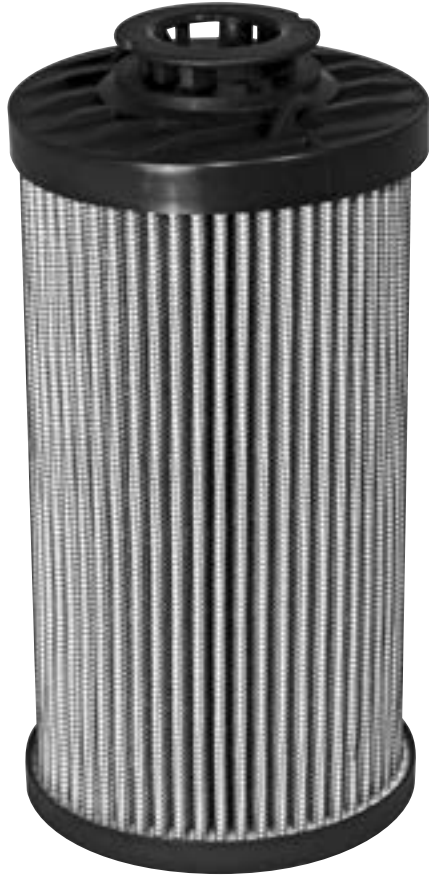


## Betamicron® / Aquamicron® Series

Combination Filter Elements



### Description

BN/AM filter elements are specifically designed to absorb water and achieve high efficiency filtration of solid particles from mineral oils, HFD-R oils, and rapidly biodegradable oils. A super absorber reacts with the water present in the fluid and expands to form a gel from which the water can no longer be extracted, even by increasing the system pressure. These filter elements do not remove dissolved water below the saturation level of the hydraulic fluid. Solid particle filtration ( $3 \mu\text{m}$ ,  $10 \mu\text{m absolute}$ ) is achieved due to the Betamicron® element construction.

### Features

- High water retention capacity
- High dirt holding capacity
- Filtration rating  $\beta_{x(c)} \geq 200$
- Stable  $\beta_x$  values over a wide differential pressure range (high Beta stability)

### General

The presence of water in a hydraulic system causes many problems, such as the jamming of valves and rod components in fluid power systems. These problems are often incorrectly attributed to excessive levels of solid particle contamination. Sometimes these problems are caused by the build-up of rust and the reduction of the lubrication required for proper operation of bearings and slides. This can cause considerable degradation in the functioning of fluid power systems. In other words, along with solid particles, water is a serious "contaminant" in hydraulic systems.

Since methods usually employed to extract water often prove to be uneconomical when compared to the purchase price of a water removal system, HYDAC BN4AM technology has been developed to provide an economically sound and effective method of separating free water from hydraulic fluid. At the same time, these elements provide absolute filtration of solid particles down to 3 or 10 micron levels.

### Technical Specifications

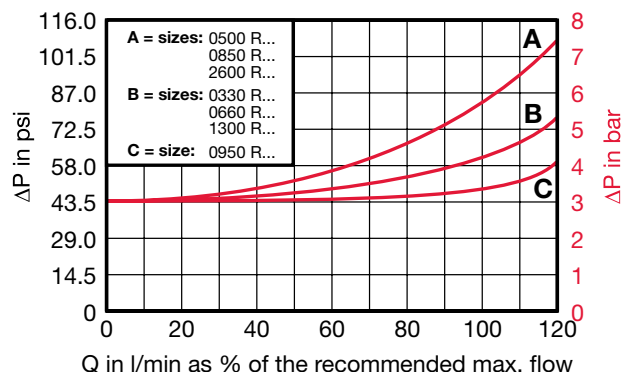
<b>Collapse Pressure Rating</b>	145 psid/10 bar
<b>Temperature range:</b>	32°F to 160°F (0°C to 71°C)
<b>Compatibility with hydraulic media</b>	Test criteria to ISO 2943
<b>Flow fatigue resistance to ISO 3724</b>	High fatigue resistance due to solid filter material supports on both sides and high inherent stability of the filter materials.
<b>Opening pressure of bypass valve</b>	$\Delta P_0 = 43 \text{ psid} + 10\%$ (3 bar + 10%)

### Principles of the BN4AM combined filter elements.

- BN4AM disposable elements are designed with inorganic and water-absorbent fibers
- Highly efficient absorption of free water from mineral oils with the aid of a "super absorber" embedded in the filter material
- Excellent adsorption of fine contamination particles over a wide differential pressure range ( $3 \mu\text{m}$ ,  $10 \mu\text{m absolute}$ )
- Excellent Beta stability over a wide differential pressure range
- High balanced dirt holding and water retention capacities
- Excellent fluid compatibility due to the use of epoxy resins for impregnation and bonding
- Dynamic Element integrity as a result of a high burst pressure resistance design (e.g. during cold starts and dynamic differential pressure surges)

### Bypass Valve Curves

The bypass valve curves apply to mineral oils with a specific gravity of 0.86. The differential pressure of the valve changes proportionally with the specific gravity.



## Model Code

**0660 R 010 BN4AM / V**

**Size**  
0160, 0240, 0270, 0330, 0500, 0660, 0750, 0850, 0950, 1300, 1700, 2600

**Type**  
R

**Filtration Rating (microns)**  
003  
010

**Element Media**  
BN4AM = combined Betamicron®/Aquamicron®

**Seals**  
(omit) = Nitrile rubber (NBR) (standard)  
V = Fluorocarbon elastomer (FKM)

**Bypass Valve**  
(omit) = 43 psid (3 bar) (standard)  
B6 = 87 psid (6 bar)  
KB = no bypass

**Supplementary Details**  
SFREE = Element specially designed to minimize electrostatic charge generation

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

## Water retention - Quick sizing table

Size	Recommended Filter flow rate in gpm / lpm	Water retention capacity* cm3 / qt
0330	3.4 / 13	190 / 0.2008
0660	7.4 / 28	400 / 0.4227
0950	10.3 / 39	560 / 0.5918
1300	14.3 / 54	790 / 0.8349
2600	28.8 / 109	1570 / 1.6592

\*in cm3/qt when  $\Delta p = 2.5 \text{ bar} / 36 \text{ psid}$  and viscosity = 30 mm<sup>2</sup> /s / 141 SUS

Filtration rating	Specification	Typical measured results (when $\Delta p = 2.5 \text{ bar} / 36 \text{ psid}$ )
3 $\mu\text{m}$	$\beta_{3(c)} \geq 100$	$\beta_{3(c)} \geq 500$
10 $\mu\text{m}$	$\beta_{10(c)} \geq 100$	$\beta_{10(c)} \geq 500$