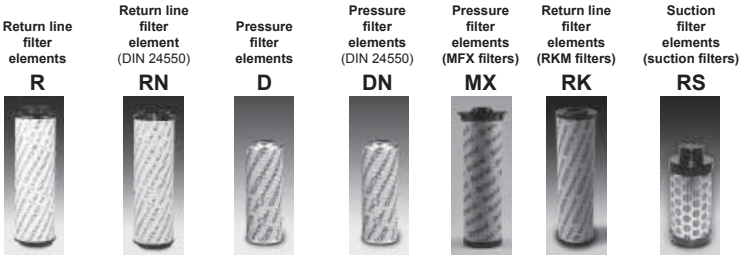
Filter Elements
for use in HYDAC filters*

*** For HYDAC filter elements which are suitable for use in other manufacturers' filters, please see brochure no. 7.208**



1. TECHNICAL SPECIFICATIONS

1.1 CONSTRUCTION

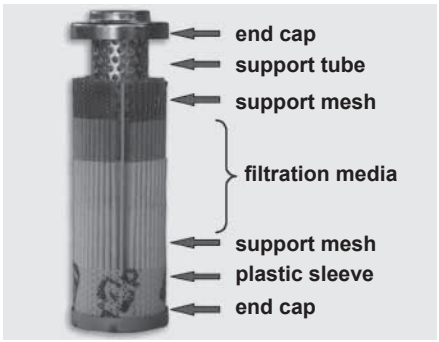
As the core of the filter, it is the filter element which performs the actual filtration and/or dewatering function in the housing.

They consist of several pleated filtration and support layers which are placed as a cylinder around or inside the stabilizing support tube. These mesh packs are sealed by the end-caps.

Regardless of the type of filter, flow direction through the filter elements is from out to in.

Depending on the filter material, the filter mesh pack is encased in an additional outer plastic sleeve.

As an example, the construction of a Betamicron®-4 element is illustrated below.



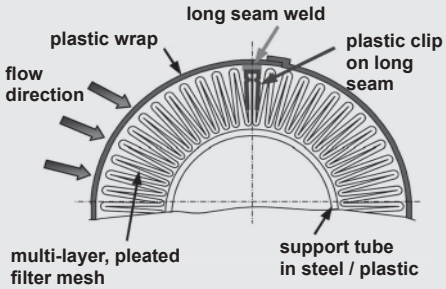
New element technology

With the new Stat-Free filter elements,

HYDAC has for the first time succeeded in combining excellent electrostatic characteristics with filtration performance. A new type of filter mesh-pack and element design have enabled unrivalled low charge generation of the filter element and of the fluid in system operation.

1.2 SPECIFICATIONS

Pressure stability (permitted Δp across element)	10 to 210 bar depending on the selection of filter material (see point 2.2)
Temperature range	**-30 °C to +100 °C** for FPM seal material to -10 °C **0 °C to +100 °C** (for water absorbing filter material)
Filtration ratings	3 µm to 200 µm (1 µm on request)
Filtration performance	depending on filter material, nominal or or absolute filtration up to $\beta_{x(c)} \geq 1000$



1.3 SEALS

NBR (= Perbunan)

1.4 INSTALLATION

- in return line filters (element type **R**)
- in return line filters to DIN 24550 (element type **RN**)
- in inline filters (element type **D**)
- in inline filters to DIN 24550 (element type **DN**)
- in inline filters MFX (element type **MX**)
- in return line suction filters (element type **RK**)
- in suction filters (element type **RS**)

To select the element types for particular HYDAC housings, please refer to the table in point 2.1.

1.5 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
- Fire-resistant fluids HFA, HFB, HFC and HFD
- Operating fluids with high water content (>50% water content) on request

1.6 QUALITY ASSURANCE

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

1.7 SPECIAL MODELS AND ACCESSORIES

- Bypass valve models which differ from the particular standard
- Only wire mesh elements are suitable for filtering HFA and HFC emulsions
- Seals in FPM, EPDM
- Customized versions

E 7.200.11/03.12

2. SELECTING THE FILTER ELEMENT

2.1 TYPES

Using the table below, select the correct element type for the relevant HYDAC housing type.

For installation in housing types	Element type	Sizes	Direction of flow	Element description
DF, DFF, DFDK, DFM, DF...M A, DF...Q E, DFP, DFPF, DFZ, HDF, HDFF, HFM, LF, LFF, LFM, LPF, MFM, LPF...DA	D	30, 35, 55, 60, 75, 95, 110, 140, 160, 240, 260, 280, 300, 330, 450, 500, 650, 660, 900, 990, 1320, 1500	From out to in	- without bypass valve
DFN, DFNF, LFN, LFNF, FLN, FLND, FMND, DFDKN, DFN...Q E	DN	40, 63, 100, 160, 250, 400	From out to in	- without bypass valve
NF, NFD, RF, RFD, RFL, RFLD, RFM	R	30, 60, 75, 90, 110, 150, 160, 165, 185, 210, 240, 270, 330, 450, 500, 580, 600, 660, 750, 850, 950, 1300, 1700, 2600	From out to in	- with bypass valve
RFN, RFND, RFLN, RFLND	RN	40, 63, 100, 160, 250, 400, 630	From out to in	- without bypass valve
MFX	MX	100, 200	From out to in	- with bypass valve
RKM	RK	80, 100, 120, 151, 201, 251, 300, 350, 400, 800	From out to in	- without bypass valve
SF, SFF, SFM	RS	60, 110, 160, 240, 330, 400, 500	From out to in	- with bypass valve

2.2 FILTER MATERIALS

The following materials are available for filtering solid particles:

Photo	Filter material	Short description	Filtration rating in µm	Pressure stability
	BN4HC BH4HC BNK BHK	Betamicron®4 glass fibre, multi-layer with support (BNK and BHK: with synthetic support)	3, 5, 10, 20* 3, 5, 10, 20* 3, 5, 10, 20* 3, 5, 10, 20* *or 3, 6, 10, 25 when dimensions are to DIN 24550	20 bar 210 bar 20 bar 210 bar
	MM	Mobilemicron synthetic fibre, multi-layer with support	10, 15	10 bar
	ECON2	ECOmicron® glass fibre, multi-layer with support	3, 5, 10, 20	10 bar
	G/HC	Lubimicron synthetic fibre, multi-layer with support	10	10 bar
	W, W/HC	Stainless steel wire mesh	25, 50, 100, 200,....	20 bar
	P, P/HC	Paper (cellulose fibre)	10, 20	10 bar
	V VB	Metal fibre	3, 5, 10, 20 3, 5, 10, 20	210 bar 210 bar

For the removal of emulsified or free water, we recommend using HYDAC Aquamicron® filter elements: A super absorber reacts with the water present in the medium and expands to form a gel, from which the water can no longer be extracted even by increasing the pressure.
These filter elements cannot remove dissolved water from the system, i.e. water below the saturation level of the hydraulic medium.

	BN4AM	Betamicron® / Aquamicron® glass fibre with super absorber	3, 10	10 bar
	AM	Aquamicron® super absorber	40	10 bar

2.3 EXAMPLE MODEL CODE

0060 D 010 BN4HC /-V

Size
0060

Type
D

Filtration rating in µm
010

Filter material
BN4HC

Supplementary details
V = FPM seal
SFREE = Stat Free element technology (only for BN4HC and MM filter material;
For G/HC material it is essential to add "SFREE" to code!)

To order the filter element with the correct size, filtration rating and material for the filter you are using, see the "REPLACEMENT ELEMENT" section, Point 2.2., of the relevant complete filter brochure.

Plastic sleeve	Flow direction	Notes	Typical applications
Yes	From out to in	4th generation, improved performance data	working filter in mobile and industrial systems; for systems with high pressure/ flow rate fluctuations; improved static conductivity
Yes	From out to in	particularly low pressure drop; ECON2 is 100% incinerable	for mobile applications; transmission lubrication, systems with high temperature fluctuations and high viscosity oils > ISO VG 100, ...
No, cleaning effect is improved!	From out to in	low pressure drop; can be cleaned to limited extent;	protective filter in cooling lubricant systems
No	From out to in	for low filtration demands	waste compacters, high viscosity oils > ISO VG 100, ...
No, cleaning effect is improved!	From out to in	can be cleaned to a limited extent	protective filter for highly dynamic applications working filter for highly dynamic applications

As an added bonus when using the straight Aquamicron® elements (filter material AM) solid contamination is also filtered out of the hydraulic medium;
with the combined element Betamicron®/Aquamicron® (BN4AM) the particle filtration is further increased by the integration of glass fibre in the construction.
These filter elements are particularly suitable for use offline to condition fluids.

