SERIES MSH

SPIN-ON FILTER - LOW PRESSURE LINE

MP FILTRI spa
filtri per oleodinamica

Maximum working pressure 500 psi

Flow rate to 80 GPM

Description

MSH

This filter **MSH** series utilises spin-on canisters,with flow capabilities of 80 gpm and has a maximum working pressure of 500 psi, with a peak pressure rating of 700 psi.
Technically, the **MSH** filters is a new concept, as the filter canister is seamless. Our unique sealing system ensures that the product will withstand medium pressure up to 700 psi.
The **MSH** filters feature a bypass valve and utilise a pressure differential indicator. A patented (no.22083A/86) head/bowl sealing system ensures leak free filters every time.

The **MSH** series is particularly suitable for use on supercharging or auxiliary, low-pressure lines. Ideally suited for use in a servo-assisted hyrostatic trasmission where the servo line requires high-performance filtration at medium working pressures.

New

absolute filter elements
independently tested
in the following Institutes:

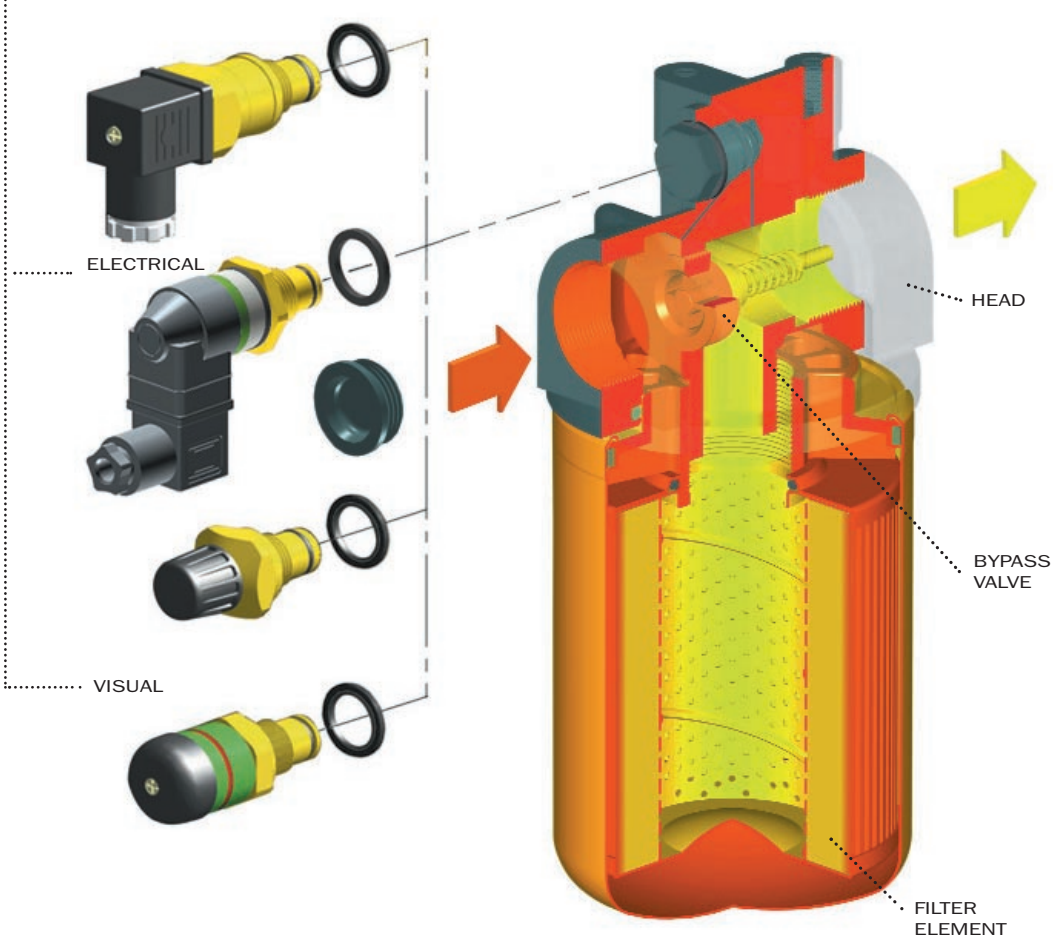
Institute of Filtration
(France)

I.F.T.S.

