

# Fans

DC Axial • DC Blowers • AC Axial



**NMB**<sup>TM</sup>  
*Minebea*

# **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](http://www.nmbtc.com) or call our Fan Product Group directly at 818-341-3355.



## DC Axial Fans

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|               |     |
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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/s<sup>2</sup>\*, 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/s<sup>2</sup>, 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

$\frac{24}{1}$   $\frac{10}{2}$   $\frac{M}{3}$   $\frac{L}{4}$  -  $\frac{04}{5}$   $\frac{W}{6}$  -  $\frac{B}{7}$   $\frac{1}{8}$   $\frac{0}{9}$  -  $\frac{X}{10}$   $\frac{00}{11}$

### 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)

### 2. Overall Length (Thickness)

04:10mm  
06:15mm  
08:20mm  
10:25mm  
12:32mm  
15:38mm  
20:50mm

### 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    |

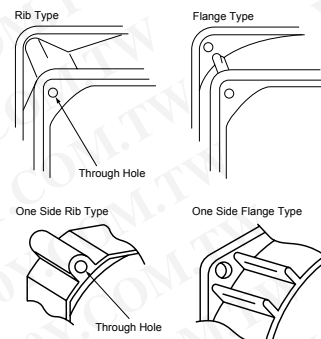
### 11. Individual Specifications

#### 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)





## Common Specifications

1. Tach Signal
2. Specification

$V_{psmax}$ : +15VDC  
 $I_p$  max: 5mA [ $V_{LO}$  max = 1.2V]  
 $T_a = 25^\circ\text{C}$

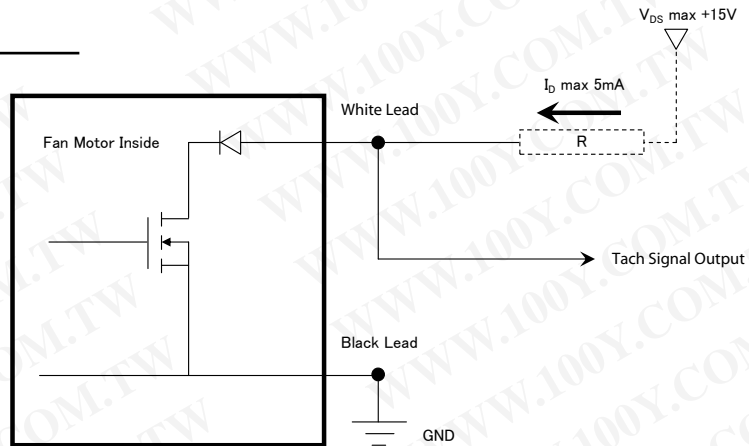
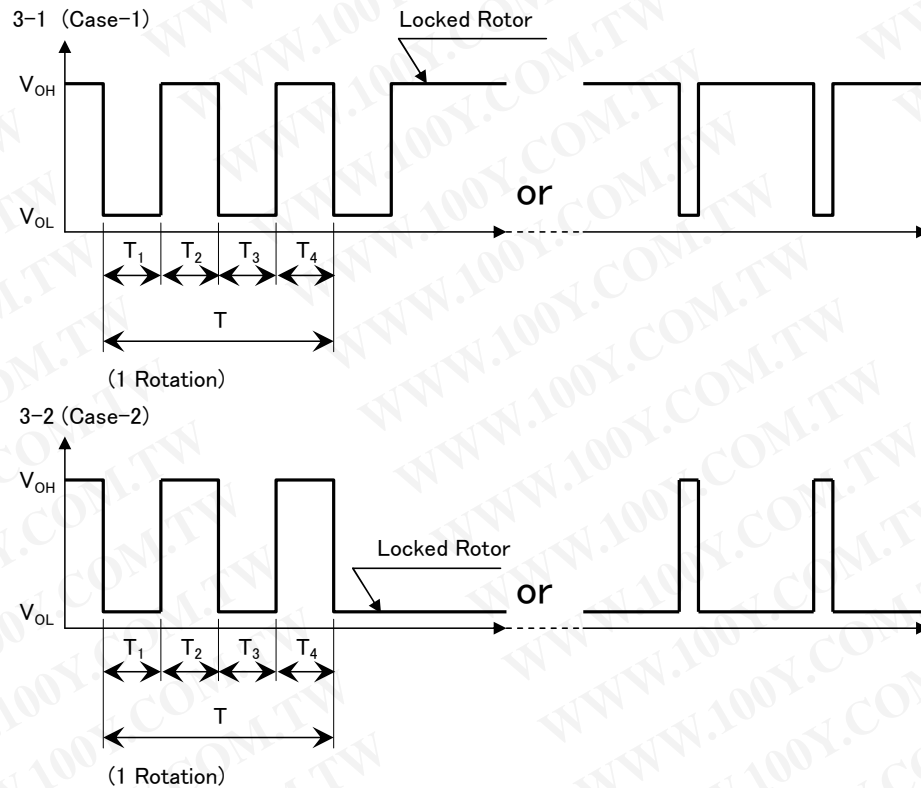


Fig. 1 Tach Signal Circuit

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

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

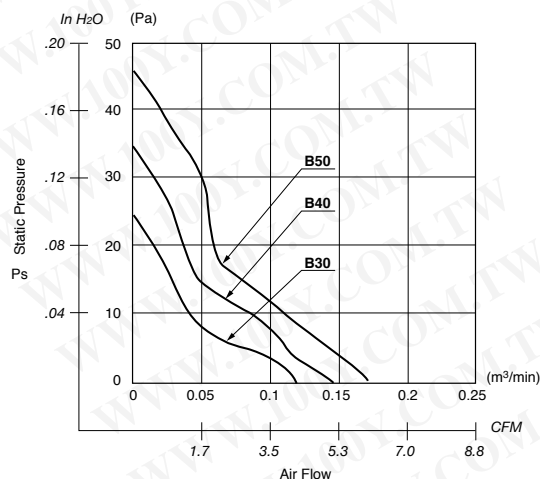
-40°C ~ +70°C (Storage)

## Expected Life

### Failure Rate: 10%

25°C 60,000 Hours (B00)

## Characteristic Curves



## Material

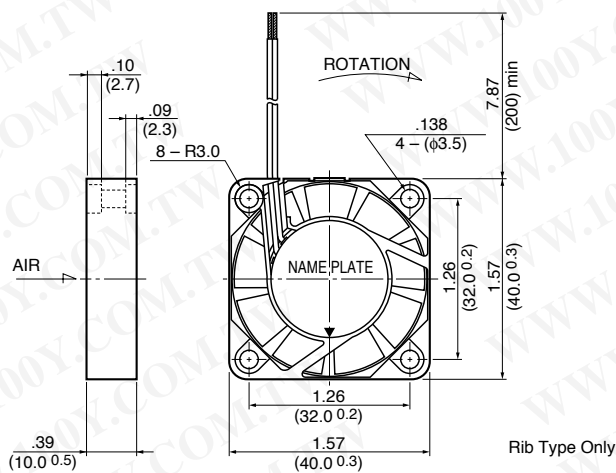
Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

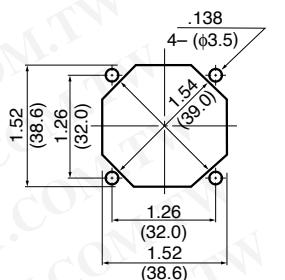
Lead Wire: UL1061, AWG26, +Red, -Black

## Outline



## Panel Cut-Outs

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



INLET SIDE / OUTLET SIDE

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 1604KL-01W-B30- | X00         | 5             | 4.5 ~ 5.5         | 0.075   | 0.375       | 4500                   | 4.2           | 0.12                    | .096                 | 24.0   | 22.0   | 15   |
| 1604KL-01W-B40- | X00         | 5             | 4.5 ~ 5.5         | 0.120   | 0.600       | 5500                   | 5.3           | 0.15                    | .136                 | 34.0   | 25.0   | 15   |
| 1604KL-01W-B50- | X00         | 5             | 4.5 ~ 5.5         | 0.155   | 0.775       | 6500                   | 6.0           | 0.17                    | .184                 | 46.0   | 29.0   | 15   |
| 1604KL-04W-B30- | X00         | 12            | 10.2 ~ 13.8       | 0.062   | 0.744       | 4500                   | 4.2           | 0.12                    | .096                 | 24.0   | 22.0   | 15   |
| 1604KL-04W-B40- | X00         | 12            | 10.2 ~ 13.8       | 0.073   | 0.876       | 5500                   | 5.3           | 0.15                    | .136                 | 34.0   | 25.0   | 15   |
| 1604KL-04W-B50- | X00         | 12            | 10.2 ~ 13.8       | 0.073   | 0.876       | 6500                   | 6.0           | 0.17                    | .184                 | 46.0   | 29.0   | 15   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

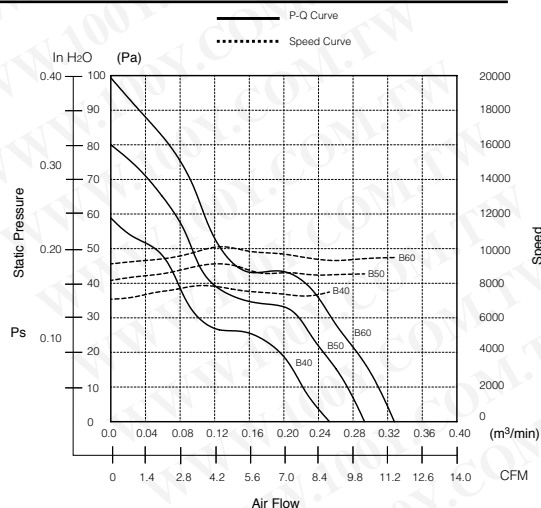
(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 50,000 Hours (B00)

## Characteristic Curves



## Material

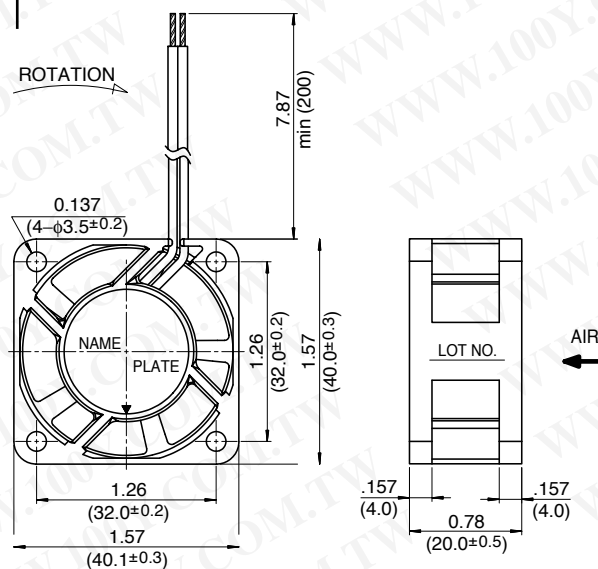
Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

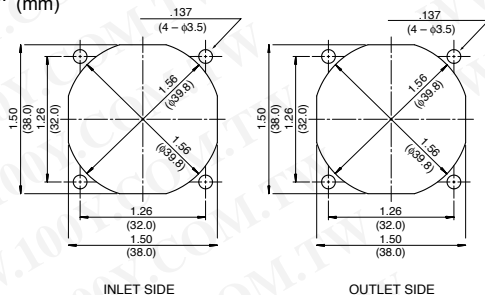
Lead Wire : UL1007, AWG26, +Red, -Black

## Outline



## Panel Cut-Outs

Units: inch (mm)



## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |            | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m³/min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 1608VL-04W-B40- | BXX         | 12            | 7.0 ~ 13.2        | 0.08    | 1.02        | 7500                   | 8.8           | 0.25       | .24                  | 58.8   | 29.0   | 40   |
| 1608VL-04W-B50- | BXX         | 12            | 7.0 ~ 13.2        | 0.11    | 1.32        | 8500                   | 10.2          | 0.29       | .31                  | 76.6   | 31.4   | 40   |
| 1608VL-04W-B60- | BXX         | 12            | 7.0 ~ 13.2        | 0.13    | 1.56        | 9500                   | 11.3          | 0.32       | .40                  | 99.3   | 34.6   | 40   |
| 1608VL-05W-B40- | BXX         | 24            | 14.0 ~ 26.4       | 0.05    | 1.20        | 7500                   | 8.8           | 0.25       | .24                  | 58.8   | 29.0   | 40   |
| 1608VL-05W-B50- | BXX         | 24            | 14.0 ~ 26.4       | 0.07    | 1.68        | 8500                   | 10.2          | 0.29       | .31                  | 76.6   | 31.4   | 40   |
| 1608VL-05W-B60- | BXX         | 24            | 14.0 ~ 26.4       | 0.10    | 2.40        | 9500                   | 11.3          | 0.32       | .40                  | 99.3   | 34.6   | 40   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +60°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

### Failure Rate: 10%

40°C 70,000 Hours (B00)

## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

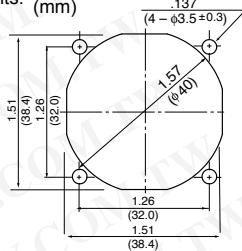
Bearing : Ball Bearing

Lead Wire: UL10368, AWG24, +Red, -Black

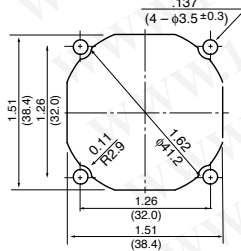
Tach Sig. : White PWM Control : Brown

## Panel Cut-Outs

Units: inch  
(mm)

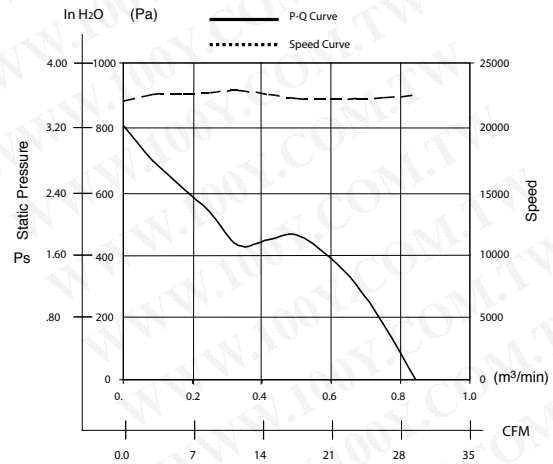


INLET SIDE

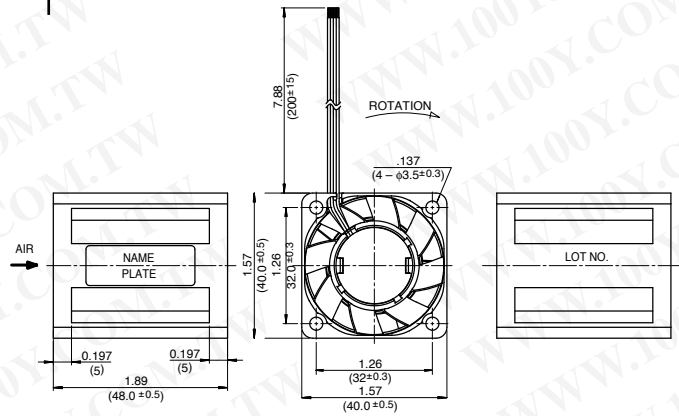


OUTLET SIDE

## Characteristic Curves



## Outline



## PWM Control Voltage

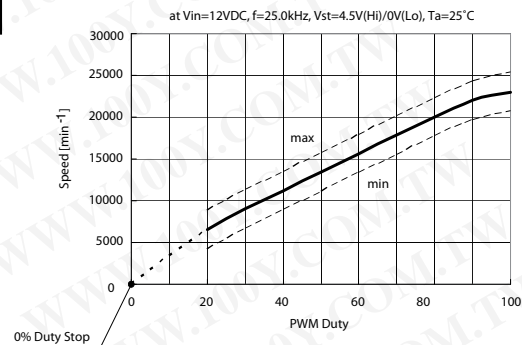
Vst = 0V ~ 0.5V Stop (On Duty 0%)

Vst = 3.3V ~ 5.0V Full Speed (On Duty 100%)

Vst = Open Full Speed

(At Ta = 25°C, rated voltage 12VDC)

## Reference PWM Duty Vs. Speed Curve



## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed     | Max. Air Flow |            | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|-----------|---------------|------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min⁻¹)*1 | CFM*1         | (m³/min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 1619FT-04W-B86- | BXX         | 12            | 10.8 ~ 13.2       | 1.05    | 12.60       | 23,000    | 28.9          | 0.82       | 3.29                 | 820.0  | 62.0   | 71   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 100,000 Hours (B00/E00)

## Material

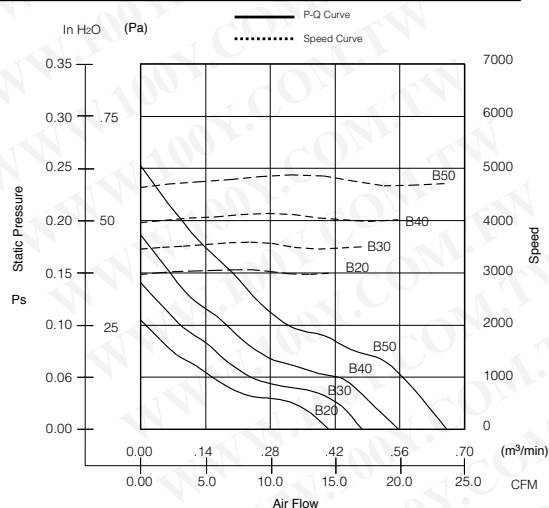
Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

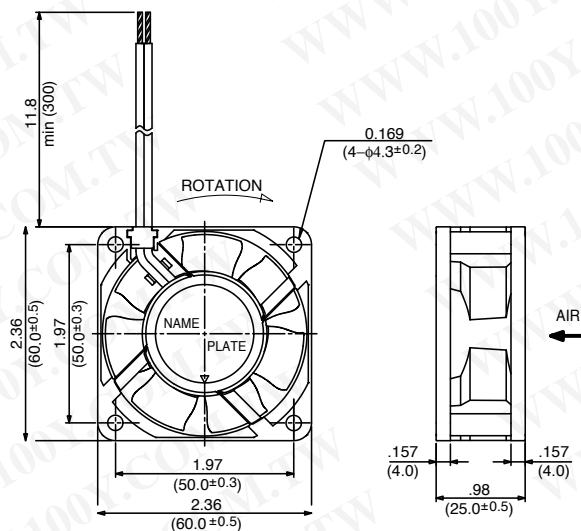
Bearing : Ball Bearing

Lead Wire : UL3385, AWG26, +Red, -Black

## Characteristic Curves

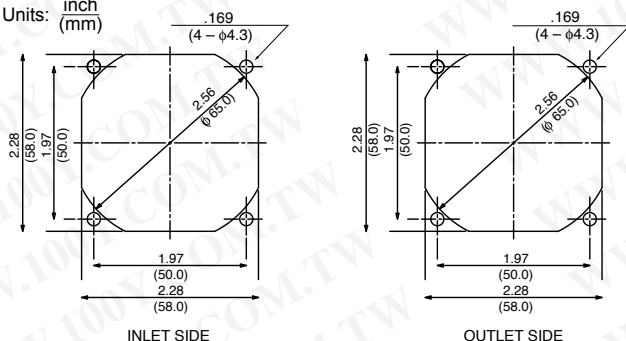


## Outline



## Panel Cut-Outs

Units: inch (mm)



## Specifications

| MODEL          | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 2410SB-04W-B20 | B/EXX       | 12            | 6 ~ 13.8          | 0.06              | 0.72              | 3000                               | 14.5              | 0.41                                | 0.10                 | 26                 | 17.0               | 56   |
| 2410SB-04W-B30 | B/EXX       | 12            | 6 ~ 13.8          | 0.08              | 0.96              | 3500                               | 16.9              | 0.48                                | 0.14                 | 35                 | 22.5               | 56   |
| 2410SB-04W-B40 | B/EXX       | 12            | 6 ~ 13.8          | 0.10              | 1.20              | 4000                               | 19.8              | 0.56                                | 0.18                 | 46                 | 26.5               | 56   |
| 2410SB-04W-B50 | B/EXX       | 12            | 6 ~ 13.8          | 0.15              | 1.80              | 4700                               | 23.3              | 0.66                                | 0.25                 | 63                 | 32.0               | 56   |
| 2410SB-05W-B20 | B/EXX       | 24            | 12.0 ~ 27.6       | 0.03              | 0.72              | 3000                               | 14.5              | 0.41                                | 0.10                 | 26                 | 17.0               | 56   |
| 2410SB-05W-B30 | B/EXX       | 24            | 12.0 ~ 27.6       | 0.04              | 0.96              | 3500                               | 16.9              | 0.48                                | 0.14                 | 35                 | 22.5               | 56   |
| 2410SB-05W-B40 | B/EXX       | 24            | 12.0 ~ 27.6       | 0.06              | 1.44              | 4000                               | 19.8              | 0.56                                | 0.18                 | 46                 | 26.5               | 56   |
| 2410SB-05W-B50 | B/EXX       | 24            | 12.0 ~ 27.6       | 0.08              | 1.92              | 4700                               | 23.3              | 0.66                                | 0.25                 | 63                 | 32.0               | 56   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# NMB-MAT

EMINEBEA.COM

## 2410RL (60<sup>□</sup> x 25<sup>L</sup>)



DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

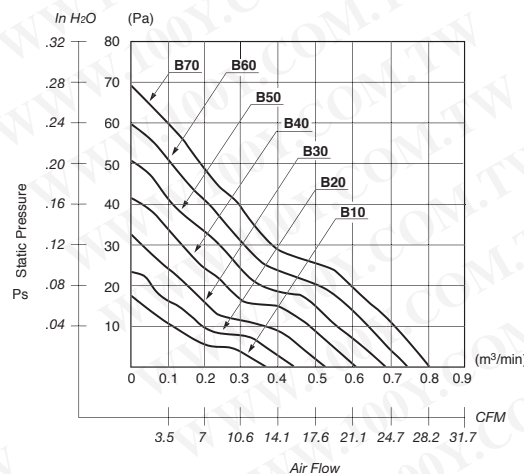
(non-condensing environment)

### Expected Life

**Failure Rate:** 10%

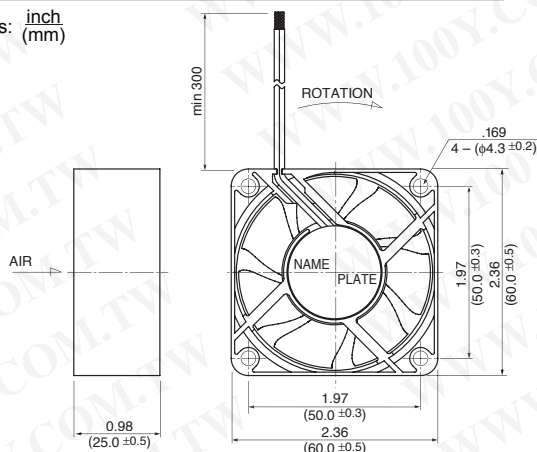
25°C 40,000 Hours (C00)

### Characteristic Curves

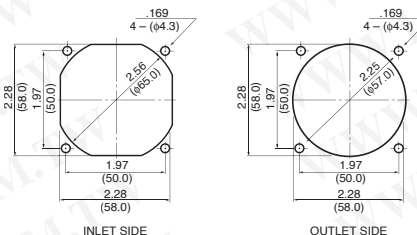


### Outline

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



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG24, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |            | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m³/min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 2410RL-04W-B10- | X00         | 12            | 6.0 ~ 13.8        | 0.05    | 0.60        | 2550                   | 13.0          | 0.37       | .06                  | 17.2   | 19.0   | 65   |
| 2410RL-04W-B20- | X00         | 12            | 6.0 ~ 13.8        | 0.08    | 0.96        | 3000                   | 15.5          | 0.44       | .09                  | 23.4   | 22.5   | 65   |
| 2410RL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.10    | 1.20        | 3550                   | 18.3          | 0.52       | .13                  | 32.3   | 27.0   | 65   |
| 2410RL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.12    | 1.56        | 4050                   | 21.5          | 0.61       | .17                  | 41.7   | 30.5   | 65   |
| 2410RL-04W-B50- | X00         | 12            | 6.0 ~ 13.8        | 0.15    | 1.80        | 4500                   | 24.0          | 0.68       | .20                  | 51.3   | 33.5   | 65   |
| 2410RL-04W-B60- | X00         | 12            | 6.0 ~ 13.8        | 0.20    | 2.40        | 4900                   | 26.4          | 0.75       | .24                  | 60.3   | 36.5   | 65   |
| 2410RL-04W-B70- | X00         | 12            | 6.0 ~ 13.8        | 0.27    | 3.24        | 5300                   | 28.5          | 0.81       | .27                  | 69.1   | 38.0   | 65   |
| 2410RL-05W-B10- | X00         | 24            | 15.0 ~ 27.6       | 0.04    | 0.96        | 2550                   | 13.0          | 0.37       | .06                  | 17.2   | 19.0   | 65   |
| 2410RL-05W-B20- | X00         | 24            | 15.0 ~ 27.6       | 0.05    | 1.20        | 3000                   | 15.5          | 0.44       | .09                  | 23.4   | 22.5   | 65   |
| 2410RL-05W-B30- | X00         | 24            | 15.0 ~ 27.6       | 0.07    | 1.68        | 3550                   | 18.3          | 0.52       | .13                  | 32.3   | 27.0   | 65   |
| 2410RL-05W-B40- | X00         | 24            | 15.0 ~ 27.6       | 0.08    | 1.92        | 4050                   | 21.5          | 0.61       | .17                  | 41.7   | 30.5   | 65   |
| 2410RL-05W-B50- | X00         | 24            | 10.0 ~ 27.6       | 0.08    | 1.92        | 4500                   | 24.0          | 0.68       | .20                  | 51.3   | 33.5   | 65   |
| 2410RL-05W-B60- | X00         | 24            | 10.0 ~ 27.6       | 0.09    | 2.16        | 4900                   | 26.4          | 0.75       | .24                  | 60.3   | 36.5   | 65   |
| 2410RL-05W-B70- | X00         | 24            | 10.0 ~ 27.6       | 0.10    | 2.40        | 5300                   | 28.5          | 0.81       | .27                  | 69.1   | 38.0   | 65   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M Ω or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 100,000 Hours (B00/E00)

## Material

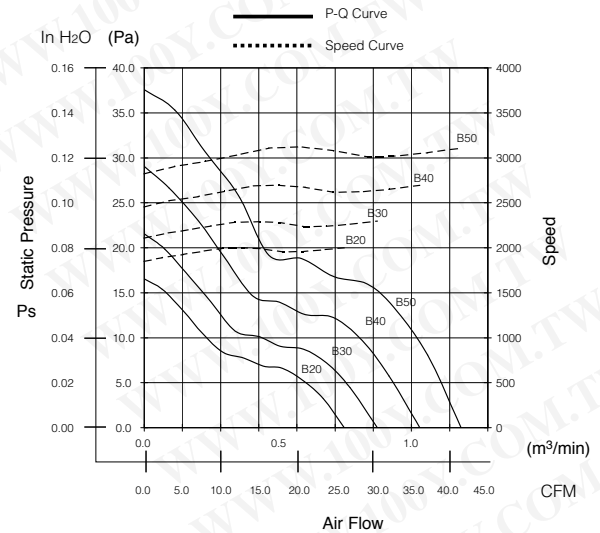
Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

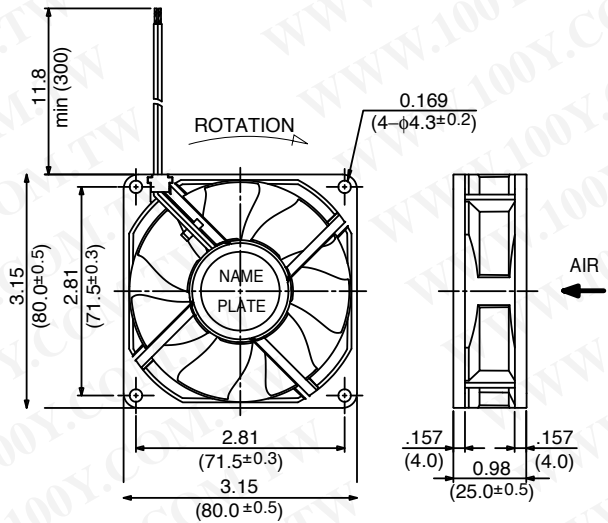
Bearing : Ball Bearing

Lead Wire : UL3385, AWG26, +Red, -Black

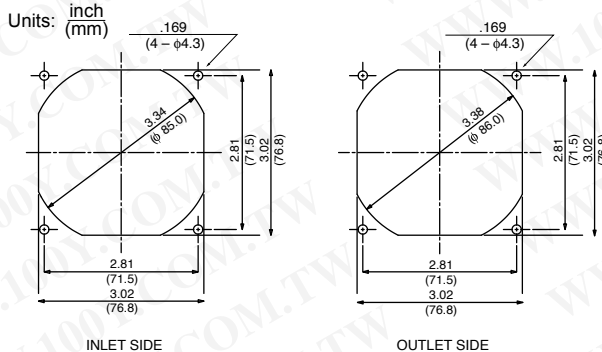
## Characteristic Curves



## Outline



## Panel Cut-Outs



## Specifications

| MODEL          | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                        | Max. Static Pressure |                    | Noise              | Mass |
|----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|------------------------|----------------------|--------------------|--------------------|------|
|                |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m³/min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 3110SB-04W-B20 | B/EXX       | 12            | 6 ~ 13.8          | 0.05              | 0.60              | 2000                               | 26.1              | 0.74                   | 0.07                 | 16.5               | 19.0               | 80   |
| 3110SB-04W-B30 | B/EXX       | 12            | 6 ~ 13.8          | 0.06              | 0.72              | 2300                               | 30.4              | 0.86                   | 0.09                 | 21.5               | 22.0               | 80   |
| 3110SB-04W-B40 | B/EXX       | 12            | 6 ~ 13.8          | 0.09              | 1.08              | 2700                               | 36.0              | 1.02                   | 0.12                 | 29.0               | 26.0               | 80   |
| 3110SB-04W-B50 | B/EXX       | 12            | 6 ~ 13.8          | 0.14              | 1.68              | 3100                               | 41.3              | 1.17                   | 0.15                 | 37.5               | 30.0               | 80   |
| 3110SB-05W-B20 | B/EXX       | 24            | 12.0 ~ 27.6       | 0.03              | 0.72              | 2000                               | 26.1              | 0.74                   | 0.07                 | 16.5               | 19.0               | 80   |
| 3110SB-05W-B30 | B/EXX       | 24            | 12.0 ~ 27.6       | 0.04              | 0.96              | 2300                               | 30.4              | 0.86                   | 0.09                 | 21.5               | 22.0               | 80   |
| 3110SB-05W-B40 | B/EXX       | 24            | 12.0 ~ 27.6       | 0.06              | 1.44              | 2700                               | 36.0              | 1.02                   | 0.12                 | 29.0               | 26.0               | 80   |
| 3110SB-05W-B50 | B/EXX       | 24            | 12.0 ~ 27.6       | 0.08              | 1.92              | 3100                               | 41.3              | 1.17                   | 0.15                 | 37.5               | 30.0               | 80   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 100,000 Hours (B00/E00)

## Material

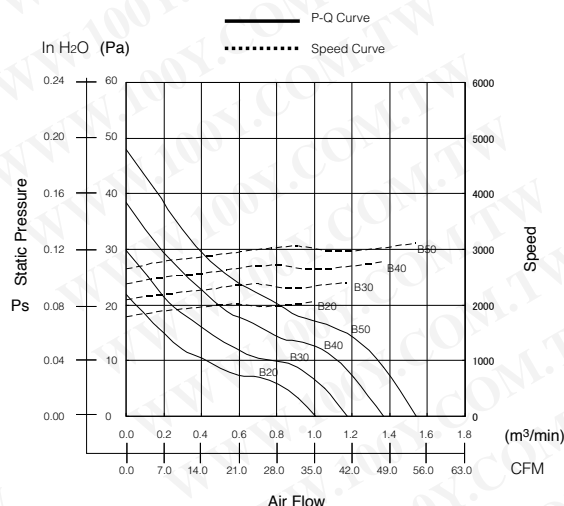
Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

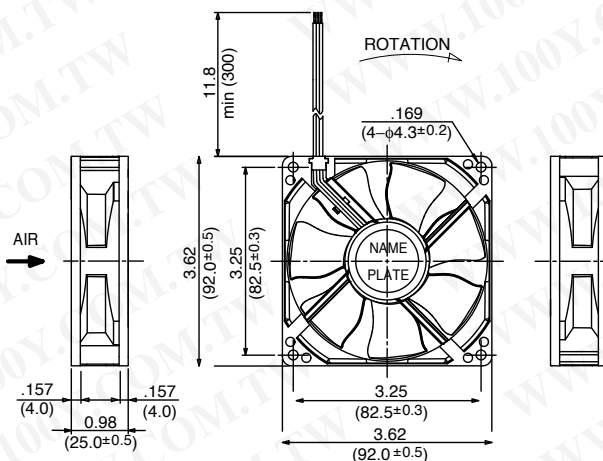
Bearing : Ball Bearing

Lead Wire : UL3385, AWG26, +Red, -Black

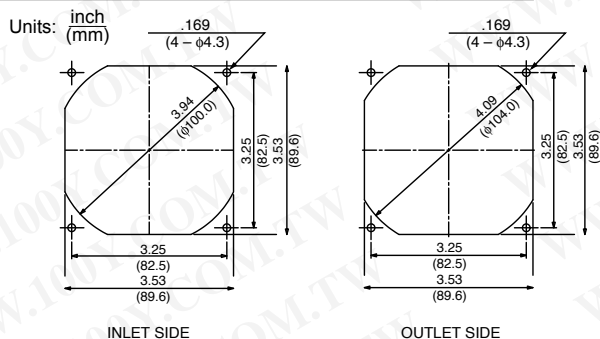
## Characteristic Curves



## Outline



## Panel Cut-Outs



## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                        | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m³/min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 3610SB-04W-B20- | B/EXX       | 12            | 6 ~ 13.8          | 0.07              | 0.84              | 2050                               | 35.7              | 1.01                   | 0.09                 | 21.5               | 25.0               | 95   |
| 3610SB-04W-B30- | B/EXX       | 12            | 6 ~ 13.8          | 0.10              | 1.20              | 2400                               | 41.3              | 1.17                   | 0.12                 | 29.5               | 28.0               | 95   |
| 3610SB-04W-B40- | B/EXX       | 12            | 6 ~ 13.8          | 0.13              | 1.56              | 2750                               | 48.4              | 1.37                   | 0.15                 | 38.4               | 32.0               | 95   |
| 3610SB-04W-B50- | B/EXX       | 12            | 6 ~ 13.8          | 0.15              | 1.80              | 3100                               | 54.4              | 1.54                   | 0.19                 | 47.9               | 35.0               | 95   |
| 3610SB-05W-B20- | B/EXX       | 24            | 12 ~ 27.6         | 0.04              | 0.84              | 2050                               | 35.7              | 1.01                   | 0.09                 | 21.5               | 25.0               | 95   |
| 3610SB-05W-B30- | B/EXX       | 24            | 12 ~ 27.6         | 0.05              | 1.20              | 2400                               | 41.3              | 1.17                   | 0.12                 | 29.5               | 28.0               | 95   |
| 3610SB-05W-B40- | B/EXX       | 24            | 12 ~ 27.6         | 0.07              | 1.56              | 2750                               | 48.4              | 1.37                   | 0.15                 | 38.4               | 32.0               | 95   |
| 3610SB-05W-B50- | B/EXX       | 24            | 12 ~ 27.6         | 0.08              | 1.80              | 3100                               | 54.4              | 1.54                   | 0.19                 | 47.9               | 35.0               | 95   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 100,000 Hours (B00/E00)

## Material

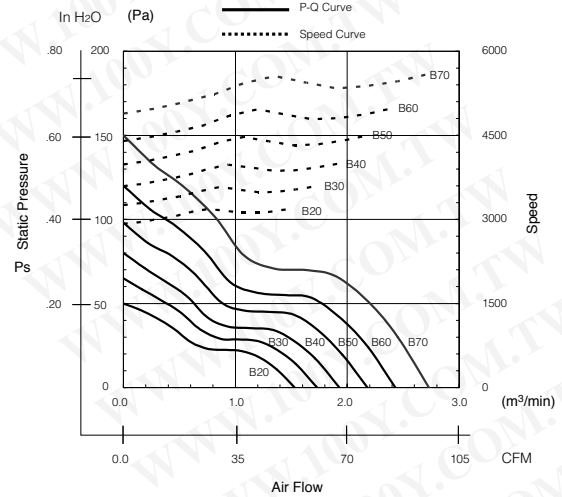
Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

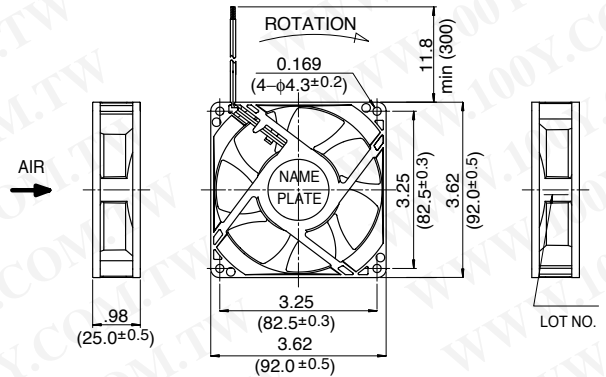
Bearing : Ball Bearing

Lead Wire : UL3385, AWG26, +Red, -Black

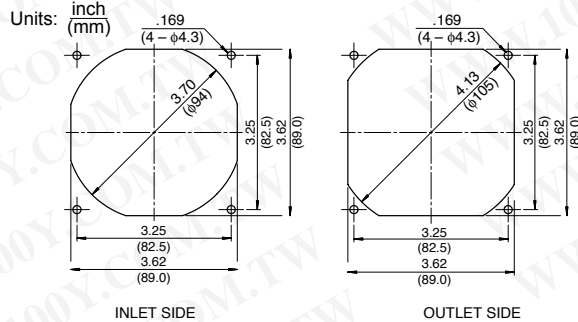
## Characteristic Curves



## Outline



## Panel Cut-Outs



## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                        | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m³/min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 3610VL-04W-B20- | B/EXX       | 12            | 7.0 ~ 13.8        | 0.18              | 2.16              | 3200                               | 54.0              | 1.53                   | .20                  | 50                 | 35.5               | 135  |
| 3610VL-04W-B30- | B/EXX       | 12            | 7.0 ~ 13.8        | 0.24              | 2.88              | 3600                               | 61.1              | 1.73                   | .26                  | 65                 | 38.5               | 135  |
| 3610VL-04W-B40- | B/EXX       | 12            | 7.0 ~ 13.8        | 0.30              | 3.60              | 4000                               | 68.1              | 1.93                   | .32                  | 80                 | 42.0               | 135  |
| 3610VL-04W-B50- | B/EXX       | 12            | 7.0 ~ 13.8        | 0.40              | 4.80              | 4500                               | 77.0              | 2.18                   | .39                  | 98                 | 45.0               | 135  |
| 3610VL-04W-B60- | B/EXX       | 12            | 7.0 ~ 13.8        | 0.52              | 6.24              | 5000                               | 85.8              | 2.43                   | .48                  | 120                | 48.0               | 135  |
| 3610VL-04W-B70- | B/EXX       | 12            | 7.0 ~ 13.8        | 0.72              | 8.64              | 5600                               | 96.4              | 2.73                   | .60                  | 150                | 51.0               | 135  |
| 3610VL-05W-B20- | B/EXX       | 24            | 14.0 ~ 27.6       | 0.11              | 2.64              | 3200                               | 54.0              | 1.53                   | .20                  | 50                 | 35.5               | 135  |
| 3610VL-05W-B30- | B/EXX       | 24            | 14.0 ~ 27.6       | 0.14              | 3.36              | 3600                               | 61.1              | 1.73                   | .26                  | 65                 | 38.5               | 135  |
| 3610VL-05W-B40- | B/EXX       | 24            | 14.0 ~ 27.6       | 0.17              | 4.08              | 4000                               | 68.1              | 1.93                   | .32                  | 80                 | 42.0               | 135  |
| 3610VL-05W-B50- | B/EXX       | 24            | 14.0 ~ 27.6       | 0.22              | 5.28              | 4500                               | 77.0              | 2.18                   | .39                  | 98                 | 45.0               | 135  |
| 3610VL-05W-B60- | B/EXX       | 24            | 14.0 ~ 27.6       | 0.28              | 6.72              | 5000                               | 85.8              | 2.43                   | .48                  | 120                | 48.0               | 135  |
| 3610VL-05W-B70- | B/EXX       | 24            | 14.0 ~ 27.6       | 0.38              | 9.12              | 5600                               | 96.4              | 2.73                   | .60                  | 150                | 51.0               | 135  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

B50 Class: -10°C ~ +40°C (Operating)

B10 ~ B40 Class: -10°C ~ +70°C (Operating)

B10 ~ B40 Class: -40°C ~ +70°C (Storage)

B50 Class: -40°C ~ +60°C (Storage)

(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 50,000 Hours (P00)

## Material

Casing : Plastic (Black) 94V-0

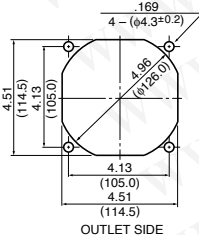
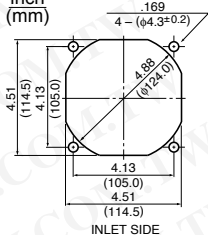
Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

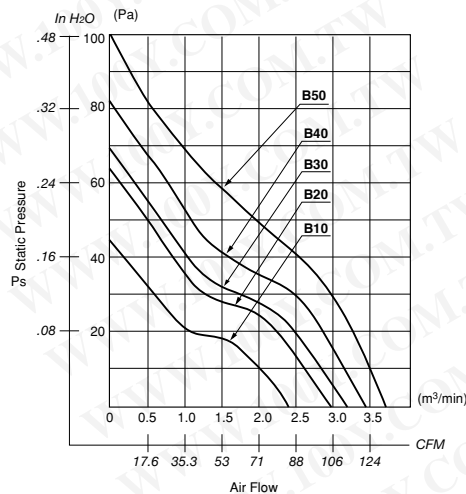
Lead Wire : UL1007, AWG24, +Red, -Black

## Panel Cut-Outs

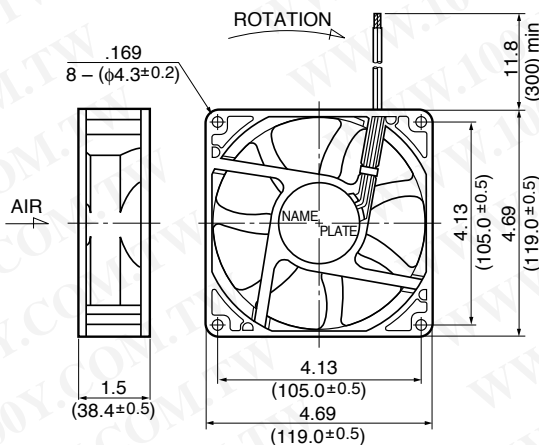
Units: inch  
(mm)



## Characteristic Curves



## Outline



## Specifications

| MODEL              | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|--------------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                    |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 4715KL-04W-B10-    | X00         | 12            | 6.0 ~ 13.8        | 0.27    | 3.24        | 2300                   | 83.6          | 2.37                    | .17                  | 44.1   | 37.0   | 260  |
| 4715KL-04W-B20-    | X00         | 12            | 6.0 ~ 13.8        | 0.40    | 4.80        | 2650                   | 97.0          | 2.75                    | .22                  | 55.9   | 41.0   | 260  |
| 4715KL-04W-B30-    | X00         | 12            | 6.0 ~ 13.8        | 0.55    | 6.60        | 2950                   | 108.0         | 3.07                    | .27                  | 68.2   | 42.5   | 260  |
| 4715KL-04W-B40-    | X00         | 12            | 6.0 ~ 13.8        | 0.70    | 8.40        | 3200                   | 118.0         | 3.34                    | .33                  | 81.4   | 46.5   | 260  |
| 4715KL-04W-B50-    | X00         | 12            | 9.5 ~ 12.6        | 1.00    | 12.00       | 3600                   | 129.9         | 3.68                    | .44                  | 110.0  | 50.0   | 260  |
| 4715KL-05W-B10-    | X00         | 24            | 10.0 ~ 27.6       | 0.15    | 3.60        | 2300                   | 83.6          | 2.37                    | .17                  | 44.1   | 37.0   | 260  |
| 4715KL-05W-B20-    | X00         | 24            | 10.0 ~ 27.6       | 0.21    | 5.04        | 2650                   | 97.0          | 2.75                    | .22                  | 55.9   | 41.0   | 260  |
| 4715KL-05W-B30-    | X00         | 24            | 10.0 ~ 27.6       | 0.31    | 7.44        | 2950                   | 108.0         | 3.07                    | .27                  | 68.2   | 42.5   | 260  |
| 4715KL-05W-B40-    | X00         | 24            | 10.0 ~ 27.6       | 0.35    | 8.40        | 3200                   | 118.0         | 3.34                    | .33                  | 81.4   | 46.5   | 260  |
| 4715KL-05W-B50-    | X00         | 24            | 18.0 ~ 25.0       | 0.50    | 12.00       | 3600                   | 130.0         | 3.68                    | .44                  | 110.0  | 50.0   | 260  |
| 4715KL-07W-B10-    | X00         | 48            | 25.0 ~ 55.2       | 0.08    | 3.84        | 2300                   | 83.6          | 2.37                    | .17                  | 44.1   | 37.0   | 260  |
| 4715KL-07W-B20-    | X00         | 48            | 25.0 ~ 55.2       | 0.11    | 5.28        | 2650                   | 97.0          | 2.75                    | .22                  | 55.9   | 41.0   | 260  |
| 4715KL-07W-B30-    | X00         | 48            | 25.0 ~ 55.2       | 0.16    | 7.68        | 2950                   | 108.0         | 3.07                    | .27                  | 68.2   | 42.5   | 260  |
| ** 4715KL-07W-B40- | X00         | 48            | 25.0 ~ 55.2       | 0.20    | 9.60        | 3200                   | 118.0         | 3.34                    | .33                  | 81.4   | 46.5   | 260  |
| 4715KL-07W-B50-    | X00         | 48            | 30.0 ~ 60.0       | 0.16    | 7.68        | 3600                   | 130.0         | 3.68                    | .44                  | 110.0  | 50.0   | 260  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

\*\* Contact NMB for availability

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

B50, B40 Class: -10°C ~ +45°C (Operating)

B30 Class: -10°C ~ +50°C (Operating)

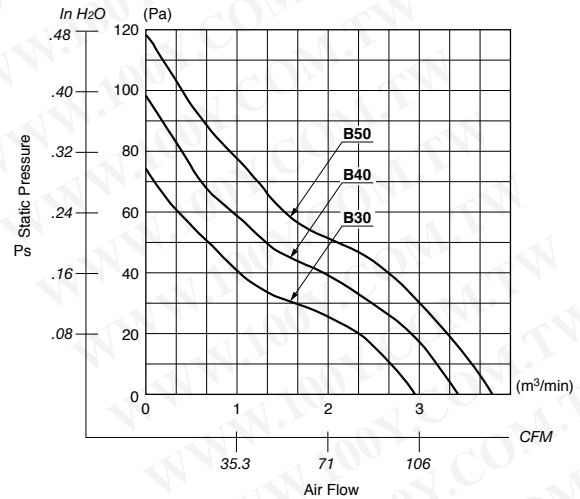
All Class: -40°C ~ +60°C (Storage)

## Expected Life

### Failure Rate: 10%

25°C 100,000 Hours (R00)

## Characteristic Curves



## Material

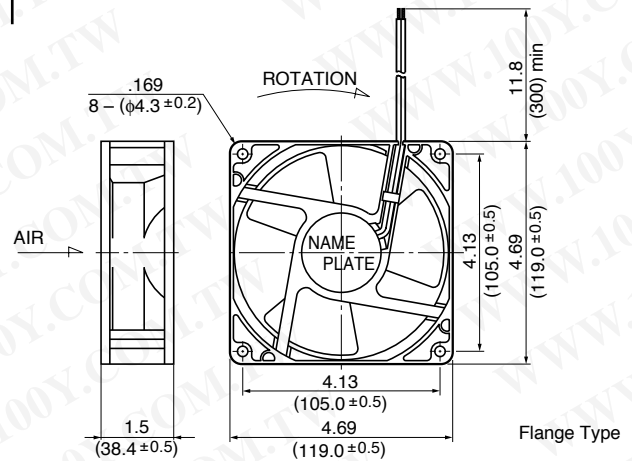
Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

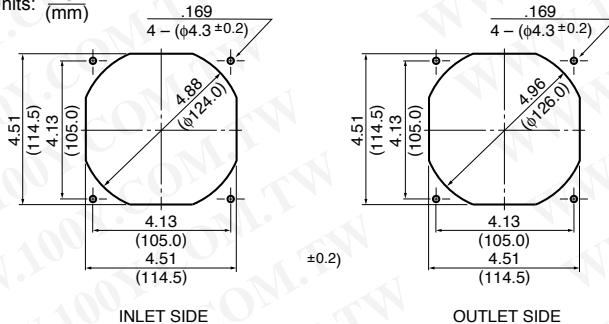
Lead Wire : UL1007, AWG26, +Red, -Black

## Outline



## Panel Cut-Outs

Units: inch (mm)



## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 4715KL-04W-B50- | R00         | 12            | 9.5 ~ 12.6        | 0.85    | 10.2        | 3900                   | 132.0         | 3.73                    | .45                  | 113.0  | 54.0   | 260  |
| 4715KL-05W-B50- | R00         | 24            | 20.0 ~ 25.0       | 0.48    | 11.5        | 3900                   | 132.0         | 3.73                    | .45                  | 113.0  | 54.0   | 260  |
| 4715KL-07W-B30- | R00         | 48            | 25.0 ~ 55.2       | 0.13    | 6.24        | 3100                   | 105.0         | 2.97                    | .30                  | 74.0   | 47.0   | 260  |
| 4715KL-07W-B40- | R00         | 48            | 25.0 ~ 50.4       | 0.16    | 7.68        | 3500                   | 121.0         | 3.44                    | .39                  | 97.5   | 51.0   | 260  |
| 4715KL-07W-B50- | R00         | 48            | 36.0 ~ 50.0       | 0.20    | 9.60        | 3900                   | 132.0         | 3.73                    | .45                  | 113.0  | 54.0   | 260  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

\*\* Contact NMB for availability

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 100,000 Hours (E00)

## Material

Casing : Plastic (Black) 94V-0

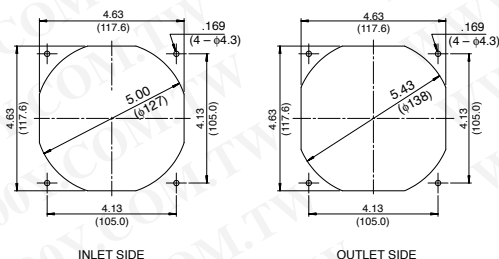
Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

