

STERLITECH

C o r p o r a t i o n

Sterlitech™ Digital Hybrid Skid System Owner's Manual



Introduction

The Sterlitech™ Digital Hybrid Skid System is our most popular membrane testing system, which allows users to operate tests with flat sheet membranes as well as small spiral wound elements. It contains our Stainless Steel Sepa Cell and 1812 Spiral Wound Element Housing. With one system, two testing scales can be achieved. This system is best for those who are doing RO, NF, UF, or MF experiments and perform membrane fabrication/surface modifications, feasibility studies, or membrane screening with the intent of eventually scaling up their work up in the future.

System Features

System Feature	Description
Cell Type	Cross Flow: Sepa Cell 1812 Housing
Configuration	2 Parallel Lines
Feed Flow Rate	11.7 LPM (3.1 GPM) @ 600PSI & 6.7 LPM (1.8 GPM) @ 1000PSI
Feed Tank	316SS, Full Drain, Conical, 19 Liter (5 Gallon) Capacity
Feed Controls	Manual Bypass Valve, Manual Concentrate Control Valve
Max Pressure	69 bar (1000PSI)
Electrical Supply	Designated by SKU Description
Motor Rating	Leeson Washguard Motor: 2 HP, 5.4 A, 1750 RPM, 230 V, 50/60 Hz, 3 Ph.
Pump	Hydra-Cell, High Pressure SS Diaphragm Pump
Variable Frequency Drive (VFD)	Input: (Designated by SKU Description) Output: 230V 60Hz 3Ph
Digital Panel	Touchscreen & Virtual Displays Live and Recorded Data Standard Data Points: 2 Pressure, 2 Flow, 2 Conductivity/Temperature, 1 Scale Low-Volume Cutoff & High-Pressure Cutoff Features

Materials of Construction

Location	Materials
Pump	316L SS / FKM / Nitronic 50 / Celcon
Plumbing	316L SS / FKM / PTFE / Glass / Nylon / Acrylic / Polypropylene
Cell/Housing	See Housing/Cell Manual

Use this [Chemical Compatibility Chart](#) to check the compatibility of your process fluid with the wetted parts. For fluids not listed, contact Sterlitech.

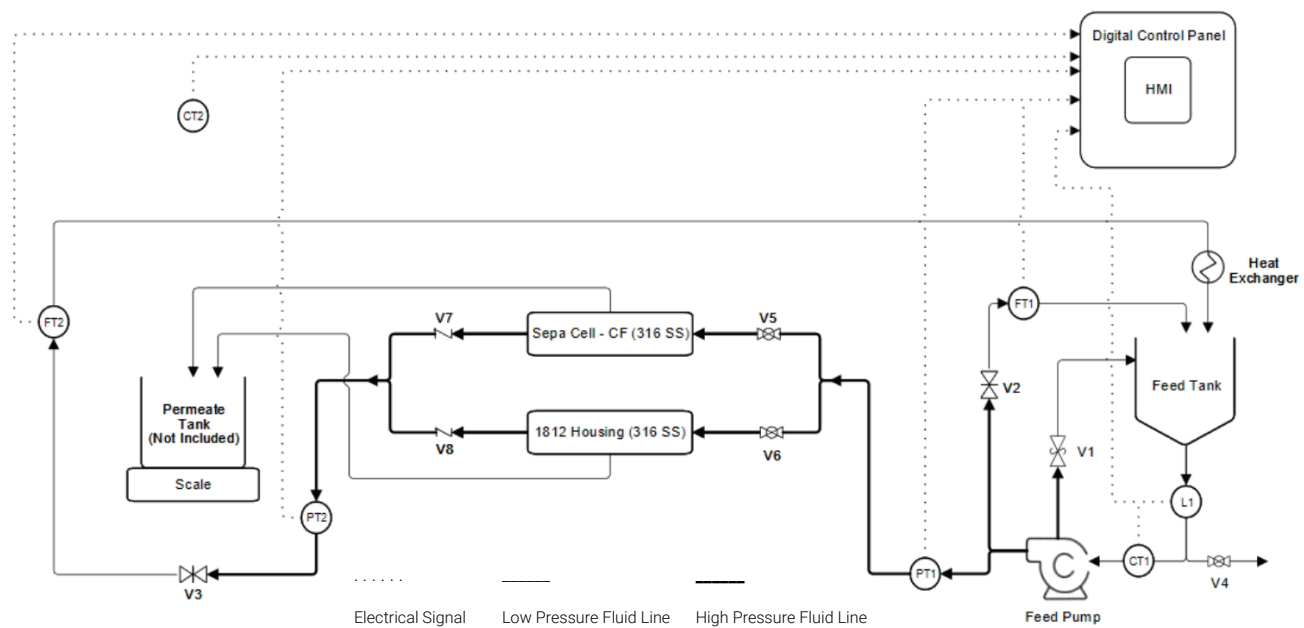
Temperature Limit

The system should not be operated above 180 °F (82 °C). The membranes, feed/permeate spacers, O-rings, and cell body material may contribute to lower the actual temperature limit of the system.

