# Inline filters
# with filter element according to DIN 24550

## Type 245LEN0040 to 0400; 245LE0130, 0150

**RE 51421**
Edition: 2014-08
Replaces: 07.11


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

## 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**<br>**0063**<br>**0100**<br>**0160**<br>**0250**<br>**0400** |
| | LE... | **0130**<br>**0150** |

**Filter rating in µm**

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

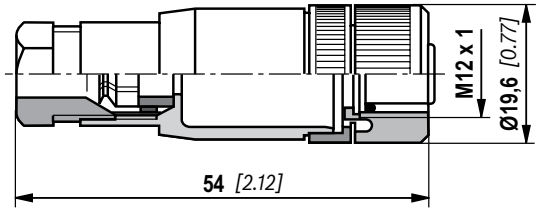
| Material no. | Type | Signal | Switching points | Connector | LED |
|---|---|---|---|---|---|
| **R928028409** | WE-1SP-M12 x 1 | Changeover | 1 | M12 x 1 | without |
| **R928028410** | WE-2SP-M12 x 1 | Normally open (at 75%) / normally closed contact (at 100%) | 2 | | 3 pieces |
| **R928028411** | 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

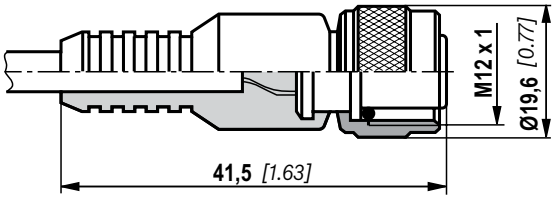
Mating connector suitable for K24 4-pole, M12 x 1with screw connection, cable gland Pg9.

**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**



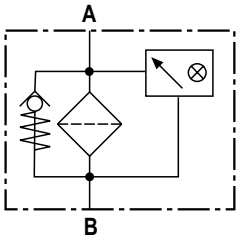

For more round plug-in connections and technical data refer to data sheet 08006.

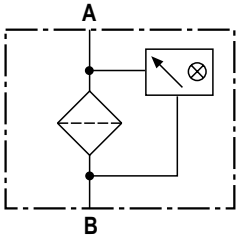
**Order example:**
Inline filter with mechanical optical maintenance indicator for $p_{nom.}$ = 250 bar *[3628 psi]* with bypass valve, size 0100, with filter element 10 µm and electronic switching element M12x1 with 1 switching point for hydraulic fluid mineral oil HLP according to DIN 51524.

| | | |
|---|---|---|
| **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 1with screw connection, cable gland Pg9. | **Material no. R900031155** |

## Symbols

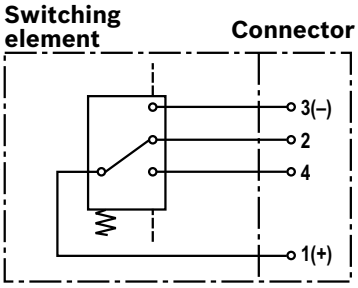
**Inline filter** with bypass and mechanical indicator



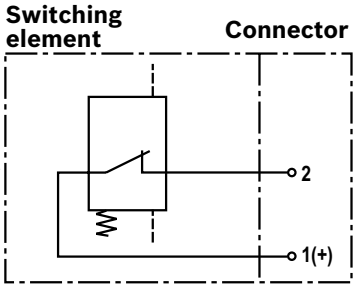




**Inline filter** without bypass and with mechanical indicator

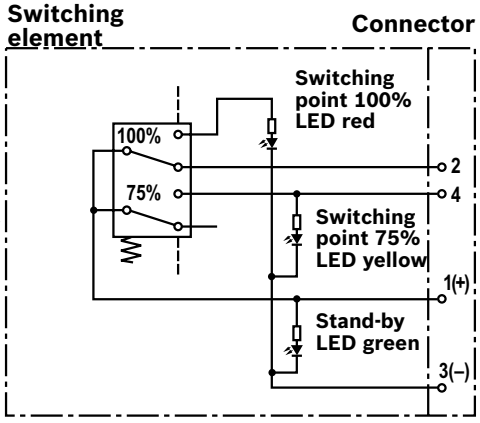
**Electronic switching element for maintenance indicator**