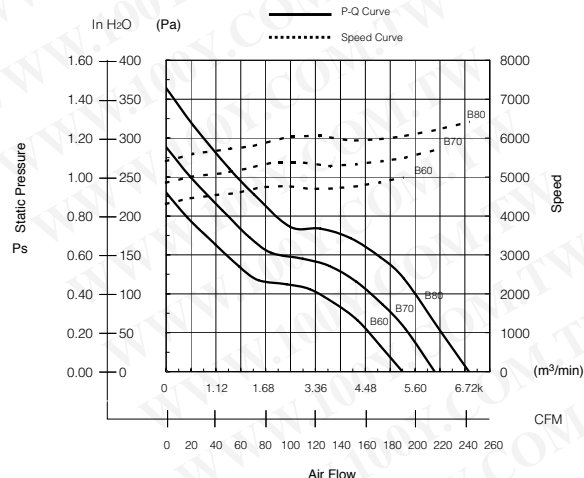
Lead Wire : UL1061, AWG24, +Red, -Black

## Panel Cut-Outs

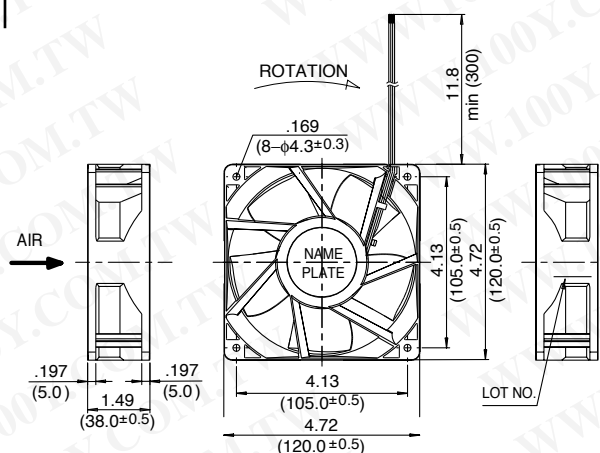
Units:  $\frac{\text{inch}}{\text{mm}}$



## Characteristic Curves



## Outline



## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 4715VL-04W-B60- | EXX         | 12            | 10.0 ~ 13.8       | 1.50              | 18.00             | 5000                               | 189.9             | 5.38                                | 0.92                 | 229                | 59.5               | 370  |
| 4715VL-04W-B70- | EXX         | 12            | 10.0 ~ 13.8       | 2.25              | 27.00             | 5700                               | 215.7             | 6.11                                | 1.15                 | 287                | 63.0               | 370  |
| 4715VL-04W-B80- | EXX         | 12            | 10.0 ~ 12.6       | 3.00              | 36.00             | 6400                               | 243.2             | 6.89                                | 1.46                 | 363                | 66.0               | 370  |
| 4715VL-05W-B50- | EXX         | 24            | 18.0 ~ 27.6       | 0.76              | 18.24             | 4700                               | 182.5             | 5.17                                | 0.83                 | 207                | 55.5               | 370  |
| 4715VL-05W-B60- | EXX         | 24            | 18.0 ~ 27.6       | 0.74              | 17.76             | 5000                               | 189.9             | 5.38                                | 0.92                 | 229                | 59.5               | 370  |
| 4715VL-05W-B70- | EXX         | 24            | 18.0 ~ 27.6       | 1.04              | 24.96             | 5700                               | 215.7             | 6.11                                | 1.15                 | 287                | 63.0               | 370  |
| 4715VL-05W-B80- | EXX         | 24            | 18.0 ~ 27.6       | 1.48              | 35.52             | 6400                               | 243.2             | 6.89                                | 1.46                 | 363                | 66.0               | 370  |
| 4715VL-07W-B50- | EXX         | 48            | 40.0 ~ 52.8       | 0.37              | 17.80             | 4700                               | 182.5             | 5.17                                | 0.83                 | 207                | 55.5               | 370  |
| 4715VL-07W-B60- | EXX         | 48            | 40.0 ~ 55.2       | 0.45              | 21.60             | 5000                               | 189.9             | 5.38                                | 0.92                 | 229                | 59.5               | 370  |
| 4715VL-07W-B70- | EXX         | 48            | 40.0 ~ 55.2       | 0.60              | 28.80             | 5700                               | 215.7             | 6.11                                | 1.15                 | 287                | 63.0               | 370  |
| 4715VL-07W-B80- | EXX         | 48            | 40.0 ~ 52.0       | 0.80              | 38.40             | 6400                               | 243.2             | 6.89                                | 1.46                 | 363                | 66.0               | 370  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

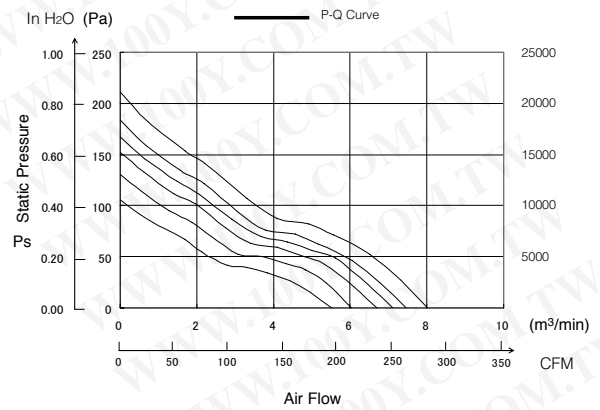
(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 100,000 Hours (D00)

## Characteristic Curves



## Material

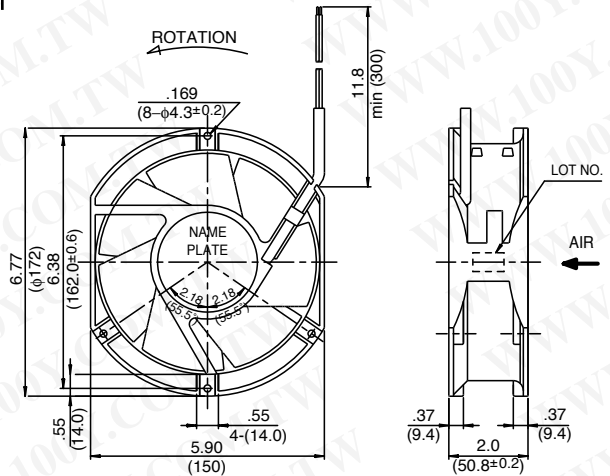
Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

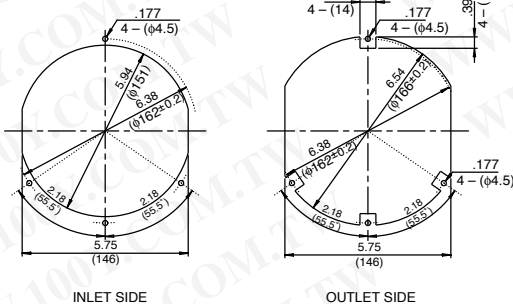
Lead Wire : UL1007, AWG26, +Red, -Black

## Outline



## Panel Cut-Outs

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



## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 5920VL-07W-B10- | DXX         | 48            | 36 ~ 56           | 0.28    | 13.44       | 2550                   | 194.5         | 5.51                    | .43                  | 106    | 51.0   | 830  |
| 5920VL-07W-B20- | DXX         | 48            | 36 ~ 56           | 0.33    | 15.84       | 2850                   | 213.2         | 6.04                    | .53                  | 131    | 54.0   | 830  |
| 5920VL-07W-B30- | DXX         | 48            | 36 ~ 56           | 0.37    | 17.76       | 3150                   | 236.5         | 6.70                    | .61                  | 152    | 57.0   | 830  |
| 5920VL-07W-B40- | DXX         | 48            | 36 ~ 56           | 0.41    | 19.68       | 3350                   | 251.0         | 7.11                    | .67                  | 167    | 59.0   | 830  |
| 5920VL-07W-B50- | DXX         | 48            | 36 ~ 56           | 0.44    | 21.10       | 3500                   | 263.3         | 7.46                    | .74                  | 184    | 61.0   | 830  |
| 5920VL-07W-B60- | DXX         | 48            | 36 ~ 56           | 0.52    | 25.00       | 3750                   | 283.1         | 8.02                    | .85                  | 211    | 63.0   | 830  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

## 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/s<sup>2</sup>\*, 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/s<sup>2</sup>, 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

- |  |           |           |           |          |           |          |          |          |          |          |          |          |           |
|--|-----------|-----------|-----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|-----------|
|  | <b>BM</b> | <b>51</b> | <b>15</b> | <b>-</b> | <b>04</b> | <b>W</b> | <b>-</b> | <b>B</b> | <b>3</b> | <b>0</b> | <b>-</b> | <b>L</b> | <b>00</b> |
|  | ①         | ②         | ③         |          | ④         | ⑤        |          | ⑥        | ⑦        | ⑧        |          | ⑨        | ⑩         |
- Series  
BM Series
  - Size  
45: 45mm  
51: 51mm  
60: 60mm
  - Thickness  
15: 15mm  
25: 25mm
  - Input Voltage  
O: Standard Current  
C: Special Current  
D~Z: Special Current  
(A.B.O. are not used)
  - Termination  
Lead Wire
  - Bearing  
B: Ball Bearing  
S: Sleeve Bearing
  - Speed  
1<2<3<4<5  
low high
  - 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
  - Classification  
L-Standard Model/Rib Type  
T-Value Model/Rib Type
  - 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)

## BG Part Numbering System

- |  |           |           |           |          |          |           |          |          |          |            |          |           |
|--|-----------|-----------|-----------|----------|----------|-----------|----------|----------|----------|------------|----------|-----------|
|  | <b>BG</b> | <b>07</b> | <b>03</b> | <b>-</b> | <b>B</b> | <b>04</b> | <b>-</b> | <b>4</b> | <b>-</b> | <b>000</b> | <b>-</b> | <b>00</b> |
|  | ①         | ②         | ③         |          | ④        | ⑤         |          | ⑥        |          | ⑦          |          | ⑧         |
- Series  
BG Series
  - Size  
07: 75mm  
08: 80mm  
09: 95mm  
10: 100mm  
12: 120mm
  - Thickness  
01: 18mm  
02: 25mm  
03: 30~33mm
  - Bearing  
B: Ball Bearing  
S: Sleeve Bearing
  - Input Voltage  
O: Standard Current  
C: Special Current  
D~Z: Special Current  
(A.B.O. are not used)
  - Speed  
1<2<3<4<5  
low high
  - Special Control Function  
0 0 0  
A B C  
A: Special Control Function  
O: Fix Speed Type  
2: 2-Speed Type  
V: Temperature Detecting Variable Speed Type  
P: PWM Control Type
  - Thermistor Mounting Position  
O: No Thermistor  
T: Thermistor On PCB
  - Output Signal  
O: No Signal  
L: Locked Rotor Alarm Signal  
S: Tachometer Signal
  - Product Number  
00: Standard  
01~ : Customized Standard  
T0: Standard Value  
T1~ : Customized Value

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M Ω or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +60°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 50,000 Hours (L00)

## Material

Casing : Plastic (Black) 94V-0

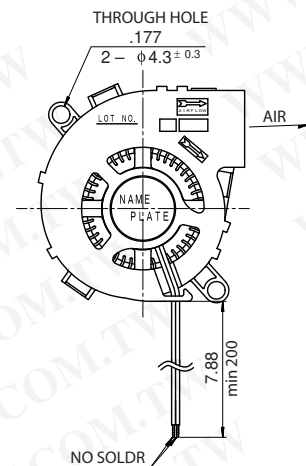
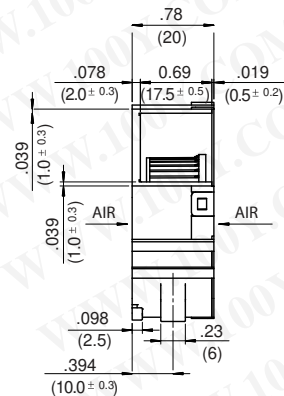
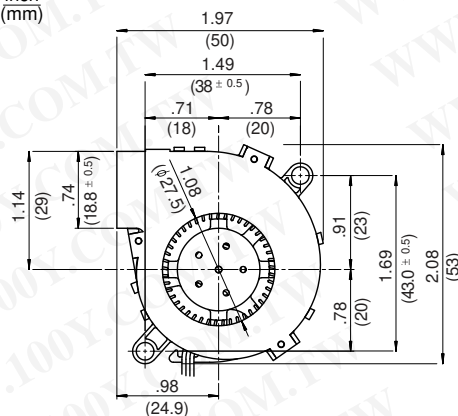
Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1061, AWG26, +Red, -Black

## Outline

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



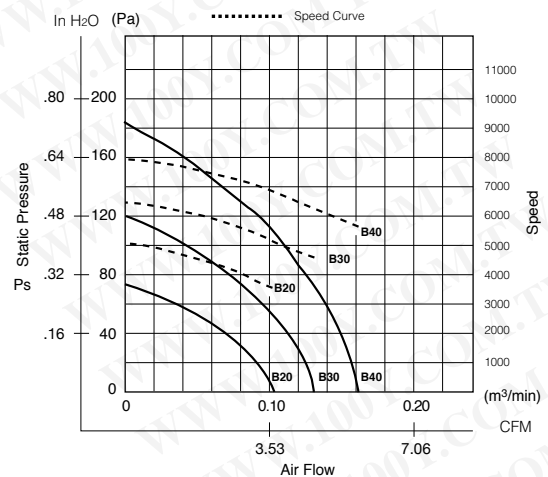
## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| BM5020-01W-B30- | L00         | 5             | 4.5 ~ 5.5         | 0.34              | 1.70              | 4600                               | 4.6               | 0.13                                | .50                  | 124                | 27.0               | 30   |
| BM5020-04W-B20- | L00         | 12            | 4.5 ~ 13.8        | 0.07              | 0.84              | 3600                               | 3.5               | 0.10                                | .30                  | 75                 | 20.0               | 30   |
| BM5020-04W-B30- | L00         | 24            | 4.5 ~ 13.8        | 0.12              | 1.44              | 4600                               | 4.6               | 0.13                                | .50                  | 124                | 27.0               | 30   |
| BM5020-04W-B40- | L00         | 24            | 4.5 ~ 13.8        | 0.18              | 2.16              | 5600                               | 5.6               | 0.16                                | .74                  | 184                | 32.0               | 30   |
| BM5020-05W-B40- | L00         | 24            | 12.0 ~ 25.2       | 0.08              | 1.92              | 5600                               | 5.6               | 0.16                                | .74                  | 184                | 32.0               | 30   |

Rotation: Counterclockwise

\*1: Average Values in Free Air

## Characteristic Curves





## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M Ω or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 70,000 Hours (00)

## Material

Casing : Plastic (Black) 94V-0

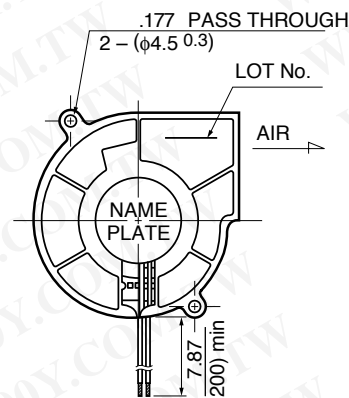
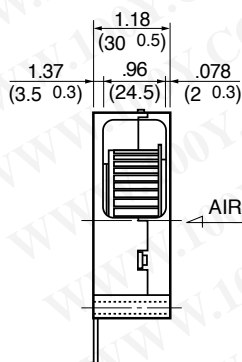
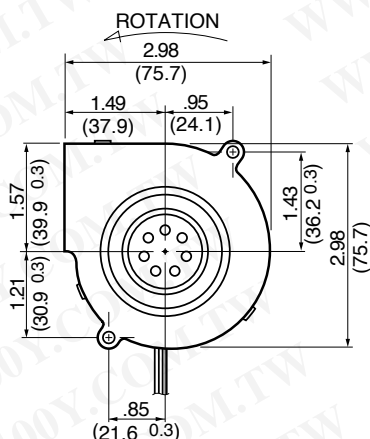
Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG26, +Red, -Black

## Outline

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



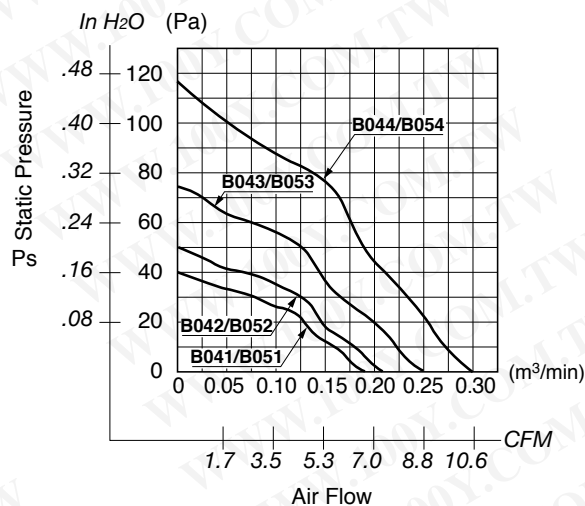
## Specifications

| MODEL            | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|------------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                  |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| BG0703-B041-000- | X0          | 12            | 6 ~ 13.8          | 0.10              | 1.20              | 2000                               | 6.7               | 0.19                                | .16                  | 40                 | 28.0               | 90   |
| BG0703-B042-000- | X0          | 12            | 6 ~ 13.8          | 0.12              | 1.44              | 2200                               | 7.4               | 0.21                                | .20                  | 50                 | 29.5               | 90   |
| BG0703-B043-000- | X0          | 12            | 6 ~ 13.8          | 0.18              | 2.16              | 2550                               | 8.8               | 0.25                                | .30                  | 75                 | 34.5               | 90   |
| BG0703-B044-000- | X0          | 12            | 6 ~ 13.0          | 0.29              | 3.48              | 3000                               | 10.6              | 0.30                                | .44                  | 110                | 38.5               | 90   |
| BG0703-B051-000- | X0          | 24            | 10 ~ 27.6         | 0.06              | 1.44              | 2000                               | 6.7               | 0.19                                | .16                  | 40                 | 28.0               | 90   |
| BG0703-B052-000- | X0          | 24            | 10 ~ 27.6         | 0.07              | 1.68              | 2200                               | 7.4               | 0.21                                | .20                  | 50                 | 29.5               | 90   |
| BG0703-B053-000- | X0          | 24            | 10 ~ 27.6         | 0.09              | 2.16              | 2550                               | 8.8               | 0.25                                | .30                  | 75                 | 34.5               | 90   |
| BG0703-B054-000- | X0          | 24            | 10 ~ 26.0         | 0.15              | 3.60              | 3000                               | 10.6              | 0.30                                | .44                  | 110                | 38.5               | 90   |

Rotation: Counterclockwise

\*1: Average Values in Free Air

## Characteristic Curves



## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +60°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 100,000 Hours (00)

## Material

Casing : Plastic (Black) 94V-0

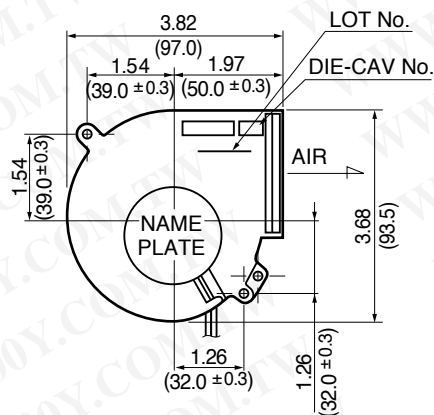
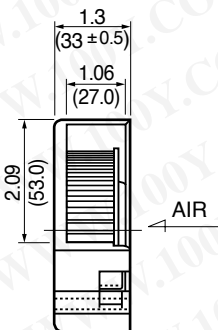
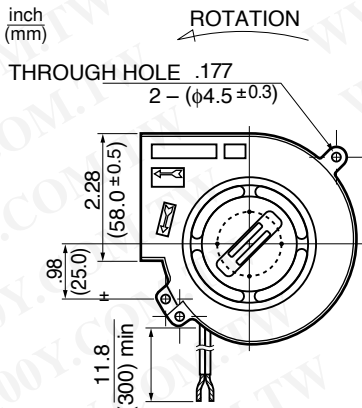
Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG26, +Red, -Black

## Outline

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



## Specifications

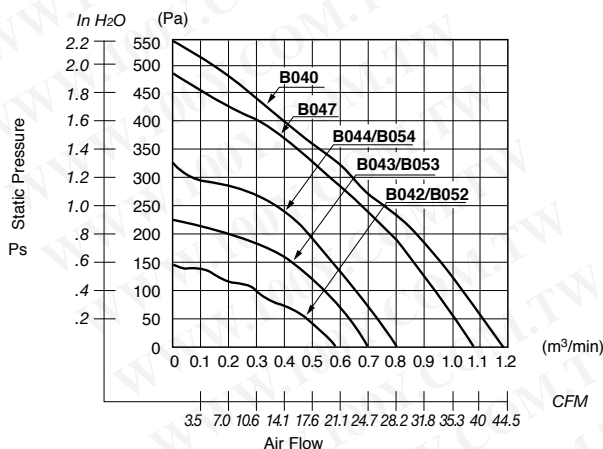
| MODEL               | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|---------------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                     |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| BG0903-B042-000-    | 00          | 12            | 8 ~ 13.8          | 0.40              | 4.80              | 2700                               | 20.5              | 0.58                                | .61                  | 152                | 47.5               | 210  |
| BG0903-B043-000-    | 00          | 12            | 8 ~ 13.8          | 0.64              | 7.68              | 3200                               | 24.7              | 0.70                                | .90                  | 225                | 51.5               | 210  |
| BG0903-B044-000-    | 00          | 12            | 8 ~ 12.6          | 1.03              | 12.40             | 3700                               | 28.6              | 0.81                                | 1.4                  | 342                | 54.5               | 210  |
| BG0903-B052-000-    | 00          | 24            | 10 ~ 27.6         | 0.21              | 5.04              | 2700                               | 20.5              | 0.58                                | .61                  | 152                | 47.5               | 210  |
| BG0903-B053-000-    | 00          | 24            | 10 ~ 27.6         | 0.33              | 7.92              | 3200                               | 24.7              | 0.70                                | .90                  | 225                | 51.5               | 210  |
| BG0903-B054-000-    | 00          | 24            | 10 ~ 25.0         | 0.49              | 11.80             | 3700                               | 28.6              | 0.81                                | 1.4                  | 342                | 54.5               | 210  |
| HIGH SPEED          |             |               |                   |                   |                   |                                    |                   |                                     |                      |                    |                    |      |
| ** BG0903-B040-000- | 00          | 12            | 10.8 ~ 13.6       | 2.4               | 28.90             | 5700                               | 42.0              | 1.19                                | 2.2                  | 549                | 65                 | 210  |
| ** BG0903-B047-000- | 00          | 12            | 10.8 ~ 12.6       | 1.6               | 19.20             | 5200                               | 38.1              | 1.08                                | 1.9                  | 482                | -                  | 210  |

Rotation: Counterclockwise

\*1: Average Values in Free Air

\*\* Contact NMB for availability

## Characteristic Curves



## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M Ω or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +60°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

### Failure Rate: 10%

25°C 100,000 Hours (00)

## Material

Casing : Plastic (Black) 94V-0

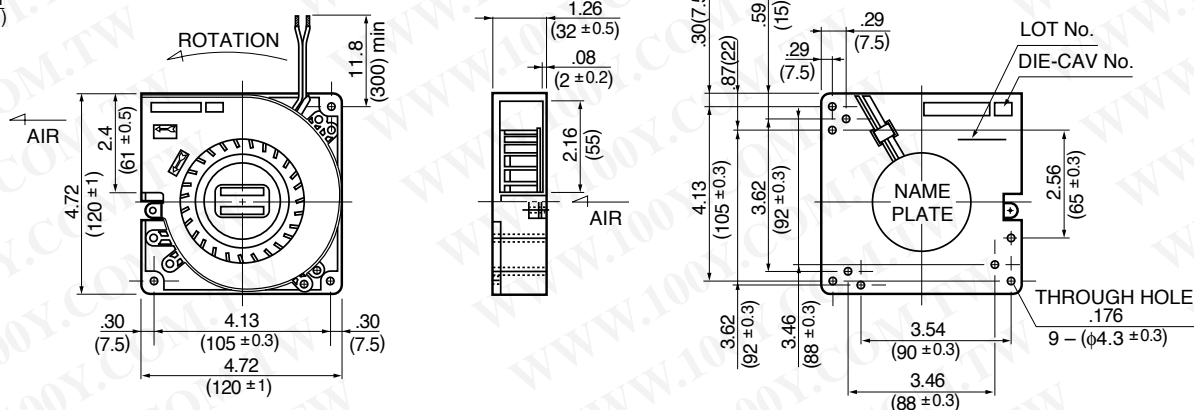
Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG26, +Red, -Black

## Outline

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



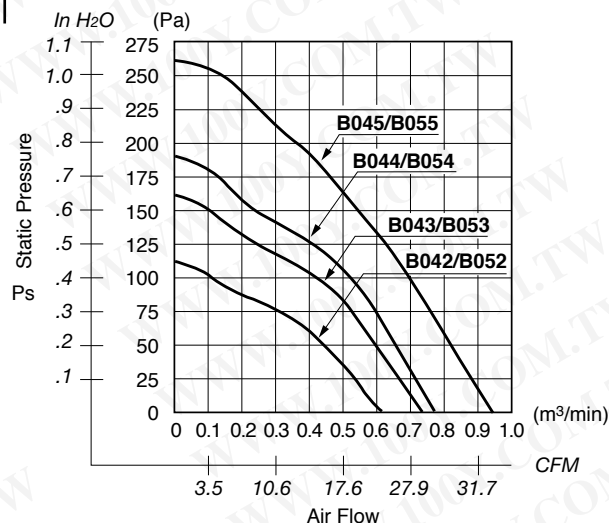
## Specifications

| MODEL            | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|------------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                  |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| BG1203-B042-000- | 00          | 12            | 6 ~ 13.8          | 0.30              | 3.60              | 1800                               | 22.2              | 0.63                                | .40                  | 100                | 41.5               | 270  |
| BG1203-B043-000- | 00          | 12            | 6 ~ 13.8          | 0.48              | 5.78              | 2100                               | 26.1              | 0.74                                | .58                  | 145                | 46.5               | 270  |
| BG1203-B044-000- | 00          | 12            | 6 ~ 13.8          | 0.65              | 7.80              | 2250                               | 28.2              | 0.80                                | .70                  | 175                | 48.5               | 270  |
| BG1203-B045-000- | 00          | 12            | 6 ~ 13.8          | 0.93              | 11.16             | 2650                               | 33.2              | 0.94                                | 1.04                 | 260                | 54.0               | 270  |
| BG1203-B052-000- | 00          | 24            | 12 ~ 27.6         | 0.17              | 4.08              | 1800                               | 22.2              | 0.63                                | .40                  | 100                | 41.5               | 270  |
| BG1203-B053-000- | 00          | 24            | 12 ~ 27.6         | 0.25              | 6.00              | 2100                               | 26.1              | 0.74                                | .56                  | 145                | 46.5               | 270  |
| BG1203-B054-000- | 00          | 24            | 12 ~ 27.6         | 0.30              | 7.20              | 2250                               | 28.2              | 0.80                                | .70                  | 175                | 48.5               | 270  |
| BG1203-B055-000- | 00          | 24            | 12 ~ 25.2         | 0.48              | 11.52             | 2650                               | 33.2              | 0.94                                | 1.04                 | 260                | 54.0               | 270  |

Rotation: Counterclockwise

\*1: Average Values in Free Air

## Characteristic Curves





Notes

Notes

## 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

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

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

## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 50,000 Hours

## Material

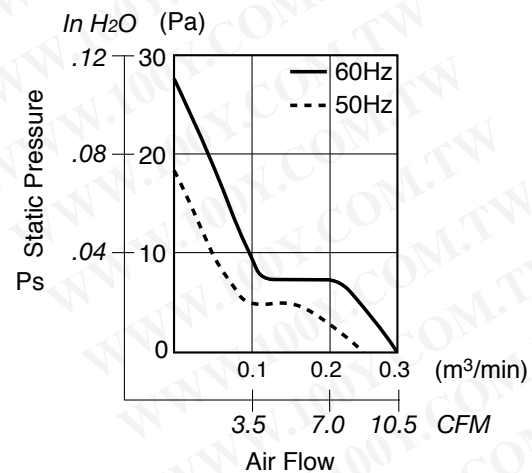
Casing : Aluminum

Impeller : Polycarbonate (Glass Fiber-Containing)

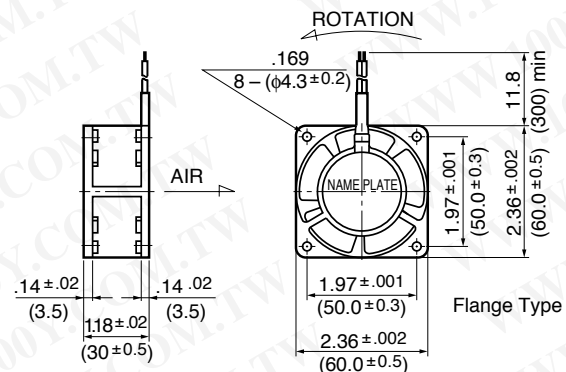
Bearing : Ball Bearing

Lead Wire : UL3266, CSA CL 1252, AWG22

## Characteristic Curves

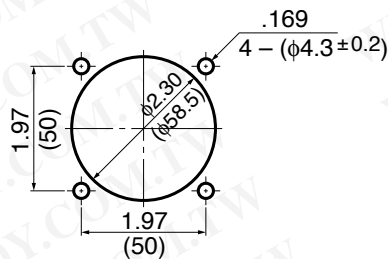


## Outline



## Panel Cut-Outs

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



INLET SIDE / OUTLET SIDE

## Specifications

| MODEL              | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power                  | Speed                              | Max. Air Flow |                        | Max. Static Pressure |                    | Noise              | Mass |
|--------------------|---------------|-----------|------------------|-------------------|------------------------------|------------------------------------|---------------|------------------------|----------------------|--------------------|--------------------|------|
|                    | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W) <sup>+10%<br/>-20%</sup> | (min <sup>-1</sup> ) <sup>*2</sup> | CFM           | (m³/min) <sup>*2</sup> | in H <sub>2</sub> O  | (Pa) <sup>*2</sup> | (dB) <sup>*2</sup> | (g)  |
| 2412PS-10W-B30-A00 | 100           | 50        | 65               | 0.080             | 6.0                          | 2000                               | 7.0           | 0.20                   | .05                  | 13.7               | 28                 | 140  |
|                    | 100           | 60        | 65               | 0.070             | 5.0                          | 2600                               | 9.1           | 0.26                   | .09                  | 22.6               | 29                 | 140  |
| 2412PS-12W-B30-A00 | 115           | 50        | 65               | 0.070             | 4.5                          | 2000                               | 7.0           | 0.20                   | .05                  | 13.7               | 28                 | 140  |
|                    | 115           | 60        | 65               | 0.060             | 4.0                          | 2600                               | 9.1           | 0.26                   | .09                  | 22.6               | 29                 | 140  |

Rotation: Counterclockwise

Airflow Outlet: Air out over struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air



## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 100,000 Hours

## Material

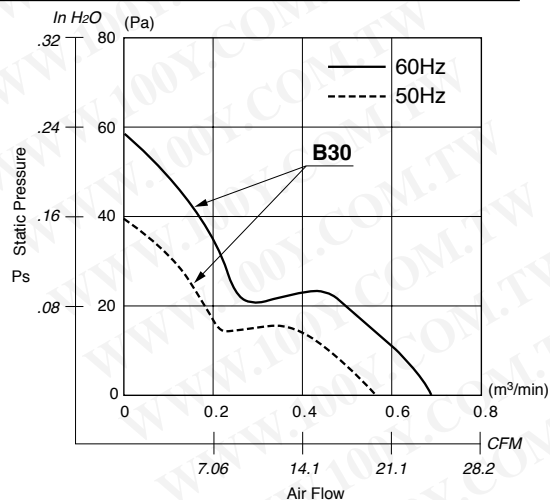
**Casing :** Aluminum

**Impeller :** Polycarbonate (Glass Fiber-Containing)

**Bearing :** Ball Bearing

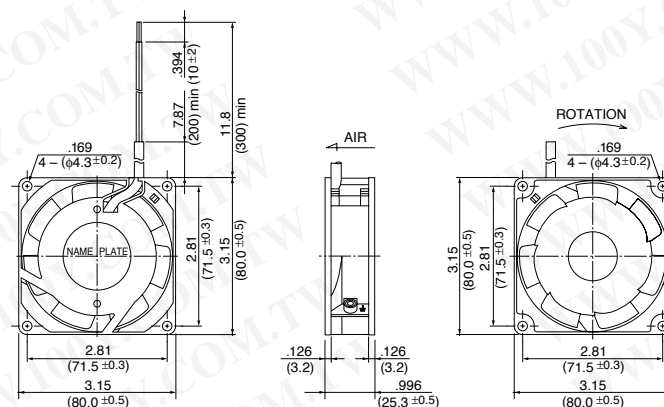
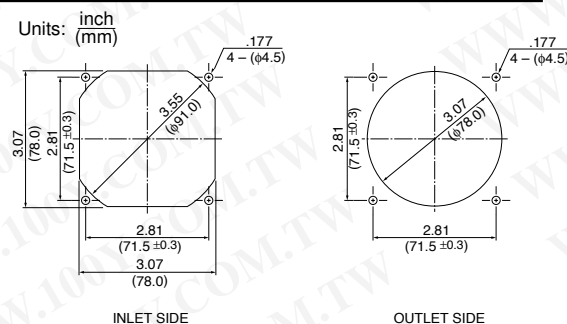
**Lead Wire :** UL3266, CSA CL 1252, AWG22

## Characteristic Curves



## Outline

## Panel Cut-Outs



## Specifications

| MODEL                 | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power       | Speed                              | Max. Air Flow |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------------|---------------|-----------|------------------|-------------------|-------------------|------------------------------------|---------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                       | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM           | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| ** 3110MS-20W-B30-B00 | 200           | 50        | 130              | 0.060             | 7.0               | 2500                               | 20.1          | 0.57                                | 0.15                 | 39.0               | 24                 | 240  |
| ** 3110MS-20W-B30-B00 | 200           | 60        | 130              | 0.050             | 6.0               | 3000                               | 24.0          | 0.68                                | 0.22                 | 55.0               | 31                 | 240  |
| ** 3110MS-22W-B30-B00 | 220           | 50        | 165              | 0.055             | 7.5               | 2500                               | 20.1          | 0.57                                | 0.15                 | 39.0               | 24                 | 240  |
| ** 3110MS-22W-B30-B00 | 220           | 60        | 165              | 0.045             | 6.5               | 3000                               | 24.0          | 0.68                                | 0.22                 | 55.0               | 31                 | 240  |
| 3110MS-23W-B30-A00    | 230           | 50        | 180              | 0.050             | 7.5               | 2500                               | 20.1          | 0.57                                | 0.15                 | 39.0               | 24                 | 240  |
| 3110MS-23W-B30-A00    | 230           | 60        | 180              | 0.045             | 6.5               | 3000                               | 24.0          | 0.68                                | 0.22                 | 55.0               | 31                 | 240  |
| ** 3110MS-24W-B30-A00 | 240           | 50        | 180              | 0.050             | 7.5               | 2500                               | 20.1          | 0.57                                | 0.15                 | 39.0               | 24                 | 240  |
| ** 3110MS-24W-B30-A00 | 240           | 60        | 180              | 0.045             | 6.5               | 3000                               | 24.0          | 0.68                                | 0.22                 | 55.0               | 31                 | 240  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air

\*\* Contact NMB for Availability

## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 50,000 Hours

## Material

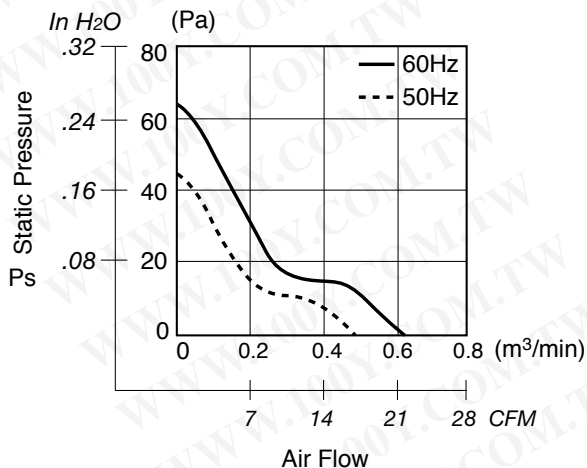
Casing : Aluminum

Impeller : Polycarbonate (Glass Fiber-Containing)

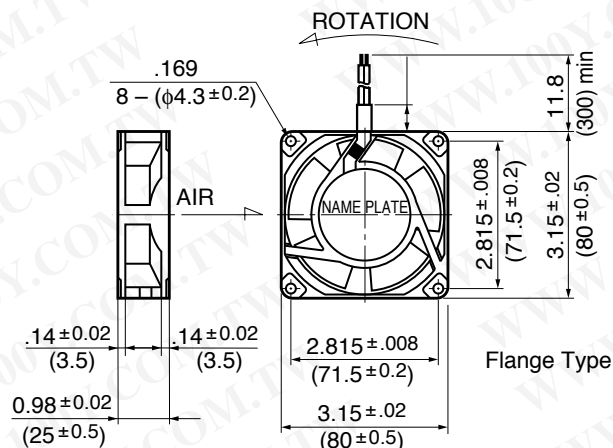
Bearing : Ball Bearing

Lead Wire : UL3266, CSA CL 1252, AWG22

## Characteristic Curves

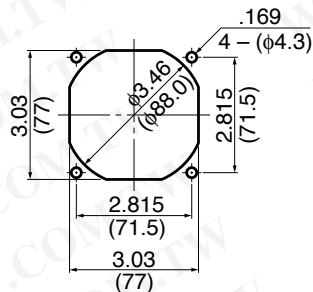


## Outline



## Panel Cut-Outs

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



INLET SIDE / OUTLET SIDE

## Specifications

| MODEL              | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power                             | Speed                              | Max. Air Flow |                                     | Max. Static Pressure |                    | Noise              | Mass |
|--------------------|---------------|-----------|------------------|-------------------|-----------------------------------------|------------------------------------|---------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                    | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W) <sup>*100%</sup><br><sup>-20%</sup> | (min <sup>-1</sup> ) <sup>*3</sup> | CFM           | (m <sup>3</sup> /min) <sup>*3</sup> | in H <sub>2</sub> O  | (Pa) <sup>*3</sup> | (dB) <sup>*2</sup> | (g)  |
| 3110PS-10W-B30-A00 | 100           | 50        | 65               | 0.090             | 6.0                                     | 2600                               | 16.2          | 0.46                                | .15                  | 39.2               | 28                 | 220  |
|                    | 100           | 60        | 65               | 0.080             | 5.0                                     | 3100                               | 19.7          | 0.56                                | .21                  | 53.9               | 33                 | 220  |
| 3110PS-12W-B30-A00 | 115           | 50        | 65               | 0.085             | 6.0                                     | 2600                               | 16.2          | 0.46                                | .15                  | 39.2               | 28                 | 220  |
|                    | 115           | 60        | 65               | 0.075             | 5.0                                     | 3100                               | 19.7          | 0.56                                | .21                  | 53.9               | 33                 | 220  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air

## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 50,000 Hours

## Material

Casing : Aluminum

Impeller : UL94V-O Reinforced Plastic

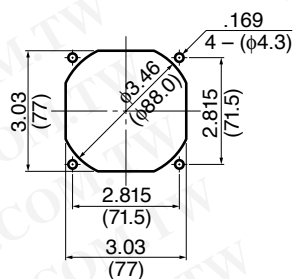
Bearing : Ball Bearing

Lead Wire : AWG22, UL3266, CSA CL1252

or Terminal : Faston #110 or equivalent

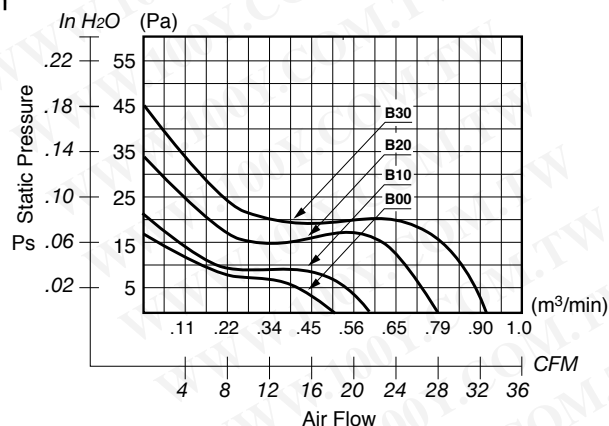
## Panel Cut-Outs

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

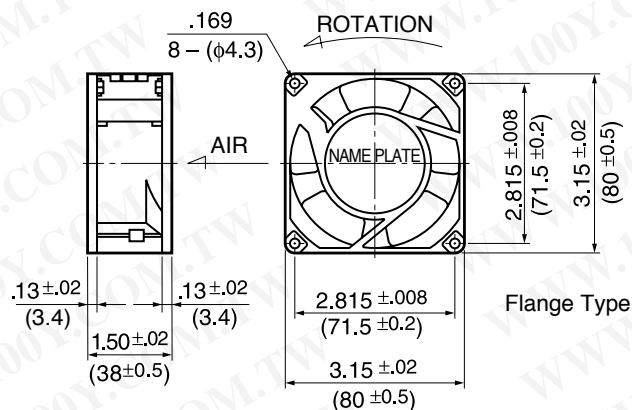


INLET SIDE / OUTLET SIDE

## Characteristic Curves



## Outline



## Specifications

| MODEL              | Rated Voltage | Frequency | Starting Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|--------------------|---------------|-----------|------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                    | (V)           | (Hz)      | (V)              | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM           | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 3115FS-12T-B00-A00 | 115           | 60        | 75               | 0.045   | 4.0         | 1850                   | 18.0          | 0.51                    | .07                  | 17.5   | 31     | 340  |
| 3115FS-12T-B10-A00 | 115           | 60        | 75               | 0.087   | 6.5         | 2100                   | 22.0          | 0.62                    | .09                  | 22.5   | 36     | 340  |
| 3115FS-12T-B20-A00 | 115           | 60        | 75               | 0.090   | 7.5         | 2700                   | 27.0          | 0.76                    | .13                  | 32.5   | 40     | 340  |
| 3115FS-12T-B30-A00 | 115           | 60        | 75               | 0.100   | 8.5         | 3250                   | 32.0          | 0.90                    | .18                  | 45.0   | 44     | 340  |
| 3115FS-23T-B10-A00 | 230           | 60        | 175              | 0.050   | 6.5         | 2050                   | 20.0          | 0.57                    | .09                  | 22.5   | 35     | 340  |
| 3115FS-23T-B20-A00 | 230           | 60        | 175              | 0.060   | 7.5         | 2750                   | 28.0          | 0.79                    | .13                  | 32.5   | 40     | 340  |
| 3115FS-23T-B30-A00 | 230           | 60        | 175              | 0.065   | 8.0         | 3250                   | 33.0          | 0.93                    | .18                  | 45.0   | 44     | 340  |

Rotation: Counterclockwise

Airflow Outlet: Air In Over Struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air



## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

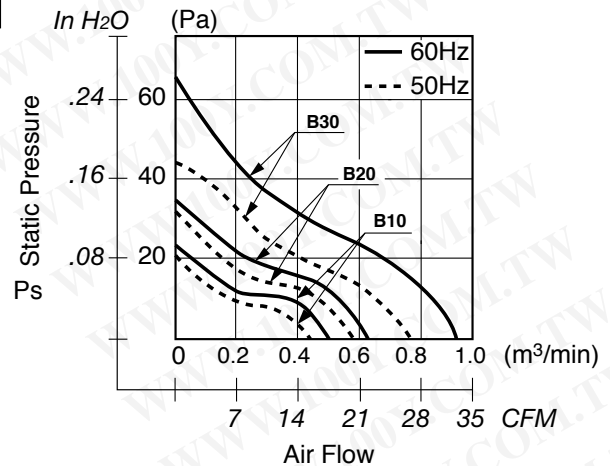
(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 50,000 Hours

## Characteristic Curves



## Material

Casing : Aluminum

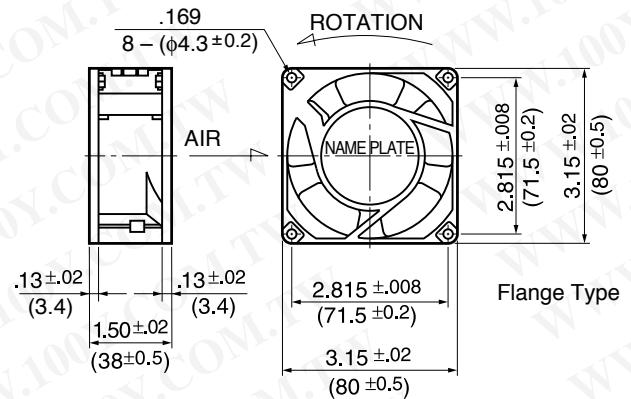
Impeller : Polycarbonate  
(Glass Fiber-Containing)

Bearing : Ball Bearing

Lead Wire : AWG22, UL3266, CSA CL1252

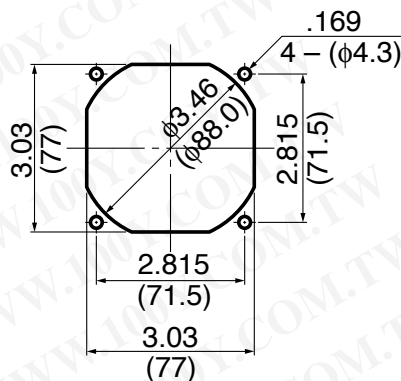
or Terminal : Faston #110 or equivalent

## Outline



## Panel Cut-Outs

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



INLET SIDE / OUTLET SIDE

## Specifications

|    | MODEL              | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power                  | Speed                              | Max. Air Flow |                                     | Max. Static Pressure |                    | Noise              | Mass |
|----|--------------------|---------------|-----------|------------------|-------------------|------------------------------|------------------------------------|---------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|    |                    | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W) <sup>+10%<br/>-20%</sup> | (min <sup>-1</sup> ) <sup>*3</sup> | CFM           | (m <sup>3</sup> /min) <sup>*3</sup> | in H <sub>2</sub> O  | (Pa) <sup>*3</sup> | (dB) <sup>*2</sup> | (g)  |
| ** | 3115PS-10T-B30-B00 | 100           | 50        | 65               | 0.170             | 9.0                          | 2700                               | 26.5          | 0.75                                | .14                  | 34.3               | 33.0               | 270  |
|    |                    | 100           | 60        | 65               | 0.120             | 7.0                          | 3200                               | 32.0          | 0.90                                | .20                  | 49.0               | 38.0               | 270  |
|    | 3115PS-12T-B30-A00 | 115           | 50        | 75               | 0.140             | 9.0                          | 2700                               | 26.5          | 0.75                                | .14                  | 34.3               | 33.0               | 270  |
|    |                    | 115           | 60        | 75               | 0.110             | 7.0                          | 3200                               | 32.0          | 0.90                                | .20                  | 49.0               | 38.0               | 270  |
| ** | 3115PS-20T-B30-B00 | 200           | 50        | 130              | 0.080             | 9.0                          | 2700                               | 26.5          | 0.75                                | .14                  | 34.3               | 33.0               | 270  |
|    |                    | 200           | 60        | 130              | 0.060             | 7.0                          | 3200                               | 32.0          | 0.90                                | .20                  | 49.0               | 38.0               | 270  |
| ** | 3115PS-22T-B30-B00 | 220           | 50        | 150              | 0.070             | 9.0                          | 2700                               | 26.5          | 0.75                                | .14                  | 34.3               | 33.0               | 270  |
|    |                    | 220           | 60        | 150              | 0.060             | 7.0                          | 3200                               | 32.0          | 0.90                                | .20                  | 49.0               | 38.0               | 270  |
|    | 3115PS-23T-B30-A00 | 230           | 50        | 150              | 0.070             | 10.0                         | 2700                               | 26.5          | 0.75                                | .14                  | 34.3               | 33.0               | 270  |
|    |                    | 230           | 60        | 150              | 0.055             | 8.0                          | 3200                               | 32.0          | 0.90                                | .20                  | 49.0               | 38.0               | 270  |
| ** | 3115PS-24T-B30-A00 | 240           | 50        | 150              | 0.075             | 12.0                         | 2700                               | 26.5          | 0.75                                | .14                  | 34.3               | 33.0               | 270  |
|    |                    | 240           | 60        | 150              | 0.060             | 9.0                          | 3200                               | 32.0          | 0.90                                | .20                  | 49.0               | 38.0               | 270  |
| ** | 3115PS-10T-B20-B00 | 100           | 50        | 65               | 0.080             | 4.5                          | 2100                               | 21.0          | 0.60                                | .10                  | 24.5               | 29.0               | 270  |
|    |                    | 100           | 60        | 65               | 0.070             | 4.0                          | 2300                               | 24.0          | 0.68                                | .12                  | 29.4               | 32.0               | 270  |
|    | 3115PS-12T-B20-A00 | 115           | 50        | 75               | 0.080             | 5.0                          | 2100                               | 21.0          | 0.60                                | .10                  | 24.5               | 29.0               | 270  |
|    |                    | 115           | 60        | 75               | 0.070             | 4.5                          | 2300                               | 24.0          | 0.68                                | .12                  | 29.4               | 32.0               | 270  |
| ** | 3115PS-20T-B20-B00 | 200           | 50        | 130              | 0.040             | 4.5                          | 2100                               | 21.0          | 0.60                                | .10                  | 24.5               | 29.0               | 270  |
|    |                    | 200           | 60        | 160              | 0.035             | 4.0                          | 2300                               | 24.0          | 0.68                                | .13                  | 31.3               | 32.0               | 270  |
| ** | 3115PS-22T-B20-B00 | 220           | 50        | 165              | 0.045             | 6.0                          | 2200                               | 22.0          | 0.63                                | .10                  | 24.5               | 29.0               | 270  |
|    |                    | 220           | 60        | 165              | 0.040             | 5.0                          | 2400                               | 25.4          | 0.72                                | .13                  | 31.3               | 34.0               | 270  |
|    | 3115PS-23T-B20-A00 | 230           | 50        | 150              | 0.050             | 7.0                          | 2200                               | 22.0          | 0.63                                | .10                  | 24.5               | 30.0               | 270  |
|    |                    | 230           | 60        | 150              | 0.045             | 6.0                          | 2500                               | 26.0          | 0.74                                | .14                  | 35.2               | 34.0               | 270  |
| ** | 3115PS-24T-B20-A00 | 240           | 50        | 150              | 0.055             | 7.0                          | 2200                               | 22.0          | 0.63                                | .10                  | 24.5               | 30.0               | 270  |
|    |                    | 240           | 60        | 150              | 0.045             | 6.0                          | 2600                               | 26.5          | 0.75                                | .15                  | 37.2               | 35.0               | 270  |
| ** | 3115PS-10T-B10-B00 | 100           | 50        | 65               | 0.065             | 4.5                          | 1700                               | 17.6          | 0.50                                | .06                  | 16.6               | 23.0               | 270  |
|    |                    | 100           | 60        | 65               | 0.055             | 4.0                          | 1900                               | 19.4          | 0.55                                | .08                  | 21.5               | 25.0               | 270  |
|    | 3115PS-12T-B10-A00 | 115           | 50        | 75               | 0.060             | 4.5                          | 1700                               | 17.6          | 0.50                                | .06                  | 16.6               | 23.0               | 270  |
|    |                    | 115           | 60        | 75               | 0.055             | 4.0                          | 1900                               | 19.4          | 0.55                                | .08                  | 21.5               | 25.0               | 270  |
| ** | 3115PS-20T-B10-B00 | 200           | 50        | 130              | 0.045             | 4.5                          | 1700                               | 17.6          | 0.50                                | .06                  | 16.6               | 23.0               | 270  |
|    |                    | 200           | 60        | 160              | 0.040             | 4.0                          | 1900                               | 19.4          | 0.55                                | .08                  | 21.5               | 26.0               | 270  |
| ** | 3115PS-22T-B10-B00 | 220           | 50        | 150              | 0.050             | 5.5                          | 1750                               | 17.6          | 0.50                                | .06                  | 16.6               | 23.0               | 270  |
|    |                    | 220           | 60        | 150              | 0.045             | 4.5                          | 2000                               | 21.2          | 0.60                                | .09                  | 23.5               | 26.0               | 270  |
|    | 3115PS-23T-B10-A00 | 230           | 50        | 150              | 0.055             | 6.0                          | 1800                               | 17.6          | 0.50                                | .07                  | 17.6               | 23.0               | 270  |
|    |                    | 230           | 60        | 150              | 0.050             | 5.0                          | 2100                               | 22.0          | 0.63                                | .10                  | 24.5               | 26.0               | 270  |
| ** | 3115PS-24T-B10-A00 | 240           | 50        | 150              | 0.060             | 7.0                          | 1800                               | 17.6          | 0.50                                | .07                  | 17.6               | 23.0               | 270  |
|    |                    | 240           | 60        | 150              | 0.055             | 6.0                          | 2150                               | 21.6          | 0.64                                | .10                  | 25.4               | 26.0               | 270  |

Rotation: Counterclockwise

\*\* Contact NMB for Availability

Airflow Outlet: Air Out Over Struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air

## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

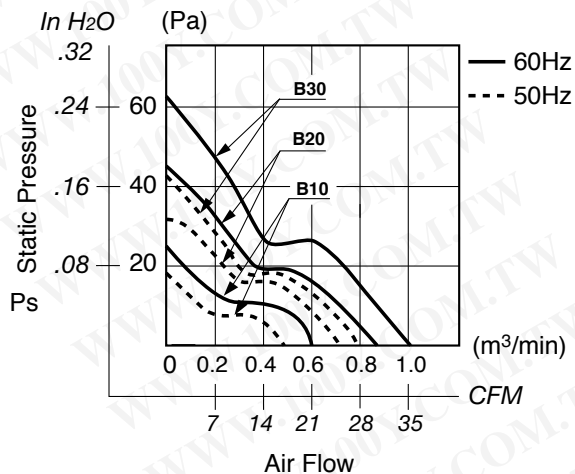
(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 50,000 Hours

