



OPERATOR'S MANUAL FOR DOUBLE ACTING PISTON HAND PUMP

OPERATION AND SERVICE GUIDE
O-1550G
JAN. 2001

Refer to Bulletin P-404 and Parts List P-9990.

⚠ SAFETY PRECAUTIONS

1. This manual contains important information for the safe and proper operation of this pump. Read it THOROUGHLY before operating or installing the pump.
2. Use only original factory replacement parts.
3. Operators should be properly instructed on operating procedures and safety precautions.
4. Do not use torches or apply fire or flame to this pump for any reason.
5. When pumping corrosives, provide personal protection such as rubber gloves, aprons, eye shield, and adequate ventilation. Consult chemical manufacturer for additional cautions.
6. Do not overtighten non-metallic threaded fittings. One full turn past hand tight is usually enough to prevent leakage. One roll of Teflon tape is provided and should be used on all threaded joints.
7. Inspect the siphon breaker regularly to ensure proper operation. To test siphon breaker, lay hose on ground with nozzle in a suitable container to hold the liquid. Operate the handle until liquid flows from the nozzle. Stop pumping; the hose should drain and the flow stop. If flow continues without moving the handle, place the nozzle in its hanger to stop the flow. Then inspect siphon breaker vent for blockage or freezing. Flush the vent with fresh water, or if pumping petroleum products, use clean product.

DESCRIPTION

1. The pump is equipped in one of several ways. Compare your model number with the chart below. This will tell you what materials make up your pump. If you have not checked the chemical compatibility of your pump with the liquid to be pumped, do it now before using the pump! A chemical resistance chart is packed with the pump.

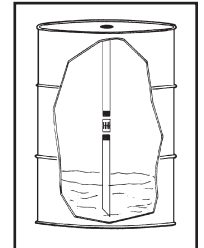
	MODEL	"O"-RING	Viton
Ryton	HPV	Viton	cork-nitrile
	HPN	Viton	EPDM
	HPE	EPDM	Viton
fluoropolymer	HRV	Viton	cork-nitrile
	HRN	Viton	EPDM
	HRE	EPDM	Viton
	HHV	Viton	EDPM
	HHE	EPDM	polyester

GASKET

2. Depending on model number and options ordered, the following parts are shipped loose in the carton and should be checked before destroying the carton and packaging material. See the drawing in Parts List

P-9990 to help identify these items.

1. – 1 bung adapter (#32)
 2. – 1 clamp (#31)
 3. – 1 hose (#17), complete with: 1 hose adapter (#21), 1 nozzle (#15), 2 hose clamps (#16)
 4. – 1 suction tube (#36)
 5. – 1 suction extension tube (#34)
 6. – 1 coupling (#35)
 7. – 1 roll Teflon tape
 8. – 1 discharge spout
3. The pump handle can be easily positioned either up for normal use, or down, allowing the pump to be elevated. This would be convenient, for example, when pumping from a truck mounted drum or barrel. See Pump Operating Instructions, Step 6.
 4. A siphon breaker is built into the pump discharge. This prevents siphoning the drum if the hose drops from its hanger. It also allows the hose to drain completely after pumping.
 5. The barrel is vented by 4 relief channels molded into the bung adapter. This prevents drawing a vacuum in the barrel.
 6. The suction tube (#36) and extension tube (#34) supplied are cut to fit a standard 55 gallon drum. The suction tube has a bevel cut at one end and is threaded at the other end. The extension tubes are threaded at both ends. Extra extension tubes (#34) and couplings (#35) may easily be used for deeper vessels such as tanks. Maximum suction lift is 15 feet.