**WE-1SP-M12 x 1**

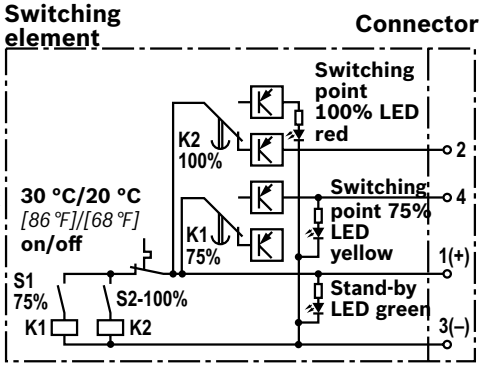



**WE-1SP-EN175301-803**




**WE-2SP-M12 x 1**

Circuit diagram drawn in plugged condition (operating state)



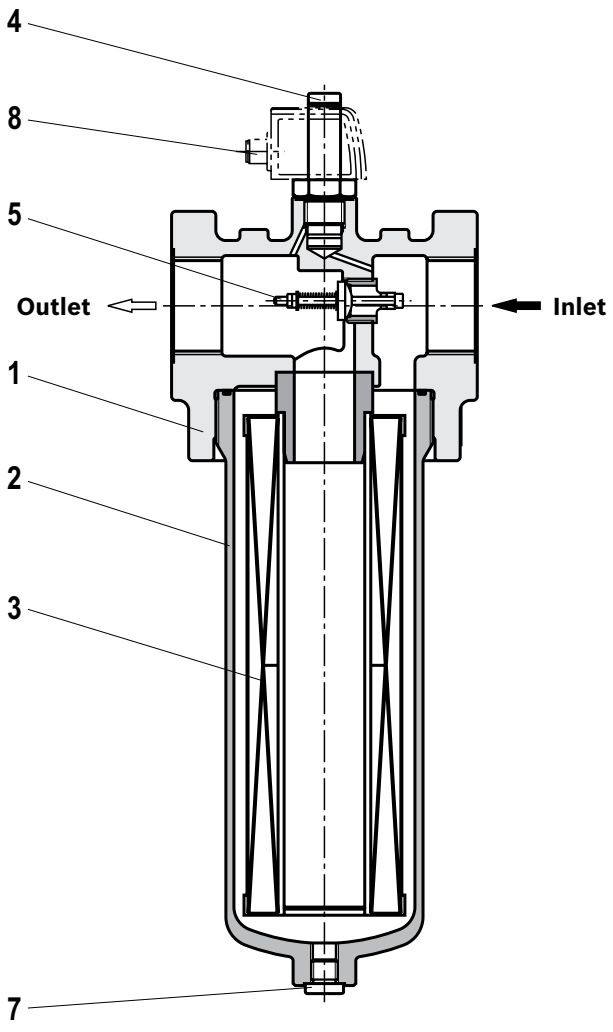

**WE-2SPSU-M12 x 1**

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 | 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 | | |

## 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) | | 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]* | |
| 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 $\Delta p$ = 5 bar *[72.5 psi]* | Achievable oil cleanliness according to ISO 4406 *[SAE-AS 4059]* |
| Particle separation | | H20XL | $\beta_{20(c)} \geq 200$ | 19/16/12 ... 22/17/14 |
| | | H10XL | $\beta_{10(c)} \geq 200$ | 17/14/10 ... 21/16/13 |
| | | H6XL | $\beta_{6(c)} \geq 200$ | 15/12/10 ... 19/14/11 |
| | | H3XL | $\beta_{5(c)} \geq 200$ | 13/10/8 ... 17/13/10 |
| 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 | NBR | VDMA 24568 |
| | | HEES | FKM | |
| | – soluble in water | HEPG | FKM | VDMA 24568 |
| Flame-resistant | – water-free | HFDU, HFDR | FKM | 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) 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

**H3XL**

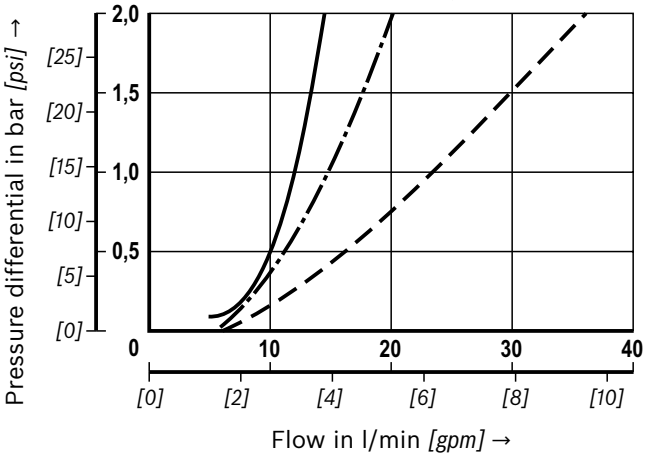
(measured with mineral oil HLP46 according to ISO 3968)

