

# Block mounting filter, for sandwich plate mounting

Type 320PZR06/025 to 10/125; 320PZL06/025

RE 51468

Issue: 2021-04



HAD7824\_d

## Features

The sandwich plate filters are used in hydraulic systems for separating solid materials from fluids and lubricating oils. They are intended for installation in vertical stacking (sandwich plate design).

They distinguish themselves by the following:

- ▶ Filter for sandwich plate mounting, filter bowl left or right
- ▶ Special highly efficient filter materials
- ▶ Filtration of very fine particles and high dirt holding capacity across a broad pressure differential range
- ▶ High collapse resistance of the filter elements
- ▶ By default equipped with mechanical optical maintenance indicator with memory function
- ▶ Various optional electronic switching elements, modular design
- ▶ Porting pattern according to ISO 4401-03-02-0-05 (size 6) or ISO 4401-05-04-0-05 (size 10).
- ▶ High filtration performance due to the tangential cyclone-effect flow path

- ▶ Size according to Hengst standard: 06/025 to 10/125
- ▶ Component series 2X
- ▶ Nominal pressure 320 bar [4641 psi]
- ▶ Connection according to ISO4401 NG6 and NG10
- ▶ Operating temperature  $-10^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$  [ $14^{\circ}\text{F}$  to  $212^{\circ}\text{F}$ ]

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**Ordering code****Filters**

01	02	03	04	05	06	07	08	09
<b>320PZ</b>			<b>- 2X /</b>	<b>B00</b>	<b>-</b>	<b>-</b>	<b>-</b>	

**Series**

01	Sandwich plate filter 320 bar [4641 psi]	<b>320PZ</b>
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**Filter bowl position**

02	Right	<b>R</b>
	Left	<b>L</b>

**Size**

03	PZR...	<b>06/025</b>
		<b>10/075</b>
		<b>10/125</b>

03	PZL...	<b>06/025</b>
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04	Component series 20 ... 29 (20 ... 29: unchanged installation and connection dimensions)	<b>2X</b>
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**Filter rating in µm**

05	<b>Absolute (ISO 16889)</b>	Glass fiber material, not cleanable	<b>H3PZ</b>
			<b>H6PZ</b>
			<b>H10PZ</b>
			<b>H20PZ</b>

**Pressure differential**

06	Max. permissible pressure differential of the filter element 330 bar [4786 psi], <b>without</b> bypass valve	<b>B00</b>
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**Maintenance indicator**

07	Maintenance indicator, mech./optical, switching pressure 5.0 bar [72.5 psi]	<b>V5.0</b>
	Maintenance indicator, mech./optical, switching pressure 8.0 bar [116 psi]	<b>V8.0</b>

**Seal**

08	NBR seal	<b>M</b>
	FKM seal	<b>V</b>

**Supplementary information**

09	Manufacturer's inspection certificate M according to DIN 55350 T18	<b>Z1</b>
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**Order example:****320PZR10/125-2X/H10PZB00-V8,0-M****Material no.: R928053411****Further versions are available on request.**

## Preferred types

### NBR seal, without bypass, flow specifications for 30 mm<sup>2</sup>/s [142 SUS]

Block mounting filter 320 PZR, filter rating **3 µm**

Type	Flow in l/min [gpm] at $\Delta p = 2.5$ bar [36.25 psi] <sup>1)</sup>	Material no. Filter	Material no. replacement element
320PZR06/025-2X/H3PZB00-V8,0-M	17 [4.5]	R928053403	R928051771
320PZR10/075-2X/H3PZB00-V8,0-M	33 [8.7]	R928053406	R928051775
320PZR10/125-2X/H3PZB00-V8,0-M	37 [9.8]	R928053413	R928051779

Block mounting filter 320 PZR, filter rating **6 µm**

Type	Flow in l/min [gpm] at $\Delta p = 2.5$ bar [36.25 psi] <sup>1)</sup>	Material no. Filter	Material no. replacement element
320PZR06/025-2X/H6PZB00-V8,0-M	19 [5.0]	R928053404	R928053299
320PZR10/075-2X/H6PZB00-V8,0-M	35 [9.2]	R928053407	R928051776
320PZR10/125-2X/H6PZB00-V8,0-M	38 [10.0]	R928053414	R928051780

Block mounting filter 320 PZR, filter rating **10 µm**

Type	Flow in l/min [gpm] at $\Delta p = 2.5$ bar [36.25 psi] <sup>1)</sup>	Material no. Filter	Material no. replacement element
320PZR06/025-2X/H10PZB00-V8,0-M	20 [5.3]	R928053402	R928051773
320PZR10/075-2X/H10PZB00-V8,0-M	36 [9.5]	R928053405	R928051777
320PZR10/125-2X/H10PZB00-V8,0-M	42 [11.1]	R928053411	R928051781

Block mounting filter 320 PZL, filter rating **3 µm**

Type	Flow in l/min [gpm] at $\Delta p = 2.5$ bar [36.25 psi] <sup>1)</sup>	Material no. Filter	Material no. replacement element
320PZL06/025-2X/H3PZB00-V8,0-M	17 [4.5]	R928053998	R928051771

Block mounting filter 320 PZL, filter rating **6 µm**

Type	Flow in l/min [gpm] at $\Delta p = 2.5$ bar [36.25 psi] <sup>1)</sup>	Material no. Filter	Material no. replacement element
320PZL06/025-2X/H6PZB00-V8,0-M	19 [5.0]	R928053999	R928053299

Block mounting filter 320 PZL, filter rating **10 µm**

Type	Flow in l/min [gpm] at $\Delta p = 2.5$ bar [36.25 psi] <sup>1)</sup>	Material no. Filter	Material no. replacement element
320PZL06/025-2X/H10PZB00-V8,0-M	20 [5.3]	R928053768	R928051773

<sup>1)</sup> An appropriate differential pressure via the filter and measuring device according to ISO 3968. The differential pressure measured on the maintenance indicator is lower.

## Ordering code

### Accessories

(dimensions in mm [in])

### Sandwich plate

Material no.	Description
R900516530	Sandwich plate HSZ 06 A007-3X/M00 (Dimension 65 [2.56] x 44 [1.73] x 20 [0.79])

Please refer to data sheet 48050 for further sandwich plates.

