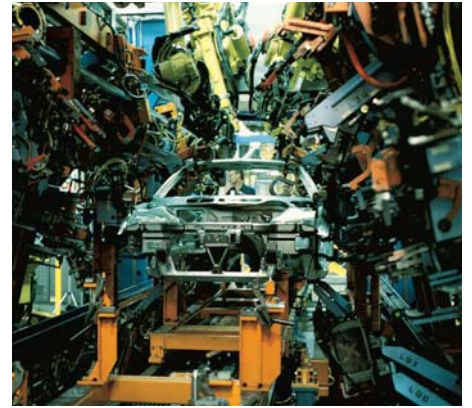


# PVS Series - Models 185, 600, 1200, 1800 and 2700

## Portable Purification Systems



### Reduce the catastrophic results of water contamination

### Eliminate water from the hydraulic system

The PVS Series Portable Purification Systems, available in several models, is used to draw water contaminated fluid out of a system, remove the water content and return the 'clean' fluid to the reservoir. Maximum flow 170 l/min (PVS2700). Reduce the catastrophic results of water contamination.



### Contact Information:

Parker Hannifin  
**Hydraulic Filter Division Europe**

**European Product Information Centre**  
Freephone: 00800 27 27 5374  
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)  
filtrationinfo@parker.com

[www.parkerhfde.com](http://www.parkerhfde.com)

### Product Features:

- PVS draws water contaminated fluid out of a system.
- Removes water, air and particulate content and returns the 'clean' fluid to the reservoir.
- Maximum flow 170 l/min (PSV2700).
- Reduce the catastrophic results of water contamination.

# PVS Series

## Portable Purification Systems

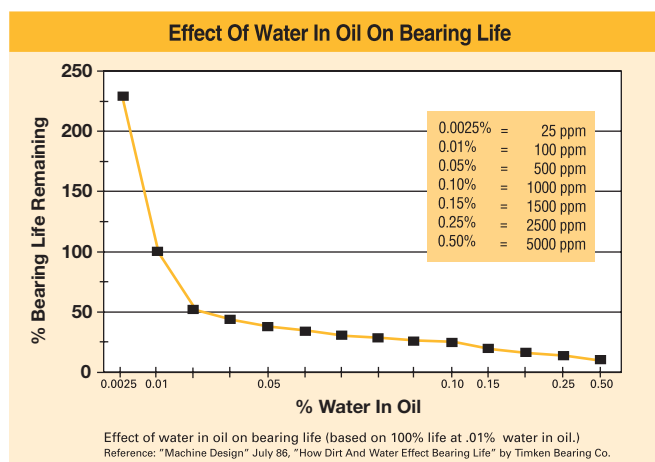
### Effects of Water Contamination

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

Typical saturation points		
Fluid type	PPM	%
Hydraulic fluid	300	.03%
Lubrication fluid	400	.04%
Transformer fluid	50	.005%

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).



### 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/s where the oil is heated to an optimum temperature of 66°C (150°F).

The oil then enters the distillation column where it is exposed to the vacuum through the use of dedicated dispersal elements. This increases the exposed surface area of the oil and converts the water to a vapor form, which is then drawn through the condenser by the vacuum pump. The vapour returns to water and drops into the condensate holding tank - this can then be drained off at a later stage.

The water-free oil falls to the bottom of the vacuum chamber and is passed through a final particulate removal filter by a heavy duty lube oil pump.

Clean dry oil re-enters the reservoir/system via the outlet port.

