



**NAANDANJAIN**

**Dan Fogger / Mister**



## Dan Fogger/Mister

Dan Foggers provide a superior and consistent climate control of temperature and humidity for greenhouse applications. The average fog droplet size is 90 microns at 58 psi. Foggers are used for cooling, humidifying, cutting propagation and seed germination.



### Product Features

- Reduces greenhouse temperature
- Increases greenhouse humidity
- Provides perfect conditions for plant propagation and seed germination
- Extra fine droplet size (average 90 microns @58 psi)
- Available with 4 flow rate nozzles for different precipitation rates
- Available in 4 configurations, single nozzle, 4-way cross (4 nozzles), 2-way Tee (2 nozzles), and Super Fogger (2-way Tee with built-in 2 nozzles)
- Optional plug allows one or more nozzles to be capped. Installed near the edge, end of a line, or against the wall of a structure
- All units start-up and /or shut-down simultaneously when used with Leak Prevention Device (LPD)
- Easy to assemble and install
- Easily disassembled for cleaning and maintenance
- Recommended filtration 120 mesh
- Made of durable plastic for long term operations
- Clog resistant due to wide water passages
- Easily retrofits existing fogger systems



### Applications

- Evaporative cooling and humidifying control for Greenhouse and High tunnels
- Seed germination and cutting propagation
- Livestock cooling
- Chemical application – using the Super Fogger (Please follow product label instructions)
- Organic or conventional fields
- Where uniform application of irrigation water is desired

## Technical Data



### Dan Fogger

- Available in 4 models of Foggers and 4 flow rate nozzles
  - Single nozzle
  - 4-Way cross Fogger assembled with 4 nozzles
  - 2-Way Tee Foggers assembled with 2 nozzles
  - Super Fogger comes with built-in 2 nozzles in Tee configuration (3.3GPH)
- Four Nozzles: Blue 1.8 GPH (standard), Orange 3.6 GPH, Red 5.4 GPH, and Black 7.4 GPH
- Optional plug
- Recommended working pressure: 60 psi
- Required filtration: 120 mesh
- Recommended installation height :3-5 feet
- Recommended distance between foggers: 3-5 feet
- Recommended distance between laterals: 3-10 feet
- Recommended distance of laterals from the edge of the bench: 1 foot



### Green Mist

- Available in 2 models of Misters
  - Green Mist (7.9 GPH)
    - Maximum height 3-4 ft
    - Maximum spacing between sprinklers 2.5 ft
    - Maximum spacing between laterals 3 ft
    - Maximum distance of laterals from edge 6 in
  - Green Mist Jr. (5.3 GPH)
    - Recommended height between 2 - 5 ft
    - Recommended spacing between sprinklers 3-5 ft
- Recommended working pressure 30 psi
- Required filtration: 120 mesh

## Selection Guide

Product	Nozzle Color	Super LPD Color	Pressure (psi)	Nominal Flow (GPH)			
				Single Nozzle	2-Way Tee	4-Way Cross	2-Way
Dan Fogger*	Blue	Blue	58	1.8	3.6	7.2	-
	Orange	Blue	58	3.6	7.2	14.4	
	Red	Blue	58	5.4	10.8	21.6	
	Black	Blue	58	7.4	14.8	29.6	
Super Fogger	Black	None	58	-			3.3
Green Mist	Green	Black	30	7.9	-		
Green Mist Jr.	Purple	Black	30	5.3			

\* For misting application with low pressure systems, use Dan Fogger and Super LPD - Black.

## Ordering Guide

Series #	Mount		Super LPD		Nozzle @ 30 psi		Base		Tubing	
128	2	One Fogger	0	None	0	None	0	None	0	None
	5	2-Way Tee	7	LPD (Blue) - Female (standard)	3	Blue	1	Butterfly - Barb (standard)	1	12" w/weight
	1	4-Way Cross	8	LPD (Black) - Female (standard)	5	Orange	2	1/2" Male - Base	2	18" w/weight
	9	Green Mist	6	LPD (Blue) - Barb	7	Red	3	Fast-n-Fast	3	24" w/weight
	3	Green Mist Jr.	3	LPD (Black) - Barb	8	Black			4	30" w/weight
	4	Super Fogger - Female	5	LPD (Blue) - 3/8"	2	Green (Green Mist)			5	36" w/weight
	6	Super Fogger - Barb	2	LPD (Black) - 3/8"	4	Purple (Green Mist Jr.)			6	48" w/weight
	7	Super Fogger - 3/8"							7	60" w/weight

LPD (Blue) - High Pressure applications, Opens @55psi, Closes @35psi, -Nominal Pressure  
 LPD (Black) - Low Pressure applications, Opens @20psi, Closes @9psi, - Nominal Pressure  
 Standard assemblies come with vinyl tubing.

