

Site Preparation Specification

Purpose of Procedure

The site must meet the following set of requirements to ensure a successful and timely installation of your Agilent Pesticide Analyzer. This checklist is designed to prevent delays during installation, familiarization, and the initial operation of the system. This checklist outlines the space, utility, and gas supply requirements for a 7010 GC-TQ. It also recommends tools and consumables necessary for initial use of the instrument. Use it along with the 7010 GC-TQ Site Preparation Manual.

Customer Responsibilities

Make sure the site meets all specifications including: access, necessary space, power, electric outlets, grounding, gases, regulators, tubing, fittings, venting, operating supplies, consumables and other usage dependent items such as columns, vials, syringes and solvents required for the successful installation of instruments and systems.

Instrument operators must be present throughout the installation and familiarization delivered by Agilent or important operational, maintenance, and safety information will be missed.

Important Information

If additional assistance is required, please contact Agilent Technologies. Assistance with this list and with user specific applications is available and will be contracted separately.



Dimensions and Weight



Select and clear the laboratory bench space before the system arrives. Pay special attention to the total width, height, and depth requirements. Avoid bench space with overhanging shelves. The 7010 TQ is deeper than the 7890 GC.

Allow at least 20 cm clearance between the back of the GC and anything behind it to allow for proper venting of hot air from the oven.

ALS Series	Height H2	Width	Depth	Weight
7693 injector (related to GC)	50 cm + 19.2 in (above)			3.9 kg 8.6 lb
7693 tray (related to GC)		45 cm + 17.5 in (left)	2cm + 1 in (front)	6.8 kg 15 lbs

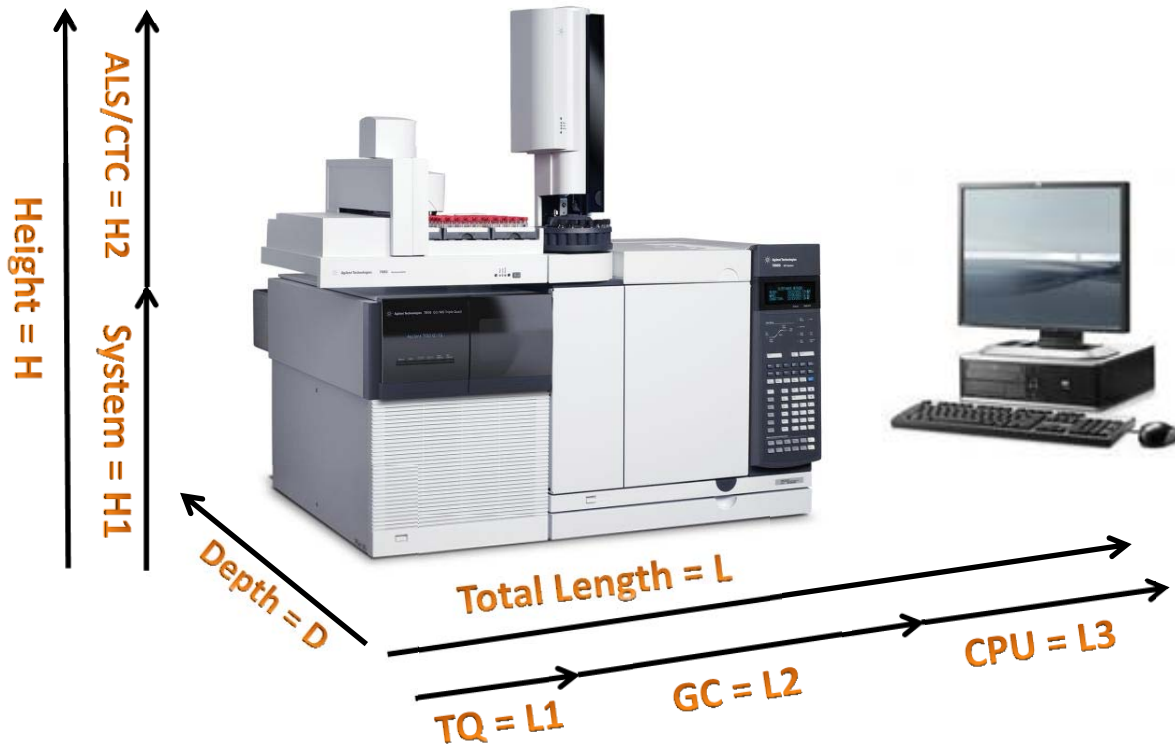
GC Series	Height H1	Width L2	Depth	Weight
7890	50 cm 19.2 in	59 cm 23 in	54 cm 23 in	50 kg 112 lb

