HARLEX

Replacement cartridge filter

Type 7 SL 30 to 260; 7 SLS 90 to 260; 50 SL 30 to 80 D

Size

7 SL: 30 to 260
7 SLS: 90 to 260
50 SL: 30 to 80 D

Nominal pressure 7 and/or 50 bar

Port up to G 1 1/4, SAE 1 1/2" (3000 psi), SAE 20

Operating temperature –10 °C to +100 °C (shortly down to –30 °C)

Application

– Filtration of mineral oils (hydraulic and lubricating oils).
– Direct installation into pipelines.
– Direct wear protection for downstream components and systems.
– Optimized design for use in mobile hydraulics.

Features

– Filters for inline installation
– Optimized for mobile hydraulics
– Installation in suction, pressure and return lines possible
– 7 SLS version with return flow block, patented and environmentally friendly
– Flow-optimized version due to 3D computer-supported design
– Low pressure drop
– Special highly efficient filter media

Structure

Filter head with inlet and outlet as well as holder for one or two replacement cartridges. The filter element is firmly integrated into the tank of the replacement cartridge.

7 SLS:
Patented version with integrated isolator valve in the filter head for a leakage-free replacement of the replacement cartridge.

Replacement cartridge

Replacement cartridge with filter element in pleated design with optimized pleat density and various filter media.

The filter element is the most important component of the “FILTER” system in view of prolonged life and wear protection of the system.

The required cleanliness of the operating medium, the initial pressure differential and the dirt holding capacity are the most important criteria for selection.

For more information on the filter material please refer to our “Filter Elements” brochure.

Accessories

Maintenance indicators
They serve the monitoring of the degree of contamination of the replacement cartridge and are available as optical and optical / electronic indicator, with one or two switching points.

Bypass valve
To protect the replacement cartridge during startup and exceedance of the pressure differential due to contamination.

Quality and standardization

The development, manufacture and assembly of industrial filters and filter elements is carried out within the framework of a certified quality management system in accordance with ISO 9001:2000.

The replacement cartridge filters for hydraulic applications according 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.

Ordering code

of the filter

			– S	– 0		–		0	

Pressure
7 bar = **7**
50 bar = **50**

Design
Suction and pressure line filter = **SL**
Suction and pressure line filter with isolator valve = **SLS**

Size
7 SL… = **30/20, 30/21, 45/20, 45/21, 60/20, 60/21, 90, 130, 180** [1], **260** [2]
7 SLS… = **90, 130, 180** [1], **260** [2]
50 SL… = **30, 30 D, 45, 45 D, 60, 60 D, 80, 80 D**

Filter rating in µm
nominal
Paper, non-cleanable: P5, P10, P25 = **P…**
absolute (ISO 16889)
Micro glass, non-cleanable: H1XL, H3XL, H6XL, H10XL, H20XL = **H…XL**

Pressure differential
max. admissible pressure differential of the filter element
Standard 5 bar, with version 7 SL(S), and 8 bar, with version 50 SL = **S**

Element model
Standard adhesive T = 100 °C = **0…**
Special adhesive T = 170 °C = **H…**
Standard material = **…0**

Solenoid
Without = **0**

Amending information
0 = Without
R = Check valve in outlet (only with 7 SLS without bypass valve)
Z = Certificates (on request)

Housing material
0 = Standard material according to dimension sheet

Seal
M = NBR
V = FKM

Port
R0 = Pipe thread
S0 = SAE flange
U0 = UNF thread

Maintenance indicator
0 = without
A = Pressure gauge 0…6 bar
C = Vacuum meter –1…0.6 bar
F0,2 = Vacuum switch normally open contact
G0,2 = Vacuum switch normally closed contact
H1,5 = Pressure switch normally open contact
J1,5 = Pressure switch normally closed contact
L… = Integr. maintenance indicator opt. (only for 50 SL)
Specify switching pressure
M… = Integr. maintenance indicator elecr. (only for 50 SL)
Specify switching pressure
P1,5 = Pressure differential indicator opt./ electr. with connector (only for 7 SL 90 - 260)

Bypass valve
0 = without
1 = 0.3 bar
2 = 0.8 bar
3 = 1.5 bar
4 = 2.0 bar
5 = 2.5 bar
6 = 3.0 bar

Order example:

7 SL 45/21 P10-S00-00H1,5-R0M00

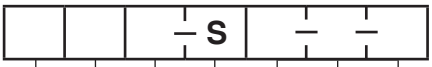
Further versions (filter materials, ports, switching pressures, etc.) are available at request.

