Spin-on filter according to Bosch Rexroth standard:

Type 50 SL 30 to 80D

RE 51476
Edition: 2015-06

- Nominal sizes: 30 to 80D
- Connection up to G1; SAE 10

Features

Spin-on filters are used in hydraulic systems for separating solid material from fluids and lubricating oils.

They come with the following features:

- Filter for inline installation
- Optimized for mobile hydraulics, space-saving, service-friendly
- Installation in suction, pressure or return lines possible
- Special, highly efficient filter materials
- Filtration of ultra-fine particles and high dirt holding capacity
- Optional version with maintenance indicator
- Optional bypass valve integrated in the filter housing
- Spin-on element 82 with various connections available as spare part

Contents

Filter ordering code

01	02	03		04		05	06	07	08		09	10	11	12
50 SL			**–**	**S00**	**–**	**0**				**–**			**0**	**0**

Series

01	Spin-on filter	**50 SL**

Size

02	According to **Bosch Rexroth standard** Model **with** UNF thread	**30** **45** **60** **80**
	According to **Bosch Rexroth standard** Model **with** UN thread	**30D** **45D** **60D** **80D**

Filter grade in µm

03	**Absolute** **(ISO 16889; $\beta_x(c) \geq 200$)**	Glass fiber material, not cleanable	**H3XL** **H6XL** **H10XL** **H20XL**
	Nominal	Paper, not cleanable	**P10** **P25**

Pressure differential

04	Max. pressure differential of the filter element of 5 bar *[72 psi]*	**S00**

Magnet

05	**Without**	**0**

Bypass valve

06	**Without**	**0**
	Cracking pressure 2.5 bar *[36.3 psi]* – configurable with maintenance indicator M1.5	**5**
	Cracking pressure 3.5 bar *[50.8 psi]* – configurable with maintenance indicator M2.5	**7**

Maintenance indicator

07	**Without**	**0** [1]
	Pressure differential indicator, electric	**M**

Switching pressure

08	Switching pressure 1.5 bar *[21.8 psi]*			**1.5**
	Switching pressure 2.5 bar *[36.3 psi]*			**2.5**
09	**Installation size**	**50 SL 30; 45 (D)**	**50 SL 60; 80 (D)**	
	Connection			
	ISO 228	G3/4	G1	**R0**
	SAE J 1926	SAE 10 (7/8-14 UNF-2B)		**U0**

Seal

10	NBR	**M**
	FKM	**V**

Housing material

11	Standard material	**0**

Filter ordering code

01	02	03		04		05	06	07	08		09	10	11	12
50 SL			**–**	**S00**	**–**	**0**				**–**			**0**	**0**

Supplementary information

12	**Without**	**0**

1) Without bypass valve cracking pressure 2.5 bar *[36.3 psi]* configurable

Order example:
50 SL 60 H10XL-S00-07M2,5-R0M00

Material no.: R928054914

Further models on request.

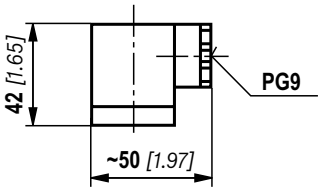
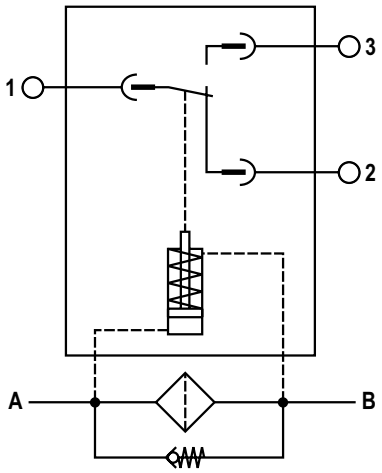
Preferred types

