

Y.S.TECH 元山科技工業股份有限公司



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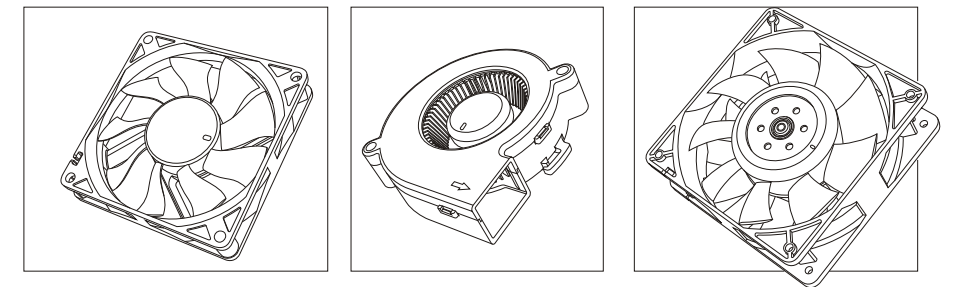
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COOLING FAN ENGINEERING HANDBOOK
AC AXIAL FAN XTREME SERIES DC BLOWER DC AXIAL FAN

YEN SUN TECHNOLOGY CORPORATION

2008 PRODUCTS GUIDE COOLING FAN ENGINEERING HANDBOOK

AXIAL DC FAN
DC BLOWER
AXIAL AC FAN





COMPANY MISSION
Environmental Concern
Customer Satisfaction

PHILOSOPHYS
Innovation Quality Efficiency

Established: 1987
C.E.O.: Mr. C. J. Chen
TS 16949 / ISO 9001 / ISO 14001 Certified
Capital: US\$10.65 Million
Employees: 1,000
Headquarter Located: Kaohsiung, Taiwan
Business Units :
Electronics Cooling Division
Home Appliance Division



Headquarters



Dongguan Factory



Shanghai Factory

Yen Sun Technology Corporation was established in 1987, in conformity with the business philosophy of **INNOVATION, QUALITY** and **EFFICIENCY**. With over 1000 employees, Yen Sun is a publicly-traded company in Taiwan comprised of two major divisions, including the Electronics Cooling Division and the Home Appliances Division. The key manufacturing operations are located in Taiwan, Dongguan, and Shanghai with the worldwide service facilities throughout Asia, America, Australia and the greater part of Europe. In the past decade, the Electronic Cooling Division has accumulated hundreds of patents all over the world and successfully established a reputation of consistent quality and unique capabilities with its well-known brand name Y.S. TECH.

Devoted to innovative technologies and new products, Y.S. TECH continuously improves its R&D and core technologies. The core technologies consist of Advanced Motor Control, CFD Thermal and Fluid Dynamic Simulation, Psycho-Acoustic Analysis, and Electro-Thermal Analysis. Y.S. TECH has integrated its core technologies to develop a series of DC and AC cooling fans with RoHS compliance such as a series of Xtreme high performance fans, along with the *SINTETICO* long life bearing system that has been approved for Telecom and Automotive applications. Furthermore, utilizing T.M.D. Technology Y.S. TECH has developed the world's slimmest fans measuring only 0.4 centimeters in thickness with applications include the next-generation multi-function handheld devices.

CUSTOMER SATISFACTION is based on excellent production capabilities as well as a consistent level of quality. In such a way, Y.S. TECH's advanced automated production lines, along with our precision equipment, provide a high level quality control. Moreover, Yen Sun utilizes XRF to assist its Environmental Materials Management.

This quality system has not only been approved by ISO 14001 and ISO 9001, but has also gained TS 16949 certification the worldwide automotive industry standard for quality.

At Y.S. TECH, our long-term vision is to aggressively integrate our business resources, enhance total quality management, innovations, and increase our global logistics capabilities to achieve competitive advantages as a world-class manufacturer to be **YOUR BEST PARTNER OF THERMAL SOLUTIONS**.

Advance Motor Control

CFD Flow field Design

CAD/CAM Psycho-Acoustics

Original Design is higher than 20dB(A)

Spectrum



- Explanation**
- Product Series(2 codes)**
FD : Axial DC Fan **BD** : DC Blower
KM : Axial DC Fan **PD** : T.M.D.FAN
 - Voltage Type(2 codes)**
05 : 5V **12** : 12V
24 : 24V **48** : 48V
 - Dimension (2 codes)**
25 : 25mmx25mm **30** : 30mmx30mm
40 : 40mmx40mm **45** : 45mmx45mm
50 : 50mmx50mm **60** : 60mmx60mm
70 : 70mmx70mm **75** : 75mmx75mm
80 : 80mmx80mm **92** : 92mmx92mm
97 : 97mmx97mm **12** : 120mmx120mm
 - Thickness(2 codes)**
10 : 10mm **15** : 15mm
20 : 20mm **25** : 25mm
28 : 28mm **30** : 30mm
32 : 32mm **33** : 33mm
38 : 38mm **56** : 56mm
 - Speed(1 code)**
L : Low Speed **M** : Medium Speed
H : High Speed **E** : Extra High Speed
U : Ultra
 - Bearing Type(1 code)**
B : Ball Bearing **S** : Sleeve Bearing
L : Sintetico Bearing
 - Impeller Type(1 code)**
N : Type N **E** : Type E **H** : Type H
P : Type P **R** : Type R □ : Standard Type

- (Suffix):(2 A 7 L F)**
a b c d e
- a : Number of Bearing**
 1 : One Ball/Sleeve Bearing
 2 : Two Ball Bearing
- b : Function**
 N : Transistor (2 wires)
 A : Transistor With FG Signal(3 wires)
 I : Auto-Restart IC (2 wires)
 F : Tachometer IC (3 wires)
 R : Alarm High IC (3 wires)
 C : Alarm High (R) + Tachometer (F) IC
 Q : Alarm Low IC (3 wires)
 P : Alarm Low (Q) + Tachometer (F) IC
 S : Alarm high-low IC (3wires)
 T : Thermistor IC (2 wires)
 E : Thermistor IC(T)+VR
 D : Thermistor IC(T)+VR+Tachometer(F) IC
 M : Thermistor (T) + Tachometer (F) IC
 X : Thermistor (T)+Alarm High(R) IC
 V : Thermistor (T) +Alarm High-Low (S) IC
 W : Pulse Width Modulation (PWM) IC
 B : Pulse Width Modulation(PWM) IC, Without FG Signal
 U : PWM(W)+Thermistor IC(T)
 G : Vcc With PWM Control, Without FG Signal
 H : Vcc With PWM Control, With FG Signal
- C : Speed Level**
 1.2.3....9.B.D.F.H.U
- d : Customized Version**
 B : Wide Operating Voltage Range Model
 E : Wide Operating Temperature Range Model
 H : HDB
 Q : New Blades Design Q Type
 W : New Blades Design W Type
 L : LED Fan
 K : KM Fan
 R : Round Frame Fan
 Y : Frameless
 □ : Standard Type
- e : Special Model Version**

AC Fan Model Numbering System



- Product Type / F** : AC FAN **B** : AC Blower
 - Voltage Type / A1** : 110/115VAC **A2** : 220/230VAC
 - Dimension / 120** : 120X120mm **172** : 172x150mm
176 : 176X176mm
254 : ø254mm
 - Thickness / 38** : 38mm **51** : 51mm **89** : 89mm
 - Speed / L** : Low Speed **M** : Medium Speed
H : High Speed **E** : Extreme Speed
 - Bearing Type / B** : Ball Bearing **S** : Sleeve Bearing
 - Connecting Type / L** : Lead Wire **T** : Terminal
- Suffix : Protection Function / E** : External Rotor Fan
T : Temperature Sensor
TC : Temperature Sensor+Capacitor

Automotive Applications

Y.S. TECH has many years of experience working in both the North American and European Automotive Markets. Utilizing our core technologies of CFD simulations, Psycho-Acoustic Analysis, Multi-function control system, mechanical expertise, and overall system integration we are able to develop optimal cooling solutions for customers in one of many different applications. Telematics Systems(Navigation, Audio Amplifiers, DVD and Head units), Seat heating and cooling, Hybrid Driving System (Fuel Cell-Gasoline), LED lighting and more are just a few of the applications Y.S. TECH can help solve thermal management problems. Our goal is to provide a cooling system that is unsurpassed in reliability, quality and performance giving the driver & passengers the most comfortable driving experience.

Advantages

- TS16949 CERTIFICATED
- High Range Operating Voltage : 4 ~ 16VDC at 12V Rated
- High Range Operating TemperatureF -40 ~ 90Ž
- Multi-Function motor control
 - Thermostat control(NTC)
 - Pulse Width Modulation control(PWM)
 - PWM with NTC Hybrid Control
 - Redundancy Protection Design
 - Customized design by program
- High Reliability
 - Over-Voltage Resistance during long term operation: DC 27V / 1 min
 - Thermal Shock: -40 ~ 90? , 1hr per Temp., Temp. Change in 30 sec.
 - Mechanical Shock: Semi-wave, a = 500m/s², 6ms, 10 times per direction
 - Vibration Test: 5Hz/0.00919 G²/Hz ~ 2000Hz/0.00146 G²/Hz, 25? /12hrs
- Customized design service for total thermal solutions and analysis



Telematics system
(Navigation, Head Unit)



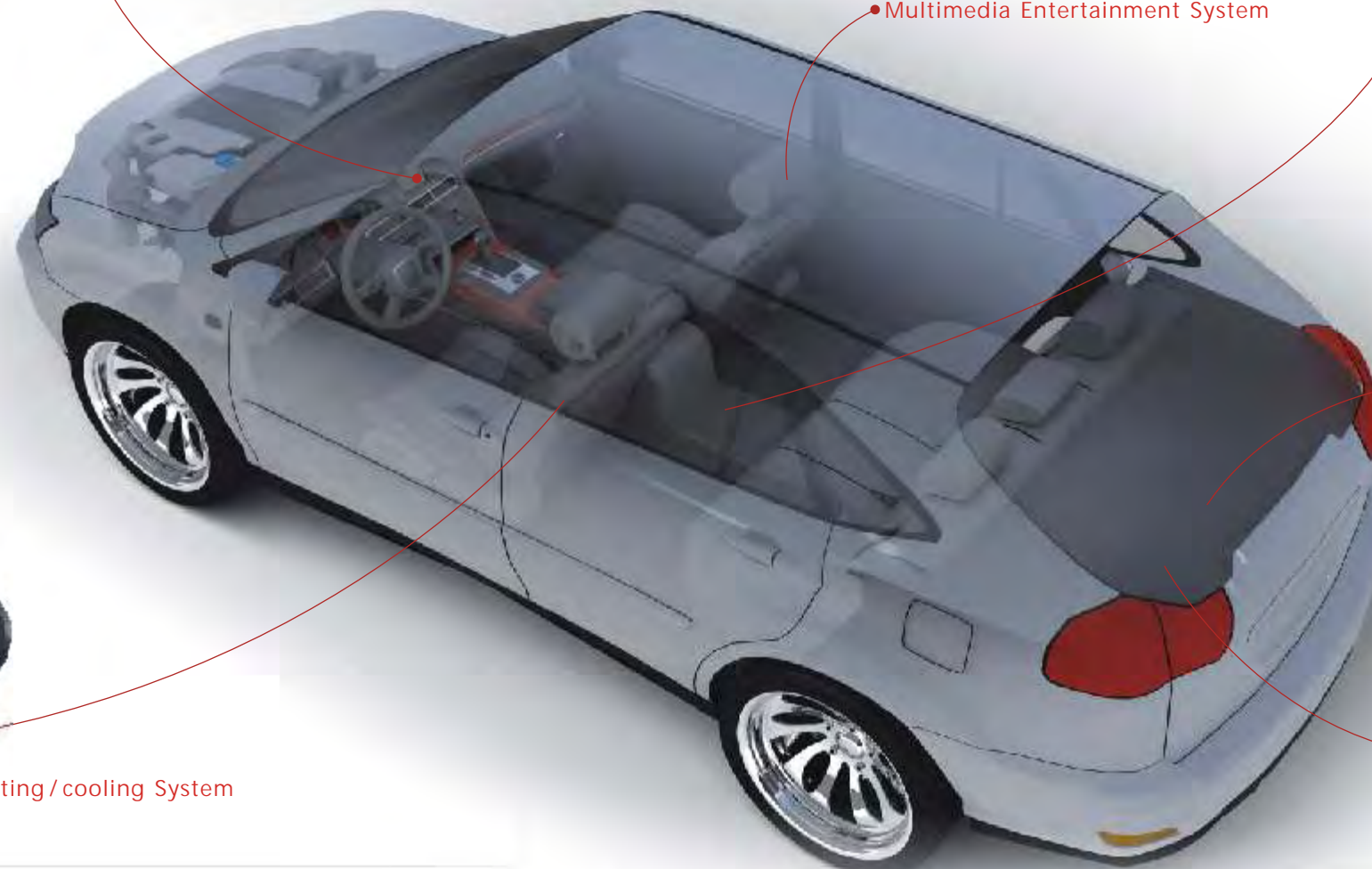
● Multimedia Entertainment System



● Mobile Refrigeration With Bottle Cooler



Car Seat Heating /cooling System



● Audio Amplifier Amd DC/AC Inverter



● Car Computer System

Telecommunication Applications

Y.S. TECH has applied our expertise in fan design to produce a line of high output fans well suited for Telecom applications(System Chassis, Fast Ethernet Switch, Service Gateway, VoIP Product, Network Storage System(NAS) and Server system). Serving the Telecom markets of Asia, Europe, and North America we have a broad understanding of the needs of our global market. Y.S. TECH's Xtreme Series is a line of fans that have been designed with a unique flow pattern that has overcome the low pressure boundaries that traditional axial fans have. The stationary and dual rotor products made by Y.S. TECH have high torque motors, more robust bearing systems and internal motor structure that will provide the high end performance and reliability for applications with high impedance. Sound quality is always a concern too and we can offer many options to better manage and achieve those goals



Rack-Mount Fan Tray



Reverse-Blade Design utilize different blade direction to exhaust air out for more reliability and safety when fan mounted on the top of chassis.

System Chassis Solutions

Advantages

- **High Operating Voltage:**
 - Max. Operating Voltage 75VDC for 48VDC Rated.
 - Max. Operating Voltage 40VDC for 24VDC Rated.
- **High Vcc input for control signal design by open collector circuit.**
- **Multi-Function motor control**
 - Thermostat control(NTC)
 - PWM with NTC Hybrid Control
 - Pulse Width Modulation control(PWM)
 - Customized design by program
- **Reversed Blade design for more reliable(To ensure fan running on a right direction and improve life, especially for chassis cooling application.)**
- **Water/Dust Proof**
- **Customized Fan-Tray design and CFD analysis service(To reduce Consonance, Vibration, and Reversed Electromotive Force.)**
- **High Quality and Reliability**
 - Surge Voltage & Overload Current protection
 - Soft Start up & Hot Swappable support
 - Redundancy Protection Design
 - Sustained rotating system and mechanical design
- **Customized design service for total thermal solutions and analysis**



Fast Ethernet Switch



Rack-Mount Ups Systems



1U 13U Network Storage and Server Systems

Normally, most users are used to select cooling fan or blower by referring maximum flow rate, maximum static pressure and rotational speed data in product specification. It's not a complete thinking, because the fan is always working inside the system. Y.S. TECH has to highly recommend you to focus on demanded operating point works in fan performance curve profile, do not only refer the maximum point or rotational speed. Meanwhile, a cooling requirement should not only regard flow rate or static pressure, but two key factors of power consumption and acoustic noise. However, these critical factors are trade-off, so how do we select a right fan to meet with thermal solution. We are going to illustrate you some methods how to select a right fan in the following content. And then we will discuss other important technical topics including Life (L10), RoHS and Application Note.

STEP 1: Ask five questions before choosing a fan

Here are five questions of thermal inquiry we need to verify at first. That include:

1. **Watt:**
How many watts would you need to dissipate?
2. **Air Impedance:**
What is your system air-impedance?
3. **Noise:**
What is acoustic noise specification you need?
4. **Temperature Gradient:**
What is your design of ΔT ?
5. **Dimension:**
What is fan dimension you need?

STEP 2: Choose a right fan & blower to meet your thermal inquiry

The effects of heat transfer include Conduction, Convection and Radiation. Most heat transfer by conduction and radiation effects that concern about system mechanism. For example, a good chassis or heatsink design is more helpful for thermal solutions. Convection effects contain free convection and forced convection. Cooling fan and blower are the major effect for force convection and always increase entire thermal solutions more efficient. Illustration 1 shows you a normal system of heat dissipation status. $P_{con\&rad}$ presents heat dissipation on free convection and Radiation transfer. P_{sys} presents total power consumption of system. P_{fan} presents forced convection that need cooling fan or blower to dissipate. ΔT presents Temperature Gradient $\Delta T = T_2 - T_1$, T_2 is the thermal spec of critical parts with margin tolerance. T_1 presents Ambient Temperature.

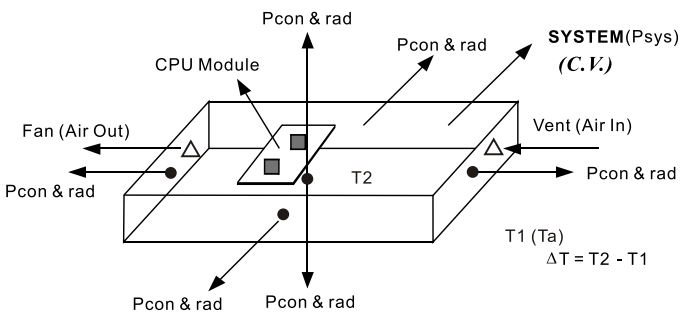


Illustration 1: System Heat transferred

Then we can estimate Flow Rate inquiry by followed equations

$$P_{fan} = P_{sys} - P_{con\&rad}$$

$$P_{fan} = C_p \times Q \times \rho \times \Delta T$$

$$Q_{eff} (CFM) = \frac{P_{fan}}{C_p \times \rho \times \Delta T} = \frac{1.76 \times P_{fan}}{\Delta T_c} = \frac{3.16 \times P_{fan}}{\Delta T_f}$$

- Q_{eff} : Efficiency Flow Rate
- ρ : Gas Density
- C_p : Specific Heat of Gas
- $Q_{eff} = 3160 \times KW / \Delta T_f$
- ΔT_f : Allowable temperature rise in degree Fahrenheit
- ΔT_c : Allowable temperature rise in degree Celsius

By incorporating conversion factors, specific heat and density of sea level air we can summarize above equations as Q_{eff} that called effective flow rate. Q_{eff} ask fan's operating point need to be met. In another words, Fan Operating Point should over or equal to Q_{eff} . Fan Operating Point is an intersection point by fan performance curve (flow rate/ static pressure) and system air impedance curve. It's caused by different system or components placement and form factors. Normally, It is measured by static pressure, ΔPi . Its formula may show as below:

$$\Delta Pi = k Q^n$$

- k : System form factor constant value.
- Q : Flow rate by different impedance
- n : Coefficient of turbulence
- $1 < n < 2$. Laminar Flow, $n = 1$; Turbulence Flow, $n = 2$

Illustration 2 shows two fans performance curve and system air impedance curve.

Even B's maximum flow rate is higher than A's but the $Q_{op,A}$ better than $Q_{op,B}$. Both $Q_{op,A}$ and $Q_{op,B}$ are Operating Points.

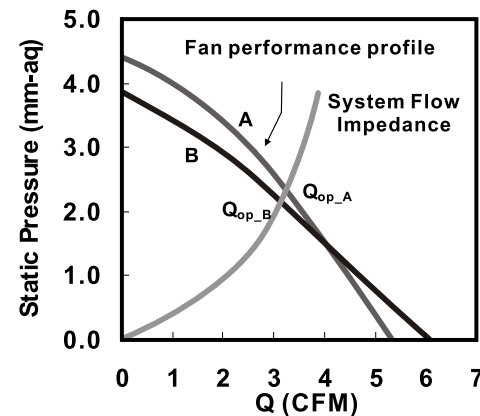


Illustration 2: Fan Performance Comparison

If $Q_{op,B} < Q_{eff} < Q_{op,A}$, Then we can say Fan A is a proper choice for this thermal solution. So that why we emphasize that focus on fan performance profile rather than on maximum flow rate or static pressure or rotational speed.

STEP 3: Choose a solution with Low Noise

As aforementioned, the flow rate, static pressure and acoustic noise are always trade-off. It is very difficult to think over these factors at the same time. Meanwhile, a lot of troubles are caused by improper applications too. For example, fan mounted to chassis improperly may cause vibration and flow disturbance, and then got higher acoustic noise. Here are some key points regarding to low noise design for your reference:

1. **A proper system air impedance design**
Higher system air impedance needs a higher static pressure fan, but it accompanies with higher noise. Give an enough space to your critical parts and place them at flow path as possible. But it is a tough work to get space for thermal solutions in a slim and light. However, we recommend you to measure your system air impedance and collect enough parameters to know your system. Normally, most specialized fan manufactures will support you to measure it by Air Chamber.

2. **Choose a proper fan that base on Q_{eff}**
We have illustrated you a method to figure out a right fan for Q_{eff} , and then you should consider about power consumption and acoustic noise. Which one is the first priority? To evaluate these two parameters under the same Q_{eff} base is Y.S. TECH's recommendations.

3. **Review a fit mechanism design between fan and application system**
Vibration and Flow Disturbance always cause resonance and get higher acoustic noise. A proper fan mounting and flow field design may decrease acoustic noise. For example, mounting with a rubber cap on high-speed fan model will decrease vibration resonance. Review your design to make sure there is enough margin space (over 1.5mm) at flow inlet/outlet side and no any stuff to disturb flow filed.

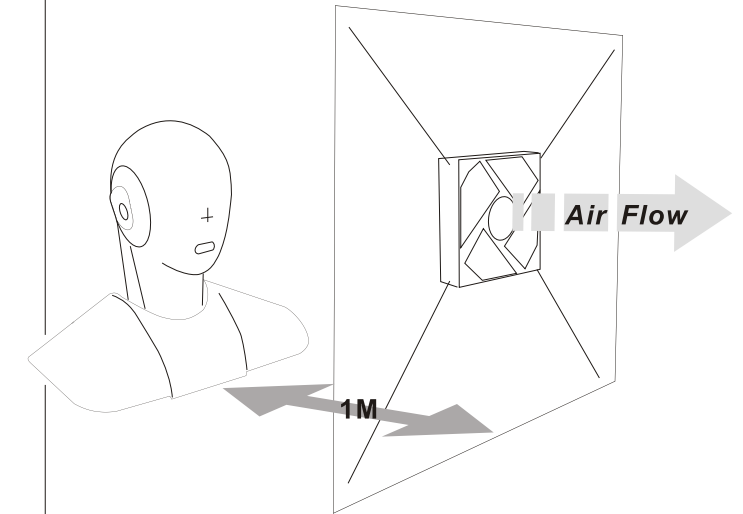
4. **Advance fan speed control by your thermal profile**
Thermal profile is similar to fan performance profile. Normally, different function will need to dissipate different power consumption. Then we can modulate fan rpm and ask fan working on a proper rpm by different system function. The most popular advanced fan speed controls are PWM control (Pulse Width Modulation), Thermostat control (NTC, thermistor) and both of them.

5. **Sound Quality analysis**
In cooling fan industry, we are always focused on Sound Pressure only in the past but there is no longer sufficient to us because even though legal regulations have lead to a reduction of noise limits, the tendency of people to feel disturbed by noise is increasing. A sole reduction of noise levels is thus not sufficient to reduce the annoyance due to noise to a degree noticeable by human beings. This is due to the fact that the subjective human aural perception is often disregarded. However, the judgment of a sound event involves a wide range of different parameters forming into the total hearing impression. So we are not only concern about sound pressure but also 「Sound Quality」.

The examination methods are based on the idea of correct recording and describing the noise exposure from the acoustic environment in a way that reflects what humans subjectively perceive. In order to record this entire perception, physical aspects as well as psychoacoustic characteristics of hearing and cognitive aspects must be considered. The main focus of psychoacoustics is the subjective aural perception by human beings. The goal is objectively describing this subjective perception. Psychoacoustic measuring methods account for the actual hearing impression, as opposed to conventional measuring methods that only record the sound level in the form of the equivalent continuous sound level. Y.S. TECH introduced the 「Sound Quality Analysis System」 of HEAD ACOUSTIC in German. Those include an Artificial Head and analysis tool and also the most popular measuring and analysis system in automotive industry. Its parameters are include 「SPL, sound pressure level」, 「Tonality」, 「Sone」 and 「Modulation」.

The measuring method and standards are as below:

1. ANECHOIC Room Noise Measurement System.
2. Digital Head Measurement System, 16-bits version.
3. SQlab III, Mobile Multi-channel Analysis System.
4. Specifications: ISO 3744, ISO 3745, ISO 7779, CNS 6753, JIS 8346
5. Background Noise: < 17dB(A)



Cooling Fan Life Expectancy: L₁₀ and MTTF

Fan reliability can be evaluated in several ways. The data for a life test can be plotted as a cumulative distribution that shows the total fraction of fans failing up to any operating time. Fig. 1 is a sample of cumulative distribution, which was stopped at 8,400 hours after 18 out of 48 fans had failed.

