

Fans

DC Axial • Motorized Impellers • DC Blowers • AC Axial



Short Form Catalog



NMB Technologies Corporation



NMB Technologies Corporation is a subsidiary of NMB (USA) Inc., the North American headquarters and operating center of the Minebea Group of Companies. Minebea Co., Ltd., was established in 1951 as Japan's first specialized manufacturer of miniature ball bearings.

Today, the Company is the world's leading comprehensive manufacturer of miniature ball bearings and high precision components, supplying customers worldwide in the information and telecommunications equipment industry, as well as the aerospace, automotive and household electrical appliance industries.

The Minebea Group consists of 43 subsidiaries and affiliates in 16 countries, including Japan, Thailand, China and Singapore as well as several others in Europe and the Americas. The Group maintains 30 plants and 37 sales offices, and employs approximately 55,000 people worldwide.

NMB offers a comprehensive line of more than 100 axial fans ranging in size from 25mm to 173mm. DC and AC axial fans and blowers are designed to solve thermal management problems for our OEM customers. Producing over 100 million fans per year, NMB's focus is on total thermal management solutions.

NMB Technologies Corporation's domestic headquarters are located in Chatsworth, California. Highly trained application engineers, experienced product managers and customer service representatives work closely with customers to develop the most cost effective solutions for today's challenging applications. Pre-design and after-delivery follow-up assure complete customer satisfaction.

Contact NMB Technologies Corporation today. Visit our web site at www.nmbtc.com or call our Fan Product Group directly at 818-341-3355.



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BG0703	21
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2412PS	23
3110MS	23
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3115FS	23
3115PS	24
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09238SB	<i>NEW!</i> 24
4710PS	24
4715FS	25
4715HS Plastic Blades/Standard	<i>NEW!</i> 25
4715HS Plastic Blades/Potting	<i>NEW!</i> 25
4715MS	26
4715TS Metal Blades/Standard	<i>NEW!</i> 26
4715TS Metal Blades/Potting	<i>NEW!</i> 26
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Common Specifications

Vibration Test:..... Conforms to JIS C 60068-2-6, Amplitude: 1.5mm, Frequency 10 to 55 Hz, 1 hour in each of the X, Y and Z directions.

Shock Test:..... Conforms to JIS C 60068-2-27, Acceleration rate: 981 m/s²*, Application time: 6ms once each in the X, Y and Z directions. Note: For the 1604KL, 1608KL, and 2406KL series, the conditions of the shock test are as follows: Acceleration rate: 500 m/s², Application time: 11ms once each in the X, Y and Z directions.

Locked Rotor Protection : ..The motor is protected from burnout in the locked rotor condition for 72 hours at the rated voltage.

Polarity Protection : The fans are Reverse Polarity protected at the rated voltage.

Insulation Class : E class (UL: Class A)

Auto Restart:..... Most fan models provide current shut-down/auto restart function under locked rotor conditions.

Notes: Additional performance requirements can be determined between manufacturer and customer, based on customer's request.
Ball bearing fans may be installed in a horizontal, vertical or angled position.

Part Numbering System (Legacy Products)

24
10
M
L
 -
 04
W
 -
 B
1
0
 -
 X
00

1. Frame Size

10:25mm
12:30mm
14:35mm
16:40mm
20:50mm
21:52mm
24:60mm
28:70mm
31:80mm
36:92mm
47:119mm
50:127mm
59:150mm
68:172mm

3. Series

P Series
M Series
N Series
K Series
H Series
S Series
F Series
R Series
V Series

4. Motor Function

Brushless Type DCM

5. Input Voltage

O: Standard Current
C: Special Current
D~Z: Special Current
(A,B,O. are not used)
1: 5V 5: 24V
2: 6V 6: 36V
3: 9v 7: 48V
4: 12V 9: Other

6. Termination

W: Lead Wires
T: Terminal

(Terminal option on 3610KL and 4715KL Series)

7. Bearing

B: Ball Bearing
S: Sleeve Bearing

8. Speed

1<2<3<4<5<6<7<8
low high

9. Special Control Function

0: Standard Type
9: Sensor Type
7: Temperature Detecting Variable Speed Type/PWM Control Type
6: Temperature Detecting Variable Speed Type/Sensor Type
5: 2-Speed Type/Sensor Type
8: 2-Speed Type

10. Product Number

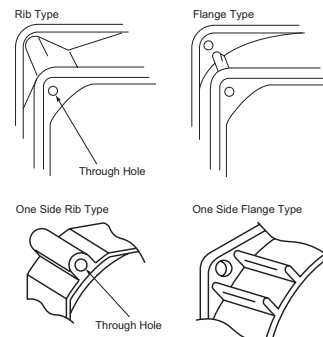
Item	Classification	Mounting Style
L:	Standard Model	Rib Type
P:	Standard Model	Flange Type
B:	Standard Model	Rib Type
E:	Standard Model	Flange Type
G:	Standard Model	Rib Type
D:	Standard Model	Flange Type

11. Individual Specifications

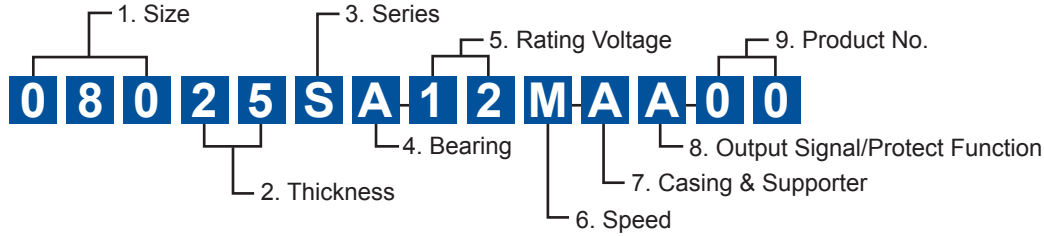
Standard Type
00 Standard
01~99: Custom

Sensor Type

00: Locked Rotor Alarm Signal (Standard)
01~49: Locked Rotor Alarm Signal (Custom)
50: Tachometer Signal (Standard)
51~99: Tachometer Signal (Custom)



New Part Numbering System



1. Size

Model	Size (mm)
040	40
045	45
050	50
060	60
075	75
080	80
092	92
095	95
113	113
119	119
120	120
125	125
150	150

2. Thickness

Model	Size (mm)
10	10
15	15
20	20
23	23
25	25
28	28
30	30
32	32
33	33
38	38
39	39
36	36

3. Series

	Size (mm)	Previous Name
DC	D	FB
	E	WB
	J	JL
	K	KL
	R	RL
	S	SB
	V	VL
	Blower	G
AC	M	MS
	P	PC/PS
	S	HS
	T	TS

4. Bearing

	Model	Bearing
DC	A	Ball Bearing
	S	Sleeve Bearing
	M	
	H	
AC	B	Ball Bearing

5. Rating Voltage

DC FAN		AC FAN	
Model	Rating Voltage	Model	Ball Bearing
09	9V	A0	100V
12	12V	A1	115V
24	24V	B0	200V
48	48V	B2	220V
		B3	230V
		B4	240V

6. Speed

J<K<L<M<N<P<Q<R<S
Slow Fast

8. Output Signal/Protect Function

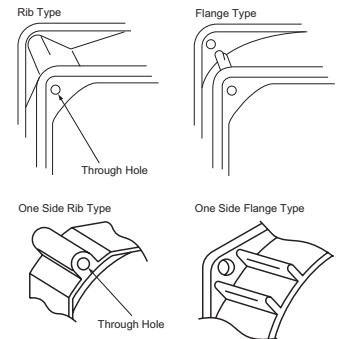
DC FAN		AC FAN	
Model	Output Signal	Model	Protect Function
A	-	A	Impedance Protection
L	Loaded Rotor Signal	P	Thermal Protection
T	Tachometer Signal		

7. Casing & Supporter

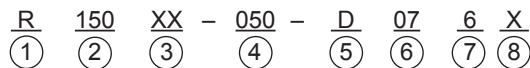
	Model	Casing	Supporter
DC	A	Rib	-
	B	Rib	Coating
	E	Flange	-
AC	A	Flange	-
	E/N	Flange	-

9. Product No.

00: Standard
Except 00: Custom Model



Part Numbering System (R Series Fans)



1. Fan Type
R: Axial Fan

2. Fan Size (mm)
150: 150mm
172: 172mm

3. Series
A1, A2
B1, B2

4. Height of Impeller

5. Electrical Supply
D: DC

6. Electrical Voltage
04: 12V
05: 24V
06: 36V
07: 48V
08: 54V
09: Other

7. Speed Class
1 < 2 < 3 < 4 < 5 < 6
low high

8. Option
Defines in Production Specification

Common Specifications

1. Tach Signal

2. Specification

V_{ps} max: +15VDC

I_p max: 5mA [V_{LO} max = 1.2V]

$T_a = 25^\circ\text{C}$

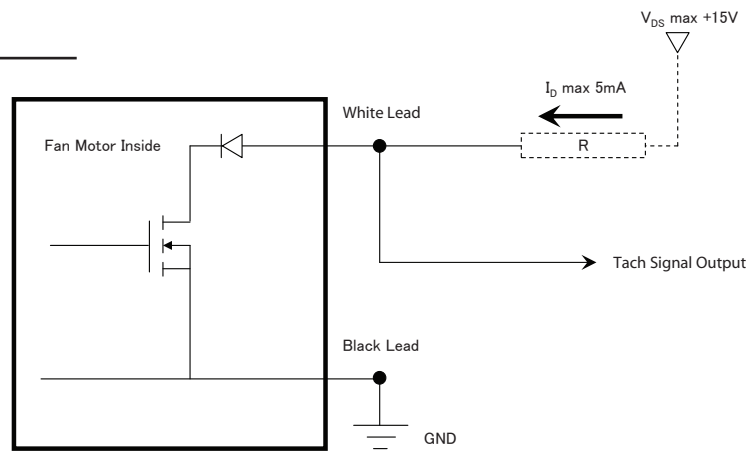
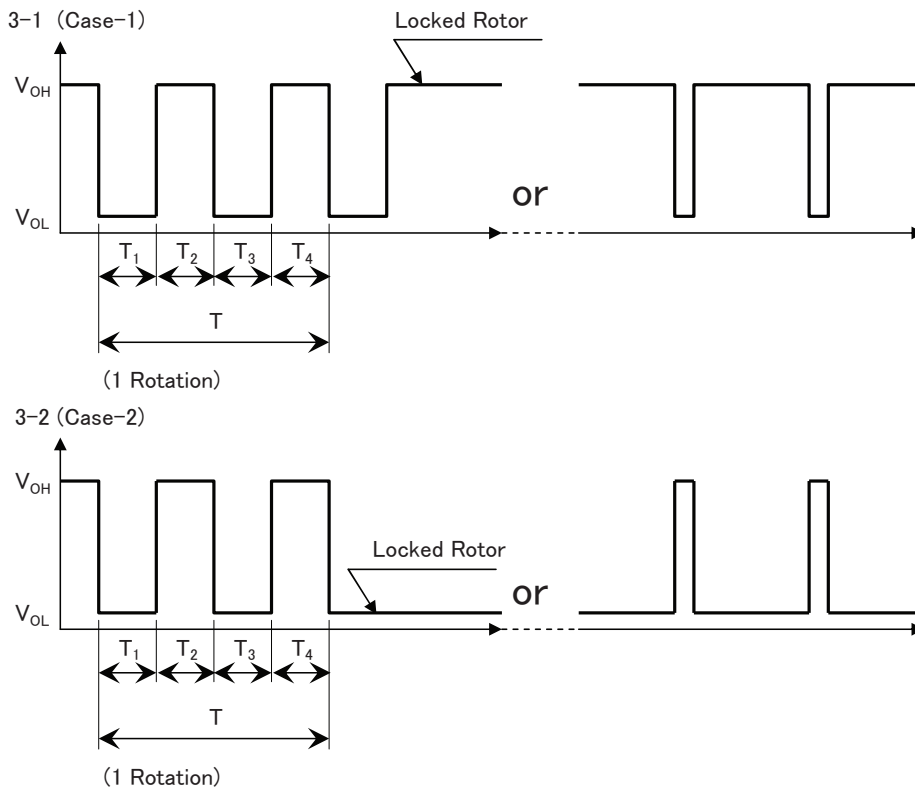


Fig. 1 Tach Signal Circuit

Warning: Improper connection of the sensor lead may cause damage to the motor drive IC. We shall be free from compensation, if trouble occurs due to insertion of opposite direction.



1.) When the rotor is locked at V_{OH} position of signal, signal keeps V_{OH} position or signal becomes to V_{OL} position for a few seconds at any time of the auto-restart motion.

2.) When the rotor is locked at V_{OL} position of signal, signal keeps V_{OL} position or signal becomes to V_{OH} position for a few seconds at any time of the auto-restart motion.

3.) $T = T_1 + T_2 + T_3 + T_4 = 1 \text{ Rotation}$

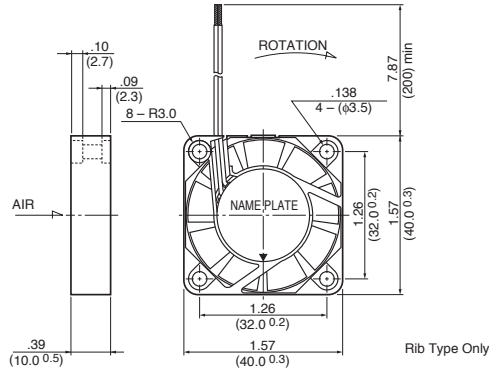
$$T_1 = T_2 = T_3 = T_4 = 60/4 \text{ m} : (\text{min}^{-1})$$

1604KL

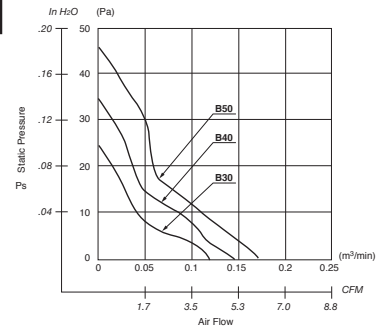
(40[□] × 10^L) DC Volt: 5, 12 • CFM Range: 4.2 ~ 6.0

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



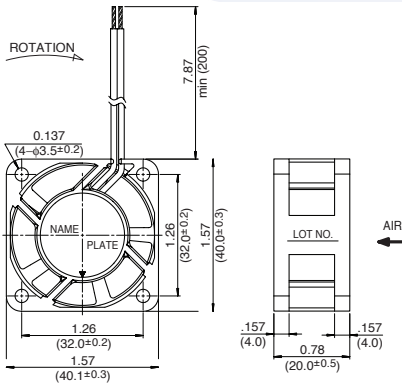
NEW!

