

User Guide

Micro 20 Filters

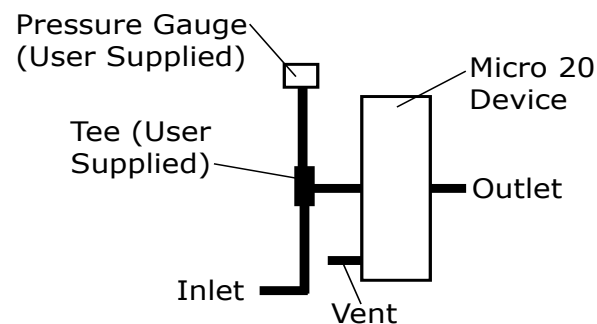
Contents

Installation	2
Flushing	3
Process Optimization.....	4
Product Recovery	4
Materials of Construction	4
Hold Up Volume	5
Operating Parameters	5

Installation

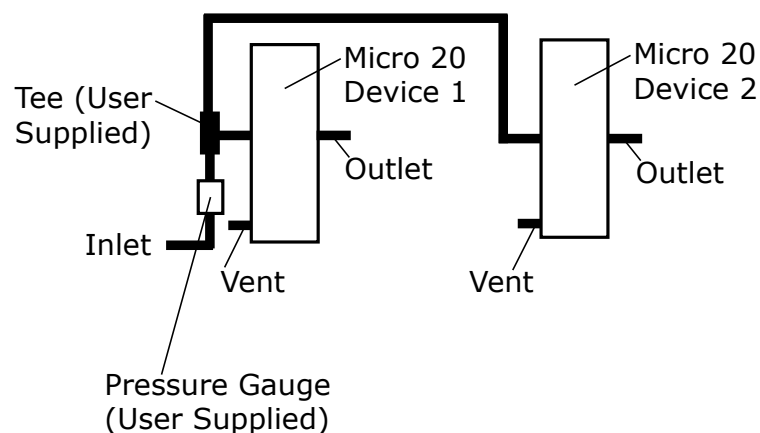
Single Device Set-up

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 plug fitting supplied with the device onto the vent port.

