Alfa Laval ViscoLine™ annular unit

The tubular heat exchanger series from Alfa Laval

Introduction

The ViscoLine annular heat exchanger is ideal for the heating, cooling and pasteurization of non-Newtonian products with high viscosity, and products that contain particulates.

Applications

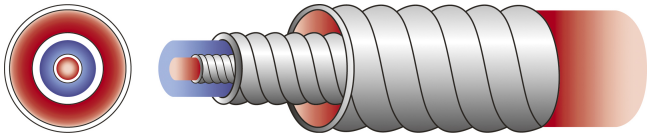
The heat exchanger are most commonly used in conjunction with low acid products with average to high viscosity, such as tomato concentrate, banana paste, sourdough, chocolate sauce, mayonnaise, malt extract and tomato-based sauces in general.

Benefits

- Low maintenance costs
- High working pressures
- High working temperatures
- Easy to expand
- Easy to inspect and clean.

Design

The ViscoLine annular heat exchanger unit consists of four concentric tubes. The product medium flows in between two service channels, and is heated or cooled from the inside and outside at the same time.



The unit features easy, full inspection of the product side by removing the tube insert.

The outer shell is corrugated and the other three concentric tubes are not corrugated, smooth. If required, the product tube can be corrugated.

ViscoLine annular heat exchangers are connected in series on product side and in parallel on water/service side and grouped on support frame or full frame.

The ViscoLine annular unit is designed for a pressure of 15 bar (217 PSI) on the product side (tubes) and 10 bar (145 PSI) on the service side (shell), depending on the connections. The unit can, however, accommodate higher pressure ratings up to 100 bar, depending on component thickness as connection type.

The ViscoLine annular unit complies with the European Pressure Equipment Directive (PED 2014/68/EU), and is entitled to bear the CE mark. Where the CE mark is not required, Viscoline would be manufactured according to Sound Engineering Practice (SEP). Other design codes are available as well such as ASME VIII Div.1 and others would be on request like SELO's China Manufacturer License (SELO approval). It is designed to operate at a temperature of 190°C (374 °F) although higher temperatures are also met.

All units can be provided with an expansion joint to absorb thermal expansion stress.

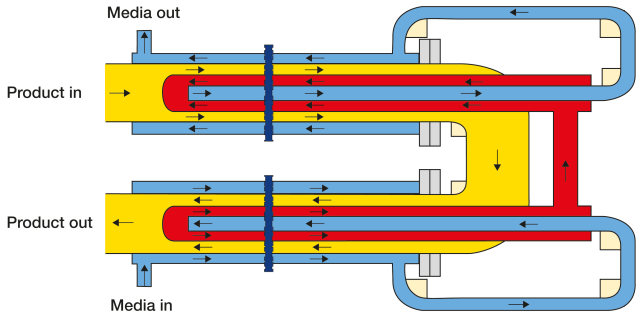
Static mixers can be included to increase turbulence and guarantee an homogeneous thermal treatment.

Connections available for both product side (tubes) and service side (shell) include: SMS, DIN 11851, DIN 11864, Tri-Clamps, Flange and other on request.

The ViscoLine units can be manufactured with different surface finish and can be electropolished if required.

Working principles

The product medium runs in between the second and the third concentric tube and is counter-current relation to the service medium. The only spare parts needed are the O-rings in the header. There is a maximum gap on the product side of 49.2 mm (1.9 inches) and a minimum gap of 5.8 mm (0.2 inches).



Technical data

Material	
Product side (tubes)	Stainless steel AISI 316L
Service side (shell)	Stainless steel AISI 304 or AISI 316L (optional)
Frame	Stainless steel AISI 304 (units can be angled for self-draining on request)
Gaskets	NBR, EPDM, FKM, PTFE and others on request.

Other material available on request is SAF 2507 on product side. Product bends in AISI 316L.

Options

- Protection sheets
- Thermal insulation
- Video inspection
- X-Rays measurements & certificates
- NDT testing & certificates
- Angled frame for self-drainage.

Configuration

VLA 129/114/70/52-6.0-316L/304	
VLA	ViscoLine annular
52	1st tube diameter
70	2nd tube diameter
114.3	3rd tube diameter
129	4th and outer diameter of service shell
6.0	module length (meter)
316L	material product side (tube)
304	material service side (shell)

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com