## Applications

### Cooling

- One calorie is the amount of heat necessary to raise the temperature of 1 cm<sup>3</sup> of water by 1° C. The conversion of water from liquid to vapor absorbs heat from the surrounding air at a rate of 590 calories per 1 gram of evaporated water. This process lowers the air temperature.
- Efficient installation and operation can reduce the temperature in the greenhouse between 6° and 9° F, depending on two environmental factors: external temperature and external humidity.
- Efficient cooling with foggers requires an adequate ventilation system that continually introduces external dry air into the greenhouse to replace the humid air.
- A precipitation rate of .118 inches/hour (3mm/hour) is suitable for cooling.
- The duration of the fogging depends upon the air velocity created by the ventilation system.

Air Velocity	Interval	Duration
0.328 ft/s	10 seconds	1-2 seconds
1.64 ft/s	10 seconds	3-5 seconds
3.28 ft/s	10 seconds	10 seconds

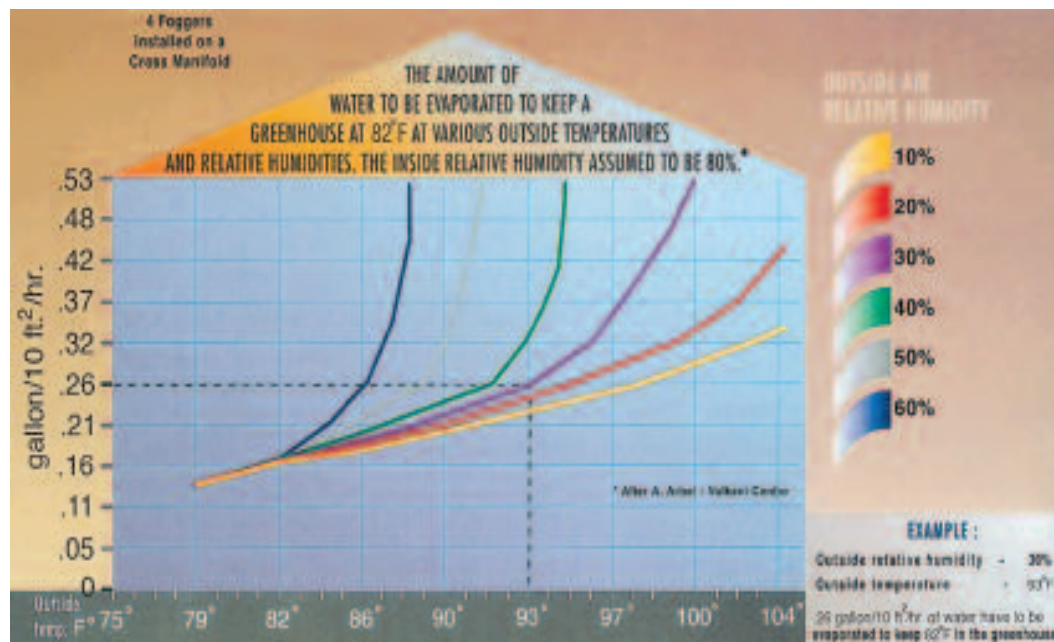
### Humidification

- Ventilation must be shut down in order to increase the humidity
- The duration of fogging should be as short as possible
- The intervals between fogging should be as short as possible (1 second)
- A controller should be installed to manage the cycling in connection with temperature and humidity sensors.