50 SL, flow specification for 30 mm²/s *[143 SUS]*
Filter grade 10 µm

Type	Flow in l/min *[gpm]* and Δ*p* = 0.5 bar *[7.25 psi]* 1)	Material no. Filter	Material no. Spin-on
50 SL 30 H10XL-S00-07M2,5-R0M00	*25 [362.60]*	**R928054912**	**R928038865**
50 SL 45 H10XL-S00-07M2,5-R0M00	*40 [580.16]*	**R928054913**	**R928019444**
50 SL 60 H10XL-S00-07M2,5-R0M00	*90 [1305.36]*	**R928054914**	**R928019719**
50 SL 80 H10XL-S00-07M2,5-R0M00	100 *[1450.40]*	**R928054987**	**R928054791**
50 SL 30D H10XL-S00-07M2,5-R0M00	*25 [362.60]*	**R928054915**	**R928019173**
50 SL 45D H10XL-S00-07M2,5-R0M00	*40 [580.16]*	**R928054916**	**R928019180**
50 SL 60D H10XL-S00-07M2,5-R0M00	*90 [1305.36]*	**R928054917**	**R928019183**
50 SL 80D H10XL-S00-07M2,5-R0M00	*100 [1450.40]*	**R928054918**	**R928019720**

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

Symbols
(Dimensions in mm *[inch]*)

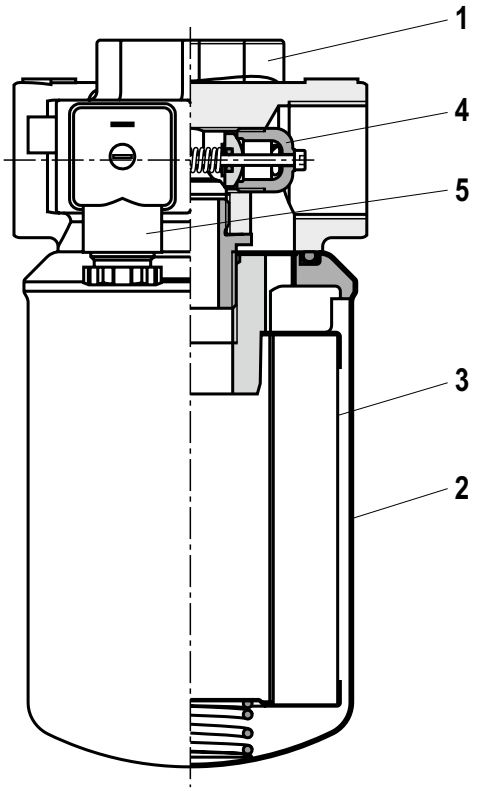
Spare part	Drawing	Ordering code in the type key	Symbol
Optical/electrical with connector		M	

Function, cross-section

The spin-on filter is suited for direct installation in pressure or return lines. It is installed upstream from components to be protected.

It consists primarily of a filter head (1), a threaded spin-on element (2) with built-in filter element (3). Optionally, a maintenance indicator (5) and a bypass valve (4) can also be configured for the filter.
The maintenance indicator housing is integrated in the filter head.

The fluid passes through the inlet to the spin-on element, where it is cleaned. Any dirt particles filtered out collect in the filter element. The filtered fluid then enters the hydraulic circuit through the outlet.



50 SL 30 ... 80D

Technical data
(Please consult us for applications outside these parameters)

General						
Installation position			Vertical			
Ambient temperature range		°C *[°F]*	–40 ... +65 *[–40 ... +149]*			
Storage conditions	▶ NBR seal	°C *[°F]*	–40 ... +65 *[–40 ... +149]*; max. relative air humidity: 65%			
	▶ FKM seal		–20 ... +65 *[–4 ... +149]*; max. relative air humidity: 65%			
Mass		Size	**30(D)**	**45(D)**	**60(D)**	**80(D)**
		kg *[lbs]*	1.1 *[2.4]*	1.5 *[3.3]*	1.8 *[4.0]*	1.9 *[4.2]*
Flow		Size	**30(D)**	**45(D)**	**60(D)**	**80(D)**
		l *[US gal]*	0.6 *[0.16]*	0.9 *[0.24]*	1.3 *[0.34]*	1.5 *[0.4]*
Material	▶ Filter head		Aluminum			
	▶ Spin-on element		Steel / aluminum			
	▶ Maintenance indicator		Aluminum / brass / plastic			

