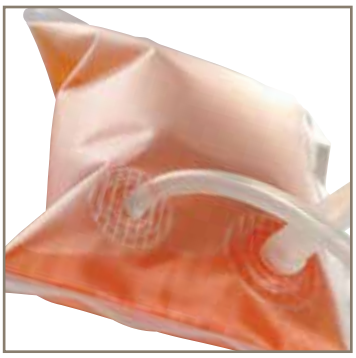


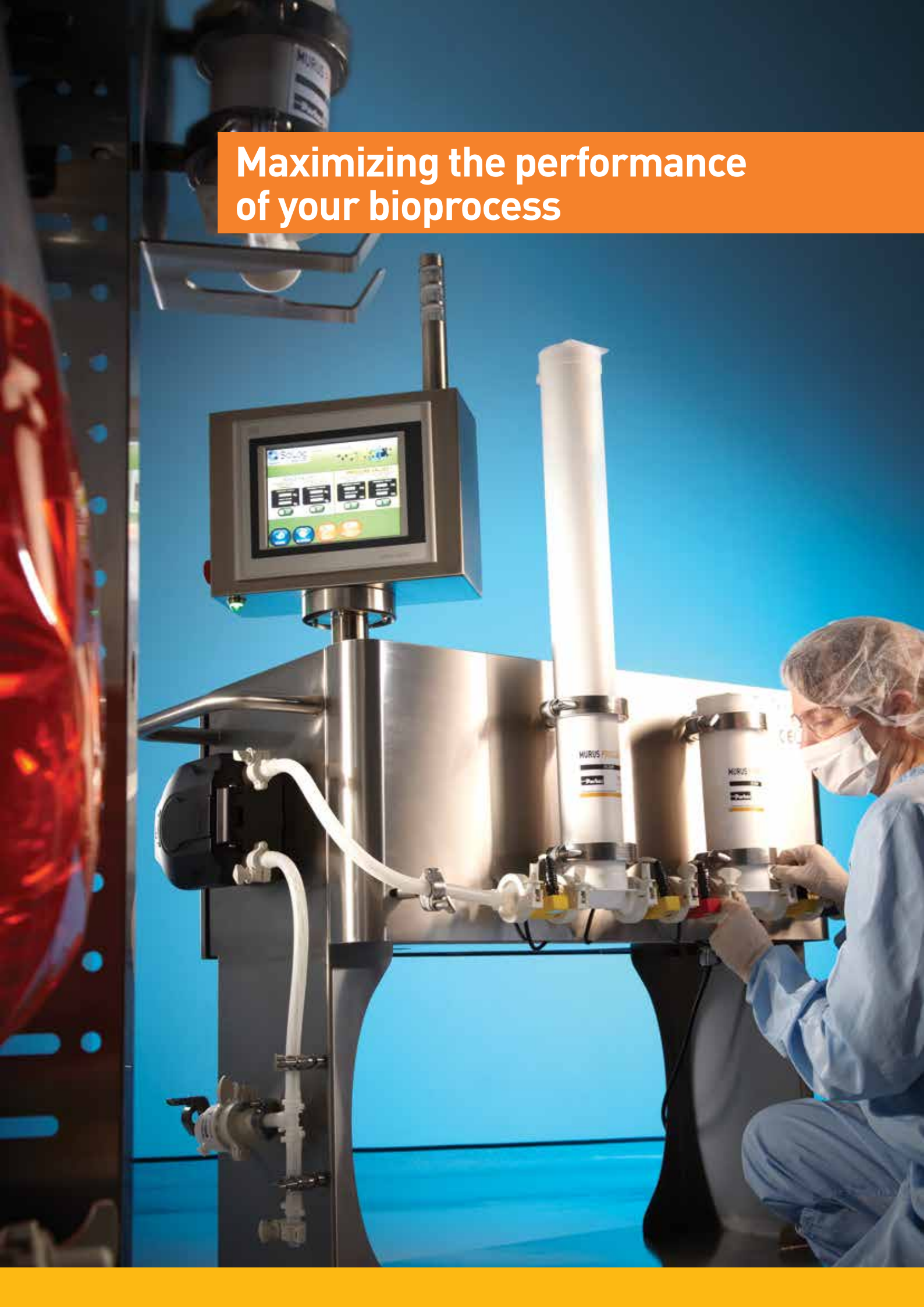
Biopharmaceutical Industry

A guide to bioprocessing products and services

Parker

ENGINEERING YOUR SUCCESS.

