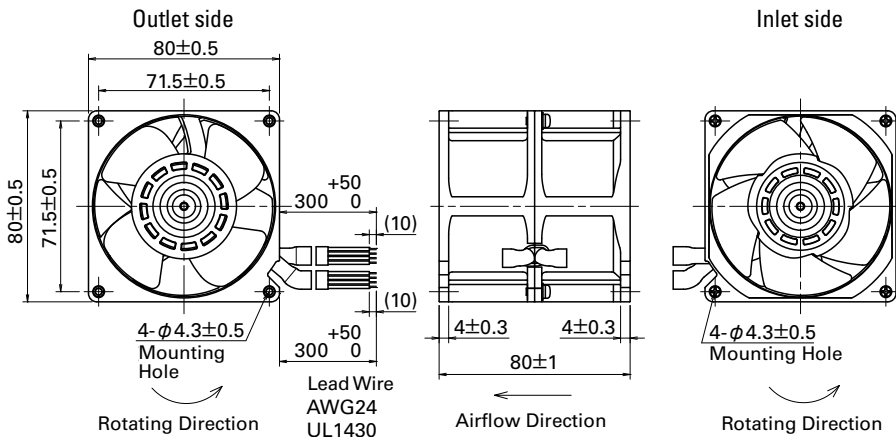
Specifications

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

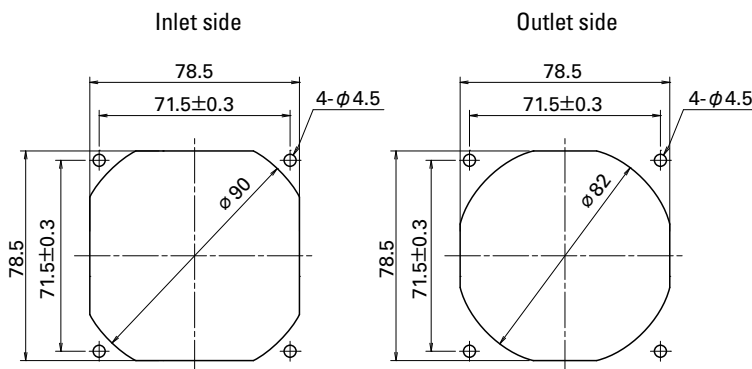
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle* [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
						Inlet	Outlet							
9CRL0812P8G001	12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

※PWM Frequency : 25kHz

Dimensions (unit: mm)



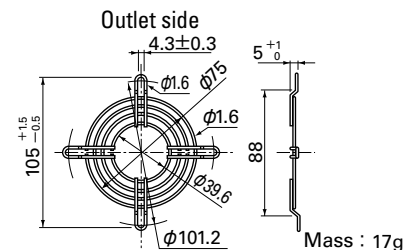
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



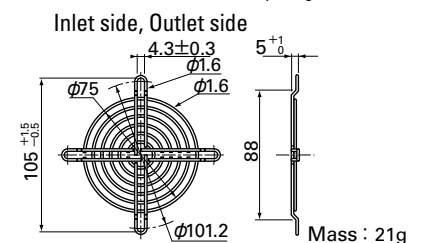
Options (unit: mm)

Finger Guards

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



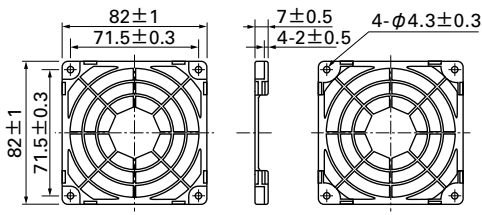
Model : 109-049E Surface treatment : Nickel-chrome plating (silver) Color
: 109-049H : Cation electropainting (black)



Options (unit: mm)

Resin Finger Guards

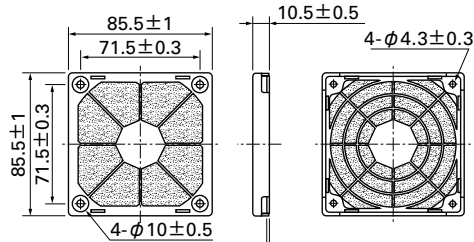
Model : 109-1002G



Mass : 10g

Resin Filter Kits

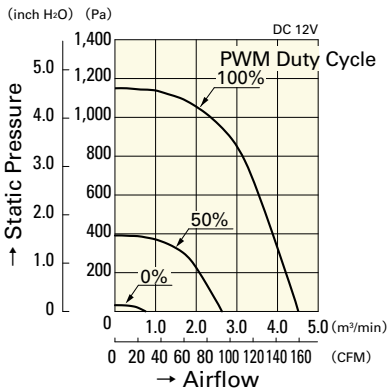
Model : 109-1002F13 (13PPI), 109-1002F20 (20PPI)
: 109-1002F30 (30PPI), 109-1002F40 (40PPI)



Mass : 19g

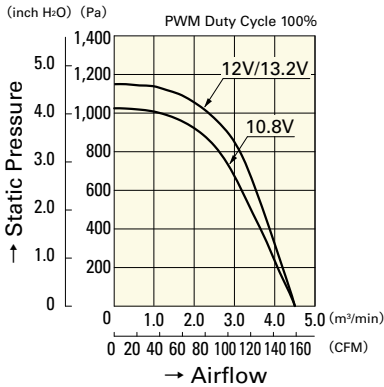
Airflow - Static Pressure Characteristics

PWM Duty Cycle



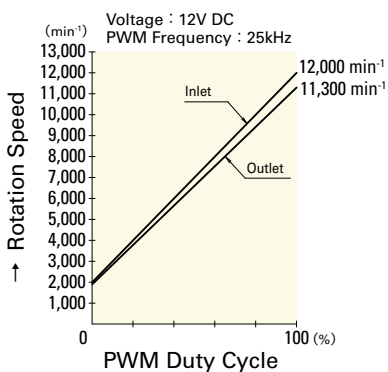
9CRL0812P8G001

Operating Voltage Range



9CRL0812P8G001

PWM Duty - Speed Characteristics Example



9CRL0812P8G001

92mm sq.

San Ace 92L



General Specifications

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

92×92×25mm (Mass : 150g) **9LG type** **High Airflow**

Specifications

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

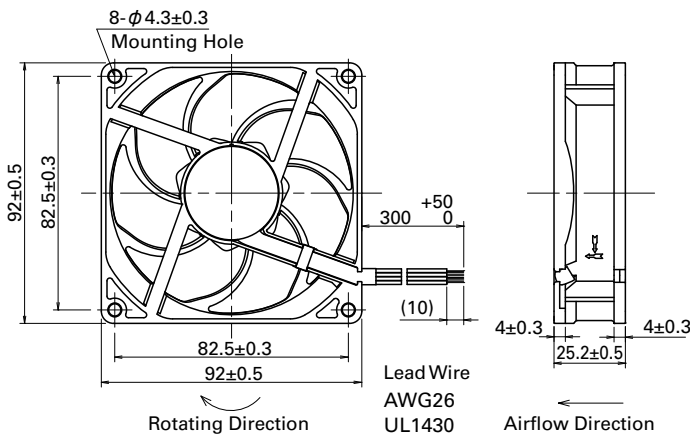
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note 1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9LG0912P4J001	12	10.8 to 13.2	100	0.42	5.04	5,000	2.20 77.7	105 0.42	44	-20 to +70	180,000/60°C
9LG0912P4G001			100	0.30	3.60	4,400	1.93 68.2	81 0.33	40		
9LG0912P4S001			100	0.22	2.64	3,850	1.69 59.7	62.1 0.25	37		
9LG0912P4H001			100	0.15	1.80	3,150	1.38 48.7	41.6 0.17	32		
9LG0924P4J001	24	21.6 to 26.4	100	0.21	5.04	5,000	2.20 77.7	105 0.42	44		
9LG0924P4G001			100	0.15	3.60	4,400	1.93 68.2	81 0.33	40		
9LG0924P4S001			100	0.11	2.64	3,850	1.69 59.7	62.1 0.25	37		
9LG0924P4H001			100	0.07	1.68	3,150	1.38 48.7	41.6 0.17	32		

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

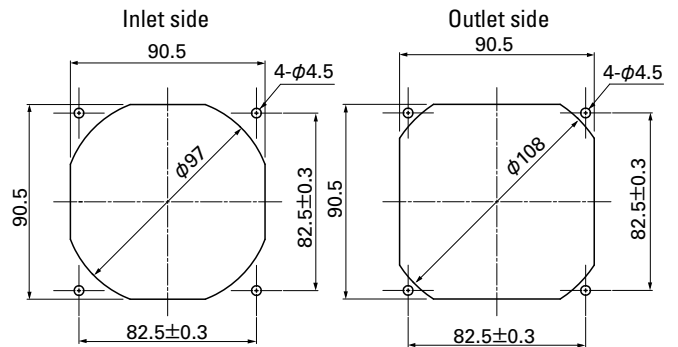
※PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 509).

