



**Donaldson**  
*Filtration Solutions*



# Industrial Hydraulics

# Clean, Confident and Cost Effective

## Donaldson. The world-wide Leader in Technology.

▶ Donaldson is a leading world-wide provider of filtration systems and replacement parts. Since 1915, we have perfected and leveraged our core strengths: innovative technology, strong customer relationships and broad geographic presence, to meet the diverse and changing needs of our customers.

### Donaldson Industrial Hydraulic Filters offer you

- ▶ High Performance
- ▶ Less downtime
- ▶ Longer filter life
- ▶ Greater operating and energy savings

## Industrial Hydraulic Filtration Systems from Donaldson

▶ Donaldson develops, manufactures and markets a full line of industrial hydraulic filters and housings for the protection of machinery and components. When you need high-, medium-, or low pressure filters, filter housings, filter heads, replacement cartridges, spin-ons or hydraulic accessories turn to Donaldson. Our industrial hydraulic products reduce contaminants to keep equipment running longer and smoothly.

In decades of close cooperation with our customers, we have gathered expert knowledge in nearly all fields of industrial production.



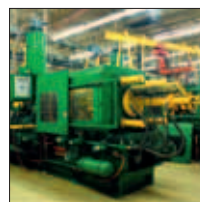
▶ PAPER



▶ POWER



▶ METAL



▶ PLASTICS



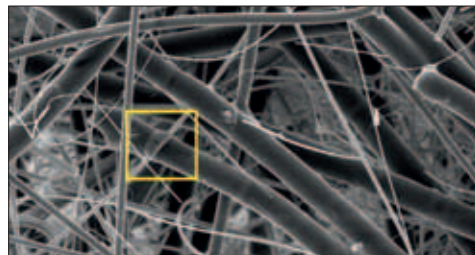
▶ MINING

## Advanced Media Technology

▶ We are the only filter manufacturer in the world that designs and develops its own media grades. In order to find a solution to the market needs, Donaldson developed **Synteq XP**, a filter media which is ideal for filtering synthetic fluids, water glycols, water/oil emulsions, high water content fluids (HWCF) and petroleum-based fluids.

All created media are also patented and limited to Donaldson.

Donaldson media efficiency performance levels are derived from the **ISO 16889** test standard with **NIST-certified** on-line automatic particle counters and ISO medium test dust.



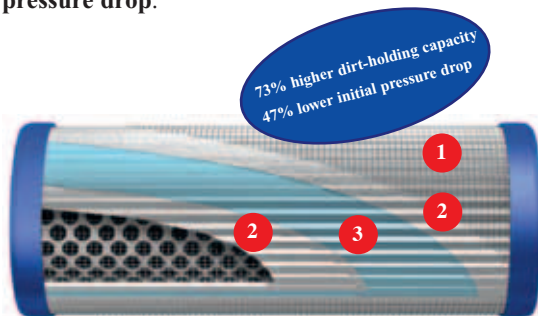
*New filter media: Synteq XP*

- ▶ Specific pore size control
- ▶ Maximum holding capacity
- ▶ Minimum pressure drop

# Donaldson Triboguard - Unrivalled Reliability

## Uptime Protection

▶ The Donaldson Triboguard line of high performance hydraulic filters is ideally suited for demanding applications. New and improved Donaldson Triboguard filters feature an advanced pleat pack design that provides premium protection for your system. The pleat pack is redesigned to give you **73% higher dirt-holding capacity** and **47% lower initial pressure drop**.



### 1 Epoxy-Coated Steel Support Mesh (Upstream and Downstream)

- ▶ Excellent pleat support and spacing
- ▶ Protects against media damage during handling and installation
- ▶ Excellent compatibility
- ▶ Allows for maximum effective media area

### 2 Media Support Layers (Upstream and Downstream)

- ▶ Optimizes media support
- ▶ Protects media during pressure surges

### 3 New Filter Media Synteq XP

- ▶ Specially developed for fluid filtration
- ▶ High efficiency
- ▶ Exceptionally low flow resistance
- ▶ Excellent compatibility
- ▶ Longer filter life



## High Performance Donaldson Triboguard DX2

This new 2-in-1 filter design results in 91 % more dirt-holding capacity, reducing maintenance costs.

### ▶ High Efficiency

Up to 43 % more pleats than other leading hydraulic filters

### ▶ Cost Effective

All the features of a coreless design - without the expense of housing modifications

### ▶ Cleaner Environment

Environmentally friendly, fully disposable - reduces waste and disposal costs



## Donaldson Triboguard Housings

▶ Donaldson expands its line of hydraulic filter housings for industrial hydraulic applications. The new products significantly expand the company's offering of filter system solutions and serve as a true differentiator to other housings.







