

SINGLE PHASE - Design Heat Exchanger : B85Hx50/1P

Fluid Side 1 : Water
Fluid Side 2 : Water

Side 1 : Outer circuit
Side 2 : Inner circuit

Flow Type : Counter-Current
SSP Alias : B85

DUTY REQUIREMENTS

		Side 1	Side 2
Heat load	kW	150,0	
Inlet temperature	°C	60,00	8,00
Outlet temperature	°C	25,00	55,00
Flow rate	kg/s	1,026	0,7638
Thermal length		3,569	4,793

PLATE HEAT EXCHANGER

		Side 1	Side 2
Total heat transfer area	m ²	2,88	
Heat flux	kW/m ²	52,1	
Mean temperature difference	K	9,81	
O.H.T.C. (available/required)	W/m ² , °C	5520/5310	
Pressure drop -total*	kPa	18,0	11,6
- in ports	kPa	0,687	0,380
Port diameter	mm	33,0/33,0 (up/down)	33,0/33,0 (up/down)
Number of channels per pass		25	24
Number of plates		50	
Oversurfacing	%	4	
Fouling factor	m ² , °C/kW	0,007	
Reynolds number		1164	728,4
Port velocity	m/s	1,21/1,21 (up/down)	0,897/0,897 (up/down)

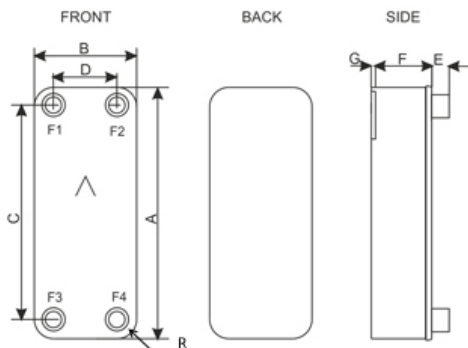
PHYSICAL PROPERTIES

		Side 1	Side 2
Reference temperature	°C	42,50	31,50
Dynamic viscosity	cP	0,624	0,773
Dynamic viscosity - wall	cP	0,680	0,690
Density	kg/m ³	991,3	995,2
Heat capacity	kJ/kg, °C	4,179	4,178
Thermal conductivity	W/m, °C	0,6340	0,6178
Largest wall temperature difference	K		1,52
Minimum wall temperature	°C	18,10	16,57
Maximum wall temperature	°C	57,97	57,52
Film coefficient	W/m ² , °C	13600	11000
Average wall temperature	°C	37,95	37,15
Channel velocity	m/s	0,222	0,172
Shear stress	Pa	30,3	19,7

TOTALS

Total weight empty	kg	8,92
Total weight filled	kg	13,5
Hold-up volume, inner circuit	dm ³	2,26
Hold-up volume, outer circuit	dm ³	2,35
Port size F1/P1	mm	33,0
Port size F2/P2	mm	33,0
Port size F3/P3	mm	33,0
Port size F4/P4	mm	33,0
NND F1/P1	mm	36,0 and/or 27,0
NND F2/P2	mm	27,0 and/or 36,0
NND F3/P3	mm	36,0 and/or 27,0
NND F4/P4	mm	36,0 and/or 27,0
Carbon footprint	kg	62,7

DIMENSIONS



A	mm	526 +/-2
B	mm	119 +/-1
C	mm	470 +/-1
D	mm	63 +/-1
E	mm	27 (opt. 45) +/-1
F	mm	96,00 +/-3%
G	mm	6 +/-1
R	mm	23

This is a schematic sketch. For correct drawings please use the order drawing function or contact your SWEP representative.

Disclaimer: Data used in this calculation is subject to change without notice. SWEP strives to use "best practice" for the calculations leading to the above results. Calculation is intended to show thermal and hydraulic performance, no consideration has been taken to mechanical strength of the product. Product restrictions - such as pressure, temperatures and corrosion resistance- can be found in SWEP product sheets and other technical documentation. SWEP may have patents, trademarks, copyrights or other intellectual property rights covering subject matter in this document. Except as expressly provided in any written license agreement from SWEP, the furnishing of this document does not give you any license to these patents, trademarks, copyrights, or other intellectual property. To the maximum extent permitted by applicable law, the software, the calculations and the results are provided without warranties of any kind, whether express or implied. No advice or information obtained through use of the software (including information provided in the results), will create any warranty not expressly stated in the applicable license terms. Without limiting the foregoing, SWEP does not warrant that the content (including the calculations and the results) is accurate, reliable or correct. SWEP does not warrant that any system comprising heat exchanger and other components, installed on the basis of calculations in this software, will meet your requirements or function to your satisfaction or expectations.

*Excluding pressure drop in connections.



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