VETENSKAP OCH KONST
KUNGL TEKNISKA HÖGSKOLAN
Royal Institute of Technology

UNI EN ISO 9001
N° 037/98
ITALCERT®

INDICATORS



Filter element:

Materials

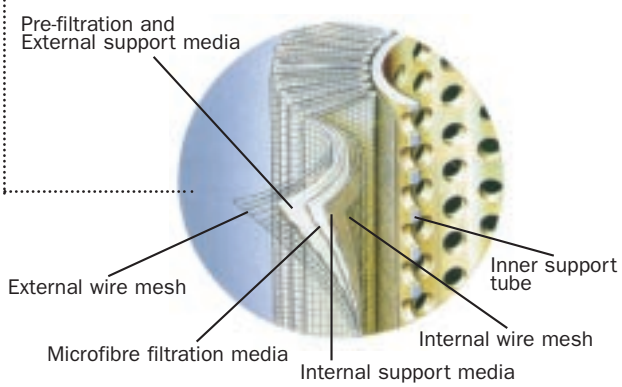
End caps:
Galvanized steel
Nylon (MSH 050/070)

Support tube:
Galvanized steel

Support frames:
Galvanized steel with an epoxy coating

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 16889 - Multi-pass method for evaluating filtration performance.

Element material Absolute filtration

A Series

Inorganic microfibre with acrilic support

Contamination retention
as per ISO 16889: Multi-pass test.

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 CH	050	070	100	150
A03/A06	217	450	620	800
A10/A25	217	450	620	800

Values in in^2

Element material Nominal filtration

P Series

Resin - impregnated paper

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 CH	050	070	100	150
P10/P25	280	560	800	100
M25	190	250	320	450
M60	190	250	320	450
M90	190	250	320	450

Values in in^2

Filter body:

Materials

Head
Aluminium

Bypass valve
Nylon

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

Indicator
Brass

Working temperature

From -13 to +230°F
For temperatures outside this range, please consult our Sales Network Organization

Pressure filter body

Maximum working pressure up to 35 bar

Fatigue test: A filter subjected to pressure impulses from 0 to 500 psi will withstand 1.000.000 cycles.

Collapse pressure filter elements

75 psi

Bypass valve Calibration pressure

Bypass valve, differential opening pressure: 35 psi ± 10%

Types of indicators

Description:
MSH series filters are fitted with , differential style indicators

switching at : 30 psi ± 10%

Visual indicator

V6 - Z6 Series

switching at : 30 psi ± 10%

Electrical indicator

N6 Series

switching at : 30 psi ± 10%

Visual-electrical indicator

K6* Series

switching at 30 psi ± 10%

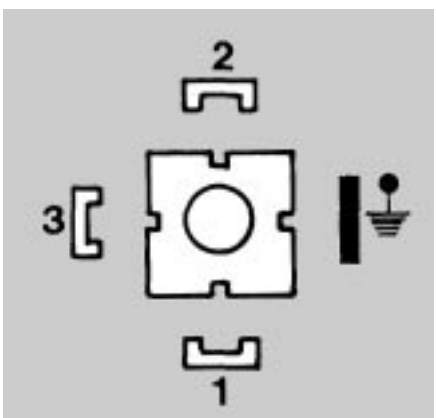
*For K visual-electrical indicator, specify the voltage (il. K61 = LED: 24 volt)

