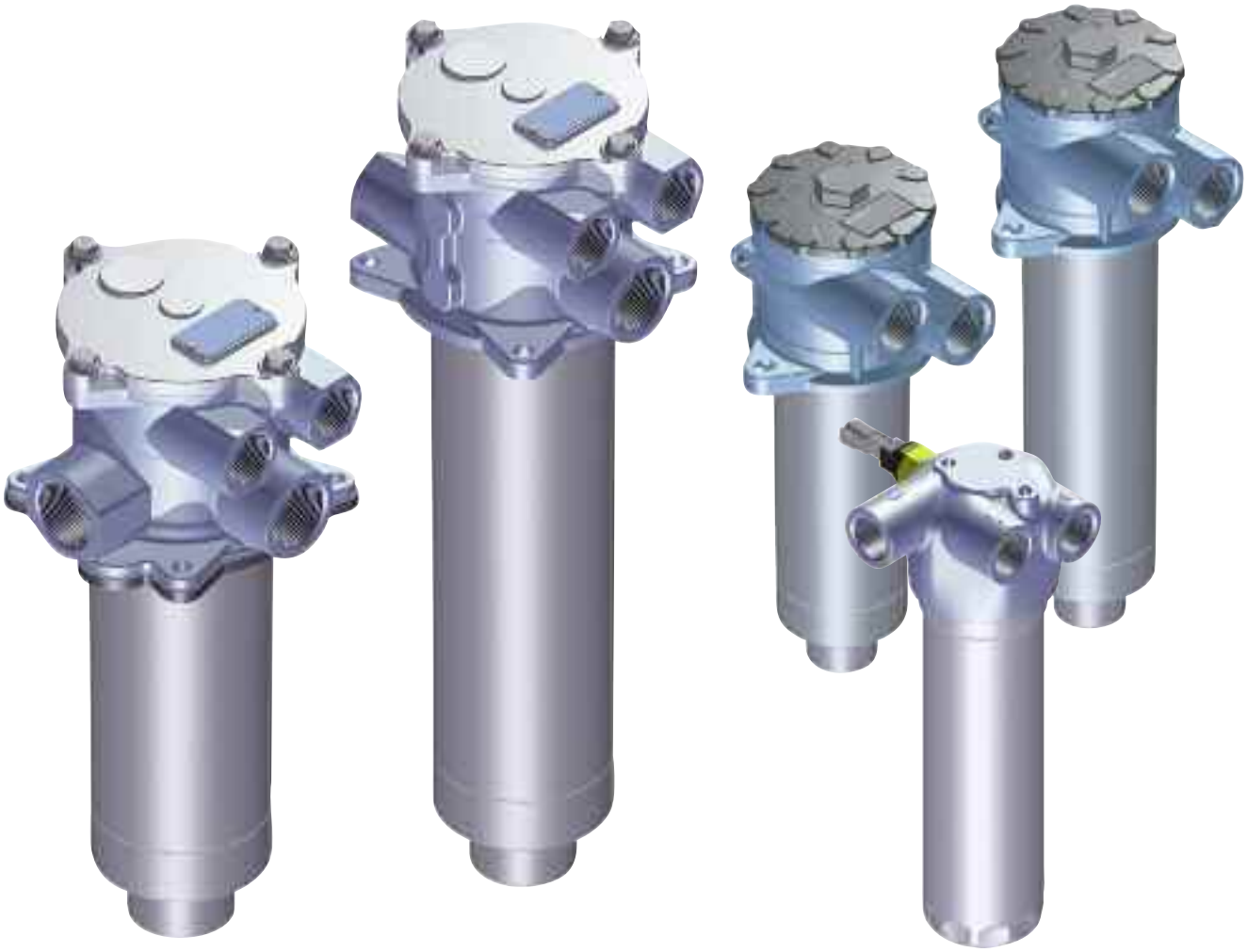
SERIES

NEW

MRS - LMP

Return/Suction Filter

In-Line/Return/Suction Filter



Maximum flow to 300 l/min

MP FILTRI

Technical data

MRS 116 - 165 - 166

Filter housing (Materials)

- Head: Aluminium
- Cover: Nylon (MRS 116)
  Aluminium (MRS 165-166)
- Bowl: Nylon

LMP 124

Filter housing (Materials)

- Head: Aluminium
- Housing: Steel Cataphoresis Painting
- Bypass valve: Brass - Aluminium

MRS 116 - 165 - 166 - Pressure

- Working pressure: 10 bar

LMP 124 - Pressure

- Working pressure: 80 bar (8 MPa)
- Test pressure: 120 bar (12 MPa)
- Burst pressure: 380 bar (38 MPa)
- Pulse pressure fatigue test: 1.000.000 cycles with pressure from 0 to 80 bar (8 MPa)

Temperature

- From -25°C to +110°C

Δp Elements

- RS: 10 bar (MRS)
- CU: 20 bar (LMP)
- Oil flow from exterior to interior.

Seals

- Standard NBR series A
- Optional FPM series V

Weights (kg)

Length	1	2	3	4
• MRS 116	1,30	1,40	-	-
• MRS 165	3,40	3,80	4,10	-
• MRS 166	3,40	3,80	4,10	-
• LMP 124	1,70	1,90	2,20	2,70

Volumes (dm^3)

Length	1	2	3	4
• MRS 116	0,80	1,00	-	-
• MRS 165	2,00	2,60	3,00	-
• MRS 166	2,00	2,60	3,00	-
• LMP 124	0,75	0,81	1,11	1,53

MRS - LMP

Compatibility (to ISO 2943)

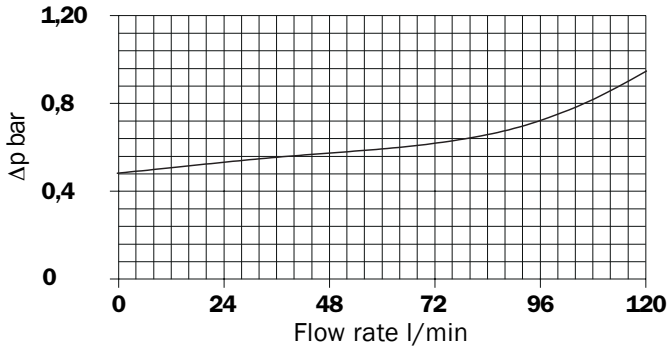
- Mineral oils
- Synthetic fluids
- Biodegradable fluids

Filter housings Δp pressure drop

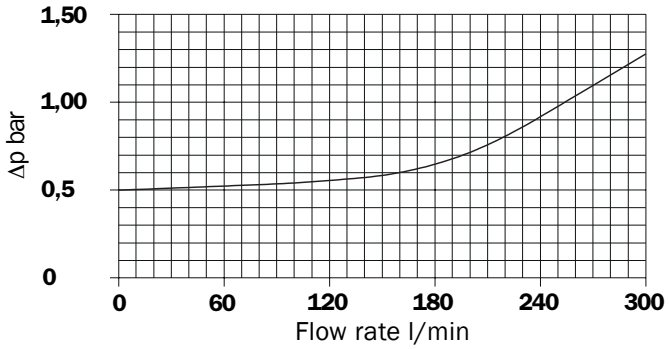
The curves are plotted utilising mineral oil with density of 0.86 kg/dm^3 to ISO 3968.

