

## Change-Over Inline Filter RFLD Cast Version up to 2500 l/min, up to 64 bar

RFLD 111 RFLD 241 RFLD 261 RFLD 331 RFLD 501 RFLD 661 RFLD 851 RFLD 951 RFLD 1301 RFLD 1321 RFLD 2701



### 1. TECHNICAL SPECIFICATIONS

#### 1.1 FILTER HOUSING

##### Construction

The filter housings are designed in accordance with international regulations. The two sections of the filter housing, each of which has a bolt-on cover plate, are connected by means of a ball change-over valve.

Standard equipment:

- connections for venting and draining
- connection for a clogging indicator
- for size DN 80 and above, the filters are fitted with a pressure equalisation line and a ball shut-off valve
- with bypass valve

#### 1.2 FILTER ELEMENTS

HYDAC filter elements are validated and their quality is constantly monitored according to the following standards:

- ISO 2941, ISO 2942, ISO 2943, ISO 3724, ISO 3968, ISO 11170, ISO 16889

#### Contamination retention capacities in g

RFLD	Element per side	Betamicon® (BN4HC)			
		3 µm	5 µm	10 µm	20 µm
111	1x0110 R	12	13.3	16	18.1
241	1x0240 R	29.3	32.5	39.1	44.2
261	1x0260 R	39.6	43.9	52.8	59.8
33x	1x0330 R	38.4	42.6	51.2	57.9
50x	1x0500 R	58.9	65.3	78.6	88.9
66x	1x0660 R	87.1	96.5	116.1	131.3
85x	1x0850 R	112.1	124.2	149.5	169.1
95x	1x0950 R	130.0	144.1	173.3	196.1
130x	1x1300 R	181.0	200.7	241.4	273.1
132x	1x2600 R	369.4	409.4	492.5	557.2
2701	1x2700 R	336.3	372.6	448.5	507.3

Filter elements are available with the following pressure stability values:

Betamicon® (BN4HC):	20 bar
Optimicon® Power (ON/PO):	10 bar
Paper (P/HC):	10 bar
Stainl. st. wire mesh (W/HC):	20 bar
Stainless steel fibre (V):	30 bar
Betamicon®/Aquamicron® (BN4AM):	10 bar
Aquamicron® (AM):	10 bar

#### 1.3 FILTER SPECIFICATIONS

Nominal pressure	16 bar (RFLD 2701) 25 bar (RFLD 331-1321) 40 bar (RFLD 111-261, 662-1322) 64 bar (RFLD 332-502)
Temperature range	-10 °C to +100 °C
Material of filter housing and cover plate	EN-GJS-400-15: = 1
Material code (final digit of filter size)	EN-GJS-400-18LT: = only RFLD 2701 GP 240 GH+N: = 2
Type of clogging indicator	VM (differential pressure measurement up to 210 bar operating pressure)
Pressure setting of the clogging indicator	2 bar (others on request)
Bypass cracking pressure	3 bar (others on request)

#### 1.4 SEALS

NBR (=Perbunan)

#### 1.5 MOUNTING

Inline filter

#### 1.6 SPECIAL MODELS AND ACCESSORIES

- Orifice in the pressure equalisation line
- Stand
- Drain and vent ports with ball valves or other shut-off valves
- Counter flanges available for all sizes
- Change-over valve lockable
- Venting line with sight gauges
- RFLD filter with nominal bore 100 at max. 50 bar operating pressure on request

#### 1.7 SPARE PARTS

See Original Spare Parts List

#### 1.8 CERTIFICATES AND APPROVALS

These filters can be supplied with manufacturer's test certificates O and M to DIN 55350, Part 18.

Test certificates 3.1 to DIN EN 10204 and approval certificates

(Type Approval) for different approval authorities. Areas of application, amongst others lubrication.

Filter to API 614 (ANSI flange) on request!

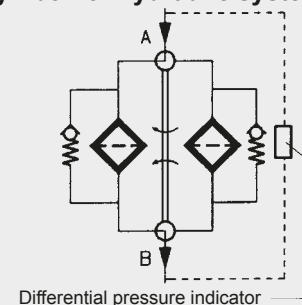
#### 1.9 COMPATIBILITY WITH HYDRAULIC FLUIDS ISO 2943

- Hydraulic oils H to HLPD DIN 51524
- Lubrication oils DIN 51517, API, ACEA, DIN 51515, ISO 6743
- Compressor oils DIN 51506
- Biodegradable operating fluids VDMA 24568 HETG, HEEES, HEPG
- Fire-resistant fluids HFA, HFB, HFC and HFD
- Operating fluids with high water content (> 50 % water content) and CLP oils on request

#### 1.10 IMPORTANT INFORMATION

- Filter housings must be earthed.
- When using electrical clogging indicators, the electrical power supply to the system must be switched off before removing the clogging indicator connector.
- Filters must be flexibly mounted and not fixed rigidly to the floor or used as a pipe support.
- When used with W/HC and P/HC elements, please follow the sizing recommendation under point 3.3!