# Industrial Hydraulic Filters from Donaldson -

## In-Line Filters

► In-Line filters keep the oil clean that comes directly from the pump so that the more expensive downstream components are protected.





Duramax has been the industry standard and with the next generation we are again ahead of competition.

	In-Line Filters – Medium Pressure Filters			
	HMK03 Duramax 	HMK04 (single head) & HMK24 (dual head) Duramax 	HMK05 (single head) & HMK25 (dual head) Duramax <sup>1)</sup> 	DT-061 
<b>Max. Operating Pressure</b>	69 bar / 1000 psi	34.5 bar / 500 psi	24.1 bar / 350 psi	41 bar / 600 psi
<b>Static Pressure</b>	138 bar / 2000 psi	69 bar / 1000 psi	55.2 bar / 800 psi	Typical burst pressure to 103 bar / 1500 psi max.
<b>Flow Range</b>	0 - 95 lpm / 0 - 25 gpm	HMK04: 0 - 130 lpm / 0 - 35 gpm HMK24: 0 - 230 lpm / 0 - 60 gpm	HMK05: 0 - 189.3 lpm / 0 - 50 gpm HMK25: 0 - 378.5 lpm / 0 - 100 gpm	0 - 379 lpm / 0 - 100 gpm
<b>Ports Connection</b>	¾" SAE-12 o-ring	¾" NPT, 1" NPT, SAE-12 o-ring, SAE-16 o-ring, SAE-20 o-ring, 1¼" 4-Bolt	1¼" NPT, 1½" NPT, SAE-20 o-ring, 1½" SAE o-ring, 1½" 4-Bolt Flange	SAE o-ring
<b>Special Characteristics</b>	► offers twice the pressure capability of competitive filters, yet is physically smaller than traditional housings / cartridge filter assemblies	► offers high flow capacities, heavy-duty design, and a very wide choice of replacement filters	► Full-range performance with Synteq XP filter media for high-flow applications, with the ease and convenience of a spin-on. The double element head means double flow capability, with two filters to hold more contaminants.	

1) The next generation of Duramax will be called HNK.

## Return Line Filters

The function of the Return Line Filters is to remove contaminants from the oil before returning to the tank.

	Return Line Filters			
	In-Tank Return Line Filters		In-Line Return Filters	
	FIK – FIO – FIOT SERIE 	FIK – FIO – FIOT SERIE 	FLK - FLS SERIE 	SP SERIE SPIN ON FILTER 
<b>Max. Operating Pressure</b>	10 bar / 218 psi	10 bar / 218 psi	30 bar / 435 psi	10 bar / 145 psi
<b>Static Pressure</b>	15 bar / 218 psi	15 bar / 218 psi	45 bar / 653 psi	15 bar / 218 psi
<b>Flow Range</b>	10 - 800 lpm / 2 - 176 gpm	10 - 150 lpm / 2 - 33 gpm	30 - 200 lpm / 6 - 44 gpm	40 - 400 lpm / 9 - 90 gpm
<b>Efficiency Range</b>	10 - 90 micron	10 - 90 micron	10 - 90 micron	10 - 60 micron
<b>Media Material</b>	Synthetic fiber, cellulose and wire mesh	Synthetic fiber, cellulose and wire mesh	Synthetic fiber, cellulose and wire mesh	Synthetic fiber, cellulose and wire mesh
<b>Ports Connection</b>	G and SAE 2 Flange	G (¾, ½, ¾, 1, 1¼)	GAS and SAE Flange	GAS and SAE Flange
<b>Special Characteristics</b>	<ul style="list-style-type: none"> <li>► Economical</li> <li>► Simple screw-on covers</li> <li>► Space saving</li> <li>► Ideal for low pressure in-tank applications</li> <li>► Heavy duty filter, with die cast aluminium head and steel canister</li> </ul>			<ul style="list-style-type: none"> <li>► The SP50/60 spin-on filter is ideal for process systems, fluid conditioning, in-plant and mobile equipment, power transmissions and many more.</li> </ul>

# A long Tradition of Innovation





	In-Line Filters – High Pressure Filters <sup>2)</sup>					
	FPK02 SERIE	HPK02 SERIE	HPK03 SERIE	HPK04 SERIE	HPK05 SERIE	DT-SERIE
						