Δp varies proportionally with density.

MRS 116 - Δp Housing



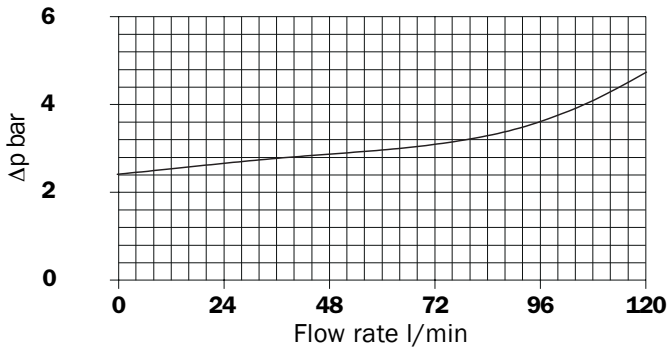
MRS 165 - Δp Housing



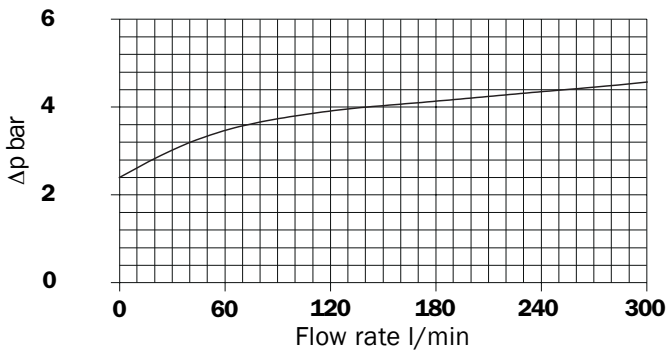
Valves

Bypass valve pressure drop

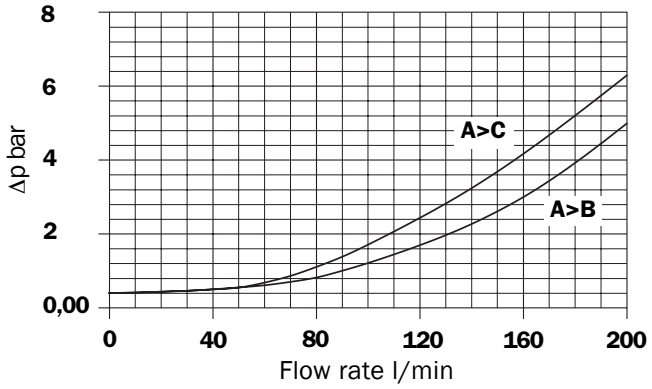
MRS 116



MRS 165

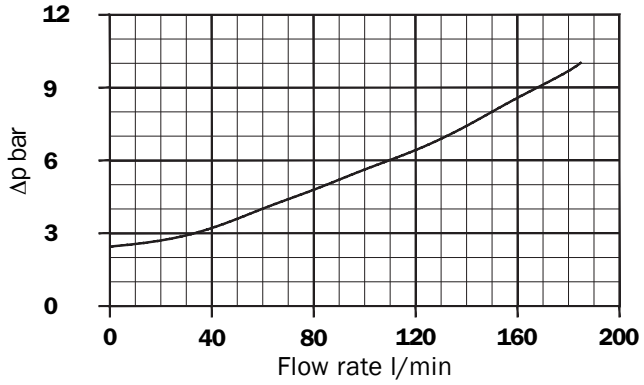


LMP 124 - Δp Housing



Valves
Bypass valve pressure drop

LMP 124



Multiplication factor "Y" for definition of the pressure drop of filter elements.

Reference viscosity 30 mm²/s

Filter Element		Absolute Filtration N Series		
Type		**A 1 0**	**A 1 6**	**A 2 5**
CU 110	1	8,754	8,142	5,875
	2	6,111	6,024	4,155
	3	5,066	4,066	2,397
	4	2,798	2,358	1,142
RS 116	1	5,12	4,33	3,85
	2	2,22	1,87	1,22
RS 165	1	2,06	1,75	1,46
	2	1,24	1,05	0,96
	3	0,94	0,86	0,61

Sizing data for single cartridge, head at top

Δp Tot.
Δpc Filter housing
Δpe Filter element
Y Multiplication factor (see below)
Q l/min = flow rate
V1 = reference viscosity 30 mm²/s (cSt)
V2 = operating viscosity in mm²/s (cSt)
Δp Tot. = Δpc + Δpe
Δpe = Y : 1000 x Q x (V2/V1)

Calculation example with HLP Mineral Oil Variation in viscosity

Data:
Filter with in-line connections
Pressure = 6 bar
Flow rate = 200 l/min
Viscosity = 46 mm²/s (cSt)
Density = 0,86 Kg/dm³
Filtration = 10 μ absolute
With bypass valve

Practical example
Δpe Filter housing

Q = 200 l/min
V_2 = 46 mm²/s (cSt)
Pmax = 6 bar
Filtration = 10 μ absolute
Δp Tot. max = **0,4 bar** (max. recommended value)
Δpe = (1,24 : 1000) x 200 x (46/30) = 0,37 bar

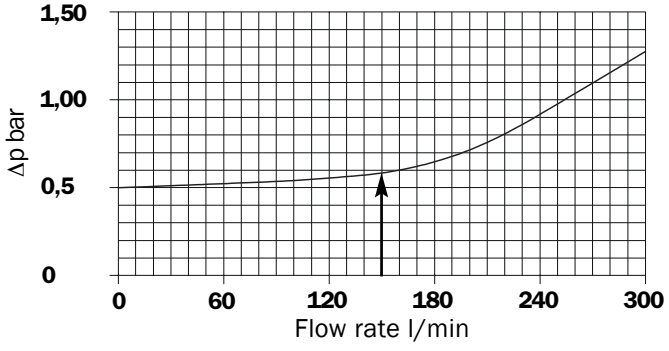
Δpc Filter housing
Q tot = 200 l/min
Q1 to the tank = 150 l/min
Q2 to the pump = 50 l/min

Filter type - MRS 165 (see below housings pressure drop)

Δp Tot. max 1 – 1,6 bar = Δpc + Δpe
Δp Tot. = 0,59 (Q1) + 0,37 = 0,96 bar

Sized filter type:
MRS 165 2 F A G1 0 A10 S P01

MRS 165 - Δp Housing



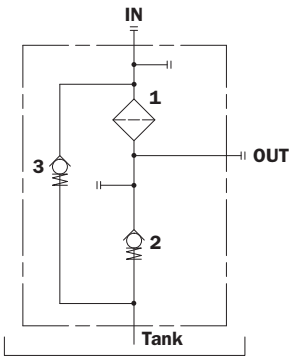
Hydraulic schemes

LEGEND

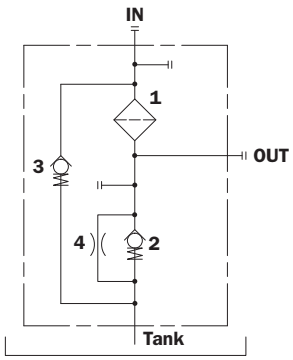
1 - Filter element
2 - Back-Pressure valve: opening pressure 0,5 bar ±10%
3 - Bypass valve: opening pressure 2,5 bar ±10%
4 - Depressurization valve
5 - Anti-Cavitation valve
6 - Safety filter element (wire mesh 60 μm)

