HarvestClear® Filtration System

- intelligent bioprocessing system
- automated bioreactor clarification

Parker domnick hunter

The HarvestClear® Filtration System is a complete solution for cell culture harvest that provides fast, automated clarification of bioreactor outputs up to 20L. The system integrates SciLog fluid handling and pressure sensing expertise with the filtration excellence of Parker domnick hunter.

Simply connect your bioreactor to the sterile, ready-to-use filtration manifold, comprised of Parker domick hunter filters and SciPres® pressure sensors. Filtration is controlled by the FilterTec™ software-driven laboratory-scale normal flow filtration (NFF) system, teamed with a SciPres® pressure monitor. Three single-use filtration manifold sizes are available to clarify high cell density bioreactor outputs from 1L to 20L. The system can be connected to an optional WeighStation™ holding a single-use sterile bioprocess container to provide filtrate quantitation and precision flow metering.

Features and Benefits

- Walk-away automation reduces hands-on time, and optimizes filtration outputs.
- In-line SciPres® pressure sensors coupled with FilterTec™ controller ensure operator safety.
- Fully assembled, sterile filtration manifolds are ready-to-use with pre-flushed filters.
- Three filter manifold sizes to handle high density cell concentrations from 1-20L.
- Sterile single-use bioprocess containers are also available.

Single-Use Filtration Manifolds

The three sizes of single-use, sterile filtration manifolds are gamma irradiated and are comprised of the pre-flushed filters indicated, with Luer connectors, tubing and SciPres® pressure sensors. Sterile single-use bioprocess containers to collect the filtrate are available separately.

Bioreactor Output	PROCLEAR GF (Prefiltration)	PROPOR HC (Sterilizing-Grade)
1-5L	10"	10"
5-10L	20"	10"
10-20L	30"	10"

Walk-Away Automation

The FilterTec™ controller offers four operational modes, constant rate, constant pressure, R/P Stat and manual modes. Using input from the in-line SciPres® pressure sensors, the FilterTec™ controller automatically adjusts and documents prefilter back pressure, as well as permeate flow rate to optimize filtration speed and maximize filter throughput. User selectable alarms allow automatic stopping once a given filter back pressure or minimum filtrate flow rate is reached. The patented R/P Stat Method has been proven to increase filter throughput by up to 30%. The automatic documentation and alarm /pump stop settings allow the user to focus on other tasks while the system is running. Integration of a balance with the system enables gravimetric end point control.

Increased Safety

The automated HarvestClear® Filtration System also increases operator safety. The FilterTec™ controller can be programmed to shut down at a maximum pressure, ensuring no damage to the filters or manifold, which could otherwise lead to operator injury, or potent proteins being discharged into the working environment.

R/P Stat Mode

The FilterTec™ controller incorporates the patented R/P Stat Method, an innovation which offers significant improvements in filter output. The R/P Stat Method enables constant pressure or constant rate NFF via a pump / monitor PID loop including disposable inline pressure sensors. This is done by selecting three simple process variables including initial flow rate, maximum inlet pressure and minimum flow rate. By using the R/P Stat Method, the FilterTec™ controller operates at constant rate until it reaches the maximum pressure, then the controller switches to constant pressure and dynamically adjusts the flow rate as the membrane begins to foul. This allows additional product to pass through the filter and is shown graphically in Figure 1.

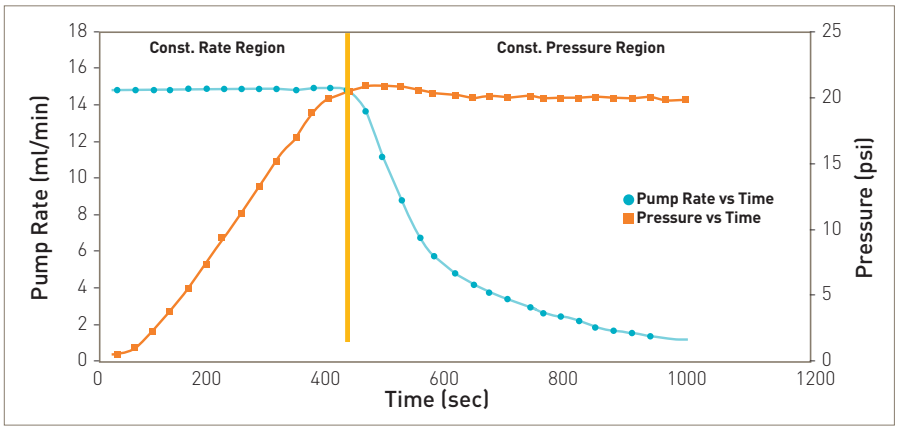

Figure 1 - Dead-end filtration by R/P Stat Method

Specifications

HarvestClear® Filtration System Components

The complete HarvestClear® Filtration System solution consists of a programmable fluid handling system and a single-use filtration manifold. The system and manifolds are ordered separately.

HarvestClear™ Fluid Handling System

- FilterTec™ controller with a 600RPM motor and 1081 pump head
- SciPres® pressure sensor monitor
- Communication cables
- SciDoc data acquisition software

Filter Manifold Components

- 1 x PROCLEAR GF 5 µm glass-fibre prefilter
- 1 x PROPOR HC 0.2 µm polyethersulphone high capacity sterilizing-grade membrane filter
- 2 x SciPres® pre-calibrated pressure sensors (1¨ Tri-Clover)
- 1 x set of platinum-cured #17 silicone tubing ($^1/_4$¨ I.D, $^3/_8$¨ O.D.)
- Luer connectors at each end, with sealing cups; bagged and zip-tied

FilterTec™ Specifications

- Dimension / Weight:
  Width: 5.75¨ (146 mm)
  Height: 8.5¨ (2126 mm)
  Depth: 11¨ (279 mm): 14 lbs (6.4 Kg)
- Enclosure & Rating:
  16 Ga, aluminium baked epoxy blue 4-40dC, 0-100% Humidity
- Pressure Sensors:
  Accommodates up to three (3) disposable pressure sensors. The calibrated pressure range is 0 - 60 psi. Any point within this range can be recalibrated using an external pressure reference source.
- Power:
  115 / 220-240 VAC, 60 / 50 Hz, 75 Watts, double fused: T1AL 250V (CE: IR35A 250VAC)
- Motor / Encoder:
  600 RPM, 30 VDC, 3.8A, 100 ppr
- I/O Ports:
  Male DB9 scale connections (RS-232), female DB9 printer or PC connection (RS-232), external IO DB37 connector, 1 TTL input, 4 TTL output, 3 4-20mA
- Operational Mode:
  Constant rate, constant pressure, R/P Stat and manual mode
- Pump Head:
  1081 flow rate (ml/min): 0.03 – 1515
  Pressure: 25 psi continuous, 45 psi max.

Accessories

- Single-use bioprocess containers
- WeighStation™

Ordering Information

HarvestClear® Fluid Handling System

975-3000

HarvestClear® Filtration System Manifolds

975-300-0 - ☐

Code	Volume	Prefilter	Sterilizing Filter
CH2	1 - 5L	10¨ 5µm PROCLEAR GF	10¨ 0.2µm PROPOR HC
CH10	5 -10L	20¨ 5µm PROCLEAR GF	10¨ 0.2µm PROPOR HC
CH20	10 -20L	30¨ 5µm PROCLEAR GF	10¨ 0.2µm PROPOR HC

Please contact your local Parker domnick hunter representative to discuss alternative configurations for your system.

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