|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **HEAT EXCHANGER CALCULATION** | | | | | | | |
| **GEA WTT Baltics Brazelect PRO 2015.1** | | | | | | | |
| **Date** **:** **17.04.15** | | | | | | | |
| **Design Calculation --** | | | | | | | |
|  | | | | | | | |
| **Input Data :** | | | | | | | |
| **Design Duty :** | | | | | | | |
| Side 1 | | | | | | | Side 2 |
| **Fluid Name** |  | **:** | Water | | Water | | |
| **Inlet Temperature** | °C | **:** | | 70 | | 35 | |
| **Outlet Temperature** | °C | **:** | | 40 | | 60 | |
| **Mass Flow Rate** | kg/s | **:** | | 1.278 | | 1.533 | |
| **Pressure** | bar | **:** | | - | | - | |
| **Max. Acceptable Pressure Drop** | kPa | **:** | | 20 | | 20 | |
| **Physical Properties of Fluid :** | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Reference Temperature** | °C | **:** | | 55 | | | 47.5 | |
| **Viscosity** | mPas | **:** | | 0.503 | | | 0.57 | |
| **Viscosity Wall** | mPas | **:** | | 0.532 | | | 0.539 | |
| **Density** | kg/m? | **:** | | 984.5 | | | 987.8 | |
| **Specific Heat Capacity** | kJ/kg,°C | **:** | | 4.173 | | | 4.174 | |
| **Thermal Conductivity** | W/m,°C | **:** | | 0.648 | | | 0.639 | |
| **Designed Plate Heat Exchanger :** | | | | | | | |
| **Heat Load** | kW | **:** |  | | 160 | | |
| **Total Heat Transfer Area** | m? | **:** |  | | 4.76 | | |
| **Log Mean Temperature Difference** | °C | **:** |  | | 7.21 | | |
| **Overall H.T.C.** | W/m?,°C | **:** |  | | 4869/4660 | | |
| **Calculated Pressure Drop** | kPa | **:** | 10.7 | | | 14.7 | |
| **Number of Channels** |  | **:** | 1\*34H | | | 1\*35H | |
| **Connection Diameter** | mm | **:** | 25 | | | 25 | |
| **Number of Heat Transfer Units** | NTU | **:** | 4.159 | | | 3.466 | |
| **Total Number of Plates** |  | **:** |  | | 70 | | |
| **Oversurfacing** | % | **:** |  | | 4 | | |
| **Fouling Factor** | m?,°C/kW | **:** |  | | 0.00922 | | |