Dimensions (unit: mm)



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

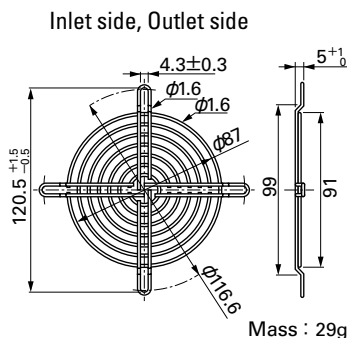
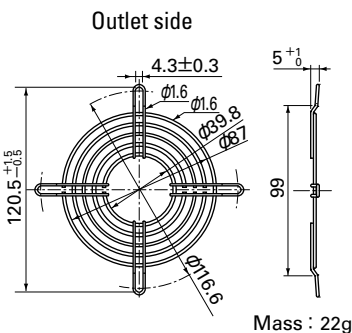


Options (unit: mm)

Finger Guards

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

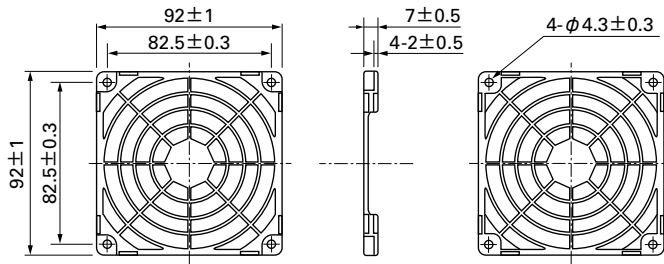
Model : 109-099E Surface treatment : Nickel-chrome plating (silver) Color : Silver
: 109-099H Surface treatment : Cation electropainting (black) Color : Black



Options (unit: mm)

Resin Finger Guards

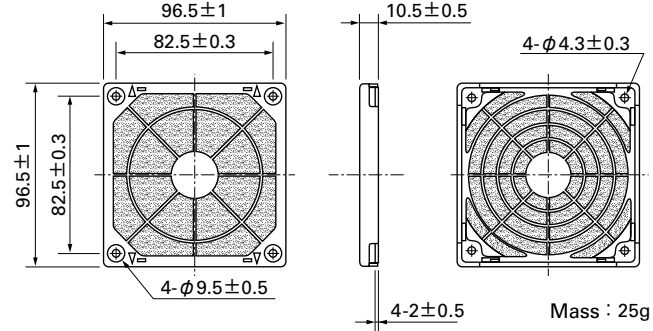
Model : 109-1001G



Mass : 12g

Resin Filter Kits

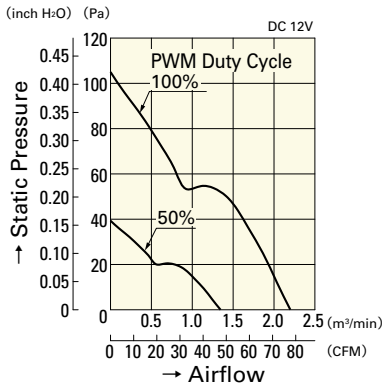
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



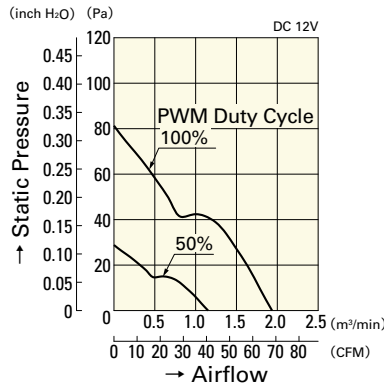
Mass : 25g

Airflow - Static Pressure Characteristics

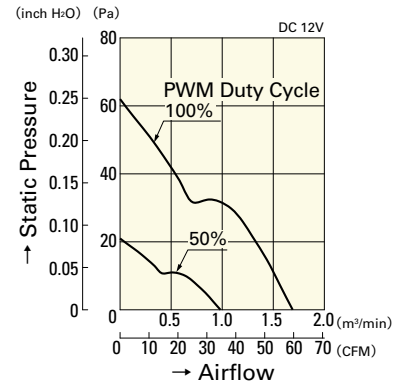
PWM Duty Cycle



9LG0912P4J001

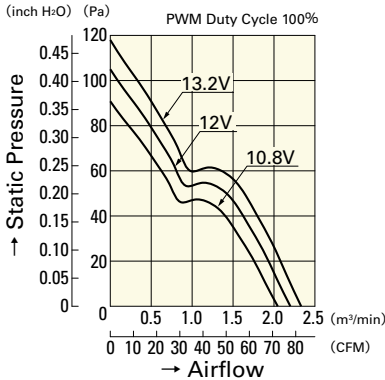


9LG0912P4G001

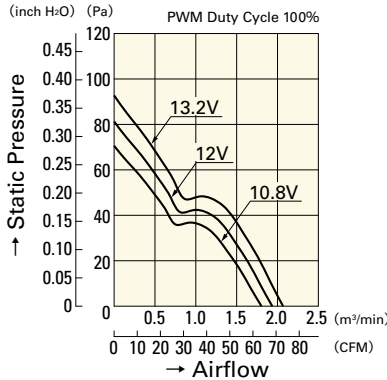


9LG0912P4S001

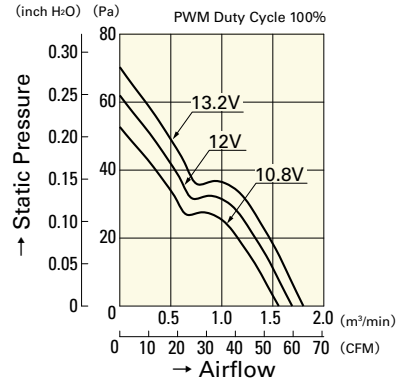
Operating Voltage Range



9LG0912P4J001

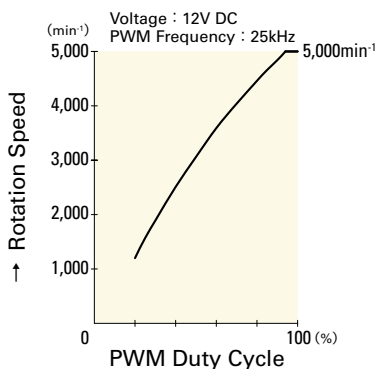


9LG0912P4G001

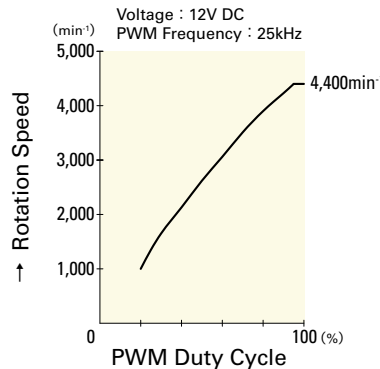


9LG0912P4S001

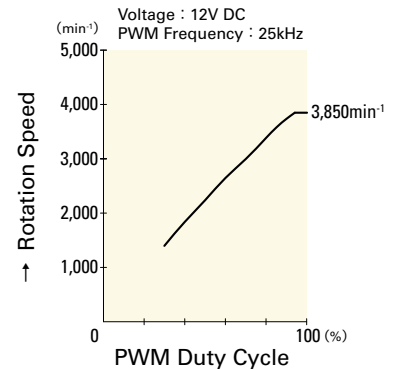
PWM Duty - Speed Characteristics Example



9LG0912P4J001



9LG0912P4G001



9LG0912P4S001

DC Long Life Fan 92mm

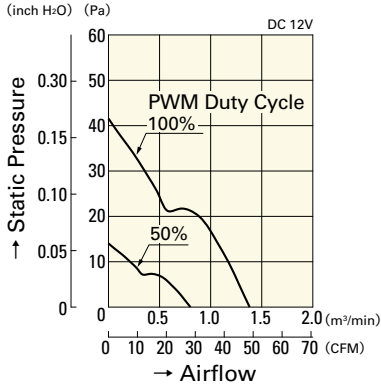
92mm sq.

