



**SUPERCritical FLUID TECHNOLOGIES, INC.**

Supercritical Fluid Extractions, Reactions and High Pressure Chemistry  
www.supercriticalfluids.com

# CP Reciprocating Pump

## Constant Pressure Dual Head Pumps



The high performance CP Class consists of dual-headed, positive displacement piston pumps with constant pressure control, covering a wide range of flows, with pressures up to 25,000 psi. Standard fluid path materials are Stainless Steel, with optional Titanium and Hastelloy also available. Other optional features include jacketed pump heads for temperature-controlled applications.

The CP Class pumps are widely used for LC Column packing, as well as many process applications. The constant-pressure feedback loop automatically adjusts solvent flow to maintain constant system pressure and allows the user to select a wide range of process parameters, including desired pressure set point, ramp rate, and upper flow rate limit.

The CP Class is available as standalone units, and also with the SSI Column Packing System (called Pack-in-a-Box). Features include an integrated Prime-Purge Valve, interactive keypad control, advanced pressure control algorithms, and complete PC control and status through RS-232C, micro-USB, and Ethernet serial communications ports. With 5 mL/min, 12 mL/min, 24 mL/min, and 100 mL/min versions, the CP Class will meet most LC Column packing and process needs.



Enhanced Cosmetic Design



Drip Tray & Leak Sensor

### FLOW RATE

5 mL/min  
12 mL/min  
24 mL/min  
100 mL/min

### PRESSURE

Up to 25,000 psi  
(5 mL/min)

### FLUID PATH

Stainless Steel,  
Titanium, or Hastelloy

### CONTROL

RS-232, Micro USB,  
Ethernet, Run/Stop,  
Analog  
(0-10 V, 4-20 mA)

## CP Class Specifications

	5 mL/min	12 mL/min	24 mL/min	100 mL/min
<b>Flow Rate Range</b>	0.001 – 5.000 mL/min	0.001 – 12.000 mL/min	0.01 – 24.00 mL/min	0.1 – 100.0 mL/min
<b>Flow Rate Increment</b>	0.001 mL/min	0.001 mL/min	0.01 mL/min	0.1 mL/min
<b>Pressure Accuracy</b>	±2% of full-scale pressure			
<b>Pressure Control Accuracy</b>	Dependent on hydraulic system parameters. Pump automatically adjusts fluid flow to maintain constant system pressure under typical column-packing usage. Pump does not contain an automatic pressure-relief valve.			
<b>Maximum Delivery Pressure</b>	25,000 psi	18,000 psi	10,000 psi	4,000 psi
<b>Piston Displacement</b>	15.0 µL	31.4 µL	62.8 µL	251 µL
<b>Piston Wash</b>	Includes option for self-flushing pump heads—continuous wash without auxiliary pump			
<b>Wetted Materials</b>	<b>Stainless Steel pumps may include:</b> Incoloy A-286, 316 Stainless Steel, Silicon Carbide, Synthetic Ruby, Sapphire, Zirconia, ATZ, UHMWPE, PEEK, FFKM, PFA, PTFE, ETFE <b>Hastelloy pumps:</b> Hastelloy C-276, Synthetic Ruby, Sapphire, UHMWPE, FFKM, PFA, PTFE, ETFE			
<b>Dimensions (H x W x D)</b>	6.4" x 9.9" x 17.5" (16.3 x 25.1 x 44.5 cm) (Jacketed Hastelloy heads add 0.7" (1.7 cm) to length of pump)			
<b>Weight</b>	30 lbs (13.6 kg)			
<b>Power</b>	100 – 240 VAC (±10%), 50 – 60 Hz, 75 W			
<b>Front Panel</b>	5-digit LED to monitor flow rate, pressure, and indicate parameters and alarms. Run/Stop, Prime, and menu keys, seven status indicators, Increase/Decrease displayed parameters.			
<b>Communication</b>	RS-232, micro-USB, LAN (serial communications) Run/Stop TTL, Analog flow control (0–10 V, 4–20 mA)			
<b>Viscosity*</b>	0.5 – 10.8 cP			
<b>Liquid Temperature</b>	0 – 82 °C			
<b>Environment</b>	Indoor use only (Pollution degree 2)			
<b>Altitude</b>	Up to 2000 m (6500 ft)			
<b>Ambient Temperature</b>	10 – 30 °C			
<b>Humidity</b>	20 – 90% relative humidity			
<b>CSA Certification</b>	Compliant to UL Std 61010-I 3rd Edition and CSA Safety Standard 61010-I-12, Class 8721-06 and 8721-86 (5 mL and 12 mL models not included)			

