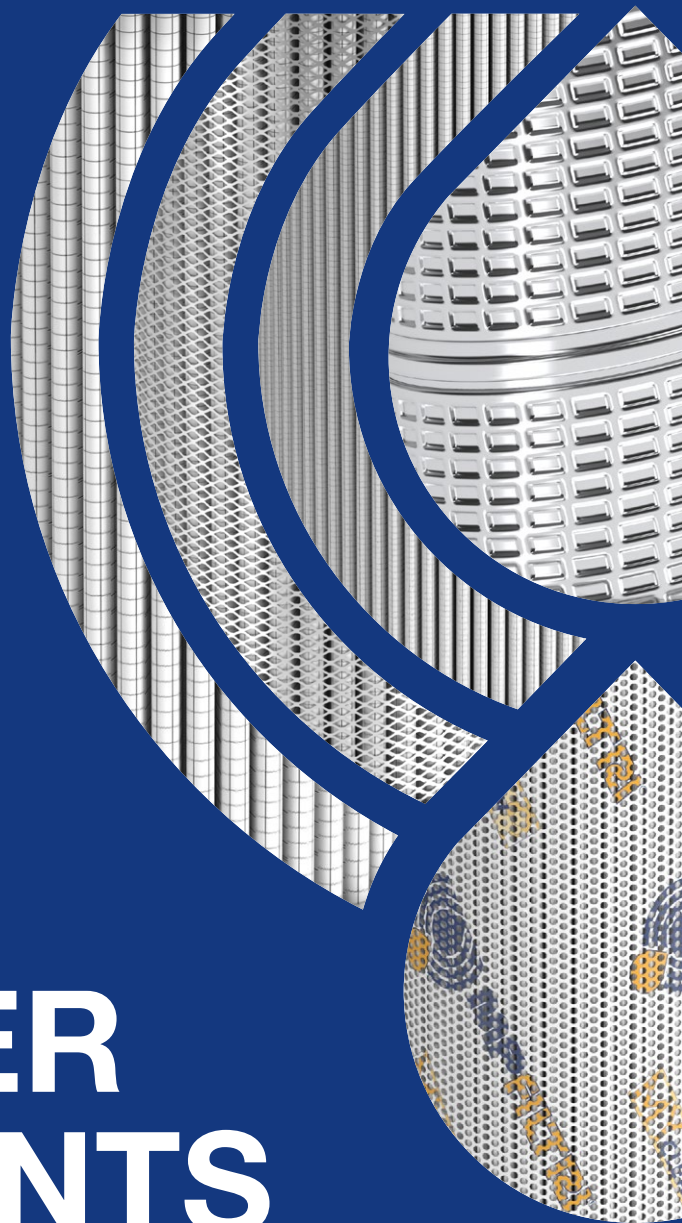


Our technologies make the world pure



FILTER ELEMENTS

MAXIMUM PROTECTION FROM CONTAMINATION

MP Filtri's filter elements protect hydraulic and lubrication systems from contamination and solid particulates. Particulate contamination is the primary cause of failures and malfunctions in these systems.

One range of elements can also protect from water ingress which leads to degradation of the lubrication capability and the surface protection provided by the fluid.

The most effective method of controlling contamination within the systems is usually achieved by mechanical processes.

SURFACE FILTRATION

The surface filtration prevents any particles greater than the pore size entering the system by direct intervention. This filter media normally comprises metal mesh material.

DEPTH FILTRATION

Depth filters are composed of overlapping fiber mats, which form flow-paths in various shapes and dimensions. The particles are retained in the pores, which are smaller than the diameter of the particles. The filter materials are normally fabricated with phenol resin impregnated cellulose fibres, metal fibres or inorganic fibres. During filtering with inorganic fibres (commonly called microfibrils) the filter layers are often placed on top of each other to increase the element's efficiency to retain contamination.

