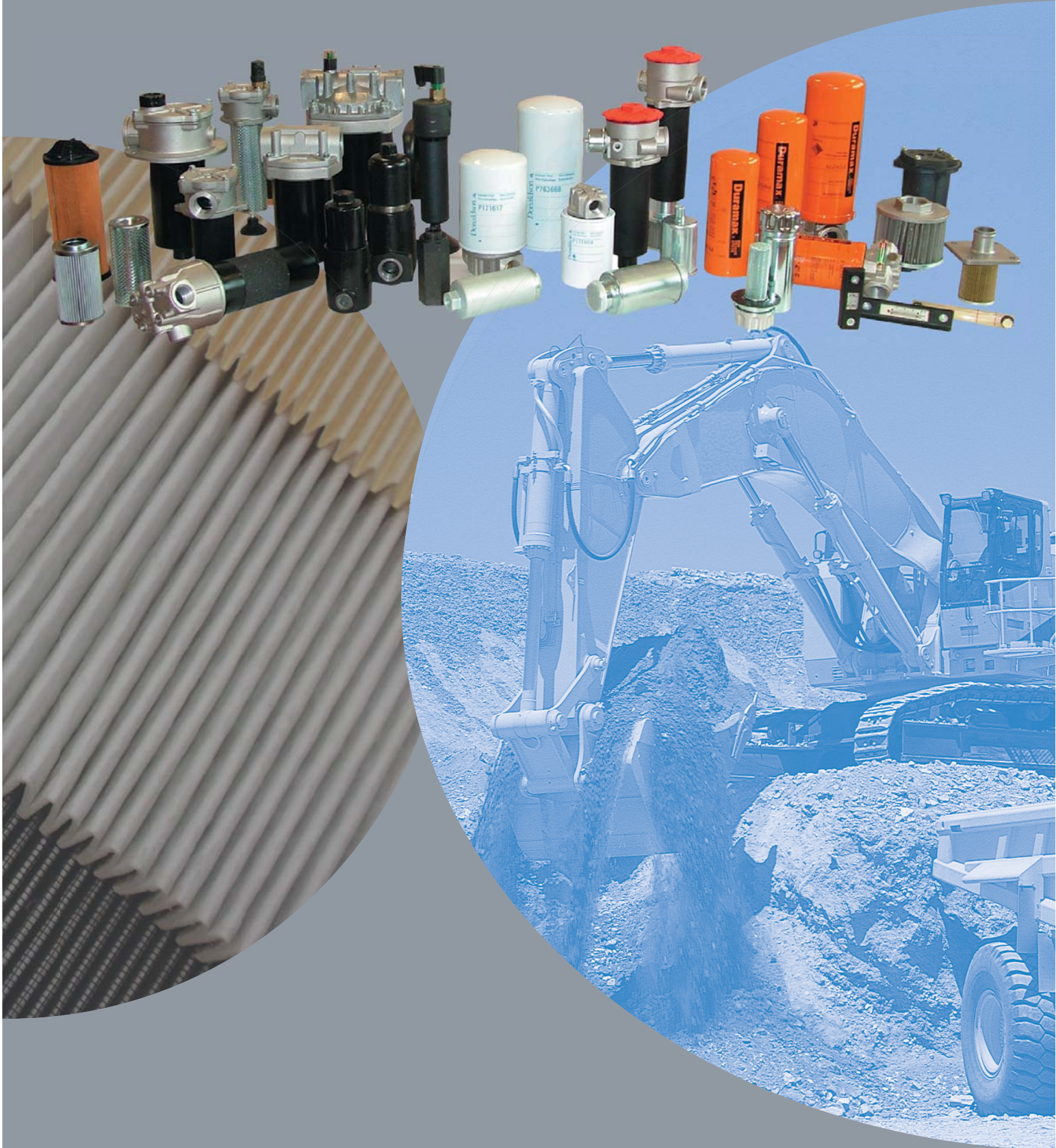




Donaldson
FILTRATION SOLUTIONS

HYDRAULIC FILTERS AND ACCESSORIES FOR MOBILE APPLICATIONS



Donaldson Engine Aftermarket Warranty for Filtration and Exhaust Products

Donaldson warrants its Aftermarket products against failure due to defects in materials and workmanship for the period specified under Terms and Conditions for the particular product.

Donaldson's obligation under this warranty covers replacing the failed product, including transportation charges, only. If the Donaldson product failure is the sole and direct cause of damage to the equipment on which the product was properly installed, Donaldson will reimburse reasonable costs to restore the equipment to the condition it was in immediately before the failure.

This warranty does not cover failure due to misapplication, misuse, abuse, neglect, rust through and corrosion (mufflers), improper service practices or non-Donaldson approved modifications. Engine and equipment manufacturers' warranties remain in effect

when Donaldson products are used.

Donaldson must be notified in writing of any claims covered by this warranty within one year of the date of failure. Donaldson, at its discretion, will either physically visit the site where the alleged failure has been found or, request that all parts, Donaldson and other relevant parts, be shipped prepaid to its General Office, in care of the Product Lab or as otherwise specified.

Terms & Conditions

Warranty coverage begins at the date of installation to the original end-user, and expires after the indicated period or kilometres, whichever occurs first.

More detailed information can be found in the Donaldson Europe Operating Guide or can be received upon request.

Warranty Length by Product

Filtration Products

Air Cleaner Housing & Accessories
Liquid Filter Assemblies & Accessories
Air & Liquid Filters

Warranty Period

1 year
1 year
Maximum 1 year

Exhaust Products

Exhaust Assemblies On-Road
Exhaust Assemblies Off-Road
Exhaust Accessories

Warranty Period

2 years - 300.000 kilometers
1 year - 1500 working hours
1 year

Brochure No. F116006 (28/10/09)

Our innovative products are solving complex filtration challenges that improve people's lives, enhance engine and equipment performance and protect our environment.

Donaldson has the technical expertise, superior customer support and vast network of locations around the world to meet your toughest filtration needs - from initial system design through replacement products.



Improve



Enhance



Protect

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Global Resources For Filtration Solutions

... Working Together for a Cleaner World

Donaldson Company Inc., headquartered in Minneapolis (USA), is a global organization of over 13000 professionals who are dedicated to providing filtration systems and replacement parts that improve people's lives, enhance equipment performance and protect our environment.

Since 1915, Donaldson has differentiated itself by innovating new technologies - delivering the best filtration products in the markets it serves, offering superior customer support and providing a vast network of locations around the world.

Donaldson Europe was established in Leuven, Belgium in 1966.

Today, with approximately 3000 employees in Europe, Donaldson is serving its customers through an extensive network of legal entities, sales offices, distribution centers and manufacturing facilities located in excess of 18 countries.

Donaldson Engine Systems & Technologies offers: Intake Air Filtration Systems, Hydraulic Filtration Systems, Engine Liquid Filtration Systems, Emission Control and Exhaust Systems, Crankcase Ventilation, Accessories and a full line of Replacement Elements for Engines.

Our products carry the Donaldson brand or that of our OEM partners and are available through an international dealer/distributor network.



Donaldson Italy Capabilities

... In every feature of every product, backed by a long tradition of innovation

Leader in Designing and Manufacturing Liquid Filters

Donaldson Italia srl was established in 1992, when DCI bought the existing Italian filter manufacturing company FBO, specialized in hydraulic filtration (industrial & mobile).

The company grew during the last 17 years, passing from 50 up to 140 employees. Over the years, Donaldson Italia srl was and is able to develop new synthetic media, spin-ons and high pressure filters. This mainly thanks to the synergy with DCI and by supplying a huge number of OEM's. One of our main characteristics is the big flexibility and the capacity to develop customized products.

As all Donaldson factories, Donaldson Italia srl achieved the quality certification according to ISO 9001/2 and ISO 14000 as well as quality certification of our major OEM customers.



Donaldson Italia
in Ostiglia, Mantova (Italy)

DISRL Manufacturing means Quality Production

Most of the filters production processes are automated, enabling us the possibilities to build filters faster and with higher precision. The plant of Ostiglia, with its 10000 m², has a daily production capability of 4000-8000 Duramax hydraulic spin-ons, 3000-5000 hydraulic cartridges, 1000 hydraulic filter assemblies, 4000 low pressure spin-on filters and liquid filters. Beginning of August 2005 the production facility even doubled with a new liquid lab, engineering and sales offices.



Donaldson Italy Capabilities

... In every feature of every product, backed by a long tradition of innovation

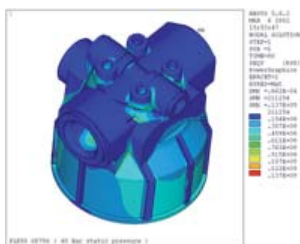
Engineering means High Technology Products Design



Donaldson Italia Liquid Lab includes two Multipass test benches, providing Hydraulic, Lube & Fuel filters testing capability according to the most recent ISO standards.



Donaldson Italia Liquid Lab has multiple flow benches capability, including low and high viscosity pressure drop, flow fatigue with integrated high temperature oil test loop, and return to tank filters dedicated test system.



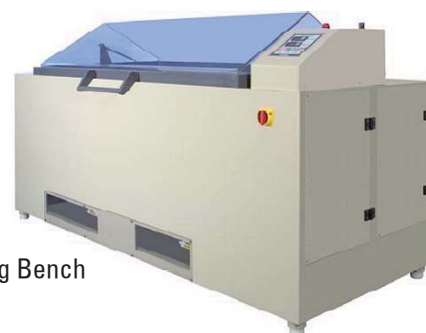
Donaldson Italia srl is supported by European expertise for CAE (Computer Aided Engineering) systems for static and dynamic FEM analysis on heads, bowls...



Pressure pulsations in climatic chamber



Lab & Testing for Extreme Field Condition Simulation



Salt Spray Testing Bench

Mobile Hydraulic Circuits

... Applications



Skidsteer



Haultruck



Combine



Tractor



Paving machine



Backhoe

Designed to Fit Manufactured to Perform

... Following customers rely on Donaldson



Agco, Case New Holland, Claas, Deutz, Fendt,
John Deere, Landini, Manitou, Massey Ferguson,
McCormick, Renault Agriculture, SAME, Valtra...



BMC, Carrier Transicold, DAF, Daimler, EvoBus, FIAT,
Ford Otosan, Freightliner, International, Isuzu, Iveco, MAN,
Paccar, Renault Truck, Scania, Thermo-King,
Vanhool, VDL Bus, Volvo...



AtlasCopco, Bobcat, Case New Holland, Caterpillar,
Daewoo, Doosan, Dynapac, Fermecc, Fiat-Kobelco,
Furukawa, Hitachi, JCB, Komatsu, Liebherr, Linde,
MCFE, Merlo, Sandvik, Terex, Toyota, Volvo CE...



Caterpillar, Cummins, Detroit Diesel, Honda, Isuzu,
Iveco, John Deere, KHD, Komatsu, Kubota, MAN
Engines, Mercedes Benz, Perkins, Scania, Sisu,
Steyr Motors, Yanmar Diesel...



Manitou, Hyster, JCB, Jungheinrich,
Komatsu, Linde, Toyota...

About Donaldson

Historical Highlights

... In every feature of every product, backed by a long tradition of innovation

1910's	Working for the Bull Tractor Company, Frank Donaldson rigs up his first air cleaner, "The Twister," from eider cloth and a tin can. Donaldson Engineering Company is founded in 1915 in St. Paul, Minnesota, USA.
1930's	The company develops and sells its new, patented, oil-washed air cleaner to Ford, Caterpillar and John Deere. Despite the major financial depression in the U.S., Donaldson continues to increase sales and expand its facilities.
1950's	Donaldson Company, Inc. goes public in 1955 and sales reach \$7.8 million. The company revolutionizes the industry with the introduction of the first ever dry-type air cleaner for diesel engines, and begins operations in the UK.
1960's	Overseas operations expand with the opening of subsidiaries in Japan, Belgium, Australia, South Africa, France, and Brazil.
1970's	Donaldson develops high-efficiency hydraulic filters and the company diversifies into fluid, particle and acoustics technology. The company acquires Torit Corp, a manufacturer of industrial air pollution control equipment. In 1979, Donaldson stock begins trading on the New York Stock Exchange under the symbol DCI.
1980's	Donaldson enters the exploding computer market and creates an Industrial Group to focus on in-plant hydraulic filtration and dust collection, gas turbine air filtration, disk drives, and other non-diesel markets. The company sets new standards for air filtration efficiency with the introduction of nanofiber technology, brand named Ultra-Web. Duramax medium pressure hydraulic spin-on filters become very popular at OEMs in USA and in Europe.
1990's	Donaldson expands and diversifies into new product and geographic markets with its powerful technology, strong customer access, and broad global reach.
1992	Acquisition of Italian Filter manufacturer FBO becoming Donaldson.
2001	First Patent for European Designed "Combo" hydraulic In Tank filters.
2005	Investment in the Italian facility with doubled floor area for production of Liquid Filters and brand new laboratory for development of qualification of hydraulic filters. A new high speed spin-on line is also installed.
21st Century	Donaldson continues to expand its technological expertise with further advancements in nanofiber media technology, improved synthetic medias and PTFE medias, and more acquisitions.

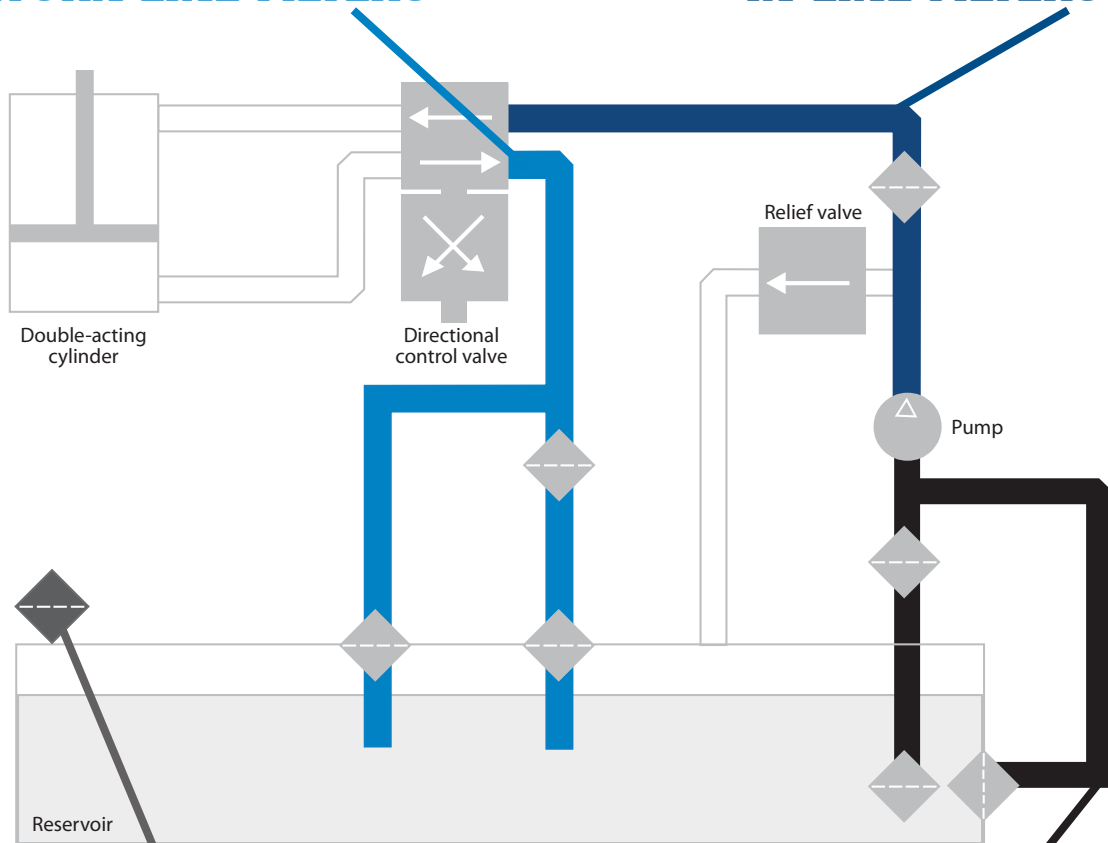
Hydraulic Filters Complete Range



RETURN LINE FILTERS



IN-LINE FILTERS

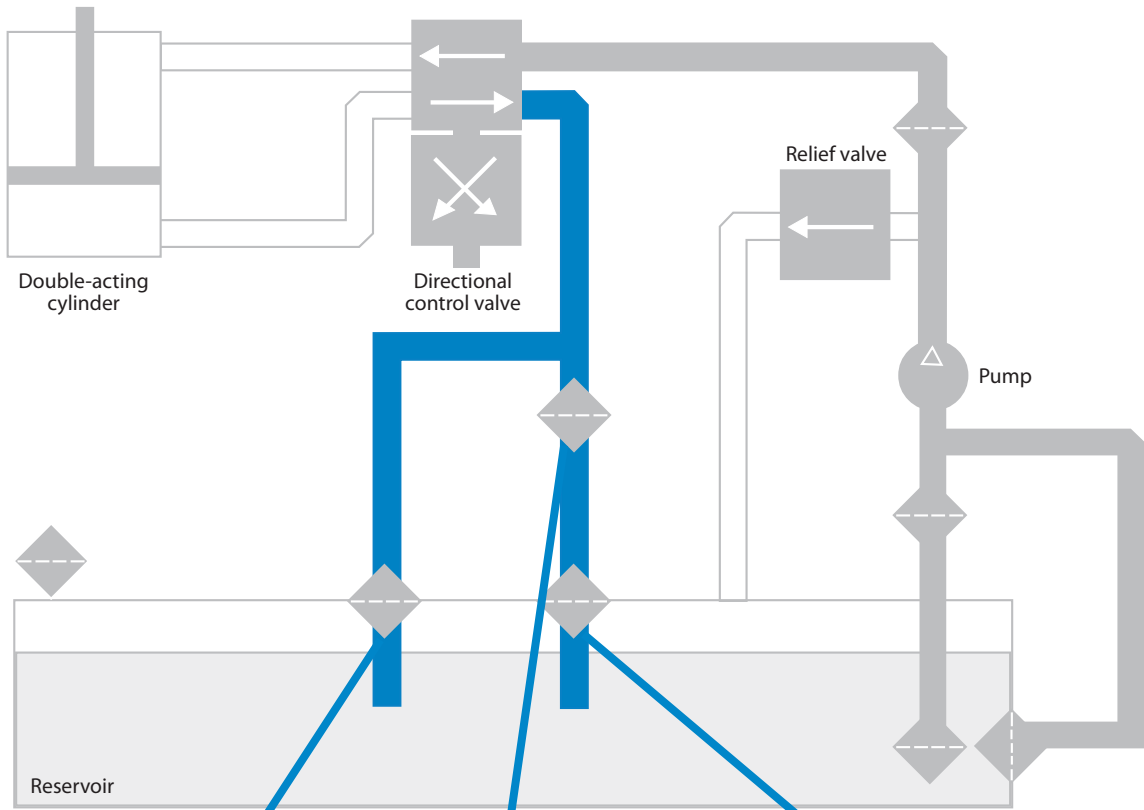


ACCESSORIES



SUCTION LINE FILTERS

Hydraulic Return Line Filters



**RETURN & SUCTION
FILTERS IN TANK**



**RETURN FILTERS
IN-LINE**



**RETURN FILTERS
IN TANK**

Hydraulic Return Line Filters

Return Filters In Tank

- FIK - FIO / FIK - FIOT pg. 45 - 52



Flow Rate: From 10 to 800 lpm
Efficiency Range: From 10 to 90 micron
Media Material: Synthetic fiber, cellulose and wire mesh
Operating Pressure: Up to 10 bar
Ports Connections: Gas and SAE flange
Service Indicators: Visual and electrical



- FIK - FIO / FIK - FIOT, 4 HOLES FLANGE pg. 53 -54



- FIK - FIS pg. 56 - 59

Flow Rate: From 10 to 150 lpm
Efficiency Range: From 10 to 90 micron
Media Material: Synthetic fiber, cellulose and wire mesh
Operating Pressure: Up to 10 bar
Service Indicators: Visual and electrical



- FHK - FIR pg. 60 - 63

!! Stationary Application !!

Flow Rate: From 15 to 500 lpm
Efficiency Range: From 10 to 90 micron
Media Material: Synthetic fiber, cellulose and wire mesh
Operating Pressure: Up to 10 bar
Service Indicators: Visual and electrical



Hydraulic Return Line Filters

Return & Suction Filters In Tank

- SRK - COMBO 120 pg. 64 - 73

Flow Rate: 120 lpm, emergency suction flow rate 60 lpm
 Efficiency: 10 micron absolute
 Emergency suction element 125 micron
 Media Material: Synthetic fiber, emergency suction element wire mesh
 Operating Pressure: Up to 10 bar
 Service Indicators: Visual and electrical



**UNIQUE
DESIGN
CONCEPT**

- SRK - COMBO 200 pg. 74 - 77

Flow Rate: Return 200 lpm, emergency suction flow rate 70 lpm
 Efficiency: $\beta_{11(c)} > 200$; $\beta_{13(c)} > 1000$
 By-pass strainer 125 micron
 Emergency suction element 125 micron
 Media Material: Synthetic fiber, By-pass strainer wire mesh
 Emergency suction element wire mesh
 Operating Pressure: Up to 10 bar
 Service Indicators: Visual and electrical



**UNIQUE
DESIGN
CONCEPT**

Return Filters In-Line

- FLK - FLS pg. 78 - 82

Flow Rate: From 30 to 200 lpm
 Efficiency Range: From 10 to 90 micron
 Media Material: Synthetic fiber, cellulose and wire mesh
 Operating Pressure: Up to 30 bar
 Ports Connections: Gas and SAE flange
 Service Indicators: Visual and electrical



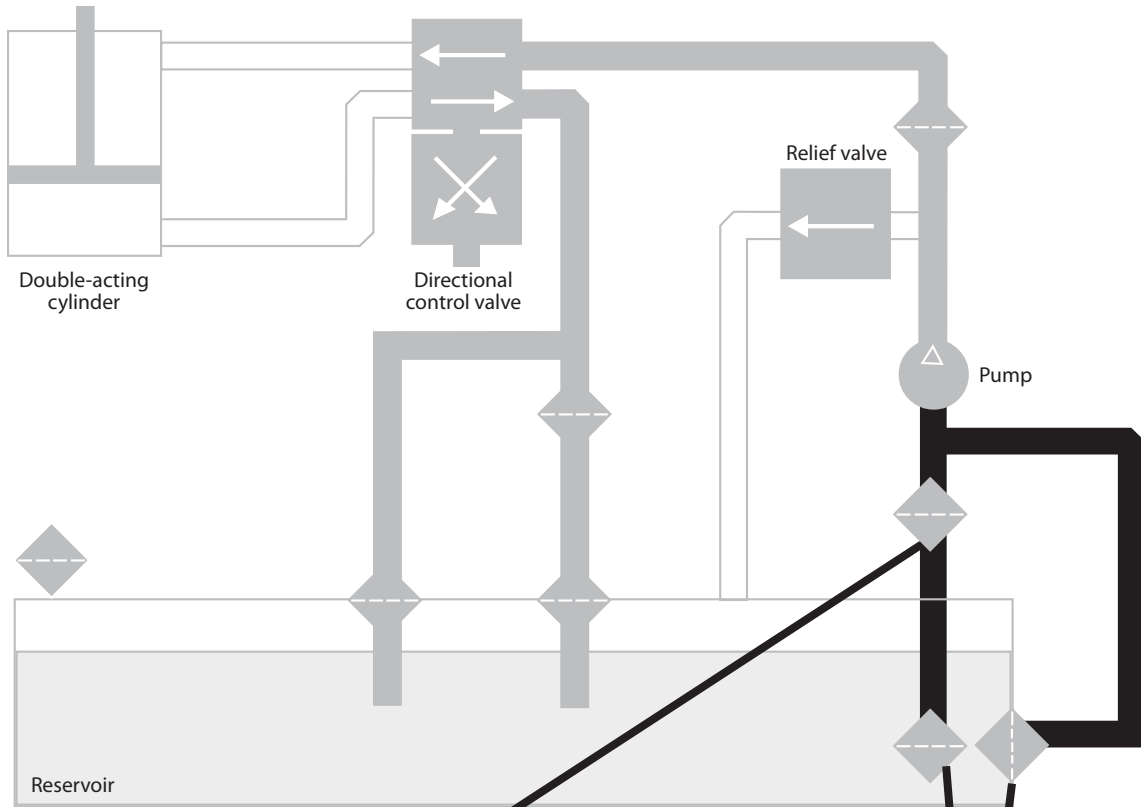
- FBK - FRCA pg. 84 - 89

Flow Rate: From 40 to 400 lpm
 Efficiency Range: From 10 to 60 micron
 Media Material: Synthetic fiber, cellulose and wire mesh
 Operating Pressure: Up to 10 bar
 Ports Connections: Gas and SAE Flange
 Service Indicators: Visual and electrical

ADDITIONS



Hydraulic Suction Line Filters



**SUCTION FILTERS
IN-LINE**



**SUCTION FILTERS
IN TANK**

Hydraulic Suction Line Filters

Suction Filters In Tank

- PXX - FIOA pg. 94 - 96

Flow Rate: From 5 to 400 lpm
 Efficiency Range: From 30 to 250 micron
 Media Material: Cellulose and metal wire mesh



- FHK - FIR pg. 98 - 100

!! Stationary Application !!

Flow Rate: From 8 to 250 lpm
 Efficiency Range: From 10 to 90 micron
 Media Material: Synthetic fiber, cellulose and metal wire mesh



Suction Filters In-Line

- FLK - FLA pg. 102 - 106

Flow Rate: From 10 to 300 lpm
 Efficiency Range: From 10 to 90 micron
 Media Material: Synthetic fiber, cellulose and metal wire mesh
 Ports Connections: Gas and SAE Flange
 Service Indicators: Visual and electrical



- PXX - FAL pg. 108 - 110

Operating Pressure: Up to 4 bar
 Flow Rate: From 25 to 100 lpm
 Efficiency Range: 160 micron
 Media Material: Metal wire mesh
 Ports Connections: To be clamped



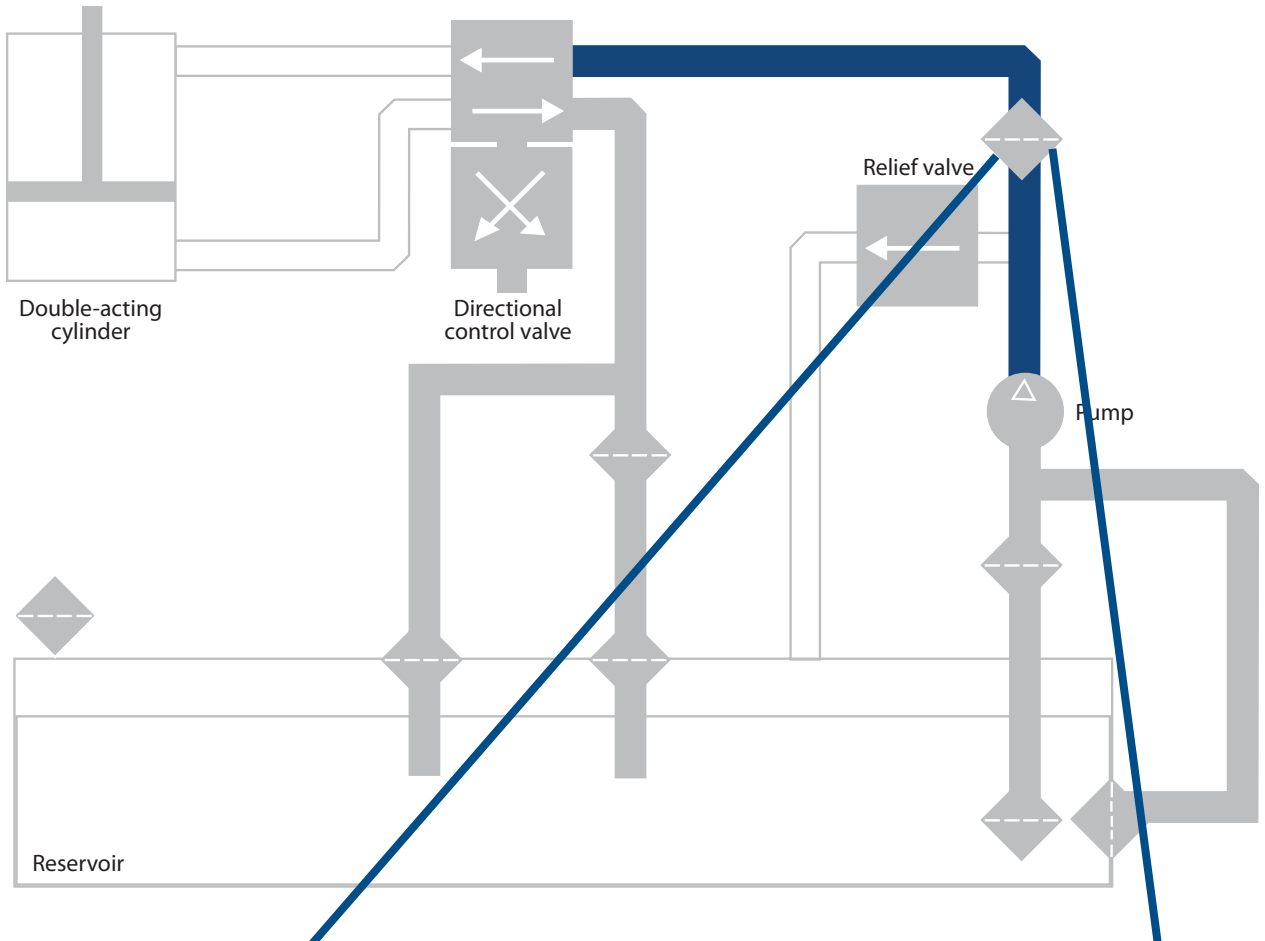
- FBK - FACA pg. 112 - 116

Flow Rate: From 15 to 200 lpm
 Efficiency Range: From 10 to 60 micron
 Media Material: Synthetic fiber, cellulose and metal wire mesh
 Ports Connections: Gas and SAE Flange
 Service Indicators: Visual and electrical

ADDITIONS



Hydraulic In-Line Filters



MEDIUM PRESSURE FILTERS



HIGH PRESSURE FILTERS

Hydraulic In-Line Filters

Medium Pressure Filters

- FMK - FM pg. 120 - 122

Flow Rate: From 40 to 80 lpm
 Efficiency Range: From 5 to 60 micron
 Media Material: Synthetic fiber, cellulose and wire mesh
 Operating Pressure: Up to 120 bar / Service Indicators: Visual and electrical



- FCK - LC pg. 123

Flow Rate: 30 lpm
 Efficiency Range: 60 micron
 Media Material: Wire mesh
 Operating Pressure: Up to 60 bar



- HMK 04 - DURAMAX pg. 124 - 127

Flow Rate: From 100 to 140 lpm
 Efficiency Range: From 5 to 40 micron
 Media Material: Synthetic fiber and cellulose
 Operating Pressure: Up to 34.5 bar / Service Indicators: Visual and electrical



- HMK 05 - DURAMAX pg. 128 - 131

Flow Rate: From 160 to 200 lpm
 Efficiency Range: From 5 to 40 micron
 Media Material: Synthetic fiber and cellulose
 Operating Pressure: Up to 24 bar / Service Indicators: Visual and electrical



High Pressure Filters

- FPK 02 & 04 - AP220 pg. 132 - 135

Flow Rate: From 30 to 450 lpm
 Efficiency Range: From 5 to 25 micron
 Media Material: Synthetic fiber
 Operating Pressure: Up to 420 bar / Service Indicators: Visual and electrical



- FPK 02 - AP280 pg. 136 - 139

Flow Rate: From 20 to 90 lpm
 Efficiency Range: From 5 to 25 micron
 Media Material: Synthetic fiber
 Operating Pressure: Up to 420 bar / Service Indicators: Visual and electrical



- FPK 03 & 04 - AP420 pg. 140 - 143

Flow Rate: From 40 to 400 lpm
 Efficiency Range: From 5 to 25 micron
 Media Material: Synthetic fiber
 Operating Pressure: Up to 420 bar
 Ports Connections: Gas and SAE Flange / Service Indicators: Visual and electrical

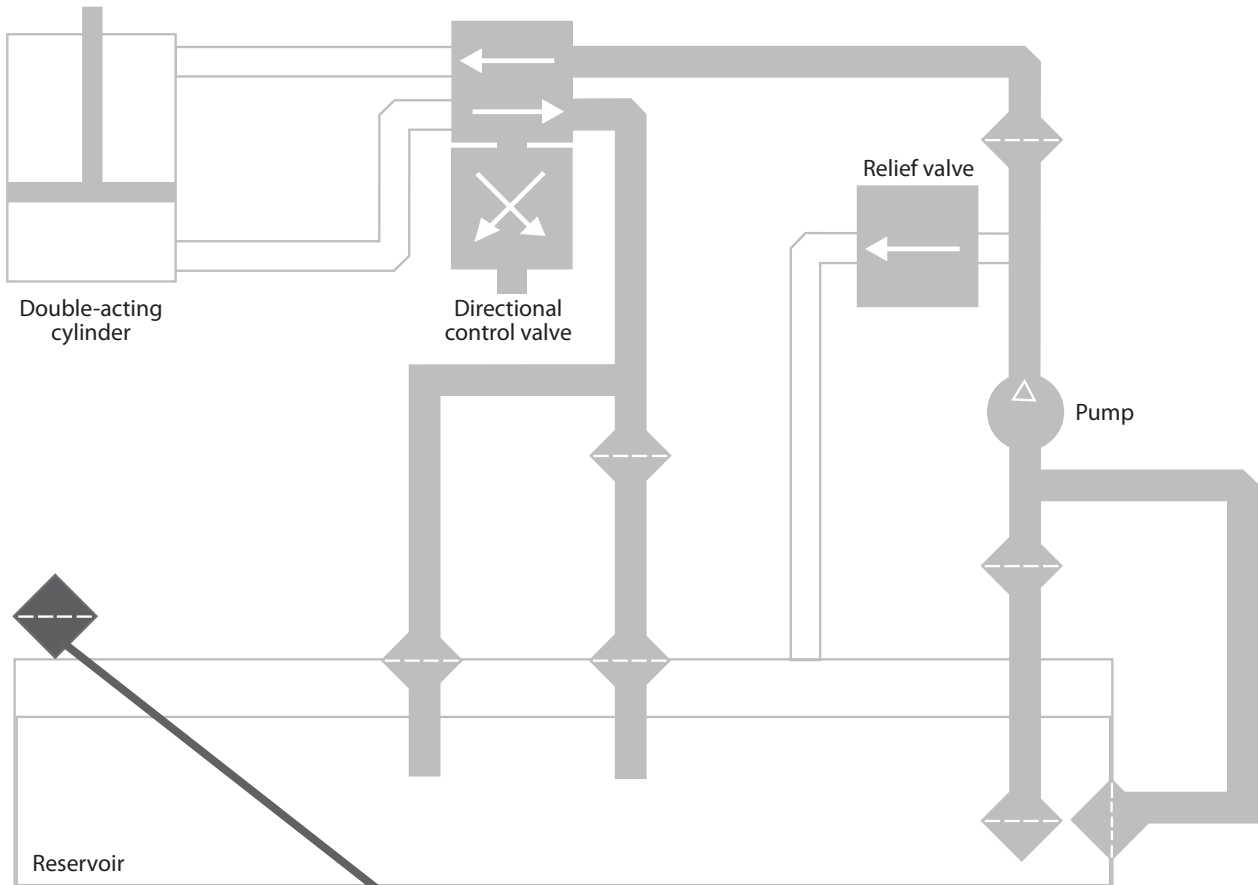


- FCK - LC pg. 144 - 146

Flow Rate: From 2 to 20 lpm
 Efficiency Range: From 5 to 60 micron
 Media Material: Synthetic fiber and wire mesh
 Operating Pressure: Up to 420 bar



Hydraulic Accessories



ACCESSORIES

Hydraulic Accessories

Breather Filler Caps

- PXX - TCO pg. 149

Flow Rate: From 270 to 500 lpm
Efficiency: 10 and 40 micron
Available with pressure relief valve



- PXX - TCA pg. 150

Aluminium cap with anti-vandalism blocking system
Available with pressure relief valve



Tank Breathers

- PXX - FS pg. 151

Flow Rate: From 200 to 1500 lpm
Efficiency: 10, 40 and 60 micron



- PXX - FFCA pg. 152

Flow Rate: From 1200 to 3600 lpm
Efficiency: 10 and 30 micron



Vertical Oil Level Gauges

- PXX - LVO/LVOT pg. 153

Max Operating Pressure: 1 bar
LVO SERIE without thermometer
LVOT SERIE with thermometer



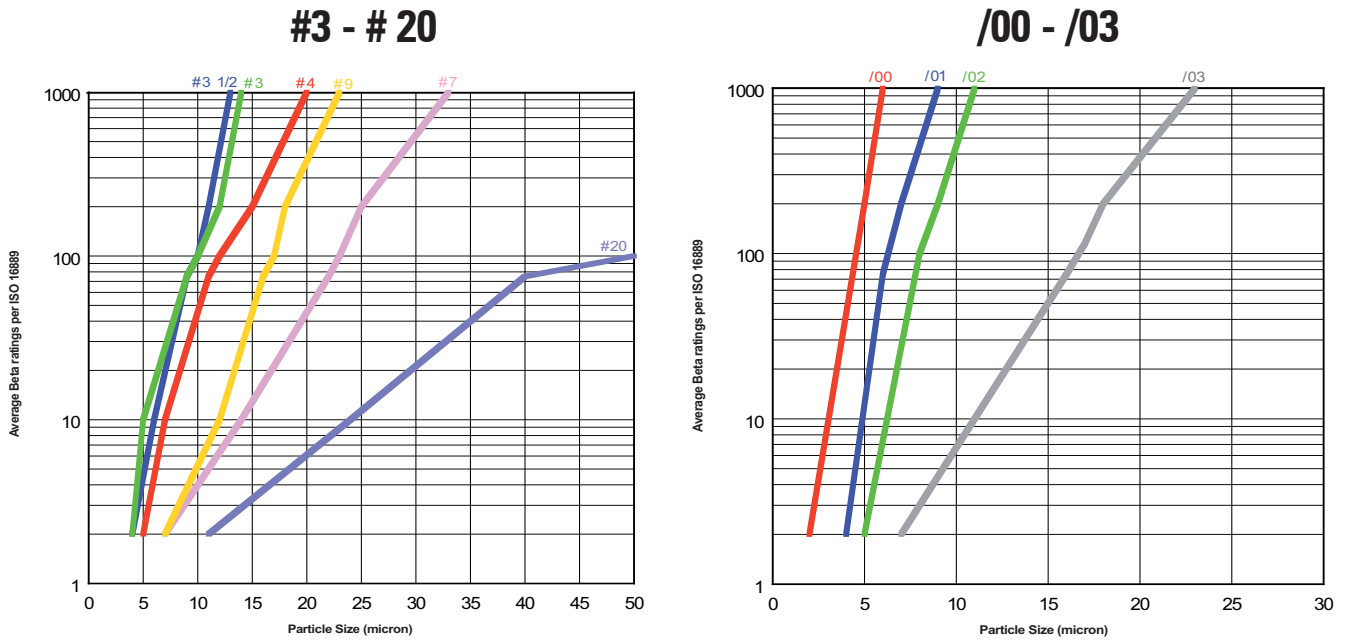
Filtration Efficiency Ratings

per ISO 16889 Test Standards

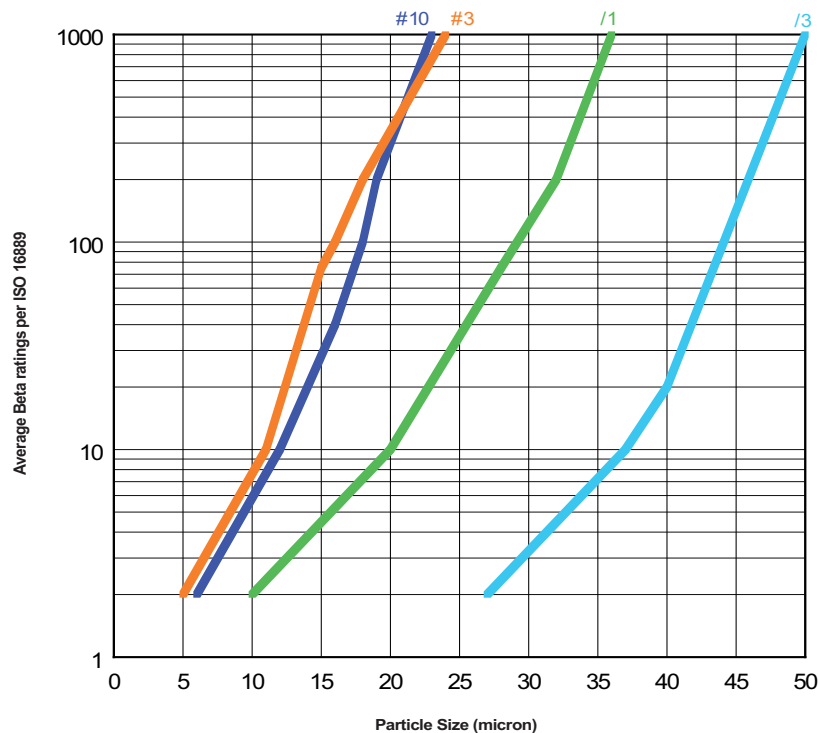
Media Number	FORMER Rating Beta $x = 2 / 75$ Per ISO 4572	NEW Rating Beta $x (c) = 200$ Per ISO 16889	NEW Rating Beta $x (c) = 1000$ Per ISO 16889
Donaldson Synteq® Synthetic Media			
# 3	4 / 15	12 μm (c)	14 μm (c)
# 3 1/2	4 / 15	11 μm (c)	13 μm (c)
# 4	5 / 16	15 μm (c)	20 μm (c)
# 7	7 / 22	25 μm (c)	33 μm (c)
# 9	7 / 22	18 μm (c)	23 μm (c)
# 20	20 / 40	> 50 μm (c)	> 50 μm (c)
/00	<2 / 3	5 μm (c)	6 μm (c)
/01	<2 / 5	7 μm (c)	8 μm (c)
/02	2 / 8	9 μm (c)	11 μm (c)
/03	7 / 22	18 μm (c)	23 μm (c)
Donaldson Cellulose Media			
# 3	4 / 16	18 μm (c)	24 μm (c)
# 10	10 / 25	19 μm (c)	23 μm (c)
/1	10 / 30	32 μm (c)	36 μm (c)
/3	25 / 45	46 μm (c)	> 50 μm (c)

Filtration Efficiency Ratings per ISO 16889 Test Standards

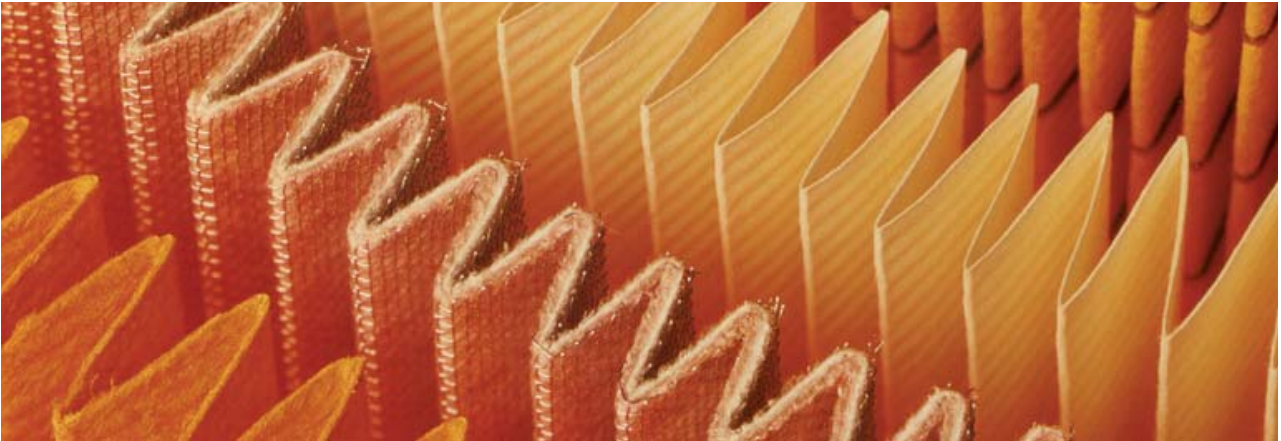
Donaldson Synteq® Synthetic Media



Donaldson Cellulose Media



How to Select the right Hydraulic Filter Media



STEP 1:

Using the form on page 20, circle the number in each category that best describes your hydraulic application.

STEP 2:

Add the numbers from each category to get your TOTAL score.

STEP 3:

Using the filter media table at bottom of page, find the suggested Donaldson media number for your application.

How to Select the right Hydraulic Filter Media

1
APPLICATION QUESTIONS

Environment

OPTIMAL Clean areas & labs..... 0
 General machine shops, lifts 1
 Mobile plants..... 2
 HOSTILE Foundries, drilling, mining underground,
 die cast shops..... 3

Component Sensitivity

Sensitivity of components to contamination

HIGH Hi-performance servo valves 8
 Industrial servo valves 6
 Piston pumps, proportional valves..... 4
 Vane pumps, spool valves..... 3
 LOW Gear pumps, manual & industrial valves..... 2

Economic Liabilities (Components)

The cost of component replacement

HIGH Large piston pumps, high torque motors..... 5
 Cylinders, servo valves, piston pumps..... 3
 Valves, subplate industrial..... 2
 LOW Manual valves, gear pumps..... 1

Economic Liabilities (Operational)

The cost of downtime

HIGH Steel mill, plastic injection..... 5
 High volume production plant 3
 Mobile installations..... 2
 LOW Equipment not critical to production..... 1

Safety Liabilities

HIGH Failure would cause severe
 damage to equipment, danger to personnel..... 3
 Failure likely to cause hazards 1
 LOW Some hydraulic component test rigs..... 0

Life Expectancy
Service life required for components

HIGH 0-1000 hours.....0
 1000-5000 hours 1
 5000-10000 hours.....2
 10000-20000 hours 3
 LOW 20000+ hours5

Pressure
Operating & Duty Cycle

LIGHT Continuous operation at rated pressure or lower
 Medium pressure changes up to rated pressure
 Zero to full pressure, cyclic flow
 SEVERE Zero to full pressure with transients at high frequency

Pressure	LIGHT	MED	HEAVY	SEVERE
0-70 bar	1	3	3	4
70-150 bar	1	3	4	5
150-250 bar	2	3	4	6
250-350 bar	3	5	6	7
350+ bar	4	6	7	8

2
TOTALS

ENVIRONMENT..... _____
 COMPONENT SENSITIVITY..... _____
 COMPONENT LIABILITIES..... _____
 OPERATIONAL LIABILITIES..... _____
 SAFETY LIABILITIES..... _____
 PRESSURE..... _____
 LIFE EXPECTANCY..... _____

Your Total Score:

3
MEDIA

If Your Score is: Donaldson Advises:

22+..... / 00 MEDIA
 17+..... / 01 MEDIA
 15+..... / 02 MEDIA
 10+..... #9, / 03 MEDIA
 9+..... #20, / 3 MEDIA

Hydraulic Technical Reference Guide

Donaldson provides this technical reference as a short course in Hydraulic Filtration, for those who want to gain a better understanding of fluid power filtration.

In applications at factories all over the world, we too often see hydraulic circuits that don't include proper fluid filtration, or include it as an afterthought. Good filtration needs to be an integral part of the hydraulic circuit to ensure the long life and proper operation of the pumps, valves and motors.

This guide is offered to aid in choosing the filter that will help you achieve the ideal cleanliness levels and longest life for your critical components.

Symbols Used

β	Beta Ratio
cSt	Centistokes
ΔP	Pressure Drop or Differential Pressure
ISO	International Standards Organization
μm	Micron or micrometer
ppm	Parts per million
SSU SUS	Saybolt Seconds Universal

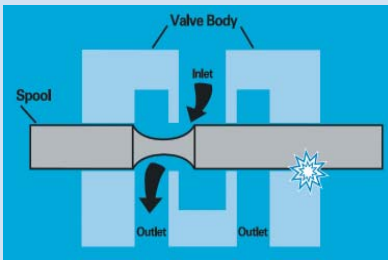
1.1 Hydraulic Components Need Protection	22
1.2 How Contamination Damages Precision Parts	22
1.3 Types of Contaminant	22
1.4 Typical Factors in Component Life	22
1.5 Where Contamination Comes From	23
1.6 Fluid Conditioning	24
1.7 Proper Filter Application	25
1.8 Fluid Properties	25
1.9 Types of Hydraulic Fluid	26
1.10 Filter Media	27
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1.20 Compatibility Donaldson Filter Media	36

Hydraulic Technical Reference Guide

1.1 Hydraulic Components Need Protection

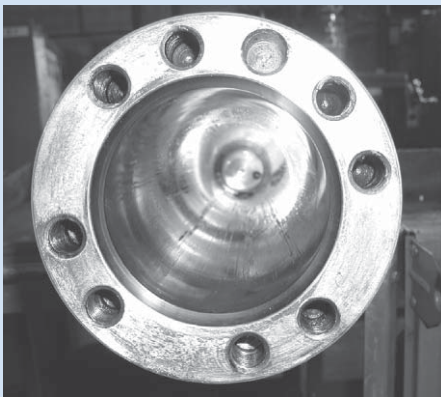
Fluid power circuits are designed in all shapes and sizes, both simple and complex in design, and they all need protection from damaging contamination. Abrasive particles enter the system and, if unfiltered, damage sensitive components like pumps, valves and motors. It is the job of the hydraulic filter to remove these particles from the oil flow to help prevent premature component wear and system failure. As the sophistication of hydraulic systems increases, the need for reliable filtration protection becomes ever more critical.

1.2 How Contamination Damages Precision Parts



This cutaway view of a simple hydraulic valve illustrates how particles damage components. In normal operation, the spool slides

back and forth in the valve body, diverting oil to one side of the valve or the other. If a particle lodges between the spool and valve body, it will erode small flakes from the metal surfaces. As these flakes are moved back and forth by the action of the spool, they can roll into a burr that jams the spool and disables the valve.



Component Damage

Looking down the barrel of an hydraulic cylinder, we can see the scratches along the inside surface. Don't cut costs by eliminating hydraulic filters! It could cost you more in the long run in major component repairs!

1.3 Types of Contaminant

Many different types of contamination may be present in hydraulic fluid, causing various problems. Some are:

- Particulate (dust, dirt, sand, rust, fibers, elastomers, paint chips)
- Wear metals, silicon, and excessive additives (aluminum, chromium copper, iron, lead, tin, silicon, sodium, zinc, barium, phosphorous)
- Water
- Sealant (Teflon tape, pastes)
- Sludge, oxidation and other corrosion products
- Acids and other chemicals
- Biological, microbes (in high water based fluids)

1.4 Typical Factors in Component Life

Studies show that most (typically 70%) of hydraulic component replacement is necessary because of surface degradation, and most of that is due to mechanical wear. Proper filtration of hydraulic fluids can lengthen component life.

70% Surface Degradation

70% mechanical wear from:

- abrasion
- fatigue
- adhesion

30% corrosion

15% Accidents

15% Obsolescence

Hydraulic Technical Reference Guide

1.5 Where Contamination Comes From

There are surprising number of different sources of system contamination in hydraulic filtration.

New Hydraulic Fluid

Adding new fluid can be a source; even though it's fresh from the drum, new hydraulic fluid isn't clean. (It may look clean, but, remember, the human eye can only see a particle the size of about 40µm.) Oil out of shipping containers is usually contaminated to a level above what is acceptable for most hydraulic systems: typically, new fluid has a cleanliness level about the same as ISO Code 21/19 (see page 32), and water content is typically 200 to 300 ppm. Never assume your oil is clean until it has been filtered.

Built-in

Built-in contamination, also called primary contamination, is caused during the manufacture, assembly and testing of hydraulic components. Metal filings, small burrs, pieces of teflon tape, sand and other contaminants are routinely found in initial clean up filtration of newly manufactured systems.

Ingressed

Ingressed or external contamination comes from the environment surrounding the system. Dirt can enter the hydraulic fluid supply through leaking seals, reservoir breather caps, and worn cylinder rod seals. Ingressed moisture, particularly, can cause long-term problems. As a hot system cools at night, cool moisture-laden air can be drawn into the reservoir; as the air condenses, water is released into the reservoir. Water in excess of 0.5% by volume in a hydrocarbon-based fluid accelerates the formation of acids, sludge and oxidation that can attack internal components, cause rust, and adversely affect lubrication properties. The severity of ingress and type of contaminant are dictated by the applications and environment.

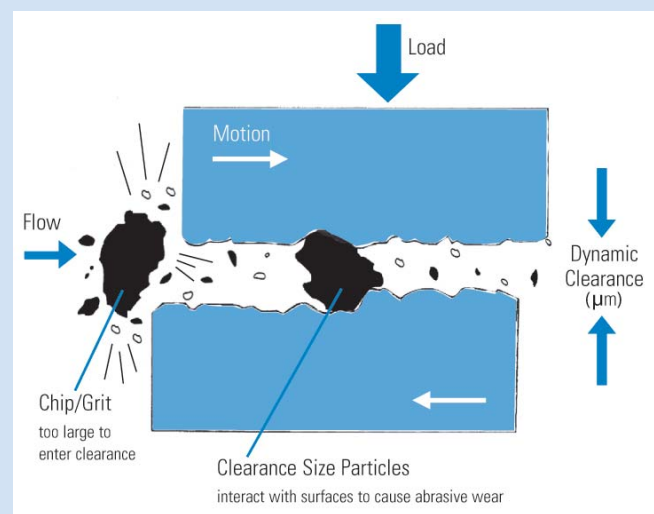
Induced

Maintenance procedures can introduce contamination into the system. Opening the system allows airborne particles to enter. Leaving the system open during operation provides continuous ambient particle ingress. Keep your system closed as much as possible.

In-Operation

The major source of contamination are the pump & actuators, the hydraulic cylinder, or the hydraulic motor. Wear-generated contaminants are a hazard during normal hydraulic system operation.

The circuit actually generates additional particles as the fluid comes into contact with the precision machined surfaces of valves, motors and pumps. Contaminant levels can keep doubling with every new particle generated. The result can be catastrophic if these contaminants are not properly filtered out of the system.



Rubber & Elastomers

Due to temperature, time, and high-velocity fluid streams, rubber compounds and elastomers degrade - thus releasing particulates into the fluid. This may be from hoses, accumulator bladders, seals, or other elastomer products.

High Water Based Fluids

The water in HWBF tends to support biological growth and generate organic contamination and microbes.

Replacement of Failed Components

Failure to thoroughly clean fluid conductor lines after replacing a failed hydraulic pump will cause premature catastrophic failure.

Donaldson recommends frequent oil sampling to ensure proper contamination control. Sample test points should be close to hydraulic pumps and at other key locations that provide safe, reliable access to the fluid while under full system pressure.

Hydraulic Technical Reference Guide

1.6 Fluid Conditioning

Fluid Conditioning is the term for the overall conditioning of the fluid in the hydraulic system, and encompasses particulate removal via filters along with other various methods for removing silt, air, water, heat, acid, sludge or chemicals.

Particulate Removal

Is usually done with mechanical filters. A well designed reservoir that allows settling will also help in keeping particulates out of the mainstream fluid. For ferrous particulates and rust, reservoir magnets or strainer band magnets can also be used.

Other methods such as centrifuging or electrostatic filtration units can also be used, particularly in continuous batch processing.

Removal of Silt

Silt, defined as very fine particulate under 5µm in size, requires very fine filtration or “oil polishing.”

Air Removal

Getting air out of the system is best done by adding 100 mesh screen in the reservoir, approximately 30° from horizontal to coalesce entrained air and allow larger bubbles to rise to the surface when reservoir velocities are low.

Water Removal

This requires special water removal filters, referred to as absorbent or inactive.

In systems with large quantities of water, a vacuum dehydration system may be necessary.

Chemical Removal

Removal of acids, sludge, gums, varnishes, soaps, oxidation products and other chemicals generally requires an adsorbent (active) filter with Fuller Earth, active type clays, charcoal, or activated alumina.

Heat Removal

Removing heat is important to maintain viscosity and prevent fluid breakdown. Usually performed with heat exchangers, including air-to-oil and water-to-oil types, finned coolers, or refrigerated units.

Heat Addition

Added heat is used for cold temperature start-up to get fluid viscosities within operational limits.

Use heaters, immersion or in-line.

Hydraulic Technical Reference Guide

1.7 Proper Filter Application

When selecting a filter or replacement element, it's important to first answer some basic questions about your application. Where will the filter be used? What is the required cleanliness level (ISO code) of your system? What type of oil are you filtering? Are there specific problems that need to be addressed?

It's also important to think about the viscosity of the fluid in your system. In some machinery lubrication applications, for example, the oil is very thick and has a tougher time passing through the layer of media fibers. Heating techniques and the addition of polymers can make the liquid less viscous and therefore easier to filter. Another option is to install a filter with larger media surface area or low pressure filters, that can accommodate more viscous fluids.

Next, think about duty cycle and flow issues. Working components such as cylinders often create wide variations in flow - also called pulsating flow - that can be problematic for filters with higher efficiency ratings. On the other hand, dedicated off-line filtration (also called "kidney loop") produces a very consistent flow, so it makes sense to use a more efficient filter.

Filters used in applications with steady, continuous operation at lower pressures will last longer than filters that must endure cycles of high pressure pulsating flow. Generally, the lower the micron rating of a filter, the more often it needs to be changed since it is trapping more particles.

Finally, it's wise to ask yourself, "How much is my equipment worth?" Calculate how much it would cost to replace the equipment in your system, in case of component failure, and make sure those areas are well protected with proper filtration. (For example, high performance servo valves are very sensitive, costly components that need to be protected with finer filtration media.)

Minimizing maintenance costs through good contamination control practices requires proper filter application based on the specific contamination problems. Good contamination control means cost-effective filtration. When looking for a filter, first assess the needs of your system and any problem areas.

System Characteristics to Consider When Specifying Filtration

- 1) Oil Viscosity
- 2) Flow
- 3) Pressure
- 4) What Components will be protected by the filter
- 5) Cleanliness level required (expressed in ISO code)
- 6) Type of oil/fluid
- 7) Environment (the system, the surrounding conditions, etc.)
- 8) Duty cycle
- 9) Operating Temperature

1.8 Fluid Properties

Lubricity The property of the fluid that keeps friction low and maintains an adequate film between moving parts.

Viscosity The thickness of the fluid as measured by resistance to flow. The fluid must be thin enough to flow freely, heavy enough to prevent wear and leakage. Hydraulic fluids thicken when they cool and thin out as they heat up. Because some hydraulic systems work under wide temperature extremes, viscosity can be an important factor.

Viscosity Index (VI) The rate of viscosity changes with temperature: the higher the index, the more stable the viscosity as temperature varies. VI can sometimes be improved by additives, usually polymers.

Rust Resistance Rust inhibiting chemicals in hydraulic fluids help overcome the effects of moisture from condensation.

Oxidation Resistance Oxidation inhibitors delay the sludgy/acidic effects of air, heat, and contamination in the system.

Foaming Resistance Although control of foaming depends largely on reservoir design, anti-foaming additives in the fluid also help.

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1.9 Types of Hydraulic Fluid

There are many kinds of fluids used for power, but they can basically be called petroleum-based fluids, biodegradable fluids, and fire-resistant fluids. A brief description of some of the types in each category are listed below.

Petroleum Based (Hydrocarbon)

These are the most commonly used fluids in hydraulic systems. Their major advantages are low cost, good lubricity, relatively low/non-toxicity, and common availability. This type of fluid is not just plain oil; rather, it is a special formulation with additives that make it suitable for hydraulic systems. Mostly, the additives inhibit or prevent rust, oxidation, foam and wear.

Variations:

- Straight oils: same as petroleum-based oil but without the additives.
- Automatic transmission fluids (ATF): excellent low temperature viscosity and very high VI.
- Military hydraulic fluids (ie: MIL-H-5606 & MIL-H-83282): also called 'red oil' because of the color. Low viscosity, good for cold temperature operations, but may have to be modified for pumps.

Fire Resistant Fluids

There are two types of fire-resistant fluids commonly used in hydraulic applications: Phosphate Esters and High Water Based Fluids (HWBF). Although generally not as viscous at cold temperatures as petroleum-based fluids, they are fire resistant due to their high content of noncombustible material. Very useful in overcoming the likelihood of fire caused by a broken hydraulic line spraying petroleum fluid into a pit of molten metal, onto a hot manifold, into a heat-treating furnace, or other ignition source.

Some types of HWBF:

- Oil-in-water emulsions : typically 95% water and 5% oil, with the oil droplets dispersed throughout the water. Provide some fire resistance, but due to oil content, other fluids are superior.
- Water-in-oil emulsions (invert emulsion) : typically 40% water and 60% oil, with the water dispersed in the oil. Provide some fire resistance, but due to oil content, other fluids are superior.
- Water-glycol : typically 40% water and 60% glycol. Excellent fire resistance. Since glycol is an antifreeze, water-glycol can be used at lower temperatures.

NOTE: HWBF may require reduced pressure rating of pumps and other components.

- Phosphate Ester : Somewhat fire resistant and good in higher temperature operations. Aggressive fluids that attack elastomers, paints and plastics. Special seals required (EPR, Butyl rubber, or Viton™). Note that synthetic fluids are typically phosphate esters, chlorinated hydrocarbons or a blend with good lubrication characteristics but usually with low viscosity index. As with straight phosphate esters, use special seals, paints and plastics.

Biodegradable

With increasing concern about the environmental impact of hydraulic system leaks and spills, biodegradable fluids are receiving expanded usage, particularly in Europe.

There are two types of common biodegradable hydraulic fluids: (1) vegetable-based oils, such as sunflower or grapeseed oils, and (2) synthetic oils like diesters, etc. Generally, systems using biodegradable fluids are derated for maximum and minimum temperatures. Users who replace standard hydraulic oils with biodegradable oils must check with filtration component manufacturers to confirm that the fluid and components are compatible.

