Duplex filter with filter element according to DIN 24550

Type 40 FLDN 0400 to 1001; 40 FLD 0120 to 0274

RE 51408
Edition: 2014-08
Replaces: 02.09

- Size **according to DIN 24550**: 0400 to 1001
- Additional sizes: 0120 to 0274
- Nominal pressure: 40 bar *[580 psi]*
- Connection up to SAE 4" 3000 psi
- Operating temperature -10 °C ... +100 °C *[14 °F ... 212 °F]*

Features

Duplex filters are used in hydraulic systems for separating solid materials from fluids and lubricating oils.
They are intended for installation into pipelines and allow for the exchange of the filter element without operational interruption.

They distinguish themselves by the following:

- Filters for inline installation, switchable
- Special highly efficient filter materials
- Filtration of very fine particles and high dirt holding capacity across a broad pressure differential range
- Optionally equipped with mechanical optical maintenance indicator with memory function
- Available as an option with various optional electronic switching elements, modular design
- Optional bypass valve integrated in the filter housing
- Switch-over via bank segment change-over
- Inlet above, outlet below

Contents

Ordering code filter

01	02	03	04		05		06	07	08		09	10	11	12	12	12		13
40 FLD				**–**	**A00**	**–**	**0**			**–**	**S0**		**0**	**A**			**–**	

Series

01	Duplex filter 40 bar *[580 psi]*	**40 FLD**

Filter element

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

Size

03	FLDN...	**0400** **0630** **1001**
	FLD...	**0120** **0201** **0271** **0272** **0273** **0274**

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**
		Paper, not cleanable	**P10** **P25**

Pressure differential

05	Max. admissible pressure differential of the filter element 30 bar *[435 psi]*, filter **with** bypass valve recommended	**A00**

Solenoid

06	**Without** magnet	**0**

Bypass valve

07	**Without** bypass valve[1)]	**0**
	With bypass valve – release pressure 2.5 bar *[36.3 psi]* – **configurable with** maintenance indicator V0.8	**5**
	With bypass valve– release pressure 3.5 bar *[51 psi]* – **configurable with** maintenance indicator V1.5 or V2.2	**7**

Maintenance indicator

08	Maintenance indicator, mech./optical, switching pressure 0.8 bar *[11.6 psi]*	**V0.8**
	Maintenance indicator, mech./optical, switching pressure 1.5 bar *[21.8 psi]*	**V1.5**
	Maintenance indicator, mech./optical, switching pressure 2.2 bar *[32 psi]*	**V2.2**

Port

09	**Frame size**	**0400-0630; 0120**	**1001; 0201-0274**		
	Port				
	SAE 3"	●		SAE flange 3000 psi	**S0**
	SAE 4"		●		**S0**
		● Standard connection			

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

Ordering code filter

01	02	03	04	05	06	07	08	09	10	11	12	12	12	13
40 FLD				**–**	**A00**	**–**	**0**			**–**	**S0**		**0**	**A**			**–**	

Seal

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

Material

11	Standard	**0**

Supplementary information (Multiple specifications possible)

12	Pressure equalization line (standard)	**A**
	Bleed valve	**E**
	Manufacturer's inspection certificate M according to DIN 55350 T18	**Z1**

Additional supplementary information

13	Design for hydraulic special fluids (see table “Compatibility with approved hydraulic fluids”, page 9)	NG0400-0630; 0120	***(omit)***
		NG1001; 0201-0274	**0066**

Order example:
40 FLDN 0400 H10XL-A00-07V2,2-S0M0A

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

Preferred types

40 FLD(N) preferred types, NBR seal, flow specifications for 30 mm²/s *[143 SUS]*
Duplex filter, filter rating 3 µm

Type	**Flow in l/min** *[US gpm]* **with Δ*p* = 0.8 bar** *[11.6 psi]* [1]	Material no. filter	Material no. replacement element
40 FLDN 0400 H3XL-A00-07V2,2-S0M0A	355 *[93]*	**R928000387**	**R928005961**
40 FLDN 0630 H3XL-A00-07V2,2-S0M0A	515 *[136]*	**R928000388**	**R928005997**
40 FLD 0120 H3XL-A00-07V2,2-S0M0A	735 *[194]*	**R928000392**	**R928006033**
40 FLDN 1001 H3XL-A00-07V2,2-S0M0A	550 *[145]*	**R928000389**	**R928005745**
40 FLD 0201 H3XL-A00-07V2,2-S0M0A	1040 *[274]*	**R928000393**	**R928005799**
40 FLD 0271 H3XL-A00-07V2,2-S0M0A	1190 *[314]*	**R928000394**	**R928005817**

40 FLD(N) preferred types, NBR seal, flow specifications for 30 mm²/s *[143 SUS]*
Duplex filter, filter rating 10 µm

Type	**Flow in l/min** *[US gpm]* **with Δ*p* = 0.8 bar** *[11.6 psi]* [1]	Material no. filter	Material no. replacement element
40 FLDN 0400 H10XL-A00-07V2,2-S0M0A	710 *[187]*	**R928000397**	**R928005963**
40 FLDN 0630 H10XL-A00-07V2,2-S0M0A	830 *[219]*	**R928000398**	**R928005999**
40 FLD 0120 H10XL-A00-07V2,2-S0M0A	950 *[250]*	**R928000402**	**R928006035**
40 FLDN 1001 H10XL-A00-07V2,2-S0M0A	850 *[224]*	**R928000399**	**R928005747**
40 FLD 0201 H10XL-A00-07V2,2-S0M0A	1500 *[396]*	**R928000403**	**R928005801**
40 FLD 0271 H10XL-A00-07V2,2-S0M0A	1570 *[414]*	**R928000404**	**R928005819**

[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 M12x1, 4-pole	**M12x1**
	Rectangular plug-in connector, 2-pole, design A according to EN-175301-803	**EN175301-803**

Material numbers of the electronic switching elements

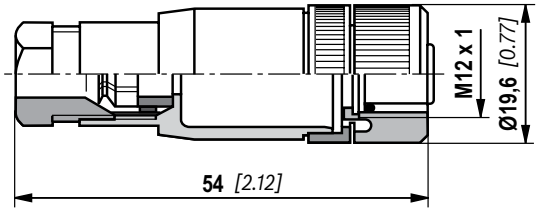
Material no.	Type	Signal	Switching points	Connector	LED
R928028409	WE-1SP-M12x1	Changeover	1	M12x1	without
R928028410	WE-2SP-M12x1	Normally open (at 75 %) / normally closed contact (at 100 %)	2		3 pieces
R928028411	WE-2SPSU-M12x1				
R928036318	WE-1SP-EN175301-803	Normally closed contact	1	EN 175301-803	without

Mating connectors

for electronic switching element with round plug-in connection M12x1

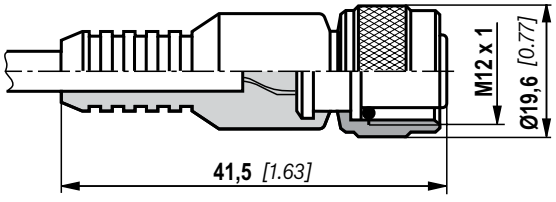
Mating connector suitable for K24 4-pole, M12x1
with screw connection, cable gland Pg9.

Material no. R900031155



Mating connector suitable for K24-3m 4-pole, 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



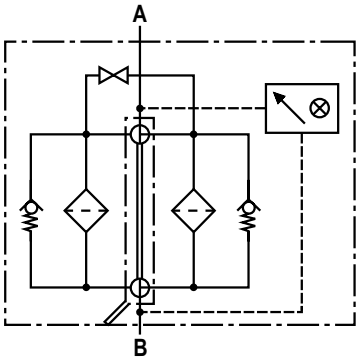
For more round plug-in connections and technical data refer to data sheet 08006.

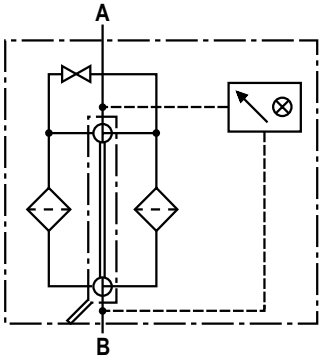
Order example:
Duplex filter with mechanical optical maintenance indicator for $p_{nominal}$ = 40 bar *[580 psi]* with bypass valve, size 0400, with filter element 3 µm and electronic switching element M12x1 with one switching point.

