

Inline filter with filter element according to DIN 24550

Type 50LEN0040 to 0400; 50LE0130, 0150

RE 51447

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HAD8041_14

- ▶ Size according to **DIN 24550**: 0040 to 0400
- ▶ additional sizes: 0130, 0150
- ▶ Nominal pressure 50 bar [725 psi]
- ▶ Connection up to 1 1/2"
- ▶ Operating temperature -10 °C to 100 °C [14 °F to 212 °F]

Features

Inline filters are used in hydraulic systems for separating solid materials from the fluids and lubricating oils. They are intended for attachment in pipelines.

They distinguish themselves by the following:

- ▶ Filters for 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
- ▶ By default equipped with mechanical optical maintenance indicator with memory function
- ▶ Available as an option with different electronic switching elements, modular design
- ▶ Optional bypass valve integrated in the filter housing

Contents

Features	1
Ordering code filter	2, 3
Preferred types	4
Ordering code accessories	5
Symbols	6
Function, section	7
Technical data	8, 9
Compatibility with hydraulic fluids	9
Characteristic curves	10 ... 12
Dimensions	13
Maintenance indicator	14
Ordering code spare parts	15 ... 17
Assembly, commissioning, maintenance	18
Tightening torques	19
Directives and standardization	19, 20

Ordering code filter

01	02	03	04	05	06	07	08	09	09
50LE			-		-	-	-	-	-

Series

01	Inline filter 50 bar [725 psi]	50LE
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Filter element

02	with filter element according to DIN 24550	N
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Size

03	LEN... (Filter element according to DIN 24550)	0040 0063 0100 0160 0250 0400
	LE... (Filter element according to Bosch Rexroth standard)	0130 0150

Filter rating in µm

04	Nominal Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100
	Nominal Filter paper, not cleanable	P10 P25
	Absolute (ISO 16889; $\beta_{x(c)} \geq 200$) Non-woven glass fiber media, not cleanable	H3XL H6XL H10XL H20XL

Pressure differential

05	max. admissible pressure differential of the filter element 30 bar [435 psi], with bypass valve	A00
	max. admissible pressure differential of the filter element 330 bar [4786 psi], without bypass valve	B00

Maintenance indicator

06	Maintenance indicator, mech./optical, switching pressure 0.8 bar [11.6 psi] – bypass cracking pressure 2.5 bar [36 psi]	V0.8
	Maintenance indicator, mech./optical, switching pressure 1.5 bar [21.8 psi] – bypass cracking pressure 2.5 bar [36 psi]	V1.5
	Maintenance indicator, mech./optical, switching pressure 2.2 bar [32 psi] – bypass cracking pressure 3.5 bar [51 psi]	V2.2
	Maintenance indicator, mech./optical, switching pressure 5.0 bar [72.5 psi] – bypass cracking pressure 7 bar [102 psi]	V5,0

Seal

07	NBR seal	M
	FKM seal	V

Connection

08	Frame size	0040-0100	0130-0150	0160-0400		
	Connection					
	G 3/4	●			Pipe thread according to ISO 228	R3
	G 1		●			R4
	G 1 1/2			●		R6
	SAE 12	X			Pipe thread according to SAE J1926	U4
	SAE 16		X			U9
	SAE 24			X		U6
	<input checked="" type="checkbox"/> Standard connection <input type="checkbox"/> Alternative connection					

Supplementary information

Ordering code filter

01	02	03	04	05	06	07	08	09	09
50LE			-		-	-	-	-	-

09	without bypass valve (only possible in connection with filter element version "A00") ¹⁾	NB
	Manufacturer's inspection certificate M according to DIN 55350 T18	Z1

¹⁾ **Attention:** If this option is selected and the maintenance indicator is not observed, the filter element may collapse in case of operating pressures of more than 30 bar [435 psi].

Order example:

50LEN0100-H3XLA00-V5,0-M-R4

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

Preferred types**NBR seal, with bypass, flow specifications for 30 mm²/s [143 SUS]**Inline filter 50 LE(N), filter rating **3 µm**

Type	Flow in l/min [gpm] at Δp = 1 bar [14.5 psi]	Material no. Filter				Material no. Replacement filter element
50LEN0040-H3XLA00-V2,2-M-..	23 [6.08]	..R3	R928048449	..U4	R928048452	R928006645
50LEN0063-H3XLA00-V2,2-M-..	30 [7.93]	..R3	R928050995	..U4	R928048453	R928006699
50LEN0100-H3XLA00-V2,2-M-..	44 [11.62]	..R3	R928051075	..U4	R928048454	R928006753
50LE0130-H3XLA00-V2,2-M-..	74 [19.55]	..R4	R928050770	..U9	R928048455	R928022274
50LE0150-H3XLA00-V2,2-M-..	89 [23.51]	..R4	R928050850	..U9	R928048456	R928022283
50LEN0160-H3XLA00-V2,2-M-..	132 [34.87]	..R6	R928051152	..U6	R928048457	R928006807
50LEN0250-H3XLA00-V2,2-M-..	190 [50.19]	..R6	R928051232	..U6	R928048458	R928006861
50LEN0400-H3XLA00-V2,2-M-..	250 [66.04]	..R6	R928051312	..U6	R928048459	R928006915

Inline filter 50 LE(N), filter rating **6 µm**

Type	Flow in l/min [gpm] at Δp = 1 bar [14.5 psi]	Material no. Filter				Material no. Replacement filter element
50LEN0040-H6XLA00-V5,0-M-..	31 [8.19]	..R3	R928050930	..U4	R928050931	R928006646
50LEN0063-H6XLA00-V5,0-M-..	46 [12.15]	..R3	R928051008	..U4	R928051009	R928006700
50LEN0100-H6XLA00-V5,0-M-..	57 [15.06]	..R3	R928051088	..U4	R928051089	R928006754
50LE0130-H6XLA00-V5,0-M-..	94 [24.83]	..R4	R928050783	..U9	R928050784	R928022275
50LE0150-H6XLA00-V5,0-M-..	103 [27.21]	..R4	R928050863	..U9	R928050864	R928022284
50LEN0160-H6XLA00-V5,0-M-..	175 [46.23]	..R6	R928051165	..U6	R928051166	R928006808
50LEN0250-H6XLA00-V5,0-M-..	226 [59.70]	..R6	R928051245	..U6	R928051246	R928006862
50LEN0400-H6XLA00-V5,0-M-..	282 [74.50]	..R6	R928051325	..U6	R928051326	R928006916

Inline filter 50 LE(N), filter rating **10 µm**

Type	Flow in l/min [gpm] at Δp = 1 bar [14.5 psi]	Material no. Filter				Material no. Replacement filter element
50LEN0040-H10XLA00-V2,2-M-..	36 [9.51]	..R3	R928047959	..U4	R928048460	R928006647
50LEN0063-H10XLA00-V2,2-M-..	69 [18.23]	..R3	R928050967	..U4	R928048461	R928006701
50LEN0100-H10XLA00-V2,2-M-..	75 [19.81]	..R3	R928051047	..U4	R928048462	R928006755
50LE0130-H10XLA00-V2,2-M-..	127 [33.55]	..R4	R928050743	..U9	R928048463	R928022276
50LE0150-H10XLA00-V2,2-M-..	150 [39.63]	..R4	R928050822	..U9	R928048464	R928022285
50LEN0160-H10XLA00-V2,2-M-..	210 [55.48]	..R6	R928051125	..U6	R928048465	R928006809
50LEN0250-H10XLA00-V2,2-M-..	260 [68.68]	..R6	R928051204	..U6	R928048466	R928006863
50LEN0400-H10XLA00-V2,2-M-..	300 [79.25]	..R6	R928051284	..U6	R928048467	R928006917

Ordering code accessories

(dimensions in mm [inch])

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

Material numbers of the electronic switching elements

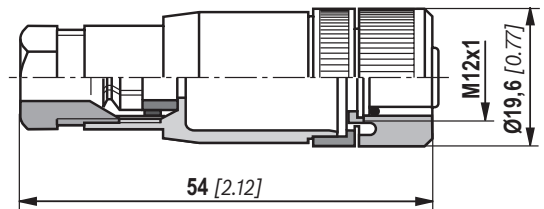
Material no.	Type	Signal	Switching points	Connector	LED
R928028409	WE-1SP-M12 x 1	Changeover	1	M12 x 1	No
R928028410	WE-2SP-M12 x 1	Normally open (at 75%) / normally closed contact (at 100%)	2		3 pieces
R928028411	WE-2SPSU-M12 x 1				
R928036318	WE-1SP-EN175301-803	Normally closed contact	1	EN 175301-803	No

Mating connectors according to IEC 60947-5-2

for electronic switching element with round plug-in connection M12 x 1

Mating connector suitable for K24 4-pole, M12 x 1 with screw connection, cable gland Pg9.

Material no. R900031155

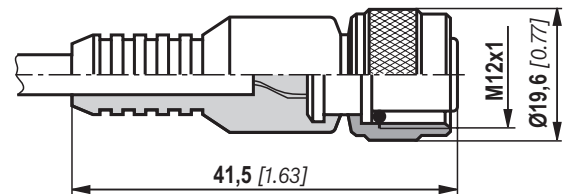


Mating connector suitable for K24-3m 4-pole, M12 x 1 with potted-in PVC cable, 3 m long.

Line cross-section: 4 x 0.34 mm²

Core marking: **1** brown **2** white
 3 blue **4** black

Material no. R900064381



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

Order example:

Inline filter with mechanical optical maintenance indicator for $p_{nom.} = 50 \text{ bar}$ [725 psi] with bypass valve, size 0160, with filter element 10 µm and electronic switching element M12 x 1 with 1 switching point for hydraulic fluid mineral oil HLP according to DIN 51524.

Filter with mech. optical maintenance indicator: 50LEN0160-H10XLA00-V5,0-M-R6

Material no. R928051126

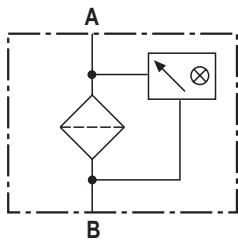
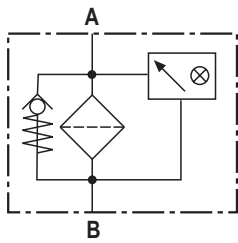
Switching element: WE-1SP-M12 x 1

Material no. R928028409

Mating connector: Mating connector suitable for K24 4-pole, M12 x 1 with screw connection, cable gland Pg9. Material no. R900031155

Symbols

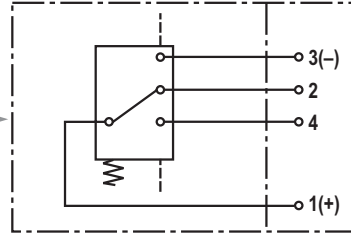
Inline filter with bypass and mechanical indicator



Inline filter without bypass and with mechanical indicator

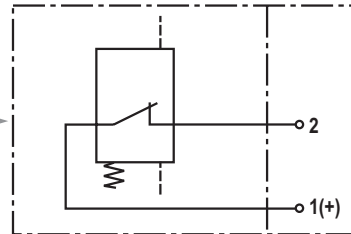
Electronic switching element for maintenance indicator

Switching element Connector



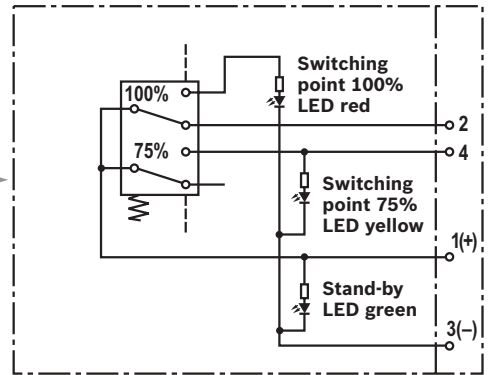
WE-1SP-M12 x 1

Switching element Connector



WE-1SP-EN175301-803

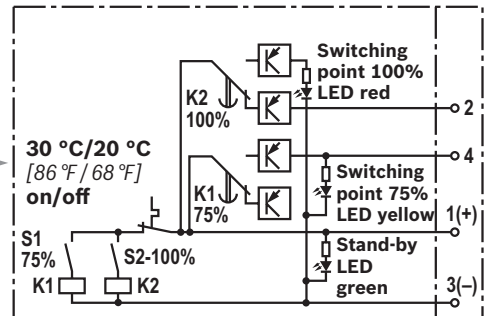
Switching element Connector



WE-2SP-M12 x 1

Circuit diagram drawn in plugged condition (operating state)

Switching element Connector



WE-2SPSU-M12 x 1

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

Function, section

The 50LE(N) inline filter is suitable for direct installation into pressure lines. It is installed upstream components to be protected.

It basically consists of filter head (1), a screwable filter bowl (2), filter element (3) as well as mechanical optical maintenance indicator (4). In case of filters with low-pressure-differential-stable filter elements (= code letter pressure differential A), there is an assembled bypass valve (5) as standard.

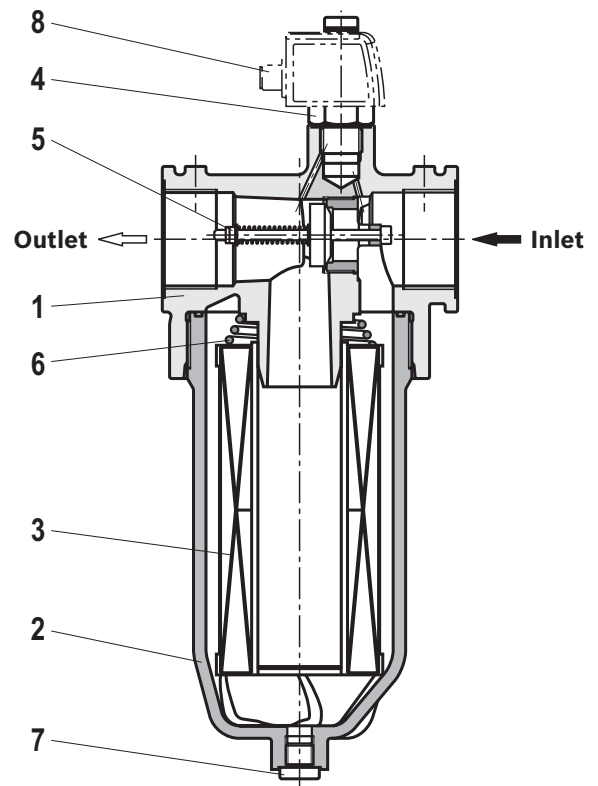
The installed spring (6) prevents possible vibrations of the filter element (3). During disassembly, the contact pressure of the spring (6) holds the filter element in the filter bowl (2).

Via the inlet, the fluid reaches the filter element (3) where it is cleaned. The dirt particles filtered out settle in the filter element (3). Via the outlet, the filtered fluid enters the hydraulic circuit.

The filter housing and all connection elements are designed so that pressure peaks - as they may e.g. occur in case of abrupt opening of large control valves due to the accelerated fluid quantity - can be securely absorbed. As of size 0160, the standard equipment comprises a drain screw (7).

By default, the filter is equipped with mechanical optical maintenance indicator (4). The electronic switching element (8) 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 50LEN0160

WARNING!

If the maintenance indicator is not observed while the element is exchanged, the bypass valve will open if the pressure differential increases. This means that part of the volume flow enters unfiltered into the clean side of the filter. Effective filtration is therefore no longer guaranteed.

Technical data

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

General					
Installation position		vertical			
Ambient temperature range		°C [°F] -10 ... +100 [14 ... +212] (shortly up to -30 [-22])			
Weight	NS	0040	0063	0100	0130
	kg [lbs]	1.05 [2.3]	1.1 [2.4]	1.2 [2.6]	1.91 [4.2]
	NS	0150	0160	0250	0400
	kg [lbs]	2.06 [4.5]	3.1 [6.8]	3.3 [7.3]	3.8 [8.4]
Volume	NS	0040	0063	0100	0130
	l [US gal]	0.27 [0.07]	0.39 [0.1]	0.58 [0.15]	0.89 [0.23]
	NS	0150	0160	0250	0400
	l [US gal]	1.1 [0.29]	1.31 [0.35]	1.89 [0.50]	2.84 [0.75]
Material	- Filter head	Aluminum			
	- Filter bowl	Aluminum			
	- Bypass valve	Aluminum / steel / POM			
	- Seals	NBR or FKM			
	- optical maintenance indicator	V0,8; V1,5; V2,2	Aluminum		
		V5,0	Brass		
Electronic switching element		Plastic PA6			

Hydraulic			
Maximum operating pressure	bar [psi]	50 [725]	
Hydraulic fluid temperature range	°C [°F]	-10 to +100 [+14 to +212]	
Minimum conductivity of the medium	pS/m	300	
Fatigue strength according to ISO 10771	Load cycles	> 10 ⁶ with max. operating pressure	
Type of pressure measurement of the maintenance indicator		Pressure differential	
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
		0.8 ± 0.15 [11.6 ± 2.2]	2.5 ± 0.25 [36.3 ± 3.6]
		1.5 ± 0.20 [21.8 ± 2.9]	2.5 ± 0.25 [36.3 ± 3.6]
		2.2 ± 0.30 [31.9 ± 4.4]	3.5 ± 0.35 [50.8 ± 5.1]
		5.0 ± 0.50 [72.5 ± 7.3]	7.0 ± 0.5 [101.5 ± 7.3]
Filtration direction		From the outside to the inside	

Electric (electronic switching element)					
Electrical connection	Version	Round plug-in connection M12 x 1, 4-pole			Standard connection EN 175301-803
		WE-1SP-M12 x 1	WE-2SP-M12 x 1	WE-2SPSU-M12 x 1	WE-1SP-EN175301-803
Contact load, direct voltage	A _{max.}	1			
Voltage range	V _{max.}	150 (AC/DC)	10-30 (DC)		250 (AC)/200 (DC)
max. switching power with resistive load	W	20			70
Switching type	- 75% signal	-	Normally open contact		-
	- 100% signal	Changeover	Normally closed contact		Normally closed contact
	- 2SPSU			Signal inter-connection 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 67			IP 65
Ambient temperature range		°C [°F] -25 to +85 [-13 to +185]			
For direct voltage above 24 V, spark extinguishing is to be provided for protecting the switching contacts.					
Weight	electronic switching element: - with round plug-in connection M12 x 1	kg [lbs]	0.1 [0.22]		

Technical data

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

Filter element			
Non-woven glass fiber media H..XL		Single-use element on the basis of inorganic fiber	
		Filtration ratio according to ISO 16889 up to $\Delta p = 5 \text{ bar}$ [72.5 psi]	Achievable oil cleanliness according to ISO 4406 [SAE-AS 4059]
	H20XL	$\beta_{20}(c) \geq 200$	19/16/12 – 22/17/14
	H10XL	$\beta_{10}(c) \geq 200$	17/14/10 – 21/16/13
	H6XL	$\beta_6(c) \geq 200$	15/12/10 – 19/14/11
	H3XL	$\beta_3(c) \geq 200$	13/10/8 – 17/13/10
Admissible pressure differential	– A	bar [psi]	30 [435]
	– B	bar [psi]	330 [4785]

Compatibility with hydraulic fluids

Hydraulic fluid	Classification	Suitable sealing materials	Standards
Mineral oil	HLP	NBR	DIN 51524
Biodegradable	– 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	



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 P

(cellulose) may not be used, filter elements with filter materials made of glass fiber (HydroClean H...XL or wire mesh G) have to be used instead.

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

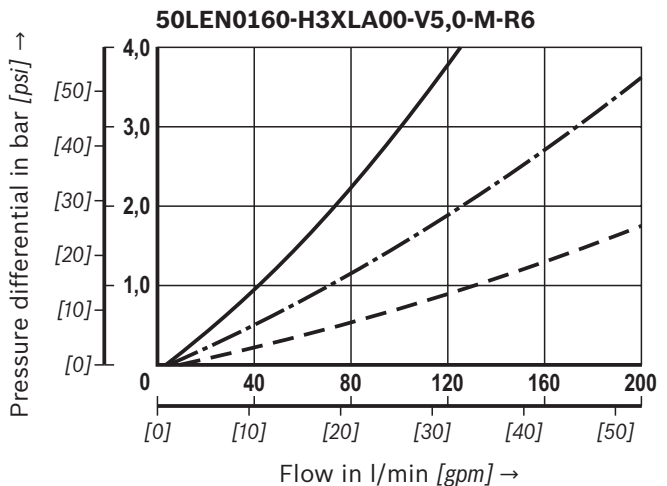
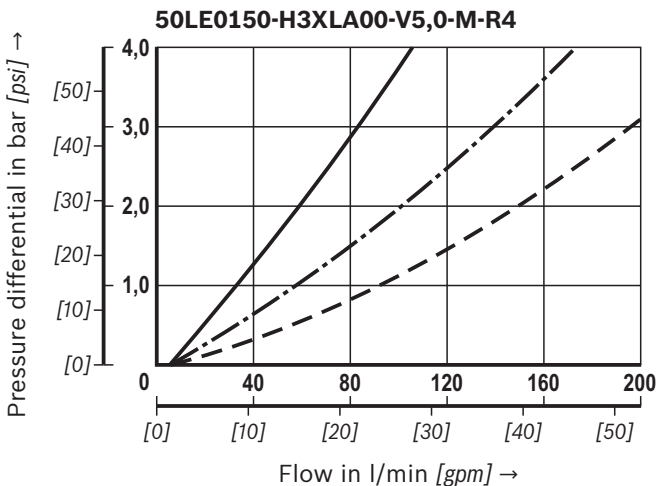
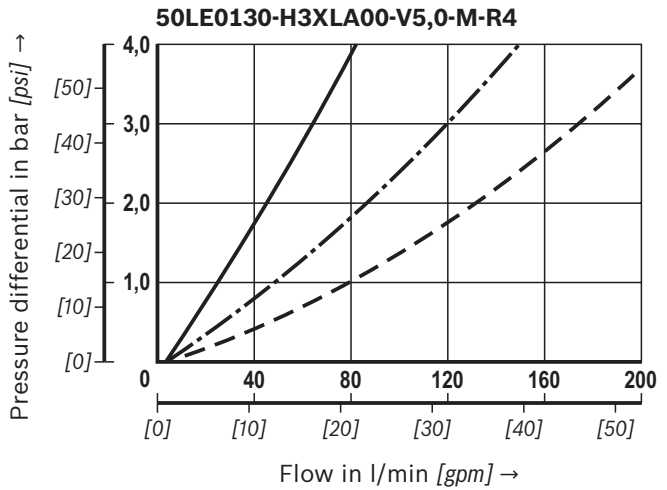
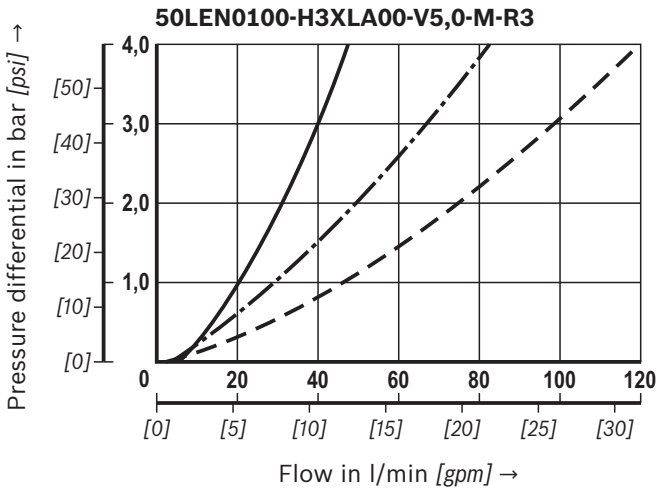
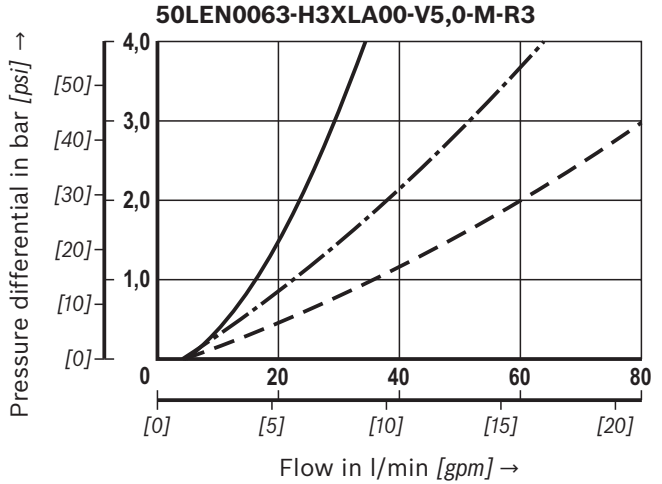
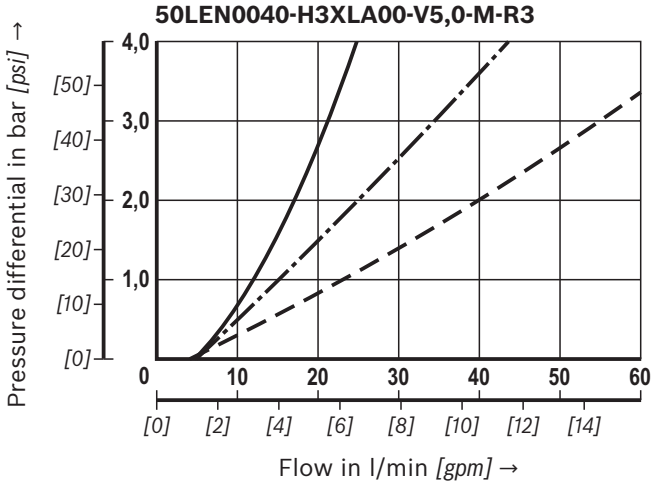
Characteristic curves H3XL

(measured with mineral oil HLP46 according to DIN 51524 at T = 40 °C) [104 °F]

Spec. weight: < 0.9 kg/dm³ Δp -Q-characteristic curves for complete filters recommended initial Δp for design = 1 bar [14.5 psi]

Selection of the perfect filter is made possible by our online "Bosch Rexroth FilterSelect" design software.

Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



Characteristic curves H3XL; H10XL

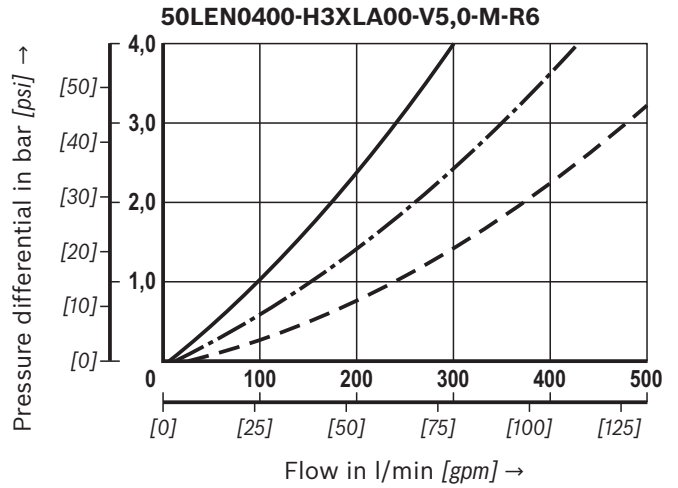
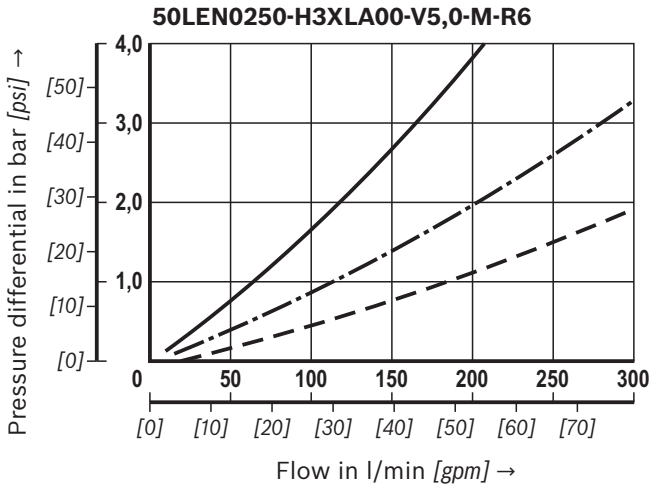
(measured with mineral oil HLP46 according to DIN 51524 at T = 40 °C) [104 °F]

Spec. weight: < 0.9 kg/dm³ Δp -Q-characteristic curves for complete filters recommended initial Δp for design = 1 bar [14.5 psi]

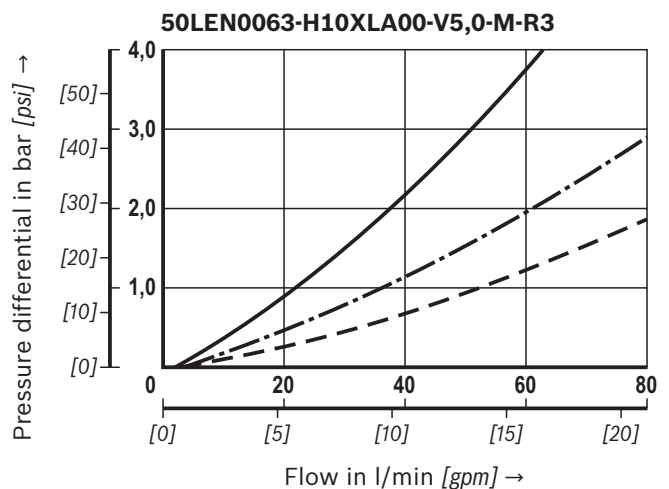
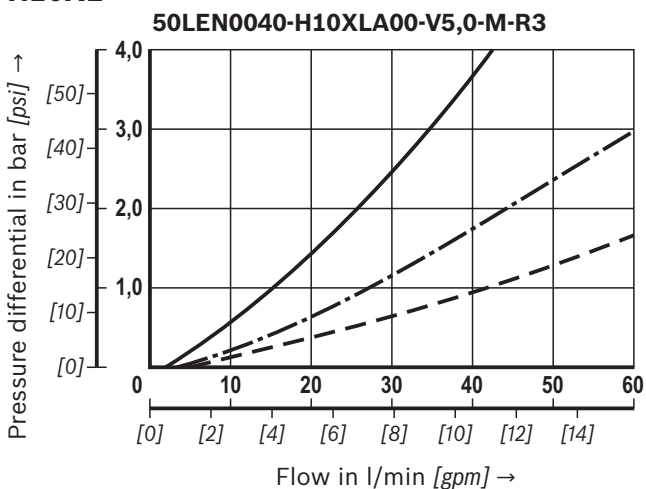
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Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]

H3XL



H10XL



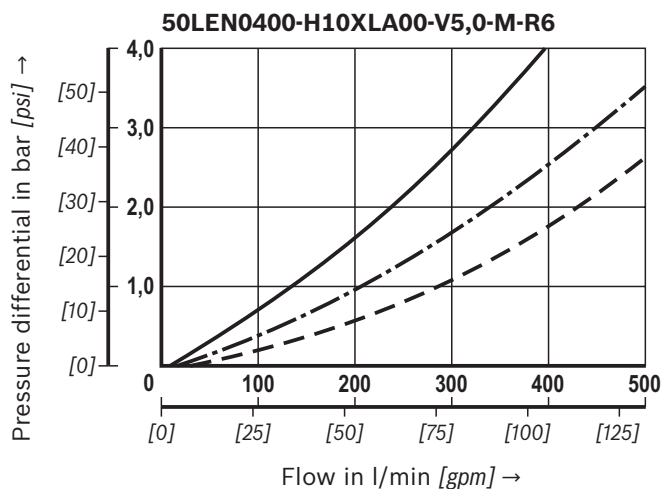
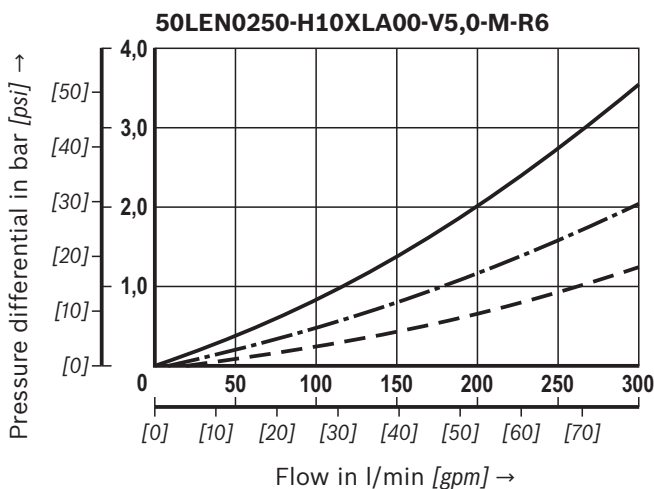
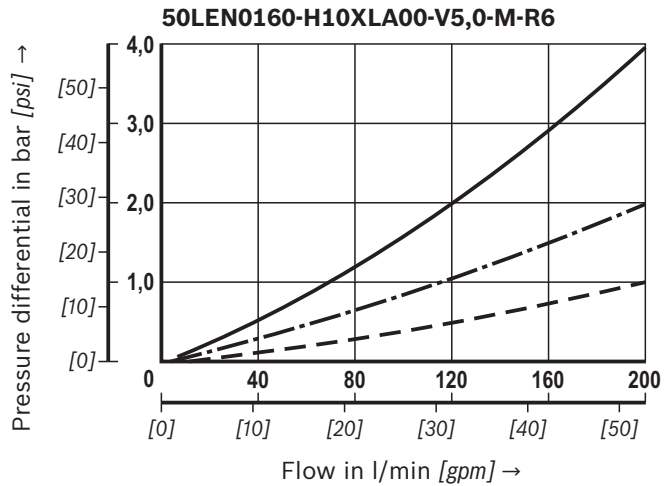
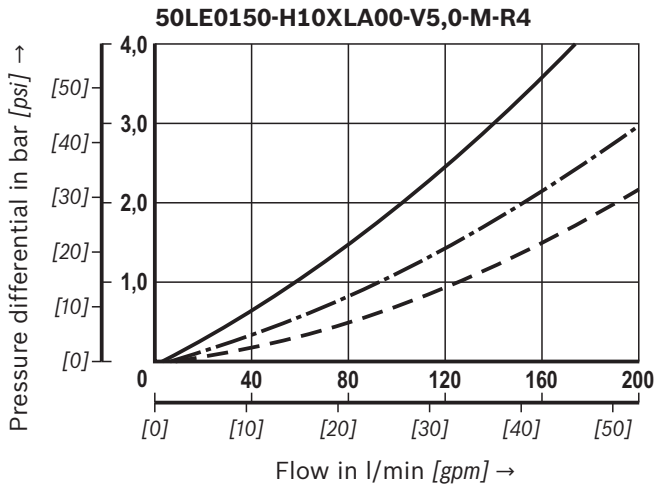
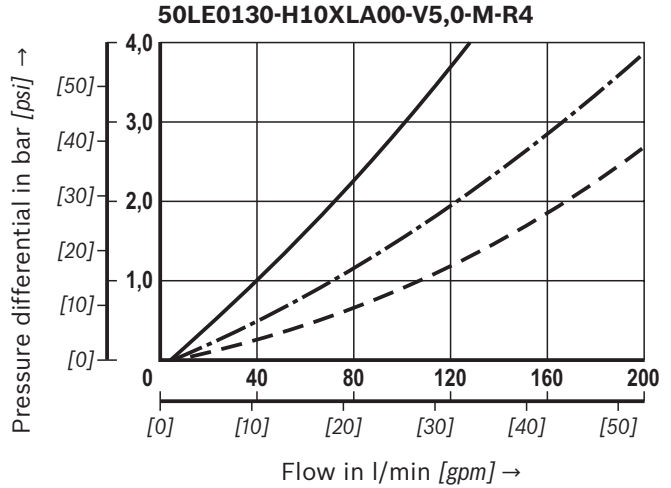
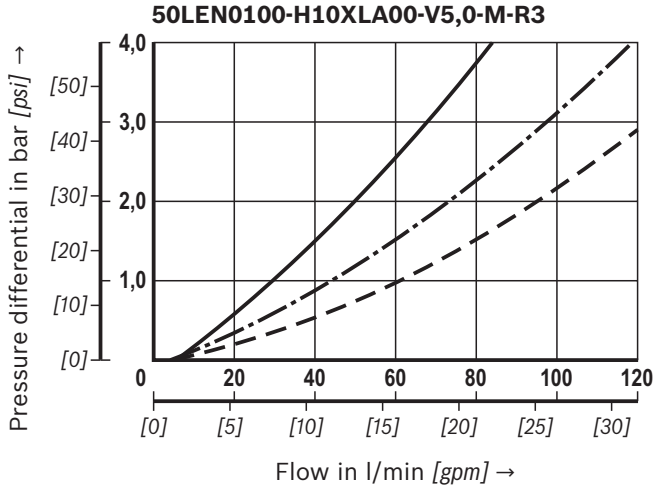
Characteristic curves H10XL

(measured with mineral oil HLP46 according to DIN 51524 at T = 40 °C) [104 °F]

Spec. weight: < 0.9 kg/dm³ Δp -Q-characteristic curves for complete filters recommended initial Δp for design = 1 bar [14.5 psi]

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Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



Dimensions: Size 0040 - size 0400

(dimensions in mm [inch])

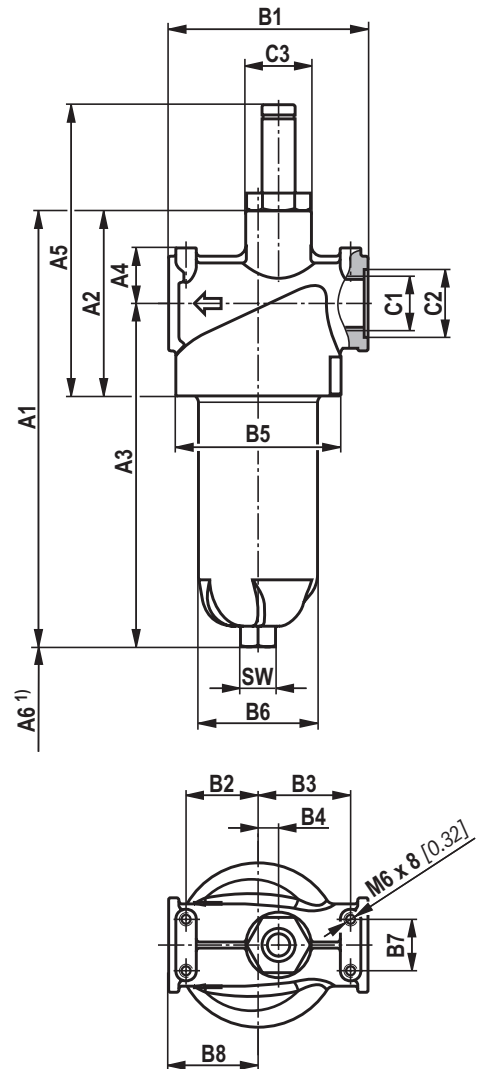
**Filter housing for filter elements according to DIN 24550
and according to Rexroth standard**

Type 50...	Content in l [US gal]	Weight in kg [lbs]	A1	A2	A3	A4
LEN 0040	0.27 [0.07]	1.05 [2.3]	209 [8.22]		164 [6.46]	
LEN 0063	0.39 [0.1]	1.1 [2.4]	269 [10.59]	87 [3.43]	224 [8.82]	24 [0.94]
LEN 0100	0.58 [0.15]	1.2 [2.6]	359 [14.13]		314 [12.36]	
LE 0130	0.89 [0.23]	1.91 [4.2]	299 [11.77]	98 [3.86]	251 [9.88]	30 [1.18]
LE 0150	1.1 [0.29]	2.06 [4.5]	350 [13.78]		302 [11.89]	
LEN 0160	1.31 [0.35]	3.1 [6.8]	310 [12.20]		255 [10.04]	
LEN 0250	1.89 [0.50]	3.3 [7.3]	400 [15.75]	122 [4.80]	345 [13.58]	35 [1.38]
LEN 0400	2.84 [0.75]	3.8 [8.4]	550 [21.65]		495 [19.49]	

Type 50...	A5	A6	B1	B2	B3	B4	ØB5
LEN 0040							
LEN 0063	139 [5.47]	80 [3.15]	92 [3.62]	27.5 [1.06]	37.5 [1.48]	10 [0.39]	75 [2.95]
LEN 0100							
LE 0130	150 [5.91]	140 [5.51]	122 [4.80]	40 [1.57]	50 [1.97]	14 [0.55]	105 [4.13]
LE 0150							
LEN 0160	174 [6.85]	140 [5.51]	142 [5.59]	50 [1.97]	60 [2.36]	20 [0.79]	125 [4.92]
LEN 0250							
LEN 0400							

Type 50...	ØB6	B7	B8	C1 con- nection	ØC2	ØC3	SW
LEN 0040							
LEN 0063	58 [2.28]	20 [0.79]	41 [1.61]	G 3/4 1 1/16-12 UN-2B	33 [1.30] 41 [1.61]		
LEN 0100							
LE 0130	82 [3.23]	20 [0.79]	56 [2.20]	G 1 1 5/16-12 UN-2B	41 [1.61] 49 [1.93]	32 [1.26]	17 [0.67]
LE 0150							
LEN 0160	102 [4.02]	30 [1.18]	66 [2.60]	G 1 1/2 1 7/8-12 UN-2B	56 [2.20] 65 [2.56]		
LEN 0250							
LEN 0400							

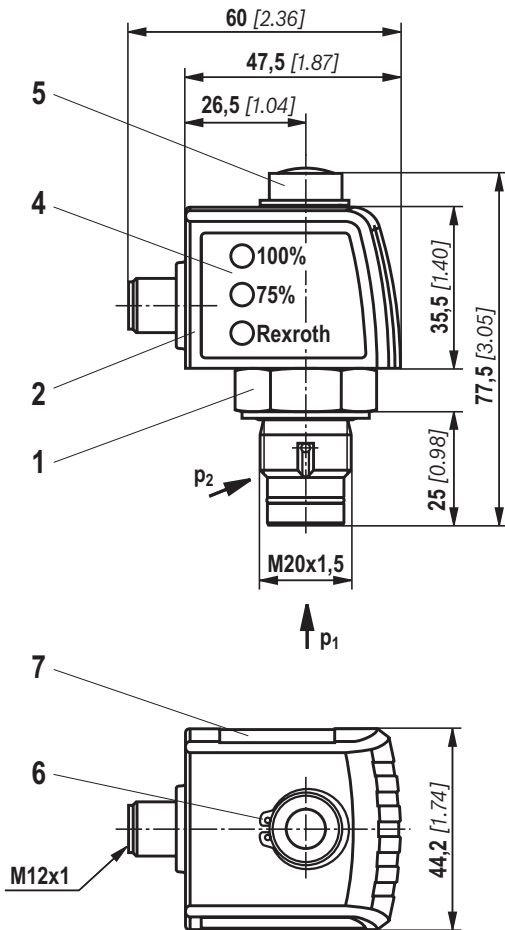
50 LEN 0040-0400



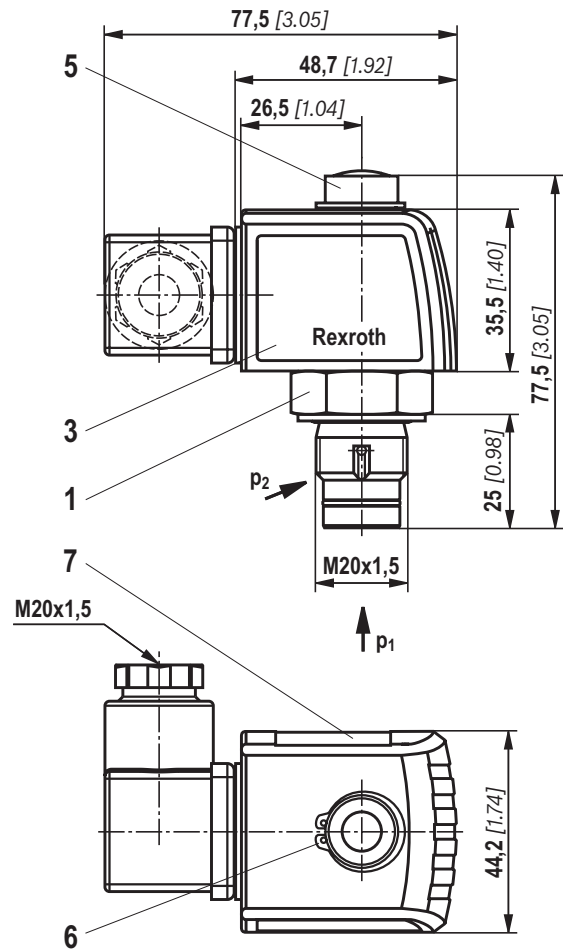
1) Servicing height for filter element exchange

Maintenance indicator (dimensions in mm [inch])

Pressure differential indicator with mounted switching element M12 x 1



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 M12 x 1, 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 bistable
- 6 Locking ring DIN 471-16 x 1, **material no. R900003923**
- 7 Name plate

Notices:

Representation contains mechanical optical maintenance indicator (1) and electronic switching element (2) (3). Switching elements with increased switching power upon request.