[1] The filter 7 SL(S) 180 contains two replacement cartridges of size 90 (see unit dimensions on page 10).

[2] The filter 7 SL(S) 260 contains two replacement cartridges of size 130 (see unit dimensions on page 10).

Ordering code

of the replacement cartridge



Design

7 SL 30/20 - 130	**= 80.**
7 SLS 90 - 130	**= 81.**
50 SL 30 - 80 D	**= 82.**

Size

7 SL…	**= 30/20, 30/21, 45/20, 45/21, 60/20, 60/21, 90, 130**
7 SLS…	**= 90, 130**
50 SL…	**= 30, 30 D, 45, 45 D, 60, 60 D, 80, 80 D**

Filter rating in µm

nominal

Paper, non-cleanable: P5, P10, P25 **= P…**

absolute (ISO 16889)

Micro glass, non-cleanable:
H1XL, H3XL, H6XL, H10XL, H20XL **= H…XL**

Pressure differential

max. admissible pressure differential of the filter element
standard 5 bar, with version 7 SL(S),
and 8 bar, with version 50 SL **= S**

Seal

M =	NBR
V =	FKM

Bypass valve

0 =	without
1 =	0.3 bar
2 =	0.8 bar
3 =	1.5 bar
4 =	2.0 bar
5 =	2.5 bar

Element model

0… =	Standard adhesive T = 100 °C
H… =	Special adhesive T = 170 °C
…0 =	Standard material

Order example:

80.45/21 P10-S00-0-M

Please note that when ordering replacement cartridges for filters of size 180 or 260, two replacement cartridges of size 90 or 130 must be ordered per filter (see unit dimensions on page 10).

Standard types

Bypass valve, cracking pressure 2.0 bar	No	Yes	No	Yes
Pressure gauge, version M010, 0…6 bar	No	No	Yes	Yes
Related type code characteristics	**** = 00**	**** = 40**	**** = 0A**	**** = 4A**

Replacement cartridge filter, nominal pressure 7 bar, filter material and rating micro glass 10 µm

Type	Flow in l/min
7 SL 45/21 H10XL-S0-0 ** R0M00	40
7 SL 90 H10XL-S0-0 ** R0M00	140
7 SL 130 H10XL-S0-0 ** R0M00	150
7 SL 180 H10XL-S0-0 ** R0M00	240
7 SL 260 H10XL-S0-0 ** R0M00	260

Replacement cartridge filter, nominal pressure 7 bar, filter material and rating paper, 10 µm

Type	Flow in l/min
7 SL 45/21 P10-S0-0 ** R0M00	45
7 SL 90 P10-S0-0 ** R0M00	185
7 SL 130 P10-S0-0 ** R0M00	190
7 SL 180 P10-S0-0 ** R0M00	300
7 SL 260 P10-S0-0 ** R0M00	300

Replacement cartridge filter with return flow block, nominal pressure 7 bar, filter material and rating micro glass, 10 µm

Type	Flow in l/min
7 SLS 90 H10XL-S0-0 ** R0M00	135
7 SLS 130 H10XL-S0-0 ** R0M00	150

Replacement cartridge filter with return flow block, nominal pressure 7 bar, filter material and rating paper, 10 µm

Type	Flow in l/min
7 SLS 90 P10-S0-0 ** R0M00	185
7 SLS 130 P10-S0-0 ** R0M00	190

Replacement cartridge filter, nominal pressure 50 bar, filter material and rating micro glass, 10 µm

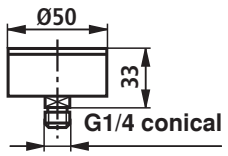
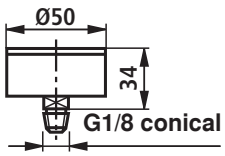
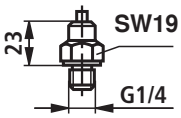
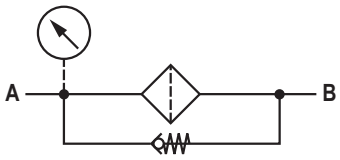
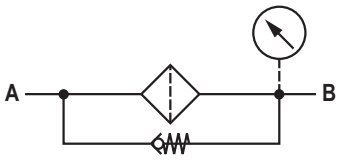
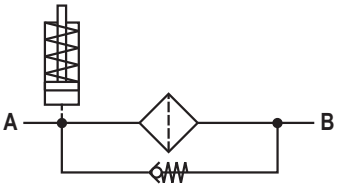
Type	Flow in l/min
50 SL 30D H10XL-S0-0 ** R0M00	25
50 SL 45D H10XL-S0-0 ** R0M00	40
50 SL 60D H10XL-S0-0 ** R0M00	90
50 SL 80D H10XL-S0-0 ** R0M00	100

