

NEW

ELIXIR®

SFEX - RFEX - LFEX series



PASSION TO PERFORM



ELIXIR®

Lighter, easier to use, and kinder to the environment - MP Filtri's new ELIXIR low pressure concept filters have been specially designed for in-line connections and to handle working pressures up to 1.6 MPa (16 bar).

The concept is now available in three new series:

- SFEX SERIES - Suction
- RFEX SERIES - Return
- LFEX SERIES - Delivery, which is equipped with differential indicator (electrical or visual)

Available in 4 sizes: 060, 080, 110, and 160, the new generation of filters is completely interchangeable with the previous MPS 050/070/100/150 series of the Spin-on range.

The new cast aluminium head and nylon design reduces weight by 10 per cent compared to the Spin-on range.

Less waste reduces both your carbon footprint and protects the environment.

Replacement is fast and easy, just disassemble the bowl with a 32mm fixed wrench, take out the FEX filter element and replace.



Improved connection system
(between the head and the filter element and between the head and the bowl) reduces leakage so the dirt to the output circuit is reduced.



LFEX Series
New smaller differential indicator - electrical or visual.



High flow rate thanks to the head geometry: the oil enters in the filter element in a spiral flow and spreads more effectively inside the filter element for greater longevity.

FILTER SIZING Calculation & Corrective factor

THE CORRECT FILTER SIZING HAVE TO BE BASED ON THE TOTAL PRESSURE DROP DEPENDING BY THE APPLICATION. THE MAXIMUM TOTAL PRESSURE DROP ALLOWED BY A NEW AND CLEAN RETURN FILTER HAVE TO BE IN THE RANGE 0.4 ÷ 0.6 bar.

The pressure drop calculation is performed by adding together the value of the housing with the value of the filter element. The pressure drop Δp_c of the housing is proportional to the fluid density (kg/dm^3); all the graphs in the catalogue are referred to mineral oil with density of $0.86 \text{ kg}/\text{dm}^3$. The filter element pressure drop Δp_e is proportional to its viscosity (mm^2/s); the corrective factor Y have to be used in case of an oil viscosity different than $30 \text{ mm}^2/\text{s}$ (cSt).

Sizing data for single filter element

Δp_c = Filter housing pressure drop [bar]

Δp_e = Filter element pressure drop [bar]

Y = Corrective factor Y (see corresponding table), depending on the filter type, on the filter element size, on the filter element length and on the filter media

Q = flow rate (l/min)

$V1$ reference oil viscosity = $30 \text{ mm}^2/\text{s}$ (cSt)

$V2$ = operating oil viscosity in mm^2/s (cSt)

Filter element pressure drop calculation with an oil viscosity different than $30 \text{ mm}^2/\text{s}$ (cSt)

$$\Delta p_e = Y : 1000 \times Q \times (V2:V1)$$

$$\Delta p_{\text{Tot.}} = \Delta p_c + \Delta p_e$$

Verification formula

$$\Delta p_{\text{Tot.}} \leq \Delta p_{\text{max allowed}}$$

Maximum total pressure drop (Δp_{max}) allowed by a new and clean filter

Application	Range (bar)
Suction filters	0.08 ÷ 0.10
Return filters	0.4 ÷ 0.6
	0.4 ÷ 0.6 return lines
	0.3 ÷ 0.5 lubrication lines
Low & Medium Pressure filters	0.3 ÷ 0.4 off-line in power systems
	0.1 ÷ 0.3 off-line in test benches
	0.4 ÷ 0.6 over-boost
High Pressure filters	0.8 ÷ 1.5
Stainless Steel filters	0.8 ÷ 1.5

Generic filter calculation example

Application data:

Return filter

Pressure $P_{\text{max}} = 10 \text{ bar}$

Flow rate $Q = 75 \text{ l}/\text{min}$

Viscosity $V2 = 46 \text{ mm}^2/\text{s}$ (cSt)

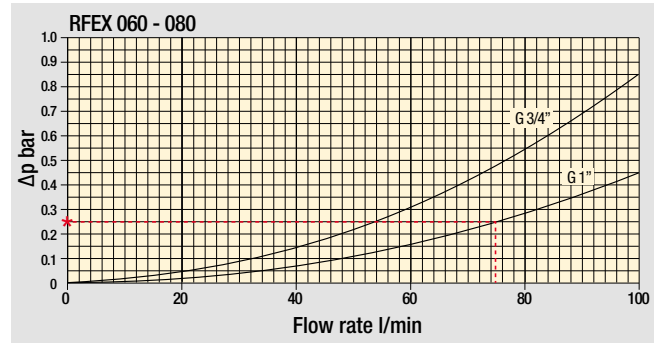
Oil density = $0.86 \text{ kg}/\text{dm}^3$

Required filtration efficiency = $25 \mu\text{m}$ with absolute filtration

1" inlet connection

Calculation:

$\Delta p_c = 0.25 \text{ bar}$ (see graphic below)



Filter housings Δp pressure drop.

The curves are plotted using mineral oil with density of $0.86 \text{ kg}/\text{dm}^3$ in compliance with ISO 3968. Δp varies proportionally with density.

$$\Delta p_e = (2.56 : 1000) \times 75 \times (46 : 30) = 0.29 \text{ bar}$$

SFEX - RFEX - LFEX corrective factor

Corrective factor Y to be used for the filter element pressure drop calculation. The values depend to the filter size and length and to the filter media.

Reference oil viscosity $30 \text{ mm}^2/\text{s}$

Filter element	Absolute filtration N Series						Nominal filtration N Series				
	A03	A06	A10	A16	A25	P10	P25	M25	M60	M90	M250
FEX060	11.63	10.79	5.10	4.78	4.26	4.58	3.22	1.02	0.89	0.63	0.63
FEX080	6.83	6.69	3.35	3.19	2.56	1.97	1.38	0.62	0.45	0.29	0.29
FEX110	5.73	5.22	2.52	2.16	1.66	1.33	1.12	0.22	0.18	0.14	0.14
FEX160	3.72	3.59	1.79	1.76	1.22	0.90	0.76	0.15	0.10	0.09	0.09

Highlighted Y values related to RFEX return filters

$$\Delta p_{\text{Tot.}} = 0.25 + 0.29 = 0.54 \text{ bar}$$

The selection is correct because the total pressure drop value is inside the admissible range for return filters.

In case the allowed max total pressure drop is not verified, it is necessary to repeat the calculation changing the filter length/size.



ELIXIR®

Suction filters

SFEX series

Flow rate up to 100 l/min



SFEX GENERAL INFORMATION	page	6
SFEX 060 - 080		8
SFEX 110 - 160		10
SFEX CLOGGING INDICATORS		12
SFEX SPARE PARTS		14

Description

Technical data

Suction filters

Flow rate up to 100 l/min

SFEX are range of suction filters for protection of the downstream pump against the coarse contamination.

They are placed below the minimum oil level, directly connected to the suction line of the pump in-line mounted.

Available features:

- Female threaded connections up to 1 1/4" and SAE connections up to 1 5/8", for a maximum flow rate of 100 l/min
- Bypass valve, to relieve excessive pressure drop across the filter media
- Visual, electrical, axial and radial vacuum gauges
- MYclean interface connection for the filter element, to protect the product against non-original spare parts
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

Common application:

- Mobile machines
- Industrial equipment

Filter housing materials

- Head: Aluminium
- Bypass valve: Nylon - Steel
- Bowl: Nylon

Bypass valve

Opening pressure 30 kPa (0.3 bar) \pm 10%

Elements

Fluid flow through the filter element from OUT to IN

Seals

Standard NBR series A

Temperature

From -25 °C to +110 °C

Note

SFEX filters are provided for vertical mounting



Weights [kg] and volumes [dm³]

Filter series	Weights [kg]	Volumes [dm ³]
SFEX 060	0.50	0.60
SFEX 080	0.95	0.80
SFEX 110	1.20	1.60
SFEX 160	1.70	2.00

Hydraulic symbols

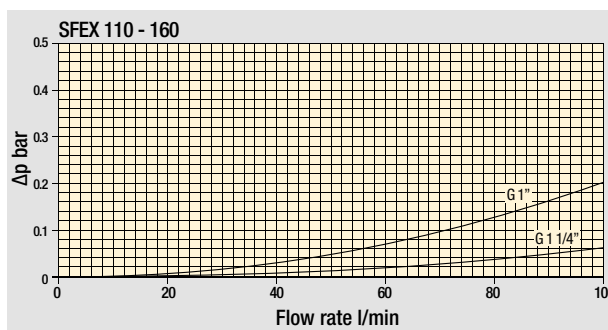
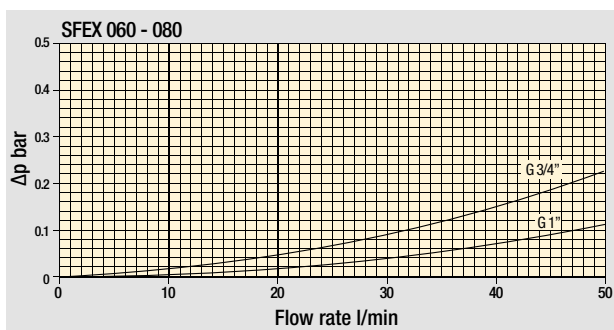
Filter series	Style S	Style B
SFEX 060	•	•
SFEX 080	•	•
SFEX 110	•	•
SFEX 160	•	•

OUT

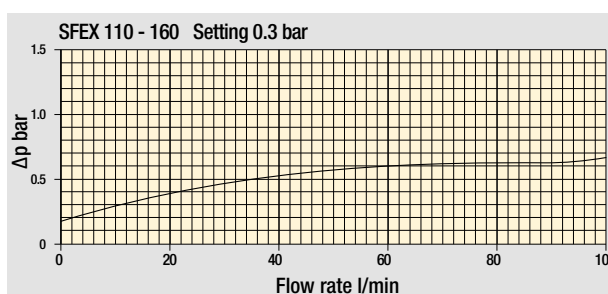
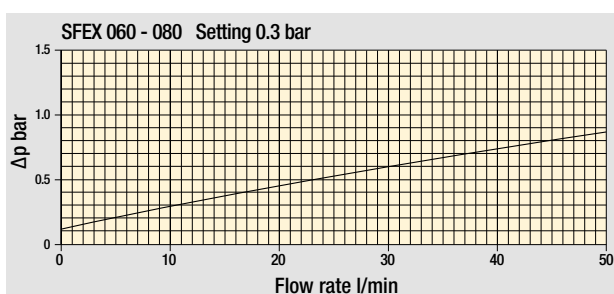
IN

OUT

IN



Filter housings
Δp pressure drop



Bypass valve
pressure drop

The curves are plotted using mineral oil with density of 0.86 kg/dm³ in compliance with ISO 3968.
Δp varies proportionally with density.

