ECONOMISERS AND FLUE GAS COOLERS

We design, manufacture, supply spares and services for economisers and flue gas coolers for industrial uses, power stations and marine vessels to help them to improve efficiency, reduce fuel consumption, lower emissions and cut costs.

What are economisers and flue gas coolers?

Economisers and flue gas coolers enable the waste heat generated by boilers to be captured for a range of applications.

We design and fabricate economisers in our factory in Wakefield, where we’ve been manufacturing since 1845 when our founder Edward Green patented his design. Every one of them is bespoke to meet our customers’ specific needs and operational requirements.

A common application of economisers in steam power plants is to capture the waste heat from boiler stack gases (sometimes known as flue gas) and transfer it to the boiler feedwater. This raises the temperature of the boiler feedwater, lowering the needed energy input, in turn reducing the firing rates needed for the rated boiler output. Economisers lower stack temperatures which may cause condensation of acidic combustion gases and serious equipment corrosion damage if care is not taken in their design and material selection.

Flue gas coolers have a similar role, but water heated in them is used for various applications in the plant rather than being evaporated in the boiler. To avoid these problems, we carefully select materials of construction and recommend regular inspections so that potential problems are identified and rectified before they become performance issues which affect operational efficiency.

How are economisers and flue gas coolers used?

Power stations, whether they are coal fired, waste to energy or biomass plants, benefit from increased efficiency by using Green’s economisers and flue gas coolers to produce more electricity or reduce their fuel consumption.

Industrial plants such as pulp and paper or steel mills, chemical producers and food processors use our economisers to preheat water to produce hot water or steam for various on-site uses such as drying ovens, kilns, heating, sterilisation, cooking and electricity generation for their own use or to export to the grid as an additional revenue stream.

We manufacture economisers and flue gas coolers with the following parameters using smooth tube, spiral tube & H-fin designs:

- Water pressure: 10 – 320 bar
- Water flowrate: 10 – 2800 t/h
- Thermal duty: 1 – 100 MW
- Tube length: up to 20 m
- Module size WxLxH: from 1m x 3m x 1m to 6m x 20m x 4 m
- Module weight: 15 – 150 tonnes

*Other sizes are available, please contact us with your specific requirements

Green’s is part of Heat Exchange Group and is one of Europe’s largest providers of boiler equipment and services including repairs, inspections, installation and spares. We help companies in the energy, industrial and marine sectors to recover waste heat efficiently, maximise energy usage and cut costs by designing and manufacturing products from our certificated UK factory for installation worldwide.

Information about our other products and services including:
- Design engineering
- High performance boiler tube bending machine
- Industrial and marine boiler services
- Spares
- Steel fabrication
- Waste heat and exhaust gas boilers

is available from www.greenspower.co.uk/downloads
PREVIOUS WORK

Power generation – coal to biomass conversion

Project:
Drax Power Station, Selby, UK
3 Economisers

Background:
6 x 660 MW largest, cleanest and most efficient power plant in the UK. Green’s first supplied economisers for this site in the 1960s. Green’s provided a replacement of one of the economisers when the station started converting from coal to biomass. Building upon this success, Green’s was asked to replace two further economisers.

Services provided:
Design, manufacture and delivery

Combined heat and power - biomass

Project:
Bio4 Amagerværket heat and power plant, Copenhagen, Denmark
12 Economisers

Background:
Economiser for a 500 MWf CFB boiler; the district heat capacity 415 MJ/s. The power plant’s net electricity production capacity is 150 MW

Services provided:
Design, manufacture and delivery
Largest contract to date

Power generation – energy from waste

Project:
LondonEnergy
Replacement of 5 existing economisers with Green’s design ‘H’ Fin economisers for improved performance and maintenance

Background:
One in four energy from waste stations serving UK’s capital city

Services provided:
Design, manufacture and installation