San Ace 92L

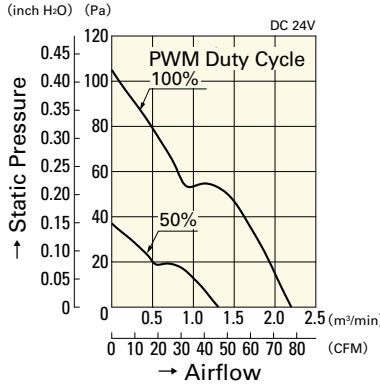
92×92×25mm [Mass : 150g]

Airflow - Static Pressure Characteristics

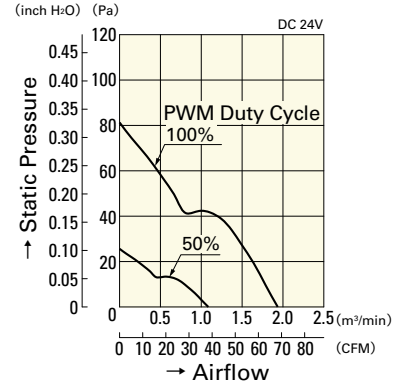
PWM Duty Cycle



9LG0912P4H001

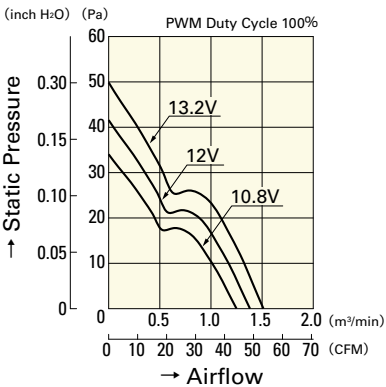


9LG0924P4J001

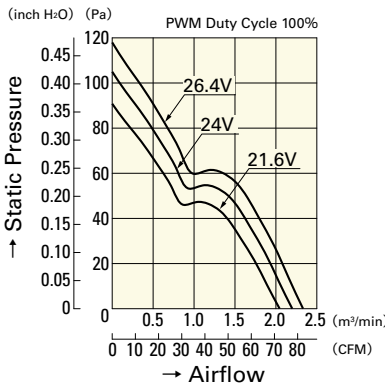


9LG0924P4G001

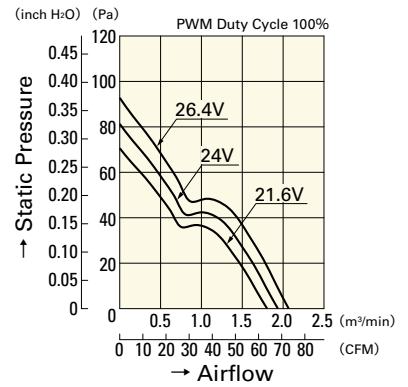
Operating Voltage Range



9LG0912P4H001

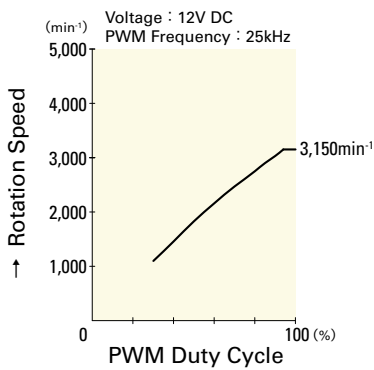


9LG0924P4J001

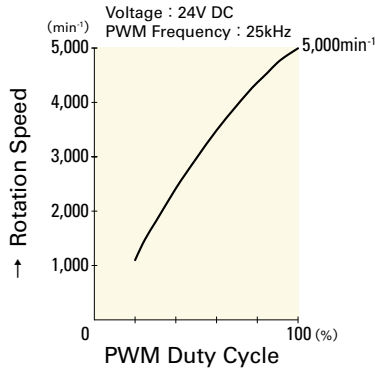


9LG0924P4G001

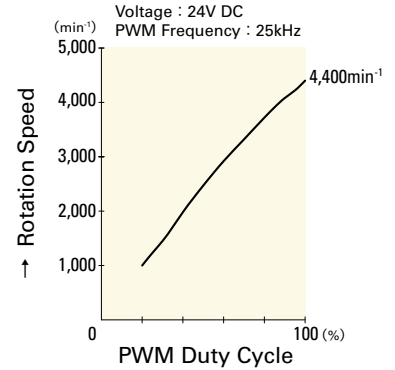
PWM Duty - Speed Characteristics Example



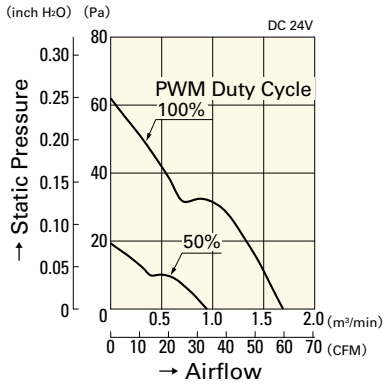
9LG0912P4H001



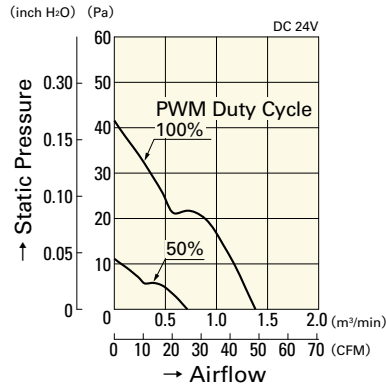
9LG0924P4J001



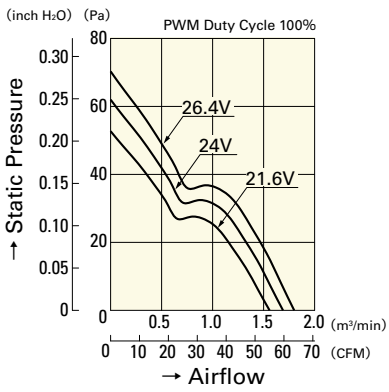
9LG0924P4G001



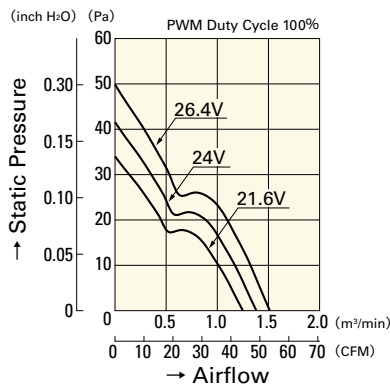
9LG0924P4S001



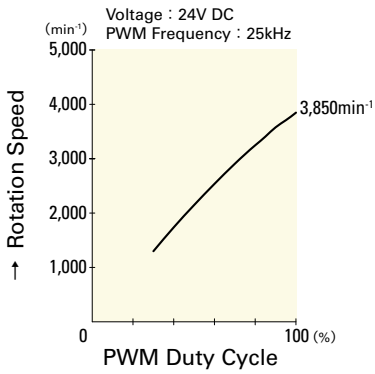
9LG0924P4H001



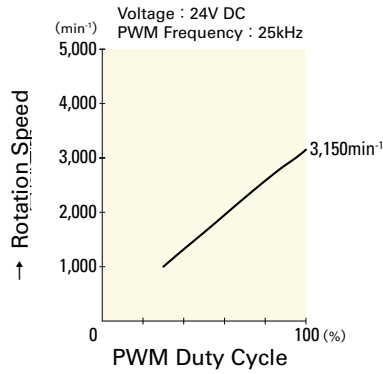
9LG0924P4S001



9LG0924P4H001



9LG0924P4S001



9LG0924P4H001

92mm sq.

San Ace 92L



General Specifications

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

92×92×38mm (Mass : 270g) **9LG type High Airflow**

Specifications

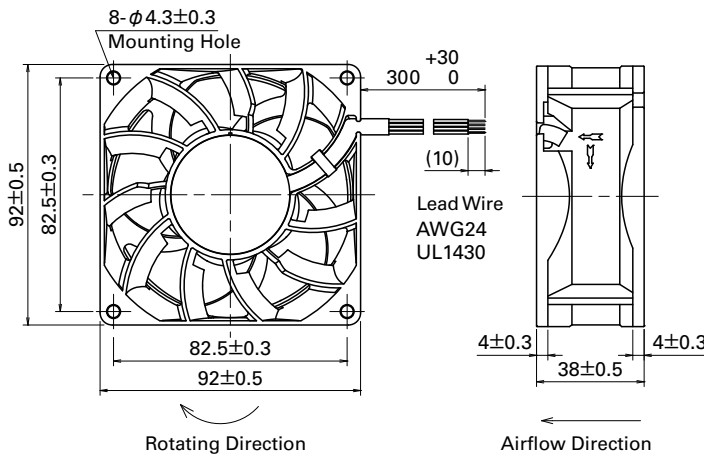
The following nos. **have PWM controls and pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9LG0912P1H001	12	10.2 to 13.8	100	2.0	24.0	9,000	3.70 130.6	430 1.72	61	-20 to +70	180,000/60°C
			20	0.18	2.16	2,700	1.11 39.1	38.7 0.15	30		
9LG0912P1F001			100	1.0	12.0	7,000	2.90 102.4	263 1.05	55		
			20	0.11	1.32	2,000	0.83 29.3	21.5 0.08	22		
9LG0924P1H001	24	20.4 to 27.6	100	0.9	21.6	9,000	3.70 130.6	430 1.72	61		
			20	0.08	1.92	2,700	1.11 39.1	38.7 0.15	30		
9LG0924P1F001			100	0.5	12.0	7,000	2.90 102.4	263 1.05	55		
			20	0.06	1.44	2,000	0.83 29.3	21.5 0.08	22		

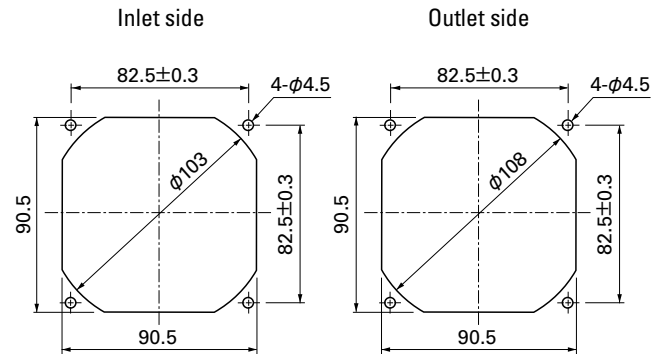
Note : Fan does not rotate when PWM duty cycle is 0%.