No	From out to in	filtration of particles and water removal	fluid conditioning in mobile machines, hydraulic steel engineering, blast furnace and foundry machines
No	From out to in	primarily for water removal where there is a risk of water condensation forming	hydraulic steel engineering, blast furnace and foundry machines

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 housing curve in the relevant filter brochure

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

(*see point 3.3)

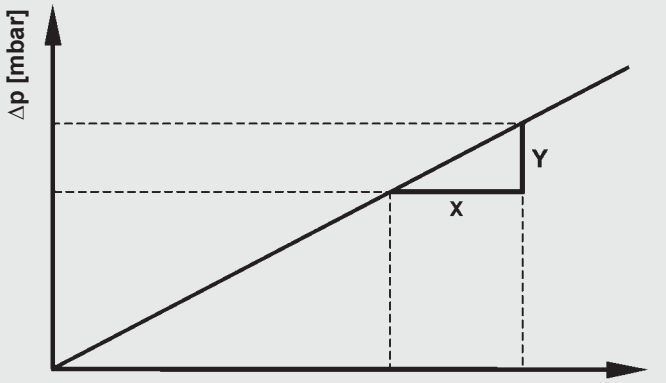
For ease of calculation, our Filter Sizing Program is available on request free of charge.

NEW: Sizing online at www.hydac.com

3.1 DETERMINING THE ELEMENT GRAPH

The element graph is determined according to ISO 3968 and always corresponds to a straight line with a specific gradient coefficient SK.

This represents the ratio of the flow rate to the pressure drop for a clean element (see below).



$$SK = \frac{Y\ [mbar]}{X\ [l/min]}$$

3.2 QUICK SIZING FOR AQUAMICRON ELEMENTS

When sizing elements with the water absorbing filter material Aquamicron® (AM or BN4AM) we recommend using the quick sizing tables:

Betamicron® - Aquamicron® BN4AM

Size	Recommended Filter flow rate [l/min]	Water retention capacity in cm³ at Δp=2.5 bar and a viscosity of 30 mm²/s
330	13	190
660	28	400
950	39	560
1300	54	790
2600	109	1570

Aquamicron® AM

Size	Recommended filter flow rate [l/min]	Water retention capacity in cm³ at Δp=2.5 bar and a viscosity of 30 mm²/s
330	13 ideal 100 maximum	260 180
500	19 ideal 155 maximum	400 280
660	28 ideal 255 maximum	570 400
850	35 ideal 286 maximum	730 520
950	39 ideal 314 maximum	800 570
1300	54 ideal 437 maximum	1120 790
2600	109 ideal 870 maximum	2230 1570

3.3 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.

Size	Filter material: BN4HC							
	Element type: D				Element type: R			
	3 µm	5 µm	10 µm	20 µm	3 µm	5 µm	10 µm	20 µm
30	63.9	43.3	22.8	11.3	68.4	43.9	26.8	14.7
35	23.6	19	14.8	9.3	-	-	-	-
55	13.7	11	8.1	4.8	-	-	-	-
60	28.9	20.4	13.2	7.9	26.8	18.3	10.9	6.9
75	9.3	7.5	5.3	3.1	22	14.2	8.1	4.4
90	-	-	-	-	14.9	10.1	6.7	3.2
95	7.5	6	4.1	2.4	-	-	-	-
110	14.9	10.7	6.6	3.7	14.9	9.4	6	3.2
140	12.8	8.2	4.8	2.9	-	-	-	-
150	-	-	-	-	8.9	6	4	1.9
160	13.1	8.8	4.6	3.5	9.5	5.9	3.8	2.9
165	-	-	-	-	11.2	7.8	4.5	2.4
185	-	-	-	-	8.9	6.1	3.3	1.8
210	-	-	-	-	3.9	2.6	1.8	1.1
240	8.2	6.1	3.6	2.3	6.2	3.8	2.6	1.8
260	5.9	4.4	2.6	1.6	-	-	-	-
270	-	-	-	-	2.5	1.7	1.1	0.7
280	4	3.1	1.7	1.3	3.1	2.2	1.6	1
300	10.6	8.1	5.3	2.9	-	-	-	-
330	5.4	3.9	3	1.7	4.2	2.7	1.7	1.2
450	5.3	4.0	2.6	1.4	3.6	2.3	1.6	1.0
500	3.3	2.4	1.5	1.1	3	1.9	1.3	0.8
580	-	-	-	-	1.4	0.9	0.6	0.4
600	-	-	-	-	1.4	1.1	0.7	0.4
650	3.2	2.5	1.6	0.9	-	-	-	-
660	2.5	1.8	1.1	0.8	1.9	1.2	0.8	0.5
750	-	-	-	-	1.3	0.9	0.6	0.4
850	-	-	-	-	1.5	1	0.7	0.4
900	2.5	1.9	1.2	0.7	-	-	-	-
950	-	-	-	-	1.2	0.8	0.5	0.4
990	1.6	1.2	0.7	0.5	-	-	-	-
1300	-	-	-	-	0.8	0.6	0.4	0.3
1320	1.2	0.9	0.5	0.4	-	-	-	-
1500	1.1	0.8	0.6	0.4	-	-	-	-
1700	-	-	-	-	0.7	0.5	0.3	0.2
2600	-	-	-	-	0.4	0.3	0.2	0.1

Size	Filter material: BN4HC Element type: MX		
	5 µm	10 µm	20 µm
100	9.0	4.6	3.4
200	5.3	2.7	2.0

Size	Filter material: BH4HC Element type: D			
	3 µm	5 µm	10 µm	20 µm
30	91.2	50.7	36.3	19.0
35	47.8	28.1	16.8	10.5
55	24.2	14.2	8.5	5.3
60	58.6	32.6	18.1	12.2
110	25.4	14.9	8.9	5.6
140	19.9	11.3	8.1	4.3
160	16.8	10.4	5.9	4.4
240	10.6	6.8	3.9	2.9
280	5.7	3.4	1.8	1.6
300	16.0	8.9	7.1	3.3
330	7.7	4.5	2.8	2.0
450	7.8	4.3	3.4	1.6
500	4.2	2.6	1.5	1.2
650	4.7	2.6	2.1	1.0
660	3.3	1.9	1.0	0.9
900	3.5	2.0	1.6	0.7
990	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

Size	Filter material: BN4HC (dimensions to DIN 24550)							
	Element type: DN				Element type: RN			
	3 µm	6 µm	10 µm	25 µm	3 µm	6 µm	10 µm	25 µm
40	23.9	14.9	8.6	6.6	14.2	7.8	4.8	2.6
63	16.3	9.9	6.0	4.6	9.5	5.2	3.4	1.8
100	11.9	6.6	4.0	3.2	6.8	3.3	2.3	1.2
160	7.9	5.1	3.4	2.6	3.6	1.8	1.2	0.5
250	5.1	3.2	2.1	1.8	2.8	1.4	0.9	0.4
400	3.2	2.0	1.3	1.0	2.2	1.6	1.3	1.0
630	-	-	-	-	2.1	1.2	0.9	0.7

Size	Filter material: BH4HC (dimensions to DIN 24550) Element type: DN			
	3 µm	6 µm	10 µm	25 µm
40	40.4	24.8	16.4	10.9
63	29.0	18.2	11.7	7.6
100	19.0	11.7	7.7	5.3
160	8.0	5.1	3.8	2.5
250	5.4	3.4	2.8	1.9
400	3.4	2.1	1.7	1.1

Size	Filter material: W and W/HC	
	Element type: D W -W/HC	Element type: R W/HC
30	3.030	-
60	0.757	0.912
75	-	0.72
110	0.413	0.502
140	0.324	-
150	-	0.32
160	0.284	0.348
165	-	0.328
240	0.189	0.228
260	0.131	-
280	0.089	0.114
330	0.138	0.164
500	0.091	0.109
660	0.069	0.082
750	-	0.049
850	-	0.063
950	-	0.058
990	0.046	-
1300	-	0.043
1320	0.035	-
1700	-	0.033
2600	-	0.022

Size	Filter material: V							
	Element type: D				Element type: R			
	3 µm	5 µm	10 µm	20 µm	3 µm	5 µm	10 µm	20 µm
30	18.4	13.5	7.5	3.6	19.4	14.2	7.9	3.8
60	16.0	9.3	5.4	3.3	15.9	9.3	5.4	3.3
110	8.2	5.6	3.3	2.2	7.6	5.1	3.0	2.0
140	5.8	4.8	3.1	2.3	-	-	-	-
160	4.6	3.2	2.3	1.4	4.9	3.5	2.4	1.5
240	3.1	2.5	1.7	1.1	3.2	2.6	1.7	1.2
280	2.3	1.7	1.2	0.8	1.4	1.1	0.7	0.5
330	2.2	1.8	1.2	0.8	2.1	1.7	1.1	0.8
500	1.5	1.2	0.8	0.5	1.5	1.2	0.8	0.5
660	1.1	0.9	0.6	0.4	1.0	0.8	0.6	0.4
750	-	-	-	-	0.6	0.5	0.3	0.2
850	-	-	-	-	0.8	0.6	0.4	0.3
950	-	-	-	-	0.7	0.6	0.4	0.2
990	0.8	0.6	0.4	0.3	-	-	-	-
1300	-	-	-	-	0.5	0.4	0.3	0.2
1320	0.6	0.5	0.3	0.2	-	-	-	-
1700	-	-	-	-	0.4	0.3	0.2	0.1
2600	-	-	-	-	0.3	0.2	0.1	0.1

