Tetra Vertico®

Coiled tubular heat exchanger

Application

The Tetra Vertico® coiled heat exchanger provides efficient heating and cooling of low to high viscous and smooth to particulate products.

Highlights

- Enables high capacity processing of high viscous products
- High heat transfer efficiency minimizes system volumes
- Gentle mechanical treatment ensures excellent particle integrity up to ø 25 mm
- Designed for high hygiene and low maintenance

Maximizing versatility and efficiency

Continuous processing of viscous products generates high pressure with increased velocity. The pressure rating of Tetra Vertico enables you to process higher capacities of high viscous products, improving production efficiency and cutting cost per litre. Higher product velocity also improves heat transfer efficiency, minimizing heat surface area and system volumes, optimizing CIP and minimizing product losses. The coiled mono-tube unit – between 30 and 100 meters long – has only one inlet and one outlet connection. This enables gentle mechanical treatment and ensures excellent particle integrity for particles of up to 25 millimetres in diameter. The unit is designed for high hygiene and easy maintenance – with a floating end through the bottom flange – to prevent cracking caused by thermal expansion.

Working principle

In the Tetra Vertico tubular heat exchanger, product flows through a coil-shaped tube and media flows around the product tube to heat or cool the product. An additional feature of the coiled design is that it creates a second flow pattern (the Dean effect) at high velocity, which increases heat transfer efficiency.

Standard design

The product tube, shaped as a coil, is placed in a vertical chamber where media flows. The bottom product tube connection is sealed by O-rings to create a system that allows movement between the product tube and the media shell. This design absorbs the effects of thermal expansion and prevents the tube from cracking. The unit is supplied with insulation to minimize heat losses and ensure operator safety. The heat exchanger dimension is selected based on each specific application – the number of units depends on desired capacity and required heat transfer area.

Material

- Surfaces in contact with product: EN 1.4462 (Duplex 2205)
- Other parts in EN 1.4301 (AISI 304)
- Seals in EPDM

Design temperature and pressure rating

- Media design temperature: 165°C (329°F)
- Product pressure up to 300 bar
- Media pressure up to 10 bar

Approval

- PED (European Pressure Equipment Directive) and ASME
- Tubes and shells are designed in accordance with PED or ASME for the specified temperature and for the pressure ranges shown in the table below

Connections

- Media: SMS
- Product: high-pressure union

Options

Accessories

- High-pressure coiled holding tubes in lengths adapted to flow and holding time
- Connections for temperature and pressure transmitters

Documentation

- CE documentation

Information required for quotation

To ensure an accurate quotation, enquires should include information about:

- Required flow rates
- Temperature program
- Physical properties of product and media
- Available pump pressure

Environment

Tetra Vertico is designed for optimum utility consumption for each specific application. Exact energy consumption depends on how the heat exchanger is used.

Tetra Vertico heat exchangers consist of parts that can be separated for recycling.

Design pressure and dimensions

Size	Diameter A (mm)	Height B (mm)	Approx. weight Empty (kg)	Approx. weight Full (kg)	Design pressure (tube) Bar	Design pressure (shell) Bar
60-106	866	3 890	1 725	2 632	110	10
60-86	866	3 300	1 480	2 190	110	10
60-63	866	2 570	1 210	1 823	110	10
48-100	766	3 890	1 315	2 050	155	10
48-80	766	3 300	1 120	1 755	155	10
48-60	766	2 570	910	1 400	155	10
42-90	614	3 890	950	1 465	230	10
42-70	614	3 300	805	1 240	230	10
42-50	614	2 570	645	990	230	10
33-60	470	3 300	480	705	290	10
33-40	470	2 570	376	560	290	10
33-30	470	2 570	350	534	290	10
25-68	310	3 300	370	552	300	10
25-45	310	2 570	285	435	300	10
25-30	310	2 570	260	410	300	10

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