

Tank mounted return line filter with filter element according to Hengst standard

Type 25TE0101 to 1051

RE 51472

Edition: 2021-04

Replaced: -



- ▶ Size according to Hengst standard: 0101 to 1051
- ▶ Component series 2X
- ▶ Nominal pressure max. 25 bar [362 psi]
- ▶ Connection up to 3"
- ▶ Operating temperature $-10\text{ }^{\circ}\text{C}$... $+100\text{ }^{\circ}\text{C}$ [14 °F ... 212 °F]

Features

The tank mounted return line filters are designed for installation on fluid tanks. Their function is to separate solid materials from fluids.

They distinguish themselves by the following:

- ▶ Filters for tank mounting and inline installation
- ▶ 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
- ▶ Optional equipment with different back pressure indicator
- ▶ Bypass valve in the filter element
- ▶ Filter element with integrated dirt retainer

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Ordering code filter

01	02	03	04	05	06	07	08	09	09	09										
25TE		-	2X	/		E00	-		-		-		-		-		-		-	

Series

01	Return line filter 25 bar [362 psi]	25TE
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Size

02	TE... (Filter elements according to Hengst standard)	0101 0201 0351 1051
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03	Component series 20 ... 29 (20 ... 29: unchanged installation and connection dimensions)	2X
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Filter rating in µm

04	Absolute (ISO 16889; $\beta_{x(c)} \geq 200$)	Glass fiber material, not cleanable	PWR3 PWR6 PWR10 PWR20
		Water-adsorbent, not cleanable	AS6 AS10 AS20
	Nominal	Paper, not cleanable	P10 P25
		Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100

Pressure differential

05	Max. admissible pressure differential of the filter element 20 bar [290 psi] (with bypass valve)	E00
----	--	-----

Maintenance indicator (1 unit per filter side)

06	Without maintenance indicator - bypass release pressure 3.0 bar [43 psi]	0
	Back pressure switch, optical, switching pressure 2.2 bar – bypass release pressure 3.0 bar [43 psi] ¹⁾	A2.2
	Back pressure switch, electrical, or optical-electrical, switching pressure 2.2 bar – bypass release pressure 3.0 bar [43 psi] ²⁾	B2.2
	Back pressure switch, electrical, ATEX, switching pressure 2.2 bar – bypass release pressure 3.0 bar [43 psi]	F2.2

Seal

07	NBR seal	M
	FKM seal	V


¹⁾ When using an optical back pressure switch, the maximum permissible operating pressure is reduced to 10 bar [87 psi].

²⁾ The mating connectors, with or without circuitry, must be ordered separately. See chapter "Accessories"

Ordering code filter

01	02	03	04	05	06	07	08	09	09	09						
25TE		-	2X	/		E00	-		-		-		-		-	

Port

08	Frame size	0101	0201	0351	1051	
	Port					
	G1	●				R4
	G1 1/2		●			R6
	SAE2" - 3000 psi			●		S8
	SAE3" - 3000 psi				●	S10
 Standard connection						

Supplementary information

09	Threaded coupling for venting, only if used as an inline filter, instead of a maintenance indicator	M
	Without bypass valve	NB
	Manufacturer's inspection certificate M according to DIN 55350-T18	Z1

Order example:

25TE0101-2X/PWR10E00-B2.2-M-R4

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

Preferred types

NBR seal, with bypass, flow specifications for 30 mm²/s [142 SUS]

Filter rating 3 µm, 6 µm, 10 µm and 20 µm

Filter type	Flow in l/min [gpm] with $v = 30 \text{ mm}^2/\text{s}$ [142 SUS] and $\Delta p = 0.5 \text{ bar}$ [7.25 psi] ¹⁾	Material no.	Material no. replacement element
25TE0101-2X/PWR3E00-B2.2-M-R4	24 [6.34]	R928054007	R928054019
25TE0201-2X/PWR3E00-B2.2-M-R6	69 [18.23]	R928054010	R928054022
25TE0351-2X/PWR3E00-B2.2-M-S8	99 [26.15]	R928054013	R928054025
25TE1051-2X/PWR3E00-B2.2-M-S10	203 [53.63]	R928054016	R928054028
25TE0101-2X/PWR6E00-B2.2-M-R4	29 [7.66]	R928054008	R928054020
25TE0201-2X/PWR6E00-B2.2-M-R6	82 [21.66]	R928054011	R928054023
25TE0351-2X/PWR6E00-B2.2-M-S8	148 [39.10]	R928054014	R928054026
25TE1051-2X/PWR6E00-B2.2-M-S10	238 [62.78]	R928054017	R928054029
25TE0101-2X/PWR10E00-B2.2-M-R4	36 [9.51]	R928053165	R928053667
25TE0201-2X/PWR10E00-B2.2-M-R6	105 [27.74]	R928053167	R928053669
25TE0351-2X/PWR10E00-B2.2-M-S8	176 [46.49]	R928053169	R928053671
25TE1051-2X/PWR10E00-B2.2-M-S10	260 [68.68]	R928053170	R928053672
25TE0101-2X/PWR20E00-B2.2-M-R4	53 [14.00]	R928054009	R928054021
25TE0201-2X/PWR20E00-B2.2-M-R6	134 [35.40]	R928054012	R928054024
25TE0351-2X/PWR20E00-B2.2-M-S8	222 [58.65]	R928054015	R928054027
25TE1051-2X/PWR20E00-B2.2-M-S10	314 [82.95]	R928054018	R928054030

The matching mating connector can be selected as a separate order item in Section "Ordering Data Accessories".

¹⁾ Measured back pressure across filter and measuring equipment according to ISO3968. The measured back pressure at the maintenance indicator is lower.

Ordering code accessories



(dimensions in mm [inch])

With the option “electrical maintenance indicator” (B ...) an electrical service indicator is installed at the factory. The following mating connectors can be selected as an optional accessory:

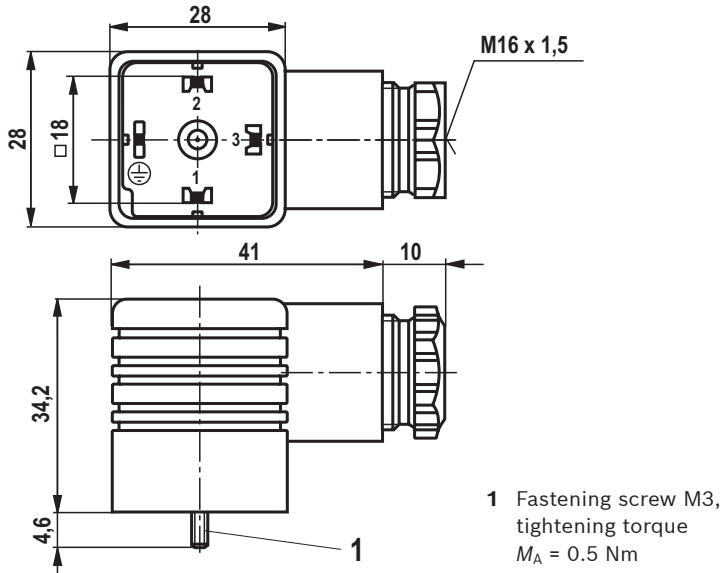
Mating connectors according to DIN EN 175301-803

