

Block mounting filter, for sandwich plate mounting

RE 51427/01.11

1/16

Type 320PZR025, 075, 125

Size according to **DIN 24550**: 025 to 125
 Nominal pressure 320 bar [4641 psi]
 Port according to ISO4401 size 6 and size 10
 Operating temperature -10 °C to 100 °C [14 °F to 212 °F]



H7824_d

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Features

- Adsorption of very fine particles and high dirt holding capacity 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 $3\text{ }\mu\text{m}$ to $100\text{ }\mu\text{m}$
- By default equipped with mechanical optical maintenance indicator with memory function
- Flow-optimized design due to 3D computer-supported design
- Porting pattern according to ISO 4401-03-02-0-05 (size 6) or ISO 4401-05-04-0-05 (size 10).

Ordering code

of the filter

	320	PZ	R	—	B00	—	—
Pressure 320 bar [4641 psi]	= 320						
Sandwich plate filter Single	= PZ						
Filter element Right design		= R					
Size PZR...			= 025 075 125				
Filter rating in µm nominal Stainless steel wire mesh, cleanable G10, G25				= G...			
absolute (ISO 16889) Micro glass, not cleanable H3XL, H6XL, H10XL, H20XL				= H...XL			
					B00 =	Max. admissible pressure differential of the filter element 330 bar [4786 psi]	
					M =	Seal NBR seal	
					V =	FKM seal	
					V5,0 =	Maintenance indicator Maintenance indicator, optical specify switching pressure 5.0 bar [72.5 psi]	
					V8,0 =	8.0 bar [116 psi]	

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

Order example:

320PZR125-H10XLB00-V8,0-M

Material no.: R928028008

of the filter element

	2.Z	—	B	00	0	—
Filter element Design	= 2.Z					
Size PZR...		= 025 075 125				
Filter rating in µm nominal Stainless steel wire mesh, cleanable G10, G25			= G...			
absolute (ISO 16889) Micro glass, not cleanable H3XL, H6XL, H10XL, H20XL			= H...XL			
Pressure differential Max. admissible pressure differential of the filter element 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	

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

Order example:

2.Z125 H10XL-B00-0-M

Material no.: R928036959

Standard types

NBR seal, without bypass, flow specifications for 30 mm²/s [142 SUS]

Inline filter 320 PZR, filter rating **3 µm**

Type	Flow in l/min [gpm] with $\Delta p = 1.5 \text{ bar}$ [21.75 psi] ¹⁾	Material no. Filter	Material no. Replacement element
320PZR025-H3XLB00-V8,0-M	12 [3.2]	R928023891	R928036957
320PZR075-H3XLB00-V8,0-M	26 [6.9]	R928037151	R928037243
320PZR125-H3XLB00-V8,0-M	30 [7.9]	R928037152	R928037244

Inline filter 320 PZR, filter rating **6 µm**

Type	Flow in l/min [gpm] with $\Delta p = 1.5 \text{ bar}$ [21.75 psi] ¹⁾	Material no. Filter	Material no. Replacement element
320PZR025-H6XLB00-V8,0-M	14 [3.7]	R928025345	R928036956
320PZR075-H6XLB00-V8,0-M	29 [7.7]	R928037153	R928037245
320PZR125-H6XLB00-V8,0-M	32 [8.5]	R928037154	R928037246

Inline filter 320 PZR, filter rating **10 µm**

Type	Flow in l/min [gpm] with $\Delta p = 1.5 \text{ bar}$ [21.75 psi] ¹⁾	Material no. Filter	Material no. Replacement element
320PZR025-H10XLB00-V8,0-M	15 [4.0]	R928022664	R928036955
320PZR075-H10XLB00-V8,0-M	30 [6.9]	R928028007	R928036958
320PZR125-H10XLB00-V8,0-M	33 [8.7]	R928028008	R928036959

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

	W	E	M12x1
Maintenance indicator	= W		
Electronic switching element		= E	
Signal type design			M12x1 =
with 1 switching point (changeover)			Plug-in connector variant
with 2 switching points, 3 LED (normally closed/normally open), 75 %, 100 %			Round plug-in connection M12x1
with 2 switching points, 3 LED (normally closed/normally open), 75 %, 100 %, signal suppression until 30 °C [86 °F]		= 1SP	
		= 2SP	
		= 2SPSU	

Electronic switching element	Material no.
WE-1SP-M12x1	R928028409
WE-2SP-M12x1	R928028410
WE-2SPSU-M12x1	R928028411

Order example: Block mounting filter for sandwich plate mounting with mechanical optical maintenance indicator for $p_{nom.} = 320 \text{ bar}$ [4641 psi] without bypass valve, size 125, with filter element 10 μm and electronic switching element M12x1 with 1 switching point for hydraulic fluid mineral oil HLP according to DIN 51524.