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

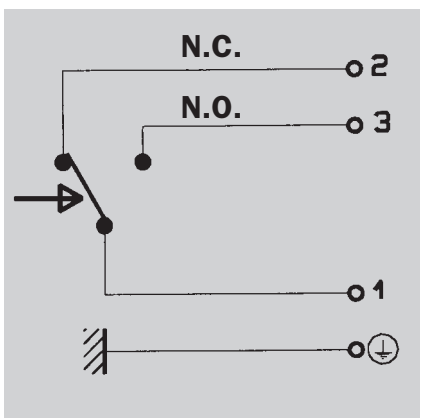
Pressure differential indicator option

	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

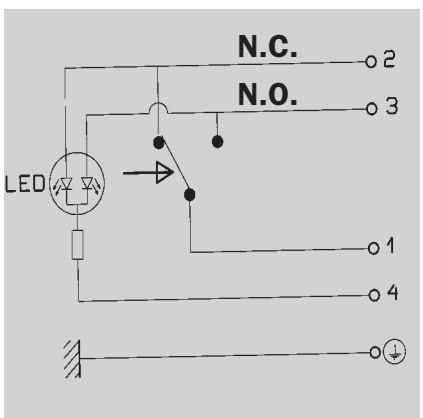
CONNECTOR DIN 43650



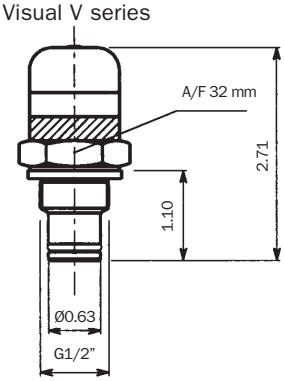
ELECTRICAL CONNECTION E - N SERIES



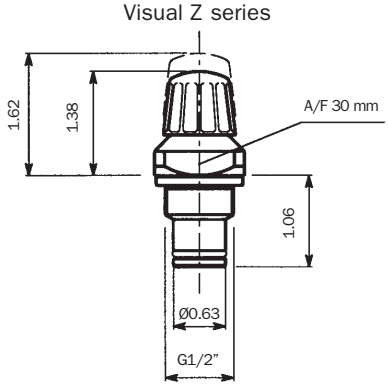
ELECTRICAL CONNECTION K SERIES



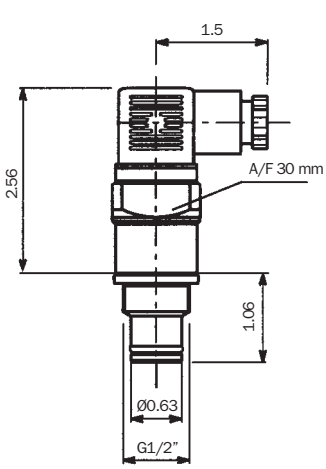
Visual V series



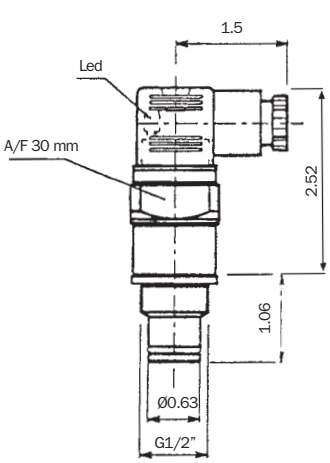
Visual Z series



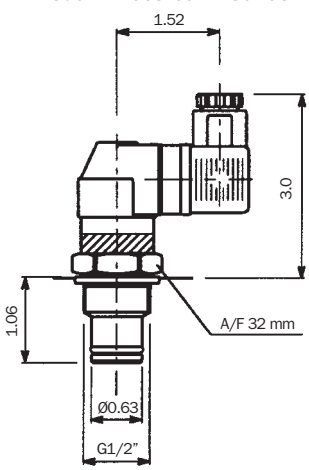
Electrical N series



Led visual - Electrical K series



Visual - Electrical E series



Fluid Compatibility

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)

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)

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 Network Organization.

International standards for contamination fluid control

A general (no direct) comparison between ISO 4406 and NAS 1638 is given in table below.