WATER ABSORBER

MP Filtri's water-absorbing filter element is available with a filtration ability of 25 μm (identified with the material designation WA025) and guarantees the absolute filtering of the solid particles at $\beta_{25(\text{C})} = 1000$. The absorbing material is comprised of water absorbing fibres, which expand during absorption; the free water bound to the filter media is completely removed from the system and is no longer released.

Exclusive filter element



THE NEW FILTER CONCEPT



Quality and efficiency are fundamental for MP Filtri.

This exclusive new filter element possesses polygon shape geometry and specific seal that ensures only original spare parts can be used - ensuring correct operation and higher system reliability.

The products identified as MPFX, MPTX, MRSX, MPLX, MFBX, MFX, RSX and SFEX, RFEX, LFEX of the series ELIXIR[®] are protected by the following patents:

- Italian Patent: n° 102014902261205
- European Patent: n° 16181725.9
- Canadian Patent: n° 2,937,258

Furthermore, it is protected by the following patent application:

- US Patent Pending: n° 15/224,337

Protect the performance of your system with MYclean.



MAXIMUM TECHNOLOGY UNDER THE SURFACE



1

PET layer for external protection of the filter element assembly during installation and service. The design ensures an effective open area for maximum flow capacity. Customer-specific logo adaptations are possible.

2

External metal mesh support for protection of the filtration medias from flow and pressure fluctuations and also to protect the integrity of the element's pleated structure.

3

External pre-filtration layer made of synthetic fibres available in two types:

- polyester material for protection of filter medias manufactured in microfibre (ultra-fine and fine);
- microfibre material (fibreglass) for elements retaining large size solid particulates.

4

Primary microfibre filtration $\beta_{25(c)} = 1000$ beta efficiency for ultra-fine and fine applications ensuring maximum dirt holding capacity combined with low pressure drop characteristics.

5

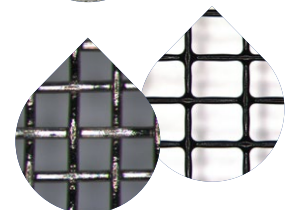
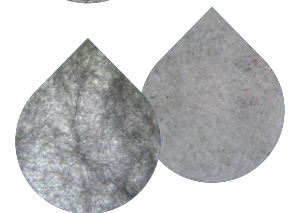
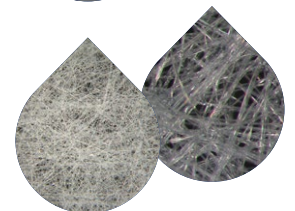
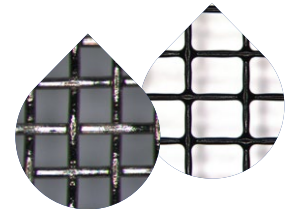
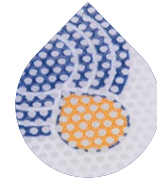
Polyester downstream layer support for protection of the filter media pleat structure.

6

Metal mesh for internal support of the filter medias to maintain the integrity of the overall element pleat pack. The mesh is available in stainless steel, or carbon steel with epoxy resin coating.

7

Enhanced protection of the element assembly from differential pressures is provided by the perforated inner support tube ensuring the integrity of the filter element pleat pack therefore preventing its collapse.



ALL OF OUR FILTERS COMPLY WITH ALL HYDRAULIC SECTOR REGULATIONS

- ISO 10771-1 Fatigue pressure testing of metal pressure-containing envelopes
- ISO 16860 Test method for differential pressure devices
- ISO 16889 Multi-pass method for evaluating filtration performance of a filter element
- ISO 18413 Cleanliness of components - Inspection document and principles related to contaminant extraction and analysis, and data reporting
- ISO 23181 Determination of resistance to flow fatigue using high viscosity fluid
- ISO 2941 Verification of collapse/burst pressure rating
- ISO 2942 Verification of fabrication integrity and determination of the first bubble point
- ISO 2943 Verification of material compatibility with fluids
- ISO 3724 Determination of resistance to flow fatigue using particulate contaminant
- ISO 3968 Evaluation of differential pressure versus flow characteristics
- ISO 4405 Determination of particulate contamination by the gravimetric method
- ISO 4406 Method for coding the level of contamination by solid particles
- ISO 4407 Determination of particulate contamination by the counting method using an optical microscope
- ISO 16232-7 Particle sizing and counting by microscopic analysis
- DIN 51777 Determination of water content using titration according to Karl Fischer

