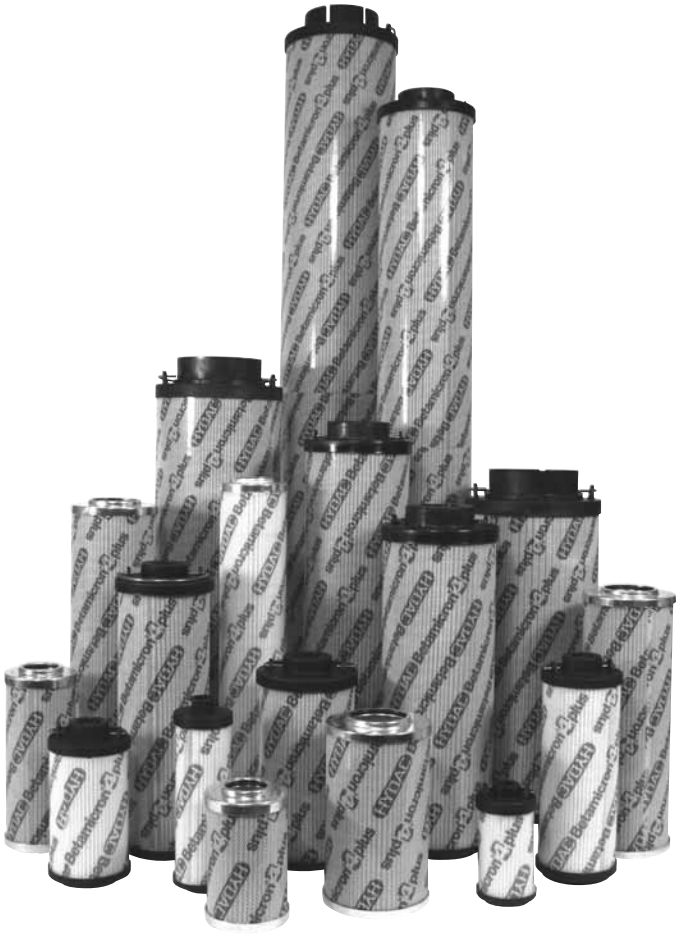
# Betamicron® Series
## High Pressure and Return Filter Elements



### Good. Better. Best Betamicron®4.

With the previous Betamicron®3 technology you were always on the leading edge of element performance:

High levels of fluid cleanliness over the long term for hydraulic and lubrication systems have always been achieved by Betamicron®3.

The new generation Betamicron®4 leaps ahead in system performance:

**Excellent performance data resulting in reduced Life Cycle Cost.**

### The Key Innovations of Generation 4 are

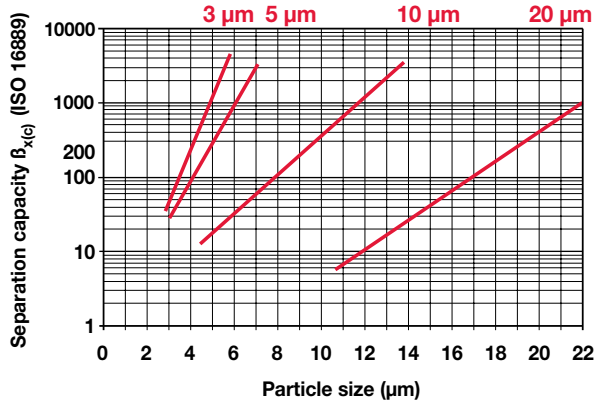
- Optimized mesh pack structure with newly developed filter media, support, and transition layers
- Improved performance data (optimized Beta efficiency, contamination retention, Δp/Q characteristics, and Beta stability)
- Patented process for longitudinal seam bonding increases seam integrity
- Element plastic components have been made conductive to aid in static discharge
- Use of spiral lock seam support tubes lowers element weight
- Element outer wraps are made of plastic (polyester) to reduce environmental impact and improve fatigue resistance

### Optimized Two/Three Layer Filter Mesh Pack Structure with NEW Glass Fibers

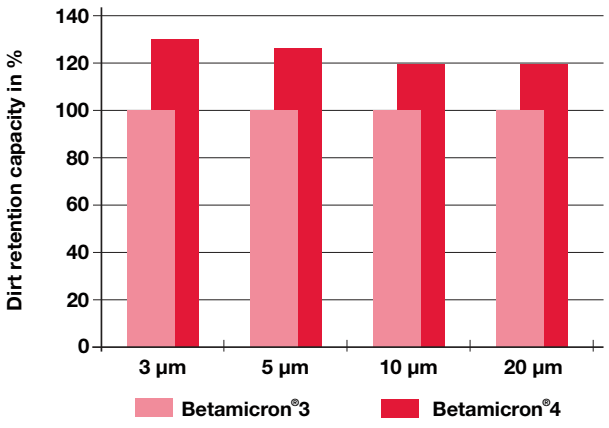
New filter medias were developed for the new Betamicron®4 filter elements. Due to the two or three stage filter media structures, highest contamination retention, highest Beta efficiencies and stability, and favorable Δp/Q characteristics are achieved.

