

Guardian

Portable Hydraulic Filtration Systems

Max. 15 l/min - 3.4 bar



Making portable system cleanliness available all the time

A 'use anywhere' fluid transfer solution

The Guardian portable filtration system is designed to 'clean' new oil and deliver it to a system or carry out a clean up of used fluid to its original condition. Maximum pressure 3.4 bar. Maximum flow 15 l/min. A water removal element option is also available.



Contact Information: Product Features:

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.parker.com/hfde

- Guardian is designed to 'clean' new oil and deliver it to a system.
- Carries out a clean up of existing fluid to its original condition.
- Maximum pressure 3.4 bar. Maximum flow 15 l/min.
- Filters petroleum based oils, water emulsions and diesel fuels.

Guardian

Portable Hydraulic Filtration Systems

Features & Benefits

Features	Advantages
Portable and robust design	Guardian is designed to be used anywhere. Take it to the system or transfer new oil from the drum.
Lightweight design	Only 10.6 kg
Quick disconnect hose connections	Storage is simple. Guardian's compact design means it is easily stowed.
Visual indicator	Operational condition is constantly monitored
110VAC or 220/240VAC options	Guardian's power flexibility means it can be used anywhere.
A range of clean-up elements	A user can specify the media that will best achieve his clean up/filtering requirements.
Water removal element option	Water removal from the system is an important requirement for fluid efficiency.

Note: 15 l/min / Fluid transfer at a controlled rate

- Fluid transfer
- Offline reservoir clean-up
- Injection moulding machines
- Royal navy surface fleet systems
- Paper mills
- Industrial equipment
- Mobile equipment
- Marine system support

The Parker Filtration Guardian portable filtration systems.

Guardian is a portable filtration system with two main functions: to ensure that new 'dirty' fluid often contaminated during handling, is delivered to the system at a specific cleanliness; and to permit periodic clean up of existing fluid to original condition.

Recommended fluids: Petroleum based oils, water emulsions and diesel fuels.

Application Example

A hydraulic system reservoir had become heavily contaminated and the hydraulic system was in danger of a catastrophic failure from particulate and water contamination. These contaminants were introduced from various points – airborne, wear and introduction of new 'dirty' fluids. The Guardian filtration system was installed into the hydraulic systems reservoir and run completely off-line for a period of time until acceptable contamination levels were achieved.

This off-line attachment allowed the hydraulic system to continue operating without costly downtimes. Additionally a Water Removal (WR) Element was also fitted to the Guardian, which radically reduced the water contamination within the entire system.

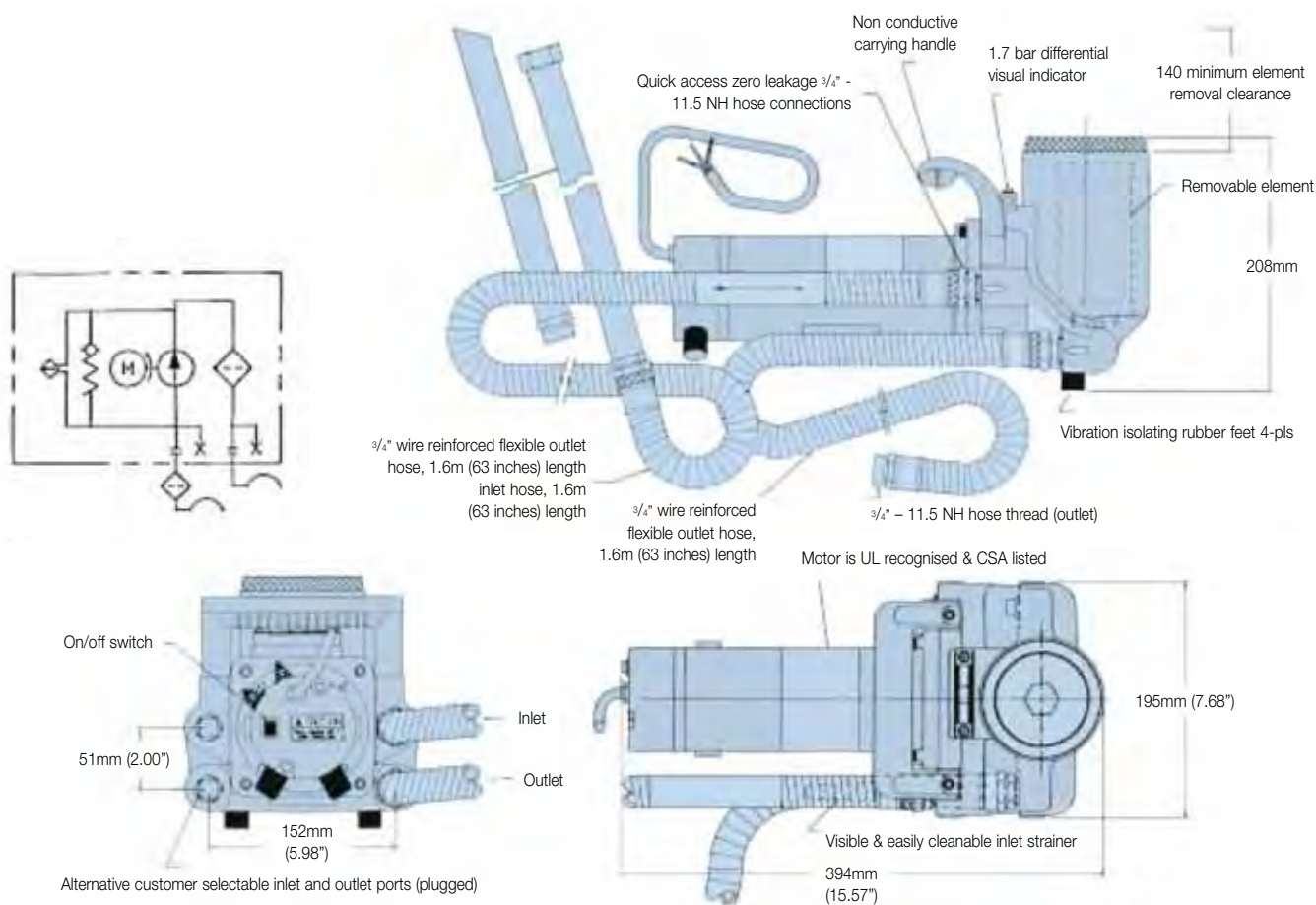
This customer will 'only now' introduce new fluids into his hydraulic application by using the Guardian filtration system and in addition utilises the Guardian off-line option to maintain and protect his system.

Contamination levels are monitored by an LCM202022 which controls the Guardians operation.

Result: reliability and complete confidence restored.



Specification



Guardian

Portable Hydraulic Filtration Systems

Ordering Information and Product Configurator

Standard products table

Part number	Supersedes	Model (fluorocarbon)	Motor option	Element (μ)	Options	Plug type	Replacement element
GT4E110Q1UK	F3-GT4E-1-10Q-1-UK	GT4E	1	10Q	1	UK	G04396Q
GT4E110Q1EUR	F3-GT4E-1-10Q-1-EUR	GT4E	1	10Q	1	EUR	G04396Q
GT4E210Q1IND	F3-GT4E-2-10Q-1-IND	GT4E	2	10Q	1	IND	G04396Q

Note 1: Motor Options*

Option 1 = 220/240 VAC

Option 2 = 110 VAC.