MULTI-PASS ISO 16889

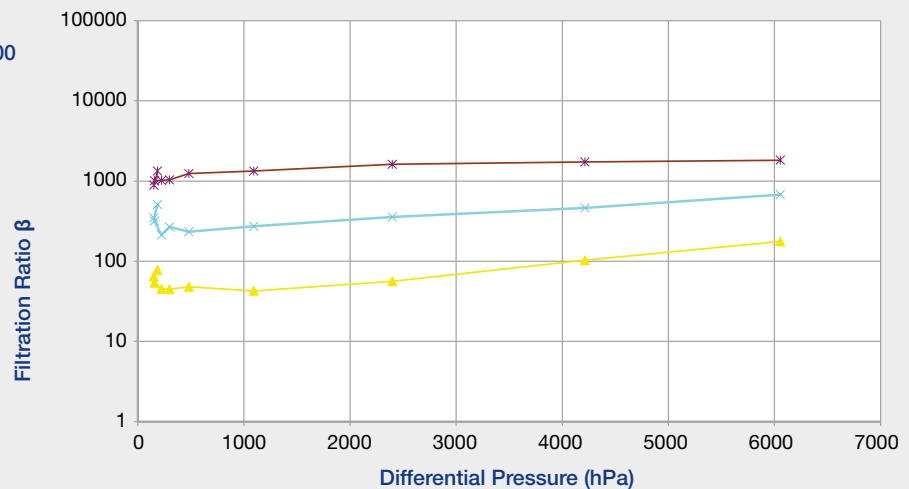
The ISO Multipass test is to evaluate filtration performance of a filter element. This standard provides reproducible test methods and data determining filtration efficiency, contamination holding capacity, and differential pressure characteristics. The test can be used on filter media which have a filtration quotient (Beta value) of $\beta_{25(c)} \geq 75$ and a gravimetric end level in the tank of less than 200 mg/l. The test is done using a constant supply of a contaminant ISO MTD (Medium Test Dust).

Filtration ISO standard Comparison		
$\beta_{x(c)} > 1000$ ISO 16889	$\beta_x > 200$ ISO 4572	MP Filtri Filter media code
5 $\mu\text{m}_{(c)}$	3 μm	A03
7 $\mu\text{m}_{(c)}$	6 μm	A06
10 $\mu\text{m}_{(c)}$	10 μm	A10
16 $\mu\text{m}_{(c)}$	18 μm	A16
21 $\mu\text{m}_{(c)}$	25 μm	A25