1608VL

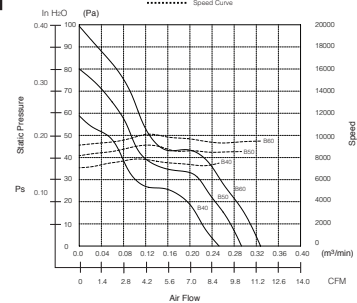
(40[□] × 20^L) DC Volt: 12, 24 • CFM Range: 8.8 ~ 11.3

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



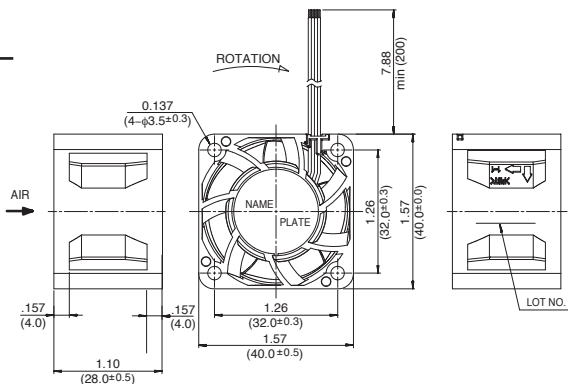
NEW!

04028DA

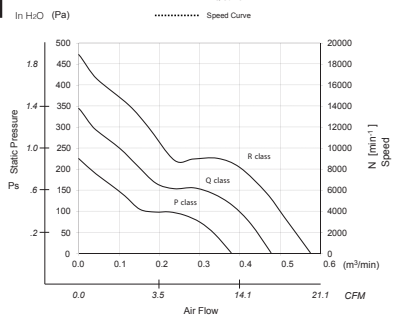
(40[□] × 28^L) DC Volt: 12 • CFM Range: 13.1 ~ 20.1

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



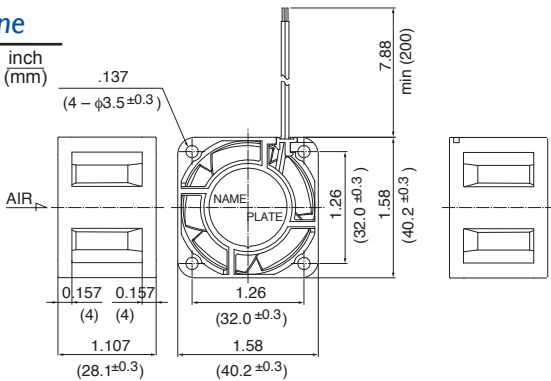
NEW!

04028VA

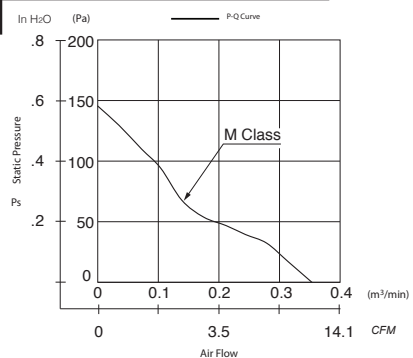
(40[□] × 28^L) DC Volt: 24 • CFM Range: 12.4

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



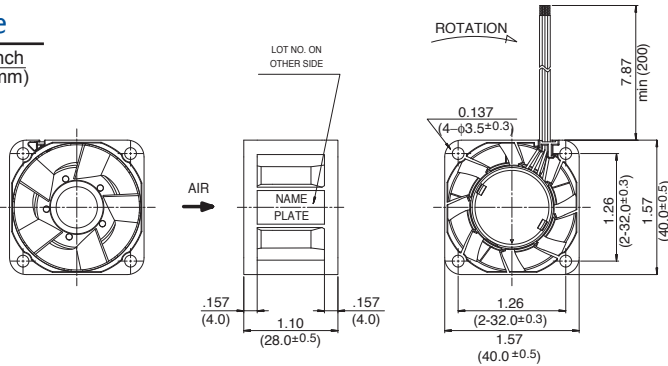
NEW!

1611FT

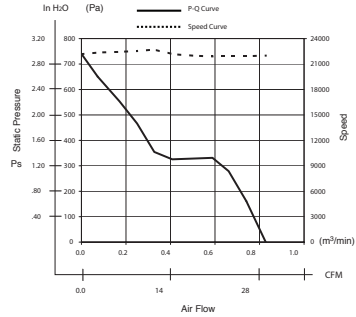
(40[□] × 28^L) DC Volt: 12 • CFM Range: 29.3

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



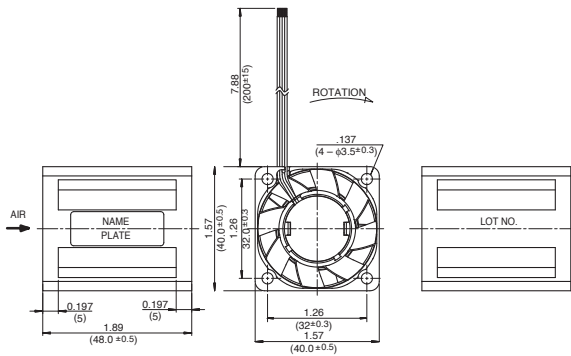
NEW!

1619FT

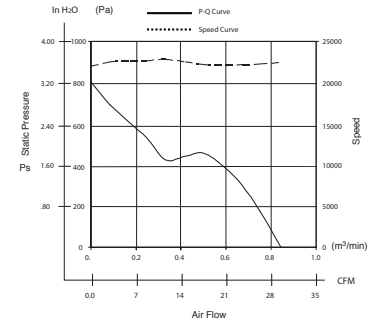
(40[□] × 48^L) DC Volt: 12 • CFM Range: 28.9

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



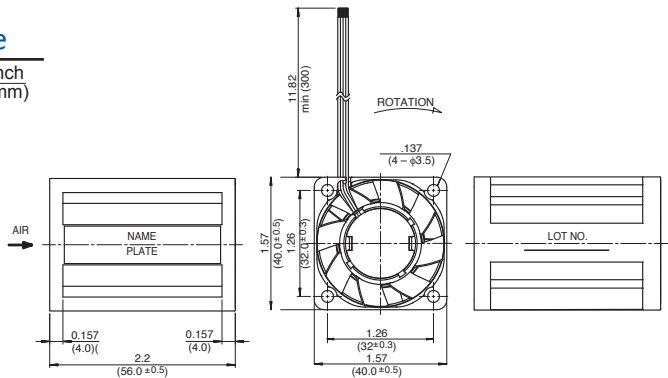
NEW!

1622FT

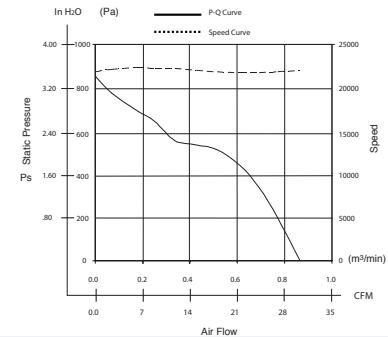
(40[□] × 56^L) DC Volt: 12 • CFM Range: 28.6

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



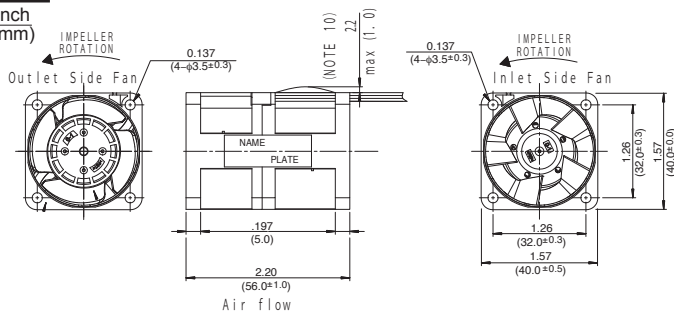
NEW!

04056EA

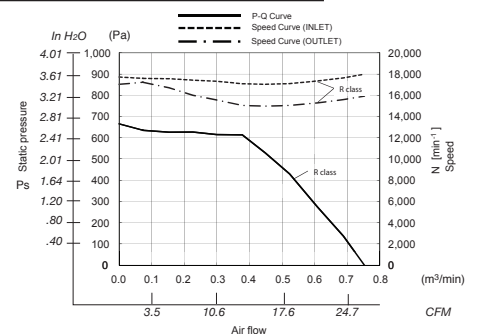
(40[□] × 56^L) DC Volt: 12 • CFM Range: 26.1

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

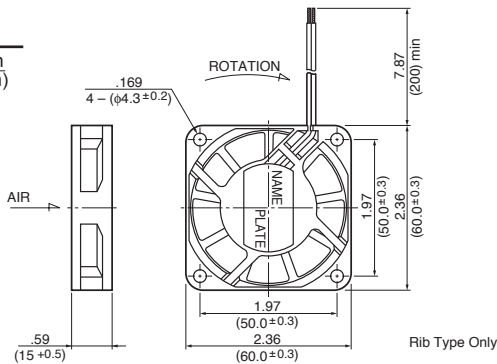


2406KL

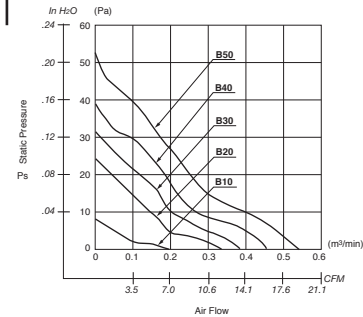
($\emptyset 60 \times 15^L$) DC Volt: 12, 24 • CFM Range: 6.7 ~ 18.3

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



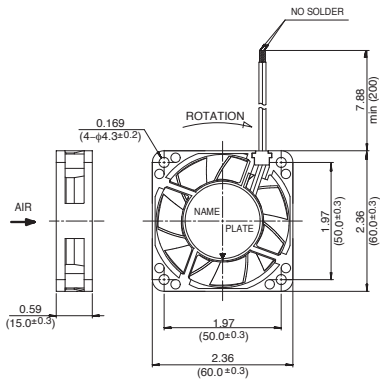
NEW!

06015VA

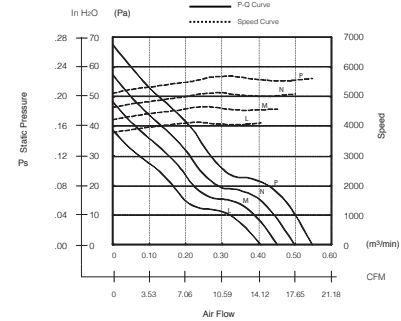
($60^{\square} \times 15^L$) DC Volt: 12, 24 • CFM Range: 14.5 ~ 19.4

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



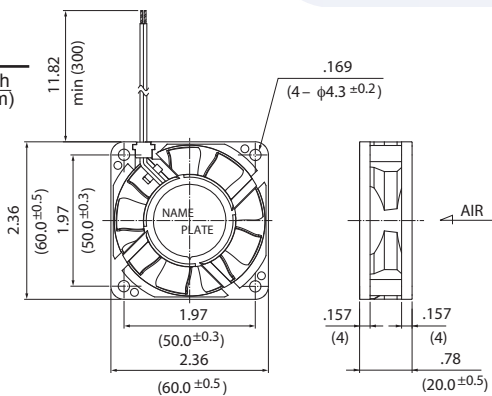
NEW!

06020SA

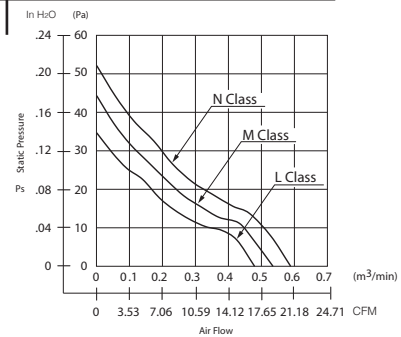
($60^{\square} \times 20^L$) DC Volt: 12, 24 • CFM Range: 16.6 ~ 20.5

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



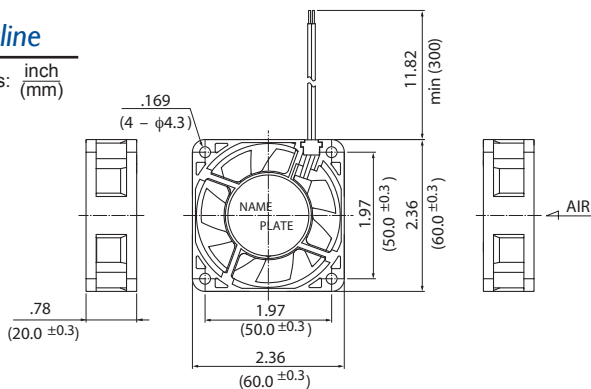
NEW!

06020VA

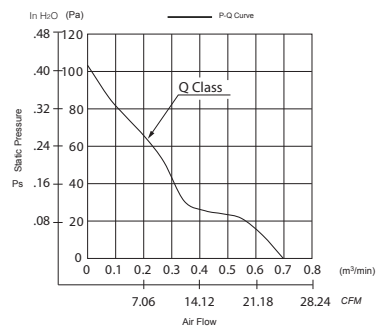
($60^{\square} \times 20^L$) DC Volt: 24 • CFM Range: 24.6

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



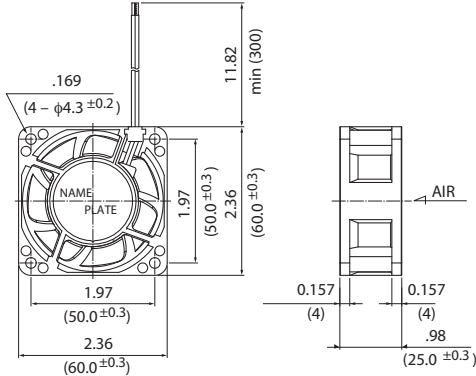
NEW!

