

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 1,6MPa (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 $0.4 \div 0.6$ 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 kg/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	$0.08 \div 0.10$
Return filters	$0.4 \div 0.6$
Low & Medium Pressure filters	$0.4 \div 0.6$ return lines
	$0.3 \div 0.5$ lubrication lines
	$0.3 \div 0.4$ off-line in power systems
	$0.1 \div 0.3$ off-line in test benches
High Pressure filters	$0.8 \div 1.5$
Stainless Steel filters	$0.8 \div 1.5$

Generic filter calculation example

Application data:

Return filter

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

Flow rate $Q = 75$ l/min

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

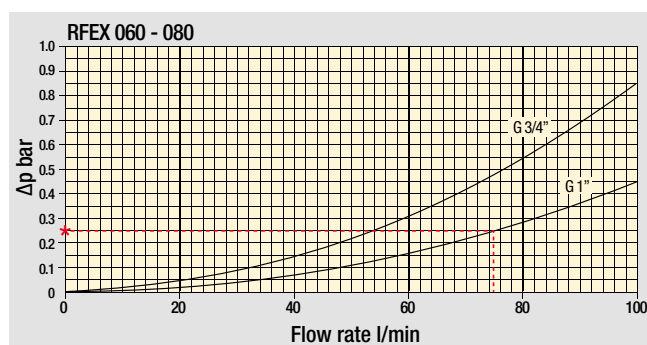
Oil density = 0.86 kg/dm^3

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

1" inlet connection

Calculation:

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



Filter housings Δp pressure drop.

The curves are plotted using mineral oil with density of 0.86 kg/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			
Type	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.

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Suction filters

SFEX series

Flow rate up to 100 l/min



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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.

They can be fitted on the side or below the tank, always 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

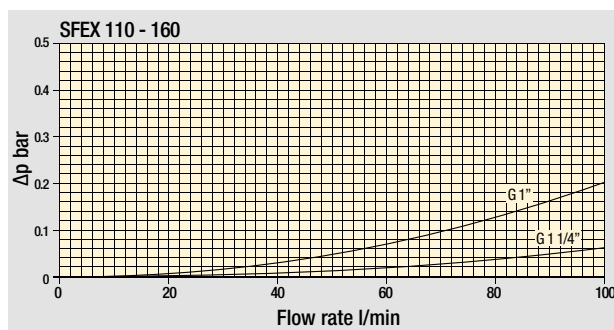
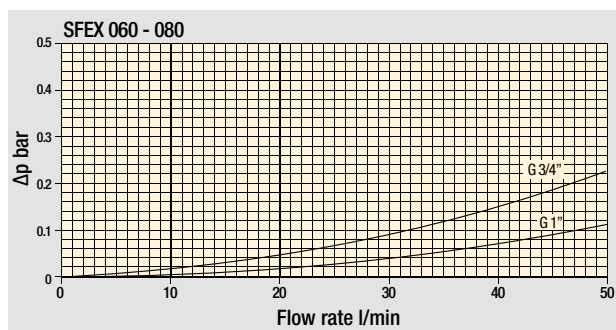


Weights [kg] and volumes [dm³]

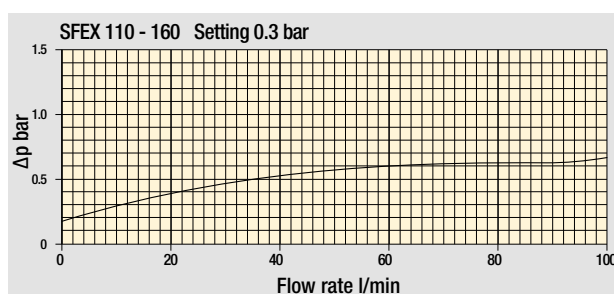
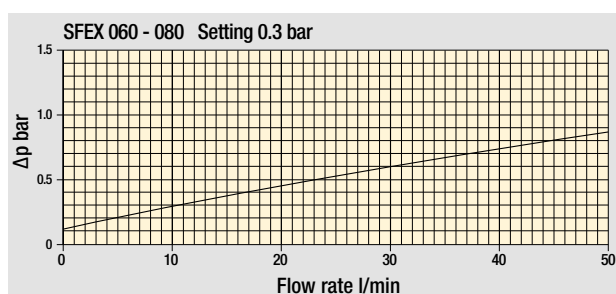
Filter series	Weights [kg]	Volumes [dm³]
SFEX 060	0.50	0.60
SFEX 080	0.95	0.80
SFEX 110	1.20	1.60
SFEX 160	1.70	2.00

Hydraulic symbols

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



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									
M90 Wire mesh 90 µm									
M250 Wire mesh 250 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

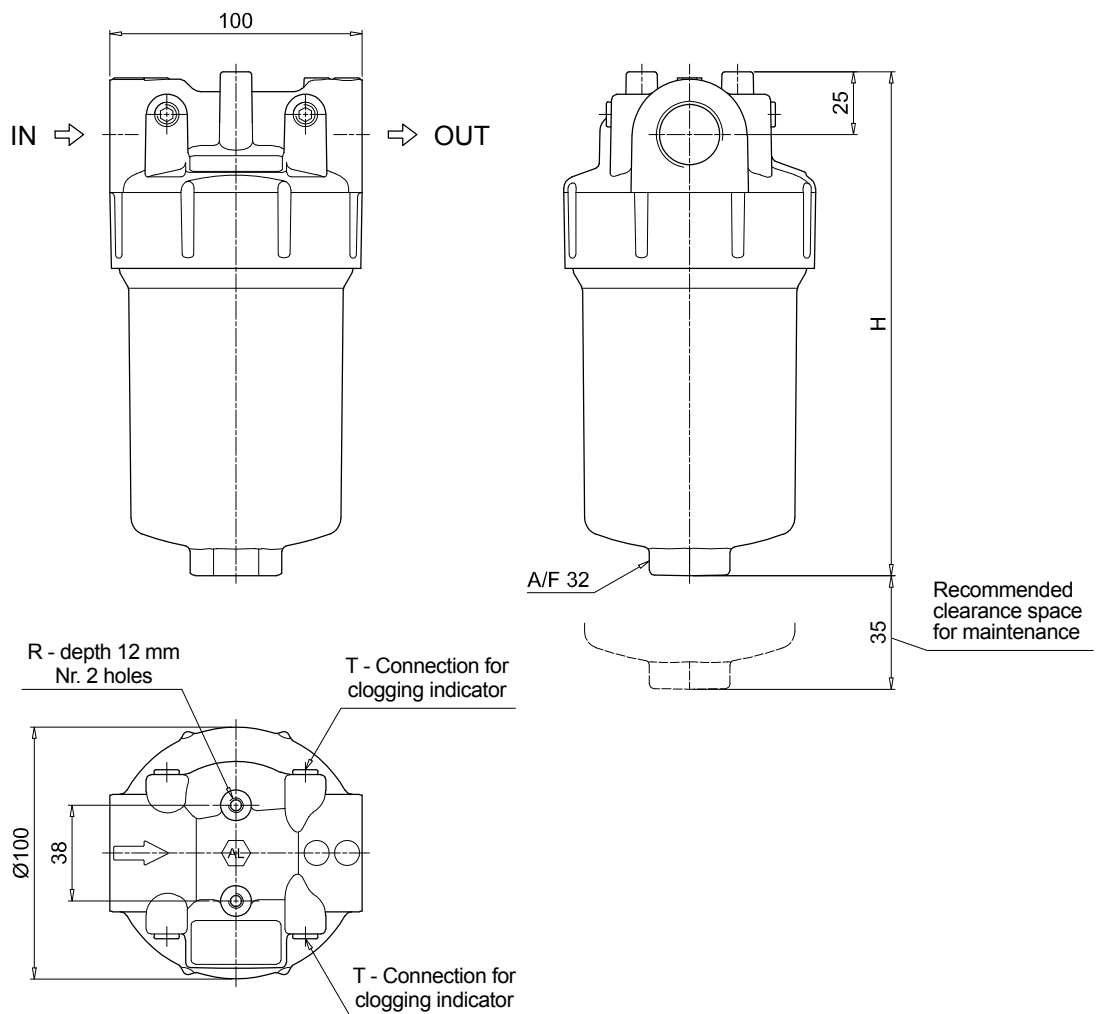
Element series and size	Configuration example :	FEX060	M60	A	N	P01
FEX060						
FEX080						
Filtration rating (filter media)						
M60 Wire mesh 60 µm						
M90 Wire mesh 90 µm						
M250 Wire mesh 250 µm						
P10 Resin impregnated paper 10 µm						
P25 Resin impregnated paper 25 µm						
Seals and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