Humidity	Interval	Duration
30-40%	60 seconds	1 second
40-50%	90 seconds	1 second
50-60%	120 seconds	1 second

## Additional Instructions for Cooling and Humidification

- Use tee configuration with 2 Foggers or Super Foggers (4-way or cross is no longer recommended because they cause high precipitation rates and prevent some of the water from evaporating)
- Recommended pressure is 60 PSI
- Use high pressure LPD (Leak Prevention Device)
- The foggers should be mounted as high as possible above the ground
- The foggers should be installed perpendicular to the lateral line
- Use anti-twist flexible PVC vinyl tube
- Avoid contact between the droplets and any part of the greenhouse structure



## Propagation and Germination

### Using Dan Mister

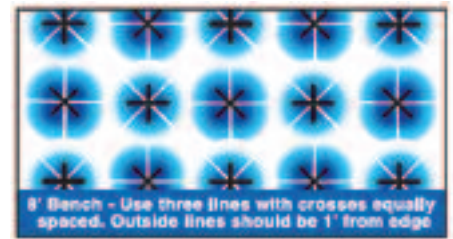
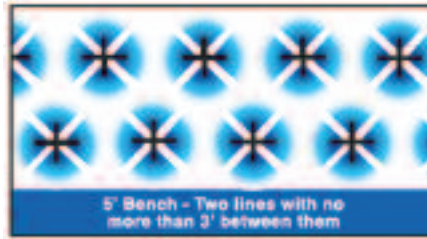
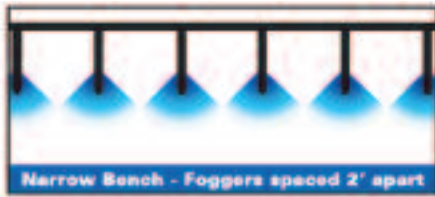
- Green Mist (7.9 GPH)
- Green Mist Jr. (5.3 GPH)
- Recommended working pressure 30 psi
- Low pressure LPD

### Using Dan 4-Way Fogger

- Recommended working pressure 60 psi.
- Use high pressure LPD
- One fogger should be used for every 2.5 square feet. The cross with four foggers will cover an area up to 10 square feet (3 to 4 feet wide)
- Multiple flow rates for different precipitation rates.
- To prevent dry edges on a single bench (no other benches within 2 feet) the cross should not be further than one foot from the edge. In some instances, two lines may be required on a 4 feet bench.

### Lateral Guideline

Product	Bench Width						
	2"	3"	4"	5"	6"	7"	8"
Green Mist Jr.	1	1	2	-	-	-	-
Green Mist	1	1	1-2	2	-	-	-
Fogger 4-way	1	1	1-2	2	2-3	3	3

