



Block mounting filter, for lateral flange-mounting

**Type 350PSFN0040 to 1000;
350PSF0130, 0150**

Size according to **DIN 24550**: 0040 to 1000
Additional sizes: 0130, 0150
Nominal pressure 350 bar [5079 psi]
Port up to Ø 38
Operating temperature -10 °C to 100 °C [14 °F to 212 °F]

Features

- Special highly efficient filter media
- Adsorption of very fine particles across a broad pressure differential range
- High dirt holding capacity thanks to large specific filter area
- Good chemical resistance of the filter elements
- High collapse resistance of the filter elements (e.g. in case of cold start)
- Filter ratings of 3 µm to 100 µm
- By default equipped with mechanical optical maintenance indicator with memory function
- Flow-optimized design due to 3D computer-supported design

Ordering code

of the filter

350	PSF		—		00—V5,0—	
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Pressure

350 bar [5079 psi] = 350

Block mounting filter

For lateral flange-mounting = PSF

Filter element

According to DIN 24550 = N

Size

PSFN... = 0040 0063 0100 0160
0250 0400 0630 1000

PSF... = 0130 0150

Filter rating in µm

nominal

Stainless steel wire mesh, cleanable

G10, G25, G40, G100 = G...

absolute (ISO 16889)

Micro glass, not cleanable

H3XL, H6XL, H10XL, H20XL = H...XL

Pressure differential

Max. admissible pressure differential of the filter element

30 bar [435 psi], with bypass valve 7 bar [102 psi] = A

330 bar [4786 psi], without bypass valve = B

Element design

Standard adhesive T = 100 °C [212 °F] = 0...

Standard material = ...0

Complementary details

No code = No complementary details

— M = 2 Minimes connections
(Size 0130 – 1000)

Seal

M = NBR seal

V = FKM seal

Maintenance indicator

V5,0 = Maintenance indicator, optical
specify switching pressure 5.0 bar [72.5 psi]

Order example:

350PSFN0063-H10XLB00-V5,0-M

Further versions (filter materials, connections, ...) are available at request.

of the filter element

2.		—		—	0	—
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Filter element

Design = 2.

Size

PSFN... = 0040 0063 0100 0160
0250 0400 0630 1000

PSF... = 0130 0150

Filter rating in µm

nominal

Stainless steel wire mesh, cleanable

G10, G25, G40, G100 = G...

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Seal

M = NBR seal

V = FKM seal

Bypass valve

0 = at filter element always 0

Element design

0... = Standard adhesive T = 100 °C [212 °F]

...0 = Standard material

Order example:

2.0063 H10XL-B00-0-M

Standard types

NBR seal, without bypass, flow specifications for 30 mm²/s

Block mounting filter 350PSF(N), filter rating 3 µm

Type	Flow in l/min [gpm] with $\Delta p = 1.5$ bar [21.8 psi] ¹⁾
350PSFN0040-H3XLB00-V5,0-M	32 [8.5 gpm]
350PSFN0063-H3XLB00-V5,0-M	47 [12.4 gpm]
350PSFN0100-H3XLB00-V5,0-M	61 [16.1 gpm]
350PSF0130-H3XLB00-V5,0-M	108 [28.5 gpm]
350PSF0150-H3XLB00-V5,0-M	137 [36.2 gpm]
350PSFN0160-H3XLB00-V5,0-M	185 [48.9 gpm]
350PSFN0250-H3XLB00-V5,0-M	272 [71.9 gpm]
350PSFN0400-H3XLB00-V5,0-M	341 [90.1 gpm]
350PSFN0630-H3XLB00-V5,0-M	390 [103.0 gpm]
350PSFN1000-H3XLB00-V5,0-M	470 [124.2 gpm]

Block mounting filter 350PSF(N), filter rating 6 µm

Type	Flow in l/min [gpm] with $\Delta p = 1.5$ bar [21.8 psi] ¹⁾
350PSFN0040-H6XLB00-V5,0-M	44 [11.6 gpm]
350PSFN0063-H6XLB00-V5,0-M	59 [15.6 gpm]
350PSFN0100-H6XLB00-V5,0-M	68 [18.0 gpm]
350PSF0130-H6XLB00-V5,0-M	158 [41.7 gpm]
350PSF0150-H6XLB00-V5,0-M	196 [51.8 gpm]
350PSFN0160-H6XLB00-V5,0-M	233 [61.6 gpm]
350PSFN0250-H6XLB00-V5,0-M	318 [84.0 gpm]
350PSFN0400-H6XLB00-V5,0-M	369 [97.5 gpm]
350PSFN0630-H6XLB00-V5,0-M	428 [113.1 gpm]
350PSFN1000-H6XLB00-V5,0-M	482 [127.3 gpm]

Block mounting filter 350PSF(N), filter rating 10 µm

Type	Flow in l/min [gpm] with $\Delta p = 1.5$ bar [21.8 psi] ¹⁾
350PSFN0040-H10XLB00-V5,0-M	52 [13.7 gpm]
350PSFN0063-H10XLB00-V5,0-M	67 [17.7 gpm]
350PSFN0100-H10XLB00-V5,0-M	72 [19.0 gpm]
350PSF0130-H10XLB00-V5,0-M	189 [49.9 gpm]
350PSF0150-H10XLB00-V5,0-M	241 [63.7 gpm]
350PSFN0160-H10XLB00-V5,0-M	265 [70.0 gpm]
350PSFN0250-H10XLB00-V5,0-M	349 [92.2 gpm]
350PSFN0400-H10XLB00-V5,0-M	380 [100.4 gpm]
350PSFN0630-H10XLB00-V5,0-M	460 [121.5 gpm]
350PSFN1000-H10XLB00-V5,0-M	490 [129.4 gpm]

¹⁾ Measured pressure differential across filter and measuring equipment according to ISO 3968. The measured pressure differential at the maintenance indicator is lower.

Ordering code: Electronic switching element for maintenance indicator

ABZ	F	V	1X	-DIN
plant construction accessories				-DIN = Mark for DIN version
Filter				Component series
Maintenance indicator				Component series 10 to 19 (10 to 19; identical installation and connection dimensions)
Electronic switching element with 1 switching point (changeover) round plug-in connection M12x1			1X =	
Electronic switching element with 2 switching points (normally open/normally closed), 75 %, 100 %, round plug-in connection M12x1, 3 LED				
Electronic switching element with 2 switching points (normally open/ normally closed), 75 %, 100 %, signal suppression until 30 °C round plug-in connection M12x1, 3 LED				

Electronic switching element

ABZ FV-E1SP-M12X1-1X/-DIN

ABZ FV-E2SP-M12X1-1X/-DIN

ABZ FV-E2SPSU-M12X1-1X/-DIN

Order example: Block mounting filter with mechanical optical maintenance indicator for $p_{nom.} = 350 \text{ bar}$ [5079 psi] without by-pass valve, size 0063, with filter element $10 \mu\text{m}$ and electronic switching element M12x1 with 1 switching point for hydraulic fluid mineral oil HLP according to DIN 51524.

