

## Researcher™ 12 and Researcher™ XL Steamer

Autoclaved, Gamma Irradiated  
Hollow Fiber Cartridges  
High Capacity – Superior Yield



**Researcher™ 12** and **Researcher™ 12 XL Steamer** cartridges are an ideal choice for conventional pump operated perfusion processes or aseptic applications where autoclaving is required.

The **Researcher™ 12** and **Researcher™ 12 XL Steamer** hollow fiber membrane cartridges incorporate WaterSep's latest glycerin free, heat resistant modified polyethersulfone (m-PES) membrane technology. Like all **Steamer Line** products, the **Researcher™ 12** and **Researcher™ 12 XL Steamer** cartridges are gamma irradiated and ready to use when received without any tedious pre-rinsing and do not require pre-wetting with alcohol.

Unlike standard single use perfusion cartridges, the **Researcher™ 12** and **Researcher™ 12 XL Steamer** cartridges can be autoclaved up to 5x. The cartridges can be autoclaved separately or as part of a FlowAssembly. The FlowAssembly can be autoclaved simultaneously with a bioreactor.

For crossflow perfusion applications and autoclaving directions, please see the **Steamer Line** Validation Guide at [www.WaterSep.net](http://www.WaterSep.net).

The extractables level for the **Researcher™ Steamer** is approximately 80x less than a glycerin conditioned membrane, see [Extractables Flush Analysis](#). After a quick buffer conditioning the HF cartridge is ready to be used or autoclaved. For autoclaving directions, please see the **Steamer Line** Validation Guide at [www.WaterSep.net](http://www.WaterSep.net).

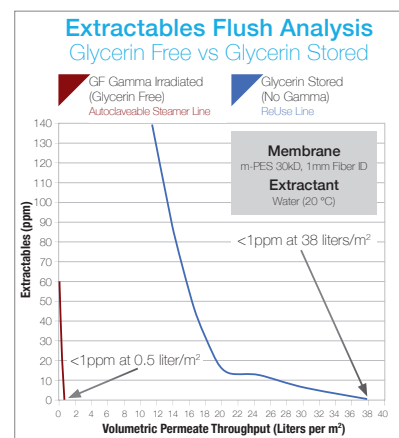
The **Researcher™** and **Researcher™ 12 XL Steamer** crossflow hollow fiber membrane cartridges are positioned between the laboratory scale **Explorer™ Steamer** and the pilot scale **Investigator™ Steamer** cartridges. With surface areas of 444 cm<sup>2</sup> for the **Researcher™ 12 Steamer** and 617 cm<sup>2</sup> for the **Researcher™ 12 XL Steamer** these cartridges are the perfect choice for applications with sample volumes between 400 mL and 2,800 mL.

Offered in the same path length as all other WaterSep 12" hollow fiber cartridges for exact and predicable scale up.

**Researcher™ 12** and **Researcher™ 12 XL Steamer** cartridges are a ready to use, robust hollow fiber product for crossflow perfusion applications using a conventional pump operated perfusion processes.

They are:

- Autoclavable up to 5x.
- Hydrophilic, with modified polyethersulfone (m-PES) membrane.
- Gamma irradiated - ready to use.
- Require no wetting with alcohol.
- Humectant/glycerin free - with 80x less extractables than conventional glycerin conditioned membrane. See [Extractables Flush Analysis](#).
- Made with robust fibers, with minimum risk of integrity failure during long cell culture runs.
- Tight membrane specifications and consistent membrane performance batch-to-batch
- Antifouling, low binding membrane, supports longer run times and high product transmission
- 100% integrity testing of all **Steamer** cartridges with individual lot numbers and CofAs.



