



Agilent Ultivo LC/TQ

## Site Preparation Guide



# Notices

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## Safety Notices

### CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

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A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

## In This Guide...

In this guide, “Agilent” refers to Agilent Technologies or one of its representatives.

### **1 Before You Begin**

This chapter describes what you need to know before you begin.

### **2 Site Preparation**

This chapter describes how to properly prepare your site for a new Ultivo LC/TQ. Follow these instructions carefully. Delays due to improper site preparation can result in loss of instrument use during the warranty period.

### **3 Delivery and Installation**

This chapter describes what the customer is expected to do at the time of delivery and installation.

### **4 Reference**

This chapter contains reference information for your Ultivo LC/TQ system.

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# 1

## Before You Begin

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This chapter describes what you need to know before you begin.

Inadequate site preparation can cause loss of instrument use during the warranty period. Additional time required to complete the installation are subject to charges. Agilent provides service during the warranty period and under maintenance agreements only if the specified site requirements are met.

### Instrument Identification

Agilent Ultivo LC/TQ is identified by a unique 10-character serial number. This serial number is located on a label on the lower right front corner of the instrument. When corresponding with Agilent Technologies about your instrument, be sure to include the model number and the full 10-character serial number. Write the serial number of your Ultivo LC/TQ here for reference:

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## Customer Responsibility

Unless previous arrangements are made with Agilent, site preparation is the responsibility of the customer. The customer is expected to:

- 1 Plan, schedule, and prepare the site according to the specifications in this guide.
- 2 Verify that the electrical environment is safe and adequate for the Ultivo LC/TQ system installation and operation.
- 3 Comply with all local laws (codes, ordinances, and regulations) for mechanical, building, and electrical distribution systems, hazardous waste disposal, and chemical storage. *The site must be in compliance before installation.*
- 4 Provide adequate lifting equipment to unload the system from the delivery vehicle and transport it to the site where it will be installed.
- 5 Provide at least two people to lift the Ultivo LC/TQ.
- 6 Provide adequate secure storage space for the system until it can be installed by an Agilent Technologies representative.

Customer responsibility for site preparation is not limited to this list.

## Agilent Responsibility

An Agilent service representative will install the Ultivo LC/TQ and verify its performance. The service representative is expected to:

- 1 Unpack the Ultivo LC/TQ system and verify that all components are present and undamaged.
- 2 Connect the nitrogen gas line to the instrument from the tank, regulators, and lines previously installed by the customer.
- 3 Install, connect, and turn on the Ultivo LC/TQ system components.
- 4 Verify that the system meets Agilent Technologies performance standards.
- 5 Provide *basic* user familiarization for system hardware and software.
- 6 Sign up the customer through the Response Centers for instrument and software support.

## Activities not covered as part of installation

Agilent is not responsible for:

- Any task not listed in the Ultivo LC/TQ *Installation Guide* or in the installation guides for the LC, data system, and other accessories.
- Installation of a nitrogen gas generator and/or air compressor unless additional installation time is purchased (except when installation is included as indicated by Agilent).
- The connection or performance verification of hardware and software not provided by Agilent.
- The use of customer standards or samples to test the Ultivo LC/TQ.
- Detailed instructions in the operation of the computer operating system and MassHunter Workstation software. Contact Agilent for training classes.
- Laboratory set-up procedures. Contact Agilent for assistance with laboratory procedures, application development, or chemical analysis consulting, at additional cost.
- Operation of the Ultivo LC/TQ after installation.
- Connection to or establishment of communication with your site LAN network. The service representative will test the ability of the LC/MS to communicate with the bundled system only.

Items for which Agilent does not provide installation must be installed by the customer.

## Other Documentation

Find additional information in:

- *Site Preparation Checklist*
- *Ultivo LC/TQ Maintenance Guide*
- *System Installation Guide*
- Agilent Infinity Series LC user guides
- MassHunter Workstation user guides and online Help
- IDL specifications for your instrument. Go to:

[http://www.agilent.com/en/products/mass-spectrometry/lc-ms-instruments/  
triple-quadrupole-lc-ms/ultivo-triple-quadrupole-lc-ms#specifications](http://www.agilent.com/en/products/mass-spectrometry/lc-ms-instruments/triple-quadrupole-lc-ms/ultivo-triple-quadrupole-lc-ms#specifications)

## 2

# Site Preparation

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This chapter describes how to properly prepare your site for a new Ultivo LC/TQ. Follow these instructions carefully. Delays due to improper site preparation can result in loss of instrument use during the warranty period.

