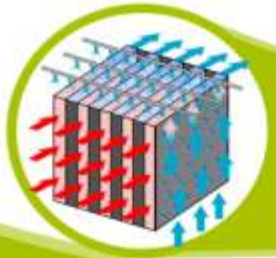
Aqua cool

healthy fresh air

Fresh air indirect evaporative cooling system for the building



FRESH AIR OUTSIDE

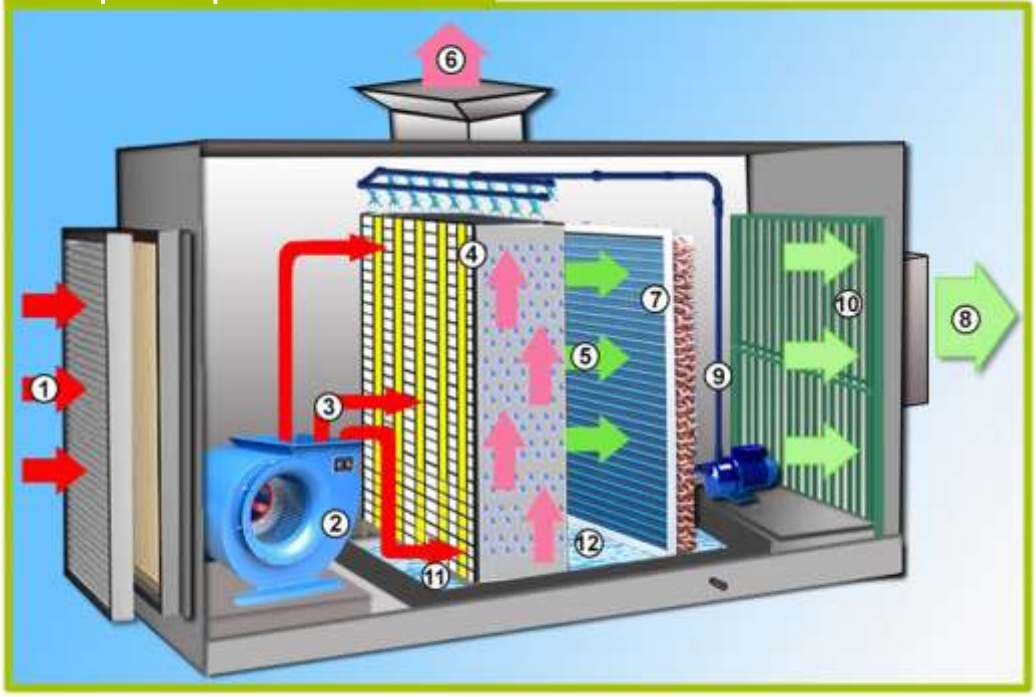
FRESH AIR INSIDE THE BUILDING

Hi-Tech

Aqua cool-Pre Cooling Unit-Fresh Air (PCU-F)

The Aqua cool-PCU-F supplies filtered and conditioned fresh air into designated areas. The Aqua cool-PCU-F can be deployed in conjunction with AHUs installed in commercial spaces such as hotels, hospitals, offices, auditoriums, malls, multiplexes, etc. The Aqua cool-PCU-Fs can also be used in industries such as pharma, food beverages, automobile, etc., for once-through applications. At the heart of the Aqua cool-PCU-F is IDEC, a sensible heat exchanger. IDEC (Indirect Evaporative Cooler)-a cross flow plate type sensible heat exchanger built out of an engineering polymer. Supply air on one side is cooled by a secondary stream of that flows in alternating moist channels. The vaporizing mass of water in the secondary stream enables cooling of the supply air without any water addition to the cooled air.