\*Range of fluid viscosities where published pressure accuracy is maintained

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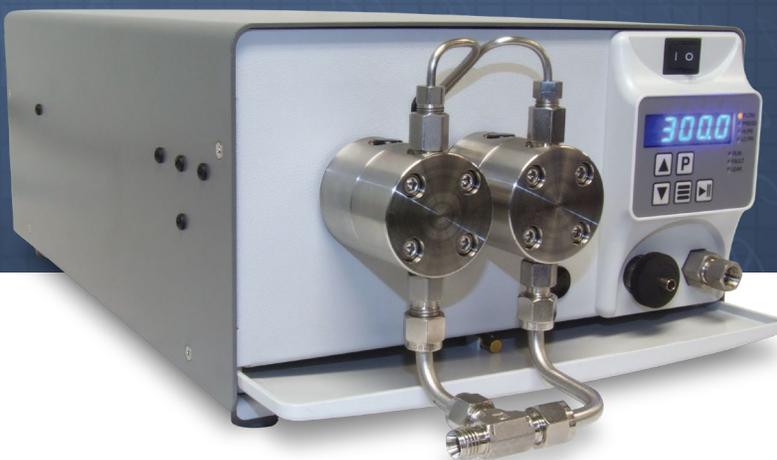




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# PR Reciprocating Pump



## High-Flow Dual Head Pumps

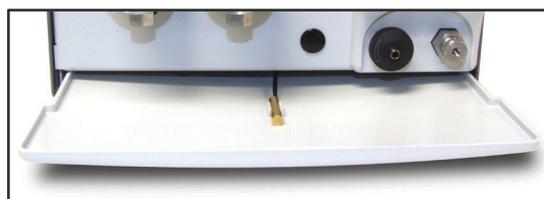
The rugged PR Class consists of dual-headed, positive displacement piston pumps that provide high, accurate flows and excellent pressure capability for a variety of uses. Standard fluid path materials are Stainless Steel and PEEK, with optional Titanium and Hastelloy also available. Other optional features include jacketed pump heads for temperature-controlled applications.

The pumps are designed for a wide range of Preparative and Semi-Prep Chromatography, as well as SMBC (simulated moving bed chromatography), and many process and industrial applications. With 100 mL/min and 300 mL/min versions, reaching pressures up to 4,000 psi, the pumps will meet the most demanding LC and process needs.

Features include an integrated Prime-Purge Valve, interactive keypad control, and complete PC control and status through RS-232C, micro-USB, and Ethernet serial communications. The PR Class provides the flow rates and pressures required for high throughput separations.



Enhanced Cosmetic Design



Drip Tray & Leak Sensor

### FLOW RATE

100 mL/min  
300 mL/min

### PRESSURE

Up to 4,000 psi  
(100 mL/min)

### FLUID PATH

Stainless Steel,  
PEEK, Titanium,  
or Hastelloy

### CONTROL

RS-232, Micro Usb,  
Ethernet, Run/Stop,  
Analog (0-10 V, 4-20 mA)



