



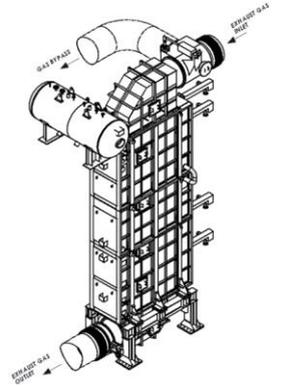
## WASTE HEAT AND EXHAUST GAS BOILERS

Utilising well proven finned tube designs, our engineers create bespoke waste heat recovery equipment to suit clients' specific requirements. Typical applications include primary or secondary power generation or steam/hot water production for industrial processes. Whether the equipment is to be installed downstream of static diesel or gas engines, gas turbines, furnaces, incinerators or other sources of waste heat energy, Green's provides solutions to your waste heat challenges.

### Design

Using Green's own proprietary software, our engineers optimise heat recovery from gas streams taking into account any process constraints and/or space limitations. For most dirty gas applications, such as heavy fuel oil firing, off-gas from incinerators, biomass plants, and chemical plants, our Steel H finned tubes bring additional heat recovery benefits.

Exhaust gas can flow vertically or horizontally, process fluid can be steam, hot water or thermal oil. Heat recovery equipment can incorporate one or more banks of tubes with selected geometry to suit specific applications. Steam boiler plant can be designed for single or dual pressure generation based on natural, assisted or dual (natural/assisted) circulation.



### Typical performance range

| Exhaust gas |             | Steam output |             |             | Unit weight |
|-------------|-------------|--------------|-------------|-------------|-------------|
| Flow        | Temperature | Pressure     | Temperature | Flow        | (kg x 1000) |
| (kg/s)      | (°C)        | (bara)       | (°C)        | (kg/s)      |             |
| 7.8 - 34.3  | 315 - 368   | 8 - 20       | 170 - 338   | 0.66 - 2.19 | 25 - 88     |

### Manufacture

From our extensive UK manufacturing facility, which is accredited to ASME, EN and other relevant standards, we build and assemble equipment of the highest quality.

Components that we can deliver include:

- water treatment
- feedwater storage including deaerators
- feedwater and circulating water pumps
- steam drums and headers
- on-line gas cleaning
- gas ductwork including bypass dampers
- condensate recovery systems
- fluid pipework, valves and instrumentation.

Working alongside diesel engine manufacturers, such as Caterpillar, MAN, Rolls-Royce and Wärtsilä, we have successfully delivered energy recovery solutions, typically in the 5 – 50 MWt range, to customers around the world.

Green's is a world leader in the design and manufacture of economisers and waste heat recovery systems. Our founder Edward Green patented the first fuel economiser in 1845. Since then, we have been combining innovation and engineering expertise to help companies around the world reduce emissions, improve efficiency and save money.

Today, from manufacturing and support sites in the UK, Green's is recognised for its superlative products and collaborative approach to design and manufacture. Our main markets are energy (biomass, waste to energy and conventional fuels), industrial and marine.

We also support our customers with aftermarket services that ensure their boiler and waste heat recovery systems are kept operational at optimum efficiency.