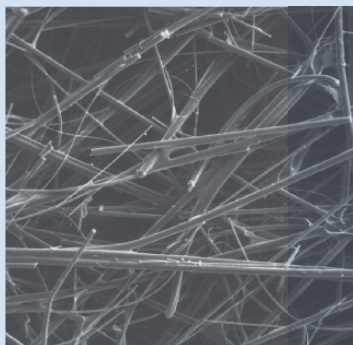
Hydraulic Technical Reference Guide

1.10 Filter Media

Media is a term used to describe any material used to filter particles out of a fluid flow stream. There are four basic types used to remove contamination in hydraulic applications:

Synthetic Media

Synthetic fibers are man-made, smooth and rounded to provide the least resistance to flow. Their consistent shape allows us to control the fiber size and distribution pattern throughout the media mat to create the smoothest, least inhibited fluid flow.



Donaldson's Synthetic Media: Synteq®

Photo of Donaldson Synteq® synthetic filter media as seen magnified hundreds of times under the scanning electron microscope. The smooth rounded fibers provide low resistance to fluid flow.

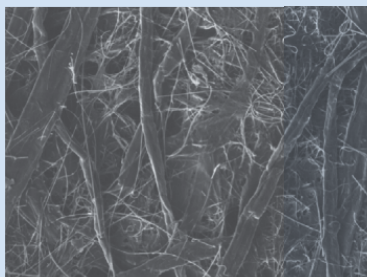
Consistency of fiber shape allows the maximum amount of contaminant-catching surface area and specific pore size control. The result is media with predictable filtration efficiencies at removing specified contaminants (i.g., 4µm) and maximum dirt holding capacity.

The low resistance of synthetic media to fluid flow makes it ideal for synthetic fluids, water glycols, water/oil emulsions, HWCF, and petroleum-based fluids.

Cellulose Media

Cellulose fibers are actually wood chips, microscopic in size and held together by resin. As you see in the photo below, the fibers are irregular in both shape and size.

Cellulose often has lower beta ratings, which means there are smaller pores in the media. Smaller media pores cause more flow resistance, in turn causing higher pressure drop.



Cellulose filter media - photo from scanning electron microscope -magnified hundreds of times.

While cellulose provides effective filtration for a wide variety of petroleum-base fluids, in certain applications it results in poor filtration performance as compared to synthetic media.

Water Removal Media

This is media formulated with dessicants and resins to remove moisture and condensation from petroleum-based fluids. (For concentration of water greater than half of 1 percent (0.05%) in the hydraulic oil, we recommend you use a vacuum dehydrator unit.)

Wire-Mesh Media

Wire-mesh media consists of stainless steel, epoxy-coated wire mesh available in 4 mesh sizes:

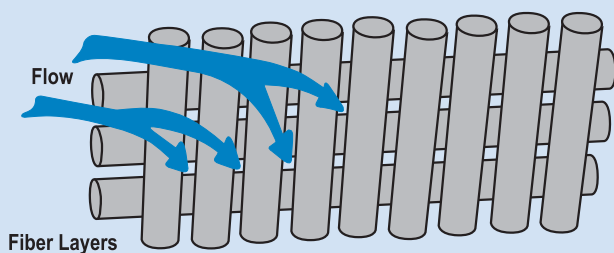
30, 60, 90, 160 µm filtration

Typically wire-mesh filters will be applied to catch very large, harsh particulate that would rip up a normal filter. You may also find this media useful as a coarse filter in viscous fluid applications.

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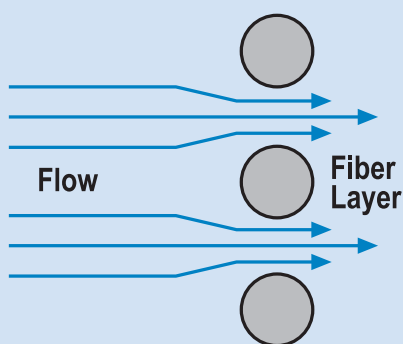
1.11 Function of Filter Media

The job of the media is to capture particles and allow the fluid to flow through. For fluid to pass through, the media must have holes or channels to direct the fluid flow and allow it to pass. That's why filter media is a porous mat of fibers that alters the fluid flow stream by causing fluid to twist, turn and accelerate during passage



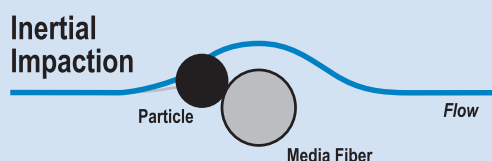
The fluid changes direction as it comes into contact with the media fibers, as illustrated above. As the fluid flows through the media, it changes direction continuously as it works its way through the maze of media fibers. As it works its way through the depths of the layers of fibers, the fluid becomes cleaner and cleaner. Generally, the thicker the media, the greater the dirt-holding capacity it has.

Looking at a cross-section view of the fibers, we can see how the flowstream is accelerated as it flows into the spaces between the fibers.

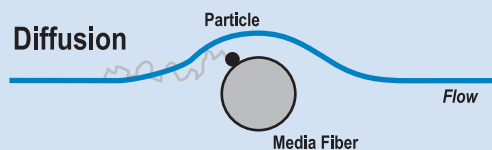


1.12 Filter Media Collects Particles

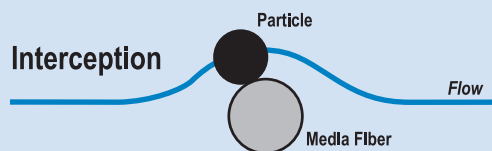
There are four basic ways media captures particles. The first, called inertia, works on large, heavy particles suspended in the flow stream. These particles are heavier than the fluid surrounding them. As the fluid changes direction to enter the fiber space, the particle continues in a straight line and collides with the media fibers where it is trapped and held.



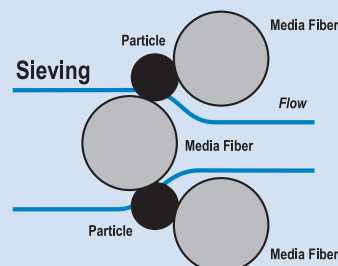
The second way media can capture particles is by diffusion. Diffusion works on the smallest particles. Small particles are not held in place by the viscous fluid and diffuse within the flow stream. As the particles traverse the flow stream, they collide with the fiber and are collected.



The third method of particle entrapment is called interception. Direct interception works on particles in the mid-range size that are not quite large enough to have inertia and not small enough to diffuse within the flow stream. These mid-sized particles follow the flow stream as it bends through the fiber spaces. Particles are intercepted or captured when they touch a fiber.



The fourth method of capture is called sieving and is the most common mechanism in hydraulic filtration. As shown below, this is when the particle is too large to fit between the fiber spaces.



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1.13 Hydraulic Filtration Pressure Drop

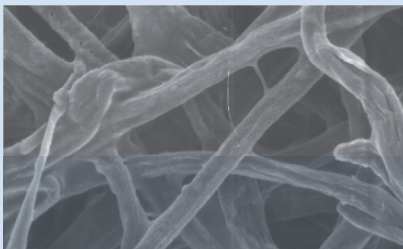
The difference between the inlet pressure and the outlet pressure is called pressure drop or differential pressure. It's symbolized by ΔP . ΔP is an irrecoverable loss of total pressure caused by the filter, and is mostly due to frictional drag on the fibers in the media.

ΔP may increase as the particulate rating or efficiency of the filter (as expressed by its beta ratio) gets better. ΔP also increases as the filter is being loaded with contaminant.

Four Major Factors Contribute to Pressure Drop

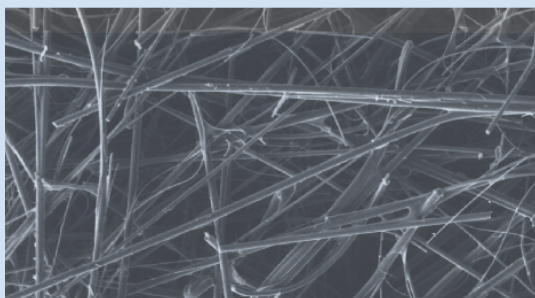
1. Filter Media

Media is, of course, the main factor influencing pressure drop; indeed, it causes pressure drop. That's why having a low-friction, high-flowing media is so important. The natural cellulose or paper fibers (shown at left) typically used in filtration are large, rough, and as irregular as nature made them.



Natural Fiber Cellulose media, as seen under the scanning electron microscope.

Donaldson developed a synthetic media with smooth, rounded fibers, consistently shaped so that we can control the fiber size and distribution pattern throughout the media mat, and still allow the smoothest, least inhibited fluid flow. Our synthetic media is named Synteq®.



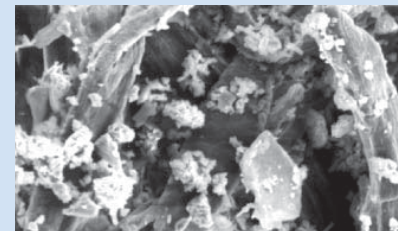
Donaldson's synthetic Synteq® filter media - photo from scanning electron microscope -magnified hundreds of times.

Synteq® fibers offer the least amount of resistance to fluid passing through the media. Consistency of fiber shape allows the maximum amount of contaminant-catching surface area and specific pore size control. The result is media with predictable filtration efficiencies at removing specified contaminants (i.g., 4 μ m) and maximum dirt holding capacity.

Natural cellulose fibers are larger than synthetic fibers and jagged in shape, so controlling size of the pores in the media mat is difficult and there is less open volume. In most applications this results in higher ΔP as compared to synthetic filters. Higher beta ratings mean there are smaller pores in the media; smaller media pores cause more flow resistance, in turn causing higher pressure drop.

2. Dirt, Contaminant

As dirt gets caught in the media, it eventually begins to build up and fill the pore openings. As the pore openings shrink, the differential pressure (pressure drop) increases. This is called restriction. This photo from our scanning electronic microscope shows actual dirt particles building up in the media pores.



Excessive dirt in the media can cause dirt migration or even filter failure. Dirt migration occurs when the restriction is so great that the differential pressure pushes dirt deeper into the media and, eventually, through the media and back into the system. Filter failure occurs when the restriction becomes so high that the filter cartridge collapses (outside-in flow) or bursts (inside-out flow) to relieve the upstream pressure.

To avoid such catastrophe, use of a filter service indicator and filter bypass is recommended. It measures the pressure drop across the filter, then signals when the filter is 'full' and needs to be changed.

3. Flow

Higher flows create higher pressure drop. With fast moving fluid, there will be more friction causing higher pressure drop across the media.

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4. Fluid Viscosity

Measured in centistokes (cSt) or Saybolt Seconds Universal (SSU or SUS), fluid viscosity is the resistance of a fluid to flow. As fluid viscosity increases, the cSt rating increases. Higher fluid viscosities also mean higher pressure drop because the thicker oil has a tougher time passing through the layer of media fibers. Cold start fluid is a good example of highly viscous fluid.

Filter media, amount of contamination, the flow rate, and fluid viscosity are all factors in the importance of sizing the filter for the system requirements. Filters that are too small won't be able to handle the system flow rate and will create excessive pressure drop from the start. The results could be filter operation in the bypass mode, filter failure, component malfunction, or catastrophic system failures. Filters that are too large for the system can be too costly. Oversized filters require more system oil and higher cost replacement elements. Optimal sizing is best.

1.14 Physical Characteristics of Elements

There are two main differences in filter elements. The first is the design of the filter element itself, and the second is the type of media that is used in such elements.

Filter elements have some attributes that are immediately obvious to the casual observer, such as height, inside diameter, outside diameter, media concentration, type of liner, seal design, and the way the media and components are glued or potted together.

- Liners must be structurally sturdy to withstand pressure variance, yet open enough to allow good flow.
- Top seal design must be leak-free, with a gasket or sealing device that ensures a good seal throughout the life of the filter. Standard seals are made of BunaN material, which is fine for most applications. However, if the filtered fluid is diester or phosphate ester fluid, you'll need a seal made of a fluoroelastomer such as Viton.

- Media potting is key since it holds the media in place at each end. Not only should the potting be fully around the ends of the media to prevent leaks, it should also be of a material that can withstand the application. For instance, epoxy potting should be used in elements that must perform in higher temperature environments, phosphate ester fluids and some high water based fluids.
- Inside the element, the filter media can vary in thickness, pleat depth and pleat concentration.

For example, Donaldson hydraulic filters are generally equipped with either white ("Synteq" our synthetic material) or natural brown (paper or cellulose material) media. It is important to note that media colors vary according to each manufacturer - it should not be assumed that any white-colored media is made of synthetic material.

Some of the most important characteristics of a filter element (structure, fiber diameter, volume solidity, basis weight, thickness, layering) can only be detected under a microscope.



Damaged Equipment

Damage happens when key filtration points are ignored! The pistons in this pump are severely damaged from contamination in the oil.

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1.15 Combining ISO and Filter Performance Ratings

While filter manufacturers publish beta ratings for filter media to describe efficiency performance levels, a direct connection between the beta rating scale and the ISO rating scale cannot be made.

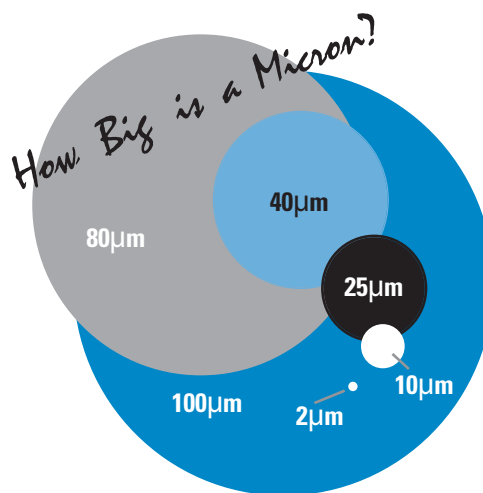
The solution is monitoring filter media performance at removing particles in the 4µm, 6µm, and 14µm ranges. Oil analysis and field monitoring are the only ways to get these measurements. Combine data from several tests to form a range of performance. Remember, actual filter performance will vary between applications.

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.

The Donaldson media efficiency performance levels shown are based on test averages under steady flow conditions. Actual performance levels may vary by application, viscosity, flow variance and contamination differences. Contact Donaldson or your Donaldson distributor for specific application calculations.

Micron Sizes of Familiar Particles

Grain of table salt	100µm
Human hair	80µm
Lower limit of visibility	40µm
White blood cell	25µm
Talcum powder	10µm
Red blood cell	8µm
Bacteria	2µm
Silt	<5µm



Disaster Strikes

When filters are not a main component of the hydraulic circuit, disaster awaits! Here, piston rings were eaten away by contaminants.

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1.16 ISO Beta Ratings System & Cleanliness

Manufacturer's ISO contamination levels are based on controlling the particle counts of 4µm, 6µm and 14µm particles in hydraulic system oil. This level is

identified by measuring the number of particles 4µm and greater, 6µm and greater, and 14µm and greater in one milliliter of the system hydraulic oil sample.

ISO 4406 Contamination Code

This correlates to the numbers in the boxes along the right side of the graph on the next page.

Range of number of particles per milliliter:

Code	More Than	Up to & Including	Code	More Than	Up to & Including
24	80,000	160,000	14	80	160
23	40,000	80,000	13	40	80
22	20,000	40,000	12	20	40
21	10,000	20,000	11	10	20
20	5,000	10,000	10	5	10
19	2,500	5,000	9	2.5	5
18	1,300	2,500	8	1.3	2.5
17	640	1,300	7	0.64	1.3
16	320	640	6	0.32	0.64
15	160	320			

ISO 4406:1999 Code	System type	Suggested Efficiency ISO 16889	Suggested Media (closer)
15/13/10	servo-valves for pressure >20MPa, laboratory & aerospace	$\beta_{2(c)} \geq 200$	/00
16/14/11	high perf. & high press. long life components, i.e. small gearbox	$\beta_{2(c)} \geq 200$ $\beta_{5(c)} \geq 200$	/00 /01
17/15/12	i.e. servo-valves, general power transmission gearbox	$\beta_{7(c)} \geq 200$	/01
18/16/13	high quality reliable, general purpose mach., vane & piston pumps, prop. valves, large gearbox	$\beta_{7(c)} \geq 200$ $\beta_{10(c)} \geq 200$	/01 /02
19/17/14	gear pumps	$\beta_{10(c)} \geq 200$ $\beta_{12(c)} \geq 200$	/02 #3 #3 1/2
20/18/15	mobile equipment, medium pressure i.e. motors, valves & control	$\beta_{12(c)} \geq 200$ $\beta_{15(c)} \geq 200$	#3 #3 1/2
21/19/16	low-medium pressure systems, heavy industry, cylinders, steering unit (load sens.)	$\beta_{15(c)} \geq 200$ $\beta_{20(c)} \geq 200$	#4 /03
22/20/17	low pressure systems	$\beta_{25(c)} \geq 200$	/03 #9
23/21/18	low pressure systems with large clearance	$\beta_{25(c)} \geq 200$ $\beta_{10(c)} \geq 2$	#9 /1 #10
26/24/20	low pressure systems with large clearance	$\beta_{40(c)} \geq 200$ $\beta_{23(c)} \geq 2$	/3 #20

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1.17 Understand the Beta Rating System

This information is provided as an aid to understanding fluid filter efficiency terminology based on current ISO, ANSI and NFPA test standards. It is not proprietary and may be reproduced for purposes distributed in any manner for educational

What is Beta Ratio?

Beta ratio (symbolized by β) is a formula used to calculate the filtration efficiency of a particular fluid filter using base data obtained from multi-pass testing.

In a multi-pass test, fluid is continuously injected with a uniform amount of contaminant (i.e., ISO medium test dust), then pumped through the filter unit being tested. Filter efficiency is determined by monitoring oil contamination levels upstream and downstream of the test filter at specific times. An automatic particle counter is used to determine the contamination level. Through this process an upstream to downstream particle count ratio is developed, known as the beta ratio.

The formula used to calculate the beta ratio is:

$$\text{Beta ratio}_{(x)} = \frac{\text{particle count in upstream oil}}{\text{particle count in downstream oil}}$$

where (x) is a given particle size

Indicates that testing was done with APC's calibrated with NIST fluid

$$\beta_{10(c)} = 1000$$

1000 times more particles upstream than downstream that are 10 μm and larger

1.18 Why the Efficiency Rating Test Standard was Updated

The International Industry Standard (ISO) for multi-pass testing provides a common testing format for filter manufacturers to rate filter performance. This standardization gives you the ability to reliably compare published filter ratings among different brands of filters.

ISO test standards were updated in 1999 to reflect the improved technology available in particle counters and other test equipment. The newer particle counters provide more precise counting and greater detail - reflecting a truer indication of filter performance.

The National Fluid Power Association (NFPA), the National Institute of Standards & Technology (NIST), and industry volunteers, including several engineers from Donaldson, helped revise the ISO standard. ISO 16889 has been in force since late 1999 and ISO 4572 is officially discontinued.

Better Test Dust

The old test dust (AC fine test dust or ACFTD) was "ball milled," which produced dust particles of varying size and shape. Particle distribution was often different from batch to batch. The accuracy of ACFTD distribution and previous APC calibration procedure was questioned by industry, due to lack of traceability and certification. ACFTD hasn't been produced since 1992.

Now, the new test dust (ISO medium test dust) is "jet milled" to produce consistent particle size, shape, and distribution from batch to batch. See dust size comparison chart on page 34.

Liquid Automatic Particle Counters (APC's)

In the old test standard (ISO 4572), fluid samples obtained in bottles and off-line particle counting were allowed. Now, in the updated standard (ISO 16889), on-line, laser-based automatic particle counters, especially made for measuring liquids, are required and bottle counting methods are disallowed, as illustrated on next page.

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The old particle counter calibration was based on only 1 dimension of an irregularly-shaped particle (the longest cord). Today, the particle counter calibration is based on equivalent spherical area of an irregularly-shaped particle.

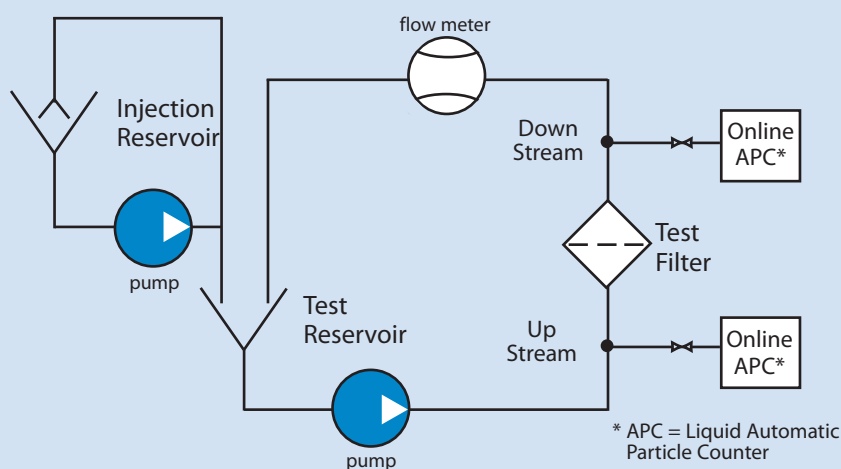
NIST provides calibration suspension, which is certified with X number of particles at a certain size. This is verified by NIST. The new way to list beta ratios includes a subscript (c) to indicate NIST certified test suspension and assures you of traceability and repeatability.

Overall, you can have strong confidence in filter ratings resulting from tests per ISO 16889, as they are highly accurate. As always, keep in mind that beta ratings are laboratory measurements under steady flow conditions with artificial contaminants - the real proof of the performance is how clean the filter keeps the fluids in the application. A good oil analysis program that checks the cleanliness of the oil periodically will verify that the proper filters are being used.

Test Dust Size Comparisons

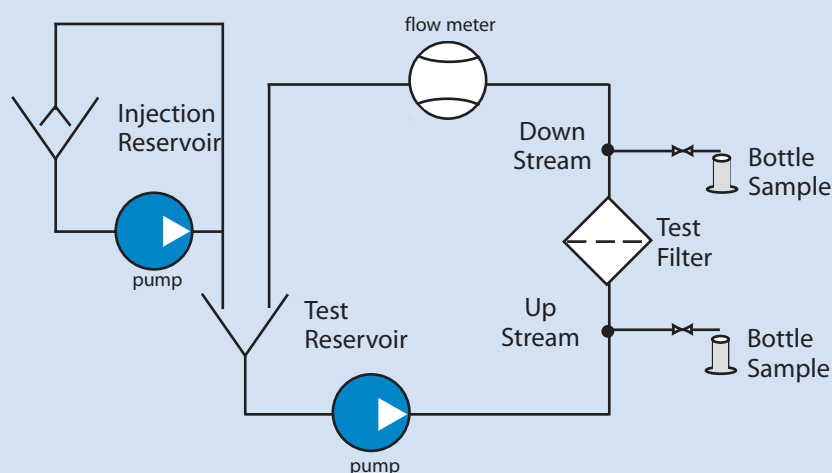
ACFTD calibrated size (μm) per ISO 4402 corresponds to a NIST-calibrated size [$\mu\text{m}(c)$] per ISO 11171

ACFTD	0.8	1	2	2.7	3	4.3	5	7	10	12	15	15.5	20	25	30	40	50
NIST	4	4.2	4.6	5	5.1	6	6.4	7.7	9.8	11.3	13.6	14	17.5	21.2	24.9	31.7	38.2



ISO 16889

- In-Line Liquid Automatic Particle Counters (APC) are now required for proper testing.
- APC calibration follows ISO 11171 procedures
- ISO 11171 uses NIST (National Institute of Standards & Technology) certified calibration fluid



ISO 4572

(Discontinued)

- Either bottle samples or APC's were allowed.
- APC calibration followed ISO 4402 ACFTD (Discontinued)

Hydraulic Technical Reference Guide

1.19 Cleanliness Level Correlation Table

Conversion of cleanliness specifications to filter performance is not an exact science because the contamination level in a hydraulic system is a function of the ingress and generation rate as well as the filter performance.

Factors That Affect Cleanliness Levels in a Hydraulic System

- Abrasive wear in space between adjacent moving surfaces of components.
- Erosive wear at component edges or direction changes where there is high fluid velocity.
- Fatigue wear by particles trapped between moving surfaces.

Identification of the Most Sensitive Component

- Required cleanliness level is dominated by the component with smallest clearances and/or highest loading on the lubricating film.
- Best source for determining this level is the specification published by the component manufacturer.
- Higher pressures reduce component life, unless contamination level is decreased accordingly.
- Operating at half the rated pressure of component will increase its life by more than four times.
- Percent of operating time at maximum pressure depends on individual machines and application.

ISO Code Level	Particles Per Milliliter >10 microns	ISO FTD* Gravimetric Level (mg/l)	Mil Std 1236A (1967)	NAS 1638 (1964)	SAE (1963)
26/23	140,000	1000			
25/23	85,000		1000		
25/20	14,000	100	700		
21/18	4,500			12	
20/18	2,400		500		
20/17	2,300			11	
20/17	1,400	10			
19/16	1,200		10		
18/15	580			9	6
17/14	280		300	8	5
16/13	140	1		7	4
15/12	70			6	3
14/12	40		200		
14/11	35			5	2
13/10	14	0.1		4	1
12/9	9			3	0
11/8	5			2	
10/8	3		100		
10/7	2.3			1	
10/6	1.4	0.01			
9/6	1.2			0	
8/5	0.6			0	
7/5	0.3		50		
6/3	0.14	0.001			
5/2	0.04		25		
2/8	0.01		10		

* SAE Fine Test Dust - ISO approved test and calibration contaminant. Source: Milwaukee School of Engineering Seminar, Contamination & Filtration of Hydraulic Systems

Hydraulic Technical Reference Guide

1.20 Compatibility of Donaldson Filter Media with Hydraulic Fluids

While Donaldson has developed many formulations of media, they can be divided into two broad categories: natural fibers, usually cellulose, and synthetic or man-made fibers.

<u>Fluid to be Filtered</u>	<u>Recommended Media</u>
Petroleum-based	Synteq Cellulose
Phosphate Ester	Synteq
Diester	Synteq
Water Glycol	Synteq
Water-Oil Emulsion	Synteq
Biodegradable Fluid	Synteq
HWCF (high water content fluids)	Synteq
Coarse Filtration	Wire Mesh

A Note on Seals

- Filters with seals made of BunaN are appropriate for most applications involving petroleum oil and some high water content fluids. Filters with seals made of Viton® or Fluorel® (both fluoroelastomers) are required when using diesters, phosphate ester fluids. Donaldson offers both types. (Viton® is a registered trademark of DuPont Dow Elastomers, and Fluorel® is a registered trademark of 3M Company.)
- In Donaldson filters with fluorocarbon elastomer seals, epoxy potting is used to accommodate higher temperature environments and for compatibility with fluids such as phosphate ester and high water based fluids. The plastisol (heat cured) and urethane (self curing) potting materials used in other filters perform well with petroleum-based fluids.



Piston Pump Damage

The severe score marks on the piston slippers leave no question about why good hydraulic filtration is important.

Designed to Fit Manufactured to Perform

... Available soon in the After Market

Invented by
Donaldson

Synteq™ XP Filter Media Technology For High Performance Hydraulic Filtration

NEW

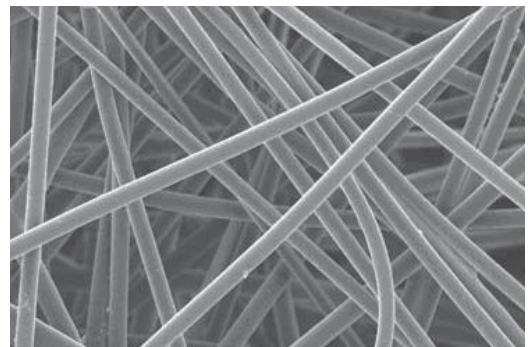
Synteq™ XP is a breakthrough in synthetic filter media technology that takes hydraulic filtration to the next level. It is the next generation of Donaldson Synteq media, designed to increase filter dirt holding capacity and reduce pressure drop.

Synteq XP is the first filter media that delivers high filtration efficiency, high dirt holding capacity and low pressure drop in a single filter for hydraulic filtration applications.

Synteq XP media technology uses a resin-free bonding technique to provide improved filtration characteristics, including:

- Enhanced hydraulic system component protection
- Lower operating pressure drop
- Higher filtration efficiency

Patented Donaldson's Synteq™ XP Filter Media



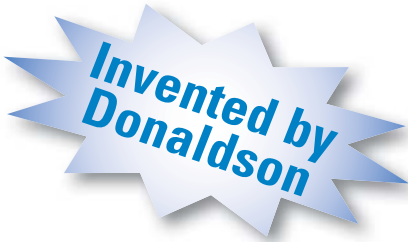
Scanning electron microscope image of Synteq™ XP at 300 magnification shows the uniform, resin-free fiber structure that allows increased filtration performance.



First application using Synteq™ XP Media is the new HNK Filter Duramax® Generation 2. See next page for more information.

Designed to Fit Manufactured to Perform

... Available soon in the After Market



Duramax® Generation 2 HNK Hydraulic Filter Series



Donaldson's second generation Duramax™ Medium Pressure Filter - that becomes the industry standard - takes the hydraulic spin-on filter to the next level.

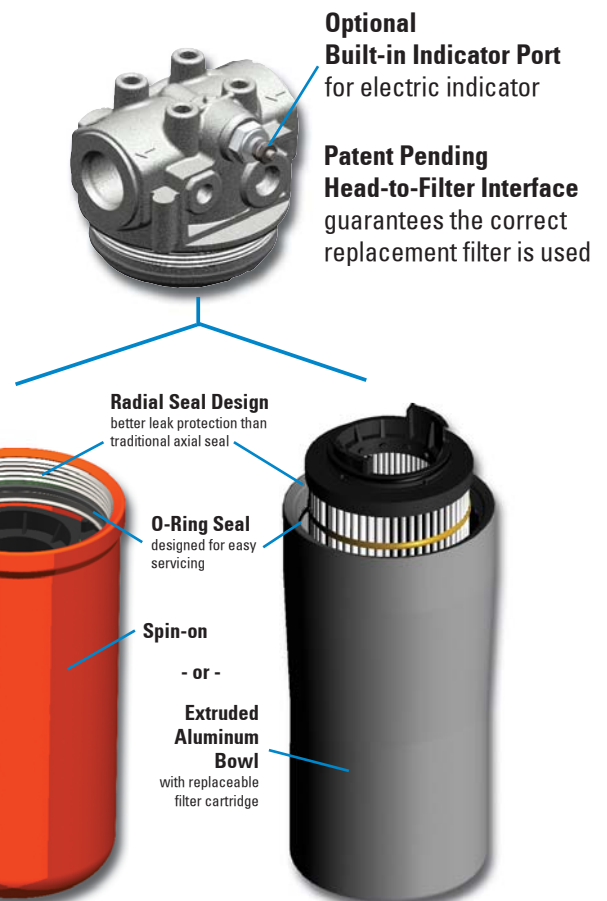
The Donaldson Duramax has been completely redesigned to provide unsurpassed high performance filtration and flexibility. It features 5 micron Synteq™ XP filter media which allows customers to improve filter efficiency to meet ever-increasing system cleanliness requirements. Available in 4" and 5" diameters for specific application requirements.

At the same time, Synteq XP filter media increases filter dust holding capacity and extends filter life.

Our radial seal design makes servicing easier and provides reliable sealing without having to torque to specification. A unique head-to-filter interface ensures that the correct replacement filter is always used in the Duramax assembly and accepts either a spin-on or bowl cartridge style filter.



**Patent Pending for Donaldson's
Duramax® Generation 2
HNK Hydraulic Filter Series**



Designed to Fit Manufactured to Perform

... Available soon in the After Market

Invented by
Donaldson

UNIQUE
DESIGN
CONCEPT

NEW

Hydraulic In-Line Filters featuring Donaldson's Unique Design Concept

Donaldson's Unique design Concept for the unique interface from hydraulic cartridge to filter housing guarantees:

- A Perfect seal between hydraulic cartridge and filter housing
- The correct replacement element is always used
- A fast and safe hydraulic filter servicing

**Patent Pending for
Donaldson's
Unique Design Concept.**

The robust re-usable Bowl includes radial seal for containing oil pressure and anti-dust seal for protecting the threads from contaminating environment.

First applications using Donaldson's Unique Design Concept are the new hydraulic FLK Return Filters In-Line.



FLK90

FLK110

FLK130

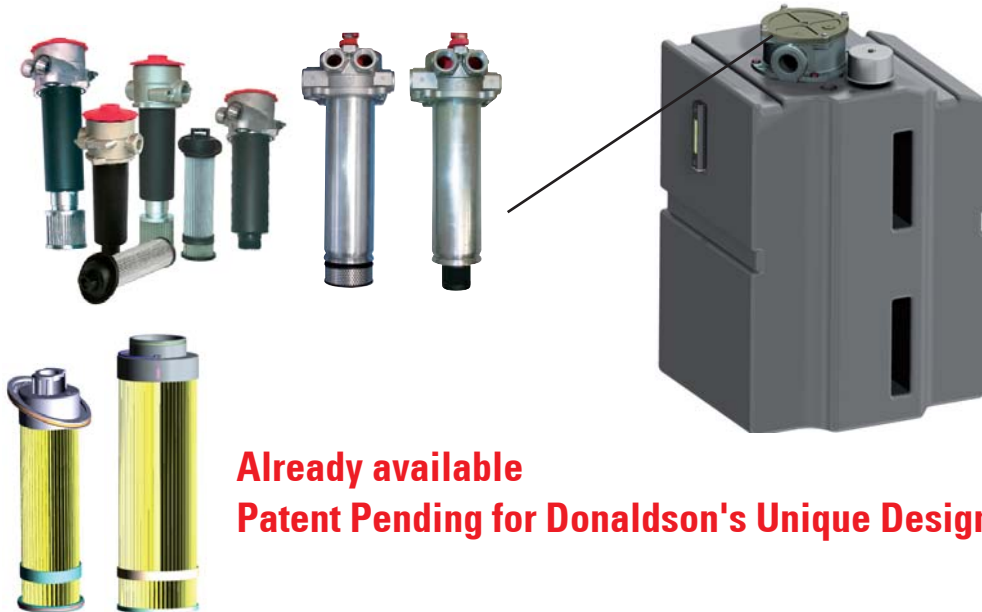
Designed to Fit Manufactured to Perform

... Available soon in the After Market



Hydraulic In Tank Filters featuring Donaldson's Unique Design Concept

Other applications using Donaldson's Unique Design Concept are the new Hydraulic Filters Integrated In Tank.

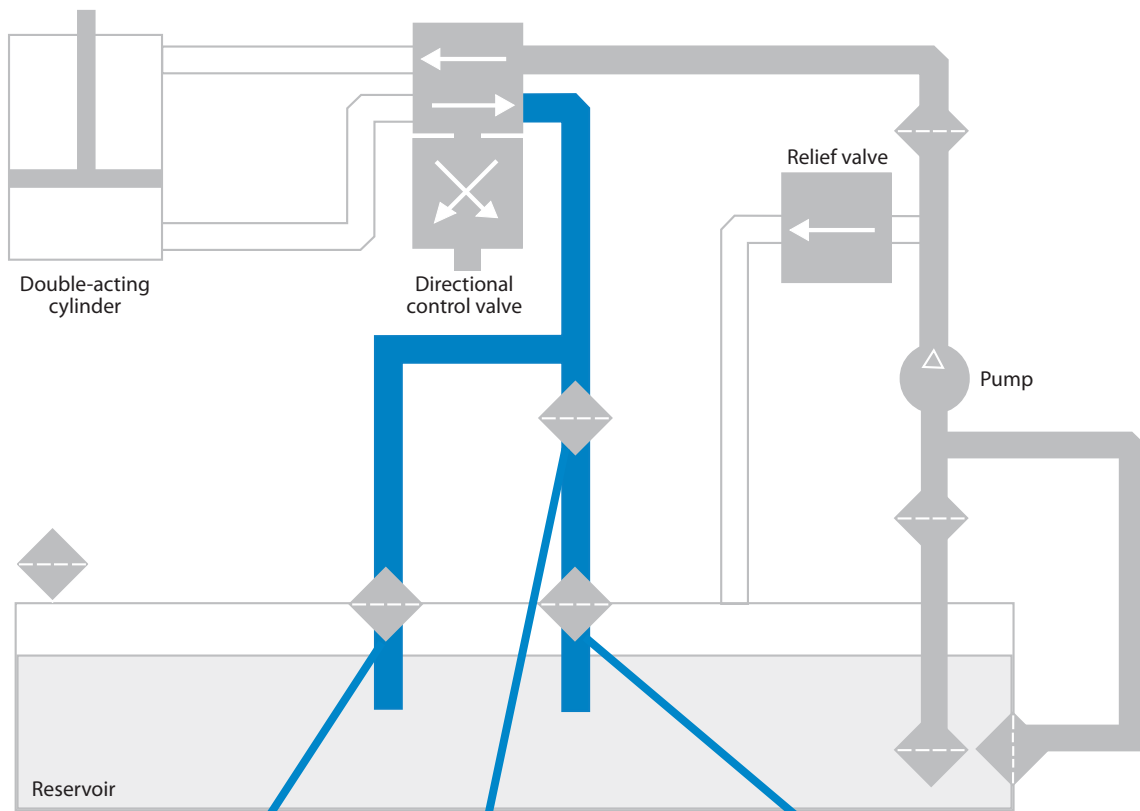


**Already available
Patent Pending for Donaldson's Unique Design Concept.**

Hydraulic High Pressure Filter (FPK Family) with Operating Pressure up to 220 bar



Maximum Flow =60 lpm



RETURN & SUCTION FILTERS IN TANK



RETURN FILTERS IN-LINE



RETURN FILTERS IN TANK

Hydraulic Return Line Filters

Section Index

Return Filters In Tank

NEW

FIK-FIO	45
FIK-FIOT	49
FIK-FIO / FIOT, 4 holes flanges.	53
FIK-FIS	56
FHK-FIR	60

Return & Suction Filters In Tank

**UNIQUE
DESIGN
CONCEPT**

Combo 120 Series	64
Combo 200 Series	74

Return Filters In-Line

ADDITIONS

FLK-FLS	78
FBK-FRCA	84

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.



FIK-FIO

NEW

Return Filters In Tank, up to 10 bar

45



FIK-FIO, 4 HOLES FLANGE

Return Filters In Tank, up to 10 bar

53



FIK-FIOT

NEW

Return Filters In Tank with Filler Cap, up to 10 bar

49



FIK-FIOT, 4 HOLES FLANGE

Return Filters In Tank with Filler Cap, up to 10 bar

53

Technical Data

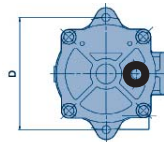
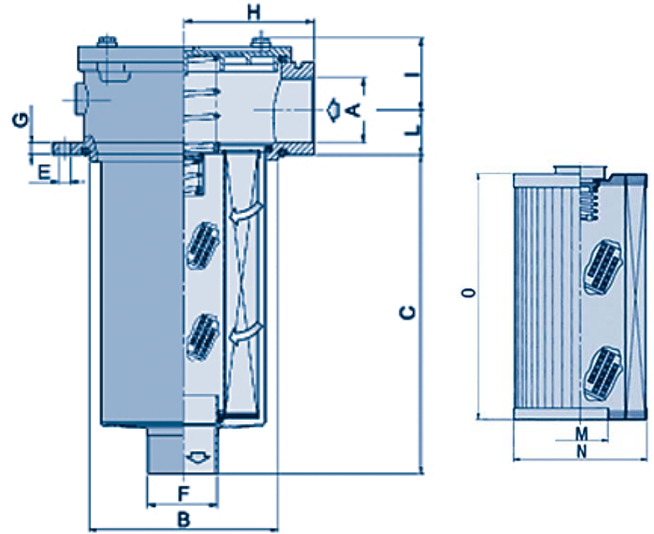
- Operating pressure up to 1000 kPa (10 bar).
- Static pressure testing up to 1500 kPa (15 bar).
- Operating temperature -20 +100°C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO 3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm .
- Ports threaded per ISO 228/1 or flanged per SAE J 518 - 3000 PSI.

Filter Elements

- Wire mesh with 60-90 micron.
- Synteq® synthetic media with 10-25 micron.
- Cellulose media with 10-30 micron, reinforced with wire mesh.
- By-pass valve setting 150 kPa (1,5 bar) per ISO 3968.
- Collapse resistance 1000 kPa (10 bar) per ISO 2941.
- Replacement element includes spring and O-ring seal.

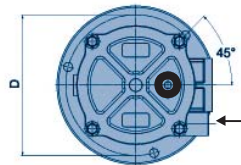
Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

DIMENSIONS ASSY (mm)											DIMENSIONS ELEMENT (mm)		
A	B	C	D	E	F	G	H	I	L	Kg.	M	N	O
G 3/8	67	78	90	6,4	25	9	49	30	22	0,5	25,5	52	67
G 1/2	67	78	90	6,4	25	9	49	30	22	0,5	25,5	52	67
G 1/2	90	100	115	8,4	28	10	66	43	28	0,8	29	70	75
G 3/4	90	100	115	8,4	28	10	66	43	28	0,8	29	70	82
G 3/4	90	150	115	8,4	28	10	66	43	28	0,9	29	70	128
G 1	90	150	115	8,4	28	10	66	43	28	0,9	29	70	128
G 1	130	225	175	10,5	40	10	95	53	35	2,5	41	95	203
G 1 1/4	130	230	175	10,5	40	10	95	53	35	2,5	41	95	203
G 1 1/4	130	278	175	10,5	40	10	95	53	35	2,8	41	95	250
G 1 1/2	174	168	220	10,5	50	10	120	65	41	3,7	52	140	136
G 1 1/2	174	242	220	10,5	50	10	120	65	41	4,3	52	140	203
G 1 1/2	174	240	220	10,5	63,5	10	120	65	41	4,3	65	140	203
G 2	174	240	220	10,5	63,5	10	120	65	41	4,5	65	140	203
G 2	174	294	220	10,5	63,5	10	120	65	41	5	65	140	250
FLANGE SAE 2	174	294	220	10,5	63,5	11	126	58	48,5	5,2	65	140	250
G 2	174	438	220	10,5	63,5	10	120	65	41	6	65	140	400
FLANGE SAE 2	174	434	220	10,5	63,5	11	126	58	48,5	6,2	65	140	400

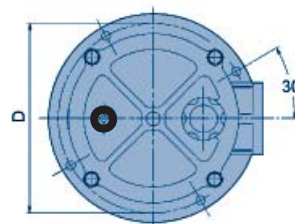


SIZE 20-30-50-60-80-100

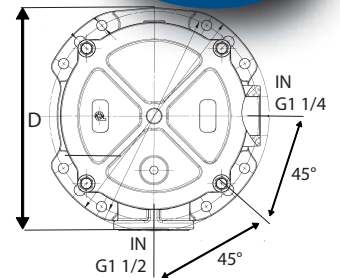
● Drilled holes for indicators



SIZE 150-180-200

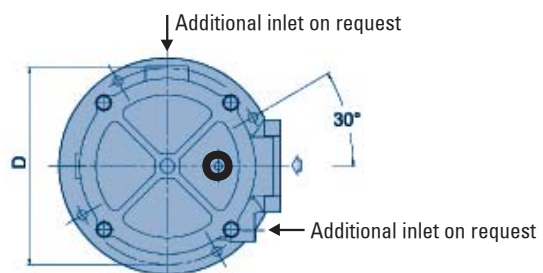


SIZE 250-325-330-500



IMPORTANT NOTES:

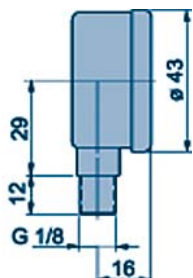
1. Foresee a hole diameter on top of the tank at a diameter $B + 2$ mm.
2. Maintain the filter outlet (ref. diameter F) well below the oil level to avoid foam formation.



SIZE 600-800

FIK-FIO Return Filters In Tank

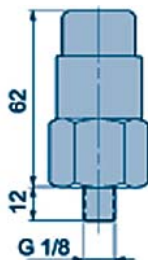
Service Indicators



PRESSURE GAUGE

P171953 (500.01)

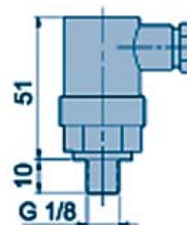
Scale: -100÷500 kPa (-1÷5 bar)



VISUAL PRESSURE GAUGE INDICATOR

P171958 (503.01)

Setting: 120 kPa (1,2 bar)



ELECTRICAL PRESSURE SWITCH INDICATOR

P171966 (504.01) N.O. contacts

P173104 (504.05) N.C. contacts

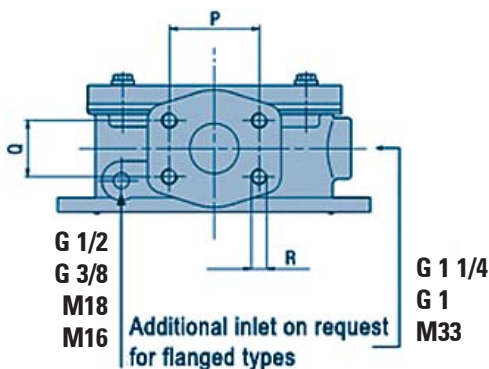
Setting: 120 kPa (1,2 bar)

Max. values: 48 VAC - 30 DCV - 0,5 A res - 0,2 A. ind

Protection class: IP 65

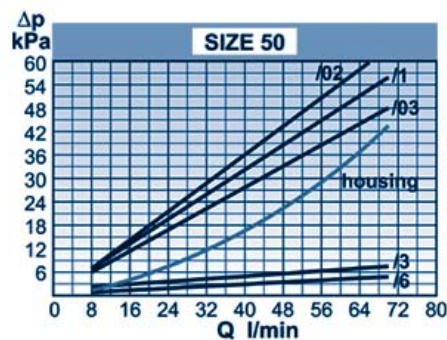
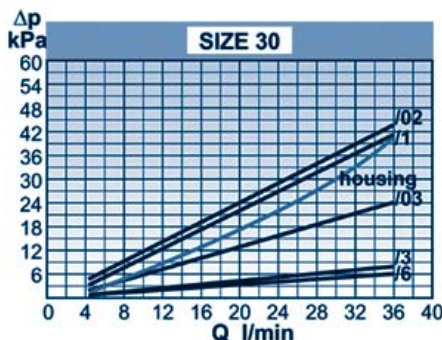
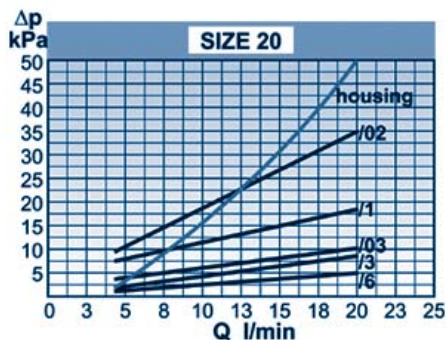
Cable clamp: PG 7

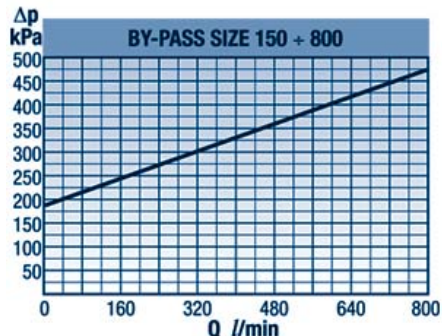
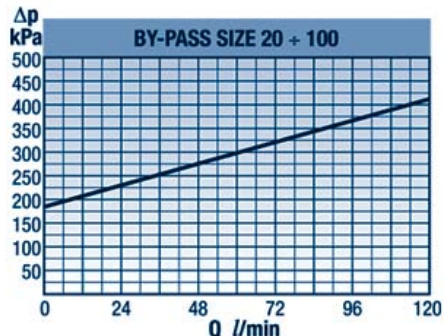
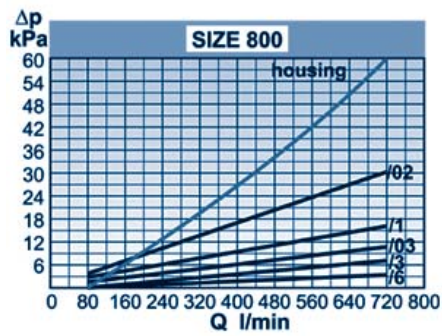
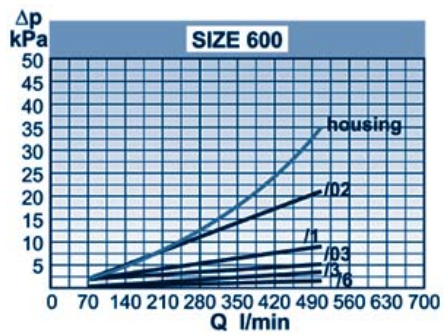
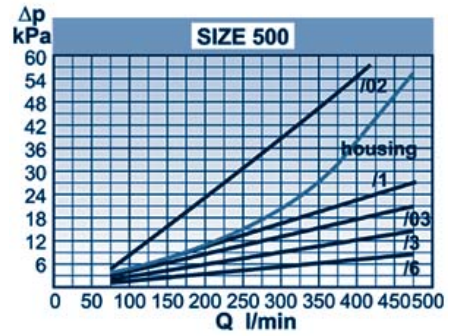
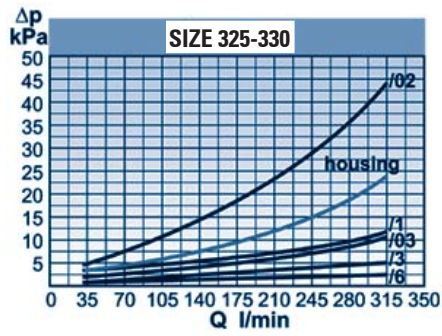
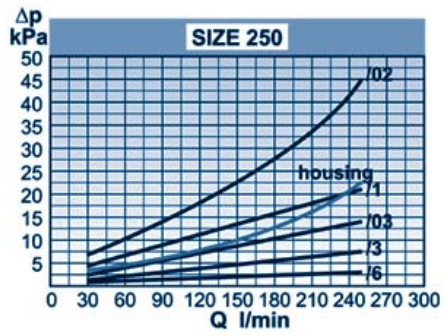
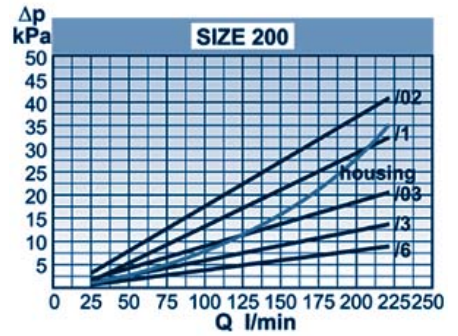
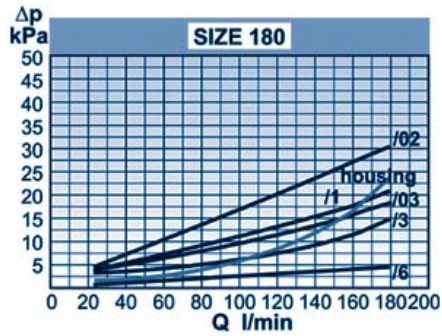
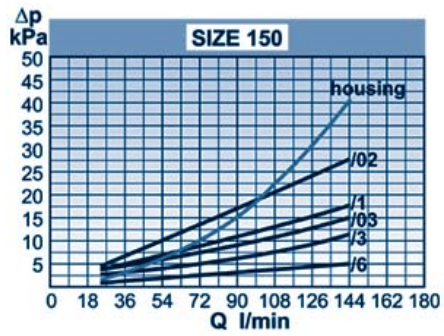
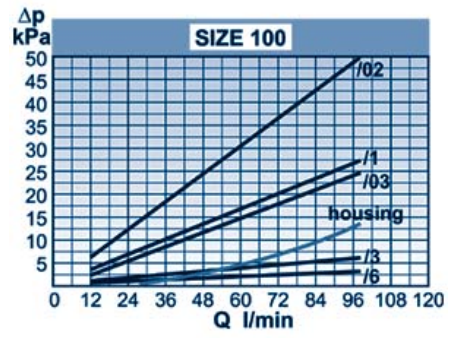
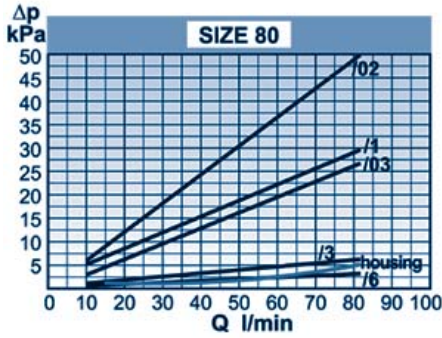
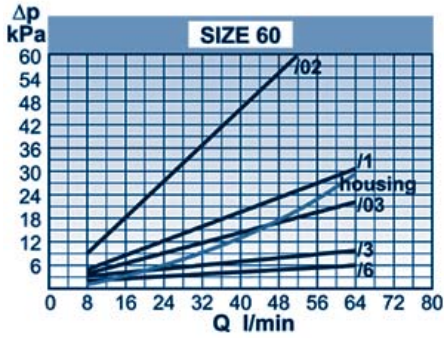
SAE Flanges



Flanges SAE J518 3000 PSI	P	Q	R
1 1/2	69,8	35,8	M12
1 1/2	69,8	35,8	1/2 - 13 UNC
2	77,8	42,9	M12
2	77,8	42,9	1/2 - 13 UNC

Performance Curves





FIK-FIOT Return Filters In Tank



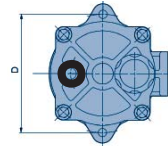
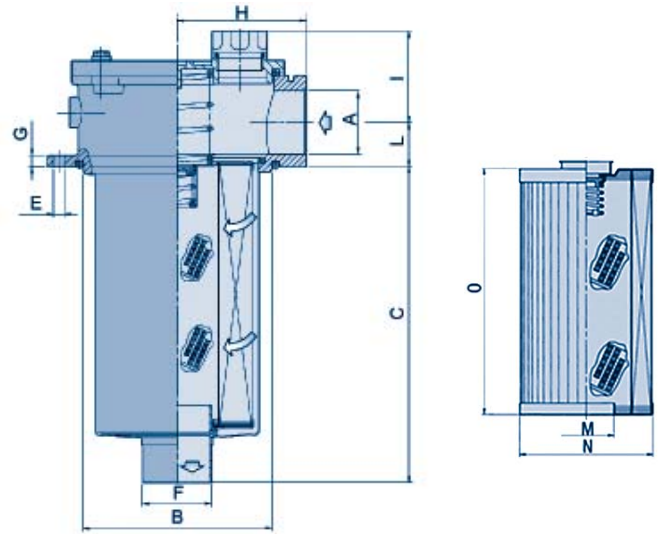
Specifications

SIZE	RMF*	/9				/6				RMF*	/3				/1				RMF*	/03				/02																																																																																																																																																																																																	
		WIRE MESH MEDIA									CELLULOSE MEDIA									SYNTHETIC MEDIA																																																																																																																																																																																																					
		TYPE		ELEMENT		TYPE		ELEMENT			$\beta_{40(c)}=1000$		$\beta_{36(c)}=1000$		$\beta_{23(c)}=1000$		$\beta_{11(c)}=1000$			TYPE		ELEMENT		TYPE		ELEMENT																																																																																																																																																																																															
20	20	K030225 FIOT 20 K030341 FIOT 20 P	P171500 CR 30	K030230 FIOT 20/6 K030394 FIOT 20/6 P	P171505 CR 30/6	K030229 FIOT 20/3 K030342 FIOT 20/3 P	P171504 CR 30/3	K030228 FIOT 20/1 K030389 FIOT 20/1 P	P171503 CR 30/1	K030227 FIOT 20/03 K030387 FIOT 20/02 P	P171502 CR 30/03	K030226 FIOT 20/02 K030387 FIOT 20/02 P	P171501 CR 30/02	15	K030235 FIOT 30/3 K030345 FIOT 30/3 P	P171504 CR 30/3	K030234 FIOT 30/1 K030344 FIOT 30/1 P	P171503 CR 30/1	K030233 FIOT 30/03 K030396 FIOT 30/03 P	P171502 CR 30/03	K030232 FIOT 30/02 K030395 FIOT 30/02 P	P171501 CR 30/02	30	K040536 FIOT 50 K040892 FIOT 50 P	P171518 CR 50	K040541 FIOT 50/6 K040895 FIOT 50/6 P	P171523 CR 50/6	K040540 FIOT 50/3 K040894 FIOT 50/3 P	P171522 CR 50/3	K040539 FIOT 50/1 K040893 FIOT 50/1 P	P171521 CR 50/1	K040538 FIOT 50/03 K040894 FIOT 50/03 P	P171520 CR 50/03	K040537 FIOT 50/02 K040893 FIOT 50/02 P	P171519 CR 50/02	50	K040542 FIOT 60 K040896 FIOT 60 P	P171524 CR 60	K040547 FIOT 60/6 K040900 FIOT 60/6 P	P171529 CR 60/6	K040546 FIOT 60/3 K040899 FIOT 60/3 P	P171528 CR 60/3	K040545 FIOT 60/1 K040898 FIOT 60/1 P	P171527 CR 60/1	K040544 FIOT 60/03 K040897 FIOT 60/03 P	P171526 CR 60/03	K040543 FIOT 60/02 K041008 FIOT 60/02 P	P171525 CR 60/02	60	K040548 FIOT 80 K040901 FIOT 80 P	P171530 CR 100	K040553 FIOT 80/6 K040904 FIOT 80/6 P	P171535 CR 100/6	K040552 FIOT 80/3 K040903 FIOT 80/3 P	P171534 CR 100/3	K040551 FIOT 80/1 K040902 FIOT 80/1 P	P171533 CR 100/1	K040550 FIOT 80/03 K041017 FIOT 80/03 P	P171532 CR 100/03	K040549 FIOT 80/02 K041016 FIOT 80/02 P	P171531 CR 100/02	80	K040530 FIOT 100 K040888 FIOT 100 P	P171530 CR 100	K040535 FIOT 100/6 K040891 FIOT 100/6 P	P171535 CR 100/6	K040534 FIOT 100/3 K040890 FIOT 100/3 P	P171534 CR 100/3	K040533 FIOT 100/1 K040886 FIOT 100/1 P	P171533 CR 100/1	K040532 FIOT 100/03 K041023 FIOT 100/03 P	P171532 CR 100/03	K040531 FIOT 100/02 K040889 FIOT 100/02 P	P171531 CR 100/02	100	K051121 FIOT 150 K051243 FIOT 150 P	P171536 CR 180	K051127 FIOT 150/6 K051247 FIOT 150/6 P	P171541 CR 180/6	K051126 FIOT 150/3 K051248 FIOT 150/3 P	P171540 CR 180/3	K051125 FIOT 150/1 K051245 FIOT 150/1 P	P171539 CR 180/1	K051124 FIOT 150/03 K051244 FIOT 150/03 P	P171538 CR 180/03	K051123 FIOT 150/02 K041029 FIOT 150/02 P	P171537 CR 180/02	150	K051128 FIOT 180 K051248 FIOT 180 P	P171536 CR 180	K051133 FIOT 180/6 K051250 FIOT 180/6 P	P171541 CR 180/6	K051132 FIOT 180/3 K051227 FIOT 180/3 P	P171540 CR 180/3	K051131 FIOT 180/1 K051231 FIOT 180/1 P	P171539 CR 180/1	K051130 FIOT 180/03 K051263 FIOT 180/03 P	P171538 CR 180/03	K051129 FIOT 180/02 K051249 FIOT 180/02 P	P171537 CR 180/02	180	K070057 FIOT 200 K070458 FIOT 200 P	P171542 CR 201	K070062 FIOT 200/6 K070461 FIOT 200/6 P	P171547 CR 201/6	K070061 FIOT 200/3 K070460 FIOT 200/3 P	P171546 CR 201/3	K070060 FIOT 200/1 K070322 FIOT 200/1 P	P171545 CR 201/1	K070059 FIOT 200/03 K070319 FIOT 200/03 P	P171544 CR 201/03	K070058 FIOT 200/02 K070459 FIOT 200/02 P	P171543 CR 201/02	200	K070063 FIOT 250 K070462 FIOT 250 P	P171548 CR 250	K070068 FIOT 250/6 K070325 FIOT 250/6 P	P171553 CR 250/6	K070067 FIOT 250/3 K070324 FIOT 250/3 P	P171552 CR 250/3	K070066 FIOT 250/1 K070323 FIOT 250/1 P	P171551 CR 250/1	K070065 FIOT 250/03 K070463 FIOT 250/03 P	P171550 CR 250/03	K070064 FIOT 250/02 K070463 FIOT 250/02 P	P171549 CR 250/02	250	K070069 FIOT 325 K070465 FIOT 325 P	P171554 CR 325	K070074 FIOT 325/6 K070330 FIOT 325/6 P	P171559 CR 325/6	K070073 FIOT 325/3 K070329 FIOT 325/3 P	P171558 CR 325/3	K070072 FIOT 325/1 K070328 FIOT 325/1 P	P171557 CR 325/1	K070071 FIOT 325/03 K070327 FIOT 325/03 P	P171556 CR 325/03	K070070 FIOT 325/02 K070326 FIOT 325/02 P	P171555 CR 325/02	325	K070075 FIOT 330 K070365 FIOT 330 P	P171560 CR 330	K070080 FIOT 330/6 K070335 FIOT 330/6 P	P171565 CR 330/6	K070079 FIOT 330/3 K070334 FIOT 330/3 P	P171564 CR 330/3	K070078 FIOT 330/1 K070333 FIOT 330/1 P	P171563 CR 330/1	K070077 FIOT 330/03 K070332 FIOT 330/03 P	P171562 CR 330/03	K070076 FIOT 330/02 K070331 FIOT 330/02 P	P171561 CR 330/02	330	K070081 FIOT 500 K070366 FIOT 500 P	P171566 CR 500	K070086 FIOT 500/6 K070339 FIOT 500/6 P	P171571 CR 500/6	K070085 FIOT 500/3 K070338 FIOT 500/3 P	P171570 CR 500/3	K070084 FIOT 500/1 K070337 FIOT 500/1 P	P171569 CR 500/1	K070083 FIOT 500/03 K070367 FIOT 500/03 P	P171568 CR 500/03	K070082 FIOT 500/02 K070336 FIOT 500/02 P	P171567 CR 500/02	500	K070087 FIOT 600 K070343 FIOT 600 P	P171572 CR 600	K070092 FIOT 600/6 K070454 FIOT 600/6 P	P171577 CR 600/6	K070091 FIOT 600/3 K070342 FIOT 600/3 P	P171576 CR 600/3	K070090 FIOT 600/1 K070341 FIOT 600/1 P	P171575 CR 600/1	K070089 FIOT 600/03 K070369 FIOT 600/03 P	P171574 CR 600/03	K070088 FIOT 600/02 K070340 FIOT 600/02 P	P171573 CR 600/02	600	K070093 FIOT 600 K070466 FIOT 600 P	P171572 CR 600	K070104 FIOT 600/6 K070345 FIOT 600/6 P	P171577 CR 600/6	K070103 FIOT 600/3 K070344 FIOT 600/3 P	P171576 CR 600/3	K070102 FIOT 600/1 K070469 FIOT 600/1 P	P171575 CR 600/1	K070101 FIOT 600/03 K070468 FIOT 600/03 P	P171574 CR 600/03	K070100 FIOT 600/02 K070467 FIOT 600/02 P	P171573 CR 600/02	600	K070093 FIOT 800 K070455 FIOT 800 P	P171578 CR 800	K070098 FIOT 800/6 K070457 FIOT 800/6 P	P171583 CR 800/6	K070097 FIOT 800/3 K070348 FIOT 800/3 P	P171582 CR 800/3	K070096 FIOT 800/1 K070347 FIOT 800/1 P	P171581 CR 800/1	K070095 FIOT 800/03 K070456 FIOT 800/03 P	P171580 CR 800/03	K070094 FIOT 800/02 K070346 FIOT 800/02 P	P171579 CR 800/02	800	K070105 FIOT 800 K070470 FIOT 800 P	P171578 CR 800	K070110 FIOT 800/6 K070110 FIOT 800/6 P	P171583 CR 800/6	K070109 FIOT 800/3 K070742 FIOT 800/3 P	P171582 CR 800/3	K070108 FIOT 800/1 K070350 FIOT 800/1 P	P171581 CR 800/1	K070107 FIOT 800/03 K070471 FIOT 800/03 P	P171580 CR 800/03	K070106 FIOT 800/02 K070349 FIOT 800/02 P	P171579 CR 800/02

RMF* = Recommended Maximum Flow in l/min.