#### Symbol for hydraulic systems



## 2. MODEL CODE (also order example)

RFLD BN/HC 851 D A L 10 D 1 . X /-L24

### 2.1 COMPLETE FILTER

Filter type \_\_\_\_\_

RFLD

Filter material of element \_\_\_\_\_

BN/HC Betamicon® (BN4HC) V Stainless steel fibre\* P/HC Paper\* AM Aquamicon®\*  
 ON/PO Optimicon® Power<sup>1)</sup> W/HC Wire mesh BN/AM Betamicon®/Aquamicon®\*

Size of filter or element \_\_\_\_\_

EN-GJS-400-15: 111, 241, 261, 331, 501, 661, 851, 951, 1301, 1321

EN-GJS-400-18LT: 2701

GP 240 GH+N: 332, 502, 662, 852, 952, 1302, 1322

Operating pressure \_\_\_\_\_

C = 16 bar RFLD 2701

D = 25 bar RFLD 331-1321

E = 40 bar RFLD 111-261, 662-1322

F = 64 bar RFLD 332-502

Type of change-over \_\_\_\_\_

A = Ball

Type and size of port \_\_\_\_\_

EN-GJS-400-15 + EN-GJS-400-LT18 (●) GP 240 GH+N (X)

Type	Port	Filter size											
		111	241	261	331 332	501 502	661 662	851 852	951 952	1301 1302	1321 1322	2701	
D	G 1	●											
F	G 1½		●	●									
I	SAE DN 25	●											
J	DIN DN 50				X	X							
K	SAE DN 40		●	●	●	●							
L	SAE DN 50				●X	●X	●	●					
M	SAE DN 65						●	●					
Q	DIN DN 80						X	X					
R	DIN DN 100								X	X	X	X	
S	SAE/DIN DN 80						●	●	●	●	●	●	
T	SAE/DIN DN 100								●	●	●	●	
V	DIN DN 150												●

Other nominal bores, and ANSI flange version on request

Filtration rating in µm \_\_\_\_\_

BN/HC\*, ON/PO\*<sup>1)</sup>, V\*: 3, 5, 10, 20

P/HC\*: 10, 20

AM\*: 40

W/HC\*: 25, 50, 100, 200

BN/AM\*: 3, 10

Type of clogging indicator \_\_\_\_\_

Y plastic blanking plug in indicator port

A stainless steel blanking plug in indicator port

B visual

C electrical

D visual and electrical

for other clogging indicators,  
see brochure no. 7.050.../..

Type code \_\_\_\_\_

1

Modification number \_\_\_\_\_

X the latest version is always supplied

Supplementary details \_\_\_\_\_

B. special cracking pressure of bypass (e.g. B1 = 1 bar)

DE differential pressure measurement across element

KB without bypass valve

L... light with appropriate voltage (24V, 48V, 110V, 220V)

LED 2 light emitting diodes up to 24 Volt

SAK contamination retainer

SB pressure equalisation line (SB2 = with 2mm orifice)

STV stand

V FPM seals

only for clogging indicators  
type "D"

### 2.2 REPLACEMENT ELEMENT

0850 R 010 BN4HC /-V

Size \_\_\_\_\_

0110, 0240, 0260, 0330, 0500, 0660, 0850, 0950, 1300, 2600, 2700

Type \_\_\_\_\_

R

Filtration rating in µm \_\_\_\_\_

BN4HC, ON/PO\*<sup>1)</sup>, V\*: 003, 005, 010, 020

P/HC\*: 010, 020

AM\*: 040

W/HC: 025, 050, 100, 200

BN4AM\*: 003, 010

Filter material \_\_\_\_\_

BN4HC\*, ON/PO\*<sup>1)</sup>, V\*, W/HC\*, P/HC\*, BN4AM\*, AM\*

Supplementary details \_\_\_\_\_

V (for descriptions, see point 2.1)

### 2.3 REPLACEMENT CLOGGING INDICATOR

VM 2 D . X /-L24

Type \_\_\_\_\_

VM differential pressure measurement up to 210 bar operating pressure

Pressure setting \_\_\_\_\_

2 standard 2 bar, others on request

Type of clogging indicator (see Point 2.1) \_\_\_\_\_

Modification number \_\_\_\_\_

X the latest version is always supplied

Supplementary details \_\_\_\_\_

L..., LED, V (for descriptions, see point 2.1)

\* for RFLD 2701 on request! <sup>1)</sup> Optimicon® Power only in filtration rating 5, 10 and 20 µm