## Characteristic Curves



## Material

Casing : Aluminum

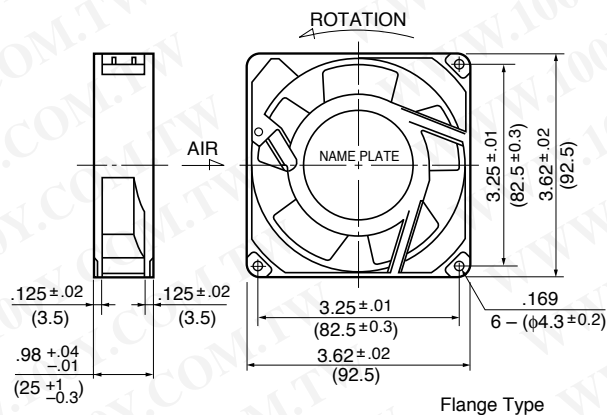
Impeller : Polycarbonate  
(Glass Fiber-Containing)

Bearing : Ball Bearing

Lead Wire : AWG22, UL3266, CSA CL1252

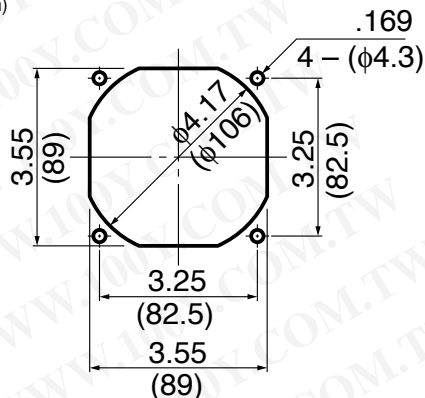
or Terminal : Faston #110 or equivalent

## Outline



## Panel Cut-Outs

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



INLET SIDE / OUTLET SIDE



## Specifications

|    | MODEL              | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power                  | Speed                              | Max. Air Flow |                                     | Max. Static Pressure |                    | Noise              | Mass |
|----|--------------------|---------------|-----------|------------------|-------------------|------------------------------|------------------------------------|---------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|    |                    | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W) <sup>+10%<br/>-20%</sup> | (min <sup>-1</sup> ) <sup>*3</sup> | CFM           | (m <sup>3</sup> /min) <sup>*3</sup> | in H <sub>2</sub> O  | (Pa) <sup>*3</sup> | (dB) <sup>*2</sup> | (g)  |
| ** | 3610PS-10T-B30-B00 | 100           | 50        | 65               | 0.190             | 13.0                         | 2600                               | 28.0          | 0.80                                | .17                  | 43.1               | 33.5               | 300  |
|    |                    | 100           | 60        | 65               | 0.150             | 10.0                         | 3100                               | 34.5          | 0.98                                | .24                  | 60.7               | 38.0               | 300  |
|    | 3610PS-12T-B30-A00 | 115           | 50        | 75               | 0.170             | 12.0                         | 2600                               | 28.0          | 0.80                                | .17                  | 43.1               | 33.5               | 300  |
|    |                    | 115           | 60        | 75               | 0.130             | 9.0                          | 3100                               | 34.5          | 0.98                                | .24                  | 60.7               | 38.0               | 300  |
| ** | 3610PS-20T-B30-B00 | 200           | 50        | 130              | 0.100             | 13.0                         | 2600                               | 28.0          | 0.80                                | .17                  | 43.1               | 33.5               | 300  |
|    |                    | 200           | 60        | 130              | 0.080             | 10.0                         | 3100                               | 34.5          | 0.98                                | .24                  | 60.7               | 38.0               | 300  |
| ** | 3610PS-22T-B30-B00 | 220           | 50        | 165              | 0.100             | 13.0                         | 2600                               | 28.0          | 0.80                                | .17                  | 43.1               | 34.0               | 300  |
|    |                    | 220           | 60        | 165              | 0.080             | 10.0                         | 3100                               | 34.5          | 0.98                                | .24                  | 60.7               | 39.0               | 300  |
|    | 3610PS-23T-B30-A00 | 230           | 50        | 180              | 0.090             | 13.0                         | 2600                               | 28.0          | 0.80                                | .17                  | 43.1               | 34.0               | 300  |
|    |                    | 230           | 60        | 180              | 0.070             | 10.0                         | 3100                               | 34.5          | 0.98                                | .24                  | 60.7               | 39.0               | 300  |
| ** | 3610PS-24T-B30-A00 | 240           | 50        | 180              | 0.085             | 13.0                         | 2600                               | 28.0          | 0.80                                | .17                  | 43.1               | 34.0               | 300  |
|    |                    | 240           | 60        | 180              | 0.065             | 10.0                         | 3100                               | 34.5          | 0.98                                | .24                  | 60.7               | 39.0               | 300  |
| ** | 3610PS-10T-B20-B00 | 100           | 50        | 65               | 0.095             | 7.0                          | 2100                               | 21.0          | 0.60                                | .11                  | 27.4               | 30.0               | 300  |
|    |                    | 100           | 60        | 65               | 0.085             | 6.0                          | 2500                               | 28.0          | 0.80                                | .16                  | 39.2               | 35.0               | 300  |
|    | 3610PS-12T-B20-A00 | 115           | 50        | 75               | 0.095             | 7.0                          | 2100                               | 21.0          | 0.60                                | .12                  | 29.4               | 30.0               | 300  |
|    |                    | 115           | 60        | 75               | 0.090             | 6.0                          | 2500                               | 28.0          | 0.80                                | .16                  | 39.2               | 35.0               | 300  |
| ** | 3610PS-20T-B20-B00 | 200           | 50        | 130              | 0.060             | 7.0                          | 2100                               | 22.9          | 0.65                                | .11                  | 27.4               | 30.0               | 300  |
|    |                    | 200           | 60        | 160              | 0.050             | 6.0                          | 2500                               | 28.0          | 0.80                                | .16                  | 39.0               | 35.0               | 300  |
| ** | 3610PS-22T-B20-B00 | 220           | 50        | 165              | 0.050             | 6.5                          | 2100                               | 21.0          | 0.60                                | .12                  | 29.4               | 30.0               | 300  |
|    |                    | 220           | 60        | 165              | 0.050             | 5.5                          | 2500                               | 28.0          | 0.80                                | .15                  | 38.2               | 35.0               | 300  |
|    | 3610PS-23T-B20-A00 | 230           | 50        | 180              | 0.050             | 7.0                          | 2100                               | 21.0          | 0.60                                | .12                  | 29.4               | 30.0               | 300  |
|    |                    | 230           | 60        | 180              | 0.050             | 6.0                          | 2500                               | 28.0          | 0.80                                | .16                  | 39.2               | 35.0               | 300  |
| ** | 3610PS-24T-B20-A00 | 240           | 50        | 180              | 0.050             | 9.0                          | 2100                               | 21.0          | 0.60                                | .12                  | 29.4               | 30.0               | 300  |
|    |                    | 240           | 60        | 180              | 0.050             | 8.0                          | 2500                               | 28.0          | 0.80                                | .16                  | 39.2               | 35.0               | 300  |
| ** | 3610PS-10T-B10-B00 | 100           | 50        | 65               | 0.100             | 7.0                          | 1450                               | 16.0          | 0.46                                | .05                  | 13.7               | 23.0               | 300  |
|    |                    | 100           | 60        | 65               | 0.090             | 6.0                          | 1800                               | 20.0          | 0.58                                | .08                  | 19.6               | 26.0               | 300  |
|    | 3610PS-12T-B10-A00 | 115           | 50        | 75               | 0.090             | 7.0                          | 1450                               | 16.0          | 0.46                                | .05                  | 13.7               | 22.0               | 300  |
|    |                    | 115           | 60        | 75               | 0.080             | 6.0                          | 1800                               | 20.0          | 0.58                                | .08                  | 19.6               | 25.0               | 300  |
| ** | 3610PS-20T-B10-B00 | 200           | 50        | 130              | 0.045             | 7.0                          | 1500                               | 16.0          | 0.46                                | .05                  | 13.7               | 24.0               | 300  |
|    |                    | 200           | 60        | 130              | 0.040             | 6.0                          | 1900                               | 21.0          | 0.60                                | .08                  | 19.6               | 27.0               | 300  |
| ** | 3610PS-22T-B10-B00 | 220           | 50        | 165              | 0.050             | 8.0                          | 1450                               | 16.0          | 0.46                                | .05                  | 13.7               | 23.0               | 300  |
|    |                    | 220           | 60        | 165              | 0.040             | 7.0                          | 1800                               | 21.0          | 0.60                                | .08                  | 19.6               | 26.0               | 300  |
|    | 3610PS-23T-B10-A00 | 230           | 50        | 180              | 0.050             | 7.0                          | 1450                               | 16.0          | 0.46                                | .05                  | 13.7               | 22.0               | 300  |
|    |                    | 230           | 60        | 180              | 0.040             | 6.0                          | 1800                               | 20.0          | 0.58                                | .08                  | 19.6               | 26.0               | 300  |
| ** | 3610PS-24T-B10-A00 | 240           | 50        | 180              | 0.050             | 8.0                          | 1450                               | 16.0          | 0.46                                | .05                  | 13.7               | 24.0               | 300  |
|    |                    | 240           | 60        | 180              | 0.045             | 7.0                          | 1800                               | 21.0          | 0.60                                | .08                  | 19.6               | 27.0               | 300  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*\* Contact NMB for Availability

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air

## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

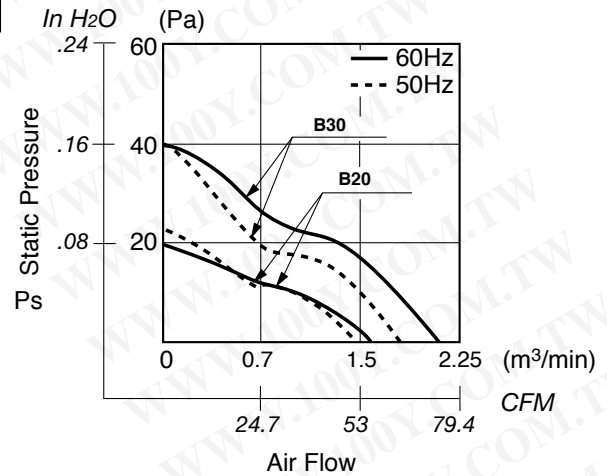
-40°C ~ +70°C (Storage)

## Expected Life

**Failure Rate:** 10%

25°C 50,000 Hours

## Characteristic Curves



## Material

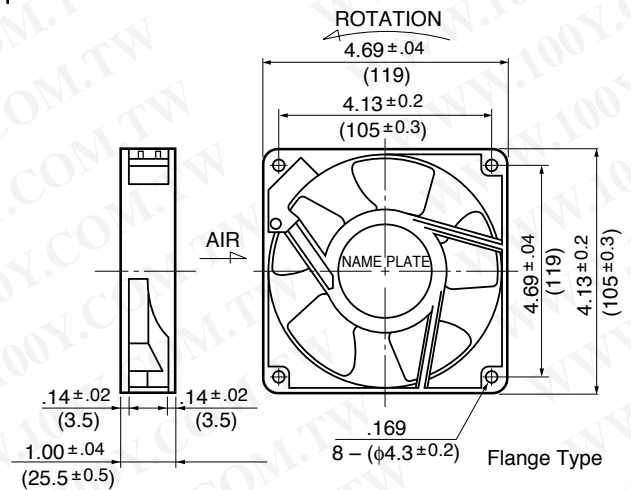
Casing : Aluminum

Impeller : Polycarbonate (Glass Fiber-Containing)

Bearing : Ball Bearing

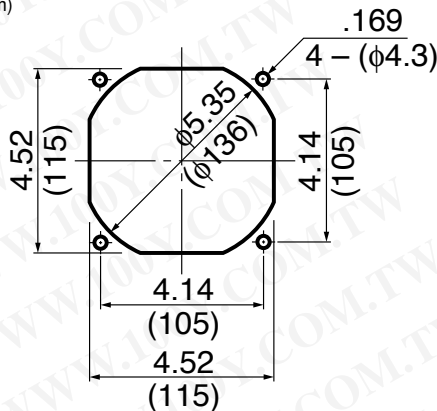
Terminal : Faston #110 or equivalent

## Outline



## Panel Cut-Outs

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



INLET SIDE / OUTLET SIDE

## Specifications

|    | MODEL              | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power                  | Speed                              | Max. Air Flow |                                     | Max. Static Pressure |                    | Noise              | Mass |
|----|--------------------|---------------|-----------|------------------|-------------------|------------------------------|------------------------------------|---------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|    |                    | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W) <sup>+10%<br/>-20%</sup> | (min <sup>-1</sup> ) <sup>*3</sup> | CFM           | (m <sup>3</sup> /min) <sup>*3</sup> | in H <sub>2</sub> O  | (Pa) <sup>*3</sup> | (dB) <sup>*2</sup> | (g)  |
| ** | 4710PS-10T-B30-B00 | 100           | 50        | 65               | 0.220             | 14.0                         | 2300                               | 63.5          | 1.80                                | .16                  | 41.1               | 34.0               | 360  |
|    |                    | 100           | 60        | 65               | 0.180             | 11.0                         | 2700                               | 70.6          | 2.00                                | .16                  | 41.1               | 38.0               | 360  |
|    | 4710PS-12T-B30-A00 | 115           | 50        | 75               | 0.190             | 14.0                         | 2300                               | 63.5          | 1.80                                | .16                  | 41.1               | 34.0               | 360  |
|    |                    | 115           | 60        | 75               | 0.160             | 11.0                         | 2700                               | 70.6          | 2.00                                | .16                  | 41.1               | 38.0               | 360  |
| ** | 4710PS-20T-B30-B00 | 200           | 50        | 130              | 0.110             | 14.0                         | 2300                               | 63.5          | 1.80                                | .16                  | 41.1               | 34.0               | 360  |
|    |                    | 200           | 60        | 130              | 0.090             | 11.0                         | 2700                               | 70.6          | 2.00                                | .16                  | 41.1               | 38.0               | 360  |
| ** | 4710PS-22T-B30-B00 | 220           | 50        | 175              | 0.100             | 14.0                         | 2300                               | 63.5          | 1.80                                | .16                  | 41.1               | 34.0               | 360  |
|    |                    | 220           | 60        | 175              | 0.080             | 11.0                         | 2700                               | 70.6          | 2.00                                | .16                  | 41.1               | 38.0               | 360  |
|    | 4710PS-23T-B30-A00 | 230           | 50        | 175              | 0.100             | 14.0                         | 2300                               | 63.5          | 1.80                                | .16                  | 41.1               | 34.0               | 360  |
|    |                    | 230           | 60        | 175              | 0.090             | 11.0                         | 2700                               | 70.6          | 2.00                                | .16                  | 41.1               | 38.0               | 360  |
| ** | 4710PS-24T-B30-A00 | 240           | 50        | 130              | 0.100             | 15.0                         | 2300                               | 60.0          | 1.70                                | .16                  | 41.1               | 34.0               | 360  |
|    |                    | 240           | 60        | 130              | 0.080             | 13.0                         | 2700                               | 70.6          | 2.00                                | .16                  | 41.1               | 38.0               | 360  |
| ** | 4710PS-10T-B20-B00 | 100           | 50        | 65               | 0.120             | 8.0                          | 1900                               | 49.4          | 1.40                                | .08                  | 19.6               | 29.0               | 360  |
|    |                    | 100           | 60        | 65               | 0.100             | 7.0                          | 2100                               | 53.0          | 1.50                                | .086                 | 21.5               | 30.0               | 360  |
|    | 4710PS-12T-B20-A00 | 115           | 50        | 75               | 0.100             | 8.0                          | 1900                               | 49.4          | 1.40                                | .09                  | 23.5               | 29.0               | 360  |
|    |                    | 115           | 60        | 75               | 0.090             | 7.0                          | 2000                               | 53.0          | 1.50                                | .08                  | 21.5               | 30.0               | 360  |
| ** | 4710PS-20T-B20-B00 | 200           | 50        | 130              | 0.070             | 9.0                          | 1900                               | 45.9          | 1.30                                | .08                  | 19.6               | 29.0               | 360  |
|    |                    | 200           | 60        | 160              | 0.060             | 8.0                          | 2000                               | 53.0          | 1.50                                | .086                 | 21.5               | 30.0               | 360  |
| ** | 4710PS-22T-B20-B00 | 220           | 50        | 175              | 0.060             | 9.0                          | 1900                               | 49.4          | 1.40                                | .08                  | 19.6               | 29.0               | 360  |
|    |                    | 220           | 60        | 175              | 0.050             | 8.0                          | 2100                               | 53.0          | 1.50                                | .086                 | 21.5               | 30.0               | 360  |
| ** | 4710PS-23T-B20-A00 | 230           | 50        | 175              | 0.060             | 9.0                          | 1900                               | 49.4          | 1.40                                | .09                  | 23.5               | 29.0               | 360  |
|    |                    | 230           | 60        | 175              | 0.050             | 8.0                          | 2100                               | 53.0          | 1.50                                | .08                  | 21.5               | 30.0               | 360  |
|    | 4710PS-24T-B20-A00 | 240           | 50        | 140              | 0.060             | 9.0                          | 1900                               | 49.4          | 1.40                                | .08                  | 19.6               | 29.0               | 360  |
|    |                    | 240           | 60        | 140              | 0.050             | 8.0                          | 2100                               | 53.0          | 1.50                                | .086                 | 21.5               | 30.0               | 360  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*\* Contact NMB for Availability

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air



## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 100,000 Hours (D00)

## Material

Casing : Aluminum Alloy

Impeller : UL94V-O Reinforced Plastic

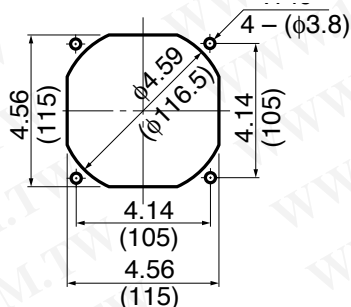
Bearing : Ball Bearing

Lead Wire : AWG22, UL3266, CSA CL1252

or Terminal : Faston #110 or equivalent

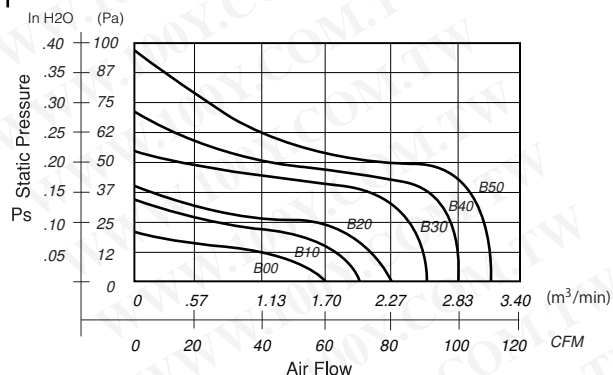
## Panel Cut-Outs

Units: inch  
(mm)

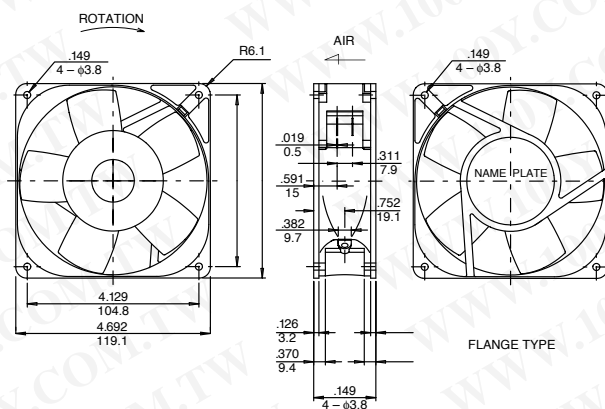


INLET SIDE / OUTLET SIDE

## Characteristic Curves



## Outline



## Specifications

| MODEL              | Rated Voltage | Frequency | Starting Voltage | Current | Input Power | Speed                  | Max. Air Flow |            | Max. Static Pressure |        | Noise  | Mass |
|--------------------|---------------|-----------|------------------|---------|-------------|------------------------|---------------|------------|----------------------|--------|--------|------|
|                    | (V)           | (Hz)      | (V)              | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM           | (m³/min)*1 | in H2O               | (Pa)*1 | (dB)*1 | (g)  |
| 4715FS-12T-B00-D00 | 115           | 60        | 75               | 0.090   | 7.5         | 1700                   | 60.0          | 1.70       | .08                  | 20.0   | 31     | 550  |
| 4715FS-12T-B10-D00 | 115           | 60        | 75               | 0.110   | 10.0        | 1900                   | 70.0          | 1.98       | .12                  | 30.0   | 33     | 550  |
| 4715FS-12T-B20-D00 | 115           | 60        | 75               | 0.100   | 9.8         | 2300                   | 80.0          | 2.25       | .13                  | 32.5   | 36     | 550  |
| 4715FS-12T-B30-D00 | 115           | 60        | 75               | 0.180   | 14.5        | 2650                   | 90.0          | 2.50       | .22                  | 55.0   | 39     | 550  |
| 4715FS-12T-B40-D00 | 115           | 60        | 75               | 0.170   | 14.0        | 2800                   | 100.0         | 2.80       | .29                  | 72.5   | 42     | 550  |
| 4715FS-12T-B50-D00 | 115           | 60        | 75               | 0.190   | 14.4        | 3100                   | 110.0         | 3.10       | .37                  | 92.5   | 45     | 550  |
| 4715FS-23T-B00-D00 | 230           | 60        | 175              | 0.030   | 5.5         | 1600                   | 55.0          | 1.50       | .07                  | 17.5   | 31     | 550  |
| 4715FS-23T-B10-D00 | 230           | 60        | 175              | 0.050   | 9.0         | 1900                   | 70.0          | 1.98       | .12                  | 30.0   | 33     | 550  |
| 4715FS-23T-B20-D00 | 230           | 60        | 175              | 0.050   | 8.8         | 2300                   | 80.0          | 2.25       | .13                  | 32.5   | 36     | 550  |
| 4715FS-23T-B30-D00 | 230           | 60        | 175              | 0.090   | 12.0        | 2650                   | 90.0          | 2.50       | .22                  | 55.0   | 39     | 550  |
| 4715FS-23T-B40-D00 | 230           | 60        | 175              | 0.090   | 14.0        | 2800                   | 100.0         | 2.80       | .28                  | 70.0   | 42     | 550  |
| 4715FS-23T-B50-D00 | 230           | 60        | 175              | 0.080   | 14.0        | 3100                   | 110.0         | 3.10       | .37                  | 92.5   | 45     | 550  |

Rotation: Counterclockwise

Airflow Outlet: Air In Over Struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air

## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +65°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 100,000 Hours

## Material

**Casing :** Aluminum

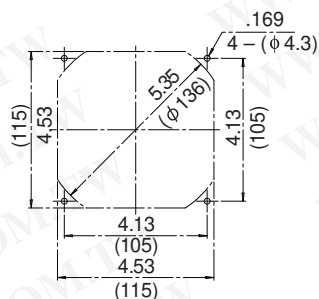
**Impeller :** Polybutylene terephthalate  
(Glass Fiber-Containing)

**Bearing :** Ball Bearings

**Lead Wire :** Faston #110 or Equivalent

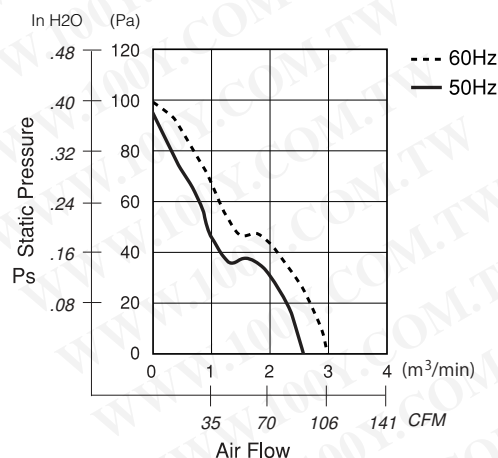
## Panel Cut-Outs

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

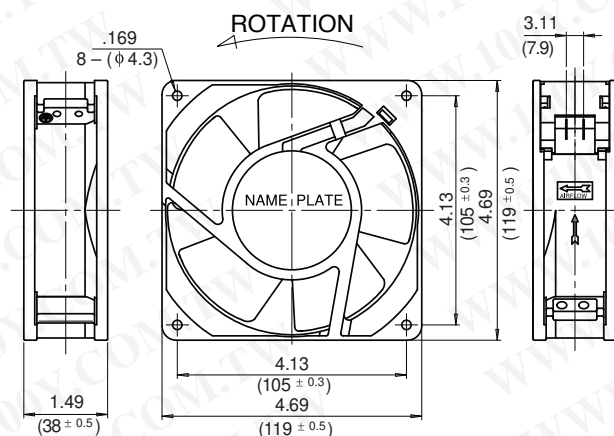


INLET SIDE / OUTLET SIDE

## Characteristic Curves



## Outline



## Specifications

| MODEL                 | Rated Voltage | Frequency | Starting Voltage | Current | Input Power | Speed                  | Max. Air Flow |            | Max. Static Pressure |        | Noise  | Mass |
|-----------------------|---------------|-----------|------------------|---------|-------------|------------------------|---------------|------------|----------------------|--------|--------|------|
|                       | (V)           | (Hz)      | (V)              | (A)*1   | (W)         | (min <sup>-1</sup> )*3 | CFM           | (m³/min)*2 | in H <sub>2</sub> O  | (Pa)*2 | (dB)*2 | (g)  |
| ** 4715HS-10T-B5A-B00 | 100           | 50        | 65               | 0.370   | 18.0        | 2600                   | 91.8          | 2.60       | 0.380                | 94.0   | 40     | 570  |
| ** 4715HS-10T-B5A-B00 | 100           | 60        | 65               | 0.290   | 15.5        | 3100                   | 105.9         | 3.00       | 0.400                | 100.0  | 44     | 570  |
| 4715HS-12T-B5A-A00    | 115           | 50        | 75               | 0.320   | 18.0        | 2600                   | 91.8          | 2.60       | 0.380                | 94.0   | 40     | 570  |
| 4715HS-12T-B5A-A00    | 115           | 60        | 75               | 0.250   | 15.5        | 3100                   | 105.9         | 3.00       | 0.400                | 100.0  | 44     | 570  |
| ** 4715HS-20T-B5A-B00 | 200           | 50        | 130              | 0.180   | 18.0        | 2600                   | 91.8          | 2.60       | 0.380                | 94.0   | 40     | 570  |
| ** 4715HS-20T-B5A-B00 | 200           | 60        | 130              | 0.150   | 15.5        | 3100                   | 105.9         | 3.00       | 0.400                | 100.0  | 44     | 570  |
| ** 4715HS-22T-B5A-B00 | 220           | 50        | 145              | 0.160   | 18.0        | 2600                   | 91.8          | 2.60       | 0.380                | 94.0   | 40     | 570  |
| ** 4715HS-22T-B5A-B00 | 220           | 60        | 145              | 0.130   | 15.5        | 3100                   | 105.9         | 3.00       | 0.400                | 100.0  | 44     | 570  |
| 4715HS-23T-B5A-A00    | 230           | 50        | 175              | 0.160   | 18.0        | 2600                   | 91.8          | 2.60       | 0.380                | 94.0   | 40     | 570  |
| 4715HS-23T-B5A-A00    | 230           | 60        | 175              | 0.120   | 15.5        | 3100                   | 105.9         | 3.00       | 0.400                | 100.0  | 44     | 570  |
| ** 4715HS-24T-B5A-A00 | 240           | 50        | 175              | 0.150   | 18.0        | 2600                   | 91.8          | 2.60       | 0.380                | 94.0   | 40     | 570  |
| ** 4715HS-24T-B5A-A00 | 240           | 60        | 175              | 0.120   | 15.5        | 3100                   | 105.9         | 3.00       | 0.400                | 100.0  | 44     | 570  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*\* Contact NMB for Availability

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air

## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +65°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 100,000 Hours

## Material

**Casing :** Aluminum

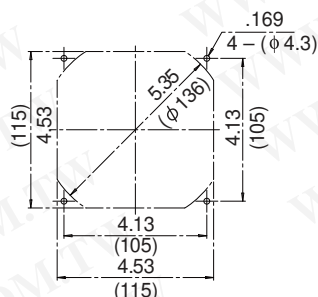
**Impeller :** Polybutylene terephthalate  
(Glass Fiber-Containing)

**Bearing :** Ball Bearings

**Lead Wire :** Faston #110 or Equivalent

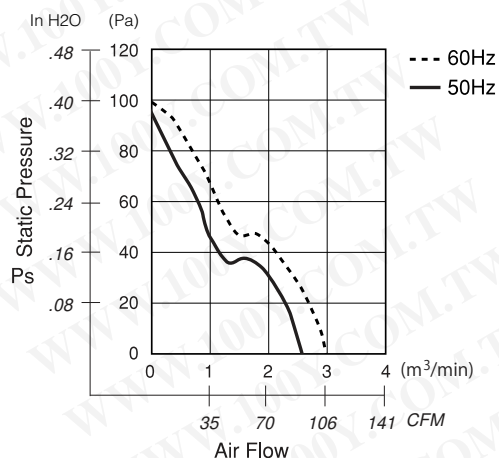
## Panel Cut-Outs

Units: inch  
(mm)

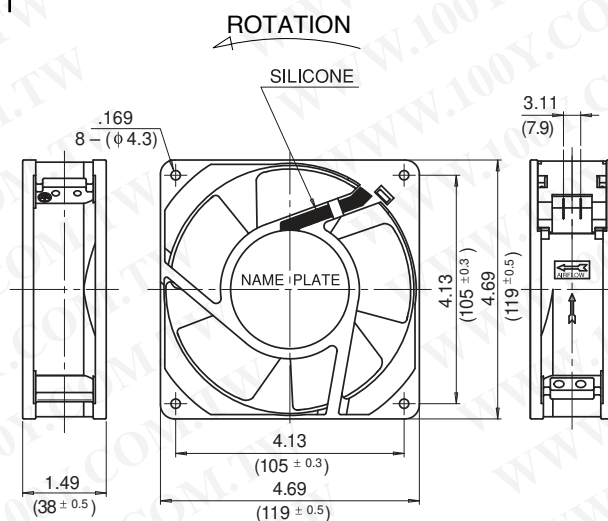


INLET SIDE / OUTLET SIDE

## Characteristic Curves



## Outline



## Specifications

| MODEL                 | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power | Speed                              | Max. Air Flow |                        | Max. Static Pressure |                    | Noise              | Mass |
|-----------------------|---------------|-----------|------------------|-------------------|-------------|------------------------------------|---------------|------------------------|----------------------|--------------------|--------------------|------|
|                       | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W)         | (min <sup>-1</sup> ) <sup>*3</sup> | CFM           | (m³/min) <sup>*2</sup> | in H <sub>2</sub> O  | (Pa) <sup>*2</sup> | (dB) <sup>*2</sup> | (g)  |
| ** 4715HS-10T-B50-BM0 | 100           | 50        | 65               | 0.370             | 18.0        | 2600                               | 91.8          | 2.60                   | 0.380                | 94.0               | 40                 | 610  |
| ** 4715HS-10T-B50-BM0 | 100           | 60        | 65               | 0.290             | 15.5        | 3100                               | 105.9         | 3.00                   | 0.400                | 100.0              | 44                 | 610  |
| 4715HS-12T-B50-AM0    | 115           | 50        | 75               | 0.320             | 18.0        | 2600                               | 91.8          | 2.60                   | 0.380                | 94.0               | 40                 | 610  |
| 4715HS-12T-B50-AM0    | 115           | 60        | 75               | 0.250             | 15.5        | 3100                               | 105.9         | 3.00                   | 0.400                | 100.0              | 44                 | 610  |
| ** 4715HS-20T-B50-BM0 | 200           | 50        | 130              | 0.180             | 18.0        | 2600                               | 91.8          | 2.60                   | 0.380                | 94.0               | 40                 | 610  |
| ** 4715HS-20T-B50-BM0 | 200           | 60        | 130              | 0.150             | 15.5        | 3100                               | 105.9         | 3.00                   | 0.400                | 100.0              | 44                 | 610  |
| ** 4715HS-22T-B50-BM0 | 220           | 50        | 145              | 0.160             | 18.0        | 2600                               | 91.8          | 2.60                   | 0.380                | 94.0               | 40                 | 610  |
| ** 4715HS-22T-B50-BM0 | 220           | 60        | 145              | 0.130             | 15.5        | 3100                               | 105.9         | 3.00                   | 0.400                | 100.0              | 44                 | 610  |
| 4715HS-23T-B50-AM0    | 230           | 50        | 175              | 0.160             | 18.0        | 2600                               | 91.8          | 2.60                   | 0.380                | 94.0               | 40                 | 610  |
| 4715HS-23T-B50-AM0    | 230           | 60        | 175              | 0.120             | 15.5        | 3100                               | 105.9         | 3.00                   | 0.400                | 100.0              | 44                 | 610  |
| ** 4715HS-24T-B50-AM0 | 240           | 50        | 175              | 0.150             | 18.0        | 2600                               | 91.8          | 2.60                   | 0.380                | 94.0               | 40                 | 610  |
| ** 4715HS-24T-B50-AM0 | 240           | 60        | 175              | 0.120             | 15.5        | 3100                               | 105.9         | 3.00                   | 0.400                | 100.0              | 44                 | 610  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air

\*\* Contact NMB for Availability



## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 50,000 Hours

## Material

Casing : Aluminum

Impeller : Polycarbonate (Glass Fiber-Containing)

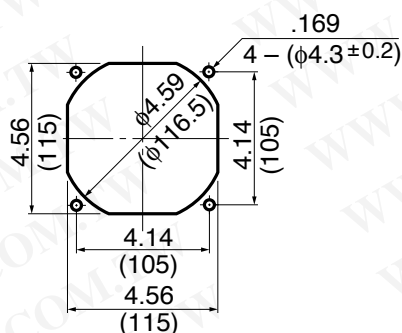
Bearing : Ball Bearing

Lead Wire : AWG22, UL3266, CSA CLR52

or Terminal : Faston #110 or equivalent

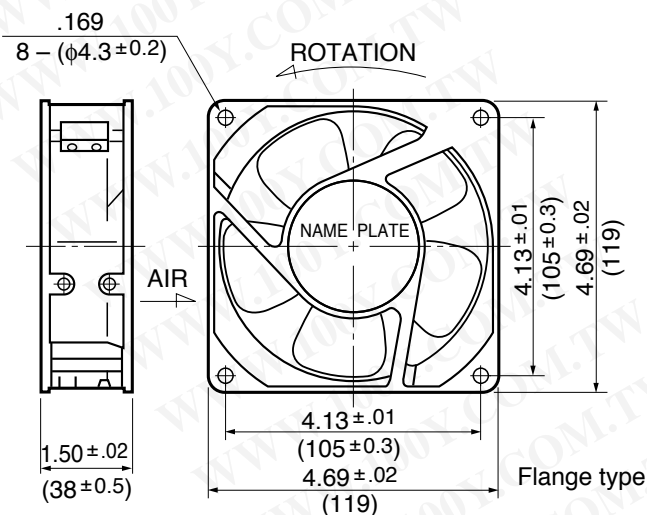
## Panel Cut-Outs

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

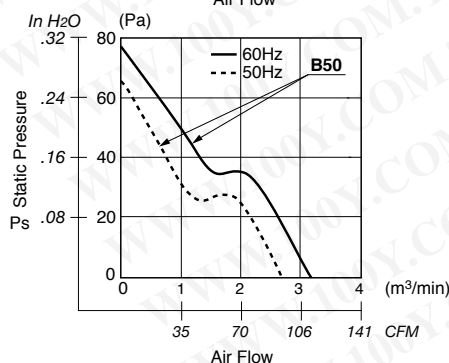
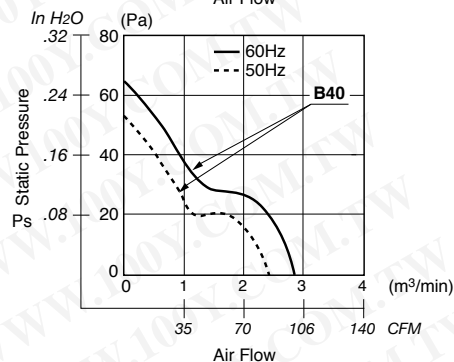
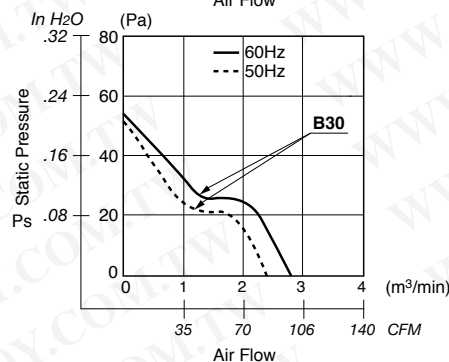
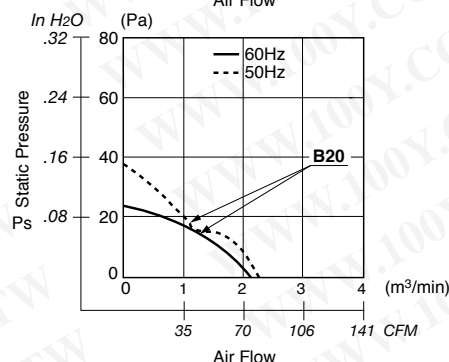
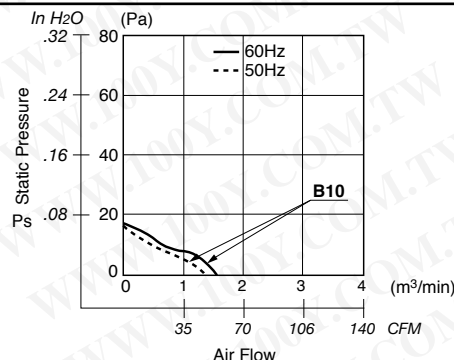


INLET SIDE / OUTLET SIDE

## Outline



## Characteristic Curves



## Specifications

| MODEL              | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power                  | Speed                              | Max. Air Flow |                                     | Max. Static Pressure |                    | Noise              | Mass |
|--------------------|---------------|-----------|------------------|-------------------|------------------------------|------------------------------------|---------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                    | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W) <sup>+10%<br/>-20%</sup> | (min <sup>-1</sup> ) <sup>*3</sup> | CFM           | (m <sup>3</sup> /min) <sup>*3</sup> | in H <sub>2</sub> O  | (Pa) <sup>*3</sup> | (dB) <sup>*2</sup> | (g)  |
| 4715MS-12T-B50-A00 | 115           | 50        | 65               | 0.250             | 15.5                         | 2600                               | 88.2          | 2.50                                | .259                 | 64.6               | 37.0               | 550  |
|                    | 115           | 60        | 65               | 0.210             | 14.5                         | 2900                               | 102.0         | 2.90                                | .309                 | 76.4               | 41.0               | 550  |
| 4715MS-23T-B50-A00 | 230           | 50        | 175              | 0.120             | 15.0                         | 2600                               | 88.2          | 2.50                                | .255                 | 63.7               | 37.0               | 550  |
|                    | 230           | 60        | 175              | 0.100             | 14.0                         | 2900                               | 102.0         | 2.90                                | .283                 | 70.5               | 41.0               | 550  |
| 4715MS-12T-B40-A00 | 115           | 50        | 75               | 0.220             | 15.0                         | 2450                               | 85.0          | 2.40                                | .204                 | 50.9               | 35.0               | 550  |
|                    | 115           | 60        | 75               | 0.190             | 13.0                         | 2750                               | 95.0          | 2.70                                | .259                 | 64.6               | 39.0               | 550  |
| 4715MS-23T-B40-A00 | 230           | 50        | 175              | 0.120             | 15.0                         | 2450                               | 85.0          | 2.40                                | .216                 | 53.9               | 35.0               | 550  |
|                    | 230           | 60        | 175              | 0.100             | 13.0                         | 2750                               | 95.0          | 2.70                                | .255                 | 63.7               | 39.0               | 550  |
| 4715MS-12T-B30-A00 | 115           | 50        | 75               | 0.160             | 11.0                         | 2400                               | 81.0          | 2.30                                | .200                 | 49.9               | 34.0               | 550  |
|                    | 115           | 60        | 75               | 0.140             | 10.0                         | 2600                               | 88.2          | 2.50                                | .200                 | 49.9               | 37.0               | 550  |
| 4715MS-23T-B30-A00 | 230           | 50        | 175              | 0.100             | 12.0                         | 2400                               | 81.0          | 2.30                                | .197                 | 49.0               | 34.0               | 550  |
|                    | 230           | 60        | 175              | 0.080             | 11.0                         | 2600                               | 88.2          | 2.50                                | .208                 | 51.9               | 37.0               | 550  |
| 4715MS-12T-B20-A00 | 115           | 50        | 75               | 0.100             | 7.0                          | 2100                               | 76.6          | 2.00                                | .141                 | 35.2               | 32.0               | 550  |
|                    | 115           | 60        | 75               | 0.100             | 7.0                          | 1950                               | 67.0          | 1.90                                | .098                 | 24.5               | 30.0               | 550  |
| 4715MS-23T-B20-A00 | 230           | 50        | 175              | 0.060             | 7.5                          | 2100                               | 70.6          | 2.00                                | .141                 | 35.2               | 32.0               | 550  |
|                    | 230           | 60        | 175              | 0.060             | 7.5                          | 1900                               | 67.0          | 1.90                                | .086                 | 21.5               | 30.0               | 550  |
| 4715MS-12T-B10-A00 | 115           | 50        | 75               | 0.090             | 6.0                          | 1350                               | 45.9          | 1.30                                | .062                 | 15.6               | 27.0               | 550  |
|                    | 115           | 60        | 75               | 0.080             | 5.5                          | 1450                               | 49.4          | 1.40                                | .066                 | 16.6               | 28.0               | 550  |
| 4715MS-23T-B10-A00 | 230           | 50        | 175              | 0.050             | 6.5                          | 1350                               | 45.9          | 1.30                                | .059                 | 14.7               | 27.0               | 550  |
|                    | 230           | 60        | 175              | 0.045             | 6.0                          | 1450                               | 49.4          | 1.40                                | .059                 | 14.7               | 28.0               | 550  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air

## General Specifications

**Motor Structure:** Shaded Pole Induction Motor  
**Motor Protection:** B5A Class : Thermal Protection  
**Insulation Resistance:**  
 10M  $\Omega$  or over with a DC500V Megger  
**Dielectric Withstand Voltage:** AC 700V 1s  
**Allowable Ambient Temperature Range:**  
 -10°C ~ +65°C (Operating)  
 -40°C ~ +70°C (Storage)  
 (non-condensing environment)

## Expected Life

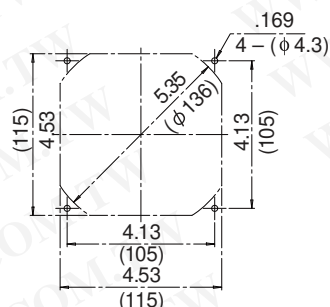
**Failure Rate:** 10%  
 25°C 50,000 Hours

## Material

**Casing :** Aluminum  
**Impeller :** Steel  
**Bearing :** Ball Bearings  
**Lead Wire :** Faston #110 or Equivalent

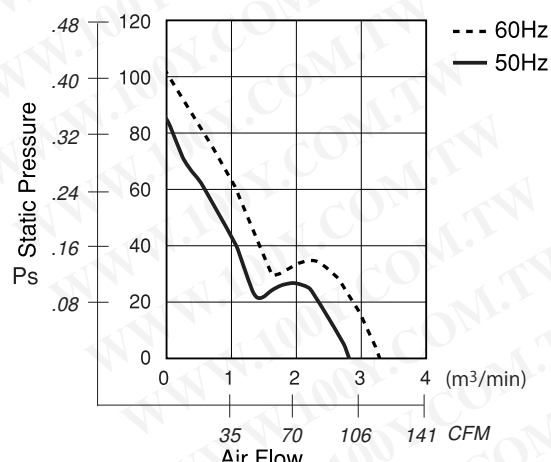
## Panel Cut-Outs

Units: inch (mm)

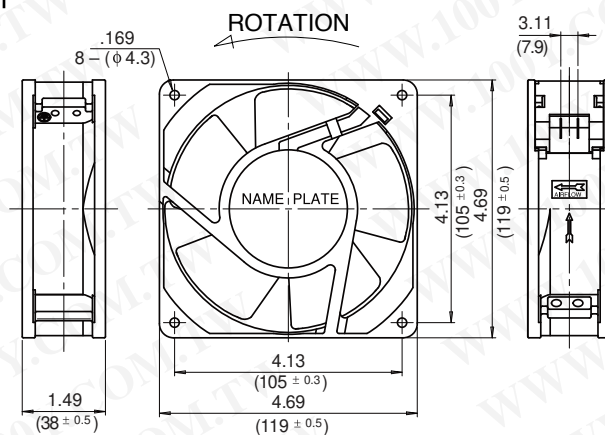


INLET SIDE / OUTLET SIDE

## Characteristic Curves



## Outline



## Specifications

| MODEL                 | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power | Speed                              | Max. Air Flow |                        | Max. Static Pressure |                    | Noise              | Mass |
|-----------------------|---------------|-----------|------------------|-------------------|-------------|------------------------------------|---------------|------------------------|----------------------|--------------------|--------------------|------|
|                       | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W)         | (min <sup>-1</sup> ) <sup>*3</sup> | CFM           | (m³/min) <sup>*2</sup> | in H <sub>2</sub> O  | (Pa) <sup>*2</sup> | (dB) <sup>*2</sup> | (g)  |
| ** 4715TS-10T-B5A-B00 | 100           | 50        | 65               | 0.450             | 20.0        | 2600                               | 98.84         | 2.80                   | 0.352                | 88.0               | 46                 | 610  |
| ** 4715TS-10T-B5A-B00 | 100           | 60        | 65               | 0.340             | 17.0        | 3100                               | 116.49        | 3.30                   | 0.400                | 100.0              | 50                 | 610  |
| 4715TS-12T-B5A-A00    | 115           | 50        | 75               | 0.390             | 21.0        | 2600                               | 98.84         | 2.80                   | 0.352                | 88.0               | 46                 | 610  |
| 4715TS-12T-B5A-A00    | 115           | 60        | 75               | 0.300             | 17.0        | 3100                               | 116.49        | 3.30                   | 0.400                | 100.0              | 50                 | 610  |
| ** 4715TS-20T-B5A-B00 | 200           | 50        | 130              | 0.220             | 21.0        | 2600                               | 98.84         | 2.80                   | 0.352                | 88.0               | 46                 | 610  |
| ** 4715TS-20T-B5A-B00 | 200           | 60        | 130              | 0.170             | 17.0        | 3100                               | 116.49        | 3.30                   | 0.400                | 100.0              | 50                 | 610  |
| ** 4715TS-22T-B5A-B00 | 220           | 50        | 145              | 0.200             | 20.0        | 2600                               | 98.84         | 2.80                   | 0.352                | 88.0               | 46                 | 610  |
| ** 4715TS-22T-B5A-B00 | 220           | 60        | 145              | 0.150             | 17.0        | 3100                               | 116.49        | 3.30                   | 0.400                | 100.0              | 50                 | 610  |
| 4715TS-23T-B5A-A00    | 230           | 50        | 175              | 0.190             | 21.0        | 2600                               | 98.84         | 2.80                   | 0.352                | 88.0               | 46                 | 610  |
| 4715TS-23T-B5A-A00    | 230           | 60        | 175              | 0.140             | 17.0        | 3100                               | 116.49        | 3.30                   | 0.400                | 100.0              | 50                 | 610  |
| ** 4715TS-24T-B5A-A00 | 240           | 50        | 175              | 0.180             | 20.0        | 2600                               | 98.84         | 2.80                   | 0.352                | 88.0               | 46                 | 610  |
| ** 4715TS-24T-B5A-A00 | 240           | 60        | 175              | 0.140             | 17.0        | 3100                               | 116.49        | 3.30                   | 0.400                | 100.0              | 50                 | 610  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*\* Contact NMB for Availability

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air



## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

### Motor Protection: Impedance Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +60°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

### Expected Life

Failure Rate: 10%

25°C 50,000 Hours

## Material

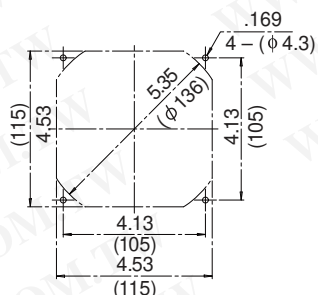
Casing : Aluminum

Impeller : Steel

Bearing : Ball Bearings

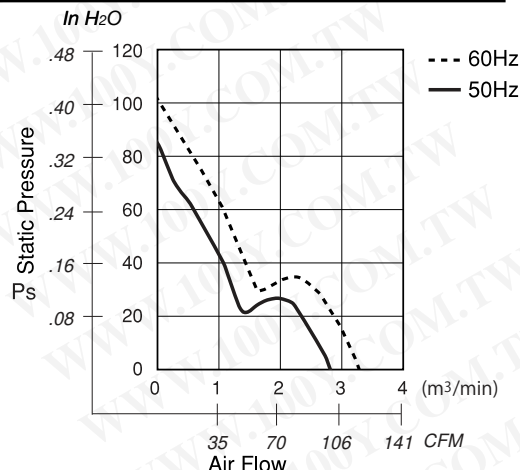
Lead Wire : Faston #110 or Equivalent

## Panel Cut-Outs

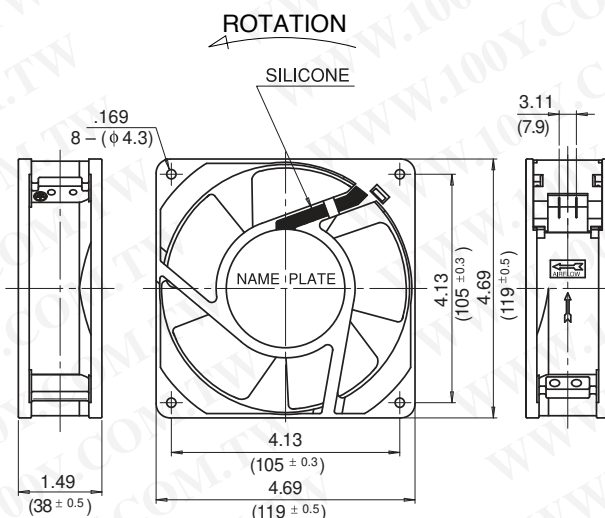
Units:  $\frac{\text{inch}}{(\text{mm})}$ 

INLET SIDE / OUTLET SIDE

## Characteristic Curves



## Outline



## Specifications

|    | MODEL              | Rated Voltage | Frequency | Starting Voltage | Current          | Input Power | Speed                             | Max. Air Flow |                       | Max. Static Pressure |                   | Noise             | Mass |
|----|--------------------|---------------|-----------|------------------|------------------|-------------|-----------------------------------|---------------|-----------------------|----------------------|-------------------|-------------------|------|
|    |                    | (V)           | (Hz)      | (V)              | (A) <sup>1</sup> | (W)         | (min <sup>-1</sup> ) <sup>3</sup> | CFM           | (m³/min) <sup>2</sup> | in H₂O               | (Pa) <sup>2</sup> | (dB) <sup>2</sup> | (g)  |
| ** | 4715TS-10T-B50-BM0 | 100           | 50        | 65               | 0.450            | 20.0        | 2600                              | 98.84         | 2.80                  | 0.352                | 88.0              | 46                | 650  |
| ** | 4715TS-10T-B50-BM0 | 100           | 60        | 65               | 0.340            | 17.0        | 3100                              | 116.49        | 3.30                  | 0.400                | 100.0             | 50                | 650  |
|    | 4715TS-12T-B50-AM0 | 115           | 50        | 75               | 0.390            | 21.0        | 2600                              | 98.84         | 2.80                  | 0.352                | 88.0              | 46                | 650  |
| ** | 4715TS-12T-B50-AM0 | 115           | 60        | 75               | 0.300            | 17.0        | 3100                              | 116.49        | 3.30                  | 0.400                | 100.0             | 50                | 650  |
|    | 4715TS-20T-B50-BM0 | 200           | 50        | 130              | 0.220            | 21.0        | 2600                              | 98.84         | 2.80                  | 0.352                | 88.0              | 46                | 650  |
| ** | 4715TS-20T-B50-BM0 | 200           | 60        | 130              | 0.170            | 17.0        | 3100                              | 116.49        | 3.30                  | 0.400                | 100.0             | 50                | 650  |
| ** | 4715TS-22T-B50-BM0 | 220           | 50        | 145              | 0.200            | 20.0        | 2600                              | 98.84         | 2.80                  | 0.352                | 88.0              | 46                | 650  |
| ** | 4715TS-22T-B50-BM0 | 220           | 60        | 145              | 0.150            | 17.0        | 3100                              | 116.49        | 3.30                  | 0.400                | 100.0             | 50                | 650  |
|    | 4715TS-23T-B50-AM0 | 230           | 50        | 175              | 0.190            | 21.0        | 2600                              | 98.84         | 2.80                  | 0.352                | 88.0              | 46                | 650  |
| ** | 4715TS-23T-B50-AM0 | 230           | 60        | 175              | 0.140            | 17.0        | 3100                              | 116.49        | 3.30                  | 0.400                | 100.0             | 50                | 650  |
|    | 4715TS-24T-B50-AM0 | 240           | 50        | 175              | 0.180            | 20.0        | 2600                              | 98.84         | 2.80                  | 0.352                | 88.0              | 46                | 650  |
| ** | 4715TS-24T-B50-AM0 | 240           | 60        | 175              | 0.140            | 17.0        | 3100                              | 116.49        | 3.30                  | 0.400                | 100.0             | 50                | 650  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air