Maximizing the performance of your bioprocess



Through integrated single-use solutions

Parker Bioscience Filtration is a global supplier of single-use solutions for biopharmaceutical manufacturing. Our solutions combine our unique and innovative SciLog® sensing and control technologies with decades of filtration expertise to produce integrated automated single-use systems that will speed up development times, increase efficiency and safety, and guarantee reproducible product quality.

Bioscience Filtration within Parker Hannifin

Parker Bioscience Filtration is proud to be one of the leading platforms supplying the biopharmaceutical market within the $13 billion Parker Hannifin Corporation.

Parker is driven by engineering challenges, always seeking new ways to innovate, combine technologies and collaborate with customers. We listen and respond to your needs to solve your bioprocessing challenges.

A commitment to quality

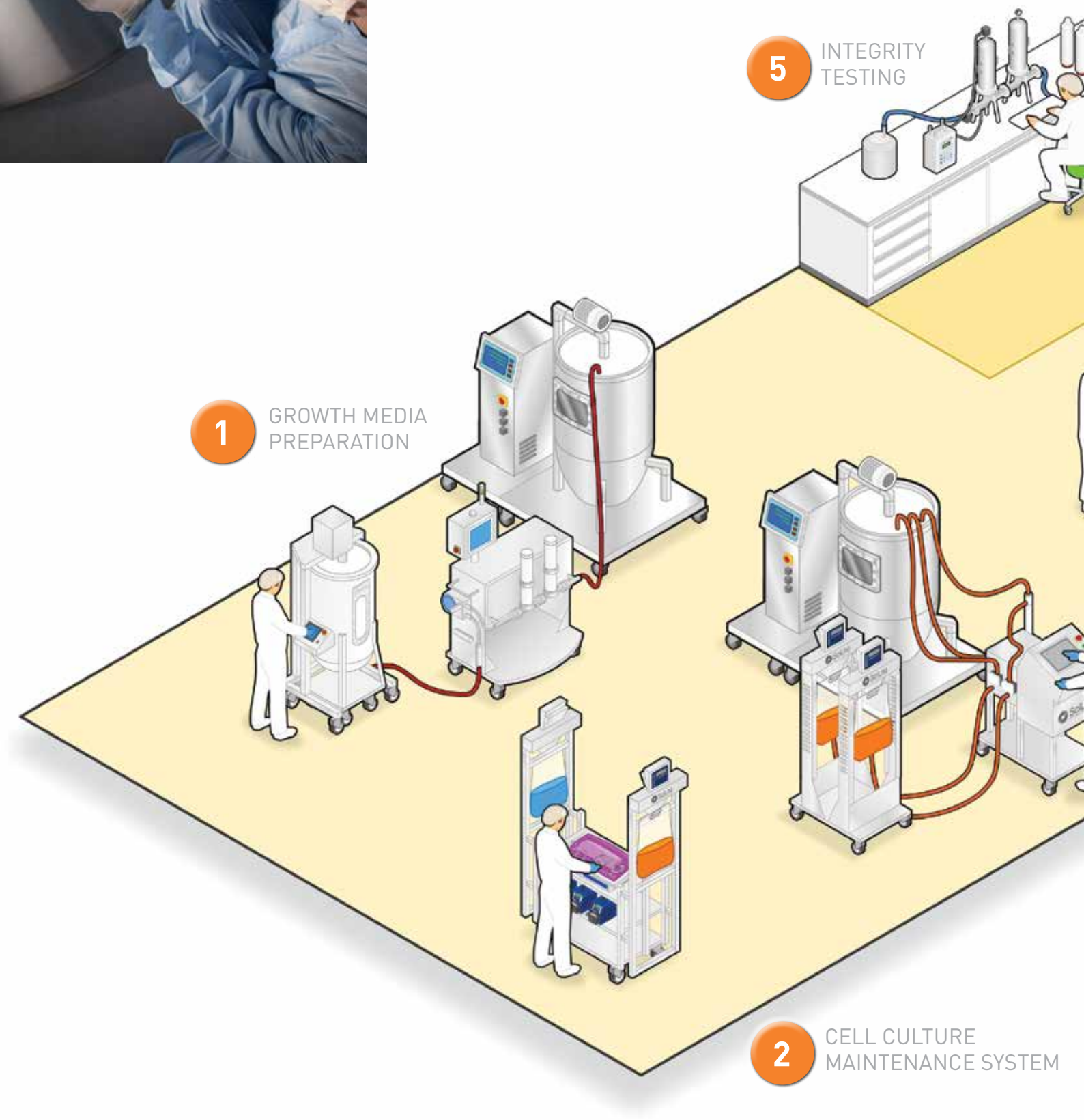
Parker Bioscience Filtration's biopharmaceutical products are designed and manufactured to be used within applications that are most critical to patient safety. All products are manufactured in a controlled environment and fully validated with extractable data for use in biopharmaceutical applications. A strong focus on raw materials, full traceability of components and controlled release of products ensures your process delivers reproducible quality.