### 3. FILTER CALCULATION / SIZING

The total pressure drop of a filter at a certain flow rate Q is the sum of the housing  $\Delta p$  and the element  $\Delta p$  and is calculated as follows:

$$\Delta p_{\text{total}} = \Delta p_{\text{housing}} + \Delta p_{\text{element}}$$

$$\Delta p_{\text{housing}} = (\text{see Point 3.1})$$

$$\Delta p_{\text{element}} = Q \cdot \frac{SK^*}{1000} \cdot \frac{\text{viscosity}}{30}$$

(\*see point 3.2)

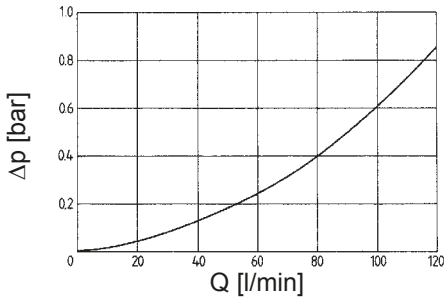
For ease of calculation, our Filter Sizing Program is available on request free of charge.

**NEW:** Sizing online at [www.hydac.com](http://www.hydac.com)

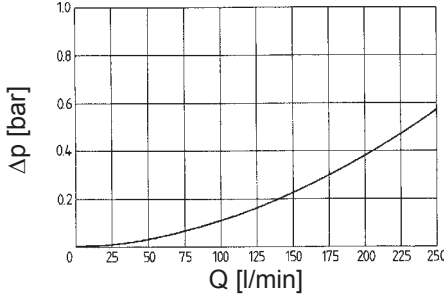
#### 3.1 $\Delta p$ -Q HOUSING CURVES BASED ON ISO 3968

The housing curves apply to mineral oil with a density of 0.86 kg/dm<sup>3</sup> and a kinematic viscosity of 30 mm<sup>2</sup>/s. In this case, the differential pressure changes proportionally to the density.

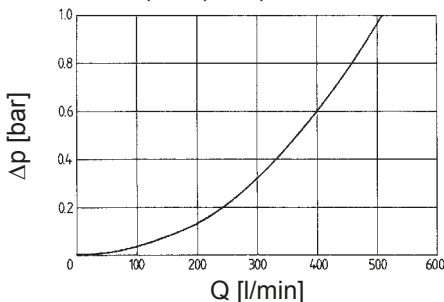
##### RFLD 111



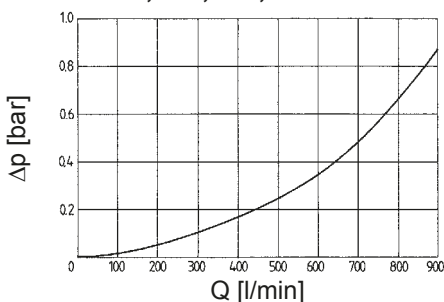
##### RFLD 241, 261



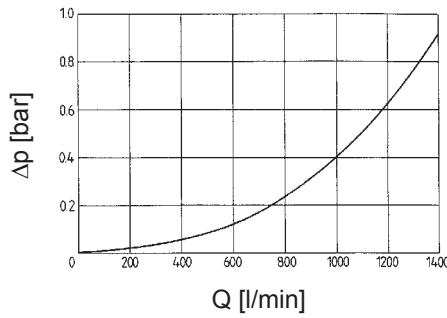
##### RFLD 331, 332, 501, 502



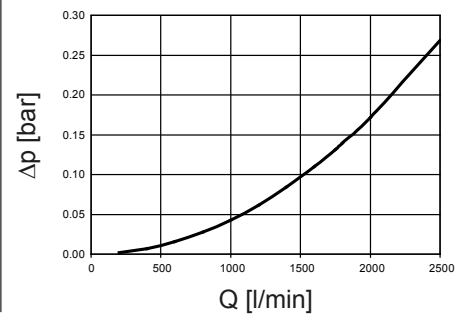
##### RFLD 661, 662, 851, 852



##### RFLD 951, 952, 1301, 1302, 1321, 1322



##### RFLD 2701



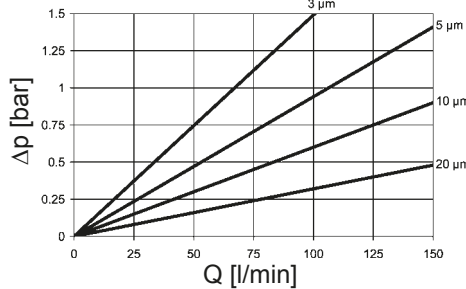
#### 3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm<sup>2</sup>/s. The pressure drop changes proportionally to the change in viscosity.

