# Agilent 7250 GC/Q-TOF

## Data Sheet

The Agilent 7250 GC/Q-TOF with Agilent MassHunter Software offers outstanding sensitivity, selectivity, and mass spectral information. Low energy Electron Ionization (EI) provides accessible molecular ion information for compound identification and structure elucidation workflows. High resolution and accurate mass data allow identification of unknown compounds in the most complex matrix. MS/MS data from sensitive product ion spectra can provide structural information, further increase selectivity, and can remove matrix interferences. Acquisition rates up to 50 Hz allow even the narrowest chromatographic peaks to be characterized with full spectrum data. Fast acquisition speed, accurate mass measurement, and SureMass signal processing facilitate deconvolution of coeluting GC peaks that are inseparable by unit-resolution MS. The 7250 GC/Q-TOF must be combined with the high-performance Agilent 7890B Gas Chromatograph.

| Parameter | Specification |
|---|---|
| Ionization mode (standard) | Conventional electron ionization (EI) at 70 eV |
| Ionization mode (standard) | Low energy EI |
| Electron energy | Settable, 5-200 eV |
| Ion source material | Noncoated, proprietary inert source |
| Ion source temperature | Settable, 100 to 350 °C |
| Ion source access | Quick Vent with nitrogen purge |
| Precursor ion mass filter | Proprietary monolithic hyperbolic gold-coated quartz quadrupole |
| Quadrupole Isolation mass range | 20 to 1,050 $m/z$ |
| Quadrupole resolution (FWHH) | Selectable, 0.7 to 3.0 Da using default tune<br>Settable, 0.4 to 4.0 Da using custom tune |
| Quadrupole mass axis stability | < ±0.10 Da over 24 hours (10–40 °C) |
| Quadrupole temperature | 100 to 200 °C |
| Collision cell | Linear hexapole |
| Collision cell gas | 4:1 Helium:Nitrogen |
| Collision energy | Settable up to 60 eV |
| Ion extraction and mirror | Two-stage second-order corrected |
| TOF flight path length | 3 m |
| Detector | Microchannel plate/scintillator/PMT; ADC electronics |
| TOF detector sampling rate | ADC - 160 Gbits/sec |
| Dynamic range (electronic) | >$10^5$ |
| Tuning | SWARM Autotune for GC/Q-TOF; Manual tune |
| Pumping system | Four stages; split from turbomolecular pump 200/200 L/sec ($N_2$) and two 300 L/sec ($N_2$) turbomolecular pumps |
| Software | Agilent MassHunter Acquisition, Data Analysis (Qualitative and Quantitative) and Reporting |
| Single point of control | Data system capable of full instrument control; including Agilent 7890B GC and Agilent 7250 GC/Q-TOF |
| Simultaneous MS and GC | Collect two GC detector signals while acquiring MS data |

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# Gas Chromatograph (Agilent 7890B GC)

For more specifications on GCs, refer to the GC Data Sheet.

| Parameter | Specification |
|---|---|
| Injection port | Split/splitless, Multimode inlet, PTV, and others |
| Autosampler | Agilent 7693 ALS, Agilent 7650, Agilent 7683 ALS, CombiPAL, PAL3; Agilent 7697A Headspace Sampler |
| Oven temperature | Ambient +4 to 450 °C |
| Oven ramps/plateaus | 20/21; negative ramps are allowed. |
| Electronic pneumatic control (EPC) | Auto pressure regulation for split/splitless, septum purge |
| Carrier gas control modes | Constant pressure and flow modes; pressure and flow programmable |
| Pneumatic splitter | Capillary Flow Technology devices for effluent splitting, backflushing, and column switching |
| Backflush ready | 3-Channel CC/EPC Module |

| Parameter | Measure | Specification |
|---|---|---|
| Acquisition rate | Spectra / second (Hz) | 1–50 Hz<br>Independent of mass resolution |
| Mass range | Recordable mass range (inclusive) | Up to 20–3,000 $m/z$<br>Independent of acquisition rate |
| EI Instrument detection limit (IDL) | Statistically derived at 99 % confidence level from the area precision (<8 % RSD) of eight sequential splitless injections (ALS 7693A[1]) of 1 µL, 100 fg/µL OFN[2], at $m/z$ 271.9867 | IDL <60 fg OFN[2] |
| TOF mass resolution | Spectral peak width at half height; splitless injection of 1 pg OFN[2] at $m/z$ 271.9867 | >25,000 at $m/z$ 271.9867<br>Independent of acquisition rate |
| TOF mass accuracy | Average mass error of eight sequential injections of 1 pg OFN[2] at $m/z$ 271.9867 | <2 ppm RMS |

[1]Area precision specification is demonstrated only if autosampler is part of system (8% for ALS)

[2]Octofluoronapthalene (OFN)

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