Schroeder INDUSTRIES

Advanced Fluid Conditioning Solutions®

PROUDLY MANUFACTURED IN THE UNITED STATES

FILTER SYSTEMS

Improved Reliability

Branded Solutions

Lower Maintenance Costs

Why do Hydraulic and Lubrication Fluids Need to be Clean?

Influence of Particulate Contamination

Particulate contaminants circulating in fluid power systems cause surface degradation through general mechanical wear (abrasion, erosion, and surface fatigue). This wear causes increasing numbers of particles to be formed, the result being that wear increases if the "chain reaction of wear" is not properly contained (by reducing contamination). Gaps grow larger, leakage oil flows increase in size and operating efficiency (e.g. of pumps, cylinders) decreases.

Hydraulic component clearances are critical and require strategic filtration designs to remove damaging particles. Critical clearances for individual hydraulic components are shown in the table below:

Component	Typical Critical Clearance (µ)
1. Gear Pump	0.5-5
2. Vane-cell Pump	0.5-5
3. Piston Pump	0.5-1
4. Control Valve	5-25
5. Servo Valve	5-8

In hydraulic systems, 70 to 90% of wear and failure is contamination related. Only 10 to 30% can be traced back to misuse, defects or age. **Contamination cannot be stopped, only slowed down!**

System efficiency can drop by up to 20% before an operator even detects a problem, such as cylinder drift, jerky steering, erratic operation or slower performance. Overall, contamination results in shorter service intervals, higher operating costs and lost productivity.

Product Application Examples

AMFS

Asset Management Filtration Station® | AMFS

Problem:
Refuse company faced with short oil life and dirty hydraulic fluid in their trucks.

Solution:
Through filter and monitoring 3500 gallons (13,250 L) of hydraulic oil at $6.19 per gallon ($1.64 per Liter), refuse company was able to save $21,665 in 6 months (through extending fluid life). The decision to implement the AMFS filter system company-wide was made.

HY-TRAX® Telematic Communications Module with Remote Controlled Sampling System

Telematic Communications Module with Remote Controlled Sampling System

Problem:
An Alaskan mining company's hydraulic shovels were breaking down due to high contamination levels in their hydraulic system. They needed a way to monitor fluid cleanliness levels while the machine was operating.

Solution:
Upon installation, the HY-TRAX® Telematic Communications Module provided continuous remote monitoring. Management was able to schedule maintenance intervals without having to leave the office to collect fluid samples. **HY-TRAX Manual Communication Module is also available or included as an option on the MFS/MFD, X-Skid and KLD.**

Product Application Examples

MFD

Mobile Dual Filtration Cart for Roll-Off Cleanliness

Problem:
Customer needed a way to ensure roll-off cleanliness specifications were met after factory assembly and test run of lawn tractors.

Solution:
MFD Filter Cart cleans the oil used in the lawn tractors in a roll-off cleanliness program. At the factory, the customer is using the filter cart to clean the fluid prior to shipping the unit. The dual filtration design allows staged filtration and/or water removal if required.

MFD w/ HY-TRAX

Mobile Dual Filtration Cart | MFD with HY-TRAX®

Problem:
Customer was seeking a solution to quicken the traditional bottle sampling procedures for oil warranty claims. They requested an on-site particle counter to confirm the required ISO code was met before sending the oil for the warranty to be honored.

Solution:
The customer ordered a HY-TRAX Retrofit option to easily add contamination monitoring to their existing MFD filtration cart. As a result, the customer could measure and record their fluid cleanliness level. They could confidently send their oil sample, knowing their corporation would honor the warranty based on the approved bottle sample. **HY-TRAX Communication Module is available on the MFS/MFD and KLS/KLD for oils up to 2500 SUS using the G2185 option.**

KLD

Dual Stage Kidney Filtration Skid for Lube Oil Treatment | Power Gen

Problem:
Customer was experiencing problems with external ingression of coal dust getting into the 255 gallon (965 L) lube oil reservoirs on their coal pulverizers causing degradation wear on the bearings and bull gears, which lead to premature aging of the system components.

Solution:
Installation of KLD filtration skid cleaned up the system fluid from coal dust particulates and other contamination. As a result, the internal wear on system components as well as unscheduled downtime due to contamination was reduced dramatically.

X-Skid

X-Skid Kidney Loop System for In-Plant Fluid Treatment

Problem:
High contamination levels in new hydraulic fluids, beyond the standard set for use in construction machinery. Customer uses four different types of fluids, each in 500 gallon (1892 L) tanks, that need to be treated individually.

