The Beverage Cartridge for "Sterile" Filtration



Bubble Point (New Pleat Design)

0.2-0.65 micron

New M-Pleat Technology delivers higher throughput and up to 50% longer service life in beverage applications, compared to a conventional pleat pack design. The enhanced pleat structure optimises surface area, offering greater membrane depth capability, it extends performance in high loading conditions while maintaining reliability. Suitable for applications where water quality is highly important, from biological filtration through to the validated removal of spoilage micro-organisms for beer, cider, wine, and fruit juice production.

The Bubble Point range uses a highly asymmetric polyesthersulfone media. This modified media, with an initial increased pore diameter, significantly improves performance and fluid throughput, critical for high load contaminant removal found in beverage applications.

The enhanced pleat design, combined with increased membrane depth capability, maximises surface area and dirt holding capacity to deliver consistent performance in high loading beverage applications. This advanced structure protects the validated retention layer from premature fouling, maintaining stable flow rates and extending operational efficiency. Low protein binding characteristics ensure reliable classification without impacting final product quality, preserving desired proteins, colour, and flavour in beverage filtration processes.

M-Pleat technology provides 42% higher surface area versus the previous Bubble Point pleat pack, and up to 50% longer service life compared to a standard pleat structure.



Bacterial Control

The 0.2 micron Bubble Point (BD) is specifically targeted towards bottle wash and final filtration for bacterial removal, to prevent spoilage and maximise shelf life.



Spoilage Microorganism Reduction

Typically used as the final stage of the bottling / kegging process in beer filtration applications is the 0.45 µm Bubble Point (SM).



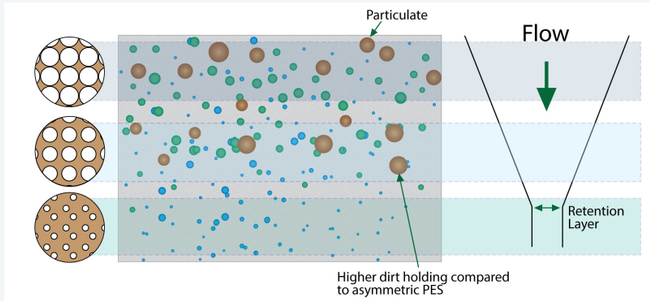
Yeast Removal and Clarity

Used for the removal of yeast, as well as ensuring desired clarity in wine applications are the 0.45 & 0.65 µm Bubble Point (SM & SC) cartridges.

Highly Asymmetric Pore Structure

- Inert and highly asymmetric polyethersulfone media with intrinsic hydrophilic properties
- Validated contamination removal at the desired micron size for precise classification
- Wider pore structure for enhanced dirt holding, optimised service life and higher flow throughput.

Cross-section of Bubble Point Membrane Structure



Relative Pore Size Variation | **Cross Section of Media** | **Representation of Pore Size throughout PES Media**

Hygiene and Traceability

- 100% integrity tested, with specific Quality Assurance Certificate supplied with every cartridge.
- Manufactured in a clean room environment, lot coded on the polypropylene cage for tracking and tracing.
- Each cartridge has double layered packaging. The inner plastic wrap is vacuum sealed and a tough outer layer provides further protection and cleanliness.
- Individually labelled and boxed for security and ease of product identification.

Integrity Testable

All SPECTRUM Bubble Point cartridges are 100% integrity testable giving known, precise and documented filter performance for ongoing quality control.

For ease of use, the fully automated SPECTRUM integrity tester offers an array of test protocols for complete peace of mind.

The Bubble Point Range



Bubble Point BD

Designed for the bottled water industry, the 0.2 micron Bubble Point BD provides complete bacteria and other microorganism protection.



Bubble Point SM

Typically used as the final stabilisation stage in the brewing industry, the Bubble Point SM rated at 0.45 micron removes potential spoilage organisms prior to packaging.



