



Portable Purification Systems

Models PVS 185, 600, 1200, 1800, 2700



ENGINEERING YOUR SUCCESS.

PVS Series

Principles of Operation

Contaminated oil is drawn into the Parker Portable Purification System by a vacuum of 25 In/Hg. The oil passes through the in-line low watt density heater where the oil is heated to an optimum temperature of 150° F (66°C).

The oil then enters the distillation column where it is exposed to the vacuum through the use of special dispersal elements. This increases the exposed surface area of the oil and converts the water to vapor form, which is then drawn through the condenser by the vacuum pump.

The water-free oil falls to the bottom of the column and is removed by a heavy duty lube oil pump. This pump forces the dry oil through a final particulate removal filter. Clean oil passes out of the unit, back to the reservoir — and into the system.

Typical Saturation Points

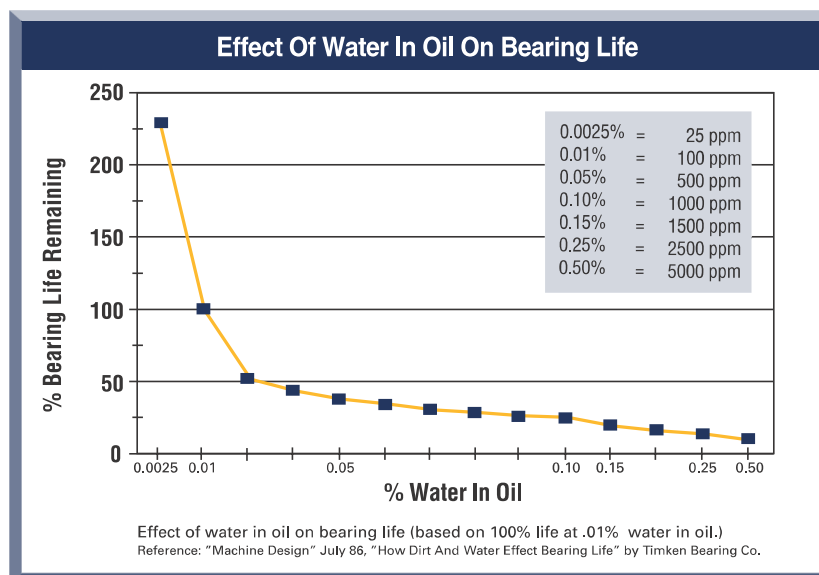
Fluid Type	PPM	%
Hydraulic Fluid	300	.03%
Lubrication Fluid	400	.04%
Transformer Fluid	50	.005%

Effects of Water Contamination

Water is one of the most common contaminants in a fluid system and one of the most damaging. When water contaminates a system, it can cause serious problems such as:

- Corrosion by etching metal
- Fluid breakdown, reduction of lubricating properties, additive precipitation and oil oxidation
- Reduced dielectric strength
- Abrasive wear in hydraulic components

Free water occurs when oil becomes saturated and cannot hold any more water. This water is usually seen as cloudy oil or puddles of water at the bottom of an oil reservoir. Water which is absorbed into the oil is called dissolved water. At higher temperatures, oil has the ability to hold more water in the dissolved stage due to the expansion of oil molecules. As the oil cools, this ability reverses and free water will appear where not visible before. In addition to temperature, fluid type also determines the saturation point for your system (see chart above).



PVS Series

Applications

- Hydraulic Systems
- Lubrication Systems
- Turbine Oil
- Transformer Oil
- New Oil (oil storage)
- Seal Oil
- Explosion Proof

Environments



NEMA 7 Explosion Proof

Markets

- Power Generation
- Pulp and Paper
- Primary Metals
- Mining
- Plastic Injection Molding
- Oil Exploration
- Petrochemical
- Automotive
- Aerospace
- Refineries
- Transportation

Standard Features	Advantages	Benefits
Variable flow circuit	• Allows oil to heat more quickly so water is removed faster	• Time savings
Moisture sensor	• Real-time water content indication in % saturation	• At-a-glance visual confirmation
Automatic operation	• Unattended use • Designed for 24/7 operation	• Reduces labor costs • Increases operation time
316 Stainless steel used for primary wetted surfaces	• No corrosion	• Product reliability
Ecoglass particulate element	• Coreless, non-metallic construction	• Environmentally friendly, easy disposal
Clear plexiglass covers on the condensate tank and vacuum chamber	• See the vacuum dehydration process work	• Visual verification of water removal
Desiccant breather	• Insures dry, clean intake air	• More efficient operation
Reverse phase switch	• Enables easy changing of motor rotation if out-of-phase	• Ease of maintenance • Prevents incorrect rotation
Condensate holding tank with optional auto drain	• Large volume for infrequent servicing intervals	• Reduces maintenance costs
Programmable thermostat	• Maintains oil within 1°F • Prevents overheating the oil	• Unattended operation
Forklift guides and lifting eyes	• Provides safe and secure method of lifting the unit	• Employee safety
Coalescing or packed tower oil dispersal elements	• Flexibility with various fluid viscosities	• Greater efficiency in removing moisture

