

WASTE HEAT BOILERS AND STEAM DRUMS



OVERVIEW

Struthers Wells™, a TEI line of products, has an unparalleled reputation and successful history in designing and manufacturing heat recovery equipment for the extraction of heat from high temperature process or flue gas systems worldwide.

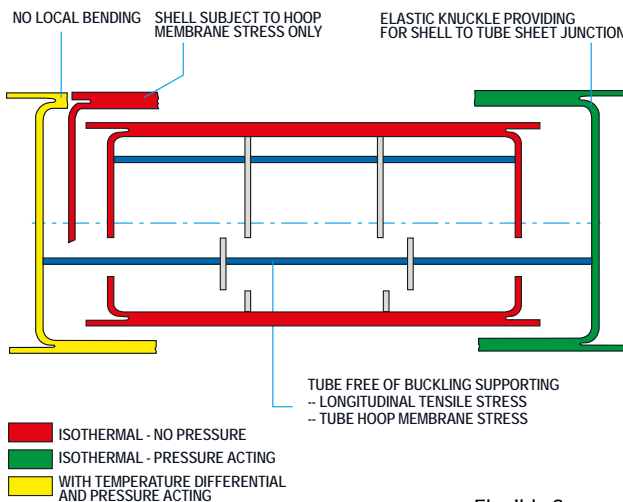
WASTE HEAT BOILERS DESIGN PARAMETERS

Struthers Wells™ waste heat boilers can be designed to cool process gases with temperatures above 2,600° F (1,400° C) and pressures above 3,000 psi (210 kg/cm²), generating high quality steam to pressures higher than 2,100 psi (150 kg/cm²) and for steam generation rates up to 500,000 lb/hr (230,000 kg/hr).

- Fire Tube Boilers
 - Dual Compartment
 - Internal By-Pass
- Water Tube Boilers

FLEXIBLE TUBESHEET DESIGN SOLUTION

Struthers Wells™ pioneered the flexible-supported-stay-thin tubesheet design which has been applied extensively under the modern plant's demanding conditions.



Flexible Supported Tube-Stayed, Thin Tubesheet Boiler Design

FEATURES

- Thin tubesheet, typically 1 inch (25 mm) thick, allows good cooling by the water on the rear face and as such, operates at lower temperature
- The tubes, which act as stays, are all at the same temperature, therefore, the tubesheet remains flat with no bending between tube holes
- Flexible connection of tubesheet to shell provides for differential expansion between shell and tubes, acts as a flexible element and gives good fatigue resistance
- Full thickness tube-to-tubesheet weld provides tubesheet integrity, eliminates the crevice on water side and ensures the stress in the weld is the same as that in the tubesheet

BENEFITS

- Proven current and advanced technology for improved operational reliability
- Cost effective designs
- Custom designs to fit needs of customer



APPLICATIONS FOR SULFURIC ACID AND SULFUR PLANTS

Struthers Wells™ extensive experience in the design of high pressure fire tube boilers has increasingly been utilized in the cooling of sulfurous gases in sulfuric acid and sulfur recovery plants. High demand for sulfuric acid production for fertilizer plants and desulfurization of refined oil products has resulted in many large boilers being installed.

- Economizers
- Superheaters
- Tail gas incinerators
- Gas-gas exchangers
- Sulfur condensers

Boilers have been supplied for pressures up to 40 bar on sulfur recovery plants and 85 bar on sulfuric acid installations following the trend towards higher steam pressures to improve the energy efficiency of the plants.

STEAM DRUMS

STEAM SEPARATION

Struthers Wells™ waste heat boilers are typically supplied with an overhead steam drum for water and steam circulation with a large recirculation rate to ensure effective cooling. The steam drums are equipped with two stage phase separation systems to provide high purity steam which is frequently used to generate power through steam turbines. Internal cyclone separators and demister pads are used for steam-water separation. Water and steam quality are in accordance with ABMA Standards. The drums fabricated to ASME or other codes are matched to the Waste Heat Boiler requirements and fitted with suitable instrumentation to ensure safe and smooth operation.

TECHNOLOGY

As one of the original founders of the Tubular Exchanger Manufacturers Association (TEMA) and a charter member of Heat Transfer Research Institute (HTRI), Struthers Wells™ has available the most current and advanced technology for the design and manufacture of shell and tube heat exchangers. Additionally, Struthers Wells™ has contributed to the development of numerous standard mechanical, thermal, fluid, and vibration algorithms and calculation methods that have been the basis for many current modern computer programs used by many industry leaders.

For mechanical design analysis, Struthers Wells™ uses sophisticated finite element analysis software to perform detailed mechanical design.



SAFETY³ PEOPLE. POWER. PROJECTS.

We're giving safety the third degree.

Babcock Power Inc. and its subsidiaries place the safety, health and security of our people at the core of our company values. Our team is our most valuable resource, generating solutions everyday to deliver safe, clean, reliable energy globally. With a keen focus on safety, Babcock Power Inc. conducts business in a manner that protects our people, our customers and the environment. From innovation to generation, we are proud of our award-winning safety record and are committed to operating with integrity and excellence.

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