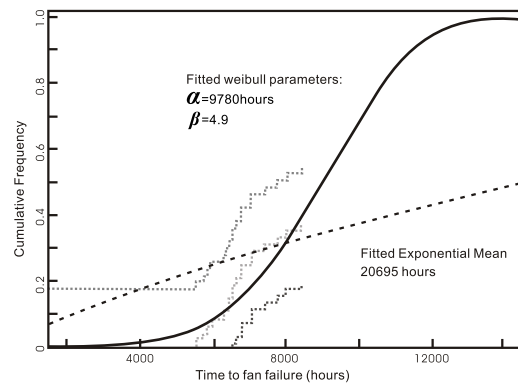


Figure 1 : Sample cumulative distribution function, Weibull vs. Empirical with 95% confidence bands
(Reference : IBM Corp., May 1996, Vol.2, No.2, Electronics Cooling)

Some vendors provide life expectancy data to customers based on the exponential assumption. However, life test data does not support the use of the exponential distribution. Nevertheless the past experimentation fitting has shown that the Weibull distribution provides a good fit to real fan life data. The **Cumulative Distribution Function, F(t)** of Weibull distribution is a below:

$$F(t) = 1 - e^{-(t/\alpha)^\beta}$$

Where *t* : age
 α : characteristic life (Scale Parameter)
 β : shape parameter

Then Reliability Function is $R(t) = e^{-(t/\alpha)^\beta}$

$$MTTF = \int_0^\infty R(t) dt = \alpha \Gamma(1+1/\beta) \quad \Gamma : \text{Gamma Function}$$

Normally, *L*₁₀ was introduced a life expectancy parameters by fan vendors. That means the tenth percentiles under an assumed life distribution such as the Weibull. Sometimes vendors will also quote the Mean Time To Failure (*MTTF*) then we need to figure out the correlation between *L*₁₀ and *MTTF* by following equations:

$$\begin{aligned} \therefore L_{10} \text{ Means age } t \text{ when } F(t) = 0.1 \\ \therefore 0.1 = 1 - e^{-(L_{10}/\alpha)^\beta} \\ L_{10} = \alpha (0.10536)^{1/\beta} \\ MTTF = 7.46 \times L_{10} \approx 7 \times L_{10} \text{ (90\% Confidence Level)} \end{aligned}$$

After we have verified the correlation between *L*₁₀ and *MTTF*, we also need to know how long should a sample size be tested to determine with 90% confidence level that *L*₁₀ greater than or equal to expectancy value at a test temperature without failure (*x* = 0). Here we introduce the Poisson Distribution to estimate.

$$\begin{aligned} P(x, t) &= \{(\lambda t)^x e^{-\lambda t} / x!\} \\ P(0, t) &= \{(\lambda t)^0 e^{-\lambda t} / 0!\} = e^{-\lambda t} \\ \therefore R(t) &= e^{-(t/\alpha)^\beta} \\ MTTF &= \alpha \Gamma(1+1/\beta) \\ \therefore t &= \alpha \{ (B_{rc} : c) / n \}^{1/\beta} \\ t &= \{ MTTF / \Gamma(1+1/\beta) \} \times \{ (B_{rc}) / n \}^{1/\beta} \end{aligned}$$

where *B_{rc}* is Poisson Distribution Factor

Normally on the condition of 90% confidence level and 0 failure then *B_{rc}* = 2.303. Then we introduce **Takes Martin Marietta Model** to estimate Life at different environment stress.

$$AF = [V_a / V_u] \times 2^{(T_a - T_u)/10}$$

where
AF : Acceleration Factor
V_a : Actual Testing Voltage
V_u : Rating Voltage
T_a : Actual Testing Temperature
T_u : Rating Temperature
 if *V_a* = *V_u*
 then *AF* (*t*) = 2^{(*T_a* - *T_u*)/10}

Then we can define the **Required Test Time (t)** with zero failure is as below:

$$t = \{ MTTF / \Gamma(1+1/\beta) \} \times \{ (B_{rc}) / n \}^{1/\beta} / 2^{(T_a - T_u)/10}$$

where *MTTF* is an expectancy value

Management Regulations for the Environment-Related Substances

SUBSTANCES	Allowable Content (ppm)	
	RoHS	SONY SS259
Cadmium and Cadmium compounds	<100	0
Lead and Lead compounds	<1000	<100
Total concentration of four heavy metals for product package (Concentration of Cadmium for Plastics (including Rubber) has to less than 5 ppm.)	<1000	<100
Concentration of lead for PVC cable · connectors · paints · inks · resins	<1000	<100
Concentration of lead for solder	<1000	<1000
Concentration of lead for Steel Alloys	<3500	<3500
Concentration of lead for Aluminum Alloys	<4000	<4000
Concentration of lead for Copper Alloys	<4%	<4%
Concentration of lead for electrical components with ceramic base (ex: resistor · capacitor..)	<100	<100
Mercury and Mercury compounds	<1000	<100
Hexavalent Chromium compounds	<1000	0
PBB · PBDEs	<1000	0

Note:
 1. For RoHS, Decabromobiphenyl ether (DecaBDE) in polymeric applications is exempted by Commission Decision of 13 Oct. 2005 amending Directive 2002/95/EC notified under document 2005/717/EC.
 2. PBDEs = Polybrominated Diphenyl Ethers = PBDOs = PBBOs.

Standards for Preconditioning and Measurement

- I. Pre-conditioning**
 Typical pre-conditioning methods are as follows:
 1. Incineration under the existence of sulfuric acid.
 2. A pressurized acid decomposition method done in a sealed container. (A microwave decomposition method such as EN 13346:2000 and EPA 3052:1996)
 3. An acid decomposition method under the existence of sulfuric acid or hydrogen-peroxide water. (e.g. EPA3050B Rev.2: 1996).
 4. A wet decomposition method under the existence of sulfuric acid, nitric acid, or hydrogen-peroxide water. (e.g. BS EN 1122:2001)
 5. If precipitates (insoluble matter) are produced, dissolve them totally by taking some means. (e.g. alkali dissolution)
 6. US EPA 3540C or 3550 for organic or organic compounds substances.
- II. Measurement methods**
 Typical measurement methods are as follows,
 1. Inductively Coupled-Plasma-Atomic (Optical) Emission Spectroscopy (ICP-AES, ICP-OES) (e.g. EN ISO 11885:1998)
 2. Atomic Absorption Spectroscopy (AAS) (e.g. EN ISO5961: 1995).
 3. Inductively Coupled-Plasma Mass Spectroscopy (ICP-MS)
 4. Gas Chromatography Mass Spectroscopy (GC-MS) for organic or organic compounds substances.
 5. If a combination of a pre-conditioning method and a measurement method can guarantee that the lower determination limit of cadmium is less than 5 ppm, the combination is also applicable.
 6. Any one of the measurement methods above (except AAS) enables you to analyze cadmium and lead simultaneously.

III. Environmental Logo



Environmental Concern & Keep Improving

Cooling Fan and Blower Application Notices

Test Conditions and definitions
 Most specifications of cooling fan are measured after 5 minutes rotating in an ambient of 25 / 65% RH The operating voltage and temperature were defined after fan rotating continually at rated voltage. Starting Voltage was defined on power on/off condition and Rotational Speed was defined on full speed by its rated value. Except for the feature of the Lock Rotor Protection specifically stated, Y.S. Tech highly suggests not to stop the impellers of the working fans such interruption will cause adverse effect. Noise Level is different from abnormal noise. We estimate noise level by equation when noise level is lower than background noise (17dB). L10 of Life test is a deductive value under statistical method and it is different from product warranty.

Handling

Please be cautious when fan is being exercised or handled. Applying pressure to the impeller, handling the fan by lead wire, or dropping the fans to the production platform is resulting in damage.
 Fan is to be stored in a dry/cool place. High levels of humidity are harmful to products. If fan was stocked at an ambient temperature under 5 and over 24 hrs. Please stock fans to an ambient temperature over 20 and remained over 24 hrs before using. All specifications include abnormal noise have to be measured after 30 minute running.

The correct polarity, Positive (+) and Negative (-), has to be clearly identified before connecting the fan to the power. Be aware of the connection with reverse polarity may lead to damage since no effective protection can be introduced against such errors.
 With exception of suitability of some particular designs, any failure and problems regarding safety of the product caused by the introduction of powder, droplets of water or encroachment of insert in the hub are not guaranteed. It is also not well suited for corrosive environments that include liquids, gases, or matters.

After Service

A written request should be submitted to Y.S. Tech prior to approval if abnormality and deviation from specification is required. Meanwhile, send abnormal samples to Y.S. TECH for more detail analysis is necessary.

Other Reminding

Please be cautious. Y.S. Tech is not responsible for any excess resonance, vibration and subsequent noise caused by incorrect mounting of fans. Take necessary precaution handling fans when in operation. Finger guards are recommended to prevent personal injury. To avoid any unstable power, an "over 4.7 μ F" capacitor has definitely be connected to fan externally whatever multiple fans are applied in parallel.

Conversion Tables and Equations

I. Air Flow Rate

m ³ /s	m ³ /min	l/s	l/min	m ³ /h	ft ³ /s	CFM
1	6 x 10	1 x 10 ³	6 x 10 ⁴	3.6 x 10 ³	3.531 x 10	2.118 x 10 ³
1.667 x 10 ⁻²	1	1.667 x 10	1 x 10 ³	6 x 10	5.885 x 10 ⁻¹	3.531 x 10
1 x 10	6 x 10 ⁻²	1	6 x 10	3.6	3.531 x 10 ⁻²	2.118
1.667 x 10 ⁻⁵	1 x 10 ⁻³	1.667 x 10 ⁻²	1	6 x 10 ⁻²	5.9 x 10 ⁻⁴	3.54 x 10 ⁻²
2.778 x 10 ⁻⁴	1.667 x 10 ⁻²	2.778 x 10 ⁻¹	1.667 x 10	1	9.81 x 10 ⁻³	5.886 x 10 ⁻¹
2.832 x 10 ⁻²	1.69833	2.832 x 10	1.6983 x 10 ³	1.019 x 10 ²	1	6 x 10
4.72 x 10 ⁻⁴	2.831 x 10 ⁻²	0.472	2.831 x 10 ²	1.6983	1.667 x 10 ⁻²	1

II. Static Pressure

P _s = N/m ²	mm-H ₂ O	inch-H ₂ O	Kgf/cm ²	atm	bar	lbf/in ²
1	1.019 x 10 ⁻¹	4.017 x 10 ⁻³	1.019 x 10 ⁻⁵	9.869 x 10 ⁻⁶	1 x 10 ⁻⁵	1.450 x 10 ⁻⁴
9.80665	1	3.939 x 10 ⁻²	1 x 10 ⁻⁴	9.678 x 10 ⁻⁵	9.806 x 10 ⁻⁵	1.442 x 10 ⁻³
2.49 x 10 ²	25.4	1	2.54 x 10 ⁻³	2.46 x 10 ⁻³	2.49 x 10 ⁻³	3.61 x 10 ⁻²
9.807 x 10 ⁴	10 ⁴	3.937 x 10 ²	1	0.9678	0.980665	14.22334
1.0133 x 10 ⁵	1.0332 x 10 ⁴	4.071 x 10 ²	1.033323	1	1.01325	14.696
1 x 10 ⁵	1.0197 x 10 ⁴	4.018 x 10 ²	1.101972	0.986923	1	14.5038
6.895 x 10 ³	7.031 x 10 ²	27.686	7.031 x 10 ⁻²	6.805 x 10 ⁻²	6.895 x 10 ⁻²	1

III. System Allowable Temperature Rise (? T) at P_{fan} v.s. Q_{eff}

Temperature Rise	ΔT _r	P _{fan} (Kwh)									
		0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
50	90	18	35	53	70	88	105	123	141	158	176
45	81	20	39	59	78	98	117	137	156	176	195
40	72	22	44	66	88	110	132	154	176	195	220
35	63	25	50	75	100	125	151	176	201	226	251
30	54	29	59	88	117	146	176	205	234	264	293
25	45	35	75	105	141	176	211	246	281	316	351
20	36	44	88	132	176	220	264	308	351	396	439
15	27	59	117	176	234	293	351	410	469	527	586
10	18	88	176	264	351	439	527	615	704	791	879
5	9	176	351	527	704	879	1055	1230	1406	1582	1758

IV. Acoustic Noise

Sound Pressure Level (SPL, dB) = 20 log (P/P₀)
 where P₀ = 20 μPa
 P₀ : the reference sound pressure of human hearing system

Similarity Algorithm of Acoustic Noise

ii) By Rotational Speed (rpm)

$$N_2 = N_1 + 50 \log (rpm_2 / rpm_1)$$

where

N₁ = Noise level measured at rpm₁
 N₂ = Noise level calculated at rpm₂

i) By Measuring Distance

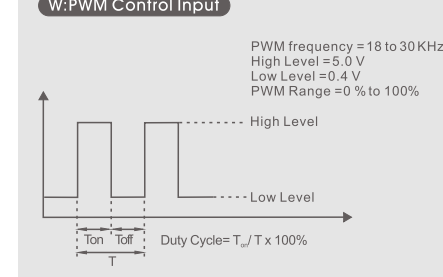
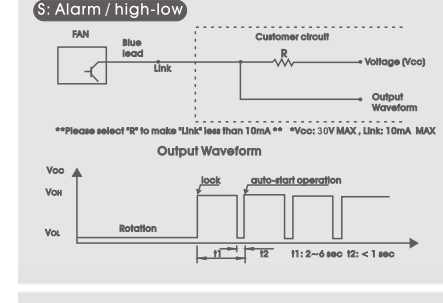
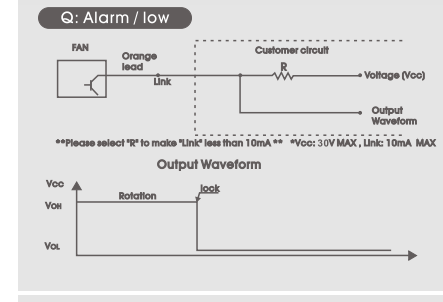
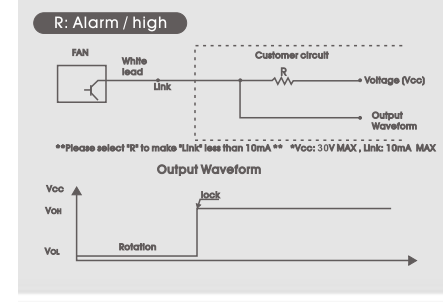
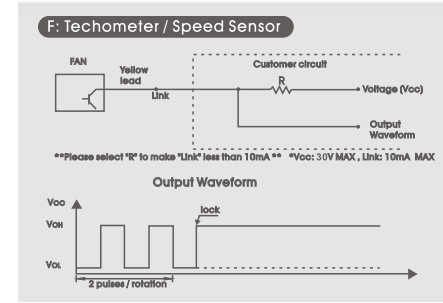
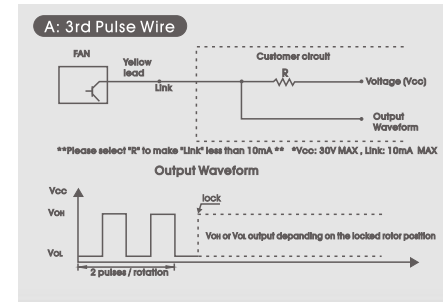
$$N_2 = N_1 + 20 \log (Distance_1 / Distance_2)$$

where

N₁ = Noise level measured at Distance₁
 N₂ = Noise level calculated at Distance₂

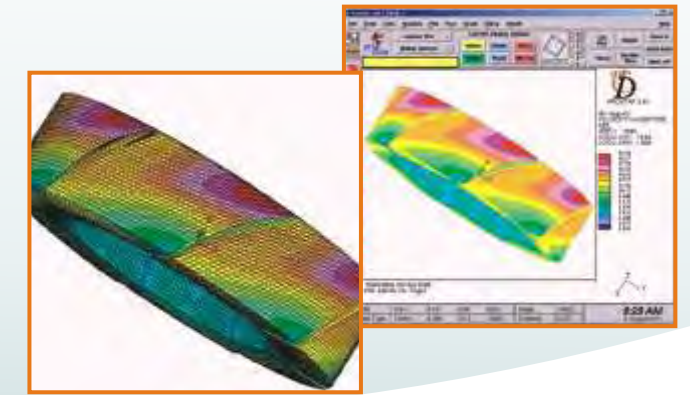
According to above equations, it is very clear the acoustic noise level will reduce 6 dB when the distance doubled. Comparatively, the noise level will also increase 6 dB when distance shorten by half.

Wave form of ic function



Y.S. TECH's advance R&D Center utilizes various most advance analysis/simulation software and labs while designing different impellers, thermal modules for any particular cooling devices. This Integrated Supporting System of thermal solutions enables engineers and designers to stimulate a micro climate and then optimize the performance for more Green, Silent and Powerful cooling devices.

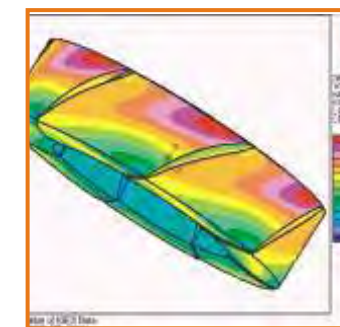
Facilities For Supporting Design



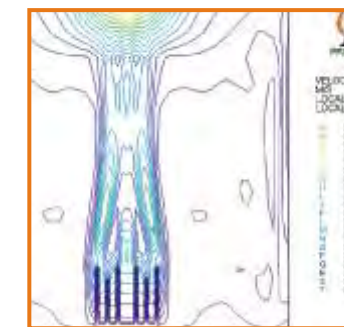
CFD Software-Star-CD To visualize temperature distribution of observed object surface



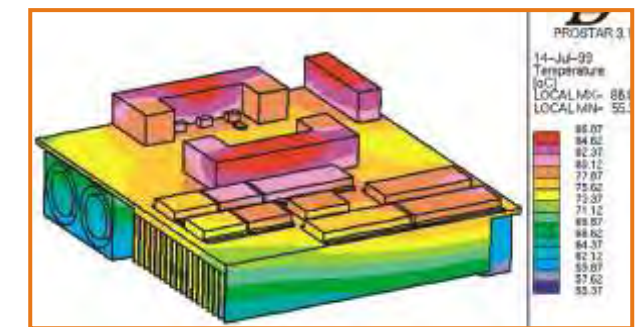
Fan, Ventilation and Thermal System Design



Airflow Velocity Distribution of Fan



Airflow Velocity Distribution of Heat Sink



Temperature Distribution of Thermal System



25x25x10mm

- Airflow: 2.0~3.3 CFM
- Static Pressure: 3.7~6.3 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1571 #28 AWG
- Weight: 7.5 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD052510LB-N	2B	05	4~5.5	7000	2.0	3.7	80	0.40	80000	4	18.0
FD052510MB-N	2B		4~5.5	8500	2.4	4.5	110	0.55	80000	3	22.5
FD052510HB-N	2B		4~5.5	10000	2.8	5.3	140	0.70	75000	2	26.0
FD052510EB-N	2B		4~5.5	12000	3.3	6.3	190	0.95	65000	1	30.0
FD122510LB-N	2B	12	9~13.2	7000	2.0	3.7	40	0.48	80000	4	18.0
FD122510MB-N	2B		7~13.2	8500	2.4	4.5	50	0.60	80000	3	22.5
FD122510HB-N	2B		7~13.2	10000	2.8	5.3	65	0.78	75000	2	26.0
FD122510EB-N	2B		7~13.2	12000	3.3	6.3	80	0.96	65000	1	30.0

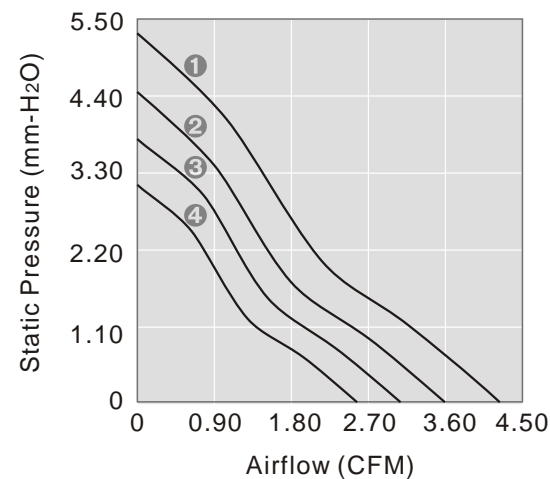
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

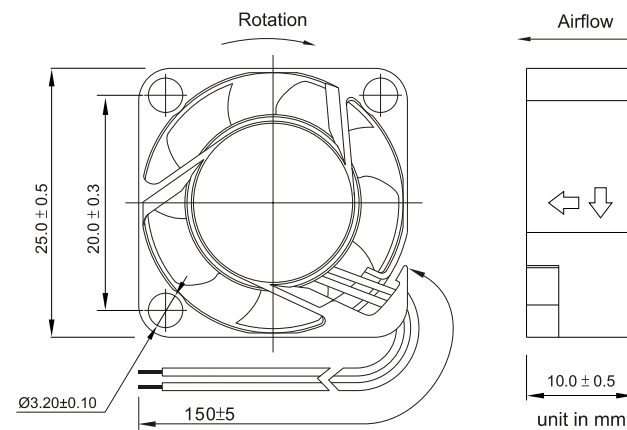
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



Please refer to Model Numbering System for bearing, function and speed level indication. Specifications are subject to changes without notice. Please refer to the formally issued product specification via contacting Y.S. TECH sales department. Visit Y.S. TECH web site at <http://www.ystech.com.tw> for updated information. Customized Specifications are designed accordingly.



