EVAPORATOR - RATING
HEAT EXCHANGER: V80Hx34/1P

SWEP DThermX

Date: 31/01/2023

SSP Alias:	V80		
DUTY REQUIREMENTS		**Side 1**	**Side 2**
Fluid		**R22**	**Water**
Flow type		**Counter-Current**	
Circuit		Inner	Outer
Heat load	kW	**25.00**	
Subcooled liq. temp.	°C	**43.00**	
Inlet vapor quality		0.248	
Outlet vapor quality		**1.000**	
Inlet temperature	°C	3.26	**12.00**
Evaporation temperature (dew)	°C	**2.00**	
Superheating	K	**5.00**	
Outlet temperature	°C	7.00	**7.00**
Flow rate	kg/s	0.1602	1.192
• Inlet vapor	kg/s	0.03978	
Fluid vaporized	kg/s	0.1204	

PLATE HEAT EXCHANGER		**Side 1**		**Side 2**
Total heat transfer area	m²		1.92	
Heat flux	kW/m²		13.0	
Mean temperature difference	K		7.23	
O.H.T.C. (available/required)	W/m²,°C		1860/1800	
Pressure drop - total*	kPa	23.5		32.6
- in ports (Inlet/Outlet)	kPa	-0.839/0.997		0.920
Pressure drop in fluid distribution	kPa	96.3 - 148		
Operating pressure (outlet)	kPa	531		
Number of channels per pass		16		17
Number of plates			34	
Oversurfacing	%		3	
Fouling factor	m²,°C/kW		0.017	
Port diameter (up/down)	mm	33.0/20.0		33.0/33.0
Recommended inlet connection diameter	mm	8.10 - 12.8		
Recommended outlet connection diameter	mm	19.0 - 42.4		
Reynolds number				934.6
Outlet port velocity	m/s	8.51		1.39
Channel velocity	m/s	2.01		0.310
Shear stress	kPa			0.0674
Largest wall temperature difference	K		0.50	
Min./Max. wall temperature	°C	5.69/11.33		5.89/11.42

Excluding pressure drop in connections.

NOTES

i *Pressure drop in distribution device is 1.0 - 1.5 bar .*

PHYSICAL PROPERTIES		**Side 1**	**Side 2**
Reference temperature	°C	2.91	9.44
Liquid • Dynamic viscosity	cP	0.210	1.33
• Density	kg/m³	1271	999.7
• Heat capacity	kJ/kg,°C	1.187	4.194
• Thermal conductivity	W/m,°C	0.09401	0.5789
Vapor • Dynamic viscosity	cP	0.0117	
• Density	kg/m³	22.69	

PHYSICAL PROPERTIES

		Side 1	Side 2
• Heat capacity	kJ/kg,°C	0.7167	
• Thermal conductivity	W/m,°C	9.279e-3	
• Latent heat	kJ/kg	202.0	
Film coefficient	W/m²,°C	6820	11600

TOTALS

		Side 1	Side 2
Total weight (no connections)*	kg		7.67 - 12.17
Hold-up volume (Inner Circuit)	dm³		1.71
Hold-up volume (Outer Circuit)	dm³		1.82
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		53.89

Weight depends on the selected product.

DIMENSIONS
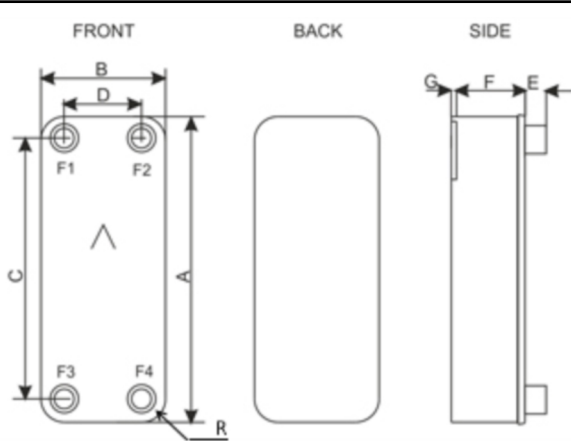
A	mm	526 ±2
B	mm	119 ±1
C	mm	470 ±1
D	mm	63 ±1
E	mm	27 (opt. 45) ±1
F*	mm	80.16 - 88.16 ±2.5%
G*	mm	2 - 6 ±1
O	mm	4
R	mm	23

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.