DAN Foggers for air humidification

The DAN Foggers are suitable as a low-pressure mist spray system for air humidification in greenhouses and tunnels. During air humidification, the aim is to allow a very fine mist to evaporate in the air (droplets of approx. 100 micron). The evaporation of the water droplets cause the air humidity to rise and the (greenhouse) temperature to drop.

The High Pressure (HP) LPD allows for very short pulses to be given without dripping. Short pulses and the fine droplets ensure that the crop remains practically dry.

WORKING PRINCIPLE

In the DAN Foggers, fine droplets are formed by admitting the water to a vortex chamber and then allowing them to escape via the nozzle. This process creates uniform droplets that leave the Fogger at high speed so that they can evaporate easily. Each Fogger has a leakage prevention device (LPD) to prevent dripping and to allow the system to operate with short pulses of e.g. 1 to 3 seconds. This prevents the crop from becoming (too) wet. The HP LPD also ensures the simultaneous starting of all the Foggers.

DROPLET SIZE AND EFFECT IN THE GREENHOUSE

The droplet size of the Fogger at 4 bar is roughly 100 micron. A higher pressure produces smaller droplets while the droplet size increases at lower pressures.
At an RH of 50%, water droplets of 100 micron evaporate during a fall height of 2 meters (at 80% RH within 5 meters). The radius of the mist is the same for both types (approx. 1 to 1.6 meters). Experience with DAN Foggers indicates that the RH in the greenhouse can increases by 10-30% and the temperature can drop by 1 to 4 °C (depending on the climate inside and outside the greenhouse and the use of Foggers)

CHARACTERISTICS OF FOGGERS FOR AIR HIMIDIFICATION (INCREASE IN RH):

Super Fogger

- Combined LPD and Fogger specially for air humidification
- 2 foggers each with 6.5 l/h (no-separable)
- The characteristics of the LPD are comparable with those of the HP LPD
- Configuration: 1 Super Fogger per 10 m², e.g. one line per cap of 3.20 meters or 4.0 meters with one Fogger every 3 - 2.5 meters, respectively

T-Fogger

- The same effect as the Super Fogger; 2 foggers each with 7 l/h
- Configuration: 1 Fogger per 10 m²

Fogger

- Single fogger, combined with LPD for air humidification
- Configuration: One single fogger installed alternately (left-right-left-right) every 50 cm

APPLICATION

DAN Foggers can be used for air humidification with pot plants, flowers and vegetable crops. The Foggers can be used on the basis of the measured greenhouse RH, the moisture deficit or on the basis of time.

TECHNICAL DATA

Super Fogger flow rate	: 2 x 6.5 l/h (at 4.0 bar)
T-Fogger flow rate	: 2 x 7 l/h (at 4.0 bar)
Fogger flow rate	: 7 l/h (blue), 14 l/h (orange), 21 l/h (red), 28 l/h (black)
Discharge	: +/- 15 cm
Fogger working pressure	: 4.0 - 4.5 bar
Super Fogger opening pressure	: approx. 3.7 bar
HP LPD opening pressure	: approx. 3.7 bar
Filtration	: 80 micron
Material	: polyamide (body)
	: silicone (Super Fogger membrane, green)
Connection	: parallel, LPD-3/8 WW; LPD-M11 and LDP-PE-4/7 45° elbow

INSTALLATION & MAINTENANCE

Installation

- The configurations are shown under the characteristics.
- Always use suspendeds when installing Foggers.
- The height of the Foggers should be 50 cm lower than the assimilation lighting.
- Use suitable lines. It is important that the lines has as little expansion as possible. For the laterals Netafim supplies a special Fogger line (see information sheet: “HDPE irrigation line”) or thick-walled PVC line. Distribution lines are made of PVC or PE.
- The lines can be installed along the trellis or along the ridge.
- The optimum section size is 2000 to 3000 m^2, with the system laid out as a ‘Tichelman system’ (see drawing).
- Air must be expelled from the system. Installing the distribution lines above the irrigation lines simplifies air discharge (for air release valves, see chapter 9 Accessories).
- Use of rainwater should be preferred, avoid the use of tap water and surface water.
- Flush the installation thoroughly before starting or after a prolonged standstill.
- As an option, a ring line can be installed so that the Fogger system can be flushed every day before use.
- For a reliable function of the Foggers, a quick-acting system is essential. If in doubt, ask Netafim Netherlands for installation instructions.
- For Fogger installations the Dorot 80 1” 2-way (71640-000777), straight, quick opening and closing shut-off valves are used.

Maintenance

- For cleaning of the sprinklers, please refer to information sheet “Installation and maintenance of sprinkler system”, section: Cleaning instructions.
- When using this sprinkler in PE lines (also as suspended), no wetting agents or soap can be used.
- Check at regular intervals whether the sprinklers are set to the correct working pressure.

Tichelman-system