

Splash Proof Fan

Cooling fan of IP55 and IP68 waterproof capability. For more information on IP rating, refer to p. 625.
Related product: Splash Proof Blower p. 421, Splash Proof Centrifugal Fan p. 425, Oil Proof Fan p. 451

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

9WL	14	48	L	1	001	
Type name	Frame size	Voltage	Speed code	Frame thickness	Sensor specifications	Frame form

Fans with PWM control

9WV	08	48	P	1	H	001	
Type name	Frame size	Voltage	PWM control	Frame thickness	Speed code	Individual customer's spec (2 to 3 digits)	Frame form

Type name	9WL 9WP 9WV etc.							
Frame size (mm)	04	06	08	09	12	14	17	57
	40×40	60×60	80×80	92×92	120×120	140×140	∅172	∅172×150 (sidecut)
Voltage (V)	12	24	48					
	12	24	48	etc.				
Speed code	A	D	E	F	G	H	J	L M S etc.
Frame thickness (mm)	1	4	5	6				
	38	25	51	20				
Sensor specifications	01, 001				02, 002			D01, D001
	With a pulse sensor				Without a sensor			With a lock sensor
Frame form	Nil					1		
	Plastic frame: Ribbed frame					Plastic frame: Ribless frame		
	Aluminum frame: Ribless frame							

How to Read Specifications (DC fan) The following is a sample. See respective product pages for detailed information.

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]
9GA0412G7001	12	7 to 13.8	0.17	2.04	13100	0.36 12.7	192 0.77	42	-20 to +70	40000/60°C (70000/40°C)

Rated voltage	.....	This is the necessary voltage to drive the fan. E.g.) 12 VDC, 24 VDC, 48 VDC
Operating voltage range	.....	The voltage range over which fan operation is guaranteed.
Rated current	.....	The current when the fan is operating at rated voltage (at free air).
Rated input	.....	The power value when the fan is operating at rated voltage (at free air).
Rated speed	.....	The speed when the fan is operating at rated voltage (at free air).
Max. airflow	.....	The airflow at 0 Pa static pressure when the fan is operating at rated voltage. (Measured using the double chamber method)
Max. static pressure	.....	The static pressure at 0 m ³ /min airflow when the fan is operating at rated voltage. (Measured using the double chamber method)
SPL	.....	A-weighted sound pressure level (SPL) when the fan operates at the rated speed. For the measurement method, see the Technical Materials section in the catalog.
Operating temperature	.....	The temperature range over which fan operation is guaranteed (Non-condensing).
Expected life	.....	Service life hours that 90% of bearings will survive without failing when continuously operated at the rated voltage and 60°C temperature. Expected life at 40°C is for reference only. For more information, please refer to the technical material section.

40x40x20 mm

San Ace 40W 9WPA type  



General Specifications

- Material Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
(For models without PWM control, there is no speed control wiring.)
- Mass 47 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have ribs and a pulse sensor with PWM control.**

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]
9WPA0412P6G001	12	10.8 to 13.2	100	0.17	2.0	13700	0.38 13.4	210 0.84	44	-20 to +70	40000/60°C (70000/40°C)
			25	0.03	0.36	3000	0.07 2.5	9.8 0.04	12		
9WPA0424P6G001	24	21.6 to 26.4	100	0.09	2.0	13700	0.38 13.4	210 0.84	44		
			25	0.03	0.72	3600	0.09 3.2	15 0.06	14		

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

The models listed below **have ribs and a pulse sensor.**

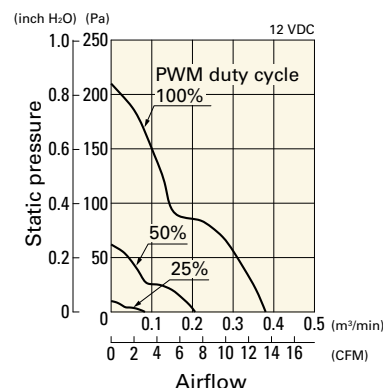
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WPA0412H6001	12	7 to 13.8	0.075	0.9	8800	0.24 8.5	81 0.33	34	-20 to +70	40000/60°C (70000/40°C)
9WPA0424H6001	24	14 to 27.6	0.038	0.9	8800	0.24 8.5	81 0.33	34		

Note: Sensor and control options are available for selection. Refer to the table on p. 662.

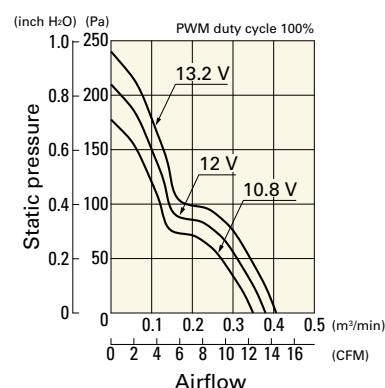
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WPA0412P6G001 With pulse sensor with PWM control

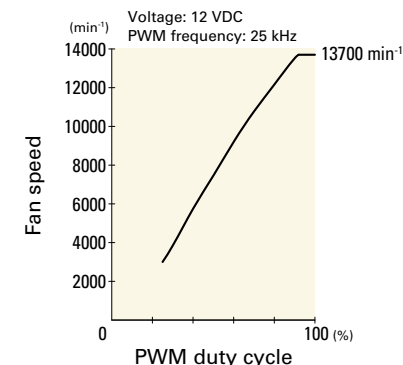
PWM duty cycle



Operating voltage range



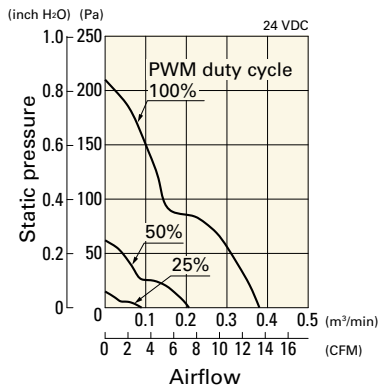
PWM duty - Speed characteristics example



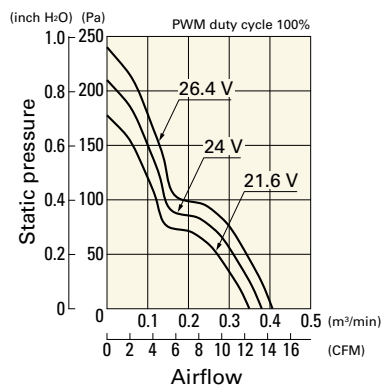
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WPA0424P6G001 With pulse sensor with PWM control

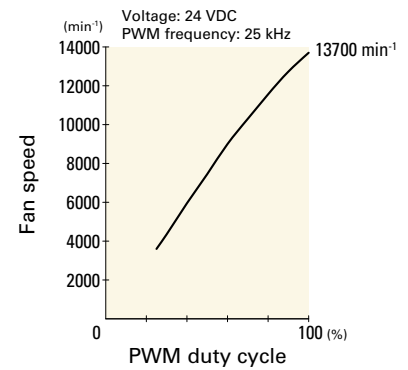
PWM duty cycle



Operating voltage range



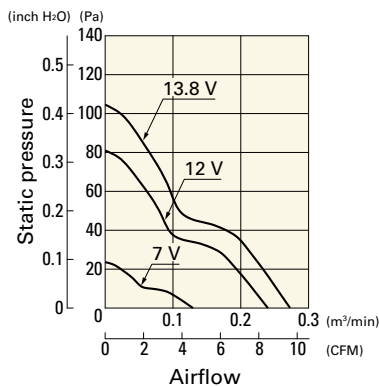
PWM duty - Speed characteristics example



Airflow - Static Pressure Characteristics

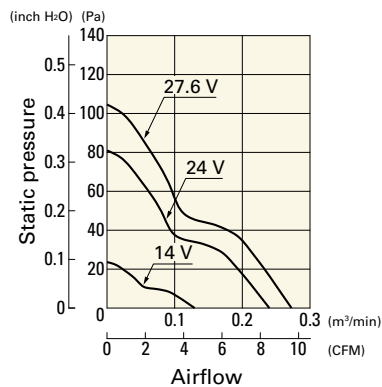
9WPA0412H6001 With pulse sensor

Operating voltage range

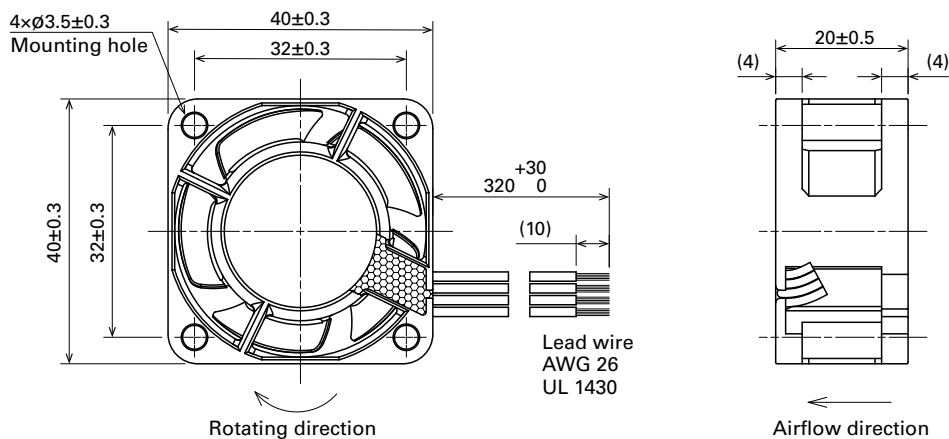


9WPA0424H6001 With pulse sensor

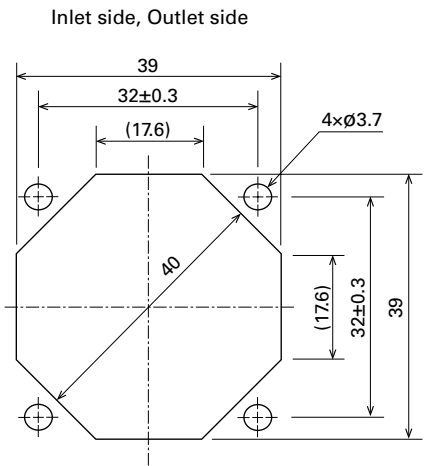
Operating voltage range



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



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



■ **Options**

Finger guards page: p. 598

Model no.: 109-059, 109-059H

40x40x28 mm

San Ace 40W 9WPA type 



General Specifications

- Material Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
(For models without PWM control, there is no speed control wiring.)
- Mass 60 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have ribs and a pulse sensor with PWM control**. For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WPA0412P3G001	12	10.8 to 13.2	100	0.50	6.0	22200	0.63 22.2	555 2.22	53	-20 to +70	40000/60°C (70000/40°C)
			20	0.06	0.72	5000	0.14 4.9	28.1 0.11	21		
9WPA0424P3G001	24	21.6 to 26.4	100	0.25	6.0	22200	0.63 22.2	555 2.22	53		
			20	0.06	1.44	9200	0.26 9.1	95 0.38	34		

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

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

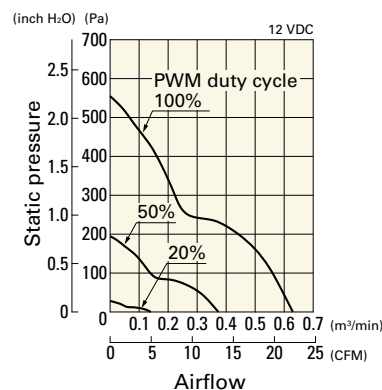
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WPA0412H3001	12	7 to 13.8	0.34	4.1	18500	0.52 18.3	375 1.51	48	-20 to +70	40000/60°C (70000/40°C)
9WPA0424H3001	24	14 to 27.6	0.17	4.1	18500	0.52 18.3	375 1.51	48		

Note: Sensor and control options are available for selection. Refer to the table on p. 662.

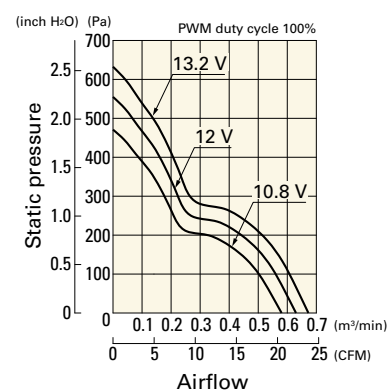
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WPA0412P3G001 With pulse sensor with PWM control

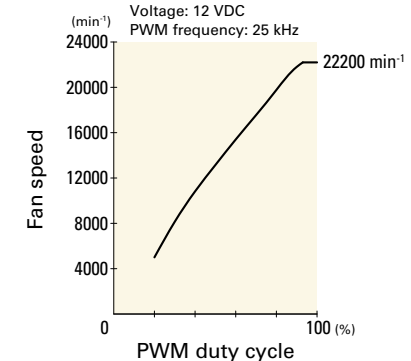
PWM duty cycle



Operating voltage range



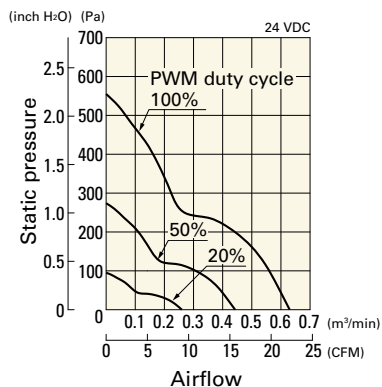
PWM duty - Speed characteristics example



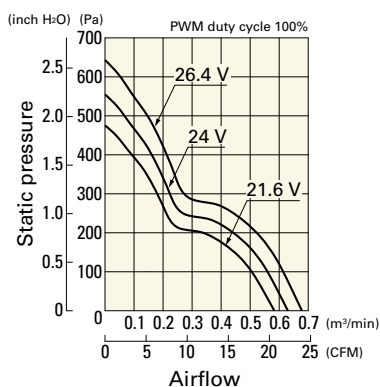
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WPA0424P3G001 With pulse sensor with PWM control

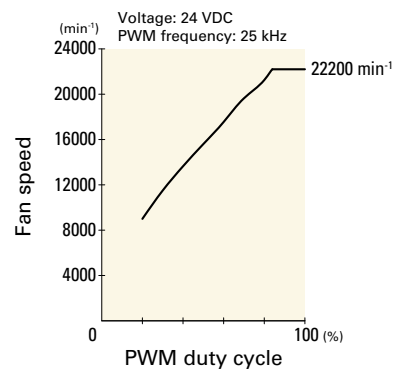
PWM duty cycle



Operating voltage range



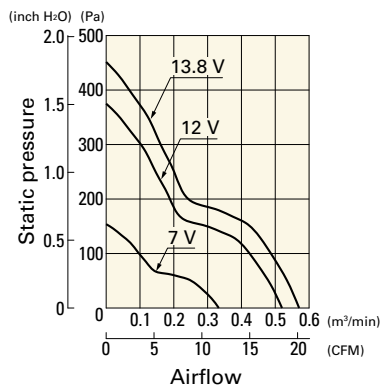
PWM duty - Speed characteristics example



Airflow - Static Pressure Characteristics

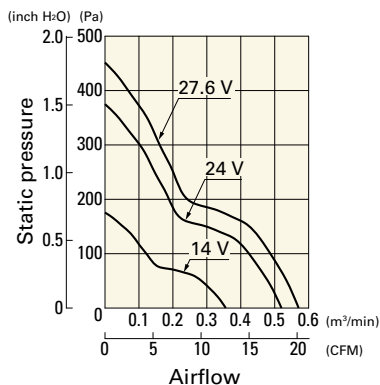
9WPA0412H3001 With pulse sensor

Operating voltage range

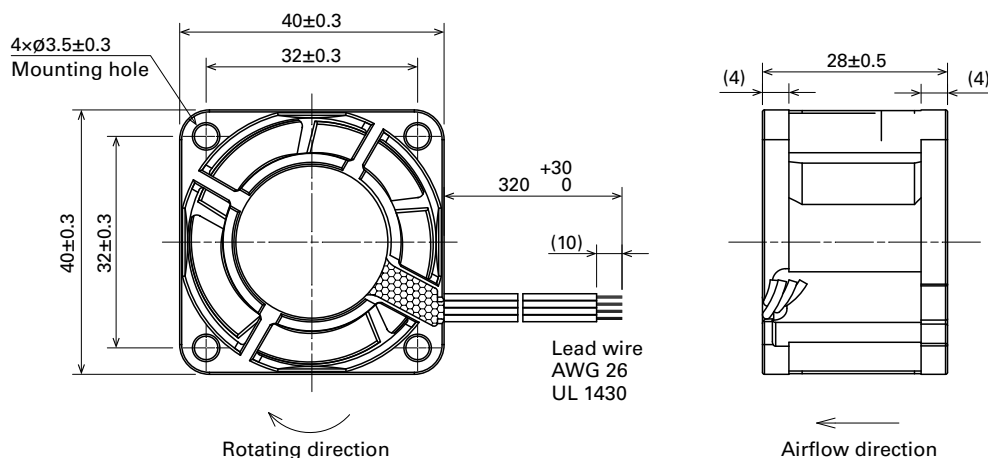


9WPA0424H3001 With pulse sensor

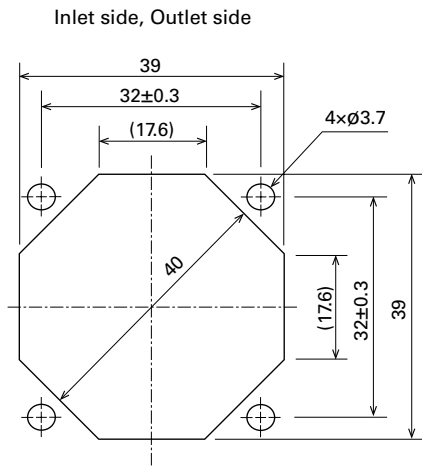
Operating voltage range



Dimensions (unit: mm) (Ribbed frame with pulse sensor with PWM control)



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



Options

Finger guards

page: p. 598

Model no.: 109-059, 109-059H



40x40x28 mm

San Ace 40W 9WL type  

General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
- Mass 70 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have a pulse sensor with PWM control.**

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]
9WL0412P3J001	12	10.8 to 13.2	100	0.52	6.24	17500	0.63 22.2	400 1.61	51	-20 to +70	150000/60°C (185000/40°C)
			20	0.06	0.72	3600	0.13 4.6	16.9 0.07	20		
9WL0412P3G001			100	0.4	4.8	15500	0.56 19.7	310 1.24	47		
			20	0.06	0.72	3300	0.12 4.2	14.0 0.06	18		
9WL0424P3J001	24	21.6 to 26.4	100	0.26	6.24	17500	0.63 22.2	400 1.61	51		
			20	0.04	0.96	4000	0.14 5.1	20.9 0.08	22		
9WL0424P3G001			100	0.2	4.8	15500	0.56 19.7	310 1.24	47		
			20	0.04	0.96	3000	0.11 3.8	11.6 0.05	16		

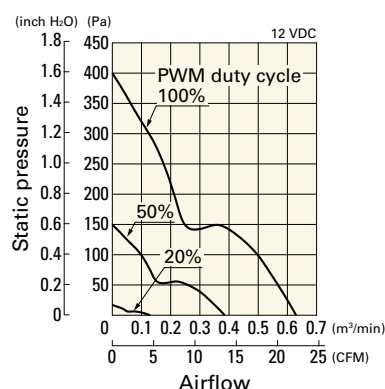
* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

Note: Sensor and control options are available for selection. Refer to the table on p. 661.

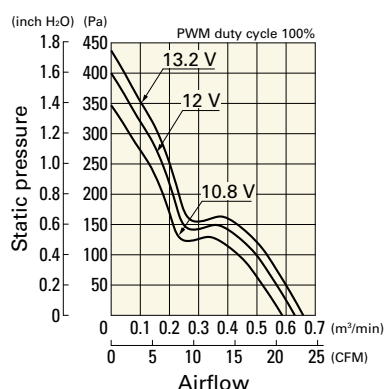
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL0412P3J001 With pulse sensor with PWM control

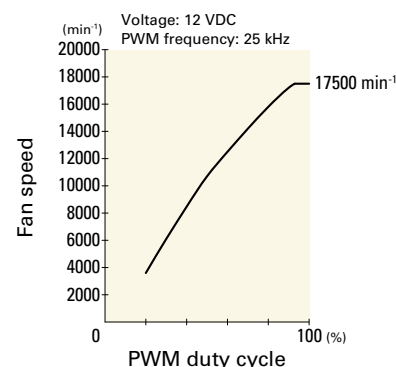
PWM duty cycle



Operating voltage range



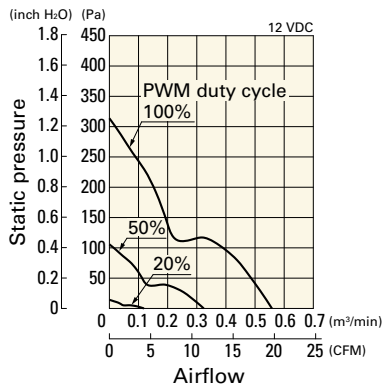
PWM duty - Speed characteristics example



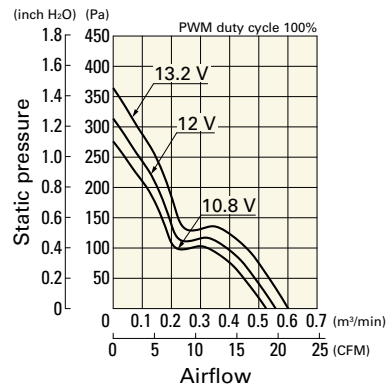
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL0412P3G001 With pulse sensor with PWM control

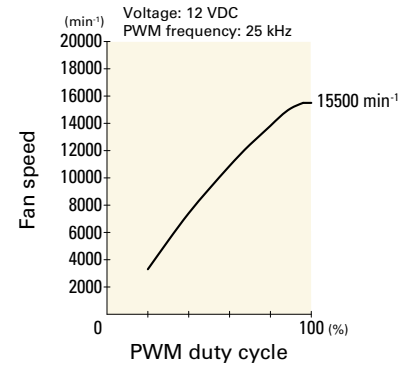
PWM duty cycle



Operating voltage range

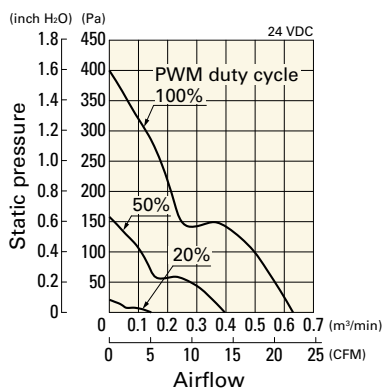


PWM duty - Speed characteristics example

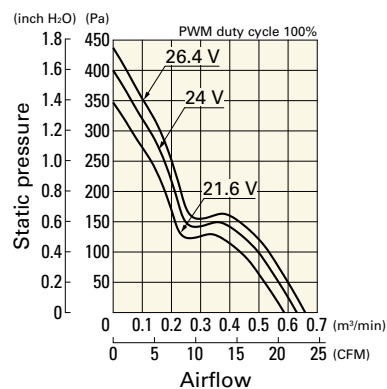


9WL0424P3J001 With pulse sensor with PWM control

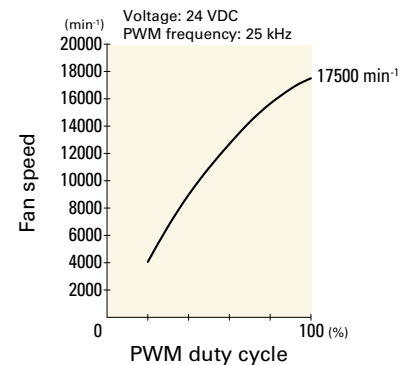
PWM duty cycle



Operating voltage range

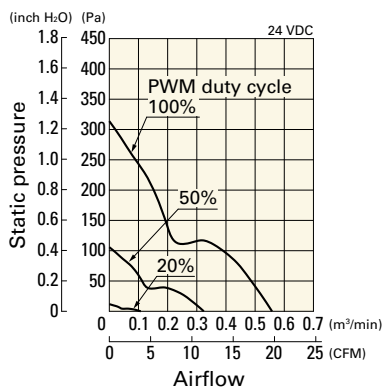


PWM duty - Speed characteristics example

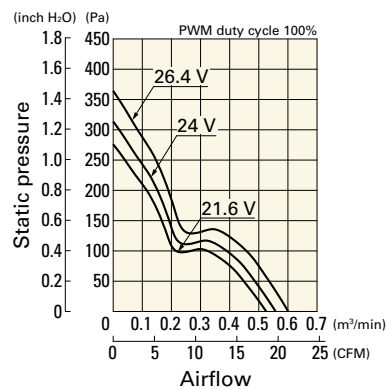


9WL0424P3G001 With pulse sensor with PWM control

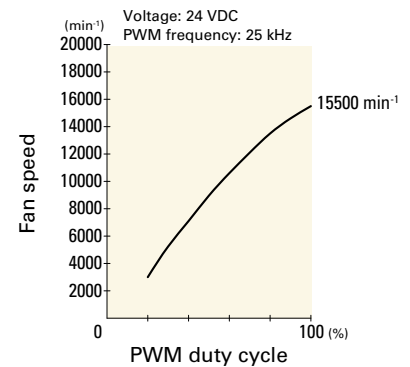
PWM duty cycle



Operating voltage range



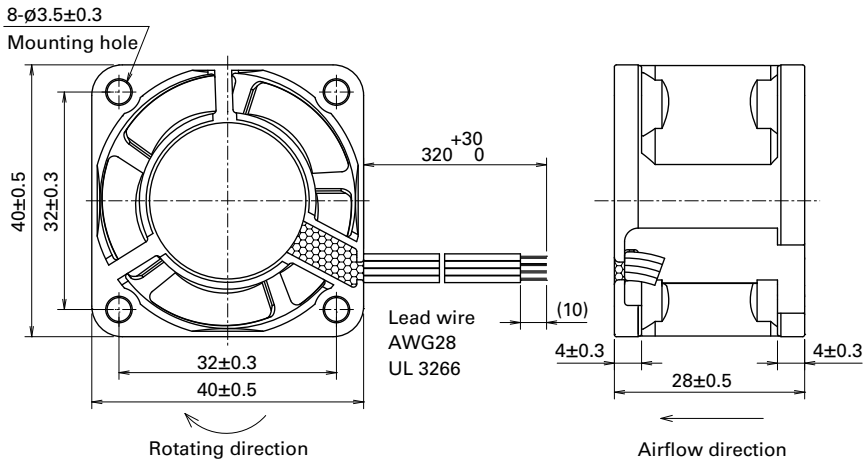
PWM duty - Speed characteristics example



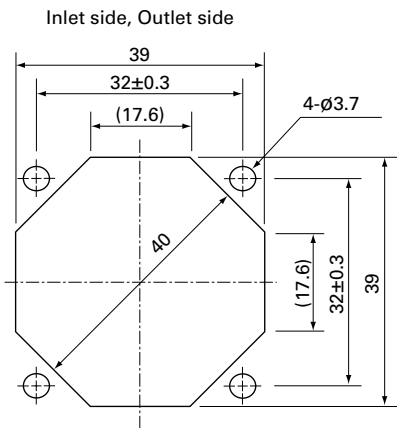
DC

Splash Proof Fan 40 mm sq.