Ordering code spare parts

Filter element

01	02	03	04	05	06
2.			-	-	0

Filter element

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

Nominal size

02	LEN... (Filter element according to DIN 24550)	0040 0063 0100 0160 0250 0400
	LE... (Filter elements according to Bosch Rexroth standard)	0130 0150

Filter rating in µm

03	Nominal	Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100
	Nominal	Filter paper, not cleanable	P10 P25
	Absolute (ISO 16889); $\beta_{x(c)} \geq 200$	Non-woven glass fiber media, not cleanable	H3XL H6XL H10XL H20XL

Pressure differential

04	max. admissible pressure differential of the filter element 30 bar [435 psi]	A00
	max. admissible pressure differential of the filter element 330 bar [4786 psi]	B00

Bypass valve

05	Always 0 with filter element	0
----	------------------------------	---

Seal

06	NBR seal	M
	FKM seal	V

Order example:

2.0100 H3XL-A00-0-M

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

Preferred program replacement filter element

Replacement filter element 3 micron		Replacement filter element 6 micron		Replacement filter element 10 micron	
R928006645	2.0040 H3XL-A00-0-M	R928006646	2.0040 H6XL-A00-0-M	R928006647	2.0040 H10XL-A00-0-M
R928006699	2.0063 H3XL-A00-0-M	R928006700	2.0063 H6XL-A00-0-M	R928006701	2.0063 H10XL-A00-0-M
R928006753	2.0100 H3XL-A00-0-M	R928006754	2.0100 H6XL-A00-0-M	R928006755	2.0100 H10XL-A00-0-M
R928022274	2.0130 H3XL-A00-0-M	R928022275	2.0130 H6XL-A00-0-M	R928022276	2.0130 H10XL-A00-0-M
R928022283	2.0150 H3XL-A00-0-M	R928022284	2.0150 H6XL-A00-0-M	R928022285	2.0150 H10XL-A00-0-M
R928006807	2.0160 H3XL-A00-0-M	R928006808	2.0160 H6XL-A00-0-M	R928006809	2.0160 H10XL-A00-0-M
R928006861	2.0250 H3XL-A00-0-M	R928006862	2.0250 H6XL-A00-0-M	R928006863	2.0250 H10XL-A00-0-M
R928006915	2.0400 H3XL-A00-0-M	R928006916	2.0400 H6XL-A00-0-M	R928006917	2.0400 H10XL-A00-0-M

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
----	------------------------------	----------

Design

03	Pressure differential, design 01	D01
----	----------------------------------	------------

Switching pressure

04	0.8 bar [12 psi]	0,8
	1.5 bar [22 psi]	1,5
	2.2 bar [32 psi]	2,2
	5.0 bar [72.5 psi]	5,0

Seal

05	NBR seal	M
	FKM seal	V

max. nominal pressure

06	Switching pressure 0.8 bar [11.6 psi], 160 bar [2321 psi]	160
	Switching pressure 1.5 bar [21.8 psi], 160 bar [2321 psi]	160
	Switching pressure 2.2 bar [31.9 psi], 160 bar [2321 psi]	160
	Switching pressure 5.0 bar [72.5 psi], 450 bar [6527 psi]	450

Mechanical optical maintenance indicator

Material no.	Description
R928038779	WO-D01-0.8-M-160
R928038778	WO-D01-0.8-V-160
R928038781	WO-D01-1.5-M-160
R928038780	WO-D01-1.5-V-160
R901025312	WO-D01-2.2-M-160
R901066233	WO-D01-2.2-V-160
R901025313	WO-D01-5,0-M-450
R901066235	WO-D01-5,0-V-450

Ordering code spare parts

Seal kit

01	02	03	04
D	50/110LE		-

01	Seal kit	D
02	Series 50LE and 110LE	50/110LE

Nominal size

03	0040-0100	N0040-0100
	0130-0150	0130-0150
	0160-0400	N0160-0400

Seal

04	NBR seal	M
	FKM seal	V

Seal kit

Material no.	Description
R928046935	D50/110LEN0040-0100-M
R928046936	D50/110LE0130-0150-M
R928046937	D50/110LEN0160-0400-M
R928051951	D50/110LEN0040-0100-V
R928051952	D50/110LE0130-0150-V
R928051953	D50/110LEN0160-0400-V

Assembly, commissioning, maintenance

Installation

The max. operating pressure of the system must not exceed the max. admissible operating pressure of the filter (see type plate).

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.

Easy filter element exchange is guaranteed in the installation position filter bowl vertically downwards. The maintenance indicator must be arranged in a well visible way.

Remove the plastic plugs in the filter inlet and outlet.

Ensure that the system is assembled without tension stress.

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

Commission 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 and cleaned respectively.

WARNINGS!

- ▶ Assembly and disassembly only with depressurized system!
- ▶ Tank is under pressure!
- ▶ Maintenance only be specialists.
- ▶ Remove the filter bowl only if it is not under pressure!
- ▶ Do not exchange the maintenance indicator while the filter is under pressure!

- ▶ 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.
- ▶ Decommission the system.
- ▶ The operating pressure is to be release on the system side.

Notice:

There is no bleeding provided at the filter.

- ▶ Via the drain screw (from size 0160 fitted by default), the oil on the dirt side can be drained.
- ▶ Screw off 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 renew them, if necessary.
For suitable seal kits refer to chapter “Spare parts”.
- ▶ Filter elements made of wire mesh can be cleaned. The efficiency of the cleaning process depends on the type of dirt and the amount of the pressure differential before the filter element exchange.
If the pressure differential after the filter element exchange exceeds 150% of the value of a brand-new filter element, the filter element made of wire mesh (G...) also needs to be replaced. 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.
- ▶ Commission the system.

- ▶ Functional and safety warranty only applicable when using genuine Bosch Rexroth 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

Series 50 ...	LEN0040	LEN0063	LEN0100	LE0130	LE0150	LEN0160	LEN02	LEN0400
Screw/tightening torque with $\mu_{\text{total}} = 0.14$	M6/4.5 Nm \pm 10 %							
Quantity	4							
Recommended property class of screw	8.8							
Minimum screw-in depth	6 mm + 1 mm							

Filter bowl and maintenance indicator

Series 50 ...	LEN0040	LEN0063	LEN0100	LE0130	LE0150	LEN0160	LEN02	LEN0400
Tightening torque filter bowl	30 Nm + 10 Nm							
Tightening torque maintenance indicator	30 Nm							
Tightening torque cubic connector screw switching element EN-175301-803	M3/0.5 Nm							

Directives and standardization

Classification according to the Pressure Equipment

Directive

The inline filters for hydraulic applications according to 51447 are pressure holding equipment according to article 1, section 2.1.4 of the Pressure Equipment Directive 97/23/EC (PED).

However, on the basis of the exception in article 1, section 3.6 of the PEG, hydraulic filters are exempt from the PED if they are not classified higher than category I (guideline 1/19). They do not receive a CE mark.

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

The inline filters according to 51447 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 inline 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-1SP-M12x1 and WE-1SP-EN175301-803 are simple, electronic operating equipment not having an own voltage source. This simple, electronic operating equipment may - according to DIN

EN 60079-14:2008 - in intrinsically safe electric circuits (Ex ib) be used in systems without marking and certification.

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

	zone suitability	
Gas	1	2
Dust	21	22

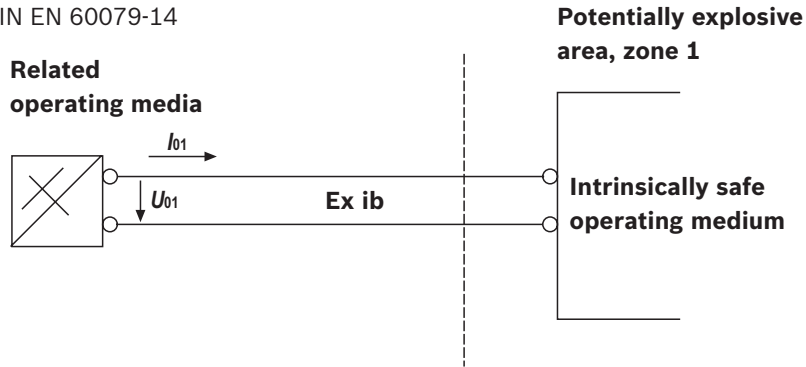
Directives and standardization

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			Values only for intrinsically safe electric circuit	
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 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.

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. admissible ignition temperature is not exceeded.
- ▶ When using the inline filters in accordance with 51447 in potentially explosive areas, appropriate equipotential bonding has to be ensured. The filter is preferably to be earthed via the mounting screws. It has to be

- noted in this connection that paintings and oxidic protective layers are not electrically conductive.
- ▶ Maintenance only by specialists, instruction by the machine end-user acc. to DIRECTIVE 1999/92/EC appendix II, section 1.1
- ▶ During filter element exchanges, the packaging material is to be removed from the replacement element outside the potentially explosive area
- ▶ Functional and safety warranty only applicable when using genuine Rexroth spare parts

Bosch Rexroth AG
 Werk Ketsch
 Hardtwaldstr. 43
 68775 Ketsch, Germany
 Telefon +49 (0) 62 02 / 603-0
 filter-support@boschrexroth.de
 www.boschrexroth.de

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Inline filters with filter element according to DIN 24550

Type 110LEN0040 to 0400; 110LE0130, 0150

RE 51448

Issue: 2017-07

Replaces: 05.14



- ▶ Sizes according to **DIN 24550**: 0040 to 0400
- ▶ additional sizes: 0130, 0150
- ▶ Nominal pressure 110 bar [1595 psi]
- ▶ Connection up to 1 1/2"
- ▶ Operating temperature -10 °C to +100 °C [14 °F to 212 °F]

Features

Inline filters are used in hydraulic systems for separating solid materials from the fluids and lubricating oils. They are intended for attachment in pipelines.

They distinguish themselves by the following:

- ▶ Filters for inline installation
- ▶ High filtration performance due to the tangential cyclone-effect flow path
- ▶ 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
- ▶ Available as an option with different electronic switching elements, modular design
- ▶ Optional bypass valve integrated in the filter housing
- ▶ Optional measuring port

Contents

Features	1
Ordering code filter	2
Preferred types	4
Ordering code accessories	5
Symbols	6
Function, section	7
Technical data	8
Compatibility with hydraulic fluid	9
Characteristic curves	10
Dimensions	13
Maintenance indicator	16
Ordering code spare parts	17
Assembly, commissioning, maintenance	20
Tightening torques	21
Directives and standardization	21

Ordering code Filters

01	02	03	04	05	06	07	08	09	09	09
110LE			-		-	-	-	-	-	-

Series

01	Inline filter 110 bar [1595 psi]	110LE
----	----------------------------------	--------------

Filter element

02	with filter element according to DIN 24550	N
----	---	----------

Size

03	LEN... (with filter element according to DIN 24550)	0040 0063 0100 0160 0250 0400
	LE... (Filter element according to Bosch Rexroth standard)	0130 0150

Filter rating in µm

04	Nominal Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100
	Nominal Filter paper, not cleanable	P10 P25
	Absolute (ISO 16889; $\beta_x(c) \geq 200$) Non-woven glass fiber media, not cleanable	H3XL H6XL H10XL H20XL

Pressure differential

05	max. admissible pressure differential of the filter element 30 bar [435 psi], with bypass valve	A00
	max. admissible pressure differential of the filter element 330 bar [4786 psi], without bypass valve	B00

Maintenance indicator

06	Maintenance indicator, mech./optical, switching pressure 1.5 bar [21.8 psi] – bypass cracking pressure 2.5 bar [36 psi]	V1.5
	Maintenance indicator, mech./optical, switching pressure 2.2 bar [32 psi] – bypass cracking pressure 3.5 bar [51 psi]	V2.2
	Maintenance indicator, mech./optical, switching pressure 5.0 bar [72.5 psi] – bypass cracking pressure 7 bar [102 psi]	V5,0

Seal

07	NBR seal	M
	FKM seal	V

Connection

Ordering code Filters

01	02	03	04	05	06	07	08	09	09	09
110LE			-		-	-	-	-	-	-

08	Frame size	0040	0063-0100	0130-0150	0160-0400		
	Connection						
	G 3/4	●	X			Pipe thread according to ISO 228	R3
	G 1	X	●	X			R4
	G 1 1/4			●			R5
	G 1 1/2				●		R6
	SAE 12	X	X			Pipe thread according to SAE J1926	U4
	SAE 16			X			U9
	SAE 24				X		U6
		<input checked="" type="checkbox"/> Standard connection <input type="checkbox"/> Alternative connection					

Supplementary information

09	additional threaded couplings, G 1/4, lateral at clean and dirt side (from size 0130)	M
	without bypass valve (only possible in connection with filter element version "A00") ¹⁾	NB
	Manufacturer's inspection certificate M according to DIN 55350 T18	Z1

¹⁾ **Attention:** If this option is selected and the maintenance indicator is not observed, the filter element may collapse in case of pressure differentials of more than 30 bar [435 psi].

Order example:

110LEN0100-H3XLA00-V5,0-M-R4

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

Preferred types**NBR seal, with bypass, flow specifications for 30 mm²/s [143 SUS]****Inline filter 110 LE(N), filter rating 3 µm**

Type	Volume flow in l/min [gpm] at $\Delta p = 1$ bar [14.5 psi]	Material no. Filters				Material no. Spare filter element
110LEN0040-H3XLA00-V5,0-M-..	24 [6.34]	..R3	R928046899	..U4	R928046914	R928006645
110LEN0063-H3XLA00-V5,0-M-..	32 [8.45]	..R4	R928046901	..U4	R928046915	R928006699
110LEN0100-H3XLA00-V5,0-M-..	46 [12.15]	..R4	R928046903	..U4	R928046916	R928006753
110LE0130-H3XLA00-V5,0-M-..	90 [23.78]	..R5	R928046909	..U9	R928046917	R928022274
110LE0150-H3XLA00-V5,0-M-..	92 [24.31]	..R5	R928046910	..U9	R928046918	R928022283
110LEN0160-H3XLA00-V5,0-M-..	115 [30.38]	..R6	R928046911	..U6	R928046919	R928006807
110LEN0250-H3XLA00-V5,0-M-..	152 [40.16]	..R6	R928046912	..U6	R928046920	R928006861
110LEN0400-H3XLA00-V5,0-M-..	250 [66.04]	..R6	R928046913	..U6	R928046921	R928006915

Inline filter 110 LE(N), filter rating 6 µm

Type	Volume flow in l/min [gpm] at $\Delta p = 1$ bar [14.5 psi]	Material no. Filters				Material no. Spare filter element
110LEN0040-H6XLA00-V5,0-M-..	31 [8.19]	..R3	R928050256	..U4	R928050257	R928006646
110LEN0063-H6XLA00-V5,0-M-..	47 [12.42]	..R4	R928050336	..U4	R928050337	R928006700
110LEN0100-H6XLA00-V5,0-M-..	57 [15.06]	..R4	R928050416	..U4	R928050417	R928006754
110LE0130-H6XLA00-V5,0-M-..	94 [24.83]	..R5	R928050076	..U9	R928050078	R928022275
110LE0150-H6XLA00-V5,0-M-..	103 [27.21]	..R5	R928050172	..U9	R928050174	R928022284
110LEN0160-H6XLA00-V5,0-M-..	184 [48.61]	..R6	R928050507	..U6	R928050509	R928006808
110LEN0250-H6XLA00-V5,0-M-..	236 [62.34]	..R6	R928050603	..U6	R928050605	R928006862
110LEN0400-H6XLA00-V5,0-M-..	283 [74.76]	..R6	R928050699	..U6	R928050701	R928006916

Inline filter 110 LE(N), filter rating 10 µm

Type	Volume flow in l/min [gpm] at $\Delta p = 1$ bar [14.5 psi]	Material no. Filters				Material no. Spare filter element
110LEN0040-H10XLA00-V5,0-M-..	33 [8.72]	..R3	R928046922	..U4	R928046923	R928006647
110LEN0063-H10XLA00-V5,0-M-..	50 [14.53]	..R4	R928041640	..U4	R928046924	R928006701
110LEN0100-H10XLA00-V5,0-M-..	61 [16.12]	..R4	R928041641	..U4	R928046925	R928006755
110LE0130-H10XLA00-V5,0-M-..	100 [26.42]	..R5	R928037470	..U9	R928046926	R928022276
110LE0150-H10XLA00-V5,0-M-..	127 [33.55]	..R5	R928041642	..U9	R928046927	R928022285
110LEN0160-H10XLA00-V5,0-M-..	192 [50.73]	..R6	R928037471	..U6	R928046928	R928006809
110LEN0250-H10XLA00-V5,0-M-..	243 [64.20]	..R6	R928041643	..U6	R928046929	R928006863
110LEN0400-H10XLA00-V5,0-M-..	300 [79.25]	..R6	R928041644	..U6	R928046930	R928006917

Ordering code**Accessories**

(dimensions in mm [inch])

Electronic switching element for maintenance indicators

01	02	03
WE	-	-

Maintenance indicator

01	electronic switching element	WE
----	------------------------------	----

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

Material numbers of the electronic switching elements

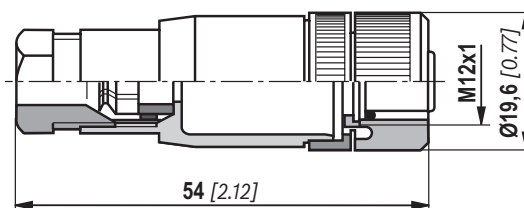
Material no.	Type	Signal	Switching points	Connector	LED
R928028409	WE-1SP-M12x1	Changeover	1	M12x1	No
R928028410	WE-2SP-M12x1	Normally open (at 75 %) / normally closed contact (at 100 %)	2		3 pieces
R928028411	WE-2SPSU-M12x1				
R928036318	WE-1SP-EN175301-803	Normally closed contact	1	EN 175301-803	No

Mating connectors according to IEC 60947-5-2

for electronic switching element with round plug-in connection M12x1

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

Material no. R900031155

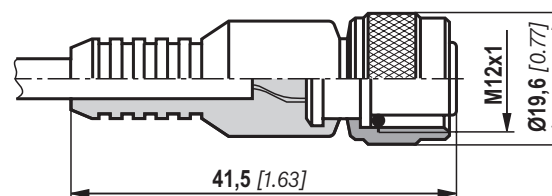


Mating connector suitable for K24-3m 4-pin, M12x1
with potted-in PVC cable, 3 m long.

Line cross-section: 4 x 0.34 mm²

Core marking: 1 brown 2 white
3 blue 4 black

Material no. R900064381



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

Order example:

Inline filter with mechanical optical maintenance indicator for $p_{nom.} = 110 \text{ bar}$ [1595 psi] with bypass valve, size 0160, with filter element 10 µm and electronic switching element M12x1 with 1 switching point for hydraulic fluid mineral oil HLP according to DIN 51524.

**Filter with mech. optical
maintenance indicator:**

110LEN0160-H10XLA00-V5,0-M-R6

Material no. R928037471

Switching element:

WE-1SP-M12x1

Material no. R928028409

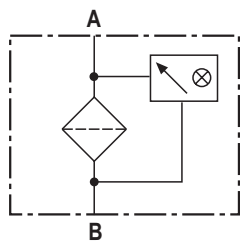
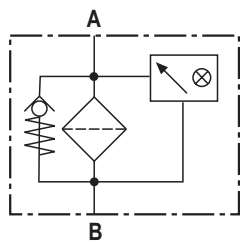
Mating connector:

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

Material no. R900031155

Symbols

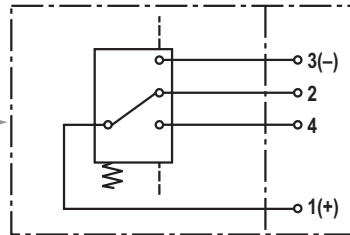
Inline filter with bypass and mechanical indicator



Inline filter without bypass and with mechanical indicator

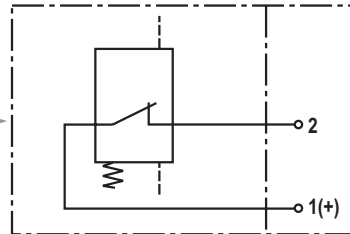
**electronic switching element
for maintenance indicator**

Switching element Connector



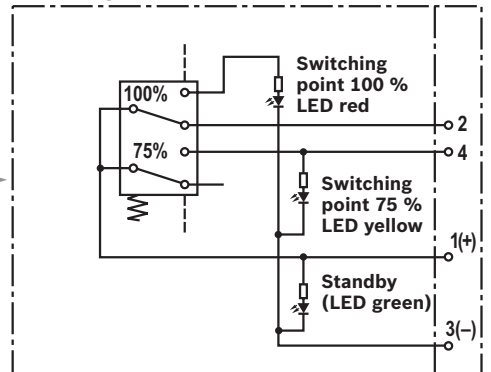
WE-1SP-M12x1

Switching element Connector



WE-1SP-EN175301-803

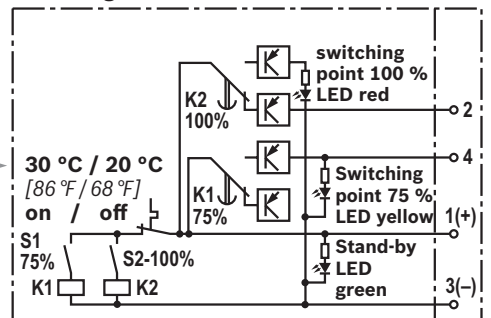
Switching element Connector



WE-2SP-M12x1

**Circuit diagram drawn in plugged condition
(operating state)**

Switching element Connector



WE-2SPSU-M12x1

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

Function, section

The 110LE(N) inline filter is suitable for direct installation into pressure lines. It is installed upstream components to be protected.

It basically consists of filter head (1), a screwable filter bowl (2), filter element (3) as well as mechanical optical maintenance indicator (4). In case of filters with low-pressure-differential-stable filter elements (= code letter pressure differential A), there is an assembled bypass valve (5) as standard.

The installed spring (6) prevents possible vibrations of the filter element (3). During disassembly, the contact pressure of the spring (6) holds the filter element in the filter bowl (2).

Via the inlet, the fluid reaches the filter element (3) where it is cleaned. The dirt particles filtered out settle in the filter bowl (2) and in the filter element (3). Via the outlet, the filtered fluid enters the hydraulic circuit.

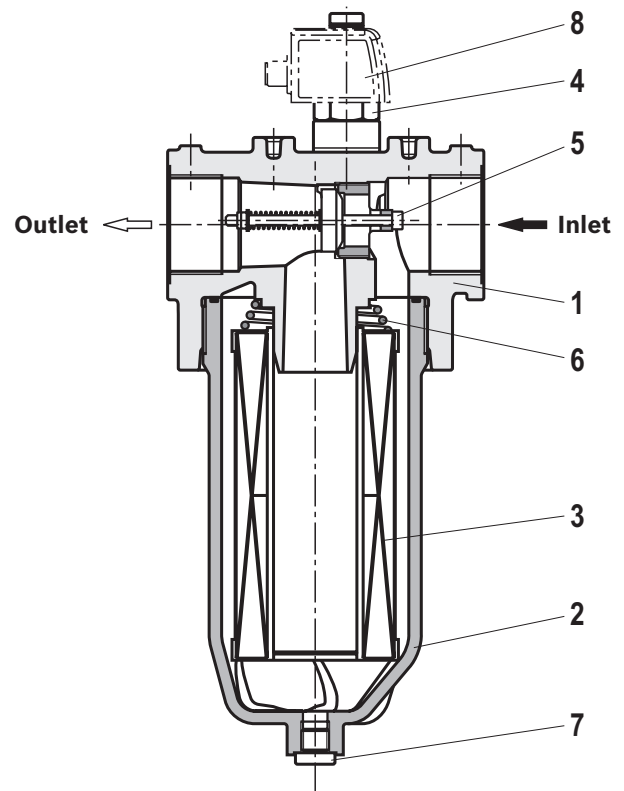
The filter housing and all connection elements are designed so that pressure peaks - as they may e.g. occur in case of abrupt opening of large control valves due to the accelerated fluid quantity - can be securely absorbed. As of size 0160, the standard equipment comprises a drain screw (7).

By default, the filter is equipped with mechanical optical maintenance indicator (4). The electronic switching element (8) which has to be ordered separately is attached to the mechanical optical maintenance indicator (4) and held by means of a locking ring.

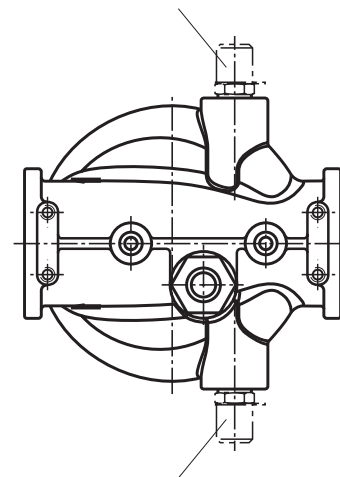
The electronic switching elements with 1 or 2 switching points are connected via a mating connector according to IEC-60947-5-2 or via a cable connection according to EN17301-803.

As of size 0130, it is possible to order the filters with threaded couplings for separate pressure differential measurement. Only then will the filter head be drilled accordingly.

High filtration performance due to the tangential cyclone-effect flow path in the filter housing in connection with a slowdown zone at the bottom of the filter bowl.



Dirt side from size 0130 optional threaded couplings



Clean side from size 0130 optional threaded couplings

Type 110LEN0160

WARNING!

If the maintenance indicator is not observed while the element is exchanged, the bypass valve will open if the pressure differential increases. This means that part of the volume flow enters unfiltered into the clean side of the filter. Effective filtration is therefore no longer guaranteed.

Technical data

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

General					
Installation position		vertical			
Ambient temperature range		°C [°F] -10 ... +100 [14 ... +212] (shortly up to -30 [-22])			
Weight	NS	0040	0063	0100	0130
	kg [lbs]	1.1 [2.4]	1.3 [2.9]	1.5 [3.3]	2.5 [5.5]
	NS	0150	0160	0250	0400
	kg [lbs]	2.6 [5.7]	3.5 [7.7]	4.0 [8.8]	4.9 [10.8]
Volume	NS	0040	0063	0100	0130
	l [US gal]	0.3 [0.08]	0,4 [0.11]	0.6 [0.16]	0.9 [0.24]
	NS	0150	0160	0250	0400
	l [US gal]	1.1 [0.29]	1.3 [0.34]	1.9 [0.50]	2.9 [0.77]
Material	- Filter head	Aluminum			
	- Filter bowl	Aluminum			
	- Bypass valve	Aluminum / steel / POM			
	- Seals	NBR or FKM			
	- Visual maintenance indicator	V1.5; V2.2	Aluminum		
		V5.0	Brass		
	-Electronic switching element	Plastic PA6			

Hydraulic			
Maximum operating pressure	bar [psi]	110 [1595]	
Hydraulic fluid temperature range	°C [°F]	-10 to +100 [+14 to +212]	
Minimum conductivity of the medium	pS/m	300	
Fatigue strength according to ISO 10771	Load cycles	> 10 ⁶ with max. operating pressure	
Type of pressure measurement of the maintenance indicator		Pressure differential	
Assignment: Response pressure of the maintenance indicator / cracking pressure of the bypass valve		Response pressure of the maintenance indicator	Cracking pressure of the bypass valve
	bar [psi]	1.5 ± 0.2 [21.8 ± 2.9]	2.5 ± 0.25 [36.3 ± 3.6]
		2.2 ± 0.3 [31.9 ± 4.4]	3.5 ± 0.35 [50.8 ± 5.1]
		5.0 ± 0.5 [72.5 ± 7.3]	7.0 ± 0.5 [101.5 ± 7.3]
Filtration direction		From the outside to the inside	

Technical data

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

electric (electronic switching element)				
Electrical connection	Round plug-in connection M12x1, 4-pole			Standard connection EN 175301-803
	Version	WE-1SP- M12x1	WE-2SP- M12x1	WE-2SPSU- M12x1 WE-1SP- EN175301-803
Contact load, direct voltage	$A_{max.}$	1		
Voltage range	$V_{max.}$	150 (AC/DC)	10-30 (DC)	250 (AC)/200 (DC)
max. switching power with resistive load	W	20		70
Switching type	- 75 % signal	-	Normally open contact	
	- 100 % signal	Changeover	Normally closed contact	
	- 2SPSU			Signal inter-connection 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 67		IP 65
Ambient temperature range	°C [°F]	-25 to +85 [-13 to +185]		
For direct voltage above 24 V, spark extinguishing is to be provided for protecting the switching contacts.				
Weight electronic switching element: - with round plug-in connection M12x1	kg [lbs]	0.1 [0.22]		

Filter element				
Non-woven glass fiber media H..XL		Single-use element on the basis of inorganic fiber		
		Filtration ratio according to ISO 16889 up to $\Delta p = 5 \text{ bar [72.5 psi]}$	Achievable oil cleanliness according to ISO 4406 [SAE-AS 4059]	
	H20XL	$\beta_{20}(c) \geq 200$	19/16/12 – 22/17/14	
	H10XL	$\beta_{10}(c) \geq 200$	17/14/10 – 21/16/13	
	H6XL	$\beta_6(c) \geq 200$	15/12/10 – 19/14/11	
	H3XL	$\beta_3(c) \geq 200$	13/10/8 – 17/13/10	
admissible pressure differential	- A	bar [psi]	30 [435]	
	- B	bar [psi]	330 [4785]	

Compatibility with hydraulic fluids

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

(cellulose) may not be used, filter elements with filter materials made of glass fiber (HydroClean H..XL or wire mesh G) have to be used instead.

- **Biodegradable:** 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 at T = 40 °C [104 °F])

H3XL

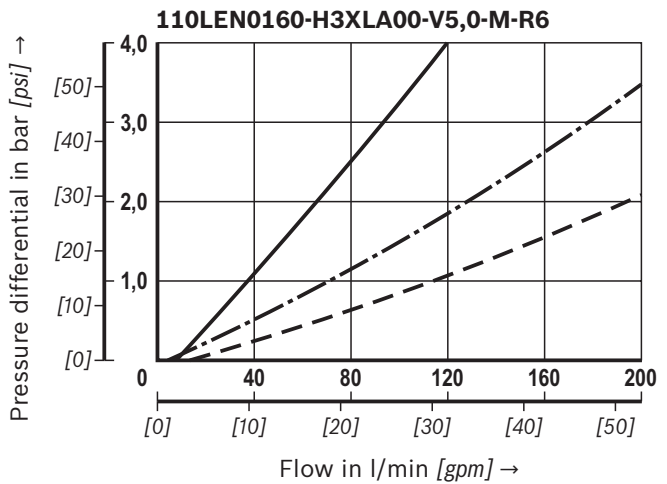
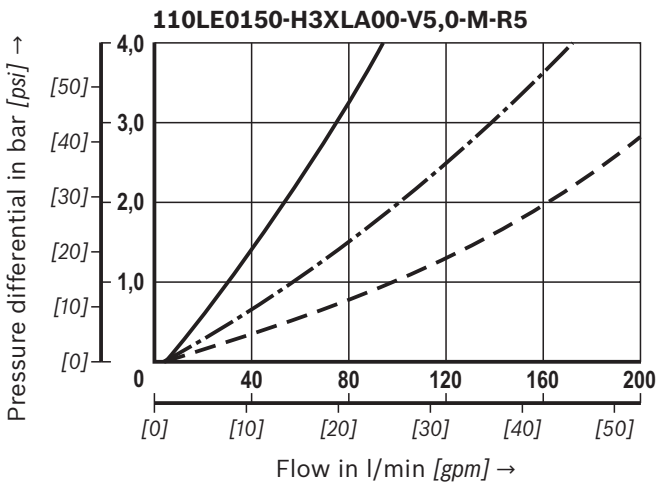
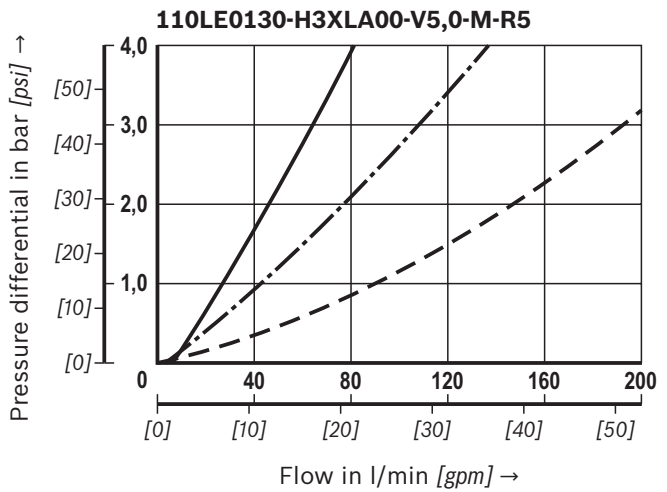
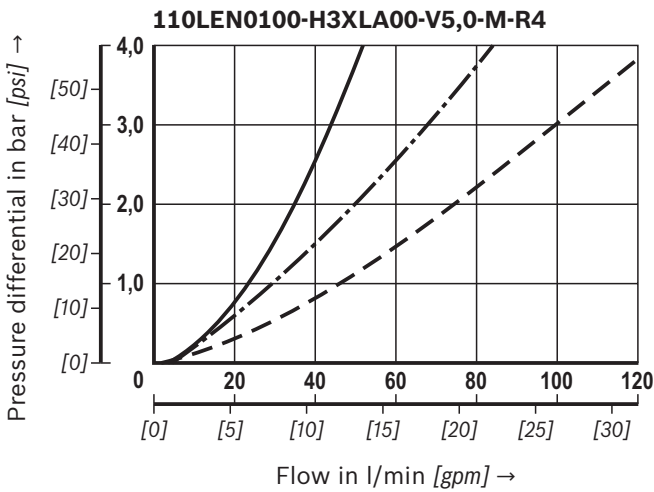
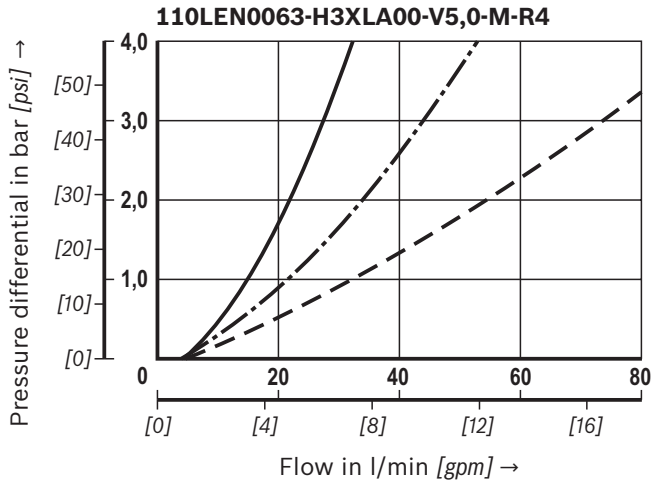
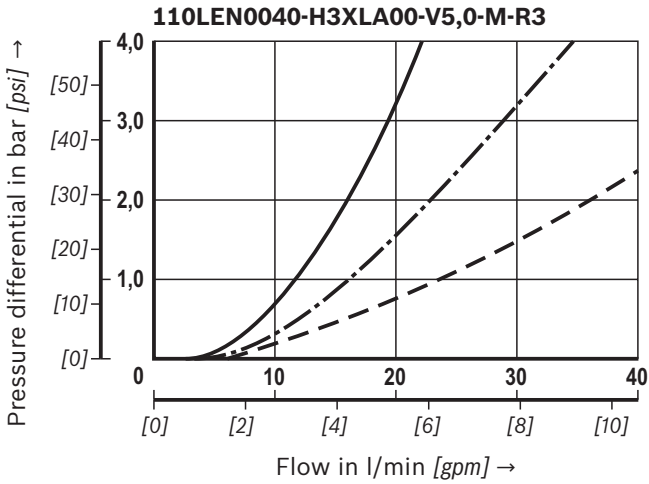
Spec. weight: < 0.9 kg/dm³

Δp -Q characteristic curves for complete filter

recommended initial- Δp for design = 1 bar [14.5 psi]

Selection of the perfect filter is made possible by our online "Bosch Rexroth FilterSelect" design software.

