Case Study

Valence delivers cost saving solution to a leading convertor in Western India

An attractive investment: Reduce heating costs by recovering heat from hot exhaust air of the drying process

Industry: Speciality coatings

Background

A leading convertor in western India has a state of the art speciality coating line where they process polyester (PET) films 10 - 350 µm thick.

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The convertor coats the films with a uniform thickness of a special solvent based material. The coated film is then passed through a drying chamber where thermic fluid is used for heating. Waste hot air that is used for drying is exhausted from dryer at 155 oC.

Solution

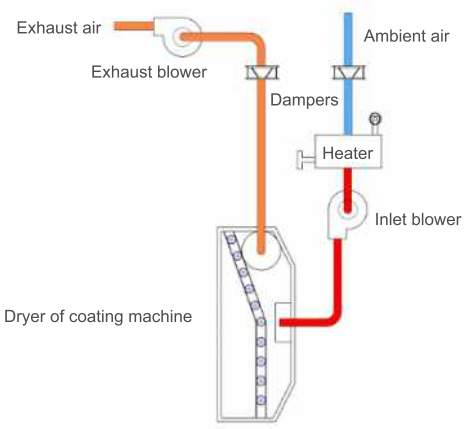
Valence approached the convertor and suggested they evaluate the feasibility of energy recovery devices to reduce heating costs. The Valence team observed that 80% of the energy of hot air was being wasted. To extract a good part of the heat, Valence proposed the Lamiflow heat recovery system which is a cross flow, air-to-air heat exchanger. It comprises multiple, thin, slightly separated plates that provide large surface area for effective heat transfer with low pressure drop.

The Lamiflow heat recovery system is installed in a way that the two air streams - ambient air and hot air (exiting dryer) - cross each other without mixing. The heat extracted from the exhaust air is effectively used to pre-heat fresh air before it enters the heater. Thermal energy costs are thus reduced by decreasing load on the heater.

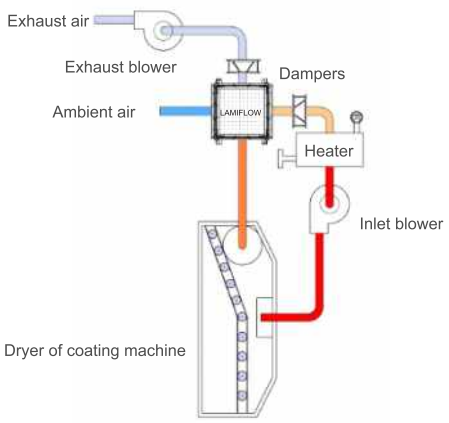
Result

Considering 16 hours operation of the coating machine each day, for 300 working days in a year and assuming that savings happen only 60% of the time, this solution pays for itself in about 7 months.

The customer is very happy with the cost savings and is exploring other areas for waste heat recovery through Valence.



Conventional drying process without heat recovery



New drying process with Lamiflow heat recovery

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