ACCESSORIES

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

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								
M90 Wire mesh 90 µm								
M250 Wire mesh 250 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

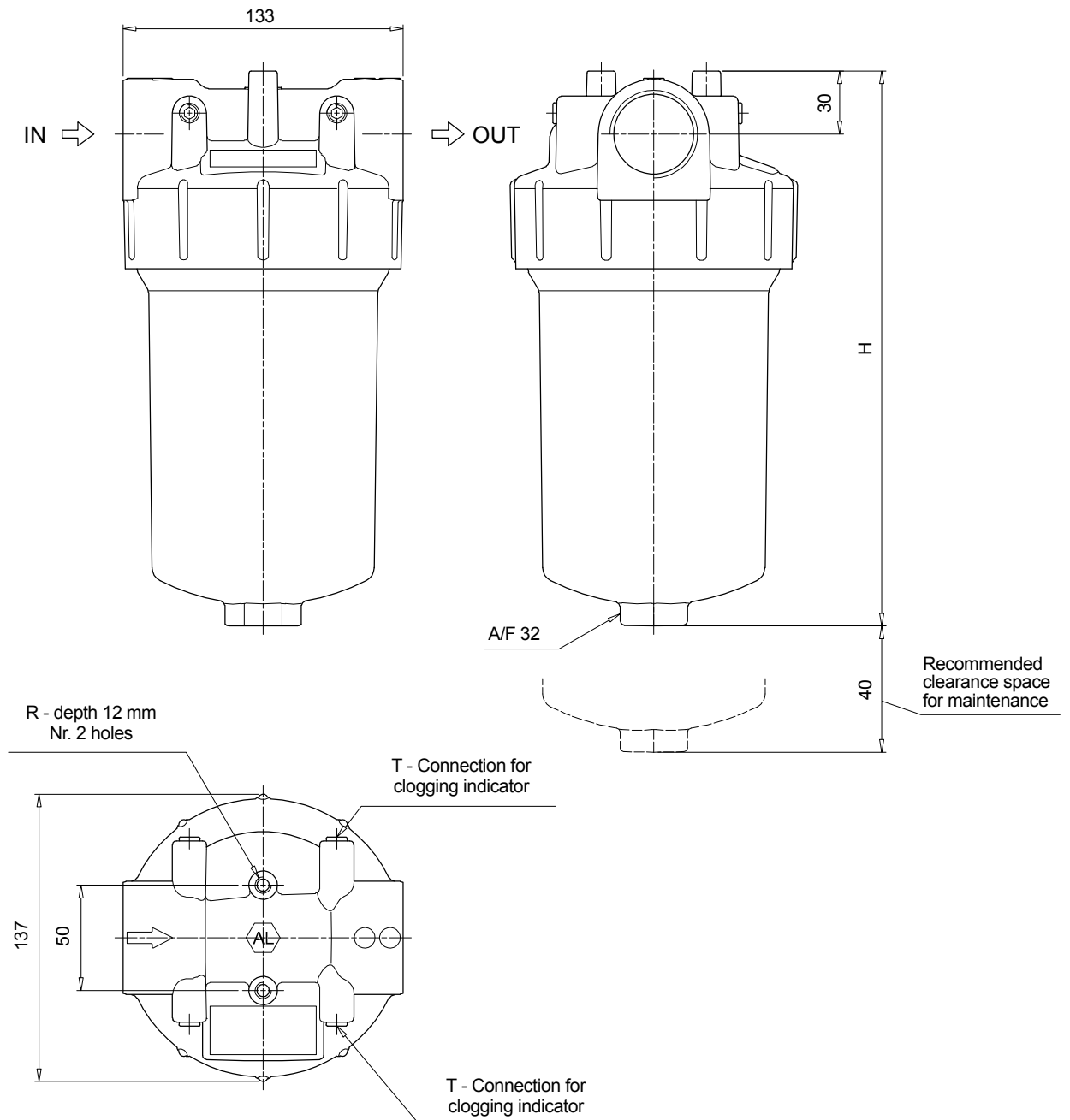
Element series and size	Configuration example: FEX110				
FEX110	M60	A	N	P01	
FEX160					
Filtration rating (filter media)					
M60 Wire mesh 60 µm					
M90 Wire mesh 90 µm					
M250 Wire mesh 250 µm					
P10 Resin impregnated paper 10 µm					
P25 Resin impregnated paper 25 µm					
Seals and treatments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

ACCESSORIES

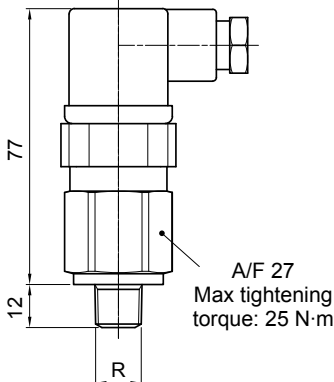
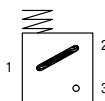
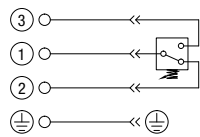
Clogging indicators	page		page
VVB Axial pressure gauge	13	VEB Electrical vacuum indicator	12
VVS Radial pressure gauge	13	VLB Electrical/visual vacuum indicator	12

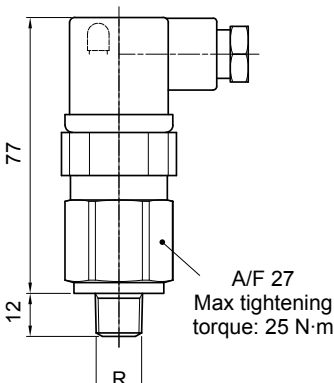
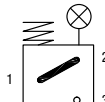
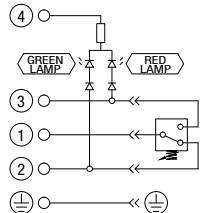
Filter size	H [mm]
110	266
160	315

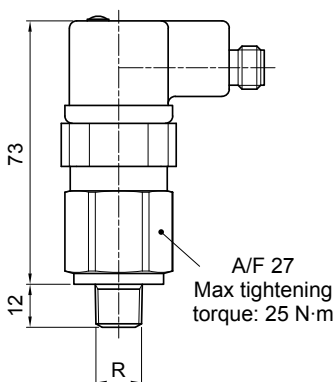
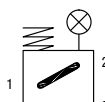
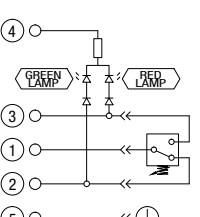
Connections	T	R
A	G 1/8"	M8
B	G 1/8"	M8
C	1/8" NPT	5/16" UNC
D	1/8" NPT	5/16" UNC
E	1/8" NPT	5/16" UNC
F	1/8" NPT	5/16" UNC

