



aerospace  
climate control  
electromechanical  
**filtration**  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



# Sentinel™

Portable Purification System



ENGINEERING YOUR SUCCESS.

**Smaller** foot print

**Greater** value

**Improved** efficiency

**New** circuitry

**Patent** pending





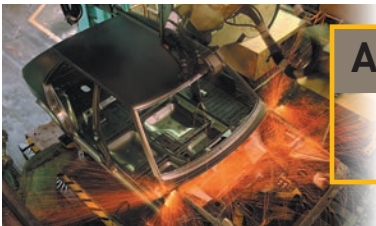
# Sentinel™

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.



The Sentinel **removes** both free and dissolved water contamination from hydraulic fluids.



## Automotive

Plastic Injection Molding  
Lubrication Systems



## Petrochemical

Lubrication Systems  
Process Controls

## Power Generation

Electrohydraulic Control  
Systems



## Aerospace

Ground Support Equipment  
Test Stands



## Marine

Propulsion, Steering Systems  
Thrusters



## Mining

Lubrication Systems

# Features and Benefits

## Compact Size

- Will fit through small doorways
- Makes marine applications possible

## Automatic Operation

- Unattended use
- Reduces labor costs
- Increases operation time

## 316 Stainless Steel

- Used for primary wetted surfaces
- No corrosion
- Product reliability

## Desiccant Breather

- Provides dry, clean air intake
- More efficient operation

## Reverse Phase Switch

- Enables easy change of motor rotation if out of phase
- Ease of maintenance
- Prevents incorrect rotation

The Sentinel is designed for applications when **space** is at a premium.

## Ecoglass Particulate Element

- Coreless, non-metallic construction
- 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

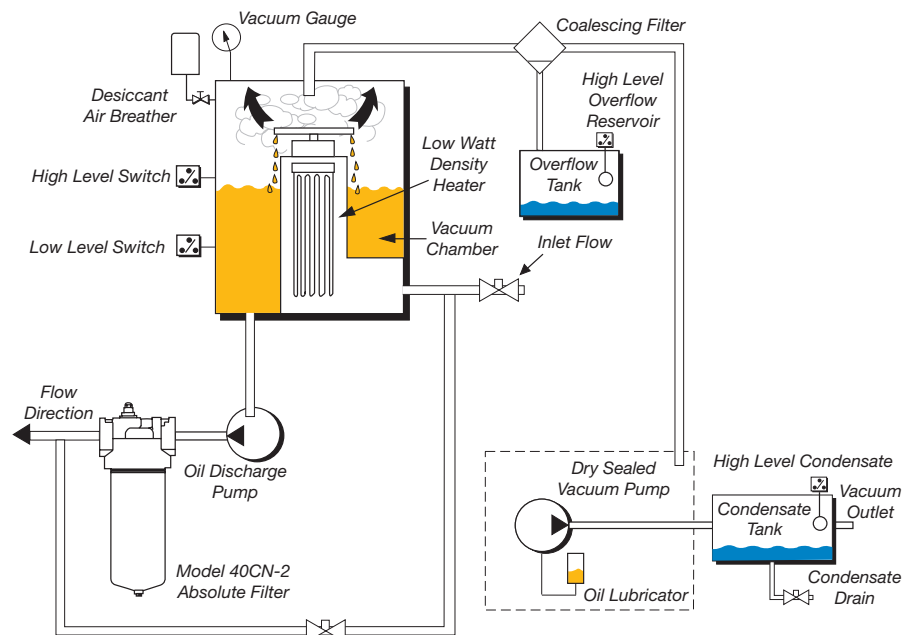


# Principles of Operation

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.



Water is one of the most common **contaminants** in a fluid system and one of the most damaging.



The operator can **customize** set points for various applications within their facility.

## IQAN System

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 mode will maintain constant dedicated vigilance to **control** water saturation in fluid while providing energy and labor savings.

