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Overall Summary

Calculation mode		Design
Exchanger type		Standard axial flow
Overall heat transfer calculated	kW	82.6
Overall surface area ratio		1.16
Mean temperature difference	°K	2.66
UA value of calculated duty	W/K	31036.4
Core length	mm	870.87
Core width	mm	878.95
Number of layers per exchanger		119
Number of fins		5
Core depth(stack height)	mm	965.93
Number of exchangers in parallel		1

Overall Summary

	Stream 1	Stream 2	Stream 3
Main stream number	1	2	3
Stream name	1HPb>>2HPa	2MPa>>1MPa	2LPa>>1LPa
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	40	28	51
Total mass flow rate	kg/s 0.7524	0.442	0.4555
Heat load	kW -82.5	40.7	41.9
Percent of specified heat load	100	100	100
Area Ratio	1.16	1	1.32
Inlet temperature	°K 153.59	131.19	131.19
Outlet temperature	°K 132.51	148.89	148.89
Outlet temperature from input	°K 132.51	148.89	148.89
Inlet pressure	bar 19.69	5.14	1.15715
Outlet pressure	bar 19.68357	5.12134	1.148
Pressure drop (friction)	bar 0.00643	0.01866	0.00915
Percent of allowed pressure drop	32.17	93.28	96.42
Allowed pressure drop	bar 0.02	0.02	0.00949
Estimated pressure drop	bar 0.02	0.02	0.00949

Thermal Performance - Streams

Main stream number		Stream 1	Stream 2	Stream 3
Stream name		1HPb>>2HPa	2MPa>>1MPa	2LPa>>1LPa
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	-82.5	40.7	41.9
Heat load per layer	kW	-2.1	1.5	0.8
Inlet temperature	°K	153.59	131.19	131.19
Outlet temperature	°K	132.51	148.89	148.89
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	819166	698123	696885
Outlet specific enthalpy	J/kg	709491	790120	788856
Fouling resistance	m ² K/W	0	0	0
Minimum [T-Twall]	°K	0.73	0.59	0.59
Mean [T-Twall]	°K	1.66	-1.34	-1.34
Mean heat transfer coefficient	W/(m ² K)	715.6	644.2	352.3
Mean fin efficiency		0.92	0.75	0.61
Solution method		Design	Design	Design
Heat load as fraction of maximum	-			
Theoretical maximum heat load	kW			