MRS 116

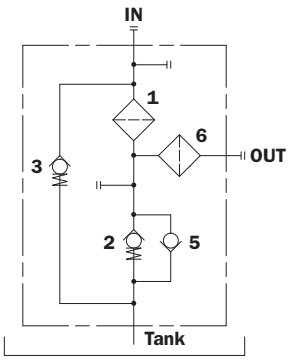
Valves "A" option



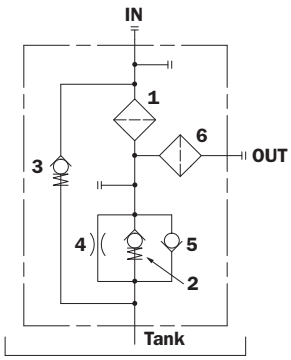
Valves "B" option



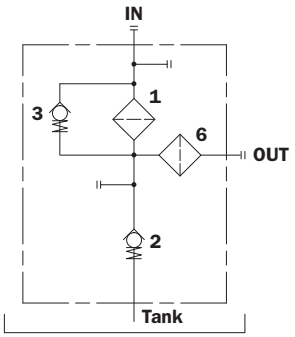
Valves "C" option



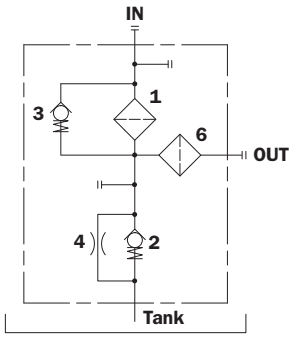
Valves "D" option



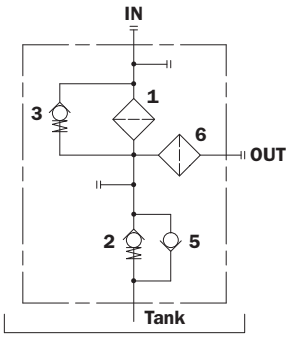
Valves "E" option



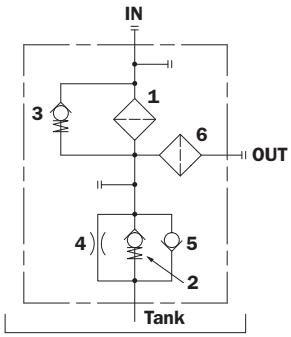
Valves "F" option



Valves "G" option

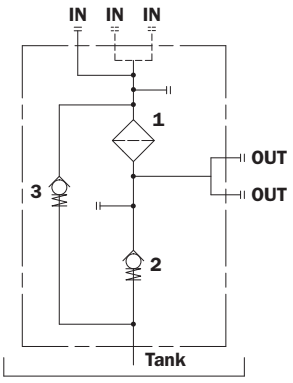


Valves "H" option

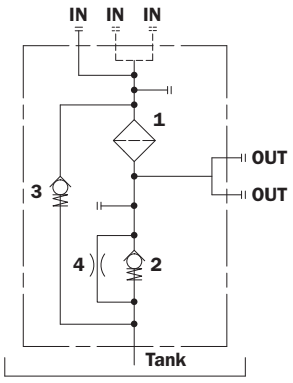


MRS 165 - 166

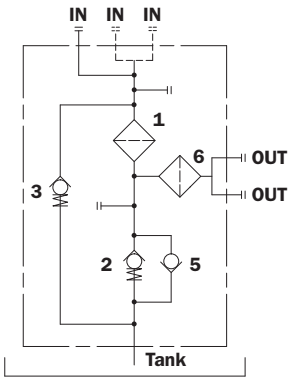
Valves "A" option



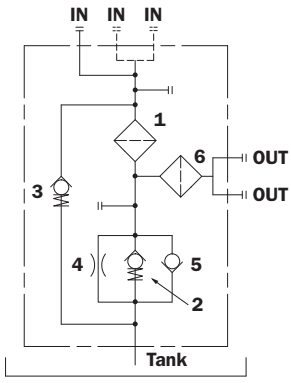
Valves "B" option



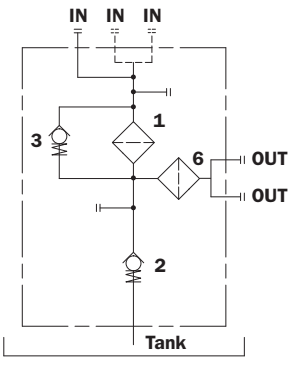
Valves "C" option



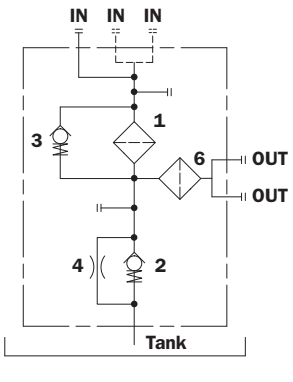
Valves "D" option



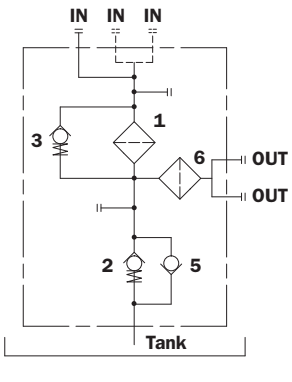
Valves "E" option



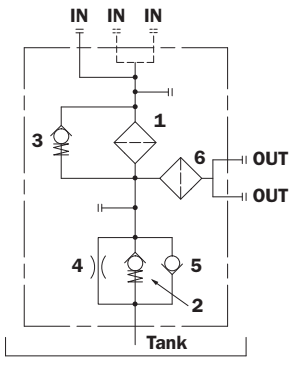
Valves "F" option



Valves "G" option

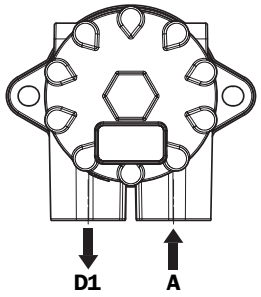


Valves "H" option

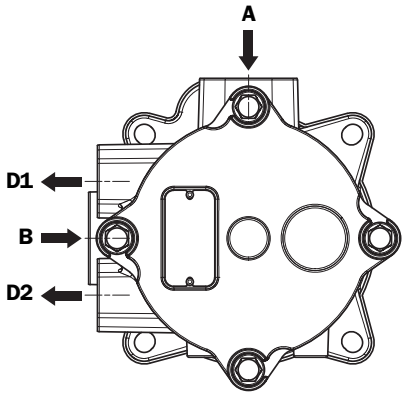


Port configuration

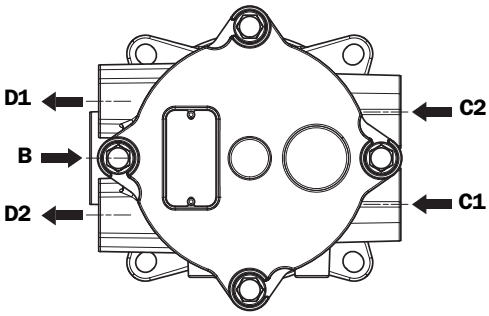
MRS 116



MRS 165



MRS 166



Thread connections

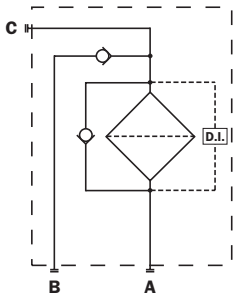
Code	A (IN)	B (IN)	C1 (IN)	C2 (IN)	D1 (OUT)	D2 (OUT)	T (Indicator port)
MRS 116 x x G1 0 xxx x P01	G 3/4"	-	-	-	G 3/4"	-	G 1/8"
MRS 116 x x G2 0 xxx x P01	G 1"	-	-	-	G 1"	-	G 1/8"
MRS 116 x x G3 0 xxx x P01	3/4" NPT	-	-	-	3/4" NPT	-	1/8" NPT
MRS 116 x x G4 0 xxx x P01	1" NPT	-	-	-	1" NPT	-	1/8" NPT
MRS 116 x x G5 0 xxx x P01	SAE 12	-	-	-	SAE 12	-	1/8" NPT
MRS 116 x x G6 0 xxx x P01	SAE 16	-	-	-	SAE 16	-	1/8" NPT
MRS 165 x x G1 0 xxx x P01	G 1 1/4"	-	-	-	G 1"	G 1"	G 1/8"
MRS 165 x x G2 0 xxx x P01	1 1/4" NPT	-	-	-	1" NPT	1" NPT	1/8" NPT
MRS 165 x x G3 0 xxx x P01	SAE 20	-	-	-	SAE 16	SAE 16	1/8" NPT
MRS 165 x x G1 1 xxx x P01	G 1 1/4"	G 1 1/4"	-	-	G 1"	G 1"	G 1/8"
MRS 165 x x G2 1 xxx x P01	1 1/4" NPT	1 1/4" NPT	-	-	1" NPT	1" NPT	1/8" NPT
MRS 165 x x G3 1 xxx x P01	SAE 20	SAE 20	-	-	SAE 16	SAE 16	1/8" NPT
MRS 166 x x G1 1 xxx x P01	-	G 1 1/4"	G 1"	G 1"	G 1"	G 1"	G 1/8"
MRS 166 x x G2 1 xxx x P01	-	1 1/4" NPT	1" NPT	1" NPT	1" NPT	1" NPT	1/8" NPT
MRS 166 x x G3 1 xxx x P01	-	SAE 20	SAE 16	SAE 16	SAE 16	SAE 16	1/8" NPT