Size	Filter material: P/HC		Filter material: ECON2			
	Element type: R					
	10 µm	20 µm	3 µm	5 µm	10 µm	20 µm
30	3.30	1.67	68.4	43.9	26.8	14.7
60	1.67	0.83	26.8	18.3	10.9	6.9
75	1.29	0.65	22.0	14.2	8.1	4.4
90	-	-	14.9	10.1	6.7	3.2
110	0.91	0.46	14.9	9.4	6.0	3.2
150	-	-	8.9	6.0	4.0	1.9
160	0.63	0.31	9.5	5.9	3.8	2.9
165	0.61	0.30	11.2	7.8	4.5	2.4
185	-	-	8.9	6.1	3.3	1.8
240	0.42	0.21	6.2	3.8	2.6	1.8
280	-	-	3.1	2.2	1.6	1.0
330	0.30	0.15	4.2	2.7	1.7	1.2
500	0.20	0.10	3.0	1.9	1.3	0.8
660	0.15	0.08	1.9	1.2	0.8	0.5
750	-	-	1.3	0.9	0.6	0.4
850	0.12	0.06	1.5	1.0	0.7	0.4
950	0.11	0.05	1.2	0.8	0.5	0.4
1300	0.08	0.04	0.8	0.6	0.4	0.3
1700	0.06	0.03	0.7	0.5	0.3	0.2
2600	0.04	0.02	0.4	0.3	0.2	0.1

Size	Filter material: ECON2 Element type: MX		
	5 µm	10 µm	20 µm
100	10.0	6.5	4.8
200	5.9	3.8	2.8

Size	Filter material: W Element type: RS			
	25 µm	50 µm	75 µm	125 µm
60	2.00	1.70	1.03	0.54
110	0.98	0.83	0.50	0.26
160	-	-	0.36	0.19
240	-	-	0.25	0.13
330	-	-	0.19	0.10
400	-	-	0.20	0.16
500	-	-	0.20	0.16

Size	Filter material: AM	Filter material: BN4AM Element type: R	
	40 µm	3 µm	10 µm
330	2.10	8.7	3.0
500	1.38	-	-
660	0.93	3.5	1.2
850	0.72	-	-
950	0.66	2.4	0.8
1300	0.47	1.6	0.6
2600	0.23	1.0	0.3

Size	Filter material: MM Element type: RK	
	10 µm	15 µm
80	2.70	1.60
100	1.80	1.10
120	1.40	0.90
151	1.00	0.65
201	0.75	0.47
251	0.58	0.36
300	0.62	0.39
350	0.30	0.20
400	0.56	0.35
800	0.44	0.27

Size	Filter material: MM Element type: MX	
	10 µm	15 µm
100	2.7	2.2
200	1.6	1.3

Size	Filter material: G/HC Element type: R
	10 µm
110	1.91
240	0.92
330	0.69
500	0.45
660	0.30
850	0.23
950	0.21
1300	0.15
1700	0.11
2600	0.08

4. MULTIPASS FILTER PERFORMANCE DATA TO ISO 16889

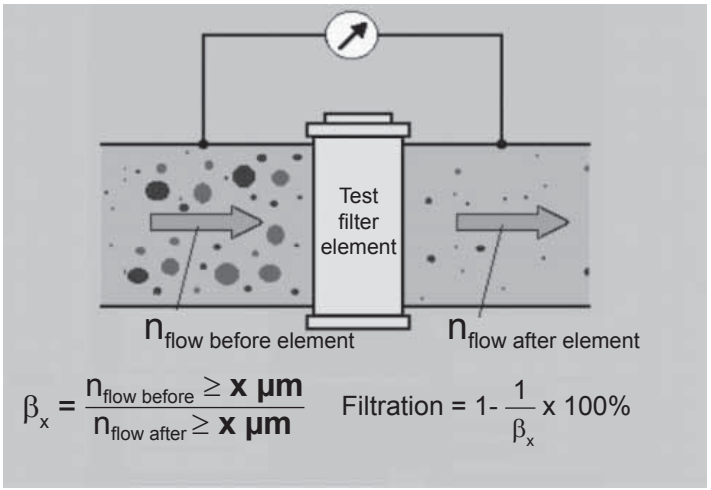
The contamination retention and particle filtration performance of an element (with the exception of: paper P, P/HC, wire mesh W, W/HC, V and super absorber AM) are established in the multipass test to ISO 16889. This procedure with its precisely defined test conditions and standard test dust (ISO MTD) enables the performance data of different elements to be compared.

4.1 EXPLANATION OF THE MULTIPASS TEST

The multipass test is an idealised hydraulic circuit, in which the filter element under test is subjected to a constant flow rate. The size and number of contamination particles are calculated before and after the element.

The ratio of the number of particles of a certain size (and larger) before the filter to the number of particles of a certain size after the filter indicates the filtration performance, what is known as the $\beta_{x(c)}$ value. The "x" stands for the particular particle size being considered. A $\beta_{x(c)}$ value of 200 or above is considered (according to DIN 24550) to be absolute filtration. It is important that the $\beta_{x(c)}$ values remain at absolute level over a wide differential pressure range and do not fall as the element contamination and operating time increase.

The filtration rating is determined from the $\beta_{x(c)}$ value (see illustration).



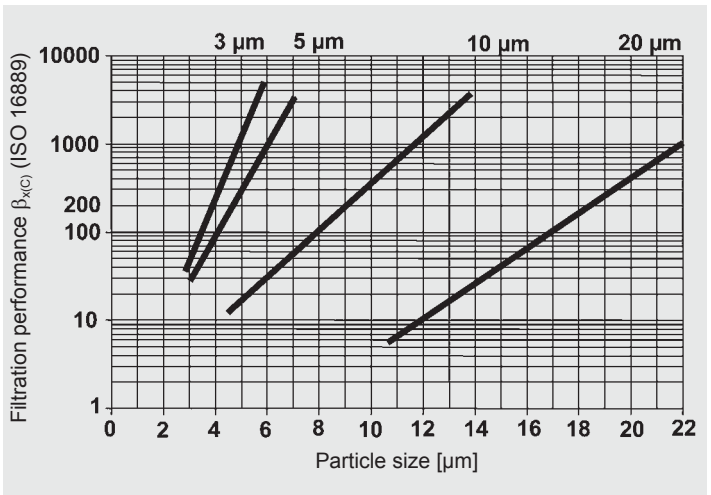
Performance features

Owing to their high performance standard, HYDAC absolute elements protect the functions of important and expensive hydraulic components and increase their service life. The most important performance features are:

- High level of particle separation ($\beta_{x(c)}$ values)
- High level of particle separation over a wide differential pressure range (high $\beta_{x(c)}$ value stability)
- High contamination retention capacity
- High pressure stability values
- Low initial differential pressure
- Good flow fatigue strength
- Good water retention capacity (for water-absorbing filter material)

4.2 FILTRATION PERFORMANCE

The graph below shows the filtration performance of different filtration ratings.



4.3 REAL CONTAMINATION RETENTION CAPACITY [g]

Size	Filter material: BN4HC							
	Element type: D				Element type: R			
	3 µm	5 µm	10 µm	20 µm	3 µm	5 µm	10 µm	20 µm
30	4.6	5.1	5.4	5.6	2.6	2.9	3.5	4.0
35	7.2	8.1	8.6	8.8	-	-	-	-
55	14.0	15.8	16.6	17.2	-	-	-	-
60	6.5	7.3	7.8	8.0	5.7	6.3	7.6	8.6
75	21.6	24.3	25.7	26.5	10.3	11.4	13.7	15.5
90	-	-	-	-	12.2	13.5	16.2	18.3
95	27.5	30.9	32.7	33.7	-	-	-	-
110	13.8	15.5	16.4	16.9	12.0	13.3	16.0	18.1
140	18.1	20.3	21.5	22.2	-	-	-	-
150	-	-	-	-	20.4	22.6	27.2	30.8
160	19.8	22.2	23.5	24.3	18.6	20.7	24.9	28.1
165	-	-	-	-	18.7	20.7	24.9	28.2
185	-	-	-	-	25.6	28.4	34.1	38.6
210	-	-	-	-	50.7	56.2	67.6	76.5
240	32.3	36.3	38.4	39.6	29.3	32.5	39.1	44.2
260	46.4	52.0	55.0	56.9	-	-	-	-
270	-	-	-	-	78.4	86.9	104.5	118.2
280	70.6	79.3	83.9	86.6	62.3	69.0	83.0	93.9
300	26.1	29.3	31.0	32.0	-	-	-	-
330	47.2	53.1	56.1	57.9	38.4	42.6	51.2	57.9
450	52.1	58.7	62.0	63.9	49.1	54.4	65.5	74.1
500	76.9	86.5	91.5	94.4	58.9	65.3	78.6	88.9
580	-	-	-	-	124.7	138.2	166.3	188.1
600	-	-	-	-	145.5	161.3	194.0	219.4
650	85.4	96.1	101.5	104.7	-	-	-	-
660	102.2	114.9	121.5	125.4	87.1	96.5	116.1	131.3
750	-	-	-	-	147.1	163.0	196.1	221.9
850	-	-	-	-	112.1	124.2	149.5	169.1
900	112.8	127.0	134.1	138.3	-	-	-	-
950	-	-	-	-	130.0	144.1	173.3	196.1
990	154.5	173.7	183.7	189.5	-	-	-	-
1300	-	-	-	-	181.0	200.7	241.4	273.1
1320	209.9	236.0	249.6	257.5	-	-	-	-
1500	220.0	226.0	238.0	246.0	-	-	-	-
1700	-	-	-	-	229.8	254.7	306.4	346.6
2600	-	-	-	-	369.4	409.4	492.5	557.2