## Lab Space Requirements

### Bench Requirement

The bench on which the Ultivo LC/TQ will sit must meet these requirements:

- Large enough to fit the LC instrument, the Ultivo LC/TQ, computer, and accessories.
- Enough space for ventilation and maintenance access. Sturdy enough to support the weight of the entire system.

Workbench setup considerations include:

- The Ultivo LC/TQ requires clear space for ventilation and maintenance access:
  - At least 30 cm (12 in) to the left and the right of the Ultivo LC/TQ (see **Figure 1**, Configuration 2). Make sure no other device (such as a nitrogen generator) emits exhaust towards the Ultivo LC/TQ.
  - At least 30 cm (approximately 12 inches) behind the Ultivo LC/TQ.

**Table 1** Component dimensions

Component	Weight		Height		Depth		Width	
	Kg	lbs	cm	in	cm	in	cm	in
Ultivo LC/TQ	59.0	130.0	32.0	12.6	79.0	31.1	39.0	15.4
Agilent Jet Stream	1.7	3.8	23	9.2	13.0	5.1	18.0	7.1
G1948B Electrospray Source	1.7	3.8	17	6.8	9.5	3.7	18.0	7.1
G1947B APCI Source	1.7	3.8	23	9.2	13.0	5.1	18.0	7.1
MS40+ Foreline Pump	33.0	72.7	29.7	11.7	41.8	16.5	22.8	9.0

## Site Preparation

### Bench Requirement



**Figure 1.** Suggested Configuration 1 (left) and Configuration 2

- Make sure the foreline pump can be located close to the LC/MS instrument to be connected by a 200-cm (79-inch) vacuum hose.
- The drain bottle must be connected to the LC/MS instrument. The drain bottle must sit below the LC/MS instrument. A 180-cm (72-inch) PTFE hose is included with the LC/MS instrument. The G1946-67002 hose extension kit can add 120 cm (48 inches) to the length of the hose. *The total hose length must not exceed 300 cm (120 inches).*

### Vibration

- The supporting surface for the instrument must be kept relatively vibration-free. Agilent recommends the G3215A Mass Spec Bench. *The supporting surface must not exceed vibration forces beyond 0.21  $G_{rms}$ .* The Ultivo LC/TQ has not been tested for vibration forces beyond that level.
- The foreline pump emits vibration. Do not plan to put the foreline pump on the bench.

**LC Stacks**

- If stacking modules on top of the Ultivo LC/TQ, the detector must be the first module on top of the Ultivo LC/TQ. The next module up must be the column holder, whether stand-alone or part of the vial sampler. The pump must go on top, followed by the solvent tray.
- If stacking on top of the Ultivo LC/TQ, make sure that the leak drain connector on the lower right side of the MSD instrument connects to a drain bottle.

**CAUTION**

**The Ultivo LC/TQ can hold a stack as heavy as 65 kilograms (144 lbs). Please refer to the table of Infinity II LC components or the specifications of individual modules you intend to stack on top to be sure that this weight is not exceeded.**

- LC stacks as high as 74 cm (30 inches) on top of the Ultivo LC/TQ (not including the solvent bottles) have been checked for stability on a lab bench. Stacks taller than that are not recommended.

The tested cart measured 53.5-cm (21-inches) high, 61-cm (24-inches) wide and 86-cm (30-inches) long, and the system was centered on the cart. The length and width are measured from the casters, not the cart top. A cart that is taller than 53.5 cm (21 inches), less than 61-cm (24-inches) wide, or less than 86-cm (30-inches) long can be unstable and is not recommended. A cart that is shorter than 53.5 cm (21 inches), and wider than 61 cm (24 inches) or longer than 86 cm (30 inches) is acceptable.

- Make sure that solvent bottles can be safely reached by users and that local ergonomic standards are followed. A shorter than standard lab bench can be appropriate if a tall stack is used.

