



SFT-10 Supercritical Fluid Pump



- Pressure Display and Control
- Pressures up to 10,000 psi (68.9 MPa)
- Flow Rates 0.01 – 24.00 ml/min
- Stainless Steel Fluid Path
- Prime Purge Valve Pressure Transducer in “T” Fitting
- Constant Pressure Mode Features Selectable Pressure Set Point
- RS-232 Serial Communications Port for Complete Control and Status Monitoring

◀ SFT-10 Supercritical Fluid Pump

The SFT-10 is a robust, high precision carbon dioxide pump designed to deliver liquid carbon dioxide at pressures up to 10,000 psi (68.9 MPa). It may be used to deliver both liquid and supercritical CO₂ to new and existing SFE equipment, including SFT's model 100 SFE. It provides the capability to perform supercritical fluid reaction chemistry (SFR) when used to deliver carbon dioxide to one of SFT's HPR Series™ high pressure chemical reactors.

The SFT-10 incorporates a high performance, dual piston pump which rapidly produces the pressures required for supercritical fluid and other high pressure applications. Software safeguards protect from accidental over pressurization. The pressure set point is controlled from a push button display located on the control module's front panel.

The SFT-10 utilizes dual aluminum pump heads, Furon seals and sapphire pistons. The cam-driven pump mechanism employs a single stepper motor

drive, dual ball and seat check valves (ruby ball, sapphire seat). The SFT-10 has a stainless steel fluid path, prime-purge valve, and a pressure transducer in a “T” fitting. The pump's constant pressure mode features a selectable pressure set point. The flow rate automatically adjusts to maintain a set pressure. An optional “constant flow” mode is available.

Pump head temperature is controlled by an integrated thermoelectric cooling module with finned heat sinks, pre-cooler and a fan. Cooling jackets and baths are not required. A quick-release mechanism allows easy access to pump heads for routine maintenance.

SFT-10 Supercritical Fluid Pump Specifications

Pump Features

- Autoprime™ one button toggles flow rate to maximum
- Check valves allow reliable flow rates down to 0 psi
- Inlet & outlet bulkhead filters
- Aluminum pump heads in 12 ml/min size
- Hex tee/Pressure transducer which adds no volume to the system
- Front panel flow adjustment in 0.01 ml/min increments
- Optional user-settable upper and lower pressure limits
The pump is automatically stopped if the pressure drops below the preset lower pressure limit (the lower pressure limit is enabled after 50 pump strokes) or if the pressure exceeds the upper pressure limit
- Microprocessor advanced control
- Chemical-resistant keypad
- Chemical-resistant LED digital display shows flow rate and pressure limits
- Digital stepper motor design prevents flow rate drift over time and temperature which is a common problem found in analog designs

Back Panel Inputs: Run/stop inputs (5 volt TTL type), 0 to 10 volt flow rate control input, 0 to 10 KHz flow rate control input, RS-232 serial communications port for complete control and status monitoring

Back Panel Output: Normally open and normally closed relay contacts (SPDT, form C, 0.25 amp max, 50 volt max) indicate when a pressure fault or motor stall fault occurs

Pulsation: +/- 1% at 12 ml/min using 100% Methanol at 1,000 psi

Standard Configuration

Flow Rates: 0.01 to 24.00 ml/min

Pressure: 0 to 10,000 psi (68.9 MPa)

Pressure Accuracy: +/- 2% of full scale pressure

Pressure Zero Offset: - 0 psi + 10 psi

Flow Accuracy: +/- 2% using 100% Methanol at 1,000 psi

+/- 5% using CO₂ (Based on gas volume measurements and back calculation to liquid)

Flow Precision: 0.5% RSD using 100% Methanol at 1,000 psi

Dimensions: 5.75" high x 11.125" wide x 21.125" deep (15 x 28 x 54 cm)

Weight: 36.4 lbs (16.5 kg)

System Requirements

Power Requirements: 110/220 VAC, 50/60 Hz.

Gas Supply: Liquid CO₂ cylinder with dip tube