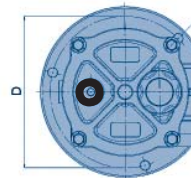
FILTER ASSEMBLIES WITH DRILLED HOLES FOR INDICATORS ARE INDICATED IN BLUE

DIMENSIONS ASSY (mm)											DIMENSIONS ELEMENT (mm)		
A	B	C	D	E	F	G	H	I	L	Kg.	M	N	O
G 3/8	67	78	90	6,4	25	9	49	53	22	0,5	26	52	67
G 1/2	67	78	90	6,4	25	9	49	53	22	0,5	26	52	67
G 1/2	90	100	115	8,4	28	10	66	65	28	0,8	29	70	75
G 3/4	90	100	115	8,4	28	10	66	65	28	0,8	29	70	82
G3/4	90	150	115	8,4	28	10	66	65	28	0,9	29	70	128
G 1	90	150	115	8,4	28	10	66	65	28	0,9	29	70	128
G 1	130	225	175	10,5	40	10	95	73	35	2,5	41	95	203
G 1 1/4	130	225	175	10,5	40	10	95	73	35	2,5	41	95	203
G 1 1/4	130	278	175	10,5	40	10	95	73	35	2,8	41	95	250
G 1 1/2	174	168	220	10,5	50	10	120	83	41	3,7	52	140	136
G 1 1/2	174	242	220	10,5	50	10	120	83	41	4,3	52	140	203
G 1 1/2	174	240	220	10,5	63,5	10	120	83	41	4,3	65	140	203
G 2	174	240	220	10,5	63,5	10	120	83	41	4,5	65	140	203
G 2	174	294	220	10,5	63,5	10	120	83	41	5	65	140	250
FLANGE SAE 2	174	294	220	10,5	63,5	11	126	76	48,5	5,2	65	140	250
G 2	174	438	220	10,5	63,5	10	120	83	41	6	165	140	400
FLANGE SAE 2	174	434	220	10,5	63,5	11	126	76	48,5	6,2	65	140	400



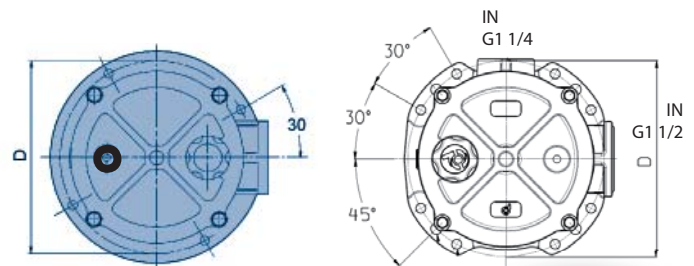
● Drilled holes for indicators

SIZE 20-30-50-60-80-100



Additional inlet on request
M18
G 1/2

SIZE 150-180-200

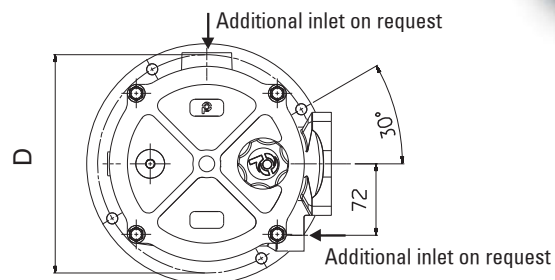


SIZE 250-325-330-500



IMPORTANT NOTES:

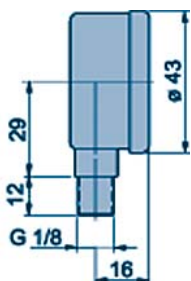
1. Foresee a hole diameter on top of the tank at a diameter $B + 2$ mm.
2. Maintain the filter outlet (ref. diameter F) well below the oil level to avoid foam formation.



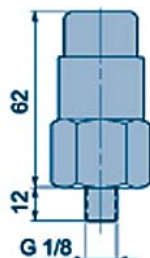
SIZE 600-800

FIK-FIOT Return Filters In Tank

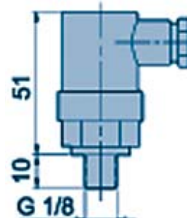
Service Indicators



PRESSURE GAUGE
P171953 (500.01)
Scale: -100÷500 kPa (-1÷5 bar)

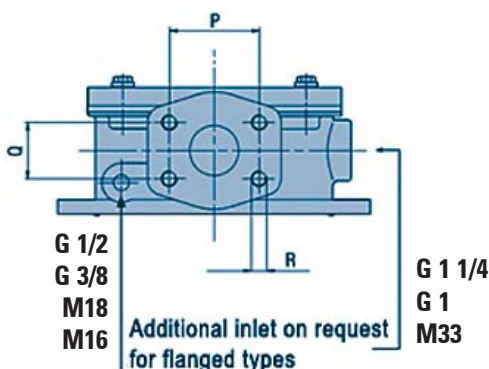


VISUAL PRESSURE GAUGE INDICATOR
P171958 (503.01)
Setting: 120 kPa (1,2 bar)



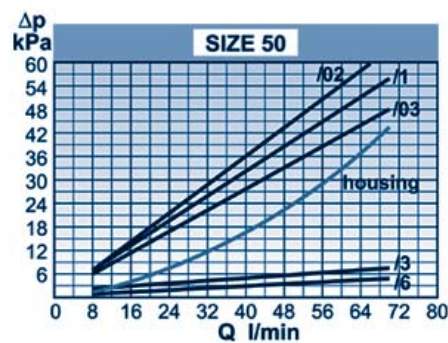
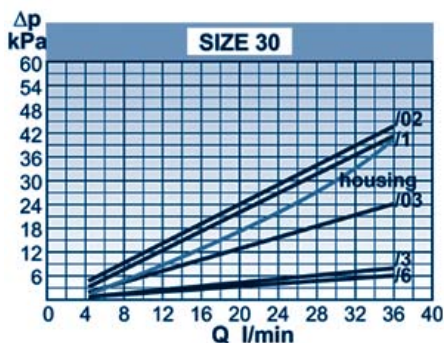
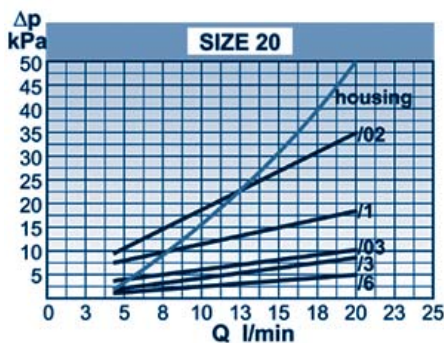
ELECTRICAL PRESSURE SWITCH INDICATOR
P171966 (504.01) N.O. contacts
P173104 (504.05) N.C. contacts
Setting: 120 kPa (1,2 bar)
Max. values: 48 VAC - 30 DCV - 0,5 A res - 0,2 A. ind
Protection class: IP 65
Cable clamp: PG 7

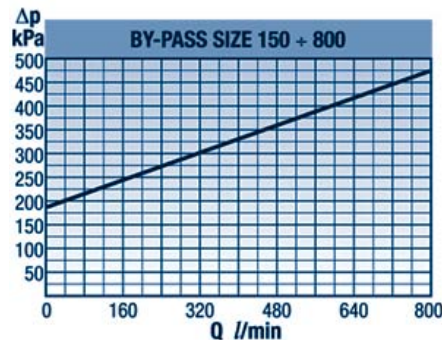
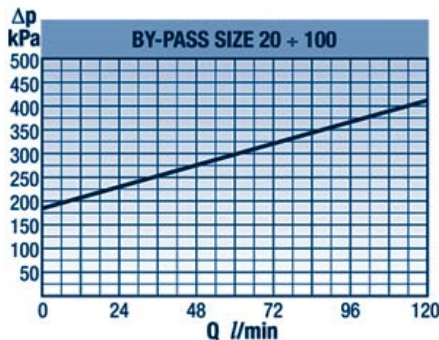
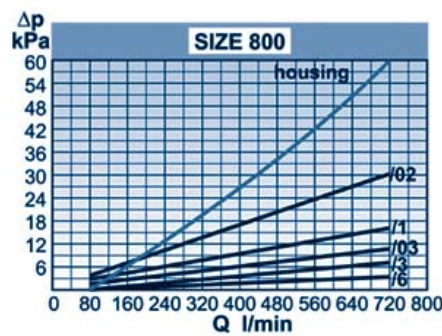
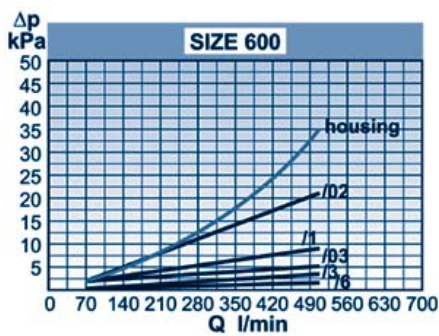
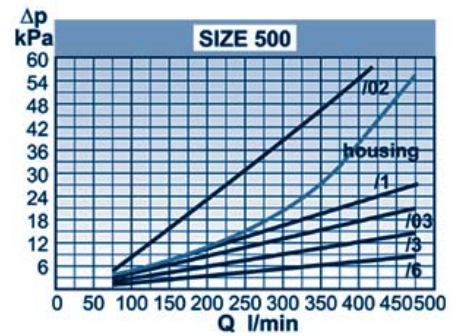
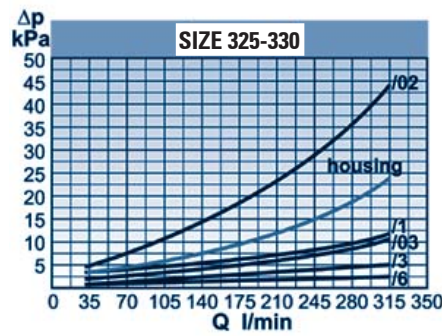
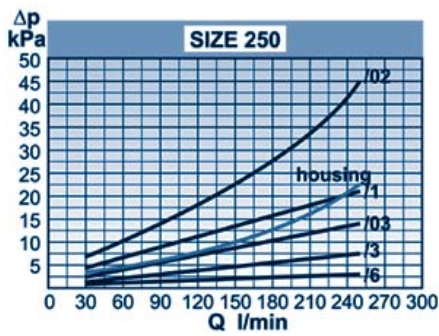
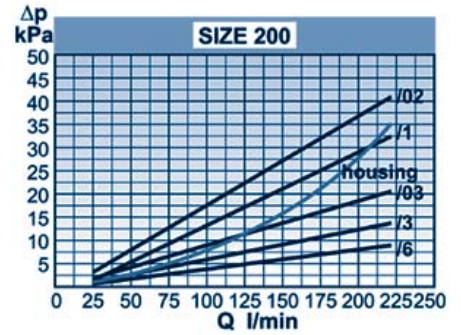
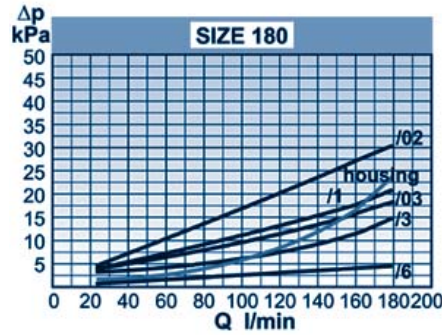
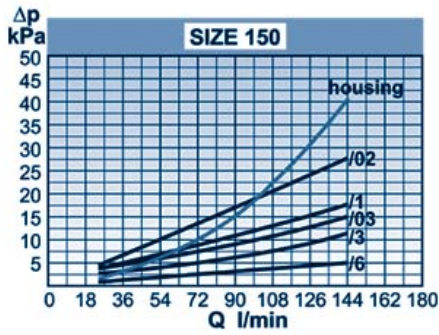
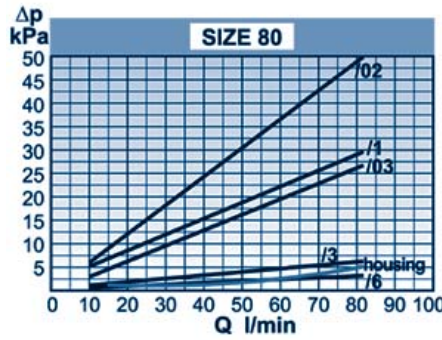
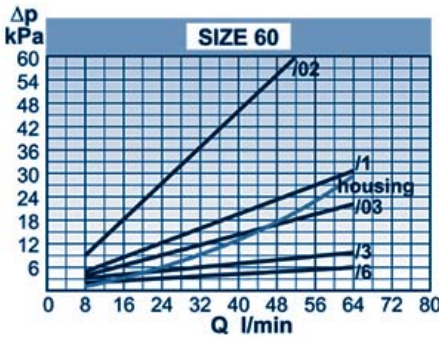
SAE Flanges



Flanges SAE J518 3000 PSI	P	Q	R
1 1/2	69,8	35,8	M12
1 1/2	69,8	35,8	1/2 - 13 UNC
2	77,8	42,9	M12
2	77,8	42,9	1/2 - 13 UNC

Performance Curves





FIK-FIO/FIOT, 4 HOLES FLANGES

Return Filters In Tank with Filler Cap



Specifications FIK-FIO, 4 holes flanges

SIZE	RMF*	/9		/6		RMF*	/3		/1		RMF*	/03		/02			
		WIRE MESH MEDIA						CELLULOSE MEDIA				SYNTHETIC MEDIA					
									$\beta_{40(c)}=1000$			$\beta_{36(c)}=1000$		$\beta_{23(c)}=1000$		$\beta_{11(c)}=1000$	
TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT		
110	110	K041560	P171530 CR 100	K041561	P171535 CR 100/6	65	K041562	P171534 CR 100/3	K041563	P171533 CR 100/1	60	K041564	P171532 CR 100/03	K041565	P171531 CR 100/02		
		FIO 110/9		FIO 110/6			FIO 110/3		FIO 110/1			FIO 110/03		FIO 110/02			
		K041536		K041537			K041538		K041539			K041540		K041541			
FIO 110/9 P	FIO 110/6 P	FIO 110/3 P	FIO 110/1 P	FIO 110/03 P	FIO 110/02 P												
140	140	K041566	P171831 CR 150	K041567	P171834 CR 150/6	100	K041568	P171837 CR 150/3	K041569	P171840 CR 150/1	90	K041570	P171843 CR 150/03	K041571	P171846 CR 150/02		
		FIO 140/9		FIO 140/6			FIO 140/3		FIO 140/1			FIO 140/03		FIO 140/02			
		K041542		K041543			K041544		K041545			K041546		K041547			
FIO 140/9 P	FIO 140/6 P	FIO 140/3 P	FIO 140/1 P	FIO 140/03 P	FIO 140/02 P												

RMF* = Recommended Maximum Flow in l/min.

FILTER ASSEMBLIES WITH DRILLED HOLES FOR INDICATORS ARE INDICATED IN BLUE



Specifications FIK-FIOT, 4 holes flanges

SIZE	RMF*	/9		/6		RMF*	/3		/1		RMF*	/03		/02			
		WIRE MESH MEDIA						CELLULOSE MEDIA				SYNTHETIC MEDIA					
									$\beta_{40(c)}=1000$			$\beta_{36(c)}=1000$		$\beta_{23(c)}=1000$		$\beta_{11(c)}=1000$	
TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT		
110	110	K041572	P171530 CR 100	K041573	P171535 CR 100/6	65	K041522	P171534 CR 100/3	K041575	P171533 CR 100/1	60	K041567	P171532 CR 100/03	K041577	P171531 CR 100/02		
		FIO 110/9		FIO 110/6			FIO 110/3		FIO 110/1			FIO 110/03		FIO 110/02			
		K041548		K041549			K041550		K041551			K041552		K041553			
FIO 110/9 P	FIO 110/6 P	FIO 110/3 P	FIO 110/1 P	FIO 110/03 P	FIO 110/02 P												
140	140	K041578	P171831 CR 150	K041579	P171834 CR 150/6	100	K041580	P171837 CR 150/3	K041581	P171840 CR 150/1	90	K041582	P171843 CR 150/03	K041583	P171846 CR 150/02		
		FIO 140/9		FIO 140/6			FIO 140/3		FIO 140/1			FIO 140/03		FIO 140/02			
		K041554		K041555			K041556		K041557			K041558		K041559			
FIO 140/9 P	FIO 140/6 P	FIO 140/3 P	FIO 140/1 P	FIO 140/03 P	FIO 140/02 P												

RMF* = Recommended Maximum Flow in l/min.

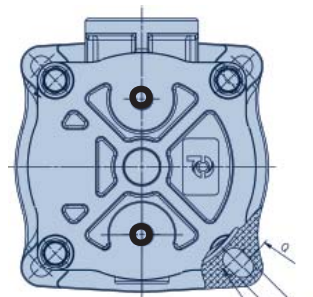
FILTER ASSEMBLIES WITH DRILLED HOLES FOR INDICATORS ARE INDICATED IN BLUE

FIK-FIO/FIOT, 4 HOLES FLANGES Return Filters In Tank with Filler Cap

DIMENSIONS ASSY (mm)											DIMENSIONS ELEMENT (mm)		
A	B	C	D	E	F	G	H	I	L	Kg.	M	N	O
G 1	90	145	115	8,4	28	10	66	43	28	0,9	29	70	128
G 1	90	235	115	8,4	28	10	66	43	28	0,9	42	70	210

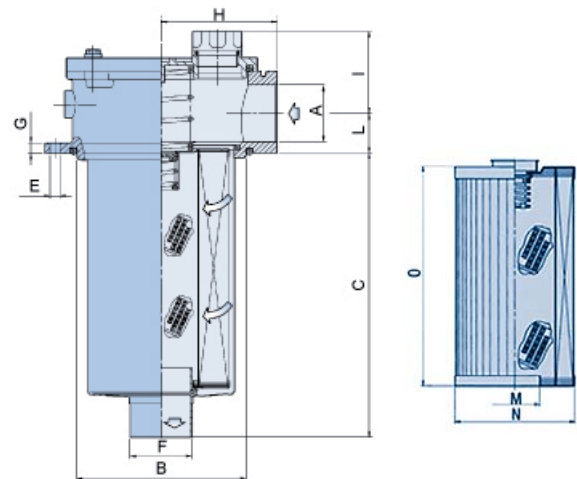


● Drilled holes for indicators

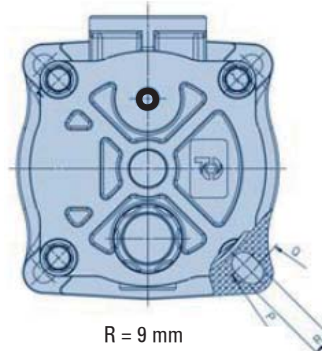


R = 9 mm
Q = \varnothing 126 mm
P = \varnothing 115 mm

DIMENSIONS ASSY (mm)											DIMENSIONS ELEMENT (mm)		
A	B	C	D	E	F	G	H	I	L	Kg.	M	N	O
G 1	90	145	115	8,4	28	10	66	43	28	0,9	29	70	128
G 1	90	235	115	8,4	28	10	66	43	28	0,9	42	70	210



● Drilled holes for indicators



R = 9 mm
Q = \varnothing 126 mm
P = \varnothing 115 mm



FIK-FIS

Return Filters In Tank, up to 10 bar
with Service Cover and Breather

Technical Data

- Operating pressure up to 1000 kPa (10 bar).
- Static pressure testing up to 1500 kPa (15 bar).
- Operating temperature -20 +100°C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO 3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1

Filter Elements

- Wire mesh with 60-90 micron.
- Synteq® synthetic media with 10-25 micron.
- Cellulose media with 10-30 micron, reinforced with wire mesh.
- By-pass valve setting 150 kPa (1,5 bar) per ISO 3968.
- Collapse resistance 1000 kPa (10 bar) per ISO 2941.
- Replacement element includes spring and O-ring seal.

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

FIK-FIS Return Filters In Tank with Service Cover and Breather



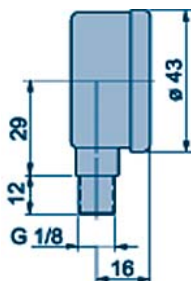
Specifications

SIZE	RMF*	/9				/6				RMF*	/3				/1				RMF*	/03				/02																																																						
		WIRE MESH MEDIA									CELLULOSE MEDIA									SYNTHETIC MEDIA																																																										
		TYPE		ELEMENT		TYPE		ELEMENT			$\beta_{40(e)}=1000$		TYPE		ELEMENT		$\beta_{23(e)}=1000$			TYPE		ELEMENT		$\beta_{11(e)}=1000$		TYPE		ELEMENT																																																		
20	20	K030304 FIS 20 K030524 FIS 20 P	P171829 CR 20	K030306 FIS 20/6 K030529 FIS 20/6 P	P171832 CR 20/6	15	P171835 CR 20/3	K030310 FIS 20/1 K030527 FIS 20/1 P	P171838 CR 20/1	10	K030526 FIS 20/03 P	P171841 CR 20/03	K030314 FIS 20/02 K030525 FIS 20/02 P	P171844 CR 20/02	40	40	K030305 FIS 40 K030530 FIS 40 P	P171830 CR 40	K030307 FIS 40/6 K030535 FIS 40/6 P	P171833 CR 40/6	30	30	P171836 CR 40/3	K030311 FIS 40/1 K030533 FIS 40/1 P	P171839 CR 40/1	25	K030313 FIS 40/03 K030532 FIS 40/03 P	P171842 CR 40/03	K030315 FIS 40/02 K030531 FIS 40/02 P	P171845 CR 40/02	60	60	K040758 FIS 60 K041337 FIS 60 P	P171524 CR 60	K040761 FIS 60/6 K041342 FIS 60/6 P	P171529 CR 60/6	40	40	P171528 CR 60/3	K040767 FIS 60/1 K041340 FIS 60/1 P	P171527 CR 60/1	35	K040770 FIS 60/03 K041339 FIS 60/03 P	P171526 CR 60/03	K040773 FIS 60/02 K041338 FIS 60/02 P	P171525 CR 60/02	100	100	K040759 FIS 100 K041319 FIS 100 P	P171530 CR 100	K040762 FIS 100/6 K041329 FIS 100/6 P	P171535 CR 100/6	65	65	P171534 CR 100/3	K040768 FIS 100/1 K041322 FIS 100/1 P	P171533 CR 100/1	60	K040771 FIS 100/03 K041321 FIS 100/03 P	P171532 CR 100/03	K040774 FIS 100/02 K041320 FIS 100/02 P	P171531 CR 100/02	150	150	K040760 FIS 150 K041330 FIS 150 P	P171831 CR 150	K040763 FIS 150/6 K041336 FIS 150/6 P	P171834 CR 150/6	120	120	P171837 CR 150/3	K040769 FIS 150/1 K041334 FIS 150/1 P	P171840 CR 150/1	110	K040772 FIS 150/03 K041332 FIS 150/03 P	P171843 CR 150/03	K040775 FIS 150/02 K041331 FIS 150/02 P	P171846 CR 150/02

RMF* = Recommended Maximum Flow in l/min.

FILTER ASSEMBLIES WITH DRILLED HOLES FOR INDICATORS ARE INDICATED IN BLUE

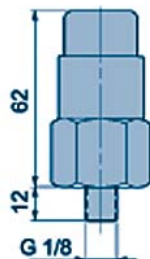
Service Indicators



PRESSURE GAUGE

P171953 (500.01)

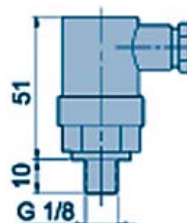
Scale: -100÷500 kPa (-1÷5 bar)



VISUAL PRESSURE GAUGE INDICATOR

P171958 (503.01)

Setting: 120 kPa (1,2 bar)



ELECTRICAL PRESSURE SWITCH INDICATOR

P171966 (504.01) N.O. contacts

P173104 (504.05) N.C. contacts

Setting: 120 kPa (1,2 bar)

Max. values: 48 VAC - 30 DCV - 0,5 A res - 0,2 A. ind

Protection class: IP 65

Cable clamp: PG 7

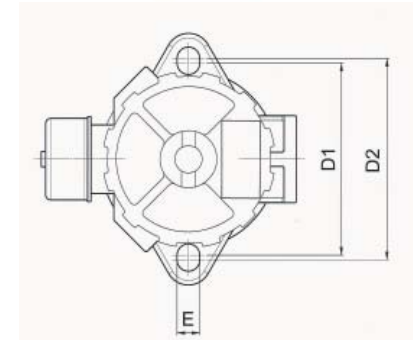
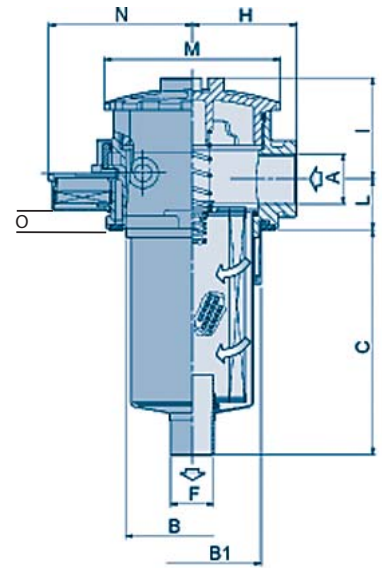
Air Breather Accessories

SIZE	NON-PRESSURISED BREATHER	
	10 micron	40 micron
20-40	P173330 SF 20/1	P173076 SF 20/4
60-100-150	P172434 SF 100/1	P172432 SF 100/4

FIK-FIS Return Filters In Tank with Service Cover and Breather

DIMENSIONS ASSY (mm)															
A	B	B1	C	D1	D2	E	F	G	H	I	L	M	N	O	Kg.
G 3/8	57	-	115	84	88	10	20	-	48	47	21	74	65	11	0,4
G 1/2	57	-	180	84	88	10	20	-	48	47	21	74	65	11	0,6
G 3/4	86	90	98	112	116	11	28	42	68	66	32	116	93	13,5	1,0
G 1	86	90	148	112	116	11	28	42	68	66	32	116	93	13,5	1,2
G 1 1/4	86	90	235	112	116	11	40	42	68	66	32	116	93	13,5	1,4

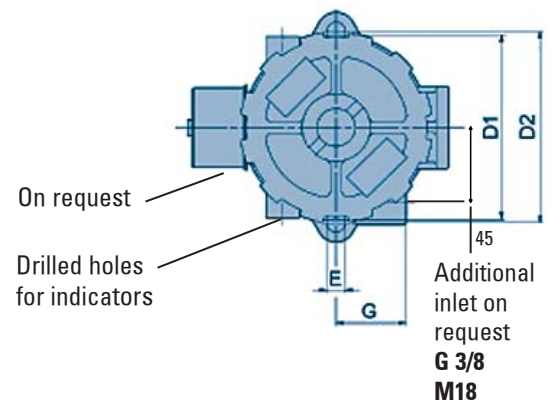
DIMENSIONS ELEMENT (mm)		
P	Q	R
43	22	97
43	22	162
70	29	82
70	29	128
70	42	210



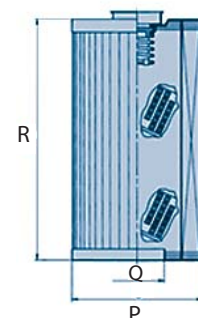
SIZE 20-40

IMPORTANT NOTES:

1. Foresee a hole diameter on top of the tank at a diameter B + 2 mm.
2. Maintain the filter outlet (ref. diameter F) well below the oil level to avoid foam formation.



SIZE 60-100-150

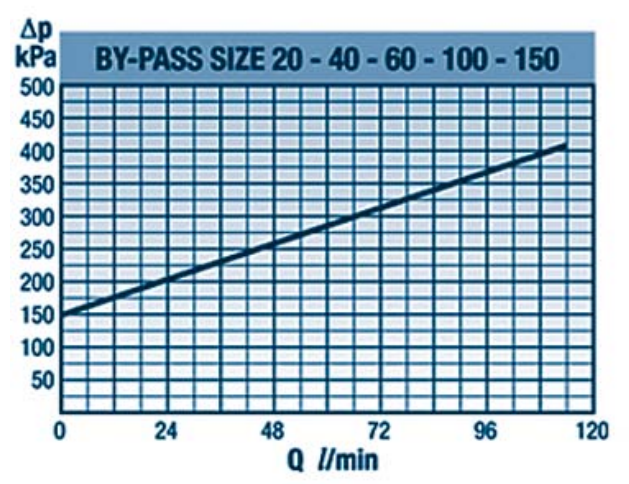
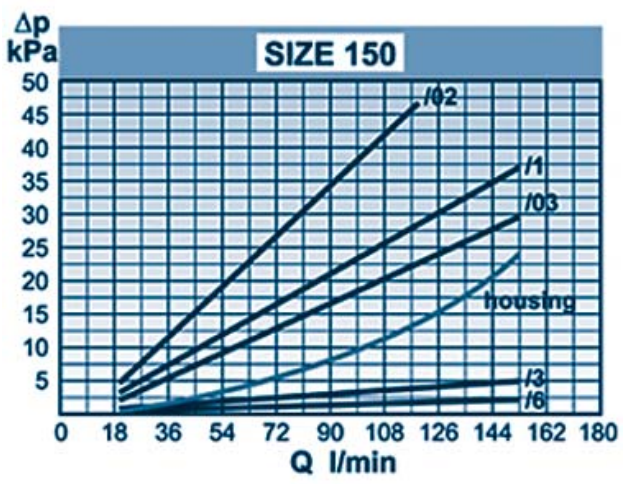
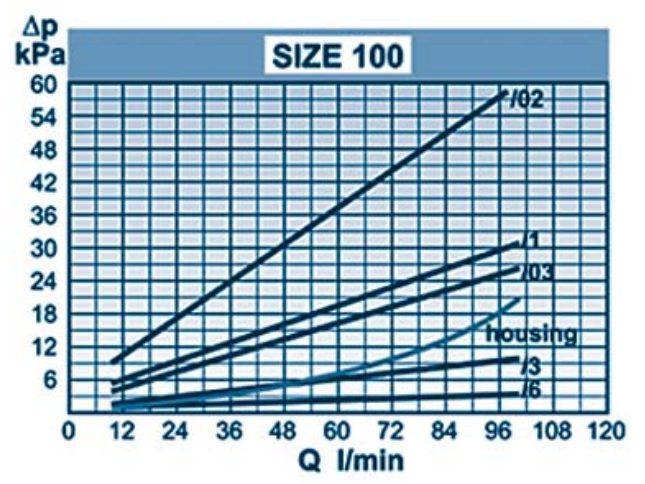
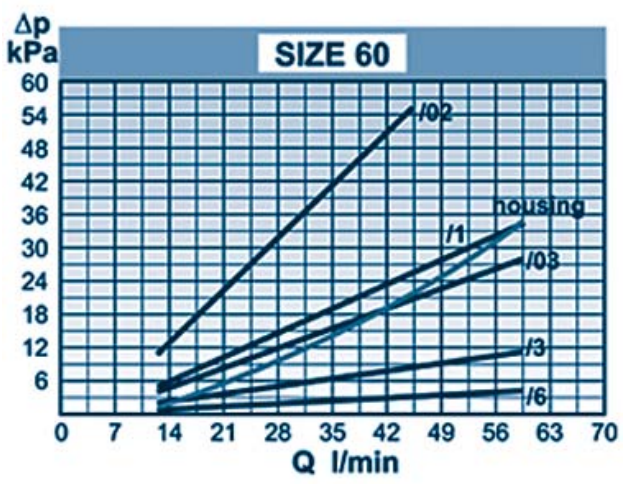
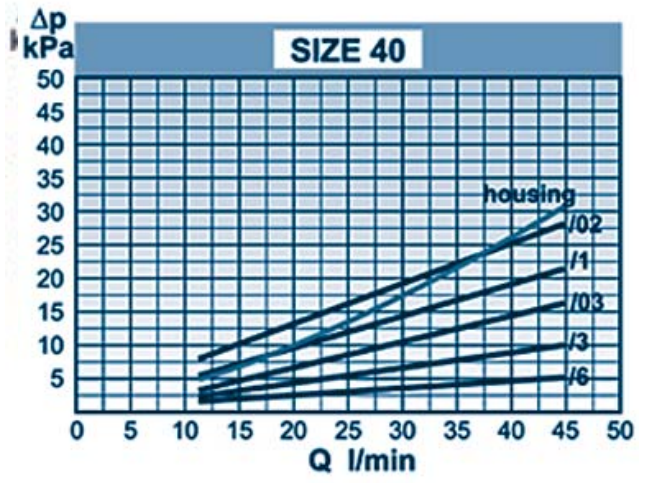
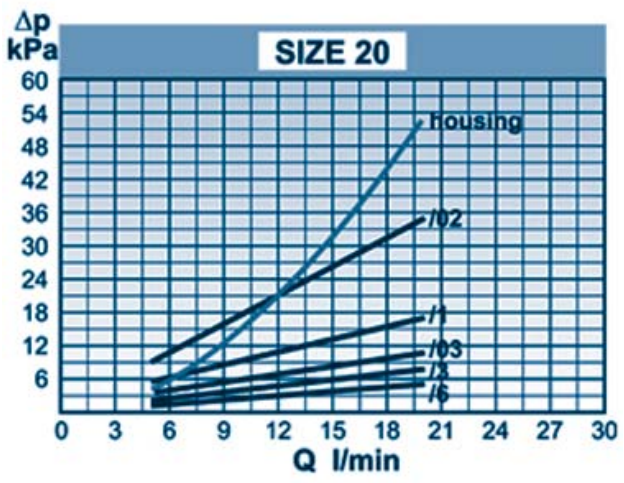


FIK-FIS

Return Filters In Tank with Service Cover and Breather



Performance Curves





FHK-FIR

Return Filters In Tank for Stationary Application
with In Tank Connections

Technical Data

- Operating pressure up to 1000 kPa (10 bar).
- Static pressure testing up to 1500 kPa (15 bar).
- By-pass valve setting 150 kPa (1,5 bar) per ISO 3968.
- Operating temperature -20 +100°C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1.

Filter Elements

- Wire mesh 60-90 micron.
- Synteq® synthetic media with 10-25 micron.
- Cellulose media with 10-30 micron, reinforced with wire mesh.
- Collapse resistance 1000 kPa (10 bar) per ISO 2941.
- Replacement element includes spring and O-ring seal.

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

FHK-FIR

Return Filters In Tank for Stationary Application, with In Tank Connections



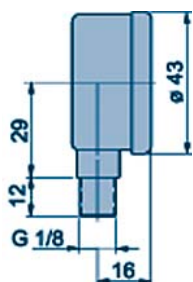
Specifications

SIZE	RMF*	/9		/6		RMF*	/3		/1		RMF*	/03		/02	
		WIRE MESH MEDIA					CELLULOSE MEDIA					SYNTHETIC MEDIA			
		TYPE	ELEMENT	ELEMENT			$\beta_{50(c)}=1000$		$\beta_{36(c)}=1000$			$\beta_{23(c)}=1000$		$\beta_{11(c)}=1000$	
						TYPE	ELEMENT	TYPE	ELEMENT		ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT
30	30	K035009 FIR 30	P171500 CR 30	P171505 CR 30/6		20	K030245 FIR 30/3	P171504 CR 30/3	K030244 FIR 30/1	P171503 CR 30/1	15	P171502 CR 30/03	K035010 FIR 30/02	P171501 CR 30/02	
60	60	K040560 FIR 60	P171524 CR 60	P171529 CR 60/6		40	K040564 FIR 60/3	P171528 CR 60/3	K040563 FIR 60/1	P171527 CR 60/1	35	P171526 CR 60/03	K040561 FIR 60/02	P171525 CR 60/02	
100	100	K040566 FIR 100	P171530 CR 100	P171535 CR 100/6		65	K040570 FIR 100/3	P171534 CR 100/3	K040569 FIR 100/1	P171533 CR 100/1	60	P171532 CR 100/03	K040567 FIR 100/02	P171531 CR 100/02	
180	180	K051134 FIR 180	P171536 CR 180	P171541 CR 180/6		120	K051138 FIR 180/3	P171540 CR 180/3	K051137 FIR 180/1	P171539 CR 180/1	110	P171538 CR 180/03	K051135 FIR 180/02	P171537 CR 180/02	
500	500	K070117 FIR 500	P171566 CR 500	P171571 CR 500/6		400	K070121 FIR 500/3	P171570 CR 500/3	K070120 FIR 500/1	P171569 CR 500/1	350	P171568 CR 500/03	K070118 FIR 500/02	P171567 CR 500/02	

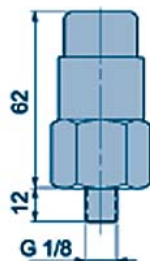
RMF* = Recommended Maximum Flow in l/min.

FILTER ASSEMBLIES WITH DRILLED HOLES FOR INDICATORS ARE INDICATED IN BLUE

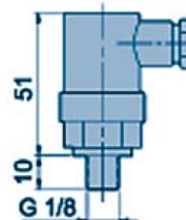
Service Indicators



PRESSURE GAUGE
P171953 (500.01)
Scale: -100÷500 kPa (-1÷5 bar)

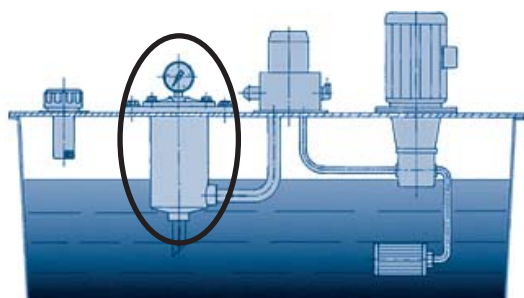


VISUAL PRESSURE GAUGE INDICATOR
P171958 (503.01)
Setting: 120 kPa (1,2 bar)



ELECTRICAL PRESSURE SWITCH INDICATOR
P171966 (504.01) N.O. contacts
P173104 (504.05) N.C. contacts
Setting: 120 kPa (1,2 bar)
Max. values: 48 VAC - 30 DCV - 0,5 A res - 0,2 A. ind
Protection class: IP 65
Cable clamp: PG 7

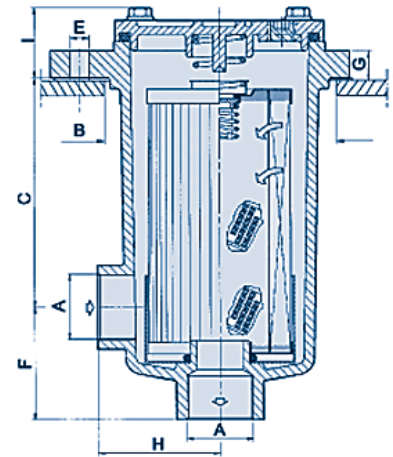
Location



FHK-FIR

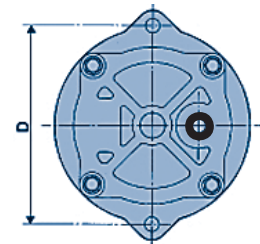
Return Filters In Tank for Stationary Application, with In Tank Connections

DIMENSIONS ASSY (mm)										DIMENSIONS ELEMENT (mm)		
A	B*	C	D	E	F	G	H	I	Kg.	L	M	N
G 1/2	88	59,5	100	7	40	11,5	48	30,5	0,8	26	52	67
G 3/4	110	67,5	126	9	52	14,5	58	35	1,3	29	70	82
G 1	110	109,5	126	9	54	14,5	58	35	1,5	29	70	128
G 1 1/4	156	176	175	9	63	18	83	48	3,0	41	95	203
G 2	204	167	220	9	77,5	20	107,5	53	5,5	65	140	203



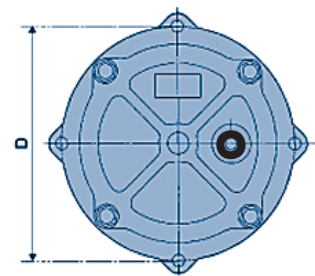
IMPORTANT NOTES:

* B is the hole diameter on top of the tank.

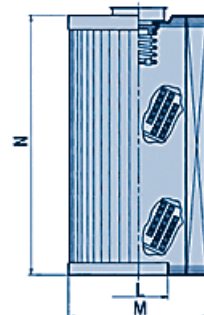


SIZE 30-60-100

○ Drilled holes for indicators



SIZE 180-500



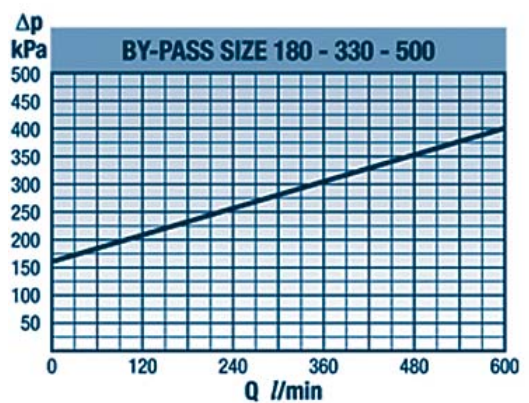
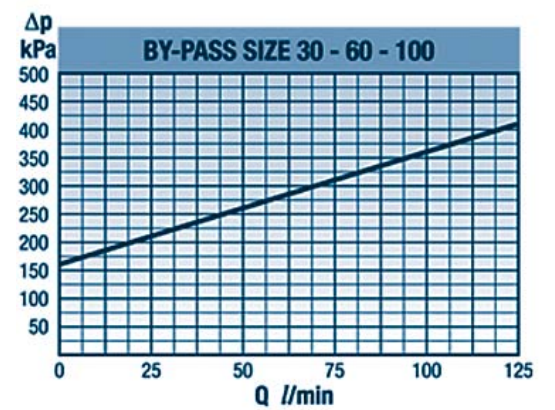
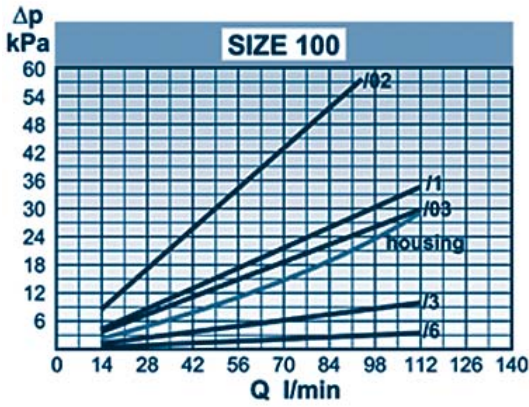
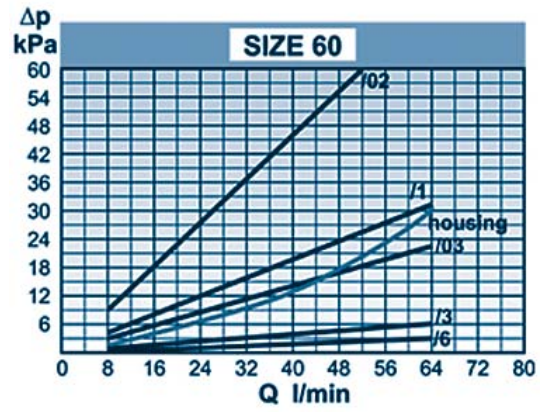
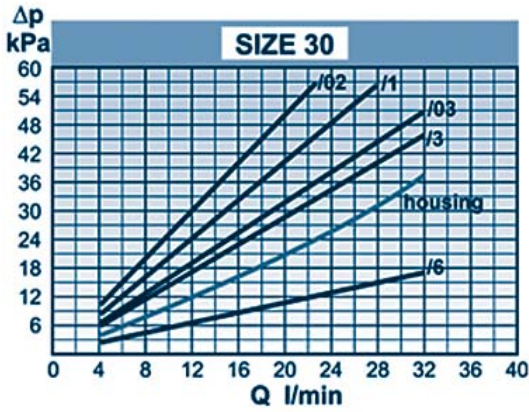
FHK-FIR

Return Filters In Tank for

Stationary Application, with In Tank Connections





Performance Curves



SRK-COMBO 120 Series



In Tank Return & Suction Filters

Predisposition position options	With Emergency Suction		Without Emergency Suction	
	Same axis ports Additional G3/8 port on request	Same side ports	Same axis ports Additional G3/8 port on request	Same side ports
Electrical Clogging Indicator	K041511 	K041595 	K041301 	K041610 
Main element	P763652		P762421	
Suction element	P763643		Not applicable	

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

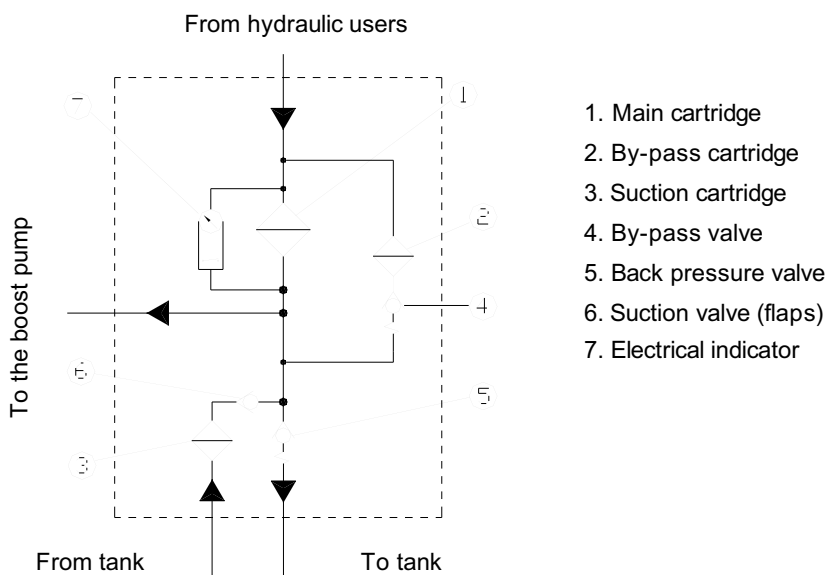
Small Combo with Emergency Suction and By-Pass Filtration Same Axis Ports Head - Optional Extension Features

**UNIQUE
DESIGN
CONCEPT**

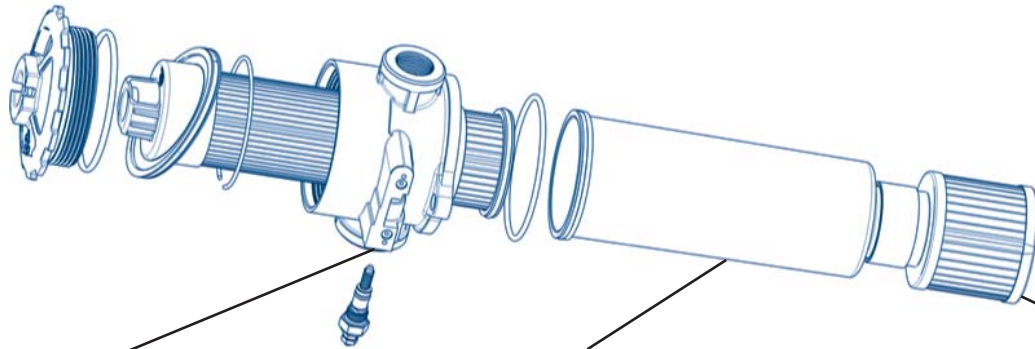
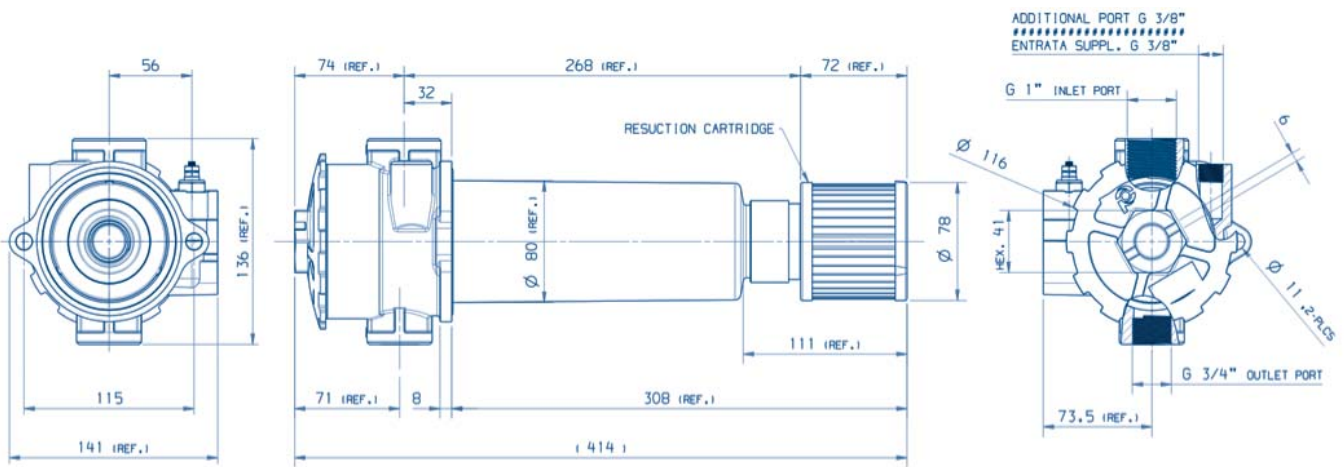


- Modular and compact design.
- Replaceable components: main cartridge with by-pass strainer integrated and unscrewing suction strainer.
- Electrical differential indicator (P165194) is standard / also possibility to have the head without electrical differential indicator.
- Visual differential indicator and extension kit (X770576 = K041511 + extension) are optional.
- Filtration efficiency according to ISO 16889: $\beta_{11} \mu\text{m}(c) = 200$; $\beta_{13} \mu\text{m}(c) = 1000$.
- Back pressure valve setting: 0,5 bar / By-pass valve setting: 2,5 bar.
- Inlet ports size: G1 + G3/8 (optional) / Outlet port size: G3/4.
- Max. flow rate: 120 l/min. / Maximum working pressure: 10 bar.
- Burst pressure: 15 bar. / Retained capacity: 25 gr. / Housing diameter: 80 mm.
- Emergency filtered suction from the tank (125 μm) / By-pass filtered and pressurized.
- No cavitation risk for the pump / Flow direction: standard (outside-inside).
- Emergency suction flow rate: 60 l/min.
- Number of fitting holes: 2 / Fitting holes diameter: 11 mm.
- Wheelbase diameter of fitting holes: 115 mm.
- Minimum oil level in the tank must be sufficient to cover completely the emergency suction cartridge; ref. 115 mm from the end of cartridge.

Scheme



Dimensions Drawing



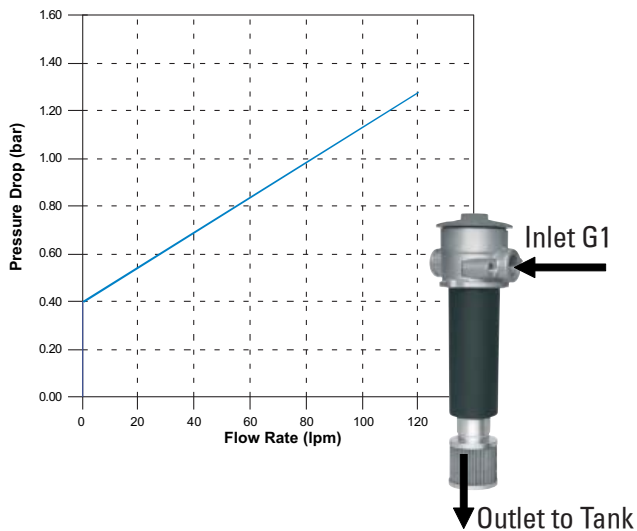
Electrical differential indicator standard (Visual indicator is optional)

Filtered bypass inside the bowl

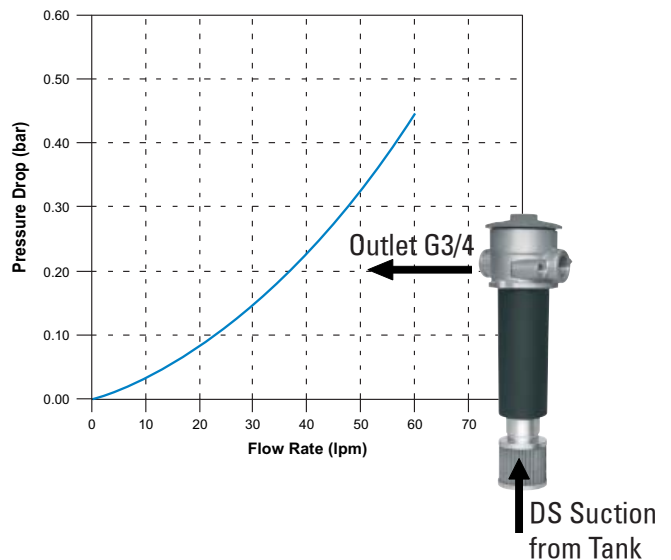
Emergency Suction Cartridge with backpressure valve

Pressure Drop Test per ISO 3968 (32cSt)

COMBO Same Axis Ports - Return to Tank



COMBO Same Axis Ports - Suction



RETURN & SUCTION
FILTERS IN TANK

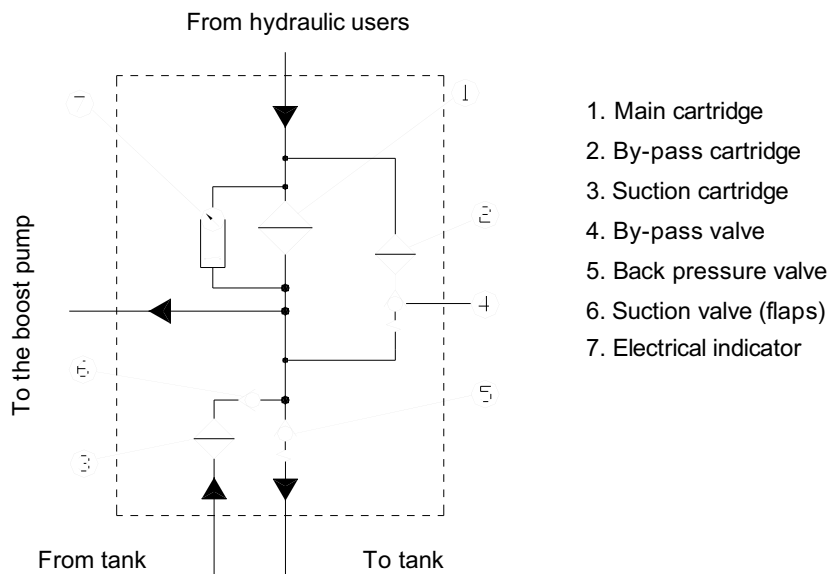
Small Combo with Emergency Suction and By-Pass Filtration Same Side Ports Head - Optional Extension Features

**UNIQUE
DESIGN
CONCEPT**

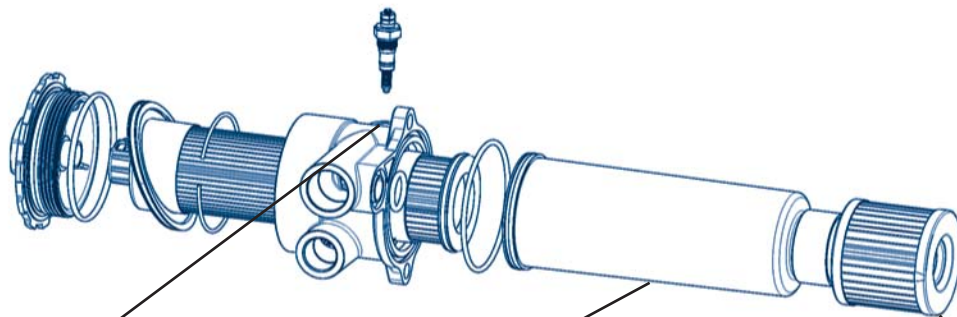
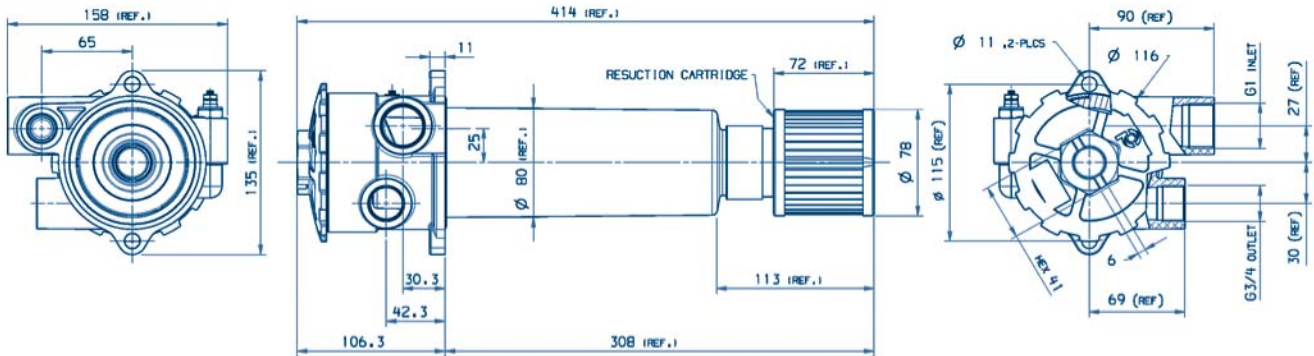


- Modular and compact design.
- Replaceable components: main cartridge with by-pass strainer integrated and unscrewing suction strainer.
- Electrical differential indicator (P164745) is standard / also possibility to have the head without electrical differential indicator.
- Extension kit is optional (X770576).
- Filtration efficiency according to ISO 16889: $\beta_{11} \mu\text{m}(c) = 200$; $\beta_{13} \mu\text{m}(c) = 1000$.
- Back pressure valve setting: 0,5 bar / By-pass valve setting: 2,5 bar.
- Inlet ports size: G1 / Outlet port size: G3/4.
- Max. flow rate: 120 l/min. / Maximum working pressure: 10 bar.
- Burst pressure: 15 bar. / Retained capacity: 25 gr. / Housing diameter: 80 mm.
- Emergency filtered suction from the tank (125 μm) / By-pass filtered and pressurized.
- No cavitation risk for the pump / Flow direction: standard (outside-inside).
- Emergency suction flow rate: 60 l/min.
- Number of fitting holes: 2 / Fitting holes diameter: 11 mm.
- Wheelbase diameter of fitting holes: 115 mm.
- Minimum oil level in the tank must be sufficient to cover completely the emergency suction cartridge; ref. 115 mm from the end of cartridge.

