

# SINGLE PHASE - RATING

## HEAT EXCHANGER: B85Hx70/1P

SWEP SSP G8 2023.505.1.0

Date: 24/05/2023

SSP Alias: B85

DUTY REQUIREMENTS		Side 1	Side 2
Fluid		Ethylene Glycol - Water (35.0 mass%)	Water
		Counter-Current	
Flow type		Inner	Outer
Circuit			
Heat load	kW	35.00	
Inlet temperature	°C	50.00	41.80
Outlet temperature	°C	43.35	47.90
Flow rate	m <sup>3</sup> /h	5.000	5.000
Thermal length		3.678	3.371

PLATE HEAT EXCHANGER		Side 1	Side 2
Total heat transfer area	m <sup>2</sup>		4.08
Heat flux	kW/m <sup>2</sup>		8.58
Mean temperature difference	K		1.81
O.H.T.C. (available/required)	W/m <sup>2</sup> ,°C		4850/4740
Pressure drop - total*	kPa	21.6	17.4
- in ports	kPa	1.30	1.24
Port diameter (up/down)	mm	33.0/33.0	33.0/33.0
Number of channels per pass		34	35
Number of plates			70
Oversurfacing	%		2
Fouling factor	m <sup>2</sup> ,°C/kW		0.005
Reynolds number		577.4	1161
Port velocity (up/down)	m/s	1.62/1.62	1.62/1.62
Channel velocity	m/s	0.219	0.213
Shear stress	Pa	35.6	28.4
Average wall temperature	°C	45.63	45.52
Largest wall temperature difference	K		0.16
Min./Max. wall temperature	°C	42.48/48.82	42.36/48.66

\*Excluding pressure drop in connections.

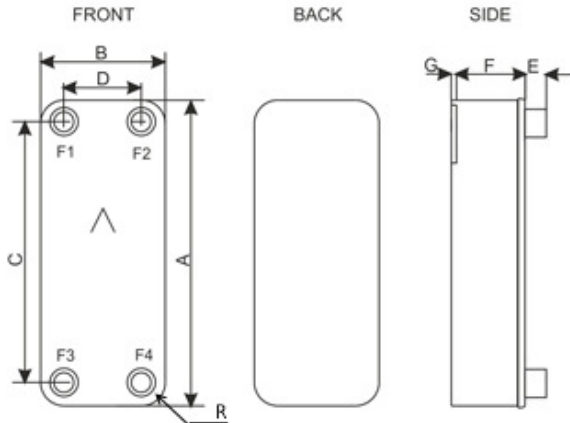
PHYSICAL PROPERTIES		Side 1	Side 2
Reference temperature	°C	46.67	44.85
Dynamic viscosity	cP	1.30	0.598
Dynamic viscosity - wall	cP	1.33	0.591
Density	kg/m <sup>3</sup>	1042	990.3
Heat capacity	kJ/kg,°C	3.643	4.179
Thermal conductivity	W/m,°C	0.4566	0.6372
Film coefficient	W/m <sup>2</sup> ,°C	8610	13400

TOTALS		Side 1	Side 2
Total weight empty (no connections)*	kg	10.83 - 11.66	
Total weight filled (no connections)*	kg	17.42 - 18.24	
Hold-up volume (Inner Circuit)	dm <sup>3</sup>	3.2	
Hold-up volume (Outer Circuit)	dm <sup>3</sup>	3.29	
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	81.92	



\*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	132.8 - 138.8 ±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.

