

# 210-MS Ion Trap Mass Spectrometer



## A capable and reliable GC/MS for routine application

The Varian 210-MS along with the Varian 431-GC provides great performance and reliability for routine applications in a small footprint. The system's simplicity, robustness, and affordability make it an excellent choice for high-throughput laboratories.

## 210-MS Specifications

- Mass range: 10 to 650 Da; scan range is time programmable throughout the run
- Selected Ion Storage (SIS): Stores up to five ranges of ions; ejects matrix, column bleed
- Scan rate: Fixed at 5600 Da/sec (s) to maximize spectral acquisition
- Resolution: Unit mass, measured as 10% valley, over the entire range
- Mass calibration stability: RF-only field is stable for weeks to several months at constant analyzer temperature and helium flow
- Linear dynamic range:  $10^3$  to  $10^4$  (compound dependent based upon analytical methods)
- Filament assembly: Dual filament
- Transfer line temperature: Independent control; maximum 350 °C
- Manifold temperature: Independent control; maximum 120 °C
- Analyzer temperature: Independent control; anodized block; maximum 250 °C
- Electrode surface: Chrome (standard)
- Power fail protection: Solenoid closes septum purge line and supplies supplemental helium flow through the column to vent MS
- Turbomolecular pump: Varian V-81 pump, air cooled, and thermostatically protected; 81 L/s capacity; pumping at 81 L/s supplies a vacuum of approximately 10–5 Torr (1.3 mPa) in the manifold

## Foreline Pump

- DS-42, dual stage, rotary vane
- Voltage: 120, 230 V
- Pumping speed greater than 38 L/min (2.3 m<sup>3</sup>/hr)
- Weight: 11 kg (24 lb)



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## Pump Options

- Oil mist eliminator

## Optional MS Features

- SilChrom™ electrodes: Silica-coated electrodes for maximum chromatographic inertness
- Ion gauge: Bayer-Alpert gauge tube with burn-out resistant, thoria-coated iridium (ThO-Ir) filaments
- Spectral databases: National Institute of Standards and Technology (NIST), Wiley and Pfleger Maurer Weber (PMW) libraries are available
- Selection of custom software:
  - EnviroPro™ for general and EPA specific report requirements
  - ToxPro™ Plus includes three-ion ratio reports for toxicology applications
  - MultiCompound for general extended reporting
  - Quick Access™ optimizes workflow for multi-user, high-throughput laboratories
  - Access control and audit trail software for 21 CFR Part 11 compliance

## Power Requirements

- 100-130 Vac, 60 Hz ± 3 Hz, 12 A, 1.5 kW
- 200-260 Vac, 50 Hz ± 3 Hz, 6 A, 1.5 kW

## Environmental Requirements

- Temperature: 15 °C to 30 °C
- Humidity: 20% to 80% relative humidity (without condensation)

## 431-GC Features

### Column Oven

- Dimensions: 28 cm (h) x 23 cm (w) x 11 cm (d) (11 in. x 9 in. x 4 in.)
- Temperature range: 450 °C
- Temperature-programmed ramps: Seven ramps with eight isothermal holds
- Maximum temperature ramp rate: 100 °C/min for all voltages
- Cool-down rate: 450 °C to 50 °C in 5.2 min

## Injectors

### 1177 Split/Splitless Injector (S/SL)

- Temperature range: 50 °C to 450 °C isothermal

## Injector EFC

- Accuracy: ±0.1 psi, 5% full scale flow
- Resolution: 0.1 psi or 0.1 mL/min

## Utilities and Environment

### Power Requirements

- 120 Vac ± 10%, 60 Hz ± 2%, 20 A, 2.4 kW
- 230 Vac ± 10%, 50 Hz ± 2%, 10 A, 2.3 kW
- 101 Vac ± 10%, 50 or 60 Hz ± 2%, 25 A, 2.5 kW

## Environmental Requirements

- Humidity: 5% to 95% relative humidity (without condensation)
- Temperature: 10 °C to 40 °C operating

## Performance Specifications

Mode	Test Standard	S/N
El	1 pg octafluoronaphthalene	50:1

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