



Bilcare saves chiller opex with HMX-PCU-F

Case Study

Company Background

Bilcare is an innovation-led solutions provider that is a global leader in the field of pharmaceutical packaging. Bilcare uses a range of specialty polymer films and aluminum foils to devise solid dosage pharmaceutical packaging materials. Bilcare operates out of nine different locations and has five R&D centres spread across Asia, Europe and USA. The company has a strong base of 2,500 customers across 50 countries.

Challenge

The Rajgurunagar plant of Bilcare had set up a new triplex laminating line with a raw material storage area. As per the process requirement, the temperature inside the laminator plant room was to be maintained at $26 \pm 0^\circ\text{C}$ throughout the year with a RH level of $55 \pm 5\%$. To achieve this, 3 x 100 TR water cooled screw chillers are used with two Air Handling Units (AHUs) with chilled water coils, one with 26,000 CFM and the other with 13,000 CFM.

During the summer months the fresh air coming into the chilled water AHUs was at $40\text{--}45^\circ\text{C}$. This led to high TR load on the chillers, resulting in high operating expenditure for these chillers. To reduce the operating cost of chillers, it was necessary to bring down the temperature of fresh air coming to the chiller.

Solution

Bilcare discussed the problem at length with the HMX team. On the basis of the weather data available and the TR load installed, HMX worked out a feasible solution for the company. It was suggested that two fresh air pre-cooling units HMX-PCU-F without blowers should be installed for the two chilled water AHUs. This would help in bringing down substantially the temperature of the fresh air being taken in, thus reducing the TR load on the chilled water coils, which would in turn lower the operational expenditure of the air conditioning system installed.

Based on the recommendations, Bilcare opted for two HMX-PCU-F, which were installed and commissioned in September 2013.



Result

Temperature readings recorded at the exit of both the HMX-PCU-F units clearly establish a significant and consistent reduction in the TR load on the chiller system.

Calculation of TR savings based on temperature readings taken at the exit of the HMX-PCU-F units:

CFM	WBD °C	Ambient		After HE1		Cooling-Sensible	Cooling-Sensible	Power consumption/TR	Power saved	Monetary savings
		DBT (°C)	WBT (°C)	DBT (°C)	WBT (°C)	kW	TR	kW/TR	kW/h	Rs/h @ Rs 7/kW
26,000	12	33.0	21.0	24.0	16.5	136.50	39	1.2	46.8	327.6
13,000	12	33.0	21.0	23.5	16.5	68.25	20	1.2	23.4	163.8

According to Mr. C.R. Raghu, Head – Maintenance & S.H.E “The management is happy and is looking at the possibility of using the HMX units at other locations in the same factory.”