

EVAPORATOR - Rating

Heat Exchanger : V80Hx60/1P

Fluid Side 1 : R507A
 Fluid Side 2 : Water

Side 1 : Inner circuit
 Side 2 : Outer circuit

Flow Type : Counter-Current
 SSP Alias : V80

DUTY REQUIREMENTS

		Side 1	Side 2
Heat load	kW	52,20	
Inlet vapor quality		0,389	
Outlet vapor quality		1,000	
Inlet temperature	°C	3,84	12,00
Evaporation temperature (dew)	°C	2,00	
Superheating	K	5,00	
Outlet temperature	°C	7,00	7,00
Flow rate	kg/s	0,5104	2,489
- inlet vapor	kg/s	0,1985	
Fluid vaporized	kg/s	0,3119	

PLATE HEAT EXCHANGER

		Side 1	Side 2
Total heat transfer area	m ²	3,48	
Heat flux	kW/m ²	15,0	
Mean temperature difference	K	6,21	
O.H.T.C. (available/required)	W/m ² , °C	2340/2410	
Pressure drop -total*	kPa	43,8	47,0
- in ports	kPa	-1,25	4,03
Pressure drop in fluid distribution	kPa	300 - 460	
Operating pressure - outlet	kPa	669	
Number of channels per pass		29	30
Number of plates		60	
Oversurfacing	%	-3	
Fouling factor	m ² , °C/kW	-0,014	
Port diameter	mm	33,0/20,0 (up/down)	33,0/33,0 (up/down)
Recommended inlet connection diameter	mm	From 12,0 to 19,0	
Recommended outlet connection diameter	mm	From 27,3 to 61,2	
Reynolds number			1104
Outlet port velocity	m/s	18,0	2,91

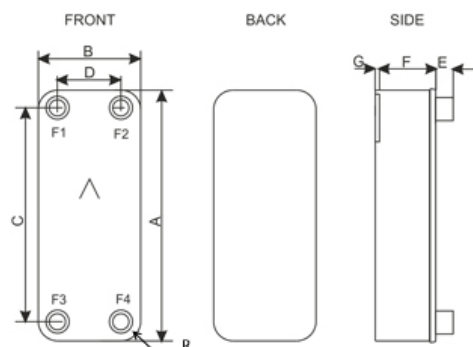
PHYSICAL PROPERTIES

		Side 1	Side 2
Reference temperature	°C	3,55	9,38
Liquid - Dynamic viscosity	cP	0,168	1,33
- Density	kg/m³	1143	999,7
- Heat capacity	kJ/kg, °C	1,415	4,194
- Thermal conductivity	W/m, °C	0,07534	0,5788
Vapor - Dynamic viscosity	cP	0,0113	
- Density	kg/m³	34,75	
- Heat capacity	kJ/kg, °C	0,9482	
- Thermal conductivity	W/m, °C	0,01268	
- Latent heat	kJ/kg	158,2	
Film coefficient	W/m², °C	7070	13100
Minimum wall temperature	°C	6,03	6,19
Maximum wall temperature	°C	10,85	11,01
Largest wall temperature difference	K		0,44
Channel velocity	m/s	2,35	0,367
Shear stress	Pa		91,4

TOTALS

Total weight	kg	11,9 - 17,2
Hold-up volume, inner circuit	dm³	3,10
Hold-up volume, outer circuit	dm³	3,21
Port size F1/P1	mm	33,0
Port size F2/P2	mm	33,0
Port size F3/P3	mm	20,0
Port size F4/P4	mm	33,0
NND F1/P1	mm	36,0
NND F2/P2	mm	36,0
NND F3/P3	mm	36,0
NND F4/P4	mm	36,0
Carbon footprint	kg	96,5

DIMENSIONS



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

A	mm	526 +/-2
B	mm	119 +/-1
C	mm	470 +/-1
D	mm	63 +/-1
E	mm	27 (opt. 45) +/-1
F	mm	138,40 to 146,40 +/- 2,5%
G	mm	2 to 6 +/-1
O	mm	4
R	mm	23

Note :

Pressure drop in V-ring is 3,0 - 4,6 bar .

Very high heat flux not experimentally certified (15 kW/m²).

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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