06025VA

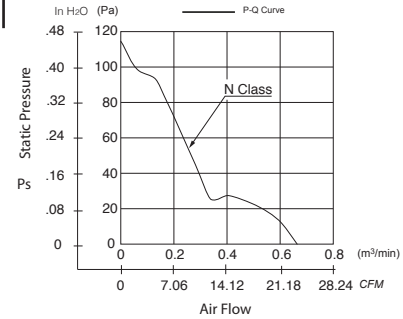
(60[□] × 25^L) DC Volt: 24 • CFM Range: 23.7

Outline

Units: inch (mm)



Characteristic Curves

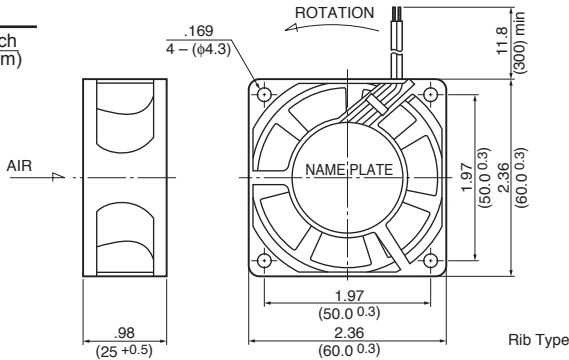


2410ML

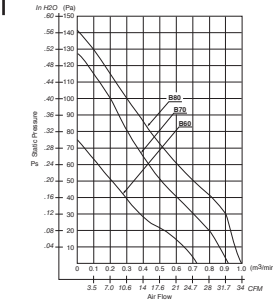
(60[□] × 25^L) DC Volt: 12, 24 • CFM Range: 25.0 ~ 37.0

Outline

Units: inch (mm)



Characteristic Curves



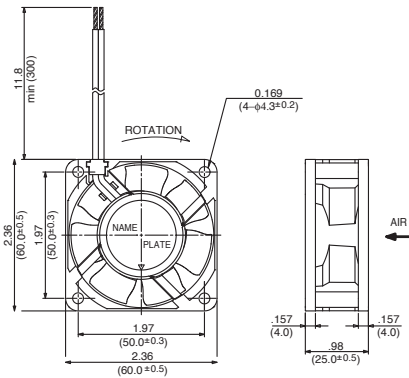
NEW!

2410SB

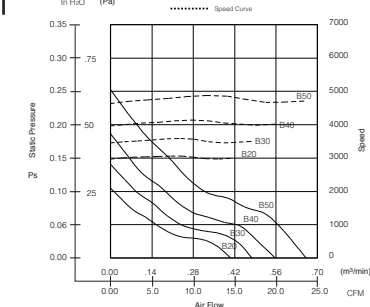
(60[□] × 25^L) DC Volt: 12 - 24 • CFM Range: 14.5 ~ 23.3

Outline

Units: inch (mm)



Characteristic Curves



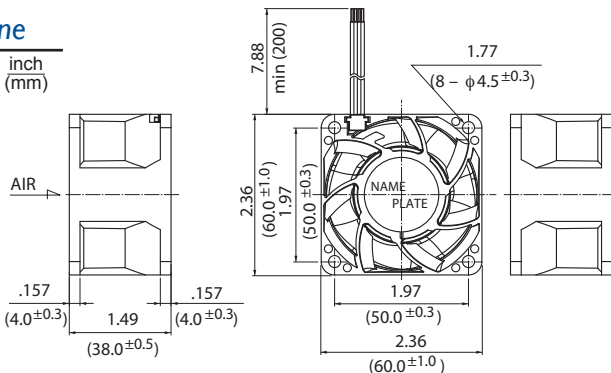
NEW!

06038DA

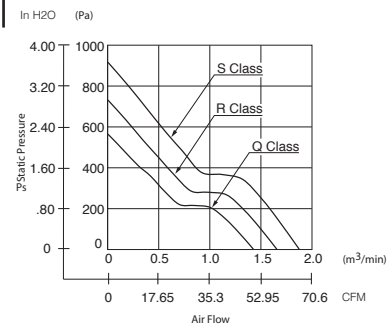
(60[□] × 38^L) DC Volt: 12 • CFM Range: 50.5 ~ 66.4

Outline

Units: inch (mm)



Characteristic Curves



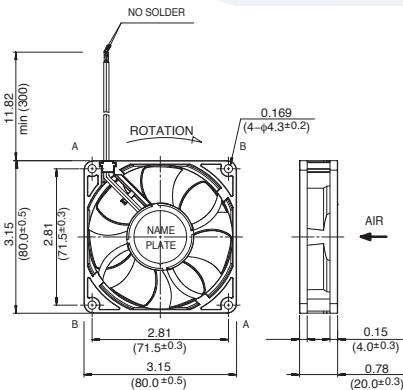
NEW!

08020SA

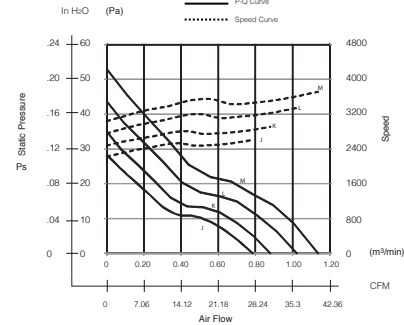
(80[□] × 20^L) DC Volt: 12, 24 • CFM Range: 27.5 ~ 39.9

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



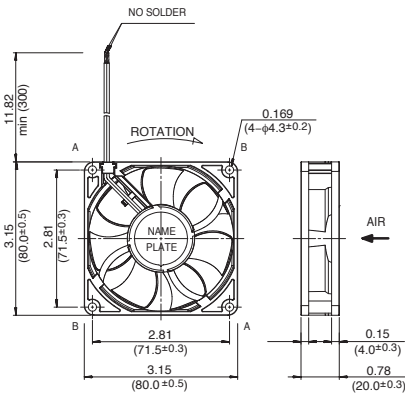
NEW!

08025DA

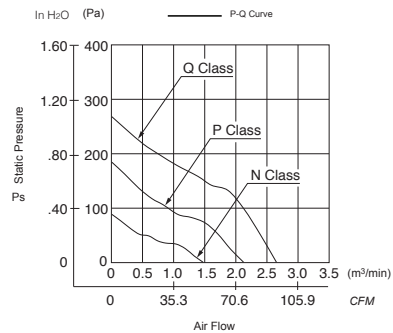
(80[□] × 25^L) DC Volt: 12 • CFM Range: 53.0 ~ 92.0

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

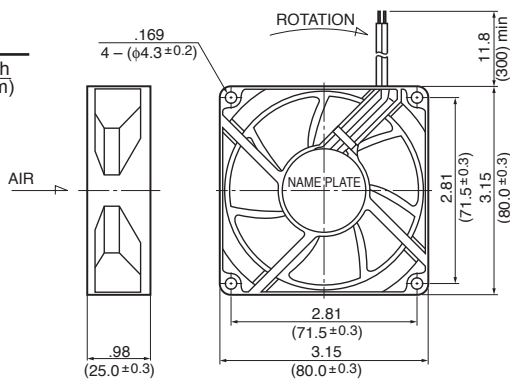


3110KL

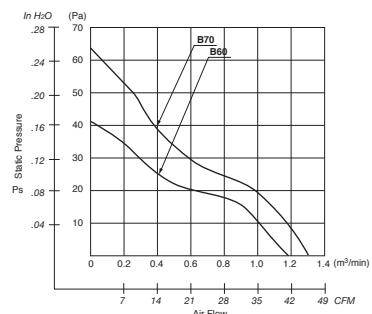
(80[□] × 25^L) DC Volt: 12, 24 • CFM Range: 40.2 ~ 45.9

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



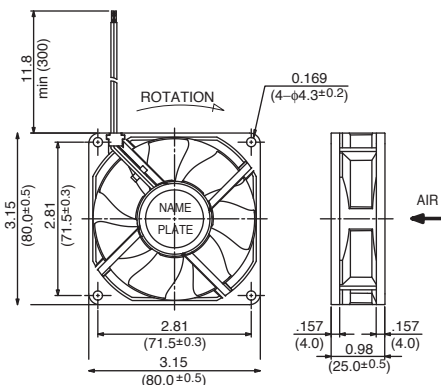
NEW!

3110SB

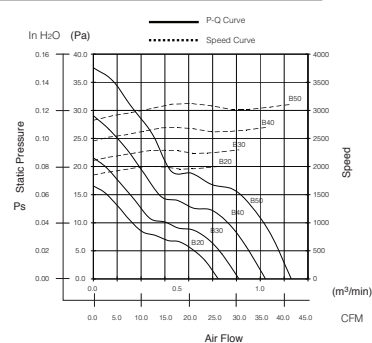
(80[□] × 25^L) DC Volt: 12, 24 • CFM Range: 26.1 ~ 41.3

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

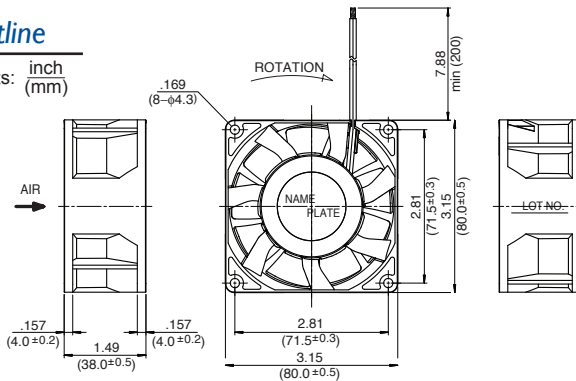


3115RL

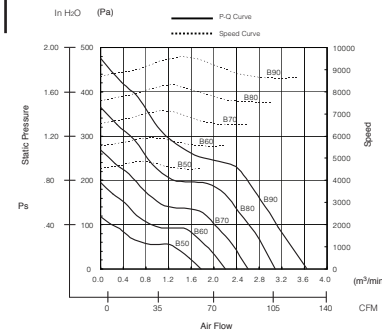
(80[□] × 38^L) DC Volt: 12 • CFM Range: 61.8 ~ 123.6

Outline

Units: inch (mm)



Characteristic Curves



NEW!

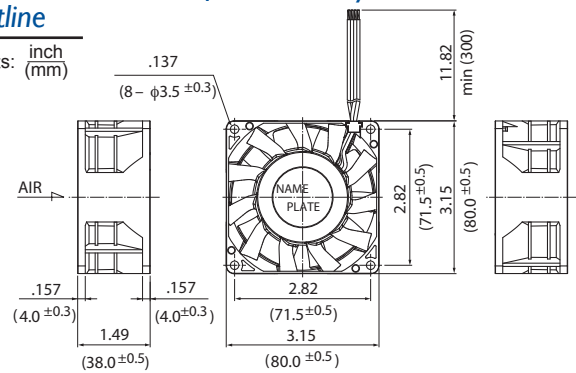
08038DA

(80[□] × 38^L) DC Volt: 12 • CFM Range: 98.8 ~ 118.3

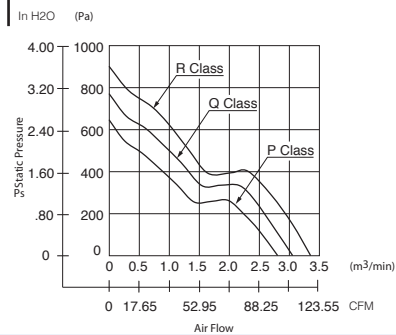
Contact NMB for Availability

Outline

Units: inch (mm)



Characteristic Curves



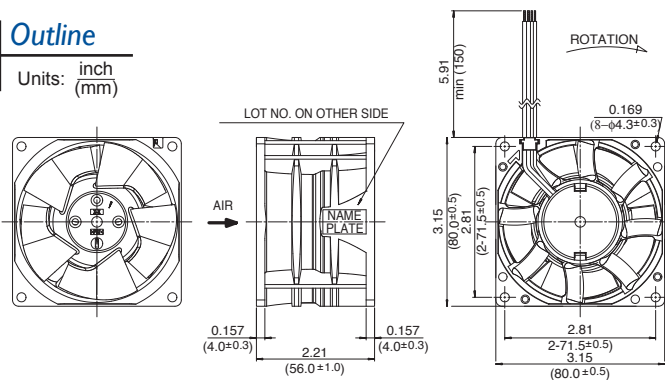
NEW!

3122FT

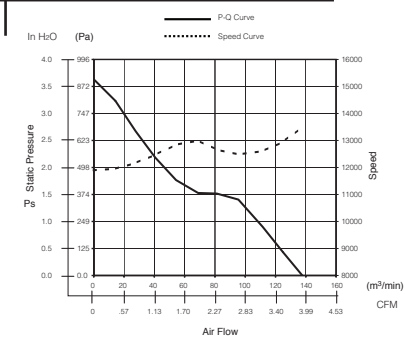
(80[□] × 56^L) DC Volt: 12 • CFM Range: 135.9

Outline

Units: inch (mm)



Characteristic Curves

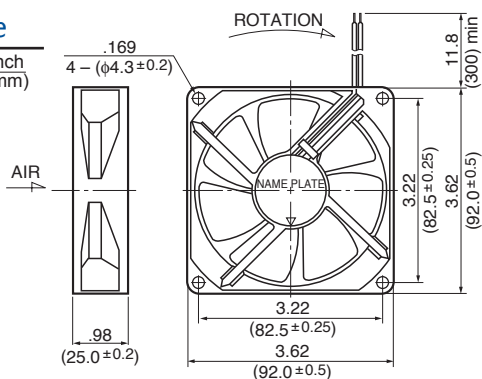


3610KL

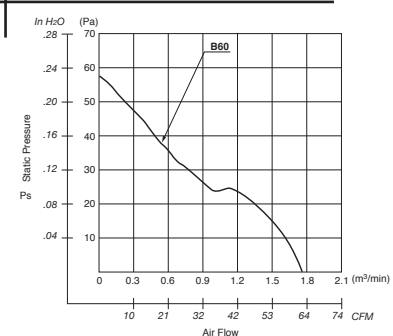
(92[□] × 25^L) DC Volt: 12, 24 • CFM Range: 61.8

Outline

Units: inch (mm)



Characteristic Curves



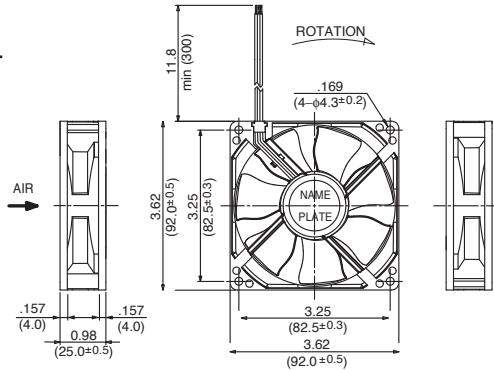
NEW!

