

**Cooling for people and process  
in ways that are healthy and eco-friendly**



## Enhancing people comfort and process efficiency

People are happier and more productive when they are comfortable. In regions with hot weather, cooling spaces where people live and work is becoming the norm.

People-centric cooling is not just about managing temperature. It is also necessary to maintain air quality by bringing in as much fresh air as possible, and air velocity by managing airflow. Only then will cooling be truly healthy over the long term.

In warm climates, cooled factories and utility blocks also enable most industrial equipment to perform optimally.

 HMX

your  
eco-friendly  
cooling  
expert

More than 400 companies are experiencing the HMX advantage

HMX has the world's largest installed base of indirect evaporative cooling with over 35 million CFM, cooling more than 7 million square feet ...and growing fast

Cooling is intertwined with people comfort and process efficiency –

- Desirable for people, since it will energise them, leading to improved productivity.
- Necessary in various stages of production to ensure machine performance, for proper raw material and finished goods storage, and to maintain process specific temperature and positive pressure requirements, all of which result in higher process efficiency.

Refrigerant based air-conditioning entails higher capex and opex, while conventional evaporative cooling solutions fall short of delivering the desired level of cooling and comfort.

**HMX, your eco-friendly cooling expert, brings you unique, energy-efficient and eco-friendly cooling solutions, based on patented indirect evaporative cooling technology.**

Today, this unique cooling technology is increasingly preferred by a growing number of corporates across industry verticals for people comfort and process applications.



# About HMX

**H**MX is a part of the A.T.E. group and has been in the business of providing eco-friendly cooling solutions since 1999. We create and manufacture innovative, next generation products for space and process cooling. We also undertake turnkey projects for comfort air conditioning with our products at the core. All of HMX's products are designed to meet current and the future HVAC requirements, such as:



**Optimum cooling**



**100% fresh air**



**Pre-cooling of fresh and return air**



**Energy efficiency**



**Indoor Air Quality (IAQ)**



**Environment friendly**



**Affordable life cycle cost**

Our commitment to quality is unequivocal: we are certified under ISO 9001:2008 for all our processes, and our manufacturing practices ensure that our products are of high quality and meet specific customer requirements and industry standards.

## Evaporative Cooling Principle of operation

HMX products minimise the use of refrigerants and energy intensive compressors to supply cool air, using the following configurations to supply fresh, clean and cool air for different applications:

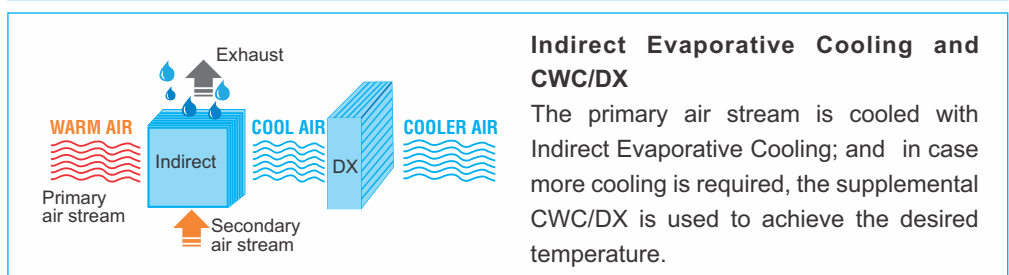
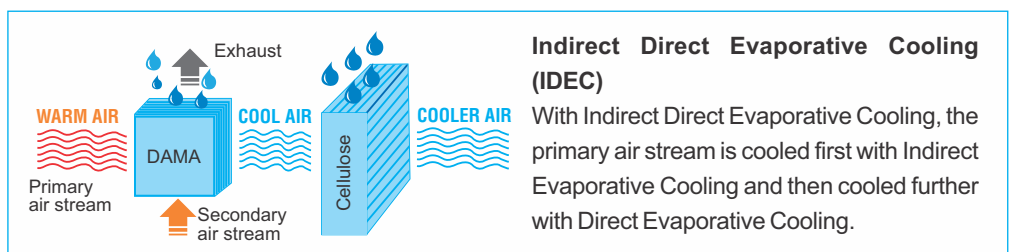
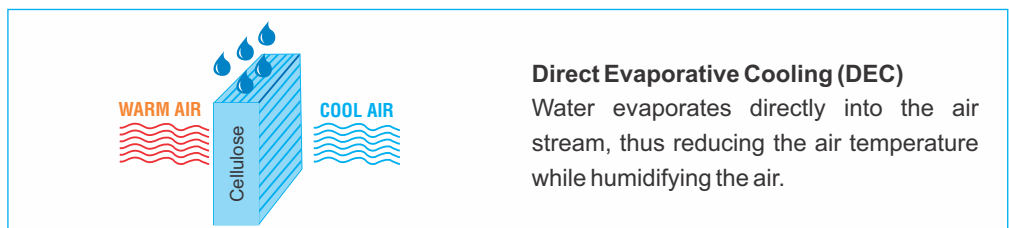
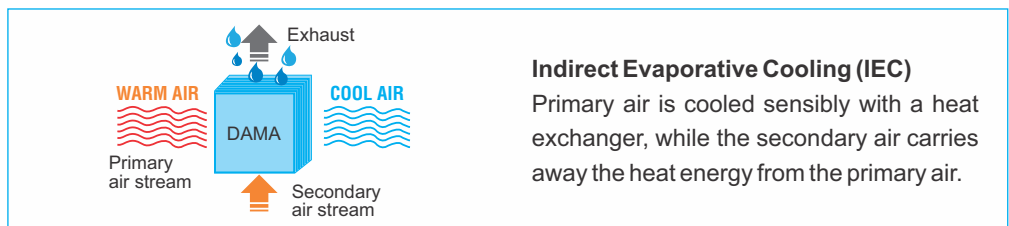
### CORE TECHNOLOGY