<b>Max. Operating Pressure</b>	420 bar / 6090 psi	137.9 bar / 2000 psi	206.9 bar / 3000 psi	413.8 bar / 6000 psi	206.9 bar / 3000 psi	210 - 310 bar / 3000 - 4500 psi
<b>Static Pressure</b>	630 bar / 9135 psi	310.3 bar / 4500 psi	413.8 bar / 6000 psi	827.6 bar / 12000 psi	413.8 bar / 6000 psi	517 - 931 bar / 7500 - 13500 psi
<b>Flow Range</b>	0 - 95 lpm / 0 - 25 gpm	0 - 75 lpm / 0 - 20 gpm	0 - 227 lpm / 0 - 60 gpm	0 - 456 lpm / 0 - 120 gpm	0 - 757 lpm / 0 - 200 gpm	91 - 568 lpm / 20 - 150 gpm
<b>Ports Connection</b>	SAE-12 o-ring	SA-12 (3/4") o-ring Port Boss	SAE-12 and SAE-16 (3/4" and 1") o-ring Port Boss	SAE-20 & -24 (1 1/4" & 1 1/2") o-ring Port Boss, 1 1/4" & 1 1/2" SAE 4-Bolt Flange	2" SAE 4-Bolt Flange	1 1/2" SAE 4-Bolt Flange, SAE-12 o-ring, SAE-16 o-ring, SAE-24 o-ring
<b>Special Characteristics</b>	▶ perfect for high pressure, low flow applications					

2) Donaldson heavy-duty high-pressure filters sit behind pumps and other prime movers to protect critical hydraulic components such as cylinders, motors and valves. Various media options are available including Synteq XP filter media, specially developed by Donaldson for high efficiency liquid filtration.

## Suction Filters

Normally placed in or between the reservoir and the pump, suction filters are designed to remove particles in the 5 to 150 micron range.

They are easier to service than many other types of filters, their filter housing size tend to be larger than similar flow return or pressure filter housings.

	Suction Filters			
	In-Tank Suction Filters		In-Line Suction Filters	
	PXX - FIOA SERIE	FHK - FIR SERIE	FLK - FAL SERIE	FKB - FACA SERIE
				
<b>Max. Operating Pressure</b>	–	10 bar / 145 psi	30 bar / 435 psi	10 bar / 145 psi
<b>Static Pressure</b>	–	15 bar / 218 psi	45 bar / 653 psi	15 bar / 218 psi
<b>Flow Range</b>	5 - 400 lpm / 1 - 105 gpm	8 - 250 lpm / 2 - 66 gpm	10 - 300 lpm / 3 - 79 gpm	15 - 200 lpm / 4 - 53 gpm
<b>Efficiency Range</b>	30 - 250 micron	10 - 90 micron	10 - 90 micron	10 - 60 micron
<b>Media Material</b>	Cellulose and metal wire mesh	Synthetic fiber, cellulose and metal wire mesh	Synthetic fiber, cellulose and metal wire mesh	Synthetic fiber, cellulose and metal wire mesh
<b>Ports Connection</b>	NPT 3/8 to NPT 3	G 1/2 to G2	GAS and SAE Flange	GAS and SAE Flange
<b>Collapse Resistance</b>	5 bar / 73 psi	Element 10 bar	Element 10 bar	Element 10 bar

# HRK10 In-Line Filter & Bulk Liquid Filtration

## HRK10 In-Line Hydraulic Filter - Low Pressure, High Flow

### Applications

- ▶ Mining Bulk
- ▶ Off-shore
- ▶ In-Plant
- ▶ Bulk Oil & Fuel
- ▶ Return Line / Suction
- ▶ Cooling Circuits



### Features & Benefits

- ▶ Rugged all steel construction - durable
- ▶ Inside to outside flow - contaminants remain in filter at servicing
- ▶ High dirt-holding capacity & low pressure drop - longer filter life
- ▶ Proven valve design - superior seal
- ▶ Robust "Twist & Lift" cover and seal design - easier to service
- ▶ Filters are attached to the bypass assembly with a finger-activated clip for easier filter removal
- ▶ Standard fluorocarbon seals are compatible with a wide range of hydraulic fluids

### Technical Details

Max. Operating Pressure	10.3 bar / 150 psi
Static Pressure	to 34.4 bar / to 500 psi
Flow Range	0 - 1136 lpm / 0 - 300 gpm
Ports Connection	Standard 4" ANSI Range

## Solutions for Bulk Liquid Filtration

### Essential Components for clean Bulk Oil and Fuel

Filter manifolds are installed upstream of the bulk tanks to capture contamination which may be ingressed into the fluid during transportation and handling. Another filter set is installed in the discharge line after the bulk tank on a recirculating line to capture any contaminants from the tank and to achieve the required cleanliness levels.