3610SB

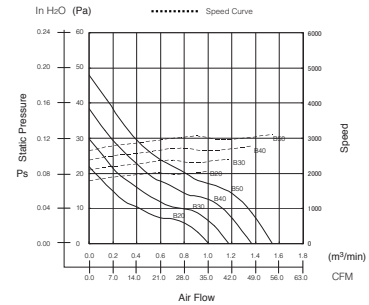
(92[□] × 25^L) DC Volt: 12, 24 • CFM Range: 35.7 ~ 54.4

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



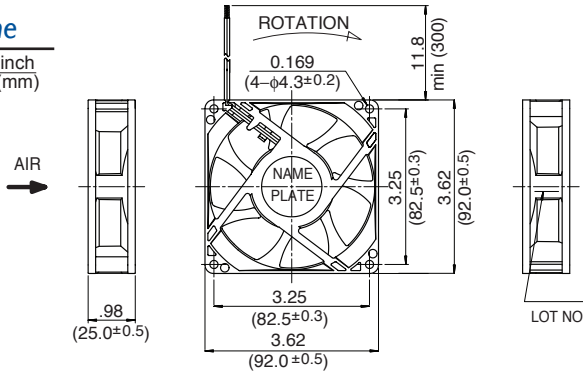
NEW!

3610VL

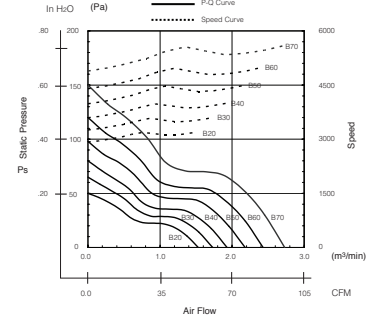
(92[□] × 25^L) DC Volt: 12, 24 • CFM Range: 54.0 ~ 96.4

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



NEW!

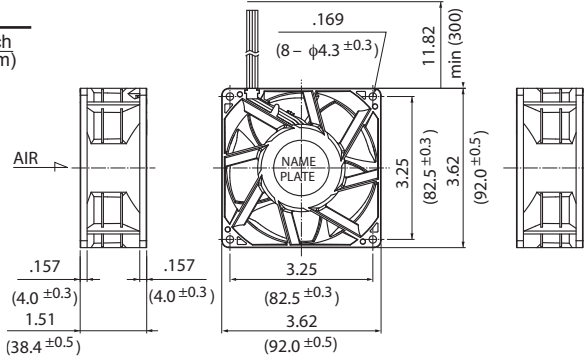
09238DA

(92[□] × 38^L) DC Volt: 12 • CFM Range: 176.5

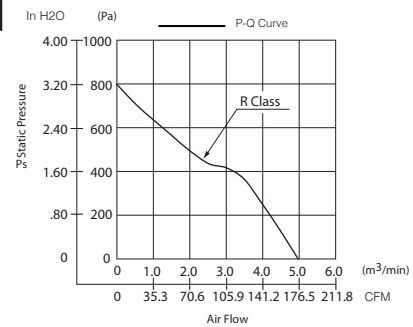
Contact NMB for Availability

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



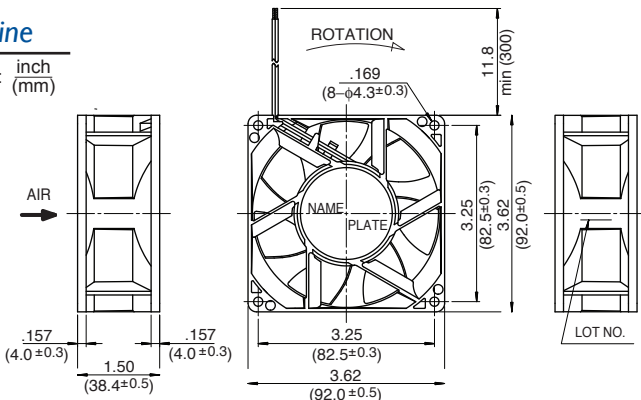
NEW!

3615RL

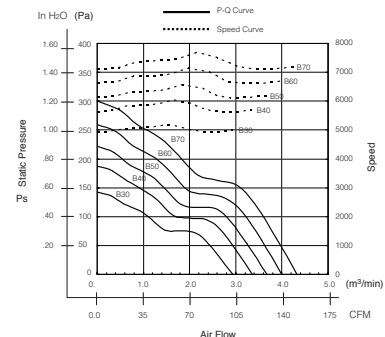
(92[□] × 38^L) DC Volt: 12, 24, 48 • CFM Range: 103.8 ~ 152.5

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



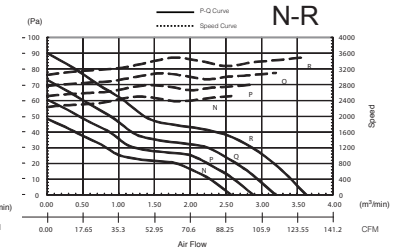
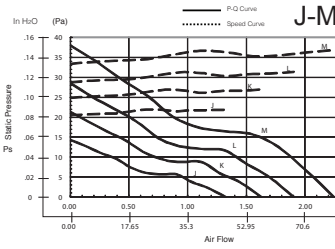
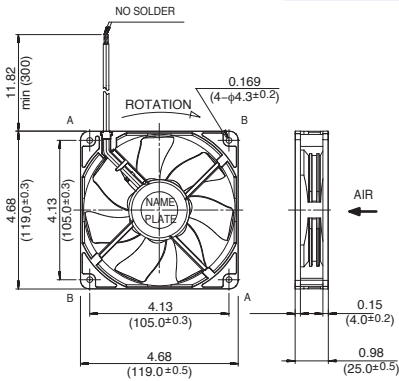
NEW!

11925SA

(119 × 25^L) DC Volt: 12, 24 • CFM Range: 46.9 ~ 128.1

Outline

Units: **inch (mm)**

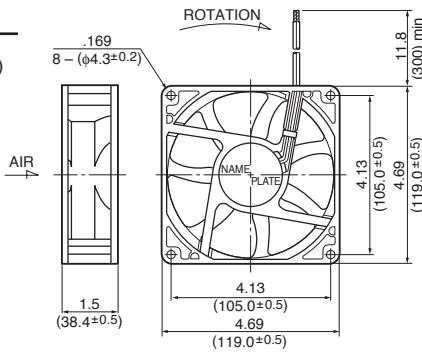


4715KL

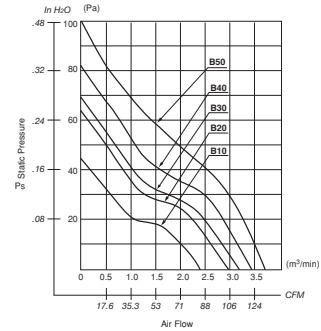
(119 × 38^L) DC Volt: 12, 24, 48 • CFM Range: 83.6 ~ 130.0

Outline

Units: **inch (mm)**



Characteristic Curves



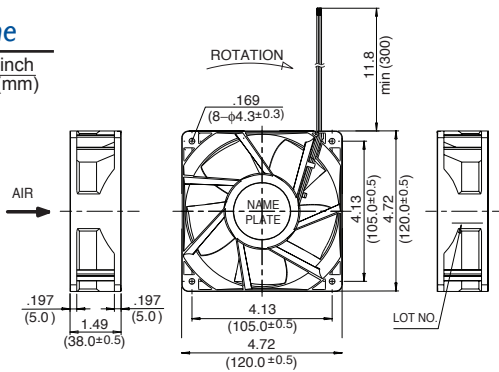
NEW!

4715VL

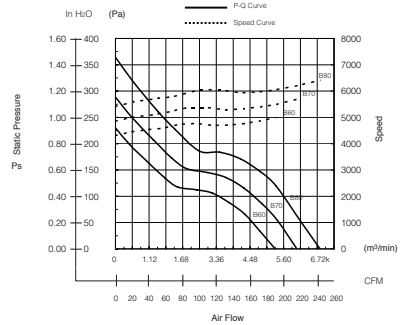
(119 × 38^L) DC Volt: 12, 24, 48 • CFM Range: 189.9 ~ 243.2

Outline

Units: **inch (mm)**



Characteristic Curves

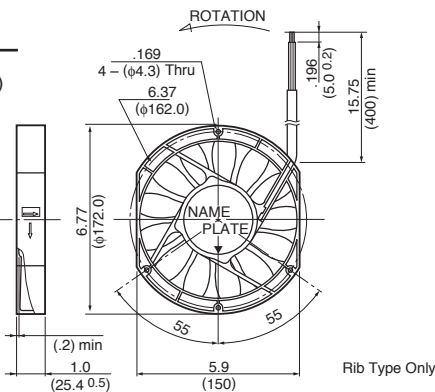


5910PL

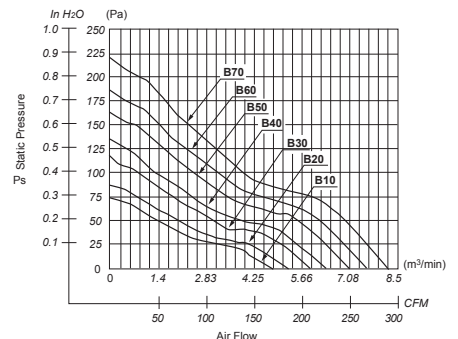
(150 × 172 × 25^L) DC Volt: 12, 24, 48 • CFM Range: 170.0 ~ 290.0

Outline

Units: **inch (mm)**



Characteristic Curves

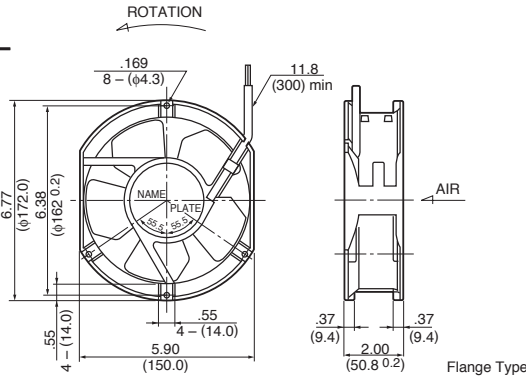


5920PL

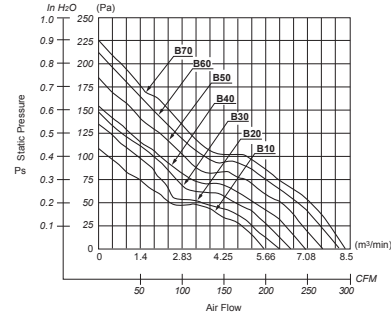
(150[□] × 172 × 50^L) DC Volt: 12, 24, 48 • CFM Range: 180.0 ~ 300.0

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



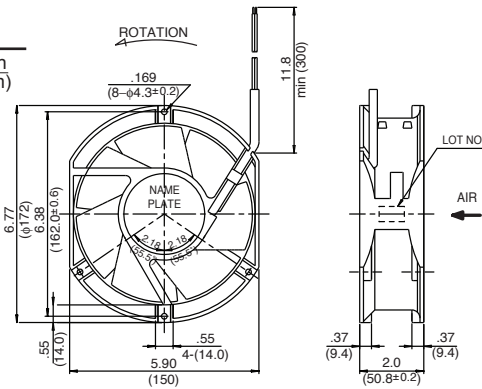
NEW!

5920VL

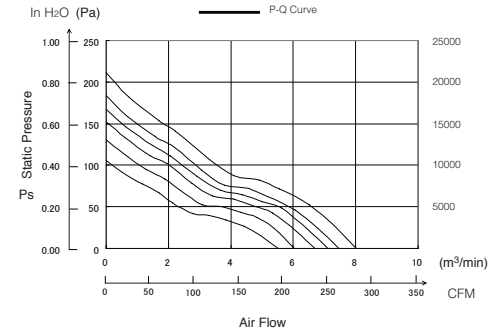
(150[□] × 172 × 50^L) DC Volt: 48 • CFM Range: 194.5 ~ 283.1

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



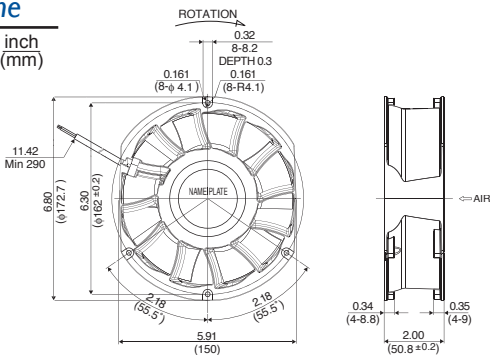
NEW!