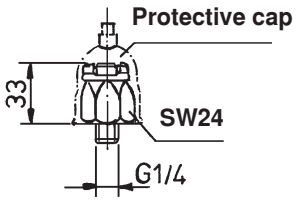
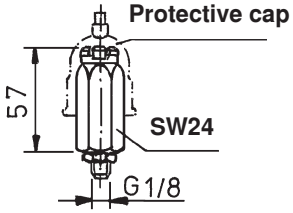
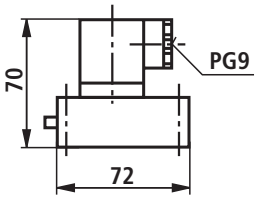
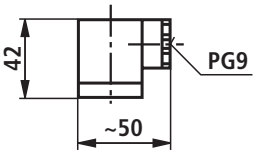
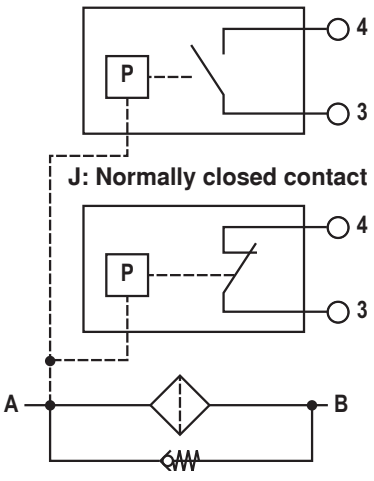
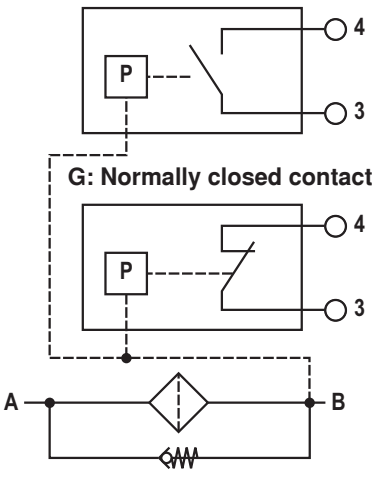
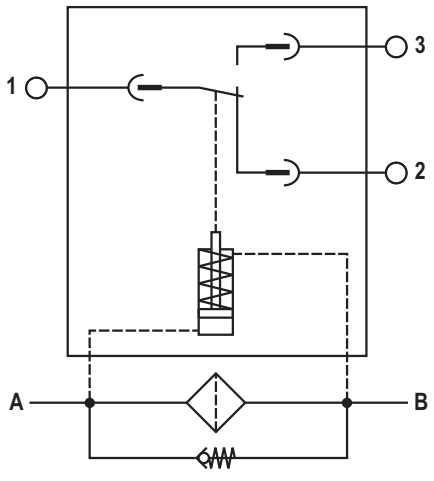
Replacement cartridge filter, nominal pressure 50 bar, filter material and rating paper, 10 µm

Type	Flow in l/min
50 SL 30D P10-S0-0 ** R0M00	30
50 SL 45D P10-S0-0 ** R0M00	45
50 SL 60D P10-S0-0 ** R0M00	110
50 SL 80D P10-S0-0 ** R0M00	120

Maintenance indicator

Maintenance indicators serve the monitoring of the degree of contamination of the replacement cartridge. They are available as optical, electronic or optical / electronic indicators. Technical data see “Maintenance indicator” brochure

		
Backpressure gauge M 010	**Vacuum gauge M 070**	**Opt.-mech. indicator P1,5**
Ordering information in the type code: A	Ordering information in the type code: C	Ordering information in the type code: D
		

			
Pressure switch Normally open contact H1,5 HS 32 00M* Normally closed contact H1,5 HA 32 00M*	**Vacuum switch** Normally open contact I0,2 HS 32 00M* Normally closed contact I0,2 HA 32 00M*	For 7 SL(S): **Pressure differential indicator optical/electric** with connector F1,5 GW 02 00M*	For 50 SL: **Pressure differential indicator electric** with connector W... GW 02 00M*
Ordering information in the type code: Normally open contact: H1,5 Normally closed contact: J1,5	Ordering information in the type code: Normally open contact: F0,2 Normally closed contact: G0,2	Ordering information in the type code: P1,5	Ordering information in the type code: M... (Specify switching pressure)
H: Normally open contact 	**F: Normally open contact** 		

