Agilent CrossLab
From Insight to Outcome

Agilent CrossLab Start Up Services

Agilent Revident LC/Q-TOF Site Preparation Checklist

Thank you for purchasing an instrument from Agilent Technologies. CrossLab Start Up is focused on helping customers shorten the time it takes to start realizing the full value of their instrument investment.

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, space, and utility requirements for the system set up in your lab.

Revision: A.08, Issued: Jan 2025
Document Number: D0035272

Agilent

Introduction

Customer Information

- If you have questions or problems in providing anything described as part of *Customer Responsibilities* below, please contact your local Agilent or partner support / service organization for assistance prior to delivery. In addition, Agilent and/or its partners reserve the right to reschedule the installation dependent upon the readiness of your laboratory.
- Should your site not be ready for whatever reasons, please contact Agilent as soon as possible to reschedule any services that have been purchased.
- 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.
- Please refer to the other peripheral products (i.e., samplers etc.) for site preparation requirements.

Customer Responsibilities

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

- The necessary laboratory or bench space is available.
- The required environmental conditions for the lab as well as laboratory gases , tubing.
- The power requirements related to the product (e.g., Number & location of electrical outlets).
- The required operating supplies necessary for the product and installation.
- While Agilent is delivering Installation and Introduction services, users of the instrument should be present throughout these services; otherwise, they will miss important operational, maintenance and safety information.
- Please consult the Special Requirements and Other Considerations section below for other product-specific information.
- For more details, please consult the product-specific site preparation or pre-installation manual.

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Important Customer Web Links

- To access Agilent training and education, visit http://www.agilent.com/chem/training to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the Agilent Resource Center web page, visit https://www.agilent.com/en-us/agilentresources. The following information topics are available:
    - Sample Prep and Containment
    - Chemical Standards
    - Analysis
    - Service and Support
    - Application Workflows
- The Agilent Community is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome
- Videos about specific preparation requirements for your instrument can be found by searching the Agilent YouTube channel at https://www.youtube.com/user/agilent
- Need to place a service call? Flexible Repair Options | Agilent

Site Preparation

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

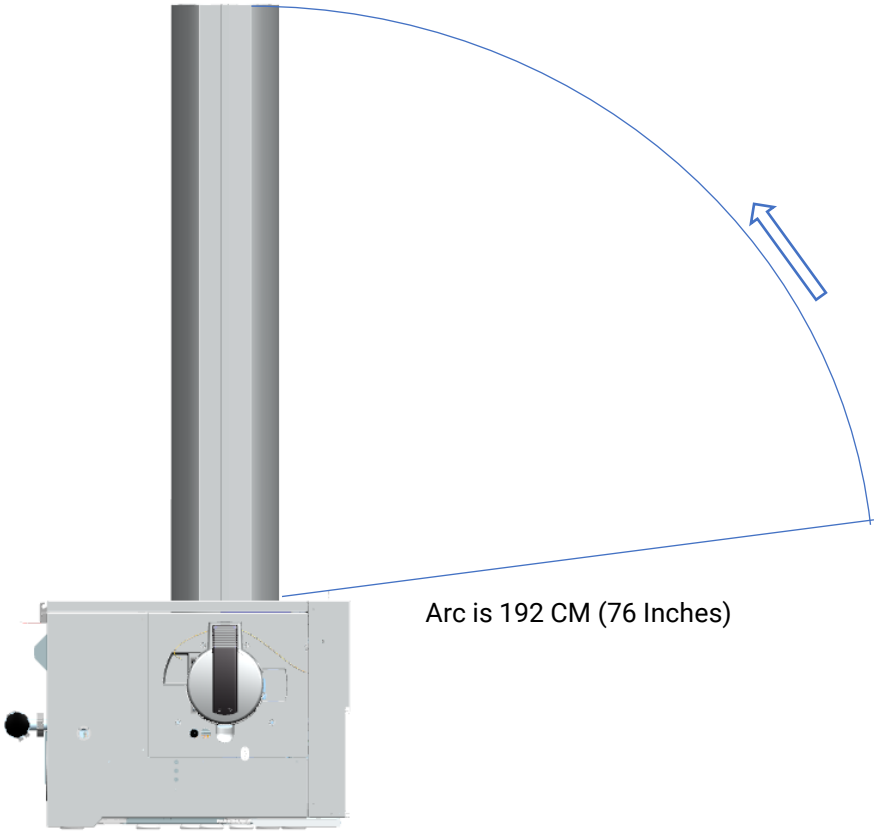
1. The modular dimensions and weight allow the instrument to be placed on any laboratory bench. The instrument requires a space of at least 8.0 cm (3.1 inches) on both sides, and approximately 15 cm (~6 inches) at the rear of the instrument for the circulation of cooling airflow, vacuum pump hose, and room for electrical connections.
2. If the bench is to support a complete Agilent Technologies 1200 Series HPLC system and a Revident LC/Q-TOF , ensure the bench was designed to support the total weight of all the modules.
3. To ensure clearance for the top of the Flight Tube, the height of the bench or table surface supporting the Revident LC/Q-TOF must not exceed 84cm (33 inches) when the ceiling height is 2.7 m (9 feet).
4. Agilent Field Support Engineers are not permitted to install the Revident LC/Q-TOF in laboratories that require the removal or alteration of ceiling tiles to accommodate the flight tube's height. This restriction is in place due to potential violations of fire safety codes in specific geographical locations.

