

ULTRASONIC ATOMIZERS

Ultrasonic atomizers operate on a very sophisticated process which is based on two steps:

In the first one tiny water jets are injected into an high speed air flow which provides a first break up and atomization of the fluid.

In the second step the two phase flow, air entraining liquid droplets, goes trough a field of sound waves which produce a further break up and a lower droplet dimension.

This is realized through an impact between the two phase flow and a resonator located in front of the nozzle orifice.

Ultrasonic atomizers can only be manufactured with high precision machining operations but offer the following remarkable advantages.



A The droplets in the atomized jet show low values for the Sauter Mean Diameter, and in addition a rather narrow range of individual droplet diameter: in other words the drops are very small and with little difference in diameter between the smallest and the biggest droplet. This means the spray is made by droplets very small and very similar in size, which is very important in all evaporative processes like for example air humidification: it is rather easy then to obtain values for the evaporation time and evaporation length of a given spray.

B The noticeable variations in local air pressure all around the resonator, associated to the sound waves, eliminate the danger of dust and foreign particles build-up in the vicinity of the nozzle orifice, thus avoiding a decay in the atomizer performance.

The system will then be very reliable and require limited or null maintenance.

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