Filter with mech. optical maintenance indicator:	40 FLDN 0400 H3XL-A00-07V2,2-S0M0A	**Material no. R928000387**
Switching element:	WE-1SP-M12x1	**Material no. R928028409**
Mating connector:	Mating connector suitable for K24 4-pole, M12x1	**Material no. R900031155**

Symbols

Duplex filter
with bypass and with mechanical indicator



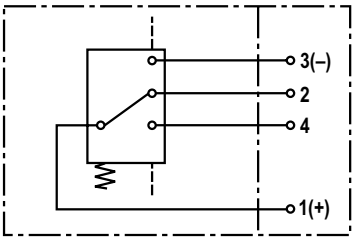


Duplex filter
without bypass and with mechanical indicator

electronic switching element

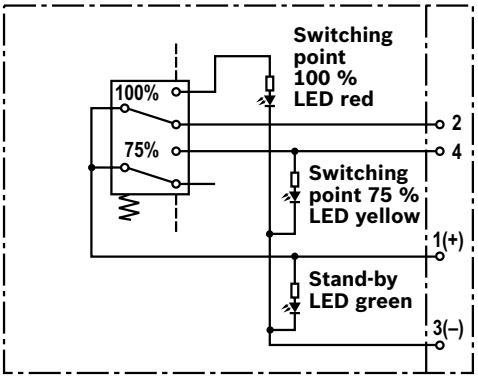
for maintenance indicator

Switching element **Connector**



WE-1SP-M12x1

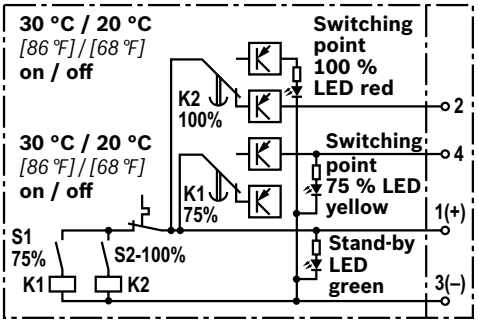
Switching element **Connector**



WE-2SP-M12x1

Circuit diagram drawn in plugged condition (operating state)

Switching element **Connector**



WE-2SPSU-M12x1

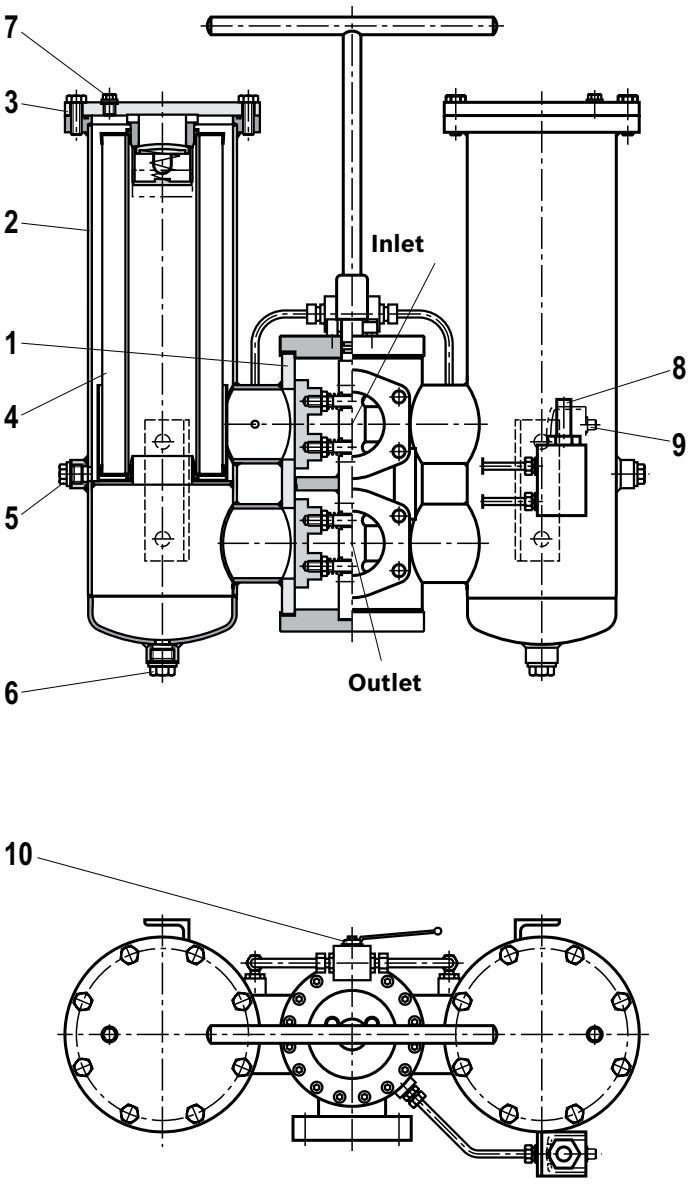
Circuit diagram drawn in plugged condition at temperature > 30 °C *[86 °F]* (operating condition)

Function, section: NG0400 ... 0630 / 0120

The 40FLDK(N) duplex filter is suitable for inline installation. It basically consists of two filter housings (2) with one switch-over fitting (1), two filter covers (3), two filter elements (4) as well as mechanical optical maintenance indicator (8).
Via the inlet, the hydraulic fluid reaches the filter element (4) where it is cleaned. The dirt particles filtered out collect in the filter element (4). Via the outlet, the filtered fluid enters the hydraulic circuit.
Switching between the two filter housings is carried out by means of the switching lever.

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

Via the bleed screws (standard) and/or bleed valves – amending ordering code E – (7) the filter side to be maintained can be bled.
The sizes 0400-0630 / 0120 are equipped with mounting brackets. The standard pressure equalization line (10) serves to simplify the filling and bleeding in a filter element exchange.
By default, the filter is equipped with mechanical optical maintenance indicator (8). The electronic switching element (9) which has to be ordered separately is attached to the mechanical optical maintenance indicator (8) 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 40 FLDN 0630

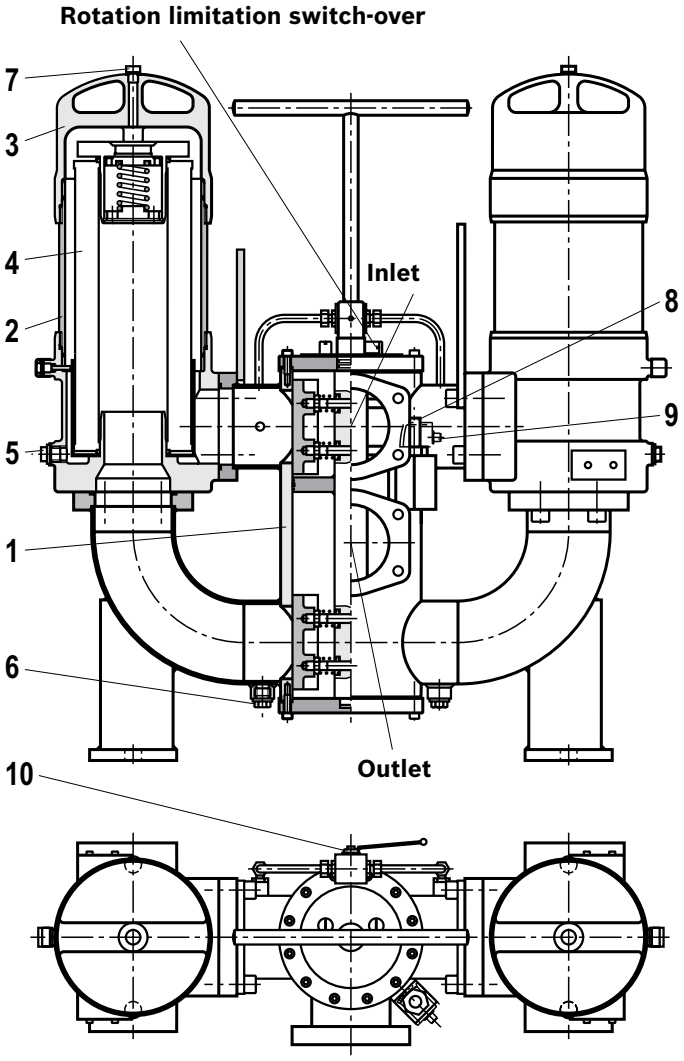
5 Draining dirt side
6 Draining clean side

Function, section: NG1001 / 0201 ... 0271

The 40 FLD(N) duplex filter is suitable for inline installation. It basically consists of two filter housings (2) with one switch-over fitting (1), two threaded filter heads (3), two filter elements (4) as well as mechanical optical maintenance indicator (8).
Via the inlet, the hydraulic fluid reaches the filter element (4) where it is cleaned. The filtered dirt particles collect in the filter element (4) and the filtered fluid enters the hydraulic circuit via the outlet.
Switching between the two filter housings is carried out by means of the switching lever. The rotation limitation must be placed at the stop position.

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

Via the bleed screws (standard) and/or bleed valves – amending ordering code E – (7) the filter side to be maintained can be bled.
The sizes 1001 / 0201-0271 are equipped with a floor mount. The standard pressure equalization line (10) serves to simplify the filling and bleeding in a filter element exchange.
By default, the filter is equipped with mechanical optical maintenance indicator (8). The electronic switching element (9) which has to be ordered separately is attached to the mechanical optical maintenance indicator (8) 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 40 FLDN 1001

5 Draining dirt side
6 Draining clean side

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

General								
Installation position				vertical				
Ambient temperature range			°C *[°F]*	–10 ... +65 *[14 ... 149]*; (briefly up to -30 *[-22]*)				
Storage conditions	– NBR seal			–40 ... +65 *[+14 ... +149]*; max. relative air humidity 65 %				
	– FKM seal			–20 ... +65 *[+14 ... +149]*; max. relative air humidity 65 %				
Weight			NS	**0400**	**0630**	**0120**	**1001**	
			kg *[lbs]*	84 *[185]*	86 *[189]*	99 *[218]*	198 *[436]*	
			NS	**0201**	**0271**	**0272**	**0273**	**0274**
			kg *[lbs]*	128 *[282]*	176 *[388]*	326 *[719]*	476 *[1049]*	626 *[1380]*
Volume			NS	**0400**	**0630**	**0120**	**1001**	
			l *[US gal]*	2x 8 2x *[2.1]*	2x 11 2x *[2.9]*	2x 18 2x *[4.7]*	2x 12 2x *[3.1]*	
			NS	**0201**	**0271**	**0272**	**0273**	**0274**
			l *[US gal]*	2x 22 2x *[5.8]*	2x 28 2x *[7.3]*	2x 67 *2x [18]*	2x 99 *2x [26]*	2x 131 *2x [35]*
Material	– Filter cover	NG0400-0630		Steel				
		NG1001-0274		Aluminum				
	– Filter housing	NG0400-0630		Steel				
		NG1001-0274		Steel / aluminum				
	– Bypass valve			Aluminum / steel / POM				
	– Seals			NBR or FKM				
	– Optical maintenance indicator			Aluminum				
	– Electronic switching element			Plastic PA6				

