

## Case Study

# HMX helps Thai packaging company reduce solvent losses, improve worker health

### Background

Print Master Co., Ltd. is well known in the flexible packaging industry in Thailand. Over a span of 20 years, the company has grown and expanded continuously. Today, Print Master produces a range of packaging products suitable for virtually every consumer industry.

### Challenges

Like a number of flexible packaging companies, Print Master uses rotogravure machines for printing. However, Print Master was facing some issues during production.

During the gravure printing process, due to the constant movement of the rollers, the temperature of the ink/ solvent solution rises, leading to the evaporation of ink and solvents and also causing inconsistent ink shades and viscosity, ultimately leading to printing defects. Another side effect of evaporating solvents is the rise in levels of Volatile Organic Compounds (VOCs) in the shop floor environment. The high temperatures and hazardous chemical fumes lead to uncomfortable and unhealthy working conditions.

Print Master was using air washers in one of its plants earlier but was unsatisfied with the performance as the cooling was inadequate, and the air washers also made the indoor conditions humid. Print Master considered using an air conditioning system, but while an AC system would decrease the temperature significantly, it would also cause a negative pressure – leading to dust ingress – and an increase in opex due to its high power consumption. Plus, the recirculation of air with VOCs that is usual with air conditioning installations usually leads to a decrease in ambient air quality. Thus, both options were ruled out.

The management at Print Master wanted an HVAC system that could provide an appropriate amount of fresh and cool air in the shop floor. This HVAC system would also have to ensure a healthy and dust-free environment by continuously exhausting stale, VOC-laden air from the workstations by maintaining adequate positive pressure. At the same time, the system would have to be economical to install and operate.

### Solution

HMX recommended and installed its 120,000 CFM Indirect Direct Evaporative Cooling (IDEC) system to cool the 18,800 square feet gravure printing area.

### Result

The HMX-Ambiator (based on Indirect Direct Evaporative Cooling technology) system is the perfect solution to the problems faced by Print Master – it not only provides fresh, cool air, but also maintains positive pressure, thereby exhausting VOCs from the shop floor environment. In addition to this, the ingress of dust is eliminated. The reduced indoor temperature has resulted in reducing solvent losses, leading to a healthy working environment. The HMX-Ambiator system adds significantly less moisture to the environment compared to air washers, enhancing comfort.

Today, the employees on the shop floor enjoy adequate cooling, fresh air and a dust-free environment while working. Manufacturing costs have decreased with less solvent losses as well as better quality. Consequently, Print Master is quite happy with the performance of the HMX-Ambiator.

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