



PBM Motor and Fan (Suzhou) Co., Ltd

No.69 Weixin Road,Suzhou Industrial Park,Suzhou, City,Jiangsu Province,P.R.China

Tel: +86 512 6858 1674

Fax: +86 512 6858 1574

Sales Department: sales@pbmmf.com

After Sales Department: daniel@pbmmf.com



PBM MOTOR AND FAN(SUZHOU) CO.,LTD



Axial Fan



Backward & Forward Curved Centrifugal Fan



Blower

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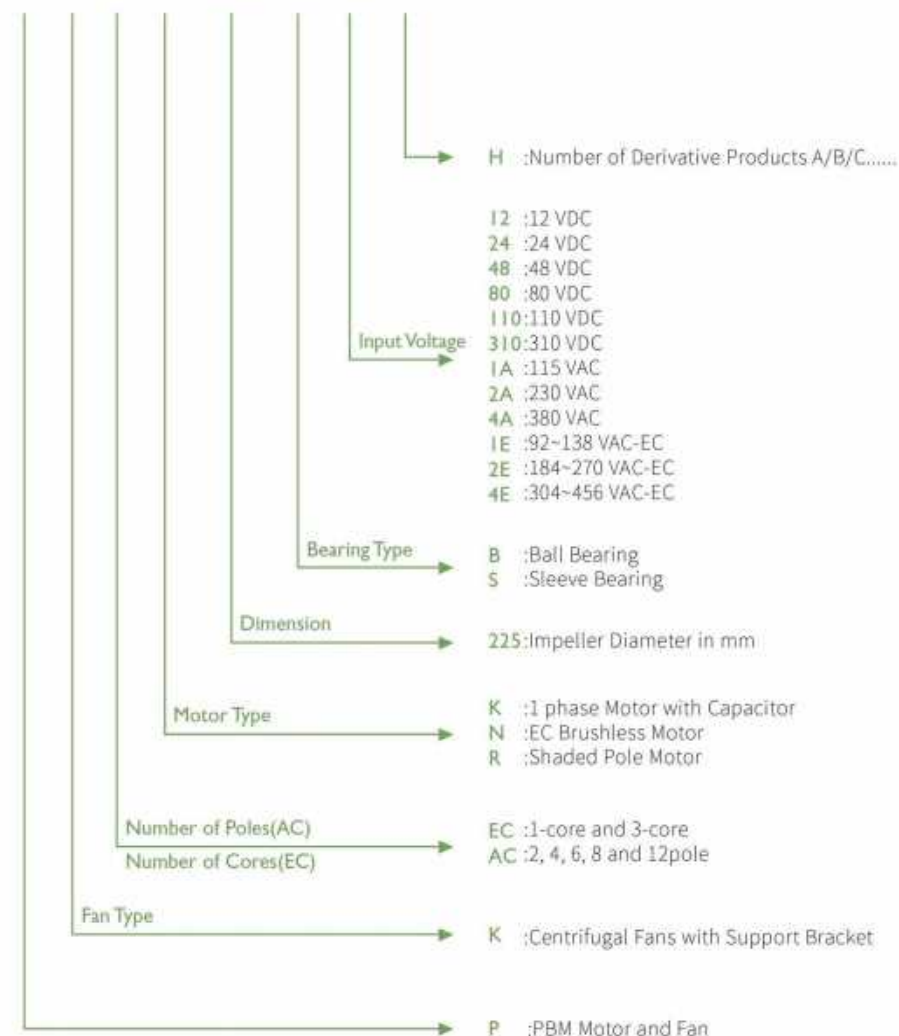
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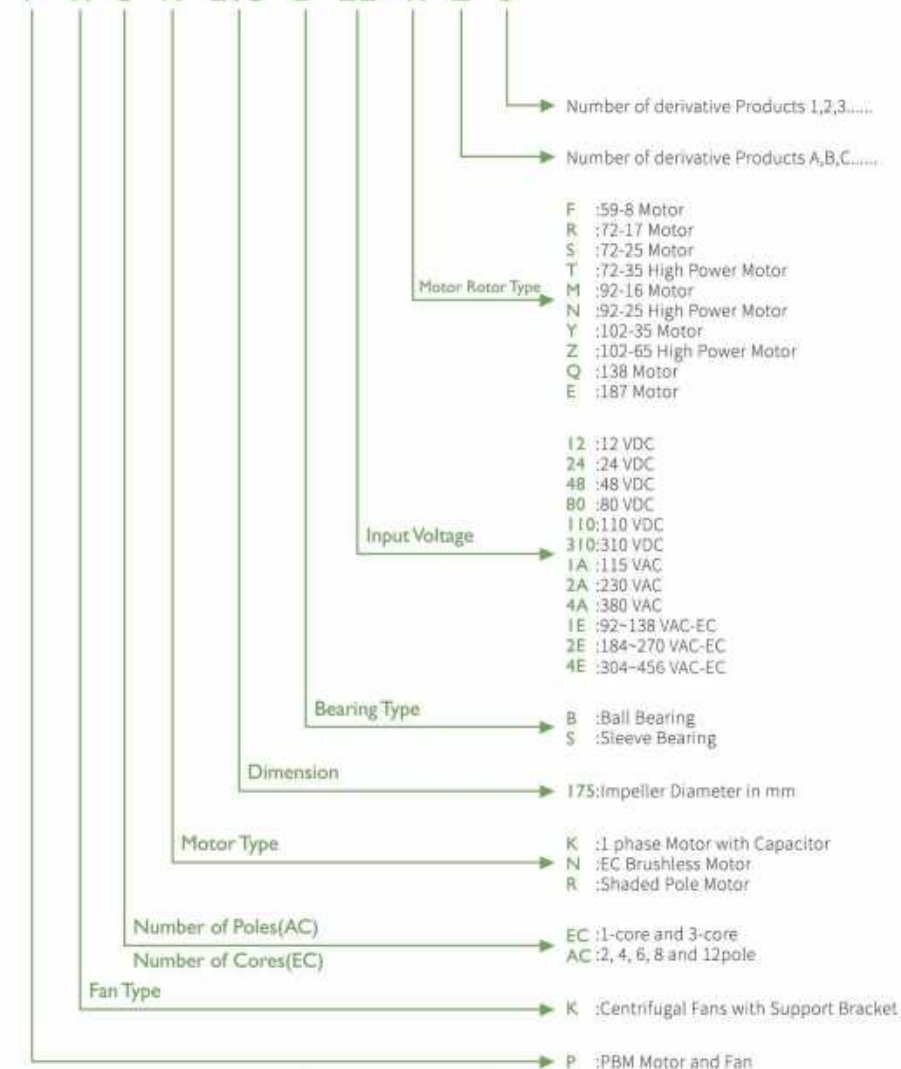
IP44 Part Number System

P K 3 N 225 B 48 H



IP55 Part Number System

P K 3 N 175 B 2E - R Z 0



About us



Company Profile

PBM is a China mainland EC(Electronically Commutated) brushless motor manufacturing and technology consulting company offering an extensive range of EC motors, fans and intelligent ventilation solutions for air-moving precisely and constantly with maintenance-free throughout the life cycle of products in last decades.

R&D and Technical Support

Our R&D and technical support team commits to combine interactively external motor technology, integrated electronic control circuit and aerodynamic design of fan impeller that satisfied customers' requirements in different applications by innovative fan solutions, with leading experiment equipment, meters, tools in laboratory for motor reliability and fan air performance testing. We are pursuing extremely compact brushless permanent magnet synchronous external rotor motor to drive various impeller types and sizes: diagonal axial, backward and forward curved centrifugal, radial, single inlet and dual inlet blower, tangential, cross flow, from minimum 30mm to 560mm diameter with airflow maximum to 12,000CMH cubic meter per hour (equal to approx. 7,000CFM cubic feet per minutes). Maximum motor input power goes to 1.5KW (equal to 2 horsepower) at rotor diameter 138mm.

Production and Quality Control

Economical efficient supply chain guarantees our manufacturing team and quality management team could constantly offer stable products within promised competitive lead time. We continuously invest on semi-automatic or automatic motor and fan assembly lines, equipment, fixtures and jigs to enhance our cost advantage production capability. Not only adopted in ISO9001 Quality Management System ISO 14000 Environment Management System and ISO 45001 Occupational Health and Safety Management system, but also adopted in a long-term Eco-friendly and People-oriented sustainable development of company for last 10 years.

Marketing and Sales

Hundreds of worldwide ventilation, refrigeration, air purification, home appliance, companies from more than fifty countries are adopting PBM EC green-tech motorized fans in their product units and systems that were protecting natural environment and indoor environment of our home to be sustainable green and clean. Our agent and distributor network and online service team covered popular EC fan markets to ensure prompt technical support.

Vision and Mission

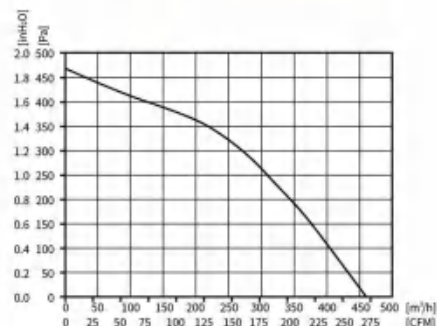
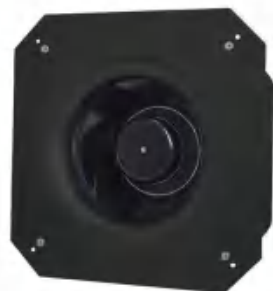
Focus on EC fan only and protect our world with intelligent energy efficient motor and fan solutions are our goal in an attempt to make tomorrow a greener & healthier world.



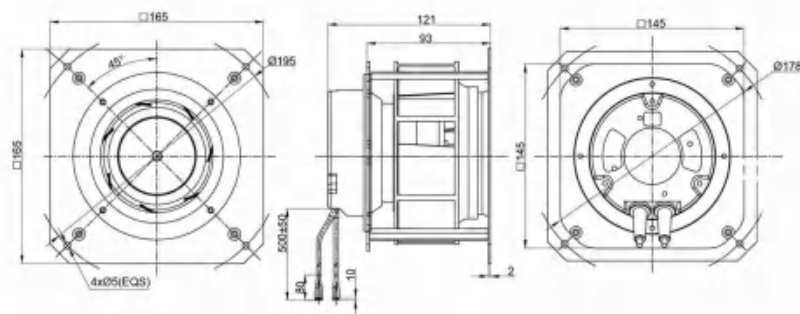
IP44 Type



EC Fan with Support Bracket 165x165x121mm

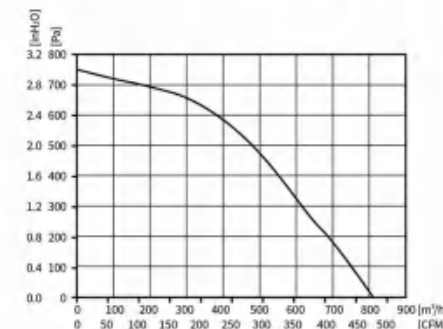


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EC BRUSHLESS EXTERNAL MOTOR MOTOR	0-10VDC/PWM	IP44	B	-25°C~+60°C	3.06KG	E1

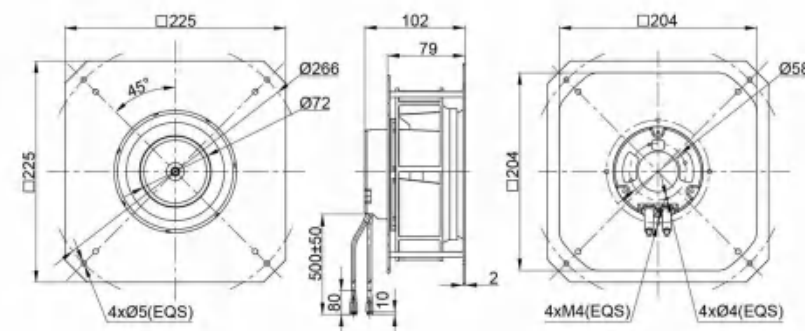


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N133B2EH	BE72EC	BALL	230	50/60	0.33	48	4480	460	475	75