Dimensions (unit: mm)



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



Options

Finger guards page: p. 598

Model no.: 109-059, 109-059H



60×60×25 mm

San Ace 60W 9WPA type

General Specifications

- Material Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black (Sensor) Yellow (Control) Brown
(For models without PWM control, there is no speed control wiring.)
- Mass 110 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have ribs and a pulse sensor with PWM control**. For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WPA0612P4G001	12	10.8 to 13.2	100	0.93	11.16	12000	1.52 53.7	357 1.43	56	-20 to +70	40000/60°C (70000/40°C)
			20	0.09	1.08	3500	0.43 15.1	30 0.12	22		
9WPA0612P4H001		10.2 to 13.8	100	0.17	2.04	5800	0.73 25.8	83.4 0.33	36		
			20	0.04	0.48	1600	0.2 7	6.3 0.02	10		
9WPA0624P4G001	24	21.6 to 26.4	100	0.46	11.04	12000	1.52 53.7	357 1.43	56		
			20	0.05	1.2	3500	0.43 15.1	30 0.12	22		

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

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

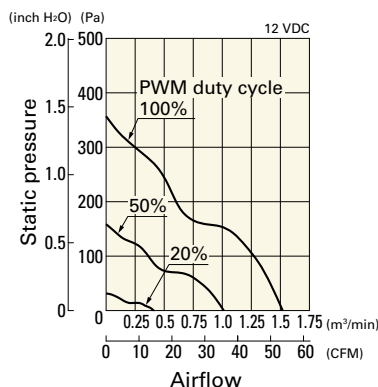
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WPA0612M4001	12	10.2 to 13.8	0.11	1.32	4000	0.51 18	39.7 0.16	26	-20 to +70	40000/60°C (70000/40°C)
9WPA0624S4001	24	21.6 to 26.4	0.17	4.08	7800	0.99 35	151 0.6	43		
9WPA0624M4001		20.4 to 27.6	0.06	1.44	4000	0.51 18	39.7 0.16	26		

Note: Sensor and control options are available for selection. Refer to the table on p. 662.

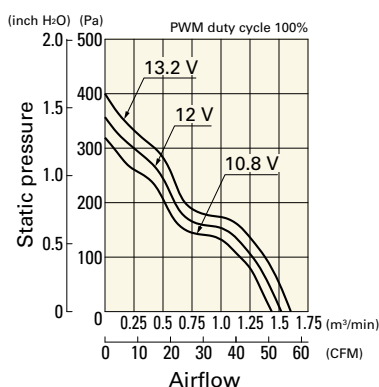
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WPA0612P4G001 With pulse sensor with PWM control

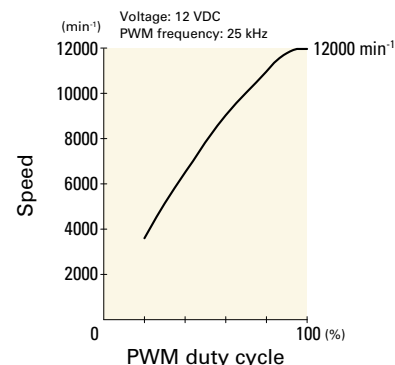
PWM duty cycle



Operating voltage range



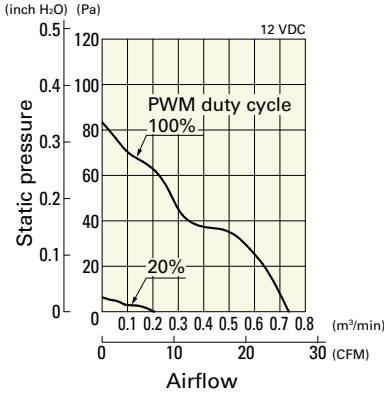
PWM duty - Speed characteristics example



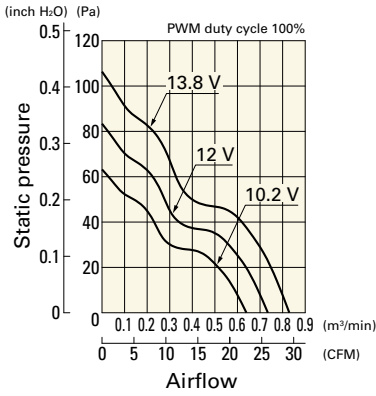
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WPA0612P4H001 With pulse sensor with PWM control

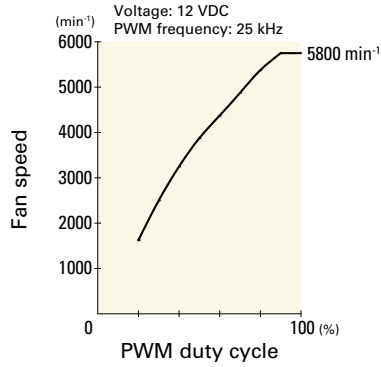
PWM duty cycle



Operating voltage range

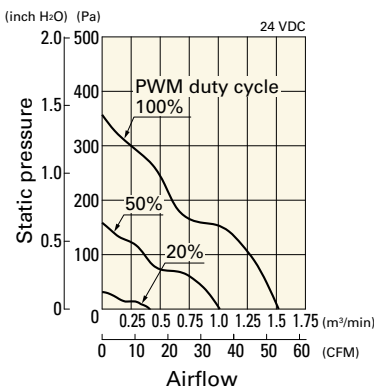


PWM duty - Speed characteristics example

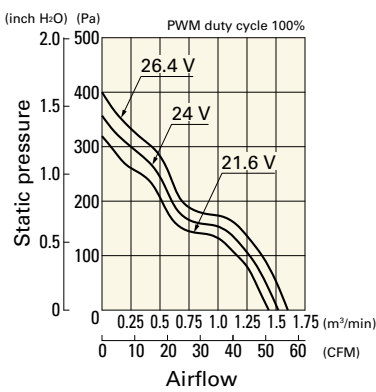


9WPA0624P4G001 With pulse sensor with PWM control

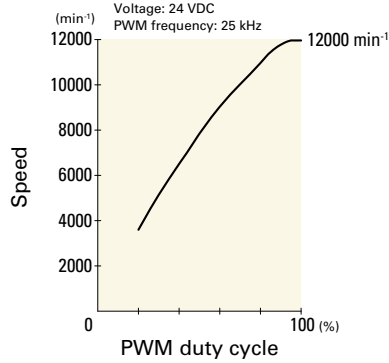
PWM duty cycle



Operating voltage range



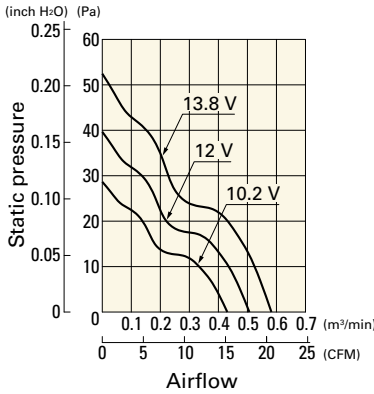
PWM duty - Speed characteristics example



Airflow - Static Pressure Characteristics

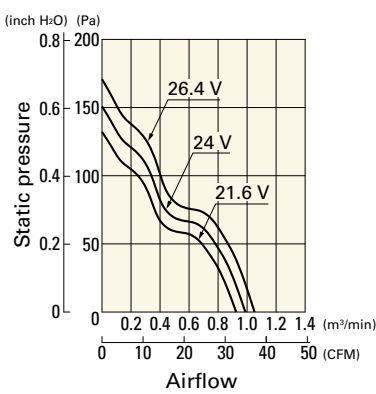
9WPA0612M4001 With pulse sensor

Operating voltage range



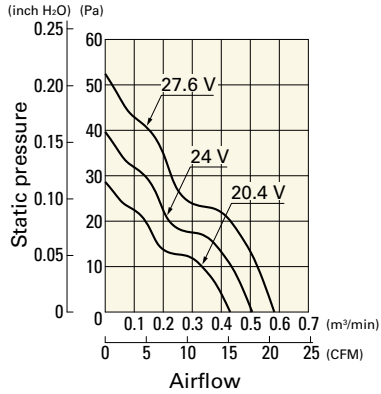
9WPA0624S4001 With pulse sensor

Operating voltage range

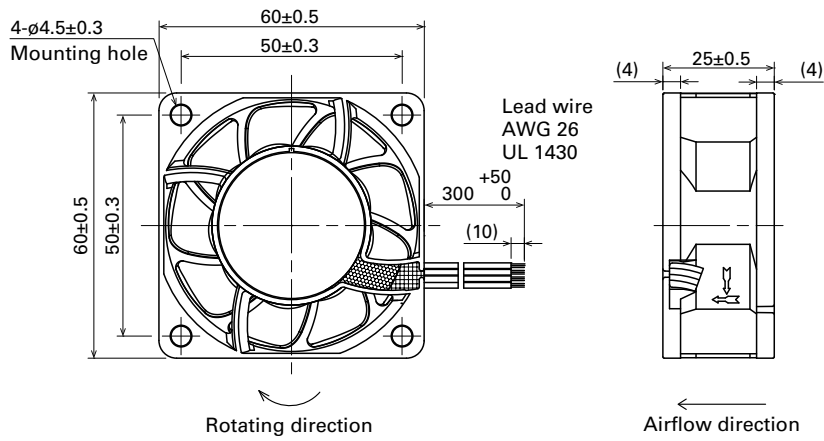


9WPA0624M4001 With pulse sensor

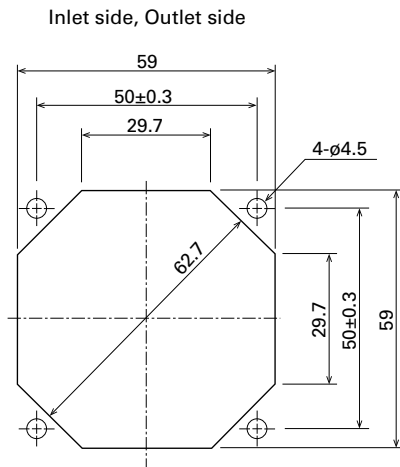
Operating voltage range



■ Dimensions (unit: mm) (Ribbed frame with pulse sensor with PWM control)



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



■ Options

Finger guards

page: p. 598

Model no.: 109-139E, 109-139H

Resin finger guards

page: p. 605

Model no.: 109-1003G



60×60×25 mm

San Ace 60W 9WL type  

General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black ☐Sensor ☐Yellow ☐Control ☐Brown
- Mass 120 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have a pulse sensor with PWM control.**

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	11000	1.4 49.4	300 1.204	53	-20 to +70	180000/60°C (215000/40°C)
			20	0.06	0.72	2900	0.36 12.7	20.8 0.083	20		
9WL0612P4J001			100	0.39	4.68	8650	1.1 38.8	182 0.73	47		
			25	0.04	0.48	2100	0.27 9.5	10.7 0.043	17		
9WL0612P4H001			100	0.17	2.04	6150	0.78 27.5	97 0.389	36		
			25	0.03	0.36	1350	0.17 6.0	4.7 0.018	14		
9WL0624P4S001	24	21.6 to 26.4	100	0.34	8.16	11000	1.4 49.4	300 1.204	53		
			20	0.03	0.72	2900	0.36 12.7	20.8 0.083	20		
9WL0624P4J001			100	0.19	4.56	8650	1.1 38.8	182 0.73	47		
			20	0.02	0.48	2200	0.28 9.8	12.0 0.048	17		
9WL0624P4H001			100	0.08	1.92	6150	0.78 27.5	97 0.389	36		
			20	0.02	0.48	1300	0.16 5.6	4.3 0.017	14		

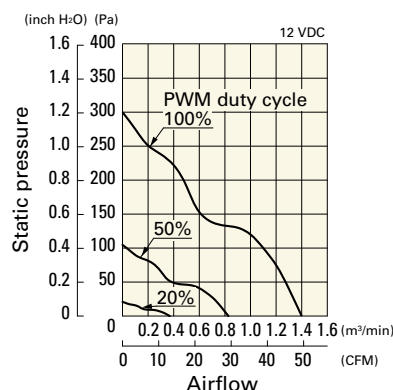
* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

Note: Sensor and control options are available for selection. Refer to the table on p. 661.

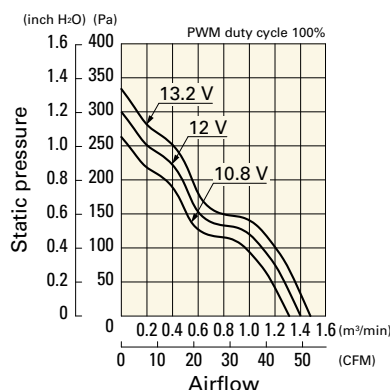
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL0612P4S001 With pulse sensor with PWM control

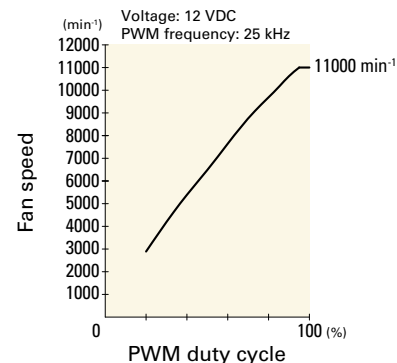
PWM duty cycle



Operating voltage range



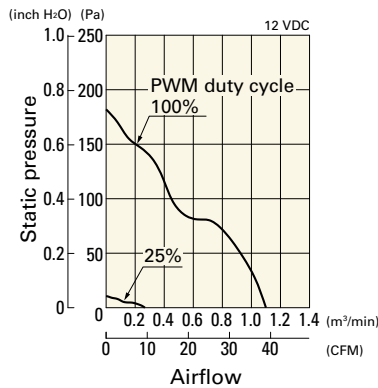
PWM duty - Speed characteristics example



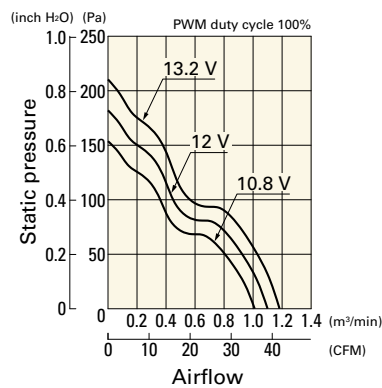
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL0612P4J001 With pulse sensor with PWM control

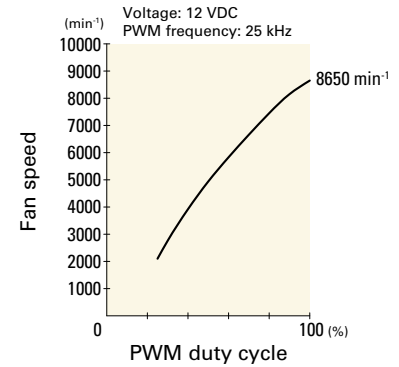
PWM duty cycle



Operating voltage range

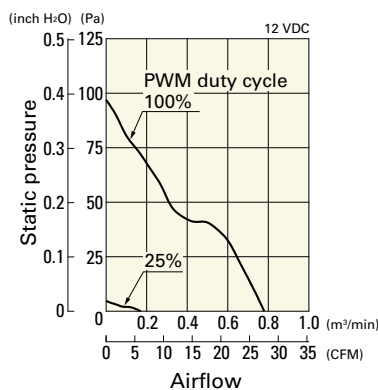


PWM duty - Speed characteristics example

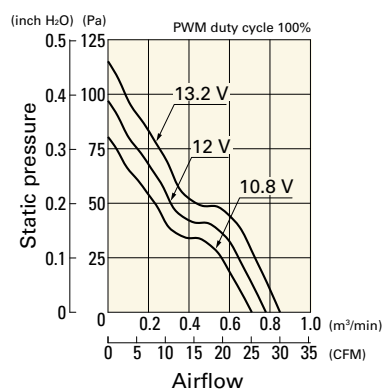


9WL0612P4H001 With pulse sensor with PWM control

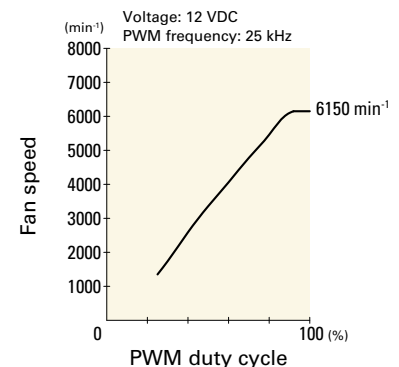
PWM duty cycle



Operating voltage range

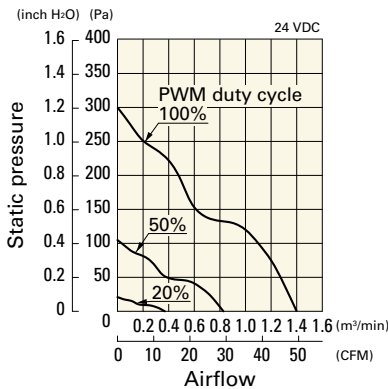


PWM duty - Speed characteristics example

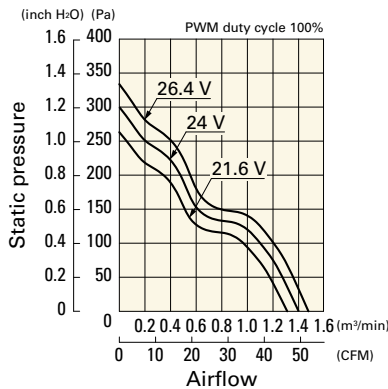


9WL0624P4S001 With pulse sensor with PWM control

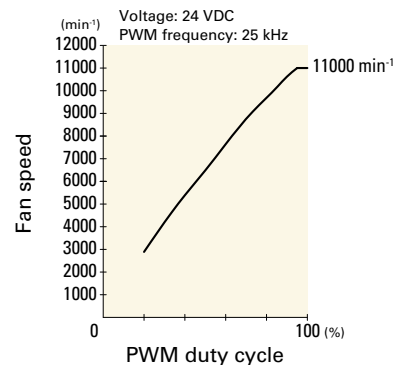
PWM duty cycle



Operating voltage range

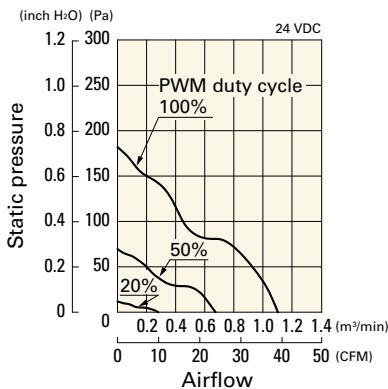


PWM duty - Speed characteristics example

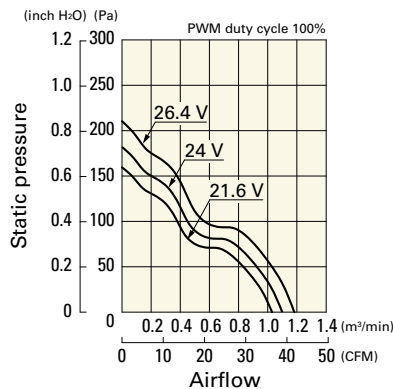


9WL0624P4J001 With pulse sensor with PWM control

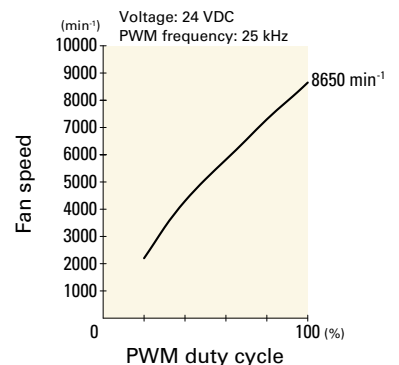
PWM duty cycle



Operating voltage range



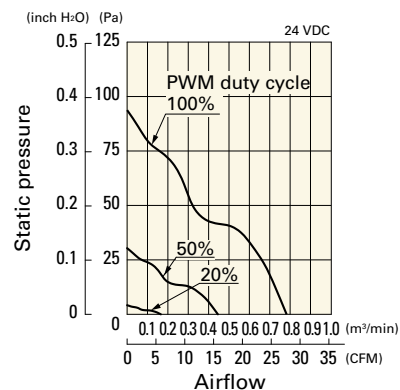
PWM duty - Speed characteristics example



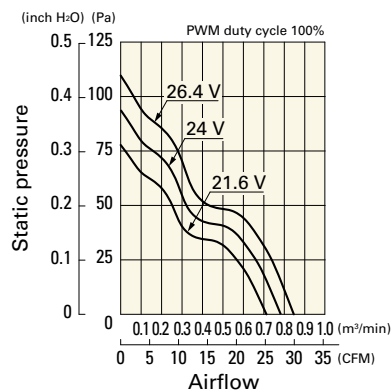
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL0624P4H001 With pulse sensor with PWM control

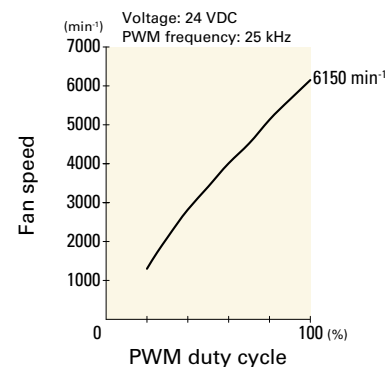
PWM duty cycle



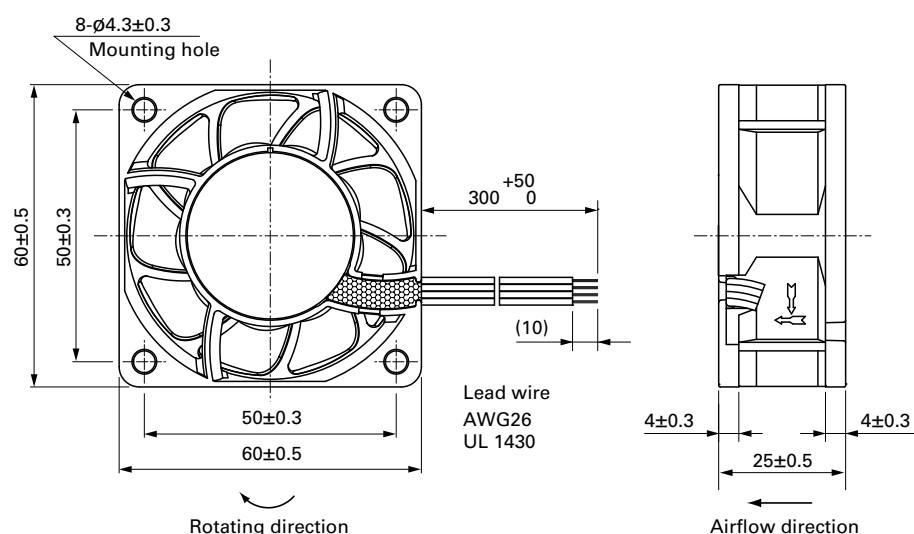
Operating voltage range



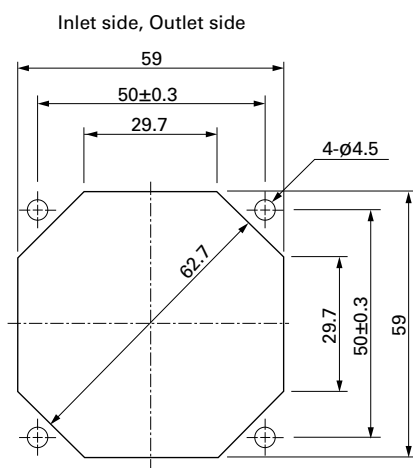
PWM duty - Speed characteristics example



Dimensions (unit: mm)



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



Options

Finger guards

page: p. 598

Model no.: 109-139E, 109-139H

Resin finger guards

page: p. 605

Model no.: 109-1003G



80×80×25 mm

San Ace 80W 9WPA type

General Specifications

- Material Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
(For models without PWM control, there is no speed control wiring.)
- Mass 130 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have ribs and a pulse sensor with PWM control**. For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WPA0812P4G001	12	10.8 to 13.2	100	0.71	8.52	8250	2.32 81.9	210 0.84	54	-20 to +70	40000/60°C (70000/40°C)
			20	0.07	0.84	2400	0.67 23.6	18.2 0.073	21		
9WPA0812P4S001			100	0.26	3.12	5300	1.49 52.6	86.7 0.35	40		
			20	0.04	0.48	1250	0.35 12.4	4.8 0.019	10		
9WPA0824P4G001	24	21.6 to 26.4	100	0.36	8.64	8250	2.32 81.9	210 0.84	54	-20 to +70	40000/60°C (70000/40°C)
			20	0.05	1.2	2400	0.67 23.6	18.2 0.073	21		

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

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

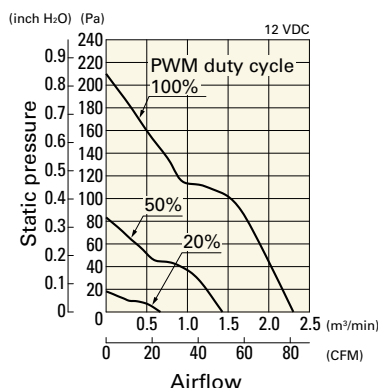
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WPA0824H4001	24	20.4 to 27.6	0.07	1.68	3500	0.98 34.6	37.8 0.15	29	-20 to +70	40000/60°C (70000/40°C)

Note: Sensor and control options are available for selection. Refer to the table on p. 662.