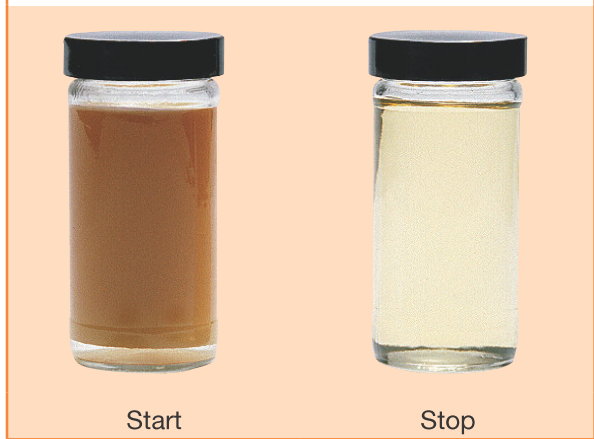
PVS Series

Vacuum Dehydration Performance

Potential Contaminant	PVS 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

**When utilizing O2Q media.*

Typical Performance	
Tank Size	60 Gallons (227 liters)
Run Time	62 minutes
Parker Model	PVS 600 (10 GPM)
Water Content (ppm)	Start: 10,000 PPM (1.0%) Stop: 50 PPM (0.005%)
Contamination Level	Start: ISO 21/18/16 Stop: ISO 16/14/11



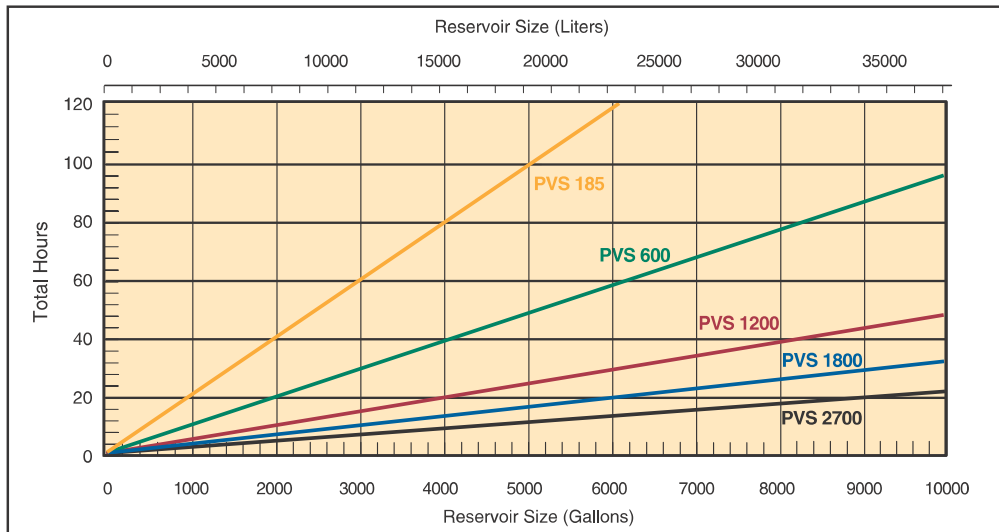
PVS (Vacuum Dehydration) Compared to Other Technologies

Centrifuge units - Removes free water only; has difficulty breaking stable emulsions; larger envelope dimensions but lower flows; higher initial and operating costs.

Desiccant units - Have limited water removal capability due to absorbing material; only removes air ingressed particles; expensive compared to the volume of water removed.

Coalescer units - Removes free water only; has difficulty breaking stable emulsions; does not work well in viscous fluids (>100 sus); much larger in size compared to PVS.

