Series 4000 SFC

The Series 4000 SFC was designed specifically for separations performed on capillary and 1mm ID packed columns. It is equipped with a flame ionization detector and a 10 mL high-pressure syringe pump that was developed for the precision delivery of supercritical carbon dioxide.

Unique Features of the Series 4000

Temperature controlled pressure transducer

- Up to 10X improvement in retention time reproducibility
- Improvement in pressure accuracy

High pressure syringe pump

- Delivers the carbon dioxide with pulseless flow; therefore, no dampening is needed
- Longer lifetime for pump seals

Column technology

- Capillary columns in 50 µm ID sizes and a variety of different phases
- Packed columns are optimized for SFC
- All columns are tested under SFC conditions

Injection techniques

- Split/Splitless injection for reduced peak tailing on early eluting peaks and sharpened peaks for enhanced resolution and sensitivity
- Timed Split for direct injection

Series 4000 Applications

Petroleum:

· ASTM D5186 (aromatics and polyaromatics in diesel and jet fuels)
· ASTM D6550 (olefins in gasoline)
· Alcohols in denatured ethanol
· Biodiesel mixtures (1-99%)
· Heavy petroleum compounds and residues

Petrochemicals:

· Thermally and hydrolytically unstable compounds,
e.g., isocyanates
· Surfactants (non-ionic)
· α-acids

Electronic Industry:

· Polyfluorocarbons

Pharmaceuticals:

· Thermally unstable compounds
· Polymers such as PEG's and polyethers

Foods:

· Fatty acids
· Mono, di, and triglycerides
· Natural products
· Surfactants (non-ionic)

Polymers:

· Light polymers (<5,000 to at most 10,000 amu)
· Polymer additives (especially where GC or HPLC require derivatization)

General:

· Compounds lacking UV chromophores

Series 4000 SFC
Specifications

Footprint:	
Weight:	80 kg
Dimensions (h x w x d):	68 x 42 x 57 cm
Columns:	
Packed:	1mm ID X 5,10,25 and 50cm
Capillary:	50µm ID X 10m
Pumping system:	
Volume:	10-mL
Pressure range:	80 to 400 atm
Pump type:	Pulse-free syringe pump
Pump-head cooling:	Peltier cooling, -5°C
Oven:	
Temperature range:	5°C above ambient to 200°C
Temperature programming:	40°C to 200°C in 0.1°C increments
Heated zones:	Three
Detector gas control:	Electronic pressure control
Secondary column oven:	
Temperature range:	5°C above ambient to 200°C
Dimensions (h x w x d):	5 x 3 x 2 cm
Injection:	
Volume:	<0.06 µL to 0.5 µL
Style:	Valco injection valve, helium actuated with 20 msec actuation times
Mode:	Conventional split, timed-split, and split/splitless
Switching valves:	
Port volume:	0.40 mm
Style:	Valco 6 port, helium actuated
Detector:	
Standard detector:	Flame ionization detector (FID)
Temperature:	400°C, increments of 1°C
Dynamic range:	Better than 10^6
Min. detection amount:	>5 pg carbon/sec
Design:	Grounded jet
Flow rate compatibility:	Capillary to 2mm packed columns
Utility requirements:	
Power:	110 volts or 220 volts
Data acquisition and control software:	EzChrom Elite

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