## Applications for PVS Portable Purification Systems

- **Paper mills**

- Dryer lubrication
- Hydraulic
- Compressor lubrication
- Calenders

- **Steel mills**

- Bearing lubrication
- Continuous casters
- Press roll lubrication

- **Power generation**

- Turbine oil
- Transformer oil
- EHC systems

- **Industrial/aerospace**

- Test stands
- Machine tools



Features	Advantages	Benefits
Variable flow circuit	Allows oil to heat to required temperature quickly	Starts removing water quickly
Moisture sensor	Real-time water content indication	Indicates when safe water content level is obtained
Condensate holding tank	Captures removed water/solvents Large enough to provide long service interval	Eliminate potential hazard of exhausting to atmosphere Reduced maintenance costs
Compact size	Smallest envelope in the industry Ease of portability	Fits through doorways and down narrow aisles Increased use
Forklift guides Lifting eyes	Provides safe and secure method to lift unit	Employee safety Easily transported
Programmable thermostat	Maintains oil within 1°C Prevents overheating oil	Unattended operation Increases oil life
Automatic operation	Unattended use	Reduced labour costs Increased running time
Reverse pole switch/phase fail	Change motor rotation for different power source locations	Flexibility, less maintenance Prevents incorrect rotation
High temperature safety circuit	Shuts down heater if primary contactors fail Oil can never exceed 120°C (250°F)	Prevents system damage Worker safety
Circuit breakers utilised in electrical panel	No fuses to replace Simple diagnostics	Fewer spare parts, increased uptime Reduced maintenance
Available with EPR seals and stainless steel	Phosphate ester compatible	Specifically designed for application
Solid state heater contactor	Longer more reliable service life	Reduced downtime

# PVS Series

## Portable Purification Systems

Potential contaminant	PVS performance
Solid particulate	ISO cleanliness code* 14/13/10 attainable
Water	Removes 100% of free water, 80-90% of dissolved water.
Air	Removes 100% of free air, 90% of dissolved air.
Gases	Removes 100% of free gases, 90% of dissolved gases.

\* When utilising 2Q media

### 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 (>23cSt); much larger in size compared to PVS.

### Typical Performance

Tank size	227 litres (50 gallons)
Run time	62 minutes
Parker model	PVS 600 (37.9 l/min)
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

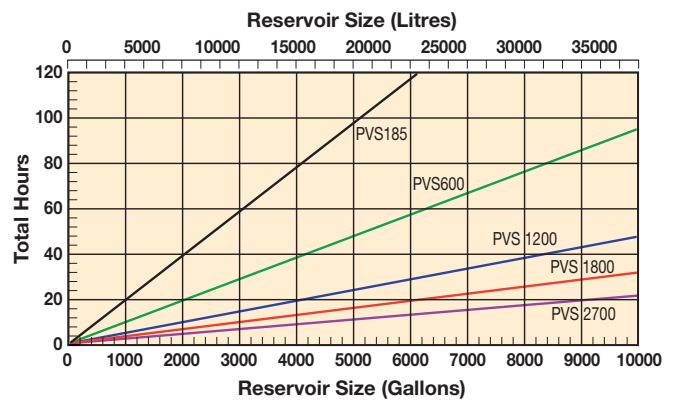


Start



Stop

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



# PVS 185

## Portable Purification Systems

### Specification

**Flow rate:**  
19 lpm (4.2 gpm).

**Height:**  
1651mm (65").

**Width:**  
825.5mm (32.5").

**Length:**  
1206.5mm (47.5").

**Weight:**  
294.8 kg (650 lbs).

**Seal material:**  
Fluorocarbon (EPR opt.).

**Condensate tank:**  
15.5 ltrs (3.4 gals).

**Dispersal elements:**  
1.

**Minimum operating capacity:**  
18.9 ltrs (4.2 gals).

**Vacuum (max):**  
25 In/Hg.

**Viscosity (max):**  
108 cSt (500sus) – disposable.  
460 cSt (2150 sus) – packed tower.

**Outlet pressure (max):**  
4.1 bar (60 psi).

**Ports:**  
3/4" JIC (male) inlet.  
3/4" JIC (male) outlet.

**FLA (full load amps):**  
15-41 amps.  
(Depending on voltage used).



### Replacement elements

#### Standard Coreless Particulate 80CN-2

2QE	(2 micron)	936716Q
5QE	(5 micron)	936717Q
10QE	(10 micron)	936718Q
20QE	(20 micron)	936719Q