Oil viscosity:
 — 140 mm²/s [649 SUS]
 - · - 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



Characteristic curves

H3XL, H10XL

(measured with mineral oil HLP46 according to DIN 51524 at T = 40 °C [104 °F])

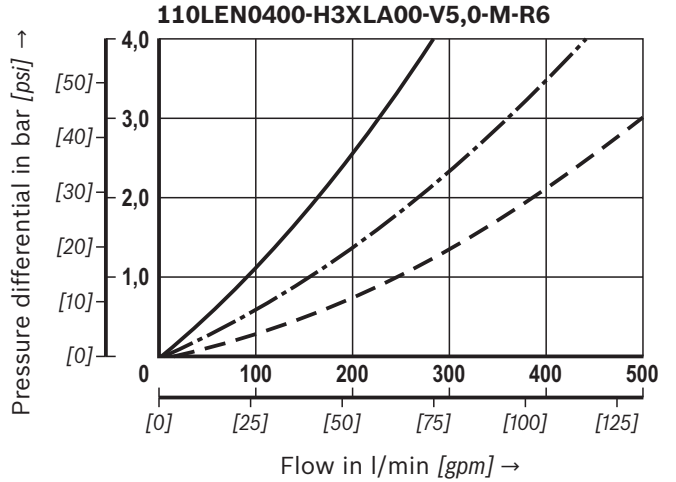
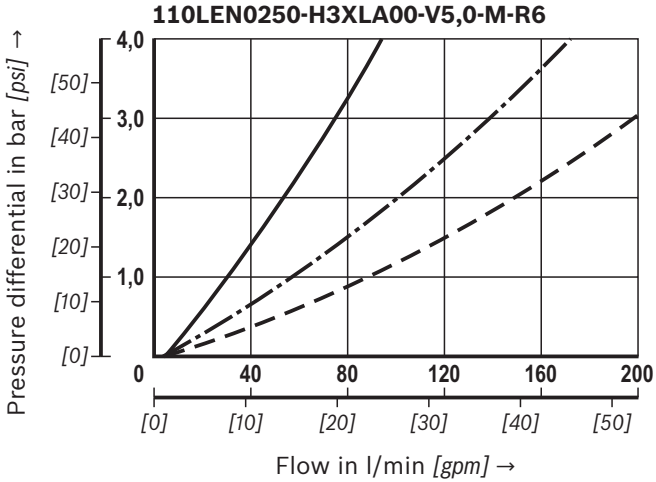
Spec. weight: < 0.9 kg/dm³

Δp -Q characteristic curves for complete filter
recommended initial- Δp for design = 1 bar [14.5 psi]

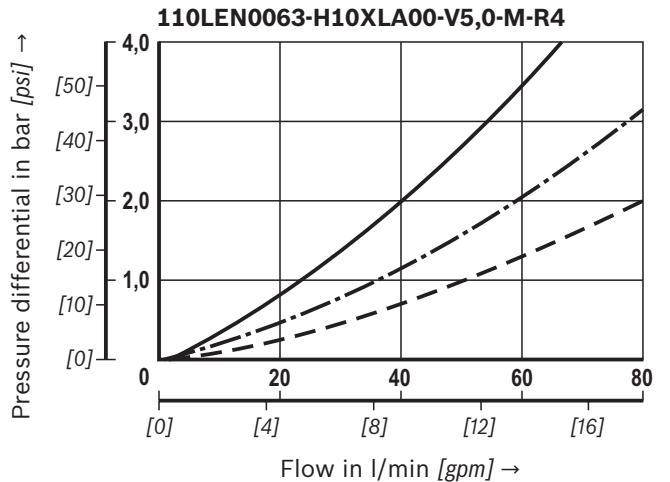
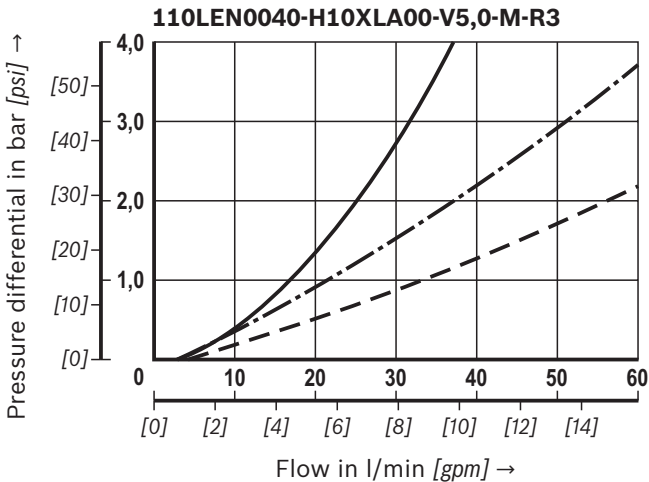
Selection of the perfect filter is made possible by our online “Bosch Rexroth FilterSelect” design software.

Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]

H3XL



H10XL



Characteristic curves

H10XL

(measured with mineral oil HLP46 according to DIN 51524 at T = 40 °C [104 °F])

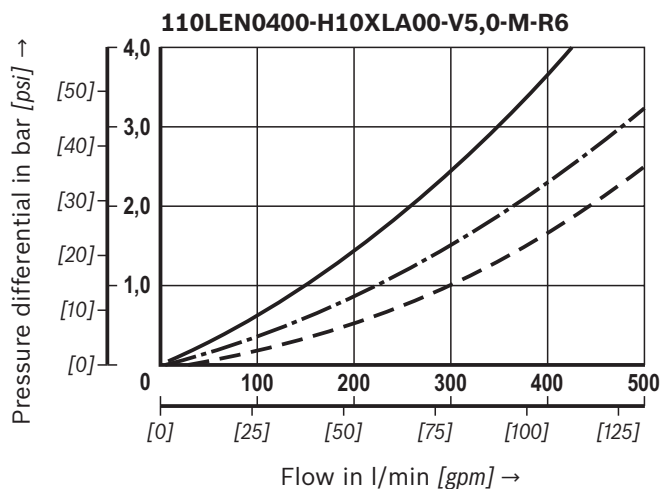
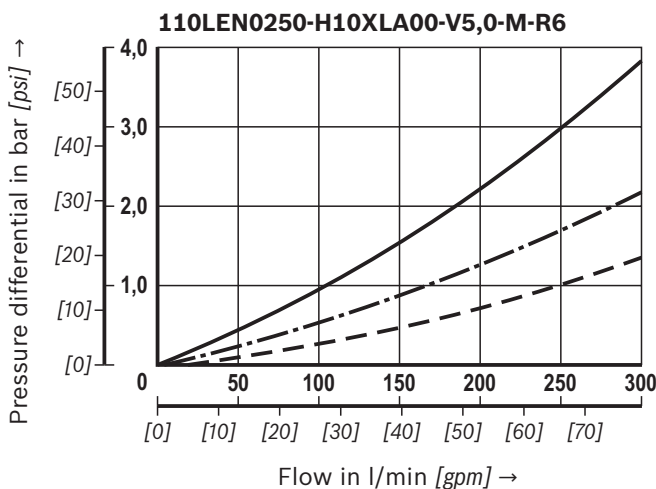
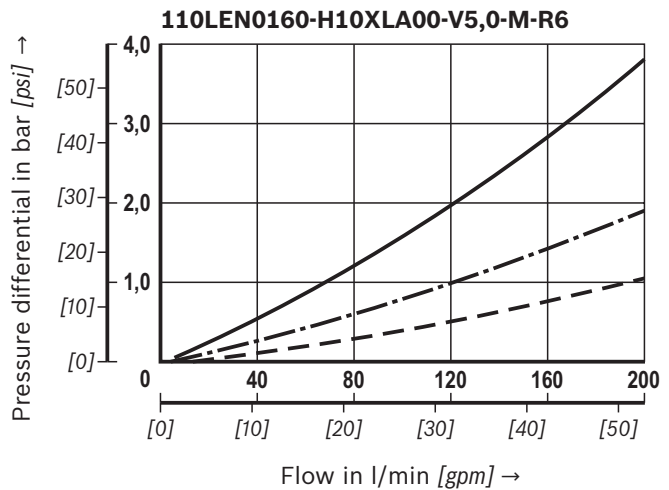
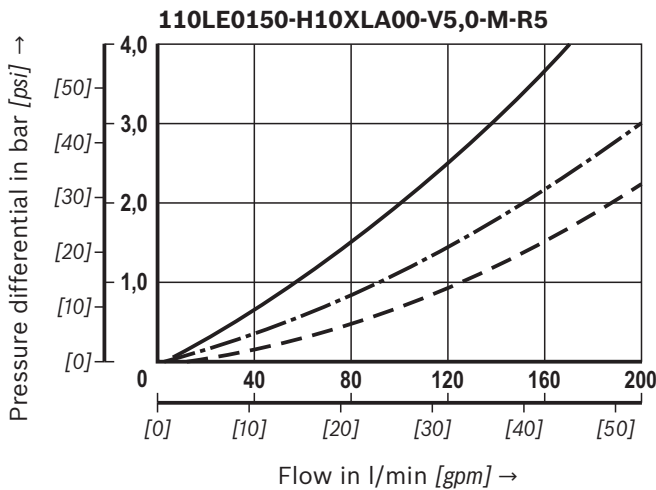
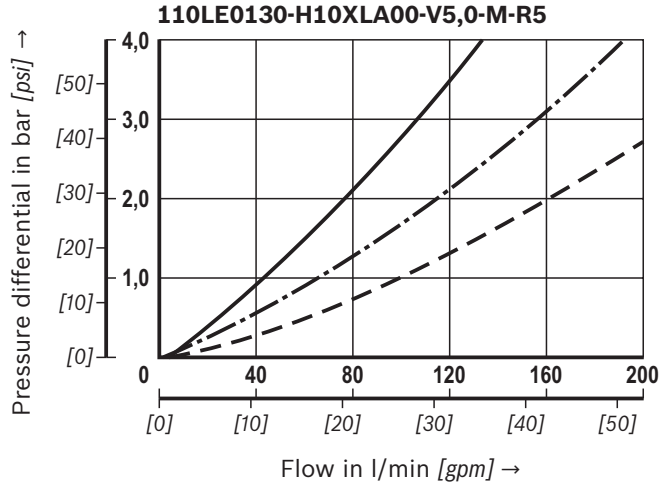
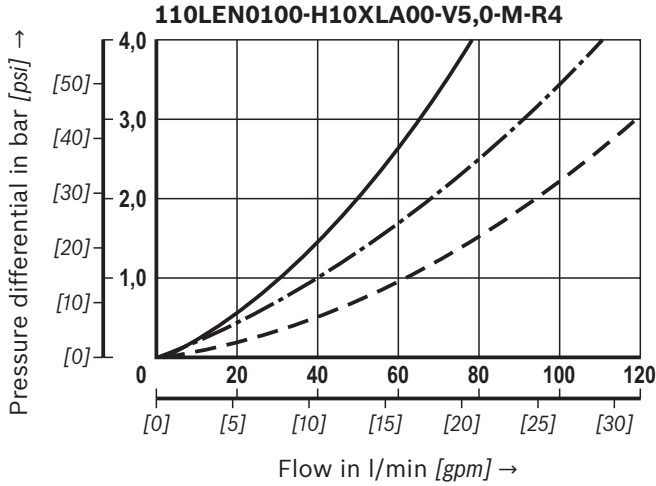
Spec. weight: < 0.9 kg/dm³

Δp-Q characteristic curves for complete filter

recommended initial-Δp for design = 1 bar [14.5 psi]

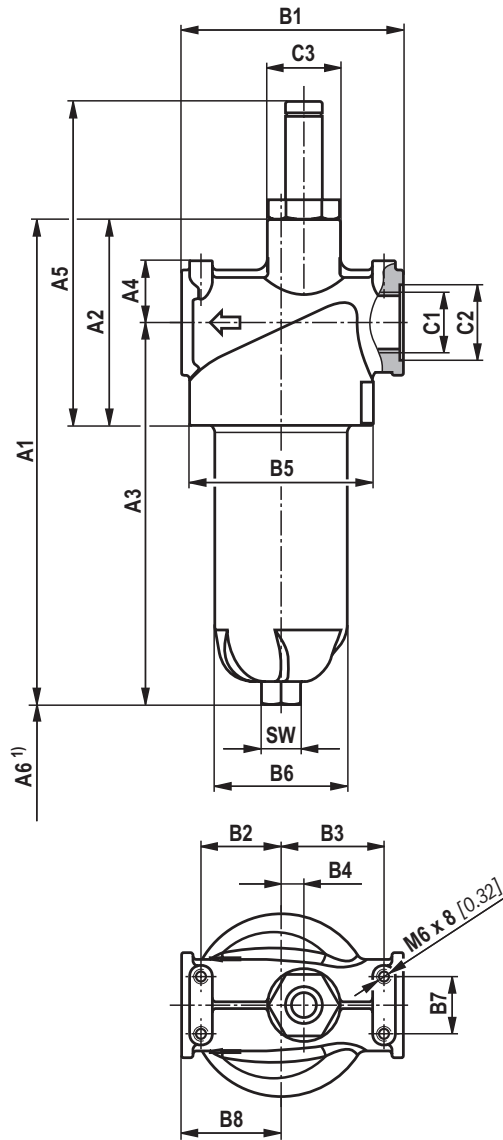
Selection of the perfect filter is made possible by our online “Bosch Rexroth FilterSelect” design software.

Oil viscosity:
 — 140 mm²/s [649 SUS]
 - · - 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



Dimensions: NG0040 - NG0100
(dimensions in mm [inch])

110 LEN 0040-0100



Filter housing for filter elements in accordance with DIN 24550

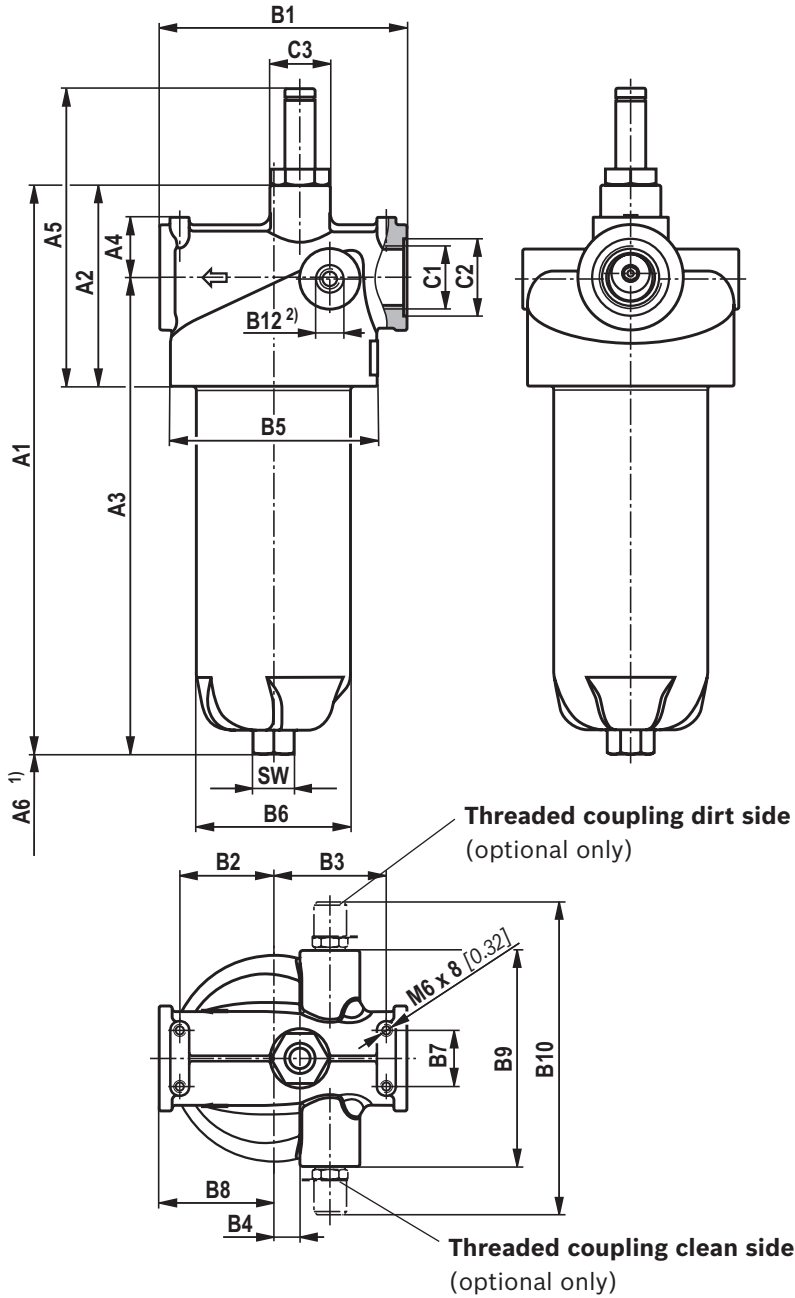
Type	Contents in l [US gal]	Weight in kg [lbs]	A1	A2	A3	A4	A5	A6	B1	B2
110LEN0040	0.3 [0.08]	1.1 [2.4]	212 [8.35]	90 [3.54]	167 [6.57]	27 [1.06]	142 [5.59]	80 [3.15]	97 [3.82]	35 [1.38]
110LEN0063	0.4 [0.11]	1.3 [2.9]	272 [10.71]		227 [8.94]					
110LEN0100	0.6 [0.16]	1.5 [3.3]	362 [14.25]		317 [12.48]					

Type	B3	B4	ØB5	ØB6	B7	B8	Standard	C1 connection				
								ØC2	U... (SAE J1926)	ØC2	ØC3	SW
110LEN0040	45 [1.77]	10 [0.39]	80 [3.15]	58 [2.28]	25 [0.98]	43,5 [1.71]	G 3/4 G 1	33 [1.30] 41 [1.61]	SAE 12 1 1/16-12 UN-2B	41 [1.61]	32 [1.26]	17 [0.67]
110LEN0063												
110LEN0100												

¹⁾ Servicing height for filter element exchange

Dimensions: NG0130 - NG0150
(dimensions in mm [inch])

110 LE 0130-0150



Filter housing for filter elements according to Rexroth standard

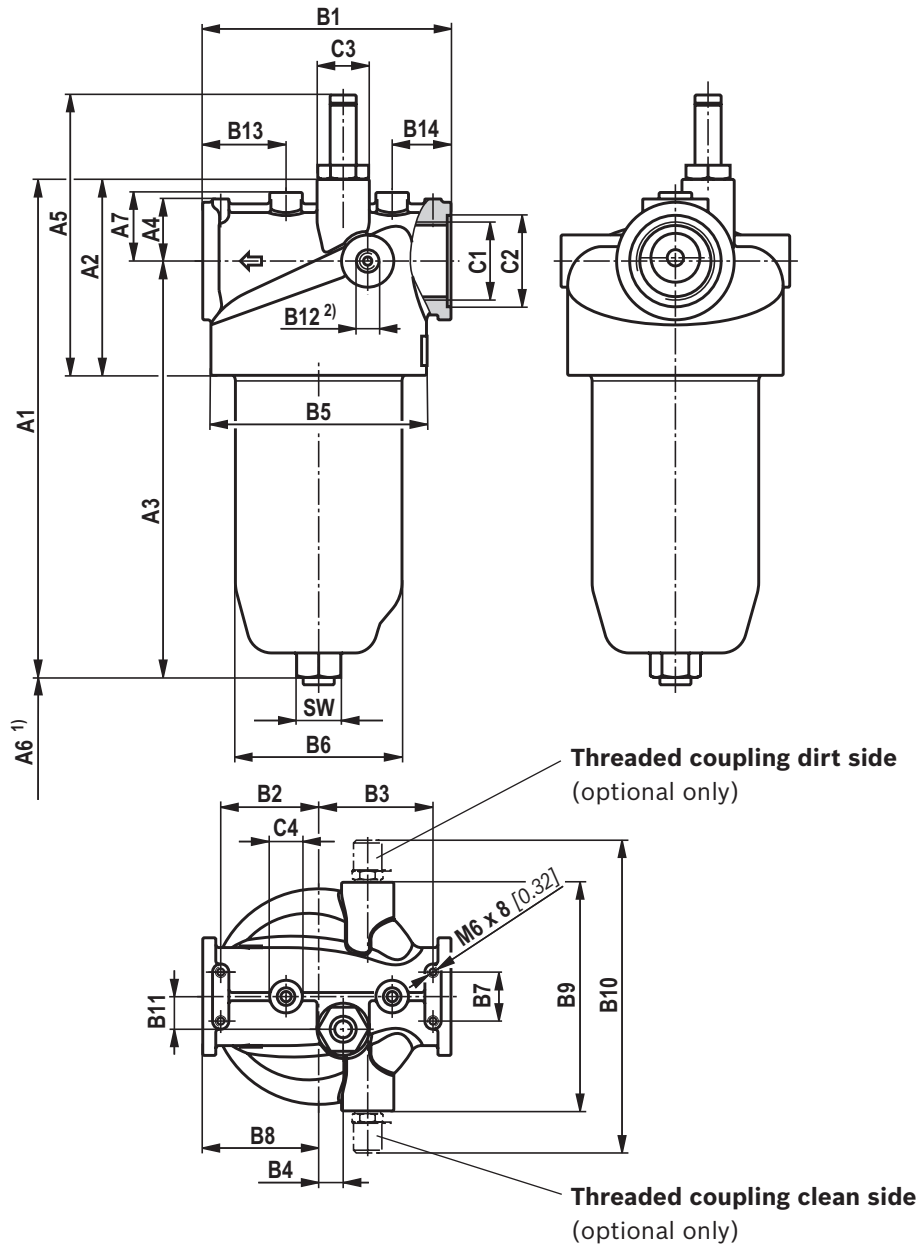
Type	Contents in l [US gal]	Weight in kg [lbs]	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	ØB5
110LE0130	0.9 [0.24]	2.5 [5.5]	303 [11.93]	107	254 [10.00]	32	159	140	132	50	60	14	110
110LE0150	1.1 [0.29]	2.6 [5.7]	354 [13.94]	[4.21]	305 [12.01]	[1.26]	[6.26]	[5.51]	[5.20]	[1.97]	[2.36]	[0.55]	[4.33]

Type	ØB6	B7	B8	B9	B10	B12	Standard	C1 connection				
								ØC2	U... (SAE J1926)	ØC2	ØC3	SW
110LE0130	82	30	61	115	175	G 1/4	G 1	41 [1.61]	SAE 16	49	32	22
110LE0150	[3.23]	[1.18]	[2.40]	[4.53]	[6.89]	G 1/4	G 1 1/4	51 [2.00]	1 5/16-12 UN-2B	[1.93]	[1.26]	[0.87]

¹⁾ Servicing height for filter element exchange
²⁾ Thread only drilled with Minimes connection option

Dimensions: NG0160 - NG0400
(dimensions in mm [inch])

110 LEN 0160-0400



Filter housing for filter elements in accordance with DIN 24550

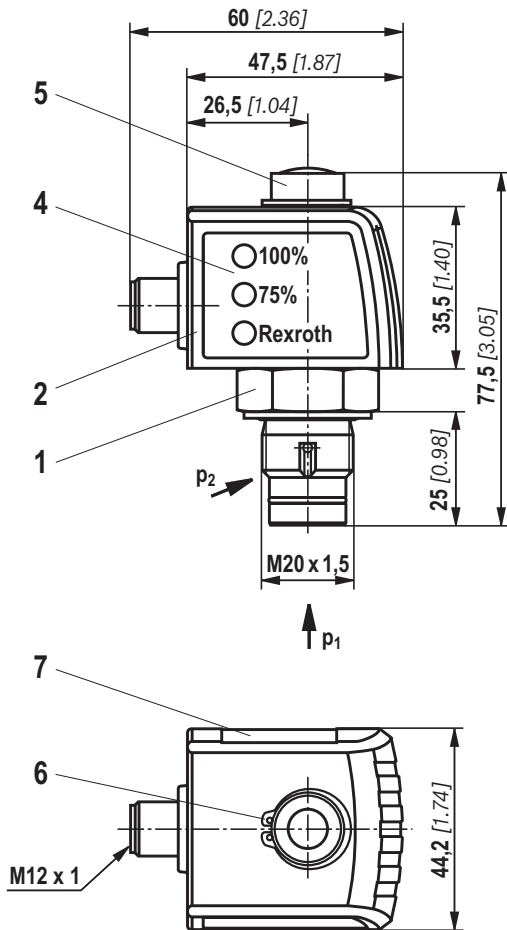
Type	Contents in l [US gal]	Weight in kg [lbs]	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	ØB5
110LEN0160	1.3 [0.34]	3.5 [7.7]	305 [12.01]	120 [4.72]	255 [10.04]	38 [1.50]	172 [6.77]	140 [5.51]	42 [1.65]	152 [5.98]	60 [2.36]	70 [2.76]	15 [0.59]	132 [5.20]
110LEN0250	1.9 [0.50]	4.0 [8.8]	395 [15.55]		345 [13.58]									
110LEN0400	2.9 [0.77]	4.9 [10.8]	545 [21.46]		495 [19.49]									

Type	ØB6	B7	B8	B9	B10	B11	B12	B13	B14	Standard	C1 connection			SW		
											ØC2	U... (SAE J1926)	ØC2		ØC3	
110LEN0160	102 [4.02]	30 [1.18]	71 [2.80]	140 [5.51]	200 [7.87]	20 [0.79]	G 1/4	51 [2.01]	36 [1.42]	G 1 1/2	56 [2.20]	SAE 24		65 [2.56]	32 [1.26]	27 [1.06]
110LEN0250												1 7/8-12 UN-2B				
110LEN0400												1 7/8-12 UN-2B				

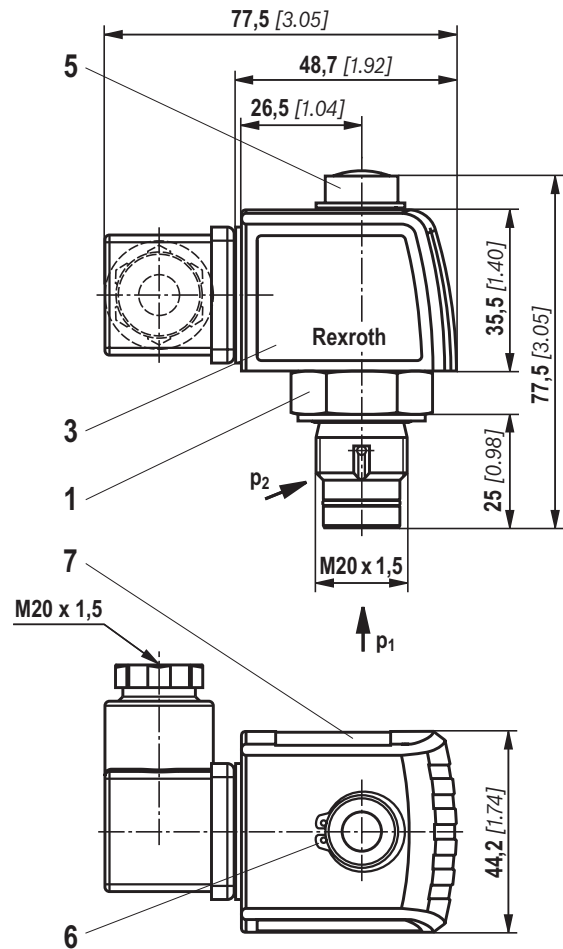
¹⁾ Servicing height for filter element exchange
²⁾ Thread only drilled with Minimes connection option

Maintenance indicator (dimensions in mm [inch])

**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
electric maintenance indicator (rotatable by 360°);
Round plug-in connection M12x1, 4-pole
- 3 Switching element with locking ring for
electric maintenance indicator (rotatable by 360°);
rectangular plug-in connection EN175301-803
- 4 Housing with three LEDs: 24V =
green: Stand-by
yellow: Switching point 75 %
red: Switching point 100 %
- 5 Visual indicator bistable
- 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). Switching elements with increased switching power upon request.

Ordering code Spare parts

Filter element

01	02	03	04	05	06
2.			-	-	0

Filter element

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

Nominal size

02	LEN... (Filter element according to DIN 24550)	0040 0063 0100 0160 0250 0400
	LE... (Filter elements according to Bosch Rexroth standard)	0130 0150

Filter rating in µm

03	Nominal	Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100
	Nominal	Filter paper, not cleanable	P10 P25
	Absolute (ISO 16889; $\beta_x(c) \geq 200$)	Non-woven glass fiber media, not cleanable	H3XL H6XL H10XL H20XL

Pressure differential

04	max. admissible pressure differential of the filter element 30 bar [435 psi]	A00
	max. admissible pressure differential of the filter element 330 bar [4786 psi]	B00

Bypass valve

05	Always 0 with filter element	0
----	------------------------------	---

Seal

06	NBR seal	M
	FKM seal	V

Order example:

2.0100 H3XL-A00-0-M

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

Preferred program replacement filter element

Replacement filter element 3 micron		Replacement filter element 6 micron		Replacement filter element 10 micron	
R928006645	2.0040 H3XL-A00-0-M	R928006646	2.0040 H6XL-A00-0-M	R928006647	2.0040 H10XL-A00-0-M
R928006699	2.0063 H3XL-A00-0-M	R928006700	2.0063 H6XL-A00-0-M	R928006701	2.0063 H10XL-A00-0-M
R928006753	2.0100 H3XL-A00-0-M	R928006754	2.0100 H6XL-A00-0-M	R928006755	2.0100 H10XL-A00-0-M
R928022274	2.0130 H3XL-A00-0-M	R928022275	2.0130 H6XL-A00-0-M	R928022276	2.0130 H10XL-A00-0-M
R928022283	2.0150 H3XL-A00-0-M	R928022284	2.0150 H6XL-A00-0-M	R928022285	2.0150 H10XL-A00-0-M
R928006807	2.0160 H3XL-A00-0-M	R928006808	2.0160 H6XL-A00-0-M	R928006809	2.0160 H10XL-A00-0-M
R928006861	2.0250 H3XL-A00-0-M	R928006862	2.0250 H6XL-A00-0-M	R928006863	2.0250 H10XL-A00-0-M
R928006915	2.0400 H3XL-A00-0-M	R928006916	2.0400 H6XL-A00-0-M	R928006917	2.0400 H10XL-A00-0-M

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
----	------------------------------	----------

Design

03	Pressure differential, design 01	D01
----	----------------------------------	------------

Switching pressure

04	1.5 bar [22 psi]	1,5
	2.2 bar [32 psi]	2,2
	5.0 bar [72.5 psi]	5,0

Seal

05	NBR seal	M
	FKM seal	V

max. nominal pressure

06	Switching pressure 1.5 bar [21.8 psi], 160 bar [2321 psi]	160
	Switching pressure 2.2 bar [31.9 psi], 160 bar [2321 psi]	160
	Switching pressure 5.0 bar [72.5 psi], 450 bar [6527 psi]	450

Mechanical optical maintenance indicator

Material no.	Description
R928038781	WO-D01-1.5-M-160
R928038780	WO-D01-1.5-V-160
R901025312	WO-D01-2.2-M-160
R901066233	WO-D01-2.2-V-160
R901025313	WO-D01-5.0-M-450
R901066235	WO-D01-5.0-V-450

Ordering code Spare parts

Seal kit

01	02	03	04
D	50/110LE		-

01	Seal kit	D
02	Series 50LE and 110LE	50/110LE

Nominal size

03	0040-0100	N0040-0100
	0130-0150	0130-0150
	0160-0400	N0160-0400

Seal

04	NBR seal	M
	FKM seal	V

Seal kit

Material no.	Description
R928046935	D50/110LEN0040-0100-M
R928046936	D50/110LE0130-0150-M
R928046937	D50/110LEN0160-0400-M
R928051951	D50/110LEN0040-0100-V
R928051952	D50/110LE0130-0150-V
R928051953	D50/110LEN0160-0400-V

Assembly, commissioning, maintenance

Installation

The max. operating pressure of the system must not exceed the max. admissible operating pressure of the filter (see type plate).

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.

Easy filter element exchange is guaranteed in the installation position filter bowl vertically downwards. The maintenance indicator must be arranged in a well visible way.

Remove the plastic plugs in the filter inlet and outlet.

Ensure that the system is assembled without tension stress.

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

Commission the system.

Notice:

There is no bleeding provided at the filter. However, some sizes have optional measuring ports which may also be used for bleeding.

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 and cleaned respectively. More details see data sheet 51450.
- ▶ 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.

- ▶ Decommission the system.
- ▶ The operating pressure is to be release on the system side.

Notice:

There is no bleeding provided at the filter. However, some sizes have optional measuring ports which may also be used for bleeding.

- ▶ Via the drain screw (from size 0160 fitted by default), the oil on the dirt side can be drained.
- ▶ Screw off 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 renew them, if necessary.

For suitable seal kits refer to chapter “Spare parts”.

- ▶ Filter elements made of wire mesh can be cleaned. The efficiency of the cleaning depends on the type of dirt and the amount of the pressure differential before the filter element exchange.

If the pressure differential after the filter element exchange exceeds 150 % of the value of a brand-new filter element, the filter element made of wire mesh (G...) also needs to be replaced. 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.
- ▶ Commission the system.

WARNINGS!

- ▶ Assembly and disassembly only with depressurized system!
- ▶ Tank is under pressure!
- ▶ Maintenance only be specialists.
- ▶ Remove the filter bowl only if it is not under pressure!
- ▶ Do not exchange the maintenance indicator while the filter is under pressure!

- ▶ Functional and safety warranty only applicable when using genuine Bosch Rexroth 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

Series 110 ...	LEN0040	LEN0063	LEN0100	LE0130	LE0150	LEN0160	LEN0250	LEN0400
Screw/ tightening torque with $\mu_{\text{total}} = 0.14$	M6/4.5 Nm \pm 10 %							
Quantity	4							
Recommended property class of screw	8.8							
Screw-in depth	6 mm + 1 mm							

Filter bowl and maintenance indicator

Series 110 ...	LEN0040	LEN0063	LEN0100	LE0130	LE0150	LEN0160	LEN0250	LEN0400
Tightening torque filter bowl	30 Nm + 10 Nm							
Tightening torque maintenance indicator	30 Nm							
Tightening torque cubic connector screw switching element EN-175301-803	M3/0.5 Nm							

Directives and standardization

Classification according to the Pressure Equipment Directive

The inline filters for hydraulic applications according to 51448 are pressure holding equipment according to article 1, section 2.1.4 of the Pressure Equipment Directive 97/23/EC (PED). However, on the basis of the

exception in article 1, section 3.6 of the PEG, hydraulic filters are exempt from the PED if they are not classified higher than category I (guideline 1/19). They do not receive a CE mark.

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

The inline filters according to 51448 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 inline 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-1SP-M12x1 and WE-1SP-EN175301-803 are simple, electronic operating equipment not having an own voltage source. This simple, electronic operating equipment may - according to DIN EN

60079-14:2008 - in intrinsically safe electric circuits (Ex ib) be used in systems without marking and certification. The inline filters and the electronic maintenance indicators described here can be used for the following explosive areas

	zone suitability	
Gas	1	2
Dust	21	22

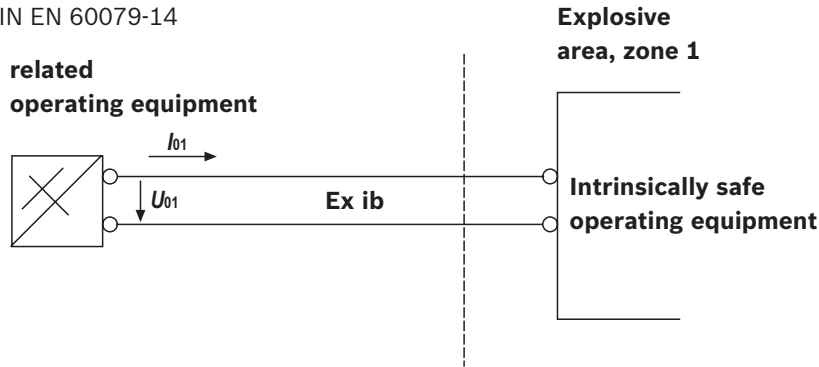
Directives and standardization

Complete filter with mech./opt. Maintenance indicator			
Use /assignment		Gas 2G	Dust 2D
Assignment		Ex II 2G c IIB TX	Ex II 2D c IIB 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		Values only for intrinsically safe electric circuit	
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
		max	750 mW T _{max} 40 °C
Surface temperature ¹⁾		max	1.0 W T4 T _{max} 80 °C
		max	550 mW T _{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.

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 explosive area, the max. admissible ignition temperature is not exceeded.
- ▶ When using the inline filters according to 51448 in explosive areas, appropriate equipotential bonding has to be ensured. The filter is preferably to be earthed via the mounting screws.

- ▶ It has to be noted in this connection that paintings and oxidic protective layers are not electrically conductive.
- ▶ Maintenance only by specialists, instruction by the machine end-user acc. to DIRECTIVE 1999/92/EC appendix II, section 1.1
- ▶ During filter element exchanges, the packaging material is to be removed from the replacement element outside the explosive area
- ▶ Functional and safety warranty only applicable when using genuine Rexroth spare parts

Bosch Rexroth AG
 Ketsch plant
 Hardtwaldstr. 43
 68775 Ketsch, Germany
 Telephone +49 (0) 62 02/603-0
 filter-support@boschrexroth.de
 www.boschrexroth.de

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Notes

Bosch Rexroth AG
Ketsch plant
Hardtwaldstr. 43
68775 Ketsch, Germany
Telephone +49 (0) 62 02 / 603-0
filter-support@boschrexroth.de
www.boschrexroth.de

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Telephone +49 (0) 62 02/603-0
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www.boschrexroth.de

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Inline filters with filter element according to DIN 24550

Type 245LEN0040 to 0400; 245LE0130, 0150

RE 51421

Edition: 2017-07

Replaces: 2014-08



245LEN_d

- ▶ Size according to **DIN 24550**: 0040 to 0400
- ▶ additional sizes: 0130, 0150
- ▶ Nominal pressure 250 bar [3628 psi]
- ▶ Connection up to G1 1/2; SAE 1 1/2; SAE 24
- ▶ Operating temperature: -10 °C to +100 °C [+14 °F to +212 °F]

Features

Inline filters are used in hydraulic systems for separating solid materials from fluids and lubricating oils. They are intended for attachment in pipelines.

