



XTUBE® Multitube

Personalized Solution
for you industry

Description

XTube® Multitube heat exchangers are manufactured entirely from stainless steel and consist of a bundle of corrugated tubes mounted within a corrugated outer tube (which forms the outer shell).

The fluid to be treated (the product) flows through the interior of the tubes forming the tube bundle and the service fluid outside the inner tubes, through the shell.

All product wetted surfaces, including the welds, have a surface roughness $R_a < 0.8 \mu\text{m}$ and are therefore able to process food products under the normal hygiene regulations. Such processes include pasteurisation, high temperature sterilisation, thermal treatment for aseptic packaging etc.

The fluid circulating inside the tubes (the product) and the fluid circulating through the shell (the service) are completely isolated from each other, heat transfer taking place across the inner tube walls. Leakage of the service fluid to atmosphere is prevented by a pair of elastomeric O ring seals at each end of the tube. If hygiene and process conditions require it steam packing can be provided between the O ring seals at both ends of the units

One tubeplate is fixed to the outer tube assembly and the other is free to expand and contract with the changes in temperature occurring in service thus avoiding the potentially damaging stresses that occur in other types of fully welded heat exchangers that use expansion bellows to absorb the differential expansion between the shell and the inner tubes.

Product side connections are ISO standard ferrules and clamps or DIN food standard screwed compression fittings.

All of our units are designed and manufactured according to the CE marking regulations contained in the European Pressure Directive (97/23/EC) and are CE marked when we are permitted to do so.

If the application or the clients own preference demands it, an equivalent range of all welded units is also available

Applications

The most important applications for the XTube® Multitube heat exchangers are as follows:

- Hygienic applications involving heating and cooling liquid food products, including products containing fibres, pulp or particles.
- High temperature sterilisation of milk products, juices, drinks etc.
- Direct product/product heat recovery in juice and drink applications.
- Heating and cooling of creams, custards etc.
- Thermal treatment at high temperatures and pressures.





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Materials of construction

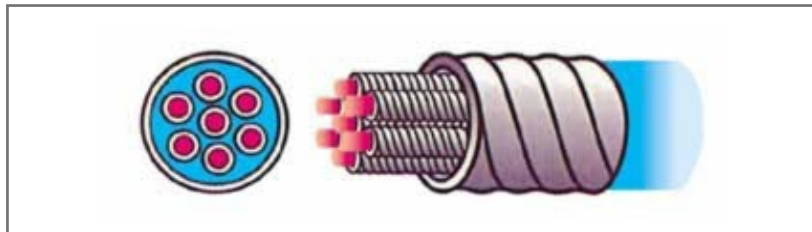
All product wetted components (interior tube and bends etc.) are manufactured from AISI 316L stainless steel but for more aggressive fluids a range of Duplex stainless steels are also available.

The service side components are normally made from AISI 304 stainless steel but AISI 316L and Duplex steels may be used when required.

Areas not in contact with the working fluids are normally constructed from AISI 304 stainless steel.

Silicone rubber is used for the O ring seals and connection gaskets or seals but a wide range of alternative elastomers are available when specific applications require them.

Alternative materials can be offered for all wetted components on application.



Connections

To allow a rapid and flexible installation and easy inspection of the units the XTUBE® Monotube heat exchangers use ISO standard ferrule/clamp connections. If the matching ferrules, clamps gaskets are required by the client for installation purposes these can be supplied on request to allow connection to the clients' pipework system.

Standard dimensions

XTube® Multitube heat exchangers can be delivered in various lengths, the standard dimensions being approximately 1500 mm, 2000 mm, 3000 mm and 6000 mm.

The exterior tube diameters used are as follows: Ø 88.9 mm, 104.0 mm, 114.3 mm, 129.0 mm, 141.3 mm, 168.3 mm, 219.1 mm, 273.1 mm, 323.0 mm and 406.4 mm. The tube thickness used will depend on the design conditions for each application.

The diameters of the interior tubes and their wall thickness will be chosen to meet the requirements of each application.

Design Conditions

The standard design conditions for the XTube® Multitube heat exchangers are the following:

- Minimum and maximum allowable working temperatures: -40°C / +180°C
- Minimum and maximum allowable working pressures: 10 Bar(g)/Full vacuum

Higher pressures and temperatures are possible on request.

