

# Fan Tech HMC Series Technical Manual



- Carefully read and understand the entire technical manual before attempting to install, operate, or perform maintenance on this equipment.
- Contact your supplier if you do not understand these instructions.
- Failure to follow these instructions may lead to serious injury or death.
- Retain these instructions for future reference.

All operators are to read and understand this manual.

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## **Overview of Fan Tech High-Pressure Misting System**

Thank you for choosing Fan Tech as your provider for high-pressure misting systems. Fan Tech is devoted to providing its customers with reliable high-pressure cooling systems engineered with quality components to meet their cooling needs.

Fan Tech's high-pressure misting system provides superior cooling by combining small orifice misting nozzles with a high pressure pump to create a very fine mist or fog. This fine mist will quickly evaporate reducing the temperature of the ambient air. Fan Tech pairs the misting system with durable fans to reduce the temperature in the desired location.

## **Installation**

The customer is responsible for the installation of fans and pumps. Installation guides for the fans are located in the appendix or in the box with the fan. Please consult professionals when installing to ensure of proper compliance with local and state laws.



Fan Tech is not responsible for Installation. Harm and damage may occur during or due to an improper installation. Please consult a professional when installing.

## **Start-up and Operation Procedures**

The high-pressure misting systems require both electrical and water inputs to function properly. Electrical connections are needed to provide power to the pump motor and the fan motor. Use the proper electrical source to ensure the system will operate correctly. Contact a certified electrician to verify the proper installation if necessary. The water inlet must provide the system with a constant water pressure between 15-70 psi. A pressure switch has been integrated into the system and will automatically shut down the pump motor if the water pressure is not within the specified range.

- **1.** Connect the water supply to the 3/4" female garden hose adapter. See pictures of each unit in the appendix. The water supply should meet the following conditions:
  - Flow rate of 1GPM or more
  - Water less than 7.5 pH
  - Pressure between 15-75 PSI
  - Dissolved solid content less than 500 PPM

Possible damage from improper water supply includes:

- Clogged misting nozzles or filters due to solids in water.
- Black or galvanized steel pipe fittings; only use hose and pipe fittings compatible with water to prevent corrosion.
- Pump damage may occur due to fluctuations in the water supply, cogged nozzle, or closed off discharge side of pump. Never attempt to operate the pump with no water supply connected.

**2. Connect the proper power supply.** Fan Tech offers a variety of pump and fan combinations which require different amounts of power. Do not use unapproved extension cords or adapters to connect the system. Common electrical systems have plugs only rated to 15 amps. Common breakers are overloaded at 20 amps. Consult a certified electrician if you are unsure about your power supply.



ELECTRICAL SHOCK HAZARD: Serious injury or death is possible Only connect the power supply plug to a properly grounded receptacle.

**3. Initial operation and start up of the system.** Several different style pumps are available. Please see the appendix for interface operation instructions. During initial start up air may be trapped in the system, remove the nozzles for the initial start up. Insert the nozzles then start again, wait 15 to 20 seconds for the system to flush out any additional air. Some units have a ball valve on the high pressure side, opening the ball valve may help flush out the air. See the appendix for location of ball valve. If the system fails to operate see the troubling shooting section. The mist should form an even cone shape when exiting the nozzle. If the cone is not even, or if the nozzle appears to be leaking, reference the troubleshooting section.



Do not increase the system pressure above 1000 PSI. Damage to internal components may occur.

**4. Turning on the Fan.** Connect the fan to a proper power source. To turn the fan on, turn the knob or pull the cord connected to the fan motor. Some fans have multiple speeds or oscillate depending on the type of fan purchased. For more information about the operation of the fan consult the index, the user manual provided with the fan, or contact Fan Technologies.



ELECTRICAL SHOCK HAZARD: Serious injury or death is possible
Only connect the power supply plug to a properly grounded receptacle.
PINCH HAZZARD: Do not operate fans without gaurds in place. Do not insert anything into fan guard while the fan is operation.

