

# Pharmsteri™ II GHF PES Liquid Capsule Filter

*Delivers superior flow rates in a broad range of chemical conditions to deliver significant economic advantages*

As biological manufacturing rapidly increases in capacity, end users are challenged to purify a diverse array of new biologics such as monoclonals, antibody-drug conjugates, and new modalities in gene therapies in a risk-free and economical environment. Entegris is a leading expert in controlling particles and impurities and we are leveraging our extensive knowledge in purity manufacturing for strict semiconductor applications into the life sciences market.

Pharmsteri™ II GHF PES liquid capsule filters are made of a high-grade, gamma-stable polypropylene (PP) shell and a hydrophilic, polyethersulfone (PES) membrane with nominal pore rating at 0.22 µm.

Single-use capsules provide end users unparalleled flexibility and adaptability in a smaller footprint than traditional cartridges in a stainless steel housing. This flexibility allows end users to scale their templates up and out, improves process economics, enables multiuse facilities, and reduces the risk of contamination entering the manufacturing process.

## APPLICATIONS

- Buffers
- Chemical solutions
- Small molecule preparations
- Chemical drugs formulations
- Cleaning and sanitization solutions



Fully validated for gamma compatibility up to 45 kGy

## FEATURES & BENEFITS

<b>Gamma stable and autoclavable materials of construction</b>	Enable sterilization using caustics or autoclaving, or for optimal bioprocessing, integrate into single-use assemblies for gamma irradiation
<b>Sterilizing grade meets Bacterial Challenge Test (ASTM F838)</b>	Ensures that microorganisms, such as bacteria, are removed from the fluid stream while not adversely affecting product
<b>On site or integrator compatible</b>	Autoclave claims allow users the advantage of choosing to integrate buffer filters in situ to meet their own specific templates and needs  Gamma capability ensures that integrators can connect these filters into any customer-specific, single-use assembly and provide it as a sterile final assembled product
<b>Broad chemical compatibility</b>	pH 1~14, allows use in a range of chemicals including acids and bases
<b>Best-in-class flow rates</b>	Meets or exceeds other commercially available filters allowing increased volumes to be processed in a limited time

## SPECIFICATIONS

		50mm Disc	3"/5"/10" In-line Capsules
<b>Materials</b>	Media	Polyethersulfone (PES)	Polyethersulfone (PES)
	Support	Polyester	Polyester
	Film edge		Polypropylene/polyethylene copolymer
	Core, cage, end caps	Polypropylene	Polypropylene
	O-ring	Silicone	Silicone
<b>Sealing technology</b>		Mechanical fsealing with O-ring	Thermal bonding without adhesives
<b>Pore size</b>		0.22 µm	0.22 µm
<b>Filtration area</b>		17.3 cm <sup>2</sup>	3" 0.19 m <sup>2</sup>
			5" 0.36 m <sup>2</sup>
			10" 0.72 m <sup>2</sup>
<b>Integrity</b>	Bubble point	-	≥3.65 bar (53 psi) air with water
	Water Diffusion	-	3" ≤6.5 mL/min @ 40 psi at 25°C (77°F)
			5" ≤13.0 mL/min @ 40 psi at 25°C (77°F)
			10" ≤25.0 mL/min @ 40 psi at 25°C (77°F)
<b>Maximum operating conditions</b>	Maximum operating pressure	80 psi (5.5 bar) @ 25°C (77°F)	80 psi (5.5 bar) @ 25°C (77°F)
		40 psi (2.8 bar) @ 60°C (140°F)	40 psi (2.8 bar) @ 60°C (140°F)
	Maximum differential pressure	Forward 60 psi (4.1 bar) @ 25°C (77°F)	Forward 60 psi (4.1 bar) @ 25°C (77°F)
		Forward 30 psi (2.1 bar) @ 60°C (140°F)	Forward 30 psi (2.1 bar) @ 60°C (140°F)
		Reverse 10 psi (0.7 bar) @ 25°C (77°F)	Reverse 10 psi (0.7 bar) @ 25°C (77°F)
<b>Bacteria Retention</b>		Sterilizing grade membrane	>10 <sup>7</sup> CFU/cm <sup>2</sup> B. diminuta per the ASTM F838.
<b>Multiple sterilization cycles</b>	2 cycles of autoclave, 30 min at 130°C (266°F)		
<b>Gamma stability</b>	Gamma irradiation stable up to 45 kGy		
<b>Endotoxin releasing*</b>	<0.25 EU/mL as determined by the LAL test, meeting the requirements of USP <85>		
<b>Particulates*</b>	Particulate matter release meets the requirement of USP <788>		
<b>Non-fiber releasing</b>	Manufactured with non-fiber release materials and tested according to 21 CFR 210.3 (b) (6)		
<b>TOC*</b>	<0.5 mg/L post gamma and after a water flush, meeting the requirements of USP <643>		
<b>Conductivity*</b>	≤1.3 µS/cm post gamma and after water flush, meeting the requirements of USP <645>		