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

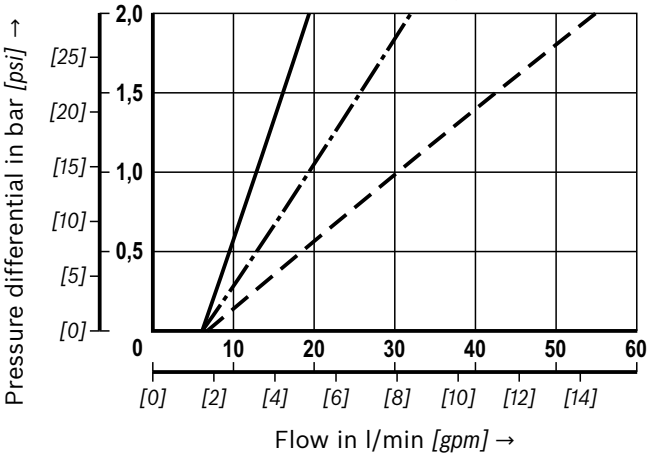
A proper filter design is made possible by our online "Bosch Rexroth FilterSelect" design software.

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

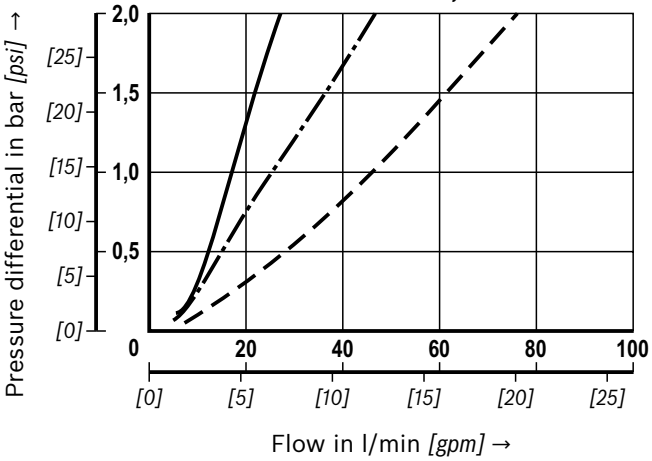
**245LEN0040-H3XLA00-V5,0-M-R2**



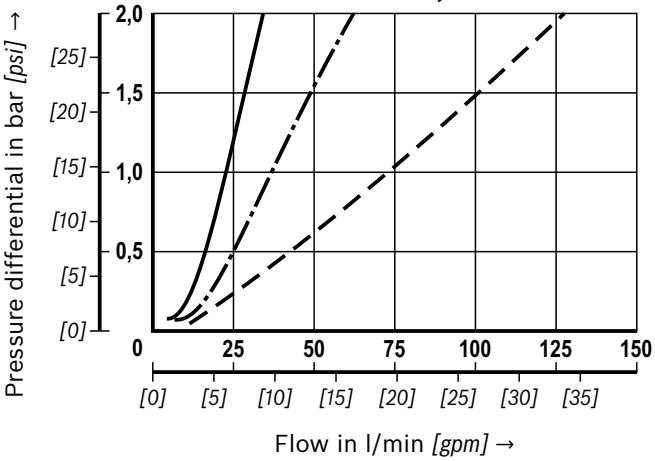

**245LEN0063-H3XLA00-V5,0-M-R4**




**245LEN0100-H3XLA00-V5,0-M-R4**




**245LE0130-H3XLA00-V5,0-M-R5**



## Characteristic curves

**H3XL**

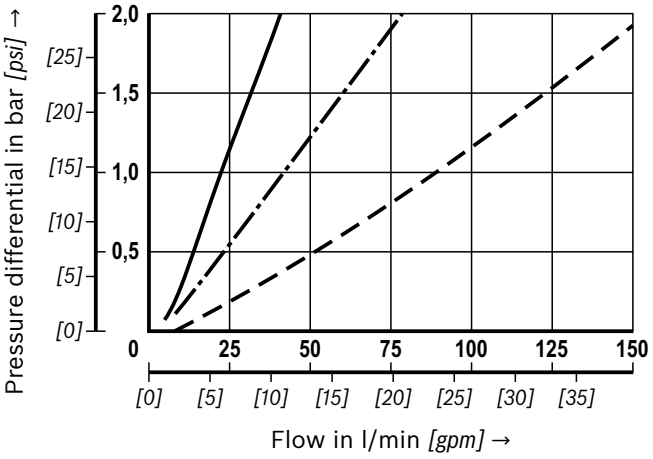
(measured with mineral oil HLP46 according to ISO 3968)

