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# Alfa Laval ViscoLine™ CIP unit

## Tubular heat exchanger for low viscosity food and cleaning-in-place

### Introduction

The Viscoline CIP tubular heat exchanger is specially designed for the heating of water or CIP (NaOH, HNO<sub>3</sub>,...) solutions using steam or hot water as heating media.

### Applications

- Heating of water or CIP solutions by means of steam
- Processing low viscosity products, containing fibres and small particulates
- General heating and cooling.

### Benefits

- Low maintenance and operating costs
- High working pressures
- High working temperatures
- Easy to inspect and clean
- Easy to assemble/disassemble.

### Design

The three standard sizes of the ViscoLine CIP units are stocked items. Counter flanges are included in the scope of supply.

VLC model	Item number
VLC20x16/104-2	9680168330
VLC31x16/129-2	9680168331
VLC37x16/154-3	9680168334

Note that vertical installation is recommended for steam to water heating in order to drain the condensate.

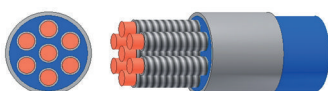
The ViscoLine™ CIP unit complies with the European Pressure Equipment Directive (PED 2014/68/EU), and is entitled to bear the CE mark.

### Options

- Thermal insulation.

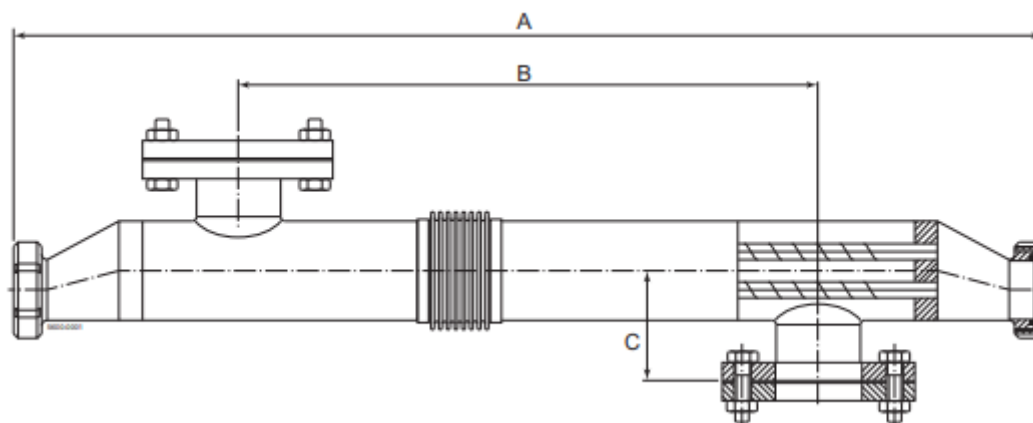
### Working principles

The heat exchanger is formed by a tube bundle (welded at both ends onto flat tube plates) inside a shell. Product medium flows inside the tubes of the bundle and the service medium between and around these tubes. This makes it compact and easy to install.



All tubes are connected in parallel and in counter-current flow to the service medium. The product tubes are corrugated. The service media shell is smooth.

## Dimensional drawing



Model	Dimensions in mm(inches)			Connections		Volume in litre (gallons)	
	A	B	C	Shell side	Tube side	Shell side	Tube side
VLC 20x16/104-2	2.234 (88.0)	1.776 (69.9)	115 (4.6)	OD 76.1 (3")	SMS 63.5 (2.5")	7.33 (1.9)	6.03 (1.6)
VLC 31x16/129-2	2.239 (88.1)	1.76 (69.3)	138 (5.5)	OD 101.6 (4")	SMS 76.1 (3")	8.14 (2.2)	8.14 (2.2)
VLC 37x16/154-3	3.265 (128.5)	2.76 (108.7)	150 (5.9)	OD 101.6 (4")	SMS101.6 (4")	19.77 (5.2)	16.85 (4.5)

## Configuration

VLC 20x16/104-2.0-316L/304-C

VLC	ViscoLine CIP
20	Number of product tubes
16	Outer diameter of product tubes (mm)
104	Outer diameter of service shell (mm)
2.0	Module length (mm)
316L	Material tube side
304	Material shell side
C	Corrugated product tubes

## Technical data

Maximum operating pressure	
Tube side	15 bar (217 PSI)
Shell side	10 bar (145 PSI)
Complies with the European Pressure Equipment Directive (PED)	
Design temperature	-20/190°C (-4/374°F)

Connections	
Product side (tubes)	ISO 2037 SMS
Service side (shell)	Flange EN 1092-1

Material	
Product side (tubes)	1.4404 (316L)
Service side (shell)	1.4301 (304)

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