



Agilent 7200 Series Q-TOF GC/MS System

Data Sheet

The Agilent 7200 Series Q-TOF GC/MS System with MassHunter software offers outstanding sensitivity, selectivity, and mass spectral information. High resolution and accurate mass allows trace-level identification of unknown compounds, in addition to quantification in the most complex matrix. MS/MS with high resolution accurate mass product ion spectra further increases the selectivity and removal of matrix interferences. Acquisition rates up to 50 Hz allow even the narrowest chromatographic peaks to be quantified with full scan spectra. Fast acquisition speed and accurate mass facilitate deconvolution of coeluting GC peaks that are inseparable by low resolution MS. The Agilent 7200 Series system must be combined with the high performance 7890A gas chromatograph.

Agilent 7200 Series Q-TOF GC/MS System

Quadrupole Time-of-Flight Mass Spectrometer

Ionization mode (standard)	EI (High Sensitivity Extraction Source)
Ionization mode (optional)	PCI and NCI
Ion source material	Non-coated, proprietary inert source
Ion source temperature	106 to 350 °C
Electron energy	10 to 200 eV
Removal ion source	Ion source (ion volume, lens and filaments) removable without breaking vacuum through an isolation valve
Filaments	Dual filaments for EI source; single filament for CI
Quadrupole mass range	m/z 50 to 1,050
Resolution (FWHM)	Selectable, 0.7 to 3.0 Daltons using default tune Settable, 0.4 to 4.0 Daltons using custom tune
Dynamic range (electronic)	$> 10^5$
Mass filter	Proprietary monolithic hyperbolic goldcoated quadrupole
Quadrupole mass axis stability	$< \pm 0.10$ Da over 24 hours (10–40 °C)
Quadrupole temperature	100 to 200 °C
Collision cell	Linear hexapole
Collision cell gas	Nitrogen (1–2 mL/min), argon optional
Collision energy	Selectable up to 60 eV
Ion extraction and mirror	Two stage second order corrected
TOF flight path length	2 m
Detector	Microchannel plate/scintillator/PMT; ADC electronics
TOF mass range	m/z 50–1700.
TOF detector sampling rate	ADC - 32 Gbits/sec
Tuning	Autotune or manual
Spectra acquisition rate	1–50 spectra/sec
GC carrier gas flow	Up to 8 mL/min; optimal sensitivity at 1–2 mL/min; the turbo can accommodate higher flows but sensitivity will be significantly lower due to rapid flushing of the source
CI gas flow	5 mL/min methane
Pumping system	Four stages; split flow turbomolecular pump 200/200 L/sec (N ₂) and two–300 L/sec (N ₂) turbomolecular pumps
Software	Agilent MassHunter Acquisition, data handling (Qual and Quant) and reporting
Simultaneous MS and GC	Collect 2 GC detector signals while acquiring MS data



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Gas Chromatograph (Agilent 7890A GC)

For more specifications on GCs refer to the GC Data Sheet

Injector	Split/splitless, Multi-mode inlet, PTV and other
Autosampler	Agilent 7693, 7683 ALS; CombiPAL; 7697A Headspace
Sampler oven temperature	4 °C above ambient 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

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Installation Checkout Specifications¹

EI Instrument Detection Limit	< 250 fg – Statistically derived at 99% confidence level from the area precision (<8% RSD) of eight sequential splitless injections (ALS7693A) of 1 pg OFN ² , <i>m/z</i> 271.9867
EI SNR (full spectrum)	> 2000:1 – RMS noise, best of eight sequential splitless injections of 1 pg OFN ² , <i>m/z</i> 271.9867
EI TOF mass resolution	> 12,500 – Single splitless injection of 1 pg OFN, <i>m/z</i> 271.9867, $\Delta m = \text{FWHM}$, passing both mass resolution and mass accuracy (mass resolution typically >13,500)
EI TOF mass accuracy	< 5 ppm (within range 271.9867 ± 0.0014) – Single splitless injection of 1 pg OFN passing both mass resolution and mass accuracy (mass accuracy typically < 2 ppm)
PCI SNR (full spectrum)	> 1500:1 – RMS noise, best splitless injection of 100 pg BZP ² , methane reagent gas, <i>m/z</i> 183.0804

Reference Specification (Factory Tested Only)

PCI instrument detection limit	< 24 pg – Statistically derived at 99% confidence level from the area precision (<8% RSD) of eight sequential splitless injections (ALS7693A) of 100 pg BZP ² , <i>m/z</i> 183.0804
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Gas and Physical Requirements³

Nitrogen (99.9999%)	Approximately 1 mL/min as collision gas
Nitrogen (clean and dry)	2-3 L/min continuous purge of electronics
Nitrogen (clean and dry)	> 30 L/min for 10 min during source change
Dimensions (MS only)	63.5 cm (w) × 89 cm (d) × 47 cm (h)
Weight (MS only)	148 kg
Dimensions DS202 rough pump	18 cm (w) × 35 cm (d) × 28 cm (h)
Weight rough pump	21.5 kg
Dimensions (7890A GC)	58 cm (w) × 54 cm (d) × 57 cm (h)
Weight (7890A GC)	45 kg

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¹Area precision specification is only demonstrated if autosampler is part of system

²OFN = Octofluoronaphthalene; BZP = Benzophenone

³For more details see Site Preparation Document (Conversion: 1 kg = 2.2 pounds; 1 cm = 0.39 inches)

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