

Overall Summary

Calculation mode		Design
Exchanger type		Standard axial flow
Overall heat transfer calculated	kW	326.5
Overall surface area ratio		1.15
Mean temperature difference	°K	1.77
UA value of calculated duty	W/K	184277.7
Core length	mm	2167.41
Core width	mm	815.52
Number of layers per exchanger		122
Number of fins		5
Core depth(stack height)	mm	907.22
Number of exchangers in parallel		1

Overall Summary

Main stream number		Stream 1	Stream 2	Stream 3	Stream 4
Stream name		T1Lb>>T2Ha	3MPa>>2MPa	3LPa>>2LPa	2HPa>>3HPa
Stream type		Hot	Cold	Cold	Hot
Flow direction		End A to B (down)	End B to A (up)	End B to A (up)	End A to B (down)
Number of layers per exchanger		11	47	34	30
Total mass flow rate	kg/s	0.1548	0.442	0.4555	0.7524
Heat load	kW	-55.6	160.9	165.6	-270.7
Percent of specified heat load		100	100	100	100
Area Ratio		1.47	1.28	1.02	1.09
Inlet temperature	°K	132.51	61.2	61.2	132.51
Outlet temperature	°K	63.64	131.19	131.19	63.64
Outlet temperature from input	°K	63.64	131.19	131.19	63.64
Inlet pressure	bar	12	5.16	1.20659	19.67
Outlet pressure	bar	11.98235	5.14032	1.15775	19.65027
Pressure drop (friction)	bar	0.01765	0.01968	0.04884	0.01973
Percent of allowed pressure drop		88.27	98.39	98.78	98.64
Allowed pressure drop	bar	0.02	0.02	0.04944	0.02
Estimated pressure drop	bar	0.02	0.02	0.04944	0.02

Thermal Performance - Streams

Main stream number		Stream 1	Stream 2	Stream 3	Stream 4
Stream name		T1Lb>>T2Ha	3MPa>>2MPa	3LPa>>2LPa	2HPa>>3HPa
Flow direction		End A to B (down)	End B to A (up)	End B to A (up)	End A to B (down)
Total mass flow rate	kg/s	0.1548	0.442	0.4555	0.7524
Heat load	kW	-55.6	160.9	165.6	-270.7
Heat load per layer	kW	-5.1	3.4	4.9	-9
Inlet temperature	°K	132.51	61.2	61.2	132.51
Outlet temperature	°K	63.64	131.19	131.19	63.64
Bubble point	°K				
Dew point	°K				
Inlet quality(vapor mass fraction)		1	1	1	1
Outlet quality(vapor mass fraction)		1	1	1	1
Inlet specific enthalpy	J/kg	707113	334049	333316	709491
Outlet specific enthalpy	J/kg	348096	698123	696885	349630
Fouling resistance	m² K/W	0	0	0	0
Minimum [T-Twall]	°K	0.71	0.61	0.61	0.71
Mean [T-Twall]	°K	0.98	-0.84	-0.84	0.98
Mean heat transfer coefficient	W/(m² K)	559.1	446.9	373.9	755.9
Mean fin efficiency		0.93	0.8	0.59	0.91
Solution method		Design	Design	Design	Design
Heat load as fraction of maximum	-				
Theoretical maximum heat load	kW				