## Three modes of operation

### 1 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.

### 2 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.

### 3 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.

# Specifications

<b>Flow Rate</b>	5 gpm (18.9 lpm)
<b>Dimensions</b>	45" H x 19.5" W x 24" L (1143mm x 495mm x 686mm)
<b>Weight</b>	440 lbs. (200 kg)
<b>Seal material</b>	Fluorocarbon
<b>Condensate tank</b>	.5 gal (1.9 ltrs)
<b>Dispersal elements</b>	1
<b>Minimum operating capacity</b>	5 gal (18.9 ltrs)
<b>Vacuum (max)</b>	24 In/Hg
<b>Viscosity (max)</b>	500 SUS (108 cSt)-Disposable 2150 SUS (460 cSt)-Packed Tower
<b>Outlet pressure (max)</b>	60 psi (4.1 bar)
<b>Ports</b>	3/4" JIC (male) inlet 3/4" JIC (male) outlet
<b>FLA (full load amps)</b>	16 amps @ 480VAC
<b>Shipping Weight</b>	640 lbs. (290 kg) maximum
<b>Shipping Dimensions</b>	56" H x 37" W x 37" L (1422mm x 940mm x 940mm)

## Electrical Requirements:

230VAC, 3P, 50Hz  
380VAC, 3P, 50Hz  
415VAC, 3P, 50Hz  
460VAC, 3P, 60Hz

## Electrical Connection Port:

NEMA L16-30P Flanged Inlet

## Hydraulic Connections:

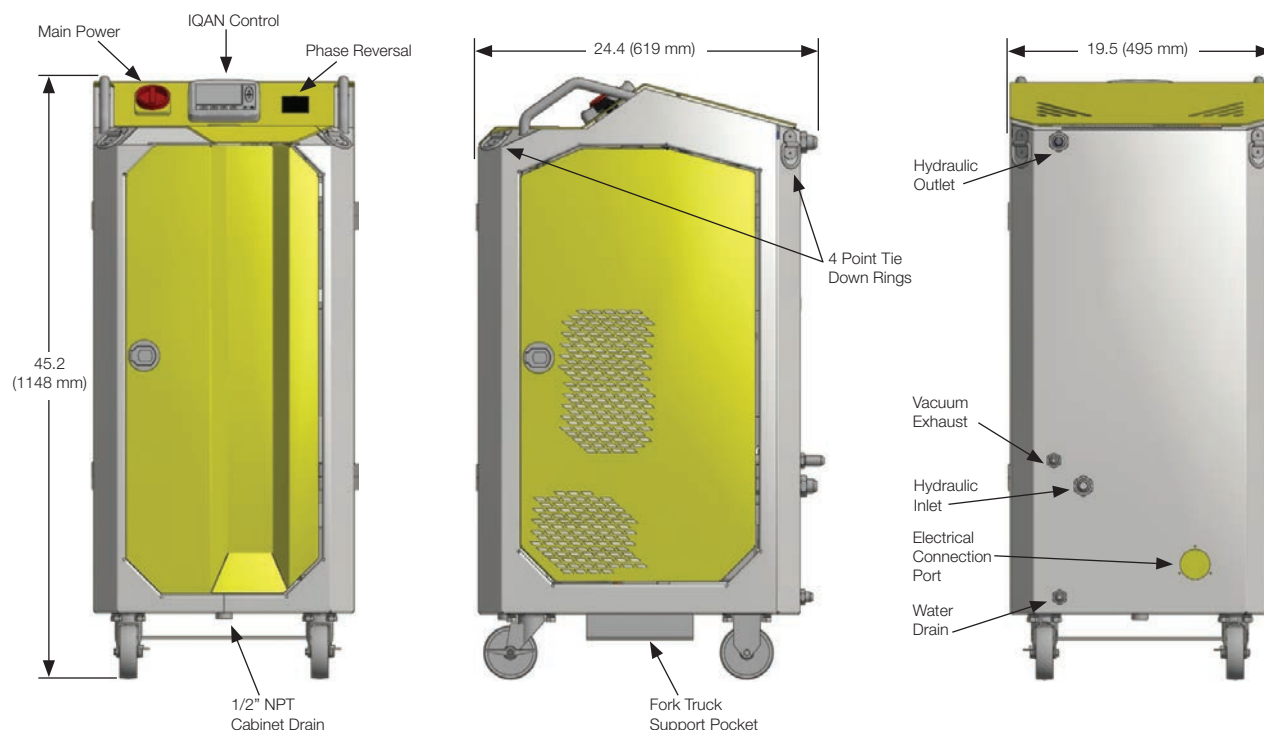
Inlet: JIC 12  
Outlet: JIC 12  
Max Flow: 5 GPM  
Water Drain: JIC 8

## Vacuum Exhaust Port: JIC 8

Max Pressure: 60 psi (gauge)

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

Storage: Max Temp 180°F, 100% rh



Note: Dimensions and weights are approximate and are for reference only.