Filter with mech.-opt.

maintenance indicator: 320PZR125-H10XLB00-V5,0-M

Material no. R928028008

Electr. switching element: WE-1SP-M12x1

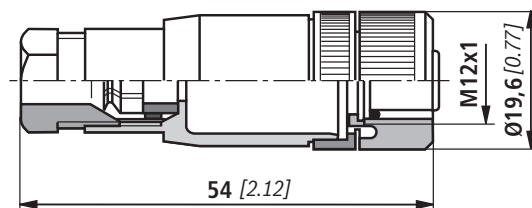
Material no. R928028409

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

For electronic switching element with round plug-in connection M12x1

Mating connector suitable for K24 4-pin, M12x1 with screw connection, cable gland Pg9.

Material no. R900031155



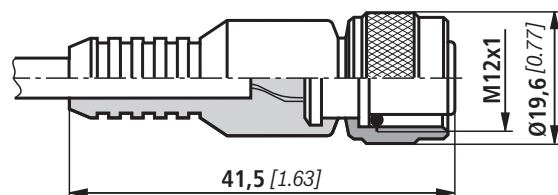
Mating connector suitable for K24-3m 4-pin, M12x1 with potted-in PVC cable, 3 m long.

Line cross-section: 4 x 0.34 mm²

Core marking:

1	Brown
2	White
3	Blue
4	Black

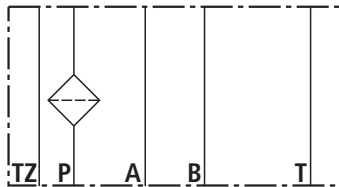
Material no. R900064381



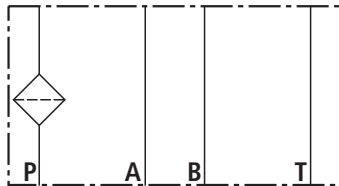
For more round connectors refer to data sheet 08006.

Symbols

Block mounting filter



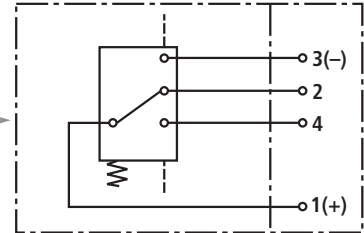
Size 025 port according to ISO 4401 size 6



Size 075 - 125 port according to ISO 4401 size 10

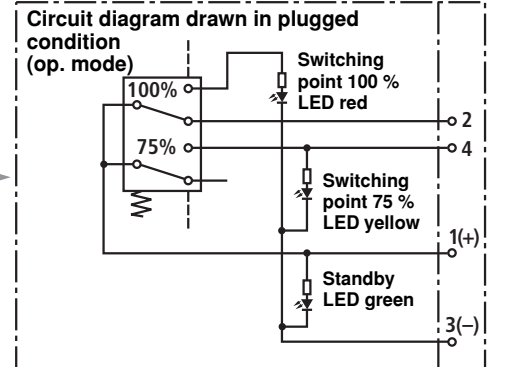
Electronic switching element for maintenance indicator