For mechanical pressure switches with connector “K14”, according to EN 175301-803 and ISO 4400, 3-pole + PE, “large cubic connector”

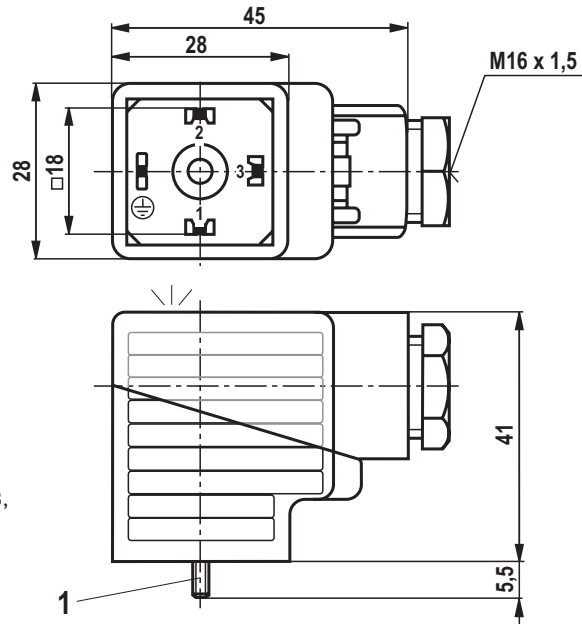
Mating connector 3-pole + PE

Material no.	Designation	Fitting	Number of poles	Type of connection	Max. line cross-section	Circuitry	Figure
R901017012	4P Z14 M SW SPEZ	M16 x 1.5	3 + PE	Screw connection	1.5 mm ² with wire end ferrule	Without circuitry: Z14	
R901017048	4P Z15L M 24 V SPEZ	M16 x 1.5	3 + PE	Screw connection	1.5 mm ² with wire end ferrule	With indicator light: Z15L	
R901017037	4P Z15L M 220 V SPEZ	M16 x 1.5	3 + PE	Screw connection	1.5 mm ² with wire end ferrule	With indicator light: Z15L	

Dimensions mating connector Z14



Dimensions mating connector Z15L



For further mating connectors, refer to data sheet 08006.

Order example:

Tank mounted return line filter with electrical maintenance indicator for $p_{nom.} = 25 \text{ bar}$ [362 psi], size 0101, with filter element 10 μm and mating connector with 1 switching point.

Filter with back pressure switch, electrical: 25TE0101-2X/PWR10E00-B2.2-M-R4

Material no.: R928053165

Mating connector: 4P Z14 M SW SPEZ

Material no. R901017012

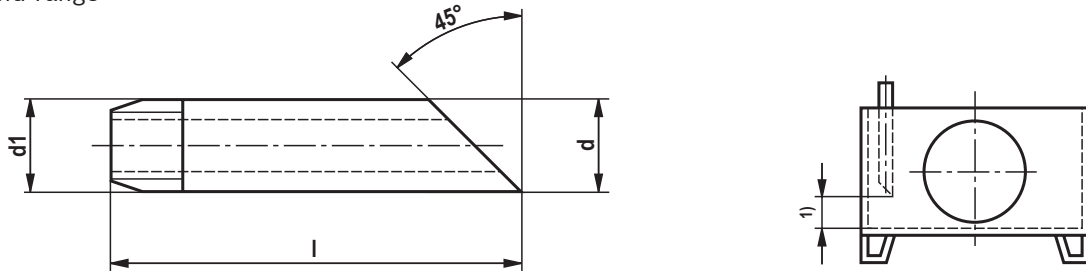
Ordering code accessories

(dimensions in mm [inch])

Outlet pipe

Outlet pipe with threaded connection

Dimensions and range



- ¹⁾ Recommended distance to tank bottom (unless otherwise specified): 60...160 mm [2.4...6.3 inch]
From a pipe length of 400 mm [15.75 inch], we strongly recommend fixing the outlet pipe with an internal tank pipe bracket.

DN	d	Dimensions d1	l	Material no.		
				galvanized Description: PIPE AB23-03/R...	ES (stainless) Description: PIPE AB23-03/R... -ES	
25 [0.98]	33.7 [1.33]	R1	120 [4.72]	1 L = 120	R900720647	-
			160 [6.30]	1 L = 160	R900152595	R900033168
			250 [9.84]	1 L = 250	R900105615	-
			400 [15.75]	1 L = 400	R900063899	-
			450 [17.72]	1 L = 450	R900104909	-
			800 [31.50]	1 L = 800	R900029849	-
			1500 [59.06]	1 L = 1500	R900766109	-
40 [1.57]	48.3 [1.90]	R1 1/2	250 [9.84]	1 1/2 L = 250	R900109501	R900062066
			400 [15.75]	1 1/2 L = 400	R900083146	R900074878
			800 [31.50]	1 1/2 L = 800	R900029854	-
			1300 [51.18]	1 1/2 L = 1300	R900302230	-
			2000 [78.74]	1 1/2 L = 2000	R900229461	-
50 [1.97]	60.3 [2.37]	R2	400 [15.75]	2 L = 400	R900727174	R900987657
			800 [31.50]	2 L = 800	R900029856	R900226706
80 [3.15]	88.9 [3.50]	R3	160 [6.30]	3 L = 160	R900062845	-
			200 [7.87]	3 L = 200	R900061785	R900062067
			350 [13.78]	3 L = 350	R900084137	-
			650 [25.59]	3 L = 650	R900076923	R900757513
			800 [31.50]	3 L = 800	R900029838	R900987653

Thread:

Whitworth pipe thread according to DIN 2999 part 1, poppet 1:16

Material/surface treatment:

St 33-1 according to DIN 17100/galvanized (B) according to DIN 2444
1.4541

Order example/search term

Pipe according to DIN 2440 (ISO 65) with thread R1 1/2 and L = 250 mm [9.84 inch], galvanized:

PIPE AB23-03/R1 1/2 L = 250 material no. R900109501

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: hydraulics for industrial use and applications with lubricating oil

Product category: please select

type: please select

pressure range: please select

filter material: please select

fineness: please select

volume flow rate: [l/min]

viscosity:
 * = working point

kin viscosity 1: [mm²/s]

search via type of medium full-text search medium

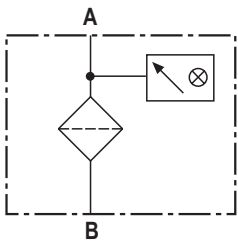
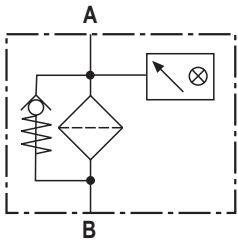
temp 1: [°C] [°F] kin viscosity 1: [mm²/s]

dyn. Viscosity 1: [cP] density 1: [kg/dm³] kin viscosity 1: [mm²/s]

collapse pressure resistance according to ISO 2941:

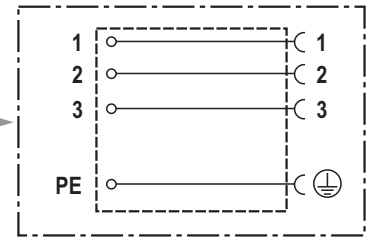
Symbols

Tank mounted return line filter
with bypass and with mechanical indicator



Tank mounted return line filter
without bypass and with
mechanical indicator

Switching element **Connector**

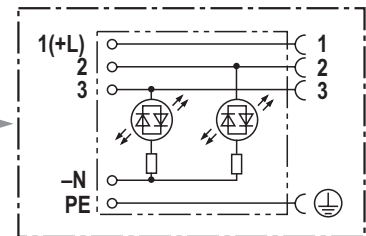


Z14

12 ... 240 V

Material no. R901017012

Switching element **Connector**



Z15L

16 ... 30 V

Material no. R901017048

180 ... 240 V

Material no. R901017037

Function, section

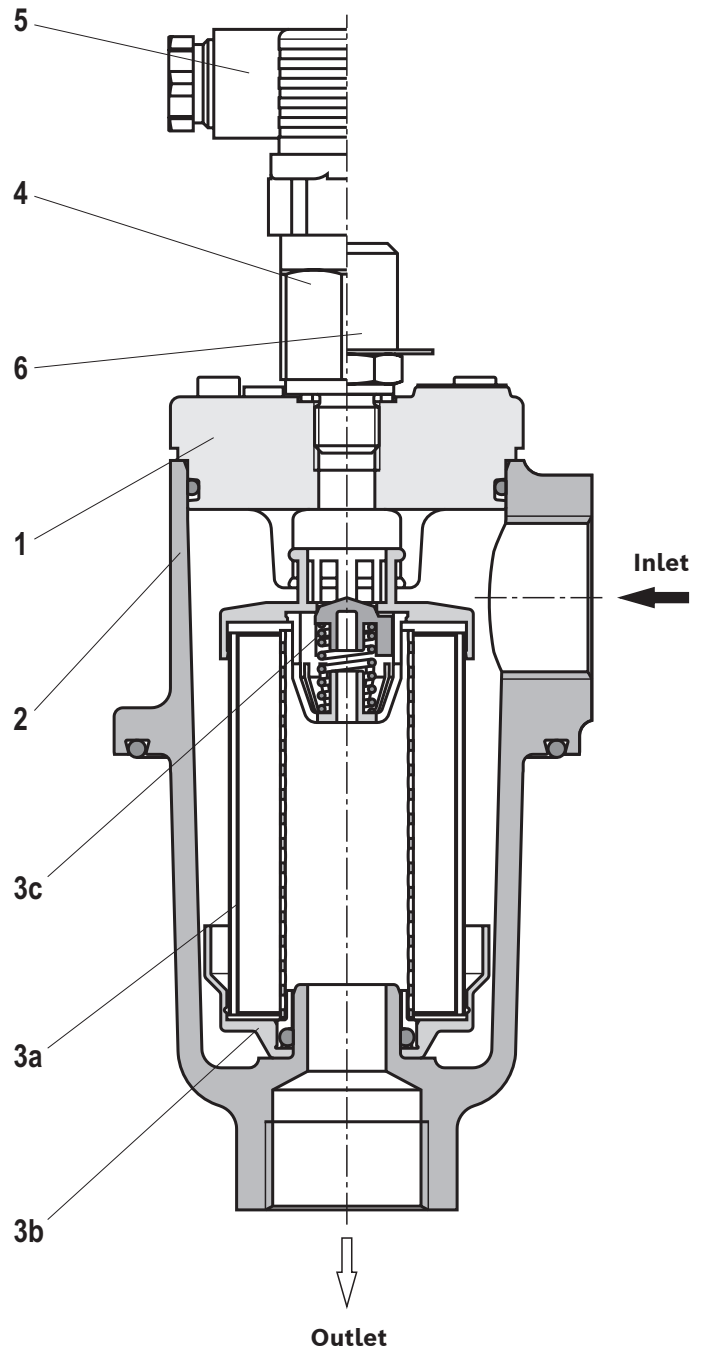
The tank mounted return line filter is located in the return line for direct attachment onto the tank of a hydraulic or lubrication system. Optionally, the filter can also be installed as an inline filter in a pipeline.

The filter basically consists of filter cover (1), filter housing (2), filter element (3), as well as a bypass valve (3c). Optionally, the filter is equipped with maintenance indicator (4). With an electrical maintenance indicator the connection can be carried out via different mating connectors (5). If the filter is used as an inline filter, a threaded ring (6) must be configured with the order data - additional data "M" and a maintenance indicator waived. If necessary, the customer must provide an external differential pressure measurement.

During operation, the hydraulic fluid reaches the filter housing via the inlet; here, it flows through the filter element (3a) from the outside to the inside and is cleaned according to the filter rating. The dirt particles filtered out collect in the dirt retainer (3b) and in the filter element (3a). Via the outlet, the filtered hydraulic fluid enters the tank. When the element becomes fully contaminated, the required element change is signaled by the maintenance indicator (4 or 5). There are several maintenance indicators to choose from:

1. Mechanical visual maintenance indicator
2. Electrical maintenance indicator with three possible mating connectors (mating connectors are to be ordered separately)
3. Electrical maintenance indicator ATEX with pre-assembled mating connector

Refer to the chapter "Maintenance indicator" for details.



Type 25TE0101

Technical data

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

General					
Weight	NS	0101	0201	0351	1051
	kg [lbs]	3.0 [6.6]	5.8 [12.79]	12.0 [26.46]	21.5 [47.40]
Volume	NS	0101	0201	0351	1051
	l [US gal]	0.5 [0.13]	1.0 [0.26]	2.5 [0.66]	6.2 [1.64]
Installation position	Vertical				
Ambient temperature range	°C [°F]	-10 ... +65 [14...+149] (short periods down to -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 %		
Material	▶ Filter cover	Grey cast iron (Size 0101 ... 0351) Ductile iron (Size 1051)			
	▶ Filter housing	Grey cast iron (Size 0101 ... 0351) Ductile iron (Size 1051)			
	▶ Maintenance indicator	A2.2	Aluminum		
		B2.2	Brass		
		F2.2	Stainless steel		
	▶ Bypass valve	Plastic PA 6			
	▶ Mating connector	Plastic			
▶ Seals	NBR / FKM				
Surface requirement for tank opening	▶ Roughness depth R_z max.	µm	25		
	▶ Flatness t_E max.	µm	200		

Hydraulic					
Maximum operating pressure	bar [psi]	25 [362]			
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 ⁶ with max. operating pressure			
Type of pressure measurement of the maintenance indicator	Back pressure				
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		
		without maintenance indicator	3.0 ± 0.3 [43.5 ± 4.4]		
		with pressure gauge			
		A2.2 ± 0.3 [31.9 ± 4.4]			
		B2.2 ± 0.3 [31.9 ± 4.4]			
F2.2 ± 0.3 [31.9 ± 4.4]					
Filtration direction	From the outside to the inside				