Hydraulic			
Maximum operating pressure	bar *[psi]*	40 *[580]*	
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]*	0.8 ± 0.15 *[11.6 ± 2.2]*	2.5 ± 0.25 *[36.25 ± 3.63]*
		1.5 ± 0.2 *[21.8 ±2.9]*	3.5 ± 0.35 *[50.8 ± 5.1]*
		2.2 ± 0.3 *[31.9 ± 4.4]*	3.5 ± 0.35 *[50.8 ± 5.1]*

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		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			IP 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	$\beta_{20(c)} \geq 200$	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]*	

Compatibility with permitted hydraulic fluids

Hydraulic fluid		**Classification**		**Suitable sealing materials**	**Standards**
Mineral oil		HLP		NBR	DIN 51524
Bio-degradable	– insoluble in water	HETG	**Notice:** with NG1001 ... 0274 ordering code “Supplementary information = -0066” mandatory	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 (cellulose) may not be used, filter elements with glass fiber filter material or wire mesh have to be used instead.
- **Bio-degradable:** If filter materials made of filter paper are used, the filter life may be shorter than expected due to material incompatibility and swelling.

Characteristic curves **H3XL**

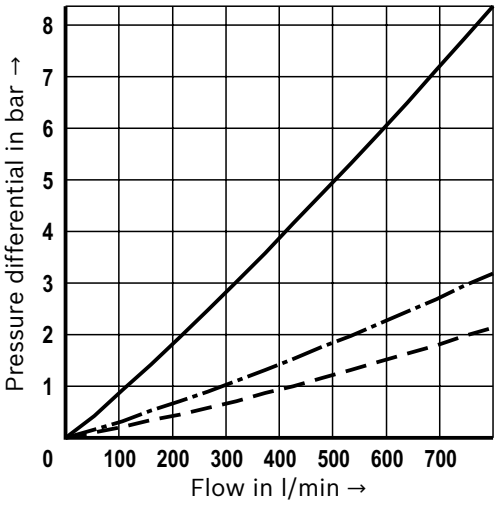
(measured with mineral oil HLP46 according to DIN 51524)

Spec. weight: < 0.9 kg/dm³ Δp-Q characteristic curves for complete filters recommended initial Δp for design = 0.8 bar *[11.6 psi]*

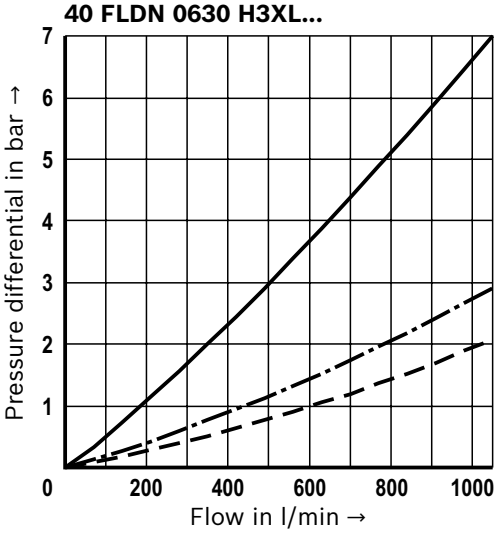
The selection of the right filter is made possible by our online „Bosch Rexroth FilterSelect“ design software.

Oil viscosity:
- **120 mm²/s** *[556 SUS]*
- **46 mm²/s** *[213 SUS]*
- **30 mm²/s** *[143 SUS]*

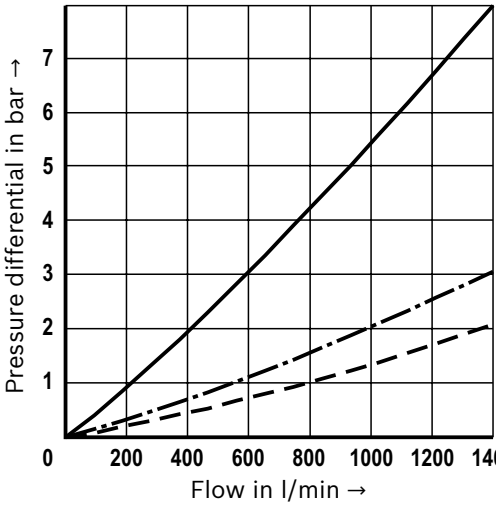
40 FLDN 0400 H3XL...



40 FLDN 0630 H3XL...



40 FLDN 1001 H3XL...



Characteristic curves **H3XL**

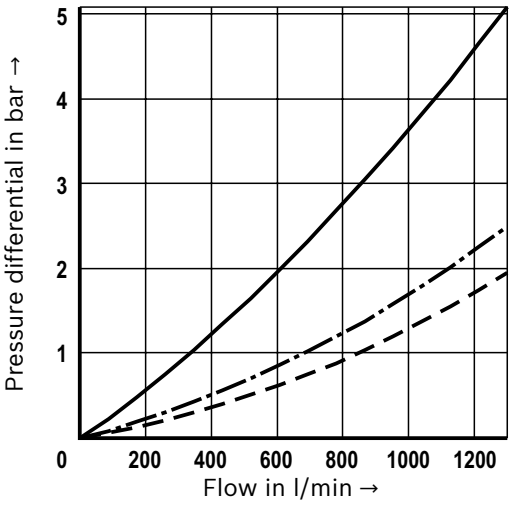
(measured with mineral oil HLP46 according to DIN 51524)

Spec. weight: < 0.9 kg/dm³ Δp-Q characteristic curves for complete filters recommended initial Δp for design = 0.8 bar *[11.6 psi]*

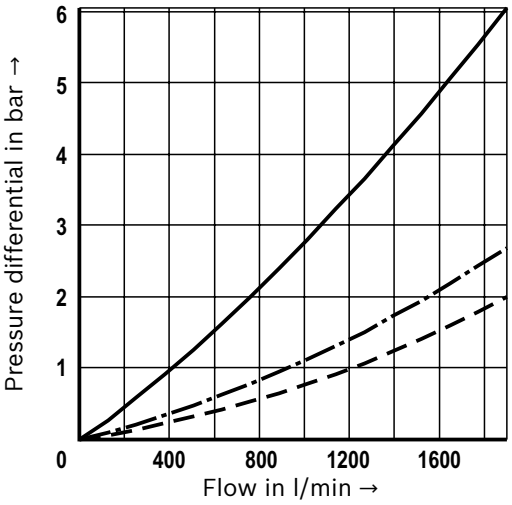
The selection of the right filter is made possible by our online “Bosch Rexroth FilterSelect” design software.

Oil viscosity:
- **120 mm²/s** *[556 SUS]*
- **46 mm²/s** *[213 SUS]*
- **30 mm²/s** *[143 SUS]*

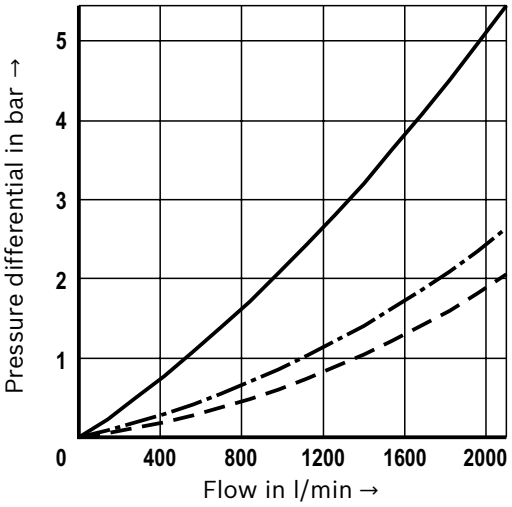
40 FLD 0120 H3XL...



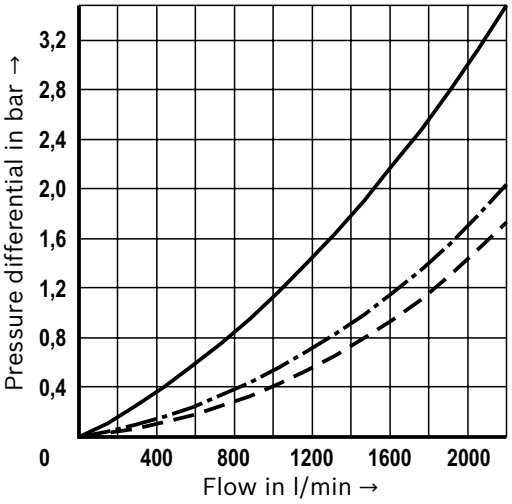
40 FLD 0201 H3XL...



