HYDRAULIC AND LUBRICATION FILTERS

internormen technology

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LOW PRESSURE FILTERS

Internormen low pressure filters are suitable for a working pressure up to 1450 PSI (100 bar). Pressure filters are used to protect downstream components from contamination levels beyond the recommended cleanliness target. In systems using accumulators, pressure filters must be sized according to the large effective flow rates present during parts of the duty cycle.

Characteristics

The filters can be installed as suction filters, pressure filters or return-line filters.
Coarse filters of the GFK series are suitable for a working pressure up to 16 bar.
The GFK filter elements are filter baskets with steel wire mesh as filter material. The perforated center tube is layed out with steel wire mesh. The flow direction is from inside to the outside.
In-line filters of the LF series are suitable for a working pressure up to 32 bar.
The LF Series filter element consists of star-shaped, pleated filter material which is supported on the inside by a perforated core tube and is bonded to the end caps with a high-quality adhesive.

Products

LF Series
LF 63
LF 101
LF 251-1100
LF 1201-10001
LF 1211-10011
LF 1950-2200
LF 2005-4005
GFK Series
GFK 50-80
GFK 100-500

HIGH PRESSURE FILTERS

Internormen high pressure filters are suitable for a working pressure higher than 1450 PSI (100 bar). Pressure filters are used to protect downstream components from contamination levels beyond the recommended cleanliness target. In systems using accumulators, pressure filters must be sized according to the large effective flow rates present during parts of the duty cycle.

Characteristics

ML, MNL series are designed for mounting in pressure lines. Economical, lightweight filters for low to medium pressure applications. Require minimal clearance during element change.
HP filters can be in-line or flange mounted in pressure lines and are able to accommodate very high flow rates with a single housing. Various designs, port and indicator options available.
HPW series are filters for flange or threaded mounting, for reversible filtration, to be used where filtration can occur in both directions.
HPV, MDV are in-line pressure filters guaranteeing a permanent supply of clean oil: if the element clogs, change is forced, which means no damage is possible to downstream components.
Series MNU, HNU, HPU and HPP are designed for flange or manifold mounting in pressure lines, thereby saving space and providing filtration directly at the point needed.
HPF, HPX and HPY filters are meant for manifold mounting in pressure lines, providing filtration exactly where needed, thereby preventing contaminants from passing downstream during filter element changes.

HIGH PRESSURE FILTERS

Products

FHP Series
•FHP 60-150
HP Series
•HP 31
•HP 61-151
•HP 170-450
•HP 171-451
•HP 601-1351
HPV Series
•HPV 60-150
•HPV 170-450
HPP Series
•HPP 60-450
•HPP 601-1351
HNU Series
•HNU 401
HPU Series
•HPU 601-1351
HPF Series
•HPF 30. HPFO 30
•HPF 60-450
•HPF 601-1351

HPW Series
•HPW 60-450
•HPW 601-1351
HPX Series
•HPX 60-150
•HPX 170-450
•HPX 601-1351
HPY Series
•HPY 60-150
•HPY 170-450
HPZ Series
•HPZ 32
•HPZ 90
MF Series
MF 30, MFO 30
ML Series
ML 30, MLO 30
ML 170-450
MNL Series
•MNL 40-100
MDV Series
•MDV 40-63
MNU Series
•MNU 250-400

RETURN LINE FILTERS

Internormen offers return line filters in various designs and for different application possibilities. The housings can be mounted in-line or directly within the reservoir itself (sometimes referred to as an in-tank filter). Ideal for use in mobile applications.
Return line filters may also be equipped with additional breather filters. Secondary ports may also be incorporated to add make-up fluid and ensure that the fluid is transferred through a filter before entering the system

Characteristics

Return In-Line Filters RF series are lightweight aluminum design filters, designed for connection in return lines
TEF series, In-tank Return Line filters are easy to change with multiple inlet ports and a removable bowl which prevents contamination from entering the reservoir
TEFB series are In-tank Return Line filters with additional air breather
TRS, TNRS series are tank-mounted return line filters with suction connection suitable for mobile hydraulic applications with a minimum of two independent hydraulic circuits
TRW series are horizontal return line filters for mounting below the tank fluid level.

