

Block mounting filter, for lateral flange-mounting

RE 51418/04.21
Replaces: -

1/17

Type 245PSFN0040 to 0400; 245PSF0130, 0150

Size according to **DIN 24550**: 0040 to 0400
 Additional sizes: 0130, 0150
 Nominal pressure 250 bar [3626 psi]
 Connection up to DN 40
 Operating temperature -10 °C to 100 °C [14 °F to 212 °F]



Filter_82_d

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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

245	PSF		—		00	V5,0	—	
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Pressure 250 bar [3626 psi]	= 245
Block mounting filter, for lateral flange-mounting	= PSF
Filter element according to DIN 24550	= N
Size PSFN...	= 0040 0063 0100 0160 0250 0400
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 PWR3, PWR6, PWR10, PWR20	= PWR..
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

without =	No additional details
- M =	size 0040 – 0150 1 Minimes connection (on the dirt side) size 0160 – 0400 2 Minimes connections
M =	Seal NBR seal
V =	FKM seal
V5,0 =	Maintenance indicator Maintenance indicator, optical specify switching pressure 5.0 bar [72.5 psi]

Order example:
245PSFN0063-PWR10B00-V5,0-M
Material no.: R928024393

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

Of the filter element

2.		—	—	—
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Filter element Design	= 2.
Size PSFN...	= 0040 0063 0100 0160 0250 0400
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 PWR3, PWR6, PWR10, PWR20	= PWR..
Pressure differential Max. admissible pressure differential of the filter element 30 bar [435 psi]	= A
330 bar [4786 psi]	= B

M =	Seal NBR seal
V =	FKM seal
0 =	Bypass valve at filter element always 0
0... =	Element design Standard adhesive T = 100 °C [212 °F]
...0 =	Standard material

Order example:
2.0063 PWR3-B00-0-M0
Material no.: R928006708

Standard types

NBR seal, without bypass, flow specifications for $v = 30 \text{ mm}^2/\text{s}$

Block mounting filter 245 PSF(N), filter rating **3 μm**

Type	Flow in l/min [gpm] with $\Delta p = 1.5 \text{ bar}$ [21.8 psi] ¹⁾	Material no. Filter	Material no. Replacement element
245PSFN0040-PWR3B00-V5,0-M	28	R928024264	R928006654
245PSFN0063-PWR3B00-V5,0-M	50	R928024265	R928006708
245PSFN0100-PWR3B00-V5,0-M	68	R928024266	R928006762
245PSF0130-PWR3B00-V5,0-M	104	R928024267	R928022310
245PSF0150-PWR3B00-V5,0-M	130	R928024268	R928022319
245PSFN0160-PWR3B00-V5,0-M	150	R928024269	R928006816
245PSFN0250-PWR3B00-V5,0-M	250	R928024270	R928006870
245PSFN0400-PWR3B00-V5,0-M	305	R928024271	R928006924

Block mounting filter 245 PSF(N), filter rating **6 μm**

Type	Flow in l/min [gpm] with $\Delta p = 1.5 \text{ bar}$ [21.8 psi] ¹⁾	Material no. Filter	Material no. Replacement element
245PSFN0040-PWR6B00-V5,0-M	35	R928024328	R928006655
245PSFN0063-PWR6B00-V5,0-M	55	R928024329	R928006709
245PSFN0100-PWR6B00-V5,0-M	72	R928024330	R928006763
245PSF0130-PWR6B00-V5,0-M	135	R928024331	R928022311
245PSF0150-PWR6B00-V5,0-M	175	R928024332	R928022320
245PSFN0160-PWR6B00-V5,0-M	200	R928024333	R928006817
245PSFN0250-PWR6B00-V5,0-M	280	R928024334	R928006871
245PSFN0400-PWR6B00-V5,0-M	325	R928024335	R928006925

