SARTORIUS

Product Datasheet

Green Line Single-Use Hollow Fiber Modules

Gamma Irradiated, Humectant-Free and Ready to Use. No Pre-Rinsing, Cleaning or Assembling Needed.

Executive Summary

Green Line single-use hollow fiber modules offer you the perfect solution to save money and time, preserve space, and increase flexibility through scalable design. Green Line modules provide a linear and predictive scale-up process from laboratory to pilot-scale to manufacturing scale by using matching materials, fluid-path length, and performance characteristics. Green Line modules are fully scalable from batch volumes from 10 mL up to 1500 L with corresponding membrane surface areas from 0.056 ft^2 (0.0052 m^2) up to 166.0 ft^2 (15.42 m^2). Green Line modules are offered in molecular weight cut-offs (MWCO) that range from 3kD to 750kD and in pore sizes from 0.1 µm to 0.65 µm, with lumen ID's of 0.5 mm, 1.0 mm and 2.0 mm.

Unique Selling Points

The Green Line hollow fiber modules offer a true single-use crossflow system that provides:

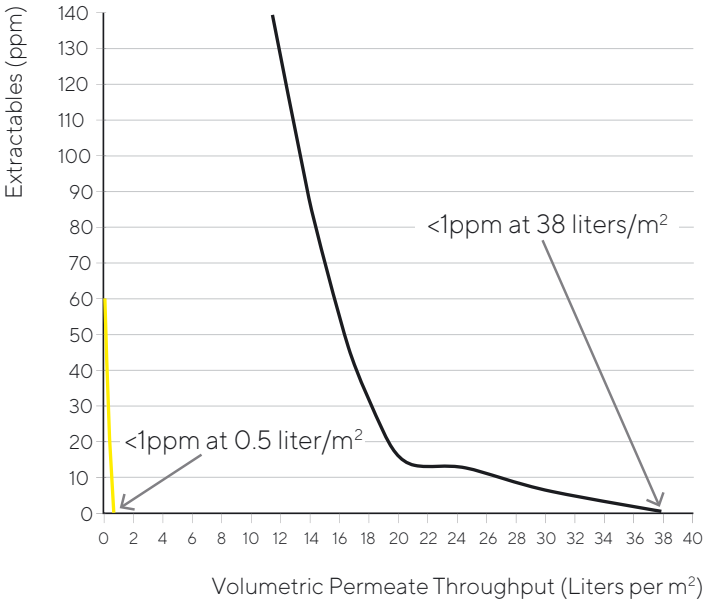
- Self-contained units
- No humectants - 80x less extractables
- No pre-rinse required (glycerin free)
- Ready to use
- Easy and reliable scale up and scale down
- Membrane offering from 3 kD to 750 kD MWCO and from 0.1 µm to 0.65 µm pore size
- Gamma irradiated
- Cost efficiency
- Free of time-consuming cleaning validation
- Integrity tested and individual lot number for easy traceability
- Inhouse production of membrane

Relevant Applications

- Concentration and purification of vaccines
- Concentration and diafiltration of gene therapy products
- Cell-harvest (e.g. excellent results have been achieved with both *E. Coli* whole cells and *E. Coli* lysates, as well as other microbial process streams.)
- Clarification of mammalian | CHO cell cultures and maximizing protein recovery
- Concentration | diafiltration of monoclonal antibodies, recombinant proteins, biological macromolecules and peptides.

Relevant Process Steps

Extractables Flush Analysis - Glycerin Free vs Glycerin Stored



Membrane
m-PES 30kD, 1mm Fiber ID

Extractant
Water (20 °C)

GF Gamma Irradiated (Glycerin Free) Single-Use Green Line

Glycerin Stored (No Gamma)

Technical Specifications

Attribute	Green Line Modules
Bio compatibility	The module as assembled is USP Class VI compliant
Membrane	Modified Polyethersulfone (m-PES)
Housing	White Polysulfone
Encapsulant	Medical Grade Epoxy

