

Overall Summary

Calculation mode		Design
Exchanger type		Standard axial flow
Overall heat transfer calculated	kW	53.6
Overall surface area ratio		1.15
Mean temperature difference	°K	1.18
UA value of calculated duty	W/K	45526
Core length	mm	1146.73
Core width	mm	608.63
Number of layers per exchanger		86
Number of fins		5
Core depth(stack height)	mm	678.56
Number of exchangers in parallel		1

Overall Summary

Main stream number		Stream 1	Stream 2	Stream 3
Stream name		3HPa>>4HPa	4MPb>>3MPa	4LPa>>3LPa
Stream type		Hot	Cold	Cold
Flow direction		End A to B (down)	End B to A (up)	End B to A (up)
Number of layers per exchanger		29	25	32
Total mass flow rate	kg/s	0.7524	0.442	0.4555
Heat load	kW	-53.6	26.5	27.1
Percent of specified heat load		100	100	100
Area Ratio		1.15	1.15	1.15
Inlet temperature	°K	63.64	49.74	49.74
Outlet temperature	°K	50.2	61.2	61.2
Outlet temperature from input	°K	50.2	61.2	61.2
Inlet pressure	bar	19.65	5.18	1.22032
Outlet pressure	bar	19.63681	5.16039	1.20681
Pressure drop (friction)	bar	0.01319	0.01961	0.01352
Percent of allowed pressure drop		65.94	98.03	98.43
Allowed pressure drop	bar	0.02	0.02	0.01373
Estimated pressure drop	bar	0.02	0.02	0.01373

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Thermal Performance - Streams

Main stream number		Stream 1	Stream 2	Stream 3
Stream name		3HPa>>4HPa	4MPb>>3MPa	4LPa>>3LPa
Flow direction		End A to B (down)	End B to A (up)	End B to A (up)
Total mass flow rate	kg/s	0.7524	0.442	0.4555
Heat load	kW	-53.6	26.5	27.1
Heat load per layer	kW	-1.8	1.1	0.8
Inlet temperature	°K	63.64	49.74	49.74
Outlet temperature	°K	50.2	61.2	61.2
Bubble point	°K			
Dew point	°K			
Inlet quality(vapor mass fraction)		1	1	1
Outlet quality(vapor mass fraction)		1	1	1
Inlet specific enthalpy	J/kg	349630	274176	273715
Outlet specific enthalpy	J/kg	278446	334050	333316
Fouling resistance	m ² K/W	0	0	0
Minimum [T-Twall]	°K	0.24	0.22	0.22
Mean [T-Twall]	°K	0.76	-0.68	-0.68
Mean heat transfer coefficient	W/(m ² K)	787.5	607.9	375.8
Mean fin efficiency		0.89	0.73	0.55
Solution method		Design	Design	Design
Heat load as fraction of maximum	-			
Theoretical maximum heat load	kW			

