

# GREEN AIR CONDITIONING

REVOLUTIONARY COOLING, HEATING, HUMIDIFICATION & REFRIGERATION  
SOLUTION FOR HEALTHY FUTURE

Commercial, Industrial, Residential & Governmental Projects HVAC & Power Solutions

windmason Arabia Company

شركة مصنع ويندماسون العربية



# INTRODUCING

## IDEC Supercool Air Conditioning Units

### WHAT IS IDEC?

IDEC, short for Indirect, Direct, Evaporative Cooling, is a central ducted air conditioning unit that provides excellent evaporative cooling for optimal human comfort. This unit offers water-based evaporative cooling without the need for a compressor.

### Saving on Bills and Reducing Carbon Footprint

Traditional cooling methods can lead to increased bills, a higher carbon footprint, and environmental heating. IDEC tackles these issues by using water for evaporative cooling, reducing electricity consumption by up to 80%, and provides effective indoor comfort. Unlike regular desert coolers, IDEC achieves the desired indoor temperature through its advanced features.

### IDEC

IDEC units come with an indirect evaporative stage, air filtration, and self-draining and cleaning features. They are designed to offer complete or partial cooling, ensuring the best possible human comfort.

### SUPERCOOL Technology for Ultimate Efficiency

Our specially designed 4-stage (direct and indirect) evaporative cooling technology, known as SUPERCOOL, not only saves significant electricity costs but also cools the air by 7.5°C to 10°C. This innovative approach consumes 85% less energy, delivers 100% fresh air cooling, and stands out as a compressor-free product.

### Compressor-Free Cooling

SUPERCOOL Central A/C utilizes a dual water radiator technology water flow cooling system, replacing Freon gas and traditional compressors. This technology excels in high ambient temperatures without the risk of overheating failures. With no compressor in the system, there's no fear of compressor failure even in challenging conditions.



**80%** Energy Saving

**95%** Dust Buster

**14-16 °C** Air Supply Temperature

# INNOVATIVE FEATURES

## **SUPER COOL AIR CONDITIONING REPLACES CENTRAL AIR CONDITIONING:**

The Supercool Air Conditioner comes with unique features that make it a great replacement for traditional Freon-based (Compressor based) Package type rooftop central Air Conditioners. You can use it with the same ducts and controls as your existing package A/C units, and it saves an impressive 70%-85% electricity compared to Central Freon A/C units.

## **SUPPLY AIR TEMPERATURE LESS THAN 18 °C:**

Supercool A/C unit cools the air in two stages. First, they cool the air from 45 °C to 28 °C without adding humidity. Then, in the second cooling stage, the air flows through water and undergoes direct evaporation, cooling further to a comfortable 14 °C - 16 °C.

## **COMFORTABLE HUMIDITY:**

The sensible cooling in the first stage means less water vapor is picked up compared to direct hot air evaporation. This results in lower and more comfortable humidity levels in the room.

## **HOT AND COOL - OPTIONAL:**

Supercool A/C units can be equipped with an electric duct heater, similar to central air conditioners. The controller provides a heating mode for maintaining room temperature during the winter season.

## **STOP DUST 99% - OPTIONAL:**

Supercool A/C offers the option of adding fine filters to ensure fresh cool air with up to 99% less dust and pollen entering the area. This feature guarantees clean and cool air for your room.

## **AIR FILTERS:**

Equipped with G4 aluminum washable dust filters, Supercool A/C units reduce dust in the air, providing clean air to the room area.

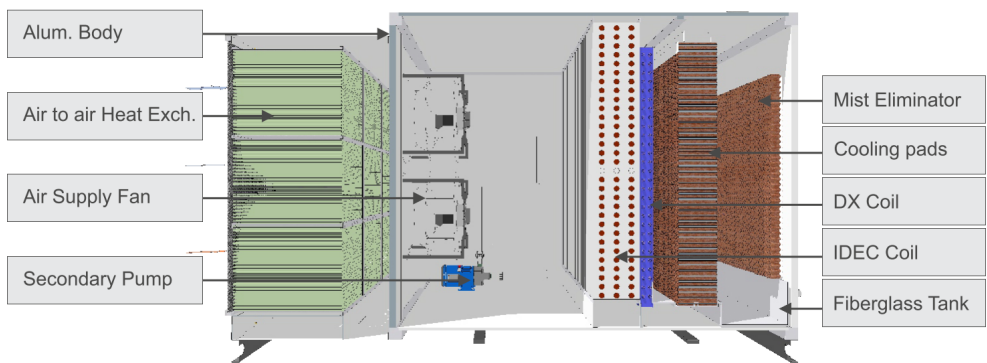
## **BODY PANELS:**

All body panels have a 30mm thick insulated double skin PU foam, preventing ambient heat from entering the cabinet. This protection from solar heat gain ensures higher energy savings. Wet areas and the water tank are safeguarded by a reinforced fiberglass internal layer.

