SaltMaker-MultiEffect
Closed Evaporator Crystallizer

All-in-one zero liquid discharge (ZLD):

**REduces Brine Volume**

**Produces Solid Salt**

**No Chemical Pre-Treatment**

![Diagram of SaltMaker-MultiEffect](image)

**Reliable**
High redundancy that performs in harsh, demanding environments. Constructed with durable, non-stick, non-corroding wetted parts.

**Cost Effective Operations**
Intelligent automation maximizes performance with capacity control, self-cleaning and self-diagnosis. Pre-programmed for easy hibernation, startup and shutdown.

**Simple Solids Management**
No chemical pretreatment or softening sludge required. A single-step process discharges solids in bags or bins for easy handling.

**Rapid Deployment**
Modular design enables rapid transport and assembly at site. Pre-fabricated ISO container modules are tested before they ship.

**Total Support**
Complete package delivery & installation options. Remote monitoring, 24/7/365 expert assistance, reporting dashboards and predictive maintenance keep every SaltMaker running smoothly.

**Energy Efficient**
Multiple effects lower energy requirements by recycling heat. Options available for using waste heat as an energy source.
Utility Requirements

Heat Source
~0.8-1.1 GJ/m³ or MMBTU/m³
Steam or hot water (95°C). Use low grade heat to treat water. 1500 kW of heat based on 125 m³/d removed.

Electrical Energy Consumption
~45 kWh/m³ removed (Concentrate brine to 450,000 mg/L)
~60 kWh/m³ removed (Solids production)

Voltage
400 - 600 VAC, 3 ph, 50/60 Hz

Capacity, Performance & Size

<table>
<thead>
<tr>
<th>Model &amp; Capacity</th>
<th>S30</th>
<th>S66</th>
<th>S100</th>
<th>S125</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Water Removal Capacity</td>
<td>30 m³/d</td>
<td>66 m³/d</td>
<td>100 m³/d</td>
<td>125 m³/d</td>
</tr>
<tr>
<td>Brine Concentrator De-Rate</td>
<td>Concentrate to 450,000 mg/L; de-rate by 20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crystallizer (Solids) De-Rate</td>
<td>Produce solids; de-rate by 40%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Brine Concentrator Size (L x W x H)</td>
<td>30' × 45' × 35'</td>
<td>50' × 45' × 35'</td>
<td>50' × 45' × 35'</td>
<td>70' × 45' × 35'</td>
</tr>
<tr>
<td>Crystallizer (Solids) Size (L x W x H)</td>
<td>45' × 45' × 35'</td>
<td>65' × 45' × 35'</td>
<td>65' × 45' × 35'</td>
<td>85' × 45' × 35'</td>
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</table>

Primary Features

Redundancy
Multiple mass produced modules in one plant.

Safety
Low pressure, low temperature, modules slide in and out for inspection and maintenance. No confined spaces, easy lock-out, and ergonomic design.

Reliability
Smart process design for reliable slurry or solids production. Avoids conventional boiling evaporation on heat transfer surfaces, which causes scale. Self cleans while running.

Durability
Non-corroding, non-stick, no welding, no pressure vessels:
• Pipework: UPVC and CPVC.
• Modules and tanks: gel-coated, fibre-reinforced plastics.
• Pumps: Engineered plastics, no wetted metallic parts.
• Heat exchangers: titanium, non-boiling (no boiling nuclei scaling).

Automation
• Automated self-cleaning, start, stop and capacity control. Ramp from 25-100%, or hibernate at 0% while circulating.
• Programmed to remove scale before it becomes irreversible.
• High quality instrumentation and sensors package.
• PLCs with user-friendly graphical interface and controls that offer remote login, data logging, trend analysis.
• Variable Frequency Drives (VFD) for energy efficiency.

Standard Package & Options

SaltMaker Plant
The SaltMaker is a complete packaged system, from inlet to discharged treated water and solids. Technician provided to support your installation.

Training & Support
On-site training and commissioning. Support with videos, tutorials, checklists, and remote assistance.

Thermal Energy
Gas or liquid fuel-fired thermal source and waste heat conversion options.

Additional Options
• Turnkey package including build, delivery, install.
• Remote Operations Asset Management (ROAM): 24/7 remote monitoring and customizable daily reports.
• Operations packages: Saltworks operates the SaltMaker on-site.