At the heart of every HMX product is DAMA, HMX's patented sensible heat exchanger. DAMA stands for "Dry Air Moist Air" – a cross flow plate type sensible heat exchanger built out of engineering polymer.

Supply air on one side is cooled by a secondary stream of air that flows in alternating moist channels.

The vaporising mass of water in the secondary stream enables cooling of the supply air without any water addition to the cooled air.

Type-tested in internal laboratory which is built as per ASHRAE standards, witnessed and verified by UL.





This group of HMX products are next generation stand-alone Indirect Direct Evaporative Cooling solutions. Our patented technology which provides 100% fresh, clean, cool air, is an excellent upgrade over air-washers and ventilation systems as well as an energy efficient alternative to conventional air-conditioners.

# Evaporative cooling unit 100% fresh air

- Indirect Evaporative Cooling (HMX-IEC)
- Indirect Direct Evaporative Cooling (HMX-Ambiator)

### KEY FEATURES

- Next-generation cooling solution provides 100% fresh, clean and cool air
- Excellent upgrade over air-washers and ventilation systems
- Energy efficient alternative to conventional ACs
- EER is between 25 and 40
- BMS compatible control panel with optional variable speed drives
- Available in capacities from 1000 CFM up to 80000 CFM
- Customised solutions available

### BENEFITS

- Cooling of large areas effectively with reduced energy and lower moisture addition
- Maintenance of dust-free environment with positive pressure systems
- Improved indoor air quality
- Improved people comfort and productivity
- Improved process efficiency

### APPLICATIONS

- Factory shed cooling
- Office space cooling
- Auditorium cooling
- Fulfillment centre cooling
- Kitchen cooling and ventilation
- Dining area cooling
- Fringe cooling in large commercial establishments
- Raw material and finished goods warehouse cooling



Auto and Auto ancillaries



Engineering



Commercial Buildings



Print & Packaging



Pharmaceuticals



Footwear & Moulding



Food & Beverages



FMCG



This family of HMX products use our patented heat exchanger DAMA to pre-cool the fresh air supplied to air conditioned spaces or air handling units in the most economical manner, thereby reducing the load on the compressors.

## Pre-cooling unit    Pre-cooled fresh air

- Fresh air pre-cooling using 100% fresh air (HMX-PCU)

### KEY FEATURES

- An innovative pre-cooling unit to improve indoor air quality
- Next generation technology to pre-cool fresh air being supplied to air-conditioned spaces or air handling units/fresh air handling units
- An excellent option to reduce cooling load (TR), where otherwise, the fresh air load is handled by the chiller or a DX system
- Energy-efficient alternative to energy recovery wheels, heat pipes, air-to-air heat exchangers, etc.
- EER is above 15
- Retrofitting the existing air handling unit/fresh air handling unit/treated fresh air unit also possible
- Available in capacities from 1000 CFM to 30000 CFM
- Customised solutions available

### BENEFITS

- Pre-cools fresh air effectively with reduced energy consumption
- Excellent upgrade over conventional TFAs and energy recovery wheels
- Ideal for applications where otherwise the entire fresh air load would be handled by a chilled water or DX system
- Substantial cooling load or TR savings (varies from location to location)
- Improved indoor air quality
- Available in both blow through/draw through arrangement

### APPLICATIONS

- Pre-cooling of fresh air required for air-conditioned spaces
- Pre-cooling of fresh air for once through applications



Commercial Buildings



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A revolutionary concept in comfort that brings to you best of both the worlds of Indirect Direct Evaporative Cooling and refrigerated air-conditioning. These units are designed to provide comfort in all seasons.