The following table provides dimensions and weight requirements.
This product requires additional lifting assistance to be in your lab due to its weight. Please discuss the arrangements for this activity with the service engineer prior to installation.

Instrument Description	**Weight**		**Height**		**Depth**		**Width**	
	Kg	lbs.	cm	in	cm	in	cm	in
Revident LC/Q-TOF (Assembled)	187	412	190 *	74.5 *	69	27	103	40.5
Revident LC/Q-TOF (Mainframe only)	148	326	52.5	20.7	69	27	103	40.5
Revident LC/Q-TOF (Flight Tube only)	39	86	153	60	26	10	26	10
Agilent MS40+	34	75	23	9.2	41.8	16.5	29.7	11.7
G1958B Dual AJS	1.7	3.8	23	9.2	11.5	4.5	18	7.1
G3251B Dual Spray ESI Source	1.7	3.8	17	6.8	9.5	3.7	18	7.1
G1947B APCI Source	1.8	4.0	23	9.2	13.0	5.1	18	7.1
* Allow an additional 3 inches (7.5 cm) ceiling clearance for installation of the Flight Tube								

Shipping Weight include Packaging. Description	Weight		Height		Depth		Width	
	Kg	lbs.	cm	in	cm	in	cm	in
Revident LC/Q-TOF (Mainframe)	223	491	92	36	99	39	144	57
Revident LC/Q-TOF (Flight Tube)	94	208	78	30.5	65	25.5	208	76
Agilent MS40+ (inc HEPA filter)	40	89	51	20	41	16	59	23

Figure 1: Revident LC/Q-TOF LC/MS



During the installation of the flight tube, it will swing through an arc perpendicular to the front panel of 192cm (76 inches). Please ensure there are no obstructions which may prevent this.

Environmental Conditions

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

Special notes

1. Performance can be affected by sources of heat and cold e.g., direct sunlight, heating/cooling from air conditioning outlets, drafts and/or vibration.
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 Revident LC/Q-TOF systems, the bench or supporting surface must be vibration free.
4. The Agilent Revident LC/Q-TOF 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.
5. Do not operate the Revident LC/Q-TOF at an altitude exceeding 3,000 meters.
6. The supporting surface must be structurally sufficient to maintain a flat surface even with the load of the instrument on it.
7. 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 Temperature Range °C (F)	Operating Humidity Range %	Heat Dissipation
Revident LC/Q-TOF (Includes the rough pump and ion source)	15°C to 35°C (59°F to 95°F) at constant temperature (variations <3°C from calibration temperature).	20-85% non-condensing	2380 Watts (8,120 BTU/hour) with Dual-AJS source

Exhaust Venting Requirements

The Revident LC/Q-TOF 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.

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 equivalent to 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 a single vent is available, then the exhaust line(s) from the foreline pump(s) is required to 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-inch interior diameter (ID).

7. Failure to vent the foreline pump and spray chamber separately will void the warranty for the Revident LC/Q-TOF . Agilent service representatives will not install an Agilent Revident LC/Q-TOF until an adequate exhaust system is present and properly functioning.

Output Source	Maximum
Agilent Revident LC/Q-TOF single foreline pump	3.0 L/min
Agilent Jet Stream Technology (AJS), Electrospray (ESI), APCI	Up to 40 L/min

Power Consumption

Special notes

1. If a computer system is supplied with your instrument, be sure to account for those electrical outlets.

2. Two dedicated 15 Amp 200-240V AC power outlet are required for the Revident LC/Q-TOF system mainframe. The Revident LC/Q-TOF systems should be located within 2.5meters (8 feet) of these outlets. Please refer to the Site Preparation Manual for additional details.

   One further 15 Amp 200-240V AC outlet is required for the foreline pump, The foreline pump shipped with these instruments will plug directly into a separate electrical outlet.
   In total the Revident LC/Q-TOF requires 3 200-240V AC outlets. In addition, the computer system and printer require additional outlets.

3. Additional outlets are required for all Agilent 1260/1290 UHPLC modules. Please refer to the Site Preparation Checklist and Manuals for the 1260/1290 UHPLC modules for more detailed information.
4. The LC/QTOF electrical outlets must have an isolated, noise-free electrical ground that is connected to the main earth ground for the facility. Noise-free typically mean Total Harmonic Distortion (THD) more than 3% is not acceptable.
5. Mains supply voltage tolerances must be between -5% and +10% of nominal line voltage.
6. Electrical power for the Revident LC/Q-TOF may be delivered in either single-phase or 208-Wye configuration:
7. A boost transformer for the foreline pump is available, for use in regions where line voltage is 100-120V AC.