Spec. weight: < 0.9 kg/dm³Δ*p*-Q-characteristic curves for complete filters recommended initial Δ*p* for design = 1.5 bar *[21.75 psi]*

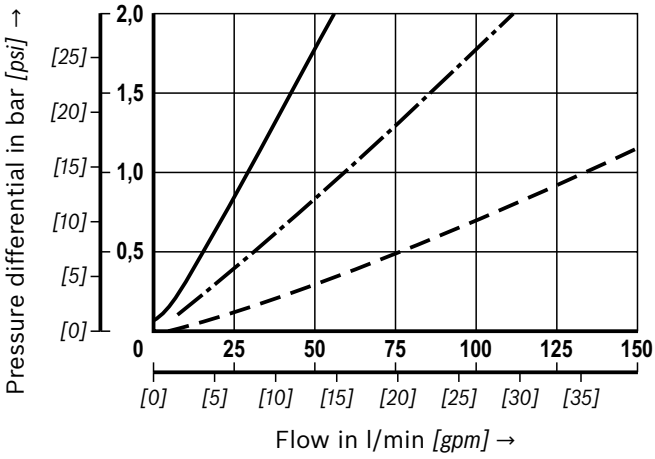
A proper filter design is made possible by our online "Bosch Rexroth FilterSelect" design software.

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

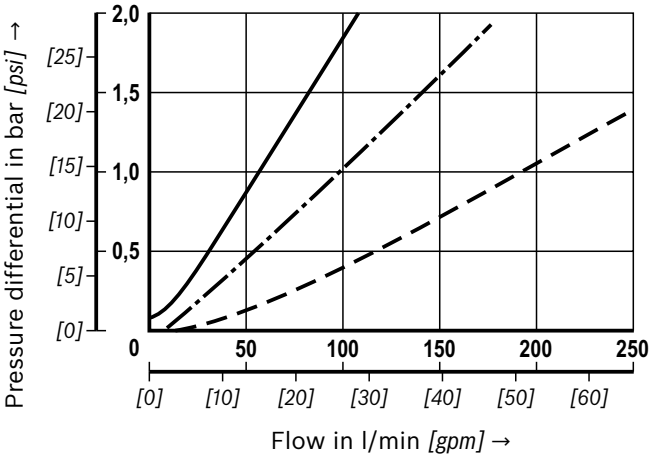
**245LE0150-H3XLA00-V5,0-M-R5**



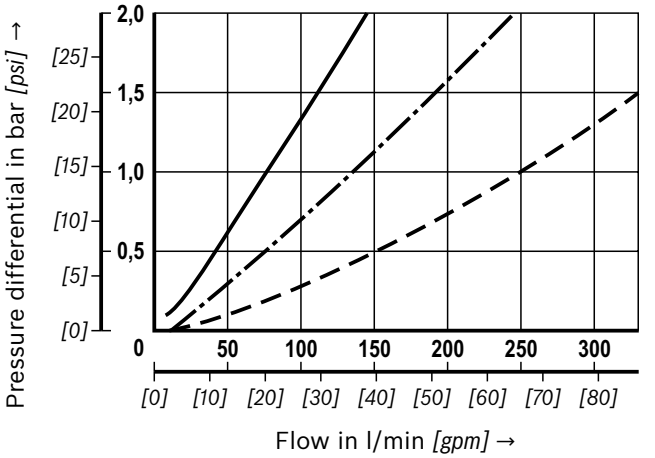

**245LEN0160-H3XLA00-V5,0-M-R6**




**245LEN0250-H3XLA00-V5,0-M-R6**




**245LEN0400-H3XLA00-V5,0-M-R6**



## Characteristic curves **H10XL**

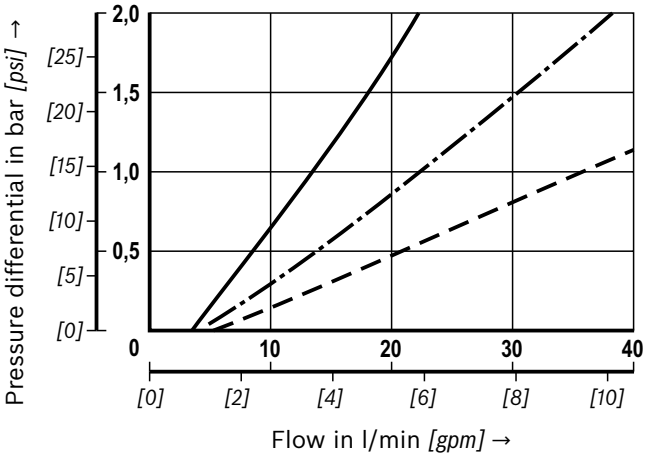
(measured with mineral oil HLP46 according to ISO 3968)