Note 2: Plug Type**

IND = Industrial 110VAC UK Option.

Note 3: (Options) Quick disconnect hose connections are available. Consult Parker.

Replacement elements

Guardian replacement elements to ISO16889		
Part number	Media code	Media type
G04396Q	10Q	Microglass III
G04394Q	02Q	Microglass III
G04395Q	05Q	Microglass III
G04397Q	20Q	Microglass III
G04400	25	Wire mesh
G04401	40	Wire mesh
G04402	74	Wire mesh
932019	WR	Water removal

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.

Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

Filtration Unit

Hydraulic Service Equipment

Max. 15 l/min - 6 bar



Permanent and offline fluid cleaning

Reliable fluid transfer from drum to system

The Filtration unit offers both permanent and offline fluid cleaning where higher levels of contamination are expected. Maximum pressure 6 bar. Maximum flow 15 l/min. Designed to take the unit to the application for maximum efficiency in use.



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Product Features:

- Filtration unit offers both permanent and offline fluid cleaning where higher levels of contamination are expected.
- Lightweight design. Spin-on 10 micron Abs. element.
- Maximum pressure 6 bar. Maximum flow 15 l/min.
- Robust construction.

Filtration Unit

Hydraulic Service Equipment

Features & Benefits

Features	Advantages	Benefits
Single phase and three phase motor options	Flexibility of power output	End user choice dependent on application
15 l/min flow	Fluid transfer at a controlled rate	Reliable fluid transfer from drum to system
Red/green visual indicator	Clear indication of condition during operation	High visibility during operation
Robust construction	Reliability designed in	Designed to be used even in the most demanding conditions
Spin-on element	Easy change element	10 micron Abs. elements
Lightweight design	Easy to locate when and where required	Take the unit to the application. It's that easy

Typical Applications

- Fluid transfer
- Small lubrication systems
- Constant flushing loops
- Maintenance flushing
- Offline filtration in circuits where pressure and flow pulses are expected

The Parker Filtration Service Equipment.

Designed to offer both permanent and offline cleaning where higher levels of contamination are expected and portable additional clean-up capability as part of your preventative maintenance package.



Specification

Electric motor

Frame Size: IEC Frame 63. Foot and flange 'D' (Flange IEC.F115). Totally enclosed fan cooled.

Windings: 380/420 volt 3 ph/50 Hz, 220 Volt 1 ph/50 Hz 110 Volt 1 ph/50 Hz.

Power: 0.18 kW (1/4 hp).

Speed: 1400 rev/min.

It is recommended that the Unit is wired independently from the main system when permanently installed, to facilitate the simple changing of the filter element without interrupting the main system.

Filtration unit description

The Parker 'Filtration Unit' consists of an electric motor directly coupled to a hydraulic pump, which has a built in bypass fitted and spin on filter element. Fluid drawn in at pump inlet is circulated through the filter element and is thus cleaned before being delivered from the outlet port. A built in bypass valve safeguards the element in the event of blockage and returns oil to the pump inlet, this ensures that all fluid output from the unit is filtered, whatever the operating conditions. A visual element condition indicator is fitted to the pump. A unit is available without electric motor for customers who prefer to supply their own. See installation notes and part numbers for ordering.

Pump and bypass valve

Pump: Lobe type for quiet running.

Flow: 15 l/min.

Connections: Inlet G¹/₂ (1/2" BSP).
Outlet G³/₈ (3/8" BSP).

Bypass Valve: Cracks at 1.5 bar approximately. Bypassed oil is recirculated within the pump. Bypassed oil is reintroduced into the inlet port and does not pass the filter. Bypass operates when the element is contaminated and needs replacing. This condition will be made clear by the visual indicator. The Bypass Valve could also open when being used with high viscosity fluids, thus effectively reducing the unit output.

Filter and condition indicator

Filter Type: Rapid replacement spin-on can with 10µ cellulose element. Ensure that end clearance (20mm) is available to permit element withdrawal. 10µ absolute. MXR8550

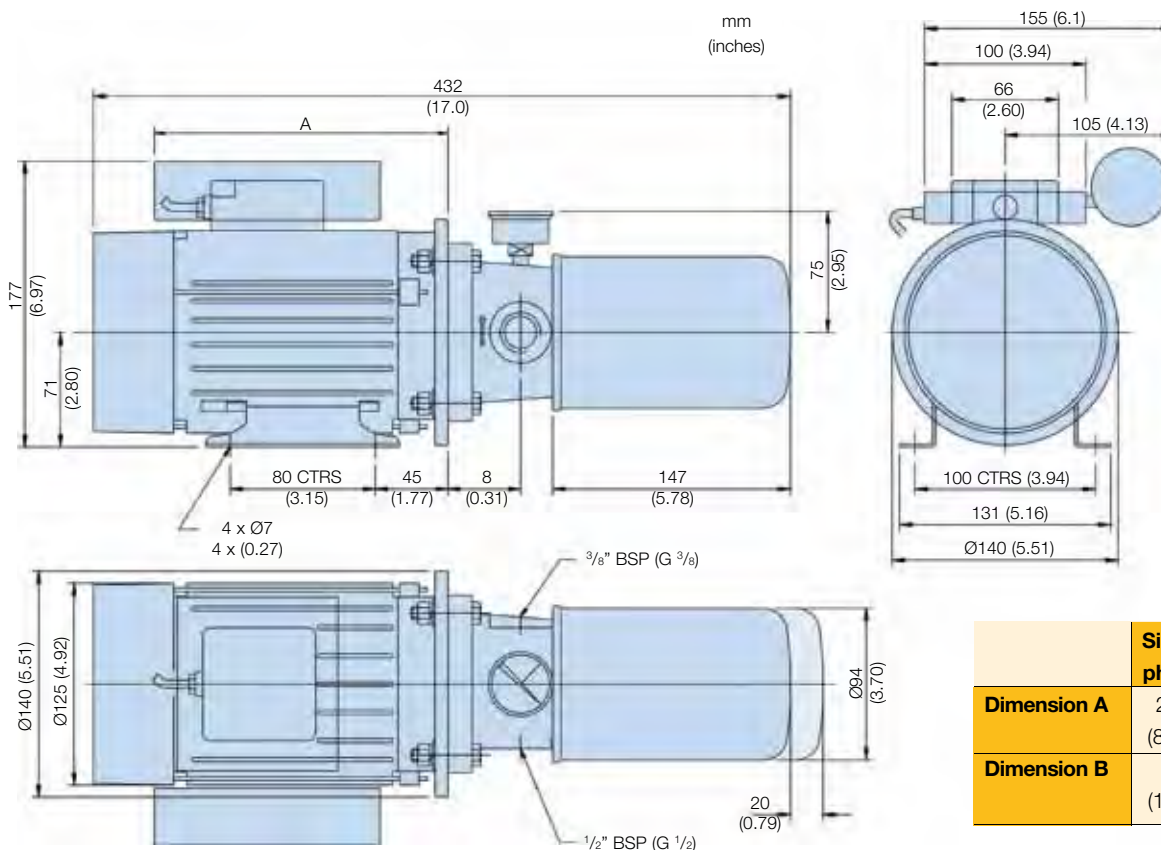
Visual indicator

Has green and red zones on the dial. Needle in the green zone indicates normal operation. When the needle enters the red zone, the bypass valve will permit a flow of oil to return to the pump inlet – The element will then need to be replaced. The bypass is fully open when the needle is at the extreme of the red sector.