**\*\* Contact NMB for Availability**

## General Specifications

**Motor Structure:** Capacitor-Run Induction Motor

**Motor Protection:** B10~B20 Impedance Protection  
B30 Thermal Protection

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

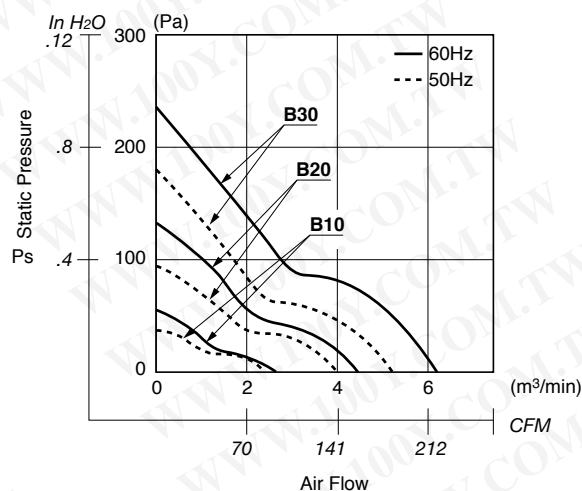
(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 50,000 Hours

## Characteristic Curves



## Material

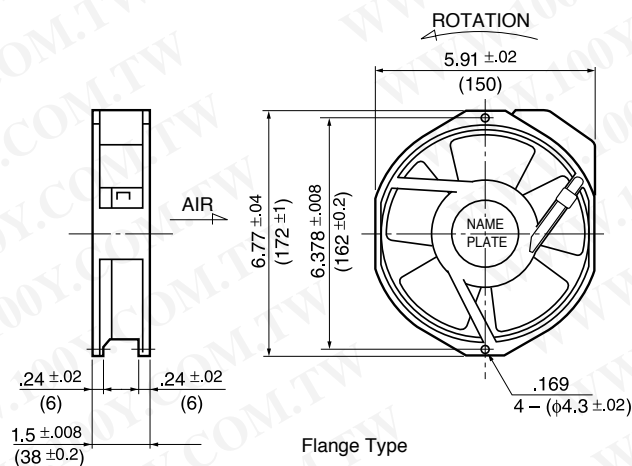
**Casing :** Aluminum

**Impeller :** Polycarbonate (Glass Fiber-Containing)

**Bearing :** Ball Bearing

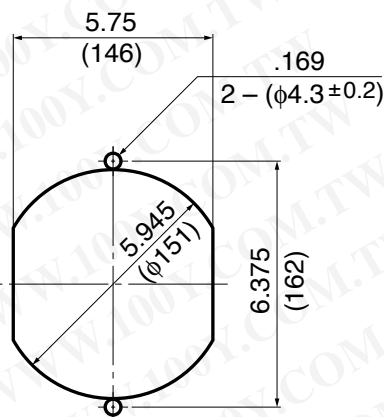
**Terminal :** Faston #110 or equivalent

## Outline



## Panel Cut-Outs

Units: inch  
(mm)



INLET SIDE / OUTLET SIDE

## Specifications

|    | MODEL              | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power                  | Speed                              | Max. Air Flow |                                     | Max. Static Pressure |                    | Noise              | Mass |
|----|--------------------|---------------|-----------|------------------|-------------------|------------------------------|------------------------------------|---------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|    |                    | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W) <sup>+10%<br/>-20%</sup> | (min <sup>-1</sup> ) <sup>-3</sup> | CFM           | (m <sup>3</sup> /min) <sup>-3</sup> | in H <sub>2</sub> O  | (Pa) <sup>-3</sup> | (dB) <sup>-2</sup> | (g)  |
| ** | 5915PC-10T-B30-B00 | 100           | 50        | 65               | 0.470             | 37.0                         | 2700                               | 176.5         | 5.00                                | .629                 | 156.8              | 52.0               | 800  |
|    |                    | 100           | 60        | 65               | 0.440             | 33.0                         | 3200                               | 212.0         | 6.00                                | .865                 | 215.6              | 56.0               | 800  |
|    | 5915PC-12T-B30-A00 | 115           | 50        | 75               | 0.380             | 35.0                         | 2700                               | 176.5         | 5.00                                | .629                 | 156.8              | 52.0               | 800  |
|    |                    | 115           | 60        | 75               | 0.360             | 32.0                         | 3200                               | 212.0         | 6.00                                | .865                 | 215.6              | 56.0               | 800  |
| ** | 5915PC-20T-B30-B00 | 200           | 50        | 130              | 0.236             | 34.0                         | 2700                               | 176.5         | 5.00                                | .629                 | 156.8              | 52.0               | 800  |
|    |                    | 200           | 60        | 130              | 0.210             | 33.0                         | 3200                               | 212.0         | 6.00                                | .865                 | 215.6              | 56.0               | 800  |
| ** | 5915PC-22T-B30-B00 | 220           | 50        | 145              | 0.210             | 40.0                         | 2700                               | 176.5         | 5.00                                | .629                 | 156.8              | 52.0               | 800  |
|    |                    | 220           | 60        | 145              | 0.180             | 38.0                         | 3200                               | 212.0         | 6.00                                | .865                 | 215.6              | 56.0               | 800  |
|    | 5915PC-23T-B30-A00 | 230           | 50        | 145              | 0.180             | 35.0                         | 2700                               | 176.5         | 5.00                                | .629                 | 156.8              | 52.0               | 800  |
|    |                    | 230           | 60        | 145              | 0.190             | 35.0                         | 3200                               | 212.0         | 6.00                                | .865                 | 215.6              | 56.0               | 800  |
| ** | 5915PC-24T-B30-A00 | 240           | 50        | 155              | 0.180             | 34.0                         | 2700                               | 176.5         | 5.00                                | .629                 | 156.8              | 52.0               | 800  |
|    |                    | 240           | 60        | 155              | 0.170             | 34.0                         | 3200                               | 212.0         | 6.00                                | .865                 | 215.6              | 56.0               | 800  |
| ** | 5915PC-10T-B20-B00 | 100           | 50        | 65               | 0.250             | 22.0                         | 2200                               | 141.2         | 4.00                                | .393                 | 98.0               | 46.0               | 800  |
|    |                    | 100           | 60        | 65               | 0.230             | 23.0                         | 2600                               | 166.0         | 4.70                                | .472                 | 117.6              | 50.0               | 800  |
|    | 5915PC-12T-B20-A00 | 115           | 50        | 75               | 0.200             | 21.0                         | 2200                               | 141.2         | 4.00                                | .393                 | 98.0               | 46.0               | 800  |
|    |                    | 115           | 60        | 75               | 0.210             | 22.0                         | 2600                               | 166.0         | 4.70                                | .472                 | 117.6              | 50.0               | 800  |
| ** | 5915PC-20T-B20-B00 | 200           | 50        | 130              | 0.120             | 22.0                         | 2200                               | 141.2         | 4.00                                | .393                 | 98.0               | 46.0               | 800  |
|    |                    | 200           | 60        | 130              | 0.140             | 23.0                         | 2600                               | 166.0         | 4.70                                | .472                 | 117.6              | 50.0               | 800  |
| ** | 5915PC-22T-B20-B00 | 220           | 50        | 145              | 0.110             | 23.0                         | 2200                               | 141.2         | 4.00                                | .393                 | 98.0               | 46.0               | 800  |
|    |                    | 220           | 60        | 145              | 0.130             | 26.0                         | 2600                               | 166.0         | 4.70                                | .472                 | 117.6              | 50.0               | 800  |
|    | 5915PC-23T-B20-A00 | 230           | 50        | 145              | 0.120             | 23.0                         | 2200                               | 141.2         | 4.00                                | .393                 | 98.0               | 46.0               | 800  |
|    |                    | 230           | 60        | 145              | 0.140             | 26.0                         | 2600                               | 166.0         | 4.70                                | .472                 | 117.6              | 50.0               | 800  |
| ** | 5915PC-24T-B20-A00 | 240           | 50        | 145              | 0.100             | 22.0                         | 2200                               | 141.2         | 4.00                                | .393                 | 98.0               | 46.0               | 800  |
|    |                    | 240           | 60        | 145              | 0.110             | 26.0                         | 2600                               | 166.0         | 4.70                                | .472                 | 117.6              | 50.0               | 800  |
| ** | 5915PC-10T-B10-B00 | 100           | 50        | 65               | 0.170             | 16.0                         | 1400                               | 84.7          | 2.40                                | .173                 | 43.1               | 35.0               | 800  |
|    |                    | 100           | 60        | 65               | 0.020             | 18.0                         | 1650                               | 102.3         | 2.90                                | .243                 | 60.7               | 38.0               | 800  |
|    | 5915PC-12T-B10-A00 | 115           | 50        | 75               | 0.160             | 16.0                         | 1400                               | 84.7          | 2.40                                | .173                 | 43.1               | 35.0               | 800  |
|    |                    | 115           | 60        | 75               | 0.190             | 18.0                         | 1650                               | 102.3         | 2.90                                | .243                 | 60.7               | 38.0               | 800  |
| ** | 5915PC-20T-B10-B00 | 200           | 50        | 130              | 0.110             | 16.0                         | 1400                               | 84.7          | 2.40                                | .169                 | 42.1               | 35.0               | 800  |
|    |                    | 200           | 60        | 130              | 0.130             | 18.0                         | 1650                               | 102.3         | 2.90                                | .243                 | 60.7               | 38.0               | 800  |
| ** | 5915PC-22T-B10-B00 | 220           | 50        | 130              | 0.100             | 16.0                         | 1400                               | 84.7          | 2.40                                | .169                 | 42.1               | 35.0               | 800  |
|    |                    | 220           | 60        | 130              | 0.120             | 18.0                         | 1650                               | 102.3         | 2.90                                | .243                 | 60.7               | 38.0               | 800  |
|    | 5915PC-23T-B10-A00 | 230           | 50        | 145              | 0.090             | 16.0                         | 1400                               | 84.7          | 2.40                                | .169                 | 43.1               | 35.0               | 800  |
|    |                    | 230           | 60        | 145              | 0.110             | 18.0                         | 1650                               | 102.3         | 2.90                                | .243                 | 60.7               | 38.0               | 800  |
| ** | 5915PC-24T-B10-A00 | 240           | 50        | 145              | 0.090             | 16.0                         | 1400                               | 84.7          | 2.40                                | .169                 | 42.1               | 35.0               | 800  |
|    |                    | 240           | 60        | 145              | 0.110             | 18.0                         | 1650                               | 102.3         | 2.90                                | .243                 | 60.7               | 38.0               | 800  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*\* Contact NMB for Availability

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air



## General Specifications

**Motor Structure:** Capacitor-Run Induction Motor

**Motor Protection:** Thermal Protection

**Insulation Resistance:**

10M Ω or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 1800V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

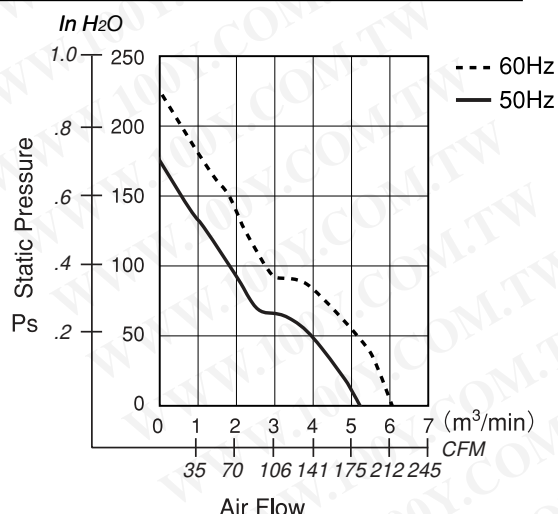
(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 100,000 Hours

## Characteristic Curves



## Material

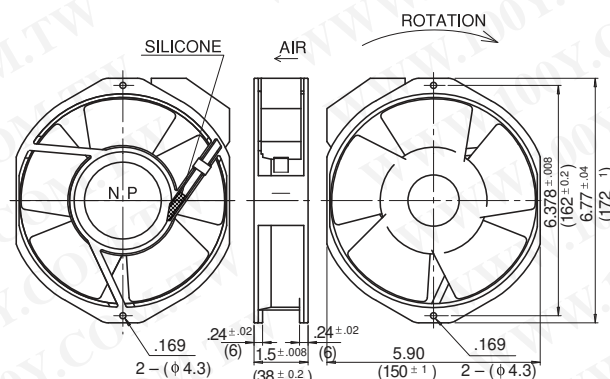
**Casing :** Aluminum

**Impeller :** Polycarbonate (Glass Fiber-Containing)

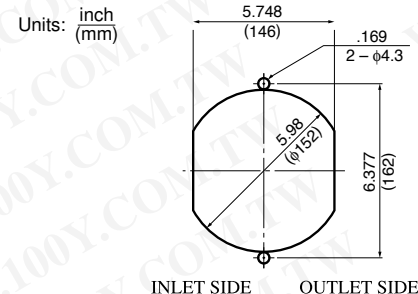
**Bearing :** Ball Bearing

**Terminal :** Faston #110 or equivalent

## Outline



## Panel Cut-Outs



## Specifications

| MODEL                 | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power       | Speed                              | Max. Air Flow |                        | Max. Static Pressure |                    | Noise              | Mass |
|-----------------------|---------------|-----------|------------------|-------------------|-------------------|------------------------------------|---------------|------------------------|----------------------|--------------------|--------------------|------|
|                       | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*3</sup> | CFM           | (m³/min) <sup>*3</sup> | in H <sub>2</sub> O  | (Pa) <sup>*3</sup> | (dB) <sup>*2</sup> | (g)  |
| ** 5915PC-10T-B30-AM0 | 100           | 50        | 65               | 0.470             | 37.0              | 2700                               | 176.5         | 5.00                   | 0.628                | 157.0              | 52                 | 850  |
| ** 5915PC-10T-B30-AM0 | 100           | 60        | 65               | 0.440             | 33.0              | 3200                               | 211.8         | 6.00                   | 0.863                | 215.8              | 56                 | 850  |
| 5915PC-12T-B30-AM0    | 115           | 50        | 75               | 0.380             | 35.0              | 2700                               | 176.5         | 5.00                   | 0.628                | 157.0              | 52                 | 850  |
| 5915PC-12T-B30-AM0    | 115           | 60        | 75               | 0.360             | 32.0              | 3200                               | 211.8         | 6.00                   | 0.863                | 215.8              | 56                 | 850  |
| ** 5915PC-20T-B30-AM0 | 200           | 50        | 130              | 0.230             | 34.0              | 2700                               | 176.5         | 5.00                   | 0.628                | 157.0              | 52                 | 850  |
| ** 5915PC-20T-B30-AM0 | 200           | 60        | 130              | 0.210             | 33.0              | 3200                               | 211.8         | 6.00                   | 0.863                | 215.8              | 56                 | 850  |
| ** 5915PC-22T-B30-AM0 | 220           | 50        | 145              | 0.210             | 40.0              | 2700                               | 176.5         | 5.00                   | 0.628                | 157.0              | 52                 | 850  |
| ** 5915PC-22T-B30-AM0 | 220           | 60        | 145              | 0.180             | 38.0              | 3200                               | 211.8         | 6.00                   | 0.863                | 215.8              | 56                 | 850  |
| 5915PC-23T-B30-AM0    | 230           | 50        | 150              | 0.190             | 35.0              | 2700                               | 176.5         | 5.00                   | 0.628                | 157.0              | 52                 | 850  |
| 5915PC-23T-B30-AM0    | 230           | 60        | 150              | 0.180             | 35.0              | 3200                               | 211.8         | 6.00                   | 0.863                | 215.8              | 56                 | 850  |
| ** 5915PC-24T-B30-AM0 | 240           | 50        | 155              | 0.180             | 34.0              | 2700                               | 176.5         | 5.00                   | 0.628                | 157.0              | 52                 | 850  |
| ** 5915PC-24T-B30-AM0 | 240           | 60        | 155              | 0.170             | 34.0              | 3200                               | 211.8         | 6.00                   | 0.863                | 215.8              | 56                 | 850  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air

\*\* Contact NMB for Availability

## General Specifications

**Motor Structure:** Shaded Pole Induction Motor

**Motor Protection:** Impedance Protection

**Insulation Resistance:**

100M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 1800V 3s

**Allowable Ambient Temperature Range:**

-10°C ~ +60°C (Operating)

-40°C ~ +70°C (Storage)

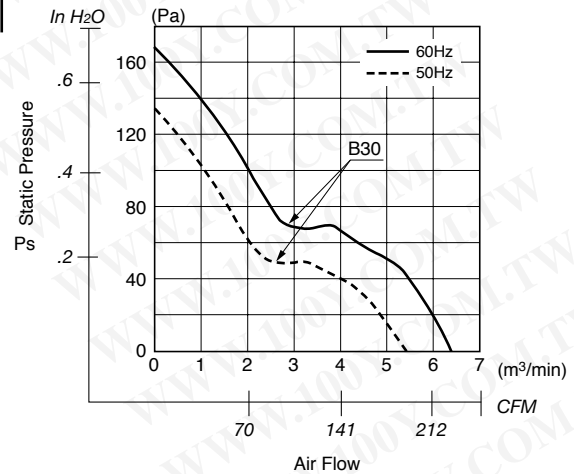
(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

25°C 50,000 Hours

## Characteristic Curves



## Material

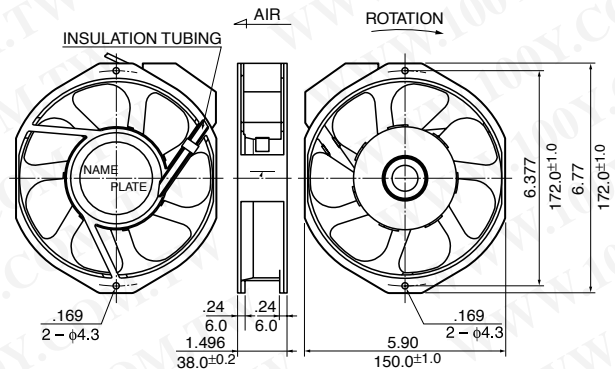
Casing : Aluminum

Impeller : Steel

Bearing : Ball Bearing

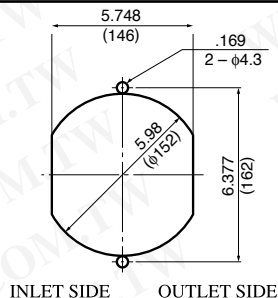
Terminal : Faston #110 or equivalent

## Outline



## Panel Cut-Outs

Units: inch (mm)



## Specifications

| MODEL                 | Rated Voltage | Frequency | Starting Voltage | Current           | Input Power       | Speed                              | Max. Air Flow |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------------|---------------|-----------|------------------|-------------------|-------------------|------------------------------------|---------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                       | (V)           | (Hz)      | (V)              | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*3</sup> | CFM           | (m <sup>3</sup> /min) <sup>*3</sup> | in H <sub>2</sub> O  | (Pa) <sup>*3</sup> | (dB) <sup>*2</sup> | (g)  |
| ** 5915PC-10T-B30-S00 | 100           | 50        | 65               | 0.530             | 42.0              | 2650                               | 187.10        | 5.30                                | 0.510                | 127.5              | 48                 | 900  |
| ** 5915PC-10T-B30-S00 | 100           | 60        | 65               | 0.450             | 40.5              | 3150                               | 222.39        | 6.30                                | 0.655                | 163.8              | 53                 | 900  |
| 5915PC-12T-B30-S00    | 115           | 50        | 75               | 0.450             | 40.0              | 2650                               | 187.10        | 5.30                                | 0.510                | 127.5              | 48                 | 900  |
| 5915PC-12T-B30-S00    | 115           | 60        | 75               | 0.400             | 38.0              | 3150                               | 222.39        | 6.30                                | 0.655                | 163.8              | 53                 | 900  |
| ** 5915PC-20T-B30-S00 | 200           | 50        | 130              | 0.250             | 42.0              | 2650                               | 187.10        | 5.30                                | 0.510                | 127.5              | 48                 | 900  |
| ** 5915PC-20T-B30-S00 | 200           | 60        | 130              | 0.230             | 40.0              | 3150                               | 222.39        | 6.30                                | 0.655                | 163.8              | 53                 | 900  |
| ** 5915PC-22T-B30-S00 | 220           | 50        | 145              | 0.250             | 42.0              | 2650                               | 187.10        | 5.30                                | 0.510                | 127.5              | 48                 | 900  |
| ** 5915PC-22T-B30-S00 | 220           | 60        | 145              | 0.230             | 40.0              | 3150                               | 222.39        | 6.30                                | 0.655                | 163.8              | 53                 | 900  |
| 5915PC-23T-B30-S00    | 230           | 50        | 150              | 0.220             | 42.0              | 2650                               | 187.10        | 5.30                                | 0.510                | 127.5              | 48                 | 900  |
| 5915PC-23T-B30-S00    | 230           | 60        | 150              | 0.200             | 40.0              | 3150                               | 222.39        | 6.30                                | 0.655                | 163.8              | 53                 | 900  |
| ** 5915PC-24T-B30-S00 | 240           | 50        | 155              | 0.200             | 39.0              | 2650                               | 187.10        | 5.30                                | 0.510                | 127.5              | 48                 | 900  |
| ** 5915PC-24T-B30-S00 | 240           | 60        | 155              | 0.200             | 39.0              | 3150                               | 222.39        | 6.30                                | 0.655                | 163.8              | 53                 | 900  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air

\*\* Contact NMB for Availability

## General Specifications

**Motor Structure:** Capacitor-Run Induction Motor

### Motor Protection: Thermal Protection

**Insulation Resistance:**

100M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 1800V 3s

**Allowable Ambient Temperature Range:**

-10°C ~ +60°C (Operating)

-40°C ~ +70°C (Storage)

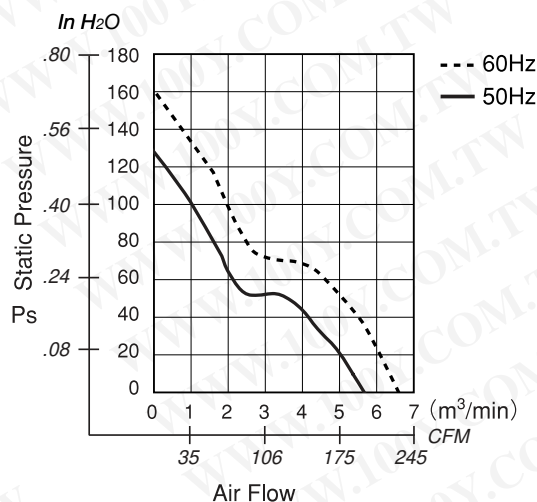
(non-condensing environment)

### Expected Life

Failure Rate: 10%

25°C 50,000 Hours

## Characteristic Curves



## Material

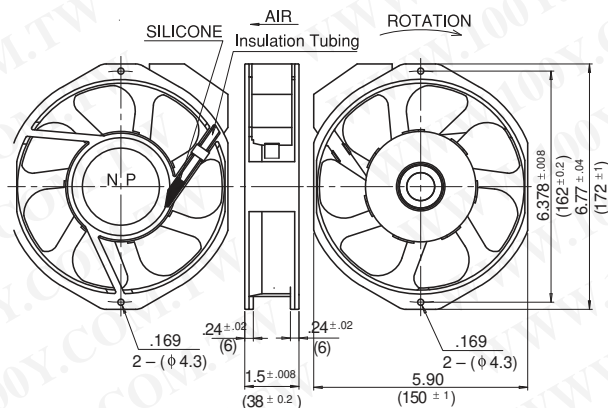
Casing : Aluminum

Impeller : Steel

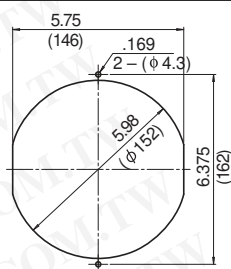
Bearing : Ball Bearing

Terminal : Faston #110 or equivalent

## Outline



## Panel Cut-Outs

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

INLET SIDE / OUTLET SIDE

## Specifications

| MODEL              | Rated Voltage | Frequency | Starting Voltage | Current          | Input Power      | Speed                             | Max. Air Flow |                       | Max. Static Pressure |                   | Noise             | Mass |
|--------------------|---------------|-----------|------------------|------------------|------------------|-----------------------------------|---------------|-----------------------|----------------------|-------------------|-------------------|------|
|                    | (V)           | (Hz)      | (V)              | (A) <sup>1</sup> | (W) <sup>1</sup> | (min <sup>-1</sup> ) <sup>3</sup> | CFM           | (m³/min) <sup>3</sup> | in H2O               | (Pa) <sup>3</sup> | (dB) <sup>2</sup> | (g)  |
| 5915PC-10T-B30-SM0 | 100           | 50        | 65               | 0.530            | 42.0             | 2650                              | 187.10        | 5.30                  | 0.510                | 127.5             | 48                | 950  |
| 5915PC-10T-B30-SM0 | 100           | 60        | 65               | 0.450            | 40.0             | 3150                              | 222.39        | 6.30                  | 0.655                | 163.8             | 53                | 950  |
| 5915PC-12T-B30-SM0 | 115           | 50        | 75               | 0.450            | 40.0             | 2650                              | 187.10        | 5.30                  | 0.510                | 127.5             | 48                | 950  |
| 5915PC-12T-B30-SM0 | 115           | 60        | 75               | 0.400            | 38.0             | 3150                              | 222.39        | 6.30                  | 0.655                | 163.8             | 53                | 950  |
| 5915PC-20T-B30-SM0 | 200           | 50        | 130              | 0.250            | 42.0             | 2650                              | 187.10        | 5.30                  | 0.510                | 127.5             | 48                | 900  |
| 5915PC-20T-B30-SM0 | 200           | 60        | 130              | 0.230            | 40.0             | 3150                              | 222.39        | 6.30                  | 0.655                | 163.8             | 53                | 950  |
| 5915PC-22T-B30-SM0 | 220           | 50        | 145              | 0.250            | 42.0             | 2650                              | 187.10        | 5.30                  | 0.510                | 127.5             | 48                | 900  |
| 5915PC-22T-B30-SM0 | 220           | 60        | 145              | 0.230            | 40.0             | 3150                              | 222.39        | 6.30                  | 0.655                | 163.8             | 53                | 950  |
| 5915PC-23T-B30-SM0 | 230           | 50        | 150              | 0.220            | 42.0             | 2650                              | 187.10        | 5.30                  | 0.510                | 127.5             | 48                | 950  |
| 5915PC-23T-B30-SM0 | 230           | 60        | 150              | 0.200            | 40.0             | 3150                              | 222.39        | 6.30                  | 0.655                | 163.8             | 53                | 950  |
| 5915PC-24T-B30-SM0 | 240           | 50        | 155              | 0.200            | 39.0             | 2650                              | 187.10        | 5.30                  | 0.510                | 127.5             | 48                | 950  |
| 5915PC-24T-B30-SM0 | 240           | 60        | 155              | 0.200            | 39.0             | 3150                              | 222.39        | 6.30                  | 0.655                | 163.8             | 53                | 950  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Maximum Values in Free Air

\*2: Average Values in Free Air

\*3: Minimum Values in Free Air



| FAN MODEL | UL E89936    | CSA LR65829<br>DC Series Fan | VDE          | TUV | CE |
|-----------|--------------|------------------------------|--------------|-----|----|
| 1004KL    | Vol. I, S44  | 1087445                      | 1507300-0023 |     | X  |
| 1204KL    | Vol. I, S37  | 1223044                      | 1507300-0013 |     | X  |
| 1404KL    | Vol. I, S45  | 1065707                      | 1507300-0032 |     | X  |
| 1511FB    | Vol. I, S116 |                              | 1507300-0086 |     |    |
| 1604KL    | Vol. I, S40  | 1141408                      | 1507300-0008 |     | X  |
| 1606KL    | Vol. I, S32  | 1255295                      | 1507300-0008 |     | X  |
| 1608KL    | Vol. I, S32  | 1278193                      | 1507300-0022 |     | X  |
| 1608VL    | Vol. I, S48  |                              | 1507300-0048 |     | X  |
| 1611FB    | Vol. I, S111 |                              | 1507300-0081 |     |    |
| 1611FT    | Vol. I, S115 |                              | 1507300-0081 |     |    |
| 1611KL    | Vol. I, S86  |                              | 1507300-0061 |     | X  |
| 1611RL    | Vol. I, S111 |                              | 1507300-0081 |     | X  |
| 1619FT    | Vol. I, S115 |                              | 1507300-0081 |     |    |
| 1622VWB   | Vol. I, S119 |                              | 1507300-0081 |     | X  |
| 1622FT    | Vol. I, S115 |                              | 1507300-0081 |     | X  |
| 1910RL    | Vol. I, S100 |                              | 1507300-0081 |     | X  |
| 2004KL    | Vol. I, S43  | 1144468                      | 1507300-0017 |     | X  |
| 2006FL    | Vol. I, S56  | 1124524                      | 1507300-0042 |     | X  |
| 2006ML    | Vol. I, S96  |                              | 1507300-0069 |     | X  |
| 2106KL    | Vol. I, S32  | 1255295                      | 1507300-0018 |     | X  |
| 2404KL    | Vol. I, S61  | 1146135                      | 1507300-0047 |     | X  |
| 2406GL    | Vol. I, S57  | 1124520                      |              |     | X  |
| 2406KL    | Vol. I, S38  | 2500002888                   | 1507300-0020 |     | X  |
| 2406RL    | Vol. I, S38  |                              | 1507300-0031 |     | X  |
| 2406VL    | Vol. I, S38  |                              | 1507300-0031 |     | X  |
| 2408NL    | Vol. I, S34  | 1309625                      | 1507300-0013 |     | X  |
| 2408VL    | Vol. I, S34  |                              | 1507300-0013 |     | X  |
| 2410EL    | Vol. I, S90  |                              | 1507300-0010 |     | X  |
| 2410ML    | Vol. I, S33  | 1193855                      | 1507300-0010 |     | X  |
| 2410RL    | Vol. I, S90  |                              | 1507300-0064 |     | X  |
| 2410SB    | Vol. I, S33  |                              | 1507300-0064 |     | X  |
| 2415FB    | Vol. I, S94  |                              | 1507300-0067 |     |    |
| 2415KL    | Vol. I, S94  |                              | 1507300-0067 |     | X  |
| 2415RL    | Vol. I, S94  |                              | 1507300-0067 |     | X  |
| 2806FL    | Vol. I, S68  | 1243390                      | 1507300-0056 |     | X  |
| 2806GL    | Vol. I, S84  | 1335659                      | 1507300-0060 |     | X  |
| 2806KL    | Vol. I, S91  | 1475908                      | 1507300-0060 |     | X  |
| 2806RL    | Vol. I, S97  | 1600957                      | 1507300-0060 |     |    |
| 2810KL    | Vol. I, S65  | 1188649                      | 1507300-0008 |     | X  |
| 3106KL    | Vol. I, S46  | 1038727                      | 1507300-0033 |     | X  |
| 3106RL    | Vol. I, S93  |                              | 1507300-0065 |     | X  |
| 3108NL    | Vol. I, S29  | 1309625                      | 1507300-0016 |     | X  |
| 3110EL    | Vol. I, S35  |                              | 1507300-0088 |     | X  |
| 3110GL    | Vol. I, S35  |                              | 1507300-0008 |     | X  |
| 3110KL    | Vol. I, S35  | 1309625                      | 1507300-0008 |     | X  |
| 3110RL    | Vol. I, S93  |                              | 1507300-0065 |     | X  |
| 3110SB    | Vol. I, S33  |                              | 1507300-0065 |     | X  |
| 3112KL    | Vol. I, S35  | 1309625                      | 1507300-0008 |     | X  |
| 3115FT    | Vol. I, S115 |                              | 1507300-0081 |     | X  |
| 3115RL    | Vol. I, S93  |                              | 1507300-0065 |     | X  |
| 3122FT    | Vol. I, S115 |                              | 1507300-0081 |     |    |
| 3610EL    | Vol. I, S31  |                              | 1507300-0008 |     | X  |
| 3610FL    | Vol. I, S99  |                              | 1507300-0072 |     | X  |
| 3610GL    | Vol. I, S31  | 1309625                      |              |     |    |
| 3610KL    | Vol. I, S31  | 1309625                      | 1507300-0008 |     | X  |
| 3610RL    | Vol. I, S93  |                              | 1507300-0065 |     | X  |
| 3610SB    | Vol. I, S31  |                              | 1507300-0008 |     | X  |
| 3610VL    | Vol. I, S31  |                              | 1507300-0008 |     | X  |
| 3612KL    | Vol. I, S552 | 1253246                      | 1507300-0008 |     | X  |
| 3612VL    | Vol. I, S552 |                              | 1507300-0008 |     | X  |
| 3615FB    | Vol. I, S551 |                              | 1507300-0008 |     | X  |
| 3615KL    | Vol. I, S551 | 1195298                      | 1507300-0008 |     | X  |
| 3615ML    | Vol. I, S551 |                              | 1507300-0008 |     | X  |
| 3615RL    | Vol. I, S551 |                              | 1507300-0008 |     | X  |
| 4515JL    |              |                              | 1507300-0083 |     |    |
| 4710KL    | Vol. I, S64  | 1174022                      | 1507300-0049 |     | X  |
| 4710SL    | Vol. I, S64  |                              |              |     |    |
| 4712FL    | Vol. I, S55  | 1143199                      | 1507300-0045 |     |    |
| 4712KL    | Vol. I, S41  | 1143199                      | 1507300-0008 |     | X  |
| 4715HL    | Vol. I, S72  |                              |              |     |    |
| 4715JL    |              |                              | 1507300-0083 |     |    |
| 4715KL    | Vol. I, S36  | 1557150                      | 1507300-0008 |     | X  |
| 4715RL    | Vol. I, S36  |                              | 1507300-0008 |     | X  |
| 4715SL    | Vol. I, S67  | 1197651                      | 1507300-0058 |     | X  |
| 4715VL    | Vol. I, S36  |                              | 1507300-0008 |     | X  |
| 5015FL    | Vol. I, S58  |                              | 1507300-0024 |     | X  |
| 5015KL    | Vol. I, S58  |                              | 1507300-0024 |     | X  |



| FAN MODEL                                 | UL E89936    | CSA LR65829 | VDE          | TUV      | CE |
|-------------------------------------------|--------------|-------------|--------------|----------|----|
| FBX14                                     | Vol. I, S113 |             |              |          |    |
| 5910PL                                    | Vol. I, S74  | 1285829     | 1507300-0034 |          | X  |
| 5920FT                                    | Vol. I, S30  |             | 1507300-0044 |          |    |
| 5920PL                                    | Vol. I, S30  | 1285831     | 1507300-0044 |          | X  |
| 5920SL                                    | Vol. I, S30  |             |              |          |    |
| 5920VL                                    | Vol. I, S30  |             | 1507300-0044 |          |    |
| 6820PL                                    | Vol. I, S30  | 1285831     | 1507300-0044 |          | X  |
| 6820FT                                    | Vol. I, S30  |             | 1507300-0044 |          |    |
| 6820SL                                    | Vol. I, S30  |             |              |          |    |
| 6820VL                                    | Vol. I, S30  |             | 1507300-0044 |          |    |
| <b>DC Blowers</b>                         |              |             |              |          |    |
| BM4212                                    | Vol. I, S104 |             | 1507300-0076 |          |    |
| BM4515                                    | Vol. I, S62  | 1161575     | 1507300-0046 |          | X  |
| BM4520                                    | Vol. I, S104 |             | 1507300-0076 |          | X  |
| FAL3F                                     | Vol. I, S114 | 99935       |              |          |    |
| BM5020                                    | Vol. I, S105 |             | 1507300-0078 |          | X  |
| BM5115                                    | Vol. I, S50  | 1057185     | 1507300-0030 |          | X  |
| BM5125                                    | Vol. I, S53  | 1082756     | 1507300-0022 |          | X  |
| BM5712                                    | Vol. I, S104 |             | 1507300-0076 |          | X  |
| BM5913                                    | Vol. I, S104 |             | 1507300-0076 |          |    |
| BM6015                                    |              | 1082756     |              |          |    |
| BM6023                                    | Vol. I, S103 |             | 1507300-0075 |          |    |
| BM6025                                    | Vol. I, S103 |             | 1507300-0075 |          | X  |
| BM6625                                    | Vol. I, S95  |             | 1507300-0066 |          | X  |
| BM6920                                    | Vol. I, S95  |             | 1507300-0066 |          | X  |
| BG0702                                    | Vol. I, S63  | 1133535     |              |          | X  |
| BG0703                                    | Vol. I, S42  | -158        | 1507300-0019 |          | X  |
| FAL5F                                     | Vol. I, S114 | 099935      |              |          |    |
| BG0801                                    | Vol. I, S98  |             | 1507300-0019 |          |    |
| BG0803                                    | Vol. I, S66  |             | 1507300-0019 |          |    |
| BG0903                                    | Vol. I, S59  | 1120644     | 1507300-0039 |          | X  |
| BG1002                                    | Vol. I, S60  | 1158481     |              |          | X  |
| FAL6F                                     | Vol. I, S114 | 099935      |              |          |    |
| BG1203                                    | Vol. I, S49  | 1031559     | 1507300-0029 |          | X  |
| BG1402                                    | Vol. I, S106 |             | 1507300-0029 |          |    |
| BG1504                                    | Vol. I, S106 |             | 1507300-0029 |          |    |
| BL4447                                    | Vol. I, S77  |             |              |          |    |
| BL4747                                    | Vol. I, S49  | -141        |              |          |    |
| BT1002                                    | Vol. I, S101 |             | 1507300-0073 |          |    |
| <b>DC Motorized Impellers</b>             |              |             |              |          |    |
| 175R Series                               | Vol. I, S87  |             |              |          | X  |
| I01R057D07                                | Vol. I, S109 |             |              |          |    |
| 190R071D073XAXX                           | Vol. I, S80  |             | 1507300-0057 |          | X  |
| 220R071D053XAXX                           | Vol. I, S107 |             | 1507300-0057 |          | X  |
| 220R071D0731A01                           | Vol. I, S107 |             | 1507300-0057 |          | X  |
| 220R071D0901A01                           | Vol. I, S107 |             |              |          |    |
| 225R099D053XAXX                           | Vol. I, S107 |             | 1507300-0057 |          | X  |
| 225R099D073XAXX                           | Vol. I, S107 |             | 1507300-0057 |          | X  |
| 250R100D052XAXX                           | Vol. I, S80  |             | 1507300-0057 |          | X  |
| 250R100D0701XXX                           | Vol. I, S80  |             | 1507300-0057 |          |    |
| 250R100D072XAXX                           | Vol. I, S80  |             | 1507300-0057 |          |    |
| 280R125D052XAXX                           | Vol. I, S71  |             | 1507300-0057 |          | X  |
| 280R125D072XAXX                           | Vol. I, S71  |             | 1507300-0057 |          | X  |
| <b>AC Series Fan</b>                      |              |             |              |          |    |
| 2412PS                                    | Vol. I, S3   | 1202307     | 1507300-1014 |          | X  |
| 2415PS                                    | Vol. I, S1   | 1202307     |              |          |    |
| 3108PS                                    | Vol. I, S1   | 1202307     |              |          |    |
| 3110MS                                    | Vol. I, S3   |             | 1507300-0078 |          | X  |
| 3110PS                                    | Vol. I, S3   | 1202307     |              | R0030033 | X  |
| 3115FS                                    | Vol. I, S28  | -19         | 1507300-0015 | R0030030 | X  |
| 3115PS                                    | Vol. I, S3   | 1202307     | 1507300-0015 | 30781695 | X  |
| 3610PS                                    | Vol. I, S3   | 1202307     | 1507300-0006 | 30781695 | X  |
| 3615HS                                    | Vol. I, S118 |             | 1507300-0089 |          | X  |
| 4710PS                                    | Vol. I, S3   | 1202307     | 1507300-0009 |          | X  |
| 4715FS                                    | Vol. I, S27  | 1417267     |              | 30781695 | X  |
| 4715HS                                    | Vol. I, S10  |             | 1507300-0011 |          | X  |
| 4715MS                                    | Vol. I, S6   | -10         | 1507300-0011 | 30781695 | X  |
| 4715PS                                    | Vol. I, S1   | 1202307     | 1507300-0011 | 30680496 | X  |
| 4715TS                                    | Vol. I, S10  |             | 1507300-0011 |          | X  |
| 5915PC                                    | Vol. I, S2   | 1202307     | 1507300-0012 |          | X  |
| <b>Wet Location Outdoor-Use Fans (AC)</b> |              |             |              |          |    |
| 4715HS-12T-B50-AMX                        | Vol. I, S10  |             |              |          |    |
| 4715HS-23T-B50-AMX                        | Vol. I, S10  |             |              |          |    |
| 5915PC-12V-B30-AMX                        | Vol. I, S2   |             |              |          |    |
| <b>Wet Location Outdoor-Use Fans (DC)</b> |              |             |              |          |    |
| 5920VL-05W-B7X-DRX                        | Vol. I, S30  |             |              |          |    |
| 5920VL-07W-B7X-DRX                        | Vol. I, S30  |             |              |          |    |



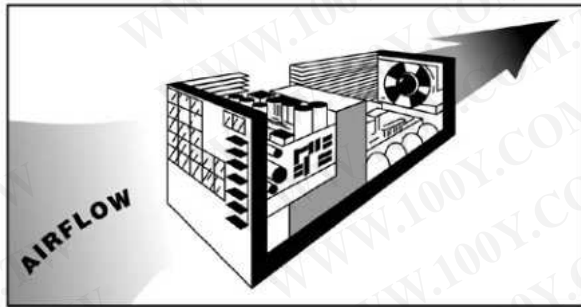
15073-3250-1001



## THERMAL DESIGN

The need for forced-air cooling should be determined at an early stage in system design. It is important that the design plans for good airflow to heat-generating components and also allows adequate space and power for the cooling fan.

The first stage in designing a forced-air cooling system is to estimate the required airflow. This depends on the heat generated within the enclosure and the maximum temperature rise permitted.



**Enclosure with Cover Removed**

The airflow required can be obtained either by calculation or from a graph.

The equation for calculation is:

$$Q_1 = \frac{0.05 H}{\Delta T} \quad Q_2 = \frac{1.76 H}{\Delta T}$$

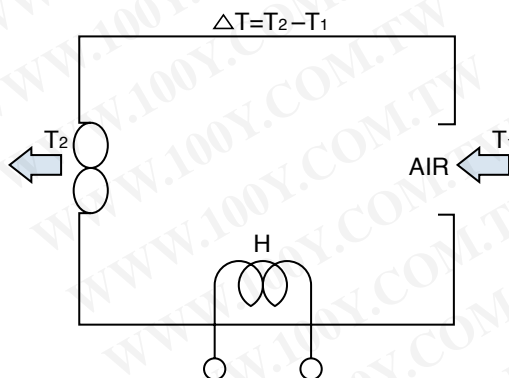
Where:

$Q_1$  = Airflow required in m<sup>3</sup>/min

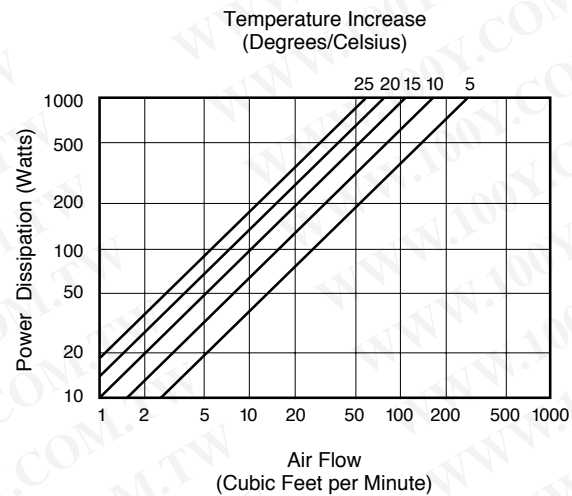
$Q_2$  = Airflow required in cubic feet/min

H = Heat dissipated in watts

$\Delta T$  = Temperature rise above inlet temp °C



In the following graph, the vertical axis represents the heat to be removed and the horizontal axis represents the airflow; both axes are logarithmic. The sloping lines define the temperature rise in °C. To use the graph, find the sloping line that represents the permitted temperature rise. Then, find the point on this line that corresponds to the heat to be removed. The horizontal position of this point shows the airflow required.



**Power Dissipation vs. Airflow for Various Temperature Increases**

## SYSTEM IMPEDANCE & OPERATING POINT

Obstructions in the airflow path cause static pressure within the enclosure. To achieve maximum airflow, obstructions should be minimized. However, obstructions in the form of baffles may be necessary to direct the airflow over the components that need cooling.

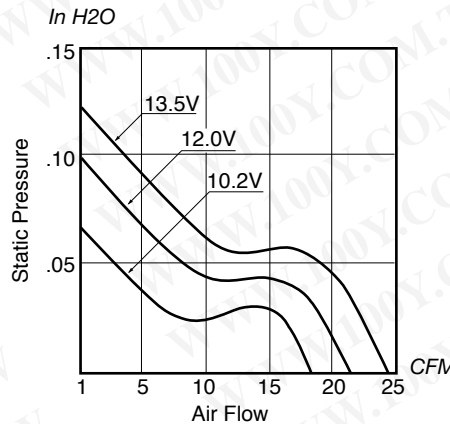
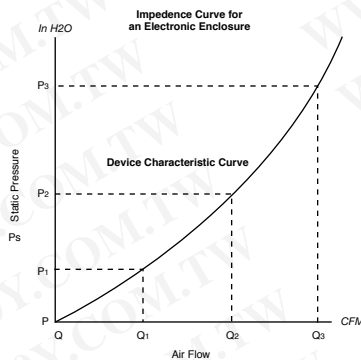
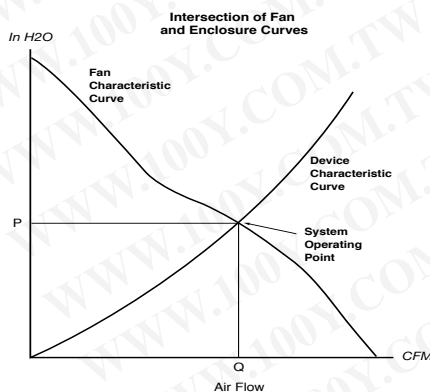
Chart 2.1 on the next page illustrates the nonlinear relationship between airflow and static pressure for a typical fan. The System Impedance curve, Chart 2.2, is a property inherent to an individual electronics enclosure. This curve can easily be generated experimentally, by testing the enclosure pressure at various airflow rates. The performance of a fan in a specific application is determined by the intersection of the System Impedance curve and the Fan Characteristic Curve, as shown on Chart 2.3.



## SYSTEM IMPEDANCE & OPERATING POINT (continued)

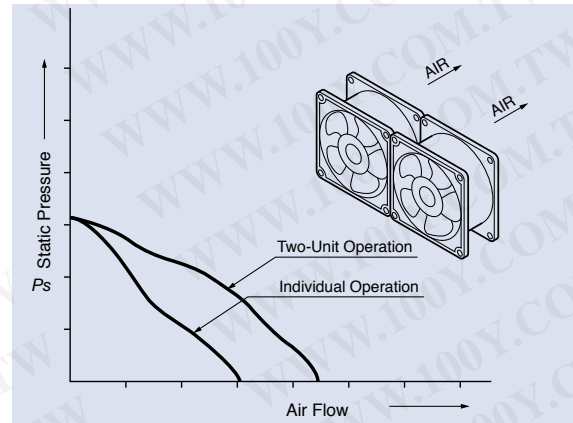
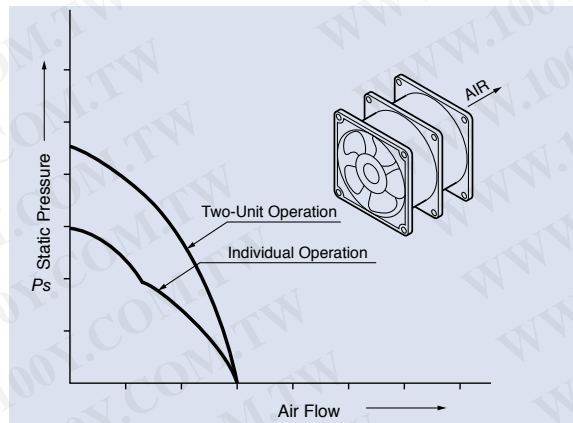
**Chart 2.1**

Typical relationship between Airflow and Static pressure for an Axial cooling fan.


**Chart 2.2**

**Chart 2.3**


## MULTIPLE FAN USE

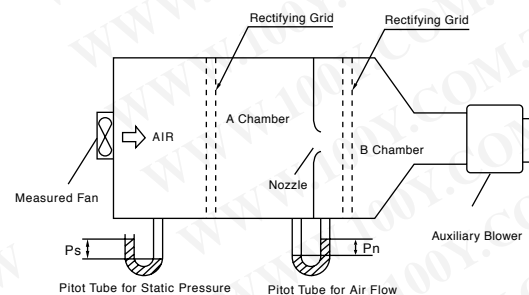
The following figures show the performance characteristics for parallel and series operation of two identical fans.


**Parallel Operation**

**Series Operation**

An additional fan in parallel to the first increases airflow in a low static pressure situation. An additional fan in series increases the airflow in a high static-pressure enclosure.

## AIRFLOW & PRESSURE MEASUREMENT

An AMCA Standard 210 double chamber is used to accurately measure air volume and static pressure.



## AIRFLOW & PRESSURE MEASUREMENT (continued)

**Maximum Static Pressure:** When the nozzle is closed, the pressure in chamber A will reach maximum.

**Maximum Airflow:** When opening the nozzle and absorbing the air using the auxiliary blower to make the static pressure zero ( $P_s = 0$ ), the differential pressure ( $P_n$ ) between A chamber and B chamber will reach maximum. The airflow obtained by applying the differential pressure ( $P_n$ ) to the above equation can be called the maximum airflow.

**Note:** Fan performance is calculated using the data obtained from this equipment according to the following formula:

The Equation: Airflow

$$Q = 60 \cdot C \cdot \frac{\pi}{4} \cdot D^2 \sqrt{2g/r \cdot 0.10197 P_n} \text{ (m}^3/\text{min)}$$

C: Coefficient of nozzle air

D: Diameter of nozzle (m)

r: Air density

$$\left( 1.293 \times \frac{273}{273+t} \times \frac{P}{1013.25} \right) \text{ (kg/m}^3\text{)}$$

t: Temperature ( $^{\circ}\text{C}$ )

P: Air pressure (hPa)

$P_n$ : differential pressure of air flow (Pa)

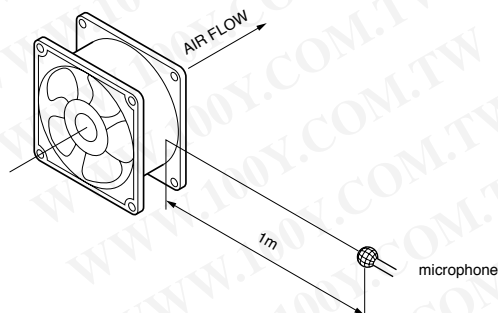
g:  $9.8\text{m/s}^2$

## ACOUSTIC NOISE MEASUREMENT

Noise measurements are performed in an Anechoic Chamber with less than 16 dBA background noise in compliance with JIS C 9603 standards.

DC Fan 1 m from inlet side

AC Fan 1 m from the side



## FAN SENSORS

Three types of DC fan sensors are available for NMB fans:

**Locked Rotor Signal** – outputs the status of the fan motor and is ideal for detecting if the fan motor is rotating or stopped.

**Tachometer Signal** – set to produce two cycles of rectangular waveform as the fan motor makes one rotation and is ideal for detecting speed.

