



FILTRATION

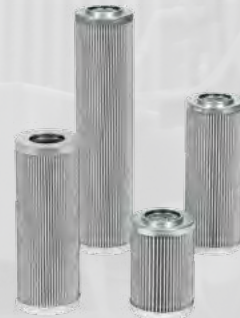


**Fluid Contamination
Under Control
with Innovative
Products, Support
and Solutions.**



High Performance Filter Elements

Reduce vendors, consolidate inventory and clean up your system by replacing all major filter manufacturers and OEM spare elements with Hy-Pro upgrades. Replacements for Pall, Parker, Hydac, Schroeder, PTI, EPE, Internormen, Donaldson, Stauff, MP Filtri, Mahle, Fairey Arlon, General Electric, Hilco, Taisei Kogyo, Bosch, Rexroth, Kaydon and many more.



High Pressure Filter Assemblies

High pressure applications require cleaner fluid. Achieve and maintain target fluid cleanliness even under severe operating conditions. Rated up to 8700 psi (615 bar).

Coreless Filter Elements

Reduce rising disposal costs and minimize environmental impact. Hy-Pro elements do not sacrifice performance or structural integrity for disposability.

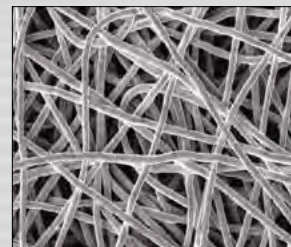


Duplex Filter Assemblies

A range of sizes, ports, and bypass valve settings are available along with true differential pressure indicators. Available up to 3,000 psi (210 bar) with flow rates up to 4,500 gpm (16,875 lpm).

Dynafuzz Stainless Steel Fiber Filter Elements

High performance protection against corrosive fluid & high temperatures.



DFE Rated Filter Elements & Filter Assemblies



Hy-Dry Desiccant Breathers and Suction Strainers

Remove water from the air that your system inhales and capture oil mist and fume exhaust. Prolong fluid life, maintain fluid lubricity, minimize rust, oxidation and acid production. Hy-Dry also works to enhance filter performance by removing particulate contamination down to 2 micron with 100% efficiency. No reservoir or gearbox should be without one. Suction strainers are available with stainless mesh media and without bypass.

No-Spark Discharge Filter Elements

Prevent oil degradation caused by thermal events associated with element spark discharge and anti-oxidant additive depletion while extending useful fluid life. Eliminate sparking without sacrificing fluid cleanliness.



High Flow Filter Assemblies

Featuring coreless element technology with single element and multi-element vessel designs. Ideal for lube, off-line, process fluid, bulk oil handling, and other high flow applications. ASME code stamps available. Rated up to 4000 gpm (15,000 lpm).

Water Removal Filter Elements

G8 Dualglass media co-pleated with water removal scrim to produce a filter that can remove water while maintaining $\beta_{x_{(c)}}$ =1000 efficiency down to $1\mu / 2.5\mu_{(c)}$

In-Tank Return and Spin-On Filter Assemblies

A range of sizes, ports, and bypass valve settings are available along with true differential pressure indicators. Available up to 150 psi (10 bar) with flow rates up to 200 gpm (750 lpm).

Fluid Contamination Under Control With...



Off-line and Mobile Filtration Systems

Filter new fluids during transfer and replenishment (top-off). Flush fluids already in service with high efficiency elements (portable side loop) in addition to existing filtration. Remove particulate, water and varnish contamination. Condition bulk oil before use.

Turbine Oil and Diesel Coalesce Conditioning

Meet target cleanliness levels and rapidly remove water to saturation point. Automatic water drain and 24/7 unattended operation. Standard units available from 1 - 600 gpm (3.8 - 2271 lpm).



FPL Dedicated Off-Line Filtration

Ideal for hydraulic fluids (ISO VG22 ~ ISO VG68) on compressors or compressor lube and small hydraulic reservoirs.



FC Mobile Off-Line Filtration

Ideal for hydraulic fluid transfer and conditioning oil in service. Remove particles and water. (ISO VG22 ~ ISO VG150).



FCL Mobile Off-Line Filtration

Ideal for high viscosity lube and hydraulic oils (ISO VG22 ~ ISO VG680). High efficiency elements to 1 micron and water absorbing capabilities.

Liquid Conditioning Station

Remove particulate contamination and water from your fluid before it enters your systems and clean up your lube room. Customizable tank labels, quantities, volumes, materials of construction, etc. to meet your exact needs.



Vacuum Dehydrator

Remove free and dissolved water from hydraulic, lube and transformer oils down to 20 PPM with Hy-Pro Vac-U-Dry. Extend fluid and component life by removing harmful water contamination. See the process rapidly remove water with clear vacuum chamber and condensate tank covers. Standard units available from 1 - 100 gpm (3.8 - 378 lpm).



FSL Dedicated Off-Line Filtration

Ideal for high viscosity lube and hydraulic oils (ISO VG22 ~ ISO VG680). Ideal for gearbox applications.



Fluid Conditioning Equipment



CFU - Compact Filter Unit

Ideal for hydraulic fluid transfer and conditioning oil in service. Remove particles and water. (ISO VG22 ~ ISO VG150).

