



## SFT-110XW SFE System



### Bench Top SFE for Universities and Industry

- Sample Vessel Volumes from 5 ml to 500 ml
- Can be Configured for Series/Parallel Processing
- Operating Pressure up to 10,000 psi (68.9 MPa)
- PID Control of Pressure and Temperature
- Integrated Fluid Preheater and Flow Meter
- Various Extract Collection Options
- Optional Co-solvent Addition Modules

### ◀ The SFT-110XW Supercritical Fluid Extractor

The SFT-110XW Supercritical Fluid Extractor (SFE) is an entry level system which possesses many features typically found in more costly SFE equipment. It may be used for a variety of applications from routine analytical work to basic process development.

The SFT-110XW was developed for people who want to investigate the feasibility of applying supercritical fluid techniques to a wide variety of analytical and processing problems. In addition to its numerous industrial uses, the SFT-110XW is well suited to the needs of colleges and universities. It is so affordable that it may be incorporated into teaching laboratories. At the same time, it is capable enough to be used for serious research.

The SFT-110XW accommodates 5 ml to 500 ml extraction vessels. It may be operated at pressures up to 10,000 psi (68.9 MPa) and at temperatures ranging from ambient to 200°C. It is possible to have up to four vessels installed. The wide range of vessel volumes available makes the SFT-110XW well suited to both

analytical scale SFE applications and basic process development work. With a 500 ml vessel, the SFT-110XW can extract very low levels of key components from materials and process larger amounts of bulk material than would be possible with smaller, analytical scale SFE equipment. Inside the SFT-110XW's oven, a preheater ensures that the temperature of the fluid reaching the extractions vessel is controlled precisely. This is essential to obtaining accurate, repeatable results.

The SFT-110XW utilizes a high performance, dual piston pump which produces the high pressures required for supercritical fluid work. The system has built-in safety precautions to prevent accidental over-temperature or over-pressure conditions. As an additional safety backup, a rupture disc assembly provides mechanical protection against accidental over pressurization of the system.

Manually operated valves ensure long term, maintenance free operation. An integrated program logic controller monitors and adjusts the fluid flow rate to

achieve and maintain a desired pressure set point. A PID temperature controller monitors and maintains the precise fluid temperature inside the high pressure vessel.

The SFT-110 utilizes the latest variable restrictor valve (back pressure regulator) technology, providing precise control over the flow rate of the expanding gas. This is essential for obtaining highly reproducible results. Flow rates can range from 0.01 to 24 ml/min (0.008 to 18 grams/min) of liquid CO<sub>2</sub> under typical operating conditions. While carbon dioxide is the most commonly used solvent, the SFT-110, with some modification, allows the user flexibility to work with a variety of supercritical fluids.

Extract collection options include: solid phase extraction (SPE) cartridges, solvent filled vessels, fractional cyclone separators, and EPA sample vials. Optional co-solvent addition modules are available for the SFT-110XW.

# SFT-110XW SFE System Specifications

## Standard Configuration

**Temperature and Pressure Display:** Independent LED displays.

**Temperature Range:** Ambient to 200°C.

**Temperature Precision:** +/- 0.5°C.

**Operating Pressure:** 10,000 psi upper pressure limit. Front keypad control, with LED display. "Constant pressure" mode of operation.

**Flow Rates:** 0.01 – 24.00 ml/min liquid CO<sub>2</sub> (+/- 2% accuracy).

**Over Pressure Safeguard:** High / Low pressure alarms and rupture disc protection.

**SFT-10 High Pressure Pump:** Dual aluminum heads, furon seals and sapphire pistons, integrated thermoelectric cooling, cam-driven pump mechanism with single stepper motor drive, dual ball and seat check valves (ruby ball, sapphire seat), stainless steel fluid path, prime-purge valve, and pressure transducer. The pump's constant pressure mode features a selectable pressure set point. Flow rate will auto-adjust to maintain pressure.

**Restrictor Valve:** Heated up to 200°C; resistant to blockage.

**Preheater:** Improves temperature consistency of the fluid by heating the fluid before it reaches the main pressure vessel.

**Extraction Vessel:** Accommodates vessels ranging in size from 5 ml to 500 ml. Vessels come with 5 micron frits and are interchangeable. Multiple vessel configuration options available.

**Collection Vessel:** Externally mounted. Many options available.

**Dimensions:** Width: 40 cm, Depth: 57 cm, Height: 102 cm.

**Weight (with a single 100 ml vessel):** 32 kg (70 lbs.)

## Configuration Options

**Co-solvent Addition:** Doping module or direct, in-line metered addition.

**Interchangeable Sample Vessels:** 5, 10, 25, 50, 100, 300 and 500 ml (with 5 micron Frits).

**Sample Baskets:** S/S mesh, with lids.

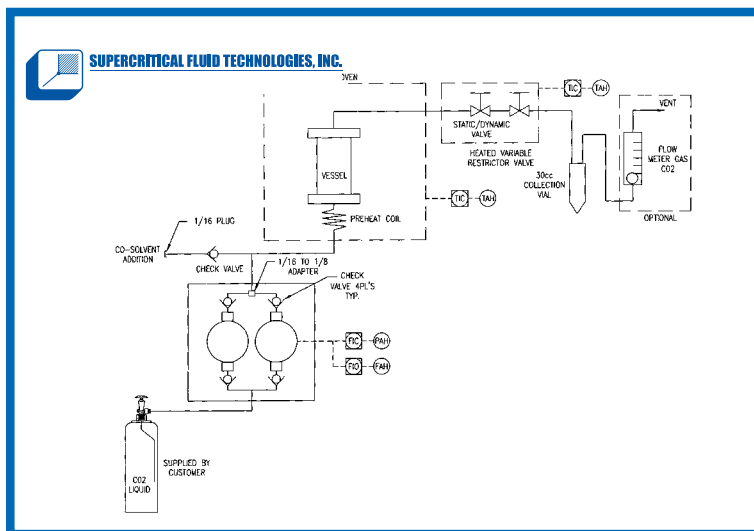
**Sample Bags:** Nylon mesh, various sizes.

**Flow Meter:** 0 - 35 SLPM of expanded gas.

## System Requirements

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

**Liquid Gas Supply:** Liquid CO<sub>2</sub> cylinder with dip tube.



SFT-110XW SFE Flow Diagram (with Single Vessel) ▲

Inside of SFT-110XW SFE with (2) 100 ml Vessels ►