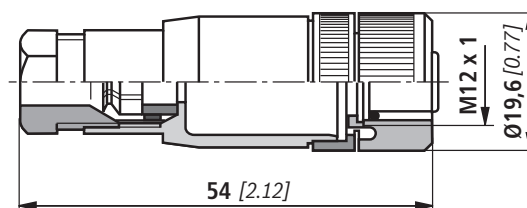
Filter: 350PSFN0063-H10XLB00-V5,0-M

Maintenance indicator: ABZ FV-E1SP-M12X1-1X/-DIN

Mating connectors according to IEC 60947-5-2 (dimensions in mm [inch])

for electronic switching element with round plug-in connection M12 x 1

**Mating connector for K24 4-pin, M12 x 1
with screw connection, cable gland Pg9.**

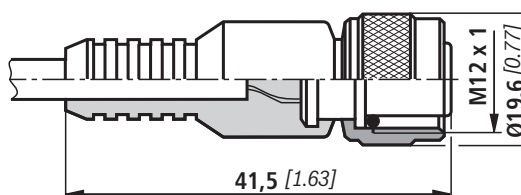


**Mating connector for K24-3m 4-pin, M12 x 1
with potted-in PVC cable, 3 m long.**

Line cross-section: 4 x 0.34 mm²

Core marking:

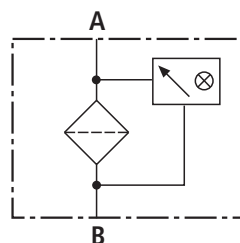
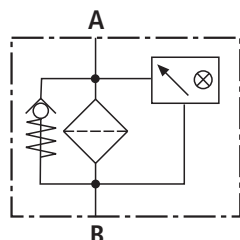
1	Brown
2	White
3	Blue
4	Black



For more round plug-in connections, see data sheet.

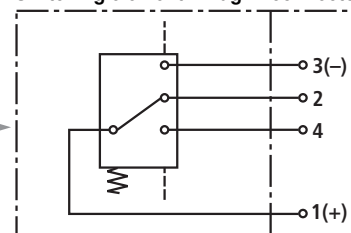
Symbols

Block mounting filter



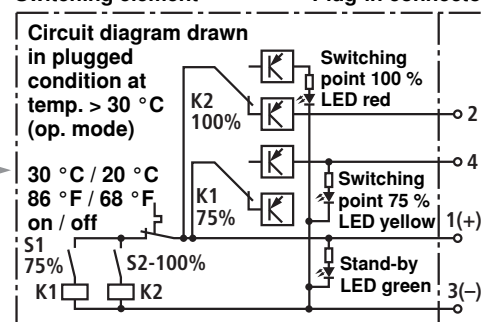
Electronic switching element
for maintenance indicator

Switching element Plug-in connector



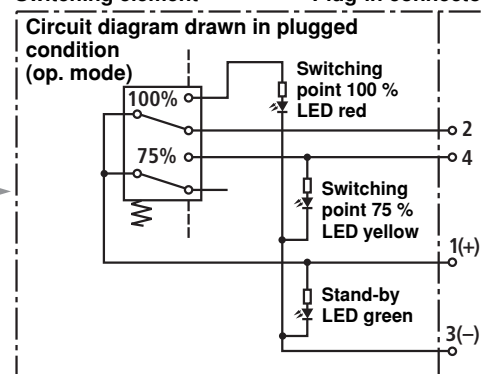
ABZFFV-E1SP-M12X1-1X/-DIN

Switching element Plug-in connector



ABZFFV-E2SPSU-M12X1-1X/-DIN

Switching element Plug-in connector



ABZFFV-E2SP-M12X1-1X/-DIN

Function, section

Block mounting filters are suitable for direct attachment to pump and control blocks. They are installed upstream open-loop or closed-loop control units to be protected.

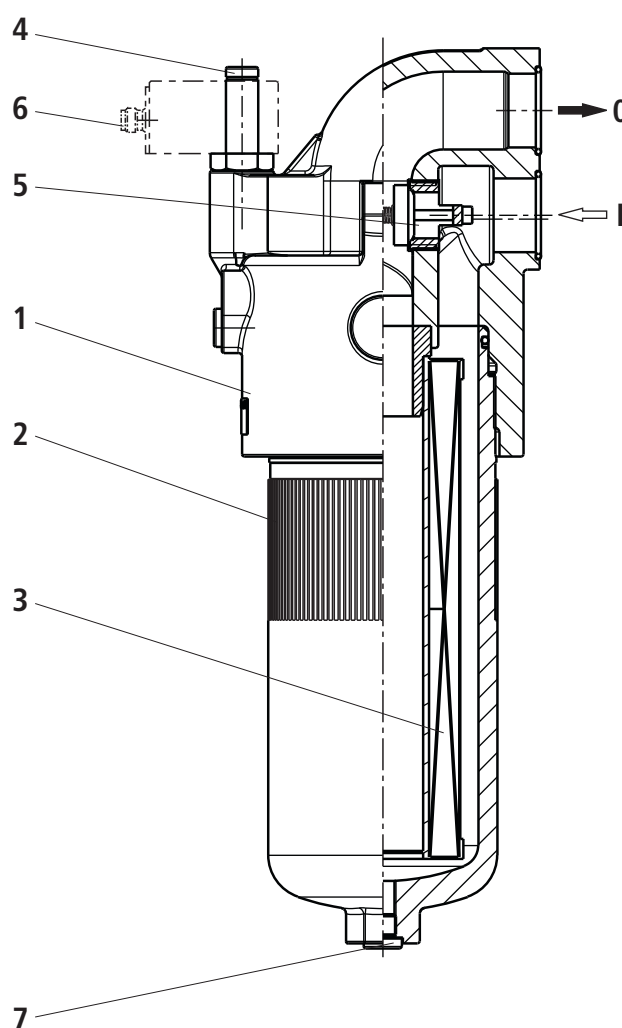
They basically consist of filter head (1), a screwable filter bowl (2), filter element (3) as well as mechanical optical maintenance indicator (4). In case of filters with low-pressure-differential-stable filter elements (= code letter pressure differential A), there is also an assembled bypass valve (5).

Via port I, the hydraulic fluid reaches the filter element (3) where it is cleaned. The dirt particles filtered out settle in the filter bowl (2) and in the filter element (3). Via port O, the filtered hydraulic fluid enters the hydraulic circuit.

The filter housing and all connection elements are designed so that pressure peaks - as they may e.g. occur in case of the abrupt opening of large control valves due to the accelerated fluid weight - can be securely absorbed. As of size 0160, the standard equipment comprises an oil drain plug (7). With size 1000, the filter bowl has a two-part design.

Basically, the filter is equipped with mechanical optical maintenance indicator (4). The electronic maintenance indicator is connected via the electronic switching element with 1 or 2 switching points (6), which has to be ordered separately. The electronic switching element is attached to the mechanical optical maintenance indicator and held by means of a locking ring.

As of size 0130, 2 minimess connections can be ordered via supplementary information in the type key.



Technical Data (For applications outside these parameters, please consult us!)

general

Installation position		Lateral				
Ambient temperature range		°C [°F]	-30 to +100 [-22 to +212]			
Weight	Size		0040	0063	0100	0130
	kg		5.5	6.2	7.0	13.0
	[lbs]		[12.1]	[13.6]	[15.4]	[28.6]
Weight	Size		0160	0250	0400	0630
	kg		18.5	20.5	24.5	41.2
	[lbs]		[40.7]	[45.1]	[53.9]	[90.6]
Material	Filter head	GGG				
	Filter bowl	Steel				
	Optical maintenance indicator	Brass				
	Electronic switching element	Plastic PA6				

hydraulic

Maximum operating pressure	bar [psi]	350 [5079]
Hydraulic fluid temperature range	°C [°F]	-10 to +100 [+14 to +212] (shortly -30 [-22])
Fatigue strength according to ISO 10771	Load cycles	> 10 ⁶ with max. operating pressure
Cracking pressure of the bypass valve	bar [psi]	7 ± 0.5 [100 ± 7]
Type of pressure measurement of the maintenance indicator		Pressure differential
Response pressure of the maintenance indicator	bar [psi]	5 ± 0.5 [72 ± 7]

electrical (electronic switching element)

Electrical connection			Round plug-in connection M12 x 1, 4-pin
Contact load, direct voltage			A max. 1
Voltage range	E1SP-M12x1	V DC/AC	max. 150
	E2SP	V DC	10 to 30
Max. switching power with resistive load			20 VA; 20 W; (70 VA)
Switching type	E1SP-M12x1		Changeover
	E2SP-M12x1		Normally open contact at 75 % of the response pressure Normally closed contact at 100 % of the response pressure
	E2SPSU-M12x1		Normally open contact at 75 % of the response pressure Normally closed contact at 100 % of the response pressure Signal interconnection at 30 °C [86 °F], Return switching at 20 °C [68 °F]
Display via LEDs in the electronic switching element E2SP...			Stand-by (LED green); 75 % switching point (LED yellow); 100 % switching point (LED red)
Protection class according to EN 60529			IP 65
For direct voltage above 24 V, spark extinguishing is to be provided for protecting the switching contacts.			
Weight	Electronic switching element: – with round plug-in connection M12 x 1		kg [lbs]
			0.1 [0.22]

Technical Data (For applications outside these parameters, please consult us!)