They distinguish themselves by the following:

- ▶ Filters for 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
- ▶ By default equipped with mechanical optical maintenance indicator with memory function
- ▶ Various, optional electronic switching elements, modular design
- ▶ Optional bypass valve integrated in the filter housing
- ▶ High filtration performance due to the tangential cyclone-effect flow path

Contents

Features	1
Ordering code filter	2, 3
Preferred types	4
Ordering code accessories	5
Symbols	6
Function, section	7
Technical data	8, 9
Compatibility with permitted hydraulic fluids	9
Characteristic curves	10 ... 13
Dimensions	14 ... 15
Maintenance indicator	16
Ordering code spare parts	17 ... 19
Assembly, commissioning, maintenance	20
Tightening torques	21
Directives and standardization	21, 22

Ordering code filter

01	02	03	04	05	06	07	08	09
245LE	N		-			-	-	

Series

01	Inline filter 250 bar [3628 psi]	245LE
----	----------------------------------	-------

Filter element

02	With filter element according to DIN 24550	N
----	---	---

Size

03	LEN...	0040 0063 0100 0160 0250 0400
	LE...	0130 0150

Filter rating in μm

04	Absolute (ISO 16889; $\beta_x(c) \geq 200$)	Glass fiber material, not cleanable	H3XL H6XL H10XL H20XL
	Nominal	Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100

Pressure differential

05	Max. admissible pressure differential of the filter element 30 bar [435 psi] – Filter with bypass valve	A00
	Max. admissible pressure differential of the filter element 330 bar [4786 psi] – Filter without bypass valve	B00

Maintenance indicator

06	Maintenance indicator, mech./optical, switching pressure 2.2 bar [31.9 psi] – bypass cracking pressure 3.5 bar [51 psi]	V2.2
	Maintenance indicator, mech./optical, switching pressure 5.0 bar [72.5 psi] – bypass cracking pressure 7.0 bar [101 psi]	V5.0

Seal

07	NBR seal	M
	FKM seal	V

Ordering code filter

01	02	03	04	05	06	07	08	09
245LE	N		-		-	-	-	-

Connection

08	Frame size		0040	0063-0100	0130-0150	0160-0400	
	Connection						
	G1/2	Pipe thread according to ISO 228	●	X			R2
	G3/4		X	X			R3
	G1		X	●	X		R4
	G1 1/4				●	X	R5
	G1 1/2				X	●	R6
	SAE 1 1/2"	SAE flange 6,000 psi				X	S6
	SAE 10	Pipe thread according to SAE J1926	X				U3
	SAE 12			X			U4
	SAE 20				X		U5
	SAE 24					X	U6
			●	Standard connection			
			X	Alternative connection			

Supplementary information

09	Manufacturer's inspection certificate M according to DIN 55350 T18	Z1
----	--	----

Order example:

245LEN0100-H10XLA00-V5,0-M-R4

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

Preferred types

245LE(N) preferred types, NBR seal, flow specifications for 30 mm²/s [143 SUS]

Inline filter with bypass, filter rating 3 µm

Type	Flow in l/min [gpm] at $\Delta p = 1.5 \text{ bar}$ [21.75 psi] ¹⁾	Material no. Filter				Material no. Replacement element
245LEN0040-H3XLA00-V5,0-M-..	29 [6.1]	..R2	R928030024	..U3	R928030216	R928006645
245LEN0063-H3XLA00-V5,0-M-..	44 [7.9]	..R4	R928030025	..U4	R928030217	R928006699
245LEN0100-H3XLA00-V5,0-M-..	61 [11.6]	..R4	R928030026	..U4	R928030218	R928006753
245LE0130-H3XLA00-V5,0-M-..	101 [19.5]	..R5	R928030027	..U5	R928030219	R928022274
245LE0150-H3XLA00-V5,0-M-..	123 [23.5]	..R5	R928030028	..U5	R928030220	R928022283
245LEN0160-H3XLA00-V5,0-M-..	184 [34.9]	..R6	R928030029	..U6	R928030221	R928006807
245LEN0250-H3XLA00-V5,0-M-..	261 [50.2]	..R6	R928030030	..U6	R928030222	R928006861
245LEN0400-H3XLA00-V5,0-M-..	330 [66.0]	..R6	R928030031	..U6	R928030223	R928006915

Inline filter with bypass, filter rating 6 µm

Type	Flow in l/min [gpm] at $\Delta p = 1.5 \text{ bar}$ [21.75 psi] ¹⁾	Material no. Filter				Material no. Replacement element
245LEN0040-H6XLA00-V5,0-M-..	48 [12.7]	..R2	R928030280	..U3	R928030472	R928006646
245LEN0063-H6XLA00-V5,0-M-..	78 [20.6]	..R4	R928030281	..U4	R928030473	R928006700
245LEN0100-H6XLA00-V5,0-M-..	82 [21.7]	..R4	R928030282	..U4	R928030474	R928006754
245LE0130-H6XLA00-V5,0-M-..	152 [40.2]	..R5	R928030283	..U5	R928030475	R928022275
245LE0150-H6XLA00-V5,0-M-..	170 [45.0]	..R5	R928030284	..U5	R928030476	R928022284
245LEN0160-H6XLA00-V5,0-M-..	245 [64.7]	..R6	R928030285	..U6	R928030477	R928006808
245LEN0250-H6XLA00-V5,0-M-..	310 [81.9]	..R6	R928030286	..U6	R928030478	R928006862
245LEN0400-H6XLA00-V5,0-M-..	400 [105.7]	..R6	R928030287	..U6	R928030479	R928006916

Inline filter with bypass, filter rating 10 µm

Type	Flow in l/min [gpm] at $\Delta p = 1.5 \text{ bar}$ [21.75 psi] ¹⁾	Material no. Filter				Material no. Replacement element
245LEN0040-H10XLA00-V5,0-M-..	58 [15.3]	..R2	R928030536	..U3	R928030728	R928006647
245LEN0063-H10XLA00-V5,0-M-..	98 [18.2]	..R4	R928030537	..U4	R928030729	R928006701
245LEN0100-H10XLA00-V5,0-M-..	84 [22.2]	..R4	R928030538	..U4	R928030730	R928006755
245LE0130-H10XLA00-V5,0-M-..	172 [45.4]	..R5	R928030539	..U5	R928030731	R928022276
245LE0150-H10XLA00-V5,0-M-..	196 [51.8]	..R5	R928030540	..U5	R928030732	R928022285
245LEN0160-H10XLA00-V5,0-M-..	281 [74.2]	..R6	R928030541	..U6	R928030733	R928006809
245LEN0250-H10XLA00-V5,0-M-..	330 [87.2]	..R6	R928030542	..U6	R928030734	R928006863
245LEN0400-H10XLA00-V5,0-M-..	420 [111.0]	..R6	R928030543	..U6	R928030735	R928006917

¹⁾ 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 [inch])

Electronic switching element for maintenance indicators

01	02	03
WE	-	-

Maintenance indicator

01	Electronic switching element	WE
----	------------------------------	-----------

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	M12 x 1
	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-M12 x 1	Changeover	1	M12 x 1	without
R928028410	WE-2SP-M12 x 1	Normally open (at 75%) / normally closed contact (at 100%)	2		3 pieces
R928028411	WE-2SPSU-M12 x 1				
R928036318	WE-1SP-EN175301-803	Normally closed contact	1	EN 175301-803	without

Mating connectors

for electronic switching element with round plug-in connection M12 x 1

Mating connector suitable for K24 4-pole, M12 x 1 with screw connection, cable gland Pg9.

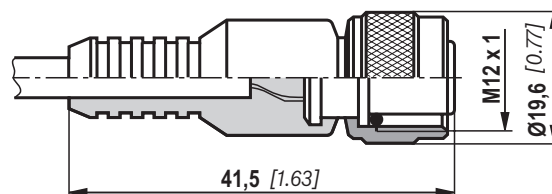
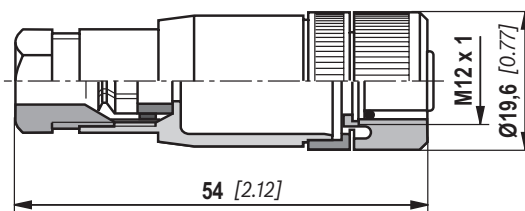
Material no. R900031155

Mating connector suitable for K24-3m 4-pole, M12 x 1 with potted-in PVC cable, 3 m long.

Line cross-section: 4 x 0.34 mm²

Core marking: **1** brown **2** white
 3 blue **4** black

Material no. R900064381



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

Order example:

Inline filter with mechanical optical maintenance indicator for $p_{nom.} = 250 \text{ bar}$ [3628 psi] with bypass valve, size 0100, with filter element 10 µm and electronic switching element M12x1 with 1 switching point for hydraulic fluid mineral oil HLP according to DIN 51524.

Filter with mech. optical maintenance indicator: 245LEN0100-H10XLA00-V5,0-M-R4

Material no. R928030538

Switching element: WE-1SP-M12 x 1

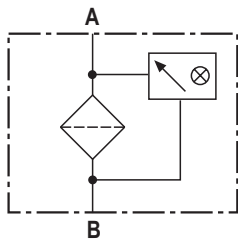
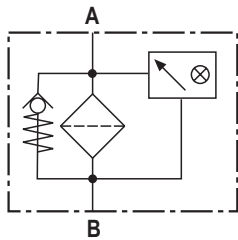
Material no. R928028409

Mating connector: Mating connector suitable for K24 4-pole, M12 x 1 with screw connection, cable gland Pg9.

Material no. R900031155

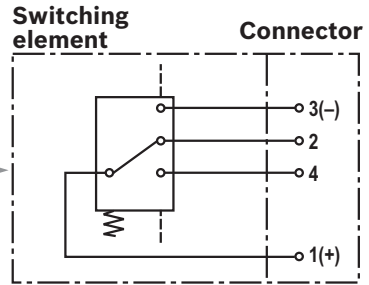
Symbols

Inline filter with bypass and mechanical indicator

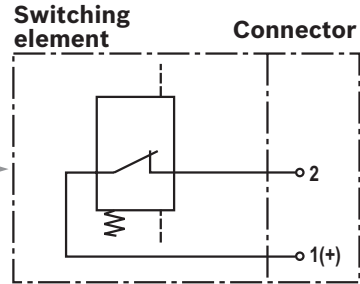


Inline filter without bypass and with mechanical indicator

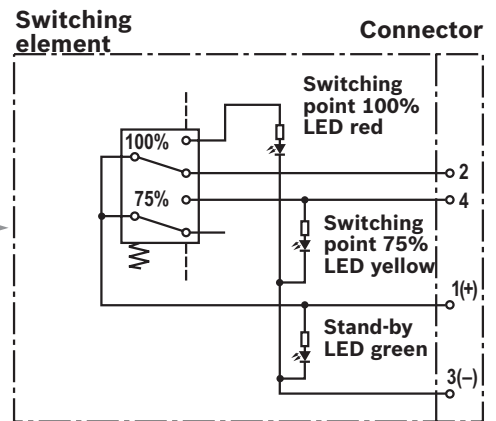
Electronic switching element for maintenance indicator



WE-1SP-M12 x 1

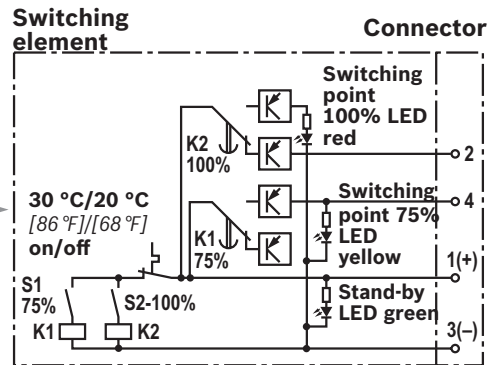


WE-1SP-EN175301-803



WE-2SP-M12 x 1

Circuit diagram drawn in plugged condition (operating state)



WE-2SPSU-M12 x 1

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

Function, section

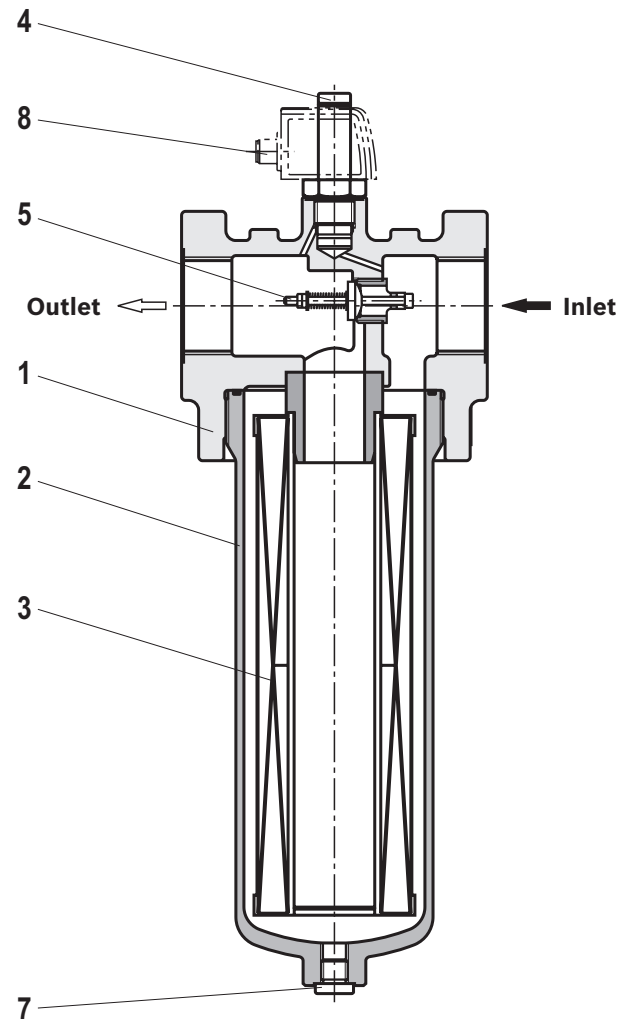
The 245LE(N) inline filter is suitable for inline installation. It basically consists of filter head (1), a screwable filter bowl (2), filter element (3) as well as mechanical optical maintenance indicator (4). In case of filters with low-pressure-differential-stable filter elements (= code letter pressure differential A), there is an assembled bypass valve (5) as standard.

Via the inlet, the fluid reaches the filter element (3) where it is cleaned. The dirt particles filtered out collect in the filter element (3). Via the outlet, the filtered fluid enters the hydraulic circuit.

The filter housing and all connection elements are designed so that pressure peaks - as they may e.g. occur in case of abrupt opening of large control valves due to the accelerated fluid quantity - can be securely absorbed. As of size 0160, the standard equipment comprises a drain screw (7).

By default, the filter is equipped with mechanical optical maintenance indicator (4). The electronic switching element (8) 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.



WARNING!

- ▶ If the maintenance indicator is not observed while the element is exchanged, the bypass valve will open if the pressure differential increases. This means that part of the volume flow enters unfiltered into the clean side of the filter. Effective filtration is therefore no longer guaranteed.

Technical data

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

General						
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%			
Weight	- Filter	Size	0040	0063	0100	0130
		kg [lbs]	3.2 [7.10]	3.8 [8.40]	4.2 [9.30]	6.95 [15.30]
		Size	0150	0160	0250	0400
		kg [lbs]	7.25 [16]	11.5 [25.40]	12.2 [26.90]	13.8 [30.40]
	- Filter bowl	Size	0040	0063	0100	0130
		kg [lbs]	0.57 [1.26]	1.03 [2.27]	1.44 [3.17]	1.93 [4.25]
		Size	0150	0160	0250	0400
		kg [lbs]	2.27 [5.00]	2.49 [5.49]	3.33 [7.34]	4.72 [10.41]
Volume	Size	0040	0063	0100	0130	
		l [US gal]	0.21 [0.06]	0.38 [0.10]	0.53 [0.14]	0.76 [0.20]
	Size	0150	0160	0250	0400	
		l [US gal]	0.96 [0.25]	1.13 [0.30]	1.6 [0.42]	2.4 [0.63]
Material	- Filter head	GGG				
	- Filter bowl	Steel				
	- Bypass valve	Aluminum / steel / POM				
	- Seals	NBR or FKM				
	- Optical maintenance indicator	Brass				
	- Electronic switching element	Plastic PA6				

Hydraulic			
Maximum operating pressure	bar [psi]	250 [3628]	
Hydraulic fluid temperature range	°C [°F]	-10 ... +100 [+14 ... +212]	
Minimum conductivity of the medium	pS/m	300	
Fatigue strength according to ISO 10771 ¹⁾	Load cycles	> 10 ⁶ with max. 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		Response pressure of the maintenance indicator	Cracking pressure of the bypass valve
	bar [psi]	2.2 ± 0.3 [31.9 ± 4.4]	3.5 ± 0.35 [50.8 ± 5.1]
	bar [psi]	5.0 ± 0.5 [72.5 ± 7.3]	7.0 ± 0.5 [101.5 ± 7.3]
Filtration direction	From the outside to the inside		

¹⁾ The service life of the components is e.g. influenced by:

- ▶ The individual load frequency of the application
- ▶ The actually occurring pressure increase rate

The technical specifications apply complying with the specified performance limits. Extended operational resistance/load change upon request.

Technical data

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

Electric (electronic switching element)				
Electrical connection	Round plug-in connection M12 x 1, 4-pole			Standard connection EN 175301-803
	Version	WE-1SP- M12 x 1	WE-2SP- M12 x 1	WE-2SPSU- M12 x 1
Contact load, direct voltage	A _{max.}	1		
Voltage range	V _{max.}	150 (AC/DC)	10 ... 30 (DC)	250 (AC)/200 (DC)
Max. switching power with resistive load	W	20		
Switching type	- 75% signal	-	Normally open contact	
	- 100% signal	Changeover	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	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]	

Filter element				
Glass fiber material H.XL		Single-use element on the basis of inorganic fiber		
Particle separation			Filtration ratio according to ISO 16889 up to $\Delta p = 5 \text{ bar [72.5 psi]}$	Achievable oil cleanliness accord- ing to ISO 4406 [SAE-AS 4059]
	H20XL		$\beta_{20(c)} \geq 200$	19/16/12 ... 22/17/14
	H10XL		$\beta_{10(c)} \geq 200$	17/14/10 ... 21/16/13
	H6XL		$\beta_{6(c)} \geq 200$	15/12/10 ... 19/14/11
	H3XL		$\beta_{5(c)} \geq 200$	13/10/8 ... 17/13/10
Admissible pressure differential	- A00	bar [psi]	30 [435]	
	- B00	bar [psi]	330 [4785]	

Compatibility with permitted hydraulic fluids

Hydraulic fluid	Classification	Suitable sealing materials	Standards
Mineral oil	HLP	NBR	DIN 51524
Biodegradable	- 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 (P) may not be used, filter elements with glass fiber material have to be used instead.

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

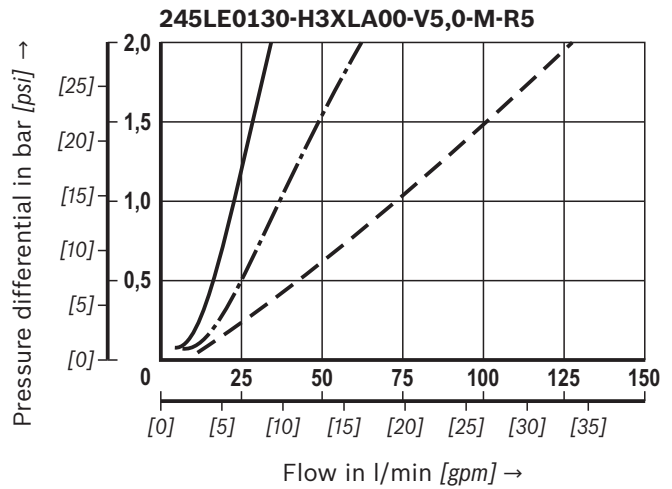
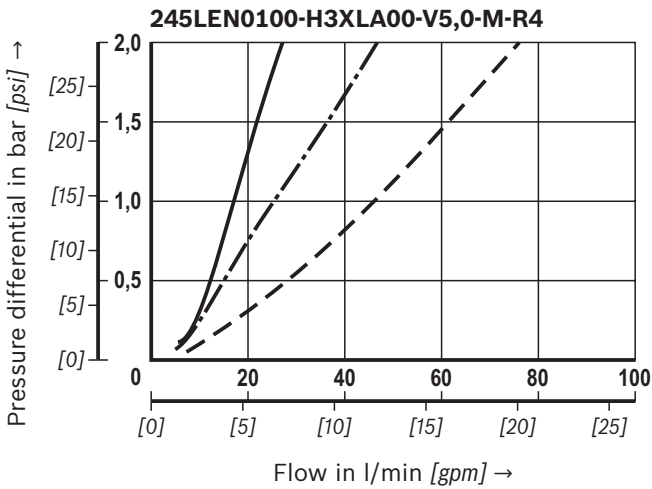
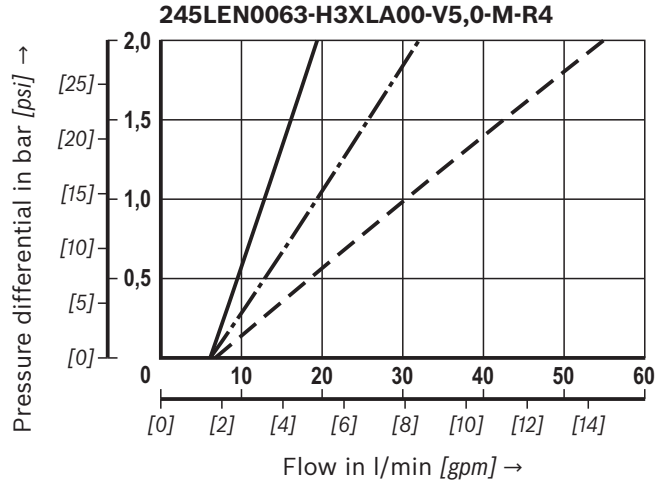
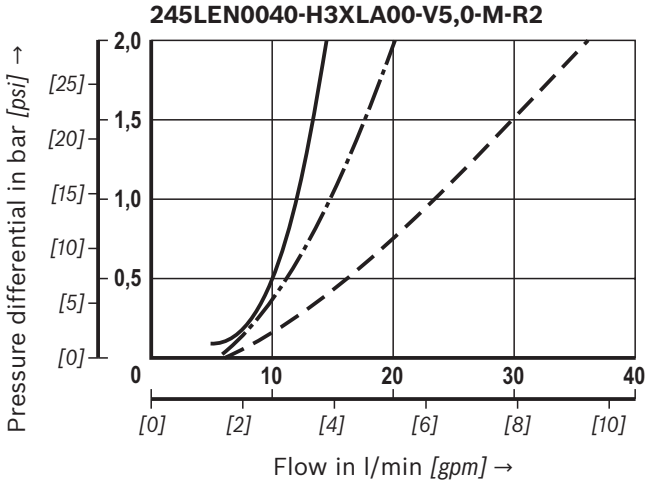
Characteristic curves

(measured with mineral oil HLP46 according to ISO 3968)

Spec. weight: < 0.9 kg/dm³ Δp-Q-characteristic curves for complete filters recommended initial Δp for design = 1.5 bar [21.75 psi]

A proper filter design is made possible by our online “Bosch Rexroth FilterSelect” design software.

Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



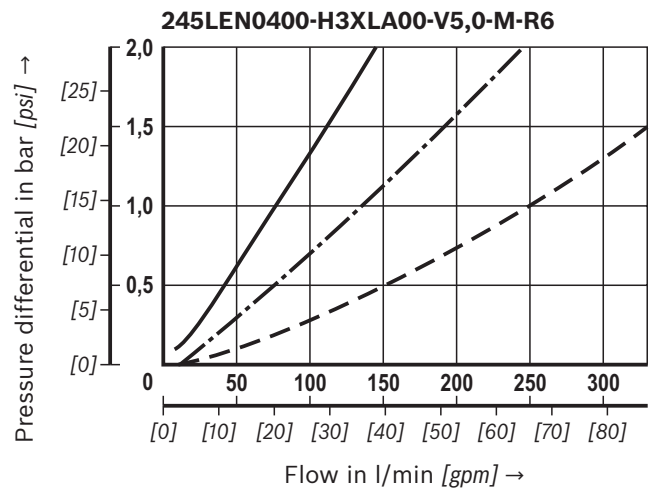
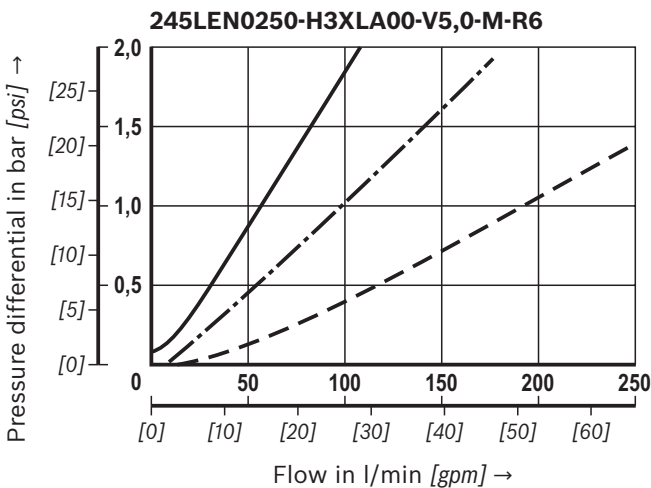
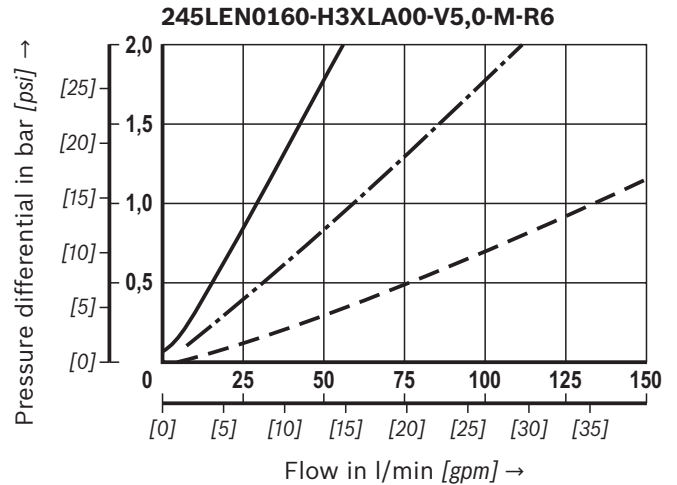
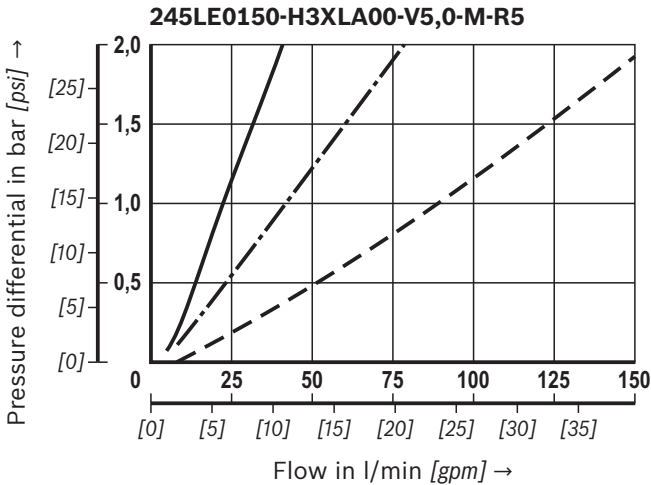
Characteristic curves
(measured with mineral oil HLP46 according to ISO 3968)

H3XL

Spec. weight: < 0.9 kg/dm³ Δp-Q-characteristic curves for complete filters recommended initial Δp for design = 1.5 bar [21.75 psi]

A proper filter design is made possible by our online “Bosch Rexroth FilterSelect” design software.

Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



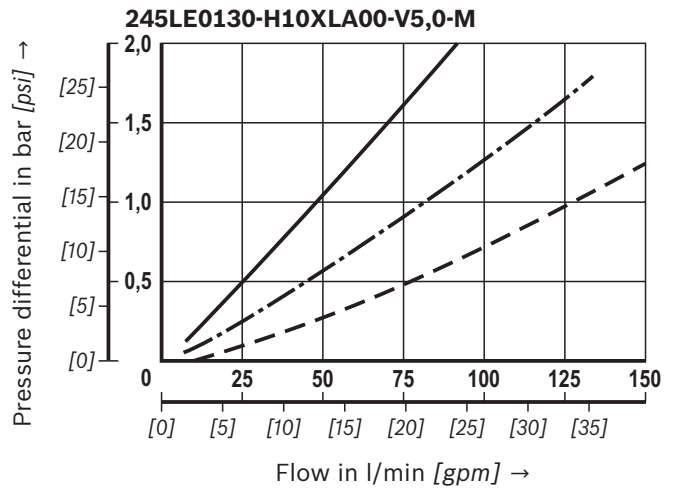
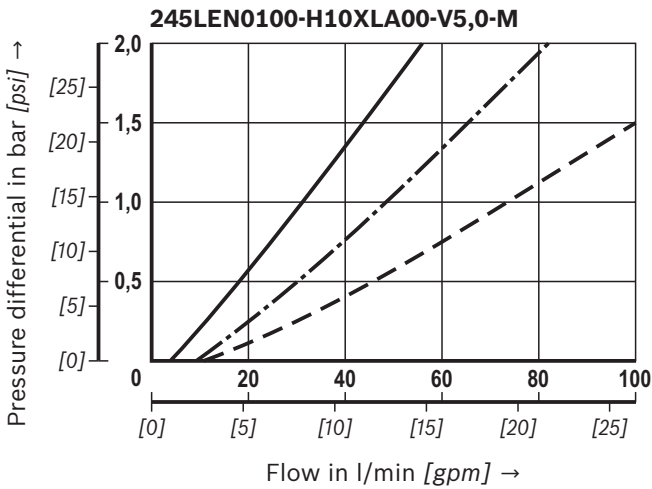
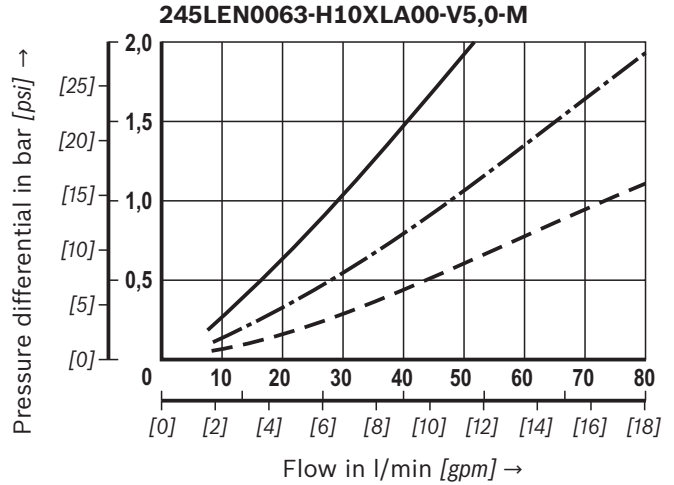
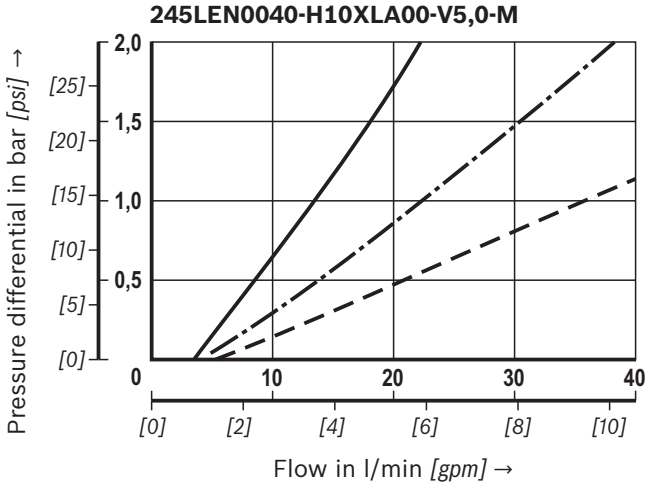
Characteristic curves

(measured with mineral oil HLP46 according to ISO 3968)

Spec. weight: < 0.9 kg/dm³ Δp-Q-characteristic curves for complete filters recommended initial Δp for design = 1.5 bar [21.75 psi]

A proper filter design is made possible by our online “Bosch Rexroth FilterSelect” design software.

Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



Characteristic curves (measured with mineral oil HLP46 according to ISO 3968)

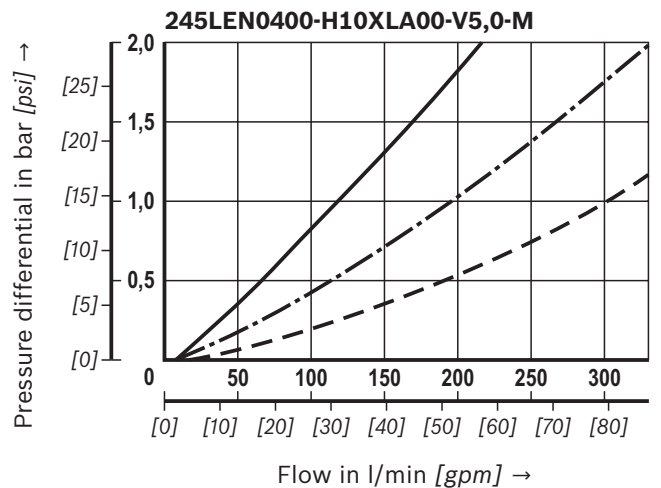
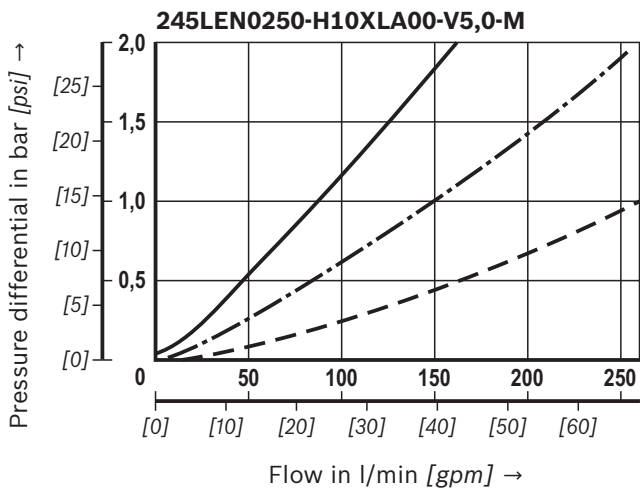
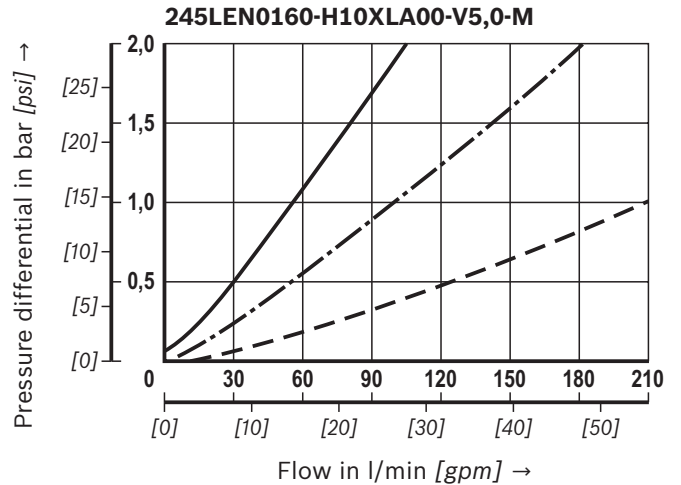
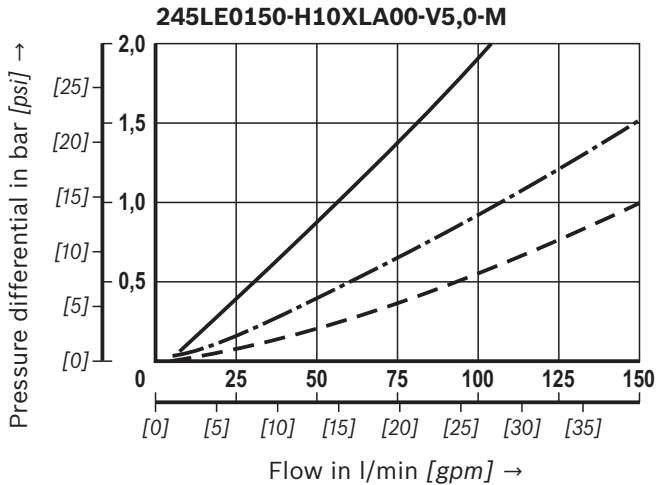
H10XL

Spec. weight: < 0.9 kg/dm³

Δp -Q-characteristic curves for complete filters recommended
initial Δp for design = 1.5 bar [21.75 psi]

A proper filter design is made possible by our online
“Bosch Rexroth FilterSelect” design software.

