



Fluid Technology Group
A Spirax-Sarco Engineering Company

Watson-Marlow Fluid Technology Group has eight world-class factories supported by direct sales operations in 28 countries and distributors in more than 50 countries. For contact details visit our website: www.wmftg.com

Watson-Marlow Bredel Alitea Flexicon MasoSine BioPure Asepco



Watson-Marlow online

Our engineers around the world can help you choose the perfect pump, tubing, connector and valve for your needs.

More information? Our brochures are on our website: www.wmftg.com



Watson-Marlow... Innovation in Full Flow

Tel: +44 (0) 1326 370370
info@wmftg.co.uk
Watson-Marlow Fluid Technology Group
Falmouth, Cornwall, TR11 4RU, UK
www.wmftg.co.uk

Disclaimer: The information contained in this document is believed to be correct but Watson-Marlow Limited accepts no liability for any errors it contains and reserves the right to alter specifications without notice. It is the user's responsibility to ensure product suitability for use within their application. Watson-Marlow, Accual, asepticus, BioBarb, FlatBioEndCap, BioEndCap, Bio Y, BioValve, BioClamp, BioPure, PureWeld XL, Pumpall and Marprene are trademarks of Watson-Marlow Limited. STA-PURE PFL® and STA-PURE PCS® are registered trademarks of W.L. Gore & Associates Inc.

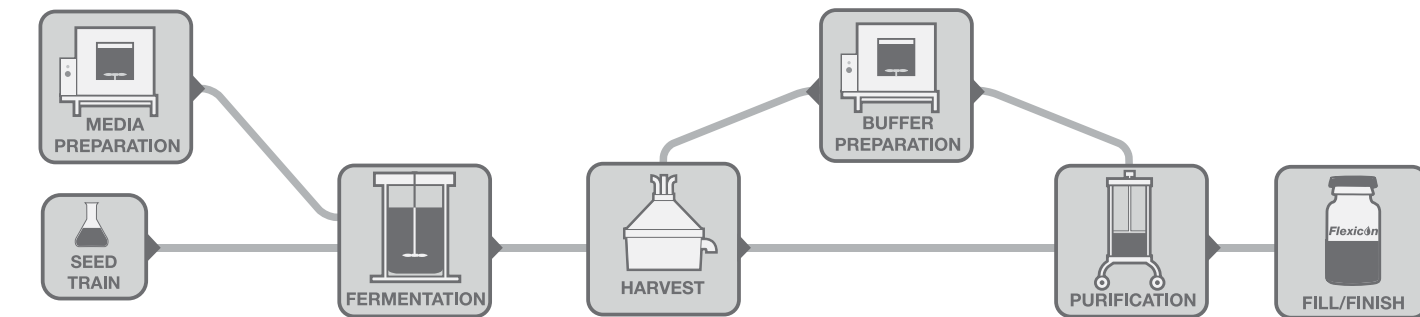
Copyright © 2015 Watson-Marlow Fluid Technology Group HBD491 ISSUE #1

Bioprocessing fluid path solutions



Fluid Technology Group

Single-use bioprocessing



Biopharmaceutical processes are among the most critical in the world. It is important to have a partner who you can trust, who understands the process and is able to help achieve compliance and repeatability throughout.

Watson-Marlow Fluid Technology Group is unique in being able to work with you at every process step to ensure your critical fluid transfer requirements are achieved. Whether performing pH control or gentle transfer of live cells, we have a solution.

Throughout upstream and downstream, we provide accuracy, reliability and purity for all your fluid handling needs.

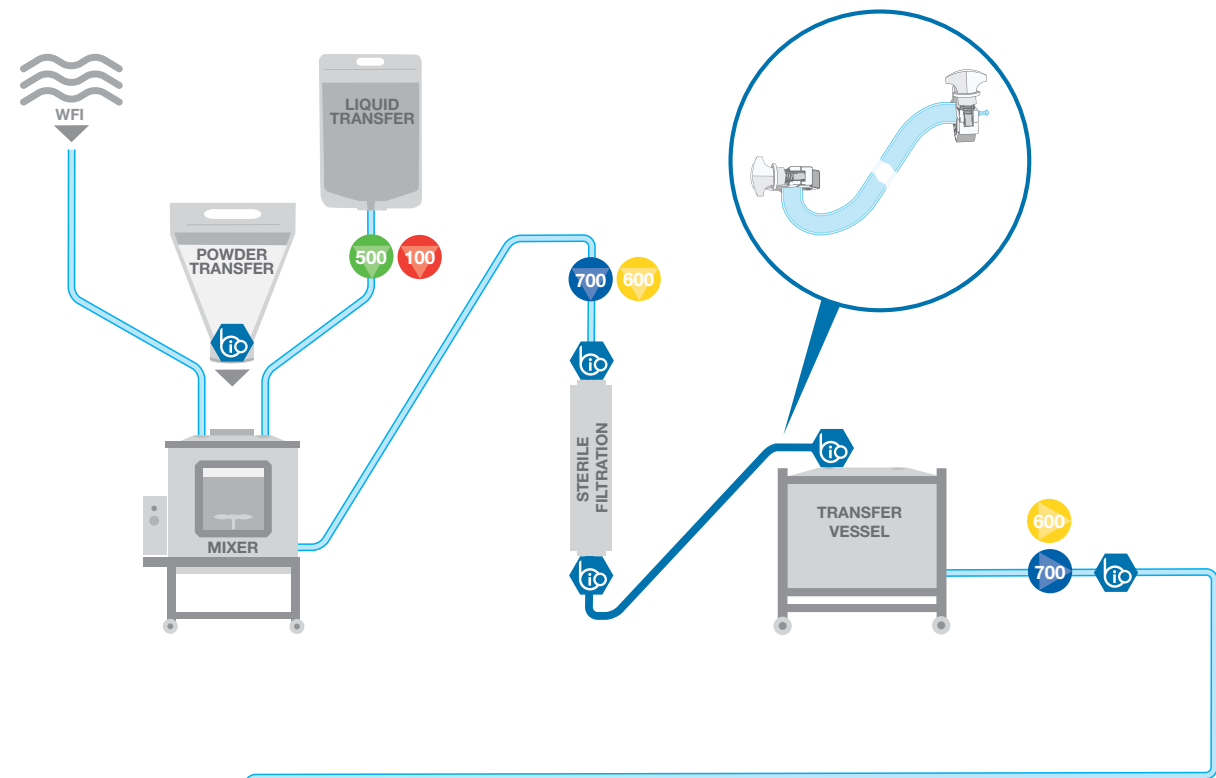
In continuous daily use throughout the bioprocessing industry, Watson-Marlow peristaltic pumps provide flow accuracy, ensuring process stability, cGMP compliance and final product quality. Watson-Marlow pumps and tubing, coupled with Flexicon liquid filling and BioPure fluid path components, deliver repeatable, consistent and accurate performance.

