



Agilent Technologies

**6890 GC Site Preparation
(a16011)**

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The information contained herein is intended for use by informed individuals who can and must determine its fitness for their purpose.

Site Preparation Specification

Purpose of Procedure

Your site must meet this specification or set of requirements to assure a successful and timely installation of your 6890 gas chromatograph (GC). This checklist is designed to prevent delays during installation, familiarization, and the initial use of the GC system in your application. This checklist outlines the space and utility requirements for a 6890 GC. It also recommends tools and consumables that may help you get started. Use it along with the 6890 Site Preparation and Installation documentation and Consumable Catalog. This information is available from Agilent Technologies, Inc.'s website.

Customer Responsibilities

Make sure your site meets this specification, including: the necessary space, electric outlets, gases, tubing, operating supplies, consumables and other usage dependent items such as columns, vials, syringes and solvents required for the successful installation of instruments and systems. 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 Information

If you need assistance, please contact your local Agilent Technologies office. Assistance with this checklist and with user specific applications is available and will be contracted separately.



Dimensions and Weight



Select the laboratory bench space before your system arrives. Pay special attention to the total height requirements. Avoid bench space with overhanging shelves.

Weight	50 kg	112 lbs
Height	54 cm	21.3 in
Width (manual inlets)	54.5 cm / 68 cm	23 in / 26.7 in
Depth	54 cm	21.3 in

A simple system that includes a GC, an automatic liquid sampler, and a computer would require about 153 cm or 5 feet of bench space.



Power Consumption



The number and type of electrical outlets depends on the size and complexity of your system. The GC power consumption and requirements depend on the type of oven that you ordered and the country the unit is shipping to. Fast oven options 002 and 003 require more power. The electrical outlet for the unit should have a dedicated ground.

Oven ramp	Line voltage	Frequency	Current (amps)	Power
6890 Standard	Americas: 120V AC (1) single phase (-10% / + 5%)	48-66 Hz	18.8	2250 VA
6890 Standard	220/230/240V single/split phase (-10% / + 5%)	48-66 Hz	10.2 / 9.8 / 9.4	2250 VA
6890 Fast	Japan: 200V split phase (-10% / + 5%)	48-66 Hz	14.8	2950 VA
6890 Fast	220/230/240V (2)(3) single/split phase (-10% / + 5%)	48-66 Hz	13.4 / 12.8 / 12.3	2950 VA

Notes

- Americas 120V requires 20 amp dedicated line. Americas 240V requires 15 amp dedicated line.
- Option 003, 208V fast oven, uses a 220V unit with operating range of 193 to 231V. Most labs have 4-wire service resulting in 208V at the wall receptacle. It is important to measure the line voltage at the receptacle for the GC.
- Power line conditioners should not be used with 6890 GCs.

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Heat Dissipation



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

Oven type	6890 series
Standard oven ramp	7681 BTU / hour maximum
Fast oven ramp (options 002 and 003)	10,071 BTU / hour maximum



Environmental Conditions



Operating the GC within the recommended ranges insures optimum instrument performance and lifetime. Instrument needs space for proper convection of heat and ventilation. Performance can be affected by sources of heat and cold from heating, air conditioning systems, or drafts.

Oven type	Operating temp range	Operating humidity range	Maximum altitude
Standard oven ramp	20 – 27 °C	50 – 60%	4,615.38 m
Fast oven ramp (options 002 and 003)	20 – 27 °C	50 – 60%	4,615.38 m

Note

For storage or shipping, the allowable temperature range is 5-40 °C and the allowable humidity range is 5-95%, non-condensing.



Gas Supply



Gases are supplied by tanks, internal distribution system, or gas generators. Tank supplies require two staged, pressure regulation. **To connect tubing to the supply, it must have 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.

The following table lists minimum and maximum pressures in psi for inlets and detectors measured at the bulkhead fitting at the back of the instrument.

	FID	NPD	TCD	ECD	FPD	S/splitless 150 psi	S/splitless 100 psi	On- column	Purged packed	PTV
Hydrogen	35-100	35-100			45-100					
Air	55-100	55-100			100-120					
Make up	55-100	55-100	55-100	55-100	55-100					
Reference			55-100							
Carrier max						170	120	120	120	120
Carrier min						20 psi above pressure used in method				

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

Notes

- If you have not requested option 305, you must supply pre-cleaned, 1/8-inch copper tubing and a variety of 1/8-inch Swagelok® fittings to connect the GC to inlet and detector gas supplies.