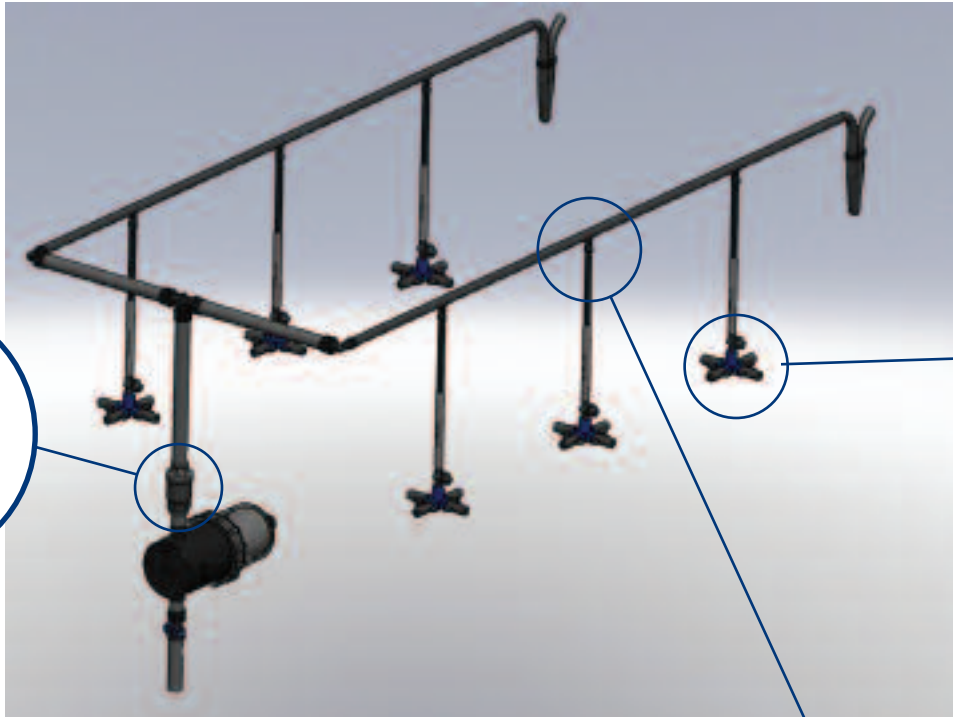


### Spacing Guidelines

Application	Product	Recommended Pressure (psi)	Height (ft.)	Spacing between Sprinklers (ft)	Spacing between Laterals (ft)	Distance from Edge (ft)
Cooling & Humidification	Dan Fogger 2-Way	60	Max. Possible	4.5	9.5	—
	Super Fogger	60	Max. Possible	6.5-10	10-13	—
Propagation & Germination	Dan Fogger 2-Way	60	3-5	4	4	1
	Green Mist	30	3-4	2.5	2.5	1
	Green Mist Jr.	30	3	2-5	3-5	1