Block mounting filter 245 PSF(N), filter rating **10 μm**

Type	Flow in l/min [gpm] with $\Delta p = 1.5 \text{ bar}$ [21.8 psi] ¹⁾	Material no. Filter	Material no. Replacement element
245PSFN0040-PWR10B00-V5,0-M	50	R928024392	R928006656
245PSFN0063-PWR10B00-V5,0-M	70	R928024393	R928006710
245PSFN0100-PWR10B00-V5,0-M	75	R928024394	R928006764
245PSF0130-PWR10B00-V5,0-M	180	R928024395	R928022312
245PSF0150-PWR10B00-V5,0-M	220	R928024396	R928022321
245PSFN0160-PWR10B00-V5,0-M	260	R928024397	R928006818
245PSFN0250-PWR10B00-V5,0-M	310	R928024398	R928006872
245PSFN0400-PWR10B00-V5,0-M	350	R928024399	R928006926

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

Codification: Electronic switching element for maintenance indicator

ABZ	F	V	-1X/	-DIN
Hengst plant construction accessories	Filter	Maintenance indicator	Electronic switching element with 1 switching point (changeover) round plug-in connection M12x1 = E1SP-M12X1	Electronic switching element with 2 switching points (normally open/normally closed), 75 %, 100 %, round plug-in connection M12x1, 3 LED = E2SP-M12X1
			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 = E2SPSU-M12X1	

-DIN = Mark for DIN model

1X = **Component series**
Component series 10 to 19
(10 to 19; identical installation and connection dimensions)

Electronic switching element	Material no.
ABZ FV-E1SP-M12X1-1X/-DIN	R901025339
ABZ FV-E2SP-M12X1-1X/-DIN	R901025340
ABZ FV-E2SPSU-M12X1-1X/-DIN	R901025341

Order example: Block mounting filter with mechanical optical maintenance indicator for $p_{nom.} = 250 \text{ bar}$ [3626 psi] without bypass 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: 245PSFN0063-PWR10B00-V5,0-M
Maintenance indicator: ABZ FV-E1SP-M12X1-1X/-DIN

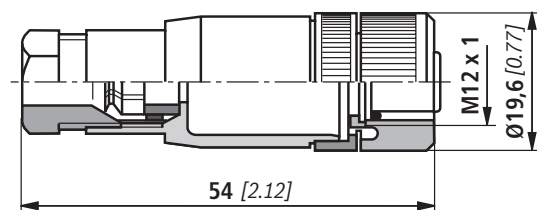
Material number: R928024393
Material number: R901025339

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.

Material no. R900031155



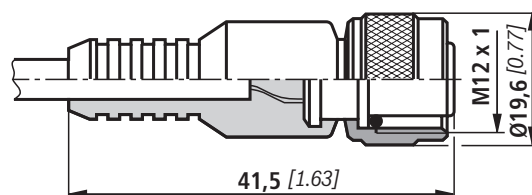
Mating connector for K24-3m 4-pin, M12 x 1 with potted-in PVC cable, 3 m long.

Line cross-section: 4 x 0.34 mm²

Core marking:

1	Brown
2	White
3	Blue
4	Black

Material no. R900064381



For more round plug-in connections, see data sheet 08006.

Filter design

Easy selection of the filter size is made possible by the FilterSelect online tool. The filter can be designed using the operating pressure, flow and fluid system parameters. The required filter rating is based on the application, the sensitivity to contamination of the components and the environmental conditions.

The program leads you through the menu on a step-by-step basis.






A documentation of the filter selection can finally be created in the form of a PDF file. This file contains the entered parameters, the designed filter with material number including spare parts, and the pressure loss curves.

Link FilterSelect:

<http://www.filtersselect.de/>

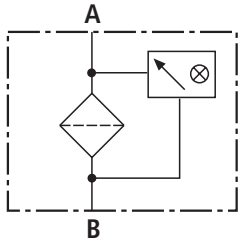
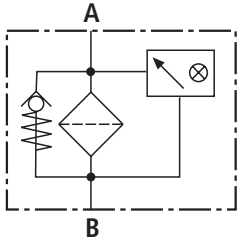
Other languages can be selected using the page navigation.