**5. Turning off the system.** Turn off the pump and the fan by turning or pressing their respective knob, buttons, or pull cords. The nozzles should stop emitting the mist immediately. The pump units have an automatic pressure relief solenoid that briefly opens when the system is turned off. Water will briefly eject through the tube connected to the system. This does not relieve all the pressure. In order to relieve all the pressure or drain the system open the ball valve. When the power to the pump is shut off the low pressure solenoid valve closes, keeping water pressurized between the pump and the solenoid valve. This is done to prevent the pump from a dry start.

#### **Maintenance**

- 1. Nozzles. Nozzles should be checked regularly to ensure the best misting performance. The mist or fog should emit from the nozzle in an even cone shape. If the mist is not an even cone shape the nozzle needs to be cleaned or replaced. To clean a nozzle, first remove it from the misting ring. Disassemble the nozzle and soak the nozzle cap and impeller in ZEP, CLR, or vinegar. Do not soak the spring, stopper, housing, or filter. After soaking, rinse with water and reattach to the misting ring, do not use tools. The nozzles should function properly when screwed in by hand. Nozzle Filters may become clogged over time preventing the nozzle from functioning properly. The system should already have large filters, so the smaller nozzle filters may be removed or replaced when clogged.
- **2. Pump.** The pump requires an initial oil change after 50 hours of service, and additional oil changes every 3 months or 500 hours. Use ISO68 hydraulic oil. When changing the oil disconnect the electricity to the system. Do not run the pump without oil in the crankcase. Check the seals and valves for wear after 1000 hours. Check immediately if the systems performance decreases.
- **3. Filters.** The filters should be checked frequently and replaced if needed. The filter life depends on the water source. If the filter is dirty replace immediately because it is restricting water flow to the pump and may damage the system. To check the filter simply unscrew the housing from the top bracket. When replacing the filter it is also good practice to clean the housing with bleach. Use a few tablespoons of bleach mixed with water and scrub the inside of the housing. Make sure the o-ring is in place when reattaching the housing to the bracket, then hand tighten and check for leaks.
- **4. Storage.** When storing the system for more than a few days, or transporting the system, it is important to drain the water. Draining the water prevents calcification problems or the formation of algae. Drain the system by opening the ball valve and relieving the pressure in the system. It may be necessary to tilt the system to drain all the water. Also drain the filter housing to preserve the filter. Store the unit in a dry location with ambient temperature. Avoid areas that are subject to excessive heat, dust, humidity, freezing, or damage from nearby equipment. If freezing conditions are possible flush your pump with a 50/50 solution of anti-freeze/water. Also drain any supply hoses or tanks.

For initial operation after a long duration of non-use it is necessary to flush the system of particles. Remove the nozzles and power up the system and allow water to flow through the nozzle opening for a few seconds. After flushing the system, reattach the nozzles by tightening by hand.

# **Troubleshooting**

Troubleshooting		
Problem	Potential Cause	Corrective Action
Fan will not run.	Power supply Connections	Confirm the control switch, knob, or pull
		chain is in the ON position.
		Confirm the power cords are connected.
		Confirm that the power supply is on.
Misting rings will not mist.	Manifold line attached.	Confirm the fittings are securely attached
		at the inline ball valve assembly as well as
		at the pump.
		Confirm it has a water supply.
	Pump not operational.	Confirm control switch is in the ON position.
	Pump malfunction.	Review pump troubleshooting guide.
Surfaces get wet.	Mist is too close. Optimum	Relocate the fan.
· ·	evaporation occurs at least	
	10 ft. from the fan.	
		Use the low speed setting on the fan.
	Too much mist being	Order plugs to reduce the amount of
	produced for the	mist.
	environment.	
		Plug additional nozzles while maintaining
		the minimum required for safe pump use.
		Minimum is 4 nozzles.
		Use regulator valve to adjust pressure to 1000 PSI.
Nozzle leaks during	Nozzles are clogged.	Remove debris from nozzle tip by
operation.		cleaning.
	Nozzles are loose.	Turn off the system and relieve pressure
		to the mist rings, and then hand -tighten nozzles.
	Nozzle o-ring is worn.	Check ball in anti-drip body for debris and replace if necessary
	Ant-drip parts may be worn.	Elongate spring or replace nozzle.
Pump will not run.	Power cord is unplugged.	Plug in power supply to pump.
	Power supply is OFF.	Turn ON supply power to pump.
	Water supply is OFF.	Turn ON supply water to pump.
	Circuit breaker OFF.	Confirm correct voltage and amperage is
	Inlat proceure is low	being supplied.
	Inlet pressure is low.	Confirm the supply water has a pressure between 15-70 PSI.
		Check electrical connection at the
		pressure switch.
		Inspect filter. Replace dirty filters which
		restrict flow.
	Solenoid valve is not open.	Check electrical connection at the
	·	solenoid valve.