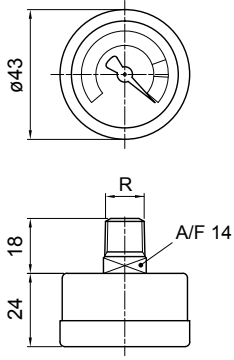


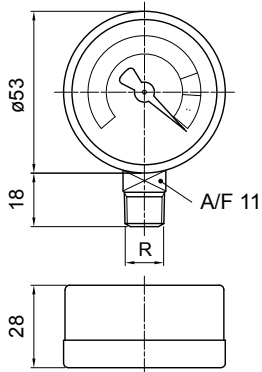
Dimensions

VE*50		Hydraulic symbol		Materials	
Electrical Vacuum Indicator					
R	Ordering code				
EN 10226 - R1/8"	VE B 21 A A 50 P01				
				- Body: Brass - Base: Black Nylon - Contacts: Silver - Seal: NBR	
		Electrical symbol		Technical data	
				- Vacuum setting: -0.21 bar $\pm 10\%$ - 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 according to ISO 2943 - Degree of protection: IP65 according to EN 60529	
				Electrical data	
				- 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		Hydraulic symbol		Materials	
Electrical/Visual Vacuum Indicator					
R	Ordering code				
EN 10226 - R1/8"	VL B 21 A A xx P01				
				- Body: Brass - Base: Transparent Nylon - Contacts: Brass - Nylon - Seal: NBR	
		Electrical symbol		Technical data	
				- Vacuum setting: -0.21 bar $\pm 10\%$ - 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 according to ISO 2943 - Degree of protection: IP65 according to EN 60529	
				Electrical data	
				- Electrical connection: EN 175301-803 - Type: 51 52 53 - Lamps: 24 Vdc 110 Vdc 230 Vac - Resistive load: 1 A / 24 Vdc 1 A / 110 Vdc 1 A / 230 Vac	

VL*71		Hydraulic symbol		Materials	
Electrical/Visual Vacuum Indicator					
Connections	Ordering code				
EN 10226 - R1/8"	VL B 21 A A 71 P01				
				- Body: Brass - Base: Black Nylon - Contacts: Silver - Seal: NBR	
		Electrical symbol		Technical data	
				- Vacuum setting: -0.21 bar $\pm 10\%$ - 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 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	

VB		Hydraulic symbol		Materials	
Axial Vacuum Gauge		Dial scale		Technical data	
R	Ordering code	Conversion to SI units		- Max working pressure:	
EN 10226 - R1/8"	VV B 16 P01	[cmHg]	[bar]	Static: 7 bar	
		-12	-0.16	Fluctuating: 6 bar	
		-18	-0.24	Short time: 10 bar	
		-76	-1.01	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: IP65 according to EN 60529	

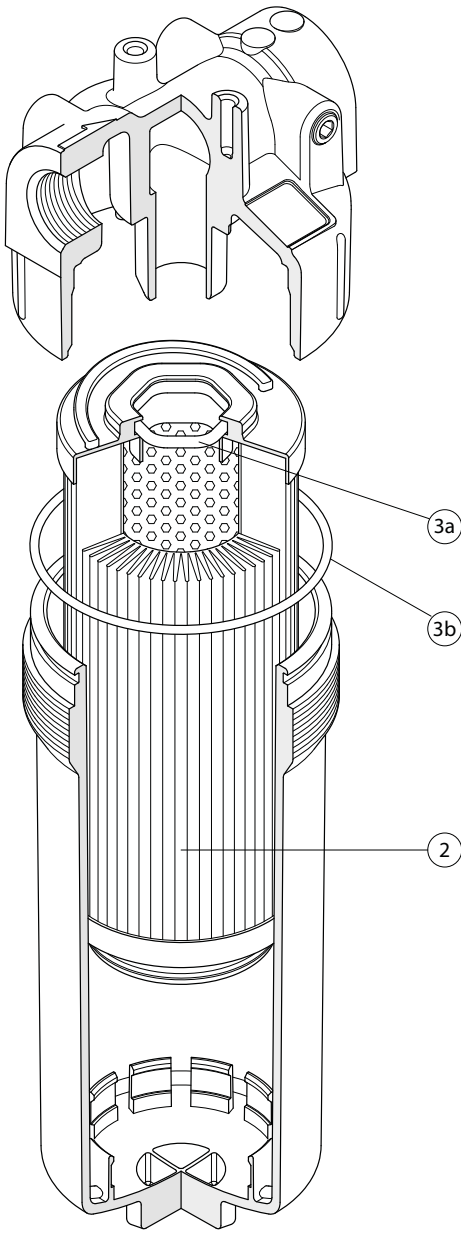
VS		Hydraulic symbol		Materials	
Radial Vacuum Gauge		Dial scale		Technical data	
R	Ordering code	Conversion to SI units		- Max working pressure:	
EN 10226 - R1/8"	VS S 16 P01	[cmHg]	[bar]	Static: 7 bar	
		-12	-0.16	Fluctuating: 6 bar	
		-18	-0.24	Short time: 10 bar	
		-76	-1.01	Working temperature: 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: IP65 according to EN 60529	

Designation & Ordering code

VACUUM INDICATORS							
Series	Configuration example 1:						
VE Electrical vacuum indicator	VE	B	21	A	A	50	P01
VL Electrical/Visual vacuum indicator	VL	B	21	A	A	71	P01
VV Vacuum gauge	VV	S	16				P01
Type VE - VL	Type VV						
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



Q.ty: 1 pc.		Q.ty: 1 pc.
Item:	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 GENERAL INFORMATION

Description

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 can be mounted in line or directly fixed to the tank cover 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

Technical data

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 [dm³]
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

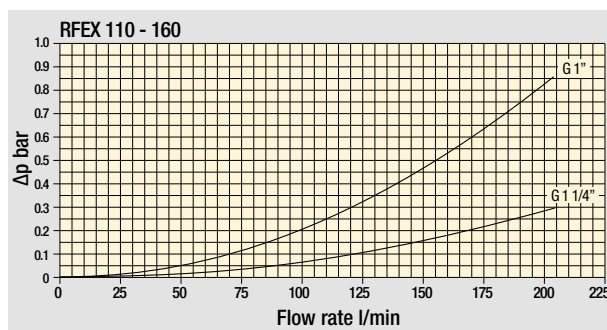
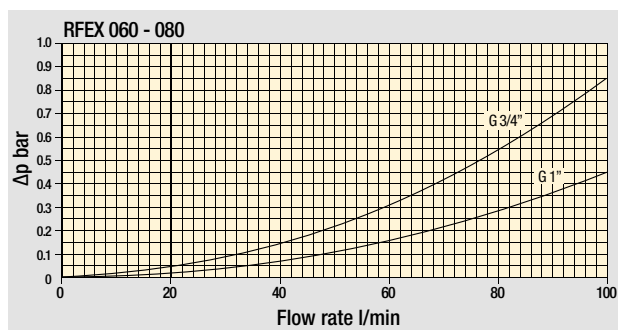
Filter series	Style S	Style B
RFEX 060	•	•
RFEX 080	•	•
RFEX 110	•	•
RFEX 160	•	•

OUT

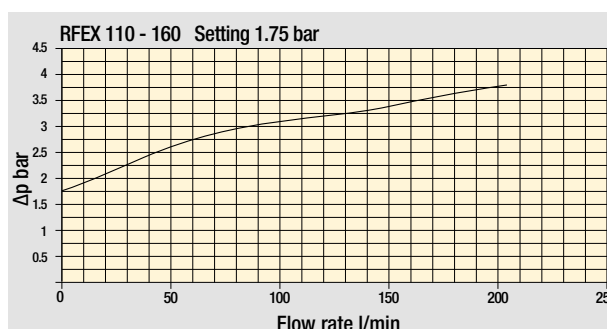
IN

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
RFEX 060	52	53	55	71	72	54	59
RFEX 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
RFEX 060	60	61	64	87	89	62	77
RFEX 080	69	70	75	91	92	79	93

Connections of filter under test G 1".

Filter series	A10	A16	A25	M60	M90	P10	P25
RFEX 110	141	153	172	250	252	186	196
RFEX 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.