HIGH PRESSURE FILTERS

Products

RF Series
- RF 210-320

TEF Series
- TEF 41
- TEF 55-320
- TEF 426
- TEF 625
- TEF 952
- TEF 1652
- TEF 2551
- TEF 4801-7201

TEFB Series
- TEFB 41
- TEFB 55-120
- TEFB 210-310

DTEF Series
- DTEF 70
- DTEF 120
- DTEF 320
- DTEF 426
- DTEF 625
- DTEF 952
- DTEF 1652
- DTEF 2551

TRW Series
- TRW 310

TNRS Series
- TNRS 101

TRS Series
- TRS 625
- TRS 226

SUCTION FILTERS

Internormen suction filters protect hydraulic pumps and control systems from solid contaminants. They should be used as immersion suction filters on pump inlet lines. These units have various application possibilities: as in-tank filters mounted directly to the reservoir, in the intake lines of hydraulic pumps to afford a degree of protection from contaminants to the pump and other components in the hydraulic system.

The practical design of the Internomen suction filters makes service easy. When releasing the filter lid a plate valve closes the suction-inlet of the filter and prevents the return flow of dirt oil to the reservoir, respectively when mounted horizontally the flow out of the reservoir is prevented.

After servicing change the element the filter is ready for operation. According to operating conditions, different accessories (clogging indicators, counter flange, etc.) are available for the filter.

Products

ASF Series
ASF 25-275
AS Series
AS 220
AS 632
SS Series SS 5-100
TS Series
TS 210-310
TS 426
TS 625
TSW Series
TSW 210-310
TSW 426
TSW 625

STAINLESS STEEL PRESSURE FILTERS

Internormen high-quality stainless steel filters are ideally suited for filtration of highly contaminated liquids, fuels, lubrication oils, solvents, machine tool cooling lubricants, chemical process cleaning fluids, and for filtration of cooling water and seawater.

The strength and durability of Internormen stainless steel filters is unsurpassed. Their resistance to corrosion makes them suitable for water and emulsions in off-shore technology, the chemical and food industries, water treatment plants in the power industry, and in cases of extreme outdoor and environmental conditions.

Characteristics

High performance series
Modular construction
Easily operated and serviced
High-quality filter elements
Different filter materials

- EH Series EH 31
- EH 60-150
- EH 240-450
- EH 601-1351
- EHP Series EHP 60-90
- EHPF Series EHPF 60-150
- EHPF 170-450
- EHD Series EHD 61-151
- EHD 241-451
- EDU Series EDU 251-401
- EDU 635
- EDA Series EDA 100
- EDA 101
- EDA 250-400
- EDA 251-401
- EDA 630-1000
- EDA 631-1001
- EDA 1004
- EDA 1005
- EDA 1014
- EDA 1015
- EDA 2204
- EDA 2205
- EDA 2214
- EDA 2215

DUPLEX PRESSURE FILTERS

Internormen duplex pressure filters are known for their high intrinsic stability and excellent filtration capability. These filters operate continuously, when the first filter needs replacement or maintenance, an integrated rotary slide valve switches flow to the opposite side without interruption to flow. This enables a system to work continuously without interruption or shutdown.

Internormen duplex filters can be mounted into suction, pressure or return lines and are designed for continuous filtration without system shutdown. Replacing the filter element is easy. Simply open the shut-off valve for pressure equalization then switch the filter to the opposite side. The DA and DNA series are certified and build according to ASME standards.

- DU Series DU 63
- DU 101-401
- DU 631-1950
- DU 635
- DU 1050-2050
- DU 2005-4005
- DSF Series DSF 1201-10001
- DSF 1205-10005
- DSF 176-331
- DSF 180-340
- DNR Series DNR 1001-8201
- DNR 1005-8205
- DUV Series DUV 635
- DUV 1050-2050
- DUV 2005-4005

HDD Series

- HDD 3
- HDD 30
- HDD 61-151
- HDD 170-450
- HDD 601-1351
- DNA Series (according to ASME) DNA 250-630
- DNA 1050-2050
- DA Series (according to ASME) DA 100
- DA 101
- DA 250-400
- DA 251-401
- DA 630-1000
- DA 631-1001
- DA 1004
- DA 1005
- DA 1014
- DA 1015
- DA 2204
- DA 2205
- DA 2214
- DA 2215

DGFK Series

- DGFK 01-07

MDD Series

- MDD 40-63

SPIN-ON FILTERS

Spin-on filters typically consist of a head mounted directly in-line with the return piping and a canister containing an element which screws onto a threaded post.

