CAREL

solutions for evaporative cooling and humidifying

atomizers - evaporative cooling

optiMist

evaporative cooling and humidifying

optiMist is an evaporative cooler and humidifier that atomizes water in fine droplets which, while spontaneously evaporating, remove heat from the humidified and cooled air. It uses a vane pump to pressurize the water, subsequently atomizing it through special nozzles.

optiMist is a complete system that includes evaporative cooling and humidifying in a single solution which can be used to treat the air in an AHU (air handling unit) to both humidify the output air (direct evaporative cooling) and to indirectly cool the outside air coming through a cross-flow heat exchanger, in order to increase the energy efficiency of the AHU.

Energy Savings

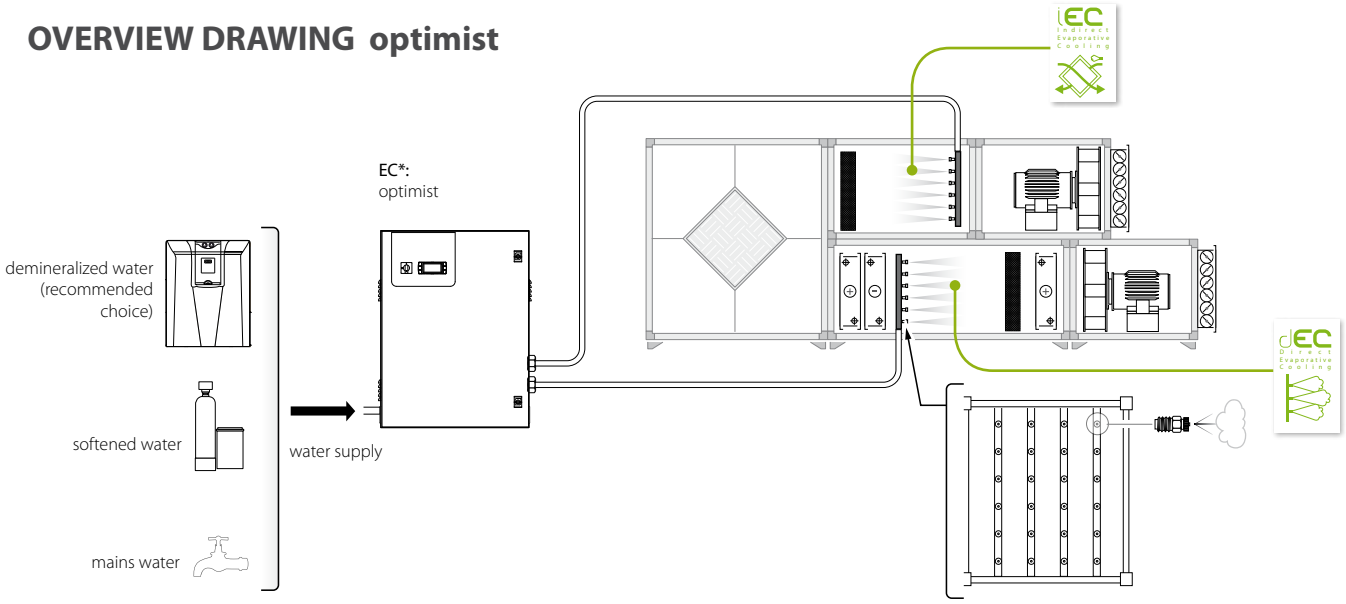
The rapid development of evaporative cooling in HVAC applications is certainly due to its extremely low energy impact. If we compare the energy cost for Evaporative Cooling with that of other typical air transformation methods (for example air cooling using chillers), we note that the energy savings is significant. Adiabatic humidification is also much more efficient energy-wise when compared to steam emission. The only energy required is the pressurization of the water, which is sent to the atomizing nozzles by a pump. Consumption is about 1.8 to 3.6W for every l/h of nebulized water.

"Green" AHU!
By combining evaporative cooling and adiabatic humidifying, optiMist ensures overall energy savings in the air handling unit.

Technical characteristics

Characteristics	EC005*	EC010*	EC020*	EC040*	EC080*	EC100*
General						
Power supply	EC*0= 230 V, single phase, 50 Hz EC*U= 230 V, single phase, 60 Hz - USA market					
Electrical consumption	0.375 kW				0.75 kW	
Electric current	1.6 A	1.6 A	1.7 A	1.7 A	3.0 A	3.2 A
Operating conditions	5…40 °C (34…104 °F) <80% RH non condensing					
Water load						
maximum flow rate	50 l/hr 110 lbs/hr	100 l/hr 220 lbs/hr	200 l/hr 440 lbs/hr	400 l/hr 880 lbs/hr	800 l/hr 1760 lbs/hr	1000 l/hr 2200 lbs/hr
incoming water pressure	(0.2 to 0.7 mPa) 30 to 100 psi					
connections	EC*0= G3/4" f EC*U= NPT 3/4" f					
Water drain						
connection	stainless steel pipe G3/4f interior, Ø exterior ~35 mm/ 1.18 inch.					

OVERVIEW DRAWING optimist



Energy savings

optiMist ensures an overall energy savings in the AHU, 31 kW every 220 lbs/hr of evaporated water, with extremely low consumption and pressure drop.

Precision

optiMist is able to continually and precisely modulate the production of atomized water. This allows the evaporative cooling potential to be maximized without wasting water.

Integrated solution

In a single solution, optiMist allows efficient management of direct evaporative cooling (DEC), indirect evaporative cooling (IEC) and adiabatic humidification.

Headquarters ITALY

CAREL INDUSTRIES HQs
Via dell'Industria, 11
35020 Brugine - Padova (Italy)
Tel. (+39) 0499 716611
Fax (+39) 0499 716600
carel@carel.com

Sales organization

CAREL Asia - www.carel.com
CAREL Australia - www.carel.com.au
CAREL China - www.carel-china.com
CAREL Deutschland - www.carel.de
CAREL France - www.carelfrance.fr
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+30U0046EN - 1.1 - 04.06.2013