RFEX RFEX060 - RFEX080

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example :	RFEX060	B	A	A	6	A10	N	P01
RFEX060									
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									
N 8 bar									
Execution									
P01 MP Filtri standard									
Pxx Customized									

FILTER ELEMENT

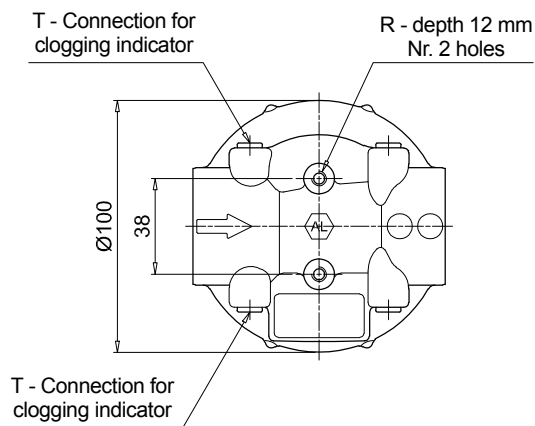
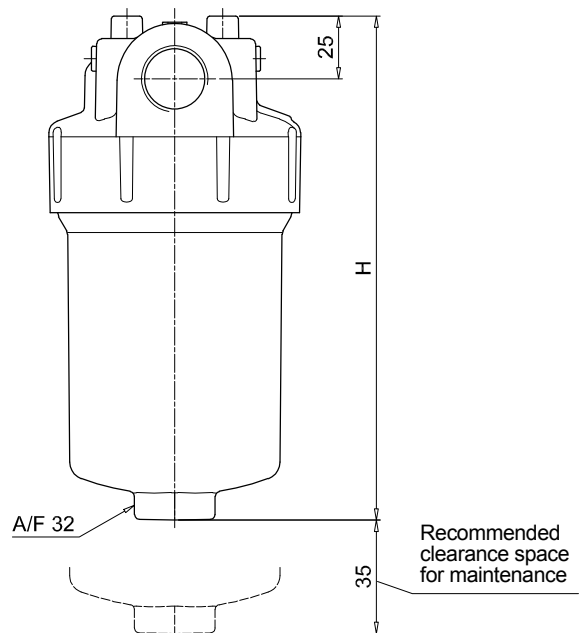
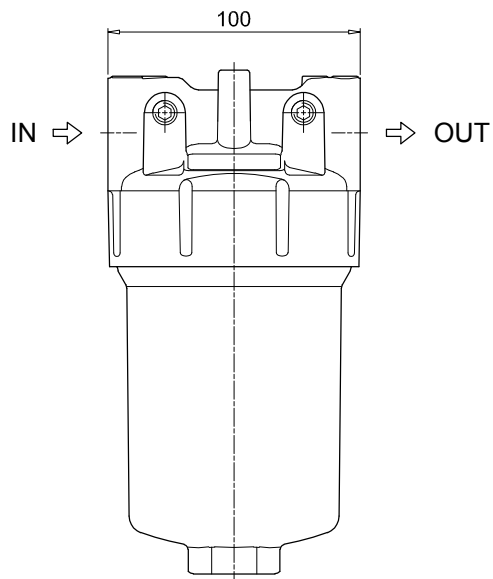
Element series and size	Configuration example :	FEX060	A10	A	N	P01
FEX060						
FEX080						
Filtration rating (filter media)						
A10 Inorganic microfiber 10 µm						
A16 Inorganic microfiber 16 µm						
A25 Inorganic microfiber 25 µm						
M60 Wire mesh 60 µm						
M90 Wire mesh 90 µm						
P10 Resin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

ACCESSORIES

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



RFEX RFEX110 - RFEX160

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example: RFEX110							B	A	A	6	A10	N	P01
RFEX110														
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	P10	Resin impregnated paper	10 µm									
A16	Inorganic microfiber	16 µm	P25	Resin impregnated paper	25 µm									
A25	Inorganic microfiber	25 µm												
M60	Wire mesh	60 µm												
M90	Wire mesh	90 µm												
					Element Δp					Execution				
					N 8 bar					P01 MP Filtri standard				
										Pxx Customized				

FILTER ELEMENT

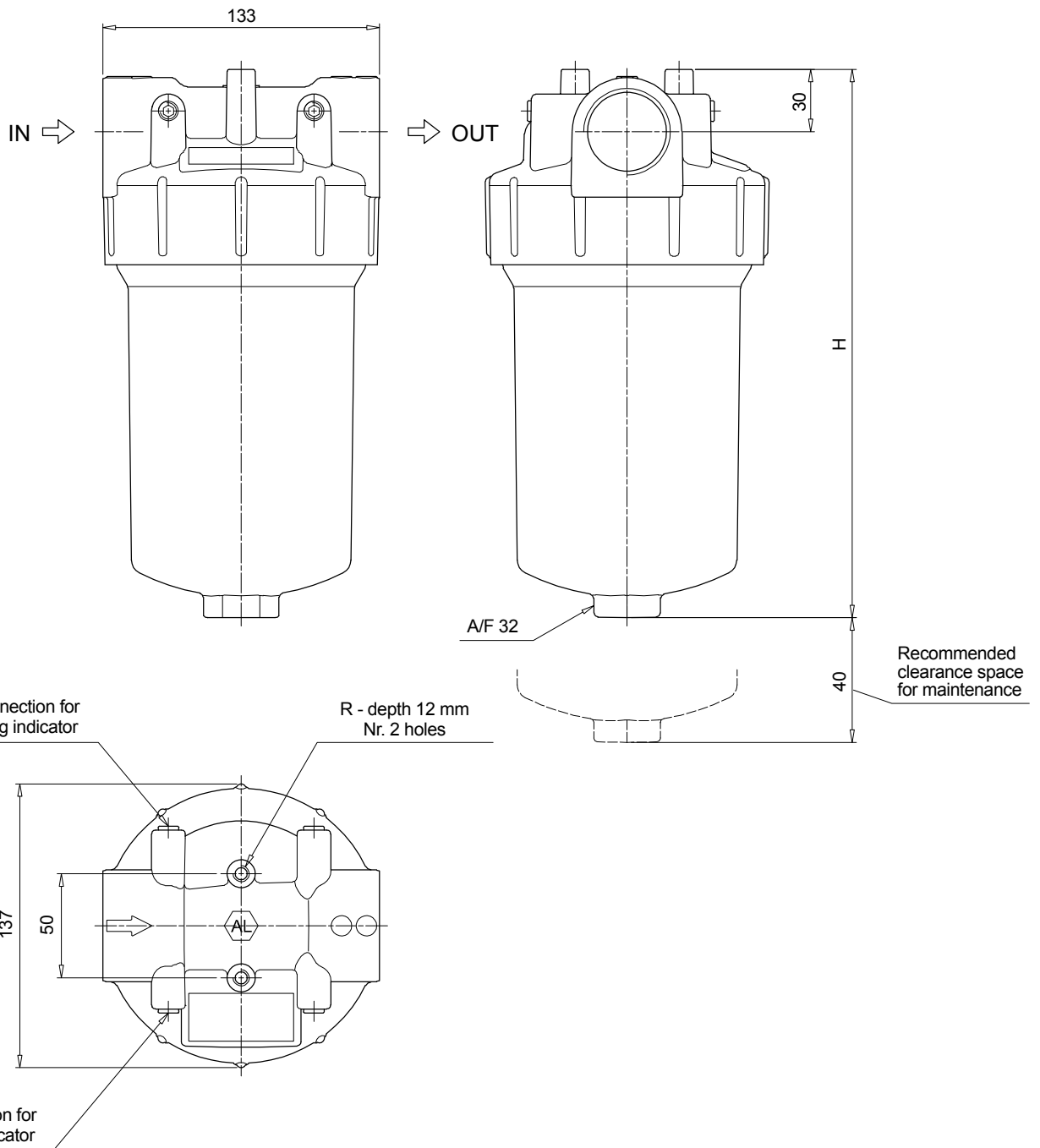
Element series and size	Configuration example: FEX110							A10	A	N	P01
FEX110											
FEX160											
Filtration rating (filter media)											
A10	Inorganic microfiber	10 µm	P10	Resin impregnated paper	10 µm						
A16	Inorganic microfiber	16 µm	P25	Resin impregnated paper	25 µm						
A25	Inorganic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