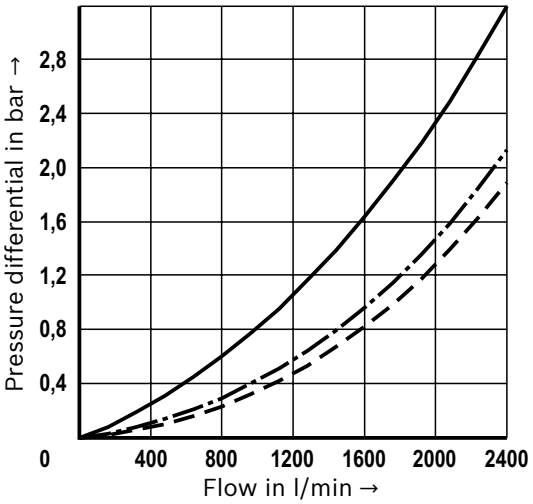
40 FLD 0271 H3XL...



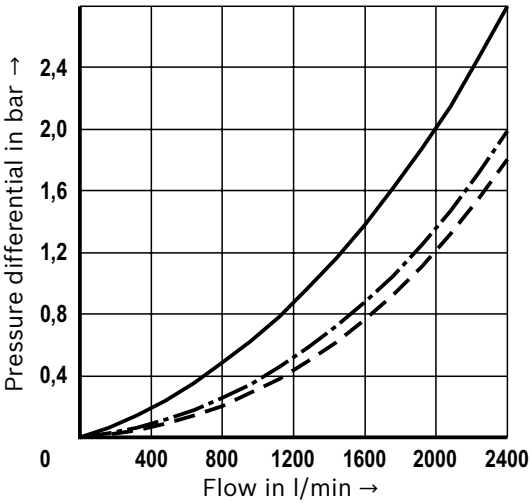
40 FLD 0272 H3XL...



40 FLD 0273 H3XL...



40 FLD 0274 H3XL...



Characteristic curves **H10XL**

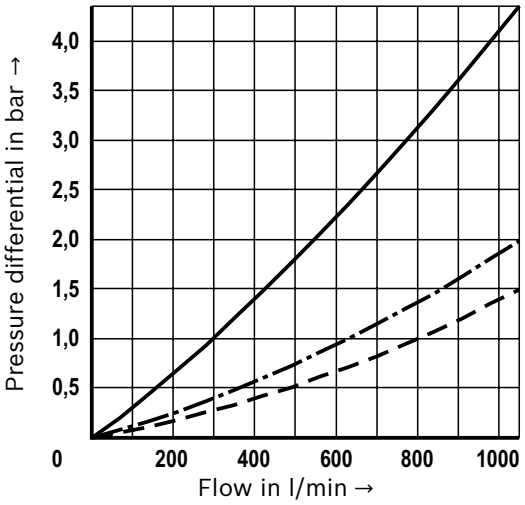
(measured with mineral oil HLP46 according to DIN 51524)

Spec. weight: < 0.9 kg/dm³ Δp-Q characteristic curves for complete filters recommended initial Δp for design = 0.8 bar *[11.6 psi]*

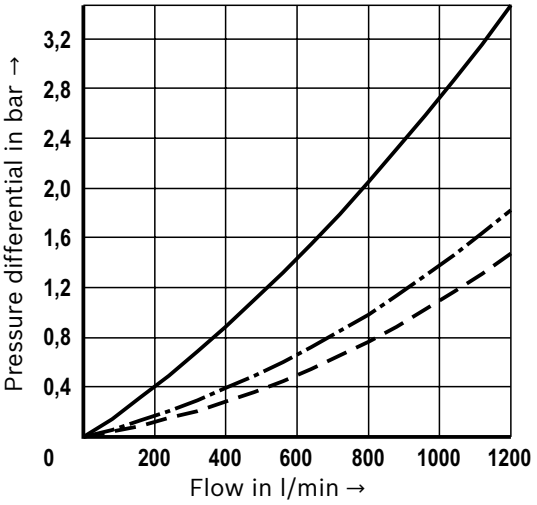
The selection of the right filter is made possible by our online “Bosch Rexroth FilterSelect” design software.

Oil viscosity:
- **120 mm²/s** *[556 SUS]*
- **46 mm²/s** *[213 SUS]*
- **30 mm²/s** *[143 SUS]*

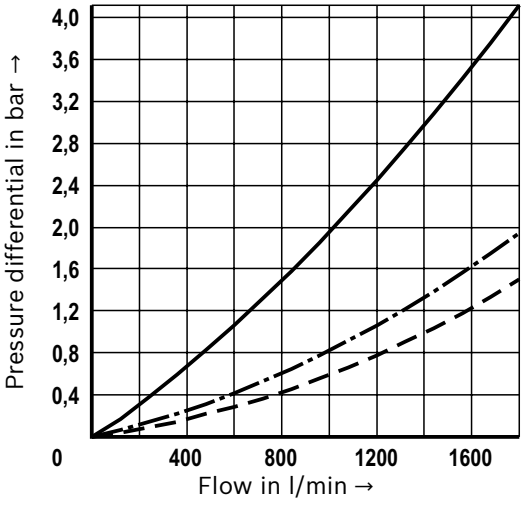
40 FLDN 0400 H10XL...



40 FLDN 0630 H10XL...



40 FLDN 1001 H10XL...



Characteristic curves **H10XL**

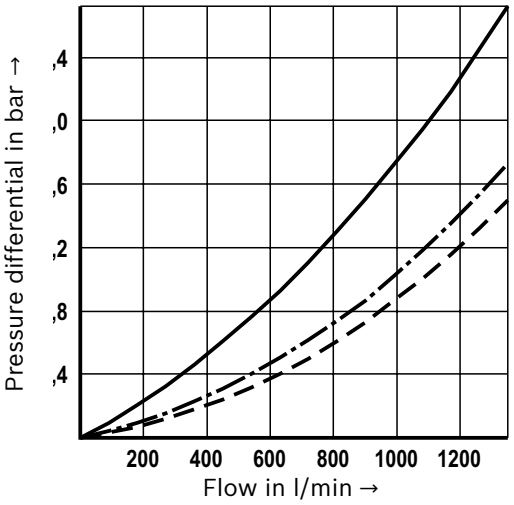
(measured with mineral oil HLP46 according to DIN 51524)

Spec. weight: < 0.9 kg/dm³ *Δp*-Q characteristic curves for complete filters recommended initial *Δp* for design = 0.8 bar *[11.6 psi]*

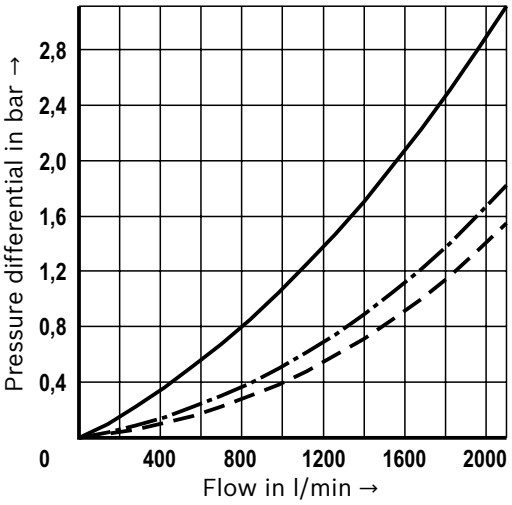
The selection of the correct filter is made possible by our online “Bosch Rexroth FilterSelect” design software.

Oil viscosity:
- **120 mm²/s** *[556 SUS]*
- **46 mm²/s** *[213 SUS]*
- **30 mm²/s** *[143 SUS]*

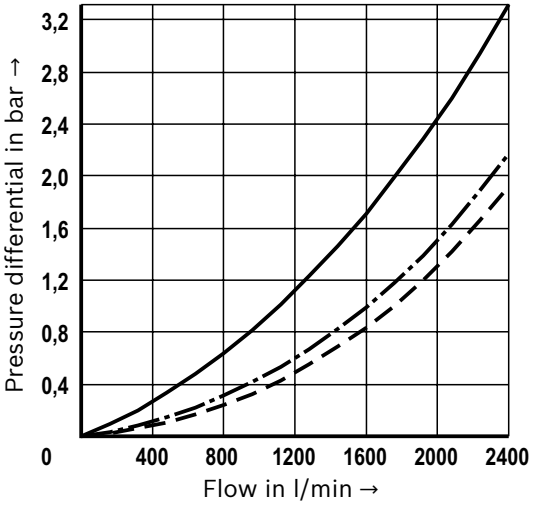
40 FLD 0120 H10XL...



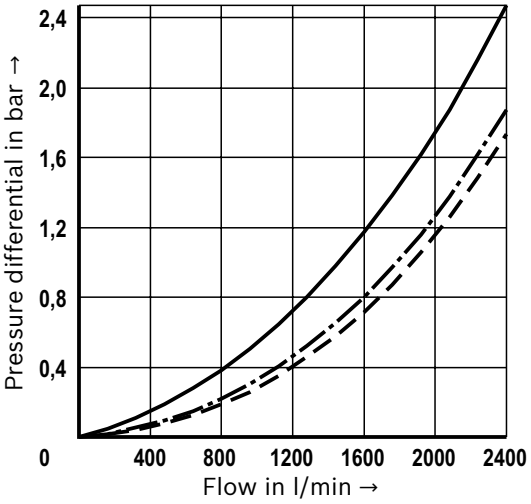
40 FLD 0201 H10XL...



