User Guide

µPod® Filters

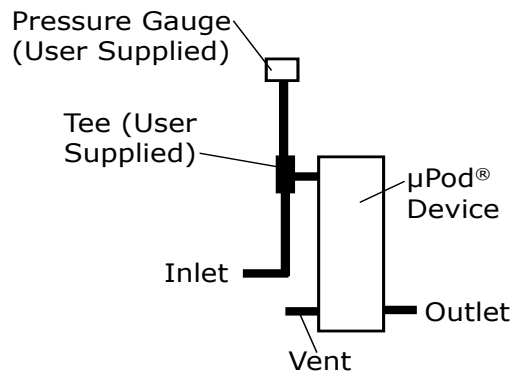
Contents

Installation

Contact your local representative for a µPod® tubing kit, catalog number MTUBEKITL1.

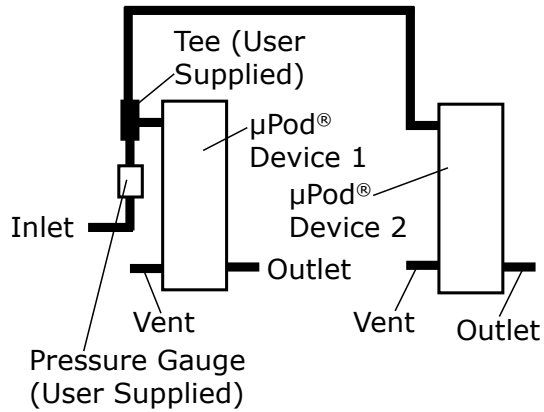
Single Device Set-up

1. Connect the inlet port of the device to the feed line.
2. Connect the outlet port of the device to the collection line.
3. Install a tee and pressure gauge on the inlet port of the device.
4. Install the luer fitting supplied with the device onto the vent port.

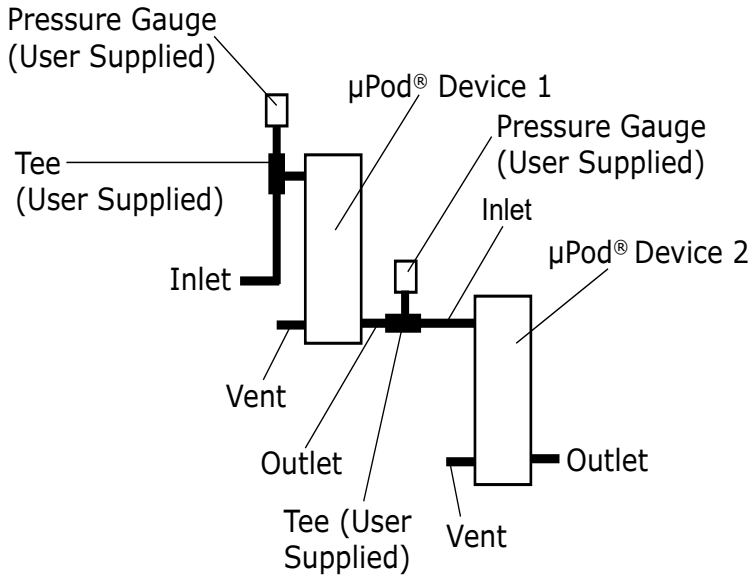


Multiple Devices in Parallel Set-up

1. Connect inlet tubing to the devices.
2. Connect a tee to the inlet port of the first device to split the feed line.
3. Connect the remaining feed lines to the remaining devices.
4. Connect the outlet ports of the devices to the collection line.
5. Install a pressure gauge before the tee on the inlet port of the first device.
6. Install the luer fittings supplied with the device onto the vent ports of the remaining devices.



Multiple Devices in Series Set-up



1. Install a pressure gauge on the inlet port of the first device.
2. Connect the inlet port of the first device to the feed line.
3. Connect the outlet port of the first device to the inlet port of the next device.
4. Install a pressure gauge on the inlet port of the second device or on a tee installed on the outlet line of the first device.
5. Connect the outlet port of the final device to the collection line.
6. Install the luer fittings supplied with the device onto the vent ports of the remaining devices.

Flushing

Flush devices with buffer or purified water prior to use. To fully wet the media, flush the device as listed here:

Media	Flux (LMH)	Flow Rate (mL/min)	Flush Volume (L/m²)
Clarisolve®	600	23	100
	300	11.5	
	100	3.8	
Millistak+® CE and DE	600	23	50
Millistak+® HC and CR	600	23	100
Millistak+® HC Pro	300	11.5	50

1. Start flushing the filter at the flow rate listed above.
2. To purge any air from the device, open the vent and clamp the outlet tubing.
3. Close the vent and open the outlet line to allow flow through the filter.

NOTE For 100 and 300 LMH flow rates, backpressure is recommended to completely wet the device. Backpressure may be achieved by installing a screw type tubing compression clamp on the outlet tubing. Use the clamp to increase the pressure in the device up to 10 psi, then open the clamp slowly to release the pressure.

4. Flush until the desired target volume is reached.

For optimal performance with a µPod filter, run the filtration process at a flux of 100 to 300 LMH and a maximum differential pressure of 30 psi (2 bar).

Process Optimization

For process optimization, the following data will help to verify the filter performance and aid in calculating filter size estimates.

For constant flow experiments, measure and record:

- Device inlet pressure and device interstage pressures (if running multiple devices in series) throughout the duration of the filtration test.
- Filtrate volume and filtrate turbidity throughout the test to account for pump slippage or turbidity breakthrough.
- Final filtrate volume and filtrate pool turbidity at the filtration endpoint.

Product Recovery

To recover product held up in the device, connect the vent port to an air supply and apply pressure according to table below. The inlet line should be clamped or closed (if using a valve) during blowdown.

Media	Pressure
Millistak+® CE, DE, CR, C0, D0	0.35 bar (5 psi) for up to 10 minutes
Millistak+® HC Pro C0SP, D0SP	
Clarisolve®	
Millistak+® A1, B1, F0, X0	0.35 bar (5 psi), increase pressure at a rate of 0.14 bar/min (2 psi/ min) until 1 bar (15 psi) is achieved and applied for up to 5 minutes.
Millistak+® HC Pro X0SP	

Materials of Construction

Component		Material
Housing		Glass-filled polypropylene
Millistak+® Media	CE	Cellulose fiber
	DE	Cellulose fiber and inorganic filter aid
	HC	Cellulose fiber and inorganic filter aid and mixed esters of cellulose where RW membrane is indicated
	CR	Cellulose fiber combined with activated carbon
Millistak+® HC Pro Media	SP	Polyacrylic fiber combined with a silica gel filter aid and a non-woven filter layer where indicated
Clarisolve® Media	20MS	Polypropylene and cellulose fiber combined with an inorganic filter aid
	40MS	
	60HX	Polypropylene

Operating Parameters

Parameter	Media	Specification
Effective Surface Area	All	23 cm^2 of filter media
Typical Process Flux	All	100 - 300 LMH
Maximum Forward Pressure Differential	All	2.1 bar (30 psid) at 40° C
Maximum Operating Pressure	All	3.4 bar (50 psig) at ≤ 40° C
Maximum Reverse Pressure Differential	All	1.0 bar (15 psid) at 40° C
Autoclavable	Millistak+® HC Pro Media (for post-use decontamination only)	2 cycles of 60 minutes at 123° C
	Millistak+® Media	
	Clarisolve® Media	
Inlet, Vent and Outlet Connections	All	Female Luer

Pressure must be monitored at inlet or vent connections.

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