Filter element

Glass fiber paper H..XL			Single-use element on the basis of inorganic fiber	
			Filtration ratio according to ISO 16889 up to $\Delta p = 5 \text{ bar [72.5 psi]}$	Achievable oil cleanliness according to ISO 4406 [SAE-AS 4059]
		H20XL	$\beta_{20}(c) \geq 200$	19/16/12 – 22/17/14
		H10XL	$\beta_{10}(c) \geq 200$	17/14/10 – 21/16/13
		H6XL	$\beta_6(c) \geq 200$	15/12/10 – 19/14/11
		H3XL	$\beta_5(c) \geq 200$	13/10/8 – 17/13/10
Admissible pressure differential	A	bar [psi]	30 [435]	
	B	bar [psi]	330 [4786]	

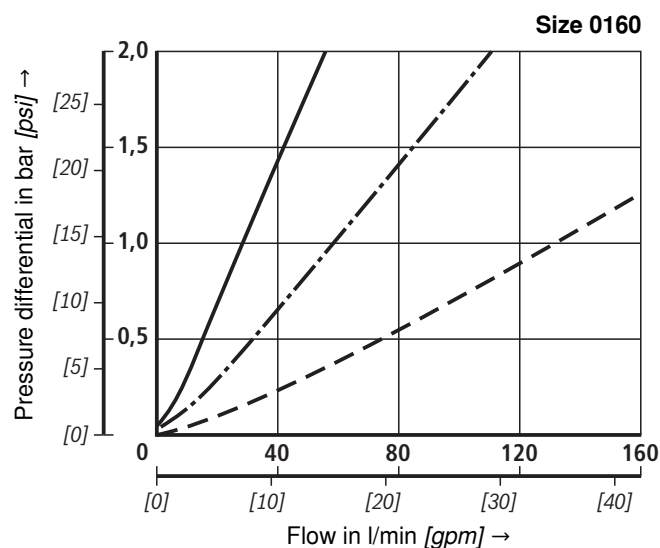
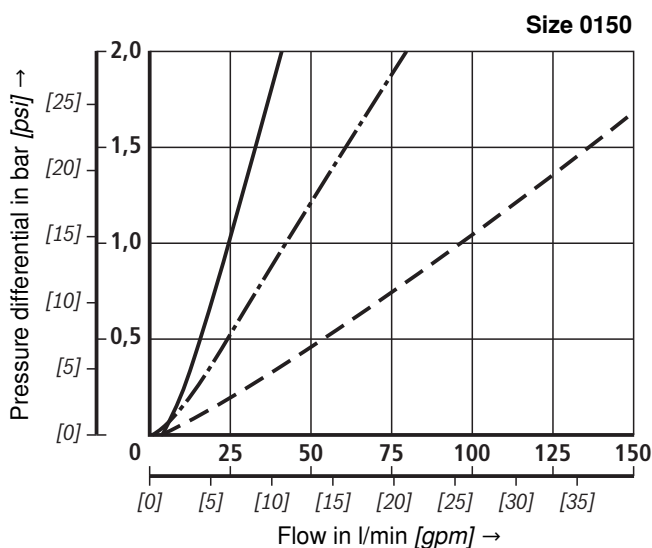
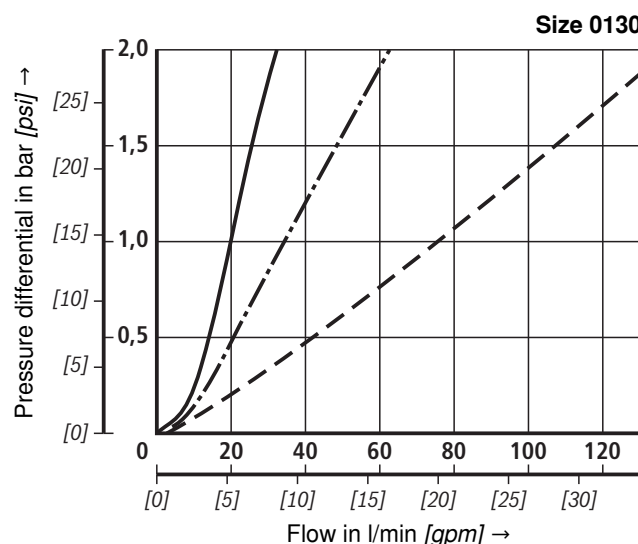
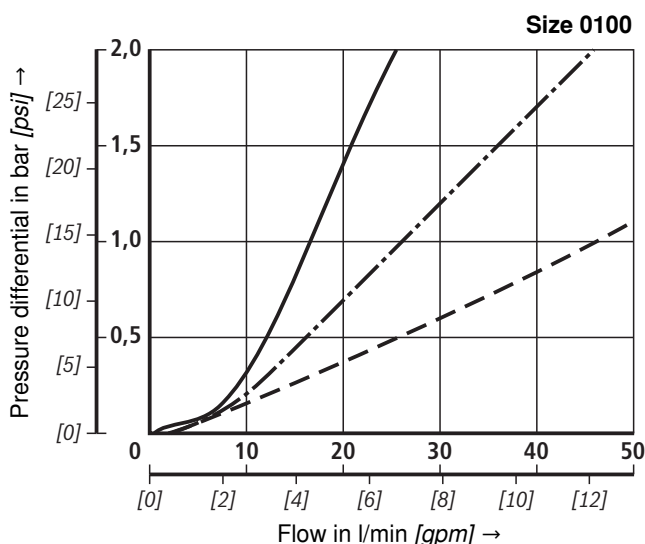
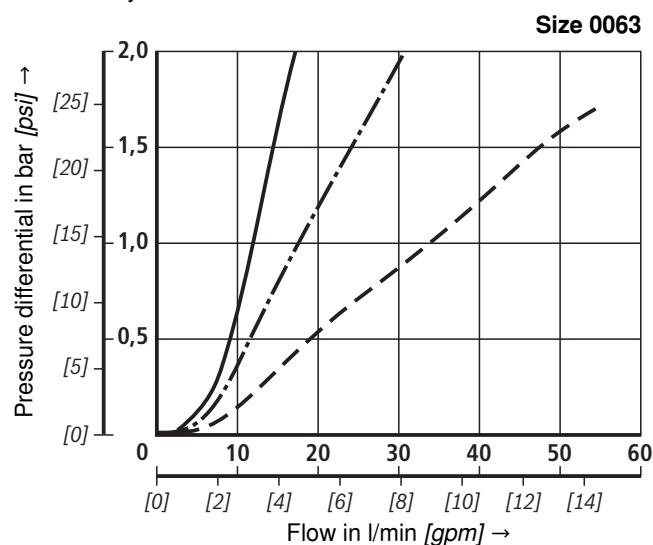
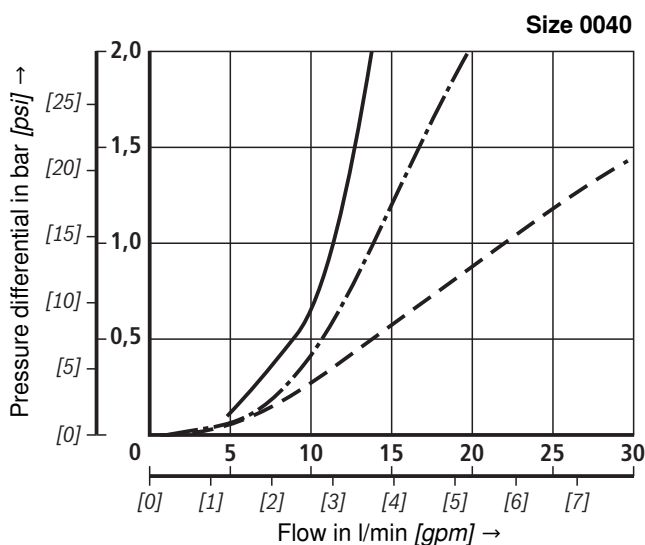
Seal material for hydraulic fluids