**Maximum pressure and temperature ratings are dependent on a variety of factors. Listed values are guidelines based upon material properties and cannot be guaranteed in every application.*

***The materials listed are the standard materials of construction for this model and are subject to change.*

System Diagram

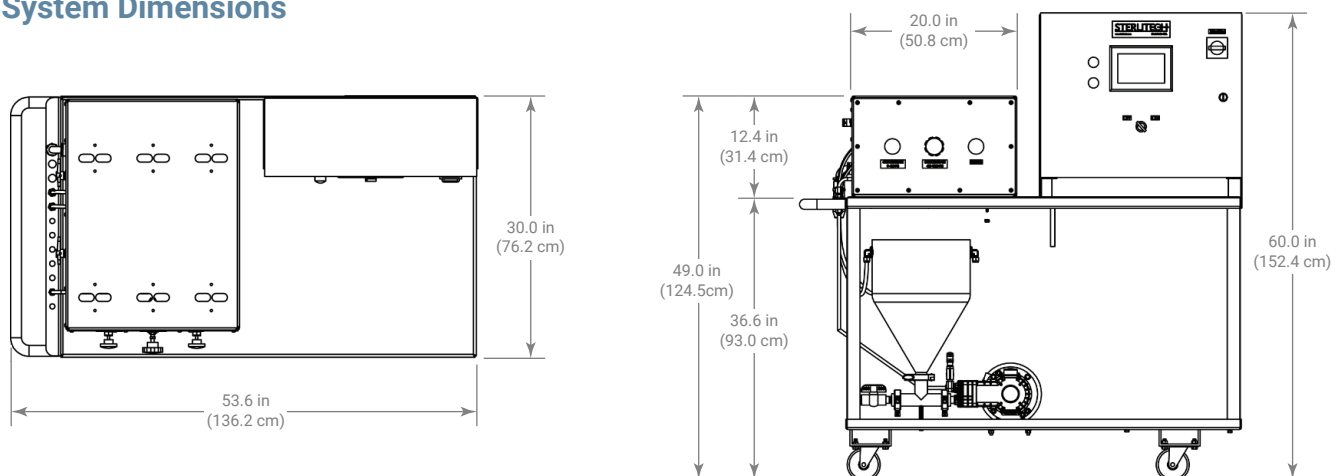


Legend

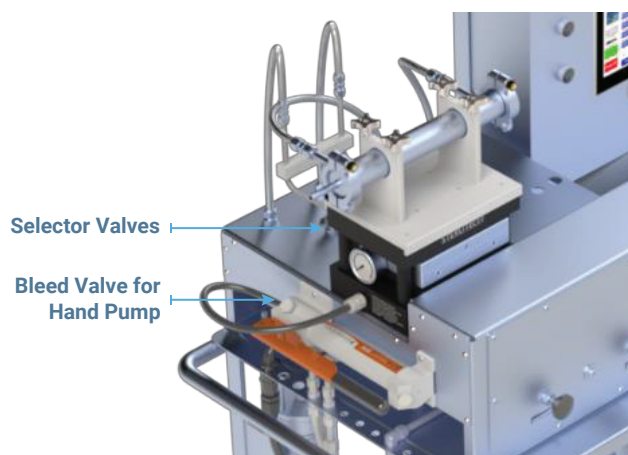
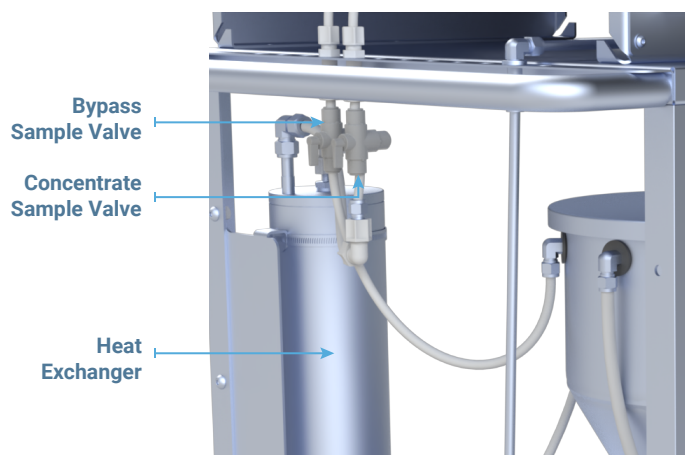
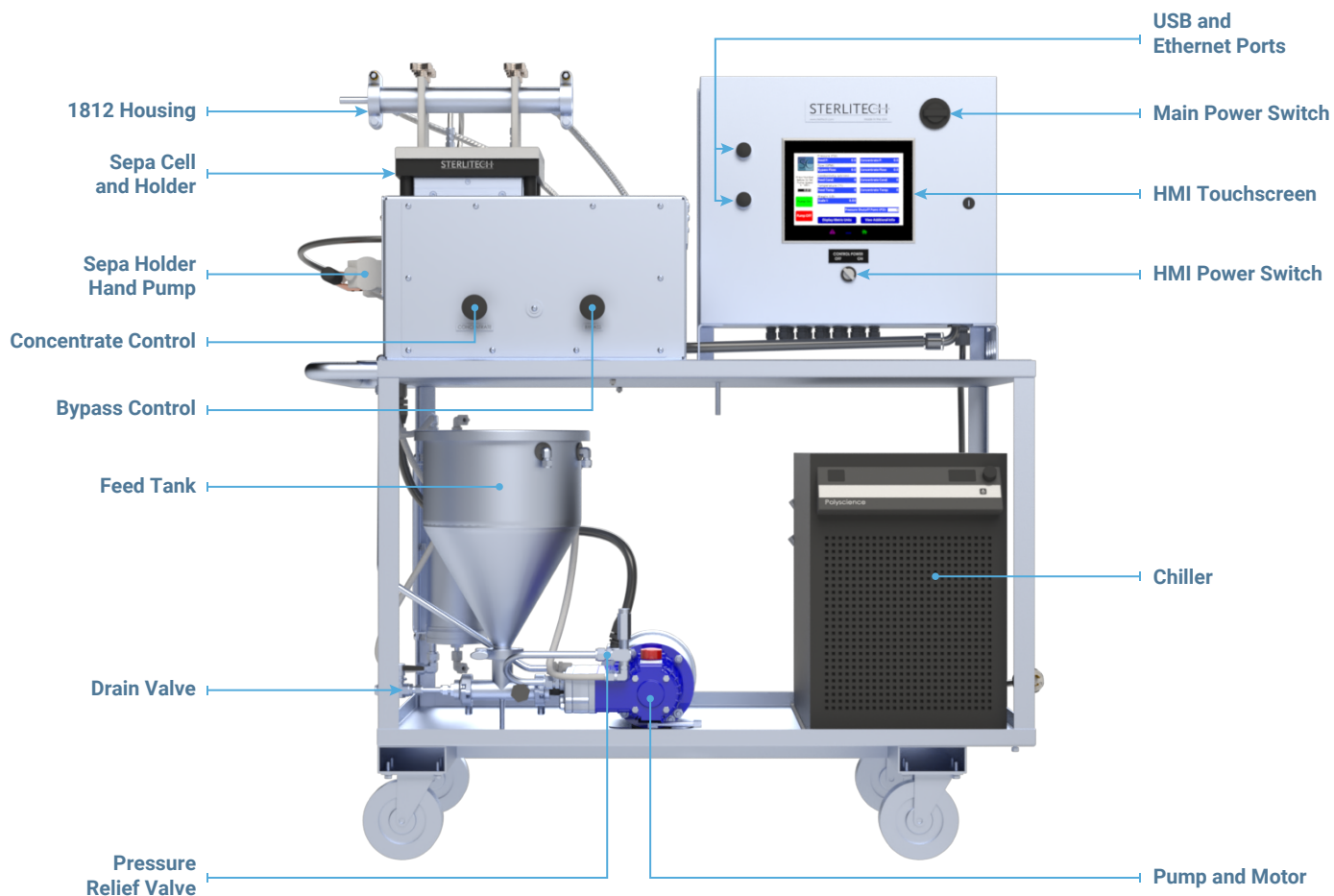
V1	Feed Pressure Relief Valve
V2	Feed Bypass Valve
V3	Pressure Control Valve
V4	Drain Valve
V5	Bank Selector Valve #1
V6	Bank Selector Valve #2
V7	Back Flow Preventer Valve #1
V8	Back Flow Preventer Valve #2

PT1	Feed Pressure Transmitter
PT2	Concentrate Pressure Transmitter
FT1	Feed Bypass Flow Rate Transmitter
FT2	Concentrate Flow Rate Transmitter
CT1	Feed Inlet Conductivity/Temperature Transmitter
CT2	Remote Conductivity/Temperature Transmitter
L1	Level Switch