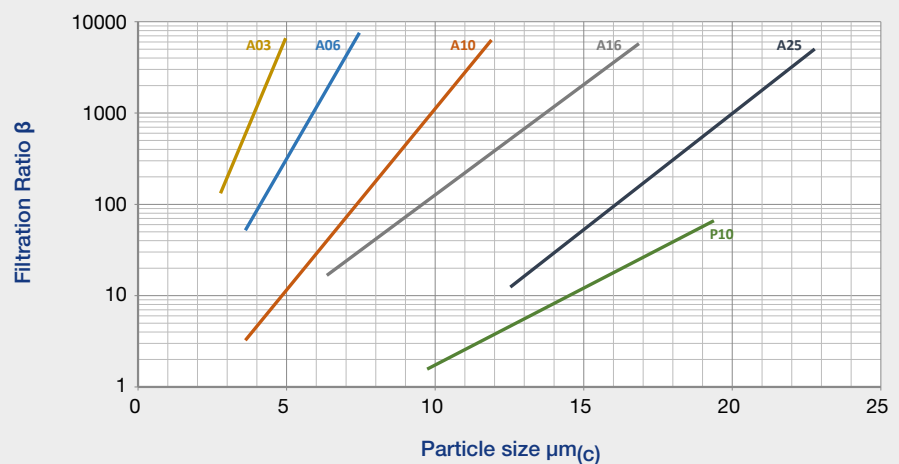
BETA VALUE STABILITY

FILTRATION RATING A10, $\beta_{10} \mu\text{m}_{(c)} > 1000$

- ▲ $d > 5 \mu\text{m}_{(c)}$
- × $d > 8 \mu\text{m}_{(c)}$
- * $d > 10 \mu\text{m}_{(c)}$



FILTER FINENESS





MICROFIBER RETURN ELEMENT

SERIES: N TYPES: A

The standard series with filter medias made of at least 5 layers presents the best combination of separation performance and differential pressure resistance ($\Delta P = 10$ bar, $\Delta P = 5$ bar for spin-on only).

MFX use H series.

RETURN FILTERS:

MPFX | MPLX | MPTX | MFBX | MPF | MPT | MFB | MPH - MPI | FRI | RF2

RETURN/SUCTION FILTERS:

MRSX

SPIN-ON FILTERS:

MPS | MSH



MICROFIBER ELEMENT IN LINE

SERIES: N TYPES: A

The standard series filter media pleat pack, comprised with at least 5 layers and a reinforced inner support tube, provides high filtration efficiency performance and differential pressure collapse resistance ($\Delta P = 20$ bar / 290 psi).

FEX use N series - 8 bar instead of N - 10 bar.

INLINE RETURN FILTERS:

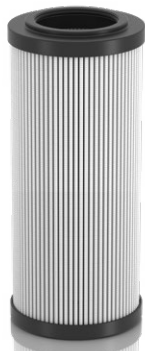
RFEX

INLINE RETURN/SUCTION FILTERS:

LMP 124 MULTIPOINT

LOW AND MEDIUM PRESSURE FILTERS:

LFEX | LMP MULTIPOINT 110 - 120 - 123 | LMP 210 - 211 | LMP 400 - 401 - 430 - 431 | LMP 950 - 951 | LMP 952 - 953 - 954 | LMD 211 | LMD 400 - 401 - 431 | LMD 951 | LDP - LDD | LMP 900 - 901 | LMP 902 - 903



WATER REMOVAL

SERIES: N TYPES: WA

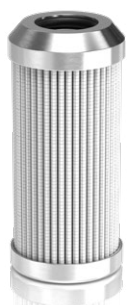
Featuring a special polymer layer for absorbing free water in the oils, and a unique composition of layers, the element filters solid particles with water retention.

SPIN-ON FILTERS:

MPS (CW filter element)

LOW AND MEDIUM PRESSURE FILTERS:

LFEX | LMP 210 - 211 | LMP 400 - 401 - 430 - 431 | LMP 900 - 901 | LMP 902 - 903 | LMP 950 - 951 | LMP 952 - 953 - 954 | LMD 211 | LMD 400 - 401 - 431 | LMD 951 | LDP - LDD



STAINLESS STEEL HIGH-PRESSURE ELEMENT

SERIES: U TYPES: A

Filter media pleat packs with high filtration efficiency performance and reinforced inner support tube provides differential pressure resistance ($\Delta P = 210$ bar / 3000 psi); element metal components are made of stainless steel.

HIGH PRESSURE FILTERS MADE OF STAINLESS STEEL:

FZP | FZH | FZX | FZB | FZM | FZD



MICROFIBER ELEMENT HIGH-PRESSURE (N Series)

SERIES: N TYPES: A

Filter media pleat packs with high filtration efficiency performance and increased strength for the best operating performance for pressure lines ($\Delta P = 20$ bar / 290 psi).