Mineral oil			Ordering code
Mineral oil	HLP	according to DIN 51524	M
Flame-resistant hydraulic fluids			Ordering code
Emulsions	HFA-E	according to DIN 24320	M
Synthetic water solutions	HFA-S	according to DIN 24320	M
Water solutions	HFC	according to VDMA 24317	M
Phosphoric acid esters	HFD-R	according to VDMA 24317	V
Organic esters	HFD-U	according to VDMA 24317	V
Fast biodegradable hydraulic fluids			Ordering code
Triglycerides (rape seed oil)	HETG	according to VDMA 24568	M
Synthetic esters	HEES	according to VDMA 24568	V
Polyglycols	HEPG	according to VDMA 24568	V

Characteristic curves (measured with HLP46, according to ISO 3968)

H3XL...

 Specific weight: $< 0.9 \text{ kg/dm}^3$
 Δp -Q characteristic curves for complete filters recommended
 initial Δp for design = 1.5 bar

 Oil viscosity:
 — 140 mm²/s [649 SUS]
 - - 68 mm²/s [315 SUS]
 - - - 30 mm²/s [139 SUS]


Characteristic curves (measured with HLP46, according to ISO 3968)

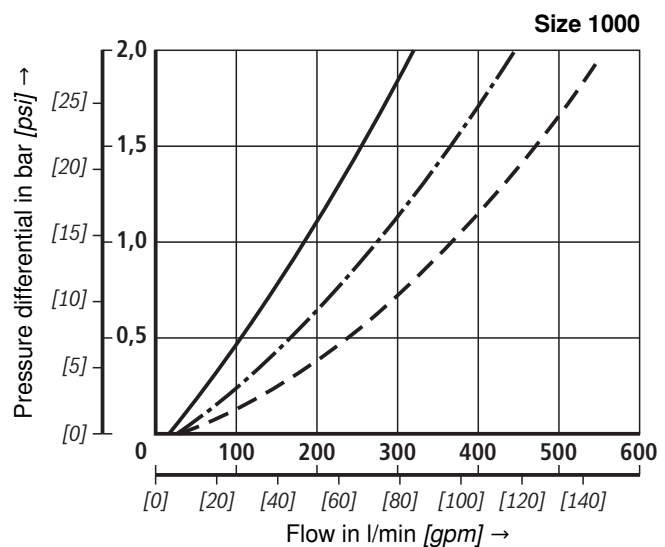
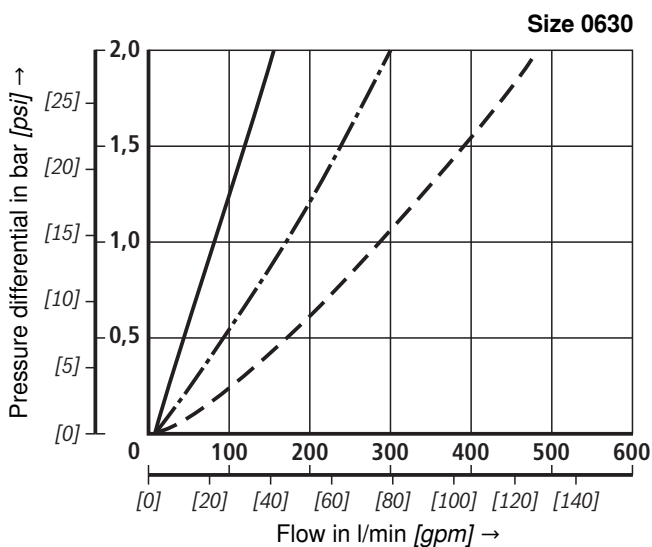
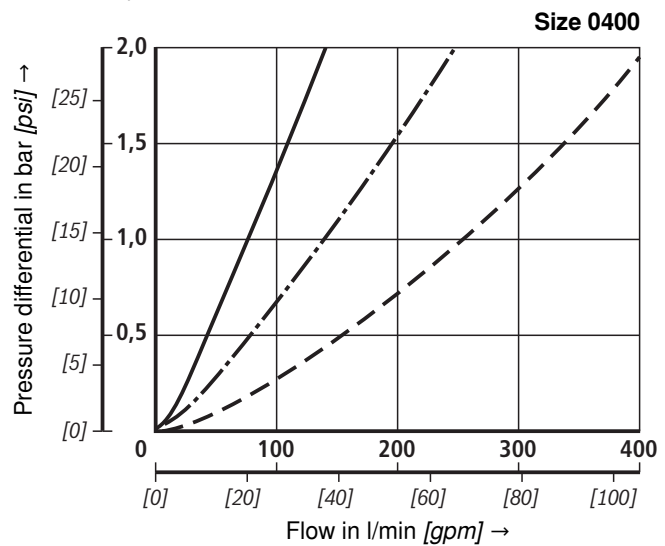
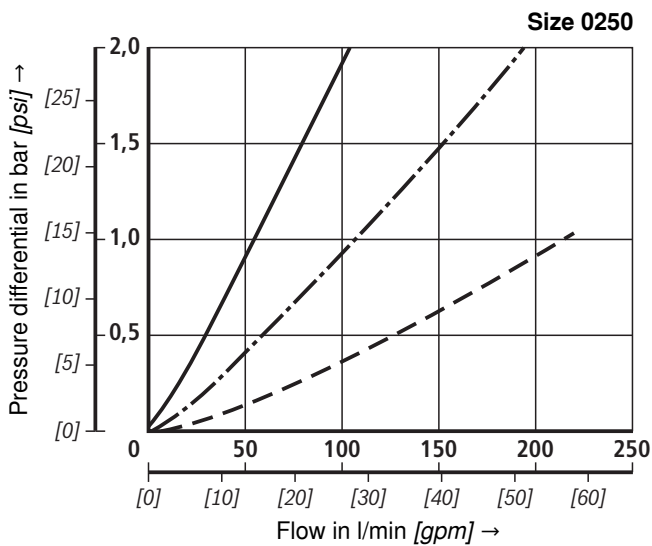
H3XL...