※PWM Frequency : 25kHz

Dimensions (unit: mm)



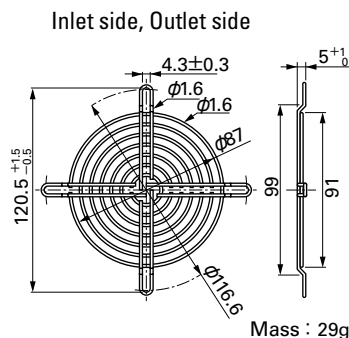
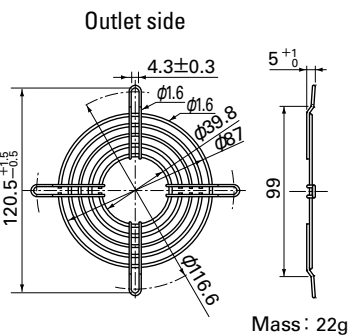
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Finger Guards

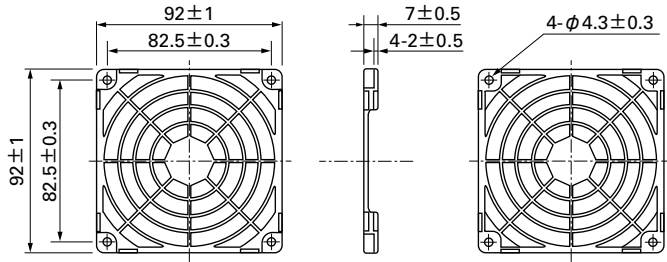
Model : 109-099C Surface treatment : Nickel-chrome plating (silver) Color : Nickel-chrome plating (silver)
 Model : 109-099H Surface treatment : Nickel-chrome plating (silver) Color : Nickel-chrome plating (silver)
 : 109-099H Surface treatment : Cation electropainting (black) Color : Cation electropainting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



Options (unit: mm)

Resin Finger Guards

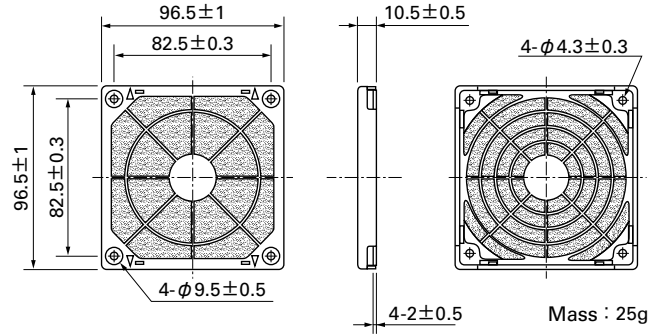
Model : 109-1001G



Mass : 12g

Resin Filter Kits

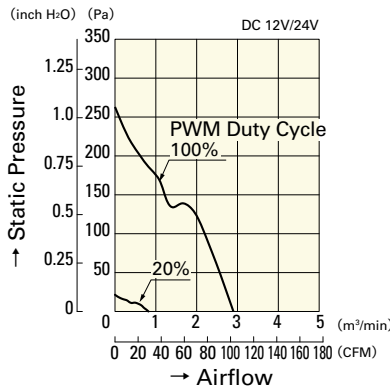
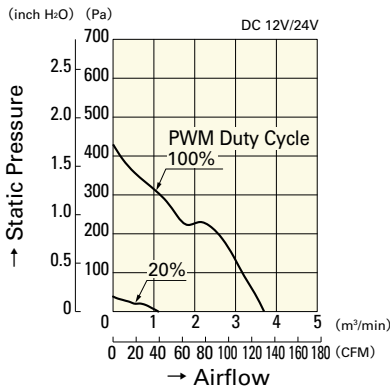
Model : 109-1001F13 (13PPI), 109-1001F20 (20PPI)
: 109-1001F30 (30PPI), 109-1001F40 (40PPI)



Mass : 25g

Airflow - Static Pressure Characteristics

PWM Duty Cycle



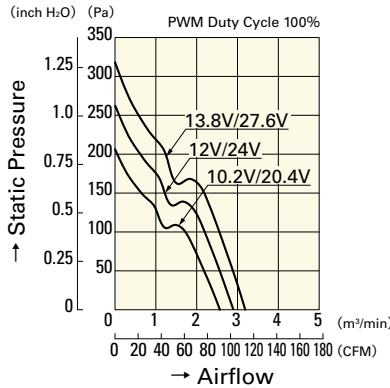
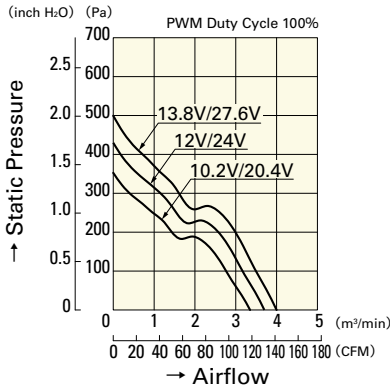
9LG0912P1H001

9LG0924P1H001

9LG0912P1F001

9LG0924P1F001

Operating Voltage Range



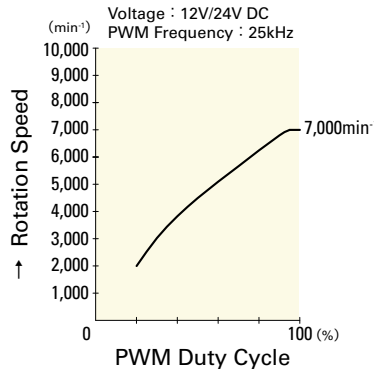
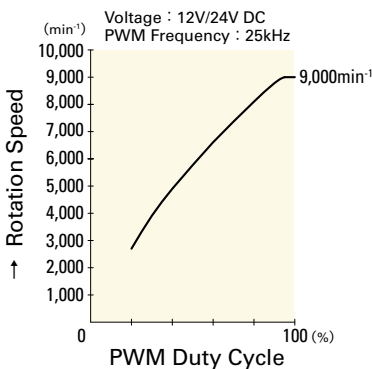
9LG0912P1H001

9LG0924P1H001

9LG0912P1F001

9LG0924P1F001

PWM Duty - Speed Characteristics Example



9LG0912P1H001

9LG0924P1H001

9LG0912P1F001

9LG0924P1F001

DC
Long Life Fan 92mm

120mm sq.

San Ace 120L



General Specifications

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

120×120×38mm [Mass : 420g] **9LG type** **High Airflow**



Specifications

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

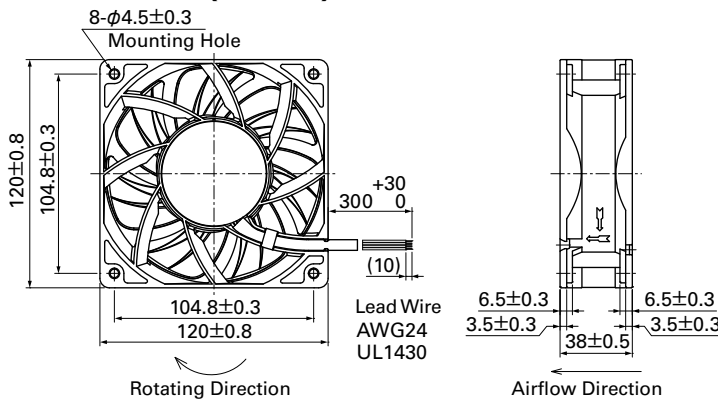
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Model#} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]	
9LG1212P1G001	12	8.0 to 13.8	100	3.2	38.4	6,550	7.00 247.1	370 1.48	62	-20 to +70	180,000/60°C	
			20	0.24	2.88	2,000	2.13 75.2	34.4 0.13	36			
9LG1212P1S001			100	2.2	26.4	5,600	6.00 211.8	270 1.08	58			
			20	0.24	2.88	2,000	2.13 75.2	34.4 0.13	36			
9LG1212P1H001			100	1.4	16.8	4,700	5.00 176.5	190 0.76	54			
			20	0.24	2.88	2,000	2.13 75.2	34.4 0.13	36			
9LG1224P1G001		24	15 to 30	100	1.6	38.4	6,550	7.00 247.1	370 1.48			62
				20	0.12	2.88	2,000	2.13 75.2	34.4 0.13			36
9LG1224P1S001				100	1.1	26.4	5,600	6.00 211.8	270 1.08			58
				20	0.12	2.88	2,000	2.13 75.2	34.4 0.13			36
9LG1224P1H001				100	0.7	16.8	4,700	5.00 176.5	190 0.76			54
				20	0.12	2.88	2,000	2.13 75.2	34.4 0.13			36
9LG1248P1G001	48	36 to 60	100	0.8	38.4	6,550	7.00 247.1	370 1.48	62			
			20	0.08	3.84	2,000	2.13 75.2	34.4 0.13	36			
9LG1248P1S001			100	0.55	26.4	5,600	6.00 211.8	270 1.08	58			
			20	0.08	3.84	2,000	2.13 75.2	34.4 0.13	36			
9LG1248P1H001			100	0.35	16.8	4,700	5.00 176.5	190 0.76	54			
			20	0.08	3.84	2,000	2.13 75.2	34.4 0.13	36			

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

*PWM Frequency : 25kHz

Other sensor specifications are available as options. Please refer to the index (p. 509).