EC Fan with Support Bracket 225x225x102mm

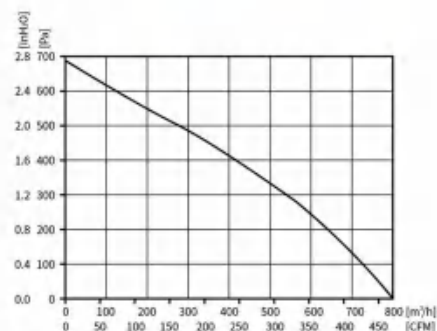
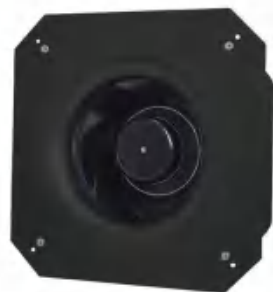


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EC BRUSHLESS EXTERNAL MOTOR MOTOR	0-10VDC/PWM	IP44	B	-25°C~+60°C	3.35KG	E1

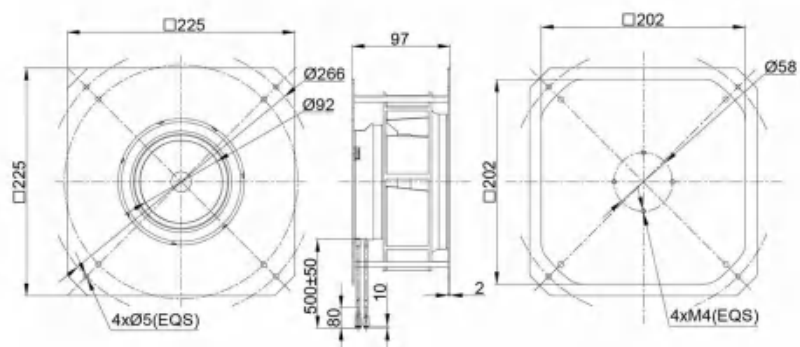


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N175B2EH	BE72EC	BALL	230	50/60	0.85	105	4480	810	744	76

EC Fan with Support Bracket 225x225x97mm

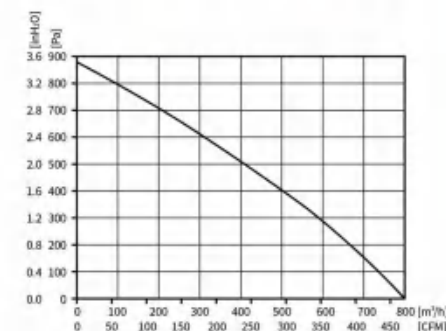


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL MOTOR	0-10VDC/PWM	IP44	B	-25°C ~ +60°C	3.45KG	E1

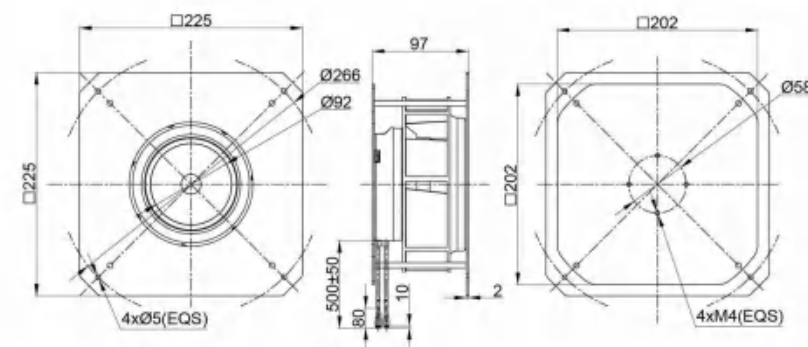


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N190B2EM	BE72EC	BALL	230	50/60	0.7	93	3570	795	686	72

EC Fan with Support Bracket 225x225x102mm

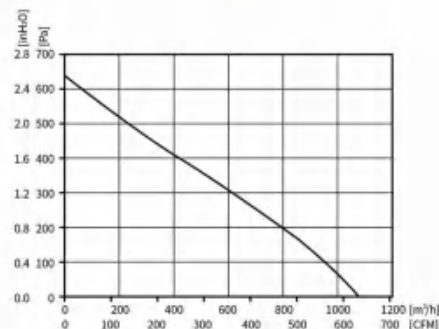
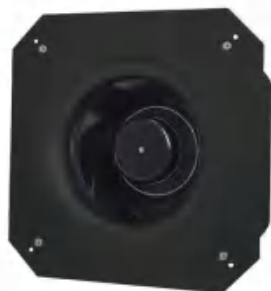


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL MOTOR	0-10VDC/PWM	IP44	B	-25°C ~ +60°C	3.45KG	E2

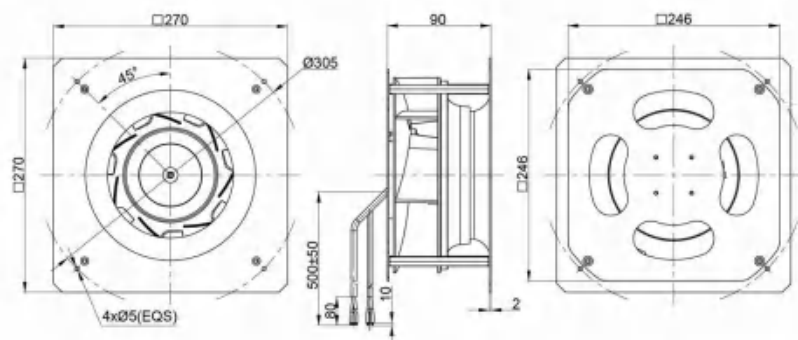


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N190B2EH	BE92EC	BALL	230	50/60	1	140	4000	800	882	74

EC Fan with Support Bracket 270x270x90mm

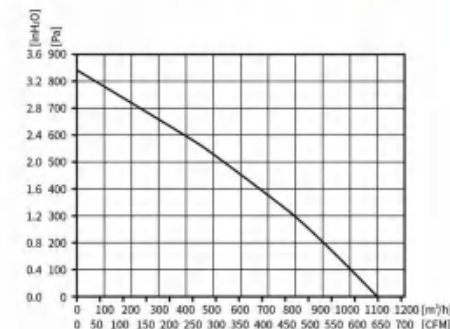
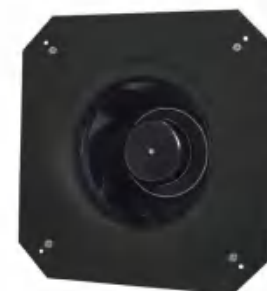


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL ROTOR MOTOR	0-10VDC/PWM	IP44	B	-25°C~+60°C	3.68KG	E1

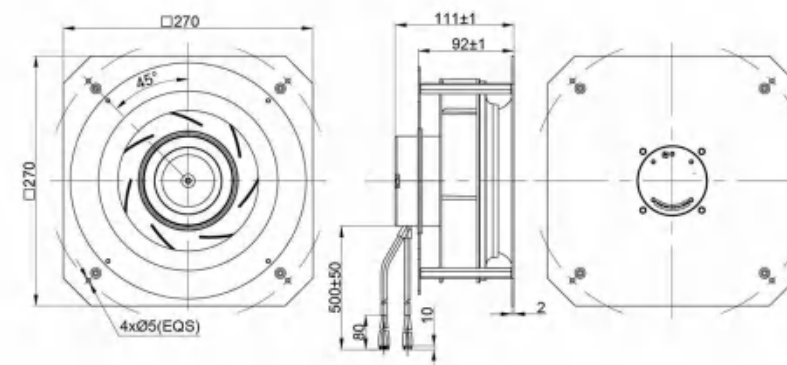


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N220B2EM	BE72EC	BALL	230	50/60	0.8	95	3060	1080	648	71

EC Fan with Support Bracket 270x270x111mm

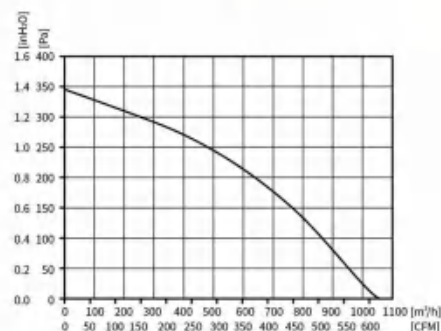
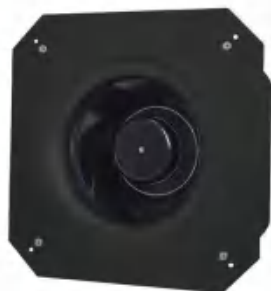


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL ROTOR MOTOR	0-10VDC/PWM	IP44	B	-25°C~+60°C	4.5KG	E2

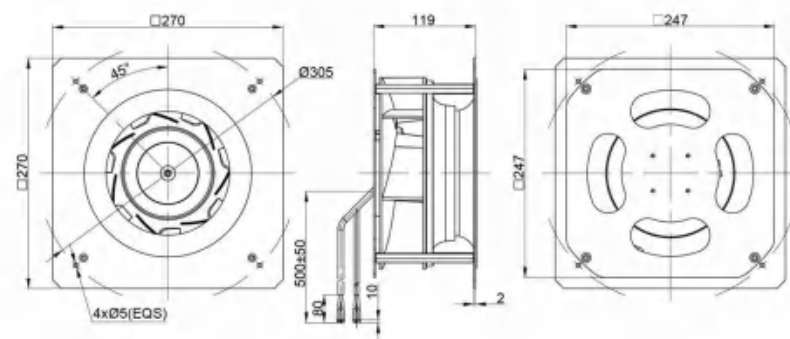


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N220B2EH	BE92EC	BALL	230	50/60	1.18	170	3600	1100	840	76

EC Fan with Support Bracket 270x270x119mm

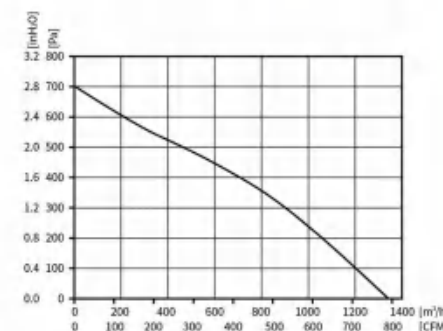
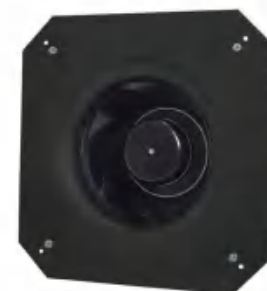


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL ROTOR MOTOR	0-10VDC/PWM	IP44	B	-25°C~+60°C	3.74KG	E1

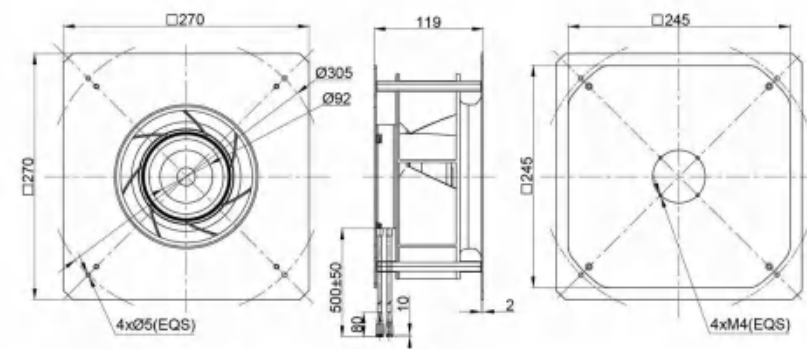


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N225B2EM	BE72EC	BALL	230	50/60	0.4	55	2200	1065	347	66

EC Fan with Support Bracket 270x270x119mm



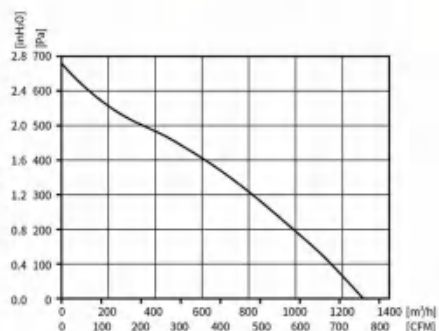
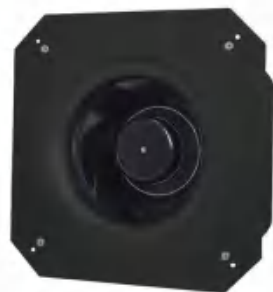
Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL ROTOR MOTOR	0-10VDC/PWM	IP44	B	-25°C~+60°C	4.8KG	E2



