

File: D:\Users\...\10kW\HX06.EDR

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**Overall Summary**

<b>Calculation mode</b>		Design
<b>Exchanger type</b>		Standard axial flow
<b>Overall heat transfer calculated</b>	<b>kW</b>	55.3
<b>Overall surface area ratio</b>		1.15
<b>Mean temperature difference</b>	<b>°K</b>	0.48
<b>UA value of calculated duty</b>	<b>W/K</b>	114344.3
<b>Core length</b>	<b>mm</b>	2487.68
<b>Core width</b>	<b>mm</b>	581.12
<b>Number of layers per exchanger</b>		82
<b>Number of fins</b>		5
<b>Core depth(stack height)</b>	<b>mm</b>	640.57
<b>Number of exchangers in parallel</b>		1

**Overall Summary**

<b>Main stream number</b>		Stream 1	Stream 2	Stream 3
<b>Stream name</b>		5HPb>>6HPa	6MPa>>5MPa	6LPa>>5LPa
<b>Stream type</b>		Hot	Cold	Cold
<b>Flow direction</b>		End A to B (down)	End B to A (up)	End B to A (up)
<b>Number of layers per exchanger</b>		30	23	29
<b>Total mass flow rate</b>	<b>kg/s</b>	0.722	0.2874	0.4555
<b>Heat load</b>	<b>kW</b>	-55.2	21.5	33.8
<b>Percent of specified heat load</b>		100	100	100
<b>Area Ratio</b>		1.15	1.2	1.12
<b>Inlet temperature</b>	<b>°K</b>	50.09	35.35	35.35
<b>Outlet temperature</b>	<b>°K</b>	35.9	49.61	49.61
<b>Outlet temperature from input</b>	<b>°K</b>	35.9	49.61	49.61
<b>Inlet pressure</b>	<b>bar</b>	19.52	5.22	1.24979
<b>Outlet pressure</b>	<b>bar</b>	19.50053	5.2004	1.22162
<b>Pressure drop (friction)</b>	<b>bar</b>	0.01947	0.0196	0.02817
<b>Percent of allowed pressure drop</b>		97.33	98.01	99.82
<b>Allowed pressure drop</b>	<b>bar</b>	0.02	0.02	0.02822
<b>Estimated pressure drop</b>	<b>bar</b>	0.02	0.02	0.02822

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**Thermal Performance - Streams**

Main stream number		Stream 1	Stream 2	Stream 3
Stream name		5HPb>>6HPa	6MPa>>5MPa	6LPa>>5LPa
Flow direction		End A to B (down)	End B to A (up)	End B to A (up)
Total mass flow rate	<b>kg/s</b>	0.722	0.2874	0.4555
Heat load	<b>kW</b>	-55.2	21.5	33.8
Heat load per layer	<b>kW</b>	-1.8	0.9	1.2
Inlet temperature	<b>°K</b>	50.09	35.35	35.35
Outlet temperature	<b>°K</b>	35.9	49.61	49.61
Bubble point	<b>°K</b>			
Dew point	<b>°K</b>			
Inlet quality(vapor mass fraction)		1	1	1
Outlet quality(vapor mass fraction)		1	1	1
Inlet specific enthalpy	<b>J/kg</b>	277813	198612	198798
Outlet specific enthalpy	<b>J/kg</b>	201309	273513	273054
Fouling resistance	<b>m<sup>2</sup> K/W</b>	0	0	0
Minimum [T-Twall]	<b>°K</b>	0.24	0.23	0.23
Mean [T-Twall]	<b>°K</b>	0.24	-0.24	-0.24
Mean heat transfer coefficient	<b>W/(m<sup>2</sup> K)</b>	742.6	480.7	377.8
Mean fin efficiency		0.88	0.73	0.59
Solution method		Design	Design	Design
Heat load as fraction of maximum	-			
Theoretical maximum heat load	<b>kW</b>			