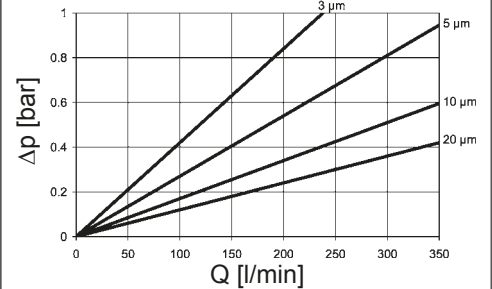
RFLD	V				W/HC	ON/PO		
	3 μm	5 μm	10 μm	20 μm		5 μm	10 μm	20 μm
110	7.6	5.1	3.0	2.0	0.30	3.63	3.08	2.03
240	3.2	2.6	1.7	1.2	0.123	1.32	1.12	0.72
330	2.1	1.7	1.1	0.8	0.195	0.81	0.69	0.44
500	1.5	1.2	0.8	0.5	0.128	0.53	0.45	0.29
660	1.0	0.8	0.6	0.4	0.067	0.35	0.30	0.19
850	0.8	0.6	0.4	0.3	0.052	0.28	0.24	0.16
950	0.7	0.6	0.4	0.2	0.048	0.25	0.21	0.14
1300	0.5	0.4	0.3	0.2	0.034	0.18	0.15	0.10
2600	0.3	0.2	0.1	0.1	0.017	0.08	0.07	0.05
2700	0.2	0.1	0.1	0.1	0.013	0.08	0.07	0.05

Size 260 on request!