Spec. weight: < 0.9 kg/dm³Δ*p*-Q-characteristic curves for complete filters recommended initial Δ*p* for design = 1.5 bar *[21.75 psi]*

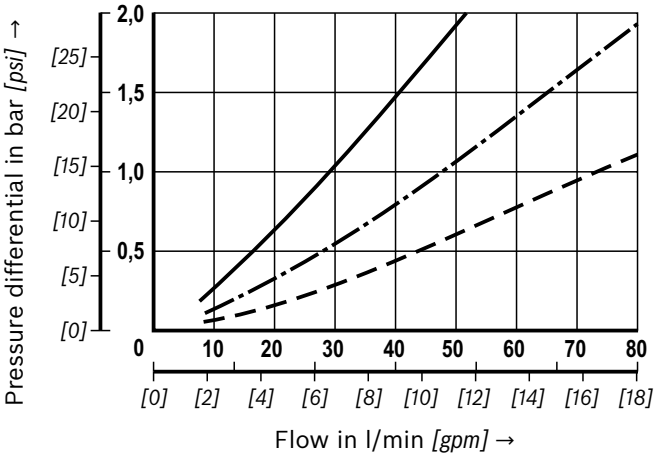
A proper filter design is made possible by our online "Bosch Rexroth FilterSelect" design software.

Oil viscosity: **140 mm²/s** *[649 SUS]*
**68 mm²/s** *[315 SUS]*
**30 mm²/s** *[143 SUS]*

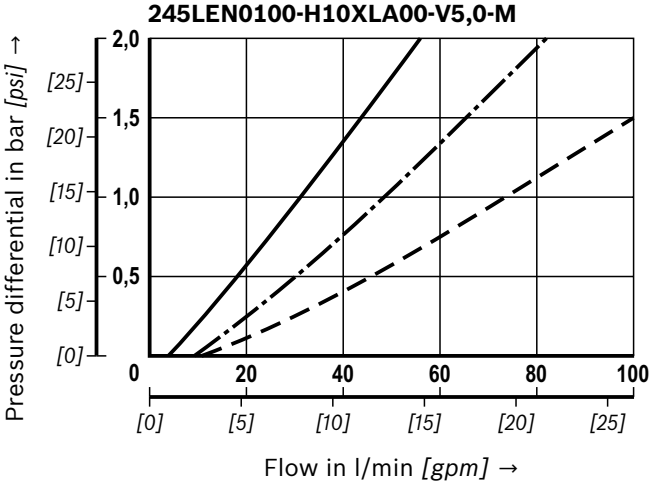
**245LEN0040-H10XLA00-V5,0-M**



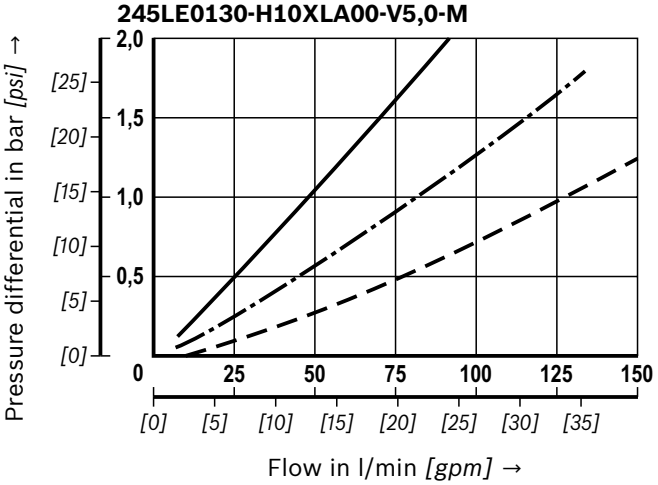

**245LEN0063-H10XLA00-V5,0-M**




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




**245LE0130-H10XLA00-V5,0-M**



## Characteristic curves **H10XL**

(measured with mineral oil HLP46 according to ISO 3968)