OTHER KEY FEATURES:

Comfortable maintenance of temperatures 7.5 °C in dry weather conditions.  
Touch screen smart thermostat, auto water drain, cleaning system, and water softener enhancement overall performance and ensures additional cost-savings.  
Supercool provides natural 100% fresh air.  
Dry running protection: In case of no water, the unit will stop working.

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BASE FRAME

The unit's base frame is made of galvanized steel with a powder-coated finish.



CASING

The body structure is built using aluminium profiles with a 30mm double-skin sandwich panel metal profile.

# MAJOR COMPONENTS

## SENSIBLE COOLING, HEAT EXCHANGER COIL:

The coil heat exchanger is a tube and fins type air-to-water heat exchanger. The tubes are made of heavy-gauge copper with thick walls. The fins are heavy aluminum, with 13 fins per inch density. The frame is galvanized steel, reinforced with bends. It has heavy-gauge oversized headers with threaded connections to PVC water circulation pipes. The copper tubes are mechanically bonded to aluminum fins, and the coils have been tested for leakages under high-pressure air.



## SECONDARY AIR FAN

The fans are axial type top discharge, protected by a metal mesh fan guard. The blades are coated to prevent corrosion, designed with the best air foiling for high performance and low noise. The water-sealed electric motor is directly coupled with the fan, and sturdy round brackets support.



## PRIMARY AIR FAN

A direct drive external rotor plug fan with a variable speed inverter. It features an aluminum heavy-gauge impeller, round heavy-gauge brackets, a smooth air inlet cone, and the inverter (VFD) provides electrical protection to the motor.



## PRIMARY WATER PUMP

A direct drive external rotor plug fan with a variable speed inverter. It features an aluminum heavy-gauge impeller, round heavy-gauge brackets, a smooth air inlet cone, and the inverter (VFD) provides electrical protection to the motor.



## SECONDARY WATER PUMP

A direct drive external rotor plug fan with a variable speed inverter. It features an aluminum heavy-gauge impeller, round heavy-gauge brackets, a smooth air inlet cone, and the inverter (VFD) provides electrical protection to the motor.



## AIR FILTERS

Equipped with G4 Aluminum air filters that are washable, easily accessible, removable, and have a 20mm thick filter media.



## VARIABLE SPEED DC INVERTERS

The DC inverter receives feedback from the room temperature controller and provides PID functionality to control the room temperature by adjusting the speed of fans. This function not only saves water and power but also ensures smooth indoor comfort.



# HOW IT WORKS

The SUPERCOOL-IDEC unit operates based on water evaporation principles.

Here's how it works:

## Indirect Sensible Cooling Stage:

The hot and dry outdoor air enters the first stage for sensible cooling.

Here, the water coil (heat exchanger) cools down the air without adding humidity.

## Direct Evaporation Stage:

In the second stage, the air undergoes direct evaporation through the wet cooling pads.

This process achieves the maximum wet bulb temperature, ensuring effective cooling.

## 4 Stage IDEC Cooling Unit

### Technical Data:

FEATURES	IDEC MODEL		
	IDEC-4.8KCD	IDEC-7KCD	IDEC-10KCD
Supply Air CFM -Rated	4800	7000	10000
Ext. Static Press Pascal	175	220	250
Cooling Capacity -Nom. TR	10	15	25
Cooling Area -Approx. m2	140	250	450
DX Stage capacity TR	3.0	7.5	10.0
Performance- EER(Btu/h/w)	26	28	27
Achievement of wet bulb	130%		
Electrical Power	380v /3ph		
Input Power-kW Cooling Only	8.74	14.95	18.50
Current Amp cooling only	14.85	25.42	31.45
Water Cons. Max. M3/24 hrs (Peak temp)	1.60	2.40	3.50
Weight - Operating kg	1350	2070	2430

### Important Notes:

Water consumption for 15hours per day operation.

