



Inline Conditioning System



With the development of the biopharmaceutical industry and the increase in protein-based drug production, the capacity of chromatography and ultra-filtration systems in downstream purification is increasing annually. This leads to a higher demand for buffer solutions. In traditional batch preparation, the actual process is often time consuming, requiring bulky holding vessels which occupy a large floor area in the facility. Furthermore, the process requires a significant amount of CIP cleaning agents and cleaning water.

Inline conditioning is a newly rapid-developing technology, that overcomes the shortcomings of traditional batch preparation of buffer solutions. Inline systems have therefore been widely adopted in the downstream processing of many biopharmaceutical products, including monoclonal antibodies, vaccines, antibiotics, insulin, recombinant proteins as well as blood products.

Product Features

Inline conditioning / dilution systems optimize the method which is used to prepare the buffer solutions, reduce the footprint of preparation and storage area, cut the expenses of daily maintenance and cleanliness validation as well as smooth scaleup, preparation and production.

- Reduce fixed investment and investment cost for expansion
- Save labor costs for operation and maintenance
- Reduce dosing time
- High precision preparation, conductivity ± 0.5 ms/cm, pH value within ± 0.2
- Stabilization within 2 min



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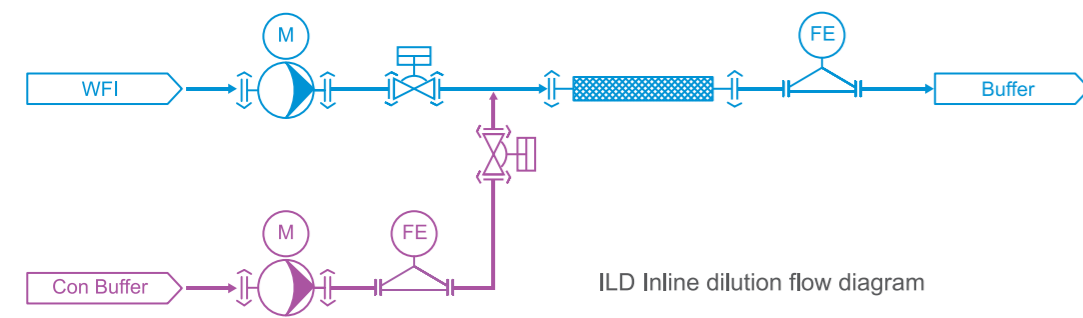
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Product Functions

Inline Dilution System (ILD)

Concentrated mother solutions are diluted according to specific needs. WFI is added and diluted into the desired buffer solution based on flow feedback. Besides pH, conductivity and related parameters can also be monitored and adjusted slightly as required.