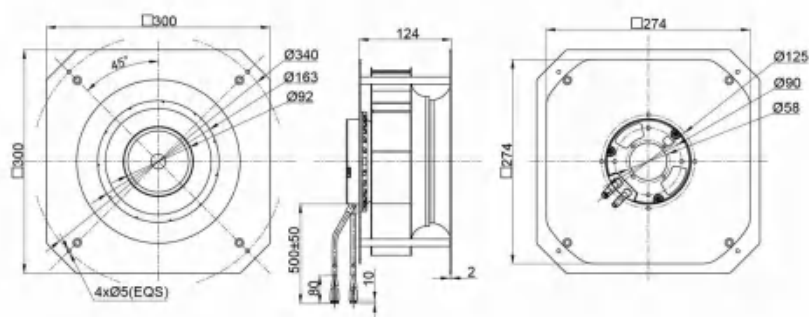
Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N225B2EH	BE92EC	BALL	230	50/60	1.04	135	3020	1340	705	71

EC-AC Series

EC Fan with Support Bracket 300x300x124mm

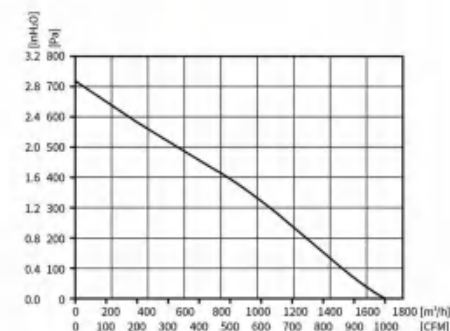
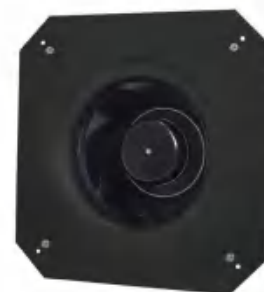


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL ROTOR MOTOR	0-10VDC/PWM	IP44	B	-25°C~+60°C	4.15KG	E2

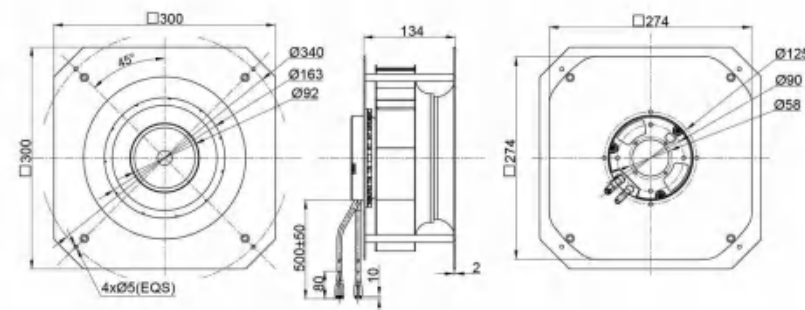


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N250B2EL	BE92EC	BALL	230	50/60	0.9	123	2760	1290	690	71

EC Fan with Support Bracket 300x300x134mm

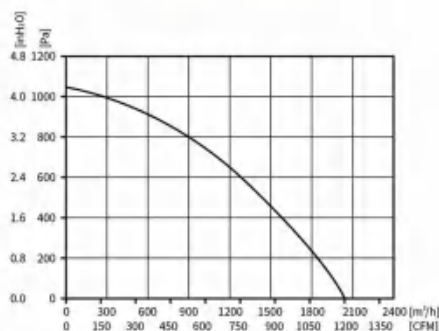
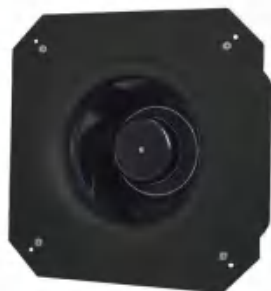


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL ROTOR MOTOR	0-10VDC/PWM	IP44	B	-25°C~+60°C	4.77KG	E2

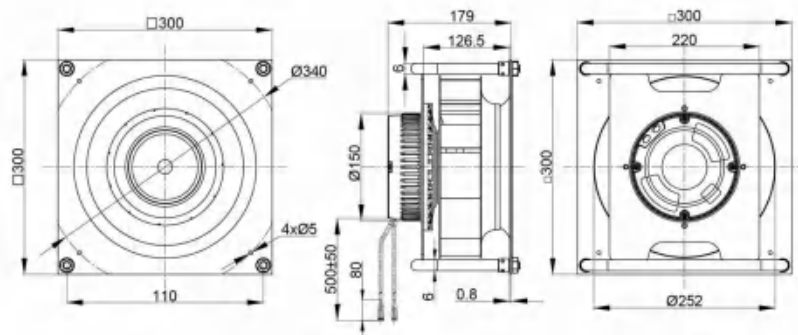


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N250B2EM	BE92EC	BALL	230	50/60	1.13	155	2780	1700	716	75

EC Fan with Support Bracket 300x300x179mm

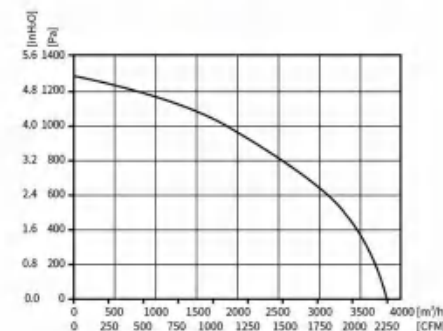


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL MOTOR MOTOR	B-10VDC/PWM	IP44	B	-25°C~+60°C	6.2KG	E3

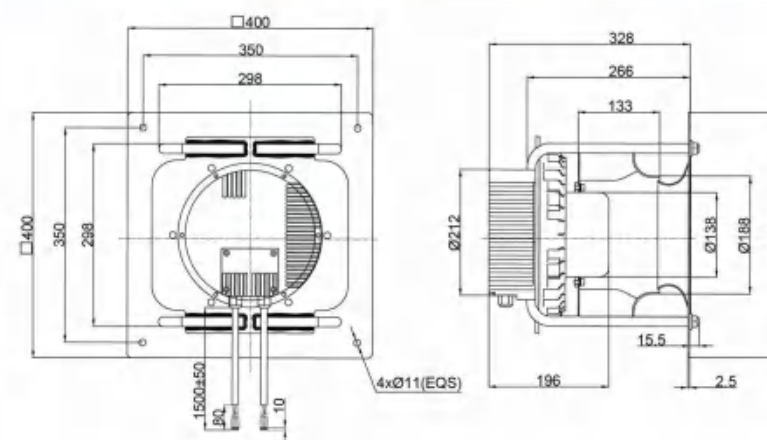


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N250B2EH	BE102EC	BALL	230	50/60	1.72	387	3550	2060	1030	80

EC Fan with Support Bracket 400x400x328mm

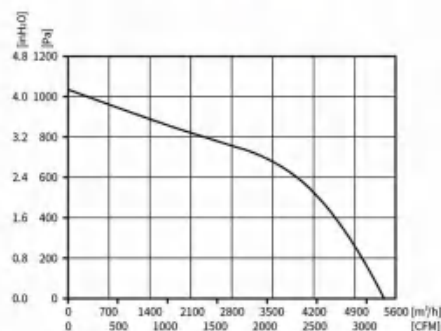


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL MOTOR MOTOR	B-10VDC/PWM	IP44	F	-25°C~+60°C	1.8KG	E6

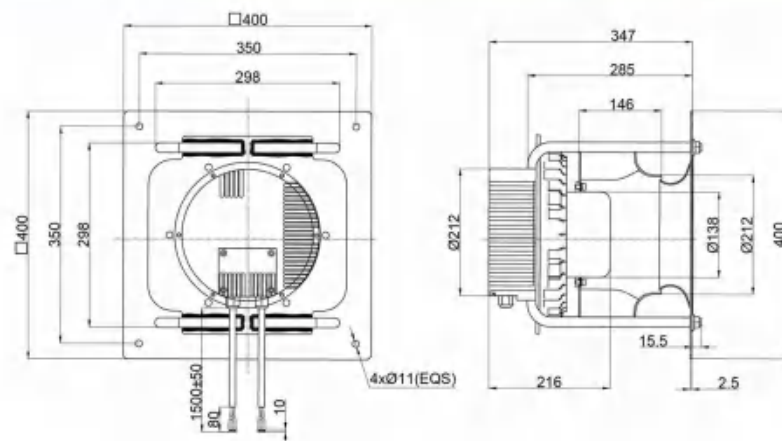


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N280B4EQM	BE138EC	BALL	380	50/60	1.9	1100	3500	3700	1280	89

EC Fan with Support Bracket 400x400x347mm

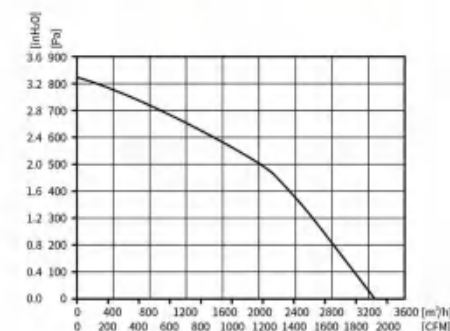


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL ROTOR MOTOR	0-10VDC/PWM	IP44	F	-25°C~+60°C	20KG	E6

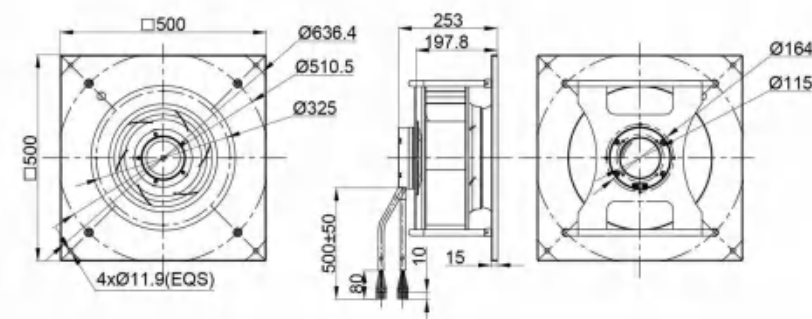


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N310B4EQM	BE138EC	BALL	380	50/60	2.4	1400	3300	5400	1050	92

EC Fan with Support Bracket 500x500x253mm



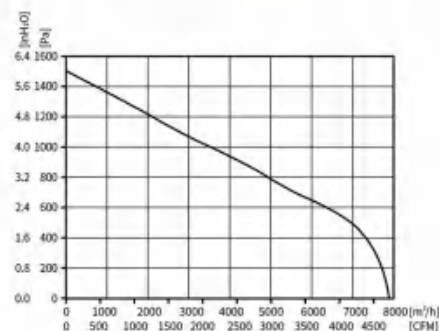
Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EE BRUSHLESS EXTERNAL ROTOR MOTOR	0-10VDC/PWM	IP44	B	-25°C~+60°C	7.2KG	E3



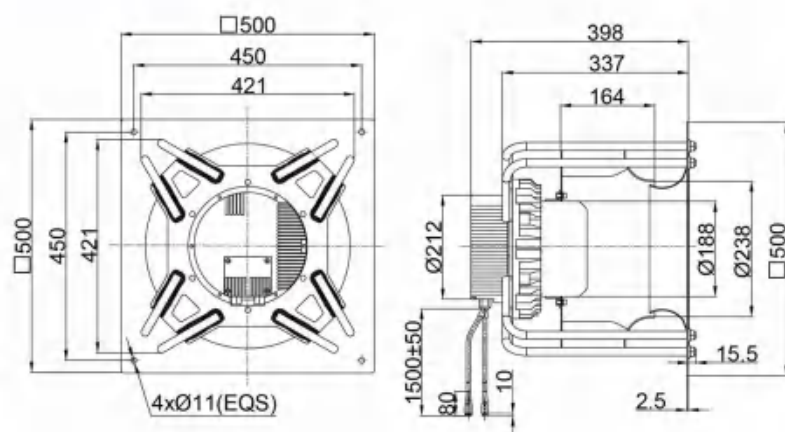
Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N355B2EH	BE102EC	BALL	230	50/60	1.6	357	2050	3270	820	76