		Check diaphragm of the solenoid valve.
Pump stops running.	Power supply interrupted.	Restore power.
	Circuit breaker switched off.	Confirm breaker is no being overloaded or is not worn. Re-size or replace if
	Pressure switch activated.	faulty. Confirm the supply water has a pressure between 15-70 PSI. A shared water
		supply may decrease water pressure. Inspect filter. Replace dirty filter which restrict flow. Check electrical connection at the
		pressure switch.
	Pump motor overheated.	Never operate the pump above 1000 PSI.
		Confirm proper ventilation is available to the pump motor.
		Confirm voltage and that the motor is within the service factor.
		Pressure switch is turning on and off. Supply water pressure should be consistent.
	Pump motor may be damaged.	Motor bearing may have caused pump to seize. Have service shop inspect and replace if necessary.
		Motor may have shorted or been overloaded. Have a service shop inspect.
	Pump head may be damaged.	Crank bearing/connecting rods may be damaged. Have a service shop inspect.
Pump chatters.	Pump is being starved of	Insure that correct inlet water pressure is
·	water.	supplied, especially at system start-up.
	Broken or worn bearing.	Have service shop inspect and replace if necessary.
	Stuck inlet/discharge valves.	Have service shop inspect valves and replace if necessary.
Pump leaks.	Water is leaking.	Have service shop inspect seals and replace if necessary.
	Oil is leaking.	Tighten filler cap and drain plug. Fill crankcase to specified capacity. Unit should be located on a flat and even
		surface.
		Have service shop inspect seals and replace if necessary.
Pump is on but no mist is produced.	Pressure regulator turned low.	Turn pressure regulator clockwise to increase the pressure. Do not exceed 1000 psi.
	There may be a leak in the system.	Confirm that nozzles are intact.
		Check for loose hose fitting in manifold

		line.
	There may be an air-lock	Open the purge valve to release any airlock.
	The pump's pressurization components may be damaged.	This is true if the pump makes a clicking sound. The pump head can be rebuilt, have a service shop inspect.
Water sprays from nozzles after system is shut down.	Anti-drip not functioning.	Check integrity of anti-drip ball and spring.
Filter housing leaks.	O-Ring failure.	Inspect placement and integrity of o-ring. Replace if necessary.

# **Replacement Parts**

Please contact Fan Technologies for the repair parts.

# **Consumable/Common Parts**

 Misting Nozzle
 F10-08-001

 Filter
 F10-10-001

 Hydraulic Oil
 F02-06-001

#### **FAN TECH ONE (1) YEAR LIMITED WARRANTY**

All Fan Tech products are warranted for a period of one (1) year for defects in workmanship and materials under normal use and service. This warranty is extended solely to the original purchaser. In order to initiate this warranty, the <u>Product Registration Form must be completed and sent to Fan Tech, along with a copy of the purchase invoice, within 30 days of purchase.</u>

<u>In General:</u> If a Fan Tech product fails because of defect in material or workmanship under normal use and maintenance within one year from date of purchase, we will, at our option and after inspection, repair or replace the defective product.