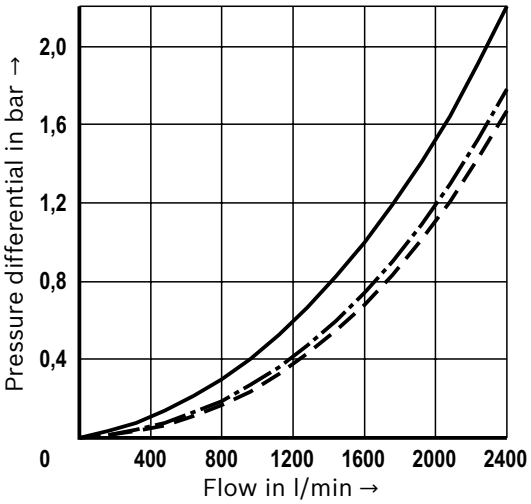
40 FLD 0271 H10XL...



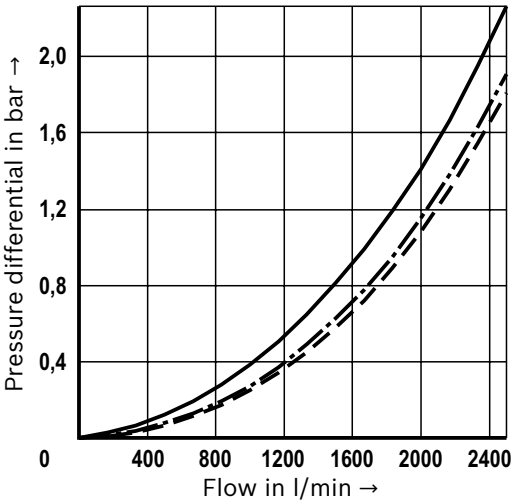
40 FLD 0272 H10XL...



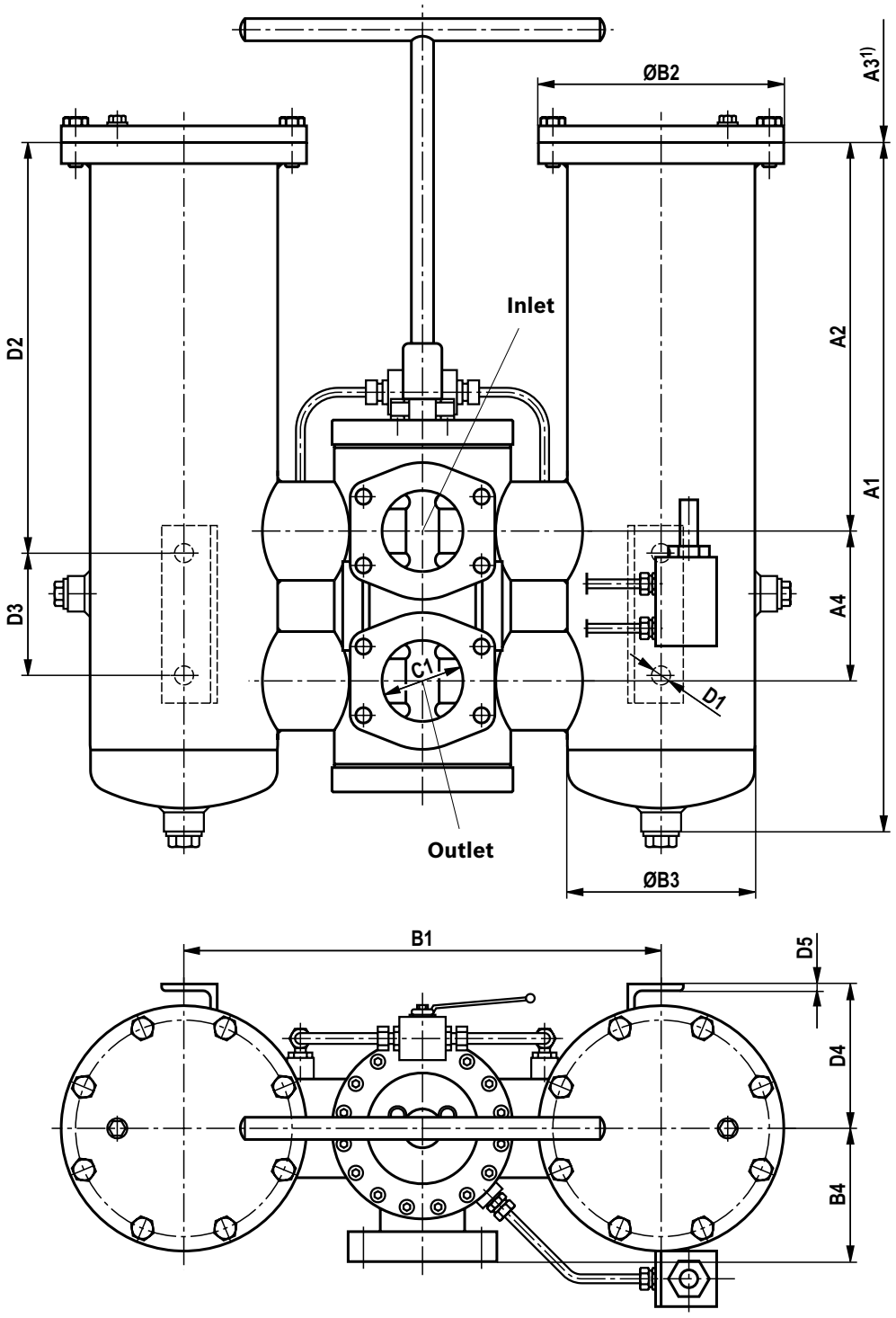
40 FLD 0273 H10XL...



40 FLD 0274 H10XL...



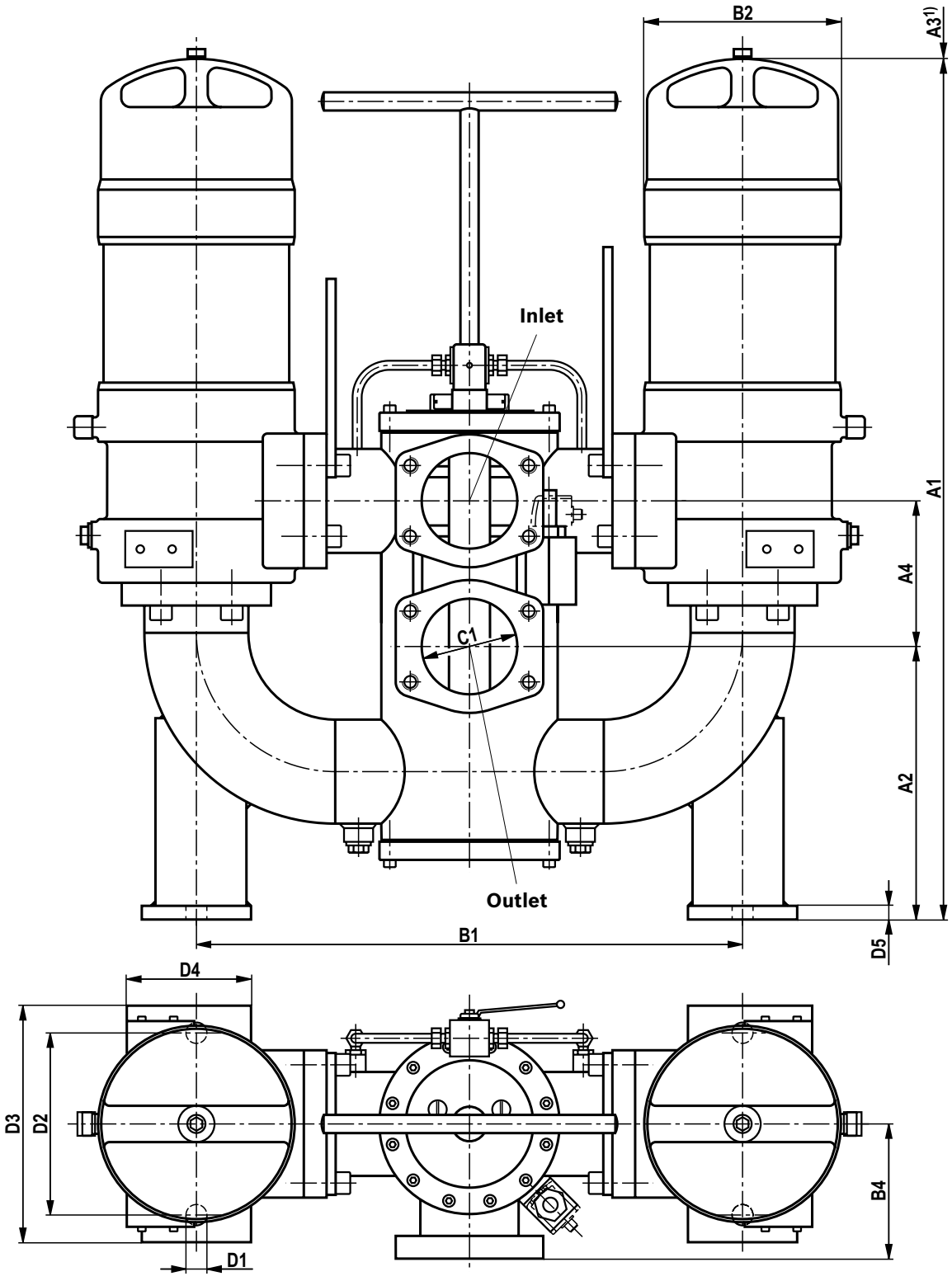
Dimensions: NG0400 ... **NG0630, NG0120** (Dimensions in mm *[inch]*)



