



Ultrasonic Humidifier

Ultrasonic humidifiers are designed to meet requirement of pure humidity at low temperature for various industrial application cutting compressor cost to reduce air temperature.

Principle of operation

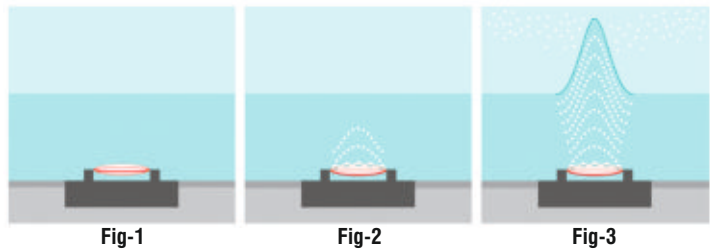
A piezoelectric transducer immersed in a water bed, converts a high frequency, electronic signal into a high frequency mechanical oscillation. The water tries to follow the high frequency oscillation but cannot because of its comparative weight and mass inertia. As the oscillation speed is increased to a level where the water particles can no longer follow the oscillating surface, a momentary vacuum and strong compression occur, leading to the explosive formation of air bubbles (cavitation). At cavitation, broken capillary waves are generated and tiny (1-micron diameter) droplets break the surface tension of the water and are quickly dissipated into the air, taking vapor form and absorbed into the air stream.



Fig. 1: The humidifier is switched on. The oscillator amplitude is positive.

Fig. 2 : The oscillator amplitude is negative. The inertia of the water creates a vacuum.

Fig. 3 : After approx. 10 amplitudes, the ultrasonic humidifier reaches 100% of its output.



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| ⑩ Utilizes adiabatic vaporization of water particles | ⑩ No heat or chemicals added to achieve humidification |
| ⑩ Flying water fog having water particle as small as $1-5\mu$ | ⑩ Built in integrated ultrasonic wave machine core to produce mist |
| ⑩ Based on the principle of electronic super frequency vibration (1.7 MHz) | ⑩ Compact & Portable design |
| ⑩ Uses mechanical energy to generate water particles and evaporate water | |

ADVANTAGES

- ⑩ Higher humidification efficiency
- ⑩ Waiting time for humidity creation is reduced to almost zero second
- ⑩ Instantaneous humidity available with just a press on button
- ⑩ Level of accuracy achieved in humidity control 92-97%
- ⑩ Wattage Consumption reduced by 93%

CONTROLS & SAFETIES

- Reliable Piezo transducers duly interlocked with level sensors
- Level switches for upper and lower water level. Stops working when water level is too low.
- Water overflow protection
- Water and Air filter assembly
- Solenoid operated water makeup connection
- On/Off switch, ON indicator, Low Level indicator, Step down transformer, contactors etc.
- Control terminal for Field Controls i.e. BMS / Humidistat
- Complete package with all plumbing and electrical works done and factory tested



OPTIONAL FEATURES

- Controller with RH sensor having high sensitivity & fast response
- Automatic water flushing device
- Analog / Digital Humidistat
- PID controller
- Humidity transmitter
- Dry contacts for start/stop command, On/Off/Trip status



Easy replacement
& maintenance of
atomizing unit



Redundancy
in design



Fast payback
period



Clean humidification
with maximum
energy saving

TECHNICAL PARAMETERS

Model	Capacity (Kg/hr)	Power (kw)	Air Flow (m3/h)	Voltage (V)	No of Mist Outlets	Dimensions (mm)			Net Weight Kg	Applicable Area (M²)
						L	W	H		
UH-905	5	0.5	170	240	1x4"	600	330	475	25	30-60
UH-910	10	1	323	240	1x4"	600	330	475	30	70-110
UH-915	15	1.5	323	240	2x4"	600	430	475	35	120-180
UH-920	20	2	646	240	2x6"	750	550	530	40	190-230
UH-925	25	2.5	646	240	2x6"	750	550	530	66	240-270
UH-930	30	3	969	240	2x6"	800	620	630	74	300-350
UH-935	35	3.5	1224	415	2x6"	800	620	630	80	360-400
UH-940	40	4	1224	415	2x6"	800	620	630	90	400-430

Higher rating Ultrasonic Humidifiers is also available to meet your requirements. Please consult factory. Dimensions & Weight indicated are approximate. Always check submittal prints for final parameters.

APPLICATION REQUIREMENT & CONDITION

Environment Temperature	1 - 40°C
Environment Humidity	≤ 85% RH
Water Supply Quality	Purified Water (RO / UV Treated) Should not contain particles more than 100 µm Hardness should be less than 5 PPM
Water Supply Pressure	1 - 4 Kgf/cm2
Water Supply Temperature	1 - 30°C

For smooth, trouble free and long-lasting operation of Ultrasonic & Resistance Type Humidifiers, KEPL strongly recommends its customers to adhere to above mentioned conditions. If above conditions are not fulfilled, the equipment may demand regular maintenance and parts replacement.

REQUIREMENT CALCULATIONS

$$\text{Pounds of dry air per hour injected in equipment} = \frac{\text{CFM}}{\text{CF / lb}} \times 60$$

$$\text{Pounds of water per hour required} = \frac{(\text{Pounds of dry air per hr}) \times (\text{Grains of moisture to be added})}{7000}$$