**Ordering code****Accessories**(dimensions in mm [*in*])**Electronic switching element for maintenance indicators**

01	02	03
WE	-	-

**Maintenance indicator**

01	electronic switching element	WE
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**Type of signal**

02	1 switching point	1SP
	2 switching points, 3 LED	2SP
	2 switching points, 3 LED and signal suppression up to 30 °C [86 °F]	2SPSU

**Connector**

03	Round plug-in connection M12 x 1, 4-pole	M12x1
	Rectangular plug-in connection, 2-pole, design A according to EN-175301-803	EN175301-803

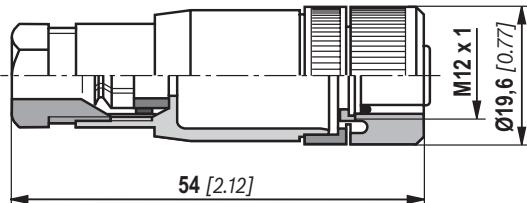
**Material numbers of the electronic switching elements**

Material no.	Type	Signal	Switching points	Connector	LED
R928028409	WE-1SP-M12x1	Changeover	1		No
R928028410	WE-2SP-M12x1	Normally open (at 75%) / normally closed contact (at 100%)	2	M12x1	3 pieces
R928028411	WE-2SPSU-M12x1				
R928036318	WE-1SP-EN175301-803	Normally closed contact	1	EN 175301-803	No

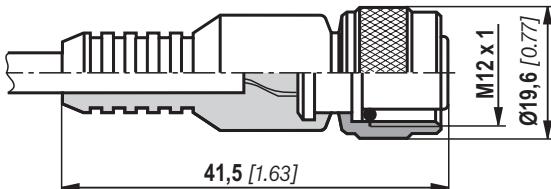
**Mating connectors**

for electronic switching element with round plug-in connection M12x1

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

**Material no. R900031155**

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

Line cross-section: 4 x 0.34 mm<sup>2</sup>Core marking: 1 brown 2 white  
3 blue 4 black**Material no. R900064381**

For more round plug-in connections and technical data refer to data sheet 08006.

**Order example:**Block mounting filter for sandwich plate mounting with mechanical optical maintenance indicator for  $p_{\text{nominal}} = 320 \text{ bar}$  [4641 psi] without bypass valve, size 10/125, with filter element 10 µm and electronic switching element M12x1 with 1 switching point.**Filter with mech. optical maintenance indicator:**

320PZR10/125-2X/H10PZB00-V8,0-M

**Material no. R928053411****Switching element:**

WE-1SP-M12x1

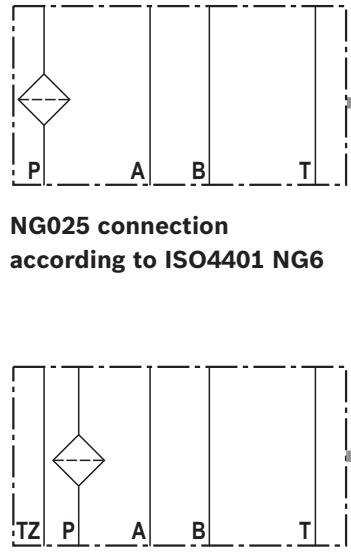
**Material no. R928028409****Mating connector:**

Mating connector suitable for K24 4-pin, M12x1

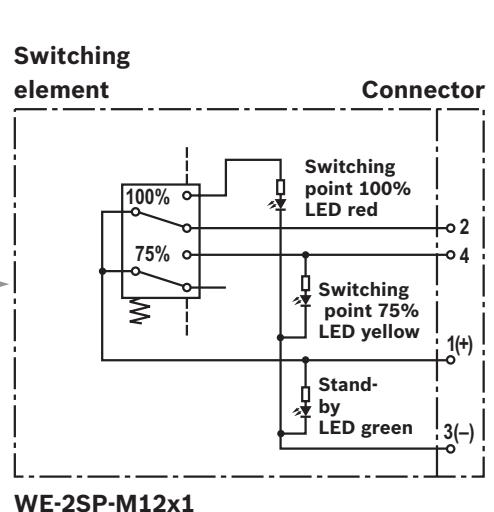
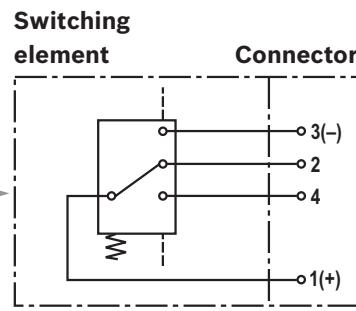
**Material no. R900031155**

## Symbols

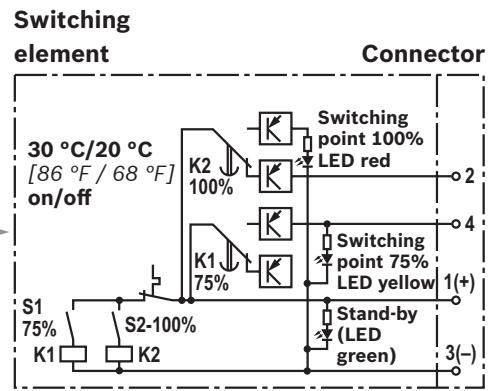
### Block mounting filters



Electronic switching element for maintenance indicator



Circuit diagram drawn in plugged condition (operating state)



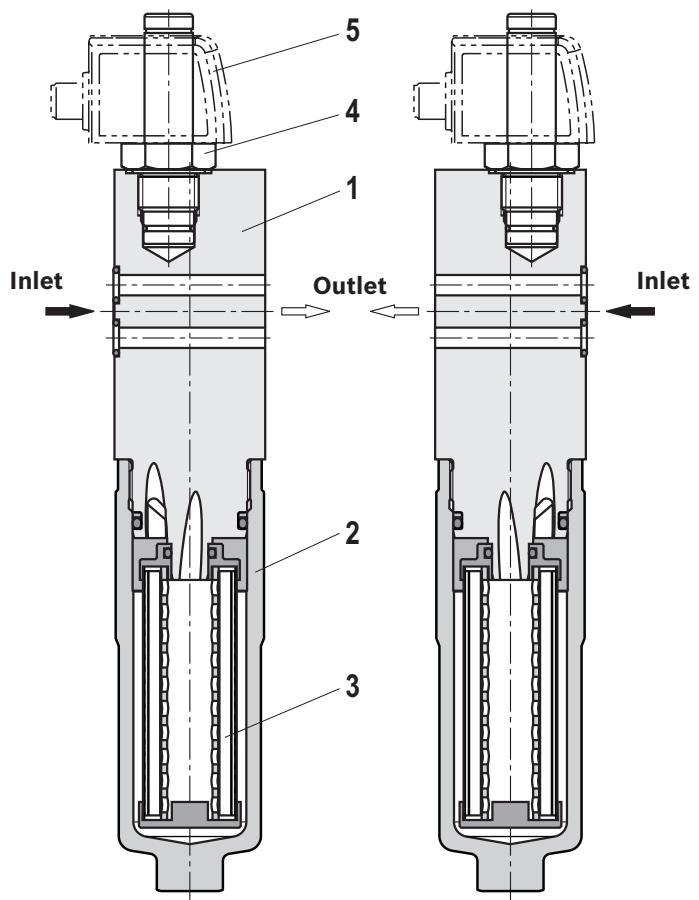
Circuit diagram drawn in plugged condition at temperature > 30°C [86°F] (operating state)

## Function, section

Block mounting filters for sandwich plate mounting are intended for installation in a vertical stack. They basically consist of filter head (1), a screwable filter bowl (2), filter element (3) as well as a mechanical optical maintenance indicator (4). The hydraulic fluid reaches the filter element (3) via the inlet bore (bore P / seal side) where it is cleaned. The dirt particles filtered out collect in the filter bowl (2) and in the filter element (3). On the opposite side, the filtered hydraulic fluid enters the hydraulic circuit via the outlet bore. Filter type 320PZ is available in two versions in the size 06/025, left or right.