1) Servicing height for filter element exchange

Type 40FLD(N)...	Height				Widths				Ports	Mounting				
	A1	A2	A3 1)	A4	B1	ØB2	ØB3	B4	C1	ØD1	D2	D3	D4	D5
0400	471 *[18.54]*	200 *[7.87]*	250 *[9.84]*	135 *[5.31]*	430 *[16.93]*	220 *[8.66]*	168,3 *[6.63]*	120 *[4.72]*	SAE 3" 3000 psi	17 *[0.67]*	220 *[8.66]*	110 *[4.33]*	130 *[5.12]*	6 *[0.24]*
0630	621 *[24.45]*	350 *[13.78]*	400 *[15.75]*								370 *[14.57]*			
0120	978 *[38.50]*	707 *[27.83]*	760 *[29.92]*								587 *[23.11]*	250 *[9.84]*		

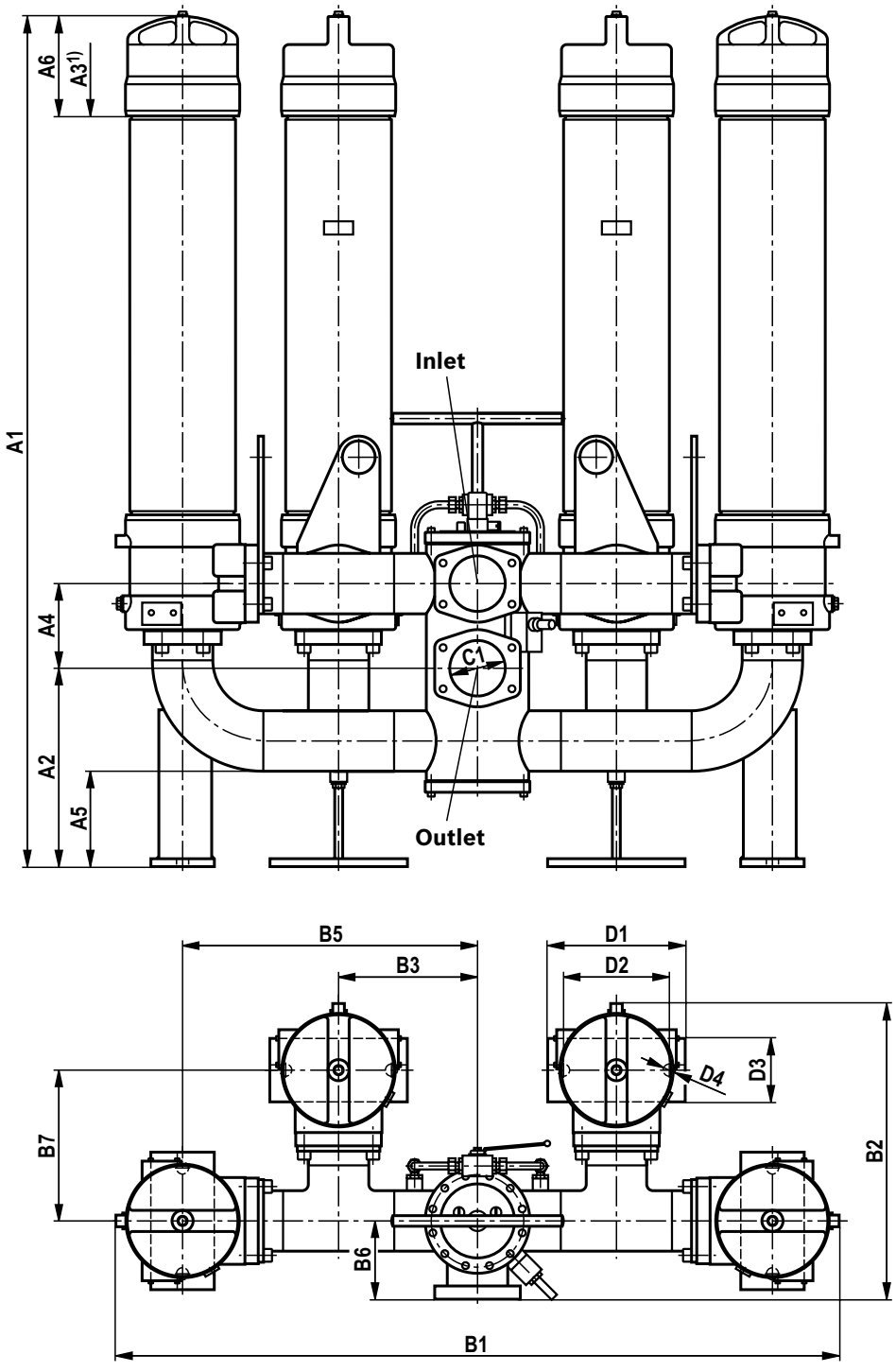
Dimensions: NG0201 … **NG0271, NG1001** (Dimensions in mm *[inch]*)



1) Servicing height for filter element exchange

Type 40FLD(N)...	Height				Widths			Ports	Mounting				
	A1	A2	A3 1)	A4	B1	ØB2	B4	C1	ØD1	D2	D3	D4	D5
0201	1280 *[50.39]*	300 *[11.81]*	760 *[29.92]*	160 *[6.30]*	600 *[23.62]*	216 *[8.50]*	148 *[5.83]*	SAE4" 3000 psi	23 *[0.91]*	200 *[7.87]*	260 *[10.24]*	120 *[4.72]*	15 *[0.59]*
0271	1522 *[59.92]*		990 *[38.98]*										
1001	930 *[36.61]*		400 *[15.75]*										

Dimensions: NG0272 (dimensions in mm *[in]*)

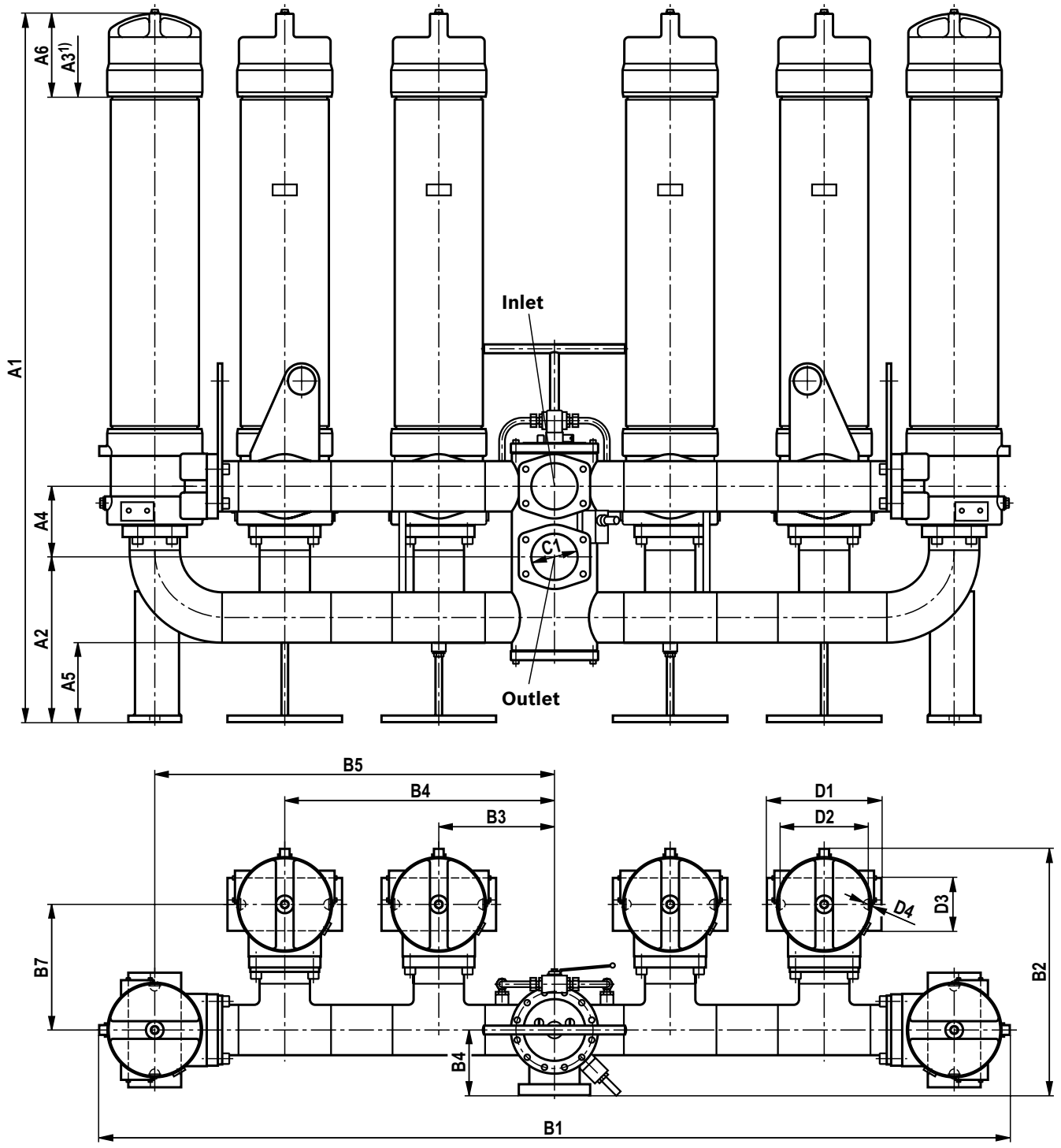


1) Servicing height for filter element exchange

Type 40FLD...	Height						Widths					
	A1	A2	A3 1)	A4	A5	A6	B1	B2	B3	B5	B6	B7
0272	1590 *[62.60]*	375 *[14.76]*	1100 *[43.31]*	160 *[6.30]*	180 *[7.09]*	188 *[7.40]*	1347 *[53.03]*	559 *[22.01]*	262,5 *[10.33]*	547,5 *[21.55]*	148 *[5.83]*	285 *[11.22]*