Hydraulic			
Max. operating pressure	▶ Filter head	bar *[psi]*	50 *[725]*
	▶ Spin-on element	bar *[psi]*	40 *[580]* [1]
Hydraulic fluid temperature range		°C *[°F]*	–10 ... +100 *[+14 ... +212]*
☞ **Note about cold start:**			–40... –10 *[–40...+14]* During a cold start up, expect a sudden pressure increase and a flow of at least 50% in each case. A bypass valve is essential
Min. medium conductivity		pS/m	300

Maintenance indicator			**Pressure differential indicator, electric**
Letter order option			M
Model			W...GW0200...
Contact load, DC voltage		$A_{max.}$	0.25
Voltage range		$V_{max.}$	175 AC/DC
Max. switching power		VA	5
Switching type	▶ 100 % signal		Changeover
IP rating as per EN 60529		IP	65
Ambient temperature range		°C *[°F]*	–10 ... +85 *[+14 ... +185]*
Operating temperature		°C *[°F]*	–10 ... +100 *[+14 ... +212]*
For direct voltage above 24 V, spark extinguishing is to be provided for protecting the switching contacts.			
Mass		kg *[lbs]*	0.3 *[0.66]*
Material	▶ Housing		Aluminum / Plastic/ Brass
	▶ Seals		NBR or FKM

[1] Validation according to ISO 10771

Technical data

(Please consult us for applications outside these parameters)

Filter element				
Glass fiber material H...XL			Inorganic fiber-based single-use element	
			Filtration ratio as per ISO 16889 up to Δp = 5 bar *[72.5 psi]*	Best oil cleanliness as per ISO 4406 *[SAE-AS 4059]*
Particle separation		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
Pressure differential	▶ S00	bar *[psi]*	5 *[72.5]*	

Compatibility with permitted hydraulic fluids

Hydraulic fluid	**Classification**	**Suitable sealing materials**	**Standards**
Mineral oils	HLP	NBR	DIN 51524

Characteristic curves

(measured with mineral oil HLP46 according to DIN 51524)

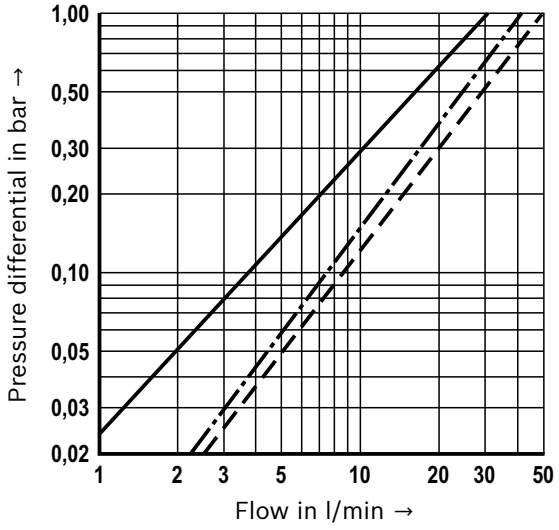
Spec. Weight: < 0.9 kg/dm³

Δ*p*-Q characteristic curves for complete filter recommended start Δ*p* for design = 0.5 bar *[7.25 psi]*

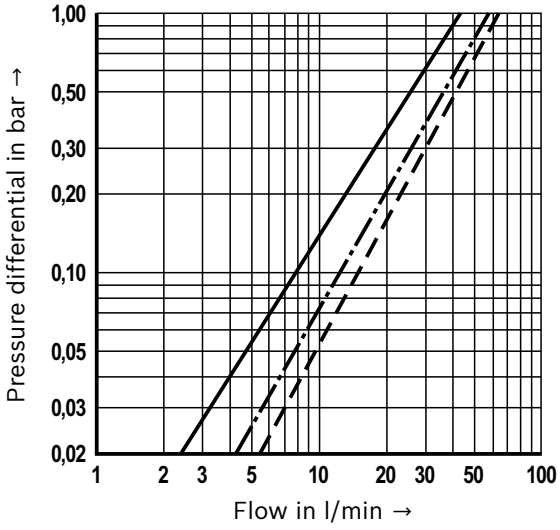
Our online design software “Bosch Rexroth FilterSelect” allows you to choose the best filter.