Scheme



Dimensions Drawing



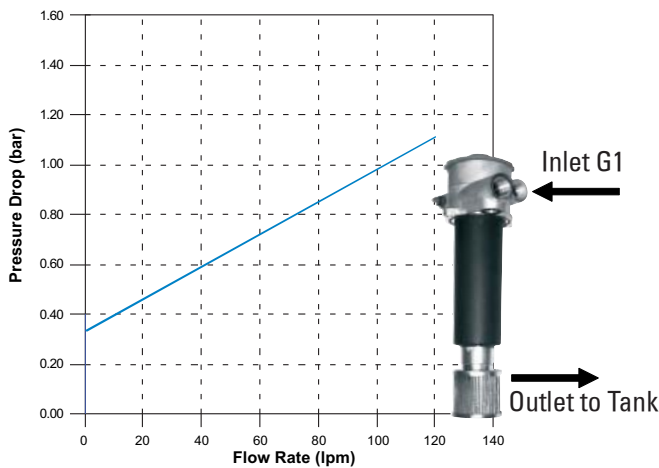
Electrical differential indicator standard
(Visual indicator is optional)

Filtered bypass inside
the bowl

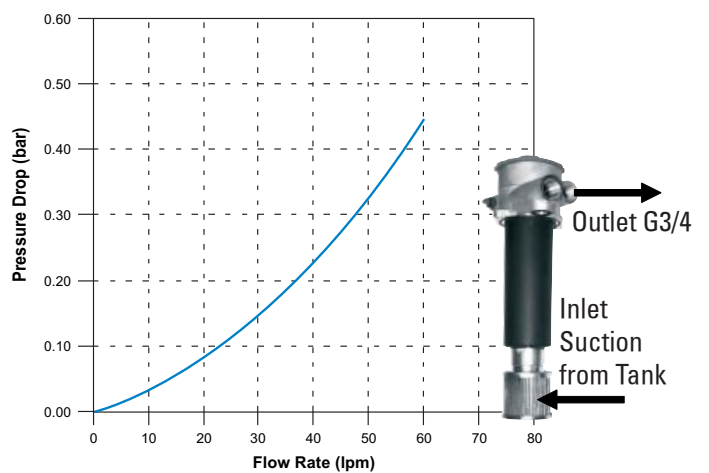
Emergency Suction Cartridge
with backpressure valve

Pressure Drop Test per ISO 3968 (32cSt)

COMBO Same Side Ports - Return to Tank



COMBO Same Side Ports - Suction



SRK COMBO 120 Series K041301



Small Combo without Emergency Suction and By-Pass Filtration Same Axis Ports Head Features

UNIQUE
DESIGN
CONCEPT

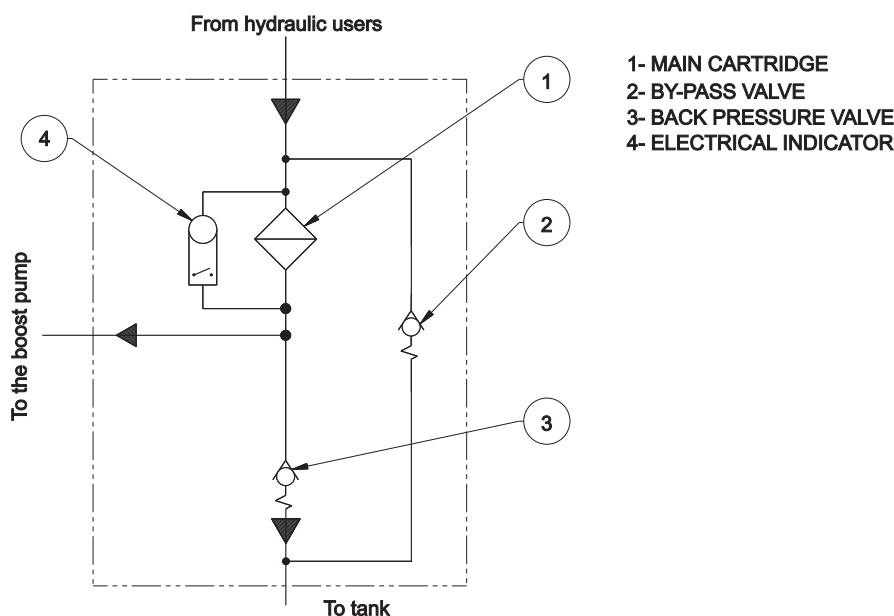


- Modular and compact design.
- Embodied valves available
- Possibility to fit low cost differential pressure indicator
- Serviceable filler cap with clean service.
- Improved pump feeding hydraulic transmission during cold starts.
- Simple interface with the tank: one unique installation hole.
- Outlet with always clean and filtered oilflow to the pressurized (0.5 bar) suction side (boost pump of hydrostatic transmissions).
- Bypass setting: 2,5 bar / No loose parts.
- Flow range up to 120 l/min. / Low pressure drop and high capacity.
- Minimum oil level in tank must be approximately 50 mm above the housing end.

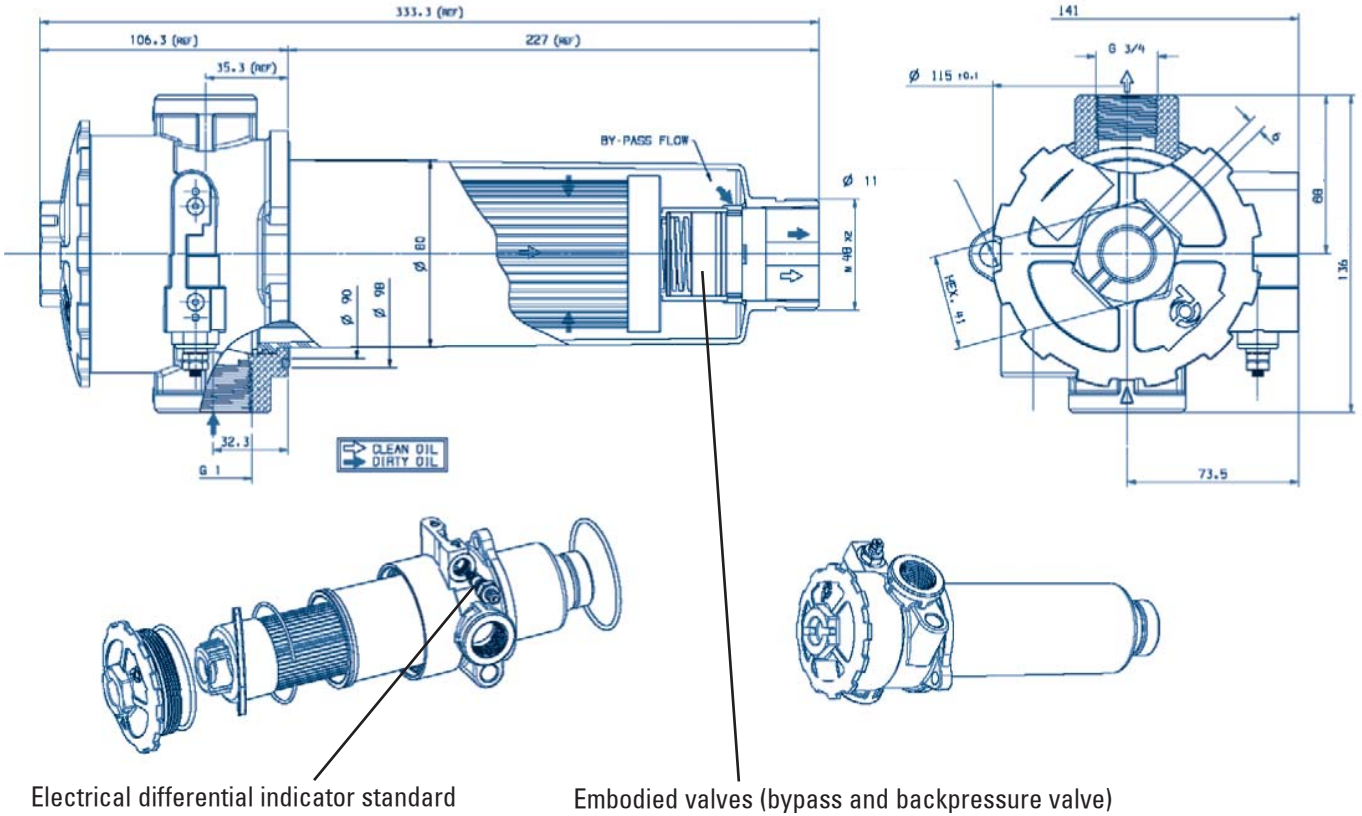
Important

The suction port always gets clean oil. When the element becomes clogged, oil that reaches the suction port is gradually reduced, so the use of an electrical clogging indicator (P165194) is recommended. Return flow must always be higher than suction flow.

Scheme

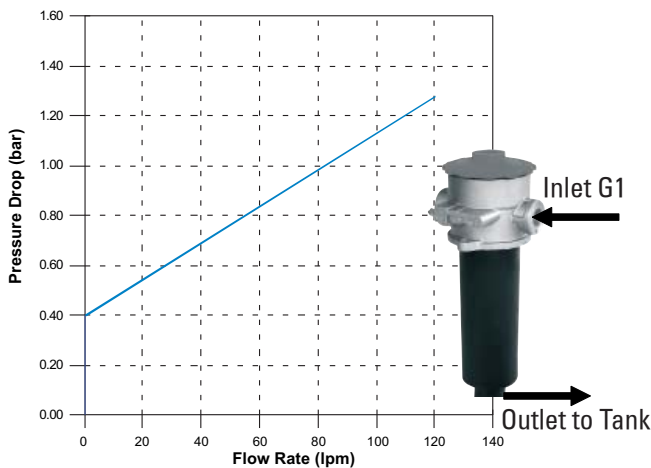


Dimensions Drawing

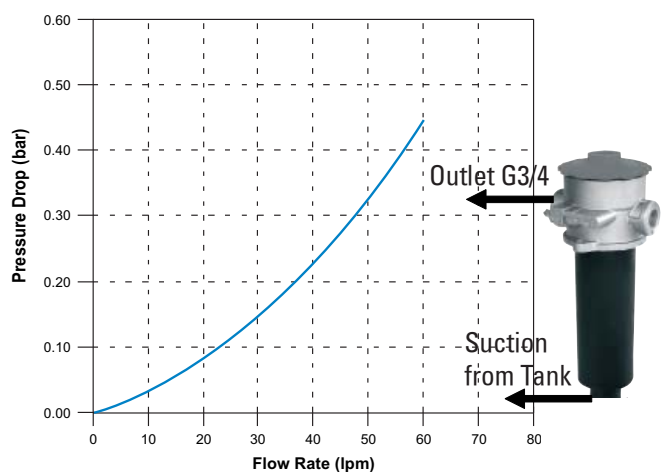


Pressure Drop Test per ISO 3968 (32cSt)

COMBO Same Axis Ports - Return to Tank



COMBO Same Axis Ports - Suction



Small Combo without Emergency Suction and By-Pass Filtration Same Side Ports Head Features

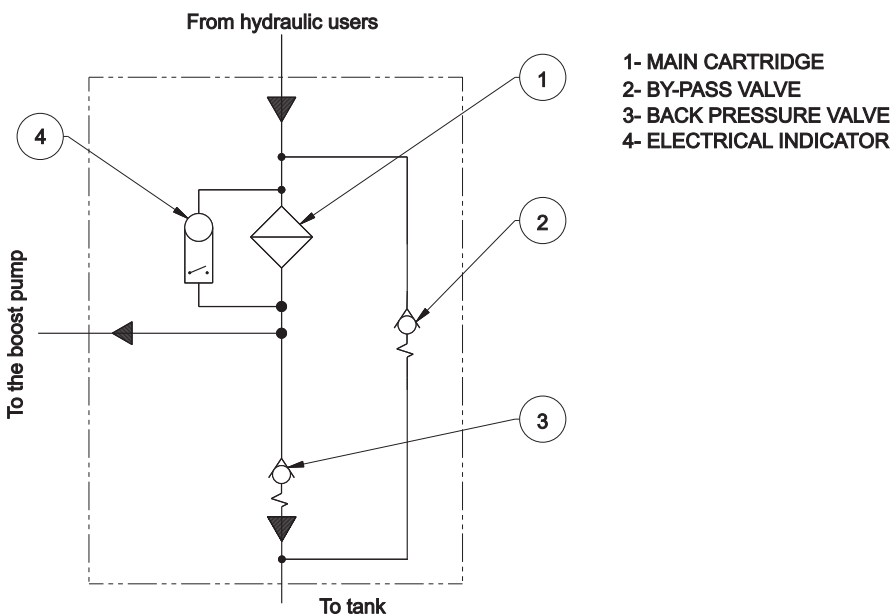


- Modular and compact design.
- Embodied valves available, possibility to fit low cost differential pressure indicator, serviceable filler cap with clean service.
- Improved pump feeding hydraulic transmission during cold starts.
- Simple interface with the tank: one unique installation hole.
- Outlet with always clean, filtered oilflow to the pressurized (0.5 bar) suction side (boost pump of hydrostatic transmissions).
- Bypass setting: 2,5 bar.
- No loose parts.
- Flow range up to 120 l/min. / Low pressure drop and high capacity.
- Minimum oil level in tank must be approximately 50 mm above the housing end.

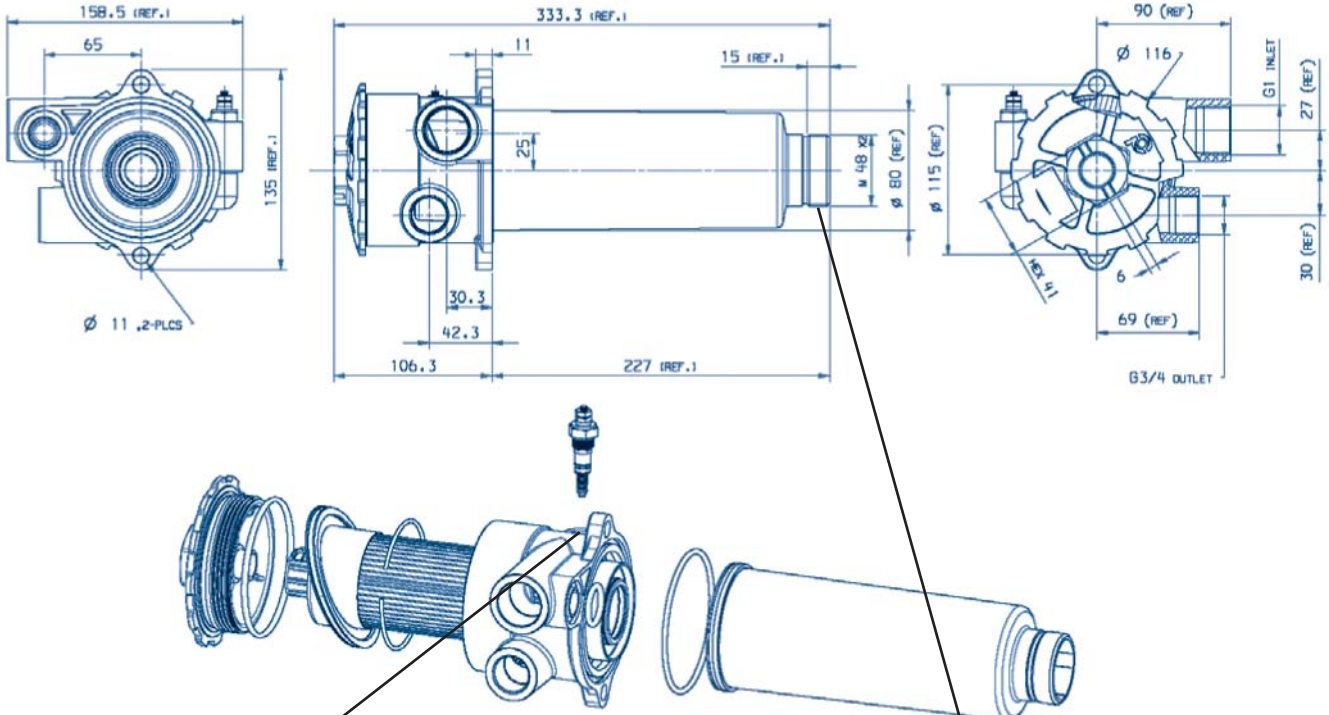
Important

The suction port always gets clean oil. When the element becomes clogged, oil that reaches the suction port is gradually reduced, so the use of an electrical clogging indicator (P164745) is recommended. Return flow must always be higher than suction flow.

Scheme



Dimensions

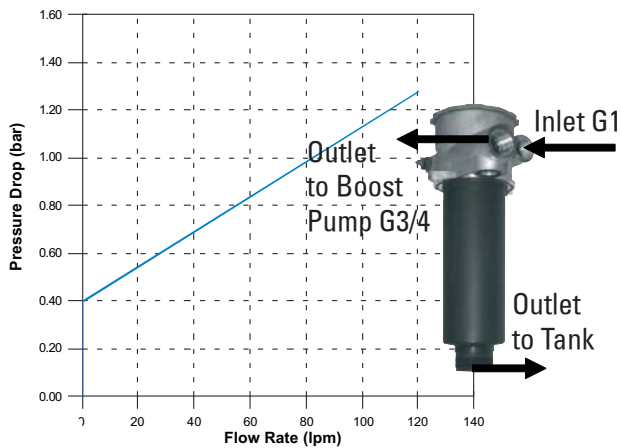


Electrical differential indicator standard

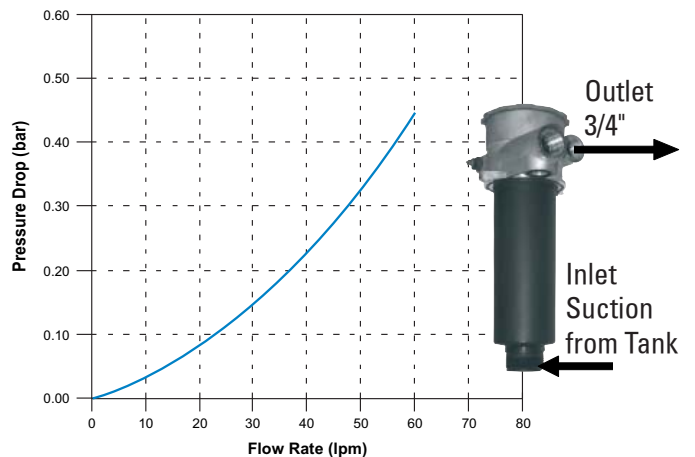
Embodied valves (bypass and backpressure valve)

Pressure Drop Test per ISO 3968 (32cSt)

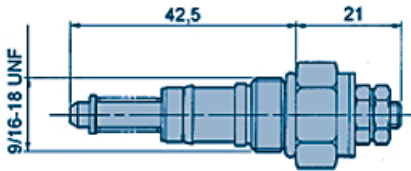
COMBO Same Side Ports - Return to Tank



COMBO Same Side Ports - Suction

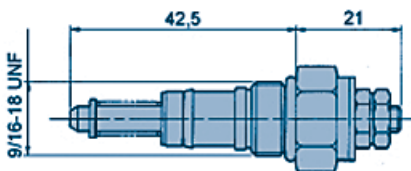


Indicators



AVAILABLE MODEL FOR BY-PASS 350 kPa (3,5 bar):

P165194 N.O. contacts, color-coded washer: red/white
Settings: 270 kPa (2,7 bar)
Max. values: 30 DCV - 0,2 A



AVAILABLE MODEL FOR BY-PASS 250 kPa (2,5 bar):

P164745 N.O. contacts, color-coded washer: red/white
Settings: 170 kPa (1,7 bar)
Max. values: 30 DCV - 0,2 A

NOTE:

Electrical Indicator Data:

Circuit: Normally open
Voltage: 6 - 30 V D.C.
Current: 200 MA max.
Contact: 25 +- 2.5 PSID (Circuit Closed)
Reset: 17 PSID min. (Circuit Open)



SRK-COMBO

200 Series (Big Combo)



RETURN & SUCTION
FILTERS IN TANK

Return & Suction Filters In Tank

Position of drilled holes for indicator - see scheme (No indicator fitted)	With Emergency Suction		Without Emergency Suction	
	Without optional inlet port G1	With optional inlet port G1	Without optional inlet port G1	With optional inlet port G1
No predrilled holes	K041535	K041596	K041528	K041597
RETURN LINE DRILLED HOLES FOR INDICATOR				
a1	K041598	K041599	K041600	K041601
a2	K041602	K041603	K041604	K041605
SUCTION LINE DRILLED HOLES FOR INDICATOR				
b	K041606	K041607	K041608	K041609
				
Main element	P764198		P764198	
Suction element	P764183		Not applicable	

Partnumbers according to: With or without emergency suction / Indicator positions / Optional inlet port

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

SRK COMBO 200 Series Big Combo With or Without Emergency Suction



RETURN & SUCTION
FILTERS IN TANK

**UNIQUE
DESIGN
CONCEPT**



Technical Data

- Two filter versions with and without emergency suction from the tank.
- Two versions have the same body but different housings, thus any retrofit from one version to the other is not possible.
- By-pass flow always filtered / By-pass flow always pressurized.
- Operating Pressure to 1000 kPa (10bar).
- Flow Rate: return 200 l/min.
- Emergency suction flow rate till 70 lpm from the tank.
- Back Pressure valve setting 50kPa (0,5 bar) / By-pass valve setting 250 kPa (2,5 bar).
- Operating Temperature -20 +100 °C.
- Compatibility with hydraulic fluids per ISO 2943.
- Interchangeable with various return and suction filters.
- Flow direction through the element from inside to outside.
- Minimum oil level in the tank must be sufficient to cover completely the emergency suction cartridge for the versions with emergency suction.
- Minimum oil level in the tank must be approximately 50 mm above the housing end for the versions without emergency suction.

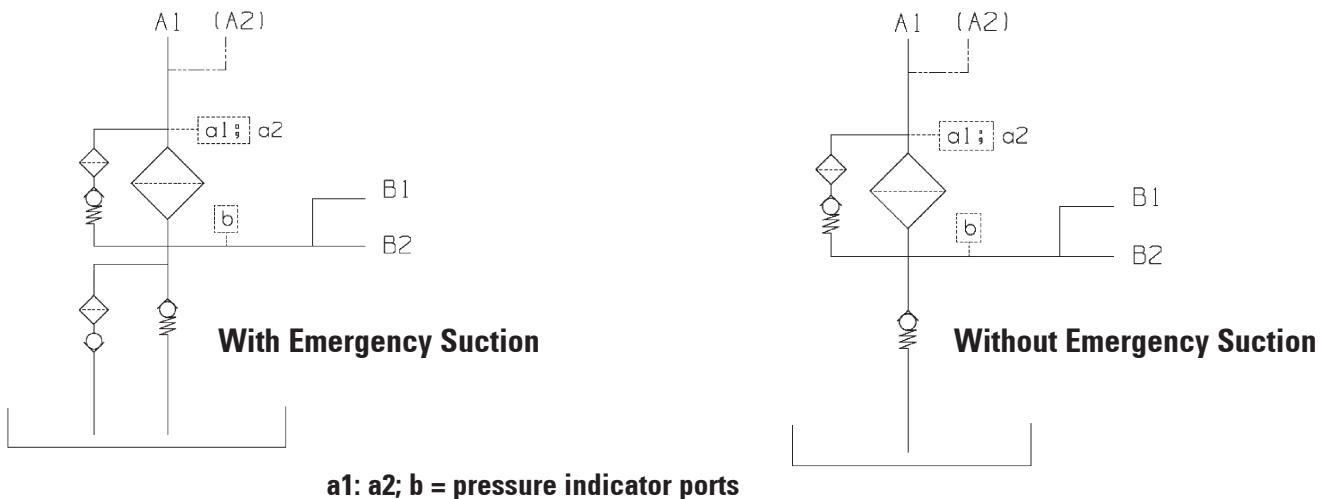
Main Element

- Synthetic Fiber
- Efficiency Per ISO 16889: $\beta_{11\mu m(c)} > 200$; $\beta_{13\mu m(c)} > 1000$
- Dust capacity per ISO 16889 at final Delta P 350 kPa typical value 70g
- By pass strainer integrated into the main element 125 micron wire mesh
- Unique interface with filter assembly

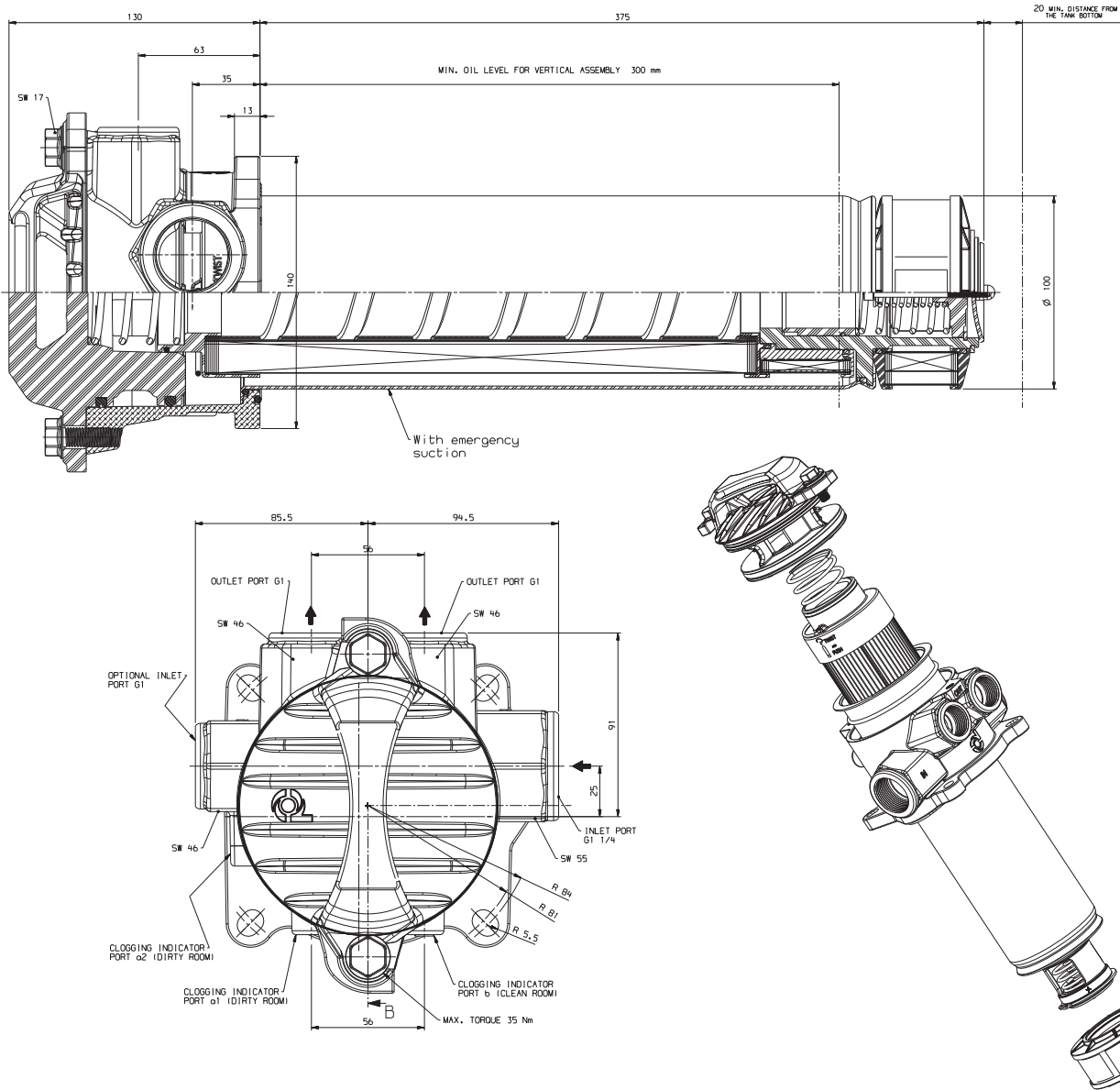
Suction Element

- Only on version with emergency suction
- 125 micron wire mesh

Scheme

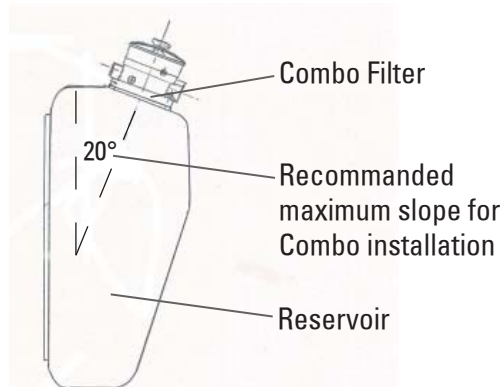


Dimensions Drawing



Installation

Maximum slope on the installation can be 20°.

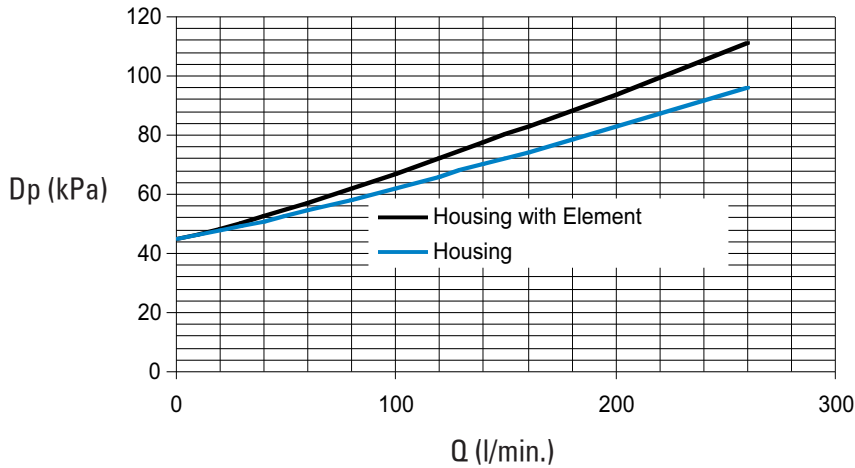


SRK COMBO 200 Series Big Combo With or Without Emergency Suction



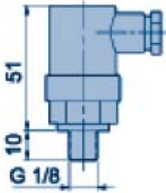
RETURN & SUCTION
FILTERS IN TANK

Performance Curves



Service Indicators (Visual & Electrical Indicator available on request)

For positions a1 and a2: Electrical Switch Indicator



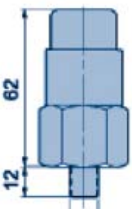
P764431

Normally open contacts
Setting: 250kPa (2,5 bar)
Max values: 30DCV - 0,5A res. - 0,2 A ind.
Protection class IP65
Cable clam: PG7

P764613

Normally closed contacts
Setting: 250kPa (2,5 bar)
Max values: 30DCV - 0,5A res. - 0,2 A ind.
Protection class IP65
Cable clam: PG7

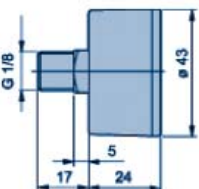
For positions a1 and a2: Visual Pressure Gauge Indicator



P764612

Setting 250 kPa (2,5 bar)

For position b: Vacuum Gauge



P171954

Scale: -100~300kPa (-1~3 bar)



FLK-FLS

Return Filters In-Line with Take Apart Element
up to 30 bar

Technical Data

- Operating pressure up to 3000 kPa (30 bar).
- Static pressure testing up to 4500 kPa (45 bar).
- By-pass valve setting 150 kPa (1,5 bar) per ISO 3968.
- Operating temperature -20 +100°C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO 3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1 or flanged per SAE J 518 - 3000PSI.

Filter Elements

- Wire mesh 60-90 micron.
- Synteq® synthetic media with 10-25 micron.
- Cellulose media with 10-30 micron, reinforced with wire mesh.
- Collapse resistance 1000 kPa (10 bar) per ISO 2941.

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

FLK-FLS Return Filters In-Line with Take Apart Element



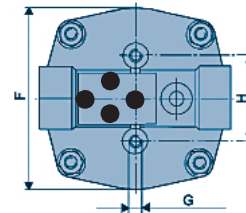
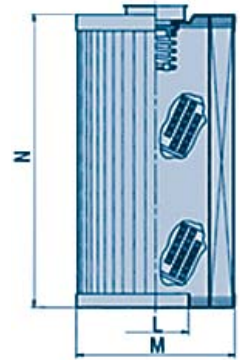
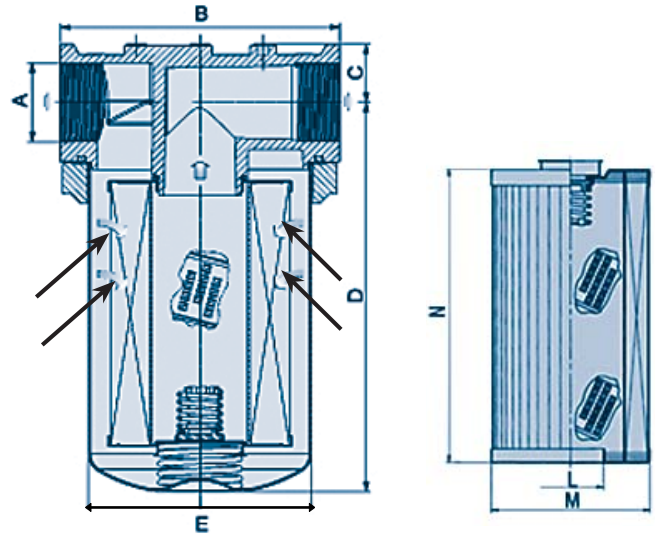
Specifications

RETURN FILTERS
IN-LINE

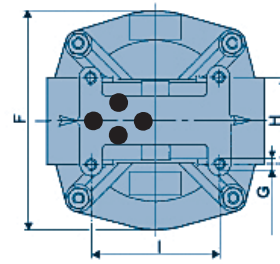
	SIZE	RMF*	/9			/6			/3				/1				/03				/02																				
			WIRE MESH MEDIA						CELLULOSE MEDIA								SYNTHETIC MEDIA																								
			TYPE		ELEMENT		TYPE		ELEMENT		$\beta_{50(c)}=1000$		$\beta_{38(c)}=1000$		$\beta_{23(c)}=1000$		$\beta_{11(c)}=1000$		$\beta_{23(c)}=1000$		$\beta_{11(c)}=1000$		$\beta_{23(c)}=1000$		$\beta_{11(c)}=1000$																
TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT																		
WITHOUT FLANGE	50	40	K030259 FLS 50	P171518 CR 50	K030264 FLS 50/6	P171523 CR 50/6	35	K030263 FLS 50/3	P171522 CR 50/3	K030262 FLS 50/1	P171521 CR 50/1	60	K030273 FLS 100/03 K030367 FLS 100/03 P	P171532 CR 100/03	K030272 FLS 100/02 K030366 FLS 100/02 P	P171531 CR 100/02	90	K040598 FLS 150/03 K040950 FLS 150/03 P	P171586 CR 125/03	K040597 FLS 150/02 K040949 FLS 150/02 P	P171585 CR 125/02	110	K040610 FLS 180/03 K040956 FLS 180/03 P	P171538 CR 180/03	K040609 FLS 180/02 K040955 FLS 180/02 P	P171537 CR 180/02															
			K030372 FLS 50 P		K030325 FLS 50/6 P			K030376 FLS 50/3 P		K030375 FLS 50/1 P																	K040598 FLS 150/03 K040950 FLS 150/03 P		K040597 FLS 150/02 K040949 FLS 150/02 P		K040610 FLS 180/03 K040956 FLS 180/03 P		K040609 FLS 180/02 K040955 FLS 180/02 P								
	100	80	K030271 FLS 100	P171530 CR 100	K030276 FLS 100/6	P171535 CR 100/6	65	K030275 FLS 100/3	P171534 CR 100/3	K030274 FLS 100/1	P171533 CR 100/1	140	K040622 FLS 200/03 K041125 FLS 200/03 P	P171598 CL 200/03	K040621 FLS 200/02 K041124 FLS 200/02 P	P171597 CL 200/02	160	K070163 FLS 250/3 K070418 FLS 250/3 P	P171594 CR 220/3	K070162 FLS 250/1 K070417 FLS 250/1 P	P171593 CR 220/1	180	K070175 FLS 330/3 K070424 FLS 330/3 P	P171564 CR 330/3	K070174 FLS 330/1 K070423 FLS 330/1 P	P171563 CR 330/1	350	K070185 FLS 500/03 K070428 FLS 500/03 P	P171568 CR 500/03	K070184 FLS 500/02 K070427 FLS 500/02 P	P171567 CR 500/02										
			K030365 FLS 100 P		K030371 FLS 100/6 P			K040600 FLS 100/3 K030326 FLS 100/3 P		K040599 FLS 100/1 K030368 FLS 100/1 P																						K040622 FLS 200/03 K041125 FLS 200/03 P		K040621 FLS 200/02 K041124 FLS 200/02 P		K070163 FLS 250/3 K070418 FLS 250/3 P		K070162 FLS 250/1 K070417 FLS 250/1 P		K070175 FLS 330/3 K070424 FLS 330/3 P	
	150	130	K040596 FLS 150	P171584 CR 125	K040601 FLS 150/6	P171589 CR 125/6	110	K040600 FLS 150/3	P171588 CR 125/3	K040599 FLS 150/1	P171587 CR 125/1	120	K070161 FLS 250/03 K070559 FLS 250/03 P	P171592 CR 220/03	K070160 FLS 250/02 K070558 FLS 250/02 P	P171591 CR 220/02	220	K070175 FLS 330/3 K070424 FLS 330/3 P	P171564 CR 330/3	K070174 FLS 330/1 K070423 FLS 330/1 P	P171563 CR 330/1	400	K070187 FLS 500/3 K070430 FLS 500/3 P	P171570 CR 500/3	K070186 FLS 500/1 K070429 FLS 500/1 P	P171569 CR 500/1	140	K070197 SLSF 250/03 K070562 FLS 250/03 P	P171592 CR 220/03	K070196 SLSF 250/02 K070561 FLS 250/02 P	P171591 CR 220/02										
			K040948 FLS 150 P		K040953 FLS 150/6 P			K040600 FLS 150/3 K040952 FLS 150/3 P		K040599 FLS 150/1 K040951 FLS 150/1 P																						K070161 FLS 250/03 K070559 FLS 250/03 P		K070160 FLS 250/02 K070558 FLS 250/02 P		K070175 FLS 330/3 K070424 FLS 330/3 P		K070174 FLS 330/1 K070423 FLS 330/1 P		K070187 FLS 500/3 K070430 FLS 500/3 P	
	180	180	K040608 FLS 180	P171536 CR 180	K040613 FLS 180/6	P171541 CR 180/6	130	K040612 FLS 180/3	P171540 CR 180/3	K040611 FLS 180/1	P171539 CR 180/1	180	K070173 FLS 330/03 K070422 FLS 330/03 P	P171562 CR 330/03	K070172 FLS 330/02 K070421 FLS 330/02 P	P171561 CR 330/02	500	K070183 FLS 500 K070426 FLS 500 P	P171566 CR 500	K070188 FLS 500/6 K070431 FLS 500/6 P	P171571 CR 500/6	160	K070199 FLSF 250/3 K070564 FLSF 250/3 P	P171594 CR 220/3	K070198 FLSF 250/1 K070563 FLSF 250/1 P	P171593 CR 220/1	180	K070209 FLSF 330/03 K070566 FLSF 330/03 P	P171562 CR 330/03	K070208 FLSF 330/02 K070565 FLSF 330/02 P	P171561 CR 330/02										
			K040954 FLS 180 P		K040959 FLS 180/6 P			K040612 FLS 180/3 K040957 FLS 180/3 P		K040611 FLS 180/1 K040957 FLS 180/1 P																						K070173 FLS 330/03 K070422 FLS 330/03 P		K070172 FLS 330/02 K070421 FLS 330/02 P		K070183 FLS 500 K070426 FLS 500 P		K070188 FLS 500/6 K070431 FLS 500/6 P		K070199 FLSF 250/3 K070564 FLSF 250/3 P	
	200	200	K040620 FLS 200	P171596 CL 200	K040963 FLS 200/6	P171601 CL 200/6	140	K040624 FLS 200/3 K040962 FLS 200/3 P	P171600 CL 200/3	K040623 FLS 200/1 K040961 FLS 200/1 P	P171599 CL 200/1	250	K070219 FLSF 500 K070571 FLSF 500 P	P171566 CR 500	K070224 FLSF 500/6 K070439 FLSF 500/6 P	P171571 CR 500/6	300	K070183 FLS 500 K070426 FLS 500 P	P171566 CR 500	K070188 FLS 500/6 K070431 FLS 500/6 P	P171571 CR 500/6	400	K070223 FLSF 500/3 K070438 FLSF 500/3 P	P171570 CR 500/3	K070222 FLSF 500/1 K070437 FLSF 500/1 P	P171569 CR 500/1	350	K070231 FLSF 800/03 K070440 FLSF 800/03 P	P171578 CR 800	K070236 FLSF 800/6 K070445 FLSF 800/6 P	P171583 CR 800/6	500	K070235 FLSF 800/3 K070444 FLSF 800/3 P	P171582 CR 800/3	K070234 FLSF 800/1 K070443 FLSF 800/1 P	P171581 CR 800/1	400	K070233 FLSF 800/03 K070442 FLSF 800/03 P	P171580 CR 800/03	K070232 FLSF 800/02 K070441 FLSF 800/02 P	P171579 CR 800/02
			K040960 FLS 200 P		K040963 FLS 200/6 P			K040624 FLS 200/3 K040962 FLS 200/3 P		K040623 FLS 200/1 K040961 FLS 200/1 P																															
	250	250	K070159 FLS 250	P171590 CR 220	K070164 FLS 250/6	P171595 CR 220/6	160	K070163 FLS 250/3 K070418 FLS 250/3 P	P171594 CR 220/3	K070162 FLS 250/1 K070417 FLS 250/1 P	P171593 CR 220/1	180	K070173 FLS 330/03 K070422 FLS 330/03 P	P171562 CR 330/03	K070172 FLS 330/02 K070421 FLS 330/02 P	P171561 CR 330/02	500	K070183 FLS 500 K070426 FLS 500 P	P171566 CR 500	K070188 FLS 500/6 K070431 FLS 500/6 P	P171571 CR 500/6	220	K070223 FLSF 500/3 K070438 FLSF 500/3 P	P171570 CR 500/3	K070222 FLSF 500/1 K070437 FLSF 500/1 P	P171569 CR 500/1	400	K070231 FLSF 800/03 K070440 FLSF 800/03 P	P171578 CR 800	K070236 FLSF 800/6 K070445 FLSF 800/6 P	P171583 CR 800/6	500	K070235 FLSF 800/3 K070444 FLSF 800/3 P	P171582 CR 800/3	K070234 FLSF 800/1 K070443 FLSF 800/1 P	P171581 CR 800/1	400	K070233 FLSF 800/03 K070442 FLSF 800/03 P	P171580 CR 800/03	K070232 FLSF 800/02 K070441 FLSF 800/02 P	P171579 CR 800/02
			K070560 FLS 250 P		K070176 FLS 330/6 K070425 FLS 330/6 P			K070163 FLS 250/3 K070418 FLS 250/3 P		K070162 FLS 250/1 K070417 FLS 250/1 P																															
330	330	K070171 FLS 330	P171560 CR 330	K070176 FLS 330/6	P171565 CR 330/6	220	K070175 FLS 330/3 K070424 FLS 330/3 P	P171564 CR 330/3	K070174 FLS 330/1 K070423 FLS 330/1 P	P171563 CR 330/1	350	K070231 FLSF 800/03 K070440 FLSF 800/03 P	P171578 CR 800	K070236 FLSF 800/6 K070445 FLSF 800/6 P	P171583 CR 800/6	500	K070183 FLS 500 K070426 FLS 500 P	P171566 CR 500	K070188 FLS 500/6 K070431 FLS 500/6 P	P171571 CR 500/6	400	K070223 FLSF 500/3 K070438 FLSF 500/3 P	P171570 CR 500/3	K070222 FLSF 500/1 K070437 FLSF 500/1 P	P171569 CR 500/1	400	K070231 FLSF 800/03 K070440 FLSF 800/03 P	P171578 CR 800	K070236 FLSF 800/6 K070445 FLSF 800/6 P	P171583 CR 800/6	500	K070235 FLSF 800/3 K070444 FLSF 800/3 P	P171582 CR 800/3	K070234 FLSF 800/1 K070443 FLSF 800/1 P	P171581 CR 800/1	400	K070233 FLSF 800/03 K070442 FLSF 800/03 P	P171580 CR 800/03	K070232 FLSF 800/02 K070441 FLSF 800/02 P	P171579 CR 800/02	
		K070420 FLS 330 P		K070425 FLS 330/6 P			K070175 FLS 330/3 K070424 FLS 330/3 P		K070174 FLS 330/1 K070423 FLS 330/1 P																																K070173 FLS 330/03 K070422 FLS 330/03 P
500	500	K070183 FLS 500	P171566 CR 500	K070188 FLS 500/6	P171571 CR 500/6	400	K070187 FLS 500/3 K070430 FLS 500/3 P	P171570 CR 500/3	K070186 FLS 500/1 K070429 FLS 500/1 P	P171569 CR 500/1	400	K070231 FLSF 800/03 K070440 FLSF 800/03 P	P171578 CR 800	K070236 FLSF 800/6 K070445 FLSF 800/6 P	P171583 CR 800/6	500	K070183 FLS 500 K070426 FLS 500 P	P171566 CR 500	K070188 FLS 500/6 K070431 FLS 500/6 P	P171571 CR 500/6	400	K070223 FLSF 500/3 K070438 FLSF 500/3 P	P171570 CR 500/3	K070222 FLSF 500/1 K070437 FLSF 500/1 P	P171569 CR 500/1	400	K070231 FLSF 800/03 K070440 FLSF 800/03 P	P171578 CR 800	K070236 FLSF 800/6 K070445 FLSF 800/6 P	P171583 CR 800/6	500	K070235 FLSF 800/3 K070444 FLSF 800/3 P	P171582 CR 800/3	K070234 FLSF 800/1 K070443 FLSF 800/1 P	P171581 CR 800/1	400	K070233 FLSF 800/03 K070442 FLSF 800/03 P	P171580 CR 800/03	K070232 FLSF 800/02 K070441 FLSF 800/02 P	P171579 CR 800/02	
		K070426 FLS 500 P		K070431 FLS 500/6 P			K070187 FLS 500/3 K07																																		

FLK-FLS Return Filters In-Line with Take Apart Element

DIMENSIONS ASSY (mm)										DIMENSIONS ELEMENT (mm)		
A	B	C	D	E	F	G	H	I	Kg.	L	M	N
G 1/2	120	21	139	90	116	M8	54	-	1,5	29	70	75
G 3/4	120	24	193	90	116	M8	54	-	1,8	29	70	128
G 1	140	31	250	110	135	M8	68	-	2,8	41	95	169
G 1 1/4	140	31	284	110	135	M8	68	-	3,0	41	95	203
G 1 1/2	152	30	237	124	152	M8	60	90	2,9	46	112	180
G 1 1/2	212	44	224	170	208	M8	96	96	6,0	65	140	136
G 1 1/2	212	44	294	170	208	M8	96	96	6,2	65	140	203
G 2	212	44	294	170	208	M8	96	96	7,2	65	140	203
FLANGE SAE 1 1/2	212	44	224	170	208	M8	96	96	6,0	65	140	136
FLANGE SAE 1 1/2	212	44	294	170	208	M8	96	96	6,2	65	140	203
SAE 2 FLANGE	212	44	294	170	208	M8	96	96	7,2	65	140	203
SAE 2 FLANGE	212	44	496	170	208	M8	96	96	9,5	65	140	400

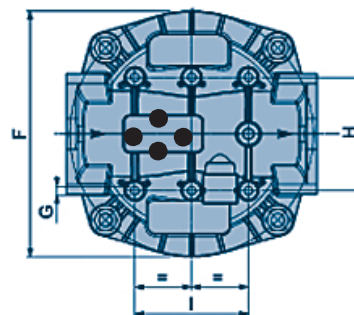


SIZE 50-100-150-180



SIZE 200

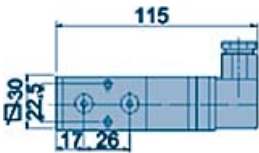
● Drilled holes for indicators



SIZE 250-330-500-800

FLK-FLS Return Filters In-Line with Take Apart Element

Service Indicators



ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR

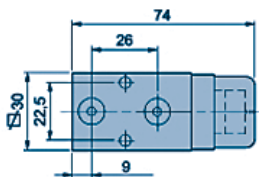
P171961 (501.02)

P171963 (501.04) with thermostat 30°C

Setting: 140 kPa (1,4 bar)

Max. values: 30 ACV - 30 DCV - 0,5 A res. and ind.

Protection class: IP 65 - Cable clamp: PG 11



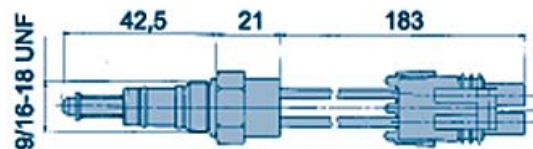
VISUAL DIFFERENTIAL PRESSURE INDICATOR

P171950 (502.04)

Setting: 140 kPa (1,4 bar)

FOR SIZES 250-330-500-600

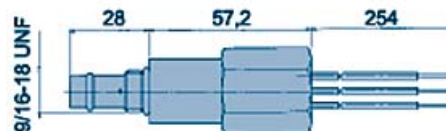
In case one of the below indicators is needed, contact your Donaldson salesman for the filter assembly partnumber.



ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR 2-WIRES, PACKARD CONNECTOR

P171143 N.O. contacts

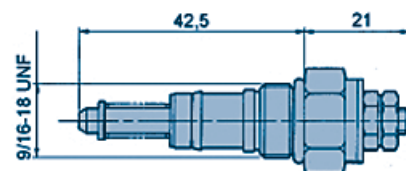
Setting: 140 kPa (1,4 bar)



ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR 3-WIRES, COMPATIBLE WITH MICROPROCESSORS

P173944

Setting: 140 kPa (1,4 bar)



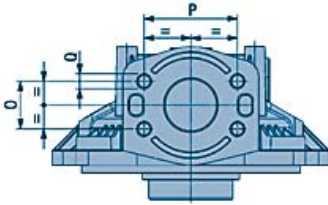
ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR

P162400 N.O. contacts

P163839 N.C. contacts

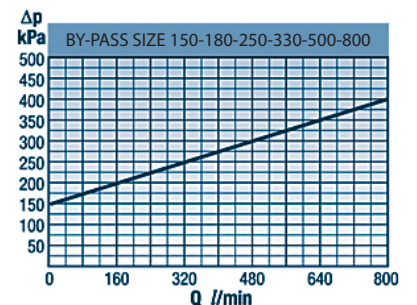
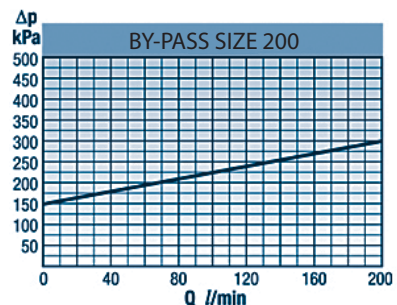
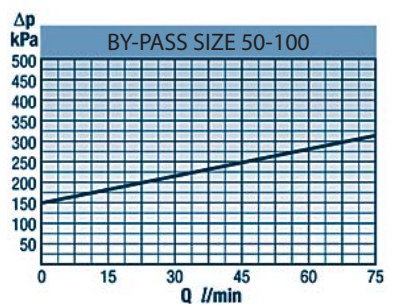
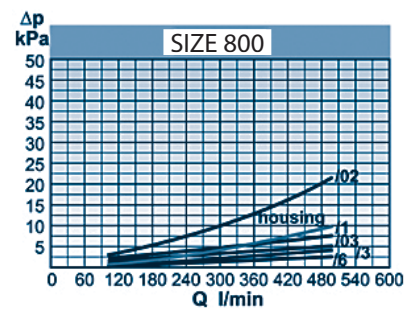
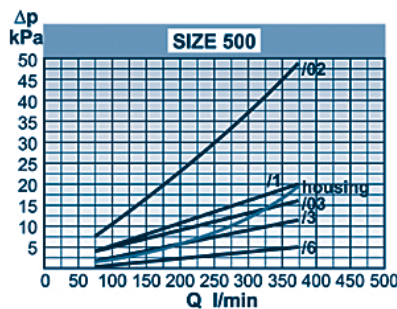
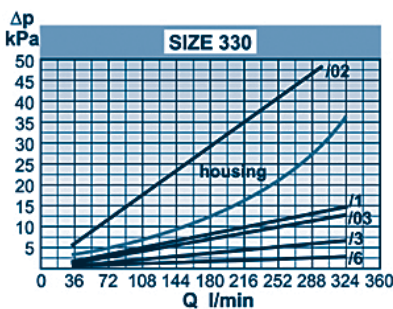
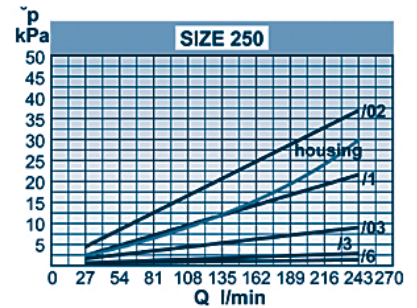
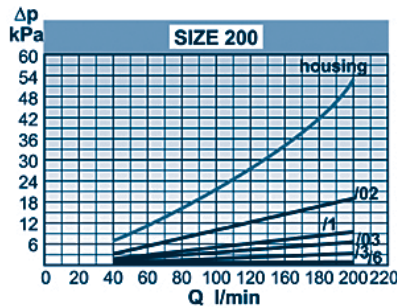
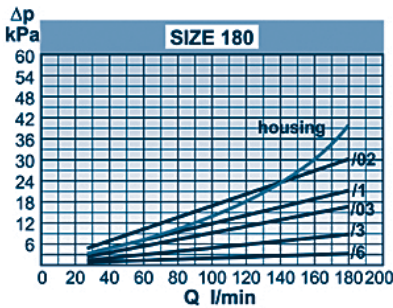
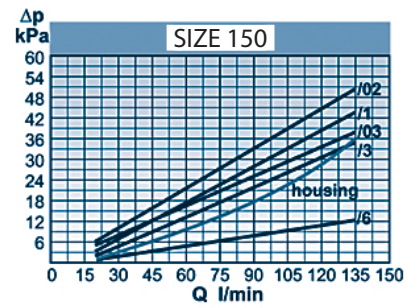
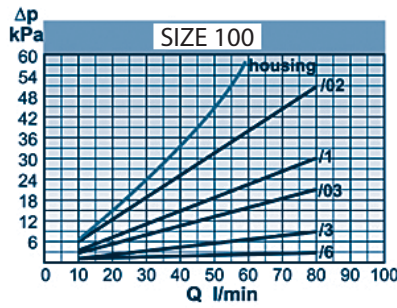
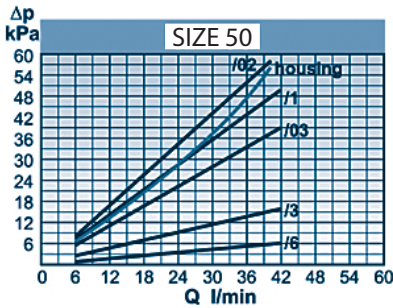
Setting: 140 kPa (1,4 bar)

SAE Flanges



FLANGE SAE J518 3000 PSI	O	P	Q
1 1/2	35,8	69,8	M12
2	42,9	77,8	M12

Performance Curves



RETURN FILTERS
IN-LINE



ADDITIONS

FBK-FRCA

Return Spin-On Filters In-Line
up to 10 bar

RETURN FILTERS
IN-LINE

Technical Data

- Operating pressure up to 1000 kPa (10 bar).
- Static pressure testing up to 1500 kPa (15 bar).
- By-pass valve setting 150 kPa (1,5 bar) or 170 kPa (1,7 bar) per ISO 3968.
- Operating temperature -20 +100°C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO 3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1.

Filter Elements

- Wire mesh 60-90 micron.
- Synteq® synthetic media with 10-25 micron.
- Cellulose media with 10-30 micron, reinforced with wire mesh.
- Collapse resistance 1000 kPa (10 bar) per ISO 2941.

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

FBK-FRCA Return Spin-On Filters In-Line



Specifications

RETURN FILTERS
IN-LINE

		/6		/3			/1			/03		/02		
		WIRE MESH MEDIA		CELLULOSE MEDIA						SYNTHETIC MEDIA				
SIZE	RMF*	TYPE	ELEMENT	RMF*	TYPE	ELEMENT	RMF*	TYPE	ELEMENT	RMF*	TYPE	ELEMENT	TYPE	ELEMENT
60	60	K040635 FRCA 60/6	P171607 CA 60/6	60	K040634 FRCA 60/3	P171606 CA 60/3	50	K040633 FRCA 60/1	P550268 CA 60/1	40	K040632 FRCA 60/03	P171604 CA 60/03	K040631 FRCA 60/02	P171602 CA 60/02
80	80	K040645 FRCA 80/6	P171612 CA 80/6	70	K040644 FRCA 80/3	P171611 CA 80/3	60	K040643 FRCA 80/1	P171610 CA 80/1	50	K040642 FRCA 80/03	P171609 CA 80/03	K040641 FRCA 80/02	P171608 CA 80/02
108				100	ADDITIONS	P764638 CA 108/3								
108				100		P763987 CA 108/3								
160	160	K051155 FRCA 160/6	P171617 CA 160/6	150	K051154 FRCA 160/3	P171616 CA 160/3	140	K051153 FRCA 160/1	P550148 CA 160/1	120	K051152 FRCA 160/03	P171614 CA 160/03	K051151 FRCA 160/02	P171613 CA 160/02
200	200	K051165 FRCA 200/6	P171622 CA 200/6	190	K051164 FRCA 200/3	P171621 CA 200/3	160	K051163 FRCA 200/1	P171620 CA 200/1	140	K051162 FRCA 200/03	P171619 CA 200/03	K051161 FRCA 200/02	P171618 CA 200/02
380	380	K250035 FRCA 380/6	P171617 CA 160/6	340	K250034 FRCA 380/3	P171616 CA 160/3	300	K250033 FRCA 380/1	P550148 CA 160/1	280	K250032 FRCA 380/03	P171614 CA 160/03	K250031 FRCA 380/02	P171613 CA 160/02
400	400	K250040 FRCA 400/6	P171622 CA 200/6	360	K250039 FRCA 400/3	P171621 CA 200/3	320	K250038 FRCA 400/1	P171620 CA 200/1	300	K250037 FRCA 400/03	P171619 CA 200/03	K250036 FRCA 400/02	P171618 CA 200/02
220				200	ADDITIONS	P764410 CA 220/3				150			ADDITIONS	P764411 CA 220/02
250				230		P764409 CA 250/3				170				P763668 CA 250/02

RMF* = Recommended Maximum Flow in l/min.

All assemblies are without drilled holes for indicators.

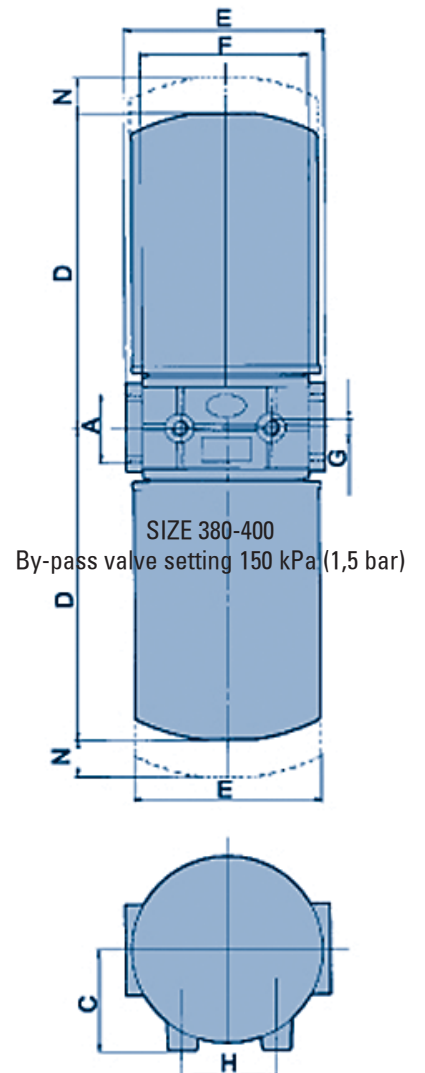
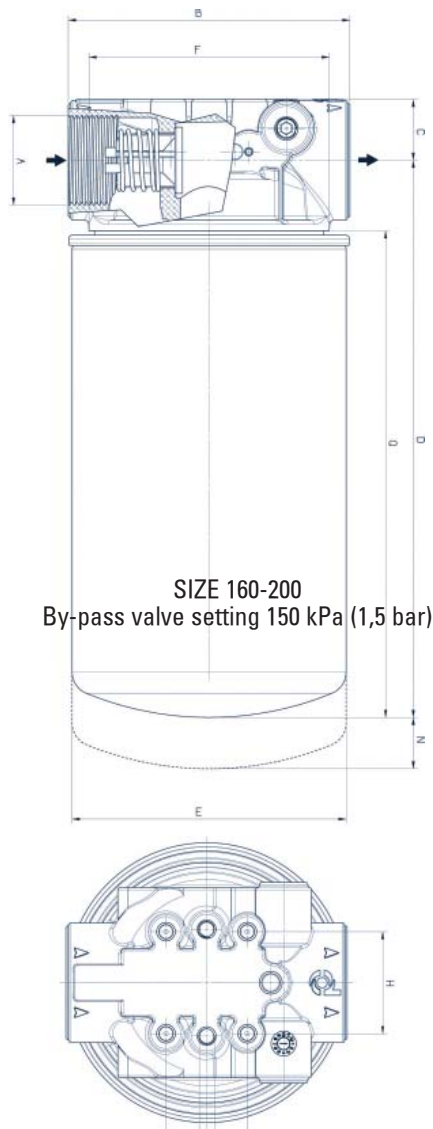
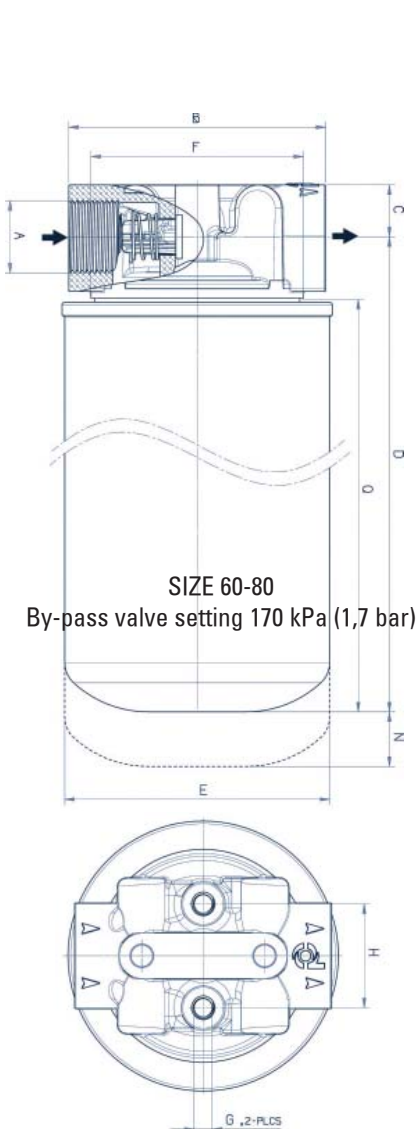
Look at the table on page 87 for which head should be used.



DIMENSIONS ASSY (mm)										DIMENSIONS ELEMENT (mm)		
A	B	C	D	E	F	G	H	N	Kg.	O	P	Q
G 3/4	95	19	172	96	75	M8	38	20	1	G 3/4	96	146
G 3/4	95	19	232	96	75	M8	38	20	1,1	G 3/4	96	209
										M40x2	108	183
										M40x2	108	230
G 1 1/4	132	28	215	126	112	M8	50	24	2	G 1 1/4	126	181
G 1 1/4	132	28	263	126	112	M8	50	24	2	G 1 1/4	126	236
G 1 1/2	138	70	218	126	112	M10	65	24	4	G 1 1/4	126	181
G 1 1/2	138	70	273	126	112	M10	65	24	4	G 1 1/4	126	236
										1" 1/2-16UN	136	236
										1" 1/2-16UN	136	306



RETURN FILTERS
IN-LINE



ADDITIONS

Heads



Spin-On Filters are not delivered with drilled holes for indicators or bypass valve, heads are. Usage of indicators is mandatory, because the drilled holes for indicators are not plugged, unless otherwise mentioned. For more technical details on the indicators, see next page 88.