Type 40FLD...	Ports	Mounting				
	C1	D1	D2	D3	ØD4	G
0272	SAE4", 3000 psi	260 *[10.24]*	200 *[7.87]*	120 *[4.72]*	23 *[0.91]*	G1/2

Dimensions: NG0273 (dimensions in mm *[in]*)

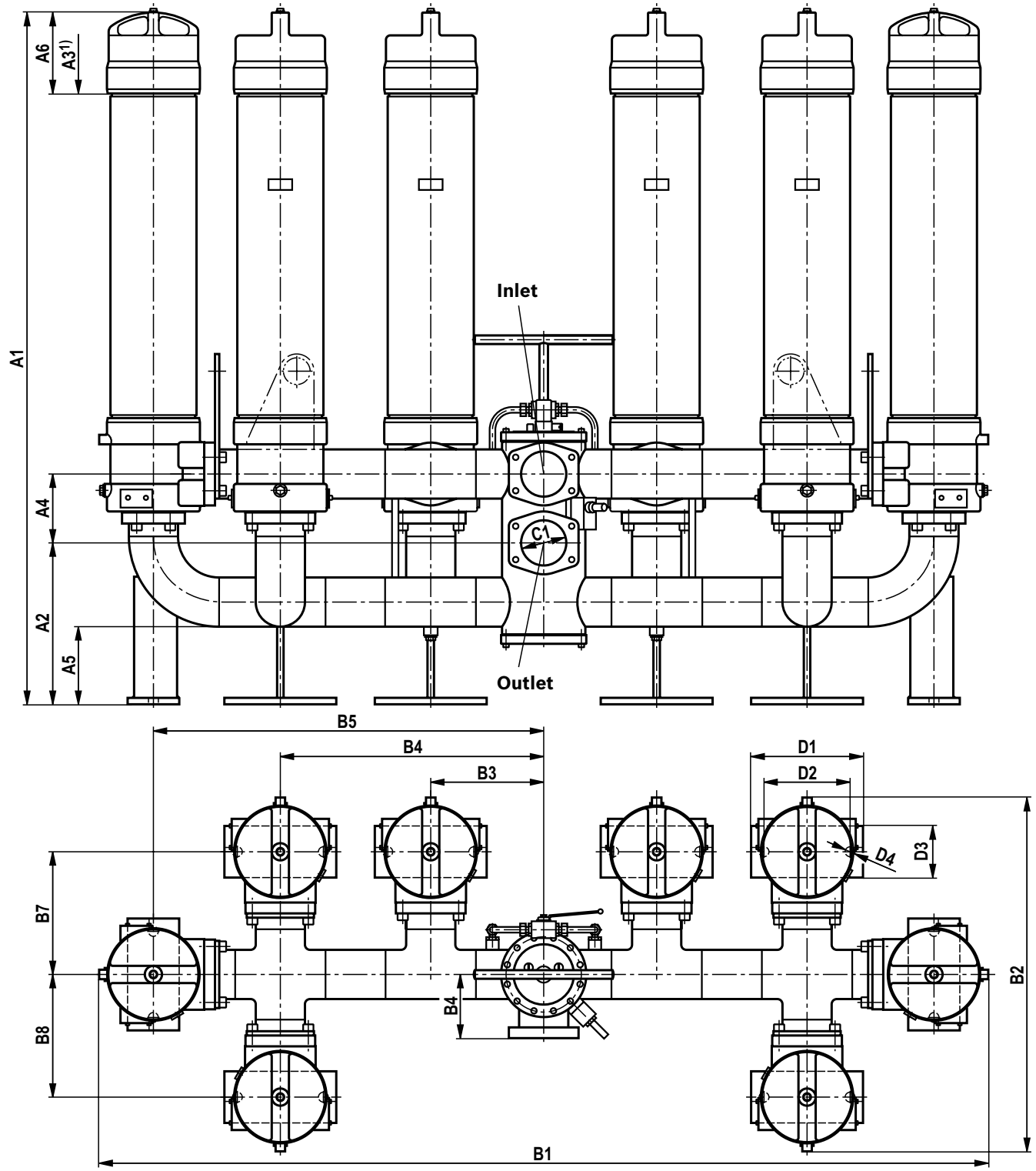


1) Servicing height for filter element exchange

Type 40FLD...	Height						Widths						
	A1	A2	A3 1)	A4	A5	A6	B1	B2	B3	B4	B5	B6	B7
0273	1590 *[62.60]*	375 *[14.76]*	1100 *[43.31]*	160 *[6.30]*	180 *[7.09]*	188 *[7.40]*	2066 *[81.34]*	559 *[22.01]*	262,5 *[10.33]*	612 *[24.09]*	897 *[35.31]*	148 *[5.83]*	285 *[11.22]*

Type 40FLD...	Ports	Mounting				
	C1	D1	D2	D3	ØD4	G
0273	SAE4", 3000 psi	260 *[10.24]*	200 *[7.87]*	120 *[4.72]*	23 *[0.91]*	G1/2

Dimensions: NG0274 (dimensions in mm *[in]*)



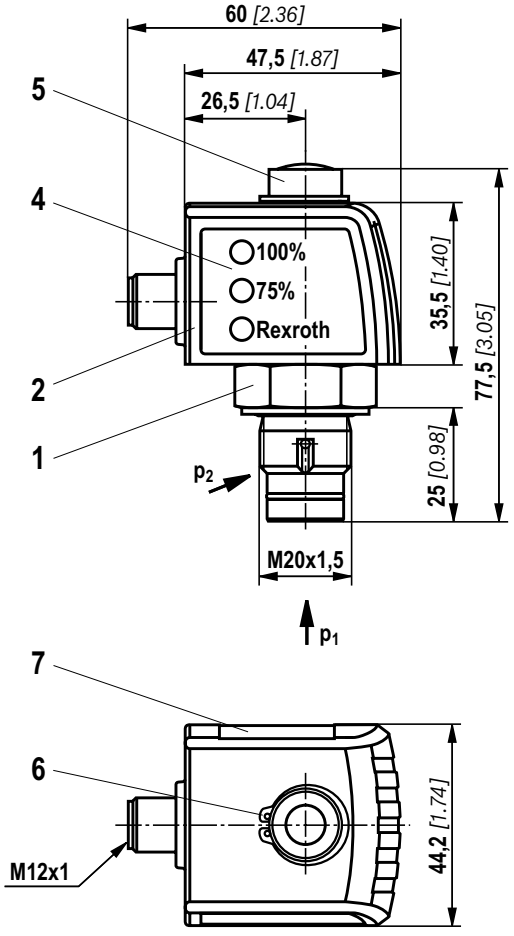
1) Servicing height for filter element exchange

Type 40FLD...	Height						Widths							
	A1	A2	A3 1)	A4	A5	A6	B1	B2	B3	B4	B5	B6	B7	B8
0274	1590 *[62.60]*	375 *[14.76]*	1100 *[43.31]*	160 *[6.30]*	180 *[7.09]*	188 *[7.40]*	2066 *[81.34]*	822 *[32.36]*	262,5 *[10.33]*	612 *[24.09]*	897 *[35.31]*	148 *[5.83]*	285 *[11.22]*	285 *[11.22]*

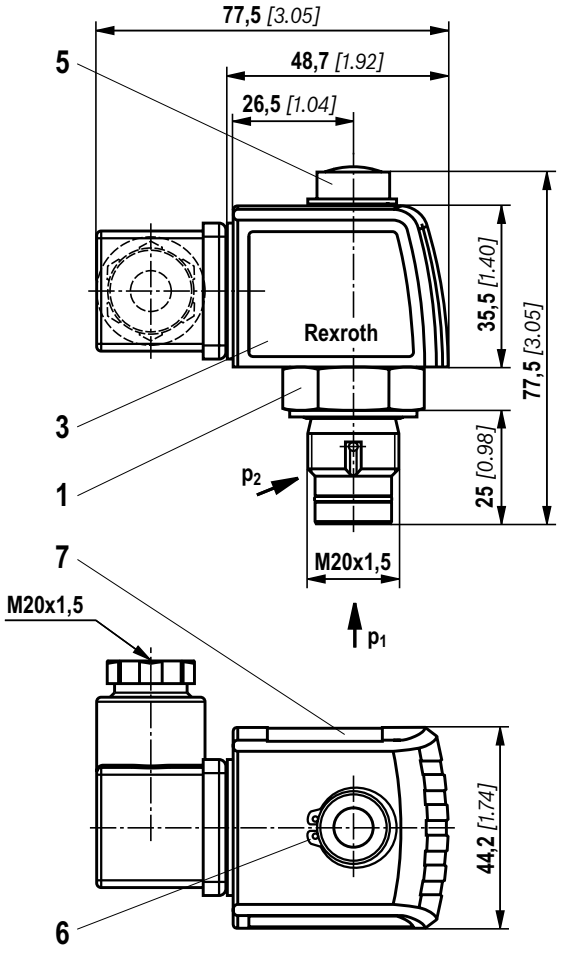
Type 40FLD...	Ports	Mounting				
	C1	D1	D2	D3	ØD4	G
0274	SAE4", 3000 psi	260 *[10.24]*	200 *[7.87]*	120 *[4.72]*	23 *[0.91]*	G1/2

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 Nm *[36.88 lb-ft]*

2 Switching element with locking ring for electrical maintenance indicator (rotatable by 360°);round plug-in connection M12x1, 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 with memory function

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).