- Superior flow stability and metering accuracy, facilitating high-quality bioprocessing
- Scalable technology, constant contact materials, minimising validation
- Extensive product portfolio enables adaptation to meet varying process needs

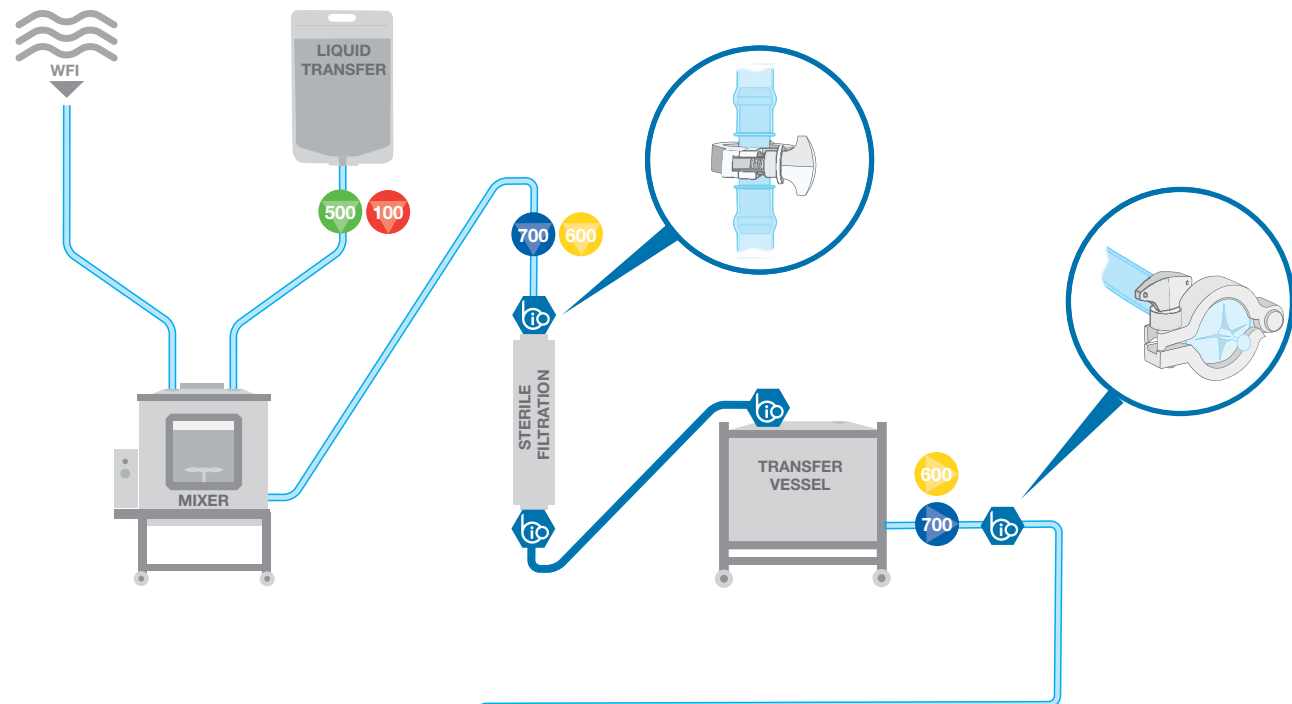


Single-use bioprocessing – Complete single-use fluid technology expertise

MEDIA PREPARATION



BUFFER PREPARATION



Watson-Marlow tubing

Watson-Marlow pumps

100 500 600 700

BioPure components



puresu fluid path

Accusil tubing

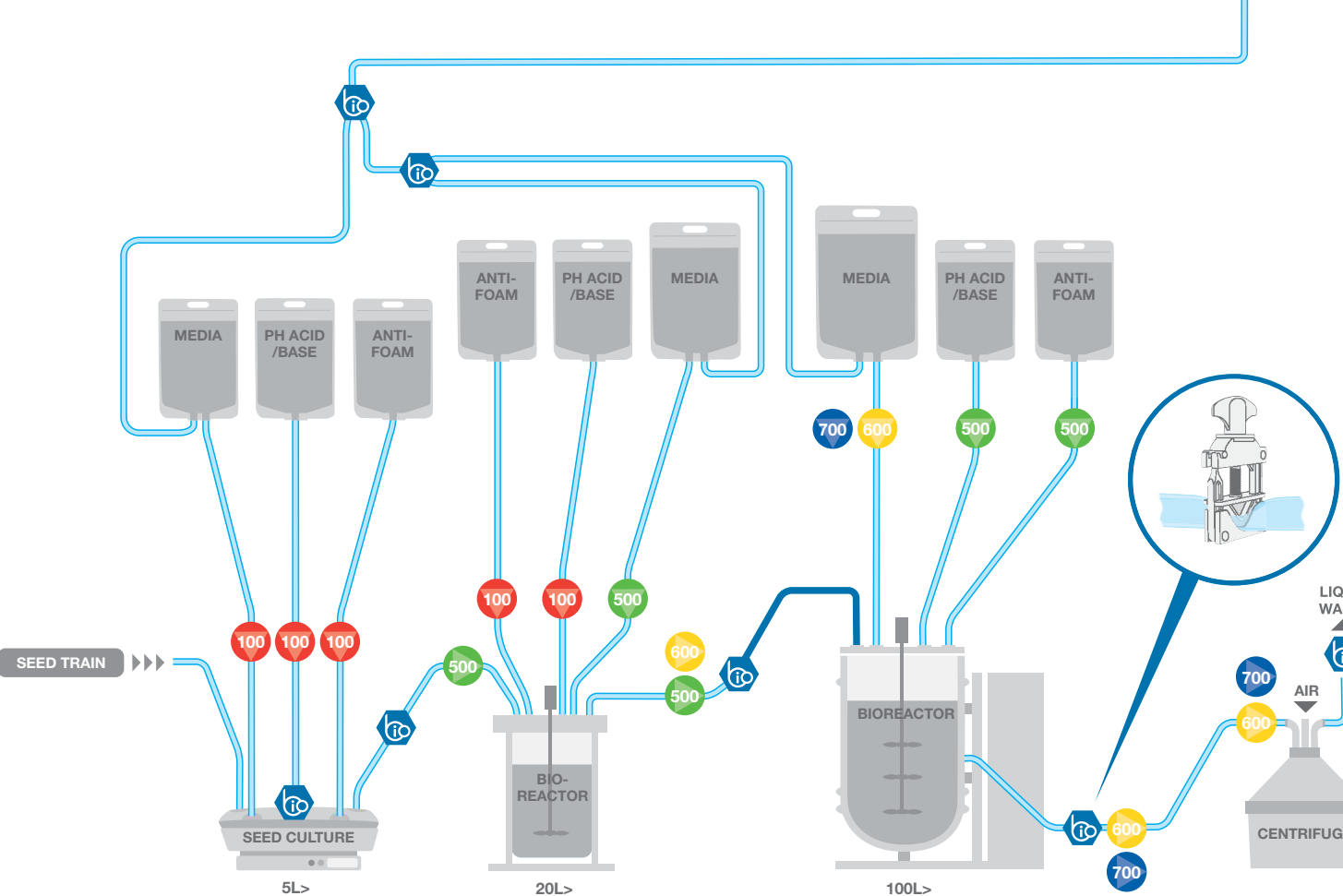
Flexicon filling and capping

Flexicon

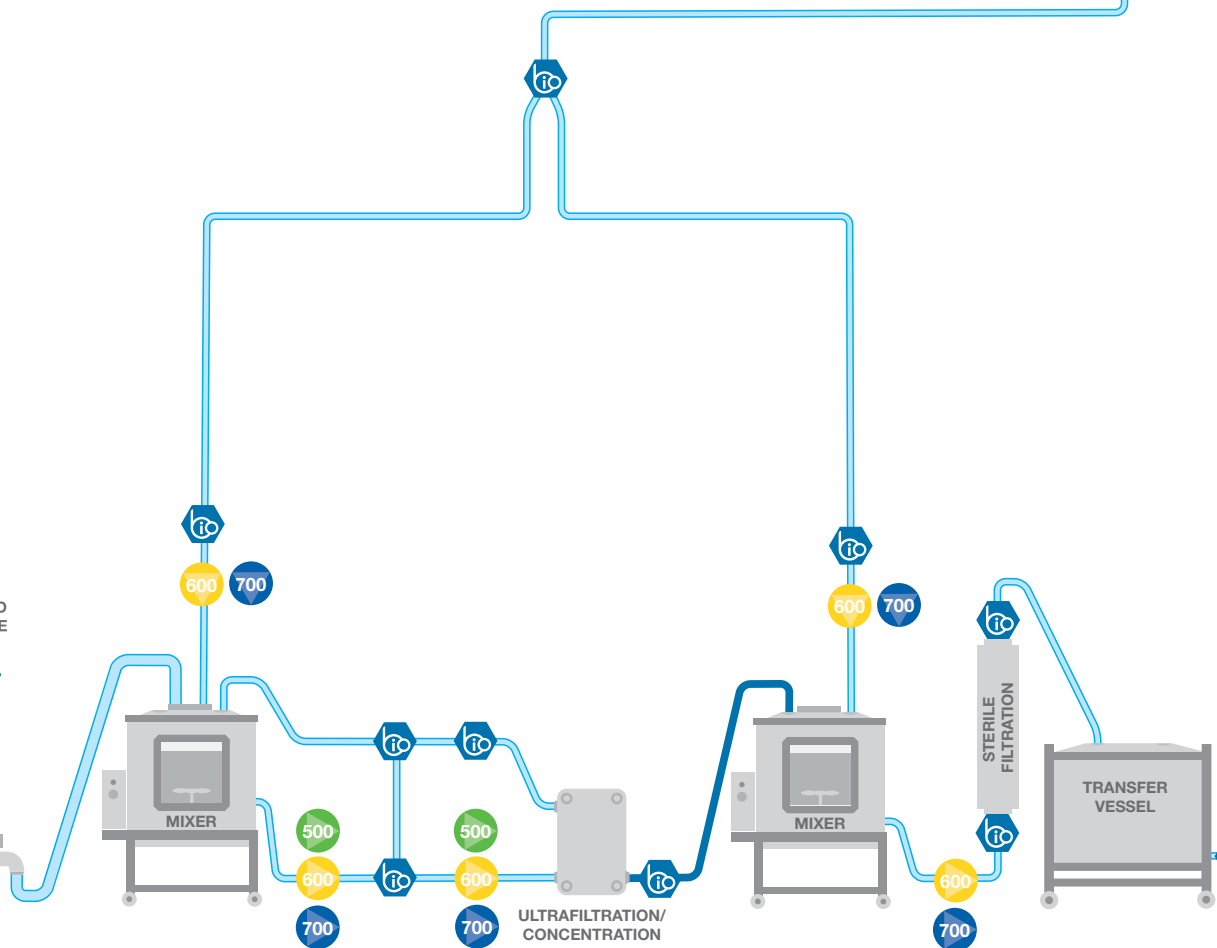
asepticsu fluid path



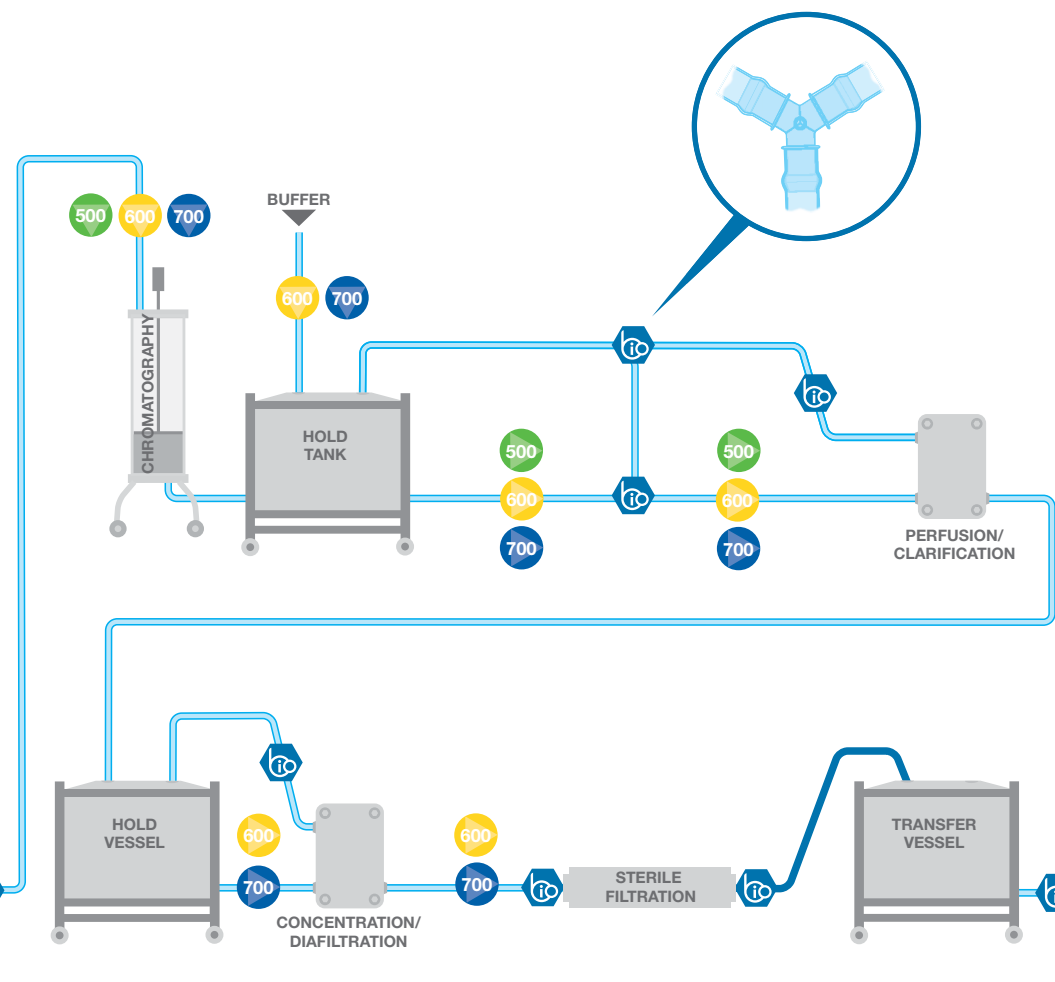
FERMENTATION



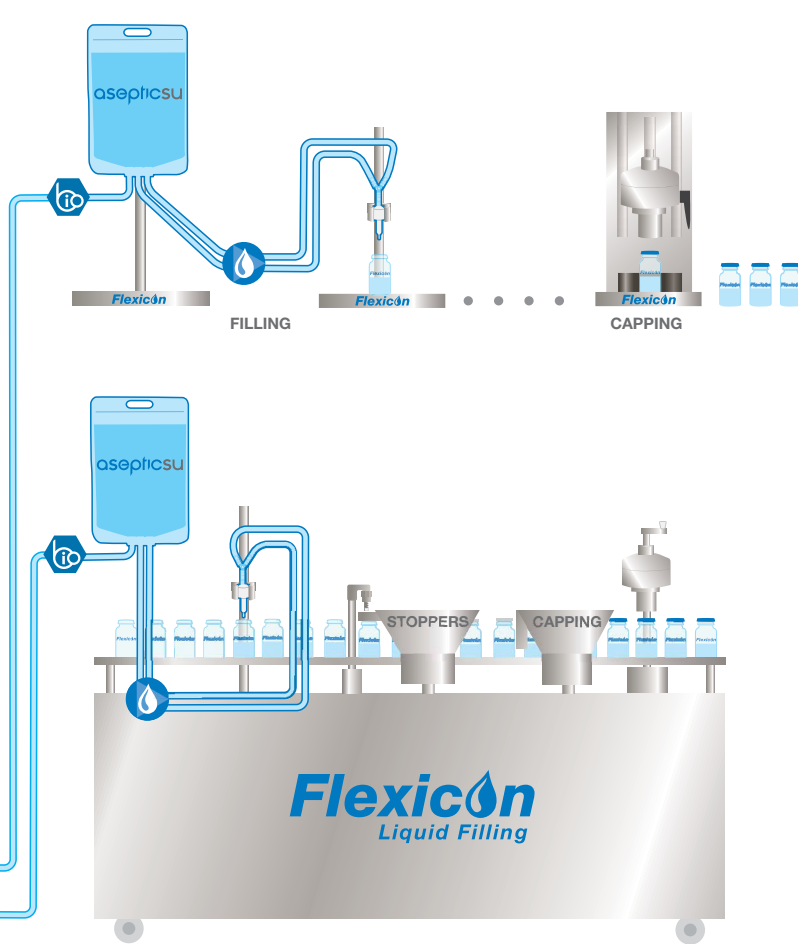
HARVEST



PURIFICATION



FILL/FINISH





