

Of all the questions we are asked the most frequent are about off-line filtering oils. How long to off-line filter oils, what size pump do I need to off-line filter my oils? How do you determine the pump size?

Off-Line filtration (also known as kidney loop), is when a portable filter cart is connected to a hydraulic reservoir, gear box, turbine or other equipment to draw oil out of the equipment, filter it and then return it back into the equipment. This is a very effective method of filtration because the flow rates are usually very slow and the filters are usually very high efficiency. In most cases, off-line filtration can be performed even while equipment is running.

The most common recommendation is to turn the oils over 4-6 times in an hour.

As for the pump size (in gallons per minute) you will need to know how many gallons of oil you want to off-line filter or how many gallons are in the equipment.

Multiply the amount of gallons in the reservoir by a factor of 4-6 and then divide by 60 (because there are 60 seconds in an hour) to get the pump flow required in gallons per minute.

* When I don't have a calculator handy, I simply multiply the amount of gallons in the reservoir by point 1 or 10% (this shortcut calculates 6 turns of the oil in an hour divided by 60 seconds in a minute). Example 100 gallon reservoir x .1 = 10GPM

From our example above, we would use a 10GPM pump to off-line filter 100 gallons of oil in a reservoir in 1 hour. That would filter all of the oil in the reservoir 6 times.

If multiple pieces of equipment were involved, we could rotate our filter cart from one machine to another each hour.

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