Technical data

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

Electric (mating connector or electrical maintenance indicator)					
Electrical connection		Standard connection EN 175301-803			Standard connection EN 175301-803 ATEX
Version		WE-S02-...-1X/K4			WE-S02-...-1X/EN-XH
Mating connectors		R901017012	R901017048	R901017037	Pre-assembled
Voltage range	V _{max.}	12 ... 250 (DC/AC)	16 ... 30 (DC/AC)	180 ... 250 (DC/AC)	-
Current	A _{max.}	16	4		
Display via LEDs in the electronic switching element ¹⁾		-	Stand-by (LED green); 100 % switching point (LED yellow)		-
Electric maintenance indicator					
Voltage	V _{max.}	14 VDC	14 VDC	250 VAC	20 (DC/AC)
Current with inductive (resistive) load	A _{max.}	5 (4)	5 (4)	5 (1)	0.2
Voltage	V _{max.}	30 VDC	30 VDC		
Current with inductive (resistive) load	A _{max.}	4 (3)	4 (3)		
Voltage	V _{max.}	125 VAC			
Current with inductive (resistive) load	A _{max.}	5 (3)			
Voltage	V _{max.}	250 VAC			
Current with inductive (resistive) load	A _{max.}	5 (1)			
Switching type		Changeover	Changeover	Changeover	Changeover
Display via LEDs in the mating connector ¹⁾		-	Stand-by (LED green); 100 % switching point (LED yellow)		-
Protection class according to EN 60529 2 with assembled mating connector	IP	65			
Ambient temperature range maintenance indicator	°C [°F]	-40 ... +65 [-40 ... +149]			
Ambient temperature range Mating connector	°C [°F]	-40...+125 [-40 ... +257]			
	°C [°F]	-20...+60 [-4 ... +140]			
For direct voltage above 24 V, spark extinguishing is to be provided for protecting the switching contacts.					
Mass mating connector	kg [lbs]	0.03 [0.07]			-
Mass maintenance indicator	kg [lbs]	0.14 [0.31]			
Filter element					
Glass fiber material 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)		
Particle separation	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 E00	bar [psi]	20 [290]			

¹⁾ Functionality

Maintenance indicator for monitoring the maximum differential pressure. When operating voltage is applied, the green LED lights up. On reaching the switching point contact 1-3 opens, and contact 1-2 close. The yellow LED lights up.

Compatibility with permitted hydraulic fluids

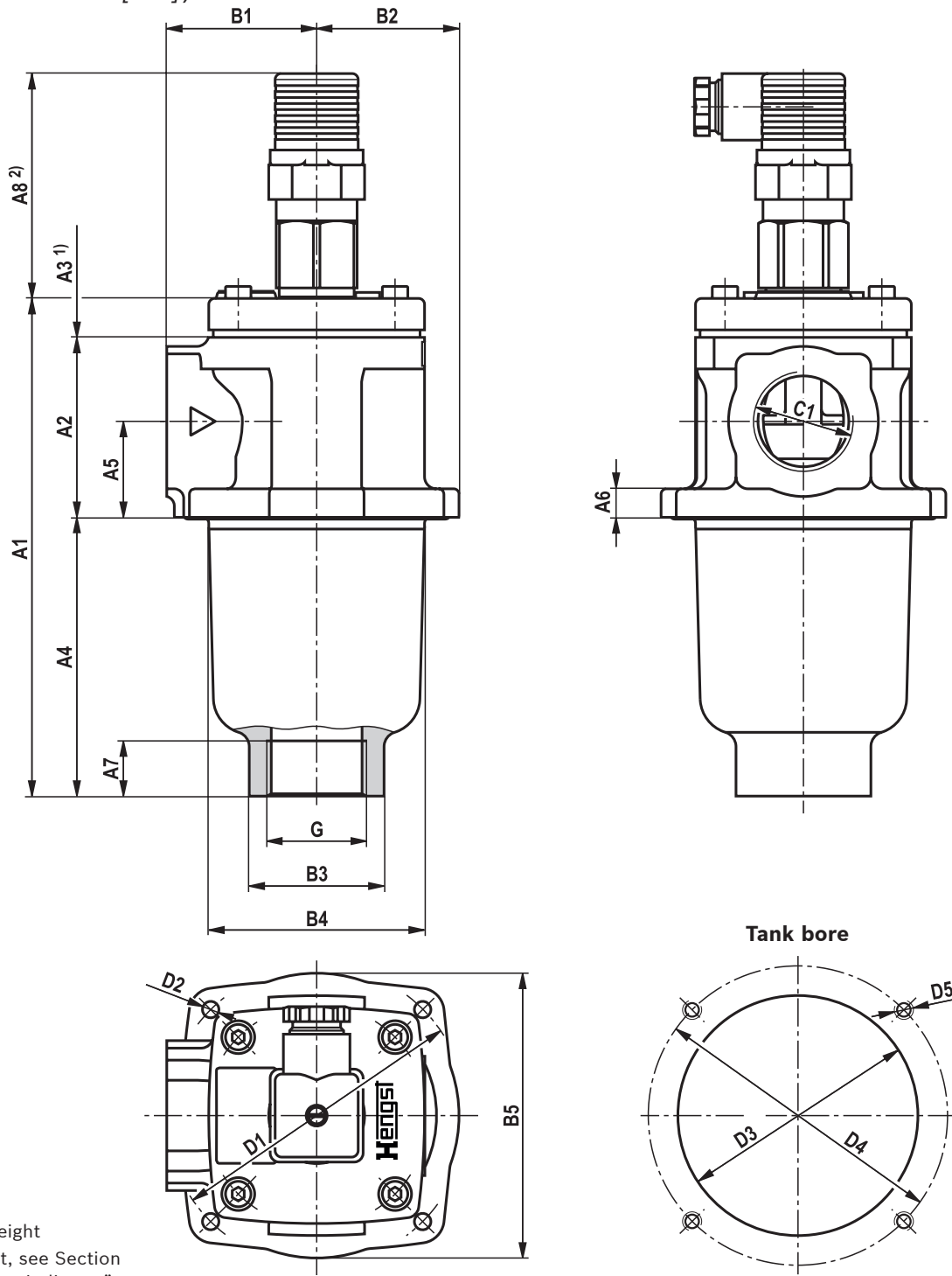
Hydraulic fluid	Classification	Suitable sealing materials	Standards
Mineral oil	HLP	NBR	DIN 51524
Bio-degradable	– insoluble in water	HETG	VDMA 24568
		HEES	
	– soluble in water	HEPG	VDMA 24568
Flame-resistant	– water-free	HFDU, HFDR	VDMA 24317
	– containing water	HFAS	DIN 24320
		HFAE	
		HFC	
		NBR	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 may not be used, filter elements with glass fiber material or wire mesh 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.