 Specific weight: $< 0.9 \text{ kg/dm}^3$
 Δp -Q characteristic curves for complete filters recommended

 initial Δp for design = 1.5 bar

 Oil viscosity:

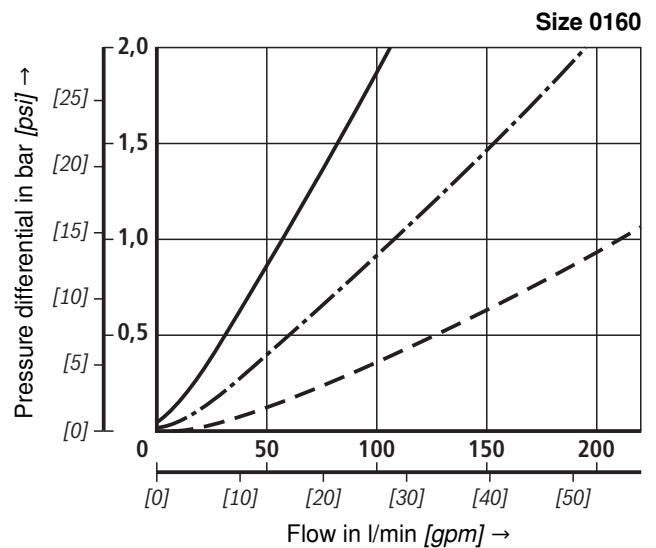
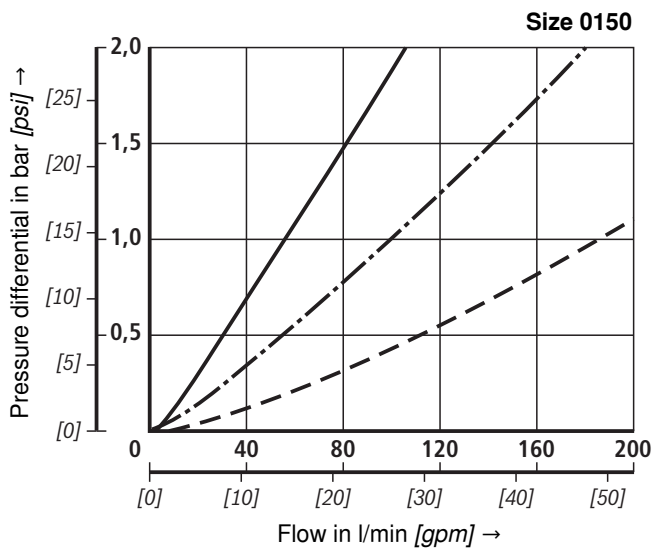
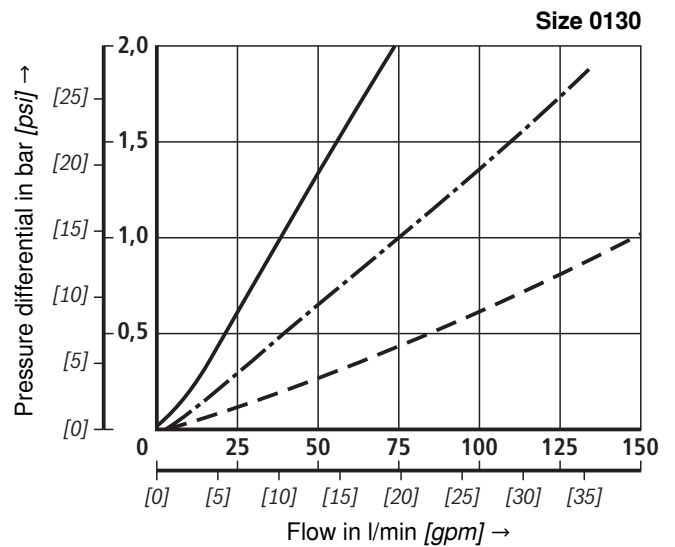
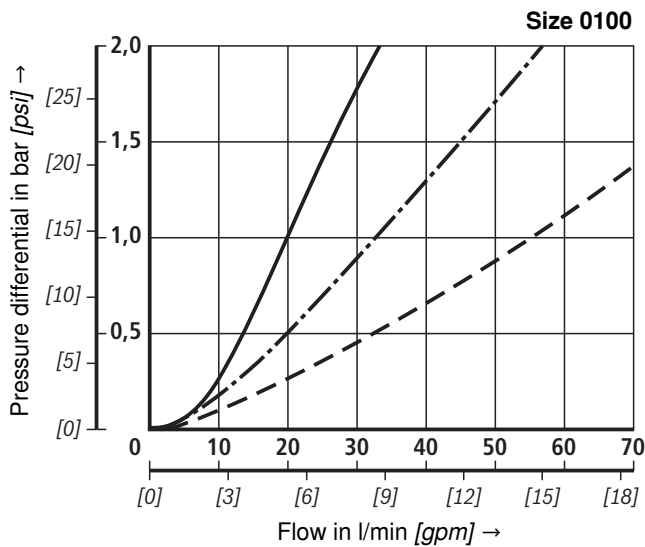
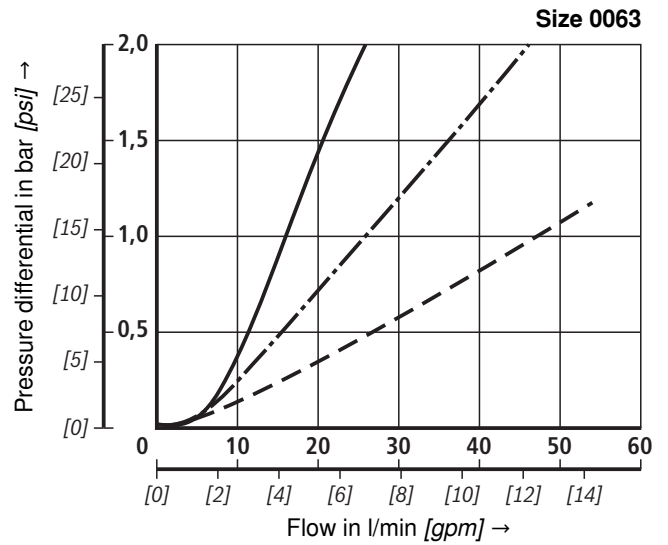
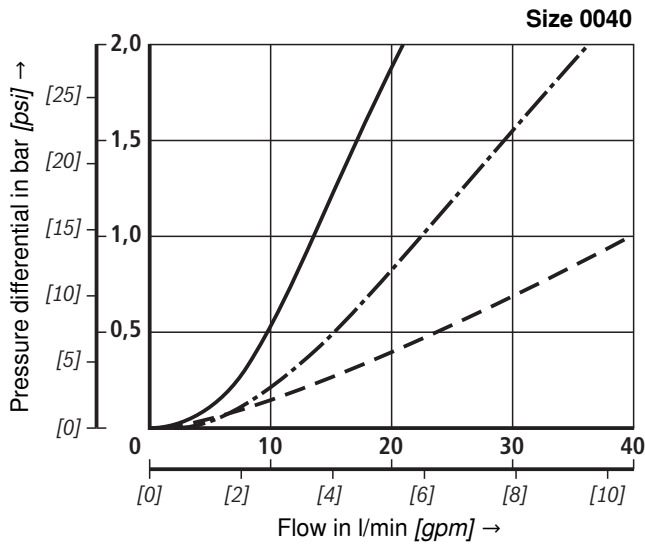
- 140 mm²/s [649 SUS]
- · - 68 mm²/s [315 SUS]
- - - 30 mm²/s [139 SUS]



Characteristic curves (measured with HLP46, according to ISO 3968)

H10XL...