**About your Warranty:** Fan products, like all mechanical devices, need periodic parts and service to perform well. Normal use and service means not to operate in excess of recommended maximum speeds, pressures, temperatures or using fluids not recommended or compatible with component materials.

This warranty does not apply to any component which has been repaired or altered to affect the performance or reliability of the product. Similarly, the warranty is void if the manufacture date or the serial number has been removed or if the equipment has been altered or modified.

Fan Tech does not warranty components due to normal wear including nozzles, pumps, motors, and seals. Fan Tech does not warranty components due to misuse, abuse, neglect or improper maintenance, shipping, handling, warehousing or improper installation. This warranty excludes wear items such as water filters, spray nozzles, or pumps that have been run without water supplied; damage or malfunctions resulting from accidents, abuse, modifications, alterations, or improper servicing or freezing or chemical deteriorations. This warranty excludes failures due to acts of God and other force majeure events beyond the manufacturer's control.

This warranty does not cover normal maintenance such as oil changes, water filters, adjustments, or cleaning, etc. This warranty does not cover damage from lack of maintenance (lack of oil or water filter changes) freezing, and obstruction (due to scale, lime, dirt, chemicals, etc.)

Fan Tech is not responsible for the removal and shipping of the system to Fan tech, the reinstallation of the product upon its return to the customer, or any incidental or consequential damages resulting from the defect, removal, reinstallation, or shipment of the product.

<u>Claims</u>: All warranty claims must be submitted to Fan Tech prior to the expiration of the warranty period. Fan Tech will repair or replace any part of the fan product that is defective in material or workmanship. In order to initiate this warranty, the Product Registration Form must be completed and sent to Fan Tech, along with copy of original purchase invoice, within 30 days of purchase. Transportation charges on the product submitted for warranty must be borne by the purchaser. For warranty service, call Fan Tech for a Return Goods Authorization (RGA) number. Products shipped collect or without an RGA number will not be accepted.

If Fan Tech determines that the problem with the product is not due to defects in workmanship or materials, the customer will be responsible for the cost of any repairs and any freight expense to return the product to the customer.

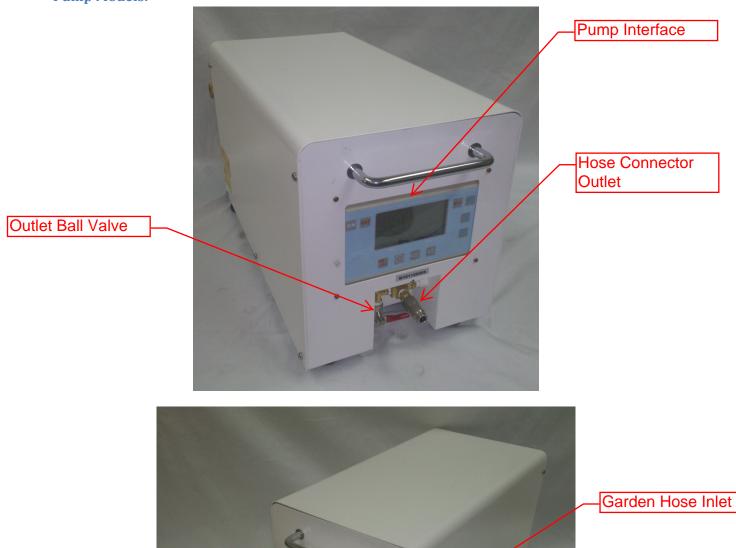
If the product is covered by this manufacturer's warranty, then Fan Tech will pay the freight to send the product back to the customer within the 48 continental United States ONLY.

**No Other Warranties and Liability Limitation:** This limited Warranty and Policy represents Fan Tech's sole and exclusive warranty obligation with respect to Fan Tech products. Fan Tech's liability to a customer or any other person shall not exceed the purchase price of the Fan Tech product. Fan Tech disclaims all other expressed and implied Warranties including the implied Warranties of fitness for a particular purpose and merchantability.

