

Agilent 6470B Triple Quadrupole LC/MS with Agilent Jet Stream Source



The Agilent 6470B triple Quadrupole LC/MS delivers superior reliability, sensitivity, and robustness for targeted trace-level analysis. Designed with robustness, versatility, and throughput in mind, it contains Agilent's signature octopole ion guide, hyperbolic quadrupoles, curved and tapered hexapole collision cell, and advanced detector geometry. Built with VacShield to reduce instrument downtime providing faster maintenance without breaking vacuum. The end result is a rugged and versatile instrument suitable for high-throughput targeted screening or trace-level quantitative research applications.

MRM sensitivity IDL ESI positive 10 fg of reserpine injected on column, quantifying on the transition m/z 609.3 to 195.1 IDL -4.0 fg, with 99% confidence (verified onsite during installation) MRM sensitivity IDL ESI negative 10 fg of chloramphenicol injected on column, quantifying on the transition m/z 321.0 to 152.0 IDL -4.0 fg, with 99% confidence (verified onsite during installation) MRM sensitivity S/N ESI negative 1 pg of reserpine injected on column, quantifying on the transition m/z 321.0 to 152.0 S/N > 750,000c1 Mass resolution (autoture) Automatically adjusted during Autoture procedure 0.7 Da, 1.2 Da, and 2.5 Da (Unit, Wide, Widest) Mass resolution (manual tune) Manually adjusted by the user during Manual tune procedure Down to 0.5 Da Mass range m/z 5 to 3,000 0.1 Da from m/z 5 to 1,000 Mass stability column/z 1,000 to 2,000 0.2 Da from m/z 2,000 to 3,000 Dynamic range column/z 1,000 to 2,000 0.2 Da from m/z 2,000 to 3,000 Acquisition modes column/z 1,000 to 2,000 0.2 Da from m/z 2,000 to 3,000 Acquisition modes column/z 1,000 to 2,000 0.2 Da from m/z 2,000 to 3,000 Acquisition modes m/s sol, x 1 da from zero during dain sol, x 2,000 0.2 Da from m/z 2,000 to 3,000 Maximum Scan area column/z 2,000	Parameter	Measure	Specification
MRM sensitivity S/N ESI positive 1 pg of reserpine injected on column, quantifying on the transition m/z 609.3 to 195.1 S/N >750,000:1 MRM sensitivity S/N ESI negative 1 pg of chloramphenicol injected on column, quantifying on the transition m/z 321.0 to 152.0 S/N >750,000:1 Mass resolution (autotune) Automatically adjusted during Autotune procedure 0.7 pa. 1.2 pa. and 2.5 pa (Unit, Wide, Widest) Mass resolution (manual tune) Manually adjusted by the user during Manual tune procedure 0.1 pa from m/z 5 to 3,000 Mass accuracy 0.1 pa from m/z 5 to 1,000 0.2 pa from m/z 1,000 to 2,000 0.3 pa from m/z 2,000 to 3,000 0.3 pa from m/z 2,000 to 3,000 0.3 pa from m/z 2,000 to 2,000 0.3 pa from m/z 2,000 to 2,0	MRM sensitivity IDL ESI positive	10 fg of reserpine injected on column, quantifying on the transition <i>m/z</i> 609.3 to 195.1	
MRM sensitivity S/N ESI negative 1 pg of chloramphenicol injected on column, quantifying on the transition m/z 321.0 to 152.0 5/N > 750,000:1 Mass resolution (autotune) Automatically adjusted during Autotune procedure 0.7 Da, 1.2 Da, and 2.5 Da (Unit, Wide, Widest) Mass resolution (manual tune) Manually adjusted by the user during Manual tune procedure Down to 0.5 Da Mass range 0.1 Da from m/z 5 to 3,000 Mass accuracy 0.1 Da from m/z 2.000 to 3,000 Mass stability 40.1 Da in 24 hours up to m/z 2,122 in Positive mode and m/z 2,234 in Negative mode Dynamic range 56.0 × 10°, resulting in up to 6 orders of linear dynamic range from the LOD Polarity switching (electronics) <25 ms	MRM sensitivity IDL ESI negative	10 fg of chloramphenicol injected on column, quantifying on the transition m/z 321.0 to 152.0	IDL <4.0 fg, with 99% confidence
