HYDAC INTERNATIONAL

Betamicron® filter elements BN4HC/BH4HC

Up to 170 bar, filter fineness 3, 5, 6, 10, 20, 25 µm

BETAMICRON® ELEMENT

STAT-FREE® TECHNOLOGY OPTIONAL

A complete redesign of the materials used, such as electrically conductive plastics, has made it possible to ensure that the filter elements are fully conductive.
This has reduced the charge on the filter element during system operation to a completely harmless level. This means hazards such as sudden spark discharge and subsequent soot formation and oil sludging are reliably prevented.
Stat-Free® filter elements are the first to combine excellent electrostatic properties with outstanding filter performance. A novel filter mat and element design has achieved an unprecedented low charge on the filter element and fluid in systems engineering.

OUTER CASING WITH CUSTOMER LOGO PRINTING

Since the outer casing allows customer logos to be printed on it, it also serves as an advertising medium for the original equipment manufacturer and ensures the spare parts business.
It also offers the user protection against replica components. Particular advantages: The logo remains clearly legible even when dirty.

1. GENERAL DESCRIPTION

1.1 DESCRIPTION

Betamicron® filter elements with their three-stage design ensure maximum dirt holding capacity and separation performance. This optimises the flow of fluid and achieves a particularly favourable Δp/Q behaviour.

The welding process on the longitudinal seam ensures completely tight integration of the open filter mat ends, even under high alternating loads. This reliably prevents particles from passing from the dirty side to the clean side.

No zinc-containing components are used in order to prevent zinc soap formation, which occurs particularly when using water-containing fluids (HFA/HFC) and bio-oils.

The star-shaped folded filter mat is surrounded by a sturdy plastic outer casing. The casing distributes the incoming fluid evenly across the mat. In addition, the mat is not directly exposed to the flow and is protected from pulsating flow. In this way, the element achieves extremely high flow fatigue resistance. In addition, the mat is naturally protected against mechanical damage.

1.2 GENERAL DATA

Collapse burst pressure stability	BN4HC: 20 bar BH4HC: 170 bar
Temperature range	-30°C to +100°C With FKM sealing material down to -10°C
Flow direction	From outside inwards
Filter fineness	3, 5, 6, 10, 20, 25 µm
Cracking pressure, bypass valve	**Pressure filter element (D):** Standard without bypass valve **Pressure filter element according to DIN 24550 (DN):** Standard without bypass valve **Pressure filter element for MFX filter (MX):** Standard 3.5 bar **Return filter element according to DIN 24550 (RN):** Standard 3.5 bar (others on request)
Filter element type	Disposable element

1.3 COMPATIBILITY WITH PRESSURE FLUIDS ISO 2943

- Hydraulic oils H to HLPD DIN 51524
- Lubricating oils DIN 51517, API, ACEA, DIN 51515, ISO 6743
- Compressor oils DIN 51506
- Readily biodegradable pressure fluids VDMA 24568 HETG, HEES, HEPG
- Flame-retardant pressure fluids HFA, HFB, HFC and HFD (operating temperature 5°C to 65°C, others on request)
- Pressure fluids with a high water content (>50% water content) and HFD-R fluids on request

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2. MODEL CODE

2.1 MODEL CODE FOR STANDARD PRESSURE FILTER ELEMENTS

(Usable in the filters: DFM, LPF, LF, LFF, MDF, HDF, HDFF, DF, DFF, DFFX, FLND, FMND, DFDK, DF...MHA, DF...MHE, DF...M A, DF...M P, DFZ, DF...Q E, DFP, DFPF)

0660 D 010 BH4HC /-V

Size
0030, 0035, 0055, 0060, 0075, 0095, 0110, 0140, 0160, 0240, 0260, 0280, 0300, 0330, 0450, 0500, 0650, 0660, 0900, 0990, 1320, 1500