EC-AC Series

EC Fan with Support Bracket 500x500x398mm

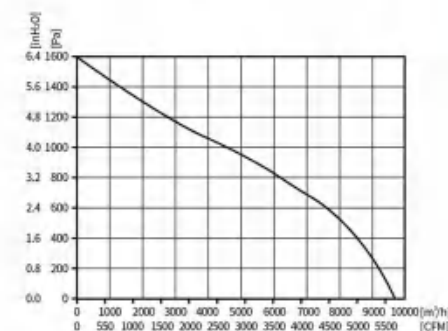


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EC BRUSHLESS EXTERNAL ROTOR MOTOR	B-TOUCH/PI/PWM	IP44	F	-25°C~+60°C	22KG	E6

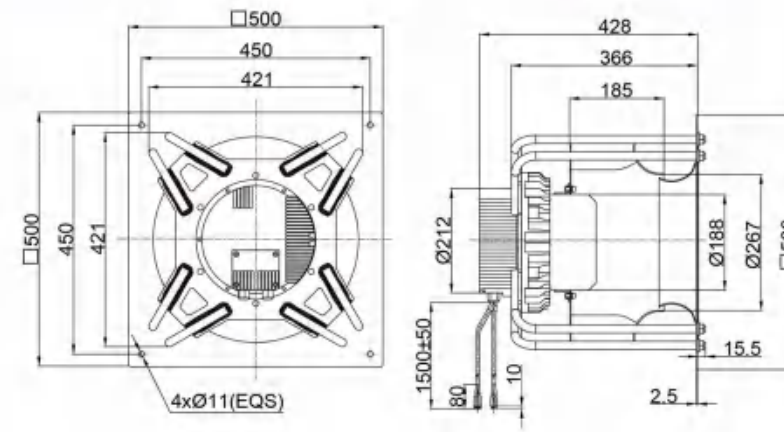


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N355B4EEH	BE188EC	BALL	380	50/60	4.2	2500	3200	7800	1500	96

EC Fan with Support Bracket 500x500x428mm

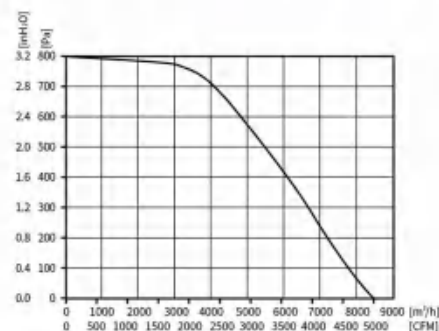


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EC BRUSHLESS EXTERNAL ROTOR MOTOR	B-TOUCH/PI/PWM	IP44	F	-25°C~+60°C	26KG	E6

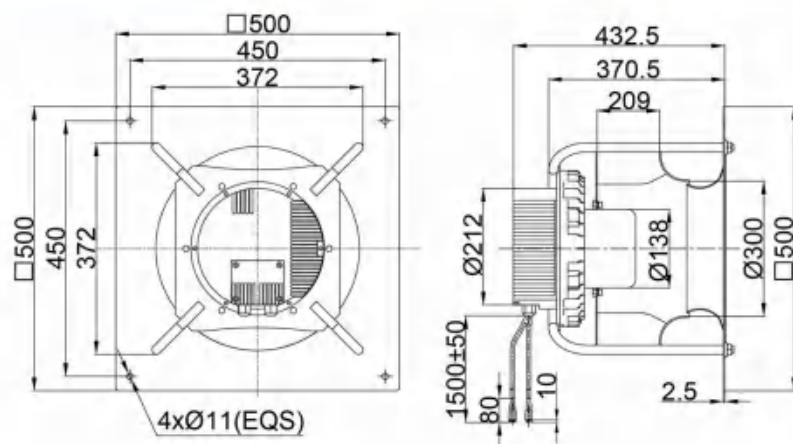


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N400B4EEM	BE188EC	BALL	380	50/60	4.2	2500	2650	9400	1600	90

EC Fan with Support Bracket 500x500x432.5mm

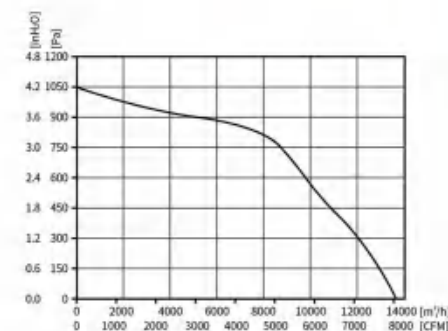


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EC BUSINESS EXTERNAL ROTOR MOTOR	0-10VDC/PWM	IP44	F	-25°C~+60°C	30KG	E6

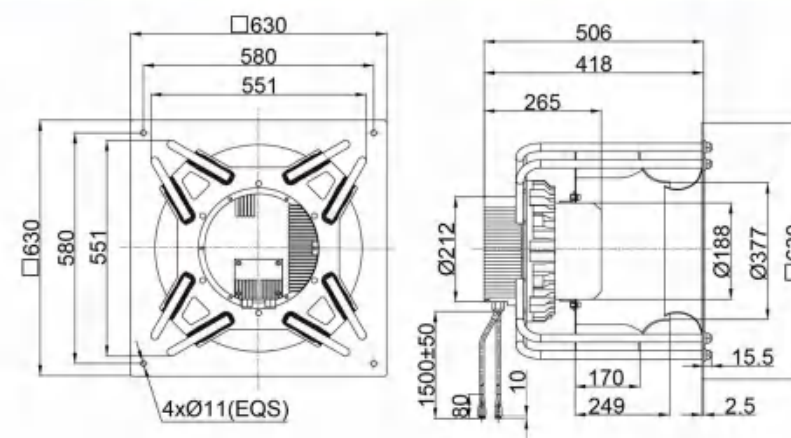


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N450B4EQM	BE138EC	BALL	380	50/60	2.15	1250	1700	8500	800	81

EC Fan with Support Bracket 630x630x506mm

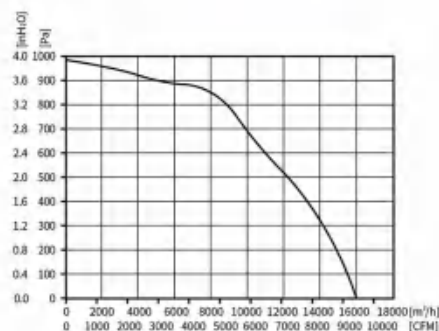


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EC BUSINESS EXTERNAL ROTOR MOTOR	0-10VDC/PWM	IP44	F	-25°C~+60°C	32KG	E6

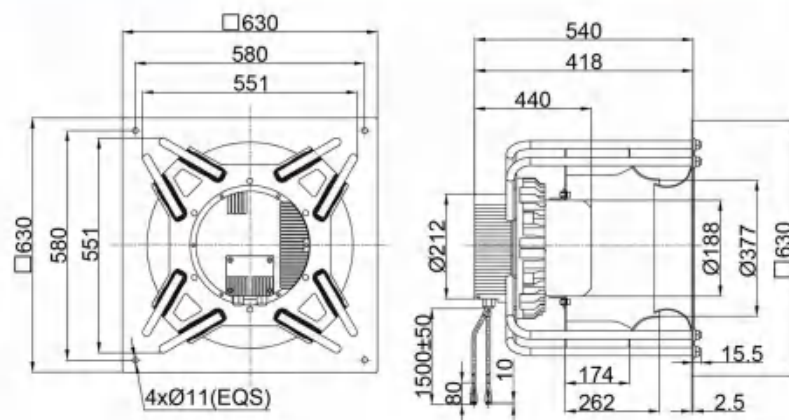


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N500B4EEL	BE188EC	BALL	380	50/60	4.95	3000	1800	13800	1040	89

EC Fan with Support Bracket 630x630x540mm

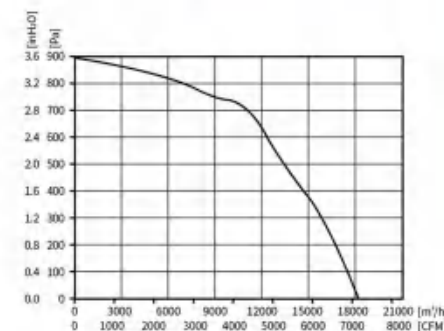


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EC BRUSHLESS EXTERNAL ROTOR MOTOR	B-TOUCH/PIWM	IP44	F	-25°C~+60°C	36KG	E6

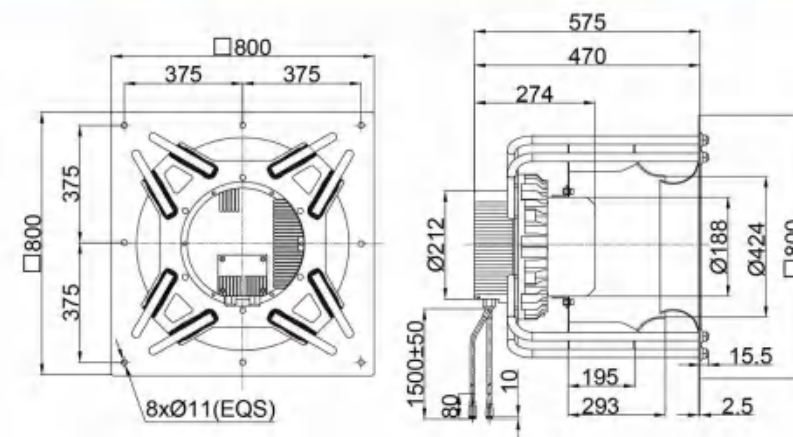


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N560B4EEL	BE188EC	BALL	380	50/60	4.4	2770	1520	16000	980	81

EC Fan with Support Bracket 800x800x575mm

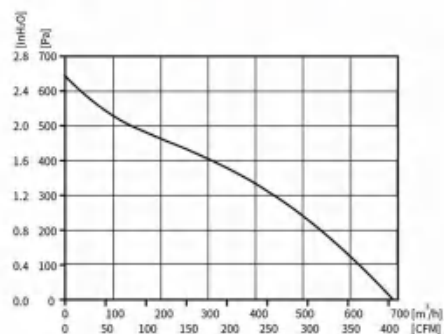


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
EC BRUSHLESS EXTERNAL ROTOR MOTOR	B-TOUCH/PIWM	IP44	F	-25°C~+60°C	40KG	E6

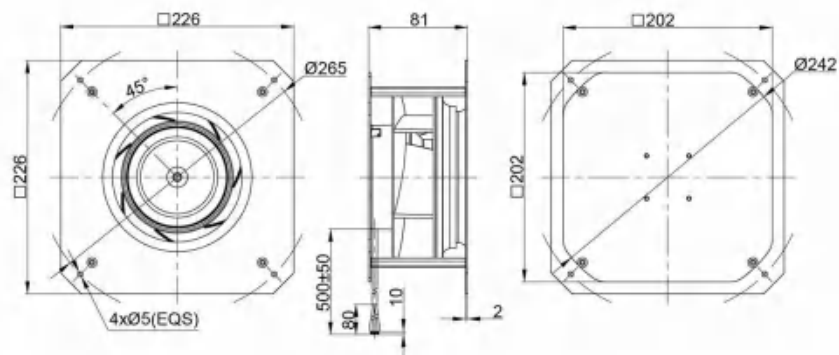


Model	Motor	Bearing System	Rated Voltage	Frequency	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	Hz	A	W	RPM	M³/H	Pa	dB(A)
PK3N630B4EEL	BE188EC	BALL	380	50/60	4.4	2700	1250	18600	900	85

DC Fan with Support Bracket 226x226x81mm

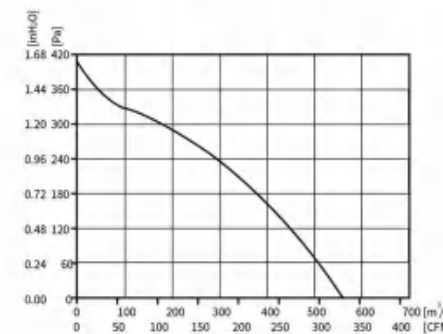


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
DC BRUSHLESS EXTERNAL MOTOR	0-10VDC/PWM	IP44	B	-25°C~+60°C	2.75KG	D1

