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| Danfoss Hexact(v5.2.28) | | | | | | | |
| **Universal RC - Cascade condenser - Micro Plate Heat Exchanger: D118-E-92** | | | | | | | |
|  | | | | | | | |
| Customer: | | | | Date: 1/30/2020 | | | |
| Reference: | | | | Danfoss ref: | | | |
| Design conditions | | | | | | | |
|  | | | | | | | |
| Flow type | | | | | Counter current | | |
| Heat load | | | kW | : |  | 44.80 |  |
|  | | | | | **side 1** |  | **side 2** |
| Inlet temperature | | | °C | : | -7.68 |  | 70.00 |
| Dew temperature | | | °C | : | -8.00 |  | -2.00 |
| Subcooling | | | K | : |  |  | 2.00 |
| SuperHeating | | | K | : | 5.00 |  |  |
| Outlet temperature | | | °C | : | -3.00 |  | -4.00 |
| Mass Flowrate | | | kg/s | : | 0.215 |  | 0.135 |
| Volumetric Flowrate | | | L/min | : | - |  | - |
| Fluid condensed | | | kg/s | : |  |  | 0.135 |
| Fluid vaporized | | | kg/s | : | 0.000 |  |  |
| Inlet / Outlet quality | | |  | : | 0.000/1.000 |  | 1.000/0.000 |
| Max pressure drop | | | kPa | : | 200.00 |  | 50.00 |
| Abs.Saturation pressure | | | bar | : | 2.17 |  | 33.04 |
|  | | | | | | | |
| Properties of fluid | | | | | | | |
|  | | | | | | | |
| Fluid | | |  | : | R134a |  | CO2 |
| Reference temperature | | | °C | : | -7.84 |  | -2.00 |
| Liquid | - Dynamic viscosity | | mPa-s | : | 0.2950 |  | 0.1029 |
|  | - Density | | kg/m^3 | : | 1320.3 |  | 939.2 |
|  | - Heat capacity | | kJ/kg-K | : | 1.321 |  | 2.484 |
|  | - Thermal conductivity | | W/m-K | : | 0.096 |  | 0.113 |
| Gas | - Dynamic viscosity | | mPa-s | : | 0.0104 |  | 0.0146 |
|  | - Density | | kg/m^3 | : | 10.9 |  | 91.6 |
|  | - Heat capacity | | kJ/kg-K | : | 0.863 |  | 1.777 |
|  | - Thermal conductivity | | W/m-K | : | 0.011 |  | 0.019 |
|  | - Latent heat | | kJ/kg | : | 204.42 |  | 236.83 |
|  | | | | | | | |
| Micro Plate Heat Exchanger | | | | | | | |
|  | | | | | | | |
| Total area | | | m^2 | : |  | 9.00 |  |
| Heat flux | | | kW/m^2 | : |  | 4.978 |  |
| LMTD | | | K | : |  | 5.52 |  |
| H.T.C. | | | W/m^2-K | : |  | 908.9/902.0 |  |
| Pressure drop | | - Total | kPa | : | 3.80 |  | 0.17 |
|  | | - Channel | kPa | : | 2.21 |  | 0.19 |
|  | | - In port | kPa | : | 0.49 |  | -0.02 |
| Channel velocity | | | m/s | : | 0.82 |  | 0.07 |
| Port velocity | | | m/s | : | 5.51 |  | 0.45 |
| Reynolds number | | |  | : |  |  |  |
| Film coefficient | | | W/m^2-K | : | 2696.6 |  | 1728.7 |
| Ave. wall temperature | | | °C | : | -5.87 |  | -5.07 |
| Port hole diameter | | | mm | : | 48.0 |  | 48.0 |
| Channel number | | |  | : | 45EM |  | 46EM |
| Number of plates | | |  | : |  | 92 |  |
| Surface margin | | | % | : |  | 0.8 |  |
| Fouling factor | | | m^2-K/kW | : |  | 0.008417 |  |
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| D118-E-92 | | | | | |
| C:\Users\Asus\AppData\Local\DanfossHexact5\app-5.2.28\Image\D118.jpg | | | | | |
| Number of plates | | | 92 | |  |
| A (mm) | | | 171.6 | |  |
| L (mm) | | | 25.0 | |  |
| Weight (kg) | | | 29.87 | |  |
| Channel volume (L) | | | Q1 Q2 side: 6.946 / Q3 Q4 side: 6.795 | |  |
| Design Pressure(Max) (bar) | | | 30 | |  |
| Design Temp. (Max/Min) (°C) | | | -196 / +200 | |  |
| Solder connections(Max): | | | 2\_1/8 | |  |
| External threaded(Max): | | | 2 | |  |
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