The filter housing is 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. The filter material H ... PZ is particularly suitable for usual volume fluctuations in this application.

By default, the filter is equipped with mechanical optical maintenance indicator (4). The electronic switching element (5) which has to be ordered separately is attached to the mechanical optical maintenance indicator (4) and held by means of a locking ring. The electronic switching elements with 1 or 2 switching points are connected via a mating connector according to IEC-60947-5-2 or via a cable connection according to EN17301-803.



Type 320PZL06/25-2x

Type 320PZR06/25-2x

### ⚠️ Notice:

For the allocation of the connection designation see chapter "Dimensions"

## Technical data

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

General						
Installation position	Sandwich plate mounting					
Ambient temperature range	°C [°F]	-10 ... +65 [+14 ... +149] (short-term ... -30 [-22])				
Storage conditions	- NBR seal	°C [°F]	-40 ... +65 [-40 ... +149]; max. relative air humidity 65%			
	- FKM seal	°C [°F]	-20 ... +65 [-4 ... +149]; max. relative air humidity 65%			
Weight	NS	06/025	10/075	10/125		
	kg [lbs]	3.5 [7.7]	6.5 [14.4]	7.2 [15.9]		
Volume	NS	06/025	10/075	10/125		
	l [US gal]	0.14 [0.037]	0.35 [0.092]	0.48 [0.127]		
Material	- Filter head	Ductile iron				
	- Filter bowl	Steel				
	- Seals	NBR or FKM				
	- Optical maintenance indicator V5.0; V8.0	Brass				
	- Electronic switching element	Plastic PA6				
Surface requirement tank	- Roughness depth $R_z$ max.	µm	4			
hydraulic block	- Levelness $t_E$ max.	mm	0.01/100			
Hydraulic						
Maximum operating pressure	bar [psi]	320 [4641]				
Hydraulic fluid temperature range	°C [°F]	-10 ... +100 [+14 ... +212]				
Minimum conductivity of the medium	pS/m	300				
Fatigue strength according to ISO 10771	Load cycles	> 10 <sup>6</sup> at rated operating pressure				
Type of pressure measurement of the maintenance indicator	Pressure differential					
Assignment: Response pressure of the maintenance indicator / cracking pressure of the bypass valve	bar [psi]	Response pressure of the maintenance indicator		Cracking pressure of the bypass valve		
		5.0 ± 0.5 [72 ± 7]		not possible		
		8.0 ± 0.8 [116 ± 11.6]				
Electric (electronic switching element)						
Electrical connection	Version	Round plug-in connection M12x1, 4-pole				
		WE-1SP-M12x1	WE-2SP-M12x1	WE-2SPSU-M12x1		
Contact load, direct voltage	A <sub>max.</sub>	1				
Voltage range	V <sub>max.</sub>	150 (AC/DC)	10-30 (DC)			
max. switching power with resistive load	W	20				
Switching type	- 75% signal	-	Normally open contact	-		
	- 100% signal	Changeover	Normally closed contact	Normally closed contact		
	- 2SPSU		Signal interconnection at 30 °C [86 °F], return switching at 20 °C [68 °F]			
Display via LEDs in the electronic switching element 2SP...		Stand-by (LED green); 75% switching point (LED yellow) 100% switching point (LED red)				
Protection class according to EN 60529	IP	IP 67				
Ambient temperature range	°C [°F]	-25 ... +85 [-13 ... +185]				
For direct voltage above 24 V, spark extinguishing is to be provided for protecting the switching contacts.						
Weight - electronic switching element	kg [lbs]	0.1 [0.22]				

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

<b>Filter element</b>			
<b>Glass fiber material H...PZ</b>		Single-use element on the basis of inorganic fiber	
		Filtration ratio according to ISO 16889 up to $\Delta p = 5$ bar [72.5 psi]	
Particle separation	H20PZ	$\beta_{20}(c) \geq 200$	19/16/12 – 22/17/14
	H10PZ	$\beta_{10}(c) \geq 200$	17/14/10 – 21/16/13
	H6PZ	$\beta_6(c) \geq 200$	15/12/10 – 19/14/11
	H3PZ	$\beta_5(c) \geq 200$	13/10/8 – 17/13/10
permissible pressure differential	B00	bar [psi]	330 [4786]

**Compatibility with hydraulic fluids**

<b>Hydraulic fluid</b>	<b>Classification</b>	<b>Suitable sealing materials</b>	<b>Standards</b>
Mineral oil	HLP	NBR	DIN 51524
Biodegradable	– insoluble in water	HETG	VDMA 24568
	– soluble in water	HEES	
Flame-resistant	– water-free	HEPG	VDMA 24568
	– containing water	HFDR	VDMA 24317
		HFDU	
		HFAS	
		HFAE	DIN 24320
		HFC	
		NBR	VDMA 24317

**Important information on hydraulic fluids:**

- For more information and data on the use of other hydraulic fluids, please refer to data sheet 90220 or contact us!
- Flame-resistant – containing water: Due to possible chemical reactions with materials or surface coatings of machine and system components, the service life with these hydraulic fluids may be less than expected.

Filter materials made of filter paper (cellulose) may not be used, filter elements with glass fiber material have to be used instead.

- Bio-degradable: If filter materials made of filter paper are used, the filter life may be shorter than expected due to material incompatibility and swelling.