Hydraulic schemes

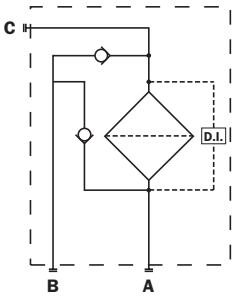
LMP 124

Style C - D - E - F

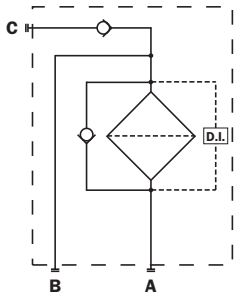
Style C
LMP 124



Style E
LMP 124

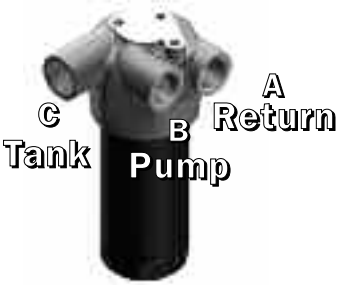


Style G
LMP 124

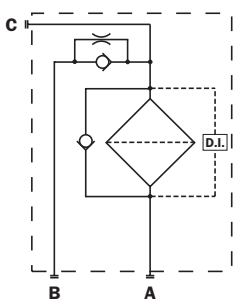


LMP 124

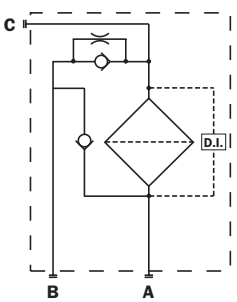
Style G - H



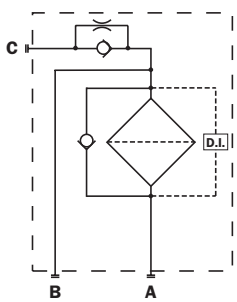
Style D
LMP 124



Style F
LMP 124

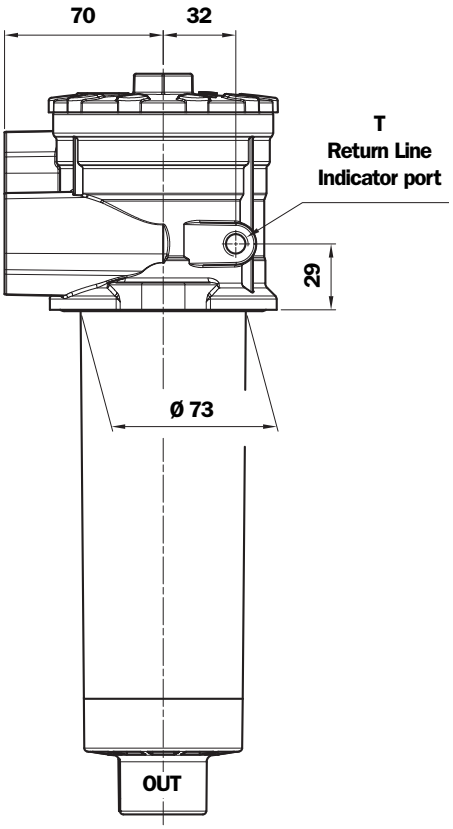


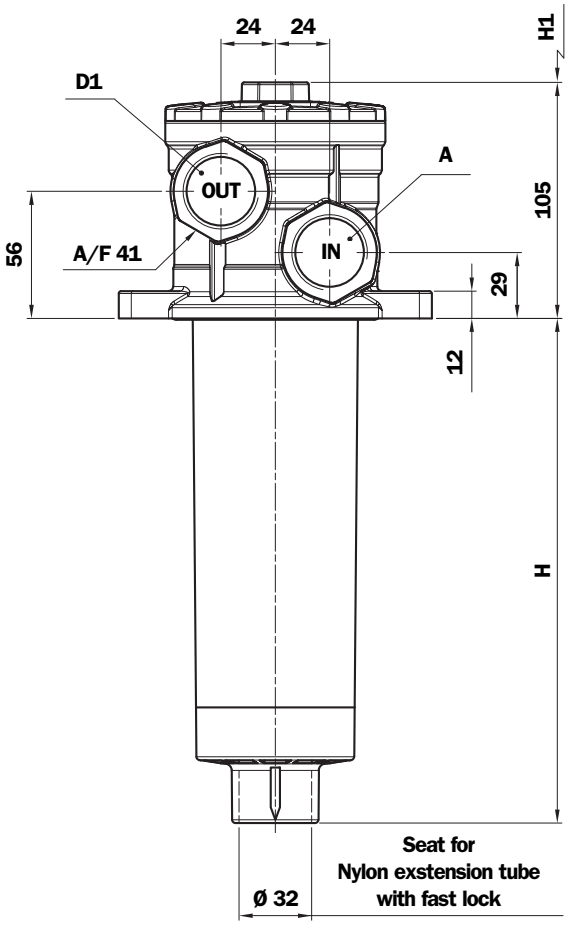
Style H
LMP 124

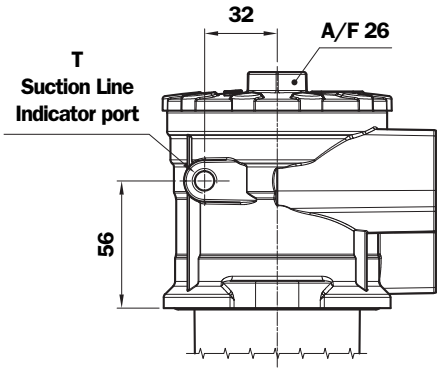


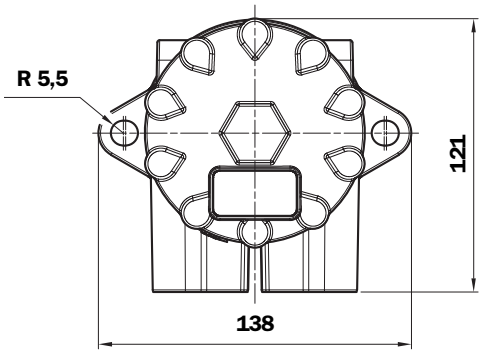
Dimensions

MRS 116

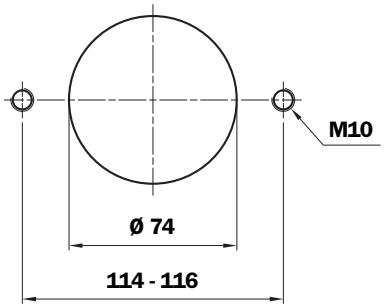








Holes on the tank

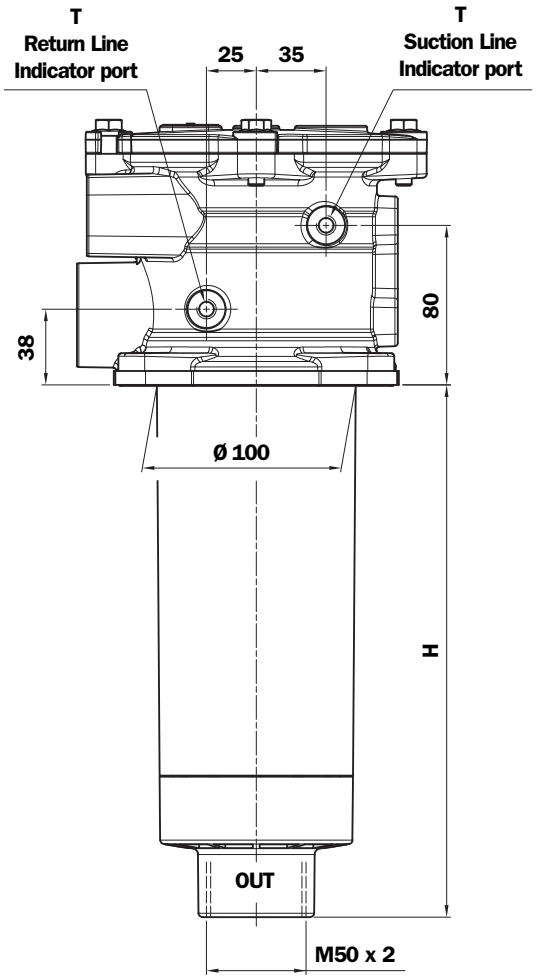


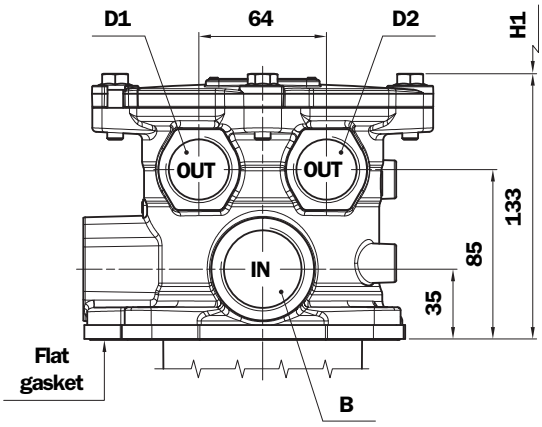
MRS 116

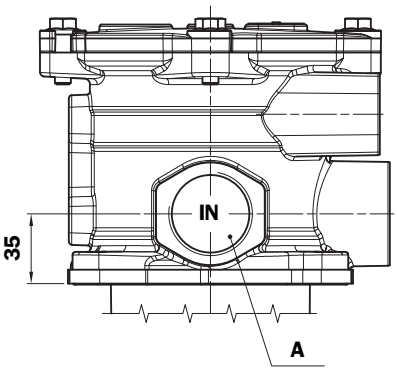
Filter Length	H mm	H1 mm
1	203	240
2	263	300

