



# Biopharmaceutical Industry

A guide to bioprocessing products and services



## Maximizing the performance of your bioprocess

## Through integrated single-use solutions

Parker domnick hunter Process 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.

### domnick hunter within Parker Hannifin

Parker domnick hunter Process 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 domnick hunter bioprocess technology is 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 throughout your entire development process from R&D though to commercial manufacturing.

### Your process. Your choice.

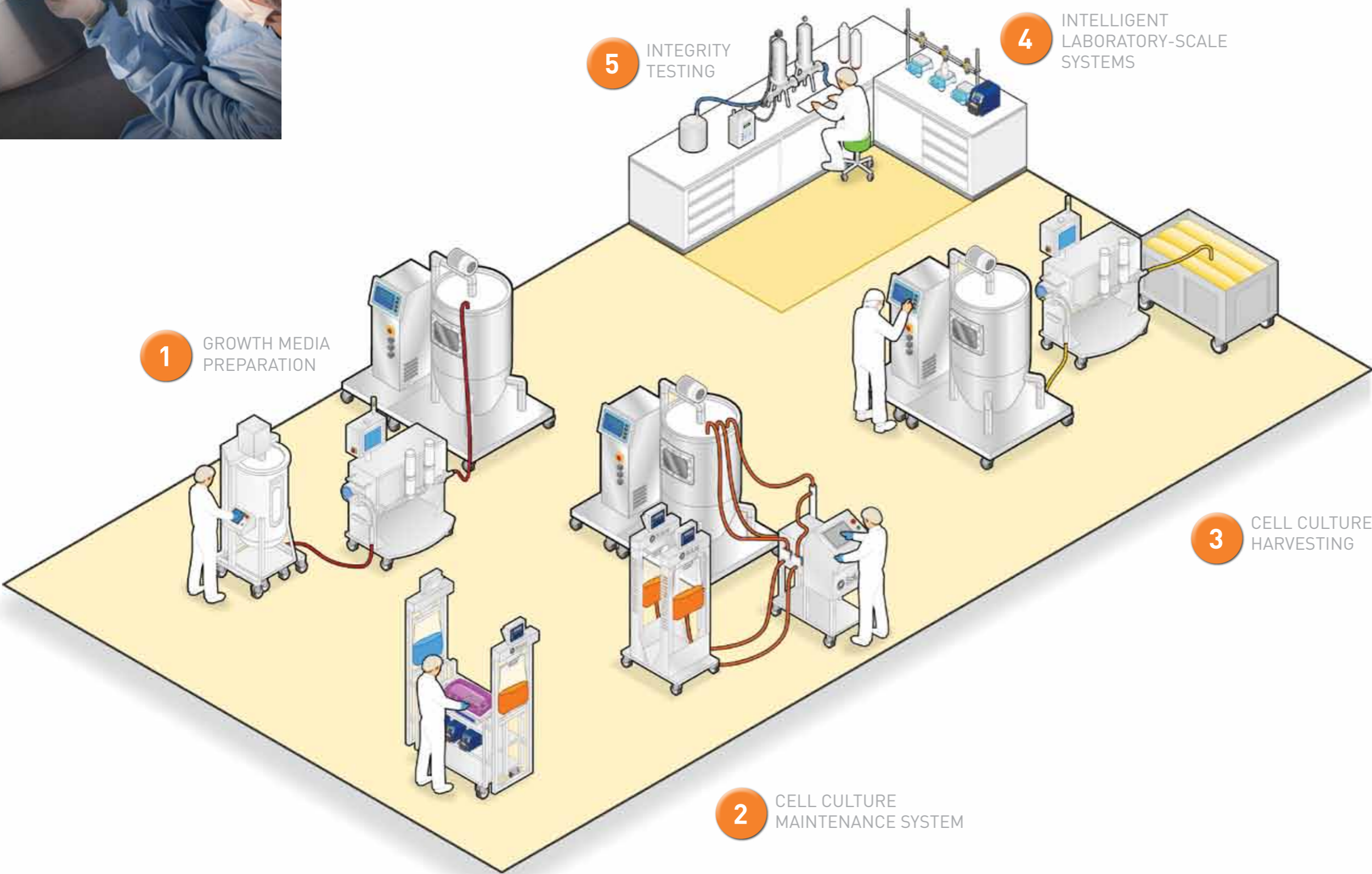
We understand that your process needs are unique. Our Open Architecture™ approach allows:

- Limitless potential for customization.
- Modular design for seamless addition or removal of components or functionality.
- Adaptable process flow designs for plug and go operation within or in addition to existing processes.