Version
D Pressure filter element

Filter fineness in µm
003, 005, 010, 020

Filter material
BH4HC Collapse burst pressure up to 170 bar

Other specifications
V FKM (Viton) seal
SFREE element technology Stat-Free®

2.2 MODEL CODE FOR PRESSURE FILTER ELEMENTS ACCORDING TO DIN 24550

(Usable in the filters: FLN, LFN, LFNF, DFN, DFNF, FLND, FMND, DFDKN)

0100 DN 010 BN4HC /-V

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

Version
DN Pressure filter element according to DIN 24550

Filter fineness in µm
003, 006, 010, 025

Filter material
BH4HC Collapse burst pressure up to 20 bar
BH4HC Collapse burst pressure up to 170 bar

Other specifications
V FKM (Viton) seal
SFREE element technology Stat-Free®

2.3 MODEL CODE FOR PRESSURE FILTER ELEMENTS MFX FILTER

0100 MX 010 BN4HC /-V

Size
0100, 0200

Version
MX Pressure filter element for MFX filter

Filter fineness in µm
003, 005, 010, 020

Filter material
BN4HC Collapse burst pressure up to 20 bar

Other specifications
V FKM (Viton) seal

2.4 MODEL CODE FOR RETURN FILTER ELEMENTS ACCORDING TO DIN 24550

(Usable in the filters: RFN, RFND, RFLN, RFLND)

0100 RN 010 BN4HC /-V

Size
0040, 0063, 0100, 0160, 0250, 0400, 0630, 1000

Version
RN Return filter element according to DIN 24550

Filter fineness in µm
003, 006, 010, 025

Filter material
BN4HC Collapse burst pressure up to 20 bar

Other specifications
V FKM (Viton) seal
SFREE element technology Stat-Free®

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3. FILTER CALCULATION

The total pressure loss of a filter with a certain volumetric flow rate Q is made up of the housing Δp and the element Δp, and is determined as follows:

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

$\Delta p_{housing}$ = see housing characteristic curve in the relevant filter brochure

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

(*see point 4.1)

4. ELEMENT CHARACTERISTIC DATA

4.1 SLOPE COEFFICIENTS FOR FILTER ELEMENTS

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

Pressure filter element (D) ...BH4HC				
Size	**3 µm**	**5 µm**	**10 µm**	**20 µm**
0030	91.2	50.7	36.3	19.0
0035	47.8	28.1	16.8	10.5
0055	24.2	14.2	8.5	5.3
0060	58.6	32.6	18.1	12.2
0110	25.4	14.9	8.9	5.6
0140	19.9	11.3	8.1	4.3
0160	16.8	10.4	5.9	4.4
0240	10.6	6.8	3.9	2.9
0260	8.1	4.8	3.3	1.9
0280	5.7	3.4	1.8	1.6
0300	16.0	8.9	7.1	3.3
0330	7.7	4.5	2.8	2.0
0450	7.8	4.3	3.4	1.6
0500	4.2	2.6	1.5	1.2
0650	4.7	2.6	2.1	1.0
0660	3.3	1.9	1.0	0.9
0900	3.5	2.0	1.6	0.7
0990	2.2	1.3	0.8	0.6
1320	1.6	1.0	0.6	0.4
1500	1.4	0.8	0.6	0.5

Pressure filter element (DN) ...BN4HC				
Size	**3 µm**	**6 µm**	**10 µm**	**25 µm**
0040	23.9	14.9	8.6	6.6
0063	16.3	9.9	6.0	4.6
0100	11.9	6.6	4.0	3.2
0160	7.9	5.1	3.4	2.6
0250	5.1	3.2	2.1	1.8
0400	3.2	2.0	1.3	1.0

Pressure filter element (DN) ...BH4HC				
Size	**3 µm**	**6 µm**	**10 µm**	**25 µm**
0040	40.4	24.8	16.4	10.9
0063	29.0	18.2	11.7	7.6
0100	19.0	11.7	7.7	5.3
0160	8.0	5.1	3.8	2.5
0250	5.4	3.4	2.8	1.9
0400	3.4	2.1	1.7	1.1