**Life Signal** – detects a reduction in fan speed at a specified RPM level.

### Locked Rotor Alarm Signal:

Output Circuit: Open Collector

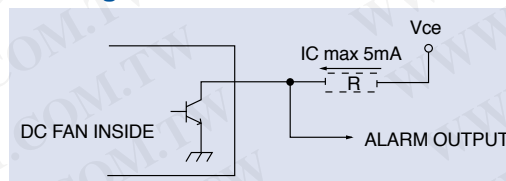
Specifications:

$V_{ce}$  max: +30V

$V_{ce}$  max: +15V (1004KL, 1404KL, 1204KL, 1604KL, 1606KL, 1608KL, 2004KL, 2106KL, 2406KL, BM4515, BM5115, BM5125, BM6015)

$I_c$  max: 5mA ( $V_{ce(sat)}$  max = 0.4V)

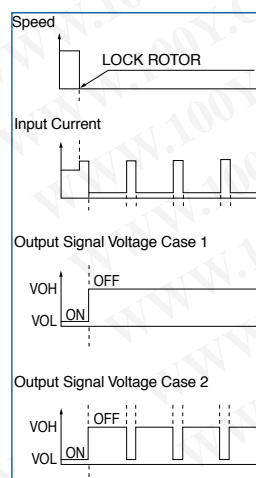
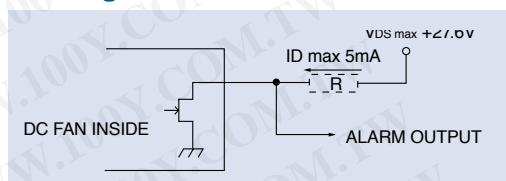
### Alarm Signal Circuit



Alarm Signal Output: White, +:Red, -:Black

TTL output is an available option.

### Alarm Signal Circuit

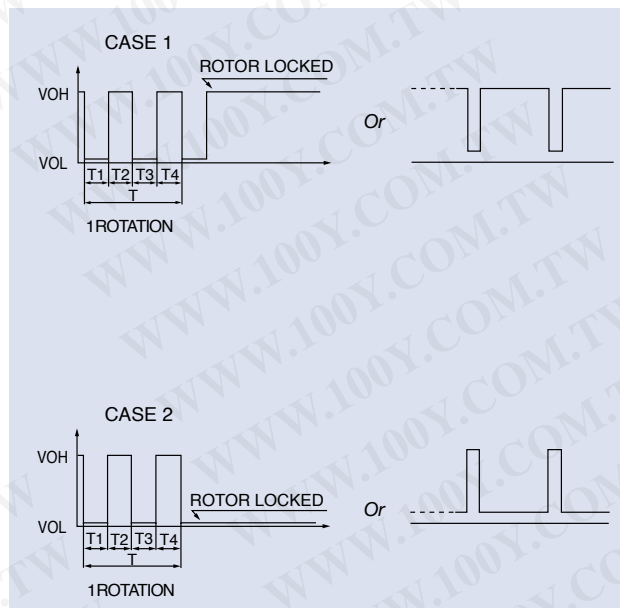


Output Waveform:

At Rated Voltage, the output signal may correspond to either Case 1 or Case 2. Your design should provide for both waveforms.

## Tachometer Signal

Output Waveform: At Rated Voltage

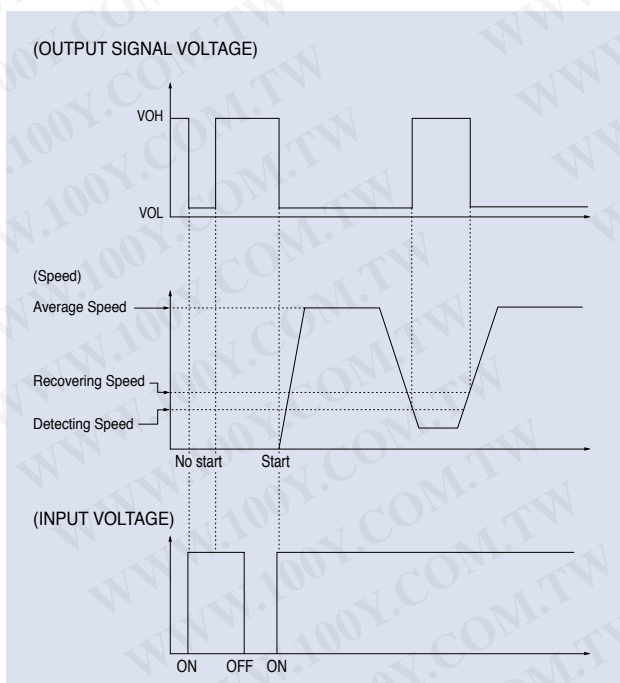


$T = T1 + T2 + T3 + T4 = 1 \text{ Rotation}$ ,  $T1 = T2 = T3 = T4 = 60/4m$   
m: Rotation Speed  $\text{min}^{-1}$

The output signal may correspond to Case 1 or Case 2. Your design should provide for both waveforms.

## Life Signal

Output Waveform: At Rated Voltage



## SPEED CONTROL

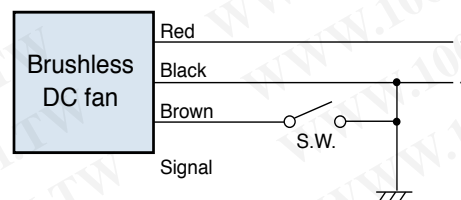
DC fan speed can be controlled in order to optimize cooling, reduce noise and decrease system power draw. There are various methods of controlling fan speed.

### 2-speed DC fan motor

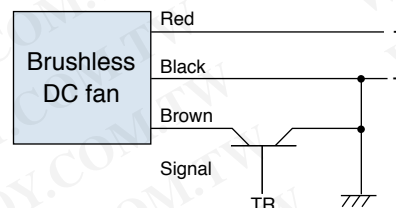
NMB's custom 2 speed fans are available with high and low speeds specified by the customer. The low end operating speed is fixed in order to reduce noise and lower power consumption.

Below is an example of an External connection for a 2-speed DC fan motor.

Control by relay contact



Control by transistor



Switch-over of fan speed

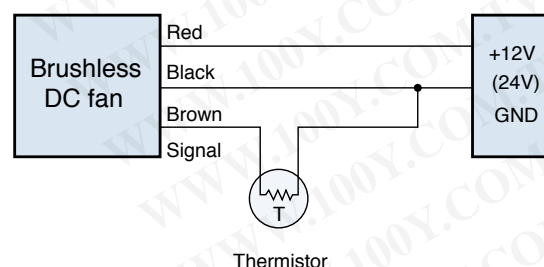
S.W. OFF: LOW SPEED, ON: HI SPEED

### Temperature Detecting Variable Speed DC Fan

The RPM may be automatically controlled and synchronized with temperature variation by installing a thermistor.

Varying the control voltage (0 to 6V) enables speed variation between the signal wire and ground.

Example of connection diagram:



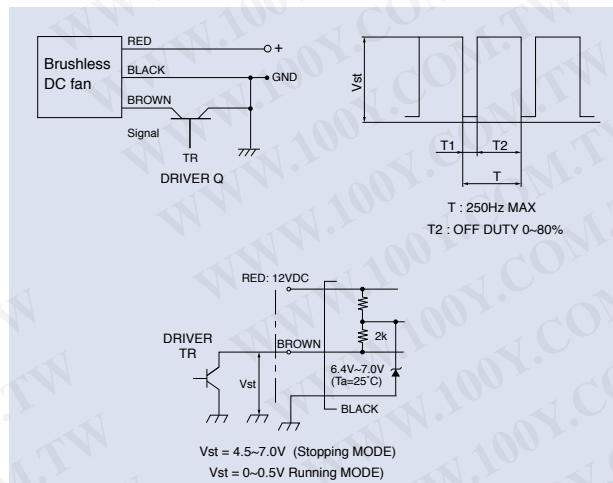


## PWM Control DC Fan

In PWM speed control, a fixed frequency square wave is applied to the speed control leadwire of the fan.

The ratio of on time vs. off time (duty cycle) is directly proportional to the speed of the fan.

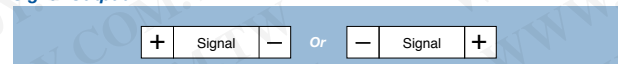
Example:



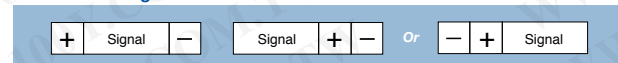
## Correct Signal Connection

Correct signal connection is important to prevent damage to the internal fan IC. Connection should be design as shown below:

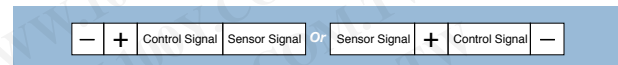
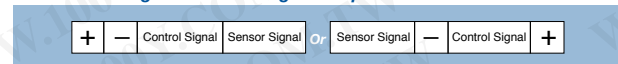
### Signal Output



### RPM Control Signal



### RPM Control Signal & Sensor Signal Output



## FAN LAWS

There are various laws useful in determining different fan performance parameters. We have selected a few of these that can be useful in calculating airflow (CFM), pressure (inches H<sub>2</sub>O), power consumption (Watts), and noise (dBA), when operating at differing speeds (RPM).

Only fans of the same physical dimensions, same motor and impeller should be used for comparative analysis. The variables below are used in the formulas that follow:

Where:

Speed\_k = Known Speed

Speed\_n = The new speed we are using for calculation

Airflow\_k = Known airflow at Speed\_k

Airflow\_n = New airflow calculated at new speed

Pressure\_k = Known Pressure at Speed\_k

Pressure\_n = New pressure calculated at new speed

Power\_k = Known Power at Speed\_k

Power\_n = New Power calculated at new speed

Noise\_k = Known Noise at Speed\_k

Noise\_n = New Noise calculated at new speed

### Calculating Airflow at different speeds:

$$\text{Airflow}_n = \text{Airflow}_k \left( \frac{\text{Speed}_n}{\text{Speed}_k} \right)$$

### Calculating Pressure at different speeds:

$$\text{Pressure}_n = \text{Pressure}_k \left( \frac{\text{Speed}_n}{\text{Speed}_k} \right)^2$$

### Calculating Power Draw at different speeds:

$$\text{Power}_n = \text{Power}_k \left( \frac{\text{Speed}_n}{\text{Speed}_k} \right)^3$$

### Calculating Noise at different speeds:

$$\text{Noise}_n = \text{Noise}_k + 50 \log \left( \frac{\text{Speed}_n}{\text{Speed}_k} \right)^2$$

## Airflow Calculation Example:

If a fan provides 210 CFM of airflow at 3000 RPM. What airflow (CFM) would be expected if the speed (RPM) is increased to 3500 RPM?

Speed\_k = 3000 RPM

Airflow\_k = 210 FM

Speed\_n = 3500 RPM

$$\text{Airflow}_n = \text{Airflow}_k \left( \frac{\text{Speed}_n}{\text{Speed}_k} \right)$$

Airflow\_n = 245 CFM

## Pressure Calculation Example:

In the example above the fan provides 0.1 inches of H<sub>2</sub>O Pressure at the system operating point. What pressure would be expected if the fan speed were increased to 3500 RPM?

Speed<sub>k</sub> = 3000 RPM

Speed<sub>n</sub> = 3500 RPM

Pressure<sub>k</sub> = 0.1 in H<sub>2</sub>O

$$\text{Pressure}_n = \text{Pressure}_k \left( \frac{\text{Speed}_n}{\text{Speed}_k} \right)^2$$

Pressure<sub>k</sub> = 0.136 in H<sub>2</sub>O

## Power Calculation Example:

The fan in question draws 22 Watts at 3000 RPM. What power draw would be expected if the fan speed were increased to 3500 RPM?

Speed<sub>k</sub> = 3000 RPM

Speed<sub>n</sub> = 3500 RPM

Power<sub>k</sub> = 22 watt

$$\text{Power}_n = \text{Power}_k \left( \frac{\text{Speed}_n}{\text{Speed}_k} \right)^3$$

Power<sub>n</sub> = 34.935 watt

## Noise Calculation Example:

The fan in question generates 58 dBA of noise measured 1 meter from the inlet side of the fan. What would the increase in noise be if the the speed were increased form 3000 RPM to 3500 RPM?

Speed<sub>k</sub> = 3000 RPM

Speed<sub>n</sub> = 3500 RPM

Noise<sub>k</sub> = 58 dBA

$$\text{Noise}_n = \text{Noise}_k \left( \frac{\text{Speed}_n}{\text{Speed}_k} \right)$$

Noise<sub>n</sub> = 61.347 dBA

## NMB TECHNICAL SUPPORT

NMB offers a full range of application and design support services, including thermal modeling and flow analysis. For assistance with any technical issue, please contact the NMB Fan Team through our web site at [www.nmbtc.com](http://www.nmbtc.com) or e-mail us at [fans@nmbtc.com](mailto:fans@nmbtc.com).

## UNITS OF MEASURE AND CONVERSIONS

Fan airflow, static pressure, temperature, and dimensions are often referred to in a variety of unit measures. Below are the measures and methods of conversion.

### Airflow

| CFM  | m <sup>3</sup> /min | m <sup>3</sup> /hr | L/sec |
|------|---------------------|--------------------|-------|
| 1    | 0.028               | 1.7                | 0.47  |
| 35.3 | 1                   | 60                 | 16.7  |
| 0.59 | 0.017               | 1                  | 0.28  |
| 2.12 | 0.06                | 3.6                | 1     |

Example: To convert from CFM to m<sup>3</sup>/hr, multiply by 1.7

### Static Pressure

| in H <sub>2</sub> O | mm H <sub>2</sub> O | Pa   |
|---------------------|---------------------|------|
| 1                   | 25.4                | 249  |
| 0.039               | 1                   | 9.81 |
| 0.004               | 0.1                 | 1    |

To convert PA to H<sub>2</sub>O, multiply by 0.004

### Temperature

Degree F = 9/5 C + 32

Degree K = C = 273/15

### Linear Dimensions

1mm = 0.0394" ~ 0.04

1" = 25.4mm = 2.54 cm

1U = 44.4 mm = 1.75"

## FAN LIFE AND RELIABILITY

### Fan Life Testing

Life expectancy of a cooling fan is a critical element in thermal design. NMB uses parametric failure modes during life testing to calculate for life expectancy. Speed (RPM) and Current (mA) failures include both “hard failures” (where the fan is non-functional) and “parametric failures”. These parametric failures are defined as 15% decrease in RPM and an increase in mA of 15%.

Including parametric failure modes leads to a more conservative L-10 and MTTF reporting standard than those methods that measure life performance using only hard failures.

The benefit to the customer is a fan that sets the quality and reliability standard for the cooling industry.

NMB evaluates fan life and reliability during the design phase using accelerated life testing in conjunction with ORT (Ongoing Reliability Testing). Accelerated life testing is used to compress the amount of time required to conduct life testing. Development testing occurs early in the product design, prior to product release. It is vital to characterize the reliability of the product in the initial stages of design to allow for improvements and to meet the reliability specifications prior to release to manufacturing.

Once the design has been through design verification testing and is turned over to manufacturing, ORT is conducted. For some models, ORT evaluation has continued beyond 10 years. The value of ORT is a continued refinement of the accuracy of the accelerated life testing and constant review of the design of the fan. This continued process improvement allows for ongoing evaluation and increase in fan life and reliability.

Under accelerated life testing NMB fans are tested at extreme environmental conditions, with temperature stress factors above standard operating levels. In order to gather meaningful data within a reasonable time frame, the stress factors must be accelerated to simulate different operating environments. High temperature stress is the most common stress factor used for these purposes.

Proper understanding of accelerating stresses and design limits are necessary to implement a meaningful accelerated reliability test. NMB uses the Arrhenius model for determining acceleration factors (AF) during life testing. This is the most commonly used model in accelerated life testing where thermal stress is the primary factor affecting life.

Life test data gathered from different types of fans and blowers lends to highly accurate statistical analysis. This data can produce very detailed information about the behavior of the product for reliability and prediction of fan performance in the field. The Weibull Distribution is a typical method employed by NMB for statistical analysis. An explanation of this calculation model is shown below.

### Arrhenius Weibull Model:

Life Stress Relation: Arrhenius

The Arrhenius life-stress relationship is given by:

$$\eta = L(V) = C \cdot e^{\frac{\beta}{V}}$$

Where:

- L represents a quantifiable life measure, which is the scale parameter or characteristic life of the Weibull Distribution.
- V represents the stress level (formulated for temperature and temperature values in absolute units, i.e. degrees Kelvin or degrees Rankine)
- C is one of the model parameters to be determined ( $C > 0$ ).
- B is another model parameter to be determined

### Mean Life or MTTF

The mean,  $\bar{T}$ , also called MTTF or Mean Time To Failure, of the Arrhenius-Weibull relationship is given by:

$$\bar{T} = C \cdot \frac{B}{eV} \cdot T \left( \frac{1}{\beta} + 1 \right)$$



## Reliable Life

The Arrhenius Weibull Distribution model predicts the length of time at which a defined percentage of a product population will still be operating without failing to meet pre-set criteria. For cooling fans, this is normally characterized as L10 life expectancy, or the time at which 10% of a population will have failed and 90% of a population will continue to operate within specifications.

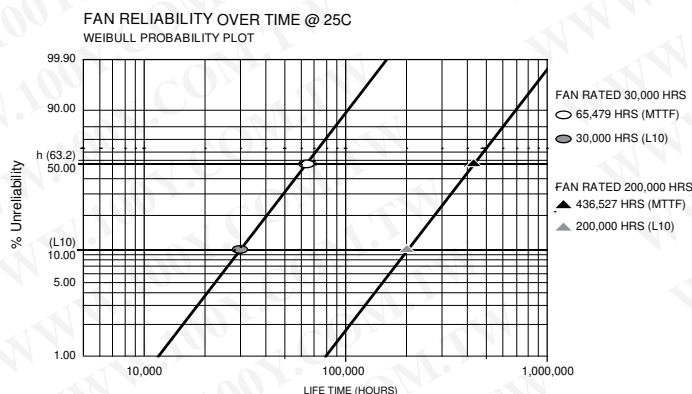
For the Arrhenius-Weibull relationship, the reliable life,  $T_R$ , of a unit for a specified reliability and starting the mission at age zero is given by:

$$T_R = C \cdot \frac{B}{eV} \{-\ln[R(T_R, V)]\}^{\frac{1}{\beta}}$$

This is the life for which the unit will function successfully with a reliability of  $R(T_R)$ . If  $R(T_R) = 0.90$  then  $T_R = 90\%$  reliability or 10% unreliability (L10) or the life by which 90% of the units will survive.

NMB uses parametric failure modes, or the condition at which a performance parameter fails to meet pre-set criteria, to record failures during accelerated life testing. This produces a more accurate prediction of field reliability than methods which use only non-operating failure modes to record failures.

Example: Life Experiment Data Using Arrhenius Weibull

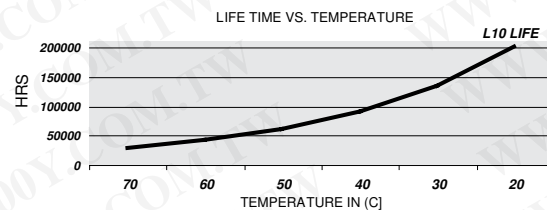
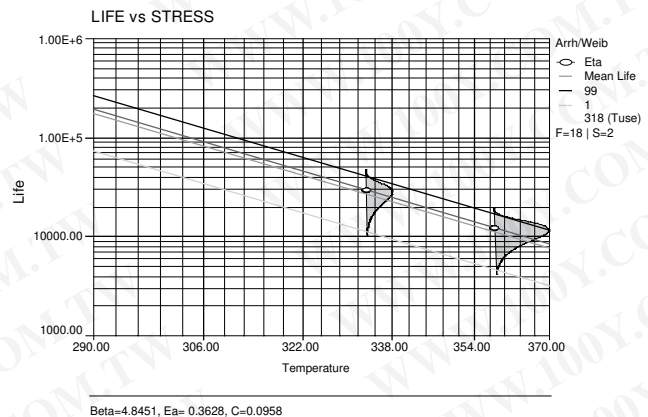

 $\beta_1=2.50, \eta_1=73798.94$ 
 $\beta_2=2.50, \eta_2=491992.91$ 

L10 - (10% Unreliability or 90% Reliability Over Time)

MTTF - (Mean Time To Failure or Mean Life)

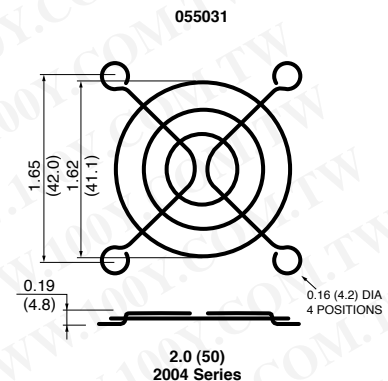
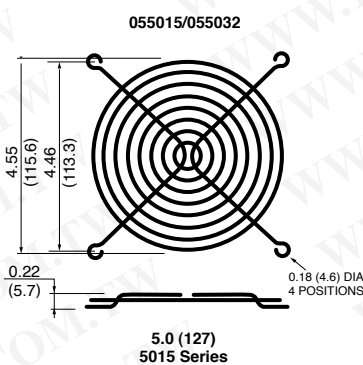
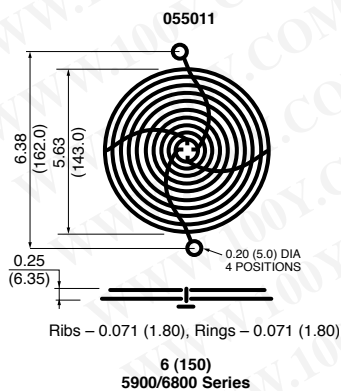
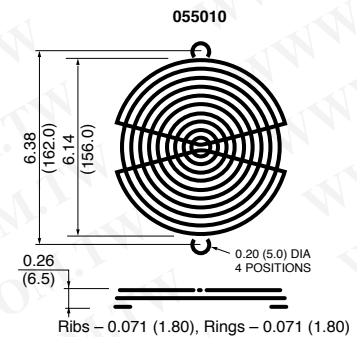
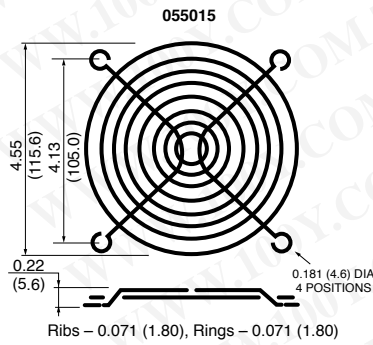
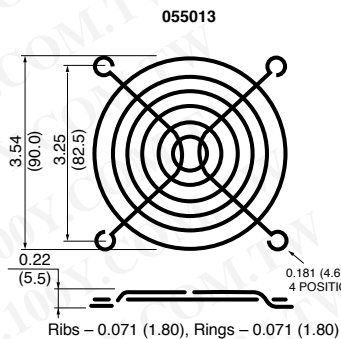
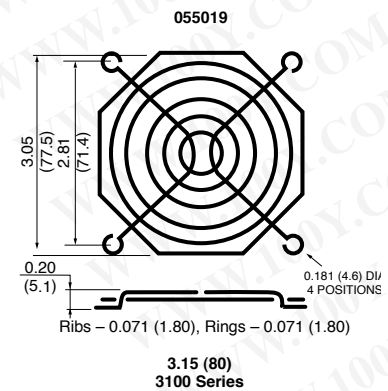
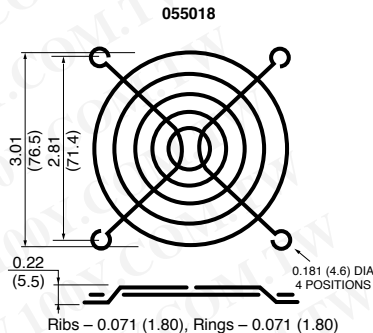
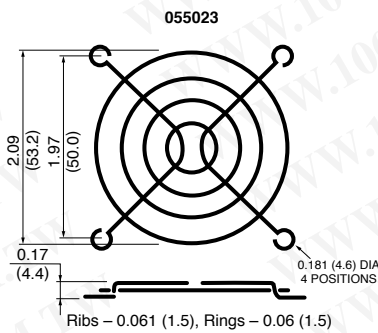
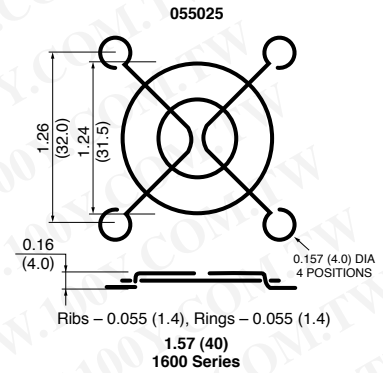
For specific product life and reliability, please contact NMB's Applications Engineers.

Product L10 life expectancy for NMB fans ranges from 30,000 hours to 200,000 hours of continuous operation at room temperature depending on fan speed, frame size, design structure, size of ball bearings and the type of ball bearings used. NMB, a world leader in miniature precision ball bearings design and manufacturing, uses high quality, long life bearings produced in house to ensure extended fan life.



## Fan Guards

- Designed to insure safety
- Plating bright nickel chrome, black electro deposit available
- Plating thickness of .0005 min.
- Weld joints withstand 230 lbs. separation force
- Wire base C1010 steel



## Fan Guards/Mounting Clips/Cord Sets

| Fan Mode      | Fan Guards<br>Part Number |        |        |        |        |        |        |        | Mounting Clips<br>Part Number |        |        | Cord Sets<br>Part Number |        |        |        |        |
|---------------|---------------------------|--------|--------|--------|--------|--------|--------|--------|-------------------------------|--------|--------|--------------------------|--------|--------|--------|--------|
|               | 055010                    | 055011 | 055013 | 055015 | 055018 | 055019 | 055023 | 055025 | 055031                        | 055032 | 512011 | 512020                   | 512023 | 432000 | 432002 | 432021 |
| 1004KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 1204KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 1404KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 1604KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 1606KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 1608KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 2004KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 2106KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 2406KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 2408NL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 2410ML        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 2410ML Vented |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 3108NL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 3110KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 3112KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 3610KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 3610KL Vented |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 3612KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 3615KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 4710KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 4712KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 4715KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 4715SL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 5015KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 5020KL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 5910PL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 5920PL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 6820PL        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 2412PS        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 3110PS        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 3115FS        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 3115PS        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 3610PS        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 4710PS        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 4715FS        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 4715MS        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |
| 5915PC        |                           |        |        |        |        |        |        |        |                               |        |        |                          |        |        |        |        |



### **NMB Fan Warranty Policy**

NMB warrants our fans to be free from defects in material and workmanship for a period of one (1) year. In order to accommodate transportation and installation we extend this warranty to 15 months from the date of manufacture.

This warranty applies to fans and blowers which are used within the design parameters and when used in an approved application. If there are any questions regarding proper application please contact your NMB representative and an applications engineer can review the customer's operational requirements.

### **Warranty Limitations and Liability**

In the event of an operational failure of an NMB fan or blower, which was used in a manner specifically approved by NMB, NMB will at its option, repair or replace the defective fan or blower with an identical or functionally equivalent product.

In no case will NMB's liability exceed the purchase price of the defective product.

#### **Errors**

All information, data and dimension tables in this catalog have been carefully compiled and thoroughly checked. However, no responsibility for possible errors or omissions can be assumed.

#### **Changes**

The company reserves the right to change specifications and other information included in this catalog without notice.

# 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](mailto: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](mailto: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](mailto: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](mailto:info@nmbtc.com)





# NMB<sup>TM</sup>

**Minebea**

ISO 14001 • ISO 9001:2008 • TS 16949 • OHSAS 18001

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# NMB-MAT

EMINEBEA.COM

## 1004KL (25<sup>□</sup> x 10<sup>L</sup>)



DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M Ω or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

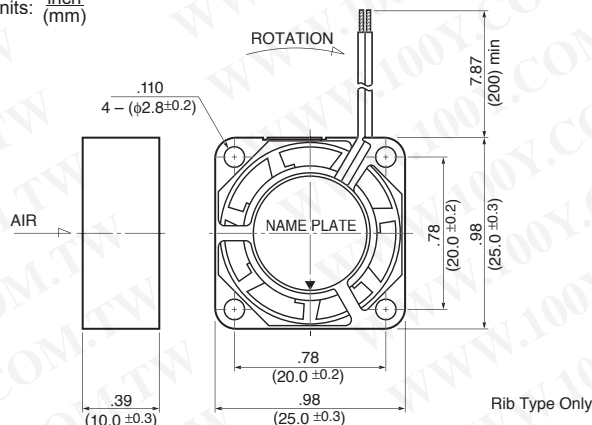
**Allowable Ambient Temperature Range:**

-10°C ~ +60°C (Operating)

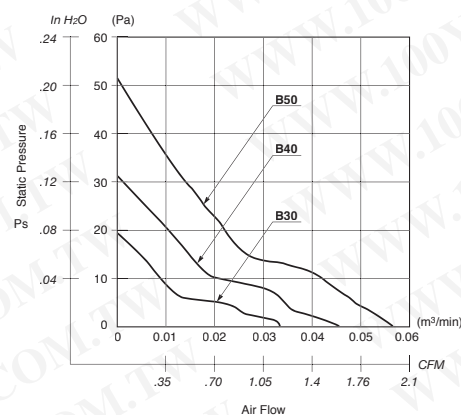
-40°C ~ +70°C (Storage)  
(non-condensing environment)

### Outline

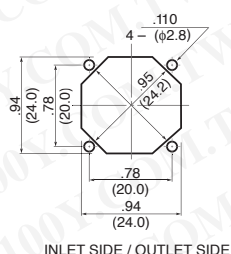
Units:  $\frac{\text{inch}}{(\text{mm})}$



### Characteristic Curves



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1061, AWG26, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 1004KL-01W-B30- | X00         | 5             | 4.5 ~ 5.5         | 0.065   | 0.325       | 7000                   | 1.2           | 0.034                   | .078                 | 19.5   | 20.0   | 7.5  |
| 1004KL-01W-B40- | X00         | 5             | 4.5 ~ 5.5         | 0.085   | 0.425       | 9000                   | 1.6           | 0.046                   | .126                 | 31.6   | 22.0   | 7.5  |
| 1004KL-01W-B50- | X00         | 5             | 4.5 ~ 5.5         | 0.125   | 0.625       | 11000                  | 2.0           | 0.057                   | .20                  | 50.6   | 25.0   | 7.5  |
| 1004KL-04W-B30- | X00         | 12            | 8 ~ 13.8          | 0.035   | 0.42        | 7000                   | 1.2           | 0.034                   | .078                 | 19.5   | 20.0   | 7.5  |
| 1004KL-04W-B40- | X00         | 12            | 8 ~ 13.8          | 0.045   | 0.54        | 9000                   | 1.6           | 0.046                   | .126                 | 31.6   | 22.0   | 7.5  |
| 1004KL-04W-B50- | X00         | 12            | 8 ~ 13.8          | 0.060   | 0.72        | 11000                  | 2.0           | 0.057                   | .20                  | 50.6   | 25.0   | 7.5  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

# 1204KL (30<sup>□</sup> x 10<sup>L</sup>)

**NMB**

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## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

### Allowable Ambient Temperature Range:

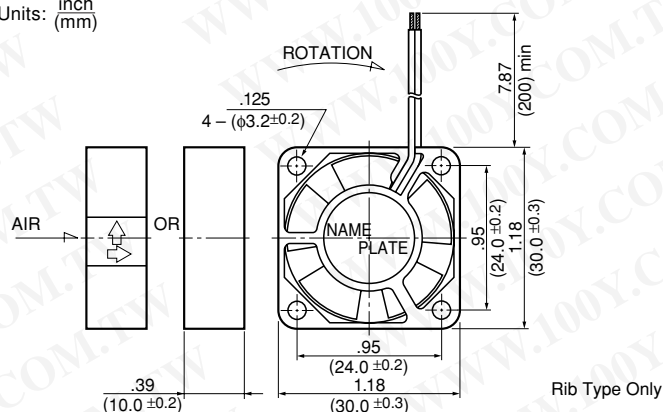
-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

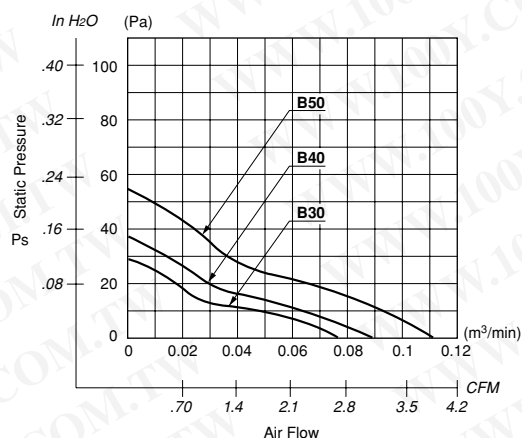
(non-condensing environment)

## Outline

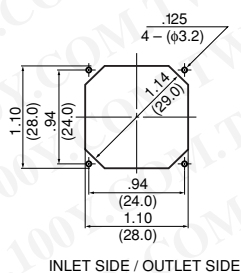
Units:  $\frac{\text{inch}}{(\text{mm})}$



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1061, AWG26, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 1204KL-01W-B30- | X00         | 5             | 4.5 ~ 5.5         | 0.10    | 0.50        | 7500                   | 2.7           | 0.078                   | .116                 | 29.0   | 21.0   | 8.5  |
| 1204KL-01W-B40- | X00         | 5             | 4.5 ~ 5.5         | 0.14    | 0.70        | 9000                   | 3.2           | 0.091                   | .148                 | 37.0   | 23.0   | 8.5  |
| 1204KL-01W-B50- | X00         | 5             | 4.5 ~ 5.5         | 0.18    | 0.90        | 10500                  | 3.8           | 0.110                   | .216                 | 54.0   | 27.0   | 8.5  |
| 1204KL-04W-B30- | X00         | 12            | 6 ~ 13.8          | 0.06    | 0.72        | 7500                   | 2.7           | 0.078                   | .116                 | 29.0   | 21.0   | 8.5  |
| 1204KL-04W-B40- | X00         | 12            | 6 ~ 13.8          | 0.07    | 0.84        | 9000                   | 3.2           | 0.091                   | .148                 | 37.0   | 23.0   | 8.5  |
| 1204KL-04W-B50- | X00         | 12            | 6 ~ 13.8          | 0.08    | 0.96        | 10500                  | 3.8           | 0.110                   | .216                 | 54.0   | 27.0   | 8.5  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# NMB-MAT

EMINEBEA.COM

## 1404KL (35<sup>□</sup> x 10<sup>L</sup>)



DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M Ω or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

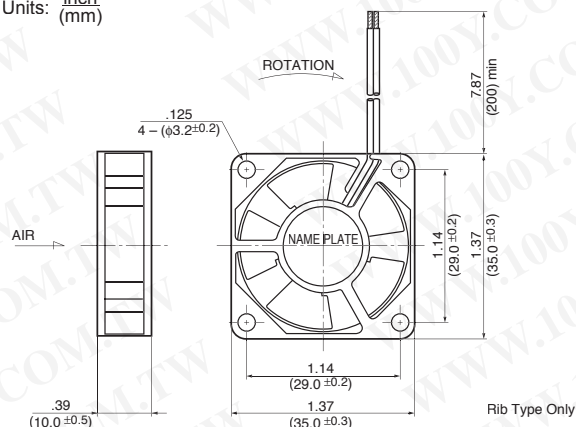
-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

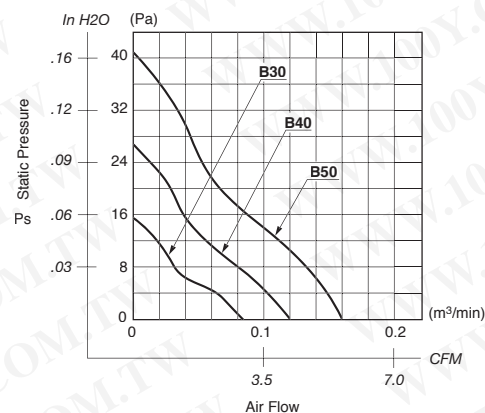
(non-condensing environment)

### Outline

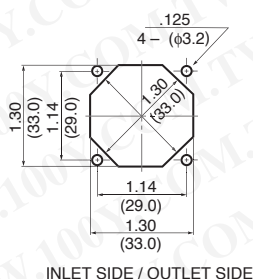
Units:  $\frac{\text{inch}}{(\text{mm})}$



### Characteristic Curves



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1061, AWG26, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 1404KL-01W-B30- | X00         | 5             | 4.5 ~ 5.5         | 0.08    | 0.40        | 5000                   | 3.0           | 0.086                   | .06                  | 15.5   | 19.0   | 12   |
| 1404KL-01W-B40- | X00         | 5             | 4.5 ~ 5.5         | 0.17    | 0.85        | 7000                   | 4.2           | 0.120                   | .10                  | 26.8   | 22.0   | 12   |
| 1404KL-01W-B50- | X00         | 5             | 4.5 ~ 5.5         | 0.21    | 1.05        | 9000                   | 5.6           | 0.160                   | .16                  | 41.0   | 27.0   | 12   |
| 1404KL-04W-B30- | X00         | 12            | 8 ~ 13.8          | 0.04    | 0.48        | 5000                   | 3.0           | 0.086                   | .06                  | 15.5   | 19.0   | 12   |
| 1404KL-04W-B40- | X00         | 12            | 8 ~ 13.8          | 0.07    | 0.84        | 7000                   | 4.2           | 0.120                   | .10                  | 26.8   | 22.0   | 12   |
| 1404KL-04W-B50- | X00         | 12            | 8 ~ 13.8          | 0.08    | 0.96        | 9000                   | 5.6           | 0.160                   | .16                  | 41.0   | 27.0   | 12   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air





# NMB-MAT

EMINEBEA.COM

## 1606KL (40<sup>□</sup>x 15<sup>L</sup>)



DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

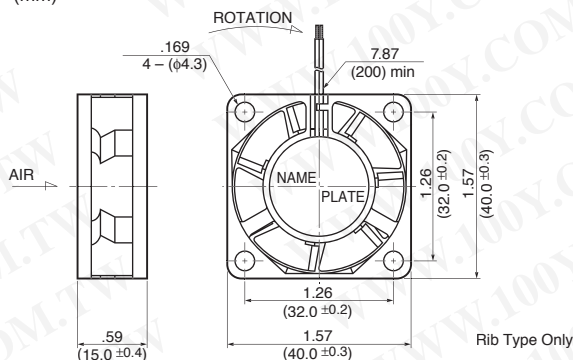
**Allowable Ambient Temperature Range:**

-10°C ~ +70°C (Operating)

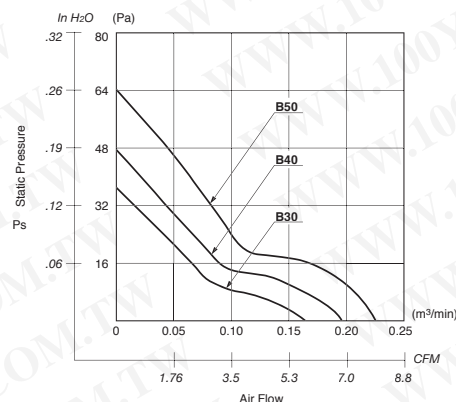
-40°C ~ +70°C (Storage)  
(non-condensing environment)

### Outline

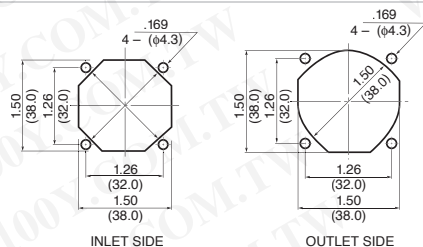
Units:  $\frac{\text{inch}}{(\text{mm})}$



### Characteristic Curves



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1061, AWG26, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 1606KL-01W-B30- | X00         | 5             | 4.5 ~ 5.5         | 0.120             | 0.600             | 6000                               | 6.0               | 0.17                                | .145                 | 36.3               | 28.0               | 20   |
| 1606KL-01W-B40- | X00         | 5             | 4.5 ~ 5.5         | 0.150             | 0.750             | 7000                               | 7.0               | 0.20                                | .188                 | 47.1               | 31.0               | 20   |
| 1606KL-01W-B50- | X00         | 5             | 4.5 ~ 5.5         | 0.240             | 1.200             | 8000                               | 8.1               | 0.23                                | .250                 | 62.8               | 34.0               | 20   |
| 1606KL-04W-B30- | X00         | 12            | 10.2 ~ 13.8       | 0.067             | 0.804             | 6000                               | 6.0               | 0.17                                | .145                 | 36.3               | 28.0               | 20   |
| 1606KL-04W-B40- | X00         | 12            | 10.2 ~ 13.8       | 0.075             | 0.900             | 7000                               | 7.0               | 0.20                                | .188                 | 47.1               | 31.0               | 20   |
| 1606KL-04W-B50- | X00         | 12            | 10.2 ~ 13.8       | 0.085             | 1.020             | 8000                               | 8.1               | 0.23                                | .250                 | 62.8               | 34.0               | 20   |
| 1606KL-05W-B30- | X00         | 24            | 22.0 ~ 25.2       | 0.045             | 1.080             | 6000                               | 6.0               | 0.17                                | .145                 | 36.3               | 28.0               | 20   |
| 1606KL-05W-B40- | X00         | 24            | 22.0 ~ 25.2       | 0.054             | 1.296             | 7000                               | 7.0               | 0.20                                | .188                 | 47.1               | 31.0               | 20   |
| 1606KL-05W-B50- | X00         | 24            | 22.0 ~ 25.2       | 0.062             | 1.488             | 8000                               | 8.1               | 0.23                                | .250                 | 62.8               | 34.0               | 20   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

# 1608KL (40<sup>□</sup> x 20<sup>L</sup>)



**NMB-MAT**

EMINEBEA.COM

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance: 10M  $\Omega$  or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

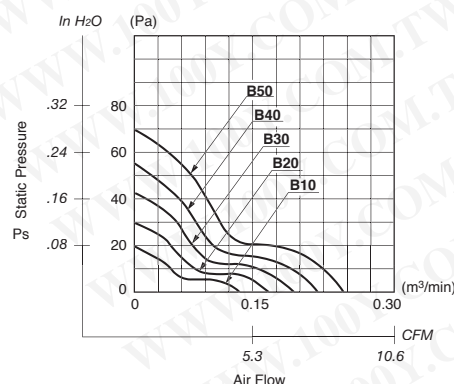
### Expected Life

Failure Rate: 10%

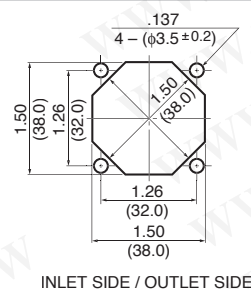
25°C 50,000 Hours (L00)

25°C 40,000 Hours (T00)

## Characteristic Curves

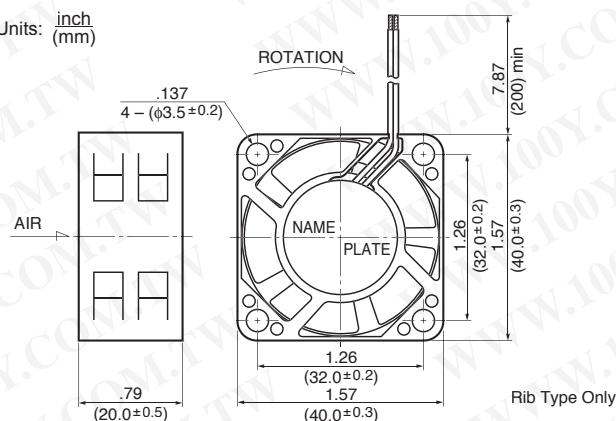


## Panel Cut-outs



## Outline

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



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1061, AWG26, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 1608KL-01W-B10- | X00         | 5             | 4.5 ~ 5.5         | 0.07              | 0.35              | 4500                               | 4.9               | 0.14                                | .08                  | 20.0               | 20.0               | 25   |
| 1608KL-01W-B20- | X00         | 5             | 4.5 ~ 5.5         | 0.12              | 0.60              | 5500                               | 6.0               | 0.17                                | .12                  | 30.1               | 22.5               | 25   |
| 1608KL-01W-B30- | X00         | 5             | 4.5 ~ 5.5         | 0.17              | 0.85              | 6500                               | 7.4               | 0.21                                | .17                  | 42.2               | 25.5               | 25   |
| 1608KL-01W-B40- | X00         | 5             | 4.5 ~ 5.5         | 0.27              | 1.35              | 7500                               | 8.4               | 0.24                                | .21                  | 54.2               | 29.0               | 25   |
| 1608KL-01W-B50- | X00         | 5             | 4.5 ~ 5.5         | 0.38              | 1.90              | 8500                               | 9.5               | 0.27                                | .28                  | 69.4               | 33.0               | 25   |
| 1608KL-04W-B10- | X00         | 12            | 10.2 ~ 13.8       | 0.04              | 0.48              | 4500                               | 4.9               | 0.14                                | .08                  | 20.0               | 20.0               | 25   |
| 1608KL-04W-B20- | X00         | 12            | 10.2 ~ 13.8       | 0.06              | 0.72              | 5500                               | 6.0               | 0.17                                | .12                  | 30.1               | 22.5               | 25   |
| 1608KL-04W-B30- | X00         | 12            | 10.2 ~ 13.8       | 0.07              | 0.84              | 6500                               | 7.4               | 0.21                                | .17                  | 42.2               | 25.5               | 25   |
| 1608KL-04W-B40- | X00         | 12            | 10.2 ~ 13.8       | 0.09              | 1.08              | 7500                               | 8.4               | 0.24                                | .21                  | 54.2               | 29.0               | 25   |
| 1608KL-04W-B50- | X00         | 12            | 10.2 ~ 13.8       | 0.11              | 1.32              | 8500                               | 9.5               | 0.27                                | .28                  | 69.4               | 33.0               | 25   |
| 1608KL-05W-B10- | X00         | 24            | 20.0 ~ 25.2       | 0.04              | 0.96              | 4500                               | 4.9               | 0.14                                | .08                  | 20.0               | 20.0               | 25   |
| 1608KL-05W-B20- | X00         | 24            | 20.0 ~ 25.2       | 0.05              | 1.20              | 5500                               | 6.0               | 0.17                                | .12                  | 30.1               | 22.5               | 25   |
| 1608KL-05W-B30- | X00         | 24            | 20.0 ~ 25.2       | 0.06              | 1.44              | 6500                               | 7.4               | 0.21                                | .17                  | 42.2               | 25.5               | 25   |
| 1608KL-05W-B40- | X00         | 24            | 20.0 ~ 25.2       | 0.07              | 1.68              | 7500                               | 8.4               | 0.24                                | .21                  | 54.2               | 29.0               | 25   |
| 1608KL-05W-B50- | X00         | 24            | 20.0 ~ 25.2       | 0.08              | 1.92              | 8500                               | 9.5               | 0.27                                | .28                  | 69.4               | 33.0               | 25   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

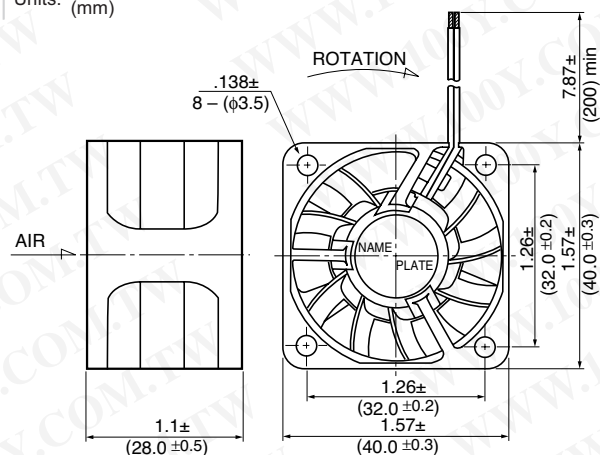
-10°C ~ +60°C (Operating)

-40°C ~ +60°C (Storage)

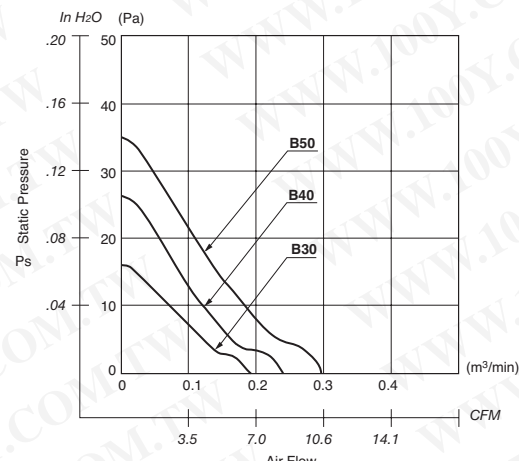
(non-condensing environment)

### Outline

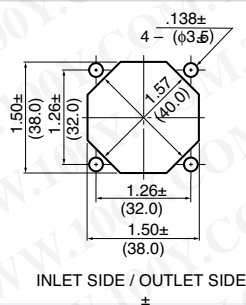
Units:  $\frac{\text{inch}}{\text{mm}}$



### Characteristic Curves



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0  
 Impeller : Plastic (Black) 94V-0  
 Bearing : Ball Bearing  
 Lead Wire: UL1007, AWG26, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 1611KL-04W-B20- | X00         | 12            | 7.0 ~ 13.8        | 0.08              | 0.96              | 5500                               | 8.4               | 0.24                                | .18                  | 45.5               | 29.5               | 25   |
| 1611KL-04W-B30- | X00         | 12            | 7.0 ~ 13.8        | 0.13              | 1.56              | 7000                               | 11.3              | 0.32                                | .30                  | 76.0               | 35.0               | 25   |
| 1611KL-04W-B40- | X00         | 12            | 7.0 ~ 13.8        | 0.20              | 2.40              | 8500                               | 13.7              | 0.39                                | .43                  | 109.7              | 40.0               | 25   |
| 1611KL-04W-B50- | X00         | 12            | 6.0 ~ 13.0        | 0.30              | 3.60              | 9500                               | 14.8              | 0.42                                | .47                  | 118.1              | 43.0               | 25   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

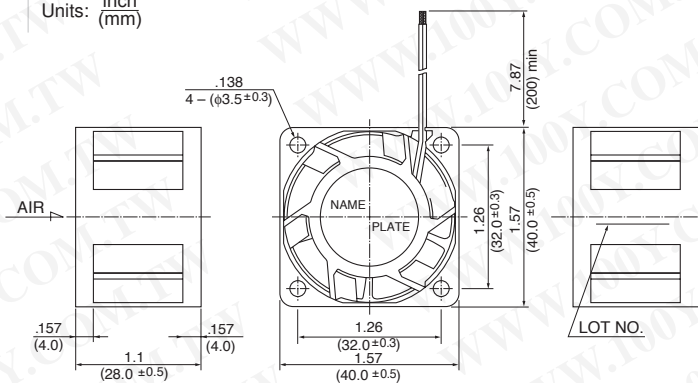
## Expected Life

### Failure Rate: 10%

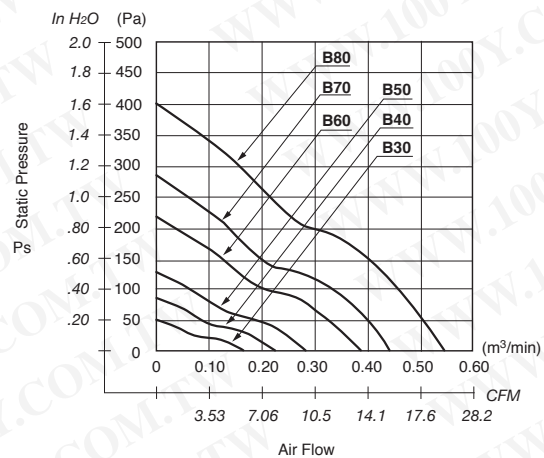
25°C 80,000 Hours

## Outline

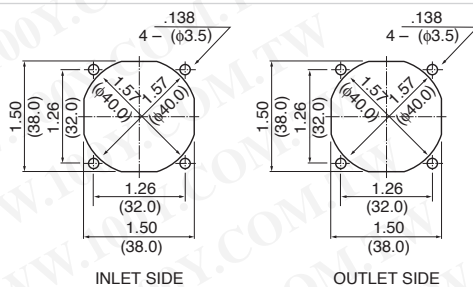
Units: inch  
(mm)



