



# SPECIFICATION

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**MODEL**  
**K-EC560-K400-18M**

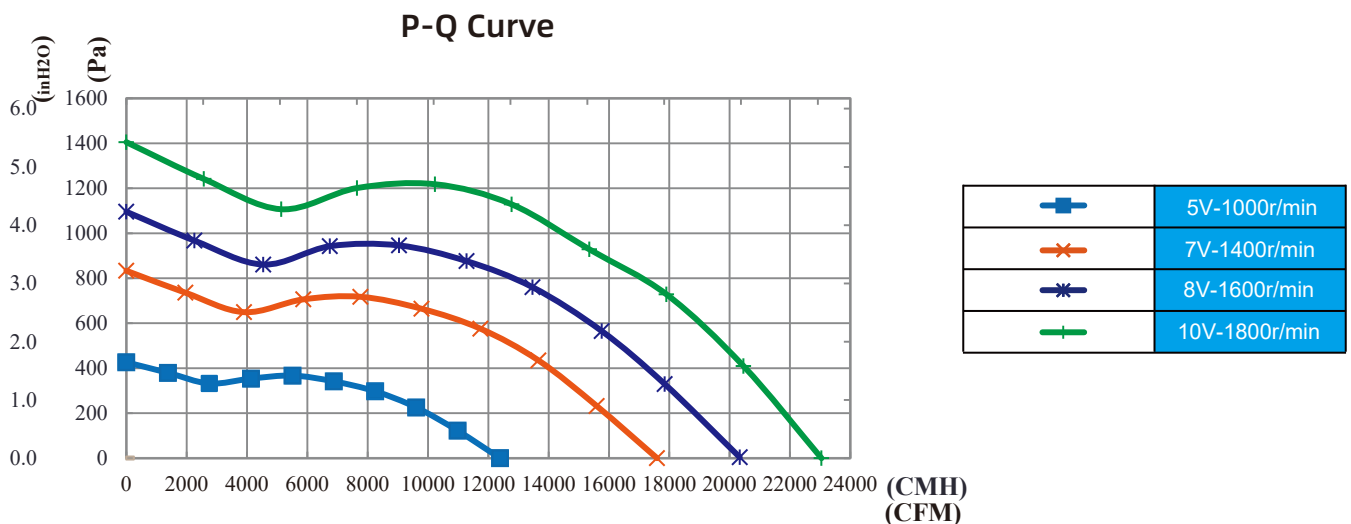
## 1.Product Standards and Usage Environment

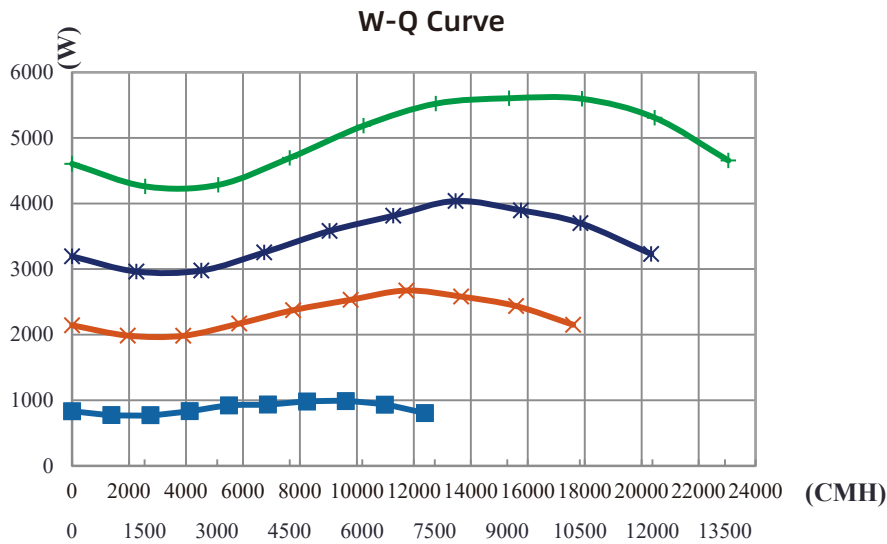
- 1-1.GB14711 Safety requirements of small and medium size rotating electrical machines.
- 1-2.JB/T10563-2006 Technical specification for general purposes centrifugal fan.
- 1-3.The fan vibration speed virtual value according to JB/T6411-1992 standard.
- 1-4.All materials accord with RoHS2.0 and REACH.
- 1-5.Operating temperature:-25℃~+60℃.
- 1-6.Operating humidity:5%~95%RH.
- 1-7.Storing temperature:-40℃~+65℃.
- 1-8.Storing humidity:5%~95%RH.
- 1-9.Altitude:≤2000m.

