Delivering big results in a compact, lightweight package, the Sentinel is the latest in fluid purification technology from Parker. The system guards over mission critical hydraulic and lubrication systems to effectively attack water, solids and gases while improving equipment health, productivity and reliability.

The smallest in Parker’s family of oil purifiers, the Sentinel’s unattended automatic operation minimizes energy consumption while extending the usable life of fluids. Equipped with Parker’s IQAN MD3 platform control system, the Sentinel provides user confidence in system monitoring while delivering maximum performance on demand.

Typical Markets/Applications

- **Automotive**
  Plastic Injection Molding
  Lubrication Systems

- **Power Generation**
  Electrohydraulic Control Systems

- **Marine**
  Propulsion
  Steering Systems Thrusters

- **Petrochemical**
  Lubrication Systems
  Process Controls

- **Aerospace**
  Ground Support Equipment
  Test Stands

- **Mining**
  Lubrication Systems
Serene

Features

Compact Size
- Will fit through small doorways
- Makes marine applications possible

Ecoglass Particulate Element
- Coreless, non-metallic constructions
- Environmentally friendly, easy disposal

Diffusion Head / Manifold
- Flexibility with various fluid viscosities
- Excellent moisture removal efficiency

Forklift Guides / Lifting Eyes
- Safe and secure method of lifting
- Employee safety

Automatic Operation
- Inattended use
- Reduces labor costs
- Increases operation time

Desiccant Breather
- Provides dry, clean air intake
- More efficient operation

316 Stainless Steel
- Used for primary wetted surfaces
- No corrosion
- Product reliability

Reverse Phase Switch
- Enable easy change of motor rotation if out of phase
- Ease of maintenance
- Prevents incorrect rotation

Principles of Operation

Contaminated fluid is drawn through the Sentinel circuit by vacuum. The fluid is subjected to optimum vacuum, temperature and surface area to reduce the boiling point of water and convert water to water vapor. Optimum temperature is achieved with a low watt density heater. Maximum surface area is accomplished by passing the fluid through a unique diffusing column.

The fluid is protected from excessive heat by circulation for a fixed time period. When the pre-set time period is realized, the fluid discharges through high efficiency filtration to the main system reservoir. Water vapor that has been extracted from the system is exposed to a series of coalescers to eliminate any carryover oil vapor in the exhaust stream.

The process repeats until the desired steady state condition is achieved.
Three modes of operation

Standard
Conventional purifiers require that the reservoir fluid be at 150°F before efficient water removal occurs. This could take hours if the ambient temperatures are low and the reservoir volumes are large. Standard mode allows for less power consumption by drawing the fluid through the unit in a unique cyclic method. The fluid is drawn into the unit and held while heat and vacuum act on it to remove water. Every two minutes the fluid is discharged and the process repeats, conserving power that otherwise would be necessary to bring the entire main system reservoir to the required 150°F.

Sentinel
Sentinel mode acts the same as standard mode other than it samples by drawing in fluid from the reservoir and testing the water saturation point. If the level is less than the desired set point, the system will hibernate until the next sampling point. The minimum time between sampling is 20 minutes and the maximum is 12 hours.

Sample
Once started, three batches of hydraulic fluid will be drawn into the system where overall moisture level and temperature are averaged and displayed on the IQAN screen.

One of the highlights of the new Sentinel unit is the addition of Parker’s IQAN system. The IQAN is an electronic PLC interface that controls many of the operating functions on the Sentinel. With IQAN, the operator can customize set points for various applications within their facility. Some of the user defined set points are:

- sample rate
- moisture high limit
- moisture set point (low limit)
- temperature
- vacuum purge cycle
- auto condensate drain
- energy conserving features
### Sentinel™ Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flow Rate</strong></td>
<td>5 gpm (18.9 lpm)</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>45” H x 19.5” W x 24” L (1143mm x 495mm x 686mm)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>440 lbs. (200 kg)</td>
</tr>
<tr>
<td><strong>Seal material</strong></td>
<td>Fluorocarbon</td>
</tr>
<tr>
<td><strong>Condensate tank</strong></td>
<td>.5 gal (1.9 ltrs)</td>
</tr>
<tr>
<td><strong>Dispersal elements</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Minimum operating capacity</strong></td>
<td>5 gal (18.9 ltrs)</td>
</tr>
<tr>
<td><strong>Vacuum (max)</strong></td>
<td>24 in/Hg</td>
</tr>
<tr>
<td><strong>Viscosity (max)</strong></td>
<td>2150 SUS (460 cSt)</td>
</tr>
<tr>
<td><strong>Outlet pressure (max)</strong></td>
<td>60 psi (4.1 bar)</td>
</tr>
<tr>
<td><strong>Ports</strong></td>
<td>3/4” JIC (male) inlet, 3/4” JIC (male) outlet</td>
</tr>
<tr>
<td><strong>FLA (full load amps)</strong></td>
<td>16 amps @ 480VAC</td>
</tr>
<tr>
<td><strong>Shipping Weight</strong></td>
<td>640 lbs. (290 kg) maximum</td>
</tr>
<tr>
<td><strong>Shipping Dimensions</strong></td>
<td>56” H x 37” W x 37” L (1422mm x 940mm x 940mm)</td>
</tr>
</tbody>
</table>

**Electrical Requirements:**
- 230VAC, 3P, 60Hz
- 380VAC, 3P, 50Hz
- 415VAC, 3P, 50Hz
- 460VAC, 3P, 60Hz
- 575VAC, 3P, 60Hz