Contamination codes ISO 4406			Correspondent codes NAS 1638	Recommended filtration degree	Typical applications
4µm(c)	*6µm(c)*	*14µm(c)*		*B x ≥ 200*	
14	12	9	3	3	High precision and laboratory servo-systems
17	15	12	6	3-6	Robotic and servo-systems
18	16	13	7	10-12	Very sensitive - high reliability systems
20	18	15	9	12-15	Sensitive - reliable systems
21	19	16	10	15-25	General equipment of limited reliability
23	21	18	12	25-40	Low - pressure equipment not in continuous service

Filter elements types

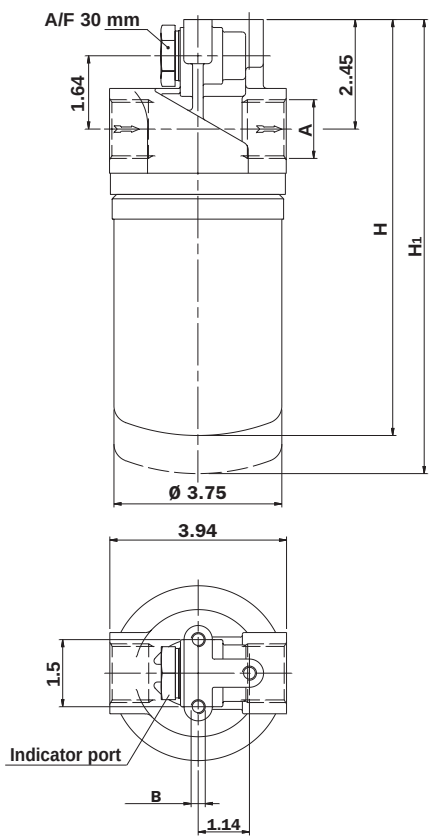
A Series
Absolute inorganic microfibre filtration media, available in 3, 6, 10 and 25 micron
Example - **A03, A06, A10** or **A25**

P Series
Nominal cellulose impregnated paper media, available in 10 and 25 micron.
Example - **P10** or **P25**

M Series
Metal mesh media, available in 25, 60, and 90 micron.
Example - **M25**, **M60** or **M90**.

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 150 SUS with a maximum total filter assembly (housing and filter element) pressure drop of 30% of the filter condition indicator (9 psi).



Lengths

Type	H	H1
050	9.15	10.3
070	12.8	14.0

MSH050 - 070

MSH SERIES 050- SIZES

Filter assembly	Flow rate gpm *	Port size BSP/NPT/SAE	Weight lbs **
A03	12	SEE TABLE BELOW	3.75
A06	13		
A10	19		
A25	27		
P10	24		
M60	32		

MSH SERIES 070 SIZES

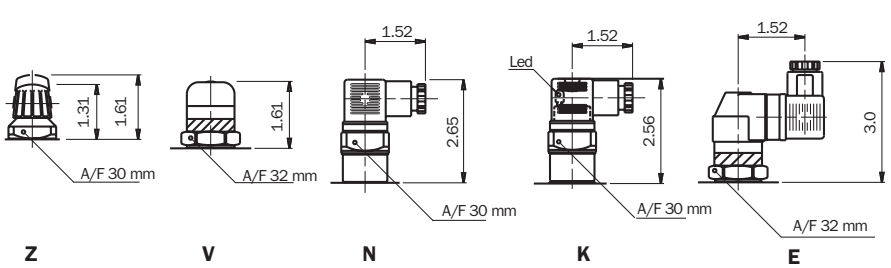
Filter assembly	Flow rate gpm *	Port size BSP/NPT/SAE	Weight lbs **
A03	23	SEE TABLE BELOW	4.8
A06	24		
A10	25		
A25	34		
P10	30		
M60	34		

* Flow rates with 150 SUS fluid viscosity
** Weight including filter element

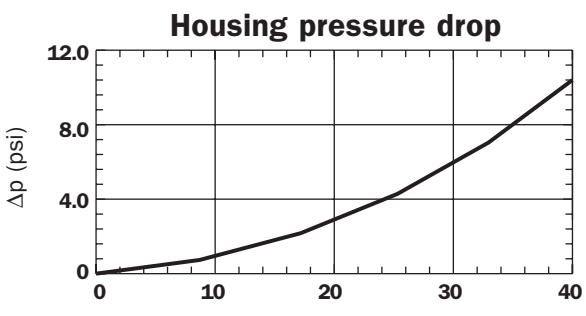
Thread connections

Type	A	B
G1	1" BSP	M8
G2	3/4" BSP	M8
G3	1" NPT	5/16" UNC
G4	3/4" NPT	5/16" UNC
G5	SAE 16 - 1 5/16" - 12 UN	5/16" UNC
G6	SAE 12 - 1 1/16" - 12 UN	5/16" UNC

