Whatman Polycap TC
Sterilizing Grade Filter

Introduction

About

Will provide log reduction values (LRVs) of 7 per HIMA recommended sterilization standards. Aqueous Solution Filter Device for Tissue Culture Solutions, Pharmaceutical Aqueous Solutions, Other Biologically Sensitive Filtration Applications, and High Quality Water.

Important

Read these instructions carefully before using the products.

Intended use

The products are intended for research use only, and shall not be used in any clinical or *in vitro* procedures for diagnostic purposes.

Description

The Polycap TC family of disposable filtration capsules combines state of the art materials and design engineering to give you the finest in safe and efficient filtration for critical Biological and Tissue Culture Solutions.

PES (Polyethersulfone) Final Filter: This microporous membrane is inherently hydrophilic, has low extractables, is Biosafe and has excellent flow rates. PES is the lowest Protein Binding of all hydrophilic membranes.

Prefilter: Polycap TC Capsules have two layers of PES media. The first layer acts as a prefilter to ensure long life and high efficiency.

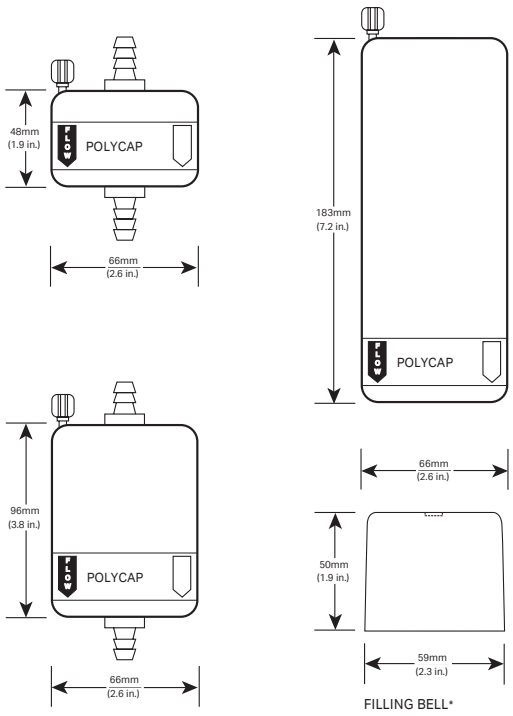
Support Systems: Polypropylene (drain screen, core, end caps, and back pressure support). This rugged material was chosen for its outstanding record of biocompatibility and stability.

Sealing: All bonds are fused. No glues, adhesive,metals, epoxies or other extraneous materials are used in Polycap TC.

- **HIMA Challenge Test**—0.2µm passes the HIMA Challenge Test for Sterilizing Grade Filters
- **Ultra Clean**—No surfactants or mold release are used in these devices
- **Integrity Testable**—Bubble Point,Pressure Decay, and Forward Flow
- **Compact Efficient Design**—Provides high Effective Filtration Area in a small size.
- **Rugged Construction**—Housing rated at 4.1 bar (60 psi)
- **Product ID, Serial Number, Lot No., and Pore Size**—Stamped into each housing.
- **Protected Outlet**—Blue protective outlet sheathmakes the outlet side of Polycap TC a sterile chamber by preventing touch contamination. Filling Bell on outlet also protects some capsules.
- **Clean Room Facilities**—Manufactured in GMP Controlled Clean Room Facilities by a registered Medical Device Manufacturer.
- **Hose Barb Connections**—1/4-3/8" SB and 3/8-1/2" SB (see technical data for more information).

