



## **Greenhouse Cooling System**

“Cooling pad + ventilation fan” tunnel ventilation is the most economical and efficient cooling way in greenhouses and in farms in summer.

Reasonable design and installation of cooling pad with ventilation fan can control the temperature in the greenhouse and in the poultry house even at the hottest weather. It can reduce the negative effect of high temperature to the minimum.

### **The temperature difference test between the Wet-bulb and dry bulb:**

Temperature of the dry bulb and the wet bulb is different at any time in the outside.

Temperature of the dry bulb is high, and that of the wet bulb is lower. In hotter weather, the bigger temperature gap between dry bulb and wet bulb.

The ventilation fans adopt CAD optimization to design air volume, keep the air flow, and to maintain the temperature, humidity, carbon dioxide concentration in greenhouse in a relative uniform condition.

Please review the detail introduction in the page of Greenhouse fans.

The Evaporative [Cooling System](#) is accomplished at the paper pad. This cooling pad is made of corrugated fiber paper which is covered by thin layer waterfilm. When the outside hot air passes through the paper, water on the thin film will absorb the heat in the air and evaporate into vapor. And the cool and humid air will enter the room. The processing is just like the wind blowing through the water level. Please review the detail introduction in the page of Evaporative Cooling Pad.

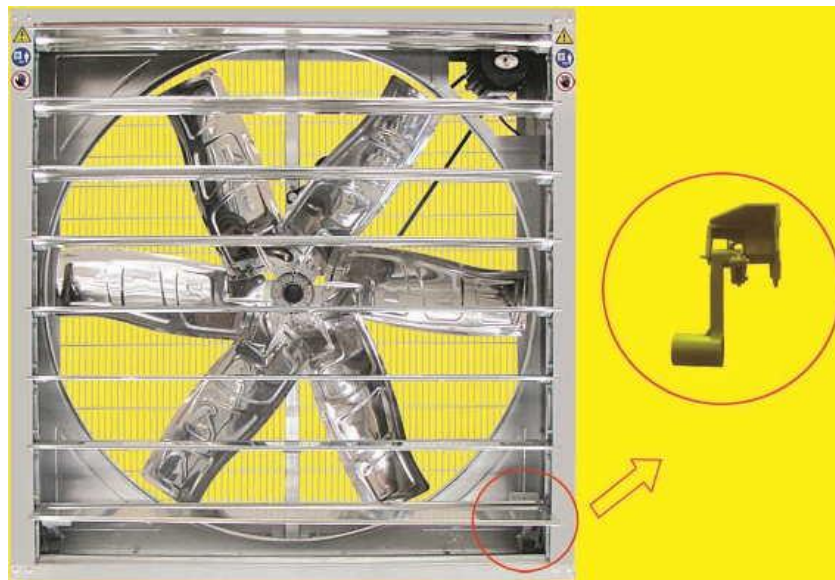
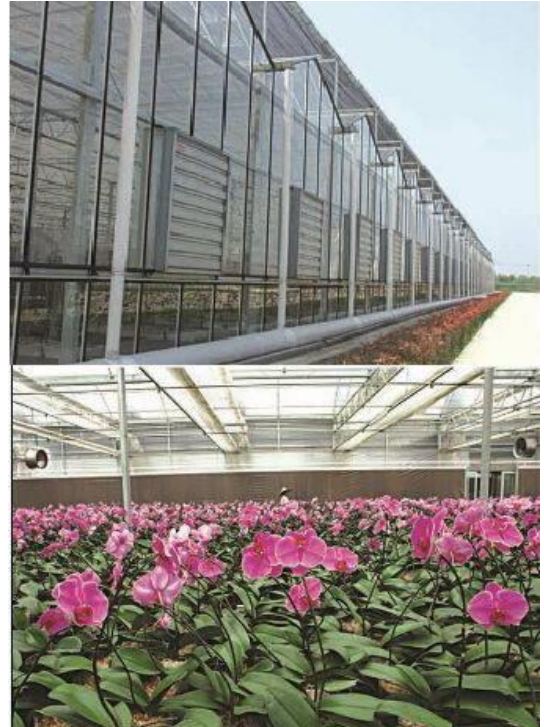
### **Installation of Cooling System**

The cooling pad can be installed on the one side of transverse wall, and ventilation fans are on the other side of transverse wall, it is called transverse way installation. If the cooling pad and ventilation fans are installed in lengthway, it is called lengthway installation. Both ways of installation can make good cooling effect. See pictures.