Sound level

The Filtration Unit under normal conditions will operate at a sound pressure level of approximately 65 dBA.

Installation Details



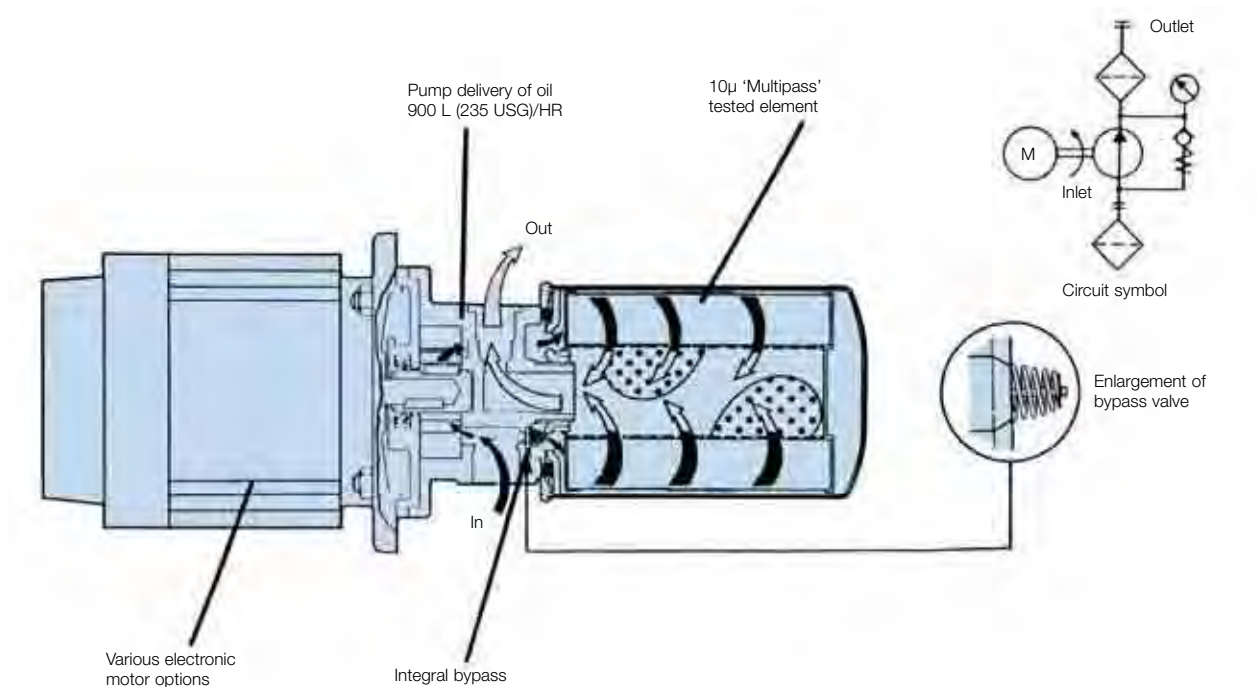
	Single phase	Three phase
Dimension A	221 (8.70)	184 (7.24)
Dimension B	45 (1.77)	25 (0.98)



Filtration Unit

Hydraulic Service Equipment

Sectioned Detail



Installation and Operational Notes

The Filtration Unit is suitable for mineral based oils. Maximum viscosity at start up condition 850 centistokes-minimum viscosity 8 centistokes. Note that at 850 centistokes output will be reduced due to opening of bypass. Maximum operating temperature +90°C (194°F).

The inlet pipe should be as large and as short as convenient to reduce inlet depression to a minimum. It should not be less than 12mm (0.47") internal diameter.

Suction element SE7511110 is supplied with all assemblies and must be installed. Ensure that a minimum 75mm (2.95") head of oil is maintained above the suction element.

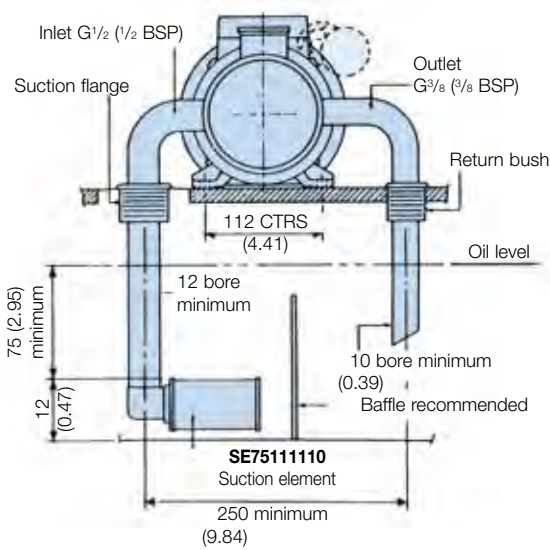
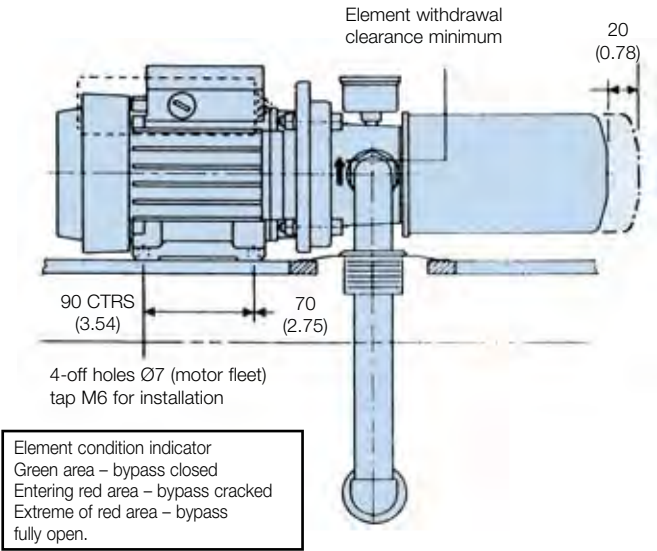
The outlet pipe should be as large as possible to reduce the possibility of delivery pressure exceeding the bypass valve setting. It should not be less than 10mm (0.39") internal diameter. The discharge end of this pipe should always be below the oil surface to minimise aeration. It is equally important, to ensure the ends of the inlet and outlet pipes are as far apart as possible. It is recommended that a baffle be positioned between the suction and return pipes, to give maximum circulation of oil.