# Cell culture and harvest

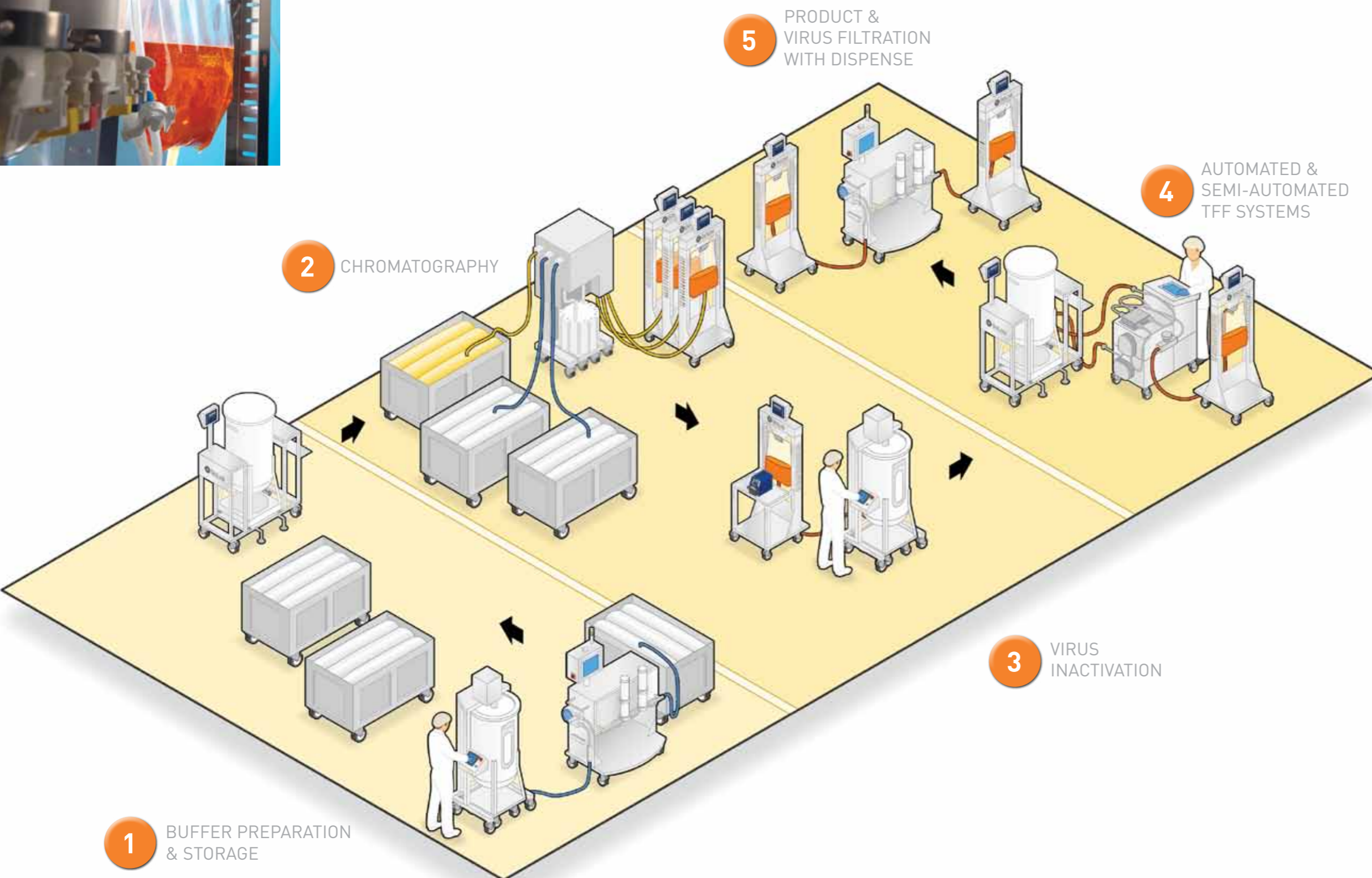
## upstream bioprocessing



<b>Growth Media Preparation</b>	<b>1</b>
Single-use fluid transfer and storage	DuraPure® & klave-it™ BPCs. Platinum cured silicone & TPE tubing
Automated filtration systems	SciFlex® NFF FilterTec®
Single-use sensors	SciPres® SciTemp® SciCon®
Prefiltration	PROCLEAR range
Mycoplasma retentive filters	PROPOR MR
<b>Cell Culture Maintenance System</b>	<b>2</b>
Bench-scale	MabTec®
Scale-up applications	Contact Parker domnick hunter
Quantitative fluid management	WeighStation™ Dual
<b>Cell Culture Harvesting</b>	<b>3</b>
Prefiltration	PROCLEAR range
High capacity sterilizing filtration	PROPOR HC
Single-use fluid transfer and storage	DuraPure® & klave-it™ BPCs. Platinum cured silicone & TPE tubing
Automated filtration systems	HarvestClear™
Single-use sensors	SciPres® SciTemp® SciCon®
<b>Intelligent Laboratory-Scale Systems</b>	<b>4</b>
Laboratory-scale tangential flow filtration systems	PureTec®
Laboratory-scale normal flow filtration systems	FilterTec®
Multi-filter capacity testing system	FilterTec® Plus
Media preparation station	LabTec®
Precision metering	ChemTec®
<b>Integrity Testing</b>	<b>5</b>
Diffusional flow	Porecheck 4
Bubble point	Porecheck 4
Water intrusion	Porecheck 4
Aerosol challenge	Valairdata 3

# Purification and dispense

## downstream bioprocessing




<b>Buffer Preparation and Storage</b>	<b>1</b>
Prefiltration	PROCLEAR range
Sterilizing grade filtration	PROPOR SG
Fluid transfer and storage	DuraPure® & klave-it™ BPCs. Platinum cured silicone & TPE tubing
Automated filtration systems	SciFlex® NFF FilterTec®
Single-use sensors	SciPres® SciTemp® SciCon®
2D and 3D bioprocess containers	DuraPure® & klave-it™ BPCs
Overmolded tubing, manifolds and accessories	Platinum cured silicone & TPE tubing
<b>Chromatography</b>	<b>2</b>
Column guard filtration	PROPOR BR
Fluid transfer and storage	DuraPure® & klave-it™ BPCs. Platinum cured silicone & TPE tubing
Quantitative fluid management	WeighStation® Triple
<b>Virus Inactivation</b>	<b>3</b>
Precision metering	ChemTec®
Quantitative fluid management	WeighPro™
<b>Automated and Semi-Automated TFF Systems</b>	<b>4</b>
TFF systems	SciFlex® TFF SciPure® TFF
Single-use sensors	SciPres® SciTemp® SciCon®