There is no other express warranty. Any and all implied warranties are excluded. Liability for incidental or consequential damages are excluded to the extent exclusion is permitted by law. This warranty gives you specific legal rights and you may also have other rights which vary from state to state and country to country.

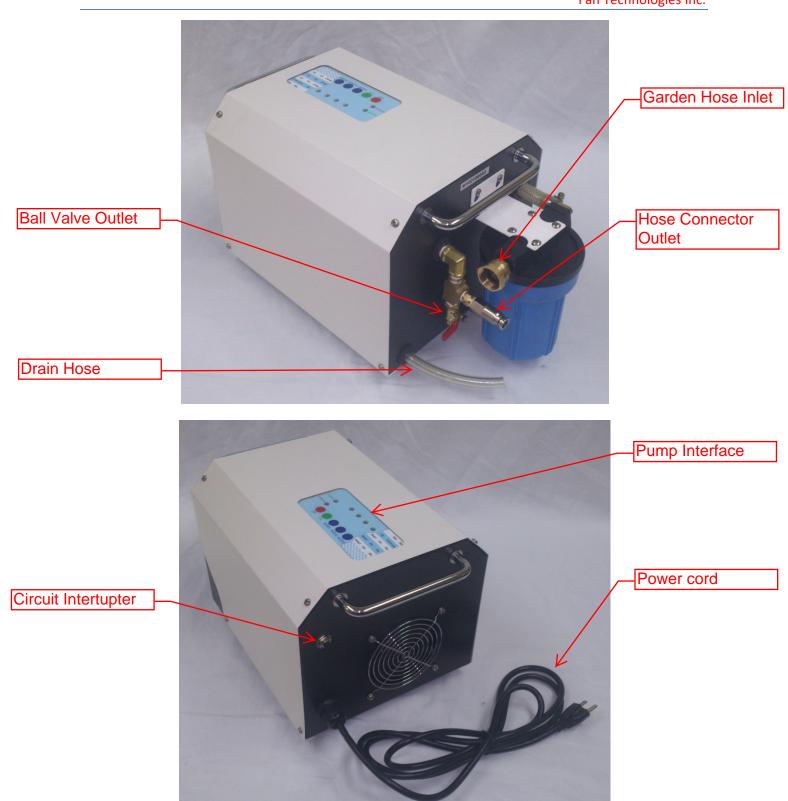
# **Appendix**

# **Pump Models:**



Drain Hose

Power Cord





#### **Fan Installation:**



Stir fans 20, 24, 30				Blade D	Dia. 20" 24" 30"
Size	volts	Amps	RPM	CFM	Dimensions
20"	240v	2.0	1600	5,500	23" x 23" x 16"
20"	120v	3.8	1600	5,500	23" x 23" x 16"
24"	240v	2.0	1600	8,000	28" x 28" x 16"
24"	120v	3.8	1600	8,000	28" x 28" x 16"
30"	240v	3.2	1000	10,000	34" x 34" x 20"
30"	120v	6.7	1000	10,000	34" x 34" x 20"

- 1) Inspect for any damage that may have occurred in transit
- Check all bolts, screws, set screws etc. for looseness, and retighten as required.
- Before installing rotate the blade to be sure it does not rub. Adjust as required.
- Before installation please read the entire information sheet carefully.

#### GENERAL SAFTEY INFORMATION

#### WARNING- TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING.

- Use this unit only in the manner intended by the manufacturer. If you have any questions, contact the manufacturer.
- 2) Before servicing or cleaning the unit, switch the power off at the service panel and lock the service panel to prevent the power from being switched on accidentally. When the service disconnect can not be locked, securely fasten prominent warning device, such as a tag to the service panel.
- Follow all electrical and safety codes as well as National Electric Code (NEC) and the Occupational Safety and Health Act (OSHA).
- Motor must be securely and adequately grounded.
- All moving parts should be guarded.
- When cleaning electrical equipment always use an approved cleaning agent.
- For general ventilation use only. Do not use to exhaust hazardous or explosive materials or vapors.

