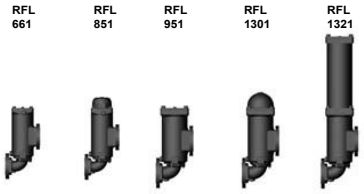
HYDAC INTERNATIONAL

Inline Filter RFL Cast Version up to 1300 l/min, up to 40 bar



1. TECHNICAL SPECIFICATIONS

1.1 FILTER HOUSING

Construction
The filter housings are designed in accordance with international regulations. They consist of a two-piece filter housing with a bolt-on cover plate.
Standard equipment:
- connections for venting and draining
- connection for a clogging indicator

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

	Betamicron® (BN4HC)			
RFL Elements	3 µm	5 µm	10 µm	20 µm
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

Filter elements are available with the following pressure stability

Betamicron® (BN4HC):	20 bar
Paper (P/HC):	10 bar
Wire mesh (W/HC):	20 bar
Stainless steel fibre (V):	30 bar
Betamicron®/Aquamicron® (BN4AM):	10 bar
Aquamicron® (AM):	10 bar

* These filters are available from our Process Technology Department:
HYDAC PROCESS TECHNOLOGY GMBH
Industriegebiet Grube König
Am Wrangelflöz 1
D-66583 Neunkirchen
Tel.: +49 (0)6821 - 86 90-0
Fax: +49 (0)6821 - 86 90-200
Email: prozess-technik@hydac.com

1.3 FILTER SPECIFICATIONS

Nominal pressure	25 bar 40 bar (RFL 662 to 1322 to AD)
Temperature range	-10 °C to +100 °C
Material of filter housing and cover plate	EN-GJS-400-15 : RFL 661 to 1321 GP 240 GH+N : RFL 662 to 1322 1.4581/4571 : RFL 853* On RFL 1321 and 1322 the extension is in steel!
Type of clogging indicator	VM (differential pressure measurement up to 210 bar operating pressure)
Pressure setting of clogging indicator	2 bar (others on request)
Bypass cracking pressure	3 bar (others on request)

1.4 SEALS
NBR (= Perbunan)

1.5 MOUNTING
As inline filter

1.6 SPECIAL MODELS AND ACCESSORIES
- Inlet and outlet positioned one above the other
- Counter flanges as welding or blank flanges

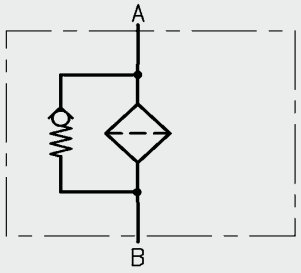
1.7 SPARE PARTS
See Original Spare Parts List

1.8 CERTIFICATES AND APPROvALS
Material code (final digit of filter size) - 1:
These filters can be supplied with manufacturer's 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.
Material code (final digit of filter size) - 2:
These filters are designed according to API 614, which contains guidelines for the design and designation of basic types of oil supply systems for bearings and shaft seals of larger machines.
Material code (final digit of filter size) - 3:
Filters for use in separation technology with low viscosity, high viscosity and aggressive fluids as well as gaseous media.*

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, HEES, HEPG
- Non-flam operating fluids HFA, HFB, HFC and HFD
- Operating fluids with high water content (>50% water content) on request

1.10 IMPORTANT INFORMATION
- Filter housing 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.

Symbol for hydraulic systems



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2. MODEL CODE (also order example)

RFL BN/HC 851 D N 10 D 1 . X /-L24

2.1 COMPLETE FILTER

Filter type
RFL

Filter material of element
BN/HC Betamicron® (BN4HC) P/HC Paper V AM Aquamicron®
Stainless steel fibre W/HC Wire mesh BN/AM Betamicron®/Aquamicron®

Size of filter or element
RFL: 661, 662, 851, 853, 951, 952, 1301, 1302, 1321, 1322

Operating pressure
D = 25 bar
E = 40 bar (RFL 662-1322 to AD)

Type and size of port

Type	Port	Filter size 661 662	851 853	951 952	1301 1302	1321 1322
N	SAE DN 80 (3“)	□	□			
P	SAE DN 100 (4“)			□	□	□
Q	DIN DN 80	□	□			
R	DIN DN 100			□□		□

