

6500 Series Q-TOF LC/MS Systems - Site Preparation Checklist

Thank you for purchasing an Agilent **system**. To get you started and to assure a successful and timely installation, please refer to this specification or set of requirements.

Correct site preparation is the key first step in ensuring that your instruments and software systems operate reliably over an extended lifetime. This document is an **information guide AND checklist** prepared for you that outlines the supplies, consumables, space and utility requirements for your equipment for your site.

Customer Responsibilities

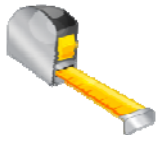
Make sure your site meets the following prior specifications before the installation date. For details, see specific sections within this checklist, including:

- The necessary laboratory or bench space is available
- The environmental conditions for the lab as well as laboratory gases and plumbing
- The power requirements related to the product (e.g., number & location of electrical outlets)
- The required operating supplies necessary for the product and installation
- Please consult Other Requirements section below for other product-specific information.
- For more details, please consult the product-specific Site Preparation Manual (G2581-90020).

If Agilent is delivering installation and familiarization services, users of the instrument should be present throughout these services; otherwise, they will miss important operational, maintenance and safety information.

Important Customer Information

1. If you have questions or problems in providing anything described as a Customer Responsibilities above, please contact your local Agilent or partner support/service organization for assistance prior to delivery. In addition, Agilent and/or it's partners reserve the right to reschedule the installation dependent upon the readiness of your laboratory.
2. Should your site not be ready for whatever reasons, please contact Agilent as soon as possible to re-arrange any services that have been purchased.
3. Other optional services such as additional training, operational qualification (OQ) and consultation for user-specific applications may also be provided at the time of installation when ordered with the system, but should be contracted separately.

**6500 Series Q-TOF LC/MS Systems -
Site Preparation Checklist**


Dimensions and Weight

Identify the laboratory bench space before your system arrives based on the table below.

Pay special attention to the **total height and total weight requirements for all system components you have ordered and avoid bench space with overhanging shelves**. Also pay special attention to the total weight of the modules you have ordered to ensure your laboratory bench can support this weight.

Special Notes

1. The modular dimensions and weight allow the instrument to be placed on almost any laboratory bench. The instrument requires a space of at least 8.0 cm (3.1 inches) on both sides, and approximately 15 cm (~ 6 inches) at the rear for the circulation of air, vacuum pump hose, and room for electrical connections.
2. If the bench is to support a complete Agilent Technologies 1200 Series HPLC system and an Agilent 6500 Series Q-TOF LC/MS System, make sure that the bench is designed to carry the total weight of all the modules.
3. For 6538 and 6540 UHD Accurate-Mass Q-TOF LC/MS Systems, the maximum height of the bench or table shall not exceed 91 cm (32 inches) where the height of the ceiling is 2.7 m (9 ft).
4. Agilent Field Support Engineers are not allowed to install the 6538 or 6540 UHD Accurate-Mass Q-TOF LC/MS in labs where the ceiling tile(s) must be removed or modified to accommodate the height of the flight tube. Removal or modification of ceiling tiles violates fire safety codes in certain geographies.

Instrument Description	Weight		Height		Depth		Width	
	Kg	lbs	cm	in	cm	in	cm	in
G6520A/B Accurate-Mass Q-TOF	167	368	129.5	51	66.4	26	121.9	48
G6530A Accurate-Mass Q-TOF	169	372	129.5	51	66.4	26	121.9	48
G6538A UHD Accurate-Mass Q-TOF	170	375	186.7	73.5	66.4	26	121.9	48
G6540A UHD Accurate-Mass Q-TOF	170	375	186.7	73.5	66.4	26	121.9	48
E2M28 with oil mist filter and exhaust tubing installed	40	89	56.6	22.1	58.3	23.0	17.0	6.8
G3251B Dual Spray ESI Source	1.7	3.75	17	6.8	9.5	3.7	18	7.1
G1947B APCI Source	1.8	4.07	23	9.2	13.0	5.1	18	7.1
G1978B Multimode Source	2.3	5.05	23	9.2	13.0	5.1	18	7.1
G4240A HPLC Chip Cube	14	31	35.9	14.1	29.8	11.7	34.9	13.7