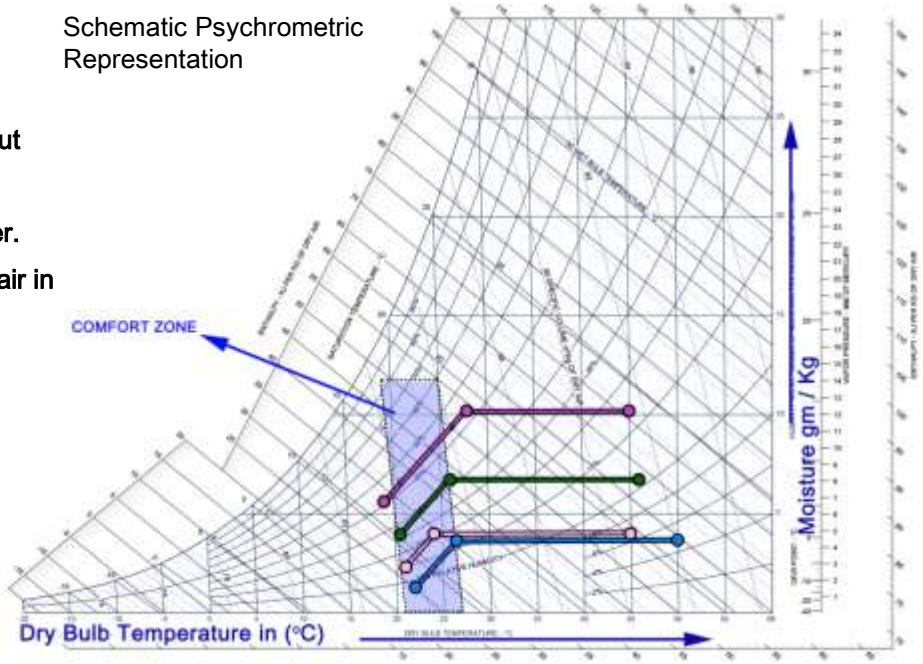
Principle of Operation



	AMBIENT (1)			HE1 (IDEC) (5)			HE2 (COOLING COIL) (8)		
	DBT °C	WBT °C	RH%	DBT °C	WBT °C	RH%	DBT °C	WBT °C	RH%
(A) DUBAI	45	24	18	28	19.4	45	19	11.7	42
(B) AL-AIN	46	22	12	26	15.5	35	20.5	10.6	26
(C) RIYADH	45	19.7	7	24.7	12.7	22	21	9	15
(D) KUWAIT	50	21	5	26.8	13.3	17	22	8.2	6

1. Air pre-filter.
2. Air blower.
3. Filtered ambient air.
4. HE1 – sensible heat exchanger for cooling air without adding water.
5. Primary supply air is cooled without addition of water.
6. Secondary exhaust air used to cool primary supply air in sensible heat exchange
7. HE2 – cooling coil
8. Conditioned air at machine outlet
9. Water supply pump for HE1.
10. Mist Eliminator
11. Water sump.
12. Return of water from HE1 and HE2 to sump.

Schematic Psychrometric Representation



Aqua cool-PCU-F Series

Model		AQ-F 2000	AQ-F 3000	AQ-F 5000	AQ-F 7000	AQ-F 10000	AQ-F 15000	AQ-F 20000
Operating details								
Nominal air flow	CFM	2000	3000	5000	7000	10000	15000	20000
External Static pressure	mm of wg	5	5	10	10	15	15	15
Performance details								
Cooling capacity	TR	Refer to Table 1: for city-wise cooling conditions						
Power resource details								
Power supply details		3ph, 50Hz, 415V						
Total connected load	W	1560	1568	3700	5500	7500	10750	11450
Total power consumed	W	1160	1500	2440	3980	6200	8560	10580
Water consumption (standard conditions)	l/h	10	15	25	35	50	75	100
Physical/construction details								
Unit size-WxDxH	mm	1200x3200x 1500	1200x3300x 1600	1400x3400x 2150	1500x3600x 2450	2100x4150x 2450	2400x4750x 3200	2400x5000x 3200
Unit weigth	Kg	450	580	1050	1450	1850	2500	3100
Operating weight	Kg	620	750	1270	1730	2200	2900	3650
Casing		Aluminum profile with PUF-filled double skin panels; inner-GI & outer pre-coated white colour						
Tank assembly		SS - 304						
Piping connection		Incoming water and drain: 1" external thread						
Fan details		Centrifugal fan, backward curve						

Higher capacity available on request

(Design specifications and technical characteristics are subject to change without prior notice.)

Aqua cool, a business unit of Hi-Tech Equipments, designs and manufactures unique, energy-efficient, and eco-friendly products for space and process cooling for the industrial and commercial sectors, using its highly successful IDEC technology. The product range includes the Aqua cool-Cooler, and the fresh air pre-cooling units, Aqua cool- AQ-F and Aqua cool-AQ-R are providing eco-friendly cooling solutions for people and process comfort.

Aqua cool comparison with the alternatives

	Aqua cool	DX cooling	Heat pump	Adiabatic cooling
Energy efficiency	+ + +	- - -	+	+ +
Environmental friendliness	+ + +	- - -	-	+ + +
Comfort	+ + +	+	++	-
Maintenance cost	+ + +	- -	-	-
Constant temperature	+	+ + +	+ +	-

Applications

Recipient of Climate Control
Award 2015 for
Project of the Year
(Standalone DX, including VRF System)

Recipient of Green Middle East
Award 2012 for
Alternative Energy Project

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