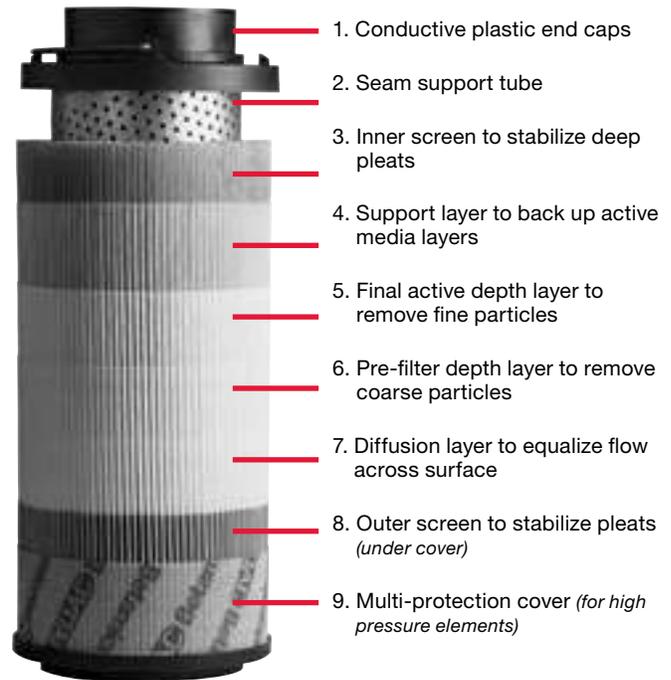


Betamicron® Series

High Pressure and Return Filter Elements



Element Construction



Description

Betamicron® filter elements have been optimized with respect to filtration performance, in fluid cleanliness, lower $\Delta P/Q$, pleat and element protection while handling and operating, and high stability level throughout its life. These elements offer a superior level of optimization of separation efficiency, service life and differential pressure versus flow rate.

As a complete element package, the innovative characteristics of this technology have a very positive impact on the differential pressure of the elements and a high degree of filtration efficiency and performance.

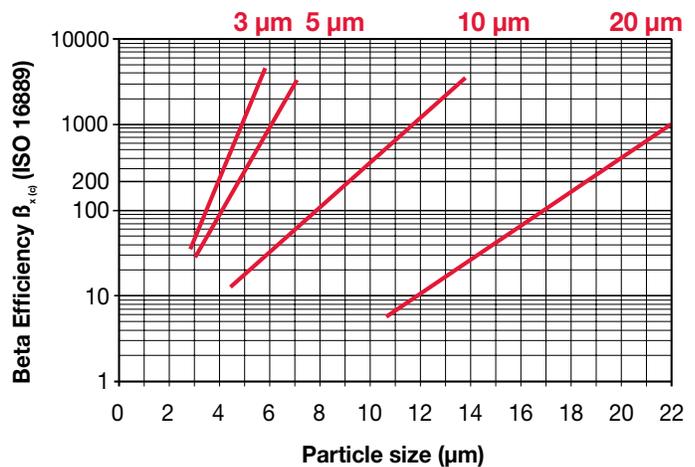
Features

- Optimized mesh pack structure maximizes the media area available to capture dirt particles and minimizes resistance to fluid flow. Optional SFREE mesh pack insures that static electricity will not be generated to dangerous levels where arcing can result.
- Improved performance (optimized Beta efficiency, contamination retention, $\Delta P/Q$ characteristics and Beta stability) and lowered weight due to plastic spiral lock seam support tubes.
- All plastic end caps and support tubes are carbon impregnated to conduct electricity, which ensures that static electricity will not be generated to levels high enough to arc.
- Element outer wraps are made of plastic (polyester) to reduce environment a impact and improve fatigue resistance.
- Zinc-free construction prevents zinc soaping.

Technical Specifications

Collapse Rating	290 psid (20 bar) (R/RN, BN4HC, D/DN, BN4HC) 3045 psid (210 bar) (D, BH/HC)
Temp. range	-22°F to 212°F (-30°C to 100°C)
Flow direction	outside to inside
Filtration Rating	3, 5, 10, 20 μm
Category	Disposable - single use
Bypass Cracking Pressure	
	R (only) = 43 psid (3 bar) (standard, others available)
	D...BN = 87 psid (6 bar) (standard, others available)
	D...BH = No bypass (standard)

