



# Agilent 7000B Triple Quadrupole GC/MS System

## Data Sheet



The Agilent 7000B GC/MS Triple Quadrupole System with MassHunter software offers outstanding sensitivity and selectivity. The GC and MS components have been designed to deliver consistent sensitivity and accurate quantification of trace-level target compounds in very complex matrices. The Agilent 7000B system must be combined with the high-performance 7890A gas chromatograph.

## Agilent 7000B Triple Quadrupole GC/MS System

### Triple Quadrupole Mass Spectrometer

Mode (standard)	EI (High Sensitivity Extraction Source)
Modes (optional)	PCI and NCI
Ion source material	Noncoated, proprietary inert source
Ion source temperature	106 to 350 °C
Filaments	Dual filaments for EI
Electron energy	10 to 300 eV
Mass range ( <i>m/z</i> )	1.2 to 1,050
Resolution	Unit mass adjustable by tune, 0.7 to 2.5 daltons
Dynamic range (electronic)	> 10 <sup>6</sup>
Scan rate (electronic)	Up to 6,250 u/s
MRM speed (transitions/sec)	500
Minimum MRM dwell	1 msec
Mass filters (2)	Proprietary monolithic hyperbolic gold-coated quadrupole
Mass axis stability	< ± 0.10 u over 24 hours (10-40 °C)
Quadrupole temperature	106 to 200 °C
Collision cell	Linear hexapole
Collision cell gas	Nitrogen with helium quench gas for reduction of metastable helium
Collision energy	Selectable up to 60 eV
Detector	Triple-Axis HED-EM with extended-life EM and dynamically ramped-iris
Tuning	Autotune or manual
Total gas flow	Up to 8 mL/min GC carrier plus another 5 mL/min of methane for CI operation, plus an additional 1–2 mL/min of N <sub>2</sub> and He for the collision cell gases
Pumping system	Dual stage turbomolecular pump
Software	Agilent MassHunter acquisition, data handling (quant/qual) and reporting
Simultaneous MS and GC	Can 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 others available
Autosampler	7693 ALS, CombiPAL, G1888A <sup>1</sup> 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

## Installation Checkout Specifications

EI MRM sensitivity	100 fg of octafluoronaphthalene (OFN) will produce > <b>500:1</b> RMS S/N for the transition of $m/z$ 272→241 or 272→222 using autotune parameters
PCI MRM sensitivity	100 fg BZP will produce > <b>50:1</b> RMS S/N for the transition of $m/z$ 183→105 (using methane)

## Other Reference Specifications<sup>2</sup>

EI MRM area precision	10 sequential injections of 100 fg OFN will give an area precision of < 8% RSD
EI scan sensitivity	1pg OFN will produce > <b>300:1</b> RMS S/N for $m/z$ 272 scanning from $m/z$ 50 to 300
NCI SIM sensitivity	10 fg OFN will produce > <b>200:1</b> RMS S/N for $m/z$ 272 (using methane)

## Physical Requirements

Dimensions (Triple Quad MS)	35 cm (w) × 86 cm (d) × 47 cm (h) Additional space should be added for the data system and printer.
Weight (Triple Quad MS)	59 kg
Dimensions (mechanical pump)	18 cm (w) × 35 cm (d) × 28 cm (h)
Weight (mechanical pump)	21.5 kg
Dimensions (7890A GC)	58 cm (w) × 54 cm (d) × 57 cm (h)
Weight (7890A GC)	45 kg

1. G1888A programmed through module keyboard and operated with Remote Start.

2. EI scan and NCI SIM function are demonstrated at installation; reference specifications are not confirmed.

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Dwell (msec)	10	5	1
# Transitions	18	33	99
Cycle Time	198	198	198
MRM/sec	91	167	500
n = 1	37453	39629	36246
2	37854	38444	34524
3	36464	39402	35007
4	38547	37270	33895
5	38372	38376	36955
6	36349	37881	33315
7	39439	32900	34861
8	37654	37787	37986
9	37588	38620	34307
10	37140	36425	34700
Avg Area	37686	37673	35180
SD Area	940	1925	1447
% RSD	2.50%	5.10%	4.10%

Typical peak area precision at short dwell times and high MRM/sec conditions (sample: 10 pg propylamide)

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