Other nominal widths and ANSI ports on request

Filtration rating in µm
BN/HC, 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 steel blanking plug in indicator port
B visual
C electrical
D visual and electrical
] for other clogging indicators see brochure no. E 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)
GA counter flange as welding flange
GB counter flange as blank flange
KB without bypass flange
L... light with appropriate voltage (24V, 48V, 110V, 220V)
LED 2 light emitting diodes up to 24 Volt
] only for clogging indicators type D
OR O-ring groove on the DIN flange (inlet and outlet) to Rexroth standard AB 22-04
V FPM seals
33 inlet and outlet positioned one above the other
SAK contamination retainer

2.2 REPLACEMENT ELEMENT

0850 R 010 BN4HC /-v

Size
0660, 0850, 0950, 1300, 2600

Type
R

Filtration rating in µm
BN4HC, V: 003, 005, 010, 020 P/HC: 010, 020 AM: 040
W/HC: 025, 050, 100, 200 BN4AM: 003, 010

Filter material
BN4HC, 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 2 bar standard,~~ 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)

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3. FILTER CALCULATION / SIZING

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

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

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

$\Delta p = Q \cdot \frac{SK^* \cdot viscosity_{element}}{1000 \quad 30}$ (*see point 3.2)

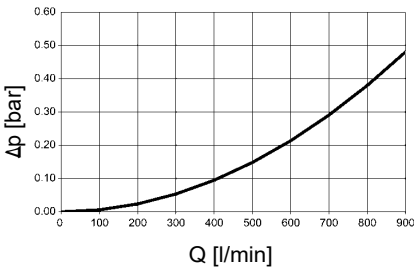
For ease of calculation, our Filter Sizing Program is available on request free of charge.

NEW: Sizing online at www.hydac.com

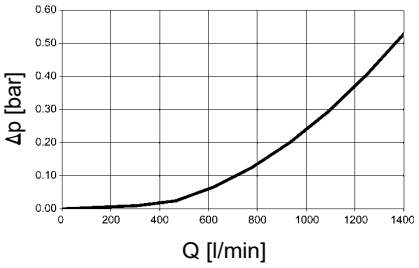
3.1 Δp-Q HOUSING GRAPHS BASED ON ISO 3968

The housing graphs apply to mineral oil with a density of 0.86 kg/dm³ and a kinematic viscosity of 30 mm²/s. In this case, the differential pressure changes proportionally to the density.

RFL 661, 662, 851, 853



RFL 951, 952, 1301, 1302, 1321, 1322

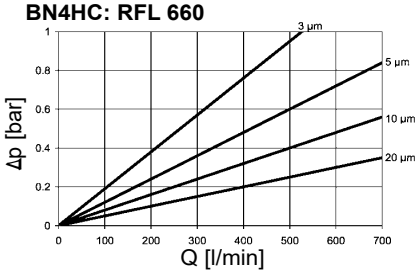


3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

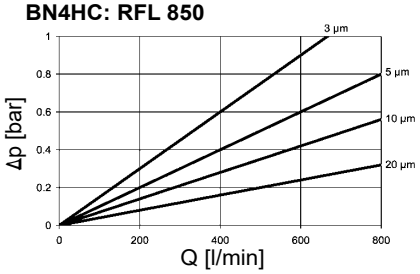
The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm²/s. The pressure drop changes proportionally to the change in viscosity.

RFL	v				W/HC
	3 µm	5 µm	10 µm	20 µm	–
660	1.0	0.8	0.6	0.4	0.081
850	0.8	0.6	0.4	0.3	0.063
950	0.7	0.6	0.4	0.2	0.054
1300	0.5	0.4	0.3	0.2	0.045
2600	0.3	0.2	0.1	0.1	0.022

