# SCILOG<sup>®</sup> NFF SYSTEMS

## Automated normal flow filtration.

SciLog® NFF systems are proven automated single-use platforms used in normal flow applications from pilot to production-scale operations.

Parker's SciLog® NFF automated single-use normal flow filtration (NFF) systems can be configured to monitor, adjust, and record pressure and flow rate to optimize processing times, and maximize filter life and efficiency. By combining single-use sensing technology and automation, the need for manual monitoring during production runs is eliminated. The "open architecture" design enables any filter/ membrane type to be used.

User-selectable end points and alarms automate the operation and ensure safe, consistent process performance. Proprietary technology utilises pressure feedback to control flow rate, therefore reducing the occurrence of filter over-pressurisation and maximising filtration economics.

The system can communicate real time process parameters via OPC to a plant historian and integrate with local active directory, or operate as a stand-alone unit. Up to two optional integrated scales can be used to deliver filtration precision by gravimetrically controlling operations.

### Features and benefits

- Safe, automated filtration improves filter throughput using the Parker R/P Stat method
- · Flexible configuration for a wide range of applications
- Optimized for Parker filters but can accept other commercially available filters
- Touch-screen interface for process monitoring and control
- Integration with plant systems for data collection and process control
- Small operational footprint
- User configurable alarms and interlocks
- Optional integrated scale for highly accurate filtration endpoints
- Automated filter integrity testing
- Adheres to the S88 standard for effective batch process control





SciLog<sup>®</sup> NFF System



## The automated SciLog<sup>®</sup> NFF Systems offer four modes of filtration control.

The intuitive user interface allow users to have the ability to execute a normal flow filtration process via four different control methods.

- **Constant Flow** Maintains pump flow rate and monitors pressure. The system will ensure pressure does not exceed a high limit set point.
- **Constant Pressure** Maintains pressure, regulating flow rate. This system will ensure pressure does not exceed a maximum set point.
- **R/P Stat Method** The system maintains a constant pump flow rate, monitoring pressure until a pressure limit is reached. The system immediately switches to constant pressure mode, controlling the pump flow rate to maintain a pressure set point. Refer to Figure 1.
- Manual Operation User definable pump set point.

### Process reliability

Recipes can be conveniently stored and recalled at the time of execution to save time and reduce the risk of parameters being installed incorrectly.

## Applications

- Cell harvesting
- Buffer filtration
- Clarification and sterilization
- Mycoplasma reduction
- Bioburden reduction
- Viral filtration

## Performance Characteristics

#### **R/P Stat Method**

The SciLog NFF Systems incorporate the proprietary R/P Stat method, an innovation which has resulted in significant improvements in filter life expectancy. This is achieved by selecting three simple process variables; pump flow rate, maximum inlet pressure, and minimum pump flow rate. By using the R/P Stat method, as the filter begins to foul, the NFF system automatically adjusts the pump flow rate to prevent the maximum inlet pressure from being exceeded, allowing for additional product to pass through the filter before the filter's maximum allowable differential pressure is reached.



Fig. 1 Normal flow filtration by R/P Stat method

## Specifications

| Description                          |  |
|--------------------------------------|--|
| Enclosure & Rating                   | 304L stainless steel framework (316L<br>on request), mobile platform with<br>pharmaceutical grade casters. IPx5.   |
| Pressure Sensor<br>Connections (DIN) | 3  |
| Sensor Type                          | SciPres <sup>®</sup> II  |
| I/O Ports                            | Ethernet port for plant<br>communication. Connections for<br>2 x scales to monitor flux of media<br>through filter.  |
| Operational Mode                     | Constant flow, constant pressure,<br>R/P Stat, and manual mode.  |
| Pump Options                         | Peristaltic or Diaphragm   |
| Flow Rates                           | 0.2 – 83 L/min (pump dependent)  |
| Control System                       | SIEMENS S7 - 1500 with TIA Portal  |
| Software Compliance                  | FDA 21 CFR Part 11,<br>EudraLex Annex 11   |
| Connection to DCS                    | OPC, Ethernet IP   |
| Other Features                       | Automated leak test<br>Filter integrity test (PUPSIT)<br>Flexible filtration methods<br>Optimized product recovery<br>Active directory integration<br>Various filter holders available to<br>accommodate a variety of filters. |

## Options and accessories

#### Included with System

- Factory Acceptance Testing (FAT) and Site Acceptance Testing (SAT)
- User training during FAT and SAT
- Declaration of conformity
- Installation, operation and maintenance instructions
- Pneumatics and Instrument Diagram (P&ID)
- Electrical schematic
- Calibration certificates
- · Critical spares list with manuals or datasheets
- Material certificates
- GAMP<sup>®</sup> document package including:
  - Functional Design Specification (FDS), Hardware Design Specification (HDS), Software Design Specification (SDS)

#### Additional Options

- Servicing
- Additional on-site training
- IQ/OQ document package
- IQ/OQ execution
- PQ document package
- WeighStation™ measurement options

Please contact your local Parker representative to discuss how these systems can be configured for your needs.

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