## Operating Environment

The Ultivo LC/TQ is designed for use in these environmental conditions:

- Equipment class: Class 1 Laboratory Equipment
- Pollution: Degree 2
- Installation: Category II
- Environment: Indoor Use
- Altitude: Not to exceed 3000 m (10,000 ft.)
- Electrical Supply:
  - 200 to 240 Vac, 50/60 Hz
  - Mains supply voltage: Fluctuations not to exceed 10% of nominal supply voltage
- Operating Temperature: 15°C to 35°C (59°F to 95°F), < ±3°C from calibration temperature
- Humidity: < 85% RH at 35°C, non-condensing, non-corrosive atmosphere

The Ultivo LC/TQ system dissipates up to 1,100 Watts (3,700 BTU/hr). Approximately 600 Watts (2,047 BTU/hr) are removed with the source exhaust. The LC and data system also contribute significantly to the cooling load. The exact amounts will depend on their configurations.

Make additional allowances for other heat sources, such as heat from other equipment, heat from adjacent rooms, and heat from laboratory personnel.

## Airborne Dust

Agilent recommends a maximum airborne particle density of 55 mg/m<sup>3</sup>. If you suspect your site exceeds the airborne dust limit, contact Agilent to test for airborne particle density. Agilent can suggest steps to reduce airborne dust.

## Exhaust Vents

The Ultivo LC/TQ has two sources of exhaust, the foreline pump and the spray chamber.

*Agilent will not install an Ultivo LC/TQ unless an adequate exhaust system is present and functioning.*

Exhaust vent considerations include:

- The maximum combined exhaust flow of gas and vapor is 30 L/minute.
- Flow is continuous as long as the instrument is on.
- The spray chamber exhaust must not have positive pressure. Positive pressure in the spray chamber exhaust tubing and drain bottle can affect instrument performance and can contribute to excessive background contaminant levels.
- The spray chamber exhaust and foreline pump exhaust must be vented with separate lengths of exhaust hose. *Failure to vent the foreline pump and spray chamber separately will void the warranty for the Ultivo LC/TQ.* These hoses can be connected into a common exhaust manifold. The separation of the exhaust minimizes the chances of foreline pump fluid vapor entering the spray chamber when drying gas is not flowing.
- If a negative pressure vent is not available, the length of the tubing from the foreline pump and the drain bottle to the vent should each not exceed 460 cm (15 ft).
- The spray chamber exhaust and the foreline pump exhaust must be vented externally to the building and *not* recirculated by the environmental control system. Health hazards include chemical toxicity of solvents, samples, buffers, pump fluid vapor, and aerosolized biological samples.
- Exhaust gas venting must comply with all local environmental codes. Health hazards include chemical toxicity of solvents, samples, buffers, pump fluid vapor, and aerosolized biological samples.

## Fume Hood

An auxiliary work space and fume hood are required for some maintenance procedures.

## Site LAN Network

Network considerations include:

- If you intend to connect the Ultivo LC/TQ system to your site LAN network, you must have an additional shielded twisted pair network cable.
- Internet access for the control PC is strongly recommended to allow remote control and diagnosis of the Ultivo LC/TQ through remote access software. Some service contracts require Internet access.
- Agilent Technologies is not responsible for connection to or establishment of communication with your site LAN network. The service representative will test the ability of the LC/MS to communicate with the bundled system only.
- The IP address for the Ultivo LC/TQ is fixed and cannot be changed. Agilent does not support the placement of the 1200 LC or the Ultivo LC/TQ on a corporate LAN environment.

## Electrical Requirements

The customer must provide appropriate electrical power and power outlets for all of the components in the Ultivo LC/TQ system.

Power considerations include:

- voltage ranges of major components
- power configurations
- power requirements
- power plugs and cords

## Voltage Range and Power Requirements

The Ultivo LC/TQ includes a wide-range power supply that can operate without reconfiguration on a wide range of single-phase alternating current (AC) electrical power.

**Table 2** Voltage Power requirements

Product	Line voltage	Maximum continuous AC power	Supply circuit rating	No. of outlets
Ultivo LC/TQ instrument	200 to 240 VAC 50/60 Hz	2700 VA	15 A	1
1260/1290 Infinity II Series LC	100-120 or 220-240 VAC 50/60 Hz	800-1200 VA <sup>1</sup>	15 A	4 to 61
Ultivo LC/TQ computer	100-120 or 220-240 VAC 50/60 Hz	1000 VA <sup>1</sup>	15 A	4

<sup>1</sup> Depends on product configuration.

## Site Preparation

### Voltage Range and Power Requirements

You must make a note in the purchase order when:

- The standard voltage at the installation site is different from the standard voltage from the country in which the order originates.
- The electrical power at the installation site is different from the standard electrical power in that country.