standard search

application:	<input type="text" value="hydraulics for industrial use and applications with lubricating oil"/>
Product category:	<input type="text" value="please select"/>
type:	<input type="text" value="please select"/>
pressure range:	<input type="text" value="please select"/>
filter material:	<input type="text" value="please select"/> 
fineness:	<input type="text" value="please select"/>
volume flow rate:	<input type="text"/> <input type="text" value="l/min"/>
viscosity: * = working point	<input checked="" type="radio"/> kin viscosity 1: <input type="text" value="32"/> [mm ² /s]  <input type="radio"/> search via type of medium full-text search medium <input type="text" value="please select"/> <input type="text"/> <input type="text" value="please select"/> <input type="text"/> temp 1: <input type="text"/> [°C] <input type="text"/> [°F] kin viscosity 1: <input type="text"/> [mm ² /s]  <input type="radio"/> dyn. Viscosity 1: <input type="text"/> [cP] density 1: <input type="text"/> [kg/dm ³] kin viscosity 1: <input type="text"/> [mm ² /s] 
collapse pressure resistance according to ISO 2941:	<input type="text" value="30 bar"/>
<input type="button" value="Start search"/> 	

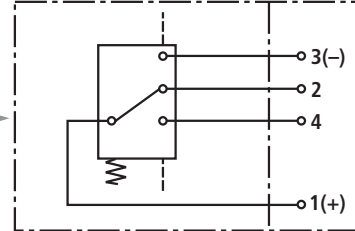
Symbols

Block mounting filter



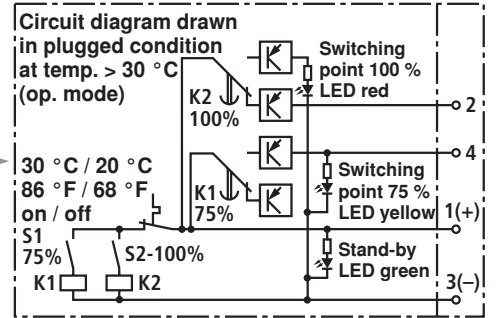
**Electronic switching element
for maintenance indicator**

Switching element Plug-in connector



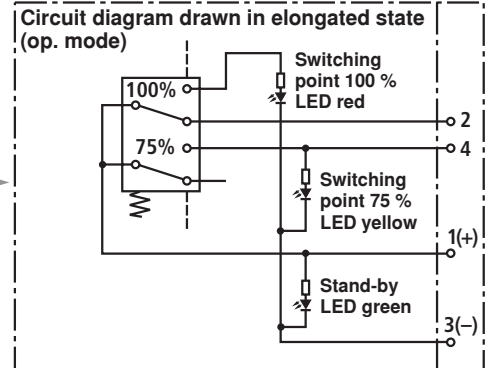
ABZFBV-E1SP-M12X1-1X/-DIN

Switching element Plug-in connector



ABZFBV-E2SPSU-M12X1-1X/-DIN

Switching element Plug-in connector



ABZFBV-E2SP-M12X1-1X/-DIN

Function, section

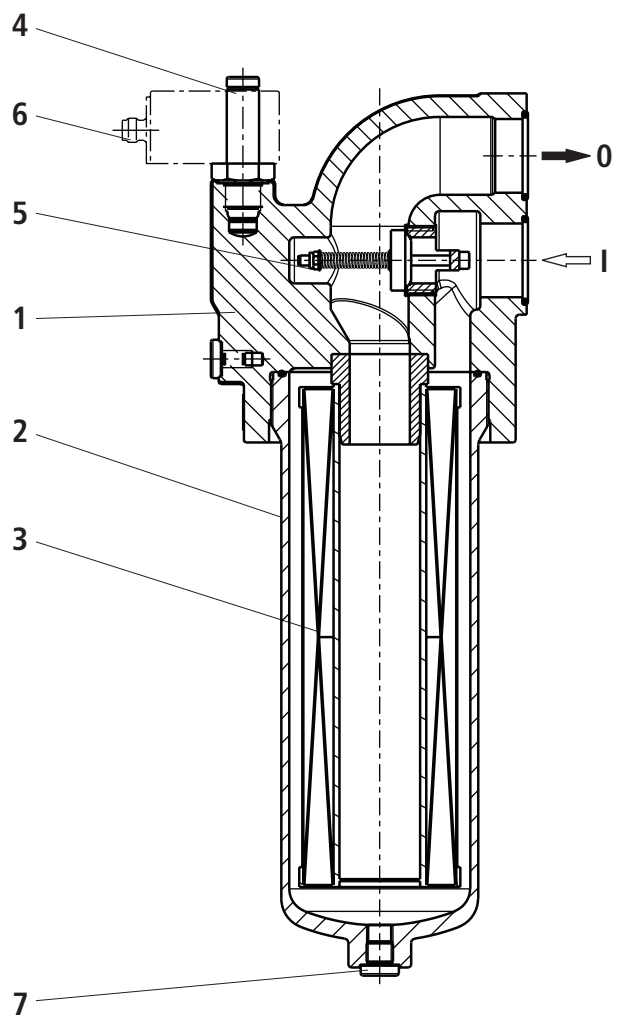
Block mounting filters are suitable for direct attachment to pump and control blocks. They are installed upstream open-loop or closed-loop control units to be protected.

