

• 300-MS GC Quadrupole Mass Spectrometer

Specification Sheet

The Bruker 300-MS is a configurable, easy-to use quadrupole mass spectrometer; designed to uniquely match your budget and analytical requirements. The 300-MS offers: 10 - 800 Da mass range, superior negative ion performance, upgradable from single-quadrupole to triple-quadrupole configuration and flexible method development. The 300-MS is ideal for the routine, value-conscious laboratory where throughput and ruggedness are essential

Analyzer - MS Specifications

- Scan modes: Q1MS, Q3MS, Precursor, Product, Neutral Loss, Selected Ion Monitoring (SIM), Multiple Reaction Monitoring (MRM)
- Ionization modes: Electron Ionization (EI) or positive/ negative Chemical Ionization (CI)
- Source: Inert EI/CI source with vacuum interlock for quick change of ion volumes; entrance hexapole isolates source contaminants from mass filter; inert source compatible with abrasive cleaning for the life of the source
- Source temperature: independent control, 100 °C to 325 °C
- Filament: single, 50 to 500 μ A (emission current)
- Electron energy: 20 eV, 70 eV or 150 eV
- Mass filters: quadrupole with pre- and post-filters; lens-less design maximizes ion transmission efficiency
- Collision cell: 180° curved path with pre- and post- filter region; long path ensures high dissociation efficiency and reduces chemical noise
- Mass range: up to 800 Da
- Scan rate: up to 6000 Da/sec
- Adjustable dwell times: 2-14,000 ms (software defined per transition)
- Resolution: 0.7 Da at 1250 Da/sec
- Mass axis stability: ± 0.1 Da over 24 hours
- Transfer line temperature: independent control; 50 °C to 350 °C
- Manifold temperature: independent control; 30 °C to 50 °C
- High efficiency electron multiplier: positive or negative ions, constant 5 kV post acceleration voltage, 80 ms Positive to Negative switching time
- EI dynamic range: $>10^5$ (compound dependent)
- Carrier gas flow: up to 8 mL/min
- Turbomolecular pump: dual stage, 310/400 L/sec, air-cooled
- Power requirements: 100-240 Vac, 50/60 Hz ± 3 Hz, 1200 VA
- Operating environment temperature: 15 °C to 30 °C
- Operating environment humidity: 20% to 80% relative humidity (without condensation)

Optional MS Features

- Spectral databases: NIST, Wiley, and Pfleger/Maurer/ Weber (PMW) libraries
- MS/MS: upgrade single quadrupole systems to triple quadrupole at any time
- Direct sampling probes (DIP and DEP): introduce solids or liquids without chromatographic separation; probe controlled through the mass spectrometer (no external controller required)

431-GC Specifications - Column Oven

- Dimensions: 23 cm (w) x 28 cm (h) x 11 cm (d) (9 in. x 11 in. x 4.3 in.)
- Dimensions: 28 cm (w) x 28 cm (h) x 20 cm (d) (11 in. x 11 in. x 8 in.)
- Temperature range: Ambient +4 °C to 450 °C; -55 °C to 450 °C with liquid CO₂
- Temperature-programmed ramps: 7 ramps with 8 isothermal holds
- Maximum temperature ramp rate: 100 °C/min for all voltages
- Cool-down rate: 450 °C to 50 °C in 5.2 min

1177 Split/Splitless Injector (S/SL)

- Maximum temperature: 450 °C isothermal
- Inert UltiMetal™ option

Injector EFC

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

Foreline Pump

- Dual stage, rotary vane
- Voltage: 101, 120, 230 V ;same as GC voltage

300-MS Dimensions

- 50 cm (w) x 38 cm (h) x 71 cm (d) / 19.5 in. x 15 in. x 28 in.; 108 kg/237 lb

Performance Specifications*

Mode	Amount	Test Standard	S/N [†]
EI Full Scan	1 pg	Octafluoronaphthalene	$\geq 500:1$
EI SIM	50 fg	Octafluoronaphthalene	$\geq 20:1$
EI MS/MS	100 fg	Octafluoronaphthalene	$\geq 500:1$
PCI Full Scan [‡]	20 pg	Benzophenone	$\geq 20:1$
PCI MS/MS [‡]	100 fg	Benzophenone	$\geq 20:1$
NCI SIM	5 fg	Octafluoronaphthalene	$\geq 10:1$

*With the CP-1177 Injector in hot splitless mode.

[†]Based on RMS noise.

[‡]PCI is with methane reagent gas.