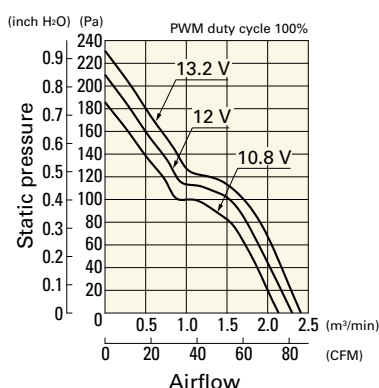
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WPA0812P4G001 With pulse sensor with PWM control

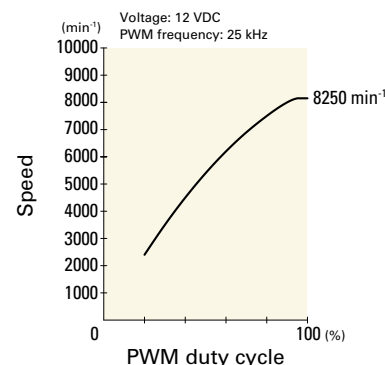
PWM duty cycle



Operating voltage range



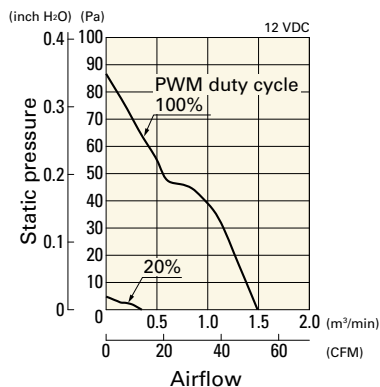
PWM duty - Speed characteristics example



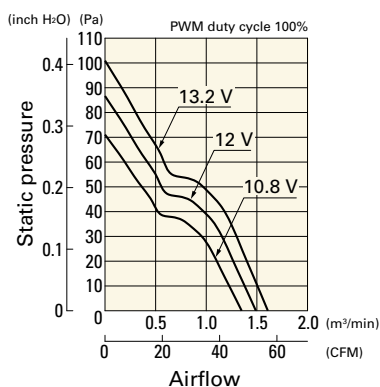
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WPA0812P4S001 With pulse sensor with PWM control

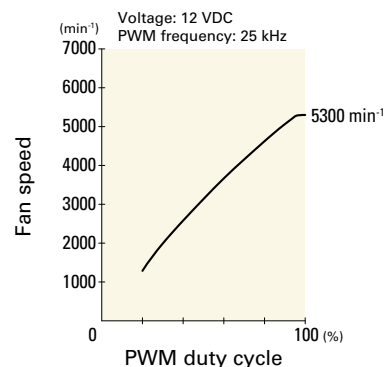
PWM duty cycle



Operating voltage range

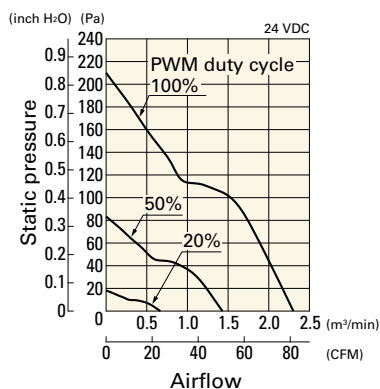


PWM duty - Speed characteristics example

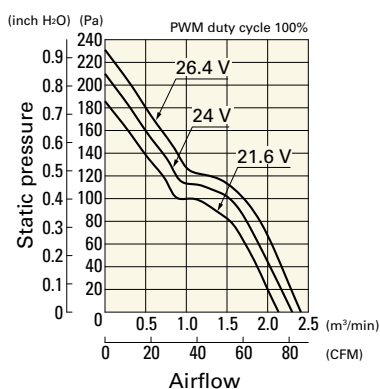


9WPA0824P4G001 With pulse sensor with PWM control

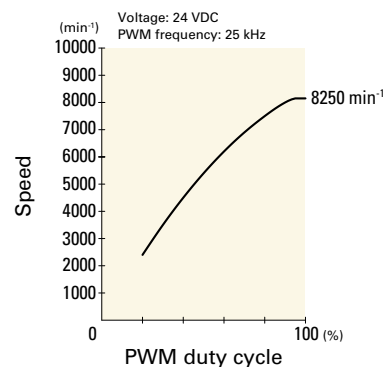
PWM duty cycle



Operating voltage range



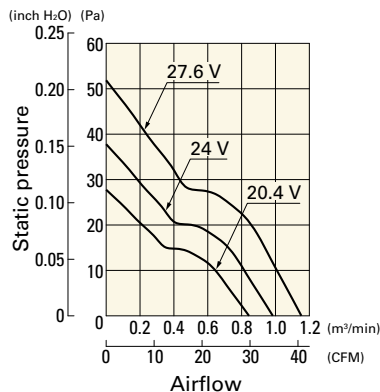
PWM duty - Speed characteristics example



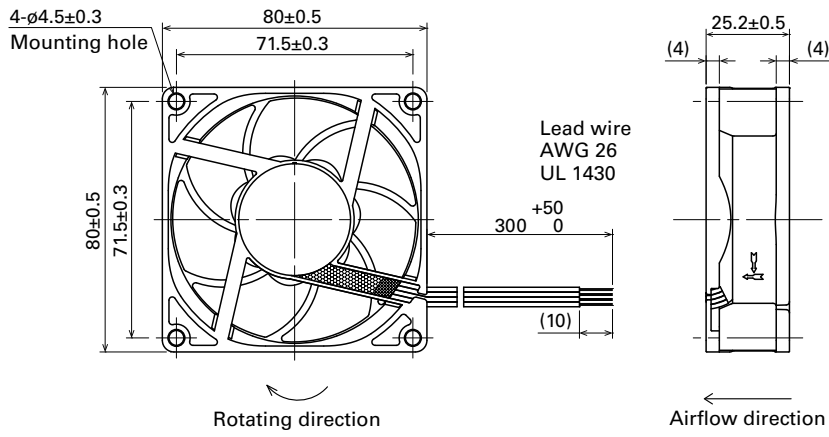
Airflow - Static Pressure Characteristics

9WPA0824H4001 With pulse sensor

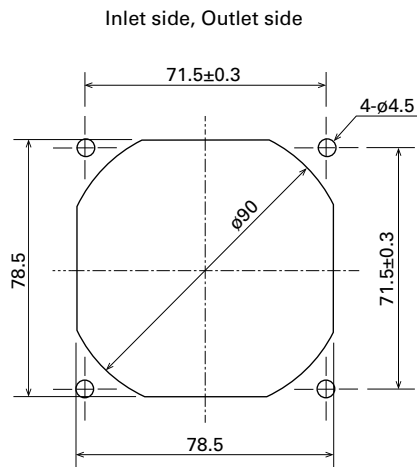
Operating voltage range



■ Dimensions (unit: mm) (Ribbed frame with pulse sensor with PWM control)



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



■ Options

Finger guards

page: p. 598

Model no.: 109-049E, 109-049H

Resin finger guards

page: p. 605

Model no.: 109-1002G



80×80×25 mm

San Ace 80W 9WL type  

General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
(For models without PWM control, there is no speed control wiring.)
- Mass 150 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have a pulse sensor with PWM control.**

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]
9WL0812P4J001	12	10.8 to 13.2	100	0.6	7.2	7400	2.07 73.0	177 0.71	49	-20 to +70	180000/60°C (215000/40°C)
			20	0.06	0.72	1800	0.5 17.6	10.4 0.04	16		
9WL0812P4G001			100	0.3	3.6	5500	1.54 54.3	98 0.39	43		
			25	0.05	0.6	1400	0.39 13.7	6.3 0.02	14		
9WL0812P4H001	12	10.8 to 13.2	100	0.12	1.44	3700	1.03 36.3	44 0.17	31		
			30	0.04	0.48	1100	0.3 10.5	3.9 0.01	13		
9WL0824P4J001	24	21.6 to 26.4	100	0.28	6.72	7400	2.07 73.0	177 0.71	49		
			20	0.05	1.2	2400	0.67 23.6	18.6 0.07	22		
9WL0824P4G001			100	0.14	3.36	5500	1.54 54.3	98 0.39	43		
			20	0.02	0.48	1200	0.33 11.6	4.6 0.01	13		
9WL0824P4H001			100	0.05	1.2	3700	1.03 36.3	44 0.17	31		
			30	0.02	0.48	1100	0.3 10.5	3.9 0.01	13		

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

The models listed below **have a pulse sensor.**

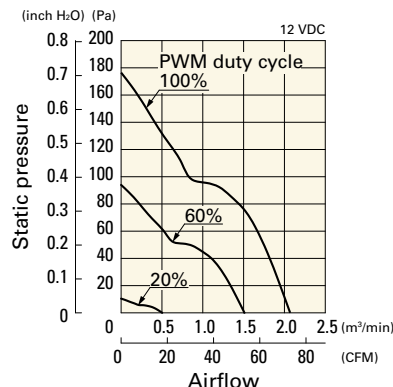
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WL0812L4001	12	8 to 13.2	0.06	0.72	2300	0.64 22.6	17 0.068	22	-20 to +70	180000/60°C (215000/40°C)
9WL0824F4001	24	12 to 26.4	0.045	1.08	3300	0.92 32.5	35 0.14	29		
9WL0824L4001		14 to 26.4	0.03	0.72	2300	0.64 22.6	17 0.068	22		

Note: Sensor and control options are available for selection. Refer to the table on p. 661.

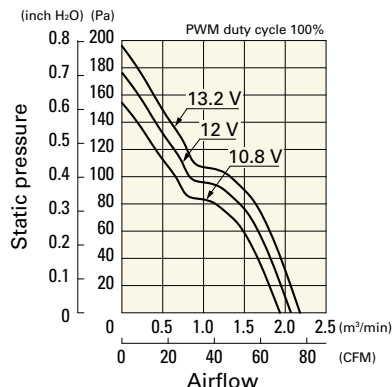
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL0812P4J001 With pulse sensor with PWM control

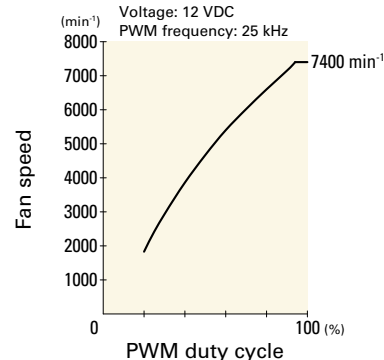
PWM duty cycle



Operating voltage range

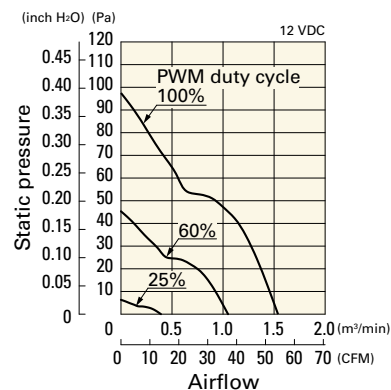


PWM duty - Speed characteristics example

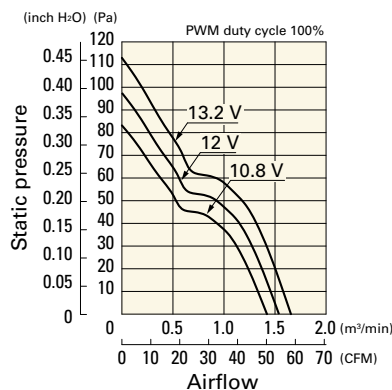


9WL0812P4G001 With pulse sensor with PWM control

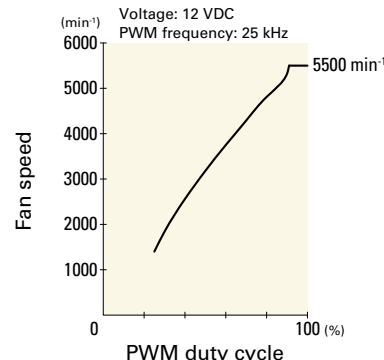
PWM duty cycle



Operating voltage range

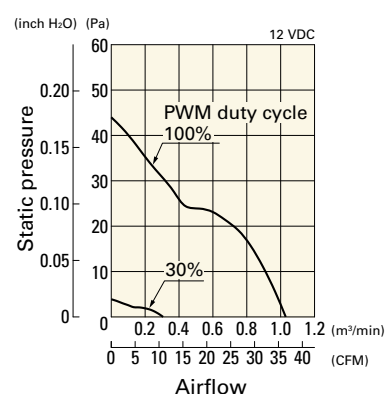


PWM duty - Speed characteristics example

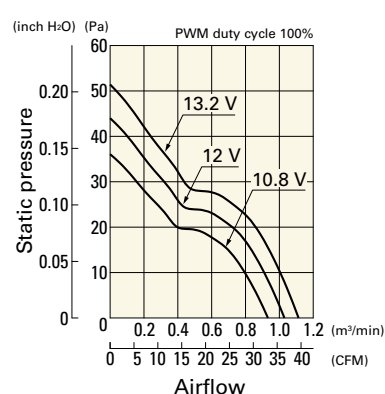


9WL0812P4H001 With pulse sensor with PWM control

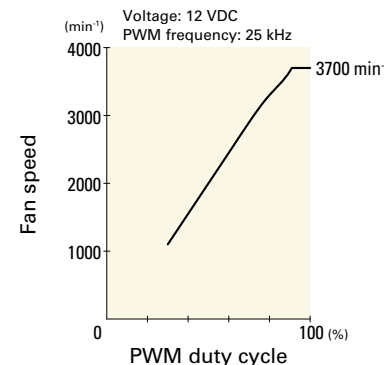
PWM duty cycle



Operating voltage range

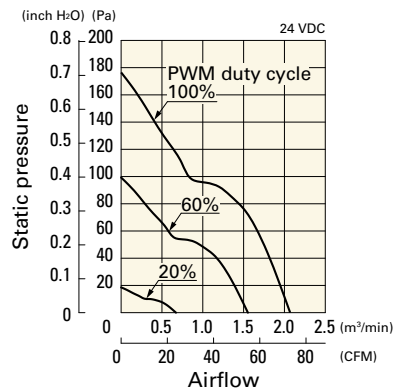


PWM duty - Speed characteristics example

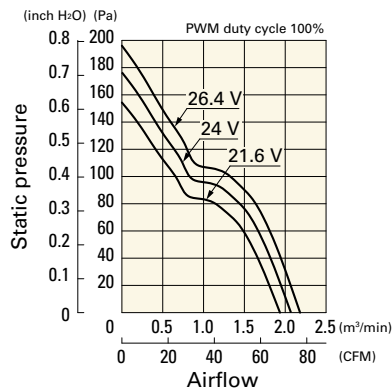


9WL0824P4J001 With pulse sensor with PWM control

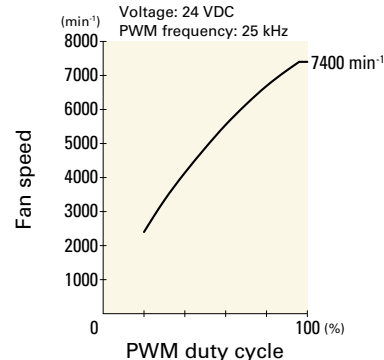
PWM duty cycle



Operating voltage range



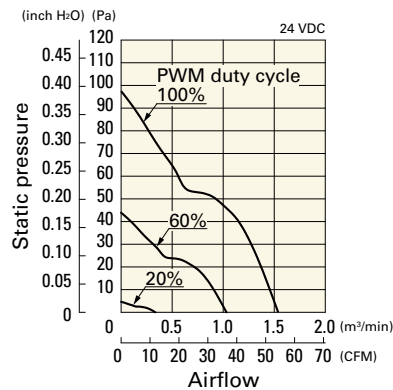
PWM duty - Speed characteristics example



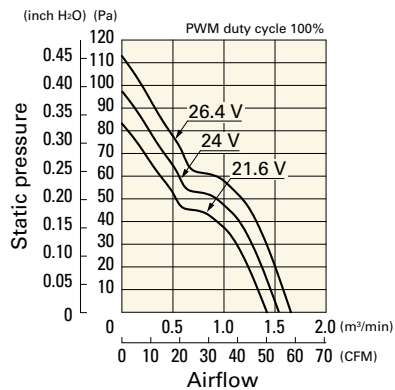
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL0824P4G001 With pulse sensor with PWM control

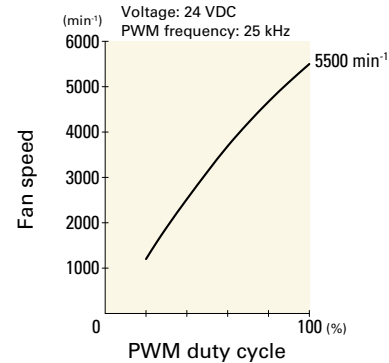
PWM duty cycle



Operating voltage range

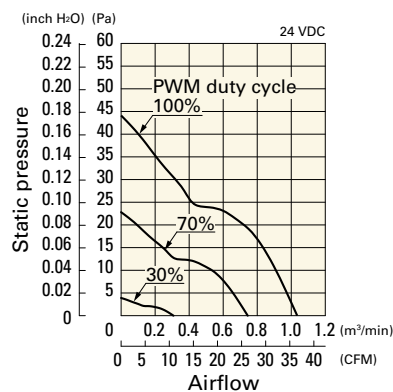


PWM duty - Speed characteristics example

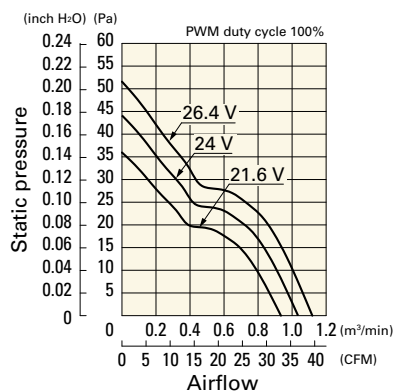


9WL0824P4H001 With pulse sensor with PWM control

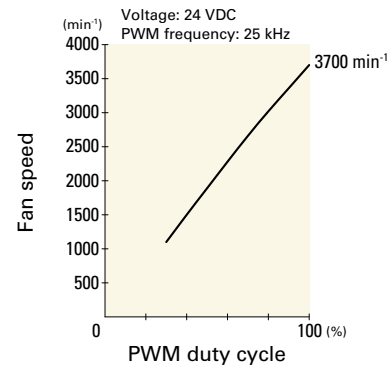
PWM duty cycle



Operating voltage range



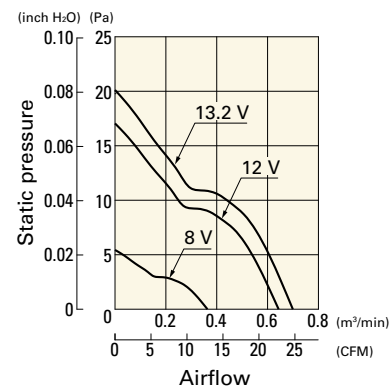
PWM duty - Speed characteristics example



Airflow - Static Pressure Characteristics

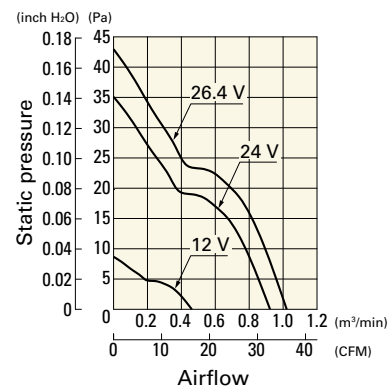
9WL0812L4001 With pulse sensor

Operating voltage range



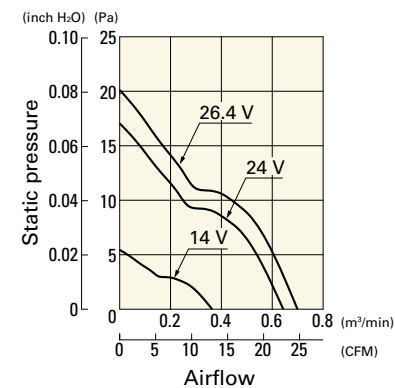
9WL0824F4001 With pulse sensor

Operating voltage range

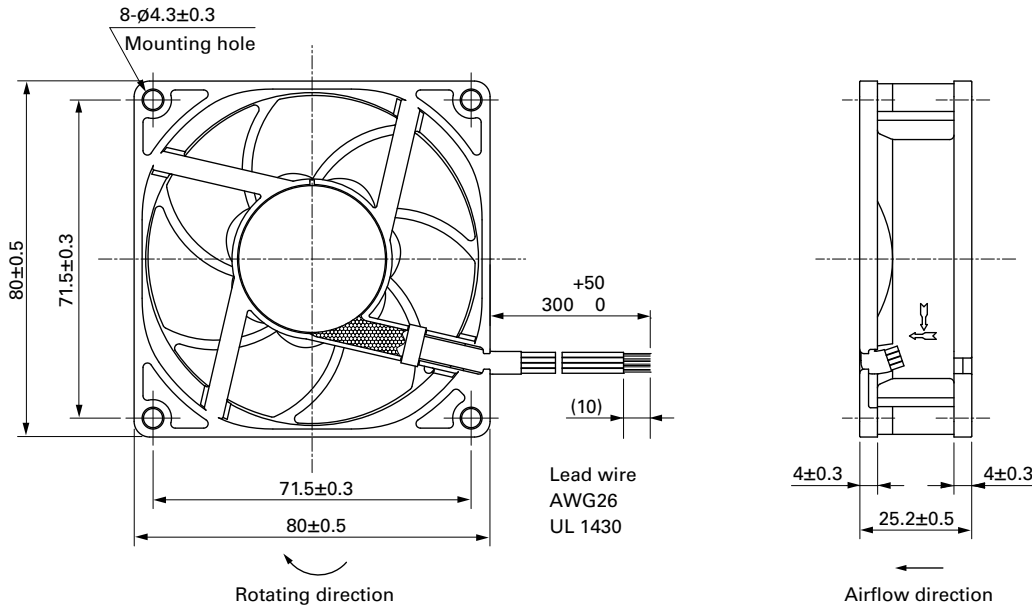


9WL0824L4001 With pulse sensor

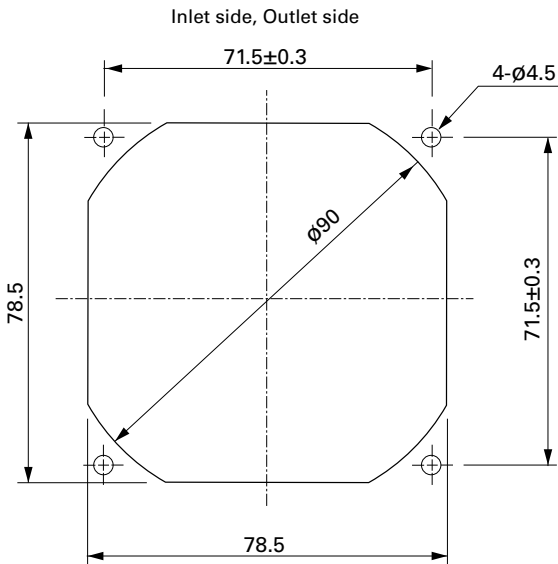
Operating voltage range



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



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



Options

Finger guards

page: p. 598

Model no.: 109-049E, 109-049H

Resin finger guards

page: p. 605

Model no.: 109-1002G

80×80×38 mm

San Ace 80W 9WV type  



General Specifications

- Material Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black (Sensor) Yellow (Control) Brown
- Mass 235 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have ribs and a pulse sensor with PWM control**. For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻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	6000	2.29 80.9	169 0.68	51	-20 to +70	40000/60°C (70000/40°C)
			0	0.09	1.08	1700	0.65 23	13.6 0.05	19		
9WV0848P1H001	48	40.8 to 52.8	100	0.75	36	9700	3.7 131	440 1.77	63		
			0	0.15	7.2	4500	1.7 60	95 0.38	43		

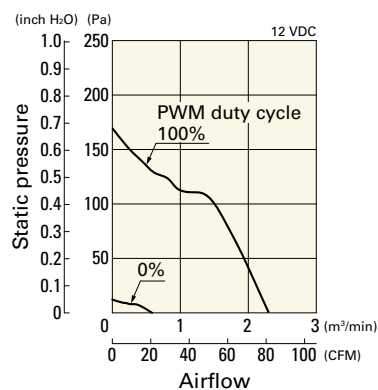
* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

Note: Sensor and control options are available for selection. Refer to the table on p. 663.