25x25x15mm

- Airflow: 2.1~2.6 CFM
- Static Pressure: 3.1~4.7 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1571 #28 AWG
- Weight: 10.0 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD052515MB	2B	05	4~5.5	9000	2.1	3.1	70	0.35	80000	2	24.0
FD052515HB	2B		4~5.5	11000	2.6	4.7	100	0.50	75000	1	28.0
FD122515MB	2B	12	7~13.2	9000	2.1	3.1	45	0.54	80000	2	24.0
FD122515HB	2B		7~13.2	11000	2.6	4.7	60	0.72	75000	1	28.0

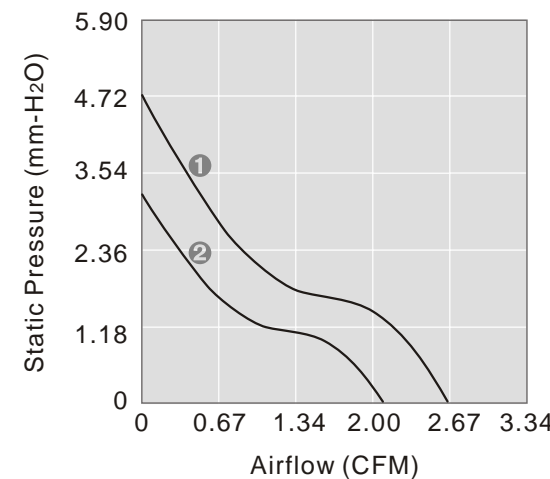
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

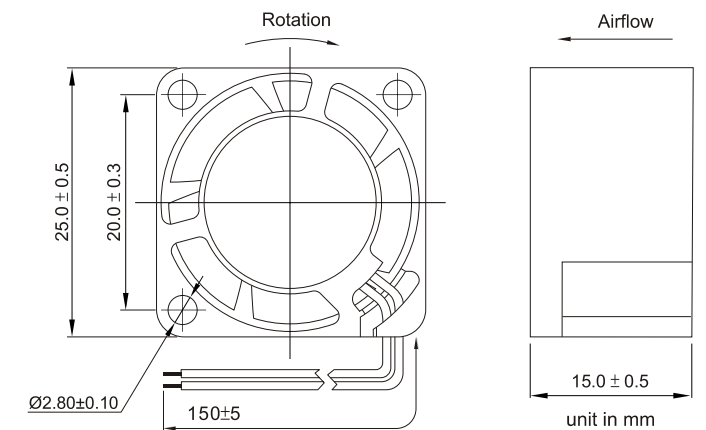
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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30x30x10mm

- Airflow: 2.5~4.0 CFM
- Static Pressure: 2.0~5.2 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1571 #28 AWG
- Weight: 9 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD053010LB-N	2B	05	4~5.5	5800	2.5	2.0	50	0.25	80000	4	<17.0
FD053010MB-N	2B		4~5.5	6800	3.0	2.7	70	0.35	80000	3	18.0
FD053010HB-N	2B		4~5.5	7800	3.4	3.3	80	0.40	75000	2	21.5
FD053010EB-N	2B		4~5.5	10000	4.0	5.2	130	0.65	65000	1	28.0
FD123010LB-N	2B	12	9~13.2	5800	2.5	2.0	35	0.42	80000	4	<17.0
FD123010MB-N	2B		7~13.2	6800	3.0	2.7	40	0.48	80000	3	18.0
FD123010HB-N	2B		7~13.2	7800	3.4	3.3	40	0.48	75000	2	21.5
FD123010EB-N	2B		7~13.2	10000	4.0	5.2	60	0.72	65000	1	28.0

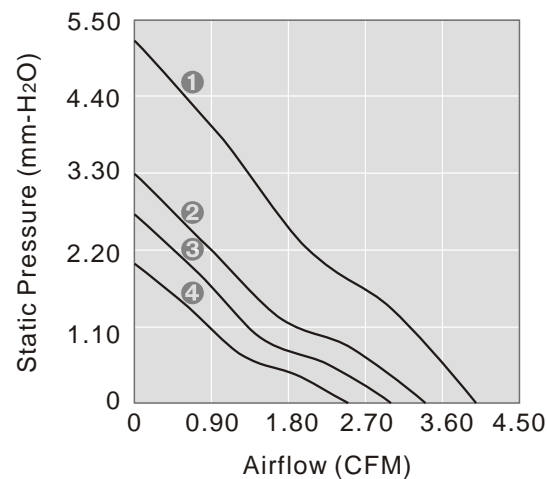
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

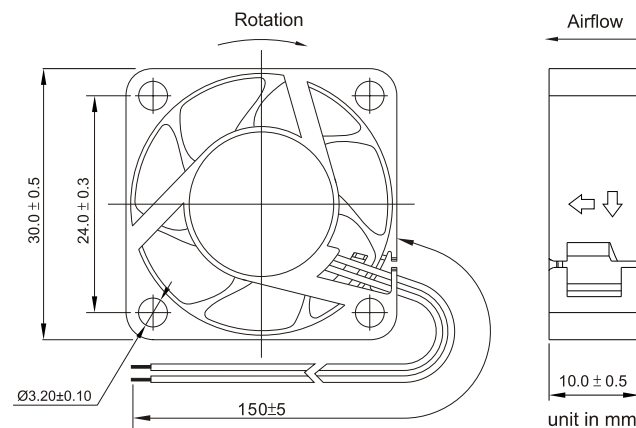
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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30x30x15mm

- Airflow: 3.8~6.1 CFM
- Static Pressure: 2.8~7.1 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1571 #28 AWG
- Weight: 13 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD053015LB-N	2B	05	4~5.5	7000	3.8	2.8	60	0.30	80000	4	<17.0
FD053015MB-N	2B		4~5.5	8000	4.4	3.7	85	0.425	80000	3	20.5
FD053015HB-N	2B		4~5.5	9000	4.9	4.4	110	0.55	75000	2	25.0
FD053015EB-N	2B		4~5.5	11000	5.7	6.3	200	1.00	65000	1	30.0
FD123015LB-N	2B	12	7~13.2	7000	3.8	2.8	30	0.36	80000	4	<17.0
FD123015MB-N	2B		7~13.2	8000	4.4	3.7	40	0.48	80000	3	20.5
FD123015HB-N	2B		7~13.2	9000	4.9	4.4	45	0.54	75000	2	25.0
FD123015EB-N	2B		7~13.2	11500	6.1	7.1	90	1.08	65000	1	30.0

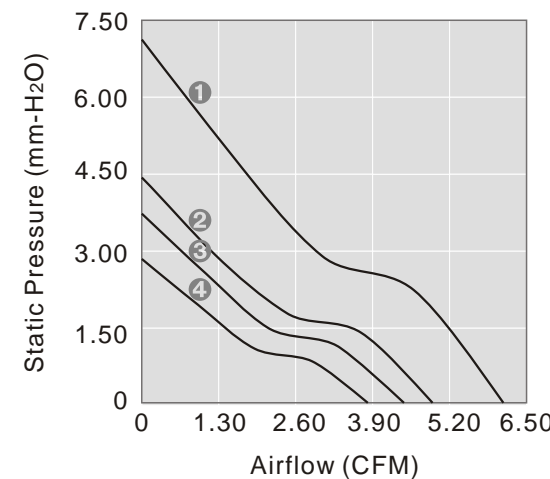
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

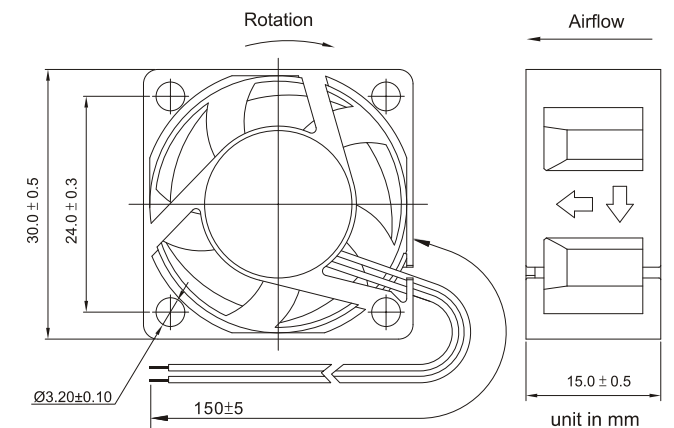
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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40x40x10mm

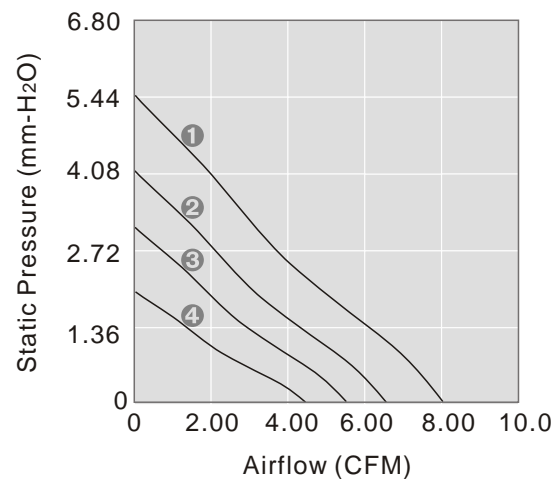
- Airflow: 4.5~8.1 CFM
- Static Pressure: 2.0~5.4 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 15 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD054010LB	2B	5	4~5.5	4500	4.5	2.0	90	0.45	80000	4	21.5
FD054010MB	2B	5	4~5.5	5500	5.6	2.9	130	0.65	80000	3	26.5
FD054010HB	2B	5	4~5.5	6500	6.6	4.1	170	0.85	75000	2	29.0
FD054010EB	2B	5	4~5.5	7500	8.1	5.4	250	1.25	65000	1	34.5
FD124010LB	2B	12	7~13.2	4500	4.5	2.0	55	0.66	80000	4	21.5
FD124010MB	2B	12	7~13.2	5500	5.6	2.9	65	0.78	80000	3	26.5
FD124010HB	2B	12	7~13.2	6500	6.6	4.1	90	1.08	75000	2	29.0
FD124010EB	2B	12	7~13.2	7500	8.1	5.4	120	1.44	65000	1	34.5
FD244010LB	2B	24	12~26.4	4500	4.5	2.0	50	1.20	80000	4	21.5
FD244010MB	2B	24	12~26.4	5500	5.6	2.9	60	1.44	80000	3	26.5
FD244010HB	2B	24	12~26.4	6500	6.6	4.1	70	1.68	75000	2	29.0

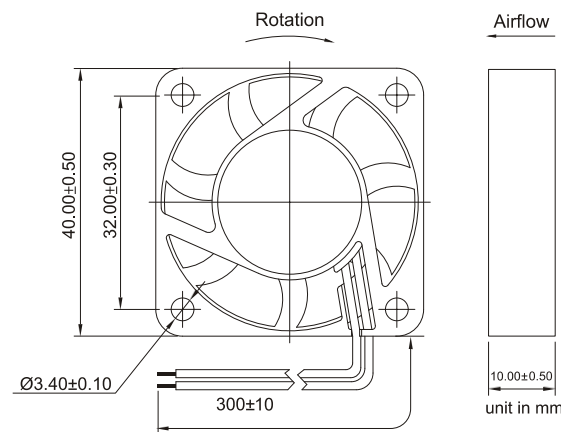
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available: 05|12|24|48 Bearing System Available: 2B|L|S Function Available: N|A|I|F|R|Q|S|T|M|V|C|P|D|W|U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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40x40x15mm

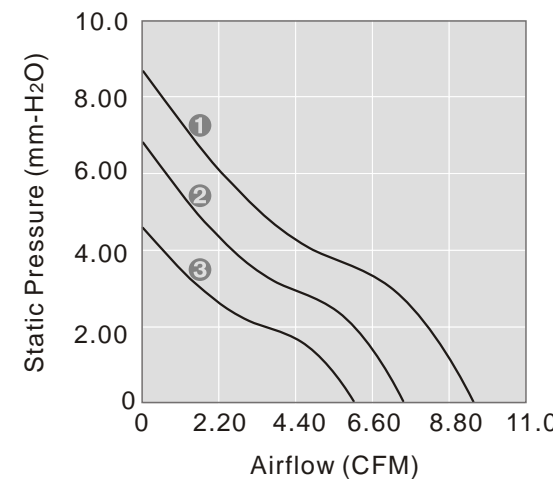
- Airflow: 6.1~9.5 CFM
- Static Pressure: 4.6~8.7 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 26 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD054015LB	2B	5	4~5.5	6000	6.1	4.6	200	1.00	80000	3	28.0
FD054015MB	2B	5	4~5.5	7300	7.5	6.8	280	1.40	80000	2	32.0
FD124015LB	2B	12	7~13.2	6000	6.1	4.6	80	0.96	80000	3	28.0
FD124015MB	2B	12	7~13.2	7300	7.5	6.8	120	1.44	80000	2	32.0
FD124015HB	2B	12	7~13.2	8500	9.5	8.7	160	1.92	75000	1	36.5

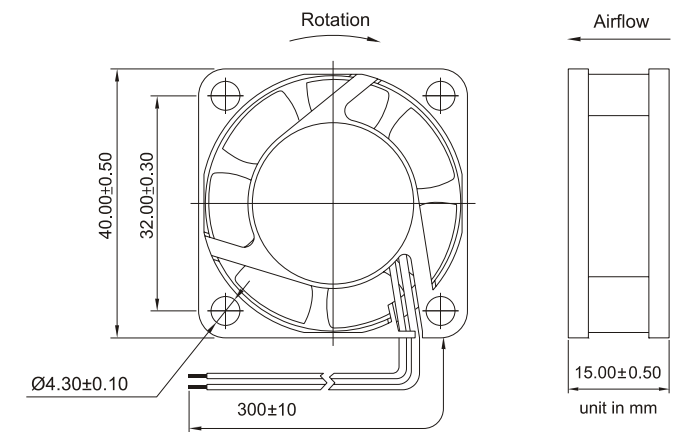
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available: 05|12|24|48 Bearing System Available: 2B|L|S Function Available: N|A|I|F|R|Q|S|T|M|V|C|P|D|W|U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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40x40x20mm

- Airflow: 5.7~12.0 CFM
- Static Pressure: 3.2~11.5 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 24 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD124020LB -H	2B	12	7~13.2	5000	5.7	3.2	70	0.84	80000	5	20.0
FD124020MB -H	2B	12	7~13.2	6300	7.2	5.2	100	1.20	80000	4	25.5
FD124020HB -H	2B	12	7~13.2	7600	9.0	6.4	140	1.68	75000	3	29.5
FD124020EB -H	2B	12	7~13.2	8900	10.5	9.2	170	2.04	65000	2	33.5
FD124020UB -H	2B	12	7~13.2	10000	12.0	11.5	210	2.52	65000	1	37.5
FD244020LB -H	2B	24	12~26.4	5000	5.7	3.2	40	0.96	80000	5	20.0
FD244020MB -H	2B	24	12~26.4	6300	7.2	5.2	50	1.20	80000	4	25.5
FD244020HB -H	2B	24	12~26.4	7600	9.0	6.4	70	1.68	75000	3	29.5
FD244020EB -H	2B	24	12~26.4	8900	10.5	9.2	100	2.40	65000	2	33.5
FD244020UB -H	2B	24	12~26.4	10000	12.0	11.5	120	2.88	65000	1	37.5

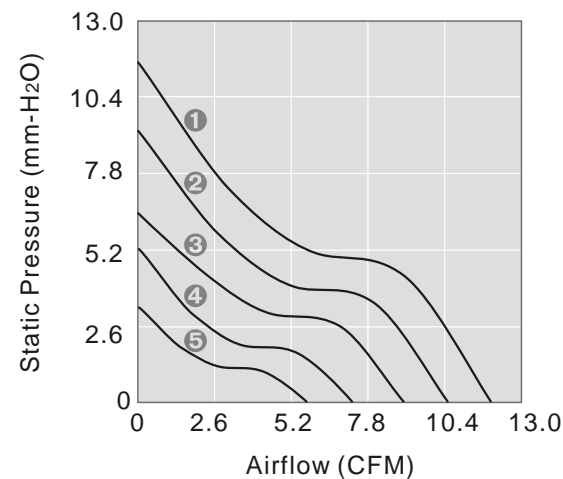
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

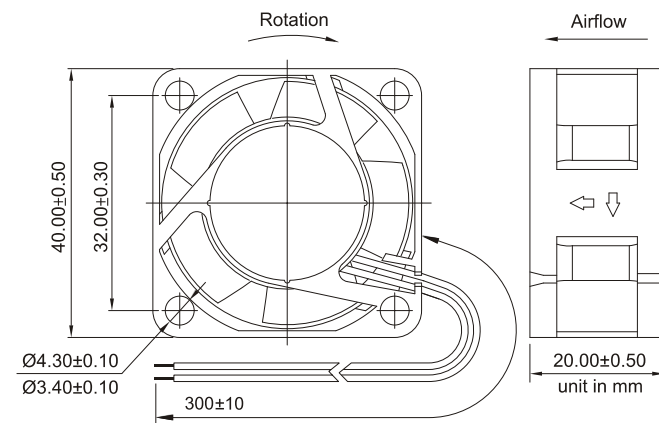
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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45x45x10mm

- Airflow: 8.0~10.3 CFM
- Static Pressure: 2.5~4.8 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 17 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD054510LS	S	05	4~5.5	4900	7.6	2.5	150	0.75	30000	3	28.5
FD054510MS	S	05	4~5.5	5300	8.5	3.0	170	0.85	30000	2	30.5
FD054510HS	S	05	4~5.5	6300	10.0	4.0	240	1.20	25000	1	35.5
FD054510LB	2B	05	4~5.5	5100	8.0	2.8	150	0.75	80000	3	29.5
FD054510MB	2B	05	4~5.5	5500	8.7	3.4	170	0.85	80000	2	31.5
FD054510HB	2B	05	4~5.5	6500	10.3	4.8	240	1.20	75000	1	37.0
FD124510LS	S	12	7~13.2	4900	7.6	2.5	90	1.08	30000	3	28.5
FD124510MS	S	12	7~13.2	5300	8.5	3.0	120	1.44	30000	2	30.5
FD124510HS	S	12	7~13.2	6300	10.0	4.0	140	1.68	25000	1	35.5
FD124510LB	2B	12	7~13.2	5100	8.0	2.8	90	1.08	80000	3	29.5
FD124510MB	2B	12	7~13.2	5500	8.7	3.4	120	1.44	80000	2	31.5
FD124510HB	2B	12	7~13.2	6500	10.3	4.8	140	1.68	75000	1	37.0

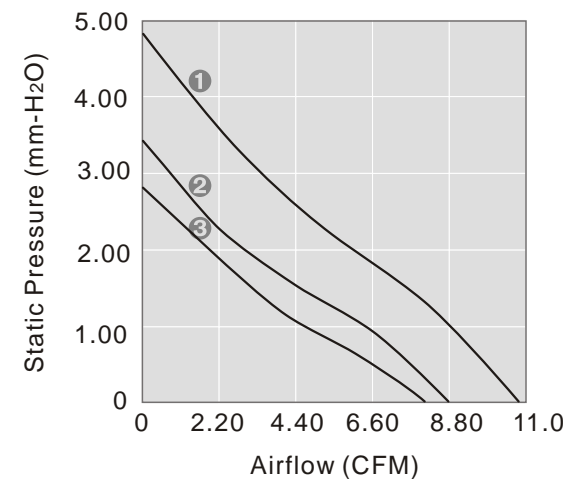
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

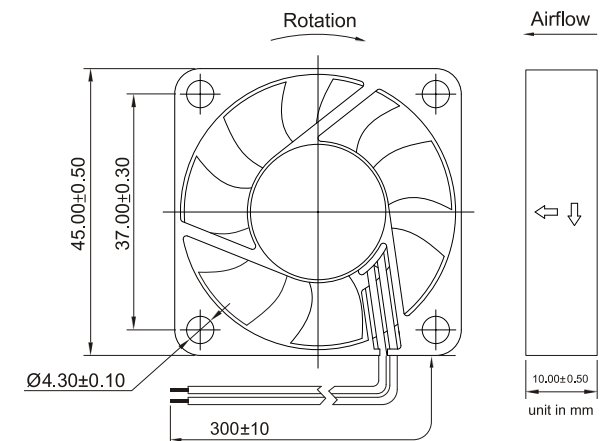
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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50x50x10mm

- Airflow: 9.0~13.8 CFM
- Static Pressure: 1.7~4.1 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 18 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD055010LB	2B	5	4~5.5	4000	9.0	1.7	150	0.75	80000	4	25.5
FD055010MB	2B	05	4~5.5	4600	10.7	2.6	170	0.85	80000	3	31.0
FD055010HB	2B		4~5.5	5200	12.0	3.0	215	1.08	75000	2	34.0
FD125010LB	2B		7~13.2	4200	9.5	1.9	90	1.08	80000	4	27.0
FD125010MB	2B	12	7~13.2	4600	10.7	2.6	120	1.44	80000	3	31.0
FD125010HB	2B		7~13.2	5200	12.0	3.0	140	1.68	75000	2	34.0
FD125010EB	2B		7~13.2	6000	13.8	4.1	180	2.16	65000	1	38.5
FD245010MB	2B	24	12~26.4	4600	10.7	2.6	80	1.92	80000	3	31.0
FD245010HB	2B		12~26.4	5200	12.0	3.0	110	2.64	75000	2	34.0

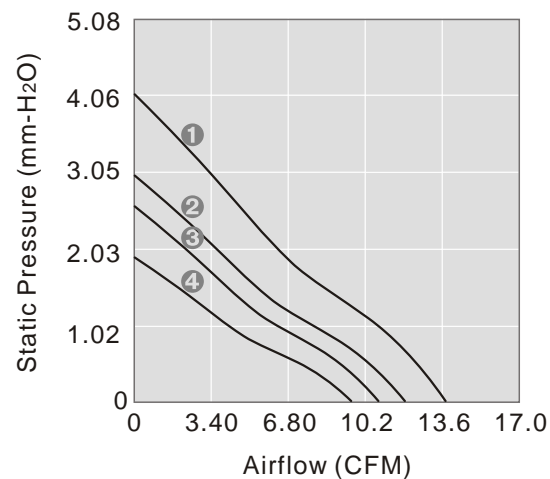
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

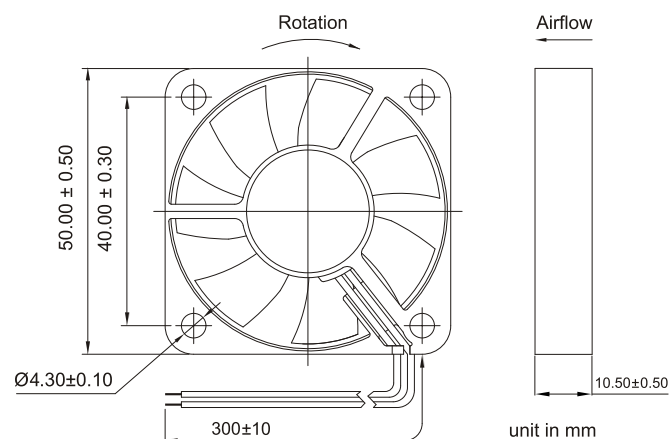
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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50x50x15mm

- Airflow: 12.0~17.1 CFM
- Static Pressure: 2.0~4.4 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 27 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD055015LB	2B	5	4~5.5	3800	12.0	2.0	180	0.90	80000	4	24.5
FD055015MB	2B	05	4~5.5	4500	13.8	2.9	250	1.25	80000	3	30.0
FD055015HB	2B		4~5.5	5000	15.5	3.6	285	1.43	75000	2	31.5
FD125015LB	2B		7~13.2	3800	12.0	2.0	85	1.02	80000	4	24.5
FD125015MB	2B	12	7~13.2	4500	13.8	2.9	130	1.56	80000	3	30.0
FD125015HB	2B		7~13.2	5000	15.5	3.6	170	2.04	75000	2	31.5
FD125015EB	2B		7~13.2	5500	17.1	4.4	240	2.88	65000	1	36.5
FD245015LB	2B	24	12~26.4	3800	12.0	2.0	70	1.68	80000	4	24.5
FD245015MB	2B		12~26.4	4500	13.8	2.9	80	1.92	80000	3	30.0
FD245015HB	2B		12~26.4	5000	15.5	3.6	90	2.16	75000	2	31.5
FD245015EB	2B		12~26.4	5500	17.1	4.4	110	2.64	65000	1	36.5

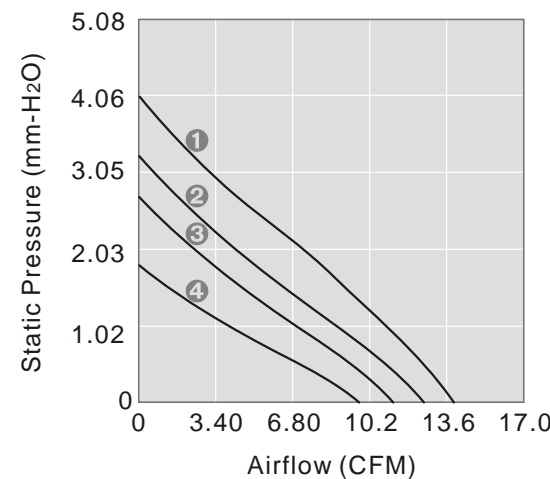
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

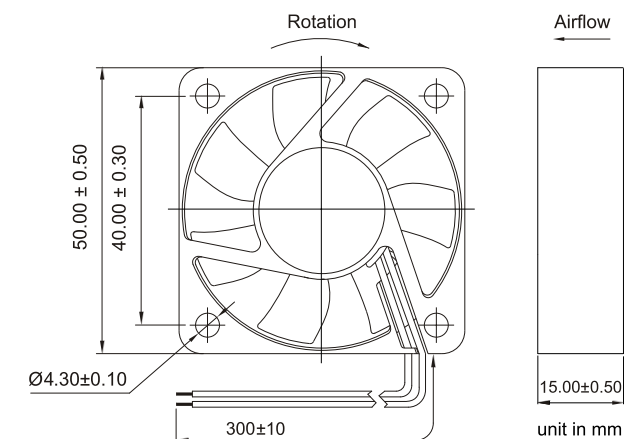
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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50x50x20mm

- Airflow: 8.9~14.0 CFM
- Static Pressure: 2.1~5.5 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 36.0 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD125020LS	S	12	7~13.2	3500	8.9	2.1	60	0.72	30000	3	22.5
FD125020MS	S	12	7~13.2	4300	11.0	4.0	90	1.08	30000	2	25.0
FD125020HS	S	12	7~13.2	5300	13.2	4.7	110	1.32	25000	1	30.0
FD125020LB	2B	12	7~13.2	3900	10.0	2.5	60	0.72	80000	3	23.5
FD125020MB	2B	12	7~13.2	4800	12.2	4.0	90	1.08	80000	2	28.0
FD125020HB	2B	12	7~13.2	5600	14.0	5.5	110	1.32	75000	1	32.5

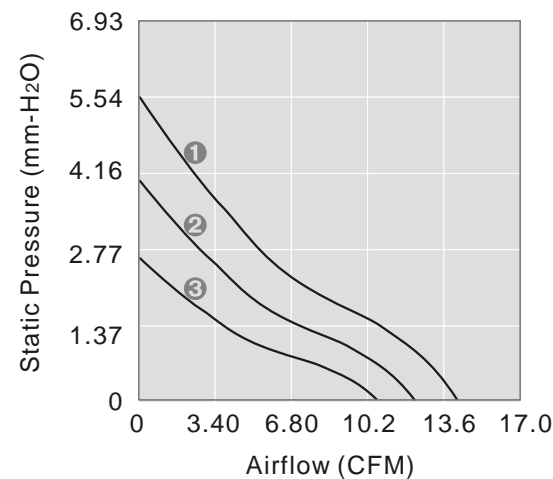
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

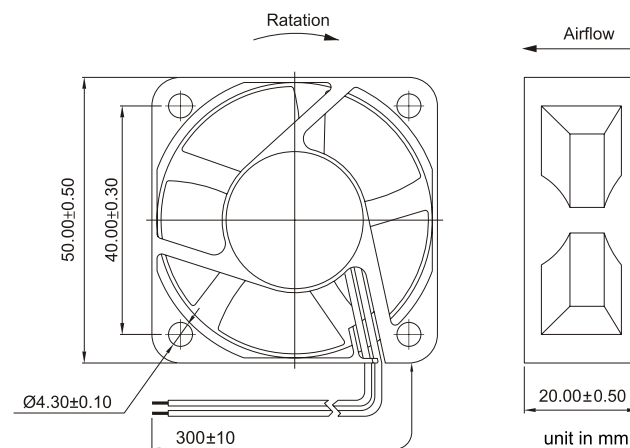
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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60x60x10mm

