Gillain & Co
HYGIENIC EQUIPMENT FOR FOOD & LIFE SCIENCES

ViscoLine™ Monotube Unit

The tubular heat exchanger series from Alfa Laval



ViscoLine Monotube with open sectional view, hard corrugated

Applications

The ViscoLine™ Monotube unit is a tube-in-tube heat exchanger that is ideal for the heating, cooling and pasteurization of products with low and average viscosity, and products that contain fibres, particles and particulates.

These units are most commonly used for fruit pulp, grape mash, wine must, fruit slurry, starch, diced tomato, diced vegetable and diced fruits, as well as sauces and soups that contain particles.

Standard design

The ViscoLine Monotube heat exchanger consists of a single tube mounted inside an outer shell. The product medium flows inside this tube, and the service medium around it.

The product medium inside the tube flows in counter-currently in relation to the service medium. The product tube can be hard or dimple corrugated or it can be smooth. The service media shell is made of material that is either hard or dimple corrugated or without corrugation (smooth).

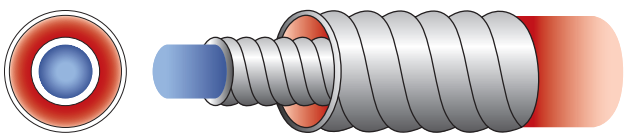
ViscoLine Monotube modules are normally connected in series and grouped on a common frame.

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

Standard materials

Product side (tubes)	Stainless steel AISI 316, AISI 316L or SMO254
Service side (shell)	Stainless steel AISI 304
Frame	Stainless steel AISI 304 (units can be angled for self-draining on request)

Other materials are available on request.



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

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Technical data

Mechanical design pressure

The ViscoLine Monotube unit was designed for a pressure of 25 bar (363 PSI) on the product side (tube) 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 Monotube 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.

It is designed to operate at a temperature of 140°C (284°F). All units are provided with an expansion joint to absorb any thermal expansion stresses that arise.

Connections

Product side (tubes)[1)]	ISO clamps, aseptic ISO clamps, sterile flanges, Tri-Clamps and ANSI flanges
Service side (shell)[1)]	DIN 2576 flanges, ISO clamps and ANSI flanges

Other connections are available on request.

[1)] In compliance with DIN 11851

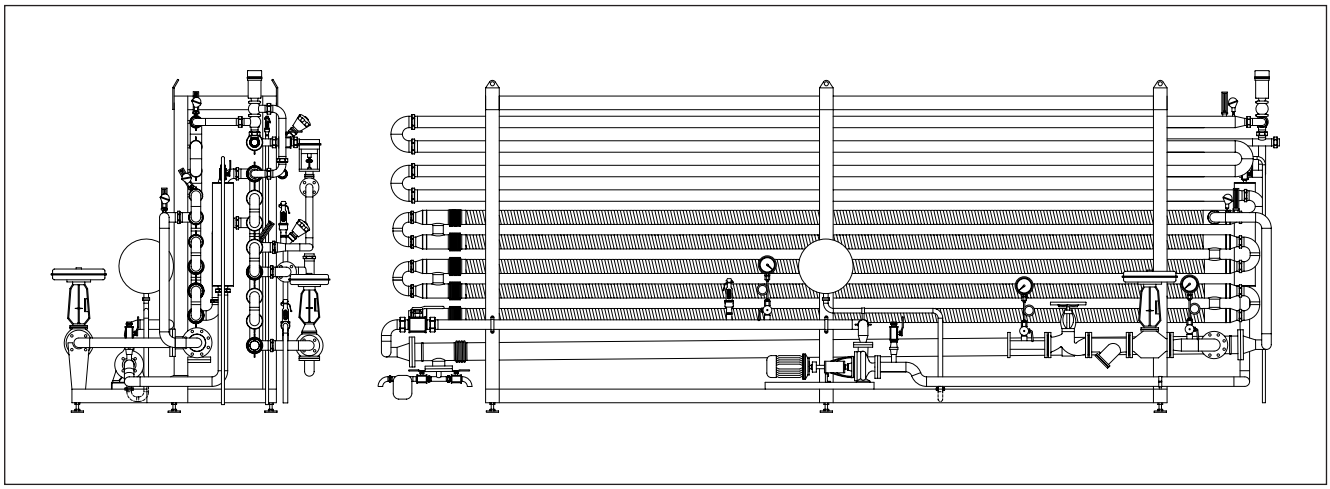
Options

The ViscoLine Monotube unit is also available in a demountable version for heat regeneration with double 180° elbow joints.

Other options include protection sheets and special thermal insulation.