## Hybrid air-conditioning unit    Fresh air air-conditioning

- Fresh air, Indirect Direct Evaporative Cooling and air-conditioning (HMX-FAAC)
- Fresh air, Indirect Direct Evaporative Cooling, air-conditioning and heater (HMX-FAAC-H)
- Indirect Direct Evaporative Cooling with coil (HMX-DMA)

### DIFFERENT MODES OF OPERATION TO SUIT PREVAILING AMBIENT CONDITIONS

- **Ventilation mode:** only fresh air
- **Indirect Evaporative Cooling mode:** only DAMA (sensible heat exchanger)
- **Ambiator mode:** Indirect + Direct Evaporative cooling
- **Fresh air pre-cooling mode:** DAMA + cooling coil
- **Air conditioner mode:** cooling coil with recirculated air
- **Heating with humidification mode:** cooling pad + heater with recirculated air

### KEY FEATURES

- Depending on the ambient wet bulb temperature, the HMX unit will run in the appropriate operation mode, from the list enumerated above
- In the air conditioning mode, the system works in a closed loop as the fresh air and secondary air dampers are completely closed and the return air damper is open
- In winter, the unit switches over to recirculation mode by closing fresh air and secondary air damper
- A BMS compatible PLC controller is programmed to select the mode of operation automatically as per the set point and the weather

### BENEFITS

- Ideal for applications where maintaining temperature and RH is critical
- Single unit acts as an indirect direct evaporative air cooling unit as well as an air-conditioner as per the prevailing ambient conditions
- Substantial energy savings
- Suitable for both industrial and commercial applications

### APPLICATIONS

- Raw material and finished goods warehouses
- Office and residential spaces
- Areas where temperature and RH are critical



Commercial Buildings



Food & Beverages



Pharmaceuticals



Residential Buildings



E-commerce Fulfillment Centre



Electronic Components



Heating Facility



*"HMX has executed the contract to our satisfaction even though there were some hiccups in the beginning on the noise reduction aspect. The system is working fine and we are satisfied with its performance."*

ICRISAT (International Crops Research institute for the Semi Arid Tropics), Patancheru, India

*"As promised by HMX, the HMX-Ambiators are providing a comfortable working environment. We have no hesitation to recommend HMX-Ambiators for comfort conditioning applications."*

Honeywell Turbo Technologies, Pune, India



*"We have experienced proper efficiency and reliability of the machine supplied by HMX. We are also happy with the timely and good quality after sales service response from the company as and when required."*

Bosch Ltd., Bengaluru, India

*"As promised by HMX, the HMX-Ambiators have provided a comfortable working environment at our MG Road office. Their service provided is good. Further, the HMX-Ambiators are energy saving equipment as they consume less than 11 units per hour for this area. In case of air conditioning, the total power consumption would have been 25 units per hour for this office."*

Wipro Technologies, Bengaluru, India



**W**ith a legacy of over 75 years, A.T.E. has evolved into a multifaceted engineering group offering world-class products and solutions spanning several segments.

**A.T.E. operates in the domains of:**

- Textile Engineering
- Cooling
- Wastewater Treatment
- Energy Efficiency
- Machine-to-Machine Solutions
- Flow Technology
- Print and Packaging Equipment
- Value Enhancing Systems

A.T.E.'s businesses encompass industrial sales and distribution, manufacturing, and service; further, A.T.E. also has expertise in handling turnkey projects. A.T.E. has developed several cutting-edge technology products and solutions and has a number of patents to its credit.

Driven by a constant pursuit of excellence, and anchored by strong values and vision, A.T.E. is respected for its competence in all of its business areas.



**A.T.E. ENTERPRISES PRIVATE LIMITED**

(Business Unit: HMX)

T: +91-20-3088 1100

E: [comfort@hmx.co.in](mailto:comfort@hmx.co.in)

W: [www.ategroup.com/hmx](http://www.ategroup.com/hmx)

CIN: U51503MH2001PTC132921

