



VEP and VES Turflow Heat Exchangers

Description

The Turflow 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. The corrugated tube design promotes increased turbulent flow conditions to provide the Turflow's high heat transfer efficiency. The shell incorporates a bellows type expansion joint that ensures thermal stress does not damage the heat exchanger. 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 type heat exchangers fully comply with the requirements of the Pressure Equipment Directive 2014/68/UE 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

	-10 °C to 200 °C	12 bar g
PMA Shell/Tube side	200 °C to 300 °C This option is to be specified at the time of order placement.	6 bar g
	12 bar g	-10 °C to 200 °C
TMA Shell/Tube side	6 bar g This option is to be specified at the time of order placement.	200 °C to 300 °C

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

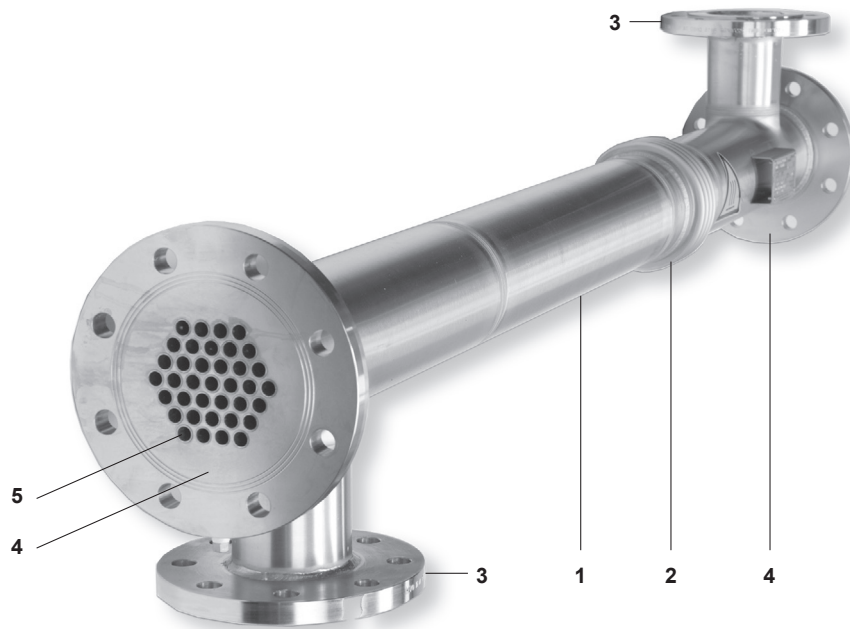
Turflow type heat exchangers

The **VEP** design is fitted with small diameter tubes.

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.

Materials



No. Part	Material		
1 Shell	Stainless steel ASTM A312 – TP304		
2 Expansion joint	Stainless steel ASTM A240 – TP321		
3 Shell side flanges	Stainless steel ASTM A182 F304		
4 Tube sheets/tube side flanges (Different options available according to the specific model)	SX	Stainless steel 316	ASTM A182 F316
	SS	Stainless steel 304	ASTM A182 F304
5 Corrugated tubes (Different options available according to the specific model)	Stainless steel		ASTM A249-TP316L
	Stainless steel		ASTM A249-TP304

Sizes and end connections

Type	Shell length (metres)	Shell Ø	Connections
VEP	0.6, 1, 1.5 and 2 *	1½", 2", 3" 4", 5", 6", 8" and 10"	Flanged EN 1092 PN16 or ASME B16.5 Class 150
VES	1, 2 and 3	2", 3" 4", 5", 6", 8" and 10"	Flanged EN 1092 PN16 or ASME B16.5 Class 150

* **Note** 0.6 and 1.5 shell lengths are not available for shell diameters 5" to 10".

Dimensions (approximate) in mm

Shell Ø	Flange		Dimensions			
	F1	F2	A	B	D	L
1½"	DN32	DN40	94	140	48.3	600
						1000
						1500
						2000
2"	DN40	DN50	90	140	60.3	600
						1000
						1500
						2000
3"	DN65	DN80	110	160	88.9	600
						1000
						1500
						2000
4"	DN80	DN100	125	180	114.3	600
						1000
						1500
						2000
5"	DN80	DN125	125	200	141.3	1000
						2000
						3000
6"	DN100	DN150	140	220	168.3	1000
						2000
						3000
8"	DN125	DN200	160	250	219.1	1000
						2000
						3000
10"	DN150	DN250	180	280	273.0	1000
						2000
						3000