R150 High Power

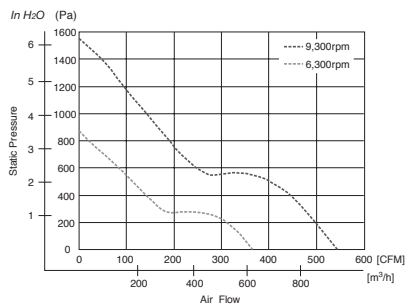
(150[□] × 172 × 51^L) DC Volt: 48 • CFM Range: 365 ~ 544

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

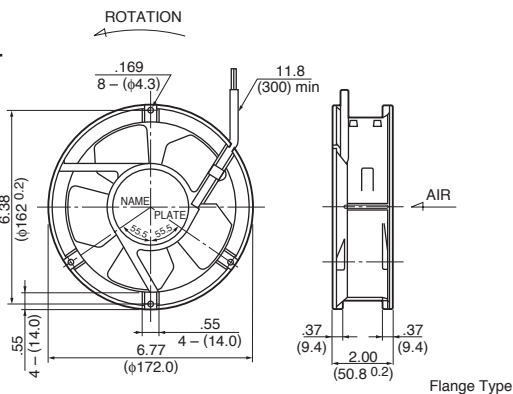


6820PL

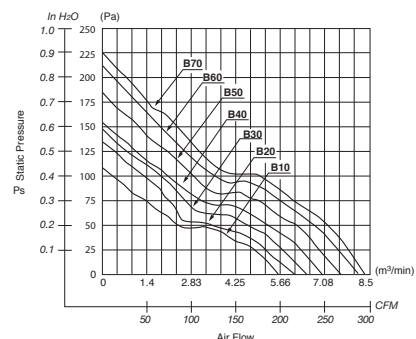
(172 × 50^L) DC Volt: 12, 24, 48 • CFM Range: 180.0 ~ 300.0

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



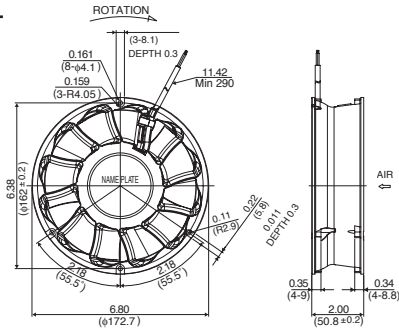
NEW!

R172 High Power

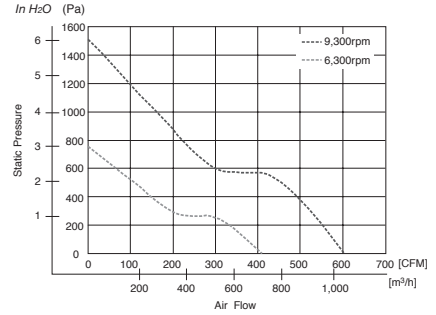
(Ø172 x 51^L) DC Volt: 48 • CFM Range: 409 ~ 604

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



Part Numbering System (Motorized Impellers - F Series)

$\frac{F}{1} \frac{280}{2} \frac{XX}{3} - \frac{129}{4} - \frac{D}{5} \frac{07}{6} \frac{2}{7} \frac{X}{8}$

- | | | |
|--|---|---|
| 1. Fan Type
F: Motorized Impeller | 4. Height of Impeller | 7. Speed Class
1 < 2 < 3 < 4 < 5 < 6
low high |
| 2. Fan Size (mm)
160: 160mm
175: 175mm
225: 225mm
250: 250mm
280: 280mm | 5. Electrical Supply
D: DC | 8. Option
Defines in Production Specification |
| 3. Series
A1, A2
B1, B2 | 6. Electrical Voltage
04: 12V
05: 24V
06: 36V
07: 48V
08: 54V
09: Other | |

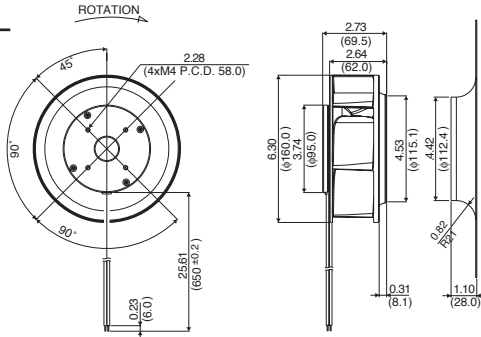
NEW!

F160

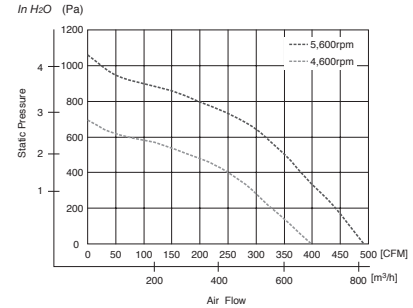
($\varnothing 160 \times 69^L$) DC Volt: 24, 48 • CFM Range: 399 ~ 495

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



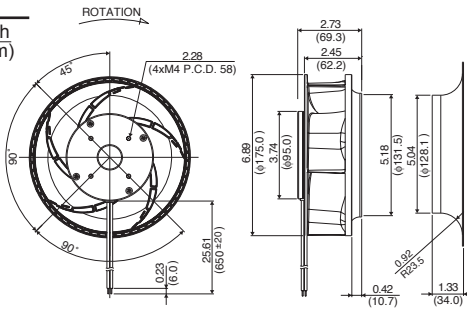
NEW!

F175

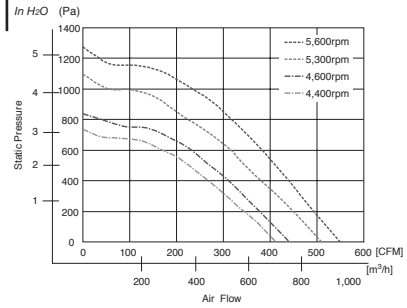
($\varnothing 175 \times 69^L$) DC Volt: 24, 48 • CFM Range: 413 ~ 551

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



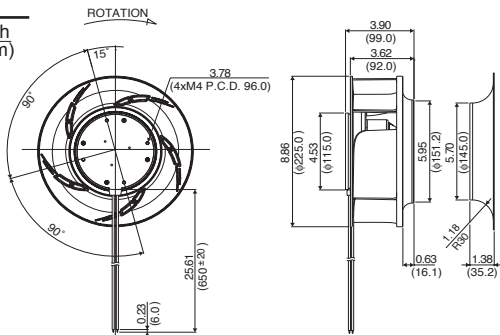
NEW!

F225

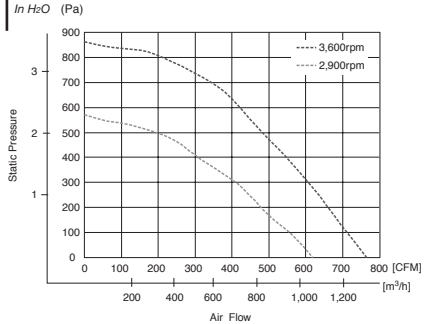
($\varnothing 225 \times 99^L$) DC Volt: 24, 48 • CFM Range: 611 ~ 763

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



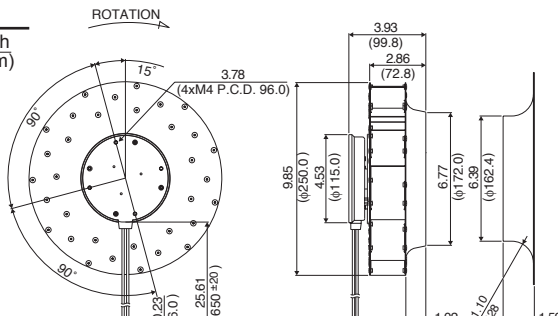
NEW!

F250

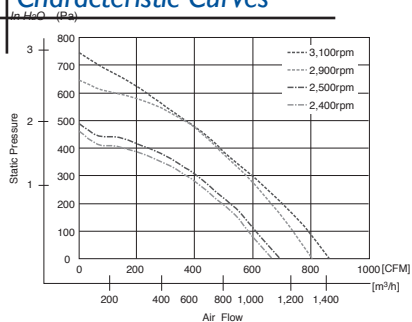
($\varnothing 250 \times 99^L$) DC Volt: 24, 48 • CFM Range: 668 ~ 862

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



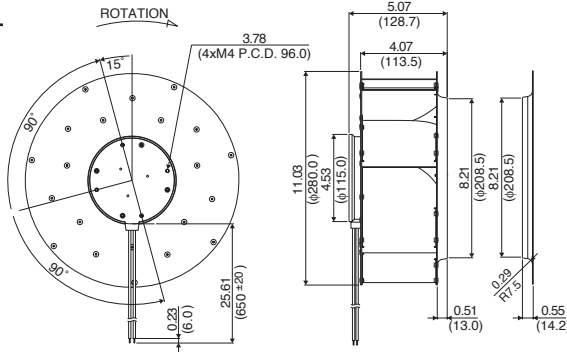
NEW!

F280

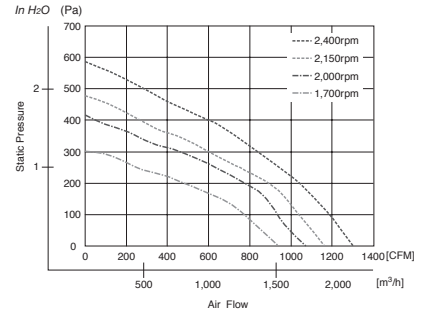
(Ø280 x 129^L) DC Volt: 24, 48 • CFM Range: 940 ~ 1,304

Outline

Units: inch (mm)



Characteristic Curves



High Powered Motorized Impellers - F Series

Features

- High Efficiency 3 phase Motor
- Superior Aerodynamic Performance
- Control Flexibility
- Wide Voltage Range — F Series 30 to 72V
- Low Noise

Markets

- Telecom
- Data Communication
- Medical
- Laboratory Equipment
- Industrial and Power Systems

Standard Features include:

- PWM Speed Control
- Dual NMB Bearings
- Reverse Polarity Protection

The R series of DC Cooling Fans and the F series of Motorized Impellers achieve new benchmarks for airflow performance and are the most efficient fans in the market today. Using advanced modeling techniques for our airfoil designs has resulted in superior aerodynamic performance that is best in class.



Common Specifications

- Vibration Test:..... Conforms to JIS C 60068-2-6, Amplitude: 1.5mm, Frequency 10 to 55 Hz, 1 hour in each of the X, Y and Z directions.
- Shock Test:..... Conforms to JIS C 60068-2-27, Acceleration rate: 981 m/s²*, Application time: 6ms once each in the X, Y and Z directions. Note: For the BM4515, BM5115, BM5125 and BM6015 series, the conditions of the shock test are as follows: Acceleration rate 500 m/s², Application time: 11ms once each in the X, Y and Z directions.
- Locked Rotor Protection : ..The motor is protected from burnout in the locked rotor condition for 72 hours, at the rated voltage.
- Polarity Protection :The fans are Reverse Polarity protected at the rated voltage.
- Insulation Class :E class (UL: Class A)
- Auto Restart:..... Most fan models provide current shut-down/auto restart function under locked rotor conditions.

Notes: Additional performance requirements can be determined between manufacturer and customer, based on customer's request.
Ball bearing fans and blowers may be installed in a horizontal, vertical or angled position

BM Part Numbering System (Legacy Products)

BM 51 15 - 04 W - B 3 0 - L 00
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

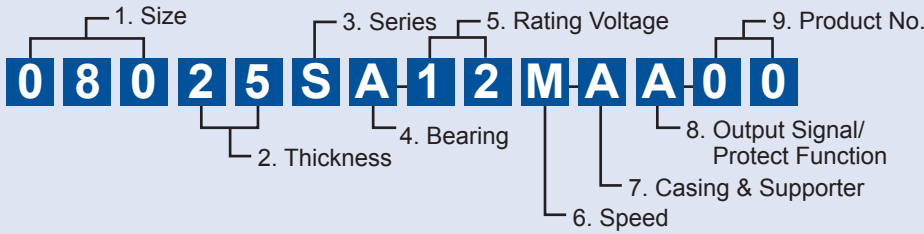
- | | | | |
|--|---|--|--|
| 1. Series
BM Series | 1: 5V 5: 24V
2: 6V 6: 36V
3: 9V 7: 48V
4: 12V 9: Other | 8. Special Control Function
0: Standard Type
9: Sensor Type
8: 2-Speed Type
7: Temperature Detecting Variable Speed Type/PWM Control Type
6: Temperature Detecting Variable Speed Type/Sensor Type
5: 2-Speed Type/Sensor Type | 10. Individual Specifications
Standard Type
00: Standard
01~99: Custom
Sensor Type
00: Locked Rotor Alarm Signal (Standard Type)
01~49: Locked Rotor Alarm Signal (Custom Type)
50: Tachometer Signal (Standard Type)
51~99: Tachometer Signal (Custom Type) |
| 2. Size
45: 45mm
51: 51mm
60: 60mm | 5. Termination
Lead Wire | 9. Classification
L-Standard Model/Rib Type
T-Value Model/Rib Type | |
| 3. Thickness
15: 15mm
25: 25mm | 6. Bearing
B: Ball Bearing
S: Sleeve Bearing | | |
| 4. Input Voltage
O: Standard Current
C: Special Current
D~Z: Special Current
(A.B.O. are not used) | 7. Speed
1<2<3<4<5
low high | | |

BG Part Numbering System (Legacy Products)

BG 07 03 - B 04 - 4 - 000 - 00
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- | | | | |
|---|--|--|--|
| 1. Series
BG Series | 4. Bearing
B: Ball Bearing
S: Sleeve Bearing | 6. Speed
1<2<3<4<5
low high | B: Thermistor Mounting Position
O: No Thermistor
T: Thermistor On PCB |
| 2. Size
07: 75mm
08: 80mm
09: 95mm
10: 100mm
12: 120mm | 5. Input Voltage
O: Standard Current
C: Special Current
D~Z: Special Current
(A.B.O. are not used) | 7. Special Control Function
0 0 0
A B C | C: Output Signal
O: No Signal
L: Locked Rotor Alarm Signal
S: Tachometer Signal |
| 3. Thickness
01: 18mm
02: 25mm
03: 30~33mm | 1: 5V 5: 24V
2: 6V 6: 36V
3: 9V 7: 48V
4: 12V 9: Other | A: Special Control Function
O: Fix Speed Type
2: 2-Speed Type
V: Temperature Detecting Variable Speed Type
P: PWM Control Type | 8. Product Number
00: Standard
01~ : Customized Standard
T0: Standard Value
T1~ : Customized Value |

New Part Numbering System



6. Speed
J<K<L<M<N<P<Q<R<S
Slow Fast

7. Casing & Supporter

	Model	Casing	Supporter
DC	A	Rib	-
	B	Rib	Coating
	E	Flange	-
AC	A	Flange	-
	E/N	Flange	-

1. Size

Model	Size (mm)
040	40
045	45
050	50
060	60
075	75
080	80
092	92
095	95
113	113
119	119
120	120
125	125
150	150

2. Thickness

Model	Size (mm)
10	10
15	15
20	20
23	23
25	25
28	28
30	30
32	32
33	33
38	38
39	39
36	36

3. Series

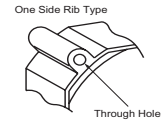
	Size (mm)	Previous Name
DC	D	FB
	E	WB
	J	JL
	K	KL
	R	RL
	S	SB
	V	VL
	G	BG/BM
Blower	M	MS
	P	PC/PS
	S	HS
	T	TS

4. Bearing

	Model	Bearing
DC	A	Ball Bearing
	S	Sleeve Bearing
	M	
	H	
AC	B	Ball Bearing

5. Rating Voltage

DC FAN		AC FAN	
Model	Rating Voltage	Model	Ball Bearing
09	9V	A0	100V
12	12V	A1	115V
24	24V	B0	200V
48	48V	B2	220V
		B3	230V
		B4	240V



8. Output Signal/Protect Function

DC FAN		AC FAN	
Model	Output Signal	Model	Protect Function
A	-	A	Impedance Protection
L	Loaded Rotor Signal	P	Thermal Protection
T	Tachometer Signal		

9. Product No.

00: Standard
Except 00: Custom Model

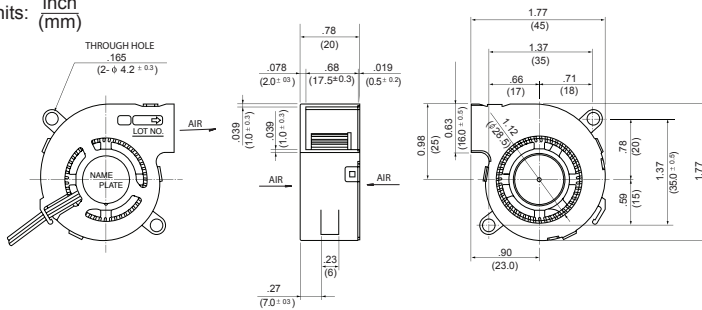
NEW!