#### FOLLOW INSTALLATION INSTRUCTIONS CAREFULLY DO NOT TAKE SHORT CUTS

#### GUIDELINES FOR INSTALLATION

- Installation work and electrical wiring must be done by qualified persons in accordance with all applicable codes and standards, including fire-rated construction.
- The unit should be securely mounted in a rigid framework. Note: allowing the fan frame to flex or move will result in undue vibrations and possible pre -mature motor or fan blade failure.
- Connect the power to the motor using an approved wiring method.
- Before activating the fam, double check to ensure that there are no obstructions (Cords, wire, stick) which could interfere with proper fam operation.
- Remove condensation plug—see diagram.
- Use liquid tight fittings and conduit.
- When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.

#### Use limitations

- Fans can be speed controlled.
- Installation instructions for fan and controller must be followed carefully.
   All warranty rights and conditions are considered null and void when a low quality controller is used.
- Air supply and temperature. Sufficient air supply over the motor must be assured in all circumstances. Limits of operating ambient temperatures are 15 to 112 degrees F (-19 to 45 C).
- Industrial restrictions on Polypropylene blades apply. Use with certain chemicals is unsuitable or not recommended—the following is a partial list for guideline purposes.

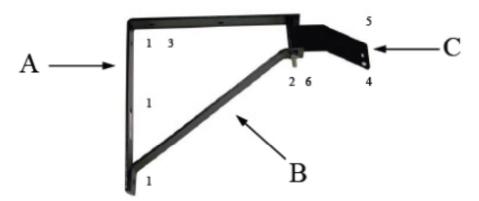
#### Restrictions on Polypropylene Blades (not Recommended)

Chiloro-Sulphonic soid	
Mixture of HNO3-HCI	į
Nitrie Acid	
Sulphuric soid, furning	
Carbon Tetracholride	
Chlorobenome	
-	

mixtures of HN08-H28O4 Esters Because Oscolicus Tolumes Xviene

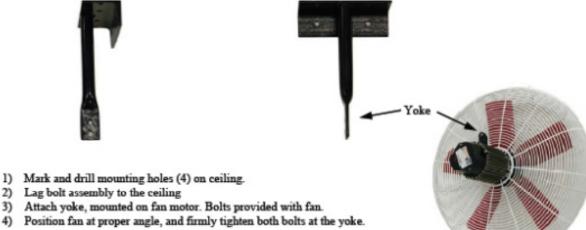
Chloroform 1:2 Dichlorosthylen Trichlorosthylene Disthyl Ether Liquid Chlorine

# Wall Mount Bracket Assembly instructions

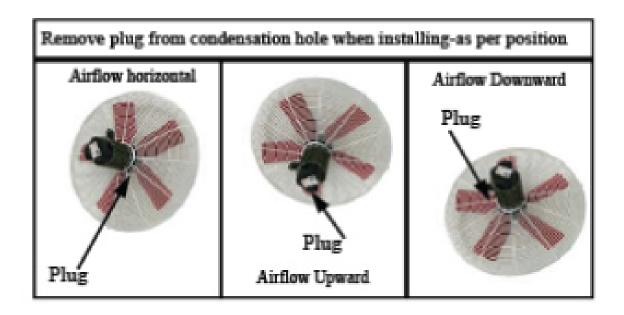


- Mark and drill mounting holes on wall using part A.
- 2) lay out parts as shown and run provided bolt through part A, into sleeve on Part C, and through part B, and thread nut loosely allowing part C to swivel.
- Lag bolt assembly to the wall through upper hole in part A. Position part B, such that the lag bolt when tightened clamps part A and B together at the wall.
- Attach yoke, mounted on fan motor, to Part C. Bolts provided with fan.
- Position fan at proper angle, and firmly tighten both bolts at the yoke.
- Position fan in proper direction and firmly tighten swivel bolt.

