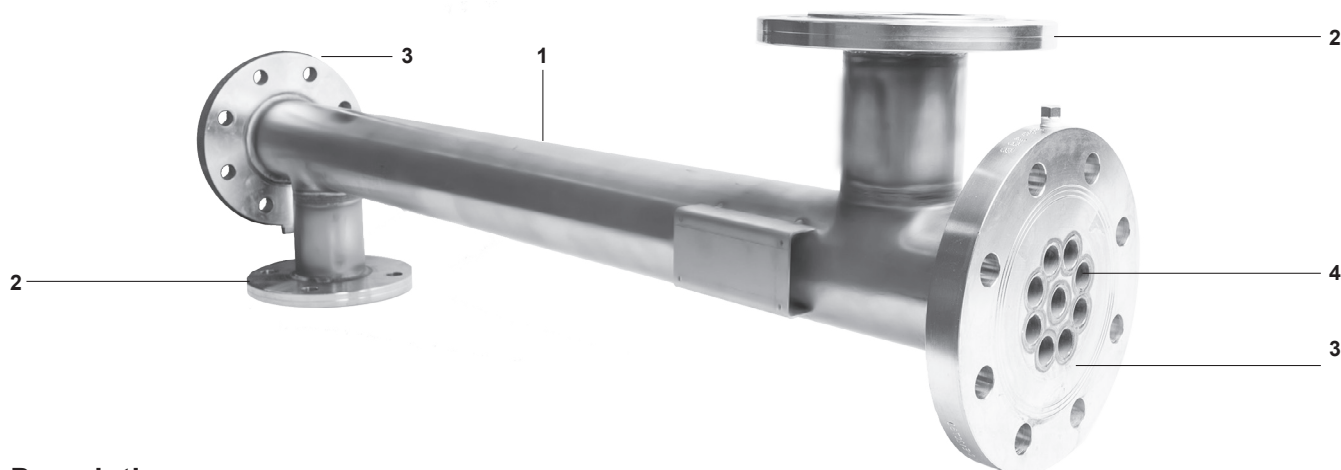




**TI-P222-08**  
 CH Issue 1

## Turflow Lite Heat Exchangers



### Description

The Turflow lite heat exchanger range is a shell & tube design consisting of straight corrugated tubes within a shell. The tubes are secured at either end of the shell by fixed tube sheets, suitable for steam to water duties only.

The corrugated tube design promotes increased turbulent flow conditions to provide the Turflow's high heat transfer efficiency.

The shell is also fitted with drain and vent connections. The heat exchanger is a gasket free design constructed wholly from stainless steel.

Normally the heated fluid will flow through the tubes and the heating medium will be in the shell; both countercurrent and concurrent flow paths can be accommodated, inclusive of horizontal or vertical installation.

**Standards :** Turflow lite heat exchangers fully comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when so required. All units are supplied with a Declaration of Conformity.

**Certification :** A manufacturer's Hydraulic Test Report and Material Certification documentation is available on request.

**Note:** All certification/ inspection requirements must be stated at the time of order placement.

### Pressure / temperature limits

	Shell	Tube
<b>PMA</b>	-10 °C to 184 °C @ 10 bar g	110 °C @ 10 bar g
<b>TMA</b>	10 bar g @ -10 °C to 184 °C	10 bar g @ 110 °C

**Maximum cold hydraulic test pressure of:** 18 bar g for both shell and tube sides

**Note:** mean temperature difference in operating condition (100 °C)

### Materials

No.	Part	Material
1	Shell	Stainless steel ASTM A312 – TP304
2	Shell side flanges	Stainless steel ASTM A182 F304
3	Tube sheets / tube side flanges	SX Stainless steel 316 ASTM A182 F316
4	Corrugated tubes	Stainless steel ASTM A249-TP316L

### Turflow lite heat exchangers

The **VES** design is fitted with large diameter tubes

**Please contact Spirax Sarco for advice regarding selection** – The most suitable unit will be selected by Spirax Sarco and will be specific for the given application.