Size	Filter material: BN4HC Element type: MX		
	5 µm	10 µm	20 µm
100	27.8	27.8	28.8
200	47.4	47.4	49.4

Size	Filter material: BH4HC Element type: D			
	3 µm	5 µm	10 µm	20 µm
30	3.0	2.9	3.2	3.7
35	5.3	5.2	5.8	6.6
55	10.5	10.3	11.5	13.0
60	4.6	4.5	5.0	5.7
110	10.1	9.9	10.9	12.4
140	13.3	13.0	14.3	16.3
160	12.9	12.6	13.9	15.9
240	21.6	21.1	23.2	26.5
280	48.1	47.1	51.8	59.1
300	17.0	16.6	18.3	20.9
330	34.6	33.9	37.2	42.5
450	35.0	34.2	37.6	42.9
500	57.5	56.3	61.8	70.5
650	58.3	57.1	62.8	71.6
660	76.8	75.2	82.6	94.3
900	77.3	75.7	83.1	94.8
990	111.8	109.4	120.2	137.2
1320	153.8	150.7	165.5	188.8
1500	126.4	137.8	160.9	195.3

Size	Filter material: BN4HC (dimensions to DIN 24550)							
	Element type: DN				Element type: RN			
	3 µm	6 µm	10 µm	25 µm	3 µm	6 µm	10 µm	25 µm
40	5.2	5.6	6.3	7.0	7.1	8.0	8.9	10.6
63	9.2	9.9	11.1	12.8	13.0	14.7	16.3	19.6
100	15.4	16.5	18.6	20.6	22.0	24.7	27.5	33.0
160	27.5	29.3	33.1	36.7	36.2	40.7	45.3	54.2
250	46.0	49.0	55.2	61.3	61.4	69.1	76.8	92.1
400	76.2	81.3	91.4	101.5	88.2	99.2	110.2	132.3
630	-	-	-	-	148.6	167.3	185.8	222.9

Size	Filter material: BH4HC (dimensions to DIN 24550) Element type: DN			
	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

Size	Filter material: MM Element type: RK	
	10 µm	15 µm
80	11.0	13.3
100	16.3	19.6
120	20.7	25.0
151	26.6	31.4
201	50.9	61.4
251	61.9	74.7
300	55.6	67.1
350	87.0	105.0
400	67.4	81.3
800	86.3	104.2

Size	Filter material: MM Element type: MX	
	10 µm	15 µm
100	19.6	19.6
200	33.0	33.0

Size	Filter material: ECON2 Element type: R			
	3 µm	5 µm	10 µm	20 µm
30	2.6	2.9	3.5	4.0
60	5.7	6.3	7.6	8.6
75	10.3	11.4	13.7	15.5
90	12.2	13.5	16.2	18.3
110	12.0	13.3	16.0	18.1
150	20.4	22.6	27.2	30.8
160	18.6	20.7	24.9	28.1
165	18.7	20.7	24.9	28.2
185	25.6	28.4	34.1	38.6
240	29.3	32.5	39.1	44.2
280	62.3	69.0	83.0	93.9
330	38.4	42.6	51.2	57.9
500	58.9	65.3	78.6	88.9
660	87.1	96.5	116.1	131.3
750	147.1	163.0	196.1	221.9
850	112.1	124.2	149.5	169.1
950	130.0	144.1	173.3	196.1
1300	181.0	200.7	241.4	273.1
1700	229.8	254.7	306.4	346.6
2600	369.4	409.4	492.5	557.2

Size	Filter material: ECON2 Element type: MX		
	5 µm	10 µm	20 µm
100	29.9	29.9	33.0
200	50.5	50.5	56.0

Size	Filter material: BN4AM Element type: R	
	3 µm	10 µm
330	55.0	60.0
660	120.0	140.0
950	170.0	190.0
1300	240.0	270.0
2600	490.0	540.0

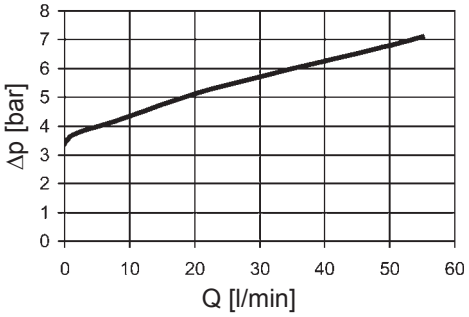
5. FILTER AREAS [cm²]

Size	Filter material: V (VB on request)	Filter material: W/HC Element type: D	Filter material: W	Filter material: V (VB on request)	Filter material: W Element type: R	Filter material: W/HC	Filter material: P/HC
30	268	-	256	221	256	-	283
60	318	418	330	372	330	507	572
110	648	910	672	758	672	1034	1166
140	852	1200	884	-	-	-	-
160	1082	1144	857	1071	857	1607	1978
165	-	-	-	-	1556	1556	1915
240	1702	1911	1348	1685	1348	2527	3110
260	-	3180	-	-	-	-	-
280	3615	4264	2862	-	-	-	-
330	2260	3133	1795	2081	1795	3695	4230
500	3640	5207	2891	3182	2745	5651	6470
660	4770	6958	3795	4659	3998	8232	8722
850	-	-	-	5999	5148	10599	11230
950	-	-	-	6813	5596	11521	15221
990	-	10091	-	-	-	-	-
1300	-	-	-	9520	7820	16099	21269
1320	-	13916	-	-	-	-	-
1700	-	-	-	-	10550	21730	23020
2600	-	-	-	19424	15954	32847	43394

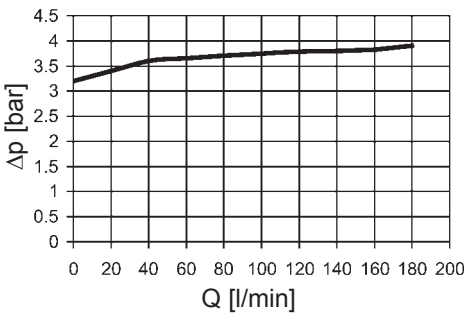
6. BYPASS VALVE CURVES

The bypass curves apply to mineral oil with a density of 0.86 kg/dm³.
The valve differential pressure changes proportionally to the density.

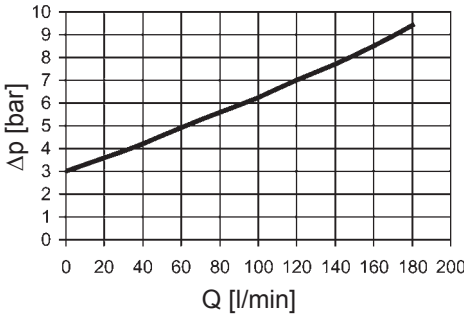
30



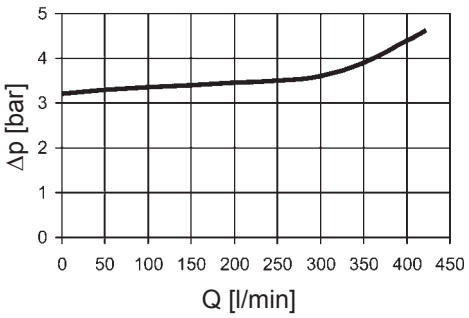
75, 160, 165, 185, 240, 280



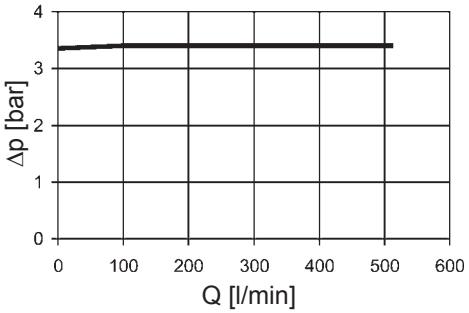
60, 90, 110, 140, 150



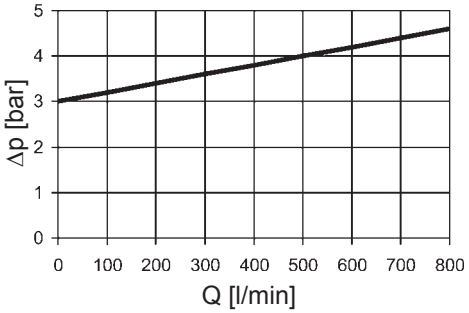
210, 270, 330, 500, 750



660, 850, 1700



950, 1300, 2600



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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HYDAC INTERNATIONAL

Filter Elements Betamicron®4. For Reduced Life Cycle Cost.

Good. Better. Betamicron®4

The previous Betamicron®3 technology already provided certainty: A high level of fluid cleanliness with long-term stability for hydraulic and lubrications systems. The new generation Betamicron®4 goes one better: Outstanding performance data for reduced Life Cycle Cost.

