FMP038 SERIES

IN-LINE FILTER

LEHENGOAK, S.A.

MP FILTRI
Filtri per oleodinamica

Maximum working pressure 110 bar

Flow rates to 75 l/min

Description

FMP 038 series filters are designed for pressure line applications and are suitable for in-line installation. This series of filters has been developed to satisfy the low-medium working pressure sector of the pressure filter market. Continued research and development on both the filter bodies and the filter elements has resulted in a product line with excellent pressure drop characteristics combined with a high filtration efficiency.

FMP 038 series filters within this range are suitable for flow rates to 75 l/min.

FMP 038 series are specifically designed for mobile, industrial and power pack applications.

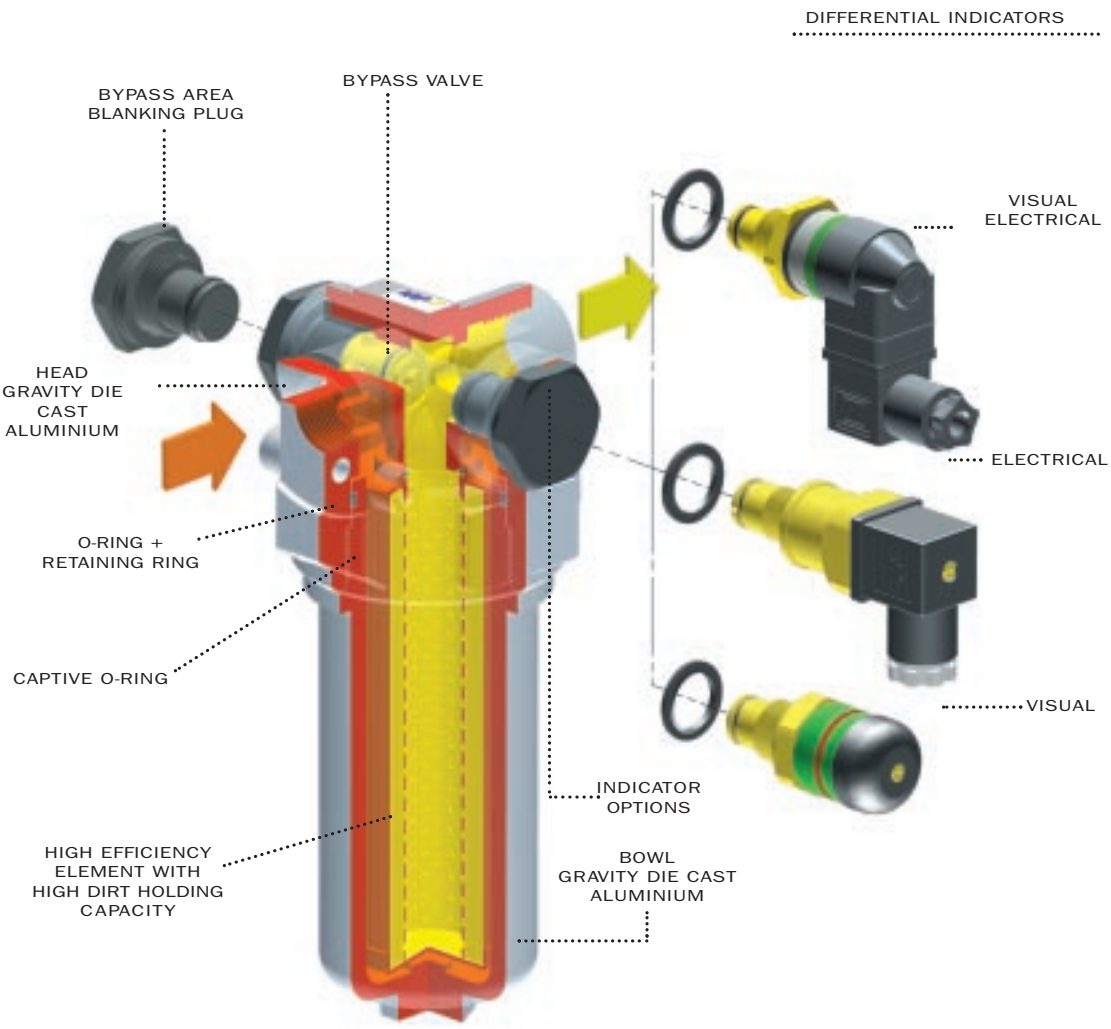
New

absolute filter elements
independently tested
in the following Institutes:

Institute of Filtration
(France)
I.F.T.S.