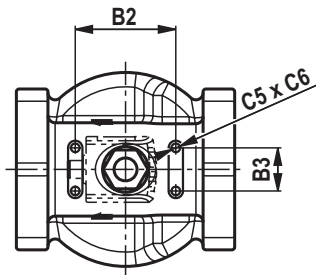
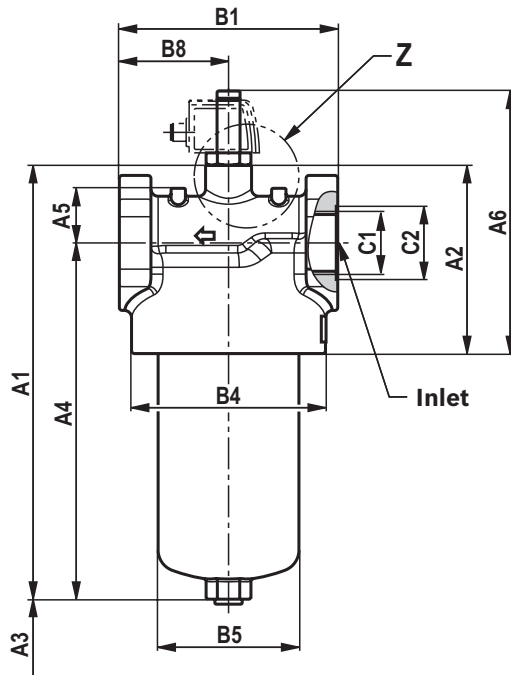
Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



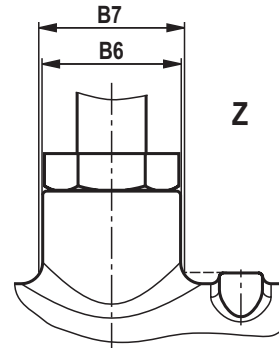
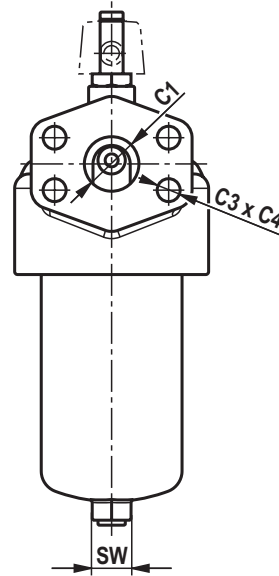
Dimensions: 245LE(N) NG0040 ... NG0400

(Dimensions in mm [inch])

Pipe thread
connections
UNF thread



Connection SAE 1 1/2"
- 3000 psi



Dimensions: NG0040 ... NG0400

(Dimensions in mm [inch])

Type	A1	A2	A3 ¹⁾	A4	A5	A6
245LEN0040	200 [7.87]	94 [3.70]	120 [4.72]	156 [6.14]	25 [0.98]	146 [5.75]
245LEN0063	264 [10.39]			220 [8.66]		
245LEN0100	354 [13.94]			310 [12.20]		
245LE0130	324 [12.76]	121 [4.76]	140 [5.51]	270 [10.63]	38 [1.50]	173 [6.81]
245LE0150	374 [14.72]			320 [12.60]		
245LEN0160	356 [14.02]	131 [5.16]	120 [4.72]	302 [11.89]		183 [7.20]
245LEN0250	392 [15.43]			338 [13.31]		
245LEN0400	542 [21.34]			488 [19.21]		

Type	B1 ²⁾	B2	B3	ØB4	ØB5	ØB6	ØB7	B8
245LEN0040	92 [3.62]	60 [2.36]	25 [0.98]	85 [3.35]	55 [2.17]	32 [1.26]	34 [1.34]	46 [1.81]
245LEN0063								
245LEN0100								
245LE0130	122 [4.80]	80 [3.15]	30 [1.18]	116 [4.57]	77 [3.03]		32 [1.26]	61 [2.40]
245LE0150								
245LEN0160	152 [5.98]	70 [2.76]	135 [5.31]	98 [3.86]	76 [2.99]			
245LEN0250								
245LEN0400								

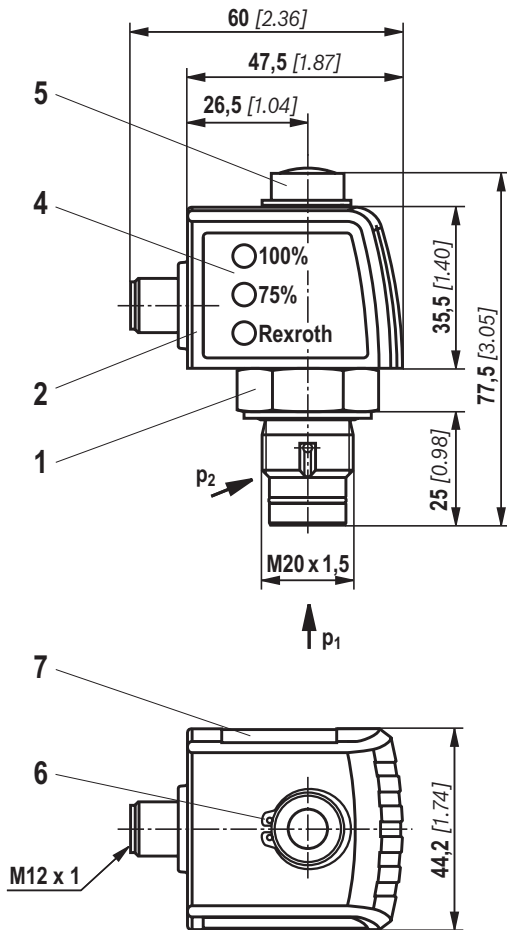
Type	C1 connection					C3	C4	C5	C6	SW	
	Standard R...	ØC2	Optional U...	ØC2	Optional S...						
245LEN0040	G1/2	28 [1.10]	SAE 10 7/8-14 UNF-2B	41 [1.61]	-	M16	22 [0.87]	M6	8 [0.31]	19 [0.75]	
245LEN0063	G1	41 [1.61]	SAE 12 1 1/16-12 UN-2B								
245LEN0100											
245LE0130	G1 1/4	51 [2.01]	SAE 20 1 5/8-12 UN-2B	58 [2.28]						SAE 1 1/2" 3000 psi	24 [0.94]
245LE0150											
245LEN0160	G1 1/2	56 [2.20]	SAE 24 1 7/8-12 UN-2B	65 [2.56]	27 [1.06]						
245LEN0250											
245LEN0400											

¹⁾ Servicing height for filter element exchange

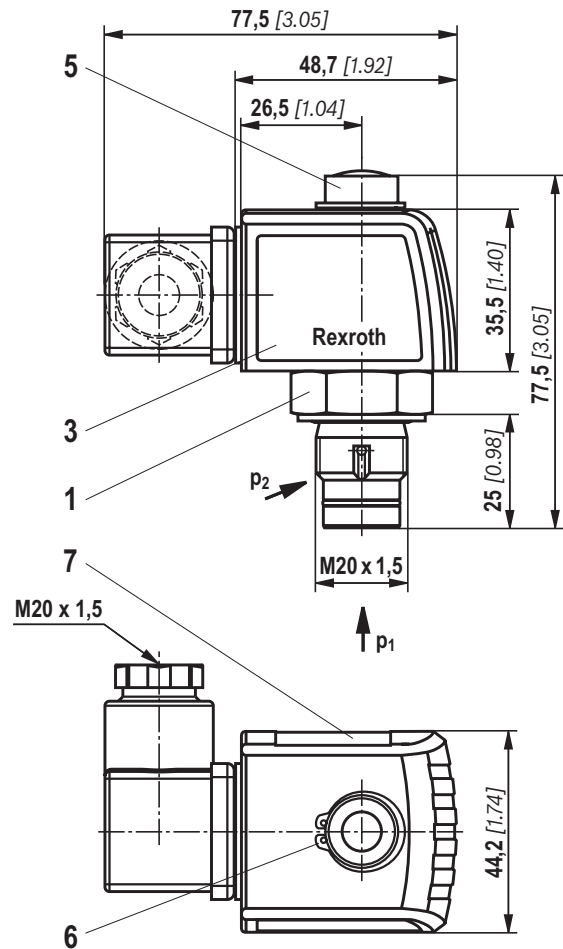
²⁾ Dimension B1 is reduced with SAE flanges by 4 mm [0.16 inch]

Maintenance indicator (dimensions in mm [inch])

Pressure differential indicator with mounted switching element M12 x 1



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 M12 x 1, 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 bistable
- 6 Locking ring DIN 471-16 x 1, **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.			-	-	0

Filter element

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

Size

02	LEN...	0040 0063 0100 0160 0250 0400
	LE...	0130 0150

Filter rating in µm

03	Absolute (ISO 16889; $\beta_x(c) \geq 200$)	Glass fiber material, not cleanable	H3XL H6XL H10XL H20XL
	Nominal	Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100

Pressure differential

04	Max. admissible pressure differential of the filter element 30 bar [435 psi] – Filter with bypass valve	A00
	Max. admissible pressure differential of the filter element 330 bar [4786 psi] – Filter without bypass valve	B00

Bypass valve

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

Seal

06	NBR seal	M
	FKM seal	V

Order example:

2,0100 H3XL-A00-0-M

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

Preferred program replacement filter element

Replacement filter element 3 micron		Replacement filter element 6 micron		Replacement filter element 10 micron	
R928006645	2,0040 H3XL-A00-0-M	R928006646	2,0040 H6XL-A00-0-M	R928006647	2,0040 H10XL-A00-0-M
R928006699	2,0063 H3XL-A00-0-M	R928006700	2,0063 H6XL-A00-0-M	R928006701	2,0063 H10XL-A00-0-M
R928006753	2,0100 H3XL-A00-0-M	R928006754	2,0100 H6XL-A00-0-M	R928006755	2,0100 H10XL-A00-0-M
R928022274	2,0130 H3XL-A00-0-M	R928022275	2,0130 H6XL-A00-0-M	R928022276	2,0130 H10XL-A00-0-M
R928022283	2,0150 H3XL-A00-0-M	R928022284	2,0150 H6XL-A00-0-M	R928022285	2,0150 H10XL-A00-0-M
R928006807	2,0160 H3XL-A00-0-M	R928006808	2,0160 H6XL-A00-0-M	R928006809	2,0160 H10XL-A00-0-M
R928006861	2,0250 H3XL-A00-0-M	R928006862	2,0250 H6XL-A00-0-M	R928006863	2,0250 H10XL-A00-0-M
R928006915	2,0400 H3XL-A00-0-M	R928006916	2,0400 H6XL-A00-0-M	R928006917	2,0400 H10XL-A00-0-M

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 difference, modular design	D01
----	-------------------------------------	------------

Switching pressure

04	2.2 bar [32 psi]	2,2
	5.0 bar [72.5 psi]	5,0

Seal

05	NBR seal	M
	FKM seal	V

Max. operating pressure

06	Switching pressure 2.2 bar [32 psi], 450 bar [6527 psi]	450
	Switching pressure 5.0 bar [72.5 psi], 450 bar [6527 psi]	450

Mechanical optical maintenance indicator	Material no.
WO-D01-2.2-M-450	R928038783
WO-D01-2.2-V-450	R928038782
WO-D01-5,0-M-450	R901025313
WO-D01-5,0-V-450	R901066235

Ordering code spare parts

Seal kit

01	02	03	04
D	245LE		-

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

02	Series	245LE
----	---------------	--------------

Size

03	NG0040-0100	N0040-0100
	Size 0130-0150	0130-0150
	NG0160-0400	N0160-0400

Seal

04	NBR seal	M
	FKM seal	V

Material no.	Seal kit
R928028016	D245LEN0040-0100-M
R928028214	D245LE0130-0150-M
R928028017	D245LEN0160-0400-M
R928047988	D245LEN0040-0100-V
R928048951	D245LE0130-0150-V
R928039838	D245LEN0160-0400-V

Assembly, commissioning, maintenance

Installation

- ▶ The max. operating pressure of the system must not exceed the max. admissible operating pressure of the filter (see type plate).
- ▶ 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.
- ▶ Easy filter element exchange is guaranteed in the installation position filter bowl vertically downwards. The maintenance indicator must be arranged so it is easily viewed in operation.
- ▶ Remove the plastic plugs in the filter inlet and outlet.
- ▶ Ensure that the system is assembled without tension stress.
- ▶ 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

- ▶ Commission the system.

Notice:

There is no bleed function 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 and cleaned respectively.
More details see data sheet 51450
- ▶ 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.
- ▶ Decommission the system.
- ▶ The operating pressure is to be release on the system side.

Notice:

There is no bleed function provided at the filter.

- ▶ Via the drain screw (from size 0160 fitted by default), the oil on the dirt side can be drained.
- ▶ Screw off 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 renew 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.
- ▶ Commission the system.

WARNING!

- ▶ Assemble and disassemble only with depressurized system!
- ▶ Filter is pressurized!
- ▶ Remove the filter bowl only if it is not under pressure!
- ▶ Do not exchange the optical/mechanical maintenance indicator while the filter is under pressure!
- ▶ If the flow direction is not considered during assembly, the filter element will be destroyed. Particle contaminates could enter the system and damage the downstream components.

Notices:

- ▶ All maintenance of the filter should be performed by trained specialists.
- ▶ Proper function and safety are only guaranteed if original Bosch Rexroth 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 torques (dimensions in mm [inch])

Mounting

Series 245...	LEN0040	LEN0063	LEN0100	LE0130	LE0150	LEN0160	LEN0250	LEN0400
Screw/tightening torque with $\mu_{total} = 0.14$	M6 / 4.5 Nm \pm 10%							
Quantity	4							
Recommended property class of screw	8.8							
Minimum screw-in depth	6 + 1 mm [0.24 + 0.04 in]							

Filter bowl and maintenance indicator

Series 245...	LEN0040	LEN0063	LEN0100	LE0130	LE0150	LEN0160	LEN0250	LEN0400
Tightening torque filter bowl	50 Nm + 10 Nm							
Tightening torque maintenance indicator	max. 50 Nm							
Tightening torque cubic connector screw switching element EN-175301-803	M3/0.5 Nm							

Directives and standardization

Classification according to the Pressure Equipment Directive

The inline filters for hydraulic applications according to 51421 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.

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

The inline filters according to 51421 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 inline 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-M12 x 1 **R928028409**

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

are simple, electronic operating equipment that do not have an own voltage source. This simple, electronic operat-

ing 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 inline filters and the electronic maintenance indicators described here can be used for the following potentially explosive areas:

	zone suitability	
Gas	1	2
Dust	21	22

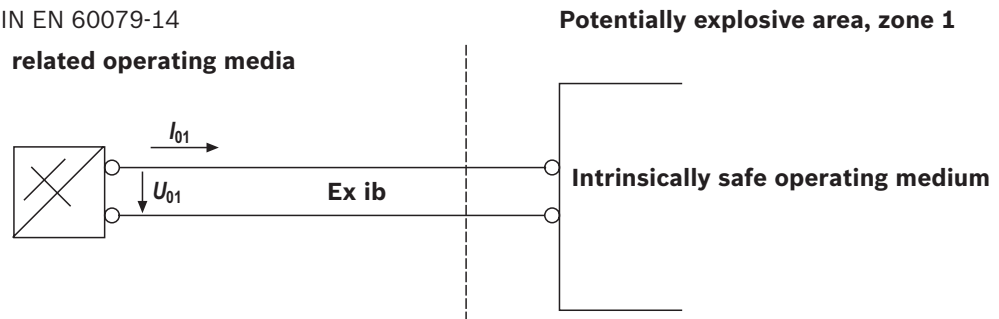
Directives and standardization

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		Values only for intrinsically safe electric circuit	
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
		max	1.0 W T4 T _{max} 80 °C
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.

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 explosive area, the max. admissible ignition temperature is not exceeded.
- ▶ When using the inline filters in accordance with 51 421 in potentially explosive areas, appropriate equipo-

tential bonding 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 trained specialists, instruction by the machine end-user acc. to DIRECTIVE 1999/92/EC appendix II, section 1.1
- ▶ Warranty is only applicable when using genuine Rexroth spare parts

Bosch Rexroth AG
Ketsch plant
Hardtwaldstr. 43
68775 Ketsch, Germany
Telephone +49 (0) 62 02/603-0
filter-support@boschrexroth.de
www.boschrexroth.de

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Notes

Bosch Rexroth AG
Ketsch plant
Hardtwaldstr. 43
68775 Ketsch, Germany
Telephone +49 (0) 62 02 / 603-0
filter-support@boschrexroth.de
www.boschrexroth.de

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Inline filter with filter element according to DIN 24550

Type 350LEN0040 to 1000; 350LE0130, 0150

RE 51422

Edition: 2015-03

Replaces: 07.11



350LEN_d

- ▶ Size as per **DIN 24550**: 0040 to 1000
- ▶ Other sizes: 0130, 0150
- ▶ Nominal pressure: 350 bar [5,079 psi]
- ▶ Connection sizes up to G2; SAE 2"; SAE 24
- ▶ Operating temperature: -10 °C to 100 °C [14 °F to 212 °F]

Features

Inline filters are used in hydraulic systems for separating solid materials from fluids and lubricating oils.

They come with the following features:

- ▶ Filter for 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 rating of the filter elements
- ▶ Equipped standard with mechanical optical maintenance indicator with memory function
- ▶ Various, optional electronic switching elements, modular design
- ▶ Optional bypass valve integrated in the filter housing
- ▶ High filtration performance due to tangential, cyclonic flow path
- ▶ Additional configurations available for special fluids

Contents

Features	1
Filter ordering code	2, 3
Preferred types	4
Accessories ordering code	5
Symbols	6
Function, cross-section	7
Technical data	8, 9
Compatibility with permitted hydraulic fluids	10
Characteristic curves	11-14
Dimensions	15
Maintenance indicator	16
Spare parts ordering codes	17-19
Assembly, commissioning, maintenance	20
Tightening torques	21
Directives and standardization	21, 22

Filter ordering code

01	02	03		04	05	06		07		08		09		10
350LE			-				-		-		-		-	

Series

01	Inline filter, 350 bar [5,079 psi]	350LE
----	------------------------------------	-------

Filter element

02	With filter element as per DIN 24550	N
----	---	---

Size

03	LEN... (Filter element as per DIN 24550)	0040 0063 0100 0160 0250 0400 0630 1000
	LE... (Filter element as per Bosch Rexroth standard)	0130 0150

Filter rating in μm

04	Absolute (ISO 16889; $\beta_{x(c)} \geq 200$)	Glass fiber material, not cleanable	H3XL H6XL H10XL H20XL
	Nominal	Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100

Pressure differential

05	Max. admissible filter element pressure differential: 30 bar [435 psi], filter with bypass valve	A
	Max. admissible filter element pressure differential: 330 bar [4,786 psi], filter has no bypass valve	B

Element design

06	Standard adhesive with galvanized steel	00
	Special adhesive with stainless steel	HV ¹⁾

Maintenance indicator

07	Maintenance indicator, mech. visual, switching pressure: 2.2 bar [32 psi] – bypass cracking pressure: 3.5 bar [51 psi]	V2.2
	Maintenance indicator, mech. visual, switching pressure: 5.0 bar [72.5 psi] – bypass cracking pressure: 7 bar [102 psi]	V5.0
	Maintenance indicator, mech. visual, switching pressure 8.0 bar [116 psi] – no bypass valve	V8.0

Seal

08	NBR seal	M
	FKM seal	V
	EPDM seal	E ²⁾

Filter ordering code

01	02	03	04	05	06	07	08	09	10
350LE			-			-	-	-	-

Connection

09	Installation size		0040	0063-0100	0130-0150	0160-0400	0630-1000	
	Connection							
	G1/2	Pipe thread as per ISO 228	●	X				R2
	G3/4		X	X				R3
	G1		X	●	X			R4
	G1 1/4				●	X		R5
	G1 1/2				X	●		R6
	G2							●
	SAE 1 1/2"	SAE flange 6,000 psi				X		S6
	SAE 2"						X	S8
	SAE 10"	Pipe thread as per SAE J1926	X					U3
	SAE 12"			X				U4
	SAE 20"				X			U5
	SAE 24"						X	U6
			●	Standard connection				
		X	Alternative connection option					

Supplementary information

10	Manufacturer's inspection certificate M as per DIN 55350 T18	Z1
----	--	-----------

1) Only with FKM or EPDM seal

2) Only with maintenance indicator V5.0

Order example:

350LEN0100-H10XLA00-V5.0-M-R4

Other versions are available on request.

Preferred types

350LE(N), flow specifications for 30 mm²/s [143 SUS]

Inline filter, 3 µm filter rating

Type	Flow in l/min [US gpm] whereas $\Delta p = 1.5 \text{ bar}$ [21.76 psi] ¹⁾	Material no. Filter				Replacement element material no.
		
350LEN0040-H3XLA00-V5.0-M-...	32 [8.5]	...R2	R928033024	...U3	R928033216	R928006645
350LEN0063-H3XLA00-V5.0-M-...	48 [12.7]	...R4	R928033025	...U4	R928033217	R928006699
350LEN0100-H3XLA00-V5.0-M-...	64 [16.9]	...R4	R928033026	...U4	R928033218	R928006753
350LE0130-H3XLA00-V5.0-M-...	103 [27.2]	...R5	R928033027	...U5	R928033219	R928022274
350LE0150-H3XLA00-V5.0-M-...	127 [33.6]	...R5	R928033028	...U5	R928033220	R928022283
350LEN0160-H3XLA00-V5.0-M-...	160 [42.3]	...R6	R928033029	...U6	R928033221	R928006807
350LEN0250-H3XLA00-V5.0-M-...	267 [70.5]	...R6	R928033030	...U6	R928033222	R928006861
350LEN0400-H3XLA00-V5.0-M-...	335 [88.5]	...R6	R928033031	...U6	R928033223	R928006915
350LEN0630-H3XLA00-V5.0-M-...	449 [118.6]	...R8	R928034432	...S8	R928034448	R928006969
350LEN1000-H3XLA00-V5.0-M-...	597 [157.7]	...R8	R928034433	...S8	R928034449	R928007023

Inline filter, 6 µm filter rating

Type	Flow in l/min [US gpm] whereas $\Delta p = 1.5 \text{ bar}$ [21.76 psi] ¹⁾	Material no. Filter				Replacement element material no.
		
350LEN0040-H6XLA00-V5.0-M-...	41 [10.8]	...R2	R928033280	...U3	R928033472	R928006646
350LEN0063-H6XLA00-V5.0-M-...	69 [18.2]	...R4	R928033281	...U4	R928033473	R928006700
350LEN0100-H6XLA00-V5.0-M-...	104 [27.5]	...R4	R928033282	...U4	R928033474	R928006754
350LE0130-H6XLA00-V5.0-M-...	125 [33]	...R5	R928033283	...U5	R928033475	R928022275
350LE0150-H6XLA00-V5.0-M-...	135 [35.7]	...R5	R928033284	...U5	R928033476	R928022284
350LEN0160-H6XLA00-V5.0-M-...	265 [70]	...R6	R928033285	...U6	R928033477	R928006808
350LEN0250-H6XLA00-V5.0-M-...	320 [84.5]	...R6	R928033286	...U6	R928033478	R928006862
350LEN0400-H6XLA00-V5.0-M-...	400 [105.7]	...R6	R928025783	...U6	R928033479	R928006916
350LEN0630-H6XLA00-V5.0-M-...	520 [137.4]	...R8	R928034464	...S8	R928034480	R928006970
350LEN1000-H6XLA00-V5.0-M-...	635 [167.8]	...R8	R928034465	...S8	R928034481	R928007024

Inline filter, 10 µm filter rating

Type	Flow in l/min [US gpm] whereas $\Delta p = 1.5 \text{ bar}$ [21.76 psi] ¹⁾	Material no. Filter				Replacement element material no.
		
350LEN0040-H10XLA00-V5.0-M-...	51 [13.5]	...R2	R928033536	...U3	R928033728	R928006647
350LEN0063-H10XLA00-V5.0-M-...	76 [20.1]	...R4	R928033537	...U4	R928033729	R928006701
350LEN0100-H10XLA00-V5.0-M-...	100 [26.4]	...R4	R928033538	...U4	R928033730	R928006755
350LE0130-H10XLA00-V5.0-M-...	191 [50.5]	...R5	R928025653	...U5	R928033731	R928022276
350LE0150-H10XLA00-V5.0-M-...	202 [53.4]	...R5	R928028868	...U5	R928033732	R928022285
350LEN0160-H10XLA00-V5.0-M-...	261 [69]	...R6	R928033541	...U6	R928033733	R928006809
350LEN0250-H10XLA00-V5.0-M-...	330 [87.2]	...R6	R928033542	...U6	R928033734	R928006863
350LEN0400-H10XLA00-V5.0-M-...	409 [108.1]	...R6	R928033543	...U6	R928033735	R928006917
350LEN0630-H10XLA00-V5.0-M-...	590 [155.9]	...R8	R928034496	...S8	R928034512	R928006971
350LEN1000-H10XLA00-V5.0-M-...	650 [171.7]	...R8	R928034497	...S8	R928034513	R928007025

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

Accessories ordering code

(dimensions in mm [inch])

Electronic switching element for maintenance indicators

01	02	03
WE	-	-

Maintenance indicator

01	Electronic switching element	WE
----	------------------------------	-----------

Type of signal

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

Plug

03	M12x1, 4-pole round plug-in connection	M12x1
	2-pole rectangular plug-in connection, design A as per EN 175301-803	EN 175301-803

Material numbers for electronic switching elements

Material no.	Type	Signal	Switching points	Plug	LEDs
R928028409	WE-1SP-M12x1	Changeover	1	M12x1	0
R928028410	WE-2SP-M12x1	Normally open (at 75%)/ normally closed contact (at 100%)	2		3
R928028411	WE-2SPSU-M12x1		1		0
R928036318	WE-1SP-EN175301-803	Normally closed contact	1	EN 175301-803	0

Mating connectors (max. admissible voltage: 50 V)

For electronic switching element with M12x1 round plug-in connection

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

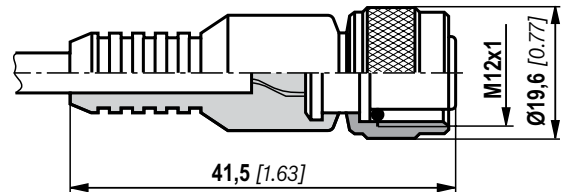
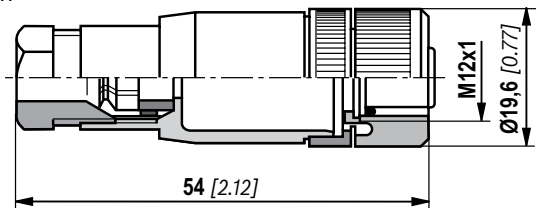
Material no. R900031155

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

Line cross-section: 4 x 0.34 mm²

Core marking: **1** brown **2** white
 3 blue **4** black

Material no. R900064381



For more round plug-in connections, see data sheet 08006.

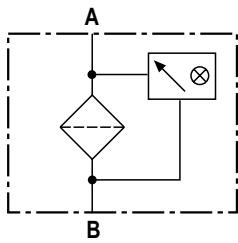
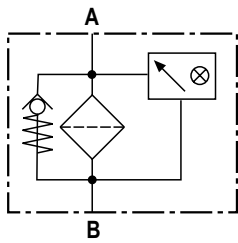
Order example:

Inline filter with mechanical visual maintenance indicator for $p_{nom} = 350 \text{ bar}$ [5,079 psi] with bypass valve, size 0100, with 10 µm filter element and M12x1 electronic switching element with 1 switching point for HLP mineral oil hydraulic fluid as per DIN 51524.

Filter with mech. visual maintenance indicator:	350LEN0100-H10XLA00-V5.0-M-R4	Material no. R928033538
Electronic switching element:	WE-1SP-M12x1	Material no. R928028409
Mating connector:	Mating connector fitting M12x1, 4-pole K24	Material no. R900031155

Symbols

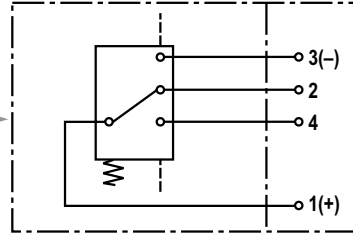
Inline filter
with bypass
and mechanical indicator



Inline filter,
no bypass,
with mechanical indicator

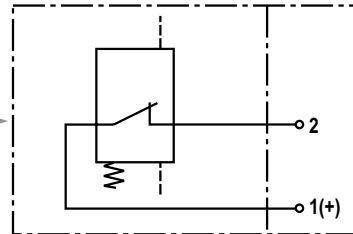
**Electronic switching element
for maintenance indicator**

Switching element Plug



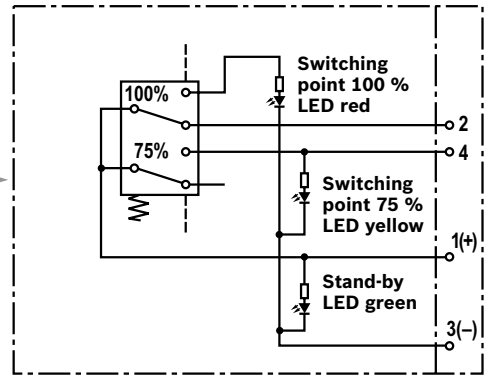
WE-1SP-M12x1

Switching element Plug



WE-1SP-EN175301-803

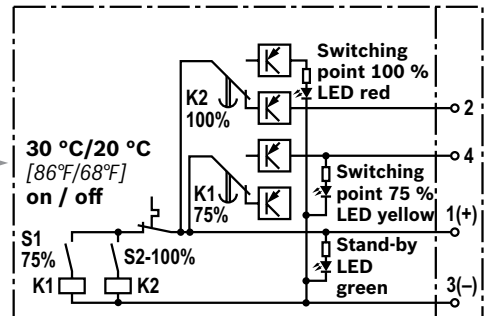
Switching element Plug



WE-2SP-M12x1

Circuit diagram drawn in plugged condition (operating state)

Switching element Plug



WE-2SPSU-M12x1

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

Function, cross-section

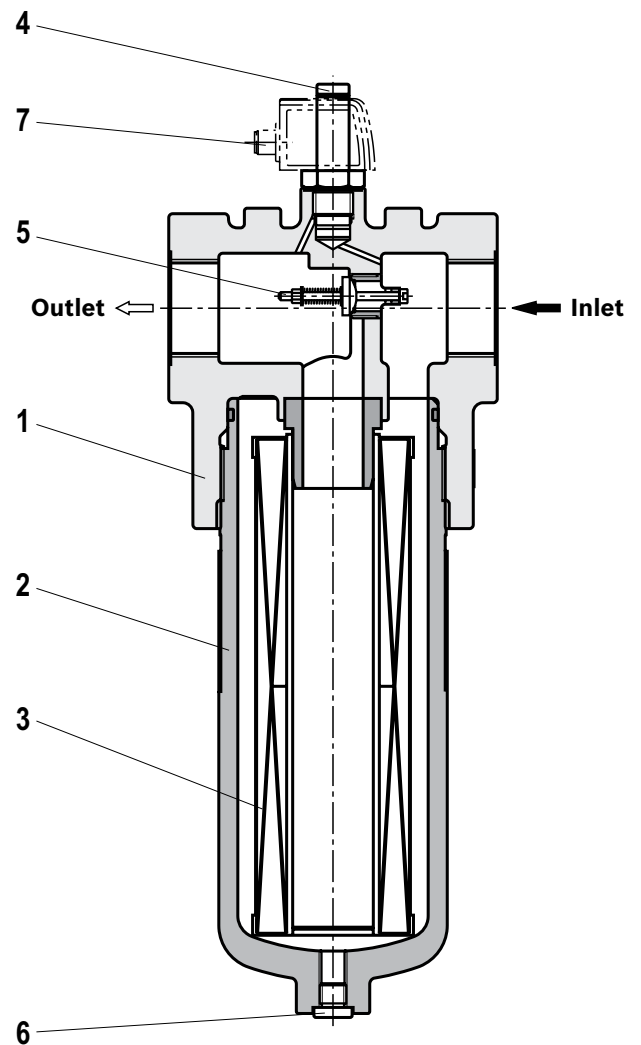
The 350LE(N) inline filter is designed for direct installation into pressure lines.

It consists primarily of a filter head (1), a threaded filter bowl (2), a filter element (3) and a mechanical optical maintenance indicator (4). For filters with low collapse filter elements (= pressure differential code letter A), a bypass valve (5) comes standard.

The fluid passes through the inlet to the filter 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.

The filter housing and all connection elements are designed so that pressure spikes – as they may occur, e.g., due to an accelerated fluid quantity from large control valves opening abruptly – can be safely absorbed. Sizes 0160 and larger come with a drain screw (6) standard. Size 1000 comes with a two-part filter bowl, with the filter bowl fixed to prevent the bowl from spinning in the filter head.

An electronic switching element (7) can be added to the mechanical optical maintenance indicator in order to integrate it into an electric circuit. The electronic switching element must be attached to the mechanical visual maintenance indicator and held with the locking ring supplied. The electronic switching elements are connected with a mating connector or cable connection. The electronic switching element must be ordered separately.



WARNING

- ▶ If the maintenance indicator is ignored when an element change is required, there is the possibility the filter will go into bypass and contaminated oil will pass to the clean side of the filter outlet. Therefore the filtration effectiveness is no longer guaranteed.

Technical data

(Please consult us for applications outside these parameters)

General							
Installation position		Vertical					
Ambient temperature range		°C [°F]	-10 to +65 [14 to 149] (down to -30 [-22] for brief periods)				
Storage conditions	▶ NBR/EPDM seal	°C [°F]	-40 to 65 [-40 to 149]; max. relative air humidity: 65%				
	▶ FKM seal	°C [°F]	-20 to 65 [-4 to 149]; max. relative air humidity: 65%				
Weight	▶ Filter	Size	0040	0063	0100	0130	0150
		kg [lbs]	4.4 [9.7]	5.0 [11.1]	5.9 [13.0]	10.5 [23.2]	11.2 [24.8]
		Size	0160	0250	0400	0630	1000
		kg [lbs]	17.2 [30.0]	19.5 [43.1]	23.0 [50.8]	45.0 [99.5]	93.0 [205.6]
	▶ Filter bowl	Size	0040	0063	0100	0160	
		kg [lbs]	1.3 [2.9]	1.3 [2.9]	2.1 [4.6]	5.5 [12.1]	
		Size	0250	0400	0630	1000	
		kg [lbs]	8.0 [17.6]	12.2 [26.9]	21.4 [47.2]	Filter pipe ¹⁾ 45.3 [99.8] End cap 2.0 [4.4]	
Flow	Size	0040	0063	0100	0130	0150	
		l [US gal]	0.3 [0.1]	0.4 [0.1]	0.5 [0.1]	0.9 [0.2]	1.1 [0.3]
	Size	0160	0250	0400	0630	1000	
		l [US gal]	1.3 [0.3]	1.9 [0.5]	3.0 [0.8]	4.5 [1.2]	6.5 [1.7]
Material	▶ Filter head	Ductile iron					
	▶ Filter bowl	Steel					
	▶ Bypass valve	Aluminum/steel/POM					
	▶ Seals	NBR or FKM					
	▶ Visual maintenance indicator	Brass					
	▶ Electronic switching element	Nylon 6 plastic					
Hydraulics							
Max. operating pressure		bar [psi]	350 [5,079]				
Hydraulic fluid temperature range		°C [°F]	-10 to 100 [14 to 212] (down to -30 [-22] for brief periods)				
Min. medium conductivity		pS/m	300				
Fatigue strength as per ISO 10771		load cycles	> 10 ⁶ at max. operating pressure				
Maintenance indicator pressure measurement type		Pressure differential					
Assignment: Maintenance indicator response pressure/ bypass valve cracking pressure		Maintenance indicator response pressure			Bypass valve cracking pressure		
		bar [psi]	2.2 ± 0.3 [31.9 ± 4.4]		3.5 ± 0.35 [50.8 ± 5.1]		
		bar [psi]	5.0 ± 0.5 [72.5 ± 7.3]		7.0 ± 0.5 [101.5 ± 7.3]		
		bar [psi]	8.0 ± 0.8 [116 ± 11.6]		No bypass valve		
Direction of filtration		From the outside to the inside					

¹⁾ This weight is not relevant to changing the filter element, since only the cap has to be unscrewed.

Technical data

(Please consult us for applications outside these parameters)

Electrical (electronic switching element)				
Electrical connection	M12x1, 4-pole round plug-in connection			EN 175301-803 standard connection
Version	WE-1SP-M12x1	WE-2SP-M12x1	WE-2SPSU-M12x1	WE-1SP-EN175301-803
Contact load, DC voltage	$A_{max.}$	1		
Voltage range	$V_{max.}$	150 (AC/DC)	10 – 30 (DC)	250 (AC) / 200 (DC)
Max. switching power with resistive load	W	20		70
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]	
LED indicators in 2SP electronic switching elements		Stand-by (LED green) 75% switching point (LED yellow) 100% switching point (LED red)		
IP rating as per EN 60529	IP	67		65
Ambient temperature range	°C [°F]	-25 to 85 [-13 to 185]		
Include spark extinguishing for DC voltage above 24 V to protect the switching contacts.				
Weight	Electronic switching element	kg [lbs]	0.1 [0.22]	

Filter element				
H-series XL glass fiber material		Inorganic fiber-based single-use element		
		Filtration ratio as per ISO 16889 up to $\Delta p = 5 \text{ bar [72.5 psi]}$	Best oil cleanliness as per ISO 4406 [SAE-AS 4059]	
	H20XL	$\beta_{20(c)} \geq 200$	19/16/12 – 22/17/14	
	H10XL	$\beta_{10(c)} \geq 200$	17/14/10 – 21/16/13	
	H6XL	$\beta_6(c) \geq 200$	15/12/10 – 19/14/11	
	H3XL	$\beta_5(c) \geq 200$	13/10/8 – 17/13/10	
Admissible pressure differential	▶ A	bar [psi]	30 [435]	
	▶ B	bar [psi]	330 [4,785]	

For detailed information on Rexroth filter elements, see data sheet 51420.

Compatibility with permitted hydraulic fluids

Hydraulic fluid	Classification	Suitable sealing materials	Suitable adhesive	Standards	
Mineral oil	HLP	NBR	Standard	DIN 51524	
Biodegradable	▶ Water insoluble	HETG		NBR	VDMA 24568
		HEES		FKM	VDMA 24568
	▶ Water soluble	HEPG		FKM	VDMA 24317
Flame-resistant	▶ Waterless	HFDR, HFDR		FKM	DIN 24320
		HFAS		NBR	VDMA 24317
	▶ Aqueous	HFAE		NBR	
		HFC		NBR	
▶ Skydrol	–	EPDM		Special "H"	–



Important information on hydraulic fluids:

- ▶ For more information and data on the use of other hydraulic fluids, see data sheet 90220 or contact us.
- ▶ **Flame-resistant, aqueous:** Due to possible chemical reactions with materials or machine and system component surface coating, the service life with these hydraulic fluids may be less than expected.

Do not use filter materials made of filter paper P, use filter elements with glass fiber filter material instead.