Indicator



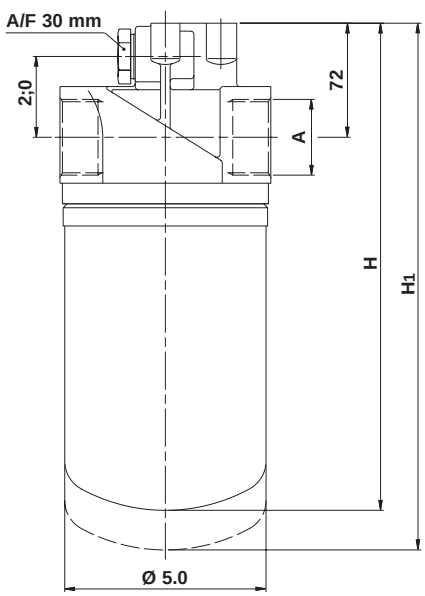
Housing pressure drop

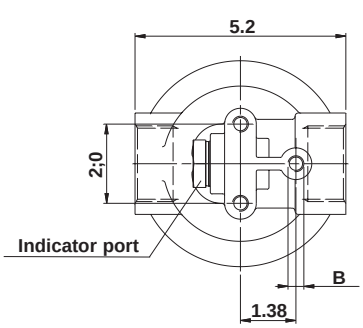


Filter elements types

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 150 SUS with a maximum total filter assembly (housing and filter element) pressure drop of 30% of the filter condition indicator (9 psi).





MSH100 - 150

MSH SERIES 100- SIZES

Filter assembly	Flow rate gpm *	Port size BSP/NPT/SAE	Weight lbs **
A03	29	SEE TABLE BELOW	6.0
A06	32		
A10	42		
A25	56		
P10	53		
M60	66		

MSH SERIES 150 SIZES

Filter assembly	Flow rate gpm *	Port size BSP/NPT/SAE	Weight kg **
A03	40	SEE TABLE BELOW	8.4
A06	43		
A10	47		
A25	60		
P10	70		
M60	73		

* Flow rates with 150 SUS fluid viscosity
** Weight including filter element

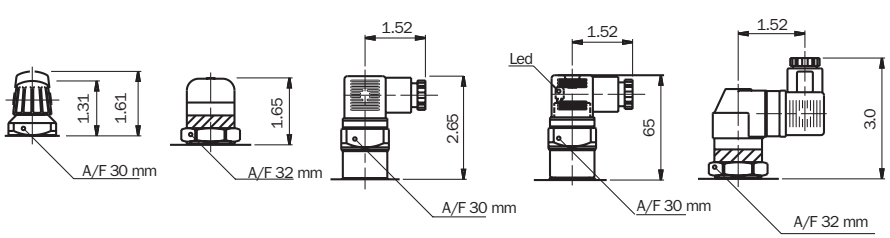
Thread connections

Type	A	B
G1	1 1/2" BSP	M10
G2	1 1/4" BSP	M10
G3	1 1/2" NPT	3/8" UNC
G4	1 1/4" NPT	3/8" UNC
G5	SAE 24 - 1 7/8" - 12 UN	3/8" UNC
G6	SAE 20- 1 5/8" - 12 UN	3/8" UNC

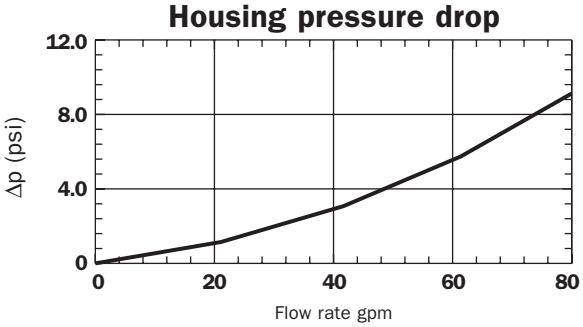
Lengths

Type	H	H1
100	12.1	13.3
150	14.0	15.2

Indicator



Housing pressure drop



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 150 SUS

Filter assembly sizing example

- Customer requires a 48 gpm filter assembly
- Mineral oil fluid: 212 SUS
- 25 micron absolute filtration
- line application

