

Overall Summary

Calculation mode		Design
Exchanger type		Standard axial flow
Overall heat transfer calculated	kW	10.3
Overall surface area ratio		1.3
Mean temperature difference	°K	0.49
UA value of calculated duty	W/K	20967.5
Core length	mm	1707.65
Core width	mm	362.57
Number of layers per exchanger		63
Number of fins		2
Core depth(stack height)	mm	393.3
Number of exchangers in parallel		1

Overall Summary

Main stream number		Stream 1	Stream 2
Stream name		T5Lb>>12HPa12LPa>>11LPa	
Stream type		Hot	Cold
Flow direction		End A to B (down)	End B to A (up)
Number of layers per exchanger		21	42
Total mass flow rate	kg/s	0.4643	0.4555
Heat load	kW	-10.3	10.3
Percent of specified heat load		100	100
Area Ratio		1.3	1.3
Inlet temperature	°K	8.19	4.6
Outlet temperature	°K	5.09	8.09
Outlet temperature from input	°K	5.09	8.09
Inlet pressure	bar	8	1.2815
Outlet pressure	bar	7.99347	1.27087
Pressure drop (friction)	bar	0.00653	0.01063
Percent of allowed pressure drop		65.31	99.01
Allowed pressure drop	bar	0.01	0.01074
Estimated pressure drop	bar	0.01	0.01074

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Thermal Performance - Streams

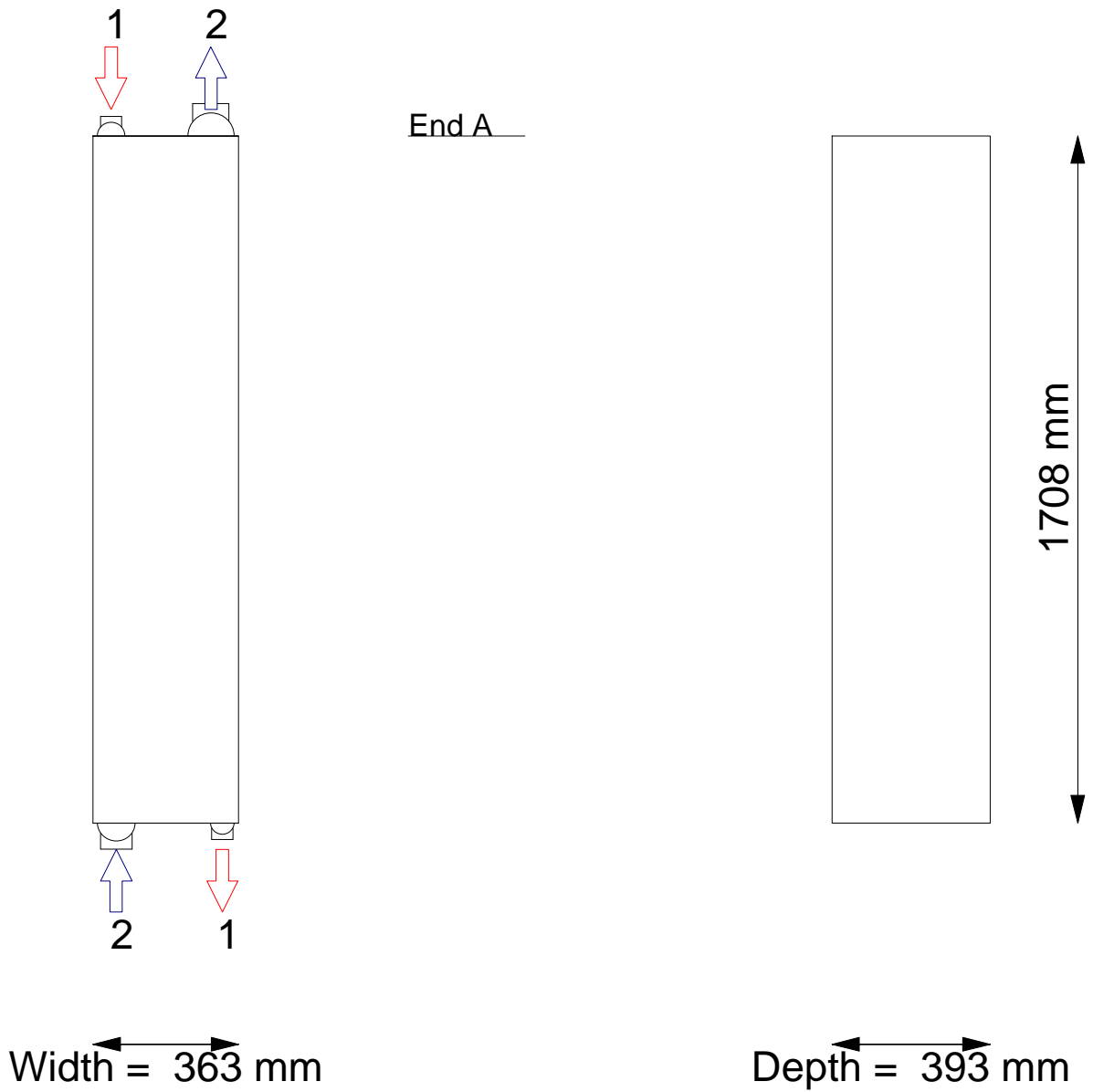
Main stream number		Stream 1	Stream 2
Stream name		T5Lb>>12HPa	12LPa>>11LPa
Flow direction		End A to B (down)	End B to A (up)
Total mass flow rate	kg/s	0.4643	0.4555
Heat load	kW	-10.3	10.3
Heat load per layer	kW	-0.5	0.2
Inlet temperature	°K	8.19	4.6
Outlet temperature	°K	5.09	8.09
Bubble point	°K		
Dew point	°K		
Inlet quality(vapor mass fraction)		1	1
Outlet quality(vapor mass fraction)		1	1
Inlet specific enthalpy	J/kg	38214	31738
Outlet specific enthalpy	J/kg	16044	54408
Fouling resistance	m² K/W	0	0
Minimum [T-Twall]	°K	0.04	0.06
Mean [T-Twall]	°K	0.26	-0.38
Mean heat transfer coefficient	W/(m² K)	882.5	438.9
Mean fin efficiency		0.55	0.38
Solution method		Design	Design
Heat load as fraction of maximum	-		
Theoretical maximum heat load	kW		