Mass resolution (autotune) Automatically adjusted during Autotune procedure Mass resolution (manual tune) Manually adjusted by the user during Manual tune procedure Down to 0.5 Da Mass range Mass accuracy Dynamic range Dynamic range Polarity switching (electronics) Acquisition modes Acquisition modes Maximum scan rate Maximum MRM acquisition rate Minimum MRM acquisition rate MRM transitions Dynamic MRM transitions Triggered MRM transitions Manually adjusted during Autotune procedure Down to 0.5 Da Marz 5 to 3,000 0.1 Da from m/z 5 to 1.000 0.2 Da from m/z 2,000 to 2,000 0.3 Da from m/z 2,000 to 3,000 0.3 Da from m/z 2,000 to 3,000 0.3 Da from m/z 2,200 to 3,000 0.3 Da from m/z 2,200 to 1,000 0.3 Da from m/z 2,122 in Positive mode and m/z 2,234 in Negative mode 4.6.0 × 10°, resulting in up to 6 orders of linear dynamic range from the LOD Folarity switching (electronics) Acquisition modes Acquisition	MRM sensitivity S/N ESI positive	1 pg of reserpine injected on column, quantifying on the transition m/z 609.3 to 195.1	S/N >750,000:1
Mass resolution (autotune) Automatically adjusted by the user during Manual tune procedure Mass range Mass range Mass accuracy Mass accuracy Mass stability Mass stability Mass stability Mass stability Dynamic range Polarity switching (electronics) Acquisition modes Acquisition modes Maximum MRM acquisition rate Maximum MRM dwell time Maximum MRM dwell time Mide, Widest) Moving Automatically adjusted by the user during Manual tune procedure Down to 0.5 ba Mr/z 5 to 3.000 0.1 Da from m/z 5 to 1.000 0.2 Da from m/z 1,000 to 2,000 0.3 Da from m/z 1,000 to 2,000 0.3 Da from m/z 2,000 to 3,000 4.01 Da in 24 hours up to m/z 2,122 in Positive mode and m/z 2,234 in Negative mode >6.0 × 10°, resulting in up to 6 orders of linear dynamic range from the LOD Maximum Scan, neutral loss scan, neutral gain scan, precursor ion scan, SIM, and MRM (static, dynamic, triggered) Maximum MRM acquisition rate MRM transitions MRM transitions Triggered MRM transitions Up to 10 MRM transitions per method Up to 10 MRM transitions per method Up to 10 MRM transitions per method Up to 10 MRM transitions primary search and compound confirmation	MRM sensitivity S/N ESI negative	1 pg of chloramphenicol injected on column, quantifying on the transition m/z 321.0 to 152.0	S/N >750,000:1
Mass range m/z 5 to 3,000 Mass accuracy 0.1 Da from m/z 5 to 1.000 to 2,000 to 2,000 to 2,000 to 3,000 m/z 1,000 to 2,000 to 3,000 m/z 1,000 to 3,000 Mass stability -0.1 Da in 24 hours up to m/z 2,122 in Positive mode and m/z 2,234 in Negative mode Dynamic range -6.0 × 10°, resulting in up to 6 orders of linear dynamic range from the LOD Polarity switching (electronics) -25 ms Acquisition modes MS1 scan, MS2 scan, product ion scan, neutral loss scan, neutral gain scan, precursor ion scan, SIM, and MRM (static, dynamic, triggered) Maximum scan rate 17,000 Da/sec Maximum MRM acquisition rate 500 MRMs/sec Minimum MRM dwell time 0.5 ms MRM transitions 450 per time segment, up to 13,500 ion transitions per method Dynamic MRM transitions 4,000 dynamic MRM transitions per method Triggered MRM transitions Up to 10 MRM transitions (primary and secondary) for library search and compound confirmation	Mass resolution (autotune)	Automatically adjusted during Autotune procedure	
Mass accuracy Do 1 Da from m/z 5 to 1.000 0.2 Da from m/z 1,000 to 2,000 to 3,000 0.3 Da from m/z 2,122 in Positive mode and m/z 2,234 in Negative mode Dynamic range Dynamic range Polarity switching (electronics) Acquisition modes Acquisition modes Acquisition modes MS1 scan, MS2 scan, product ion scan, MS1 scan, MS2 scan, product ion scan, neutral loss scan, neutral gain scan, precursor ion scan, SIM, and MRM (static, dynamic, triggered) Maximum scan rate Maximum MRM acquisition rate Minimum MRM dwell time Dynamic MRM transitions Triggered MRM transitions O.5 ms 4,000 dynamic MRM transitions per method Dynamic MRM transitions Up to 10 MRM transitions per method Triggered MRM transitions O.5 ms Up to 10 MRM transitions per method Dynamic MRM transitions or illustrations of primary and secondary) for library search and compound confirmation	Mass resolution (manual tune)	Manually adjusted by the user during Manual tune procedure	Down to 0.5 Da
