

Bulk Liquid Filtration



Low Pressure, High Flow Filters

Duramax® Spin-On Filters

Manifolds

Breathers, Water Separators

Gauges, Valves, Test Points, more



www.donaldson.com



Donaldson Duramax units at this South Africa ore mine filter bulk oil as it runs from storage tanks to delivery trucks for transport to the customer. This parallel filter configuration provides for high flow rates.

Why install filtration on bulk oil and diesel systems?

Filtration on bulk oil and diesel systems controls the ingress of solid particulate matter into equipment when filling or topping up oil or fuel tanks.

Contamination in a lube or fuel system slowly wears away at expensive components, shortening usable life.

Filter manifolds may be installed upstream and downstream of bulk reservoirs or on recirculating systems for bulk oil and fuel. Using Donaldson's flexible HMK25 double head assembly and spin-on filters, we can easily customize a cost effective solution for high flow and high efficiency that meets your exact filtration needs.

Donaldson Filter Manifold Features

- ASA 150 Inlet and Outlet flanges
- Schedule 40 pipe work
- Upstream and downstream pressure gauges to monitor differential pressures
- Non-bypass to prevent contaminated fluid bypassing the filters
- Optional shut off valves/check valves for fast filter changes without shutting down flow.
- 2-way 80 gpm/300 lpm, 3-way 100 gpm/400 lpm, 4-way 160 gpm/600 lpm, 5-way 240 gpm/900 lpm (listed flow rates are measured for fuel)
- Can be used with a wide variety of fluids, viscosities and volumes
- Micron ratings from 3 μ m to 150 μ m absolute (@Beta 1000)
- Test points for oil sampling to monitor cleanliness levels. Test points also accommodate a gauge adaptor and gauge to monitor differential pressure across the filters.
- Gauge and gauge adaptor supplied with manifold
- Spin on filters allow cleaner filter maintenance



By reducing contamination levels in the bulk filtration system, you can reduce maintenance, downtime, labor costs and your total cost of ownership.



At this oil depot, high-flow/low-pressure HEK11 filters are used to remove both ingressed & induced contamination from oil that is piped around from reservoir to tank.



This truck transports hydraulic fluid to mines, steel mills and other industrial sites in South Africa. Four double-head HMK25 Duramax filters, with flow rates of 100gpm, are used to clean the oil before it is piped into large storage tanks at the customer site.



Donaldson Duramax® filters are the highest rated medium pressure filters available in a spin-on configuration.

Duramax® are reliable, sturdy, long-lived and easy to install. They are designed for working pressures up to 1000 psi. Media choices

include: SYNTEQ® (Donaldson's synthetic filter media specially made for fluid filtration), natural fiber cellulose and stainless steel wiremesh for harsh environments.

HEK11 High Volume Filter Manifolds

- 150 psi/1035 kPa working pressure
- For use with fuel or oil
- Flow rates to 300 gpm/1136 lpm
- Elements from 4µm to 35µm @ Beta 1000 and 150 µm nominal wiremesh
- Electrical or visual indicators
- 4" NPT or 2-1/2" SAE 4 bolt (code 61) flange ports
- Inside to outside flow for cleaner element maintenance



HEK11 filter sets continuously clean bulk oil at a copper mine in Indonesia. Read the case study details on the next page.

Bulk Oil Filtration Saves Money for Mine

A copper mine in southern Indonesia has found a way to save millions of dollars a year by continuously filtering oil.

As is typical of bulk oil deliveries, new oil coming to the site has a high particle count. More particles are added when oil is transferred from one storage container to another. Additional particle ingress comes from the lines between bulk storage tanks. The result is a particle count in excess of the desired ISO cleanliness code.

To solve the problem, the mine's heavy equipment workshop implemented a program to continually circulate and filter oil and antifreeze. The bulk fluids are circulated by economical basic air diaphragm pumps. HEK11 assemblies are mounted in parallel to filter oil as it comes out of the bulk tanks before it enters compartments. Each filter is equipped with a service indicator.





The impact of such a rigorous oil cleanliness program is measurable and impressive. The life of 793C special rear axle oil has been extended from 2,000 hour to 8,000 hours, resulting in oil savings of \$1,714 per truck per year. Total oil savings per year for rear axle oil filtration is \$78,844. The world cost-per-hour average for 793 wheel groups is \$7.00, or about \$6,619,200 per year. The average cost-per-hour at this site is \$3.08, about \$2,912,448 per year.