ACCESSORIES

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

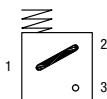
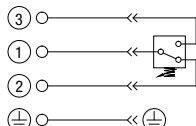
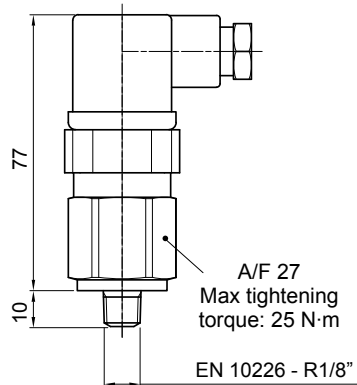
Filter size	H [mm]
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160	315

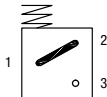
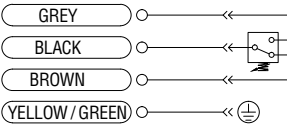
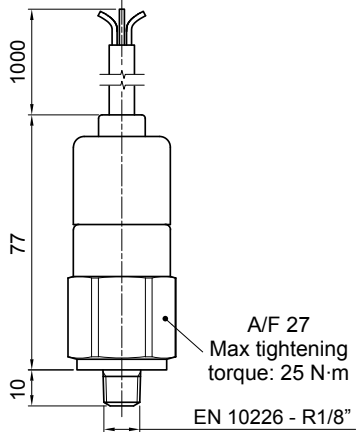
Connections	T	R
A	G 1/8"	M8
B	G 1/8"	M8
C	1/8" NPT	5/16" UNC
D	1/8" NPT	5/16" UNC
E	1/8" NPT	5/16" UNC
F	1/8" NPT	5/16" UNC

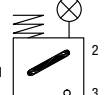
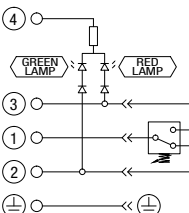
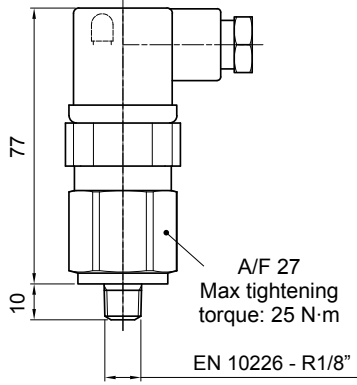


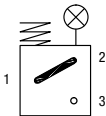
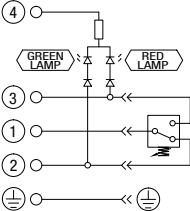
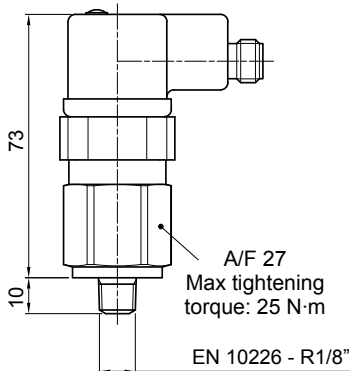
RFEX BAROMETRIC INDICATORS

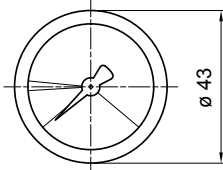
Dimensions

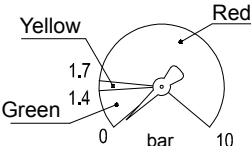
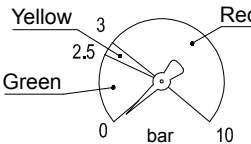
BEA*50		Hydraulic symbol		Materials	
Electrical Pressure Indicator				- Body: Brass - Base: Black Nylon - Contacts: Silver - Seal: HNBR	
Settings	Ordering code	Electrical symbol		Technical data	
1.5 bar ±10%	BE A 15 H A 50 P01			- Max working pressure: 40 bar - Proof pressure: 60 bar - Working temperature: 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	
2 bar ±10%	BE A 20 H A 50 P01			Electrical data	
				- 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	

BEM*41		Hydraulic symbol		Materials	
Electrical Pressure Indicator				- Body: Brass - Base: Black Nylon - Contacts: Silver - Seal: HNBR	
Settings	Ordering code	Electrical symbol		Technical data	
1.5 bar ±10%	BE M 15 H A 41 P01			- 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	
2 bar ±10%	BE M 20 H A 41 P01			Electrical data	
				- Electrical connection: Four-core cable - Resistive load: 5 A / 14 Vdc 4 A / 30 Vdc 5 A / 125 Vac 4 A / 250 Vac - CE certification - On request this indicator can be provided with main connectors in use for wirings.	

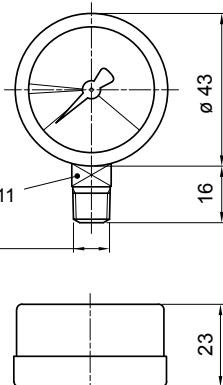
BL*51 - BL*52 - BL*53		Hydraulic symbol		Materials	
Electrical/Visual Pressure Indicator				- Body: Brass - Base: Transparent Nylon - Contacts: Silver - Seal: HNBR	
Settings	Ordering code	Electrical symbol		Technical data	
1.5 bar ±10%	BL A 15 H A xx P01			- Max working pressure: 40 bar - Proof pressure: 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	
2 bar ±10%	BL A 20 H A xx P01			Electrical data	
				- Electrical connection: EN 175301-803 - Type: 51 52 53 - Lamps: 24 Vdc 110 Vdc 230 Vac - Resistive load: 1 A / 24 Vdc 1 A / 110 Vdc 1 A / 230 Vac	

BL*71		Hydraulic symbol	Materials
Electrical/Visual Pressure Indicator			- Body: Brass - Base: Black Nylon - Contacts: Silver - Seal: HNBR
Settings	Ordering code	Electrical symbol	Technical data
1.5 bar ±10%	BL A 15 HA 71 P01		- 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
2 bar ±10%	BL A 20 HA 71 P01		- 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

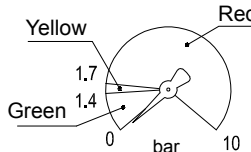
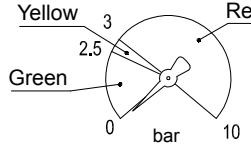
BVA	
Axial Pressure Gauge	
Settings	Ordering code
1.4 bar ±10%	BV A 14 P01
2.5 bar ±10%	BV A 25 P01
	

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 ±10%	BV R 14 P01
2.5 bar ±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