Solution:
Reduce the particle counts down to an ISO 16/14/11 or better, by using 37 gpm (140 L/min) dual staged QF15 housings with an integrated Testmate® Contamination Monitor and Testmate® Water Sensor (TWS).

After the X Skids are turned on, following a new fluid delivery, they can bring the differing fluids into compliance in less than 4 hours. This type of installation is a vital component in fluid conditioning to increase equipment and/or machinery component life and reduce down time and maintenance cost.

Fluid Treatment

New fluid, delivered by your supplier, is generally not clean enough for immediate use without prior filtration and treatment. In general, modern high pressure hydraulic systems demand fluid cleanliness of ISO 18/16/13, or better. New fluid delivered in barrels could be as dirty as ISO 23/21/18.

Markets Served

CONTAMINATION CONTROL - FILTER SYSTEMS

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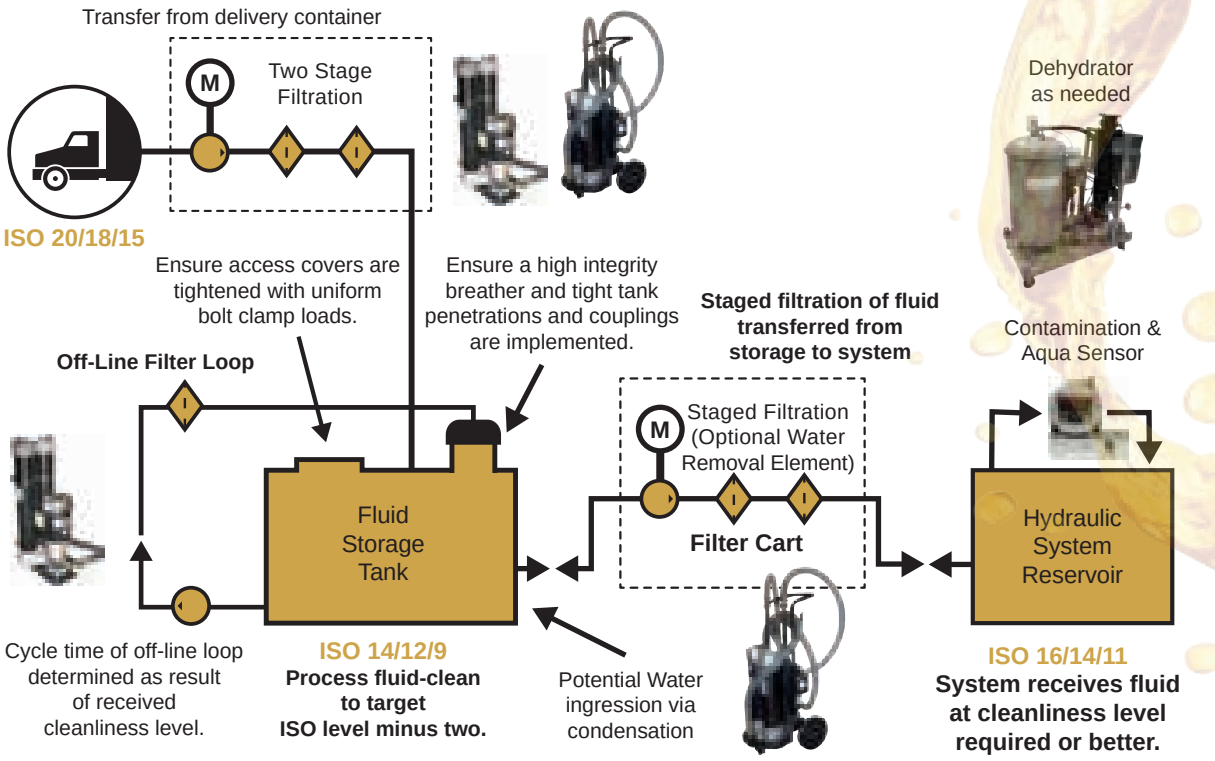
Handling of new fluid in a plant involves several points of contact between receiving and hydraulic reservoir (point of use). At each step in the process, the fluid should be filtered either by permanently installed filters, or by filter carts using high efficiency filter elements.



A Kidney Loop System, placed on a fluid storage tank, is continuously working (e.g. 24/7) with constant flow and is not influenced by pressure and flow variations that are present in a typical hydraulic system. Therefore, the kidney loop filter works more efficiently in removing particles than a system filter (pressure or return filters).

Visit us online @ www.schroederindustries.com for our complete product offering!

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Advanced Fluid Conditioning Solutions®
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FS Filter Systems & Diagnostic Tools