Dimensions: 25TEN0101, 0201
(dimensions in mm [inch])

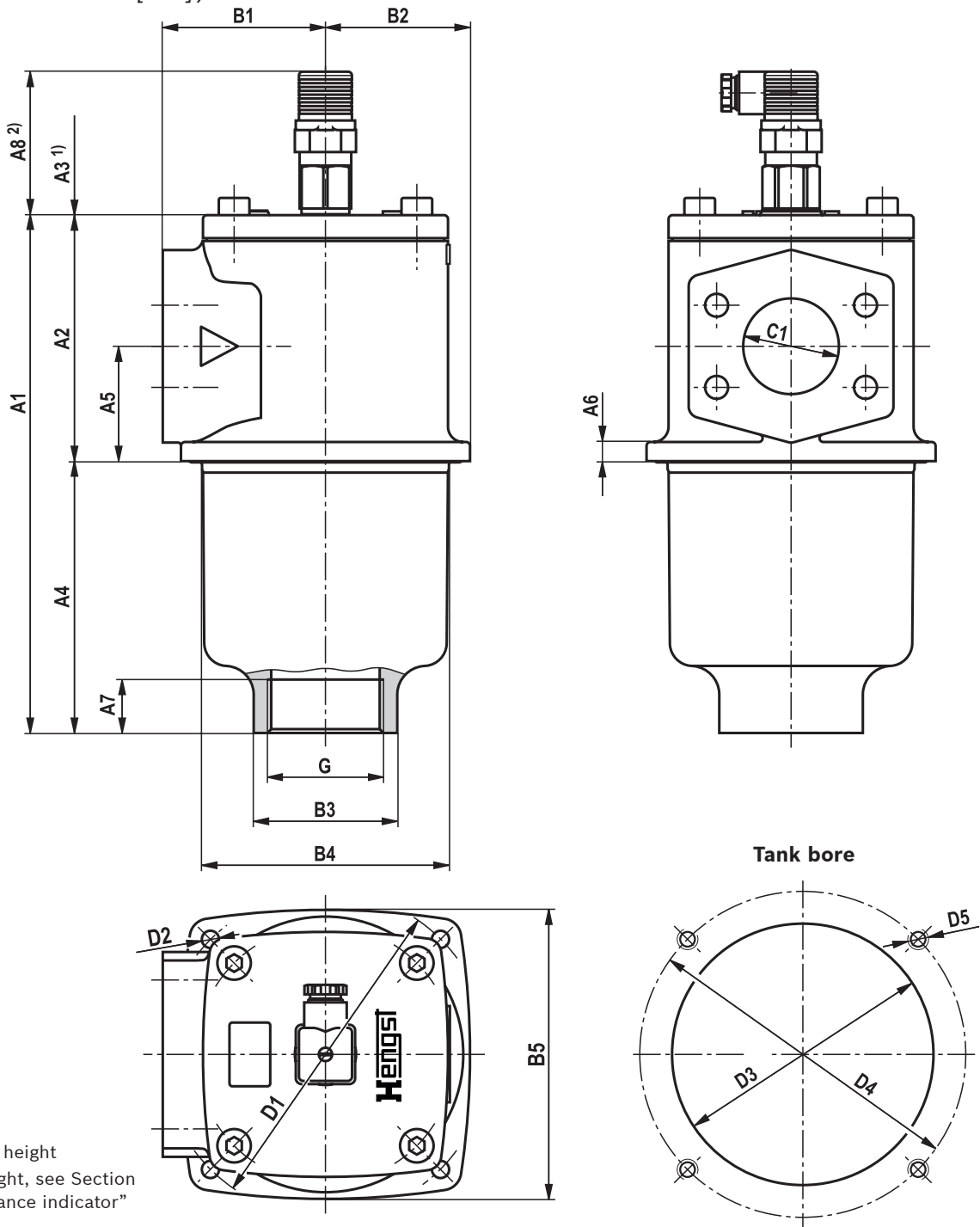


- 1) Servicing height
- 2) Exact height, see Section "Maintenance indicator"

Type	Lengths / heights							
	A1	A2	A3 ¹⁾	A4	A5	A6	A7	A8 ²⁾
25TE0101	166 [6.54]	60 [2.36]	105 [4.13]	93 [3.66]	32 [1.26]	9.5 [0.37]	18 [0.71]	approx. 75 [2.95]
25TE0201	209 [8.23]	73 [2.87]	145 [5.71]	123 [4.84]	37 [1.46]	8 [0.31]	22 [0.87]	

Type	Widths					Ports		Mounting / Tank bore				
	B1	B2	ØB3	ØB4	B5	C1	G	ØD1	ØD2	ØD3	ØD4	D5
25TE0101	50 [1.97]	47.5 [1.87]	45 [1.77]	72 [2.83]	95 [3.74]	G1	G1	100 [3.94]	5.5 [0.22]	80 [3.15]	100 [3.94]	M5
25TE0201	66 [2.60]	60 [2.36]	58 [2.28]	88 [3.46]	120 [4.72]	G1 1/2	G1 1/2	135 [5.31]	6.6 [0.26]	106 [4.17]	135 [5.31]	M6

Dimensions: 25TEN0351, 1051
(dimensions in mm [inch])



1) Servicing height
2) Exact height, see Section "Maintenance indicator"

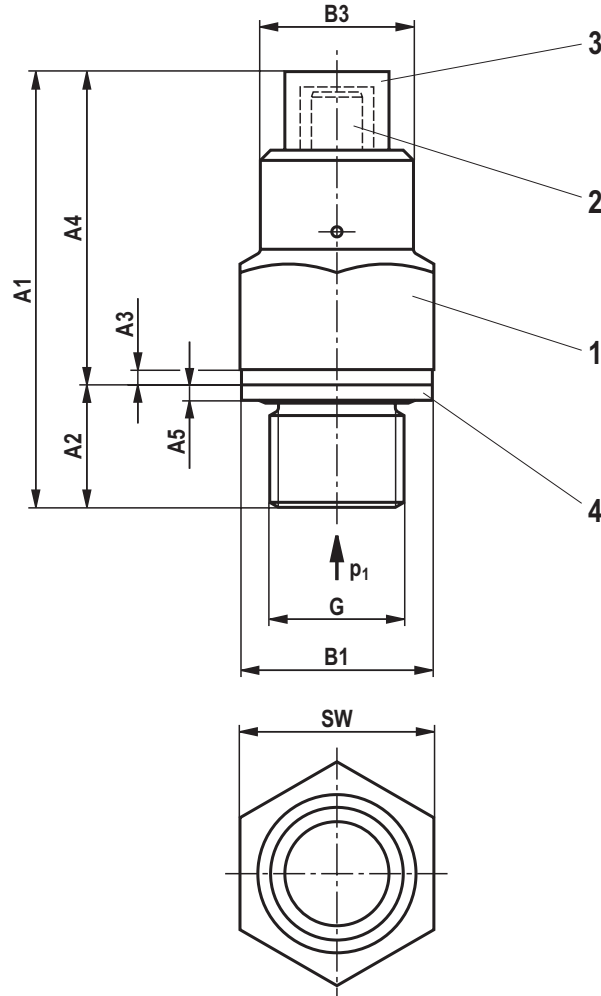
Type	Lengths / heights							
	A1	A2	A3 ¹⁾	A4	A5	A6	A7	A8 ²⁾
25TE0351	270.5 [10.65]	115 [4.53]	200 [7.87]	142 [5.59]	60 [2.36]	10 [0.39]	27 [1.06]	approx. 75 [2.95]
25TE1051	411 [16.81]	152 [5.98]	333 [13.11]	246 [9.69]	80 [3.15]	10 [0.39]	32 [1.26]	