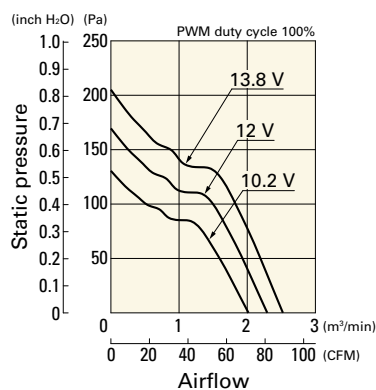
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WV0812P1M001 With pulse sensor with PWM control

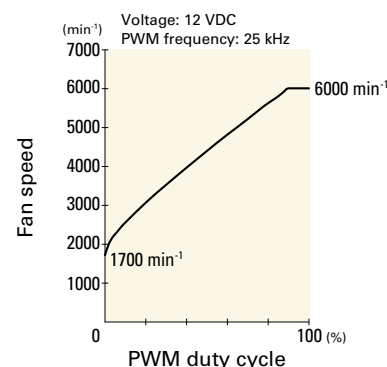
PWM duty cycle



Operating voltage range



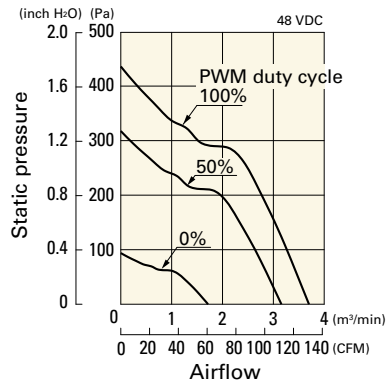
PWM duty - Speed characteristics example



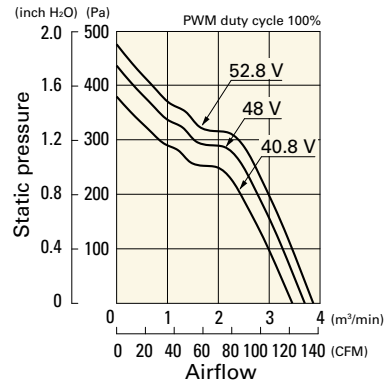
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WV0848P1H001 With pulse sensor with PWM control

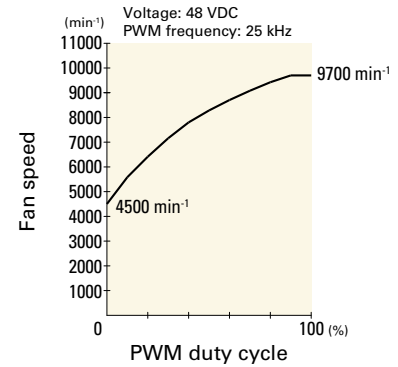
PWM duty cycle



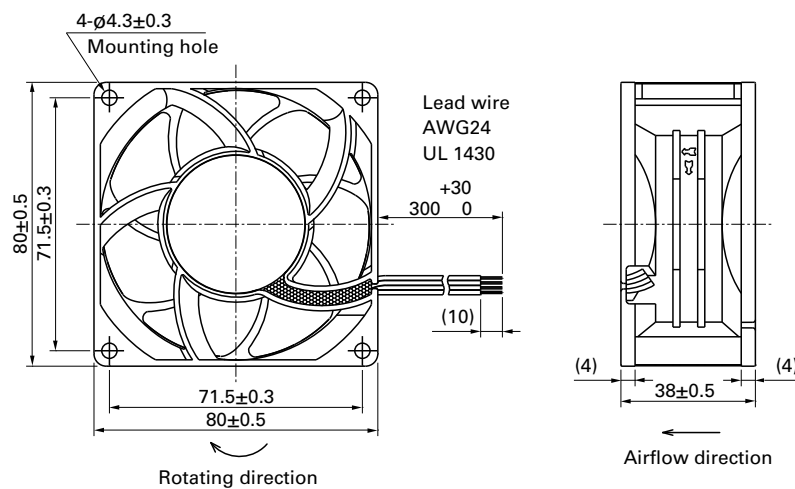
Operating voltage range



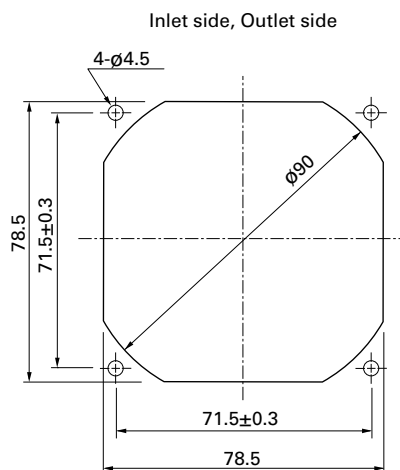
PWM duty - Speed characteristics example



Dimensions (unit: mm) (With ribs)



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



Options

Finger guards

page: p. 598

Model no.: 109-049E, 109-049H

Resin finger guards

page: p. 605

Model no.: 109-1002G



92x92x25 mm

San Ace 92W 9WPA type

General Specifications

- Material Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire Red Black Yellow Brown
(For models without PWM control, there is no speed control wiring.)
- Mass 135 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have ribs and a pulse sensor with PWM control**. For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WPA0912P4G001	12	10.8 to 13.2	100	0.5	6	5700	2.45 86.5	126 0.51	47	-20 to +70	40000/60°C (70000/40°C)
			20	0.04	0.5	1200	0.52 18.4	6 0.02	11		
9WPA0924P4G001	24	21.6 to 26.4	100	0.25	6	5700	2.45 86.5	126 0.51	47		
			20	0.03	0.7	1200	0.52 18.4	6 0.02	11		

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

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

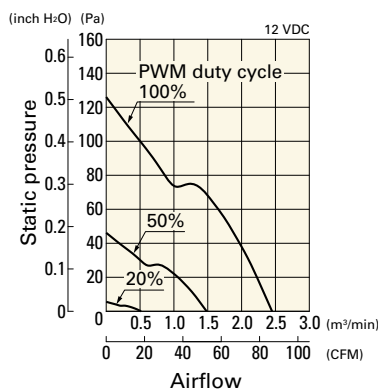
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WPA0924S4001	24	12 to 27.6	0.1	2.4	3900	1.67 59	59 0.24	37	-20 to +70	40000/60°C (70000/40°C)
9WPA0924H4001			0.08	1.92	3400	1.46 51.5	44.8 0.18	33		
9WPA0924F4001			0.06	1.44	2900	1.24 43.8	32.6 0.13	28		
9WPA0924B4001			0.04	0.96	2100	0.9 31.7	17.1 0.07	18		

Note: Sensor and control options are available for selection. Refer to the table on p. 662.

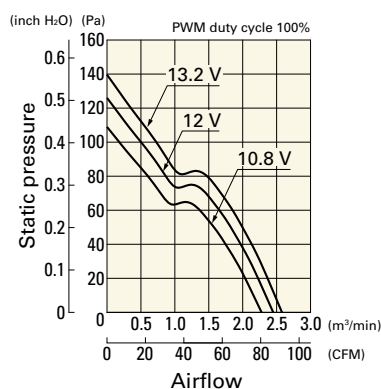
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WPA0912P4G001 With pulse sensor with PWM control

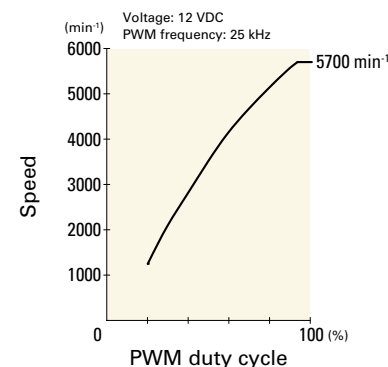
PWM duty cycle



Operating voltage range



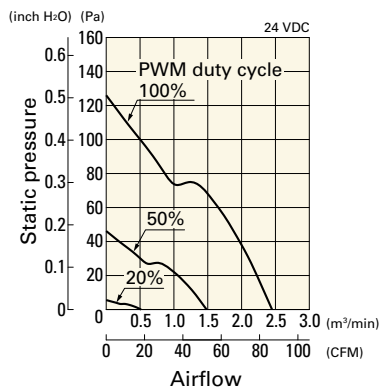
PWM duty - Speed characteristics example



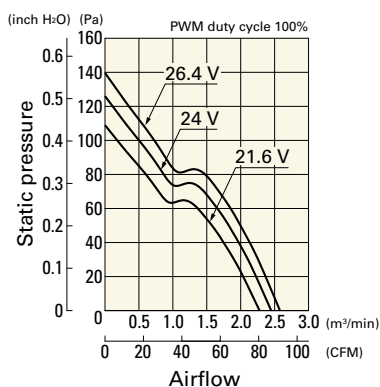
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WPA0924P4G001 With pulse sensor with PWM control

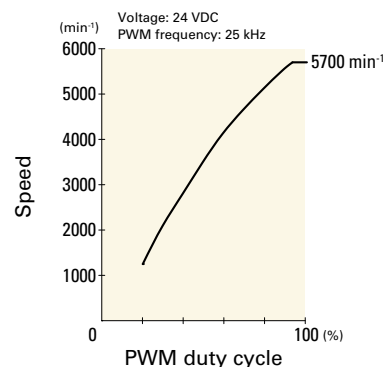
PWM duty cycle



Operating voltage range



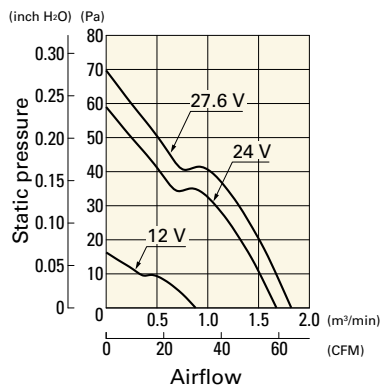
PWM duty - Speed characteristics example



Airflow - Static Pressure Characteristics

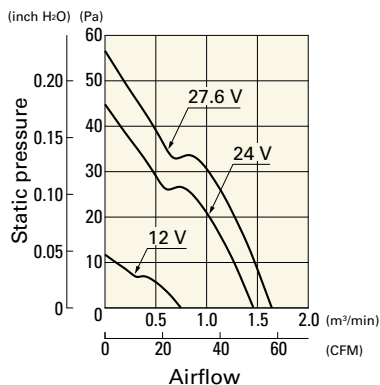
9WPA0924S4001 With pulse sensor

Operating voltage range



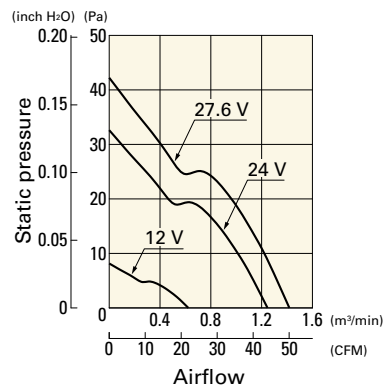
9WPA0924H4001 With pulse sensor

Operating voltage range



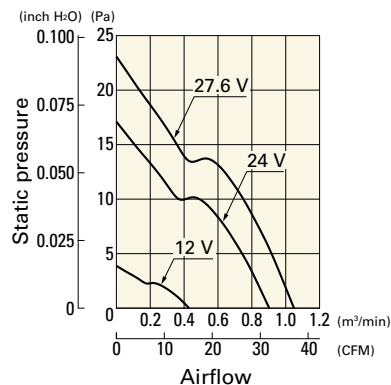
9WPA0924F4001 With pulse sensor

Operating voltage range



9WPA0924B4001 With pulse sensor

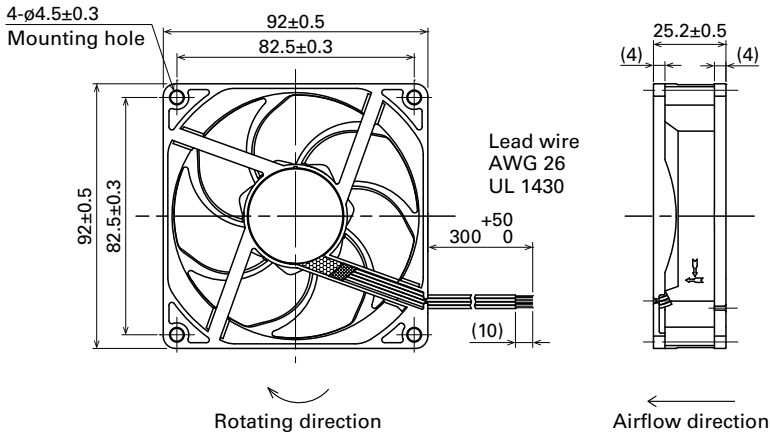
Operating voltage range



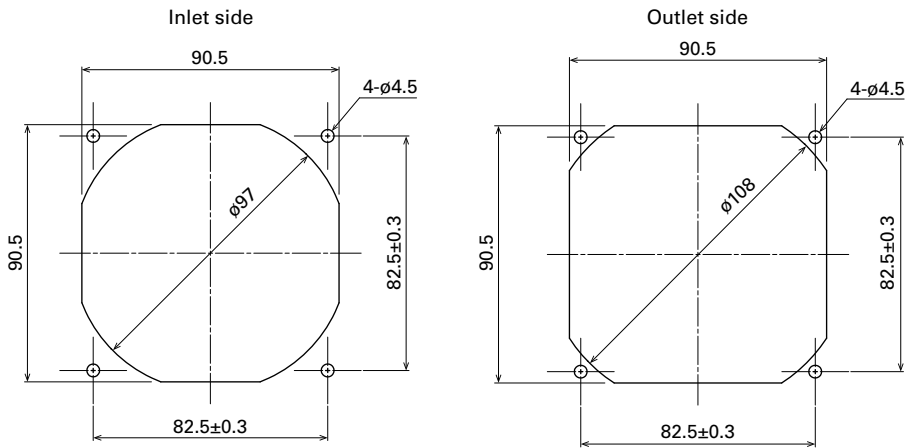
DC

Splash Proof Fan 92 mm sq.

■ **Dimensions (unit: mm)** (Ribbed frame with pulse sensor with PWM control)



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



■ **Options**

Finger guards page: p. 598
Model no.: 109-099E, 109-099H

Resin finger guards page: p. 605
Model no.: 109-1001G



92x92x25 mm

San Ace 92W 9WL type  

General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
(For models without PWM control, there is no speed control wiring.)
- Mass 170 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have a pulse sensor with PWM control.**

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]
9WL0912P4J001	12	10.8 to 13.2	100	0.42	5.04	5000	2.2 77.7	105 0.42	44	-20 to +70	180000/60°C (215000/40°C)
			20	0.04	0.48	1200	0.52 18.4	6.04 0.024	11		
9WL0912P4G001			100	0.3	3.6	4400	1.93 68.2	81 0.33	40		
			20	0.04	0.48	1000	0.43 15.1	4.18 0.016	8		
9WL0912P4S001			100	0.22	2.64	3850	1.69 59.7	62.1 0.25	37		
			30	0.04	0.48	1400	0.61 21.5	8.21 0.032	13		
9WL0912P4H001			100	0.15	1.8	3150	1.38 48.7	41.6 0.17	32		
			35	0.04	0.48	1100	0.48 16.9	5.07 0.02	9		
9WL0924P4J001	24	21.6 to 26.4	100	0.21	5.04	5000	2.2 77.7	105 0.42	44		
			20	0.02	0.48	1100	0.48 16.9	5.07 0.02	9		
9WL0924P4S001			100	0.11	2.64	3850	1.69 59.7	62.1 0.25	37		
			30	0.02	0.48	1300	0.57 20.1	7.08 0.028	12		
9WL0924P4H001			100	0.07	1.68	3150	1.38 48.7	41.6 0.17	32		
			30	0.02	0.48	1000	0.43 15.1	4.18 0.016	8		

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

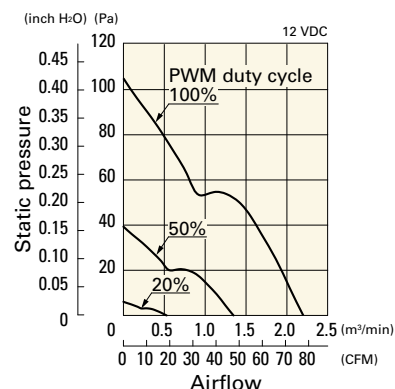
The models listed below **have a pulse sensor.**

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]
9WL0912M4001	12	10.2 to 13.8	0.08	0.96	2400	1.05 37.1	24.1 0.097	24	-20 to +70	180000/60°C (215000/40°C)
9WL0924F4001	24	20.4 to 27.6	0.05	1.2	2800	1.22 43.1	32.8 0.13	29		
9WL0924M4001			0.04	0.96	2400	1.05 37.1	24.1 0.097	24		

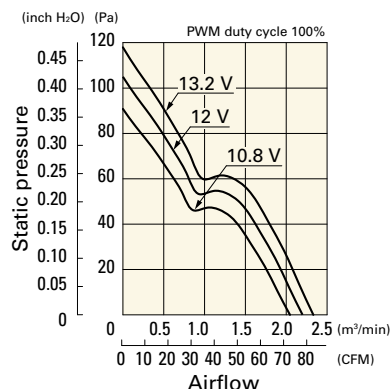
Note: Sensor and control options are available for selection. Refer to the table on p. 661.

9WL0912P4J001 With pulse sensor with PWM control

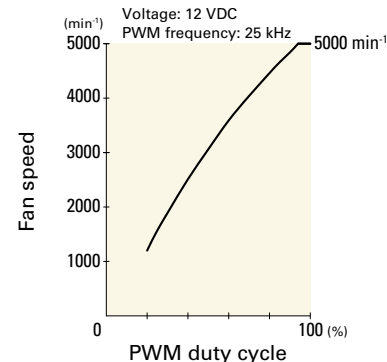
PWM duty cycle



Operating voltage range

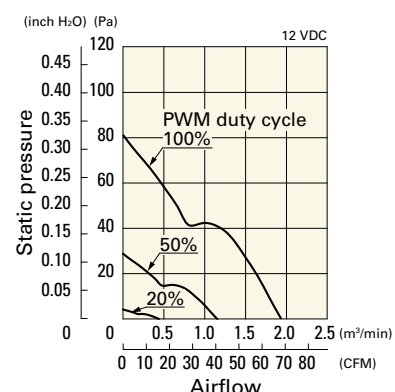


PWM duty - Speed characteristics example

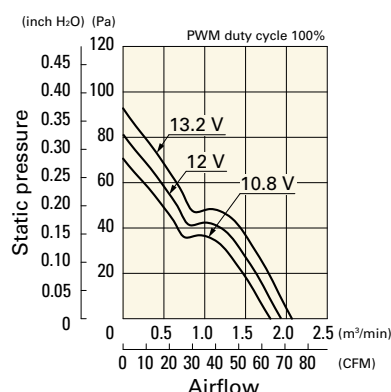


9WL0912P4G001 With pulse sensor with PWM control

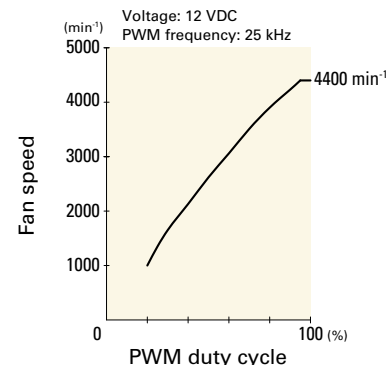
PWM duty cycle



Operating voltage range

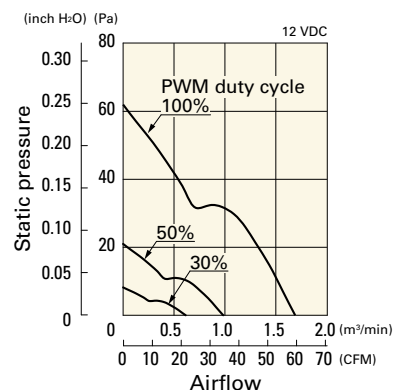


PWM duty - Speed characteristics example

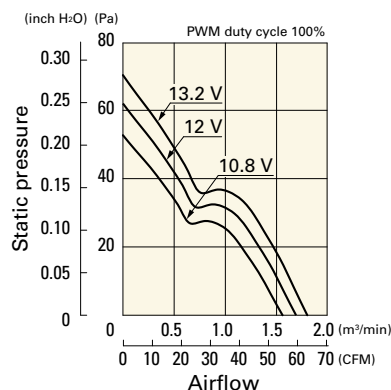


9WL0912P4S001 With pulse sensor with PWM control

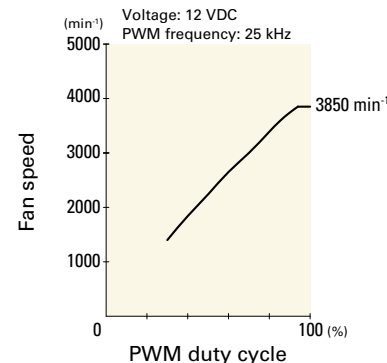
PWM duty cycle



Operating voltage range

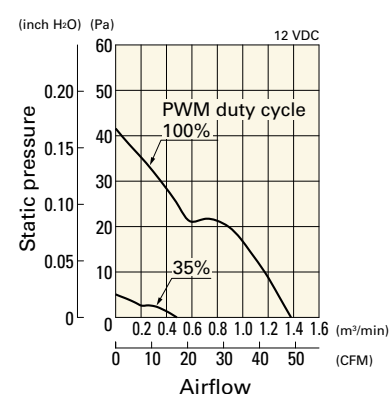


PWM duty - Speed characteristics example

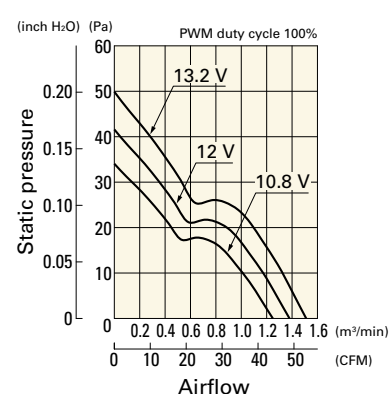


9WL0912P4H001 With pulse sensor with PWM control

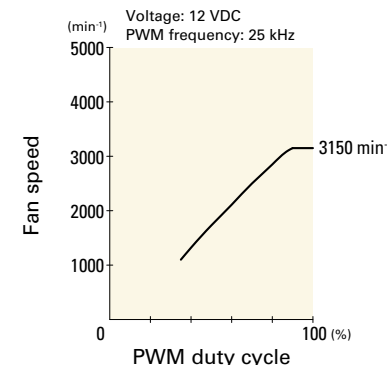
PWM duty cycle



Operating voltage range



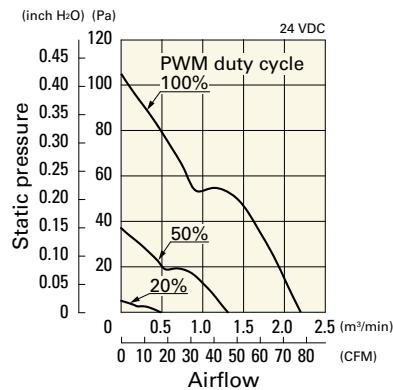
PWM duty - Speed characteristics example



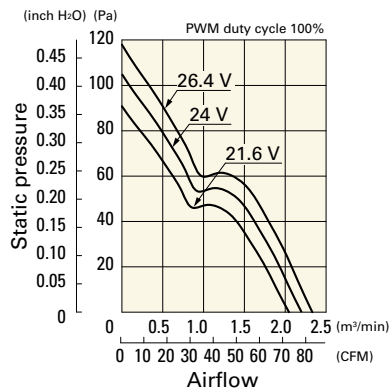
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL0924P4J001 With pulse sensor with PWM control

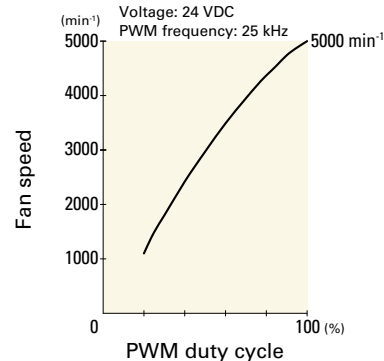
PWM duty cycle



Operating voltage range

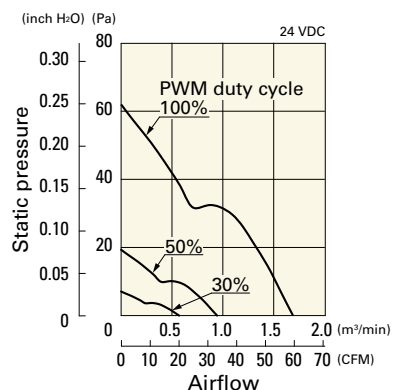


PWM duty - Speed characteristics example

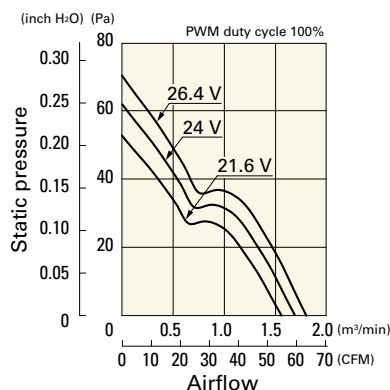


9WL0924P4S001 With pulse sensor with PWM control

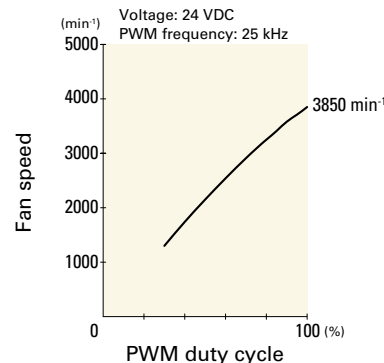
PWM duty cycle



Operating voltage range

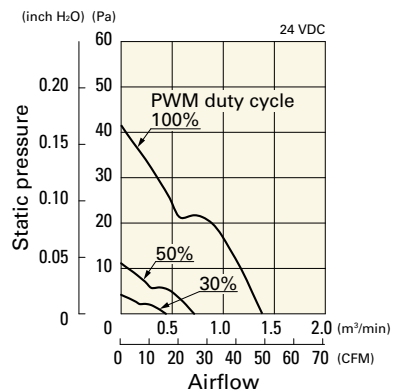


PWM duty - Speed characteristics example

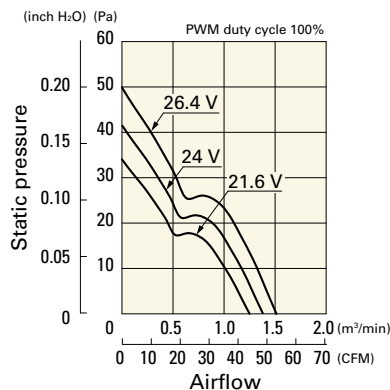


9WL0924P4H001 With pulse sensor with PWM control

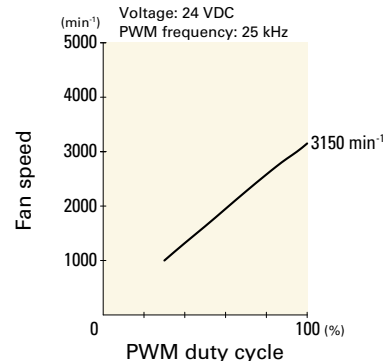
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example



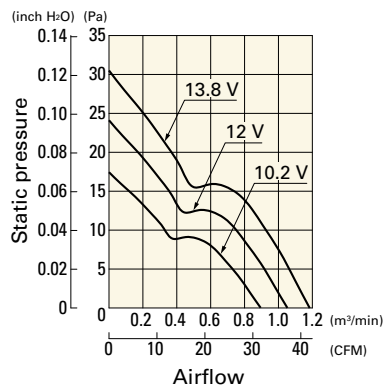
DC

Splash Proof Fan 92 mm sq.