## 2.Performance and Mechanical Parameters

Voltage	3~380VAC
Voltage Range	380~480VAC
Frequency	50/60Hz
Current	9.5A
Power	5600W
Speed(±10%)	1800r/min
Air Flow(±10%)	23000m³/h
Noise(-7/+3)	LpA:92dB(A)
Impeller	Sheet Aluminum,Primitive Color.
Motor Protection	IP54
Bearing	Ball Bearing
Vibration	≤4.6mm/s
Weight	50Kg
Method of Obtaining Data	The rated current and rated power are the parameters of the fan with the guiding ring running at 0Pa. The airflow is measured in the wind tunnel, the noise is tested in a horizontal position in the noise test room, with 1m distance to the air inlet of the fan.
Balancing	When the fan is running at 1800+10%r/min.the dynamic balance accuracy of each end side is not lower than the balance quality grade G6.3.

## 3.Performance curve

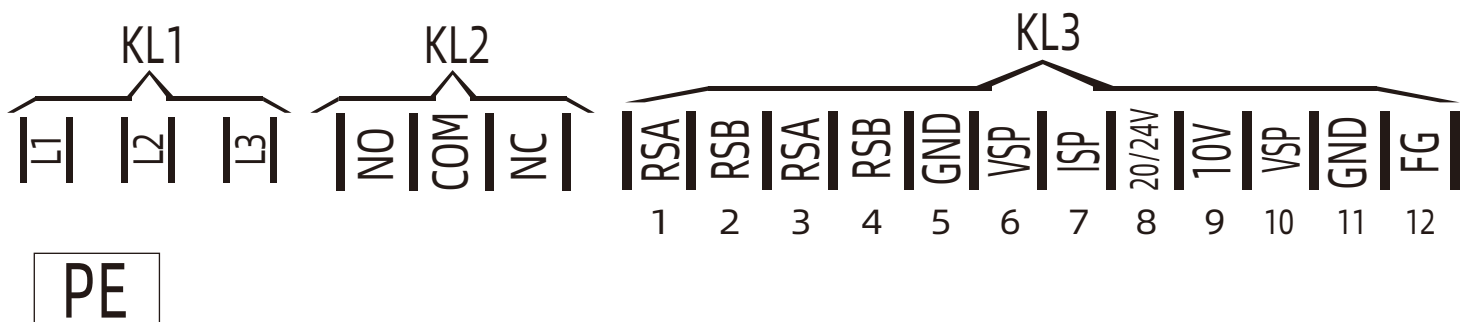


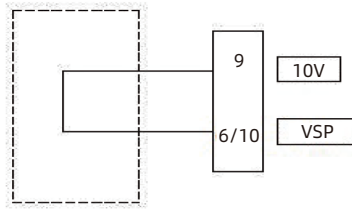
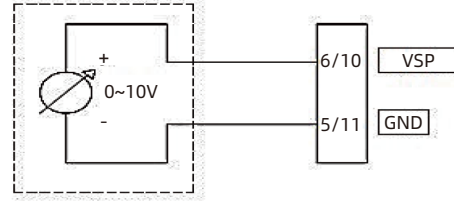
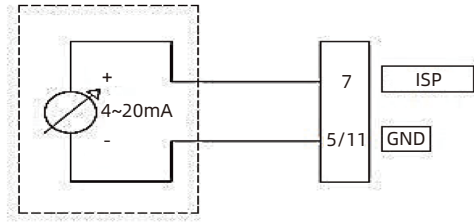
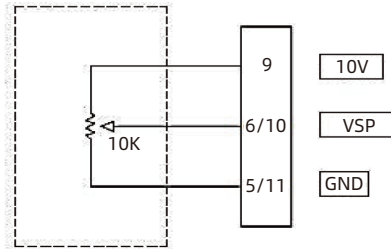


■	5V-1000r/min
×	7V-1400r/min
*	8V-1600r/min
+	10V-1800r/min

Voltage [VAC]	Frequency [HZ]	Input Current [A]	Input Power [W]	Speed [r/min]	Static Pressure [Pa]	Flow [CMH]	Static Pressure [inH2O]	Flow [CFM]
380	50	7.78	4740	1800	1375	0	5.31	0
380	50	9.36	5560	1800	1095	12949	4.23	7626
380	50	9.50	5600	1790	899	15507	3.47	9133
380	50	7.83	4782	1800	4	23000	0	13545
380	50	5.35	3193	1600	1095	0	4.39	0
380	50	6.35	3812	1600	876	11278	3.51	6638
380	50	6.47	3895	1600	565	15761	2.26	9276
380	50	5.68	3361	1600	4.09	20336	0.01	11969
380	50	1.57	832	1000	426	0	1.71	0
380	50	1.75	935	1000	341	6877	1.36	4047
380	50	1.82	987	1000	225	9610	0.9	3379
380	50	1.54	804	1000	0	12390	0	7292