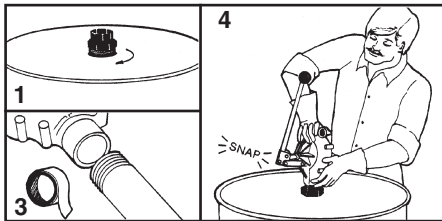
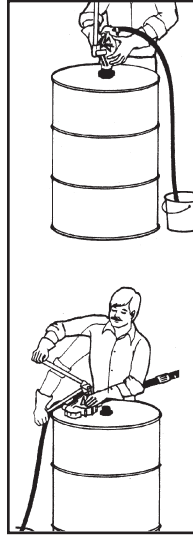


INSTALLATION INSTRUCTIONS

1. A 55 gallon drum on end requires 1 extension tube, 1 coupling, and 1 suction tube, threaded together.
2. To use the side bung hose on a 55 gallon drum, thread together 1 extension tube, 1 coupling, and a 5" length of suction tube. The plastic tube can easily be cut with a hacksaw. Make the cut at an angle. **DO NOT CUT THE THREADED END.**
3. For 275 gallon tanks, thread together two extension tubes and one suction tube.

To prevent spilling liquid when removing pump from barrel, observe the following precautions:

1. Straighten discharge hose and hold it below the pump discharge. Allow hose to drain into a container.
2. Loosen stainless steel clamp (#31).
3. Pull pump from bung adapter and allow suction tube to drain back to the barrel. Lay pump flat with handle up. Place container under nozzle. Operate handle until liquid is cleared from pump housing.
4. Allow discharge hose to drain. Place the hose nozzle in its hanger. If pump will not be installed in a new barrel, any caustic or corrosive chemicals should be flushed with fresh water internally and externally to prevent personal injury during handling.

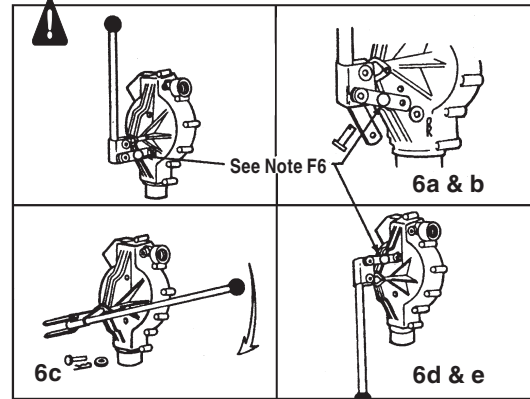


PUMP OPERATING INSTRUCTIONS

For easy installation, follow these steps in the order shown.

1. Screw the bung adapter into the drum or barrel. Be sure not to overtighten (Refer to Safety Precautions, #6)
2. Install supplied clamp loosely around bung adapter.
3. Thread appropriate length of suction tube and extension tube(s) into pump suction. Use the Teflon tape provided.
4. Install pump and tubing into bung adapter by pushing straight down firmly. Housing will snap in place. Tighten the clamp, (#31). Screw hose and adapter or discharge spout into pump body.
5. **CAUTION:** When pumping from a lined drum, order part #58-0069. This is a flexible suction tube and will prevent damage to the liner.
6. The handle position can be changed with the following steps.
 - a. Remove hairpin clip (#6) from clevis pin (#7).
 - b. Remove clevis pin from housing to free links, (#8).
 - c. With links clear of housing, rotate handle 1/2 turn to new position.
 - d. Install clevis pin through the links and the opposite hole in housing.
 - e. Install hairpin clip through the hole in the clevis

- pin. Ensure the flat washer (#4) is installed between the hairpin clip and the link.
- f. **CAUTION:** This hole used for security lock, only.



7. Remove hose from hanger, and place nozzle in container. Operate handle to prime the pump. 3-6 strokes are required under most conditions. After the pump is primed, it will deliver about one gallon for every four full strokes (backward and forward).

TROUBLESHOOTING GUIDE

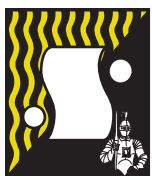
1. PUMP WILL NOT PRIME
 - a. Clogged suction. Check that suction tubes are clear and that screen filter is not dirty or clogged. Use a pair of needle nose pliers or a stiff piece of wire to pull suction screen from housing. Clean if necessary, and push gently back into housing with a finger or blunt rod.
 - b. Air leakage. Check that the connection to housing, extension tube, and suction tube, are threaded tightly and sealed with Teflon tape.
 - c. Piston leakage. Verify that Teflon ring fits snugly in bore and is not cut or excessively worn.
 - d. Valve leakage. Inspect poppet valves for weak springs or clogging. If pump was recently disassembled **verify proper position of valve seats**. Refer to Maintenance — Reassembly, paragraph a.
 - e. Gasket leakage. Inspect for torn gasket (#18), poor fit, or loose coverplate screws (#20).
2. NOT ENOUGH FLOW
 - a. Check Disassembly 1 - 5. Check discharge hose for clogging or pinching. Verify that nozzle is not clogged.
 - b. Check that piston is traveling its full stroke and the linkage has not bound or jammed.

