Industry
Print and Packaging

Application
8-colour CI flexographic press

Background
A leading Mumbai based converter, manufacturing flexible packaging laminates, has an 8 colour European CI flexographic printing press. Jobs include both surface and reverse printing on films that run at a maximum speed of 300 metres per minute; the maximum web width is 1350 mm. Solvent based inks with a viscosity of 18-20 secs (B4 cup) are used. The customer sought to reduce ink and solvent consumption to improve operating margins.

Process
On each print station, an ink circulating pump delivers ink from the tank to the chamber. As the print run progresses, temperature of the ink rises. It stabilises at a high temperature over time. This high ink temperature results in higher solvent evaporation, which in turn increases the top-up solvent consumption.

Solution
A heat exchanger was needed to reduce ink temperature to a level that reduces solvent consumed, without hindering the process. Critical design parameters included temperature and flow rate of the ink, permissible pressure drop of the application and quantity of heat to be transferred through the heat exchanger. We evaluated the application data through heat exchange and CFD modeling to arrive at a compact design with optimal performance.

Conclusion
Annualised savings after installation of a Valflow® ITS, with associated accessories, water chilling plant, etc. is significant and translates into a pay back period of less than 11 months!