



QS BUFFER DILUTION SYSTEM

Automated Buffer Dilution

The QS Buffer Dilution System can enable you to make buffers at point of use starting with buffer concentrates.. One can scale up in house buffer making capacity easily by working with buffer concentrates and diluting on line or outsource concentrated buffer making and then leverage making larger volumes through in house dilutions. This saves on space and labor and avoids unnecessary stoppages in production. The payback in labor savings or savings from single strength buffer costs is under 6 months!



QS Buffer Diluter Benefits

Outsourced Buffers

- Reduce labor cost for buffer making or drum logistics
- Reduce cost of buffer by using 5X or 10X concentrates rather than 1X buffer
- Reduce transportation cost with outsourced buffers
- Reduce operating space and storage space requirement
- Run without interruptions caused by drum changes

In-House Buffer Making

- Reduce capital cost and buffer tank size
- Reduce space requirements
- Leverage existing capacity to make buffers for a full campaign
- Reduce labor costs
- Reduce QC costs
- Improve process consistency and reliability
- Reduce total buffer-making costs

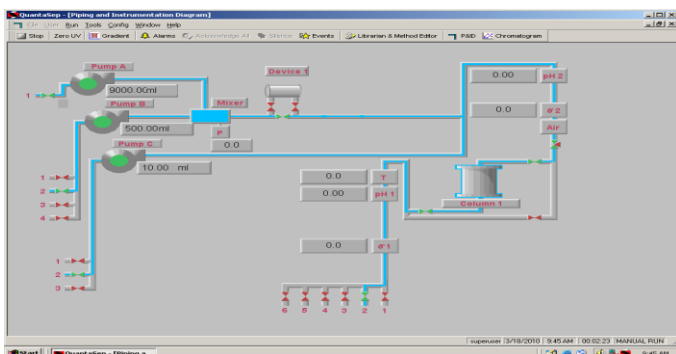
System Overview

The QS Buffer Dilution system is an integrated, compact process buffer dilution module capable of providing operating flow ranges of either 1 to 10 LPM or 3 LPM – 30 LPM. It is of sanitary design and has capabilities of buffer switching, gradient formation, air ejection, conductivity and pH sensing, and fraction switching. All these functions can be performed manually or automatically. The buffer and fraction switching, based on process parameters, are easily accomplished. The system provides alarms in the event of air or leaks. The system automatically generates reports of batch history, sensor data and all alarms and events for GMP reporting.

QS Buffer Dilution Software

The PC-controlled buffer dilution system is 21CFR Part11 compliant and includes:

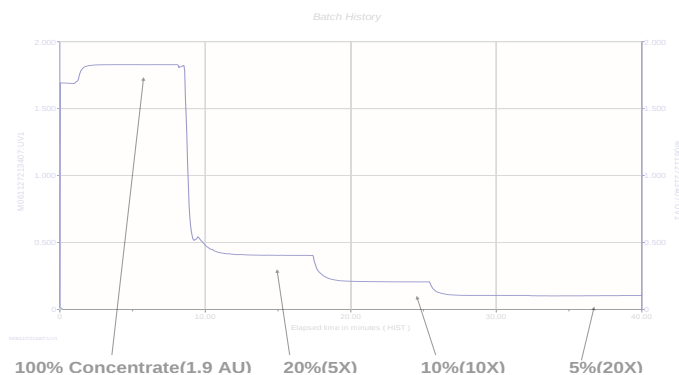
- An interactive P&ID screen for manual operation
- Automated Buffer Prep screen for sequenced buffer dilutions based on time, volume or other parameters
- Multiple cycling capability for multi-batch runs or large buffer preps
- A trend display that shows currently running sensor data along with an historical overlay
- Alarm and Event summaries



Gradient and Buffer Blending

Blending is possible from 3 LPM to 30 LPM, with a better than 3% accuracy. Buffer blending can be provided by setting the relative pumping speeds of Pump A and Pump B to the desired dilution or blend level. The concentrate pump has a flow rate range of 100ml/minute to 10 LPM and the acid and base pumps have flow rates of 10ml/minute to 1 LPM. Correspondingly for the 10LPM system the flow rates are a third.

Buffer Dilution Data:



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Buffer Dilution System Specs

- Dilution Range: 3X – 10X
- WFI Pump Flow Rate: 0 - 9LPM or 0 - 30LPM
- 4 user selectable buffer concentrates
- 1 Acid Pump
- 1 Base Pump
- Flow Meter
- 6 User Selectable Outlets
- 2 In-line Mixers
- Optional Filter Manifold
- Sanitary and Cleanable Flow Path
- Small footprint: 30" X 30" X 45" or 36" x 36" x 60"
- Pressure rating: 50 psi
- Pneumatic Air: 90 psi
- Power: 7 Amps/115VAC or 10 Amps/230VAC

Sensor Specifications

- Conductivity 1 Sensor 0-200 ms, $\pm 5\%$
- Conductivity 2 Sensor 0-20 ms, $\pm 5\%$
- pH Sensor 1-14 pH, ± 0.2
- Pressure Sensor 0-100 psi ± 1 psi

Wetted Materials of Construction

Silicone, polyethylene and polypropylene tubing; PTFE diaphragms; glass/quartz/316L stainless steel sensor components.

Warranty, Installation & Support

All QS Buffer Dilution Systems are backed by Sepragen's one year limited warranty. Installation and training, along with IQ/OQ are performed by Sepragen Service Group. Preventative Maintenance service is available. Validation support packages are also available.

Call (510) 475-0650 to schedule a free confidential consultation.