## 1. Greenhouse Fans

### (1) Greenhouse Ventilation Fans





**Features of Greenhouse Fans:**

1. The fan consists of blades, motor, frame, protect net, support frame and shutters.  
The shutters open and close automatically when the fan starts and stops running, avoiding outside dust entering the room.
2. Frame of the fans: extra thick, galvanized steel sheet, one-off molded, high strength, anti-corrosive and durable.
3. Shutter, made of high strength galvanized steel sheet, flexible operation, dustproof and waterproof.
4. Belt tensioner, made of high quality aluminum magnesium alloy, avoiding belt loosening or dropping off, extending service life of belt and avoiding distortion.
5. Strict test criterion, consist of airflow test, noise test, libration test, drive concentric test, blade RPM test, whole machine efficiency test, dynamic balance test, the thickness of the galvanized sheet test, the size of the spare parts test, etc.

**Main components and parameters of Greenhouse Fans:**



Blades are made of high quality stainless steel by CNC TURRET PUNCH PRESS, attractive and durable, special design of blade shape ensuring big air flow, no distortion ,no broken, passing the homeostasis test to ensure the air volume keeping the same as the very beginning during the operation life span.



Siemens motor or Chineses famous motor can be chose, high efficient and energy-saving with CCC certificate. Protection class, IP55, insulation class, F. The voltage ,power ,frequency and phase can be customized.



Belt impeller and pulley are made of aluminum magnesium alloy by injection molding, and pass through blast-sanding treatment for attractive appearance, reducing the weight of blade, high corrosion resistance, eliminating internal stress to improve its own rigidity and stability, high



strength.



The bearing adopts special waterproof design of double-row bearing, high intension, low noise, maintenance-free and long service life.



Swung drop hammer is made of high quality nylon, stable performance, guaranteeing the shutters open and close flexibly.

**Main technical parameters of Greenhouse Fans:**

Model specifications	Diameter Blades(mm)	Blades Rotational Speed(rpm)	Motor Rotational Speed(rpm)	Air flow (m3/h)	Total Pressure (Pa)	Noise	Power (W)	Voltage (V)	Height (mm)	Width (mm)	Thickness (mm)
JLF(c)-620(20'')	500	1400	1400	5700	55	≤70	250	380	620	620	400
JLF(c)-780(28'')	710	960	960	23000	75	≤70	750	380	780	780	400
JLF(c)-830(29'')	720	660	1400	20000	60	≤60	550	380	830	830	400
JLF(c)-900(30'')	750	630	1400	22000	65	≤65	370	380	900	900	400
JLF(c)-1000(36'')	900	610	1400	30000	70	≤70	750	380	1000	1000	400
JLF(c)-1100(40'')	1000	600	1400	32500	70	≤70	750	380	1100	1100	400
JLF(c)-1220(44'')	1100	460	1400	38000	73	≤70	750	380	1220	1220	400
JLF(c)-1380(50'')	1250	439	1400	40000	56	≤70	1100	380	1380	1380	400
JLF(c)-1530(56'')	1400	325	1400	55800	60	≤70	1500	380	1530	1530	400



(2) Air Circulation Fan



**Features of Air Circulation Fan:**

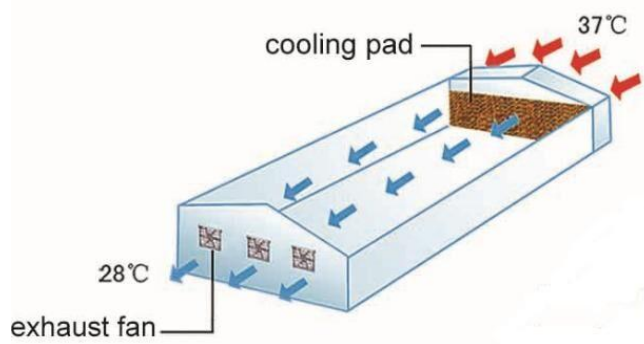
1. The fan consists of blades, motor, frame, protect net, support frame and shutters.
2. Adopt international advanced energy-saving technology and automatically heat protection system.
3. Blades are made of lightweight aluminum plate by punch press, large angle, big air flow, low noise.
4. Other structural components are made of high quality stainless steel, light weight, attractive and durable, easy to install.
5. CAD optimization design, big air volume, keeping the air circulation of the house and balancing the temperature, humidity and carbon dioxide chroma