**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 Beta efficiency**
*(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% globally**




### Technical Data

- Collapse burst pressure
- Low pressure differential: 290 psid (17 bar) - BN4HC
- High pressure differential: 3045 psid (210 bar) - BH4HC
  Filter element ratings
- 3, 5, 10, 20 µm

## *Element Outer Wrap Protection*

The star-shaped pleated filter mesh pack is enclosed by a stable outer wrap made of plastic (polyester). This outer wrap distributes the incoming fluid evenly over the mesh pack (diffusor). Moreover, the fluid does not flow directly through the mesh pack, since this outer wrap dampens the flow forces and protects the element from pulsating flows. This element has an extremely high flow fatigue strength. The mesh pack is naturally protected against mechanical damage, e.g. when elements are being installed. Outer wrap allows customer logos to be imprinted, and used as the advertising medium for OEMs, thus ensuring a higher percent capture of spare parts business. At the same time, the user can rely on the fact that he will always get a genuine spare part.

**High operational reliability, because the sensitive filter mesh pack is protected against direct fluid flow forces and pulsations**

**Ease of handling, because the compact element is protected against damage in transit and during its installation**

**Protection against product piracy through “brand labeling”**

## *Patented Longitudinal Seam Bonding Method*

Due to an innovative bonding process of the longitudinal seam, a tight homogeneous integration of the open filter mesh pack ends is ensured, even in the case of varying loads. A particle transition from the dirt to the clean side is reliably prevented as well as down stream media migration.

**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 and come in contact with zinc coated components, 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 with all fluids.**

## *Reduction of Life Cycle Costs*
## *Life Cycle Cost – what does this mean?*

Today the term **Life Cycle Cost** is a dominating topic among suppliers, machine builders and end users.

Life Cycle Costs are the total costs of a system, machine or component from procurement through to its scrapping.

The reduction of Life Cycle Cost is one of the **mega trends** in mechanical engineering. The **objective** is to communicate the **total cost** reduction impacts on Life Cycle Costs.

This creates a better basis for the customer to make the best buying decision.

Large end users are setting this trend.

Leading car makers, for example, require truthful information about the Life Cycle Costs and derived variables – e.g. costs for machine tools over 10 years, for presses up to 30 years. Decisions on new investments by machine manufacturers are based on the machine price and the Life Cycle Cost calculations offered.

This changed and holistic understanding of cost by leading end customers naturally results in new challenges for machine manufacturers. 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”*

| Cost | Minimized | | | | | |
|---|---|---|---|---|---|---|
| | Optimized Mesh Pack Structure | Optimized Longitudinal Seam | Zinc-free Structure | Spiral Lock Seam Support Tubes | Protective Outer Wrap | Discharge Capability |
| Energy | • | | | | | |
| Personnel | • | • | | | • | • |
| Logistics | | | • | • | | |
| Failure | • | • | • | | • | • |
| Production | • | • | | | | • |
| Repair | • | • | • | | • | • |
| Maintenance | • | • | • | | • | • |
| Spare Parts | • | • | • | | • | • |
| Waste Disposal | | | | • | | |

## *"D" Pressure Elements Model Code*

**0060 D 010 BN4HC / V**

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

**Type**
D

**Filtration Rating** *(micron)*
3, 5, 10, 20 = BH4HC, BN/HC, V
25, 50, 74, 100, 149, 200 = W/HC

**Element Media**
BH4HC = Betamicron®-H element *(High Collapse)*
BN4HC = Betamicron®-N element *(Low Collapse)*
V = Metal fiber
W/HC = Wire mesh

**Supplementary Details**

| | | |
|---|---|---|
| *(omit)* | = | standard |
| SO103H | = | Modification of BN/HC element for phosphate ester |
| SO155H | = | Modification of BH/HC element for phosphate ester |
| V | = | Fluoroelastomer (FPM) seals |
| W | = | Element suitable for oil-water emulsions (HFA), water polymer solutions (HFC) *(only for V and W elements)* |