That's \$3,706,752 total savings per year for this 120-wheel group.

The system has been operating for over a year, producing immediate results and showing continued improvements in ISO cleanliness ratings. The mine is also seeing less downtime since filtering of the new oil starts when oil was scheduled for change. Kidney loop filtering time during preventative maintenance is also significantly reduced.

The success of the mine's program in southern Indonesia provides an excellent example of how to save money and improve productivity through clean oil.

The operation in southern Indonesia is an open pit mine with associated processing and support facilities. It produces copper concentrate containing small quantities of gold, which is transported to local and foreign smelters for further processing.



Breathers

Breathers installed on tanks prevent ingress of airborne solid contamination and moisture.

Bulk Tank Breather

- Micron ratings from 3 μ m to 35 μ m absolute (@Beta 1000)
- Desiccant Breather for water removal
- 1-1/2 BSP internal thread tank attachment
- 8 psi relief valve
- Informer indicator for element condition monitoring
- Replacement desiccant and filters available
- Capacity of 265 gpm/1000 lpm



Donaldson T.R.A.P. Breather with Thermally Reactive Advanced Protection

- Prevents moisture condensation in hydraulic tanks by lowering and stabilizing the relative humidity inside the tank, decreasing the dewpoint.
- T.R.A.P. media is self-regenerating
- Media efficiency 99.7% on particles 3 μ m and larger
- Reversible flow through media allows moisture to exit the tank
- Filter service indicator flashes when a change out is needed
- Effective down to -40 degrees F.



Diesel System Water Removal Solutions

In addition to particulate filters in diesel systems, water removal filters can be installed in lines upstream of the bulk tanks and downstream of the tanks on the filling/recirculating lines.

Fuel Filter/Water Separator

- Replacement element 15 μ m absolute (@Beta 1000)
- 1-1/2 BSP ports
- 58 psi/1400kPa/4 bar max pressure
- 40 gpm/150 lpm capacity

Diesel Fuel Water Separator Single Skid

- 40 gpm/150 lpm
- Max pressure 58 psi/1400 kPa/4 bar
- 15 micron absolute (@Beta 1000) water separator element
- 3 micron absolute spin-on filters (other efficiencies available)

Diesel Fuel Water Separator Double Skid

- 80 gpm/300 lpm
- Max Pressure 58 psi/1400 kPa/4 bar
- 15 micron absolute (@Beta 1000) water separator element
- 3 micron absolute spin-on filters (other efficiencies available)





Donaldson-developed Synteq® synthetic filter media has smooth, rounded fibers for low resistance to fluid flow. Synteq® is ideal for filtering synthetic fluids, water glycols, water/oil emulsions, HWCF and petroleum-based fluids.



Kidney Loop Dedicated Off-Line Circuit For Fluid Conditioning

One very effective way of ensuring thorough fluid conditioning is with a dedicated off-line circuit, or kidney loop.

Widely used in industrial applications, this system uses a separate circulation pump that runs continuously, circulating and conditioning the fluid. Multiple stages and types of filters can be included in the circuit, as well as heat exchangers and in-line immersion heaters.

We've designed the HFK08-0087 in-line model with features that make it perfect for kidney looping - SAE 20 ports, 50gpm flow capacity, a built-in visual service indicator and Synteq® synthetic media.

Kidney Loop Carts



This custom-built kidney loop cart uses two HFK08 filters with Synteq® filter media to clean the many bulk oil tanks in a steel mill in northern California.



Kidney Loop Carts are perfect for filtering hydraulic tanks and differentials on mobile equipment during the service interval. A variety of filter elements provide flexibility to achieve desired flow and cleanliness levels. Custom filter carts are available from most Donaldson distributors.

Call 1-800-846-1846 for more information.



Consistent Quality



**Filtration solutions that
lower your cost of ownership
through clean oil and fuel**

Less downtime

Longer machine life

Lower maintenance costs

Expert technical support

Reliable, prompt customer service

Hydraulic Filtration Solutions

Donaldson delivers quality hydraulic filters, replacement elements, test points and reservoir accessories for industrial and mobile equipment, bulk fuel and lube systems.

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Thousands of filters in stock, ready to ship.

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