## Characteristic curves

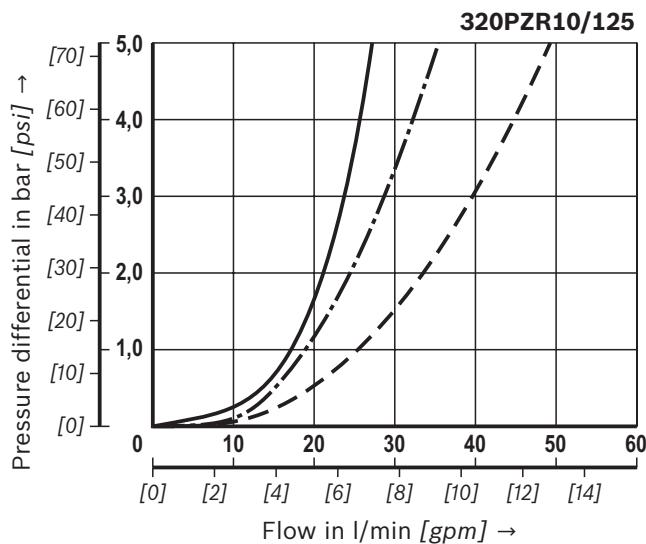
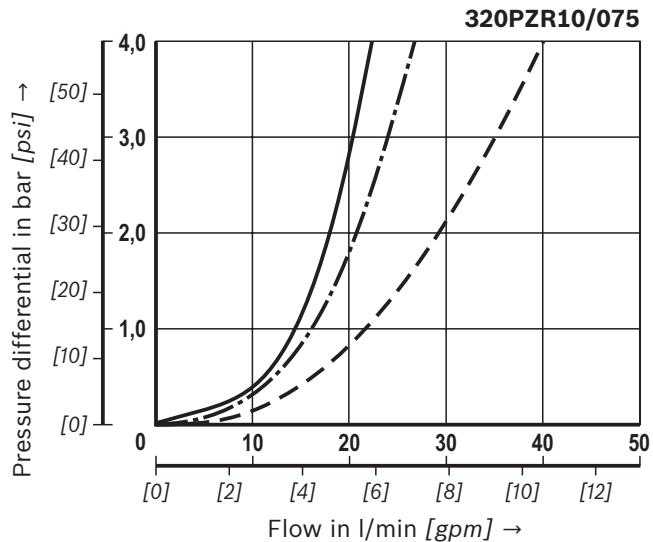
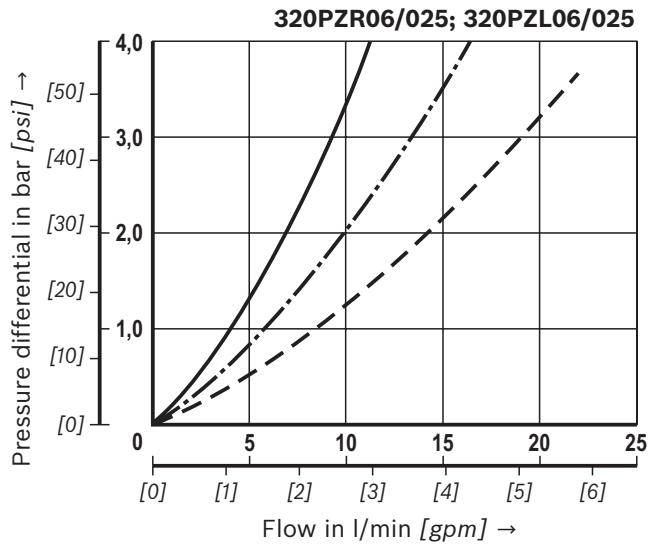
(measured with mineral oil HLP46 according to DIN 51524)

H3PZ...

Spec. weight: < 0.9 kg/dm<sup>3</sup>  $\Delta p$ -Q-characteristic curves for complete filters recommended initial  $\Delta p$  for design = 2.5 bar  
The selection of the perfect filter is made possible by our online "FilterSelect" design software.

Oil viscosity:

- 140 mm<sup>2</sup>/s [649 SUS]
- 68 mm<sup>2</sup>/s [315 SUS]
- 30 mm<sup>2</sup>/s [142 SUS]



H10PZ...

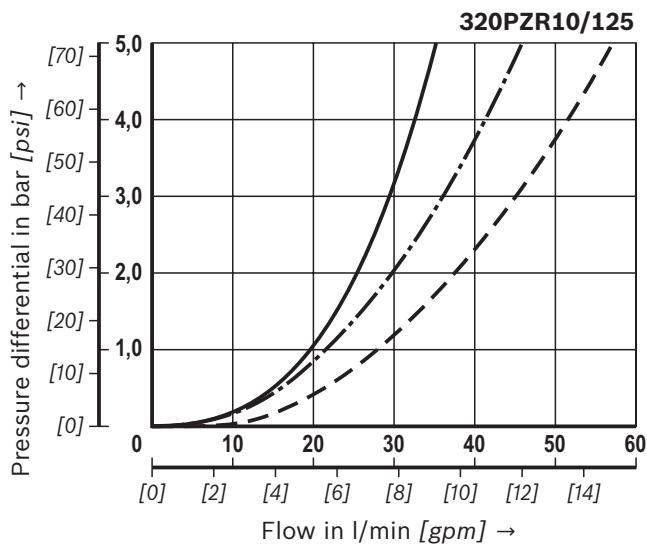
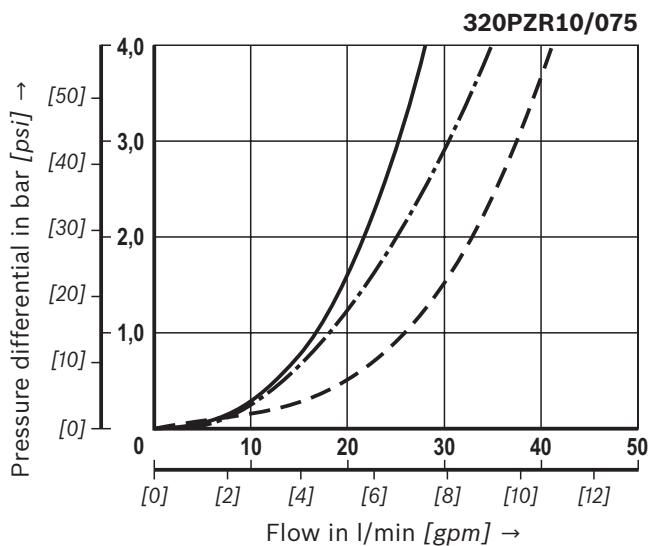
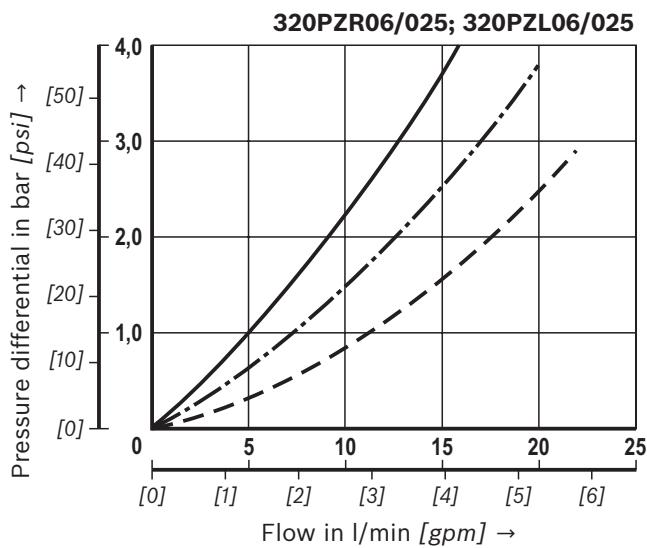
**Characteristic curves**