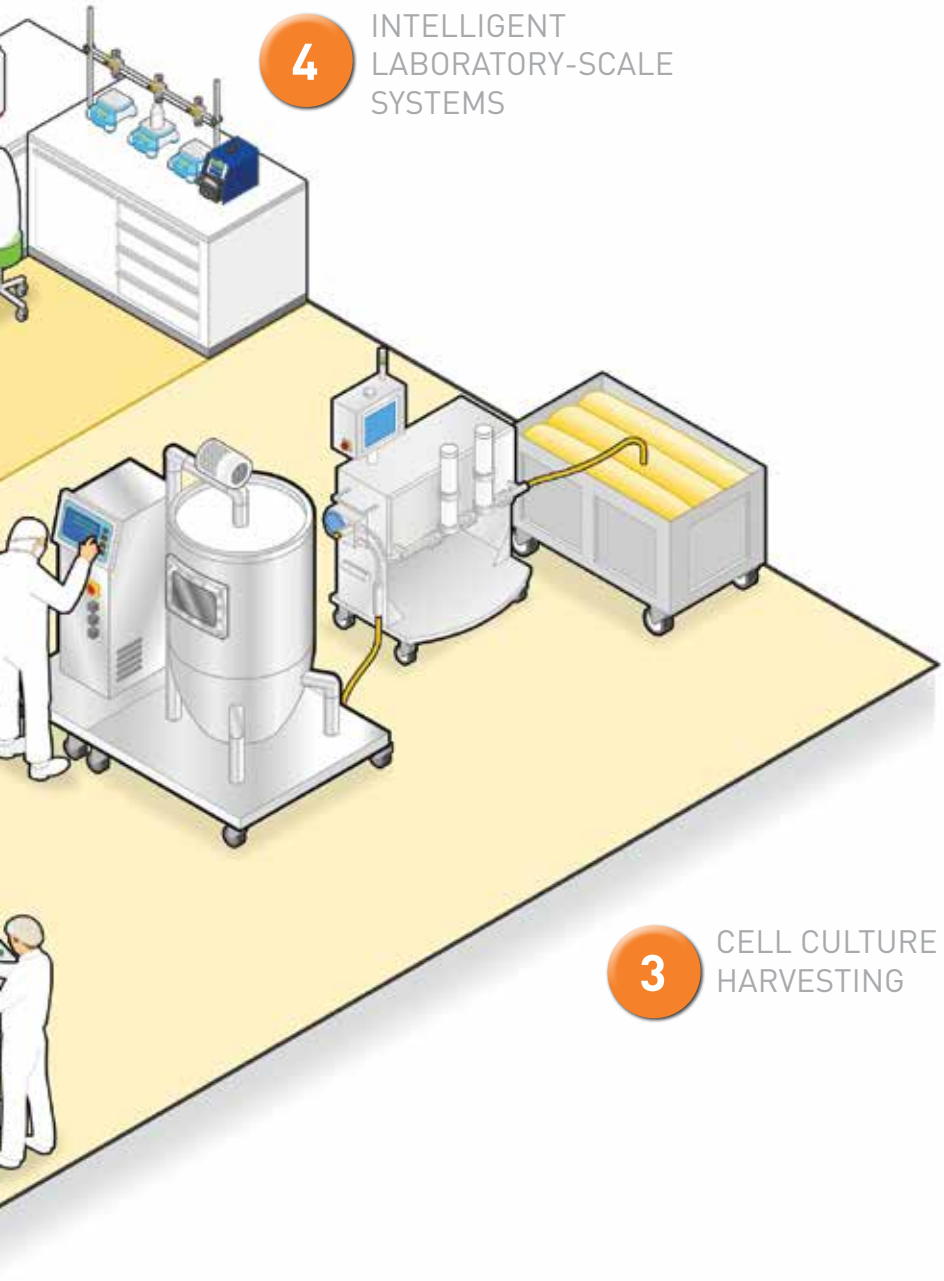
Global support

Wherever in the world you choose to manufacture, Parker is there to help you get the most out of your bioprocess. With multiple laboratory and manufacturing facilities and a network of customer support centres operating in 48 countries worldwide, we can offer you local, specialized support, including sterile filter validation, throughout your entire development process from R&D though to commercial manufacturing.