Switching element Plug-in connector



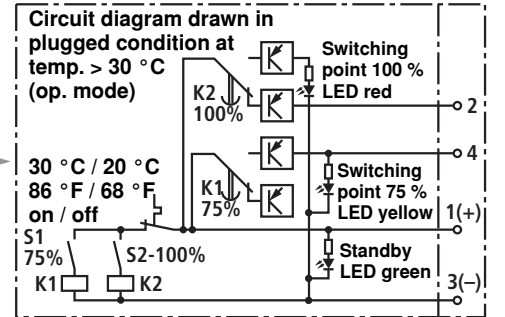
WE-1SP-M12x1

Switching element Plug-in connector



WE-2SP-M12x1

Switching element Plug-in connector



WE-2SPSU-M12x1

Function, section

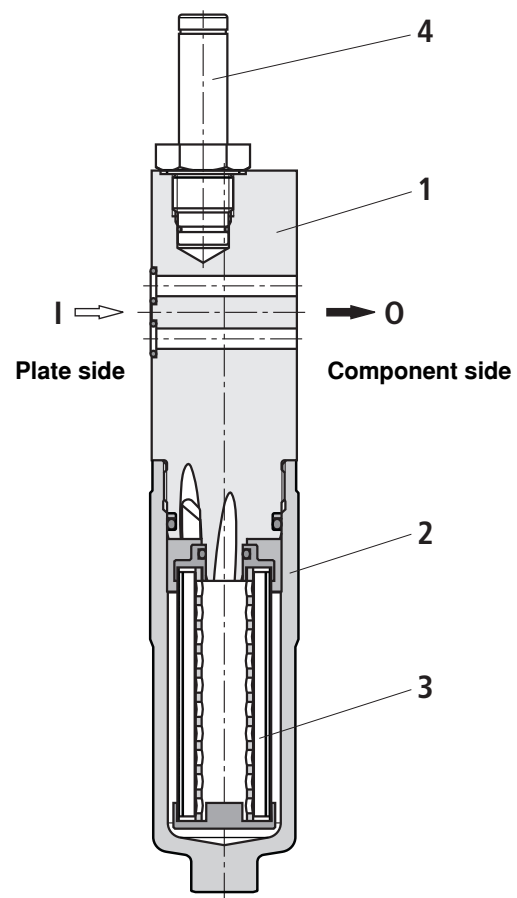
Block mounting filter for sandwich plate mounting are intended for installation in vertical stackings.

They basically consist of filter head (1), a screwable filter bowl (2), filter element (3) as well as mechanical optical maintenance indicator (4).

Via the inlet bore on the plate side, 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 the outlet bore on the device side, 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 abrupt opening of large control valves due to the accelerated fluid weight - can be securely absorbed.

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, 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		Sandwich plate mounting		
Ambient temperature range		°C [°F]	-30 to +100 [-22 to +212]	
Weight ¹⁾	Size	025	075	125
	kg [lbs]	3.5 [7.7]	6.5 [14.4]	7.2 [15.9]
Volume	l	0.14	0.35	0.48
	[US gal]	[0.037]	[0.092]	[0.127]
Material	Filter head	GGG		
	Filter bowl	Steel		
	Optical maintenance indicator	Brass		
	Electronic switching element	Plastic PA6		

hydraulic

Maximum operating pressure	bar [psi]	320 [4644]
Hydraulic fluid temperature range	°C [°F]	-10 to +100 [+14 to +212]
Minimum conductivity of the medium	pS/m	300
Fatigue strength according to ISO 10771	Load cycles	> 10 ⁶ with max. operating pressure
Type of pressure measurement of the maintenance indicator		Pressure differential
Response pressure of the maintenance indicator	bar [psi]	5 ± 0.5 [72 ± 7] alternatively 8 ± 0.8 [115 ± 12]

electrical (electronic switching element)

Electrical connection		Round plug-in connection M12x1, 4-pin		
	Version	1SP-M12x1	2SP-M12x1	2SPSU-M12x1
Contact load, direct voltage	A	Max. 1		
Voltage range	V	Max. 150 (AC/DC)	Max. 10-30 (DC)	
Max. switching power with resistive load	W	20		
Switching type	75 % signal	–	Normally open contact	
	100 % signal	Changeover	Normally closed contact	
	2SPSU			Signal switching through 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 67		
Ambient temperature range		°C [°F]	-25 to +85 [-13 to +185]	
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 M12x1	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 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	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)