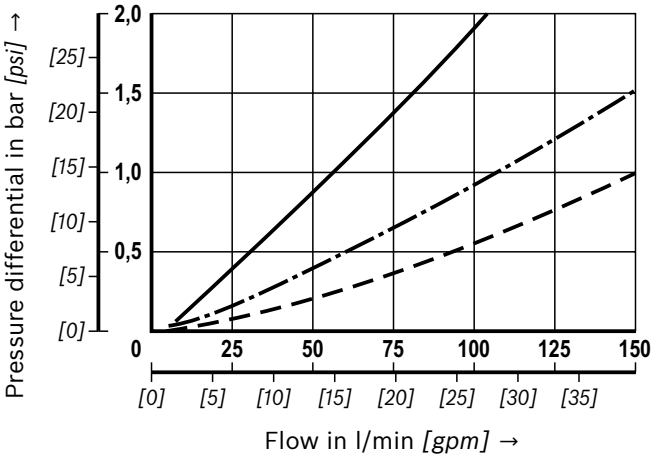
Spec. weight: < 0.9 kg/dm³

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

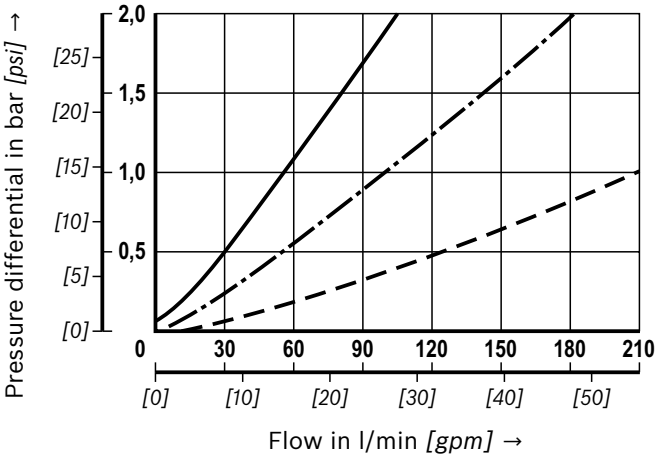
A proper filter design is made possible by our online "Bosch Rexroth FilterSelect" design software.

Oil viscosity: **140 mm²/s** *[649 SUS]*, **68 mm²/s** *[315 SUS]*, **30 mm²/s** *[143 SUS]*

