Mist Cooling System

A superior alternative to Cooling Tower

Mist Cooling System (MCS), pioneered by us, is a revolutionary system for cooling large quantities of hot water making conventional Spray System / Cooling Towers obsolete. It enhances the process output qualitatively as well as quantitatively and makes considerable savings on energy. It has been effectively used by various industries in India and abroad since last 20 years.
Mist Ressonance Engineering Pvt. Ltd. are pioneers in developing revolutionary Mist Cooling System (MCS) which provides efficient cooling solutions to various industries. MCS cools large quantities of hot water to lowest temperatures possible making conventional Cooling Towers / Spray Ponds obsolete. It finds applications in wide range of industries ranging from Chemical, Power, Petroleum, Oil Extraction, Sugar Factories and to all industries where water cooling plays an important role in the process.

MCS has proved to be more efficient than other options available for the purpose like Cooling Tower (CT) / Spray Ponds by achieving excellent results since last 20 years. MCS brings down the water temperature to the most desired levels irrespective of the environmental conditions. It provides increase in production both quantitatively as well as qualitatively along with savings in energy meeting the needs at most economical level. With innumerable benefits offered, it ensures a pay-back period of 1 year in most cases.

**COLD WATER TEMPERATURE**
Mist Cooling System ensures an approach of 0 to 1°C to WBT with a temperature drop of 12°C to 15°C.

**ENERGY SAVINGS** *(Please refer diagrams Plan A & B)*
Due to increase in $\Delta T$, water quantity required at the process side is much less. MCS requires water pressure equivalent to the height of cooling tower as shown in the following diagrams. Hence, considerable amount of energy is saved on circulation water pumping. Also, MCS does not require any fans for cooling. Thus, a huge amount of energy is saved on circulation and cooling.

**PROCESS BENEFITS**
Mist Cooling System will supply cold water temperature with an approach of 0 to 1°C to WBT as against an approach of 4 to 6°C in cooling tower. This reduces the product vapour losses in shell & tube heat exchangers, which ensures that plant operates at its designed capacity throughout the year - even in extreme summer or monsoon.

**MAINTENANCE**
MCS is the only system with the distinction of having zero-breakdown. The material used in the Mist Cooling System is special grade Saran Polymer, a highly non-corrosive material having a life of more than 10-15 years. Also, MCS has no moving parts. This makes MCS absolutely maintenance free. As against this, cooling tower require a heavy maintenance in form of replacement of louvers, fan blades, gear box, clamps etc. every year.

**CHOKELESS DESIGN**
MCS operates with a chokeless design. Size of smallest opening in MCS is more than one inch (25 MM) in diameter. Hence chances of particles choking the system are minimum.

**SHALLOW POND CONSTRUCTION**
MCS pond is shallow with only a depth of 1 Mtr. Hence it is easy to be cleaned. Also MCS pond can be designed with 2 or 3 compartments for further maintenance flexibility.

**WATER QUALITY**
MCS ensures efficient atomization and the consequent absorption & retention of air by water particles thus causing aeration of water, showing better BOD & COD values.
**Advantages of MCS over Cooling Towers**

<table>
<thead>
<tr>
<th><strong>DESCRIPTION</strong></th>
<th><strong>CT</strong></th>
<th><strong>MCS</strong></th>
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</thead>
<tbody>
<tr>
<td>Approach to WBT</td>
<td>4 to 6 °C</td>
<td>0 to 1 °C</td>
</tr>
<tr>
<td>Temperature Drop</td>
<td>6 to 8 °C</td>
<td>12 to 15 °C</td>
</tr>
<tr>
<td>Circulation Water Quantity</td>
<td>1.5 times MCS</td>
<td>65% of CT</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>Requires Fans which consume power</td>
<td>Nil (no fans required)</td>
</tr>
<tr>
<td>Equipment + Civil Cost</td>
<td>125% of MCS</td>
<td>75% of CT</td>
</tr>
<tr>
<td>Maintenance Cost</td>
<td>High</td>
<td>Very low - practically nil</td>
</tr>
<tr>
<td>Drift &amp; Evaporation Losses</td>
<td>Same as in MCS</td>
<td>Same as in CT</td>
</tr>
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**CHEMICAL TREATMENT**

Chemical dosing requirements, make up water requirement and blow down are similar to cooling tower. Multi-point Chlorination is suggested to control algae formation which gives excellent results.

**DRIFT & EVAPORATION LOSSES**

A) Drift losses are 0.1% for normal conditions and 0.25% for Windy conditions. These can be further reduced to 0.05% by adopting our closed pond design.

B) Evaporation loss will depend on the temperature drop obtained from the system.

**PAY BACK PERIOD**

The Pay Back period of the MCS will be less than ONE year only.

**MCS MATCHES THE DESIGN AS PER NEED**

MCS can be put to use in Open Pond or Closed Pond designs to suit the need.

Considering the need for high efficiency systems required by various industries, MCS surely meets the demand at a competitive price.

**Applications of MCS**

MCS has applications in industries like:
- Refineries / Petrochemical Plants
- Chemical Industries
- Power Plants / Cogeneration Units
- Steel Plants
- Fertilizer Plants
- Sugar Industries
- Solvent Extraction Plants
- At all such locations where water cooling plays an important role in process.
Our Prominent Clients

- Haldia Petrochemicals Ltd., Haldia
- IFFCO, Phulpur / Aonla
- Deepak Fertilizers Ltd., Andhra Pradesh
- GlaxoSmithKline, Nabha, Punjab
- Godavari Power & Ispat, Raipur
- Atul Ltd., Gujarat
- The West Coast paper Mills, Dandeli
- Dept. of Atomic Energy, Heavy Water Plant, Vadodara
- SPIC, Tuticorin
- India Cements Ltd., Chennai
- Orissa Power Generation Corporation (OPGC), Orissa
- Cethar Vessles, Trichi
- Rayalseema Hypo, Andhra Pradesh
- Schenacktady Herdilia, Maharashtra
- Sahyadri SSK Ltd., Maharashtra
- Natural Sugar, Osmanabad Maharashtra
- Nira-Bhima SSK Ltd., Maharashtra
- Sonhira SSK Ltd., Maharashtra

Overseas

- Sugar Corporation of Uganda Ltd., Uganda
- Gula Padang Terap Bhd., Malaysia

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