Airflow - Static Pressure Characteristics

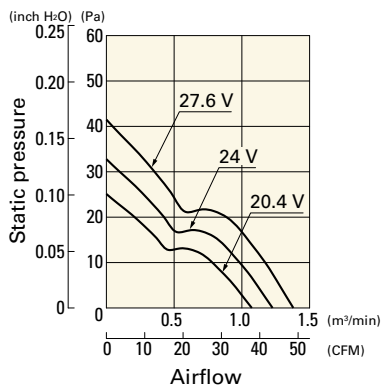
9WL0912M4001 With pulse sensor

Operating voltage range



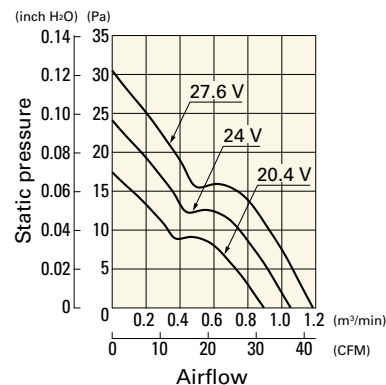
9WL0924F4001 With pulse sensor

Operating voltage range

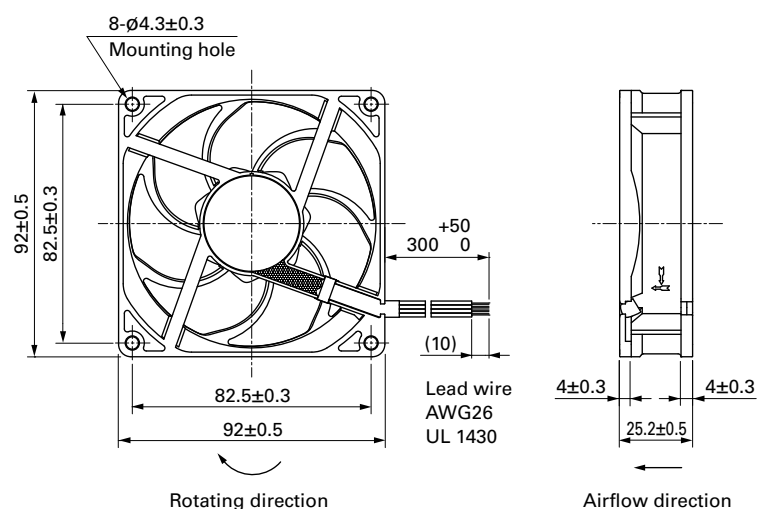


9WL0924M4001 With pulse sensor

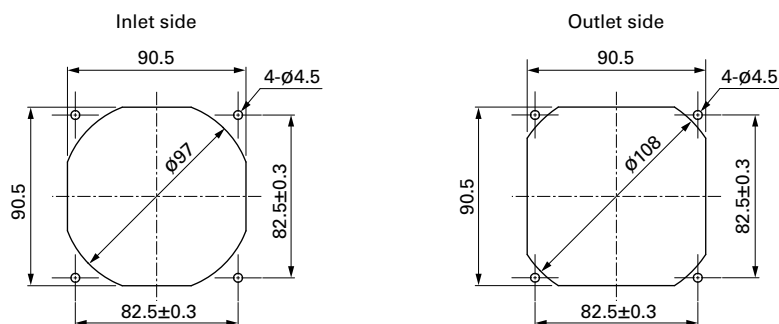
Operating voltage range



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



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



Options

Finger guards

page: p. 598

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

Resin finger guards

page: p. 605

Model no.: 109-1001G

92x92x38 mm

San Ace 92W 9WL type  



General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
- Mass 300 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have a pulse sensor with PWM control.**

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]
9WL0912P1H001	12	10.2 to 13.2	100	1.9	22.8	9000	3.7 130.6	430 1.72	61	-20 to +70	100000/60°C (135000/40°C)
			20	0.13	1.56	2700	1.11 39.1	48.0 0.19	30		
9WL0912P1F001			100	0.95	11.4	7000	2.9 102.4	263 1.05	55		
			20	0.1	1.2	2000	0.83 29.3	26.3 0.1	22		
9WL0924P1H001	24	20.4 to 26.4	100	0.95	22.8	9000	3.7 130.6	430 1.72	61		
			20	0.07	1.68	2700	1.11 39.1	48.0 0.19	30		
9WL0924P1F001			100	0.5	12	7000	2.9 102.4	263 1.05	55		
			20	0.06	1.44	2000	0.83 29.3	26.3 0.1	22		
9WL0948P1H601	48	40.8 to 52.8	100	0.48	23.04	9000	3.7 130.6	430 1.72	61		
			20	0.05	2.4	2700	1.11 39.1	48.0 0.19	30		
9WL0948P1F601			100	0.24	11.52	7000	2.9 102.4	263 1.05	55		
			20	0.05	2.4	2000	0.83 29.3	26.3 0.1	22		

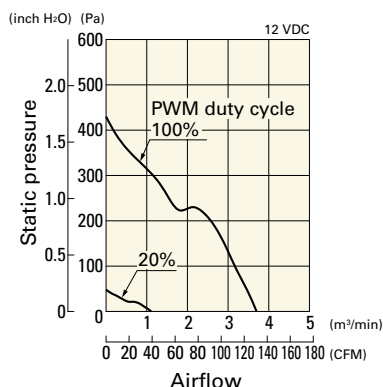
* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

Note: Sensor and control options are available for selection. Refer to the table on p. 661.

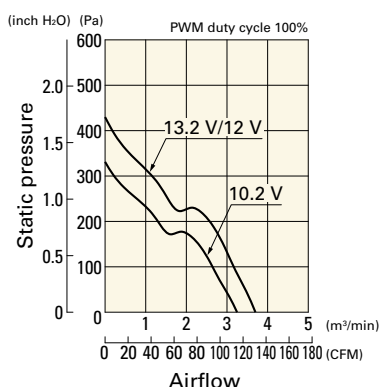
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL0912P1H001 With pulse sensor with PWM control

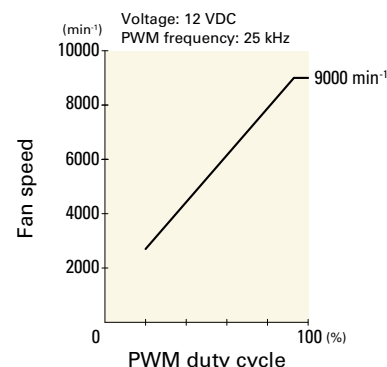
PWM duty cycle



Operating voltage range



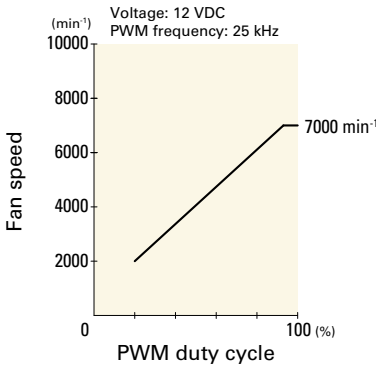
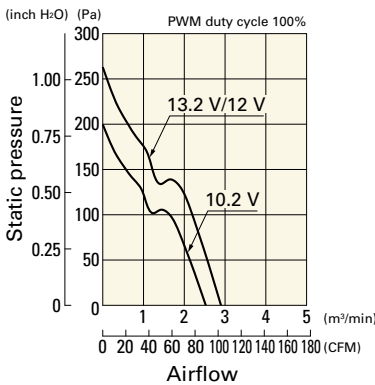
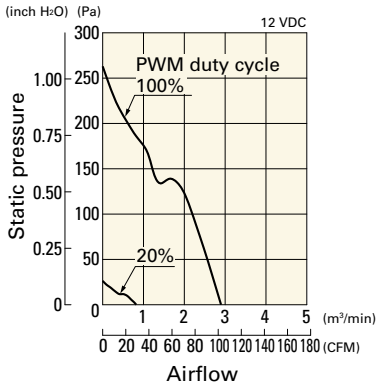
PWM duty - Speed characteristics example



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

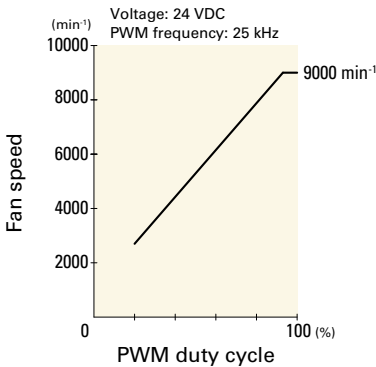
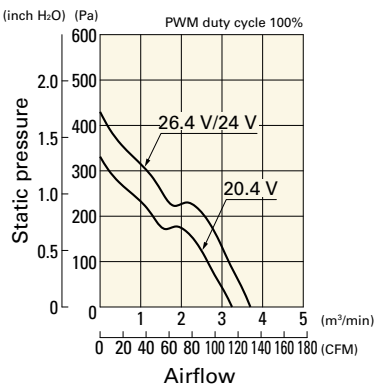
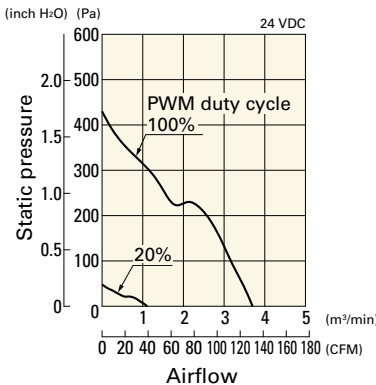
9WL0912P1F001 With pulse sensor with PWM control

PWM duty cycle Operating voltage range PWM duty - Speed characteristics example



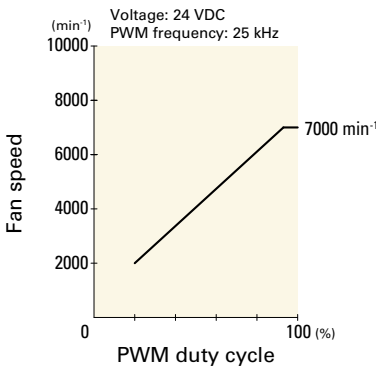
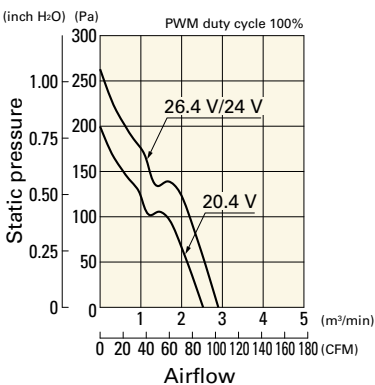
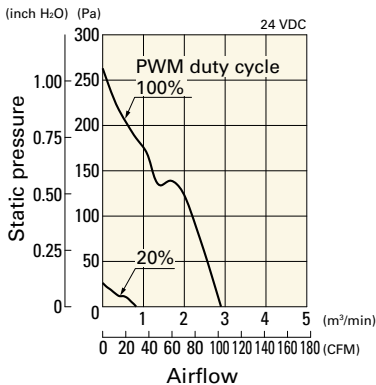
9WL0924P1H001 With pulse sensor with PWM control

PWM duty cycle Operating voltage range PWM duty - Speed characteristics example



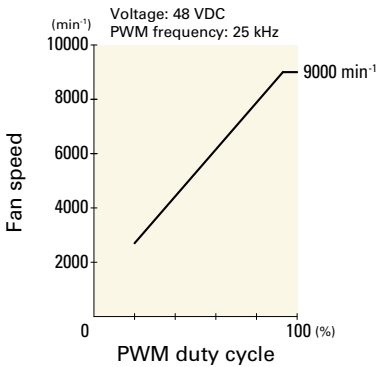
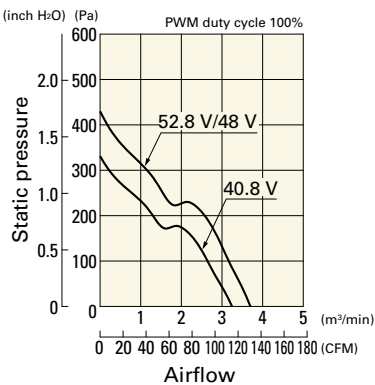
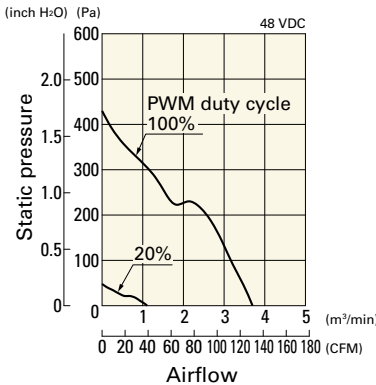
9WL0924P1F001 With pulse sensor with PWM control

PWM duty cycle Operating voltage range PWM duty - Speed characteristics example



9WL0948P1H601 With pulse sensor with PWM control

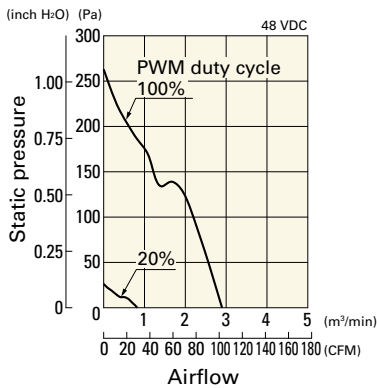
PWM duty cycle Operating voltage range PWM duty - Speed characteristics example



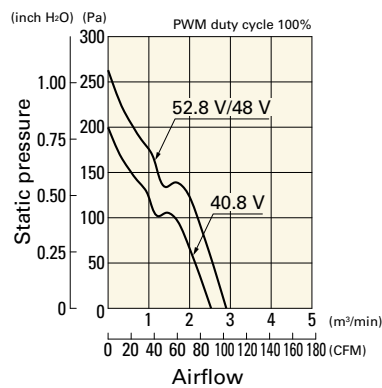
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL0948P1F601 With pulse sensor with PWM control

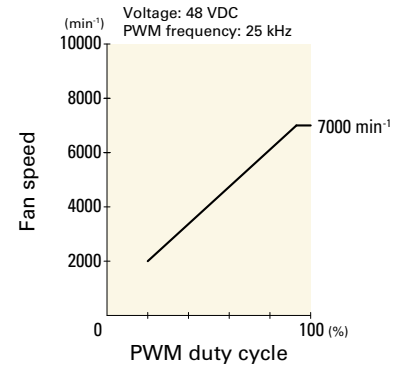
PWM duty cycle



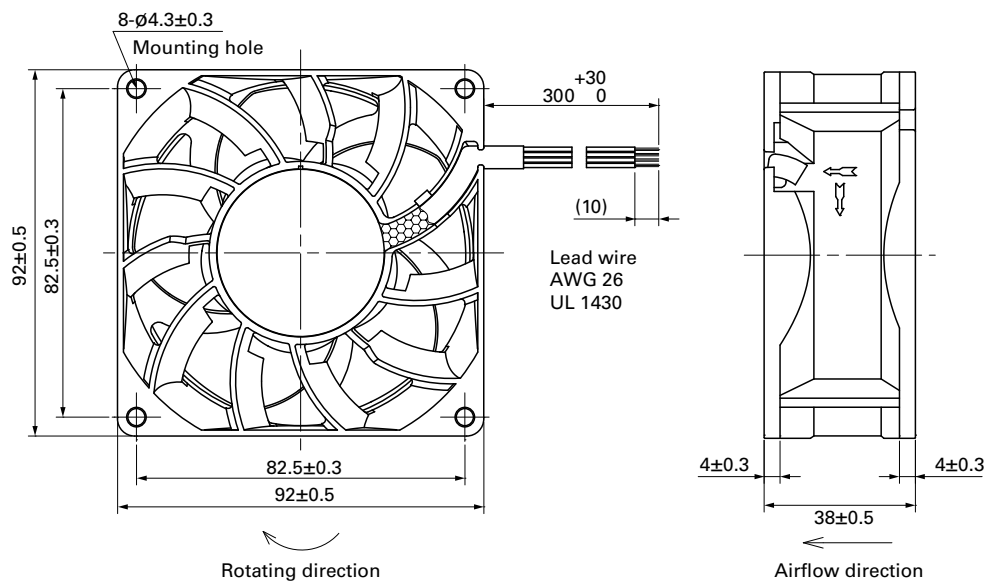
Operating voltage range



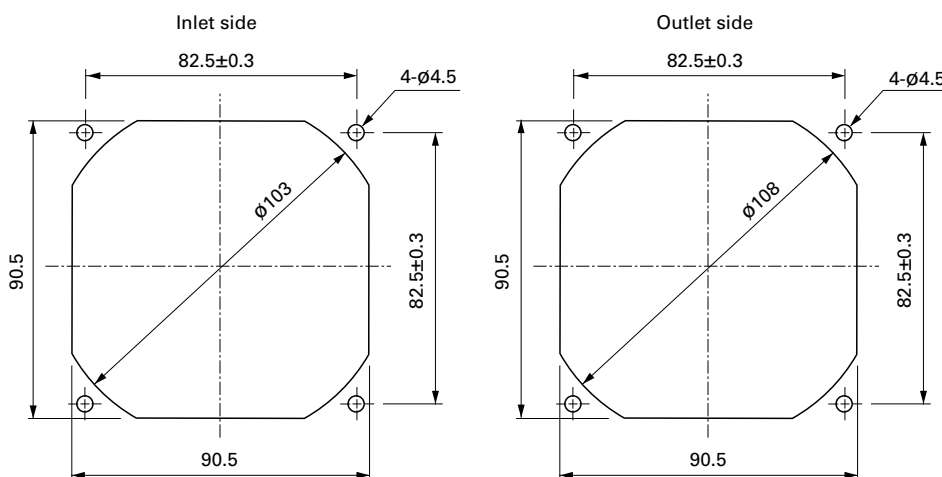
PWM duty - Speed characteristics example



Dimensions (unit: mm)



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



Options

Finger guards

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

page: p. 598

Resin finger guards

Model no.: 109-1001G

page: p. 605

92×92×38 mm

San Ace 92W 9WV type  



General Specifications

- Material Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
- Mass 265 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have ribs and a pulse sensor with PWM control.**

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m³/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	8500	5.05	178	385	1.55	64	-20 to +60	30000/60°C (53000/40°C)
			20	0.16	3.84	3000	1.78	62.9	47.9	0.19	38		
9WV0948P1H001	48	40.8 to 52.8	100	0.82	39.4	8500	5.05	178	385	1.55	64	-20 to +70	
			0	0.14	6.7	4000	2.37	83.7	85.2	0.34	45		

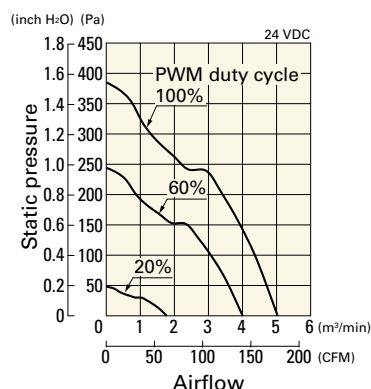
* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

Note: Sensor and control options are available for selection. Refer to the table on p. 663.

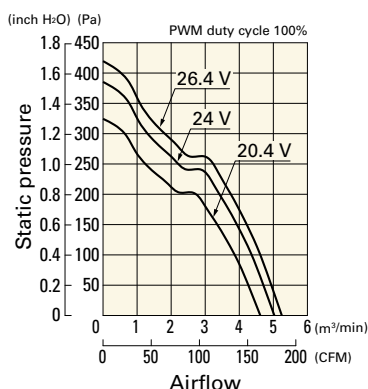
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WV0924P1H001 With pulse sensor with PWM control

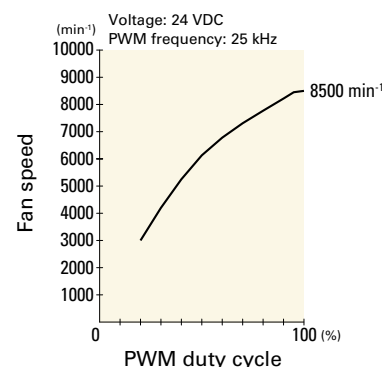
PWM duty cycle



Operating voltage range



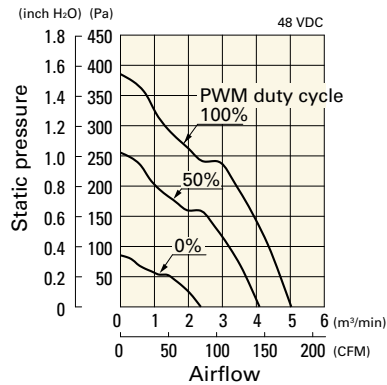
PWM duty - Speed characteristics example



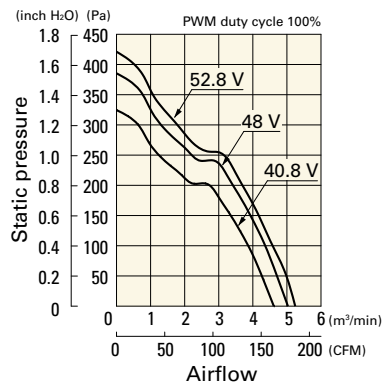
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WV0948P1H001 With pulse sensor with PWM control

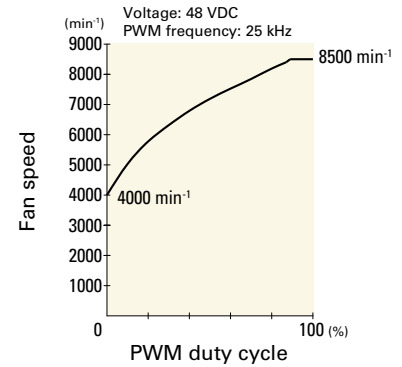
PWM duty cycle



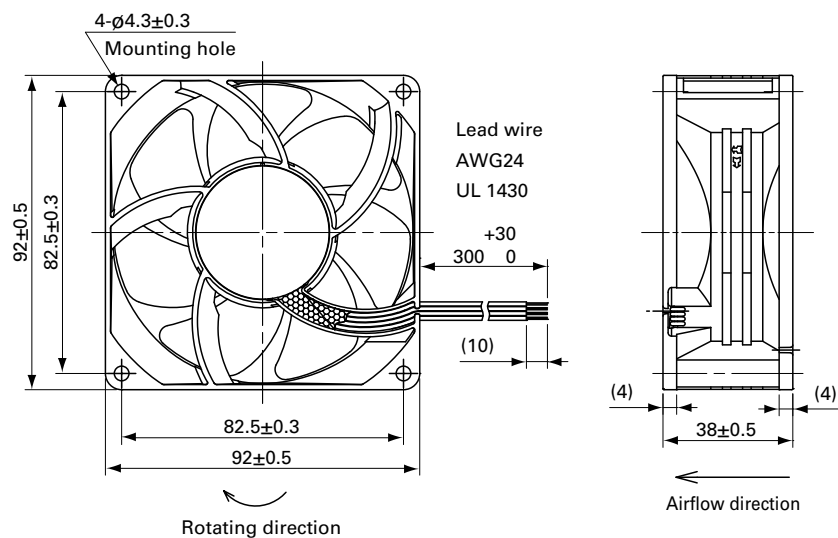
Operating voltage range



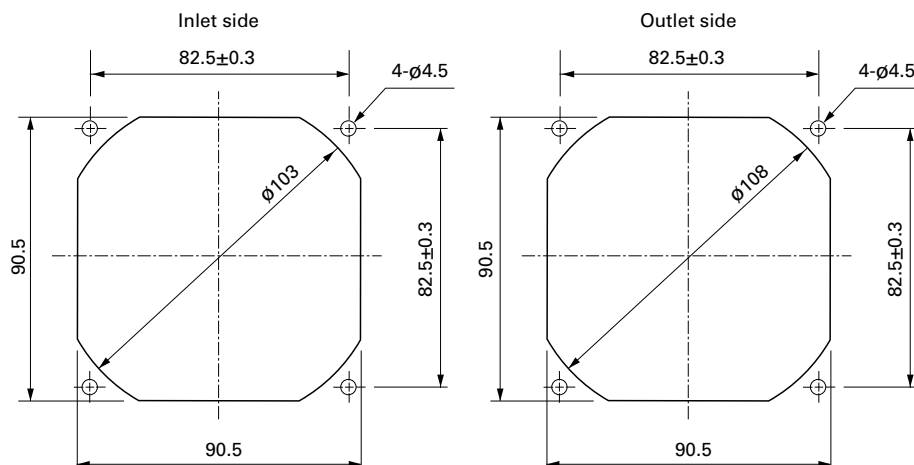
PWM duty - Speed characteristics example



Dimensions (unit: mm)



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



Options

Finger guards

page: p. 598

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

Resin finger guards

page: p. 605

Model no.: 109-1001G

DC

Splash Proof Fan 92 mm sq.



120×120×25 mm

San Ace 120W 9WPA type

General Specifications

- Material Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
(For models without PWM control, there is no speed control wiring.)
- Mass 240 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have ribs and a pulse sensor with PWM control**. For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m³/min] [CFM]		Max. static pressure [Pa] [inchH ₂ O]		SPL [dB (A)]	Operating temperature [°C]	Expected life [h]	
9WPA1212P4J001	12	10.8 to 13.2	100	1.0	12.0	5400	4.20	148	210	0.84	53	-20 to +60	40000/60°C (70000/40°C)	
			20	0.07	0.84	1600	1.24	43.8	24.0	0.10	25			
9WPA1212P4G001			100	0.50	6.0	4250	3.30	117	135	0.54	46	-20 to +70		
			20	0.06	0.72	1300	1.00	35.3	16.0	0.06	20			
9WPA1224P4J001	24	21.6 to 26.4	100	0.50	12.0	5400	4.20	148	210	0.84	53	-20 to +60		
			20	0.05	1.20	1600	1.24	43.8	24.0	0.10	25			
9WPA1224P4G001			100	0.25	6.0	4250	3.30	117	135	0.54	46	-20 to +70		
			20	0.04	0.96	1300	1.00	35.3	16.0	0.06	20			

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

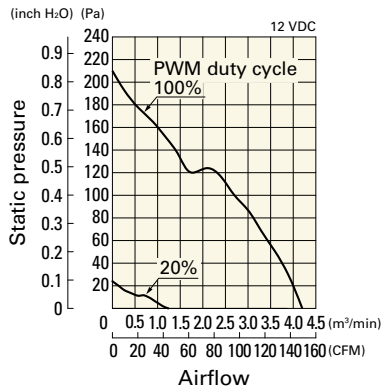
The models listed below **have ribs and a pulse sensor**. For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m³/min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WPA1212J4001	12	7 to 13.2	1.0	12.0	5400	4.20 148	210 0.84	53	-20 to +60	40000/60°C (70000/40°C)
9WPA1212G4001		7 to 13.8	0.50	6.00	4250	3.30 117	135 0.54	46	-20 to +70	
9WPA1212H4001		10.2 to 13.8	0.12	1.44	2400	1.85 65.0	47.0 0.19	30	-20 to +60	
9WPA1224J4001	24	14 to 26.4	0.50	12.0	5400	4.20 148	210 0.84	53	-20 to +60	
9WPA1224G4001		14 to 27.6	0.25	6.00	4250	3.30 117	135 0.54	46	-20 to +70	
9WPA1224H4001		20.4 to 27.6	0.06	1.44	2400	1.85 65.0	47.0 0.19	30	-20 to +60	

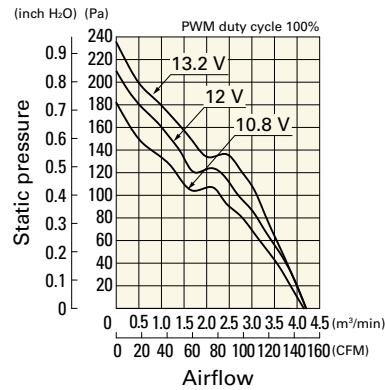
Note: Sensor and control options are available for selection. Refer to the table on p. 662 to 663.