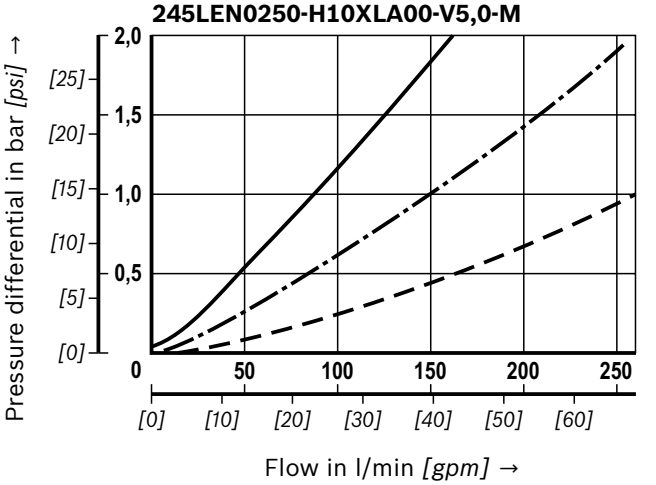
**245LE0150-H10XLA00-V5,0-M**



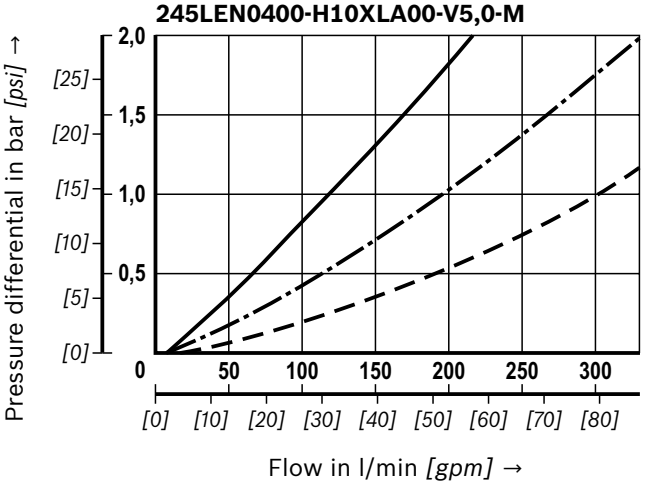

**245LEN0160-H10XLA00-V5,0-M**




**245LEN0250-H10XLA00-V5,0-M**



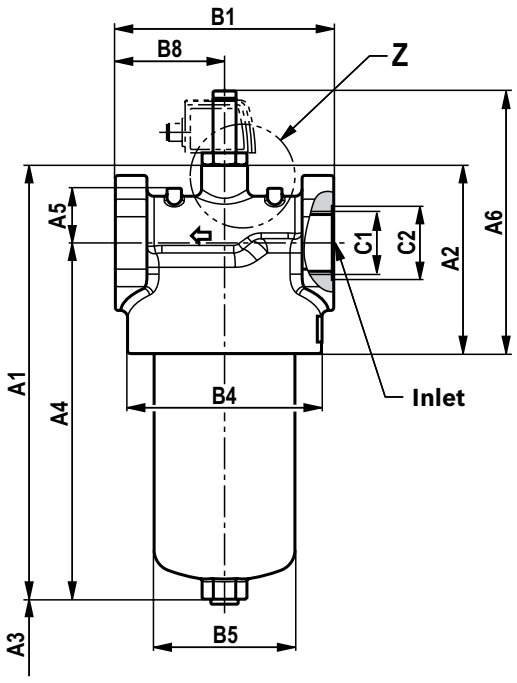

**245LEN0400-H10XLA00-V5,0-M**



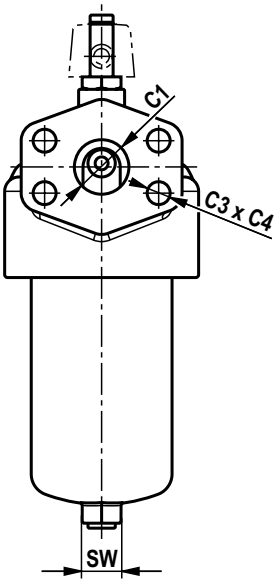
## Dimensions: 245LE(N) NG0040 ... NG0400

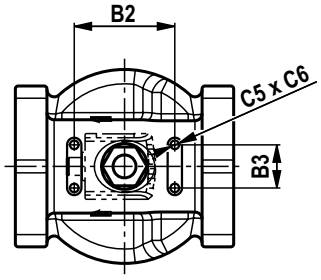
(Dimensions in mm *[inch]*)

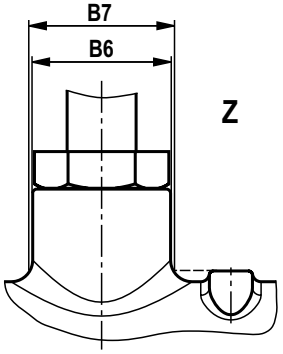
**Pipe thread connections UNF thread**




**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]* | | | | | | 24 *[0.94]* |
| **245LE0150** | | | | | | | | | | |
| **245LEN0160** | G1 1/2 | 56 *[2.20]* | SAE 24 1 7/8-12 UN-2B | 65 *[2.56]* | SAE 1 1/2” 3000 psi | | | | | 27 *[1.06]* |
| **245LEN0250** | | | | | | | | | | |
| **245LEN0400** | | | | | | | | | | |

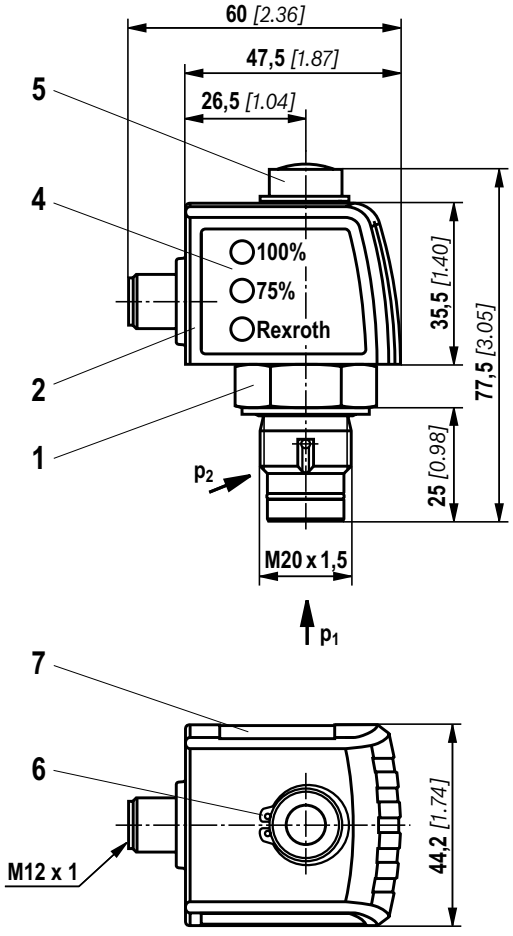
[1] Servicing height for filter element exchange

