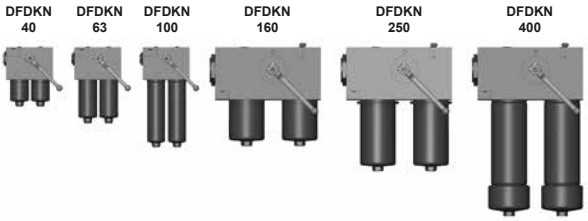
Change-Over Pressure Filter DFDKN

to DIN 24550,
up to 800 l/min, up to 315 bar



1. TECHNICAL SPECIFICATIONS

1.1 FILTER HOUSING

Construction

The filter housings are designed in accordance with international regulations. They consist of a filter head with screw-in filter bowls.

Standard equipment:

- ball change-over valve
- two-piece filter bowl for DFDKN 400
- connection for a clogging indicator
- drain screw with pressure relief
- pressure equalization line (for size DFDKN 160 and above)

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)			
DFDKN	3 µm	6 µm	10 µm	25 µm
40	5.2	5.6	6.3	7.0
63	9.2	9.9	11.1	12.8
100	15.4	16.5	18.6	20.6
160	27.5	29.3	33.1	36.7
250	46.0	49.0	55.2	61.3
400	76.2	81.3	91.4	101.5
	Betamicron® (BH4HC)			
DFDKN	3 µm	6 µm	10 µm	25 µm
40	4.1	4.4	5.2	6.2
63	7.3	7.9	9.2	11.2
100	12.2	13.2	15.5	18.9
160	21.8	23.9	27.8	33.8
250	38.1	41.7	48.6	59.0
400	63.6	69.5	81.0	98.3

Filter elements are available with the following pressure stability values:

Betamicron® (BN4HC):	20 bar
Betamicron® (BH4HC):	210 bar
Wire mesh (W/HC):	20 bar

1.3 FILTER SPECIFICATIONS

Nominal pressure	315 bar
Fatigue strength	At nominal pressure 10^6 cycles from 0 to nominal pressure
Temperature range	-10 °C to +100 °C (-30 °C to -10 °C: p_{max}= 157.5 bar)
Material of filter head	EN-GJS-400-15
Material of filter bowl	Steel
Type of clogging indicator	VD (differential pressure measurement up to 420 bar operating pressure)
Pressure setting of the clogging indicator	8 bar (others on request)

1.4 SEALS

NBR (=Perbunan)

1.5 INSTALLATION

Inline filter

1.6 SPECIAL MODELS AND ACCESSORIES

- Detent pin to lock the lever for DFDKN 160-400
- Ball change-over in T configuration (simultaneous flow on both sides including detent)

1.7 SPARE PARTS

See Original Spare Parts List

1.8 CERTIFICATES AND APPROVALS

on request

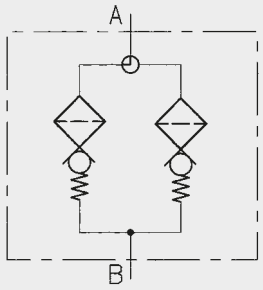
1.9 COMPATIBILITY WITH HYDRAULIC FLUIDS TO DIN ISO 2943

- 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
- Fire-resistant fluids HFC and HFD
- Operating fluids with high water content (> 50 % water content) on request

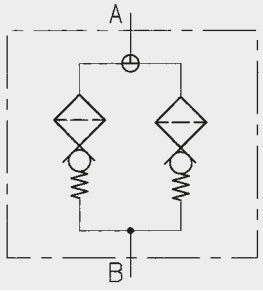
1.10 IMPORTANT INFORMATION

- 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.

Symbol for hydraulic systems DFDKN ball change-over in L configuration



Symbol for hydraulic systems DFDKN ball change-over in T configuration



2. MODEL CODE (also order example)

DFDKN BN/HC 100 Q L C 10 D 1 . X /-L24

2.1 COMPLETE FILTER

Filter type
DFDKN

Filter material

BN/HC	Betamicron® (BN4HC)	W/HC, W	Wire mesh
BH/HC	Betamicron® (BH4HC)		

Size of filter or element
DFDKN: 40, 63, 100, 160, 250, 400

Operating pressure
Q = 315 bar

Type of change-over
L ball change-over in L-configuration (standard)
T ball change-over in T-configuration (i.e. simultaneous flow through both sides; only in conjunction with BH/HC filter elements)

Type and size of port
to DIN 24550 (●), possible ports (X)