MAINTENANCE

Use only original factory replacement parts.

1. DISASSEMBLY
 - a. Remove hose (#17) from housing. Unscrew suction and/or extension tubes (#34 & #36).
 - b. Remove hex nuts (#22) and screws (#20) from housing. Remove cover plate and gasket (#19 &

- #18), being careful not to damage the gasket.
- c. Remove large and small valve assemblies (#24 & #23) and inspect for broken or weak springs, or damaged or clogged valves.
 - d. Remove hairpin clip (#5), washer (#4), and clevis pin (#3) which hold handle (#2) to the piston rod. Remove hairpin clip (#6), flat washer (#4), and clevis pin (#7) from links (#8) at the pump housing (#37). Remove pin (#3) from piston rod and set handle aside. Slide piston assembly (#28) from the housing.
 - e. Inspect Teflon ring (#30) in piston groove. It must extend about 1/32" above the edge of the piston to seal properly. If the ring has worn flush with the piston edge, it must be replaced. When removing the Teflon ring, be careful not to damage the piston if tools are being used. Always replace the "O"-ring (#29) when replacing the Teflon ring. The rubber "O"-ring is compressed over time, reducing its ability to seal.
 - f. Inspect piston bore in housing (#37) for wear. Any gouging or scraping would indicate that the liquid being pumped contains abrasives. Replace the housing and Teflon ring if the surfaces are gouged or worn.
 - g. Remove the two screws (#9) that hold retaining plate (#10) to the housing. Remove plate to expose piston rod "O"-ring (#11). Replace "O"-ring if worn.
2. REASSEMBLY
- a. Install the two small valve assemblies (#23) in the housing first, then the two large valve assemblies (#24). There is a small tab molded into the valve seats which fits a guide channel in the housing. This prevents installing the valve seats backwards. If the tabs are broken, please note the following.
 1. The suction valve seats (lower two) should have their springs facing each other when installed.
 2. The discharge valve seats (upper two) should have springs facing away from each other.
 - b. Install piston rod "O"-ring (#11). Install retainer plate (#10) with the groove facing away from the pump housing. Ensure piston (#28) has "O"-ring (#29) and Teflon ring (#30) installed. Teflon ring will stretch enough to install by hand (tools may damage the piston). Slide piston rod into housing. The Teflon ring will catch on the edge of the housing while pushing the piston into the bore. To help seat the ring, turn piston slowly while pushing ring into the groove with fingers. **DO NOT FORCE PISTON.**
 - c. Inspect the coverplate gasket (#18) for damage.
 - d. Lay coverplate and gasket on housing and install screws (#20) and hex nuts (#22). Tighten firmly enough to compress the gasket.
 - e. Install short clevis pin (#3) through the piston rod and handle securing with washer (#4) and hair pin clip (#5). Install clevis pin (#7), flat washer (#4) and links (#8) at the pump housing.
 - f. Install hose, and suction and extension tubes as required.