VETENSKAP OCH KONST
KUNGL TEKNISKA HÖGSKOLAN
Royal Institute of Technology

UNI EN ISO 9001
N° 037/98
ITALCERT



Filter element:

Filter element material

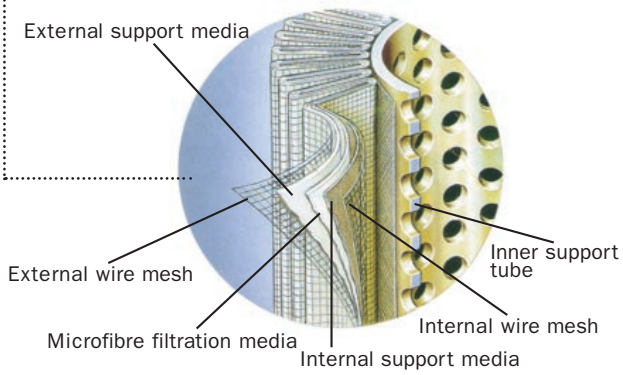
End caps:
Steel (Thermal treatment)

Support tube:
Steel (Thermal treatment)

Support frames:
Coated wire cloth

A Series

Inorganic microfibre



MP Filter elements - Conform to the following ISO standards

ISO 2941 - Verification of collapse/burst resistance.
ISO 2942 - Verification of fabrication integrity and determination of the first bubble point.
ISO 2943 - Verification of material compatibility with fluids.
ISO 3723 - Method for end load test.
ISO 3724 - Verification of flow fatigue characteristics.
ISO 3968 - Evaluation of pressure drop versus flow characteristics.
ISO 4572 - Multi-pass method for evaluating filtration performance.

Element material Absolute filtration

A Series

Inorganic microfibre with acrilic support

Contamination retention
as per ISO 4572: Multi-pass test.

New material:

New improved ß ≥ 200 filter elements with greater efficiency and increased dirt holding capacity

Filter elements	Dimensions for ß(µm) values				Filtration ratios			ΔP (bar)
	ß ≥ 2 (50%)	ß ≥ 20 (95%)	ß ≥ 75 (98,7%)	ß ≥ 200 (99,5%)	$ß_2$	$ß_{10}$	$ß_{20}$	
A03	–	2	2,4	3	20	>10.000	>10.000	7
A06	–	3	4,6	6	8	> 2.000	>10.000	7
A10	3	6	7,8	10	1,5	≥ 200	>10.000	7
A25	13	19	22	25	–	> 1,5	> 35	7

N.B. Other materials giving different degrees of filtration are available on request.

Filtering area Filter elements

Type HP	037-1	037-5	037-2
A03/A06	350	570	700
A10/A25	350	570	700

Values in cm^2

Element material Nominal filtration

M Series

Square wire mesh (filtration degree is defined in microns by the maximum diameter of a sphere corresponding to the mesh size)

Filtering area Filter elements

Type HP	037-1	037-5	037-2
M10	350	570	700
M25	350	570	700
M60	350	570	700

Values in cm^2

Filter body:

Materials

Head
Gravity die cast aluminium

Bowl
Gravity die cast aluminium

Seals
A Series: Nitrile (Buna-N)
V Series: Viton

Bypass valve
Brass (steel on request)

Indicator
Brass (steel on request)

Working temperature

From -25 to +110°C
For temperatures outside this range, please consult our Sales and Network Organization