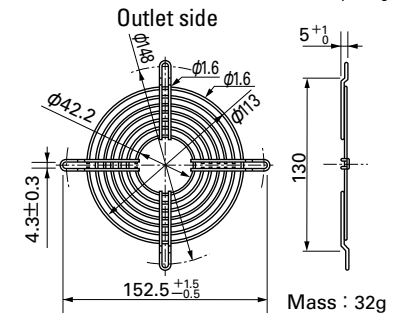
Dimensions (unit: mm)



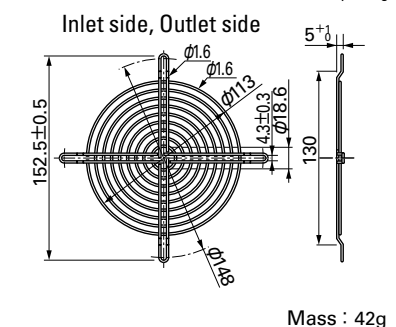
Options (unit: mm)

Finger Guards

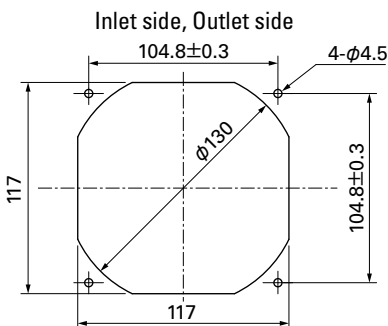
Model : 109-019C Surface treatment : Nickel-chrome plating (silver)
: 109-019H : Cation electropainting (black)



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



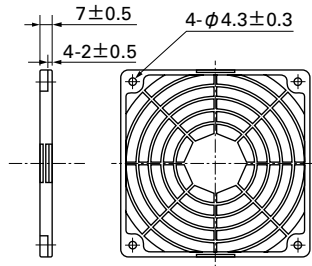
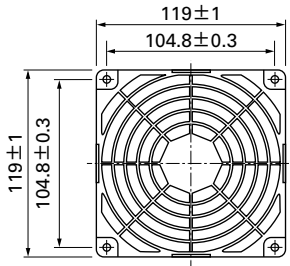
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

Resin Finger Guards

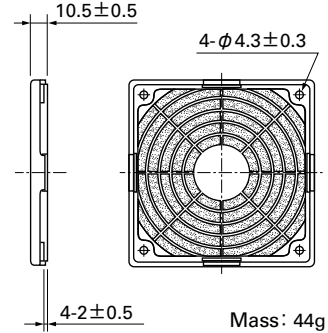
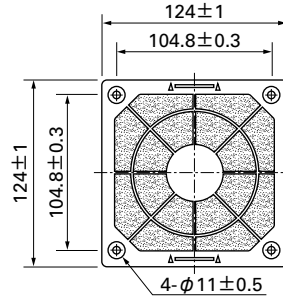
Model : 109-1000G



Mass : 23g

Resin Filter Kits

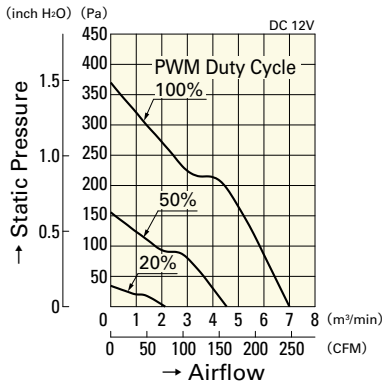
Model : 109-1000F13 (13PPI), 109-1000F20 (20PPI)
: 109-1000F30 (30PPI), 109-1000F40 (40PPI)



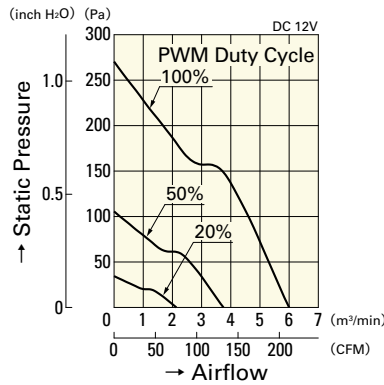
Mass : 44g

Airflow - Static Pressure Characteristics

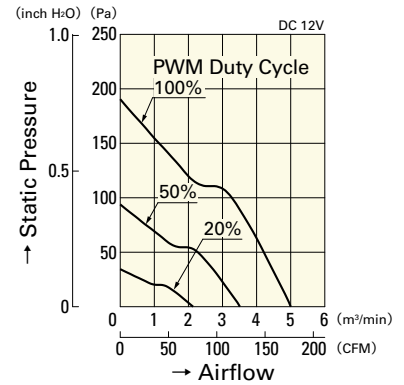
PWM Duty Cycle



9LG1212P1G001

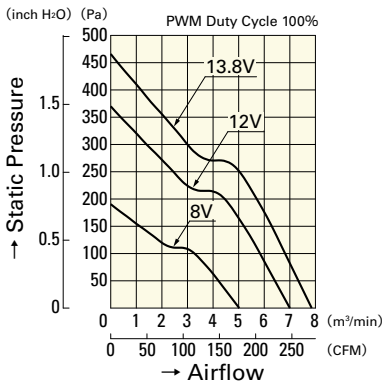


9LG1212P1S001

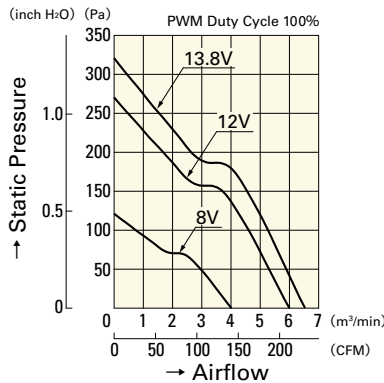


9LG1212P1H001

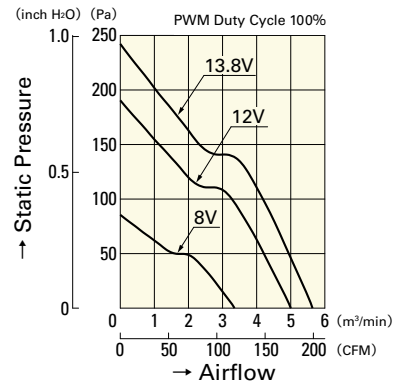
Operating Voltage Range



9LG1212P1G001

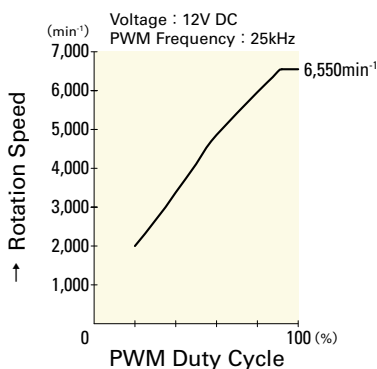


9LG1212P1S001

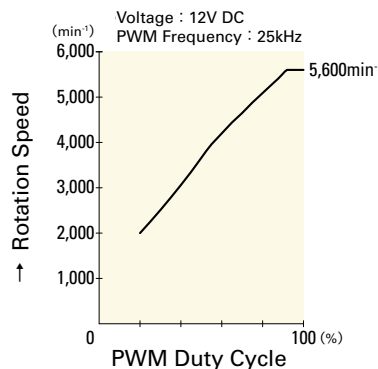


9LG1212P1H001

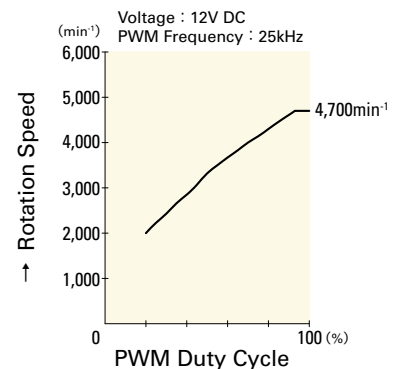
PWM Duty - Speed Characteristics Example



9LG1212P1G001



9LG1212P1S001



9LG1212P1H001

DC Long Life Fan 120mm

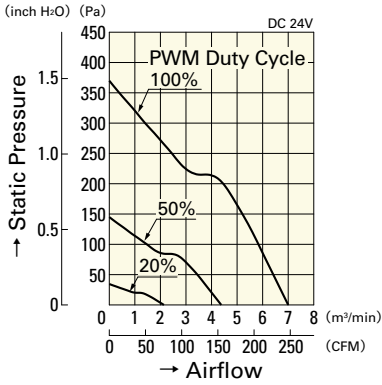
120mm sq.