Mass accuracy 0.2 Da from m/z 1,000 to 2,000 to 3,000 to 3,000 to 3,000 to 3,000 from m/z 2,000 to 3,000 to 3,	Mass range		m/z 5 to 3,000
Mass stability in Positive mode and m/z 2,234 in Negative mode Dynamic range >6.0 x 10°, resulting in up to 6 orders of linear dynamic range from the LOD Polarity switching (electronics) <25 ms	Mass accuracy		0.2 Da from <i>m/z</i> 1,000 to 2,000
Dynamic range 6 orders of linear dynamic range from the LOD 725 ms Acquisition modes Acquisition modes MS1 scan, MS2 scan, product ion scan, neutral loss scan, neutral loss scan, neutral gain scan, precursor ion scan, SIM, and MRM (static, dynamic, triggered) Maximum scan rate 17,000 Da/sec Maximum MRM acquisition rate 500 MRMs/sec Minimum MRM dwell time 0.5 ms MRM transitions MRM transitions 450 per time segment, up to 13,500 ion transitions per method Dynamic MRM transitions Triggered MRM transitions Up to 10 MRM transitions (primary and secondary) for library search and compound confirmation	Mass stability		in Positive mode and m/z 2,234 in
Acquisition modes MS1 scan, MS2 scan, product ion scan, neutral loss scan, neutral gain scan, precursor ion scan, SIM, and MRM (static, dynamic, triggered) Maximum scan rate 17,000 Da/sec Maximum MRM acquisition rate 500 MRMs/sec Minimum MRM dwell time 0.5 ms MRM transitions 450 per time segment, up to 13,500 ion transitions per method Dynamic MRM transitions 4,000 dynamic MRM transitions Triggered MRM transitions Up to 10 MRM transitions (primary and secondary) for library search and compound confirmation	Dynamic range		6 orders of linear dynamic range
Acquisition modes scan, neutral loss scan, neutral gain scan, precursor ion scan, SIM, and MRM (static, dynamic, triggered) Maximum scan rate 17,000 Da/sec Maximum MRM acquisition rate 500 MRMs/sec Minimum MRM dwell time 0.5 ms MRM transitions 450 per time segment, up to 13,500 ion transitions per method Dynamic MRM transitions 4,000 dynamic MRM transitions Triggered MRM transitions Up to 10 MRM transitions (primary and secondary) for library search and compound confirmation	Polarity switching (electronics)		<25 ms
Maximum MRM acquisition rate 500 MRMs/sec Minimum MRM dwell time 0.5 ms MRM transitions 450 per time segment, up to 13,500 ion transitions per method Dynamic MRM transitions 4,000 dynamic MRM transitions Triggered MRM transitions Up to 10 MRM transitions (primary and secondary) for library search and compound confirmation	Acquisition modes		scan, neutral loss scan, neutral gain scan, precursor ion scan, SIM, and
Minimum MRM dwell time 0.5 ms MRM transitions 450 per time segment, up to 13,500 ion transitions per method 4,000 dynamic MRM transitions Triggered MRM transitions Up to 10 MRM transitions (primary and secondary) for library search and compound confirmation	Maximum scan rate		17,000 Da/sec
MRM transitions 450 per time segment, up to 13,500 ion transitions per method 4,000 dynamic MRM transitions 4,000 dynamic MRM transitions per method Up to 10 MRM transitions (primary and secondary) for library search and compound confirmation	Maximum MRM acquisition rate		500 MRMs/sec
Dynamic MRM transitions 4,000 dynamic MRM transitions 4,000 dynamic MRM transitions Triggered MRM transitions Up to 10 MRM transitions (primary and secondary) for library search and compound confirmation	Minimum MRM dwell time		0.5 ms
Triggered MRM transitions Up to 10 MRM transitions Up to 10 MRM transitions (primary and secondary) for library search and compound confirmation	MRM transitions		
Triggered MRM transitions and secondary) for library search and compound confirmation	Dynamic MRM transitions		
Collision cell ion clearance <1 ms	Triggered MRM transitions		and secondary) for library search
	Collision cell ion clearance		<1 ms