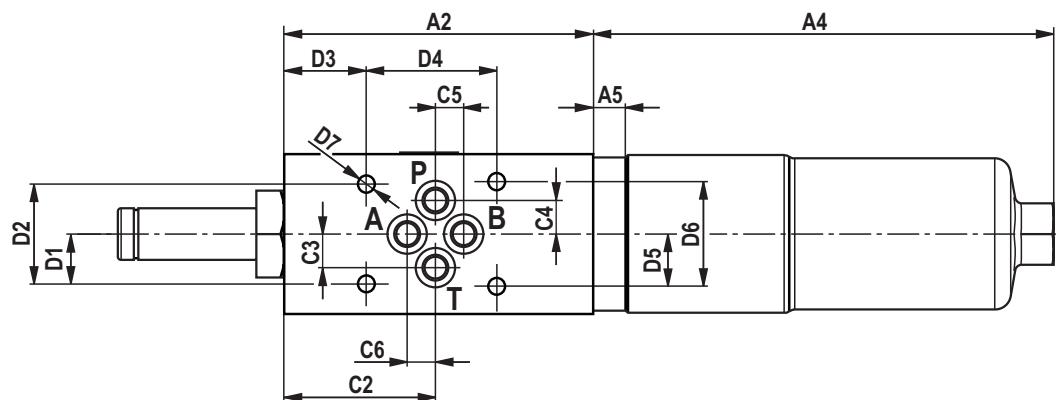
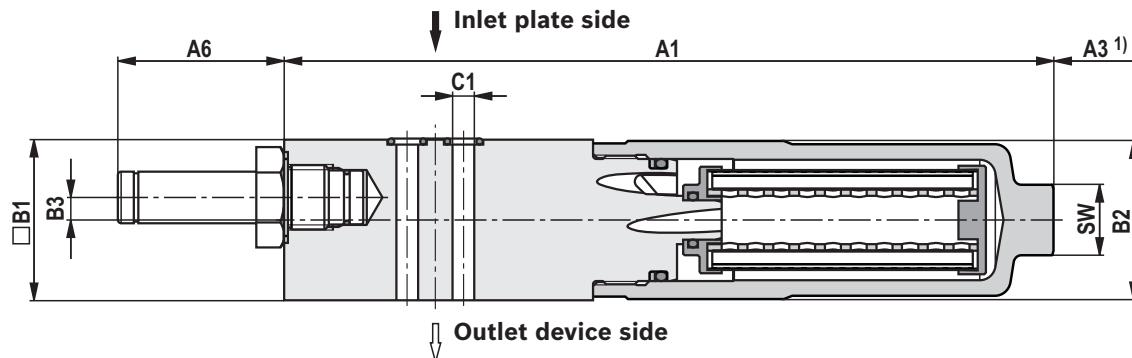
(measured with mineral oil HLP46 according to DIN 51524)

Spec. weight: < 0.9 kg/dm<sup>3</sup>  $\Delta p$ -Q-characteristic curves for complete filters recommended initial  $\Delta p$  for design = 2.5 bar  
 The selection of the perfect filter is made possible by our online "FilterSelect" design software.

Oil viscosity:

— 140 mm<sup>2</sup>/s [649 SUS]  
 - - - 68 mm<sup>2</sup>/s [315 SUS]  
 - - - 30 mm<sup>2</sup>/s [142 SUS]



**Dimensions: NG025**(dimensions in mm [*in*])**320PZR06/025-2x connection according to ISO4401 NG6**

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

<sup>1)</sup> Servicing height for filter element exchange

A = Drill hole

B = Drill hole

P = Pressure lines

T = Tank line

TZ = Tank line, additional

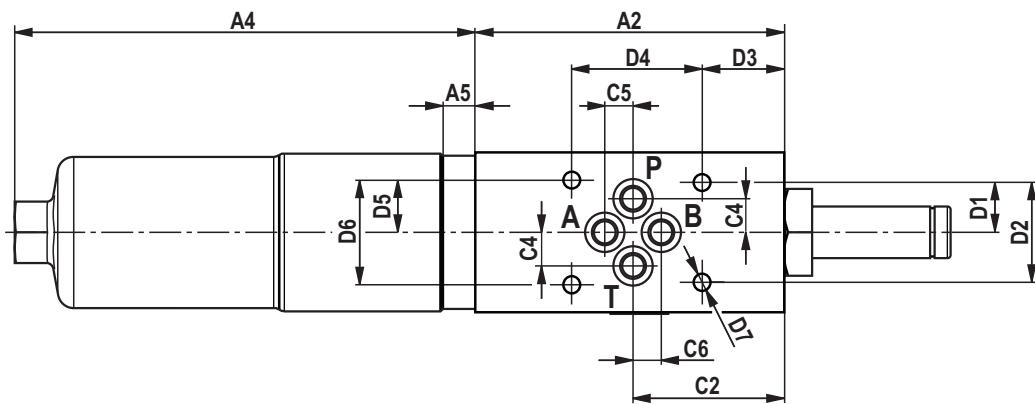
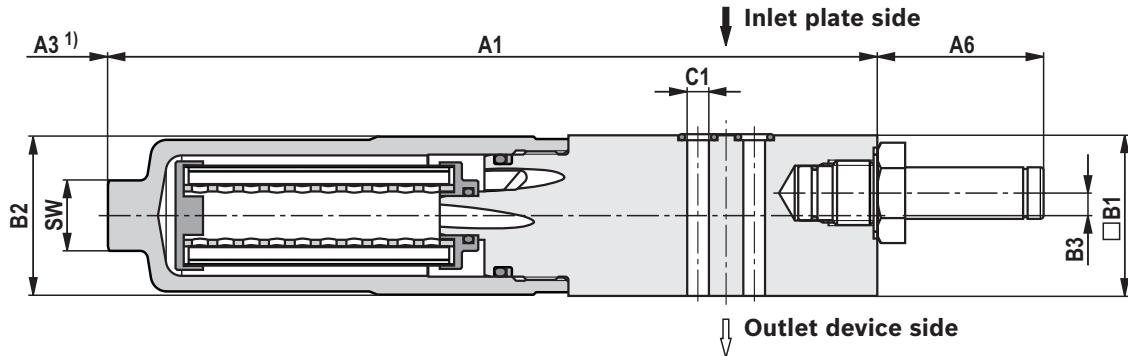
**Tolerances:**

- General tolerances ISO 2768-m

Type	Content in l [US gal]	Weight in kg [lbs]	A1	A2	A3 <sup>1)</sup>	A4	A5	A6	ØB1	ØB2	B3			
320PZR06/025-2X	0.14 [0.04]	3.5 [7.71]	239 [9.41]	96 [3.78]	80 [3.15]	143 [5.63]	10 [0.39]	51.7 [2.04]	50 [1.97]	49 [1.93]	7 [0.28]			
Type	ØC1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6	ØD7	SW
320PZR06/025-2X	6.8 [0.27]	47 [1.85]	10.4 [0.41]	10.4 [0.41]	8.7 [0.34]	8.8 [0.35]	15.5 [0.61]	31 [1.22]	25.5 [1.00]	40.5 [1.59]	16.25 [0.64]	32.5 [1.28]	5.3 [0.21]	19 [0.75]

