

## HMX-PCU

**Fresh air pre-cooling unit**

Treated fresh air (TFA)

Energy efficient

Increased energy savings



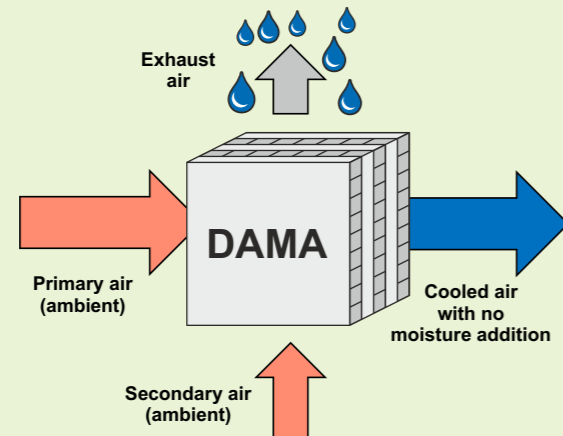
## Pre-cooling with HMX

Normally 30% of the overall cooling load in a centrally air-conditioned space is dedicated towards cooling the fresh air being fed into the conditioned space to maintain healthy indoor air quality. The HMX-PCU is an efficient treated fresh air (TFA) system which has the potential to save 40% of the total fresh air load on a centrally air-conditioned system. Based on HMX's Indirect Evaporative Cooling technology, HMX-PCU is the best solution among all fresh air handling technologies such as energy recovery wheels, conventional TFAs and heat pipes.

At the heart of the HMX-PCU is the DAMA (Dry Air Moist Air) – a cross flow plate type sensible heat exchanger for Indirect Evaporative Cooling, built out of an engineering polymer. **DAMA has been type-tested in HMX's internal laboratory which is built as per ASHRAE standards, and witnessed and verified by UL.** The 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 addition of moisture to the cooled air.

Once pre-cooled through the DAMA, the air can be supplied directly to the conditioned space as it is or further cooled through chilled water or DX coil. The HMX-PCU can also be retrofitted to existing TFA/FAHU units, or can be supplied to individual AHU rooms.

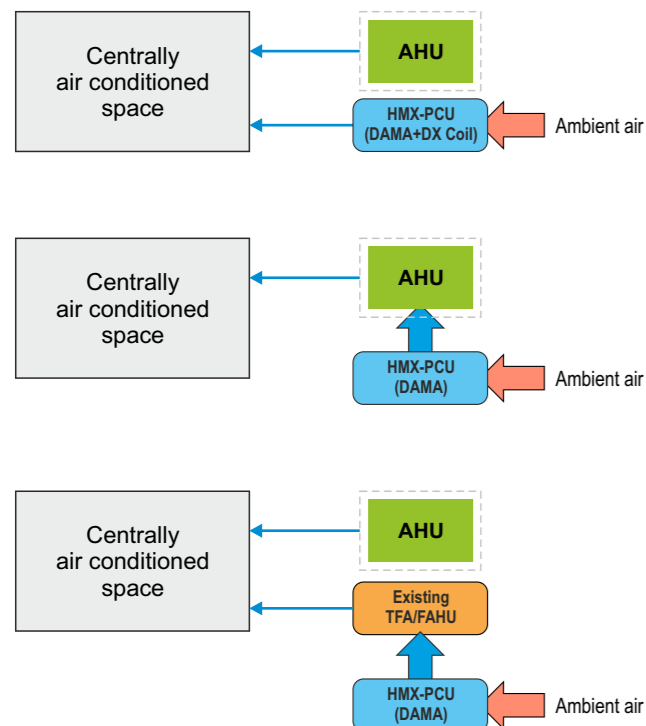
| City      | Ambient inlet DBT (°C) | Ambient inlet WBT (°C) |
|-----------|------------------------|------------------------|
| Ahmedabad | 42.3                   | 24.1                   |
| Bengaluru | 34.7                   | 19.5                   |
| Hyderabad | 40.4                   | 22.5                   |
| Indore    | 41.1                   | 20.7                   |
| Jaipur    | 42.8                   | 22.5                   |
| Lucknow   | 42                     | 24.2                   |
| Nagpur    | 43.8                   | 23.6                   |
| New Delhi | 41.8                   | 23.6                   |
| Patna     | 40.7                   | 23.4                   |
| Pune      | 38.4                   | 20.5                   |