* M = NBR seal, alternatively V = FKM seal

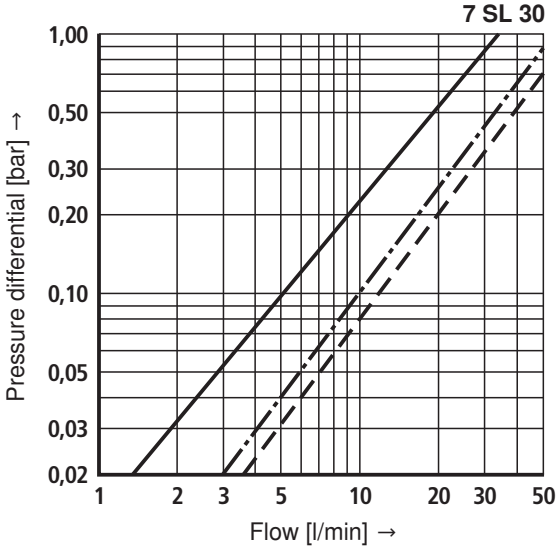
Characteristic curves

Specific weight: < 0.9 kg/dm^3
Oil viscosity 30 mm^2/s
D*p* Q characteristic curves for complete filters

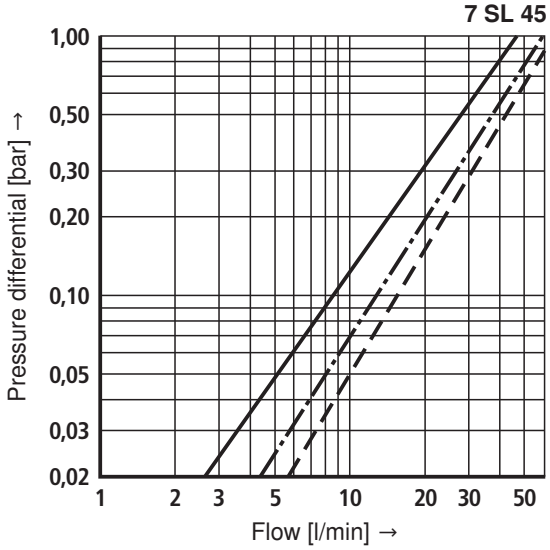
recommended initial D*p* for design = 0.5 bar
recommended max. flow velocity = 3 m/s