**Electrical Connection Port:**
- NEMA L16-30P Flanged Inlet

**Hydraulic Connections:**
- Inlet: JIC 12
- Outlet: JIC 12
- Max Flow: 5 GPM
- Water Drain: JIC 8

**Vacuum Exhaust Port:**
- JIC 8

**Max Pressure:**
- 60 psi (gauge)

**Vibration:**
- Band 1: 900 hz .5 g*g/Hz

**Storage:** Max Temp 180°F, 100% rh

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Note: Dimensions and weights are approximate and are for reference only.
## Sentinel™ Specifications

### Potential Contaminant

<table>
<thead>
<tr>
<th>Potential Contaminant</th>
<th>Sentinel Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid particulate</td>
<td>ISO Cleanliness Code 14/13/10 Attainable</td>
</tr>
<tr>
<td>Water</td>
<td>Removes 100% of free water, 90% of dissolved water</td>
</tr>
<tr>
<td>Air/Gases</td>
<td>Removes 100% of free air and gases, 90% of dissolved air and gases</td>
</tr>
</tbody>
</table>

### Typical Performance

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank Size</td>
<td>55 gallon test drum</td>
</tr>
<tr>
<td>Run Time</td>
<td>16 hours</td>
</tr>
<tr>
<td>Fluid Type</td>
<td>Hydraulic</td>
</tr>
<tr>
<td>Water Content</td>
<td>Start: 7,000+ ppm (1%)</td>
</tr>
<tr>
<td></td>
<td>Saturation pt: 5,000 ppm</td>
</tr>
<tr>
<td></td>
<td>Stop: 200 ppm (0.005%)</td>
</tr>
</tbody>
</table>

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### Water Removal Time

5000 ppm (.5%) to 150 ppm (.015%)

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### Time vs. Reservoir Moisture

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## Ordering

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard Unit</strong></td>
<td></td>
</tr>
<tr>
<td>943118*</td>
<td>230VAC, 3P, 60Hz</td>
</tr>
<tr>
<td>943116*</td>
<td>380VAC, 3P, 50Hz</td>
</tr>
<tr>
<td>943494*</td>
<td>415VAC, 3P, 50Hz</td>
</tr>
<tr>
<td>943213*</td>
<td>460VAC, 3P, 60Hz</td>
</tr>
<tr>
<td>945341*</td>
<td>575VAC, 3P, 60Hz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Optional Accessories</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>943236</td>
<td>Mounting Bracket Kit</td>
</tr>
<tr>
<td>943238</td>
<td>Cordset (pigtail end)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Service Parts</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>936711Q</td>
<td>Hydraulic Particulate Element</td>
</tr>
<tr>
<td>943237</td>
<td>Service Kit (includes TriCeptor air breather, hydraulic particulate element, coalescing element, vacuum pump oil and vacuum pump filter element)</td>
</tr>
<tr>
<td>20072409</td>
<td>IQAN MD3</td>
</tr>
<tr>
<td>B-10235-0-460</td>
<td>Heater 460VAC</td>
</tr>
<tr>
<td>B-10235-0-380</td>
<td>Heater 380VAC</td>
</tr>
<tr>
<td>B-10235-0-230</td>
<td>Heater 230VAC</td>
</tr>
<tr>
<td>CEM3546T</td>
<td>Hydraulic Pump Motor</td>
</tr>
<tr>
<td>06F20C2218A1FPH80</td>
<td>Condensate Drain Valve</td>
</tr>
<tr>
<td>00424</td>
<td>Float Switch</td>
</tr>
<tr>
<td>MPS-V33N-PGAT</td>
<td>Vacuum Sensor</td>
</tr>
<tr>
<td>2820008</td>
<td>Pressure Sensor</td>
</tr>
<tr>
<td>40CN205QEVE2GS164</td>
<td>Filter</td>
</tr>
<tr>
<td>MS1504</td>
<td>Moisture Sensor</td>
</tr>
<tr>
<td>3349116565</td>
<td>Gear Pump</td>
</tr>
</tbody>
</table>

* Standard unit includes
Dry sealed vacuum pump, Coalescing filter, 5 micron Ecoglass element, 6KW 3 phase low watt density heater, 3” diameter rubber-wheel casters, Consult factory for other options
Sentinel Specification Worksheet

Customer Name & Address: ____________________________________________________________

Market & Application (i.e. Power Gen/Turbine Lube) _______________________________________

Fluid Type: ____________________________ Brand: ____________________________ Grade: ____________________________

Viscosity: Min: __________ SUS/cSt @ ______ °F/°C
Max: __________ SUS/cSt @ ______ °F/°C
Normal: __________ SUS/cSt @ ______ °F/°C

Critical Hydraulic Component Types: (Check all that apply)

☐ Servo Valves
☐ Proportional Valves
☐ Vane and piston pumps/motors
☐ Gear pumps/motors
☐ Directional & pressure control valves
☐ Flow control valves

Water concentration: Current % of water _________
Desired % of water _________

Sentinel/PVS location related to reservoir (reservoir above or below ground level & distance)

☐ 0-5 meters
☐ 5-10 meters
☐ ≥10 meters

System fluid operating temperature: ______________ °F/°C

Voltage options: ☐ 230 VAC, 3P 60Hz
☐ 380 VAC, 3P 50Hz
☐ 415 VAC, 3P 50Hz
☐ 460 VAC, 3P 60Hz
☐ 575 VAC, 3P 60Hz

System Volume: ☐ 0-1000 gal - Sentinel or PVS185
☐ 1000-3000 gal - PVS600
☐ 3000-7000 gal
☐ 7000-9000 gal
☐ >9000 gal

Any previous filtration problems with the application?

☐ Gelling
☐ High contamination levels
☐ High ambient environment

Sentinel model selected: ____________________________