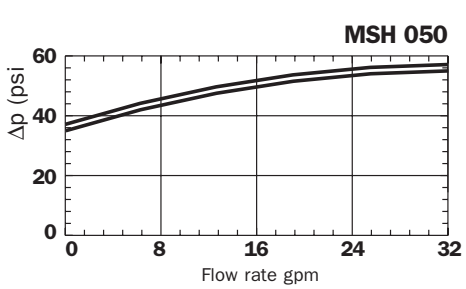
Selection :

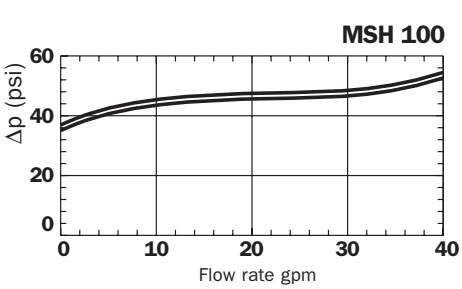
- **Housing pressure drop** - MSH 100 with 48 gpm Δp = 3.9 psi (see curve on page 8)
- **Filter element pressure drop** brochure viscosity - CH 100A25 with 48 gpm Δp = 2.9 psi (see curve on page 10)
- **Filter element pressure drop** working viscosity - With 212 SUS Δp_1 = 2.9 x (212/150) = 4 psi
- **Filter assembly pressure drop** Δp Total = Δp Housing + Δp_1 Filter element = 3.9 + 4.0 = **7.9 psi*** { Acceptable pressure drop value, as per our recommendations

Bypass valves pressure drop

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

The Δp varies proportionally to the density.

