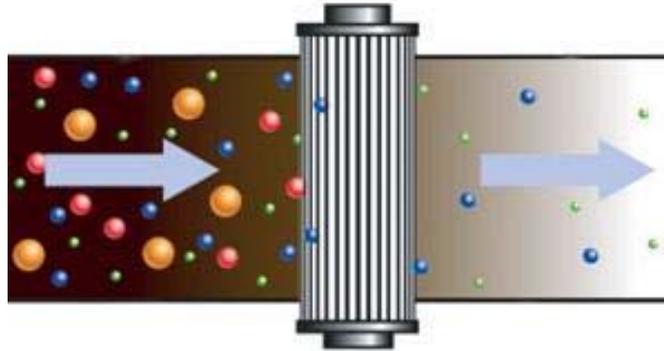


**Get Superior Hydraulic Performance and Longer Component Life thru Optimum Oil Cleanliness!**



Uniloy is pleased to offer Kidney Loop and High Pressure Filtration solutions for your blow molding machines. These retrofits are available for any Uniloy Reciprocating Screw Blow molder.

**Filtration Standards Have Changed**

Machine technologies have changed over the years and so have industry standards in terms of hydraulic oil filtration. An understanding of just how damaging and costly poor oil filtration can be has tightened requirements and extended the lifespan of most common hydraulic components such as cylinders, valves, and pumps. Today it is a well-known fact that:

- 70% of all hydraulic component failures are caused by oil particulate contamination.
- Component life can be extended by as much as twice as long by improving filtration to today’s standards and eliminating contamination.

**Filtration Supplied with Original Equipment**

The following tables include lists of machine models and the original hydraulic power units supplied with them. The tables also include original filter part numbers and their filtration capabilities.

VICKERS POWER UNITS			STRAINER	SUCTION FILTER	RETURN FILTER	HIGH PRESS FILTER
MODEL	HP	PU P/L	149 MICRON	74 MICRON	10 MICRON	15 MICRON
2011	10	835479	1730005	N/A	N/A	N/A
5710	7.5	828186	N/A	1730009	N/A	N/A
5730	7.5	828186	N/A	1730009	N/A	N/A
350R1	7.5	837537	N/A	1730135	N/A	N/A
350R2	10	848655	N/A	1730135	N/A	N/A
350R2	30	887916	N/A	1730142	N/A	N/A
350R4	30	848540	N/A	1730142	N/A	N/A

REXROTH POWER UNITS			STRAINER	SUCTION FILTER	RETURN FILTER	HIGH PRESS FILTER
MODEL	HP	PU P/L	149 MICRON	74 MICRON	10 MICRON	15 MICRON
250R1	15	148221	N/A	N/A	1730325	10414164*
350R2	30	144396	N/A	N/A	1730325	10414164*
400R11	30	146004	N/A	N/A	1730325	10414164*

High pressure filters marked \* were marketed as an option and as such were not always supplied and may not be present.

Filter types marked N/A were not supplied with the hydraulic power units listed above.

As can be seen from the tables above, power units supplied as original equipment often had only 74 micron suction filters to clean the system hydraulic oil. A 74 micron filter provides a very poor level of protection for machine components. Based on today's filtration standards, Uniloy no longer recommends suction filters or strainers in any hydraulic system.

### Machine Filtration Requirements:

The Uniloy hydraulic systems listed in the tables above, all have system pressures of 1500 psi. By today's standards, for a system with an operating pressure below 2000 psi, the recommended level of filtration for oil supplied to hydraulic machine components is as follows:

- Directional valves            20 microns
- Cylinders                        20 microns
- Variable piston pumps        10 microns
- Variable vane pumps         10 microns



In addition to filtration level, the volume of oil filtered is also important. The following rules should be followed:

- A return line filter must see at least 20% of the system volume of oil per minute in order for that style filter to be sufficient alone.
- A high pressure filter should see full pump flow for at least 60% of a machine cycle in order to be effective alone.

In a Rexroth hydraulic system supplied for a Uniloy Reciprocating Screw machine, return oil from the clamp actuator(s), swing arm actuator, and prefinish cylinders is available to be filtered before returning to tank. In most cases this does not add up to 20% of the system volume per minute. Therefore a return line filter alone is not enough. In a Vickers hydraulic system, the return line is not physically available therefore a return line filter is not possible.

All Recip machine hydraulic systems are powered by either variable piston or variable vane pumps. In a typical machine cycle, the variable pump is at full stroke while the accumulator bottles are charging. In most cases this accounts for more than 60% of the machine cycle.

Rexroth power units supplied by Uniloy as retrofits today have both a 10 micron return line filter to keep the reservoir clean and protect the pump and a 10 micron high pressure filter to handle the total system volume. These two filters in combination satisfy both volume and micron level filtration requirements. In the Vickers unit, only the high pressure filter is used due to the return line not being available to filter.

### Kidney Loop Filtration:

A kidney loop system is an option which can be added to any existing hydraulic power unit. This system has its own pump and motor which circulate oil from the hydraulic reservoir thru a filter and back to tank. One advantage to this system is that it can be turned on and run anytime whether the machine is running or not. The kidney loop retrofit includes a 5 GPM pump and 7 micron filter which is capable of filtering all of the oil in a 60 gallon reservoir in 12 minutes.

### Recommended Filtration:

VICKERS POWER UNITS			STRAINER	SUCTION FILTER	HIGH PRESS FILTER	KIDNEY LOOP
MODEL	HP	PU P/L	149 MICRON	74 MICRON	10 MICRON	7 MICRON
2011	10	835479	Remove	N/A	10880782	10821119
5710	7.5	828186	N/A	Remove	10880782	10821119
5730	7.5	828186	N/A	Remove	10880782	10821119
350R1	7.5	837537	N/A	Remove	10880782	10821119
350R2	10	848655	N/A	Remove	10880782	10821119
350R2	30	887916	N/A	Remove	10880782	10821119
350R4	30	848540	N/A	Remove	10880782	10821119

For Vickers power units, we recommend:

- Remove strainer or suction filter
- Add a high pressure filter
- Add a kidney loop filter

REXROTH POWER UNITS			RETURN FILTER	HIGH PRESS FILTER	KIDNEY LOOP
MODEL	HP	PU P/L	10 MICRON	10 MICRON	7 MICRON
250R1	15	148221	1730325	10880782	10833271
350R2	30	144396	1730325	10880782	10833271
400R11	30	146004	1730325	10880782	10833271

For the Rexroth power units, we recommend:

- Add the high pressure filter if not originally supplied
- If the existing high pressure filter is 15 micron, replace it with 10 micron
- Add a kidney loop filter

## **Filtration Upgrades Include:**

### **High Pressure Filter**

- Hycon filter 10 micron
- Mounting bracket
- Weld pad
- Spare filter element
- Hydraulic fittings and hose
- Fasteners

### **Kidney Loop Filtration**

- ¾ HP 115-208-230V/1PH/60Hz motor
- 5 GPM hydraulic pump
- Motor to pump coupling
- Pall filter 7 micron
- 2 spare filter elements
- Toggle on/off switch
- 25' 120V single phase power cord
- Hydraulic fittings and hose
- Fasteners

## **Sales and Service and Engineering**

For more information including pricing on Kidney Loop or High Pressure Filter Assemblies, please contact your local Uniloy Parts Sales Representative. Trained Uniloy Service Representatives are available to assist in the installation of these packages at your facility. All Uniloy retrofit packages are engineered to suit your individual machine specifications. Complete engineering documentation including assembly drawings, parts lists, and schematics are always included.