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1061, AWG28, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 1611RL-04W-B30- | X00         | 12            | 7.0 ~ 13.2        | 0.07              | 0.84              | 6000                               | 6.0               | 0.17                                | .18                  | 46.0               | 30.0               | 48   |
| 1611RL-04W-B40- | X00         | 12            | 7.0 ~ 13.2        | 0.10              | 1.20              | 8000                               | 8.4               | 0.24                                | .33                  | 84.5               | 37.5               | 48   |
| 1611RL-04W-B50- | X00         | 12            | 7.0 ~ 13.2        | 0.17              | 2.04              | 10000                              | 10.5              | 0.30                                | .52                  | 130.0              | 43.5               | 48   |
| 1611RL-04W-B60- | X00         | 12            | 7.0 ~ 13.2        | 0.27              | 3.24              | 13000                              | 13.7              | 0.39                                | .87                  | 217.5              | 49.5               | 48   |
| 1611RL-04W-B70- | X00         | 12            | 7.0 ~ 13.2        | 0.36              | 4.32              | 15000                              | 15.8              | 0.45                                | 1.13                 | 283.5              | 54.0               | 48   |
| 1611RL-04W-B80- | X00         | 12            | 7.0 ~ 13.2        | 0.62              | 7.44              | 18000                              | 19.4              | 0.55                                | 1.61                 | 402.0              | 60.0               | 48   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# NMB-MAT

NMBTC.COM / 818.341.3355

## 1622FT (40<sup>□</sup> x 56<sup>L</sup>)

**NMB TurboFan**  
PATENT PENDING

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

#### Insulation Resistance:

min 10M  $\Omega$  by DC500V Megger

#### Dielectric Withstand Voltage: AC 700V 1s

#### Allowable Ambient Temperature Range:

-10°C ~ +60°C (Operating)

-40°C ~ +70°C (Storage)

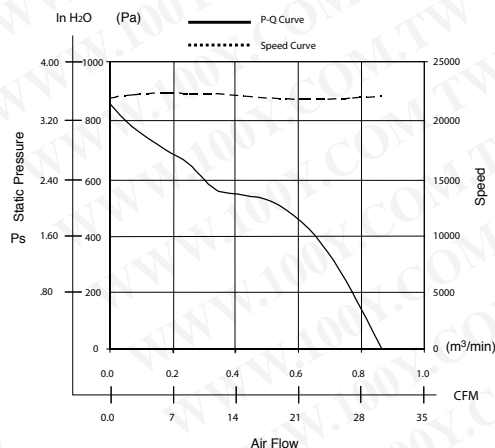
(non-condensing environment)

### Expected Life

#### Failure Rate: 10%

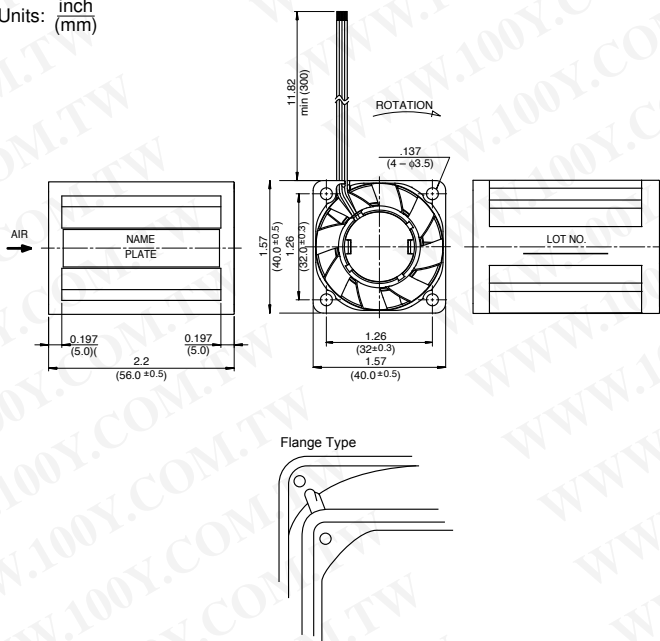
40°C 70,000 Hours

### Characteristic Curves



### Outline

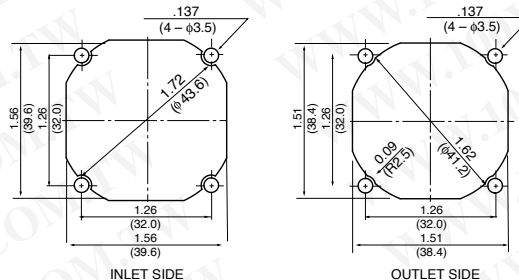
Units: inch (mm)



Flange Type

### Panel Cut-outs

PATENT PENDING



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

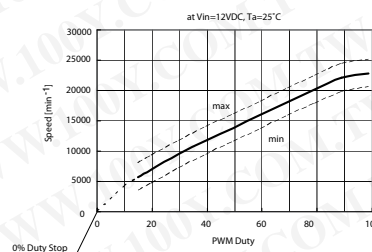
Bearing : Ball Bearing

Lead Wire : UL10368, AWG24, +Red, -Black

Tach Sig. : White

PWM Control : Brown

### Reference PWM Duty vs Speed Curve



### PWM Control Voltage

Vst = 0V ~ 0.5V Stop (On Duty 0%)  
Vst = 3.0V ~ 5.0V Full Speed (On Duty 100%)  
Vst = Open Full Speed  
(At Ta = 25°C, rated voltage 12VDC)

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 1622FT-04W-B86- | EXX         | 12            | 10.2 ~ 13.2       | 1.05    | 12.60       | 23,000                 | 30.0          | 0.85                    | 3.54                 | 885.0  | 60.0   | 68   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

0.0

DC Axial Fans - TurboFans

# 2004KL (50<sup>□</sup> X 10<sup>L</sup>)

# NMB-MAT

EMINEBEA.COM

## General Specifications

**Motor Protection:**  
Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**  
-10°C ~ +70°C (Operating)  
-40°C ~ +70°C (Storage)  
(non-condensing environment)

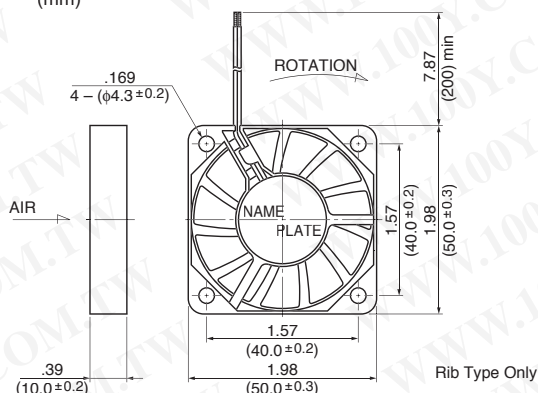
## Expected Life

**Failure Rate: 10%**

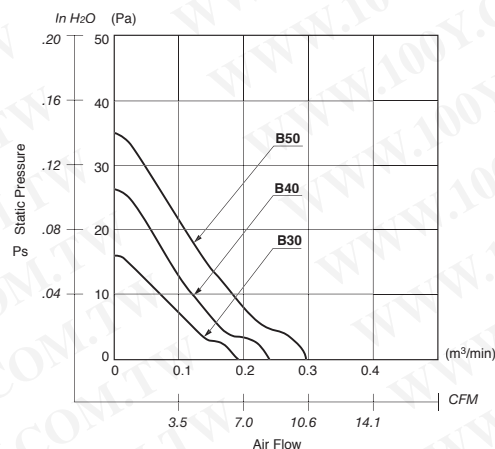
25°C 60,000 Hours (B00)  
25°C 50,000 Hours (M00)

## Outline

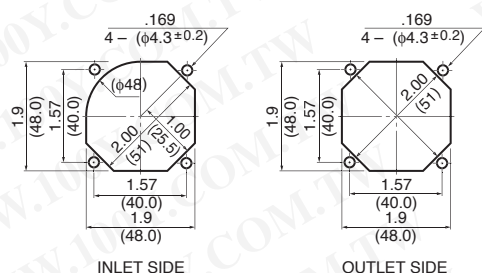
Units:  $\frac{\text{inch}}{(\text{mm})}$



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0  
Impeller : Plastic (Black) 94V-0  
Bearing : Ball Bearing  
Lead Wire : UL1061, AWG26, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |            | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m³/min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 2004KL-01W-B30- | X00         | 5             | 4.5 ~ 6.0         | 0.10    | 0.50        | 3500                   | 6.4           | 0.18       | .06                  | 16.0   | 23.0   | 20   |
| 2004KL-01W-B40- | X00         | 5             | 4.5 ~ 6.0         | 0.16    | 0.80        | 4500                   | 8.1           | 0.23       | .10                  | 26.0   | 28.5   | 20   |
| 2004KL-01W-B50- | X00         | 5             | 4.5 ~ 6.0         | 0.30    | 1.50        | 5500                   | 10.2          | 0.29       | .14                  | 35.0   | 34.0   | 20   |
| 2004KL-04W-B30- | X00         | 12            | 10.2 ~ 13.8       | 0.04    | 0.48        | 3500                   | 6.4           | 0.18       | .06                  | 16.0   | 23.0   | 20   |
| 2004KL-04W-B40- | X00         | 12            | 10.2 ~ 13.8       | 0.07    | 0.84        | 4500                   | 8.1           | 0.23       | .10                  | 26.0   | 28.5   | 20   |
| 2004KL-04W-B50- | X00         | 12            | 10.2 ~ 13.8       | 0.10    | 1.20        | 5500                   | 10.2          | 0.29       | .14                  | 35.0   | 34.0   | 20   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air





# NMB-MAT

EMINEBEA.COM

## 2106KL (52<sup>□</sup> x 15<sup>L</sup>)



DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M Ω or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

#### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)  
(non-condensing environment)

### Expected Life

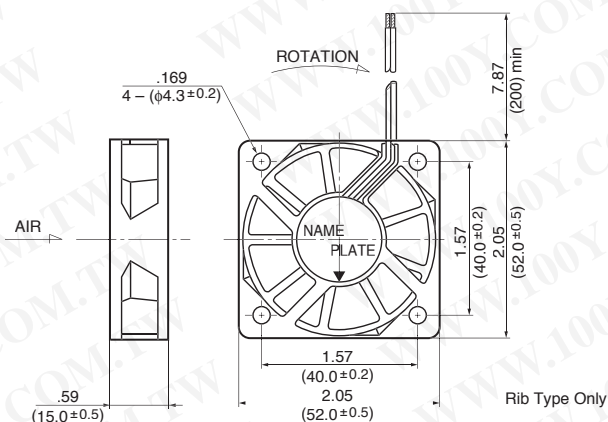
#### Failure Rate: 10%

25°C 50,000 Hours (L00)

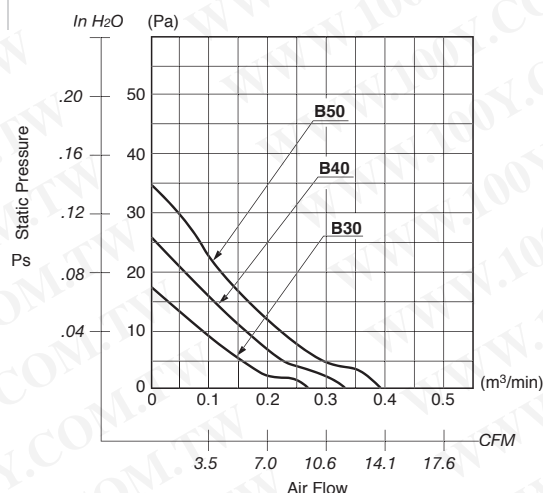
25°C 40,000 Hours (T00)

### Outline

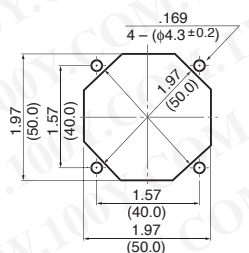
Units:  $\frac{\text{inch}}{(\text{mm})}$



### Characteristic Curves



### Panel Cut-outs



INLET SIDE / OUTLET SIDE

### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1061, AWG26, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 2106KL-04W-B30- | X00         | 12            | 10.2 ~ 13.0       | 0.07    | 0.84        | 3500                   | 9.9           | 0.28                    | .07                  | 18.0   | 21.0   | 25   |
| 2106KL-04W-B40- | X00         | 12            | 10.2 ~ 13.0       | 0.09    | 1.08        | 4200                   | 12.0          | 0.34                    | .10                  | 26.0   | 25.5   | 25   |
| 2106KL-04W-B50- | X00         | 12            | 10.2 ~ 13.0       | 0.13    | 1.56        | 4900                   | 14.1          | 0.40                    | .14                  | 35.0   | 30.0   | 25   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

## General Specifications

### Motor Protection:

### Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

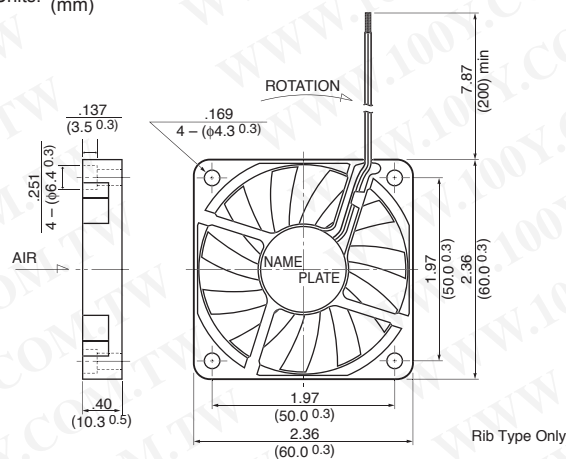
**B50 Class:** -10°C ~ +60°C (Operating)

B30, B40 Class:  $-10^{\circ}\text{C} \sim +70^{\circ}\text{C}$  (Operating)

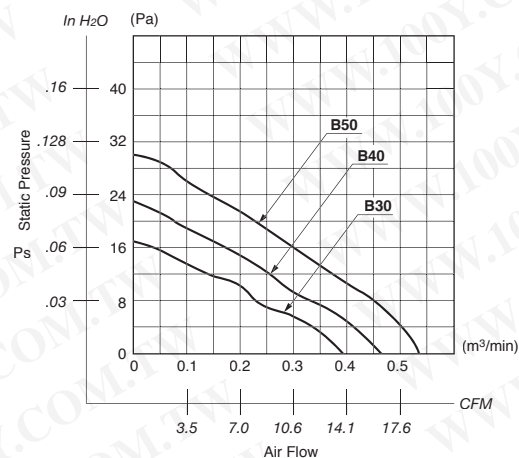
**All Class:** -40°C ~ +70°C (Storage)

(non-condensing environment)

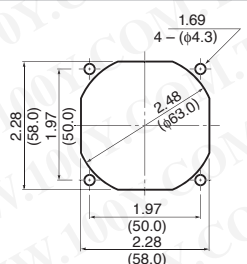
## Outline

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

## Characteristic Curves



## Panel Cut-outs



INLET SIDE / OUTLET SIDE

## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1061, AWG26, +Red, -Black

## Specifications

| MODEL           |             | Rated Voltage | Operating Voltage | Current          | Input Power      | Speed                             | Max. Air Flow    |                       | Max. Static Pressure |                   | Noise             | Mass |
|-----------------|-------------|---------------|-------------------|------------------|------------------|-----------------------------------|------------------|-----------------------|----------------------|-------------------|-------------------|------|
|                 | Product No. | (V)           | (V)               | (A) <sup>1</sup> | (W) <sup>1</sup> | (min <sup>-1</sup> ) <sup>1</sup> | CFM <sup>1</sup> | (m³/min) <sup>1</sup> | in H <sub>2</sub> O  | (Pa) <sup>1</sup> | (dB) <sup>1</sup> | (g)  |
| 2404KL-04W-B30- | X00         | 12            | 10.2 ~ 13.8       | 0.10             | 1.20             | 3600                              | 13.7             | 0.39                  | .07                  | 16.7              | 29.0              | 25   |
| 2404KL-04W-B40- | X00         | 12            | 10.2 ~ 13.8       | 0.20             | 2.40             | 4200                              | 16.2             | 0.46                  | .09                  | 23.0              | 33.0              | 25   |
| 2404KL-04W-B50- | X00         | 12            | 10.2 ~ 13.8       | 0.27             | 3.24             | 4800                              | 19.0             | 0.54                  | .12                  | 30.1              | 36.0              | 25   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# NMB-MAT

EMINEBEA.COM

## 2406KL (60<sup>□</sup>x 15<sup>L</sup>)



DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M Ω or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

**Allowable Ambient Temperature Range:**

-10°C ~ +60°C (Operating)

-40°C ~ +70°C (Operating)

(non-condensing environment)

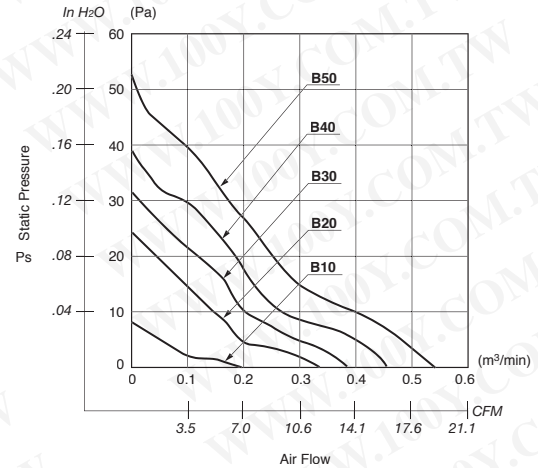
### Expected Life

**Failure Rate: 10%**

25°C 70,000 Hours (L00)

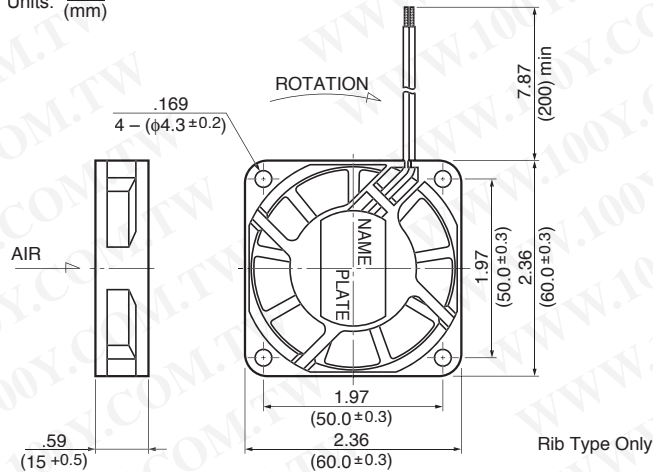
25°C 60,000 Hours (T00)

### Characteristic Curves

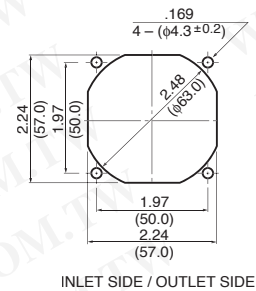


### Outline

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



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG26, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |            | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m³/min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 2406KL-04W-B10- | X00         | 12            | 7.0 ~ 13.8        | 0.04    | 0.48        | 1800                   | 6.7           | 0.19       | .03                  | 8.5    | 19.0   | 45   |
| 2406KL-04W-B20- | X00         | 12            | 6.0 ~ 13.8        | 0.07    | 0.84        | 3100                   | 11.6          | 0.33       | .09                  | 23.4   | 25.0   | 45   |
| 2406KL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.09    | 1.08        | 3600                   | 14.1          | 0.40       | .13                  | 31.3   | 28.0   | 45   |
| 2406KL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.13    | 1.56        | 4100                   | 15.9          | 0.45       | .16                  | 39.7   | 31.0   | 45   |
| 2406KL-04W-B50- | X00         | 12            | 6.0 ~ 13.8        | 0.16    | 1.92        | 4600                   | 18.3          | 0.52       | .20                  | 51.2   | 34.0   | 45   |
| 2406KL-05W-B10- | X00         | 24            | 18.5 ~ 27.6       | 0.04    | 0.96        | 1800                   | 6.7           | 0.19       | .03                  | 8.5    | 19.0   | 45   |
| 2406KL-05W-B20- | X00         | 24            | 12.0 ~ 27.6       | 0.06    | 1.44        | 3100                   | 11.6          | 0.33       | .09                  | 23.4   | 25.0   | 45   |
| 2406KL-05W-B30- | X00         | 24            | 12.0 ~ 27.6       | 0.06    | 1.44        | 3600                   | 14.1          | 0.40       | .13                  | 31.3   | 28.0   | 45   |
| 2406KL-05W-B40- | X00         | 24            | 10.0 ~ 27.6       | 0.07    | 1.68        | 4100                   | 15.9          | 0.45       | .16                  | 39.7   | 31.0   | 45   |
| 2406KL-05W-B50- | X00         | 24            | 10.0 ~ 27.6       | 0.10    | 2.40        | 4600                   | 18.3          | 0.52       | .20                  | 51.2   | 34.0   | 45   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

For information on 2406KL-04W-B80 contact the sales office.



# 2408NL (60<sup>□</sup> x 20<sup>L</sup>)



# NMB-MAT

EMINEBEA.COM

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance: 10M  $\Omega$  or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

Allowable Ambient Temperature Range:

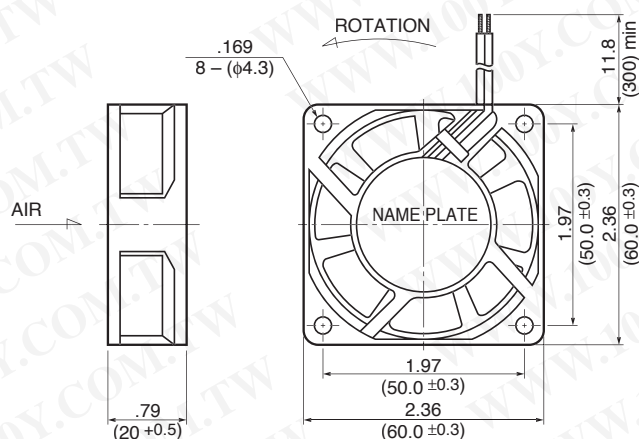
-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

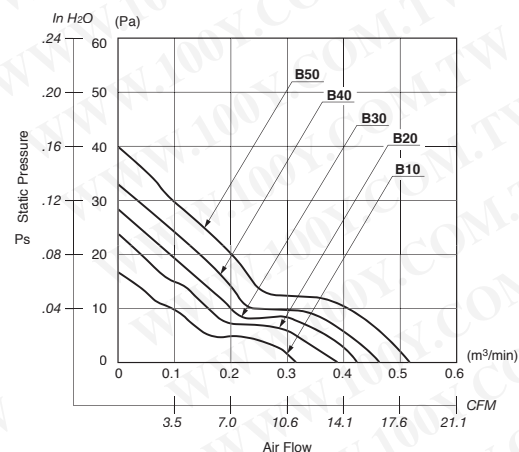
(non-condensing environment)

## Outline

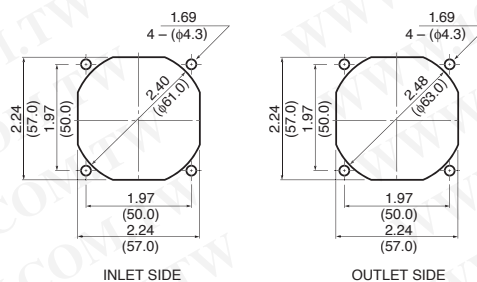
Units:  $\frac{\text{inch}}{\text{mm}}$



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG24, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 2408NL-04W-B10- | X00         | 12            | 6.0 ~ 13.8        | 0.05              | 0.60              | 2800                               | 10.9              | 0.31                                | .07                  | 16.7               | 22.5               | 85   |
| 2408NL-04W-B20- | X00         | 12            | 6.0 ~ 13.8        | 0.07              | 0.84              | 3200                               | 13.0              | 0.37                                | .09                  | 23.5               | 25.5               | 85   |
| 2408NL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.08              | 0.96              | 3600                               | 14.8              | 0.42                                | .11                  | 28.7               | 27.0               | 85   |
| 2408NL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.09              | 1.08              | 4000                               | 15.9              | 0.45                                | .13                  | 33.2               | 29.0               | 85   |
| 2408NL-04W-B50- | X00         | 12            | 6.0 ~ 13.8        | 0.11              | 1.32              | 4400                               | 17.6              | 0.50                                | .16                  | 40.5               | 31.5               | 85   |
| 2408NL-05W-B10- | X00         | 24            | 15.0 ~ 27.6       | 0.04              | 0.96              | 2800                               | 10.9              | 0.31                                | .07                  | 16.7               | 22.5               | 85   |
| 2408NL-05W-B20- | X00         | 24            | 15.0 ~ 27.6       | 0.04              | 0.96              | 3200                               | 13.0              | 0.37                                | .09                  | 23.5               | 25.5               | 85   |
| 2408NL-05W-B30- | X00         | 24            | 15.0 ~ 27.6       | 0.045             | 1.08              | 3600                               | 14.8              | 0.42                                | .11                  | 28.7               | 27.0               | 85   |
| 2408NL-05W-B40- | X00         | 24            | 15.0 ~ 27.6       | 0.05              | 1.20              | 4000                               | 15.9              | 0.45                                | .13                  | 33.2               | 29.0               | 85   |
| 2408NL-05W-B50- | X00         | 24            | 15.0 ~ 27.6       | 0.055             | 1.32              | 4400                               | 17.6              | 0.50                                | .16                  | 40.5               | 31.5               | 85   |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# NMB-MAT

EMINEBEA.COM

## 2410ML (60<sup>□</sup>x 25<sup>L</sup>)



DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

#### Allowable Ambient Temperature Range:

B80: -10°C ~ +60°C (Operating)

B70: -10°C ~ +70°C (Operating)

B50 ~ B60: -10°C ~ +50°C (Operating)

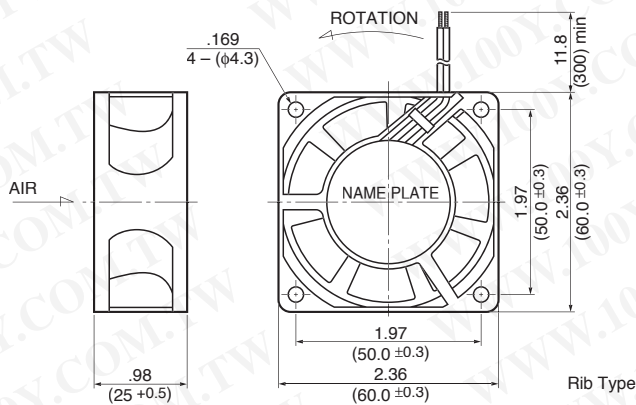
B10 ~ B40: -10°C ~ +70°C (Operating)

All Class: -40°C ~ +70°C (Storage)

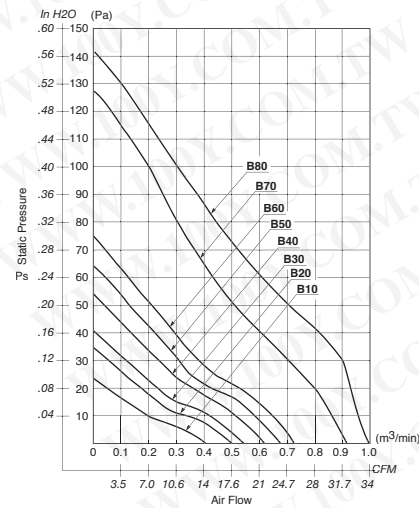
(non-condensing environment)

### Outline

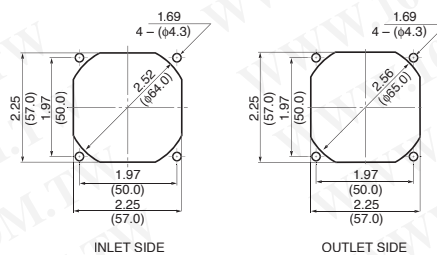
Units:  $\frac{\text{inch}}{(\text{mm})}$



### Characteristic Curves



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG24, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 2410ML-04W-B10- | X00         | 12            | 6.0 ~ 13.8        | 0.07              | 0.90              | 2950                               | 13.7              | 0.39                                | .08                  | 20.6               | 23.0               | 65   |
| 2410ML-04W-B20- | X00         | 12            | 6.0 ~ 13.8        | 0.12              | 1.44              | 3600                               | 16.9              | 0.48                                | .13                  | 31.9               | 28.0               | 65   |
| 2410ML-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.12              | 1.44              | 4000                               | 19.0              | 0.54                                | .16                  | 40.2               | 31.0               | 65   |
| 2410ML-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.17              | 2.04              | 4550                               | 21.5              | 0.61                                | .20                  | 51.9               | 33.5               | 65   |
| 2410ML-04W-B50- | X00         | 12            | 6.0 ~ 13.8        | 0.20              | 2.40              | 4900                               | 23.3              | 0.66                                | .25                  | 62.2               | 35.0               | 65   |
| 2410ML-04W-B60- | X00         | 12            | 6.0 ~ 13.8        | 0.30              | 3.60              | 5300                               | 25.0              | 0.71                                | .29                  | 73.0               | 36.0               | 65   |
| 2410ML-04W-B70- | X00         | 12            | 6.0 ~ 13.8        | 0.44              | 5.28              | 6800                               | 33.1              | 0.94                                | .50                  | 125                | 45.0               | 65   |
| 2410ML-04W-B80- | X00         | 12            | 6.0 ~ 13.2        | 0.52              | 6.20              | 7800                               | 37.0              | 1.05                                | .57                  | 142.5              | 46.0               | 65   |
| 2410ML-05W-B10- | X00         | 24            | 10.0 ~ 27.6       | 0.06              | 1.44              | 2950                               | 13.7              | 0.39                                | .08                  | 20.6               | 23.0               | 65   |
| 2410ML-05W-B20- | X00         | 24            | 10.0 ~ 27.6       | 0.07              | 1.68              | 3600                               | 16.9              | 0.48                                | .13                  | 31.9               | 28.0               | 65   |
| 2410ML-05W-B30- | X00         | 24            | 10.0 ~ 27.6       | 0.06              | 1.44              | 4000                               | 19.0              | 0.54                                | .16                  | 40.2               | 31.0               | 65   |
| 2410ML-05W-B40- | X00         | 24            | 10.0 ~ 27.6       | 0.09              | 2.16              | 4550                               | 21.5              | 0.61                                | .20                  | 51.9               | 33.5               | 65   |
| 2410ML-05W-B50  | X00         | 24            | 10.0 ~ 27.6       | 0.10              | 2.40              | 4900                               | 23.3              | 0.66                                | .25                  | 62.2               | 35.0               | 65   |
| 2410ML-05W-B60- | X00         | 24            | 10.0 ~ 27.6       | 0.13              | 3.12              | 5300                               | 25.0              | 0.71                                | .29                  | 73.0               | 36.0               | 65   |
| 2410ML-05W-B70- | X00         | 24            | 10.0 ~ 25.2       | 0.19              | 4.56              | 6800                               | 33.1              | 0.94                                | .50                  | 125                | 45.0               | 65   |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# NMB-MAT

## 2415RL (60<sup>□</sup> x 38<sup>L</sup>)

NMBTC.COM / 818.341.3355

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

#### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

#### Dielectric Withstand Voltage: AC 700V 1s

#### Allowable Ambient Temperature Range:

-10°C ~ +70°C (B50~B80) (Operating)

-10°C ~ +60°C (B90) (Operating)

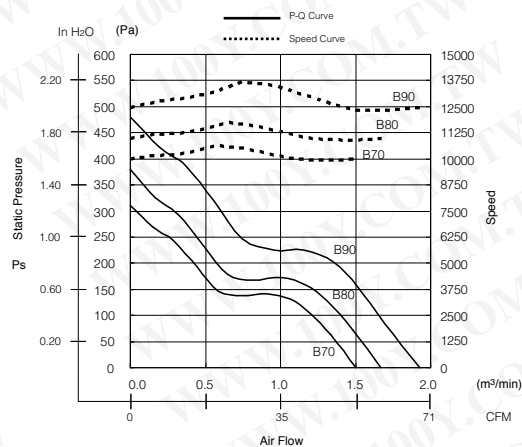
-40°C ~ +70°C (Storage)

### Expected Life

#### Failure Rate: 10%

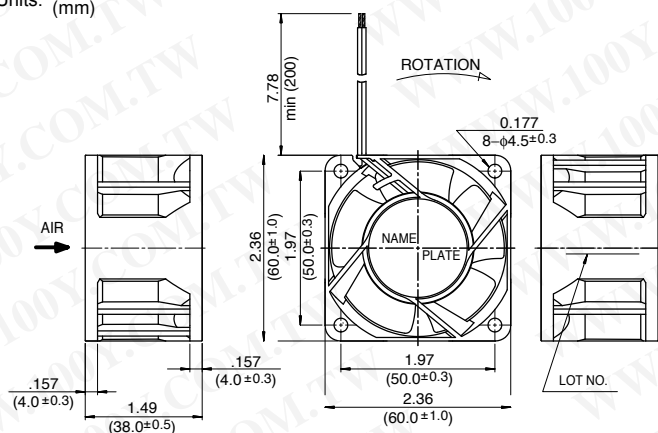
25°C 80,000 Hours (E00)

### Characteristic Curves

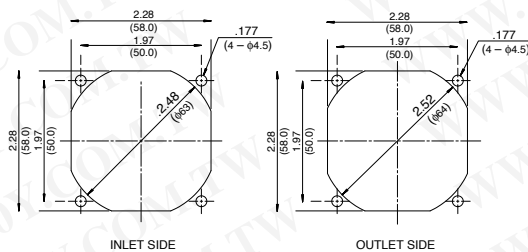


### Outline

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



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG24, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 2415RL-04W-B70- | EXX         | 12            | 7 ~ 13.8          | 0.77              | 9.2               | 10000                              | 53.0              | 1.50                                | 1.35                 | 310                | 56.0               | 125  |
| 2415RL-04W-B80- | EXX         | 12            | 7 ~ 13.8          | 1.00              | 12.0              | 11000                              | 59.0              | 1.67                                | 1.65                 | 380                | 58.0               | 125  |
| 2415RL-04W-B90- | EXX         | 12            | 7 ~ 13.2          | 1.40              | 16.8              | 12500                              | 68.1              | 1.93                                | 2.04                 | 480                | 61.0               | 125  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

X.X

DC Axial Fans

NMB



## General Specifications

### Motor Protection:

### Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

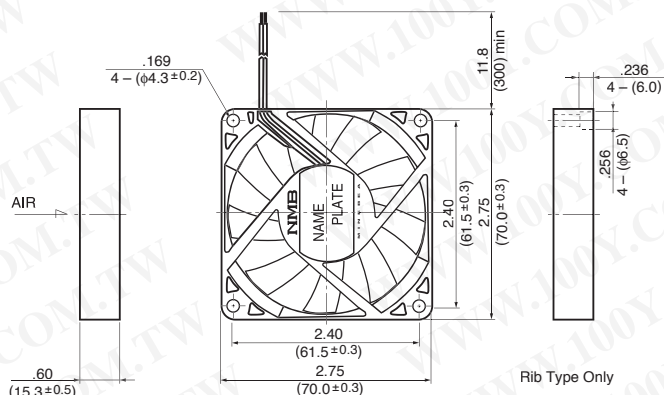
Failure Rate: 10%

25°C 60,000 Hours (C00)

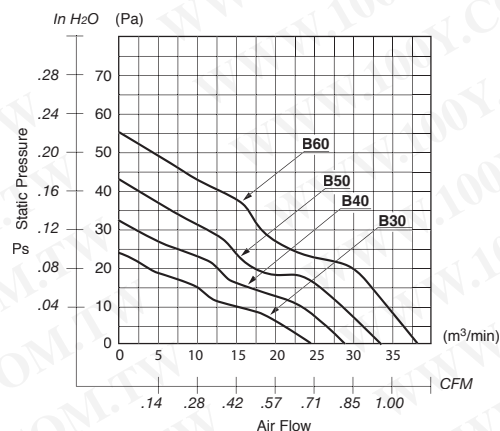
## Outline

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

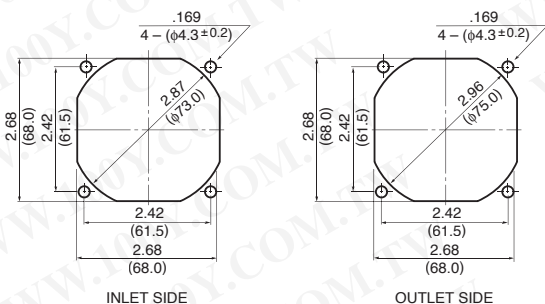
## ROTATION



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG26, +Red, -Black

## Specifications

| MODEL           |             | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 | Product No. | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 2806KL-04W-B30- | X00         | 12            | 7.0 ~ 13.2        | 0.14    | 1.68        | 3000                   | 24.4          | 0.69                    | .07                  | 17.3   | 27.5   | 60   |
| 2806KL-04W-B40- | X00         | 12            | 7.0 ~ 13.2        | 0.17    | 2.04        | 3600                   | 29.7          | 0.84                    | .10                  | 25.5   | 33.0   | 60   |
| 2806KL-04W-B50- | X00         | 12            | 7.0 ~ 13.2        | 0.23    | 2.76        | 4200                   | 35.0          | 0.99                    | .14                  | 34.5   | 36.5   | 60   |
| 2806KL-04W-B60- | X00         | 12            | 7.0 ~ 13.2        | 0.30    | 3.60        | 4500                   | 38.0          | 1.08                    | .22                  | 55.8   | 39.5   | 60   |

Rotation: Clockwise

For information on 2806KL-04W-B80 contact the sales office.

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

## General Specifications

### Motor Protection:

## Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

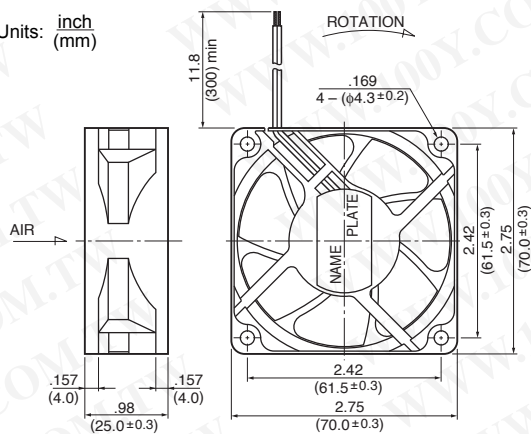
## Expected Life

Failure Rate: 10%

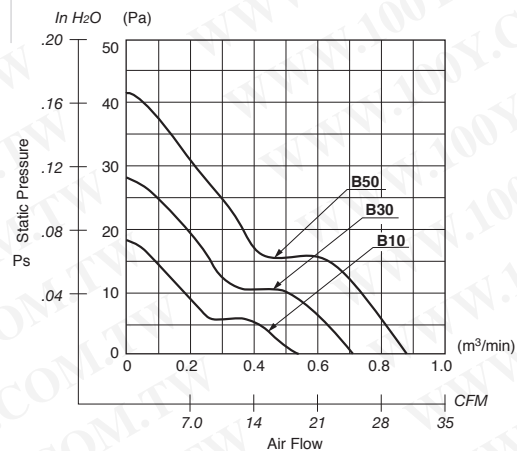
25°C 70,000 Hours (P00)

25°C 60,000 Hours (S00)

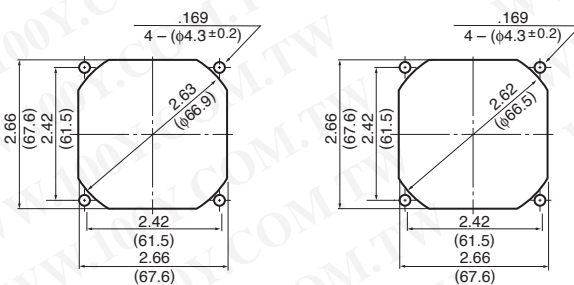
## Outline

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

## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG24, +Red, -Black

## Specifications

| MODEL                  |             | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                        | Max. Static Pressure |                    | Noise              | Mass |
|------------------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|------------------------|----------------------|--------------------|--------------------|------|
|                        | Product No. | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m³/min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 2810KL-04W- <b>B10</b> | X00         | 12            | 6.0 ~ 13.8        | 0.09              | 1.08              | 2400                               | 19.0              | 0.54                   | .07                  | 18.0               | 21.5               | 72   |
| 2810KL-04W- <b>B30</b> | X00         | 12            | 6.0 ~ 13.8        | 0.15              | 1.80              | 3150                               | 25.0              | 0.71                   | .11                  | 28.4               | 28.0               | 72   |
| 2810KL-04W- <b>B50</b> | X00         | 12            | 6.0 ~ 13.8        | 0.18              | 2.16              | 3800                               | 31.0              | 0.88                   | .16                  | 41.1               | 33.5               | 72   |
| 2810KL-04W- <b>B70</b> | X00         | 12            | 6.0 ~ 13.0        | 0.35              | 4.20              | 5000                               | 40.6              | 1.15                   | .28                  | 71.7               | 43.0               | 72   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

# 3106KL (80<sup>□</sup> x 15<sup>L</sup>)

# NMB-MAT

EMINEBEA.COM

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M<sup>°</sup> or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

### Allowable Ambient Temperature Range:

B50 Class: -10 C ~ +50 C (Operating)

B30, B40 Class: -10 C ~ +60 C (Operating)

All Class: -40 C ~ +70 C (Storage)  
(non-condensing environment)

## Expected Life

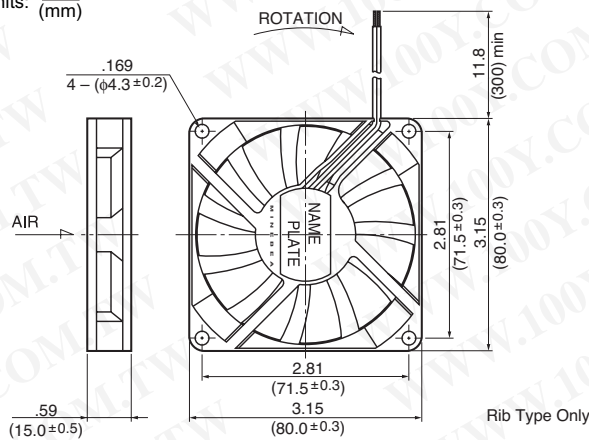
### Failure Rate: 10%

25°C 70,000 Hours (B00)

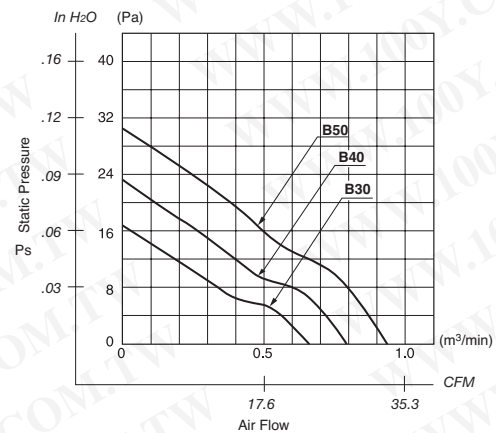
25°C 60,000 Hours (C00)

## Outline

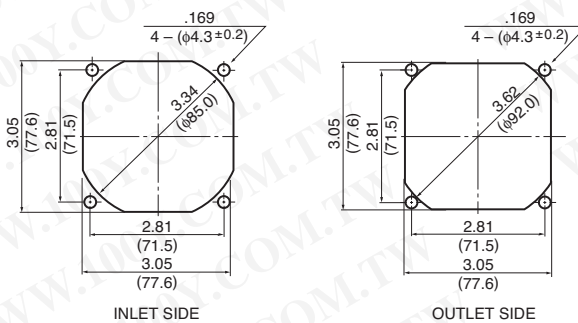
Units:  $\frac{\text{inch}}{\text{mm}}$



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG26, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 3106KL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.11    | 1.32        | 2200                   | 23.3          | 0.66                    | 0.06                 | 16.0   | 26.0   | 50   |
| 3106KL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.17    | 2.04        | 2600                   | 28.2          | 0.80                    | 0.09                 | 22.5   | 30.0   | 50   |
| 3106KL-04W-B50- | X00         | 12            | 6.0 ~ 13.0        | 0.23    | 2.76        | 3000                   | 32.8          | 0.93                    | 0.12                 | 30.0   | 34.0   | 50   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# 3108NL (80<sup>□</sup> x 20<sup>L</sup>)

# NMB-MAT

EMINEBEA.COM

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance: 10M  $\Omega$  or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

Allowable Ambient Temperature Range:

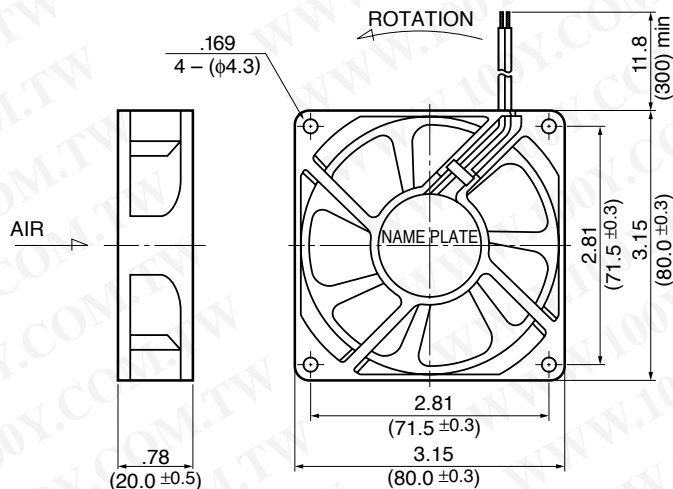
-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

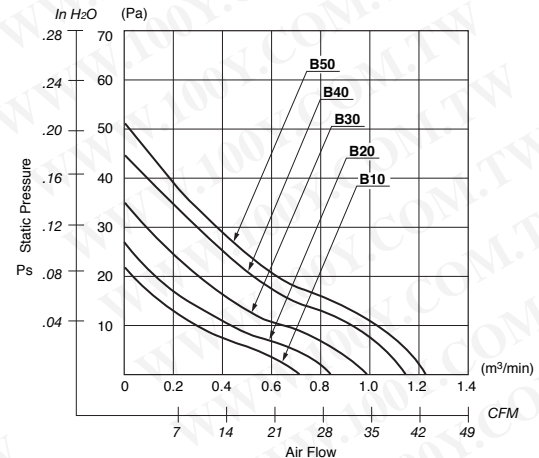
(non-condensing environment)

## Outline

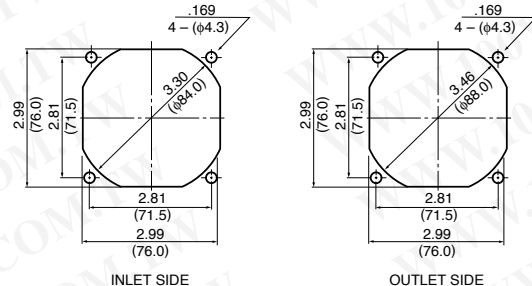
Units:  $\frac{\text{inch}}{(\text{mm})}$



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG24, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |            | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m³/min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 3108NL-04W-B10- | X00         | 12            | 6.0 ~ 13.8        | 0.09    | 1.08        | 2350                   | 26.5          | 0.75       | .08                  | 21.0   | 26.0   | 85   |
| 3108NL-04W-B20- | X00         | 12            | 6.0 ~ 13.8        | 0.11    | 1.32        | 2600                   | 29.6          | 0.84       | .10                  | 26.0   | 29.0   | 85   |
| 3108NL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.14    | 1.68        | 2950                   | 34.6          | 0.98       | .13                  | 33.5   | 32.5   | 85   |
| 3108NL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.20    | 2.40        | 3350                   | 40.6          | 1.15       | .17                  | 43.7   | 38.5   | 85   |
| 3108NL-04W-B50- | X00         | 12            | 6.0 ~ 13.8        | 0.28    | 3.36        | 3750                   | 44.0          | 1.25       | .20                  | 50.1   | 42.0   | 85   |
| 3108NL-05W-B10- | X00         | 24            | 15.0 ~ 27.6       | 0.05    | 1.30        | 2350                   | 26.5          | 0.75       | .08                  | 21.0   | 26.0   | 85   |
| 3108NL-05W-B20- | X00         | 24            | 15.0 ~ 27.6       | 0.06    | 1.44        | 2600                   | 29.6          | 0.84       | .10                  | 26.0   | 29.0   | 85   |
| 3108NL-05W-B30- | X00         | 24            | 15.0 ~ 27.6       | 0.07    | 1.68        | 2950                   | 34.6          | 0.98       | .13                  | 33.5   | 32.5   | 85   |
| 3108NL-05W-B40- | X00         | 24            | 15.0 ~ 27.6       | 0.11    | 2.64        | 3350                   | 40.6          | 1.15       | .17                  | 43.7   | 38.5   | 85   |
| 3108NL-05W-B50- | X00         | 24            | 15.0 ~ 27.6       | 0.15    | 3.60        | 3750                   | 44.0          | 1.25       | .20                  | 50.1   | 42.0   | 85   |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

# 3110KL (80<sup>□</sup> x 25<sup>L</sup>)

# NMB-MAT

EMINEBEA.COM

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance: 10M  $\Omega$  or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

Allowable Ambient Temperature Range:

B70 Class: -10°C ~ +60°C (Operating)

B10~B60 Class: -10°C ~ +70°C (Operating)

All Class: -40°C ~ +70°C (Storage)  
(non-condensing environment)

## Expected Life

Failure Rate: 10%

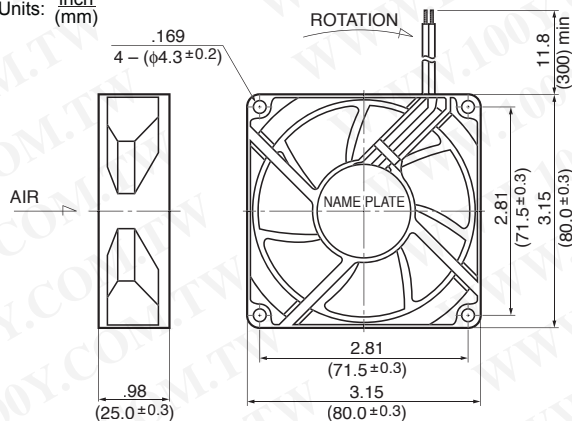
25°C 100,000 Hours (E00)

25°C 70,000 Hours (G00,D00)

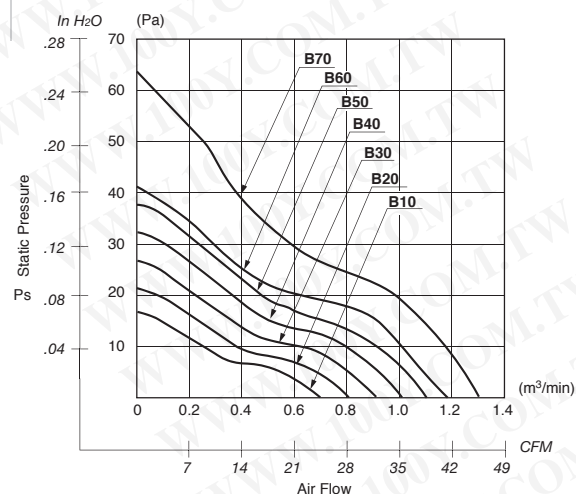
25°C 60,000 Hours (C00, F00)

## Outline

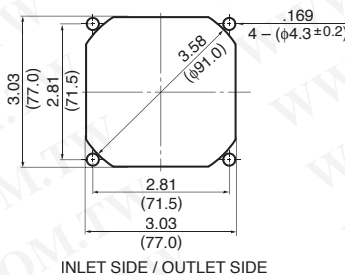
Units:  $\frac{\text{inch}}{\text{mm}}$



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG24, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 3110KL-04W-B10- | X00         | 12            | 6.0 ~ 13.8        | 0.10    | 1.20        | 2150                   | 24.7          | 0.70                    | .07                  | 16.7   | 22.0   | 95   |
| 3110KL-04W-B20- | X00         | 12            | 6.0 ~ 13.8        | 0.11    | 1.32        | 2400                   | 28.2          | 0.80                    | .08                  | 21.6   | 25.0   | 95   |
| 3110KL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.17    | 2.04        | 2700                   | 31.8          | 0.90                    | .10                  | 26.5   | 28.0   | 95   |
| 3110KL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.20    | 2.40        | 3000                   | 35.3          | 1.00                    | .13                  | 32.3   | 31.0   | 95   |
| 3110KL-04W-B50- | X00         | 12            | 6.0 ~ 13.8        | 0.23    | 2.76        | 3250                   | 38.8          | 1.10                    | .15                  | 37.2   | 34.0   | 95   |
| 3110KL-04W-B60- | X00         | 12            | 6.0 ~ 13.0        | 0.26    | 3.12        | 3400                   | 40.2          | 1.14                    | .16                  | 40.2   | 35.0   | 95   |
| 3110KL-04W-B70- | X00         | 12            | 6.0 ~ 13.8        | 0.29    | 3.86        | 4000                   | 45.9          | 1.30                    | .26                  | 64.4   | 40.0   | 95   |
| 3110KL-05W-B10- | X00         | 24            | 10.0 ~ 27.6       | 0.06    | 1.44        | 2150                   | 24.7          | 0.70                    | .07                  | 16.7   | 22.0   | 95   |
| 3110KL-05W-B20- | X00         | 24            | 10.0 ~ 27.6       | 0.07    | 1.68        | 2400                   | 28.2          | 0.80                    | .08                  | 21.6   | 25.0   | 95   |
| 3110KL-05W-B30- | X00         | 24            | 10.0 ~ 27.6       | 0.08    | 1.92        | 2700                   | 31.8          | 0.90                    | .10                  | 26.5   | 28.0   | 95   |
| 3110KL-05W-B40- | X00         | 24            | 10.0 ~ 27.6       | 0.10    | 2.40        | 3000                   | 35.3          | 1.00                    | .13                  | 32.3   | 31.0   | 95   |
| 3110KL-05W-B50- | X00         | 24            | 10.0 ~ 27.6       | 0.12    | 2.88        | 3250                   | 38.8          | 1.10                    | .15                  | 37.2   | 34.0   | 95   |
| 3110KL-05W-B60- | X00         | 24            | 10.0 ~ 26.4       | 0.14    | 3.36        | 3400                   | 40.2          | 1.14                    | .16                  | 40.2   | 35.0   | 95   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