Flow rates [l/min]

Filter element design - N Series

Filter series	M60	M90	M250	P10	P25
SFEX 060	26	27	27	14	17
SFEX 080	28	29	29	21	23

Connections of filter under test G 3/4".

Filter series	M60	M90	M250	P10	P25
SFEX 060	31	33	33	13	20
SFEX 080	34	35	35	24	30

Connections of filter under test G 1".

Filter series	M60	M90	M250	P10	P25
SFEX 110	93	96	96	48	53
SFEX 160	98	99	99	60	65

Connections of filter under test G 1 1/4".

Maximum flow rate for a complete suction filter with a pressure drop Δp = 0.08 bar.

The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

Please, contact our Sales Department for further additional information.

SFEX SFEX060 - SFEX080

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example: SFEX060							B	A	A	6	M60	N	P01
SFEX060														
SFEX080														
Bypass valve														
S Without bypass														
B 0.3 bar														
Seals and treatments														
A NBR														
Connections														
A G 3/4"														
B G 1"														
C 3/4" NPT														
D 1" NPT														
E SAE 12 - 1 1/16" - 12 UN														
F SAE 16 - 1 5/16" - 12 UN														
Connection for clogging indicator														
6 With plugged connections														
Filtration rating (filter media)														
M60 Wire mesh 60 µm	P10 Resin impregnated paper 10 µm													
M90 Wire mesh 90 µm	P25 Resin impregnated paper 25 µm													
M250 Wire mesh 250 µm														
Element Δp														
N 8 bar														
Execution														
P01 MP Filtri standard														
Pxx Customized														

FILTER ELEMENT

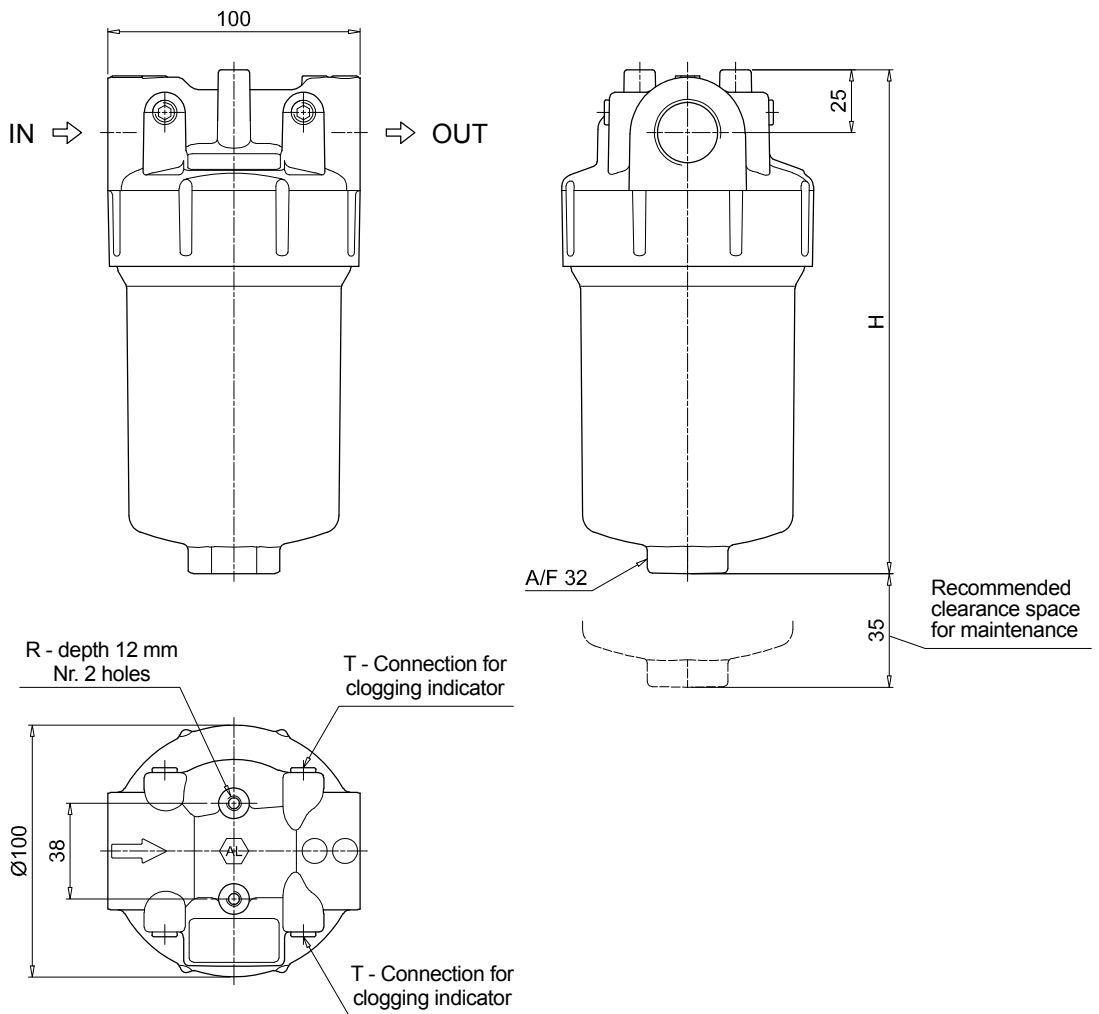
Element series and size	Configuration example: FEX060					M60	A	N	P01
FEX060									
FEX080									
Filtration rating (filter media)									
M60 Wire mesh 60 µm	P10 Resin impregnated paper 10 µm								
M90 Wire mesh 90 µm	P25 Resin impregnated paper 25 µm								
M250 Wire mesh 250 µm									
Seals and treatments									
A NBR									
Element Δp									
N 8 bar									
Execution									
P01 MP Filtri standard									
Pxx Customized									

ACCESSORIES

Clogging indicators	page		page
VEB Electrical vacuum indicator	12	VVB Axial pressure gauge	13
VLB Electrical/visual vacuum indicator	12	VVS Radial pressure gauge	13

Filter size	H [mm]	
060	202	
080	265	

Connections	T	R
A	G 1/8"	M6
B	G 1/8"	M6
C	1/8" NPT	1/4" UNC
D	1/8" NPT	1/4" UNC
E	1/8" NPT	1/4" UNC
F	1/8" NPT	1/4" UNC



SFEX SFEX110 - SFEX160

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example: SFEX110							
SFEX110	B	A	A	6	M60	N	P01	
SFEX160								
Bypass valve								
S Without bypass								
B 0.3 bar								
Seals and treatments								
A NBR								
Connections								
A G 1"								
B G 1 1/4"								
C 1" NPT								
D 1 1/4" NPT								
E SAE 16 - 1 5/16" - 12 UN								
F SAE 20 - 1 5/8" - 12 UN								
Connection for clogging indicator								
6 With plugged connections								
Filtration rating (filter media)								
M60 Wire mesh 60 µm	P10 Resin impregnated paper 10 µm							
M90 Wire mesh 90 µm	P25 Resin impregnated paper 25 µm							
M250 Wire mesh 250 µm								
	Element Δp				Execution			
	N 8 bar				P01 MP Filtri standard			
					Pxx Customized			

FILTER ELEMENT

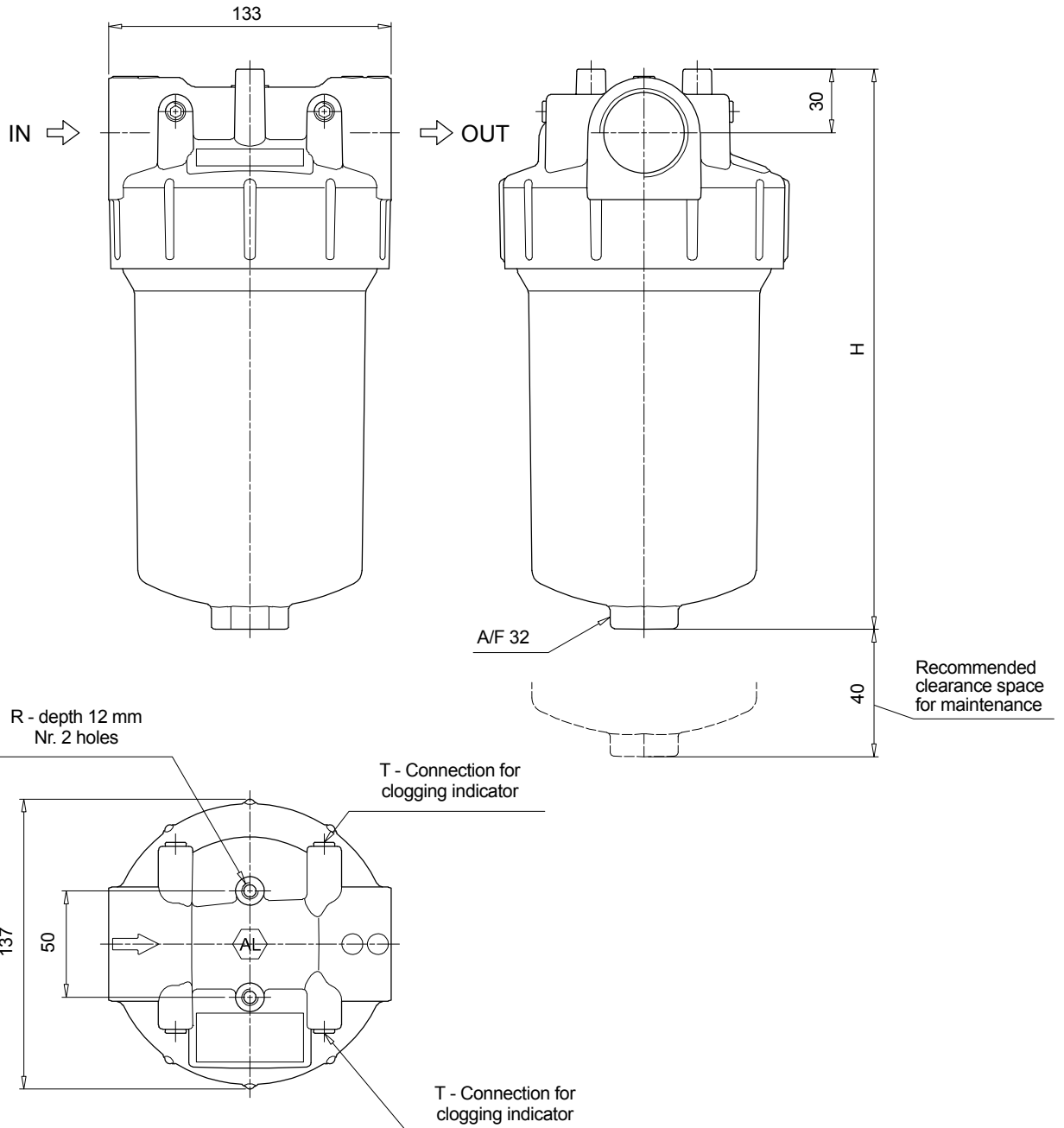
Element series and size	Configuration example: FEX110				
FEX110	M60	A	N	P01	
FEX160					
Filtration rating (filter media)					
M60 Wire mesh 60 µm	P10 Resin impregnated paper 10 µm				
M90 Wire mesh 90 µm	P25 Resin impregnated paper 25 µm				
M250 Wire mesh 250 µm					
Seals and treatments					
A NBR					
	Element Δp			Execution	
	N 8 bar			P01 MP Filtri standard	
				Pxx Customized	