Ordering code spare parts

Filter element

01	02	03		04		05		06
1.			**–**	**A00**	**–**	**0**	**–**	

Filter element

01	Design	**1.**

Size

02		Filter size	Number of filter elements (per complete filter)	
	FLDN...	0400	2	**0400**
		0630	2	**0630**
		1001	2	**1000**
	FLD...	0120	2	**0120**
		0201	2	**0200**
		0271	2	**0270**
		0272	4	**0270**
		0273	6	**0270**
		0274	8	**0270**

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**
		Paper, not cleanable	**P10 P25**

Pressure differential

04	Maximum admissible pressure differential of the filter element: 30 bar *[435 psi]*	**A00**

Bypass valve

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

Seal

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

Order example:
1.0270 H3XL-A00-0-M

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

Preferred program replacement elements

Filter element type	Filter material/material no.		
	H3XL	**H6XL**	**H10XL**
1.0400 ...A00-0-M	**R928005961**	**R928005962**	**R928005963**
1.0630 ...A00-0-M	**R928005997**	**R928005998**	**R928005999**
1.1000 ...A00-0-M	**R928006033**	**R928006034**	**R928006035**
1.0120 ...A00-0-M	**R928005745**	**R928005746**	**R928005747**
1.0200 ...A00-0-M	**R928005799**	**R928005800**	**R928005801**
1.0270 ...A00-0-M	**R928005817**	**R928005818**	**R928005819**

Ordering code spare parts

Mechanical optical maintenance indicator

01	02		03		04		05		06
W	**O**	**–**	**D01**	**–**		**–**		**–**	**160**

01	**Maintenance indicator**	**W**

02	**Mechanical optical indicator**	**O**

Version		
03	Pressure differential, modular design	**D01**

Switching pressure

04	0.8 bar *[11.6 psi]*	**0.8**
	1.5 bar *[21.8 psi]*	**1.5**
	2.2 bar *[31.9 psi]*	**2.2**

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**

Mechanical optical maintenance indicator	Material no.
WO-D01-0.8-M-160	**R928038779**
WO-D01-0.8-V-160	**R928038778**
WO-D01-1.5-M-160	**R928038781**
WO-D01-1.5-V-160	**R928038780**
WO-D01-2.2-M-160	**R901025312**
WO-D01-2.2-V-160	**R901066233**

Ordering code spare parts

Seal kit

01	02	03	04
D	**40 FLD**		**–**

01	**Seal kit**	**D**

02	**Series**	**40 FLD**

Size

03	0060-0120/N0400-0630	**0060-0120/ N0400-0630**
	0146-0271/N1001	**0146-0271/ N1001**
	0272	**0272**
	0273	**0273**
	0274	**0274**

Seal

04	NBR seal	**M**
	FKM seal	**V**

Seal kit	Material no.
D40FLD0060-0120/N0400-0630-M	**R928037177**
D40FLD0060-0120/N0400-0630-V	**R928044758**
D40FLD0146-0271/N1001-M	**R928039036**
D40FLD0146-0271/N1001-V	**R928039959**
D40FLD0272-M	**R928054103**
D40FLD0272- V	**R928054104**
D40FLD0273-M	**R928054105**
D40FLD0273-V	**R928054106**
D40FLD0274-M	**R928054107**
D40FLD0274-V	**R928054108**

Assembly, commissioning, maintenance

Assembly

- The max. operating pressure of the system must not exceed the max. admissible operating pressure of the filter (see type plate).
- In the assembly, depending upon the dimensions, you have to distinguish between floor mounting and wall mounting.
- During assembly of the filter the flow direction (direction arrows) and the required servicing height of the filter element (see chapter "Dimensions") are to be considered.
- The filter covers may not be used as lifting points.
- Perfect filter function is only guaranteed when mounted with th filter cover vertically upward.
- The maintenance indicator must be arranged so it is easily viewed in operation.
- Filters with foot mount or wall mount should be securely using proper fasteners.
- Ensure that the system is assembled without tension stress.
- Remove the plastic plugs from the filter inlet and outlet.
- The optional electronic maintenance indicator is connected via the electronic switching element with one or two switching points, which is attached to the mechanical optical maintenance indicator and held by means of the locking ring.

Commissioning

- Bring the switching lever into central position in order to fill both filter sides.
- Commission the system.
- Bleed filter by opening the bleed screws or bleed valves, close when operating liquid escapes.
- Switch the filter into the operating position; to do so, switch the switching lever to one of the two end positions. (See information on the indicator disc on the switch housing) The switch-over lever is on the filter side that is in operation.
- Close pressure equalization line.

Maintenance

- If at operating temperature, the red indicator pin reaches out of the mechanical optical maintenance indicator and/or if the electronic switching element opens/closes the circuit, the filter element is contaminated and needs to be replaced or cleaned respectively.
- The material number of the corresponding replacement filter element is indicated on the name plate of the complete filter. It must correspond to the material number on the filter element.
- The switch-over lever is over the filter side that is in operation. (See notice on the indicator disc of the switch housing.)
- Open the pressure compensation at the ball valve.
- Switch the filter using the switch-over lever.
- Close the pressure compensation at the ball valve.
- Open the bleed screw or bleed valve at the decommissioned filter side in order to reduce the pressure.
- Via the drain screw, the oil on the dirt side can be drained.
- Remove the filter cover of the filter side that is not in operation.
- Remove the filter element from the spigot by rotating it slightly.
- Clean the filter components, if necessary.
- Check the seals for damage and replace them, if necessary. For suitable seal kits refer to chapter “Spare parts”.
- Filter elements made of wire mesh can be cleaned. For detailed cleaning instructions refer to data sheet 51420.
- Install the new or cleaned filter element on the spigot again by slightly rotating it.
- The filter is to be assembled in reverse order.
- To fill the maintained filter side, open the pressure equalization line.
- The filter is bled via the bleed screw or the bleed valve which is still open.
- After fluid escapes, close the bleed screw or the bleed valve again
- Ensure correct position of the switch-over lever end position.
- Close pressure equalization line.

Assembly, commissioning, maintenance

⚠ WARNING!

- Assemble and disassemble only with depressurized system!
- Filter is under pressure!
- Remove the filter cover only if it is depressurized!
- Do not exchange the maintenance indicator while the filter is under pressure!
- Do not operate the switching lever and the pressure equalization valve during the filter element exchange.
- When disassembling the filter, it has to be ensured that the system is depressurized.
- If the flow direction is not considered during assembly, the filter element will be destroyed. Particles will 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.

Directives and standardization

Classification according to the Pressure Equipment Directive

The duplex filters for hydraulic applications according to 51408 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 PED, hydraulic filters are exempt from the PED if they are not classified higher than category I (guideline 1/19).
The fluids from the chapter “Compatibility with approved pressure fluids” were considered for the classification.
They do not receive a CE mark.

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

The duplex filters according to 51408 are not equipment or components in the sense of directive 94/9/EC and are not provided with a CE mark. It has been proven with the ignition risk analysis that these 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-M12x1 **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 duplex filters and the electronic maintenance indicators described here can be used for the following explosive areas:

	Zone suitability	
Gas	1	2
Dust	21	22

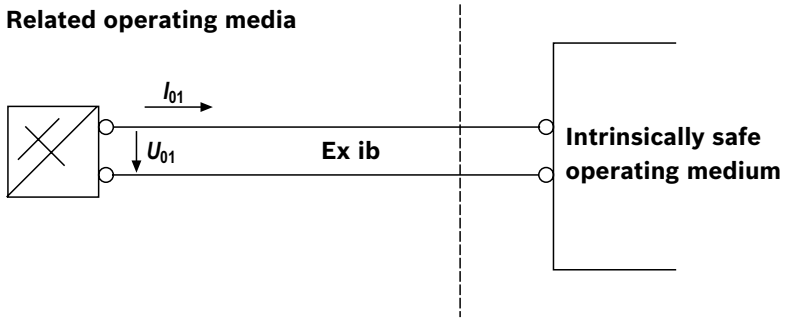
Complete filter with mech./opt. Maintenance indicator				
Use/assignment			**Gas 2G**	**Dust 2D**
Assignment			Ex II 2G c IIC TX	Ex II 2D c IIC TX
Conductivity of the medium	pS/m	min	300	
Dust accumulation		max	–	0.5 mm

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 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.

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 duplex filters according to 51408 in explosive areas, sufficient potential equalization has to be ensured. The filter is preferably to be grounded via the mounting screws. It has to be noted in this connection that painted and oxidized 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:**

- All maintenance of the filter should be performed by trained 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

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

Notes

Bosch Rexroth AG
Ketsch plant
Hardtwaldstrase 43
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