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 pump or control block and thus 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).

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.



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 ¹⁾	Size	0040	0063	0100	0130
	kg [lbs]	4.6 [10.14]	5.0 [11.02]	5.8 [12.78]	8.8 [19.40]
Weight ¹⁾	Size	0150	0160	0250	0400
	kg [lbs]	9.2 [20.28]	13.5 [29.76]	14.3 [31.52]	16.0 [35.26]
Material	Filter head	GGG			
	Filter bowl	Steel			
	Optical maintenance indicator	Brass			
	Electronic switching element	Plastic PA6			

hydraulic

Maximum operating pressure	bar [psi]	250 [3626]
Hydraulic fluid temperature range	°C [°F]	-10 to +100 [+14 to +212]
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]

¹⁾ Weight including standard filter element and maintenance indicator

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

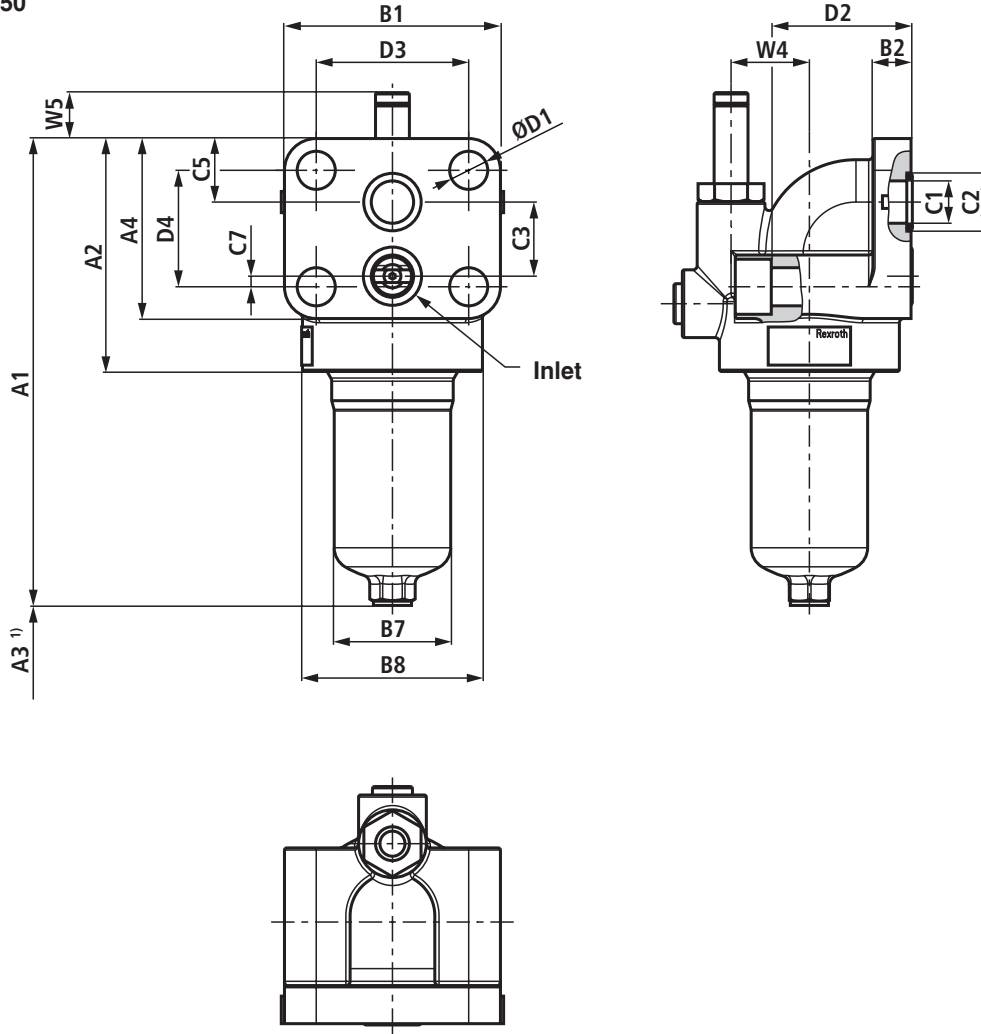
Glass fiber paper PWR..		Single-use element on the basis of inorganic fiber	
		Filtration ratio according to ISO 16889 up to $\Delta p = 5 \text{ bar [72.5 psi]}$	Achievable oil cleanliness according to ISO 4406 [SAE-AS 4059]
	PWR20	$\beta_{20}(c) \geq 200$	19/16/12 – 22/17/14
	PWR10	$\beta_{10}(c) \geq 200$	17/14/10 – 21/16/13
	PWR6	$\beta_6(c) \geq 200$	15/12/10 – 19/14/11
	PWR3	$\beta_5(c) \geq 200$	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 fluid			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