The ViscoLine tubular heat exchanger connected in series and grouped on a common frame



Alfa Laval offers complete installations

Designation
VLO1x51/89-6.0-316L/304-D or H or S

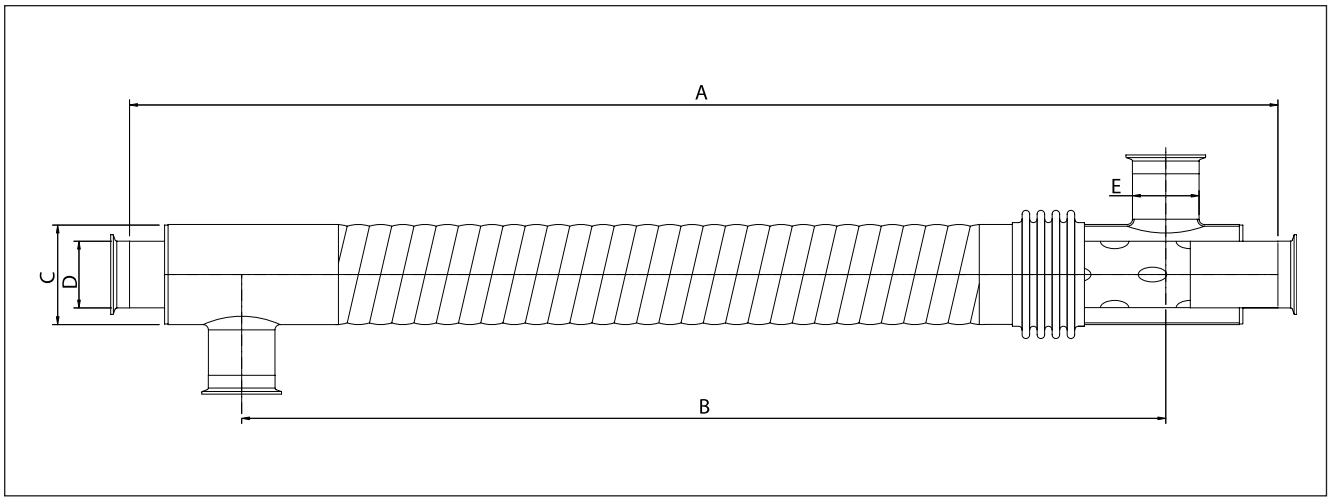
VLO:	ViscoLine Monotube
1:	number of product tubes
51:	outer diameter of product tube
89:	outer diameter of service shell
6.0:	module length (m)
316L:	material product side (tube)
304:	material service side (shell)
D:	tubes are dimple corrugated
H:	tubes are hard corrugated
S:	Tubes are smooth (without corrugation)

Type	Tube Ø		Shell Ø		Module length		Volume tube		Heat transfer area	
	mm	(inches)	mm	(inches)	m	(inches)	litres	(US gallons)	m^2	(ft^2)
VLO1x16/25-3,0	16	(0.63)	25	(0.98)	3.0	(118)	0.4	(0.11)	0.15	(1.63)
VLO1x16/25-6,0	16	(0.63)	25	(0.98)	6.0	(236)	0.8	(0.21)	0.30	(3.26)
VLO1x25/51-3,0	25	(0.98)	51	(2.01)	3.0	(118)	1.1	(0.29)	0.24	(2.55)
VLO1x25/51-6,0	25	(0.98)	51	(2.01)	6.0	(236)	2.3	(0.61)	0.47	(5.09)
VLO1x38/63-3,0	38	(1.50)	63	(2.48)	3.0	(118)	3.4	(0.90)	0.36	(3.87)
VLO1x38/63-6,0	38	(1.50)	63	(2,48)	6.0	(236)	6.8	(1.80)	0.72	(7.73)
VLO1x38/76-3,0	38	(1.50)	76	(2.99)	3.0	(118)	2.9	(0.77)	0.36	(3.87)
VLO1x38/76-6,0	38	(1.50)	76	(2.99)	6.0	(236)	5.8	(1.53)	0.72	(7.73)
VLO1x51/76-3,0	51	(2.01)	76	(2.99)	3.0	(118)	5.4	(1.43)	0.48	(5.17)
VLO1x51/76-6,0	51	(2.01)	76	(2.99)	6.0	(236)	10.8	(2.85)	0.96	(10.4)
VLO1x51/89-3,0	51	(2.01)	89	(3.50)	3.0	(118)	5.4	(1.43)	0.48	(5.17)
VLO1x51/89-6,0	51	(2.01)	89	(3.50)	6.0	(236)	10.8	(2.85)	0.96	(10.4)
VLO1x63/104-3,0	63	(2.48)	104	(4.09)	3.0	(118)	12.6	(3.33)	0.59	(6.42)
VLO1x63/104-6,0	63	(2.48)	104	(4.09)	6.0	(236)	25.2	(6.65)	1.19	(12.8)
VLO1x76/104-3,0	76	(2.99)	104	(4.09)	3.0	(118)	12.6	(3.33)	0.72	(7.75)
VLO1x76/104-6,0	76	(2.99)	104	(4.09)	6.0	(236)	25.2	(6.65)	1.44	(15.5)
VLO1x76/129-3,0	76	(2.99)	129	(5.08)	3.0	(118)	12.6	(3.33)	0.72	(7.75)
VLO1x76/129-6,0	76	(2.99)	129	(5.08)	6.0	(236)	25.2	(6.65)	1.44	(15.5)
VLO1x89/129-3,0	89	(3.50)	129	(5.08)	3.0	(118)	17.0	(4.49)	0.84	(9.05)
VLO1x89/129-6,0	89	(3.50)	129	(5.08)	6.0	(236)	34.0	(8.98)	1.68	(18.1)
VLO1x104/154-3,0	104	(4.09)	154	(6.06)	3.0	(118)	25.5	(6.73)	0.98	(10.6)
VLO1x104/154-6,0	104	(4.09)	154	(6.06)	6.0	(236)	51.0	(13.46)	1.96	(21.2)
VLO1x114/154-3,0	114	(4.49)	154	(6.06)	3.0	(118)	30.6	(8.08)	1.07	(11.6)
VLO1x114/154-6,0	114	(4.49)	154	(6.06)	6.0	(236)	61.2	(16.16)	2.15	(23.2)