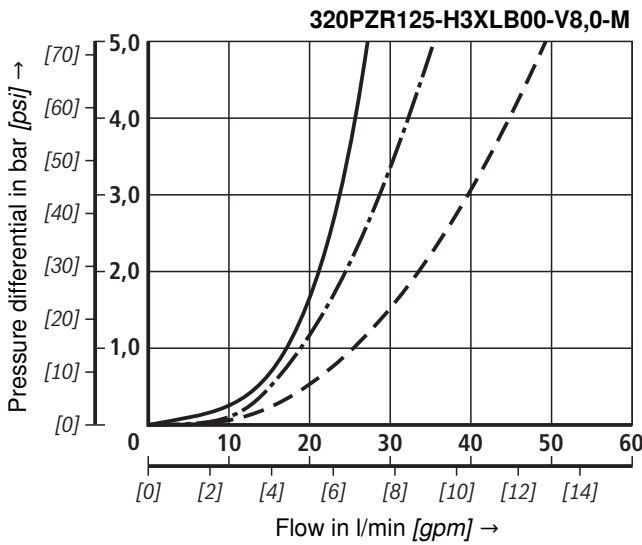
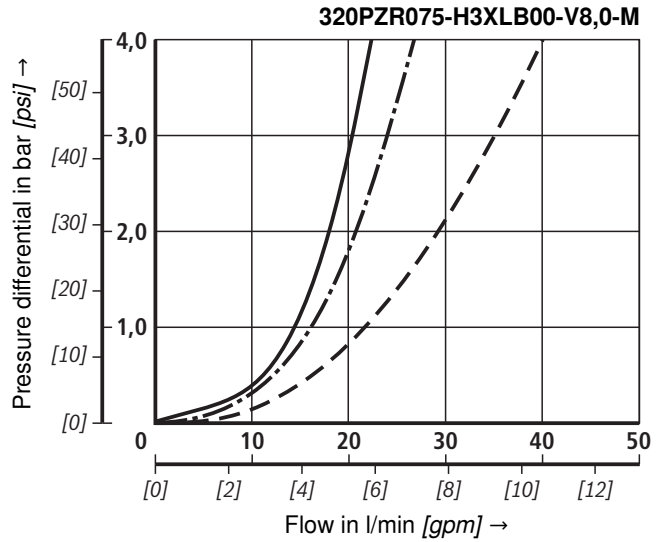
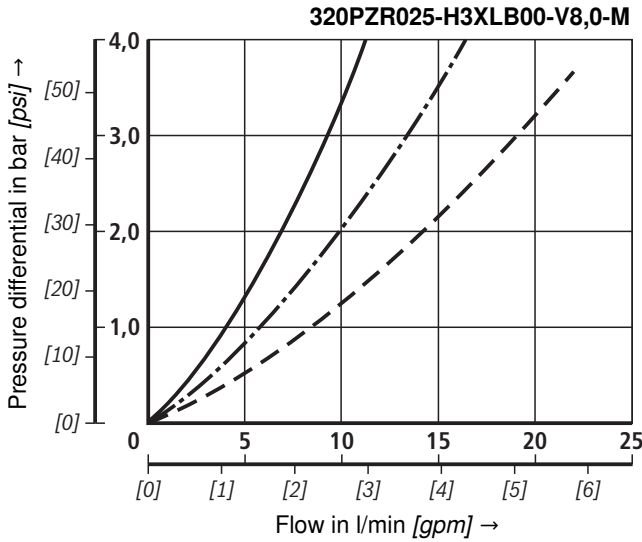
H3XL...

Specific weight: < 0.9 kg/dm³

Δp -Q characteristic curves for complete filters recommended
initial Δp for design = 1 bar

A proper filter design is enabled by our computer program
"BRFilterSelect".

Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [142 SUS]