Installation details – 2742

The Filtration Unit is available without an electrical motor, any type motor may be used of identical frame, flange and shaft size to that stated in the specification. Remove the key, fitted to electric motor shaft. There are four nuts and bolts M8-1.25mm thread supplied loose, the pump housing is complete with a shaft adaptor with internal drive pin.

To fit pump to electric motor simply insert drive shaft of motor into the pump drive adaptor ensuring the drive pin engages in shaft keyway and that the locating spigot are correctly engaged. Complete the assembly by fitting the four nuts, bolts and washers.

Ideal Application



Ordering Information

Standard products table

Part number	Description	Weight	Replacement elements
2741	10µ abs. filtration pump complete with 3 phase electric motor (380/420/50 Hz H.E.F.C class F) visual indicator	5.92 Kg (13.02 lbs)	MXR8550 (10µ abs.)
2742	10µ abs. filtration pump without electric motor (supplied with 4 x nuts, bolts and washers) visual indicator	1.50 Kg (3.3 lbs)	
2743	10µ abs. filtration pump complete with single phase electric motor (220/50 Hz T.E.F.C class F) visual indicator	6.20 Kg (13.64 lbs)	
2744	10µ abs. filtration pump complete with single phase electric motor (110/50 Hz T.E.F.C class F) visual indicator	6.20 Kg (13.64 lbs)	

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for Availability

10MFP Series

with Moduflow plus
Portable Filtration Trolley



The ideal way to pre-filter and transfer fluid

Transfer fluid from drums or storage tanks

Using a Parker portable filter trolley is the most economic way to protect your system from the harm that can be caused by contamination.

Option. Consider specifying an icountPD particle detector to allow accurate detection of particulate when transferring oil.



Contact Information: Product Features:

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- 10MFP hydraulic trolley is the ideal way to pre-filter and transfer fluids into reservoirs or to clean up a system.
- Heavy-duty frame but still lightweight and portable.
- Maximum flow 38 l/min.
- Par-Gel water removal elements available.
- icountPD particle detector option.
- MS Moisture Sensor option.

10MFP Series

Portable Filtration Trolley

Applications for Portable Filter Carts

- **Filtering new fluid before putting into service**
- **Transferring fluid from drums or storage tanks to system reservoirs**
- **Conditioning fluid that is already in use**
- **Complimenting existing system filtration**
- **Removing free water from a system**
- **For use with fluids such as hydraulic, gear and lube oils**

Parker portable filter carts are the ideal way to prefilter and transfer fluids into reservoirs or to clean up existing systems.

Fluid should always be filtered before being put into use. New fluid is not necessarily clean fluid. Most new fluids (right out of the drum) are unfit for use due to high initial contamination levels. Contamination, both particulate and water, may be added to a new fluid during processing, mixing, handling and storage.

Water is removed by installing Par-Gel elements in the outlet filter. Par-Gel elements are made from a polymer which has a very high affinity for free water.

Once water comes into contact with this material, it is removed from the system.

The Parker portable filter cart uses two high capacity ModuFlow Plus filters for long element life and better system protection. The first stage (inlet) filter captures larger particles, while the second stage (outlet) filter controls finer particles or removes water. A rugged industrial quality gear pump gets the job done fast.

Using a Parker portable filter cart is the most economical way to protect your system from the harm that can be caused by contamination.

Features	Advantages	Benefits
<ul style="list-style-type: none">• Two filters instead of one w/ 2.5 times increased DHC	<ul style="list-style-type: none">• Pump protection and long element life	<ul style="list-style-type: none">• Element cost savings and trouble-free service
<ul style="list-style-type: none">• Wide variety of particulate elements available	<ul style="list-style-type: none">• Capable of getting a fluid to a desired cleanliness level	<ul style="list-style-type: none">• Extends fluid life and system performance
<ul style="list-style-type: none">• Par-Gel™ water removal elements available	<ul style="list-style-type: none">• Removes “free water” from a system	<ul style="list-style-type: none">• Gets dirt and water out of system with one process
<ul style="list-style-type: none">• Heavy duty frame	<ul style="list-style-type: none">• Rugged and durable	<ul style="list-style-type: none">• Built to last for many years of use
<ul style="list-style-type: none">• Lightweight and portable	<ul style="list-style-type: none">• Easy to move from place-to-place	<ul style="list-style-type: none">• One person operation
<ul style="list-style-type: none">• 3.35 m hose and wand assemblies included	<ul style="list-style-type: none">• Additional hardware not necessary	<ul style="list-style-type: none">• Ready to use as received

Features

Hose & wand assembly

- Ready to use; no additional hardware needed
- Flexible hoses for tight spots
- Kink-resistant hose prevents pump cavitation

Visual indicator

- Tells you when to change element

Heavy Duty frame

- Rugged and built to last

Dual filters

- Two stage, double length filtration for long element life and pump protection

Elements (not shown)

- Available for both particulate and Water Removal (WR) in double length w/ 2.5 times increased dirt holding capacity

Icount PD (SmartCart option)

- Early warning LED or digital display indicators for Low, Medium and High contamination levels
- Self diagnostic software

Service cover

- Top-accessible for easy changing of elements

Electrical Cord Reel Option

Consult Parker Filtration

Gear pump

- Industrial quality
- Quiet operation
- Dependable, long life

110V/220V AC motor

- Industrial brand name

Drip tray

- Helps keep the work area safe and clean

10MFP Series

Portable Filtration Trolley

Specifications:

Maximum Recommended Fluid Viscosity:

10MFP – (108 cSt) 500 SUS
0.85 specific gravity

Visual Indicator (outlet filter):

Visual differential type
3-band (clean, change, bypass)

Filter Bypass Valve Settings (Integral to Element):

Inlet – 0.2 bar (3 psi)
Outlet – 2.4 bar (35 psi)

Flow Rate:

38 L/min (8.3 Gal/min)

Operating Temperature:

-40°C to +66°C (-40°F to +150°F)

Electrical Service Required:

10MFP – 110/220 volts, 60/50
Hz, single phase, 10/5 amps

Electrical Motor:

10MFP – ¾ hp @ 3450 rpm, O.D.P.
Thermal overload protection

Construction:

Cart frame – Steel
Filter head – Aluminum
Filter bowl – Steel
Hoses – PVC (Std.)
EPDM (high temp option)
Wands – PVC (Std.)
Steel tube (high temp option)

Weight:

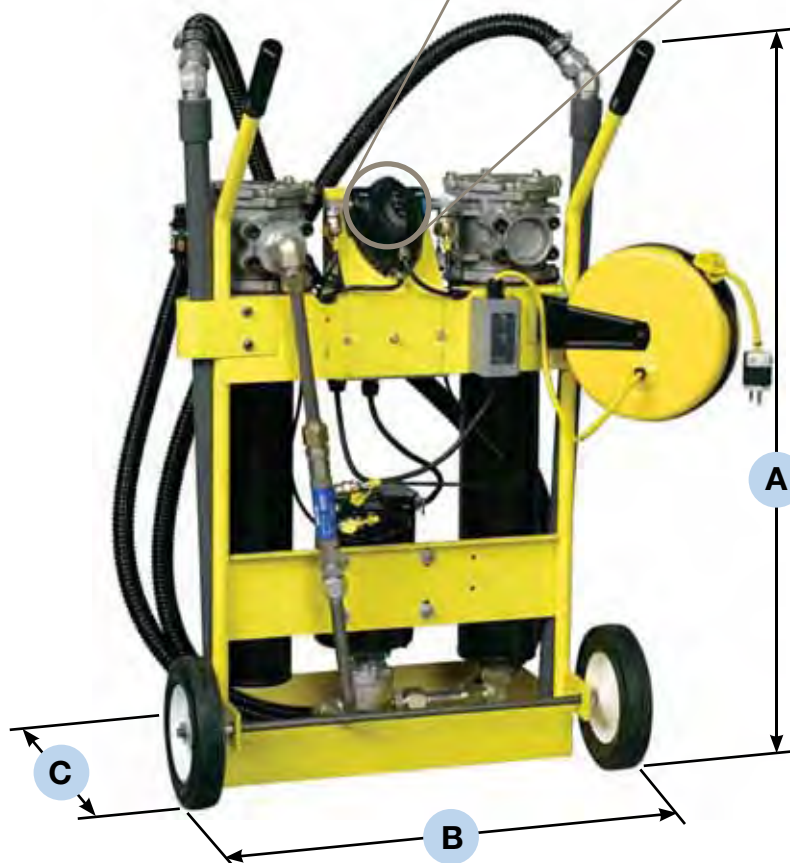
45.4kg (110 lbs.)

Dimensions:

A = Height: 1034mm (40.7 in.)

B = Width: 648mm (25.5 in.)

C = Depth: 503mm (19.8 in.)



New feature!

SmartCard

Parker is pleased to announce its R&D effort to offer a diagnostic filter trolley - the SmartCard. The icountPD particle detector, the most up-to-date technology in solid particle detection, can be mounted to the standard frame of the filter cart for enhanced monitoring of your hydraulic system. The icountPD, coupled with the filter cart is a cost effective solution to fluid management and contamination control.

Note: Electrical Cord Reel is an option. Consult Parker Filtration

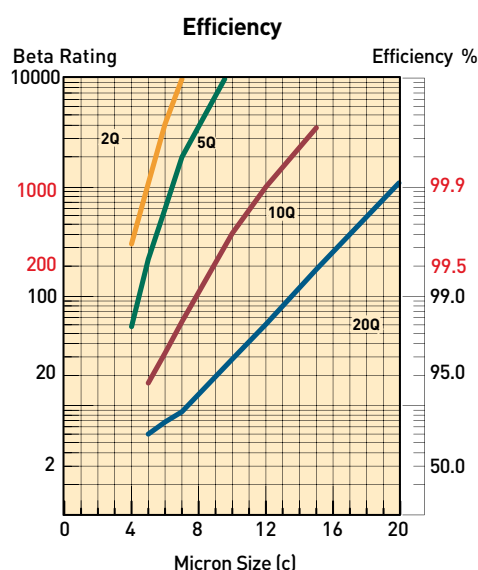
Typical Fluid Cleanliness Level Requirements

Many manufacturers of hydraulic components have established fluid cleanliness levels for their components. Using a portable filter cart can be a very effective way to reach and maintain these cleanliness levels.

Component	ISO Cleanliness Level
Servo control valves	16/14/11
Proportional valves	17/15/12
Vane and piston pumps/motors	18/16/13
Directional and pressure control valves	18/16/13
Gear pumps/motors	19/17/14
Flow control valves	
cylinders	20/18/15
New fluid	20/18/15

Filter Cart Element Performance

Media Code	Filter Media	Capacity (Grams)
40W	Woven Wire	*
40SA	Synthetic	*
20Q	Microglass III	140
10Q	Microglass III	135
05Q	Microglass III	130
02Q	Microglass III	110



Notes: Multipass test run @ 80 l/pm to 3.5 bar terminal - 5 mg/l BUGL.

Filter Cart Performance

Fluid cleanliness levels are a function of initial contamination levels, contamination ingress rates, reservoir size and filter element efficiency. The chart below lists approximate time requirements to achieve certain cleanliness levels based on the assumptions noted.

Reservoir Capacity (Litres)	Time Required (Hours)	Projected Cleanliness Level (ISO)
190	0.5	20/18/15
190	1.0	17/15/12
190	2.5	16/14/11
378	1.5	18/16/13
378	2.5	17/15/12
378	4.0	16/14/11
757	2.5	19/17/14
757	3.5	18/16/13
757	5.0	17/15/12

Notes:

The results in the chart are based on the following assumption:

1. Initial contamination level is 500,000 particles greater than 10 micrometers per 100 ml of fluid (10MFP cart).
2. Inlet filter fitted with 40SA element; outlet with 20Q element.
3. System ingress rate equal to 1×10^6 particles greater than 10 micrometers entering the system per minute.

Par-Gel Media Water Capacity

Model	Fluid Viscosity	Capacity
10MFP	14cSt	500 ml
	43cSt	300 ml

Notes:

1. Par-Gel elements are designed to remove "free water", which is defined as water that is above a particular fluid's saturation level.
2. Capacity is very dependent on flow rate and viscosity. Not recommended with fluids in excess of 500 SUS.

Assembly

1. Install hoses to inlet and outlet filters by threading the hose end with the straight thread o-ring seal fitting into the filter flange.
2. Connect the PVC tube wands to the swivel fitting on the hose end. When servicing the PVC tube wand, do not over-torque the metal fittings going into the PVC coupling. Over-torque will result in cracking the coupling. Generally, 1/4 turn beyond hand-tight is sufficient.

Operating Instructions

1. Insert the inlet wand assembly into the supply fluid receptacle (drum/reservoir). The RFP filter is the inlet filter.
2. Insert the outlet wand assembly into the clean fluid receptacle (drum/reservoir). The ILP filter is the outlet filter.

Caution: Do not kink the hose assemblies, this may result in excessive vacuum or pressure at the pump.

3. Verify that the ON/OFF switch is OFF and plug the cord into the proper grounded power source (3 wire).
4. Turn switch to ON position and check outlet wand for oil flow. Allow 30 to 60 seconds for filters to fill with oil. If repeated attempts to obtain oil flow fail, check pump inlet fittings for tightness, remove inlet filter access cover and verify the cover sealing o-ring is in place. For very viscous fluids it may be necessary to pour 1 or 2 quarts of fluid into the RFP inlet filter housing to prime pump initially.
5. The condition of the filter element should be monitored by observing the cleanliness indicator on the outlet filter. When the indicator is in the CHANGE position, both inlet and outlet filter elements MUST be replaced to prevent fluid from going through the bypass in the filters.