## Installation

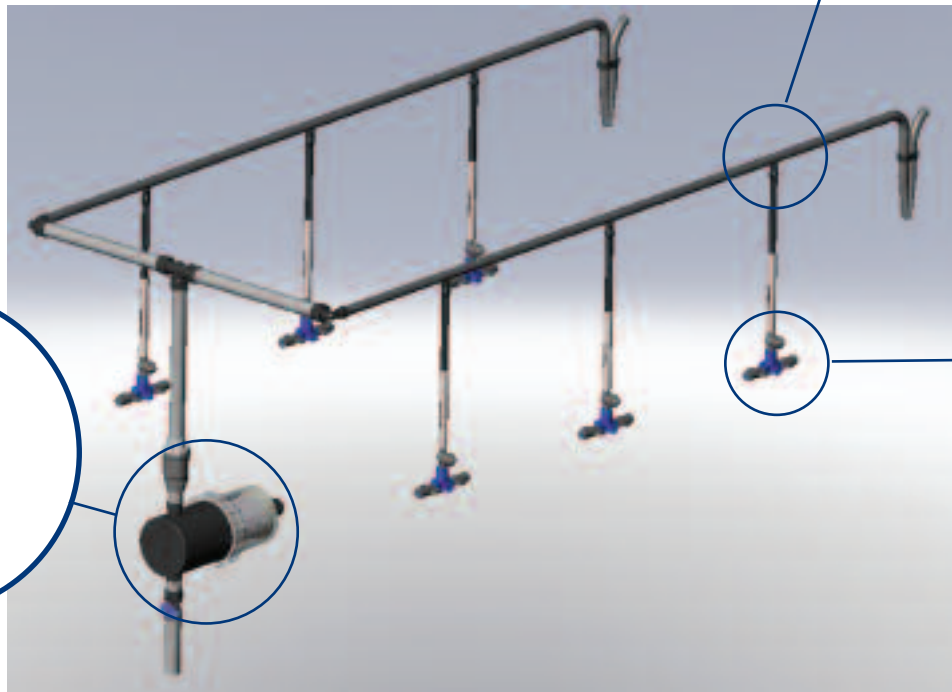
### Fogger 4-Way



Pressure Regulator

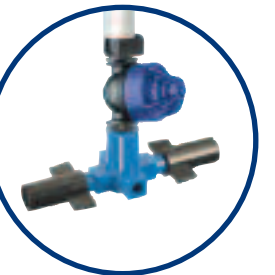


### Fogger 2-Way



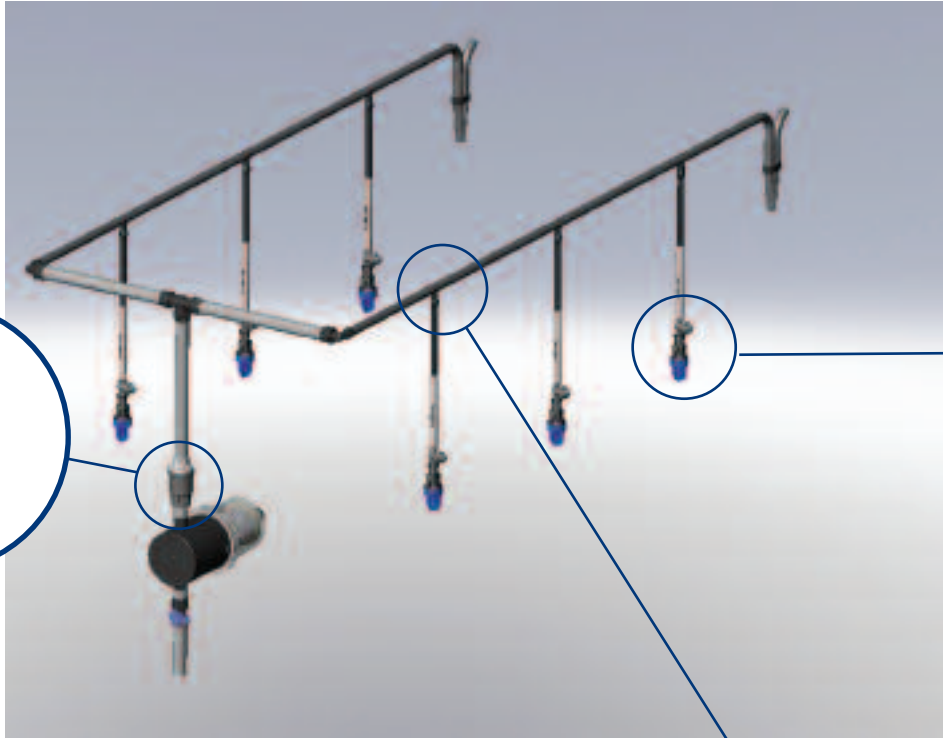
4/7 Barb

T-Filter

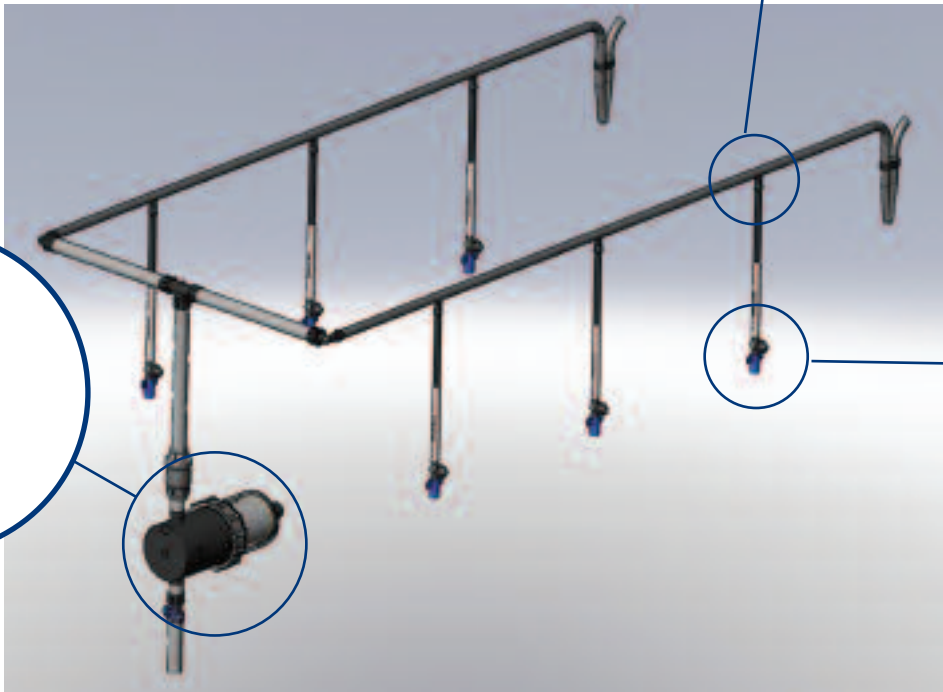




## Super Fogger



## Green Mist



## Maintenance

### 1. Regular maintenance

#### a) Routine Maintenance—Every Irrigation

- i) Filtration
  - (1) Automatic Filters
    - (a) Verify flushing is occurring properly
    - (b) Manual flush when system reaches operating pressure
  - (2) Manual Filters
    - (a) Make sure filter element is clean before start-up
    - (b) Make sure pressure differential on filter is within specification for system
- ii) Flow Meter
  - (1) Verifies system flow rate every time you irrigate. Detects possible problems
    - (a) High flows
      - (i) Verify the correct valve(s) are open/closed
      - (ii) Possible broken lines
    - (b) Low flows
      - (i) Verify the correct valves(s) are open/closed
      - (ii) Possible plugged emitters/sprinklers
- iii) Pressure gauges
  - (1) Verify system pressures every time you irrigate.
    - (a) High pressures
      - (i) Verify the correct valve(s) are open/closed
      - (ii) Possible plugged Filter
      - (iii) Possible plugged emitters/sprinklers
    - (b) Low pressures
      - (i) Verify the correct valve(s) are open/closed
      - (ii) Possible broken lines
- iv) Visual Inspections
  - (1) Filter Station
    - (a) Verify correct pressures and flow rates are maintained
  - (2) Valve Stations
    - (a) Verify correct valves are open/closed
    - (b) Verify correct pressures
  - (3) Field
    - (a) Sprinklers are upright
    - (b) Sprinklers are turning
    - (c) No Geysers

**b) Scheduled Maintenance- Weekly, Monthly**

- i) Filtration
  - (1) Visually inspect filter element (screen, disks, sand, etc.)
    - (a) Verify filter element is clean, manually clean if needed
    - (b) Check for wear on filter element
- ii) Flushing
  - (1) PVC manifolds, sub mains, and mainlines
    - (a) Consult designer for flush time
  - (2) Laterals (PVC or Polyethylene)
    - (a) Rule of thumb is a velocity at 1fps.
      - (i) 600' lateral takes a minimum of 10 minutes to complete flushing
    - (b) Consult designer for maximum lines to open at once to ensure adequate flush velocity
- iii) Weed Control
  - (1) Routine mowing or spray
    - (a) Weeds block rotating sprinklers and disturbs wetting pattern