9WPA1212P4J001 With pulse sensor with PWM control

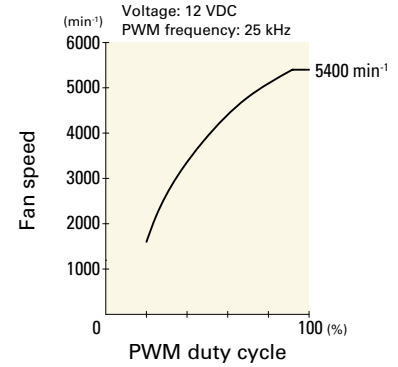
PWM duty cycle



Operating voltage range

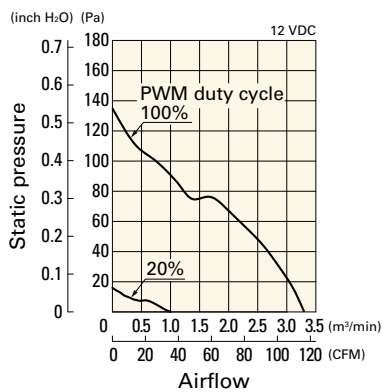


PWM duty - Speed characteristics example

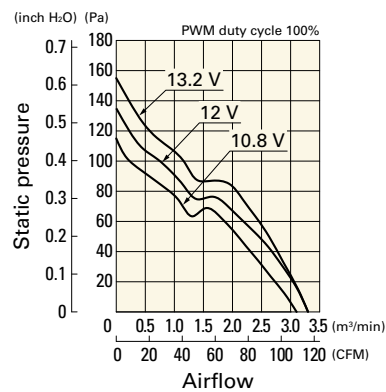


9WPA1212P4G001 With pulse sensor with PWM control

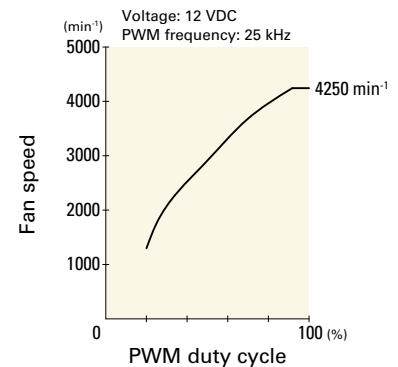
PWM duty cycle



Operating voltage range

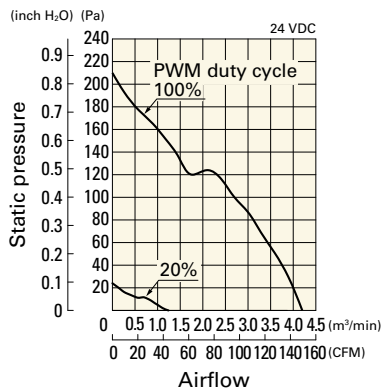


PWM duty - Speed characteristics example

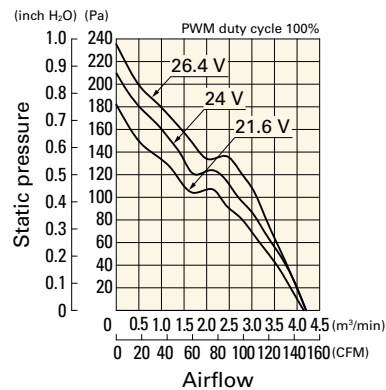


9WPA1224P4J001 With pulse sensor with PWM control

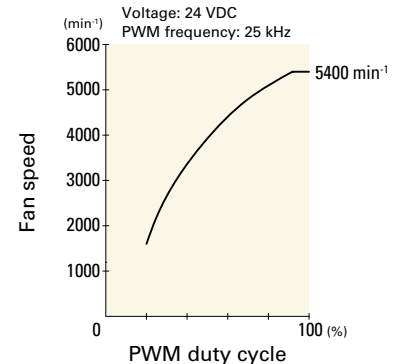
PWM duty cycle



Operating voltage range

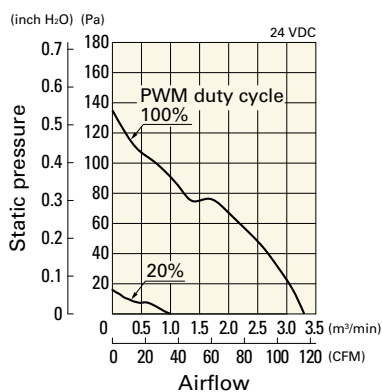


PWM duty - Speed characteristics example

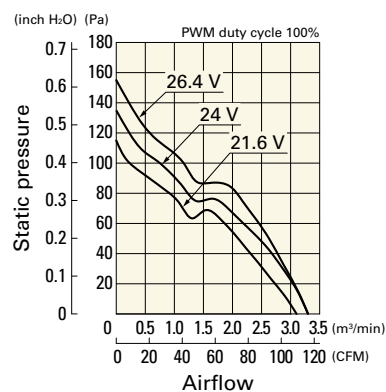


9WPA1224P4G001 With pulse sensor with PWM control

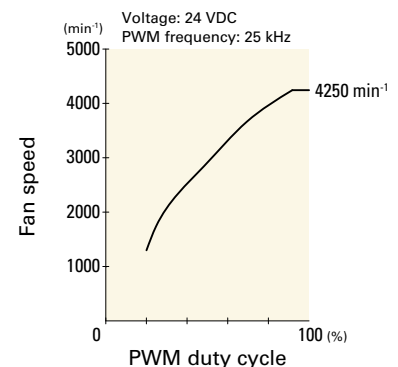
PWM duty cycle



Operating voltage range



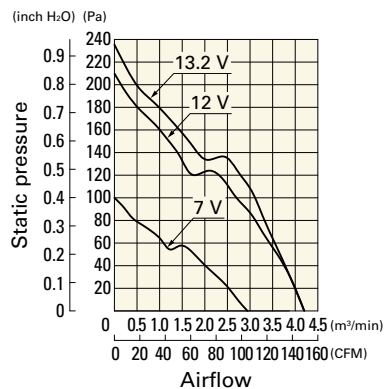
PWM duty - Speed characteristics example



Airflow - Static Pressure Characteristics

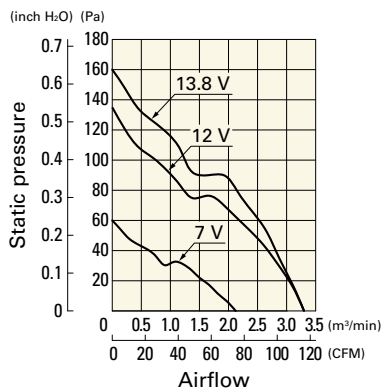
9WPA1212J4001 With pulse sensor

Operating voltage range



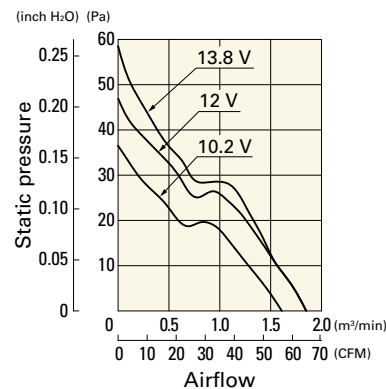
9WPA1212G4001 With pulse sensor

Operating voltage range



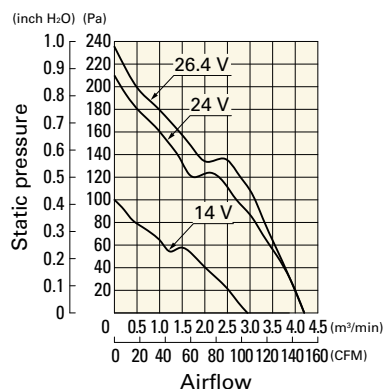
9WPA1212H4001 With pulse sensor

Operating voltage range



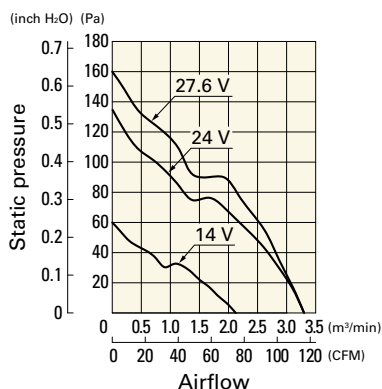
9WPA1224J4001 With pulse sensor

Operating voltage range



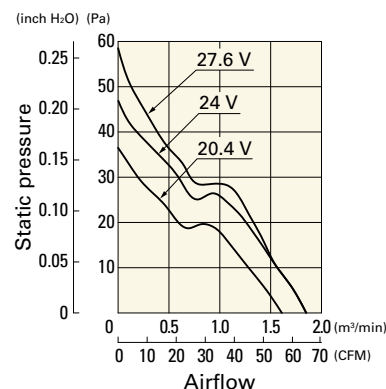
9WPA1224G4001 With pulse sensor

Operating voltage range

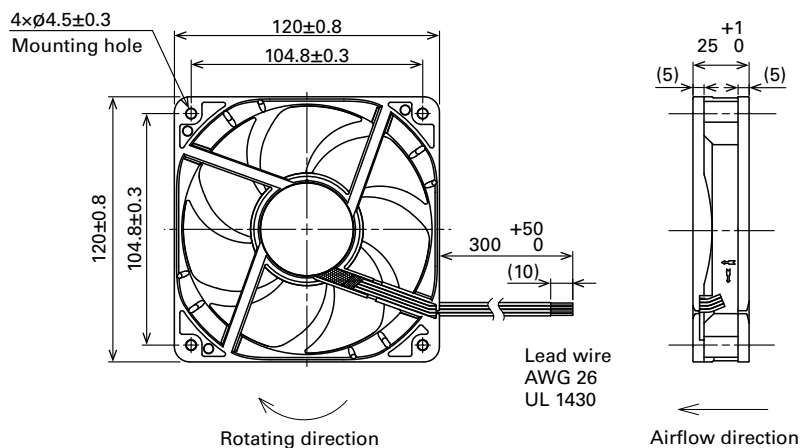


9WPA1224H4001 With pulse sensor

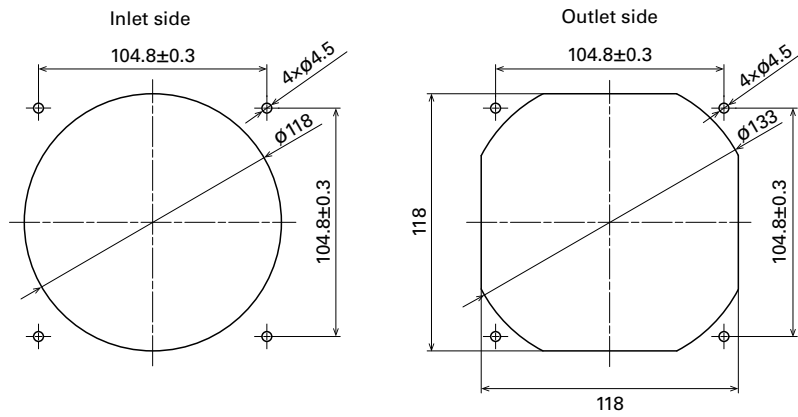
Operating voltage range



Dimensions (unit: mm) (Ribbed frame with pulse sensor with PWM control)



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



Options

Finger guards

page: p. 599

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

Resin finger guards

page: p. 605

Model no.: 109-1000G

Resin filter kits

page: p. 606

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

120×120×38 mm

IP68



San Ace 120W 9WV type  

General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
- Mass 440 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have a pulse sensor with PWM control.**

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	6400	6.35 224	360 1.45	64	-20 to +70	60000/60°C (90000/40°C)
			0	0.2	2.4	1500	1.49 52.6	19.8 0.08	33		
9WV1224P1J601	24	20.4 to 27.6	100	1.5	36	6400	6.35 224	360 1.45	64		
			0	0.12	2.88	1500	1.49 52.6	26.1 0.105	33		
9WV1224P1H001	24	20.4 to 27.6	100	0.8	19.2	5200	5.16 182	237 0.95	58		
			0	0.65	31.2	6400	6.35 224	360 1.45	64		
9WV1248P1J001	48	40.8 to 55.2	100	0.65	31.2	6400	6.35 224	360 1.45	64		
			0	0.06	2.88	1500	1.49 52.6	26.1 0.105	33		

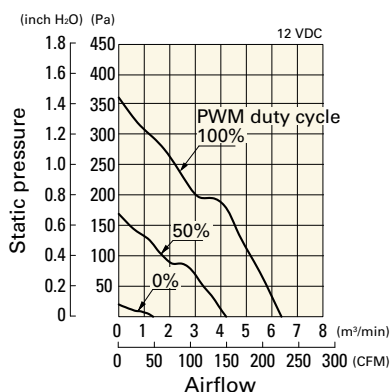
* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

Note: Sensor and control options are available for selection. Refer to the table on p. 663.

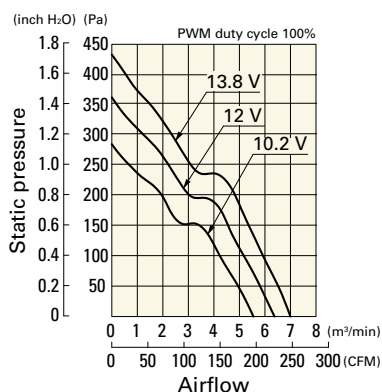
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WV1212P1J001 With pulse sensor with PWM control

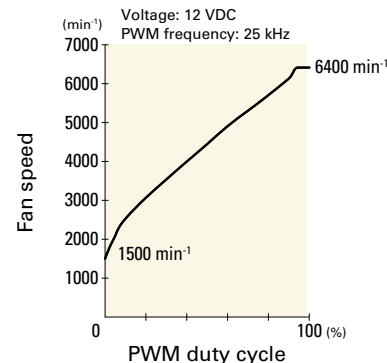
PWM duty cycle



Operating voltage range



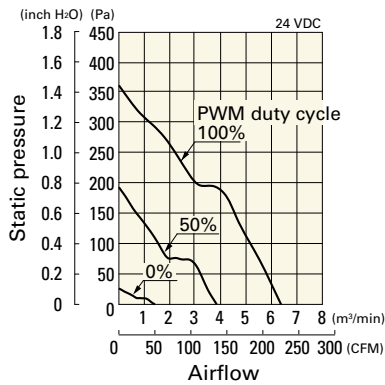
PWM duty - Speed characteristics example



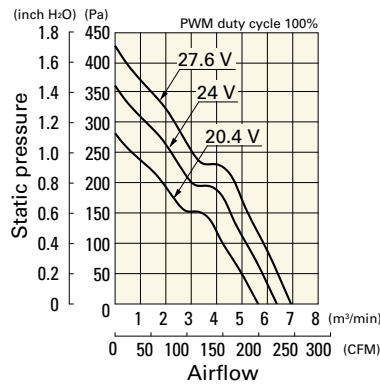
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WV1224P1J601 With pulse sensor with PWM control

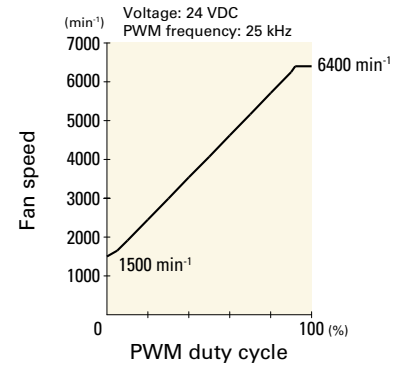
PWM duty cycle



Operating voltage range

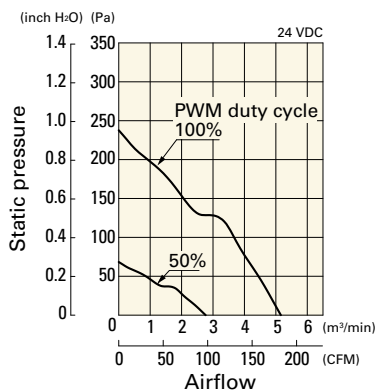


PWM duty - Speed characteristics example

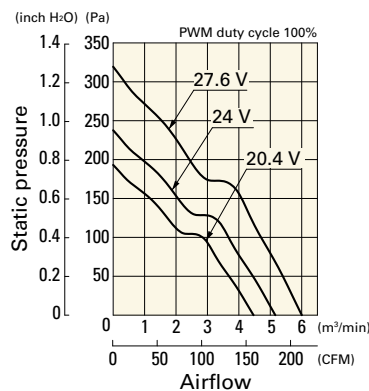


9WV1224P1H001 With pulse sensor with PWM control

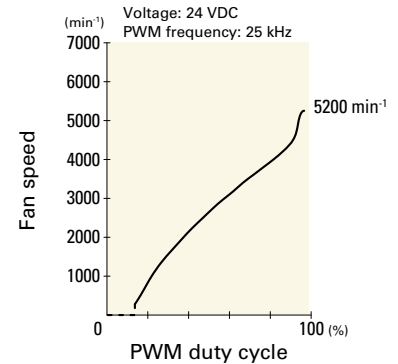
PWM duty cycle



Operating voltage range

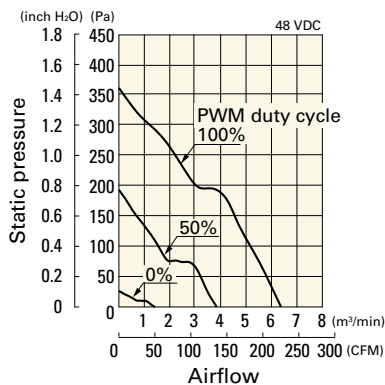


PWM duty - Speed characteristics example

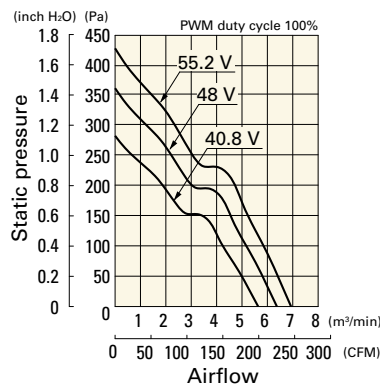


9WV1248P1J001 With pulse sensor with PWM control

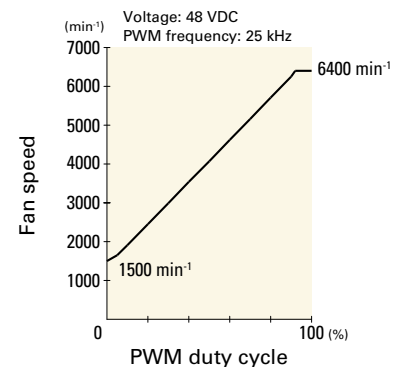
PWM duty cycle



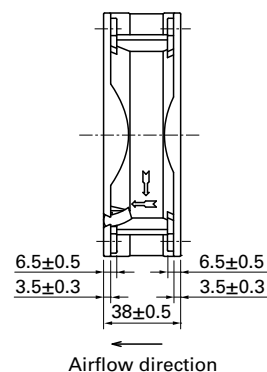
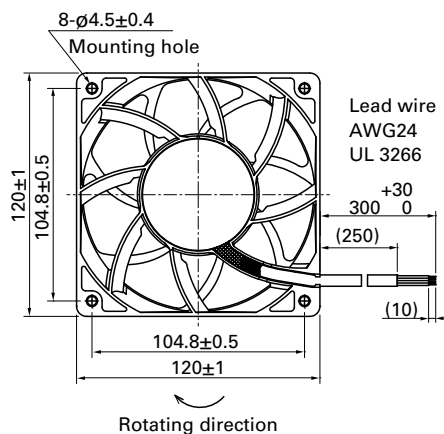
Operating voltage range



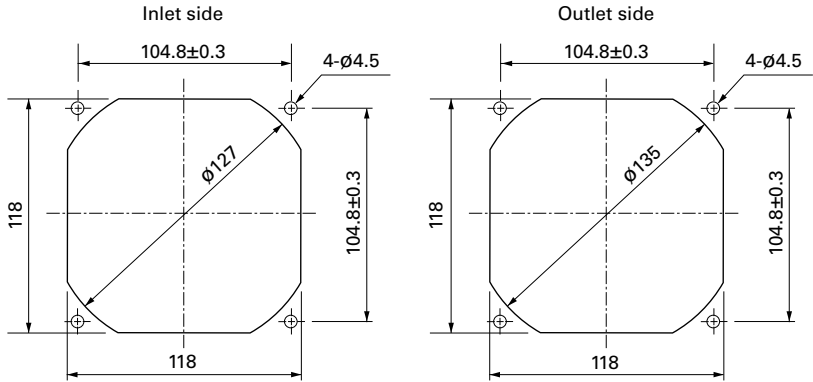
PWM duty - Speed characteristics example



Dimensions (unit: mm)



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



■ Options

Finger guards	page: p. 599	Resin finger guards	page: p. 605
Model no.: 109-019E, 109-019K		Model no.: 109-1000G	

120×120×38 mm

San Ace 120W 9WG type   



General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black or Blue Sensor Yellow
- Mass 410 g
- Ingress protection IP55 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have a pulse sensor**.

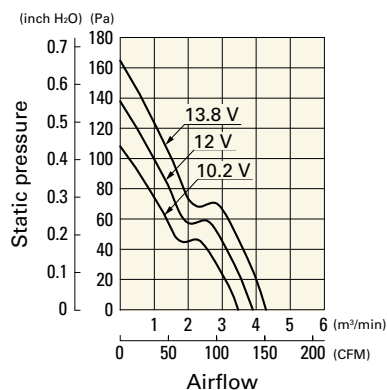
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WG1212G101-E	12	10.2 to 13.8	0.98	11.76	3600	3.88 137	135 0.542	49	-20 to +70	80000/60°C (115000/40°C)
9WG1212E101-E			0.61	7.32	3100	3.34 118	100 0.402	46		
9WG1212H101-E		7 to 13.8	0.38	4.56	2600	2.8 99	70.4 0.283	39		100000/60°C (135000/40°C)
9WG1212F101-E			0.28	3.36	2280	2.45 87	54.2 0.218	36		
9WG1212M101-E			0.21	2.52	1950	2.1 74	39.6 0.159	32		
9WG1224G101-E	24	20.4 to 27.6	0.5	12	3600	3.88 137	135 0.542	49		80000/60°C (115000/40°C)
9WG1224E101-E			0.34	8.16	3100	3.34 118	100 0.402	46		
9WG1224H101-E		14 to 27.6	0.22	5.28	2600	2.8 99	70.4 0.283	39		100000/60°C (135000/40°C)
9WG1224F101-E			0.16	3.84	2280	2.45 87	54.2 0.218	36		
9WG1224M101-E			0.11	2.64	1950	2.1 74	39.6 0.159	32		
9WG1248G101-E	48	40.8 to 55.2	0.25	12	3600	3.88 137	135 0.542	49		80000/60°C (115000/40°C)
9WG1248E101-E			0.17	8.16	3100	3.34 118	100 0.402	46		
9WG1248H101-E			0.11	5.28	2600	2.8 99	70.4 0.283	39		100000/60°C (135000/40°C)
9WG1248F101-E			0.09	4.32	2280	2.45 87	54.2 0.218	36		
9WG1248M101-E			0.07	3.36	1950	2.1 74	39.6 0.159	32		

Note: Sensor and control options are available for selection. Refer to the table on p. 660 to 661.