- Airflow: 17.3~23.3 CFM
- Static Pressure: 2.1~4.0 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 26.0 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD056010LB	2B	05	4~5.5	3800	17.3	2.1	260	1.30	80000	3	33.0
FD126010LS	S	12	7~13.2	3800	17.3	2.1	140	1.68	80000	3	33.0
FD126010MS	S	12	7~13.2	4500	21.0	3.0	170	2.04	80000	2	38.0
FD126010HS	S	12	7~13.2	5200	23.3	4.0	240	2.88	75000	1	41.0
FD126010LB	2B	12	7~13.2	3800	17.3	2.1	140	1.68	80000	3	33.0
FD126010MB	2B	12	7~13.2	4500	21.0	3.0	170	2.04	80000	2	38.0
FD126010HB	2B	12	7~13.2	5200	23.3	4.0	240	2.88	75000	1	41.0

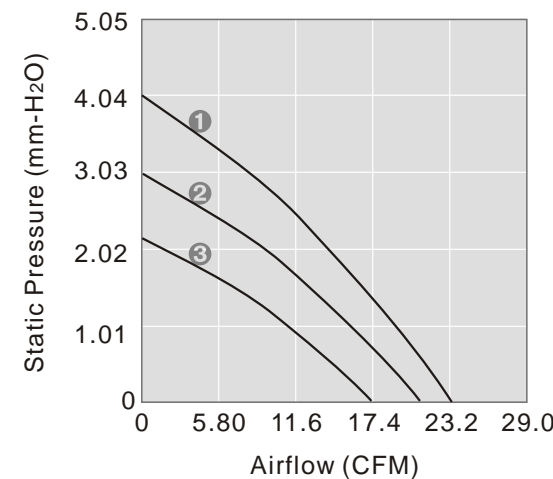
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

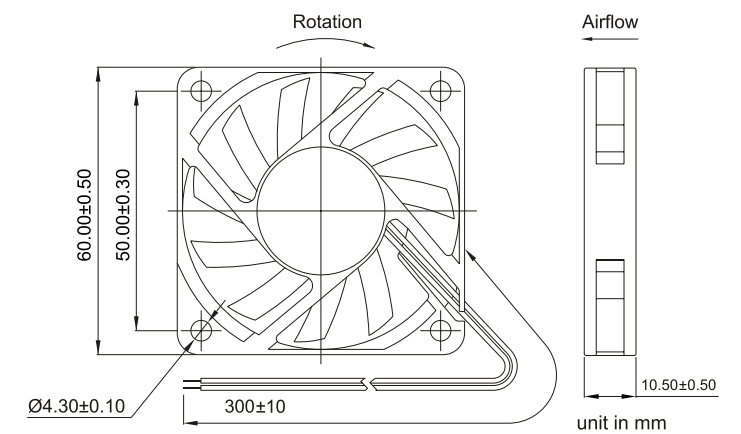
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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60x60x15mm

- Airflow: 17.1~31.3 CFM
- Static Pressure: 2.0~5.3 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 26.0 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD126015LB	2B	12	7~13.2	3200	17.1	2.0	100	1.20	80000	5	25.5
FD126015MB	2B	12	7~13.2	4000	21.0	3.0	160	1.92	80000	4	33.0
FD126015HB	2B	12	7~13.2	4700	24.1	3.9	220	2.64	75000	3	36.0
FD126015EB	2B	12	7~13.2	5200	27.2	4.8	270	3.24	65000	2	40.0
FD126015EB	2B	12	7~13.2	6000	31.3	5.3	400	4.80	65000	1	43.0
FD126015LS	S	12	7~13.2	3000	15.1	1.8	75	0.90	30000	5	24.0
FD126015MS	S	12	7~13.2	3800	19.8	2.6	140	1.68	30000	4	31.0
FD126015HS	S	12	7~13.2	4700	24.1	3.9	220	2.64	25000	3	36.0
FD246015LB	2B	24	12~26.4	3200	17.1	2.0	90	2.16	80000	5	25.5
FD246015MB	2B	24	12~26.4	4000	21.0	3.0	110	2.64	80000	4	33.0
FD246015HB	2B	24	12~26.4	4700	24.1	3.9	145	3.48	75000	3	36.0
FD246015LS	S	24	12~26.4	3000	15.1	1.8	90	2.16	30000	5	24.0
FD246015MS	S	24	12~26.4	3800	19.8	2.6	110	2.64	30000	4	31.0

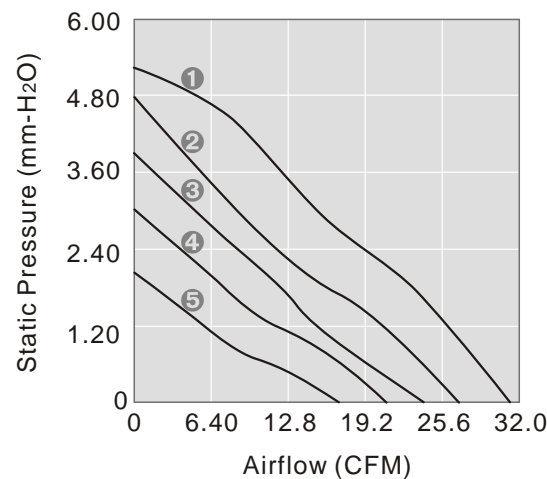
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

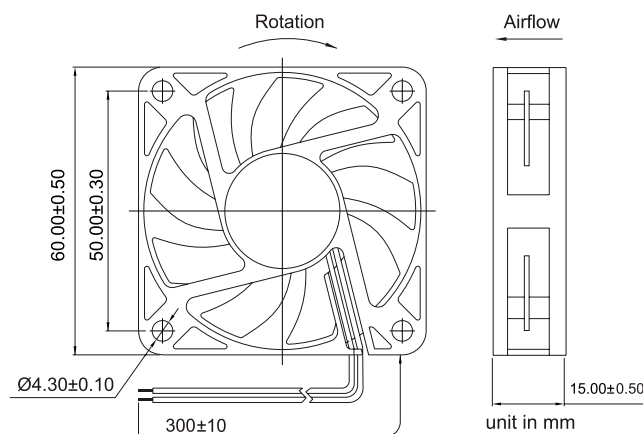
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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60x60x20mm

- Airflow: 17.1~29.1 CFM
- Static Pressure: 2.4~7.0 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 44.0 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD126020LB	2B	12	7~13.2	3000	17.1	2.4	80	0.96	80000	4	26.0
FD126020MB	2B	12	7~13.2	3600	20.0	3.4	110	1.32	80000	3	30.5
FD126020HB	2B	12	7~13.2	4200	22.9	4.4	160	1.92	75000	2	35.0
FD126020EB	2B	12	7~13.2	5300	29.1	7.0	280	3.36	65000	1	41.0
FD126020LS	S	12	7~13.2	2800	15.2	2.0	80	0.96	30000	4	25.0
FD126020MS	S	12	7~13.2	3400	18.0	2.7	110	1.32	30000	3	28.0
FD126020HS	S	12	7~13.2	4000	21.8	4.0	160	1.92	25000	2	35.0
FD246020LB	2B	24	12~26.4	3000	17.1	2.4	40	0.96	80000	4	26.0
FD246020MB	2B	24	12~26.4	3600	20.0	3.4	70	1.68	80000	3	30.5
FD246020HB	2B	24	12~26.4	4200	22.9	4.4	80	1.92	75000	2	35.0
FD246020MS	S	24	12~26.4	3400	18.0	2.7	70	1.68	30000	3	28.0
FD246020HS	S	24	12~26.4	4000	21.8	4.0	80	1.92	25000	2	35.0

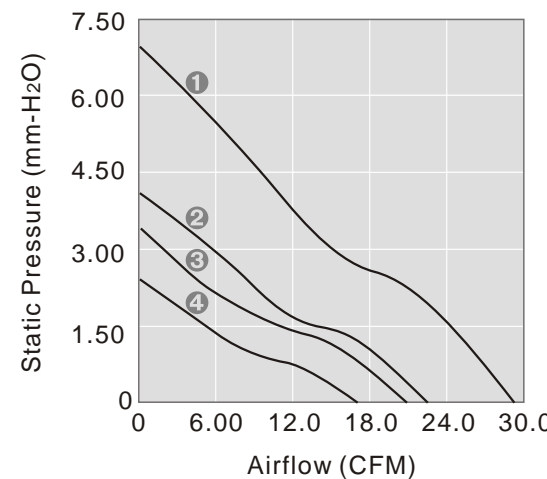
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

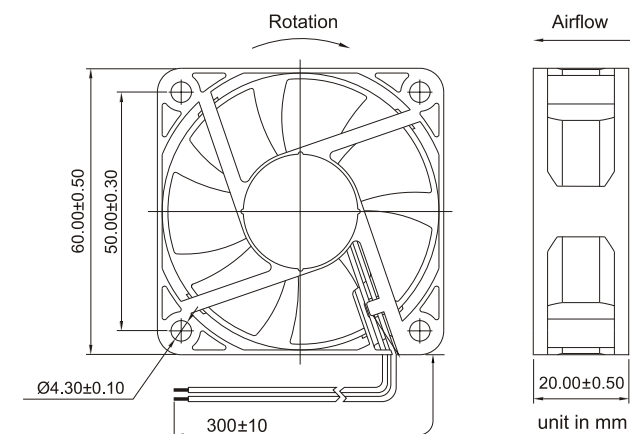
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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60x60x25mm

- Airflow: 15.3~40.1 CFM
- Static Pressure: 2.3~14.2 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 56 g



60x60x25mm

- Airflow: 15.3~31.2 CFM
- Static Pressure: 2.3~11.8 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UI1015 #22 AWG
- Weight: 56 g

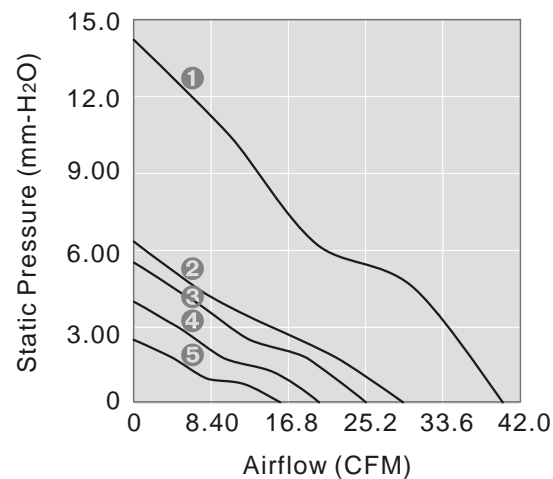
Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD126025LB	2B	12	7~13.2	2800	15.8	2.4	80	0.96	80000	5	23.5
FD126025MB	2B	12	7~13.2	3700	20.2	3.8	120	1.44	80000	4	29.5
FD126025HB	2B	12	7~13.2	4300	25.4	5.5	150	1.80	75000	3	34.0
FD126025EB	2B	12	7~13.2	5200	29.3	6.3	210	2.52	65000	2	40.5
FD126025EB	2B	12	7~13.2	6800	40.1	14.2	420	5.04	65000	1	48.0
FD246025LB	2B	24	12~26.4	2800	15.8	2.4	50	1.20	80000	5	23.5
FD246025MB	2B	24	12~26.4	3700	20.2	3.8	70	1.68	80000	4	29.5
FD246025HB	2B	24	12~26.4	4300	25.4	5.5	90	2.16	75000	3	34.0
FD246025EB	2B	24	12~26.4	5200	29.3	6.3	110	2.64	65000	2	40.5
FD246025EB	2B	24	12~26.4	6800	40.1	14.2	210	5.04	65000	1	48.0
FD486025LB	2B	48	24~56.0	2800	15.8	2.4	30	1.44	80000	5	23.5
FD486025MB	2B	48	24~56.0	3700	20.2	3.8	45	2.16	80000	4	29.5
FD486025HB	2B	48	24~56.0	4300	25.4	5.5	50	2.40	75000	3	34.0
FD486025EB	2B	48	24~56.0	5200	29.3	6.3	80	3.84	65000	2	40.5

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD126025LB	2B	12	7~13.2	3000	14.4	5.0	50	0.60	80000	5	24.9
FD126025MB	2B	12	7~13.2	4100	19.7	7.5	80	0.96	80000	4	31.0
FD126025HB	2B	12	7~13.2	5100	24.5	9.3	120	1.44	75000	3	36.0
FD126025EB	2B	12	7~13.2	5600	26.9	10.2	150	1.80	65000	2	38.1
FD126025EB	2B	12	7~13.2	6500	31.2	11.8	190	2.28	65000	1	41.0
FD246025LB	2B	24	12~26.4	3000	13.5	2.3	35	0.84	80000	5	19.5
FD246025MB	2B	24	12~26.4	4100	19.7	7.5	55	1.32	80000	4	31.0
FD246025HB	2B	24	12~26.4	5100	24.5	9.3	75	1.80	75000	3	36.0
FD246025EB	2B	24	12~26.4	5600	26.9	10.2	100	2.40	65000	2	38.1
FD246025EB	2B	24	12~26.4	6500	31.2	11.8	120	2.88	65000	1	41.0

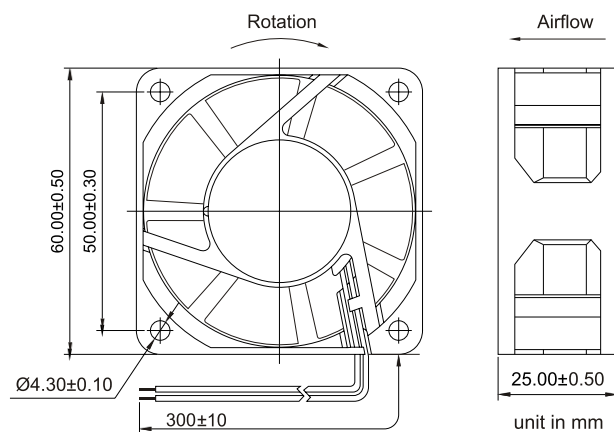
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available: 05 12 24 48 Bearing System Available: 2B L S Function Available: N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS

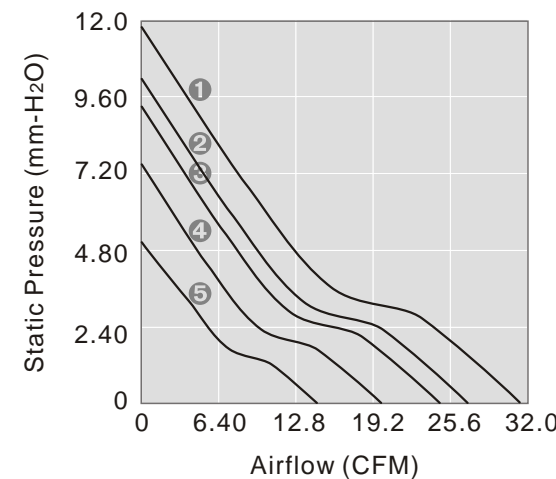


Please refer to Model Numbering System for bearing, function and speed level indication. Specifications are subject to changes without notice. Please refer to the formally issued product specification via contacting Y.S. TECH sales department. Visit Y.S. TECH web site at <http://www.ystech.com.tw> for updated information. Customized Specifications are designed accordingly.

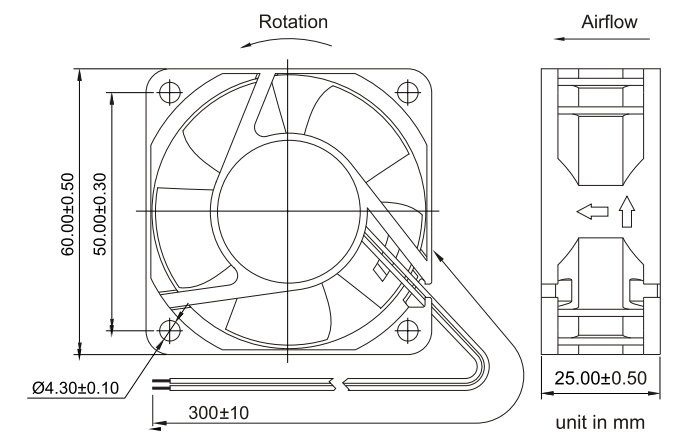
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available: 05 12 24 48 Bearing System Available: 2B L S Function Available: N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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70x70x10mm

- Airflow: 14.2~24.6 CFM
- Static Pressure: 1.1~3.0 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 35.0 g

Model No.	Bearing	Rated Voltage	Operating Voltage Range	Speed	Max. Airflow	Max. Static Pressure	Current	Power Consumption	Life at 40°C L10	P-Q Curve	Noise Level
		VDC	VDC	RPM	CFM	mm-H ₂ O	mA	W	Hour		dB(A)
FD057010LB	2B	05	4~5.5	2300	14.2	1.1	160	0.80	80000	4	24.0
FD057010HB	2B	05	4~5.5	3000	19.6	2.0	260	1.30	75000	3	30.0
FD127010LB	2B	12	7~13.2	3700	23.6	2.6	200	2.40	80000	2	35.0
FD127010MB	2B	12	7~13.2	3900	24.6	3.0	220	2.64	75000	1	37.5

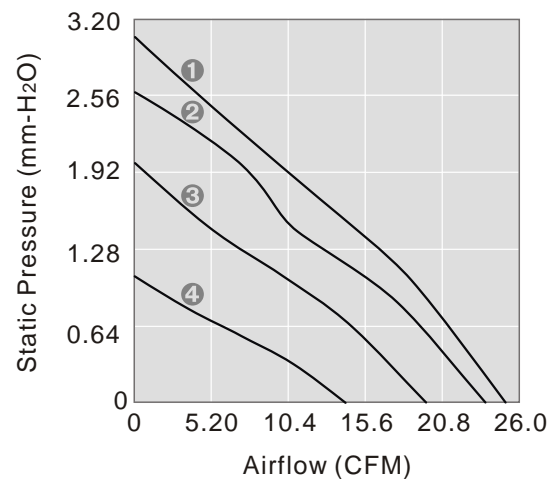
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

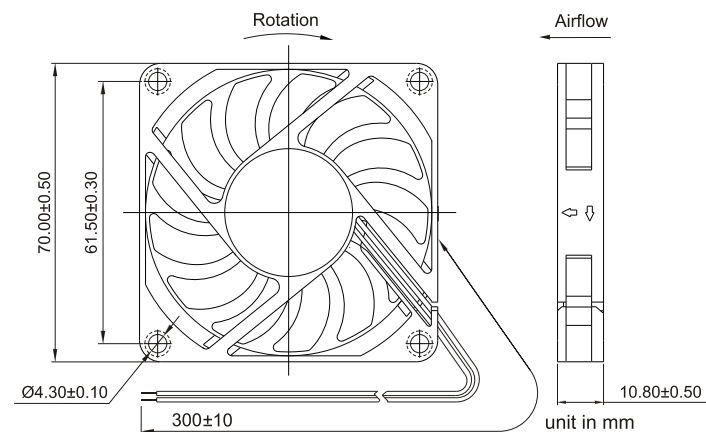
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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70x70x10mm

- Airflow: 23.7~30.8 CFM
- Static Pressure: 3.6~4.7 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 35.0 g

Model No.	Bearing	Rated Voltage	Operating Voltage Range	Speed	Max. Airflow	Max. Static Pressure	Current	Power Consumption	Life at 40°C L10	P-Q Curve	Noise Level
		VDC	VDC	RPM	CFM	mm-H ₂ O	mA	W	Hour		dB(A)
FD127010LB-H	2B	12	7~13.2	3700	23.9	3.7	130	1.56	80000	3	31.0
FD127010MB-H	2B	12	7~13.2	4300	27.8	4.3	170	2.04	80000	2	34.5
FD127010HB-H	2B	12	7~13.2	4800	31.0	4.8	240	2.88	75000	1	37.0

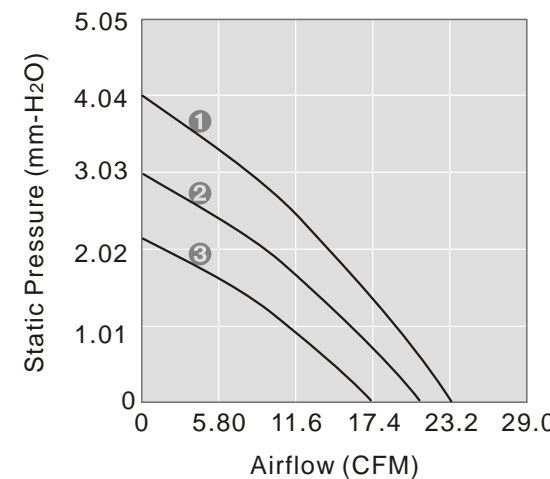
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

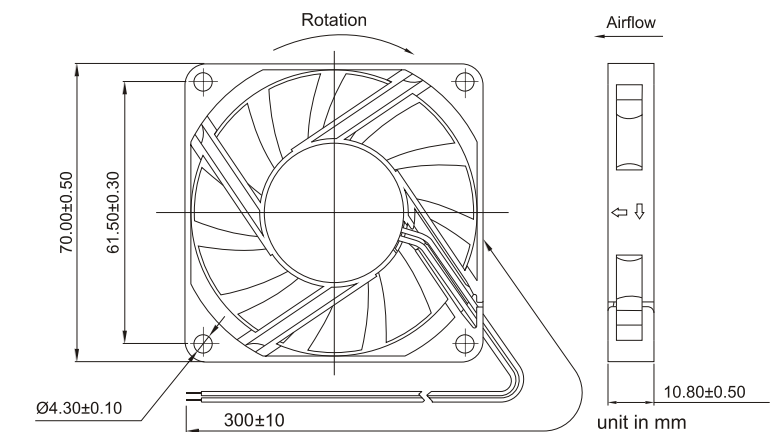
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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70x70x15mm

- Airflow: 27.9~39.5 CFM
- Static Pressure: 3.4~6.8 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 54.0 g



70x70x25mm

- Airflow: 25.0~49.0 CFM
- Static Pressure: 3.0~10.06 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 82.0 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD127015LB	2B	12	7~13.2	3800	27.9	3.4	130	1.56	80000	4	34.0
FD127015MB	2B	12	7~13.2	4300	31.6	4.4	190	2.28	80000	3	39.0
FD127015HB	2B	12	7~13.2	4800	35.3	5.4	260	3.12	75000	2	41.5
FD127015EB	2B	12	7~13.2	5500	39.5	6.8	400	4.80	65000	1	45.5
FD127015LB	BS	12	7~13.2	3800	27.9	3.4	130	1.56	50000	4	34.0
FD127015MB	BS	12	7~13.2	4300	31.6	4.4	190	2.28	50000	3	39.0
FD127015HB	BS	12	7~13.2	4800	35.3	5.4	260	3.12	40000	2	41.5
FD127015EB	BS	12	7~13.2	5500	39.5	6.8	400	4.80	30000	1	45.5
FD127015LS	S	12	7~13.2	3800	27.9	3.4	155	1.86	30000	4	34.0
FD127015MS	S	12	7~13.2	4300	31.6	4.4	220	2.64	30000	3	39.0
FD127015HS	S	12	7~13.2	4800	35.3	5.4	280	3.36	25000	2	41.5

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD127025LB	2B	12	7~13.2	3000	25.0	3.0	90	1.08	80000	4	29.0
FD127025MB	2B	12	7~13.2	4000	33.1	5.0	170	2.04	80000	3	34.5
FD127025HB	2B	12	7~13.2	5000	40.5	7.2	300	3.60	75000	2	41.0
FD127025EB	2B	12	7~13.2	6000	49.0	10.6	400	4.80	65000	1	47.0
FD127025LB	BS	12	7~13.2	3000	25.0	3.0	110	1.32	50000	4	29.0
FD127025MB	BS	12	7~13.2	4000	33.1	5.0	200	2.40	50000	3	34.5
FD127025HB	BS	12	7~13.2	5000	40.5	7.2	300	3.60	40000	2	41.0
FD127025EB	BS	12	7~13.2	6000	49.0	10.6	400	4.80	30000	1	47.0
FD127025LS	S	12	7~13.2	2900	24.9	3.0	110	1.32	30000	4	28.0
FD127025MS	S	12	7~13.2	3900	33.0	4.9	210	2.52	30000	3	33.5
FD127025HS	S	12	7~13.2	4900	36.7	7.1	300	3.60	25000	2	40.0
FD127025ES	S	12	7~13.2	5900	48.1	10.2	400	4.80	20000	1	46.0

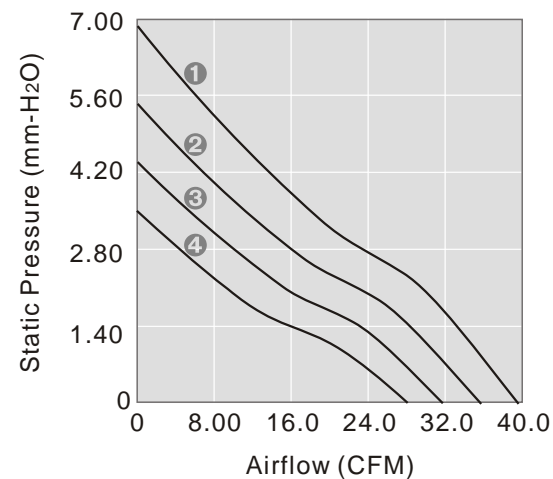
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