Power considerations include:

- Each product listed requires a dedicated circuit. The LC/MS instrument, LC, and data system must each have a separate circuit breaker.
- Power must meet the stated stability specifications. Use a line monitor to check power stability. If your line power is unstable, install a line conditioner.
- Excessive fluctuations in the voltage of the power supply can create a shock hazard and can damage the instrument. This equipment must be installed in a Category II environment as defined in IEC 60664.
- All Agilent-supplied sources draw their power from the LC/MS instrument and do not require separate line voltage.

## Power Configurations

Electrical power for the Ultivo LC/TQ can be delivered in either single-phase or 208-Wye configuration.

**Table 3** Power configuration

Configuration	Measurement	Nominal Voltage
Single phase	Line to neutral	200, 208, 220, 230, or 240 VAC <sup>1</sup>
	Line to ground	200, 208, 220, 230, or 240 VAC 1
	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 +/- 5%
	Line to ground (phase B to ground)	120, 127 VAC +/- 5%

<sup>1</sup> Varies with country. Single phase, 60 Hz operation is not supported for nominal voltage above 220 VAC.

Correct grounding for the 208-Wye configuration must be verified by an electrician and line-to-ground must be balanced (that is, voltage must measure the same) for both power lines to the instrument. *The neutral wire cannot be used for safety grounding.*

The ground wire must carry zero current except for ground-fault current or static electric discharge. The entire system must share an isolated, noise-free electrical ground that is connected to the main earth ground for the facility.

Power configuration considerations include:

- The power source to which you connect the LC/MS instrument must be equipped with a protective earth contact (ground).
- Do not interrupt the protective earth contact inside or outside the LC/MS instrument or disconnect the protective earth terminal (ground).

## Power plugs and cords

The Ultivo LC/TQ is supplied with a power cord set appropriate for the country from which the order originates.

Power plug considerations:

- The length of all Ultivo LC/TQ power cords is approximately 2.4 m (8 ft). See **“Power Cords”** on page 38 illustrations of the power cords available.
- Data system components also include power cords set appropriate for the country where the order was placed. Power cord lengths for the data system components and accessories are approximately 2.3 m (7.5 ft).
- Make sure that the power cords that you receive with the Ultivo LC/TQ are appropriate for your country and site before they are used.
- Do not use extension cords with the LC/MS instrument. Extension cords cannot provide enough power and can be a safety hazard.
- Power cords must be easily disconnected for maintenance of the Ultivo LC/TQ system.

## Other electrical considerations

Additional electrical considerations include:

- Electromagnetic interference (EMI), such as is generated by NMRs, radio transmitters, and microwave links, can interfere with system performance.
- Protect the system from static electricity by observing humidity and temperature requirements. Minimize the presence of non-conductive products such as carpets and vinyl floor tiles.
- Install emergency-off push buttons that can disconnect power to the ventilation system and all electric equipment in the room except overhead lighting.
- Provide separate convenience outlets for building maintenance and other appliances. Convenience outlets must be on the main circuits separate from the Ultivo LC/TQ system. Convenience outlets must share the normal building distribution ground, not the Ultivo LC/TQ system ground.
- In some geographical areas, installation of lightning protection for personnel and equipment is recommended.

## Gas Requirements

### Nitrogen Gas

The Ultivo LC/TQ systems requires a very large quantity of high-purity nitrogen for drying gas, nebulizing gas, and Agilent Jet Stream source sheath gas, and to pressurize the calibrant delivery system.

Nitrogen gas considerations include:

- Nitrogen is the only acceptable drying and nebulizing gas. Use of air, oxygen, or other gases, when combined with volatile solvents and high voltages in the spray chamber, can result in an explosion. Use of air, oxygen, or other gases also causes deterioration of parts in the Ultivo LC/TQ and negatively impacts instrument operation and sensitivity.
- Liquid chromatographs other than the Agilent 1100/1200 Series LC can require compressed gases for the LC autosampler and for sparging the LC solvents. If you are installing a liquid chromatograph from a vendor other than Agilent, see the site preparation and installation material supplied with that LC.
- *Compressed or liquefied gases can be dangerous. Please contact your gas supplier for handling and safety information for the gases you use.*

## Nitrogen Gas Requirements

The nitrogen gas used must be free of contaminants.