H3XL — H10XL — P10

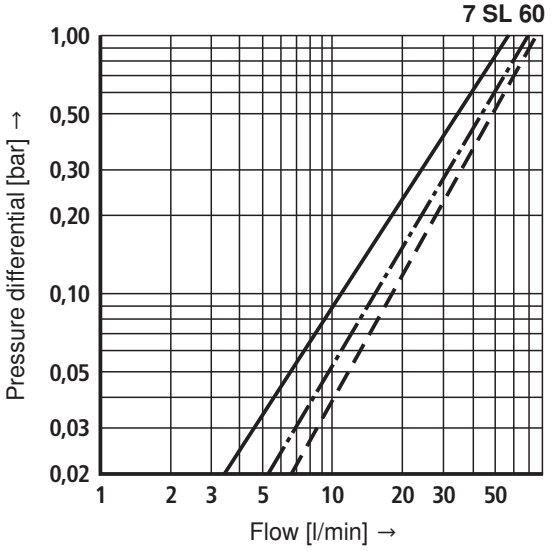
7 SL 30



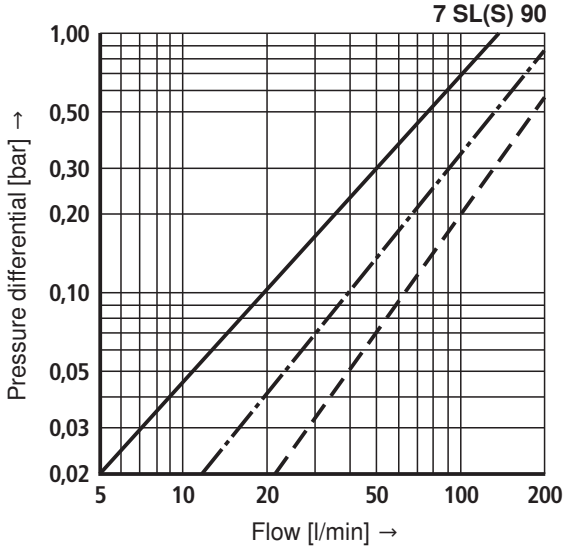
7 SL 45



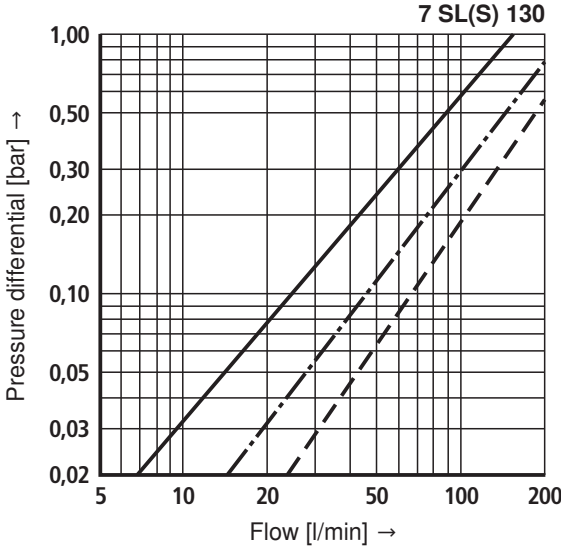
7 SL 60



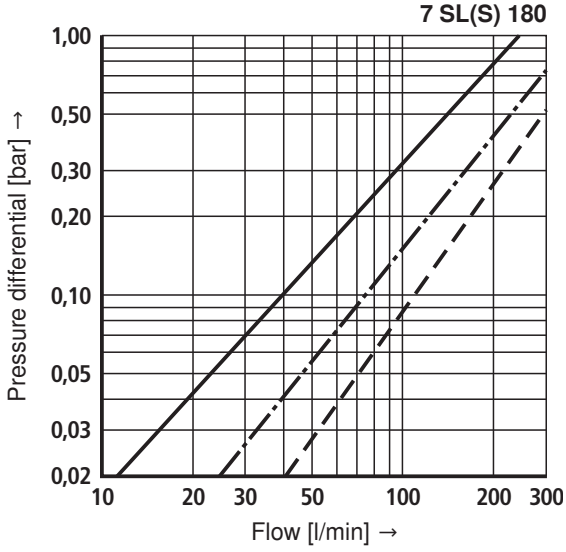
7 SL(S) 90



7 SL(S) 130



7 SL(S) 180

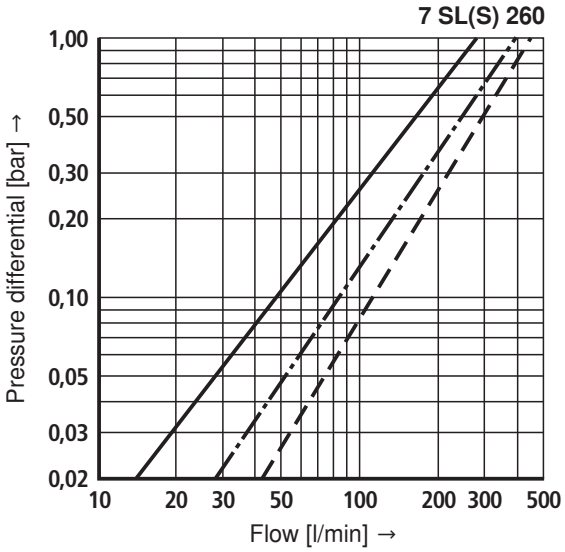


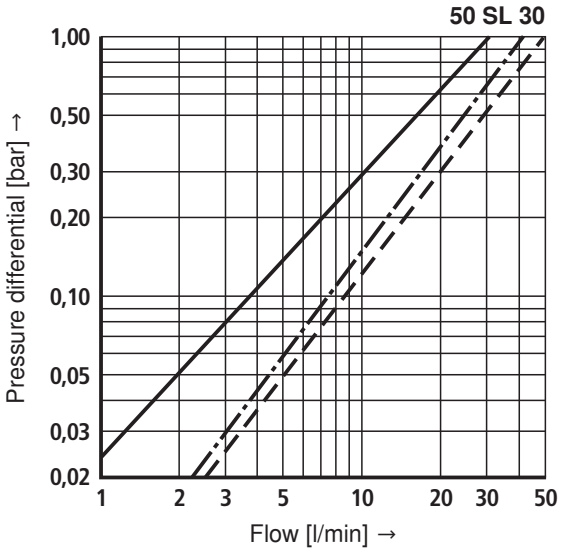
Characteristic curves

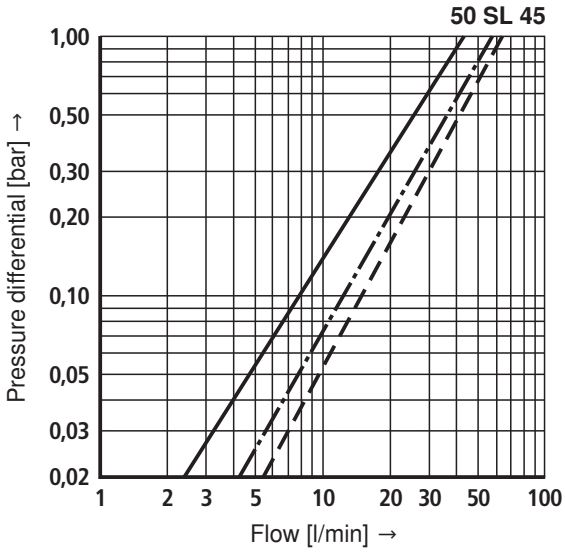