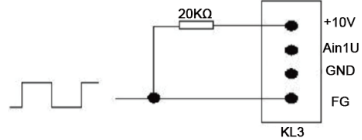
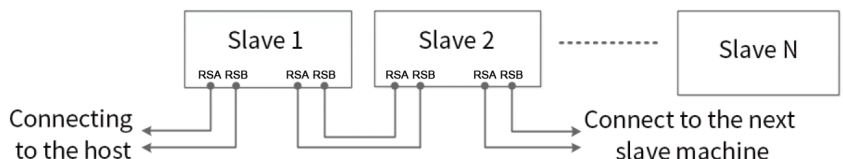
## 4.Wiring Diagram

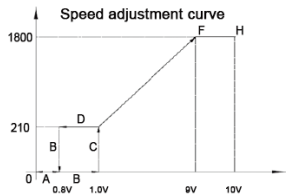


**Full Speed**

**Adjustable speed via voltage/PWM**

**Adjustable speed via current**

**Adjustable speed via Potentiometer**


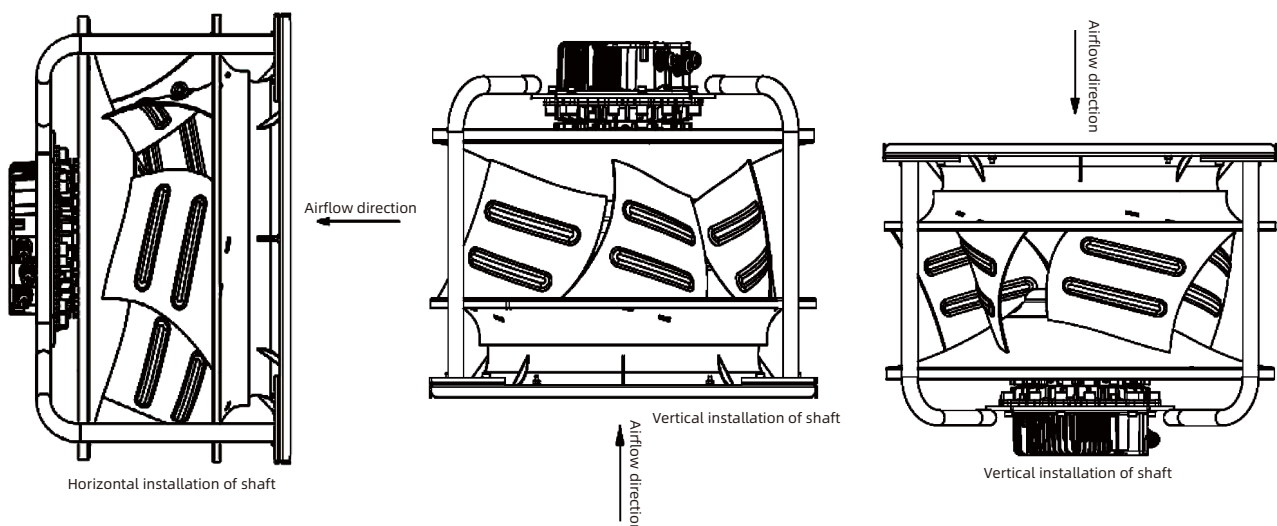
No.	Pin	Signal	Assignment/Function	No.	Pin	Signal	Assignment/Function
KL3	1/3	RSA	Bus connection RS485; RSA; MODBUS RTU	KL2	1	NO	The NO terminal ,when the fan is notpowered and normally operation, openwith COM; the fan is fails,closed with COM.
	2/4	RSB	Bus connection RS485; RSB; MODBUS RTU		2	COM	Alarm relay, common connection;contact rating 250VAC/2A(AC1)
	5/11	GND	Signal ground for control interface KL3		3	NC	The NC terminal ,when the fan is notpowered and normally operation,closedwith COM; the fan is fails,open with COM.
	6/10	VSP	Control input 0~10VDC/PWM; only;usable as alternative to input 4~20mA		1	L1	Mains supply connection, supply voltage 3~380-480± 10%VAC;50/60Hz;Customers need to supply air switch or time-lag fuse 20A~25A.
	7	ISP	Analogue Control input 4~20 mA; onlyusable as alternative to input0~10V/PWM		2	L2	
	8	20/24V	Fixed voltage output 24VDC (±2Vmax. 20mA); power supply for ext.devices (e.g. potentiometer);Note: This product does not support 20VDC auxiliary power output.		3	L3	
	9	10V	Fixed voltage output 10VDC (±1Vmax. 5mA); power supply for ext.devices (e.g. potentiometer)	PE		PE	Earth connection, PE connection
	12	FG	Speed Signal Feedback/ FaultFeedback				