Pressure Change - Streams

	Stream 1	Stream 2
Stream name	T5Lb>>12HPa12LPa>>11LPa	
Inlet nozzle	bar -0.00084	-0.00059
Inlet distributor friction	bar -0.00098	-0.0005
Inlet distributor gravity	bar 0.00083	-0.00024
Main fin friction	bar -0.00387	-0.00822
Main fin gravity	bar 0.01346	-0.0016
Redistributor(s) friction	bar	
Redistributor(s) gravity	bar	
Outlet distributor friction	bar -0.00058	-0.00085
Outlet distributor gravity	bar 0.0016	-0.00009
Outlet nozzle	bar -0.00025	-0.00047
Total friction	bar -0.00653	-0.01063
Total gravity	bar 0.01589	-0.00193
Total acceleration	bar 0.00001	-0.00002
Pressure change (total)	bar -0.00653	-0.01063
Predicts pressure below minimum permitted		

Exchanger Diagram

Job Title:



Exchanger - Overall Geometry

Number of exchangers in parallel		1
Number of exchangers per unit		1
Number of layers per exchanger		63
Orientation		Vertical, end A at top
Core length	mm	1707.65
Core width	mm	362.57
Core depth(stack height)	mm	393.3
Number of X-flow passes		0
Number of layer groups		1
Distributor length - end A	mm	130.35
Main heat transfer length	mm	1446.95
Distributor length - end B	mm	130.35
Internal (effective) width	mm	339.57
Side bar width	mm	11.5
Parting sheet thickness	mm	1
Cap sheet thickness	mm	5
Exchanger metal		Aluminum
Exchanger weight - empty	kg	277.5
Exchanger weight - full of water	kg	424.2
Exchanger weight - operating	kg	286.2

Exchanger - Fin Geometry

		Fin 1	Fin 2
Fin code/bank number		2912	2
Fin used in exchanger		Yes	Yes
Fin type		Serrated (offset)	Perforated
Fin height	mm	5.1	5.1
Fin thickness	mm	0.2	0.41
Fin frequency	#/m	1024	236
Fin porosity (fraction)			0.05
Fin serration length	mm	3.18	
Subchannel aspect ratio		6.31	1.23
Blockage fraction		0.24	0.17
Hydraulic diameter	mm	1.34	4.22
Flow area per unit width	mm	3.9	4.24
Primary perimeter per unit width		1.59	1.81
Secondary perimeter per unit width		10.03	2.1
Hydraulic diameter (hardway)	mm		
Flow area per unit width (hardway)	mm		

Exchanger - Layer Types - Layer A : T5Lb>>12HPa

Layer A

Number of layers 21 Fraction double banked 0

Element type	Element identifier	Axial length mm	Distance from end A mm
1 End bar		11.5	11.5
2 Inlet distributor (stream) number	1	118.85	130.35
3 Main fin: fin number	2912	1446.95	1577.3
4 Outlet distributor (stream) number	1	118.85	1696.15
5 End bar		11.5	1707.65
6			
7			
8			
9			
10			
11			
12			
13			
14			
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21			
22			
23			
24			
25			

Exchanger - Layer Types - Layer B : 12LPa>>11LPa

Layer B

Number of layers 42 Fraction double banked 1

Element type	Element identifier	Axial length mm	Distance from end A mm
1 End bar		11.5	11.5
2 Outlet distributor (stream) number	2	118.85	130.35
3 Main fin: fin number	2912	1446.95	1577.3
4 Inlet distributor (stream) number	2	118.85	1696.15
5 End bar		11.5	1707.65
6			
7			
8			
9			
10			
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12			
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14			
15			
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18			
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21			
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23			
24			
25			

Inlet Distributors

		Dist. 1	Dist. 2
Stream number		1	2
Inlet distributor: Type		End (corner)	End (corner)
Inlet header location		Left	Left
Dimension a (axial length)	mm	118.85	118.85
Dimension b	mm	68.03	93.29
Inlet nozzle diameter	mm	52.48	77.92
Number of inlet nozzles/unit		2	2
Header diameter - inlet	mm	98.03	123.29
Fin code number for pad 1		2	2
Distributor fin type		Perforated	Perforated
Distributor fin height	mm	5.1	5.1
Distributor fin thickness	mm	0.41	0.41
Distributor fin frequency	#/m	236	236
Fin code number for pad 2		2	2
Distributor surface area	m ²		
% area for heat transfer			

Outlet Distributors

		Dist. 1	Dist. 2
Stream number		1	2
Outlet distributor: Type		End (corner)	End (corner)
Outlet header location		Right	Right
Dimension a (axial length)	mm	118.85	118.85
Dimension b	mm	58.51	114.81
Outlet nozzle diameter	mm	52.48	90.12
Number of outlet nozzles/unit		2	2
Header diameter - outlet	mm	88.51	144.81
Fin code number for pad 1		2	2
Distributor fin type		Perforated	Perforated
Distributor fin height	mm	5.1	5.1
Distributor fin thickness	mm	0.41	0.41
Distributor fin frequency	#/m	236	236
Fin code number for pad 2		2	2
Distributor surface area	m ²		
% area for heat transfer			