Name	Scale	Fiber Length	Dimensions in inches (cm)	Membrane surface area ft² (m²)*	Recommended batch volume per module	Connections	
						Feed | Retentate	Feed | Retentate
Discover	Lab	12 inch	0.38 × 12.88 (0.95 × 32.72)	0.056 (0.0052)	10 - 250 mL	Luer Lock	Luer Lock
		24 inch	0.38 × 24.38 (0.95 × 61.93)	0.115 (0.0107)	50 - 400 mL		
		41 inch	0.38 × 41.8 (0.95 × 106.2)	0.208 (0.0193)	80 - 850 mL		
Explorer	Lab	12 inch	0.5 × 12.3 (1.3 × 31.2)	0.17 (0.0155)	150 - 175 mL	½-inch TC	3/16-inch Hose Barb
		24 inch	0.5 × 23.8 (1.3 × 60.5)	0.35 (0.0321)	250 - 1,500 mL		
		41 inch	0.5 × 41.8 (1.3 × 106.2)	0.62 (0.0579)	300 - 3,000 mL		
Researcher	Lab | Pilot	12 inch	0.75 × 12.3 (1.91 × 31.2)	0.48 (0.0444)	400 - 2,000 mL	¾-inch TC	⅜-inch Hose Barb
		24 inch	0.75 × 23.66 (1.91 × 60.1)	1.01 (0.0940)	700 - 4,000 mL		
		41 inch	0.75 × 41.8 (1.91 × 106.1)	1.85 (0.1716)	1,000 - 8,000 mL		
Researcher XL	Lab | Pilot	12 inch	0.75 × 12.3 (1.91 × 31.2)	0.66 (0.0617)	0.56 - 2.8 L	¾-inch TC	⅜-inch Hose Barb
		24 inch	0.75 × 23.66 (1.91 × 60.1)	1.41 (0.1305)	0.98 - 5.6 L		
		41 inch	0.75 × 41.8 (1.91 × 106.1)	2.57 (0.2383)	1.4 - 11.2 L		
Investigator	Lab | Pilot	12 inch	1.32 × 12.01 (3.34 × 30.5)	1.4 (0.13)	1 - 6 L	1.5-inch TC	½-inch TC
		24 inch	1.32 × 23.5 (3.34 × 59.7)	3.0 (0.28)	2 - 12 L		
		41 inch	1.32 × 41.5 (3.34 × 105.4)	5.4 (0.51)	3 - 25 L		
mini-Bioproducer	Pilot | Production	12 inch	2.70 × 15.0 (6.86 × 38.1)	6.6 (0.61)	5 - 50 L	1.5-inch TC	0.75-inch TC
		24 inch	2.70 × 26.5 (6.86 × 67.3)	14.5 (1.35)	10 - 100 L		
		41 inch	2.70 × 44.5 (6.86 × 113)	26.9 (2.50)	25 - 250 L		
Bioproducer	Production	12 inch	3.50 × 15.0 (8.89 × 38.1)	13.1 (1.21)	25 - 100 L	1.5-inch TC	1-inch TC
		24 inch	3.50 × 28.5 (8.89 × 67.3)	29.0 (2.69)	50 - 250 L		
		41 inch	3.50 × 44.49 (8.89 × 113)	53.8 (5.00)	100 - 500 L		
Maximizer	Production	24 inch	4.62 × 28.8 (11.73 × 73.15)	58.4 (5.42)	100 - 500 L	2-inch TC	1-inch TC
		41 inch	4.62 × 46.5 (11.73 × 118.1)	104.9 (9.74)	250 - 1,000 L		
Grand XL (only with 1.0 and 2.0 mm Fiber IDs)	Production	24 inch	6.64 × 32.65 (16.88 × 82.93)	87.2 (8.10)	250 - 800 L	2.5-inch TC or 6-inch TC	1-inch TC
		43 inch	6.015 × 51.65 (16.88 × 131.19)	166.0 (15.42)	400 - 1,500 L		

*Membrane surface valid for all fiber IDs. For number of fibers per module please consider the Validation Guide.

Available MWCO and Pore Sizes for Different Fiber IDs

The tables stated below are valid for all sizes and lengths, if not stated otherwise.