Cell culture and harvest

upstream bioprocessing





Growth Media Preparation	**1**
Single-use fluid transfer and storage	SciLog® SELECT Single-Use Assemblies
Automated filtration systems	SciLog® NFF SciLog® FilterTec
Single-use sensors	SciLog® SciPres SciLog® SciCon SciLog® SciTemp
Prefiltration	PROCLEAR range
Mycoplasma retentive filters	PROPOR MR
Cell Culture Maintenance System	**2**
Bench-scale	MabTec®
Scale-up applications	Contact Parker Bioscience Filtration
Quantitative fluid management	SciLog® WeighStation
Cell Culture Harvesting	**3**
TFF systems	SciLog® TFF
Prefiltration	PROCLEAR range
High capacity sterilizing filtration	PROPOR HC
Single-use fluid transfer and storage	SciLog® SELECT Single-Use Assemblies
Automated filtration systems	SciLog® FilterTec
Single-use sensors	SciLog® SciPres SciLog® SciCon SciLog® SciTemp
Intelligent Laboratory-Scale Systems	**4**
Laboratory-scale tangential flow filtration systems	SciLog® PureTec
Laboratory-scale normal flow filtration systems	SciLog® FilterTec
Multi-filter capacity testing system	SciLog® FilterTec Plus
Media preparation station	SciLog® LabTec
Precision metering	SciLog® ChemTec
Integrity Testing	**5**
Diffusional flow	Porecheck 4
Bubble point	Porecheck 4
Water intrusion	Porecheck 4