    - (b) Excessive vegetation provides a home for insects, insects can cause external sprinkler plugging due to nesting in the nozzles.

**2) Preventative Maintenance**

**a) Best Management Practice is performing scheduled and routine maintenance as described above**

**b) Chemigation**

- i) Water Treatment
  - (1) High mineral content- acids or phosphates can be used to prevent scaling, please consult with your PCA or CCA for recommendation
  - (2) Organic matter- Biocides (Chlorine) can be used to prevent growth, please consult with your PCA or CCA for recommendation

**c) Fertigation**

- i) Chemical compatibility- Jar test to ensure no precipitates.
  - (1) Harsh chemicals that increases plugging and premature wear — Lime, gypsum, acids, surfactants, etc.

## Troubleshooting

Problem	Description	Possible Cause	Solutions
Wide wetting pattern	Non-uniformity due to sprinkler throwing too far	1. Excessive pressure	1. Check lateral/ system pressure
		3. Foreign matter in nozzle	3. Take sprinkler apart and clear debris
Narrow Pattern	Non uniformity due to sprinkler not throwing far enough	1. Inlet pressure below specification	1. Check lateral/ system pressure
		2. Plugging	2. Clean nozzle
		3. Excessive wear	3. Refer to excessive wear
Misting	Excessive misting causing poor uniformity	1. Low pressure	4. Check lateral/ system pressure
		3. Foreign matter in LPD/Nozzle	Take Fogger/LPD apart and clear debris
Excessive Wear	Component parts wearing out prematurely	1. Unfiltered water	1. Install proper filtration
		2. Injecting abrasive chemical	2. Perform Jar test for chemical precipitation
		3. Harsh chemicals	3. Check with PCA or CCA for compatibility with irrigation system
		4. Excessive use	4. System under designed
Excessive Dripping	Excessive water leaking from the head of the sprinkler	1. Improper assembly	1. Make sure sprinkler is properly assembled
		2. Damaged component-freezing, mechanical, pest, etc.	2. Inspect and replace broken components or replace sprinkler.
Plugging	No water coming out of the nozzle	1. Improper filtration	1. Refer to sprinkler filtration requirements
		2. Improper maintenance	2. Refer to maintenance guide
		3. Insect nesting	3. Clean nozzle

2851 E. Florence Ave.  
Fresno, CA 93721  
Ph 800-695-7171  
Fax 888-434-3747

P.O. Box 3760  
Ontario, CA 91761  
Ph 800-828-9919  
Fax 800-777-6162

740 Water St.  
Watertown, NY 13601  
Ph 800-242-7467  
Fax 866-329-2427

P.O. Box 3546 • Haines City, FL 33845  
3857 W. Lake Hamilton Dr.  
Winter Haven, FL 33881  
Ph 800-848-8153 • Fax 800-533-6421