	MWCO								
Fiber ID	**3 kD**	**5 kD**	**10 kD**	**30 kD**	**50 kD**	**100 kD**	**300 kD**	**500 kD**	**750 kD**
0.5 mm*	■	■	■	■	■	■	■	■	■
1.0 mm	■	■	■	■	■	■	■	■	■
2.0 mm			■		■		■	■	■

	Pore size			
Fiber ID	**0.1 µm**	**0.2 µm**	**0.45 µm**	**0.65 µm**
0.5 mm*	■	■	■	■
1.0 mm	■	■	■	■
2.0 mm	■	■	■	■

* Not available for Grand XL

Ordering Information

Product Designator
SU Green Line

Fiber Lumen Diameter (mm)
05 = 0.5 mm
10 = 1.0 mm
20 = 2.0 mm (special production)

Fiber Length
12 = 12 inches
24 = 24 inches
41 = 41 inches
43 = 43 inches
(only for Grand XL)

Package Size
H = 1-pack for Maximizer
L = 1-pack for Grand XL
3 = 3-pack
6 = 6-pack
D = 12-pack

SU | **910** | **05** | **DIS** | **12** | **L** | **6**

MWCO & Pore Size
003 = 3 kD
005 = 5 kD
010 = 10 kD
030 = 30 kD
050 = 50 kD
100 = 100 kD
300 = 300 kD
500 = 500 kD
750 = 750 kD
910 = 0.1 µm
920 = 0.2 µm
945 = 0.45 µm
965 = 0.65 µm

Cartridge Type
DIS Discover Green Line
EXP Explorer Green Line
RES Researcher Green Line
RXL Researcher XL Green Line
INV Investigator Green Line
MPR mini-Bioproducer Green Line
PRO Bioproducer Green Line
MAX Maximizer Green Line
GRA Grand XL Green Line

Type of Connector
L = Luer Lok (only Discover)
S = Sanitary

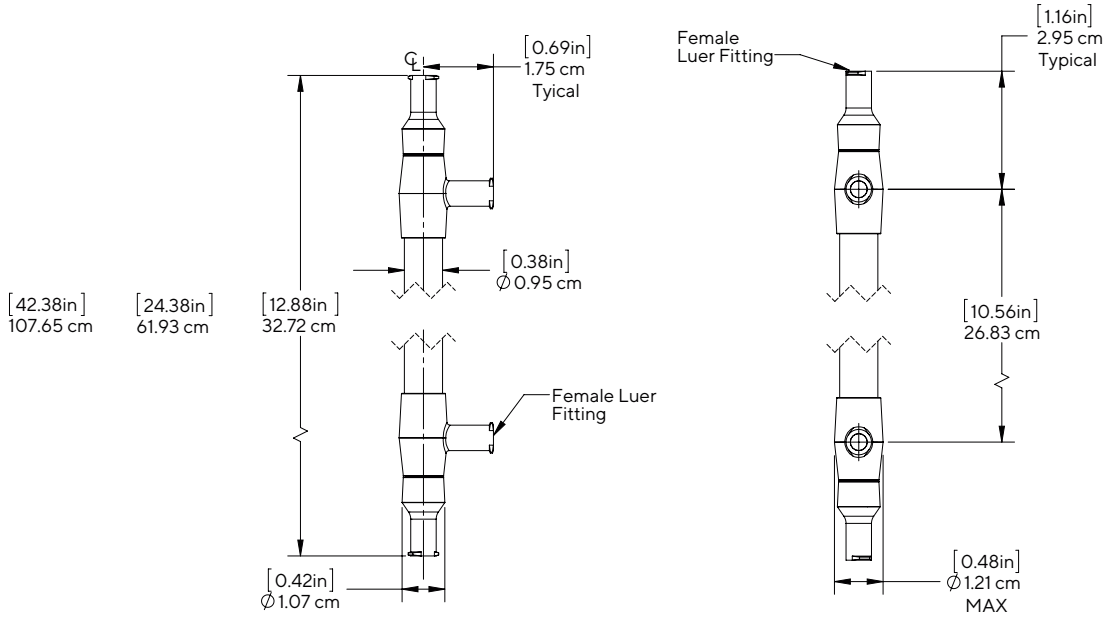
Surface area
(only for Grand XL)
5 = Grand 43 XL 15 m²
8 = Grand 24 XL 8 m²

Please consult the specification table on page 3 to learn more about the possible combinations.