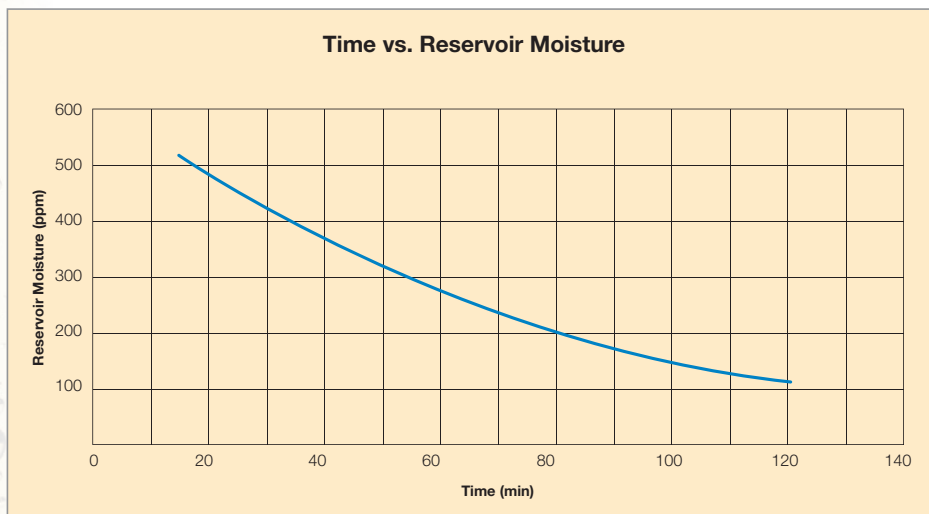
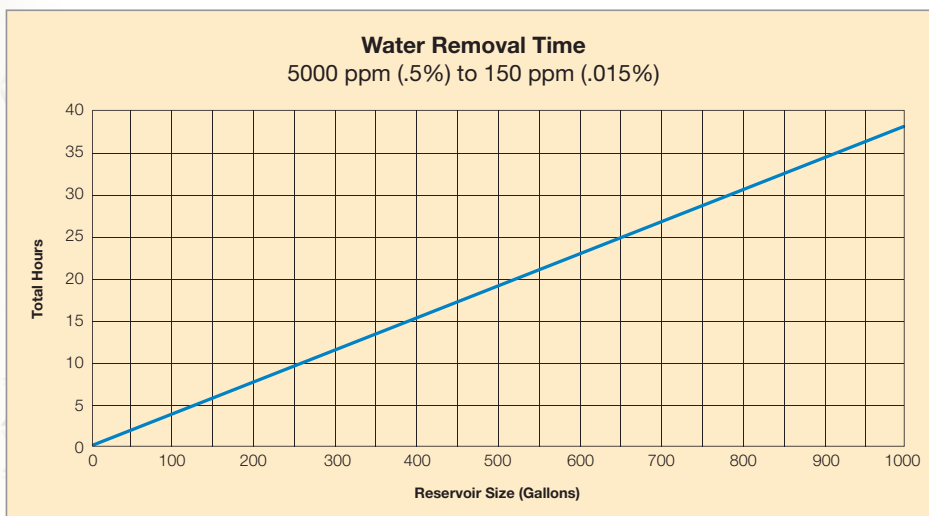
# Performance



Potential Contaminant	Sentinel Performance
Solid particulate	ISO Cleanliness Code 14/13/10 Attainable
Water	Removes 100% of free water, 90% of dissolved water
Air/Gases	Removes 100% of free air and gases, 90% of dissolved air and gases

## Typical Performance

Tank Size	55 gallon test drum
Run Time	16 hours
Fluid Type	Hydraulic
Water Content	Start: 7,000+ ppm (1%) Saturation pt: 5,000 ppm Stop: 200 ppm (0.005%)