San Ace 120L

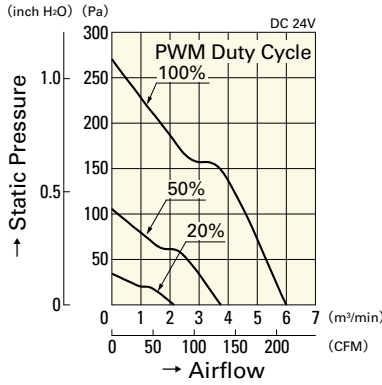
120×120×38mm [Mass : 420g]

Airflow - Static Pressure Characteristics

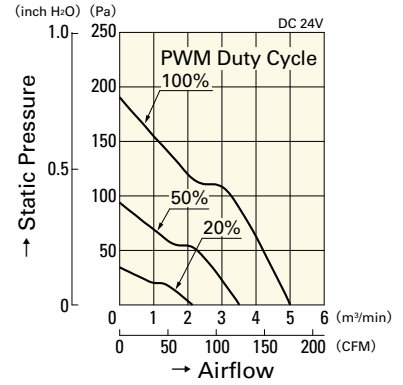
PWM Duty Cycle



9LG1224P1G001

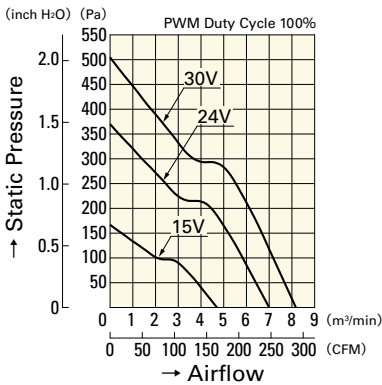


9LG1224P1S001

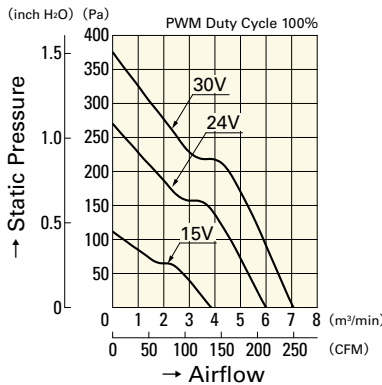


9LG1224P1H001

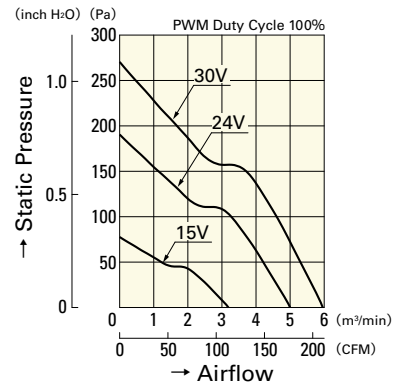
Operating Voltage Range



9LG1224P1G001

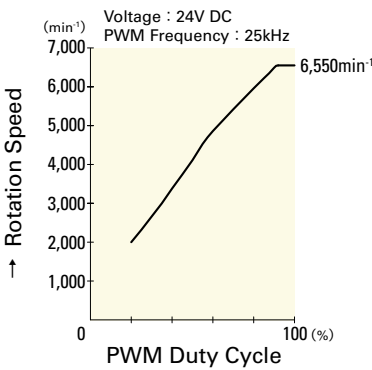


9LG1224P1S001

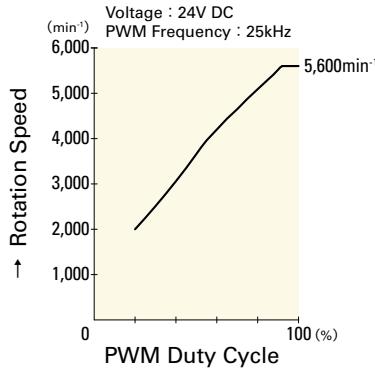


9LG1224P1H001

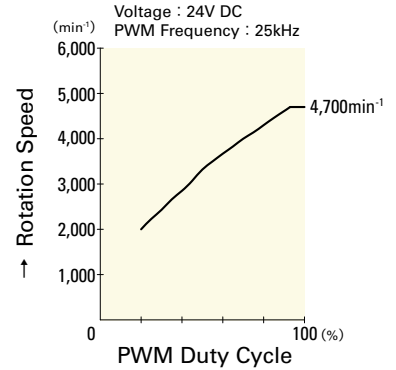
PWM Duty - Speed Characteristics Example



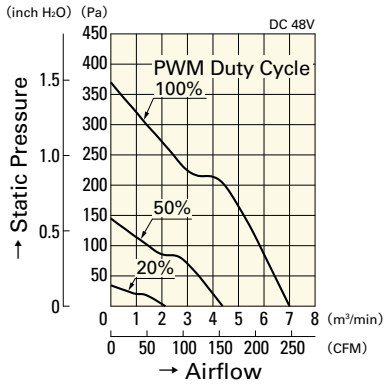
9LG1224P1G001



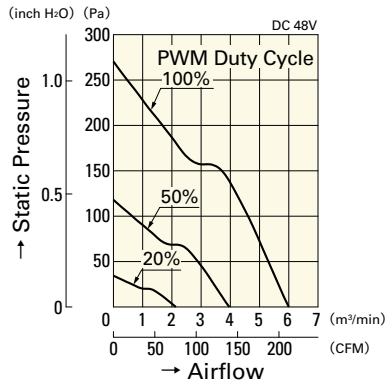
9LG1224P1S001



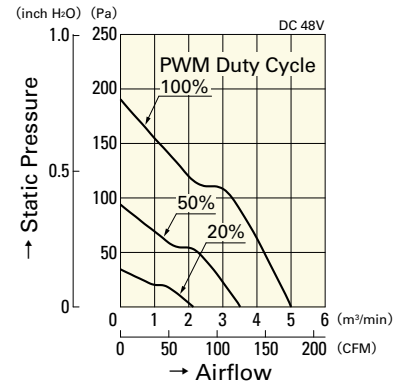
9LG1224P1H001



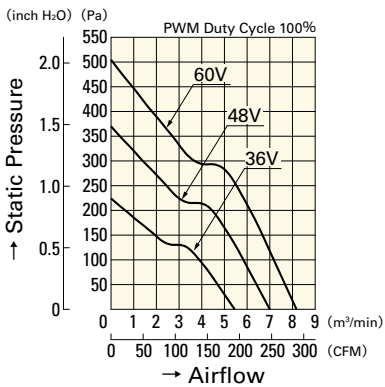
9LG1248P1G001



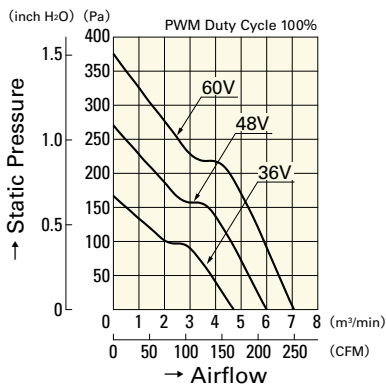
9LG1248P1S001



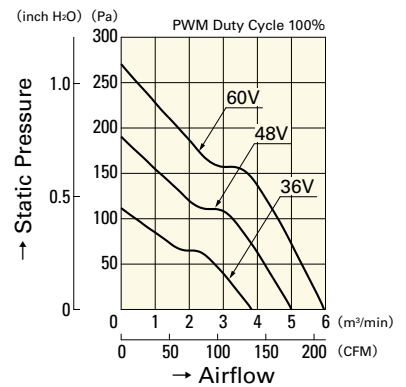
9LG1248P1H001



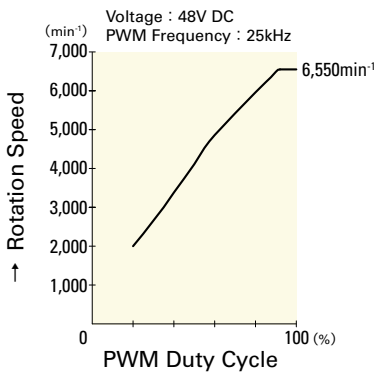
9LG1248P1G001



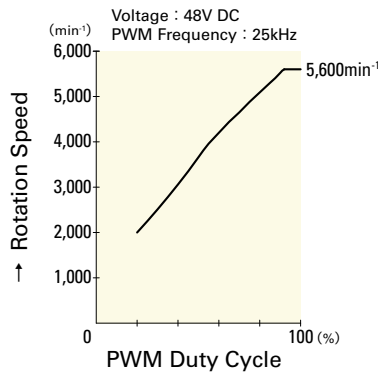
9LG1248P1S001



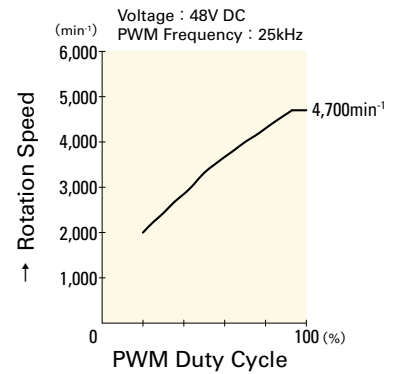
9LG1248P1H001



9LG1248P1G001



9LG1248P1S001



9LG1248P1H001

120mm sq.