ACCESSORIES

Clogging indicators	page		page
VEB Electrical vacuum indicator	12	VVB Axial pressure gauge	13
VLB Electrical/visual vacuum indicator	12	VVS Radial pressure gauge	13

Filter size	H [mm]
110	266
160	315

Connections	T	R
A	G 1/8"	M8
B	G 1/8"	M8
C	1/8" NPT	5/16" UNC
D	1/8" NPT	5/16" UNC
E	1/8" NPT	5/16" UNC
F	1/8" NPT	5/16" UNC



Dimensions

VE*50	
Electrical Vacuum Indicator	
R	Ordering code
EN 10226 - R1/8"	VE B 21 A A 50 P01
<p>Hydraulic symbol</p>	
<p>Electrical symbol</p>	
<p>Materials</p> <ul style="list-style-type: none"> - Body: Brass - Base: Black Nylon - Contacts: Silver - Seal: NBR 	
<p>Technical data</p> <ul style="list-style-type: none"> - Vacuum setting: -0.21 bar \pm10% - 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 according to ISO 2943 - Degree of protection: IP65 according to EN 60529 	
<p>Electrical data</p> <ul style="list-style-type: none"> - Electrical connection: EN 175301-803 - Resistive load: 5 A / 14 Vdc 4 A / 30 Vdc 5 A / 125 Vac 4 A / 250 Vac - Available Atex product: II 1GD Ex ia IIC Tx Ex ia IIIC Tx°C X - CE certification 	

VL*51 - VL*52 - VL*53	
Electrical/Visual Vacuum Indicator	
R	Ordering code
EN 10226 - R1/8"	VL B 21 A A xx P01
<p>Hydraulic symbol</p>	
<p>Electrical symbol</p>	
<p>Materials</p> <ul style="list-style-type: none"> - Body: Brass - Base: Transparent Nylon - Contacts: Brass - Nylon - Seal: NBR 	
<p>Technical data</p> <ul style="list-style-type: none"> - Vacuum setting: -0.21 bar \pm10% - 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 according to ISO 2943 - Degree of protection: IP65 according to EN 60529 	
<p>Electrical data</p> <ul style="list-style-type: none"> - Electrical connection: EN 175301-803 - Type: VL51 VL52 VL53 - Lamps: 24 Vdc 110 Vdc 230 Vac - Resistive load: 1 A / 24 Vdc 1 A / 110 Vdc 1 A / 230 Vac 	

VL*71	
Electrical/Visual Vacuum Indicator	
Connections	Ordering code
EN 10226 - R1/8"	VL B 21 A A 71 P01
<p>Hydraulic symbol</p>	
<p>Electrical symbol</p>	
<p>Materials</p> <ul style="list-style-type: none"> - Body: Brass - Base: Black Nylon - Contacts: Silver - Seal: NBR 	
<p>Technical data</p> <ul style="list-style-type: none"> - Vacuum setting: -0.21 bar \pm10% - 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 according to ISO 2943 - Degree of protection: IP65 according to EN 60529 	
<p>Electrical data</p> <ul style="list-style-type: none"> - Electrical connection: IEC 61076-2-101 D (M12) - Lamps: 24 Vdc - Resistive load: 0.4 A / 24 Vdc 	

WB		Hydraulic symbol	Materials								
Axial Vacuum Gauge											
R	Ordering code	Dial scale	- Case: Painted Steel - Window: Transparent plastic - Dial: Painted Steel - Pointer: Painted Aluminium - Pressure connection: Brass - Pressure element: Bourdon tube Cu-alloy soft soldered								
EN 10226 - R1/8"	WB B 16 P01										
		Conversion to SI units <table border="1"> <thead> <tr> <th>[cmHg]</th> <th>[bar]</th> </tr> </thead> <tbody> <tr> <td>-12</td> <td>-0.16</td> </tr> <tr> <td>-18</td> <td>-0.24</td> </tr> <tr> <td>-76</td> <td>-1.01</td> </tr> </tbody> </table>	[cmHg]	[bar]	-12	-0.16	-18	-0.24	-76	-1.01	Technical data <ul style="list-style-type: none"> - 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 according to ISO 2943 - Accuracy: Class 2.5 according to EN 13190 - Degree of protection: IP31 according to EN 60529
[cmHg]	[bar]										
-12	-0.16										
-18	-0.24										
-76	-1.01										

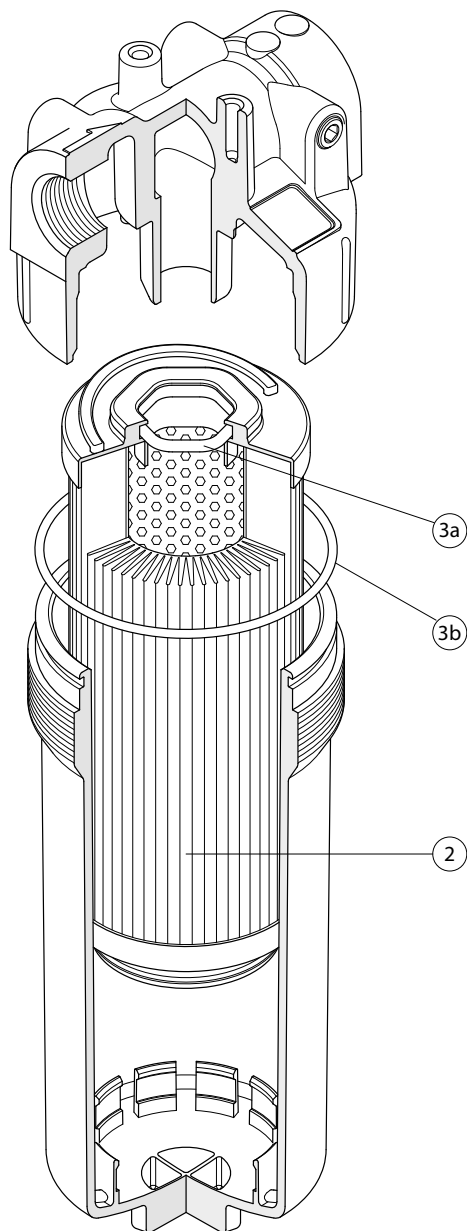
WS		Hydraulic symbol	Materials								
Radial Vacuum Gauge											
R	Ordering code	Dial scale	- Case: Painted Steel - Window: Transparent plastic - Dial: Painted Steel - Pointer: Painted Aluminium - Pressure connection: Brass - Pressure element: Bourdon tube Cu-alloy soft soldered								
EN 10226 - R1/8"	WS S 16 P01										
		Conversion to SI units <table border="1"> <thead> <tr> <th>[cmHg]</th> <th>[bar]</th> </tr> </thead> <tbody> <tr> <td>-12</td> <td>-0.16</td> </tr> <tr> <td>-18</td> <td>-0.24</td> </tr> <tr> <td>-76</td> <td>-1.01</td> </tr> </tbody> </table>	[cmHg]	[bar]	-12	-0.16	-18	-0.24	-76	-1.01	Technical data <ul style="list-style-type: none"> - 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 according to ISO 2943 - Accuracy: Class 2.5 according to EN 13190 - Degree of protection: IP31 according to EN 60529
[cmHg]	[bar]										
-12	-0.16										
-18	-0.24										
-76	-1.01										

Designation & Ordering code

VACUUM INDICATORS									
Series		Configuration example 1:	VE	B	21	A	A	50	P01
VE Electrical vacuum indicator		Configuration example 2:	VL	B	21	A	A	71	P01
VL Electrical/Visual vacuum indicator		Configuration example 3:	WV	S	16				P01
VV Vacuum gauge									
Type VE - VL		Type WV							
B Connection EN 10226 - R1/8"		B Axial connection EN 10226 - R1/8"							
		S Radial connection EN 10226 - R1/8"							
Vacuum setting			VE	VL	VV				
16 0.16 bar					•				
21 0.21 bar			•	•					
Seals			VE	VL	VV				
A NBR			•	•					
Thermostat			VE	VL	VV				
A Without			•	•					
Electrical connections			VE	VL	VV				
50 Connection EN 175301-803			•						
51 Connection EN 175301-803, transparent base with lamps 24 Vdc				•					
52 Connection EN 175301-803, transparent base with lamps 110 Vdc				•					
53 Connection EN 175301-803, transparent base with lamps 230 Vdc				•					
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc				•					
		Option							
		P01 MP Filtri standard							
		Pxx Customized							

SFEX SPARE PARTS

Order number for spare parts



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.
	2	3 (3a ÷ 3b)
Filter series	Filter element	Seal Kit code number NBR
SFEX 060-080	See order table	02050771
SFEX 110-160		02050772

ELIXIR®

Return filters

RFEX series

Maximum working pressure up to 1.6 MPa (16 bar) - Flow rate up to 260 l/min



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RFEX CLOGGING INDICATORS	24
RFEX SPARE PARTS	27

Description

Technical data

Return filter

Maximum working pressure up to 1.6 MPa (16 bar)

Flow rate up to 260 l/min

RFEX is a range of return filters for protection of the reservoir against the system contamination.