Airflow - Static Pressure Characteristics

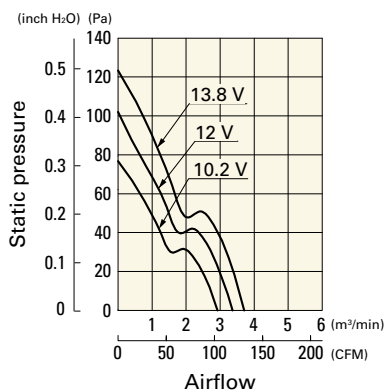
9WG1212G101-E With pulse sensor

Operating voltage range



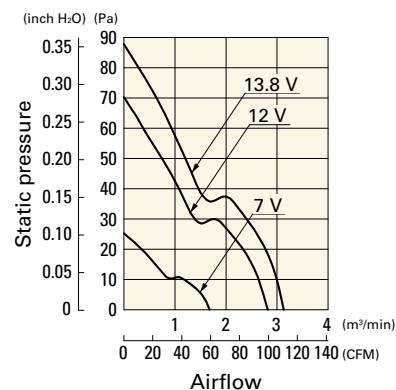
9WG1212E101-E With pulse sensor

Operating voltage range



9WG1212H101-E With pulse sensor

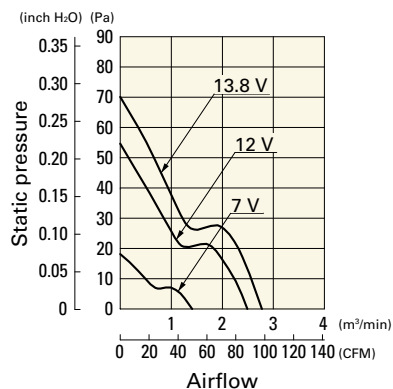
Operating voltage range



Airflow - Static Pressure Characteristics

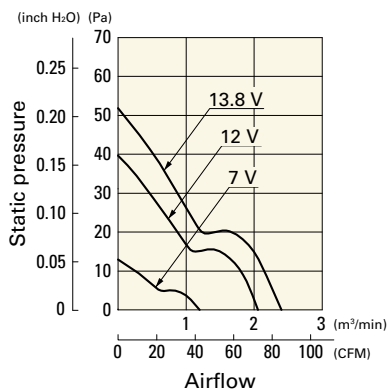
9WG1212F101-E With pulse sensor

Operating voltage range



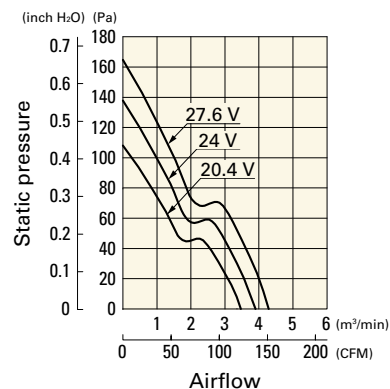
9WG1212M101-E With pulse sensor

Operating voltage range



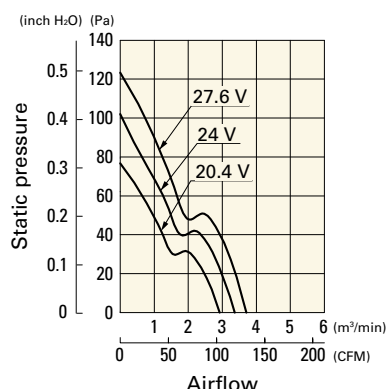
9WG1224G101-E With pulse sensor

Operating voltage range



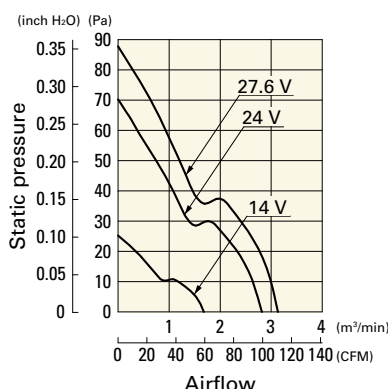
9WG1224E101-E With pulse sensor

Operating voltage range



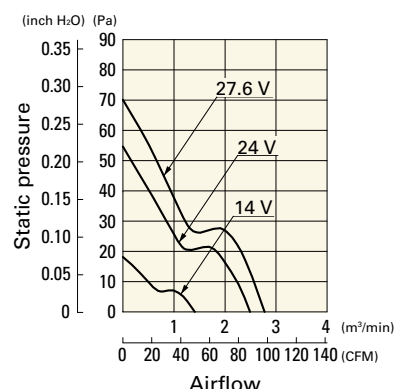
9WG1224H101-E With pulse sensor

Operating voltage range



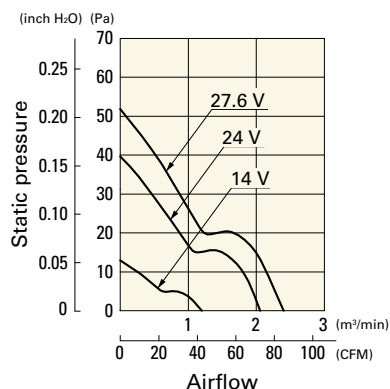
9WG1224F101-E With pulse sensor

Operating voltage range



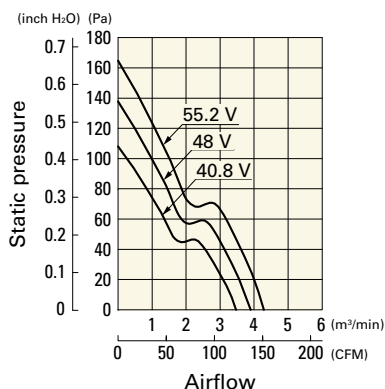
9WG1224M101-E With pulse sensor

Operating voltage range



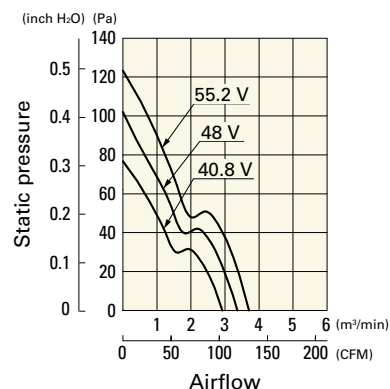
9WG1248G101-E With pulse sensor

Operating voltage range



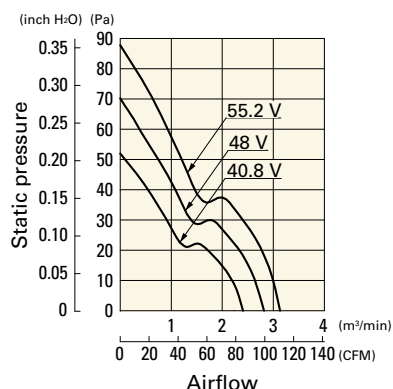
9WG1248E101-E With pulse sensor

Operating voltage range



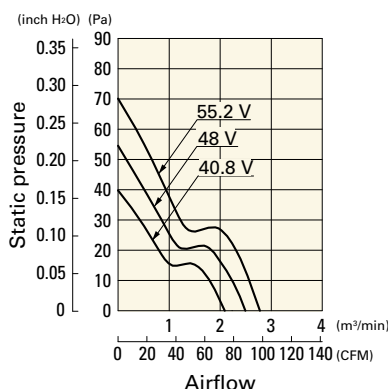
9WG1248H101-E With pulse sensor

Operating voltage range



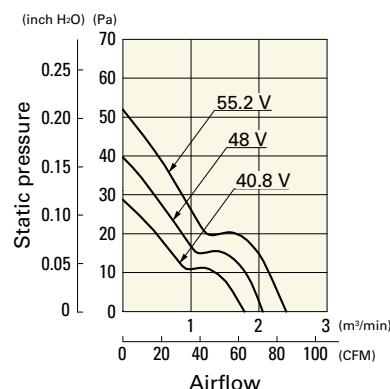
9WG1248F101-E With pulse sensor

Operating voltage range

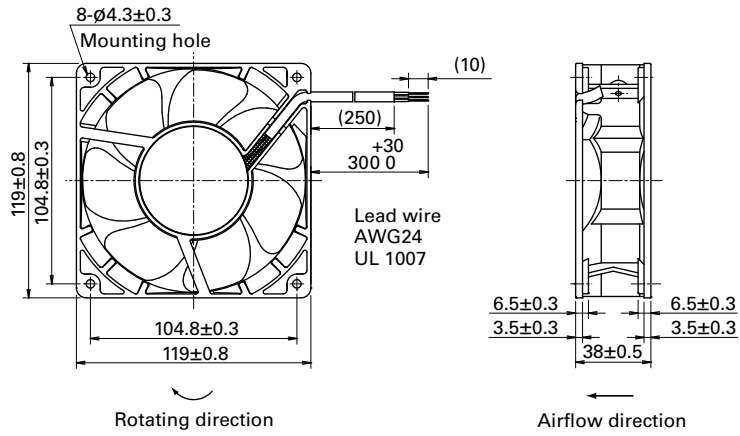


9WG1248M101-E With pulse sensor

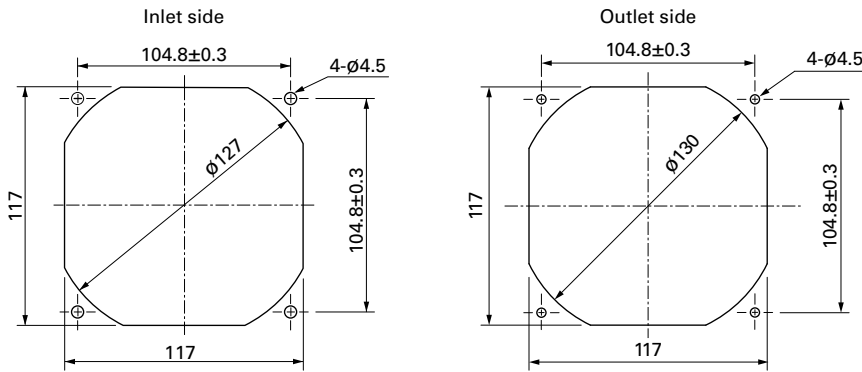
Operating voltage range



Dimensions (unit: mm)



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



Options

Finger guards

page: p. 599

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

Resin finger guards

page: p. 605

Model no.: 109-1000G



140x140x38 mm

San Ace 140W 9WL type 

General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
(For models without PWM control, there is no speed control wiring.)
- Mass 740 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have a pulse sensor with PWM control.**

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m³/min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WL1412P1A001	12	10.2 to 13.8	100	3.72	44.64	6900	8.0 282	516 2.07	68	-20 to +70	100000/60°C (135000/40°C)
			20	0.27	3.24	2300	2.66 93	80 0.32	39		
9WL1412P1H001			100	1.7	20.4	5200	6.0 212	300 1.2	62		
			20	0.27	3.24	2300	2.66 93	80 0.32	39		
9WL1412P1M001			100	0.6	7.2	3300	3.7 130	170 0.68	46		
			20	0.16	1.92	1300	1.45 51	26 0.1	29		
9WL1424P1A001	24	20.4 to 27.6	100	1.86	44.64	6900	8.0 282	516 2.07	68		
			20	0.17	4.08	2300	2.66 93	80 0.32	39		
9WL1424P1H001			100	0.85	20.4	5200	6.0 212	300 1.2	62		
			20	0.16	3.84	2300	2.66 93	80 0.32	39		
9WL1424P1M001			100	0.3	7.2	3300	3.7 130	170 0.68	46		
			20	0.11	2.64	1300	1.45 51	26 0.1	29		
9WL1448P1A001	48	40.8 to 55.2	100	0.92	44.16	6900	8.0 282	516 2.07	68		
			20	0.11	5.28	2300	2.66 93	80 0.32	39		
9WL1448P1H001			100	0.42	20.16	5200	6.0 212	300 1.2	62		
			20	0.11	5.28	2300	2.66 93	80 0.32	39		
9WL1448P1M001			100	0.15	7.2	3300	3.7 130	170 0.68	46		
			20	0.09	4.32	1300	1.45 51	26 0.1	29		

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

The models listed below **have a pulse sensor.**

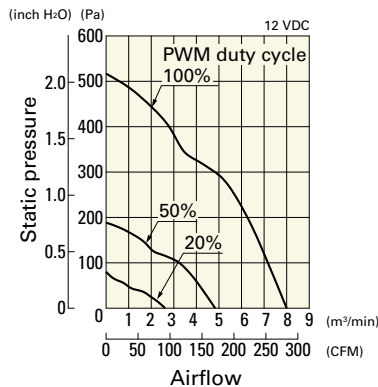
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m³/min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WL1448L1001	48	40.8 to 55.2	0.11	5.3	2300	2.6 91.9	80 0.32	39	-20 to +70	100000/60°C (135000/40°C)

Note: Sensor and control options are available for selection. Refer to the table on p. 661 to 662.

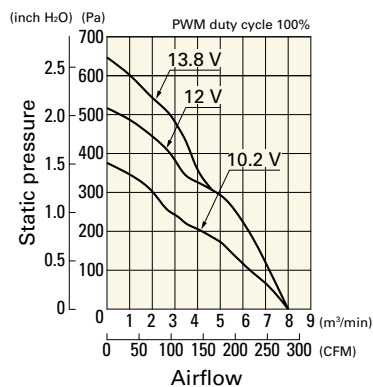
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL1412P1A001 With pulse sensor with PWM control

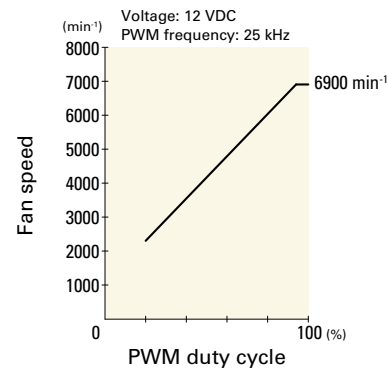
PWM duty cycle



Operating voltage range

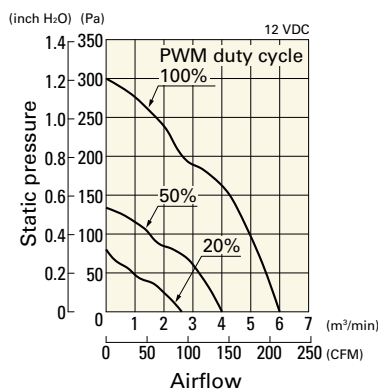


PWM duty - Speed characteristics example

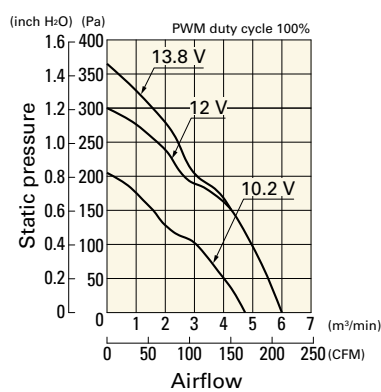


9WL1412P1H001 With pulse sensor with PWM control

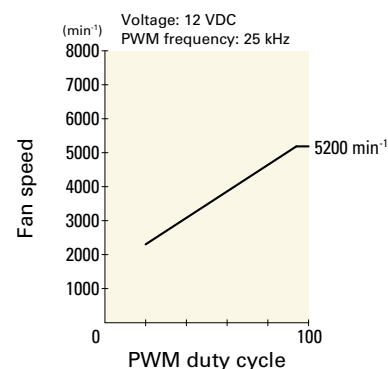
PWM duty cycle



Operating voltage range

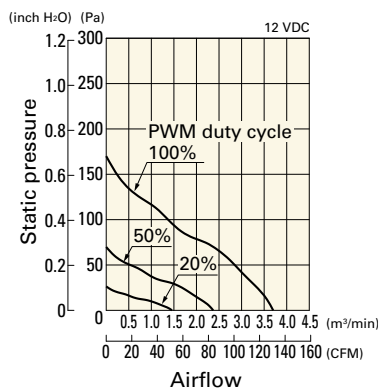


PWM duty - Speed characteristics example

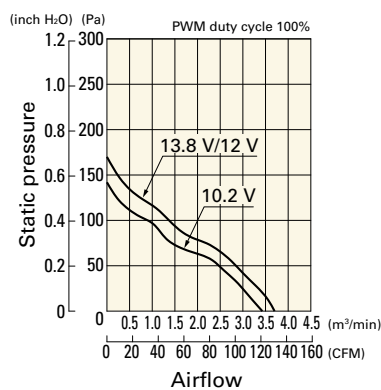


9WL1412P1M001 With pulse sensor with PWM control

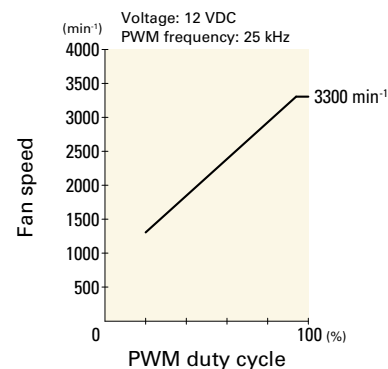
PWM duty cycle



Operating voltage range

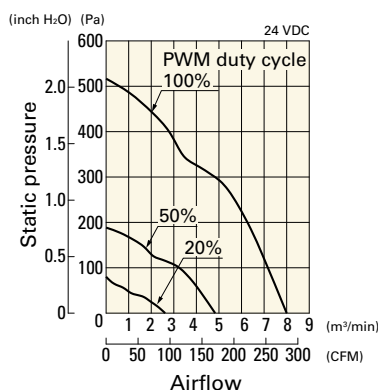


PWM duty - Speed characteristics example

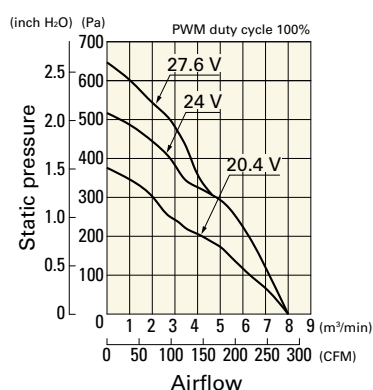


9WL1424P1A001 With pulse sensor with PWM control

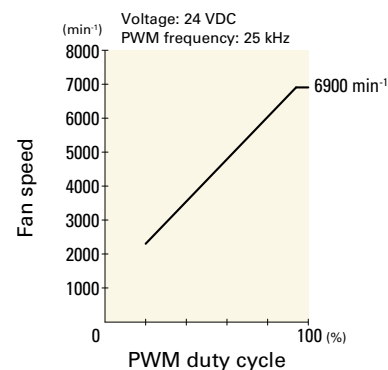
PWM duty cycle



Operating voltage range



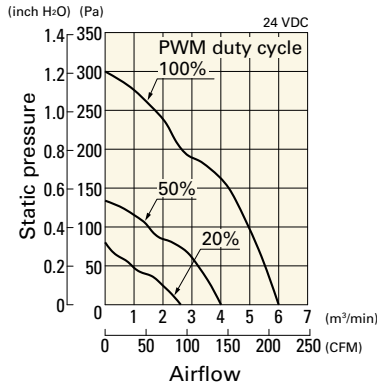
PWM duty - Speed characteristics example



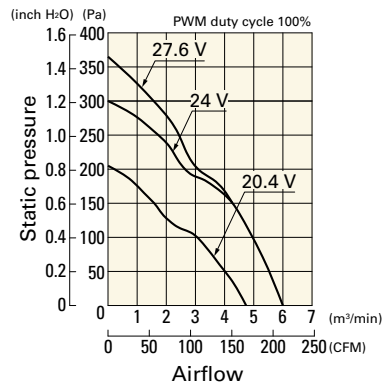
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL1424P1H001 With pulse sensor with PWM control

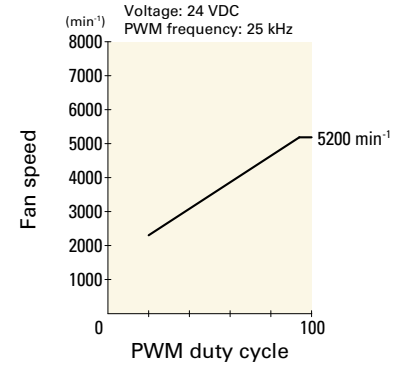
PWM duty cycle



Operating voltage range

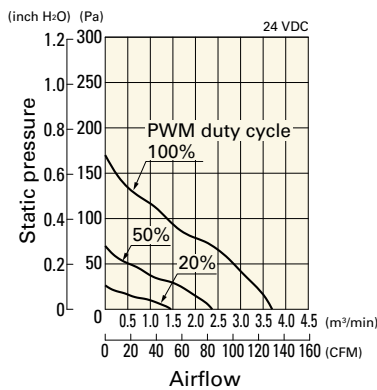


PWM duty - Speed characteristics example

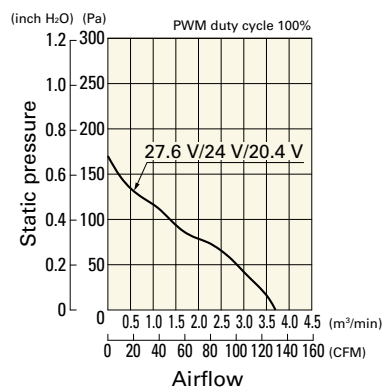


9WL1424P1M001 With pulse sensor with PWM control

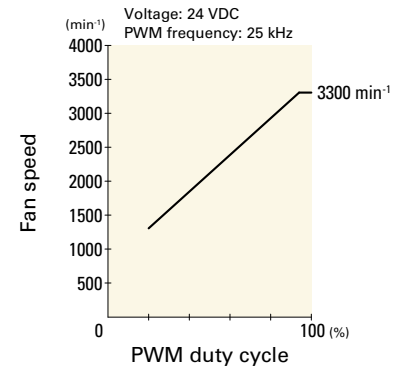
PWM duty cycle



Operating voltage range

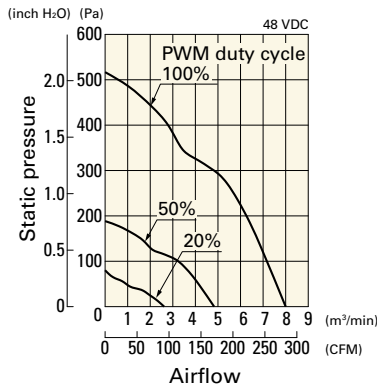


PWM duty - Speed characteristics example

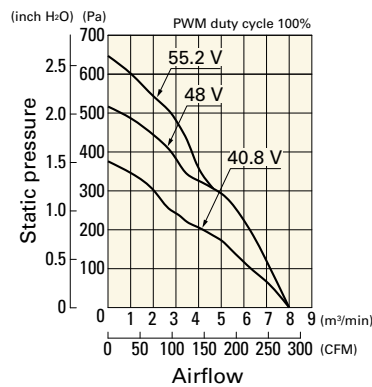


9WL1448P1A001 With pulse sensor with PWM control

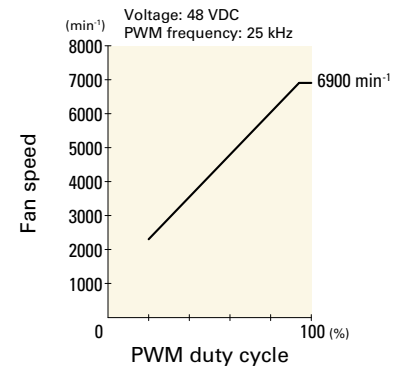
PWM duty cycle



Operating voltage range

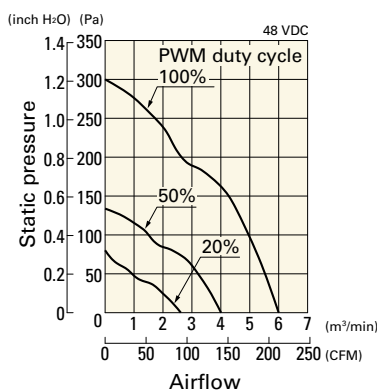


PWM duty - Speed characteristics example

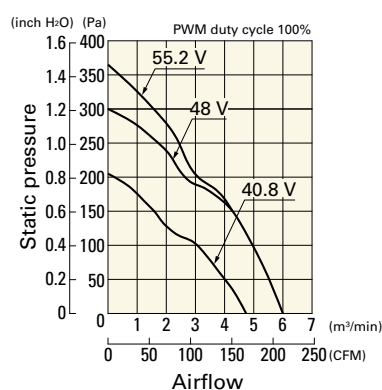


9WL1448P1H001 With pulse sensor with PWM control

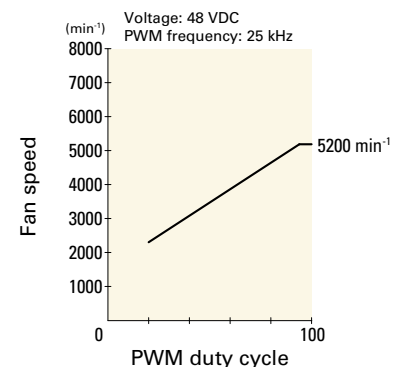
PWM duty cycle



Operating voltage range



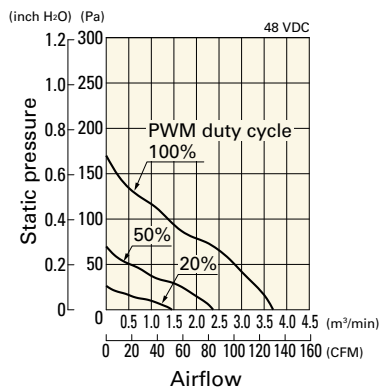
PWM duty - Speed characteristics example



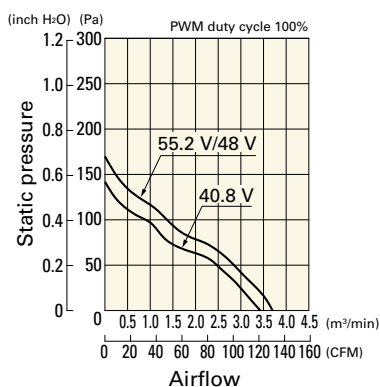
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL1448P1M001 With pulse sensor with PWM control

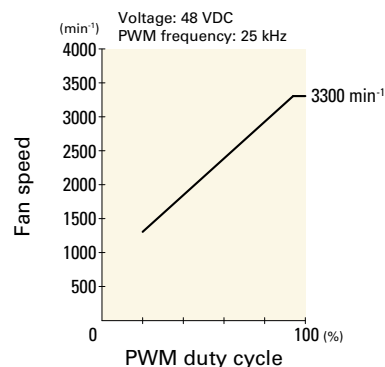
PWM duty cycle



Operating voltage range



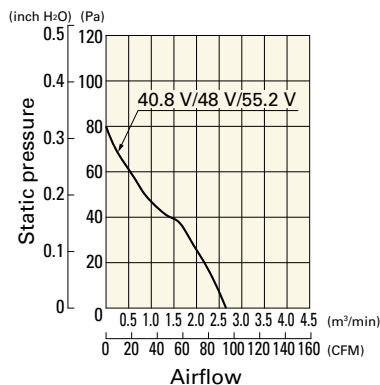
PWM duty - Speed characteristics example



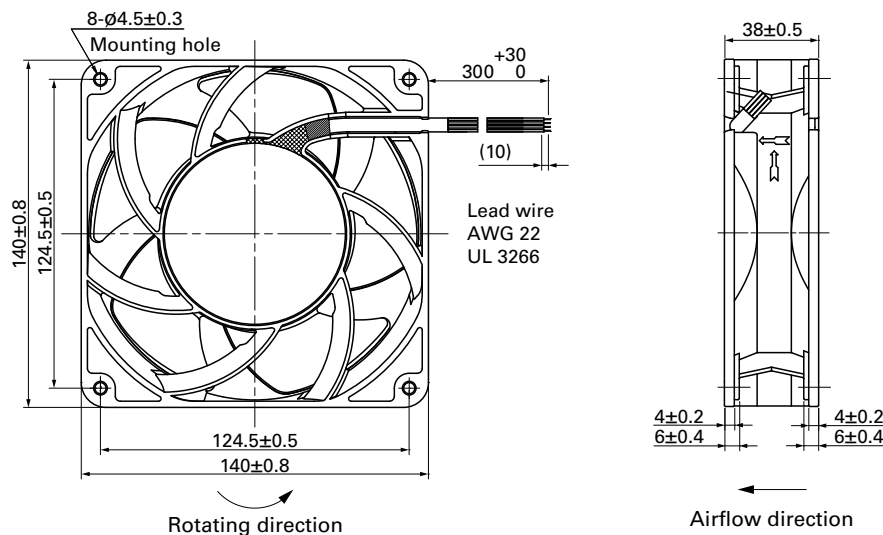
Airflow - Static Pressure Characteristics

9WL1448L1001 With pulse sensor

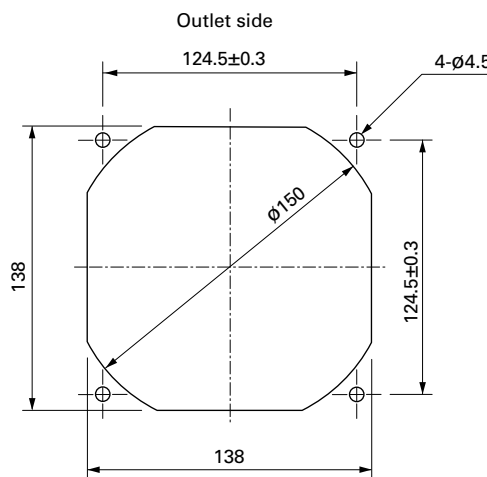
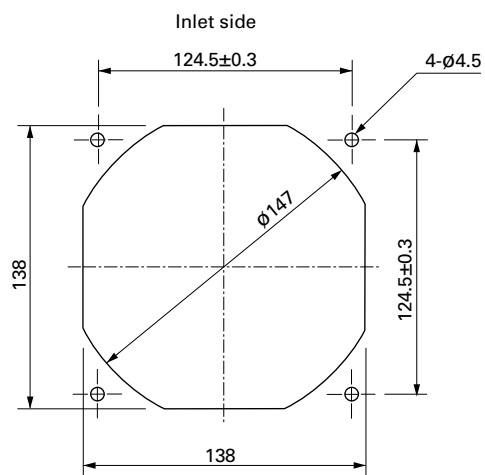
Operating voltage range



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



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



Options

Finger guards

page: p. 599

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



140x140x51 mm

San Ace 140W 9WL type 

General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor Yellow Control Brown
(For models without PWM control, there is no speed control wiring.)
- Mass 930 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have a pulse sensor with PWM control.**

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]
9WL1412P5G001	12	10.2 to 13.8	100	5.16	62	7500	9.0 318	655 2.63	69	-20 to +70	100000/60°C (135000/40°C)
			20	0.31	3.72	2300	2.75 97	80 0.32	38		
9WL1412P5S001			100	1.83	22	5000	6.0 212	295 1.18	57		
			20	0.31	3.72	2300	2.75 97	80 0.32	38		
9WL1424P5G001	24	20.4 to 27.6	100	2.58	62	7500	9.0 318	655 2.63	69		
			20	0.16	3.84	2300	2.75 97	80 0.32	38		
9WL1424P5S001			100	0.91	22	5000	6.0 212	295 1.18	57		
			20	0.16	3.84	2300	2.75 97	80 0.32	38		
9WL1448P5G001	48	40.8 to 55.2	100	1.29	62	7500	9.0 318	655 2.63	69		
			20	0.12	5.76	2300	2.75 97	80 0.32	38		
9WL1448P5S001			100	0.45	22	5000	6.0 212	295 1.18	57		
			20	0.12	5.76	2300	2.75 97	80 0.32	38		

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

The models listed below **have a pulse sensor.**

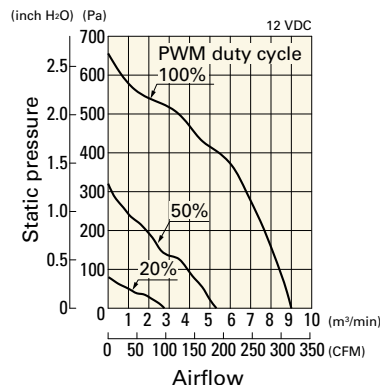
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9WL1412A5001	12	10.2 to 13.8	2.61	31.4	5700	6.9 243.8	500 2	61	-20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

Note: Sensor and control options are available for selection. Refer to the table on p. 661 to 662.