Successful bioprocessing relies on fluid handling accuracy and repeatability; guaranteed batch to batch consistency and compliance with regulations, including cGMP.

Our world-class peristaltic technology is uniquely supported with Watson-Marlow tubing and BioPure fluid path components. These are designed to interact perfectly, making us the only complete fluid path provider in the biopharmaceutical market.

- Process consistency and repeatability
- Unsurpassed control over the fluid path, only Watson-Marlow tubing is validated for operation in our peristaltic pumps

Single-use fluid paths eliminate cross-contamination, with risks further mitigated by the use of high purity, USP Class VI validated contact materials.

The unimpeded flow path provided by BioPure connectors, combined with superior flow control of Watson-Marlow pumps, reduces process variation, enhances operating techniques and increases product quality.

Maintaining quality and protecting product integrity during fluid transfer is vital. Providing flows from microlitres up to thousands of litres per hour enables efficient product transfer. Reduce the risk and time for batch/product changeover at every stage of bioprocess manufacture.

The same high-purity, validated, contact materials are available throughout upstream and

downstream processes, enabling capacity expansion with minimal input in process validation.

The unimpeded flow path provided by BioPure connectors prevent pressure fluctuations which can affect process quality and speed. The superior junction strength combined with Watson-Marlow tubing significantly reduces the risk of junction failures.