Pressure filter body

Maximum working pressure up to 110 bar
Test pressure: 160 bar
Minimum burst pressure: 330 bar

Fatigue test: a filter body subjected to pressure impulses from 0 to 110 bar will withstand 1.000.000 cycles

Collapse pressure filter elements

N Series: 20 bar

Bypass valve Calibration pressure

Bypass valve, differential opening pressure: **B: 6 bar ± 10%**

Compatibility with fluids

Filter head and bowls
compatible for use with:
- mineral oils (types HH-HL-HM-HR-HV-HG as per ISO 6743/4)
- water-based emulsions (types HFAE-HFAS as per ISO 6743/4)
- synthetic fluids (types HS-HFDR-HFDS-HFDU as per ISO 6743/4)
- water-glycol (types HFC as per ISO 6743/4)

Filter elements
As per ISO 2943; suitable for mineral oils (types HH-HL-HM-HR-HV-HG as per ISO 6743/4) and synthetic fluids (A and M series only) (types HS-HFDR-HFDS-HFDU as per ISO 6743/4)

For water-based emulsions (types HFAE-HFAS as per ISO 6743/4) and fluids other than those mentioned, please consult our Sales and Network Organization.

Seals
A Series
Nitrile (Buna-N) compatible with mineral oils (types HH-HL-HM-HR-HV-HG as per ISO 6743/4)
water - based emulsions (types HFAE-HFAS as per ISO 6743/4)
water - glycol (types HFC as per ISO 6743/4)

V Series
Viton compatible with synthetic fluids (types HS-HFDR-HFDS-HFDU as per ISO 6743/4)

Types of indicators

(Complete with Viton seals)

Description: **FMP 038** series filters are fitted with indicators switching at a pressure of:
5 bar ± 10%
7 bar ± 10%

"J series - Thermal lockout Electrical Indicators available - contact MP Filtri"

Visual indicator

With bypass 5 bar setting: **V7 Series - Z7 Series**
Without bypass 7 bar setting: **V8 Series - Z8 Series**

Electrical indicator

With bypass 5 bar setting: **N7 Series**
Without bypass 7 bar setting: **N8 Series**

Visual-electrical indicator

With bypass 5 bar setting: **E7-K7* Series**
Without bypass 7 bar setting: **E8-K8* Series**

*For K visual-electrical indicator, specify the voltage (f.i. K71 = LED 24 volt)

*{ 1 - 24 Volt
2 - 115 Volt
3 - 230 Volt

	K - E - N Series	
Supply voltage (50/60 Hz)	Resistive load	Inductive load
(V)	(A)	(A)
Vca 125	5	2
Vca 250	5	2
Vcc 30	5	3
Vcc 125	0,5	0,03
Vcc 250	0,25	0,03

Selection & installation information

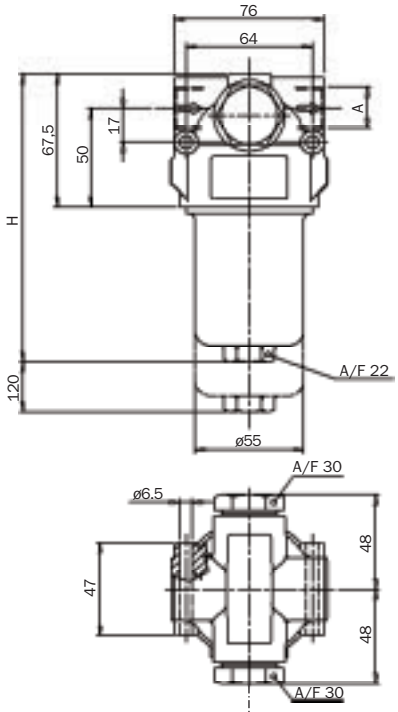
Filter elements types

A Series
Absolute inorganic microfibre filtration media, available in 3, 6, 10 and 25 micron
Example - **A03, A06, A10** or **A25**

M Series
Metal mesh media, available in 10, 25, and 60 micron.
Example - **M10**, **M25** or **M60**.