7010 GC-TQ Series MSDs	Height	Width L1	Depth D	Weight
EI SplitFlow Turbo Pump	47 cm 18.5 in	35 cm 14 in	86 cm 34 in	59 kg 130 lb

A simple system includes a Gas Chromatograph with Automatic Liquid Sampler, Mass Spectrometer, and Data System (Computer, Monitor, and Printer) and would require a minimum of 195cm or about 6.5 linear feet of bench. To allow for access to the MSD a bench space of 244 cm or 8 feet should be available for a typical GCMS system. Access to the back of the system may be required for future repairs.

Please note: the length of the rough pump vacuum hose is 130cm or about 4.24 feet from the high vacuum pump to the foreline pump, while the length of the foreline pump power cord is 2M or about 6.6 feet. The hose cannot be extended.

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Power Consumption

The number and type of electrical outlets depends on the size and complexity of your system. The MSD power consumption and requirements depends are country dependent. The electrical outlet for the unit must have a dedicated ground.

Product	Line voltage	Frequency	Current Rating (amps)	Maximum continuous power consumption	Outlets Required	
7010 GC-TQ Series MSD	120VAC (-10% / + 5%)	50/60 Hz ± 5%	15A	1100VA (400VA for foreline pump only)	1	
	220-240VAC (-10% / + 5%)	50/60 Hz ± 5%	15A	1100VA (400VA for foreline pump only)	1	
	200VAC (-10% / + 5%)	50/60 Hz ± 5%	15A	1100VA (400VA for foreline pump only)	1	
PC (monitor(s), CPU, printer, switch)	120VAC (-10% / + 5%)	50/60 Hz ± 5%	15A	1000VA	5	
	200-240VAC (-10% / + 5%)	50/60 Hz ± 5%	15A	1000VA	5	
7890	Standard	Americas: 120V AC (1) single phase (-10% / + 5%)	48-66 Hz	20A	2250 VA	1
		220/230/240V single/split phase (-10% / + 5%)	48-66 Hz	10.2 / 9.8 / 9.4	2250 VA	1
	Fast	Japan: 200V split phase (-10% / + 5%)	48-66 Hz	15A	2950 VA	1
		220/230/240V (2)(3) single/split phase (-10% / + 5%)	48-66 Hz	13.4 / 12.8 / 12.3	2950 VA	1

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Notes

1. Americas 120V requires a 20 amp dedicated line. Americas 240V requires a 15 amp dedicated line.
2. Option 003, 208V fast oven, uses a 220V unit with an operating range of 193 to 231V. Most labs have a 4-wire service resulting in 208V at the wall receptacle. It is important to measure the line voltage at the receptacle for the GC.
3. Power line conditioners should not be used with 7890 GCs.



Heat Dissipation



The following table may help you calculate the additional BTU's of heat dissipation from this new equipment. The maximum numbers represent the heat given off when all available heated zones are set for maximum temperatures.

Oven type	7890 series	7010 GC-TQ series
Standard oven ramp	7681 BTU / hour maximum	3000 BTU / hr including GC/MSD interface
Fast oven ramp (options 002 and 003)	10,071 BTU / hour maximum	3000 BTU / hr including GC/MSD interface



Environmental Conditions



Operating the GCMS within the recommended ranges insures optimum instrument performance and lifetime. The instrument needs space for proper ventilation.