They are mounted in line to limit aeration or foam generation into the reservoir.

Available features:

- Female threaded connections up to 1 1/4" and SAE connections up to 1 5/8", for a maximum flow rate of 260 l/min
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve, to relieve excessive pressure drop across the filter media
- Visual, electrical, axial and radial pressure gauges
- MYclean interface connection for the filter element, to protect the product against non-original spare parts
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

Common applications:

- Light Industrial equipment
- Mobile application

Filter housing materials

- Head: Aluminium
- Bypass valve: Nylon - Steel
- Bowl: Nylon

Bypass valve

Opening pressure 175 kPa (1.75 bar) $\pm 10\%$

Δp element type

- Microfibre filter elements - series N: 8 bar
- Fluid flow through the filter element from OUT to IN

Seals

Standard NBR series A

Temperature

From -25 °C to +110 °C

Note

RFEX filters are provided for vertical mounting



Weights [kg] and volumes [dm³]

Filter series	Weights [kg]	Volumes [dm ³]
RFEX 060	0.50	0.60
RFEX 080	0.95	0.80
RFEX 110	1.20	1.60
RFEX 160	1.70	2.00

Hydraulic symbols

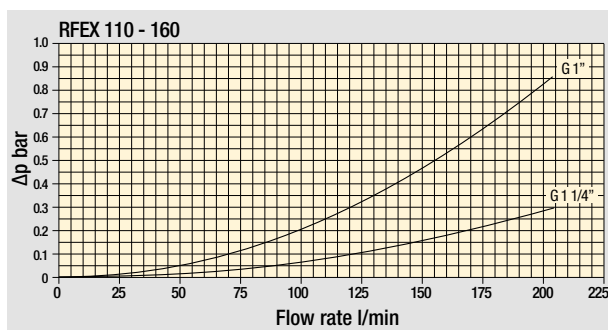
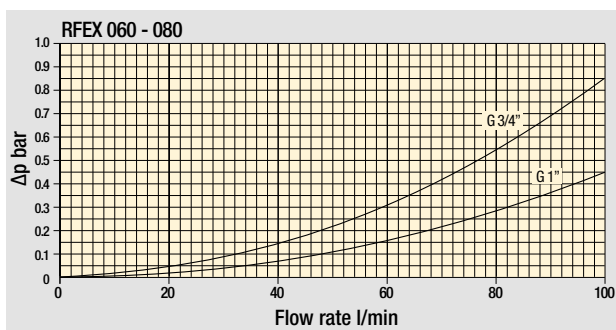
Filter series	Style S	Style B
RFEX 060	•	•
RFEX 080	•	•
RFEX 110	•	•
RFEX 160	•	•

OUT

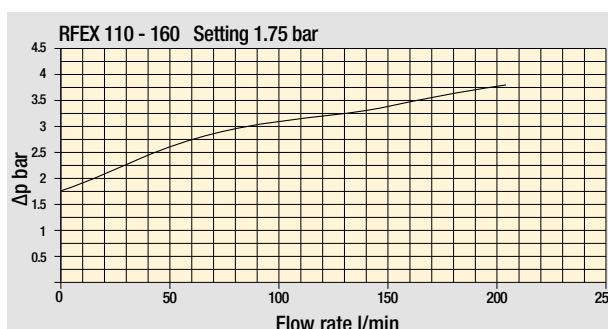
IN

OUT

IN



Filter housings
Δp pressure drop



Bypass valve
pressure drop

The curves are plotted using mineral oil with density of 0.86 kg/dm³ in compliance with ISO 3968.
Δp varies proportionally with density.

Flow rates [l/min]

Filter element design - N Series

Filter series	A10	A16	A25	M60	M90	P10	P25
RFX 060	52	53	55	71	72	54	59
RFX 080	59	59	62	73	74	65	68

Connections of filter under test G 3/4".

Filter series	A10	A16	A25	M60	M90	P10	P25
RFX 060	60	61	64	87	89	62	77
RFX 080	69	70	75	91	92	79	93

Connections of filter under test G 1".

Filter series	A10	A16	A25	M60	M90	P10	P25
RFX 110	141	153	172	250	252	186	196
RFX 160	166	168	191	255	256	207	215

Connections of filter under test G 1 1/4".

Maximum flow rate for a complete return filter with a pressure drop Δp = 0.5 bar.

The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

Please, contact our Sales Department for further additional information.

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example: RFEX060							
RFEX060	B	A	A	6	A10	N	P01	
RFEX080								
Bypass valve								
S Without bypass								
B 1.75 bar								
Seals and treatments								
A NBR								
Connections								
A G 3/4"								
B G 1"								
C 3/4" NPT								
D 1" NPT								
E SAE 12 - 1 1/16" - 12 UN								
F SAE 16 - 1 5/16" - 12 UN								
Connection for clogging indicator								
6 With plugged connections								
Filtration rating (filter media)								
A10 Inorganic microfiber 10 µm								
A16 Inorganic microfiber 16 µm								
A25 Inorganic microfiber 25 µm								
M60 Wire mesh 60 µm								
M90 Wire mesh 90 µm								
P10 Resin impregnated paper 10 µm								
P25 Resin impregnated paper 25 µm								
	Element Δp				Execution			
	N 8 bar				P01 MP Filtri standard			
					Pxx Customized			

FILTER ELEMENT

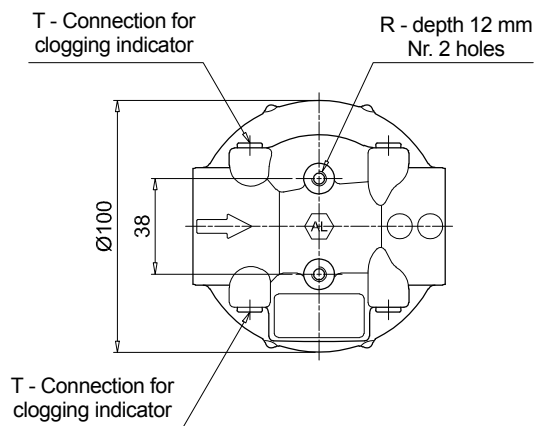
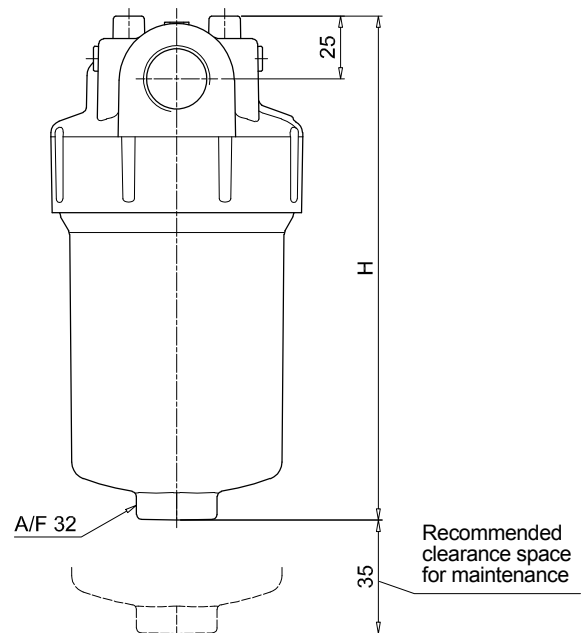
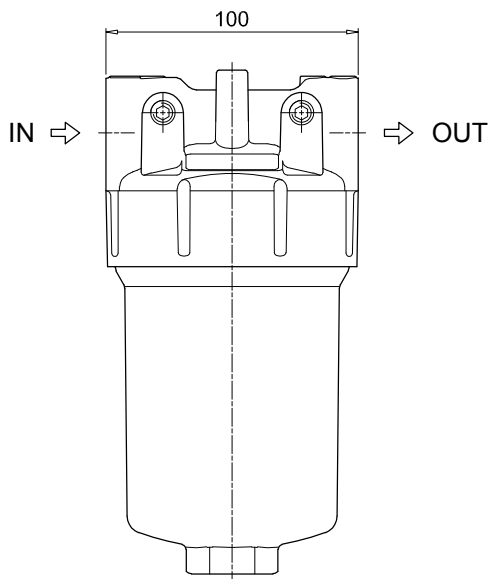
Element series and size	Configuration example: FEX060				
FEX060	A10	A	N	P01	
FEX080					
Filtration rating (filter media)					
A10 Inorganic microfiber 10 µm					
A16 Inorganic microfiber 16 µm					
A25 Inorganic microfiber 25 µm					
M60 Wire mesh 60 µm					
M90 Wire mesh 90 µm					
P10 Resin impregnated paper 10 µm					
P25 Resin impregnated paper 25 µm					
Seals and treatments					
A NBR					
	Element Δp		Execution		
	N 8 bar		P01 MP Filtri standard		
			Pxx Customized		

ACCESSORIES

Clogging indicators		page			page
BEA	Electrical pressure indicator	24	BVA	Axial pressure gauge	25
BEM	Electrical pressure indicator	24	BVR	Radial pressure gauge	25
BLA	Electrical / visual pressure indicator	24-25	BVP	Visual pressure indicator with automatic reset	26
			BVQ	Visual pressure indicator with manual reset	26

Filter size	H [mm]	
060	202	
080	265	

Connections	T	R
A	G 1/8"	M6
B	G 1/8"	M6
C	1/8" NPT	1/4" UNC
D	1/8" NPT	1/4" UNC
E	1/8" NPT	1/4" UNC
F	1/8" NPT	1/4" UNC



Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example: RFEX110							
RFEX110	B	A	A	6	A10	N	P01	
RFEX160								
Bypass valve								
S Without bypass								
B 1.75 bar								
Seals and treatments								
A NBR								
Connections								
A G 1"								
B G 1 1/4"								
C 1" NPT								
D 1 1/4" NPT								
E SAE 16 - 1 5/16" - 12 UN								
F SAE 20 - 1 5/8" - 12 UN								
Connection for clogging indicator								
6 With plugged connections								
Filtration rating (filter media)								
A10 Inorganic microfiber 10 µm								
A16 Inorganic microfiber 16 µm								
A25 Inorganic microfiber 25 µm								
M60 Wire mesh 60 µm								
M90 Wire mesh 90 µm								
P10 Resin impregnated paper 10 µm								
P25 Resin impregnated paper 25 µm								
				Element Δp				
				N 8 bar				
					Execution			
					P01 MP Filtri standard			
					Pxx Customized			

FILTER ELEMENT

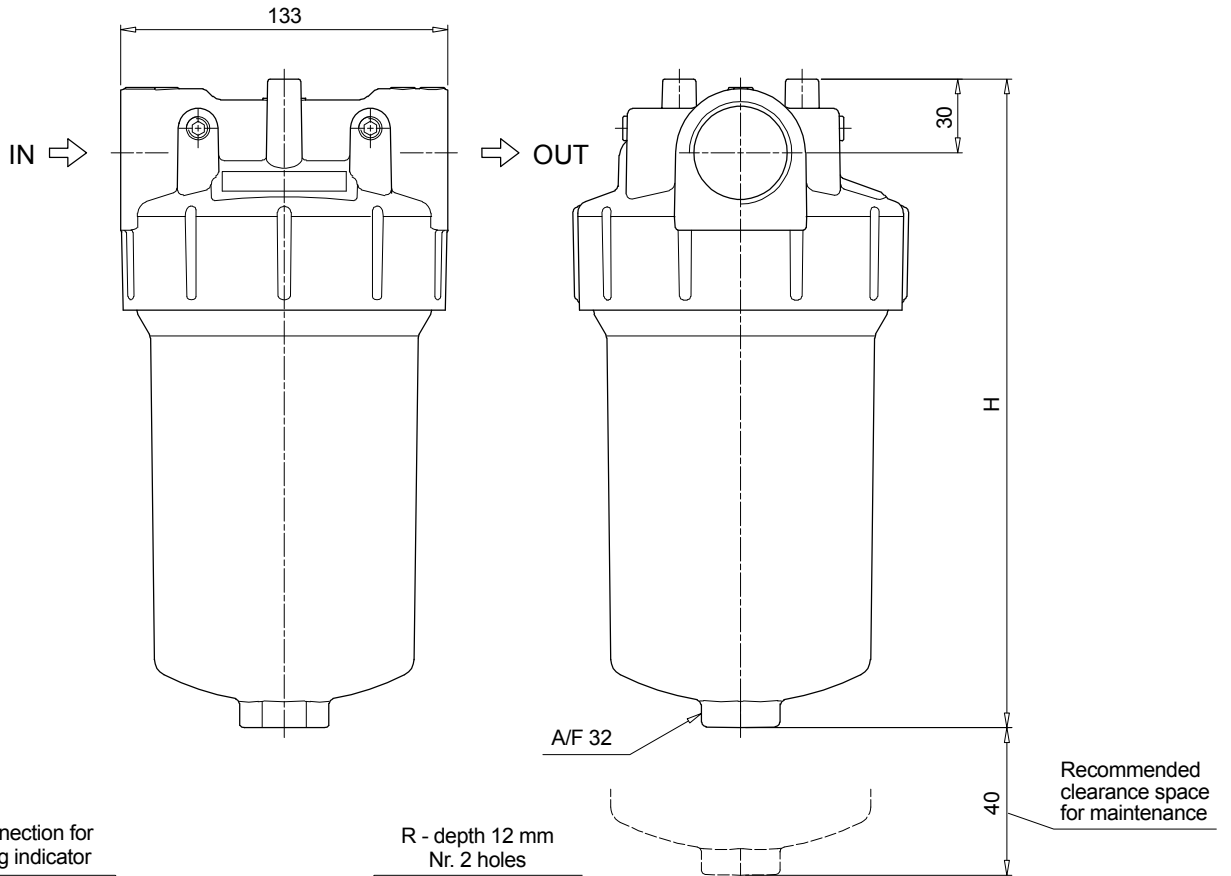
Element series and size	Configuration example: FEX110				
FEX110	A10	A	N	P01	
FEX160					
Filtration rating (filter media)					
A10 Inorganic microfiber 10 µm					
A16 Inorganic microfiber 16 µm					
A25 Inorganic microfiber 25 µm					
M60 Wire mesh 60 µm					
M90 Wire mesh 90 µm					
P10 Resin impregnated paper 10 µm					
P25 Resin impregnated paper 25 µm					
Seals and treatments					
A NBR					
				Element Δp	
				N 8 bar	
					Execution
					P01 MP Filtri standard
					Pxx Customized

ACCESSORIES

Clogging indicators		page			page
BEA	Electrical pressure indicator	24	BVA	Axial pressure gauge	25
BEM	Electrical pressure indicator	24	BVR	Radial pressure gauge	25
BLA	Electrical / visual pressure indicator	24-25	BVP	Visual pressure indicator with automatic reset	26
			BVQ	Visual pressure indicator with manual reset	26

Filter size	H [mm]	
110	266	
160	315	

Connections	T	R
A	G 1/8"	M8
B	G 1/8"	M8
C	1/8" NPT	5/16" UNC
D	1/8" NPT	5/16" UNC
E	1/8" NPT	5/16" UNC
F	1/8" NPT	5/16" UNC



Dimensions

BEA*50	
Electrical Pressure Indicator	
Settings	Ordering code
1.5 bar ±10%	BE A 15 H A 50 P01
2.0 bar ±10%	BE A 20 H A 50 P01
<p>Hydraulic symbol</p>	
<p>Electrical symbol</p>	
<p>Materials</p> <ul style="list-style-type: none"> - Body: Brass - Base: Black Nylon - Contacts: Silver - Seal: HNBR 	
<p>Technical data</p> <ul style="list-style-type: none"> - 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 according to ISO 2943 - Degree of protection: IP65 according to EN 60529 	
<p>Electrical data</p> <ul style="list-style-type: none"> - Electrical connection: EN 175301-803 - Resistive load: 5 A / 14 Vdc, 4 A / 30 Vdc, 5 A / 125 Vac, 4 A / 250 Vac <p>- Available Atex product: II 1GD Ex ia IIC Tx Ex ia IIIC Tx°C X </p> <p>- CE certification</p>	

BEM*41	
Electrical Pressure Indicator	
Settings	Ordering code
1.5 bar ±10%	BE M 15 H A 41 P01
2.0 bar ±10%	BE M 20 H A 41 P01
<p>Hydraulic symbol</p>	
<p>Electrical symbol</p>	
<p>Materials</p> <ul style="list-style-type: none"> - Body: Brass - Base: Black Nylon - Contacts: Silver - Seal: HNBR 	
<p>Technical data</p> <ul style="list-style-type: none"> - 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 according to ISO 2943 - Degree of protection: IP67 according to EN 60529 	
<p>Electrical data</p> <ul style="list-style-type: none"> - Electrical connection: Four-core cable - Resistive load: 5 A / 14 Vdc, 4 A / 30 Vdc, 5 A / 125 Vac, 4 A / 250 Vac <p>- CE certification On request this indicator can be provided with main connectors in use for wirings.</p>	

BL*51 - BL*52 - BL*53	
Electrical/Visual Pressure Indicator	
Settings	Ordering code
1.5 bar ±10%	BL A 15 H A xx P01
2.0 bar ±10%	BL A 20 H A xx P01
<p>Hydraulic symbol</p>	
<p>Electrical symbol</p>	
<p>Materials</p> <ul style="list-style-type: none"> - Body: Brass - Base: Transparent Nylon - Contacts: Silver - Seal: HNBR 	
<p>Technical data</p> <ul style="list-style-type: none"> - 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 according to ISO 2943 - Degree of protection: IP65 according to EN 60529 	
<p>Electrical data</p> <ul style="list-style-type: none"> - Electrical connection: EN 175301-803 - Type: BL51 BL52 BL53 - Lamps: 24 Vdc 110 Vdc 230 Vac - Resistive load: 1 A / 24 Vdc 1 A / 110 Vdc 1 A / 230 Vac 	

BL*71	
Electrical/Visual Pressure Indicator	
Settings	Ordering code
1.5 bar $\pm 10\%$	BL A 15 HA 71 P01
2.0 bar $\pm 10\%$	BL A 20 HA 71 P01

Hydraulic symbol

Electrical symbol

Materials

- Body: Brass
- Base: Black Nylon
- Contacts: Silver
- Seal: HNBR

Technical data

- 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 according to ISO 2943
- Degree of protection: IP65 according to EN 60529

Electrical data

- Electrical connection: IEC 61076-2-101 D (M12)
- Lamps: 24 Vdc
- Resistive load: 0.4 A / 24 Vdc

BVA	
Axial Pressure Gauge	
Settings	Ordering code
1.4 bar $\pm 10\%$	BV A 14 P01
2.5 bar $\pm 10\%$	BV A 25 P01

Hydraulic symbol

Dial scale

BV A 14 P01

BV A 25 P01

Materials

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

Technical data

- 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 according to ISO 2943
- Accuracy: Class 2.5 according to EN 13190
- Degree of protection: IP31 according to EN 60529

BVR	
Radial Pressure Gauge	
Settings	Ordering code
1.4 bar $\pm 10\%$	BV R 14 P01
2.5 bar $\pm 10\%$	BV R 25 P01