Head for Size	Part	Ports	Bypass Valve Setting	Indicator Info					Snout	Mounting holes
				Drilled holes for indicator	Indicator hole plugged	Location	Near	Indicator to use		
FRCA 60/80	P563279	1 1/16 SAE	1 bar	no	-	-	-	none	1-12 UNF	1/4-20 UNC
	P563287	1 1/16 SAE	1 bar	no	-	-	-	none	1-12 UNF	M6
	P765043	1 1/16 SAE	1,5 bar	used	-	side	inlet	Tap P172996 and P172997 (installed)	G3/4	M8
	P563280	1 1/16 SAE	1,7 bar	1/8 NPTF	yes	2 sides	inlet	P563297, P563298, P563978 or P563296	1-12 UNF	1/4-20 UNC
	P561141	1 1/16 SAE	1,7 bar	no	-	-	-	none	1-12 UNF	1/4-20 UNC
	P765539	1 1/16 SAE	2,5 bar	no	-	-	-	none	G3/4	M8
	P562261	1/2-14 NPTF	no opening	no	-	-	-	none	1-14 UNS	1/4-20 UNC
	P562262	7/8-14 UNF	no opening	no	-	-	-	none	1-14 UNS	1/4-20 UNC
	P175017	G3/4	1,7 bar	G1/8	yes	2 sides	inlet	P171954, P171958, P171966 or P173104	G3/4	M8
	P173441	G3/4	1,7 bar	no	-	-	-	none	G3/4	M8
P765584	G3/4	no opening	used	-	side	middle	P162696 (installed)	G3/4	M8	
FRCA 160/200	P764407	G1 1/4	1,5 bar	9/16-18UNF	no	side	outlet	P162400 or P163839	G1 1/4	M8
	P761314	G1 1/4	1,5 bar	G1/8	yes	top	outlet	P171954, P171958, P171966 or P173104	G1 1/4	M8
	P762638	G1 1/4	1,5 bar	G1/8	yes	side	outlet	P171954, P171958, P171966 or P173104	G1 1/4	M8
	P176846	G1 1/4	1,5 bar	no	-	-	-	none	G1 1/4	M8
	P761482	G1 1/4	1,5 bar	no	-	-	-	none	G1 1/4	M8
	P765583	G1 1/4	1,5 bar	used	-	side	middle	P162696 (installed)	G1 1/4	M8
	P760071	G1 1/4	1,5 bar	yes	no	top	inlet	P171961, P171963 or P171950	G1 1/4	M8
	P764408	G1 1/4	1,5 bar	yes	no	side	middle	P162696	G1 1/4	M8
	P762641	G1 1/4	3 bar	no	-	-	-	none	G1 1/4	M8
	P176965	G1 1/4	no opening	G1/4	yes	2 sides	outlet	-	G1 1/4	M8
FRCA 220/250	P173403	G1 1/4	no opening	G1/8	yes	2 sides	outlet	P171954, P171958, P171966 or P173104	G1 1/4	M8
	P765639	G1 1/4	no opening	yes	no	side	middle	P162696	G1 1/4	M8
	P764414	G1 1/4	1,5 bar	9/16-18UNF	no	side	outlet	P162400 or P163839	1 1/2-16 UN	M8
	P764413	G1 1/4	1,5 bar	G1/8	yes	top	inlet	P171954, P171958, P171966 or P173104	1 1/2-16 UN	M8
	P764412	G1 1/4	1,5 bar	no	-	-	-	none	1 1/2-16 UN	M8
FRCA 380/400	P764415	G1 1/4	1,5 bar	yes	no	side	middle	P162696	1 1/2-16 UN	M8
	P764421	G1 1/4	no opening	G1/8	yes	side	outlet	P171954, P171958, P171966 or P173104	1 1/2-16 UN	M8
FRCA 380/400	P761264	G1 1/2	1,7 bar	yes	no	front	middle	P171961, P171963 or P171950	G1 1/4	M10

Thread Reference

GAS according to ISO 228/1

UN - UNC - UNF - UNS according to ANSI / ASME B 1.1

SAE according to J 1926-1

NPT according to ANSI / ASME B 1.20.1

NPTF according to ANSI / ASME B 1.20.3

M according to UNI 4534 - 5545

Service Indicators



ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR

P171961 (501.02)

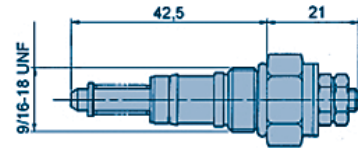
P171963 (501.04)

Setting: 120 kPa (1,2 bar)

Max. values: 30 ACV - 30 DCV - 0,5 A res. and ind.

Protection class: IP 65

Cable clamp: PG 11

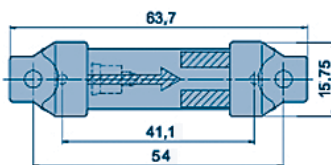


ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR

P162400 N.O. contacts

P163839 N.C. contacts

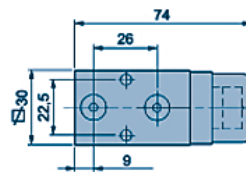
Setting: 140 kPa (1,4 bar)



VISUAL DIFFERENTIAL PRESSURE INDICATOR

P162696 (506.05)

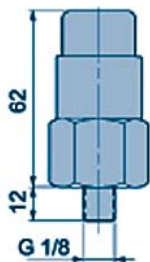
Setting: 140 kPa (1,4 bar)



VISUAL DIFFERENTIAL PRESSURE INDICATOR

P171950 (502.04)

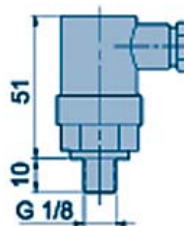
Setting: 140 kPa (1,4 bar)



VISUAL PRESSURE GAUGE INDICATOR

P171958 (503.01)

Setting: 120 kPa (1,2 bar)



ELECTRICAL PRESSURE SWITCH INDICATOR

P171966 (504.01) N.O. contacts

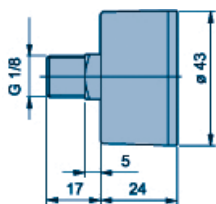
P173104 (504.05) N.C. contacts

Setting: 120 kPa (1,2 bar)

Max. values: 48 VAC - 30 DCV - 0,5 A res - 0,2 A. ind

Protection class: IP 65

Cable clamp: PG 7



VACUUM GAUGE

P171954 (500.02)

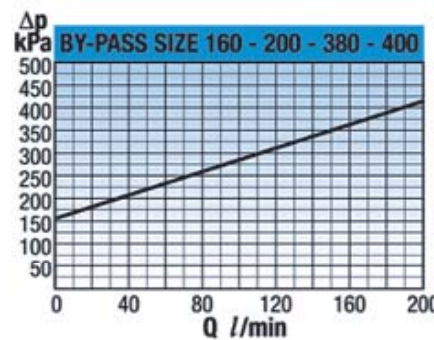
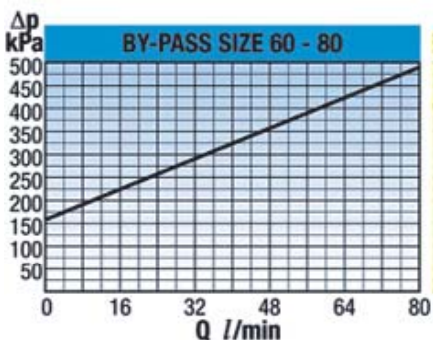
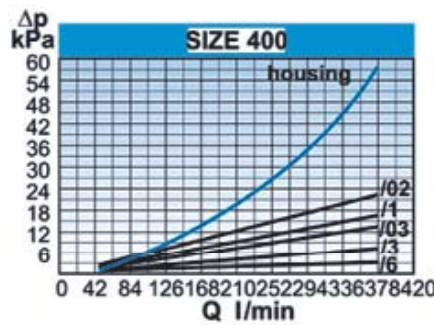
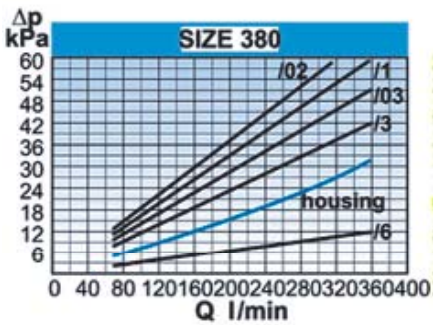
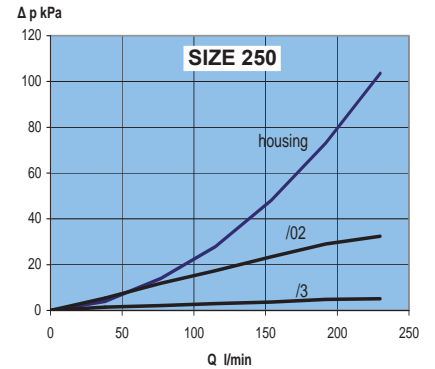
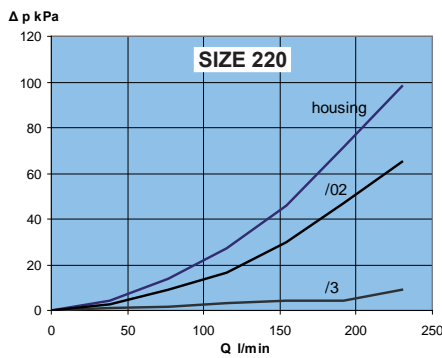
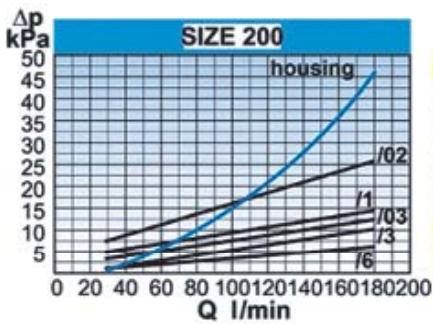
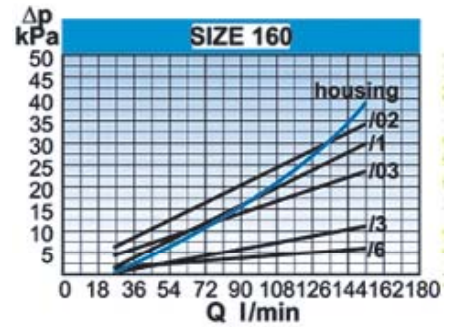
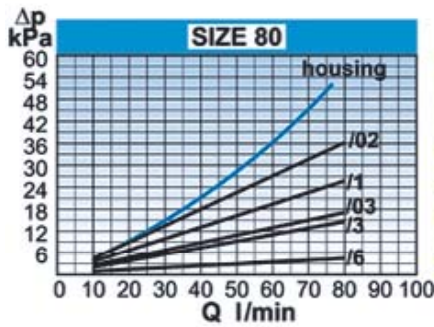
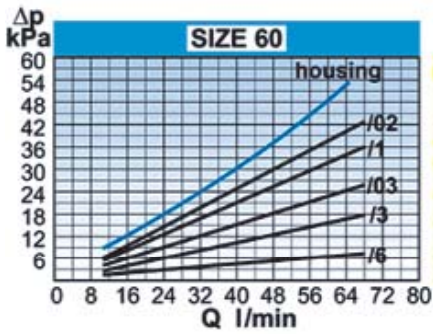
Scale: -100÷300 kPa (-1÷3 bar)

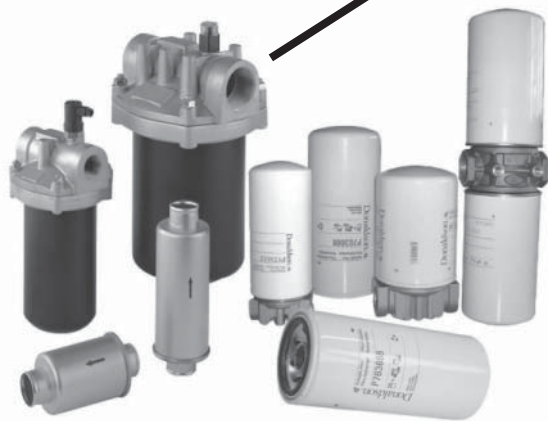
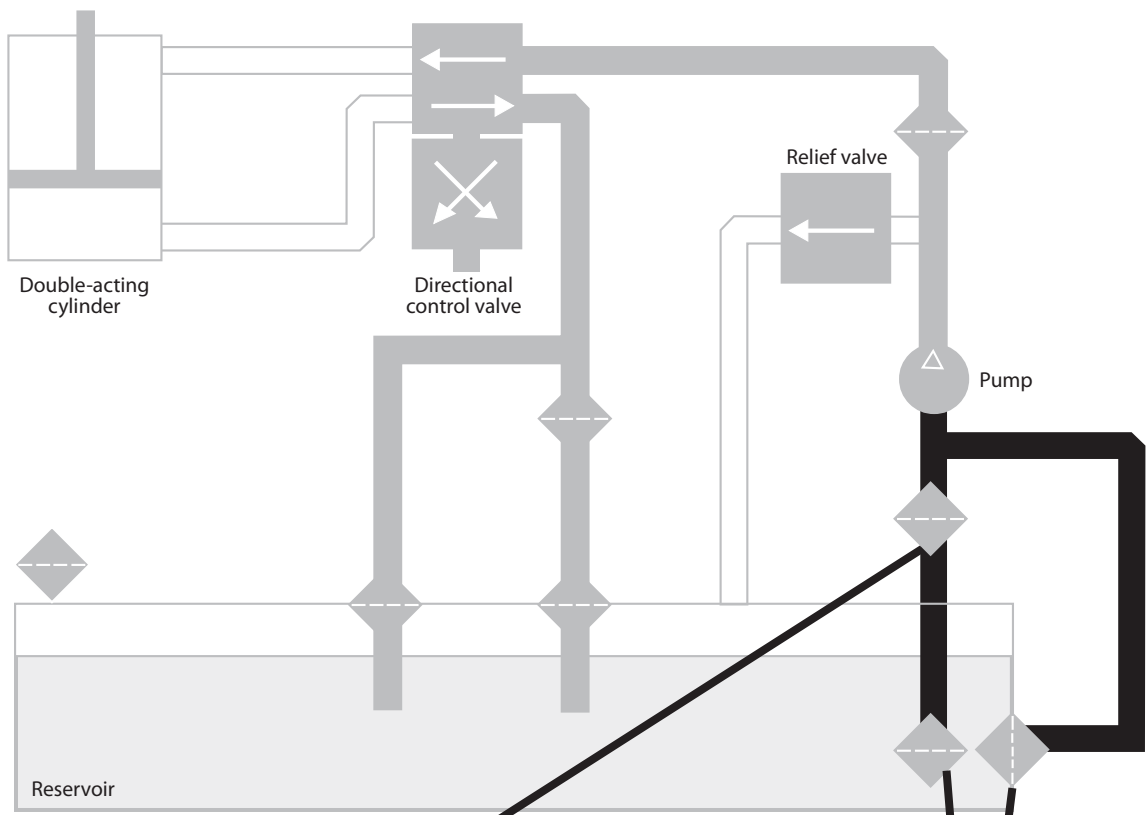
FBK-FRCA Return Spin-On Filters In-Line



Performance Curves

RETURN FILTERS
IN-LINE





**SUCTION FILTERS
IN-LINE**



**SUCTION FILTERS
IN TANK**

Hydraulic Suction Line Filters

Section Index

Suction Filters In Tank

PXX-FIOA.....	94
FHK-FIR	98

Suction Filters In-Line

FLK-FLA	102
PXX-FAL.....	108
FBK-FACA	112

ADDITIONS

SUCTION FILTERS
IN TANK

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.



PXX-F10A

Threaded Suction Strainers In Tank

Technical Data

- Operating temperature -20 +100°C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO 3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ANSI ASME B1.20.1 and ISO 228/1.

Filter Elements

- Wire mesh 60-90 / 250 micron.
- Cellulose media 30 micron.
- Collapse resistance 500 kPa (5 bar) per ISO 2941.

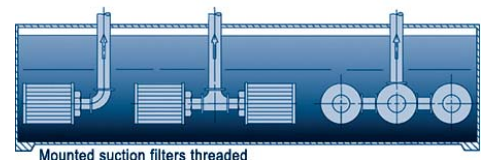
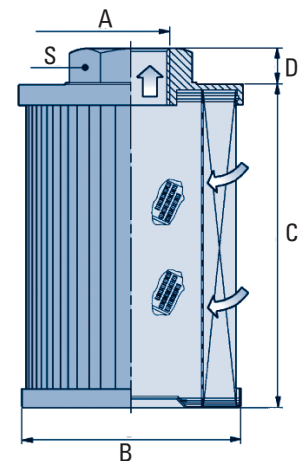
Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.



Specifications

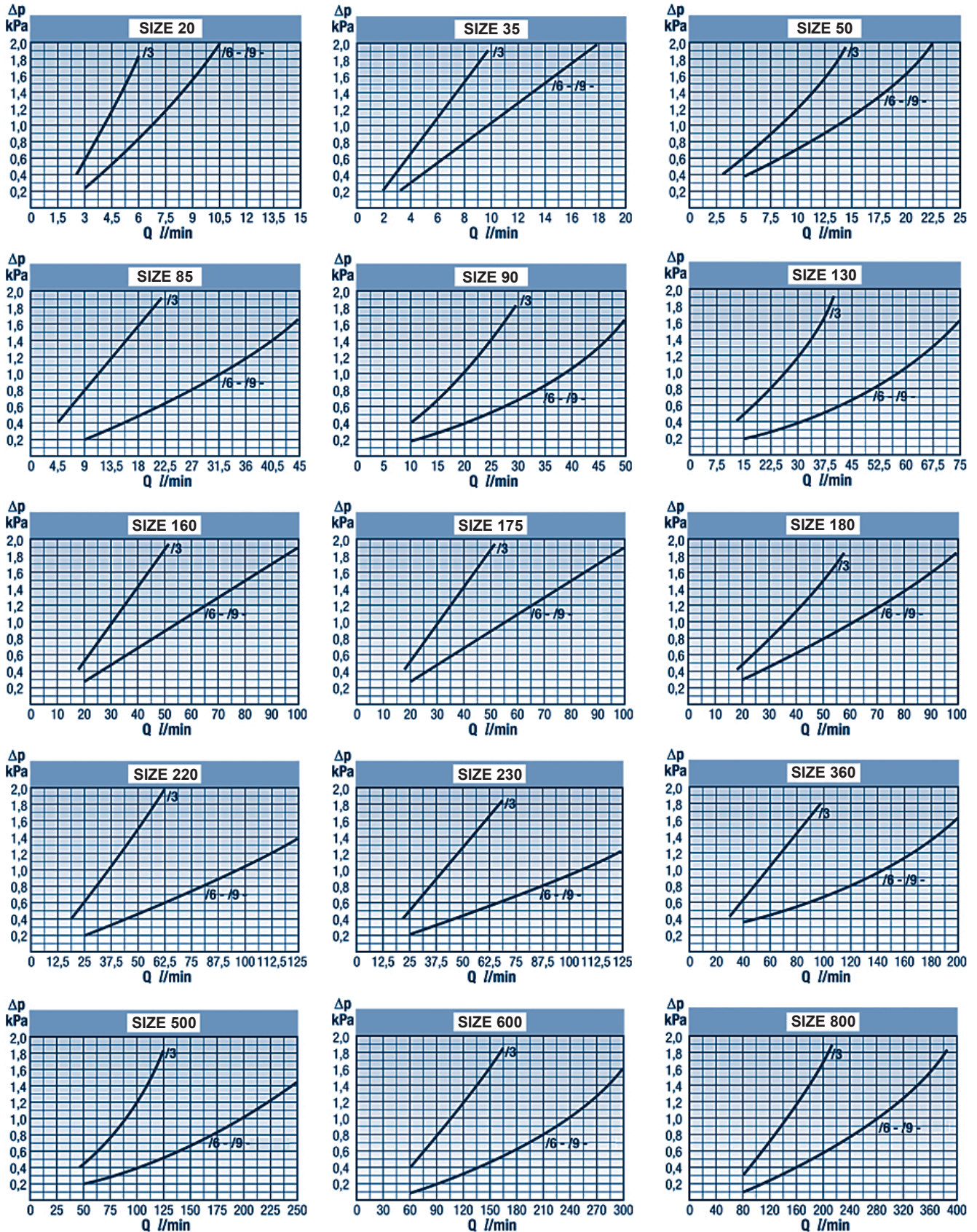
SIZE	RMF*	/9		/6		/3		DIMENSIONS ELEMENT (mm) Thread per ISO 228/1					
		WIRE MESH MEDIA				CELLULOSE MEDIA							
		ELEMENT		ELEMENT		ELEMENT							
								$\beta_{36(e)}=1000$					
SIZE	RMF*	ELEMENT	ELEMENT	RMF*	ELEMENT	A	B	C	D	S	Kg.		
20	10	P171861 FIOA 20	P171863 FIOA 20/6	5	P171862 FIOA 20/3	G 3/8	52	68	9	22	0,10		
35	17	P171865 FIOA 35	P171867 FIOA 35/6	9	P171866 FIOA 35/3	G 1/2	69	76	12	27	0,16		
50	25	P171869 FIOA 50	P171871 FIOA 50/6	13	P171870 FIOA 50/3	G 3/4	75	83	12	36	0,20		
85	43	P171873 FIOA 85	P171875 FIOA 85/6	20	P171874 FIOA 85/3	G 1	95	83	14	46	0,32		
90	45	P171877 FIOA 90	P171879 FIOA 90/6	25	P171878 FIOA 90/3	G 1	75	131	10	46	0,50		
130	65	P171885 FIOA 130	P171887 FIOA 130/6	35	P171886 FIOA 130/3	G 1 1/4	95	172	12	60	0,68		
160	80	P763478 FIOA 160	P764370 FIOA 160/6	40	P764371 FIOA 160/3	G 1 1/2	86	130	12	60	0,65		
175	85	P171889 FIOA 175	P171891 FIOA 175/6	45	P171890 FIOA 175/3	G 1 1/2	140	98	15	60	0,70		
180	90	P172452 FIOA 180	P172454 FIOA 180/6	50	P172453 FIOA 180/3	G 1 1/2	95	205	12	60	0,75		
220	110	P760151 FIOA 220	P760173 FIOA 220/6	55	P760175 FIOA 220/3	G 2	101	205	14	80	0,80		
230	116	P171893 FIOA 230	P171895 FIOA 230/6	60	P171894 FIOA 230/3	G 2	140	138	15	80	1,00		
360	186	P171897 FIOA 360	P171899 FIOA 360/6	90	P171898 FIOA 360/3	G 2	140	205	15	80	1,20		
500	250	P171901 FIOA 500	P171903 FIOA 500/6	120	P171902 FIOA 500/3	G 2	140	301	15	80	1,60		
600	300	P171905 FIOA 600	P171907 FIOA 600/6	150	P171906 FIOA 600/3	G 2 1/2	140	301	16	106	1,60		
800	400	P171909 FIOA 800	P171911 FIOA 800/6	200	P171910 FIOA 800/3	G 3	140	301	16	106	1,60		

SIZE	RMF*	/250		DIMENSIONS ELEMENT (mm) Thread per NPT							
		WIRE MESH MEDIA		A	B	C	D	S	Kg.		
20	10			3/8	52	68	9	22	0,10		
35	17			1/2	69	76	12	27	0,16		
50	25		P175334	3/4 NPT	75	83	12	36	0,20		
85	43		P175335	1 NPT	95	83	14	46	0,32		
90	45		P175336	1 NPT	75	131	10	46	0,50		
130	65		P175337	1 1/4 NPT	95	172	12	60	0,68		
175	85		P175340	1 1/2 NPT	86	130	12	60	0,65		
180	90		P175338	1 1/2 NPT	140	98	15	60	0,70		
220	110			2	95	205	12	60	0,75		
230	116			2	101	205	14	80	0,80		
360	186			2	140	138	15	80	1,00		
500	250		P175339	2 NPT	140	301	15	80	1,20		
600	300		P175342	2 1/2 NPT	140	301	15	80	1,60		
800	400		P175343	3 NPT	140	301	16	106	1,60		



RMF* = Recommended Maximum Flow in l/min.

Performance Curves



IN TANK
SUCTION FILTERS



FHK-FIR

Suction Filters In Tank for Stationary Application

Technical Data

- Operating pressure up to 1000 kPa (10 bar).
- Static pressure testing up to 1500 kPa (15 bar).
- By-pass valve not working in suction.
- Operating temperature -20 +100°C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1.
- Not suitable for service indicator, drilled holes for indicators working only for return application.

Filter Elements

- Wire mesh 60-90 micron.
- Synteq® synthetic media with 10-25 micron reinforced with wire mesh.
- Cellulose media with 10-30 micron, reinforced with wire mesh.
- Collapse resistance 1000 kPa (10 bar) per ISO 2941.
- Replacement element includes spring and O-ring seal.

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

FHK-FIR Suction Filters In Tank for Stationary Application



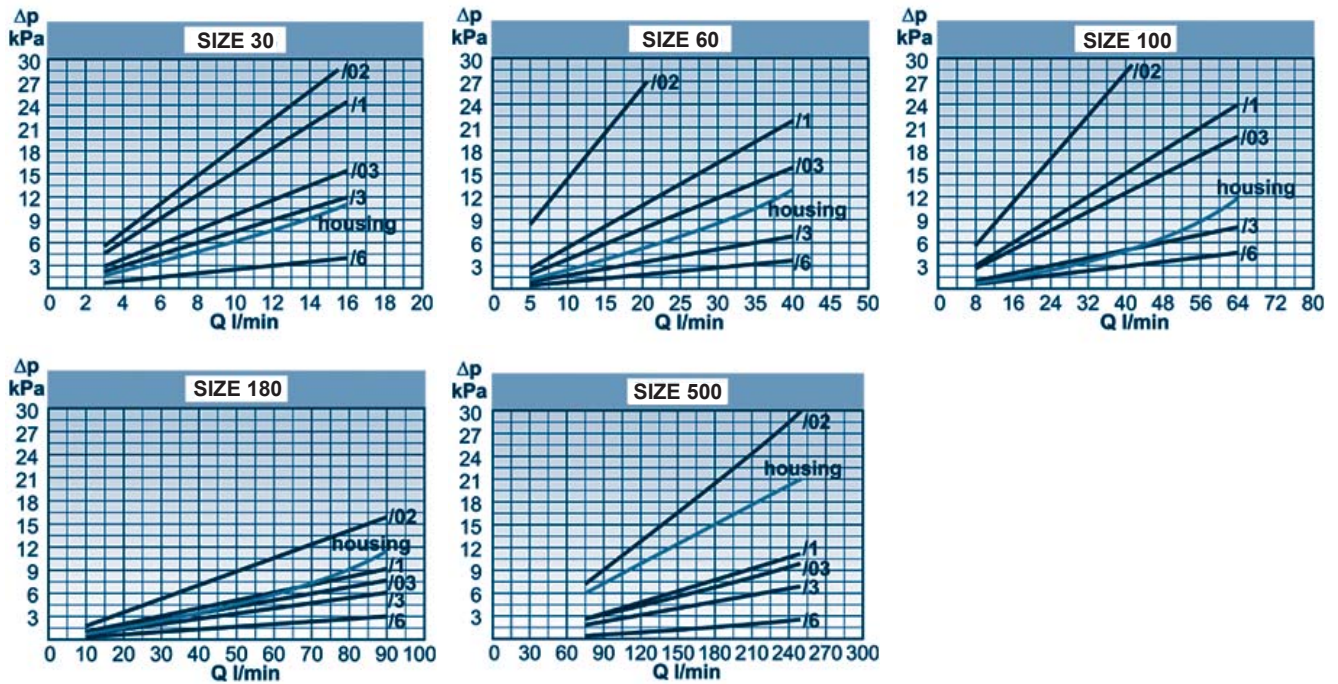
Specifications

SIZE	RMF*	/9			/6							/03				/02		
		WIRE MESH MEDIA						CELLULOSE MEDIA					SYNTHETIC MEDIA					
								$\beta_{50(c)}=1000$		$\beta_{36(c)}=1000$			$\beta_{23(c)}=1000$			$\beta_{11(c)}=1000$		
		TYPE	ELEMENT	ELEMENT		TYPE	ELEMENT	TYPE	ELEMENT		ELEMENT	TYPE	ELEMENT		ELEMENT			
30	15	K035009 FIR 30	P171500 CR 30	P171505 CR 30/6		10	K030245 FIR 30/3	P171504 CR 30/3	K030244 FIR 30/1	P171503 CR 30/1		8	P171502 CR 30/03	K035010 FIR 30/02	P171501 CR 30/02			
60	30	K040560 FIR 60	P171524 CR 60	P171529 CR 60/6		20	K040564 FIR 60/3	P171528 CR 60/3	K040563 FIR 60/1	P171527 CR 60/1		15	P171526 CR 60/03	K040561 FIR 60/02	P171525 CR 60/02			
100	50	K040566 FIR 100	P171530 CR 100	P171535 CR 100/6		35	K040570 FIR 100/3	P171534 CR 100/3	K040569 FIR 100/1	P171533 CR 100/1		30	P171532 CR 100/03	K040567 FIR 100/02	P171531 CR 100/02			
180	90	K051134 FIR 180	P171536 CR 180	P171541 CR 180/6		60	K051138 FIR 180/3	P171540 CR 180/3	K051137 FIR 180/1	P171539 CR 180/1		55	P171538 CR 180/03	K051135 FIR 180/02	P171537 CR 180/02			
500	250	K070117 FIR 500	P171566 CR 500	P171571 CR 500/6		200	K070121 FIR 500/3	P171570 CR 500/3	K070120 FIR 500/1	P171569 CR 500/1		180	P171568 CR 500/03	K070118 FIR 500/02	P171567 CR 500/02			

RMF* = Recommended Maximum Flow in l/min.

FILTER ASSEMBLIES WITH DRILLED HOLES FOR INDICATORS ARE INDICATED IN BLUE

Performance Curves

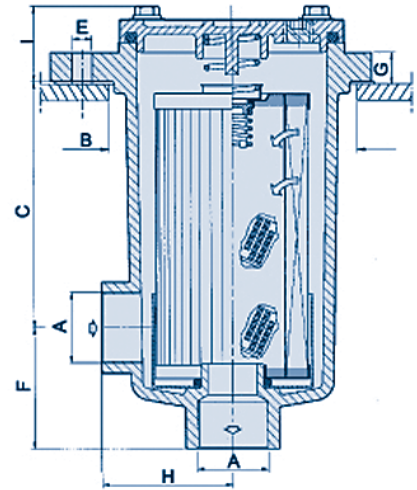


SUCTION FILTERS
IN TANK

FHK-FIR Suction Filters In Tank for Stationary Application

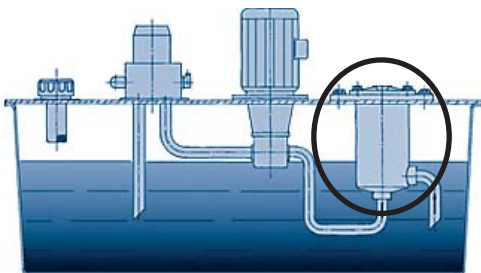
DIMENSIONS ASSY (mm)									
A	B*	C	D	E	F	G	H	I	Kg.
G 1/2	88	61	100	7	40	11	49	29	0,8
G 3/4	110	68	126	9	52	14	59	36	1,3
G 1	110	110	126	9	54	14	59	36	1,5
G 1 1/4	156	176	175	9	63	18	83	48	3,0
G 2	204	168	220	9	78	20	108	53	5,5

DIMENSIONS ELEMENT (mm)		
L	M	N
26	52	67
29	70	82
29	70	128
41	95	203
65	140	203



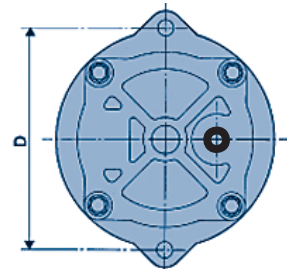
IMPORTANT NOTES:

* B is the hole diameter on top of the tank.

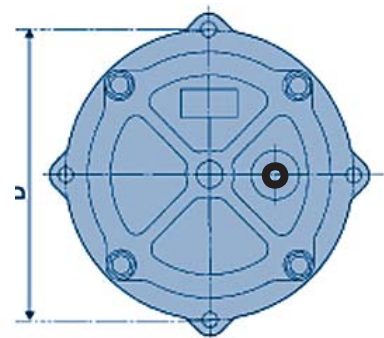


Suction Filter Location

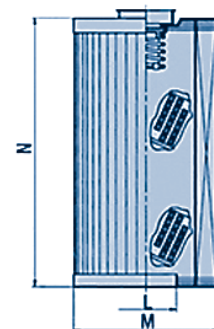
- Drilled holes for indicators are plugged and should NOT be used in suction applications.



SIZE 30-60-100



SIZE 180-500



SUCTION FILTERS
IN TANK



FLK-FLA

Suction Filters In-Line with Take Apart Element

Technical Data

- Operating pressure up to 3000 kPa (30 bar).
- Static pressure testing up to 4500 kPa (45 bar).
- By-pass valve setting 30 kPa (0,3 bar) per ISO 3968.
- Operating temperature -20 +100°C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO 3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1 or flanged per SAE J 518 - 3000 PSI.

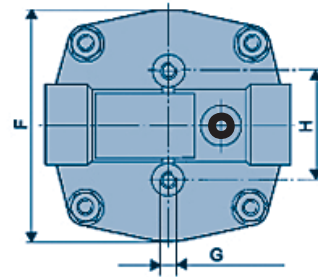
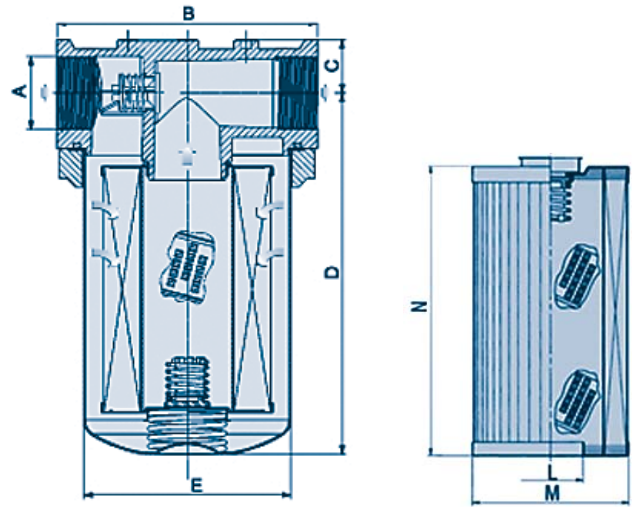
Filter Elements

- Wire mesh 60-90 micron.
- Synteq® synthetic media with 10-25 micron.
- Cellulose media 10-30 micron.
- Collapse resistance 1000 kPa (10 bar) per ISO 2941.
- Replacement element includes spring and O-ring seal.

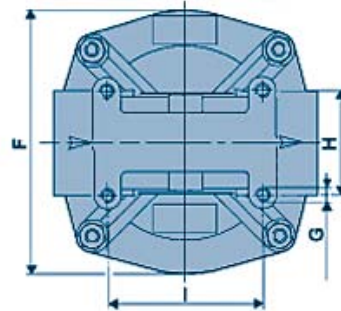
Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

FLK-FLA Suction Filters In-Line with Take Apart Element

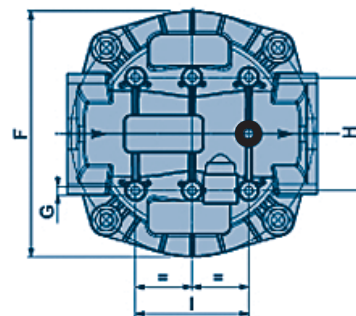
DIMENSIONS ASSY (mm)										DIMENSIONS ELEMENT (mm)		
A	B	C	D	E	F	G	H	I	Kg.	L	M	N
G 1/2	120	21	139	90	116	M8	54	-	1,5	29	70	75
G 3/4	120	24	193	90	116	M8	54	-	1,8	29	70	128
G 1	140	31	250	110	135	M8	68	-	2,8	41	95	169
G 1 1/4	140	31	284	110	135	M8	68	-	3,0	41	95	203
G 1 1/2	212	44	224	170	208	M8	96	96	6,0	65	140	136
G 1 1/2	212	44	294	170	208	M8	96	96	6,2	65	140	203
G 2	212	44	294	170	208	M8	96	96	6,2	65	140	203
FLANGE SAE 1 1/2	212	44	224	170	208	M8	96	96	6,0	65	140	136
FLANGE SAE 1 1/2	212	44	294	170	208	M8	96	96	6,2	65	140	203
FLANGE SAE 2	212	44	294	170	208	M8	96	96	7,2	65	140	203
FLANGE SAE 2	212	44	505	170	208	M8	96	96	9,5	65	140	400
G 1 1/4	152	30	237	124	152	M8	60	90	2,9	46	112	180



SIZE 50-100-150-180



SIZE 200

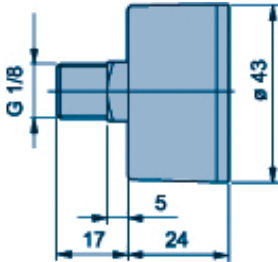


SIZE 330-500-800

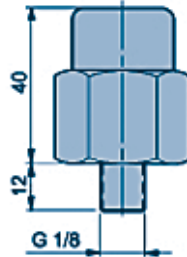
● Drilled holes for indicators with plug

FLK-FLA Suction Filters In-Line with Take Apart Element

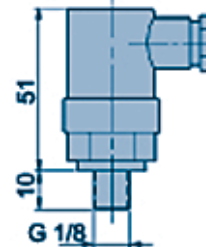
Service Indicators



VACUUM GAUGE
P171954 (500.02)
Scale: -100÷300 kPa (-1÷3 bar)



VISUAL PRESSURE GAUGE
P171959 (503.02)
Setting: 30 kPa (0,3 bar)

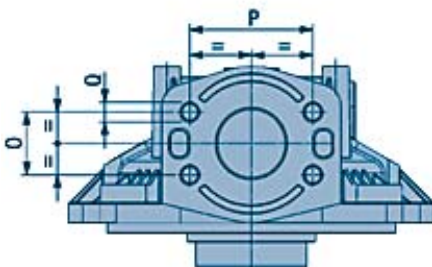


ELECTRICAL VACUUM GAUGE
P171967 (504.02) N.O. contacts
P173105 (504.06) N.C. contacts
Setting: -30 kPa (-0,3 bar)
Protection class: IP 65
Cable clamp: PG 7
Max. values: 48 VAC - 30 DCV
0,5 A res - 0,2 A. ind

Available on request :

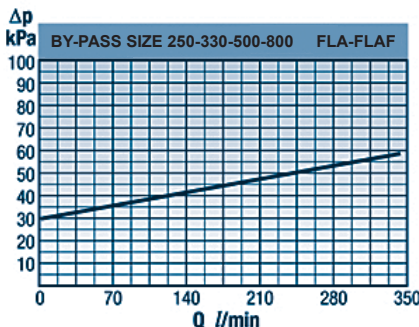
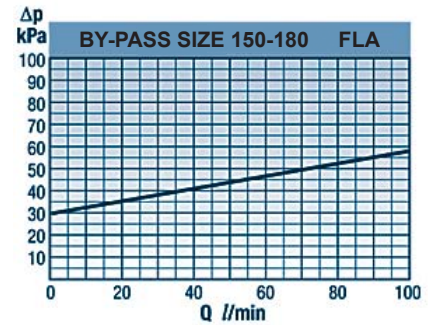
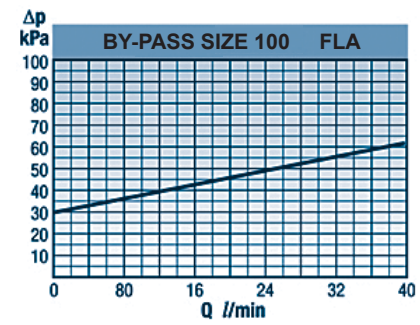
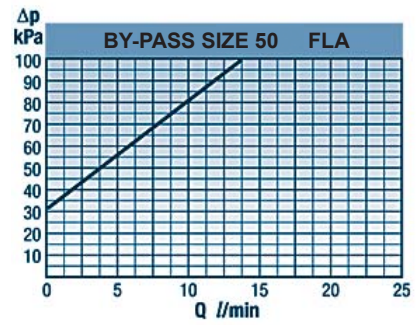
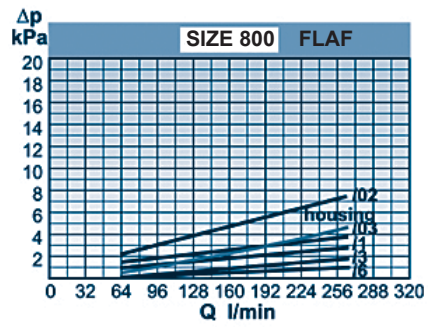
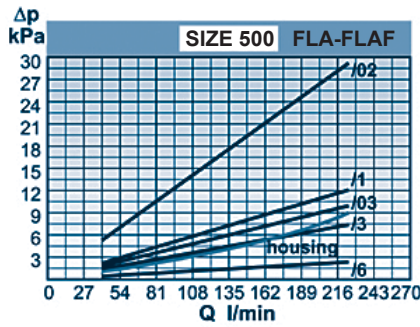
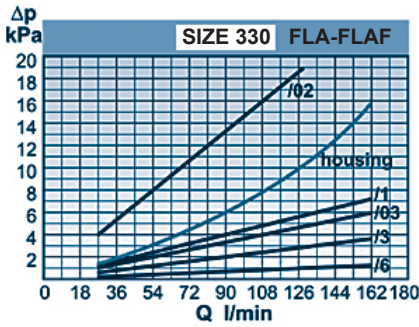
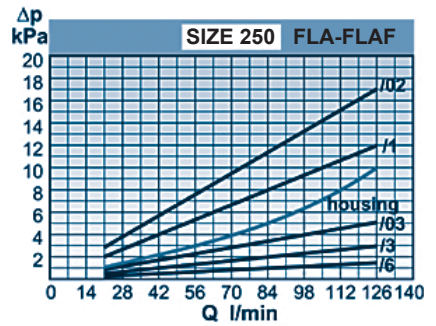
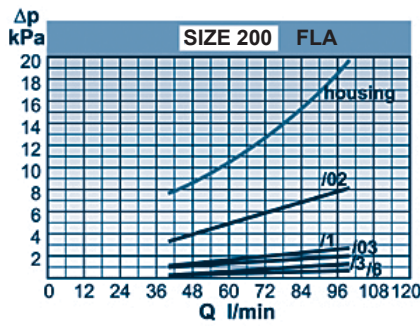
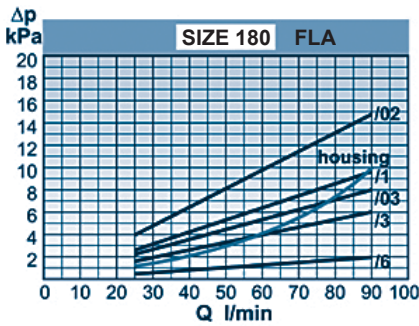
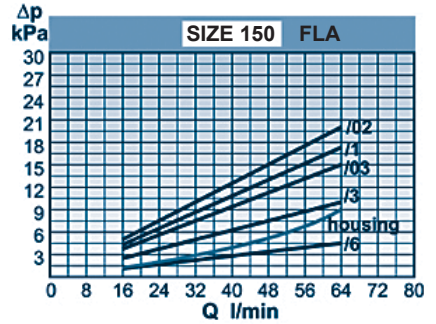
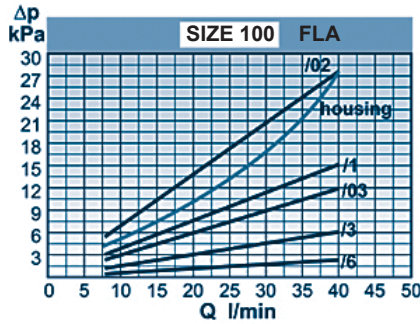
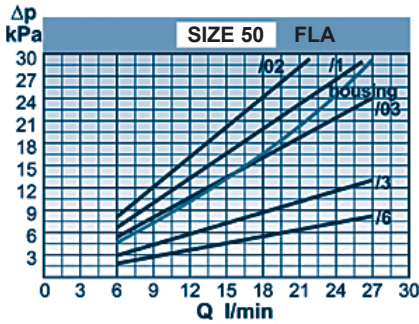
Electrical differential indicator **P163642** with special drilled holes for indicator

SAE Flanges



FLANGE SAE J518 3000 PSI	O	P	Q
1 1/2	35,8	69,8	M12
2	42,9	77,8	M12

Performance Curves



SUCTION FILTERS
IN-LINE



PXX-FAL

Suction Filters In-Line to be clamped

Technical Data

- Operating pressure up to 400 kPa (4 bar).
- Stating pressure testing up to 600 kPa (6 bar).
- Operating temperature -20 +100° C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop determined per ISO 3968 with oilkinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.

Filter Elements

- Wire mesh 160 micron.
- Collapse resistance 500 kPa (5 bar) per ISO 2941.

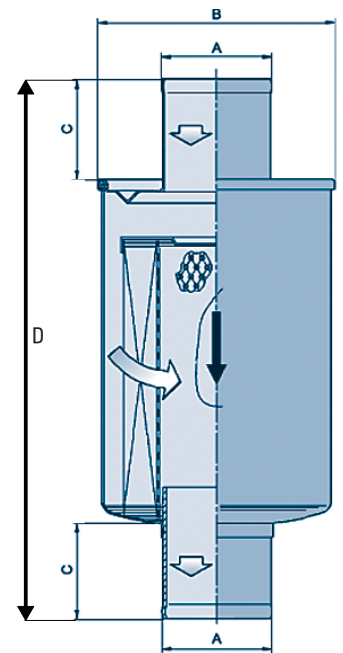
Donaldson Distributors can request a quote for a sepearte head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

PXX-FAL Suction Filters In-Line to be clamped

Specifications



SIZE	RMF*	/160	DIMENSIONS (mm)				
		WIRE MESH MEDIA	A	B	C	D	Kg.
25	25	P176903	19	74	25	149	0,35
45	45	P175142	30	74	23	145	0,35
65	65	P175143	38	74	23	145	0,35
85	85	P761040	38	74	23	208	0,45
100	100	P176904	50	85	22	180	0,55

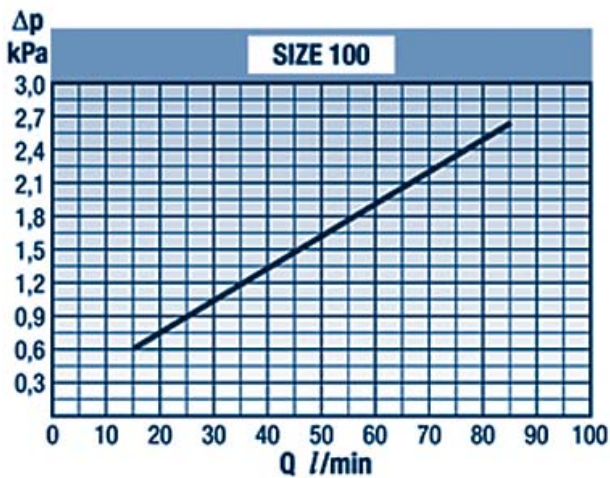
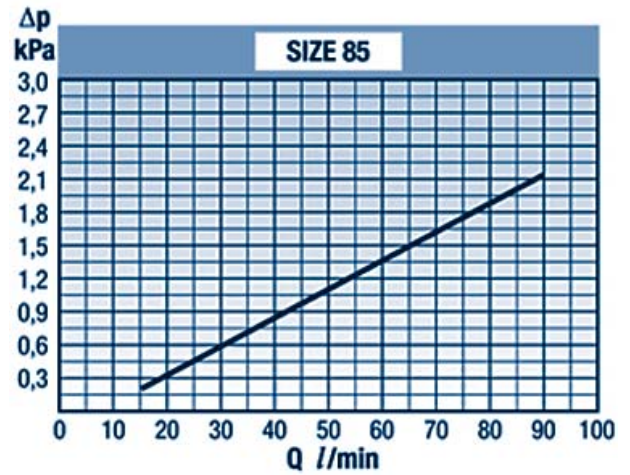
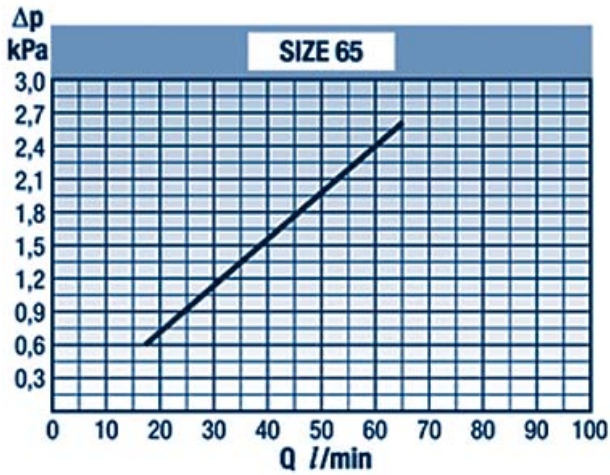
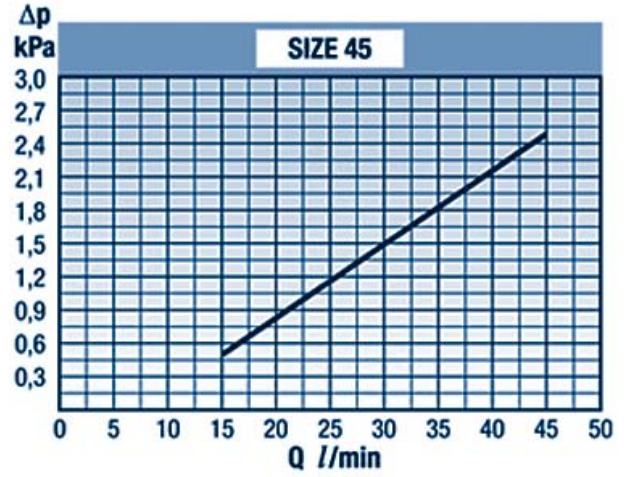
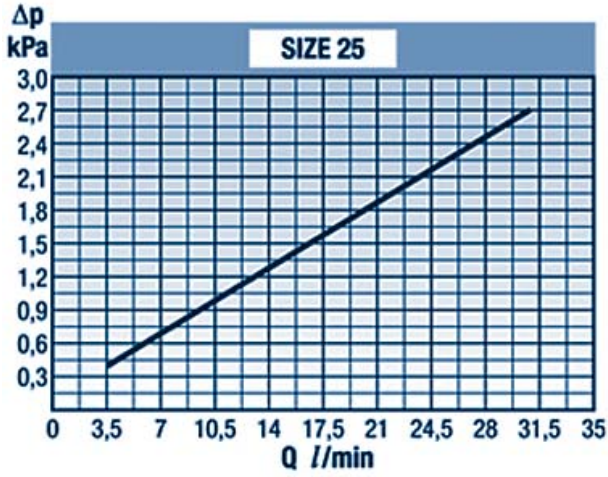


RMF* = Recommended Maximum Flow in l/min.

IMPORTANT NOTES:

1. Foresee a hole diameter on top of the tank at a diameter $B + 2$ mm.
2. Maintain the filter outlet (ref. diameter F) well below the oil level to avoid foam formation.

Performance Curves



SUCTION FILTERS
IN-LINE



ADDITIONS

FBK-FACA

Suction Spin-On Filters In-Line

Technical Data

- Operating pressure up to 1000 kPa (10 bar).
- Static pressure testing up to 1500 kPa (15 bar).
- By-pass valve setting 30 kPa (0,3bar) per ISO 3968.
- Operating temperature -20 +100°C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO 3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ANSI ASME B1.1 and ISO 228/1.

Filter Elements

- Wire mesh 60 micron.
- Synteq® synthetic media with 10-25 micron.
- Cellulose media 10-30 micron.
- Collapse resistance 1000 kPa (10 bar) per ISO 2941.

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

Specifications



SIZE	RMF*	/6	/3			/1		/03		/02		
		WIRE MESH MEDIA	CELLULOSE MEDIA					SYNTHETIC MEDIA				
		ELEMENT	TYPE	ELEMENT		TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	
60	30	P171607 CA 60/6	K040629 FACA 60/3 K041141 FACA 60/3 P	P171606 CA 60/3	20	K040628 FACA 60/1 K041140 FACA 60/1 P	P550268 CA 60/1	15	K040627 FACA 60/03 K041139 FACA 60/03 P	P171604 CA 60/03	K040626 FACA 60/02 K041138 FACA 60/02 P	P171602 CA 60/02
80	35	P171612 CA 80/6	K040639 FACA 80/3 K040970 FACA 80/3 P	P171611 CA 80/3	25	K040638 FACA 80/1 K041147 FACA 80/1 P	P171610 CA 80/1	20	K040637 FACA 80/03 K041146 FACA 80/03 P	P171609 CA 80/03	K040636 FACA 80/02 K041145 FACA 80/02 P	P171608 CA 80/02
108				P764638 CA 108/3 P763987 CA 108/3								
108			ADDITIONS									
160	80	P171617 CA 160/6	K041149 FACA 160/3 K051334 FACA 160/3 P	P171616 CA 160/3	70	K051148 FACA 160/1 K051230 FACA 160/1 P	P550148 CA 160/1	60	K051147 FACA 160/03 K051333 FACA 160/03 P	P171614 CA 160/03	K051146 FACA 160/02 K051332 FACA 160/02 P	P171613 CA 160/02
200	100	P171622 CA 200/6	K051159 FACA 200/3 K051340 FACA 200/3 P	P171621 CA 200/3	90	K051158 FACA 200/1 K051339 FACA 200/1 P	P171620 CA 200/1	80	K051157 FACA 200/03 K051338 FACA 200/03 P	P171619 CA 200/03	K051156 FACA 200/02 K051261 FACA 200/02 P	P171618 CA 200/02
220				P764410 CA 220/3 P764409 CA 250/3								P764411 CA 220/02 P763688 CA 250/02
250			ADDITIONS								ADDITIONS	
380	190	P171671 CA 160/6	K250004 FACA 380/3 K250109 FACA 380/3 P	P171618 CA 160/3	170	K250003 FACA 380/1 K250062 FACA 380/1 P	P550148 CA 160/1	150	K250002 FACA 380/03 K250108 FACA 380/03 P	P171614 CA 160/03	K250001 FACA 380/02 K250107 FACA 380/02 P	P171613 CA 160/02
400	200	P171622 CA 200	K250009 FACA 400/3 K250116 FACA 400/3 P	P171621 CA 200/3	180	K250008 FACA 400/1 K250115 FACA 400/1 P	P171620 CA 200/1	180	K250007 FACA 400/03 K250114 FACA 400/03 P	P171619 CA 200/03	K250006 FACA 400/02 K250113 FACA 400/02 P	P171618 CA 200/02

RMF* = Recommended Maximum Flow in l/min.

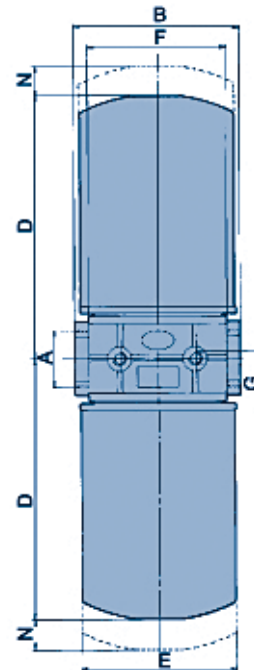
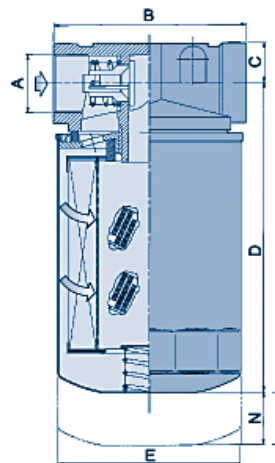
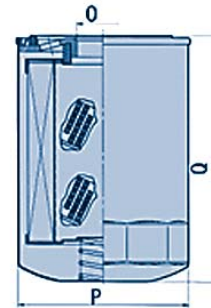
FILTER ASSEMBLIES WITH DRILLED HOLES FOR INDICATORS ARE INDICATED IN BLUE

All assemblies are without drilled holes for indicators.

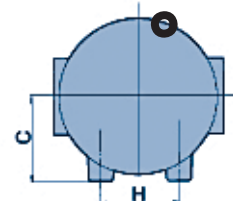
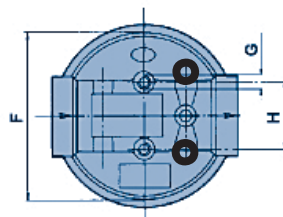
Look at the table on page 115 for which head should be used.

DIMENSIONS ASSY (mm)									
A	B	C	D	E	F	G	H	N	Kg.
G 3/4	95	19	172	96	75	M8	38	20	1
G 3/4	95	19	232	96	75	M8	38	20	1,1
G 1 1/4	132	28	215	126	112	M8	50	24	2
G 1 1/4	132	28	263	126	112	M8	50	24	2
G 1 1/2	138	70	218	126	112	M10	65	24	4
G 1 1/2	138	70	273	126	112	M10	65	24	4

DIMENSIONS ELEMENT (mm)		
O	P	Q
G 3/4	96	146
G 3/4	96	209
M40x2	108	183
M40x2	108	230
G 1 1/4	128	181
G 1 1/4	128	236
1" 1/2-16UN	136	236
1" 1/2-16UN	136	306
G 1 1/4	128	181
G 1 1/4	128	236



● Drilled holes for indicators



SIZE 60-80-160-200

SIZE 380-400

ADDITIONS

Heads



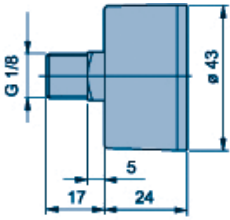
Spin-On filters are not delivered with drilled holes for indicators or bypass valve, heads are. Usage of indicators is mandatory, because the drilled holes for indicators are not plugged, unless otherwise mentioned. For more technical details on the indicators, see next page 116.