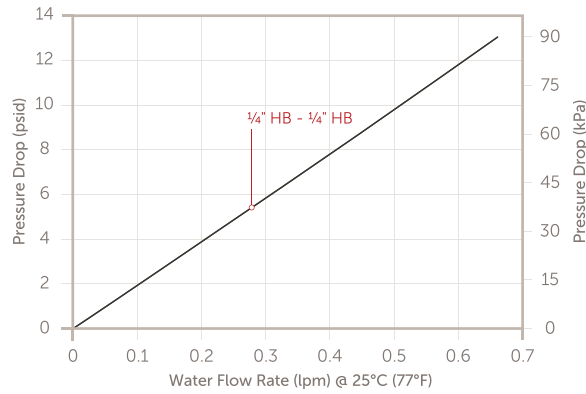
## SPECIFICATIONS

<b>Material toxicity*</b>	All components meet the requirements of the USP <87>, Biological Reactivity Test and the USP <88> Reactivity Test for Class VI Plastics
<b>Animal Free</b>	Raw materials used to manufacture this product are not animal derived, meeting the EU directive for animal free CPMP EMA/410/01 and 21 CFR parts 189.5
<b>Extractables*</b>	Tested according to BioPhorum Operations Group (BPOG) guideline. Report is available upon request.
<b>Quality</b>	100% integrity tested, manufactured in accordance with ISO 9001 and ISO 13485 certified quality management system

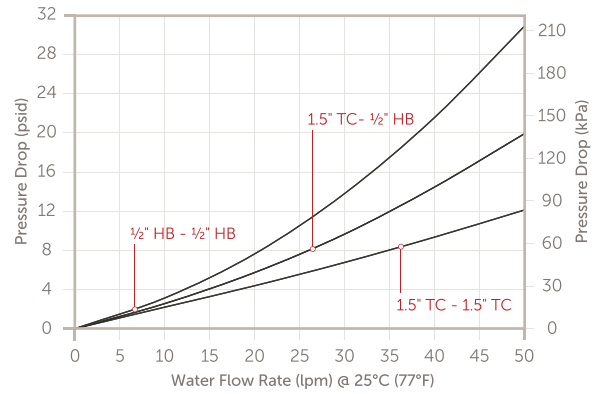
\*Test post-gamma irradiation. Refer to our validation guide for details.