- Flexible and scalable fluid handling, without changing contact materials
- Superior flow stability, providing accurate and repeatable process control
- Unimpeded flow path and superior junction strength reduces the risk of connection failure and in-line pressure fluctuations



puresu fluid path assembly

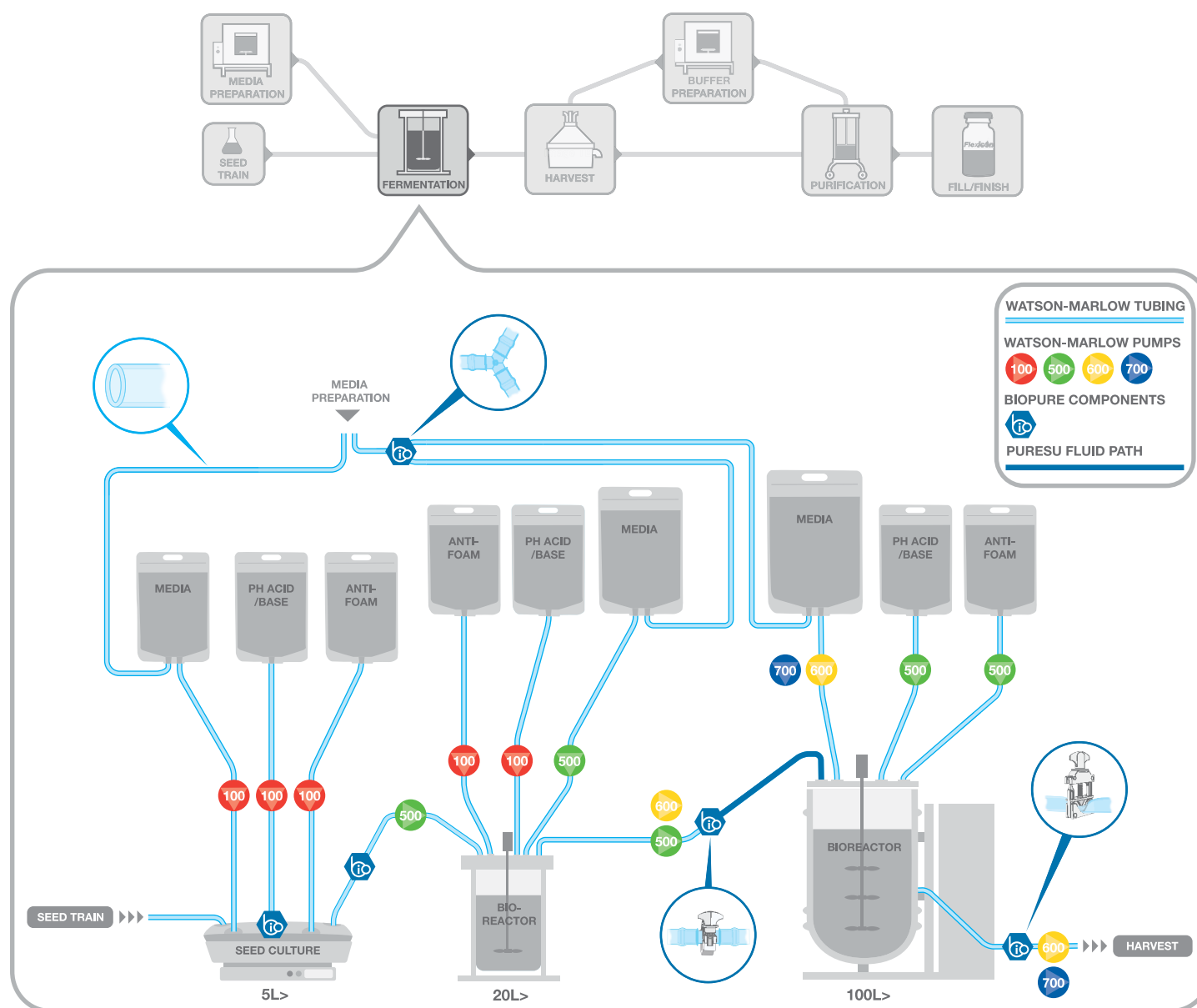
Fermentation

Driven to increase product quality, titer and cell viability, the non-contacting, gentle action of Watson-Marlow peristaltic pumps is the perfect solution for feeds and sampling duties.

Your product is contained within a validated fluid path, only contacting our high-purity tubing and BioPure connectors. Designed to interact perfectly with each other, Watson-Marlow peristaltic pumps and tubing offer exceptional flow control and process stability.

Watson-Marlow peristaltic pumps offer accuracy, with functionality to suit your process needs. Providing consistency and repeatability preventing process deviation/non-conformance, maintaining cGMP compliance.

The tubing and connectors are the only consumable — true single-use technology, facilitating rapid process validation and supporting the demanding needs of bioprocess manufacture.