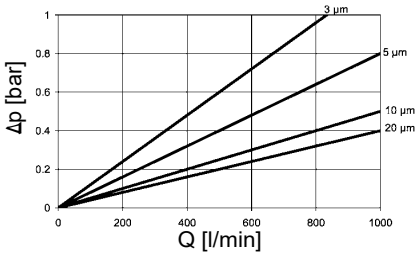
BN4HC: RFL 660



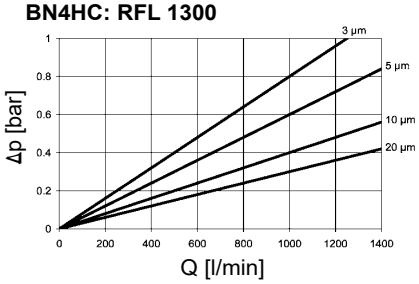
BN4HC: RFL 850



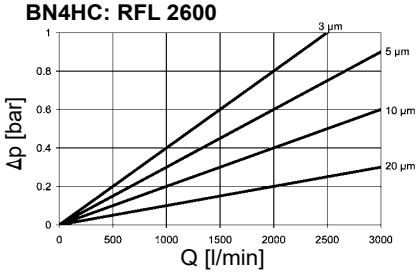
BN4HC: RFL 950



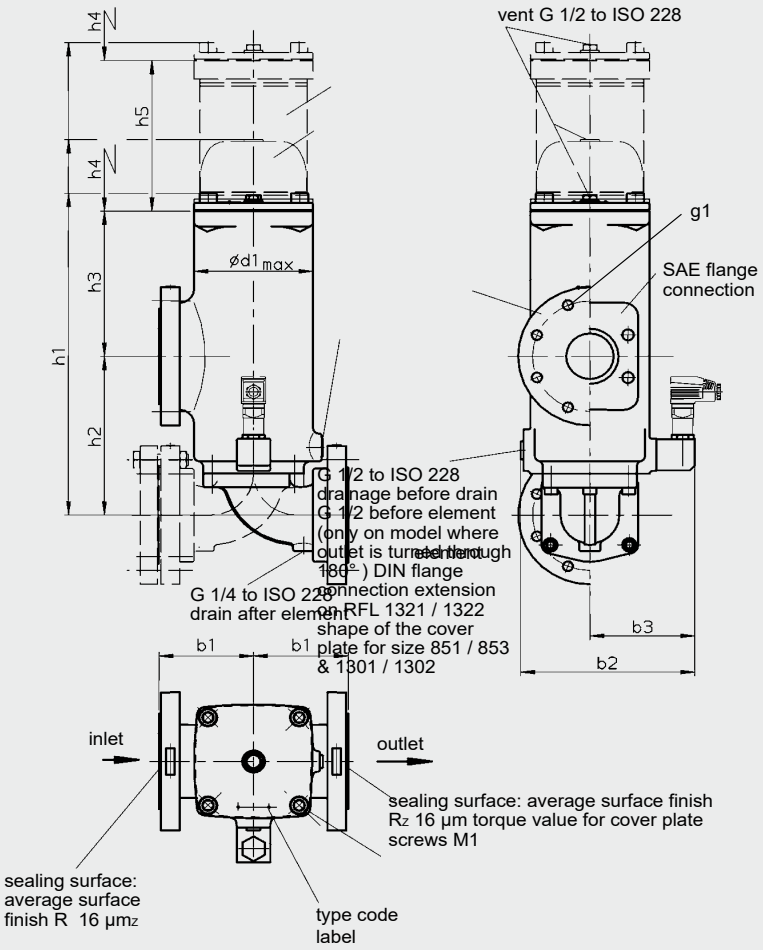
BN4HC: RFL 1300



BN4HC: RFL 2600



4. DIMENSIONS



RFL	Flange port	b1	b2	b3	d1	h1	h2	h3	h4	h5 (Nm)	M1	g1	Weight including element [kg]	Volume of pressure chamber [l]
661	SAE DN 80 DIN DN 80	133	192 184	239	172	465	230	210	350	-	150	M16 M16	36	8.2
662	SAE DN 80 DIN DN 80	133	192 184	239	172	465	230	210	350	-	150	M16 M16	42	8.2
851	SAE DN 80 DIN DN 80	133	192 184	239	172	552	230	210	420 420	- -	150 150	M16 M16	38.5	9.5
853	SAE DN 80 DIN DN 80	133	192 184	239	172	552	230	210		-		M16 M16	45	9.5
951	SAE DN 100 DIN DN 100	143	223 215	267	220	523	250	238	380		250	M16 M20	54	13
952	SAE DN 100 DIN DN 100	143	223 215	267	220	523	250	238	380	-	250	M16 M20	67.5	13
1301	SAE DN 100 DIN DN 100	143	223 215	267	220	630	250	238	500	-	250	M16 M20	55.5	16
1302	SAE DN 100 DIN DN 100	143	223 215	267	220	630	250	238	500	-	250	M16 M20	75.5	16
1321	SAE DN 100 DIN DN 100	143	223 215	267	220	1084	250	238	940	561	250	M16 M20	82	31
1322	SAE DN 100 DIN DN 100	143	223 215	267	220	1084	250	238	940	561	250	M16 M20	96	31

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 **Filtertechnik GmbH**
Industriegebiet