Hydraulic symbol

Dial scale

BV R 14 P01

BV R 25 P01

Materials

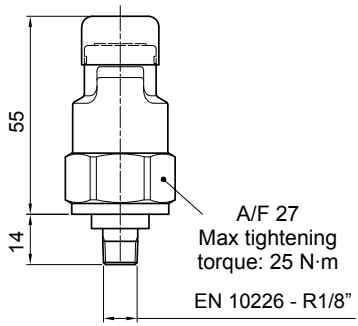
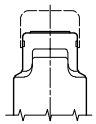
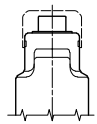
- Case: Painted Steel
- Window: Transparent plastic
- Dial: Painted Steel
- Pointer: Painted Aluminium
- Pressure connection: Brass
- Pressure element: Bourdon tube Cu-alloy soft soldered

Technical data

- 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 according to ISO 2943
- Accuracy: Class 2.5 according to EN 13190
- Degree of protection: IP31 according to EN 60529

RFEX BAROMETRIC INDICATORS

Dimensions

BVP - BVQ		Hydraulic symbol	Materials
Visual Pressure Indicator			
Setting	Ordering code		
1.5 bar ±10%	BV P 15 H P01		Technical data - Reset: BVP - Automatic reset BVQ - Manual reset - 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 according to ISO 2943 - Degree of protection: IP45 according to EN 60529
	BV Q 15 H P01		
2.0 bar ±10%	BV P 20 H P01	Signals	 Absence of pressure (no indicator)
	BV Q 20 H P01		
		 Clogged filter element (red button risen)	

Designation & Ordering code

BAROMETRIC INDICATORS

Series	Configuration example 1:						
BE Electrical pressure indicator	BE	M	15	H	A	41	P01
BL Electrical/Visual pressure indicator	BL	A	20	H	A	71	P01
BV Visual pressure indicator	BV	R	14				P01
	BV	P	20	H			P01

Type	BE	BL	BV
A Standard type	•	•	A Axial connection pressure gauge
M With wired electrical connection	•		R Radial connection pressure gauge
			P Visual indicator with automatic reset
			Q Visual indicator with manual reset

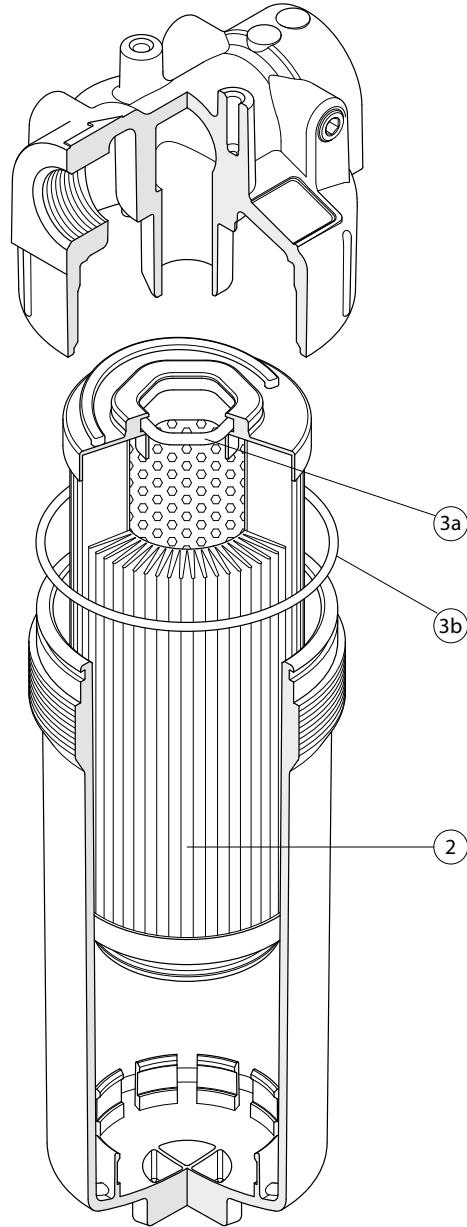
Pressure setting	BEA-BEM	BLA	BVA-BVR	BVP-BVQ
14 1.4 bar			•	
15 1.5 bar	•	•		
20 2.0 bar	•	•		•
25 2.5 bar			•	

Seals	BE	BLA	BVA-BVR	BVP-BVQ
H HNBR	•	•		•

Thermostat	BEA-BEM	BLA	BV
A Without	•	•	

Electrical connections	BEA	BEM	BL	BV
41 Connection via four-core cable		•		
50 Connection EN 175301-803	•			
51 Connection EN 175301-803, transparent base with lamps 24 Vdc			•	
52 Connection EN 175301-803, transparent base with lamps 110 Vdc			•	
53 Connection EN 175301-803, transparent base with lamps 230 Vdc			•	
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc			•	

Option
P01 MP Filtri standard
Pxx Customized



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.
	2	3 (3a ÷ 3b)
Filter series	Filter element	Seal Kit code number NBR
RFX 060-080	See order table	02050771
RFX 110-160		02050772

ELIXIR®

Low & Medium Pressure filters

LFEX series

Maximum working pressure up to 1.6 MPa (16 bar) - Flow rate up to 300 l/min



LFEX GENERAL INFORMATION	page 30
LFEX 060 - 080	32
LFEX 110 - 160	34
LFEX CLOGGING INDICATORS	36
LFEX SPARE PARTS	38

Description

Technical data

Low & Medium Pressure filters

Maximum working pressure up to 1.6 MPa (16 bar)
Flow rate up to 300 l/min

LFEX is a range of low pressure filter for protection of sensitive components in low pressure hydraulic systems. They are also suitable for the off-line filtration of small reservoirs. They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/4" and SAE connections up to 1 5/8", for a maximum flow rate of 300 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid
- Bypass valve, to relieve excessive pressure drop across the filter media
- NEW Visual and electrical differential clogging indicators, capable to hold the overall dimension
- MYclean interface connection for the filter element, to protect the product against non-original spare parts
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

Common applications:

Delivery lines, in any low pressure industrial equipment or mobile machines

Filter housing materials

- Head: Aluminium
- Bypass valve: Nylon - Steel
- Bowl: Nylon

Bypass valve

Opening pressure 350 kPa (3.5 bar) ±10%

Δp element type

- Microfibre filter elements - series N: 8 bar
- Fluid flow through the filter element from OUT to IN

Seals

Standard NBR series A

Temperature

From -25 °C to +110 °C

Note

LFEX filters are provided for vertical mounting



Weights [kg] and volumes [dm³]

Filter series	Weights [kg]	Volumes [dm ³]
LFEX 060	0.50	0.60
LFEX 080	0.95	0.80
LFEX 110	1.20	1.60
LFEX 160	1.70	2.00

Hydraulic symbols

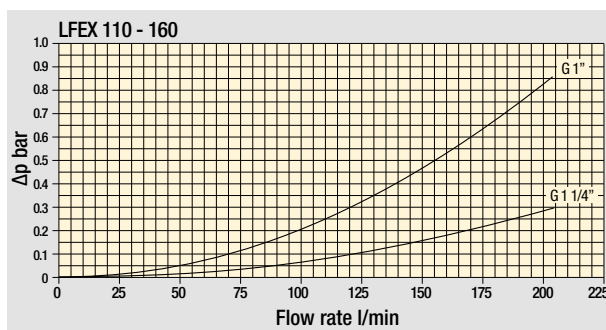
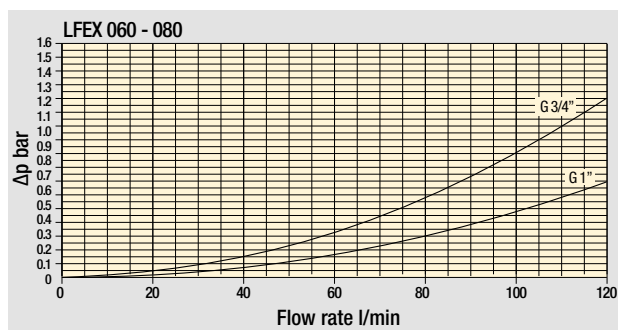
Filter series	Style S	Style B
LFEX 060	•	•
LFEX 080	•	•
LFEX 110	•	•
LFEX 160	•	•

OUT

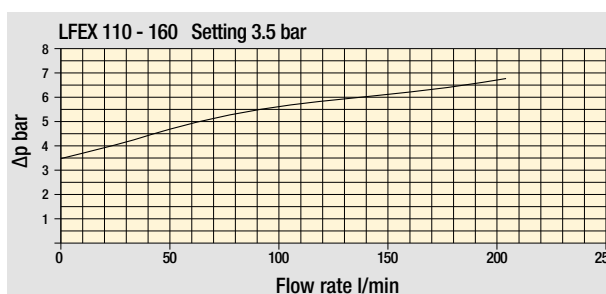
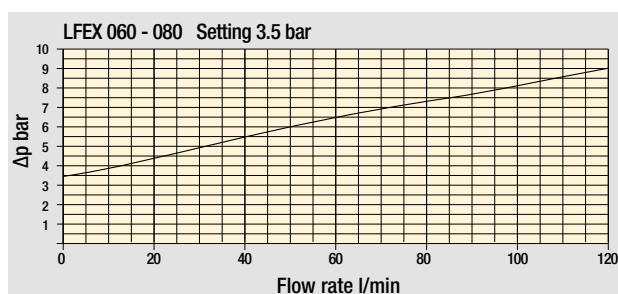
IN

OUT

IN



Filter housings
Δp pressure drop



Bypass valve
pressure drop

The curves are plotted using mineral oil with density of 0.86 kg/dm³ in compliance with ISO 3968.
Δp varies proportionally with density.

Flow rates [l/min]

Filter element design - N Series

Filter series	A03	A06	A10	A16	A25	M25	M60	M90	P10	P25
LFE^X 060	45	47	65	66	68	84	84	86	67	73
LFE^X 080	58	59	73	72	76	86	87	88	79	82

Connections of filter under test G 3/4".

Filter series	A03	A06	A10	A16	A25	M25	M60	M90	P10	P25
LFE^X 060	49	51	75	77	80	104	105	107	74	95
LFE^X 080	67	67	86	87	92	107	108	110	96	112

Connections of filter under test G 1".

Filter series	A03	A06	A10	A16	A25	M25	M60	M90	P10	P25
LFE^X 110	107	115	182	195	216	295	298	300	232	242
LFE^X 160	146	150	210	212	237	300	303	304	254	262

Connections of filter under test G 1 1/4".

