Forbes Marshall's Cooling Water Separation Skid (CWSS) is a special cooling water system designed to ensure DM quality cooling water to the SWAS (steam and water analysis system) sample cooler. This helps eliminate sample cooler failure due to bad water quality, mainly the presence of chlorides, hardness, dust, mud, corrosion particles and algae. These systems can handle the most complex requirements in steam and water analysis.

**Features**
- Plate type of heat exchanger for maximum efficiency in heat transfer
- Stainless steel tank with level switch for DM water storage
- Completely skid assembled and ready to commission
- 100% redundant pump for cooling water circulation

**Benefits**
- DM quality free from hardness, undissolved particles and corrosive elements
- Increase in the SWAS uptime
- Frequent maintenance of sample cooler is not required
### Specifications

<table>
<thead>
<tr>
<th>Design Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design pressure</td>
<td>350 bar(g)</td>
</tr>
<tr>
<td>Design temp</td>
<td>60 Deg C</td>
</tr>
<tr>
<td>Design flow rate</td>
<td>10,000 LPH, 15,000 LPH, 20,000 LPH (OR user selectable)</td>
</tr>
<tr>
<td>Material of construction</td>
<td>SS 316 or Alloy Steel or Titanium (Selectable Depending on Aux cooling Water quality)</td>
</tr>
<tr>
<td>Inlet connection type (from SWAS Panel)</td>
<td>2” NB or 3” NB</td>
</tr>
<tr>
<td>Outlet connection type (to SWAS Panel)</td>
<td>2” NB or 3” NB</td>
</tr>
<tr>
<td>Direction of Flow</td>
<td>Counter Current</td>
</tr>
<tr>
<td>Tank MOC</td>
<td>Stainless Steel (SS304)</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>250 Liter, 500 Liter (or depending on Requirement)</td>
</tr>
<tr>
<td>Pump</td>
<td>Redundant pump with required capacity</td>
</tr>
<tr>
<td>Power Supply for Pump</td>
<td>3 Phase, 4 Wire, 415 VAC ±10%</td>
</tr>
</tbody>
</table>

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**Cooling Water Separation Skid**

**Item**

<table>
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<tr>
<td>10a</td>
<td>Temperature gauge – rigid type</td>
</tr>
<tr>
<td>11</td>
<td>Pressure gauge</td>
</tr>
<tr>
<td>15</td>
<td>Pressure gauge isolation valve</td>
</tr>
<tr>
<td>21</td>
<td>1/2”NB isolation valve</td>
</tr>
<tr>
<td>22a</td>
<td>Non return valve</td>
</tr>
<tr>
<td>24a</td>
<td>Flow switch</td>
</tr>
<tr>
<td>25</td>
<td>2”NB isolation valve</td>
</tr>
<tr>
<td>26</td>
<td>Isolation valve</td>
</tr>
</tbody>
</table>

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**Diagram**

- DMCW TO SWAS WET RACK
- DMCW FROM SWAS WET RACK
- STORAGE TANK
- MATL: SS 304
- LEVEL SWITCH
- PUMP1
- PUMP2
- PLATE TYPE HEATEX CHANGER (PHE)
- AUX.COOLING WATER OUTLET 4" NB FLANGED TO A105, 150# SORF (THERMAX SCOPE)
- AUX.COOLING WATER INLET 4" NB FLANGED TO A105, 150# SORF

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**Diagram Labels**

- MAKE UP WATER: 1/2” NB, A105, #150
- T1
- 10a
- 11
- 15
- 21
- 22a
- 24a
- 25
- 26
- 21
- 25
- 22a
- 24a
- 25
- 26
- 21
- 25
- 22a
- 24a
- 25
- 26
- 21
- 25
- 22a
- 24a
- 25
- 26

**Equipment List**

- 10a  Temperature gauge – rigid type
- 11   Pressure gauge
- 15   Pressure gauge isolation valve
- 21   1/2”NB isolation valve
- 22a  Non return valve
- 24a  Flow switch
- 25   2”NB isolation valve
- 26   Isolation valve