Agilent 6400 Series Triple Quad LC/MS
Site Preparation Checklist

Thank you for purchasing an Agilent instrument. To get you started and to assure a successful and timely installation of your Agilent **software**, 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.

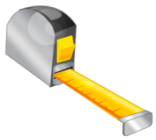
Customer Responsibilities

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

- ❑ The computing environment and the necessary space is made available.
- ❑ The number & location of electrical outlets for your instruments, computer systems, and peripherals are planned.
- ❑ That your site meets the software, hardware and networking specifications below locate your sales order information, software authorization codes and/or software licenses/certificates.
- ❑ The necessary software media, disks etc are available including upgrade/update disks that a suitable backup solution is identified for your software.
- ❑ Availability of a system/network administrator as needed to connect to your intranet please consult Other/Special Requirements section below for other product-specific information.
- ❑ If Agilent is delivering installation and familiarization services, users of the system should be present throughout these services; otherwise, they will miss important operational, maintenance and safety information.
- ❑ Complete Final Check: Software Site Preparation Tool.
- ❑ The proper pressure, capacity, and purity of nitrogen gases for instruments and peripherals are planned.
- ❑ The adequate exhaust ventilation for instruments and peripherals are planned.
- ❑ The necessary customer supplied chemicals for instruments and peripherals are provided.

Important Customer Information

1. If you have questions or problems in providing anything described as a Customer Responsibility 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.



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.

Special Notes

1. The 6400 Series Triple Quad LC/MS dimensions represent the maximum cabinet dimensions with a Spray Chamber installed.
2. At least 30 cm (1 ft.) to the left (source end) and right of the instrument must be added to the dimensions to provide adequate instrument access and ventilation.
3. The supporting surface must be relatively vibration free and capable of supporting the combined weight of the Triple Quad system.

Instrument/Spray Chamber/Foreline Pump Model	Weight		Height		Depth		Width	
	Kg	lbs	cm	in	cm	in	cm	in
G6410A QQQ LC/MS	107.5	236.5	47	18.5	66	26	111	43.5
G6410B QQQ LC/MS	107.5	236.5	47	18.5	66	26	111	43.5
G6420A QQQ LC/MS	107.5	236.5	47	18.5	66	26	111	43.5
G6430A QQQ LC/MS	115	255	47	18.5	66	26	111	43.5
G6460A QQQ LC/MS	115	255	48	18.8	66	26	111	43.5
G6460C QQQ LC/MS	115	255	48	18.8	66	26	111	43.5
G6470A QQQ LC/MS	115	255	47	18.5	76	30	84	33
G6490A QQQ LC/MS	115	255	47	18.5	76	30	84	33
G6495A QQQ LC/MS	115	255	47	18.5	76	30	84	33
G1948B Electrospray Source	1.7	3.8	17	6.8	9.5	3.7	18	7.1
G1947B APCI Source	1.7	3.8	23	9.2	13.0	5.1	18	7.1
G1971B APPI Source	1.7	3.8	23	9.2	13.0	5.1	18	7.1
G1978B Multimode Source	2.29	5.05	23	9.2	13.0	5.1	18	7.1
Agilent Jet Stream	1.7	3.8	23	9.2	11.5	4.5	18	7.1
G4240A HPLC-Chip Cube	14	31	36	14.1	30	11.7	35	13.7

E2M28 Foreline Pump	40.0	88.2	28	11	58.3	23.0	17	7.1
MS40+ Foreline Pump	33.0	72.7	22.8	9.0	41.8	16.5	29.7	11.7

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.

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.
3. The Agilent 6400 Series Triple Quad LC/MS is specified for operation under the following conditions:
    a. Indoor use.
    b. Constant temperature (< +/-3°C from calibration temperature).
    c. Non-condensing, non-corrosive atmosphere.
    d. Altitude: Not to exceed 3,300 m up to 35°C, not to exceed 3,700 m up to 30°C.

Instrument Model	Operating temp range °C (F)	Operating humidity range (%)	Heat Dissipation (BTU)
6400 Series QQQ LC/MS (all models)	15 - 35 °C (59 - 95 °F)	< 85% RH @ 35 °C	< 4500 BTU/hr

Power Consumption

Special Notes

1. If a computer system is supplied with your instrument, be sure to account for those electrical outlets.
2. The LC/MS electrical outlet(s) must have an isolated, noise-free electrical ground that is connected to the main earth ground for the facility.
3. Mains supply voltage tolerances must be between +10% and -5% of nominal line voltage.
4. Models utilizing the E2M28 foreline pump must be ordered specifying installation site voltage.