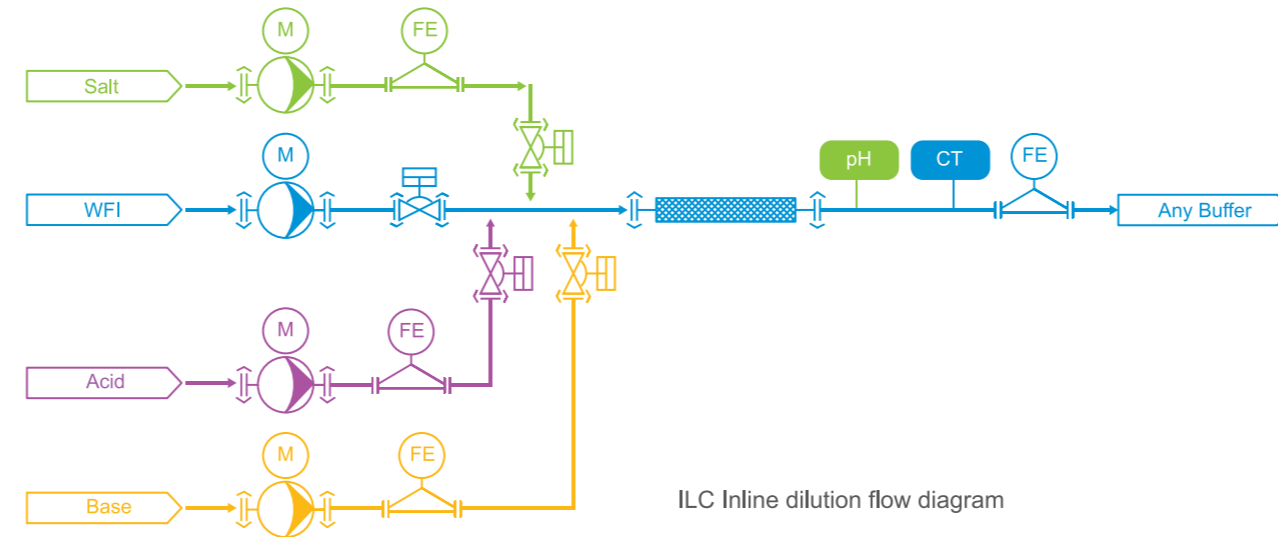
ILD Inline dilution flow diagram



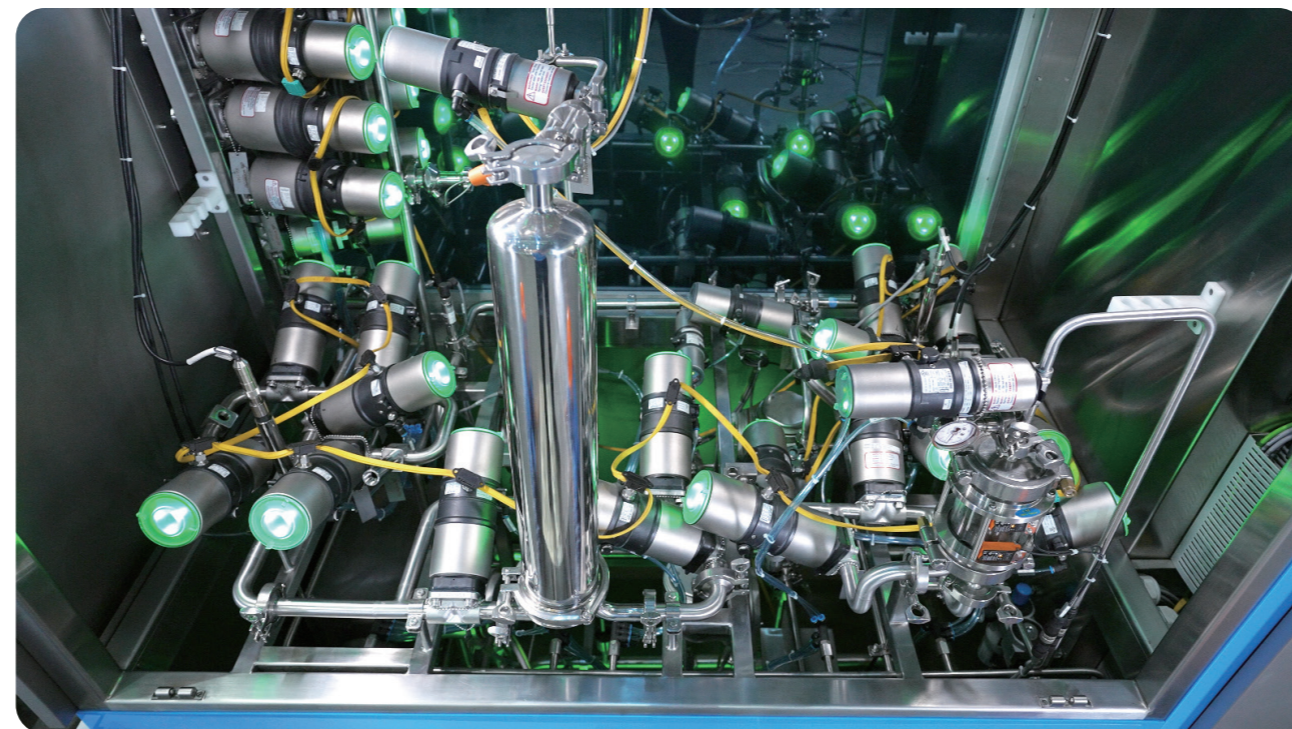
Inline Conditioning System (ILC)

Based on actual needs, the desired buffer is prepared inline from multiple concentrated mother solutions, which can be acid, alkali, salt, water or additive systems. Real-time adjustment based on pH and conductivity feedback ensures stability during preparation.

The mother solution is a single-component concentrated solution with solubility high enough to enable the concentrate to be diluted up to hundreds of times. This reduces the volume of the mother solution vessel correspondingly and greatly improves the utilization of preparation rooms. ILC allows users prepare a variety of buffers from fewer types of mother solutions, thereby reducing the numbers of required buffer preparation and holding vessels.



ILC Inline dilution flow diagram



System Specifications

MID003P	4-160 L/h Polypropylene Inline Dilution System
MID003S	4-160 L/h stainless steel Inline Dilution System
MID020P	20-1000 L/h Polypropylene Inline Dilution System
MID020S	20-1000 L/h stainless steel Inline Dilution System
MID080S	500-5000 L/h stainless steel Inline Dilution System
MID200S	1000-10000 L/h stainless steel Inline Dilution System
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MIC200S	1000-10000 L/h stainless steel Inline Conditioning System

System Technical Parameters

pH range	0-14
pH accuracy	≤ 0.2 Unit
Conductivity range	1-200 ms/cm
Conductivity accuracy	±2 % or 0.5 ms/cm
Process temperature	2-60 °C