RIO-S™
ON-SITE CHEMICAL GENERATOR

REVOLUTIONARY
LARGE SERIES OSG

RIO-S OVERVIEW

Technological enhancements integrated into design:

- Transformerless design.
- Up to 25% cost reduction.
- Up to 40% weight reduction
- Up to 45% footprint reduction.
- Up to 15% gain in electrical efficiency.
- Steel frame and enclosure fabrication with epoxy coat for corrosion resistance.
- Self-cleaning feature for Mixed Oxidant Solution (MOS) systems.
- Remote monitoring and communication options available.
- Cell design and flow control features for simplified maintenance and operation.

MOS  HYPO + PEROXIDE
300 - 1200 lbs/day FAC

HYPO  HYPOCHLORITE
500 - 2000 lbs/day FAC
RIO-S PROCESS FLOW

1. Softened water to Electrolytic Cell and Brine Tank.
2. Salt and water mix in the Brine Tank to form saturated brine.
3. Saturated brine enters the Electrolytic Cell.
4. Electrical current is passed through the Electrolytic Cell producing oxidant.
5. Oxidant solution leaves the Electrolytic Cell and is stored in the Oxidant Tank.
6. Hydrogen gas produced during the Electrolysis Process is vented outside.
7. Oxidant solution is dosed into the Treatment Process by a metering pump.
8. MIOquipment turns ON/OFF from a level switch signal located inside the Oxidant Tank.

CERTIFICATIONS

- CE Certified
- NSF 61 for drinking water treatment (expected 2017)
- Intended to meet category 2 safety-related control system

45% FOOTPRINT REDUCTION

FOUR RIO SYSTEMS

SAME PRODUCTION CAPACITY

ONE RIO-S SYSTEM
MODULAR SYSTEM FROM 1 TO 4 CELL BANKS

- Optimized cell design for improved efficiency and increased capacity.
- Ability to isolate single cell bank for troubleshooting while continuing to run the system.
- Simplified maintenance and cell change-out with all components easy to access and maintain.
- Modular system design allows for independent cell-bank operation.
- Scalable from 1 to 4 cell banks.
- Discrete cells are configured electrically in series and parallel in plumbing enabling transformerless design, easy cell change-out, and longer cell life compared to the competition.

AUTOMATED FLOW CONTROL

- Automated flow control that adjusts for unexpected changes in water pressure, ensuring consistent product quality, and reducing operator intervention.

AVAILABLE IN 400VAC & 480VAC

TRANSFORMERLESS DESIGN

- Eliminated the second most costly component of the system.
- Uses 480VAC or 400VAC to apply rectified VDC directly to cell.
- Cell design tailored for optimal electrode voltage, closely mimics the proven and reliable Vault cell design.
- Smaller footprint, lower weight.
- Improved voltage conversion and electrical efficiency.

REMOTE MONITORING

- Modem connection and Red Lion control comes standard.
- Allen Bradley Micrologix 1400.
- Remotely view system operating parameters and data.
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>HYPO</th>
<th>RIO-S H500</th>
<th>RIO-S H1000</th>
<th>RIO-S H1500</th>
<th>RIO-S H2000</th>
<th>RIO-S H400</th>
<th>RIO-S H800</th>
<th>RIO-S H1200</th>
<th>RIO-S H1600</th>
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</thead>
<tbody>
<tr>
<td>Rated FAC Capacity</td>
<td>500 lbs/day</td>
<td>1000 lbs/day</td>
<td>1500 lbs/day</td>
<td>2000 lbs/day</td>
<td>400 lbs/day</td>
<td>800 lbs/day</td>
<td>1200 lbs/day</td>
<td>1600 lbs/day</td>
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<tr>
<td>Salt Conversion [SCE]*</td>
<td>3.0 lb salt/lb FAC</td>
<td>3.0 kg salt/kg FAC</td>
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<tr>
<td>FAC Concentration*</td>
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</tr>
<tr>
<td>Flow Rate**</td>
<td>380 gph</td>
<td>760 gph</td>
<td>1140 gph</td>
<td>1520 gph</td>
<td>304 gph</td>
<td>608 gph</td>
<td>912 gph</td>
<td>1216 gph</td>
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<tr>
<td>Electrical Service Req.</td>
<td>480VAC, 3 ph, 100A, 50/60 Hz</td>
<td>480VAC, 3 ph, 200A, 50/60 Hz</td>
<td>480VAC, 3 ph, 300A, 50/60 Hz</td>
<td>480VAC, 3 ph, 400A, 50/60 Hz</td>
<td>480VAC, 3 ph, 100A, 50/60 Hz</td>
<td>480VAC, 3 ph, 200A, 50/60 Hz</td>
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<td>MOS</td>
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<td>RIO-S M600</td>
<td>RIO-S M900</td>
<td>RIO-S M1200</td>
<td>RIO-S M250</td>
<td>RIO-S M500</td>
<td>RIO-S M750</td>
<td>RIO-S M1000</td>
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<tr>
<td>Rated FAC Capacity</td>
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<td>1200 lbs/day</td>
<td>250 lbs/day</td>
<td>500 lbs/day</td>
<td>750 lbs/day</td>
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<td>Salt Conversion [SCE]*</td>
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<td>3.0 kg salt/kg FAC</td>
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<tr>
<td>FAC Concentration*</td>
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<td>608 gph</td>
<td>912 gph</td>
<td>1216 gph</td>
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<tr>
<td>Nominal Energy to Unit</td>
<td>61 A, 51 KVA</td>
<td>122 A, 101 KVA</td>
<td>183 A, 151 KVA</td>
<td>244 A, 202 KVA</td>
<td>61 A, 42 KVA</td>
<td>122 A, 84.5 KVA</td>
<td>183 A, 127 KVA</td>
<td>244 A, 170 KVA</td>
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</table>

**Additional operating parameters for All System Models**

- **Air Temp. Required**: 45° to 110° F (7° to 43° C)
- **Recommended Feed Water Temp**: 55° to 80° F (12° to 27° C)
- **Allowable Feed Water Temp**: 40° to 95° F (5° to 35° C)
- **Feed Water Pressure**: 35 to 100 psi (241 to 689 kPa)
- **Maximum Silica Limit**: 20 mg/L
- **Energy Add for Internal Vent**: 0.5 kW, 1 kW, 1.5 kW, 2 kW, 0.5 kW, 1 kW, 1.5 kW, 2 kW
- **Approx. Dimensions**: 66 x 57 x 81 inches (168 x 145 x 206 cm)

*Performance variation with respect to salt and water quality, water temperature and voltage.

**Flow Rate varies by +/- 15%.