The key innovations of the 4th Generation are:

- Optimized mesh pack structure with newly developed filter media and additional drainage layer.
- Improved performance data (particle separation, contamination retention, Δp/Q characteristics).
- Patented process for longitudinal seam bonding.
- Element is fully discharge-capable.
- Use of spiral lock seam support tubes
- Element outer wrap in plastic (previously metal)

Technical data:

- Pressure stability: Low pressure differential stability: 20 bar (BN4HC); High pressure differential stability: 210 bar (BH4HC)
- Filtration ratings: 3, 5, 10, 20 µm

Attach

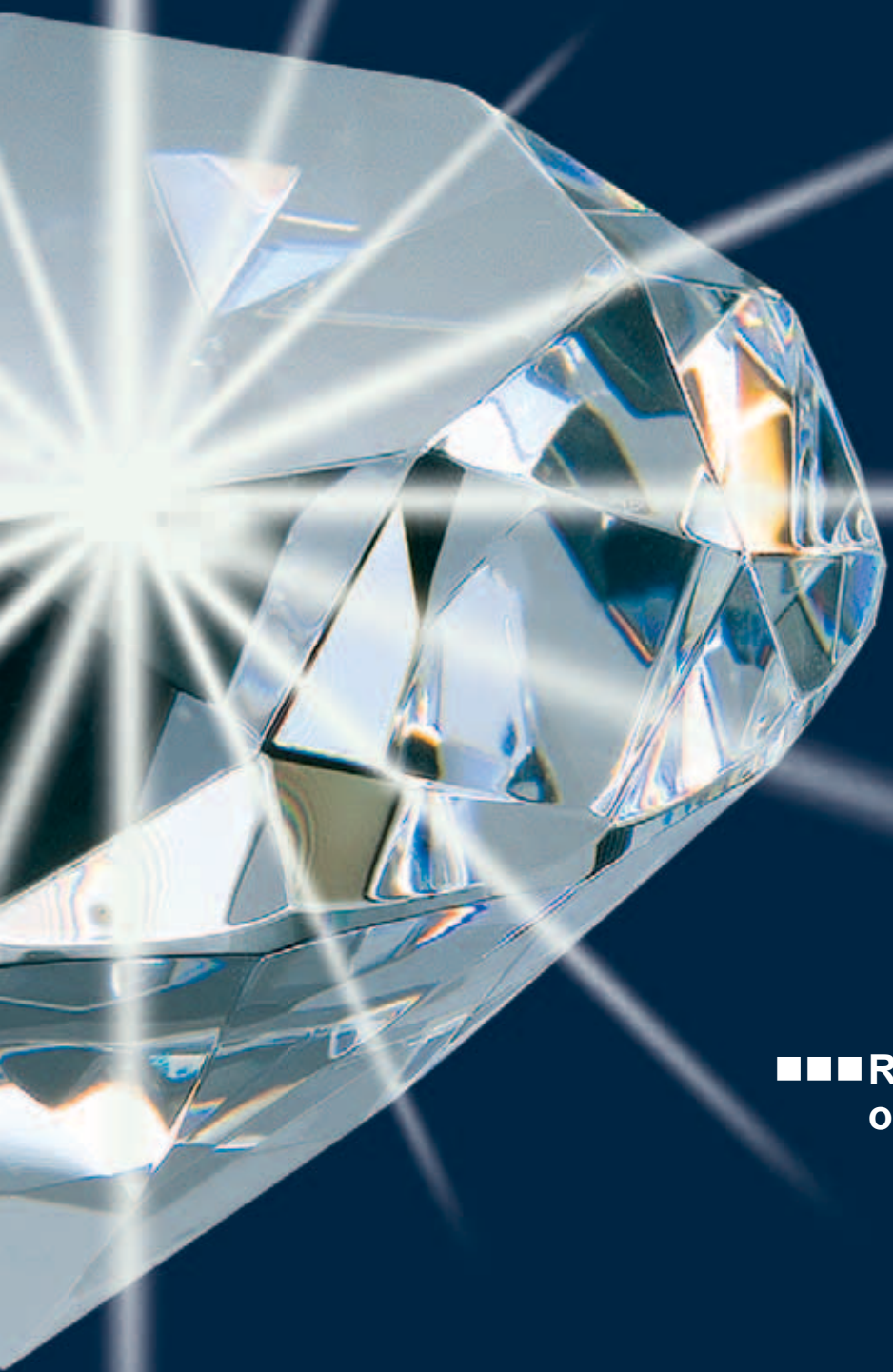
■■■ Improved
operational reliability

■■■ Longer
maintenance intervals

■■■ Reduced
energy cost

■■■ Longer
system service life

Importance to...



■■■ Better component protection

■■■ Reduced downtime cost

■■■ Reduced operating cost

■■■ Reduced shipping and waste disposal cost

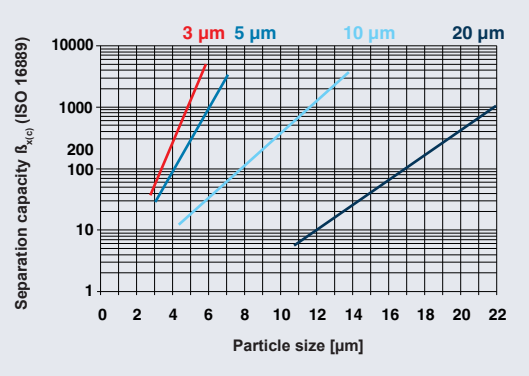
Betamicron®4. High-

Optimized three-layer filter mesh pack structure with new glass fibers

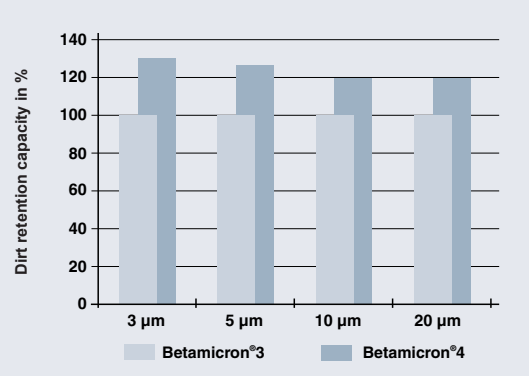
Absolutely new filter media were developed for the new Betamicron®4 filter elements. Due to the 3-stage structure, highest contamination retention and separation capacity are ensured. As a result of the integration of an additional drainage layer, the fluid flow is directed in an optimum way, and particularly favorable Δp/Q characteristics are achieved.

Longer element service life and energy cost savings due to particularly low pressure losses across the element

Better component protection and longer system service life due to improved separation capacity
(with filter ratings 3 and 5 µm)



Longer element service life and lower operating costs due to increase in the contamination retention capacity by up to 30 %



Patented longitudinal seam bonding method

An innovative bonding process used for the longitudinal seam ensures completely sealed integration of the cut ends of the mesh pack. Transition of particles from the contaminated to the clean side is eliminated.

High operational reliability, even under dynamic loads, due to tight longitudinal seam bonding.

Zinc-free structure

To prevent the formation of zinc soap, which occurs mainly when water-containing fluids (HFA/HFC) and bio-oils are used, no zinc-containing components are employed.

High operational reliability, because elements cannot be blocked as a result of the formation of zinc soap

Savings in storage costs, because the filter elements can be used universally

Use of spiral lock seam support tubes

The metal tube provided inside the element for stabilization purposes is designed as spiral lock seam tube, which offers unchanged stability while significantly reducing the element weight.

Reduced shipping and waste disposal costs due to weight reduction by up to 30 %

Class Filter Element Technology.

Filter mesh pack protected by outersleeve

The star-pleated filter mesh pack is enclosed in a stable outer plastic sleeve. This sleeve distibutes the incoming fluid evenly over the mesh pack (diffusor effect). In addition the fluid does not flow directly through the mesh pack, and this protects it from pulsating flows. In this way, the element achieves extremely high flow fatigue stength values. Moreover, the mesh pack is protected against mechanical damage, e.g. when elements are being installed. Since the outer sleeve permits overprinting with the customer logo, it can be used as an advertising medium for OEMs, thus ensuring spare parts business. At the same time the user can rely on the fact that he is always buying a genuine spare part.

- **High operational reliability, because the sensitive filter mesh pack is protected against direct fluid flows and pulsation**
- **Low energy consumption, because due the uniform distribution of the fluid (diffusor effect), a particularly low Δp is achieved across the element**
- **Ease of handling, because the compact element is protected against damage in transit and during its installation**
- **Protection against product piracy through “brand labeling”**

The figure shows elements with customer logo, which are increasingly used across all industrial sectors.