HIGH PRESSURE FILTERS:

FMP 039 | FMP | FHP | FMM | FHA 051 | FHM | FHB | FHF 325 | HPB

HIGH PRESSURE FILTERS MADE OF STAINLESS STEEL:

FZP | FZH | FZB | FZM



MICROFIBER ELEMENT HIGH-PRESSURE (H Series)

SERIES: H TYPES: A

High separation performance with high differential pressure resistance. The filter medias include a reinforced inner support tube with a fine mesh external layer for complete support of the element pleat pack ($\Delta P = 210$ bar / 3000 psi).

HIGH PRESSURE FILTERS:

FMP | FHP | FHM | FHB | HPB | FHD

HIGH PRESSURE FILTERS MADE OF STAINLESS STEEL:

FZP | FZH | FZX | FZB | FZM | FZD



MICROFIBER ELEMENT HIGH-PRESSURE (R Series)

SERIES: R TYPES: A

Filter media pleat packs with high filtration efficiency performance and strengthened inner support tube provides differential pressure collapse resistance to ($\Delta P = 20$ bar / 290 psi) are used with back flow prevention check valve and reverse flow circuits with bypass valve.

HIGH PRESSURE FILTERS:

FMP | FHP | FHA 051 | FHD | FMM

HIGH PRESSURE FILTERS MADE OF STAINLESS STEEL:

FZD | FZP



MICROFIBER ELEMENT HIGH-PRESSURE (S Series)

SERIES: S TYPES: A

Filter media pleat packs with high filtration efficiency performance and strengthened inner support tube provides differential pressure collapse resistance ($\Delta P = 210$ bar / 3000 psi), used in filters without bypass, with back flow prevention check valve, and reverse flow circuits.

HIGH PRESSURE FILTERS:

FMP | FHP | FHA 051 | FHM | FHB | FHD | FMM

HIGH PRESSURE FILTERS MADE OF STAINLESS STEEL:

FZD | FZP



PAPER ELEMENT

SERIES: N TYPES: P

Single-layer of cellulose fiber reinforced with resins, filtration efficiency $\beta_x = 2$ nominal rating.

SUCTION FILTERS:

SFEX | SF2 250 - 350

RETURN FILTERS:

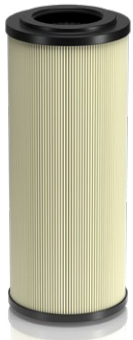
RFEX | MPFX | MPLX | MPTX | MFBX | MPF | MPT | MFB | MPH - MPI | FRI | RF2

SPIN-ON FILTERS:

MPS | MSH

LOW AND MEDIUM PRESSURE FILTERS:

LFEX



REINFORCED PAPER ELEMENT

SERIES: N TYPES: R

Filter medias made of resin-reinforced cellulose fibre and supported with metal mesh element for increase of the differential pressure resistance.

LOW AND MEDIUM PRESSURE FILTERS:

LMP MULTIPOINT 110 - 120 - 123 | LMP 210 - 211 | LMP 400 - 401 - 430 - 431 | LMD 211 | LMD 400 - 401 - 431 | LDP - LDD



METAL MESH

SERIES: N TYPES: M

Metal mesh with nominal filtration grade ranging from 25 μm to 250 μm for maximum mechanical strength against differential pressure or special fluids.

SUCTION FILTERS:

SFEX | STR - MPA - MPM | SF2 250 - 350 | SF2 500

RETURN FILTERS:

RFEX | MPFX | MPLX | MPTX | MFBX | MPF | MPT | MFB | MPH - MPI | FRI | RF2

SPIN-ON FILTERS:

MPS | MSH

LOW AND MEDIUM PRESSURE FILTERS:

LFEX | LMP MULTIPOINT 110 - 120 - 123 | LMP 210 - 211 | LMP 400 - 401 - 430 - 431 | LMP 900 - 901 | LMP 902 - 903 | LMP 950 - 951 | LMP 952 - 953 - 954 | LMD 211 | LMD 400 - 401 - 431 | LMD 951 | LDP - LDD

HIGH PRESSURE FILTERS:

FMP 039 | FMP | FHP | FMM | FHA 051 | FHM | FHB | FHF 325 | FHD



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PASSION TO PERFORM