<table>
<thead>
<tr>
<th><strong>Principle of operation</strong></th>
<th><strong>TSU-C/D</strong></th>
<th><strong>TSU-M</strong></th>
<th><strong>TSC</strong></th>
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<tbody>
<tr>
<td></td>
<td><img src="image1.png" alt="Diagram" /></td>
<td><img src="image2.png" alt="Diagram" /></td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td>325 - 5060 kWh</td>
<td>647 - 2676 kWh</td>
<td>300 - 5000 kWh</td>
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<tr>
<td><strong>System</strong></td>
<td>External melt</td>
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Ice thermal storage products

**Principle of operation**
As the name suggests, they use ice to build and store cooling when cooling demand and/or energy rates are low (mostly overnight), which the system then uses for air-conditioning or process purposes when energy rates are high (mostly daytime).

**Benefits**
- **Refrigeration systems** up to 50% more compact.
- **Operational cost savings**: ice formed overnight with cheaper electricity.
- **Lower energy consumption** basing the cooling system on average conditions rather than peak reduces power requirements and the refrigerant charge.
- **Reduced carbon footprint**: Most of the cooling occurs overnight when condensing temperatures are lower and the cooling system requires less energy.
- **Less compressor maintenance** since the compressor operates continuously at full capacity and not under fluctuating partial load.
- **Thermal storage systems provide back-up cooling**.

**Systems**
- The **TSU-C/D** is an external melt system. Direct ice/water contact ensures a constant low water temperature. External melt is ideal for applications requiring constant near-freezing water temperatures (1 to 2°C).
- **TSU-M** is an internal melt system. Internal melt is ideal for air-conditioning involving cooling at higher temperatures. Coil is installed in factory-assembled modular tanks, several of which are usually needed for the required cooling load. They can be installed in basements, on roofs, and inside or outside buildings.
- **TSC** features only a coil for ice thermal storage applications. The concrete tanks housing this are typically part of the building infrastructure.

**Applications**
Ice thermal storage is typically used for
- air conditioning
- district cooling
- emergency cooling
- supermarkets
- dairies
- breweries
- meat processing
- wet air pre-cooling for storage of fruit and vegetables

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