Head for Size	Part	Ports	Bypass Valve Setting	Indicator Info					Snout	Mounting holes
				Drilled holes for indicator	Indicator hole plugged	Location	Near	Indicator to use		
FACA 60/80	P561140	1 1/16 SAE	0,3 bar	no	-	-	-	none	1-12 UNF	M8
	P563288	1/2-14 NPTF	1 bar	1/8 NPTF	yes	2 sides	inlet	P563979 or P563299	1-12 UNF	1/4-20 UNC
	P561138	3/4-16 UNF	1,7 bar	no	-	-	-	none	1-12 UNF	1/4-20 UNC
	P761262	G3/4	0,3 bar	G1/8	yes	2 sides	outlet	P171954, P171959, P171967 or P173108	G3/4	M8
	P173442	G3/4	0,3 bar	no	-	-	-	none	G3/4	M8
P175001	G3/4	no opening	G1/8	yes	2 sides	outlet	P171954, P171959, P171967 or P173108	G3/4	M8	
FACA 160/200	P761259	G1 1/4	0,3 bar	G1/8	yes	2 sides	outlet	P171954, P171959, P171967 or P173108	G1 1/4	M8
	P173203	G1 1/4	0,3 bar	no	-	-	-	none	G1 1/4	M8
	P762638	G1 1/4	1,5 bar	G1/8	yes	side	outlet	P171954, P171959, P171967 or P173108	G1 1/4	M8
	P173403	G1 1/4	no opening	G1/8	yes	2 sides	outlet	P171954, P171959, P171967 or P173108	G1 1/4	M8
FACA 380/400	P761260	G1 1/2	0,3 bar	G1/8	no	front	outlet	P171954, P171959, P171967 or P173108	G1 1/4	M10
	P764420	G1 1/4	0,3 bar	G1/8	yes	side	outlet	P171954, P171959, P171967 or P173108	1 1/2-16 UN	M8
	P764419	G1 1/4	0,3 bar	no	-	-	-	none	1 1/2-16 UN	M8
	P764421	G1 1/4	no opening	G1/8	yes	side	outlet	P171954, P171959, P171967 or P173108	1 1/2-16 UN	M8

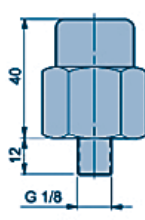
Thread Reference

- GAS according to ISO 228/1
- UN - UNC - UNF - UNS according to ANSI / ASME B 1.1
- SAE according to J 1926-1
- NPT according to ANSI / ASME B 1.20.1
- NPTF according to ANSI / ASME B 1.20.3
- M according to UNI 4534 - 5545

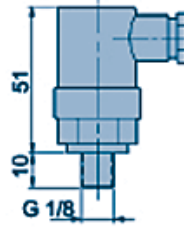
Service Indicators



VACUUM GAUGE
P171954 (500.02)
Scale: -100÷300 kPa (-1÷3 bar)

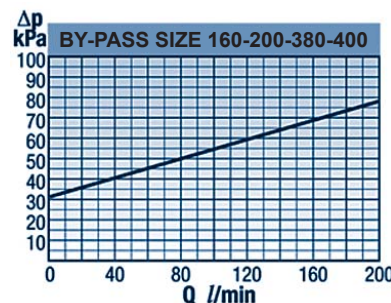
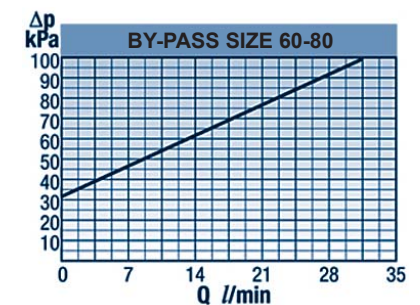
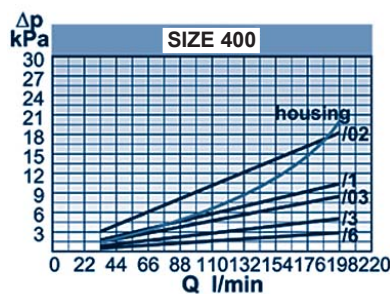
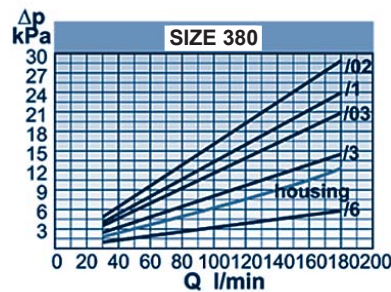
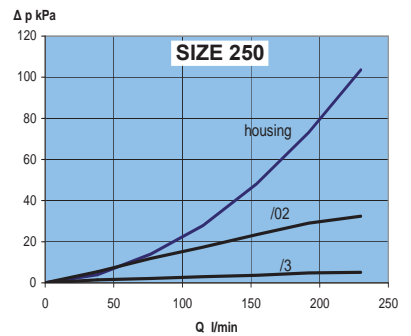
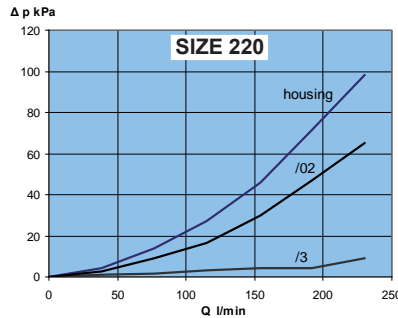
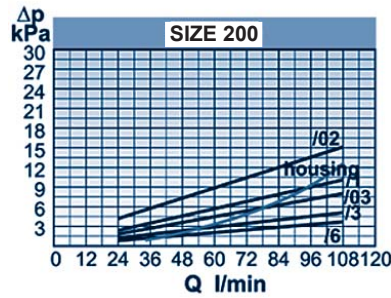
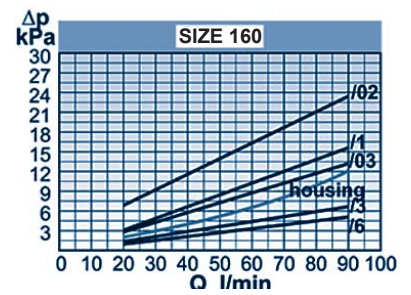
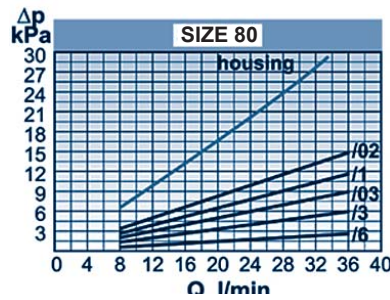
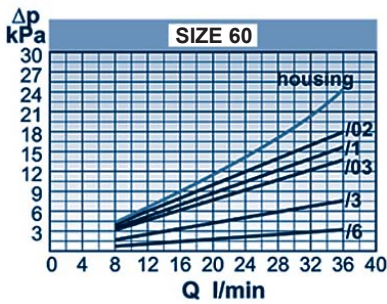


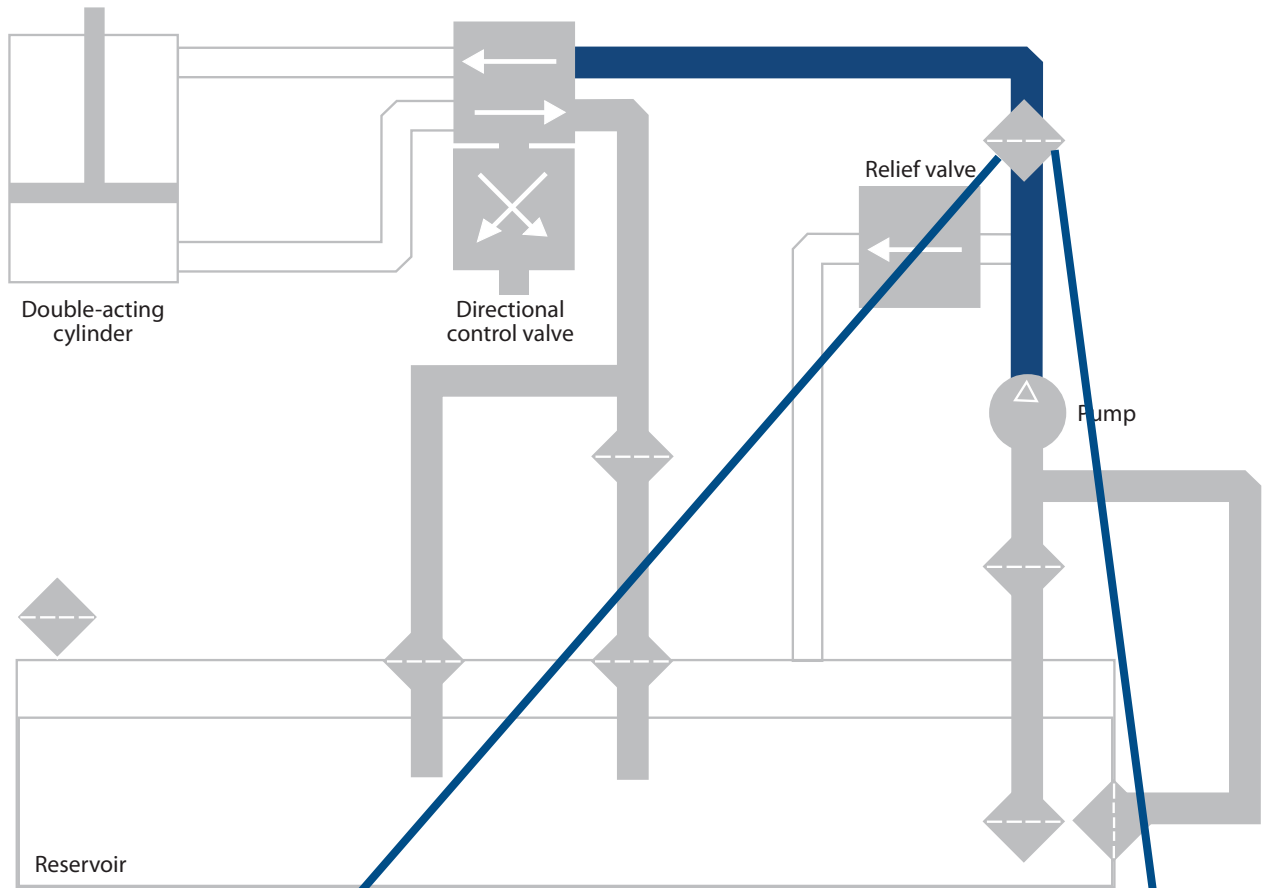
VISUAL VACUUM GAUGE
P171959 (503.02)
Setting: 30 kPa (0,3 bar)



ELECTRICAL VACUUM GAUGE
P171967 (504.02) N.O. contacts
P173105 (504.06) N.C. contacts
Setting: -30 kPa (-0,3 bar)
Protection class: IP 65
Cable clamp: PG 7
Max. values: 48 VAC - 30 DCV / 0,5 A res - 0,2 A. ind

Performance Curves





MEDIUM PRESSURE FILTERS



HIGH PRESSURE FILTERS

Hydraulic In-Line Filters

Section Index

Medium Pressure Filters

	FMK-FM.....	120
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ADDITIONS	HMK05 Duramax.....	128

High Pressure Filters

ADDITIONS	FPK 02 & 04 - AP220.....	132
	FPK 02 - AP280.....	136
ADDITIONS	FPK 03 & 04 - AP420.....	140
	FCK-LC.....	144

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.



FMK-FM

Medium Pressure Filters In-Line
up to 120 bar, with take apart

Technical Data

- Filter head in tempered aluminum.
- Aluminum bowl.
- Operating pressure up to 12 MPa (120 bar), static pressure testing up to 18 MPa (180 bar).
- Fatigue pressure of 2.000.000 cycles at 0 - 8 MPa (0 - 80 bar) per NFPA T 3.10.5 R2:2000
- By-pass valve integrated in the head setting 600 kPa (6 bar) per ISO 3968.
- On request, filter can be supplied without by-pass valve, stating letter "S".
- Operating temperature -20 +120°C.
- Compatibility hydraulic fluids per ISO2943.
- Flow rate and pressure drop per ISO3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1.
- Tapped drilled hole for indicator.

Filter Elements

- Synteq® synthetic media with 5 - 10 - 25 micron, reinforced with wire mesh
- Cellulose media 10 micron, reinforced with wire mesh.
- Wire mesh 30 - 60 micron.
- Collapse resistance 2 MPa (20 bar) per ISO 2941.
- Element integrity per ISO 2942.

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

FMK-FM Medium Pressure Filters In-Line up to 120 bar, with take apart

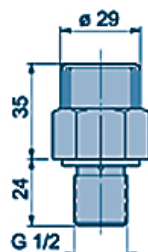


Specifications

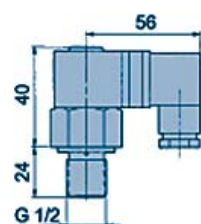
SIZE	RMF*	/6		/3M		RMF*	/1		/03		/02		/01		
		WIRE MESH MEDIA					CELLULOSE MEDIA		SYNTHETIC MEDIA						
		TYPE	ELEMENT	TYPE	ELEMENT		$\beta_{0.1(\mu)}=1000$		$\beta_{2.0(\mu)}=1000$		$\beta_{1.0(\mu)}=1000$		$\beta_{0.1(\mu)}=1000$		
140	40					40	K020081 FM 140/1	P171704 CM 140/1	40	K020080 FM 140/03	P171703 CM 140/03	K020079 FM 140/02	P171702 CM 140/02	K020078 FM 140/01	P171701 CM 140/01
140	50	K020083 FM 140/6	P171706 CM 140/6	K020082 FM 140/3M	P171705 CM 140/3M	50			50						
180	60					60	K020087 FM 180/1	P171710 CM 180/1	60	K020086 FM 180/03	P171709 CM 180/03	K020085 FM 180/02	P171708 CM 180/02	K020084 FM 180/01	P171707 CM 180/01
180	80	K020089 FM 180/6	P171712 CM 180/6	K020088 FM 180/3M	P171711 CM 180/3M	80			80						

RMF* = Recommended Maximum Flow in l/min.

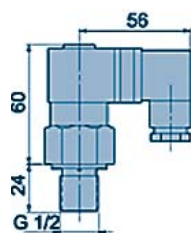
Service Indicators



VISUAL DIFFERENTIAL
PRESSURE INDICATOR
P171945 (506.06)
Setting: 140 kPa (1,4 bar)



ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR
P761056
Setting: 500 kPa (5 bar)
Max. values: 250 ACV - 30 DCV - 5 A res. and ind.
Protection class: IP 65
Cable clamp: PG 11

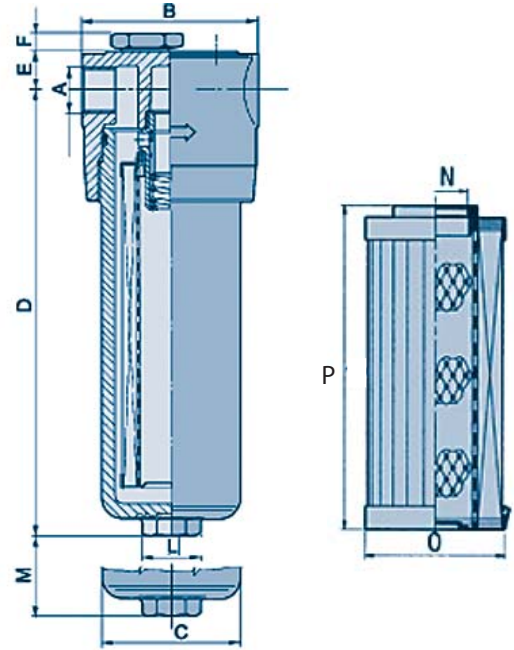


VISUAL ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR
P171947 (507.03)
P171944 (507.06) with thermostat at min. temperature at 30°C
Setting: 500 kPa (5 bar)
Max. values: 250 ACV - 30 DCV - 5 A res. and ind.
Protection class: IP 65
Cable clamp: PG 11

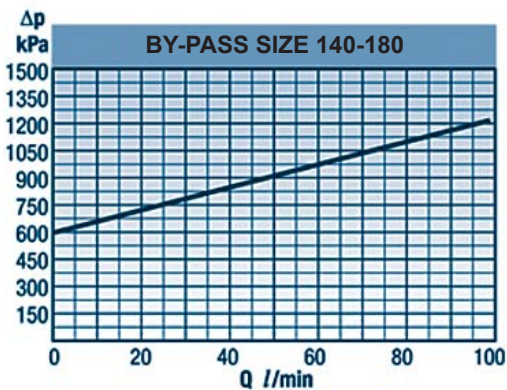
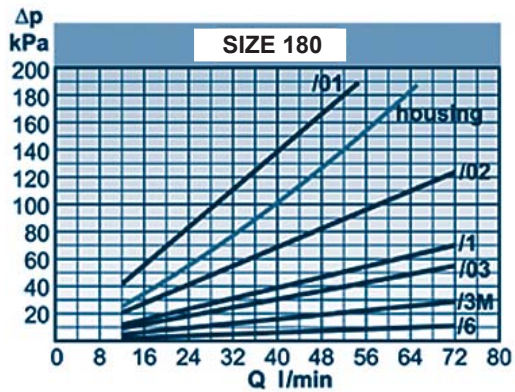
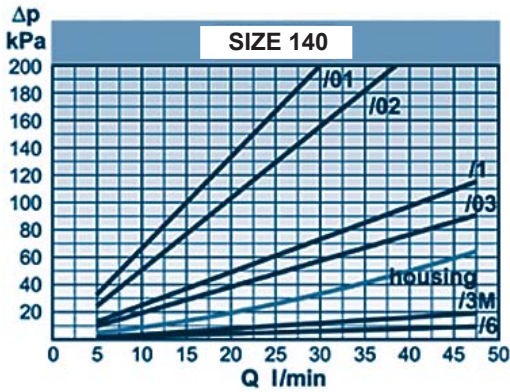
MEDIUM PRESSURE
FILTERS

FMK-FM Medium Pressure Filters In-Line up to 120 bar, with take apart

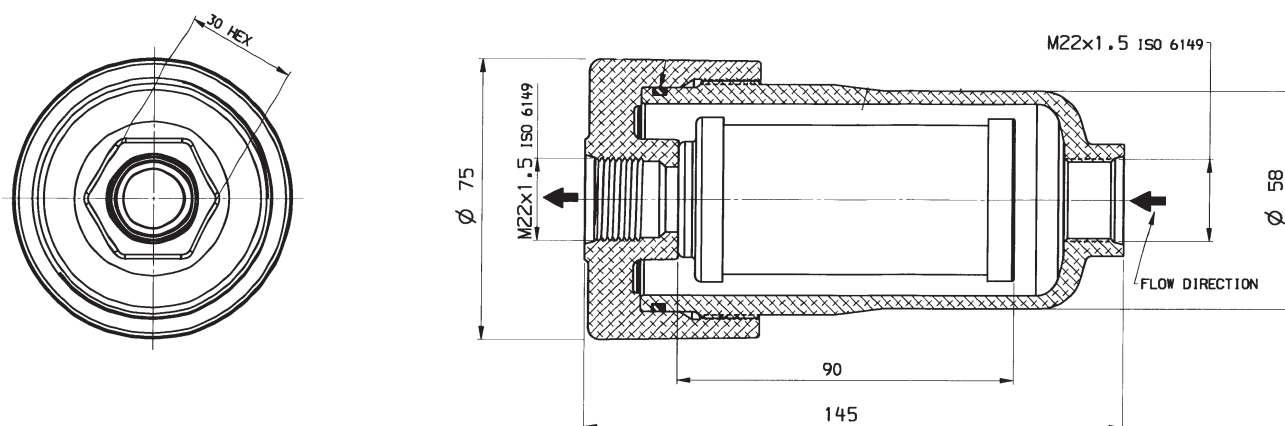
DIMENSIONS ASSY (mm)												DIMENSIONS ELEMENT (mm)		
A	B	C	D	E	F	G	H	I	L	M	Kg.	N	O	P
G 1/2	78	60	146	17	9	20	38	M8	Hex 27	30	0,9	22,2	43	90
G 1/2	78	60	146	17	9	20	38	M8	Hex 27	30	0,9	22,2	43	90
G 1/2	78	60	232	17	9	20	38	M8	Hex 27	30	1,2	22,2	43	176
G 1/2	78	60	232	17	9	20	38	M8	Hex 27	30	1,2	22,2	43	176



Performance Curves



FCK-LC Medium Pressure Filter In-Line Last Chance - K020200



Technical Data

- Assembly K020200 (LC 140/6) with Element P171706 (CM 140/6)
- Flow of 30 l/min.
- Aluminium alloy head and bowl
- Operating pressure and Static pressure testing at 6 MPa (60 bar)
- Operating temperature -20 +120°C.
- Compatibility hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm.
- Ports threaded per UNI 4534 - UNI 5545.



Filter Elements

- Wire mesh 60 micron.
- Collapse resistance 2 MPa (20 bar) per ISO 2941.



HMK04 - Duramax

Medium Pressure Filters In-Line
up to 34 bar with Spin-On Element

ADDITIONS

Technical Data

- Operating pressure up to 3,45 MPa (34,5 bar).
- Static pressure testing up to 6,9 MPa (69 bar).
- By-pass valve setting 170 kPa (1,7 bar) differential per ISO 3968.
- Available by-pass valve with setting 350 kPa (3,5 bar) differential.
- Operating temperature -20 +120°C (-20 +107° C for cellulose).
- Pressure fatigue strength per NFPA T3.10.17 0 - 3,45 MPa (0 - 34,5 bar) for 100.000 cycles.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO 3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1.
- Tapped Drilled holes for indicators for electrical indicator.

Filter Elements

- Cellulose paper 10 micron.
- Synteq® synthetic media with 5-10-16-22-40 micron.
- Heavy duty steel can with die cast baffle for added strength and a special head-to-spin-on O-ring seal.
- Element collapse resistance 2 MPa (20 bar) per ISO 2941.
- Static spin-on burst resistance 6,9 MPa (69 bar)
- Available intermediate length spin-on L=180 mm.

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

HMK04 - Duramax Medium Pressure Filters In-Line up to 34 bar with Spin-On Element



Specifications

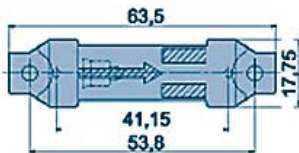
SIZE	RMF*	#20		RMF*	#7		#4		/02		/01			
		SYNTHETIC MEDIA												
		$\beta_{50(c)}=1000$			$\beta_{23(c)}=1000$		$\beta_{20(c)}=1000$		$\beta_{11(c)}=1000$		$\beta_{8(c)}=1000$			
TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	ELEMENT	TYPE	ELEMENT				
120	120	K045739 HMK 405/3	P165335 K 405/3	110	K045743 HMK 405/03	P164381 K 405/03	K045745 HMK 405/02	P164375 K 405/02	P761064	100	K045747 HMK 405/01	P165354 K 405/01		
120	120	K045795 HMK 405/3	P165335 K 405/3	110	K045793 HMK 405/03	P164381 K 405/03	K045792 HMK 405/02	P164375 K 405/02	P761064	100	K045791 HMK 405/01	P165354 K 405/01		
120	120	K045805 HMK 405/3	P165335 K 405/3	110	K045803 HMK 405/03	P164381 K 405/03	K045802 HMK 405/02	P164375 K 405/02	P761064	100	K045801 HMK 405/01	P165354 K 405/01		
140	140	K045740 HMK 409/3	P165338 K 409/3	130	K045744 HMK 409/03	P164384 K 409/03	K045746 HMK 409/02	P164378 K 409/02	P173133	120	K045748 HMK 409/01	P165332 K 409/01		
140	140	K045800 HMK 409/3	P165338 K 409/3	130	K045798 HMK 409/03	P164384 K 409/03	K045797 HMK 409/02	P164378 K 409/02	P173133	120	K045796 HMK 409/01	P165332 K 409/01		
140	140		P165338 K 409/3	130	K045808 HMK 409/03	P164384 K 409/03	K045807 HMK 409/02	P164378 K 409/02	P173133	120	K045806 HMK 409/01	P165332 K 409/01		

RMF* = Recommended Maximum Flow in l/min.

COMPLETE ASSEMBLY WITH INDICATOR P162400 INCLUDED

COMPLETE ASSEMBLY WITH INDICATOR P162696 INCLUDED

Service Indicators



VISUAL DIFFERENTIAL PRESSURE INDICATOR

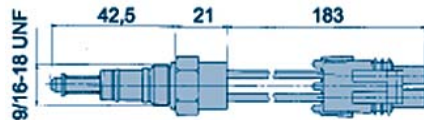
P162696 (506.05)

Red at 140 kPa (1,4 bar)

Max. operating temperature 82°C

AVAILABLE MODEL FOR BY-PASS 350 kPa (3,5 bar):

P167580 with red at 280 kPa (2,8 bar)



ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR 2 WIRES, CANON CONNECTOR

P171143 N.O. contacts

Settings: 140 kPa (1,4 bar)

Max. values: 30 DCV - 0,2 A

AVAILABLE MODEL FOR BY-PASS 350 kPa (3,5 bar):

P171087 N.O. contacts, packard connector

Settings: 270 kPa (2,7 bar)

Max. values: 30 DCV - 0,2 A

P170926 N.C. contacts, packard connector

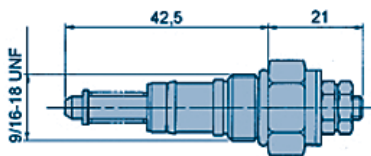
Settings: 270 kPa (2,7 bar)

Max. values: 30 DCV - 0,1 A

MEDIUM PRESSURE FILTERS

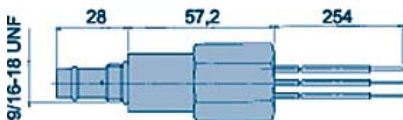
HMK04 - Duramax Medium Pressure Filters In-Line up to 34 bar with Spin-On Element

#10 CELULOSE MEDIA $\beta_{23(c)}=1000$			DIMENSIONS (mm)												
RMF*	TYPE	ELEMENT	A	B	C	D	E	F	G	H	I	L	M	Assembly weight kg.	Spin-on weight kg.
100	K045741 HMK 405/1	P163419 K 405/1	G 3/4	98	34	181	94	35	M10	35	20	152	1 3/8-12 UN 2B	1,8	1
100	K045794 HMK 405/1	P163419 K 405/1	G 3/4	98	34	181	94	35	M10	35	20	152	1 3/8-12 UN 2B	1,8	1
100	K045804 HMK 405/1	P163419 K 405/1	G 3/4	98	34	181	94	35	M10	35	20	152	1 3/8-12 UN 2B	1,8	1
110	K045742 HMK 409/1	P163324 K 409/1	G 1	98	34	269	94	35	M10	35	20	240	1 3/8-12 UN 2B	2,4	1,6
110	K045799 HMK 409/1	P163324 K 409/1	G 1	98	34	269	94	35	M10	35	20	240	1 3/8-12 UN 2B	2,4	1,6
110	K045809 HMK 409/1	P163324 K 409/1	G 1	98	34	269	94	35	M10	35	20	240	1 3/8-12 UN 2B	2,4	1,6



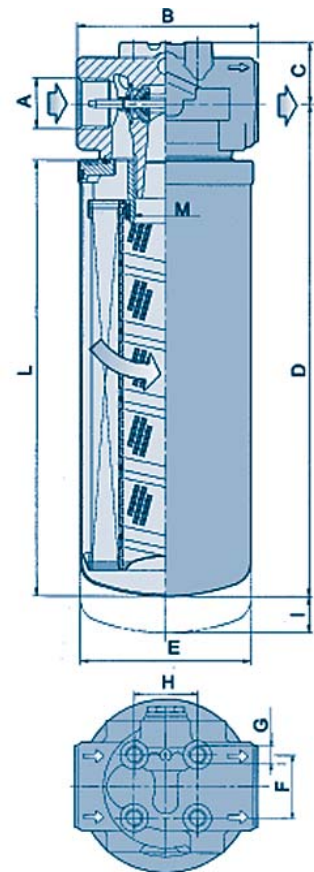
ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR
P162400 N.O. contacts, color-coded wascher: green
P163839 N.C. contacts, color-coded wascher: red
 Settings: 140 kPa (1,4 bar) / Max. values: 30 DCV - 0,2 A

AVAILABLE MODEL FOR BY-PASS 350 kPa (3,5 bar):
P165194 N.O. contacts, color-coded wascher: red/white
P167455 N.C. contacts, color-coded wascher: red/green
 Settings: 270 kPa (2,7 bar) / Max. values: 30 DCV - 0,2 A



ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR 3 WIRES,
 COMPATIBLE WITH MICROPROCESSORS
P173944 N.O. and N.C. contacts
 Settings: 140 kPa (1,4 bar) / Max. values: 24 DCV - 2 A and 110 ACV - 2 A

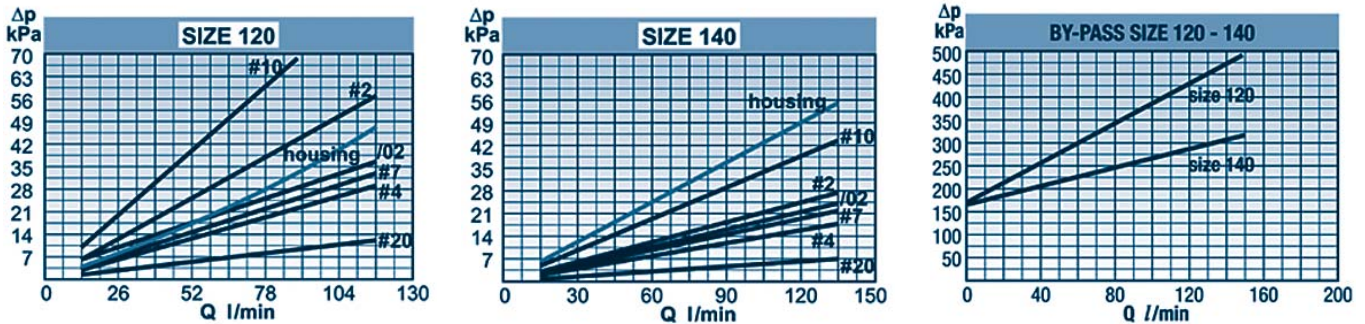
AVAILABLE MODEL FOR BY-PASS 350 kPa (3,5 bar):
P173893 N.O. and N.C. contacts
 Settings: 270 kPa (2,7 bar) / Max. values: 24 DCV - 2 A and 110 ACV - 2 A



HMK04 - Duramax Medium Pressure Filters In-Line up to 34 bar with Spin-On Element



Performance Curves



ADDITIONS

Heads HMK04 - Duramax



Duramax Filters aren't delivered with drilled holes for indicators or bypass valve, heads are. Usage of indicators is mandatory, because the drilled holes for indicators are not plugged, unless otherwise mentioned. For more technical details on the indicators, see page 125-126.

Head for Size	Part	Ports	Bypass Valve Setting	Indicator Info					Snout	Mounting holes
				Drilled holes for indicator	Indicator hole plugged	Location	Near	Indicator to use		
HMK04	P763617	1 1/16-12 UN	1,7 bar	9/16-18	yes	side	middle	P162400, P163839, P171143 or P173944	1 3/8-12 UNF	M10
	P167473	1 1/16-12 UN	1,7 bar	no	-	-	-	none	1 3/8-12 UNF	3/8-16 UNC
	P173918	1 1/16-12 UN	3,5 bar	9/16-18	yes	side	middle	P165194, P167455, P171087, P170926 or P173893	1 3/8-12 UNF	3/8-16 UNC
	P764322	1 1/16-12 UN	3,5 bar	used	-	side	middle	P165194 (installed)	1 3/8-12 UNF	3/8-16 UNC
	P762801	1 5/16-12 UN	1,7 bar	9/16-18	yes	side	middle	P162400, P163839, P171143 or P173944	1 3/8-12 UNF	M10
	P761378	1 5/16-12 UN	2,5 bar	9/16-18	yes	side	middle	P162400, P163839, P171143 or P173944	1 3/8-12 UNF	M10
	P763139	1 5/16-12 UN	3,5 bar	no	-	-	-	none	1 3/8-12 UNF	M10
	P173438	G 1	1,7 bar	9/16-18	yes	side	middle	P162400, P163839, P171143 or P173944	1 3/8-12 UNF	M10
	P762982	G 1	3,5 bar	9/16-18	yes	side	middle	P165194, P167455, P171087, P170926 or P173893	1 3/8-12 UNF	M10
	P173132	G 1	3,5 bar	used	no	side	middle	P165194 (installed)	1 3/8-12 UNF	M10
	P760924	G 1	3,5 bar	used	-	side	middle	P167455 (installed)	1 3/8-12 UNF	M10
	P173386	G 3/4	1,7 bar	9/16-18	yes	side	middle	P162400, P163839, P171143 or P173944	1 3/8-12 UNF	M10
	P762554	G 3/4	1,7 bar	no	-	-	-	none	1 3/8-12 UNF	M10
	P173385	G 3/4	3,5 bar	no	-	-	-	none	1 3/8-12 UNF	M10
	P175029	G 3/4	no opening	used	-	side	middle	P165194 (installed)	1 3/8-12 UNF	M10

Thread Reference

GAS according to ISO 228/1

UN - UNC - UNF - UNS according to ANSI / ASME B 1.1

SAE according to J 1926-1

NPT according to ANSI / ASME B 1.20.1

NPTF according to ANSI / ASME B 1.20.3

M according to UNI 4534 - 5545



HMK05 - Duramax

ADDITIONS

Medium Pressure Filters In-Line
up to 24 bar with Spin-On Element

Technical Data

- Operating pressure up to 2,4 MPa (24 bar).
- Static pressure testing up to 5,5 MPa (55 bar).
- By-pass valve setting 170 kPa (1,7 bar) differential per ISO 3968.
- Available by-pass valve with setting 350 kPa (3,5 bar) differential.
- Operating temperature -20 +120°C (-20 +107° C for cellulose).
- Pressure fatigue strength per NFPA T3.10.17 0 - 2,4 MPa (0 - 24 bar) for 100.000 cycles.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO 3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1.
- Tapped Drilled holes for indicators for electrical indicator.

Filter Elements

- Cellulose paper 10 micron.
- Synteq® synthetic media with 5-10-16-22-40 micron.
- Heavy duty steel can with die cast baffle for added strength and a special head-to-spin-on O-ring seal.
- Element collapse resistance 1,4 MPa (14 bar) per ISO 2941.
- Static spin-on burst resistance 5,5 MPa (55 bar).
- Available intermediate length spin-on L=200 mm.

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

HMK05 - Duramax Medium Pressure Filters In-Line up to 24 bar with Spin-On Element



Specifications

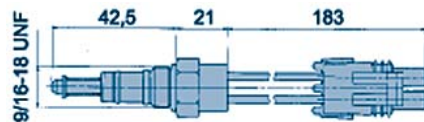
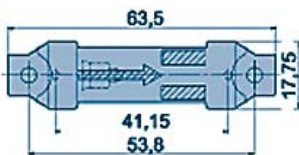
SIZE	RMF*	#20		RMF*	#9		RMF*	#4		ELEMENT	RMF*	/01					
		SYNTHETIC MEDIA															
		$\beta_{50(c)}=1000$			$\beta_{23(c)}=1000$			$\beta_{20(c)}=1000$				$\beta_{11(c)}=1000$		$\beta_{8(c)}=1000$			
TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	ELEMENT	TYPE	ELEMENT									
200	200	K053123 HMK 513/3	P165672 K 513/3	180	K053125 HMK 513/03	P165569 K 513/03	170	K053126 HMK 513/02	P165659 K 513/02	P176779	160	K053127 HMK 513/01	P165675 K 513/01				
200	200	K053144 HMK 513/3	P165672 K 513/3	180	K053142 HMK 513/03	P165569 K 513/03	170	K053141 HMK 513/02	P165659 K 513/02	P176779	160	K053140 HMK 513/01	P165675 K 513/01				
200	200	K053148 HMK 513/3	P165672 K 513/3	180	K053146 HMK 513/03	P165569 K 513/03	170	K053132 HMK 513/02	P165659 K 513/02	P176779	160	K053145 HMK 513/01	P165675 K 513/01				

RMF* = Recommended Maximum Flow in l/min.

COMPLETE ASSEMBLY WITH INDICATOR P162400 INCLUDED

COMPLETE ASSEMBLY WITH INDICATOR P162696 INCLUDED

Service Indicators



VISUAL DIFFERENTIAL PRESSURE INDICATOR
P162696 (506.05)

Red at 140 kPa (1,4 bar)

Max. operating temperature 82°C

AVAILABLE MODEL FOR BY-PASS 350 kPa (3,5 bar):

P167580 with red at 280 kPa (2,8 bar)

ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR 2 WIRES, CANON CONNECTOR
P171143 N.O. contacts

Settings: 140 kPa (1,4 bar)

Max. values: 30 DCV - 0,2 A

AVAILABLE MODEL FOR BY-PASS 350 kPa (3,5 bar):

P171087 N.O. contacts, packard connector

Settings: 270 kPa (2,7 bar)

Max. values: 30 DCV - 0,2 A

P170926 N.C. contacts, packard connector

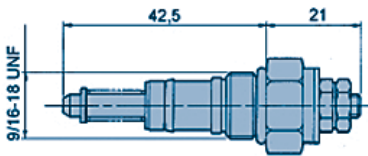
Settings: 270 kPa (2,7 bar)

Max. values: 30 DCV - 0,1 A

MEDIUM PRESSURE
FILTERS

HMK05 - Duramax Medium Pressure Filters In-Line up to 24 bar with Spin-On Element

			DIMENSIONS (mm)												Assembly weight kg.	Spin-on weight kg.		
			#10			A	B	C	D	E	F	G	H	I			L	M
			CELULOSE MEDIA															
β _{23(c)} = 1000																		
RMF*	TYPE	ELEMENT																
160		P165705 K 513/1	G 1 1/4	121	39	329	117	48	M10	48	21	295	1 3/4-12 UN 2B	3,4	2,4			
160		P165705 K 513/1	G 1 1/4	121	39	329	117	48	M10	48	21	295	1 3/4-12 UN 2B	3,4	2,4			
160	K053147 HMK 513/1	P165705 K 513/1	G 1 1/4	121	39	329	117	48	M10	48	21	295	1 3/4-12 UN 2B	3,4	2,4			



ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR

P162400 N.O. contacts, color-coded washer: green

P163839 N.C. contacts, color-coded washer: red

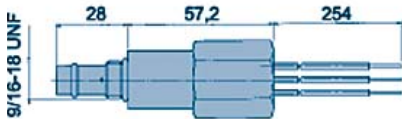
Settings: 140 kPa (1,4 bar) / Max. values: 30 DCV - 0,2 A

AVAILABLE MODEL FOR BY-PASS 350 kPa (3,5 bar):

P165194 N.O. contacts, color-coded washer: red/white

P167455 N.C. contacts, color-coded washer: red/green

Settings: 270 kPa (2,7 bar) / Max. values: 30 DCV - 0,2 A



ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR 3 WIRES, COMPATIBLE WITH MICROPROCESSORS

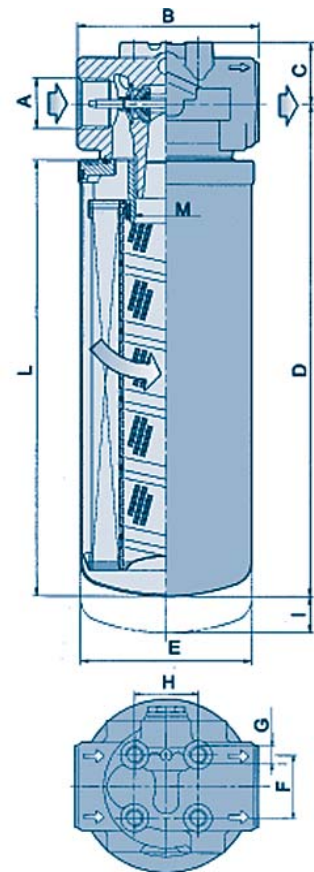
P173944 N.O. and N.C. contacts

Settings: 140 kPa (1,4 bar) / Max. values: 24 DCV - 2 A and 110 ACV - 2 A

AVAILABLE MODEL FOR BY-PASS 350 kPa (3,5 bar):

P173893 N.O. and N.C. contacts

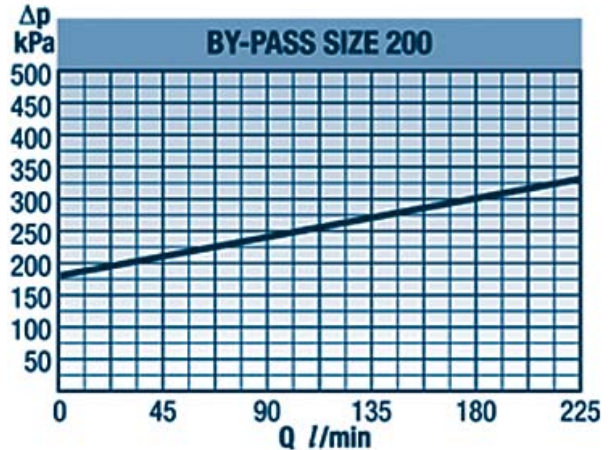
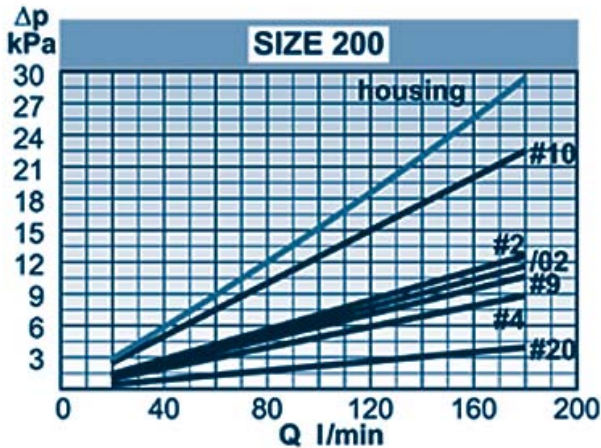
Settings: 270 kPa (2,7 bar) / Max. values: 24 DCV - 2 A and 110 ACV - 2 A



HMK05 - Duramax Medium Pressure Filters In-Line up to 24 bar with Spin-On Element



Performance Curves



ADDITIONS

Heads HMK05 - Duramax



Duramax Filters aren't delivered with drilled holes for indicators or bypass valve, heads are. Usage of indicators is mandatory, because the drilled holes for indicators are not plugged, unless otherwise mentioned. For more technical details on the indicators, see page 129-130.

Head for Size	Part	Ports	Bypass Valve Setting	Indicator Info					Snout	Mounting holes
				Drilled holes for indicator	Indicator hole plugged	Location	Near	Indicator to use		
HMK05	P175095	1 5/8-12 UN	3,5 bar	9/16-18	yes	side	middle	P165194, P167455, P171087, P170926 or P173893	1 3/4-12 UN	M10
	P173448	G 1 1/4	1,7 bar	9/16-18 used	yes	side	middle	P162400, P163839, P171143 or P173944	1 3/4-12 UN	M10
	P761446	G 1 1/4	3,5 bar	used	-	side	middle	P162696 (installed)	1 3/4-12 UN	M10

Thread Reference

- GAS according to ISO 228/1
- UN - UNC - UNF - UNS according to ANSI / ASME B 1.1
- SAE according to J 1926-1
- NPT according to ANSI / ASME B 1.20.1
- NPTF according to ANSI / ASME B 1.20.3
- M according to UNI 4534 - 5545



FPK 02 & 04 - AP220

High Pressure Filters In-Line
up to 420 bar

ADDITIONS

Technical Data

- Filter head casting in spheroidal cast iron.
- Extruded steel bowl.
- Operating pressure up to 42 MPa (420 bar) for FPK / AP 221-222 and up to 30 MPa (300 bar) for FPK / AP 223-224-225.
- Static pressure testing up to 63 MPa (630 bar) for FPK / AP 221-222 and up to 45 MPa (450 bar) for FPK / AP 223-224-225.
- Fatigue pressure of 2.000.000 cycles at 0 - 30 MPa (0 - 300 bar) per NFPA T 3.10.5.1 R2:2000
- By-pass valve setting 350 kPa (3,5 bar) for FPK / AP 221-222 and 600 kPa (6 bar) for FPK / AP 223-224-225.
- Operating temperature -20 +120°C.
- Compatibility hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1.

Filter Elements

- Synteq® synthetic media (5 - 10 - 25 micron), reinforced with wire mesh
- Collapse resistance 2 MPa (20 bar) per ISO 2941. (They can also be supplied at 21 MPa (210 bar) on customer's request).

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

FPK 02 & 04 - AP220 High Pressure Filters In-Line up to 420 bar



Specifications

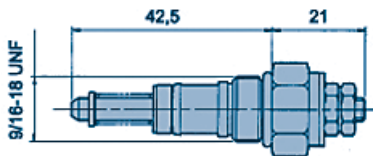
SIZE	RMF*	/03		RMF*	/02		RMF*	/01	
		SYNTHETIC MEDIA							
		$\beta_{23(c)}=1000$			$\beta_{11(c)}=1000$			$\beta_{8(c)}=1000$	
TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT				
221	50	K020173 AP 221.03	P169797 AP 472.53	40	K020172 AP 221.02	P169447 AP 472.52	30	K020171 AP 221.01	P169446 AP 472.51
221	50	X770617 AP 221.03	P169797 AP 472.53	40	X779053 AP 221.02	P169447 AP 472.52	30		
221	50	X779054 AP 221.03	P169797 AP 472.53	40			30		
222	90	K020177 AP 222.03	P169450 AP 473.53	80	K020176 AP 222.02	P169449 AP 473.52	70	K020175 AP 222.01	P169798 AP 473.51
222	90			80	K020212 AP 222.02	P169449 AP 473.52	70	K020230 AP 222.01	P169798 AP 473.51
223	180	K041585 AP 223.03	P164172 AP 474.53	150	K041588 AP 223.02	P164164 AP 474.52	120	K041591 AP 223.01	P164592 AP 474.51
224	350	K041586 AP 224.03	P164174 AP 475.53	300	K041589 AP 224.02	P164166 AP 475.52	250	K041592 AP 224.01	P164594 AP 475.51
225	450	K041587 AP 225.03	P164176 AP 476.53	400	K041590 AP 225.02	P164168 AP 476.52	350	K041593 AP 225.01	P164596 AP 476.51

ADDITIONS
ADDITIONS
ADDITIONS

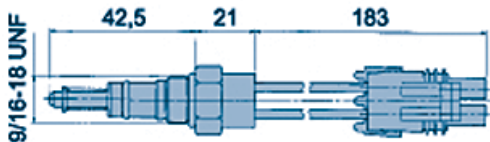
INDICATOR P761058 INCLUDED IN BOX
 INDICATOR P763975 INSTALLED

RMF* = Recommended Maximum Flow in l/min.

Service Indicators

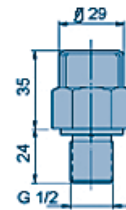


ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR
P763975 N.O. contacts
P763976 N.C. contacts
 Settings: 270 kPa (2,7 bar)
 Max. values: 30 DCV - 0,2 A

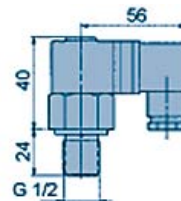


ELECTRICAL DIFFERENTIAL PRESSURE INDICATOR 2 WIRES,
 CANON CONNECTOR
P171087 N.O. contacts
P763978 N.C. contacts
 Settings: 270 kPa (2,7 bar)
 Max. values: 30 DCV - 0,2 A res.

ONLY APPLICABLE FOR AP 221 & AP 222



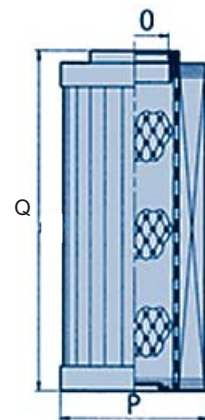
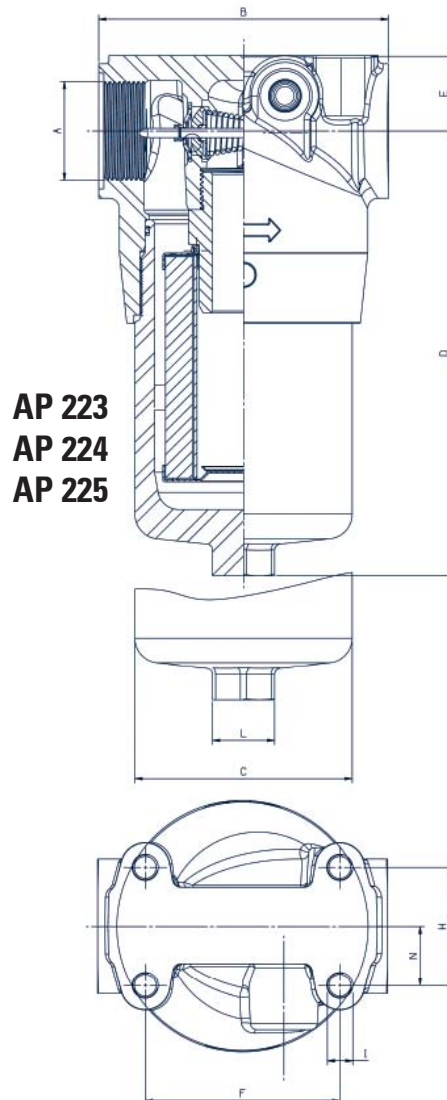
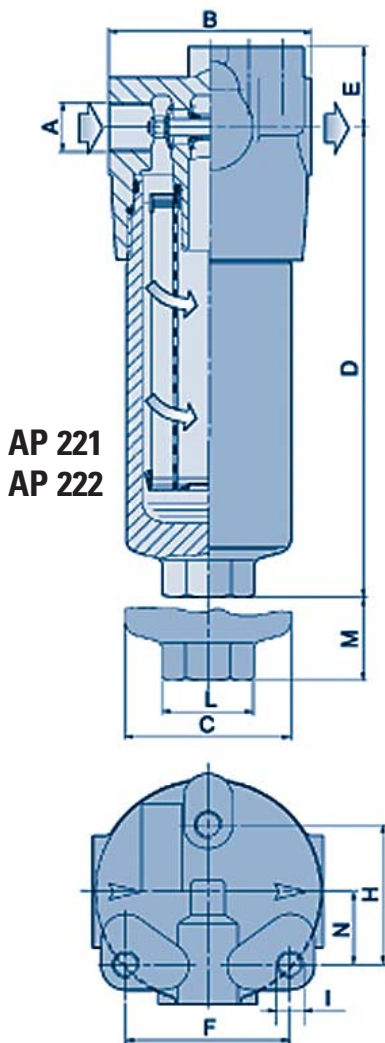
VISUAL DIFFERENTIAL PRESSURE INDICATOR
P761058
 Settings: 300 kPa (3 bar)



ELECTRICAL DIFFERENTIAL PRESSURE
P761057
 Settings: 300 kPa (3 bar)
 Max. values: 250 ACV 30 DCV -
 5 A res. and ind.
 Protection class: IP 65
 Cable clamp: PG 11

FPK 02 & 04 - AP220 High Pressure Filters In-Line up to 420 bar

DIMENSIONS ASSY (mm)													DIMENSIONS ELEMENT (mm)		
A	B	C	D	E	F	H	I	L	M	N	Drilled holes for Indicators	Bypass setting (bar)	O	P	Q
G 1/2	85	70	166	34	60,5	52,5	M10	Hex30	40	27,5	no	3,5	24	50	113
G 1/2	85	70	166	34	60,5	52,5	M10	Hex30	40	27,5	G1/2	3,5	24	50	113
G 3/4	85	70	276	34	60,5	52,5	M10	Hex30	40	27,5	no	3,5	24	50	207
G 3/4	85	70	276	34	60,5	52,5	M10	Hex30	40	27,5	9/16-18UNF	3,5	24	50	207
G 1 1/4	140	105	216	36,5	94	57	M12	Hex30	47	28,5	9/16-18UNF	6	43	78	115
G 1 1/4	140	105	309	36,5	94	57	M12	Hex30	47	28,5	9/16-18UNF	6	43	78	208
G 1 1/2	140	105	431	36,5	94	57	M12	Hex30	47	28,5	9/16-18UNF	6	43	78	330



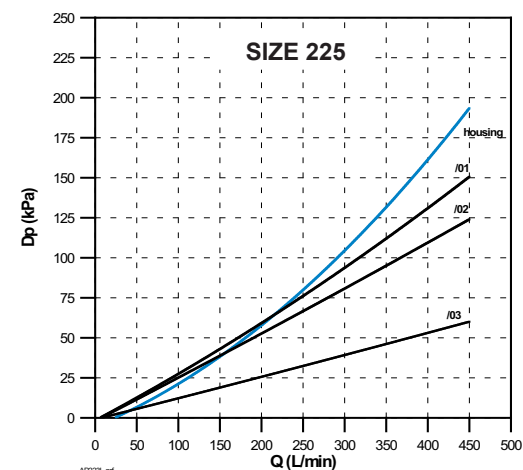
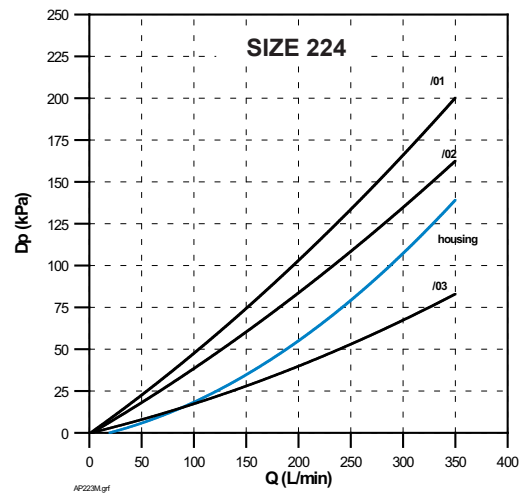
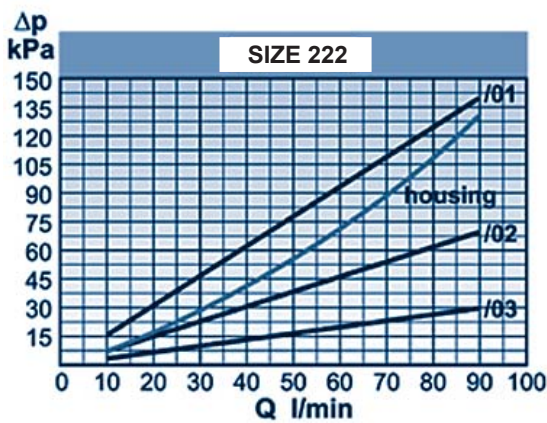
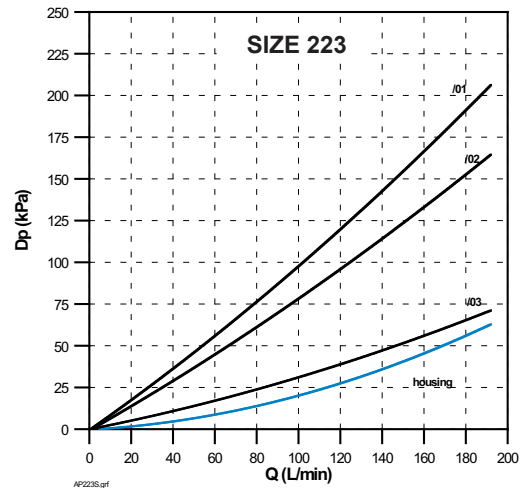
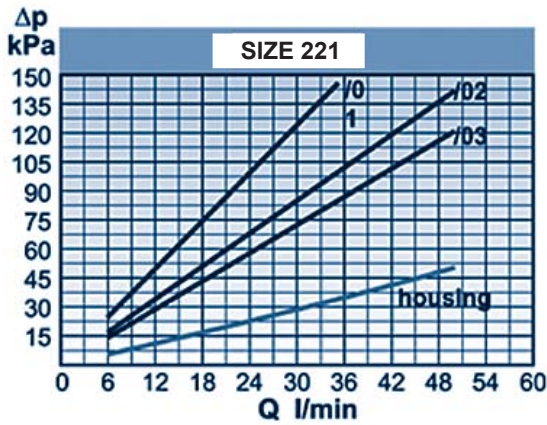
FPK 02 & 04 - AP220 High Pressure Filters In-Line up to 420 bar



Performance Curves

ONLY APPLICABLE FOR AP 221 - AP 222

ONLY APPLICABLE FOR AP 223 - AP224 - AP225



HIGH PRESSURE
FILTERS



FPK 02 - AP280

High Pressure Filters In-Line
up to 420 bar

Technical Data

- Filter head casting in spheroidal cast iron.
- Extruded steel bowl.
- Operating pressure up to 42 MPa (420 bar)
- Static pressure testing up to 63 MPa (630 bar).
- Fatigue pressure of 2.000.000 cycles at 0 - 30 MPa (0 - 300 bar) per NFPA T 3.10.5.1.
- By-pass valve setting 600 kPa (6 bar) per ISO3968.
- Operating temperature -20 +120°C.
- Compatibility hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1.

Filter Elements

- Synteq® synthetic media (5 - 10 - 25 micron), reinforced with wire mesh.
- Collapse resistance 2 MPa (20 bar) per ISO 2941. (They can also be supplied at 21 MPa (210 bar) on customer's request).

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

FPK 02 - AP280 High Pressure Filters In-Line up to 420 bar

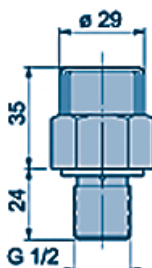


Specifications

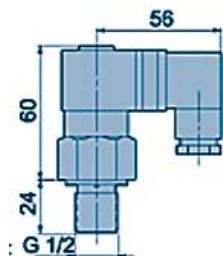
SIZE	RMF*	/03		RMF*	/02		RMF*	/01	
		SYNTHETIC MEDIA							
		$\beta_{23(c)}=1000$			$\beta_{11(c)}=1000$			$\beta_{8(c)}=1000$	
TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT				
358	30	K020104 AP 358.03	P171715 CM 230/03	30	K020103 AP 358.02	P171714 CM 230/02	20	K020169 AP 358.01	P171713 CM 230/01
359	50	K020110 AP 359.03	P165136 CM 250/03	50	K020109 AP 359.02	P165006 CM 250/02	40	K020108 AP 359.01	P165041 CM 250/01
360	90	K020116 AP 360.03	P165138 CM 290/03	90	K020115 AP 360.02	P165015 CM 290/02	70	K020114 AP 360.01	P165043 CM 290/01

RMF* = Recommended Maximum Flow in l/min.

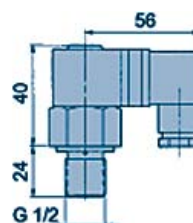
Service Indicators



VISUAL DIFFERENTIAL
PRESSURE INDICATOR
P171945 (506.06)
Setting: 500 kPa (5 bar)



VISUAL ELECTRICAL DIFFERENTIAL PRESSURE
INDICATOR
P171947 (507.03)
P171944 (507.06) with thermostat at
min. temperature at 30°C
Setting: 500 kPa (5 bar)
Max. values:
250 ACV - 30 DCV - 5 A res.and ind.
Protection class: IP 65
Cable clamp: PG 11



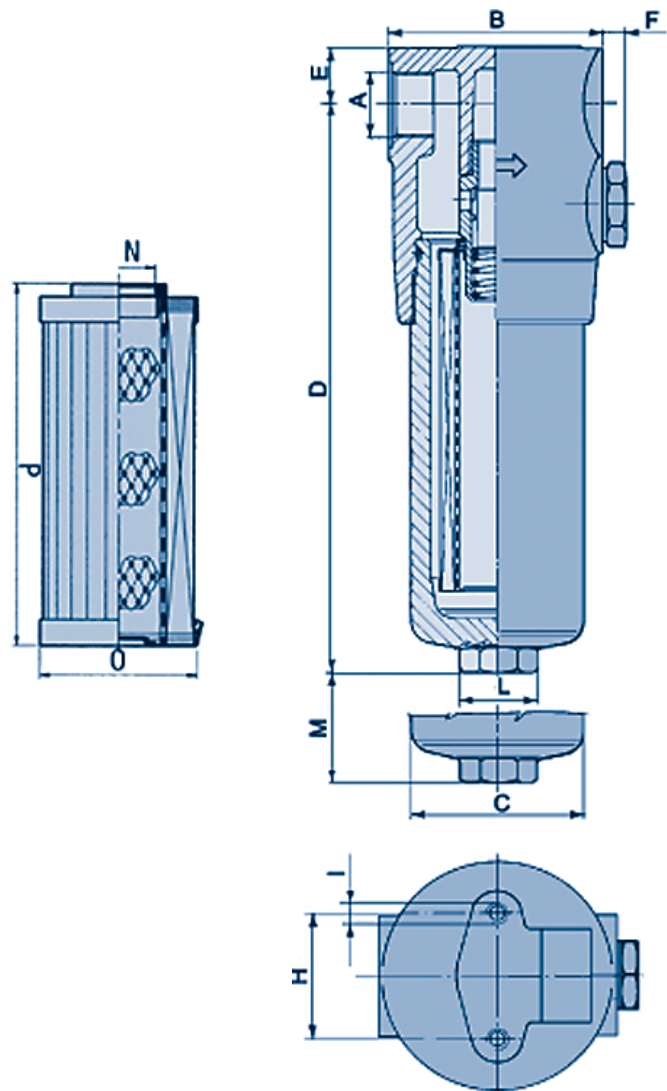
ELECTRICAL
DIFFERENTIAL
PRESSURE INDICATOR
P761056
Setting: 500 kPa (5 bar)
Max. values:
250 ACV - 30 DCV - 5 A
res.and ind.
Protection class: IP 65
Cable clamp: PG 11

FPK 02 - AP280

High Pressure Filters In-Line up to 420 bar

DIMENSIONS ASSY (mm)										
A	B	C	D	E	F	H	I	L	M	Kg.
G 1/2	85	70	174	23	9	46	M8	Hex30	40	3,5
G 1/2	85	70	200	23	9	46	M8	Hex30	40	4,2
G 3/4	85	70	301	23	9	46	M8	Hex30	40	6,0

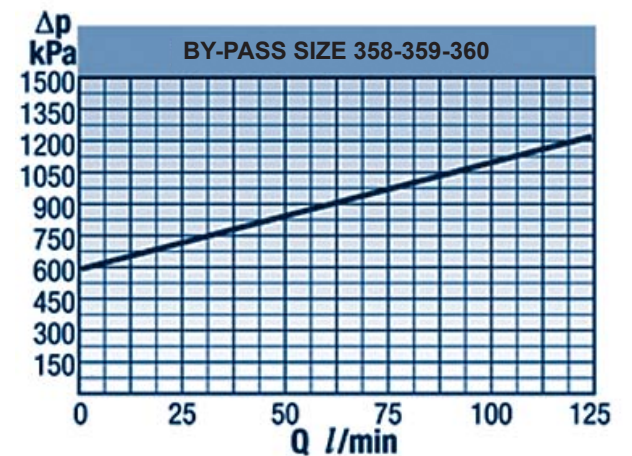
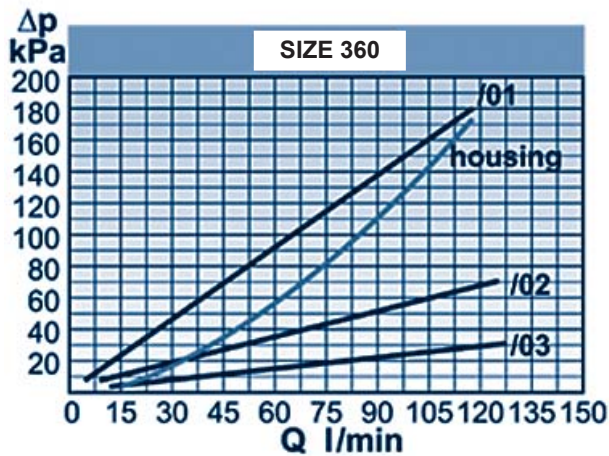
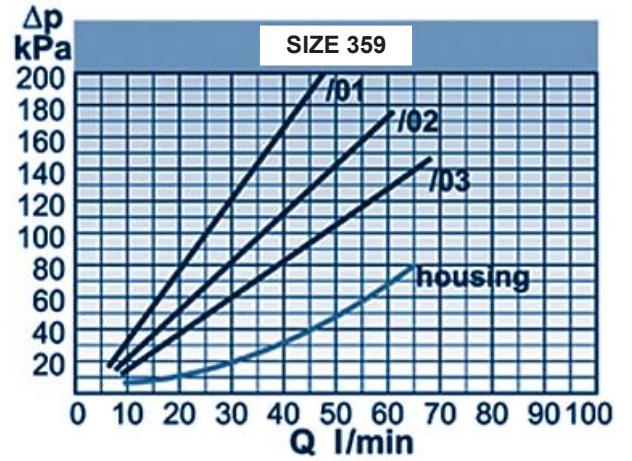
DIMENSIONS ELEMENT (mm)		
N	O	P
25,4	46	87
25,4	46	113
25,4	46	208



FPK 02 - AP280 High Pressure Filters In-Line up to 420 bar



Performance Curves



HIGH PRESSURE
FILTERS



FPK 03 & 04 - AP420

High Pressure Filters In-Line
up to 420 bar

Technical Data

- Filter head casting in spheroidal cast iron.
- Extruded steel bowl.
- Operating pressure up to 42 MPa (420 bar)
- Static pressure testing up to 63 MPa (630 bar).
- Fatigue pressure of 2.000.000 cycles at 0 - 30 MPa (0 - 300 bar) per NFPA T 3.10.5.1.
- By-pass valve setting 600 kPa (6 bar) per ISO 3968.
- Reverse flow valve which allows fluid to pass through the element in one direction but to by-pass the element when the flow is reversed.
- Operating temperature -20 +120°C.
- Compatibility hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Ports threaded per ISO 228/1 or flanged per SAE J518-6000 PSI.
- Drilled holes foreseen for indicator.

ADDITIONS

Filter Elements

- Synteq® synthetic media (5 - 10 - 25 micron), reinforced with wire mesh.
- Collapse resistance 2 MPa (20 bar) per ISO 2941.
- They can also be supplied at 21 MPa (210 bar) on customer's request with High Collapse Element AP 5xx.5x (Ex. AP 551.51).