# Ceiling or Hanging Bracket instructions

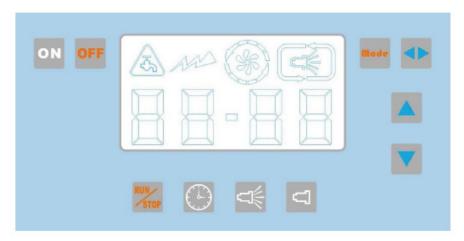


- Mark and drill mounting holes (4) on ceiling.
- 2) Lag bolt assembly to the ceiling
- 3) Attach yoke, mounted on fan motor. Bolts provided with fan.
- 5) Bracket can be hung over the 2x lumber joist or rafter



## **Pump Operation Interface**

Two difference interfaces are available. See the alternate interface section if your interface does not look like the image below.



	BUTTON INSTRUCTION				
ON	ON	V	Resting Time Setting		
OFF	OFF	Mode	Continuous / Intermittent Mode		
RUN	Run / Stop	<b>4</b>	Minute / Second		
	Duration Setting		Time Adjust (Up)		
Q#	Spraying Time Setting		Time Adjust (Down)		

le le	LCD PANEL INSTRUCTION					
Drought Warning		ţ	Spraying			
0	Intermittent Mode	Ω	Resting			
Continuous Mode Running		88-	Spraying / Resting Time (Minutes) Max.: 60 Minutes			
		-88	Spraying / Resting Time ( Seconds ) Max.: 60 Seconds			
		88 X	Duration Setting (Hours) Max.: 20 Hours			

## BEFORE OPERATION

•	Be sure that the power voltage is complied with the specification of machine.
•	Plug in power plug: The LED panel is brightened for normal power supply.
•	Press button , the system will restore to the setting of last operation.

# Four Misting Modes:

- 1. Continuous Mist
- 2. Continuous Mist with timed duration
- 3. Intermediate Mist
- 4. Intermediate Mist with timed duration

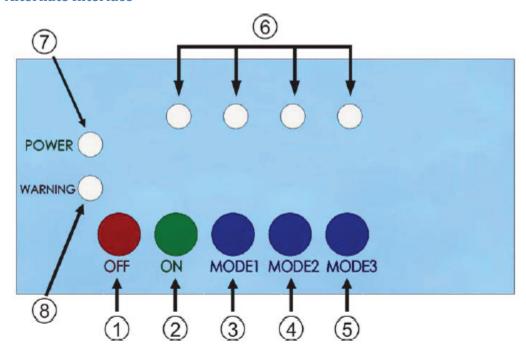
MODE 1: CONTINUOUS MIST				
STEP	BUTTON	INSTRUCTION	LCD ICON	
1	Mode	Select  for continuous mode.	$\Box$	
2	RUN	Start running. The panel shows  and scrolling  for fogging indication.	* 🚭	
3	RUN	Stop running. The panel shows CD.	C	

	MODE 2: CONTINUOUS MIST + DURATION TIME				
STEP	BUTTON	INSTRUCTION	LCD ICON		
1	Mode	Select  for continuous mode.			
2		Set duration time. The panel shows CD and flashing BBH.	88 X		
3	<b>A</b>	Adjust the duration time from 1 Hour to 20 Hours.			
4	RUN	Start running. The panel shows \(\sigma\) \(\sigma\) and scrolling \(\sigma\) for working indication.  The panel shows \(\mathbb{BB}\) H for duration time. The duration time counts down after running.	88 X		
5	RUN	Stop running. The panel shows CDBBH.  Repeat all steps from step 2~3 to reset duration time.	88 X		
6	$\odot$	Double click. The panel shows NO $H$ (1 second) to clear the setting of duration time.	א םת		