## PR Class Specifications

	100 mL	300 mL
<b>Flow Rate Range</b>	0.0–100.0 mL/min	0.0–300.0 mL/min
<b>Flow Rate Increment</b>	0.1 mL/min	0.1 mL/min
<b>Flow Rate Accuracy*</b>	±3% (0.5 mL/min and above; 80:20 Water/IPA; 1,000 psi)	±3% (1.5 mL/min and above; 80:20 Water/IPA; 500 psi)
<b>Flow Reproducibility</b>	0.5% RSD (1.0 mL/min and above; 80:20 Water/IPA; 1000 psi)	1% RSD (3.0 mL/min and above; 80:20 Water/IPA; 500 psi)
<b>Maximum Delivery Pressure</b>	4,000 psi	1,000 psi
<b>Pressure Accuracy</b>	<b>All 100 mL pumps and PEEK 300 mL: ±50 psi</b> <b>SS and Hastelloy 300 mL: ±12.5 psi</b>	
<b>Pulsation</b>	<b>100 mL pumps: ≤2.0% @ 10 mL/min and 1000 psi</b> <b>300 mL SS and Hastelloy pumps: ≤2.0% @ 100 mL/min and 500 psi</b> <b>300 mL PEEK pumps: ≤4.0% @ 100 mL/min and 500 psi</b>	
<b>Piston Displacement</b>	251 µL	565 µL
<b>Piston Wash</b>	Self-flushing pump heads—continuous wash without auxiliary pump	
<b>Wetted Materials</b>	<b>PEEK pumps may include:</b> PEEK, Synthetic Ruby, Sapphire, Zirconia, Alumina, Titanium, UHMWPE, FKM, FFKM, PTFE, ETFE, PFA <b>Stainless Steel pumps may include:</b> 316 Stainless Steel, PEEK, Synthetic Ruby, Sapphire, Zirconia, Alumina, UHMWPE, PTFE, ETFE, PFA <b>Hastelloy pumps may include:</b> Hastelloy C-276, Synthetic Ruby, Sapphire, Zirconia, Alumina, UHMWPE, FKM, PTFE, ETFE, PFA	
<b>Dimensions (H x W x D)</b>	6.4" x 9.9" x 17.7" (16.1 x 25.1 x 45 cm) (Jacketed Hastelloy heads add 0.9" (2.1 cm) to length of pump)	
<b>Weight</b>	26.3 lbs (11.9 kg)	
<b>Power</b>	100–240 VAC (±10%), 50–60 Hz, 75 W	
<b>Front Panel</b>	5-digit LED to monitor flow rate, pressure, and indicate parameters and alarms. Run/Stop, Prime, and menu keys, seven status indicators, Increase/Decrease displayed parameters.	
<b>Communication</b>	RS-232, micro-USB, LAN (serial communications) Run/Stop TTL, Analog flow control (0–10V, 4–20 mA)	
<b>Viscosity**</b>	0.5–10.8 cP	
<b>Liquid Temperature</b>	0–82 °C	
<b>Environment</b>	Indoor use only (Pollution degree 2)	
<b>Altitude</b>	Up to 2000 m	

\*Flow Rate is dependent on solvent selection and operating pressure

\*\*Range of fluid viscosities where published flow accuracy is maintained

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## SFT Nex10 Liquid Carbon Dioxide Pump



- Constant Pressure CO<sub>2</sub> Pump
- Pressure Display and Control
- Pressures up to 10,000 psi (68.9 MPa)
- Selectable Pressure Set Point
- Flow Rates up to 100 ml/min liquid CO<sub>2</sub> (pressure dependent)
- Self-Contained Thermoelectric Cooling
- Stainless Steel Fluid Path

### ◀ The SFT Nex10 Liquid CO<sub>2</sub> Pump

The **SFT Nex10** is a robust, high capacity carbon dioxide pump designed to boost the delivery pressure of the liquified gas up to 10,000 psi (68.9 MPa). It may be used to deliver liquid CO<sub>2</sub> to new and existing SFE equipment including SFT's model 110, 110XW, 120, and 120XW SF extractors. The pump may be placed under an SFT-110 or 120 SFE, saving valuable lab bench space.

It may be used to inject high pressure CO<sub>2</sub> into reaction chambers for supercritical fluid reaction chemistry (SFR) and any other application requiring high pressure CO<sub>2</sub>. It is ideal for use with SFT's HPR Series™ high pressure chemical reactors.

The Nex10's high performance, pneumatically driven piston pump rapidly compresses liquid CO<sub>2</sub> from tank pressure (750-900 psi) up to the pressures required for SFE, SFR, and other high-pressure applications. The pump operates in a constant pressure mode. The flow rate automatically adjusts to maintain the desired pressure.

The Nex10 has a stainless-steel fluid path. The CO<sub>2</sub> is cooled by an internal thermoelectric cooling module, ensuring efficient pumping. Cooling jackets and baths are not required.

## SFT Nex10 Liquid CO<sub>2</sub> Pump

### Pump Features

- Maintains a constant user selectable set pressure
- Reliable, robust pneumatic pump
- Stainless Steel pump head and fluid path
- CO<sub>2</sub> inlet filter

### Standard Configuration

- **Flow Rate:** Up to 100 ml/min.
- **Pressure:** 700 to 10,000 psi (68.9 MPa)
- **Dimensions:** 6.25" high x 17.55" wide x 15" deep (15 x 45 x 137 cm)
- **Weight:** 45 Lbs. (20.4 Kg)

### Utility Requirements

- **Power Requirements:** One (1) 90-240VAC, single phase, 50/60. All units have a power entry module that utilizes a C14 connection.
- **Gas Supply:** Liquid CO<sub>2</sub> cylinder with a dip tube
- **Compressed air:** 95 psi; 3 SCFM