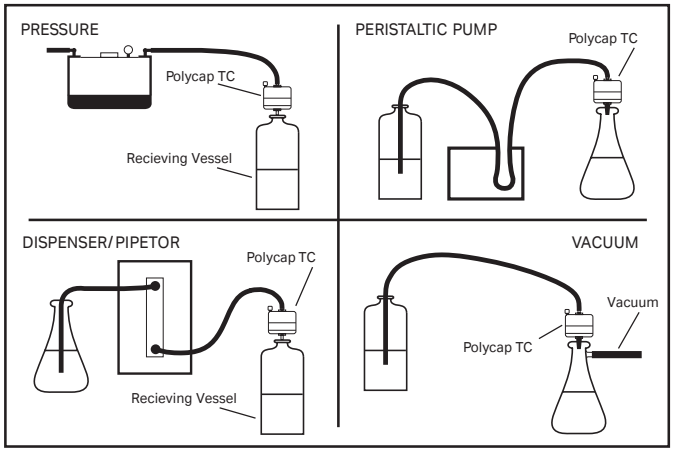
Typical Applications Polycap TC

- Pharmaceutical Preparations
- Tissue Culture Media
- Reagent Preparation
- Virus Suspensions
- Cleaning/Rinsing Solutions
- Particle Counting Solutions
- High Quality Water
- Enzymes
- Biologicals
- Immunologicals
- Salt Solutions
- Buffers
- Nutrients



*Filling Bells are available with many of our capsules. See Technical Data Section for specific products.

FILTRATION SYSTEMS USING POLYCAP TC



Operating Instructions

Safety:

Considering the special factors of your application, consult the table of Technical Data to determine appropriate use. A key safety concern is not to exceed the pressure, temperature or chemical compatibility recommendations.

Membrane Considerations:

The membrane used in Polycap TC is polyethersulfone. This naturally hydrophilic membrane is recommended for most aqueous solutions. It provides high flow rates and throughput. It is not suitable for aggressive chemicals. For these applications, Cytiva recommends Polycap TF.

The special membrane in Polycap TC is hydrophilic. A hydrophilic membrane passes gas easily until it is wet. Once it has been "wetted" it will not pass gas easily. The pressure required to pass gas through a wetted membrane is dependent on the membrane's pore size. This pressure is called the "bubble point" and is used to test for membrane integrity. Air trapped on the upstream side of a wetted hydrophilic membrane blocks the flow path and reduces or stops flow (see Air Lock in Filter Installation paragraph).

Efficiency:

To maximize filtration throughput, use the largest pore size filter that will provide the required cleanliness. For sterilization of liquids, 0.2µm is required. To remove mycoplasmids use 0.1µm. If the material to be filtered is heavily contaminated, consider prefilters. To extend filter life use low flow and/or low pressure.

Sterilization:

Polycap TC is radiation sterilized. It may be autoclaved once at 121° C (132°C MAX) for 20 minutes. However, an integrity test should be performed following autoclaving.

Filtration Installations:

Small volumes may be filtered using a syringe; larger volumes may be filtered by connecting a hose to the outlet of a pressure vessel, or "in line" using gravity or a peristaltic pump for the pressure required to filter. Air Locks seriously hamper flow rates. To eliminate air locks during the initiation of flow, use low pressure (5 psi/ 0.5 bar), bleed off air with vent, and then increase pressure and flow. The air in the system and filter device must be flushed prior to the filter being wetted (use the manual vent to exhaust trapped air).

Because of the design and testing of Polycap TC it is not normally required to test these products prior to use. It may be required because of a protocol, special application, use of special solutions, or if the units are autoclaved.

Integrity Testing Bubble Point (BP) Test:

Flush the filter device with an appropriate aqueous solution. After the membrane is completely wetted, apply air under controlled pressure until air breaks through the membrane and bubbles from the outlet connector. The pressure at which air passes through the "wetted" membrane is the "bubble point". Refer to the table for pore size and BP values. The test is conducted with outlet connector pointed downward

Diffusional Flow:

This and other similar tests may be used to test integrity. Follow test equipment instructions.

