

## EVAPORATOR - PERFORMANCE

SWEP SSP G8

### HEAT EXCHANGER: P80Hx96/1P-SC-H (P80H/1P-SC-H 16+42U / 2x1 1/2"VIC)

Date: 03/12/2020

Art No: 2.381.421

SSP Alias: P80

#### OFFERS' DETAILS

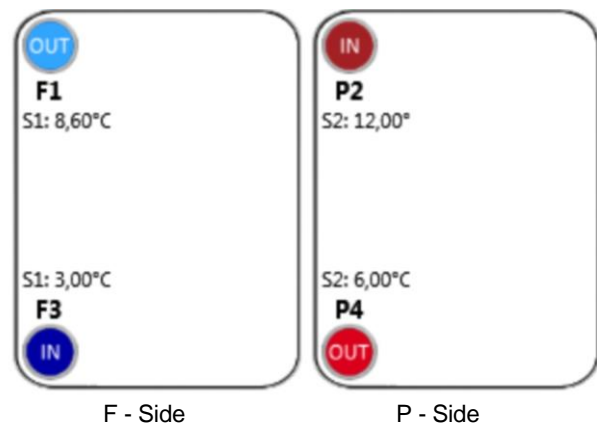
**Customer:** Impexron GmbH  
**Address:** Gönningerstr. 99,  
DE-72793 Pfullingen  
**Reference:** 558712

#### CONNECTION DATA

Port	NND	Denomination
F1	36	SOLDER 42U NON-CASTED (27)
F3	36	SOLDER 16 NON-CASTED (27)
P2	36	VICTAULIC 1 1/2" ASME (45)
P4	36	VICTAULIC 1 1/2" ASME (45)

CONNECTION LOCATION	Side 1 (S1)	Side 2 (S2)
Inlet	F3	P2
Outlet	F1	P4

#### PORT FLOW CONFIGURATION



#### DUTY REQUIREMENTS

	Side 1	Side 2
Fluid	R410A	Water
Flow type	Inner	Outer
Circuit	Counter-Current	
Heat load	75,00 kW	
Subcooled liq. temp.	42,00 °C	
Inlet vapor quality	0,300	
Outlet vapor quality	1,000	
Inlet temperature	3,00 °C	12,00 °C
Evaporation temperature (dew)	2,60 °C	
Superheating	6,00 K	
Outlet temperature	8,60 °C	6,00 °C
Flow rate	0,4744 kg/s   m³/h	10,73 kg/s
• Inlet vapor	0,1423 kg/s	
Fluid vaporized	0,3321 kg/s	

#### PLATE HEAT EXCHANGER

	Side 1	Side 2
Total heat transfer area	5,64 m²	
Heat flux	13,3 kW/m²	
Mean temperature difference	5,97 K	
O.H.T.C. (available/required)	2230/2230 W/m², °C	
Pressure drop - total*	14,5 kPa	31,4 kPa
- in ports (Inlet/Outlet)	-10,3/6,67 kPa	5,83 kPa
Pressure drop in fluid distribution	208 - 319 kPa	
Operating pressure (outlet)	864 kPa	
Number of channels per pass	47	48
Number of plates	96	
Oversurfacing	0 %	



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## PLATE HEAT EXCHANGER

		Side 1	Side 2
Fouling factor	m <sup>2</sup> , °C/kW		0,000
Port diameter (up/down)	mm	33,0/17,0	33,0/33,0
Recommended inlet connection diameter	mm	12,7 - 17,0	
Recommended outlet connection diameter	mm	27,5 - 61,5	
Reynolds number			814,1
Outlet port velocity	m/s	17,7	3,48
Channel velocity	m/s	1,42	0,275
Shear stress	Pa		54,4
Largest wall temperature difference	K		0,45
Min./Max. wall temperature	°C	4,95/11,03	5,10/11,14

\*Excluding pressure drop in connections.

## NOTES

- ! High exit port pressure drop on refrigerant side, greater than 30% of total pressure drop.
- i Pressure drop in distribution device is 2,1 - 3,2 bar .

## PHYSICAL PROPERTIES

		Side 1	Side 2
Reference temperature	°C	3,15	8,89
Liquid • Dynamic viscosity	cP	0,159	1,35
• Density	kg/m <sup>3</sup>	1158	999,8
• Heat capacity	kJ/kg, °C	1,549	4,195
• Thermal conductivity	W/m, °C	0,1120	0,5779
Vapor • Dynamic viscosity	cP	0,0124	
• Density	kg/m <sup>3</sup>	31,95	
• Heat capacity	kJ/kg, °C	0,9525	
• Thermal conductivity	W/m, °C	0,01103	
• Latent heat	kJ/kg	216,9	
Film coefficient	W/m <sup>2</sup> , °C	7410	10600

## TOTALS

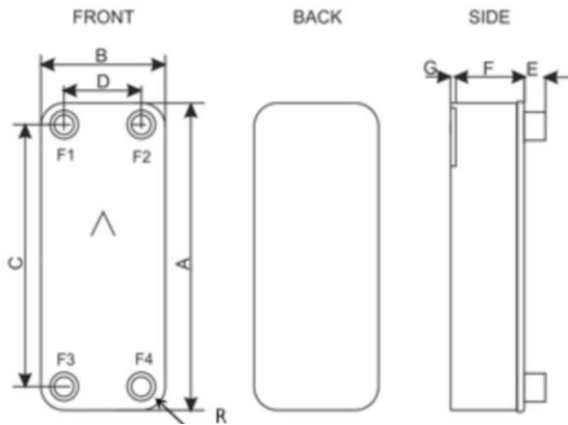
		Side 1	Side 2
Total weight	kg		25,072
Hold-up volume (Inner Circuit)	dm <sup>3</sup>		5,03
Hold-up volume (Outer Circuit)	dm <sup>3</sup>		5,14
Port size F1/P1	mm		33
Port size F2/P2	mm		33
Port size F3/P3	mm		33
Port size F4/P4	mm		33
Carbon footprint	kg		170,06
Plate material			AISI316 Stainless Steel
Braze material			Copper
Max operating pressure 20°C	bar(g)	63	52
Max operating pressure 225°C	bar(g)	46	38
Test pressure	bar(g)	90	74
Minimal/Maximal working temperature	°C		-196/225

## DIMENSIONS



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## DIMENSIONS



A	mm	526 ±2
B	mm	119 ±1
C	mm	470 ±1
D	mm	63 ±1
E (F-Side)	mm	27
E (P-Side)	mm	45
F	mm	227,04
G	mm	2 ±1
R	mm	23

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

### Disclaimer:

Data used in this calculation is subject to change without notice. SWEF 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 SWEF product sheets and other technical documentation. SWEF 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 SWEF, 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, SWEF does not warrant that the content (including the calculations and the results) is accurate, reliable or correct. SWEF 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.



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