	MODE 3: INTERMITTENT MIST				
STEP	BUTTON	INSTRUCTION	LCD ICON		
1	Mode	Select O for intermittent mode.	0		
2	V	Set the spraying time.			
3	•	Select the time unit of spraying time. ( Minute: BB* / Second: BB*)			
4	<b>A</b>	Adjust the spraying time. ( Minute: 01-60, Second: 01-60 )			
5	V	Set the resting time.			
6	<b>*</b>	Select the time unit of resting time. ( Minute: BB- / Second: BB)			
7	<b>A</b>	Adjust the resting time. ( Minute: 01-60, Second: 01-60 )			
8	RUN	Start running. The panel shows O and scrolling *for working indication.  The panel shows for spraying status, or shows for resting status.  The panel shows for time display, and time counts down after running.			
9	RUN	Stop running. The panel shows O.	0		

MODE 4: INTERMITTENT MIST + DURATION TIME					
STEP	BUTTON	INSTRUCTION	LCD ICON		
1	Mode	Select O for intermittent mode.	0		
2	V	Set the spraying time.			
3	<b>*</b>	Select the time unit of spraying time. ( Minute: BB* / Second: *BB )	88.		
			-BB		
4		Adjust the spraying time. ( Minute: 01-60, Second: 01-60 )			
5	V	Set the resting time.			
6	<b>*</b>	Select the time unit of resting time. ( Minute: BB- / Second: BB )	88∙		
		Adjust the resting time. ( Minute: 01-60, Second: 01-60 )	-88 -88		
7	<b>A</b>	Set duration time. The panel shows O and flashing BB H.			
8		Adjust the duration time from 1 Hour to 20 Hours.	88 H		
9		Adjust the spraying time. ( Minute: 01-60, Second: 01-60 )			
10	RUN	Start running. The panel shows O and scrolling *for working indication.  The panel shows spraying time, resting time, and duration time. Time counts down after running.	88 X		

## **Alternate Interface**



No.		Description
1	OFF	Power Off
2	ON	Continuous misting
3	MODE 1	Mist: 15 seconds / Stop: 20seconds
4	MODE 2	Mist: 25 seconds / Stop: 30 seconds
5	MODE 3	Mist: 40seconds / Stop: 40 seconds
6	INDICATOR LIGHT	Indicator light: Operating mode
7	POWER	Indicator light: Power On
8	WARNING	Indicator light: Lack of water supply

## **Misting Line Installation**

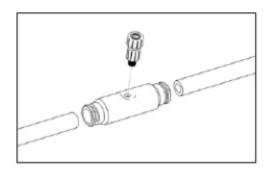
## Cut Nylon pipe with Tubing Cutter.

\* Important Tips: Make sure the cutting surface is flat.

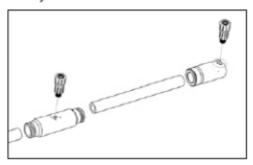


## Misting Tees

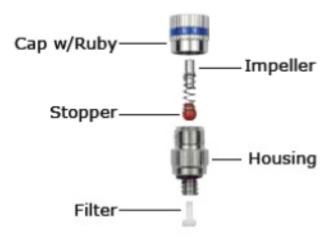
• Push nylon tube into connector as far as possible and then pull. A secure connection will not allow the nylon tube to be removed. Check each connection for leaks while installing.



After the last Nylon Pipe, terminate the tubing with Slip Lock End (Single Hole).

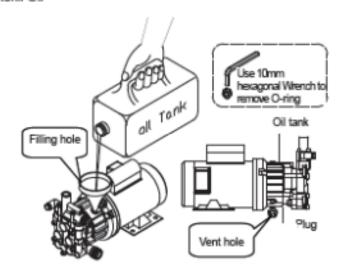


# **Nozzle Components**



# **Changing Oil**

## Refill Oil



Fan Technologies Inc. PO Box 1776 Cedar Park, TX 76813

By: D. Kowal Date: 6/10/2013