Product	Conditions	Typical Operating Temperature range	Maximum Operating temperature range	Operating humidity range	Maximum altitude
7890 Series	Standard oven ramp	15 – 35 °C 59 – 95 °F	5 to 40 °C 41 – 104 °F	< 31°C, 5 to 80% >31°C, 5 to 50%	4,421 m 14,505 ft
	Fast oven ramp (options 002 and 003)	15 – 35 °C 59 – 95 °F	5 to 40 °C 41 – 104 °F	< 31°C, 5 to 80% >31°C, 5 to 50%	4,421 m 14,505 ft
	Storage		5 to 40 °C 41 – 104 °F	5% - 95%	NA
7010 TQ Series	Operation	15 – 35 °C 59 – 95 °F	5 to 40 °C 41 – 104 °F	< 31°C, 5 to 80% >31°C, 5 to 50%	4,421 m 14,505 ft
	Storage		5 to 40 °C 41 – 104 °F	5% - 95%	NA

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**Gas Supply**

Gases are supplied by tanks, internal distribution systems, or gas generators. Tank supplies require two stage pressure regulation. **To connect tubing from the supply to the instrument, every regulator must have one 1/8 inch Swagelok male connector.** Make sure that your regulator has the appropriate sized adapter to end with a 1/8-inch Swagelok male connector. (SwageLok's web site is <http://www.swagelok.com> to help assist in finding connectors.)

The following table lists minimum and maximum gas supply pressures in psi for inlets measured at the bulkhead fitting at the back of the 7890 Series GCs.

7890 Series Inlets.

	Split/Splitless Inlet Standard 100 psi	Split/Splitless inlet Optional 150 psi	MMI (Preferred for Pesticide Analyzer)
Carrier max	120	170	120
Carrier min	20 psi above maximum pressure used in any method		

Conversions: 1 psi = 6.8947 kPa = 0.068947 Bar = 0.068 ATM

Notes

- If you have not purchased option 305, a pre-plumbed GC, you must supply pre-cleaned, 1/8-inch copper tubing (Agilent part number 5180-4196 for 50 ft) and a variety of 1/8-inch Swagelok® fittings to connect the GC to inlet and detector gas supplies.

7010 GC-TQ Series Gas Flow Limitations

Feature	7010
High vacuum pump	EI SplitFlow turbo
Optimal column carrier gas flow ml/min	1.0 – 1.2
Maximum recommended column gas flow, ml/min	2.0
Maximum column gas flow, ml/min (a)	2.4

a Expect degradation of spectral performance and sensitivity

7010 GC-TQ Series Carrier and Collision Gases

Carrier and Collision Cell gas requirements	Typical pressure range (psi)	Typical flow (ml/min)
Helium (standard column carrier gas and <u>required</u> for Collision Cell)	50 to 80	20 to 50 – column(s) and split flow 4.0 – collision cell
Hydrogen (optional carrier gas) (a)	50 to 80	20 to 50 – column(s) and split flow
Nitrogen (<u>required</u> for Collision Cell)	50 to 80	1.5 – collision cell

a) Hydrogen gas may be used for the carrier gas. Sensitivity specifications for this system are only valid using Helium carrier gas. Please observe all hydrogen gas safety cautions. See the Hydrogen Safety Manual G3870-90101.

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Gas Selection


Agilent recommends that carrier and detector gases be 99.9995% pure or better. Air needs to be zero grade or better. Agilent also recommends using traps to remove hydrocarbons, water, and oxygen. Problems caused by poor gas purity are not covered under warranty or hardware service contracts. Poor quality gases can result in significant repair costs.

The following table lists gases for capillary columns.

7010 GC-TQ Series Carrier and Collision Gases Purity

Carrier and reagent gas requirements	Purity	
Helium (Standard Carrier and Collision Cell)	99.9995%	Hydrocarbon free
Hydrogen (Optional Carrier)	99.9995%	SFC Grade
Nitrogen (Collision Cell)	99.999%	Research or SFC grade

For both the GC and MSD two stage regulators are required with a 1/8" Swagelok male outlet for each type of gas being used.


