How to plan and design a misting system?

The choices of pumps and nozzles are determined by the size of the installation site, the requirements of cooling, misting, and humidification effects and the humidity in the air.

- Nozzle: For best fogging effects, choose nozzles with small orifice sizes to reinforce cooling effects and to avoid dripping. This also helps to increase the negative ions in the air.

- Spacing: Standard spacing between nozzles ranges from 0.5 to 1.5meter. Standard spacing between pipelines is determined by nozzle output and the desired humidity to be created.

- Pump: The pump is determined by the number and size of nozzles used. For example, if the flow of a nozzle is 46cc/min and there are 300 nozzles used, then the total volume of water required per minute is 13,800 (46x300). Please use a pump with a minimum output volume of 13.8liters per minute. Generally, a pump with pressure 70bar will achieve the best results. It is advisable to use at least 70% of the water produced by the pump to avoid significant overflow. Too much overflow not only a waste, it also maltreatment the pump.

Direct-Drive Pumps are especially compact and suited to portable, low demand misting. They use less electricity and need less maintenance than Pulley Driven pumps. But they are not as durable and do not have the added shock absorption of the pulley / belt drive pumps. These are the most economical of High pressure pumps and are also suitable for Low and Medium pressure systems.

Model	Working pressure (psi)	Suction volume (l/min)	Nozzle Qty.*	Motor Power (W/ Hp)	Motor Volt	Motor R.P.M
SS040	1,000	0.4	4 ~ 7	125	230	1,410
WM1001		0.9	10 ~ 16	200	230	1,410
WM2000		2.0	24 ~ 37	1/2Hp	230	700
WM3300		3.4	40 ~ 65	1/2Hp	230	700
WM4500		4.5	54 ~ 87	1Hp	230	920

Direct pumps features:

Dual Bearing Design
- Lowers the heat and noise by reducing friction and wear.

Pressure Switch (Water Sensor)
- Automatically stops the pump when the water supply is interrupted, protecting the pump from damage.

Pressure Gauge

Forged Manifold
- Anti-rust, non-leaking design extends the life of the pump.

Pressure Release Valve**
- Automatically releases pressure from the mist line when the pump stops to prevent leaking nozzles.

Rinse Cooling Design
- Internal rinse design channels water to packings to reduce heat stress and increase the life of the packings.

Inlet Filter (Mesh Dia: 0.1mm)

Circuit Breaker
- Stops the motor if the voltage is outside of the safety parameters.

Remark:
* WM series complete with box and ventilation fan to protect pump, easier cleaning and maintenance, better outlook.
** Pressure release valve for model SS040 is optional item.
*** All models complete with one outlet filter. Dual filters for each pump, increases the pump's life and reduces clogged nozzles.

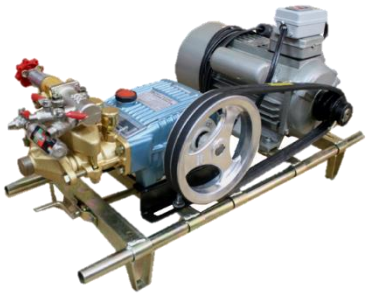
Outlet Filter***
(Mesh Dia: 0.1mm)

Box & Ventilation*

Pulley / Belt Driven Pumps use a system of pulleys and belts. Pulleys provide the greatest flexibility in meeting a particular flow requirement. Belts provide added shock absorption during stops and starts. These are suitable for all systems when quality, versatility, and safe, convenient operation are the primary considerations. Pulley-driven misting pumps offer quiet, efficient operation. Some of these can be run 24 /7 even under extreme conditions. This kind of pump is top of the line but may require additional selection, installation and maintenance steps.

Model	Working pressure (psi)	Suction volume (l/min)	Nozzle Qty.*	Motor Power (Hp)	Motor Volt	Motor R.P.M
SS70	1,000	6.50	130	1.5	230	1,400
WM1030		29.0	580	5.5	230	1,430

Pulley driven pump features:



- Ceramic tri-plunger pump: Suitable for large installation sites and supplying long-multi branch mist lines.
- Dual filter system (inlet and outlet): Increases the pump's life and reduces clogged nozzles.
- Pressure switch: The pump will automatically stop when the water supply is interrupted, protecting the pump from damage.
- Pressure release valve: The pump will automatically release pressure from the mist line when the pump stops to prevent leaking nozzles.
- Belt-driven design: Low-revolution, low-noise system is easy to maintain. Creates larger output volume.
- Pressure Gauge: Easy monitor pressure level.
- Circuit Breaker: Stops the motor if the voltage is outside of the safety parameters.

Remark:

* 3 designs (eg. a. Box with door, b. frame with four wheels, c. simple frame only) available for the pulley drive misting pump.

** Solenoid valve is optional item.

Nozzle

Wulli brass/ni-plated brass cleanable nozzle design with 10/24 threads. Every mist nozzle include stainless steel orifice. The nozzle spare parts (eg. Spring and O ring) is available for change.