San Ace 120L



General Specifications

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

120×120×38mm (Mass : 370g) **9GL type**

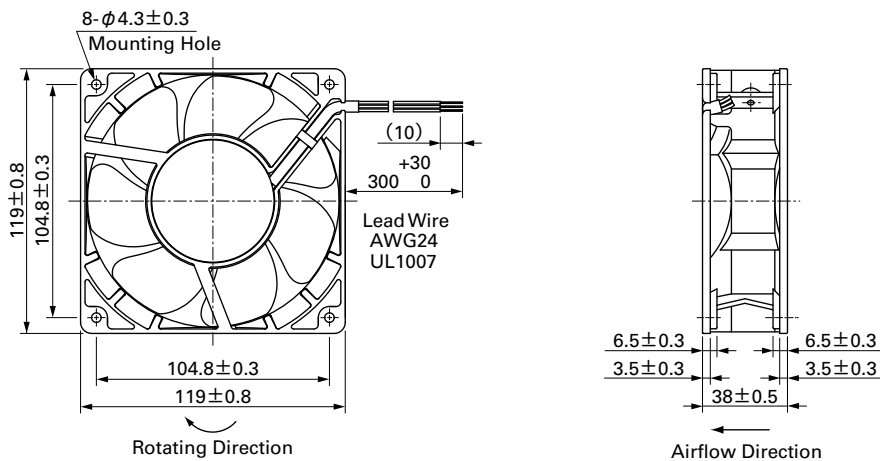
Specifications

The following nos. **have pulse sensors.**

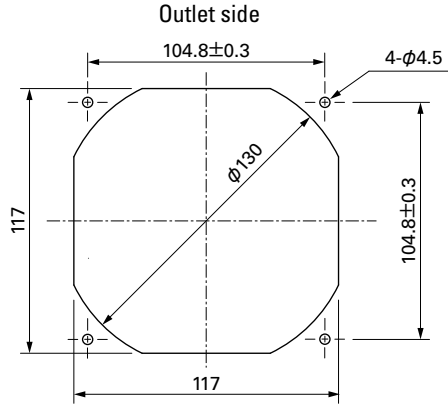
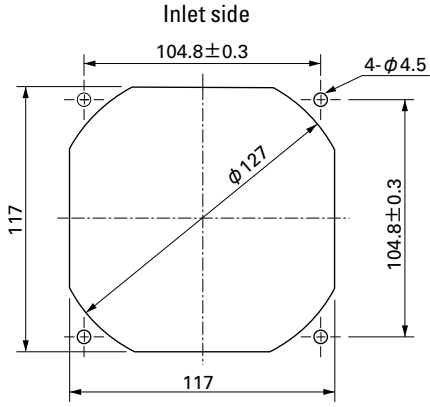
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]	
9GL1212G101	12	10.2 to 13.8	0.98	11.8	3,600	3.88 137	135 0.542	49	- 20 to + 70	80,000/60°C	
9GL1212E101			0.61	7.32	3,100	3.34 118	100 0.402	46		100,000/60°C	
9GL1212H101		7 to 13.8	0.38	4.56	2,600	2.80 99	70.4 0.283	39		80,000/60°C	
9GL1212F101			0.28	3.36	2,280	2.45 87	54.2 0.218	36		100,000/60°C	
9GL1212M101			0.21	2.52	1,950	2.10 74	39.6 0.159	32		80,000/60°C	
9GL1224G101	24	20.4 to 27.6	0.50	12.0	3,600	3.88 137	135 0.542	49		- 20 to + 70	80,000/60°C
9GL1224E101			0.34	8.16	3,100	3.34 118	100 0.402	46			100,000/60°C
9GL1224H101		14 to 27.6	0.22	5.28	2,600	2.80 99	70.4 0.283	39			80,000/60°C
9GL1224F101			0.16	3.84	2,280	2.45 87	54.2 0.218	36			100,000/60°C
9GL1224M101			0.11	2.64	1,950	2.10 74	39.6 0.159	32			80,000/60°C
9GL1248G101	48	40.8 to 55.2	0.25	12.0	3,600	3.88 137	135 0.542	49	- 20 to + 70		80,000/60°C
9GL1248E101			0.17	8.16	3,100	3.34 118	100 0.402	46			100,000/60°C
9GL1248H101			0.11	5.28	2,600	2.80 99	70.4 0.283	39			80,000/60°C
9GL1248F101			0.09	4.32	2,280	2.45 87	54.2 0.218	36			100,000/60°C
9GL1248M101			0.07	3.36	1,950	2.10 74	39.6 0.159	32			80,000/60°C

Other sensor specifications are available as options. Please refer to the index (p. 506).

Dimensions (unit: mm)



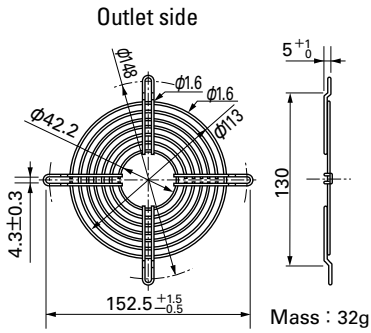
Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options (unit: mm)

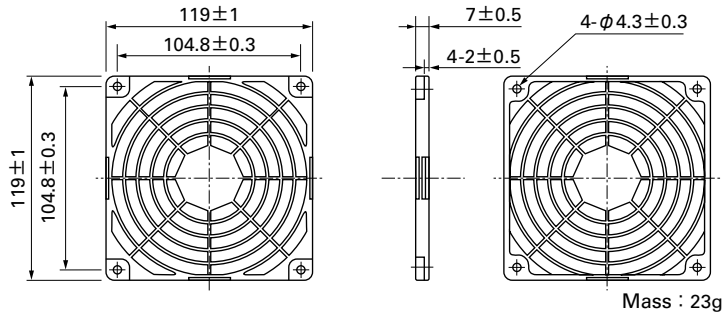
Finger Guards

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

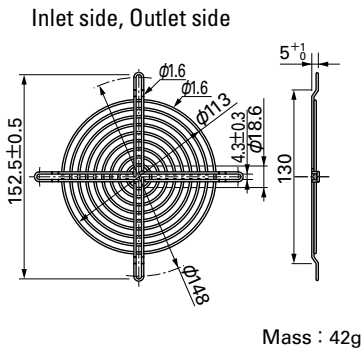


Resin Finger Guards

Model : 109-1000G

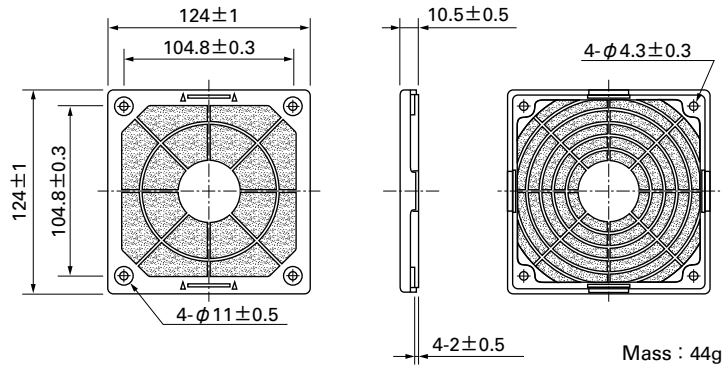


Model : 109-019E Surface treatment : Nickel-chrome plating (silver) Color
: 109-019K : Cation electropainting (black)



Resin Filter Kits

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

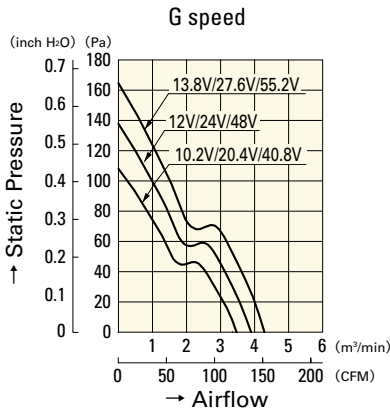


120 mm sq.