**Main technical parameters of Air Circulation Fan:**

Modle	Phase	Blade diameter	Voltage (V)	Frequency (HZ)	Power (W)	Motor rotational Speed(rpm)	Air flow (m <sup>3</sup> h)	Weight (kg)	Size
JLFD40-4	single	400mm	220	50	180	1400	3800	10	470*470*340mm
JLFS40-4	three	400mm	380	50	180	1400	3800	10	470*470*340mm
JLFD50-4	Single	500mm	220	50	500	1400	7000	14	580*580*350mm
JLFS50-4	three	500mm	380	50	500	1400	7000	14	580*580*350mm



## 2. Evaporative Cooling Pad

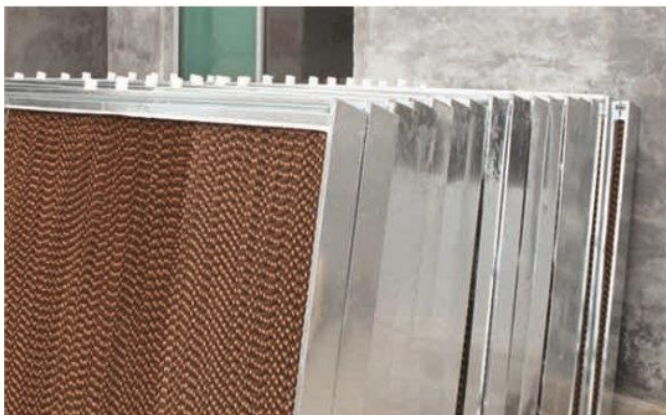


### Specification of Cooling Pad

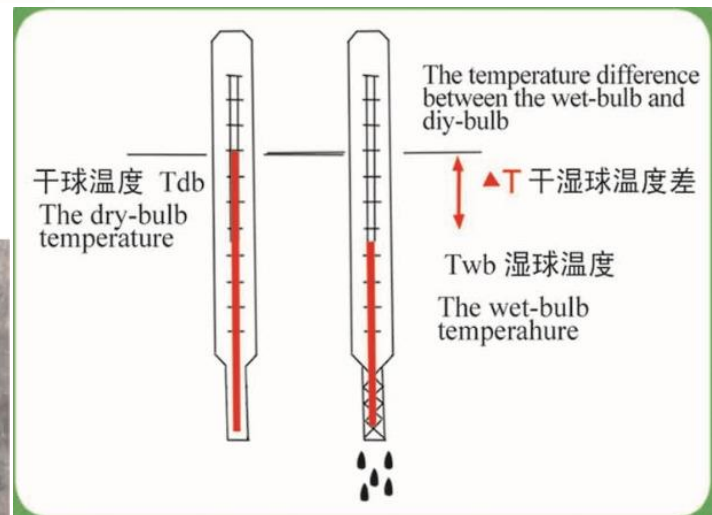
H: Height    W: Width    D: Thickness  
h: Flute high     $\alpha$ : Across angle (1)     $\beta$ : Across angle (2)

	7090型	5090型
H (mm)	1500. 1800. 2000	1500. 1800. 2000
W (mm)	900. 600. 300	900. 600
D (mm)	100. 150. 200. 300	100. 150. 200. 300
h (mm)	7	5
$\alpha$ (°)	45	45
$\beta$ (°)	45	45

\*\*\* Sizes of 5090 can be made by order



Aluminum Frame





### **Features and Quality**

1. Made of corrugated fiber paper with the spatial crossing linking technology, high absorbability, high water resistant, corrosion resistant and anti-mildew.
2. High hygroscopicity, to absorb water naturally, with fast speed of pervasion and lasting effectiveness.
3. Specific stereoscopic structure, supplying enough surface area for heat exchange of the water and air
4. No micro hole on the surface. No phenol in the raw material.

### **Function**

The cooling process of Evaporative Cooling System is accomplished at the paper pad. This cooling pad is made of corrugated fiber paper which is covered by thin layer water film. When the outside hot air passes through the paper, water on the thin film will absorb the heat in the air and evaporate into vapor. And the cool and humid air will enter the room. The processing is just like the wind blowing through the water level.

### **The temperature difference between the Wet-bulb and dry bulb:**

Temperature of the dry bulb and the wet bulb is different at any time in the outside. Temperature of the dry bulb is high, and that of the wet bulb is lower. In hotter weather, the bigger temperature gap between dry bulb and wet bulb.

### **Frame of Cooling Pad:**

The frame can be made of galvanized aluminum alloy or stainless steel, beautiful and practical, high-strength, easy to maintain and replace cooling paper.

Antioxidant treatment process enhanced service life.

Cooling paper is made of high quality corrugated fiber paper from Kiamusze. High hygroscopicity, good effect of refrigeration.