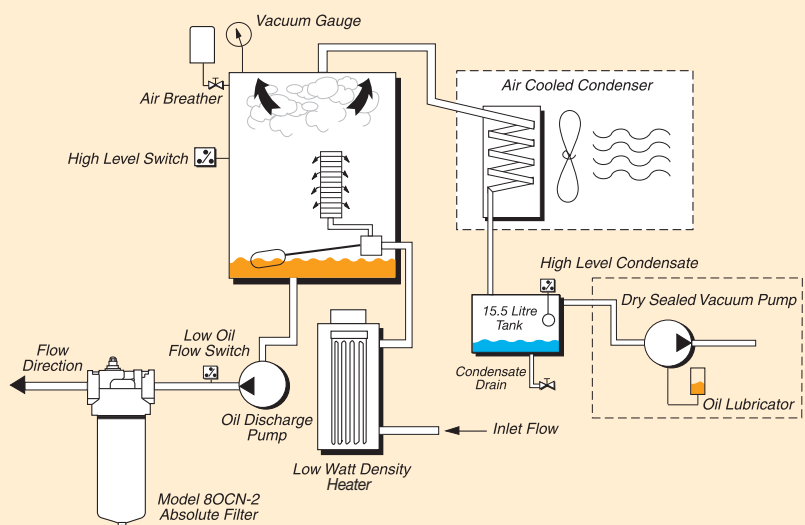
#### Option Coreless Particulate IL8-3

2QE	(2 micron)	933734Q
5QE	(5 micron)	933612Q
10QE	(10 micron)	933735Q
20QE	(20 micron)	933736Q

#### Coreless

Disposable (Coalescing)	933180
Packed tower (Cleanable)	933553

### PVS 185 flow diagram





# PVS 600

## Portable Purification Systems

### Specification

**Flow rate:**  
38 lpm (8.3 gpm).

**Height:**  
1638.3mm (64.5").

**Width:**  
1117.6mm (44").

**Length:**  
1549.4mm (61").

**Weight:**  
408.2 kg (900 lbs).

**Seal material:**  
Fluorocarbon (EPR opt.).

**Condensate tank:**  
15.5 ltrs (3.4 gals).

**Dispersal elements:**  
2.

**Minimum operating capacity:**  
22.7 ltrs (5.0 gals).

**Vacuum (max):**  
25 In/Hg.

**Viscosity (max):**  
108 cSt (500sus) – disposable.  
460 cSt (2150 sus) – packed tower.

**Outlet pressure (max):**  
4.1 bar (60 psi).

**Ports:**  
1" JIC (male) inlet.  
1" JIC (male) outlet.

**FLA (full load amps):**  
24-38 amps.  
(Depending on options & voltages).



### Replacement elements

#### Standard Coreless Particulate 80CN-2

2QE	(2 micron)	936716Q
5QE	(5 micron)	936717Q
10QE	(10 micron)	936718Q
20QE	(20 micron)	936719Q

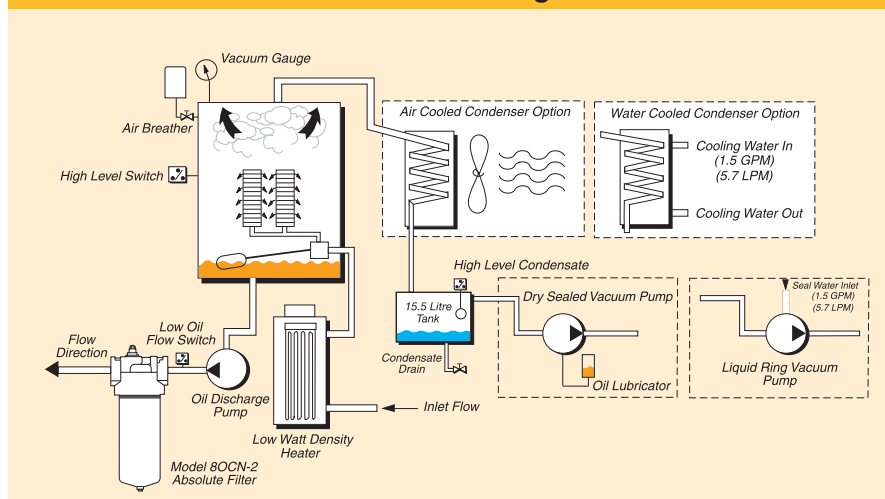
#### Option Coreless Particulate IL8-3

2QE	(2 micron)	933734Q
5QE	(5 micron)	933612Q
10QE	(10 micron)	933735Q
20QE	(20 micron)	933736Q

#### Coreless

Disposable (Coalescing)	933180
Packed tower (Cleanable)	933553

### PVS 600 flow diagram



# PVS 1200

## Portable Purification Systems

### Specification

**Flow rate:**  
76 lpm (16.7 gpm).

**Height:**  
1651mm (65").

**Width:**  
1117.6mm (44").

**Length:**  
1549.4mm (61").

**Weight:**  
703.1 kg (1550 lbs).

**Seal material:**  
Fluorocarbon (EPR opt.).

**Condensate tank:**  
31.4 ltrs (6.9 gals).

**Dispersal elements:**  
4.

**Minimum operating capacity:**  
41.6 ltrs (9.1 gals).

**Vacuum (max):**  
25 In/Hg.

**Viscosity (max):**  
108 cSt (500sus) – disposable.  
460 cSt (2150 sus) – packed tower.

**Outlet pressure (max):**  
4.1 bar (60 psi).

**Ports:**  
1 1/2" NPTF inlet.  
1" JIC (male) outlet.

**FLA (full load amps):**  
30-48 amps.  
(Depending on options & voltages).



### Replacement elements

#### Dispersal

Disposable (coalescing)	933180
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Packed tower (cleanable)	933553
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#### Coreless IL8-3