Purification and dispense

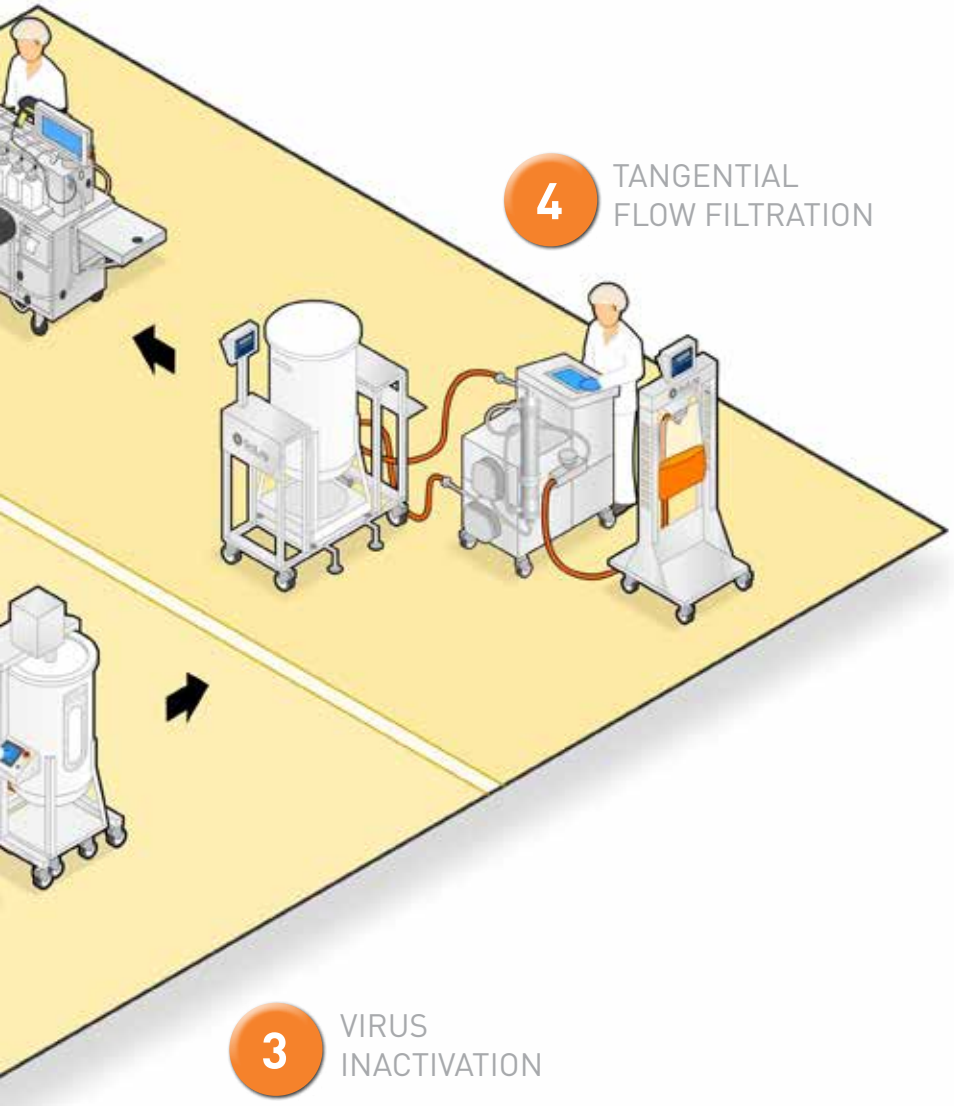
downstream bioprocessing

5 PRODUCT FILTRATION WITH DISPENSE

2 CHROMATOGRAPHY

1 BUFFER PREPARATION & STORAGE

Parker



Buffer Preparation and Storage	**1**
Prefiltration	PROCLEAR range
Sterilizing grade filtration	PROPOR SG
Fluid transfer and storage	SciLog® SELECT Single-Use Assemblies
Automated filtration systems	SciLog® NFF SciLog® FilterTec
Single-use sensors	SciLog® SciPres SciLog® SciCon SciLog® SciTemp
Chromatography	**2**
Column guard filtration	PROPOR BR
Fluid transfer and storage	SciLog® SELECT Single-Use Assemblies
Quantitative fluid management	SciLog® WeighStation
Virus Inactivation	**3**
Precision metering	SciLog® ChemTec
Quantitative fluid management	SciLog® WeighStation
Tangential Flow Filtration	**4**
TFF systems	SciLog® TFF
Single-use sensors	SciLog® SciPres SciLog® SciCon SciLog® SciTemp
Fluid transfer and storage	SciLog® SELECT Single-Use Assemblies
Quantitative fluid management	SciLog® WeighStation
Product Filtration with Dispense	**5**
Quantitative fluid management	SciLog® WeighStation
Automated filtration systems	Scilog® FD
Single-use sensors	SciLog® SciPres SciLog® SciCon SciLog® SciTemp
Prefiltration	PROCLEAR range
High capacity sterilizing grade filtration	PROPOR HC

Selection
product guide

Tangential Flow Filtration (TFF) System

SciLog® TFF

BioProcessing Systems

- Fully automated tangential flow filtration system
- Configurable platform
- Delivering bioprocessing solutions across a range of flow rates (1 - 60 L / min)
- Graphical interface
- Suitable for ultrafiltration, diafiltrationa and micro-filtration applications.
- Recipe-based control system
- 21 CFR Part 11 ready
- Fully programmable alarms and interlocks

Normal Flow Filtration (NFF) System

SciLog® SciFlex NFF

BioProcessing Systems

- Walk-away automation improves filter throughput using patented rate pressure controlled feed
- Configurable for multiple or flexible processes
- Touch screen interface with optional OPC connectivity for process documentation or remote control
- Mobile and compact base
- User configurable alarms and interlocks
- Optional integrated scale for highly accurate filtration endpoints

Bulk Drug Filtration and Dispense System

SciLog® FD

BioProcessing Systems

- Standardized and simple operation
- Fully enclosed system protecting the operator and the product
- Compatible with bags and bottles
- Full audit trail and batch record data securely retained
- Recipe-based control system
- 21 CFR Part 11 ready
- Fully programmable alarms and interlocks
- Custom-designed single-use manifold
- Validated bottle shipping solution available

Normal Flow Filtration (NFF) System

SciLog® FilterTec

Intelligent Lab Systems

- Filterability studies and VMax determination
- Increase DEF filter utilization up to 30%
- 3 pressure sensor and balance hook-ups for
- filter trains
- Safe, walk-away system operation

Tangential Flow Filtration (TFF) System

SciLog® PureTec

Intelligent Lab Systems

- Ideal for lab-scale UF/MF/DF – concentration and diafiltration
- Controls and monitors TMP (transmembrane pressure) and feed rate.
- Set end points and alarm for walk-away operation

Precision Metering System

SciLog® ChemTec

Intelligent Lab Systems

- Stored methods for linear or exponential feed by weight or volume
- Validated methods for pH control and titration, analytic (UV, turbidity) device tracking, preparative chromatography, and buffer weight maintenance
- Walk-away automation with remote or user defined alarms and interlocks
- Programmable control of two 6-port rotary valves

