



Alfa Laval ViscoLine™ Multitube Unit

The tubular heat exchanger series from Alfa Laval

Introduction

The ViscoLine™ Multitube is the Alfa Laval hygienic heat exchanger ideally suited for the heating, cooling and pasteurization of products with low and medium viscosity, and products that contain fibers and small particulates.

Applications

These units are used in conjunction with a wide range of products, including milk, cream water, yellow fats, whole egg, egg white, egg yolk, fruit puree, baby food, many kind of fruit juices containing pulp and fibers, fruit concentrates, beer mash, tomato juice and nectar, protein solutions, yeast and soft drinks.

Benefits

- Low maintenance costs
- High working pressures
- High working temperatures
- Easy to expand
- Easy to be inspected and cleaned.

Standard design

The ViscoLine Multitube unit consists of a bundle of tubes mounted inside an outer shell, and welded onto tube plates at both ends. The product medium flows inside these tubes, and the service medium between and around them.

All the product tubes are connected in parallel and so that the flow is counter-current in relation to the service medium. If required, these product tubes can feature a corrugated surface. Otherwise the inner tubes would be smooth (especially designed for fouling or viscous fluids).

The service media shell could be either smooth or corrugated.

ViscoLine Multitube modules are normally connected in series and grouped on a common frame.

The eccentric reducers can be welded, clamped or flanged.

The installation is maintenance free, thus eliminating any need for spare parts.



Working principle

ViscoLine Multitube is a highly tubular heat exchanger that incorporates corrugated tubes or other advanced profiles designed to increase turbulence in the flow of the fluid. This substantially increases the overall heat transfer coefficient.



Technical data

Mechanical design pressure

The ViscoLine Multitube 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, depending on component thickness as connection type.

The ViscoLine Multitube unit complies with the European Pressure Equipment Directive (PED 97/23/CE), 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) and GOST Russia Certificate of Conformity.

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 any thermal expansion stresses that arise.

Connections

For both product side (tubes) and service side (shell) we can offer: SMS, DIN 11851, DIN 11864, Tri-Clamps, Flange and other on request.

Options

- Protection sheets
- Thermal insulation
- Video inspection
- X-Rays measurements & certificates
- NDT testing & certificates
- Other tests, documentation and certificates on requests.

Standard materials

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)

Other materials are available on request such as SAF 2205, SAF 2507, etc for the inner tubes, tube sheet and bends.

Gaskets materials are: NBR, EPDM, Viton, Perlast™ and others on request.



The ViscoLines can be manufactured with different surface finish and can be electropolished if required

Designation

VLM19x25/154-6.0-316L/304-C

VLM:	ViscoLine Multitube
19:	number of product tubes
25:	outer diameter of product tubes
154:	outer diameter of service shell
6.0:	module length (m)
AISI 316L:	material product side (tube)
AISI 304:	material service side (shell)
C:	corrugated inner tubes
S:	smooth inner tubes

All types are also available in 3-meter length. Other ViscoLine dimensions on request.

Type	Heat transfer area	
	[m ²]	ft ²
VLM 3x14/40-6	0.74	7.96
VLM 5x14/52-6	1.23	13.2
VLM 4x16/52-6	1.13	12.2
VLM 7x14/63-6	1.72	18.5
VLM 5x16/63-6	1.41	15.2
VLM 9x14/70-6	2.21	23.8
VLM 7x16/70-6	1.98	21.3
VLM 4x20/70-6	1.43	15.4
VLM 13x14/76-6	3.19	34.3
VLM 9x16/76-6	2.54	27.3
VLM 16x14/85-6	3.92	42.2
VLM 12x16/85-6	3.39	36.5
VLM 7x20/85-6	2.51	27.0
VLM 4x25/85-6	1.79	19.3
VLM 17x14/89-6	4.17	44.9
VLM 13x16/89-6	3.68	39.6
VLM 21x14/102-6	5.15	55.4
VLM 15x16/102-6	4.24	45.6
VLM 24x14/104-6	5.88	63.3
VLM 20x16/104-6	5.65	60.8
VLM 12x20/104-6	4.30	46.3
VLM 7x25/104-6	3.14	33.8
VLM 30x14/114-6	7.35	79.1
VLM 22x16/114-6	6.22	66.9
VLM 12x25/114-6	5.38	57.9
VLM 37x14/129-6	9.07	97.6
VLM 26x16/129-6	7.35	79.1
VLM 19x20/129-6	6.80	73.2
VLM 15x25/129-6	6.73	72.4
VLM 35x16/140-6	9.90	106.5
VLM 37x16/154-6	10.46	112.6
VLM 19x25/154-6	8.52	91.7
VLM 55x16/168-6	15.55	167.4
VLM 23x25/168-6	10.40	111.9

Alfa Laval reserves the right to change specifications without prior notification.

How to contact Alfa Laval

Contact details for all countries are continually updated on our website. Please visit www.alfalaval.com to access the information direct.