**Dimensions: NG025**(dimensions in mm [*in*])

320PZL06/025-2x connection according to ISO4401 NG6



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

<sup>1)</sup> Servicing height for filter element exchange

A = Drill hole

B = Drill hole

P = Pressure lines

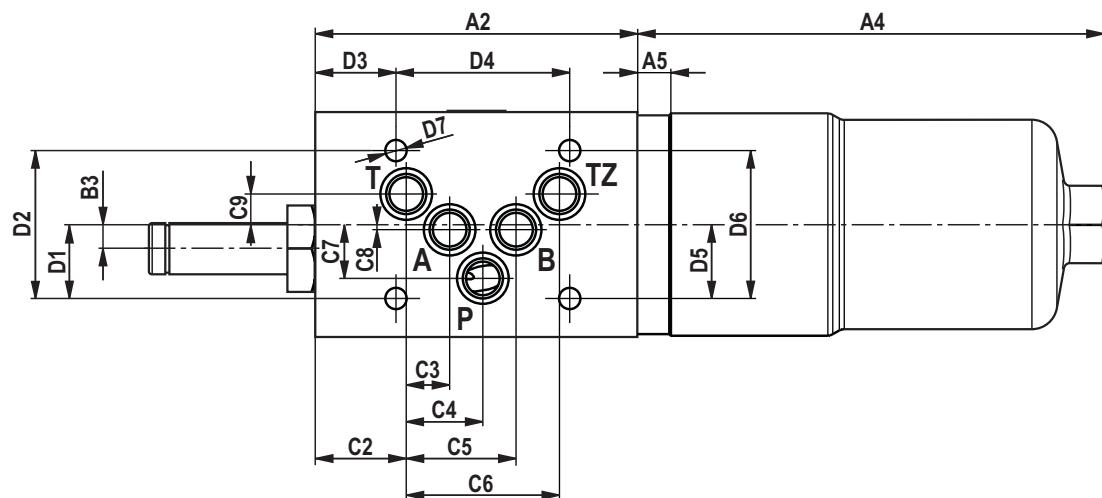
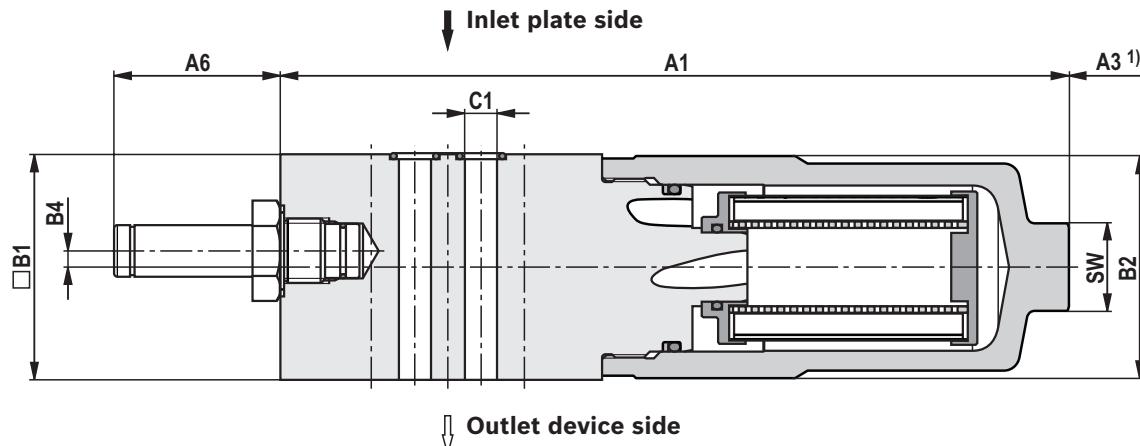
T = Tank line

TZ = Tank line, additional

**Tolerances:**

- General tolerances ISO 2768-m

Type	Content in l [US gal]	Weight in kg [lbs]	A1	A2	A3 <sup>1)</sup>	A4	A5	A6	ØB1	ØB2	B3			
320PZL06/025-2X	0.14 [0.04]	3.5 [7.71]	239 [9.41]	96 [3.78]	80 [3.15]	143 [5.63]	10 [0.39]	51.7 [2.04]	50 [1.97]	49 [1.93]	7 [0.28]			
Type	ØC1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6	ØD7	SW
320PZL06/025-2X	6.8 [0.27]	47 [1.85]	10.4 [0.41]	10.4 [0.41]	8.7 [0.34]	8.8 [0.35]	15.5 [0.61]	31 [1.22]	25.5 [1.00]	40.5 [1.59]	16.25 [0.64]	32.5 [1.28]	5.3 [0.21]	19 [0.75]

**Dimensions: NG075 125**(dimensions in mm [*in*])**320PZR10/075-2X ... 320PZR10/125-2X connection according to ISO4401 NG10**

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

<sup>1)</sup> Servicing height for filter element exchange

A = Drill hole

B = Drill hole

P = Pressure lines

T = Tank line

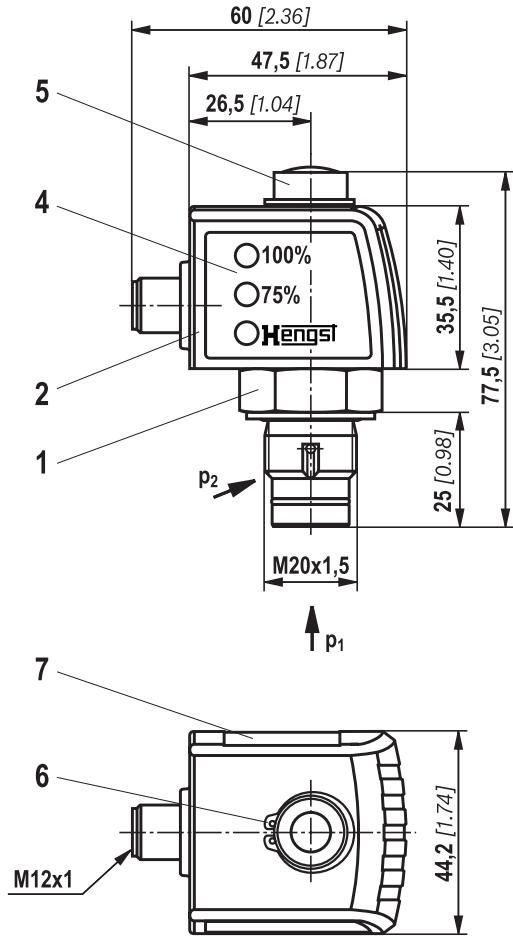
TZ = Tank line, additional

Type	Content in l [US gal]	Weight in kg [lbs]	A1	A2	A3 <sup>1)</sup>	A4	A5	A6	ØB1	ØB2	B3	B4	ØC1	C2	C3
320PZR10/075-2X	0.35 [0.09]	6.5 [14.33]	245 [9.65]	100	80	145 [5.71]	10.5	51.7	70 [2.76]	69 [2.72]	7.5 [0.30]	5 [0.20]	10.5 [0.41]	28.2 [1.11]	13.5 [0.53]
320PZR10/125-2X	0.48 [0.13]	7.2 [15.87]	314 [12.36]			214 [0.41]	20.4	52.0	72 [2.76]	70 [2.72]	8.0 [0.30]	5 [0.20]	10.5 [0.41]	28.2 [1.11]	13.5 [0.53]
Type	C4	C5	C6	C7	C8	C9	D1	D2	D3	D4	D5	D6	ØD7	SW	
320PZR10/075-2X	23.8 [0.94]	34.1 [1.34]	47.6 [1.87]	16.7 [0.66]	1.6 [0.06]	9.5 [0.37]	23 [0.91]	46 [1.81]	25 [0.98]	54 [2.13]	23 [0.91]	46 [1.81]	6.6 [0.26]	24 [0.94]	
320PZR10/125-2X															