H3XL **H10XL** **P10**

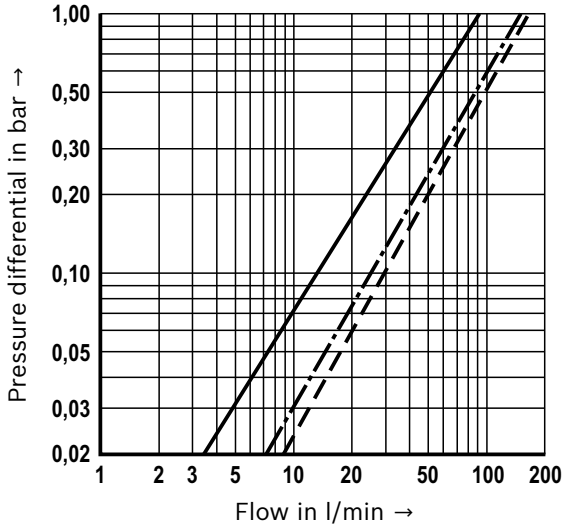
50 SL 30



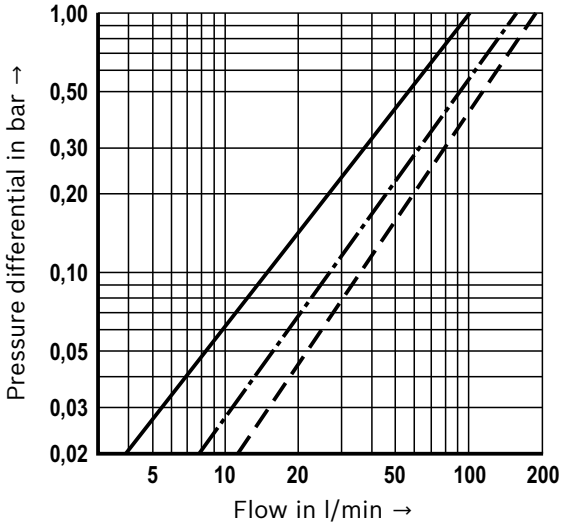
50 SL 45



50 SL 60

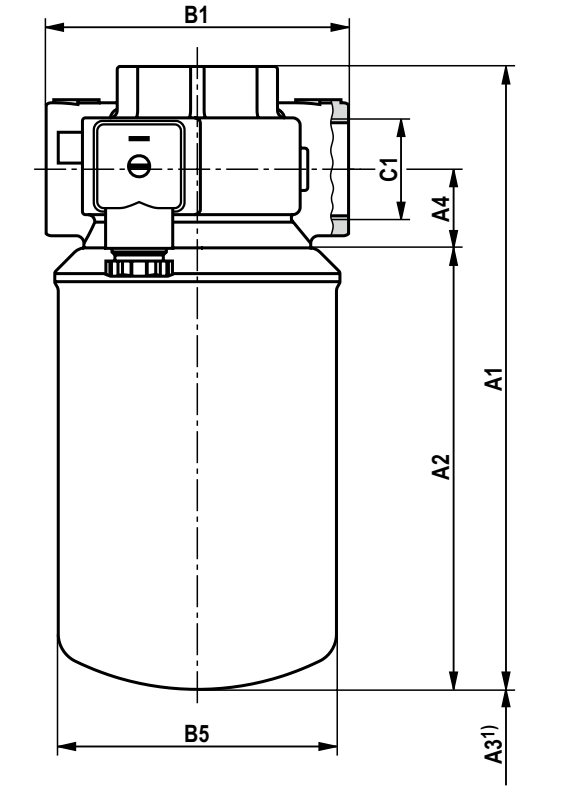


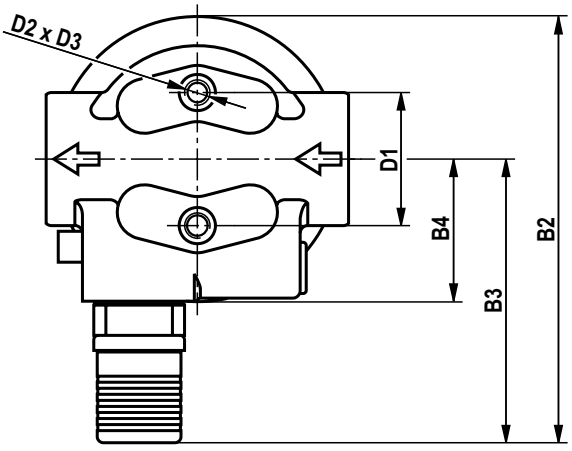
50 SL 80



Dimensions: 50 SL 30 ... 80D

(Dimensions in mm *[inch]*)





Filter type	A1	A2	A3 [1]	A4	B1	B2	B3	B4	ØB5	Connections C1 R0	Connections C1 U0	D1	D2	D3	Spin-on filter connection
50 SL 30	173 *[6.81]*	113 *[4.45]*	20 *[0.79]*	26 *[1.02]*	100 *[3.94]*	140 *[5.51]*	94 *[3.70]*	47 *[1.85]*	$92^{\pm 0,3}$ *[$3.62^{\pm 0.01}$]*	G3/4	SAE 10 (7/8-14 UNF)	44 *[1.73]*	M8	12 *[0.47]*	UNF 1"-12
50 SL 30D															UNF 1 3/8"-12
50 SL 45	209 *[8.23]*	149 *[5.87]*													UNF 1"-12
50 SL 45D															UNF 1 3/8"-12
50 SL 60	275 *[10.83]*	215 *[8.46]*								G1					UNF 1"-12
50 SL 60D															UNF 1 3/8"-12
50 SL 80D	300 *[11.81]*	240 *[9.45]*													UNF 1 3/8"-12

[1] Servicing height for spin-on element

Spare parts ordering codes

Spin-on element

01	02	03		04	05	06		
82			**–**	**S00**	**–**	**0**	**–**	

Spin-on element

01	Design	**82**

Size

02	According to **Bosch Rexroth standard** Model **with** UNF thread	**30** **45** **60** **80**
	According to **Bosch Rexroth standard** Model **with** UN thread	**30D** **45D** **60D** **80D**

Filter grade in µm