Type	Port	Filter size 40	63	100	160	250	400
B	G ½	●	X	X			
C	G ¾	X	●	X			
D	G1*	X	X	●			
E	G1 ¼				●	X	X
F	G1 ½				X	●	X
L	SAE DN 50**				X	X	●

□ = Preferred range

*On request, with adapter **Flange SAE, 6000 PSI

Filtration rating in µm
BN/HC, BH/HC: 3, 6, 10, 25
W/HC: 25, 50, 100, 200

Type of clogging indicator
Y plastic blanking plug in indicator port
A stainl. 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 one-piece filter bowl
2 two-piece filter bowl (DFDKN 400 only)

Modification number
X the latest version is always supplied

Supplementary details
L... light with appropriate voltage (24V, 48V, 110V, 220V)
LED 2 light-emitting diodes up to 24 Volt
] only for clogging indicators Type D
SO668 detent pin to lock lever (only for DFDKN 160-400)
V FPM seals
W suitable for HFA and HFC emulsions

2.2 REPLACEMENT ELEMENT

0100 DN 010 BH4HC /-V

Size
0040, 0063, 0100, 0160, 0250, 0400

Type
DN

Filtration rating in µm
BN4HC, BH4HC: 003, 006, 010, 025
W/HC: 025, 050, 100, 200

Filter material
BN4HC, BH4HC, W/HC (with ball change-over in T-configuration only possible for BH4HC filter elements!)

Supplementary details
V, W (for descriptions, see point 2.1)

2.3 REPLACEMENT CLOGGING INDICATOR

VD 8 D . X /-L24

Type
VD differential pressure indicator up to 420 bar operating pressure

Pressure setting
8 standard 8 bar, others on request

Type of clogging indicator
D (see Point 2.1)

Modification number
X the latest version is always supplied

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

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 the element Δp and is calculated as follows:

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

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

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

(*see point 3.2)

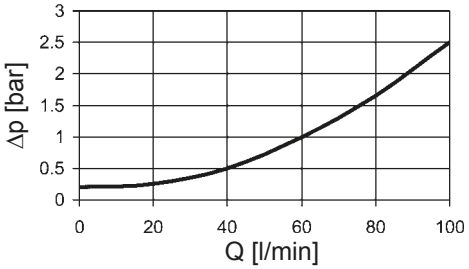
For ease of calculation, our Filter Sizing Program is available on request free of charge.

NEW: Sizing online at www.hydac.com

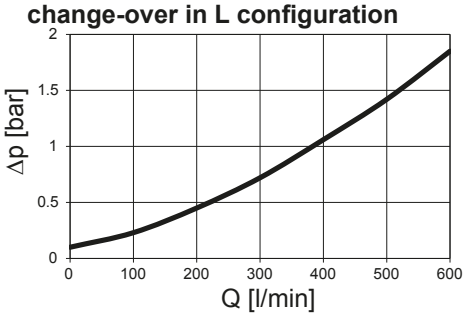
3.1 Δp-Q HOUSING CURVES BASED ON ISO 3968

The housing curves 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.

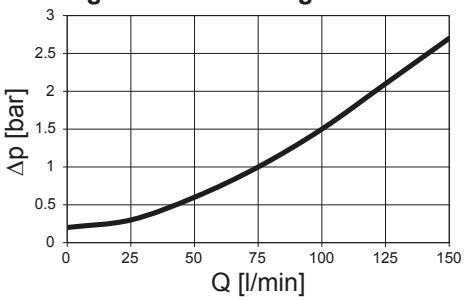
DFDKN 40, 63, 100 with ball change-over in L configuration



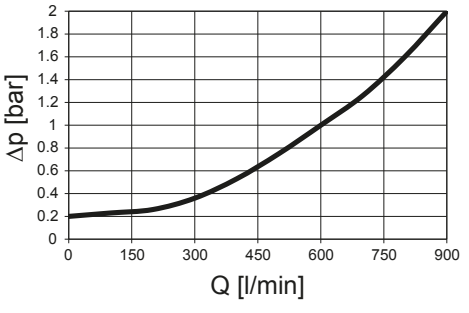
DFDKN 160, 250, 400 with ball change-over in L configuration