Unit dimensions size 0040 to size 0150 (dimensions in mm [inch])

Size 0040 to 0150



Filter housing for filter elements in accordance with DIN 24550 and according to Hengst standard

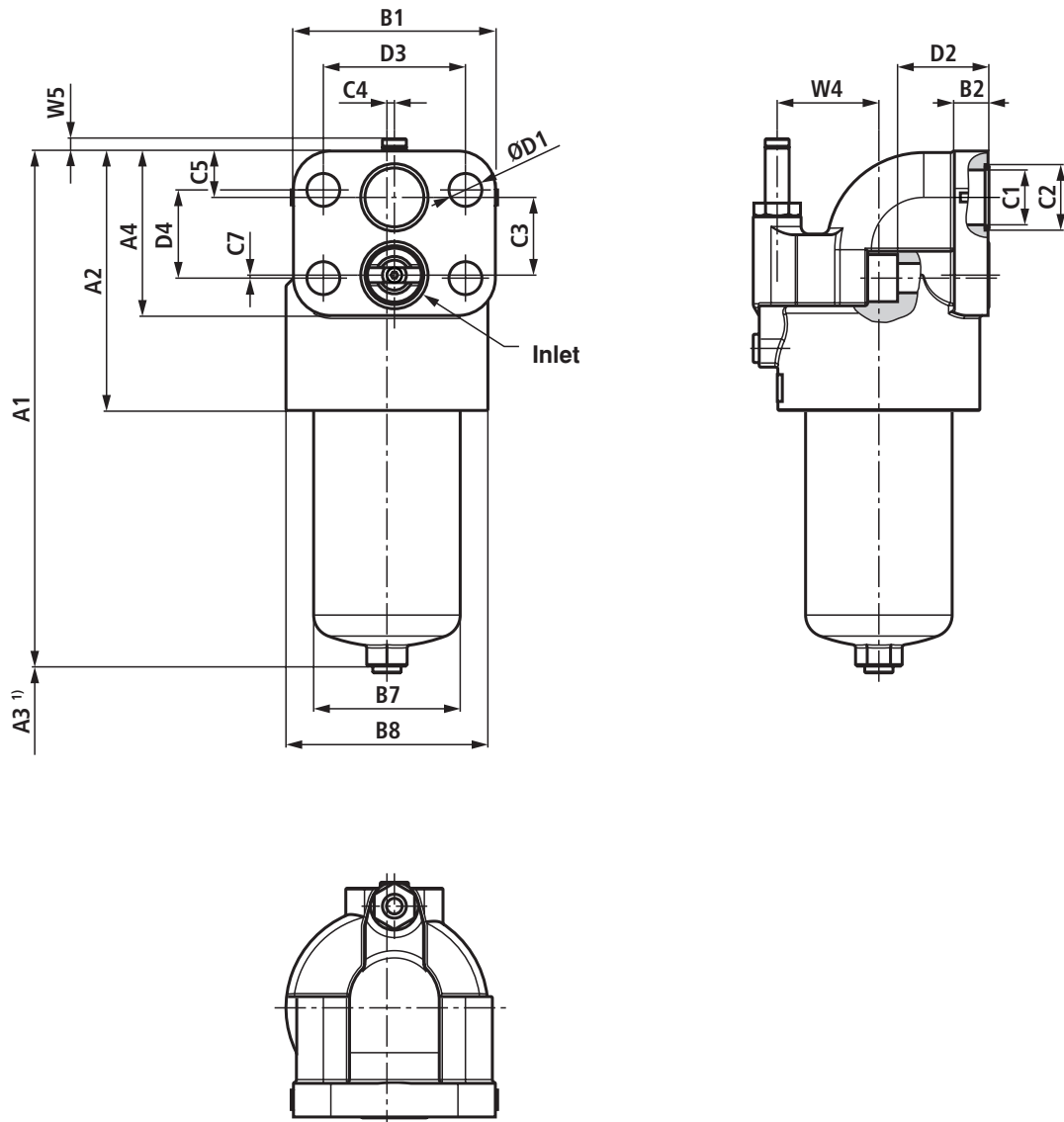
Type 245PSF(N)	Content in l [US gal]	A1	A2	A3 ¹⁾	A4	B1	B2	B7	B8
0040	0.25 [0.07]	216 [8.50]	110 [4.33]	120 [4.72]	85 [3.35]	102 [4.02]	18 [0.71]	Ø55 [2.17]	Ø85 [3.35]
0063	0.4 [0.11]	280 [11.02]						Ø57 [2.24]	
0100	0.6 [0.16]	370 [14.57]	146 [5.75]	120 [4.72]	110 [4.33]	135 [5.31]	20 [0.79]	Ø77 [3.03]	Ø116 [4.57]
0130	0.8 [0.21]	349 [13.74]							
0150	0.98 [0.26]	399 [15.71]							