Overview

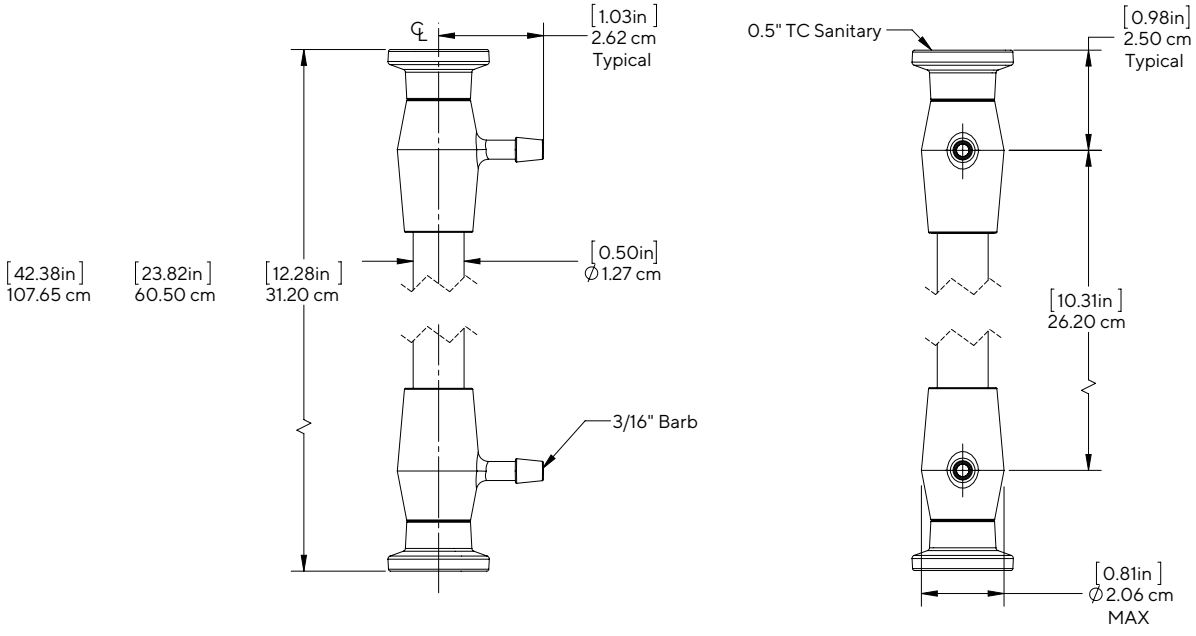
Discover

Exact length for different Fiber length: 12, 24 or 41 inch



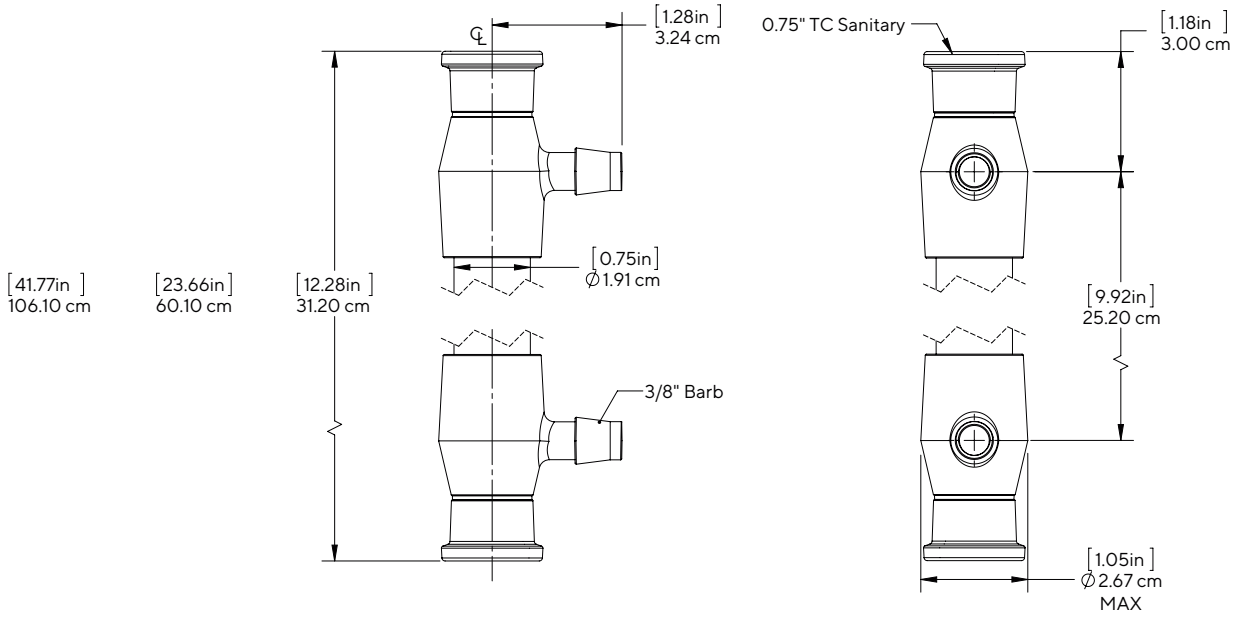
Explorer

Exact length for different Fiber length: 12, 24 or 41 inch