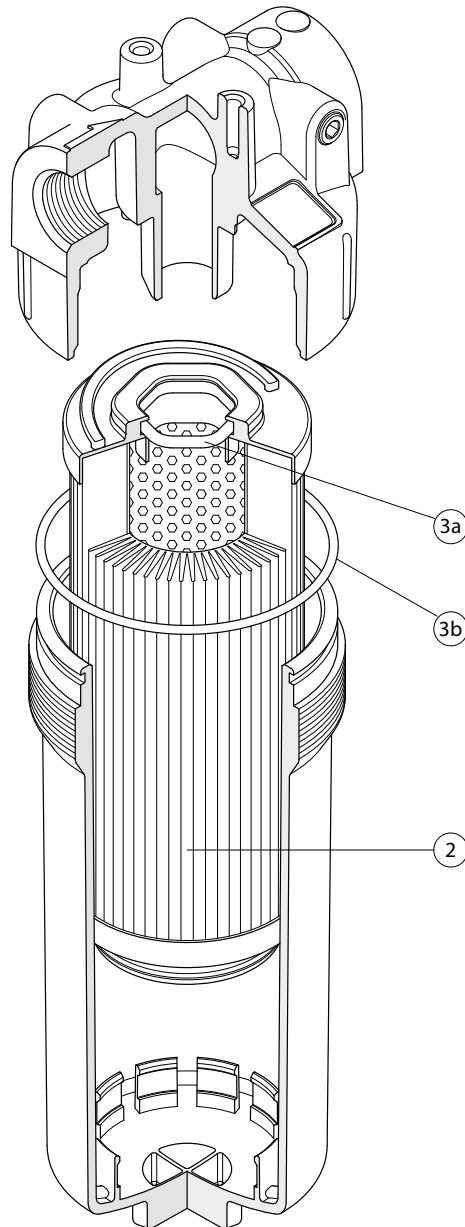
BVP - BVQ	
Visual Pressure Indicator	
Setting	Ordering code
1.5 bar ±10%	BV P 15 H P01
	BV Q 15 H P01
2 bar ±10%	BV P 20 H P01
	BV Q 20 H P01

Hydraulic symbol	Materials
	- Body: Brass - Cover / internal parts: Nylon - Caps: VMQ - Seal: HNBR
Technical data	
- Reset: - Max working pressure: - Proof pressure: - Working temperature: - Compatibility with fluids: - Degree of protection:	- BVP - Automatic reset - BVQ - Manual reset 10 bar 15 bar - From -25 °C to +80 °C - Mineral oils, Synthetic fluids - HFA, HFB, HFC according to ISO 2943 - IP45 according to EN 60529

Signals			
	Absence of pressure (no indicator)	Presence of pressure (green button rises gradually)	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			Configuration example 2:						
BV Visual pressure indicator			BL	A	20	H	A	71	P01
			Configuration example 3:						
			BV	R	14				P01
			Configuration example 4:						
			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 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			
10 Connection AMP Superseal series 1.5									
30 Connection Deutsch DT-04-2-P									
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. 2	Q.ty: 1 pc. 3 (3a ÷ 3b)
Filter series	Filter element	Seal Kit code number NBR
RFEX 060-080	See order table	02050771
RFEX 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) $\pm 10\%$

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

LFEX filters are provided for vertical mounting



Weights [kg] and volumes [dm³]

Filter series	Weights [kg]	Volumes [dm³]
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

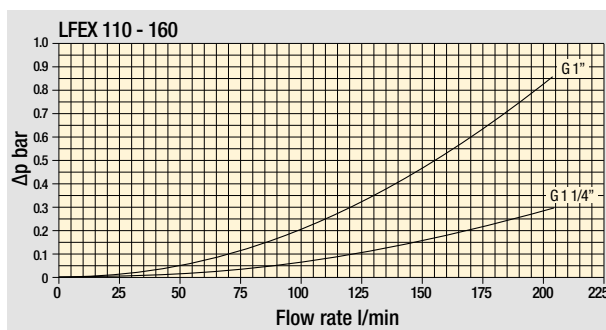
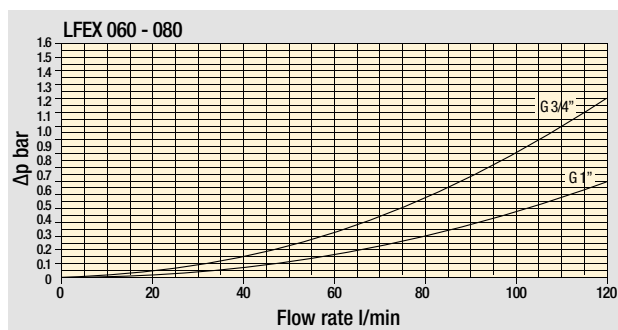
Filter series	Style S	Style B
LFEX 060	•	•
LFEX 080	•	•
LFEX 110	•	•
LFEX 160	•	•

OUT

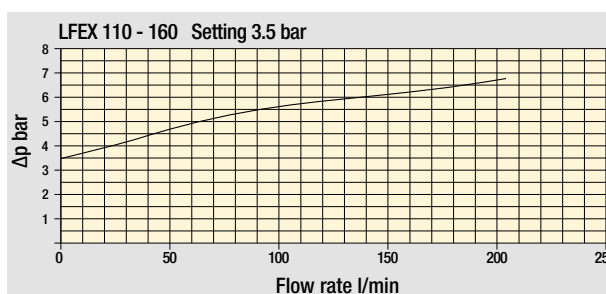
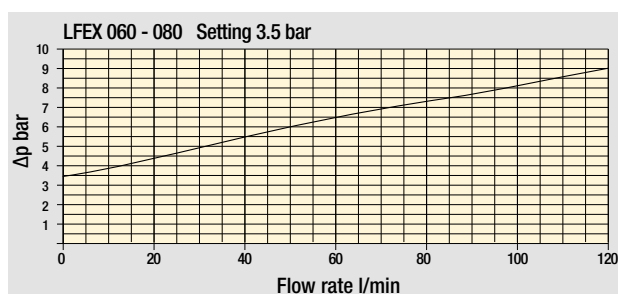
IN

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
LFEX 060	45	47	65	66	68	84	84	86	67	73
LFEX 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
LFEX 060	49	51	75	77	80	104	105	107	74	95
LFEX 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
LFEX 110	107	115	182	195	216	295	298	300	232	242
LFEX 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.

LFEX LFEX060 - LFEX080

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example : LFEX060							B	A	A	6	A10	N	P01
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														
A06 Inorganic microfiber 6 µm														
A10 Inorganic microfiber 10 µm														
A16 Inorganic microfiber 16 µm														
A25 Inorganic microfiber 25 µm														
M25 Wire mesh 25 µm														
M60 Wire mesh 60 µm														
M90 Wire mesh 90 µm														
P10 Resin impregnated paper 10 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