- ▶ **Biodegradable:** 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

H3XL

(Measured with HLP46 mineral oil as per ISO 3968)

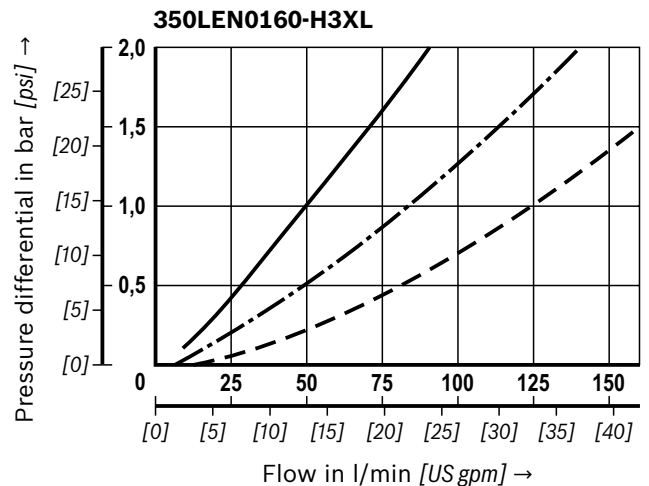
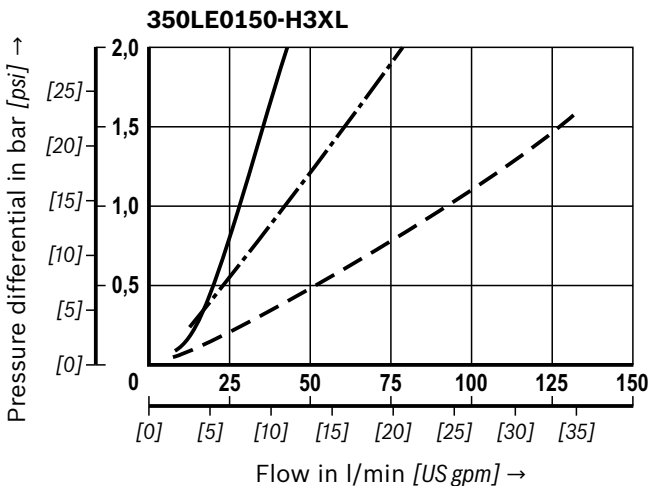
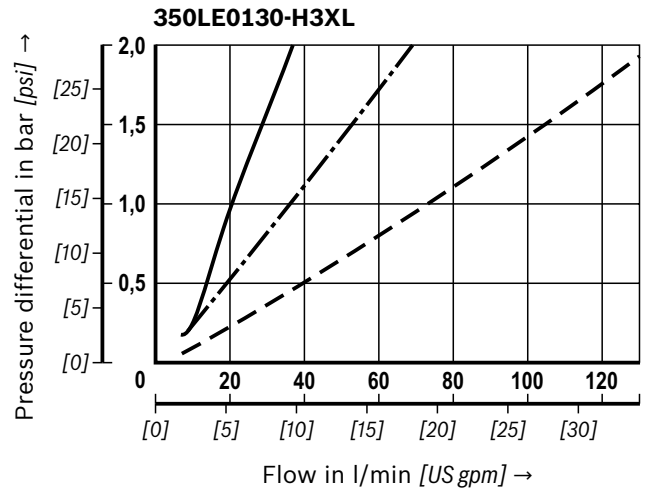
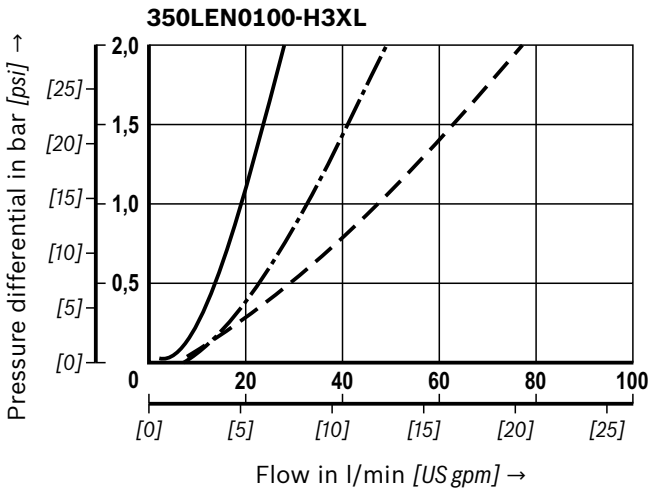
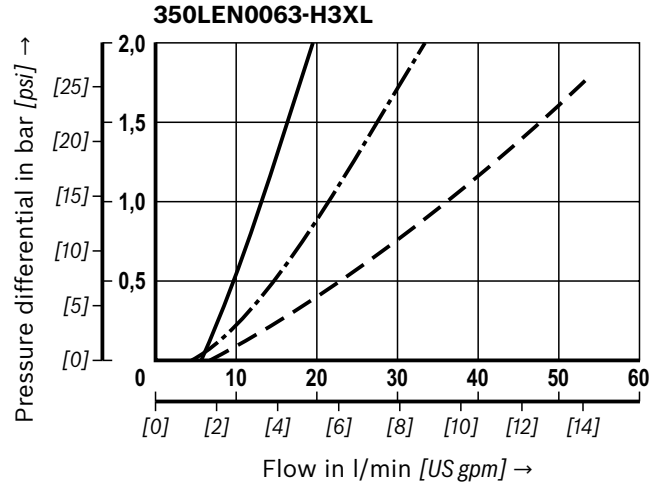
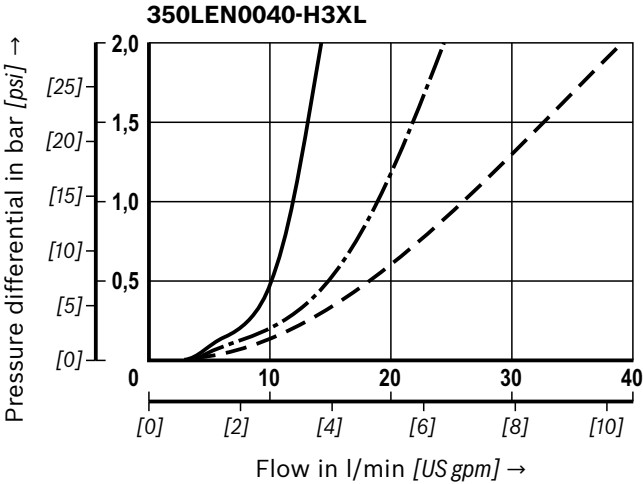
Spec. weight: < 0.9 kg/dm³

Δp -Q characteristic curves for complete filters

Recommended initial Δp for design = 1.5 bar [21.76 psi]

Use our “Bosch Rexroth FilterSelect” online design software to select the ideal filter.

Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



Characteristic curves

(Measured with HLP46 mineral oil as per ISO 3968)

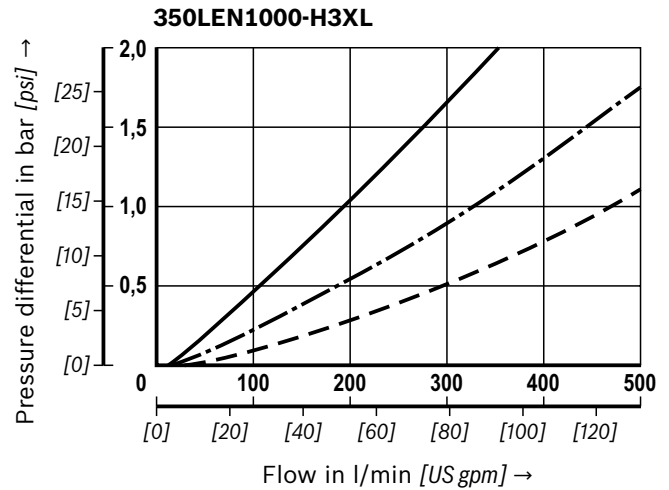
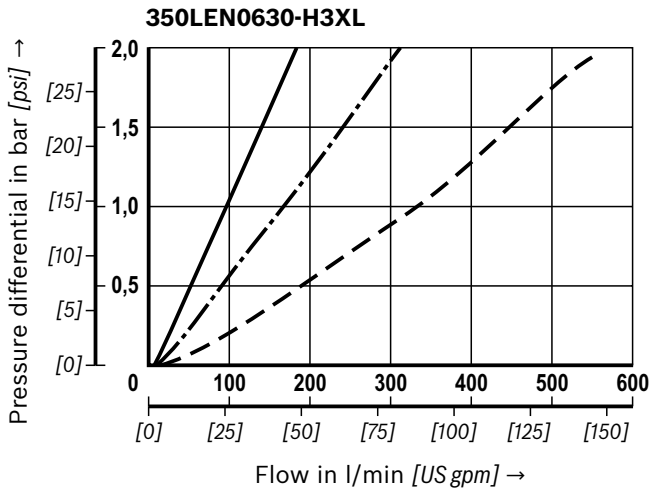
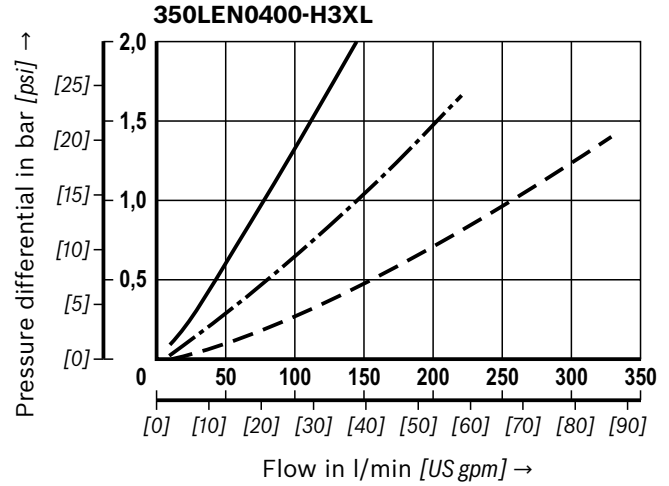
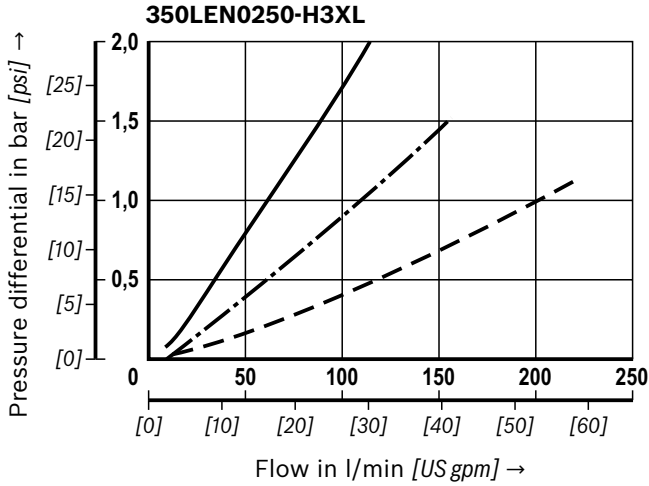
Spec. weight: < 0.9 kg/dm³

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Characteristic curves

(Measured with HLP46 mineral oil as per ISO 3968)

Spec. weight: < 0.9 kg/dm³

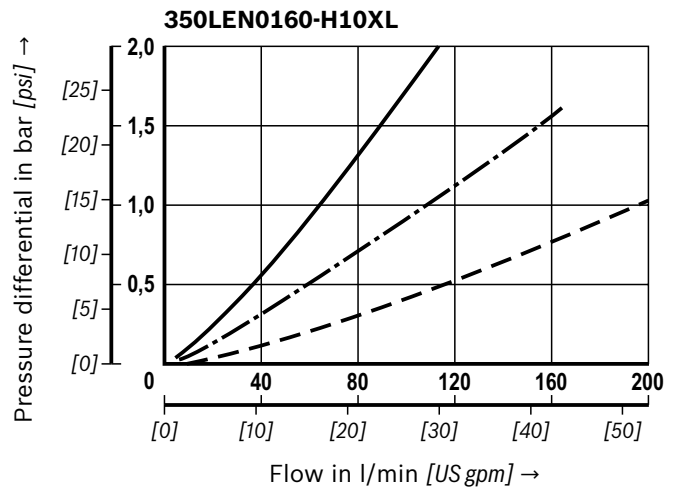
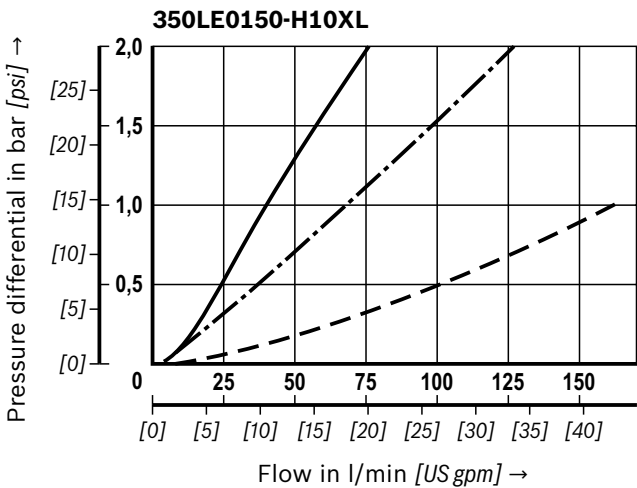
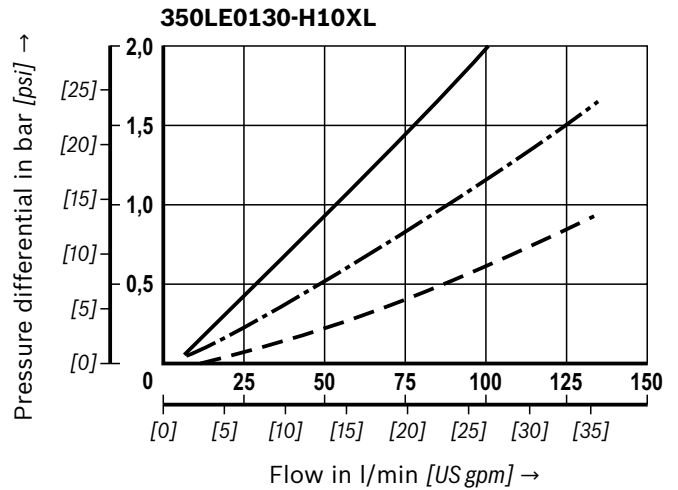
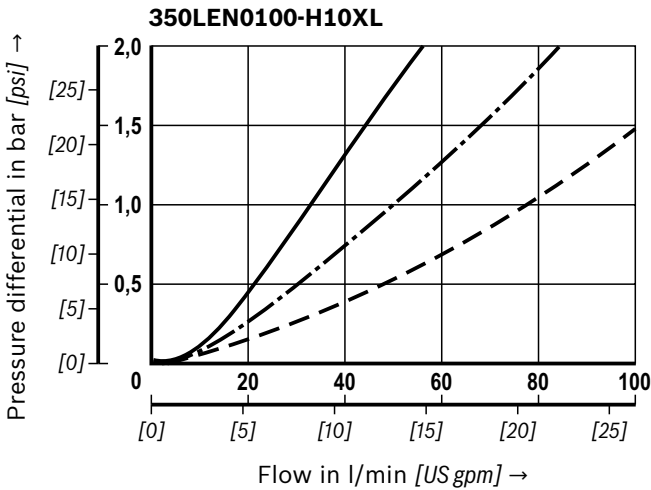
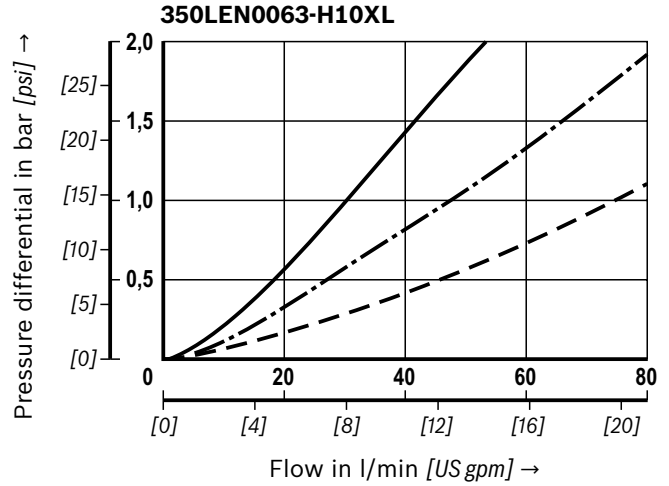
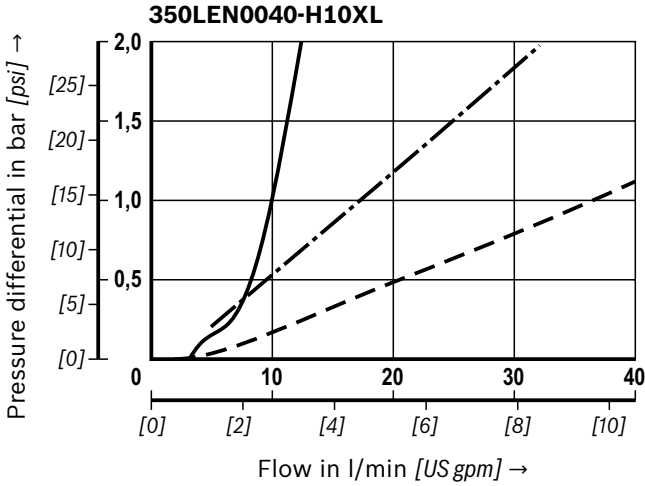
Δp -Q characteristic curves for complete filters

Recommended initial Δp for design = 1.5 bar [21.76 psi]

H10XL

Use our “Bosch Rexroth FilterSelect” online design software to select the ideal filter.

Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



Characteristic curves

(Measured with HLP46 mineral oil as per ISO 3968)

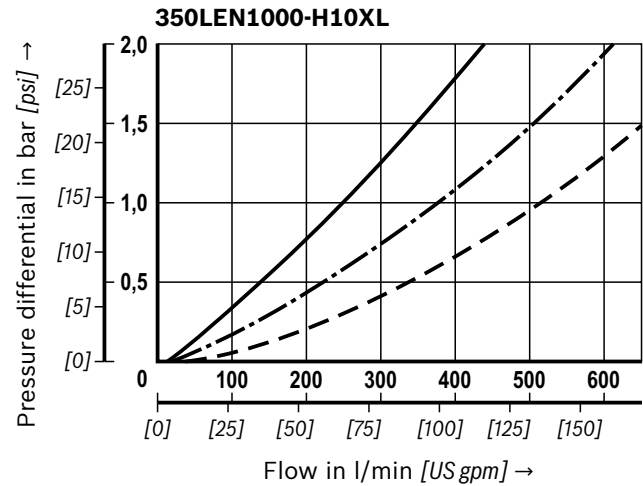
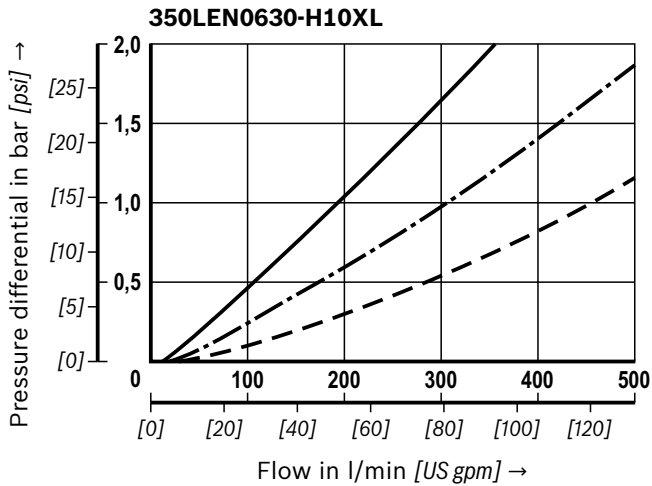
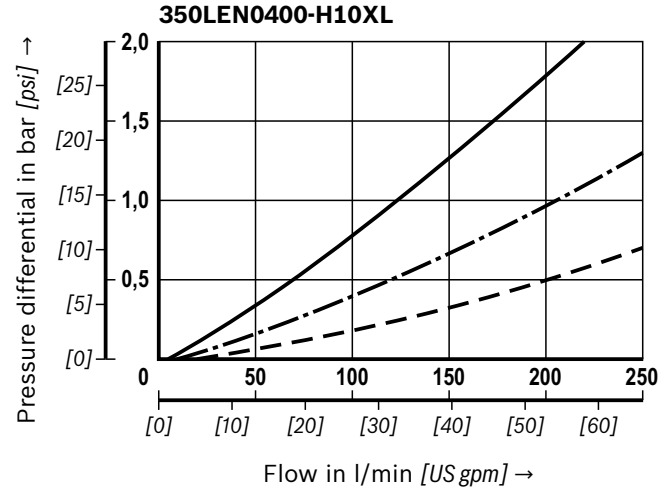
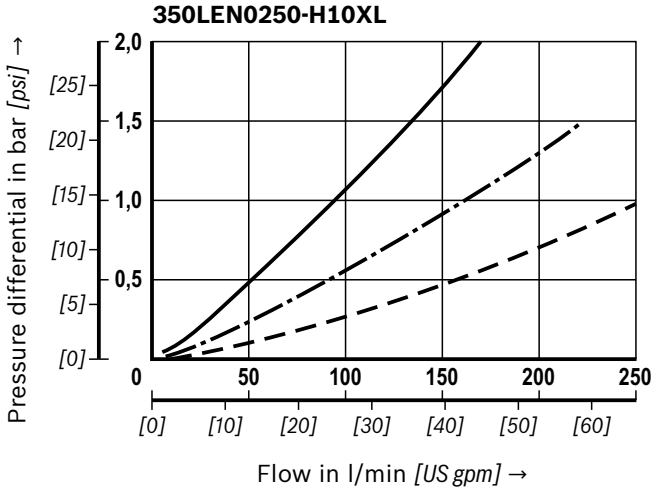
Spec. weight: < 0.9 kg/dm³

Δp -Q characteristic curves for complete filters

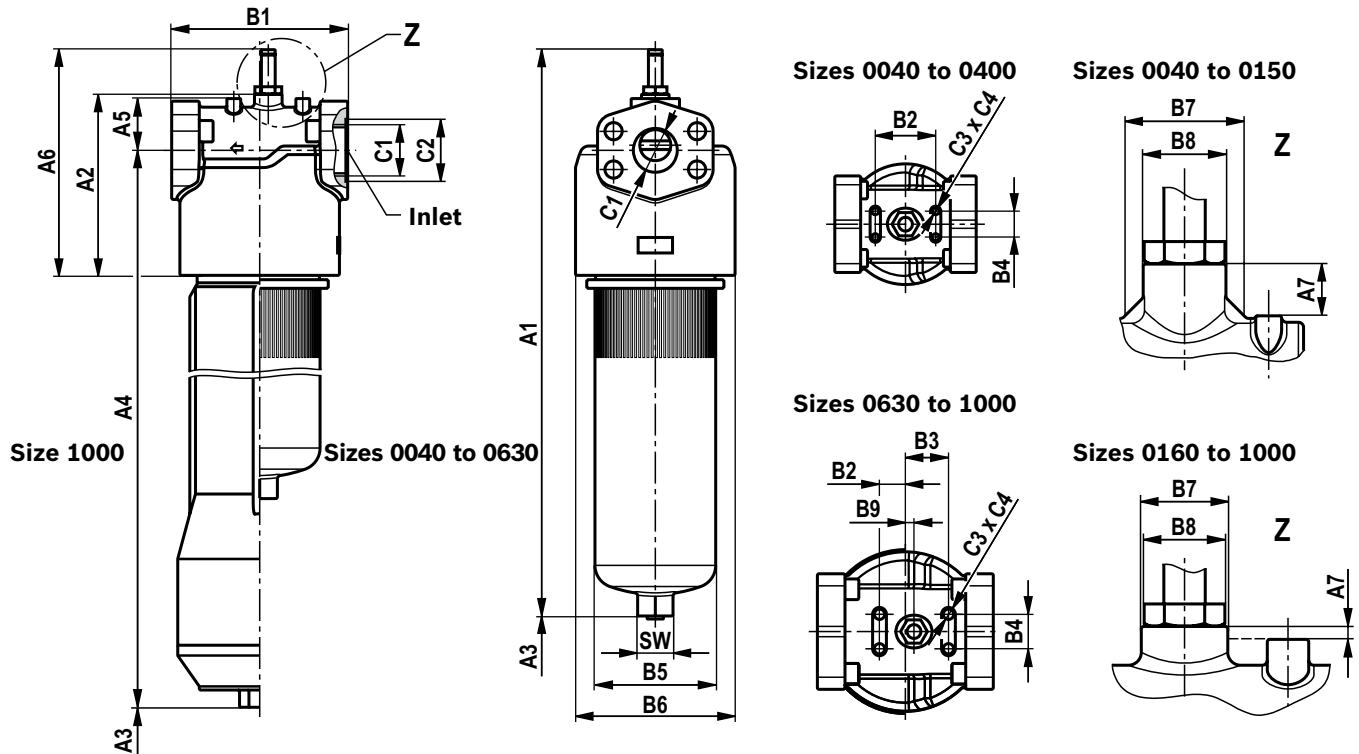
Recommended initial Δp for design = 1.5 bar [21.76 psi]

Use our “Bosch Rexroth FilterSelect” online design software to select the ideal filter.

Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



Dimensions: 350LE(N) sizes 0040 to 1000
(Dimensions in mm [inch])



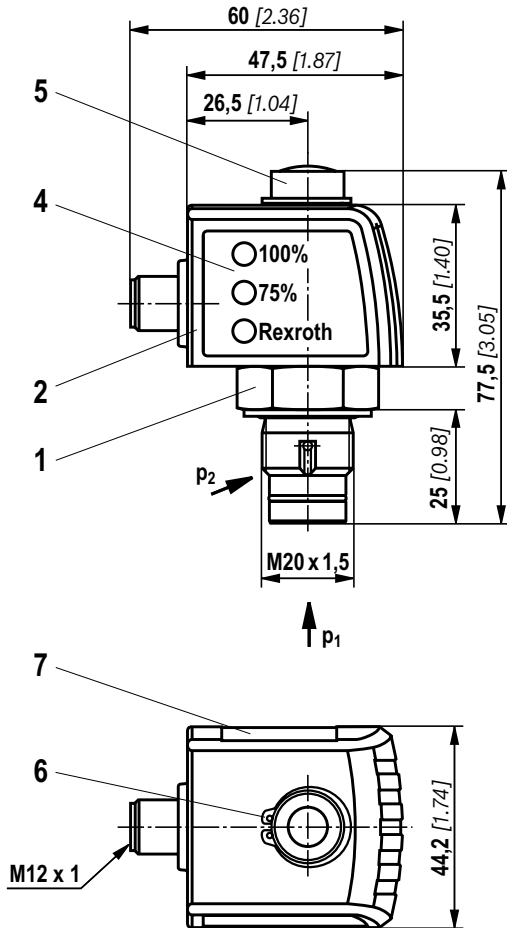
Type 350...	A1	A2	A3 ¹⁾	A4	A5	A6	A7	B1 ²⁾	B2	B3	ØB4
LEN0040	203 [7.99]	115 [4.53]	80 [3.15]	158 [6.22]	25 [0.98]	167 [6.57]	20 [0.79]	92 [3.62]	65 [2.56]	-	30 [1.18]
LEN0063	266 [10.47]			221 [8.70]							
LEN0100	356 [14.02]			311 [12.24]							
LE0130	328 [12.91]	150 [5.91]	140 [5.51]	273 [10.75]	40 [1.57]	202 [7.95]	15 [0.59]	132 [5.20]	80 [3.15]	-	30 [1.18]
LE0150	364 [14.33]			324 [12.76]							
LEN0160	322 [12.68]	170 [6.69]	140 [5.51]	262 [10.31]	50 [1.97]	222 [8.74]	10 [0.39]	164 [6.46]	70 [2.76]	-	30 [1.18]
LEN0250	412 [16.22]			352 [13.86]							
LEN0400	562 [22.13]			502 [19.76]							
LEN0630	605 [23.82]	210 [8.27]	160 [6.30]	540 [21.26]	60 [2.36]	262 [10.31]	5 [0.20]	204 [8.03]	30 [1.18]	50 [1.97]	40 [1.57]
LEN1000	843 [33.19]		650 [25.59]	778 [30.63]							

Type 350...	ØB5	ØB6	ØB7	ØB8	B9	C1 connection				C3	C4	SW	
						R... (ISO 228)	ØC2	U... (SAE J1926)	ØC2				S... (SAE flanges)
LEN0040	64 [2.52]	85 [3.35]	47 [1.85]	32 [1.26]	-	G1/2	28 [1.10]	SAE 10" 7/8-14 UNF-2B	34 [1.34]	-	M6	8 [0.31]	32 [1.26]
LEN0063						G1	41 [1.61]	SAE 12" 1 1/16-12 UN-2B					
LEN0100						G1 1/4	51 [2.01]	SAE 20" 1 5/8-12 UN-2B	58 [2.28]				
LE0130	92 [3.62]	118 [4.65]	32 [1.26]	32 [1.26]	-	G1 1/2	56 [2.20]	SAE 24" 1 7/8-12 UN-2B	65 [2.56]	SAE 1 1/2" 6,000 psi	M8	12 [0.47]	41 [1.61]
LE0150						G1 1/2	56 [2.20]	SAE 24" 1 7/8-12 UN-2B	65 [2.56]				
LEN0160	114 [4.49]	140 [5.51]											
LEN0250			32 [1.26]	32 [1.26]	10 [0.39]	G2	72 [2.83]	-	-	SAE 2" 6,000 psi	M12	12 [0.47]	41 [1.61]
LEN0400	140 [5.51]	185 [7.28]											
LEN0630													
LEN1000	190 [7.48]												

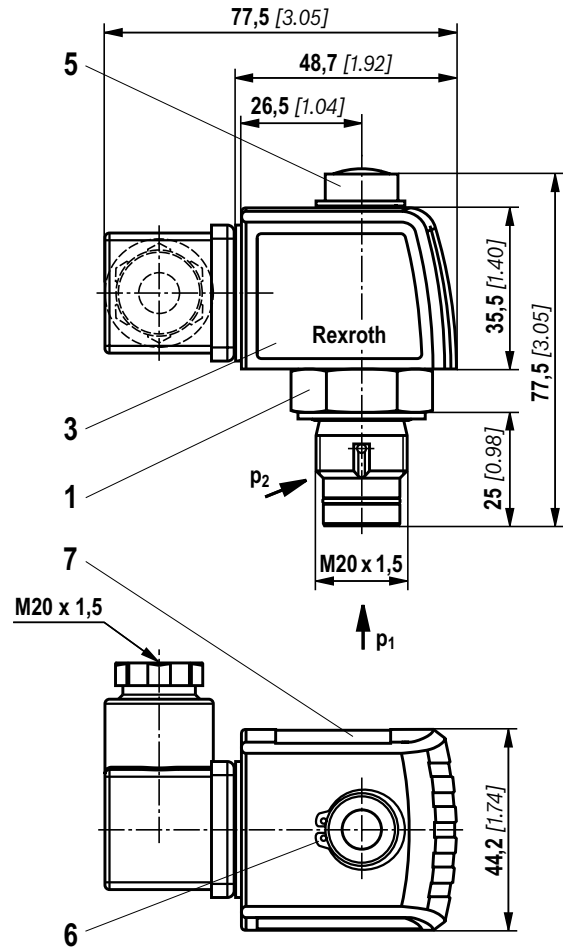
¹⁾ Servicing height for changing filter element ²⁾ Dimension B1 is reduced by 4 mm [0.16 in] for SAE flanges

Maintenance indicator (Dimensions in mm [inch])

Pressure differential indicator with mounted
M12x1 switching element



Pressure differential indicator with mounted
EN 175301-803 switching element



- 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 360°);
M12x1, 4-pole round plug-in connection
- 3 Switching element with locking ring for electrical
maintenance indicator (rotatable 360°);
EN 175301-803 rectangular plug-in connection
- 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 16x1 DIN 471 locking ring,
Material no. R900003923
- 7 Name plate

Important:

Illustration includes a mechanical visual maintenance indicator (1) and electronic switching element (2), (3).

Spare parts ordering codes

Filter element

01	02	03	04	05	06	07
2.			-		-	0

Filter element

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

Size

02	LEN... (Filter element as per DIN 24550)	0040 0063 0100 0160 0250 0400 0630 1000
	LE... (Filter elements as per Bosch Rexroth standard)	0130 0150

Filter rating in µm

03	Absolute (ISO 16889; $\beta_{x(c)} \geq 200$)	Glass fiber material, not cleanable	H3XL H6XL H10XL H20XL
	Nominal	Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100

Pressure differential

04	Max. admissible filter element pressure differential: 30 bar [435 psi], filter with bypass valve	A
	Max. admissible filter element pressure differential: 330 bar [4,786 psi], filter has no bypass valve	B

Element design

05	Standard adhesive with galvanized steel	00
	Special adhesive with stainless steel	HV ¹⁾

Bypass valve

06	Without bypass valve	0
----	-----------------------------	---

Seal

07	NBR seal	M
	FKM seal	V
	EPDM seal	E

¹⁾ Only with FKM or EPDM seal

Order example:

2.0100 H10XL-A00-0-M

Material no. R928006755

For detailed information on Rexroth filter elements, see data sheet 51420.

Spare parts ordering codes

Filter element

Preferred replacement filter element program

3-micron replacement filter element		6-micron replacement filter element		10-micron replacement filter element	
R928006645	2.0040 H3XL-A00-0-M	R928006646	2.0040 H6XL-A00-0-M	R928006647	2.0040 H10XL-A00-0-M
R928006699	2.0063 H3XL-A00-0-M	R928006700	2.0063 H6XL-A00-0-M	R928006701	2.0063 H10XL-A00-0-M
R928006753	2.0100 H3XL-A00-0-M	R928006754	2.0100 H6XL-A00-0-M	R928006755	2.0100 H10XL-A00-0-M
R928006807	2.0160 H3XL-A00-0-M	R928006808	2.0160 H6XL-A00-0-M	R928006809	2.0160 H10XL-A00-0-M
R928006861	2.0250 H3XL-A00-0-M	R928006862	2.0250 H6XL-A00-0-M	R928006863	2.0250 H10XL-A00-0-M
R928006915	2.0400 H3XL-A00-0-M	R928006916	2.0400 H6XL-A00-0-M	R928006917	2.0400 H10XL-A00-0-M
R928006969	2.0630 H3XL-A00-0-M	R928006970	2.0630 H6XL-A00-0-M	R928006971	2.0630 H10XL-A00-0-M
R928007023	2.1000 H3XL-A00-0-M	R928007024	2.1000 H6XL-A00-0-M	R928007025	2.1000 H10XL-A00-0-M

Mechanical visual maintenance indicator

01	02	03	04	05	06
W	O	-	D01	-	-

01	Maintenance indicator	W
02	Mechanical visual indicator	O

Version

03	Pressure differential, modular design	D01
----	---------------------------------------	------------

Switching pressure

04	2.2 bar [32 psi]	2.2
	5.0 bar [72.5 psi]	5.0

Seal

05	EPDM seal	E ¹⁾
	NBR seal	M
	FKM seal	V

Max. operating pressure

06	Switching pressure of 2.2 bar [31.9 psi]: 160 bar [2,320 psi]	160
	Switching pressure of 5.0 bar [72.5 psi]: 450 bar [6,527 psi]	450
	Switching pressure of 8.0 bar [116 psi]: 450 bar [6,527 psi]	450

¹⁾ Only with a switching pressure of 5.0 bar

Mechanical visual maintenance indicator

Material no.	Description
R928038785	WO-D01-8.0-M-450
R901025313	WO-D01-5.0-M-450
R901025312	WO-D01-2.2-M-160
R928038784	WO-D01-8.0-V-450
R901066235	WO-D01-5.0-V-450
R901066233	WO-D01-2.2-V-160
R928054248	WO-D01-5.0-E-450

Spare parts ordering codes

Seal kit

01	02	03	04
D	350/445LE		-

01	Seal kit	D
02	Series	350/445LE

Size

03	Sizes 0040-0100	N0040-0100
	Sizes 0130-0150	0130-0150
	Sizes 0160-0400	N0160-0400
	Size 0630	N0630
	Size 1000	N1000

Seal

04	NBR seal	M
	FKM seal	V
	EPDM seal	E

Seal kit

Material no.	Description
R928028527	D350/445LEN0040-0100-M
R928028530	D350LE0130-0150-M
R928028532	D350/445LEN0160-0400-M
R928028536	D350/445LEN0630-M
R928028537	D350/445LEN1000-M
R928028528	D350/445LEN0040-0100-V
R928028531	D350LE0130-0150-V
R928028533	D350/445LEN0160-0400-V
R928028529	D350/445LEN0630-V
R928028534	D350/445LEN1000-V
R961010717	D350/445LEN0040-0100-E
R961010716	D350LE0130-0150-E
R961010715	D350/445LEN0160-0400-E
R961010714	D350/445LEN0630-E
R961010713	D350/445LEN1000-E

Assembly, commissioning, maintenance

Assembly

- ▶ The max. operating pressure of the system cannot exceed the max. admissible operating pressure of the filter (see name plate).
- ▶ When assembling the filter (see also “Tightening torques”), note the flow direction (arrows) and the required servicing height of the filter element (see “Dimensions”).
- ▶ Filter element exchange is made easiest when the filter bowl is oriented downward. Ensure the maintenance indicator is easily visible.
- ▶ Remove the plastic plugs in the filter inlet and outlet.
- ▶ Make sure power is disconnected during assembly.
- ▶ The optional electrical maintenance indicator is connected using the electronic switching element with 1 or 2 switching points, which is placed on the mechanical visual maintenance indicator and held in place by a locking ring.

Commissioning

- ▶ Commission the system.

Important:

The filter has no bleeding mechanism.

Maintenance

- ▶ If the red indicator pin rises out of the mechanical visual maintenance indicator and/or the electronic switching element switches at operating temperature,

the filter element is dirty and has to be replaced/cleaned. For more details, see data sheet 51420.

- ▶ The material number of the correct replacement filter element is on the name plate of the complete filter. Verify that it matches the material number on the filter element.
- ▶ Decommission the system.
- ▶ Release operating pressure on the system side.

Important:

The filter has no bleeding mechanism.

- ▶ Drain the oil on the dirt side using the drain screw (size 0160 and larger).
- ▶ Unscrew the filter bowl (or base if size 1000).
- ▶ Slightly turn the filter element to remove it from the spigot.
- ▶ Clean the filter components as needed.
- ▶ Check the seals on the filter bowl for damage and replace them as needed.
For compatible seal kits, see “Spare parts”.
- ▶ Wire mesh filter elements can be cleaned. For detailed cleaning instructions, see data sheet 51420.
- ▶ Slightly turn the new or cleaned filter element to install it on the spigot.
- ▶ Assembly is reverse of removal.
- ▶ Note the torque specifications (“Tightening torques”).
- ▶ Commission the system.

WARNING

- ▶ Only install or remove when system is not pressurized.
- ▶ Filter is pressurized.
- ▶ Only remove filter bowl 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.
- ▶ The safety and functionality of the filter are only guaranteed with original Bosch Rexroth spare parts.
- ▶ The warranty will be void if the delivery item is

modified or improperly mounted, installed, maintained, repaired or used by the ordering party or a third party, or exposed to environmental conditions exceeding our installation conditions.

Tightening torques

Mounting

Series 350...	LEN0040	LEN0063	LEN0100	LE0130	LE0150	LEN0160	LEN0250	LEN0400	LEN0630	LEN1000
Screw/tightening torque when $\mu_{total} = 0.14$ Nm [lb-ft]	M6/4.5 [3.3] ± 10%			M8/10.5 [7.7] ± 10%			M12/37 [27.3] ± 10%			
Quantity	4									
Recommended screw property class	8.8									
Min. screw-in depth mm [inch]	6 [0.24] + 1 [0.04]					10 [0.4] + 2 [0.08]				

Filter bowl and maintenance indicator

Series 350...	LEN0040	LEN0063	LEN0100	LE0130	LE0150	LEN0160	LEN0250	LEN0400	LEN0630	LEN1000
Filter bowl	Screw in filter bowl as far as it will go, then unscrew 1/8 to 1/2 turn									
Maintenance indicator Nm [lb-ft]	Max. 50 [36.9]									
EN 175301-803 switching element cubic connector screw Nm [lb-ft]	M3/0.5 [3.7]									

Directives and standardization

Classification according to the Pressure Equipment Directive

Inline filters for hydraulic applications as per 51422 are considered pressure holding equipment under Article 1 Section 2.1.4 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 “Compatibility with permitted hydraulic fluids” were considered for the classification. They do not receive a CE mark.

Use in explosive areas as per Directive 94/9/EC (ATEX)

Inline filters as per 51422 are not equipment or components in terms of Directive 94/9/EC and do not receive a CE mark. The ignition risk analysis showed that these inline filters do not have their own ignition sources as per DIN EN 13463-1:2009.