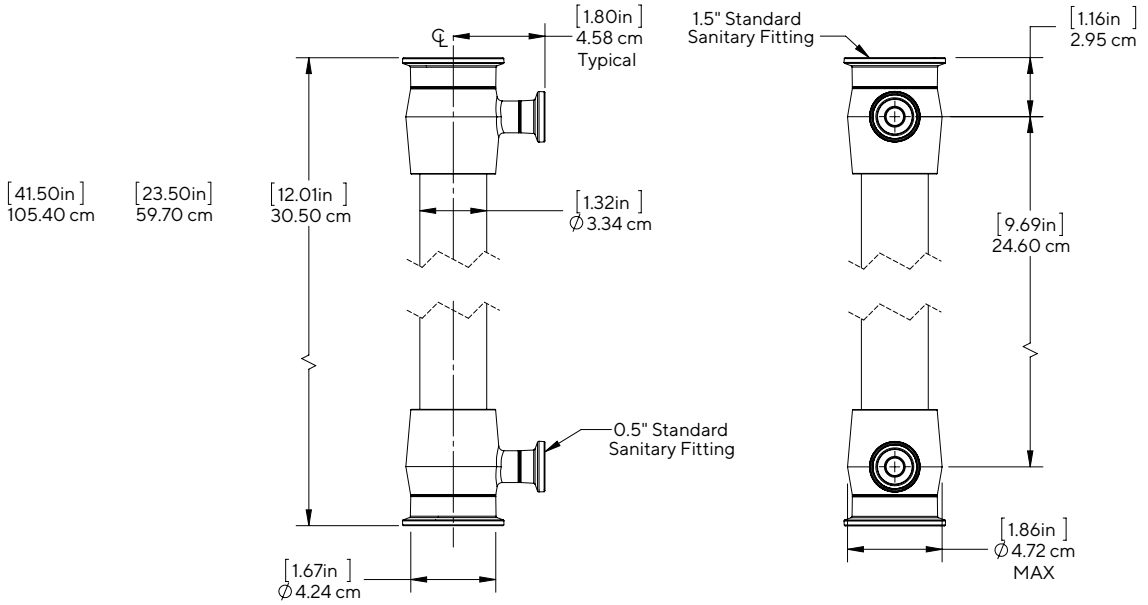
Researcher & Researcher XL

Exact length for different Fiber length: 12, 24 or 41 inch



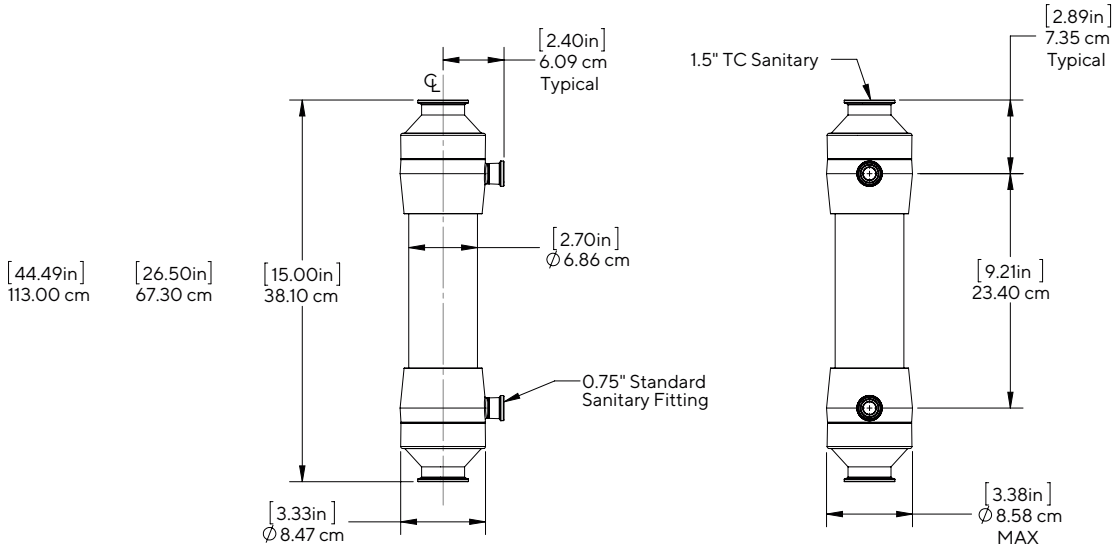
Investigator

Exact length for different Fiber length: 12, 24 or 41 inch