04520GA

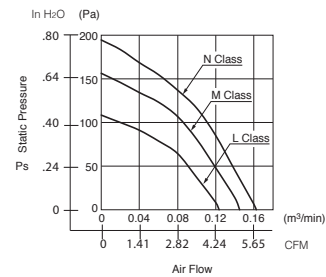
($\varnothing 45 \times 20$) DC Volt: 12 • CFM Range: 4.2 ~ 5.6

Outline

Units: inch (mm)



Characteristic Curves

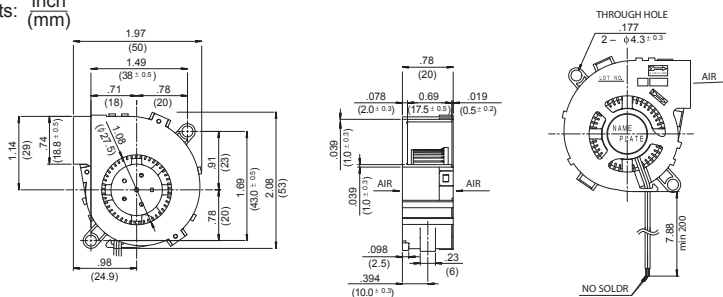


BM5020

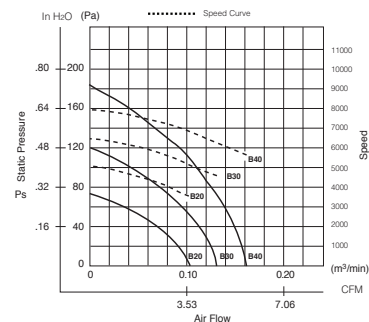
($\varnothing 53 \times 20$) DC Volt: 5, 12, 24 • CFM Range: 3.5 ~ 5.6

Outline

Units: inch (mm)



Characteristic Curves



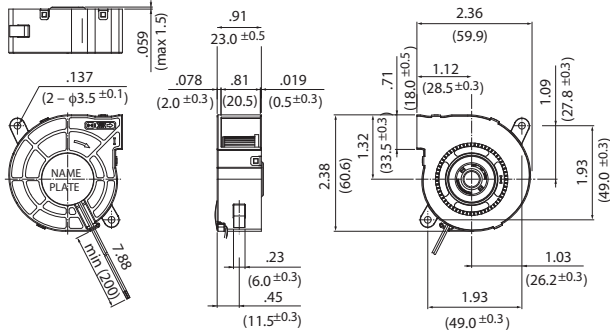
NEW!

06023GA

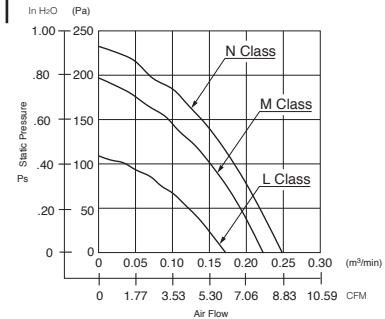
($\varnothing 60 \times 23$ L) DC Volt: 12 • CFM Range: 6.0 ~ 8.4

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

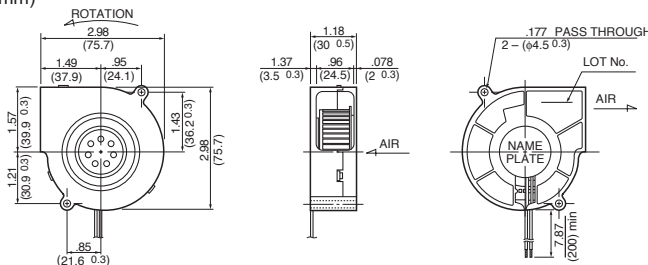


BG0703

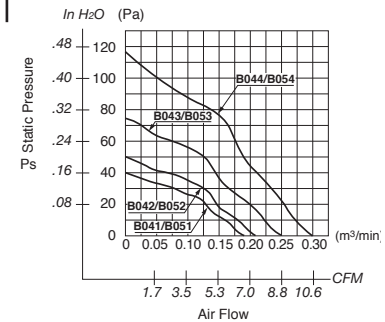
($\varnothing 75 \times 30$ L) DC Volt: 12, 24 • CFM Range: 6.7 ~ 10.6

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

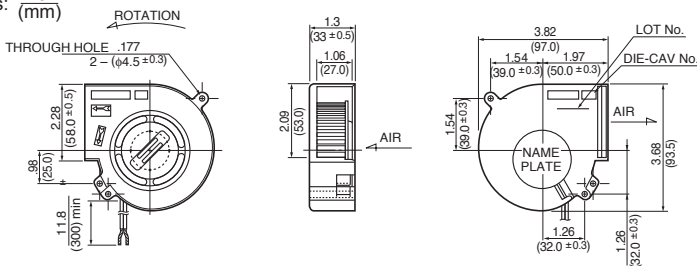


BG0903

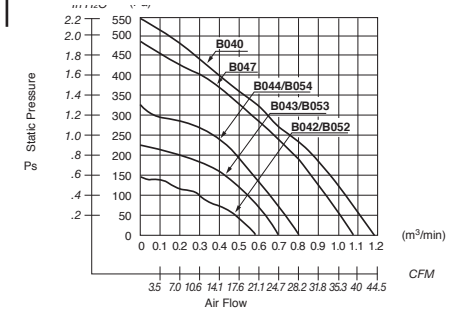
($\varnothing 95 \times 33$ L) DC Volt: 12, 24 • CFM Range: 20.5 ~ 42.0

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

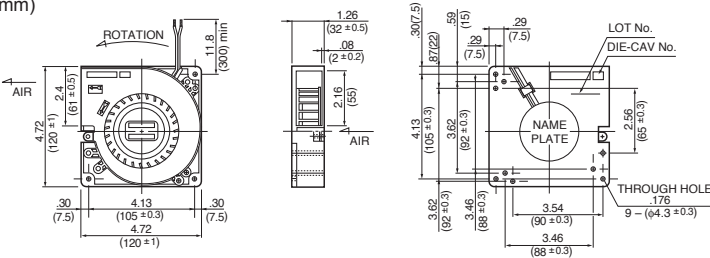


BG1203

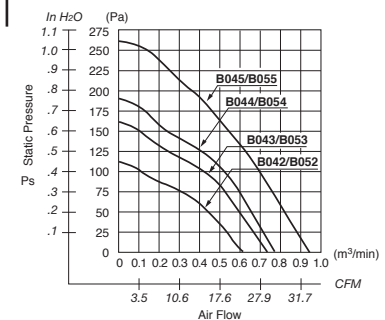
($\varnothing 120 \times 32$ L) DC Volt: 12, 24 • CFM Range: 22.2 ~ 33.2

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



Common Specifications

- Operating Voltage:..... Rated voltage +/- 10%
- Noise: Measured at 1 meter from the side of the fan at the rated voltage
- Vibration Test:..... JIS C 60068-2-6
- Shock Test: JIS C 60068-2-27
- Insulation Class: E class (UL: Class A)
- Protection: Motor burnout is prevented by the impedance protection system or the thermal protection system.
- Impedance Protection System:..... The motor coil impedance limits motor temperature within the insulation class specification.
- Thermal Protection System: The coil includes a thermal cut-out to limit motor temperature within the insulation class specification.

Notes: Additional performance requirements can be determined between manufacturer and customer, based on customer's request. Ball bearing fans may be installed in a horizontal, vertical or angled position.

Part Numbering System (Legacy Products)

$\frac{47}{1}$ $\frac{15}{2}$ $\frac{P}{3}$ $\frac{S}{4}$ - $\frac{12}{5}$ $\frac{T}{6}$ - $\frac{B}{7}$ $\frac{2}{8}$ $\frac{0}{9}$ - $\frac{A}{10}$ $\frac{00}{11}$

- | | | | |
|--|--|---|--|
| <p>1. Frame Size
 24: 60mm
 31: 80mm
 36: 92mm
 47: 119mm
 59: 150mm</p> <p>2. Frame Thickness
 10: 25mm
 12: 30mm
 15: 38mm</p> <p>3. Series
 P Series
 M Series
 F Series</p> | <p>4. Motor Function
 S: Shaded Pole
 C: Capacitor Run</p> <p>5. Input Voltage
 100V Class
 10: 100V
 12: 115V
 200V Class
 20: 200V
 22: 220V
 23: 230V
 24: 240V</p> | <p>6. Termination
 W: Lead Wires
 T: Terminal</p> <p>7. Bearing
 B: Ball Bearing</p> <p>8. Speed
 1<2<3<4<5
 low high</p> <p>9. Protection
 0: Impedance Protected
 A: Thermal Protected
 (including 5915PC B30 only)</p> | <p>10. Product Number
 A: Standard 115V, 230V & 240V
 B: Standard 100V, 200V & 220V
 D: Custom Casing 115V-230V
 K: Frameless</p> <p>11. Individual Specification
 00: Standard
 01~99: Custom</p> |
|--|--|---|--|

$\frac{47}{1}$ $\frac{15}{2}$ $\frac{T}{3}$ $\frac{S}{4}$ - $\frac{23}{5}$ $\frac{T}{6}$ - $\frac{B}{7}$ $\frac{50}{8}$ - $\frac{A}{9}$ $\frac{M}{10}$ $\frac{0}{11}$

$\frac{59}{1}$ $\frac{15}{2}$ $\frac{P}{3}$ $\frac{C}{4}$ - $\frac{20}{5}$ $\frac{T}{6}$ - $\frac{B}{7}$ $\frac{30}{8}$ - $\frac{S}{9}$ $\frac{M}{10}$ $\frac{0}{11}$

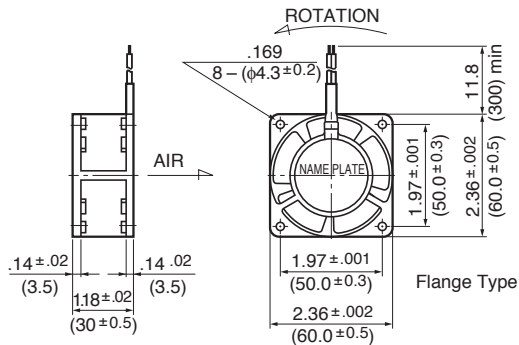
- | | | | |
|--|--|--|---|
| <p>1. Frame Size
 24: 60mm
 31: 80mm
 36: 92mm
 47: 119mm
 59: 150mm</p> <p>2. Frame Thickness
 10: 25mm
 12: 30mm
 15: 38mm
 20: 51mm</p> | <p>3. Series
 H: Plastic Blades
 M: Plastic Blades
 P: Plastic/Metal Blades
 T: Metal Blades</p> <p>4. Motor Function
 S: Shaded Pole
 C: Capacitor Run</p> <p>5. Input Voltage
 10: 100V
 12: 115V
 20: 200V
 22: 220V
 23: 230V
 24: 240V</p> | <p>6. Input
 T: Terminal
 W: Lead Wires</p> <p>7. Bearing
 B: Ball Bearing</p> <p>8. Speed
 10<20<30<40<50
 low high
 X2 Dual Input</p> | <p>9. Input Voltage Class
 A: 115V / 230V
 B: 100V / 200V
 S: Metal Blades</p> <p>10. Potting Method
 M: Potted
 O: Non-Potted</p> <p>11. Product Number
 0: Standard
 1~: Special</p> |
|--|--|--|---|

2412PS

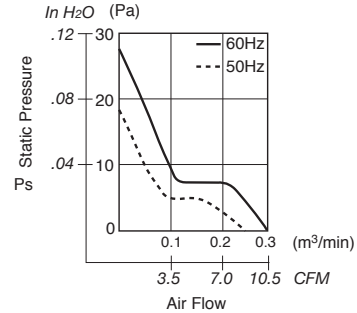
(60[□] × 30^L) AC Volt: 100, 115 • CFM Range: 7.0 ~ 9.1

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

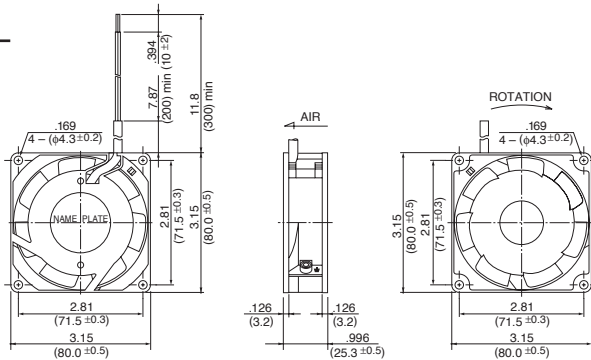


3110MS

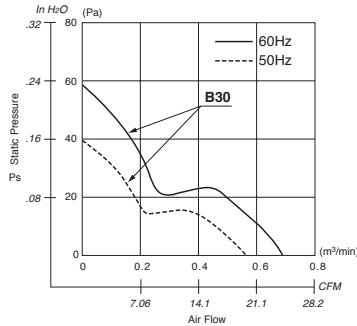
(80[□] × 25^L) AC Volt: 200, 220, 230, 240 • CFM Range: 20.1 ~ 24.0