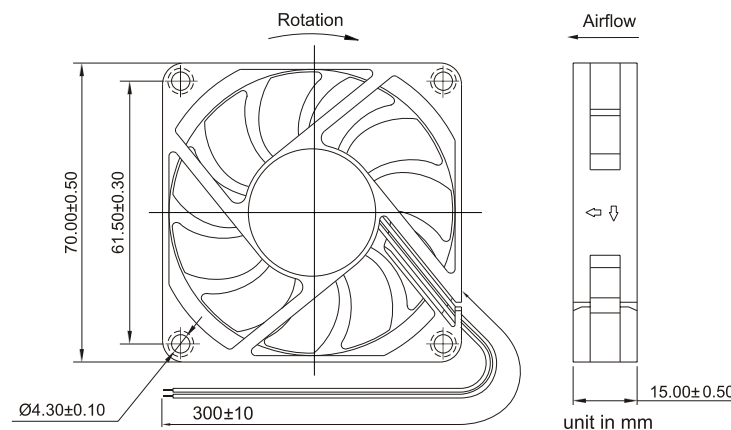
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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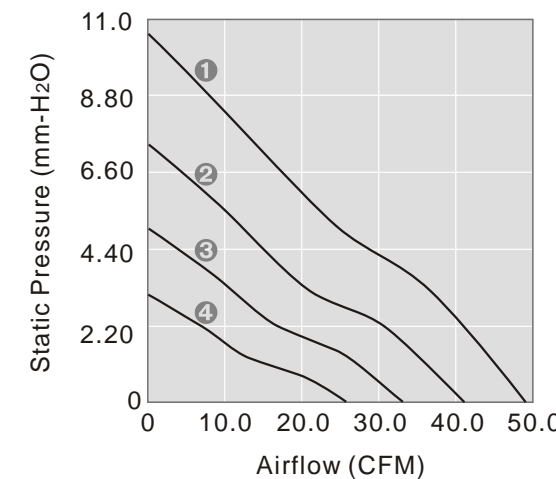
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

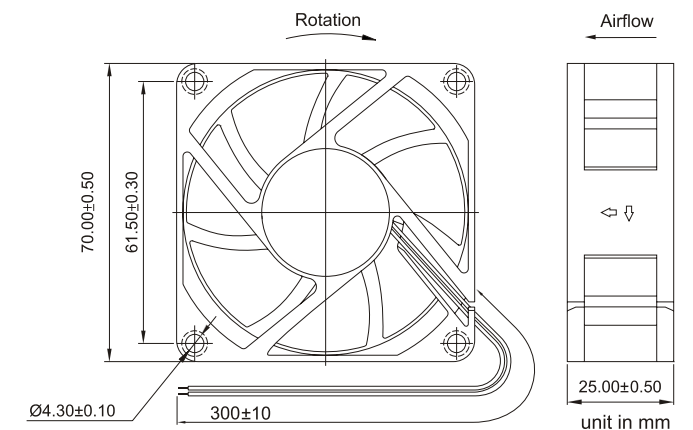
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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80x80x15mm

- Airflow: 23.5~50.2 CFM
- Static Pressure: 1.4~5.8 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 50.0 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD128015LB	2B	12	7~13.2	2100	23.5	1.4	70	0.84	80000	5	19.0
FD128015MB	2B			2600	29.1	1.9	100	1.20	80000	4	27.0
FD128015HB	2B			3200	35.8	2.7	190	2.28	75000	3	33.0
FD128015EB	2B			3900	43.6	4.3	250	3.00	65000	2	38.5
FD128015EB	2B			4500	50.2	5.8	380	4.56	65000	1	42.0

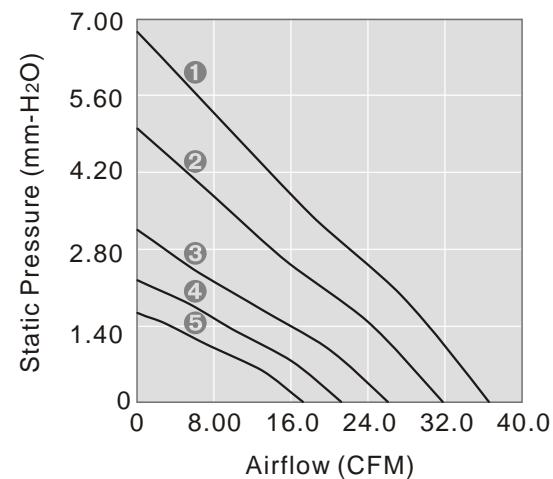
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

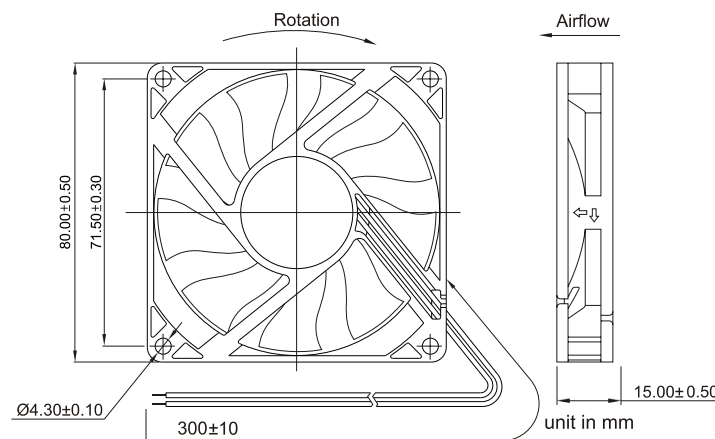
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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80x80x20mm

- Airflow: 22.7~37.0 CFM
- Static Pressure: 1.3~4.4 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 85.0 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD128020LB	2B	12	7~13.2	2100	25.0	1.5	100	1.20	80000	4	24.0
FD128020MB	2B			2600	31.0	2.2	110	1.32	80000	3	27.0
FD128020HB	2B			3100	37.0	3.2	150	1.80	75000	2	33.5
FD128020EB	2B			3600	45.2	4.4	200	2.40	65000	1	38.0
FD128020LS	S			1900	22.7	1.3	100	1.20	30000	4	22.5
FD128020MS	S	24	12~26.4	2400	28.2	1.9	110	1.32	30000	3	25.0
FD128020HS	S			2900	32.7	3.1	150	1.80	25000	2	33.5
FD248020LB	2B			2100	25.0	1.5	50	1.20	80000	4	24.0
FD248020MB	2B			2600	31.0	2.2	70	1.68	80000	3	27.0
FD248020HB	2B			3100	37.0	3.2	100	2.40	75000	2	33.5

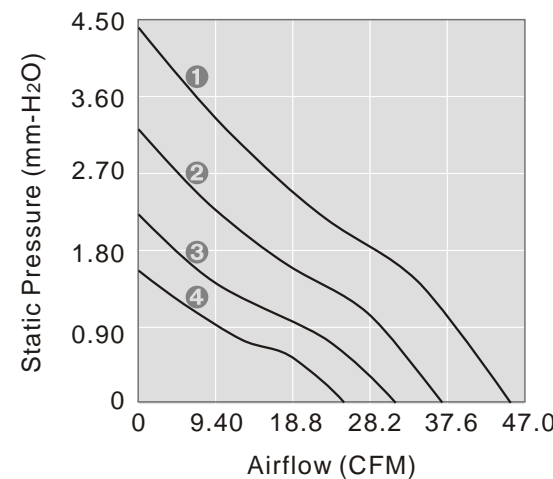
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

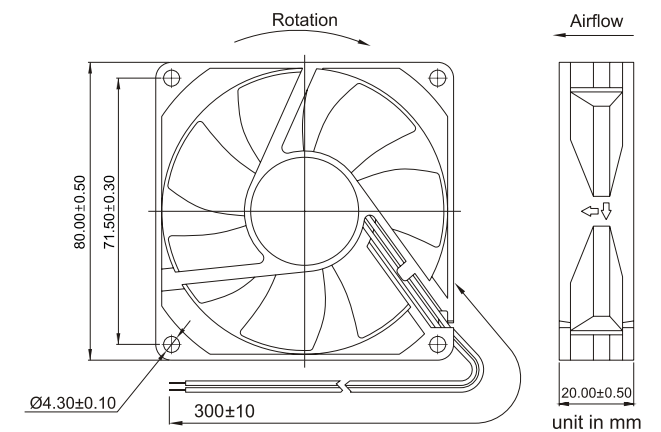
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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80x80x25mm

- Airflow: 27.9~59.8 CFM
- Static Pressure: 1.3~5.4 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 88 g



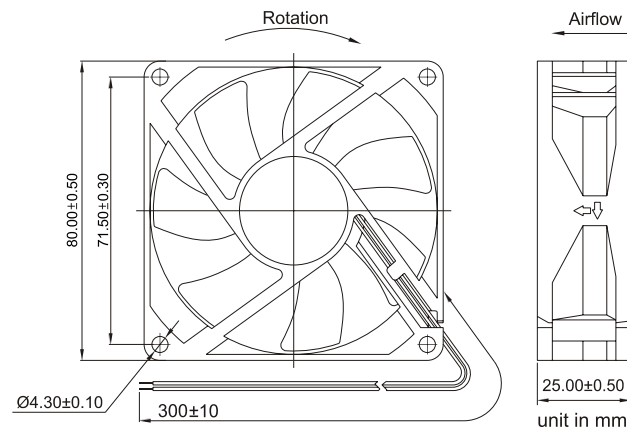
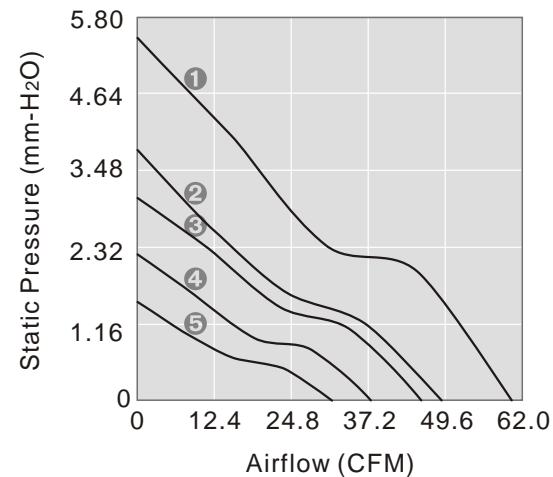
80x80x25mm

- Airflow: 26.3~48.7 CFM
- Static Pressure: 2.0~5.8 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 100 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD128025LS	S	7~13.2	7~13.2	1900	27.9	1.3	100	1.20	30000	5	22.5
FD128025MS	S	7~13.2	7~13.2	2400	35.4	2.1	160	1.92	30000	4	27.5
FD128025HS	S	7~13.2	7~13.2	2900	43.7	2.9	230	2.76	25000	3	33.5
FD128025ES	S	7~13.2	7~13.2	3200	47.4	3.6	260	3.12	20000	2	36.0
FD128025LB	2B	7~13.2	7~13.2	2000	30.0	1.5	100	1.20	80000	5	23.5
FD128025MB	2B	7~13.2	7~13.2	2500	37.0	2.1	160	1.92	80000	4	30.0
FD128025HB	2B	7~13.2	7~13.2	3000	45.2	3.1	230	2.76	75000	3	34.5
FD128025EB	2B	7~13.2	7~13.2	3300	48.5	3.8	260	3.12	65000	2	37.0
FD128025EB	2B	7~13.2	7~13.2	4000	59.8	5.4	510	6.12	65000	1	43.0
FD248025LB	2B	12~26.4	12~26.4	2000	30.0	1.5	60	1.44	80000	5	23.5
FD248025MB	2B	12~26.4	12~26.4	2500	37.0	2.2	80	1.92	80000	4	30.0
FD248025HB	2B	12~26.4	12~26.4	3000	45.2	3.1	130	3.12	75000	3	34.5
FD248025EB	2B	12~26.4	12~26.4	3300	48.5	3.8	150	3.60	65000	2	37.0
FD488025LB	2B	24~56.0	24~56.0	2000	30.0	1.5	40	1.44	80000	5	23.5
FD488025MB	2B	24~56.0	24~56.0	2500	37.0	2.2	50	2.40	80000	4	30.0
FD488025HB	2B	24~56.0	24~56.0	3000	45.2	3.1	90	4.32	75000	3	34.5

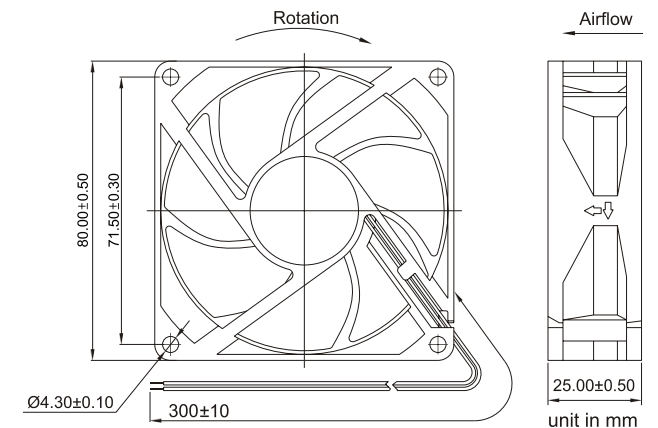
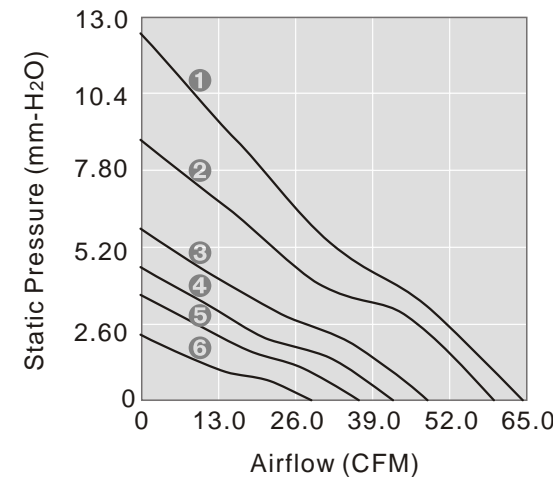
Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD128025LS-N	S	7~13.2	7~13.2	2100	26.3	2.0	80	0.96	30000	6	26.0
FD128025MS-N	S	7~13.2	7~13.2	2600	32.7	3.1	130	1.56	30000	5	29.5
FD128025HS-N	S	7~13.2	7~13.2	3200	40.4	3.9	200	2.40	25000	4	35.5
FD128025ES-N	S	7~13.2	7~13.2	3500	46.0	5.2	250	3.00	20000	3	38.5
FD128025LB-N	2B	7~13.2	7~13.2	2300	28.8	2.2	80	0.96	80000	6	27.0
FD128025MB-N	2B	7~13.2	7~13.2	2900	36.9	3.6	130	1.56	80000	5	32.0
FD128025HB-N	2B	7~13.2	7~13.2	3400	41.6	4.5	180	2.16	75000	4	37.5
FD128025EB-N	2B	7~13.2	7~13.2	3700	48.7	5.8	250	3.00	65000	3	39.5
FD128025EB-N	2B	7~13.2	7~13.2	4500	59.2	8.5	390	4.68	65000	2	44.0
FD128025UB-N	2B	7~13.2	7~13.2	5500	64.1	12.5	500	6.00	65000	1	48.0
FD248025LB-N	2B	12~26.4	12~26.4	2300	28.8	2.2	60	1.44	80000	6	27.0
FD248025MB-N	2B	12~26.4	12~26.4	2900	36.9	3.6	80	1.92	80000	5	32.0
FD248025HB-N	2B	12~26.4	12~26.4	3400	41.6	4.5	100	2.40	75000	4	37.5
FD248025EB-N	2B	12~26.4	12~26.4	3700	48.7	5.8	140	3.36	65000	3	39.5
FD248025EB-N	2B	12~26.4	12~26.4	4500	59.2	8.5	230	5.52	65000	2	44.0
FD488025MB-N	2B	24~56.0	24~56.0	2900	36.9	3.6	45	2.16	80000	5	32.0
FD488025HB-N	2B	24~56.0	24~56.0	3400	41.6	4.5	80	3.84	75000	4	37.5
FD488025EB-N	2B	24~56.0	24~56.0	3700	48.7	5.8	85	4.08	65000	3	39.5

2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing
 Voltage Available: 05 12 24 48 Bearing System Available: 2B L S Function Available: N A I F R Q S T M V C P D W U
PERFORMANCE P-Q CURVE **OUTLINE DIMENSIONS**



Please refer to Model Numbering System for bearing, function and speed level indication. Specifications are subject to changes without notice. Please refer to the formally issued product specification via contacting Y.S. TECH sales department. Visit Y.S. TECH web site at <http://www.ystech.com.tw> for updated information. Customized Specifications are designed accordingly.

2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing
 Voltage Available: 05 12 24 48 Bearing System Available: 2B L S Function Available: N A I F R Q S T M V C P D W U
PERFORMANCE P-Q CURVE **OUTLINE DIMENSIONS**



Please refer to Model Numbering System for bearing, function and speed level indication. Specifications are subject to changes without notice. Please refer to the formally issued product specification via contacting Y.S. TECH sales department. Visit Y.S. TECH web site at <http://www.ystech.com.tw> for updated information. Customized Specifications are designed accordingly.



92x92x25mm

- Airflow: 45.8~73.4 CFM
- Static Pressure: 3.1~7.2 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 100.0 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD129225LS	S	7~13.2	7~13.2	2400	45.8	3.1	150	1.80	30000	5	32.5
FD129225MS	S	7~13.2	7~13.2	2800	53.5	4.3	220	2.64	30000	4	38.0
FD129225HS	S	7~13.2	7~13.2	3100	58.6	5.2	260	3.12	25000	3	40.0
FD129225ES	S	7~13.2	7~13.2	3500	67.3	5.9	340	4.08	20000	2	43.0
FD129225ES	S	7~13.2	7~13.2	3800	73.4	7.3	470	5.64	20000	1	45.5
FD129225LB	2B	7~13.2	7~13.2	2400	45.8	3.1	150	1.80	80000	5	32.5
FD129225MB	2B	7~13.2	7~13.2	2800	53.5	4.3	220	2.64	80000	4	38.0
FD129225HB	2B	7~13.2	7~13.2	3100	58.5	5.2	260	3.12	75000	3	40.0
FD129225EB	2B	7~13.2	7~13.2	3500	67.3	5.9	340	4.08	65000	2	43.0
FD129225EB	2B	7~13.2	7~13.2	3800	73.4	7.2	470	5.64	65000	1	45.5
FD249225LB	2B	12~26.4	12~26.4	2400	45.8	3.1	90	2.16	80000	5	32.5
FD249225MB	2B	12~26.4	12~26.4	2800	53.5	4.3	120	2.88	80000	4	38.0
FD249225HB	2B	12~26.4	12~26.4	3100	58.5	5.2	160	3.84	75000	3	40.0
FD249225EB	2B	12~26.4	12~26.4	3500	67.3	5.9	200	4.80	65000	2	43.0
FD249225EB	2B	12~26.4	12~26.4	3800	73.4	7.2	270	6.48	65000	1	45.5
FD489225LB	2B	24~56.0	24~56.0	2400	45.8	3.1	55	2.64	80000	5	32.5
FD489225MB	2B	24~56.0	24~56.0	2800	53.5	4.3	80	3.84	80000	4	38.0
FD489225HB	2B	24~56.0	24~56.0	3100	58.5	5.2	100	4.80	75000	3	40.0

2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available

Bearing System Available

Function Available

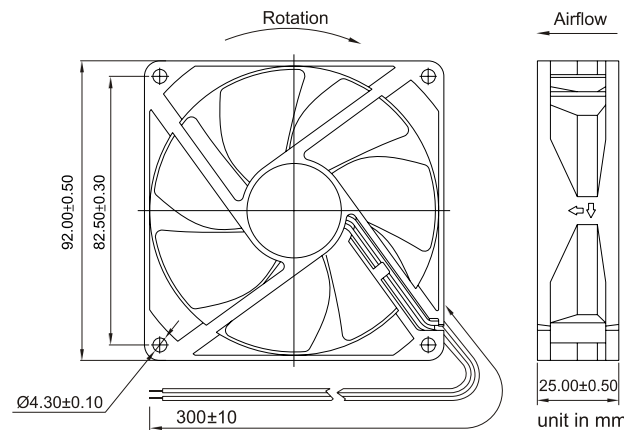
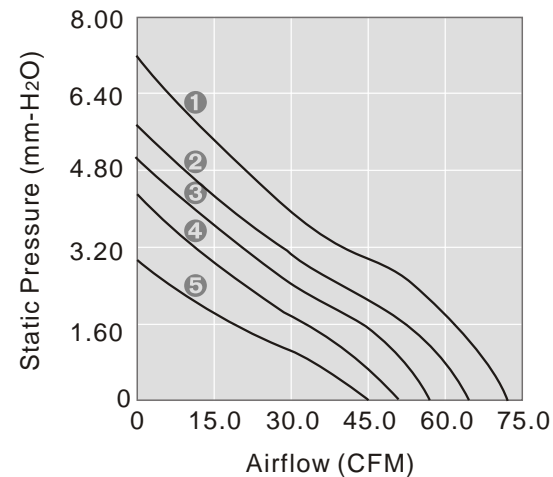
05 12 24 48

2B L S

N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE

OUTLINE DIMENSIONS



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92x92x25mm

- Airflow: 38.1~75.0 CFM
- Static Pressure: 1.5~4.8 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 100.0 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD129225LS-N	S	7~13.2	7~13.2	1800	38.1	1.5	100	1.20	30000	5	25.0
FD129225MS-N	S	7~13.2	7~13.2	2300	48.7	2.2	160	1.92	30000	4	32.0
FD129225HS-N	S	7~13.2	7~13.2	2700	61.4	2.7	200	2.40	25000	3	36.5
FD129225ES-N	S	7~13.2	7~13.2	3000	63.1	3.3	260	3.12	20000	2	39.0
FD129225LB-N	2B	7~13.2	7~13.2	1900	40.2	1.7	100	1.20	80000	5	25.0
FD129225MB-N	2B	7~13.2	7~13.2	2400	50.8	2.4	160	1.92	80000	4	33.0
FD129225HB-N	2B	7~13.2	7~13.2	2800	63.7	3.0	230	2.76	75000	3	37.5
FD129225EB-N	2B	7~13.2	7~13.2	3100	66.3	3.7	260	3.12	65000	2	40.0
FD129225EB-N	2B	7~13.2	7~13.2	3500	75.0	4.8	360	4.32	65000	1	42.5
FD249225LB-N	2B	12~26.4	12~26.4	1900	40.2	1.7	60	1.44	80000	5	25.0
FD249225MB-N	2B	12~26.4	12~26.4	2400	50.8	2.4	80	1.92	80000	4	33.0
FD249225HB-N	2B	12~26.4	12~26.4	2800	63.7	3.0	130	3.12	75000	3	37.5
FD249225EB-N	2B	12~26.4	12~26.4	3100	66.3	3.7	160	3.84	65000	2	40.0
FD249225EB-N	2B	12~26.4	12~26.4	3600	81.9	3.9	190	4.56	65000	1	47.5
FD489225MB-N	2B	24~56.0	24~56.0	2400	50.8	2.4	55	2.64	80000	4	33.0
FD489225HB-N	2B	24~56.0	24~56.0	2800	63.7	3.0	70	3.36	75000	3	37.5

2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available

Bearing System Available

Function Available

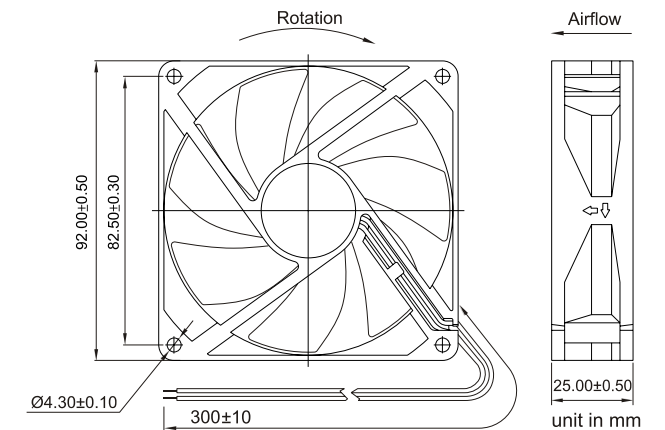
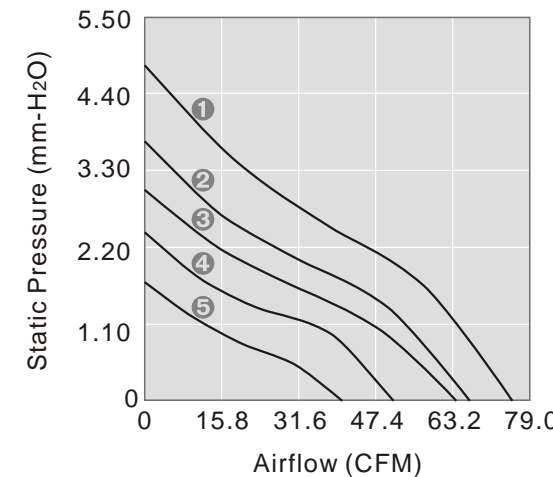
05 12 24 48