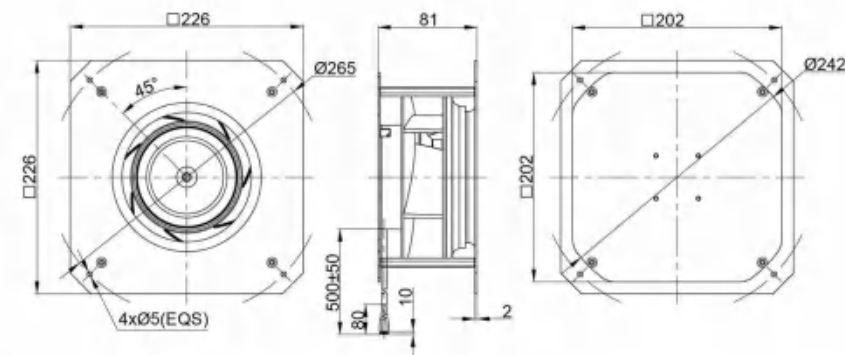


Model	Motor	Bearing System	Rated Voltage	Operating Voltage	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VDC	VDC	A	W	RPM	M³/H	Pa	dB(A)
PK3N175B24U	BE72DC	BALL	24	16~28	3	72	3900	695	637	72
PK3N175B48U	BE72DC	BALL	48	36~57	1.5	72	3900	695	637	72

DC Fan with Support Bracket 226x226x81mm

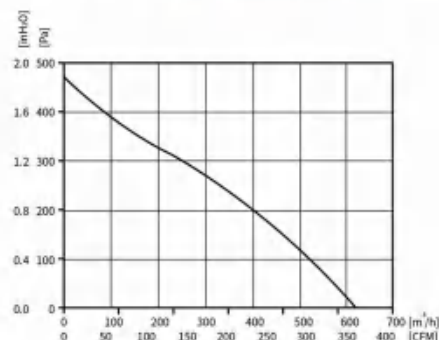


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
DC BRUSHLESS EXTERNAL MOTOR	0-10VDC/PWM	IP44	B	-25°C~+60°C	2.75KG	D1

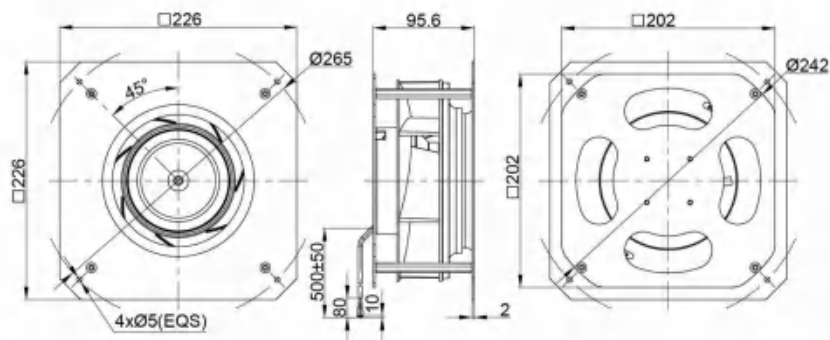


Model	Motor	Bearing System	Rated Voltage	Operating Voltage	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	VDC	A	W	RPM	M³/H	Pa	dB(A)
PK3N175B24H	BE72DC	BALL	24	16~28	1.6	38.4	3100	565	402	65
PK3N175B48H	BE72DC	BALL	48	36~57	0.8	38.4	3100	565	402	65

DC Fan with Support Bracket 226x226x95.6mm

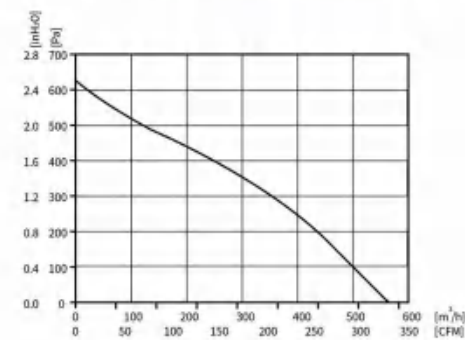
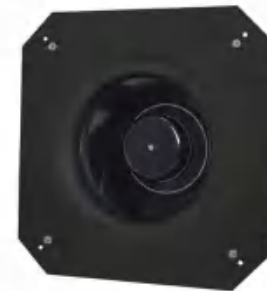


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
DC BRUSHLESS EXTERNAL MOTOR MOTOR	B-10VDC/PWM	IP44	B	-25°C~+60°C	2.97KG	D1

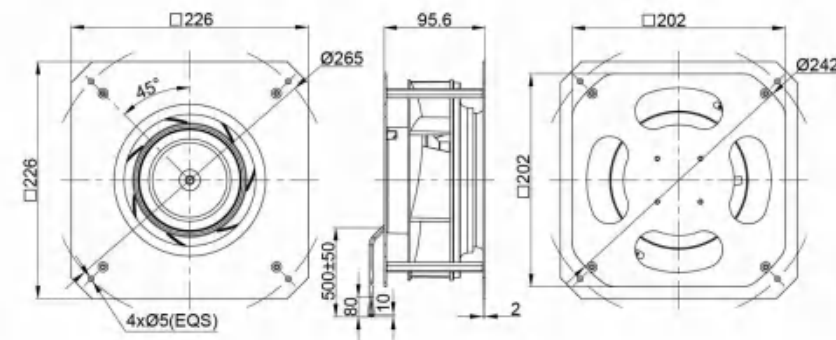


Model	Motor	Bearing System	Rated Voltage	Operating Voltage	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VDC	VDC	A	W	RPM	M³/H	Pa	dB(A)
PK3N190B24M	BE72DC	BALL	24	16~28	2.4	57.6	2950	620	473	68
PK3N190B48M	BE72DC	BALL	48	36~57	1.2	57.6	2950	620	473	68

DC Fan with Support Bracket 226x226x95.6mm

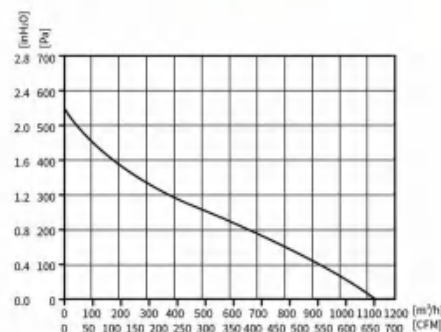
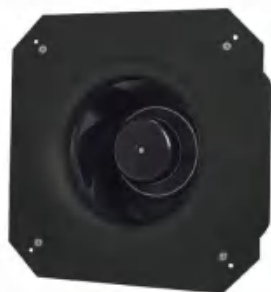


Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
DC BRUSHLESS EXTERNAL MOTOR MOTOR	B-10VDC/PWM	IP44	B	-25°C~+60°C	3.4KG	D2

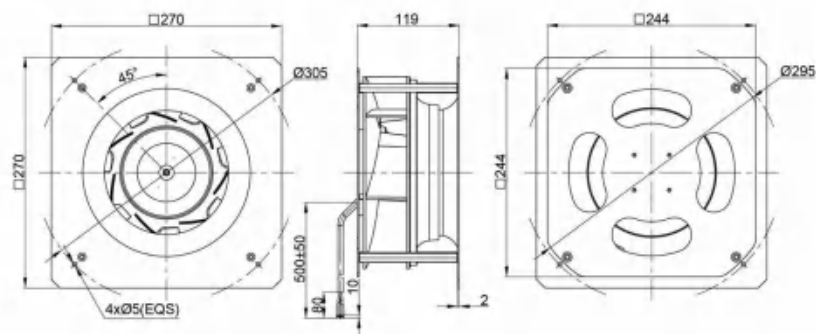


Model	Motor	Bearing System	Rated Voltage	Operating Voltage	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VAC	VDC	A	W	RPM	M³/H	Pa	dB(A)
PK3N190B24H	BE92DC	BALL	24	16~28	3.4	81.6	3300	560	627	68
PK3N190B48H	BE92DC	BALL	48	36~57	1.7	81.6	3300	560	627	68

DC Fan with Support Bracket 270x270x119mm



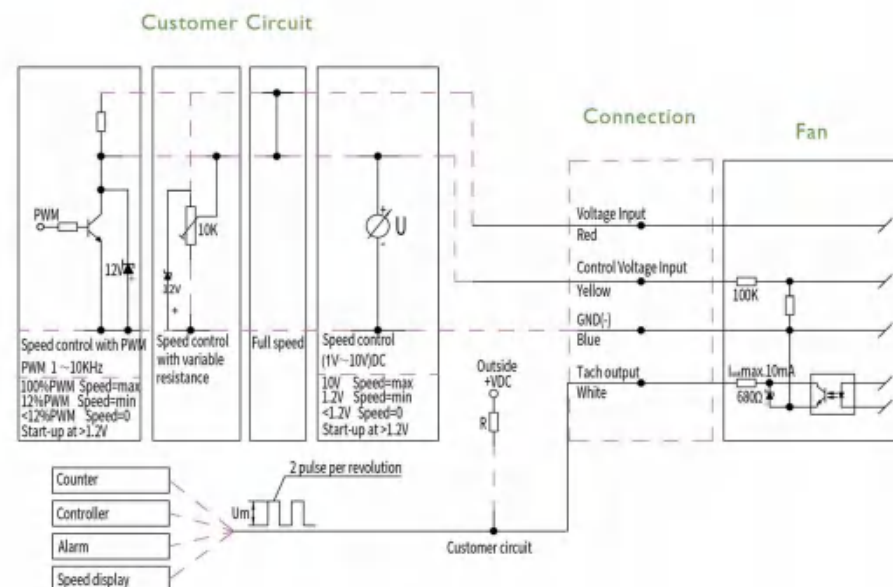
Motor Type	Speed Control	Protection Type	Insulation Class	Operating Temperature	Weight	Wiring Mode
DC BRUSHLESS EXTERNAL MOTOR MOTOR	0-10VDC/PWM	IP44	B	-25°C ~ +60°C	3.75KG	D2



Model	Motor	Bearing System	Rated Voltage	Operating Voltage	Rated Current	Rated Power	Rated Speed	Air Flow	Air Pressure	Sound Level
Part No.	Type	B/S	VDC	VDC	A	W	RPM	M³/H	Pa	dB(A)
PK3N225B24H	BE92DC	BALL	24	16~28	4.0	96	2600	1125	540	72
PK3N225B48H	BE92DC	BALL	48	36~57	2.0	96	2600	1125	540	72

Wiring Diagram

IP44 D1-DC Motor 72(Nominal voltage 12/24/48/85/110/310VDC)

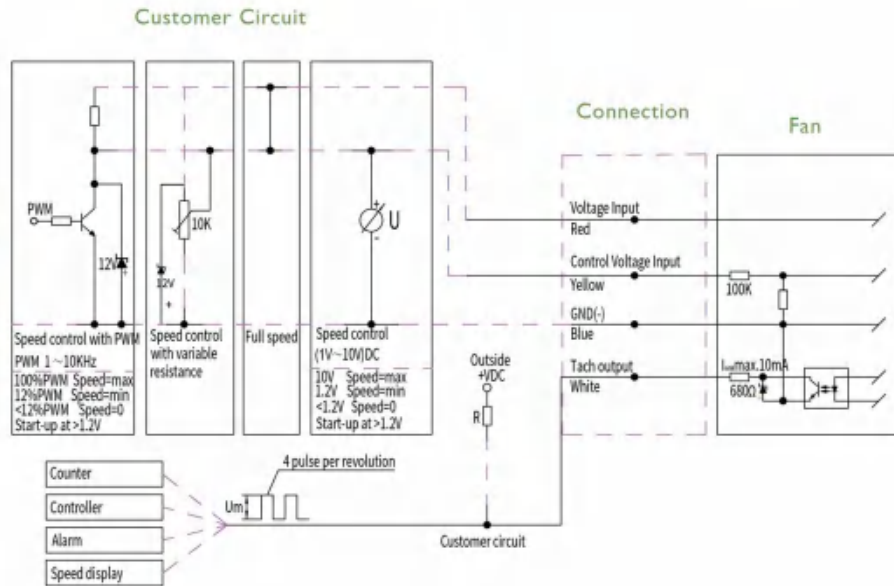


Red= +
Yellow= 0-10VDC/PWM
White= FG
Blue= GND

Signal	Color	Assignment/Function
+	Red	Voltage Input
0-10VDC/PWM	Yellow	Control Input
Tach output	White	Tach output: 2 puls per revolution
GND	Blue	GND