DIN EN 60079-14:2012 – be used in intrinsically safe electric circuits (Ex ib) in systems without requiring marking and certification. Inline filters and the electronic maintenance indicators described here can be used in the following explosive areas:

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

WE-1SP-M12x1 **R928028409**

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

are considered simple electronic operating equipment that does not have its own voltage source. This simple electronic operating equipment may – according to

	Zone suitability	
Gas	1	2
Dust	21	22

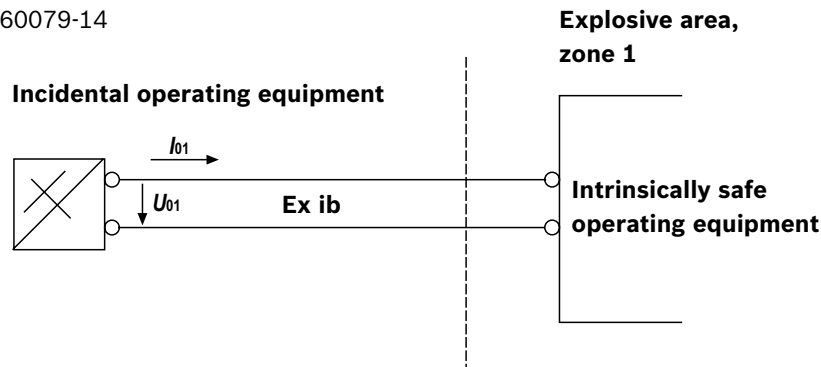
Directives and standardization

Complete filter with mech. visual maintenance indicator			
Use/classification		Gas 2G	Dust 2D
Classification		Ex II 2G c IIC TX	Ex II 2D c IIC TX
Medium conductivity	pS/m	min.	300
Dust accumulation		max.	-
			0.5 mm

Electronic switching element in intrinsically safe electric circuit			
Use/classification		Gas 2G	Dust 2D
Classification		Ex II 2G Ex ib IIB T4 Gb	Ex II 2D Ex ib IIIC T100 °C Db
Admissible intrinsically safe electric circuits		Ex ib IIC, Ex ic IIC	Ex ib IIIC
Technical data		Values only for intrinsically safe electric circuit	
Switching voltage	Vi	max.	150 V AC/DC
Switching current	Ii	max.	1.0 A
Switching power	Pi	max.	1.3 W T4 T _{max} 40 °C
		max.	1.0 W T4 T _{max} 80 °C
Surface temperature ¹⁾		max.	100 °C
Inner capacitance	Ci		Negligible
Inner inductance	Li		Negligible
Dust accumulation		max.	-
			0.5 mm

¹⁾ Temperature is based on the temperature of the medium in the filter and cannot exceed this value.

Possible circuit as per DIN EN 60079-14



⚠ 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.
- ▶ Make sure potential equalization is sufficient when using 51422 inline filters in explosive areas. Ground-

- ing the filter with mounting screws is recommended. Note that paint and oxide protective coating are not electrically conductive.
- ▶ When replacing filter element, remove packaging material from explosive area around replacement element.

👉 Important:

- ▶ Safety and functionality of the filter are only guaranteed with original Bosch Rexroth spare parts.

- ▶ Maintenance may only be performed by specialists on instruction of the owner in accordance with Directive 1999/92/EC Annex II Section 1.1.

Notes

Notes

Bosch Rexroth AG
Ketsch plant
Hardtwaldstrasse 43
68775 Ketsch, Germany
Phone +49 (0) 62 02 / 6 03-0
filter-support@boschrexroth.de
www.boschrexroth.com

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Our products are subject to a natural process of wear and aging.

Inline filter with filter element according to DIN 24550

Type 445LEN0040 to 1000

RE 51423

Issue: 2014-08

Replaces: 09.12



HAD7826_d

 Sizes according to **DIN 24550**: 0040 to 1000

Nominal pressure 450 bar [6527 psi]

Connection up to 2", SAE 2 1/2", SAE 24

Operating temperature: -10 °C ... +100 °C [+14 °F ... +212 °F]

Features

Inline filters are used in hydraulic systems for separating solid materials from fluids and lubricating oils. They are intended for attachment in pipelines.

They distinguish themselves by the following:

- Filters for inline installation
- Size 1000 with divided filter bowl
- 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
- Available as an option with different electronic switching elements, modular design
- Optional bypass valve integrated in the filter housing
- Optional measuring port
- High filtration performance due to the tangential cyclone-effect flow path

Contents

Features	1
Ordering code filter	2, 3
Version options	3
Preferred types	4
Ordering code accessories	5
Symbols	6
Function, section	7
Technical data	8, 9
Compatibility with permitted hydraulic fluids	9
Characteristic curves	10 ... 13
Dimensions	14 ... 19
Maintenance indicator	20
Ordering codes spare parts	21 ... 23
Assembly, commissioning and maintenance	24, 25
Tightening torques	25
Directives and standardization	26, 27

Ordering codes filter element

01	02	03	04	05	06	07	08	09	09	09
445LE	N		-		-	-	-	-	-	-

Series

01	Inline filter 450 bar [6527 psi]	445LE
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Filter element

02	With filter element according to DIN 24550	N
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Nominal size

03	LEN... (with filter element according to DIN 24550)	0040 0063 0100 0160 0250 0400 0630 1000
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Filter rating in μm

04	Absolute (ISO 16889 ; $\beta_x(c) \geq 200$) Glass fiber material, not cleanable	H3XL H6XL H10XL H20XL
	Nominal Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100

Pressure differential

05	Max. admissible pressure differential of the filter element 30 bar [435 psi] (with bypass valve)	A00
	Max. admissible pressure differential of the filter element 330 bar [4786 psi] (without bypass valve)	B00

Maintenance indicator

06	Maintenance indicator, mech./optical, switching pressure 5.0 bar [72.5 psi] – bypass cracking pressure 7 bar [101.53 psi]	V5,0
	Maintenance indicator, mech./optical, switching pressure 8.0 bar [116 psi] – without bypass valve	V8,0

Seal

07	NBR seal	M
	FKM seal	V

Connection

08	Frame size	0040	0063-0100	0160-0400	0630-1000	
	Connection					
	G1/2		X			R2
	G3/4	X	X			R3
	G1	X				R4
	G1 1/2					R6
	G2					R8
	SAE 1 1/2"			X		S6
	SAE 2"			X	X	S8
	SAE 2 1/2"				X	S9
	7/8-14 UNF-2B	X				U3
	1 1/16-12 UN-2B [SAE 12]		X			U4
1 7/8-12 UN-2B			X		U6	
<input checked="" type="checkbox"/> Standard connection <input type="checkbox"/> Alternative connection						

Ordering codes filter element

01	02	03	04	05	06	07	08	09	09	09
445LE	N		-		-	-	-	-	-	-

Supplementary information (for configuration options, see chapter “Version options”)

09	Outlet top, outlet opposite, inlet closed (only with size 0160 - 1000) ¹⁾	7
	Filter rotated 180°, filter bowl can be unscrewed to the top (only with size 0160 - 1000)	9
	Bleed function in the filter bowl, drain in the filter head	
	Additional threaded couplings G 1/4, on the side (only with size 0160 - 1000), not possible with 7 or 9	M
	Maintenance indicator on the right (only with size 0160 - 1000), not possible with M	V3
	Maintenance indicator on the left (only with size 0160 - 1000), not possible with M	V9
	Manufacturer's inspection certificate M according to DIN 55350 T18 Z1	Z1

¹⁾ The option can only be configured with SAE flange connection

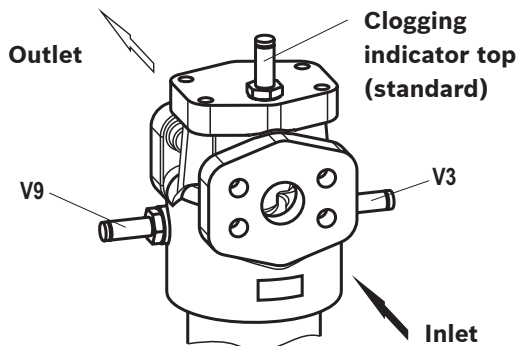
Order example:

445LEN0100-H3XLA00-V5,0-M-R4

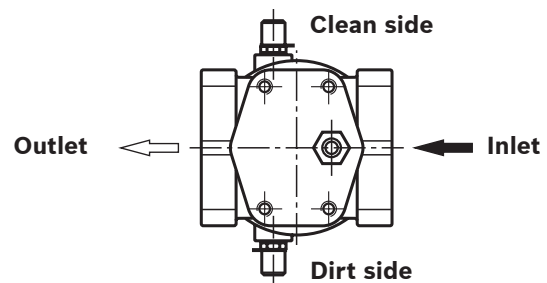
Further versions (filter materials, connections) are available on request.

Version options

Possible positions of the mechanical optical maintenance indicator

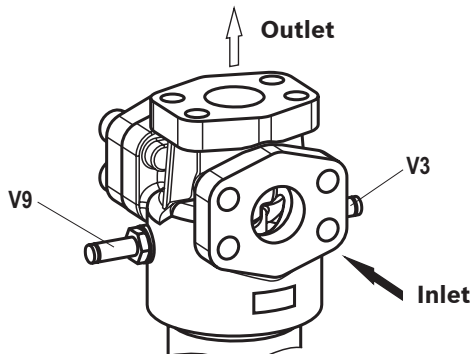


2 additional Minimes connections on the clean and dirt side



Cannot be combined with “7”, “9”, “V3” and “V9”

Outlet top – order option “7”
Outlet opposite inlet closed

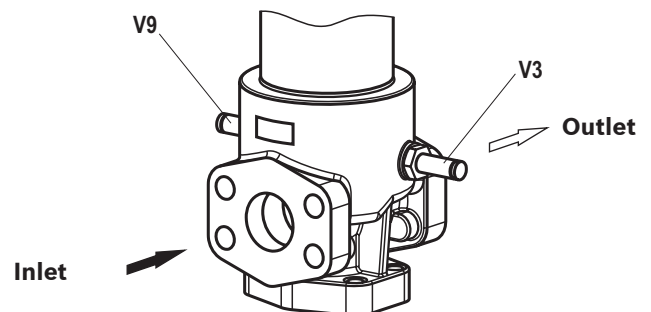


Cannot be combined with “M”!

Always specify the position of the clogging indicator (“V3” or “V9”)

In this version, the filter has no mounting possibility. The pipe mounting elements must be positioned close to the filter so that the filter weight can be held.

Filter rotated 180° – order option “9”
Filter bowl can be unscrewed from the top



Cannot be combined with “M”!

Always specify the position of the clogging indicator (“V3” or “V9”)

Preferred types

445LEN preferred types, NBR seal, flow specification for 30 mm²/s [142 SUS]

Inline filter with bypass, filter rating 3 µm

Type	Flow in l/min [gpm] at $\Delta p = 1.5 \text{ bar}$ [21.8 psi] ¹⁾	Material no. Filter				Material no. replacement element
		..R2	R928043216	..U3	R928043456	
445LEN0040-H3XLA00-V5,0-M-..	26 [6.87]	..R2	R928043216	..U3	R928043456	R928006645
445LEN0063-H3XLA00-V5,0-M-..	36 [9.51]	..R4	R928043217	..U4	R928043457	R928006699
445LEN0100-H3XLA00-V5,0-M-..	46 [12.15]	..R4	R928043218	..U4	R928043458	R928006753
445LEN0160-H3XLA00-V5,0-M-..	126 [33.29]	..R6	R928043221	..U6	R928043461	R928006807
445LEN0250-H3XLA00-V5,0-M-..	212 [56.01]	..R6	R928043222	..U6	R928043462	R928006861
445LEN0400-H3XLA00-V5,0-M-..	258 [68.16]	..R6	R928043223	..U6	R928043463	R928006915
445LEN0630-H3XLA00-V5,0-M-..	325 [85.86]	..R8	R928043224	..S8	R928043304	R928006969
445LEN1000-H3XLA00-V5,0-M-..	486 [128.40]	..R8	R928043225	..S8	R928043305	R928007023

Inline filter with bypass, filter rating 6 µm

Type	Flow in l/min [gpm] at $\Delta p = 1.5 \text{ bar}$ [21.8 psi] ¹⁾	Material no. Filter				Material no. replacement element
		..R2	R928043520	..U3	R928043760	
445LEN0040-H6XLA00-V5,0-M-..	33 [8.72]	..R2	R928043520	..U3	R928043760	R928006646
445LEN0063-H6XLA00-V5,0-M-..	55 [14.53]	..R4	R928043521	..U4	R928043761	R928006700
445LEN0100-H6XLA00-V5,0-M-..	69 [18.23]	..R4	R928043522	..U4	R928043762	R928006754
445LEN0160-H6XLA00-V5,0-M-..	175 [46.23]	..R6	R928043525	..U6	R928043765	R928006808
445LEN0250-H6XLA00-V5,0-M-..	253 [66.84]	..R6	R928043526	..U6	R928043766	R928006862
445LEN0400-H6XLA00-V5,0-M-..	298 [78.73]	..R6	R928043527	..U6	R928043767	R928006916
445LEN0630-H6XLA00-V5,0-M-..	406 [107.26]	..R8	R928043528	..S8	R928043608	R928006970
445LEN1000-H6XLA00-V5,0-M-..	505 [133.42]	..R8	R928043529	..S8	R928043609	R928007024

Inline filter with bypass, filter rating 10 µm

Type	Flow in l/min [gpm] at $\Delta p = 1.5 \text{ bar}$ [21.8 psi] ¹⁾	Material no. Filter				Material no. replacement element
		..R3	R928043904	..U3	R928044064	
445LEN0040-H10XLA00-V5,0-M-..	37 [9.77]	..R3	R928043904	..U3	R928044064	R928006647
445LEN0063-H10XLA00-V5,0-M-..	70 [18.49]	..R4	R928043825	..U4	R928044065	R928006701
445LEN0100-H10XLA00-V5,0-M-..	78 [20.60]	..R4	R928043826	..U4	R928044066	R928006755
445LEN0160-H10XLA00-V5,0-M-..	211 [55.75]	..R6	R928043829	..U6	R928044069	R928006809
445LEN0250-H10XLA00-V5,0-M-..	280 [73.98]	..R6	R928043830	..U6	R928044070	R928006863
445LEN0400-H10XLA00-V5,0-M-..	325 [85.86]	..R6	R928043831	..U6	R928044071	R928006917
445LEN0630-H10XLA00-V5,0-M-..	460 [121.53]	..R8	R928043832	..S8	R928043912	R928006971
445LEN1000-H10XLA00-V5,0-M-..	515 [136.06]	..R8	R928043833	..S8	R928043913	R928007025

¹⁾ 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 [inch])

Electronic switching element for maintenance indicators

01	02	03
WE	-	-

Maintenance indicator

01	Electronic switching element	WE
----	------------------------------	-----------

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	M12 x 1
	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-M12 x 1	Changeover	1	M12 x 1	without	
R928028410	WE-2SP-M12 x 1	Normally open (at 75%) / normally closed contact (at 100%)	2		EN 175301-803	3 pieces
R928028411	WE-2SPSU-M12 x 1					
R928036318	WE-1SP-EN175301-803	Normally closed contact	1			without

Mating connectors

for electronic switching element with round plug-in connection M12 x 1

Mating connector suitable for K24 4-pole, M12 x 1 with screw connection, cable gland Pg9.

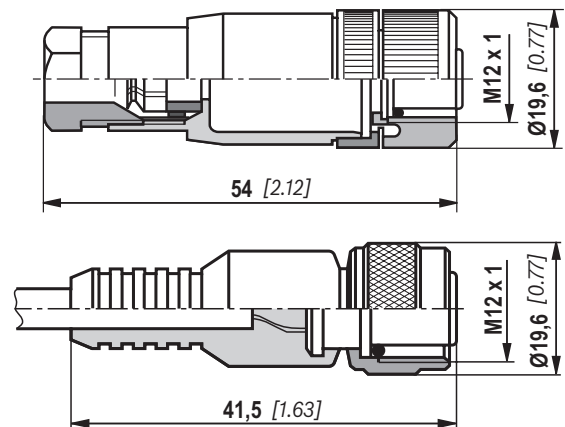
Material no. R900031155

Mating connector suitable for K24-3m 4-pole, M12 x 1 with potted-in PVC cable, 3 m long.

Line cross-section: 4 x 0.34 mm²

Core marking: **1** brown **2** white
 3 blue **4** black

Material no. R900064381



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

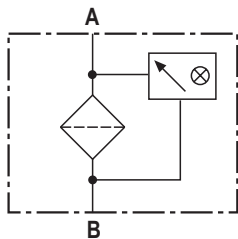
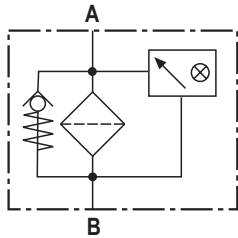
Order example:

Inline filter with mechanical optical maintenance indicator for $p_{Nominal} = 450 [6527 \text{ psi}]$ with bypass valve, Size 0160, with filter element 10 µm and electronic switching element M12 x 1 with 1 switching point.

Filter with mech. optical maintenance indicator:	445LEN0160-H10XLA00-V5,0-M-R6	Material no. R928043829
Switching element:	WE-1SP-M12 x 1	Material no. R928028409
Mating connector:	Mating connector suitable for K24 4-pole, M12 x 1 with screw connection, Cable gland Pg9.	Material no. R900031155

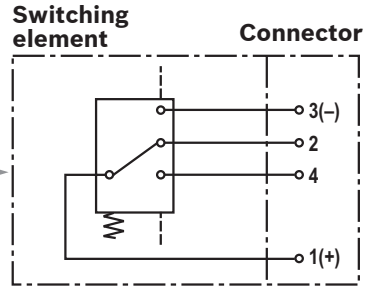
Symbols

Inline filter with bypass and mechanical indicator

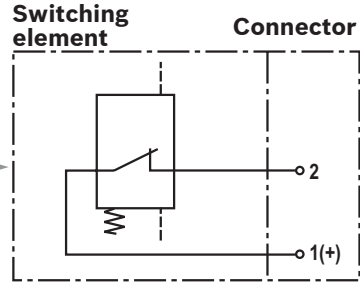


Inline filter without bypass and with mechanical indicator

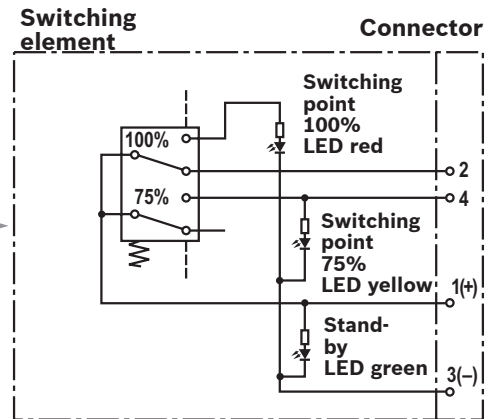
electronic switching element
for maintenance indicator



WE-1SP-M12 x 1

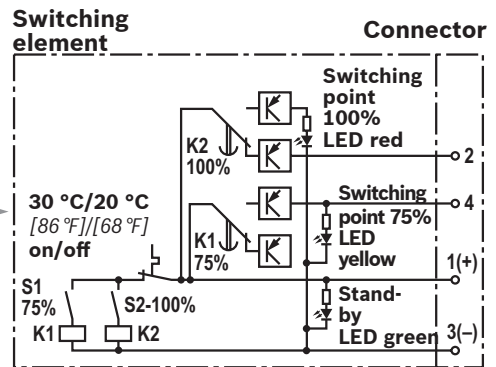


WE-1SP-EN175301-803



WE-2SP-M12 x 1

Circuit diagram drawn in plugged condition (operating state)



WE-2SPSU-M12 x 1

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

Function, section

The inline filter 445LEN is suitable for installation in pressure lines.

It basically consists of filter head (1), a screwable filter bowl (2) (size 1000 filter pipe with filter cover), filter element (3) as well as a mechanical optical maintenance indicator (4). In case of filters with low-pressure-differential-stable filter elements (= code letter pressure differential A), there is also an assembled bypass valve (5).

Via the inlet, the hydraulic fluid reaches the filter element (3) where it is cleaned. The dirt particles filtered out settle in the filter element (3). Via the outlet, the filtered hydraulic fluid enters the hydraulic circuit.

The filter housing and all connection elements are designed so that pressure peaks - as they may e.g. occur in case of abrupt opening of large control valves due to the accelerated fluid quantity - can be securely absorbed.

As of size 0160, the standard equipment comprises a drain screw (6). With the size 1000, the filter bowl has a two-part design. The filter pipe is secured against twisting in the filter head.

By default, the filter is equipped with mechanical optical maintenance indicator (4). The electronic switching element (7) 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.

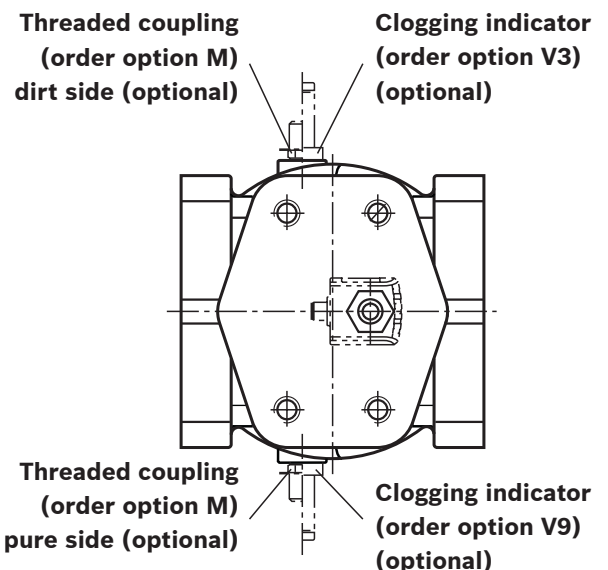
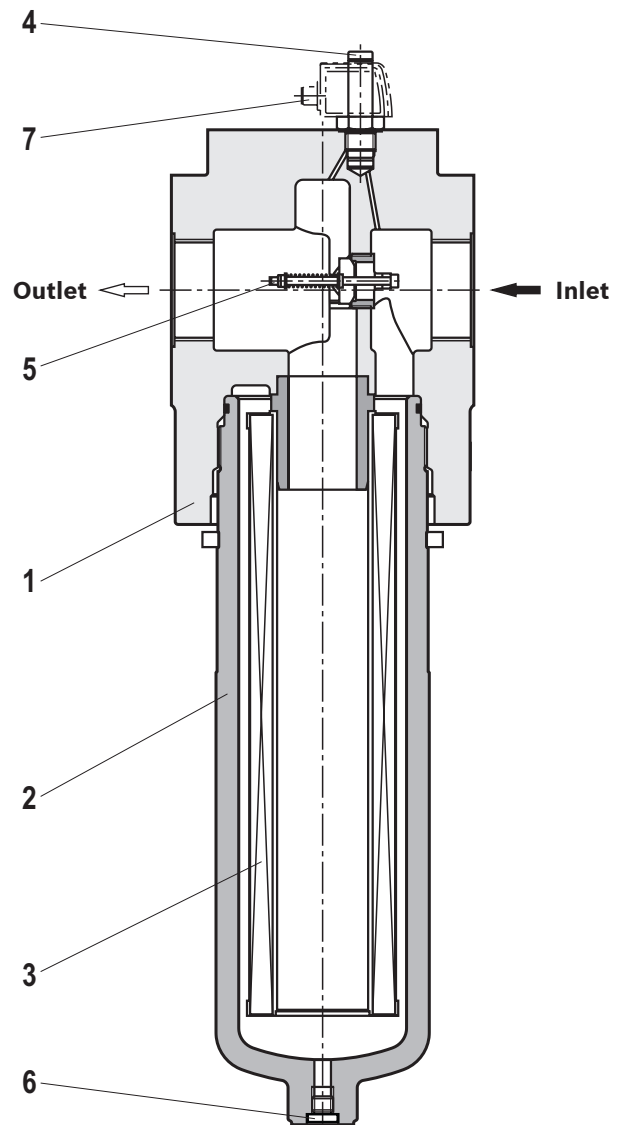
Variants

Order option supplementary information -7

The standard outlet is closed with a SAE blind flange. The outlet is mounted upwards, which means that the direction of flow is angled upwards by 90°.

Order option supplementary information -9

The bleeding is on the hexagon of the filter bowl. The drain function is located on the side of the filter head opposite the clogging indicator.



Type	Assembly position		
	Maintenance indicator	Bleeding	Draining
445LEN...			
0160-1000...9-V3	V3	On the filter bowl, top, G1/4	Opposite maintenance indicator
0160-1000...9-V9	V9		

Notice:

Configuration options see version options on page 3

Technical data

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

General						
Installation position		vertical				
Ambient temperature range		°C [°F] -10 ... +65 [+14 ... +149]; (briefly 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 %				
Weight	- Filters	NS	0040	0063	0100	0160
		kg [lbs]	4.4 [9.7]	5 [11.1]	5.9 [13.1]	24 [53.2]
		NS	0250	0400	0630	1000
		kg [lbs]	26 [57.7]	30 [66.5]	60 [133.1]	104 [230.7]
	- Filter bowl	NS	0040	0063	0100	0160
		kg [lbs]	1.33 [2.93]	1.33 [2.93]	2.1 [4.63]	5.52 [12.17]
		NS	0250	0400	0630	1000
		kg [lbs]	8.02 [17.68]	12.21 [26.91]	21.36 [47.08]	45.34 [99.93]
Volume	NS	0040	0063	0100	0160	
	l [US gal]	0.25 [0.06]	0.35 [0.09]	0.52 [0.13]	1.4 [0.36]	
	NS	0250	0400	0630	1000	
	l [US gal]	1.95 [0.51]	3.1 [0.81]	5.0 [1.32]	6.5 [1.71]	
Material	- Filter head	GGG				
	- Filter bowl	Steel				
	- Optical maintenance indicator	Brass				
	- Electronic switching element	Plastic PA6				
	- Bypass valve	Steel/POM				
	- Seals	NBR or FKM				

Hydraulic			
Maximum operating pressure	bar [psi]	450 [6527]	
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	Pressure differential		
Assignment: Response pressure of the maintenance indicator / cracking pressure of the bypass valve		Response pressure of the maintenance indicator	Cracking pressure of the bypass valve
	bar [psi]	5.0 ± 0.5 [72.5 ± 7.3]	7,0 ± 0,5 [101.5 ± 7.3]
		8.0 ± 0.8 [116 ± 11.6]	without bypass valve
Filtration direction	From the outside to the inside		

Technical data

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

Electric (electronic switching element)				
Electrical connection	Round plug-in connection M12 x 1, 4-pole			Standard connection EN 175301-803
	Version	WE-1SP-M12 x 1	WE-2SP-M12 x 1	WE-2SPSU-M12 x 1
				WE-1SP-EN175301-803
Contact load, direct voltage	A _{max.}	1		
Voltage range	V _{max.}	150 (AC/DC)	10 ... 30 (DC)	
Max. switching power with resistive load	W	20		70
Switching type	- 75% signal	-	Normally open contact	
	- 100% signal	Changeover	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	67		65
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]	
Filter element				
Glass fiber material H.XL	Single-use element on the basis of inorganic fiber			
		Filtration ratio according to ISO 16889 up to Δp = 5 bar [72.5 psi]	Achievable oil cleanliness according to ISO 4406 [SAE-AS 4059]	
Particle separation	H20XL	β _{20(c)} ≥ 200	19/16/12 ... 22/17/14	
	H10XL	β _{10(c)} ≥ 200	17/14/10 ... 21/16/13	
	H6XL	β _{6(c)} ≥ 200	15/12/10 ... 19/14/11	
	H3XL	β _{5(c)} ≥ 200	13/10/8 ... 17/13/10	
Admissible pressure differential	- A00	bar [psi]	30 [435]	
	- B00	bar [psi]	330 [4785]	

Compatibility with permitted hydraulic fluids

Hydraulic fluid	Classification	Suitable sealing materials	Standards
Mineral oil	HLP	NBR	DIN 51524
Biodegradable	- 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 P may not be used, filter elements with glass fiber material have to be used instead.

Biodegradable: 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

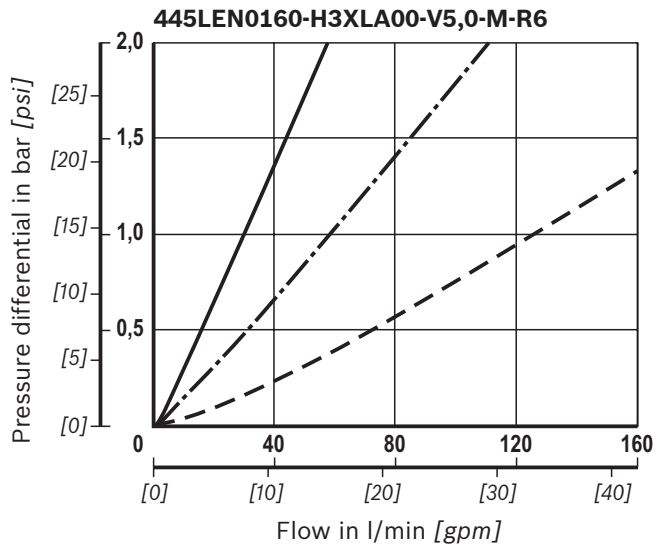
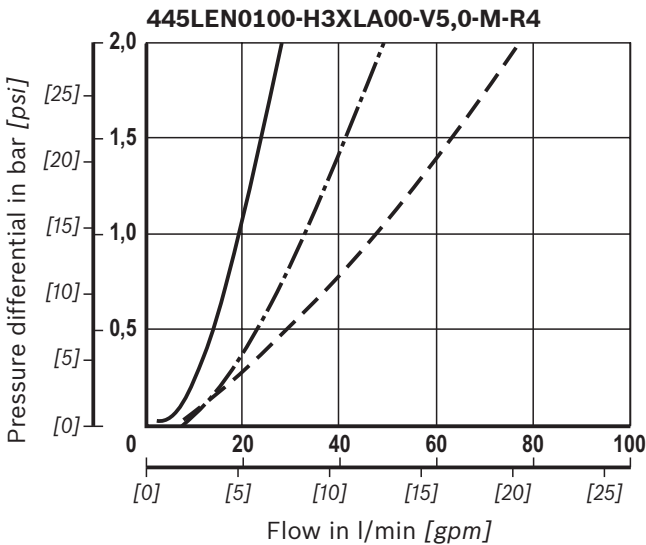
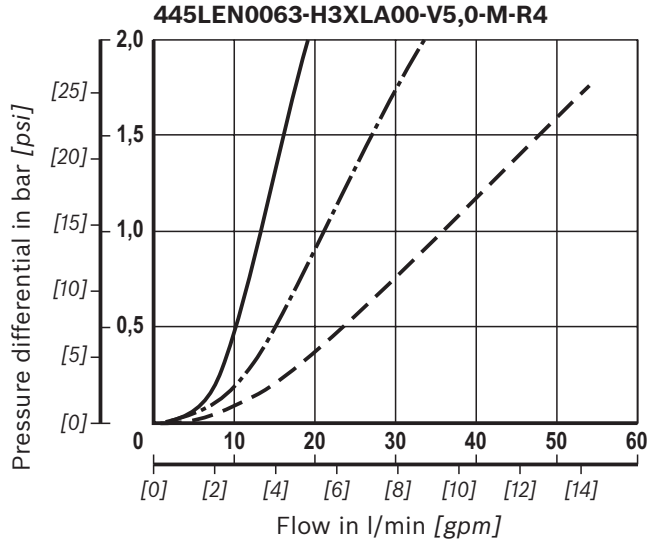
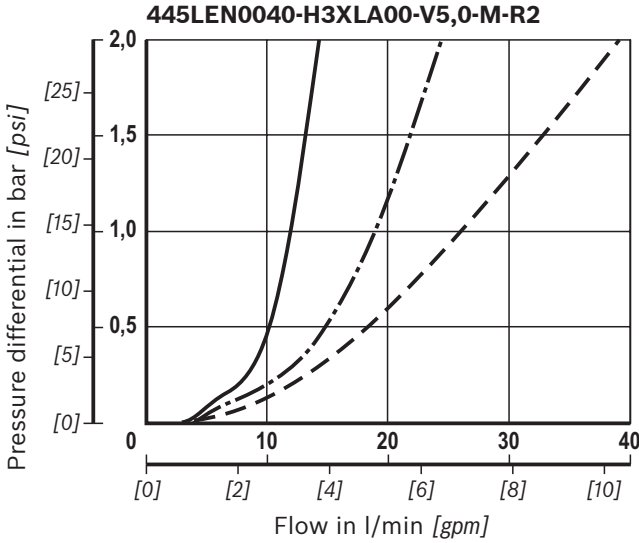
(measured with mineral oil HLP46 according to ISO 3968)

Spec. weight: < 0.9 kg/dm³

Δp -Q-characteristic curves for complete filters recommended initial Δp for version = 1.5 bar [21.8 psi]

Selection of the perfect filter is made possible by our online "Bosch Rexroth FilterSelect" design software.

Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



Characteristic curves

H3XL

(measured with mineral oil HLP46 according to ISO 3968)

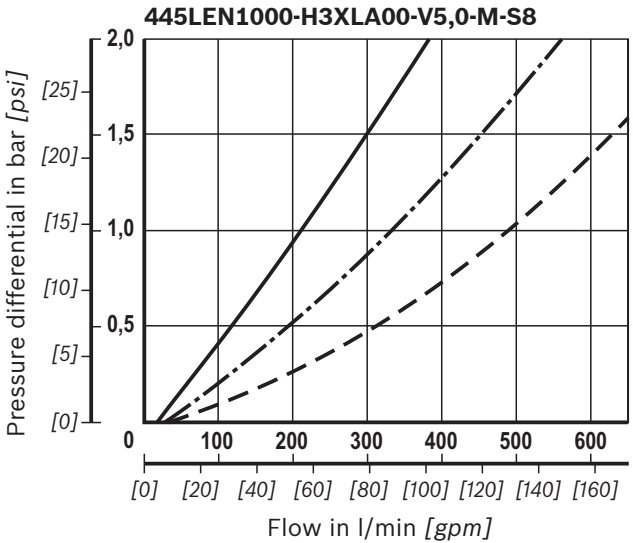
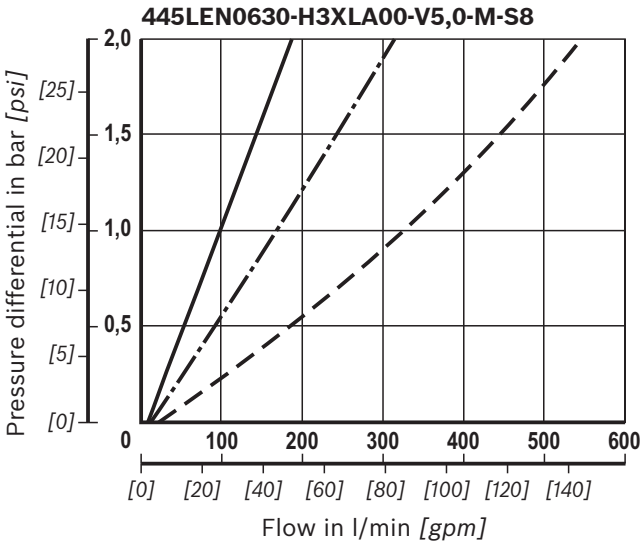
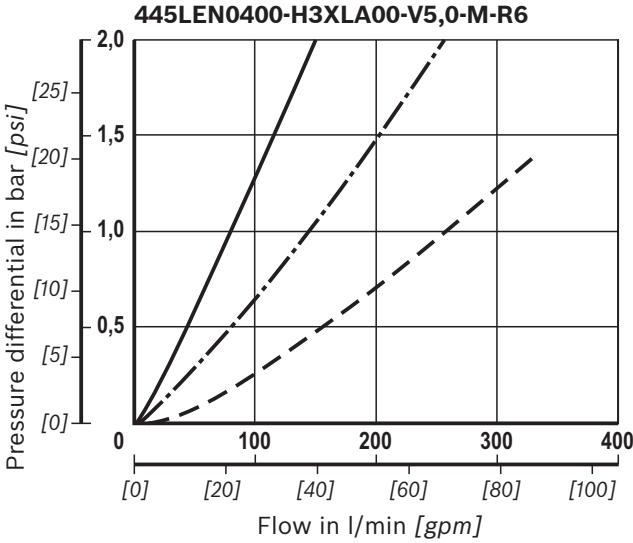
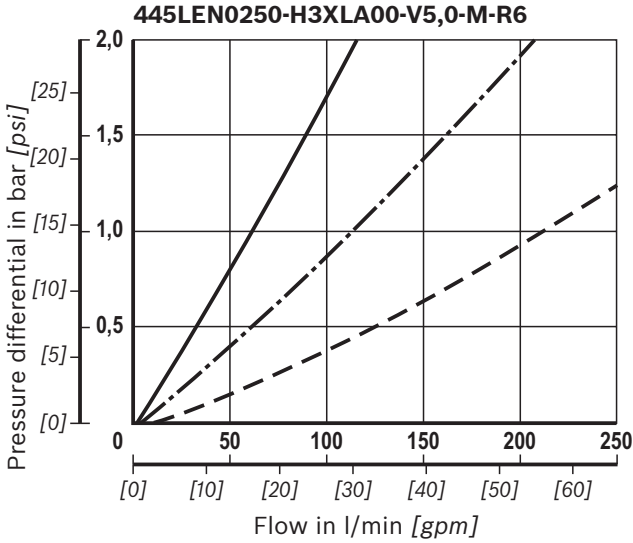
Spec. weight: < 0.9 kg/dm³

Δp -Q-characteristic curves for complete filters recommended initial Δp for version = 1.5 bar [21.8 psi]

Selection of the perfect filter is made possible by our online "Bosch Rexroth FilterSelect " design software.

Oil viscosity:

————	140 mm ² /s	[649 SUS]
- · - · -	68 mm ² /s	[315 SUS]
- - - -	30 mm ² /s	[143 SUS]



Characteristic curves

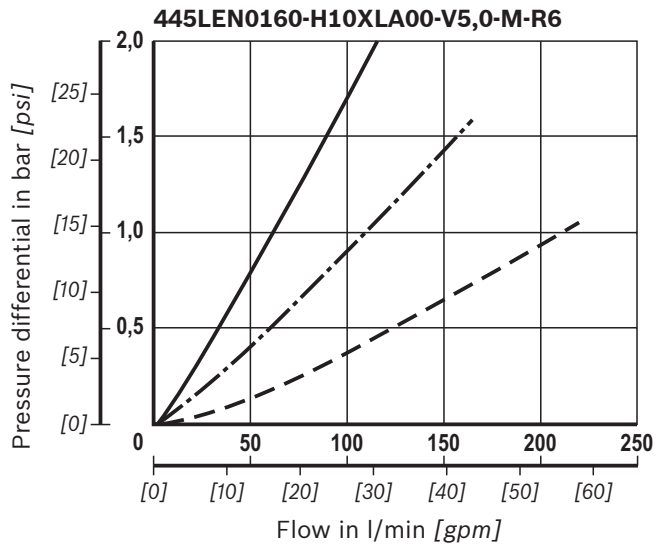
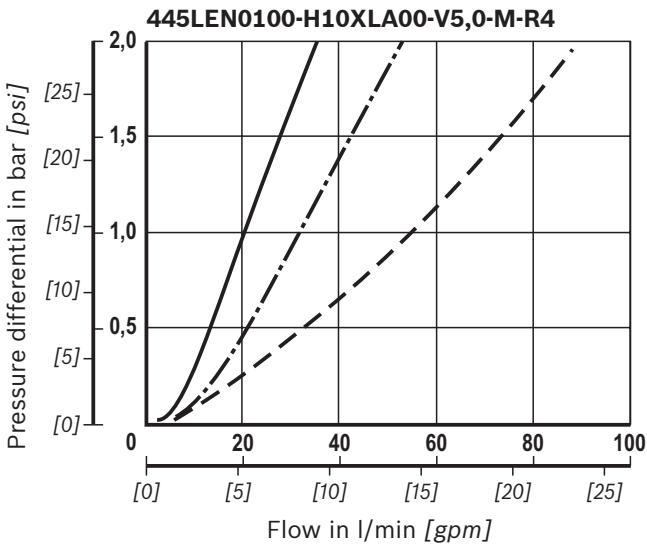
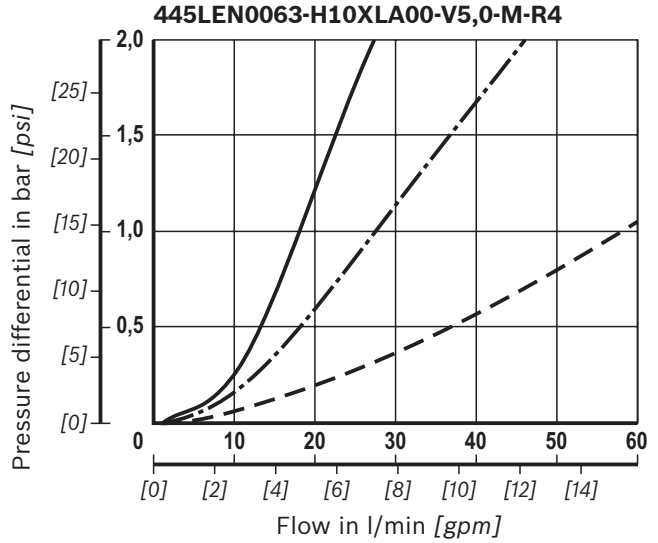
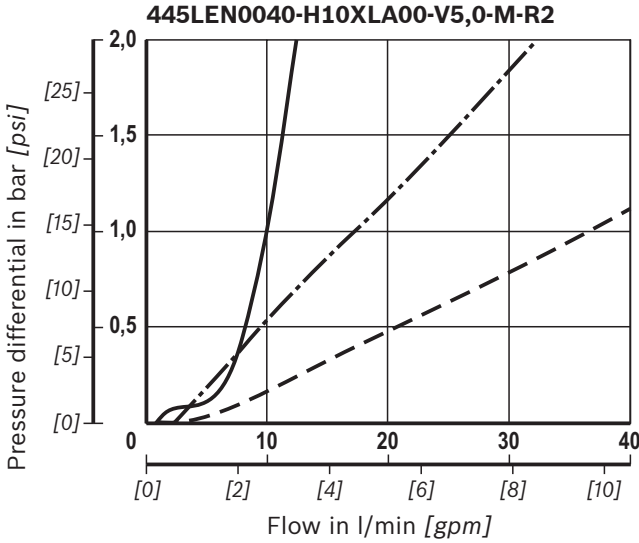
(measured with mineral oil HLP46 according to ISO 3968)

Spec. weight: < 0.9 kg/dm³

Δp -Q-characteristic curves for complete filters recommended initial Δp for version = 1.5 bar [21.8 psi]

Selection of the perfect filter is made possible by our online "Bosch Rexroth FilterSelect" design software.

