

EVAPORATOR - Rating Heat Exchanger : V80x24

Fluid Side 1 : R407C

Fluid Side 2 : Water

Flow Type : Counter-Current

DUTY REQUIREMENTS

		Side 1	Side 2
Heat load	kW	17.00	
Inlet vapor quality		0.34	
Outlet vapor quality		1.00	
Inlet temperature	°C	0.82	12.00
Evaporation temperature (dew)	°C	3.50	
Superheating	K	5.00	
Outlet temperature	°C	8.50	7.00
Flow rate	kg/s	0.1207	0.8107
- inlet vapor	kg/s	0.04057	
Fluid vaporized	kg/s	0.08015	
Max. pressure drop	kPa	50.0	50.0

PLATE HEAT EXCHANGER

		Side 1	Side 2
Total heat transfer area	m ²	1.32	
Heat flux	kW/m ²	12.9	
Mean temperature difference	K	7.10	
H.T.C. (available/required)	W/m ² , °C	2450/1810	
Pressure drop -total*	kPa	29.2	30.1
- in ports	kPa	-0.0687	0.425
Pressure drop in fluid distribution	kPa	154 - 237	
Operating pressure - outlet	kPa	520	
Number of channels		11	12
Number of plates		24	
Oversurfacing	%	35	
Fouling factor	m ² , °C/kW	0.143	
Port diameter	mm	33.0/33.0 (up/down)	33.0
Recommended inlet connection diameter	mm	From 7.73 to 12.2	
Recommended outlet connection diameter	mm	From 16.6 to 37.1	
Reynolds number			900
Outlet port velocity	m/s	6.63	0.948

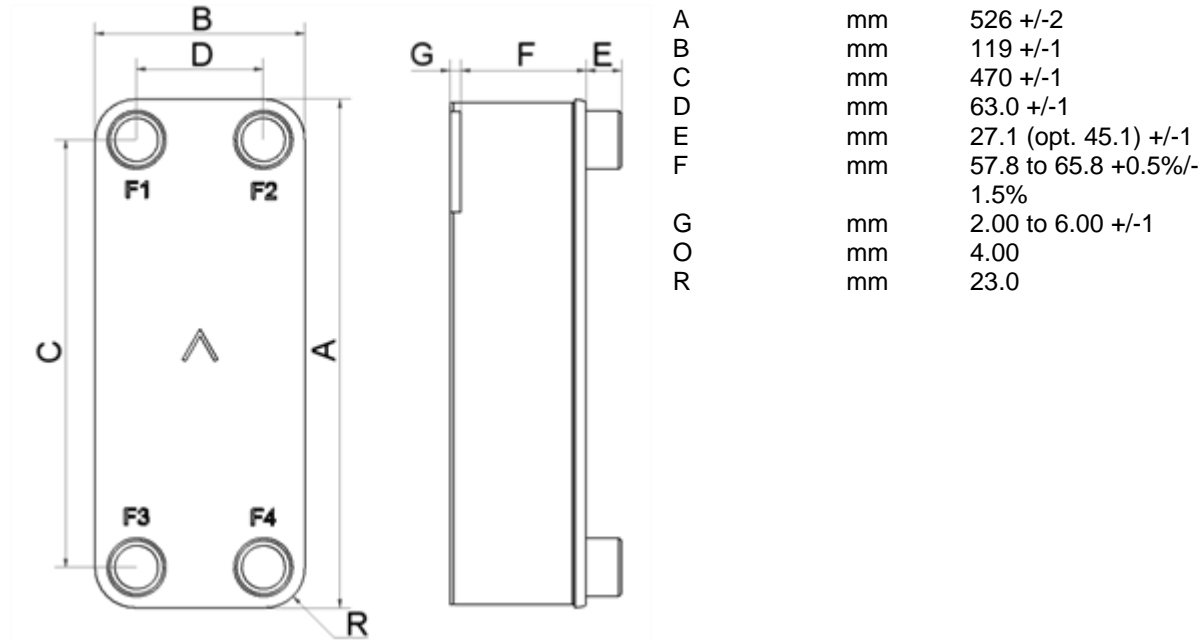
PHYSICAL PROPERTIES

		Side 1	Side 2
Reference temperature	°C	2.61	9.42
Liquid - Dynamic viscosity	cP	0.199	1.33
- Density	kg/m ³	1227	999.7
- Heat capacity	kJ/kg, °C	1.428	4.194
- Thermal conductivity	W/m, °C	0.09944	0.5789
Vapor - Dynamic viscosity	cP	0.0116	
- Density	kg/m ³	22.29	
- Heat capacity	kJ/kg, °C	0.8760	
- Thermal conductivity	W/m, °C	0.01111	
- Latent heat	kJ/kg	0.2063	
Film coefficient	W/m ² , °C	6270	11300
Minimum wall temperature	°C	4.86	5.17
Channel velocity	m/s	2.28	0.299

TOTALS

Total weight (no connections)	kg	6.56 - 10.5
Hold-up volume, inner circuit	dm ³	1.22
Hold-up volume, outer circuit	dm ³	1.33
PortSize F1/P1	mm	33.0
PortSize F2/P2	mm	33.0
PortSize F3/P3	mm	33.0
PortSize F4/P4	mm	33.0
NND F1/P1	mm	36.0
NND F2/P2	mm	36.0
NND F3/P3	mm </td <td>36.0</td>	36.0
NND F4/P4	mm	36.0

DIMENSIONS



Note :

Pressure drop in V-ring is 1.5 - 2.4 bar .



A **DOVER** COMPANY

Disclaimer: Data used in this calculation is subject to change without notice. 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.

*Excluding pressure drop in connections.