ADDITIONS

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

FPK 03 & 04 - AP420 High Pressure Filters In-Line up to 420 bar



Specifications



EX.: AP 361.02 V =
REVERSE FLOW

ADDITIONS

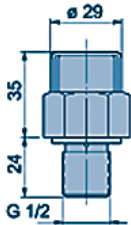
EX.: AP 551.52 =
HIGH COLLAPSE ELEMENT

ADDITIONS

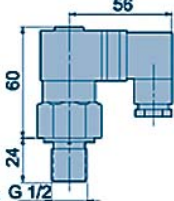
RMF* =
Recommended
Maximum Flow in l/min.

SIZE	RMF*	/03		/02		/01			
		SYNTHETIC MEDIA							
		$\beta_{23(e)}=1000$		$\beta_{11(e)}=1000$		$\beta_{8(e)}=1000$			
		TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT		
361	50	K030286 AP 361.03	P171733 AP 451.53	50	K030285 AP 361.02	P171732 AP 451.52	40	K030284 AP 361.01	P171731 AP 451.51
361				50	K030507 AP 361.02 V	P171732 AP 451.52			
361	50		P176621 AP 551.53	50		P176620 AP 551.52	40		P176619 AP 551.51
362	80	K030289 AP 362.03	P171736 AP 452.53	80	K030288 AP 362.02	P171735 AP 452.52	60	K030287 AP 362.01	P171734 AP 452.51
362				80	K030506 AP 362.02 V	P171735 AP 452.52			
362	80		P176624 AP 552.53	80		P176623 AP 552.52	60		P176622 AP 552.51
362	80	K030292 AP 362.08	P171736 AP 452.53	80	K030291 AP 362.07	P171735 AP 452.52	60	K030290 AP 362.06	P171734 AP 452.51
363	120	K030295 AP 363.03	P171739 AP 453.53	120	K030294 AP 363.02	P171738 AP 453.52	80	K030293 AP 363.01	P171737 AP 453.51
363	120		P176627 AP 553.53	120		P176626 AP 553.52	80		P176625 AP 553.51
363	120	K030298 AP 363.08	P171739 AP 453.53	120	K030297 AP 363.07	P171738 AP 453.52	80	K030296 AP 363.06	P171737 AP 453.51
363				120	K030323 AP 363.07 V	P171738 AP 453.52			
364	180	K040676 AP 364.03	P171742 AP 454.53	180	K040675 AP 364.02	P171741 AP 454.52	160	K040674 AP 364.01	P171740 AP 454.51
364				180	K040854 AP 364.02 V	P171741 AP 454.52	160	K041453 AP 364.01 V	P171740 AP 454.51
364	180		P176630 AP 554.53	180		P176629 AP 554.52	160		P176628 AP 554.51
364	180	K040679 AP 364.08	P171742 AP 454.53	180	K040678 AP 364.07	P171741 AP 454.52	160	K040677 AP 364.06	P171740 AP 454.51
364				180	K040800 AP 364.07 V	P171741 AP 454.52	160	K041036 AP 364.06 V	P171740 AP 454.51
365	300	K040682 AP 365.03	P171745 AP 455.53	300	K040681 AP 365.02	P171744 AP 455.52	270	K040680 AP 365.01	P171743 AP 455.51
365				300	K040839 AP 365.02 V	P171744 AP 455.52			
365	300		P176633 AP 555.53	300		P176632 AP 555.52	270		P176631 AP 555.51
365	300	K040685 AP 365.08	P171745 AP 455.53	300	K040684 AP 365.07	P171744 AP 455.52	270	K040683 AP 365.06	P171743 AP 455.51
366	400	K040688 AP 366.03	P171748 AP 456.53	400	K040687 AP 366.02	P171747 AP 456.52	320	K040686 AP 366.01	P171746 AP 456.51
366	400		P176636 AP 556.53	400		P176635 AP 556.52	320		P176634 AP 556.51
366	400	K040691 AP 366.08	P171748 AP 456.53	400	K040690 AP 366.07	P171747 AP 456.52	320	K040689 AP 366.06	P171746 AP 456.51

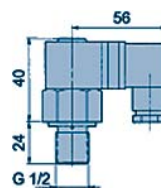
Service Indicators



VISUAL DIFFERENTIAL
PRESSURE INDICATOR
P171945 (506.06)
Setting: 500 kPa (5 bar)



VISUAL ELECTRICAL DIFFERENTIAL PRESSURE
INDICATOR
P171947 (507.03)
P171944 (507.06) with thermostat at
min. temperature at 30°C
Setting: 500 kPa (5 bar)
Max. values:
250 ACV - 30 DCV - 5 A res.and ind.
Protection class: IP 65
Cable clamp: PG 11



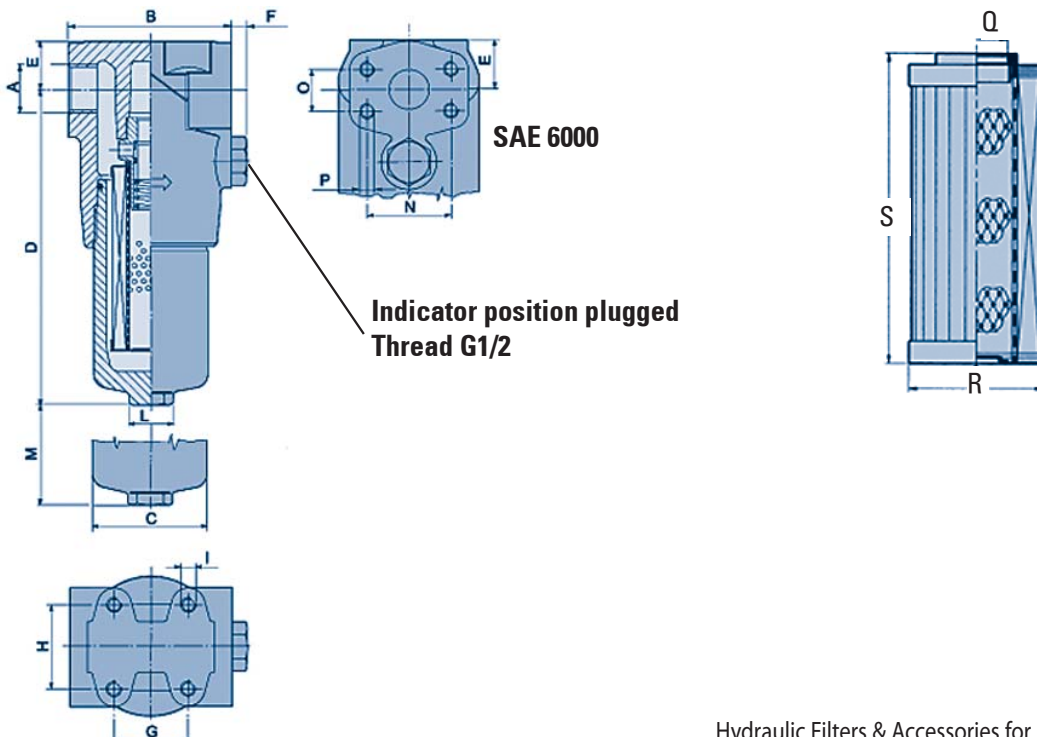
ELECTRICAL
DIFFERENTIAL PRESSURE
INDICATOR
P761056
Setting: 500 kPa (5 bar)
Max. values:
250 ACV - 30 DCV - 5 A
res.and ind.
Protection class: IP 65
Cable clamp: PG 11

FPK 03 & 04 - AP420

High Pressure Filters In-Line

up to 420 bar

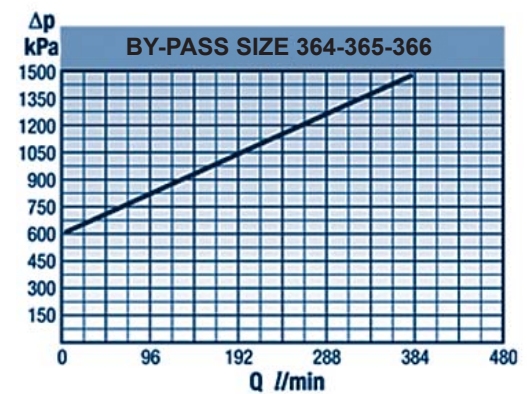
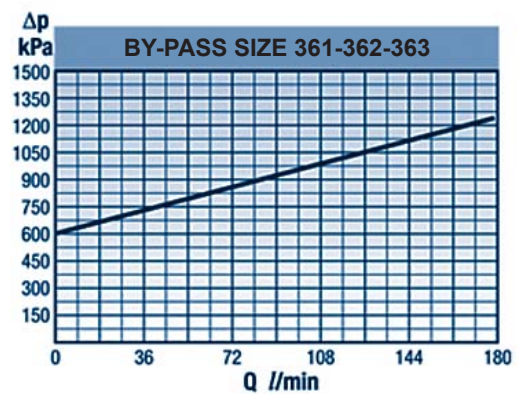
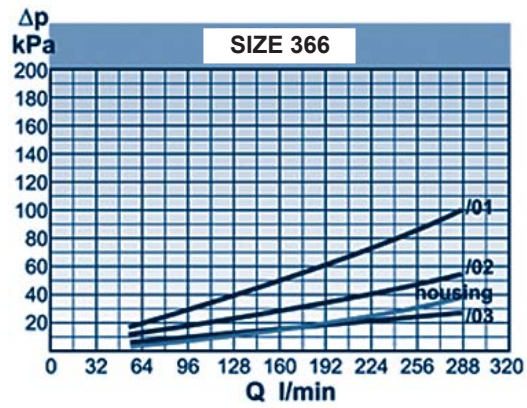
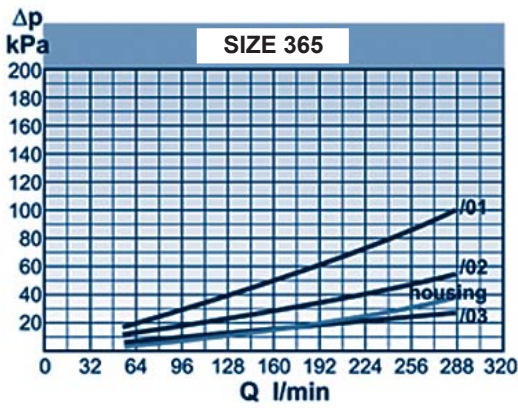
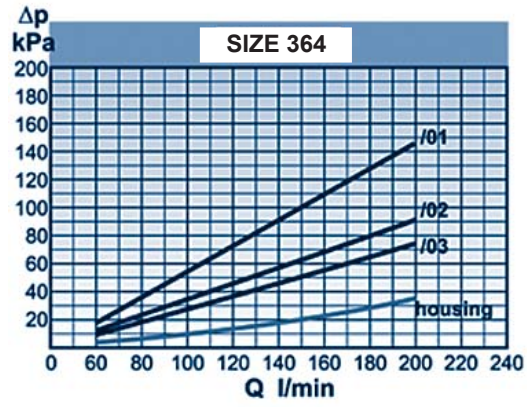
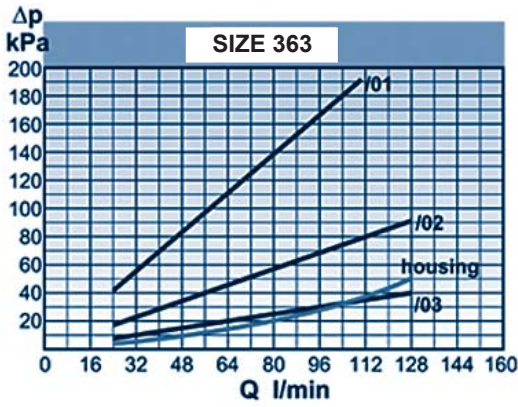
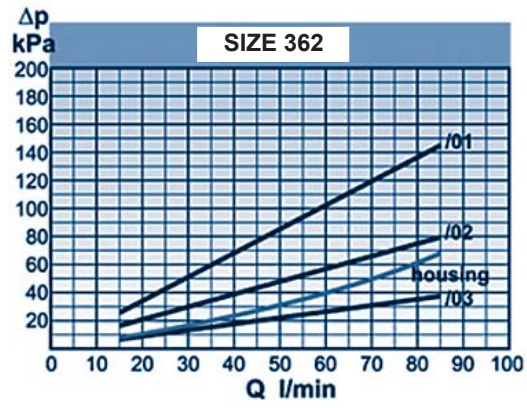
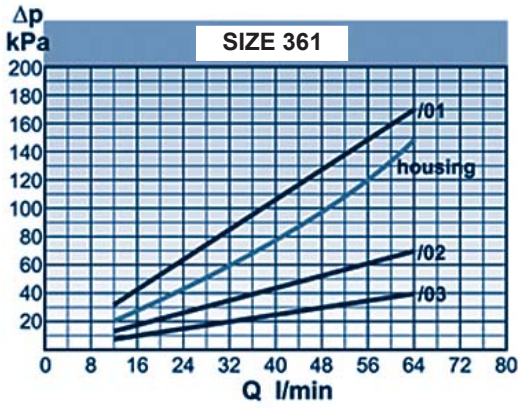
DIMENSIONS ASSY (mm)															DIMENSIONS ELEMENT (mm)		
A	B	C	D	E	F	G	H	I	L	M	N	O	P	Kg.	Q	R	S
G 1/2	110	78,5	182	33	9	50	57	M10	Hex30	50				6,1	27	54	87
G 1/2	110	78,5	182	33	9	50	57	M10	Hex30	50				6,1	27	54	87
G 1/2	110	78,5	182	33	9	50	57	M10	Hex30	50				6,1	27	54	87
G 3/4	110	78,5	213	33	9	50	57	M10	Hex30	50				6,7	27	54	122
G 3/4	110	78,5	213	33	9	50	57	M10	Hex30	50				6,7	27	54	122
G 3/4	110	78,5	213	33	9	50	57	M10	Hex30	50				6,7	27	54	122
^{3/4} SAE 6000	110	78,5	213	33	9	50	57	M10	Hex30	50	50,8	23,8	M10	6,8	27	54	122
G 1	110	78,5	312	33	9	50	57	M10	Hex30	50				8,2	27	54	230
G 1	110	78,5	312	33	9	50	57	M10	Hex30	50				8,2	27	54	230
¹ SAE 6000	110	78,5	312	33	9	50	57	M10	Hex30	50	57,15	27,76	M12	8,4	27	54	230
¹ SAE 6000	110	78,5	312	33	9	50	57	M10	Hex30	50	57,15	27,76	M12	8,4	27	54	230
G 1 1/4	140	107	256	46	9	94	57	M12	Hex30	55				14,8	40	78	140
G 1 1/4	140	107	256	46	9	94	57	M12	Hex30	55				14,8	40	78	140
G 1 1/4	140	107	256	46	9	94	57	M12	Hex30	55				14,8	40	78	140
^{1 1/4} SAE 6000	140	107	256	46	9	94	57	M12	Hex30	55	66,68	31,75	M14	15,1	40	78	140
^{1 1/4} SAE 6000	140	107	256	46	9	94	57	M12	Hex30	55	66,68	31,75	M14	15,1	40	78	140
G 1 1/2	140	107	349	46	9	94	57	M12	Hex30	55				17,2	40	78	240
G 1 1/2	140	107	349	46	9	94	57	M12	Hex30	55				17,2	40	78	240
G 1 1/2	140	107	349	46	9	94	57	M12	Hex30	55				17,2	40	78	240
^{1 1/2} SAE 6000	140	107	349	46	9	94	57	M12	Hex30	55	79,38	36,5	M16	17,2	40	78	240
G 1 1/2	140	107	496	46	9	94	57	M12	Hex30	55				20,1	40	78	380
G 1 1/2	140	107	496	46	9	94	57	M12	Hex30	55				20,1	40	78	380
^{1 1/2} SAE 6000	140	107	496	46	9	94	57	M12	Hex30	55	79,38	36,5	M16	20,1	40	78	380



FPK 03 & 04 - AP420 High Pressure Filters In-Line up to 420 bar



Performance Curves



HIGH PRESSURE
FILTERS



FCK - LC

High Pressure Filters In-Line Last Chance

Technical Data

- Steel head.
- Steel bowl.
- Operating pressure up to 42 MPa (420 bar)
- Static pressure testing up to 63 MPa (630 bar).
- Fatigue pressure of 2.000.000 cycles at 0 - 30 MPa (0 - 300 bar) per NFPA T 3.10.5.1.
- Operating temperature -20 +120°C.
- Compatibility hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm .
- Ports threaded per ISO 228/1.

Filter Elements

- Synteq[®] synthetic media (5 - 10 - 25 micron), reinforced with wire mesh
- Wire mesh 60 micron.
- Collapse resistance 20 MPa (200 bar) per ISO 2941.

Donaldson Distributors can request a quote for a separate head, housing and element up to the specific customer requirements via their Donaldson sales contact. They must identify in a proper manner the necessary components.

FCK-LC High Pressure Filters In-Line Last Chance

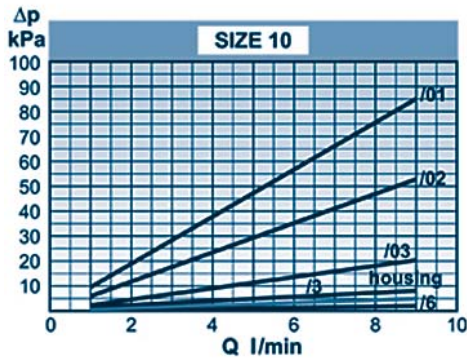
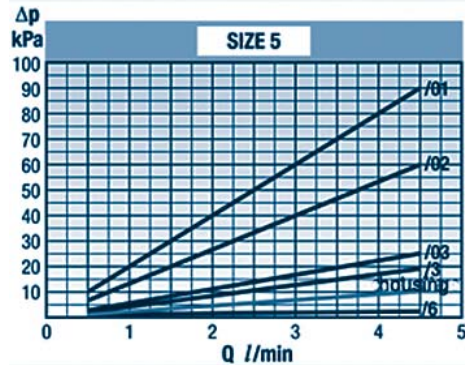
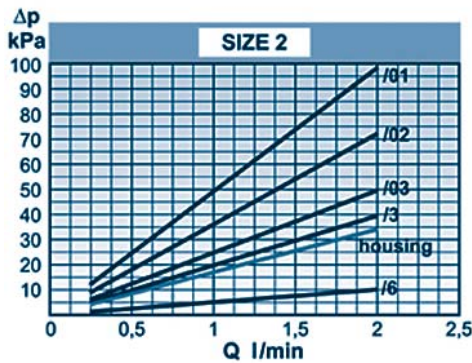


Specifications

SIZE	RMF*	/6		/03		/02		/01	
		WIRE MESH MEDIA		SYNTHETIC MEDIA					
				$\beta_{23(c)}=1000$		$\beta_{11(c)}=1000$		$\beta_{8(c)}=1000$	
TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT
2	2	K010009 LC 2/6	P171771 CLC 2/6	K010007 LC 2/03	P171769 CLC 2/03	K010006 LC 2/02	P171768 CLC 2/02	K010005 LC 2/01	P171767 CLC 2/01
5	5	K020124 LC 5/6	P171776 CLC 5/6	K020122 LC 5/03	P171774 CLC 5/03	K020121 LC 5/02	P171773 CLC 5/02	K020120 LC 5/01	P171772 CLC 5/01
10	10	K020129 LC 10/6	P171781 CLC 10/6	K020127 LC 10/03	P171779 CLC 10/03	K020126 LC 10/02	P171778 CLC 10/02	K020125 LC 10/01	P171777 CLC 10/01
20	20	K030303 LC 20/6	P763493 CLC 140/6	K030301 LC 20/03	P763485 CLC 140/03	K030300 LC 20/02	P763489 CLC 140/02	K030299 LC 20/01	P763487 CLC 140/01

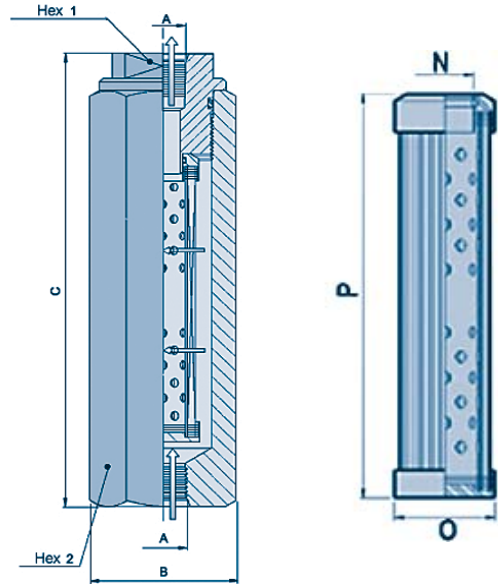
RMF* = Recommended Maximum Flow in l/min.

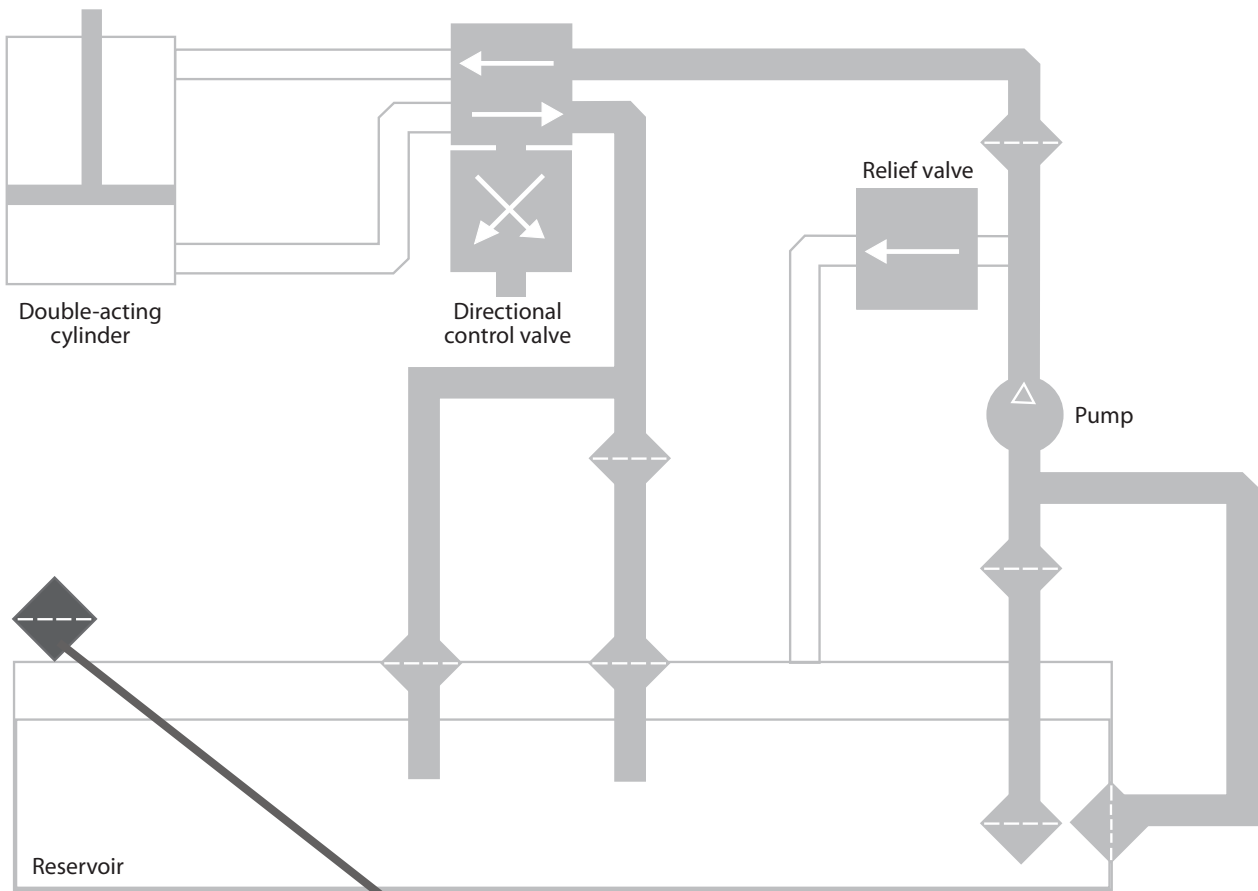
Performance Curves



HIGH PRESSURE
FILTERS

DIMENSIONS ASSY (mm)						DIMENSIONS ELEMENT (mm)		
A	B	C	Hex 1	Hex 2	Kg.	N	O	P
G 3/8	42	103	27	36	0,5	9,5	21	47
G 1/2	58	135	30	50	1,0	15,8	28,6	70
G 1/2	58	182	30	50	1,5	15,8	28,6	117
G 1/2	70	181	33	33	2,6	22,2	43	90





Double-acting cylinder

Directional control valve

Relief valve

Pump

Reservoir



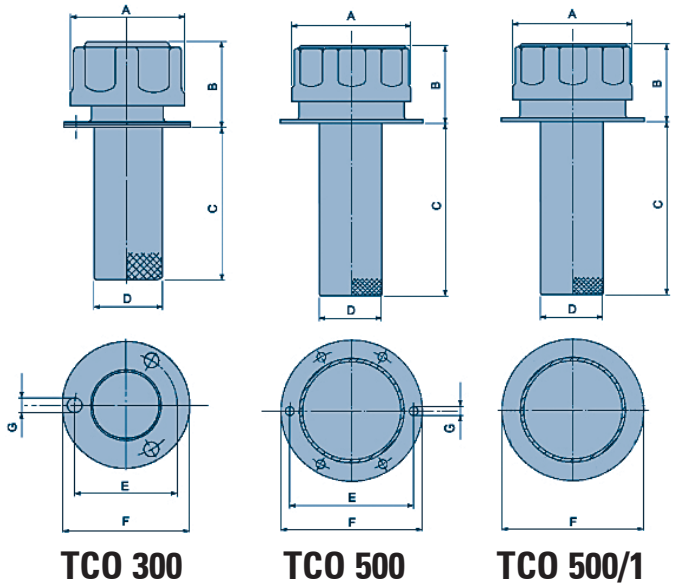
ACCESSORIES

Hydraulic Accessories

Section Index

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	PXX-FS	151
UPDATED	PXX-FFCA	152
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PXX-TCO Filler Caps with Breather



Technical Data

Series TCO 300:

- Not removable 500 micron mesh basket.

Series TCO 501/3:

- Not removable 125 micron mesh basket.

Series TCO 500:

- Removable 500 micron mesh basket.
- 40-10 micron air filter.
- Easy tightening.
- Drilled flanges and fixing screws.

Series TCO 500/1:

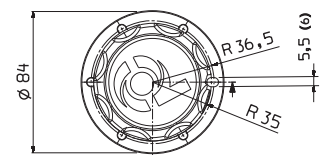
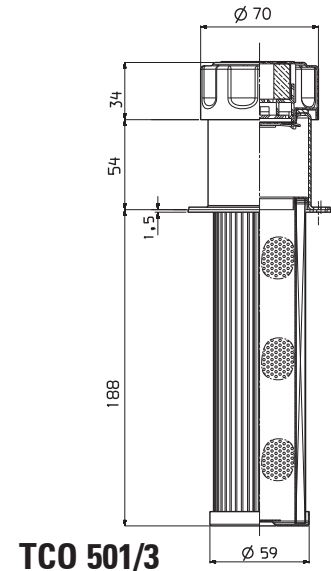
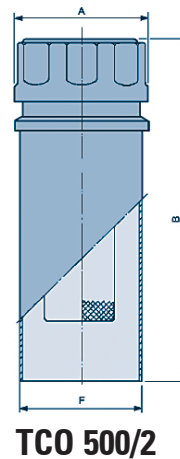
- Features as TCO 500 but with weldable flange.

Series TCO 500/2:

- Features as TCO 500 but with longer weldable external tube.

Series TCO 500, 500/1, 500/2 and TCO 501/3:

- Available with pressure relief valve setting at 40 kPa (0,4 bar).



For all tank mounting hole: D+2 mm

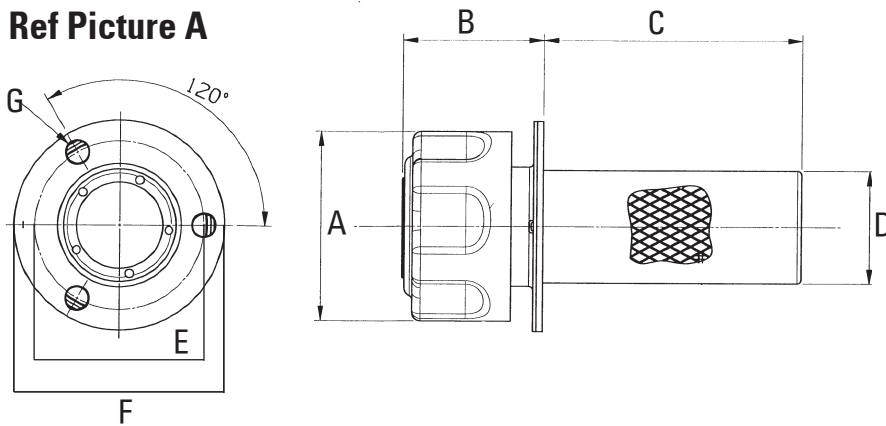
				WITH PRESSURE RELIEF VALVE				DIMENSIONS (mm)								
/4		/1		/4		/1		A	B	C	D	E	F	G	Kg.	
FLOW l/min	TYPE	FLOW l/min	TYPE	FLOW l/min	TYPE	FLOW l/min	TYPE									
300	P171847 TCO 300	270	P171848 TCO 301					46	35	63	28	41	51	5,5	0,1	
500	P173251 TCO 500	470	P171855 TCO 501	500	P171850 TCO 500/V	470	P171857 TCO 501/V	70	46	100	38	73	84	5,5	0,25	
500	P171851 TCO 500/1	470	P171856 TCO 501/1	500	P171852 TCO 500/1V	470	P171858 TCO 501/1V	70	46	100	38	-	84	-	0,25	
500	P171853 TCO 500/2	470	P171859 TCO 501/2	500	P171854 TCO 500/2V	470	P171860 TCO 501/2V	70	180	-	-	-	64	-	0,60	
		470	P761184 TCO 501/3					70	89	188	59	73	84	5,5 X 6	0,45	



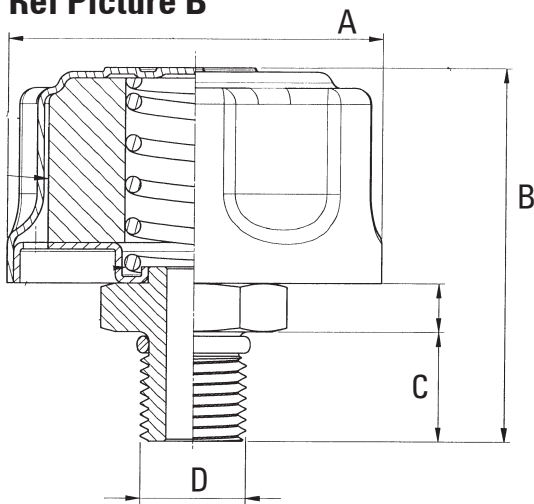
Technical Data

	Airflow l/min	Air Filter	Relief Valve bar	Lock Connection	Extra Features	A mm	B mm	C mm	D mm	E mm	F mm	G mm	Amount Holes	Ref Picture	kg
P763513	270	/1	none	no	Chain	46	35	63	28	41	51	5,5	3	A	0,15
P763528	270	/1	none	no	G1/4 masculin	46	32	14	G 1/4	-	-	-	-	B	0,25
P762065	500	/4	0,4	yes	-	70	46	-	-	73	84	5,5	6	A	0,35
P173266	500	/4	0,4	yes	Oil antisplash	70	46	22	38	73	84	5,5	6	A	0,35
P173259	500	/4	none	yes	Removable mesh filter 500 μ	70	46	100	36	73	84	5,5	6	A	0,35
P761036	500	/4	none	yes	Removable mesh filter 500 μ	70	46	100	36	73	84	5,5	6	A	0,35
P173253	500	/4	0,4	yes	Removable mesh filter 500 μ	70	46	138	36	73	84	5,5	6	A	0,40
P172493	470	/1	0,4	yes	G3/4 screw masculin	70	49	20	G 3/4	-	-	-	-	B	0,25
P173475	500	/4	0,7	yes	M80x2 feminin	100	74	-	M 80x2	-	-	-	-	C	0,55
P763672	-	none	none	yes	M80x2 feminin	100	74	-	M 80x2	-	-	-	-	C	0,55

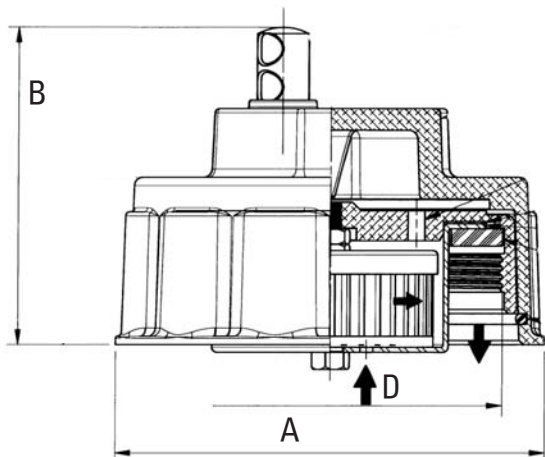
Ref Picture A



Ref Picture B



Ref Picture C

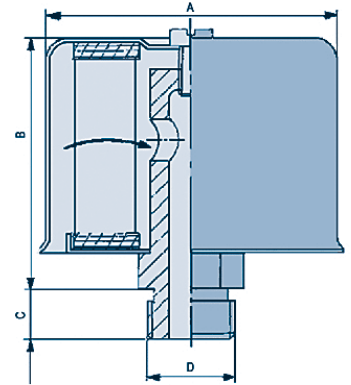


PXX-FS Tank Breathers with Take Apart Element

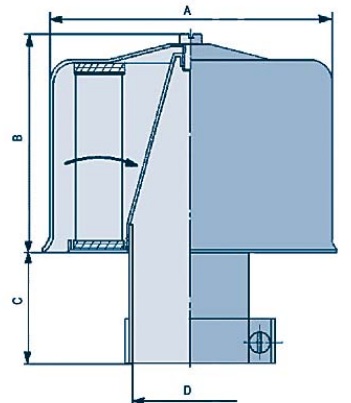


Technical Data

- To filter air entering the reservoir.
- Ports threaded per ISO 228/1 and UNI 4534 - UNI 5545.
- Filter elements in wire mesh 60-40 micron and cellulose media 10 micron.



FLOW l/min	/4 WIRE MESH MEDIA		FLOW l/min	/1 CELLULOSE MEDIA		DIMENSIONS (mm)				
	TYPE	ELEMENT		TYPE	ELEMENT	A	B	C	D	Kg.
200	P172381 FS 1/4	P172433 CS 1/4	200	P761046 FS 1/1	P172435 CS 1/1	52	44	9	M 12 x 1.5	0,09
200	P172382 FS 3/4	P172433 CS 1/4	200	P761047 FS 3/1	P172435 CS 1/1	52	45	9	M 18 x 1.5	0,13
200	P172383 FS 4/4	P172433 CS 1/4	200	P761048 FS 4/1	P172435 CS 1/1	52	46	10	M 22 x 1.5	0,17
200	P172384 FS 5/4	P172433 CS 1/4	200	P761049 FS 5/1	P172435 CS 1/1	52	44	9	G 1/4	0,11
200	P172385 FS 6/4	P172433 CS 1/4	200	P761050 FS 6/1	P172435 CS 1/1	52	45	9	G 3/8	0,13
500	P172386 FS 7/4	P171783 CS 2/4	500	P761051 FS 7/1	P175447 CS 2/1	72	64	10	G 1/2	0,27
1000	P172387 FS 8/4	P171784 CS 3/4	1000	P761052 FS 8/1	P761045 CS 3/1	108	76	15	G 1	0,75



FLOW l/min	/6 WIRE MESH MEDIA		/4 WIRE MESH MEDIA		FLOW l/min	/1 CELLULOSE MEDIA		DIMENSIONS (mm)				
	TYPE	ELEMENT	TYPE	ELEMENT		TYPE	ELEMENT	A	B	C	D	Kg.
1500	P172389 FS 9/6	P171786 CS 4/6	P172388 FS 9/4	P171785 CS 4/4	1500	P761053 FS 9/1	P761054 CS 4/1	132	100	48	50	0,8

PXX-FFCA Tank Breathers Spin-On with Flange and Fixing Screws

Technical Data

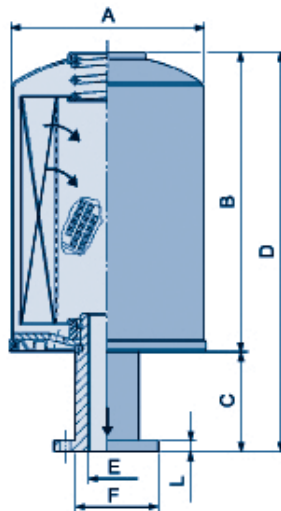
UPDATED

- To vent the reservoir compensating oil volume changes, filtering air in suction.
- Wire Mesh Media with filtration efficiency 60 and 30 micron.
- Cellulose media with filtration efficiency 10 micron.
- Synthetic Media with filtration efficiency 10 micron.

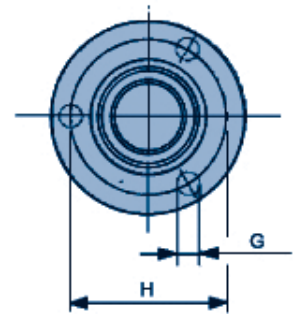


FLOW l/min	/6		/3		/1		/02	
	WIRE MESH MEDIA		WIRE MESH MEDIA		CELULOSE MEDIA		SYNTHETIC MEDIA	
	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT	TYPE	ELEMENT
1200	P177189 FFCA 60/6	P171607 CA 60/6	P172366 FFCA 60/3	P171606 CA 60/3	P172365 FFCA 60/1	P550268 CA 60/1	P177187 FFCA 60/02	P171602 CA 60/02
1600	P177192 FFCA 80/6	P171612 CA 80/6	P172368 FFCA 80/3	P171611 CA 80/3	P172367 FFCA 80/1	P171610 CA 80/1	P177190 FFCA 80/02	P171608 CA 80/02
2400	P177195 FFCA 160/6	P171617 CA 160/6	P172370 FFCA 160/3	P171616 CA 160/3	P172369 FFCA 160/1	P550148 CA 160/1	P177193 FFCA 160/02	P171613 CA 160/02
3000	P177198 FFCA 200/6	P171622 CA 200/6	P172372 FFCA 200/3	P171621 CA 200/3	P172371 FFCA 200/1	P171620 CA 200/1	P177196 FFCA 200/02	P171618 CA 200/02

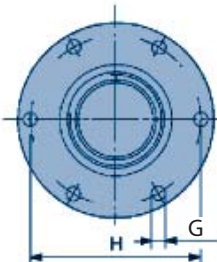
FLOW l/min	DIMENSIONS (mm)								
	A	B	C	D	E	F	G	H	L
1200	96	149	50	199	18	50	5,5	41	3
1600	96	207	50	257	18	50	5,5	41	3
2400	126	181	50	231	32	84	5,5	73	6
3000	128	226	50	276	32	84	5,5	73	6



FFCA 60 / 80



FFCA 160 / 200

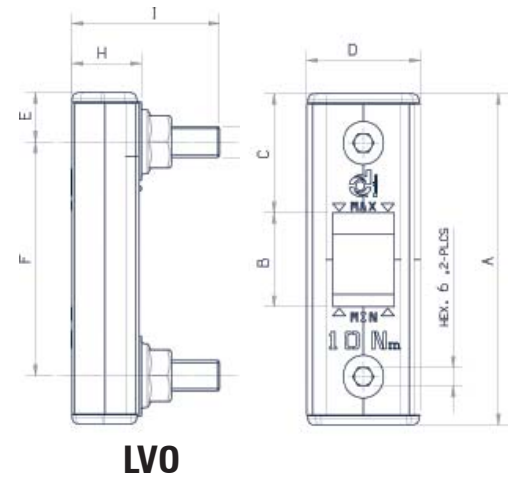


PXX-LVO/LVOT Vertical Oil Level Gauge for Tank

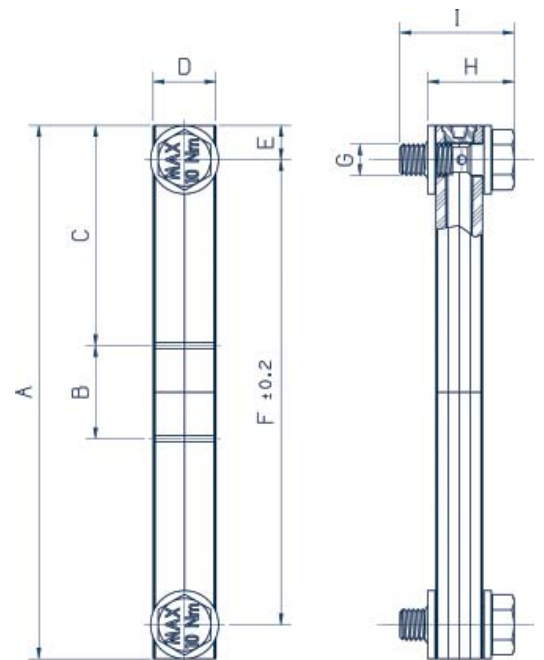


Technical Data

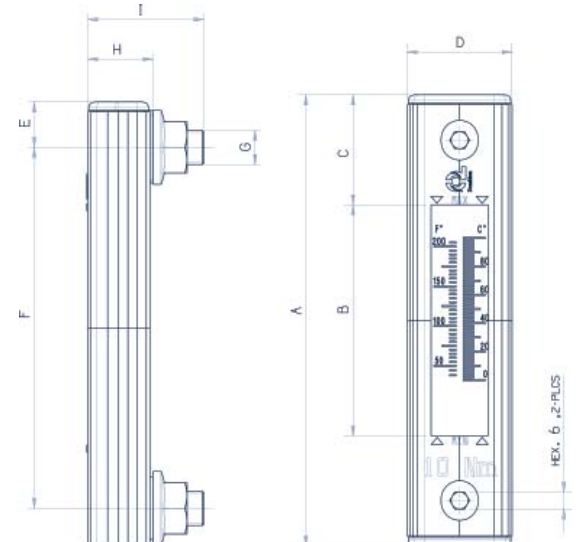
- Installed on tanks holding mineral oils or petroleum based fluids, they allow a clear and direct oil level or oil level and temperature indication.
- Lens of transparent material protected by metal section, seals "O" Ring of "BUNA" rubber.
- Maximum working pressure: 100 kPa (1bar) for pressurised tanks.
- Recommended bolt tightening torque 10 Nm, with inside nut for tightening directly on the tank.
- LVO serie without thermometer.
- LVOT with thermometer 30° - 90°C.
- Threaded per UNI 4534 - UNI 5545.



LVO



LVO 150



LVOT

TYPE	DIMENSIONS									Kg.
	mm									
	A	B	C	D	E	F	G	H	I	
P171913 LVO 76/10	107	31	23	40	16	76	M10	20	40	0,20
P171915 LVOT 76/10	107	31	23	40	16	76	M10	20	40	0,20
P171914 LVO 76/12	107	31	23	40	16	76	M12	20	40	0,20
P171916 LVOT 76/12	107	31	23	40	16	76	M12	20	40	0,20
P171917 LVO 127/10	158	82	23	40	16	127	M10	20	40	0,24
P171919 LVOT 127/10	158	82	23	40	16	127	M10	20	40	0,24
P171918 LVO 127/12	158	82	23	40	16	127	M12	20	40	0,24
P171920 LVOT 127/12	158	82	23	40	16	127	M12	20	40	0,24
P177439 LVO 150/10	172			20	11	150	M10	15	30	0,15
P177438 LVO 150/10	172	30	60	20	11	150	M10	15	30	0,15
P171921 LVO 254/12	285	209	23	40	16	254	M12	20	40	0,40
P171922 LVOT 254/12	285	209	23	40	16	254	M12	20	40	0,40

Hydraulic Service Instructions

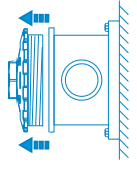
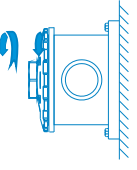
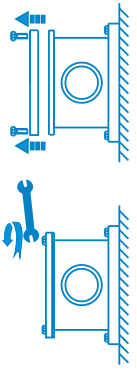


**Filter
FIK-FDK
FHK**

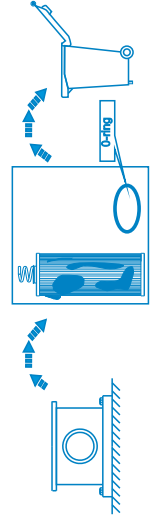
Filter FIK



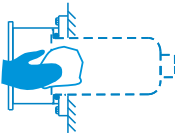
3. Remove the cover.



4. Remove the filter element as gently as possible avoiding contaminant drops in the clean side of the housing. Discard the cartridge, the seal and the spring.



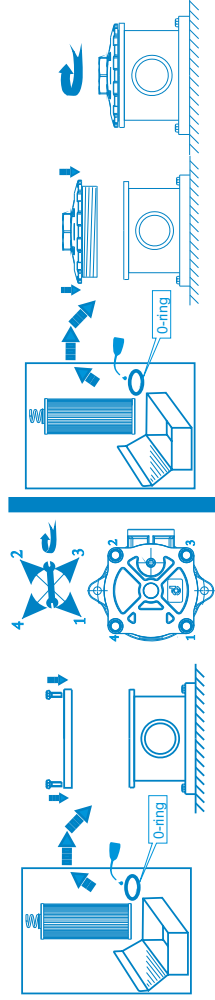
5. Clean out any sediment from the inside of the housing/bowl.



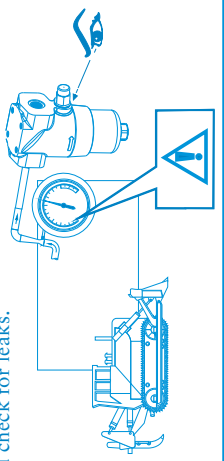
6. Clean out any sediment from the cover side and lubricate the seal.



7. Lubricate element o-ring with clean system oil and install the element. Reassemble the cover until the threads end.



8. Bleed the hydraulic system and check for leaks.



NEVER attempt to clean a used cellulose or synthetic filter element. The filter media will be damaged.

ONLY use genuine replacement parts.

NEVER substitute an incorrect part even if it is of the same size.

NEVER fit a damaged replacement filter element (e.g. Dented canister, warped end caps, ripped media).

Once the spin-on or cartridge has been replaced, if there are the conditions (filter installed vertically with head pointing upwards), we recommend to fill the filter with clean oil before pressurizing the system.

NEVER run the system without a filter element - there would be no system protection.

ALWAYS dispose of used filter elements and old oil in accordance with local regulations.

ALWAYS wear protective equipment such as safety glasses and gloves during filter replacement.

This equipment has been assessed in accordance with the guidelines laid down in the European Pressure Directive 97/23/C.

We hereby declare the equipment meets the requirements of article 3, section 3, thus meeting the directive requirements. Under the provisions of this directive the filter assembly is suitable for use with group 2 fluids only.



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Engine-europe@emea.donaldson.com

For further information contact your local Donaldson dealer
www.Donaldson.com

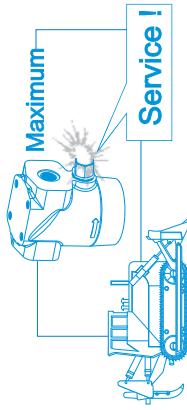
Hydraulic Filters Service Instructions

Only to be used by professionals

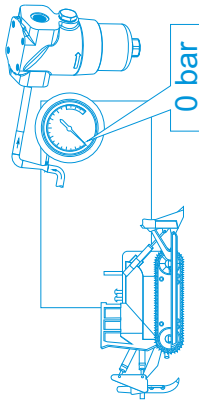


Filter Replacement Instructions

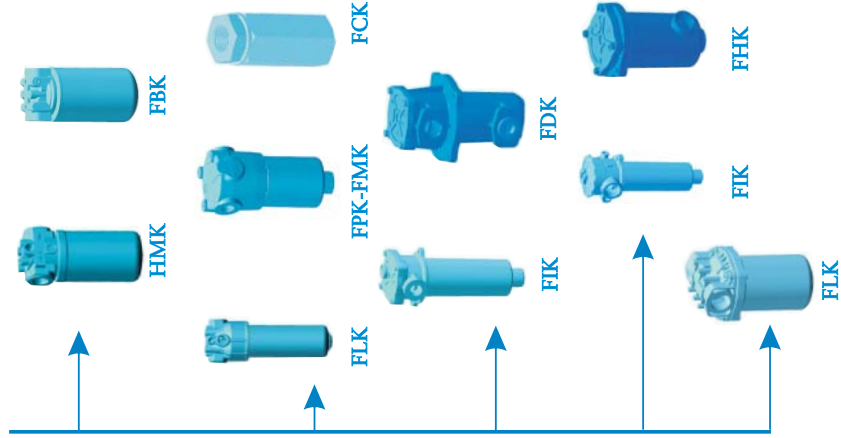
1. The filter requires servicing when the indicator shows the element to be clogged or in accordance with the service interval instructions of the OEM.



2. Turn off and check that there is no pressure.



3. Remove filter :



Filter HMK-FBK



3. Remove the spin-on filter.



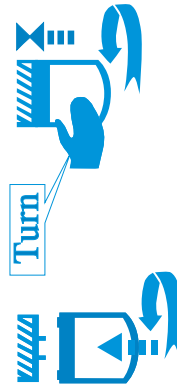
4. Discard both the spin-on and its seal.



5. Clean the surfaces of the filter head. Lubricate thread and spin-on seal with clean system oil.



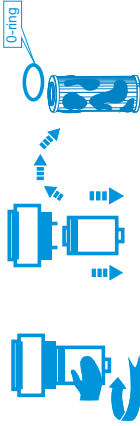
6. Screw the spin-on filter till upper surface and turn spin-on as shown on filter.



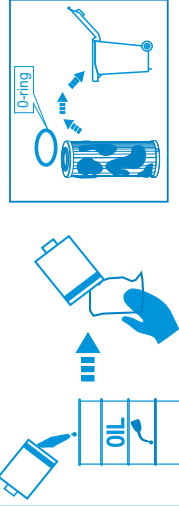
Filter FPK-FMK FLK-FCK



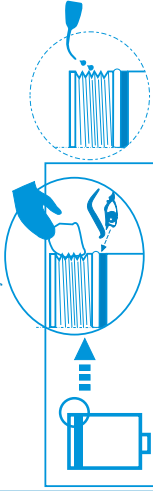
3. Unscrew the housing and remove the cartridge.



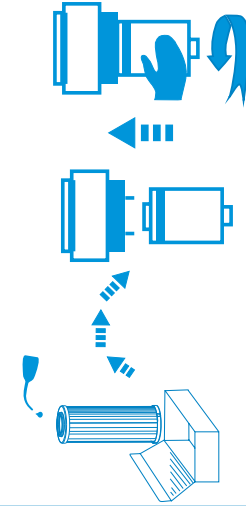
4. Clean out any sediment from the inside of the housing/bowl. Discard the cartridge and its seal.



5. Check the seal integrity, lubricate the seal and the threads with clean system oil.



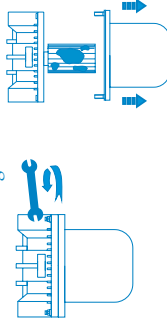
6. Lubricate element o-ring with clean system oil and install element. Reassemble the housing until threads end.



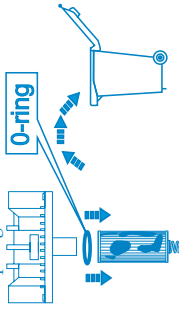
Filter FLK



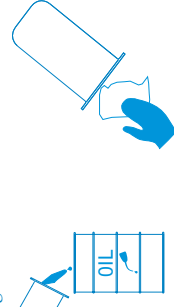
3. Remove the housing.



4. Remove and discard the cartridge, the seal and the spring.



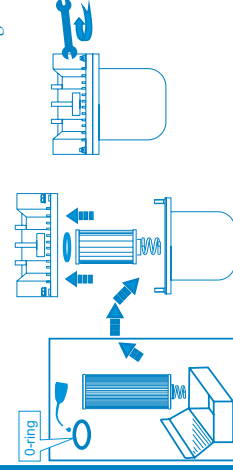
5. Clean out any sediment from the inside of the housing/bowl.



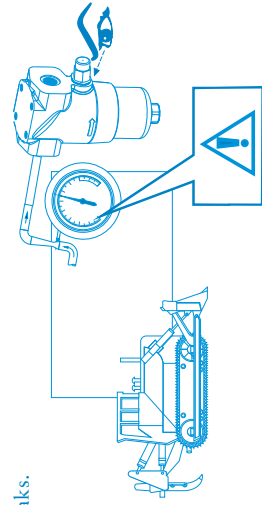
6. Clean out any sediment from the head side and lubricate the seal.