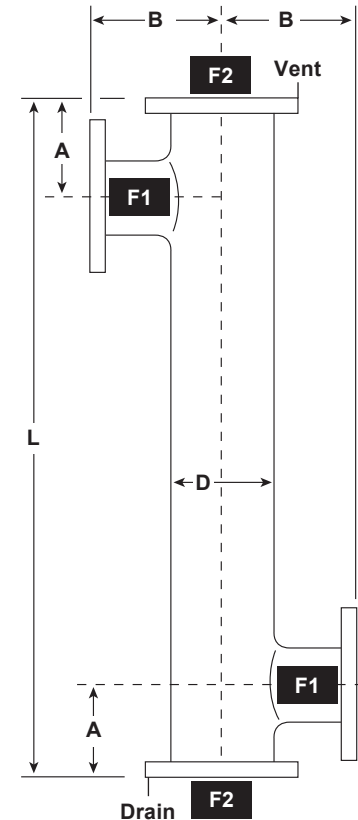
### Sizes and end connections

Type	Shell length (metres)	Shell Ø	Connections
<b>VES</b>	0.6, 1 and 1.5	2", 3" 4", 5" and 6"	Flanged EN 1092 PN16

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## Dimensions, weights, volume and PED category (approximate) in mm, kg and litres

Shell Ø	Flange		Dimensions				Weight	VES		PED Cat.	
	F1	F2	A	B	D	L		Tube	Shell		
2"	DN40	DN50	90	140	60.3	600	13	0.43	1.18	SEP	
							1500	16	1.21	2.58	SEP
							1000	15	0.81	1.80	SEP
3"	DN65	DN80	110	160	88.9	600	22	1.09	2.68	SEP	
						1500	30	2.71	5.71	1	
						1000	26	1.81	4.03	SEP	
4"	DN80	DN100	125	180	114.3	600	28	2.05	3.90	SEP	
						1500	41	5.12	8.42	1	
						1000	34	3.42	5.91	1	
5"	DN80	DN125	125	200	141.3	600	36	3.26	5.13	1	
						1500	57	8.14	11.73	1	
						1000	45	5.43	8.07	1	
6"	DN100	DN150	140	220	168.3	600	48	4.46	7.95	1	
						1500	75	11.15	17.91	1	
						1000	60	7.44	12.38	1	



### Table notes:

- Dimension tolerance according to UNI 6100 and TEMA:  
 $B = \pm 3$  mm,  
 $D = \pm 3$  mm,  
 Flange rotation =  $\pm 1^\circ$ ,  
 Connection alignment =  $\pm 1.5$  mm.
- Flange sizes according to EN 1092-1 rating PN16, optional equivalent diameter according to ASME B16.5 rating 150 lb.
- PED categorisation assuming a 'not dangerous fluid', Group 2 according to the classification as per the European Pressure Equipment Directive 97/23/CE

### Product nomenclature

<b>Turflow type</b>	VES	= Large diameter tubes	<b>VES</b>
<b>Shell diameter</b>	2", 3", 4", 5", 6"	= VES range in inches	<b>2"</b>
<b>Tube and tube sheet material</b>	SX	= Stainless steel 316L	<b>SX</b>
<b>Tube length</b>	0.6, 1, 1.5	= VEP range in metres	<b>1</b>
<b>Connection type</b>	F	= EN flange	<b>F</b>
<b>Shell design pressure</b>	L	= 10 bar	<b>L</b>
<b>Tube to tube sheet coupling</b>	Blank	= Expanding	<b>S</b>
	S	= Welding	
<b>PED category</b>	Blank	= CE marking not supplied	<b>CI</b>
	CI	= Category I	
	CII	= Category II	
	CIII	= Category III	

### Product selection example

<b>VES</b>	<b>2"</b>	<b>SX</b>	<b>1</b>	<b>F</b>	<b>L</b>	<b>S</b>	<b>CI</b>
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### How to order

Contact your local Spirax Sarco office with your application details - We will provide the correct product selection, and quotation for the Turflow lite heat exchanger that will provide optimum performance for your application.