# The Breakthrough of the Century in Cooling Technology

RETURN AIR FROM THE BUILDING

FRESH AIR OUTSIDE



Fresh air indirect evaporative cooling system for the building

EXHAUST AIR

FRESH AIR INSIDE

THE BUILDING

Hi-Tech

**60%** Energy saving!

### Aqua cool-Pre Cooling Unit-Return Air (PCU-R)

The Aqua cool-PCU-R is a next generation energy recovery unit. The basic function of the Aqua cool-PCU-R is to exchange heat between the return exhaust air of an air conditioned space and the fresh air entering the air conditioned space, thus cooling the incoming fresh air. The Aqua cool-PCU-R offers high energy efficiency (EER of more than 25). This ensures substantial cooling load reduction of the overall air conditioning system. At the heart of the Aqua cool-PCU-R is IDEC, a sensible heat exchanger. Supply air on one side is cooled by a secondary stream of air 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.



	AMBIENT (1)			Outlet (5)			
	DBT °C	WBT °C	RH%	DBT °C	WBT °C	RH%	
(A) DUBAI	45	24	18	23.4	18.3	60	
(B) AL-AIN	46	22	12	23.4	18.3	60	
(C) RIYADH	45	19.7	9	23.4	18.3	60	
(D) KUWAIT	50	21	5	24.4	12	25	

Note: Return air condition is 25°C Dry Bulb and 18°C Wet Bulb

- 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. Mist Eliminator.
- 8. Conditioned air at machine outlet
- 9. Water supply pump for HE1.
- 10. Water sump.
- 11. Return of water from HE1 to sump
- 12. Return air.



#### Aqua cool-PCU-R Series

Model		AQ-R 1000	AQ-R 1500	AQ-R 2000	AG-R 3000	AQ-R 4000	AQ-R 5000	AQ-R 6000
Operating details	5	2						
Nominal air flow	CFM	1000	1500	2000	3000	4000	5000	6000
Return air condition 25°C& 50°C% RH								
External static	mm of	10	10	15	15	15	15	15
pressure	wg	10	10	15	19	15	15	15
Performance details								
Heat recovery	TR	Refer to	Table 1 for o	city-wise TR	recovery u	nder standa	ard test con	ditions
Power resource details								
Power supply details		1ph, 50Hz, 230V	3ph, 50Hz, 415V					
Total connected load	kW	950	1250	2600	3100	4300	5200	8600
Total power consumed	kW	800	1060	2260	2660	3760	4500	7500
Water consumption (standard conditions)	l/hr	5	8	10	15	20	25	30
Physical/construction details								
Unit size-WxDxH	Mm	700x2350x 1600	1000x2350 x1600	1000x2400 x1750	1350x2900 x1750	1600x2900 x1750	1500x3000 x2100	1600x3000 x2100
Unit weight	Kg	225	265	300	360	450	825	1050
Operating weight	Kg	290	340	375	450	550	950	1250
Supply air duct size (XxY)	mm	300x300	350x350	400x350	600x350	600x350	700x500	700x500
Exhaust air duct size (UxV)	mm	300x300	350x350	400x350	600x350	600x350	700x500	700x500
Casing	1 1	Aluminum profile withPUF filled double skin panels, inner-GI & outer pre-coated white colour						
Tank assembly	3 S &	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	+++			C.
Constant temperature	+	+++	++	4

#### **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

#### www.hitechequipmentsdubai.com



## **Hi-Tech Equipments L.L.C.**

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