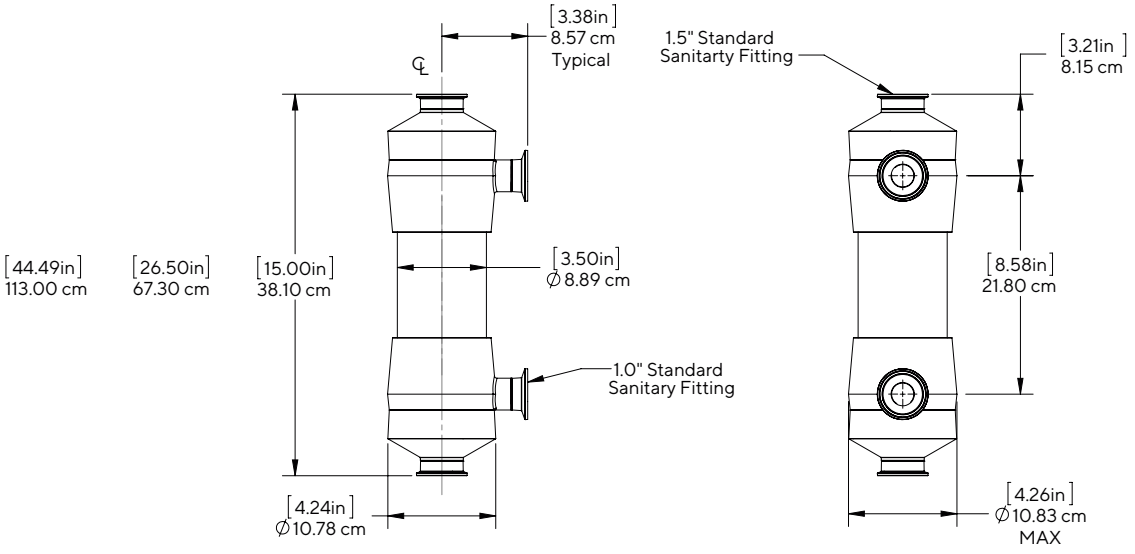
mini-Bioproducer

Exact length for different Fiber length: 12, 24 or 41 inch



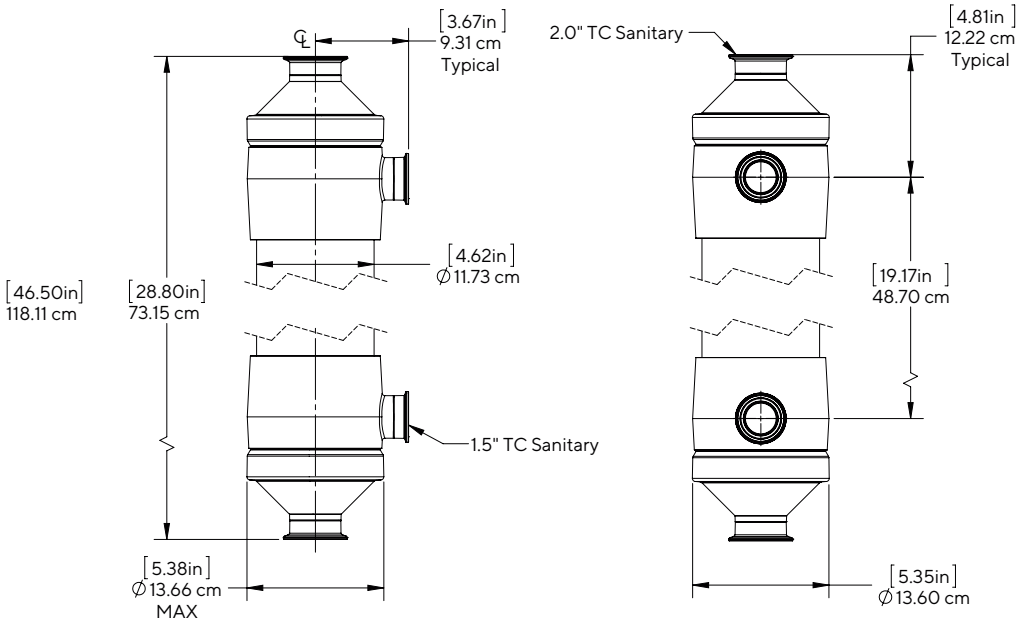
Bioproducer

Exact length for different Fiber length: 12, 24 or 41 inch