Understanding ISO Codes - The ISO cleanliness code (per ISO4406-1999) is used to quantify particulate contamination levels per milliliter of fluid at 3 sizes $4\mu_{(c)}$, $6\mu_{(c)}$ and $14\mu_{(c)}$. The ISO code is expressed in 3 numbers (example: 19/17/14). Each number represents a contaminant level code for the correlating particle size. The code includes all particles of the specified size and larger. It is important to note that each time a code increases the quantity range of particles is doubling and inversely as a code decreases by one the contaminant level is cut in half.

| ISO 4406:1999 Code Chart | | |
|--------------------------|--------------------------|-----------------|
| Range Code | Particles per Milliliter | |
| | More Than | Up To/Including |
| 24 | 80000 | 160000 |
| 23 | 40000 | 80000 |
| 22 | 20000 | 40000 |
| 21 | 10000 | 20000 |
| 20 | 5000 | 10000 |
| 19 | 2500 | 5000 |
| 18 | 1300 | 2500 |
| 17 | 640 | 1300 |
| 16 | 320 | 640 |
| 15 | 160 | 320 |
| 14 | 80 | 160 |
| 13 | 40 | 80 |
| 12 | 20 | 40 |
| 11 | 10 | 20 |
| 10 | 5 | 10 |
| 9 | 2.5 | 5 |
| 8 | 1.3 | 2.5 |
| 7 | 0.64 | 1.3 |
| 6 | 0.32 | 0.64 |

| Particle Size | Particles per Milliliter | ISO 4406 Code Range | ISO Code |
|----------------|--------------------------|---------------------|----------|
| $4\mu_{(c)}$ | 151773 | 80000~160000 | 24 |
| $4.6\mu_{(c)}$ | 87210 | | |
| $6\mu_{(c)}$ | 38363 | 20000~40000 | 22 |
| $10\mu_{(c)}$ | 8229 | | |
| $14\mu_{(c)}$ | 3339 | 2500~5000 | 19 |
| $21\mu_{(c)}$ | 1048 | | |
| $38\mu_{(c)}$ | 112 | | |
| $68\mu_{(c)}$ | 2 | | |

| Particle Size | Particles per Milliliter | ISO 4406 Code Range | ISO Code |
|----------------|--------------------------|---------------------|----------|
| $4\mu_{(e)}$ | 69 | 40~80 | 13 |
| $4.6\mu_{(e)}$ | 35 | | |
| $6\mu_{(e)}$ | 7 | 5~10 | 10 |
| $10\mu_{(e)}$ | 5 | | |
| $14\mu_{(e)}$ | 0.4 | 0.32~0.64 | 6 |
| $21\mu_{(e)}$ | 0.1 | | |
| $38\mu_{(e)}$ | 0.0 | | |
| $68\mu_{(e)}$ | 0.0 | | |



FCLVAW - Portable Filter Cart for AW Hydraulic Oils with Sludge and Varnish Problems



FSA - Fluid Conditioner for Phosphate Ester Ideal for Maintaining Steam Turbine EHC Fire Resistant Fluids



ICB - Dry Ion Charge Bonding Acid Scavenging Elements for Phosphate Ester EHC Systems



SVR - Soluble Varnish Removal System Stops Fail to Start and Unit Trips

Varnish, Sludge, Acid and Sub-Micron Particle Removal

Prevent fail to starts and fluid condemnation by eliminating varnish and acid problems. Hy-Pro has developed solutions for all fluid types to address these issues and more. Contact us to find out which solution is right for you and keep your plant running at peak productivity!



ECR - Electrostatic Removes Thermal Degradation Sub-Micron Particles



FSTO - Turbine Lube Oil Varnish Removal System Prevents Varnish Related Servo Valve Failures



FSLVAW - High Efficiency Particulate Removal (< 0.7m), Water & Insoluble Sludge & Varnish Removal

Succeed with a Total Systems Cleanliness Approach

Developing a Total System Cleanliness approach to control contamination and care for fluids from arrival to disposal will ultimately result in more reliable plant operation and save money. Several steps to achieve Total Systems Cleanliness include: evaluate and survey all hydraulic and lubrication systems, establish an oil analysis program and schedule, insist on specific fluid cleanliness levels for all new fluids, establish a baseline and target fluid cleanliness for each system, filter all new fluids upon arrival and during transfer, seal all reservoirs and bulk tanks, install high quality particulate and desiccant breathers, enhance air and liquid filtration on existing systems wherever suitable, use portable or permanent off-line filtration to enhance existing filtration, improve bulk oil storage and handling during transfer, remove water and make a commitment to fluid cleanliness.



The visible cost of proper contamination control and total systems cleanliness is less than 3% of the total cost of contamination when not kept under control. Keep your head above the surface and avoid the resource draining costs associated with fluid contamination issues including:

- Downtime and lost production
- Component repair/replacement
- Reduced useful fluid life
- Wasted materials and supplies (\$)
- Root cause analysis meetings
- Maintenance labor costs
- Unreliable machine performance
- Wasted time and energy (\$)



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