Model	Orifice (mm)	Distance (m) *	Drop size (micron)*	Flow rate (cc/m)
SS-01	0.15	2	36.4	50
SS-02	0.20	3	37.9	76
SS-03	0.30	4	39.1	118
SS-04	0.40	4	47.9	172
SS-05	0.50	4	49.9	189
SS-06	0.60	4	N/A	230
SS-08	0.8	4	N/A	274

How to clean the nozzle?

You filter your water as much as possible, but occasional clog from debris or hard water deposit is part of owning a misting system. Misting nozzles, misting filter, how do we clean all of these item.

Usually, removing the nozzle from the system, tapping on a hard surface, an a quick rinse will do the trick, especially for debris clogs. But not always.

To remove hard water deposits in your misting systems nozzles, try this:

1. Remove the clogged nozzle from the system.
2. Remove the O-ring from the misting nozzle.
3. Soak the clogged misting nozzle or misting nozzles in white vinegar or CLR for at least one hour.
4. Rinse the misting nozzle, flush your misting lines and mount the misting nozzles back into your system.
5. If you cannot remember the last time you replaced your misting system filter, its probably time to replace it.

DIY Misting System

Step 1: Plan and design your misting system. Calculate the number of nozzle required and select the misting model.

Step 2: Start the measurement at the junction of the mist tubing. From the misting pump and the mist line, proceed to the desired end point. Based on each individual situation, you may have to break the measurements up into several segment. After measuring, calculate the number of lengths, connector, joint and clip needed.

Step 3: Begin install the pipe. When install the pipe, keep in mind that they have to hand approximately 8" above the ground to work properly.

Step 4: Finished piping installation. Air and debris must now be bled from the misting lines. Turn on the water and start the pump; water will begin leaking out of the welded nozzles. Walk along the lines and check the welded nozzle for bleeding. Allow the water to run for 15 seconds, then shut it off and install the mist nozzle into each nozzle that bled. Repeat the process until full system run smooth.

Sample of form:

	Quantity
Mist pump model (based on no of nozzle)	
Total length of PE tubing (in meter)	
Total length of stainless steel pipe (SS) (1m/1.5m/3m)	
Nozzle	
Central connector	
End connector	
T connector	
L connector	
Connector joint PE tubing to SS pipe	

Mist pump manual

A. Before operation

1. Make sure that the pump is firmly installed and the connectors are tightened properly.
2. Before operating the motor, turn on the tap water and check whether the suction hose is connected to the pump properly. Discharge redundant air inside the pump.
3. The volume of tap water should be at least 4l/min for SS040 and WM1001; 10 l/min for WM2000, WM3300 and WM4500.
4. Make sure the diameter of the suction hose is larger than 5/8 inch.
5. Make sure the diameter of any extension cords used is larger than 1.25mm^2 for SS040 and WM1001; 2mm^2 for WM2000, WM3300 and WM4500.

B. Maintenance

1. Change the oil when the pump has been used for the first 30 ~ 50 hours.
2. Then, change the oil after every 100 ~ 200 hours.
3. Use #30 ~ 40 oil, add 80cc for SS040 and WM1001; 250cc for WM2000, WM3300 and WM4500 each time.

C. Troubleshooting

1. Unstable working pressure

- Check whether the suction hose is leaking, clogged or afloat.
- Drain out the redundant air by disconnecting the outlet hose.
- Check the valve assembly to see if it is clogged or damaged.

2. Insufficient pressure

- Check to see if the packing, waterproof seal and valve assembly are damaged.
- Check to see if the pressure valve and regulating spring are worn out.

3. Leakage

- Check the U-packing, waterproof seal and piston. Replace them if necessary.

4. Unusual noise

- Check the piston and oil. Replace them if necessary.
- Check the volume of tap water.
- Check whether the nozzle is clogged.

Portable mist fan

Portable mist fan provide the cooler temperatures at lower cost compare to conventional conditioning. Every mist fan complete with high pressure stainless steel misting ring with replaceable atomising nozzles. Our portable misting systems are the best portable misting system for all your outdoor cooling needs.

Model	WH1038
Fan output	160/170/192 (3-speed)
Pump power (w)	125
Mist volume (l/min)	0.40
Working pressure (p.s.i)	1,000
Tank capacity (L)	38
Dimensions (cm)	53 x 53 x 167
Weight (kg)	40
Packaging (cm)	88 x 56 x 112

Features:

- Circuit breaker for electrical safety.
- Strong 18" portable misting fan 200CBM/min output with 3-speed variable pitch.
- Adjustable height up to 185cm.
- 38 litter tank for continuous misting.
- Tri-filter system: filter at the tank, mist line and nozzle.
- Two 10inchi wheel and one swivel front wheel, easy to move.
- Hose connector inlet with float valve shutoff to prevent overflowing.