**Table 4** Ultivo nitrogen gas requirements

Source	Purity	Gas Pressure	Flow
Dewar or Liquid bottled Nitrogen	<ul style="list-style-type: none"> <li>&gt;99.5% pure<sup>1</sup></li> <li>hydrocarbon-free<sup>2</sup></li> </ul>	5.5 to 6.8 bar (80 to 100 psi) <sup>3</sup>	Up to 30 liters/minute <sup>4</sup> (1800 liters/hour)
Nitrogen Generator	<ul style="list-style-type: none"> <li>&gt;95.0% pure<sup>1</sup></li> <li>hydrocarbon-free<sup>2</sup></li> </ul>	5.5 to 6.8 bar (80 to 100 psi) <sup>3</sup>	Up to 30 liters/minute <sup>4</sup> (1800 liters/hour)

1 Remaining gas must be oxygen.

2 Less than 0.1 ppm of hydrocarbons with the remaining gas being oxygen and trace argon.

3 Gas Pressure is at the instrument inlet and not just at the supply side

4 At least 3 liters/minute is required at all times to prevent air from entering the instrument

*High-pressure bottled nitrogen is not supported due to the high usage of nitrogen.*

Two high-capacity gas conditioners are supplied with the Ultivo LC/TQ. Their primary function is to remove hydrocarbon contamination from the nitrogen before it reaches the LC/MS system. These conditioners have 1/4-inch Swagelok fittings.

## Nitrogen Gas Generator Requirements

If you choose to use a nitrogen gas generator, make sure that the nitrogen gas generator meets the specifications listed in **“Nitrogen Gas Requirements”** on page 23.

Agilent offers nitrogen gas generators with an internal air compressor. See **“Nitrogen Gas Generator Specifications”** on page 40 for more details.

### NOTE

If you purchase a nitrogen gas generator, make sure you complete and return the warranty form as directed by the supplier, or the warranty can be voided by the supplier.

These products include an air compressor:

- PEAK Nitrogen Generator System (Agilent p/n G1953A)
- Parker Nitrogen Generator (Agilent p/n G1954A)

They can supply enough nitrogen gas for one Ultivo LC/TQ with an Agilent Jet Stream source.

Installation is included with these nitrogen gas generator systems.

## Nitrogen regulators, tubing, and fittings

You must supply appropriate regulators for your sources of nitrogen gas. The regulators must be able to supply gas in the specified pressure ranges. The regulator for the drying gas must have one outlet with 1/4-inch Swagelok fittings.

Gas generators have built-in regulators so they do not require an external regulator. A Dewar of liquid nitrogen typically requires a single-stage regulator (see the Dewar manufacturer's literature for specifics).

Nitrogen from a house supply requires a single-stage regulator if the supply is at a pressure higher than the specified range. Bottled, compressed nitrogen typically requires a dual-stage regulator. See the Agilent Chemical Analysis Columns and Supplies Catalog (5988-4970EN) for dual-stage regulators available from Agilent Technologies.

The Ultivo LC/TQ is supplied with 300 cm of heavy-wall 1/4-inch PTFE tubing to connect the nitrogen supply to the LC/MS instrument. If the nitrogen supply is located farther from the LC/MS system, you need to supply additional heavy-wall 1/4-inch PTFE tubing. You can substitute 1/4-inch medical-grade polypropylene tubing for the PTFE tubing.

You must supply fittings, ferrules, and connectors of a Swagelok design for the 1/4-inch tubing to connect to the regulator or nitrogen supply fitting.

## Laboratory Supply Requirements

### Operating supplies

Routine operation of the Ultivo LC/TQ requires the following supplies:

- acetonitrile, LCMS-grade
- methanol, LCMS-grade
- water, Nanopure/HPLC-grade or better
- ammonium formate, 97% purity or better
- acetic acid, 99.7% minimum purity
- formic acid, 95% minimum purity

Agilent recommends the use of the highest grade solvents and chemicals with the Ultivo LC/TQ. Lower purity grades will result in higher background levels.

### Cleaning Solvents

Cleaning tasks for the Ultivo LC/TQ require the following HPLC-grade or better solvents:

- isopropyl alcohol
- methanol
- water

Proper storage, handling, and disposal of these chemicals is required for personal and environmental safety.

Contact your chemical supplier for solvent handling and safety information. Chemical solvents are to be considered hazardous and must be handled with care.