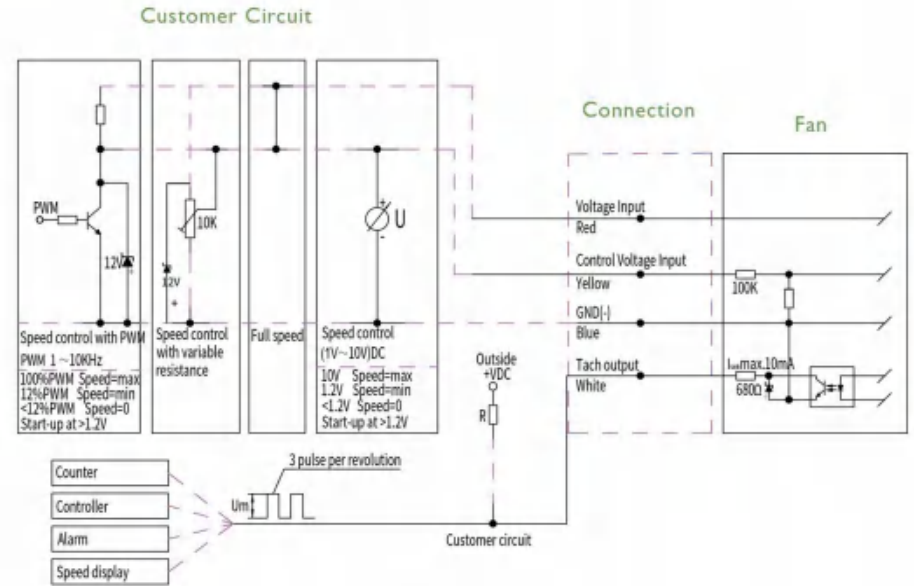
Wiring Diagram

IP44 D2-DC Motor 92(Nominal voltage 12/24/48/85/110/310VDC)



Wiring Diagram

IP44 D3-DC Motor 102(Nominal voltage 12/24/48/85/110/310VDC)



Red= +
Yellow= 0-10VDC/PWM
White= FG
Blue= GND

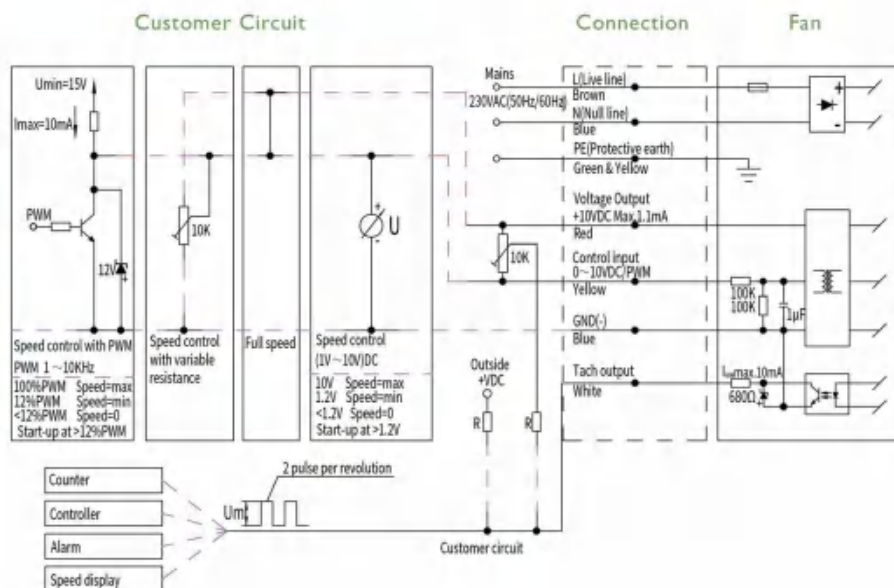
Signal	Color	Assignment/Function
+	Red	Voltage Input
0-10VDC/PWM	Yellow	Control Input
Tach output	White	Tach output:4 puls per revolution
GND	Blue	GND

Red= +
Yellow= 0-10VDC/PWM
White= FG
Blue= GND

Signal	Color	Assignment/Function
+	Red	Voltage Input
0-10VDC/PWM	Yellow	Control Input
Tach output	White	Tach output:3 puls per revolution
GND	Blue	GND

Wiring Diagram

IP44 E-EC Motor 72(Nominal voltage 115/230VAC)



Line I (AC) Brown= L(Live Line)
Blue= N(Null Line)
Green & Yellow=PE(Protective Earth)

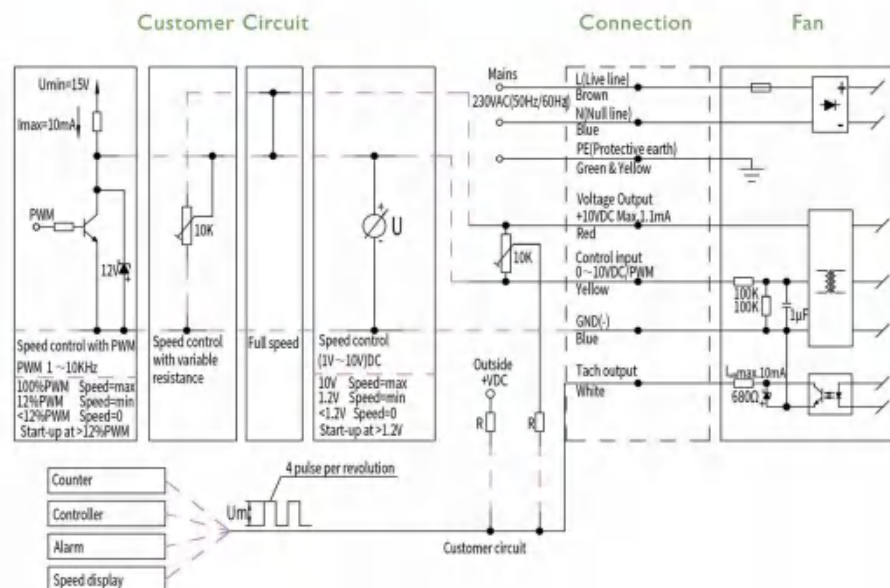
Line2(DC) Red= Voltage Output *10VDC
 Yellow= 0-10VDC/PWM
 White= FG
 Blue= GND

Signal	Color	Assignment/Function
L	Brown	Mains 50/60 Hz phase
N	Blue	Mains 50/60 Hz neutral
PE	Green & Yellow	Protective Earth

Signal	Color	Assignment/Function
+10VDC	Red	Voltage Output +10VDC max.11mA
-10VDC/PWM	Yellow	Control Input
Tach Output	White	Tach Output:2 puls per revolution
GND	Blue	GND

Wiring Diagram

IP44 E2-EC Motor 92(Nominal voltage 115/230VAC)



Line1(AC) Brown= L(Live Line)
 Blue= N(Null Line)
 Green & Yellow=PE(Protective Earth)

Line2(DC)

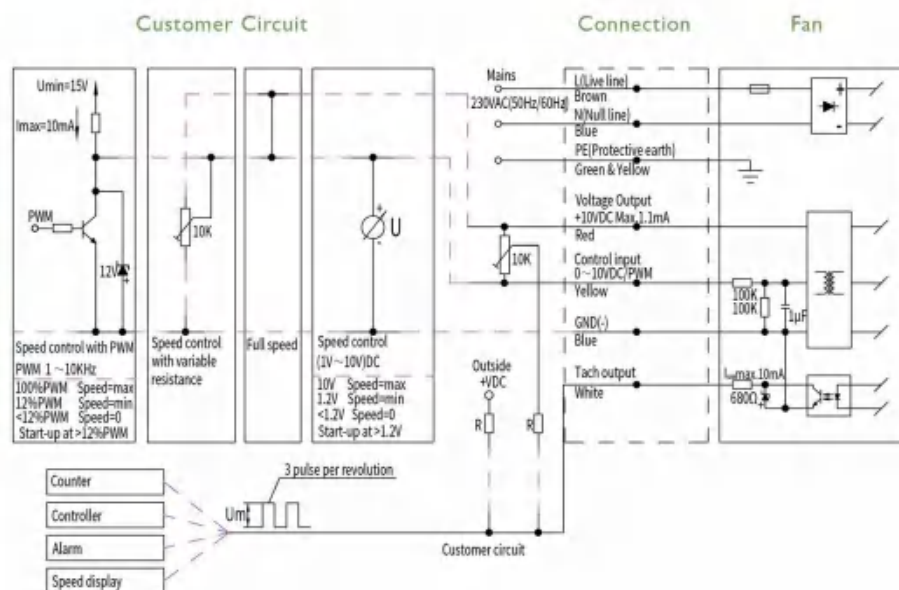
- Red= Voltage Output +10VDC
- Yellow= 0-10VDC/PWM
- White= FG
- Blue= GND

Signal	Color	Assignment/Function
L	Brown	Mains 50/60 Hz,phase
N	Blue	Mains 50/60 Hz,neutral
PE	Green & Yellow	Protective Earth

Signal	Color	Assignment/Function
+10VDC	Red	Voltage Output +10VDC max.11mA
0-10VDC/PWM	Yellow	Control Input
Tach Output	White	Tach Output 4 puls per revolution
GND	Blue	GND

Wiring Diagram

IP44 E3-EC Motor 102(Nominal voltage 115/230VAC)



Line1(AC)
Brown= L(Live Line)
Blue= N(Null Line)
Green & Yellow=PE(Protective Earth)

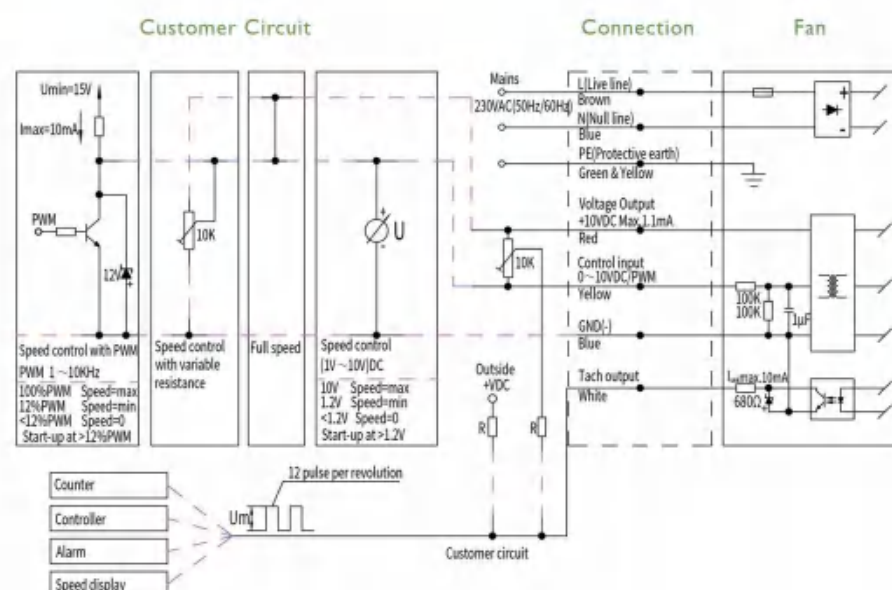
Line2(DC)
Red= Voltage Output +10VDC
Yellow= 0~10VDC/PWM
White= FG
Blue= GND

Signal	Color	Assignment/Function
L	Brown	Mains 50/60 Hz.phase
N	Blue	Mains 50/60 Hz.neutral
PE	Green & Yellow	Protective Earth

Signal	Color	Assignment/Function
+10VDC	Red	Voltage Output +10VDC max.1.1mA
0~10VDC/PWM	Yellow	Control Input
Tach Output	White	Tach Output:3 puls per revolution
GND	Blue	GND

Wiring Diagram

IP44 E4-EC Motor 102(Nominal voltage 115/230VAC)



Line1(AC)
Brown= L(Live Line)
Blue= N(Null Line)
Green & Yellow=PE(Protective Earth)