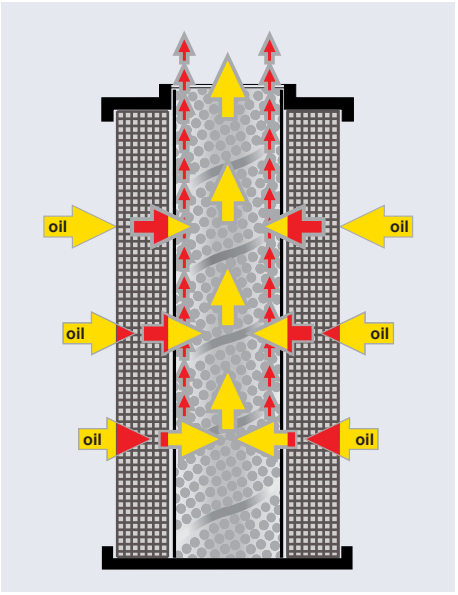
Particularly advantageous: The logo is also perfectly legible when the filter is dirty, that is, when the element is actually changed. "Brand labeling" by HYDAC will result in an enormous increase in your spare parts business and improve the process quality through the use of genuine spare parts.

Use of electrically conductive plastics and innovative filter media

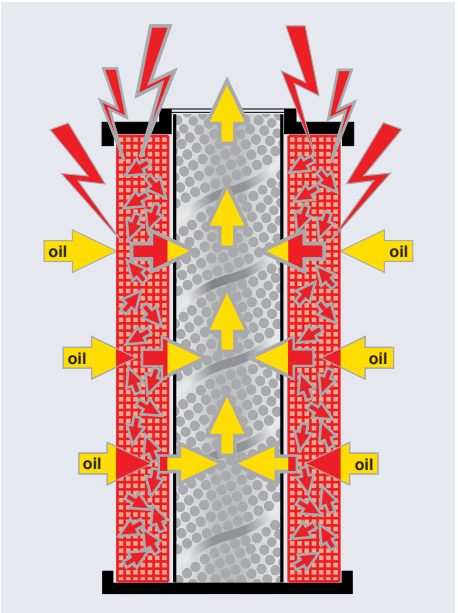
Due to a complete revision of the materials used, e.g. conductive plastics, full discharge-capability of the filter elements was achieved.

Charging of the filter elements during operation was therefore reduced to an absolutely uncritical level. This means that risks such as sudden sparking and the subsequent formation of black carbon or sludging of the oil are reliably eliminated.

- **High operational reliability, because the filter element is fully discharge-capable**



Discharge on a discharge-capable element



No discharge on an element, which is not discharge-capable

Better Quality, Performance and Efficiency.

Performance data:

Contamination retention capacity

Established in line with the multipass test ISO 16889

Return flow elements (R)				
	Betamicron BN4HC			
Size	3 µm	5 µm	10 µm	20 µm
30	2.6	2.9	3.5	4.0
60	5.7	6.3	7.6	8.6
75	10.3	11.4	13.7	15.5
90	12.2	13.5	16.2	18.3
110	12.0	13.3	16.0	18.1
150	20.4	22.6	27.2	30.8
160	18.6	20.7	24.9	28.1
165	18.7	20.7	24.9	28.2
185	25.6	28.4	34.1	38.6
210	50.7	56.2	67.6	76.5
240	29.3	32.5	39.1	44.2
270	78.4	86.9	104.5	118.2
280	62.3	69.0	83.0	93.9
330	38.4	42.6	51.2	57.9
480	62.3	69.0	83.0	93.9
500	58.9	65.3	78.6	88.9
660	87.1	96.5	116.1	131.3
750	147.1	163.0	196.1	221.9
850	112.1	124.2	149.5	169.1
950	130.0	144.1	173.3	196.1
1200	179.1	198.5	238.8	270.1
1300	181.0	200.7	241.4	273.1
1700	229.8	254.7	306.4	346.6
2600	369.4	409.4	492.5	557.2

Pressure elements (D)								
	Betamicron BN4HC				Betamicron BH4HC			
Size	3 µm	5 µm	10 µm	20 µm	3 µm	5 µm	10 µm	20 µm
30	4.6	5.1	5.4	5.6	3.0	2.9	3.2	3.7
35	7.2	8.1	8.6	8.8	–	–	–	–
55	14.0	15.8	16.6	17.2	–	–	–	–
60	6.5	7.3	7.8	8.0	4.6	4.5	5.0	5.7
75	21.6	24.3	25.7	26.5	–	–	–	–
95	27.6	30.9	32.7	33.7	–	–	–	–
110	13.8	15.5	16.4	16.9	10.1	9.9	10.9	12.4
140	18.1	20.3	21.5	22.2	13.3	13.0	14.3	16.3
160	19.8	22.2	23.5	24.3	12.9	12.6	13.9	15.9
240	32.3	36.3	38.4	39.6	21.6	21.1	23.2	26.5
280	70.6	79.3	83.9	86.6	48.1	47.1	51.8	59.1
330	47.2	53.1	56.1	57.9	34.6	33.9	37.2	42.5
500	76.9	86.5	91.5	94.4	57.5	56.3	61.8	70.5
660	102.2	114.9	121.5	125.4	76.8	75.2	82.6	94.3
990	154.5	173.7	183.7	189.5	111.8	109.4	120.2	137.2
1320	209.9	236.0	249.6	257.5	153.8	150.7	165.5	188.8

Δp/Q gradient coefficients in mbar/l/min

Flow rate established in line with ISO 3968

Return flow elements (R)				
	Betamicron BN4HC			
Size	3 µm	5 µm	10 µm	20 µm
30	68.4	43.9	26.8	14.7
60	26.8	18.3	10.9	6.9
75	22.0	14.2	8.1	4.4
90	14.9	10.1	6.7	3.2
110	14.9	9.4	6.0	3.2
150	8.9	6.0	4.0	1.9
160	9.5	5.9	3.8	2.9
165	11.2	7.8	4.5	2.4
185	8.9	6.1	3.3	1.8
210	3.9	2.6	1.8	1.1
240	6.2	3.8	2.6	1.8
270	2.5	1.7	1.1	0.7
280	3.1	2.2	1.6	1.0
330	4.2	2.7	1.7	1.2
480	3.1	2.2	1.6	1.0
500	3.0	1.9	1.3	0.8
660	1.9	1.2	0.8	0.5
750	1.3	0.9	0.6	0.4
850	1.5	1.0	0.7	0.4
950	1.2	0.8	0.5	0.4
1200	1.0	0.8	0.5	0.3
1300	0.8	0.6	0.4	0.3
1700	0.7	0.5	0.3	0.2
2600	0.4	0.3	0.2	0.1

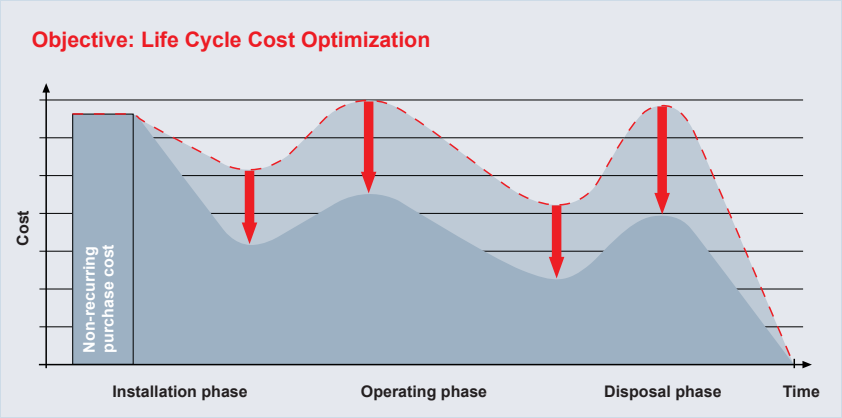
Pressure elements (D)								
	Betamicron BN4HC				Betamicron BH4HC			
Size	3 µm	5 µm	10 µm	20 µm	3 µm	5 µm	10 µm	20 µm
30	63.9	43.3	22.8	11.3	91.2	50.7	36.3	19.0
35	23.6	19.0	14.8	9.3	–	–	–	–
55	13.7	11.0	8.1	4.8	–	–	–	–
60	28.9	20.4	13.2	7.9	58.6	32.6	18.1	12.2
75	9.3	7.5	5.3	3.1	–	–	–	–
95	7.5	6.0	4.1	2.4	–	–	–	–
110	14.9	10.7	6.6	3.7	25.4	14.9	8.9	5.6
140	12.8	8.2	4.8	2.9	19.9	11.3	8.1	4.3
160	13.1	8.8	4.6	3.5	16.8	10.4	5.9	4.4
240	8.2	6.1	3.6	2.3	10.6	6.8	3.9	2.9
280	4.0	3.1	1.7	1.3	5.7	3.4	1.8	1.6
330	5.4	3.9	3.0	1.7	7.7	4.5	2.8	2.0
500	3.3	2.4	1.5	1.1	4.2	2.6	1.5	1.2
660	2.5	1.8	1.1	0.8	3.3	1.9	1.0	0.9
990	1.6	1.2	0.7	0.5	2.2	1.3	0.8	0.6
1320	1.2	0.9	0.5	0.4	1.6	1.0	0.6	0.4
1500	1.1	0.8	0.6	0.4	1.4	0.8	0.6	0.5

Betamicron®4 Reduces Life Cycle Cost.