DFDKN 40, 63, 100 with ball change-over in T configuration



DFDKN 160, 250, 400 with ball change-over in T configuration

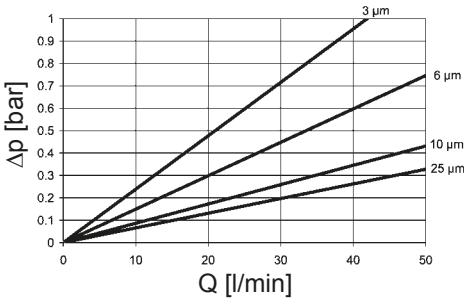


3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

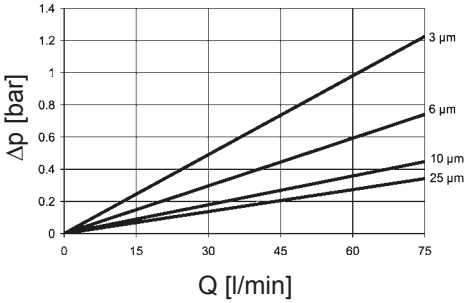
The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm²/s. The pressure drop changes proportionally to the change in viscosity.

DFDKN	BH4HC				W/HC
	3 µm	6 µm	10 µm	25 µm	–
40	40.4	24.8	16.4	10.9	0.966
63	29.0	18.2	11.7	7.6	0.54
100	19.0	11.7	7.7	5.3	0.325
160	8.0	5.1	3.8	2.5	0.168
250	5.4	3.4	2.8	1.9	0.101
400	3.4	2.1	1.7	1.1	0.068