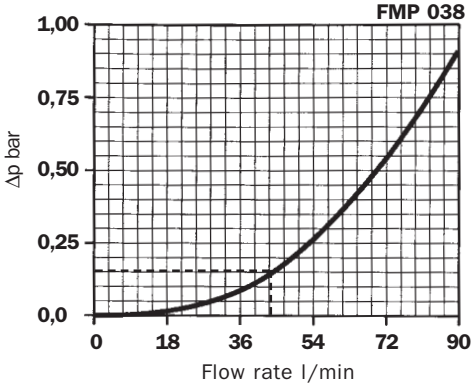
Please refer to individual pressure drop curves to obtain filter assembly pressure drop information

The following filter sizing recommendations are based using a mineral oil fluid at 30 mm²/s (cSt), with a maximum filter assembly (housing and filter element) pressure drop of 25% of the filter condition indicator (1.25 bar)



FMP 038

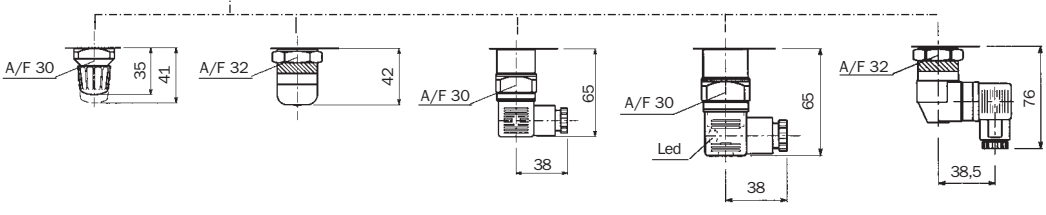
Housing pressure drop curve



FMP 038 SERIES

Filter assembly	Flow rate l/min *	Bowl length	Port size BSP/NPT/SAE	Weight kg **
A03	12	1	1/2"	1,5
A06	14			
A10	25			
A25	40			
A03	20	5	1/2"	1,9
A06	30			
A10	45			
A25	60			
A03	30	2	1/2"	2,2
A06	45			
A10	60			
A25	75			

* Flow rates with 30 mm²/s fluid viscosity
** Weight including filter element



Z V N K E

Lengths

Type	H
1	157
5	201
2	244

Thread connections

Type	A
G1	1/2" BSP
G2	1/2" NPT
G3	SAE 8 - 3/4" - 16 UNF

Pressure drop information

General

Pressure drop versus flow rate curve information for both housing and filter elements is in accordance with ISO 3968

Filter assembly pressure drop - Δp Total = Δp Housing + Δp Filter element

Housing pressure drop - The housing pressure drop is proportional to the fluid density

Filter element pressure drop - Filter element pressure drop is proportional to kinematic viscosity therefore always check the fluid operating temperature and fluid type to obtain the working viscosity according to the following formula:

Δp_1 Filter element = (working viscosity/brochure viscosity) x Δp filter element

Brochure viscosity 30 mm²/s (cSt)

Filter assembly sizing example

- Customer requires a 45 l/min filter assembly
- Mineral oil fluid: ISO VG 46 (46 mm²/s (cSt) at 40°C)
- A10 - 10 micron absolute filtration

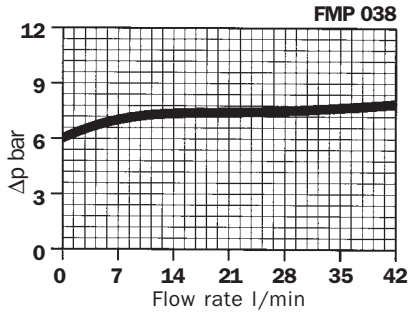
Selection :