## General Specifications

## Motor Protection:

Automatic Restoration/Reverse  
Connection Prevention

Insulation Resistance: 10M  $\Omega$  or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

## Allowable Ambient Temperature Range:

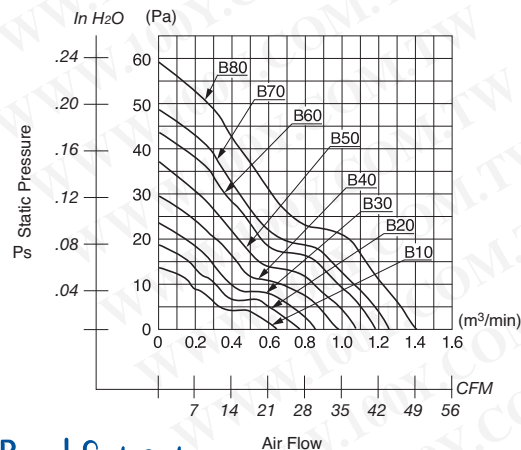
B80 Class: -10°C ~ +50°C (Operating)  
B60, B70 Class: -10°C ~ +60°C (Operating)  
B10~B50 Class: -10°C ~ +70°C (Operating)  
All Class: -40°C ~ +70°C (Storage)  
(non-condensing environment)

## Expected Life

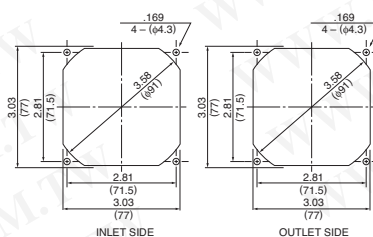
Failure Rate: 10%

25°C 60,000 Hours (F00)

## Characteristic Curves



## Panel Cut-outs



## Material

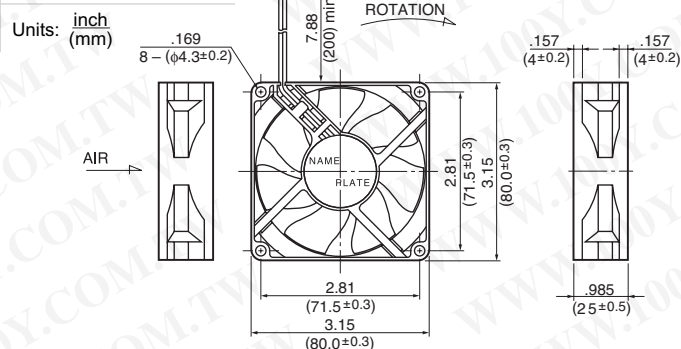
Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG24, +Red, -Black

## Outline



## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 3110RL-04W-B10- | X00         | 12            | 6.0 ~ 13.8        | 0.07              | 0.84              | 1900                               | 24.01             | 0.68                                | .05                  | 14.2               | 22.0               | 80   |
| 3110RL-04W-B20- | X00         | 12            | 6.0 ~ 13.8        | 0.10              | 1.20              | 2150                               | 27.54             | 0.78                                | .07                  | 19.5               | 24.5               | 80   |
| 3110RL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.13              | 1.56              | 2400                               | 31.07             | 0.88                                | .09                  | 24.3               | 27.0               | 80   |
| 3110RL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.19              | 2.28              | 2700                               | 34.96             | 0.99                                | .12                  | 30.5               | 30.0               | 80   |
| 3110RL-04W-B50- | X00         | 12            | 6.0 ~ 13.8        | 0.25              | 3.00              | 2950                               | 38.49             | 1.09                                | .14                  | 36.6               | 32.5               | 80   |
| 3110RL-04W-B60- | X00         | 12            | 6.0 ~ 13.8        | 0.34              | 4.08              | 3250                               | 42.37             | 1.20                                | .18                  | 44.7               | 35.0               | 80   |
| 3110RL-04W-B70- | X00         | 12            | 6.0 ~ 13.8        | 0.34              | 4.08              | 3400                               | 44.49             | 1.26                                | .19                  | 48.6               | 36.0               | 80   |
| 3110RL-04W-B80- | X00         | 12            | 6.0 ~ 13.0        | 0.50              | 6.00              | 3800                               | 50.14             | 1.42                                | .24                  | 60.0               | 39.0               | 80   |
| 3110RL-05W-B10- | X00         | 24            | 10.0 ~ 27.6       | 0.04              | 0.96              | 1900                               | 24.01             | 0.68                                | .05                  | 14.2               | 22.0               | 80   |
| 3110RL-05W-B20- | X00         | 24            | 10.0 ~ 27.6       | 0.06              | 1.44              | 2150                               | 27.54             | 0.78                                | .07                  | 19.5               | 24.5               | 80   |
| 3110RL-05W-B30- | X00         | 24            | 10.0 ~ 27.6       | 0.07              | 1.68              | 2400                               | 31.07             | 0.88                                | .09                  | 24.3               | 27.0               | 80   |
| 3110RL-05W-B40- | X00         | 24            | 10.0 ~ 27.6       | 0.09              | 2.16              | 2700                               | 34.96             | 0.99                                | .12                  | 30.5               | 30.0               | 80   |
| 3110RL-05W-B50- | X00         | 24            | 10.0 ~ 27.6       | 0.14              | 3.36              | 2950                               | 38.49             | 1.09                                | .14                  | 36.6               | 32.5               | 80   |
| 3110RL-05W-B60- | X00         | 24            | 10.0 ~ 27.6       | 0.16              | 3.84              | 3250                               | 42.37             | 1.20                                | .18                  | 44.7               | 35.0               | 80   |
| 3110RL-05W-B70- | X00         | 24            | 10.0 ~ 27.6       | 0.18              | 4.32              | 3400                               | 44.49             | 1.26                                | .19                  | 48.6               | 36.0               | 80   |
| 3110RL-05W-B80- | X00         | 24            | 10.0 ~ 27.6       | 0.23              | 5.52              | 3800                               | 50.14             | 1.42                                | .24                  | 60.0               | 39.0               | 80   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air





# NMB-MAT

EMINEBEA.COM

## 3112KL (80<sup>□</sup> x 32<sup>L</sup>)



DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

#### Allowable Ambient Temperature Range:

B60 Class: -10°C ~ +60°C (Operating)

B30~B50 Class: -10°C ~ +70°C (Operating)

All Class: -40°C ~ +70°C (Storage)  
(non-condensing environment)

### Expected Life

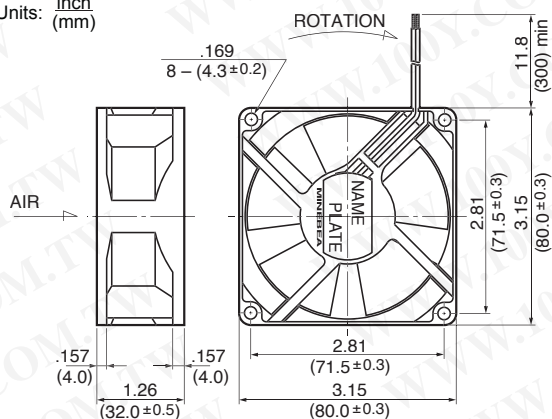
#### Failure Rate: 10%

25°C 100,000 Hours (E00)

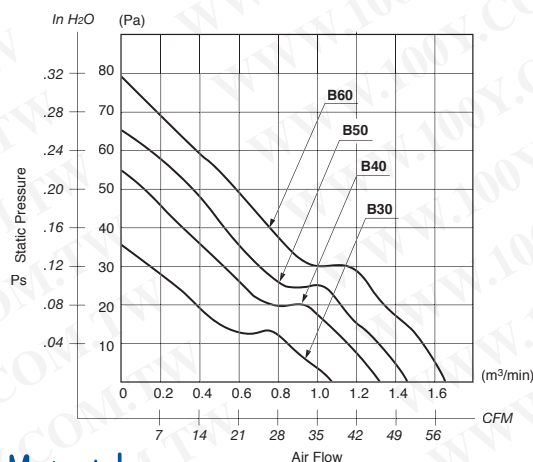
25°C 80,000 Hours (V00)

### Outline

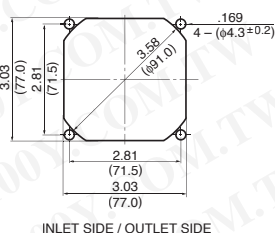
Units: inch  
(mm)



### Characteristic Curves



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG24, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 3112KL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.17    | 2.04        | 2850                   | 38.1          | 1.08                    | .14                  | 35.2   | 32.0   | 95   |
| 3112KL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.25    | 3.00        | 3350                   | 46.9          | 1.33                    | .22                  | 54.5   | 37.0   | 95   |
| 3112KL-04W-B50- | X00         | 12            | 6.0 ~ 12.6        | 0.35    | 4.20        | 3850                   | 51.5          | 1.46                    | .26                  | 65.1   | 41.0   | 95   |
| 3112KL-04W-B60- | X00         | 12            | 6.0 ~ 12.6        | 0.45    | 5.40        | 4350                   | 58.6          | 1.66                    | .32                  | 78.9   | 44.0   | 95   |
| 3112KL-05W-B30- | X00         | 24            | 10.0 ~ 27.6       | 0.10    | 2.40        | 2850                   | 38.1          | 1.08                    | .14                  | 35.2   | 32.0   | 95   |
| 3112KL-05W-B40- | X00         | 24            | 10.0 ~ 27.6       | 0.14    | 3.36        | 3350                   | 46.9          | 1.33                    | .22                  | 54.5   | 37.0   | 95   |
| 3112KL-05W-B50- | X00         | 24            | 10.0 ~ 25.2       | 0.19    | 4.56        | 3850                   | 51.5          | 1.46                    | .26                  | 65.1   | 41.0   | 95   |
| 3112KL-05W-B60- | X00         | 24            | 10.0 ~ 25.2       | 0.21    | 5.04        | 4350                   | 58.6          | 1.66                    | .32                  | 78.9   | 44.0   | 95   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# NMB-MAT

NMBTC.COM / 818.341.3355

## 3115RL (80<sup>□</sup> x 38<sup>L</sup>)



NMB

DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

#### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

#### Dielectric Withstand Voltage: AC 700V 1s

#### Allowable Ambient Temperature Range:

-10°C ~ +70°C (B50~B80) (Operating)

-10°C ~ +60°C (B90) (Operating)

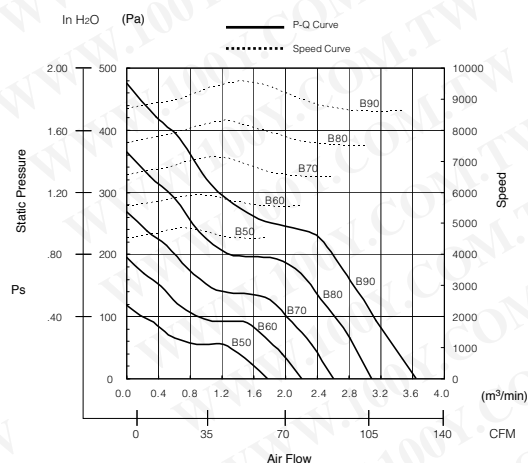
-40°C ~ +70°C (Storage)

### Expected Life

#### Failure Rate: 10%

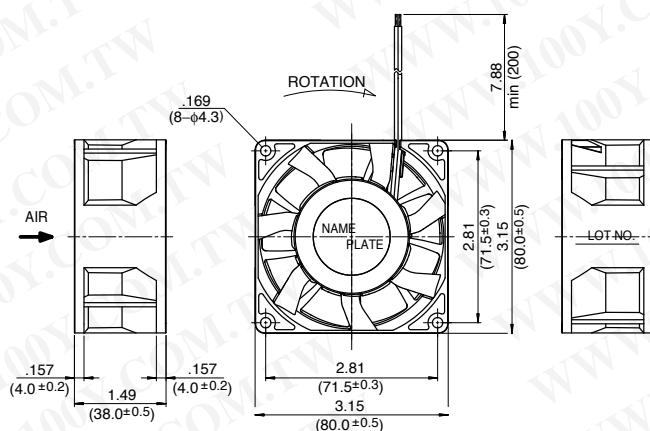
25°C 100,000 Hours (E00)

### Characteristic Curves

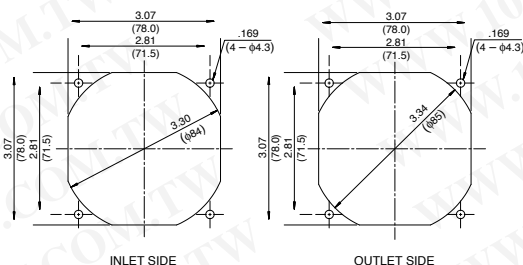


### Outline

Units: inch (mm)



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG24/26, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |            | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m³/min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 3115RL-04W-B50- | EXX         | 12            | 7 ~ 13.8          | 0.41    | 4.9         | 4500                   | 61.8          | 1.75       | 0.46                 | 115    | 46.0   | 205  |
| 3115RL-04W-B60- | EXX         | 12            | 7 ~ 13.8          | 0.73    | 8.8         | 5500                   | 75.9          | 2.15       | 0.72                 | 180    | 51.0   | 205  |
| 3115RL-04W-B70- | EXX         | 12            | 7 ~ 13.8          | 1.15    | 13.8        | 6500                   | 91.8          | 2.60       | 1.04                 | 260    | 56.0   | 205  |
| 3115RL-04W-B80- | EXX         | 12            | 7 ~ 13.2          | 1.75    | 21.0        | 7500                   | 105.9         | 3.00       | 1.42                 | 355    | 59.5   | 205  |
| 3115RL-04W-B90- | EXX         | 12            | 7 ~ 12.6          | 2.70    | 32.4        | 8600                   | 123.6         | 3.50       | 1.88                 | 470    | 62.5   | 205  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

X.X



# NMB-MAT

NMBTC.COM / 818.341.3355

## 3122FT (80<sup>□</sup> x 56<sup>L</sup>)

**NMB TurboFan**  
PATENT PENDING

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection/Hot Swap: Available

#### Insulation Resistance:

min 10M  $\Omega$  by DC500V Megger

#### Dielectric Withstand Voltage: AC 700V 1s

#### Allowable Ambient Temperature Range:

-10°C ~ +60°C (Operating)

-40°C ~ +60°C (Storage)

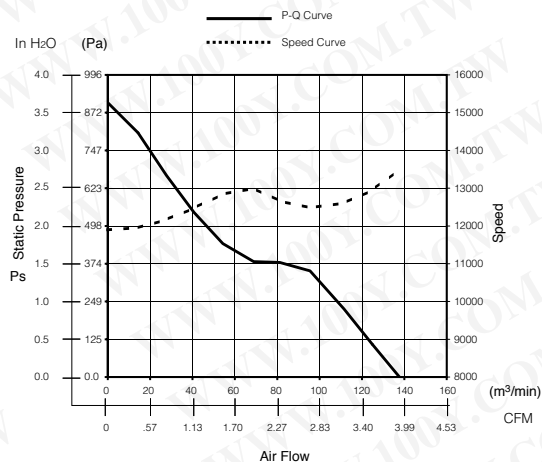
(non-condensing environment)

### Expected Life

#### Failure Rate: 10%

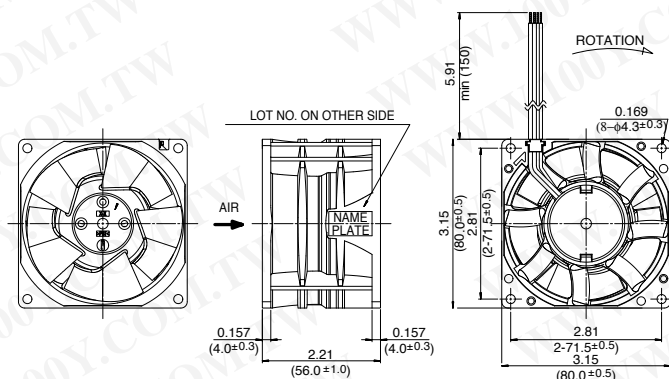
25°C 100,000 Hours

### Characteristic Curves

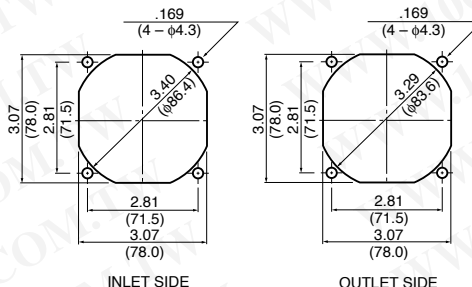


### Outline

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



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL3385, AWG20 or 22, +Red, -Black

Tach Sig. : White AWG22 or 24

PWM Control : Brown AWG22 or 24

### PWM Control Voltage

V<sub>st</sub> = 0V ~ 0.3V

V<sub>st</sub> = 3.2V ~ 4.5V

V<sub>st</sub> = Open

I<sub>PWM</sub> = max 1.2mA

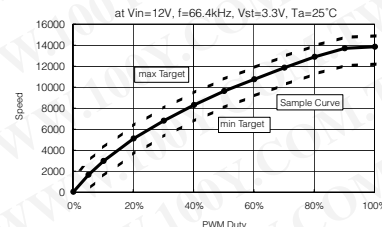
(At T<sub>a</sub> = 25°C, rated voltage + 12VDC and f=66.4 kHz)

Low Speed Duty 0% = Low Speed

High Speed Duty 100% = Full Speed

High Speed Duty 100% = Full Speed

### Reference PWM Duty vs Speed Curve



### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 3122FT-D4W-B56- | EXX         | 12            | 10.8 ~ 13.2       | 3.90              | 46.80             | 13,500                             | 138.0             | 3.90                                | 3.63                 | 905.0              | 65.5               | 220  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

0.0

DC Axial Fans - TurboFans



# 3610KL (92<sup>□</sup> x 25<sup>L</sup>)

# NMB-MAT

EMINEBEA.COM

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance: 10M  $\Omega$  or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

Allowable Ambient Temperature Range:

B60 Class: -10°C ~ +50°C (Operating)

B10~B50 Class: -10°C ~ +70°C (Operating)

All Class: -40°C ~ +70°C (Storage)  
(non-condensing environment)

## Expected Life

### Failure Rate: 10%

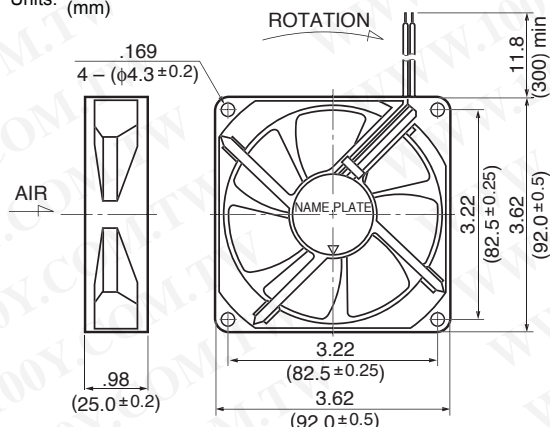
25°C 100,000 Hours (B00, E00)

25°C 70,000 Hours (G00, D00)

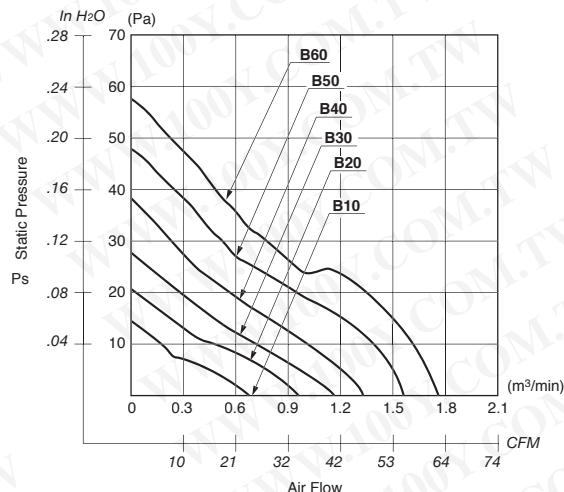
25°C 60,000 Hours (C00, F00)

## Outline

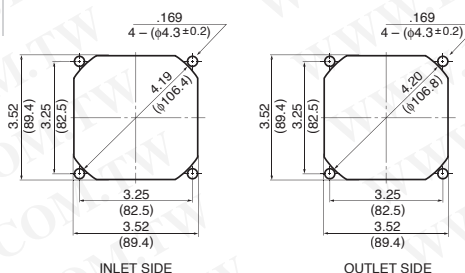
Units:  $\frac{\text{inch}}{\text{mm}}$



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG24, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 3610KL-04W-B10- | X00         | 12            | 6.0 ~ 13.8        | 0.073   | 0.876       | 1750                   | 26.5          | 0.75                    | .06                  | 14.2   | 25.0   | 95   |
| 3610KL-04W-B20- | X00         | 12            | 6.0 ~ 13.8        | 0.110   | 1.320       | 2100                   | 33.5          | 0.95                    | .08                  | 20.1   | 29.5   | 95   |
| 3610KL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.160   | 1.920       | 2450                   | 40.6          | 1.15                    | .11                  | 27.0   | 34.0   | 95   |
| 3610KL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.220   | 2.640       | 2850                   | 47.6          | 1.35                    | .15                  | 37.2   | 37.5   | 95   |
| 3610KL-04W-B50- | X00         | 12            | 6.0 ~ 13.0        | 0.315   | 3.780       | 3200                   | 54.7          | 1.55                    | .19                  | 48.0   | 41.0   | 95   |
| 3610KL-04W-B60- | X00         | 12            | 6.0 ~ 12.6        | 0.430   | 5.160       | 3600                   | 61.8          | 1.75                    | .23                  | 57.2   | 44.5   | 95   |
| 3610KL-05W-B10- | X00         | 24            | 10.0 ~ 27.6       | 0.05    | 1.20        | 1750                   | 26.5          | 0.75                    | .06                  | 14.2   | 25.0   | 95   |
| 3610KL-05W-B20- | X00         | 24            | 10.0 ~ 27.6       | 0.06    | 1.44        | 2100                   | 33.5          | 0.95                    | .08                  | 20.1   | 29.5   | 95   |
| 3610KL-05W-B30- | X00         | 24            | 10.0 ~ 27.6       | 0.09    | 2.16        | 2450                   | 40.6          | 1.15                    | .11                  | 27.0   | 34.0   | 95   |
| 3610KL-05W-B40- | X00         | 24            | 10.0 ~ 27.6       | 0.12    | 2.88        | 2850                   | 47.6          | 1.35                    | .15                  | 37.2   | 37.5   | 95   |
| 3610KL-05W-B50- | X00         | 24            | 10.0 ~ 25.0       | 0.16    | 3.84        | 3200                   | 54.7          | 1.55                    | .19                  | 48.0   | 41.0   | 95   |
| 3610KL-05W-B60- | X00         | 24            | 10.0 ~ 25.0       | 0.20    | 4.80        | 3600                   | 61.8          | 1.75                    | .23                  | 57.2   | 44.5   | 95   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

# 3610RL (92<sup>□</sup> x 25<sup>L</sup>)

# NMB-MAT

EMINEBEA.COM

## General Specifications

### Motor Protection:

Automatic Restoration/Reverse  
Connection Prevention

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

### Allowable Ambient Temperature Range:

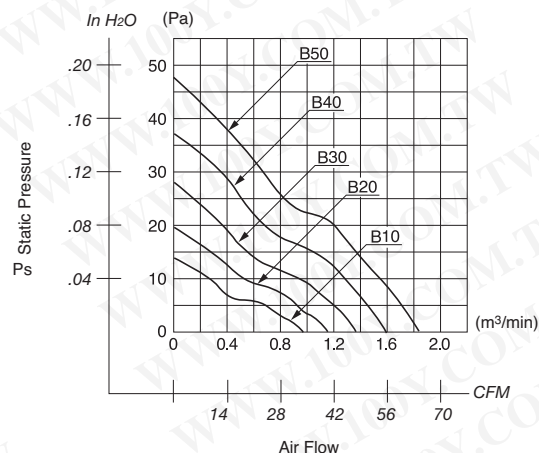
B50 Class: -10°C ~ +50°C (Operating)  
B10~B40 Class: -10°C ~ +70°C (Operating)  
All Class: -40°C ~ +70°C (Storage)  
(non-condensing environment)

## Expected Life

**Failure Rate:** 10%

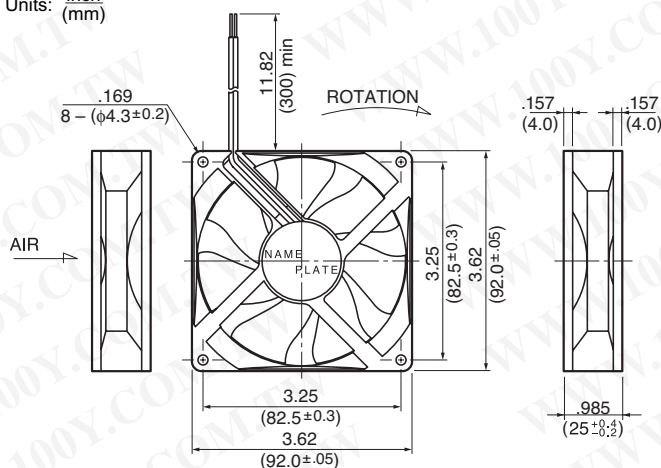
25°C 60,000 Hours (F00)

## Characteristic Curves

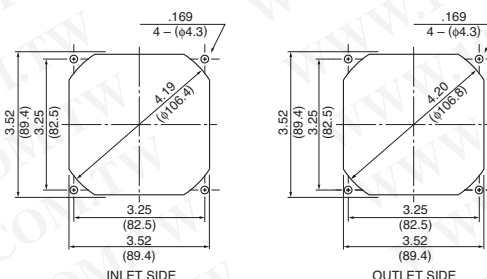


## Outline

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



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0  
Impeller : Plastic (Black) 94V-0  
Bearing : Ball Bearing  
Lead Wire : UL1007, AWG24, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 3610RL-04W-B10- | X00         | 12            | 6.0 ~ 13.8        | 0.09              | 1.08              | 1700                               | 34.60             | 0.98                                | .05                  | 14.4               | 22.0               | 85   |
| 3610RL-04W-B20- | X00         | 12            | 6.0 ~ 13.8        | 0.14              | 1.68              | 2000                               | 14.31             | 1.17                                | .08                  | 20.0               | 27.0               | 85   |
| 3610RL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.20              | 2.40              | 2350                               | 48.73             | 1.38                                | .11                  | 27.6               | 32.0               | 85   |
| 3610RL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.28              | 3.36              | 2750                               | 56.85             | 1.61                                | .15                  | 37.5               | 35.5               | 85   |
| 3610RL-04W-B50- | X00         | 12            | 6.0 ~ 13.2        | 0.46              | 5.52              | 3150                               | 64.97             | 1.84                                | .19                  | 47.8               | 39.5               | 85   |
| 3610RL-05W-B10- | X00         | 24            | 10.0 ~ 27.6       | 0.05              | 1.20              | 1700                               | 34.60             | 0.98                                | .05                  | 14.4               | 22.0               | 85   |
| 3610RL-05W-B20- | X00         | 24            | 10.0 ~ 27.6       | 0.07              | 1.68              | 2000                               | 41.31             | 1.17                                | .08                  | 20.0               | 27.0               | 85   |
| 3610RL-05W-B30- | X00         | 24            | 10.0 ~ 27.6       | 0.10              | 2.40              | 2350                               | 48.73             | 1.38                                | .11                  | 27.6               | 32.0               | 85   |
| 3610RL-05W-B40- | X00         | 24            | 10.0 ~ 27.6       | 0.17              | 4.08              | 2750                               | 56.85             | 1.61                                | .15                  | 37.5               | 35.3               | 85   |
| 3610RL-05W-B50- | X00         | 24            | 10.0 ~ 26.4       | 0.25              | 6.00              | 3150                               | 64.97             | 1.84                                | .19                  | 47.8               | 39.5               | 85   |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# NMB-MAT

EMINEBEA.COM

## 3612KL (92<sup>□</sup> x 32<sup>L</sup>)



DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance: 10M  $\Omega$  or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

#### Allowable Ambient Temperature Range:

-10°C ~ +60°C (Operating)

-40°C ~ +70°C (Storage)  
(non-condensing environment)

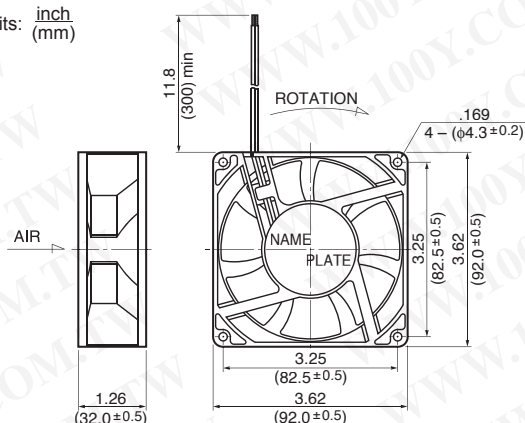
### Expected Life

#### Failure Rate: 10%

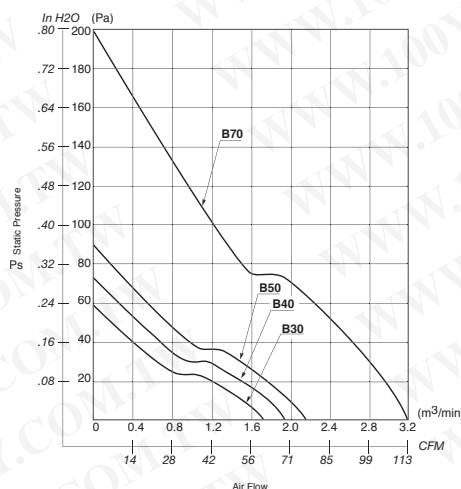
25°C 100,000 Hours (B00, E00)

### Outline

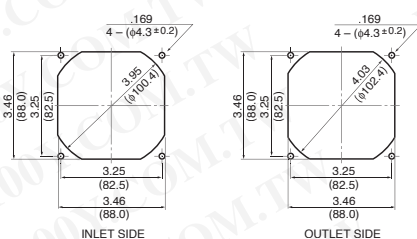
Units:  $\frac{\text{inch}}{(\text{mm})}$



### Characteristic Curves



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG24, +Red, -Black

### Specifications

| MODEL          | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 3612KL-04W-B30 | X00         | 12            | 6.0 ~ 13.8        | 0.21              | 2.52              | 2600                               | 47.3              | 1.34                                | .16                  | 41.0               | 34.0               | 230  |
| 3612KL-04W-B40 | X00         | 12            | 6.0 ~ 13.8        | 0.31              | 3.72              | 3200                               | 58.6              | 1.66                                | .24                  | 61.0               | 38.0               | 230  |
| 3612KL-04W-B50 | X00         | 12            | 6.0 ~ 13.8        | 0.47              | 5.64              | 3800                               | 69.9              | 1.98                                | .33                  | 83.0               | 43.5               | 230  |
| 3612KL-04W-B60 | X00         | 12            | 10.5 ~ 13.2       | 0.48              | 5.76              | 4000                               | 70.5              | 2.00                                | .38                  | 96.0               | 44.0               | 230  |
| 3612KL-05W-B30 | X00         | 24            | 15.0 ~ 27.6       | 0.10              | 2.40              | 2600                               | 47.3              | 1.34                                | .16                  | 41.0               | 34.0               | 230  |
| 3612KL-05W-B40 | X00         | 24            | 15.0 ~ 27.6       | 0.16              | 3.84              | 3200                               | 58.6              | 1.66                                | .24                  | 61.0               | 38.0               | 230  |
| 3612KL-05W-B50 | X00         | 24            | 15.0 ~ 27.6       | 0.25              | 6.00              | 3800                               | 69.9              | 1.98                                | .33                  | 83.0               | 43.5               | 230  |
| 3612KL-05W-B60 | X00         | 24            | 10.0 ~ 27.6       | 0.23              | 5.52              | 3800                               | 47.3              | 1.98                                | .33                  | 83.0               | 43.5               | 230  |



# 3615KL (92<sup>□</sup> x 38<sup>L</sup>)



# NMB-MAT

EMINEBEA.COM

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance: 10M  $\Omega$  or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

Allowable Ambient Temperature Range:

B50 Class: -10°C ~ +60°C (Operating)

B30~B40 Class: -10°C ~ +70°C (Operating)

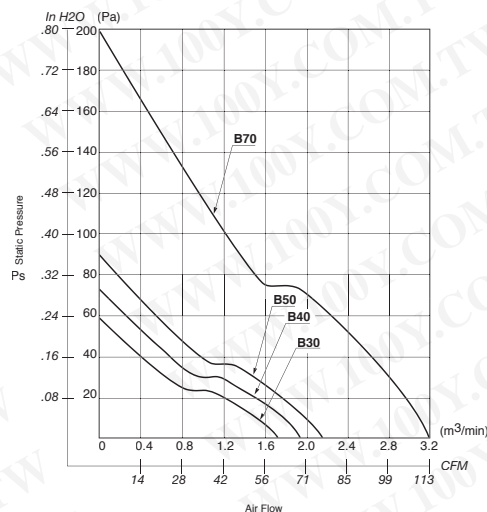
All Class: -40°C ~ +70°C (Storage)  
(non-condensing environment)

## Expected Life

Failure Rate: 10%

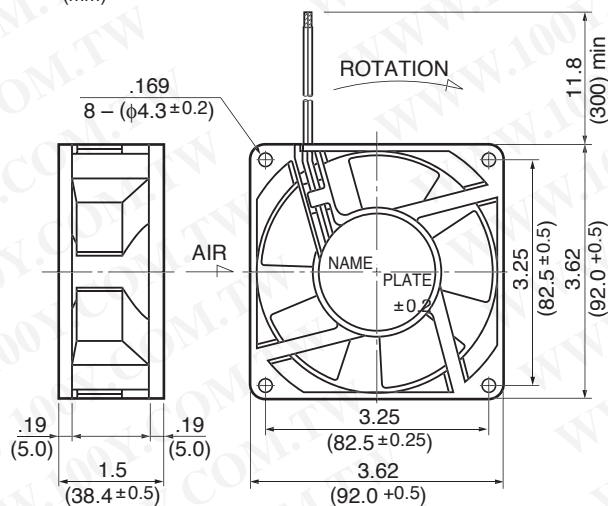
25°C 100,000 Hours (P00)

## Characteristic Curves

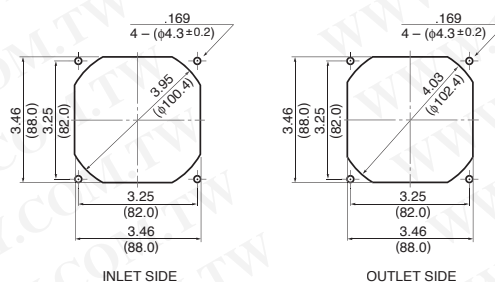


## Outline

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



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1061, AWG26, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |            | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m³/min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 3615KL-04W-B30- | P00         | 12            | 7.0 ~ 13.2        | 0.25    | 3.00        | 3200                   | 60.3          | 1.71       | .23                  | 57.9   | 40.5   | 210  |
| 3615KL-04W-B40- | P00         | 12            | 7.0 ~ 13.2        | 0.34    | 4.08        | 3600                   | 68.5          | 1.94       | .29                  | 72.0   | 44.0   | 210  |
| 3615KL-04W-B50- | P00         | 12            | 7.0 ~ 12.6        | 0.46    | 5.52        | 4000                   | 76.2          | 2.16       | .36                  | 89.2   | 46.5   | 210  |
| 3615KL-05W-B30- | P00         | 24            | 12.0 ~ 26.4       | 0.15    | 3.60        | 3200                   | 60.3          | 1.71       | .23                  | 57.9   | 40.5   | 210  |
| 3615KL-05W-B40- | P00         | 24            | 12.0 ~ 26.4       | 0.20    | 4.80        | 3600                   | 68.5          | 1.94       | .29                  | 72.0   | 44.0   | 210  |
| 3615KL-05W-B50- | P00         | 24            | 12.0 ~ 25.2       | 0.24    | 5.76        | 4000                   | 76.2          | 2.16       | .36                  | 89.2   | 46.5   | 210  |
| 3615KL-07W-B70- | P00         | 48            | 30.0 ~ 50.2       | 0.36    | 17.3        | 5800                   | 110.0         | 3.10       | .71                  | 178.0  | 55.0   | 210  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# NMB-MAT

NMBTC.COM / 818.341.3355

## 3615RL (92<sup>□</sup> x 38<sup>L</sup>)



NMB

DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

#### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

#### Dielectric Withstand Voltage: AC 700V 1s

#### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

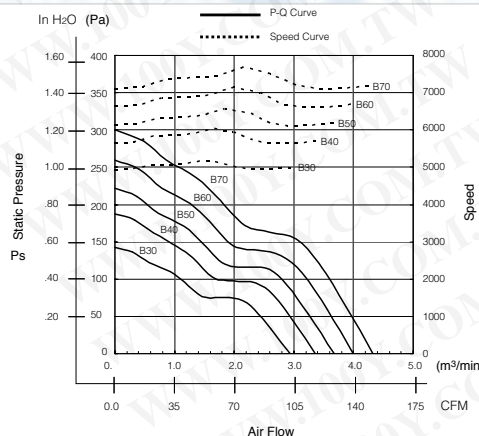
(non-condensing environment)

### Expected Life

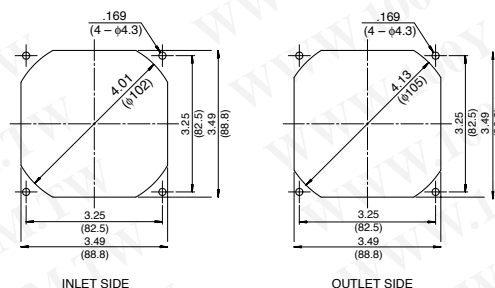
#### Failure Rate: 10%

25°C 100,000 Hours (B00/E00)

### Characteristic Curves

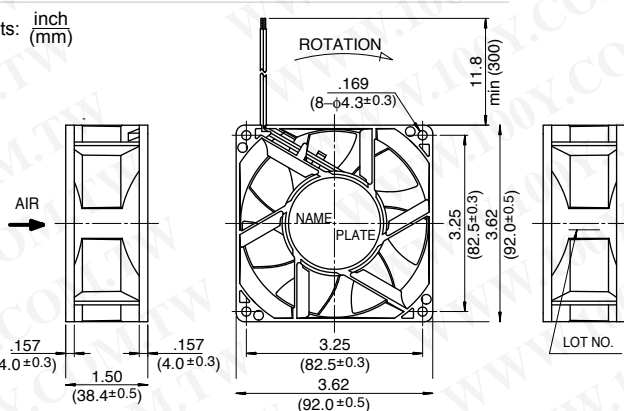


### Panel Cut-outs



### Outline

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



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL3385, AWG26, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                        | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m³/min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 3615RL-04W-B30- | B/EXX       | 12            | 7.0 ~ 13.8        | 0.80              | 9.60              | 5000                               | 103.8             | 2.94                   | 0.57                 | 142                | 52.5               | 230  |
| 3615RL-04W-B40- | B/EXX       | 12            | 7.0 ~ 13.8        | 1.15              | 13.80             | 5700                               | 118.6             | 3.36                   | 0.75                 | 187                | 56.5               | 230  |
| 3615RL-04W-B50- | B/EXX       | 12            | 7.0 ~ 13.8        | 1.46              | 17.52             | 6200                               | 129.9             | 3.68                   | 0.89                 | 222                | 59.0               | 230  |
| 3615RL-04W-B60- | B/EXX       | 12            | 7.0 ~ 13.8        | 2.00              | 24.00             | 6700                               | 141.2             | 4.00                   | 1.04                 | 260                | 61.0               | 230  |
| 3615RL-04W-B70- | B/EXX       | 12            | 7.0 ~ 13.2        | 2.41              | 28.92             | 7200                               | 152.5             | 4.32                   | 1.20                 | 300                | 62.5               | 230  |
| 3615RL-05W-B30- | B/EXX       | 24            | 14.0 ~ 27.6       | 0.40              | 9.60              | 5000                               | 103.8             | 2.94                   | 0.57                 | 142                | 52.5               | 230  |
| 3615RL-05W-B40- | B/EXX       | 24            | 14.0 ~ 27.6       | 0.56              | 13.44             | 5700                               | 118.6             | 3.36                   | 0.75                 | 187                | 56.5               | 230  |
| 3615RL-05W-B50- | B/EXX       | 24            | 14.0 ~ 27.6       | 0.71              | 17.04             | 6200                               | 129.9             | 3.68                   | 0.89                 | 222                | 59.0               | 230  |
| 3615RL-05W-B60- | B/EXX       | 24            | 14.0 ~ 27.6       | 0.92              | 22.08             | 6700                               | 141.2             | 4.00                   | 1.04                 | 260                | 61.0               | 230  |
| 3615RL-05W-B70- | B/EXX       | 24            | 14.0 ~ 26.4       | 1.13              | 27.12             | 7200                               | 152.5             | 4.32                   | 1.20                 | 300                | 62.5               | 230  |
| 3615RL-07W-B30- | B/EXX       | 48            | 36.0 ~ 55.2       | 0.21              | 10.08             | 5000                               | 103.8             | 2.94                   | 0.57                 | 142                | 52.5               | 230  |
| 3615RL-07W-B40- | B/EXX       | 48            | 36.0 ~ 55.2       | 0.28              | 13.44             | 5700                               | 118.6             | 3.36                   | 0.75                 | 187                | 56.5               | 230  |
| 3615RL-07W-B50- | B/EXX       | 48            | 36.0 ~ 55.2       | 0.36              | 17.28             | 6200                               | 129.9             | 3.68                   | 0.89                 | 222                | 59.0               | 230  |
| 3615RL-07W-B60- | B/EXX       | 48            | 36.0 ~ 55.2       | 0.47              | 22.56             | 6700                               | 141.2             | 4.00                   | 1.04                 | 260                | 61.0               | 230  |
| 3615RL-07W-B70- | B/EXX       | 48            | 36.0 ~ 52.8       | 0.57              | 27.36             | 7200                               | 152.5             | 4.32                   | 1.20                 | 300                | 62.5               | 230  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

X.X



# NMB-MAT

EMINEBEA.COM

## 4710KL (119<sup>□</sup> x 25<sup>L</sup>)



DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

#### Allowable Ambient Temperature Range:

B50 Class: -10°C ~ +60°C (Operating)

B10 ~ B40 Class: -10°C ~ +70°C (Operating)

All Class: -40°C ~ +70°C (Storage)  
(non-condensing environment)

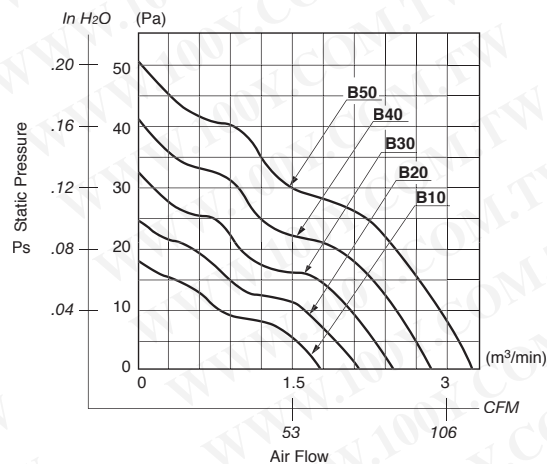
### Expected Life

#### Failure Rate: 10%

25°C 100,000 Hours (B00, E00)

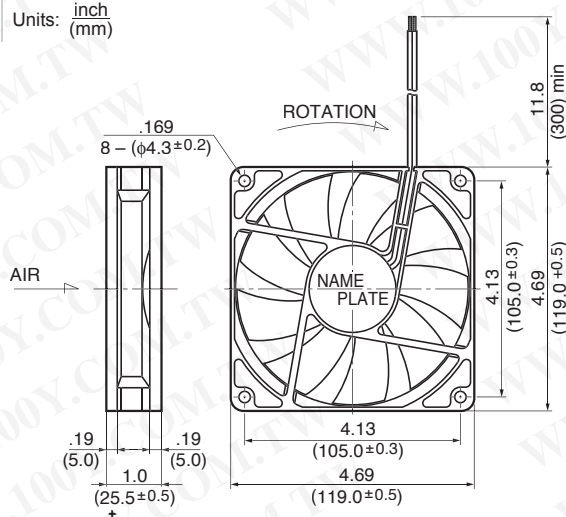
25°C 80,000 Hours (V00)

### Characteristic Curves

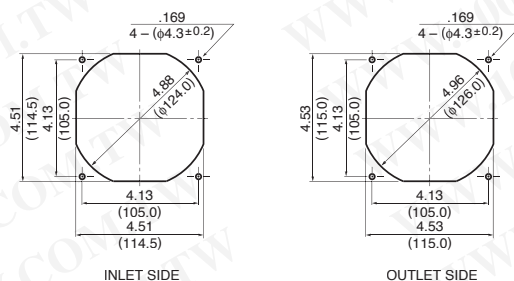


### Outline

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



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG24, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 4710KL-04W-B10- | X00         | 12            | 6.0 ~ 13.8        | 0.12              | 1.44              | 1600                               | 63.5              | 1.80                                | .07                  | 17.9               | 27.0               | 180  |
| 4710KL-04W-B20- | X00         | 12            | 6.0 ~ 13.8        | 0.19              | 2.28              | 1900                               | 75.9              | 2.15                                | .10                  | 24.8               | 31.0               | 180  |
| 4710KL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.28              | 3.36              | 2200                               | 88.2              | 2.50                                | .13                  | 32.3               | 35.0               | 180  |
| 4710KL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.40              | 4.80              | 2500                               | 100.6             | 2.85                                | .16                  | 40.9               | 38.5               | 180  |
| 4710KL-04W-B50- | X00         | 12            | 6.0 ~ 13.0        | 0.55              | 6.60              | 2800                               | 114.7             | 3.25                                | .20                  | 50.5               | 41.5               | 180  |
| 4710KL-05W-B10- | X00         | 24            | 10.0 ~ 27.6       | 0.08              | 1.92              | 1600                               | 63.5              | 1.80                                | .07                  | 17.9               | 27.0               | 180  |
| 4710KL-05W-B20- | X00         | 24            | 10.0 ~ 27.6       | 0.10              | 2.40              | 1900                               | 75.9              | 2.15                                | .10                  | 24.8               | 31.0               | 180  |
| 4710KL-05W-B30- | X00         | 24            | 10.0 ~ 27.6       | 0.15              | 3.60              | 2200                               | 88.2              | 2.50                                | .13                  | 32.3               | 35.0               | 180  |
| 4710KL-05W-B40- | X00         | 24            | 10.0 ~ 27.6       | 0.22              | 5.28              | 2500                               | 100.6             | 2.85                                | .16                  | 40.9               | 38.5               | 180  |
| 4710KL-05W-B50- | X00         | 24            | 10.0 ~ 26.0       | 0.29              | 6.96              | 2800                               | 114.7             | 3.25                                | .20                  | 50.5               | 41.5               | 180  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# 4712FL (119<sup>□</sup>x 32<sup>L</sup>)



## NMB-MAT

EMINEBEA.COM

### General Specifications

**Motor Protection:**  
Auto Restart/Polarity Protection

**Insulation Resistance:** 10M  $\Omega$  or over with a DC500V Megger

**Dielectric Withstand Voltage:** AC 700V 1s

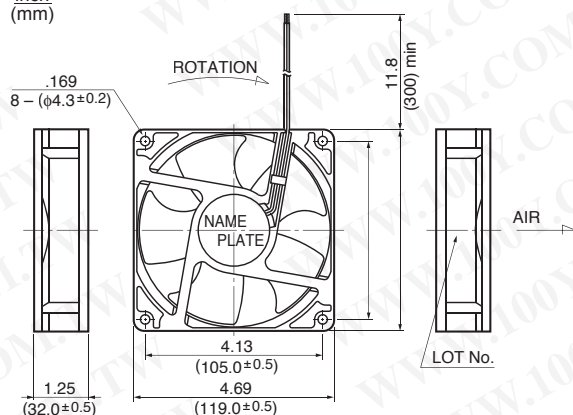
**Allowable Ambient Temperature Range:**  
-10°C ~ +70°C (Operating)  
-40°C ~ +70°C (Storage)  
(non-condensing environment)

### Expected Life

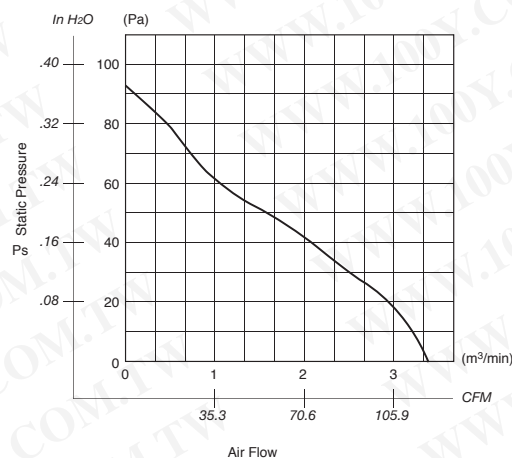
**Failure Rate: 10%**  
25°C 100,000 Hours (P00)

### Outline

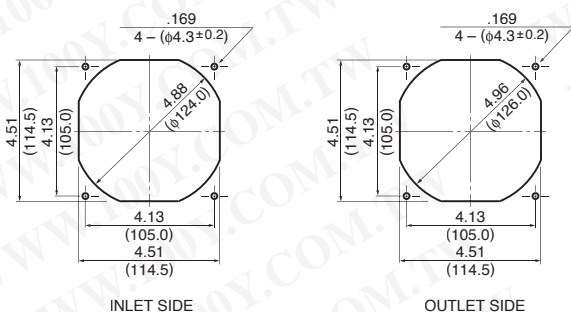
Units:  $\frac{\text{inch}}{(\text{mm})}$



### Characteristic Curves



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0  
Impeller : Plastic (Black) 94V-0  
Bearing : Ball Bearing  
Lead Wire: UL1061, AWG22 , +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 4712FL-07W-B40- | X00         | 48            | 24.0 ~ 56.0       | 0.21              | 10.08             | 3600                               | 120.0             | 3.40                                | 0.37                 | 94.2               | 57.0               | 240  |

Rotation: Clockwise

Airflow Outlet: Air In Over Struts

\*1: Average Values in Free Air

# 4712KL (119<sup>□</sup> x 32<sup>L</sup>)

# NMB-MAT

EMINEBEA.COM

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance: 10M<sup>°</sup> or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

-10 C ~ +70 C (Operating)

-40 C ~ +70 C (Storage)

(non-condensing environment)