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

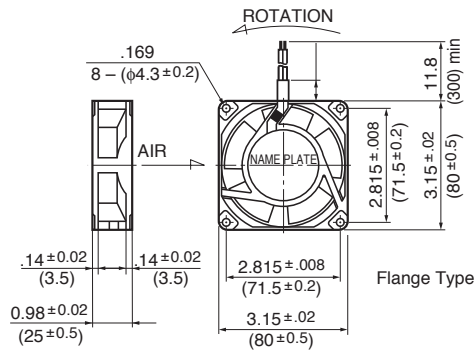


3110PS

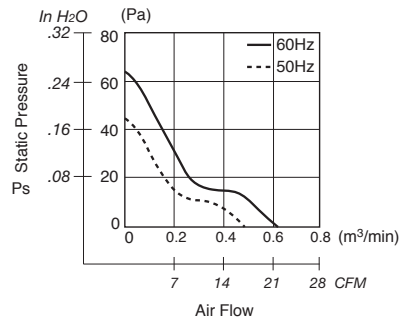
(80[□] × 25^L) AC Volt: 100, 115 • CFM Range: 16.2 ~ 19.7

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

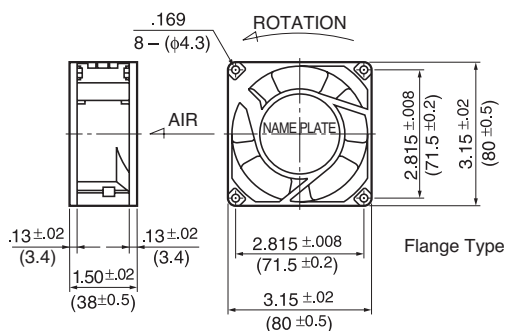


3115FS

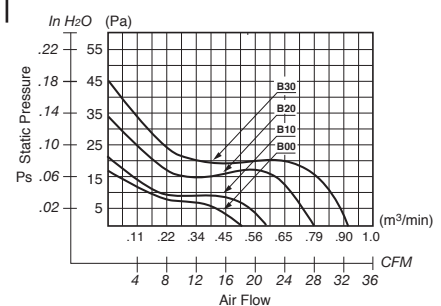
(80[□] × 38^L) AC Volt: 115, 230 • CFM Range: 18.0 ~ 33.0

Outline

Units: $\frac{\text{inch}}{\text{mm}}$

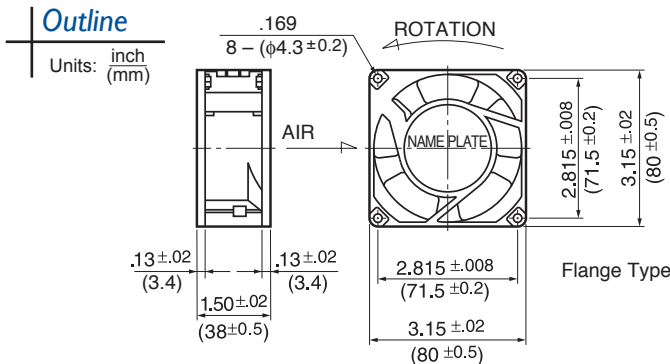


Characteristic Curves

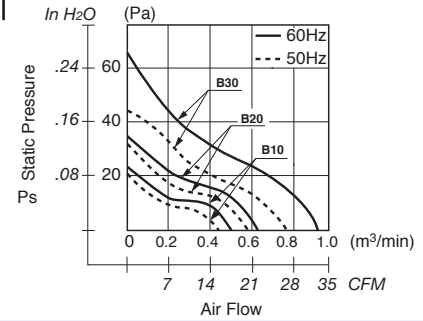


3115PS

(80[□] x 38^L) AC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 17.6 ~ 32.0

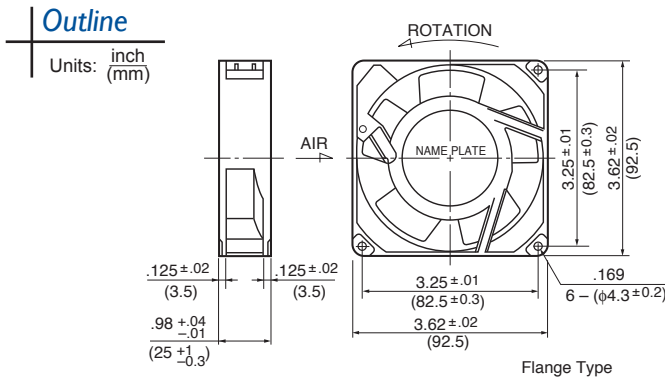


Characteristic Curves

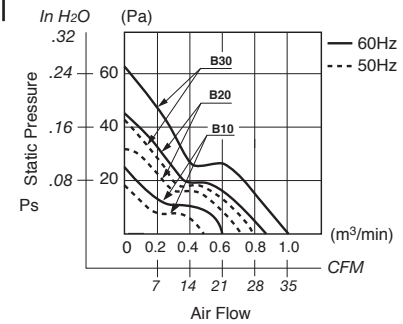


3610PS

(92[□] x 25^L) AC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 16.0 ~ 34.5



Characteristic Curves

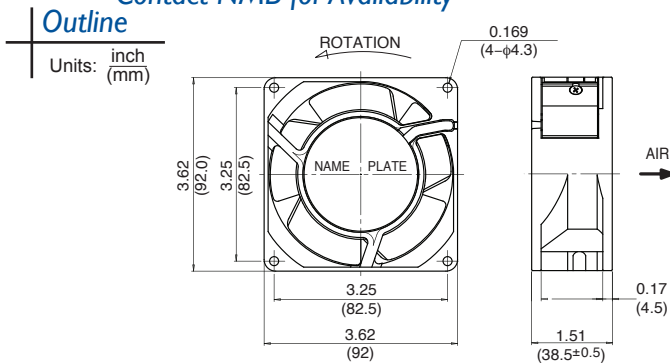


NEW!

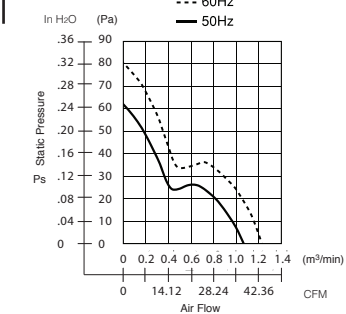
09238SB

(92[□] x 38^L) AC Volt: 230 • CFM Range: 37.5 ~ 44.1

Contact NMB for Availability

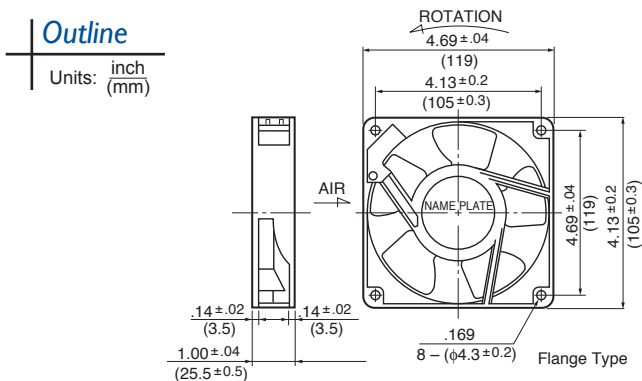


Characteristic Curves

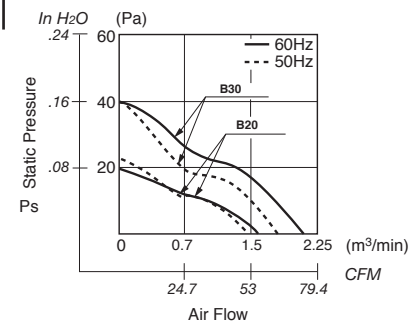


4710PS

(119[□] x 25^L) AC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 45.9 ~ 70.6



Characteristic Curves

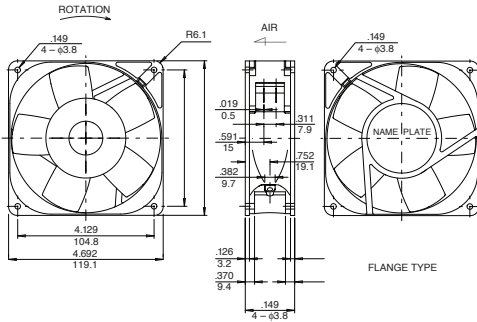


4715FS

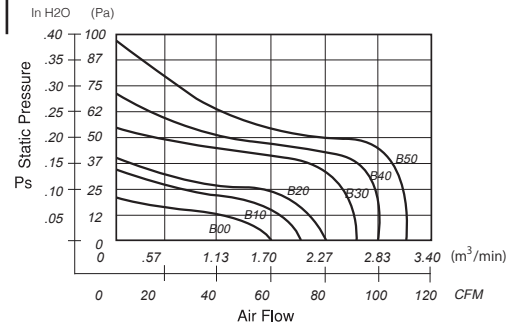
(119 x 38^L) AC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 55.0 ~ 110.0

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



NEW!

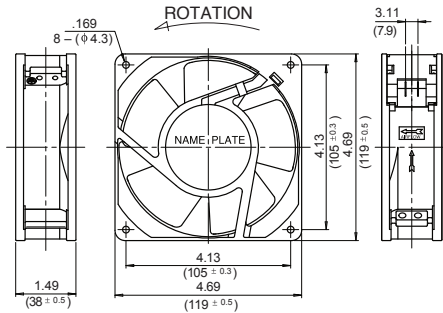
4715HS

Plastic Blades/Standard

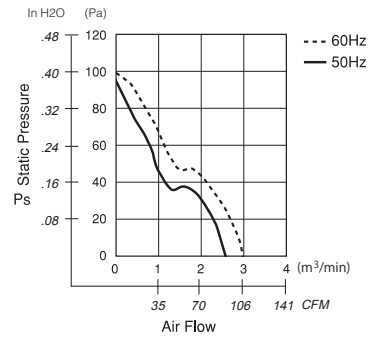
(119 x 38^L) DC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 91.8 ~ 105.9

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



NEW!

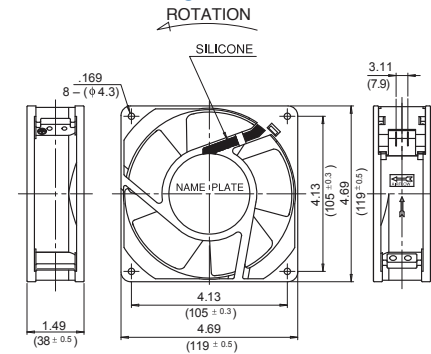
4715HS

Plastic Blades/Potting

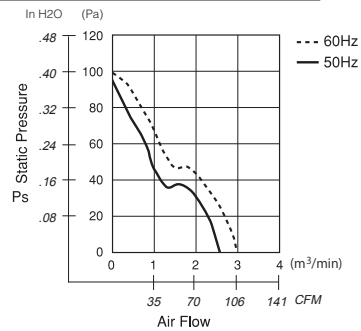
(119 x 38^L) DC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 91.8 ~ 105.9

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

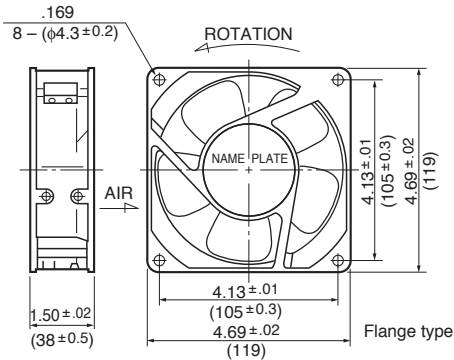


4715MS

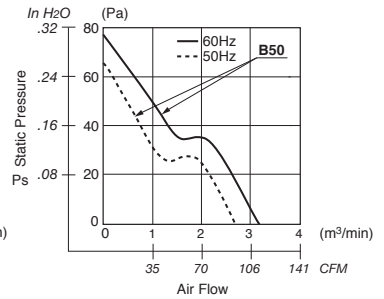
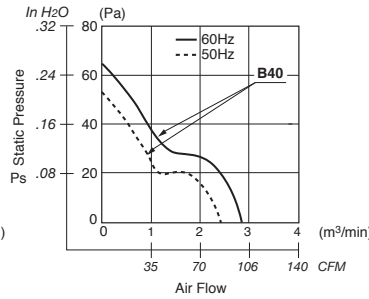
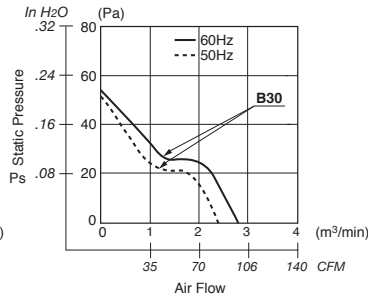
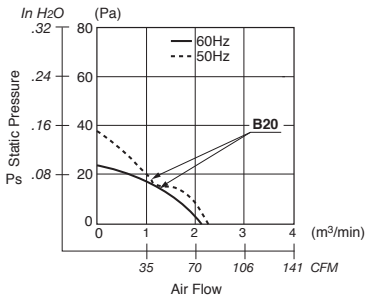
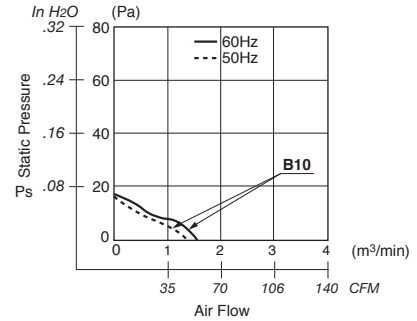
(119[□] × 38^L) DC Volt: 115, 230 • CFM Range: 45.9 ~ 102.0

Outline

Units: inch (mm)



Characteristic Curves



NEW!