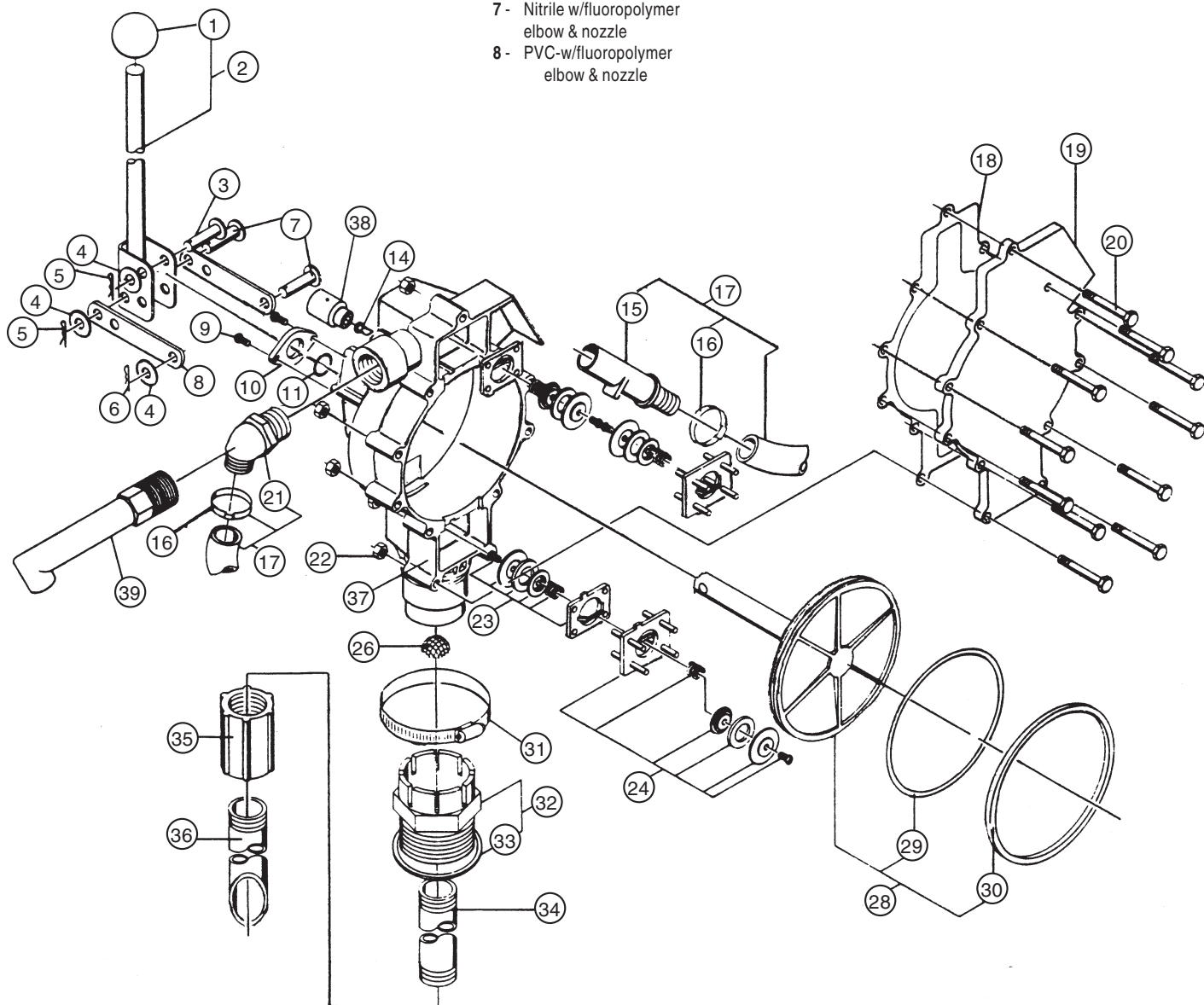
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V. PUMP PARTS LIST SERIES 'HP'

The model numbering system for the Hand Pump is made up of 7 digits, each of which tells something about how the pumps are built. The following chart explains each digit.