Design weather conditions DBT, WBT 45 °C / 20 °C

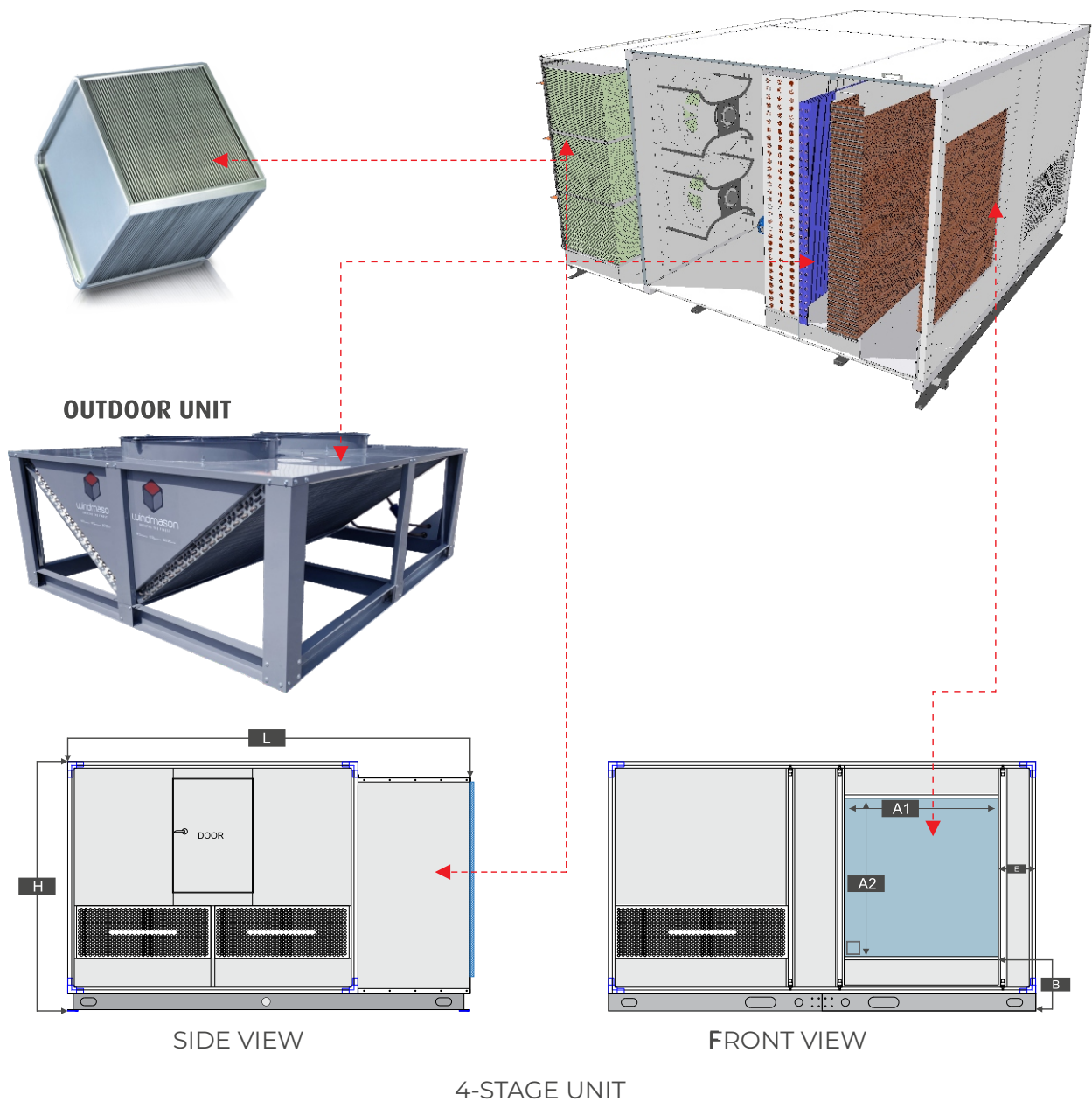
# 4 Stage IDEC Cooling Unit

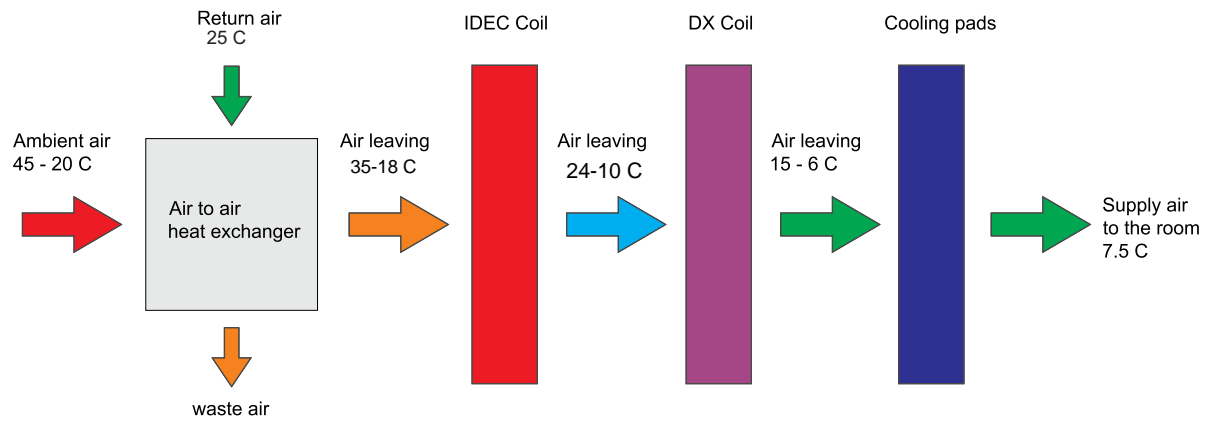
## PHYSICAL DIMENSIONS

MODLE No.	CAPACITY	L (mm)	W (mm)	H (mm)	A1 (mm)	A2 (mm)	E (mm)	B (mm)
IDEC-4.8KCD	10 TR	2300	2500	1390	900	900	200	350
IDEC-7KCD	15 TR	2480	2700	1580	1000	1000	230	380
IDEC-10KCD	25 TR	3240	3050	1880	1200	1200	275	380

### Note:

Due to the continuous development the dimension of the unit may change, please contact [windmason](https://www.windmason.com) for updates before considering the physical dimensions in your project design.