6. The inlet filter element is provided with a 0.2 bar bypass spring, and prevents the pump from cavitating if the element is not changed. The outlet filter element is provided with a 2.4 bar bypass spring to prevent excessive pressure which may be harmful to personnel or to the filter cart.

Warning: The filter bypass spring acts as a relief valve for the pump. Do not restrict the outlet hose with a shut-off valve which will defeat the function of the bypass valve, causing excessive pressure, which may be harmful to personnel or to the filter cart.

7. The cleanliness indicator works on differential pressure and will indicate the condition of the element (CLEAN, CHANGE, or BYPASS).

NOTE: The filter cart must be in operation for the indicator to read properly.

Maintenance Instructions

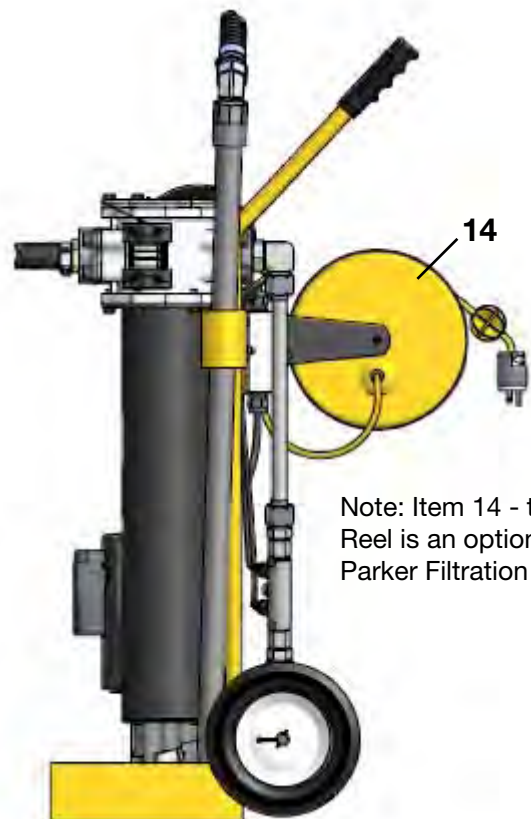
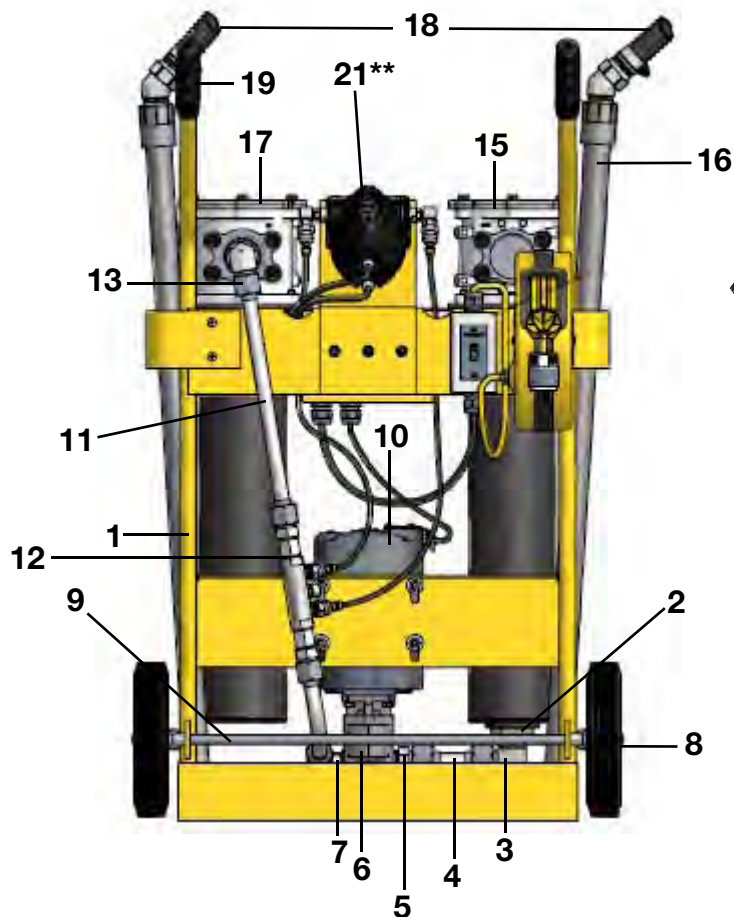
1. Turn switch to OFF position and unplug cord from electrical outlet.
2. Remove tube wands from oil to prevent siphoning.
3. Loosen hex head screws on filter cover. Turn cover to clear screws, remove cover.

4. Pull filter element from the filter head.
 - a) Replace the synthetic or Microglass III elements. Verify replacement.
 - b) Wire mesh elements can be cleaned. Ultrasonic cleaners provide best results.
5. Make sure element o-rings seat properly into the head, making sure that the notch on the element lines up with the notch in the head.
6. Inspect the cover o-ring and replace if necessary.
7. Relocate the cover and tighten hex head screws until they are snug. Do not over-torque these screws (Max torque is shown in maintenance leaflet). Do not interchange the inlet filter cover with the outlet filter cover. (The inlet filter has a "RFP" prefix, the outlet filter has a "ILP" prefix).
8. Contact the HFD service department at 419-644-0259 regarding IPD calibration.
9. IPD removal: remove oil lines from the IPD at the two fittings closest to the IPD. Disconnect the two cables from the IPD. Remove IPD from cart via two screws. The cart can be used without the IPD as long as the sample hoses are removed from the System 20. Protect sampling connectors from contamination.

Trouble Shooting

Problem	Cause	Solution
Does not start	ON/OFF Switch	Turn switch ON, replace switch if defective
	No electrical power	Plug in cart
	Defective motor	Contact service department
No oil flow or erratic pump noise	Filter housing not filled with oil	Allow pump to run 30 to 60 seconds
	Suction leak	Check tightness of inlet fittings
		Check o-ring in inlet filter cover for nicks
Indicator reads CHANGE or BYPASS		Kink or restriction in inlet hose
		Add 1 or 2 quarts of oil to inlet filter
	Defective pump	Contact service department
Indicator reads CHANGE or BYPASS	Element dirty	Replace or clean elements (both filters)
	Oil extremely cold or viscous	Change element to coarser micron rating
Indicator does not seem to move	No outlet element	Install element
	40 micron element installed in outlet filter	Check cart model number to verify correct element. The inlet filter has a rating RFP prefix; the outlet filter has an ILP prefix

Filter Trolley Parts



Note: Item 14 - the Cord Reel is an option. Consult Parker Filtration

Item No.	Description	Qty
1	Frame	1
1	Frame (SmartCart)	1
2	Pipe Reducer Fitting	1
3	Tube Fitting	1
4	Suction Tube Assy.	1
5	Adapter Fitting	1
6	Pump	1
7	Adapter Fitting	1
8	Wheel	2
9	Axle	1
10	Motor 10MFP	1
10	Motor 5MFP	1
11	Discharge Tube Assy.	1
12	Discharge Tube Top (SmartCart)	1
	Discharge Tube Bottom (SmartCart)	1
	System 20 (SmartCart)	1
	System 20 Fitting 1 (SmartCart)	2
	1System 20 Fitting 2 (SmartCart)	2