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

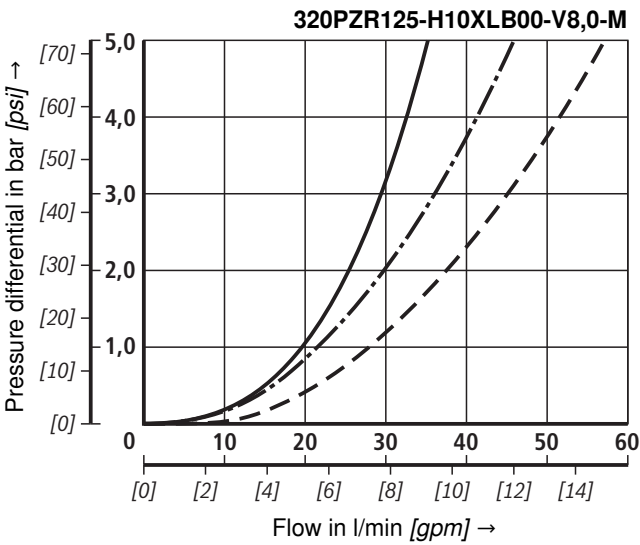
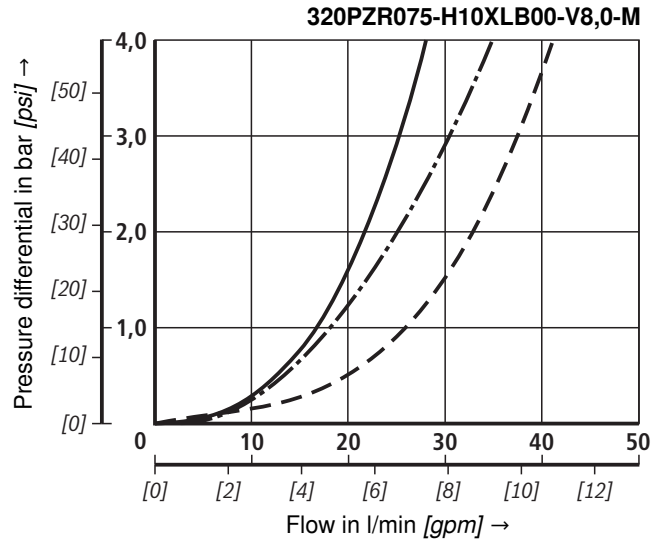
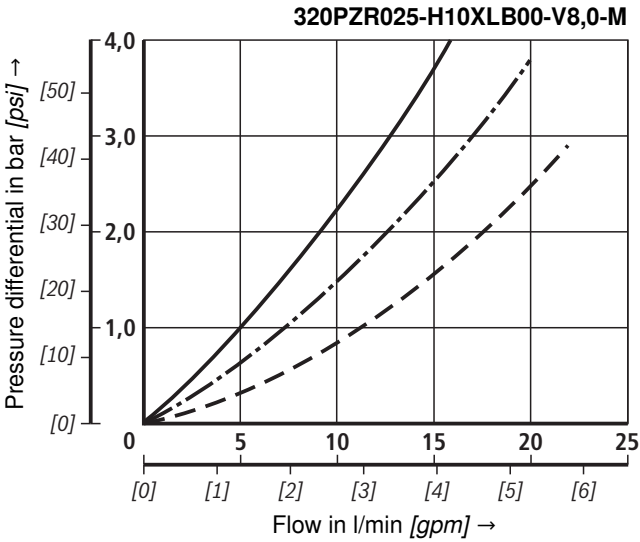
H10XL...

Specific weight: < 0.9 kg/dm³

Δp -Q characteristic curves for complete filters recommended
initial Δp for design = 1 bar