**6500 Series Q-TOF LC/MS Systems -
Site Preparation Checklist**

Figure 1
G6520A/B Accurate-Mass Q-TOF LC/MS
System

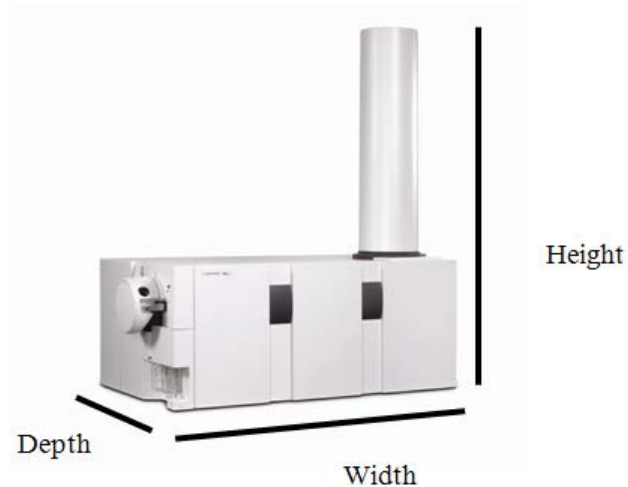
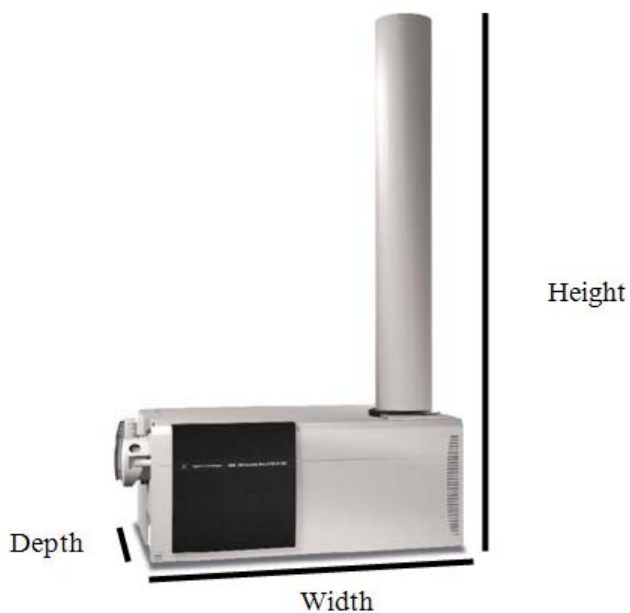


Figure 2
G6530A Accurate-Mass Q-TOF LC/MS
System



Figure 3
G6538A or G6540A UHD Accurate-Mass Q-
TOF LC/MS System



**6500 Series Q-TOF LC/MS Systems -
Site Preparation Checklist**


Environmental Conditions

Operating your instrument within the recommended temperature ranges insures optimum instrument performance and lifetime.

Special Notes

1. Performance can be affected by sources of heat & cold e.g. direct sunlight, heating/cooling from air conditioning outlets, drafts and/or vibrations.
2. The site's ambient temperature conditions must be stable for optimum performance of the system's modules as specified in the "Environmental Specifications" section of the Site Preparation Manual. Temperature changes of 3°C from calibration temperature are required to achieve best possible baseline stability. Higher variations will result in higher signal drift and wander of the baseline.
3. For all 6500 Series Q-TOF LC/MS Systems, the bench or supporting surface must be vibration free. <Rob: do you need this additional requirement? Also, there is nothing "vibration free."
4. The following table may help you calculate the additional BTUs of heat dissipation from this new equipment. Maximums represent the heat given off when heated zones are set for maximum temperatures. Approximately 2,047 BTU/hr are removed with the ion source exhaust.