Bubble Point SC

The 0.65 micron Bubble Point SC provides the final filtration stage when protecting the unique characteristics of beers, wines and ciders is critical.



M-Pleat Technology

This technology provides even greater surface area than before, reducing pressure drops and increasing service life by up to 50%.

Bubble Point Quality from Start to Finish

Utilising even the most advanced polyethersulfone media would be ineffective if the cartridge manufacturing process did not meet the required standards and quality controls. SPECTRUM's meticulous and exacting specification means that every individual cartridge is subject to a rigorous multi-stage quality check.

1 Raw Material Check

The flat sheet PES membrane's physical and performance characteristics are analysed and validated, including:

- **Pore size**
- **Media thickness**
- **Tensile strength**
- **Burst pressure**

2 Performance Validation

Both the permeability and bubble point are determined and compared to the cartridges stated specification.

3 Cartridge Construction

The tested PES membrane flat sheet is combined with two layers of polypropylene media, in a clean room environment, to provide additional media strength and support.

4 Final Checks

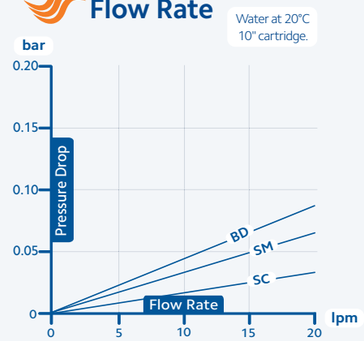
- Before shipping, each individual element is again 100% quality checked.
- Diffusional flow and bubble point are verified to ensure that the cartridges perform to the expected criteria.
- Cartridges are laser etched with the lot code, vacuum sealed and bagged again to ensure complete cartridge traceability and cleanliness.

Quality Assurance Certificate

Bubble Point cartridges are shipped with a Quality Assurance Certificate, which provides the typical media properties and membrane performance characteristics of the polyethersulfone media used in the construction of the cartridge. The certificate contains the following typical information:

- Materials of construction
- Bacteria retention
- Bubble point values
- Diffusional flow rate
- Membrane performance characteristics

Flow Rate



Materials of Construction

Filter Media
Polyethersulfone

Support Media
Polypropylene

End-cap
Polypropylene with PSU ring insert (Z)
Polypropylene with SS ring insert (Q)

Core
Polypropylene

Cage
Polypropylene

Seal
Silicone

Configurations

Micron (µm)

BD=0.2 | SM=0.45 | SC=0.65

Length (")

10 | 20 | 30 | 40

End-cap

QG | ZH

Specification

Efficiency
≥99.99999%

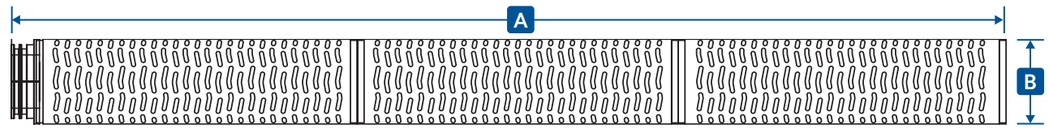
Max. Operating Temperature
80°C

Max. Sterilising Cycles
30 x 30 min cycles at 125°C

Surface Area
0.78 m^2 per 10"

Max. Operating Pressure Differential
4 bar at 20°C

Dimensions



	A (mm)		B (mm)
Length	QG	ZH	
10"	276	310	69
20"	526	560	69
30"	776	810	69
40"	1026	1060	69

Efficiency

Cartridge (Micron Rating)	Bacterial Challenge	Efficiency
BD (0.2 µm)	*Brevundimonas diminuta*	≥99.99999%
SM (0.45 µm)	*Serratia marcescens*	≥99.99999%
SC (0.65 µm)	*Saccharomyces cerevisiae*	≥99.99999%

Part Number

Code	Length	End-cap
BD	10, 20, 30, 40	QG, ZH
SM		
SC		

e.g. BD10ZH