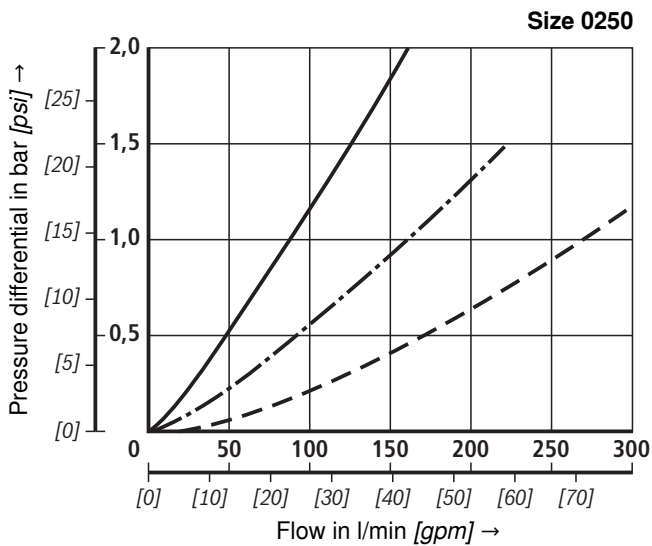
 Specific weight: $< 0.9 \text{ kg/dm}^3$
 Δp -Q characteristic curves for complete filters recommended
 initial Δp for design = 1.5 bar

 Oil viscosity:
 — 140 mm²/s [649 SUS]
 - - 68 mm²/s [315 SUS]
 - - - 30 mm²/s [139 SUS]


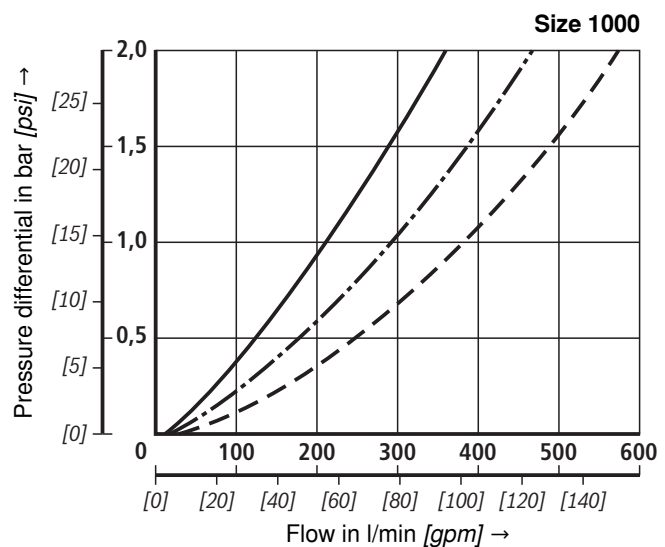
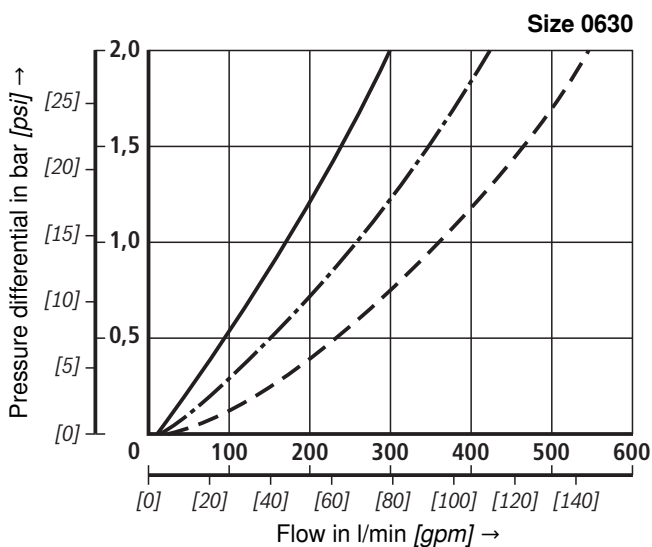
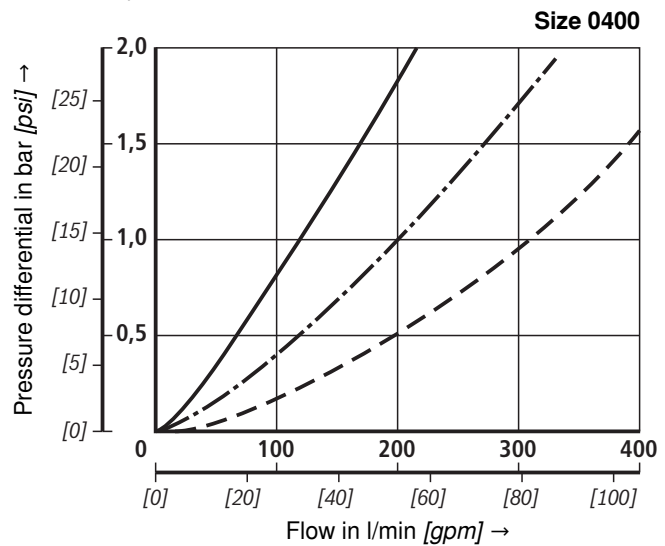
Characteristic curves (measured with HLP46, according to ISO 3968)

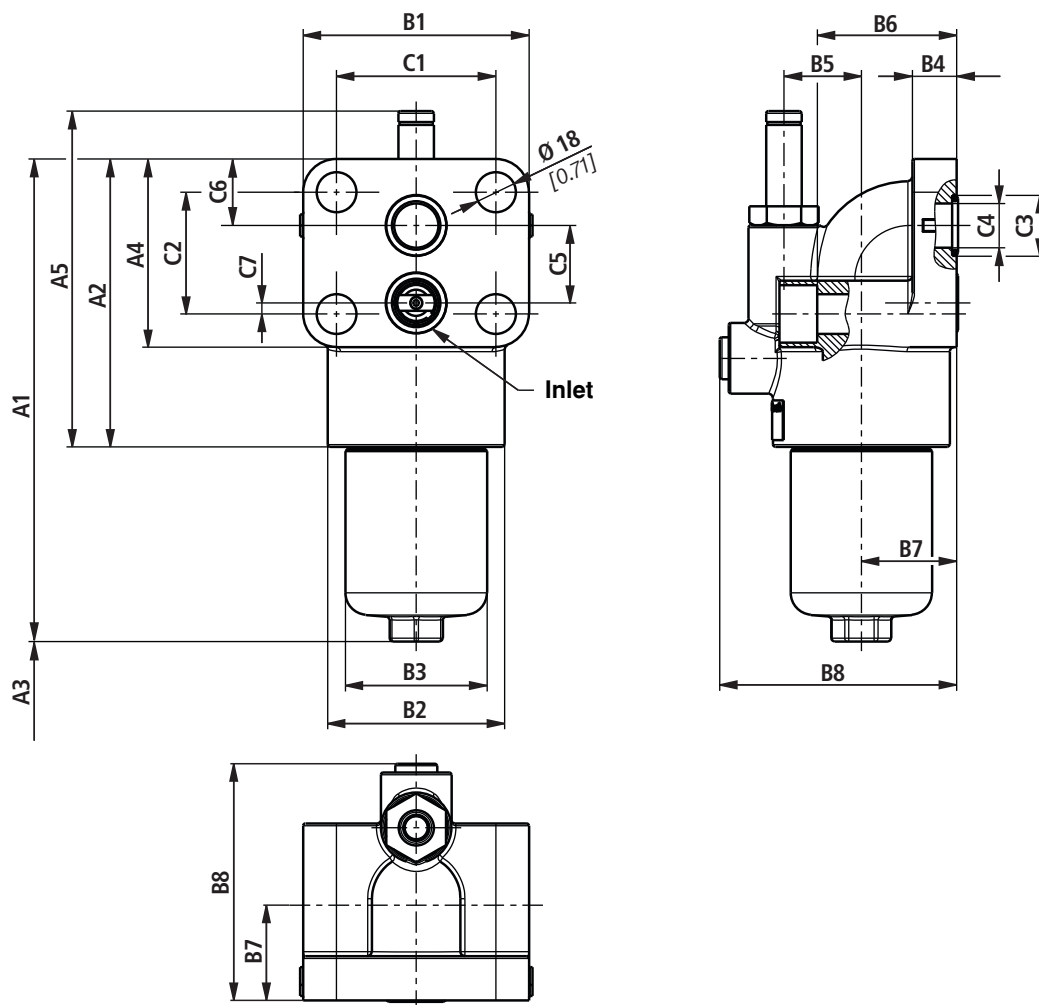
H10XL...