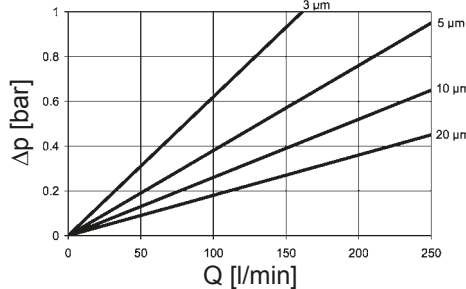
##### BN4HC: RFLD 110



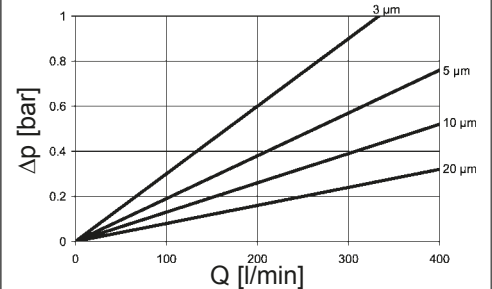
##### BN4HC: RFLD 330



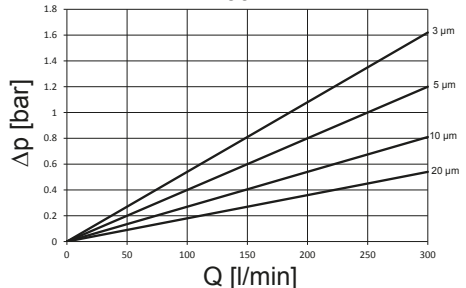
##### BN4HC: RFLD 240



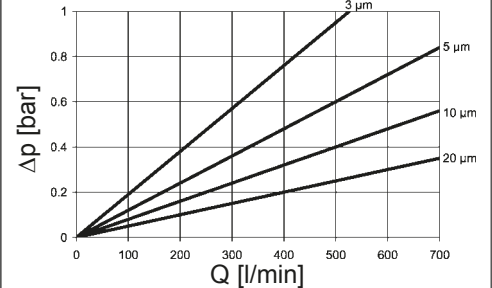
##### BN4HC: RFLD 500



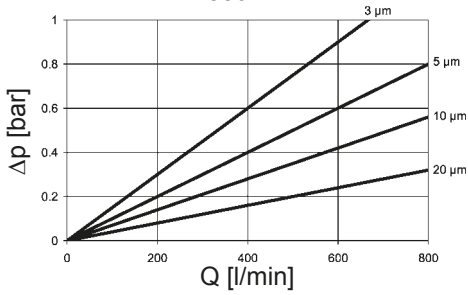
##### BN4HC: RFLD 260



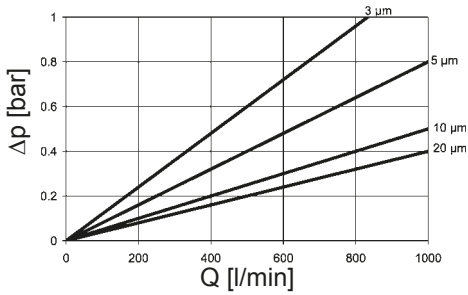
##### BN4HC: RFLD 660



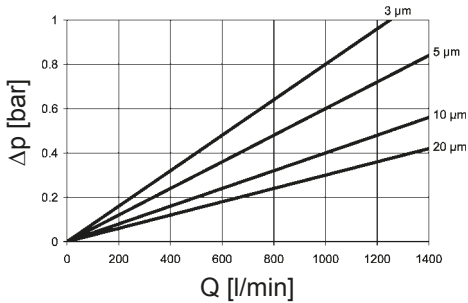
**BN4HC: RFLD 850**



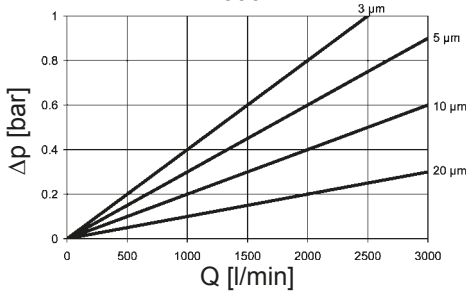
**BN4HC: RFLD 950**



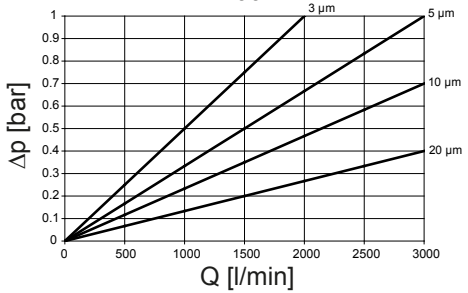
**BN4HC: RFLD 1300**



**BN4HC: RFLD 2600**



**BN4HC: RFLD 2700**

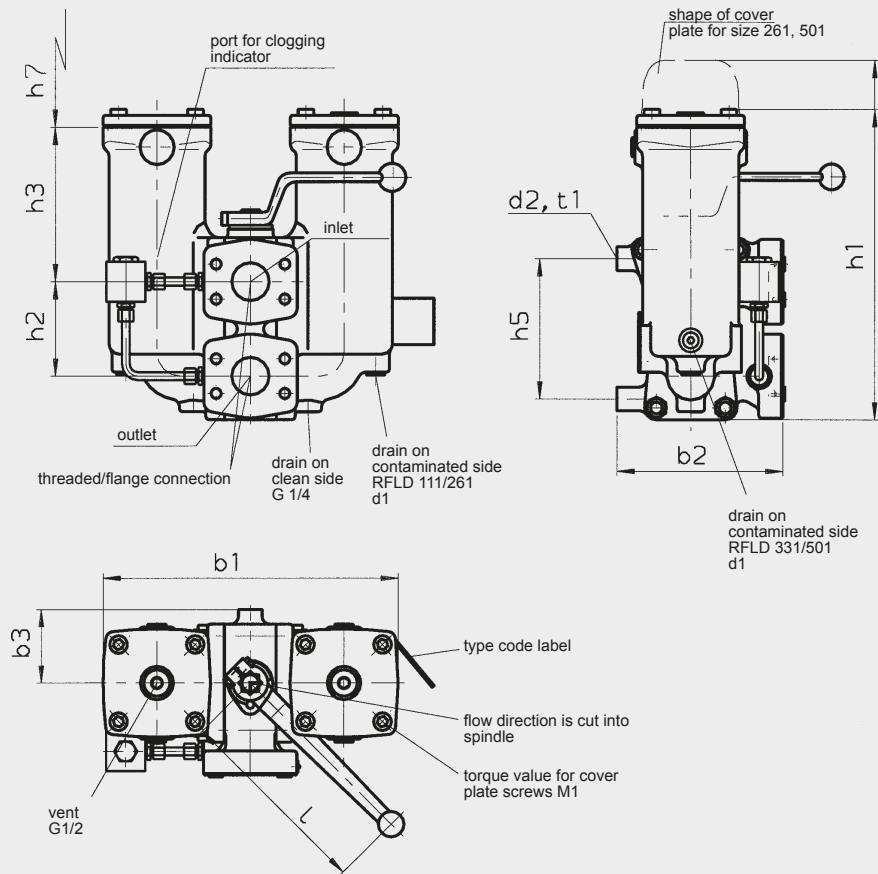


**3.3 SIZING RECOMMENDATION**

Filter type	Connection	Q <sub>max</sub> when using W/HC and P/HC elements
RFLD 111	G1 SAE DN 25	70 l/min 70 l/min
RFLD 241/261	G 1½ SAE DN 40	170 l/min 170 l/min
RFLD 331	SAE DN 40	170 l/min
RFLD 331/332	SAE DN 50	260 l/min
RFLD 332	DIN DN 50	260 l/min
RFLD 501	SAE DN 40	170 l/min
RFLD 501/502	SAE DN 50	260 l/min
RFLD 502	DIN DN 50	260 l/min
RFLD 661	SAE DN 50 SAE DN 65 SAE /DIN DN 80	260 l/min 260 l/min 480 l/min
RFLD 662	DIN DN 80	480 l/min
RFLD 851	SAE DN 50 SAE DN 65	260 l/min 260 l/min
RFLD 851	SAE/DIN DN 80	480 l/min
RFLD 852	DIN DN 80	480 l/min
RFLD 951	SAE/DIN DN 80 SAE/DIN DN 100	480 l/min 900 l/min
RFLD 952	DIN DN 100	900 l/min
RFLD 1301/1321	SAE/DIN DN 80 SAE/DIN DN 100	480 l/min 900 l/min
RFLD 1302/1322	DIN DN 100	900 l/min
RFLD 2701	DIN DN 150	2500 l/min

