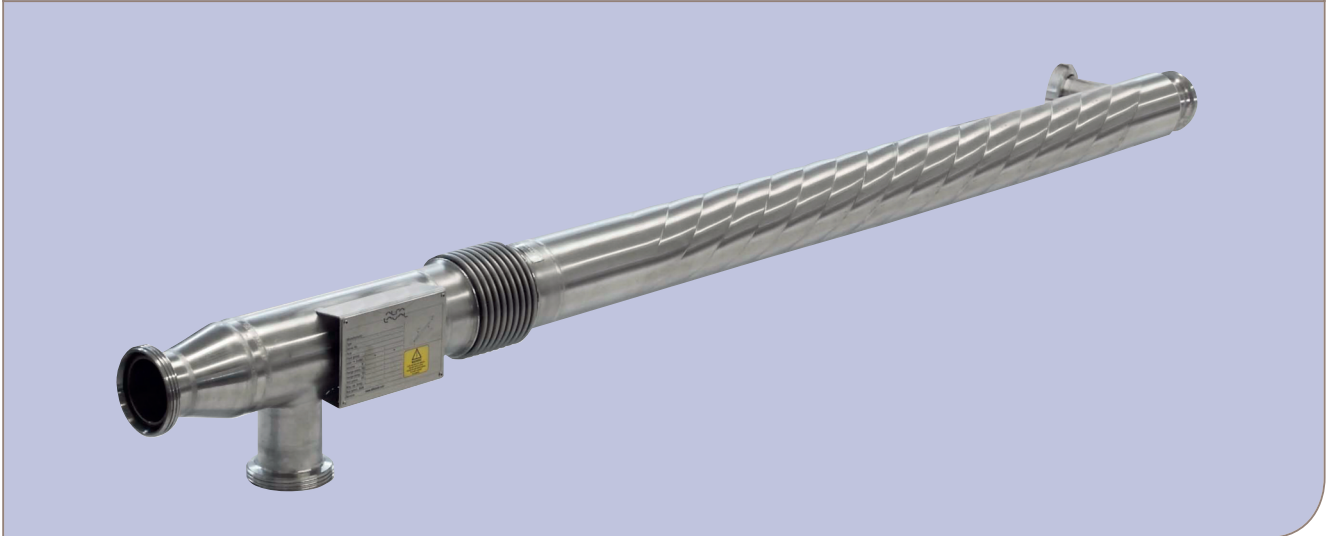




ViscoLine™ Multitube Unit

The tubular heat exchanger series from Alfa Laval



ViscoLine Multitube

Applications

The ViscoLine™ Multitube unit is ideal for the heating, cooling and pasteurization of products with low and medium viscosity, and products that contain fibres and small particulates.

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 purée, baby food, many kinds of fruit juices containing pulp and fibres, fruit concentrates, beer mash, tomato juice and nectar, protein solutions, yeast and soft drinks.

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 the flow is counter-current in relation to the service medium.

As standard inner tubes and shell tube are corrugated to increase heat transfer efficiency.

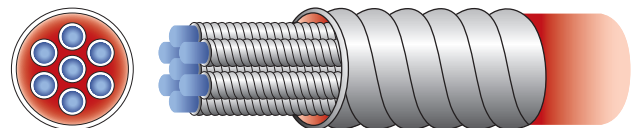
ViscoLine Multitube modules are normally connected in series and mounted on support frame or full frame.

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

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 is 254 SMO, inner tubes and tube plate. (Bends in AISI 316L)



Graphic representation of the flow pattern in the ViscoLine Multitube Unit.

Working Principle

ViscoLine Multitube is a highly efficient 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 connection. The unit can, however, accommodate higher pressure ratings, depending on component thickness and connection type.

The ViscoLine Multitube unit complies with the European Pressure Equipment Directive (PED), and is entitled to bear the CE mark, though depending on the design of the connections. Where the CE mark is not required, ViscoLine Multitube will be manufactured according to good engineering practice.

It is designed to operate at a temperature of 160°C (320°F). All units are provided with an expansion joint to absorb any thermal expansion stresses that arise.

Connections

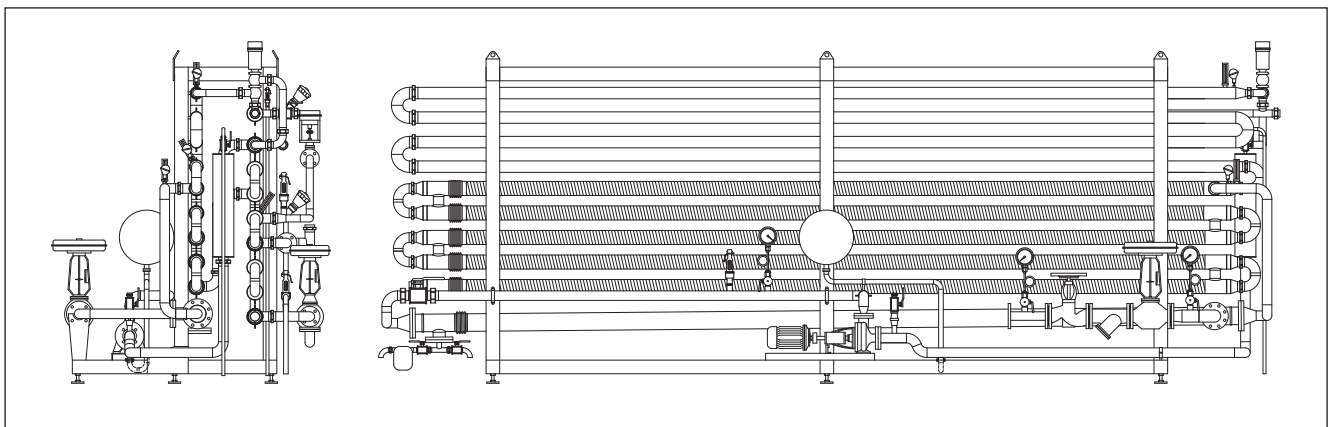
Product side (tubes)	SMS
	DIN 11851
	Tri-Clamp
	Flange
Service side (shell)	SMS
	DIN 11851
	Tri-Clamp
	Flange



The ViscoLine tubular heat exchanger connected in series with insulation.

Options

- Protection sheets
- Thermal insulation
- Shell in steel grade AISI 316L



Alfa Laval ViscoLine Multitube system - example.

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.

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

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