Fluid transfer and storage	DuraPure® & klave-it™ BPCs. Platinum cured silicone & TPE tubing
Quantitative fluid management	WeighCart™
<b>Product and Virus Filtration with Dispense</b>	<b>5</b>
Quantitative fluid management	WeighStation™
Automated filtration systems	SciFlex® NFF
Single-use sensors	SciPres® SciTemp® SciCon®
Prefiltration	PROCLEAR range
High capacity sterilizing grade filtration	PROPOR HC

# Selection product guide

**Automated BioProcessing System**

**SciLog SciPure®**



BioProcessing Systems

- GMP – out of the box mobile processing platforms.
- Off the shelf for multiple applications with SciLog single-use sensors manifolds.
- Options available for fully automated, semi and manual operation.
- Works with any manufacturers' filters.
- Available in single-use, extended-use and stainless.
- TFF & NFF models available.
- Optimize filter throughput with patented Rate-Pressure controlled feed.

**Semi-Automated BioProcessing System**

**SciLog SciFlex®**




BioProcessing Systems

- TFF, NFF, media transfer, media prep and bag filling models available.
- Mobile station for a multitude of bioprocessing applications.
- Ideal for batch operations in development and contract manufacturing environments.
- Off the shelf for multiple applications with SciLog single-use sensors manifolds.
- Works with any manufacturers' filters.

**Automated BioProcessing Components**

**Manifolds**




Single-Use Components

- Risk management with SU technology.
- Reduce cross-contamination.
- Fully assembled, ready-to-use.
- Increases operator safety when working with toxins.
- Your choice of sensors, bags and filters.
- Designed to meet your requirements.

**Smart Dispenser System**

**SciLog LabTec®**




Intelligent Lab Systems

- 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®**




Intelligent Lab Systems

- Promote high-density cell culture through 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.

**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.

**Quantitative Fluid Management**

**SciLog WeighStation™**




Fluid Management

- Accommodates up to three 50Kg single-use hanging bags.
- Eliminates balancing of bags on mobile carts.
- Allows self drainage and 100% sample recovery.
- No second operator required to hold the bag.