## *"DN" Pressure Elements Model Code*

**0063 DN 010 BH/HC /**

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

**Type**
DN

**Filtration Rating** *(micron)*
3, 6, 10, 25 = BH/HC, BN/HC

**Element Media**
BH/HC = Betamicron®-H element *(High Collapse)*
BN/HC = Betamicron®-N element *(Low Collapse)*

**Supplementary Details**

| | | |
|---|---|---|
| *(omit)* | = | standard |
| V | = | Fluoroelastomer (FPM) seals |

*Model Codes Containing RED are non-stock items — Minimum quantities may apply – Contact HYDAC for information and availability*

## *Hydraulic Data*

**Permissable ΔP across element**

- Betamicron®-H (BH/HC): 3045 psid (210 bar)
- Betamicron®-N (BN/HC): 290 psid (20 bar)
- Metal fiber (V): 3045 psid (210 bar)
- Wire mesh (W/HC): 290 psid (20 bar)

**Temperature Range**

- -22° to 250°F (-30° to 100°C) *(only possible with NBR seals)*

**Compatibility with Hydraulic Media**

- Suitable for use with mineral oils, lubrication oils, non-flamable fluids, synthetic and rapidly biodegradable oils.
  For use with water, please contact HYDAC

**Flow Fatigue Stability to ISO 3724**

- High fatigue resistance due to solid filter material supports on both sides and high inherent stability of filter elements

## *"R" Return Elements Model Code*

**0330 R 010 BN4HC / KB**

**Size**
0030, 0060, 0075, 0090, 0110, 0150, 0160, 0165, 0240,
0330, 0500, 0660, 0850, 0950, 1300, 1700, 2600

**Type**
R

**Filtration Rating** *(micron)*
3, 5, 10, 20 = BN4HC, ECO/N  10, 20 = P/HC  25, 50, 74, 100, 149, 200 = W/HC  10, 15, = MM

**Element Media**
BN4HC = Betamicron®-N element *(Low Collapse)*  ECO/N = ECOmicron®
MM = Mobilemicron element *(Low Collapse)*  P/HC = Polyester
W/HC = Wire mesh

**Supplementary Details**
*(omit)* = standard
SO103H = Modification of BN/HC and P/HC elements for phosphate ester
V = Fluoroelastomer (FPM) seals
W = Element suitable for oil-water emulsions (HFA), water polymer solutions (HFC) (only for V and W elements)
KB = without bypass
B1 = Cracking pressure of bypass valve 1 bar
B6 = Cracking pressure of bypass valve 6 bar

## *"RN" Return Elements Model Code*

**0040 RN 010 BN/HC /**

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

**Type**
RN

**Filtration Rating** *(micron)*
3, 6, 10, 25 = BN/HC

**Element Media**
BN/HC = Betamicron®-N element *(Low Collapse)*

**Supplementary Details**
*(omit)* = standard
V = Fluoroelastomer (FPM) seals

## *"RK" RKM Elements Model Code*

**0300 RK 010 MM / V**

**Size**
0100, 0201, 0251, 0300, 0400, 0800

**Type**
RK

**Filtration Rating** *(micron)*
10, 15 = MM

**Element Media**
MM = Mobilemicron

**Supplementary Details**
*(omit)* = standard
V = Fluoroelastomer (FPM) seals

*Model Codes Containing RED are non-stock items — Minimum quantities may apply – Contact HYDAC for information and availability*

## *Hydraulic Data*

**Permissable ΔP across element**
- Betamicron®-N (BN/HC): 290 psid (20 bar)
- Paper (P/HC): 145 psid (10 bar)
- Wire mesh (W/HC): 290 psid (20 bar)
- Betamicron®/Aquamicron® (BN/AM): 145 psid (10 bar)
- Aquamicron® (AM): 145 psid (10 bar)
- ECOmicron® (ECO/N): 145 psid (10 bar)
- Mobilemicron (MM/RK): 145 psid (10 bar)

**Temperature Range**
- -22° to 250°F (-30° to 100°C) *(only possible with NBR seals)*

**Compatibility with Hydraulic Media**
- Suitable for use with mineral oils, lubrication oils, non-flammible fluids, synthetic and rapidly biodegradable oils. For use with water, please contact HYDAC

**Flow Fatigue Stability to ISO 3724**
- High fatigue resistance due to solid filter media supports on upstream and downstream sides and high inherent stability of filter lagers.

**Cracking Pressure of Bypass Valve (..R.. only)**
- ΔP = 3 bar + 0.5 bar

**Graphs of Bypass Valve (..R.. only)**
- The bypass valve graphs apply to mineral oils with a density of 0.86 kg/dm³. The differential pressure of the valves changes proportionally to the density.