The In-line filter series WPL spin-on-filters are suitable for an operating pressure up to 145 psi (10 bar) and are chosen for mounting into pressure lines and return lines. The spin-on-filters directly screw to hydrostatic drives. These series allow an easy maintenance with short operating interruption. After use, replace the complete spin-on-filter. A pressure switch and pressure gauge are available for the WPL-filter.

Applications Agricultural equipment - tractors, spreaders, harvesters
Metal forming presses
Strapping systems
Brush Chippers
Turf maintenance equipment
Small power units

Products
WPL 45-260

FILTERS ELEMENTS

Internormen product line consists of more than 4000 different types of high-quality filter elements with highest dirt-holding capacities ensuring consistent filter efficiency, even at high pressure differences. Various filter materials, construction types and micron ratings are available guaranteeing a long lifetime of your systems. Filter materials, bonding and processing are regularly controlled and tested in our R&D centers.

Interpor Fleece (VG) Glass Fiber
Deep filtration
High particle holding capacity
Best micron rating at high Δp
Usable for mineral oils, emulsions, and for most synthetic hydraulic fluids and lubrication oils
Filter fineness based on filtration quotient ßx(c) ≥ 200:
4 µm(c), 5 µm(c), 7 µm(c), 10 µm(c), 15 µm(c), and 20 µm(c)

Paper Matting (P)
Deep filtration
Constructed of paper and polyester fiber
High material stability and strength
Available in 10 µm and 25 µm fineness

Stainless Steel Mesh (G)
Surface filtration
Provides high resistance filter elements (irrespective of the hydraulic fluid used)
Partially cleanable
Available in 25 µm, 40 µm, and 80 µm finenesses (other micron ratings on request)

FILTERS ELEMENTS

Eaton Internormen filter elements are tested according to the following ISO-Standards:
ISO 2941 Verification of collapse/burst resistance
ISO 2942 Verification of fabrication integrity
ISO 2943 Verification of material compatibility with fluids
ISO 3723 Method for end load testing
ISO 3724 Verification of flow fatigue characteristics
ISO 3968 Evaluation of pressure drop versus flow characteristics
ISO 16889 Multi-Pass method for evaluating filtration performance

OFF-LINE FILTERS

Internormen Off-Line Filters are partial flow filters for fine filtration of hydraulic and lubrication circuits meant as a supplement to the main filter. Off-line filtration improves the cleanliness and quality of operating fluids and prolongs its durability, thereby preventing early wear and tear of system components.

Internormen NF-series off-line filters offer a large filtration area in a compact size allowing for high dirt-retaining capacity even with a small filter fineness. The easily accessible filter element can be changed quickly and without tools.

Available options

Water absorption filter elements (Watersorp)

Products

NF 250
NF 631
NF 1000

BREATHER FILTERS

The Eaton Internormen tank breather filters "breathe" air in and out as the oil level rises and falls. The filters prevent the penetration of contamination form the ambient air in the hydraulic fluid. This circulating air contains articles and moisture that can cause corrosion, increase equipment wear, and reduce fluid performance. In typical systems, the internal hydraulic fluid is warmer than the external environment. This difference in temperatures causes water vapor to form. Breathers protect your hydraulic system by filtering out damaging moisture and particles.

Desiccant air breathers prevent water and other contaminants from entering fluid reservoirs where differential pressures can occur through thermal expansion and contraction of the fluid, or during filling or emptying procedures. Breathers utilize the entire filter area and have the ability to extract water vapor out of the air as soon as it enters the unit. Accompanying solid particles are removed by a 3 um absolute glass filter, allowing only clean, dry air to enter the system.

Characteristics

Available in 4 sizes
Refillable with drying agent
Available with adapter and clogging indicator
Replacement spin-on air filter available separately
Seal and plastic plug prevent moisture entering before installation

BREATHER FILTERS

Applications

Hydraulic systems
Bearing lubrication systems
Mobile earthmoving equipment
Gearboxes
Robotic hydraulic systems
Mobile tank systems
Diesel fuel storage tanks
Transformers with oil cooling systems
Vacuum and welding chambers
Agricultural equipment

Products

BFD Series BFD 95-130
BF-WP
EBF
NBF
TBF