

## HMX-Ambiator

**Indirect Direct Evaporative Solutions**

Eco-friendly

Energy efficient

Healthy

**So Far...**

**Installed base of over 90,000,000 CFM**



HMX-Ambiator installation

**HMX-Ambiator is a new generation, low carbon, patented sensible cooling and advanced adiabatic cooling technology solution for**

- Indirect Direct Evaporative Cooling
- Industrial ventilation and cooling
- Inlet air cooling for gas turbines, air cooled compressors and large DG sets
- Hybrid air- conditioners
- 100% fresh air applications

**HMX-Ambiators are available in various capacities**

- Small upto 10,000 CFM
- Medium 10,000 to 30,000 CFM
- Large 30,000 CFM onwards

**HMX-Ambiators come with an integrated control panel with several options such as**

- Variable speed drives
- PLC/ micro controller based control systems
- Remote monitoring
- Integration with existing control systems/ building management systems/energy management systems

**Projects and engineering**

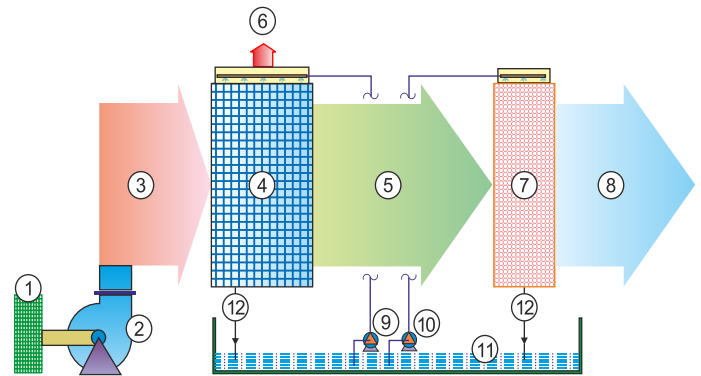
- We do turnkey solutions, including engineering, installation and commissioning
- HMX-Ambiators can be integrated with other air handling systems and air conditioning systems to optimize power consumption

The core of HMX-Ambiator technology is **DAMA**<sup>®</sup> (dry air moist air) a new generation patented sensible heat exchanger. **DAMA**<sup>®</sup> is type-tested in internal laboratory which is built as per ASHRAE standards, witnessed and verified by UL.

HMX-Ambiators have huge energy saving potential – about 60% over conventional air conditioners – a finding endorsed by none other than **teri** (The Energy Research Institute).

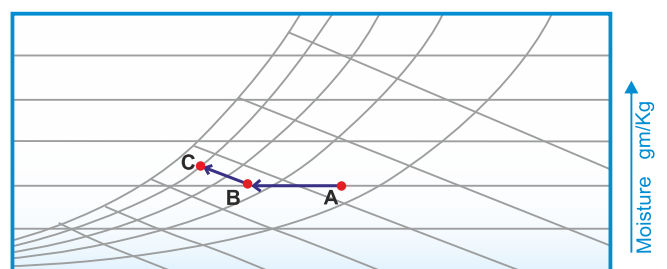
HMX-Ambiators filter air for particles in the range of 5 - 20 microns. For hospitals and other mission critical applications, HMX can also offer Ambiators with HEPA (high efficiency particulate air) filters to filter particles upto 0.3 microns in diameter with 99.97% efficiency.

**Principle of operation**



- 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 exchanger
- 7 HE2 - adiabatic heat exchanger for cooling air
- 8 Conditioned air at machine outlet
- 9 Water supply pump for HE1
- 10 Water supply pump for HE2
- 11 Water sump
- 12 Return of water from HE1 and HE2 to sump