- **Housing pressure drop** - FMP 038-2 with 45 l/min Δp = 0.15 bar (see curve on page 5)
- **Filter element pressure drop** (brochure viscosity) - HP037-2A10AN with 45 l/min Δp = 0.65 bar (see curve on the bottom)
- **Filter element pressure drop** (working viscosity) - With 46 mm²/s (cSt) Δp_1 = 0.65 x (46/30) = 1.0 bar
- **Filter assembly pressure drop** Δp Total = Δp_1 Housing + Δp Filter element = 0.15 + 1.0 = **1.15 bar*** { *Acceptable pressure drop value, as per our recommendations

Bypass valve pressure drop

The curves were obtained using a mineral oil with a density of 0,86 kg/dm³.

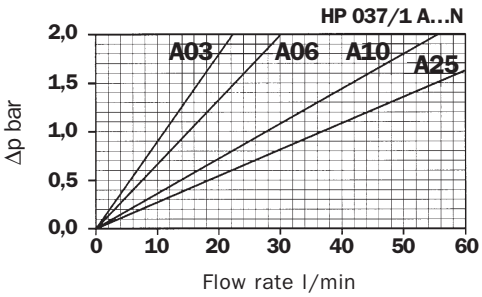
The Δp varies proportionally to the density.

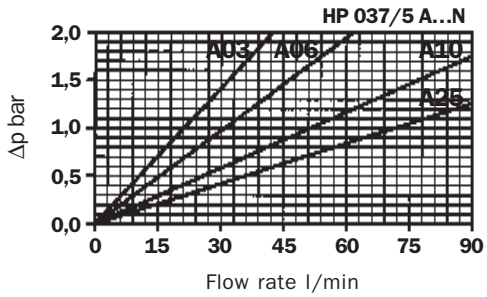


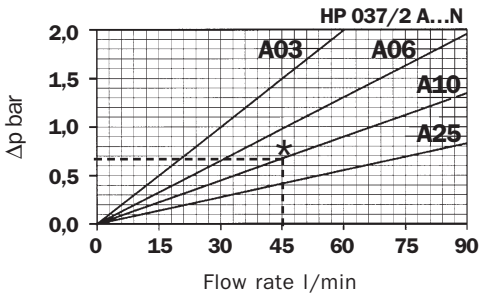
Filter elements - N Series -

The curves were obtained using a mineral oil with a kinematic viscosity of 30 mm²/s (cSt).

For the metal mesh filter elements curves (M series), please consult our Sales and Network Organization







Ordering information

FMP [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Nominal sizes

038 Filter

037 Filter elenent

Bowl lengths

FMP 038 = 1, 5, 2

Options

S	Bypass hole tapped + indicator port working
B	With bypass + indicator port working
C	With bypass without indicator port working
L	Without bypass working + indicator port working
N	No working for bypass and indicator port

Seals

A	Nitrile (Buna-N)
V	Viton

Filter condition indicator

S	With threaded hole only
T2	With plug
V7	Visual 5 bar
V8	Visual 7 bar
Z7	Visual 5 bar
Z8	Visual 7 bar
N7	Electrical 5 bar
N8	Electrical 7 bar
E7	Visual - electrical 5 bar
E8	Visual - electrical 7 bar*
K7*	Visual - electrical 5 bar { 1 - 24 Volt, 2 - 115 Volt, 3 - 230 Volt
K8*	Visual - electrical 7 bar { 1 - 24 Volt, 2 - 115 Volt, 3 - 230 Volt

*For K visual-electrical indicator, specify the voltage (f.i. K71 = LED 24 volt)

Collapse pressure series

N	20 bar

Filter elements

A03 A06 A10 A25	Inorganic microfibre Bx ≥200
M10 M25 M60	Square wire mesh

Ports option

Type	038
G1	1/2" BSP
G2	1/2" NPT
G3	SAE 8

HP [ ] [ ] [ ] [ ] [ ]

Replacement element

MP Filtri - Filtration products will only be guaranteed if original MP Filtri replacement elements and spares are used