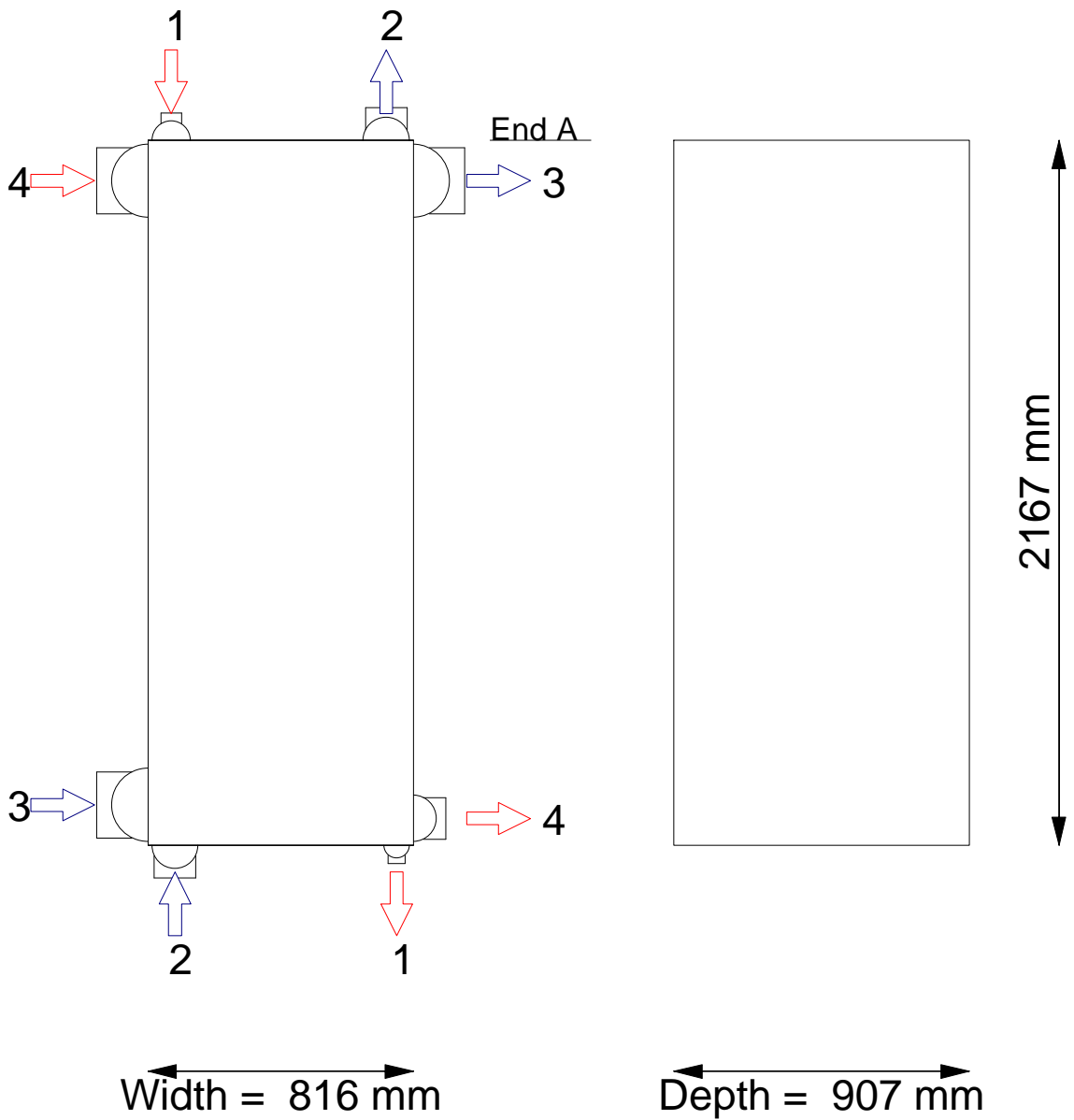
Pressure Change - Streams

	Stream 1	Stream 2	Stream 3	Stream 4
Stream name	T1Lb>>T2Ha 3MPa>>2MPa 3LPa>>2LPa 2HPa>>3HPa			
Inlet nozzle	bar -0.00077	-0.00153	-0.0011	-0.00041
Inlet distributor friction	bar -0.00417	-0.00151	-0.00109	-0.00232
Inlet distributor gravity	bar 0	0	0	0
Main fin friction	bar -0.00926	-0.01279	-0.04198	-0.01396
Main fin gravity	bar 0.00921	-0.00408	-0.00095	0.01492
Redistributor(s) friction	bar			
Redistributor(s) gravity	bar			
Outlet distributor friction	bar -0.00302	-0.00337	-0.00325	-0.00233
Outlet distributor gravity	bar 0	0	0	0
Outlet nozzle	bar -0.00043	-0.00047	-0.00141	-0.00071
Total friction	bar -0.01765	-0.01968	-0.04884	-0.01973
Total gravity	bar 0.00921	-0.00408	-0.00095	0.01492
Total acceleration	bar 0.00001	-0.00001	-0.00003	0.00002
Pressure change (total)	bar -0.01765	-0.01968	-0.04884	-0.01973

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		122
Orientation		Horizontal, horizontal parting sheets
Core length	mm	2167.41
Core width	mm	815.52
Core depth(stack height)	mm	907.22
Number of X-flow passes		0
Number of layer groups		1
Distributor length - end A	mm	288.88
Main heat transfer length	mm	1589.64
Distributor length - end B	mm	288.88
Internal (effective) width	mm	792.52
Side bar width	mm	11.5
Parting sheet thickness	mm	1
Cap sheet thickness	mm	5
Exchanger metal		Aluminum
Exchanger weight - empty	kg	1558.3
Exchanger weight - full of water	kg	2628.3
Exchanger weight - operating	kg	1563.7

Inlet Distributors

		Dist. 1	Dist. 2	Dist. 3	Dist. 4
Stream number		1	2	3	4
Inlet distributor: Type		End (corner)	End (corner)	Indirect (side)	Indirect (side)
Inlet header location		Left	Left	Left	Left
Dimension a (axial length)	mm	277.38	277.38	225.45	225.45
Dimension b	mm	119.43	142.56	396.26	396.26
Inlet nozzle diameter	mm	62.68	128.2	202.74	202.74
Number of inlet nozzles/unit		2	1	1	1
Header diameter - inlet	mm	149.43	172.56	255.45	255.45
Fin code number for pad 1		3	3	4	5
Distributor fin type		Perforated	Perforated	Perforated	Perforated
Distributor fin height	mm	5.1	5.1	9.63	5.1
Distributor fin thickness	mm	0.51	0.51	0.51	0.61
Distributor fin frequency	#/m	236	236	236	236
Fin code number for pad 2		3	3	4	5
Distributor surface area	m ²				
% area for heat transfer					

Outlet Distributors

		Dist. 1	Dist. 2	Dist. 3	Dist. 4
Stream number		1	2	3	4
Outlet distributor: Type		End (corner)	End (corner)	Indirect (side)	Indirect (side)
Outlet header location		Right	Right	Right	Right
Dimension a (axial length)	mm	277.38	277.38	225.45	142.56
Dimension b	mm	79.25	142.95	396.26	396.26
Outlet nozzle diameter	mm	52.48	128.2	202.74	128.2
Number of outlet nozzles/unit		2	2	1	1
Header diameter - outlet	mm	109.25	172.95	255.45	172.56
Fin code number for pad 1		3	3	4	5
Distributor fin type		Perforated	Perforated	Perforated	Perforated
Distributor fin height	mm	5.1	5.1	9.63	5.1
Distributor fin thickness	mm	0.51	0.51	0.51	0.61
Distributor fin frequency	#/m	236	236	236	236
Fin code number for pad 2		3	3	4	5
Distributor surface area	m ²				
% area for heat transfer					