## PERFORMANCE DATA

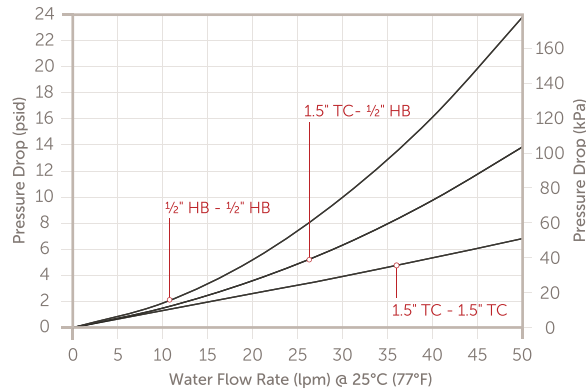
50 mm Disc



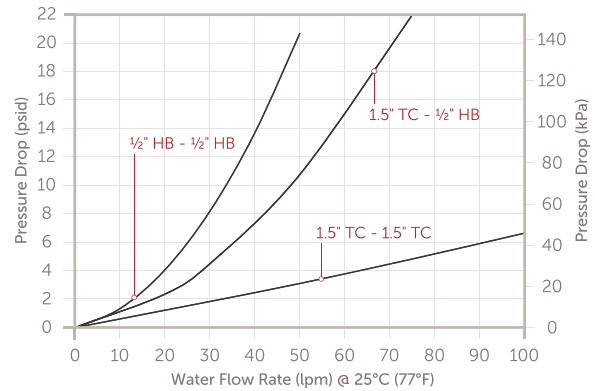
3-inch Capsules



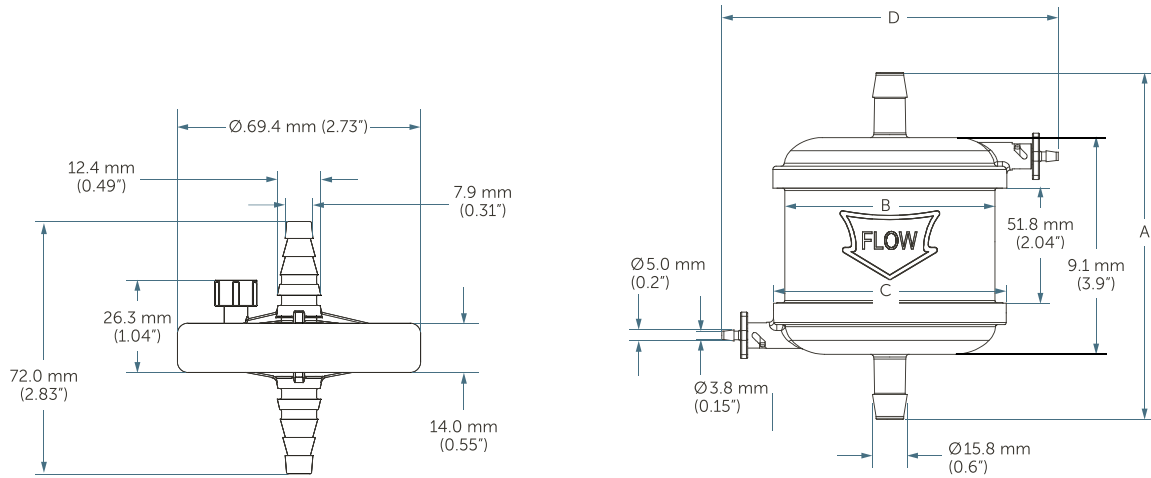
5-inch Capsules



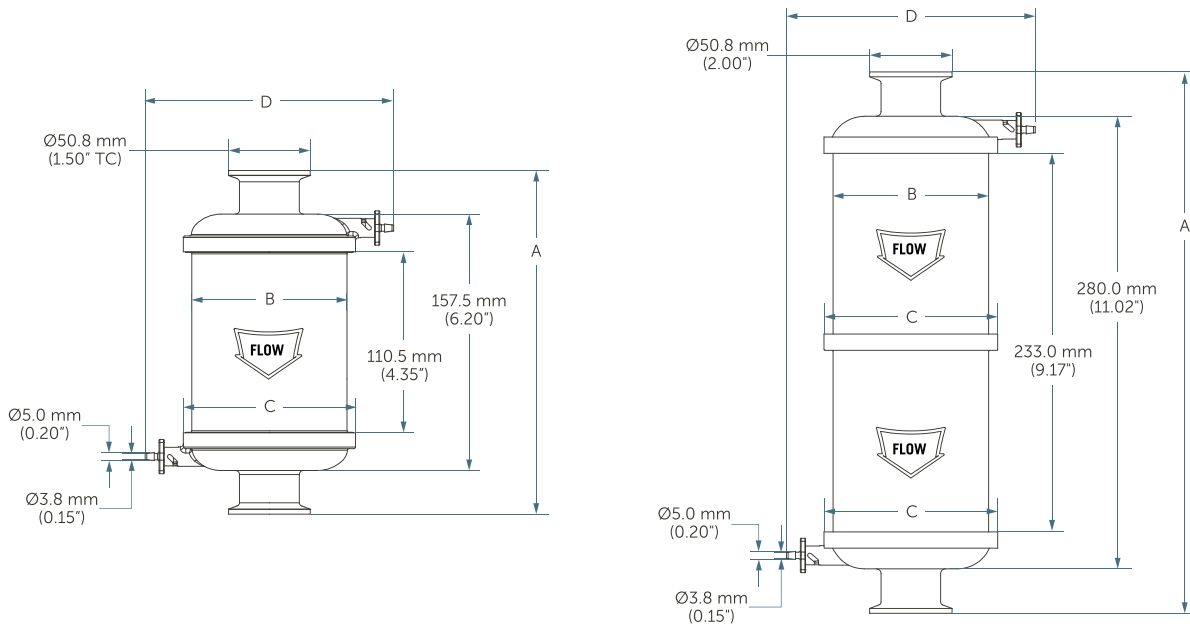
10-inch Capsules



## DIMENSIONS



Size - Connections	Total Length - A	Body Diameter - B	Min Width - C	Max Width - D
3-inch TC-TC	154.5 mm (6.08")	96.0 mm (3.78")	107.0 mm (4.21")	153.0 mm (6.02")
3-inch TC-HB	156.7 mm (6.17")	96.0 mm (3.78")	107.0 mm (4.21")	153.0 mm (6.02")
3-inch HB-HB	159.7 mm (6.29")	96.0 mm (3.78")	107.0 mm (4.21")	153.0 mm (6.02")



Size - Connections	Total Length - A	Body Diameter - B	Min Width - C	Max Width - D
5-inch TC-TC	213.2 mm (8.39")	96.0 mm (3.78")	107.0 mm (4.21")	153.0 mm (6.02")
5-inch TC-HB	216.5 mm (8.52")	96.0 mm (3.78")	107.0 mm (4.21")	153.0 mm (6.02")

## DIMENSIONS

5-inch HB-HB	219.5 mm (8.96")	96.0 mm (3.78")	107.0 mm (4.21")	153.0 mm (6.02")
10-inch TC-TC	335.5 mm (13.21")	96.0 mm (3.78")	107.0 mm (4.21")	153.0 mm (6.02")
10-inch TC-HB	339.0 mm (13.35")	96.0 mm (3.78")	107.0 mm (4.21")	153.0 mm (6.02")
10-inch HB-HB	342.0 mm (13.46")	96.0 mm (3.78")	107.0 mm (4.21")	153.0 mm (6.02")

## ORDERING INFORMATION

PART NUMBER	INLET AND OUTLET CONNECTION	VENT AND DRAIN CONNECTION	SIZE	PACKAGING CONFIGURATION
