SINGLE PHASE - Design
Heat Exchanger : BX8Tx14H/1P

Fluid Side 1 : **Ethanol - Water (Ethyl alcohol - Water) (30,0 %)**
Fluid Side 2 : **Water**

Flow Type : **Counter-Current**

DUTY REQUIREMENTS		**Side 1**		**Side 2**
Heat load	kW		6,111	
Inlet temperature	°C	7,00		17,00
Outlet temperature	°C	11,07		11,91
Flow rate	kg/s	0,3429		0,2866
Max. pressure drop	kPa	50,0		50,0
Thermal length		0,75		0,94

PLATE HEAT EXCHANGER		**Side 1**		**Side 2**
Total heat transfer area	m²		0,276	
Heat flux	kW/m²		22,1	
Mean temperature difference	K		5,40	
O.H.T.C. (available/required)	W/m²,°C		4110/4100	
Pressure drop - total	kPa	30,9		26,1
- in ports	kPa	1,44		0,964
Port diameter	mm	16,0		16,0
Number of channels		7		6
Number of plates			14	
Oversurfacing	%		0	
Fouling factor	m²,°C/kW		0,001	

PHYSICAL PROPERTIES		**Side 1**	**Side 2**
Reference temperature	°C	9,04	14,45
Dynamic viscosity	cP	3,95	1,16
Dynamic viscosity - wall	cP	2,98	1,21
Density	kg/m³	958,6	999,1
Heat capacity	kJ/kg,°C	4,375	4,187
Thermal conductivity	W/m,°C	0,4270	0,5883
Min. fluid temperature at wall	°C	7,00	
Max. fluid temperature at wall	°C		17,00
Reynolds number		340	1130
Film coefficient	W/m²,°C	7450	13100
Average wall temperature	°C	12,25	12,62
Port velocity	m/s	1,78	1,43
Channel velocity	m/s	0,350	0,327
Shear stress	Pa	93,4	79,9