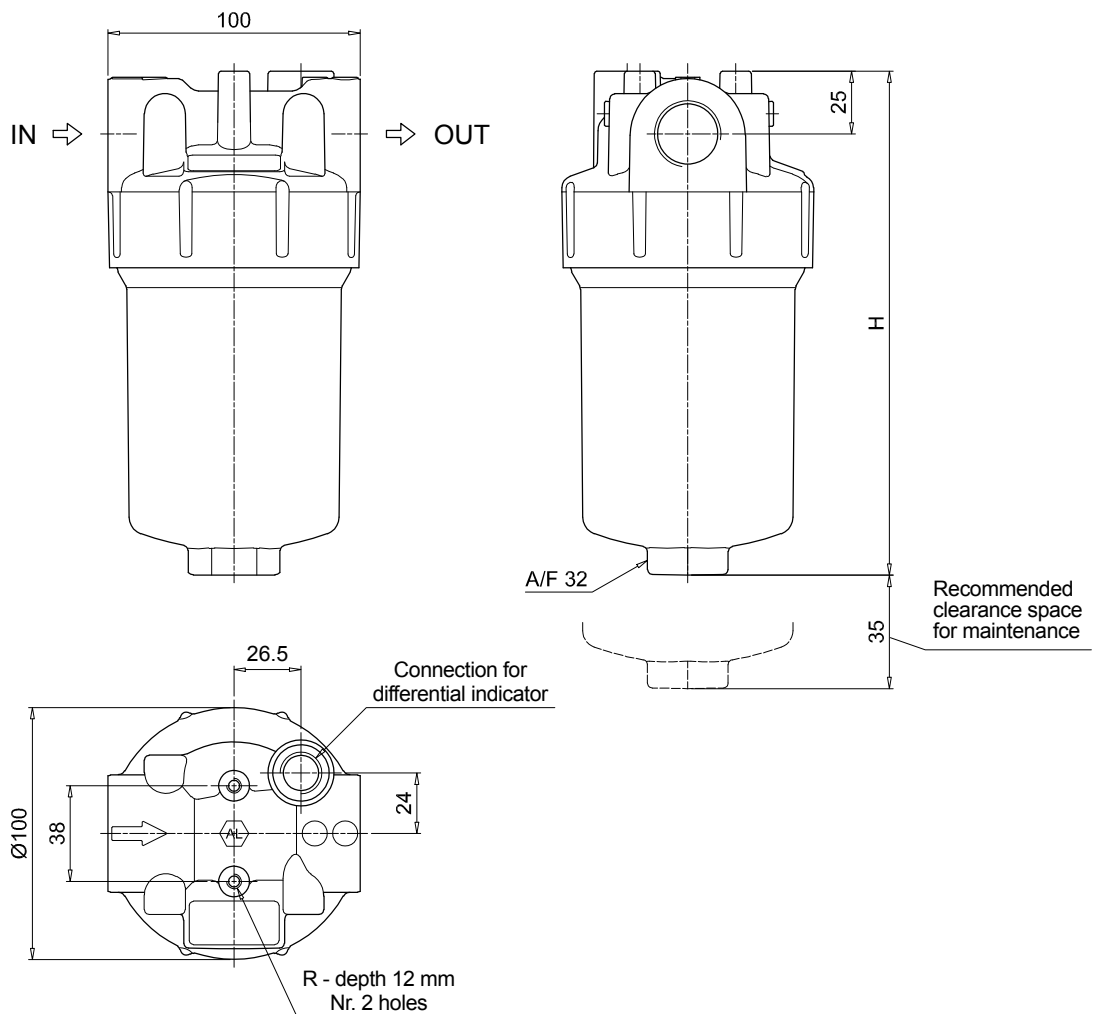
Element series and size	Configuration example: FEX060					A10	A	N	P01
FEX060									
FEX080									
Filtration rating (filter media)									
A03 Inorganic microfiber 3 µm									
A06 Inorganic microfiber 6 µm									
A10 Inorganic microfiber 10 µm									
A16 Inorganic microfiber 16 µm									
A25 Inorganic microfiber 25 µm									
M25 Wire mesh 25 µm									
M60 Wire mesh 60 µm									
M90 Wire mesh 90 µm									
P10 Resin impregnated paper 10 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



LFEX LFEX110 - SFEX160

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example : LFEX110							
LFEX110	B	A	A	6	A10	N	P01	
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		Execution				
		N 8 bar		P01 MP Filtri standard				
				Pxx Customized				

FILTER ELEMENT

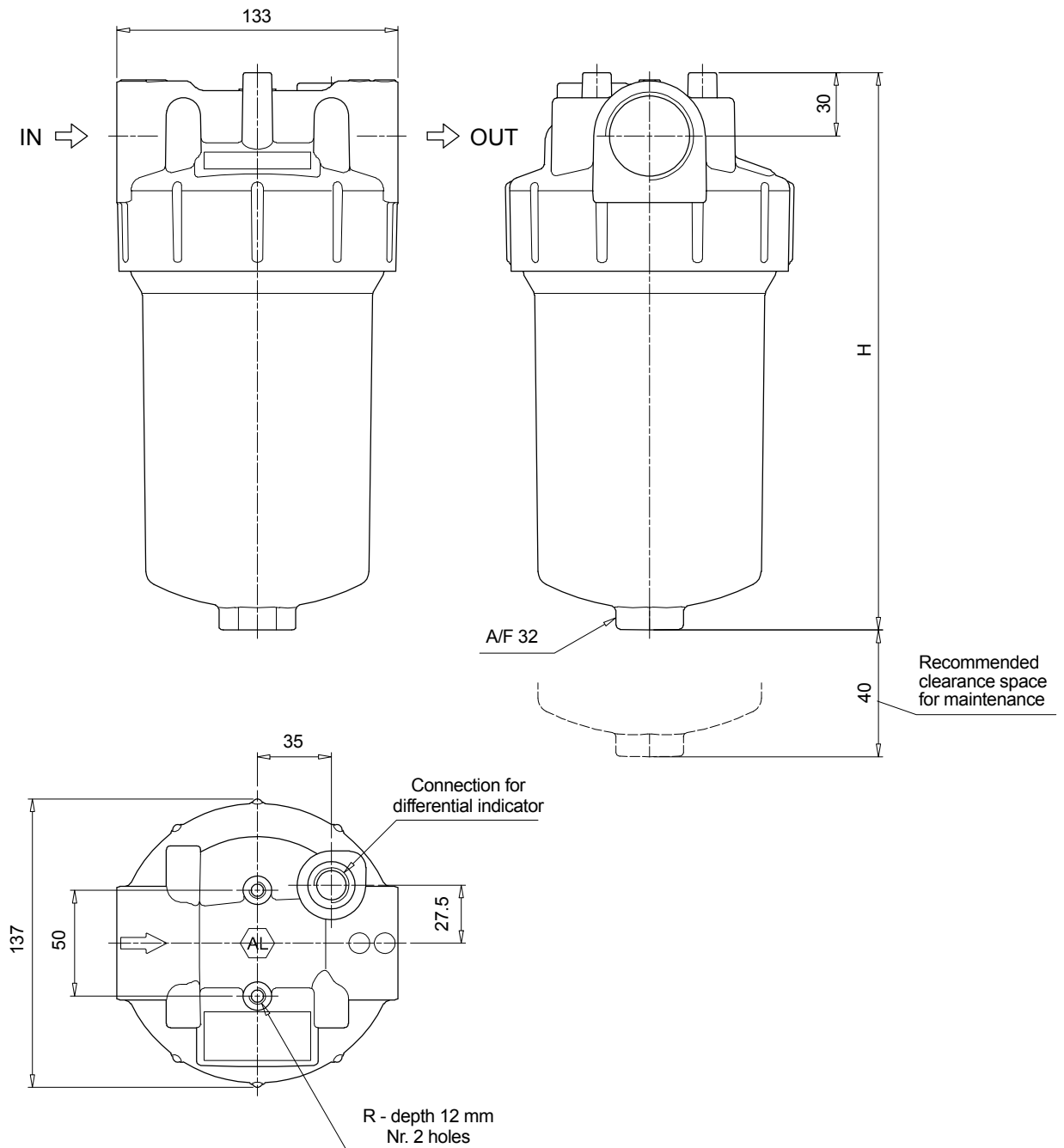
Element series and size	Configuration example: FEX110				
FEX110	A10	A	N	P01	
FEX160					
Filtration rating (filter media)					
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm				
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm				
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm				
A16 Inorganic 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		Execution	
		N 8 bar		P01 MP Filtri standard	
				Pxx Customized	

ACCESSORIES

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

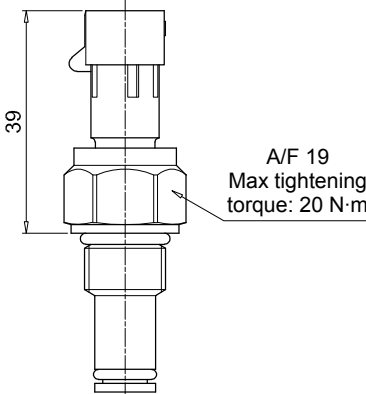
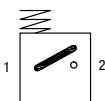
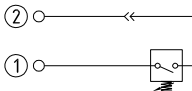
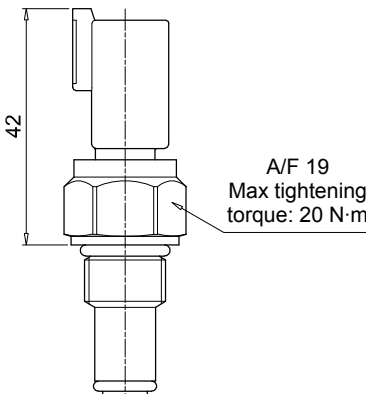
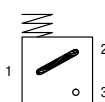
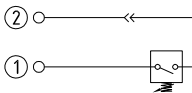
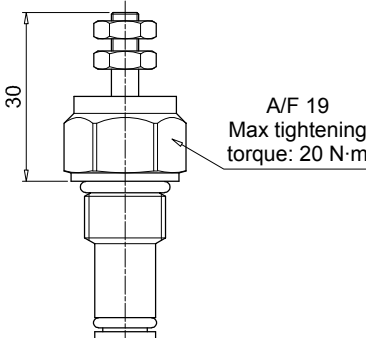
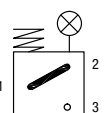
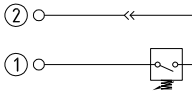
Filter size	H [mm]
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160	315