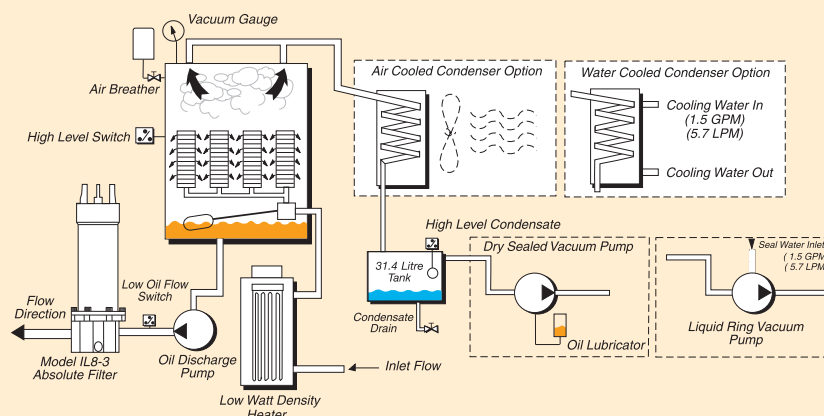
02QE	933734Q
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05QE	933612Q
------	---------

10QE	933735Q
------	---------

20QE	933736Q
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### PVS 1200 flow diagram



# PVS 1800

## Portable Purification Systems

### Specification

**Flow rate:**  
114 lpm (25 gpm).

**Height:**  
1651mm (65").

**Width:**  
1066.8mm (42").

**Length:**  
1943.1mm (76.5").

**Weight:**  
1156.7 kg (2550 lbs).

**Seal material:**  
Fluorocarbon (EPR opt.).

**Condensate tank:**  
31.4 ltrs (6.9 gals).

**Dispersal elements:**  
8.

**Minimum operating capacity:**  
68.1 ltrs (14.98 gals).

**Vacuum (max):**  
25 In/Hg.

**Viscosity (max):**  
108 cSt (500sus) – disposable.  
460 cSt (2150 sus) – packed tower.

**Outlet pressure (max):**  
4.1 bar (60 psi).

**Ports:**  
2" NPTF inlet.  
1.5" JIC (male) outlet.

**FLA (full load amps):**  
40-65 amps @ 460 V/60hz.



### Replacement elements

#### Dispersal

Disposable (coalescing)	933180
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Packed tower (cleanable)	933553
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#### Coreless IL8-3

02QE	933734Q
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05QE	933612Q
------	---------

10QE	933735Q
------	---------

20QE	933736Q
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### PVS Specification Worksheet - Section 1

Note: The following information will be required before a PVS order can be processed.

- Application.....
- Fluid type..... Brand.....  
Grade..... Specific Gravity.....
- Viscosity    Min ..... SUS/cSt @..... °F/°C  
                  Max..... SUS/cSt @..... °F/°C  
                  Normal..... SUS/cSt @..... °F/°C
- Contamination level    Current ISO level \_\_\_ / \_\_\_ / \_\_\_  
  Desired PPM level \_\_\_ / \_\_\_ / \_\_\_
- Water concentration    Current ISO level.....  
  Desired PPM level.....
- Suction Head    Positive/Negative ..... Ft./metres.....
- Operating distance ..... Ft./metres .....
- System fluid operating temperature: ..... °F/°C  
Is there a cooler?.....
- Operating environment air temperature: (air cooled model)  
Min .....°F/°C  
Max .....°F/°C  
Normal.....°F/°C



# PVS 2700

## Portable Purification Systems

### Specification

<b>Flow rate:</b> 170 lpm (37.4 gpm).	<b>Minimum operating capacity:</b> 68.1 ltrs (14.98 gals).
<b>Height:</b> 1651mm (65").	<b>Vacuum (max):</b> 25 In/Hg.
<b>Width:</b> 1066.8mm (42").	<b>Viscosity (max):</b> 108 cSt (500sus) – disposable. 460 cSt (2150 sus) – packed tower.
<b>Length:</b> 1943.1mm (76.5").	<b>Outlet pressure (max):</b> 4.1 bar (60 psi).
<b>Weight:</b> 1156.7 kg (2550 lbs).	<b>Ports:</b> 3" NPTF inlet. 2" NPTF outlet.
<b>Seal material:</b> Fluorocarbon (EPR opt.).	<b>FLA (full load amps):</b> 50-70 amps @ 460 V/60hz.
<b>Condensate tank:</b> 31.4 ltrs (6.9 gals).	
<b>Dispersal elements:</b> 8.	