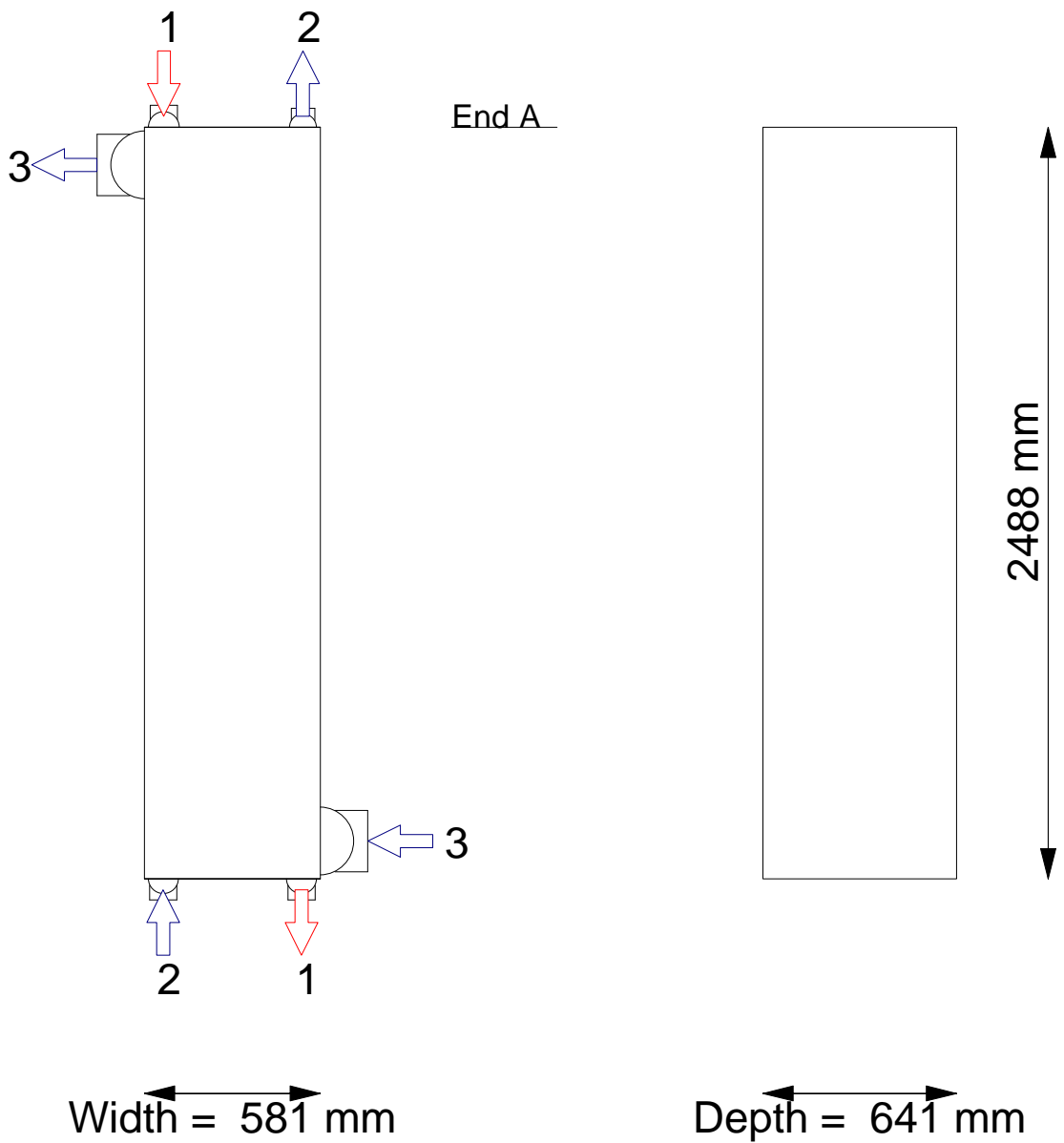
**Pressure Change - Streams**

	Stream 1	Stream 2	Stream 3
Stream name	5HPb>>6HPa	6MPa>>5MPa	6LPa>>5LPa
Inlet nozzle	bar -0.00094	-0.00152	-0.00062
Inlet distributor friction	bar -0.00331	-0.00214	-0.00068
Inlet distributor gravity	bar 0	0	0
Main fin friction	bar -0.01162	-0.01219	-0.0252
Main fin gravity	bar 0.04142	-0.01161	-0.00279
Redistributor(s) friction	bar		
Redistributor(s) gravity	bar		
Outlet distributor friction	bar -0.00204	-0.00321	-0.00116
Outlet distributor gravity	bar 0	0	0
Outlet nozzle	bar -0.00155	-0.00055	-0.00051
Total friction	bar -0.01947	-0.0196	-0.02817
Total gravity	bar 0.04142	-0.01161	-0.00279
Total acceleration	bar 0.00001	-0.00001	-0.00002
Pressure change (total)	bar -0.01947	-0.0196	-0.02817

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		82
Orientation		Horizontal, horizontal parting sheets
Core length	mm	2487.68
Core width	mm	581.12
Core depth(stack height)	mm	640.57
Number of X-flow passes		0
Number of layer groups		1
Distributor length - end A	mm	236.95
Main heat transfer length	mm	2013.79
Distributor length - end B	mm	236.95
Internal (effective) width	mm	558.12
Side bar width	mm	11.5
Parting sheet thickness	mm	1
Cap sheet thickness	mm	5
Exchanger metal		Aluminum
Exchanger weight - empty	kg	929.6
Exchanger weight - full of water	kg	1552.1
Exchanger weight - operating	kg	935.2

**Inlet Distributors**

		<b>Dist. 1</b>	<b>Dist. 2</b>	<b>Dist. 3</b>
Stream number		1	2	3
Inlet distributor: Type		End (corner)	End (corner)	Indirect (side)
Inlet header location		Left	Left	Right
Dimension a (axial length)	mm	225.45	225.45	225.45
Dimension b	mm	104.54	100.21	279.06
Inlet nozzle diameter	mm	90.12	90.12	202.74
Number of inlet nozzles/unit		2	1	1
Header diameter - inlet	mm	134.54	130.21	255.45
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 <sup>2</sup>			
% area for heat transfer				

**Outlet Distributors**

		<b>Dist. 1</b>	<b>Dist. 2</b>	<b>Dist. 3</b>
<b>Stream number</b>		1	2	3
<b>Outlet distributor: Type</b>		End (corner)	End (corner)	Indirect (side)
<b>Outlet header location</b>		Right	Right	Left
<b>Dimension a (axial length)</b>	mm	225.45	225.45	225.45
<b>Dimension b</b>	mm	100.21	90.52	279.06
<b>Outlet nozzle diameter</b>	mm	90.12	77.92	202.74
<b>Number of outlet nozzles/unit</b>		1	2	1
<b>Header diameter - outlet</b>	mm	130.21	120.52	255.45
<b>Fin code number for pad 1</b>		3	4	5
<b>Distributor fin type</b>		Perforated	Perforated	Perforated
<b>Distributor fin height</b>	mm	5.1	5.1	9.63
<b>Distributor fin thickness</b>	mm	0.61	0.51	0.51
<b>Distributor fin frequency</b>	#/m	236	236	236
<b>Fin code number for pad 2</b>		3	4	5
<b>Distributor surface area</b>	m <sup>2</sup>			
<b>% area for heat transfer</b>				