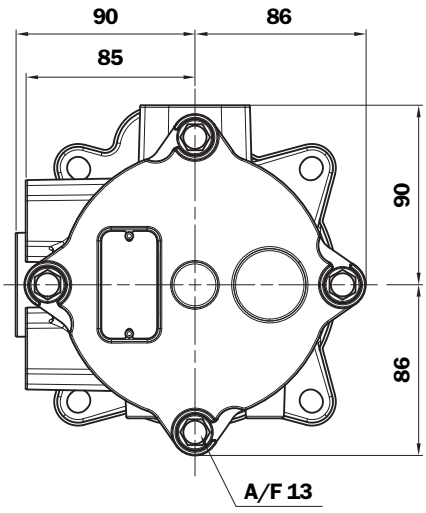
See page 5 to choose thread connections

MRS 165

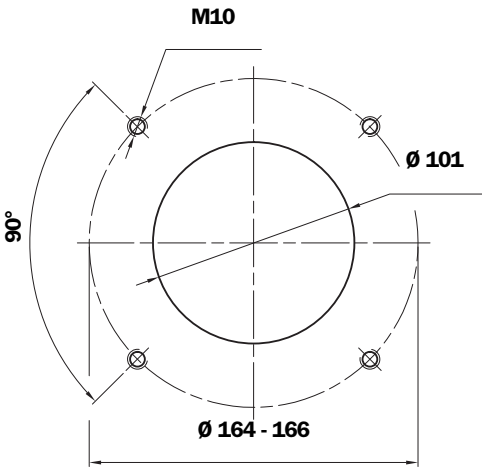








Holes on the tank

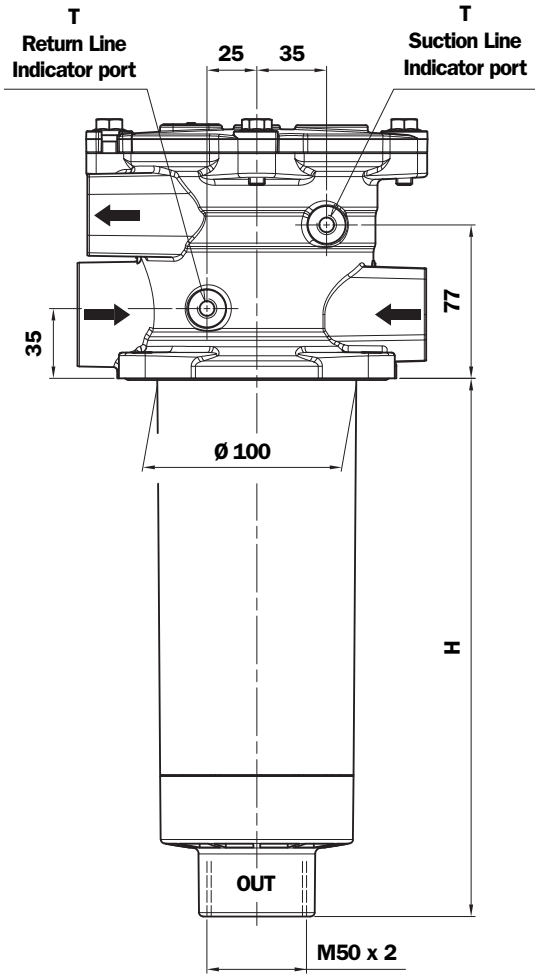


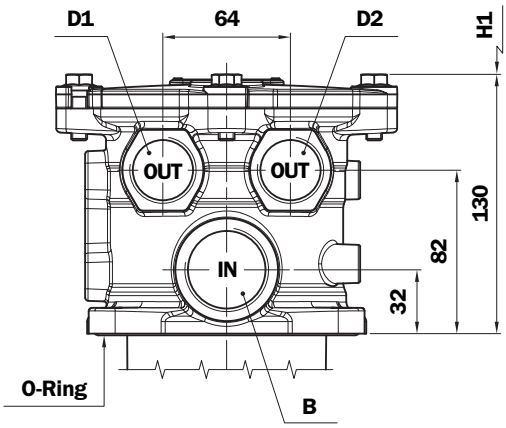
MRS 165

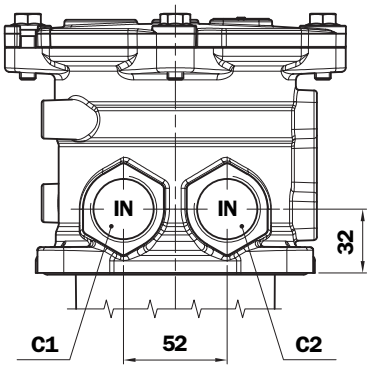
Filter Length	H mm	H1 mm
1	267	320
2	375	430
3	442	500