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2. Cryogenic cooling with Liquid N₂ requires 1/4-inch insulated copper tubing.
3. Cryogenic cooling with Liquid CO₂ requires 1/8-inch heavy-walled, stainless steel tubing.
4. Valve actuation requires a separate pressurized, dry air at 55 psi.
5. Never use liquid thread sealer to connect fittings. Never use chlorinated solvents to clean tubing or fittings.



Gas Selection



Agilent recommends that carrier and detector gases be 99.9995% pure. Air needs to be zero grade or better. Agilent also recommends using traps to remove hydrocarbons, water, and oxygen.

The following table lists gases for capillary columns.

	Carrier	Preferred makeup	2 nd choice	Detector, anode purge, or reference
ECD	Hydrogen Helium Nitrogen Argon/methane	Argon/methane Argon/methane Nitrogen Argon/methane	Nitrogen Nitrogen Argon/methane Nitrogen	Anode purge must be same as makeup
FID	Hydrogen Helium Nitrogen	Nitrogen Nitrogen Nitrogen	Helium Helium Helium	Hydrogen and air for detector
FPD	Hydrogen Helium Nitrogen Argon	Nitrogen Nitrogen Nitrogen		Hydrogen and air for detector
NPD	Helium Nitrogen	Nitrogen Nitrogen	Helium Helium	Hydrogen and air for detector
TCD	Hydrogen Helium Nitrogen	Must be same as carrier and reference	Must be same as carrier and reference	Reference must be same as carrier and makeup

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Other considerations



Your 6890 GC comes with an analytical column: 19091J-413 (HP5, 30 meter, 0.32mm x 0.25µm). Our checkout standards are designed to work with this column. In many cases, you will need to select a different column for your application. Refer to <http://www.chem.agilent.com/cag/cabu/gcreflib.htm> for information on column selection, phase selection, guard columns, retention gaps, conditioning, and method development.

Your GC comes with a few basic tools and consumables depending on the specific inlet and detector that you ordered. Here is a general list of what you will get with your instrument

Tool or consumable	Used for
Inlet wrench	Replacing inlet septa and liners.
T10 and T20 Torx wrenches	Remove tray. Remove covers to access EPC modules, traps, and possible leaks.
¼-inch nut driver	FID jet replacement.
FID flow measuring insert	FID troubleshooting.
Column cutter	Column installation.
1/8-inch Tee, Swaglok, brass	Connect gas supplies
1/8-inch nuts & ferrules, Swaglok, brass	Connect gas supplies
Inlet septa appropriate for type	Injection port seal
Inlet insert or liner	Injection port

First time GC users should consider adding the following supplies to maintain their system and prevent interruptions in the use of their system. Please refer to the Agilent Consumables and Supplies Catalog for part numbers and recommended maintenance periods. New instrument purchasers can get a 15% discount on their 1st order of supplies for 60 days after the equipment order.

Tool	Used for
EPC Leak test kit	Leak testing flow paths with electronic pneumatics control.
Digital flow meter, Flow tracker 1000	Verifying flows, checking for leaks and plugs.
Electronic gas leak detector	Pin pointing gas leaks. Safety checks when using Hydrogen.
Column cutters	Cutting columns
T10 and T20 Torx drivers	Remove tray. Remove covers to access EPC modules, traps, and possible leaks.
1/8-inch tubing cutter (wire cutter type)	Cut gas supply tubing
Assorted wrenches: ¼, 3/8, 7/16, 9/16	Gas supply and plumbing fittings.
Electronic vial crimper	Assure consistently air tight vial closure no matter who does the crimping.
Consumable category	Consumable
Inlet supplies	Septa, o-rings, liners, adapter, and seals
Pneumatic supplies	Gases, traps, o-rings, seals, Swaglok® fittings
Column supplies	Nuts, ferrules, adapters, guard columns, retention gaps
Detector supplies	Jets, beads, liners, adapters, cleaning kits
Application supplies	Standards, columns, syringes