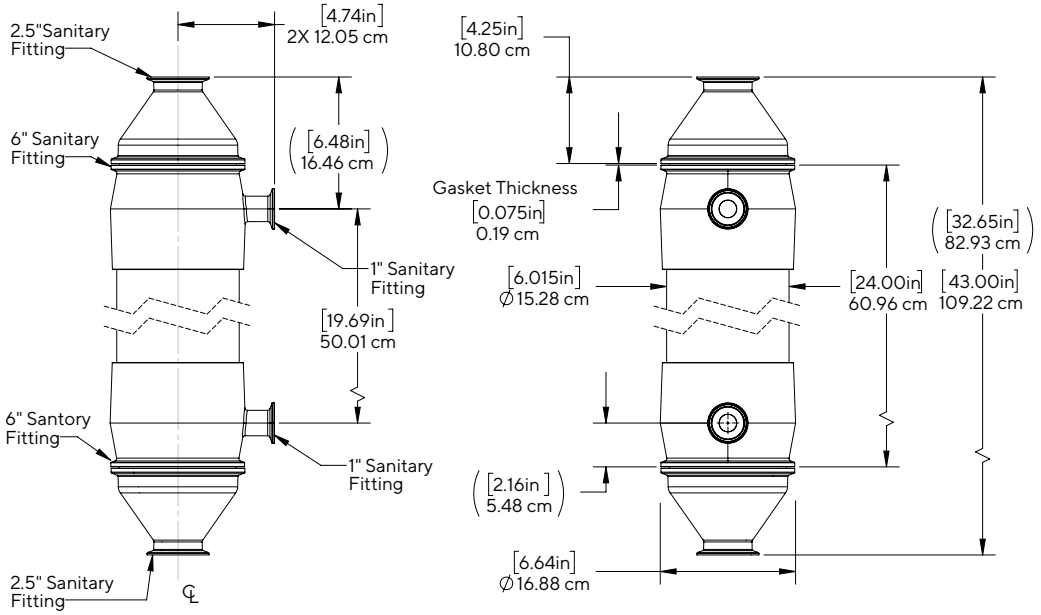
Maximizer

Exact length for different Fiber length: 24 or 41 inch



Grand XL

Exact length for different Fiber length: 24 or 43 inch



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