Oil viscosity:
 — 140 mm²/s [649 SUS]
 - · - 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]



Characteristic curves

(measured with mineral oil HLP46 according to ISO 3968)

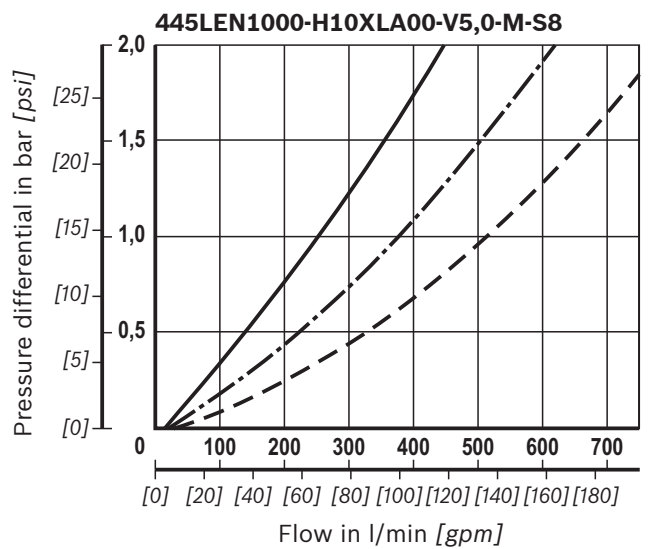
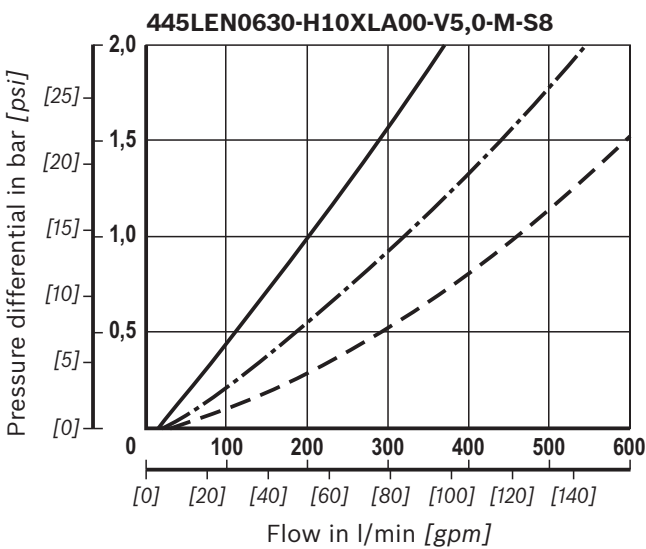
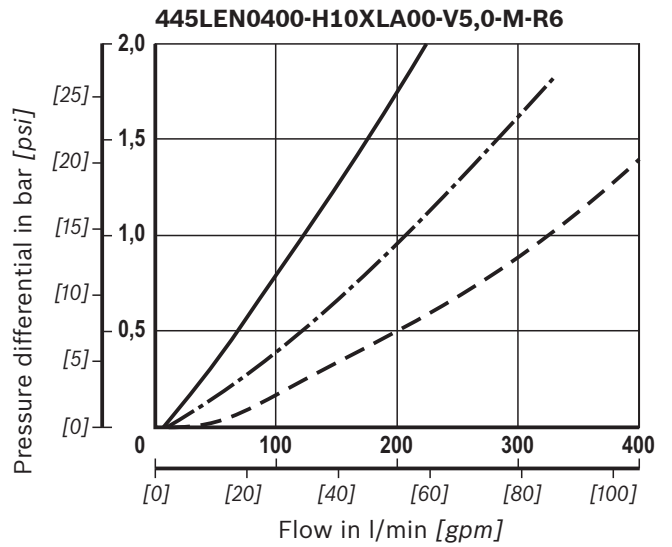
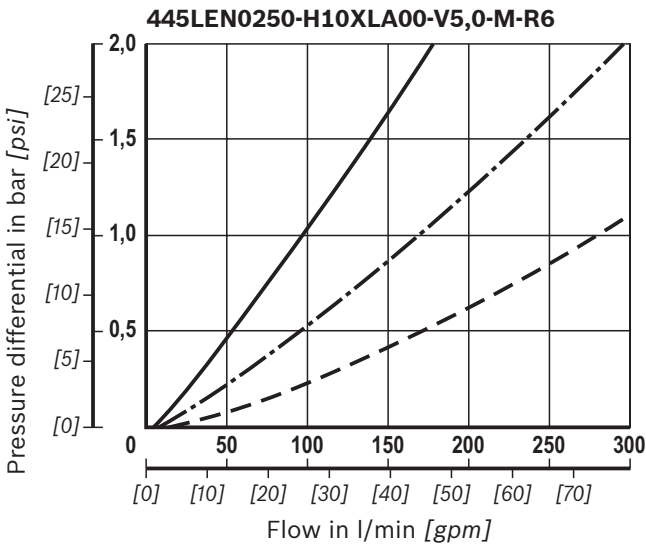
H10XL

Spec. weight: < 0.9 kg/dm³

Δp -Q-characteristic curves for complete filters recommended initial Δp for version = 1.5 bar [21.8 psi]

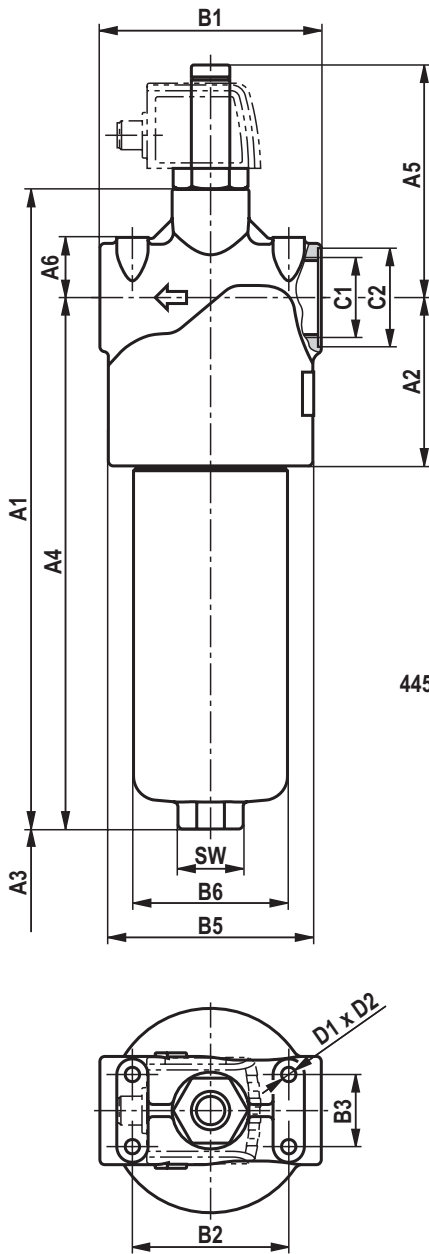
Selection of the perfect filter is made possible by our online “Bosch Rexroth FilterSelect “ design software.

Oil viscosity:
 ——— 140 mm²/s [649 SUS]
 - · - · 68 mm²/s [315 SUS]
 - - - 30 mm²/s [143 SUS]

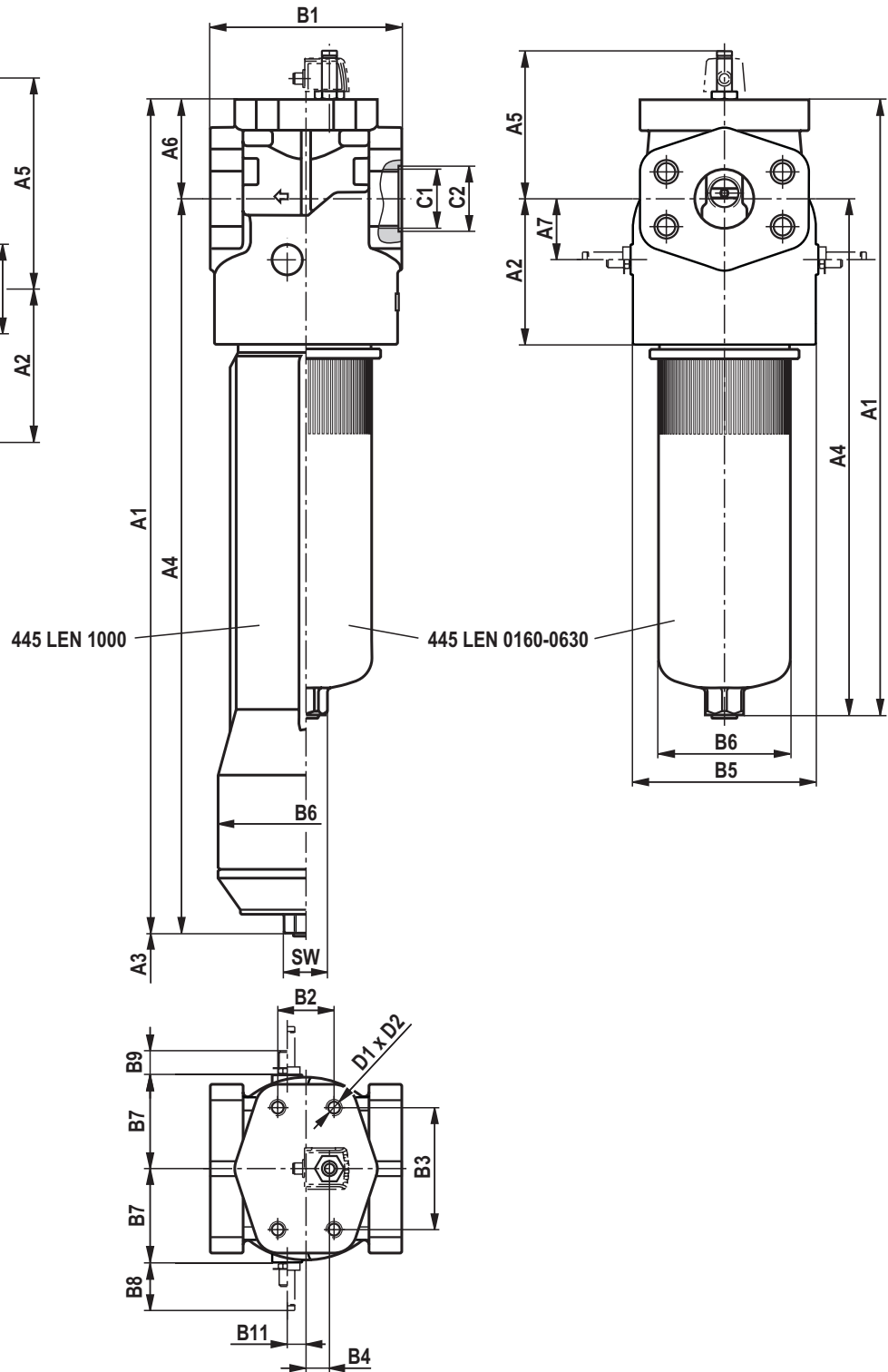


Dimensions: Size 0040 ... NG1000
(dimensions in mm [inch])

445LEN0040 ... 0100



445LEN0160 ... 1000



Dimensions: Size 0040 ... NG1000
 (dimensions in mm [inch])

445LEN...	A1	A2	A3 ¹⁾	A4	A5	A6	A7
0040	203 [7.99]	70 [2.76]	80 [3.15]	158 [6.22]	96.7 [3.81]	25 [0.98]	-
0063	266 [10.47]			221 [8.70]			
0100	356 [14.02]			311 [12.24]			
0160	344 [13.54]	110 [4.33]	120 [4.72]	262 [10.31]	133.7 [5.26]	82 [3.23]	46 [1.81]
0250	434 [17.09]			352 [13.86]			
0400	584 [22.99]			502 [19.76]			
0630	656 [25.83]	155 [6.10]	160 [6.30]	550 [21.65]	157.7 [6.21]	106 [4.17]	65 [2.56]
1000	893.5 [35.18]		630 [24.80]	787.5 [31.00]			

445LEN...	B1	B2	B3	B4	ØB5	ØB6	B7	B8	B9	B10	B11
0040	92 [3.62]	65 [2.56]	30 [1.18]	-	85 [3.35]	64 [2.52]	-	-	-	-	-
0063											
0100											
0160	164 [6.46]	55 [2.17]	105 [4.13]	30 [1.18]	150 [5.91]	114 [4.49]	80 [3.15]	51.7 [2.04]	29.3 [1.15]	128 [5.04]	20 [0.79]
0250											
0400											
0630											
1000	200 [7.87]	60 [2.36]	130 [5.12]	25 [0.98]	195 [7.68]	140 [5.51] 188 [7.40]	100 [3.94]			169 [6.65]	

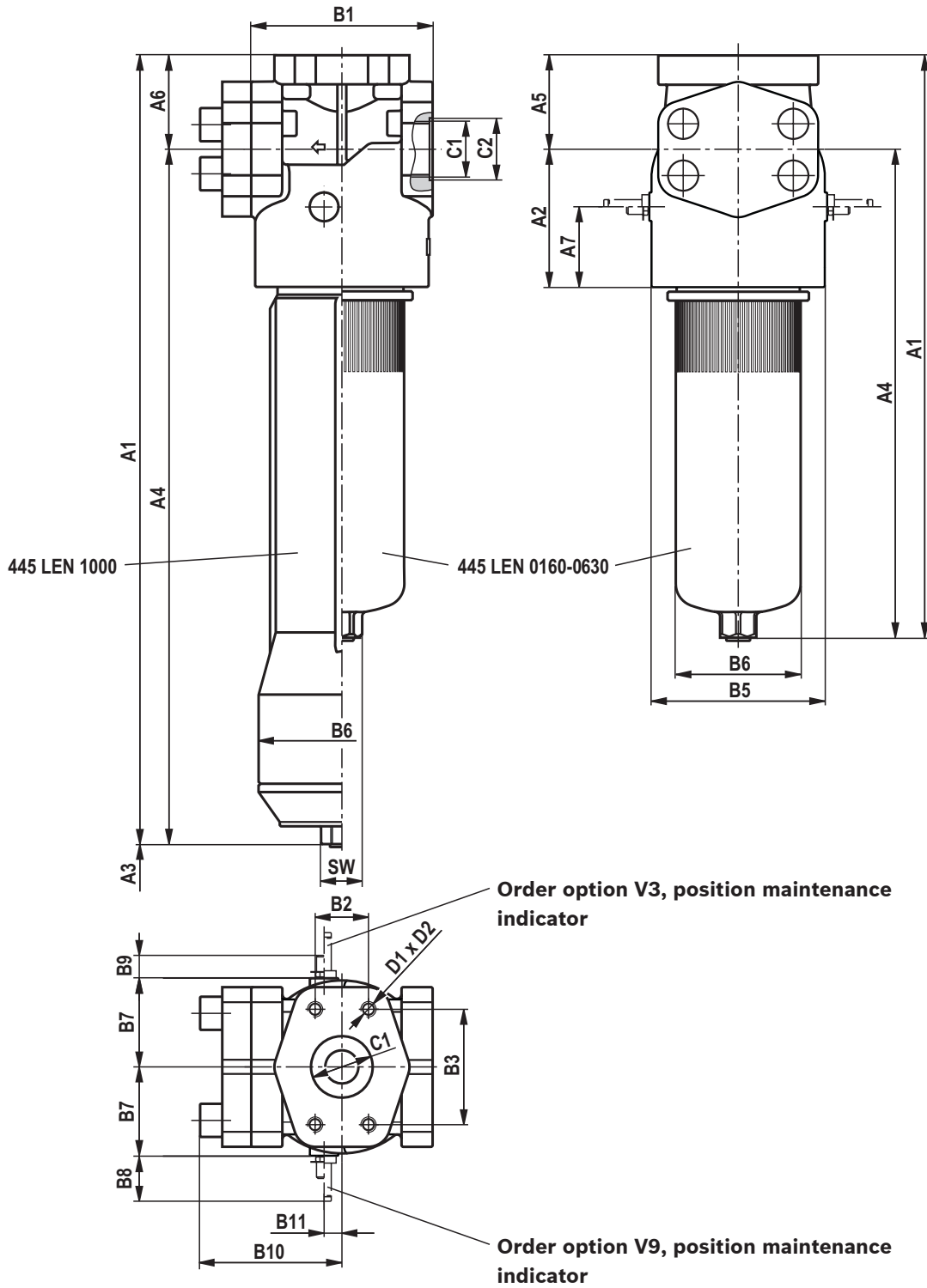
445LEN...	C1 connection						D1	D2	SW
	Standard R...	ØC2	Optional U...	ØC2	Optional S...	ØC2			
0040	G1/2	28 [1.10]	7/18-14 UNF-2B	34 [1.34]	-		M6	8 [0.31]	24 [0.94]
0063	G1	41 [1.61]	1 1/16 UN-2B	41 [1.61]					
0100									
0160	G1 1/2	56 [2.20]	1 7/8-12 UN-2B	65 [2.56]	SAE 1 1/2"	38 [1.50]	M12	28 [1.10]	32 [1.26]
0250					SAE 2"	51 [2.01]			
0400									
0630	G2	72 [2.83]	-	-	SAE 2 1/2"	63 [2.48]	M16	33 [1.30]	41 [1.61]
1000									

¹⁾ Servicing height for filter element exchange.

Dimensions: Size 0160 ... Size 1000 version 7
 (dimensions in mm [*inch*])

445LEN0160 ... 1000 version 7

Outlet top, outlet opposite inlet closed



Dimensions: Size 0160 ... Size 1000 version 7
 (dimensions in mm [inch])

445LEN...	A1	A2	A3	A4	A5	A6	A7
0160...7	344 [13.54]	110 [4.33]	120 [4.72]	262 [10.31]	82 [3.23]	82 [3.23]	46 [1.81]
0250...7	434 [17.09]			352 [13.86]			
0400...7	584 [22.99]			502 [19.76]			
0630...7	656 [25.83]	155 [6.10]	160 [6.30]	550 [21.65]	106 [4.17]	106 [4.17]	65 [2.56]
1000...7	893.5 [35.18]		630 [24.80]	787.5 [31.00]			

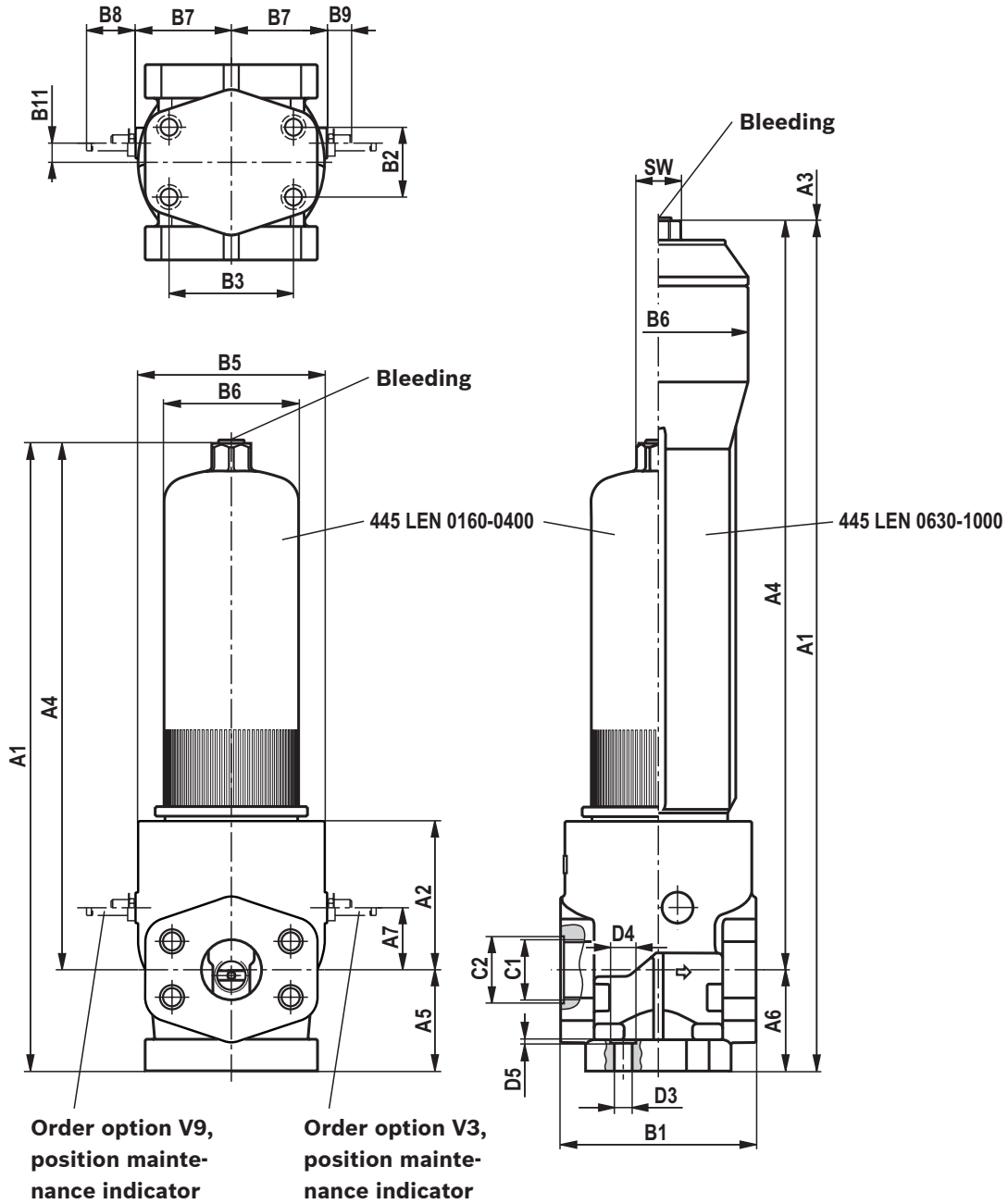
445LEN...	B1	B2	B3	B4	ØB5	ØB6	B7	B8	B9	B10	B11
0160...7	164 [6.46]	55 [2.17]	105 [4.13]	30 [1.18]	150 [5.91]	114 [4.49]	80 [3.15]	51.7 [2.04]	29.3 [1.15]	128 [5.04]	20 [0.79]
0250...7										169 [6.65]	
0400...7										169 [6.65]	
0630...7	200 [7.87]	60 [2.36]	130 [5.12]	25 [0.98]	195 [7.68]	140 [5.51]	100 [3.94]				
1000...7					188 [7.40]						

445LEN...	C1 connection						D1	D2	SW
	Standard R...	ØC2	Optional U...	ØC2	Optional S...	ØC2			
0160...7	G1 1/2	56 [2.20]	1 7/8-12 UN-2B	65 [2.56]	-		M12	28 [1.10]	32 [1.26]
0250...7									
0400...7									
0630...7	-	-	-	-	SAE 2"	51 [2.01]	M16	33 [1.30]	41 [1.61]
1000...7					SAE 2 1/2"	63 [2.48]			

Dimensions: Size 0160 ... Size 1000 version 9
(dimensions in mm [*inch*])

445LEN0160 ... 1000 version 9

Filter rotated 180°, filter bowl can be unscrewed to the top



Type	Maintenance indicator	Assembly position	
		Bleeding	Draining
445LEN0160-1000...9-V3	V3	On the filter bowl, top, G1/4	Opposite maintenance indicator
445LEN0160-1000...9-V9	V9		

Dimensions: Size 0160 ... Size 1000 version 9
 (dimensions in mm [inch])

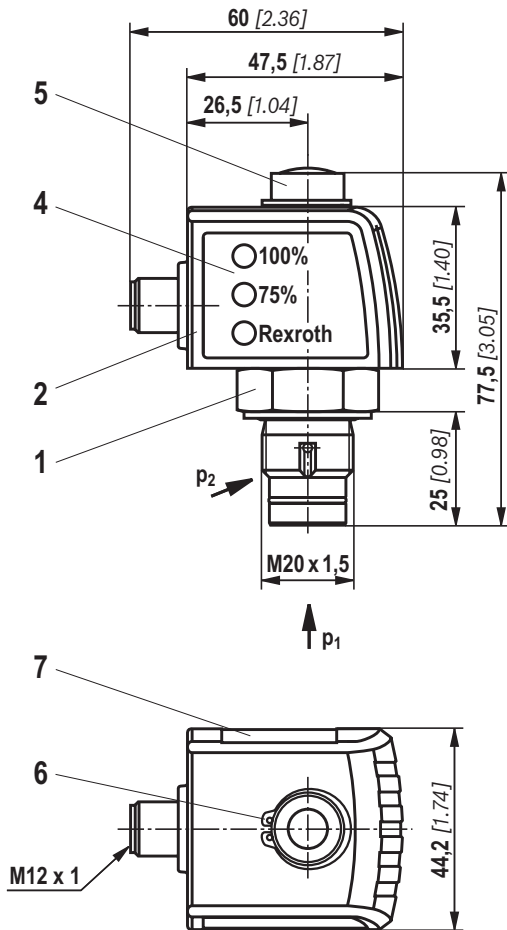
445LEN...	A1	A2	A3	A4	A5	A6	A7
0160...9	344 [13.54]	110 [4.33]	160 [6.30]	262 [10.31]	82 [3.23]	82 [3.23]	46 [1.81]
0250...9	434 [17.09]		250 [9.84]	352 [13.86]			
0400...9	584 [22.99]		400 [15.75]	502 [19.76]			
0630...9	656 [25.83]	155 [6.10]	160 [6.30]	550 [21.65]	106 [4.17]	106 [4.17]	65 2.56]
1000...9	893.5 [35.18]		630 [24.80]	787.5 [31.00]			

445LEN...	B1	B2	B3	B4	ØB5	ØB6	B7	B8	B9	B10	B11
0160...9	164 [6.46]	55 [2.17]	105 [4.13]	30 [1.18]	150 [5.91]	114 [4.49]	80 [3.15]	51.7 [2.04]	29.3 [1.15]	128 [5.04]	20 [0.79]
0250...9										169 [6.65]	
0400...9										169 [6.65]	
0630...9	200 [7.87]	60 [2.36]	130 [5.12]	25 [0.98]	195 [7.68]	140 [5.51]	100 [3.94]				
1000...9						188 [7.40]					

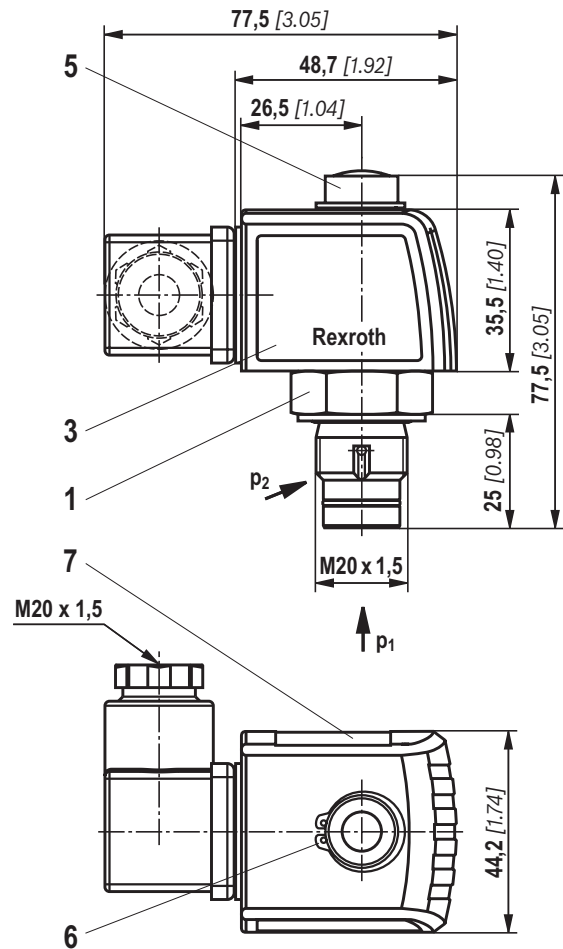
445LEN...	C1 connection						ØD3	ØD4	D5	SW
	Standard R...	ØC2	Optional U...	ØC2	Optional S...	ØC2				
0160...9	G1 1/2	56 [2.20]	1 7/8-12 UN-2B	65 [2.56]	-		14 [0.55]	20 [0.79]	1 [0.04]	32 [1.26]
0250...9										41 [1.61]
0400...9										
0630...9	-	-	-	-	SAE 2"	51 [2.01]	18 [0.71]	26 [1.02]		
1000...9					SAE 2 1/2"	63 [2.48]				

Maintenance indicator (dimensions in mm [inch])

Pressure differential indicator with mounted switching element M12 x 1



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 M12 x 1, 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: 24V =
green: Stand-by
yellow: Switching point 75%
red: Switching point 100%
- 5 Visual indicator bistable
- 6 Locking ring DIN 471-16 x 1, **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.			-	-	0

Filter element

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

Nominal size

02	LEN... (with filter element according to DIN 24550)	0040 0063 0100 0160 0250 0400 0630 1000
----	--	--

Filter rating in µm

03	Absolute (ISO 16889 ; Glass fiber material, not cleanable β_x(c) ≥ 200)	H3XL H6XL H10XL H20XL
	Nominal Stainless steel wire mesh, cleanable	G10 G25 G40 G60 G100

Pressure differential

04	Max. admissible pressure differential of the filter element 30 bar [435 psi] – filter with bypass valve	A00
	Max. admissible pressure differential of the filter element 330 bar [4786 psi] – filter without bypass valve	B00

Bypass valve

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

Seal

06	NBR seal	M
	FKM seal	V

Order example:

2.0100 H3XL-A00-0-M

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

Preferred program replacement filter element

Replacement filter element 3 micron		Replacement filter element 6 micron		Replacement filter element 10 micron	
R928006645	2.0040 H3XL-A00-0-M	R928006646	2.0040 H6XL-A00-0-M	R928006647	2.0040 H10XL-A00-0-M
R928006699	2.0063 H3XL-A00-0-M	R928006700	2.0063 H6XL-A00-0-M	R928006701	2.0063 H10XL-A00-0-M
R928006753	2.0100 H3XL-A00-0-M	R928006754	2.0100 H6XL-A00-0-M	R928006755	2.0100 H10XL-A00-0-M
R928006807	2.0160 H3XL-A00-0-M	R928006808	2.0160 H6XL-A00-0-M	R928006809	2.0160 H10XL-A00-0-M
R928006861	2.0250 H3XL-A00-0-M	R928006862	2.0250 H6XL-A00-0-M	R928006863	2.0250 H10XL-A00-0-M
R928006915	2.0400 H3XL-A00-0-M	R928006916	2.0400 H6XL-A00-0-M	R928006917	2.0400 H10XL-A00-0-M
R928006969	2.0630 H3XL-A00-0-M	R928006970	2.0630 H6XL-A00-0-M	R928006971	2.0630 H10XL-A00-0-M
R928007023	2.1000 H3XL-A00-0-M	R928007024	2.1000 H6XL-A00-0-M	R928007025	2.1000 H10XL-A00-0-M

Ordering code spare parts

Mechanical optical maintenance indicator

01	02	03	04	05	06
W	O	-	D01	-	-
					450

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

02	Mechanical optical indicator	O
----	------------------------------	----------

Version

03	Pressure differential, modular design	D01
----	---------------------------------------	------------

Switching pressure

04	5.0 bar [72.5 psi]	5,0
	8.0 bar [116 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

Mechanical optical maintenance indicator	Material no.
WO-D01-5.0-M-450	R901025313
WO-D01-5.0-V-450	R901066235
WO-D01-8.0-M-450	R928038785
WO-D01-8.0-V-450	R928038784

**Ordering code
spare parts**

Seal kit

01	02	03	04
D	350/445LEN		-

01	Seal kit	D
02	Series 445LEN	350/445LEN

Nominal size

03	Size 0040-0100	0040-0100
	Size 0160-0400	0160-0400
	Size 0630	0630
	Size 1000	1000

Seal

04	NBR seal	M
	FKM seal	V

Seal kit	Material no.
D350/445LEN0040-0100-M	R928028527
D350/445LEN0040-0100-V	R928028528
D350/445LEN0160-0400-M	R928028532
D350/445LEN0160-0400-V	R928028533
D350/445LEN0630-M	R928028536
D350/445LEN0630-V	R928028529
D350/445LEN1000-M	R928028537
D350/445LEN1000-V	R928028534

Assembly, commissioning, maintenance

Installation

The max. operating pressure of the system must not exceed the max. admissible operating pressure of the filter (see type plate).

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”) must be taken into account.

Easy filter element exchange is guaranteed in the installation position filter bowl vertically downwards. For filters with order option - supplementary information 9 - the installation position of the filter bowl is vertically upwards. The maintenance indicator must be arranged in a well visible way.

Remove the plastic plugs in the filter inlet and outlet. Ensure that the system is assembled without tension stress.

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

Commission the system.

Notice:

There is no bleeding provided at the filter. However, some sizes or variants have optional threaded couplings which may also be used for bleeding.

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 and cleaned respectively. More details see data sheet 51450

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.

Decommission the system.

The operating pressure is to be release on the system side.

Notice:

There is no bleeding provided at the filter. However, some sizes or variants have optional threaded couplings which may also be used for bleeding.

Via the drain screw (from size 0160 fitted by default), the oil on the dirt side can be drained.

Unscrew filter bowl (or base with size 1000).

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 renew 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. **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.

Commission the system and bleed the filter for order option - supplementary information 9

WARNING!

Only with order option - supplementary information 9 - upwards installation position of the filter bowl is permitted. This variant guarantees safe bleeding.

Assembly, commissioning, maintenance

WARNING!

Assembly and disassembly only with depressurized system!
 Filter is under pressure!
 Remove the filter bowl only if it is not under pressure!
 Do not exchange the mechanical-optical maintenance

indicator while the filter is under pressure!
 If the flow direction is not considered during assembly, the filter element will be destroyed. Particles get in system and damage the following components.

Notices:

All works at the filter only be trained specialists. Functioning and safety are only guaranteed if original Bosch Rexroth 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 torques (dimensions in mm [inch])

Mounting

Series 445LEN...	0040	0063	0100	0160	0250	0400	0160	0250
Screw/tightening torque with $\mu_{total} = 0.14$	M6 / 10.4 Nm \pm 10 %			M12 / 37 Nm \pm 10 %			M16 / 90 Nm \pm 10 %	
Quantity	4							
Recommended property class of screw	8.8							
Minimum screw-in depth	6 mm + 2 mm [0.24 + 0.08]			18 mm + 4 mm [0.7 + 0.16]			24 mm + 4 mm [0.94 + 0.16]	

Filter bowl and maintenance indicator

Series 445LEN...	0040	0063	0100	0160	0250	0400	0160	0250
Tightening torque filter bowl	Screw in the filter bowl to the stop, unscrew the filter bowl again by 1/8 to 1/2 rotation							
Tightening torque maintenance indicator	Max. 50 Nm							
Tightening torque cubic connector screw switching element EN-175301-803	M3/0.5 Nm							

Directives and standardization

Classification according to the Pressure Equipment

Directive

The inline filters for hydraulic applications according to 51423 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).

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

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

The inline filters according to 51423 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 inline filters do not have own ignition sources acc. to DIN EN 13463-1:2009.

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 inline filters and the electronic maintenance indicators described here can be used for the following explosive areas

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

WE-1SP-M12 x 1 R928028409

WE-1SP-EN175301-803 R928036318

are simple, electronic operating equipment that do not

	zone suitability	
Gas	1	2
Dust	21	22

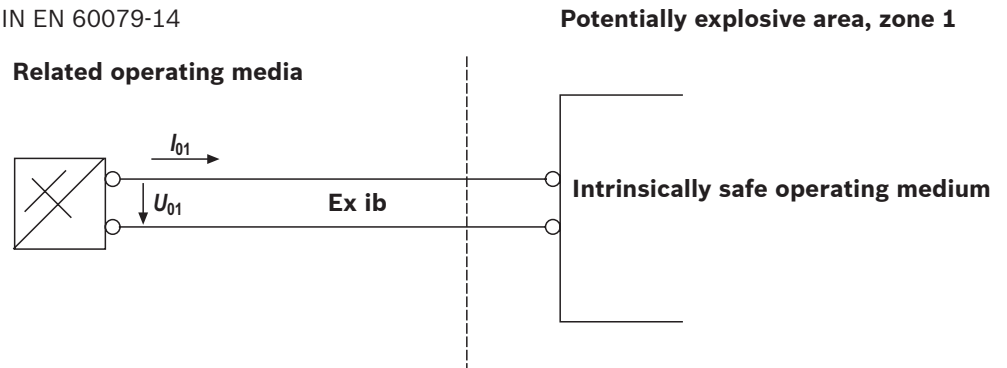
Complete filter with mech./opt. Maintenance indicator				
Use /assignment			Gas 2G	Dust 2D
Assignment			Ex II 2G c IIC TX	Ex II 2D c IIC TX
Conductivity of the medium	pS/m	min	300	
Dust accumulation		max	-	0.5 mm

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 IIC T100°C Db
perm. intrinsically safe electric circuits			Ex ib IIC, Ex ic IIC	Ex ib IIC
Technical data			Values only for intrinsically safe electric circuit	
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	750 mW T _{max} 40
		max	1.0 W T4 T _{max} 80	550 mW T _{max} 100
Surface temperature ¹⁾		max	-	100
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.

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. admissible ignition temperature is not exceeded.
 When using the inline filters in accordance with 51423 in potentially explosive areas, appropriate equipotential bonding has to be ensured. The filter is preferably

to be earthed 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 potentially 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 Rexroth spare parts

Notes

Bosch Rexroth AG
Werk Ketsch
Hardtwaldstr. 43
68775 Ketsch, Germany
Telefon +49 (0) 62 02/603-0
filter-support@boschrexroth.de
www.boschrexroth.de

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