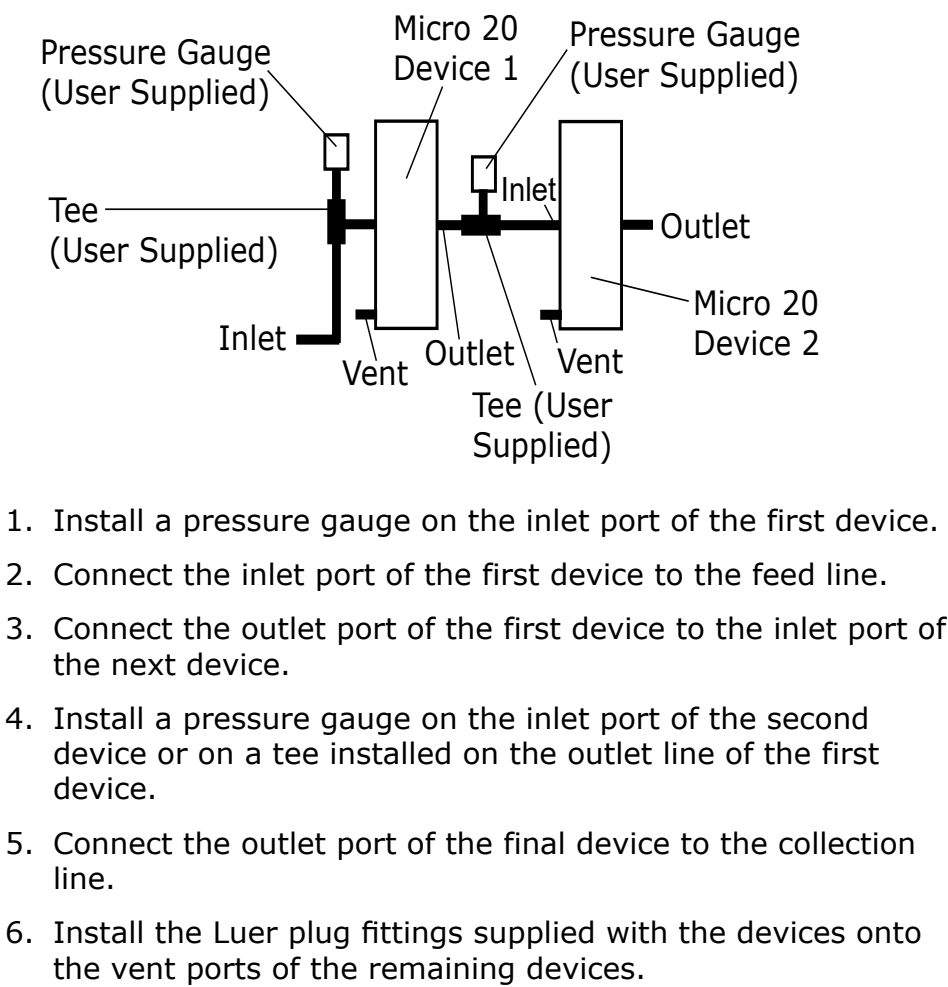


Multiple Devices in Parallel Set-up

1. Connect the inlet port of the first device to the feed line.
2. Connect a tee to the inlet port of the first device to split the feed line.
3. Connect the feed line to the inlet ports of 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 plug fittings supplied with the devices onto the vent ports of the remaining devices.



Multiple Devices in Series Set-up



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/m ²)
Millistak+® HC: C0HC, D0HC, X0HC	600	20	100
Millistak+® HC Pro: C0SP, D0SP, X0SP	300	10	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.
4. Flush until the desired target volume is reached.

For optimal performance with a Micro 20 filter, run the filtration process at a flux of 100 to 300 LMH and a maximum differential pressure of 2 bar (30 psi).

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 the table below. The inlet line should be clamped or closed (if using a valve) during blowdown.

Media	Pressure
Millistak+ [®] HC: C0HC, D0HC	0.35 bar (5 psi) for up to 10 minutes
Millistak+ [®] HC Pro: C0SP, D0SP	
Millistak+ [®] HC: X0HC	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		Polypropylene
Millistak+ [®] Media	HC	Cellulose fiber and inorganic filter aid.
Millistak+ [®] HC Pro Media	SP	Polyacrylic fiber combined with a silica gel filter aid and a non-woven filter layer where indicated.

Hold Up Volume

Media	Filter Grade	Total Filter Hold Up Volume (mL)
Millistak+ [®] HC	C0HC	21
	D0HC	23
	X0HC	27
Millistak+ [®] HC Pro	C0SP	40
	D0SP	45
	X0SP	29

Operating Parameters

Parameter	Media	Specification
Effective Filtration Area	All	20 cm ² of filter media
Typical Process Flux	All	100 - 300 LMH
Maximum Forward Pressure Differential	All	30 psid (2.1 bar) at 25°C
Maximum Operating Pressure	All	30 psig (2.1 bar) at 25°C
Maximum Reverse Pressure Differential	All	30 psid (2.1 bar) at 25°C
Autoclavable	Millistak+ [®] HC Pro Media (for post-use decontamination only)	2 cycles of 60 minutes at 123°C
	Millistak+ [®] HC Media	
Inlet, Vent and Outlet Connections	All	Female Luer lock

Pressure must be monitored at inlet or vent connections.

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

For technical assistance
please visit:
www.sigma-aldrich.com

For additional information and
documentation please contact:
Merck KGaA, Darmstadt, Germany
Corporation with General Partners
Frankfurter Str. 250
64293 Darmstadt, Germany
Phone: + 49 6151-72 0

For requests from USA and Canada
please contact:
MilliporeSigma
A subsidiary of Merck KGaA, Darmstadt, Germany
400 Summit Drive
Burlington, MA 01803 USA
Phone: 1-800-645-5476

Millistak, Millistak+, Clarisolve and the Vibrant M are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. All other trademarks are the property of their respective owners. Detailed information on trademarks is available via publicly accessible resources.
©2022 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.

MK_UG11626EN Rev 1 05/2022