## 5. Technical Features

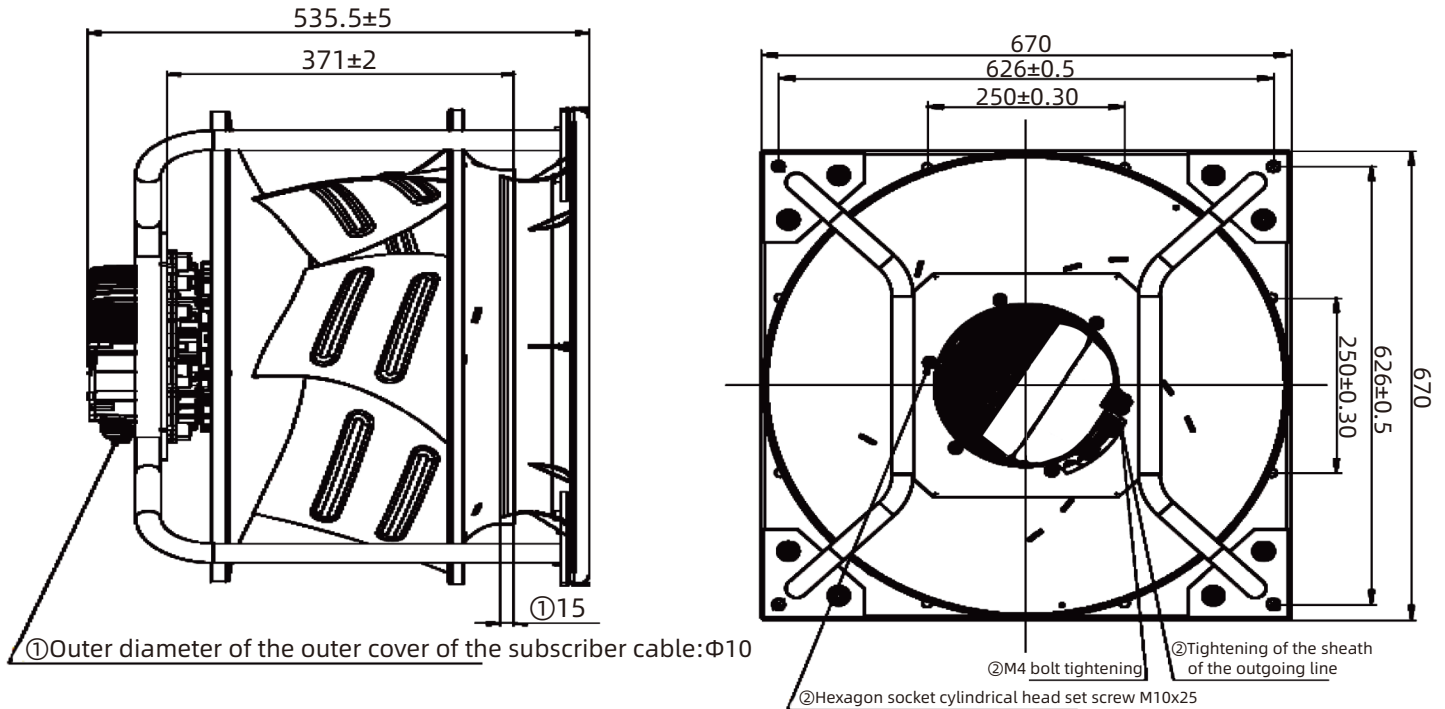
Soft start	The motor starts at low speed and reaches full speed about 30 seconds' running for reducing power supply current surge.
Downwind and upwind start function	The fan can start to rotate below 500 r/min in the downwind or in the upwind.
Over-current protection function	The fan has overcurrent protection.
Driving module over-temperature protection function when operates under rising temperature	When the IP module reaches the first layer of defined temperature, the fan deceleration runs. When the first layer of protection does not reduce the temperature of the IP module and the IP module reaches the second layer of defined temperature, the fan stops running.
Power phase loss protection function	Power phase loss, stop driving output.
Relay output	Under the situation of input voltage exceeds limit ( $540 \pm 20\text{VAC}$ ), under-voltage ( $280 \pm 20\text{VAC}$ ), driving module over-temperature, power open-phase, the common contact of relay is turned to NO contact.
Feedback function of rotary speed	<p>The FG terminal of the user interface terminal on the control circuit board is pulled up to <math>10\text{V}+1\text{V}</math> by the external 20K resistor. When the motor is running, the FG terminal outputs a duty cycle of 50% square wave signal. Each revolution of the motor outputs 5 complete outputs of the square wave of the cycle.</p>  <p>The power supply of FG signal circuit needs to be stable, input power supply voltage is not allowed to exceed specification and surge pulse. External resistance needs to accord with specification. FG port needs to prevent electrostatic damage.</p>
Locked-rotor protecting function	Lock the loaded fan, and input rated voltage (380-480VAC) and speed control voltage, and input current is less than the rated value.
Online model	<p>The fan has RS485 communication function, and the upper computer can start and stop and speed control the fan in communication mode, and query fan operating status. The communication adopts MODBUS protocol, and the fan acts as the MODBUS slave. Suggestions for use: the longest communication distance is &lt;200 meters, the number of slave machines is <math>\leq 20</math>, the communication cable is twisted pair shielded cable, and the fans are connected by hand in hand. Illustration.</p> 
Auxiliary power output	<p>Output <math>10 \pm 1\text{VDC}</math>, load current <math>&lt; 5\text{mA}</math>.</p> <p>Output <math>20 \pm 2\text{VDC}</math>, load current <math>&lt; 20\text{mA}</math>.</p>