Type 245PSF(N)	C1	C2	C3	C5	C7	D1	D2	D3	D4	W4	W5
0040	Ø20 [0.79]	Ø27.5 [1.08]	35 [1.38]	30 [1.18]	5 [0.20]	18 [0.71]	66 [2.6]	72 [2.83]	55 [2.17]	37 [1.46]	22 [0.87]
0063											
0100											
0130	Ø32 [1.26]	Ø40 [1.57]	52 [2.05]	31 [1.22]	2 [0.08]	22 [0.87]	55 [2.17]	95 [3.74]	59 [2.32]	52.5 [2.07]	-
0150											

¹⁾ Servicing height for filter element replacement

Unit dimensions size 0160 to size 0400 (dimensions in mm [inch])

Size 0160 to 0400



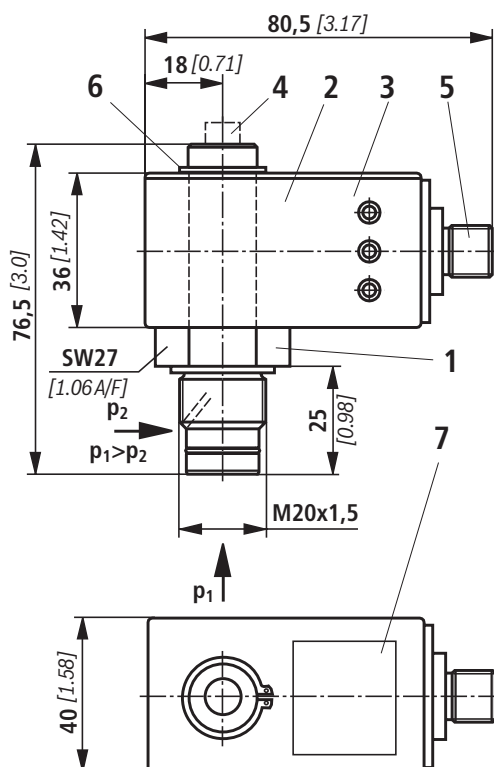
Filter housing for filter elements in accordance with DIN 24550 and according to Hengst standard