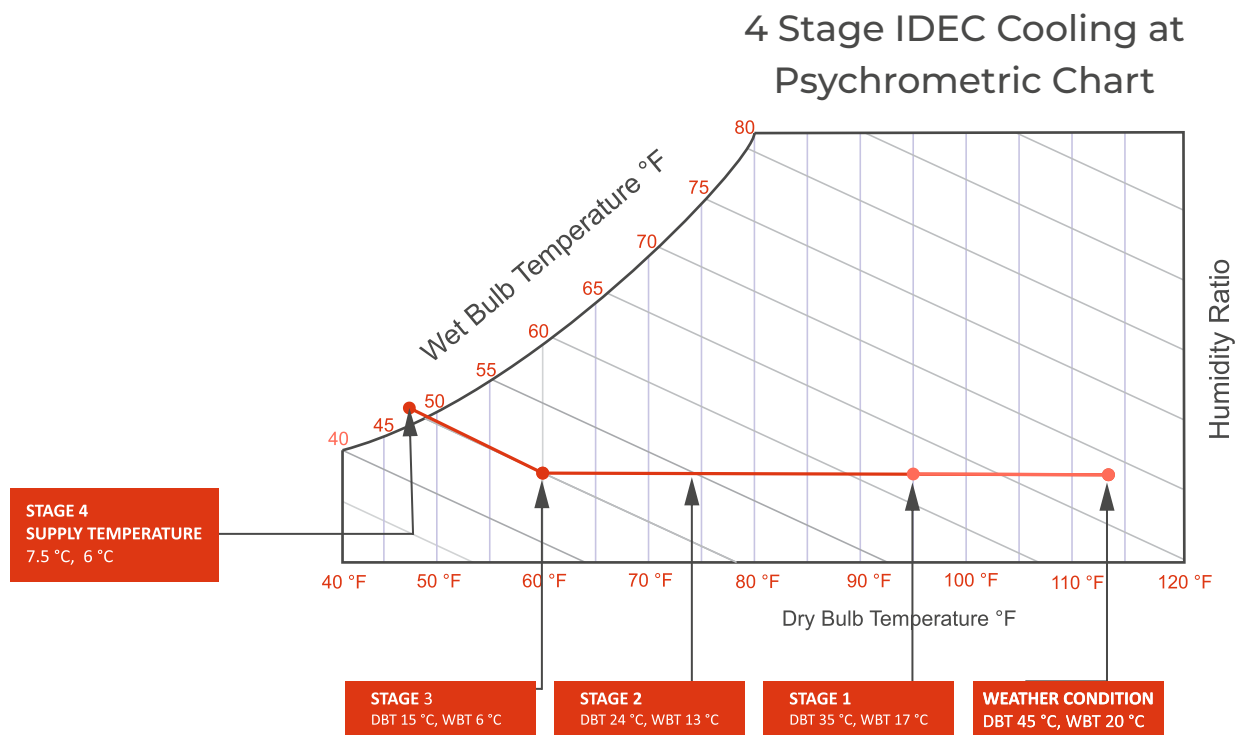




## 4 Stage fresh air cooling unit

### 4 Stage IDEC Cooling at Psychrometric Chart

TEMPERATURE DATA		
Dry Bulb Temperature Ambient	113 °F	45 °C
Wet Bulb Temperature Ambient	68 °F	20 °C
Supply air Temperature	45 °F	7.5 °C



# Installation of IDEC Units



# Our Key Clients

			
Al Tazaj Restaurant	Al Romansiah	Best Harvest Trading Co	LSC
			
Gulf Catering Co	Al Romansiah	Imile Logistic	Multi Brands Trading
			
RAQAM Company	ADEX Company	IHCC	Al-Watania Plastic
			
Al-Babain Food	Sahara Mall	Al Jabar Laundry	Al Yasra Fashion
			
Al rashed Food Group	Dar Al Uloom University	White Crystal For Filling	Packing Product Co.
			
Awarid Cosmetics Co.	National Water Company	First Class Aviation	Saudi Eraad Defense
			
Jarir Book Store	Al Karama Food Co	Creation Source Trading	Continental Hotel Riyadh

# Our Key Clients

 <b>مستشفى الرياض</b> riyadh hospital	 <b>برودان</b> Brodan	 <b>Medical Elements</b> العناصر الطبية	 <b>التقدم الطبي</b> Advance Medical
Riyadh Hospital	BRODAN Medical Co.	Medical Element Co.	Advance Medical Co.
 <b>Panda</b> بندة	 <b>نستو</b> NESTO All that you need.	 <b>العشيم</b> Othaim منكم وفيكم	 <b>Al Adil</b> THE HOME OF INDIAN FOODSTUFFS UAE   SAUDI ARABIA   INDIA