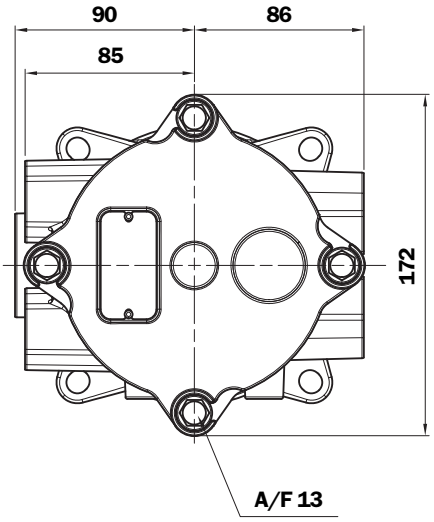
See page 5 to choose thread connections

MRS 166

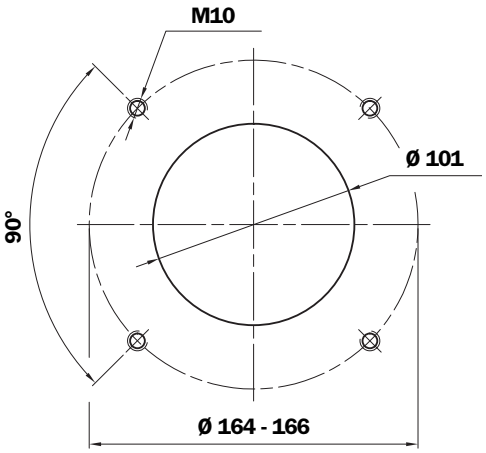








Holes on the tank

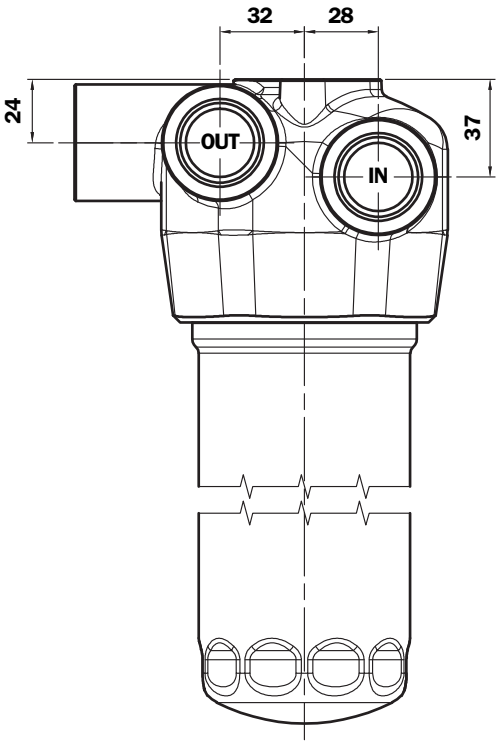


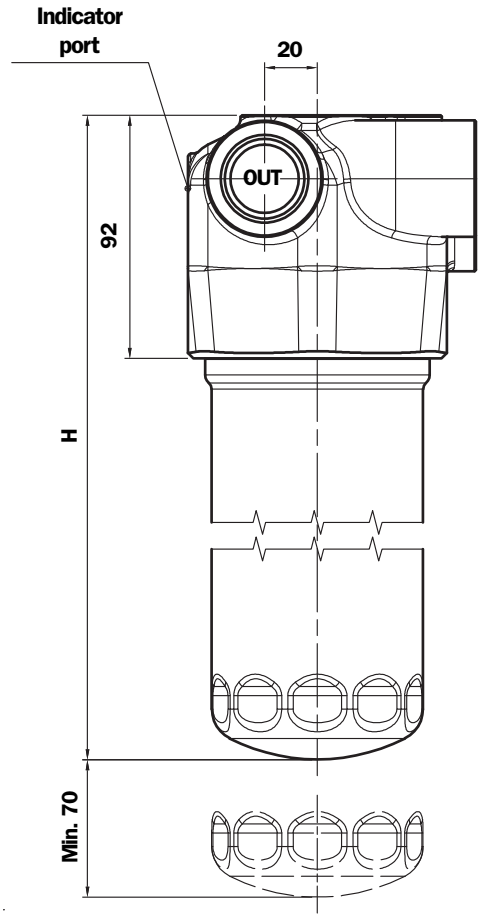
MRS 166

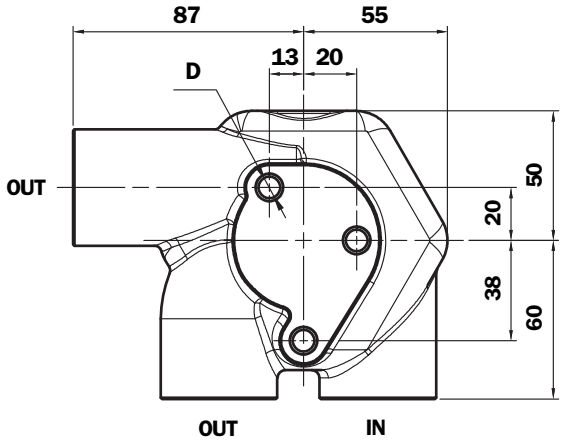
Filter Length	H mm	H1 mm
1	270	320
2	378	430
3	445	500