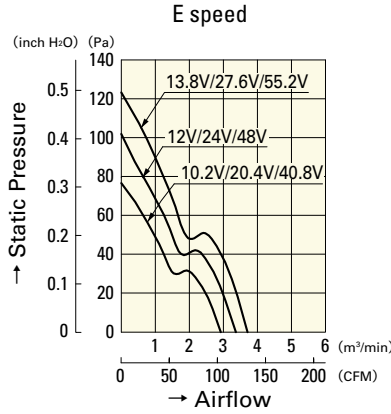
San Ace 120L

120×120×38mm (Mass : 370g)

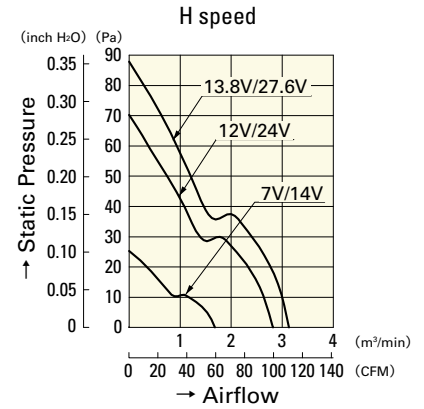
Airflow - Static Pressure Characteristics



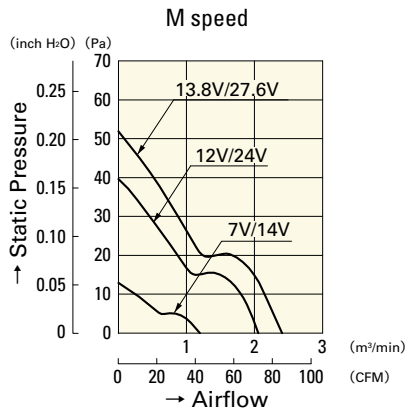
9GL1212G101
9GL1224G101
9GL1248G101



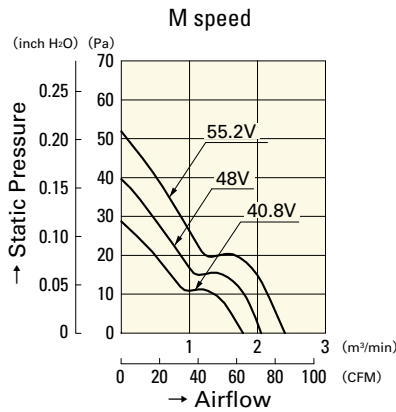
9GL1212E101
9GL1224E101
9GL1248E101



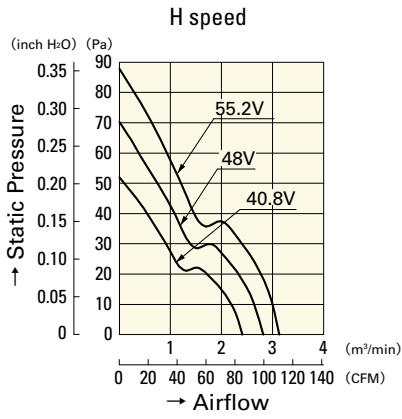
9GL1212H101
9GL1224H101



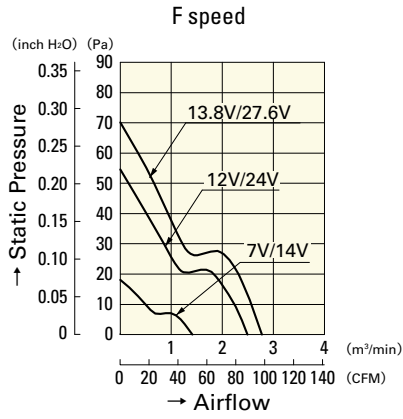
9GL1212M101
9GL1224M101



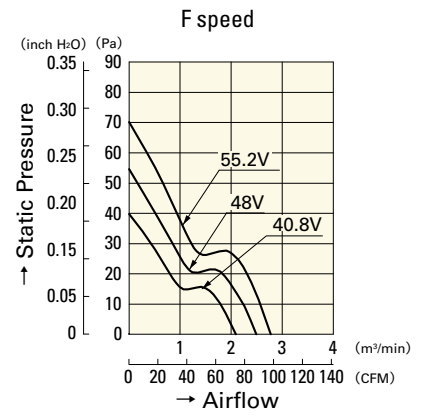
9GL1248M101



9GL1248H101



9GL1212F101
9GL1224F101



9GL1248F101

140 mm sq.

San Ace 140L



General Specifications

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

140×140×38mm (Mass : 600g) **9L** type

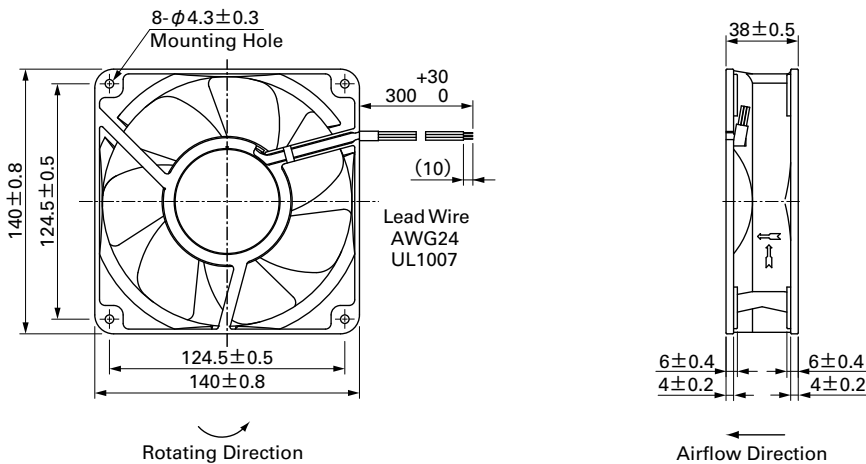
Specifications

The following nos. **have pulse sensors.**

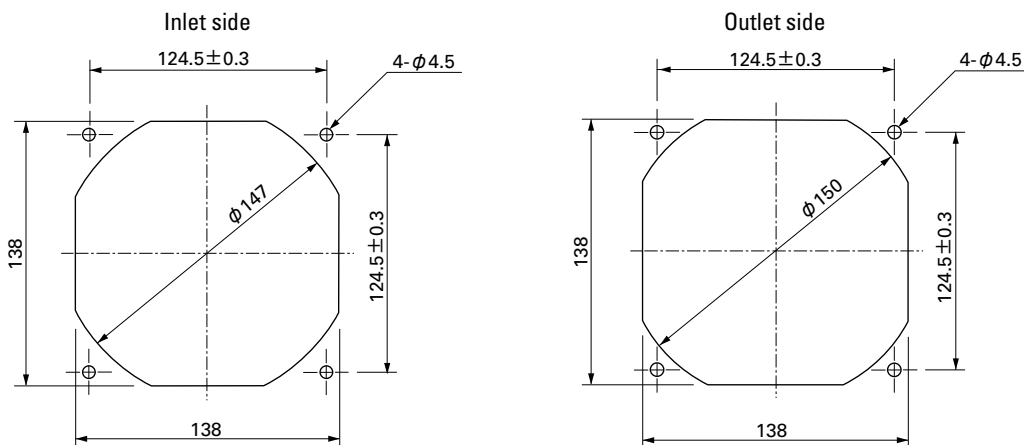
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109L1412H101	12	10.2 to 13.8	0.73	8.76	2,600	4.6 159	98 0.394	46	- 20 to + 70	100,000/60°C
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		

Other sensor specifications are available as options. Please refer to the index (pp. 496).

Dimensions (unit: mm)



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



Вентилятор sanyo denki san ace , Минск тел. +375447584780

www.fotorele.net www.tiristor.by радиодетали, электронные компоненты

email minsk17@tut.by tel.+375 29 758 47 80 МТС

каталог, описание, технические, характеристики, datasheet, параметры, маркировка, габариты, фото

QR код



9GT type

Wide Temperature Range Fan DC

These fans achieve an operating temperature range of -40°C to +85°C. They operate in a wide temperature range, serving in various applications where conventional fans could not be used. They are suitable for refrigerators and freezers, lighting devices, communications devices, PV inverters, and rapid EV charging stations.

40mm sq. to 120mm sq.
⇒pp. 359 to 370



9AD type

ACDC Fan AC

This fan operates by internally converting AC power into DC power. It provides the superior performance of a DC fan with the flexibility of AC input.

92x92x38mm
⇒pp. 413 to 416

120x120x38mm
⇒pp. 417 to 420



9RF type

Reversible Flow Fan DC

Multiple fans are usually used to blow air in both directions to ventilate houses, and to cool drink vending machines, and food display cases. With reversible flow fans, the wind direction can be switched so fewer fans are required.

φ136x28mm
⇒pp. 243 to 244