PSTSUSA022HS032	1/2" hose barb	1/8" hose barb	3" capsule	Two per box
PSTSUSA022HS051	1/2" hose barb	1/8" hose barb	5" capsule	One per box
PSTSUSA022HS101	1/2" hose barb	1/8" hose barb	10" capsule	One per box
PSTSUSA022SH003	1/4" stepped hose barb	Luer male with cap	50 mm disc	Three per box
PSTSUSA022TH032	1.5" sanitary TC inlet and 1/2" hose barb outlet	1/8" hose barb	3" capsule	Two per box
PSTSUSA022TH051	1.5" sanitary TC inlet and 1/2" hose barb outlet	1/8" hose barb	5" capsule	One per box
PSTSUSA022TH101	1.5" sanitary TC inlet and 1/2" hose barb outlet	1/8" hose barb	10" capsule	One per box
PSTSUSA022TS032	1.5" sanitary TC	1/8" hose barb	3" capsule	Two per box
PSTSUSA022TS051	1.5" sanitary TC	1/8" hose barb	5" capsule	One per box
PSTSUSA022TS101	1.5" sanitary TC	1/8" hose barb	10" capsule	One per box

Note: Pre-sterilized capsules by Gamma irradiation available, refer to part number matrix for corresponding part number or check with Entegris specialist.

#### FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit [entegris.com](https://www.entegris.com) and select the [Contact Us](#) link to find the customer service center nearest you.

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