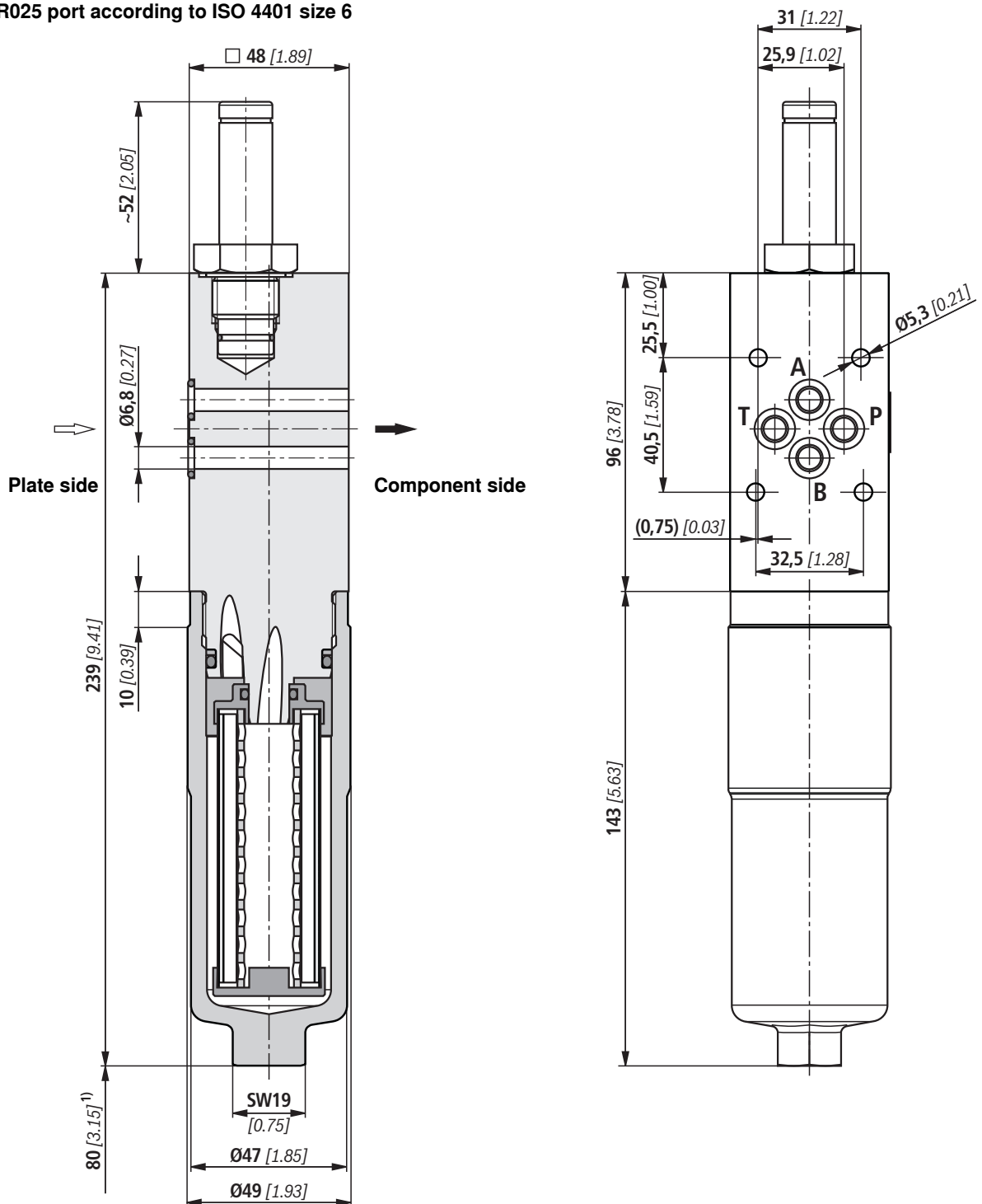
A proper filter design is enabled by our computer program
"BRFilterSelect".

Oil viscosity:
 — 140 mm²/s [649 SUS]
 - · - 68 mm²/s [315 SUS]
 - - - 30 mm²/s [142 SUS]



Unit dimensions size 025 (dimensions in mm [inch])

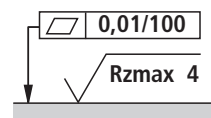
320PZR025 port according to ISO 4401 size 6



¹⁾ Servicing height for filter element replacement

Porting pattern according to ISO 4401-03-02-0-05
no locating pin

Sandwich plate HSZ 06 A007-3X/M00 (dimension 65 mm x 44 mm x 20 mm) is available under the **material no. R900516530**. For more sandwich plates please refer to the data sheet 48050.