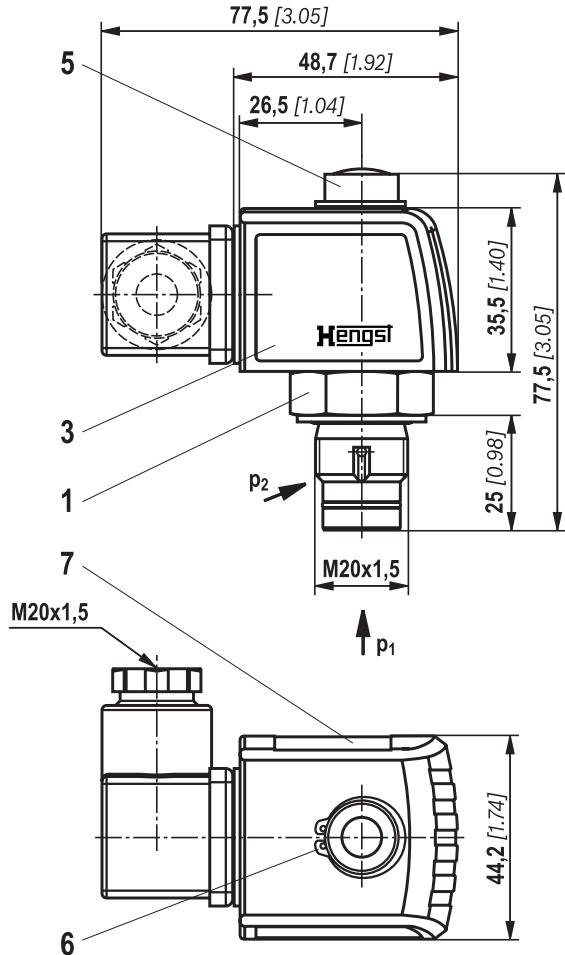
## Maintenance indicator

(dimensions in mm [in])

**Pressure differential indicator with mounted switching element M12x1**



**Pressure differential indicator with mounted switching element EN-175301-803**



- 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°); round plug-in connection M12x1, 4-pole
- 3 Switching element with locking ring for electrical maintenance indicator (rotatable by 360°); rectangular plug-in connection EN175301-803
- 4 Housing with three LEDs: 24 V =
  - green: Stand-by
  - yellow: Switching point 75%
  - red: Switching point 100%
- 5 Visual indicator with memory function
- 6 Locking ring DIN 471-16x1, material no. R900003923
- 7 Name plate

### ☞ Notices:

Representation contains mechanical optical maintenance indicator (1) and electronic switching element (2) (3).

## Ordering code

### Spare parts

#### Filter element

01	02	03	04	05	06			
2.Z			-	B00	-	0	-	

#### Filter element

01	Design	2.Z
----	--------	-----

#### Size

02	PZR...	06/025 10/075 10/125
	PZL...	06/025

#### Filter rating in µm

03	Absolute (ISO 16889) Glass fiber material, not cleanable	H3PZ H6PZ H10PZ H20PZ
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#### Pressure difference

04	Max. permissible pressure differential of the filter element 330 bar [4786 psi] (without bypass valve	B00
----	---	-----

#### Bypass valve

05	without bypass valve	0
----	----------------------	---

#### Seal

06	NBR seal	M
	FKM seal	V

#### Order example:

2.Z125 H10PZ-B00-0-M

Material no.: R928051781

For detailed information on Hengst filter elements please refer to data sheet 51420.

#### Preferred program replacement elements

Filter element type	Filter material/material no.		
	H3PZ	H6PZ	H10PZ
2.Z025...B00-0-M	R928051771	R928053299	R928051773
2.Z075...B00-0-M	R928051775	R928051776	R928051777
2.Z125...B00-0-M	R928051779	R928051780	R928051781

## Ordering code

### Spare parts

#### Mechanical optical maintenance indicator

01	02	03	04	05	06
W	O	-	D01	-	

01	Maintenance indicator	W
02	Mechanical optical indicator	O

#### Version

03	Pressure differential, modular design	D01
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#### Switching pressure

04	5.0 bar [72.5 psi]	5.0
	8.0 bar [116.0 psi]	8.0

#### Seal

05	NBR seal	M
	FKM seal	V

#### Max. operating pressure

06	Switching pressure 5.0 bar [72.5 psi], 450 bar [6527 psi]	450
	Switching pressure 8.0 bar [116.0 psi], 450 bar [6527 psi]	450

Material no.	Description
R928025313	WO-D01-5.0-M-450
R901066235	WO-D01-5.0-V-450
R928038785	WO-D01-8.0-M-450
R928038784	WO-D01-8.0-V-450

## Ordering code

### Spare parts

#### Seal kit

01	02	03	04
320PZ		- 2X	/

01	Series	320PZ
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#### Size

02	NG06/025	06/025
	NG10/075-10/125	10/075-10/125

03	Component series 20 ... 29 (20 ... 29: unchanged installation and connection dimensions)	2X
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#### Seal

04	NBR seal	M
	FKM seal	V

#### Seal kit

Material no.	Description
R928054066	320PZ06/025-2X/M
R928054067	320PZ06/025-2X/V
R928054068	320PZ10/075-10/125-2X/M
R928054069	320PZ10/075-10/125-2X/V

## Assembly, commissioning, maintenance

### Installation

- ▶ The max. operating pressure of the system must not exceed the max. permissible operating pressure of the filter (see name plate).
- ▶ During assembly of the filter the flow direction (inlet = P bore / seal side) and the required servicing height of the filter element (see chapter "Dimensions") are to be considered.
- ▶ Filter element exchange is made easiest when the filter bowl is oriented horizontal. The installation position - filter bowl upward - is not permitted.
- ▶ The maintenance indicator must be arranged so it is easily viewed in operation.
- ▶ Remove the protective wrapping from the filter inlet and outlet.
- ▶ The optional electronic maintenance indicator is connected via the electronic 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.

### Commissioning

- ▶ Start the system.

#### **Notice:**

There is no bleeding provided at the filter.

