

Avantor Inline Buffer Dilution System

Designed to streamline buffer delivery in downstream applications.

Buffers and salts are typically the largest constituents by volume used in biopharmaceutical downstream processing steps for manufacturing most products. The variety of buffer solutions used across a manufacturing facility requires flexible, cost-efficient infrastructure and on-time delivery to meet process demand.

Avantor is ready to help you simplify your buffer delivery for ultrafiltration/diafiltration (UF/DF) as part of your mAbs downstream processing with our capabilities and systems for inline buffer dilution.

Concentrated buffer delivery can reduce labor costs and facility footprint by eliminating the need for large holding vessels for buffer prep. Using an inline static mixer, accurate mixing is achieved with pH and conductivity inline measurements with discharge features to remove out of specification material. Controlled feed rates match process needs with two available dilution control methods for flow rate or conductivity.

With experience in both chemicals manufacturing and single-use system design, Avantor can work with you to design custom concentrated solutions or proprietary solutions in 10 L single-use bags ready for inline dilution to de-bottleneck your downstream processes.

- Batch programmable for lot-to-lot consistency
- All fluid pathways are single-use, ready to use upon delivery
- 50L mixing vessel
- Ideal for common buffers and reagents including PBS – Phosphate Buffer Saline, Tris-HCL and NaOH
- Work with our specialized team to develop proprietary solutions



System specifications

Cabinetry and frame	304 stainless steel, 4" casters
Power requirements	230VAC – 50Hz
Compressed air requirements	Minimum 6 bar
System weight (empty)	270 kg
Dimensions	1200 x 1030 x 1120 mm
Flowpaths	All components assembled in validated class 7 cleanroom to ISO 9001: standards, all components certified or tested to USP <88> Class VI. Components are certified BSE/TSE free. Gamma irradiated to a minimum dose of 25kGy.
Mixing storage vessel	Single-use mixing system with bottom outlet
Software	Siemens S7 PLC, GAMP5, 21CFR Part 11 compliant

Operating parameters

Dilution rate	0.7 – 10.0 L/min
Operating temperature	4 – 50°C
Recommended WFI feed rate	10 L/min
Diluted buffer feed rate	20 L/min, Quattroflow™ Single-use pump delivery system
pH	pH Range: 3 to 10, 70mm length, +/- 0.15pH with provided calibration values, glass, silicone elastomer, tested to ISO 10993-5 and USP <87>
Conductivity	Operating Range: 0.1 to 100mS/cm, 2°C to 50°C, gamma compatible, NaOH resistant, USP Class VI

Buffer concentrates available*

Product	Concentration	Product number
Ammonium sulfate	38% w/w	JT0791
Dextrose	50%	JT0890
PBS	10x concentrate, phosphate buffered saline	VWRVK813 in custom packaging
TRIS	1M (pH adjusted)	VWRVE199 in custom packaging
Sodium chloride	3M & 5M	XL-422 (3M) in custom packaging VWRVE529 (5M) in custom packaging
Sodium hydroxide	2N (higher normality also available)	JT0390

* Contact your customer service representative to get more info and availability. Customized, cGMP manufactured available on request.



Learn more by contacting your Avantor representative. You can also see the system in use at National Institute for Bioprocessing Research & Training (NIBRT)

Quattroflow™ is a registered trademark of PSG Germany GmbH

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