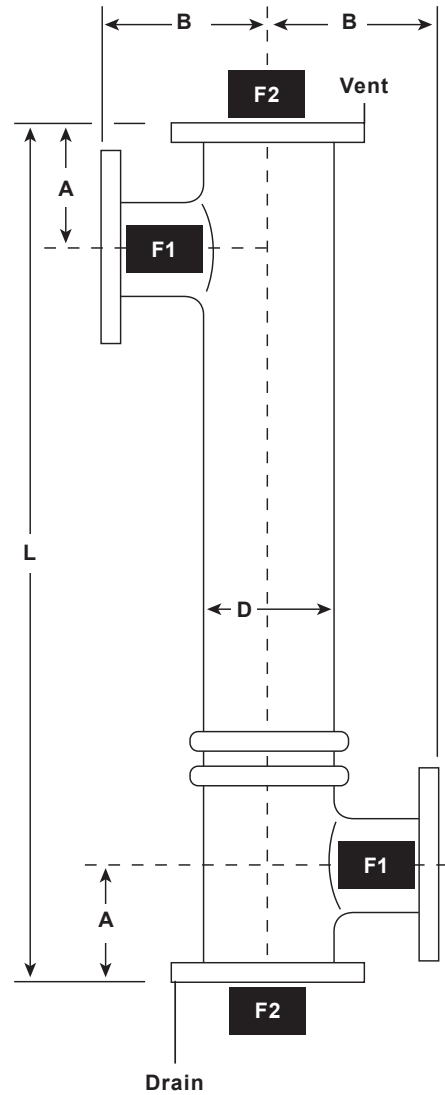


Table notes:

- Dimension tolerance according to UNI 6100 and TEMA:
 B = ± 3 mm,
 D = ± 3 mm,
 Flange rotation = ± 1°,
 Connection alignment = ± 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 Pressure Equipment Directive 2014/68/UE.

Weights, volume and PED category (approximate) in kg and litres

Shell Ø	VEP				VES			
	Weight	Volume		PED Cat.	Weight	Volume		PED Cat.
		Tube	Shell			Tube	Shell	
1½"	15	0.21	0.84	SEP				
	17	0.35	1.28	SEP				
	19	0.53	1.85	SEP				
	21	0.71	2.42	SEP				
2"	14	0.46	1.18	SEP				
	16	0.76	1.81	SEP	15	0.85	1.86	SEP
	18	1.15	2.59	SEP				
	20	1.53	3.88	SEP	18	1.69	3.42	SEP
					22	2.54	4.98	1
3"	27	1.07	2.63	SEP				
	29	1.79	3.95	SEP	20	2.00	4.30	1
	32	2.67	5.63	1				
	36	3.57	7.24	1	28	3.90	7.70	1
					35	5.90	11.10	1
4"	28	1.88	4.13	1				
	35	3.14	6.25	1	31	3.70	6.40	1
	42	4.71	8.88	1				
	48	6.28	10.50	1	43	7.40	11.40	1
					55	11.10	16.80	2
5"	43	5.18	8.50	1	40	5.90	9.00	1
	62	10.36	16.07	1	58	11.70	16.30	1
					77	17.60	24.20	2
6"	60	7.73	11.88	1	48	8.10	13.40	1
	92	15.45	22.06	2	73	16.10	24.50	2
					100	24.10	35.60	2
8"	92	12.8	20.9	2	100	13.30	23.20	2
	133	25.6	37.7	2	125	26.50	42.80	2
					150	39.70	62.50	2
10"	146	20.3	33.2	2	190	19.30	35.60	2
	220	40.5	58.9	2	270	38.50	67.50	2
					350	57.70	99.30	3

Table notes:

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Product nomenclature

Turflow type	VEP	= Small diameter tubes	VES
	VES	= Large diameter tubes	
Shell diameter	1½", 2", 3", 4", 5", 6", 8", 10"	= VEP range in inches	2"
	2", 3", 4", 5", 6", 8", 10"	= VES range in inches	
Tube and tube sheet material	SS	= Stainless steel 304	SX
	SX	= Stainless steel 316L	
Tube length	0.6, 1, 1.5, 2	= VEP range in metres	3
	1, 2, 3	= VES range in metres	
Connection type	F	= EN flange	F
	FA	= ASME flange	
Shell design pressure	V	= 12 bar	V
Tube to tube sheet coupling	Blank	= Expanding	S
	S	= Welding	
PED category	Blank	= CE marking not supplied	CI
	CI	= Category I	
	CII	= Category II	
	CIII	= Category III	

Product selection example

VES	2"	SX	3	F	V	S	CI
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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 exchanger that will provide optimum performance for your application.