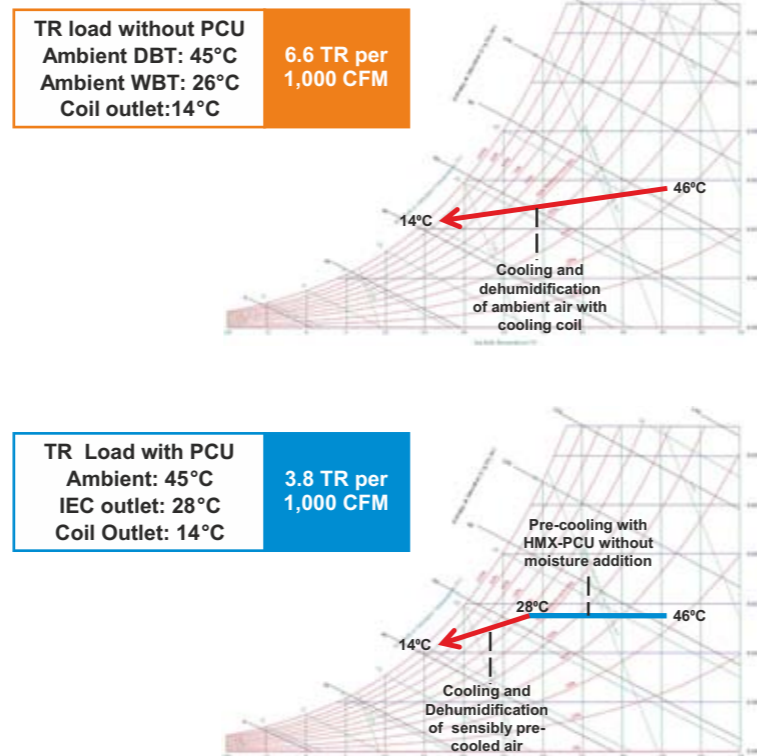
| City      | DAMA Outlet DBT (°C) | Corresponding chiller TR savings (TR/1000 CFM/hour) |
|-----------|----------------------|---|
| Ahmedabad | 27.7                 | 2.4 (45% saving)                                    |
| Bengaluru | 22.7                 | 2.0 (58% saving)                                    |
| Hyderabad | 26.1                 | 2.4 (54% saving)                                    |
| Indore    | 24.8                 | 2.7 (60% saving)                                    |
| Jaipur    | 26.6                 | 2.7 (56% saving)                                    |
| Lucknow   | 27.8                 | 2.4 (44% saving)                                    |
| Nagpur    | 27.6                 | 2.7 (54% saving)                                    |
| New Delhi | 27.2                 | 2.4 (48% saving)                                    |
| Patna     | 26.9                 | 2.3 (47% saving)                                    |
| Pune      | 24.1                 | 2.4 (59% saving)                                    |

## Energy efficient treated fresh air systems

### Modes of pre-cooling with DAMA



### TR load with and without HMX-PCU



## HMX-PCU technical specifications

| MODEL                                    |  | PCU 2000        | PCU 3000       | PCU 5000       | PCU 7000       | PCU 10000       | PCU 15000      | PCU 20000      | PCU 25000      | PCU 30000      |
|--|--|-----------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|
| <b>Operating details</b>                 |  |                 |                |                |                |                 |                |                |                |                |
| Nominal air flow                         | CFM  | 2000            | 3000           | 5000           | 7000           | 10000           | 15000          | 20000          | 25000          | 30000          |
| External static pressure                 | mm of wg   | 5               | 5              | 5              | 10             | 10              | 15             | 15             | 15             | 15             |
| <b>Power resource details</b>            |  |                 |                |                |                |                 |                |                |                |                |
| Power supply details                     |  | 1ph, 50Hz, 240V |                |                |                | 3ph, 50Hz, 415V |                |                |                |                |
| Total connected load                     | W  | 1560            | 1580           | 3700           | 5500           | 7500            | 10750          | 11450          | 16750          | 22750          |
| Total power consumed                     | W  | 1160            | 1500           | 2440           | 3980           | 6200            | 8560           | 10580          | 15010          | 17320          |
| Water consumption (standard conditions)  | l/h  | 10              | 15             | 25             | 35             | 50              | 75             | 100            | 125            | 150            |
| <b>Physical / constructional details</b> |  |                 |                |                |                |                 |                |                |                |                |
| Unit size (WxDxH)                        | mm <sup>3</sup>  | 1100×3100×1400  | 1100×3200×1500 | 1300×3300×2050 | 1400×3500×2350 | 2000×4050×2350  | 2300×4650×2750 | 2300×4900×3100 | 2900×5100×3100 | 3000×5100×3400 |
| Unit weight                              | kg   | 472             | 566            | 614            | 1001           | 1362            | 1923           | 2619           | 3332           | 3610           |
| Operating weight                         | kg   | 708             | 849            | 1053           | 1567           | 2096            | 2404           | 3274           | 4165           | 4513           |
| Casing                                   | Aluminium profile with PUF-filled double skin panels; inner-GI & outer pre-coated white colour |                 |                |                |                |                 |                |                |                |                |
| Tank assembly                            | SS - 304   |                 |                |                |                |                 |                |                |                |                |
| Piping connection                        | Incoming water & drain - 1" external thread  |                 |                |                |                |                 |                |                |                |                |
| Fan details                              | Centrifugal fan, backward curve  |                 |                |                |                |                 |                |                |                |                |

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

Best in class payback

Zero cross contamination

Lower capital investment

Minimal maintenance

Reduced energy consumption

Eliminates return-air ducting (PCU)

Small footprint



## Our other solutions



### HMX-Ambiator

The HMX-Ambiator is an Indirect Direct Evaporative Cooling solution which is an excellent upgrade over conventional air washer systems as well as an energy efficient alternative to conventional air-conditioners.



### HMX-FAAC

The HMX-FAAC is a hybrid air-conditioning solution which combines the best of both worlds - Indirect Direct Evaporative Cooling and refrigerated air-conditioning. It has 6 modes of operation to suit any prevailing ambient conditions.

## Our clientele\*



\*For different projects; all logos & trademarks belong to the respective companies

## About A.T.E. (HMX)

HMX – a part of the A.T.E. Group – has been providing eco-friendly cooling solutions based on Indirect Evaporative Cooling since 1998. HMX designs and manufactures eco-friendly and energy efficient solutions for space and process cooling with its best in class heat exchanger – DAMA – as the core. HMX's DAMA has been type tested in our internal laboratory – a test that was witnessed and verified by Underwriters Laboratory. HMX also undertakes turnkey projects for comfort air-conditioning.



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