7. Lubricate element o-ring with clean system oil and install element. Reassemble the housing.



7. Bleed the hydraulic system and check for leaks.



TYPE	ELEMENT	PAGE		FAMILY	
K010005	P171767	145	In-Line Filters	FCK LC	High Pressure Filters
K010006	P171768	145	In-Line Filters	FCK LC	High Pressure Filters
K010007	P171769	145	In-Line Filters	FCK LC	High Pressure Filters
K010009	P171771	145	In-Line Filters	FCK LC	High Pressure Filters
K020078	P171701	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020079	P171702	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020080	P171703	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020081	P171704	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020082	P171705	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020083	P171706	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020084	P171707	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020085	P171708	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020086	P171709	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020087	P171710	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020088	P171711	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020089	P171712	121	In-Line Filters	FMK FM	Medium Pressure Filters
K020103	P171714	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
K020104	P171715	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
K020108	P165041	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
K020109	P165006	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
K020110	P165136	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
K020114	P165043	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
K020115	P165015	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
K020116	P165138	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
K020120	P171772	145	In-Line Filters	FCK LC	High Pressure Filters
K020121	P171773	145	In-Line Filters	FCK LC	High Pressure Filters
K020122	P171774	145	In-Line Filters	FCK LC	High Pressure Filters
K020124	P171776	145	In-Line Filters	FCK LC	High Pressure Filters
K020125	P171777	145	In-Line Filters	FCK LC	High Pressure Filters
K020126	P171778	145	In-Line Filters	FCK LC	High Pressure Filters
K020127	P171779	145	In-Line Filters	FCK LC	High Pressure Filters
K020129	P171781	145	In-Line Filters	FCK LC	High Pressure Filters
K020169	P171713	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
K020171	P169446	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K020172	P169447	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K020173	P169797	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K020175	P169798	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K020176	P169449	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K020177	P169450	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K020200	P171706	123	In-Line Filters	FCK LC	Medium Pressure Filters
K020212	P169449	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K030207	P171500	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030208	P171501	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030210	P171503	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030211	P171504	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030212	P171505	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030213	P171500	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030214	P171501	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030216	P171503	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030217	P171504	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030218	P171505	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030225	P171500	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030226	P171501	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030227	P171502	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030228	P171503	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030229	P171504	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030230	P171505	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030231	P171500	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030232	P171501	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030233	P171502	49	Return Line Filters	FIK FIOT	Return Filters In Tank

TYPE	ELEMENT	PAGE		FAMILY	
K030234	P171503	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030235	P171504	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030236	P171505	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030244	P171503	61	Return Line Filters	FHK FIR	Return Filters In Tank
K030244	P171503	99	Suction Filters	FHK FIR	Suction Filters In Tank
K030245	P171504	61	Return Line Filters	FHK FIR	Return Filters In Tank
K030245	P171504	99	Suction Filters	FHK FIR	Suction Filters In Tank
K030253	P171518	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030254	P171519	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030256	P171521	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030257	P171522	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030258	P171523	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030259	P171518	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030260	P171519	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030262	P171521	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030263	P171522	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030264	P171523	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030265	P171530	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030266	P171531	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030268	P171533	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030269	P171534	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030270	P171535	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030271	P171530	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030272	P171531	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030273	P171532	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030274	P171533	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030275	P171534	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030276	P171535	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030284	P171731	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030285	P171732	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030286	P171733	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030287	P171734	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030288	P171735	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030289	P171736	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030290	P171734	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030291	P171735	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030292	P171736	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030293	P171737	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030294	P171738	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030295	P171739	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030296	P171737	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030297	P171738	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030298	P171739	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030299	P763487	145	In-Line Filters	FCK LC	High Pressure Filters
K030300	P763489	145	In-Line Filters	FCK LC	High Pressure Filters
K030301	P763485	145	In-Line Filters	FCK LC	High Pressure Filters
K030303	P763493	145	In-Line Filters	FCK LC	High Pressure Filters
K030304	P171829	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030305	P171830	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030306	P171832	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030307	P171833	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030310	P171838	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030312	P171841	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030313	P171842	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030314	P171844	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030315	P171845	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030323	P171738	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030325	P171523	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030326	P171534	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030329	P171500	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030331	P171504	45	Return Line Filters	FIK FIO	Return Filters In Tank

TYPE	ELEMENT	PAGE		FAMILY	
K030332	P171505	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030333	P171500	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030334	P171501	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030335	P171503	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030336	P171504	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030337	P171505	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030341	P171500	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030342	P171504	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030343	P171500	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030344	P171503	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030345	P171504	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030346	P171505	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030355	P171519	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030356	P171530	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030357	P171531	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030358	P171533	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030359	P171534	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030360	P171535	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030361	P171518	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030362	P171521	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030363	P171522	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030364	P171523	103	Suction Filters	FLK FLA	Suction Filters In-Line
K030365	P171530	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030366	P171531	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030367	P171532	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030368	P171533	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030371	P171535	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030372	P171518	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030373	P171519	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030375	P171521	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030376	P171522	79	Return Line Filters	FLK FLS	Return Filters In-Line
K030378	P171501	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030379	P171503	45	Return Line Filters	FIK FIO	Return Filters In Tank
K030387	P171501	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030388	P171502	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030389	P171503	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030394	P171505	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030395	P171501	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030396	P171502	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K030506	P171735	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030507	P171732	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K030524	P171829	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030525	P171844	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030526	P171841	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030527	P171838	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030529	P171832	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030530	P171830	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030531	P171845	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030532	P171842	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030533	P171839	57	Return Line Filters	FIK FIS	Return Filters In Tank
K030535	P171833	57	Return Line Filters	FIK FIS	Return Filters In Tank
K035009	P171500	61	Return Line Filters	FHK FIR	Return Filters In Tank
K035009	P171500	99	Suction Filters	FHK FIR	Suction Filters In Tank
K035010	P171501	61	Return Line Filters	FHK FIR	Return Filters In Tank
K035010	P171501	99	Suction Filters	FHK FIR	Suction Filters In Tank
K040500	P171530	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040501	P171531	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040503	P171533	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040504	P171534	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040505	P171535	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040506	P171518	45	Return Line Filters	FIK FIO	Return Filters In Tank

TYPE	ELEMENT	PAGE		FAMILY	
K040507	P171519	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040509	P171521	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040510	P171522	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040511	P171523	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040512	P171524	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040513	P171525	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040515	P171527	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040516	P171528	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040517	P171529	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040518	P171530	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040519	P171531	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040521	P171533	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040522	P171534	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040523	P171535	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040530	P171530	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040531	P171531	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040532	P171532	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040535	P171535	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040536	P171518	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040537	P171519	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040538	P171520	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040539	P171521	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040540	P171522	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040541	P171523	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040542	P171524	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040543	P171525	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040544	P171526	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040545	P171527	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040546	P171528	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040547	P171529	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040548	P171530	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040549	P171531	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040550	P171532	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040551	P171533	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040552	P 171534	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040553	P171535	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040560	P171524	61	Return Line Filters	FHK FIR	Return Filters In Tank
K040560	P171524	99	Suction Filters	FHK FIR	Suction Filters In Tank
K040561	P171525	61	Return Line Filters	FHK FIR	Return Filters In Tank
K040561	P171525	99	Suction Filters	FHK FIR	Suction Filters In Tank
K040563	P171527	61	Return Line Filters	FHK FIR	Return Filters In Tank
K040563	P171527	99	Suction Filters	FHK FIR	Suction Filters In Tank
K040564	P171528	61	Return Line Filters	FHK FIR	Return Filters In Tank
K040564	P171528	99	Suction Filters	FHK FIR	Suction Filters In Tank
K040566	P171530	61	Return Line Filters	FHK FIR	Return Filters In Tank
K040566	P171530	99	Suction Filters	FHK FIR	Suction Filters In Tank
K040567	P171531	61	Return Line Filters	FHK FIR	Return Filters In Tank
K040567	P171531	99	Suction Filters	FHK FIR	Suction Filters In Tank
K040569	P171533	61	Return Line Filters	FHK FIR	Return Filters In Tank
K040569	P171533	99	Suction Filters	FHK FIR	Suction Filters In Tank
K040570	P171534	61	Return Line Filters	FHK FIR	Return Filters In Tank
K040570	P171534	99	Suction Filters	FHK FIR	Suction Filters In Tank
K040590	P171584	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040591	P171585	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040593	P171587	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040594	P171588	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040595	P171589	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040596	P171584	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040597	P171585	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040598	P171586	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040599	P171587	79	Return Line Filters	FLK FLS	Return Filters In-Line

TYPE	ELEMENT	PAGE		FAMILY	
K040600	P171588	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040601	P171589	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040602	P171536	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040603	P171537	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040603	P171537	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040605	P171539	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040606	P171540	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040607	P171541	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040608	P171536	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040609	P171537	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040610	P171538	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040611	P171539	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040612	P171540	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040613	P171541	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040614	P171596	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040615	P171597	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040617	P171599	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040618	P171600	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040619	P171601	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040620	P171596	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040621	P171597	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040622	P171598	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040623	P171599	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040624	P171600	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040626	P171602	113	Suction Filters	FBK FACA	Suction Filters In-Line
K040627	P171604	113	Suction Filters	FBK FACA	Suction Filters In-Line
K040628	P550268	113	Suction Filters	FBK FACA	Suction Filters In-Line
K040629	P171606	113	Suction Filters	FBK FACA	Suction Filters In-Line
K040631	P171602	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K040632	P171604	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K040633	P550268	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K040634	P171606	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K040635	P171607	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K040636	P171608	113	Suction Filters	FBK FACA	Suction Filters In-Line
K040637	P171609	113	Suction Filters	FBK FACA	Suction Filters In-Line
K040638	P171610	113	Suction Filters	FBK FACA	Suction Filters In-Line
K040639	P171611	113	Suction Filters	FBK FACA	Suction Filters In-Line
K040641	P171608	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K040642	P171609	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K040643	P171610	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K040644	P171611	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K040645	P171612	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K040674	P171740	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040675	P171741	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040676	P171742	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040677	P171740	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040678	P171741	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040679	P171742	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040680	P171743	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040681	P171744	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040682	P171745	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040683	P171743	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040684	P171744	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040685	P171745	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040686	P171746	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040687	P171747	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040688	P171748	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040689	P171746	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040690	P171747	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040691	P171748	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040758	P171524	57	Return Line Filters	FIK FIS	Return Filters In Tank

TYPE	ELEMENT	PAGE		FAMILY	
K040759	P171530	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040760	P171831	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040761	P171529	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040762	P171535	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040763	P171834	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040767	P171527	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040768	P171533	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040769	P171840	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040770	P171526	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040771	P171532	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040772	P171843	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040773	P171525	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040774	P171531	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040775	P171846	57	Return Line Filters	FIK FIS	Return Filters In Tank
K040800	P171741	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040839	P171744	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040854	P171741	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K040865	P171521	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040866	P171522	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040867	P171523	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040868	P171518	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040869	P171525	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040870	P171527	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040871	P171528	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040872	P171529	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040873	P171524	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040875	P171533	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040876	P171534	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040877	P171535	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040878	P171530	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040879	P171531	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040880	P171533	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040882	P171534	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040883	P171535	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040884	P171530	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040888	P171530	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040889	P171531	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040891	P171535	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040892	P171518	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040893	P171521	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040894	P171522	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040895	P171523	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040896	P171524	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040897	P171526	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040898	P171527	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040899	P171528	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040900	P171529	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040901	P171530	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040902	P171533	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040903	P 171534	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040904	P171535	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040932	P171584	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040933	P171585	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040934	P171587	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040935	P171588	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040936	P171589	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040937	P171536	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040939	P171539	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040940	P171540	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040941	P171541	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040942	P171596	103	Suction Filters	FLK FLA	Suction Filters In-Line

TYPE	ELEMENT	PAGE		FAMILY	
K040943	P171599	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040944	P171600	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040945	P171601	103	Suction Filters	FLK FLA	Suction Filters In-Line
K040948	P171584	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040949	P171585	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040950	P171586	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040951	P171587	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040952	P171588	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040953	P171589	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040954	P171536	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040955	P171537	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040956	P171538	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040957	P171539	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040959	P171541	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040960	P171596	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040961	P171599	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040962	P171600	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040963	P171601	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040963	P171601	79	Return Line Filters	FLK FLS	Return Filters In-Line
K040970	P171611	113	Suction Filters	FBK FACA	Suction Filters In-Line
K040971	P171519	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040985	P171531	45	Return Line Filters	FIK FIO	Return Filters In Tank
K040993	P171519	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K040994	P171520	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K041008	P171525	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K041016	P171531	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K041017	P171532	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K041023	P171532	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K041029	P171537	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K041036	P171740	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K041115	P171597	103	Suction Filters	FLK FLA	Suction Filters In-Line
K041124	P171597	79	Return Line Filters	FLK FLS	Suction Filters In-Line
K041125	P171598	79	Return Line Filters	FLK FLS	Return Filters In-Line
K041138	P171602	113	Suction Filters	FBK FACA	Suction Filters In-Line
K041139	P171604	113	Suction Filters	FBK FACA	Suction Filters In-Line
K041140	P550268	113	Suction Filters	FBK FACA	Suction Filters In-Line
K041141	P171606	113	Suction Filters	FBK FACA	Suction Filters In-Line
K041145	P171608	113	Suction Filters	FBK FACA	Suction Filters In-Line
K041146	P171609	113	Suction Filters	FBK FACA	Suction Filters In-Line
K041147	P171610	113	Suction Filters	FBK FACA	Suction Filters In-Line
K041149	P171616	113	Suction Filters	FBK FACA	Suction Filters In-Line
K041230	P550148	113	Suction Filters	FBK FACA	Suction Filters In-Line
K041301	P762421	64	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
K041319	P171530	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041320	P171531	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041321	P171532	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041322	P171533	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041329	P171535	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041330	P171831	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041331	P171846	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041332	P171843	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041334	P171840	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041336	P171834	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041337	P171524	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041338	P171525	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041339	P171526	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041340	P171527	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041342	P171529	57	Return Line Filters	FIK FIS	Return Filters In Tank
K041453	P171740	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
K041511	P763652	64	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
K041522	P171534	49	Return Line Filters	FIK FIOT	Return Filters In Tank

TYPE	ELEMENT	PAGE		FAMILY	
K041522	P171532	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041528	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041535	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041536	P171530	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041537	P171535	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041538	P171534	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041539	P171533	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041540	P171532	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041541	P171531	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041542	P171831	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041543	P171834	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041544	P171837	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041545	P171840	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041546	P171843	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041547	P171846	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041548	P171531	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041549	P171536	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041550	P171534	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K041550	P171535	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041551	P171533	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K041551	P171534	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041552	P171533	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041553	P171532	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041554	P171832	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041555	P171835	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041556	P171838	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041557	P171841	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041558	P171844	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041559	P171847	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041560	P171530	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041561	P171535	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041562	P171534	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041563	P171533	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041564	P171532	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041565	P171531	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041566	P171831	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041567	P171834	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041568	P171837	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041569	P171840	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041570	P171843	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041571	P171846	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
K041572	P171530	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041573	P171535	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041574	P171534	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041575	P171533	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K041575	P171533	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041577	P171531	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041578	P171831	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041579	P171834	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041580	P171837	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041581	P171840	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041582	P171843	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041583	P171846	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
K041585	P164172	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K041586	P164174	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K041587	P164176	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K041588	P164164	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K041589	P164166	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K041590	P164168	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K041591	P164592	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K041592	P164594	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters

TYPE	ELEMENT	PAGE		FAMILY	
K041593	P164596	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
K041595	P763652	64	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
K041596	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041597	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041598	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041599	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041600	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041601	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041602	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041603	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041604	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041605	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041606	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041607	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041608	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041609	P764198	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
K041610	P762421	64	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
K045739	P165335	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045740	P165338	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045741	P163419	126	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045742	P163324	126	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045743	P164381	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045744	P164384	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045745	P164375	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045746	P164378	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045747	P165354	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045748	P165332	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045791	P165354	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045792	P164375	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045793	P164381	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045794	P163419	126	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045795	P165335	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045796	P165332	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045797	P164378	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045798	P164384	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045799	P163324	126	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045800	P165338	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045801	P165354	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045802	P164375	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045803	P164381	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045804	P163419	126	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045805	P165335	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045806	P165332	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045807	P164378	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045808	P164384	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K045809	P163324	126	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
K051109	P171536	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051110	P171537	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051112	P171539	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051113	P171540	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051114	P171541	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051115	P171536	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051116	P171537	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051118	P171539	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051119	P171540	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051120	P171541	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051121	P171536	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051123	P171537	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051124	P171538	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051125	P171539	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051126	P171540	49	Return Line Filters	FIK FIOT	Return Filters In Tank

TYPE	ELEMENT	PAGE		FAMILY	
K051127	P171541	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051128	P171536	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051129	P171537	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051130	P171538	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051131	P171539	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051132	P171540	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051133	P171541	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051134	P171536	61	Return Line Filters	FHK FIR	Return Filters In Tank
K051134	P171536	99	Suction Filters	FHK FIR	Suction Filters In Tank
K051135	P171537	61	Return Line Filters	FHK FIR	Return Filters In Tank
K051135	P171537	99	Suction Filters	FHK FIR	Suction Filters In Tank
K051137	P171539	61	Return Line Filters	FHK FIR	Return Filters In Tank
K051137	P171539	99	Suction Filters	FHK FIR	Suction Filters In Tank
K051138	P171540	61	Return Line Filters	FHK FIR	Return Filters In Tank
K051138	P171540	99	Suction Filters	FHK FIR	Suction Filters In Tank
K051146	P171613	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051147	P171614	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051148	P550148	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051151	P171613	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K051152	P171614	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K051153	P550148	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K051154	P171616	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K051155	P171617	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K051156	P171618	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051157	P171619	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051158	P171620	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051159	P171621	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051161	P171618	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K051162	P171619	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K051163	P171620	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K051164	P171621	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K051165	P171622	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K051227	P171540	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051229	P171540	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051231	P171539	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051232	P171539	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051233	P171537	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051235	P171539	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051236	P171540	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051237	P171541	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051238	P171536	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051239	P171537	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051241	P171541	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051242	P171536	45	Return Line Filters	FIK FIO	Return Filters In Tank
K051243	P171536	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051244	P171538	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051245	P171539	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051246	P171540	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051247	P171541	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051248	P171536	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051249	P171537	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051250	P171541	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051261	P171618	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051263	P171538	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K051332	P171613	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051333	P171614	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051334	P171616	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051338	P171619	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051339	P171620	113	Suction Filters	FBK FACA	Suction Filters In-Line
K051340	P171621	113	Suction Filters	FBK FACA	Suction Filters In-Line
K053123	P165672	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters

TYPE	ELEMENT	PAGE		FAMILY	
K053125	P165569	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K053126	P165659	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K053127	P165675	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K053132	P165659	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K053140	P165675	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K053141	P165659	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K053142	P165569	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K053144	P165672	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K053145	P165675	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K053146	P165569	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K053147	P165705	130	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K053148	P165672	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
K070003	P171542	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070004	P171543	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070006	P171545	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070007	P171546	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070008	P171547	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070009	P171548	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070010	P171549	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070012	P171551	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070013	P171552	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070014	P171553	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070015	P171554	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070016	P171555	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070018	P171557	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070019	P171558	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070020	P171559	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070021	P171560	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070022	P171561	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070024	P171563	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070025	P171564	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070026	P171565	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070027	P171566	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070028	P171567	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070030	P171569	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070031	P171570	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070032	P171571	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070033	P171572	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070034	P171573	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070036	P171575	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070037	P171576	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070038	P171577	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070039	P171578	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070040	P171579	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070042	P171581	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070043	P171582	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070044	P171583	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070045	P171572	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070046	P171573	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070048	P171575	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070049	P171576	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070050	P171577	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070051	P171578	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070052	P171579	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070054	P171581	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070055	P171582	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070056	P171583	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070057	P171542	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070058	P171543	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070059	P171544	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070060	P171545	49	Return Line Filters	FIK FIOT	Return Filters In Tank

TYPE	ELEMENT	PAGE		FAMILY	
K070061	P171546	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070062	P171547	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070063	P171548	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070064	P171549	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070066	P171551	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070067	P171552	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070068	P171553	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070069	P171554	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070070	P171555	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070071	P171556	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070072	P171557	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070073	P171558	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070074	P171559	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070075	P171560	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070076	P171561	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070077	P171562	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070078	P171563	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070079	P171564	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070080	P171565	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070081	P171566	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070082	P171567	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070083	P171568	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070084	P171569	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070085	P171570	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070086	P171571	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070087	P171572	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070088	P171573	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070089	P171574	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070090	P171575	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070091	P171576	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070092	P171577	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070093	P171578	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070094	P171579	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070095	P171580	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070096	P171581	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070097	P171582	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070098	P171583	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070099	P171572	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070100	P171573	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070101	P171574	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070102	P171575	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070103	P171576	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070104	P171577	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070105	P171578	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070106	P171579	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070107	P171580	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070108	P171581	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070109	P171582	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070110	P171583	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070117	P171566	61	Return Line Filters	FHK FIR	Return Filters In Tank
K070117	P171566	99	Suction Filters	FHK FIR	Suction Filters In Tank
K070118	P171567	61	Return Line Filters	FHK FIR	Return Filters In Tank
K070118	P171567	99	Suction Filters	FHK FIR	Suction Filters In Tank
K070120	P171569	61	Return Line Filters	FHK FIR	Return Filters In Tank
K070120	P171569	99	Suction Filters	FHK FIR	Suction Filters In Tank
K070121	P171570	61	Return Line Filters	FHK FIR	Return Filters In Tank
K070121	P171570	99	Suction Filters	FHK FIR	Suction Filters In Tank
K070153	P171590	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070154	P171591	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070156	P171593	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070157	P171594	103	Suction Filters	FLK FLA	Suction Filters In-Line

TYPE	ELEMENT	PAGE		FAMILY	
K070158	P171595	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070159	P171590	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070160	P171591	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070161	P171592	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070162	P171593	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070163	P171594	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070164	P171595	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070165	P171560	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070166	P171561	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070168	P171563	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070169	P171564	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070170	P171565	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070171	P171560	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070172	P171561	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070173	P171562	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070174	P171563	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070175	P171564	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070176	P171565	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070177	P171566	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070178	P171567	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070180	P171569	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070181	P171570	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070182	P171571	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070183	P171566	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070184	P171567	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070185	P171568	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070186	P171569	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070187	P171570	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070188	P171571	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070189	P171590	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070190	P171591	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070192	P171593	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070193	P171594	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070194	P171595	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070195	P171590	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070196	P171591	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070197	P171592	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070198	P171593	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070199	P171594	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070200	P171595	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070201	P171560	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070202	P171561	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070204	P171563	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070205	P171564	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070206	P171565	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070207	P171560	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070208	P171561	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070209	P171562	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070210	P171563	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070211	P171564	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070212	P171565	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070213	P171566	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070214	P171567	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070216	P171569	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070217	P171570	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070218	P171571	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070219	P171566	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070220	P171567	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070221	P171568	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070222	P171569	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070223	P171570	79	Return Line Filters	FLK FLS	Return Filters In-Line

TYPE	ELEMENT	PAGE		FAMILY	
K070224	P171571	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070225	P171578	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070226	P171579	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070228	P171581	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070229	P171582	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070230	P171583	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070231	P171578	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070232	P171579	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070233	P171580	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070234	P171581	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070235	P171582	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070236	P171583	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070277	P171573	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070280	P171542	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070281	P171543	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070283	P171545	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070284	P171546	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070285	P171547	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070286	P171548	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070288	P171551	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070289	P171552	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070290	P171553	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070292	P171554	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070293	P171557	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070294	P171558	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070295	P171559	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070296	P171560	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070297	P171561	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070299	P171563	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070300	P171564	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070301	P171565	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070302	P171566	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070303	P171567	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070305	P171569	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070306	P171570	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070307	P171571	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070308	P171572	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070309	P171575	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070310	P171576	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070311	P171577	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070312	P171579	50	Return Line Filters	FIK FIO	Return Filters In Tank
K070314	P171581	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070315	P171582	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070316	P171583	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070317	P171575	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070318	P171576	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070319	P171544	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070320	P171581	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070321	P171582	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070322	P171545	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070323	P171551	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070324	P171552	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070325	P171553	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070326	P171555	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070327	P171556	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070328	P171557	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070329	P171558	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070330	P171559	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070331	P171561	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070332	P171562	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070333	P171563	49	Return Line Filters	FIK FIOT	Return Filters In Tank

TYPE	ELEMENT	PAGE		FAMILY	
K070334	P171564	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070335	P171565	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070336	P171567	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070337	P171569	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070338	P171570	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070339	P171571	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070340	P171573	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070341	P171575	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070342	P171576	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070343	P171572	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070344	P171576	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070345	P171577	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070346	P171579	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070347	P171581	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070348	P171582	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070349	P171579	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070350	P171581	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070355	P171549	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070356	P171555	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070357	P171577	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070358	P171572	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070359	P171578	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070360	P171579	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070362	P171583	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070363	P171578	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070364	P171573	45	Return Line Filters	FIK FIO	Return Filters In Tank
K070365	P171560	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070366	P171566	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070367	P171568	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070369	P171574	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070396	P171590	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070397	P171593	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070398	P171594	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070399	P171595	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070400	P171560	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070401	P171561	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070402	P171563	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070403	P171564	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070404	P171565	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070405	P171566	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070406	P171567	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070408	P171569	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070409	P171570	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070410	P171571	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070411	P171571	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070412	P171578	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070414	P171581	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070415	P171582	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070416	P171583	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070417	P171593	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070418	P171594	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070419	P171595	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070420	P171560	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070421	P171561	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070422	P171562	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070423	P171563	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070424	P171564	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070425	P171565	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070426	P171566	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070427	P171567	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070428	P171568	79	Return Line Filters	FLK FLS	Return Filters In-Line

TYPE	ELEMENT	PAGE		FAMILY	
K070429	P171569	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070430	P171570	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070431	P171571	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070432	P171590	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070433	P171595	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070435	P171567	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070436	P171568	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070437	P171569	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070438	P171570	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070439	P171571	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070440	P171578	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070441	P171579	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070442	P171580	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070443	P171581	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070444	P171582	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070445	P171583	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070454	P171577	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070455	P171578	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070456	P171580	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070457	P171583	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070458	P171542	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070459	P171543	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070460	P171546	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070461	P171547	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070462	P171548	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070463	P171549	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070465	P171554	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070466	P171572	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070467	P171573	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070468	P171574	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070469	P171575	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070470	P171578	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070471	P171580	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K070496	P171591	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070498	P171591	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070500	P171593	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070501	P171594	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070502	P171595	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070503	P171590	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070505	P171561	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070507	P171563	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070508	P171564	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070509	P171565	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070510	P171560	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070511	P171567	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070513	P171569	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070514	P171570	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070515	P171566	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070516	P171579	103	Suction Filters	FLK FLA	Suction Filters In-Line
K070558	P171591	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070559	P171592	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070560	P171590	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070561	P171591	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070562	P171592	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070563	P171593	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070564	P171594	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070565	P171561	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070566	P171562	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070567	P171563	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070568	P171565	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070569	P171560	79	Return Line Filters	FLK FLS	Return Filters In-Line

TYPE	ELEMENT	PAGE		FAMILY	
K070571	P171566	79	Return Line Filters	FLK FLS	Return Filters In-Line
K070742	P171582	49	Return Line Filters	FIK FIOT	Return Filters In Tank
K250001	P171613	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250002	P171614	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250003	P550148	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250004	P171618	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250006	P171618	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250007	P171619	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250008	P171620	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250009	P171621	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250031	P171613	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K250032	P171614	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K250033	P550148	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K250034	P171616	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K250035	P171617	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K250036	P171618	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K250037	P171619	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K250038	P171620	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K250039	P171621	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K250040	P171622	85	Return Line Filters	FBK FRCA	Return Filters In-Line
K250062	P550148	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250107	P171613	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250108	P171614	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250109	P171618	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250113	P171618	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250114	P171619	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250115	P171620	113	Suction Filters	FBK FACA	Suction Filters In-Line
K250116	P171621	113	Suction Filters	FBK FACA	Suction Filters In-Line
P162400	Indicator	126	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P162400	Indicator	130	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P162400	Indicator	81	Return Line Filters	FLK FLS	Return Filters In-Line
P162400	Indicator	87/88	Return Line Filters	FBK FRCA	Return Filters In-Line
P162696	Indicator	125	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P162696	Indicator	129	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P162696	Indicator	87/88	Return Line Filters	FBK FRCA	Return Filters In-Line
P163642	Indicator	105	Suction Filters	FLK FLA	Suction Filters In-Line
P163839	Indicator	81	Return Line Filters	FLK FLS	Return Filters In-Line
P163839	Indicator	87/88	Return Line Filters	FBK FRCA	Return Filters In-Line
P163839	Indicator	126	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P163839	Indicator	130	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P164745	Indicator	67/71/73	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
P165194	Indicator	65/69/73	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
P165194	Indicator	126	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P165194	Indicator	130	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P167455	Indicator	126	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P167455	Indicator	130	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P167476	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P167580	Indicator	125	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P167580	Indicator	129	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P170926	Indicator	126	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P170926	Indicator	129	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P171087	Indicator	125	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P171087	Indicator	129	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P171087	Indicator	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P171143	Indicator	81	Return Line Filters	FLK FLS	Return Filters In-Line
P171143	Indicator	125	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P171143	Indicator	129	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P171847		149	Accessories	PXX TCO	Filler Caps with breather
P171848		149	Accessories	PXX TCO	Filler Caps with breather
P171850		149	Accessories	PXX TCO	Filler Caps with breather
P171851		149	Accessories	PXX TCO	Filler Caps with breather

TYPE	ELEMENT	PAGE		FAMILY	
P171852		149	Accessories	PXX TCO	Filler Caps with breather
P171853		149	Accessories	PXX TCO	Filler Caps with breather
P171854		149	Accessories	PXX TCO	Filler Caps with breather
P171855		149	Accessories	PXX TCO	Filler Caps with breather
P171856		149	Accessories	PXX TCO	Filler Caps with breather
P171857		149	Accessories	PXX TCO	Filler Caps with breather
P171858		149	Accessories	PXX TCO	Filler Caps with breather
P171859		149	Accessories	PXX TCO	Filler Caps with breather
P171860		149	Accessories	PXX TCO	Filler Caps with breather
P171913		153	Accessories	PXX LVO	Vertical Oil Level Gauge
P171914		153	Accessories	PXX LVO	Vertical Oil Level Gauge
P171915		153	Accessories	PXX LVOT	Vertical Oil Level Gauge
P171916		153	Accessories	PXX LVOT	Vertical Oil Level Gauge
P171917		153	Accessories	PXX LVO	Vertical Oil Level Gauge
P171918		153	Accessories	PXX LVO	Vertical Oil Level Gauge
P171919		153	Accessories	PXX LVOT	Vertical Oil Level Gauge
P171920		153	Accessories	PXX LVOT	Vertical Oil Level Gauge
P171921		153	Accessories	PXX LVO	Vertical Oil Level Gauge
P171922		153	Accessories	PXX LVOT	Vertical Oil Level Gauge
P171944	Indicator	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171944	Indicator	137	In-Line Filters	FPK02 AP280	High Pressure Filters
P171944	Indicator	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171945	Indicator	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171945	Indicator	137	In-Line Filters	FPK02 AP280	High Pressure Filters
P171945	Indicator	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171947	Indicator	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171947	Indicator	137	In-Line Filters	FPK02 AP280	High Pressure Filters
P171947	Indicator	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171950	Indicator	81	Return Line Filters	FLK FLS	Return Filters In-Line
P171950	Indicator	87/88	Return Line Filters	FBK FRCA	Return Filters In-Line
P171953	Indicator	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171953	Indicator	51	Return Line Filters	FIK FIOT	Return Filters In Tank
P171953	Indicator	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171953	Indicator	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171954	Indicator	77	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P171954	Indicator	87/88	Return Line Filters	FBK FRCA	Return Filters In-Line
P171954	Indicator	105	Suction Filters	FLK FLA	Suction Filters In-Line
P171954	Indicator	115/116	Suction Filters	FBK FACA	Suction Filters In-Line
P171958	Indicator	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171958	Indicator	51	Return Line Filters	FIK FIOT	Return Filters In Tank
P171958	Indicator	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171958	Indicator	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171958	Indicator	87/88	Return Line Filters	FBK FRCA	Return Filters In-Line
P171959	Indicator	105	Suction Filters	FLK FLA	Suction Filters In-Line
P171959	Indicator	115/116	Suction Filters	FBK FACA	Suction Filters In-Line
P171961	Indicator	81	Return Line Filters	FLK FLS	Return Filters In-Line
P171961	Indicator	87/88	Return Line Filters	FBK FRCA	Return Filters In-Line
P171963	Indicator	81	Return Line Filters	FLK FLS	Return Filters In-Line
P171963	Indicator	87/88	Return Line Filters	FBK FRCA	Return Filters In-Line
P171966	Indicator	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171966	Indicator	51	Return Line Filters	FIK FIOT	Return Filters In Tank
P171966	Indicator	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171966	Indicator	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171966	Indicator	87/88	Return Line Filters	FBK FRCA	Return Filters In-Line
P171967	Indicator	105	Suction Filters	FLK FLA	Suction Filters In-Line
P171967	Indicator	115/116	Suction Filters	FBK FACA	Suction Filters In-Line
P172365	P550268	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P172366	P171606	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P172367	P171610	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P172368	P171611	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P172369	P550148	152	Accessories	PXX FFCA	Tank Breathers Spin-On

TYPE	ELEMENT	PAGE		FAMILY	
P172370	P171616	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P172371	P171620	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P172372	P171621	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P172381	P172433	151	Accessories	PXX FS	Tank Breathers with take apart element
P172382	P172433	151	Accessories	PXX FS	Tank Breathers with take apart element
P172383	P172433	151	Accessories	PXX FS	Tank Breathers with take apart element
P172384	P172433	151	Accessories	PXX FS	Tank Breathers with take apart element
P172385	P172433	151	Accessories	PXX FS	Tank Breathers with take apart element
P172386	P171783	151	Accessories	PXX FS	Tank Breathers with take apart element
P172387	P171784	151	Accessories	PXX FS	Tank Breathers with take apart element
P172388	P171785	151	Accessories	PXX FS	Tank Breathers with take apart element
P172389	P171786	151	Accessories	PXX FS	Tank Breathers with take apart element
P172432	Breather	57	Return Line Filters	FIK FIS	Return Filters In Tank
P172434	Breather	57	Return Line Filters	FIK FIS	Return Filters In Tank
P172493		150	Accessories	PXX TCA	Anti-Vandalism Filler Cap with breather
P172996	Indicator	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P172997	Indicator	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P173076	Breather	57	Return Line Filters	FIK FIS	Return Filters In Tank
P173104	Indicator	45	Return Line Filters	FIK FIO	Return Filters In Tank
P173104	Indicator	51	Return Line Filters	FIK FIOT	Return Filters In Tank
P173104	Indicator	57	Return Line Filters	FIK FIS	Return Filters In Tank
P173104	Indicator	61	Return Line Filters	FHK FIR	Return Filters In Tank
P173104	Indicator	87/88	Return Line Filters	FBK FRCA	Return Filters In-Line
P173105	Indicator	105	Suction Filters	FLK FLA	Suction Filters In-Line
P173105	Indicator	116	Suction Filters	FBK FACA	Suction Filters In-Line
P173108	Indicator	115	Suction Filters	FBK FACA	Suction Filters In-Line
P173132	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P173203	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P173251		149	Accessories	PXX TCO	Filler Caps with breather
P173253		150	Accessories	PXX TCA	Anti-Vandalism Filler Cap with breather
P173259		150	Accessories	PXX TCA	Anti-Vandalism Filler Cap with breather
P173266		150	Accessories	PXX TCA	Anti-Vandalism Filler Cap with breather
P173330	Breather	57	Return Line Filters	FIK FIS	Return Filters In Tank
P173385	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P173386	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P173403	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P173441	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P173442	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P173448	Head	131	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P173475		150	Accessories	PXX TCA	Anti-Vandalism Filler Cap with breather
P173438	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P173893	Indicator	126	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P173893	Indicator	130	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P173918	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P173944	Indicator	81	Return Line Filters	FLK FLS	Return Filters In-Line
P173944	Indicator	126	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P173944	Indicator	130	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P175001	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P175017	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P175029	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P175095	Head	131	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P175142		109	Suction Filters	PXX FAL	Suction Filters In-Line
P175143		109	Suction Filters	PXX FAL	Suction Filters In-Line
P176846	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P176903		109	Suction Filters	PXX FAL	Suction Filters In-Line
P176904		109	Suction Filters	PXX FAL	Suction Filters In-Line
P177187	P171602	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P177189	P171607	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P177190	P171608	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P177192	P171612	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P177193	P171613	152	Accessories	PXX FFCA	Tank Breathers Spin-On

TYPE	ELEMENT	PAGE		FAMILY	
P177195	P171618	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P177196	P171607	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P177198	P171622	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P177438		153	Accessories	PXX LVO	Vertical Oil Level Gauge
P177439		153	Accessories	PXX LVO	Vertical Oil Level Gauge
P561138	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P561140	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P561141	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P562261	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P562262	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P563279	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P563280	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P563287	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P563288	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P563296	Indicator	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P563297	Indicator	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P563298	Indicator	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P563299	Indicator	115	Suction Filters	FBK FACA	Suction Filters In-Line
P563978	Indicator	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P563979	Indicator	115	Suction Filters	FBK FACA	Suction Filters In-Line
P760071	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P760924	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P761036		150	Accessories	PXX TCA	Anti-Vandalism Filler Cap with breather
P761040		109	Suction Filters	PXX FAL	Suction Filters In-Line
P761046	P172435	151	Accessories	PXX FS	Tank Breathers with take apart element
P761047	P172435	151	Accessories	PXX FS	Tank Breathers with take apart element
P761048	P172435	151	Accessories	PXX FS	Tank Breathers with take apart element
P761049	P172435	151	Accessories	PXX FS	Tank Breathers with take apart element
P761050	P172435	151	Accessories	PXX FS	Tank Breathers with take apart element
P761051	P175447	151	Accessories	PXX FS	Tank Breathers with take apart element
P761052	P761045	151	Accessories	PXX FS	Tank Breathers with take apart element
P761053	P761054	151	Accessories	PXX FS	Tank Breathers with take apart element
P761056	Indicator	121	In-Line Filters	FMK FM	Medium Pressure Filters
P761056	Indicator	137	In-Line Filters	FPK02 AP280	High Pressure Filters
P761056	Indicator	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P761057	Indicator	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P761058	Indicator	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P761184		149	Accessories	PXX TCO	Filer Caps with breather
P761259	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P761260	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P761262	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P761264	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P761314	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P761378	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P761446	Head	131	In-Line Filters	HMK05 Duramax	Medium Pressure Filters
P761492	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P762065		150	Accessories	PXX TCA	Anti-Vandalism Filler Cap with breather
P762554	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P762638	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P762641	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P762801	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P762982	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P763139	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P763513		150	Accessories	PXX TCA	Anti-Vandalism Filler Cap with breather
P763528		150	Accessories	PXX TCA	Anti-Vandalism Filler Cap with breather
P763617	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P763668		85	Return Line Filters	FBK FRCA	Return Filters In-Line
P763668		113	Suction Filters	FBK FACA	Suction Filters In-Line
P763672		150	Accessories	PXX TCA	Anti-Vandalism Filler Cap with breather
P763975	Indicator	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P763976	Indicator	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters

TYPE	ELEMENT	PAGE		FAMILY	
P763978	Indicator	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P763987		85	Return Line Filters	FBK FRCA	Return Filters In-Line
P763987		113	Suction Filters	FBK FACA	Suction Filters In-Line
P764322	Head	127	In-Line Filters	HMK04 Duramax	Medium Pressure Filters
P764407	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P764408	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P764409		85	Return Line Filters	FBK FRCA	Return Filters In-Line
P764409		113	Suction Filters	FBK FACA	Suction Filters In-Line
P764410		85	Return Line Filters	FBK FRCA	Return Filters In-Line
P764410		113	Suction Filters	FBK FACA	Suction Filters In-Line
P764411		85	Return Line Filters	FBK FRCA	Return Filters In-Line
P764411		113	Suction Filters	FBK FACA	Suction Filters In-Line
P764412	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P764413	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P764414	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P764415	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P764419	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P764420	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P764421	Head	115	Suction Filters	FBK FACA	Suction Filters In-Line
P764431	Indicator	77	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764612	Indicator	77	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764613	Indicator	77	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764638		85	Return Line Filters	FBK FRCA	Return Filters In-Line
P764638		113	Suction Filters	FBK FACA	Suction Filters In-Line
P765043	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P765539	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P765583	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P765584	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P765637	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
P765639	Head	87	Return Line Filters	FBK FRCA	Return Filters In-Line
X770576	Extension Kit	65/67	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
X770617	P169797	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
X779053	P169447	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters

ELEMENT	TYPE	PAGE		FAMILY	
P163324	K045742	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P163324	K045799	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P163324	K045809	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P163419	K045741	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P163419	K045794	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P163419	K045804	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164164	K041588	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P164166	K041589	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P164168	K041590	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P164172	K041585	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P164174	K041586	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P164176	K041587	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P164375	K045745	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164375	K045792	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164375	K045802	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164378	K045746	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164378	K045797	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164378	K045807	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164381	K045743	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164381	K045793	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164381	K045803	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164384	K045744	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164384	K045798	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164384	K045808	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P164592	K041591	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P164594	K041592	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P164596	K041593	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P165006	K020109	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
P165015	K020115	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
P165041	K020108	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
P165043	K020114	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
P165136	K020110	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
P165138	K020116	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
P165332	K045748	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165332	K045796	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165332	K045806	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165335	K045739	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165335	K045795	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165335	K045805	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165338	K045740	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165338	K045800	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165338		125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165354	K045747	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165354	K045791	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165354	K045801	125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P165569	K053125	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165569	K053142	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165569	K053146	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165659	K053126	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165659	K053132	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165659	K053141	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165672	K053123	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165672	K053144	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165672	K053148	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165675	K053127	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165675	K053140	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165675	K053145	129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165705		130	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165705		130	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P165705	K053147	130	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P169446	K020171	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters

ELEMENT	TYPE	PAGE		FAMILY	
P169447	K020172	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P169447	X779053	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P169449	K020176	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P169449	K020212	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P169450	K020177	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P169797	K020173	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P169797	X770617	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P169798	K020175	133	In-Line Filters	FPK 02 & 04 AP220	High Pressure Filters
P171500	K030207	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171500	K030213	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171500	K030225	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171500	K030231	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171500	K030329	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171500	K030333	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171500	K030341	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171500	K030343	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171500	K035009	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171500	K035009	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171501	K030208	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171501	K030214	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171501	K030226	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171501	K030232	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171501	K030334	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171501	K030378	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171501	K030387	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171501	K030395	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171501	K035010	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171501	K035010	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171502	K030227	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171502	K030233	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171502	K030388	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171502	K030396	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171502		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171502		61	Return Line Filters	FHK FIR	Return Filters In Tank
P171502		99	Suction Filters	FHK FIR	Suction Filters In Tank
P171503	K030210	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171503	K030216	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171503	K030228	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171503	K030234	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171503	K030244	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171503	K030244	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171503	K030335	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171503	K030344	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171503	K030379	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171503	K030389	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171504	K030211	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171504	K030217	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171504	K030229	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171504	K030235	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171504	K030245	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171504	K030245	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171504	K030331	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171504	K030336	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171504	K030342	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171504	K030345	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171505	K030212	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171505	K030218	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171505	K030230	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171505	K030236	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171505	K030332	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171505	K030337	45	Return Line Filters	FIK FIO	Return Filters In Tank

ELEMENT	TYPE	PAGE		FAMILY	
P171505	K030346	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171505	K030394	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171505		61	Return Line Filters	FHK FIR	Return Filters In Tank
P171505		99	Suction Filters	FHK FIR	Suction Filters In Tank
P171518	K030253	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171518	K030259	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171518	K030361	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171518	K030372	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171518	K040506	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171518	K040536	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171518	K040868	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171518	K040892	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171519	K030254	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171519	K030260	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171519	K030355	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171519	K030373	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171519	K040507	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171519	K040537	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171519	K040971	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171519	K040993	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171520		79	Return Line Filters	FLK FLS	Return Filters In-Line
P171520		79	Return Line Filters	FLK FLS	Return Filters In-Line
P171520	K040538	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171520	K040994	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171520		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171520		103	Suction Filters	FLK FLA	Suction Filters In-Line
P171521	K030256	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171521	K030262	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171521	K030362	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171521	K030375	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171521	K040509	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171521	K040539	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171521	K040865	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171521	K040893	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171522	K030257	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171522	K030263	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171522	K030363	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171522	K030376	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171522	K040510	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171522	K040540	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171522	K040866	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171522	K040894	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171523	K030258	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171523	K030264	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171523	K030325	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171523	K030364	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171523	K040511	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171523	K040541	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171523	K040867	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171523	K040895	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171524	K040512	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171524	K040542	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171524	K040560	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171524	K040560	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171524	K040758	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171524	K040873	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171524	K040896	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171524	K041337	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171525	K040513	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171525	K040543	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171525	K040561	61	Return Line Filters	FHK FIR	Return Filters In Tank

ELEMENT	TYPE	PAGE		FAMILY	
P171525	K040561	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171525	K040773	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171525	K040869	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171525	K041008	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171525	K041338	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171526	K040544	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171526	K040799	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171526	K040897	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171526	K041339	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171526		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171526		61	Return Line Filters	FHK FIR	Return Filters In Tank
P171526		99	Suction Filters	FHK FIR	Suction Filters In Tank
P171527	K040515	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171527	K040545	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171527	K040563	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171527	K040563	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171527	K040767	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171527	K040870	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171527	K040898	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171527	K041340	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171528	K040516	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171528	K040546	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171528	K040564	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171528	K040564	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171528	K040871	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171528	K040899	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171528		57	Return Line Filters	FIK FIS	Return Filters In Tank
P171529	K040517	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171529	K040547	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171529	K040761	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171529	K040872	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171529	K040900	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171529	K041342	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171529		61	Return Line Filters	FHK FIR	Return Filters In Tank
P171529		99	Suction Filters	FHK FIR	Suction Filters In Tank
P171530	K030265	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171530	K030271	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171530	K030356	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171530	K030365	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171530	K040450	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171530	K040518	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171530	K040530	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171530	K040548	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171530	K040566	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171530	K040566	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171530	K040759	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171530	K040878	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171530	K040884	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171530	K040888	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171530	K040901	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171530	K041319	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171530	K041536	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171530	K041560	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171530	K041572	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171531	K030266	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171531	K030272	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171531	K030357	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171531	K030366	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171531	K040501	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171531	K040519	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171531	K040531	49	Return Line Filters	FIK FIOT	Return Filters In Tank

ELEMENT	TYPE	PAGE		FAMILY	
P171531	K040549	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171531	K040567	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171531	K040567	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171531	K040774	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171531	K040879	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171531	K040889	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171531	K040985	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171531	K041016	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171531	K041320	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171531	K041541	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171531	K041548	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171531	K041565	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171531	K041577	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171532	K030273	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171532	K030367	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171532	K040532	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171532	K040550	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171532	K040771	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171532	K041017	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171532	K041023	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171532	K041321	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171532	K041522	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171532	K041540	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171532	K041553	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171532	K041564	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171532		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171532		61	Return Line Filters	FHK FIR	Return Filters In Tank
P171532		99	Suction Filters	FHK FIR	Suction Filters In Tank
P171532		103	Suction Filters	FLK FLA	Suction Filters In-Line
P171533	K030268	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171533	K030274	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171533	K030358	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171533	K030368	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171533	K040503	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171533	K040521	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171533	K040551	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171533	K040569	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171533	K040569	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171533	K040768	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171533	K040875	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171533	K040880	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171533	K040902	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171533	K041322	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171533	K041539	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171533	K041551	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171533	K041552	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171533	K041563	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171533	K041575	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171533	K041575	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171534	K040552	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171534	K040903	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171534	K030269	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171534	K030275	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171534	K030326	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171534	K030359	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171534	K040504	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171534	K040522	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171534	K040570	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171534	K040570	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171534	K040876	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171534	K040882	45	Return Line Filters	FIK FIO	Return Filters In Tank

ELEMENT	TYPE	PAGE		FAMILY	
P171534	K041522	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171534	K041538	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171534	K041550	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171534	K041551	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171534	K041562	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171534	K041574	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171534		57	Return Line Filters	FIK FIS	Return Filters In Tank
P171535	K030270	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171535	K030276	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171535	K030360	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171535	K030371	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171535	K040505	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171535	K040523	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171535	K040535	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171535	K040553	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171535	K040762	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171535	K040877	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171535	K040883	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171535	K040891	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171535	K040904	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171535	K041329	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171535	K041537	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171535	K041550	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171535	K041561	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171535	K041573	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171535		61	Return Line Filters	FHK FIR	Return Filters In Tank
P171535		99	Suction Filters	FHK FIR	Suction Filters In Tank
P171536	K040602	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171536	K040608	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171536	K040937	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171536	K040954	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171536	K041549	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171536	K051109	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171536	K051115	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171536	K051121	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171536	K051128	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171536	K051134	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171536	K051134	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171536	K051238	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171536	K051242	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171536	K051243	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171536	K051248	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171537	K040603	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171537	K040603	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171537	K040609	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171537	K040955	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171537	K041029	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171537	K051110	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171537	K051116	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171537	K051123	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171537	K051129	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171537	K051135	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171537	K051135	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171537	K051233	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171537	K051239	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171537	K051249	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171538	K040610	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171538	K040956	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171538	K051124	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171538	K051130	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171538	K051244	49	Return Line Filters	FIK FIOT	Return Filters In Tank

ELEMENT	TYPE	PAGE		FAMILY	
P171538	K051263	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171538		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171538		61	Return Line Filters	FHK FIR	Return Filters In Tank
P171538		99	Suction Filters	FHK FIR	Suction Filters In Tank
P171538		103	Suction Filters	FLK FLA	Suction Filters In-Line
P171539	K040605	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171539	K040611	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171539	K040939	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171539	K040957	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171539	K051112	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171539	K051118	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171539	K051125	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171539	K051131	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171539	K051137	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171539	K051137	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171539	K051231	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171539	K051232	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171539	K051235	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171539	K051245	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171540	K040606	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171540	K040612	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171540	K040940	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171540		79	Return Line Filters	FLK FLS	Return Filters In-Line
P171540	K051113	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171540	K051119	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171540	K051126	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171540	K051132	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171540	K051138	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171540	K051138	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171540	K051227	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171540	K051229	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171540	K051236	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171540	K051246	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171541	K040607	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171541	K040613	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171541	K040941	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171541	K040959	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171541	K051114	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171541	K051120	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171541	K051127	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171541	K051133	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171541	K051237	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171541	K051241	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171541	K051247	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171541	K051250	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171541		61	Return Line Filters	FHK FIR	Return Filters In Tank
P171541		99	Suction Filters	FHK FIR	Suction Filters In Tank
P171542	K070003	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171542	K070057	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171542	K070280	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171542	K070458	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171543	K070004	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171543	K070058	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171543	K070281	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171543	K070459	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171544	K070059	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171544	K070319	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171544		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171545	K070006	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171545	K070060	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171545	K070283	45	Return Line Filters	FIK FIO	Return Filters In Tank

ELEMENT	TYPE	PAGE		FAMILY	
P171545	K070322	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171546	K070007	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171546	K070061	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171546	K070284	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171546	K070460	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171547	K070008	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171547	K070062	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171547	K070285	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171547	K070461	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171548	K070009	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171548	K070063	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171548	K070286	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171548	K070462	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171549	K070010	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171549	K070064	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171549	K070355	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171549	K070463	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171550		49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171550		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171551	K070012	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171551	K070066	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171551	K070288	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171551	K070323	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171552	K070013	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171552	K070067	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171552	K070289	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171552	K070324	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171553	K070014	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171553	K070068	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171553	K070290	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171553	K070325	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171554	K070015	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171554	K070069	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171554	K070292	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171554	K070465	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171555	K070016	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171555	K070070	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171555	K070326	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171555	K070356	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171556	K070071	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171556	K070327	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171556		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171557	K070018	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171557	K070072	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171557	K070293	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171557	K070328	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171558	K070019	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171558	K070073	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171558	K070294	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171558	K070329	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171559	K070020	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171559	K070074	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171559	K070295	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171559	K070330	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171560	K070021	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171560	K070075	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171560	K070165	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171560	K070171	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171560	K070201	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171560	K070207	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171560	K070296	45	Return Line Filters	FIK FIO	Return Filters In Tank

ELEMENT	TYPE	PAGE		FAMILY	
P171560	K070365	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171560	K070400	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171560	K070420	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171560	K070510	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171560	K070569	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171561	K070022	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171561	K070076	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171561	K070166	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171561	K070172	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171561	K070202	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171561	K070208	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171561	K070297	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171561	K070331	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171561	K070401	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171561	K070421	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171561	K070505	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171561	K070565	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171562	K070077	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171562	K070173	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171562	K070209	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171562	K070332	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171562	K070422	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171562	K070566	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171562		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171562		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171562		103	Suction Filters	FLK FLA	Suction Filters In-Line
P171563	K070024	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171563	K070078	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171563	K070168	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171563	K070174	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171563	K070204	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171563	K070210	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171563	K070299	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171563	K070333	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171563	K070402	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171563	K070423	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171563	K070507	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171563	K070567	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171564	K070025	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171564	K070079	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171564	K070169	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171564	K070175	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171564	K070205	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171564	K070211	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171564	K070300	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171564	K070334	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171564	K070403	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171564	K070424	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171564		79	Return Line Filters	FLK FLS	Return Filters In-Line
P171564	K070508	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171565	K070026	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171565	K070080	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171565	K070170	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171565	K070176	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171565	K070206	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171565	K070212	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171565	K070301	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171565	K070335	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171565	K070404	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171565	K070425	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171565	K070509	103	Suction Filters	FLK FLA	Suction Filters In-Line

ELEMENT	TYPE	PAGE		FAMILY	
P171565	K070568	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171566	K070027	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171566	K070081	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171566	K070117	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171566	K070117	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171566	K070177	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171566	K070183	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171566	K070213	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171566	K070219	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171566	K070302	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171566	K070366	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171566	K070405	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171566	K070426	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171566	K070515	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171566	K070571	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171567	K070028	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171567	K070082	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171567	K070118	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171567	K070118	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171567	K070178	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171567	K070184	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171567	K070214	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171567	K070220	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171567	K070303	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171567	K070336	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171567	K070406	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171567	K070427	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171567	K070435	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171567	K070511	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171568	K070083	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171568	K070185	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171568	K070221	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171568	K070367	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171568	K070428	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171568	K070436	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171568		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171568		61	Return Line Filters	FHK FIR	Return Filters In Tank
P171568		99	Suction Filters	FHK FIR	Suction Filters In Tank
P171568		103	Suction Filters	FLK FLA	Suction Filters In-Line
P171569	K070030	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171569	K070084	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171569	K070120	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171569	K070120	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171569	K070180	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171569	K070186	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171569	K070216	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171569	K070222	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171569	K070305	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171569	K070337	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171569	K070408	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171569	K070429	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171569	K070437	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171569	K070513	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171570	K070031	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171570	K070085	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171570	K070121	61	Return Line Filters	FHK FIR	Return Filters In Tank
P171570	K070121	99	Suction Filters	FHK FIR	Suction Filters In Tank
P171570	K070181	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171570	K070187	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171570	K070217	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171570	K070223	79	Return Line Filters	FLK FLS	Return Filters In-Line

ELEMENT	TYPE	PAGE		FAMILY	
P171570	K070306	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171570	K070338	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171570	K070409	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171570	K070430	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171570	K070438	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171570	K070514	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171571	K070032	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171571	K070086	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171571	K070182	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171571	K070188	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171571	K070218	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171571	K070224	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171571	K070307	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171571	K070339	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171571	K070410	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171571	K070411	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171571	K070431	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171571	K070439	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171571		61	Return Line Filters	FHK FIR	Return Filters In Tank
P171571		99	Suction Filters	FHK FIR	Suction Filters In Tank
P171572	K070033	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171572	K070045	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171572	K070087	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171572	K070099	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171572	K070308	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171572	K070343	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171572	K070358	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171572	K070466	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171573	K070034	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171573	K070046	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171573	K070088	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171573	K070100	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171573	K070277	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171573	K070340	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171573	K070364	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171573	K070467	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171574	K070089	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171574	K070101	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171574	K070369	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171574	K070468	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171574		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171575	K070036	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171575	K070048	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171575	K070090	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171575	K070102	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171575	K070309	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171575	K070317	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171575	K070341	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171575	K070469	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171576	K070037	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171576	K070049	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171576	K070091	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171576	K070103	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171576	K070310	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171576	K070318	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171576	K070342	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171576	K070344	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171577	K070038	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171577	K070050	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171577	K070092	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171577	K070104	49	Return Line Filters	FIK FIOT	Return Filters In Tank

ELEMENT	TYPE	PAGE		FAMILY	
P171577	K070311	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171577	K070345	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171577	K070357	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171577	K070454	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171578	K070039	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171578	K070051	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171578	K070093	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171578	K070105	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171578	K070225	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171578	K070231	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171578	K070363	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171578	K070359	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171578	K070412	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171578	K070440	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171578	K070455	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171578	K070470	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171579	K070040	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171579	K070052	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171579	K070094	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171579	K070106	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171579	K070226	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171579	K070232	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171579	K070312	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171579	K070346	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171579	K070349	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171579	K070360	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171579	K070441	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171579	K070516	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171580	K070095	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171580	K070107	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171580	K070233	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171580	K070442	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171580	K070456	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171580	K070471	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171580		45	Return Line Filters	FIK FIO	Return Filters In Tank
P171580		103	Suction Filters	FLK FLA	Suction Filters In-Line
P171581	K070042	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171581	K070054	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171581	K070096	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171581	K070108	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171581	K070228	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171581	K070234	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171581	K070314	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171581	K070320	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171581	K070347	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171581	K070350	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171581	K070414	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171581	K070443	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171582	K070043	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171582	K070055	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171582	K070097	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171582	K070109	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171582	K070229	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171582	K070235	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171582	K070315	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171582	K070321	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171582	K070348	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171582	K070415	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171582	K070444	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171582	K070742	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171583	K070044	45	Return Line Filters	FIK FIO	Return Filters In Tank

ELEMENT	TYPE	PAGE		FAMILY	
P171583	K070056	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171583	K070098	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171583	K070110	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171583	K070230	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171583	K070236	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171583	K070316	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171583	K070362	45	Return Line Filters	FIK FIO	Return Filters In Tank
P171583	K070416	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171583	K070445	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171583	K070457	49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171583		49	Return Line Filters	FIK FIOT	Return Filters In Tank
P171584	K040590	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171584	K040596	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171584	K040932	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171584	K040948	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171585	K040591	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171585	K040597	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171585	K040933	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171585	K040949	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171586	K040598	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171586	K040950	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171586		103	Suction Filters	FLK FLA	Suction Filters In-Line
P171587	K040593	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171587	K040599	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171587	K040934	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171587	K040951	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171588	K040594	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171588	K040600	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171588	K040935	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171588	K040952	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171589	K040595	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171589	K040601	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171589	K040936	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171589	K040953	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171590	K070153	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171590	K070159	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171590	K070189	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171590	K070195	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171590	K070396	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171590	K070432	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171590	K070503	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171590	K070560	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171591	K070154	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171591	K070160	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171591	K070190	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171591	K070196	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171591	K070496	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171591	K070498	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171591	K070558	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171591	K070561	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171592	K070161	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171592	K070197	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171592	K070559	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171592	K070562	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171592		103	Suction Filters	FLK FLA	Suction Filters In-Line
P171593	K070156	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171593	K070162	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171593	K070192	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171593	K070198	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171593	K070397	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171593	K070417	79	Return Line Filters	FLK FLS	Return Filters In-Line

ELEMENT	TYPE	PAGE		FAMILY	
P171593	K070500	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171593	K070563	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171594	K070157	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171594	K070163	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171594	K070193	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171594	K070199	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171594	K070398	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171594	K070418	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171594	K070501	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171594	K070564	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171595	K070158	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171595	K070164	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171595	K070194	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171595	K070200	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171595	K070399	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171595	K070419	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171595	K070433	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171595	K070502	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171596	K040614	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171596	K040620	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171596	K040942	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171596	K040960	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171597	K040115	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171597	K040615	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171597	K040621	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171597	K041124	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171598	K040622	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171598	K041125	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171598		103	Suction Filters	FLK FLA	Suction Filters In-Line
P171599	K040617	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171599	K040623	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171599	K040943	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171599	K040961	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171600	K040618	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171600	K040624	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171600	K040944	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171600	K040962	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171601	K040619	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171601	K040945	103	Suction Filters	FLK FLA	Suction Filters In-Line
P171601	K040963	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171601	K040963	79	Return Line Filters	FLK FLS	Return Filters In-Line
P171602	K040626	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171602	K040631	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171602	K041138	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171602	P177187	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171604	K040627	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171604	K040632	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171604	K041139	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171606	K040629	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171606	K040634	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171606	K041141	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171606	P172366	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171607	K040635	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171607		113	Suction Filters	FBK FACA	Suction Filters In-Line
P171607	P177189	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171608	K040636	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171608	K040641	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171608	K041145	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171608	P177190	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171609	K040637	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171609	K040642	85	Return Line Filters	FBK FRCA	Return Filters In-Line

ELEMENT	TYPE	PAGE		FAMILY	
P171609	K041146	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171610	K040638	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171610	K040643	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171610	K041147	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171610	P172367	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171611	K040639	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171611	K040644	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171611	K040970	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171611	P172368	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171612	K040645	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171612		113	Suction Filters	FBK FACA	Suction Filters In-Line
P171612	P177192	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171613	K051146	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171613	K051151	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171613	K051332	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171613	K250001	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171613	K250031	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171613	K250107	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171613	P177193	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171614	K051147	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171614	K051152	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171614	K051333	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171614	K250002	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171614	K250032	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171614	K250108	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171616	K041149	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171616	K051154	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171616	K051334	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171616	K250034	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171616	P172370	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171617	K051155	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171617	K250035	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171617		113	Suction Filters	FBK FACA	Suction Filters In-Line
P171617	P177195	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171618	K051156	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171618	K051161	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171618	K051261	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171618	K250004	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171618	K250006	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171618	K250036	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171618	K250109	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171618	K250113	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171618	P177196	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171619	K051157	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171619	K051162	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171619	K051338	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171619	K250007	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171619	K250037	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171619	K250114	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171620	K051158	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171620	K051163	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171620	K051339	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171620	K250008	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171620	K250038	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171620	K250115	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171620	P172371	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171621	K051164	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171621	K051340	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171621	K250009	113	Suction Filters	FBK FACA	Suction Filters In-Line
P171621	K250039	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171621	K250116	113	Suction Filters	FBK FACA	Suction Filters In-Line

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P171621	P172372	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171622	K051165	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171622	K250040	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P171622		113	Suction Filters	FBK FACA	Suction Filters In-Line
P171622		113	Suction Filters	FBK FACA	Suction Filters In-Line
P171622	P177198	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P171671		113	Suction Filters	FBK FACA	Suction Filters In-Line
P171701	K020078	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171702	K020079	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171703	K020080	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171704	K020081	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171705	K020082	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171706	K020083	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171706	K020200	123	In-Line Filters	FCK LC	Medium Pressure Filters
P171707	K020084	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171708	K020085	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171709	K020086	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171710	K020087	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171711	K020088	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171712	K020089	121	In-Line Filters	FMK FM	Medium Pressure Filters
P171713	K0201691	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
P171714	K020103	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
P171715	K020104	137	In-Line Filters	FPK 02 AP280	High Pressure Filters
P171731	K030284	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171732	K030285	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171732	K030507	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171733	K030286	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171734	K030287	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171734	K030290	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171735	K030288	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171735	K030291	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171735	K030506	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171736	K030289	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171736	K030292	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171737	K030293	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171737	K030296	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171738	K030294	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171738	K030297	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171738	K030323	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171739	K030295	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171739	K030298	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171740	K040674	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171740	K040677	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171740	K041453	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171740	K041036	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171741	K040675	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171741	K040678	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171741	K040854	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171741	K040800	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171742	K040676	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171742	K040679	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171743	K040680	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171743	K040683	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171744	K040681	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171744	K040684	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171744	K040839	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171745	K040682	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171745	K040685	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171746	K040686	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171746	K040689	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171747	K040687	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters

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P171747	K040690	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171748	K040688	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171748	K040691	141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P171767	K010005	145	In-Line Filters	FCK LC	High Pressure Filters
P171768	K010006	145	In-Line Filters	FCK LC	High Pressure Filters
P171769	K010007	145	In-Line Filters	FCK LC	High Pressure Filters
P171771	K010009	145	In-Line Filters	FCK LC	High Pressure Filters
P171772	K020120	145	In-Line Filters	FCK LC	High Pressure Filters
P171773	K020121	145	In-Line Filters	FCK LC	High Pressure Filters
P171774	K020122	145	In-Line Filters	FCK LC	High Pressure Filters
P171776	K020124	145	In-Line Filters	FCK LC	High Pressure Filters
P171777	K020125	145	In-Line Filters	FCK LC	High Pressure Filters
P171778	K020126	145	In-Line Filters	FCK LC	High Pressure Filters
P171779	K020127	145	In-Line Filters	FCK LC	High Pressure Filters
P171781	K020129	145	In-Line Filters	FCK LC	High Pressure Filters
P171783	P172386	151	Accessories	PXX FS	Tank Breathers with take apart element
P171784	P172387	151	Accessories	PXX FS	Tank Breathers with take apart element
P171785	P172388	151	Accessories	PXX FS	Tank Breathers with take apart element
P171786	P172389	151	Accessories	PXX FS	Tank Breathers with take apart element
P171829	K030304	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171829	K030524	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171830	K030305	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171830	K030530	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171831	K040760	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171831	K041330	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171831	K041542	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171831	K041566	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171831	K041578	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171832	K030306	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171832	K030529	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171832	K041554	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171833	K030307	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171833	K030535	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171834	K040763	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171834	K041336	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171834	K041543	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171834	K041567	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171834	K041579	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171835	K041555	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171835		57	Return Line Filters	FIK FIS	Return Filters In Tank
P171836		57	Return Line Filters	FIK FIS	Return Filters In Tank
P171837	K041544	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171837	K041568	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171837	K041580	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171837		57	Return Line Filters	FIK FIS	Return Filters In Tank
P171838	K030310	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171838	K030527	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171838	K041556	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171839	K030311	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171839	K030533	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171840	K040769	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171840	K041334	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171840	K041545	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171840	K041569	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171840	K041581	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171841		57	Return Line Filters	FIK FIS	Return Filters In Tank
P171841	K030526	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171841	K041557	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171842	K030313	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171842	K030532	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171843	K040772	57	Return Line Filters	FIK FIS	Return Filters In Tank

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P171843	K041332	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171843	K041546	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171843	K041570	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171843	K041582	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171844	K030314	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171844	K030525	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171844	K041558	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171845	K030315	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171845	K030531	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171846	K040775	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171846	K041331	57	Return Line Filters	FIK FIS	Return Filters In Tank
P171846	K041547	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171846	K041571	53	Return Line Filters	FIK FIO, 4 HOLES FLANGES	Return Filters In Tank
P171846	K041583	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171847	K041559	53	Return Line Filters	FIK FIOT, 4 HOLES FLANGE	Return Filters In Tank
P171861		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171862		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171863		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171865		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171866		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171867		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171869		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171870		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171871		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171873		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171874		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171875		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171877		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171878		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171879		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171885		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171886		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171887		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171889		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171890		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171891		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171893		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171894		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171895		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171897		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171898		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171899		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171901		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171902		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171903		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171905		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171906		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171907		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171909		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171910		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P171911		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P172433	P172381	151	Accessories	PXX FS	Tank Breathers with take apart element
P172433	P172382	151	Accessories	PXX FS	Tank Breathers with take apart element
P172433	P172383	151	Accessories	PXX FS	Tank Breathers with take apart element
P172433	P172384	151	Accessories	PXX FS	Tank Breathers with take apart element
P172433	P172385	151	Accessories	PXX FS	Tank Breathers with take apart element
P172435	P761046	151	Accessories	PXX FS	Tank Breathers with take apart element
P172435	P761047	151	Accessories	PXX FS	Tank Breathers with take apart element
P172435	P761048	151	Accessories	PXX FS	Tank Breathers with take apart element
P172435	P761049	151	Accessories	PXX FS	Tank Breathers with take apart element
P172435	P761050	151	Accessories	PXX FS	Tank Breathers with take apart element

ELEMENT	TYPE	PAGE		FAMILY	
P172452		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P172453		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P172454		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P175334		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P175335		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P175336		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P175337		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P175338		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P175339		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P175340		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P175342		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P175343		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P175447	P761051	151	Accessories	PXX FS	Tank Breathers with take apart element
P176619		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176620		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176621		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176622		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176623		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176624		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176625		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176626		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176627		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176628		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176629		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176630		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176631		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176632		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176633		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176634		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176635		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176636		141	In-Line Filters	FPK 03 & 04 AP420	High Pressure Filters
P176779		129	In-Line Filters	HMK 05 Duramax	Medium Pressure Filters
P550148	K041230	113	Suction Filters	FBK FACA	Suction Filters In-Line
P550148	K051148	113	Suction Filters	FBK FACA	Suction Filters In-Line
P550148	K051153	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P550148	K250003	113	Suction Filters	FBK FACA	Suction Filters In-Line
P550148	K250033	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P550148	K250062	113	Suction Filters	FBK FACA	Suction Filters In-Line
P550148	P172369	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P550268	K040628	113	Suction Filters	FBK FACA	Suction Filters In-Line
P550268	K040633	85	Return Line Filters	FBK FRCA	Return Filters In-Line
P550268	K041140	113	Suction Filters	FBK FACA	Suction Filters In-Line
P550268	P172365	152	Accessories	PXX FFCA	Tank Breathers Spin-On
P760151		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P760173		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P760175		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P761045	P761052	151	Accessories	PXX FS	Tank Breathers with take apart element
P761054	P761053	151	Accessories	PXX FS	Tank Breathers with take apart element
P761064		125	In-Line Filters	HMK 04 Duramax	Medium Pressure Filters
P762421	K041301	64	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
P762421	K041610	64	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
P763478		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P763485	K030301	145	In-Line Filters	FCK LC	High Pressure Filters
P763487	K030299	145	In-Line Filters	FCK LC	High Pressure Filters
P763489	K030300	145	In-Line Filters	FCK LC	High Pressure Filters
P763493	K030303	145	In-Line Filters	FCK LC	High Pressure Filters
P763643	K041511	64	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
P763643	K041595	64	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
P763652	K041511	64	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
P763652	K041595	64	Return Line Filters	FIK COMBO 120 Series	Return & Suction Filters In Tank
P764183	K041535	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank

ELEMENT	TYPE	PAGE	FAMILY		
P764183	K041596	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764183	K041598	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764183	K041599	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764183	K041602	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764183	K041603	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764183	K041606	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764183	K041607	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041528	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041535	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041596	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041597	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041598	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041599	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041600	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041601	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041602	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041603	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041604	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041605	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041606	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041607	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041608	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764198	K041609	74	Return Line Filters	FIK COMBO 200 Series	Return & Suction Filters In Tank
P764370		95	Suction Filters	PXX FIOA	Suction Filters In Tank
P764371		95	Suction Filters	PXX FIOA	Suction Filters In Tank



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