



PROCESSING INSIGHTS



Minimize your food safety risks with floating protection system

HEAT TRANSFER, PREPARED FOOD

Metal fatigue caused by frequent fluctuations in temperatures is a constant challenge for traditional heat exchangers. But corrosion or cracking – and the resulting food safety risk – can be avoided by choosing a heat exchanger with a floating protection system.

During the heat treatment of food and beverages, temperatures can fluctuate from highs of 150°C (302°F) down to close to room temperature, then back up to 140-150°C for a cleaning program with a cleaning solution. This creates considerable stress on the steel parts inside the heat exchanger.

The components of traditional tubular heat exchangers are fixed or welded together and cannot bend or flex in response to thermal stress. The result can be metal fatigue that leads to corrosion and, ultimately, leaks.

Floating protection systems like those built in to Tetra Pak tubular heat exchangers are designed to expand, and thereby absorb all thermal stress.

As the temperature inside the heat exchanger rises, the tubes absorb the thermal force by sliding outwards.

When the temperature falls, they slide back into their original position with the help of specially designed seals, rather like the way shock absorbers work on a mountain bike.

Thermal stress protection is an asset in heat exchangers for dairy, food and beverage processing lines, where the benefits can be substantial.

“Avoidance of thermal stress has always been a fundamental design principle for our tubular heat exchangers. Our floating protection system is unique and gives enormous advantages,” says Bert-Ove Bejevik, Business Development and Marketing Director at Tetra Pak Processing Components.

Safety, quality and cost benefits

First and foremost, a floating protection system eliminates a primary cause of steel corrosion and thus plays an important role in helping to protect the food product and guarantee its safety and quality.

Tubular heat exchangers with floating protection are also cheaper to run than equipment without this feature.

“The total cost of ownership is usually lower for tubular heat exchangers with the floating protection system,” says Bejevik.

Another factor is that a heat exchanger with floating protection will typically last longer than a traditional heat exchanger. The absence of thermal heat stress increases the longevity of components.

A further benefit is that the modular design of tubular heat exchangers with floating protection makes them easier to inspect and upgrade than traditional models.

They are also simpler to repair if anything goes wrong. In the event that a hole or leak develops in a welded heat exchanger, the engineer must cut into the component to perform a repair.

On a heat exchanger with floating protection, the wearing part can simply be removed and easily replaced with no welding.

To learn more about how the floating system of Tetra Pak's heat exchangers can support your production:

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