Item No.	Description	Qty
13	Tube Fitting	1
14	Cord Reel	1
15	Inlet Filter – Nitrile	1
15	Inlet Filter – Fluorocarbon	1
16	Tube Wand Assy. – Seal Option B	2
17	Outlet Filter – Nitrile	1
17	Outlet Filter – Fluorocarbon	1
18	Hose Assy. – Seal Option B	2
19	Handle Grip	2
20	Element, (1) Inlet & (1) Outlet	2
21	Icount PD (SmartCart)	1
	Icount Cable (SmartCart)	1
	Icount Hoses (SmartCart)	2
	Icount Fitting 1 (SmartCart)	2
	Icount Fitting 2 (SmartCart)	2

Note: For information on replacement parts, consult Parker Filtration

Ordering Information

Standard Products Table

Part Number	Supersedes	Model	Motor Option	Inlet Element	Outlet Element	Plug Type	Replacement Elements	
							Inlet	Outlet
10MFP140SA10Q1UK	10MF140SA10Q1UK	10MFP	1*	40SA	10Q	UK	940802	937399Q
10MFP140SA10Q1EUR	10MF140SA10Q1EUR	10MFP	1*	40SA	10Q	EUR	940802	937399Q
10MFP240SA10Q1IND	10MF240SA10Q1IND	10MFP	2*	40SA	10Q	IND**	940802	937399Q

Note 1: Motor Options* Option 1 = 220/240 VAC. Option 2 = 110 VAC.

Note 2: Plug Type** IND = Industrial 110 VAC UK Option

10MFP Replacement Elements

10MFP Replacement Inlet Elements				
Part Number	Micron Rating (c)	Media Type	Seal Type	Integral Bypass
940971Q	20	Microglass III	Nitrile	0.2 Bar
940802	40	Synthetic	Nitrile	0.2 Bar
940803	40	Stainless Steel	Nitrile	0.2 Bar

10MFP Replacement Outlet Elements				
Part Number	Micron Rating (c)	Media Type	Seal Type	Integral Bypass
937397Q	4.5	Microglass III	Nitrile	2.4 Bar
937398Q	6	Microglass III	Nitrile	2.4 Bar
937399Q	10	Microglass III	Nitrile	2.4 Bar
937400Q	20	Microglass III	Nitrile	2.4 Bar
940734	WR	Water Removal	Nitrile	2.4 Bar

Note 1: Part numbers featured with bold highlighted codes will ensure a 'Standard' product selection

Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability

Note: the following elements are for the 10MF Filtration Trolley (which the 10MFP is replacing)

10MF Replacement Elements

10MF Replacement Inlet Elements			
Part Number	Micron Rating (c)	Media Type	Seal Type
924448	40	Synthetic	Nitrile
G02525Q	20	Microglass III	Nitrile
G00968	40	Stainless Steel	Nitrile
G00967	74	Stainless Steel	Nitrile

10MF Replacement Outlet Elements			
Part Number	Micron Rating (c)	Media Type	Seal Type
G00973Q	10	Microglass III	Nitrile
G04687Q	4.5	Microglass III	Nitrile
G00974Q	6	Microglass III	Nitrile
G02525Q	20	Microglass III	Nitrile
927584	WR	Water Removal	Nitrile

Note 1: Part numbers featured with bold highlighted codes will ensure a 'Standard' product selection

Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability

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.parker.com/hfde

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

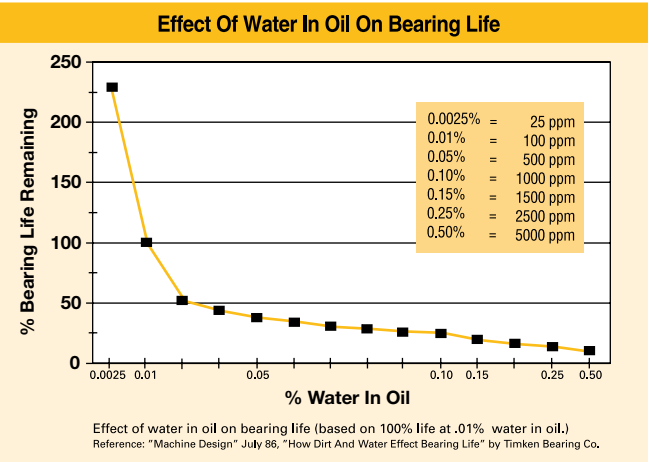
Effects of Water Contamination

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

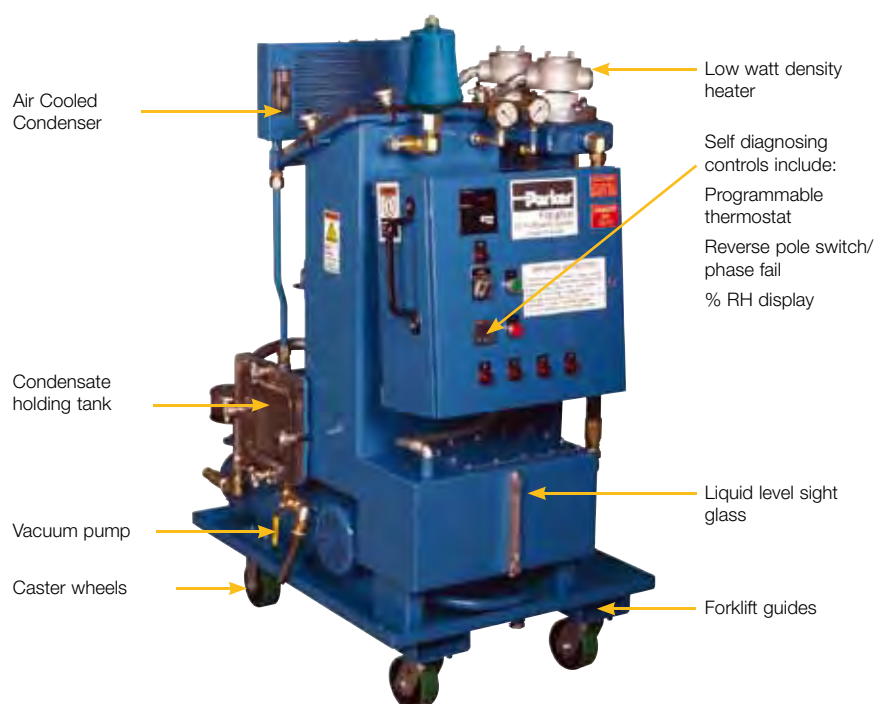
- Bearing lubrication
- Continuous casters
- Press roll lubrication