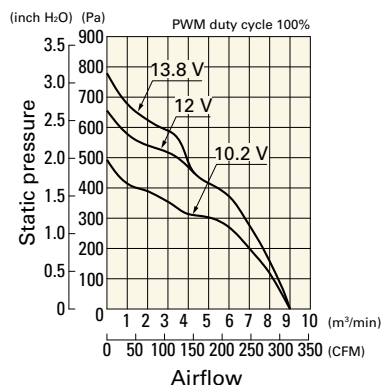
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL1412P5G001 With pulse sensor with PWM control

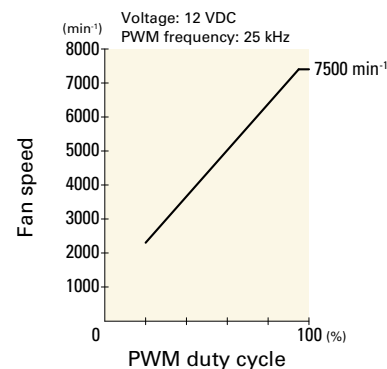
PWM duty cycle



Operating voltage range

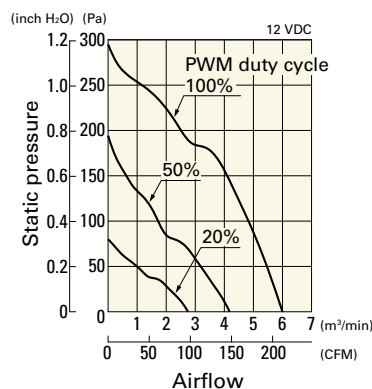


PWM duty - Speed characteristics example

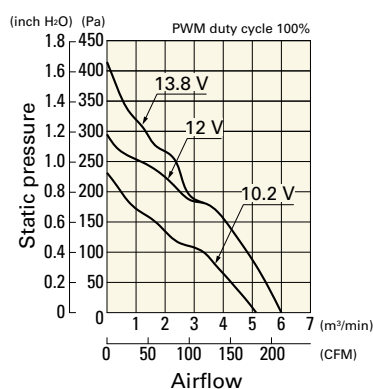


9WL1412P5S001 With pulse sensor with PWM control

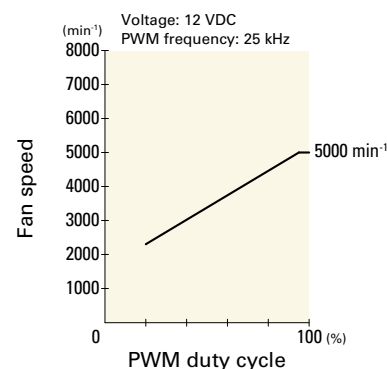
PWM duty cycle



Operating voltage range

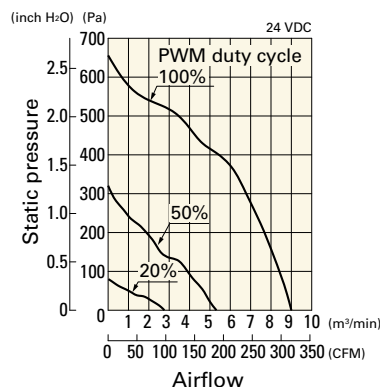


PWM duty - Speed characteristics example

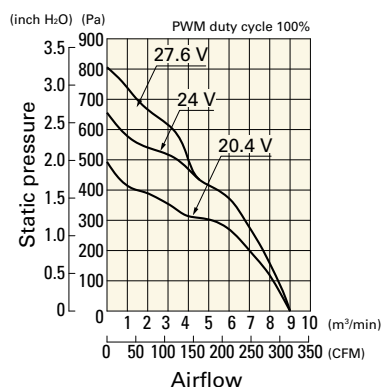


9WL1424P5G001 With pulse sensor with PWM control

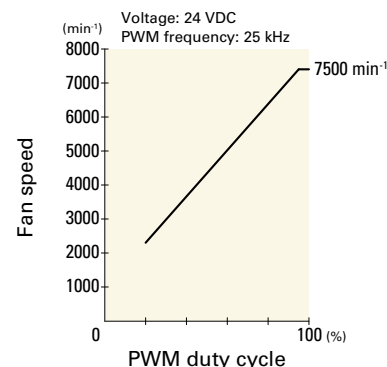
PWM duty cycle



Operating voltage range

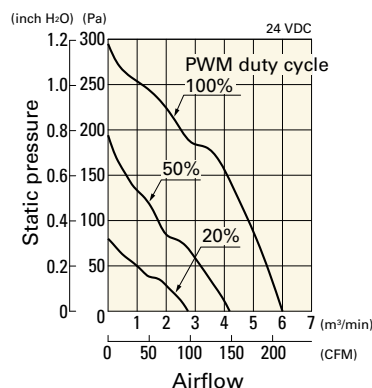


PWM duty - Speed characteristics example

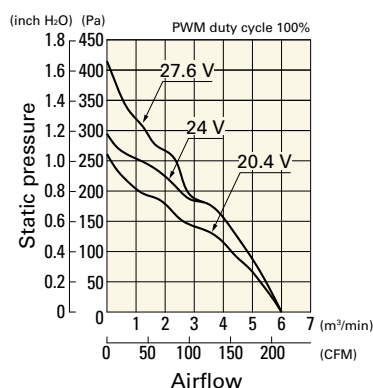


9WL1424P5S001 With pulse sensor with PWM control

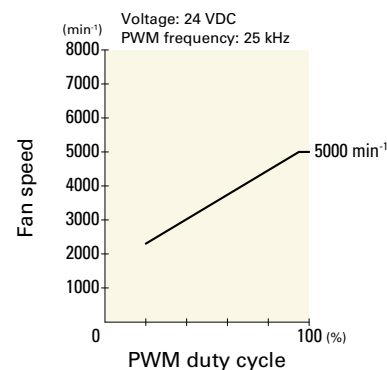
PWM duty cycle



Operating voltage range



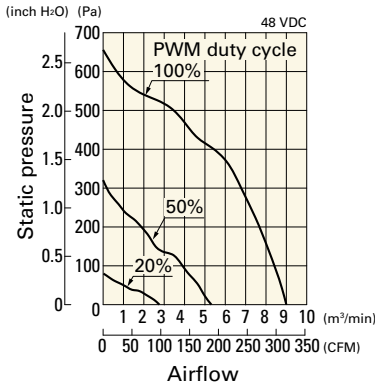
PWM duty - Speed characteristics example



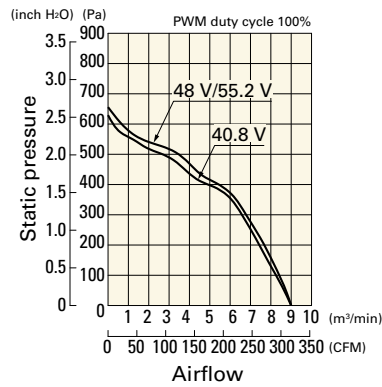
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WL1448P5G001 With pulse sensor with PWM control

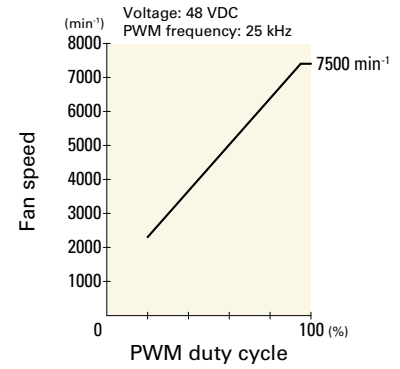
PWM duty cycle



Operating voltage range

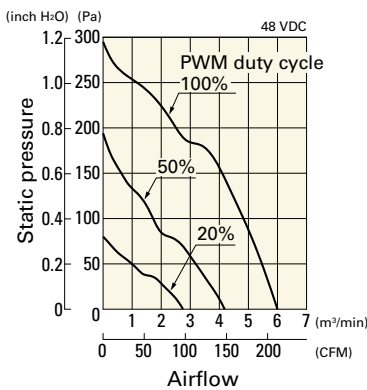


PWM duty - Speed characteristics example

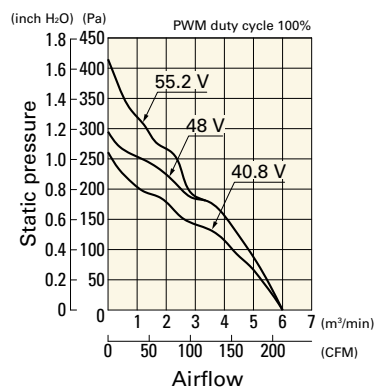


9WL1448P5S001 With pulse sensor with PWM control

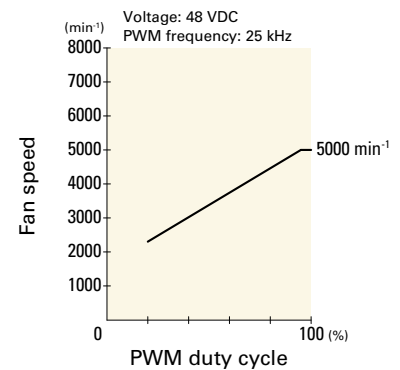
PWM duty cycle



Operating voltage range



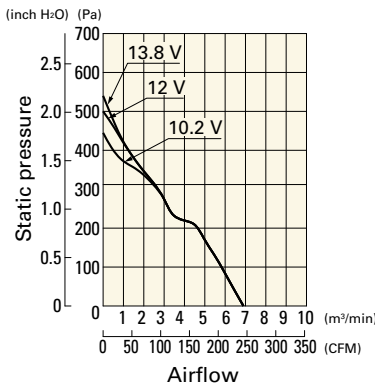
PWM duty - Speed characteristics example



Airflow - Static Pressure Characteristics

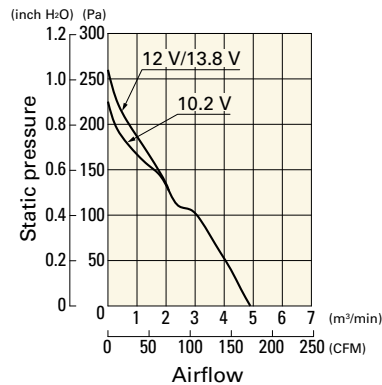
9WL1412A5001 With pulse sensor

Operating voltage range



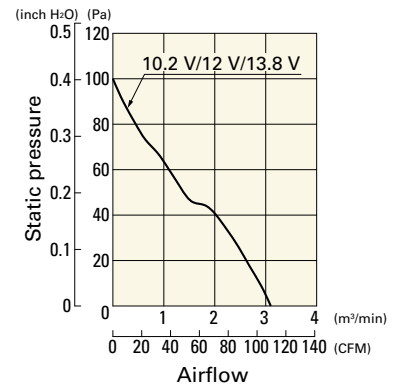
9WL1412H5001 With pulse sensor

Operating voltage range



9WL1412M5001 With pulse sensor

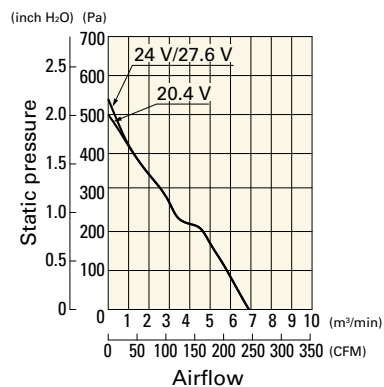
Operating voltage range



Airflow - Static Pressure Characteristics

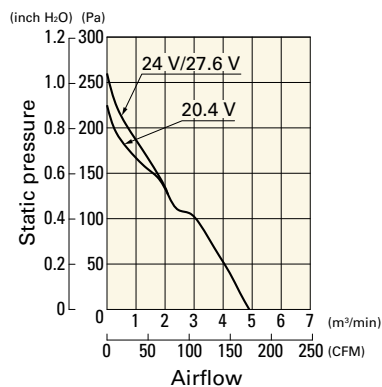
9WL1424A5001 With pulse sensor

Operating voltage range



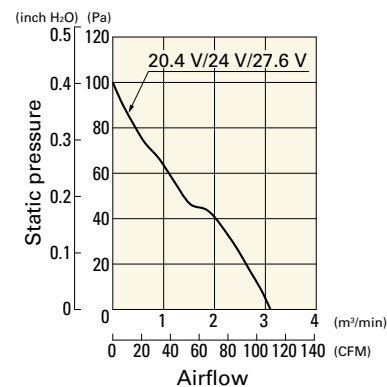
9WL1424H5001 With pulse sensor

Operating voltage range



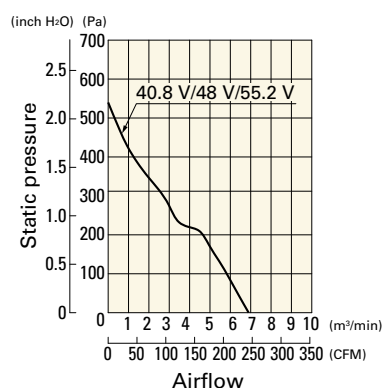
9WL1424M5001 With pulse sensor

Operating voltage range



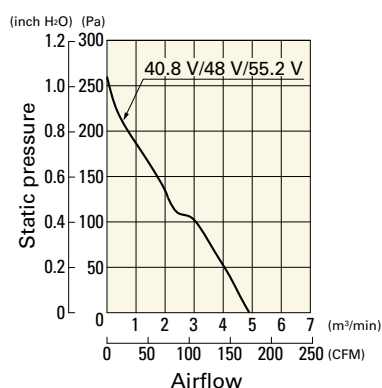
9WL1448A5001 With pulse sensor

Operating voltage range



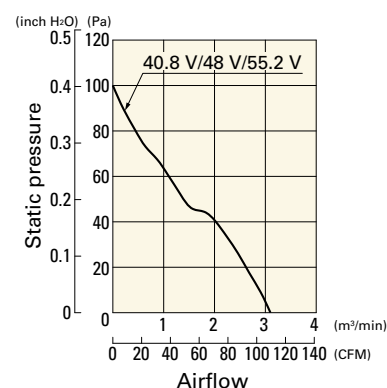
9WL1448H5001 With pulse sensor

Operating voltage range

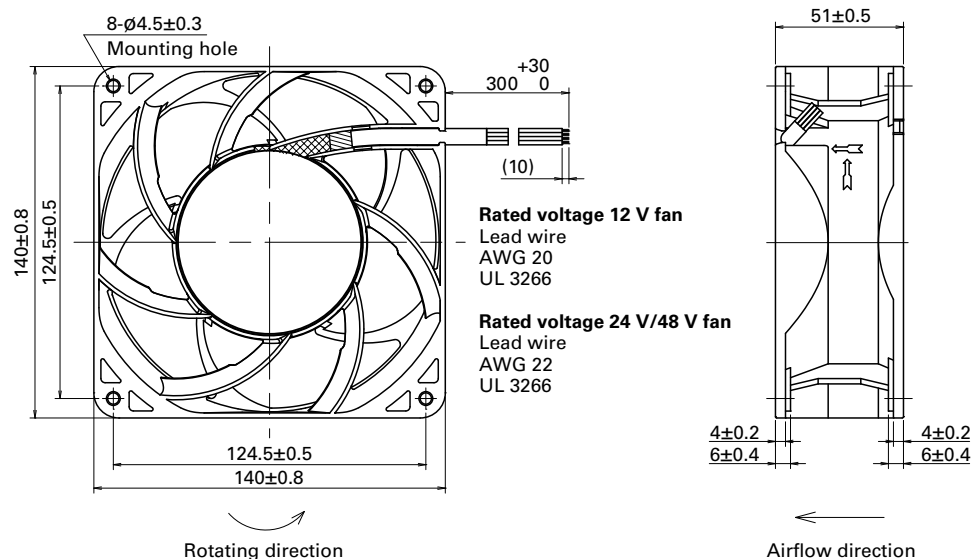


9WL1448M5001 With pulse sensor

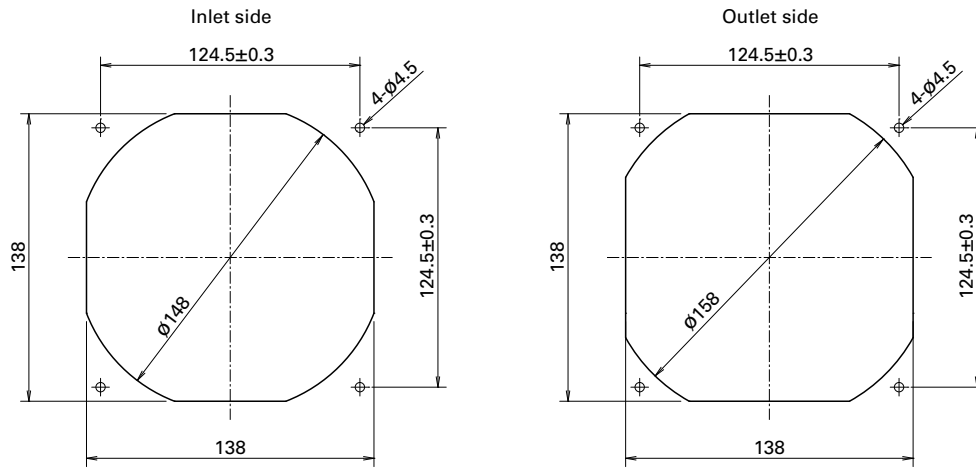
Operating voltage range



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



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



Options

Finger guards

page: p. 599

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

Ø172×150×51 mm

IP68



San Ace 172W 9WG type  

Sidecut type

General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 616.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕Red ⊖Black ☐Sensor Yellow ☐Control Brown
- Mass 860 g
- Ingress protection IP68 For more information on IP rating, refer to p. 625.

Specifications

The models listed below **have a pulse sensor with PWM control.**

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	8600	15.46 546	1000 4.02	78	-20 to +70	40000/60°C (70000/40°C)
			0	0.21	10.1	2000	3.59 127	75.1 0.3	40		
9WG5748P5H001			100	1.62	78.0	6500	11.6 410	770 3.09	71		
			0	0.21	10.1	2000	3.59 127	75.1 0.3	40		

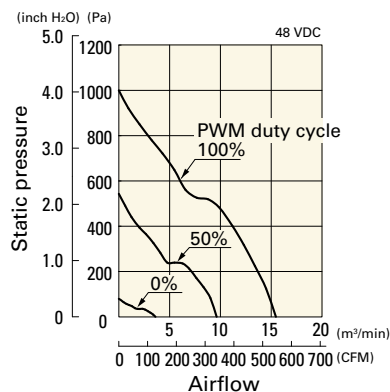
* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

Note: Sensor and control options are available for selection. Refer to the table on p. 661.

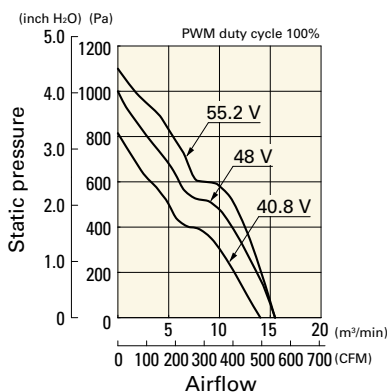
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WG5748P5G001 With pulse sensor with PWM control

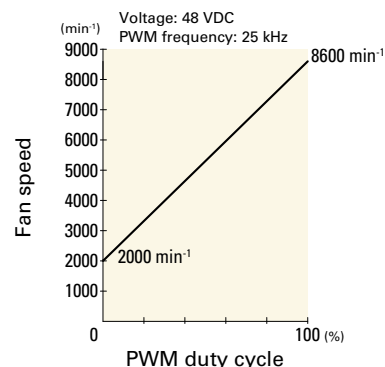
PWM duty cycle



Operating voltage range



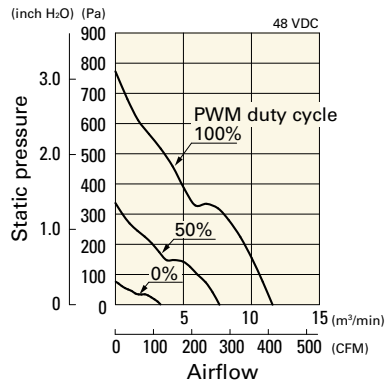
PWM duty - Speed characteristics example



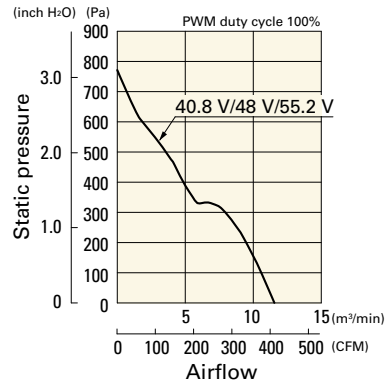
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9WG5748P5H001 With pulse sensor with PWM control

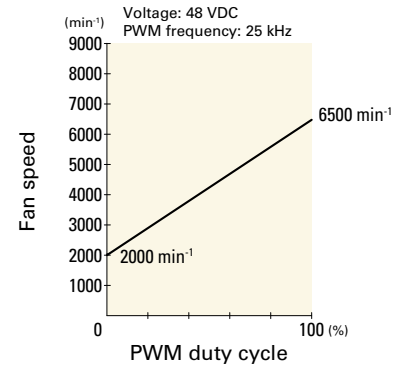
PWM duty cycle



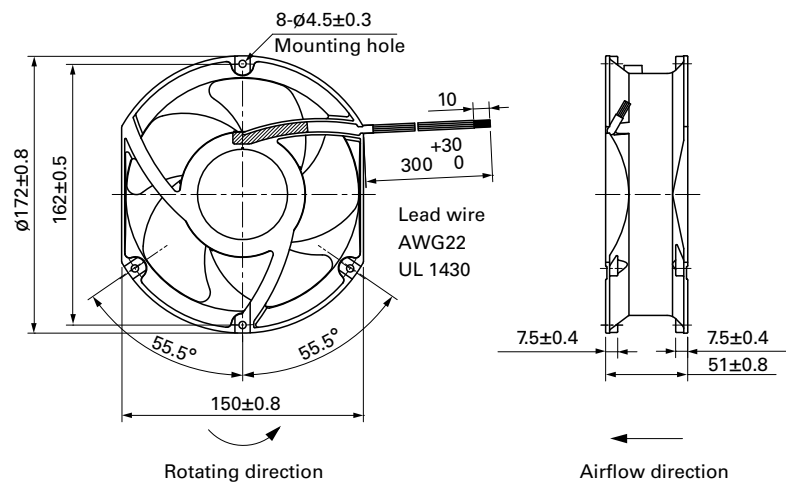
Operating voltage range



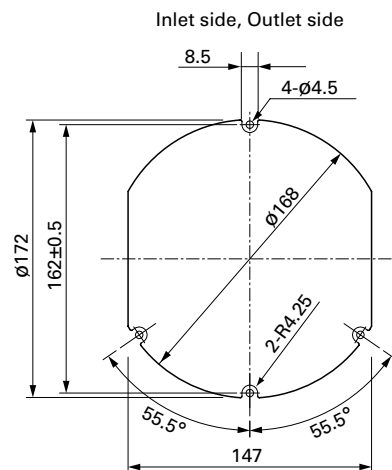
PWM duty - Speed characteristics example



Dimensions (unit: mm)



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



Options

Finger guards

page: p. 600

Model no.: 109-1155, 109-1155H

DC
Splash Proof Fan $\phi 172$ mm