## Tools

Make sure to have these commonly used tools available for maintenance of the Ultivo LC/TQ system.

**Table 5** Screwdrivers

Description	Part Number
large flat-blade screwdriver	8730-0002
pocket flat-blade screwdriver	8730-0008
T6 Torx screwdriver	8710-2548 <sup>1</sup>
T10 Torx screwdriver	8710-1623 <sup>1</sup>
T20 Torx screwdriver	8710-1615 <sup>1</sup>

<sup>1</sup> Included with the Ultivo LC/TQ

**Table 6** Wrenches

Description	Part Number
3-mm open-end wrench	8710-2699 <sup>1</sup>
1/4-inch × 5/16-inch open-end wrench	8710-0510 <sup>1</sup>
1/2-inch × 7/16-inch open-end wrench	8710-0806 <sup>1</sup>
1/2-inch × 9/16-inch open-end wrench	8710-0877 <sup>1</sup>

<sup>1</sup> Included with the Ultivo LC/TQ

## Site Preparation

### Data System Supplies

**Table 7** Other common tools

Description	Part Number
Nebulizer Adjustment Kit	G1960-60470 <sup>1</sup>
plastic-tubing cutter	8710-1930 <sup>1</sup>
needle-nose pliers	8710-0004
safety glasses	9300-1159 <sup>1</sup>

<sup>1</sup> Included with the Ultivo LC/TQ

## Data System Supplies

Make sure you have:

- paper to print the results of the testing done during installation and later to print reports of your analyses
- appropriate media such as writable CD-ROM/DVD-ROM or back-up hard drive to make backup copies of your data files



## 3

# Delivery and Installation

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This chapter describes what the customer is expected to do at the time of delivery and installation.

## Delivery

When the Ultivo LC/TQ system is delivered, the customer is expected to:

- remove the shipping containers from the truck
- store the containers until installation
- contact the Agilent service representative to arrange an installation date

The shipping containers are large and heavy.

**Table 8 Shipping container dimensions**

Description	Width	Depth	Height	Weight
Ultivo LC/TQ	62.8 cm (24.7 in)	107.9 cm (42.5 in)	56.8 cm (22.3 in)	12 kg (27 lbs)

Delivery considerations:

- The shipping containers require a loading dock and a fork lift or similar lifting device. *If no loading dock and/or suitable lifting device is available, the containers cannot be removed from the delivery truck.*
- If you make prior arrangements with Agilent, the system can be delivered in a lift-gate truck. This removes the need for a loading dock, but a lifting device is still required to move the containers.
- The shipping containers must be kept upright at all times to prevent damage to the instrument.
- All doorways, hallways, floors, and elevators must be able to accommodate the largest, heaviest container.

## Inspection

*Do not open any of the shipping containers unless an Agilent representative is present. Doing so voids the receiving warranty on the instrument.*

Inspection process:

- When the shipping containers are unloaded, inspect the containers for any obvious *external* damage.
- If any of the containers appear damaged, note on the carrier's bill of lading the presence of "Apparent damage - subject to inspection and test". Arrange for both the carrier's claims representative and your Agilent service representative to be present when the containers are unpacked.

## Storage

You are expected to store the containers until installation under these conditions:

- Storage Temperature: -20°C to 50°C (-4°F to 122°F)
- Humidity: 20% to 80% RH, non-condensing, non-corrosive atmosphere

Other storage consideration:

- Make sure you properly store the chemicals that are shipped with your system. Some can require refrigeration between 4°C and 8°C (39°F to 46°F). Some chemicals must not be exposed to temperatures below 5°C (41°F). Check the label on the container for storage information.
- If your site does not have adequate storage space, the containers can be stored at your expense in a bonded warehouse.
- Allow space for data system and accessory containers.
- Be prepared to store the shipping containers for reuse in case the system needs to be shipped from one location to another.

## Unpacking

*Do not open any shipping containers until an Agilent representative is present.* Warranty claims for missing items will not be honored unless an Agilent representative is present to verify the contents of each container as it is unpacked.

If the shipping containers come from cold storage, to prevent exposure of the instrument to condensing humidity, bring the containers to room temperature before they are opened.

All shipping containers become your property and are not to be returned to Agilent.

## Installation

The installation site must be completely prepared as described in this guide, or installation can be delayed. Such delays can cause loss of instrument use during the warranty period. Agilent reserves the right charge for additional time required to complete the installation.