System Dimensions



Feature Identification



Basic Operating Resources

Skid System Video Resources

Including:

- Initial Setup
- Chiller Setup
- System Startup, Operation, and Shutdown
- Fluid Recovery Process

Additional Operation Resources

- **System Testing Best Practices**
- [CF Filtration Handbook](#)

Includes:

- Basics of Cross Flow Filtration
- FAQs
- Example Studies
- Cutting Custom Membrane Filters
- Preconditioning Membranes
- Temperature Effect on Membranes
- [Compression Connection Video](#)
- [Cutting Custom Membrane Filters](#)



Troubleshooting Resources

Online we have many video references should you encounter any issues with your system. You can view these at this link:

[Membrane Process and Development Channel](#)

Maintenance

- **Pump Maintenance:** Refer to the [Pump Installation and Service Manual](#)
- **General Maintenance:** Proper flushing/cleaning is recommended after each run (e.g., brackish, seawater, or organic solvents). This will eliminate the formation of deposits/scales or corrosion of the system.

Replacement Accessories

Cell Type	Spare Parts Available	Spare Parts Link
CF047 / CF090	Alternative O-rings	Pioneer Researcher Cells - Cross and Tangential Flow Test Cells Sterlitech
CF016	Alternative O-rings, Shim Packs, Spacer Packs, Permeate Carrier, Membrane Cutting Die	Innovator - Cross and Tangential Flow Test Cells Sterlitech
CF042	Alternative O-rings, Shim Packs, Spacer Packs, Permeate Carrier, Membrane Cutting Die	Explorer - Cross and Tangential Flow Test Cells Sterlitech
Sepa	Alternative O-rings, Shim Packs, Spacer Packs, Permeate Carrier, Membrane Cutting Die, etc.	Developer - Cross and Tangential Flow Test Cells Sterlitech
1812 Housing	Alternative O-rings, Adapters, Membrane Elements	Spiral Wound Housings - Membrane Housings and Elements Sterlitech
Tubular Ceramic Housing	Alternative O-rings/Gaskets	Ceramic Housings - Membrane Housings and Elements Sterlitech

Return Material Order Procedure

If materials are to be returned to Sterlitech for repair, evaluation, or warranty consideration, a Return Material Authorization (RMA) number must be obtained from Sterlitech prior to the return. Contact Sterlitech Customer Service Department for return forms and procedures.

Be sure to include a complete, detailed written reason for the return. Also, include serial numbers, installation and removal dates, and any other pertinent information that is available. The crossflow cells have a serial number imprinted on them.

Indicate the proposed disposition of the material and reference the RMA number on all packages or cartons. All material must be shipped to Sterlitech with freight prepared by the customer.

Warranty

The following is made in lieu of all other warranties expressed or implied. Sterlitech Corporation guarantees equipment to be free from defects in material and workmanship when operated in accordance with written instructions for a period of one year from receipt. Parts not manufactured by Sterlitech are covered by their manufacturer's warranties, which are normally for one year.

For Sterlitech skids and systems, material compatibility with liquids is not covered by warranty. The end user is responsible for ensuring compatibility due to variable factors, such as the processing fluids used, operating conditions, and cleaning procedures.

The manufacturer's and seller's only obligation shall be to issue credit against the purchase or replacement of equipment proved to be defective in material or workmanship. Neither manufacturer nor seller shall be liable for any injury, loss or damage, direct or indirect, special or consequential, arising out of the use of, misuse, or the inability to use such product.

The information contained herein is based on technical data and tests, which we believe to be reliable, and is intended for use by persons having technical skill at their discretion and risk. Since conditions of use are outside Sterlitech's control, we can assume no liability whatsoever for results obtained or damages incurred through the application of the data presented.

This information is not intended as a license to operate under, or a recommendation to infringe upon, any patent of Sterlitech or others covering any material or use. The foregoing may not be altered except by a written agreement signed by officers of the manufacturer.

Technical Assistance: sales@sterlitech.com

Please contact us if you have any questions or technical inquiries about our products.

Sterlitech Corporation

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Company Background

Founded in 2001 in Kent, WA, Sterlitech Corporation manufactures and markets filtration-focused laboratory products to a broad spectrum of scientific and industrial sectors. Its line of flat sheet membranes and tangential flow cells deliver industry-leading performance and reliable results. Configured for reverse osmosis, nanofiltration, ultrafiltration, and microfiltration applications, Sterlitech's benchtop cross flow membrane test system provides the versatility required to innovate.

Sterlitech's comprehensive line of products is supported by the expertise of its technical specialists who can assist with application-specific product selection and provide customized solutions where necessary. Unique problem-solving approaches, flexibility, and consistent quality have made Sterlitech

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