Other considerations

Microsoft Excel

Mass Hunter no longer ships with a copy of Microsoft Excel.

It is essential that the customer has previously purchased a copy of Excel prior to the Analyser Installation.

Exhaust Venting Requirements for the GC-TQ

Exhaust venting must comply with all local environmental and safety codes. The MSD should be vented externally to the building via an ambient-pressure vent system that is within 4.60 m (15 ft) of both GC split vent and MSD foreline pump or it should vent to a fume hood. The Exhaust vent system must not be part of the environmental control system of the building that recirculates air. For the GC with the optional oven exhaust deflector (outlet diameter 10cm – 4in) installed, the oven exhaust is approximately 65 ft³/min (1.840 m³/min) and without the deflector 99 Ft³/min (2.8 m³/min).

Basic Tools and Consumables

Your GC-TQ comes with a few instrument specific tools and consumables depending on the specific GC inlet(s), detector(s), and options that you ordered. Here is a general list. Some are provided with the instrument and some must be purchased separately.

Tool or consumable	Used for
Inlet wrench	Replacing inlet septa and liners.
T10 and T20 Torx	Removing the autosampler tray and removing covers to access EPC modules, traps, and troubleshooting possible leaks.
Column cutter	Column installation.
1/8-inch Tee(s), Swagelok, brass	Connecting gas supplies
1/8-inch nuts & ferrules, Swagelok, brass	Connecting gas supplies
Inlet septa appropriate for the application	Sealing the injection port
Inlet liner appropriate for the application	Sample vaporization.
1.5 mm and 2.0 mm hex driver	Source disassembly and reassembly.
Tool bag	Holds GC and MS tools
Q-Tips	Cleaning source parts and GC inlet



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Lint-free Cloths	Keeping surfaces and parts clean
Gloves	Reducing contamination on GC and MS parts

MSD Maintenance supplies	
Description	Part number
Abrasive paper, 30 µm	5061-5896
Alumina powder sample	393706201
Cloths, lint free, cleaning (package of 300)	9310-4828
Cotton swabs (package of 100)	5080-5400
Foreline pump oil, inland 45	6040-0834
Gloves, clean, large	8650-0030
Gloves, clean, small	8650-0029
Ferrules	
Description	Part number
Blank, graphite-vespel for MSD interface using Self-Tightening nut	5190-4054
Blank, graphite-vespel for MSD interface using brass nut	5181-3308
MSD interface 0.40-mm id, 85% Vespel 15% graphite, long, for 0.20-mm id and 0.25-mm id columns for use with brass nut	5062-3508
Injection port 0.40-mm id, 85% Vespel 15% graphite, short, for 0.25-mm id columns for use with either standard nut or Self-Tightening Nut	5181-3323
MSD interface 0.40-mm id, 85% Vespel 15% graphite, short, for 0.25-mm id columns for use with Self-Tightening Nut	5181-3323
Nuts	
Injection Port Self-Tightening Column Nut	5190-6194
MSD transferline Self-Tightening Column Nut	5190-5233
Brass MSD transferline Nut	05988-20066
Capillary Flow Technology - CFT	
Flexi Metal Ferrules for 0.1 - 0.25mm id, for Purged Ultimate Union backflush acc'y	G3188-27501
CFT nut	G2855-20530
Analyzer checkout samples	
Pesticide Standard	5190-0494
Other necessary consumables	
Foreline pump oil, Inland 45	6040-0834
Filament assembly (EI) for 7000x systems (two are installed)	G7005-60061
Filament assembly (EI) for 7010x systems – High Efficiency Dual Filament	G7002-60001
Electron multiplier horn for the Triple Axis Detector – Series 2	G7002-80103
PFTBA Tuning Compound	05971-60571