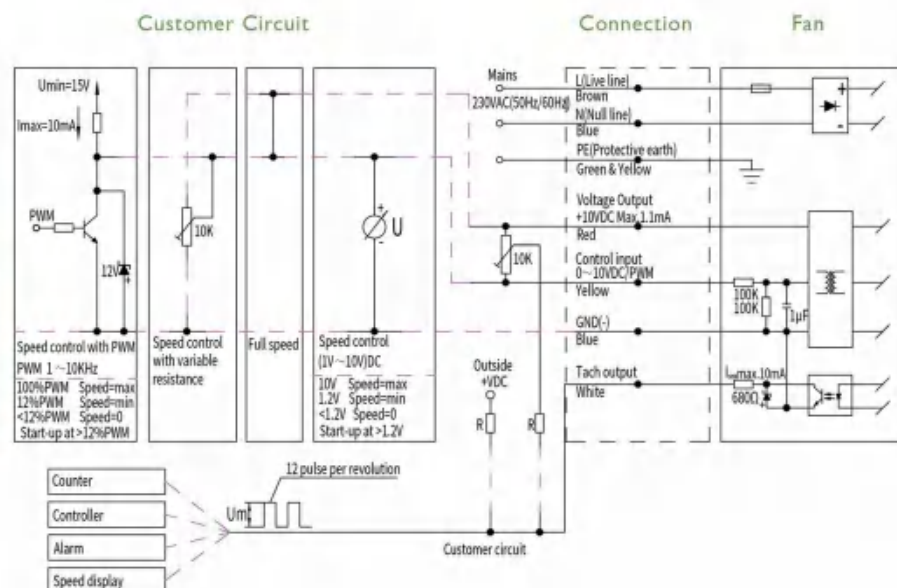
Line2(DC)
Red= Voltage Output +10VDC
Yellow= 0~10VDC/PWM
White= FG
Blue= GND

Signal	Color	Assignment/Function
L	Brown	Mains 50/60 Hz.phase
N	Blue	Mains 50/60 Hz.neutral
PE	Green & Yellow	Protective Earth

Signal	Color	Assignment/Function
+10VDC	Red	Voltage Output +10VDC max.1.1mA
0~10VDC/PWM	Yellow	Control Input
Tach Output	White	Tach Output:12 puls per revolution
GND	Blue	GND

Wiring Diagram

IP44 E5-EC Motor 138(Nominal voltage 115/230VAC)



Line1(AC)
Brown= L(Live Line)
Blue= N(Null Line)
Green & Yellow=PE(Protective Earth)

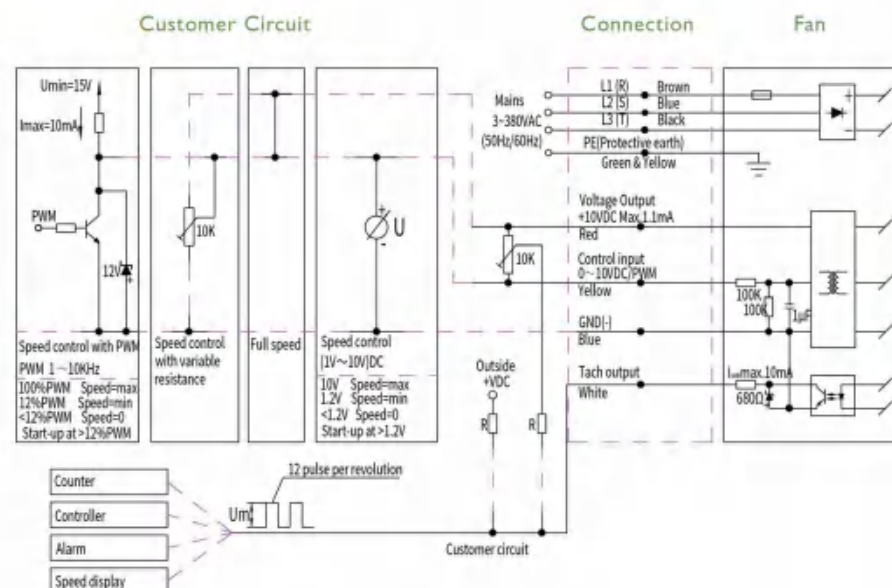
Line2(DC)
Red= Voltage Output +10VDC
Yellow= 0~10VDC/PWM
White= FG
Blue= GND

Signal	Color	Assignment/Function
L	Brown	Mains 50/60 Hz phase
N	Blue	Mains 50/60 Hz neutral
PE	Green & Yellow	Protective Earth

Signal	Color	Assignment/Function
+10VDC	Red	Voltage Output +10VDC max.1.1mA
0~10VDC/PWM	Yellow	Control Input
Tach Output	White	Tach Output:12 puls per revolution
GND	Blue	GND

Wiring Diagram

IP44 E6-EC Motor 102/138/188(Nominal voltage 380VAC)



Line1(AC)
Brown= L1
Blue= L2
Black=L3
Green & Yellow=PE(Protective Earth)

Line2(DC)
Red= Voltage Output +10VDC
Yellow= 0~10VDC/PWM
White= FG
Blue= GND

Signal	Color	Assignment/Function
L1	Brown	Mains 50/60 Hz R
L2	Blue	Mains 50/60 Hz S
L3	Black	Mains 50/60 Hz T
PE	Green & Yellow	Protective Earth

Signal	Color	Assignment/Function
+10VDC	Red	Voltage Output +10VDC max.1.1mA
0~10VDC/PWM	Yellow	Control Input
Tach output	White	Tach Output:12 puls per revolution
GND	Blue	GND

Fan Controller



1. Product Introduction

The fan controller is an external Modbus controller, which can realize single control and multiple centralized control. The controller has a built-in Mod-bus communication protocol to control the operation of the fan through the group control system. It is mostly used in FFU group control occasions.

2. The Main Function

The controller controls the fan speed through speed feedback, and uses the principle of speed closed-loop control to control the fan operation. Its main functions are:

- Control the start and stop and speed regulation of each fan through the host;
- Remote centralized control and fault diagnosis can be realized;
- Each control unit module has a settable ID address;
- The current speed and current ID number can be displayed;
- With alarm function.

3. Product Dimensions and Installation Requirements

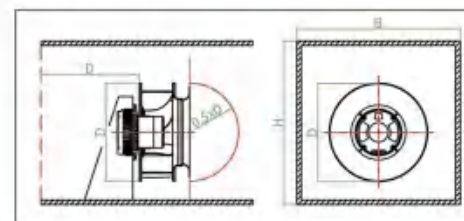
The controller is powered by the fan without external power supply; the controller is equipped with 2P and 4P quick connect terminals for connection, making the connection simple and more convenient. The product is designed as a panel installation method, which is convenient for installation and construction. See the figure below for the opening size: 112mm x 57mm.

4. Product Application Areas

This product is mainly used in the field of FFU, which can make ordinary EC fans realize group control function, and can effectively solve the problem of group control of ordinary fans.

Effects of installation space

When mounting our product in a rectangular box, air performance might be reduced.



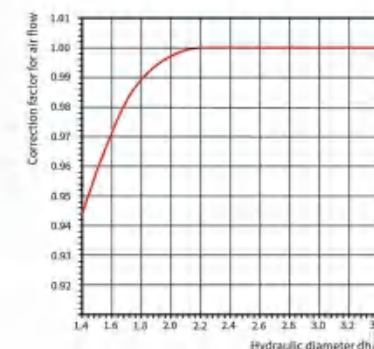
dh = Hydraulic diameter

Formula: $dh = 2 \times B \times H / (B + H)$

B = Width of box

H = Height of box

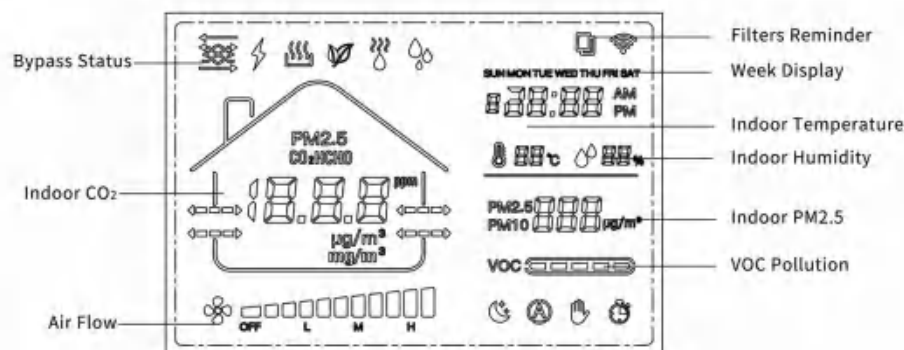
D = Outer diameter of the fan



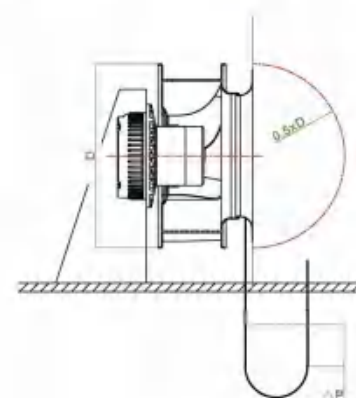
PS2 intelligent multi-functional touch screen controller

1. General description

PS2: PM2.5/CO₂ controller adopts touch technology, which is flexible and convenient. There are sensors which can monitor the indoor temperature, humidity, PM2.5 and CO₂ concentration detection function. The output signal of controller can directly control the starting and RPM of the fresh air. It can be widely used in residential, commercial and industrial conditions, and effectively improve the air quality, create a healthy, comfortable, efficient, environmental protection and energy-saving living environment.



Defining air flow rate for inlet rings with pressure relief



The differential pressure approach compares the static pressure before the inlet nozzle with the static pressure inside the inlet nozzle. Air flow can be calculated on the basis of the differential pressure (difference in pressure of the static pressures) in keeping with the following equation:

$$qv = k \cdot \sqrt{\Delta p} \quad qv \text{ in [m}^3/\text{h] and } \Delta p \text{ in [Pa]}$$

If constant air flow is to be controlled, then the nozzle pressure has to be kept constant:

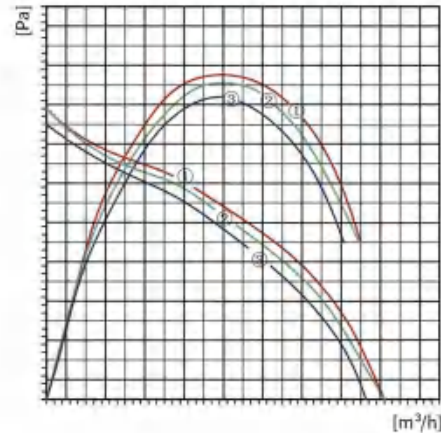
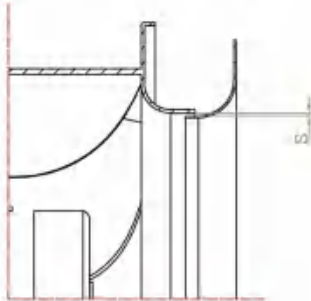
$$\Delta p = qv^2 : k^2$$

k takes into account the specific nozzle characteristics. Differences in static pressure are measured in 1/4 measuring point(s) along the circumference of the inlet nozzle. Connection on the customer side is accomplished via a pre-mounted T tube connector. This tube connector is suited for pneumatic hoses with an internal diameter of 4 mm.