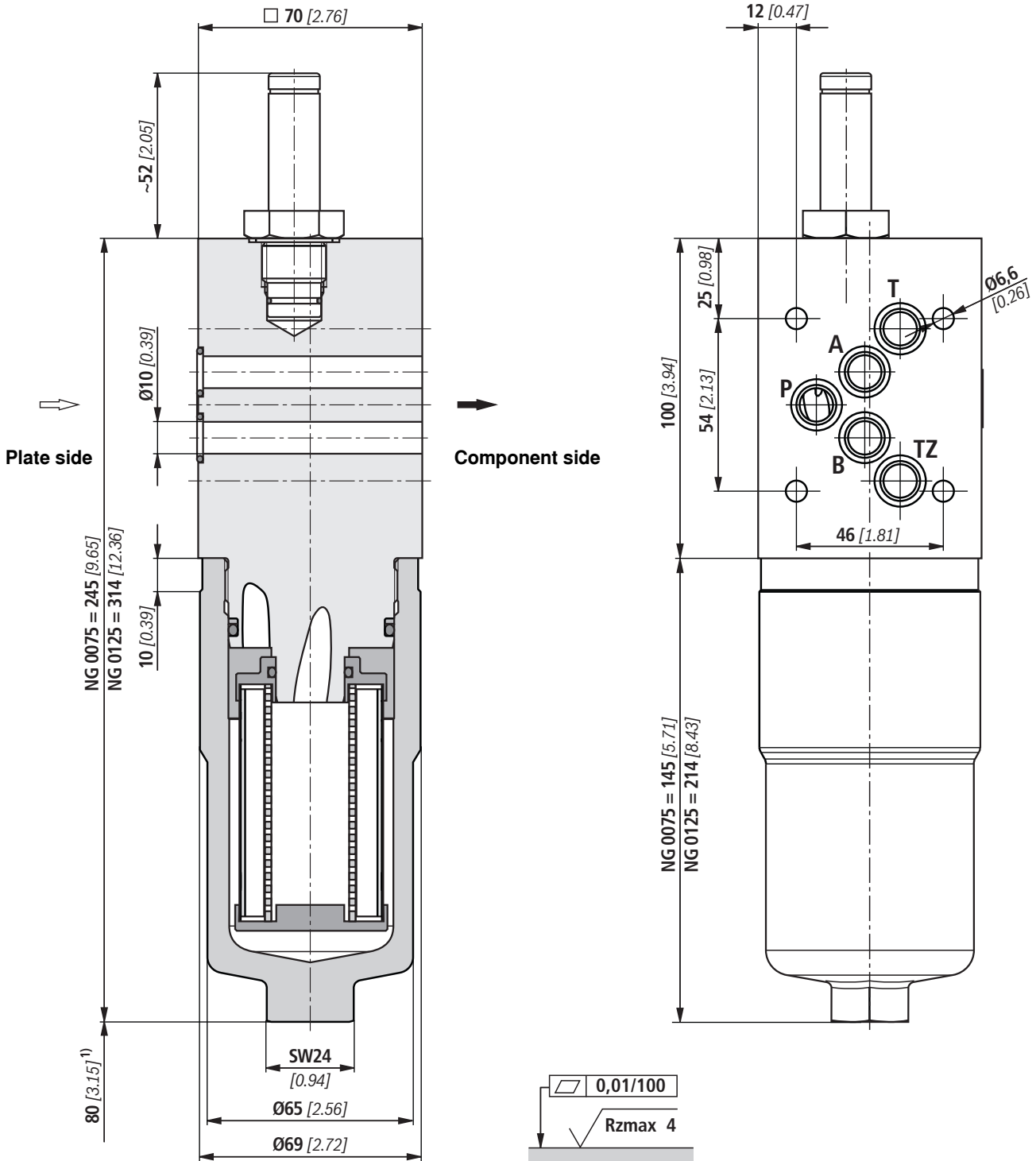
Required surface quality of the valve mounting face

Tolerances:

– General tolerances ISO 2768-m

Unit dimensions size 075 - size 125 (dimensions in mm [inch])

320PZR075 - 320PZR125 port according to ISO4401 size 10



¹⁾ Servicing height for filter element replacement

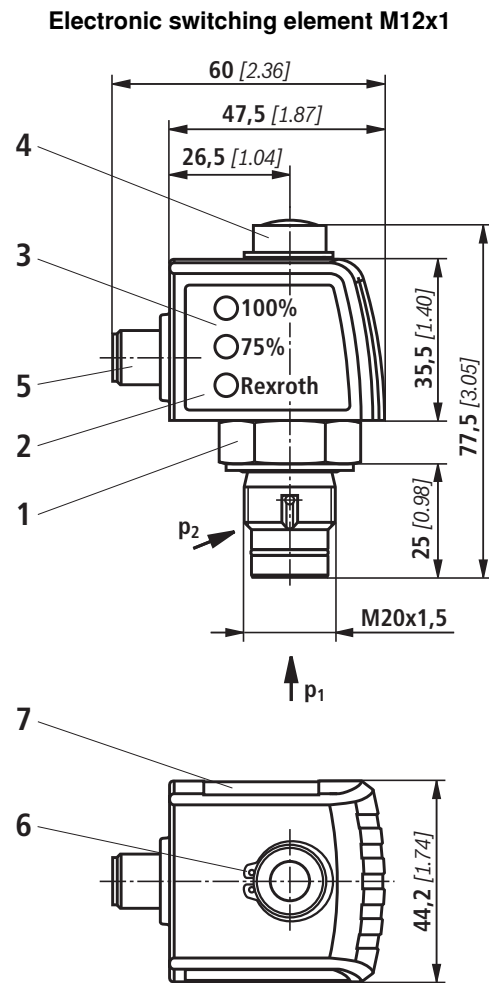
Required surface quality of the valve mounting face