Specific weight: < 0.9 kg/dm^3
Oil viscosity 30 mm^2/s
D*p* Q characteristic curves for complete filters

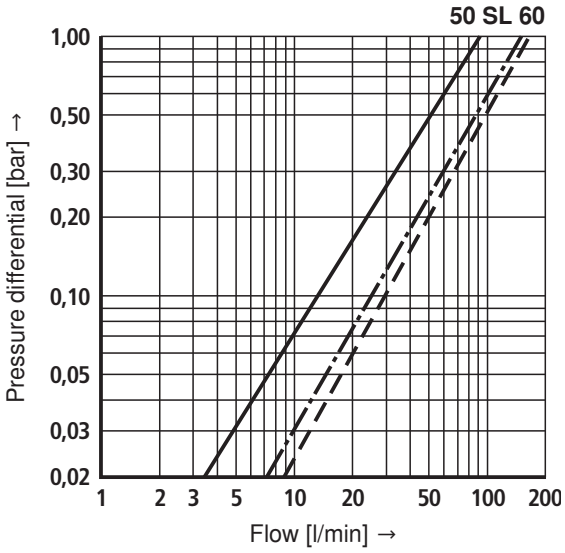
recommended initial D*p* for design = 0.5 bar
recommended max. flow velocity = 3 m/s

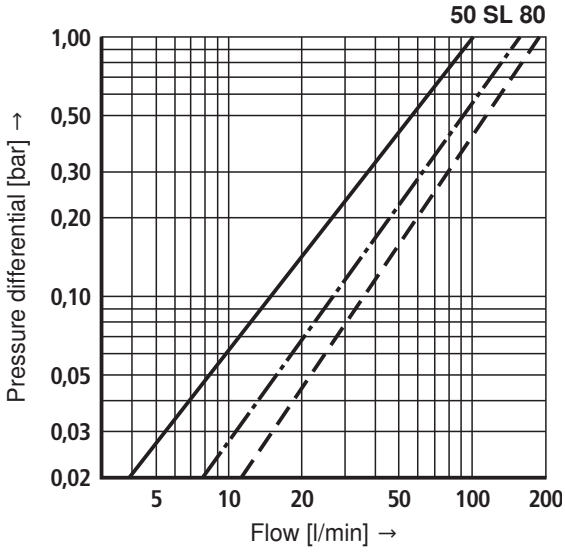
——— H3XL —·— H10XL – – – P10





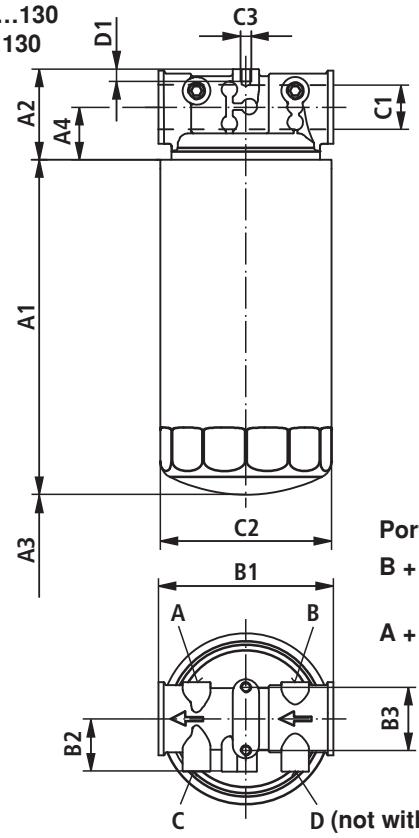






Unit dimensions: 7 SL 30/20…130, 7 SLS 90…130, 50 SL 30…80 D (dimensions in mm)