Instrument Description	Line Voltage and Frequency V, Hz	Maximum Power Consumption VA	Number of Electrical Outlets required
Revident LC/Q-TOF Flight Tube Heater (50°C), Dry Gas Temperature (375°C) and Sheath Gas Temperature (400°C)	200 - 240V AC 50/60 Hz Power	2400	2*
Foreline Pump	100-120V AC 50/60 Hz Power with optional transformer	1200	1*

Instrument Description	Line Voltage and Frequency V, Hz	Maximum Power Consumption VA	Number of Electrical Outlets required
	OR		
	200 - 240V AC 50/60 Hz Power	1200	1*
1260 HPLC or 1290 UHPLC	100 - 240 V AC 50/60 Hz Power	800 – 1200	4 to 6
Revident LC/Q-TOF Data System	100 - 240 V AC 50/60 Hz Power	1000	4 to 6
* In total 3 x 200 - 240 Vac outlets are required for the mainframe and foreline pump			

Required Operating Supplies by Customer for Installation

Main Nitrogen Gas Supply Requirements

1. Download the Essential Chromatography and Spectroscopy Supplies Catalogs for a complete overview about available supplies for your new and existing Agilent Instruments https://www.agilent.com/en-us/products/lab-supplies
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 is always required to prevent air from entering the instrument.
6. Main Nitrogen Supply fittings are 1/4" Swagelok.
7. Please note that high pressure bottles are NOT suitable for supplying nitrogen for Drying Gas and Nebulizer requirements due to the high flow rates. High pressure bottles can only be used for collision cell gas requirements.

Gas requirements	Minimum Purity	Typical inlet pressure range	Typical flow
Nitrogen for Drying Gas, Nebulizer Pressure (required) supplied by N2 gas generator, house nitrogen system, or liquid N2 Dewar. Nitrogen must be hydrocarbon free. See Note 1.	95.0 % or better	5.5 to 6.8 bar (80 to 100 psi) (550-690 kPa)	Up to 30 L/min (Revident LC/Q-TOF Dual AJS Source)
Nitrogen for Collision Cell (required) See Notes 1, 2, 3, and 4.	99.998%	2.07 to 2.76 bar (30 to 40 psi) (210-280 kPa)	Up to 2 mL/min.

Special notes.

1. Purity specification given is the minimum acceptable purity. Major contaminates can be water, oxygen, or air.
2. 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.
3. High Purity 1/8-inch FEP tubing is supplied as part of the Ship Kit to connect the Collision Cell Gas from the RMSN-2 filter to the Collision Cell inlet fitting on the Instrument.
4. Never use liquid thread sealer to connect fittings.

Solvents for installation.

1. A supply of LCMS grade Isopropanol needs to be supplied for installation, this is required to wipe down the O-rings and purging the LC system.

   Solvents required for flushing the system and running the instrument verification are provided with the purchase of the system.

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:

1. A network connection for the Data Acquisition and Data Analysis Workstation is recommended to provide remote diagnostics capability for the Revident LC/Q-TOF.
2. A phone line close to the instrument is strongly recommended for communication with the system operator.

Service Engineer Review (Optional)

Service Engineer Comments

If the Service Engineer completed a review of the Site Preparation requirements with the customer, the Service Engineer should complete the following Comments section.

If there are any specific points that should be noted as part of performing the service review or other items of interest for the customer, please write in this box.

Site Preparation Verification

Service Request Number:	Date of Review:
Service Engineer Name:	Customer Name:
Service Engineer Signature:	Total number of pages in this document:

Do not include this section in the PDF version.

Print only the checklist for the PDF. Do not include this page. This page is NOT intended for customer viewing. See the guidance instructions at the end of the template for more information.

Document Control Logs

Revision Log

Revision	Date	Reason For Update
A.01	24-Aug 2023	Initial release of Revident LC/Q-TOF Site preparation document.
A.02	11-Sep 2023	Reconciled power requirements, corrected APCI version number. Updated CC gas pressures.
A.03	29th Sep-2023	Updated instrument description to prevent confusion about power lead connections.
A.04	13th Nov -2023	Removed reference to air quality on page 8.Added comment about booster transformer.
A.05	16th Mar-2024	Added power rating for Rough Pump. Added Extraction value
A.06	15th May-2024	Changed Nitrogen consumption for Collision cell to 15ml/min
A.07	27th Jun-2024	Changed Nitrogen consumption for Collision cell to 40ml/min
A.08	07th Jan 2025	Changed Nitrogen consumption for Collision cell to 2ml/min

Approval Log

Revision	Approver	Title of Approver
A.01	Nathan Contino	Product Support Manager QTOF/TOF
A.02	Nathan Contino	Product Support Manager QTOF/TOF
A.03	Nathan Contino	Product Support Manager QTOF/TOF
A.04	Nathan Contino	Product Support Manager QTOF/TOF
A.05	Nathan Contino	Product Support Manager QTOF/TOF
A.06	Nathan Contino	Product Support Manager QTOF/TOF
A.07	Ryan Rademacher	Product Support Manager QTOF/TOF
A.08	Ryan Rademacher	Product Support Manager QTOF/TOF