## 4. DIMENSIONS

### RFLD 111-501

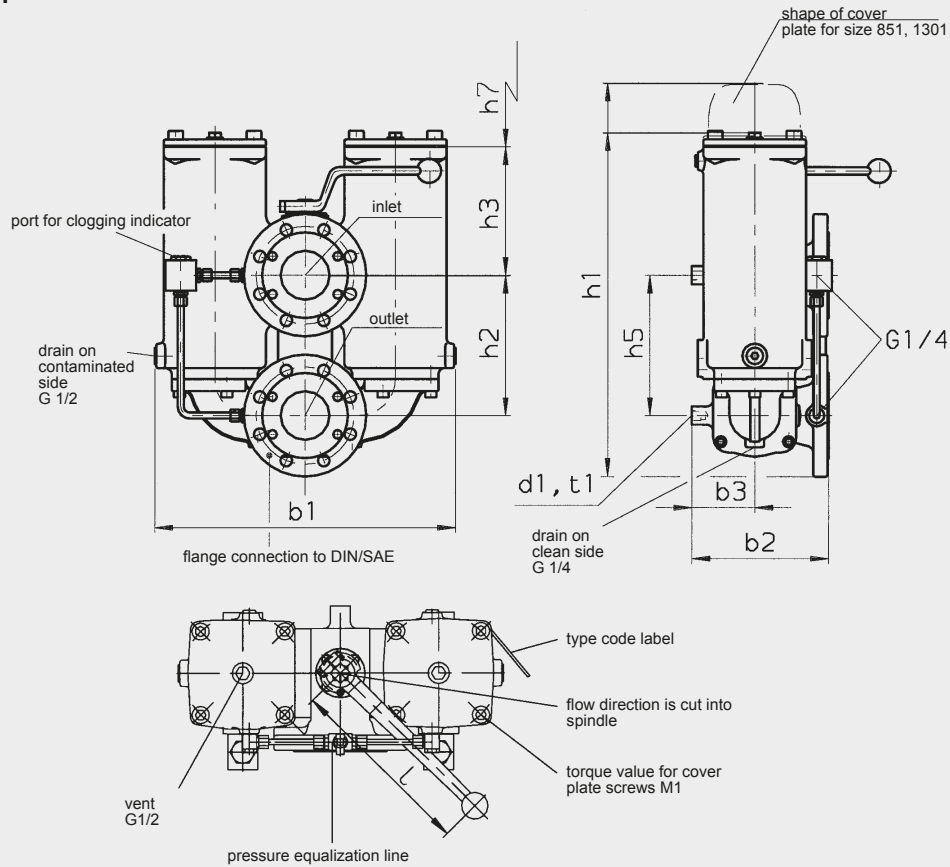


RFLD	Flange connection <sup>1)</sup>	Threaded connection <sup>2)</sup>	b1	b2	b3	d1	d2	h1	h2	h3	h5	h7	l	M1 (Nm)	t1	Weight including element [kg]	Volume of pressure chamber [l]
111	DN 25 (1")	G 1	233	157	63	G 1/4	M12	263	80	132	80	175	173	24	25	17	2 x 0.60
241	DN 40 (1 1/2")	G 1 1/2	302	167	75	G 1/4	M12	312	95	155	140	210	216	40	18	27	2 x 1.40
261	DN 40 (1 1/2")	G 1 1/2	302	167	75	G 1/4	M12	366	95	155	140	270	216	40	18	28	2 x 1.80
331	DN 40 (1 1/2")	-	396	167	75	G 1/2	M12	302	95	145	140	200	216	40	18	33	2 x 2.30
331	DN 50 (2")	-	380	187	85	G 1/2	M12	323	110	140	165	200	216	45	18	37	2 x 2.40
501	DN 40 (1 1/2")	-	396	167	75	G 1/2	M12	382	95	145	140	280	216	45	18	35	2 x 3.00
501	DN 50 (2")	-	380	187	85	G 1/2	M12	400	110	140	165	280	216	45	18	39	2 x 3.10

<sup>1)</sup> Flange connection to SAE J 518 C (standard pressure range 3000 psi)