03	**Absolute** **(ISO 16889; $\beta_x(c) \geq 200$)**	Glass fiber material, not cleanable	**H3XL** **H6XL** **H10XL** **H20XL**
	Nominal	Paper, not cleanable	**P10** **P25**

Pressure differential

04	Max. pressure differential of the filter element of 5 bar *[72 psi]*	**S00**

Bypass valve

05	**Without** bypass valve	**0**

Seal

06	NBR	**M**
	FKM	**V**

Order example:
82.45 H10XL-S00-0-M

Material no.: R928019444

Preferred program spin-on filters

Spin-on filter type	Filter material/material no.	
	H10XL	P10
82.30...S00-0-M	**R928038865**	**R928046556**
82.45...S00-0-M	**R928019444**	**R928025436**
82.60...S00-0-M	**R928019719**	**R928046571**
82.80...S00-0-M	**R928054791**	**R928054790**

☞ **Note:**
The maintenance indicator is not offered as a spare part as it is integrated in the filter head.

Assembly, commissioning, maintenance

Installation

- The max. operating pressure of the system must not exceed the max. operating pressure of the filter (see type plate).
- During assembly of the filter the flow direction (direction arrows) and the required servicing height of the spin-on element (see chapter “Dimensions”) are to be considered.
- Element replacement is made easiest when the spin-on element is oriented downward with the installation position.
- Remove the plastic plugs from the filter inlet and outlet.
- 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.