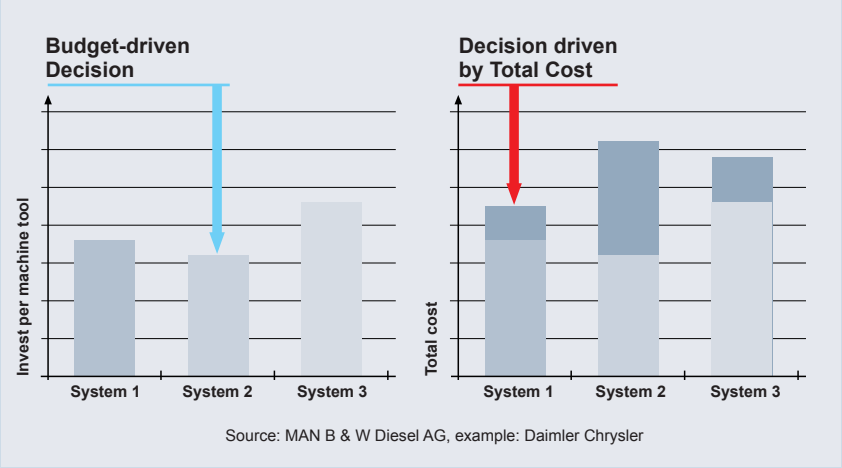
Life Cycle Cost – what does this mean?

The term Life Cycle Cost is today a dominating topic among suppliers, machine builders and end customers.
We understand by this the total cost of a system, machine or component from the procurement through to its scrapping.

The reduction of Life Cycle Cost is one of the mega trends in mechanical engineering. The objective is to make product costs transparent beyond the purchase price over the entire lifecycle, thus creating a better basis for the customer's buying decision.
Major end customers set this trend.
Leading car makers, for example, require binding information about the Life Cycle Cost and derived variables – e.g. for machine tools for 10 years, for presses even for up to 30 years. Decisions on new investments by machine manufacturers are based on the machine price and the Life Cycle Cost calculation offered.



Cost curve during the total lifecycle of the machine / system



Source: MAN B & W Diesel AG, example: Daimler Chrysler

Winner in the system properties

This changed and holistic understanding of cost by end customers naturally results in new challenges that machine manufacturers have to take.
For system concepts, subsystems and components used must also stand the test with regard to their influence on the Life Cycle Cost.

Betamicron® 4 elements are the winners in the "Life Cycle Cost contest"

The table summarizes it:
Betamicron®4 elements result in a minimization of, for example, the following types of cost:

		Optimized mesh pack structure	Optimized longitudinal seam	Zinc-free structure	Spiral lock seam support tubes	Protective sleeve	Discharge capability
		minimized					
Energy	cost	●					
Personnel		●	●			●	●
Logistics				●	●		
Failure		●	●	●		●	●
Production		●	●				●
Repair		●	●	●		●	●
Maintenance		●	●	●		●	●
Spare parts		●	●	●		●	●
Waste disposal					●		

NOTES

NOTE

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Subject to technical modifications.

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HYDAC INTERNATIONAL

The HYDAC Betterfit Range With our Investment, You Can't Lose.

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HYDAC

The HYDAC Betterfit Range: The Royal Flush in Filter Elements.

The Best Combination. Every Time. On Paper and in Practice.

With HYDAC and the HYDAC Betterfit Range you hold all the aces when it comes to conditioning your fluids:

Global presence.
HYDAC forges close links with its customers by providing engineering advice and fluid engineering in over 40 international subsidiaries and over 500 distributors and service partners worldwide.

Specialist expertise.
HYDAC has developed expertise in the research, development and production of filter housings, filter systems and filter elements over many decades.

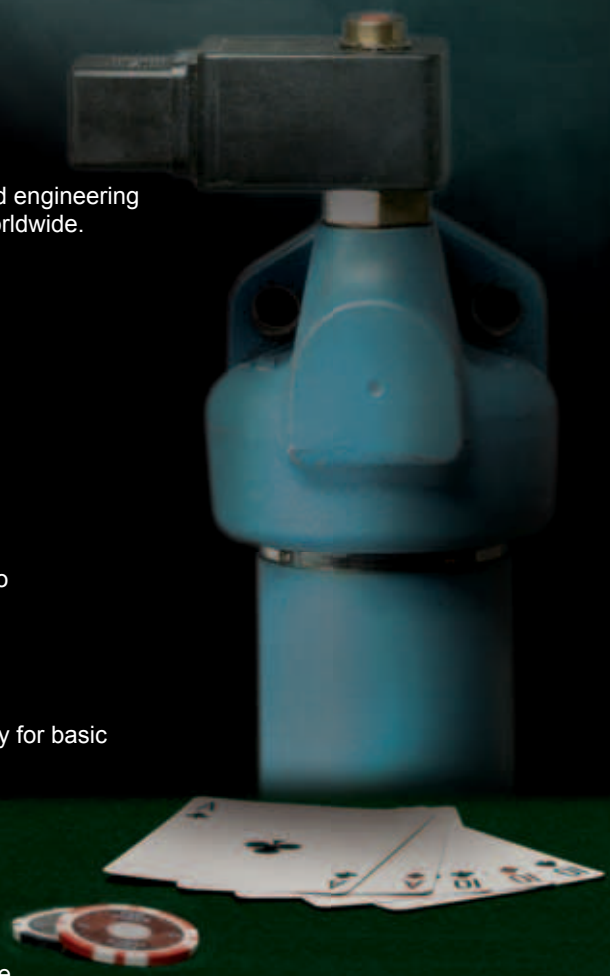
Industry competence.
HYDAC industry competence forged through close cooperation with the most exacting international clients in almost all industries in the world.

Complete range.
HYDAC filter elements provide a comprehensive range to suit all applications and also almost all competitor filters. Our customer-focused service package is included, ranging from specialist advice to availability at short notice.

Quality from the ground up.
In the HYDAC Fluid Care Center, which is our own state-of-the-art industrial laboratory for basic research, functionality and quality testing as well as application-specific development, we explore the most efficient fluid technology solutions.
This results in high-end quality filters and elements with maximum efficiency.

Strongest link in the chain.
As a system partner with wide-ranging industrial experience, HYDAC does its utmost to ensure each filter element is one of the most efficient links in the functionality chain of fluid technology systems. HYDAC therefore guarantees the greatest possible component protection for the longest possible service life.

Better is better than good enough.
The HYDAC Betterfit range combines the best ideas and the best in fluid engineering – filter elements which stand up to every comparison and every challenge.



Don't fall for a cheap bluff.

Using elements of inferior quality can have drastic consequences:

- Poorer cleanliness classes in the customer's system
- Inadequate component protection
- Shorter filter lifetimes
- Threat to operating reliability and even risk of system failures
- Restricted system availability
- Increased Life Cycle Cost for the customer

Never trust a poker face.
Don't let yourself be taken in!

Trust HYDAC,
Your system will thank you for it!

The shocking evidence of these no-name elements which have collapsed shows exactly what happens to cheap filter elements after just a few hours operation. The often unseen damage caused to systems and control components can sometimes have the effect of paralysing whole production systems. By contrast, with HYDAC filter elements and their rigorous and systematic quality, you will have a winning hand for every application.

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HYDAC Betterfit Range

B-E-T-T-E-R-F-I-T
Better for quality and efficiency.

Here you are guaranteed to find the right element.

The HYDAC Betterfit range covers a wide variety of replacement elements in the dimensions used by competitors, particularly all well-known filter element manufacturers.
Our Betterfit elements are made predominantly from the tried-and-tested Betamicron®4 element technology (other materials, such as synthetic fibre or wire mesh are also available).

Bet on genuine quality equipment and opt for Hydac replacement elements – your system will thank you for it!

By using our Betterfit elements you will benefit from the whole Hydac service package – from oil sampling to oil analysis.
This also includes identifying the source of faults and designing filtration concepts.
Hydac supports you at every stage and in all aspects of fluid service.

Just as our motto says "With our investment, you can't lose" we will take care of your system, leaving you to concentrate fully on your core competence.

Steady expansion of the Betterfit range.

Since launching the Betterfit range the number of replacement filter elements has increased daily.
We are proactive when it comes to your request.
If the required element is not yet available, we will endeavour to add it to the Betterfit product range as quickly as possible once we have examined the design.
Today there are approximately 23,000 replacement elements in the Betterfit line of elements and the number is growing day by day.

Betamicron®4

Decades of experience and ongoing further development in the field of hydraulic and lubrication oil filtration have given HYDAC the technological edge in top quality filter element technology.

The high performance Betamicron®4 is the predominant material used in the **Betterfit element product range.**
This innovative glass fibre media will win you over with its exceptionally high contamination retention capacities, excellent filtration efficiency and optimized Δp/Q characteristics.

Particular customer benefits of HYDAC filter elements:

- **Energy cost savings**
  thanks to particularly low pressure drops
- **High quality component protection and long system life**
  due to excellent filtration efficiency
- **Long service life and low operating costs**
  due to particularly high contamination retention capacities
- **High degree of operating reliability**
  because of compact and robust construction

Efficiency

Global and yet local.

40 overseas companies and over 500 sales and service partners provide a worldwide presence on the ground.
We provide efficient support on demand.

Total cleanliness

And your system will thank you for it.

Technical support

Skilled advisors in the regional offices and overseas subsidiaries.