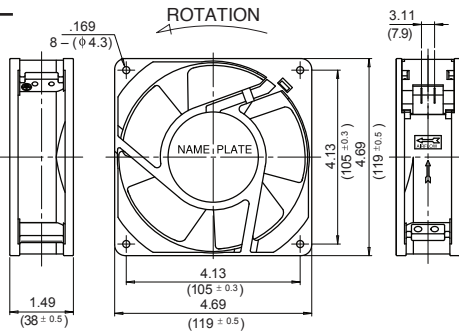
4715TS

Metal Blades/Standard

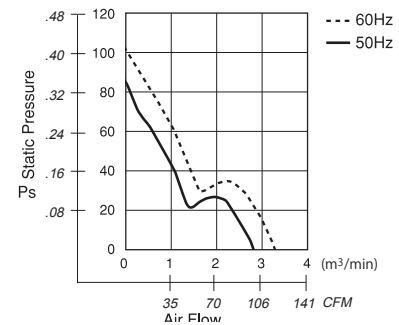
(119[□] × 38^L) DC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 98.8 ~ 116.5

Outline

Units: inch (mm)



Characteristic Curves



NEW!

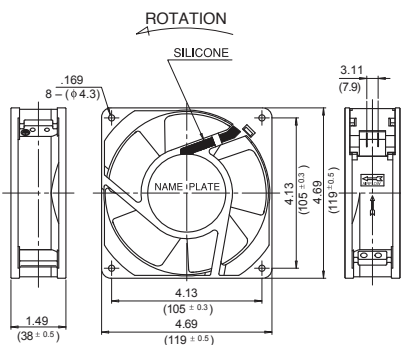
4715TS

Metal Blades/Potting

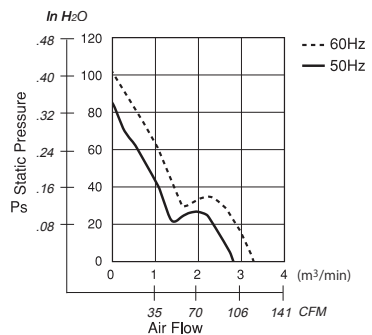
(119[□] × 38^L) DC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 98.8 ~ 116.5

Outline

Units: inch (mm)



Characteristic Curves

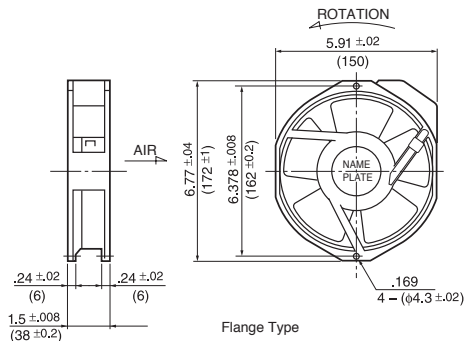


5915PC

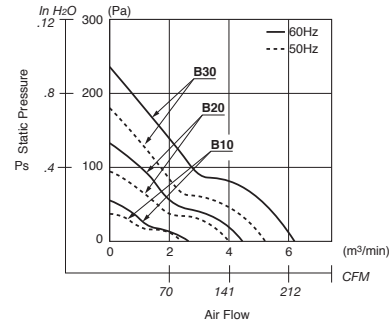
(150 × 172 × 38) AC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 84.7 ~ 212.0

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



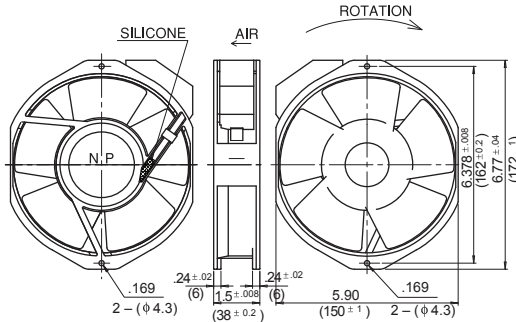
NEW!

5915PC

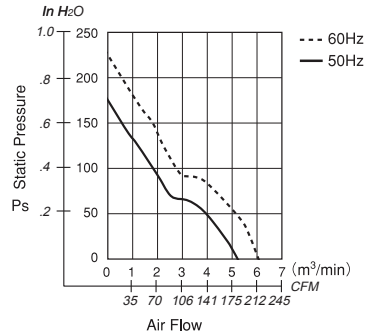
Plastic Blades/Potting (150 × 172 × 38) AC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 176.5 ~ 211.0

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves

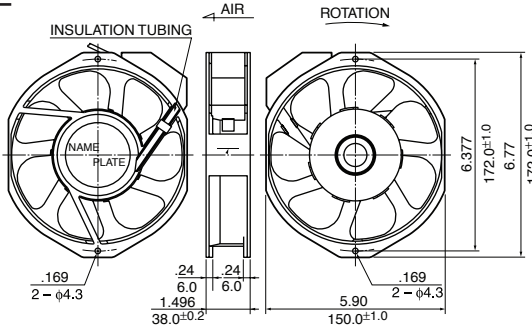


5915PC

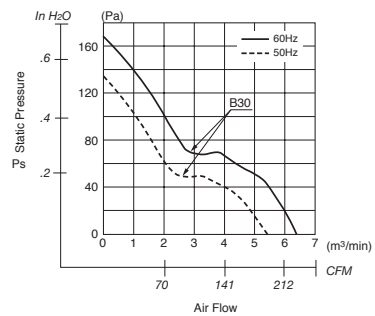
Metal Blades/Standard (150 × 172 × 38) AC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 187.1 ~ 222.4

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



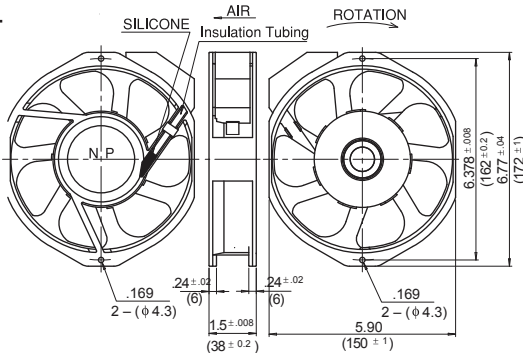
NEW!

5915PC

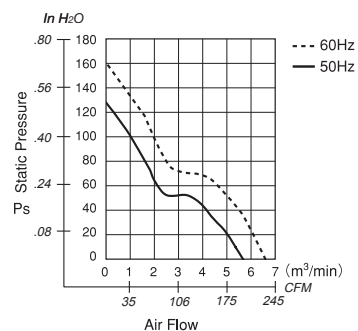
Metal Blades/Potting (150 × 172 × 38) AC Volt: 100, 115, 200, 220, 230, 240 • CFM Range: 187.1 ~ 222.4

Outline

Units: $\frac{\text{inch}}{\text{mm}}$



Characteristic Curves



DC Axial Fans



SIZE		SERIES	CFM	AIRFLOW																	
inch	mm			5	18	35	53	71	88	106	124	141	159	177	194	212	229	247	265	282	300
1.6x0.4	40x10	1604KL	4.2 ~ 6.0																		
1.6x0.8	40x20	1608VL	NEW! 8.8 ~ 11.3																		
1.6x1.1	40x28	04028DA	NEW! 13.1 ~ 20.1																		
1.6x1.1	40x28	04028VA	NEW! 12.4																		
1.6x1.1	40x28	1611FT	NEW! 29.3																		
1.6x1.9	40x48	1619FT	NEW! 28.9																		
1.6x2.2	40x56	1622FT	NEW! 28.6																		
1.6x2.2	40x56	04056EA	NEW! 26.1																		
2.4x0.6	60x15	2406KL	6.7 ~ 18.3																		
2.4x0.6	60x15	06015VA	NEW! 14.5 ~ 19.4																		
2.4x0.8	60x20	06020SA	NEW! 16.6 ~ 20.5																		
2.4x0.8	60x20	06020VA	NEW! 24.6																		
2.4x1.0	60x25	06025VA	NEW! 23.7																		
2.4x1.0	60x25	2410ML	25.0 ~ 37.0																		
2.4x1.0	60x25	2410SB	NEW! 14.5 ~ 23.3																		
2.4x1.5	60x38	06038DA	NEW! 50.5 ~ 66.4																		
3.1x0.8	80x20	08020SA	NEW! 27.5 ~ 39.9																		
3.1x1.0	80x25	08025DA	NEW! 53.0 ~ 92.0																		
3.1x1.0	80x25	3110KL	40.2 ~ 45.9																		
3.1x1.0	80x25	3110SB	NEW! 26.1 ~ 41.3																		
3.1x1.5	80x38	3115RL	61.8 ~ 123.6																		
3.1x1.5	80x38	08038DA	NEW! 98.8 ~ 118.3																		
3.1x2.2	80x56	3122FT	NEW! 135.9																		
3.6x1.0	92x25	3610KL	61.8																		
3.6x1.0	92x25	3610SB	NEW! 35.7 ~ 54.4																		
3.6x1.0	92x25	3610VL	NEW! 54.0 ~ 96.4																		
3.6x1.5	92x38	09238DA	NEW! 176.5																		
3.6x1.5	92x38	3615RL	NEW! 103.8 ~ 152.5																		
4.7x1.0	119x25	11925SA	NEW! 46.9 ~ 128.1																		
4.7x1.5	119x38	4715KL	83.6 ~ 130.0																		
4.7x1.5	119x39	4715VL	NEW! 189.9 ~ 243.2																		
5.9x6.8x1.0	150x172x50	5910PL	170.0 ~ 290.0																		
5.9x6.8x2.0	150x172x50	5920PL	180.0 ~ 300.0																		
5.9x6.8x2.0	150x172x50	5920VL	NEW! 194.5 ~ 283.1																		
5.9x6.8x2.0	150x172x51	R150 High Power	NEW! 365 ~ 544																		544
6.8x2.0	172x50	6820PL	180.0 ~ 300.0																		
6.8x2.0	172x51	R172 High Power	NEW! 409 ~ 604																		604



Motorized Impellers

SIZE		SERIES		CFM	AIRFLOW																		
inch	mm				400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
6.3x2.7	160x69	F160	NEW!	399 ~ 495																			
6.9x2.7	175x69	F175	NEW!	413 ~ 551																			
8.9x3.9	225x99	F225	NEW!	611 ~ 763																			
9.8x3.9	250x99	F250	NEW!	668 ~ 862																			
11.0x5.0	280x129	F280	NEW!	940 ~ 1,304																			



DC Blowers

SIZE		SERIES		CFM	AIRFLOW																					
inch	mm				2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44
1.7x0.59	45x20	04520GA	NEW!	4.2 ~ 5.6																						
1.9x0.79	50x20	BM5020		3.5 ~ 5.6																						
2.4x0.91	60x23	06023GA	NEW!	6.0 ~ 8.4																						
2.9x1.18	75x30	BG0703		6.7 ~ 10.6																						
3.7x1.30	95x33	BG0903		20.5 ~ 42.0																						
4.7x1.26	120x32	BG1203		22.2 ~ 33.2																						



AC Axial Fans

SIZE		SERIES		CFM	AIRFLOW																					
inch	mm				10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220
2.4x1.2	60x30	2412PS		7.0 ~ 9.1																						
3.1x1.0	80x25	3110MS		20.1 ~ 24.0																						
3.1x1.0	80x25	3110PS		16.2 ~ 19.7																						
3.1x1.5	80x38	3115FS		18.0 ~ 33.0																						
3.1x1.5	80x38	3115PS		17.6 ~ 32.0																						
3.6x1.0	92x25	3610PS		16.0 ~ 34.5																						
3.6x1.5	92x38	09238SB	NEW!	37.5 ~ 44.6																						
4.7x1.0	119x25	4710PS		45.9 ~ 70.6																						
4.7x1.5	119x38	4715FS		55.0 ~ 110.0																						
4.7x1.5	119x38	4715HS	NEW!	91.8 ~ 105.9																						
4.7x1.5	119x38	4715MS		45.9 ~ 102.0																						
4.7x1.5	119x38	4715TS	NEW!	98.8 ~ 116.5																						
5.9x6.8x1.5	150x172x38	5915PC	NEW!	84.7 ~ 212.0																						
5.9x6.8x1.5	150x172x38	5915PC-S00	NEW!	187.1 ~ 222.4																						



Notes

A series of horizontal dotted lines for taking notes.

Additional Products From NMB

Small Motors

NMB's small motor products include a line of hybrid and permanent magnet stepper motors, as well as NMB's brush and brushless DC motors. The brush DC motor line is ideal for applications that require small size and excellent power output. The brushless DC line is perfect for applications where

Mechanical Bearing Assemblies

NMB's Miniature Precision Ball Bearings are the first component of a highly successful design of a mechanical bearing assembly. Machined components such as magnets, gears, molded and machine plastic parts, die cast parts and special materials are



the environment is sensitive to interference, battery powered equipment and clean room. Standard NMB hybrid and permanent magnet stepper motors are available, as well as many customizable features for your unique application.

For more information on our motor products, e-mail us at: motors@nmbtc.com

Miniature Precision Bearings

Our miniature bearings range in sizes from .1181 to 1.000 inch O.D. (3mm to 26mm), and are available in inch and metric sizes. Stainless steel or chrome steel bearings are available with crown or ribbon type metallic cages, as well as plastic crown type cages. NMB bearings are found in medical equipment, advanced automotive applications and household electrical appliances such as air conditioners, vacuum cleaners, VCRs and video cameras, and in motors for electronic controls systems, among others.

For more information on our miniature bearings, e-mail us at: bearings@nmbtc.com

designed and manufactured to work precisely with NMB precision ball bearings. Complex mechanical bearing assemblies are custom made to your design specifications, and are ideal for medical, office automation, and currency machines, as well as factory and lab automation applications.

For more information on our mechanical assembly products, e-mail us at: assemblies@nmbtc.com

Fan Trays

NMB's extensive selection of AC and DC cooling fans, as well as the latest range of high efficiency motorized impellers are your turn-key solution for your custom fan tray designs. NMB's fan tray product offerings include single or multiple devices, redundant and single-point of failure proof design, intelligent and self regulated control functions, two way communication with system for remote access and wide voltage range design.

For more information on our custom fan trays e-mail us at: info@nmbtc.com





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