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

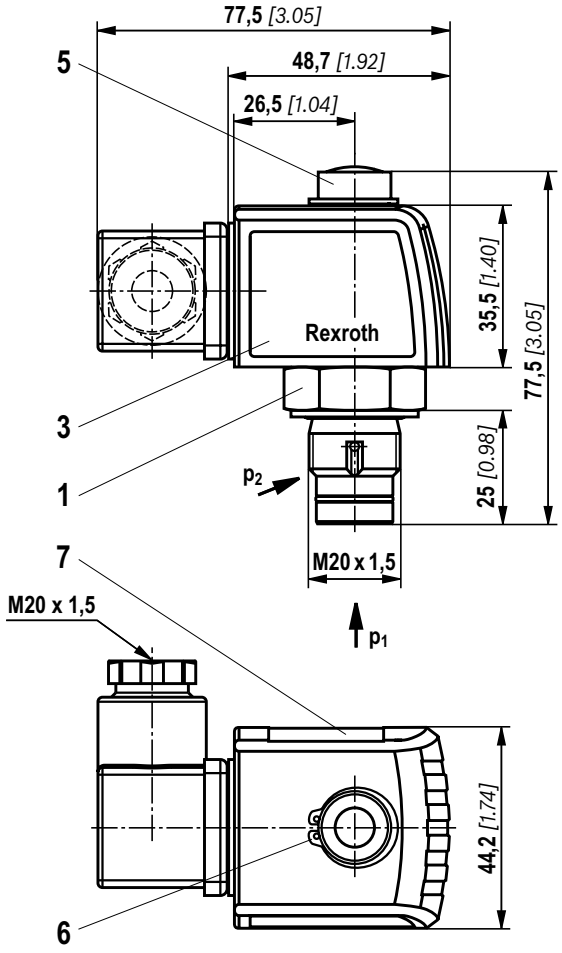
## Maintenance indicator

(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 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**<br>**0063**<br>**0100**<br>**0160**<br>**0250**<br>**0400** |
| | LE... | **0130**<br>**0150** |

**Filter rating in µm**

| | | | |
|---|---|---|---|
| 03 | **Absolute**<br>**(ISO 16889; $\beta_x(c) \geq 200$)** | Glass fiber material, not cleanable | **H3XL**<br>**H6XL**<br>**H10XL**<br>**H20XL** |
| | **Nominal** | Stainless steel wire mesh, cleanable | **G10**<br>**G25**<br>**G40**<br>**G60**<br>**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]*, 160 bar *[2321 psi]* | **160** |
| | Switching pressure 5.0 bar *[72.5 psi]*, 450 bar *[6527 psi]* | **450** |

| Mechanical optical maintenance indicator | Material no. |
|---|---|
| WO-D01-2.2-M-160 | **R901025312** |
| WO-D01-2.2-V-160 | **R901066233** |
| 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 built up 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 ± 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 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 potentially explosive areas:

| | zone suitability | |
|---|---|---|
| Gas | 1 | 2 |
| Dust | 21 | 22 |

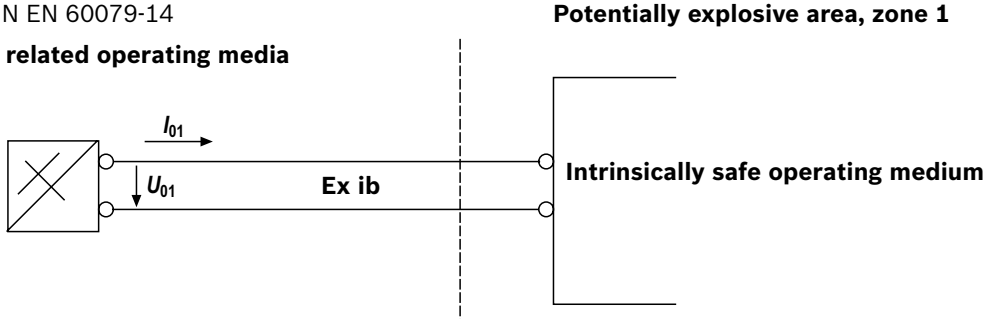
## Directives and standardization

| **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 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 equipotential 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

## Notes

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