 Specific weight: < 0.9 kg/dm³
 Δp -Q characteristic curves for complete filters recommended

 initial Δp for design = 1.5 bar


Oil viscosity:

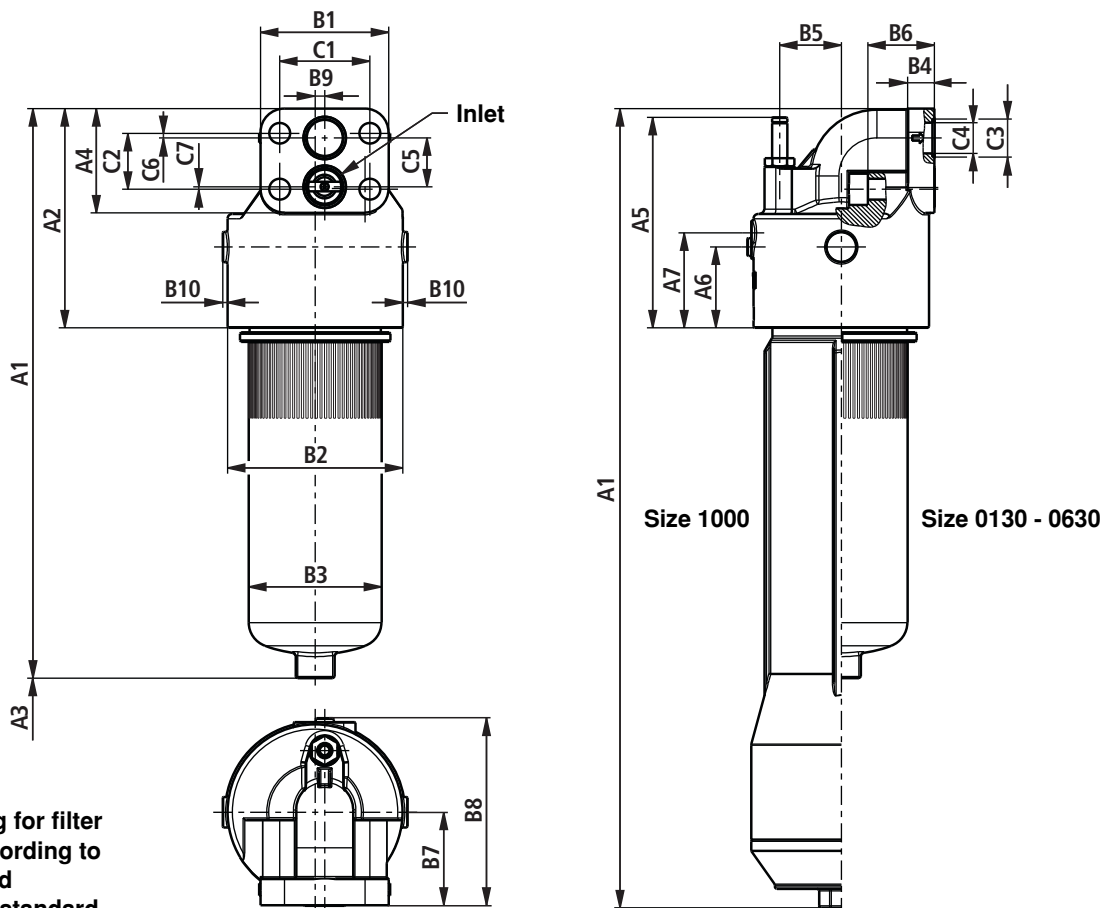


Unit dimensions size 0040 to size 0100 (dimensions in mm [inch])

Filter housing for filter elements in accordance with DIN 24550

Type 350PSF(N)	Content in l [US gal]	A1	A2	A3 ¹⁾	A4	A5	B1	B2 Ø	B3 Ø	B4
0040	0.3 [0.08]	218 [8.58]	130 [5.12]	120 [4.72]	85 [3.35]	152 [5.98]	102 [4.02]	80 [3.15]	64 [2.52]	20 [0.79]
0063	0.45 [0.12]	281 [11.06]								
0100	0.65 [0.17]	371 [14.61]								

Type 350PSF(N)	B5	B6	B7	B8	C1	C2	C3 Ø	C4 Ø	C5	C6	C7
0040	35 [1.38]	63 [2.48]	43 [1.69]	107 [4.21]	72 [2.83]	55 [2.17]	27.5 [1.08]	20 [0.79]	35 [1.38]	30 [1.18]	5 [0.20]
0063											
0100											

¹⁾ Servicing height for filter element replacement

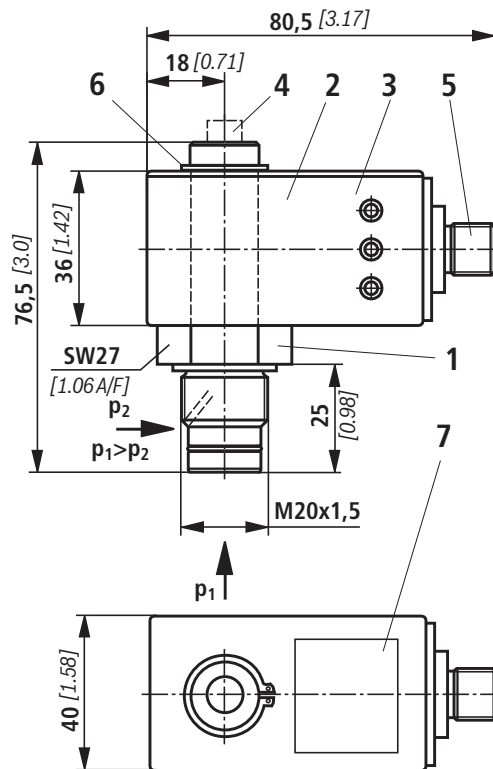
Unit dimensions size 0130 to size 1000 (dimensions in mm [inch])


Filter housing for filter elements according to DIN 24550 and according to standard

Type 350PSF(N)	Con- tent in l [US gal]	A1	A2	A3 ¹⁾	A4	A5	A6	A7	B1	B2 Ø	B3 Ø	B4	B5
0130	0.9 [0.24]	366 [14.41]	188 [7.40]	120 [4.72]	110 [4.33]	172 [6.77]	55 [2.17]	—	135 [5.31]	118 [4.65]	92 [3.62]	20 [0.79]	70 [2.76]
0150	1.1 [0.29]	417 [16.42]											
0160	1.65 [0.44]	355 [13.98]	203 [7.99]			194 [7.64]	64 [2.52]	80 [3.15]		140 [5.51]	114 [4.49]	28 [1.10]	
0250	2.1 [0.55]	445 [17.52]											
0400	3.2 [0.85]	595 [23.43]											
0630	4.4 [1.16]	626 [24.65]	231 [9.09]	160 [6.30]		222 [8.74]	85 [3.35]	100 [3.94]		185 [7.28]	140 [5.51]		95 [3.74]
1000	6.3 [1.66]	864 [34.02]		555 [21.85]							190 ²⁾ [7.48]		
Type 350PSF(N)	B6	B7	B8	B9	B10	C1	C2	C3 Ø	C4 Ø	C5	C6	C7	
0130	55 [2.17]	60 [2.36]	134 [5.28]	—	16 [0.63]	95 [3.74]	59 [2.32]	40 [1.57]	32 [1.26]	52 [2.05]	31 [1.22]	2 [0.08]	
0150													
0160	68 [2.68]	78 [3.07]	162 [6.38]	5 [0.20]	15 [0.59]			45 [1.77]	38 [1.50]				
0250													
0400													
0630	70 [2.76]	98 [3.86]	197 [7.76]	10 [0.39]	5 [0.20]								
1000													

¹⁾ Servicing height for filter element replacement

²⁾ With size 1000, the filter bowl has a two-part design.