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Measurements in mm (inches)

	A		B		C		D		E	
Type	mm	(inches)	mm	(inches)	mm	(inches)	mm	(inches)	mm	(inches)
VLO1x16/25-3,0	2925	(115)	2779	(109)	25.4	(1.00)	16,0	(0.63)	20,0	(0.79)
VLO1x16/25-6,0	5925	(233)	5779	(228)	25.4	(1.00)	16,0	(0.63)	20,0	(0.79)
VLO1x25/51-3,0	2925	(115)	2767	(109)	50.8	(2.00)	25.4	(1.00)	38.1	(1.50)
VLO1x25/51-6,0	5925	(233)	5767	(227)	50.8	(2.00)	25.4	(1.00)	38.1	(1.50)
VLO1x38/63-3,0	2925	(115)	2767	(109)	63.5	(2.50)	38.1	(1.50)	50.8	(2.00)
VLO1x38/63-6,0	5925	(233)	5767	(227)	63.5	(2.50)	38.1	(1.50)	50.8	(2.00)
VLO1x38/76-3,0	2925	(115)	2721	(107)	76.2	(3.00)	38.1	(1.50)	63.5	(2.50)
VLO1x38/76-6,0	5925	(233)	5721	(225)	76.2	(3.00)	38.1	(1.50)	63.5	(2.50)
VLO1x51/76-3,0	2925	(115)	2721	(107)	76.2	(3.00)	50.8	(2.00)	63.5	(2.50)
VLO1x51/76-6,0	5925	(233)	5721	(225)	76.2	(3.00)	50.8	(2.00)	63.5	(2.50)
VLO1x51/89-3,0	2925	(115)	2721	(107)	88.9	(3.50)	50.8	(2.00)	63.5	(2.50)
VLO1x51/89-6,0	5925	(233)	5721	(225)	88.9	(3.50)	50.8	(2.00)	63.5	(2.50)
VLO1x63/104-3,0	2925	(115)	2709	(107)	104	(4.09)	63.5	(2.50)	76.2	(3.00)
VLO1x63/104-6,0	5925	(233)	5709	(225)	104	(4.09)	63.5	(2.50)	76.2	(3.00)
VLO1x76/104-3,0	2925	(115)	2709	(107)	104	(4.09)	76.2	(3.00)	76.2	(3.00)
VLO1x76/104-6,0	5925	(233)	5709	(225)	104	(4.09)	76.2	(3.00)	76.2	(3.00)
VLO1x76/129-3,0	2925	(115)	2676	(105)	129	(5.08)	76.2	(3.00)	88.9	(3.50)
VLO1x76/129-6,0	5925	(233)	5676	(223)	129	(5.08)	76.2	(3.00)	88.9	(3.50)
VLO1x89/129-3,0	2925	(115)	2676	(105)	129	(5.08)	88.9	(3.50)	88.9	(3.50)
VLO1x89/129-6,0	5925	(233)	5676	(223)	129	(5.08)	88.9	(3.50)	88.9	(3.50)
VLO1x104/154-3,0	2925	(115)	2676	(105)	154	(6.06)	104.2	(4.10)	88.9	(3.50)
VLO1x104/154-6,0	5925	(233)	5676	(223)	154	(6.06)	104.2	(4.10)	88.9	(3.50)
VLO1x114/154-3,0	2925	(115)	2676	(105)	154	(6.06)	114,0	(4.49)	88.9	(3.50)
VLO1x114/154-6,0	5925	(233)	5676	(223)	154	(6.06)	114,0	(4.49)	88.9	(3.50)



Example with dimple corrugation

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