Effects of centrifugal air gap change

The centrifugal air gap between the inlet ring and the impeller cover affects centrifugal fan air flow and operation efficiency. Changes in the size of the inlet ring air gap affects the following curve:

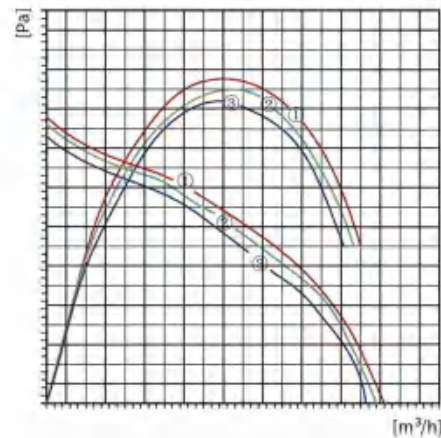
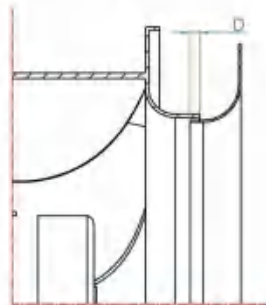
(1): $s/D = 0.4\%$ (2): $s/D = 1.0\%$ (3): $s/D = 1.4\%$



Effects of overlapping dimension

The axial overlap between the inlet ring and the impeller cover affects centrifugal fan air flow and operation efficiency. Overlap changes affect the following curve:

(1): $x/D = 0.6\%$ (2): $x/D = 0\%$ (3): $x/D = -0.8\%$



Precision Noise Measuring

Measurement conditions for air and noise measurement

PBM products are measured under the following conditions:

- Axial and diagonal fans in direction of rotation "V" in full nozzle and without guard grille
- Backward curved centrifugal fans, free-running and with inlet nozzle
- Forward curved single and dual inlet centrifugal fans with housing

Noise measurements

All noise measurements are carried out in low-reflective test rooms with reverberant floor. Thus the PBM acoustic test chambers meet the requirements of precision class 1 according to DIN EN ISO 3745. For noise measurement, the fans being tested are placed in a reverberant wall and operated at nominal voltage (for AC, also at nominal frequency) without additional attachments such as the guard grille.

Sound pressure level and sound level

All acoustic values are established according to ISO 13347, DIN 45635 and ISO 3744/3745 to accuracy class 2 and given in A-rated form. When the sound pressure level (L_p) is measured, the microphone is on the intake side of the fan being tested, usually at a distance of 1 m on the fan axis.

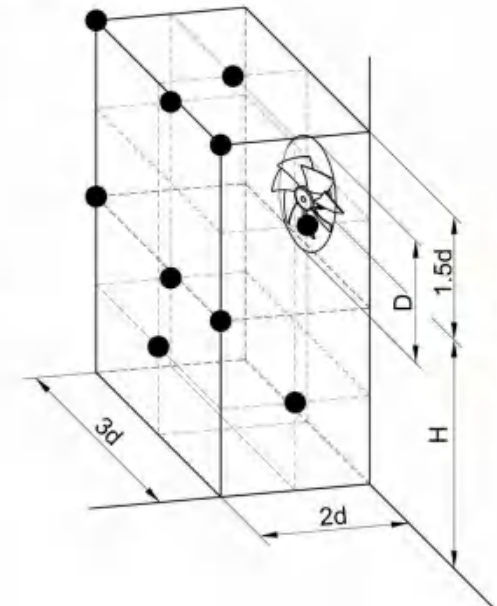
To measure the sound power level (L_w), 10 microphones are distributed over an enveloping surface on the intake side of the fan being tested (see graphic). The sound power level measured can be roughly calculated from the sound pressure level by adding 7 dB.

Measuring configuration as per ISO 13347-3 respectively DIN 45635-38:10 measuring points

$$d \geq D$$

$$H = 1.5d \dots 4.5d$$

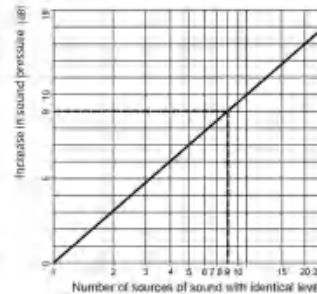
$$\text{Measurement area } S = 6d^2 + 7d(H + 1.5d)$$



Combined level of multiple same-level sound sources

Adding 2 noise sources with the same level results in a level increase of approx. 3 dB. The noise characteristics of multiple identical fans can be determined in advance based on the noise values specified in the data sheet. This is shown in the diagram opposite.

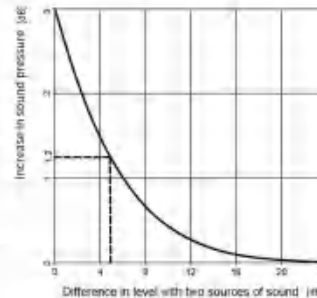
Example: 9 PCS PK3N190B2EM axial fans are on a condenser. According to the data sheet, the sound pressure level of a fan is approximately 72 dB(A). The level increase measured from the diagram is 9 dB. Thus the overall sound level of the installation can be expected to be 79 dB(A).



Combined level of two different-level sound sources

The acoustic performance of two different fans can be predetermined based on the sound levels given in the data sheet. This is shown in the diagram opposite.

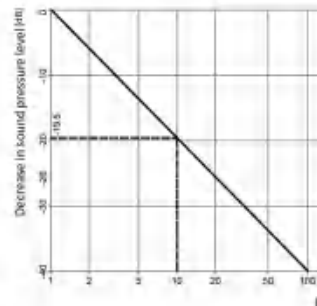
Example: There is an axial fan PK3N225B2EH with a sound pressure level of 71 dB(A) at the operating point and an axial fan PK3N220B2EH with 76 dB(A) in a ventilation unit. The level difference is 5 dB. The level increase can now be read in the diagram as approx. 1.2 dB. This means that the overall sound level of the unit can be expected to be 77.2 dB(A).



Distance laws

Sound power level is independent from distance to the sound source. In contrast to this, sound pressure level decreases the further away the noise source is. The adjacent diagram shows the decrease in level under far sound field conditions. Far sound field conditions apply whenever the distance between microphone and fan is big when compared to fan diameter and wavelength to be considered. For more information on far sound field, please consult the relevant literature on this complex topic. Per doubling of distance, the level in the far sound field decreases by 6 dB. In the near field of the fan, other correlations apply and the decrease in levels can be considerably smaller. The following example only applies to far sound field conditions and can vary strongly depending on the installation effects.

Example: An axial fan PK3N225B2EM, a sound pressure level of 66 dB(A) was measured at a distance of 1 m. According to the adjacent diagram, at a distance of 10 m we would get a reduction by 19.5 dB, i.e. a sound pressure level of 46.5 dB(A).



How to Choose Fans Correctly

All need to use is the electrical machinery and electronic products project engineer which the ventilator radiates, a specific system that radiates the needed amount of air flow is a must, the amount of air flow is decided by the understanding system power consumption and the ability of carrying off the enough quantity of heat. Try to prevent the system superheat situation. The fact demonstrated that the system service life can be reduced as a result of the cooling system insufficiency, therefore project engineer also should understand system sales volume and price, possibly because the system service life symbol user did not anticipate drops. If you'd like to choose the correct well ventilated module, the following goals need to be considered:

- Best air transport efficiency
- Smallest suitable size
- Lowest noise
- Smallest power consumption
- Biggest margin of safety and service life
- Reasonable total cost

So following three steps to correctly choose radiation fan or the drum ventilator, help you achieve the above goals:

Total cooling demand, first must understand three key aspects by obtaining the cooling demand the quantity of heat that must be transformed (temperature DT). Counterbalance transformation quantity of heat wattage (W). The detachment quantity of heat needs amount of wind (CFM).

The total cooling demand regarding of system operating effectively is really important. The effective system operation must provide the Ideal operation condition, enables in all systems the module to display the biggest function and the longest service life.

The following available ways are generally used when choosing the ventilator motor:

- Figures out quantity of heat which the equipment interior produces
- Decided the equipment interior can permit temperature rise scope
- Amount of air flow needs which from the equation computation
- If the known system equipment interior heat dissipating capacity and the permission total temperature rise quantity, may obtain the amount of wind which is for the cooling equipment needs.

Following into basic hot transformation equation:

$$H = C_p \times W \times \Delta T$$

In which: H = Hot transformation quantity

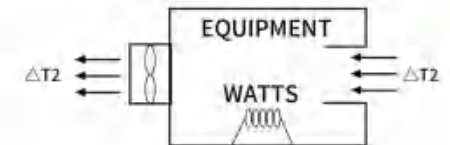
C_p = Air specific heat

ΔT = In the equipment rises temperature

W = Air flow weight

We know ($W = CFM \times D$) in which D = is mad the density after the substitution, We obtain, Conversion factors With the substitution sea level air specific heat and the density, may obtain following radiation equation:

$$CFM = 3160 \times KW / \Delta T$$



Eg(a): The equipment internal consumption electric power is 500W, the temperature difference is 20 degrees Fahrenheit, please see the computed result below:

$$Q = \frac{3.16 \times 500(W)}{20} = 79CFM \quad \text{or} \quad Q = \frac{0.09 \times 500(W)}{20} = 2.25m^3/Min$$

(b) The equipment internal consumption electric power is 500W, the temperature difference is 10 degrees centigrade:

$$Q = \frac{1.76 \times 500(W)}{20} = 88CFM \quad \text{or} \quad Q = \frac{0.05 \times 500(W)}{20} = 2.5m^3/Min$$

Amount of Wind Conversion Table

CMS	CMM	L/s	L/min	CMH	CFS	CFM
m ³ /s	m ³ /min	L/s	L/min	m ³ /h	ft ³ /s	ft ³ /min
1	60	1x10 ³	6x10 ⁴	3.6x10 ³	35.30	2.118x10 ³
0.0167	1	460	1x10 ³	60	0.5885	35.30
0.001	0.06	1	60	3.60	0.0353	2.12
1.67x10 ⁻⁵	0.001	0.0167	1	0.06	5.88x10 ⁻⁴	0.0353
2.77x10 ⁻⁴	0.0167	0.277	16.7	1	9.81x10 ⁻³	0.5885
0.0283	1.698	460	1.69x10 ³	101.9	1	60
4.7x10 ⁻⁴	0.0283	0.47	28.3	1.698	0.0167	1

Static pressure conversion table

Pa	Bar	Torr	kgf/cm ²	mmH ₂ O	inHg	psi
N/m ²	bar	mmHg	kgf/cm ²	mmH ₂ O	inHg	lb/in ²
1	1x10 ⁻⁵	7.501x10 ⁻³	1.02x10 ⁻⁵	0.1021	2.953x10 ⁻⁴	1.45x10 ⁻⁴
1x10 ⁵	1	750.10	1.02	1.02x10 ⁴	29.53	14.50
133.30	1.33x10 ⁻³	1	1.359x10 ⁻³	13.61	0.03937	0.01934
9.807x10 ⁴	0.9807	735.5	1	1.001x10 ⁴	28.96	14.22
9.807	9.807x10 ⁻⁵	0.07348	9.96x10 ⁻⁵	1	2.89x10 ⁻³	1.42x10 ⁻³
3.386x10 ³	0.03386	25.4	0.03453	345.6	1	0.4912
6.895x10 ³	1.013	760	1.033	1.034x10 ⁴	29.92	14.7

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- If the known system equipment interior heat dissipating capacity and the permission total temperature rise quantity, may obtain the amount of air flow which is for the cooling equipment needs.

Fan Selection Guide



In order to provide you with more considerate fan selection and technical solution services, please provide your demand information in the following table as much as possible:

Note: The Red * marked is required.		Date	
Project Name		* Client Name	
* Applied to Which Products or Industries		Special Working Conditions to be Reminded	
Fan Mounting Space Size (LxWxD)	mm	Motor Type	
* Blade Type and Materials		* Impeller Size (LxWxD)	mm

Is it possible to provide 《Fan Technical Requirements List》 or replaced fan specification or replaced fan brand & model number?

Fan's Key Technical Requirements	Key Parameters	P/Q	Replaced Fan Brand	Replaced Fan Model Number	Photo of Replaced Fan Name Plate

Key Technical Parameter Information For Fan Selection

* Rated Voltage (V)		Max. Current (A)		Frequency (Hz)	
Rated Power(W)		Motor Output Power (W)		Bearing Type	
* Max. Airflow (M ³ /H)		* Max. Air Pressure (Pa)		* Speed (RPM)	
Operation Point's Air Flow & Air Pressure		Max. Operating Temperature (°C)		Rotation or Air Flow Direction	
* Expected Sound Level (dBA)		Water and Dust Protection Class (IPXX)		Isulation Class	
Motor Operating Protections		Speed Control Type		Certificates	
Operating Voltage Range (V)		Wire Length and Connector Requirements		Wiring Mode	
Fan Efficiency (η)		Motor Efficiency (η)		Fan Operation Control	

Key Commercial Requirements

Total Quantity Demand		Quantity and Date for the First Order	
Quantity of Sample		Sample Demand Time	
Packing Demand		Type of Shipping	
* Recipient's Name and Mobile Number		* Detail Receiving Address	

Client's Other Requirements:

Such as: non-standard fan size (mm), special installation requirements, special working and operating environment, etc