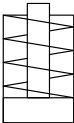
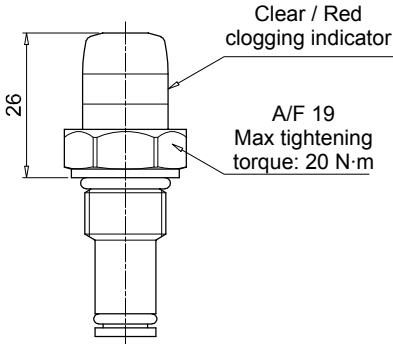
Connections	T	R
A	G 1/8"	M8
B	G 1/8"	M8
C	1/8" NPT	5/16" UNC
D	1/8" NPT	5/16" UNC
E	1/8" NPT	5/16" UNC
F	1/8" NPT	5/16" UNC



LFEX DIFFERENTIAL INDICATORS

Dimensions

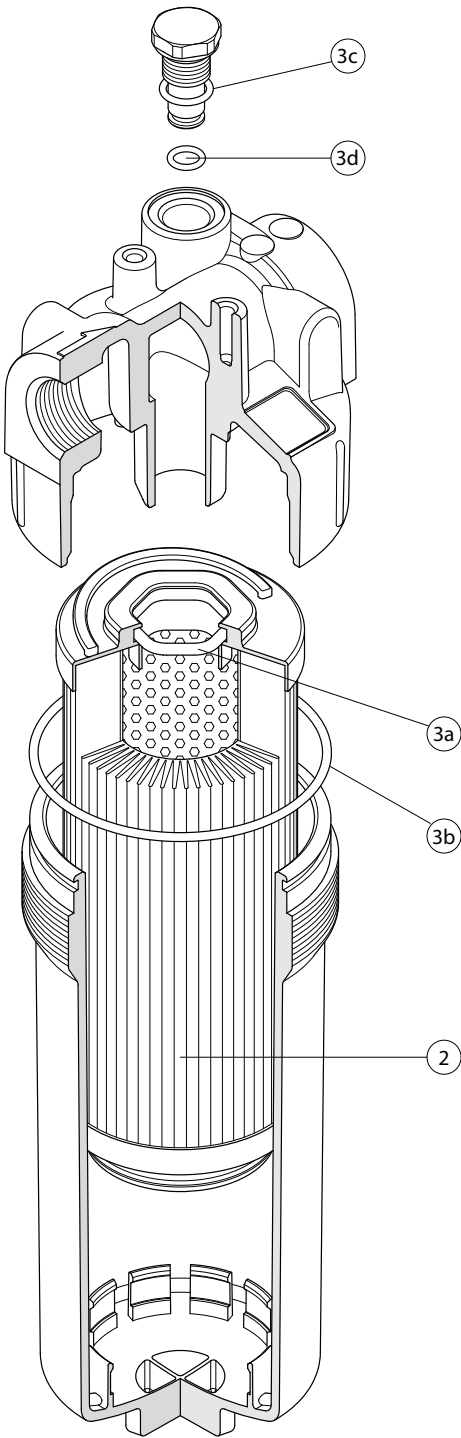
DES*10 Electrical Differential Indicator <table><tr><th>Settings</th><th>Ordering code</th></tr><tr><td>2.5 bar ±10%</td><td>DE S 25 HA 10 P01</td></tr><tr><td>4 bar ±10%</td><td>DE S 40 HA 10 P01</td></tr></table>  A/F 19 Max tightening torque: 20 N·m		Settings	Ordering code	2.5 bar ±10%	DE S 25 HA 10 P01	4 bar ±10%	DE S 40 HA 10 P01	Hydraulic symbol  Electrical symbol 	Materials - Body: Brass - Internal parts: Brass - Nylon - Contacts: Silver - Seal: HNBR Technical data - Max working pressure: 16 bar - Proof pressure: 24 bar - Burst pressure: 48 bar - Working temperature: From -30 °C to +110 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 - Degree protection: IP65 according to EN 60529 Electrical data - Electrical connection: AMP Superseal series 1.5 - Resistive load: 0.2 A / 24 Vdc - Switching type: Normally open contacts (NC on request)
Settings	Ordering code								
2.5 bar ±10%	DE S 25 HA 10 P01								
4 bar ±10%	DE S 40 HA 10 P01								
DES*30 Electrical Differential Indicator <table><tr><th>Settings</th><th>Ordering code</th></tr><tr><td>2.5 bar ±10%</td><td>DE S 25 HA 30 P01</td></tr><tr><td>4 bar ±10%</td><td>DE S 40 HA 30 P01</td></tr></table>  A/F 19 Max tightening torque: 20 N·m		Settings	Ordering code	2.5 bar ±10%	DE S 25 HA 30 P01	4 bar ±10%	DE S 40 HA 30 P01	Hydraulic symbol  Electrical symbol 	Materials - Body: Brass - Internal parts: Brass - Nylon - Contacts: Silver - Seal: HNBR Technical data - Max working pressure: 16 bar - Proof pressure: 24 bar - Burst pressure: 48 bar - Working temperature: From -30 °C to +110 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 - Degree protection: IP65 according to EN 60529 Electrical data - Electrical connection: Deutsch DT-04-2-P - Resistive load: 0.2 A / 24 Vdc - Switching type: Normally open contacts (NC on request)
Settings	Ordering code								
2.5 bar ±10%	DE S 25 HA 30 P01								
4 bar ±10%	DE S 40 HA 30 P01								
DES*80 Electrical Differential Indicator <table><tr><th>Settings</th><th>Ordering code</th></tr><tr><td>2.5 bar ±10%</td><td>DE S 25 HA 80 P01</td></tr><tr><td>4 bar ±10%</td><td>DE S 40 HA 80 P01</td></tr></table>  A/F 19 Max tightening torque: 20 N·m		Settings	Ordering code	2.5 bar ±10%	DE S 25 HA 80 P01	4 bar ±10%	DE S 40 HA 80 P01	Hydraulic symbol  Electrical symbol 	Materials - Body: Brass - Internal parts: Brass - Nylon - Contacts: Silver - Seal: HNBR Technical data - Max working pressure: 16 bar - Proof pressure: 24 bar - Burst pressure: 48 bar - Working temperature: From -30 °C to +110 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 - Degree protection: IP65 according to EN 60529 Electrical data - Electrical connection: Stud #10-32 UNF - Resistive load: 0.2 A / 24 Vdc - Switching type: Normally open contacts (NC on request)
Settings	Ordering code								
2.5 bar ±10%	DE S 25 HA 80 P01								
4 bar ±10%	DE S 40 HA 80 P01								

DVS		Hydraulic symbol		Materials - Body: Brass - Internal parts: Brass - Nylon - Contacts: Silver - Seal: HNBR
Visual Differential Indicator				
Settings	Ordering code			
2.5 bar ±10%	DV S 25 H P01			
4 bar ±10%	DV S 40 H P01			
				
				Technical data - Reset: Automatic reset - Max working pressure: 16 bar - Proof pressure: 24 bar - Burst pressure: 48 bar - Working temperature: From -30 °C to +110 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 - Degree protection: IP65 according to EN 60529

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 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						

Order number for spare parts



Q.ty: 1 pc.		Q.ty: 1 pc.	Q.ty: 1 pc.
Item:	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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