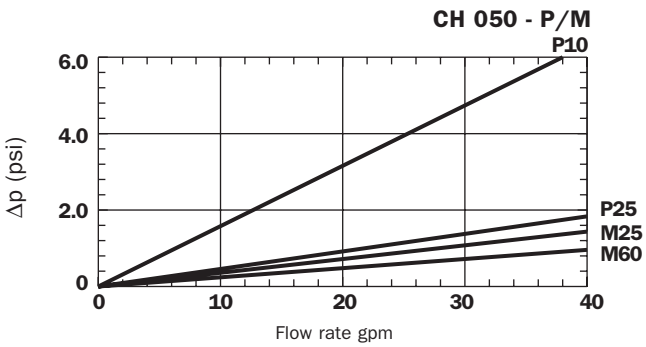


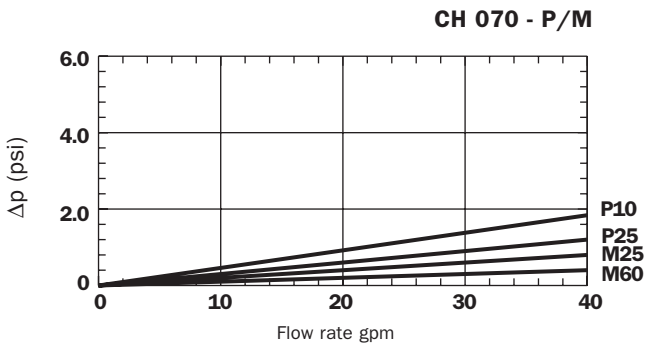


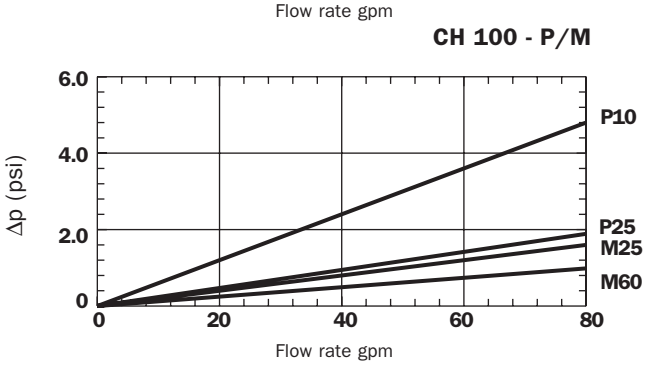
FILTER ELEMENT

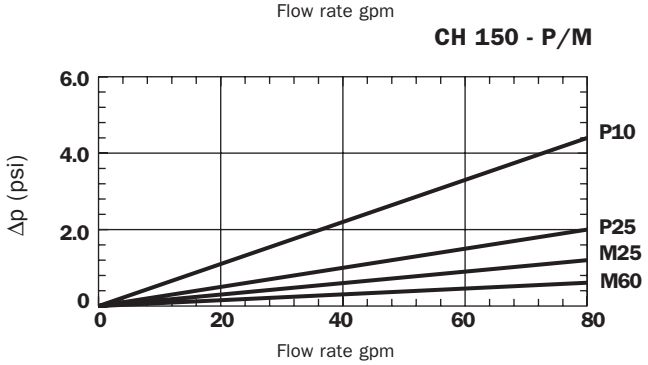
Filter elements - P/M Series

The curves were obtained using a mineral oil with a kinematic viscosity of 150 SUS.
The Δp varies proportionally to the fluid kinematic viscosity.



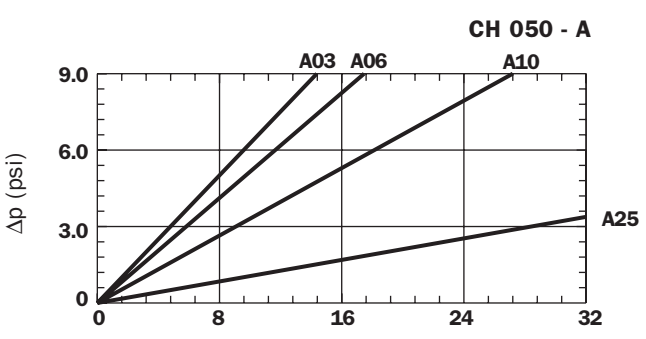


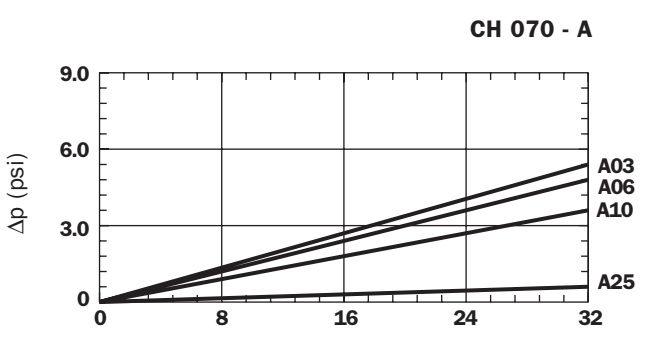


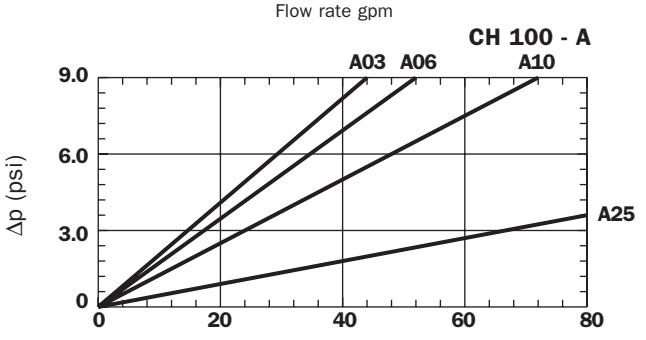


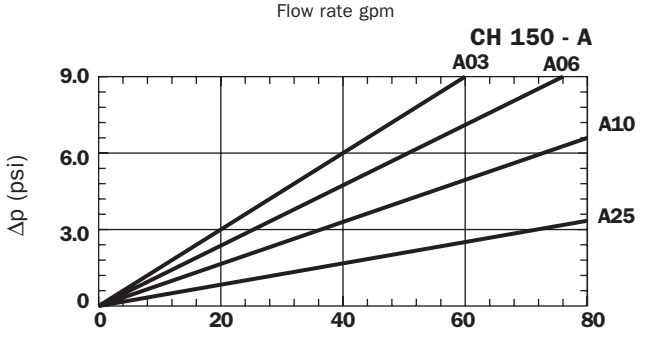
Filter elements - A Series

The curves were obtained using a mineral oil with a kinematic viscosity of 150 SUS.
The Δp varies proportionally to the fluid kinematic viscosity.