Other installation considerations:

- The base unit of the Ultivo LC/TQ weighs 59 kg (130 lbs) and is too heavy for one person to lift. Make sure that at least two people are available to lift the LC/MS instrument onto the laboratory bench.
- Make sure that the primary user of the Ultivo LC/TQ is present during installation to receive familiarization instruction from the Agilent service representative.
- If you purchased a nitrogen gas generator that does not include an air compressor, make sure that you have a source of hydrocarbon-free air before you install the nitrogen gas generator.

## Verification

Verification considerations:

- Agilent will test the Ultivo LC/TQ system against standards as documented for the system that you purchased.
- *Agilent will not test your system against your standards or samples.*
- Agilent will not set up your laboratory procedures as part of installation. To get assistance with laboratory procedures, contact Agilent to purchase consulting time by an Application Engineer.

To see the IDL or performance specifications for your Ultivo LC/TQ, go to:  
<http://www.agilent.com/en/products/mass-spectrometry/lc-ms-instruments/triple-quadrupole-lc-ms/ultivo-triple-quadrupole-lc-ms#specifications>

## Recycling

To recycle the Ultivo LC/TQ, contact Agilent.

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## 4

# Reference

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This chapter contains reference information for your Ultivo LC/TQ system.

## Spare parts and consumables

Keep these spare parts and consumables on hand to minimize system downtime.

For a list of commonly-used tools for maintenance of the Ultivo LC/TQ, see “**Tools**” on page 27.

### Consumables

**Table 9 Calibrant Solutions**

Description	Part Number
ESI-L Calibrant Solution	G1969-85000
APCI-L Calibrant Solution	G1969-85010

**Table 10 Performance standards**

Description	Part Number
ES/APCI positive ion performance standard (Reserpine)	G2423A
ES negative ion performance standard (Chloramphenicol)	5190-0591

**Table 11 Gas filters**

Description	Part Number
Nitrogen drying gas conditioner (universal trap purifier)	RMSN-4
Maintenance kit for pre-filter cartridges for 5183-2003 or 5183-2004 nitrogen gas generators	5183-2014

**Table 12 General Supplies**

Description	Part Number
abrasive mesh (micro-grit paper)	8660-0827
clean, lint-free cloths	05980-60051
cotton swabs	5080-5400

## Spare parts

**Table 13** Ultivo LC/TQ Spare Parts

Description	Part Number
ion injector	G6303-80004
canted coil spring	1460-2571
1/4-inch ID front capillary seal	0905-1475
Agilent Jet Stream heater replacement kit	G1958-68000
corona needle	G1947-20029
corona needle holder	G1947-60103
SW60 foreline pump oil (1 liter)	6040-1361

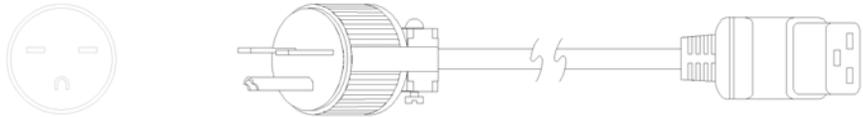
**Table 14** Nebulizer Spare Parts

Description	Part Number
APCI Nebulizer Needle Kit G2428A	G1960-20032
API-ES Nebulizer Needle Kit (for ESI)	G2427A
Nebulizer (needle SS316 replacement) kit (for Agilent Jet Stream)	G1958-60137

## Power Cords

The power cords (IEC C19) available for the Ultivo LC/TQ are shown here. See **“Electrical Requirements”** on page 18 for information.

US and Canada  
(p/n 8120-8623)



An alternative power cord (G1946-60066) with a NEMA L6-30P connector is available at extra cost. This alternative is useful if a twist-lock plug is preferred.

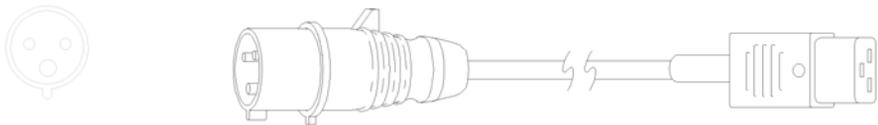
Europe, CEE 7/7  
(p/n 8120-8621)



UK/Hong Kong/  
Malaysia/Singapore, BS  
1363  
(p/n 8120-8620)



Switzerland/Denmark, IEC  
309  
(p/n 8120-8622)



Australia (p/n 8120-8619)  
China (p/n 8121-0070)



India/South Africa,  
BS 546  
(p/n 8121-0710)



Israel, SI 32  
(p/n 8121-0161)



Japan, NEMA L6-20P (p/n  
8120-6903)



Taiwan/South America,  
NEMA 6-20P  
(p/n 8120-6360)



Korea (p/n 8121-1222) Figure not available.