5. Electrical power for the 6400 Series Triple Quad LC/MS may be delivered in either single-phase or 208- Wye configuration:

Configuration	Measurement	Nominal Voltage
Singe Phase	Line to neutral	200, 220, 230 or 240 VAC
	Line to ground	200, 220, 230 or 240 VAC
	Ground to neutral	< 0.5 V rms
208-Wye	Line to line (phase A to phase B)	208, 220 VAC
	Line to ground (phase A to ground)	120, 127 VAC
	Line to ground (phase B to ground)	120, 127 VAC

Instrument Model	Line Voltage & Frequency (V, Hz)	Supply Circuit Rating (A)	Number of Outlets	Maximum Power Consumption (VA)
G6410A	200 - 240 VAC @ 50/60 Hz	15 A	1	2500
G6410B G6420A G6430A G6460A	200 - 240 VAC @ 50/60 Hz	15 A	1	2700
G6460C	200 - 240 VAC @ 50/60 Hz	15 A	2	2850
G6470A	200 - 240 VAC @ 50/60 Hz	15 A	2	2850
G6490A G6495A	200 - 240 VAC @ 50/60 Hz	15 A	2	2850

Main Nitrogen Gas Supply Requirements

Special Notes

1. For information on Agilent consumables, accessories and laboratory operating supplies, please visit: http://www.chem.agilent.com/en-US/Products/consumables/Pages/default.aspx.
2. Impurities from LN2 Dewar being oxygen only.
3. "Hydrocarbon free" means < 0.1 PPM hydrocarbons with the remaining gas being oxygen and trace argon.
4. Nitrogen Pressure as measured at the LC/MS inlet (not the supply side).

5. Minimum Nitrogen Flow required at all times to prevent air from entering the instrument.
6. Main Nitrogen Supply fittings are 1/4" Swagelok.

Model	Nitrogen Source	Nitrogen Purity	Pressure	Flow
G6410A G6410B G6420A G6430A G6460A#100 G6460C#100	LN2 Dewar	≥ 99.5% and hydrocarbon free	5.5 - 6.8 bar (80 - 100 PSI)	≤ 18 L/min Maximum (≤ 1080 L/hour) > 3 L/min Minimum
	Nitrogen Generator	≥ 95.0% and hydrocarbon free		
G6460A G6460C	LN2 Dewar	≥ 99.5% and hydrocarbon free	5.5 - 6.8 bar (80 - 100 PSI)	≤ 30 L/min Maximum (≤ 1800 L/hour) > 3 L/min Minimum
	Nitrogen Generator	≥ 95.0% and hydrocarbon free		
G6490A G6495A	LN2 Dewar	≥ 99.5% and hydrocarbon free	5.5 - 6.8 bar (80 - 100 PSI)	≤ 50 L/min Maximum (≤ 3000 L/hour) > 9 L/min Minimum
	Nitrogen Generator	≥ 95.0% and hydrocarbon free		
G6470A Maximum	LN2 Dewar	≥ 95% hydrocarbon Free	5.5 - 6.8 bar (80 - 100 PSI)	≤ 30 L/min Maximum (≤ 1800 L/hour) > 3 L/min Minimum
	Nitrogen Generator	≥ 95% and Hydrocarbon free		

Collision Cell Nitrogen Gas Supply Requirements

Special Notes

1. For information on Agilent consumables, accessories and laboratory operating supplies, please visit http://www.chem.agilent.com/en-US/Products-Services/Parts-Supplies/Pages/BuyAndTry.aspx.
2. Nitrogen is the only supported Collision Cell gas.
3. Splitting the Main Nitrogen Gas supply for use with the collision cell is not supported due to nitrogen purity requirements.
4. Collision Cell gas supply fittings are 1/8" Swagelok.

Instrument Model	Nitrogen Source	Nitrogen Purity	Pressure	Flow
6400 Series QQQ LC/MS (all models)	High Pressure Cylinder	≥ 99.999% and hydrocarbon free (< 0.1 PPM hydrocarbons)	1 - 2 bar (15 - 30 PSI)	≤ 0.001 L/min (≤ 0.006 L/hour)

Compressed Air Requirements - HPLC-Chip Cube equipped systems only

Special Notes

1. For information on Agilent consumables, accessories and laboratory operating supplies, please visit http://www.chem.agilent.com/en-US/Products/consumables/Pages/default.aspx.
2. Compressed Air is required for HPLC-Chip Cube equipped systems only.
3. Air source must be able to deliver air at a constant pressure.
4. Inlet gas pressure for air must be equal to or slightly higher than the pressure used for the Main Nitrogen Gas supply.
5. Compressed Air supply fittings are 1/4" Swagelok.