**Quantitative Fluid Management**

**SciLog WeighPro™**




Fluid Management

- A mobile, compact, vertical bag holder.
- Integrated configurable bioprocessing workstation.
- Adjustable filter, tubing, sensor and pump mounts.
- Tool tray table.
- Quick configuration allows maximum process flexibility.

**Quantitative Fluid Management**

**SciLog WeighCart™**



Fluid Management

- A mobile cart with integrated floor scale accommodating 100L or 200L BPCs.
- Standard offering with shelving and supports to mount pumps and tubing.
- A range of additional accessories and balances are available.

**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
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- 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
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- 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.

**Complete Cell Culture Harvest System**

**HarvestClear™ Filtration System**



Intelligent Lab Systems

- A turnkey solution for rapid controlled clarification of bioreactors outputs up to 20L.
- Reduced set-up time.
- Integrated SciPres® pressure sensors enable patented R/P Stat Method which improves filter capacity and allows for safe, walk-away processing.

**Normal Flow Filtration (NFF) System**

**SciLog FilterTec® / FilterTec® Plus**




Intelligent Lab Systems

- Filterability studies and VMax determination.
- Increase DEF filter utilization up to 35%.
- 3 pressure sensor and balance hook-ups for filter trains.
- Safe, walk-away system 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.

**High Capacity Sterilizing Filters**

**PROPOR HC**



Filtration

Polyethersulphone	0.2 micron
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- 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.

**Bioburden Reduction Filters**

**PROPOR BR**



Filtration

Polyethersulphone	0.2 micron
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- *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
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- Excellent dirt holding capacity.
- Non-fibre releasing glass microfibre media.
- Long service life for maximum throughput.

**Pharmaceutical Prefilters**

**PROCLEAR GP**



Filtration

Glass Microfibre / Polypropylene	0.5 to 0.6 micron
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- Dual layer media or 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 micron
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- Dual layer media for increased capacity and assurance.
- Maximizes retention for protection of downstream membranes.
- Ideal for difficult to filter solutions.

**Gas Filters**

**TETPOR AIR**



Filtration

Expanded PTFE	0.2 micron
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- Assured biosecurity with absolute rated filtration.
- High flow rates with low pressure drops.
- High voids volume PTFE membrane.




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**Integrity Testing Equipment**

**Porecheck 4 / Valairdata 3**




Integrity Testing

- Porecheck 4 - Water intrusion, pressure decay and bubble point testing of membrane liquid filters.
- Valairdata 3 - Aerosol challenge testing of sterile gas filters.

**Fluid Storage**

**DuraPure™ Bag Systems**




Fluid Management

- DuraPure™ bags are available in the following sizes: 250mL, 1L, 5L, 10L, 20L, 50L, 100L, 500L and 1000L.
- Each system is designed to seamlessly integrate with the rest of your process.
- Mitos-P platinum-cured tubing with molded junctions and sanitary fittings to minimize risk.
- TPE tubing with molded junctions and sanitary fittings.
- Contact us to discuss your custom needs.

**Fluid Storage**

**klave-it™ Bags**



Fluid Management

- Autoclavable bags are made of select Kynar® PVDF film designed to maintain flexibility, strength and impact resistance after sterilization by autoclave.
- Available in pillow style.
- Low permeability.
- Can be filled and then autoclaved.




Parker Hannifin Corporation

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**Fluid Transfer**

**Platinum-Cured Silicone Tubing**




Fluid Management

- A range of platinum-cured silicone tubing, etched with lot and part numbers for traceability.
- Ideal for molding with other silicones into manifold assemblies.
- Other tubing products include a number of reinforced tubings.

**Fluid Transfer**

**Molded Silicone Manifolds**



Fluid Management

- Single-use systems tailored to your application.
- Proprietary technology allows any configuration of Ys, Ts, crosses, reducers, and elbows, with virtually unlimited lengths between molds.
- Molded junctions are stronger, eliminate entrapment, and offer smooth, unrestricted flow.
- Contact us to discuss integrating bags, tubing, sensors and connectors to suit your needs. Can also be made with zip-ties.

**Connector Kits**

**Accessories**



Fluid Management

- Full range of connectors from a wide array of suppliers.
- Allows flexibility and connectivity within your process.
- One stop shop convenience to meet all of your connection needs.

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