|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **HEAT EXCHANGER CALCULATION** | | | | | | | |
| **GEA WTT Baltics Brazelect PRO 2014.2** | | | | | | | |
| **Date** **:** **10/30/2014** | | | | | | | |
| **Design Calculation --** | | | | | | | |
|  | | | | | | | |
| **Input Data : Nākotnes iela 1, karst.ūdens 15kW** | | | | | | | |
| **Design Duty :** | | | | | | | |
| Side 1 | | | | | | | Side 2 |
| **Fluid Name** |  | **:** | Water | | Water | | |
| **Inlet Temperature** | °C | **:** | | 65 | | 5 | |
| **Outlet Temperature** | °C | **:** | | 30 | | 55 | |
| **Mass Flow Rate** | kg/s | **:** | | 0.103 | | 0.072 | |
| **Pressure** | bar | **:** | | - | | - | |
| **Max. Acceptable Pressure Drop** | kPa | **:** | | 20 | | 20 | |
| **Physical Properties of Fluid :** | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Reference Temperature** | °C | **:** | | 47.5 | | | 30 | |
| **Viscosity** | mPas | **:** | | 0.57 | | | 0.801 | |
| **Viscosity Wall** | mPas | **:** | | 0.639 | | | 0.651 | |
| **Density** | kg/m? | **:** | | 987.8 | | | 994.4 | |
| **Specific Heat Capacity** | kJ/kg,°C | **:** | | 4.174 | | | 4.182 | |
| **Thermal Conductivity** | W/m,°C | **:** | | 0.639 | | | 0.617 | |
| **Designed Plate Heat Exchanger :** | | | | | | | |
| **Heat Load** | kW | **:** |  | | 15 | | |
| **Total Heat Transfer Area** | m? | **:** |  | | 0.48 | | |
| **Log Mean Temperature Difference** | °C | **:** |  | | 16.37 | | |
| **Overall H.T.C.** | W/m?,°C | **:** |  | | 2579/1909 | | |
| **Calculated Pressure Drop** | kPa | **:** | 3.5 | | | 1.5 | |
| **Number of Channels** |  | **:** | 1\*6M | | | 1\*7M | |
| **Connection Diameter** | mm | **:** | 20 | | | 20 | |
| **Number of Heat Transfer Units** | NTU | **:** | 2.138 | | | 3.054 | |
| **Total Number of Plates** |  | **:** |  | | 14 | | |
| **Oversurfacing** | % | **:** |  | | 35 | | |
| **Fouling Factor** | m?,°C/kW | **:** |  | | 0.136 | | |