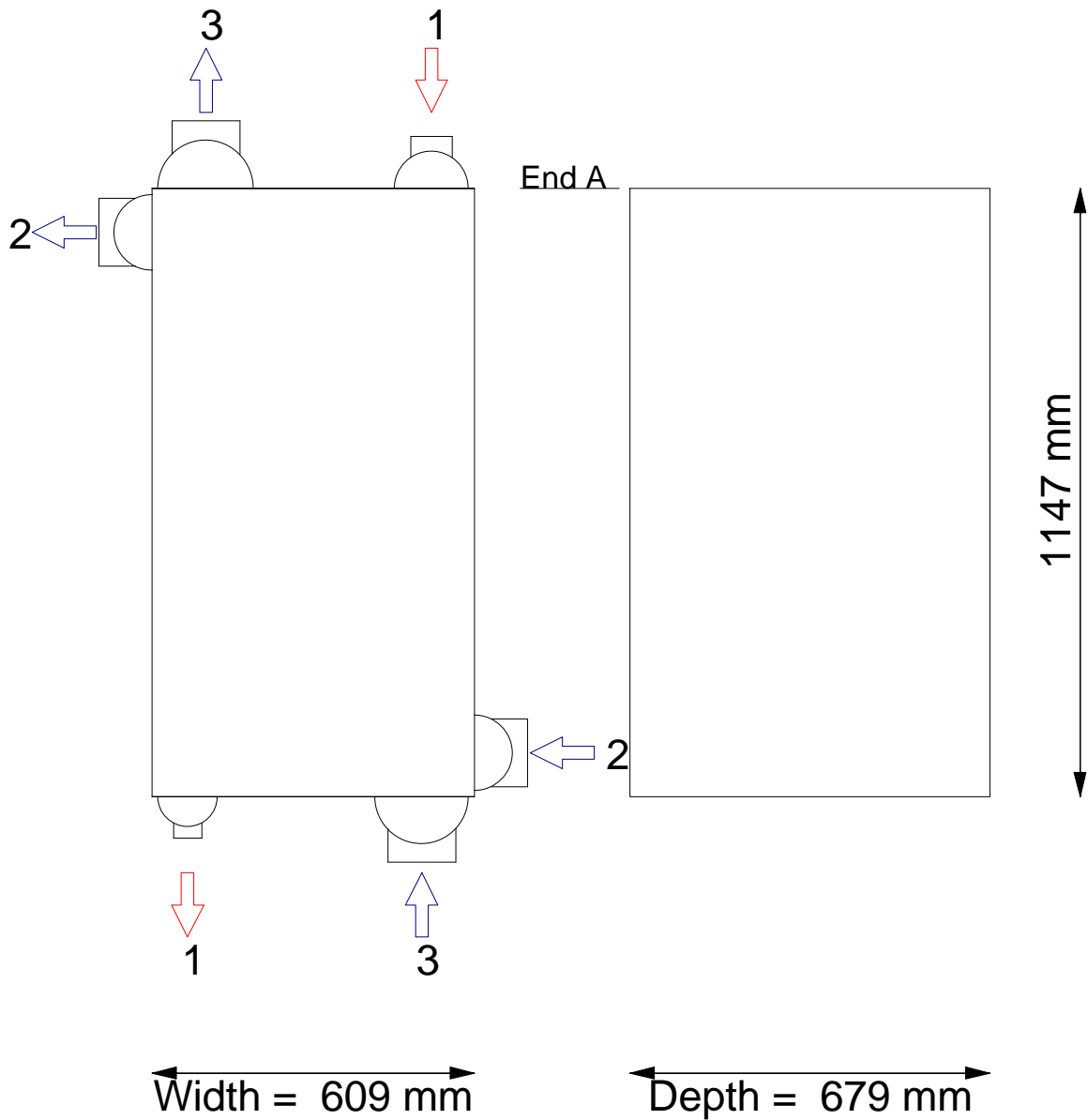
Pressure Change - Streams

	Stream 1	Stream 2	Stream 3
Stream name	3HPa>>4HPa	4MPb>>3MPa	4LPa>>3LPa
Inlet nozzle	bar -0.00057	-0.00124	-0.00062
Inlet distributor friction	bar -0.00328	-0.00253	-0.00178
Inlet distributor gravity	bar 0	0	0
Main fin friction	bar -0.00557	-0.01152	-0.00843
Main fin gravity	bar 0.01154	-0.00321	-0.00076
Redistributor(s) friction	bar		
Redistributor(s) gravity	bar		
Outlet distributor friction	bar -0.00296	-0.00344	-0.00225
Outlet distributor gravity	bar 0	0	0
Outlet nozzle	bar -0.00081	-0.00088	-0.00044
Total friction	bar -0.01319	-0.01961	-0.01352
Total gravity	bar 0.01154	-0.00321	-0.00076
Total acceleration	bar 0.00001	-0.00001	-0.00001
Pressure change (total)	bar -0.01319	-0.01961	-0.01352

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		86
Orientation		Horizontal, horizontal parting sheets
Core length	mm	1146.73
Core width	mm	608.63
Core depth(stack height)	mm	678.56
Number of X-flow passes		0
Number of layer groups		1
Distributor length - end A	mm	216.47
Main heat transfer length	mm	713.79
Distributor length - end B	mm	216.47
Internal (effective) width	mm	585.63
Side bar width	mm	11.5
Parting sheet thickness	mm	1
Cap sheet thickness	mm	5
Exchanger metal		Aluminum
Exchanger weight - empty	kg	470.9
Exchanger weight - full of water	kg	802.3
Exchanger weight - operating	kg	472.9

Inlet Distributors

		Dist. 1	Dist. 2	Dist. 3
Stream number		1	2	3
Inlet distributor: Type		End (corner)	Indirect (side)	End (corner)
Inlet header location		Right	Right	Right
Dimension a (axial length)	mm	204.97	142.56	204.97
Dimension b	mm	139.64	292.81	176.37
Inlet nozzle diameter	mm	77.92	128.2	128.2
Number of inlet nozzles/unit		4	1	3
Header diameter - inlet	mm	169.64	172.56	206.37
Fin code number for pad 1		3	4	5
Distributor fin type		Perforated	Perforated	Perforated
Distributor fin height	mm	5.1	5.1	9.63
Distributor fin thickness	mm	0.61	0.51	0.51
Distributor fin frequency	#/m	236	236	236
Fin code number for pad 2		3	4	5
Distributor surface area	m ²			
% area for heat transfer				

Outlet Distributors

		Dist. 1	Dist. 2	Dist. 3
Stream number		1	2	3
Outlet distributor: Type		End (corner)	Indirect (side)	End (corner)
Outlet header location		Left	Left	Left
Dimension a (axial length)	mm	204.97	142.56	204.97
Dimension b	mm	112.4	292.81	181.23
Outlet nozzle diameter	mm	52.48	128.2	128.2
Number of outlet nozzles/unit		5	1	3
Header diameter - outlet	mm	142.4	172.56	211.23
Fin code number for pad 1		3	4	5
Distributor fin type		Perforated	Perforated	Perforated
Distributor fin height	mm	5.1	5.1	9.63
Distributor fin thickness	mm	0.61	0.51	0.51
Distributor fin frequency	#/m	236	236	236
Fin code number for pad 2		3	4	5
Distributor surface area	m ²			
% area for heat transfer				