Beta Ratio (β) Values for Betamicron



“D / DN” Pressure Elements Model Code

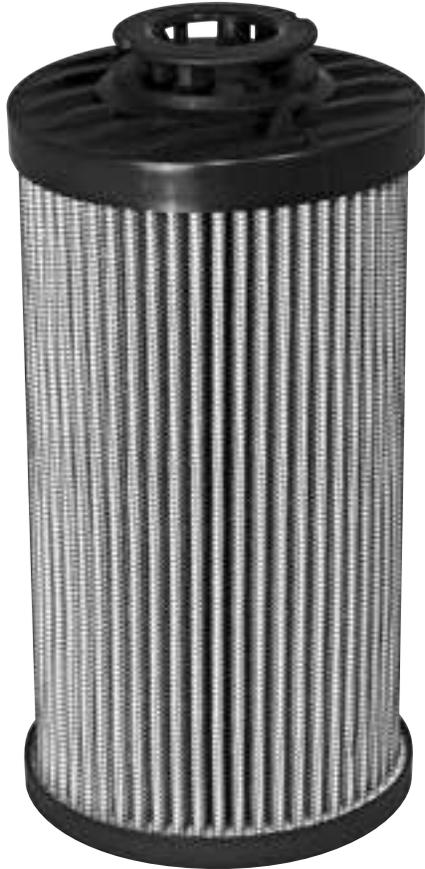
	0660	D	005	BH4HC	/	V	SO263
Size	_____						
D	= 0030, 0035, 0055, 0060, 0075, 0095, 0110, 0140, 0160, 0240, 0280, 0330, 0500, 0660, 0990, 1320, 1500						
DN	= 0040, 0063, 0100, 0160, 0250, 0400, 0630, 1000						
Pressure Element Type	_____						
D	= HYDAC pressure element						
DN	= DIN Spec. 24550 pressure element						
Filtration Rating (micron)	_____						
	3, 6, 10, 25 = BN4HC (DN only)						
	3, 5, 10, 20 = BH4HC						
Element Media	_____						
	BN4HC = Betamicon®-N element (Low Collapse)						
	BH4HC = Betamicon®-H element (High Collapse)						
Seals	_____						
	(omit) = Nitrile rubber (NBR) (standard)						
	V = Fluorocarbon elastomer (FKM)						
	EPR = Ethylene propylene rubber (EPR)						
Supplementary Details	_____						
	SO263 = Modification of ON & W/HC elements for Skydrol or HYJET phosphate ester fluids						
	SFREE = Element specially designed to minimize electrostatic charge generation						

“R / RN” Return Elements Model Code

	1300	R	005	BN4HC	/	B6	SO263
Size	_____						
R	= 0030, 0060, 0050, 0075, 0090, 0110, 0150, 0160, 0165, 0185, 0210, 0240, 0270, 0330, 0500, 0660, 0850, 0950, 1300, 1700, 2600, 2700						
RN	= 0040, 0063, 0100, 0160, 0250, 0400, 0630, 1000						
Return Element Type	_____						
R	= HYDAC low pressure return element						
RN	= DIN Spec. 24550 return element						
Filtration Rating (micron)	_____						
	3, 5, 10, 20 = BN4HC						
Element Media	_____						
	BN4HC = Betamicon® (Low Collapse) high efficiency depth element						
Seals	_____						
	(omit) = Nitrile rubber (NBR) (standard)						
	V = Fluorocarbon elastomer (FKM)						
	EPR = Ethylene propylene rubber (EPR)						
Bypass Cracking Pressure	_____						
	(omit) = 43 psid (3 bar) (standard)						
	B1 = 14.5 psid (1 bar) (tube or coolant)						
	B2 = 29 psid (2 bar) (HYDAC optional return)						
	B6 = 87 psid (6 bar) (return line extended life)						
	KB = No bypass (flushing systems)						
Supplementary Details	_____						
	SO263 = Modification of ON & W/HC elements for Skydrol or HYJET phosphate ester fluids						
	SFREE = Element specially designed to minimize electrostatic charge generation						

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 β_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

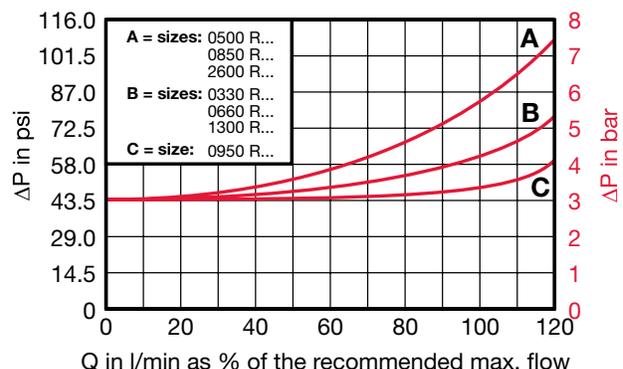
Collapse Pressure Rating	145 psid/10 bar
Temperature range:	32°F to 160°F (0°C to 71°C)
Compatibility with hydraulic media	Test criteria to ISO 2943
Flow fatigue resistance to ISO 3724	High fatigue resistance due to solid filter material supports on both sides and high inherent stability of the filter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

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 mm² /s / 141 SUS

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