Special notes:

1. The multiple layers of filter material in Polycap TC can inhibit the membrane from being completely "wetted", causing a false low value in the bubble point test. Following steps 2 & 3 should aid in this situation.
2. When flushing capsules prior to BP test, use low pressures (5 psi/ 0.3 bar), bleed off air with vent, and then increase pressure and flow.
3. IF a lower than normal BP is obtained, re-wet using warm water [175°F (79°C)] and let capsule stand, or wet out the capsule with alcohol. Flush again with two liters of water, and repeat the BP procedure.
4. WET filters will autoclave more reliably.
5. Filtering at low pressures maximizes throughput.

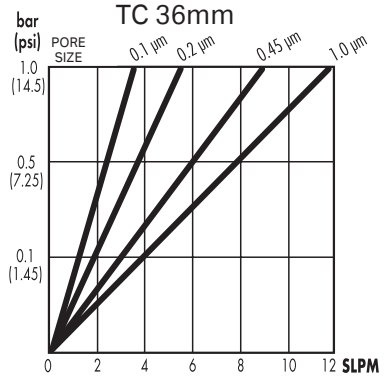
Table 1. Technical Data: Polycap TC, Polycap TC w/ Bell

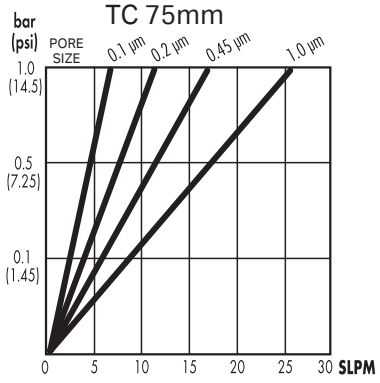
Product Number	Product Name	Pore Size	EFA	Water Bubble Point		Isopropyl Alcohol Bubble Point		Connections[1]		Qty./ Pack
				bar	psi	bar	psi	inlet	outlet	
6715-3601	Polycap 36 TC w/Bell	0.2/0.1µm	550cm^2	3.2	46	1.4	20	1/4"-3/8" SB	1/4"-3/8" SB	1
6714-3601	Polycap 36 TC	0.2/0.1µm	550cm^2	3.2	46	1.4	20	1/4"-3/8" SB	1/4"-3/8" SB	1
6714-3602	Polycap 36 TC	0.2/0.2µm	550cm^2	2.7	40	1.1	16	1/4"-3/8" SB	1/4"-3/8" SB	1
6715-3602	Polycap 36 TC w/Bell	0.2/0.2µm	550cm^2	2.7	40	1.1	16	1/4"-3/8" SB	1/4"-3/8" SB	1
6715-3682	Polycap 36 TC w/Bell	0.8/0.2µm	550cm^2	2.7	40	1.1	16	1/4"-3/8" SB	1/4"-3/8" SB	1
6716-3602	Polycap 36 TC w/Bell	0.2/0.2µm	550cm^2	2.7	40	1.1	16	1/4"-3/8" SB	1/4"-3/8" SB	5
2642[2]	Polycap 36 TC	0.2/0.2µm	550cm^2	2.7	40	1.1	16	3/8"-1/2" SB	3/8"-1/2" SB	1
6714-3604	Polycap 36 TC	0.65/0.45µm	550cm^2	2.1	30	0.69	10	1/4"-3/8" SB	1/4"-3/8" SB	1
6715-3604	Polycap 36 TC w/Bell	0.65/0.45µm	550cm^2	2.1	30	0.69	10	1/4"-3/8" SB	1/4"-3/8" SB	1
6714-7501	Polycap 75 TC	0.2/0.1µm	1100cm^2	3.2	46	1.4	20	1/4"-3/8" SB	1/4"-3/8" SB	1
6714-7502	Polycap 75 TC	0.2/0.2µm	1100cm^2	2.7	40	1.1	16	1/4"-3/8" SB	1/4"-3/8" SB	1
6715-7502	Polycap 75 TC w/Bell	0.2/0.2µm	1100cm^2	2.7	40	1.1	16	1/4"-3/8" SB	1/4"-3/8" SB	1
6715-7582	Polycap 75 TC w/Bell	0.8/0.2µm	1100cm^2	2.7	40	1.1	16	1/4"-3/8" SB	1/4"-3/8" SB	1
6717-7504	Polycap 75 TC	0.65/0.45µm	1100cm^2	2.1	30	0.69	10	3/8"-1/2" SB	3/8"-1/2" SB	1
6704-9502[2]	Polycap 150 TC	0.2/0.2µm	2200cm^2	2.7	40	1.1	16	11/2" Sanitary	11/2" Sanitary	5
6717-7510	Polycap 75 TC	1.0/1.0µm	1100cm^2	1.1	16	0.20	2.9	3/8"-1/2" SB	3/8"-1/2" SB	1
6717-9501	Polycap 150 TC	0.2/0.1µm	2200cm^2	3.2	46	1.4		3/8"-1/2" SB	3/8"-1/2" SB	1
6717-9502	Polycap 150 TC	0.2/0.2µm	2200cm^2	2.7	40	1.1	16	3/8"-1/2" SB	3/8"-1/2" SB	1
6718-9502	Polycap 150 TC w/Bell	0.2/0.2µm	2200cm^2	2.7	40	1.1	16	3/8"-1/2" SB	1/4"-3/8" SB	1
6718-9582	Polycap 150 TC	0.8/0.2µm	2200cm^2	2.7	40	1.1	16	3/8"-1/2" SB	1/4"-3/8" SB	1
6717-9504	Polycap 150 TC	0.65/0.45µm	2200cm^2	2.1	30	0.69	10	3/8"-1/2" SB	3/8"-1/2" SB	1