2B L S

N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE

OUTLINE DIMENSIONS



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92x92x32mm

- Airflow: 42.6~86.8 CFM
- Static Pressure: 3.5~14.3 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #22 AWG
- Weight: 183.0 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD129232LB	2B	12	7~13.2	2300	42.6	3.5	130	1.56	80000	4	34.0
FD129232MB	2B	12	7~13.2	3200	58.7	6.9	270	3.24	80000	3	42.5
FD129232HB	2B	12	7~13.2	4000	73.3	10.7	490	5.88	75000	2	47.0
FD129232EB	2B	12	7~13.2	4700	86.8	14.3	800	9.60	65000	1	51.0
FD249232LB	2B	24	12~26.4	2300	42.6	3.5	90	2.16	80000	4	34.0
FD249232MB	2B	24	12~26.4	3200	58.7	6.9	170	4.08	80000	3	42.5
FD249232HB	2B	24	12~26.4	4000	73.3	10.7	260	6.24	75000	2	47.0
FD249232EB	2B	24	12~26.4	4700	86.8	14.3	420	10.08	65000	1	51.0
FD489232LB	2B	48	24~56.0	2300	42.6	3.5	70	3.36	80000	4	34.0
FD489232MB	2B	48	24~56.0	3200	58.7	6.9	120	5.76	80000	3	42.5
FD489232HB	2B	48	24~56.0	4000	73.3	10.7	210	10.08	75000	2	47.0
FD489232EB	2B	48	24~56.0	4700	86.8	14.3	280	13.44	65000	1	51.0

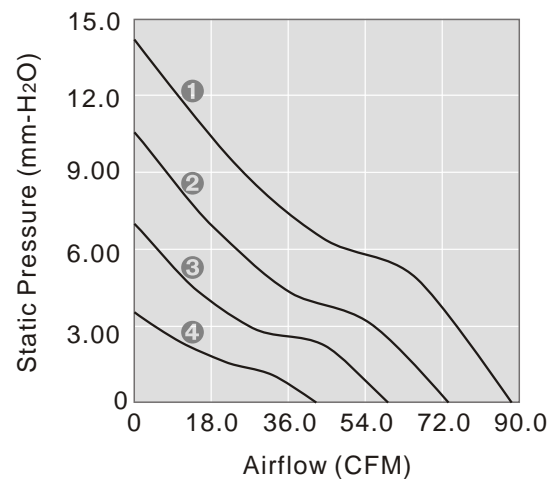
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

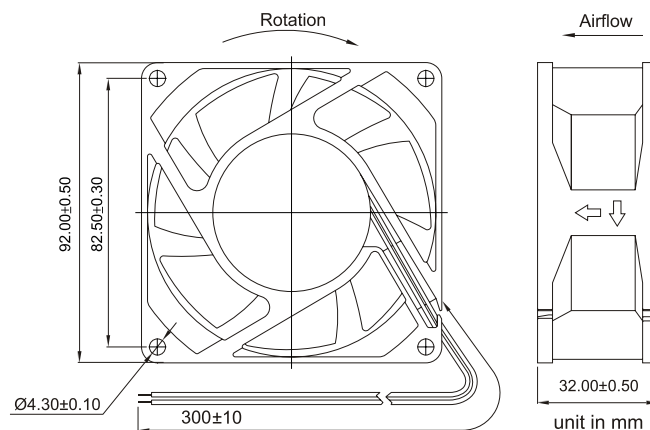
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



Please refer to Model Numbering System for bearing, function and speed level indication. Specifications are subject to changes without notice. Please refer to the formally issued product specification via contacting Y.S. TECH sales department. Visit Y.S. TECH web site at <http://www.ystech.com.tw> for updated information. Customized Specifications are designed accordingly.



120x120x25mm

- Airflow: 61.2 CFM
- Static Pressure: 2.3 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 118 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
KM121225LB	2B	12	7~13.2	2000	61.2	2.3	180	2.16	80000	1	31.5
KM121225LB	2B	12	7~13.2	1200	38.4	1.4	70	0.84	80000	2	17.5
KM121225LL	L	12	7~13.2	2000	61.2	2.3	180	2.16	50000	1	31.5
KM121225LL	L	12	7~13.2	1200	38.4	1.4	65	0.78	50000	2	17.5
KM121225LL	L	12	7~13.2	800	25.6	1.0	40	0.48	50000	3	16.5
KM121225LS	S	12	7~13.2	2000	61.2	2.3	180	2.16	30000	1	31.5
KM121225LS	S	12	7~13.2	1200	38.4	1.4	70	0.84	30000	2	17.5
KM121225LS	S	12	7~13.2	800	25.6	1.0	40	0.48	30000	3	16.5

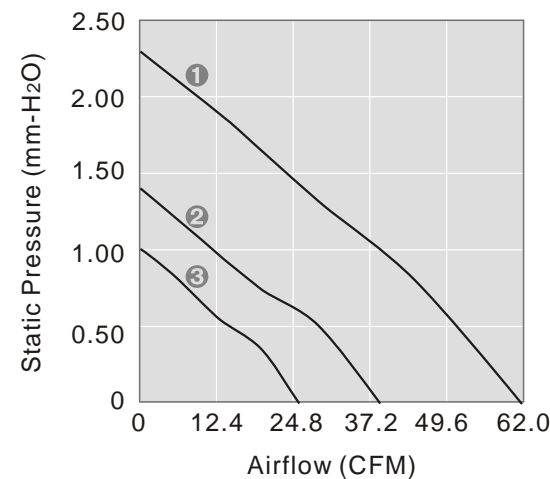
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

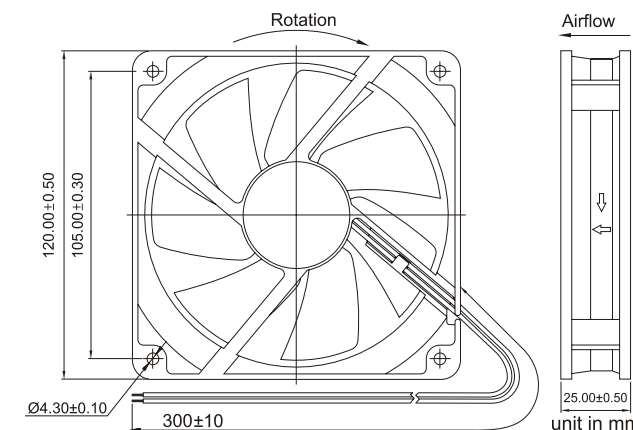
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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120x120x25mm

- Airflow: 73.0~123.0 CFM
- Static Pressure: 2.6~7.6 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #22 AWG
- Weight: 160 g



120x120x32mm

- Airflow: 83.3~137.0 CFM
- Static Pressure: 4.3~9.4 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #22 AWG
- Weight: 219 g

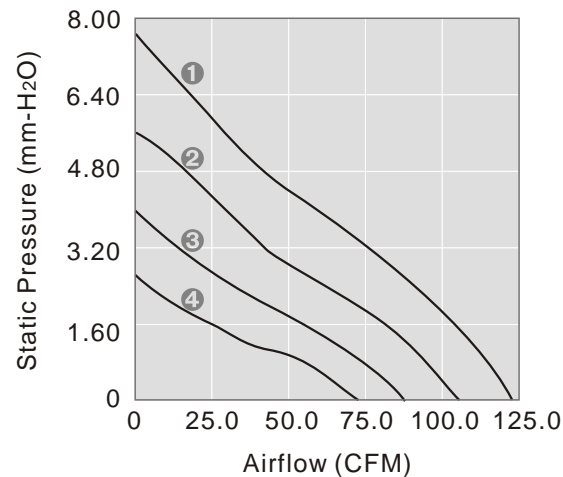
Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD121225LB	2B	12	7~13.2	1800	73.0	2.6	180	2.16	80000	4	34.0
FD121225MB	2B	12	7~13.2	2200	87.8	3.9	290	3.48	80000	3	40.5
FD121225HB	2B	12	7~13.2	2600	106.1	5.8	460	5.52	75000	2	44.0
FD121225EB	2B	12	7~13.2	3000	123.1	7.6	570	6.84	65000	1	49.0
FD241225LB	2B	24	12~26.4	1800	73.0	2.6	100	2.40	80000	4	34.0
FD241225MB	2B	24	12~26.4	2200	87.8	3.9	160	3.84	80000	3	40.5
FD241225HB	2B	24	12~26.4	2600	106.1	5.8	280	6.72	75000	2	44.0
FD241225EB	2B	24	12~26.4	3000	123.1	7.6	390	9.36	65000	1	49.0
FD481225LB	2B	48	24~56.0	1800	73.0	2.6	60	2.88	80000	4	34.0
FD481225MB	2B	48	24~56.0	2200	87.8	3.9	80	3.84	80000	3	40.5
FD481225HB	2B	48	24~56.0	2600	106.1	5.8	110	5.28	75000	2	44.0
FD481225EB	2B	48	24~56.0	3000	123.1	7.6	190	9.12	65000	1	49.0

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD121232LB	2B	12	7~13.2	2100	87.7	4.2	330	3.96	80000	4	39.5
FD121232MB	2B	12	7~13.2	2500	99.0	6.0	450	5.40	80000	3	42.5
FD121232HB	2B	12	7~13.2	2900	115.0	8.0	580	6.96	75000	2	47.5
FD121232EB	2B	12	7~13.2	3300	137.3	9.4	840	10.08	65000	1	49.0
FD241232LB	2B	24	12~26.4	2100	87.7	4.2	150	3.60	80000	4	39.5
FD241232MB	2B	24	12~26.4	2500	99.0	6.0	200	4.80	80000	3	42.5
FD241232HB	2B	24	12~26.4	2900	115.0	8.0	290	6.96	75000	2	47.5
FD241232EB	2B	24	12~26.4	3300	137.3	9.4	400	9.60	65000	1	49.0
FD481232LB	2B	48	24~56.0	2100	83.3	4.3	68	3.26	80000	4	39.5
FD481232MB	2B	48	24~56.0	2500	99.0	6.0	110	5.28	80000	3	42.5
FD481232HB	2B	48	24~56.0	2900	115.0	8.0	190	9.12	75000	2	47.5

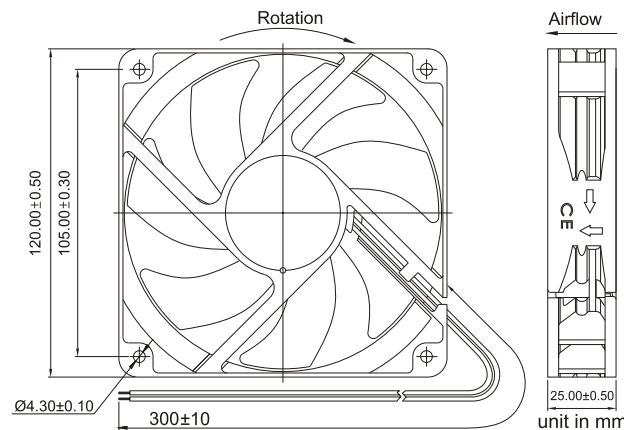
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available: 05 12 24 48
 Bearing System Available: 2B L S
 Function Available: N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS

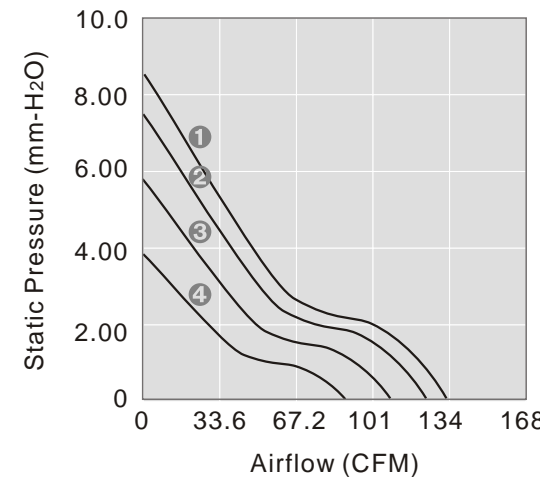


Please refer to Model Numbering System for bearing, function and speed level indication. Specifications are subject to changes without notice. Please refer to the formally issued product specification via contacting Y.S. TECH sales department. Visit Y.S. TECH web site at <http://www.ystech.com.tw> for updated information. Customized Specifications are designed accordingly.

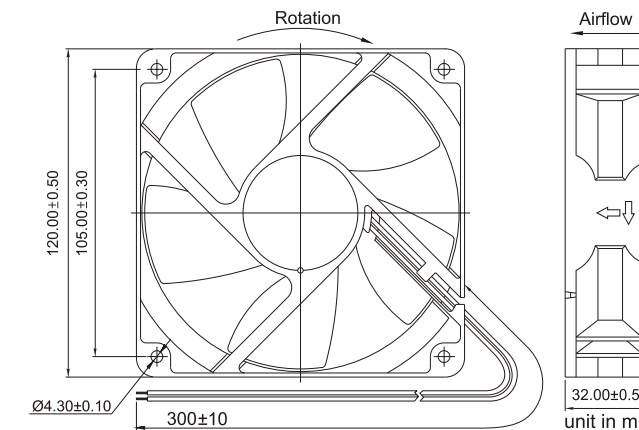
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available: 05 12 24 48
 Bearing System Available: 2B L S
 Function Available: N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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120x120x38mm

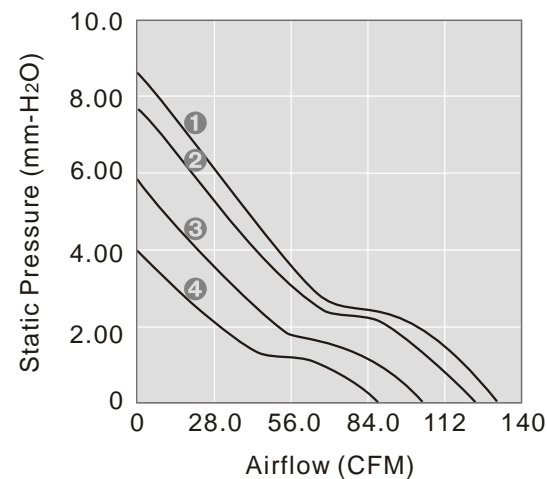
- Airflow: 89.5~135.0 CFM
- Static Pressure: 3.9~8.6 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #22 AWG
- Weight: 220 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD121238LB	2B	12	7~13.2	2000	89.5	3.9	320	3.84	80000	4	36.0
FD121238MB	2B	12	7~13.2	2400	107.7	5.8	420	5.04	80000	3	41.0
FD121238HB	2B	12	7~13.2	2800	125.5	7.6	660	7.92	75000	2	45.0
FD121238EB	2B	12	7~13.2	3000	135.0	8.6	830	9.96	65000	1	47.0
FD241238LB	2B	24	12~26.4	2000	89.5	3.9	150	3.60	80000	4	36.0
FD241238MB	2B	24	12~26.4	2400	107.7	5.8	250	6.00	80000	3	41.0
FD241238HB	2B	24	12~26.4	2800	125.5	7.6	360	8.64	75000	2	45.0
FD241238EB	2B	24	12~26.4	3000	135.0	8.6	410	9.84	65000	1	47.0
FD481238LB	2B	48	24~56.0	2000	89.5	3.9	120	5.76	80000	4	36.0
FD481238MB	2B	48	24~56.0	2400	107.7	5.8	140	6.72	80000	3	41.0
FD481238HB	2B	48	24~56.0	2800	125.5	7.6	180	8.64	75000	2	45.0
FD481238EB	2B	48	24~56.0	3000	135.0	8.6	210	10.08	65000	1	47.0

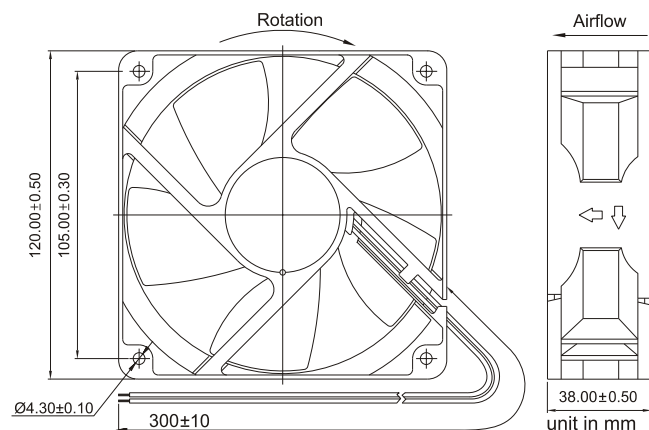
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available: 05 12 24 48 Bearing System Available: 2B L S Function Available: N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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120x120x38mm

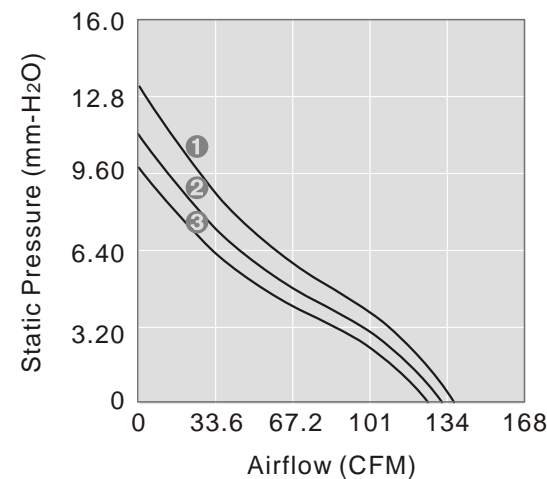
- Airflow: 115.5~135.0 CFM
- Static Pressure: 9.15~13.2 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #22 AWG
- Weight: 220 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD121238MB-N	2B	12	7~13.2	3500	115.0	9.1	560	6.72	80000	3	48.0
FD121238HB-N	2B	12	7~13.2	3800	125.8	9.8	680	8.16	75000	2	49.5
FD121238EB-N	2B	12	7~13.2	3900	129.8	11.0	850	10.2	65000	1	52.0
FD241238MB-N	2B	24	12~26.4	3500	115.0	9.1	380	9.12	80000	3	48.0
FD241238HB-N	2B	24	12~26.4	3800	125.8	9.8	420	10.08	75000	2	49.5
FD241238EB-N	2B	24	12~26.4	4100	135.0	13.2	470	11.28	65000	1	53.0
FD481238MB-N	2B	48	24~56.0	3500	115.0	9.1	130	6.24	80000	3	48.0
FD481238HB-N	2B	48	24~56.0	3800	125.8	9.8	160	7.68	75000	2	49.5
FD481238EB-N	2B	48	24~56.0	4100	135.0	13.2	230	11.04	65000	1	53.0

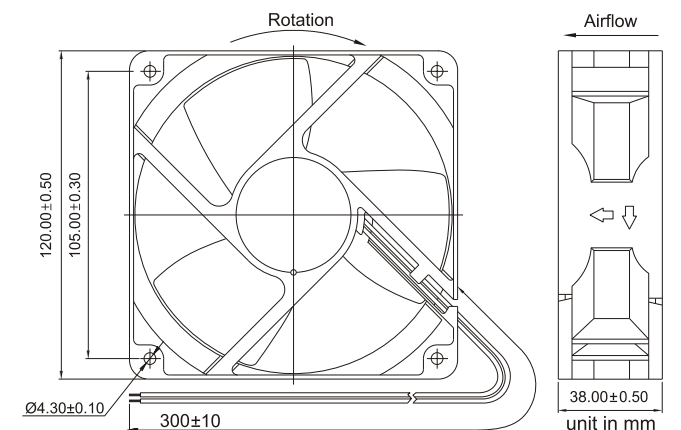
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available: 05 12 24 48 Bearing System Available: 2B L S Function Available: N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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50x50x10mm

- Airflow: 2.4~3.3 CFM
- Static Pressure: 6.1~11.5 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1571 #28 AWG
- Weight: 17.5 g



50x50x15mm

- Airflow: 3.4~5.6 CFM
- Static Pressure: 7.3~12.1 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 28 g

Model No.	Bearing	Rated Voltage	Operating Voltage Range	Speed	Max. Airflow	Max. Static Pressure	Current	Power Consumption	Life at 40°C L10	P-Q Curve	Noise Level
		VDC	VDC	RPM	CFM	mm-H ₂ O	mA	W	Hour		dB(A)
BD055010MB	2B	05	4~5.5	5000	2.4	6.1	130	0.65	80000	2	27.0
BD055010HB	2B		4~5.5	6500	3.3	11.5	170	0.85	75000	1	32.0
BD125010MB	2B	12	7~13.2	5000	2.4	6.1	55	0.66	80000	2	27.0
BD125010HB	2B		7~13.2	6500	3.3	11.5	100	1.20	75000	1	32.0

Model No.	Bearing	Rated Voltage	Operating Voltage Range	Speed	Max. Airflow	Max. Static Pressure	Current	Power Consumption	Life at 40°C L10	P-Q Curve	Noise Level
		VDC	VDC	RPM	CFM	mm-H ₂ O	mA	W	Hour		dB(A)
BD055115LB	2B	05	4~5.5	4500	4.2	16.3	170	0.85	80000	4	33.5
BD055115MB	2B		4~5.5	5500	5.1	19.9	350	1.75	80000	3	38.0
BD125115LB	2B	12	7~13.2	4500	4.2	16.3	95	1.14	80000	4	33.5
BD125115MB	2B		7~13.2	5500	5.1	19.9	160	1.92	80000	3	38.0
BD125115HB	2B	24	7~13.2	6500	6.0	23.5	230	2.76	75000	2	41.5
BD125115EB	2B		7~13.2	7500	7.0	27.1	290	3.48	65000	1	44.5
BD245115LB	2B	24	12~26.4	4500	4.2	16.3	60	1.44	80000	4	33.5
BD245115MB	2B		12~26.4	5500	5.1	19.9	85	2.04	80000	3	38.0
BD245115HB	2B	24	12~26.4	6500	6.0	23.5	120	2.88	75000	2	41.5
BD245115EB	2B		12~26.4	7500	7.0	27.1	180	4.32	65000	1	44.5

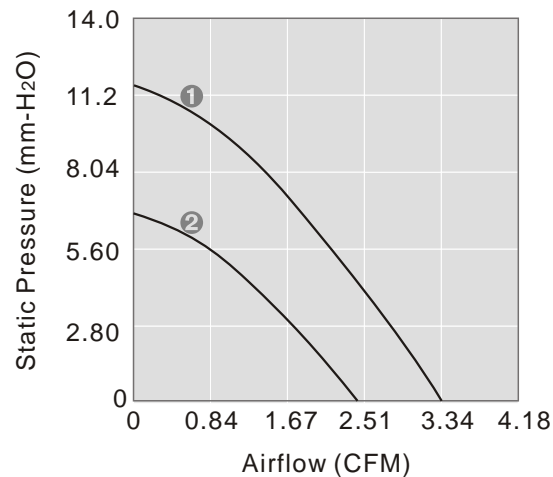
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

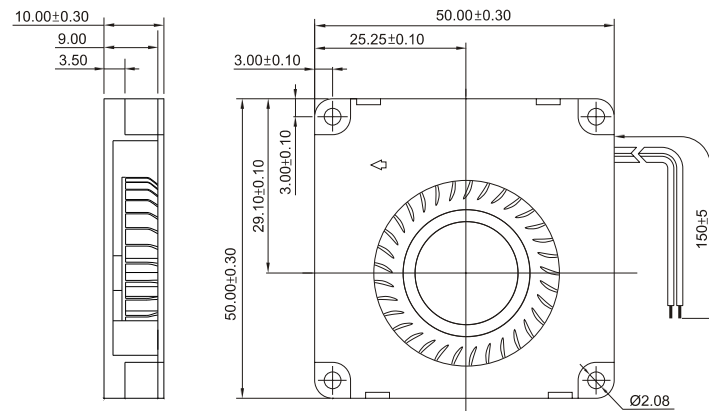
Voltage Available: 05 12 24 48
 Bearing System Available: 2B L S
 Function Available: N A I F R Q S T M V C P D W U

Voltage Available: 05 12 24 48
 Bearing System Available: 2B L S
 Function Available: N A I F R Q S T M V C P D W U