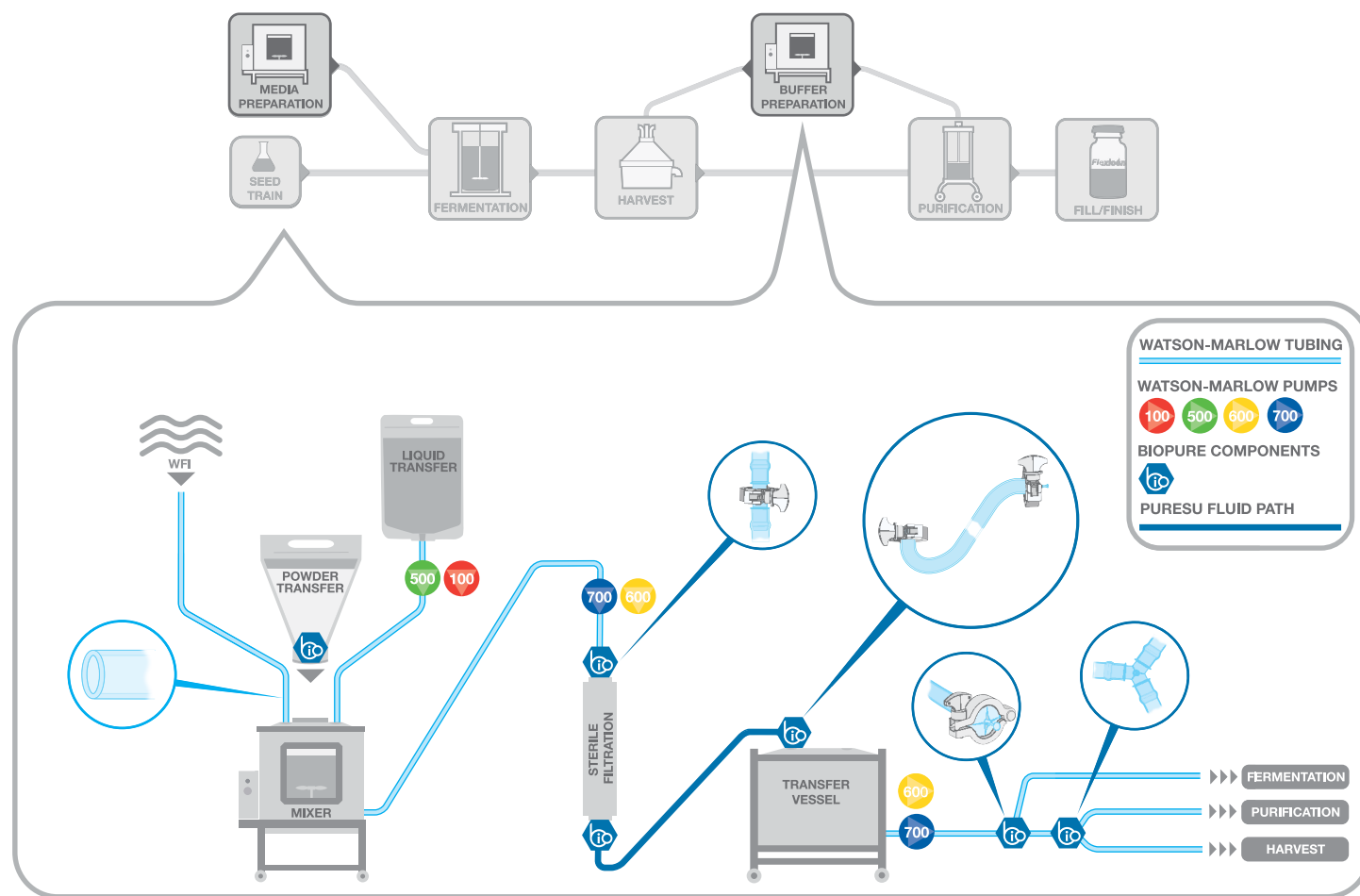


- Superior flow stability, providing accurate and repeatable process control, preventing non-conformance, maintaining cGMP
- Flexible and scalable, without changing contact materials or losing performance, ensuring the process remains controlled and repeatable at every scale



© Sartorius Stedim Biotech S.A.

Media and buffer preparation

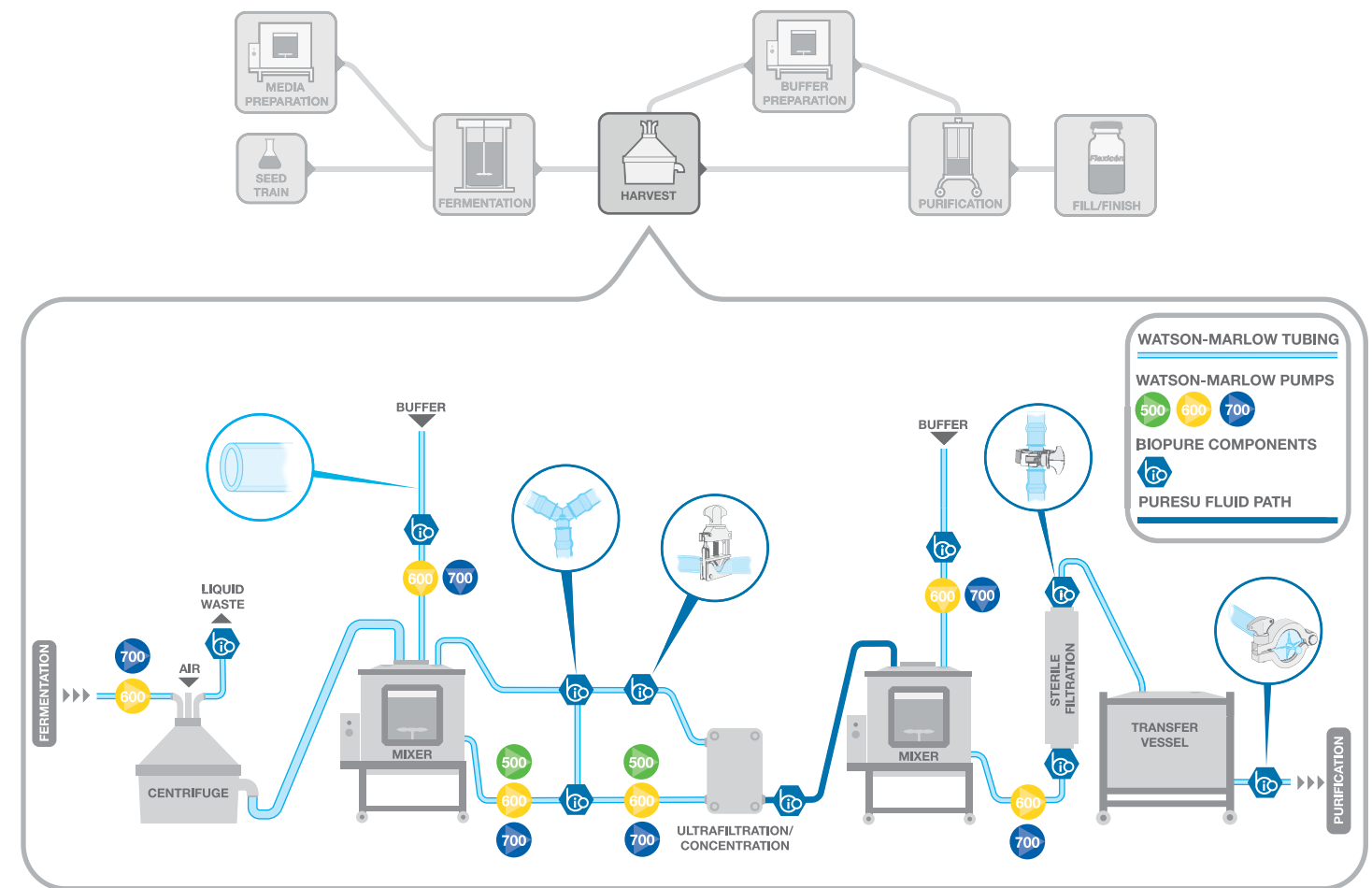


Media and buffer preparation require flexibility of scale without the risk of cross-contamination. With the capacity to provide flows from microlitres up to thousands of litres per hour, Watson-Marlow fluid path solutions ensure process flexibility. With consistent contact materials throughout, validation is simplified, further reducing risks.