Maximum flow rate for a complete delivery filter with a pressure drop Δp = 0.7 bar.

The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

Please, contact our Sales Department for further additional information.

Designation & Ordering code

COMPLETE FILTER

Configuration example: **LFEX060** **B** **A** **A** **6** **A10** **N** **P01**

Series and size
LFEX060
LFEX080

Bypass valve
S Without bypass
B 3.5 bar

Seals and treatments
A NBR

Connections
A G 3/4"
B G 1"
C 3/4" NPT
D 1" NPT
E SAE 12 - 1 1/16" - 12 UN
F SAE 16 - 1 5/16" - 12 UN

Connection for clogging indicator
1 Without
6 With plugged connections

Filtration rating (filter media)

A03 Inorganic microfiber	3 µm	M25 Wire mesh	25 µm
A06 Inorganic microfiber	6 µm	M60 Wire mesh	60 µm
A10 Inorganic microfiber	10 µm	M90 Wire mesh	90 µm
A16 Inorganic microfiber	16 µm	P10 Resin impregnated paper	10 µm
A25 Inorganic microfiber	25 µm	P25 Resin impregnated paper	25 µm

WA025 Water absorber inorganic microfiber 25 µm

Element Δp
N 8 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: **FEX060** **A10** **A** **N** **P01**

Element series and size
FEX060
FEX080

Filtration rating (filter media)

A03 Inorganic microfiber	3 µm	M25 Wire mesh	25 µm
A06 Inorganic microfiber	6 µm	M60 Wire mesh	60 µm
A10 Inorganic microfiber	10 µm	M90 Wire mesh	90 µm
A16 Inorganic microfiber	16 µm	P10 Resin impregnated paper	10 µm
A25 Inorganic microfiber	25 µm	P25 Resin impregnated paper	25 µm

WA025 Water absorber inorganic microfiber 25 µm

Seals and treatments
A NBR

Element Δp
N 8 bar

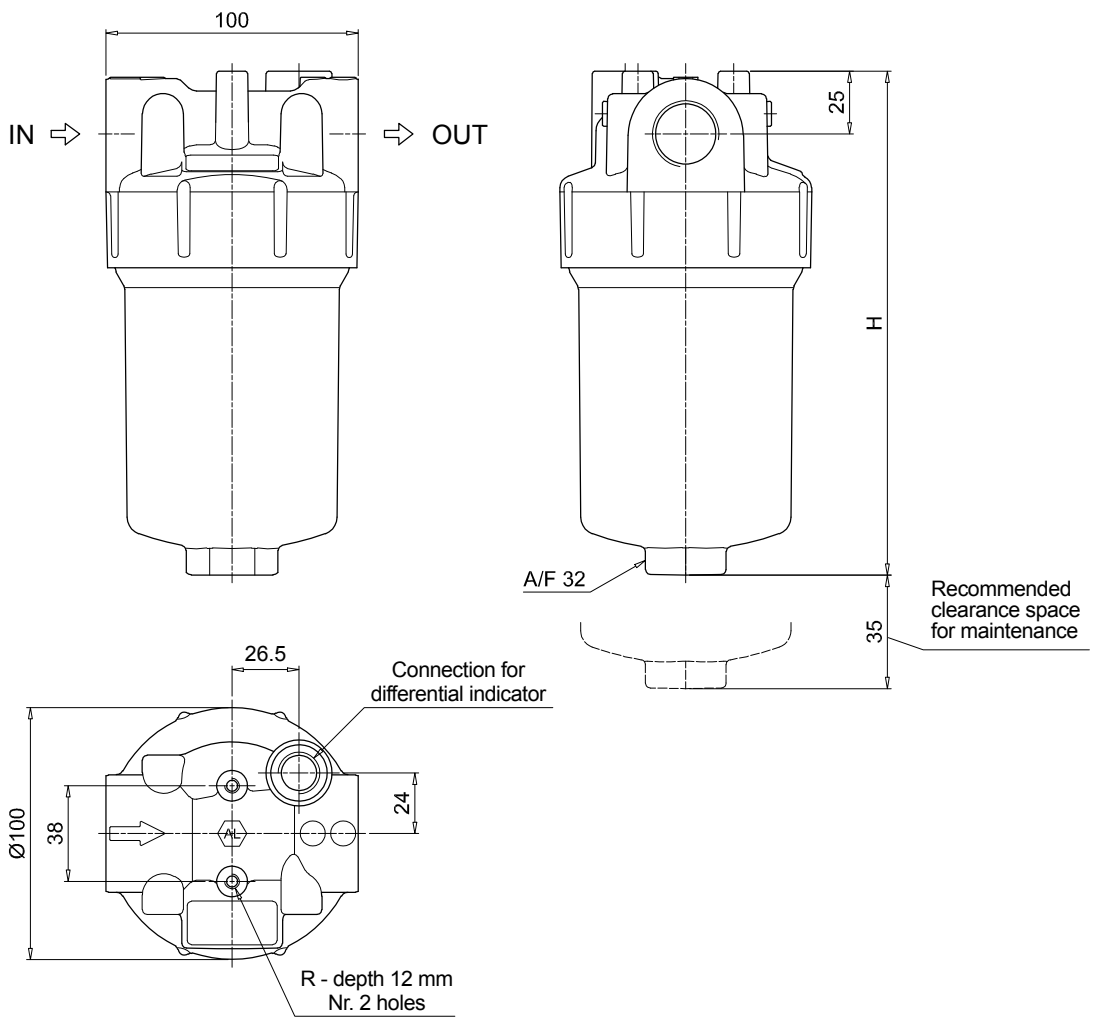
Execution
P01 MP Filtri standard
Pxx Customized

ACCESSORIES

Differential indicators	page
DES Electrical differential indicator	36
DVS Visual differential indicator	37

Filter size	H [mm]
060	202
080	265

Connections	T	R
A	G 1/8"	M6
B	G 1/8"	M6
C	1/8" NPT	1/4" UNC
D	1/8" NPT	1/4" UNC
E	1/8" NPT	1/4" UNC
F	1/8" NPT	1/4" UNC



Designation & Ordering code

COMPLETE FILTER

Configuration example: **LFEX110** **B** **A** **A** **6** **A10** **N** **P01**

Series and size
LFEX110
LFEX160

Bypass valve
S Without bypass
B 3.5 bar

Seals and treatments
A NBR

Connections
A G 1"
B G 1 1/4"
C 1" NPT
D 1 1/4" NPT
E SAE 16 - 1 5/16" - 12 UN
F SAE 20 - 1 5/8" - 12 UN

Connection for clogging indicator
1 Without
6 With plugged connections

Filtration rating (filter media)

A03 Inorganic microfiber	3 µm	M25 Wire mesh	25 µm
A06 Inorganic microfiber	6 µm	M60 Wire mesh	60 µm
A10 Inorganic microfiber	10 µm	M90 Wire mesh	90 µm
A16 Inorganic microfiber	16 µm	P10 Resin impregnated paper	10 µm
A25 Inorganic microfiber	25 µm	P25 Resin impregnated paper	25 µm

WA025 Water absorber inorganic microfiber 25 µm

Element Δp
N 8 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: **FEX110** **A10** **A** **N** **P01**

Element series and size
FEX110
FEX160

Filtration rating (filter media)

A03 Inorganic microfiber	3 µm	M25 Wire mesh	25 µm
A06 Inorganic microfiber	6 µm	M60 Wire mesh	60 µm
A10 Inorganic microfiber	10 µm	M90 Wire mesh	90 µm
A16 Inorganic microfiber	16 µm	P10 Resin impregnated paper	10 µm
A25 Inorganic microfiber	25 µm	P25 Resin impregnated paper	25 µm

WA025 Water absorber inorganic microfiber 25 µm

Seals and treatments
A NBR

Element Δp
N 8 bar

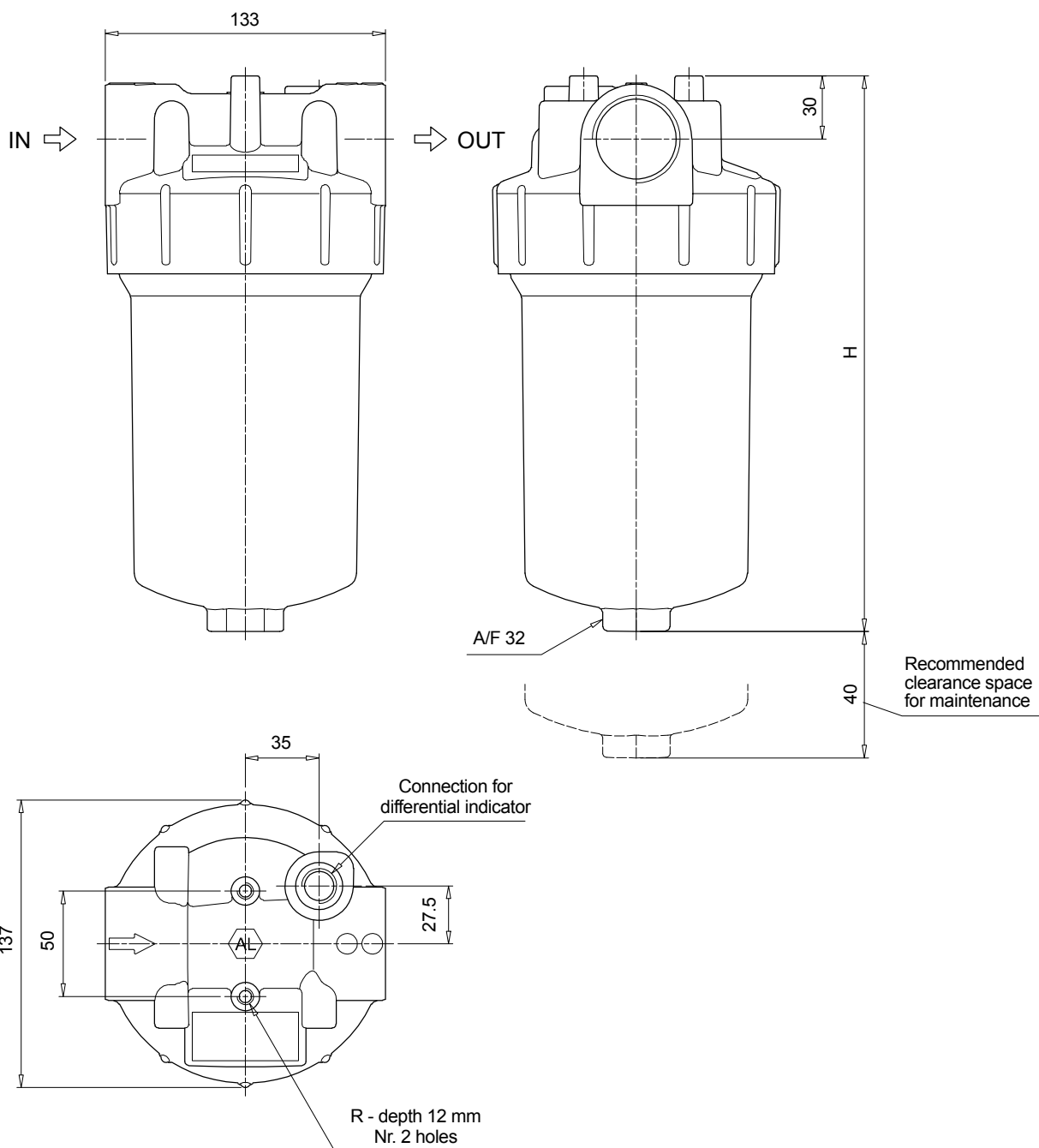
Execution
P01 MP Filtri standard
Pxx Customized