Type	Widths					Ports		Mounting / Tank bore				
	B1	B2	ØB3	ØB4	B5	C1	G	ØD1	ØD2	ØD3	ØD4	D5
25TE0351	85 [3.35]	75.5 [2.97]	75 [2.95]	129 [5.08]	151 [5.94]	SAE2" 3000 psi	G2	170 [6.69]	9 [0.35]	135 [5.31]	170 [6.69]	M8
25TE1051	110 [4.33]	97.5 [3.84]	110 [4.33]	166 [6.54]	195 [7.68]	SAE3" 3000 psi	G3	220 [8.66]	14 [0.55]	180 [7.09]	220 [8.66]	M12

Maintenance indicator
(dimensions in mm [inch])

Mechanical optical maintenance indicator

WO-S02-...-. -10-G1/4-1SP-1X/



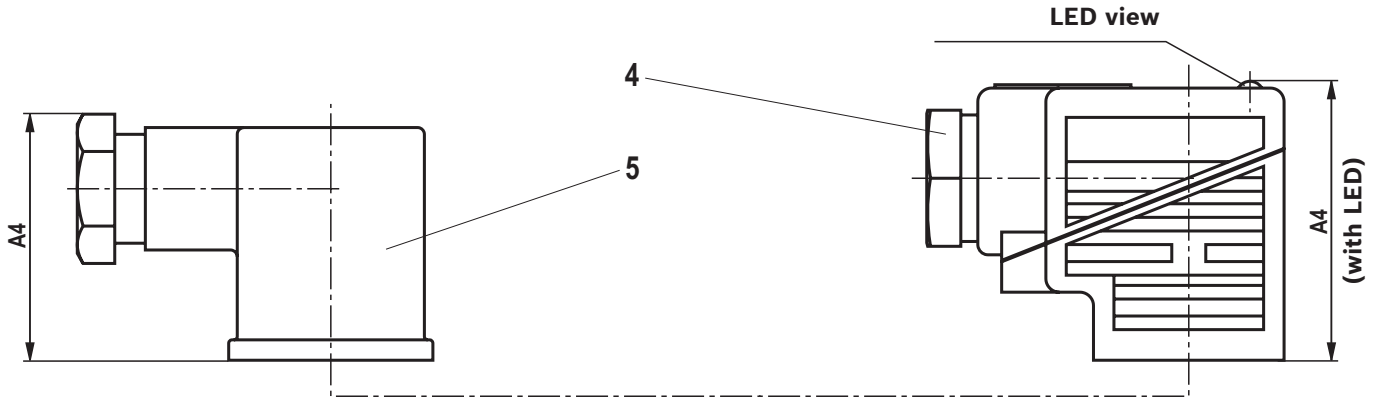
- 1 Mechanical optical maintenance indicator; monostable
max. tightening torque $M_{A \max} = 30 \text{ Nm} \pm 3 \text{ Nm}$ [22.13 ± 2.21 lb-ft]
- 2 Signal pin red, switching point 100 % when fully extended
- 3 Transparent plastic cap
- 4 USIT ring

Dimensions

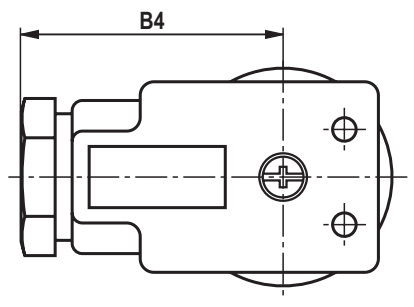
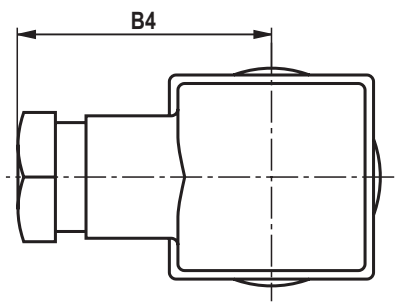
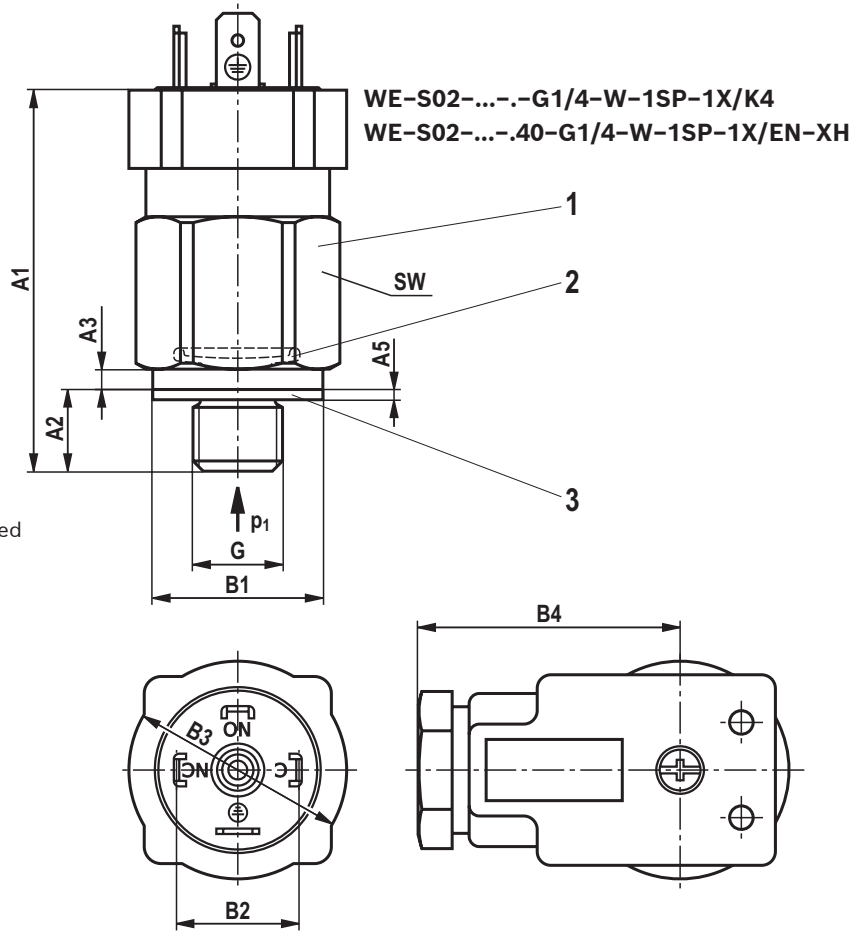
Type	A1	A2	A3	A4	A5	ØB1	B2	ØB3	B4	G	SW
WO-S02	approx. 42.7 [1.68]	12 [0.47]	1.5 [0.06]	30.7 ± 0.3 [1.21 ± 0.01]	1.5 [0.06]	18.7 [0.74]	-	15 [0.59]	-	G1/4	19 [0.75]

Maintenance indicator
(dimensions in mm [inch])