Watson-Marlow peristaltic pumps offer exceptional control and accuracy, with functionality to suit your process needs. Single-use fluid paths eliminate cross-contamination, with risks further mitigated by the use of high purity, USP Class VI validated contact materials.



Harvest



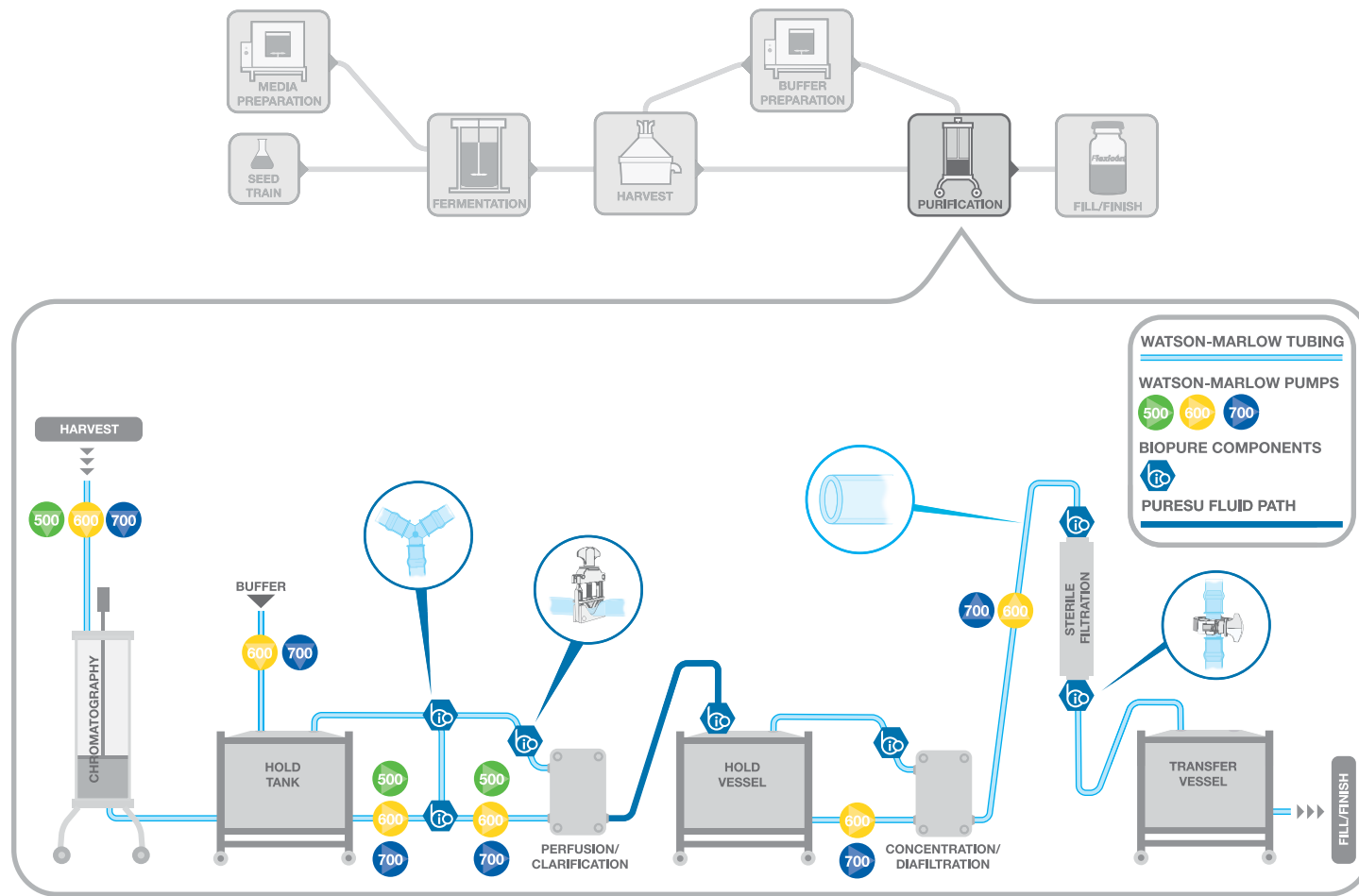
Harvest remains a critical step in bioprocessing. From transportation of live cells, through to protein capture, the process must be tightly controlled. The same values which support successful upstream processing are transferable and ensure optimum gain from this vital step.

Fluid path solutions consisting of high-purity validated contact materials. A true single-use solution, transfer between batches can be quick and efficient, without the risk of cross-contamination.

Fully scalable, from development through to bioprocess manufacture, a valuable attribute which Watson-Marlow is unique in providing.

- Superior flow stability, providing accurate and repeatable process control preventing non-conformance, maintaining cGMP compliance
- Flexible and scalable, without changing contact materials or losing performance, ensuring the process remains controlled and repeatable at every scale

Purification



Downstream purification demands processing equipment that will not damage or degrade products. The non-contacting, gentle action of our peristaltic pumps ensures product cannot be damaged by high fluid velocities or contact with mechanical parts.

Watson-Marlow pumps are suitable for a range of purification processes — clarification, concentration, including ultrafiltration, diafiltration and chromatography.

Our suite of peristaltic pumps meets a range of requirements from benchtop applications to full production. Functionality suits process needs and supports full integration with other process equipment. This allows you complete process scaling, using the same technology and validation throughout.

The superior junction strength of BioPure connectors, combined with Watson-Marlow tubing, significantly reduces the risk of junction failures.

- Validated single-use fluid paths eliminate the risk of cross-contamination, while facilitating aseptic processing
- Superior junction strength reduces the risk of connection failure



© Sartorius Stedim Biotech S.A.