Tolerances:

- General tolerances ISO 2768-m

Porting pattern according to ISO 4401-05-04-0-05
no locating pin

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 (rotatable by 360°); plug-in connection M12x1
- 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 DIN 471-16x1,
material no. R900003923
- 7 Name plate

Notes:

Presentation contains mechanical optical maintenance indicator (1) and electronic switching element (2).
Switching elements with increased switching power at request.

Spare parts

Mechanical optical maintenance indicator

W	O	D01	450
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Maintenance indicator	= W	
Mechanical optical indicator	= O	
Design pressure differential M20x1.5	= D01	
Switching pressure		
5.0 bar	= 5.0	
8.0 bar	= 8.0	

	450 =	Max. nominal pressure	450 bar
M =		Seal	NBR seal
V =			FKM seal

Mechanical optical maintenance indicator	Material no.
WO-D01-8,0-M-450	R928038785
WO-D01-8,0-V-450	R928038784

Seal kit

D	320PZR	
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Seal kit	= D	
Series	= 320PZR	
Size		
Size 025	= 025	
Size 075 - 125	= 075-125	

M =		Seal	NBR seal
V =			FKM seal

Seal kit	Material no.
D320PZR025-M	R928037155
D320PZR075-125-M	R928037156

Installation, commissioning and maintenance

Installation of the filter

Verify operating overpressure with name plate information. Remove the blanking plugs in the filter inlet and outlet. Screw the filter head (1) to the fastening device, considering flow direction (direction arrows) and servicing height of the element.

Make sure that the components are assembled in a stressless form.

The filter must preferably be installed with the filter bowl (2) downward. The maintenance indicator must be arranged in a well visible way.

The housing must be grounded.

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 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?

- The filter element is to be exchanged after the initial commissioning of the system.
- 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. 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.
- The filter element should be replaced or cleaned after max. 6 months.

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 H...XL, 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 pressure differential 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 name plate of the filter.
- Install replaced or cleaned filter element on the spigot again by slightly turning it.
- Now screw in the filter bowl 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 51427 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.

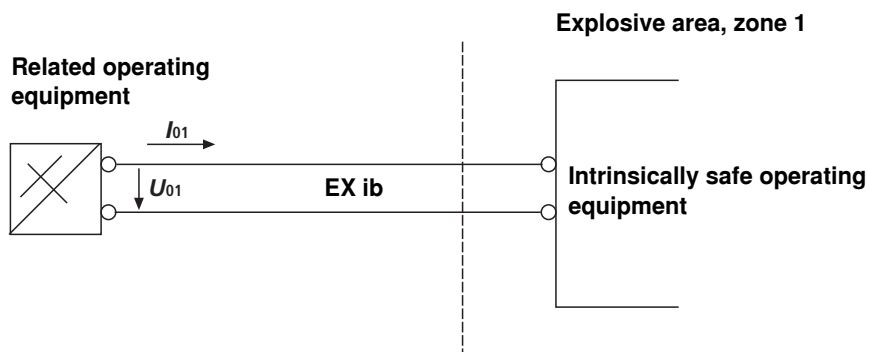
Use in explosive areas according to directive 94/9/EC (ATEX)

The inline filters according to 51427 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 51427 in explosive areas, potential equalization has to be ensured.

According to DIN EN 60079-11, the electronic maintenance indicators WE-1SP-M12x1 are simple, electronic operating equipment not having an own voltage source. This simple, electronic 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



The declaration of incorporation according to DIN EN 13463 is available for this filter separately, with material no. R928028899.