ACCESSORIES

Differential indicators	page
DES Electrical differential indicator	36
DVS Visual differential indicator	37

Filter size	H [mm]	
110	266	
160	315	

Connections	T	R
A	G 1/8"	M8
B	G 1/8"	M8
C	1/8" NPT	5/16" UNC
D	1/8" NPT	5/16" UNC
E	1/8" NPT	5/16" UNC
F	1/8" NPT	5/16" UNC

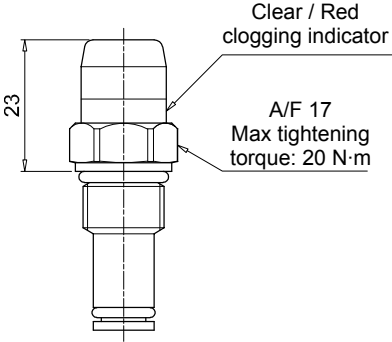


Dimensions

DES*10	
Electrical Differential Indicator	
Settings	Ordering code
2.5 bar \pm 10%	DE S 25 HA 10 P01
4.0 bar \pm 10%	DE S 40 HA 10 P01
<p>Hydraulic symbol</p>	
<p>Electrical symbol</p>	
<p>Materials</p> <ul style="list-style-type: none"> - Body: Brass - Internal parts: Brass - Nylon - Contacts: Silver - Seal: HNBR 	
<p>Technical data</p> <ul style="list-style-type: none"> - Max working pressure: 16 bar - Proof pressure: 24 bar - Burst pressure: 48 bar - Working temperature: From -25 °C to +110 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 - Degree protection: IP67 according to EN 60529 	
<p>Electrical data</p> <ul style="list-style-type: none"> - Electrical connection: AMP Superseal series 1.5 - Resistive load: 0.2 A / 24 Vdc - Switching type: Normally open contacts (NC on request) 	

DES*30	
Electrical Differential Indicator	
Settings	Ordering code
2.5 bar \pm 10%	DE S 25 HA 30 P01
4.0 bar \pm 10%	DE S 40 HA 30 P01
<p>Hydraulic symbol</p>	
<p>Electrical symbol</p>	
<p>Materials</p> <ul style="list-style-type: none"> - Body: Brass - Internal parts: Brass - Nylon - Contacts: Silver - Seal: HNBR 	
<p>Technical data</p> <ul style="list-style-type: none"> - Max working pressure: 16 bar - Proof pressure: 24 bar - Burst pressure: 48 bar - Working temperature: From -25 °C to +110 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 - Degree protection: IP67 according to EN 60529 	
<p>Electrical data</p> <ul style="list-style-type: none"> - Electrical connection: Deutsch DT-04-2-P - Resistive load: 0.2 A / 24 Vdc - Switching type: Normally open contacts (NC on request) 	

DES*80	
Electrical Differential Indicator	
Settings	Ordering code
2.5 bar \pm 10%	DE S 25 HA 80 P01
4.0 bar \pm 10%	DE S 40 HA 80 P01
<p>Hydraulic symbol</p>	
<p>Electrical symbol</p>	
<p>Materials</p> <ul style="list-style-type: none"> - Body: Brass - Internal parts: Brass - Nylon - Contacts: Silver - Seal: HNBR 	
<p>Technical data</p> <ul style="list-style-type: none"> - Max working pressure: 16 bar - Proof pressure: 24 bar - Burst pressure: 48 bar - Working temperature: From -25 °C to +110 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 - Degree protection: IP67 according to EN 60529 	
<p>Electrical data</p> <ul style="list-style-type: none"> - Electrical connection: Stud #10-32 UNF - Resistive load: 0.2 A / 24 Vdc - Switching type: Normally open contacts (NC on request) 	

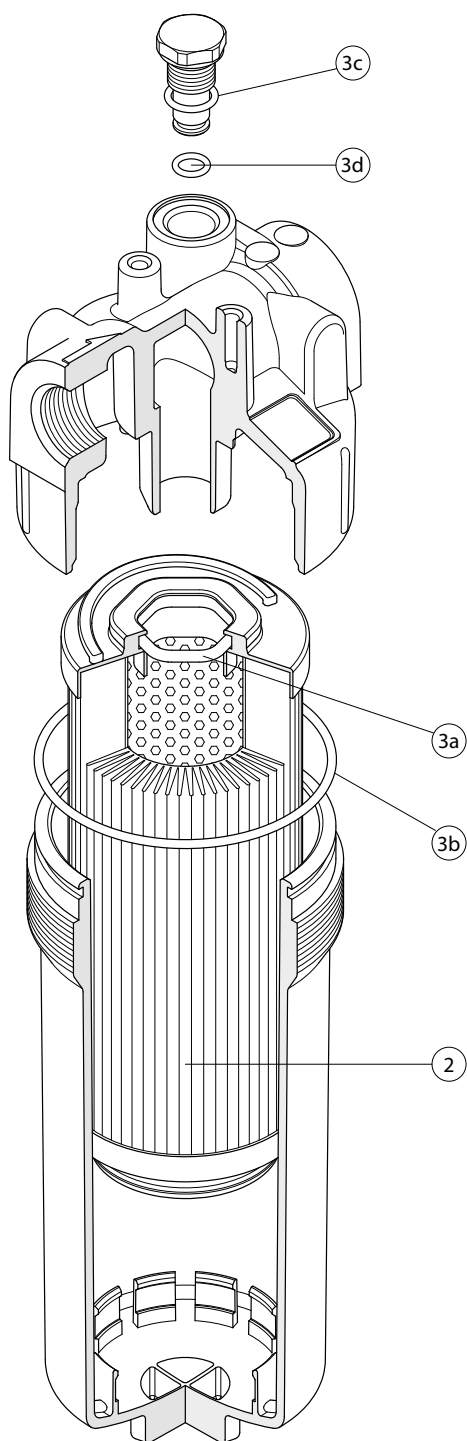
DVS		Hydraulic symbol	Materials
Visual Differential Indicator			
Settings	Ordering code		
2.5 bar ±10%	DV S 25 H P01	Technical data - Reset: Automatic reset - Max working pressure: 16 bar - Proof pressure: 24 bar - Burst pressure: 48 bar - Working temperature: From -25 °C to +110 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 - Degree protection: IP67 according to EN 60529	
4.0 bar ±10%	DV S 40 H P01		
			

Designation & Ordering code

DIFFERENTIAL INDICATORS									
Series	Configuration example 1: DE S 25 H A 10 P01								
DE Electrical differential indicator	Configuration example 2: DV S 40 H P01								
DV Visual differential indicator									
Type									
S Compact version									
Pressure setting									
25 2.5 bar									
40 4.0 bar									
Seals									
H HNBR									
Thermostat	DE	DV							
A Without	•								
Electrical connections	DE	DV							
10 Connection AMP Superseal series 1.5	•								
30 Connection Deutsch DT-04-2-P	•								
80 Connection Stud #10-32 UNF	•								
Execution									
P01 MP Filtri standard									
Pxx Customized									

LFEX SPARE PARTS

Order number for spare parts



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.
	2	3 (3a ÷ 3d)	4
Filter series	Filter element	Seal Kit code number NBR	Indicator connection plug NBR
LFEX 060-080	See order table	02050771	T3H
LFEX 110-160		02050772	

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WORLDWIDE NETWORK

HEADQUARTERS

MP Filtri S.p.A.
Pessano con Bornago
Milano - Italy
+39 02 957031
sales@mpfiltri.it

BRANCH OFFICES

ITALFILTRI LLC
Moscow - Russia
+7 (495) 220 94 60
mpfiltrirussia@yahoo.com

MP Filtri Canada Inc.
Concord, Ontario - Canada
+1 905 303 1369
sales@mpfiltricanada.com

MP Filtri France SAS
Villeneuve la Garenne
France
+33 (0)1 40 86 47 00
sales@mpfiltrifrance.com

MP Filtri Germany GmbH
St. Ingbert - Germany
+49 (0) 6894 95652-0
sales@mpfiltri.de

MP Filtri India Pvt. Ltd.
Bangalore - India
+91 80 4147 7444 / +91 80 4146 1444
sales@mpfiltri.co.in

MP Filtri (Shanghai) Co., Ltd.
Shanghai - Minhang District - China
+86 21 58919916 116
sales@mpfiltrishanghai.com

MP Filtri U.K. Ltd.
Bourton on the Water
Gloucestershire - United Kingdom
+44 (0) 1451 822 522
sales@mpfiltri.co.uk

MP Filtri U.S.A. Inc.
Quakertown, PA - U.S.A.
+1 215 529 1300
sales@mpfiltriusa.com

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