See page 5 to choose thread connections

LMP 124







LMP 124

Length Filter	H mm
1	182
2	215
3	265
4	365

Type	Connection IN - OUT	Fixing holes D
B	G 1"	M10 x depth 12 mm
F	SAE 16	3/8" UNC x depth 12 mm

Ordering information MRS 116 - 165 - 166

Filter assembly

MRS

	1	2	3	4a	5	6	7	8	9
Example 1: MRS	**116**	**1**	**A**	**A**	**G1**	**0**	**A16**	**S**	**P01**
Example 2: MRS	**165**	**2**	**C**	**B**	**G3**	**0**	**A10**	**S**	**P01**
Example 3: MRS	**166**	**3**	**G**	**A**	**G2**	**1**	**A25**	**S**	**P01**

Filter element

RS

	1	2	7	4b	9
Example 1: RS	**116**	**1**	**A16**	**A**	**P01**
Example 2: RS	**165**	**2**	**A10**	**A**	**P01**
Example 3: RS	**165**	**3**	**A25**	**A**	**P01**

1 - Size

Filter	Filter element
116	**116**
165	**165**
166	**165**

2 - Filter length

116	**1** **2**
165	**1** **2** **3**
166	**1** **2** **3**

3 - Valves option

A **E**
B **F**
C **G**
D **H**

See page 4 for "Hydraulic schemes"

4 - Seals

4a - Filter assembly

- **A** NBR - O-Ring on head
- **B** NBR - Flat gasket on head
- **V** FPM - O-Ring on head
- **D** FPM - Flat gasket on head

4b - Filter element

- **A** NBR
- **V** FPM

5 - Standard connections

MRS 116

G1 **G4**
G2 **G5**
G3 **G6**

See page 5 to choose threaded connections

MRS 165 - 166

G1
G2
G3

See page 5 to choose threaded connections

6 - Additional IN connections

- **0** (Not available for MRS 166)
- **1** (Not available for MRS 116)

See page 5 to choose threaded connections

7 - Filter element

- **A10** Inorganic microfibre 10 µ
- **A16** Inorganic microfibre 16 µ
- **A25** Inorganic microfibre 25 µ

Absolute filtration Inorganic Microfibre ßx (c) ≥ 1000

8 - Style

- **S** Standard
- **B** Suitable for tank side-wall mounting applications (only for valves option A - B - E - F)

9 - Option

- **P01** MP Filtri standard
- **Pxx** On request

www.mpfiltri.com

Ordering information LMP 124

Filter assembly
LMP

	1	2	3	4	5	6	7	8	9
	☐	☐	☐	☐	☐	☐	☐	☐	☐
Example: LMP	**124**	**2**	**C**	**A**	**B**	**2**	**A10**	**N**	**P01**

Filter element
CU110

	2	7	4	8	9
	☐	☐	☐	☐	☐
Example: CU110	**2**	**A10**	**A**	**N**	**P01**

1 - Size

Filter	Filter element
124	**110**

2 - Filter length

- **1**
- **2**
- **3**
- **4**

3 - Valves option

- **C**
- **D**
- **E**
- **F**
- **G**
- **H**

See page 5 for "Hydraulic schemes"

4 - Filter seals

- **A** NBR
- **V** FPM
- **W** NBR (Compatible with fluid HFA, HFB, HFC)
- ☐ On request

5 - Connection

LMP 124

Type	Connection A - B - C
B	G 1"
F	SAE 16

6 - Indicator port

- **1** No
- **2** Port G 1/8" switch For pressure switch
- **3** Port G 1/4" For pressure switch
- **4** Differential indicator port

7 - Filter element

- **A10** Inorganic microfibre 10 µ
- **A16** Inorganic microfibre 16 µ
- **A25** Inorganic microfibre 25 µ

Absolute filtration ßx (c) ≥ 1000

8 - Max filter element differential pressure

- **N** Δp 20 bar

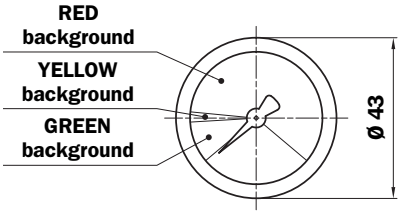
9 - Option

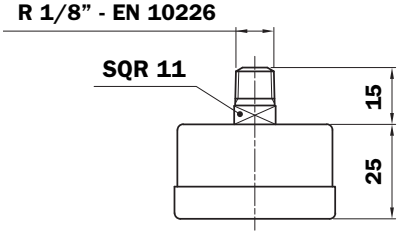
- **P01** MP Filtri standard
- **Pxx** On request

www.mpfiltri.com

Barometric indicators

BVA





Ordering code: **BLA25HA71P01**

Pressure setting: 2,5 bar ±10%

Axial Pressure Gauge

Materials:

- Case: Painted Steel
- Window: Clear plastic
- Dial: Painted Steel
- Pointer: Painted Aluminium
- Pressure connection: Brass
- Pressure element: Bourdon tub cu-alloy soft soldered

Technical data:

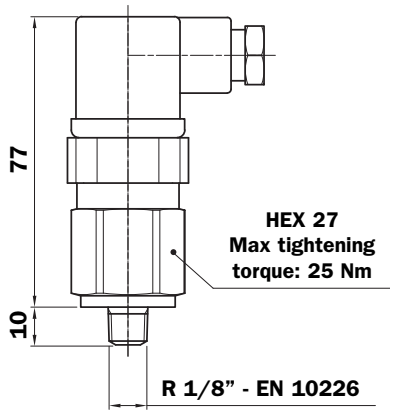
- Indicator type: Axial pressure gauge
- Max working pressure: Static: 7 bar
Fluctuating: 6 bar
Short time: 10 bar
- Working temperature: From -40°C to +60°C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFA, HFB, HFC fluids in according to ISO 2943
- Accuracy class: cl. 2.5
- Protection degree: IP 31 in according to EN 60529

HYDRAULIC SYMBOL

DYED RANGE

BVA25P01
GREEN BACKGROUND (from 0 to 2,5 bar)
Clean filter element
YELLOW BACKGROUND (from 2,5 to 3 bar)
Warning
RED BACKGROUND (from 3 to 10 bar)
Bypass

BEA



Ordering code: **BEA25HA50P01**

Pressure setting: 2,5 bar ±10%

Electrical Pressure Indicator

Materials:

- Body: Brass
- Internal parts: Brass - Nylon
- Seals: NBR

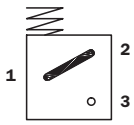
Technical data:

- Indicator type: Electrical pressure indicator
- Max working pressure: 40 bar
- Proof pressure: 60 bar
- Working temperature: From -25°C to +80°C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFA, HFB, HFC fluids in according to ISO 2943

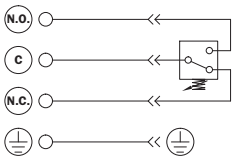
Electrical data:

- Resistive load: 5 A / 14 VDC
4 A / 30 VDC
5 A / 125 VAC
5 A / 250 VAC
- Electrical connections: 50 - EN 175301-803
- Protection degree: IP 65 in according to EN 60529
- Available Atex product: II 1GD Ex ia IIC Tx Ex ia IIIC Tx°C X

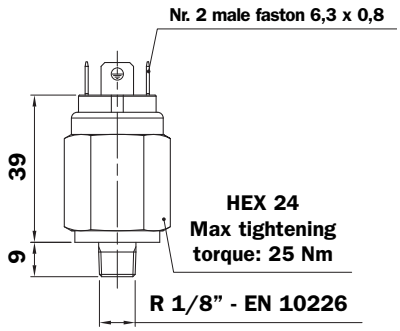
HYDRAULIC SYMBOL



ELECTRICAL SYMBOL



BET



Ordering code: **BET25HF05P01**

Pressure setting: 2,5 bar ±10%

Electrical Pressure Indicator

Materials:

- Body: Brass
- Internal parts: Brass - Nylon
- Seals: HNBR

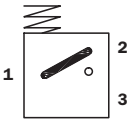
Technical data:

- Indicator type: Electrical pressure indicator with thermostat
- Thermostat setting: 30°C
- Max working pressure: 10 bar
- Proof pressure: 15 bar
- Working temperature: From -25°C to +100°C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFA, HFB, HFC fluids in according to ISO 2943

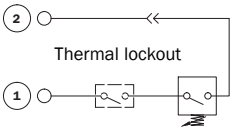
Electrical data:

- Resistive load: 0,5 A / 48 VDC
- Electrical connections: Faston 6,3 x 0,8

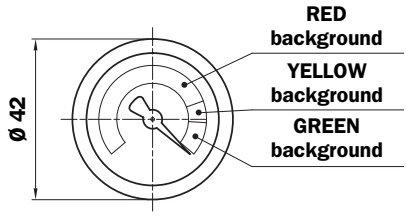
HYDRAULIC SYMBOL

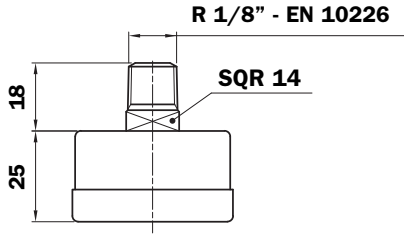


ELECTRICAL SYMBOL



VVA





Ordering code: **VVB16P01**

Connection: R 1/8" EN 10226

Axial Vacuum Gauge

Materials:

- Case: Painted Steel
- Window: Clear plastic
- Dial: Painted Steel
- Pointer: Painted Aluminium
- Pressure connection: Brass
- Pressure element: Bourdon tub Cu-alloy soft soldered

Technical data:

- Indicator type: Axial vacuum gauge
- Max working pressure: Static: 7 bar
Fluctuating: 6 bar
Short time: 10 bar
- Working temperature: From -40 °C to +60 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC fluids in according to ISO 2943
- Accuracy class: cl. 2.5
- Protection degree: IP 31 in according to EN 60529

HYDRAULIC SYMBOL

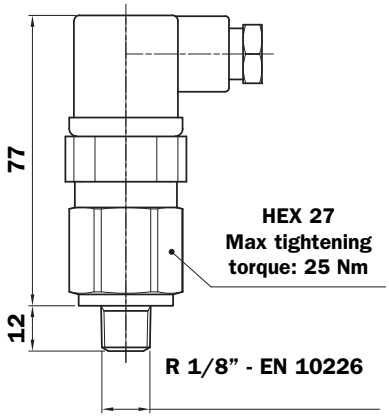
GRADUATED DISPLAY

GREEN BACKGROUND
(from 0 to -12 cmHg)
Clean filter element

YELLOW BACKGROUND
(from -12 to -18 cmHg)
Warning

GREEN BACKGROUND
(from -18 to -76 cmHg)
Bypass

VEA - VEB



Ordering code: **VEB21AA50P01**

Connection: R 1/8" EN 10226

Electrical Vacuum Indicator

Materials:

- Body: Brass
- Internal parts: Brass - Nylon
- Seals: NBR

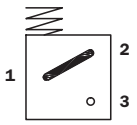
Technical data:

- Indicator type: Electrical vacuum indicator
- Setting pressure: -0,21 bar ±10%
- Max working pressure: 10 bar
- Proof pressure: 15 bar
- Working temperature: From -25 °C to +80 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC fluids in according to ISO 2943

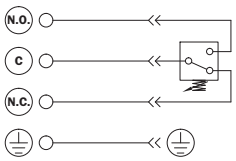
Electrical data:

- Resistive load: 5 A / 14 VDC
4 A / 30 VDC
5 A / 125 VAC
5 A / 250 VAC
- Electrical connections: 50 - EN 175301-803
- Protection degree: IP 65 in according to EN 60529
- Available Atex product Ex II 1GD Ex ia IIC Tx Ex ia IIIC Tx °C X

HYDRAULIC SYMBOL



ELECTRICAL SYMBOL



New Headquarters:

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

GERMANY
MP FILTRI Germany GmbH
Hans - Wilhelmi - Straße 2
DE-66386 St. Ingbert
Phone: +49.(0)6894-95652-0
Fax: +49.(0)6894-95652-20
email: service@mpfiltri.de
www.mpfiltri.com

FRANCE
MP FILTRI FRANCE Sas
Parc d'activités des Chanteraines
8 rue du Commandant d'Estienne
d'Orves, Immeuble D3
92396 Villeneuve la Garenne - France
Phone: +33(0)1.40.86.47.00
Fax: +33(0)1.40.86.47.09
email: sales@mpfiltrifrance.com
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
www.mpfiltriusa.com

CANADA
MP FILTRI CANADA Inc.
8831 Keele Street, Concord,
Ontario L4K 2N1, Canada
Phone: +1.905-303-1369
Fax: +1.905-303-7256
email: mail@mpfiltricanada.com
www.mpfiltricanada.com

RUSSIAN FEDERATION
ITALFILTRI
Yuryevskiy Pereulok 13 a, Building 1
111020 Moscow, Russia
Phone/Fax: +7(495)220-94-60
email: mpfiltrirussia@yahoo.com
www.mpfiltri.ru

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

INDIA
MP FILTRI INDIA Pvt. Ltd.
Plot-7F, Raj Pinnacle
Beside RMZ Centennial,
Brookefield Road, Whitefield,
Bangalore 560048 - India
Phone: +91-80-4147 7444/4146 1444
Fax: +91-80-41461888
email: sales@mpfiltri.co.in
www.mpfiltri.com