1ST DIGIT SERIES	2ND DIGIT HOUSING MATERIAL	3RD DIGIT ELASTOMERS	4TH DIGIT DISCHARGE HOSE	5TH DIGIT SUCTION TUBE	6TH DIGIT DISCHARGE SPOUT	7TH DIGIT BUTRESS BUNG ADAPTER
H	P - Polyester R - Ryton H - Fluoropolymer	V - Gasket: Viton O-rings: Viton Vacuum breaker: Viton N - Gasket: Cork/Nitrile O-rings: Viton Vacuum breaker: Viton E - Gasket: EPDM O-rings: EPDM Vacuum breaker: EPDM	1 - EPDM w/polyester elbow & nozzle 2 - Nitrile w/polyester elbow & nozzle 3 - PVC (Black) w/polyester elbow & nozzle 4 - Cross linked polyethylene w/polyester elbow & nozzle 5 - Cross linked polyethylene w/fluoropolymer elbow & nozzle 6 - EPDM w/fluoropolymer elbow & nozzle 7 - Nitrile w/fluoropolymer elbow & nozzle 8 - PVC-w/fluoropolymer elbow & nozzle	A - Polyester suction tube B - Teflon suction tube w/fluoropolymer coupling C - UHMW-PE suction tube w/fluoropolymer coupling D - PVC flexible suction tube	M - Polyester discharge spout N - Fluoropolymer discharge spout	R - Polypropylene/polyester ass'y for 'HP' Pump S - Polypropylene/fluoropolymer ass'y for 'HR' Pump T - Polypropylene/fluoropolymer ass'y for 'HH' Pump



ITEM	DESCRIPTION	QTY	PART NO.
1	Knob - polypropylene	1	58-1049 40
2	Handle, assembly, includes item 1	1	58-1050 01
3	Pin, clevis, 5/16" x 1-1/8" - plated steel	1	58-1053
4	Washer, flat - nylon	4	58-1380 90
5	Clip, hairpin, small - plated steel	2	58-1379
6	Clip, hairpin, large - plated steel	1	58-1027
7	Pin, clevis, 5/16" x 1-1/4" - plated steel	2	58-1031
8	Link - plated steel	2	58-1052
9	Screw, #10-14 x 3/4" - stainless steel	2	58-1348 10
10	Plate, retaining - polyester, black	1	58-1032 30
	- fluoropolymer, white	1	58-1032 90
11*	"O"-ring, piston rod - EPDM	1	58-1030 72
	- Viton	1	58-1030 73
14*	Vacuum breaker - EPDM, black	1	58-1040 72
	- Viton, green	1	58-1040 73
15	Nozzle, no-lead - polyester, black	1	58-1325 30
	- fluoropolymer, white	1	58-1325 90
16	Clamp, hose, crimped - stainless steel	2	58-1044 12
17	Hose discharge assembly		
	- black PVC w/polyester nozzle and fitting	1	58-1342 02
	- black PVC w/fluoropolymer nozzle and fitting	1	58-1342 92
	- black Nitrile w/polyester nozzle and fitting	1	58-1342 04
	- black Nitrile w/fluoropolymer nozzle and fitting	1	58-1342 94
	- red EPDM w/polyester nozzle and fitting	1	58-1342 05
	- red EPDM w/fluoropolymer nozzle and fitting	1	
	- cross linked, polyethylene w/polyester nozzle and fitting	1	58-1342 95
	- cross linked, polyethylene w/fluoropolymer nozzle and fitting	1	58-1342 07
18 *	Gasket, coverplate - EPDM, black	1	58-1204 72
	- Viton, brown	1	58-1204 73
	- cork-nitrile	1	58-1204 90
19	Coverplate - polyester, red	1	58-1209 30A
	- Ryton, black	1	58-1209 80
	- fluoropolymer, white	1	58-1209 90
20	Screw, 1/4"-20 x 2", slotted hex washer head		
	- plated steel	11	58-1206
	- stainless steel	11	58-1206 10
21	Adapter, hose, 3/4" MNPT x 3/4" hose barb, 60° elbow		
	- polyester, black	1	58-1214 30
	- fluoropolymer, white	1	58-1214 90
22	Nut, hex, 1/4"-20 - plated steel	11	58-0721
	- stainless steel	11	58-0721 10
23*	Valve assembly, small		
	- polyester, EPDM	2	58-1340 02
	- polyester, EPDM, Hastelloy spring	2	58-1340 02H
	- polyester, Viton	2	58-1340 03
	- polyester, Viton, Hastelloy spring	2	58-1340 03H
	- fluoropolymer, EPDM	2	58-1340 92
	- fluoropolymer, EPDM, Hastelloy spring	2	58-1340 92H
	- fluoropolymer, Viton	2	58-1340 93
	- fluoropolymer, Viton, Hastelloy spring	2	58-1340 93H
24*	Valve assembly, large		
	- polyester, EPDM	2	58-1341 02
	- polyester, EPDM, Hastelloy spring	2	58-1341 02H
	- polyester, Viton	2	58-1341 03
	- polyester, Viton, Hastelloy spring	2	58-1341 03H
	- fluoropolymer, EPDM	2	58-1341 92
	- fluoropolymer, EPDM, Hastelloy spring	2	58-1341 92H
	- fluoropolymer, Viton	2	58-1341 93
	- fluoropolymer, Viton, Hastelloy spring	2	58-1341 93H