Replacement elements	
Dispersal	
Disposable (coalescing)	933180
Packed tower (cleanable)	933553
Coreless IL8-3	
02QE	933734Q
05QE	933612Q
10QE	933735Q
20QE	933736Q

### PVS Specification Worksheet - Section 2

10. Water supply temperature: (liquid ring model)
  - Min .....°F/°C
  - Max .....°F/°C
  - Normal.....°F/°C
11. Operating environment above/below sea level: ..... Ft./metres
12. Voltage Options: 230Vac, 3p, 60Hz (185,600)
  - 380Vac, 3p, 50Hz (185,600,1200,1800,2700)
  - 460Vac,3p,60Hz (185,600,1200,1800,2700)
  - 575vac, 3p 60Hz (185,600,1200,1800,2700)
13. Available amperage:.....
14. System volume: .....
15. Special requirements: .....
16. Any previous filtration problems with application: .....
17. PVS model selected: .....

**Specification sheet must be completed before order can be entered**

# PVS Range

## Portable Purification Systems

### Ordering Information

#### Product configurator

Select the desired symbol (in the correct position) to construct a model code.

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8	Box 9	Box 10	Box 11
-	PVS	600	460	DS	D	5Q	-	12	AC	DFL

Box 1		Box 2		Box 3		Box 4		
Seals		Basic assembly		Flow rate		Power supply		
Description	Code	Description	Code	Description	Code	Model	Description	Code
Fluorocarbon	None	Portable Purification System	PVS	19 lpm (4.2 gpm)	185	185	380VAC, 3P, 50HZ	380
EPR	E8			38 lpm (8.3 gpm)	600		460VAC, 3P, 60HZ	460
				76 lpm (16.7 gpm)	1200		575VAC, 3P, 60HZ	550
					1800	600	380VAC, 3P, 50HZ	380
					2700		460VAC, 3P, 60HZ	460
							550VAC, 3P, 60HZ	550
						1200	380VAC, 3P, 50HZ	380
							460VAC, 3P, 60HZ	460
							550VAC, 3P, 60HZ	550
						1800	380VAC, 3P, 50HZ	380
							460VAC, 3P, 60HZ	460
							550VAC, 3P, 60HZ	550
						2700	380VAC, 3P, 50HZ	380
							460VAC, 3P, 60HZ	460
							550VAC, 3P, 60HZ	550

Box 5		Box 6		Box 7	
Vacuum pump		Dispersal element		Particulate element µm (c)	
Pressure setting	Code	Description	Code	Description	Code
Dry sealed	DS	Disposable (coalescing)	D	4 micron Microglass III	2Q
Liquid ring	LR	Packed tower (cleanable – for use with viscous or highly contaminated fluids)	P	6 micron Microglass III	5Q
				10 micron Microglass III	10Q
				20 micron Microglass III	20Q

Note: Above elements are rated for Beta 200+ (99.5% efficiency)

Box 8		Box 9			Box 10		Box 11	
Filter housing		Heater			Condenser		Options	
Description	Code	Model	Description	Code	Description	Code	Description	Code
80CN-2	None	185	12 KW (3 phase)	12	Air cooled		Pneumatic wheels	PW
IL8 (39") Ecoglass III upgrade	E	600	12 KW	12	Liquid cooled		Auto condensate drain	ACD
			24 KW	24			Dirty filter light	DFL
		1200	24 KW	24			Resettable hour meter	RHM
			36 KW	36			Sight flow indicator	SFI
			48 KW	48			Inlet control valve	ICV
							CE marked	CE
							CSA marked	CSA
							Explosion proof	EXP

Note: IL8 option is available on 185 and 600 models, and is standard on 1200 models and larger

(Class I, Division II, Zone I and II)  
Note: For the icountPD option consult Parker Filtration

Note 1: Contact parker for part number profile availability