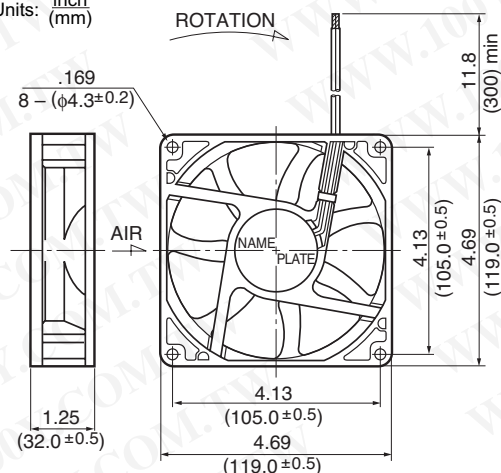
### Expected Life

Failure Rate: 10%

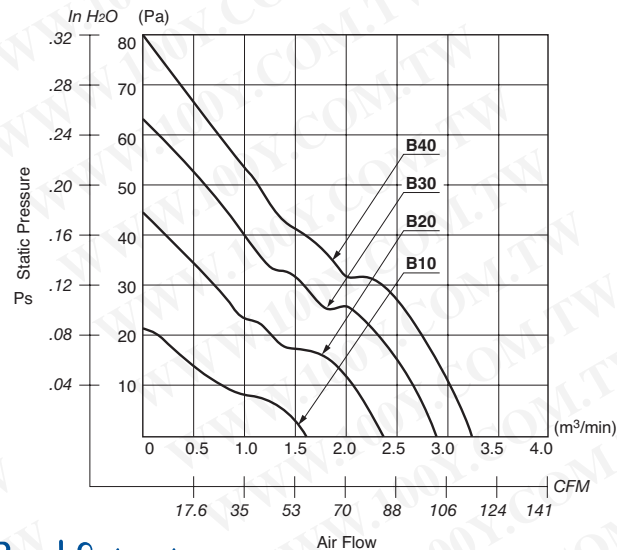
25°C 100,000 Hours (P00)

## Outline

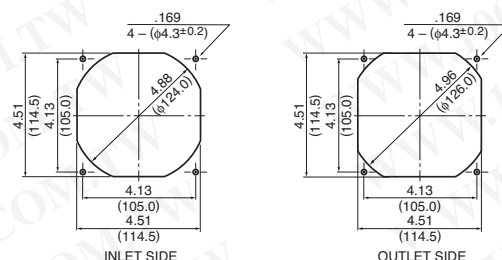
Units: <sup>inch</sup>  
(mm)



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG24, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 4712KL-04W-B10- | X00         | 12            | 6.0 ~ 13.8        | 0.16    | 1.92        | 1600                   | 56.1          | 1.59                    | .09                  | 22.0   | 29.0   | 240  |
| 4712KL-04W-B20- | X00         | 12            | 6.0 ~ 13.8        | 0.32    | 3.84        | 2300                   | 82.2          | 2.33                    | .17                  | 42.0   | 39.0   | 240  |
| 4712KL-04W-B30- | X00         | 12            | 6.0 ~ 13.8        | 0.48    | 5.76        | 2800                   | 99.9          | 2.83                    | .24                  | 60.0   | 44.0   | 240  |
| 4712KL-04W-B40- | X00         | 12            | 6.0 ~ 13.8        | 0.69    | 8.28        | 3100                   | 112.0         | 3.17                    | .33                  | 82.0   | 47.0   | 240  |
| 4712KL-05W-B10- | X00         | 24            | 12.0 ~ 27.6       | 0.09    | 2.16        | 1600                   | 56.1          | 1.59                    | .09                  | 22.0   | 29.0   | 240  |
| 4712KL-05W-B20- | X00         | 24            | 12.0 ~ 27.6       | 0.17    | 4.08        | 2300                   | 82.2          | 2.33                    | .17                  | 42.0   | 39.0   | 240  |
| 4712KL-05W-B30- | X00         | 24            | 12.0 ~ 27.6       | 0.28    | 6.72        | 2800                   | 99.9          | 2.83                    | .24                  | 60.0   | 44.0   | 240  |
| 4712KL-05W-B40- | X00         | 24            | 12.0 ~ 27.6       | 0.34    | 8.16        | 3100                   | 112.0         | 3.17                    | .33                  | 82.0   | 47.0   | 240  |
| 4712KL-07W-B10- | X00         | 48            | 28.0 ~ 55.2       | 0.07    | 3.36        | 1600                   | 56.1          | 1.59                    | .09                  | 22.0   | 29.0   | 240  |
| 4712KL-07W-B20- | X00         | 48            | 28.0 ~ 55.2       | 0.11    | 5.28        | 2300                   | 82.2          | 2.33                    | .17                  | 42.0   | 39.0   | 240  |
| 4712KL-07W-B30- | X00         | 48            | 28.0 ~ 55.2       | 0.16    | 7.68        | 2800                   | 99.9          | 2.83                    | .24                  | 60.0   | 44.0   | 240  |
| 4712KL-07W-B40- | X00         | 48            | 28.0 ~ 55.2       | 0.21    | 10.08       | 3100                   | 112.0         | 3.17                    | .33                  | 82.0   | 47.0   | 240  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# NMB-MAT

## 4715RL (120<sup>□</sup> x 38<sup>L</sup>)

NMBTC.COM / 818.341.3355



NMB

DC Axial Fans

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

#### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

#### Dielectric Withstand Voltage: AC 700V 1s

#### Allowable Ambient Temperature Range:

-10°C ~ +60°C (Operating)

-40°C ~ +60°C (Storage)

(non-condensing environment)

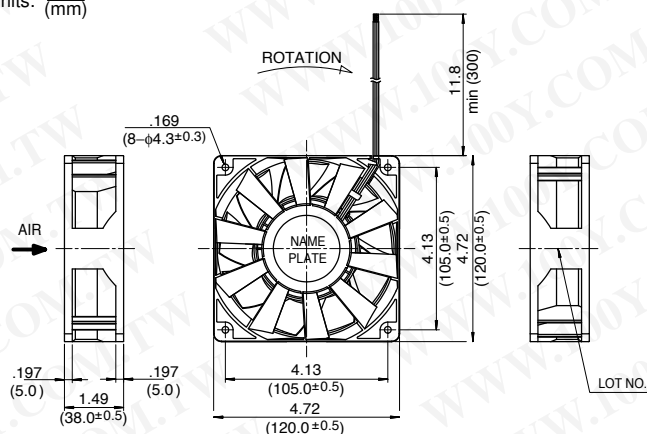
### Expected Life

#### Failure Rate: 10%

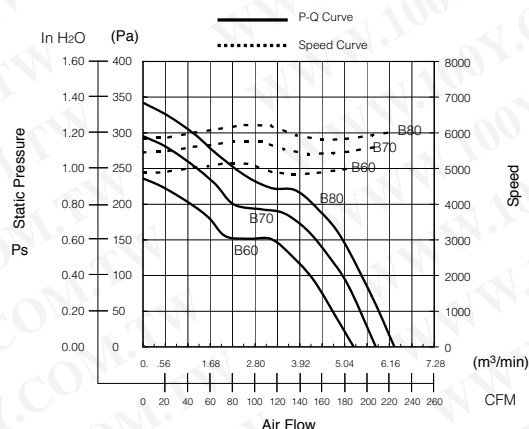
25°C 80,000 Hours (E00)

### Outline

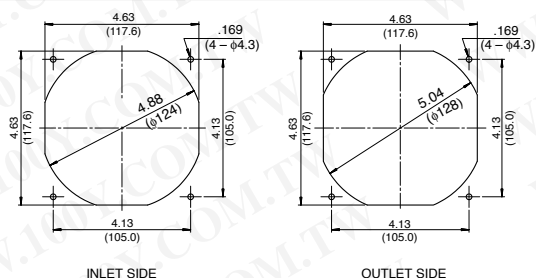
Units:  $\frac{\text{inch}}{(\text{mm})}$



### Characteristic Curves



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG24, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |            | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m³/min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 4715RL-05W-B60- | EXX         | 24            | 18.0 ~ 27.6       | 1.00    | 24.00       | 5000                   | 188.2         | 5.30       | 0.94                 | 235    | 62.0   | 370  |
| 4715RL-05W-B70- | EXX         | 24            | 18.0 ~ 27.6       | 1.50    | 36.00       | 5600                   | 208.0         | 5.80       | 1.18                 | 290    | 65.0   | 370  |
| 4715RL-05W-B80- | EXX         | 24            | 18.0 ~ 27.6       | 1.80    | 43.20       | 6000                   | 224.6         | 6.36       | 1.37                 | 340    | 66.5   | 370  |
| 4715RL-07W-B60- | EXX         | 48            | 40.0 ~ 55.2       | 0.55    | 26.40       | 5000                   | 188.2         | 5.30       | 0.94                 | 235    | 62.0   | 370  |
| 4715RL-07W-B70- | EXX         | 48            | 40.0 ~ 55.2       | 0.70    | 33.60       | 5600                   | 208.0         | 5.80       | 1.18                 | 290    | 65.0   | 370  |
| 4715RL-07W-B80- | EXX         | 48            | 40.0 ~ 55.0       | 0.90    | 43.20       | 6000                   | 224.6         | 6.36       | 1.37                 | 340    | 66.5   | 370  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

X.X



## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

### Insulation Resistance:

10M  $\Omega$  or over with a DC500V Megger

### Dielectric Withstand Voltage: AC 700V 1s

### Allowable Ambient Temperature Range:

B20 ~ B70 Class: -10°C ~ +70°C (Operating)

B90 Class: -10°C ~ +60°C (Storage)

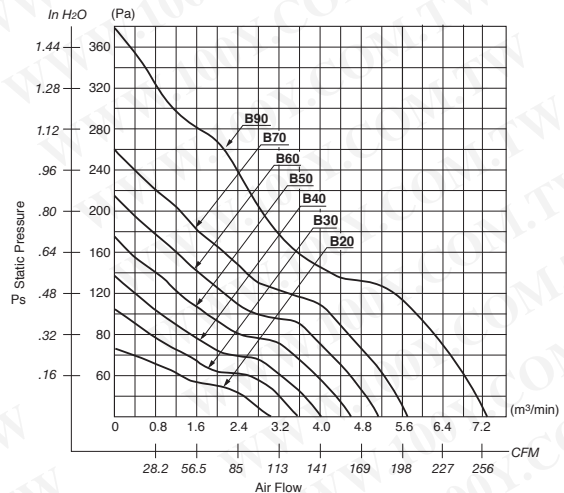
All Class: -40°C ~ +60°C (Storage)  
(non-condensing environment)

## Expected Life

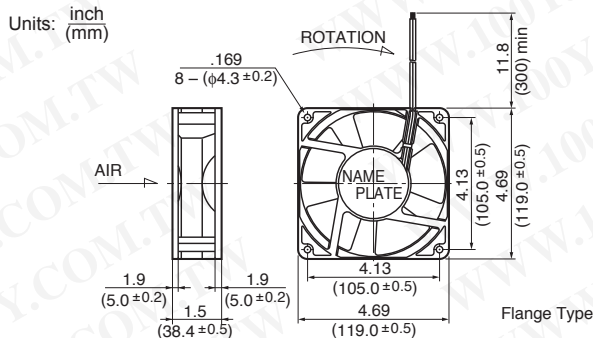
### Failure Rate: 10%

25°C 100,000 Hours (D00)

## Characteristic Curves



## Outline



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG24, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                        | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m³/min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 4715SL-04W-B20- | D00         | 12            | 8.0 ~ 13.8        | .48               | 5.76              | 2700                               | 102.7             | 2.91                   | .30                  | 76.0               | 45.0               | 400  |
| 4715SL-04W-B30- | D00         | 12            | 8.0 ~ 13.8        | .66               | 7.92              | 3200                               | 122.1             | 3.46                   | .40                  | 102.0              | 49.5               | 400  |
| 4715SL-04W-B40- | D00         | 12            | 8.0 ~ 13.8        | 1.00              | 12.00             | 3700                               | 141.9             | 4.02                   | .54                  | 136.0              | 53.5               | 400  |
| 4715SL-04W-B50- | D00         | 12            | 8.0 ~ 13.2        | 1.46              | 17.50             | 4200                               | 162.0             | 4.59                   | .69                  | 173.0              | 56.5               | 400  |
| 4715SL-04W-B60- | D00         | 12            | 8.0 ~ 12.9        | 1.92              | 23.00             | 4700                               | 181.0             | 5.13                   | .85                  | 213.0              | 59.5               | 400  |
| 4715SL-04W-B70- | D00         | 12            | 8.0 ~ 12.6        | 3.20              | 38.40             | 5100                               | 201.0             | 5.69                   | 1.04                 | 260.5              | 62.3               | 400  |
| 4715SL-05W-B20- | D00         | 24            | 15.0 ~ 27.6       | 0.26              | 6.24              | 2700                               | 102.7             | 2.91                   | .30                  | 76.0               | 45.0               | 400  |
| 4715SL-05W-B30- | D00         | 24            | 15.0 ~ 27.6       | 0.35              | 8.40              | 3200                               | 122.1             | 3.46                   | .40                  | 102.0              | 49.5               | 400  |
| 4715SL-05W-B40- | D00         | 24            | 15.0 ~ 27.6       | 0.52              | 12.50             | 3700                               | 141.9             | 4.02                   | .54                  | 136.0              | 53.5               | 400  |
| 4715SL-05W-B50- | D00         | 24            | 15.0 ~ 27.6       | 0.74              | 17.80             | 4200                               | 162.0             | 4.59                   | .69                  | 173.0              | 56.5               | 400  |
| 4715SL-05W-B60- | D00         | 24            | 15.0 ~ 26.4       | 0.93              | 22.40             | 4700                               | 181.0             | 5.13                   | .85                  | 213.0              | 59.5               | 400  |
| 4715SL-05W-B70- | D00         | 24            | 15.0 ~ 25.2       | 1.50              | 36.00             | 5100                               | 201.0             | 5.69                   | 1.04                 | 260.5              | 62.3               | 400  |
| 4715SL-07W-B40- | D00         | 48            | 30.0 ~ 55.2       | 0.27              | 13.00             | 3700                               | 141.9             | 4.02                   | .54                  | 136.0              | 53.5               | 400  |
| 4715SL-07W-B50- | D00         | 48            | 30.0 ~ 55.2       | 0.37              | 17.80             | 4200                               | 162.0             | 4.59                   | .69                  | 173.0              | 56.5               | 400  |
| 4715SL-07W-B60- | D00         | 48            | 30.0 ~ 52.8       | 0.49              | 23.50             | 4700                               | 181.0             | 5.13                   | .85                  | 213.0              | 59.5               | 400  |
| 4715SL-07W-B70- | D00         | 48            | 30.0 ~ 50.4       | 0.83              | 39.84             | 5100                               | 201.0             | 5.69                   | 1.04                 | 260.5              | 62.3               | 400  |
| 4715SL-07W-B90- | D00         | 48            | 30.0 ~ 53.0       | 1.10              | 52.80             | 6000                               | 257.6             | 7.30                   | 1.44                 | 360.0              | 65.5               | 400  |

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

\*\* Contact NMB for availability

† Not available in the USA

### General Specifications

#### Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance: 10M  $\Omega$  or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

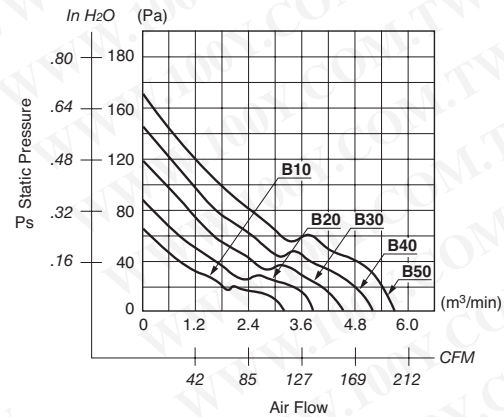
#### Allowable Ambient Temperature Range:

B50 Class: -10°C ~ +60°C (Operating)

B10 ~ B40 Class: -10°C ~ +70°C (Operating)

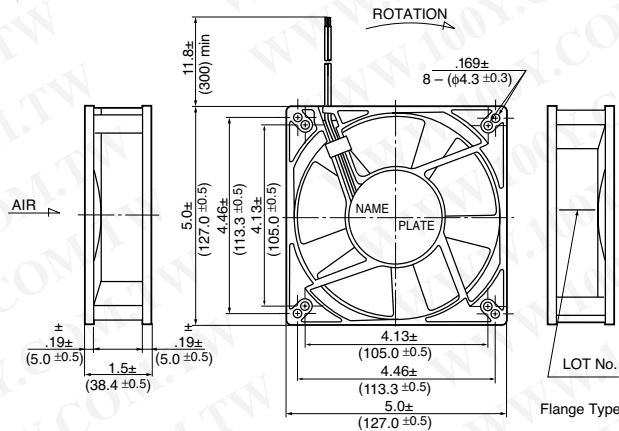
All Class: -40°C ~ +70°C (Storage)  
(non-condensing environment)

### Characteristic Curves

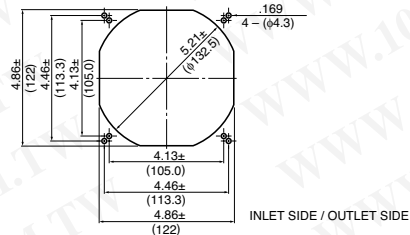


### Outline

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



### Panel Cut-outs



### Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG24, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| 5015KL-04W-B10- | E00         | 12            | 8.0 ~ 13.8        | 0.48              | 5.76              | 2600                               | 115.0             | 3.26                                | .25                  | 64.1               | 45.5               | 360  |
| 5015KL-04W-B20- | E00         | 12            | 8.0 ~ 13.8        | 0.72              | 8.64              | 3100                               | 139.0             | 3.94                                | .36                  | 89.7               | 50.5               | 360  |
| 5015KL-04W-B30- | E00         | 12            | 8.0 ~ 13.8        | 0.98              | 11.76             | 3600                               | 163.0             | 4.62                                | .48                  | 119.7              | 55.0               | 360  |
| 5015KL-04W-B40- | E00         | 12            | 8.0 ~ 13.8        | 1.44              | 17.28             | 4000                               | 180.0             | 5.11                                | .59                  | 147.8              | 57.5               | 360  |
| 5015KL-04W-B50- | E00         | 12            | 8.0 ~ 13.2        | 2.04              | 24.48             | 4400                               | 199.0             | 5.64                                | .71                  | 176.5              | 60.5               | 360  |
| 5015KL-05W-B10- | E00         | 24            | 18.0 ~ 27.6       | 0.22              | 5.28              | 2600                               | 115.0             | 3.26                                | .25                  | 64.1               | 45.5               | 360  |
| 5015KL-05W-B20- | E00         | 24            | 18.0 ~ 27.6       | 0.34              | 8.16              | 3100                               | 139.0             | 3.94                                | .36                  | 89.7               | 50.5               | 360  |
| 5015KL-05W-B30- | E00         | 24            | 18.0 ~ 27.6       | 0.51              | 12.24             | 3600                               | 163.0             | 4.62                                | .48                  | 119.7              | 55.0               | 360  |
| 5015KL-05W-B40- | E00         | 24            | 18.0 ~ 27.6       | 0.68              | 16.32             | 4000                               | 180.0             | 5.11                                | .59                  | 147.8              | 57.5               | 360  |
| 5015KL-05W-B50- | E00         | 24            | 18.0 ~ 26.4       | 0.90              | 21.60             | 4400                               | 199.0             | 5.64                                | .71                  | 176.5              | 60.5               | 360  |
| 5015KL-07W-B10- | E00         | 48            | 36.0 ~ 55.2       | 0.17              | 8.16              | 2600                               | 115.0             | 3.26                                | .25                  | 64.1               | 45.5               | 360  |
| 5015KL-07W-B20- | E00         | 48            | 36.0 ~ 55.2       | 0.23              | 11.04             | 3100                               | 139.0             | 3.94                                | .36                  | 89.7               | 50.5               | 360  |
| 5015KL-07W-B30- | E00         | 48            | 36.0 ~ 55.2       | 0.33              | 15.84             | 3600                               | 163.0             | 4.62                                | .48                  | 119.7              | 55.0               | 360  |
| 5015KL-07W-B40- | E00         | 48            | 36.0 ~ 55.2       | 0.38              | 18.24             | 4000                               | 180.0             | 5.11                                | .59                  | 147.8              | 57.5               | 360  |
| 5015KL-07W-B50- | E00         | 48            | 36.0 ~ 52.8       | 0.45              | 21.60             | 4400                               | 199.0             | 5.64                                | .71                  | 176.5              | 60.5               | 360  |

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance: 10M  $\Omega$  or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

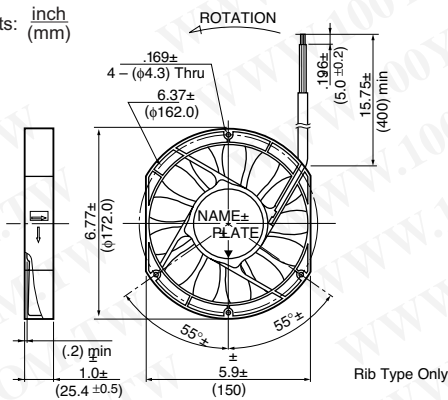
Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

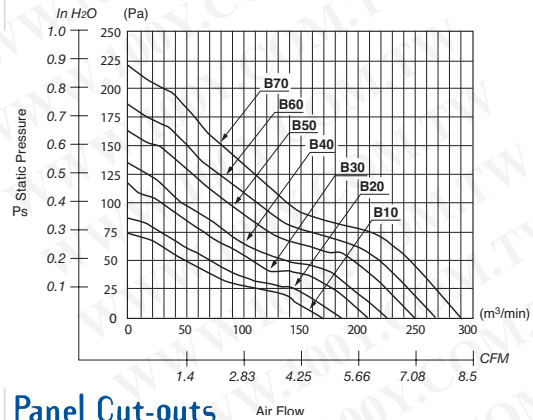
-40°C ~ +70°C (Storage)  
(non-condensing environment)

## Outline

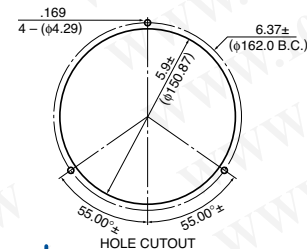
Units:  $\frac{\text{inch}}{\text{mm}}$



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Aluminum (Black)

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG22, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                        | Max. Static Pressure |                    | Noise              | Mass  |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|------------------------|----------------------|--------------------|--------------------|-------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m³/min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)   |
| 5910PL-04W-B10- | L00         | 12            | 6.0 ~ 18.0        | 0.86              | 10.3              | 2500                               | 170.0             | 4.81                   | .30                  | 76.0               | 54.1               | 510.3 |
| 5910PL-04W-B20- | L00         | 12            | 6.0 ~ 18.0        | 1.13              | 13.6              | 2850                               | 190.0             | 5.38                   | .37                  | 93.2               | 57.0               | 510.3 |
| 5910PL-04W-B30- | L00         | 12            | 6.0 ~ 18.0        | 1.52              | 18.2              | 3150                               | 210.0             | 5.95                   | .46                  | 115.2              | 58.9               | 510.3 |
| 5910PL-04W-B40- | L00         | 12            | 6.0 ~ 18.0        | 1.70              | 20.4              | 3350                               | 230.0             | 6.52                   | .56                  | 141.0              | 61.5               | 510.3 |
| 5910PL-04W-B50- | L00         | 12            | 6.0 ~ 18.0        | 2.06              | 24.7              | 3500                               | 250.0             | 7.08                   | .65                  | 163.7              | 62.5               | 510.3 |
| 5910PL-05W-B10- | L00         | 24            | 12.0 ~ 30.0       | 0.41              | 9.8               | 2500                               | 170.0             | 4.81                   | .30                  | 76.0               | 54.1               | 510.3 |
| 5910PL-05W-B20- | L00         | 24            | 12.0 ~ 30.0       | 0.58              | 13.9              | 2850                               | 190.0             | 5.38                   | .37                  | 93.2               | 57.0               | 510.3 |
| 5910PL-05W-B30- | L00         | 24            | 12.0 ~ 30.0       | 0.75              | 18.0              | 3150                               | 210.0             | 5.95                   | .46                  | 115.2              | 58.9               | 510.3 |
| 5910PL-05W-B40- | L00         | 24            | 12.0 ~ 30.0       | 0.86              | 20.6              | 3350                               | 230.0             | 6.52                   | .56                  | 141.0              | 61.5               | 510.3 |
| 5910PL-05W-B50- | L00         | 24            | 12.0 ~ 30.0       | 1.00              | 24.0              | 3500                               | 250.0             | 7.08                   | .65                  | 163.7              | 62.5               | 510.3 |
| 5910PL-05W-B60- | L00         | 24            | 12.0 ~ 30.0       | 1.16              | 27.8              | 3750                               | 270.0             | 7.65                   | .74                  | 187.0              | 62.9               | 510.3 |
| 5910PL-05W-B70- | L00         | 24            | 12.0 ~ 30.0       | 1.55              | 37.2              | 4100                               | 290.0             | 8.20                   | .89                  | 233.0              | 65.4               | 510.3 |
| 5910PL-07W-B10- | L00         | 48            | 25.0 ~ 60.0       | 0.22              | 10.6              | 2500                               | 170.0             | 4.81                   | .30                  | 76.0               | 54.1               | 510.3 |
| 5910PL-07W-B20- | L00         | 48            | 25.0 ~ 60.0       | 0.28              | 13.4              | 2850                               | 190.0             | 5.38                   | .37                  | 93.2               | 57.0               | 510.3 |
| 5910PL-07W-B30- | L00         | 48            | 25.0 ~ 60.0       | 0.37              | 17.8              | 3150                               | 210.0             | 5.95                   | .46                  | 115.2              | 58.9               | 510.3 |
| 5910PL-07W-B40- | L00         | 48            | 25.0 ~ 60.0       | 0.45              | 21.6              | 3350                               | 230.0             | 6.52                   | .56                  | 141.0              | 61.5               | 510.3 |
| 5910PL-07W-B50- | L00         | 48            | 25.0 ~ 60.0       | 0.51              | 24.5              | 3500                               | 250.0             | 7.08                   | .65                  | 163.7              | 62.5               | 510.3 |
| 5910PL-07W-B60- | L00         | 48            | 25.0 ~ 60.0       | 0.58              | 27.8              | 3750                               | 270.0             | 7.65                   | .74                  | 187.0              | 62.9               | 510.3 |
| 5910PL-07W-B70- | L00         | 48            | 25.0 ~ 60.0       | 0.74              | 35.5              | 4100                               | 290.0             | 8.20                   | .89                  | 233.0              | 65.4               | 510.3 |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air



# 6820PL (Ø172 x 50<sup>L</sup>)

# NMB-MAT

EMINEBEA.COM

## General Specifications

### Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance: 10M Ω or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

Allowable Ambient Temperature Range:

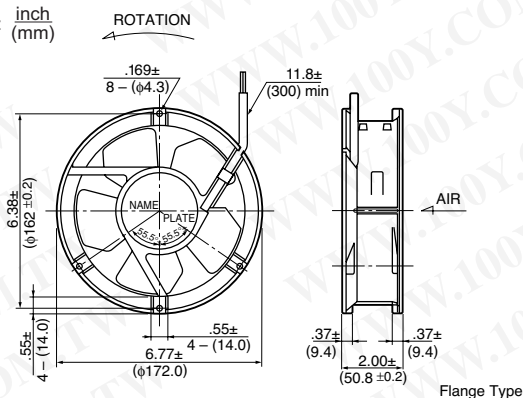
-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

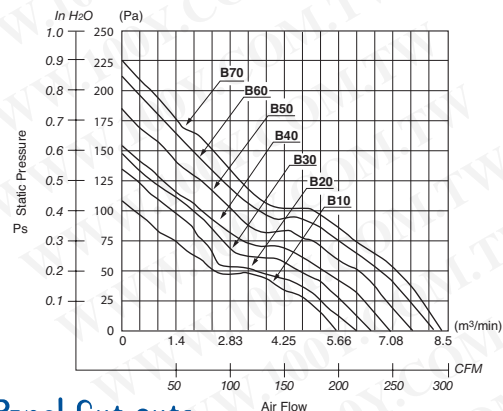
(non-condensing environment)

## Outline

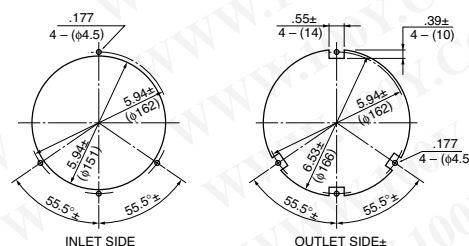
Units:  $\frac{\text{inch}}{\text{mm}}$



## Characteristic Curves



## Panel Cut-outs



## Material

Casing : Aluminum (Black)

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire : UL1007, AWG22, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current | Input Power | Speed                  | Max. Air Flow |                         | Max. Static Pressure |        | Noise  | Mass |
|-----------------|-------------|---------------|-------------------|---------|-------------|------------------------|---------------|-------------------------|----------------------|--------|--------|------|
|                 |             | (V)           | (V)               | (A)*1   | (W)*1       | (min <sup>-1</sup> )*1 | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1 | (g)  |
| 6820PL-04W-B10- | D00         | 12            | 6.0 ~ 18.0        | 0.80    | 9.60        | 2550                   | 180.0         | 5.10                    | .37                  | 92.5   | 50.0   | 830  |
| 6820PL-04W-B20- | D00         | 12            | 6.0 ~ 18.0        | 1.00    | 12.00       | 2850                   | 200.0         | 5.66                    | .47                  | 117.5  | 53.0   | 830  |
| 6820PL-04W-B30- | D00         | 12            | 6.0 ~ 18.0        | 1.15    | 13.80       | 3150                   | 225.0         | 6.37                    | .56                  | 140.0  | 55.0   | 830  |
| 6820PL-04W-B40- | D00         | 12            | 6.0 ~ 18.0        | 1.44    | 17.28       | 3350                   | 240.0         | 6.80                    | .62                  | 155.0  | 58.0   | 830  |
| 6820PL-04W-B50- | D00         | 12            | 6.0 ~ 18.0        | 1.60    | 19.20       | 3500                   | 260.0         | 7.36                    | .73                  | 182.75 | 60.3   | 830  |
| 6820PL-05W-B10- | D00         | 24            | 12.0 ~ 30.0       | 0.36    | 8.64        | 2550                   | 180.0         | 5.10                    | .37                  | 92.5   | 50.0   | 830  |
| 6820PL-05W-B20- | D00         | 24            | 12.0 ~ 30.0       | 0.46    | 11.04       | 2850                   | 200.0         | 5.66                    | .47                  | 117.5  | 53.0   | 830  |
| 6820PL-05W-B30- | D00         | 24            | 12.0 ~ 30.0       | 0.55    | 13.20       | 3150                   | 225.0         | 6.37                    | .56                  | 140.0  | 55.0   | 830  |
| 6820PL-05W-B40- | D00         | 24            | 12.0 ~ 30.0       | 0.66    | 15.84       | 3350                   | 240.0         | 6.80                    | .62                  | 155.0  | 58.0   | 830  |
| 6820PL-05W-B50- | D00         | 24            | 12.0 ~ 30.0       | 0.79    | 18.96       | 3500                   | 260.0         | 7.36                    | .73                  | 182.75 | 60.3   | 830  |
| 6820PL-05W-B60- | D00         | 24            | 12.0 ~ 30.0       | 0.88    | 21.12       | 3750                   | 280.0         | 7.93                    | .84                  | 210.5  | 62.5   | 830  |
| 6820PL-05W-B70- | D00         | 24            | 12.0 ~ 30.0       | 1.08    | 25.92       | 4000                   | 300.0         | 8.50                    | .90                  | 226.5  | 63.2   | 830  |
| 6820PL-07W-B10- | D00         | 48            | 25.0 ~ 60.0       | 0.18    | 8.64        | 2550                   | 180.0         | 5.10                    | .37                  | 92.5   | 50.0   | 830  |
| 6820PL-07W-B20- | D00         | 48            | 25.0 ~ 60.0       | 0.23    | 11.04       | 2850                   | 200.0         | 5.66                    | .47                  | 117.5  | 53.0   | 830  |
| 6820PL-07W-B30- | D00         | 48            | 25.0 ~ 60.0       | 0.27    | 12.96       | 3150                   | 225.0         | 6.37                    | .56                  | 140.0  | 55.0   | 830  |
| 6820PL-07W-B40- | D00         | 48            | 25.0 ~ 60.0       | 0.33    | 15.84       | 3350                   | 240.0         | 6.80                    | .62                  | 155.0  | 58.0   | 830  |
| 6820PL-07W-B50- | D00         | 48            | 25.0 ~ 60.0       | 0.40    | 19.20       | 3500                   | 260.0         | 7.36                    | .73                  | 182.75 | 60.3   | 830  |
| 6820PL-07W-B60- | D00         | 48            | 25.0 ~ 60.0       | 0.47    | 22.56       | 3750                   | 280.0         | 7.93                    | .84                  | 210.5  | 62.5   | 830  |
| 6820PL-07W-B70- | D00         | 48            | 25.0 ~ 60.0       | 0.51    | 24.48       | 4000                   | 300.0         | 8.50                    | .90                  | 226.5  | 63.2   | 830  |

Rotation: Counterclockwise

Airflow Outlet: Air Out Over Struts

\*1: Average Values in Free Air

# BG0702 (ø75 x 25<sup>L</sup>)

# NMB-MAT

EMINEBA.COM

## General Specifications

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

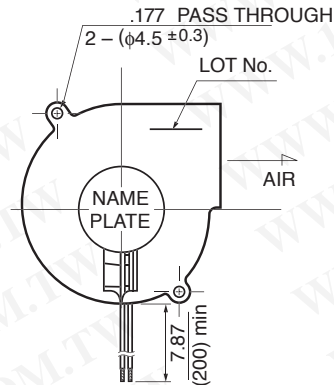
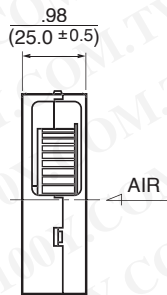
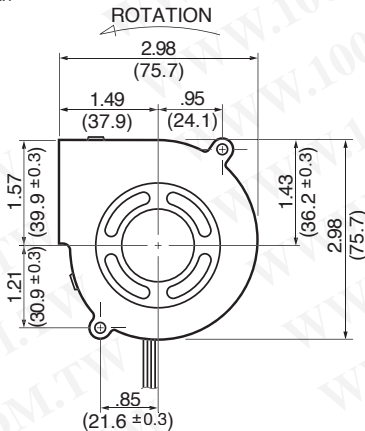
### Failure Rate: 10%

25°C 70,000 Hours (00)

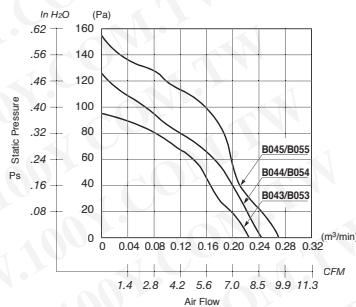
25°C 60,000 Hours (T0)

## Outline

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



## Characteristic Curves



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG26, +Red, -Black

## Specifications

| MODEL            | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|------------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                  |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| BG0702-B043-000- | X0          | 12            | 6 ~ 13.8          | 0.16              | 1.92              | 3000                               | 7.76              | 0.22                                | .37                  | 94                 | 39.0               | 90   |
| BG0702-B044-000- | X0          | 12            | 6 ~ 13.8          | 0.19              | 2.28              | 3300                               | 8.47              | 0.24                                | .50                  | 124                | 41.0               | 90   |
| BG0702-B045-000- | X0          | 12            | 6 ~ 13.8          | 0.25              | 3.00              | 3600                               | 9.50              | 0.27                                | .61                  | 153                | 43.0               | 90   |
| BG0702-B053-000- | X0          | 24            | 10 ~ 27.6         | 0.10              | 2.40              | 3000                               | 7.76              | 0.22                                | .37                  | 94                 | 39.0               | 90   |
| BG0702-B054-000- | X0          | 24            | 10 ~ 27.6         | 0.11              | 2.64              | 3300                               | 8.47              | 0.24                                | .50                  | 124                | 41.0               | 90   |
| BG0702-B055-000- | X0          | 24            | 10 ~ 27.6         | 0.14              | 3.36              | 3600                               | 9.50              | 0.27                                | .61                  | 153                | 43.0               | 90   |

Rotation: Counterclockwise

\*1: Average Values in Free Air

# BG1002 ( $\varnothing 100 \times 25^L$ )

**NMB-MAT**

EMINEBEA.COM

## General Specifications

### Allowable Ambient Temperature Range:

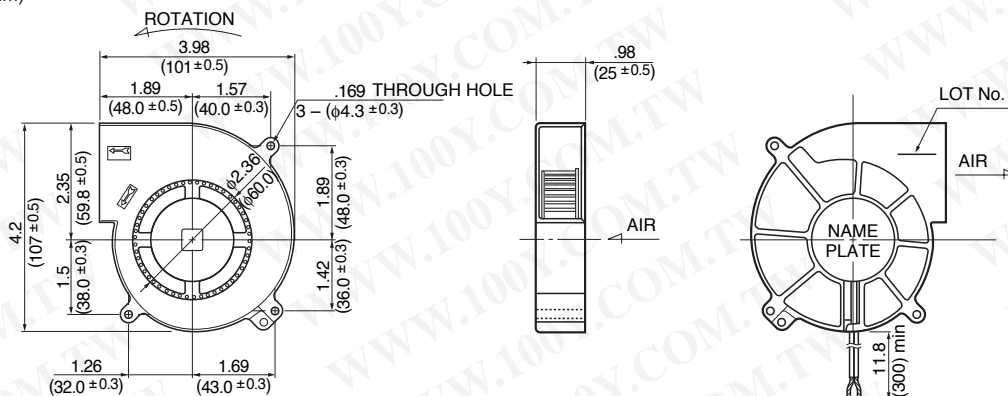
-10°C ~ +60°C (Operating)

-40°C ~ +60°C (Storage)

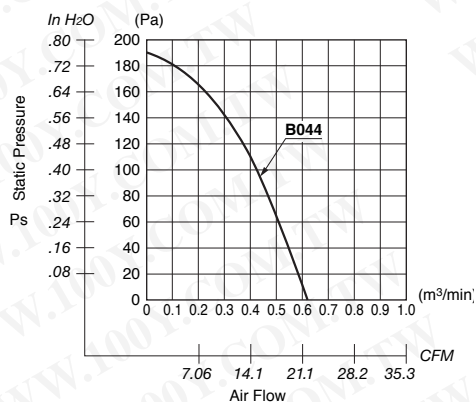
(non-condensing environment)

## Outline

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



## Characteristic Curves



## Material

Casing : Plastic (Black) 94V-0  
 Impeller : Plastic (Black) 94V-0  
 Bearing : Ball Bearing  
 Lead Wire : UL1007, AWG26, +Red, -Black

## Specifications

| MODEL            | Rated       | Operating | Current  | Input             | Speed             | Max.                               | Max. Static       | Noise                               | Mass                |                    |                    |     |
|------------------|-------------|-----------|----------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|---------------------|--------------------|--------------------|-----|
|                  | Product No. | (V)       | (V)      | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g) |
| BG1002-B044-000- | 00          | 12        | 6 ~ 13.8 | 0.56              | 6.7               | 3300                               | 21.5              | 0.61                                | .76                 | 190                | 47.0               | 170 |

Rotation: Counterclockwise

\*1: Average Values in Free Air



# BM5115 ( $\phi 51 \times 15^L$ )

# NMB-MAT

EMINEBEA.COM

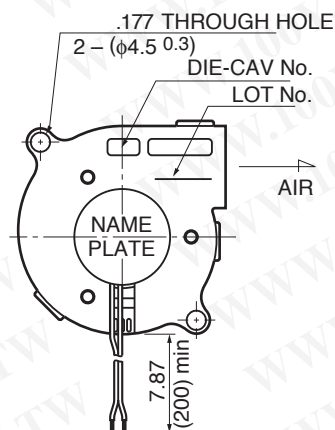
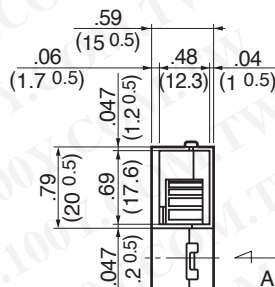
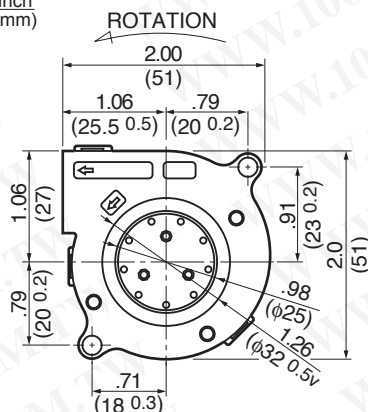
## General Specifications

### Allowable Ambient Temperature Range:

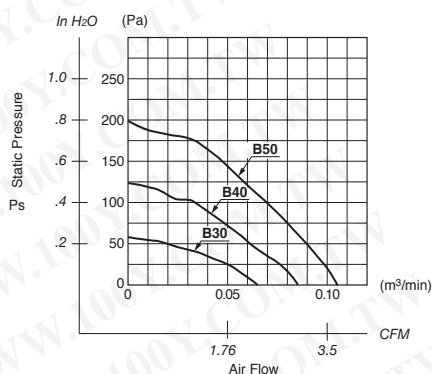
- 10°C ~ +70°C (Operating)
- 40°C ~ +70°C (Storage)
- (non-condensing environment)

## Outline

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



## Characteristic Curves



## Material

- Casing : Plastic (Black) 94V-0
- Impeller : Plastic (Black) 94V-0
- Bearing : Ball Bearing
- Lead Wire : UL1061, AWG26, +Red, -Black

## Specifications

| MODEL           | Rated Voltage |     | Operating Voltage | Current | Input Power | Speed | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise | Mass |
|-----------------|---------------|-----|-------------------|---------|-------------|-------|-------------------|-------------------------------------|----------------------|--------------------|-------|------|
|                 | Product No.   | (V) |                   |         |             |       | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> |       |      |
| BM5115-04W-B30- | X00           | 12  | 10.2 ~ 13.8       | 0.06    | 0.72        | 3500  | 2.1               | 0.06                                | .24                  | 60                 | 26.0  | 25   |
| BM5115-04W-B40- | X00           | 12  | 10.2 ~ 13.8       | 0.12    | 1.44        | 4500  | 2.8               | 0.08                                | .48                  | 120                | 35.0  | 25   |
| BM5115-04W-B50- | X00           | 12  | 10.2 ~ 13.8       | 0.18    | 2.16        | 5500  | 3.5               | 0.10                                | .80                  | 200                | 42.0  | 25   |

Rotation: Counterclockwise

\*1: Average Values in Free Air



# NMB-MAT

EMINEBEA.COM

## BM5125 (ø51 x 25<sup>L</sup>)



DC Blowers

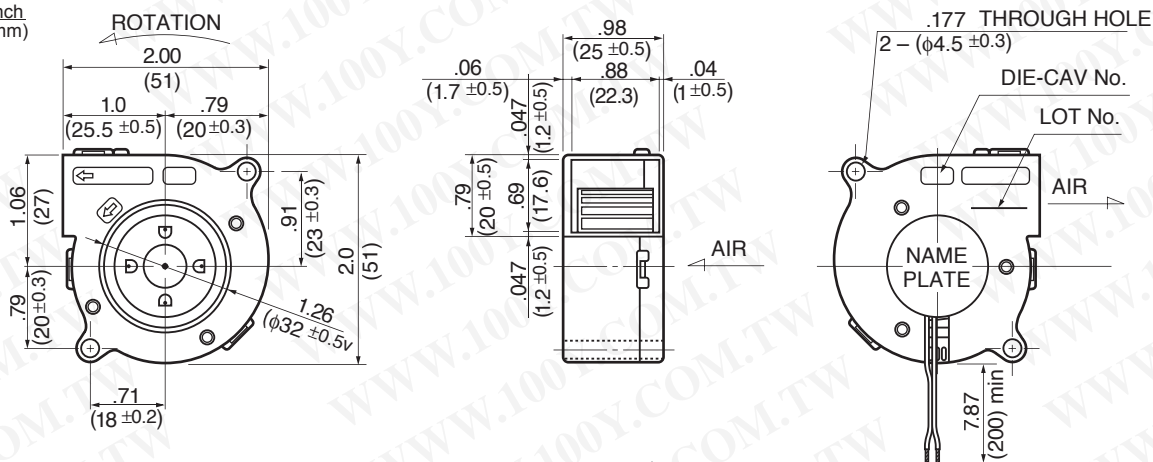
### General Specifications

#### Allowable Ambient Temperature Range:

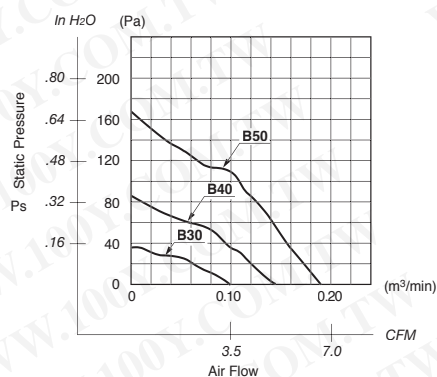
- B50 Class: -10°C ~ +60°C (Operating)
  - B30~B40 Class: -10°C ~ +70°C (Operating)
  - All Class: -40°C ~ +70°C (Storage)
- (non-condensing environment)

### Outline

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



### Characteristic Curves



### Material

- Casing : Plastic (Black) 94V-0
- Impeller : Plastic (Black) 94V-0
- Bearing : Ball Bearing
- Lead Wire : UL1061, AWG26, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                        | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m³/min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| BM5125-04W-B30- | L00         | 12            | 10.2 ~ 13.8       | 0.06              | 0.72              | 2500                               | 3.5               | 0.10                   | .14                  | 35                 | 27.0               | 35   |
| BM5125-04W-B40- | L00         | 12            | 10.2 ~ 13.8       | 0.13              | 1.56              | 3500                               | 5.3               | 0.15                   | .34                  | 85                 | 34.0               | 35   |
| BM5125-04W-B50- | L00         | 12            | 10.2 ~ 13.8       | 0.24              | 2.88              | 4500                               | 6.7               | 0.19                   | .64                  | 160                | 41.0               | 35   |

Rotation: Counterclockwise

\*1: Average Values in Free Air

# BM6015 ( $\varnothing 60 \times 15^L$ )



**NMB-MAT**

EMINEBEA.COM

## General Specifications

### Allowable Ambient Temperature Range:

-10°C ~ +70°C (Operating)

-40°C ~ +70°C (Storage)

(non-condensing environment)

## Expected Life

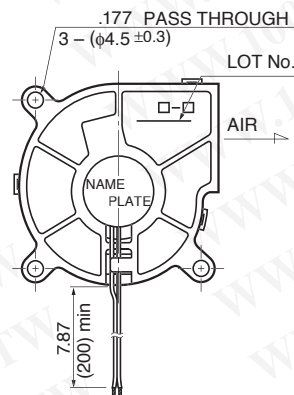
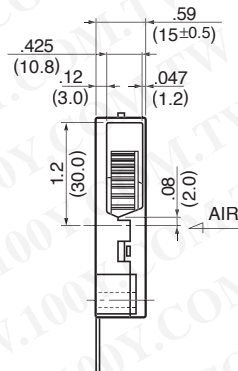
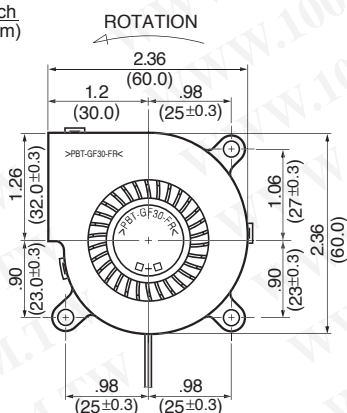
### Failure Rate: 10%

25°C 50,000 Hours (L00)

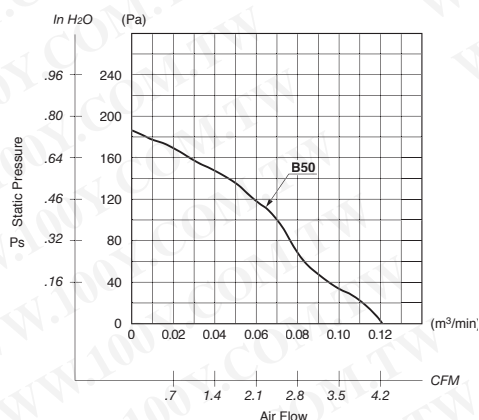
25°C 40,000 Hours (T00)

## Outline

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



## Characteristic Curves



## Material

Casing : Plastic (Black) 94V-0

Impeller : Plastic (Black) 94V-0

Bearing : Ball Bearing

Lead Wire: UL1007, AWG26, +Red, -Black

## Specifications

| MODEL           | Product No. | Rated Voltage (V) | Operating Voltage (V) | Current (A)*1 | Input Power (W)*1 | Speed (min <sup>-1</sup> )*1 | Max. Air Flow |                         | Max. Static Pressure |        | Noise (dB)*1 | Mass (g) |
|-----------------|-------------|-------------------|-----------------------|---------------|-------------------|------------------------------|---------------|-------------------------|----------------------|--------|--------------|----------|
|                 |             | (V)               | (V)                   | (A)*1         | (W)*1             | (min <sup>-1</sup> )*1       | CFM*1         | (m <sup>3</sup> /min)*1 | in H <sub>2</sub> O  | (Pa)*1 | (dB)*1       | (g)      |
| BM6015-04W-B50- | L00         | 12                | 9 ~ 12.6              | 0.22          | 2.64              | 5600                         | 4.2           | 0.12                    | .68                  | 168.9  | 42.0         | 30       |

Rotation: Counterclockwise

\*1: Average Values in Free Air





# NMB-MAT

EMINEBEA.COM

## BM6025 (ø60 x 25<sup>L</sup>)



DC Blowers

### General Specifications

#### Allowable Ambient Temperature Range:

- 10°C ~ +60°C (Operating)
- 40°C ~ +60°C (Storage)
- (non-condensing environment)

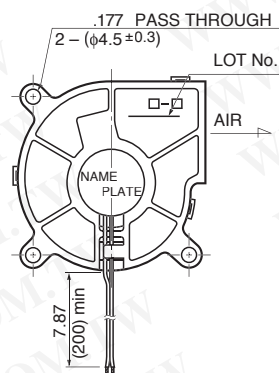
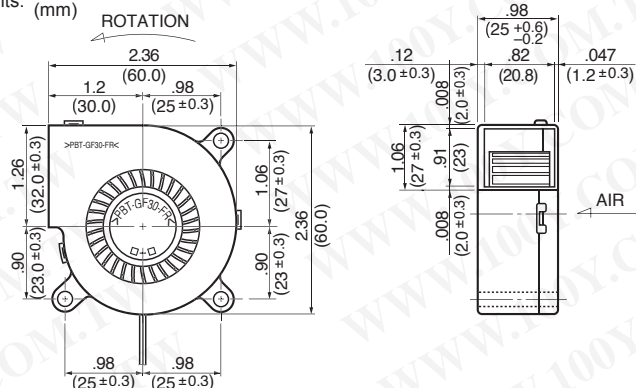
### Expected Life

#### Failure Rate: 10%

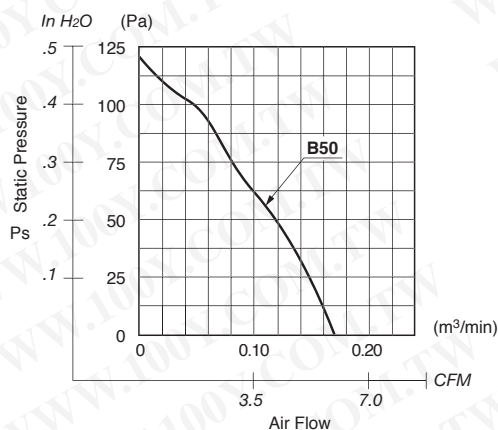
25°C 40,000 Hours (T00)

### Outline

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



### Characteristic Curves



### Material

- Casing : Plastic (Black) 94V-0
- Impeller : Plastic (Black) 94V-0
- Bearing : Ball Bearing
- Lead Wire : UL1061, AWG26, +Red, -Black

### Specifications

| MODEL           | Product No. | Rated Voltage | Operating Voltage | Current           | Input Power       | Speed                              | Max. Air Flow     |                                     | Max. Static Pressure |                    | Noise              | Mass |
|-----------------|-------------|---------------|-------------------|-------------------|-------------------|------------------------------------|-------------------|-------------------------------------|----------------------|--------------------|--------------------|------|
|                 |             | (V)           | (V)               | (A) <sup>*1</sup> | (W) <sup>*1</sup> | (min <sup>-1</sup> ) <sup>*1</sup> | CFM <sup>*1</sup> | (m <sup>3</sup> /min) <sup>*1</sup> | in H <sub>2</sub> O  | (Pa) <sup>*1</sup> | (dB) <sup>*1</sup> | (g)  |
| BM6025-04W-B50- | T00         | 12            | 10.0 ~ 13.0       | 0.32              | 3.84              | 3500                               | 6.0               | 0.17                                | 0.48                 | 121.9              | 31                 | 35   |

Rotation: Counterclockwise

\*1: Average Values in Free Air