PANDA Hyper Market	NESTO Hyper Market	OTHAIM Hyper Market	Al Adil Est. Market.
 <b>أراك</b> arak	 <b>مصانع طريق الشرق للبلاستيك</b> Al Sharq Road Factories for Plastic	 <b>DELTA PLASTICS</b> PACKAGING SOLUTIONS الدلتا للبلاستيك	 <b>وقت اللياقة</b> FITNESSTIME PRO
Arak Plastic Co.	Al Sharq Plastic Co.	Delta Plastic Co.	Fitnesen Time Pro.
 <b>PAKISTAN INTERNATIONAL SCHOOL RIYADH</b> رياض علميا 1968 DUTY DEVOTION	 <b>مدارس رياض نجد</b> Riyadh Najed Schools تعليم لتكوين	 <b>كياي التقنية</b> Kayan Technical	 <b>MAS-ADEA ARABIA CO.</b> شركة ماس أديا العربية.
Pakistan Inter. School.	Riyadh Najed School	KAYAN Tec. Contr. Co.	Mas Adea Co.
 <b>AL HADAF</b> Al Hadaf Al Dhaqeq Contracting & General Maintenance L.L.C الهدف الدقيق للمقاولات والخدمات العامة ذ.م.م	 <b>DA DECO ART</b> شركة ديكو آرت للتجارة والاستثمار For Trading & Investment Co.	 <b>خطوة جمل</b> CAMEL STEP	 <b>الشاران</b> Restaurant
Al Hadaf Serv. Co LTD.	Art Decor Co	Camel Step Company	Nar Al -Shawaya Rest.
 <b>Methaq Contracting Co.</b>	 <b>PREMIER</b> CONSTRUCTION COMPANY	 <b>DeemaH</b>	 <b>السعيد</b> ALSAEED مجموعة محمد السعيد للتجارة والصناعة M. ALSAEED GROUP TRD. INDUST.
Methaq contracting Co.	Le Premier Architects	Deemah Food Co.	Al Saeed Indu. Group



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