<sup>2)</sup> Threaded connection to ISO 228

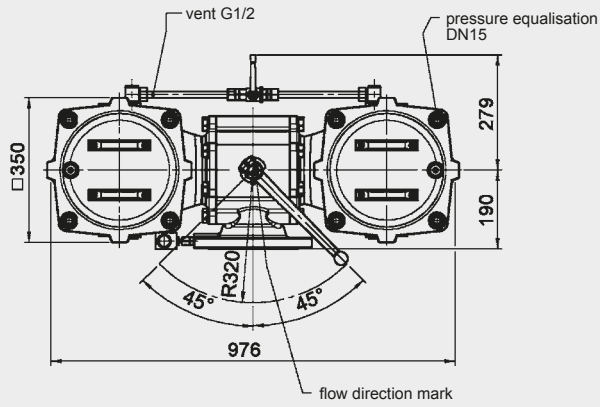
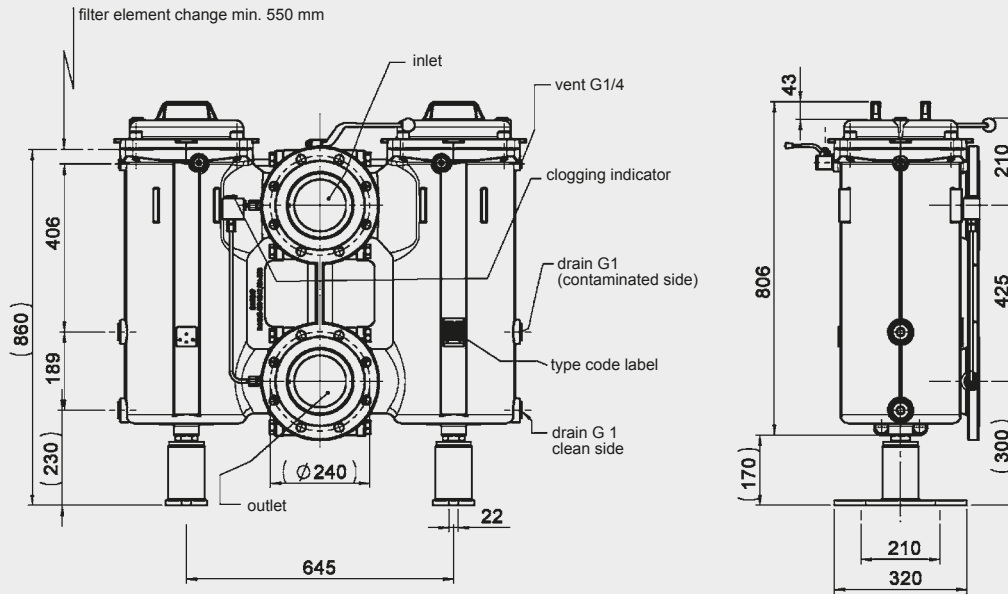
RFLD 661-1321



RFLD	Flange connection <sup>1)</sup>	b1	b2	b3	d1	h1	h2	h3	h5	h7	l	M1 (Nm)	t1	Weight including element [kg]	Volume of pressure chamber [l]
661	DN 50 (2")	496	187	85	M12	460	110	282	165	340	216	150	18	56	2 x 6.80
661	DN 65 (2½")	496	252	85	M12	472	110	282	165	340	216	150	18	74	2 x 6.80
661	DN 80 (3")	490	222	102	M12	566	230	210	230	340	301	150	23	82	2 x 8.20
851	DN 50 (2")	496	187	85	M12	544	110	282	165	420	216	150	18	62	2 x 8.10
851	DN 65 (2½")	496	252	85	M12	556	110	282	165	420	216	150	18	80	2 x 8.10
851	DN 80 (3")	490	222	102	M12	650	230	210	230	420	301	150	23	88	2 x 9.50
951	DN 80 (3")	548	222	102	M12	595	230	243	230	370	301	250	23	105	2 x 10.80
951	DN 100 (4")	555	248	118	M16	640	250	238	250	370	301	250	23	120	2 x 13.00
1301	DN 80 (3")	548	222	102	M12	701	230	243	230	490	301	250	23	110	2 x 13.80
1301	DN 100 (4")	555	248	118	M16	746	250	238	250	490	301	250	23	125	2 x 16.00
1321	DN 80 (3")	548	222	102	M12	1190	230	804	230	950	301	250	23	167	2 x 28.80
1321	DN 100 (4")	555	248	118	M16	1307	250	799	250	950	301	250	23	167	2 x 31.00