• 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

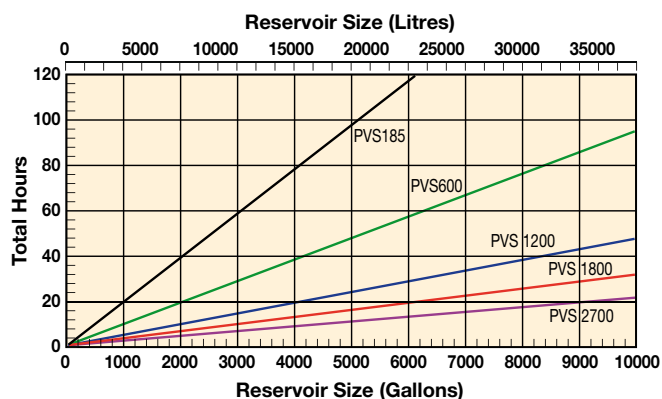


Start



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

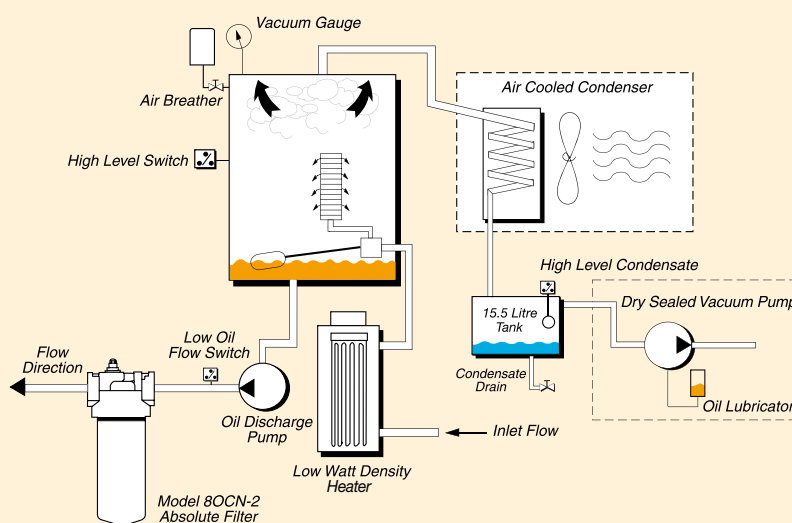
Option Coreless Particulate IL8-3

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

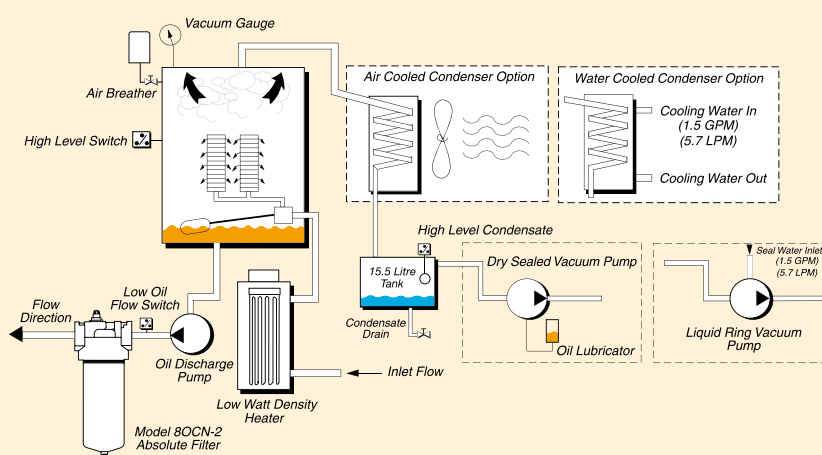
Option Coreless Particulate IL8-3

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:

1½" NPTF inlet.

1" JIC (male) outlet.

FLA (full load amps):

30-48 amps.

(Depending on options & voltages).



Replacement elements

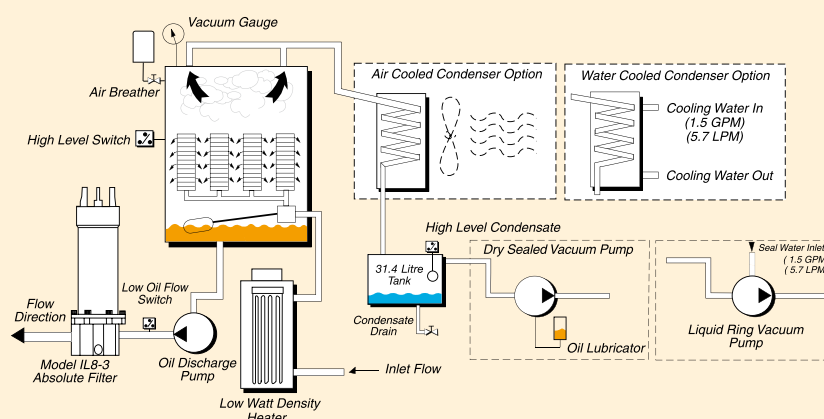
Dispersal

Disposable (coalescing)	933180
Packed tower (cleanable)	933553

Coreless IL8-3

02QE	933734Q
05QE	933612Q
10QE	933735Q
20QE	933736Q

PVS 1200 flow diagram



Portable Purification Systems

PVS 2700

Portable Purification Systems

Specification

Flow rate: 170 lpm (37.4 gpm).	Minimum operating capacity: 68.1 ltrs (14.98 gals).
Height: 1651mm (65").	Vacuum (max): 25 In/Hg.
Width: 1066.8mm (42").	Viscosity (max): 108 cSt (500sus) – disposable. 460 cSt (2150 sus) – packed tower.
Length: 1943.1mm (76.5").	Outlet pressure (max): 4.1 bar (60 psi).
Weight: 1156.7 kg (2550 lbs).	Ports: 3" NPTF inlet. 2" NPTF outlet.
Seal material: Fluorocarbon (EPR opt.).	FLA (full load amps): 50-70 amps @ 460 V/60hz.
Condensate tank: 31.4 ltrs (6.9 gals).	
Dispersal elements: 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	Description	Description	Model
Code	Code	Code	Description
Fluorocarbon	Portable Purification System	19 lpm (4.2 gpm)	380VAC, 3P, 50HZ
EPR	PVS	38 lpm (8.3 gpm)	460VAC, 3P, 60HZ
		76 lpm (16.7 gpm)	575VAC, 3P, 60HZ
		114 lpm (25.0 gpm)	380VAC, 3P, 50HZ
		170 lpm (37.4 gpm)	460VAC, 3P, 60HZ
			550VAC, 3P, 60HZ
			380VAC, 3P, 50HZ
			460VAC, 3P, 60HZ
			550VAC, 3P, 60HZ
			380VAC, 3P, 50HZ
			460VAC, 3P, 60HZ
			550VAC, 3P, 60HZ
			380VAC, 3P, 50HZ
			460VAC, 3P, 60HZ
			550VAC, 3P, 60HZ

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

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	Model	Description	Description
Code	Description	Code	Code
80CN-2	185	Air cooled	Pneumatic wheels
IL8 (39") Ecoglass III upgrade	12 KW	Liquid cooled	Auto condensate drain
	24 KW		Dirty filter light
	24 KW		Resettable hour meter
	36 KW		Sight flow indicator
	48 KW		Inlet control valve
			CE marked
			CSA marked
			Explosion proof

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