Instrument Model	Air Source	Air Purity	Pressure	Flow
G6410B G6420A G6430A G6460A G6460C G6470A	High Pressure Air source	≥ 99.99% and hydrocarbon free	6.8 - 6.9 bar (100 - 120 PSI)	≤ 4 L/min Maximum (≤ 240 L/hour)
G6490A G6495A	High Pressure Air source	≥ 99.99% and hydrocarbon free	6.8 - 6.9 bar (100 - 120 PSI)	≤ 10 L/min Maximum (≤ 600 L/hour)

Exhaust Venting

For information on Agilent consumables, accessories and laboratory operating supplies, please
The LC/MS generates exhaust fumes from the foreline pump(s) and drain bottle (from the spray chamber) that must be properly vented for supported instrument operation and compliance with laboratory safety requirements.

Special Notes

1. Exhaust must be vented according to local Environmental Health and Safety regulations.
2. Exhaust gases contain traces of solvent, sample and hydrocarbon pump fluid.
3. Venting Rate is commensurate with Nitrogen consumption rate.
4. Two independent, negative pressure vents must be available with one for each of the exhaust sources: foreline pump(s) and Spray Chamber. If only 1 vent is available, the exhaust line(s) from the foreline pump(s) required must extend beyond the exhaust line from the spray chamber.
5. If a negative pressure vent is not available, the length of the tubing from the foreline pump(s) and the drain bottle to the vent should each not exceed 460 cm (15 ft).
6. Exhaust tubing is 1/2" interior diameter (I.D.).

Instrument Model	Combined Exhaust Venting Rate (Continuous)
G6410A G6410B G6420A G6430A G6460A#100 G6460C#100	≤ 20 L/min Maximum (≤ 1080 L/hour) > 3 L/min Minimum
G6460A G6460C G6470A	≤ 30 L/min Maximum (≤ 1800 L/hour) > 3 L/min Minimum
G6490A G6495A	≤ 50 L/min Maximum (≤ 3000 L/hour) > 9 L/min Minimum

Note:
Failure to vent the foreline pump and spray chamber separately will void the warranty for the 6400 Series Triple Quad LC/MS. Agilent service representatives will not install an Agilent 6400 Series Triple Quad LC/MS until an adequate exhaust system is present and functioning.

Required Operating Supplies by Customer

Special Notes

1. For information on Agilent consumables, accessories and laboratory operating supplies, please visit http://www.chem.agilent.com/en-US/Products/consumables/Pages/default.aspx.
2. For detailed information on Operating Supplies, please refer to the Site Preparation Guide.

Item Description (including dimensions etc)	Vendor's Part Number (if applicable)	Recommended Quantity
Agilent Triple Quad LC/MS Site Preparation Guide	G2571-90010	1
Tuning Calibrant – Dependent on LC/MS model and Source		
Electrospray (ESI) Calibrant	G2431A	1
APCI/APPI Calibrant	G2432A	1
ESI-Low Calibrant	G1969-85000	1
APCI-Low Calibrant	G1969-85010	1
Performance Standard – Electrospray/APCI Positive Ion	G2423A	1
Performance Standard – ES Negative Ion (Acid Red 4)	G2424A	1
Performance Standard - ES Negative Ion (Chloramphenicol)	5190-0591	1
Performance Standard – APCI Negative Ion	G2525A	1
Performance Standard – Multimode LC Demo Sample	G1978-85000	1
Performance Standard – Electrospray LC Demo Sample	59987-20033	1
Ammonium Formate	G1946-85021	1
Formic Acid – Reagent Grade	G2453-85060	2
HPLC Flushing Solvent (500 mL)	G1969-85026	1
Methanol, High Purity (1 L)	8500-1867	3
Acetonitrile, High Purity (1 L)	G2453-85050	2
Water, High Purity (4 L)	8500-2236	1
Pipette, 1 mL	9301-1423	3
Volumetric Flask, 50 mL	9301-1424	1
Volumetric Flask, 100 mL	9301-1433	2
Vials, 2 mL Screw Top, Wide Opening, Amber (100/pk)	5182-0716	1
Vial Caps, Blue, PTFE/red silicone septa (100/pk)	5182-0717	1

Recommended Configurations

Agilent recommends 2 standard stacking configurations for your new system depending on the number and type of included modules. Please use these notes and figures as reference for HPLC and LC/MS configurations.

Special Notes

Stacking the entire HPLC modules on top of the 6400 Series QQQ LC/MS is not supported.

Figure 4
Single HPLC stack configuration

Figure 5
Double HPLC stack configuration

Other Important Customer Web Links

- For additional information about our solutions, please visit our web site at http://www.agilent.com/home
- Need to get information on your product?
  Literature Library - http://www.agilent.com/en-us/library/
- Need to know more?
  Customer Education – http://www.agilent.com/crosslab/university/
- Need technical support, FAQs? – http://www.agilent.com/home
- Need supplies? – http://www.agilent.com/en-us/products/lab-supplies