**Estimated Water Removal Time
5000 ppm (0.5%) to 150 ppm (0.015%)**



PVS 185 Series

Specifications

Flow rate	5 gpm (18.9 lpm)
Dimensions	65" H x 33" W x 48" L (1651mm x 838mm x 1219mm)
Weight	650 lbs. (295 kg)
Seal material	Fluorocarbon (EPR optional)
Condensate tank	4.1 gal (15.5 ltrs)
Dispersal elements	1
Minimum operating capacity	5 gal (18.9 ltrs)
Vacuum (max)	25 In/Hg
Viscosity (max)	500 sus (108 cSt)-Disposable 2150 sus (460 cSt)-Packed Tower
Outlet pressure (max)	60 psi (4.1 bar)
Ports	3/4" JIC (male) inlet 3/4" JIC (male) outlet
FLA (full load amps)	15-41 amps (Depending on options & voltages)
Shipping Weight	1400 lbs. (635 kg) maximum
Shipping Dimensions	70" H x 48" W x 60" L (1778mm x 1219mm x 1524mm)



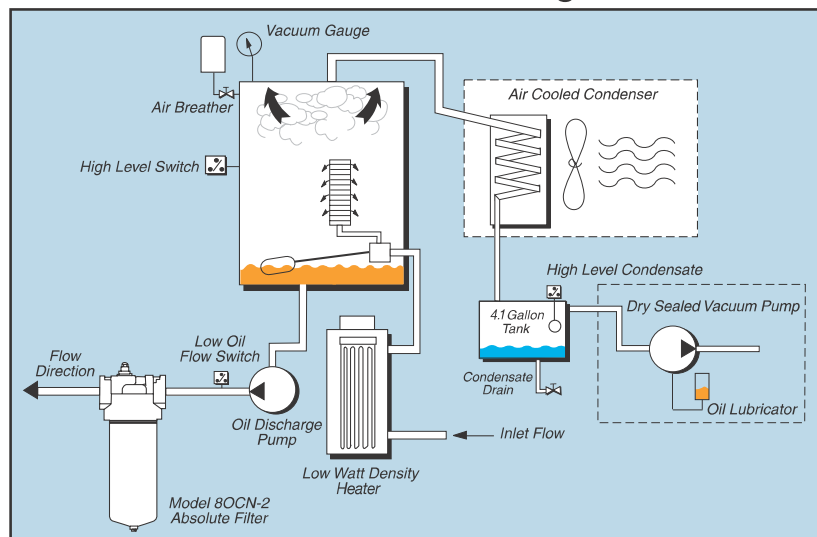
UL and CUL Marked

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

Replacement Elements

Standard Coreless Particulate (80CN-2)	
02QE (2 micron)	936716Q
05QE (5 micron)	936717Q
10QE (10 micron)	936718Q
20QE (20 micron)	936719Q
Optional Coreless Particulate (IL8-3)	
02QE (2 micron)	933734Q
05QE (5 micron)	933612Q
10QE (10 micron)	933735Q
20QE (20 micron)	933736Q
Dispersal	
Disposable (Coalescing)	945801
Packed tower (Cleanable)	933553

PVS 185 Flow Diagram



PVS 600 Series

Specifications

Flow rate	10 gpm (37.9 lpm)
Dimensions	65" H x 33" W x 48" L (1651mm x 838mm x 1219mm)
Weight	900 lbs. (408.2 kg)
Seal material	Fluorocarbon (EPR optional)
Condensate tank	4.1 gal (15.5 ltrs)
Dispersal elements	2
Minimum operating capacity	6 gal (22.7 ltrs)
Vacuum (max)	25 In/Hg
Viscosity (max)	500 sus (108 cSt)-Disposable 2150 sus (460 cSt)-Packed Tower
Outlet pressure (max)	60 psi (4.1 bar)
Ports	1" JIC (male) inlet 1" JIC (male) outlet
FLA (full load amps)	24-38 amps (Depending on options & voltages)
Shipping Weight	1500 lbs. (680 kg) maximum
Shipping Dimensions	70" H x 48" W x 60" L (1778mm x 1219mm x 1524mm)



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

Replacement Elements

Standard Coreless Particulate (80CN-2)	
02QE (2 micron)	936716Q
05QE (5 micron)	936717Q
10QE (10 micron)	936718Q
20QE (20 micron)	936719Q
Optional Coreless Particulate (IL8-3)	
02QE (2 micron)	933734Q
05QE (5 micron)	933612Q
10QE (10 micron)	933735Q
20QE (20 micron)	933736Q
Dispersal	
Disposable (Coalescing)	945801
Packed tower (Cleanable)	933553

UL and CUL Marked

PVS 600 Flow Diagram