Thailand, (p/n 8121-1301) Figure not available.

## Nitrogen Gas Generator Specifications

See “**Nitrogen Gas Generator Requirements**” on page 24 for more information about the gas generator that the purchased Ultivo LC/TQ requires.

Agilent offers nitrogen gas generators that are well suited for use with the Ultivo LC/TQ. In these generators, clean, compressed air is passed through hollow-fiber membranes that separates the air into a concentrated nitrogen output stream and an oxygen-enriched permeate stream. The nitrogen is supplied to LC/MS instrument while the oxygen is vented from the generator.

These Agilent products include a built-in air compressor:

- PEAK Nitrogen Generator System (Agilent p/n G1953A)
- Parker Nitrogen Generator (Agilent p/n G1954A)

These model selectively remove oxygen, moisture and other gases to leave clean, dry, phthalate-free Nitrogen. Internal air compressors make these unit independent from in- house air supplies, and fitted casters allow the user to easily position the units in the lab.

Installation is included with the purchase of the G1953A or G1954A generators.

**Table 15** Single-instrument gas generator with air compressor

	<b>G1954A option 001 (Peak Scientific NM32LA)</b>	<b>G1953A option 002 (Peak Scientific Genius 3010)</b>
Nitrogen purity	>95.0%	>95.0%
Maximum flow	32 l/min (1.13 cfm)	64 L/min (2.26 cfm)
Maximum pressure	6.90 bar (100 psi)	6.90 bar (100 psi)
Dimensions (height × width × depth)	60 cm × 75 cm × 71.2 cm (23.6 in × 29.5 in × 28 in)	130.3 cm × 60 cm × 85 cm (51.29 in × 23.6 in × 33.5 in)
Weight	95 kg (209 lbs)	189 kg (417 lbs)
Shipping weight	150 kg (330 lbs)	265.5 kg (585 lbs)
Noise Level	54 db(A)	54 db(A)
Electrical power	220-240 Vac <sup>*</sup> , 50/60 Hz	220-240 Vac <sup>*</sup> , 50/60 Hz

\* 230 VAC ±10% is recommended. Manufacturer will provide boost transformer (p/n 0950-5405) for locations below this threshold. Performance is not affected at lower voltages.

## Reference

### Nitrogen Gas Generator Specifications

**Table 16** Dual-instrument gas generator with air compressor

	G1953A option 003 (Peak Scientific Genius 3020)	G1954A (Parker NitroFlow Lab)
Number of nitrogen outlets	2	
Nitrogen purity	>95.0%	> 95.0%
Maximum flow	32 L/min (1.13 cfm)	32 L/min (1.13 cfm)
Maximum pressure	6.90 bar (100 psi)	8 bar (116 psi)
Dimensions (height × width × depth)	130.3 cm × 60 cm × 85 cm (51.29 in × 23.6 in × 33.5 in)	70 cm × 90 cm × 31 cm (27.6 in × 35.4 in × 12.2 in)
Weight	189 kg (417 lb)	92.5 kg (204 lbs)
Shipping weight	265.5 kg (585 lb)	
Noise Level	54 db(A)	< 58 dB(A)
Electrical power	220-240 Vac*, 50/60 Hz	120VAC/60Hz (20 A), 230VAC/50Hz†

\* 230 VAC ±10% is recommended. Manufacturer will provide boost transformer (p/n 0950-5405) for locations below this threshold. Performance is not affected at lower voltages.

† Main supply voltage fluctuations not to exceed ±10% of nominal voltage.

After installation of this nitrogen gas generator with internal compressor, the Manufacturer must be contacted directly for support and service within the 1-year bundled service and warranty period.

Contact Agilent for the most up to date availability on nitrogen gas generators.

## In This Book

This guide describes the steps that you need to take to prepare your laboratory for the installation of your Ultivo LC/TQ.

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