CASE STUDY

Textile Manufacturer

Dye Houses | Africa, South Asia | Waste Water Heat Recovery (Launrec RBT)

Overview

As the largest jersey-wear manufacturer in Sub-Saharan Africa exporting 60 million garments a year, this customer sought an expert partner to contribute to the 'bigger picture' of sustainability across its entire operation, retain competitive advantages in the fashion retail space and satisfy fashion-conscious consumers.

Combined Impact

Annual Fuel Energy Savings
3,216,746 MWh

Annual Savings
£252,500

Annual CO2 Reduction
1,995 tonnes

Return on Investment
1 - 2.7 years

Industry Challenges

Dyeing and finishing activities add value to the production chain but are highly energy intensive, and therefore costly when impacted by rising production costs and a reliance on imported fossil fuels*.

Heat recovery can achieve significant cost savings and improve profitability and competitiveness for the textile industry, but is typically limited by the presence of debris and lint, that impairs heat transfer surfaces, reduces the life of the units and hinders heat transfer*.

Inventive Solutions

Through the innovative application of our specialized equipment, we pioneered the use of wastewater in the heat exchange to manage the lint content in the water, never before achieved in the industry, to deliver two groundbreaking solutions.

Across two projects at two different sites, TEI recovered waste water from the dye plants to heat up the cold water, now cleaned of large lint particles, with approach temperatures of 3°C allowing for twice more energy recovery.

Project 1 involved a retrofit, where the existing hot waste water heat recovery on the dye machine operated with an approach temperature of 15°C.

The cooling temperature was reduced by 25%, and heating of soft water increased by 34%; Cooling 34.1 m3/hr of waste water from 40.4°C to 32.4°C and heating 26.7 m3/hr of soft water from 36.5°C to 48.8°C.

Project 2 involved a new waste water recovery system for the dye machines at a newly built dye house.

The new system reduced the cooling temperature by 27% using average waste water flows: Cooling 19.5 m3/hr of waste water from 51°C to 39.9°C, heating 9.71 m3/hr of soft water from 26°C to 48.2°C.

All equipment was provided by skid assembly for simple installation.

* Elahee, K. (2010)

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