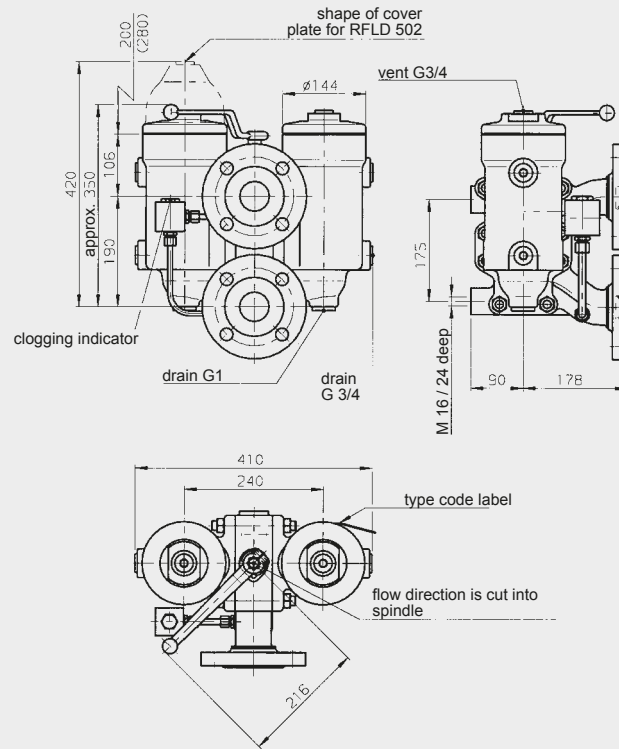
<sup>1)</sup> Flange connection to SAE J 518 C (standard pressure range 3000 psi) DIN flange connection to DIN 2501/1 for PN 25/40 (sealing strip "D" or "E")

# RFLD 2701



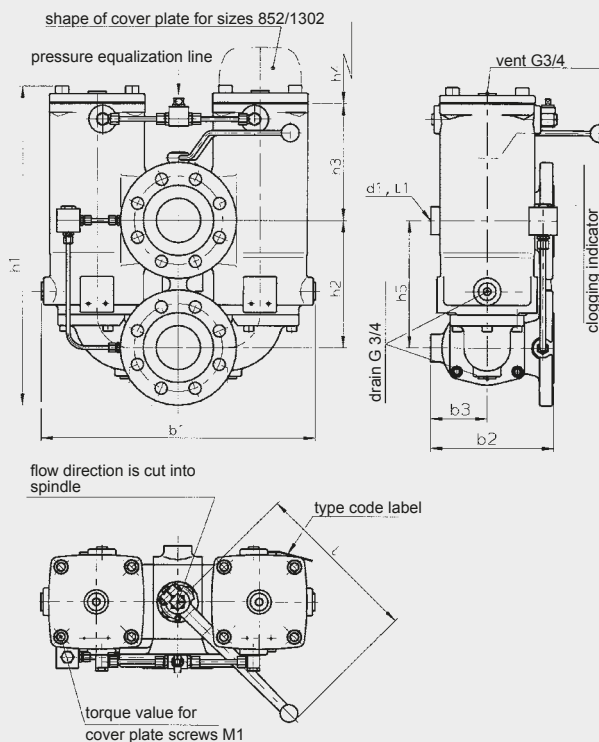
RFLD	Weight including element [kg]	Volume of pressure chamber [l]
2701	304.00	2 x 44.0

## RFLD 332, 502



RFLD	Weight including element [kg]	Volume of pressure chamber [l]
332	37	2 x 2.40
502	39	2 x 3.10

## RFLD 662-1322



RFLD	Flange connection <sup>1)</sup>	b1	b2	b3	d1	h1	h2	h3	h4	h5	l	M1 (Nm)	t1	Weight including element [kg]	Volume of pressure chamber [l]
662	DN 80 (3")	495	222	102	M12	574	230	210	340	230	301	150	23	82	2 x 8.20
852	DN 80 (3")	495	222	102	M12	665	230	210	420	230	301	150	23	88	2 x 9.50
952	DN 100 (4")	573	248	118	M16	672	250	238	380	250	301	250	17	120	2 x 13.00
1302	DN 100 (4")	573	248	118	M16	745	250	238	490	250	301	250	17	125	2 x 16.00
1322	DN 100 (4")	573	248	118	M16	1307	250	238	950	250	301	250	17	167	2 x 31.00

<sup>1)</sup> Flange connection to SAE J 518 C (standard pressure range 3000 psi) DIN flange connection to DIN 2501/1 for PN 25/40 (sealing strip "D" or "E")

### NOTE

The information in this brochure relates to the operating conditions and applications described.  
For applications or operating conditions not described, please contact the relevant technical department.  
Subject to technical modifications.

**HYDAC Filtrertechnik GmbH**  
Industriegebiet  
**D-66280 Sulzbach/Saar**  
Tel.: 0 68 97 / 509-01  
Fax: 0 68 97 / 509-300  
Internet: [www.hydac.com](http://www.hydac.com)  
E-Mail: [filter@hydac.com](mailto:filter@hydac.com)