**Psychrometric representation**



A B = Sensible Cooling      B C = Adiabatic Cooling



## Technical specifications of HMX-Ambiators

MODEL		HMX 5K		HMX 10K		HMX 15K			HMX 20K			HMX 25K		
S. No.	Description	Total static Pr. in mm Wg		Total static Pr. in mm Wg		Total static Pr. in mm Wg			Total static Pr. in mm Wg			Total static Pr. in mm Wg		
		45	55	45	55	55	65	75	55	65	75	55	65	75
1	Make and origin	ATEEPL (BU:HMX), Bangalore India												
2	Model type	HMX "B" series (basic)-front throw only												
3	Primary side air capacity (CFM/CMH)	5000/8500		10000/17000		15000/25500			20000/34000			25000/42500		
4	Secondary side air capacity (CFM/CMH)	1750/2975		3500/5950		5250/8925			7000/11900			8750/14875		
5	Construction	Double skin AHU box												
6	Type of blower	Backward curve DIDW,dynamically balanced												
7	Make of motor	ABB/Siemens/Equivalent												
8	Blower motor specifications	IE2/EFF1, TEFC 4P, Class F insulation,Duty-S1 continous,IP55 protection												
9	Type of drive	V-Belt drive												
10	Make & material of sensible heat exchanger	HMX Engineering polymer with thermally fused non-woven fabric-cartridges												
11	Material of adiabatic heat exchanger/ make	Treated and impregnated special cellulose material with saturation upto 90%.Munters/ Ecocool/Ambcool /Equivalent												
12	Make/ type/ size of filters	AAF /Spectrum/Sogefi MNR/Equivalent Panel filter of 90% efficiency down to 20microns, / 610x610x50												
13	Make of pump	Mieco little pump/Equivalent		Ebara/Equivalent		Ebara/Equivalent			Ebara/Equivalent			Ebara/Equivalent		
14	Pump quantity (Nos)	2		2		2			2			2		
15	Dimensions W x D x H (mm)	1300x2800x(1550+500)		2000x3550x(1850+500)		2300x4150x(2250+500)			2300x4400x(2600+500)			2900x4600x(2600+500)		
16	Weight, static load/ operating load (kg)	800/1000		1500/1875		1925/2405			2620/3275			3335/4165		
17	Whether single/ three phase	Three		Three		Three			Three			Three		
18	Limit switch/ mechanical door guard	provided in the machine												
19	UV treatment unit	8W, 250 lph capacity												
20	GA drawing with plumbing details	Will be provided on finalization of order. (Note: The dimensions of the machine are subject to minor changes)												
21	Total power consumed in (kW)	2.4	2.8	5.4	6.1	7.8	9.3	10.0	10.5	11.8	13.3	13.0	14.7	16.4
22	Total connected load in (kW)	3.8	3.8	6.5	6.5	11.5	11.5	11.5	11.5	15.5	15.5	15.5	15.5	19.0
23	Average water consumption (l/h)	40		80		120			160			200		

(Note: Any interim model between 5,000 CFM to 40,000 CFM is also available on request. Above specifications can be changed in line with further product developments)

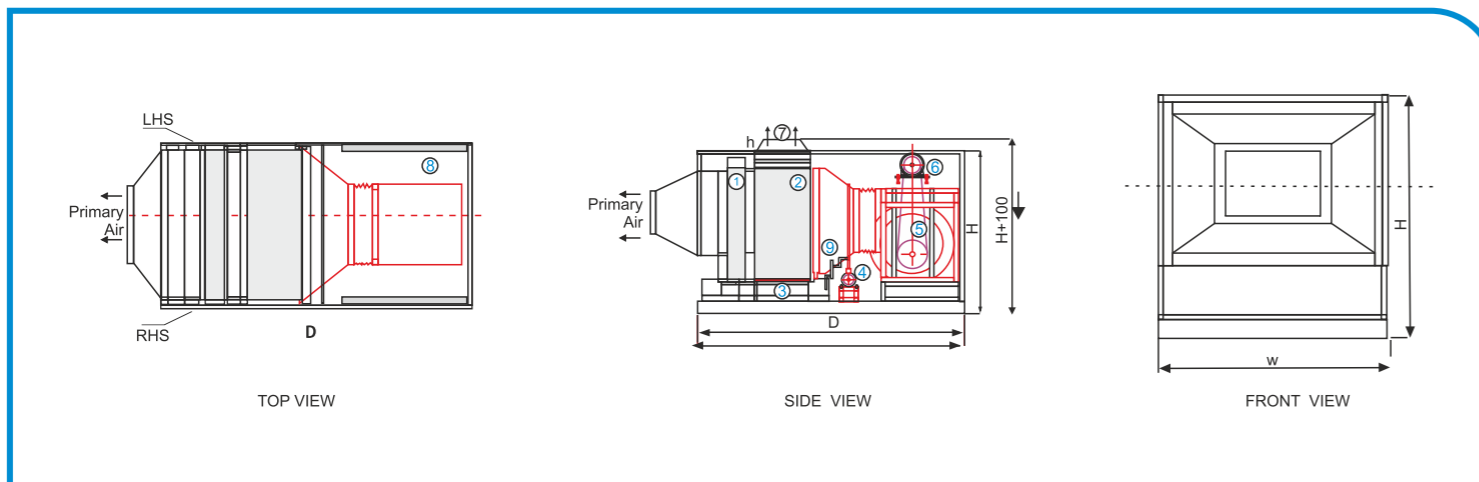
## Outlet temperature chart for HMX-Ambiator