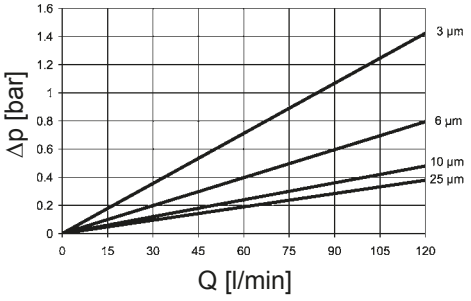
BN4HC: DFDKN 40



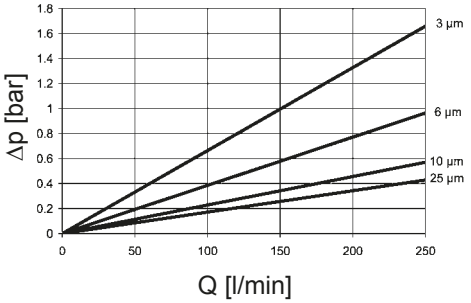
BN4HC: DFDKN 63



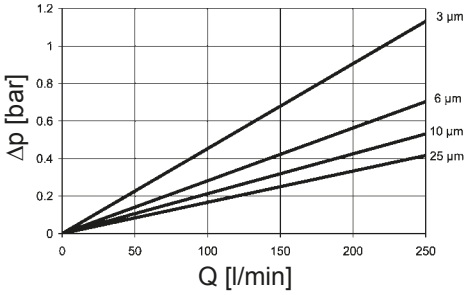
BN4HC: DFDKN 100



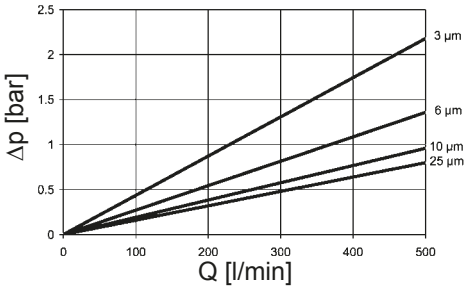
BN4HC: DFDKN 160



BN4HC: DFDKN 250

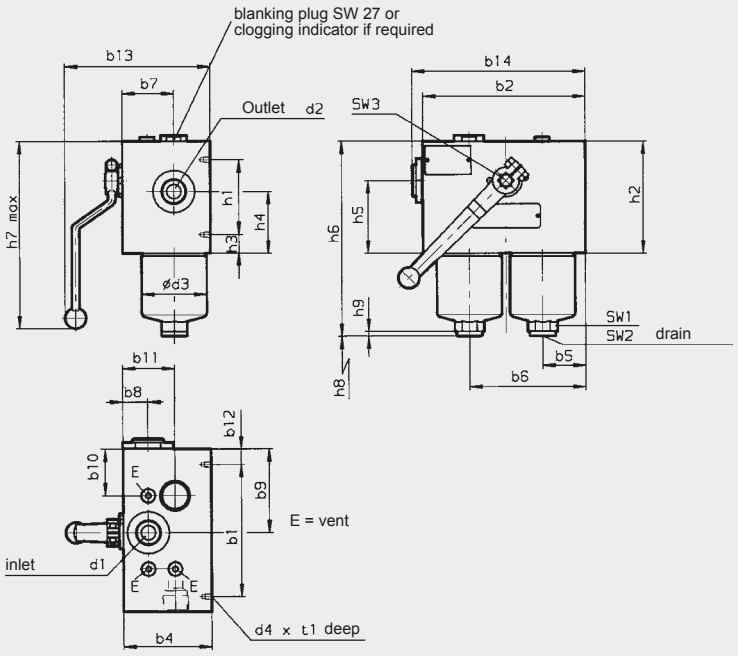


BN4HC: DFDKN 400

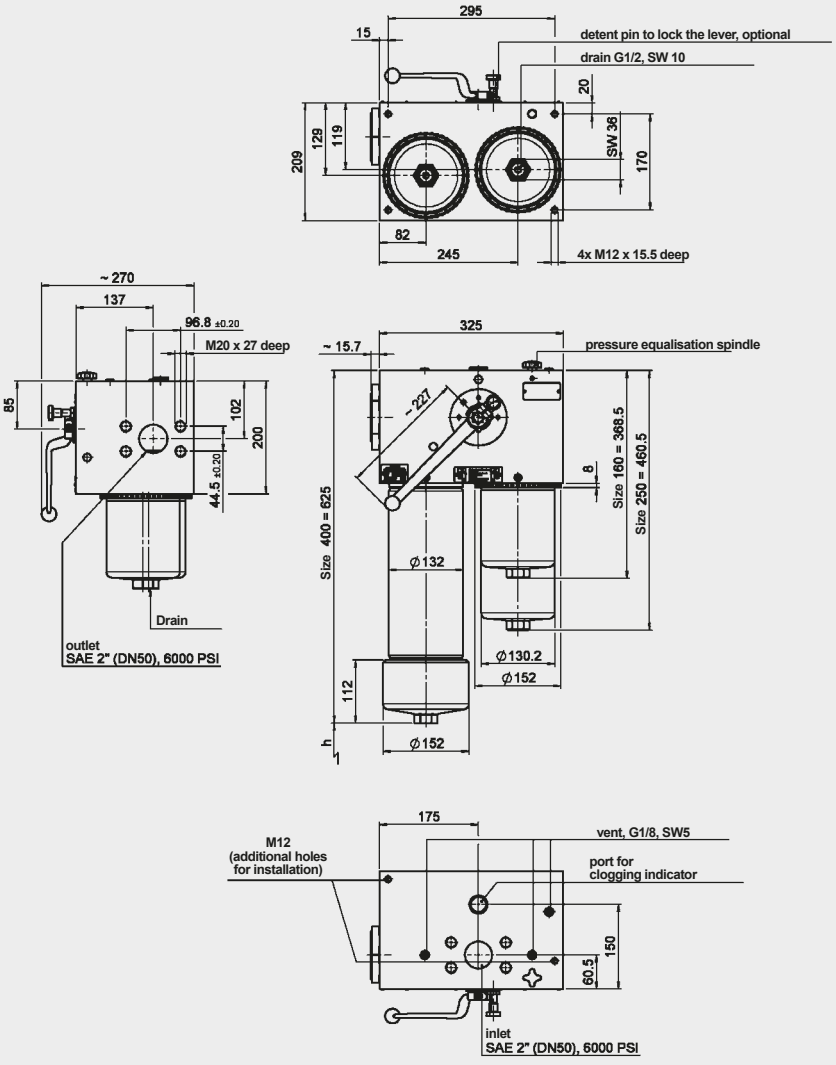


4. DIMENSIONS OF PREFERRED RANGE

DFDKN 40 - 100



DFDKN 160 - 400



DFDKN	40	63	100
b1		138	
b2		170	
b4		92	
b5		45	
b6		121.5	
b7		54	
b8		26	
b9		87	
b10		48.5	
b11		54	
b12		16	
approx. b13		150	
approx. b14		181	
d1*		G ¾ *	
d2*		G ¾ *	
d3		68.2	
d4		M6	
h1		78	
h2		117	
h3		19.5	
h4		64.5	
h5		76	
h6	214.5	272.0	363.5
approx. h7		205	
h8		75	
h9		5	
t1		7	
SW1		27	
SW2		10	
SW3		12	
Weight incl. element [kg]	15.0	16.5	18
Volume of pressure chamber [l]	2x 0.22	2x 0.33	2x 0.5

* SAE connection 6000 PSI

DFDKN	160	250	400 2.x
h	95	95	420
Weight incl. element [kg]	100	107	129
Volume of pressure chamber [l]	2x 1.5	2x 2.2	2x 3.8

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.

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