MaxCell steam-in-place hollow fiber modules (MSM style)

PROTEIN SEPARATIONS

MaxCell™ steam-in-place (SIP) cartridge elements are specifically designed for pharmaceutical manufacturing operations. These elements are based on the highest quality, most durable membranes on the market today. Individual cartridges provide up to 11.6m² (125 ft²) of membrane area in a compact design for large-volume processing applications. Multiple cartridges can be easily manifolded together into compact systems capable of achieving any desired flow rate.

MSM steam-in-place cartridges

The polysulfone membranes and cartridge elements have an advanced design providing the strength and integrity to withstand the rigors of multiple steam-in-place operations. Cartridges slip into stainless steel housings for safety and containment. An O-ring seal at the inlet and outlet of the cartridge element ensures tight, sanitary closure within the housing. The element design allows quick, all-over steam penetration of the membranes. Furthermore, all cartridge components are USP XXVII Class VI Biological Test for Plastics tested (except O-rings).

Cartridge housing assembly

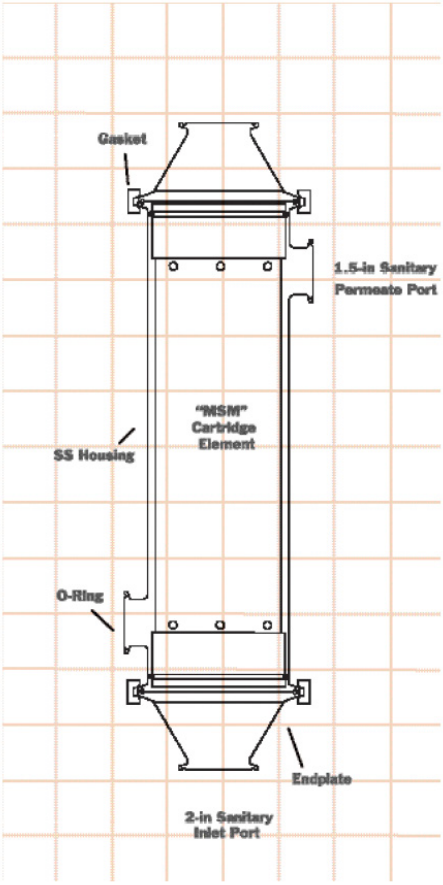
All housing assemblies are of 316 L stainless steel with sanitary construction. The gasket material is silicone. The endfitting ports are 2-inch and permeate ports are 1.5-inch sanitary clamp configuration, allowing for quick and easy connections to steam and process piping.

In operation, the housing should be piped in a vertical orientation. It is recommended to steam the complete element and housing assembly for 30 minutes at 121°C to 123°C and 1 barg (15psig). Steam should be delivered to both sides of the membrane, especially for UF membrane elements, to ensure full steam penetration and minimize the differential pressure across the membrane.

Fig 1. MSM steam-in-place (SIP) cartridge elements have the strength and integrity to withstand the rigors of multiple SIP operations. Shown are cartridge size 65MSM and stainless steel housing SS-65MSM with one end plate removed to reveal the cartridge element. A shorter cartridge size 45MSM and stainless steel housing SS-45MSM are also available.

Typical applications

- Monoclonal antibody clarification/concentration
- Plasmid concentration/diafiltration
- Protein concentration
- Suspended solids removal
- Vaccine concentration/purification
- Virus concentration/purification/removal
- Bacteria/pyrogen removal
- Plasma purification/concentration
- Buffer depyrogenation
- Cell harvesting/clarification
- Colloidal suspension concentration/diafiltration
- Continuous buffer exchange
- Continuous cell culture perfusion
- Hybridoma cell culture clarification
- Liposome purification
- Lysate clarification
- Mammalian cell clarification



