



• SCION™ SQ Series GC Quadrupole Mass Spectrometers

Specification Sheet

The SCION SQ Select and Premium GC-MS systems are the chromatographer's choice for quadrupole mass detector; they are designed to match your most stringent needs for analytical performance and productivity. The SCION SQ series offers superior sensitivity and robustness based on innovative ion optics, and fast and easy methods development. These SCION SQ GC-MS systems define a new standard of usability for routine analysis.

Analyzer - MS Specifications

- Scan modes: Full Scan, Selected Ion Monitoring (SIM), Combined Full Scan-SIM
- Standard ionization mode: Electron Ionization (EI)
- Optional ionization modes: Chemical Ionization (CI) including PCI and NCI on Premium model
- Ion source: Auto-aligning EI or CI (optional) sources constructed of inert materials
- q0 ion guide: 90° curved RF-only entrance quadrupole with active ion beam focusing and heating at 135 °C (Premium model only)
- Source temperature: 100 °C to 350 °C
- Filament and emission current: dual filaments; up to 200 µA
- Electron energy: adjustable from 0 to 150 eV
- Mass filter: quadrupole with pre- and post-filter; high ion transmission efficiency lens-less design
- Mass range (m/z): 1 to 1200 Da
- Scan rate: up to 14,000 Da/sec
- Minimum scan time (dwell time): 1 ms
- Resolution: user adjustable from 0.7 Da (Unit) to 4 Da, also with three user-selectable settings (Unit, Standard, Open)
- Mass axis stability: ± 0.1 Da over 48 hours
- Transfer line temperature: up to 350 °C
- Manifold temperature: 40-50 °C
- Detector: Electron multiplier with ± 5 kV post acceleration and with on-the-fly multiplier gain optimization for Extended Dynamic Range (EDR™); direct ion collection onto multiplier for negative ion detection without dynode loss
- Turbomolecular pump: dual stage, 310/400 L/sec, air-cooled for helium carrier gas flow up to 25 mL/min (Premium model)
- Turbo molecular pump, single stage, 400 L/sec, air-cooled for helium carrier gas flow up to 25 mL/min (Select model)
- Foreline pump: dual-stage rotary vane; voltage 120/230V
- Power requirements: 100-240 Vac, 50/60 Hz ± 3 Hz, 1200 VA
- Operating environment temperature: 15 °C to 33 °C
- Operating environment humidity: 20% to 80% relative humidity (without condensation)

Software

- Bruker MS Workstation for data acquisition, data handling, and reporting
- Optional Spectral Libraries: NIST, Wiley, and Maurer/ Pflieger /Weber (MPW) libraries with user-customizable libraries and automatic searching of multiple libraries
- Autotune in all ionization modes, special tunes for EPA methods (DFTPP/BFB)



Gas Chromatograph (Bruker 436 and 456 Model GC)

For more specification on GC, refer to the GC Data Sheet

- Injectors: Split/Splitless (SSL), Programmable Temperature Vaporization (PTV), Cold-on-Column (COC), etc. Back-flush option available for all injectors.
- Autosamplers: CP 8400; CP 8410; CTC PAL COMBI-xt; CTC PAL GC-xt
- GC Oven Temperature: Ambient+4 °C to 450 °C, -100 °C to 450 °C (with Liquid N₂); -60 °C to 450 °C (with Liquid CO₂)
- Temperature Ramps/Holds: 24/25
- Pneumatic: Electronic Flow Control (EFC) or Manual (456)
- ChromatoProbe™: Direct introduction of solids, liquids or slurries (requires PTV injector)
- MS tuning, tune-to-target, pump-down, and venting controlled by the multi-language touchpad on the GC.

Performance Specifications*

Mode	Test (with SSL injector in hot splitless mode)	Specification†
EI Full Scan	1 pg Octafluoronaphthalene (OFN) from m/z 50 to 300 for m/z 272	S/N ≥ 1500:1
PCI Full Scan‡	100 pg Benzophenone (BZP) from m/z 80 to 230 for m/z 183	S/N ≥ 600:1
NCI Full Scan‡	200 fg OFN from m/z 200 to 300 for m/z 272	S/N ≥ 1000:1

* All tests performed with helium at carrier gas

† The Signal-to-Noise ratio S/N values are based on RMS

‡ CI tests use methane as reagent gas

Dimensions (H x W x D) and Weight

Additional spaces should be added for the data system, monitor and printer

- SCION SQ: 45 cm (18 in.) x 28 cm (11 in.) x 57 cm (22.5 in.); 37 kg/82 lb
- 436 GC: 57 cm (23 in.) x 32 cm (13 in.) x 61 cm (24 in.); 27 kg/59 lb
- 456 GC: 57 cm (23 in.) x 66 cm (26 in.) x 56 cm (22 in.); 43 kg/95 lb
- CP-8400/8410 Autosamplers: 40 cm (16 in.) x 22 cm (9 in.) x 47 cm (18 in.); 7 kg/15.3 lb