### Maintenance

- ▶ If at operating temperature, the red indicator pin reaches out of the mechanical optical maintenance indicator and/or if the switching process in the

electronic switching element is triggered, the filter element is contaminated and needs to be replaced or cleaned respectively.

- ▶ The material number of the corresponding replacement filter element is indicated on the name plate of the complete filter. It must correspond to the material number on the filter element.
- ▶ Turn off the system.
- ▶ Depressurize the system.

#### **Notice:**

There is no bleeding provided at the filter.

- ▶ Unscrew the filter bowl.
- ▶ Remove the filter element from the spigot by rotating it slightly.
- ▶ Clean the filter components, if necessary.
- ▶ Check the seals at the filter bowl for damage and replace them, if necessary. For suitable seal kits refer to chapter "Spare parts".
- ▶ Install the new filter element on the spigot again by slightly rotating it.
- ▶ The filter is to be assembled in reverse order.

Please note:

Screw in the filter bowl to the stop, unscrew the filter bowl again by 1/8 to 1/2 rotation so that the filter bowl does not get stuck due to the pressure pulsation and can be loosened easily during maintenance work.

- ▶ The torque specifications ("Tightening torques" chapter) are to be observed.
- ▶ Start the system.

#### **WARNING!**

- ▶ Assemble and disassemble only with depressurized system!
- ▶ Filter is under pressure!
- ▶ Remove the filter bowl only if it is depressurized!
- ▶ Do not exchange the maintenance indicator while the filter is under pressure!

- ▶ If the flow direction is not considered during assembly, the filter element will be destroyed. Particles will enter the system and damage downstream components.

#### **Notices:**

- ▶ All filter maintenance should be performed by trained specialists.
- ▶ Proper function and safety are only guaranteed if original Hengst filter elements and spare parts are used.

- ▶ Warranty becomes void if the delivered item is changed by the ordering party or third parties or improperly mounted, installed, maintained, repaired, used or exposed to environmental condition that do not comply with the installation conditions.

## Tightening torque

(dimensions in mm [*in*])

Series	320PZR/PZL06/025	320PZR10/075	320PZR10/125
Filter bowl	Screw in the filter bowl to the stop, unscrew the filter bowl again by 1/8 to 1/2 rotation		
Mechanical optical maintenance indicator		Max. 50 Nm [37lb·ft]	
Cubic connector screw switching element EN-175301-803		M3/0.5 Nm [0.4 lb·ft]	

## 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
$\Delta p$ (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.

### Classification according to the Pressure Equipment Directive

#### Directive

The block mounting filter for hydraulic applications according to 51468 are pressure holding equipment according to article 1, section 2.1.4 of the Pressure Equipment Directive 97/23/EC (PED). However, based on 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).

The fluids from the chapter “Compatibility with approved pressure fluids” were considered for the classification. They do not receive a CE mark.

## Directives and standardization

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

The block mounting filter according to 51468 are not equipment or components in the sense of directive 94/9/EC and are not provided with a CE mark. It has been proven with the ignition risk analysis that these block mounting filters do not have own ignition sources acc. to DIN EN 13463-1:2009.

According to DIN EN 60079-11:2012, electronic maintenance indicators with a switching point:

WE-1SP-M12x1 **R928028409**  
WE-1SP-EN175301-803 **R928036318**

are simple, electronic operating equipment that do not have an own voltage source. This simple, electronic operating equipment may - according to DIN EN 60079-14:2012 - in intrinsically safe electric circuits (Ex ib) be used in systems without marking and certification.

The block mounting filters and the electronic maintenance indicators described here can be used for the following explosive areas:

zone suitability		
Gas	1	2
Dust	21	22

### Complete filter with mech./opt. Maintenance indicator

Use /assignment	Gas 2G	Dust 2D
Assignment	Ex II 2G c IIC TX	Ex II 2D c IIC TX
Conductivity of the medium pS/m	min	300
Dust accumulation	max	0.5 mm

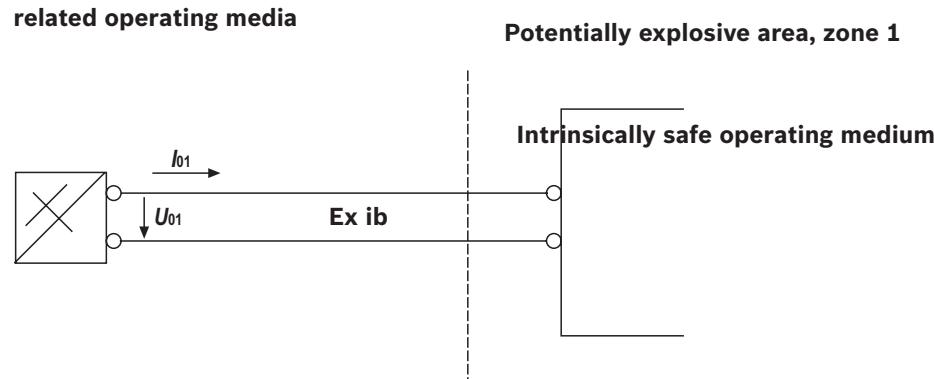
### electronic switching element in the intrinsically safe electric circuit

Use /assignment	Gas 2G	Dust 2D
Assignment	Ex II 2G Ex ib IIB T4 Gb	Ex II 2D Ex ib IIIC T100°C Db
perm. intrinsically safe electric circuits	Ex ib IIC, Ex ic IIC	Ex ib IIIC
Technical data		
Switching voltage Ui	max	150 V AC/DC
Switching current Ii	max	1.0 A
Switching power Pi	max	1.3 W T4 $T_{max}$ 40 °C
		750 mW $T_{max}$ 40 °C
	max	1.0 W T4 $T_{max}$ 80 °C
		550 mW $T_{max}$ 100 °C
Surface temperature <sup>1)</sup>	max	100 °C
inner capacity Ci		negligible
inner inductivity Li		negligible
Dust accumulation	max	0.02 in

<sup>1)</sup> The temperature depends on the temperature of the medium in the filter and must not exceed the value specified here.

## Directives and standardization

Possible circuit according to DIN EN 60079-14



### ⚠ WARNING!

- ▶ Explosion hazard due to high temperature!  
The temperature depends on the temperature of the medium in the hydraulic circuit and must not exceed the value specified here. Measures are to be taken so that in the potentially explosive area, the max. permissible ignition temperature is not exceeded.
- ▶ When using the block mounting filters according to 51 468 in explosive areas, sufficient potential

equalization has to be ensured. The filter is preferably to be grounded via the mounting screws. It has to be noted in this connection that paintings and oxidic protective layers are not electrically conductive.

- ▶ During filter element exchanges, the packaging material is to be removed from the replacement element outside the explosive area

### ☞ Notices:

- ▶ Maintenance only by specialists, instruction by the machine end-user acc. to DIRECTIVE 1999/92/EC appendix II, section 1.1
- ▶ Functional and safety warranty only applicable when using genuine Hengst spare parts