Fill/Finish

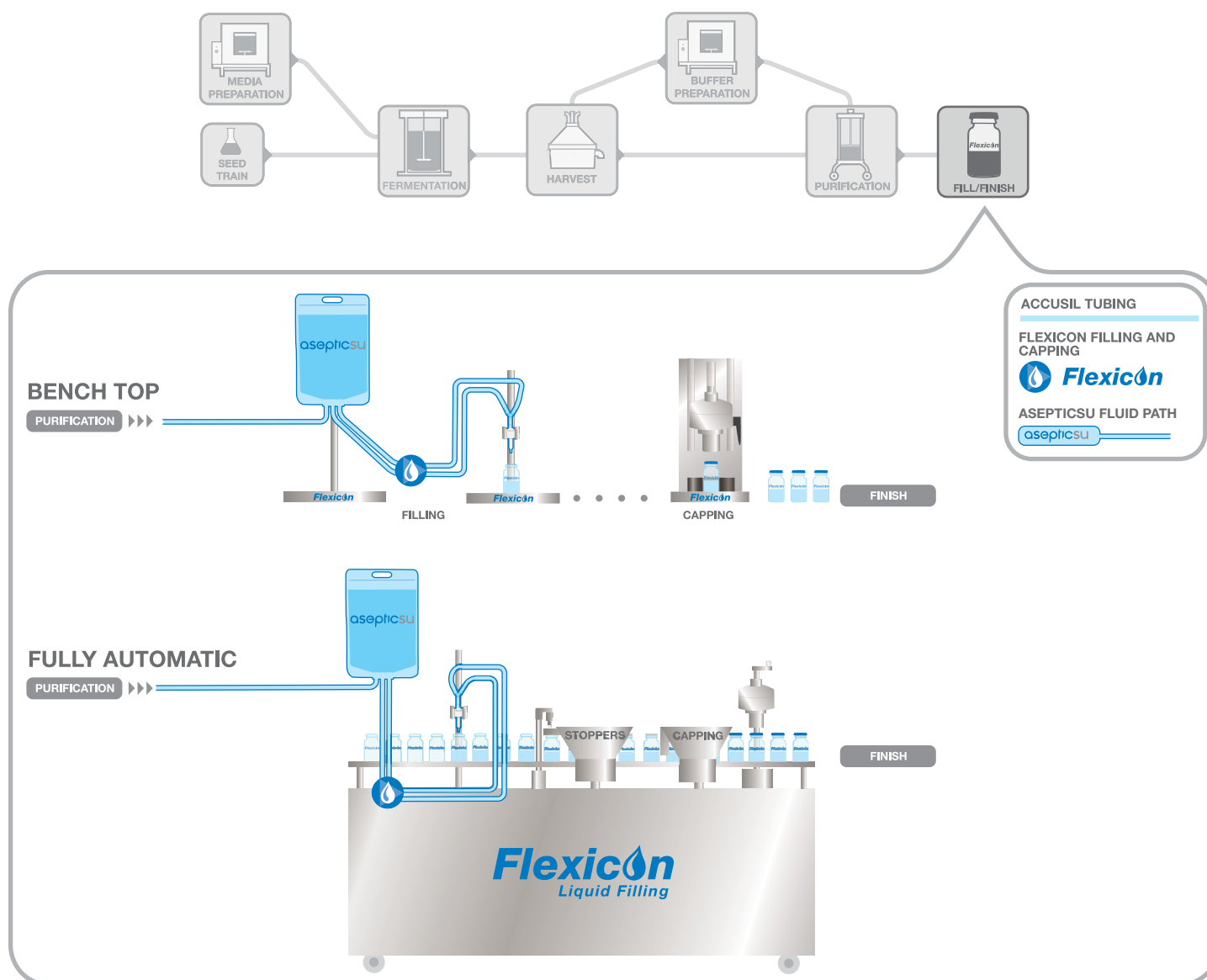
Filling biological products needs equipment with precision and accuracy, that has no effect on fluid integrity and no risk of contamination. Flexicon aseptic filling solutions protect product integrity and eliminate contamination during fill finish.

The low shear, gentle pumping action of Flexicon peristaltic fillers ensures your product is not damaged.

Designed for use as stand-alone benchtop dispensers or part of a fully integrated filling

machine. Repeatable dispensing accuracy up to $\pm 0.5\%$ is achieved by precise speed control, calibration and positive displacement action.

Our 'on-campus' manufactured tubing is fully validated, post-cured for high purity and laser-etched for traceability. Flexicon's Accusil tubing is designed specifically for filling applications, providing unrivalled filling accuracy. Accusil provides a single-use technology facilitating rapid process validation and changeover.



- Our unique pump and tubing combination provide exceptional filling accuracy, preventing costly overfilling
- Fully validated aseptic single-use fluid paths reduce contamination risks and simplify product and batch changeovers
- Highly flexible and scalable solutions, with consistent contact materials, making process scaling easy





Photo supplied courtesy of the National Institute for Bioprocessing Research and Training (NIBRT), showing their world-class facility in Dublin


	RESEARCH		CLINICAL TRIALS			EVALUATION/ APPROVAL	CLINICAL MANUFACTURE
	DISCOVERY up to 10,000 compounds	PRE-CLINICAL 250 compounds	PHASE 1 20 - 100 trials	PHASE 2 100 - 500 trials	PHASE 3 1,000 - 10,000 trials		
Watson-Marlow pumps							
120 Series	•	•	•				•
520 Series		•	•	•	•		•
620 Series			•	•	•		•
720 Series				•	•		•
Watson-Marlow tubing							
Pumpsil	•	•	•	•	•		•
Bioprene	•	•		•	•		•
PureWeld XL	•	•	•	•	•		•
GORE STA-PURE PCS			•	•	•		•
BioPure							
BioBarb	•	•	•	•	•		•
BioClamp	•	•	•	•	•		•
FlatBioEndCap		•	•	•	•		•
Bio Y	•	•	•	•	•		•
BioValve	•	•	•	•	•		•
BioEndCap		•	•	•	•		•
puresu			•	•	•		•
Flexicon							
Accusil tubing		•	•	•	•		•
asepticsu single-use fluid paths			•	•	•		•
Tabletop crimp and screw cappers		•	•				
Tabletop filling/capping		•	•	•			
Semi-automatic filling and capping				•	•		
Fully automatic filling and capping					•		•


**WATSON
MARLOW
Pumps**

100500600700



120 Series



520 Series



620 Series



720 Series

**WATSON
MARLOW
Tubing**



Pumpsil



PureWeld XL



Bioprene



GORE STA-PURE PCS


**bio
PURE**



BioBarb



Bio Y


FlatBioEndCap



BioEndCap



BioValve

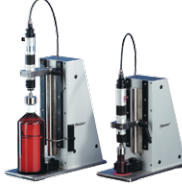

BioClamp



puresu


Flexicon
Liquid Filling



Accusil



asepticsu


Tabletop filling/capping


Tabletop dispensing


Semi-automatic systems


Fully automatic systems


OEM solutions