Electric maintenance indicator



- 1 Electric maintenance indicator;
max. tightening torque brass
 $M_{A \max} = 40 \text{ Nm [29.50 lb-ft]}$
max. tightening torque stainless steel
 $M_{A \max} = 70 \text{ Nm [51.63 lb-ft]}$
- 2 Membrane
- 3 Bolt seal USIT
- 4 Mating connector with two LEDs:
Green: stand-by
Yellow: switching point 100 %
Various voltage ranges available:
R901017048 16 ... 30 (DC/AC), to be ordered separately
R901017037 180 ... 250 (DC/AC), to be ordered separately
- 5 Mating connector without LED
R901017012 standard version 12 ... 250 (DC/AC), to be ordered separately, ATEX version, pre-assembled at the factory



Thread dimensions with mating connector 25TE

Type	A1	A2	A3	A4	A5	ØB1	B2	ØB3	B4	G	SW
WE-S02				-			18 [0.71]		-		
WE-S02 + R901017012	approx. 56 [2.20]	12 [0.47]	3 [0.12]	36.2 [1.43]	1.5 [0.06]	25 [0.98]	-	32 [1.26]	37.25 [1.47]	G1/4	27 [1.06]
WE-S02 + R901017037				41 [1.61]					38.5 [1.52]		
WE-S02 + R901017048				40.5 [1.59]							

Ordering code spare parts

Filter element

01	02	03	04	05	06
20.			- E00	- 6	-

01	Design	20.
----	--------	-----

Size

02	TE... (Filter elements according to Hengst standard)	0101 0201 0351 1051
----	---	------------------------------

Filter rating in μm

03	Absolute (ISO 16889; $\beta_{x(c)} \geq 200$)	Glass fiber material, not cleanable	PWR3 PWR6 PWR10 PWR20
		Water-adsorbent, not cleanable	AS6 AS10 AS20
	Nominal	Paper, not cleanable	P10 P25
		Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100

Pressure differential

04	Maximum admissible pressure differential of the filter element: 20 bar [290 psi]	E00
----	--	-----

Bypass valve

05	Bypass valve release pressure 3.0 bar [43 psi]	6
----	--	---

Seal

06	NBR seal	M
	FKM seal	V

Order example:

20.0101 PWR10-E00-6-M

Preferred program replacement elements

Filter element type	Filter material/material no.			
	PWR3	PWR6	PWR10	PWR20
20.0101 ...-E00-6-M	R928054019	R928054020	R928053667	R928054021
20.0201 ...-E00-6-M	R928054022	R928054023	R928053669	R928054024
20.0351 ...-E00-6-M	R928054025	R928054026	R928053671	R928054027
20.1051 ...-E00-6-M	R928054028	R928054029	R928053672	R928054030

Ordering code spare parts

Mechanical optical maintenance indicator

01	02	03	04	05	06	07	08	09						
W	O	-	S02	-	2.2	-	10	-	G1/4	-	1SP	-	1X	/

01	Maintenance indicator	W
----	-----------------------	---

02	Mechanical optical indicator ¹⁾	O
----	--	---

Version

03	Back pressure, compact design	S02
----	-------------------------------	-----

Switching pressure

04	2.2 bar [32 psi]	2.2
----	------------------	-----

Seal

05	NBR seal	M
	FKM seal	V

Max. nominal pressure

06	10 bar [145 psi]	10
----	------------------	----

Connection thread

07	Connection thread fluid, G1/4	G1/4
----	-------------------------------	------

Type of signal

08	One switching point	1SP
----	---------------------	-----

09	Component series 10 ... 19 (10 ... 19: unchanged installation and connection dimensions)	1X
----	--	----

Material no.	Description
R928053491	WO-S02-2.2-M-10-G1/4-1SP-1X/
R928053492	WO-S02-2.2-V-10-G1/4-1SP-1X/

¹⁾ When using an optical back pressure switch, the maximum permissible operating pressure is reduced to 10 bar [87 psi].

Ordering code spare parts

Electric maintenance indicator

01	02	03	04	05	06	07	08	09	10	11								
W	E	-	S02	-	2.2	-	-	40	-	G1/4	-	1SP	-	1X	/	EN	-	XH

01	Maintenance indicator	W
----	-----------------------	---

02	Electronic displays	E
----	---------------------	---

Version

03	Back pressure, compact design	S02
----	-------------------------------	-----

Switching pressure

04	2.2 bar [32 psi]	2.2
----	------------------	-----

Seal

05	NBR seal	M
	FKM seal	V

Max. nominal pressure

06	40 bar [580 psi]	40
----	------------------	----

Connection thread

07	Connection thread fluid, G1/4	G1/4
----	-------------------------------	------

Type of signal

08	One switching point	1SP
----	---------------------	-----

09	Component series 10 ... 19 (10 ... 19: unchanged installation and connection dimensions)	1X
----	--	----

Supplementary information

10	Rectangular plug-in connection according to EN175301-803	EN
----	--	----

11	ATEX with type certificate, II 1GD Ex ia IIC TX Ex ia IIIC TX°C X	XH
----	--	----

Material no.	Description
R928053346	WE-S02-2.2-M-40-G1/4-W-1SP-1X/K4
R928053347	WE-S02-2.2-V-40-G1/4-W-1SP-1X/K4
R928053348	WE-S02-2.2-M-40-G1/4-W-1SP-1X/EN-XH
R928053349	WE-S02-2.2-V-40-G1/4-W-1SP-1X/EN-XH

Ordering code spare parts

Seal kit

01	02	03	04	05
D	25TE		- 2X / -	

01	Seal kit	D
----	----------	---

02	Series	25TE
----	--------	------

Size

03	0101	0101
	0201	0201
	0351	0351
	1051	1051

04	Component series 20 ... 29 (20 ... 29: unchanged installation and connection dimensions)	2X
----	--	----

Seal

05	NBR seal	M
	FKM seal	V

Material no.	Description
R961010189	D25TE0101-2X/-M
R961010193	D25TE0101-2X/-V
R961010190	D25TE0201-2X/-M
R961010194	D25TE0201-2X/-V
R961010191	D25TE0351-2X/-M
R961010195	D25TE0351-2X/-V
R961010192	D25TE1051-2X/-M
R961010196	D25TE1051-2X/-V

Thread coupling for venting when used as an inline filter

Material no.	Description	Seal
R900009090	MCS20-SDS-E-G1/4-ST3N00Z-M	NBR
R900001264	MCS20-SDS-E-G1/4-ST3F00Z-M	FKM

Assembly, commissioning, maintenance

Assembly

- ▶ The max. operating pressure of the system must not exceed the max. admissible operating pressure of the filter (see type plate).
- ▶ Before the assembly, the hole pattern of the tank must be compared to the dimensions from the “Dimensions” chapter.
- ▶ It is strongly recommended to secure drain pipes longer than 500 mm with an inside tank mount bracket in order to avoid vibrations due to fluid flow in the tank. Additionally, it is necessary for maintenance work to ensure the filter housing and the outlet pipe are pulled out of the container together.
- ▶ During assembly of the filter (see also chapter “Tightening torque”), the flow direction (direction arrows) and the required servicing height of the filter element (see chapter “Dimensions”) are to be considered.
- ▶ Perfect functioning is only guaranteed in the installation position filter bowl vertically downwards and ON the tank.
- ▶ The maintenance indicator must be arranged so it is easily viewed during operation.
- ▶ Remove the plastic plugs in the filter inlet and outlet.
- ▶ Ensure that the system is assembled without tension stress.
- ▶ The connection of the electrical maintenance indicator is via a mating connector that is attached to the maintenance indicator contacts and held by a screw. The transport guard must be removed. The electrical maintenance indicator (ATEX) is delivered with the relevant mating connector.