ITEM	DESCRIPTION	QTY	PART NO.
28 *	Screen, filter, - stainless steel	1	58-1038 10
	Piston assembly, Teflon ring		
	- polyester, EPDM "O"-ring	1	58-1338 02
	- polyester, Viton "O"-ring	1	58-1338 03
	- fluoropolymer, EPDM "O"-ring	1	58-1338 92
29 *	- fluoropolymer, Viton "O"-ring	1	58-1338 93
	"O"-ring, piston - EPDM	1	58-1029 72
30	- Viton	1	58-1029 73
	Ring, piston - Teflon		
	for polyester pumps	1	58-1028 90
31	for Ryton and fluoropolymer pumps	1	58-2024 90
32*	Clamp, bung adapter - stainless steel	1	58-1056 10
	Adapter, bung assembly		
	- polyester with cork-nitrile gasket	1	58-1043 01
	- fluoropolymer with Buna-N "O"-ring	1	58-1201 91
	- fluoropolymer with EPDM "O"-ring	1	58-1201 92
	- fluoropolymer with Viton "O"-ring	1	58-1201 93
	Adapter, buttress/bung assembly		
	- polypropylene/polyester, 2" buttress x 2" NPT for HP pumps	1	58-0031 P
	- polypropylene/fluoropolymer, 2" buttress x 2" NPT for HR pumps	1	58-0031 R
	- polypropylene/fluoropolymer, 2" buttress x 2" NPT for HH pumps	1	58-0031 H
33*	Gasket, bung adapter - cork-nitrile	1	58-1381 90
	"O"-ring bung adapter - Buna-N	1	58-1822 71
	- EPDM	1	58-1822 72
	- Viton	1	58-1822 73
34	Tube, extension, 6-1/2" long		
	- polyester	1	58-1007 30
	- UHMW-PE	1	58-1007 50
	- Teflon	1	58-1007 90
35	Coupling, 1" NPT - polyester, black	1	58-1055 30
36	- fluoropolymer, white	1	58-1055 90
	Tube, suction 16-1/2" long (for 55 gal. drum)		
	- polyester	1	58-1045 30
	- UHMW-PE	1	58-1045 50
	- Teflon	1	58-1045 90
	Tube, suction 10-1/4" long (for 30 gal. drum)		
	- polyester	1	58-2029 30
	Tube, suction flexible, 35" long		
37	- PVC (not shown)	1	58-0069
	Housing - polyester, red	1	58-1022 30A
	- Ryton, black	1	58-1022 60
38	- fluoropolymer, white	1	58-1022 90
	Plug, vent - polyester, black	1	58-2022 30
	- fluoropolymer, white	1	58-2022 90
39	Spout - polyester, black	1	58-2020 30
	- fluoropolymer, white	1	58-2020 90
40	Polypropylene filter capsule, 1.0 nominal, fluoropolymer adapter and spout	1	59-0011
	Polypropylene filter capsule, 2.0 nominal, fluoropolymer adapter and spout	1	59-0013
41	Replacement filter capsule, 1.0 nominal	1	59-0012
	2.0 nominal	1	59-0014

* Certain pump parts are available in several materials. Use the first 3 digits of your model number to select the proper "O"-rings and gaskets from the chart on Page 1.