General system specifications

Parameter	Specification	
Single point of control	Single-point data system method capability with full control of Agilent Infinity I and Infinity II and Agilent 6470B triple quadrupole LC/MS systems	
Time programming	Polarity change in time segment	
	Dedicated scan modes (Full Scan, Product Ion Scan, Precursor Ion Scan, Neutral Loss Scan, and Neutral Gain Scan) or targeted ion monitoring (SIM, MRM, dMRM, and tMRM)	
	Dynamic and triggered MRM aligns MRMs with compound retention time	
	Solvent divert through calibrant delivery system valve within the analysis	
Wide range of ionization sources	Agilent Jet Stream (AJS) Technology	
	Electrospray (ESI)	
	Nanospray ESI (nESI) source	
	Atmospheric pressure chemical ionization (APCI) source	
	Multimode source (MMI; simultaneous ESI and APCI)	
	Atmospheric pressure photoionization (APPI) source	
Solvent declustering	Countercurrent drying gas, sheath gas (AJS)	
Autotune	Automated optimization of ion optics and mass axis calibration in positive and negative ion modes using a proprietary tune solution	
Detector	±20 kV High-energy conversion dynode (HED) and high-gain electron multiplier horn	
Vacuum system	Two turbomolecular pumps with one mechanical pump	
VacShield Assembly	Vent prevention for quick front-end ion injector capillary maintenance	

Ordering information

G6470BA: 6470B triple quadrupole LC/MS system

Includes the 6470B triple quadrupole mass spectrometer, Agilent MassHunter Workstation software with method optimization software, workstation PC, monitor, and service installation of the system.

Disclaimer

Performance specifications in this document are reviewed for accuracy, but they do not represent the tests and procedures performed at installation, which are described in the Agilent 6400 Series triple quadrupole LC/MS System Installation Manual, document G3335-90170 or subsequent version number. See Site Preparation Guide and Service Notes for additional product and specification information.

Performance checkout at installation uses IDL, which is a meaningful and statically relevant measurement of instrument sensitivity. The S/N specification does not predict the limit of detection (LOD) or limit of quantitation (LOQ) for the system or user application. S/N applies only to the conditions or

concentrations specified, and cannot be extrapolated to any other conditions or concentrations. Onsite demonstration of S/N checkout must be purchased as an add-on and will only be carried out on newly purchased Agilent 1260 Infinity II Prime or Agilent 1290 Infinity II LC systems.

The S/N specification is determined using the AJS source in MRM mode at unit mass resolution (0.7 \pm 0.1 Da FWHM peak width) for 1 pg Reserpine on-column (m/z 609.3 to 195.1) (Agilent ZORBAX RRHD Eclipse Plus C18, 2.1 \times 50 mm, 95Å pore size, 1.8 μ m particle size). After algorithmic smoothing, noise levels are determined using the Auto-RMS algorithm with at least 0.045 minutes of ion current from the active MRM transition.

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This information is subject to change without notice.