Commissioning

- Commission the system.

☞ **Note:**
The filter has no bleeding mechanism.

Maintenance

- If the switching operation is triggered in the electrical maintenance indicator, this means the spin-on element is contaminated and will require replacing. Spin-on elements must be replaced after 6 months at latest or a max. of 1,000 operating hours.
- The material number of the correct spin-on element is on the name plate of the complete filter. Verify that it matches the material number on the spin-on filter.
- Decommission the system.
- Release operating pressure on the system side.

☞ **Note:**
The filter has no bleeding mechanism.

- Unscrew the spin-on element.
- Screw on the new spin-on element hand-tight.
- **Please note:**
  If necessary, carefully tighten it by 30° in the depressurized state (use a band wrench where necessary)
- Commission the system.
- If filter loosens between the spin-one element and filter head after commissioning, the spin-on element will need to be tightened up.

☞ **Application notes:**

- Under dynamic loads, the spin-on element housing could be elastically deformed.
- Spin-on elements are not rigid.

⚠ WARNING!

- Only install or remove when system is not pressurized.
- Tank is pressurized!
- Only remove spin-on element when it is not pressurized.
- Do not replace maintenance indicator when filter is pressurized.
- Failure to observe flow of direction during assembly will cause filter element to be damaged beyond repair. Particles will enter the system and damage downstream components.

☞ **Important:**

- Only trained specialists may work on the filter.
- Proper function and safety are only guaranteed if original Bosch Rexroth spin-on 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 torques
(dimensions in mm *[inch]*)

Series 50 SL...		**30(D)**	**45(D)**	**60(D)**	**80(D)**
Tightening screws with μ_{total} = 0.14	Nm *[lb-ft]*	max. 30 *[22]*			
mounting screw		M8			
Minimum screw-in depth mounting	mm *[inch]*	8 *[0.3]*			

Directives and standardization

Classification according to the Pressure Equipment Directive

The spin-on filters for hydraulic applications according to 51476 are pressure holding equipment according to article 1, section 2.1.4 of the Pressure Equipment Directive 97/23/EC (PED). However, under Article 1 Section 3.6 PED, 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. The intended use is only permitted with fluids in group 2 and within the specified operating limits (see “Technical data”).
These filters do not receive a CE mark.

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

The spin-on filters without maintenance indicator according to 51476 are no 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 spin-on filters do not have own ignition sources acc. to DIN EN 13463-1:2009.

The spin-on filters without maintenance indicators can be used for the following explosive areas:

	Zone suitability	
Gas	1	2
Dust	21	22

Complete filter without maintenance indicator			
Use /assignment		**Gas 2G**	**Dust 2D**
Assignment [1)]		Ex II 2G c IIC TX	Ex II 2D c IIC TX
Medium conductivity pS/m	min.	300	
Dust accumulation	max.	–	0.5 mm

1) TX = max. temperature range: see chapter “Technical data”

Directives and standardization

⚠ WARNING!

- Explosion hazard due to high temperature! Temperature is based on temperature of medium in hydraulic circuit and cannot exceed this value. Take steps to make sure max. admissible ignition temperature is not exceeded in explosive area.
- When using the spin-on filters according to 51476 in explosive areas, sufficient equipotential bonding has to be ensured. Grounding the filter with mounting screws is recommended. It has to be noted in this connection that paintings and oxidic protective layers are not electrically conductive.
- During spin-on filter replacement, the packaging material is to be removed from the replacement element outside the potentially explosive area

☞ **Important:**

- Maintenance may only be performed by specialists on instruction of the owner in accordance with Directive 1999/92/EC Annex II Section 1.1.
- Functional and safety warranty is only applicable when using genuine Rexroth spare parts

Environmental safety and recycling

- The used spin-on element should be disposed of in accordance with the respective country-specific legal regulations of environmental protection.
- After completion of the filter life, the components of the filter, in accordance with the respective country-specific legal regulations of environmental protection, should be recycled.

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