Instrument Description	Operating temp range °C (F)	Operating humidity range (%)	Heat Dissipation (BTU)
G6520A/B Accurate-Mass Q-TOF LC/MS G6530A Accurate-Mass Q-TOF LC/MS G6538A UHD Accurate-Mass Q-TOF LC/MS G6540A UHD Accurate-Mass Q-TOF LC/MS (including the rough pump and source)	15 to 35°C (32 to 95°F), at constant temperature (variations < 3 °C from calibration temperature).	20-85% non-condensing	4,500 BTU 9,640 BTU 4,500 BTU 9,640 BTU
G4240A HPLC Chip Cube (Please refer the installation manual for this source for more detailed information.)	5 to 40°C (41 to 104°F), constant temperature.	< 80% @ 40°C non-condensing	

6500 Series Q-TOF LC/MS Systems - Site Preparation Checklist



Exhaust Venting Requirements

The 6500 Series Q-TOF LC/MS System foreline pump exhaust and spray chamber exhaust must be vented outside of the laboratory environment. Exhaust vent system should not be part of an environmental control system that recirculates air inside of a building. Exhaust venting requirements need to comply with all local environmental and safety codes.

1. A 6 meter (20ft.) length of 1/2 inch i.d. PVC/vinyl tubing is included for venting the foreline pump exhaust and ion source (ESI, APCI, Multimode, APPI) or Agilent Jet Stream Technology exhaust. This is sufficient for two three meter (10-foot lengths).
2. The foreline pump exhaust and the ion source exhaust **cannot share the same piece of exhaust tubing**. Separate 1/2 inch hose barbs are required to connect the tubing to the exhaust vent.

Output Source	Maximum
Agilent 6500 Series Q-TOF LC/MS foreline pump	3.0 L/min
Ion Sources (ESI, APCI, Multimode, APPI, etc.) or Agilent Jet Stream Technology	Up to 27 L/min

**6500 Series Q-TOF LC/MS Systems -
Site Preparation Checklist**

Power Consumption
Special Notes

1. If a computer system is supplied with your instrument, be sure to account for those electrical outlets.
2. A dedicated 15 Amp 200-240V AC power outlet is required for all 6500 Series Q-TOF LC/MS Systems. The 6500 Series Q-TOF LC/MS System should be located with 2.5 meters (8 feet) of this outlet. In addition, the computer system and printer require additional outlets. Please refer to the Site Preparation Manual for additional details.
3. Additional outlets are required for all Agilent 1100/1200 HPLC modules. Please refer to the Site Preparation Checklist and Manuals for the 1100/1200 HPLC modules for more detailed information.

Instrument Description	Line Voltage & Frequency (V, Hz)	Maximum Power Consumption (VA)
G6520A/B Q-TOF with rough pump	60 Hz Power 50 Hz Power	2500 VA 2500 VA
G6530A Accurate-Mass Q-TOF with rough pump	60 Hz Power 50 Hz Power	2850 VA 2850 VA
G6538A Accurate-Mass Q-TOF with rough pump	60 Hz Power 50 Hz Power	2500 VA 2500 VA
G6540A Accurate-Mass Q-TOF with rough pump	60 Hz Power 50 Hz Power	2850 VA 2850 VA

6500 Series Q-TOF LC/MS Systems - Site Preparation Checklist



Recommended Configurations

Agilent recommends 2 standard stacking configurations for your new system. Please use these notes and the following pictures as examples for HPLC Stack and Q-TOF bench configurations.

1. Stacking the entire 1200 Series HPLC stack or CTC Autosampler on top of the 6500 Series Q-TOF LC/MS is not recommended or supported. Vibrations from these modules can cause a loss of resolution in the 6500 Series Q-TOF LC/MS System.
2. A single-stack HPLC configuration may be considered only if:
the height of the stack does not result in a safety problem
the HPLC system does not include a G1330B thermostat module.
3. A multiple stack HPLC configuration must be used if:
the stack of 1200 modules is too high, resulting in a safety problem
the system includes a thermostatted sampler.
4. The thermostatted version of all samplers include the G1330B thermostat module. The thermostat module must be placed directly under the sampler to be thermostatted. It is recommended that the thermostat module is positioned as the bottom module of the stack, directly on the laboratory bench. Any stack containing a G1330B thermostat module needs at least 25 cm (10 inches) of space on either side to guarantee proper ventilation.

