

SINGLE PHASE - PERFORMANCE

HEAT EXCHANGER: B86Hx80/1P

SWEP SSP G8 2021.303.1.0

Date: 14/03/2021

SSP Alias: B86

DUTY REQUIREMENTS		Side 1		Side 2
Fluid		Water		Ethanol - Water (30.0 mass%)
Flow type		Counter-Current		
Circuit		Inner		Outer
Heat load	kW		9.290	
Inlet temperature	°C	7.00		2.20
Outlet temperature	°C	3.32		6.04
Flow rate	l/s	0.6000		0.6000
Thermal length		3.563		3.718

PLATE HEAT EXCHANGER		Side 1		Side 2
Total heat transfer area	m ²		4.68	
Heat flux	kW/m ²		1.99	
Mean temperature difference	K		1.03	
O.H.T.C. (available/required)	W/m ² , °C		1920/1920	
Pressure drop - total*	kPa	7.49		9.91
- in ports	kPa	0.711		0.685
Port diameter (up/down)	mm	25.0/25.0		25.0/25.0
Number of channels per pass		39		40
Number of plates			80	
Oversurfacing	%		0	
Fouling factor	m ² , °C/kW		0.000	
Reynolds number		180.1		48.71
Port velocity (up/down)	m/s	1.22/1.22		1.22/1.22
Channel velocity	m/s	0.0939		0.0916
Shear stress	Pa	10.5		14.2
Average wall temperature	°C	4.82		4.79
Largest wall temperature difference	K		0.04	
Min./Max. wall temperature	°C	2.95/6.69		2.91/6.66

*Excluding pressure drop in connections.

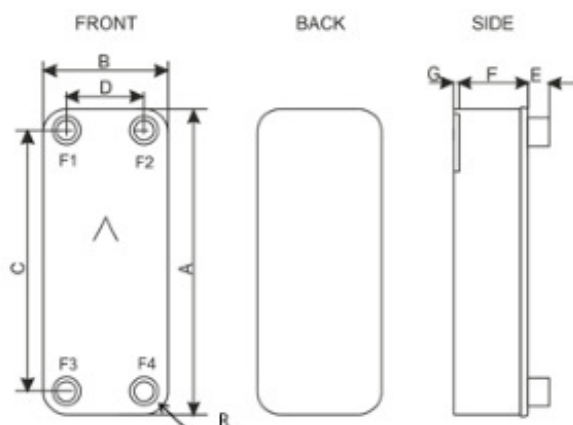
PHYSICAL PROPERTIES		Side 1		Side 2
Reference temperature	°C	5.16		4.12
Dynamic viscosity	cP	1.51		5.26
Dynamic viscosity - wall	cP	1.53		5.09
Density	kg/m ³	1000.0		963.1
Heat capacity	kJ/kg, °C	4.203		4.178
Thermal conductivity	W/m, °C	0.5708		0.4004
Film coefficient	W/m ² , °C	5920		3000

TOTALS		Side 1		Side 2
Total weight empty (no connections)*	kg		13.02	
Total weight filled (no connections)*	kg		19.07	
Hold-up volume (Inner Circuit)	dm ³		3.04	
Hold-up volume (Outer Circuit)	dm ³		3.12	
Port size F1/P1	mm		24	
Port size F2/P2	mm		24	
Port size F3/P3	mm		24	
Port size F4/P4	mm		24	
Carbon footprint	kg		91.53	



*Weight depends on the selected product.

DIMENSIONS



A	mm	526 ±2
B	mm	119 ±1
C	mm	470 ±1
D	mm	63 ±1
E	mm	20 (opt. 45) ±1
F	mm	138.4 ±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.

