STULZ

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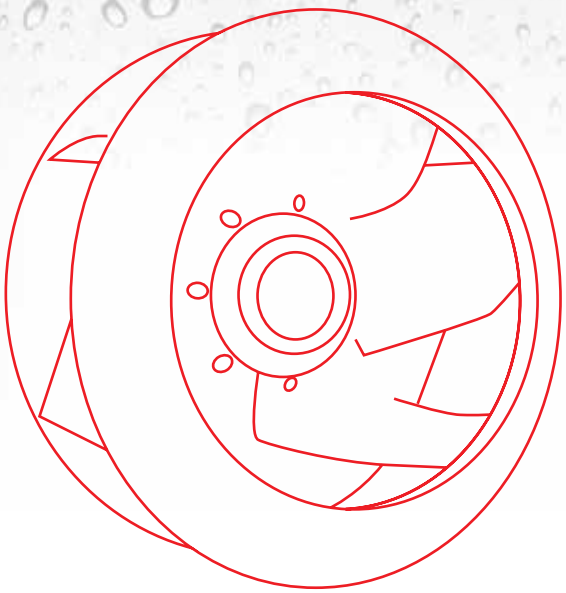

Ultrasonic Humidification Systems

Upgrade to the latest in technology & maximise energy efficiency

Controlled humidity for data centres – more than 90 % energy saving

For servers in data centres to work safely and reliably, the room air must meet precisely defined requirements. Besides temperature, humidity is a key factor. Too much humidity can lead to condensation and corrosion; too little can result in static, loss of data and damage to hardware.

In contrast to comfort air-conditioning units, which use as much as 50 % of their energy to dehumidify air, the precision air-conditioning units usually used in data centres operate in circulating air mode with a dehumidification rate of about 5 %. To keep the specified room air conditions constant, the air which is becoming ever drier due to continuous dehumidification must be humidified in just the same continuous manner. There is much greater need for humidification when fresh air is fed into the room air. In winter especially, there is very little water in the ambient air. If that dry fresh air is mixed with the air in the data centre, the relative humidity in the data centre will automatically fall. Additional humidification must be provided to counter this effect.

Method of operation of the ultrasonic humidifiers

In ultrasonic humidification, the electrically generated ultrasound frequency is converted into mechanical energy by a vibration transducer. This energy sets the water in motion. Microscopic water droplets detach and form a water vapour which is distributed around the data centre by way of the raised floor

- More than 90 % energy saving, with the same performance, compared to conventional electrode/resistance steam humidifiers
- Outstanding control characteristics – the full humidifier capacity is available without delay on power-up
- Distribution by infinitely adjustable EC fan
- Adiabatic cooling: The water droplets are nebulised so finely in the ultrasonic humidifier that they automatically pass from the liquid to the gas phase (they evaporate). The heat necessary for evaporation is drawn out of the room air, so aiding cooling.

Lowering energy costs

The STULZ Ultrasonic humidifier cabinet evaporates up to 14/28/42 kg of water an hour with minimal energy consumption, producing a cooling effect of up to 29 kW. In a data centre with a heat load of 500 kW in which DX A/C units are used, the use of ultrasonic humidification enables compressor running times to be reduced by 5 %. Together with the savings made compared with conventional steam humidifiers, the overall running costs of the air conditioning can be slashed by around 20 %.

Humidification at a glance

Benefits

- Maximum energy savings 93% less electricity than electrode/ resistance steam humidifiers
- Very fine mist (0.001 mm or 1....m), which is immediately assimilated in the air
- Excellent control charcteristics : immediate humidifier capacity
- Long oscillator life : minimum running time based on nameplate power rating is 10,000 operating hours
- Engery saving cooling effcet due to physical characteristics
- Rapid payback/future-proof investment given rising energy prices
- Flexible actuation
- Hygienic humidification thanks to a continual supply of fresh water and special purging/flushing cycles

Technical Specification			
Humidification Capacity Kg/hr.	Dimension (W * D * H)	Power Supply	Configuration
14/28/42	1010* 910 * 1980	415V	Upflow/Downflow

Operating Cost Comparison for 80 kg/hr humidification load					
Steam Electrode Humidifier : 10 kg/hr x 8 nos			Ultrasonic Humidifier : 42 kg/hr x 2 Nos.		
Steam Electrode Humidifier			Ultrasonic Humidifier		
PAC To be provided with Steam Electrode Humidifier of	10	kg/hr	Capacity of the Ultrasonic Humidifier to be provided	42	kg/hr
No. of PAC to be provided with Steam Electrode Humidifier	8	Nos.	No. of Ultrasonic Humidifier to be provided	2	Nos.
Total Humidification requirement	80	kg/hr	Total Humidification requirement	84	kg/hr
Approx power consumption of Steam Electrode Humidifier	0.75	kw/kg of humidification	Approx power consumption of Ultrasonic Humidifier (Including Fan Power)	0.08	kw/kg of humidification
Humidifier on an average run for	15%	of the year	Humidifier on an average run for	15%	of the year
Rate of Power	10	Rs/kWHr	Rate of Power	10	Rs/kW
Total Operating cost - Steam Electrode / Infrared (For 10 Years)			Total Operating cost - Ultrasonic Humidifier (For 10 Years)		
Rs. 78,84,000			**Rs. 8,83,008**		
SAVINGS Rs. 70,00,992					

EC fan

- Speed-controlled fan
- Minimum power consumption
- Minimum noise level
- Nominal airflow rate at a fan speed optimized for partial load
- Increased airflow in each size
- The latest motors, electronic processor and impellers
- Aerodynamically optimized blades

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Close to you around the world

STULZ has worked towards lowering expenses by reducing operating costs, life cycle costs and power consumption. Now the same German efficiency will be avilable in India at an unbeatable price advantage!

For further information, please visit our website at www.stulz.in