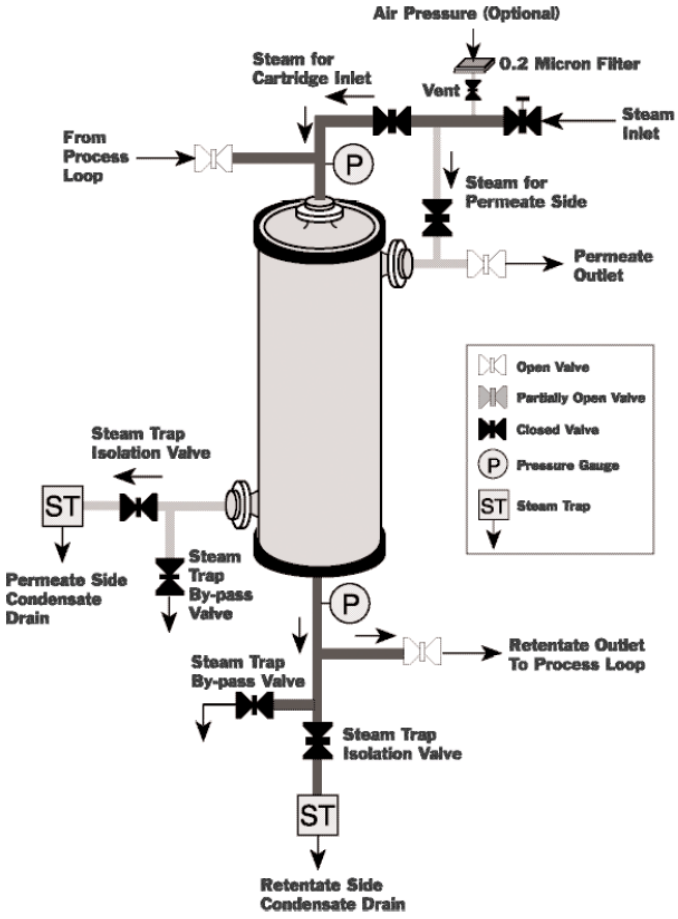


Fig 2. MSM valve arrangement (process mode). A complete "steam-in-place" protocol is available upon request.

Ordering information

MSM steam-in-place ultrafiltration cartridges

Code number	Model number	NMWC	Membrane area m²	Membrane area ft²
56-4104-45	UFP-10-E-45MSM	10 000	2.3	25
56-4104-46	UFP-30-E-45MSM	30 000	2.3	25
56-4104-47	UFP-100-E-45MSM	100 000	2.3	25
56-4104-48	UFP-500-E-45MSM	500 000	2.3	25
56-4104-53	UFP-10-E-65MSM	10 000	4.2	45
56-4104-55	UFP-30-E-65MSM	30 000	4.2	45
56-4104-57	UFP-100-E-65MSM	100 000	4.2	45
56-4104-58	UFP-500-E-65MSM	500 000	4.2	45
56-4104-62	UFP-10-E-85MSM	10 000	4.2	45
56-4104-63	UFP-30-E-85MSM	30 000	4.2	45
56-4104-64	UFP-100-E-85MSM	100 000	4.2	45
56-4104-66	UFP-500-E-85MSM	500 000	4.2	45

MSM steam-in-place microfiltration cartridges

Code number	Model number	Pore size micron	Membrane area m²	Membrane area ft²
56-4104-49	CFP-1-E-45MSM	0.1	2.3	25
56-4104-50	CFP-2-E-45MSM	0.2	2.3	25
56-4104-51	CFP-4-E-45MSM	0.45	2.3	25
56-4104-59	CFP-1-E-65MSM	0.1	4.2	45
56-4104-60	CFP-2-E-65MSM	0.2	4.2	45
56-4104-61	CFP-4-E-65MSM	0.45	4.2	45

Fiber ID is 1 mm.

MSM steam-in-place housings and accessories

Code number	Model number	Description
56-4106-31	SS-45MSM-DP	Housing assembly for SS-45MSM cartridges 316 L SS with 2 each gaskets and 2 each clamps
56-4106-32	SS-65MSM-DP	Housing assembly for SS-65MSM cartridges 316 L SS with 2 each gaskets and 2 each clamps
56-4106-95	K05ORS	MSM cartridge O-ring set, 4 each, silicone
56-4106-67	CL12	1.5 in TC quick disconnect clamp, 304 SS
56-4106-70	CL16	2 in TC quick disconnect clamp, 304 SS
56-4106-73	CL32TC	4 in TC [Schedule 5 pipe] clamp, 304 SS
56-4106-77	G12S	1.5 in TC gasket, silicone
56-4106-79	G16S	2 in TC gasket, silicone
56-4106-87	G32TCS	4 in TC [Schedule 5 pipe] gasket, silicone

Cytiva hollow fiber cartridges

The outstanding performance of Cytiva membrane products is based upon proprietary expertise in fabricating hollow fiber membranes with a unique, truly imperfection-free morphology.

This method renders our UF membranes free of macrovoids and “pinhole” defects associated with the characteristic structure of conventional flat-sheet membranes and other hollow fibers. Cytiva microfiltration membranes are true, bubble point testable membranes.

cytiva.com

CY17824-18Dec20-DF