### TYPICAL APPLICATIONS

- **Cell perfusion** for a conventional pump operated perfusion process. (Bioreactor and **Steamer** hollow fiber assemblies can be autoclaved simultaneously.)
- Pilot scale **aseptic UF-MF applications** where autoclaving is required.
- Rapid clarification of volumes ranging from 400 mL to 2,800 mL of **cell culture, fermentation solutions** and **virus/vaccine suspensions**.
- Concentration and diafiltration of **monoclonal antibodies, enzymes, blood components, other proteins, and gene therapy products**.

# Researcher™ 12 and Researcher™ 12 XL Steamer

## ORDERING INFORMATION

Place orders online at [www.watersep.net](http://www.watersep.net), or email purchase orders to [orders@watersep.net](mailto:orders@watersep.net), sales order confirmation to follow.

### Researcher™ 12 Steamer HF Cartridge

0.5 mm ID

AU XXX 05RES12 S3, 3/pkg

AU XXX 05RES12 S6, 6/pkg

1.0 mm ID

AU XXX 10RES12 S3, 3/pkg

AU XXX 10RES12 S6, 6/pkg

2.0 mm ID\*

AU XXX 20RES12 S3, 3/pkg

AU XXX 20RES12 S6, 6/pkg

\*Available in 10K, 50K, 300K-750K and 0.1µm-0.65µm

### Researcher™ 12 XL Steamer HF Cartridge

0.5 mm ID

AU XXX 05RXL12 S3, 3/pkg

AU XXX 05RXL12 S6, 6/pkg

1.0 mm ID

AU XXX 10RXL12 S3, 3/pkg

AU XXX 10RXL12 S6, 6/pkg

2.0 mm ID\*

AU XXX 20RXL12 S3, 3/pkg

AU XXX 20RXL12 S6, 6/pkg

\*Available in 10K, 50K, 300K-750K and 0.1µm-0.65µm

Replace XXX with:

003 for 3K	100 for 100K	910 for 0.1µm
005 for 5K	300 for 300K	920 for 0.2µm
010 for 10K	500 for 500K	945 for 0.45µm
030 for 30K	750 for 750K	965 for 0.65µm
050 for 50K		

## CONNECTIONS

Feed/Retentate

0.75" TC Standard Sanitary Fitting

Permeate

3/8" Barb

## SPECIFICATIONS

Cartridge Dimensions

0.75" (1.91 cm) x 12.28" (31.20 cm)

Membrane Surface Areas

0.48 ft<sup>2</sup> (444 cm<sup>2</sup>) **Researcher™ 12 Steamer**

0.66 ft<sup>2</sup> (617 cm<sup>2</sup>) **Researcher™ 12 XL Steamer**

Molecular Weight Cut-off

3K, 5K, 10K, 30K, 50K, 100K, 300K, 500K, 750K

Membrane Pore Size

0.1µm, 0.2µm, 0.45µm and 0.65µm

Fiber ID

0.5 mm, 1.0 mm, 2.0 mm

## MATERIALS OF CONSTRUCTION

Membrane:

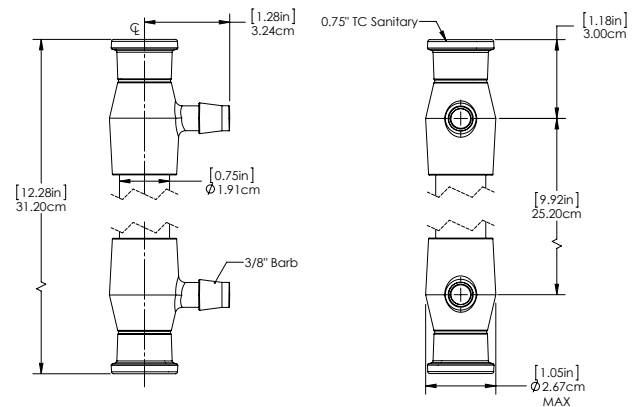
Modified Polyethersulfone (m-PES)

Housing:

White Polysulfone

Encapsulant:

Medical Grade Epoxy



Technical Support: email us at

[experttalk@watersep.net](mailto:experttalk@watersep.net) or call 508.970.0089 x204.