Speed control	<p>When the RMS of the minimum control voltage is <math>1.0 \pm 0.2V</math>, the motor starts to run; when the voltage is lower than the minimum control voltage of <math>0.2V</math>, the fan stops; when the effective value of the control voltage is <math>9V \sim 10V</math>, the motor runs at full speed; the maximum control voltage input should be less than <math>12V</math> to avoid damage to the controller.</p>  <p>The PWM signal voltage amplitude is: <math>10V \sim 10.5V</math>; the frequency range is: <math>1K \sim 10KHz</math>; the minimum duty cycle effective value is <math>10\% \sim 2\%</math>, and the motor starts to run; when the value of the starting duty ratio is lower than <math>2\%</math>, the fan stops; when the effective value of the duty cycle is between <math>90\% \sim 100\%</math>, the motor runs at full speed; the input voltage amplitude should be less than <math>12V</math> to avoid damage to the controller.</p>
	<p>Linear current: <math>4 \sim 20mA</math>.</p> <p>When the RMS of the minimum control current is <math>5mA \pm 1mA</math>, the motor starts to run; when the current is lower than the minimum control current of <math>1mA</math>, the fan stops; when the effective value of the control current is <math>19 \sim 20mA</math>, the motor runs at full speed; the maximum control current input should be less than <math>25mA</math> to avoid damage to the controller.</p> <p>When the speed setting value is <math>\geq 7467</math>, the fan starts to run; when the speed setting value is <math>\geq 64000</math>, the fan runs at full speed.</p>
Touch current	Touch current: $\leq 3.5mA$ .
Withstand voltage	Withstand voltage in line with GB/T21418 General specification for permanent magnet brushless motor system.
Inlet cones	The air deflector is made of plastic material, black, flame retardant grade: V-0.

## 6.Installation Direction Description



## 7.Outline Drawing



① In addition the suggestions to customers , the minimum distance between strong power cables(three-phase power cables)and weak power cables(control signal cables)is 30cm.

② M4 bolt tighten, with a torque of  $1.5 \pm 0.3 \text{ Nm}$ ; Hexagon socket head bolt assembly, and the recommended locking force is 40 ~ 45Nm;The locking force of the lead sheath is recommended:  $4.5 \pm 0.7 \text{ Nm}$ .

## 8.Life Expectance

The life expectancy is 40000 hours at rated voltage, ambient temperature of  $40^\circ\text{C}$ , and continuous operation of the fan at full speed. (According to the actual working conditions of the product, the life expectancy will be different).

The warranty period is subject to the agreement agreed by both parties.

## 9.Notes

Tested at room temperature of  $25^\circ\text{C}$  and relative temperature of 85% RH;

Air volume is tested according to ISO 5801 installation category A standard;

Noise is tested for sound pressure level, according to GB/T

2888 Fan and Roots Blower Noise Measurement Method, the axis is placed horizontally and the fan is tested 1 meter away from the air inlet of the fan . The given value is valid under the above conditions and may vary according to the actual installation situation.Measurement Method, the axis is placed horizontally and the fan is tested 1 meter away from the air inlet of the fan . The given value is valid under the above conditions and may vary according to the actual installation situation.