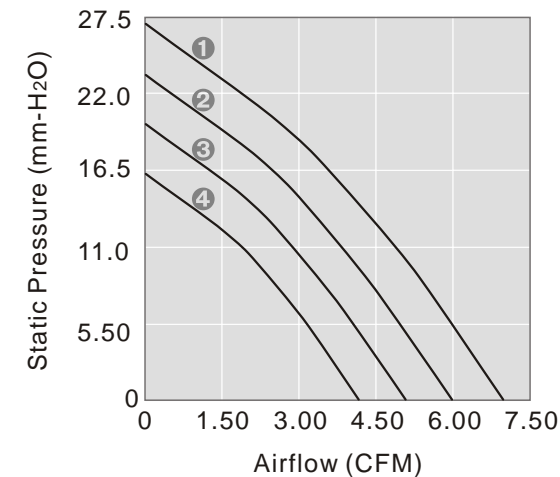
PERFORMANCE P-Q CURVE



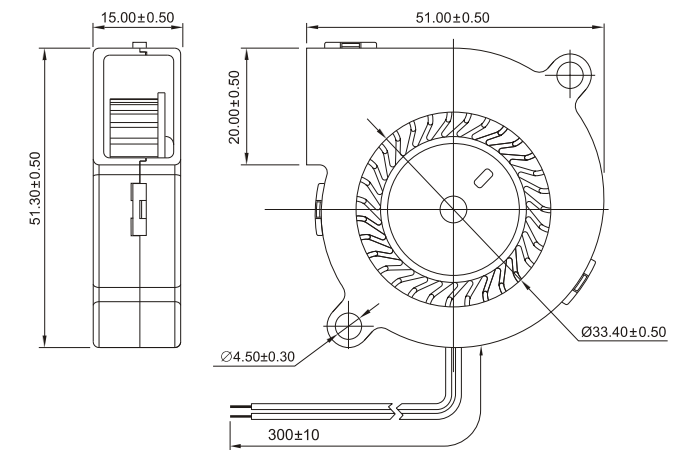
OUTLINE DIMENSIONS



PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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60x60x18mm

- Airflow: 6.7~8.2 CFM
- Static Pressure: 17.6~22.0 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 41 g



75x75x30mm

- Airflow: 9.7~16.5 CFM
- Static Pressure: 5.5~20.3 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 88.9 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
BD126018LB	2B	12	7~13.2	4200	6.7	17.6	140	1.68	80000	3	38.0
BD126018MB	2B	12	7~13.2	4800	7.7	21.2	180	2.16	80000	2	43.5
BD126018HB	2B	12	7~13.2	5400	8.2	22.0	330	3.96	75000	1	49.0

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
BD127530LB	2B	12	7~13.2	2400	9.7	5.5	110	1.32	80000	4	37.0
BD127530MB	2B	12	7~13.2	3000	12.2	10.3	190	2.28	80000	3	42.0
BD127530HB	2B	12	7~13.2	3400	14.0	13.7	270	3.24	75000	2	44.5
BD247530LB	2B	24	12~26.4	2400	9.7	5.5	60	1.44	80000	4	37.0
BD247530MB	2B	24	12~26.4	3000	12.2	10.3	110	2.64	80000	3	42.0
BD247530HB	2B	24	12~26.4	3400	14.0	13.7	150	3.60	75000	2	44.5
BD247530EB	2B	24	12~26.4	4000	16.5	20.3	200	4.80	65000	1	48.0

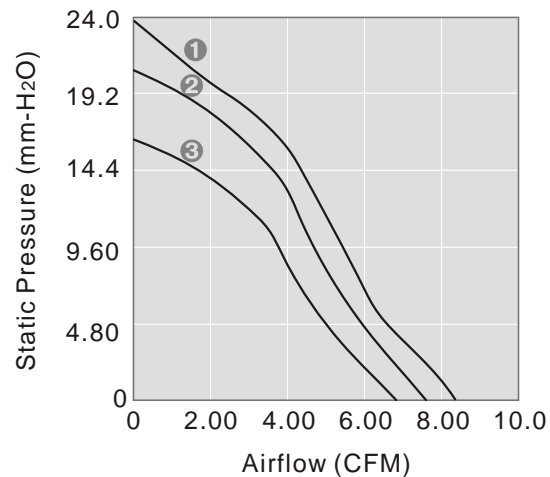
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

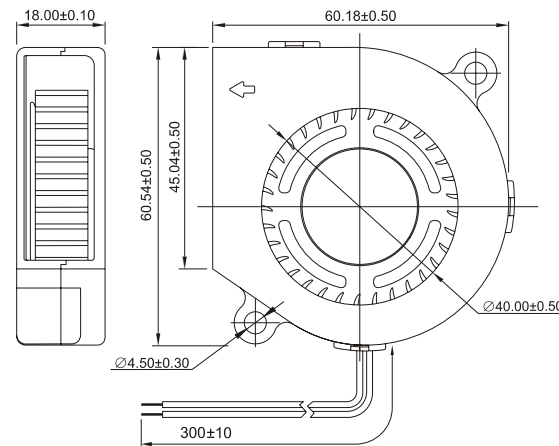
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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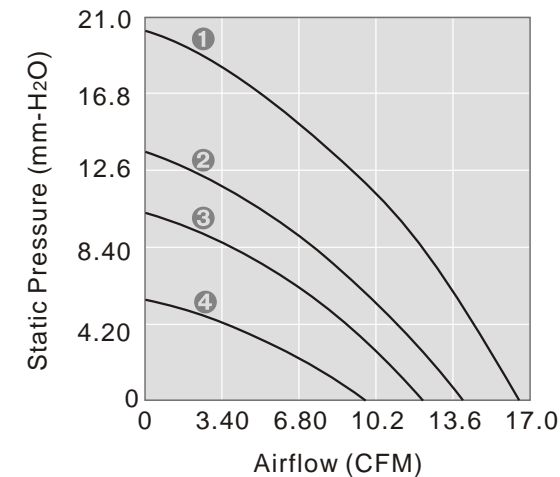
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

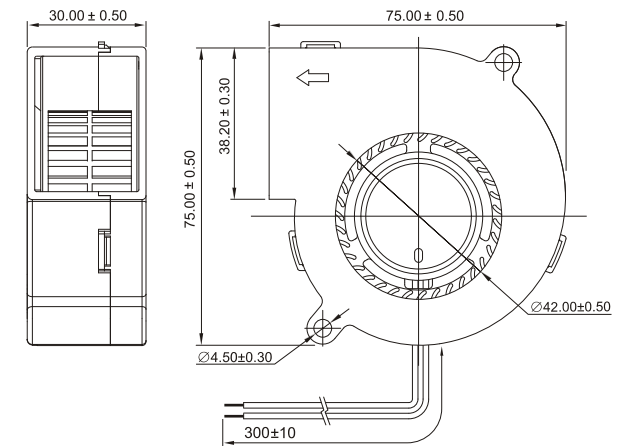
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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97x97x33mm

- Airflow: 25.6~32.4 CFM
- Static Pressure: 22.1~28.1 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 156.7 g



40x40x28mm

- Airflow: 10.3~25.9 CFM
- Static Pressure: 7.9~39.0 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 45.1 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
BD127530LB	2B	12	7~13.2	2600	25.6	22.1	400	4.80	80000	3	40.0
BD127530MB	2B	12	7~13.2	2900	28.5	24.7	480	5.76	80000	2	42.5
BD127530HB	2B	12	7~13.2	3300	32.4	28.1	740	8.88	75000	1	48.5
BD247530LB	2B	24	12~26.4	2600	25.6	22.1	210	5.04	80000	3	40.0
BD247530MB	2B	24	12~26.4	2900	28.5	24.7	280	6.72	80000	2	42.5
BD247530HB	2B	24	12~26.4	3300	32.4	28.1	420	10.08	75000	1	48.5

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD124028LB -P	2B	12	7~13.2	5000	10.3	7.9	90	1.08	80000	7	24.5
FD124028MB-P	2B	12	7~13.2	7000	13.0	12.0	150	1.80	80000	6	34.5
FD124028HB-P	2B	12	7~13.2	8000	14.4	14.6	180	2.16	75000	5	37.5
FD124028EB-P	2B	12	7~13.2	9500	16.5	18.9	260	3.12	65000	4	41.0
FD124028EB-P	2B	12	7~13.2	11000	19.0	26.2	460	5.52	65000	3	47.0
FD124028EB-P	2B	12	7~13.2	13000	21.4	31.9	550	6.60	65000	2	49.5
FD124028EB-P	2B	12	7~13.2	16000	25.9	39.0	750	9.00	65000	1	51.5
FD244028LB -P	2B	24	12~26.4	5000	10.3	7.9	80	1.92	80000	7	24.5
FD244028MB-P	2B	24	12~26.4	7000	13.0	12.0	90	2.04	80000	6	34.5
FD244028HB-P	2B	24	12~26.4	8000	14.4	14.6	160	3.84	75000	5	37.5
FD244028EB-P	2B	24	12~26.4	9500	16.5	18.9	200	4.80	65000	4	41.0
FD244028EB-P	2B	24	12~26.4	11000	19.0	26.2	280	6.72	65000	3	47.0
FD244028EB-P	2B	24	12~26.4	13000	21.4	31.9	430	10.32	65000	2	49.5

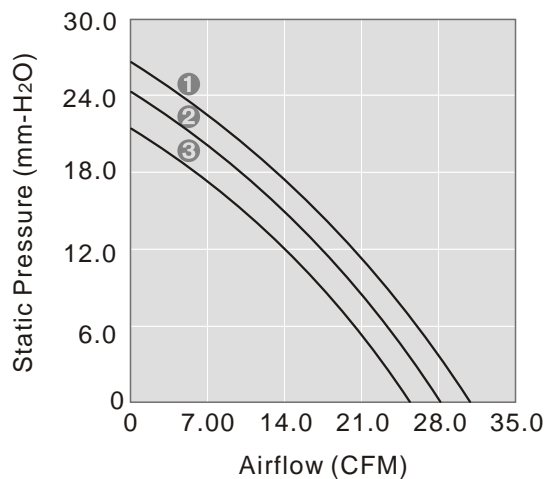
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

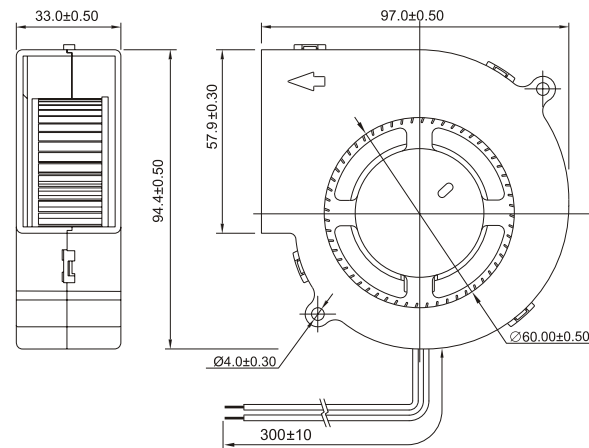
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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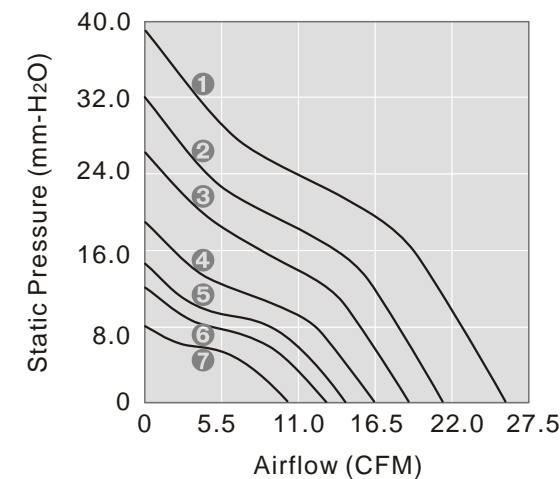
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

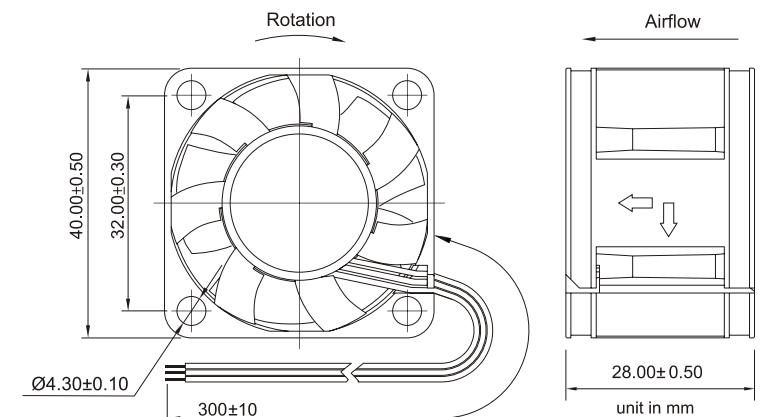
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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40x40x56mm

- Airflow: 25.5 CFM
- Static Pressure: 40.3 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #26 AWG
- Weight: 90.2 g



60x60x38mm

- Airflow: 26.7~45.5 CFM
- Static Pressure: 8.1~22.9 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 115.6 g

Model No.	Bearing	Rated Voltage	Operating Voltage Range	Speed	Max. Airflow	Max. Static Pressure	Current	Power Consumption	Life at 40°C L10	P-Q Curve	Noise Level
	VDC	VDC	RPM	CFM	mm-H ₂ O	mA	W	Hour			
FD124056EB -P	2B	12	7~13.2	14000	25.5	40.3	1180	14.16	65000	1	60.5
FD244056EB -P	2B	24	12~26.4	14000	25.5	40.3	590	14.16	65000	1	60.5

Model No.	Bearing	Rated Voltage	Operating Voltage Range	Speed	Max. Airflow	Max. Static Pressure	Current	Power Consumption	Life at 40°C L10	P-Q Curve	Noise Level
	VDC	VDC	RPM	CFM	mm-H ₂ O	mA	W	Hour			
FD126038LB -P	2B	12	7~13.2	4500	26.7	8.1	190	2.28	80000	4	41.0
FD126038MB -P	2B	12	7~13.2	5500	32.6	12.2	260	2.16	80000	3	47.0
FD126038HB -P	2B	12	7~13.2	6500	38.5	16.5	450	2.52	75000	2	51.0
FD126038EB -P	2B	12	7~13.2	7500	45.5	22.9	720	3.48	65000	1	55.0
FD246038LB -P	2B	24	12~26.4	4500	26.7	8.1	110	2.64	80000	4	41.0
FD246038MB -P	2B	24	12~26.4	5500	32.6	12.2	170	4.08	80000	3	47.0
FD246038HB -P	2B	24	12~26.4	6500	38.5	16.5	250	6.00	75000	2	51.0
FD246038EB -P	2B	24	12~26.4	7500	45.5	22.9	360	8.64	65000	1	55.0
FD486038LB -P	2B	48	24~56.0	4500	26.7	8.1	70	3.36	80000	4	41.0
FD486038MB -P	2B	48	24~56.0	5500	32.6	12.2	90	4.32	80000	3	47.0
FD486038HB -P	2B	48	24~56.0	6500	38.5	16.5	130	6.24	75000	2	51.0
FD486038EB -P	2B	48	24~56.0	7500	45.5	22.9	190	9.12	65000	1	55.0

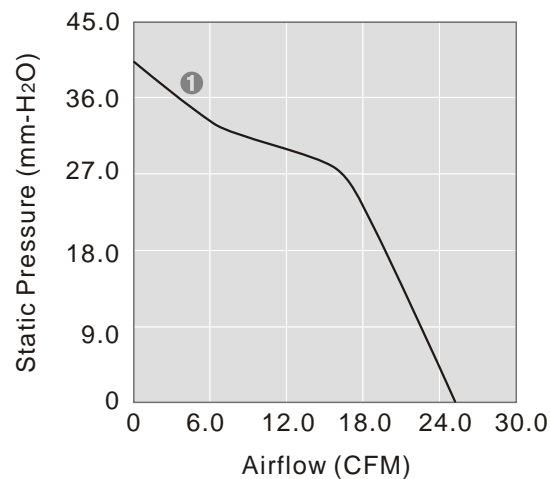
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

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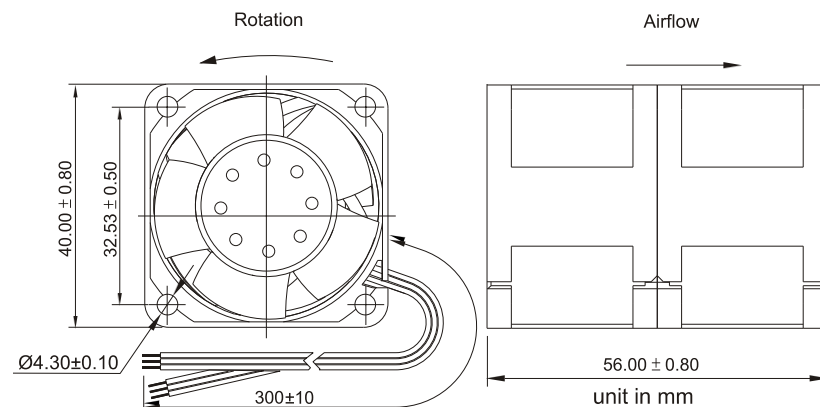
Voltage Available: 05 12 24 48
 Bearing System Available: 2B L S
 Function Available: N A I F R Q S T M V C P D W U

Voltage Available: 05 12 24 48
 Bearing System Available: 2B L S
 Function Available: N A I F R Q S T M V C P D W U

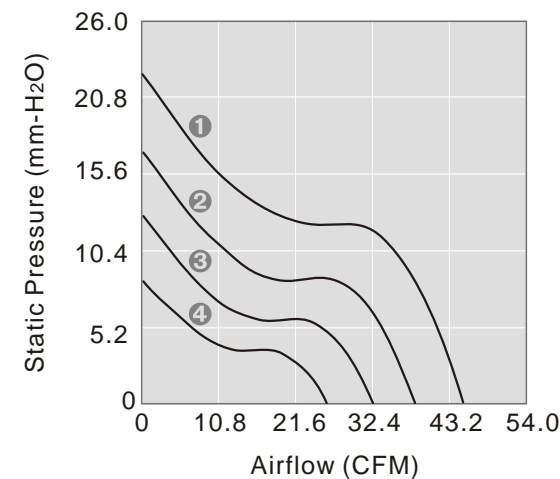
PERFORMANCE P-Q CURVE



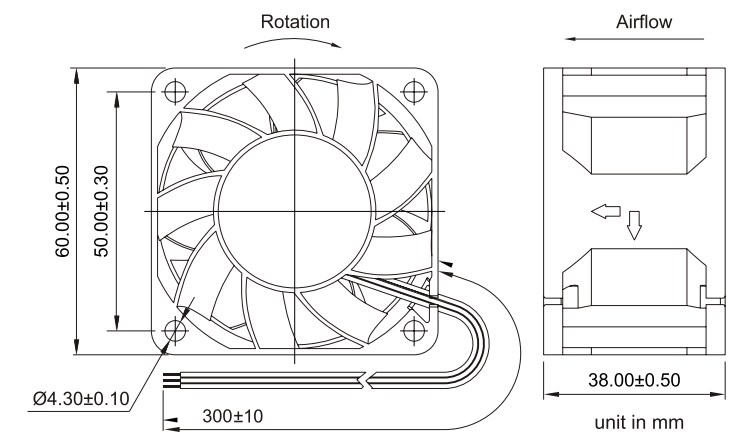
OUTLINE DIMENSIONS



PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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80x80x32mm

- Airflow: 48.6~80.5 CFM
- Static Pressure: 13.5~22.3 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 148.2 g



80x80x38mm

- Airflow: 47.6~81.2 CFM
- Static Pressure: 7.5~20.5 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 172.6 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD128032LB-P	2B	12	7~13.2	3500	48.6	13.5	240	2.88	80000	4	45.0
FD128032MB-P	2B			4200	58.3	16.2	350	4.20	80000	3	49.0
FD128032HB-P	2B			5000	69.4	19.2	650	7.80	75000	2	53.0
FD128032EB-P	2B			5800	80.5	22.3	880	10.56	65000	1	56.0
FD248032LB-P	2B	24	12~26.4	3500	48.6	13.5	150	3.60	80000	4	45.0
FD248032MB-P	2B			4200	58.3	16.2	220	5.28	80000	3	49.0
FD248032HB-P	2B			5000	69.4	19.2	330	7.92	75000	2	53.0
FD248032EB-P	2B			5800	80.5	22.3	450	10.80	65000	1	56.0

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD128038LB-P	2B	12	7~13.2	3400	47.6	7.5	240	2.88	80000	4	41.5
FD128038MB-P	2B			4200	58.9	11.2	380	4.56	80000	3	47.0
FD128038HB-P	2B			4900	69.2	15.2	580	6.96	75000	2	51.5
FD128038EB-P	2B			5700	81.2	20.5	800	9.60	65000	1	55.0
FD128038UB-P	2B	24	7~13.2	8000	116.0	37.2	2000	24.0	65000	1	62.5
FD248038LB-P	2B			3400	47.6	7.5	130	3.12	80000	4	41.5
FD248038MB-P	2B			4200	58.9	11.2	200	4.80	80000	3	47.0
FD248038HB-P	2B			4900	69.2	15.2	280	6.72	75000	2	51.5
FD248038EB-P	2B	48	12~26.4	5700	81.2	20.5	420	10.08	65000	1	55.0
FD488038LB-P	2B			3400	47.6	7.5	80	3.84	80000	4	41.5
FD488038MB-P	2B			4200	58.9	11.2	110	5.28	80000	3	47.0
FD488038HB-P	2B			4900	69.2	15.2	150	7.20	75000	2	51.5
FD488038EB-P	2B	2B	24~56.0	5700	81.2	20.5	200	9.60	65000	1	55.0

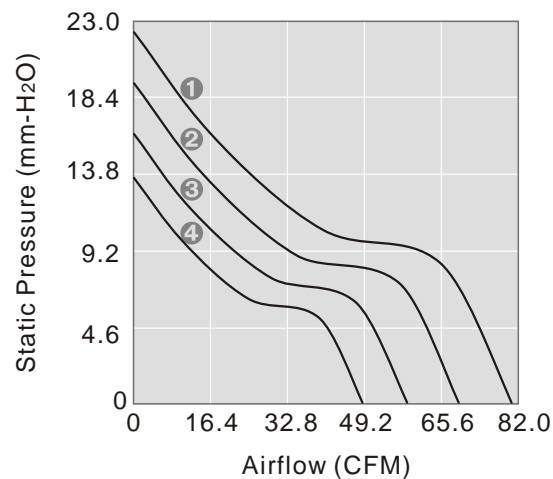
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

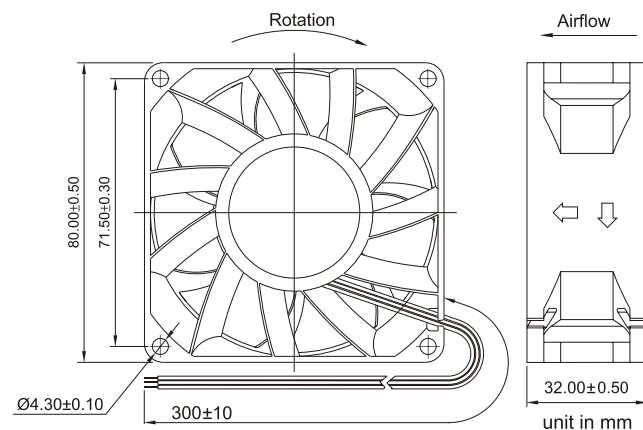
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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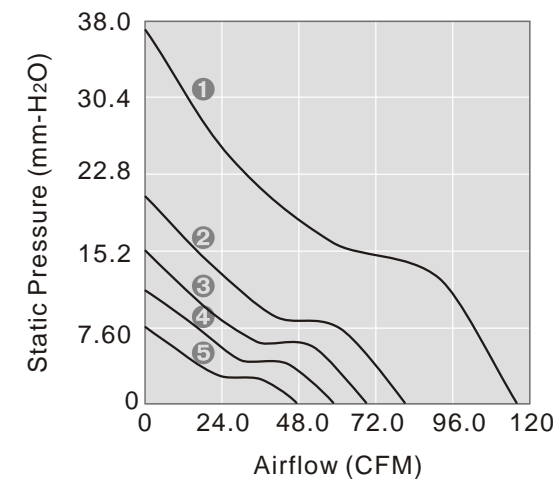
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

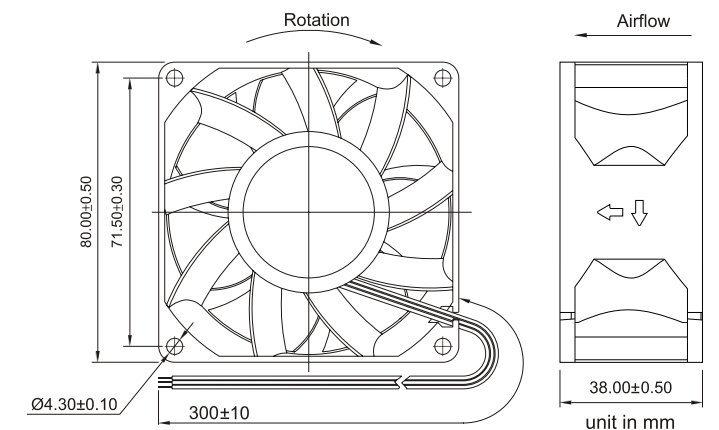
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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92x92x38mm

- Airflow: 80.5~117.3 CFM
- Static Pressure: 7.8~15.5 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #24 AWG
- Weight: 198.4 g



120x120x38mm

- Airflow: 194.4~315.3 CFM
- Static Pressure: 31.1~50.5 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T.
- Lead Wire: UL1007 #22 AWG
- Weight: 400 g