### Technical Details

Inlet and Outlet Flanges	ASA 150
Pipe Work	Schedule 40
Flow Range (2 way to 5 way)	300 lpm - 900 lpm / 80 gpm - 240 gpm
Micron Ratings	from 3 µm to 150 µm (@Beta 1000)

### Features

- ▶ Upstream and downstream pressure gauges to monitor differential pressures
- ▶ Non-bypass to prevent contaminated fluid bypassing the filters
- ▶ Shut off valves to facilitate filter change out (optional)
- ▶ 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.
- ▶ Spin-on filters for cleaner filter maintenance

# Donaldson T.R.A.P. & Hydraulic Accessories

## Donaldson T.R.A.P. Stops Trouble before it gets in

Water has a way of sneaking into your hydraulic circuits. Unless you have a Donaldson T.R.A.P. (Thermally Reactive Advanced Protection) Breather standing guard over your system. NO moisture slips by Donaldson's T.R.A.P. Breathers. In addition they last longer. So will your budget. Like the name suggests, it TRAPS water before it gets in, yet doesn't restrict air flow and lets your hydraulic reservoir breathe.



## Features & Benefits

### ► Service Life

Extended life (exhales moisture and refreshes its holding capacity on each cycle)

### ► Effectiveness

Reacts instantly to conditions in the hydraulic circuit, creating a moisture barrier without impeding airflow

### ► Maintenance Costs

Reduced man-hours technology: Thermally reactive barrier that removes moisture at relative humidity levels as low as 15 %

### ► Filtration

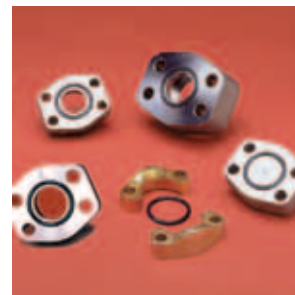
Superior moisture blocking and particulate filtration down to 3 microns at 97 % and will not freeze in winter

## Portable Fluid Analysis Kit

The Donaldson Portable Fluid Analysis Kit allows you to conduct immediate on-site particulate and water analysis in as little as 10 minutes.

## Hydraulic Accessories

We offer you an expanded line of accessories for hydraulic lines and reservoirs! Finish off your hydraulic circuit with filter service indicators, pressure gauges, test points assemblies, valves, flanges, reservoir level gauges, sight glasses, a variety of tank and filler breathers, caps, vents, plugs, strainers, diffusers, magnets and more.



## Laboratory Service

Our labs all over the world can offer you the service of doing on-site test, oil analysis of Donaldson or competitive filters for realistic product comparisons.

# Total Filtration Service: Everything from one Source

## Here To Serve You

With our world-wide service, Donaldson guarantees the economically and qualitatively optimum conditions for your production whilst exploiting all potentials for cost reduction. Our comprehensive single source service competence covers all industrial filtration applications.

- ▶ Extensive customer consulting and support.
- ▶ Leading filtration experts for many industrial filtration applications.
- ▶ Distribution centers and sales offices world-wide.

## E-Business

Donaldson is embracing the electronic business as a preferred way to do business with our customers. Various options are available and offer you the service you want at any time you need it. Stock availability, transparent order status, cross referencing, technical information and many more features simplify your business relationship with Donaldson.



Technical alterations reserved (3/2009)

## Donaldson. *And everything just got better.*

### Total Filtration Management

- ▶ Donaldson offers a wide variety of solutions to reduce your energy costs, improve your productivity, guarantee production quality and help protect the environment.

**Filtration, Sterile Filtration, Process Filtration, Refrigerant Drying, Adsorption Drying, Condensate Drains, Condensate Purification Systems, Water Chillers, Air/Oil Separation, Dust and Fume Removal, Process Air and Gas Processing, Oil Mist Separation, Industrial Hydraulics**

### Total Filtration Service

- ▶ A comprehensive range of services especially designed to keep your production at peak performance and at the lowest total cost of ownership.

#### Donaldson Europe B.V.B.A.

Research Park Zone • Interleuvenlaan 1  
B-3001 Leuven • Belgium  
Phone +32(0)16 38 39 70 • Fax +32(0)16 38 39 38  
IH@donaldson.com  
www.donaldson.com



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