Pressure filter element (MX) ...BN4HC				
Size	**3 µm**	**5 µm**	**10 µm**	**20 µm**
0100	12.0	9.0	4.6	3.4
0200	7.0	5.3	2.7	2.0

Return filter element (RN) ...BN4HC				
Size	**3 µm**	**6 µm**	**10 µm**	**25 µm**
0040	14.2	7.8	4.8	2.6
0063	9.5	5.2	3.4	1.8
0100	6.8	3.3	2.3	1.2
0160	3.6	1.8	1.2	0.5
0250	2.8	1.4	0.9	0.4
0400	2.2	1.6	1.3	1.0
0630	2.1	1.2	0.9	0.7
1000	0.7	0.5	0.4	0.3

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4. ELEMENT CHARACTERISTIC DATA

4.2 DIRT HOLDING CAPACITY IN G

Dirt holding capacity and particle separation of an element are determined in the multipass test according to ISO 16889. This process makes it possible to compare the performance data of different elements using precisely defined test conditions and a standardised test dust (ISO MTD).

Pressure filter element (D) ...BH4HC				
Size	**3 µm**	**5 µm**	**10 µm**	**20 µm**
0030	3.0	2.9	3.2	3.7
0035	5.3	5.2	5.8	6.6
0055	10.5	10.3	11.5	13.0
0060	4.6	4.5	5.0	5.7
0110	10.1	9.9	10.9	12.4
0140	13.3	13.0	14.3	16.3
0160	12.9	12.6	13.9	15.9
0240	21.6	21.1	23.2	26.5
0260	48.1	47.1	51.8	59.1
0280	48.1	47.1	51.8	59.1
0300	17.0	16.6	18.3	20.9
0330	34.6	33.9	37.2	42.5
0450	35.0	34.2	37.6	42.9
0500	57.5	56.3	61.8	70.5
0650	58.3	57.1	62.8	71.6
0660	76.8	75.2	82.6	94.3
0900	77.3	75.7	83.1	94.8
0990	111.8	109.4	120.2	137.2
1320	153.8	150.7	165.5	188.8
1500	164.5	161.1	177.0	202.0

Pressure filter element (DN) ...BN4HC				
Size	**3 µm**	**6 µm**	**10 µm**	**25 µm**
0040	5.2	5.6	6.3	7.0
0063	7.3	7.9	9.2	11.2
0100	15.4	16.5	18.6	20.6
0160	27.5	29.3	33.1	36.7
0250	38.1	41.7	48.6	59.0
0400	76.2	81.3	91.4	101.5

Pressure filter element (DN) ...BH4HC				
Size	**3 µm**	**6 µm**	**10 µm**	**25 µm**
0040	4.1	4.4	5.2	6.2
0063	7.3	7.9	9.2	11.2
0100	12.2	13.2	15.5	18.9
0160	21.8	23.9	27.8	33.8
0250	38.1	41.7	48.6	59.0
0400	63.6	69.5	81.0	98.3

Pressure filter element (MX) ...BN4HC				
Size	**3 µm**	**5 µm**	**10 µm**	**20 µm**
0100	24.2	27.8	27.8	28.8
0200	41.3	47.4	47.4	49.4

Return filter element (RN) ...BN4HC				
Size	**3 µm**	**6 µm**	**10 µm**	**25 µm**
0040	7.1	8.0	8.9	10.6
0063	13.0	14.7	16.3	19.6
0100	22.0	24.7	27.5	33.0
0160	36.2	40.7	45.3	54.2
0250	61.4	69.1	76.8	92.1
0400	88.2	99.2	110.2	132.3
0630	148.6	167.3	185.8	222.9
1000	151.8	170.8	189.8	227.8

NOTE

The information given in this brochure refers to the described operating conditions and applications.

For applications and/or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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