7 SL 30/20…130
7 SLS 90…130

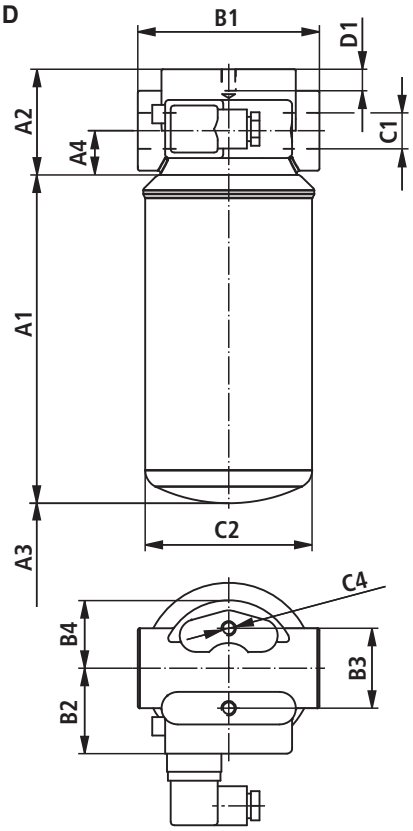


Port for:

B + D = Pressure gauge or pressure switch

A + C = Vacuum meter or vacuum switch

50 SL 30…80 D

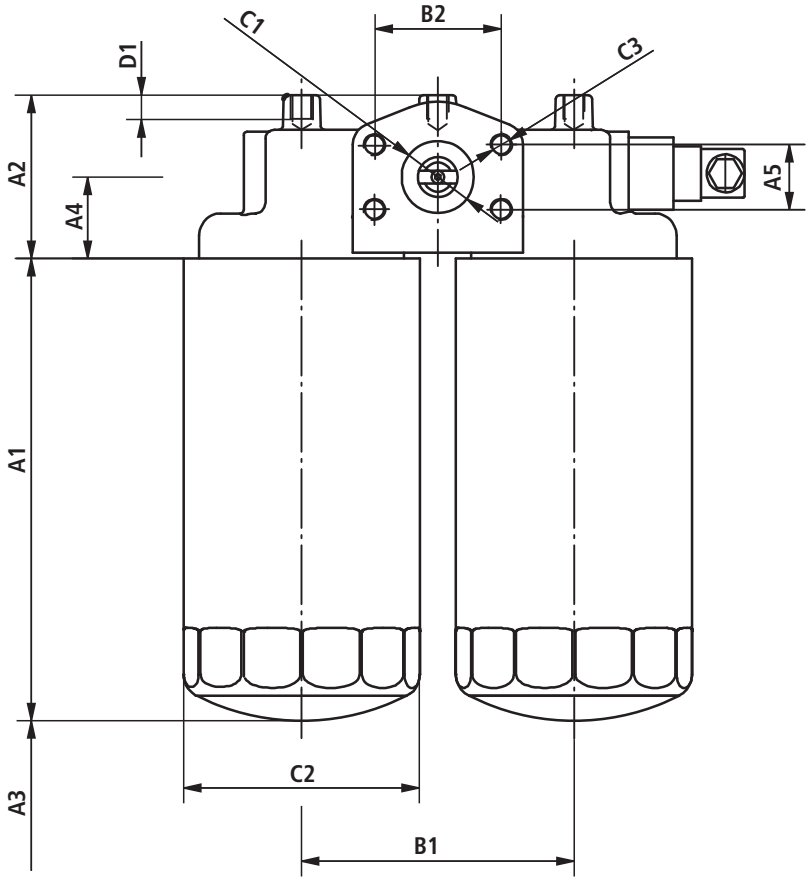


Frame size	Replacement cartridge port	Volume in l	Weight in kg [1]	A1	A2	A3 [2]	A4	B1	B2	B3	B4	C1 R0	C1 S0	C1 U0	C2	C3	D1
7 SL 30/20	SAE 8 (UNF 3/4”-16)	0.5	0.8	95	41	20	20	95	22	38	22	G3/4	–	–	Ø 92	M 8	15
7 SL 30/21	G3/4																
7 SL 45/20	SAE 8 (UNF 3/4”-16)	0.5	0.9	146													
7 SL 45/21	G3/4																
7 SL 60/20	UNF 1”-12	1.2	1.1	205													
7 SL 60/21	G3/4																
7 SL 90	G1 1/4	2.0	1.6	183	69	20	40	133	40	48	28	G1 1/4	–	SAE 20 (1 5/8-12 UN)	Ø 128		
7 SL 130		2.7	1.9	231													
7 SLS 90	M 42 x 2	2.0	1.8	183					39		27						16
7 SLS 130		2.7	2.1	231													
50 SL 30	UNF 1”-12	0.6	1.1	113	60		25	100	47	44	38	G3/4	–	SAE 10 (7/8-14 UNF)	Ø 92		10
50 SL 30 D	UNF 1 3/8”-12																
50 SL 45 D		0.9	1.3	149													
50 SL 45	UNF 1”-12																
50 SL 60		1.3	1.4	215								G1					
50 SL 60 D	UNF 1 3/8”-12																
50 SL 80 D		1.5	1.5	240													
50 SL 80	UNF 1”-12																

[1] Weight including standard replacement cartridge and maintenance indicator

[2] Servicing height for replacement cartridge

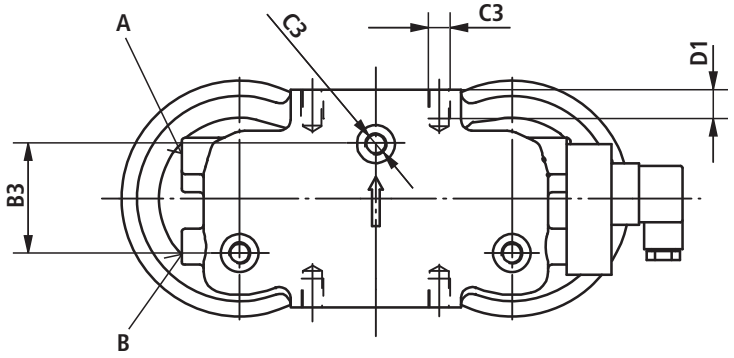
Unit dimensions: 7 SL 180…260, 7 SLS 180…260 (dimensions in mm)



Port for:

A = Vacuum meter or vacuum switch

B = Pressure gauge or pressure switch



Frame size	Replacement cartridge port	Volume in l	Weight in kg [1]	A1	A2	A3 [2]	A4	A5	B1	B2	B3	C1			C2	C3	D1
												R0	S0	U0			
7 SL 180	G1 1/4	2.0	3.0	183	90	20	45	35.7	150	69.9	60	G1 1/2	SAE 1 1/2" 3000 psi	–	Ø 128	M 12	12
7 SL 260		2.7	3.2	231													
7 SLS 180	M 42 x 2	2.0	3.3	183	85		40										
7 SLS 260		2.7	3.5	231													

[1] Weight including standard replacement cartridge and maintenance indicator