# Ordering

Part Number	Description
<b>Standard Unit</b>	
943116*	380VAC, 3P, 50Hz
943118*	230VAC, 3P, 50Hz
943213*	460VAC, 3P, 60Hz
943401*	415VAC, 3P, 50Hz
<b>Optional Accessories</b>	
943236	Mounting Bracket Kit
943238	Cordset (pigtail end)
<b>Service Parts</b>	
936711Q	Hydraulic Particulate Element
943237	Service Kit (includes TriCeptor air breather, hydraulic particulate element, coalescing element, vacuum pump oil and vacuum pump filter element)
20072409	IQAN MD3
B-10235-0-460	Heater 460VAC
B-10235-0-380	Heater 380VAC
B-10235-0-230	Heater 230VAC
CEM3546T	Hydraulic Pump Motor
06F20C2218A1FPH80	Condensate Drain Valve
00424	Float Switch
MPS-V33N-PGAT	Vacuum Sensor
2820008	Pressure Sensor
40CN205QEVE2GS164	Filter
MS1504	Moisture Sensor
3349116565	Gear Pump

\* Standard unit **includes**

Dry sealed vacuum pump  
Coalescing filter  
5 micron Ecoglass III element  
6KW 3 phase low watt density heater  
3" diameter rubber-wheel casters  
Consult factory for other options

# Total System Health Management

## Diagnostic



## Therapeutic



## Preventive



When an issue is diagnosed, which goes beyond your standard preventive measures, the Sentinel can be just the therapy your system needs.

Sentinel™

# Sentinel Specification Worksheet

Customer Name & Address: \_\_\_\_\_

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

Fluid Type: \_\_\_\_\_ Brand: \_\_\_\_\_ Grade: \_\_\_\_\_

Viscosity: Min: \_\_\_\_\_ SUS/cSt @ \_\_\_\_\_ °F

Max: \_\_\_\_\_ SUS/cSt @ \_\_\_\_\_ °F

Normal: \_\_\_\_\_ SUS/cSt @ \_\_\_\_\_ °F

Critical Hydraulic Component Types: (Check all that apply)

- |  |  |
|--|--|
| <input type="checkbox"/> Servo Valves                          | <input type="checkbox"/> Proportional Valves |
| <input type="checkbox"/> Vane and piston pumps/motors          | <input type="checkbox"/> Gear pumps/motors   |
| <input type="checkbox"/> Directional & pressure control valves | <input type="checkbox"/> 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  
☐ 460 VAC, 3P 60Hz    ☐ 415 VAC, 3P 50Hz

- 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

PVS model selected: \_\_\_\_\_



Parker Hannifin Corporation  
**Hydraulic Filter Division**  
16810 Fulton County Road #2  
Metamora, OH 43540  
phone 419 644 4311  
[www.parker.com/hydraulicfilter](http://www.parker.com/hydraulicfilter)



# Worldwide Filtration Manufacturing Locations

## North America

### Compressed Air Treatment Filtration & Separation/Balston

Haverhill, MA  
978 858 0505  
[www.parker.com/balston](http://www.parker.com/balston)

### Finite Airtex Filtration Airtex/donnick hunter/Zander

Lancaster, NY  
716 686 6400  
[www.parker.com/faf](http://www.parker.com/faf)

### Finite Airtex Filtration/Finite

Oxford, MI  
248 628 6400  
[www.parker.com/finitefilter](http://www.parker.com/finitefilter)

### Engine Filtration & Water Purification Racor

Modesto, CA  
209 521 7860  
[www.parker.com/racor](http://www.parker.com/racor)

Holly Springs, MS  
662 252 2656  
[www.parker.com/racor](http://www.parker.com/racor)

Beaufort, SC  
843 846 3200  
[www.parker.com/racor](http://www.parker.com/racor)

### Racor – Village Marine Tec.

Gardena, CA  
310 516 9911  
[desalination.parker.com](http://desalination.parker.com)

### Parker Sea Recovery

Carson, CA  
310 637 3400  
[www.searecovery.com](http://www.searecovery.com)

### Hydraulic Filtration Hydraulic Filter

Metamora, OH  
419 644 4311  
[www.parker.com/hydraulicfilter](http://www.parker.com/hydraulicfilter)

Laval, QC Canada  
450 629 9594  
[www.parkerfarr.com](http://www.parkerfarr.com)

### Process Filtration domnick hunter Process Filtration

Oxnard, CA  
805 604 3400  
[www.parker.com/processfiltration](http://www.parker.com/processfiltration)