Ordering information

MSH [ ] [ ] [ ] [ ] [ ] [ ]

Nominal sizes

050	
070	
100	
150	

Filter condition indicator

S	With threaded hole only
T2	Plug for indicator port
V6	Visual 30 psi
Z6	Visual 30 psi
N6	Electrical 30 psi
E6	Visual-electrical 30 psi
K6*	Visual-Electrical 30 psi

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

*For K visual-electrical indicator, specify the voltage (f.i; K61 = LED: 24 volt)

Bypass valve

B	With bypass 35 psi
S	Without bypass

Filter elements M/P series

P10 P25	Resin-impregnated paper βx ≥ 2
M25 M60 M90	Square wire mesh

Filter elements A series

A03 A06 A10 A25	Inorganic microfibre βx ≥ 200

Seals

A	Nitrile (Buna - N)
V	Viton

Port options

Type	MSH 050-070	MSH 100-150
G1	1" BSP	1 1/2" BSP
G2	3/4" BSP	1 1/4" BSP
G3	1" NPT	1 1/2" NPT
G4	3/4" NPT	1 1/4" NPT
G5	SAE 16-1 5/16"- 12 UN	SAE 24-1 7/8"- 12 UN
G6	SAE 12-1 1/16"- 12 UN	SAE 20-1 5/8"- 12 UN

CH [ ] [ ] [ ]

Replacement element

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

New Headquarters :

MP FILTRI S.p.A. Italy
Via 1° Maggio, n. 3
20060 Pessano con Bornago
(Milano) Italy
Tel. +39.02/95703.1
Fax +39.02/95741497-95740188
email: sales@mpfiltri.com
http://www.mpfiltri.com

GREAT BRITAIN
MP FILTRI U.K. Ltd.
Bourton Industrial Park
Bourton on the Water
Gloucestershire GL54 2HQ UK
Phone: +44.01451-822522
Fax: +44.01451-822282
email: sales@mpfiltri.co.uk
http://www.mpfiltri.com

GERMANY
MP FILTRI D GmbH
Am Wasserturm 5
D-66265 Heusweiler/Holz
Phone: +49.(0)6806-85022.0
Fax: +49.(0)6806-85022.18
email: service@mpfiltri.de
http://www.mpfiltri.com

FRANCE
MP FILTRI FRANCE Sas
198 Avenue des Gresillons
92600 Asnieres Sur Seine
France
Tel: +33.(0)1-40-86-47-00
Fax: +33.(0)1-40-86-47-09
email: contact@mpfiltrifrance.com
http://www.mpfiltri.com

USA
MP FILTRI USA Inc.
2055 Quaker Pointe Drive
Quakertown, PA 18951
Phone: +1.215-529-1300
Fax: +1.215-529-1902
email: sales@mpfiltriusa.com
http://www.mpfiltriusa.com

CANADA
MP FILTRI CANADA Inc.
380 Four Valley Drive Concorde
Ontario Canada L4K 5Z1
Phone: +1.905-303-1369
Fax: +1.905-303-7256
email: mail@mpfiltricanada.com
http://www.mpfiltricanada.com

RUSSIAN FEDERATION
MP FILTRI RUSSIA
Phone/Fax: +7(495)220-94-60
P.O. Box 44 127562 Moscow, Russia
email: mpfiltrirussia@yahoo.com
http://www.mpfiltri.ru

CHINA
MP FILTRI (Shanghai) Co. Ltd.
1280 Lianxi Rd, 8 Bld - 2 Floor
Shanghai, Pudong
201204 P.R. China
Phone: + 86.21-58919916
Fax: + 86.21-58919667
email: sales@mpfiltrishanghai.com
http://www.mpfiltri.com