Commissioning

- ▶ Commission the system.

Notice:

There is no bleeding provided at the filter. A vent is available only in the inline filter version.

Maintenance

- ▶ If at operating temperature, the red indicator pin reaches out of the mechanical optical maintenance indicator 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 comply with the material number on the filter element.
- ▶ Unscrew the filter cover and loosen the screws and remove the filter over upwards.

Notice:

Note that elements with lower filtration ratings may take slightly longer to discharge the residual oil.

- ▶ Remove the filter element from the spigot in the filter bowl by rotating it slightly.
- ▶ Remove filter element. From frame size 0351, the filter elements are equipped with removal brackets.
- ▶ Clean the filter components, if necessary.
- ▶ Check the seals at the filter cover for damage and replace them, if necessary. For suitable seal kits refer to chapter “Spare parts”.
- ▶ Filter elements made of wire mesh can be cleaned. For detailed cleaning instructions refer to data sheet 51420.
- ▶ Install the new or cleaned filter element on the spigot again by slightly rotating it.
- ▶ The filter is to be assembled in reverse order.
- ▶ The torque specifications (“Tightening torques” chapter) are to be observed.

Assembly, commissioning, maintenance

WARNING!

- ▶ Assemble and disassemble only with depressurized system! For the filter element exchange refer to “Maintenance”.
- ▶ Filter is pressurized!
- ▶ 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. Contamination will enter the system and damage the downstream components.

Notices:

- ▶ All work on the filter must be performed by trained specialists only.
- ▶ Functional and safety warranty only applicable when using genuine Hengst spare parts!
- ▶ 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 torques (dimensions in mm [inch])

Mounting filter cover

Series 25TE	0101	0201	0351	1051	
Screw cover fastening	M5 x 20	M8 x 20	M10 x 25	M16 x 25	
Quantity	4				
Recommended property class of screw	8.8				
Tightening torque with $\mu_{\text{total}} = 0.14$	Nm [lbf-ft]	6 ± 0.6 [4.43 ± 0.44]	25 ± 2.5 [18.4 ± 1.84]	50 ± 5.0 [36.9 ± 3.69]	150 ± 15 [110.6 ± 11]

Tank mounting

Series 25TE	0101	0201	0351	1051	
Tank mounting screw	M5	M6	M8	M12	
Quantity	4				
Recommended property class of screw	8.8				
Tightening torque with $\mu_{\text{total}} = 0.14$	Nm [lbf-ft]	7 ± 0.7 [5.16 ± 0.52]	13 ± 1.3 [9.6 ± 0.96]	18 ± 1.8 [13.3 ± 1.33]	60 ± 6 [44.3 ± 4.43]

Maintenance indicator

Series 25TE	0101	0201	0351	1051
Mechanical optical maintenance indicator	Nm [lbf-ft]	30 ± 3 [22.1 ± 2.21]		
Electric maintenance indicator; brass	Nm [lbf-ft]	max 40 [29.5]		
Electric maintenance indicator; stainless steel ATEX	Nm [lbf-ft]	max 70 [51.6]		
Cubic connector screw M3 switching element EN-175301-803	Nm [lbf-ft]	0.5 - 0.6 [0.37 - 0.44]		
Threaded coupling for venting	Nm [lbf-ft]	max 40 [29.5]		

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.

Classification according to the Pressure Equipment Directive

The tank mounted return line filters for hydraulic applications according to 51472 are pressure holding equipment according to article 1, section 2.1.4 of the Pressure Equip-

ment Directive 97/23/EC (PED). However, based on the exception in article 1, section 3.6 of the PED, 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 potentially explosive areas according to directive 94/9/EC (ATEX)

The tank mounted return line filters according to 51472 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 return line filters do not have own ignition sources acc. to DIN EN 13463-1:2009.

According to DIN EN 60079-11:2012, the electronic maintenance indicators WE-S02-2.2-...-40-G1/4-W-1SP-1X/K4 are simple electronic operating equipment not having 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.

The tank mounted return line filters with the electronic maintenance indicators described here can be used for the following explosive areas:

	Zone suitability ²⁾	
Gas	1	2
Dust	21	22

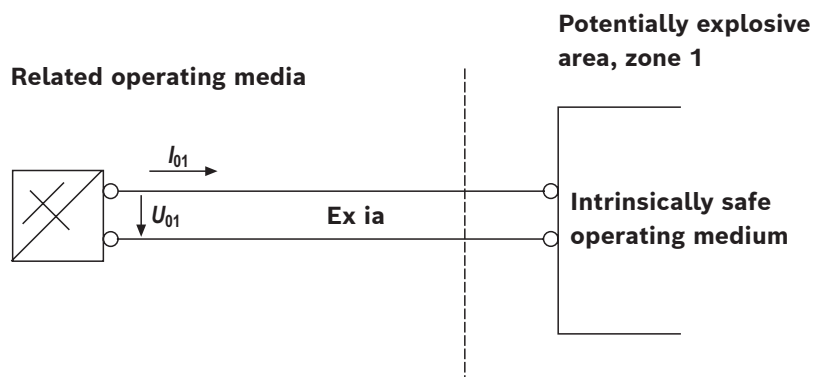
Directives and standardization

Complete filter with mech./opt. Maintenance indicator				
Use /assignment			Gas 2G	Dust 2D
Assignment ¹⁾			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 maintenance indicator in the intrinsically safe electric circuit				
Use/assignment			Gas 1G	Dust 1D
Assignment			II 1GD Ex ia IIC TX Ex ia IIIC TX°C X	
Perm. intrinsically safe electric circuits			Ex ia IIC	Ex ia IIIC
Technical data			Values only for intrinsically safe electric circuit	
Switching voltage	Ui	max	20 V AC/DC	
Switching current	Ii	max	200 mA	
Switching power	Pi	max	1 W	
Surface temperature ¹⁾		max	-	100 °C
Inner capacity	Ci		negligible	
Inner inductivity	Li		negligible	
Dust accumulation		max	-	0.5 mm

- 1) The temperature depends on the temperature of the medium in the filter and must not exceed the value specified here.
- 2) By mounting the maintenance indicators (zone suitability 0/20) on the tank mounted return line filter (zone suitability 1/21) of the assembly is assigned the zone 1/21.

Possible circuit according to DIN EN 60079-14



Directives and standardization

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. admissible ignition temperature is not exceeded.
- ▶ When using the tank mounted return line filters according to 51472 in explosive areas, appropriate 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 paint and protective oxide 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

Notes

Notes

Hengst Filtration GmbH
Hardtwaldstr. 43
68775 Ketsch, Germany
Phone +49 (0) 62 02 / 6 03-0
hydraulicfilter@hengst.de
www.hengst.com

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