Upgraded Sealing System for Shell and Tube Heat Exchanger Extends MTBR by 4X

Food and Beverage
Chesterton 5505H, SteelTrap™ Gasket
Case Study 013 SE

Challenge

Background

A potato chip manufacturer had significant leakage issues with 11 shell and tube heat exchangers. The exchangers had a Mean Time Before Repair (MTBR) of only six months.

This type of heat exchanger often has sealing issues due to extreme temperature fluctuations which cause flanges and bolts to expand unevenly and can lead to stress in the equipment structure. Loss of gasket stress is common. The operating temperature was up to 280˚C (536˚F); 54 bar g (783 psig). The dimensions were up to 880 mm.

Solution

Product

Heat exchangers were upgraded to **Chesterton Flange Live Loading System**, which is designed for difficult sealing conditions. **Chesterton's 5505H High-Strength Disc Springs** give more travel to the bolts to prevent leakage.

Chesterton's SteelTrap™ Metal/Graphite Gasket provides improved sealing performance with lower seating stress. The gasket is blow-out resistant. It also reduces the risk of fire often caused by leaking gaskets.

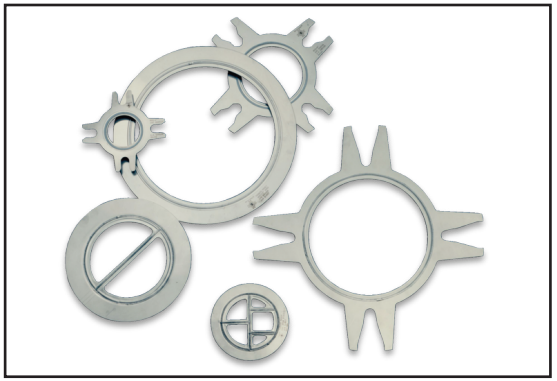
Results

Due to the **Chesterton Flange Live Loading** upgrade, the MTBR was improved from six months to two years.

The disc springs kept flanges leak-free by maintaining consistent tension on the bolts.

Heat exchanger leaks caused production downtime between stops at this potato chip factory.

***Chesterton 5505H Flange Discs** offer shutdown-to-shutdown reliability.*



*The **Chesterton SteelTrap Gasket** has concentric, isolated convolutions that trap pure graphite against the flange face*

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