One for all

All from one supplier.

HYDAC can supply you with the whole spectrum of products including outstanding Fluid Service.
Specifically in the area of filtration, we can supply you with every filter element used in your production processes from our Betterfit range - just tell us your filter cartridge requirement and you will receive the complete package from one supplier.
In short: we take care of your filtration needs whilst you concentrate fully on your core competence.

Cleanliness

System cleanliness assured by professionalism and quality.

Fluid management

With HYDAC, your fluid is in safe hands

We know your fluid and welcome the opportunity to help you reduce the burden of fluid service. You will see for yourself the clear benefit of having a hydraulic or lubrication system that works perfectly, leaving you to concentrate fully on your specialism. Entrust us with your fluid and benefit from our Fluid Engineering package since this ensures:

- **A long system life**
  thanks to better component protection.
- **A definite cost saving**
  due to reduced operating and downtime costs.

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And fits all housings, fluids and cleanliness classes.

Intelligent fluid service

By making use of HYDAC fluid service specialists.

In fluid service, too, you can benefit from decades of experience and development.

How HYDAC's excellent fluid service benefits you:

- **On-site diagnostics with our laboratory vehicles**
- **Specialist staff available on demand**
- **Lower costs thanks to professional oil sample analysis, monitoring and support** (condition-based maintenance)
- **Lower maintenance and spare part costs**
- **Increased operating reliability due to fewer breakdowns**

Trend: system expertise

Sub-systems and systems.

HYDAC is not only a component specialist, but also has decades of experience in power unit and system engineering. The filter component is therefore never viewed in isolation, but always as an important part of the whole system. This practice is followed through to the complete system!

With this wealth of expertise in applications and systems, HYDAC automatically sees its individual components, such as filters and filter elements, in conjunction with the whole system and understands how they can best be configured to suit the particular system requirements.

Within the framework of Fluid Engineering HYDAC guarantees you **the right filter and the right filter element in the right location** – because for HYDAC, this is not just wishful thinking, but an everyday reality.

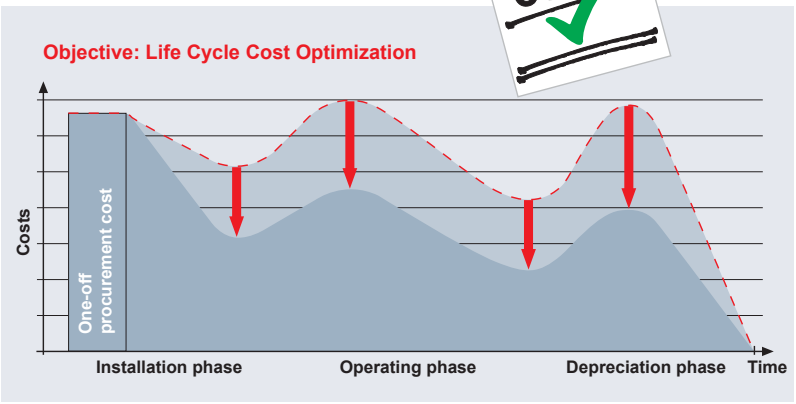
Don't gamble with your components.

Our advice: Put your money on genuine quality!

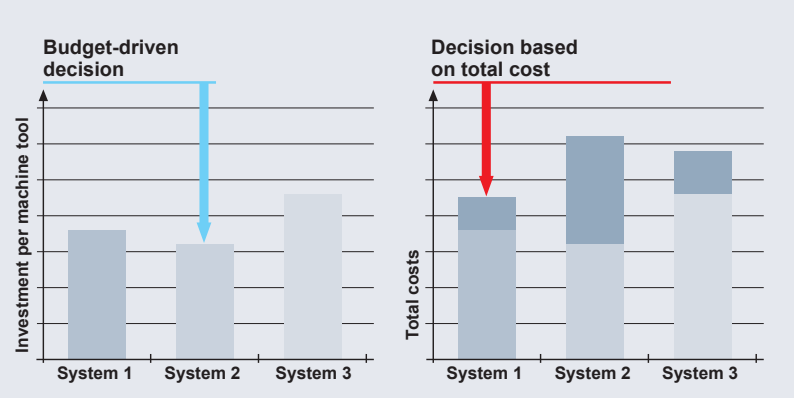
The many years' development in the area of element technology is your guarantee of first class quality in Hydac filter elements and this applies equally to the **Betterfit range**.

By using Betterfit elements, the **Life Cycle Cost** of your system will be optimized, thereby reducing the total costs of the machine or a component, from procurement right through to scrapping. Reducing these costs is one of the **megatrends** pursued by large-scale end users in machine building.

Leading automotive manufacturers demand, for example, authoritative data on the **Life Cycle Cost** and the values derived from it – e.g. for machine tools for 10 years life, for presses even up to 30 years life. New investments by machinery manufacturers are decided on the basis of the machine prices and the Life Cycle Cost calculation provided.



Cost progression during the whole life cycle of the machine / system



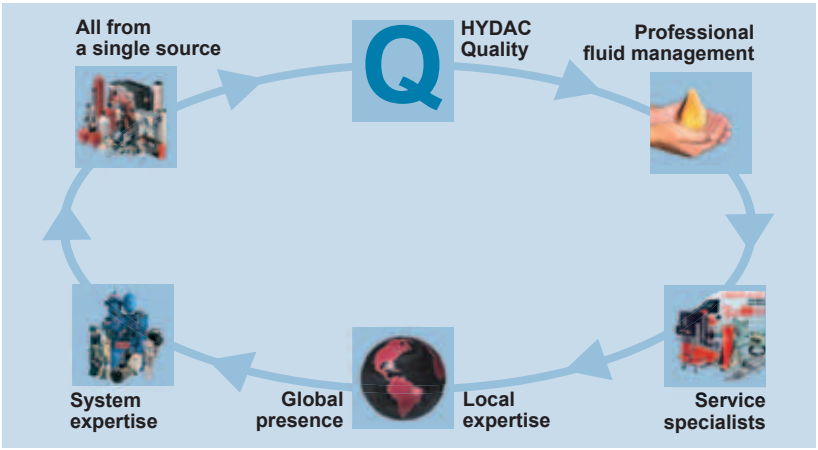
Source: MAN B & W Diesel AG, on the Daimler Chrysler example

The winners in terms of system properties

With Us, Your Fluid is in Safe Hands.

The specialists at HYDAC have a good knowledge of your fluid and welcome the opportunity to help you reduce the burden of fluid service. You will see for yourself the clear benefit of having a hydraulic or lubrication system that works perfectly, leaving you to concentrate fully on your area of expertise.

When you decide on a HYDAC Betterfit element, you are not "just" buying a filter element, but you are also benefitting at the same time from the HYDAC network of expertise and service available worldwide:



Highest level of operating reliability for your applications

In HYDAC you have a professional partner for all aspects of fluid cleanliness and operating reliability for your system.

The complete HYDAC Betterfit range currently comprises approx. 23,000 elements and is growing daily.

The HYDAC filter range is also impressive with over 50 types of filter in every conceivable size and type. In addition, new individual solutions are constantly being developed, partly in active development partnership with the manufacturers.

HYDAC filters offer you the following advantages.

Low costs
the filter elements and housings are optimized for the particular industry

Easy maintenance
simple element change and easy-to-install filter housing

High level of operating reliability
filter media have high filtration efficiency for exceptional cleanliness classes and benefit from a high level of production quality

Low operating costs
particularly low pressure drops across filter and filter element for low energy consumption

All components and systems from one company
providing comprehensive system expertise and an integrated system approach

Worldwide availability and advice
provided by our worldwide network of regional offices, agents and service partners

HYDAC, your Partner for Hydraulics and Lubrication Applications.

With 5,500 employees worldwide, HYDAC is one of the leading suppliers of fluid technology, hydraulic and electronic equipment.
Our wide range of products, combined with our well-grounded expertise in all aspects of hydraulics and lubrication applications qualify HYDAC to be your professional partner for every aspect of hydraulics. Particularly in the area of filtration you will profit from the decades of HYDAC experience and development successes.
Our quality and environment certification ISO 9001/2000 and ISO 18001 denote first class quality and responsible management of our resources.

That's why you can count on HYDAC - we provide, you profit.

All from one supplier.

HYDAC will help find the solution for you!

From first class components right up to turnkey system solutions, from support during commissioning to maintenance and optimization, from professional filtration, to oil condition monitoring and expert cooling.

First class laboratory and testing expertise in the HYDAC Fluid Care Center

The new Fluid Care Center, specifically designed for filters and filter monitoring, is an important component in HYDAC fluid management and the HYDAC service concept. Equipped with the most up-to-date instruments and test rigs, it offers a huge range of options for fluid analysis and application-specific filtration efficiency testing.
In our new laboratories, highly qualified staff are dedicated to continuously improving products and developing applications as well as carrying out analyses to customer specification – always tailored to the particular operating conditions.
In addition to the central facility at our headquarters there are further laboratories and mobile fluid laboratories in several HYDAC centres in Germany and overseas.

Just one example of the numerous filter testing procedures: **Multipass test rig.**

Oil analysis in the HYDAC laboratory at company headquarters.

NOTE

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