Configuration 1: 1200 HPLC Stack with 6520 Q-TOF LC/MS



Configuration 2: 1200 HPLC Stack with 6538 or 6540 UHD Accurate-Mass Q-TOF LC/MS



**6500 Series Q-TOF LC/MS Systems -
Site Preparation Checklist**

Required Operating Supplies: Solvents and Gases
Special Notes

- For information on Agilent consumables, accessories and laboratory operating supplies, please visit <http://www.chem.agilent.com/en-US/Products/consumables/Pages/default.aspx>
- Solvents minimum solvent purity: HPLC Grade Acetonitrile, Isopropanol, Methanol and Water, pesticide grade recommended.
- Gases are supplied by high pressure bottles, internal distribution system, or gas generators. High pressure bottles require two staged pressure regulation. Please note that high pressure bottles are NOT suitable for supplying nitrogen for Drying Gas and Nebulizer requirements due to the high flow rates.
- To connect collision cell tubing to the supply, use the supplied one 1/8-inch Swagelok female connector for each gas. Make sure that your regulator has the appropriate sized adapter to end with a 1/8-inch Swagelok female connector. Please make use of SwageLok's web site is <http://www.swagelok.com> to help assist in finding connectors.
- The following table lists minimum and maximum pressures in psi for inlets measured at the bulkhead fitting at the gas manifold on the left side of the 6500 Series Q-TOF LC/MS Systems. Gas pressure conversions: 1 psi = 6.8947 kPa = 0.068947 Bar = 0.068 ATM

Gas requirements	Minimum Purity	Typical inlet pressure range	Typical flow
Nitrogen for Drying Gas, Nebulizer Pressure (required) supplied by N ₂ gas generator, house nitrogen system, or liquid N ₂ Dewar. Nitrogen must be hydrocarbon free. See Note 1.	95.0 % or better	5.5 to 6.8 bar (80 to 100 psi)	Up to 30 (l/min)
Nitrogen for Collision Cell (required) See Notes 1, 2, 3, and 4.	99.999%	0.7 to 2.0 bar (10 to 30 psi)	1 to 2 (ml/min)
Argon for Collision Cell (optional) See Notes 1, 2, 3, and 4.	99.999%	0.7 to 2.0 bar (10 to 30 psi)	1 to 2 (ml/min)
Air for Chip Cube Applications (optional, Low Background Mode) See Notes 4, 5, 6 and 7.	99.99%	8.0 bar (120 psi)	Up to 4 (l/min)

- Purity specification given is the minimum acceptable purity. Major contaminants can be water, oxygen, or air.
- Nitrogen for the collision cell requires a separate supply from the Nitrogen used for Drying Gas. A separate pressure regulator is required. A high pressure bottle of Nitrogen is recommended for the collision cell gas supply.
- Pre-cleaned 1/8" copper tubing and 1/8-inch Swagelok® fittings are supplied as part of the ship kit to connect the collision cell gas to the collision cell inlet fitting.
- Never use liquid thread sealer to connect fittings.

6500 Series Q-TOF LC/MS Systems - Site Preparation Checklist

5. **Air source must be hydrocarbon free.**
6. Inlet pressure for Air must equal the inlet pressure for the Nitrogen used for drying gas.
7. The air used for Low Background Mode must be supplied by a separate source other than the compressor used by the nitrogen generator. Increasing the flow from the compressor used with the nitrogen generator is not supported due to gas flow stability issues.



Remote Diagnostics

Easy access to diagnostic information and to the system operator helps our service engineers diagnose problems or share information. We recommend these features to help support your new system:

8. A LAN connection for the Data Acquisition and Data Analysis PC is recommended to provide remote diagnostics capability for the 6500 Series Q-TOF LC/MS System and the 1200 Series HPLC.
9. A phone line close to the instrument is strongly recommended for communication with the system operator.

Important Customer Web Links

- For additional information about our solutions, please visit our web site at <http://www.chem.agilent.com/en-US/Pages/HomePage.aspx>
- Need to get information on your product?
Literature Library - <http://www.agilent.com/chem/library>
- Need to know more?
Customer Education - <http://www.agilent.com/chem/education>
- Need technical support, FAQs? - <http://www.agilent.com/chem/techsupp>
- Need supplies? - <http://www.agilent.com/chem/supplies>

Document part number: G2581-90034