Ambient DBT (°C)	Relative Humidity (%)											
	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	
28	7.2	9.0	11.0	12.5	14.0	15.5	16.7	17.9	19.2	20.3	21.2	
30	8.2	10.1	11.9	13.9	15.4	17.0	18.3	19.6	20.7	22.0	23.0	
32	9.3	11.3	13.2	15.2	16.8	18.3	19.9	21.2	22.4	23.8	24.8	
34	10.3	12.4	14.5	16.3	18.3	19.9	21.5	22.9	24.1	25.5	26.6	
36	11.3	13.6	15.6	17.7	19.8	21.4	23.1	24.3	25.8	27.2	28.4	
38	12.3	14.7	17.0	19.1	21.0	22.0	24.5	26.2	27.6	28.8	30.2	
40	13.3	15.9	18.3	20.5	22.5	24.5	26.2	27.9	29.3	30.6	NA	
42	14.8	17.1	19.6	21.9	24.0	25.9	27.8	29.4	31.0	NA	NA	
44	15.4	18.4	21.0	23.3	25.5	27.5	29.4	31.3	NA	NA	NA	
46	16.4	19.5	22.3	24.8	27.0	29.1	31.0	32.8	NA	NA	NA	
48	17.4	20.8	23.7	26.2	28.6	30.4	32.7	NA	NA	NA	NA	
50	18.5	22.0	25.1	27.7	30.1	32.3	NA	NA	NA	NA	NA	

(N/A - Not Applicable)

The reduction in temperature possible with HMX-Ambiator depends on coincidental Dry Bulb Temperature (DBT) and Relative Humidity (RH). The chart here indicates the temperature at HMX-Ambiator outlet against various combination of DBT & RH.

## Blow Through Machine



### Legends:

1. Adiabatic heat exchanger (HE2)    2. Sensible heat exchanger (HE1)    3. Water sump    4. Water pumps    5. DIDW- centrifugal blower  
6. Blower motor    7. Secondary air path (with fans)    8.HDPE panel filters    9. UV unit

## HMX-Ambiator installations



HMX, a business unit of A.T.E., designs and manufactures unique, energy-efficient, and eco-friendly products for space and process cooling for the industrial and commercial sectors, using its patented and highly successful **DAMA**® technology. The product range includes the HMX-Ambiator, and the fresh air pre-cooling unit, HMX-PCU. With an installed base of over 90 million CFM all over India, HMX is making fast strides in providing eco-friendly cooling solutions for people and process comfort.



### Cool on your pockets

- Energy savings upto 60%
- EER between 25 and 40
- Excellent return on investment
- Carbon credit benefits



### Cool way to cool air

- No CFCs involved
- Zero ozone depletion
- Helps reduce green house gases
- Excellent indoor air quality
- No sick building syndrome



### Safe and cool

- 100% fresh air for excellent indoor air quality
- Clean and filtered air flow - dust free environment
- Helps dilute viral density in the air, thereby reducing chances of infection from contagious viruses in air, such as swine flu

## Other Offerings

### HMX-PCU



HMX-PCU is used to supply large quantities of filtered, cooled fresh air into designated areas. These are used in conjunction AHU/chiller installations. HMX-PCU have a high energy efficiency (EER of more than 15).

## Markets Served



Factories



Auditoriums/ Halls



Offices



Hotels/ Resorts



Gymnasiums



Hospitals/ OPDs



Air compressors/  
DG rooms



Malls/ Commercial  
complexes



Wellness  
centres

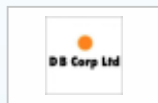


Sport  
complexes



Inlet air cooling  
for gas turbines

## Our Clientele



\* For different projects \* All logos & TM belong to respective companies.

## RECOGNITION



**HMX**...

Manufactured by:

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(Business Unit: HMX)

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