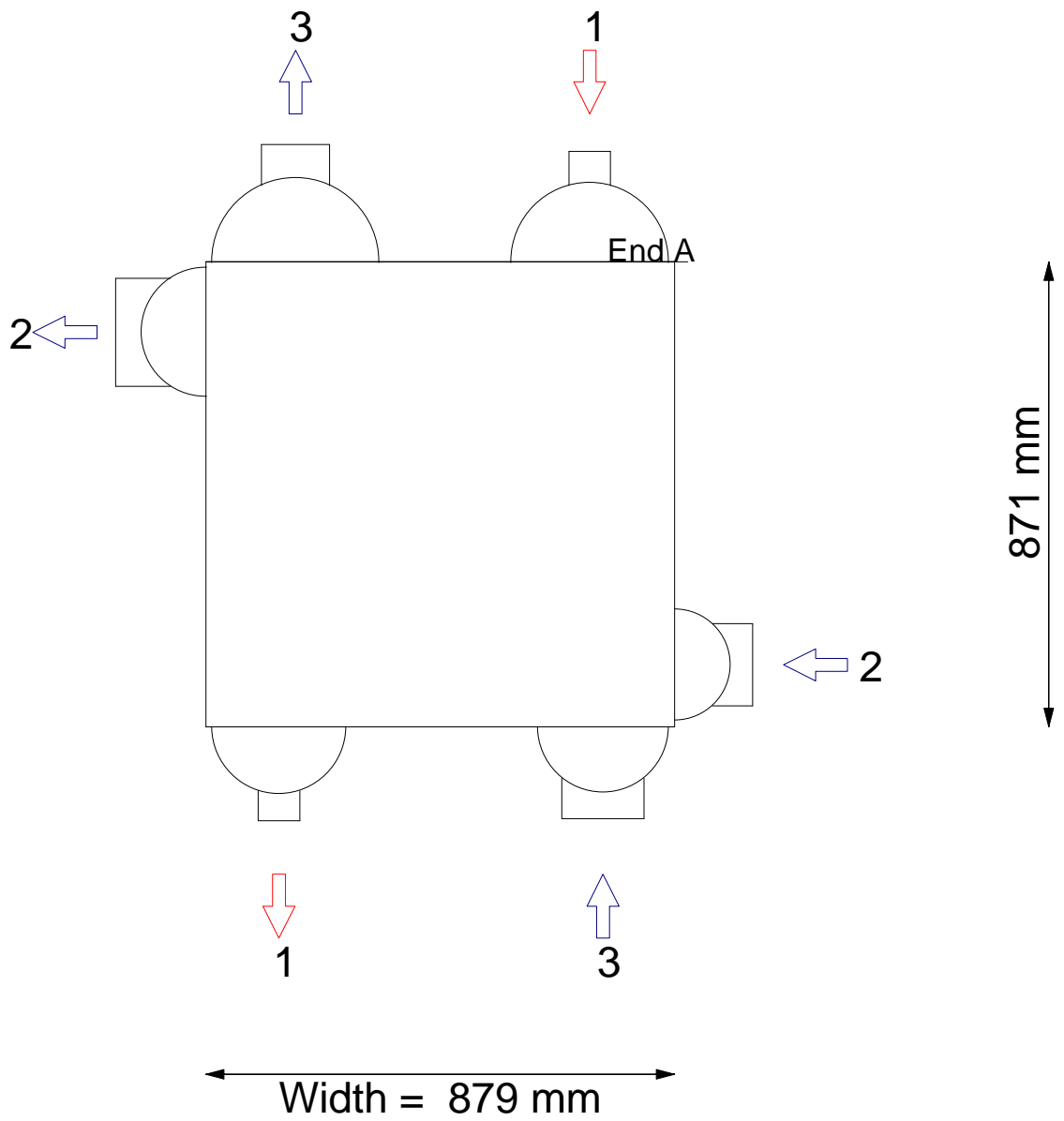
Pressure Change - Streams

	Stream 1	Stream 2	Stream 3
Stream name	1HPb>>2HPa	2MPa>>1MPa	2LPa>>1LPa
Inlet nozzle	bar -0.00086	-0.00157	-0.0003
Inlet distributor friction	bar -0.0016	-0.0039	-0.00181
Inlet distributor gravity	bar 0	0	0
Main fin friction	bar -0.00188	-0.00889	-0.00486
Main fin gravity	bar 0.00161	-0.00043	-0.0001
Redistributor(s) friction	bar		
Redistributor(s) gravity	bar		
Outlet distributor friction	bar -0.00166	-0.00395	-0.00178
Outlet distributor gravity	bar 0	0	0
Outlet nozzle	bar -0.00043	-0.00034	-0.0004
Total friction	bar -0.00643	-0.01866	-0.00915
Total gravity	bar 0.00161	-0.00043	-0.0001
Total acceleration	bar 0	-0.00001	0
Pressure change (total)	bar -0.00643	-0.01866	-0.00915

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		119
Orientation		Horizontal, horizontal parting sheets
Core length	mm	870.87
Core width	mm	878.95
Core depth(stack height)	mm	965.93
Number of X-flow passes		0
Number of layer groups		1
Distributor length - end A	mm	311.08
Main heat transfer length	mm	248.71
Distributor length - end B	mm	311.08
Internal (effective) width	mm	855.95
Side bar width	mm	11.5
Parting sheet thickness	mm	1
Cap sheet thickness	mm	5
Exchanger metal		Aluminum
Exchanger weight - empty	kg	707.2
Exchanger weight - full of water	kg	1333.5
Exchanger weight - operating	kg	708.8

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	299.58	208.26	299.58
Dimension b	mm	295.84	427.98	245.72
Inlet nozzle diameter	mm	77.92	154.08	154.08
Number of inlet nozzles/unit		5	1	5
Header diameter - inlet	mm	325.84	238.26	275.72
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	299.58	241.09	299.58
Dimension b	mm	251.83	427.98	314.04
Outlet nozzle diameter	mm	77.92	202.74	128.2
Number of outlet nozzles/unit		5	1	5
Header diameter - outlet	mm	281.83	271.09	344.04
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				