Madison, WI  
608 824 0500  
[www.scilog.com](http://www.scilog.com)

Phoenixville, PA  
610 933 1600  
[www.parker.com/processfiltration](http://www.parker.com/processfiltration)

### Aerospace Filtration

Velcon Filtration  
Colorado Springs, CO  
719 531 5855  
[www.velcon.com](http://www.velcon.com)

## Europe

### Compressed Air Treatment domnick hunter Filtration & Separation

Gateshead, England  
+44 (0) 191 402 9000  
[www.parker.com/dhfn](http://www.parker.com/dhfn)

### Parker Gas Separations

Etten-Leur, Netherlands  
+31 76 508 5300  
[www.parker.com/dhfn](http://www.parker.com/dhfn)

### Hiross Zander

Padova Business Unit  
Padova, Italy  
+39 049 9712 111  
[www.parker.com/hzd](http://www.parker.com/hzd)

### Hiross Zander

Essen Business Unit  
Essen, Germany  
+49 2054 9340  
[www.parker.com/hzd](http://www.parker.com/hzd)

### Engine Filtration & Water Purification Racor

Dewsbury, England  
+44 (0) 1924 487 000  
[www.parker.com/rfde](http://www.parker.com/rfde)

### Racor Research & Development

Stuttgart, Germany  
+49 (0)711 7071 290-10  
[www.parker.com/rfde](http://www.parker.com/rfde)

### Hydraulic Filtration

Hydraulic Filter  
Arnhem, Holland  
+31 26 3760376  
[www.parker.com/hfde](http://www.parker.com/hfde)

### Ujala Operation

Ujala, Finland  
+358 20 753 2500  
[www.parker.com/hfde](http://www.parker.com/hfde)

### Condition Monitoring Centre

Norfolk, England  
+44 (0) 1842 763 299  
[www.parker.com/hfde](http://www.parker.com/hfde)

### Parker Kittiwake

West Sussex, England  
+44 (0) 1903 731 470  
[www.kittiwake.com](http://www.kittiwake.com)

### Parker Procal

Peterborough, England  
+44 (0) 1733 232 495  
[www.kittiwake.com](http://www.kittiwake.com)

### Process Filtration

domnick hunter Process Filtration  
Birtley, England  
+44 (0) 191 410 5121  
[www.parker.com/processfiltration](http://www.parker.com/processfiltration)

### Parker Twin Filter BV

Zaandam, Netherlands  
+31(0)75 655 50 00  
[www.twinfilter.com](http://www.twinfilter.com)

## Asia Pacific

### Australia

Castle Hill, Australia  
+61 2 9634 7777  
[www.parker.com/australia](http://www.parker.com/australia)

### China

Shanghai, China  
+86 21 5031 2525  
[www.parker.com/china](http://www.parker.com/china)

### India

Navi Mumbai, India  
+91 22 651 370 8185  
[www.parker.com/india](http://www.parker.com/india)

### Parker Fowler

Bangalore, India  
+91 80 2783 6794  
[www.johnfowlerindia.com](http://www.johnfowlerindia.com)

### Japan

Tokyo, Japan  
+81 45 870 1522  
[www.parker.com/japan](http://www.parker.com/japan)

### Parker Techno

Osaka, Japan  
+81 66 340 1600  
[www.techno.taiyo-ltd.co.jp](http://www.techno.taiyo-ltd.co.jp)

### Korea

Hwaseon-City  
+82 31 359 0852  
[www.parker.com/korea](http://www.parker.com/korea)

### Singapore

Jurong Town, Singapore  
+65 6887 6300  
[www.parker.com/singapore](http://www.parker.com/singapore)

### Thailand

Bangkok, Thailand  
+66 2186 7000  
[www.parker.com/thailand](http://www.parker.com/thailand)

## Latin America

### Parker Comercio Ltda. Filtration Division

Sao Paulo, Brazil  
+55 12 4009 3500  
[www.parker.com/br](http://www.parker.com/br)

### Pan American Division

Miami, FL  
305 470 8800  
[www.parker.com/panam](http://www.parker.com/panam)

## Africa

Aeroporto Kempton Park, South Africa  
+27 11 9610700  
[www.parker.com/africa](http://www.parker.com/africa)

