

**SINGLE PHASE - RATING**  
**HEAT EXCHANGER: B85Hx40/1P**

SWEP SSP G8 2023.505.1.0

Date: 24/05/2023

SSP Alias: B85

<b>DUTY REQUIREMENTS</b>		<b>Side 1</b>	<b>Side 2</b>
Fluid		<b>Ethylene Glycol - Water (35.0 mass%)</b>	<b>Water</b>
		<b>Counter-Current</b>	
Flow type		Inner	Outer
Circuit			
Heat load	kW		<b>14.00</b>
Inlet temperature	°C	<b>50.00</b>	42.00
Outlet temperature	°C	43.35	<b>48.10</b>
Flow rate	m <sup>3</sup> /h	<b>2.000</b>	<b>2.000</b>
Thermal length		4.140	3.795

<b>PLATE HEAT EXCHANGER</b>		<b>Side 1</b>	<b>Side 2</b>
Total heat transfer area	m <sup>2</sup>		2.28
Heat flux	kW/m <sup>2</sup>		6.14
Mean temperature difference	K		1.61
O.H.T.C. (available/required)	W/m <sup>2</sup> ,°C		3870/3820
Pressure drop - total*	kPa	11.2	8.60
- in ports	kPa	0.207	0.197
Port diameter (up/down)	mm	33.0/33.0	33.0/33.0
Number of channels per pass		19	20
Number of plates			40
Oversurfacing	%		1
Fouling factor	m <sup>2</sup> ,°C/kW		0.003
Reynolds number		413.3	815.8
Port velocity (up/down)	m/s	0.648/0.648	0.649/0.649
Channel velocity	m/s	0.157	0.149
Shear stress	Pa	19.3	14.8
Average wall temperature	°C	45.74	45.66
Largest wall temperature difference	K		0.14
Min./Max. wall temperature	°C	42.59/48.93	42.49/48.79

\*Excluding pressure drop in connections.

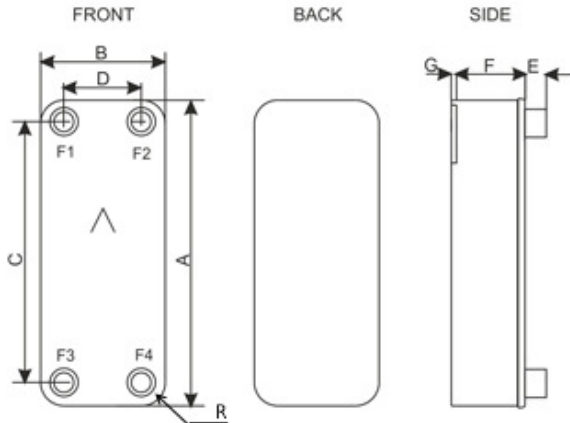
<b>PHYSICAL PROPERTIES</b>		<b>Side 1</b>	<b>Side 2</b>
Reference temperature	°C	46.67	45.05
Dynamic viscosity	cP	1.30	0.596
Dynamic viscosity - wall	cP	1.33	0.590
Density	kg/m <sup>3</sup>	1042	990.2
Heat capacity	kJ/kg,°C	3.643	4.180
Thermal conductivity	W/m,°C	0.4566	0.6374
Film coefficient	W/m <sup>2</sup> ,°C	6880	10600

<b>TOTALS</b>		<b>Side 1</b>	<b>Side 2</b>
Total weight empty (no connections)*	kg	6.73 - 7.56	
Total weight filled (no connections)*	kg	10.45 - 11.28	
Hold-up volume (Inner Circuit)	dm <sup>3</sup>	1.79	
Hold-up volume (Outer Circuit)	dm <sup>3</sup>	1.88	
Port size F1/P1	mm	33	
Port size F2/P2	mm	33	
Port size F3/P3	mm	33	
Port size F4/P4	mm	33	
Carbon footprint	kg	53.1	



\*Weight depends on the selected product.

**DIMENSIONS**



A*	mm	524 - 526 ±2
B*	mm	117 - 119 ±1
C	mm	470 ±1
D	mm	63 ±1
E*	mm	20 - 27 / 45 ±1
F*	mm	77.6 - 83.6 ±3%
G*	mm	3 - 6 ±1
O*	mm	2 - 4
R*	mm	22 - 23

\*Dimensions depend on the selected product.

\*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.