Maintenance indicator (dimensions in mm [inch])


- 1 Mechanical optical maintenance indicator;
max. tightening torque $M_{A \max} = 50 \text{ Nm}$ [36.88 lb-ft]
- 2 Switching element with locking ring for electrical maintenance indicator (can be rotated by 360°); plug-in connection M12x1 or according to DIN EN 175201-804
- 3 Housing with three LEDs: 24 V =
Green: Stand-by
Yellow: Switching point 75 %
Red: Switching point 100 %
- 4 Optical indicator bistable
- 5 Round connector M12x1, 4-pin
- 6 Locking ring
- 7 Nameplate

Notes:

Presentation contains mechanical optical maintenance indicator (1) and electronic switching element (2).

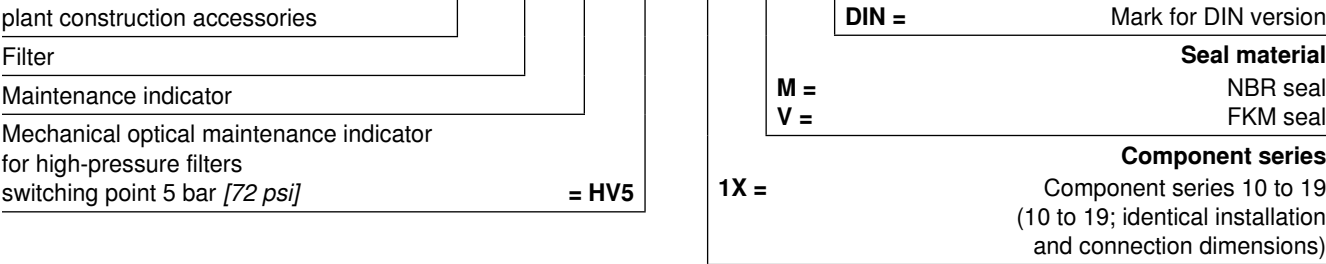
Round plug-in connection M12x1 (6)

For connection e.g. to ABZFV-E1SP-M12x1-1X/-DIN (see page 17).

Switching elements with increased switching power at request.

Spare parts

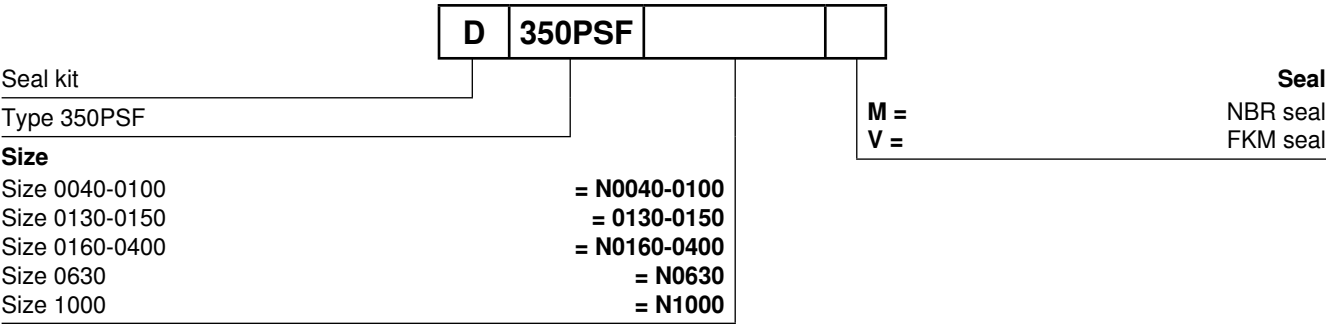
Mechanical optical maintenance indicator



Mechanical optical maintenance indicator

ABZ FV HV5-1X/M-DIN

Seal kit



Seal kit

- D350PSFN0040-0100-M
- D350PSF0130-0150-M
- D350PSFN0160-0400-M
- D350PSFN0630-M
- D350PSFN1000-M

Installation, commissioning and maintenance

Installation of the filter

Verify operating pressure with nameplate information. Remove plug screws in the filter inlet and outlet, mount filter at the control block without tension stress considering flow direction (direction arrows) and servicing height of the filter element. The filter must preferably be installed with the filter bowl (2) downward. The maintenance indicator must be arranged in a well visible way.

Connection of the electrical maintenance indicator

Basically, the filter is equipped with mechanical optical maintenance indicator (4). The electronic maintenance indicator is connected via the switching element (6) with 1 or 2 switching points, which is attached to the mechanical optical maintenance indicator and held by means of the locking ring.

When must the filter element be exchanged or cleaned respectively?

Upon start-up in cold condition, the red pushbutton of the optical maintenance indicator (4) may jump out and an electrical signal is output via the switching element (6). Only push the red pushbutton in again after the operating temperature has been reached. If it jumps out again immediately or if the electrical signal has not gone out at operating temperature, the filter element must be exchanged or cleaned respectively after the end of the shift.

Element exchange

- Switch off the system and discharge the filter on the pressure side.
- Screw off the filter bowl (2) or the floor (size 1000) by anti-clockwise rotation. Clean the filter housing in a suitable medium.
- Remove the filter element (3) from the centering spigot in the filter head by turning it slightly
- Check the seal ring and the support ring in the filter bowl for position and damage. If necessary, these parts are to be renewed.
- Replace filter elements H...XL and P..., clean the filter element with material G
- The efficiency of the cleaning process depends on the characteristics of contamination and the amount of the pressure differential before the filter element exchange. If the differential pressure after the filter element exchange exceeds 50 % of the value before the filter element exchange, the G... element also needs to be replaced.
- Check whether the type designation or material number on the replacement element corresponds to the type designation/material number on the nameplate of the filter.
- Install replaced or cleaned filter element on the spigot again by slightly turning it.
- Now screw in the filter bowl or floor to stop. Then turn out the filter bowl by 1/8 to 1/2 turn so that the filter bowl is not stuck due to the pressure pulsation and can be easily loosened in case of maintenance works.

Quality and standardization

The block mounting filters for hydraulic applications according to are pressure holding equipment according to article 1, section 2.1.4 of the pressure equipment directive 97/23/EC (PED).

However, on the basis of the exception in article 1, section 3.6 of the PEG, hydraulic filters are exempt from the PED if they are not classified higher than category I (guideline 1/19). They do not receive a CE mark.

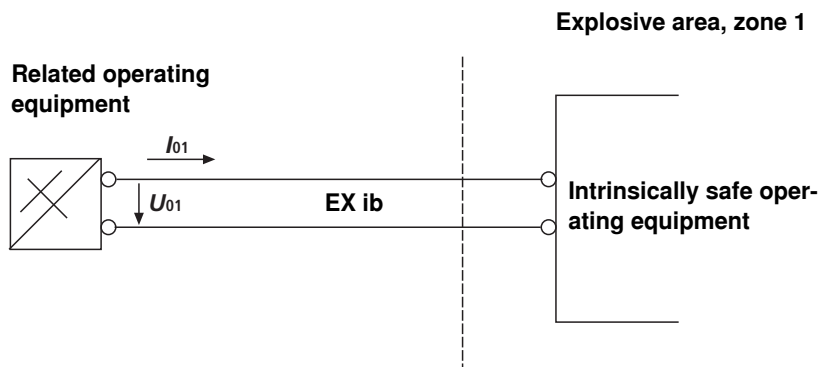
Use in explosive areas according to directive 94/9/EC (ATEX)

The block mounting filters according to are no equipment or components in the sense of directive 94/9/EC and are not provided with a CE mark.

When using the block mounting filters according to in explosive areas, potential equalization has to be ensured.

According to DIN EN 50020, the electrical maintenance indicators are simple, electrical operating equipment not having own voltage sources. This simple, electrical operating equipment may - according to DIN EN 60079-14 in intrinsically safe electrical circuits (EEx ib) be used in systems for device group II, category 2G (zone 1) and category 3G (zone 2) without marking and certification. The operating equipment is assigned to explosion group II B and temperature class T5.

Possible circuit according to DIN EN 60079-14



With electrical maintenance indicators with two switching points, switching units with two intrinsically safe input circles must be used.