|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **HEAT EXCHANGER CALCULATION** | | | | | | | |
| **GEA WTT Baltics Brazelect PRO 2014.2** | | | | | | | |
| **Date** **:** **10/29/2014** | | | | | | | |
| **Design Calculation --** | | | | | | | |
|  | | | | | | | |
| **Input Data : Jaunatnes iela 3, 100kW karst.ūdens** | | | | | | | |
| **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 | **:** | | 0.685 | | 0.478 | |
| **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 | **:** | | 0.637 | | | 0.66 | |
| **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 | **:** |  | | 100 | | |
| **Total Heat Transfer Area** | m? | **:** |  | | 1.54 | | |
| **Log Mean Temperature Difference** | °C | **:** |  | | 16.37 | | |
| **Overall H.T.C.** | W/m?,°C | **:** |  | | 4927/3967 | | |
| **Calculated Pressure Drop** | kPa | **:** | 20.8 | | | 9.4 | |
| **Number of Channels** |  | **:** | 1\*11H | | | 1\*12H | |
| **Connection Diameter** | mm | **:** | 25 | | | 25 | |
| **Number of Heat Transfer Units** | NTU | **:** | 2.138 | | | 3.054 | |
| **Total Number of Plates** |  | **:** |  | | 24 | | |
| **Oversurfacing** | % | **:** |  | | 24 | | |
| **Fouling Factor** | m?,°C/kW | **:** |  | | 0.0491 | | |