Type 245PSF(N)	Content in l [US gal]	A1	A2	A3 ¹⁾	A4	B1	B2	B7	B8
0160	1.5 [0.40]	345 [13.58]	174 [6.85]	120 [4.72]	110 [4.33]	135 [5.31]	23 [0.91]	Ø98 [3.86]	Ø135 [5.31]
0250	2.1 [0.55]	434.5 [17.11]							
0400	3.2 [0.85]	584.5 [23.01]							

Type 245PSF(N)	C1	C2	C3	C5	C7	D1	D2	D3	D4	W4	W5
0160	Ø38 [1.5]	Ø45 [1.77]	52 [2.05]	31 [1.22]	2 [0.08]	22 [0.87]	60.5 [2.38]	95 [3.74]	59 [2.32]	68 [2.68]	8 [0.31]
0250											
0400											

¹⁾ Servicing height for filter element replacement

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 (5)

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

Switching elements with increased switching power at request.

Spare parts

Mechanical optical maintenance indicator

ABZ F V-HV5-1X/ -DIN

Hengst plant construction accessories

Filter

Maintenance indicator

Mechanical optical maintenance indicator for high-pressure filters switching point 5 bar [72 psi]

= HV5

DIN =

Mark for DIN model

Seal material

NBR seal

FKM seal

M =

V =

Component series

Component series 10 to 19 (10 to 19; identical installation and connection dimensions)

1X =

Mechanical optical maintenance indicator	Material no.
ABZ FV-HV5-1X/M-DIN	R901025313

Seal kit

D 245PSF

Seal kit

Type 245PSF

Size

Size 0040-0100

= N0040-0100

Size 0130-0150

= 0130-0150

Size 0160-0400

= N0160-0400

M =

V =

Seal

NBR seal

FKM seal

Seal kit	Material no.
D245PSFN0040-0100-M	R928028217
D245PSF0130-0150-M	R928028216
D245PSFN0160-0400-M	R928028215

Installation, commissioning and maintenance

Installation of the filter

Verify operating pressure with name plate information. Remove dust protection plugs from 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) by anticlockwise 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 PWR..., clean the filter element 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.

Directives and standardization

Product validation

Hengst filters, the filter elements built into them and filter accessories are tested and quality-monitored according to different ISO test standards:

Pressure pulse test	ISO 10771:2015-08
Filtration performance test (multipass test)	ISO 16889:2008-06
Δp (pressure loss) characteristic curves	ISO 3968:2001-12
Compatibility with hydraulic fluid	ISO 2943:1998-11
Collapse pressure test	ISO 2941:2009-04

The development, manufacture and assembly of Hengst industrial filters and Hengst filter elements is carried out within the framework of a certified quality management system in accordance with ISO 9001:2015.

The pressure filters for hydraulic applications according to 51418 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 PED hydraulic filters are exempt from the PED, if there are not classified higher than category I (guide-line 1/19). They do not receive a CE mark.

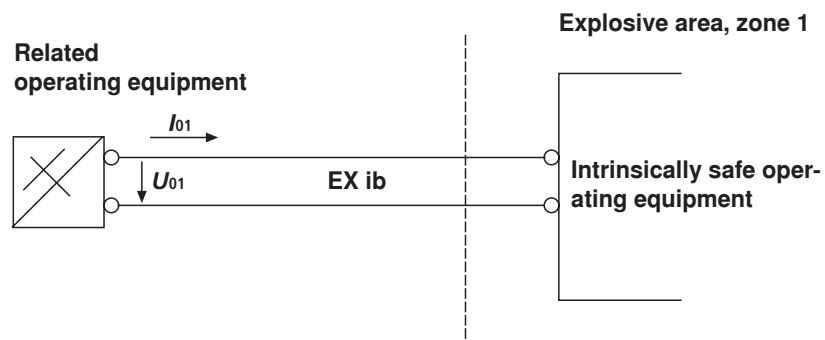
Use in explosive areas according to directive 94/9/EC (ATEX)

The pressure filters according to 51418 are no equipment or components in the sense of directive 94/9/EC and are not provided with a CE mark.

When using the pressure filters according to 51418 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 (EX 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.

Notes

Notes

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