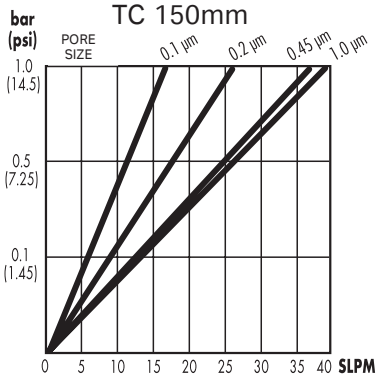
[1] SB: Stepped Hose Barb (Dimensions refer to the I.D. of the hose). The 6-10 mm (1/4-3/8") SB accepts Male Luers. MNPT: Male National Pipe Thread.

[2] 5/pack sold non-sterile

Typical Flow Rates in Water, Polycap TC







Housing:	Polypropylene
Vent:	On Inlet
Prefilter:	PES (Polyethersulfone)
Membrane:	PES (Polyethersulfone)
Support System:	Polypropylene
Sealing System:	Heat fused. No glues, metals, or epoxies are used to manufacture these capsules.
Maximum Pressure:	4.1 bar (60 psi)
Flow Direction:	Supported bi-directionally; the prefilter is on the inlet side and flow should follow arrows.
Non Pyrogenic:	LAL Tested, Endotoxin Levels 0.5 EU/ML
Biosafe:	Materials pass USP Class VI

Sterilization:	These filter devices have been sterilized. They may be autoclaved once at 121°C (132°C Max) for 20 minues. However, an integrity test should be performed following autoclaving.
Hold-up Volume:	Polycap 36, 70 mL; Polycap 75, 125 mL; Polycap 150, 250 mL. An air purge will minimize solution hold up to a few mLs.

Chemical resistance summary[1]

Polycap TC is designed principally for Aqueous Solutions

Classes of Substances 20°C (68°F)	Polypropylene/PES Guide [1] for use
Acids, dilute	Usable
Acids, concentrated	Not usable
Alcohols (selected)	Usable
Aldehydes	Not usable
Bases	Usable
Esters	Short term use
Hydrocarbons, aromatic	Not usable
Hydrocarbons, halogenated (selected)	Short term use
Ketones	Not usable

[1] Published as a general guide only. Due to time, temperature, and stress variations the user must evaluate the specific product and application to determine appropriate use.

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