Smart Dispenser System

SciLog® LabTec

Fluid Management

- Rapid, high precision dispensing/filling, mL to L.
- Automated dispensing by weight or by volume.
- In-line filter sterilization – senses filter plug-up.
- Sample weighing and auto-diluting – weight ratio capability.
- Performance validation sent with each LabTec

Cell Culture Maintenance System

SciLog® MabTec

Fluid Management

- Promote high-density cell culture though automated seed, feed and perfusion strategies.
- Methods and alarms to protect your entire cell culture processes.
- Modular compact design enhances current setups.
- Seamless integration to any bioreactor to enhance performance.

Parker

Quantitative Fluid Management

SciLog® WeighStation Family

Fluid Management

- Mobile design / small footprint
- Gravimetric application control
- Optional displays
- Multiple configurations
- Eaily integrates with existing systems

Single-Use Assemblies

SciLog® SELECT

Fluid Managment

- Reduce cross-contamination
- Fully assembled and ready-to-use
- Increases operator safety while working with toxins
- Your choice of single-use components including sensors, tubing, bags and filters
- Custom designed to meet your requirements
- Assembled in ISO 14644-1 Class 7 cleanrooms in the UK and USA
- Predictable and reliable leadtimes
- Flexible volumes for development all the way to full-scale GMP

Sensor Products

SciPres®, SciCon®, SciTemp®

Sensor Products

- Pre-calibrated sensors for single or extended-use.
- Each sensor is pre-calibrated with a unique identifier and is lot traceable.
- Factory calibration ensures the highest level of accuracy and is stored on each sensor's memory chip for out of the box, plug and play use.
- Custom calibrations available.
- Available in 5 connection variants.

Mycoplasma Removal Filters

PROPOR MR

Filtration

Polyethersulphone	0.1 micron

- Fully validated and integrity testable for assurance of sterility.
- A typical LRV of >10 for *Acholeplasma laidlawii* for effective mycoplasma control.
- Integral prefilter layer increases throughputs for reduction of filter trains.
- Exceptional flow rates for quick processing of cell culture media.

Sterilizing Filters

PROPOR SG

Filtration

Polyethersulphone	0.1 to 0.45 micron

- Up to 3.5 times higher flow rates than competitive sterilizing grade filters.
- Fully validated and integrity testable membrane for assurance of sterility.
- Low binding for minimal product loss.

High Capacity Sterilizing Filters

PROPOR HC

Filtration

Polyethersulphone	0.2 micron

- Optimized membrane configuration allows up to 10 times the throughput compared to single layer membrane products.
- Integral prefilter layer can condense filter trains for greater processing economy.

ENGINEERING YOUR SUCCESS.

Selection
product guide

Bioburden Reduction Filters

PROPOR BR

Filtration

Polyethersulphone	0.2 micron

- *Brevundimonas diminuta* retention of LRV >5 efficient bioburden reduction
- Additional prefilter layer gives excellent throughput to blockage
- Low binding for minimal product loss

Pharmaceutical Prefilters

PROCLEAR GF

Filtration

Glass Microfibre	0.6 to 10 micron

- Excellent dirt holding capacity
- Non-fibre releasing glass microfibre media
- Long service life for maximum throughput

Pharmaceutical Prefilters

PROCLEAR GP

Filtration

Glass Microfibre / Polypropylene	0.6 to 10 micron

- Dual layer media for increased capacity and assurance
- Maximizes retention for protection of downstream membranes
- Ideal for difficult to filter solutions

Pharmaceutical Prefilters

PROCLEAR PP

Filtration

Polypropylene	0.6 to 100

- Graded density polypropylene media for high capacity filtration
- Extremely robust to withstand aggressive conditions
- All polypropylene construction

Pharmaceutical Prefilters

PROCLEAR PP+

Filtration

Polypropylene	0.5 to 1.0

- Optimized depth construction for high retention and high capacity in biological feed solutions
- Extremely robust to withstand aggressive conditions
- All polypropylene construction

Gas Filters

TETPOR AIR

Filtration

Expanded PTFE	0.2 micron

- Assured biosecurity with absolute rated filtration
- High flow rates with low pressure drops
- High voids volume PTFE

Integrity Testing Equipment

Porecheck 4

Integrity Testing

Porecheck 4 - Water intrusion, pressure decay and bubble point testing of membrane liquid filters.

Contact
for further information

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