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD129238LB-P	2B	12	7~13.2	3300	80.5	7.8	450	5.40	80000	4	48.0
FD129238MB-P	2B	12	7~13.2	3800	92.6	10.9	640	7.68	80000	3	51.0
FD129238HB-P	2B	12	7~13.2	4300	102.9	11.9	950	11.40	75000	2	55.0
FD129238EB-P	2B	12	7~13.2	4900	117.3	15.5	1200	14.40	65000	1	57.0
FD249238LB-P	2B	24	12~26.4	3300	80.5	7.8	250	6.00	80000	4	48.0
FD249238MB-P	2B	24	12~26.4	3800	92.6	10.9	350	8.40	80000	3	51.0
FD249238HB-P	2B	24	12~26.4	4300	102.9	11.9	470	11.28	75000	2	55.0
FD249238EB-P	2B	24	12~26.4	4900	117.3	15.5	600	14.40	65000	1	57.0
FD489238LB-P	2B	48	24~56.0	3300	80.5	7.8	130	6.24	80000	4	48.0
FD489238MB-P	2B	48	24~56.0	3800	92.6	10.9	170	8.16	80000	3	51.0
FD489238HB-P	2B	48	24~56.0	4300	102.9	11.9	240	11.52	75000	2	55.0
FD489238EB-P	2B	48	24~56.0	4900	117.3	15.5	290	13.92	65000	1	57.0

Model No.	Bearing	Rated Voltage VDC	Operating Voltage Range VDC	Speed RPM	Max. Airflow CFM	Max. Static Pressure mm-H ₂ O	Current mA	Power Consumption W	Life at 40°C L10 Hour	P-Q Curve	Noise Level dB(A)
FD121238LB-P	2B	12	8~13.2	4000	194.4	31.1	2200	26.40	80000	5	64.0
FD121238MB-P	2B	12	8~13.2	4400	213.7	34.2	2600	31.20	80000	4	66.0
FD241238LB-P	2B	24	15~27.0	4000	194.4	31.1	900	21.60	80000	5	64.0
FD241238MB-P	2B	24	15~27.0	4400	213.7	34.2	1200	28.80	80000	4	66.0
FD241238HB-P	2B	24	15~27.0	5100	247.6	39.6	1600	38.40	65000	3	69.5
FD241238EB-P	2B	24	15~27.0	5800	281.5	45.1	2500	60.00	65000	2	72.5
FD481238LB-P	2B	48	35~56.0	4000	194.4	31.1	500	24.00	80000	5	64.0
FD481238MB-P	2B	48	35~56.0	4400	213.7	34.2	570	27.36	80000	4	66.0
FD481238HB-P	2B	48	35~56.0	5100	247.6	39.6	860	41.28	75000	3	69.5
FD481238EB-P	2B	48	35~56.0	5800	281.5	45.1	1200	57.60	65000	2	72.5
FD481238EB-P	2B	48	35~56.0	6500	315.3	50.5	1500	72.00	65000	1	74.5

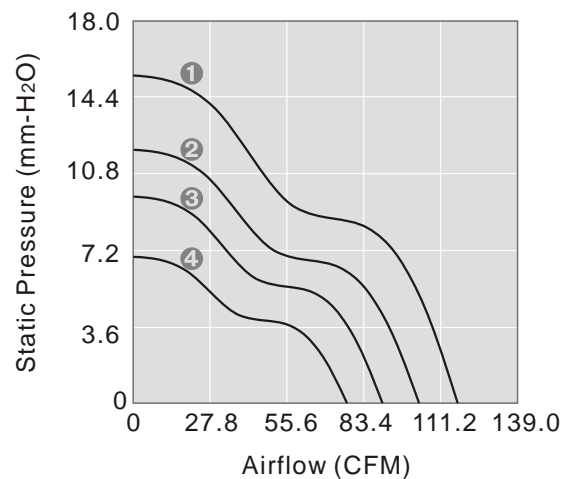
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

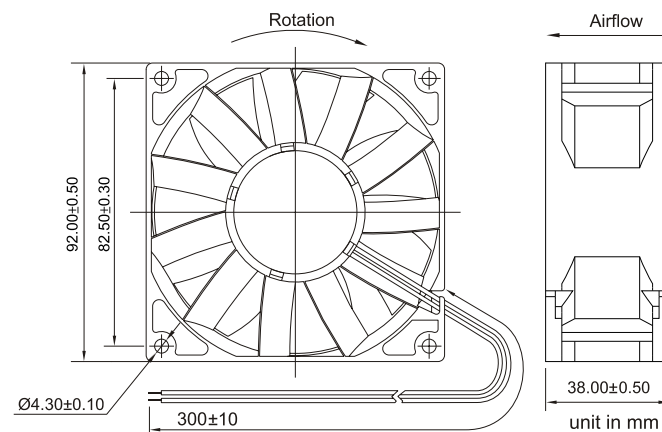
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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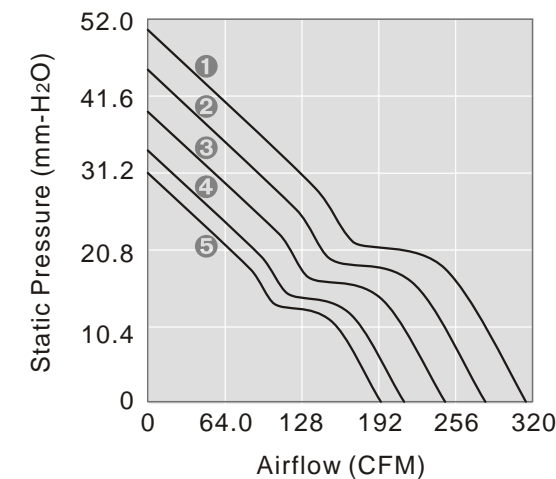
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

Voltage Available
05 12 24 48

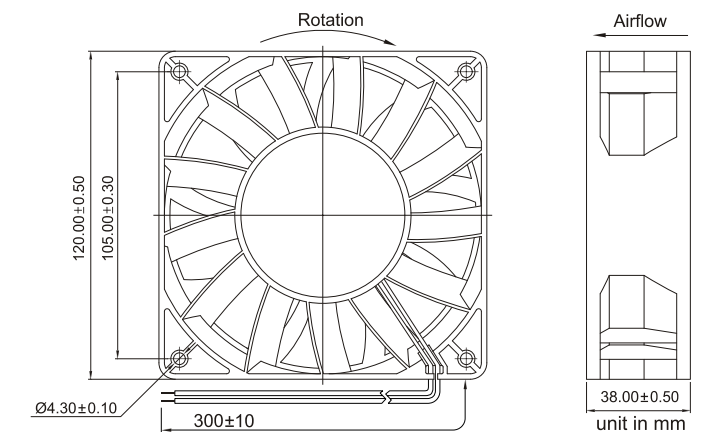
Bearing System Available
2B L S

Function Available
N A I F R Q S T M V C P D W U

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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120x120x38mm

- Airflow: 88.0~142.0 CFM
- Static Pressure: 8.4~20.0 mm-H₂O
- Blade / Housing: Plastic Material UL 94V-0 P.B.T. Frame: Die-Casting Aluminum
- Lead Wire: UL1007 #22 AWG
- Weight: 396.8 g



80x80x25mm

- Airflow: 37.1~53.5 CFM
- Static Pressure: 4.5~6.6 mm-H₂O
- Blade: Plastic Material UL 94V-0 P.B.T. Frame: Die-Casting Aluminum
- Weight: 138 g

Model No.	Bearing	Rated Voltage	Operating Voltage Range	Speed	Max. Airflow	Max. Static Pressure	Current	Power Consumption	Life at 40°C L10	P-Q Curve	Noise Level
		VDC	VDC	RPM	CFM	mm-H ₂ O	mA	W	Hour		dB(A)
FD121238LB-R	2B		7~13.2	2800	88.0	8.4	270	3.24	80000	5	45.5
FD121238MB-R	2B	12	7~13.2	3200	100.9	10.5	360	4.32	80000	4	47.0
FD121238HB-R	2B		7~13.2	3600	113.9	13.0	520	6.24	75000	3	51.0
FD121238EB-R	2B		7~13.2	4000	127.0	16.0	700	8.40	65000	2	55.0
FD121238EB-R	2B		7~13.2	4500	142.0	20.0	950	11.40	65000	1	58.5
FD241238LB-R	2B		12~26.4	2800	88.0	8.4	145	3.48	80000	5	45.5
FD241238MB-R	2B	24	12~26.4	3200	100.9	10.5	195	4.68	80000	4	47.0
FD241238HB-R	2B		12~26.4	3600	113.9	13.0	270	6.48	75000	3	51.0
FD241238EB-R	2B		12~26.4	4000	127.0	16.0	370	8.88	65000	2	55.0
FD241238EB-R	2B		12~26.4	4500	142.0	20.0	520	12.48	65000	1	58.5
FD481238LB-R	2B		24~56.0	2800	88.0	8.4	100	4.80	80000	5	45.5
FD481238MB-R	2B	48	24~56.0	3200	100.9	10.5	130	6.24	80000	4	47.0
FD481238HB-R	2B		24~56.0	3600	113.9	13.0	170	8.16	75000	3	51.0
FD481238EB-R	2B		24~56.0	4000	127.0	16.0	200	9.60	65000	2	55.0
FD481238EB-R	2B		24~56.0	4500	142.0	20.0	270	12.96	65000	1	58.5

Model No.	Bearing	Rated Voltage	Freq	Speed	Max. Airflow	Max. Static Pressure	Current	Power Consumption	Life at 40°C L10	P-Q Curve	Noise Level
		VAC	Hz	RPM	CFM	mm-H ₂ O	A	W	Hour		dB(A)
FV18025LBA	2B		50/60	2800/3200	38.6/44.1	3.9/4.4	0.11/0.13	1.90/2.40	50000	4/3	34.0/38.5
FV18025MBA	2B	110	50/60	3200/3600	44.1/49.6	4.4/5.7	0.15/0.17	2.80/3.60	50000	3/2	38.5/42.0
FV18025HBA	2B		50/60	3600/4000	49.6/55.1	5.7/6.6	0.16/0.19	3.40/4.30	50000	2/1	42.0/45.5
FV28025LBA	2B		50/60	2800/3200	38.6/44.1	3.9/4.4	0.11/0.13	2.80/3.40	50000	4/3	34.0/38.5
FV28025MBA	2B	220	50/60	3200/3600	44.1/49.6	4.4/5.7	0.14/0.17	3.80/4.80	50000	3/2	38.5/42.0
FV28025HBA	2B		50/60	3600/4000	49.6/55.1	5.7/6.6	0.15/0.18	4.30/5.30	50000	2/1	42.0/45.5

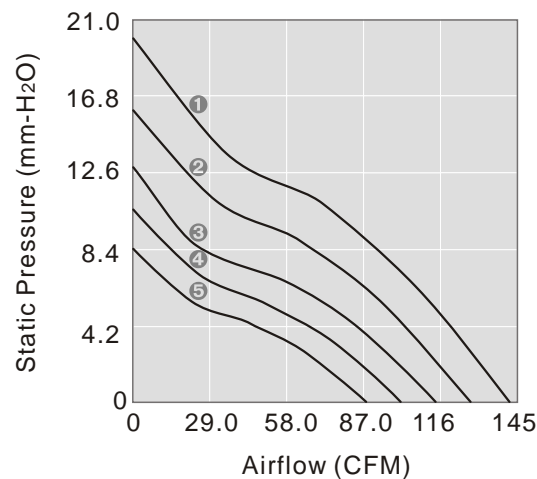
2B: 2-ball bearing BS: 1-ball 1-sleeve bearing L: sintetico bearing S: sleeve bearing

2B: 2-ball bearing S: sleeve bearing

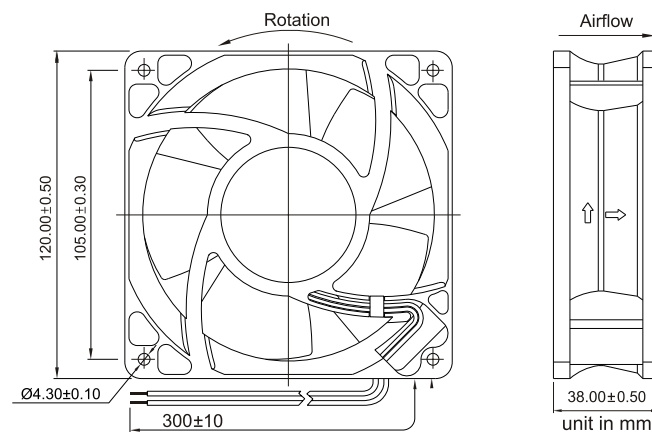
Voltage Available: 05 12 24 48 Bearing System Available: 2B L S Function Available: N A I F R Q S T M V C P D W U

Voltage Available: 115 230 Bearing System Available: 2B S

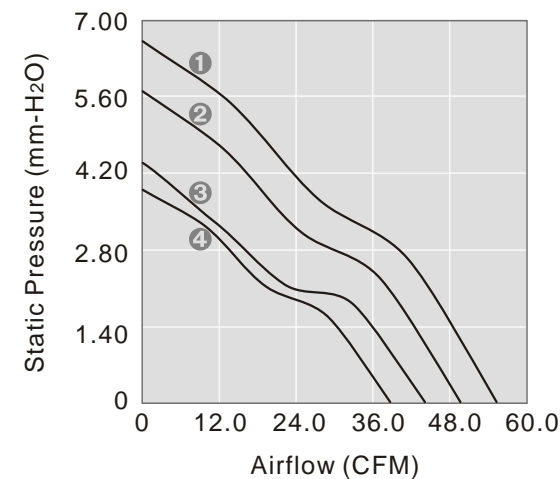
PERFORMANCE P-Q CURVE



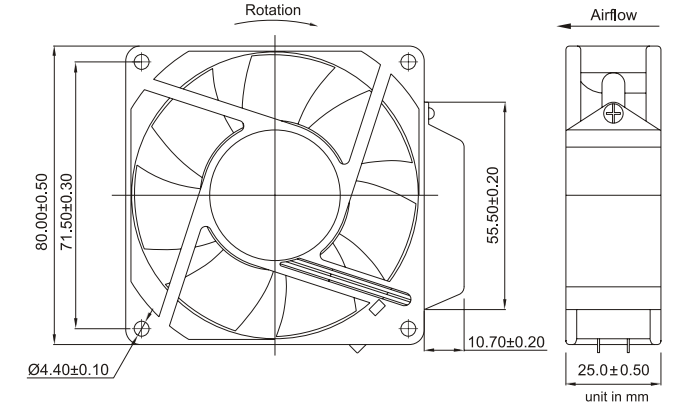
OUTLINE DIMENSIONS



PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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120x120x38mm

- Airflow: 97.0~115.0 CFM
- Static Pressure: 6.86~8.64 mm-H₂O
- Blade: Plastic Material UL 94V-0 P.B.T.
- Frame: Die-Casting Aluminum
- Weight: 220 g



172x150x51mm

- Airflow: 202~240.0 CFM
- Static Pressure: 16.26~18.29 mm-H₂O
- Blade: Plastic Material UL 94V-0 P.B.T.
- Frame: Die-Casting Aluminum
- Weight: 908 g

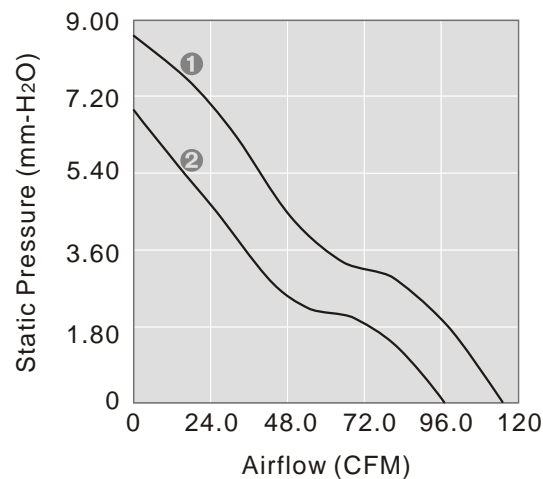
Model No.	Bearing	Rated Voltage	Freq	Speed	Max. Airflow	Max. Static Pressure	Current	Power Consumption	Life at 40°C L10	P-Q Curve	Noise Level
	VAC	VAC	Hz	RPM	CFM	mm-H ₂ O	A	W	Hour		dB(A)
FA112038HBT	2B	115	50/60	2700/3150	97/115	6.86/8.64	0.21/0.18	17.0/15.5	50000	1/2	47.0/49.0
FA112038HBL	2B										
FA212038HBT	2B	230	50/60	2700/3150	97/115	6.86/8.64	0.12/0.12	20.5/17.0	50000	1/2	47.0/49.0
FA212038HBL	2B										

Model No.	Bearing	Rated Voltage	Freq	Speed	Max. Airflow	Max. Static Pressure	Current	Power Consumption	Life at 40°C L10	P-Q Curve	Noise Level
	VAC	VAC	Hz	RPM	CFM	mm-H ₂ O	A	W	Hour		dB(A)
FA117251HBT	2B	115	50/60	2800/3200	202/240	16.26/18.29	0.22/0.23	25.0/27.0	50000	2/1	51.0/58.0
FA117251HBL	2B										
FA217251HBT	2B	230	50/60	2800/3200	202/240	16.26/18.29	0.12/0.12	25.0/27.0	50000	2/1	51.0/58.0
FA217251HBL	2B										

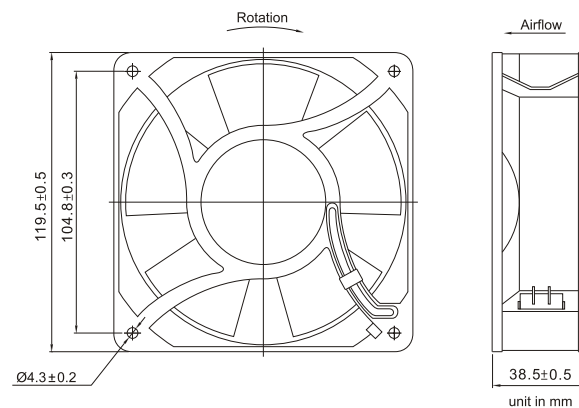
2B: 2-ball bearing S: sleeve bearing

Voltage Available **115 230** Bearing System Available **2B S**

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS

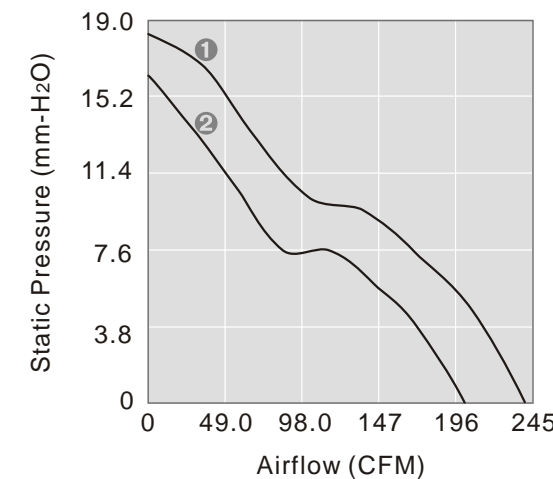


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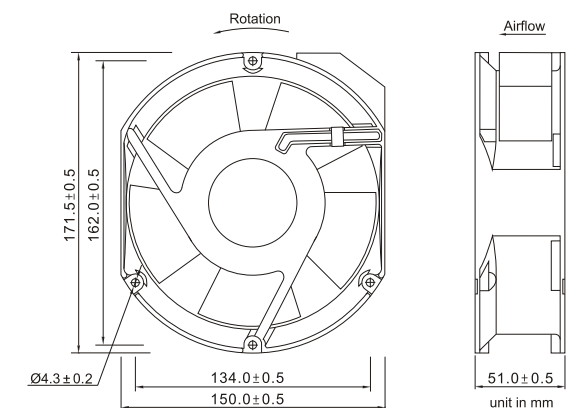
2B: 2-ball bearing S: sleeve bearing

Voltage Available **115 230** Bearing System Available **2B S**

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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Ø 254x89mm

- Airflow: 600.0~730.0 CFM
- Static Pressure: 5.59~8.89 mm-H₂O
- Blade: Plastic Material UL 94V-0 P.B.T.
- Frame: Die-Casting Aluminum
- Weight: 2000 g

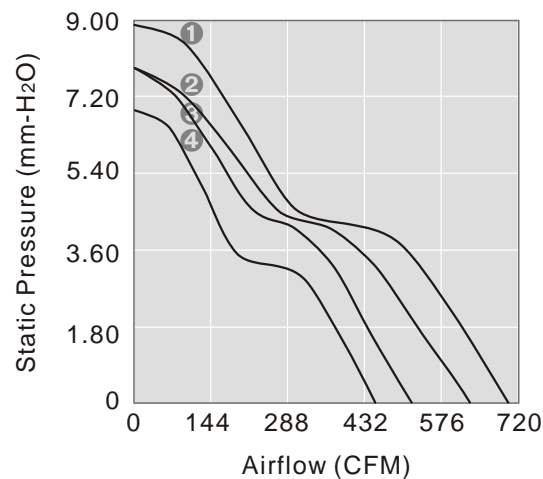
Model No.	Bearing	Rated Voltage	Freq	Speed	Max. Airflow	Max. Static Pressure	Current	Power Consumption	Life at 40°C L10	P-Q Curve	Noise Level
	VAC	Hz	RPM	CFM	mm-H ₂ O	A	W	Hour			dB(A)
FA125489MBT 2B	115	50/60	1400/1600	450/520	6.86/7.87	0.22/0.23	23.0/26.0	50000	4/3	53.0/55.0	
FA125489MBL 2B				450/520	6.86/7.87	0.22/0.23	23.0/26.0	50000	4/3	53.0/55.0	
FA125489HBT 2B				700/630	8.89/7.87	0.55/0.62	63.0/72.0	50000	1/2	60.0/58.0	
FA125489HBL 2B	230	50/60	2100/1900	700/630	8.89/7.87	0.55/0.62	63.0/72.0	50000	1/2	60.0/58.0	
FA225489MBT 2B				450/520	6.86/7.87	0.15/0.13	30.0/30.0	50000	4/3	53.0/55.0	
FA225489MBL 2B				450/520	6.86/7.87	0.15/0.13	30.0/30.0	50000	4/3	53.0/55.0	
FA225489HBT 2B	230	50/60	2100/1900	700/630	8.89/7.87	0.26/0.30	56.0/60.0	50000	1/2	60.0/58.0	
FA225489HBL 2B				700/630	8.89/7.87	0.26/0.30	56.0/60.0	50000	1/2	60.0/58.0	

2B: 2-ball bearing S: sleeve bearing

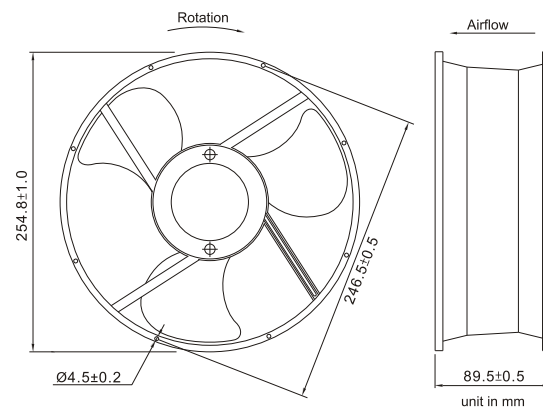
Voltage Available
115 230

Bearing System Available
2B S

PERFORMANCE P-Q CURVE



OUTLINE DIMENSIONS



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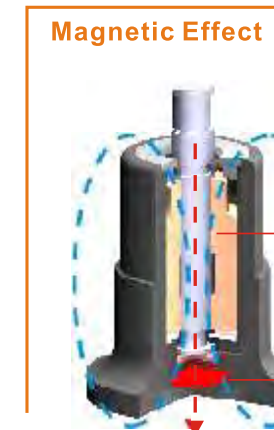


SINETICO bearing system makes more reliable & stable

- The particular mechanism for oil leakage prevention makes proper oil film on surface of bearing and shaft to reduced damage when fan start up.
- Dynamic Pressure Field will be constructed when fan are running to sustain shaft rotate with concentricity to prevent bearing will not collided with shaft.
- Magnetic Effect makes shaft always working more smoothly to decrease Gyro Effect. That also decreases the probability of bearing collided with shaft and prevent oil film was damaged.



The Gyro Effect Short the Life of Bearing and More Vibration Unstable!



Bearing HDB Oil Reservoir

Magnet

Magnetic Effect makes shaft always working more smoothly to decrease Gyro Effect. That also decrease the probability of bearing collided with shaft and prevent oil film was damaged.

T.M.D. TECHNOLOGY

Advantages fo T.M.D. Technology

1. The patent of Tip Driving Magnetic design result in higher torque and make lower power consumption. The patent of impeller rotor with diversion ring to decrease acoustic noise that made by the flow field to fit an application of Coupling Heat Dissipation Devices.
2. External circuit design result in optimal reliability and safety when fan working in a worse ambient.



T.M.D. FAN II
LEPTON Series