[2] Servicing height for replacement cartridge

Installation, commissioning and maintenance

Filter installation

Verify operating pressure with nameplate information.

Screw the filter head (item 1) to the fastening devices, considering flow direction (direction arrows) and servicing height of the replacement cartridge.

Remove dust protection plugs from filter inlet and outlet, screw filter in pipeline without tension stress.

Connection of the electronic maintenance indicator

Establish the connection using a three-wire cable, observe the switching power on the nameplate of the maintenance indicator.

Connection versions:
1. Normally open contact: 1 (sw) + 3 (bl)
2. Normally closed contact: 1 (sw) + 2 (br)
3. Changeover contact: 1 (sw) + 2 (br) + 3 (bl)

⚠ Warning!

Assemble and disassemble filter only when system is depressurized!

Tank is under pressure!

Do not replace the maintenance indicator while the filter is under pressure!

Functional and safety warranty only applicable when using genuine spare parts!

Service filter only by trained personal!

Commissioning

Switch on system pump.

Maintenance

If the red indicator pin reaches out of the maintenance indicator and/or if the switching process in the electronic display is triggered, the maintenance indicator has reached the pressure value and the replacement cartridge has to be renewed.

Exchange of the replacement cartridge

Switch of the operating pump.

Screw off the replacement cartridge and replace it with a new cartridge.

When doing so, use the seal / seal ring of the new cartridge.

Manually tighten the cartridges of pressure rating 7 bar (7 SL…, / 7 SLS…).

For assembling the cartridge of pressure rating 50 bar (50 SL...), an assembly line can be used. In this connection, do not overtighten the cartridge as there is the risk of damaging the sheet tank.

Perform the commissioning as described above.

Technical modifications reserved!