

Agilent CrossLab Start Up Services

Agilent 8890 Gas Chromatograph 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.

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 re-schedule 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 (ie, 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.
- When using hydrogen (H₂) as the carrier gas or fuel gas, be aware that hydrogen gas can flow into the GC oven and create an explosion hazard. Therefore, be sure that the supply is turned off until all connections are made and ensure that the inlet and detector column fittings are

always either connected to a column or capped when hydrogen gas is supplied to the instrument.

Hydrogen is flammable. Leaks, when confined in an enclosed space, may create a fire or explosion hazard. In any application using hydrogen, leak test all connections, lines, and valves before operating the instrument. Always turn off the hydrogen supply at its source before working on the instrument.

Please refer to the Hydrogen Safety Guide which is shipped with the Instrument.

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.

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

- Requires 30 cm (12-inch) open space above GC/ALS.
- Requires 27 cm (10.7-inch) open space in front of GC.
- Requires 25 cm (10-inch) clearance between back of instrument and wall to dissipate hot air and allow for routine maintenance.

This product requires additional lifting assistance in order to be located in your lab due to its weight. Please discuss the arrangements for this activity with the service engineer prior to installation.

The following table provides dimensions and weight requirements.

Instrument Description	Weight		Height		Depth		Width	
	Kg	lbs.	cm	in	cm	in	cm	in
8890 Series GC	50	112	50	19.2	54	21	59	23
8890 Series GC (w/ fourth detector)	57	125.4	50	19.2	54	21	68	27

Environmental Conditions

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

Special notes

- Performance can be affected by sources of heat & cold, e.g. direct sunlight, heating/cooling from air conditioning outlets, drafts and/or vibrations.
- The bench or supporting surface must be vibration free.
- The laboratory's ambient temperature conditions must be stable for optimum performance.
- During normal operation of the GC with many detector and inlet types, some of the carrier gas and sample vents outside the instrument through the split vent, septum purge vent, and detector exhaust. If any sample components are toxic or noxious, or if hydrogen is used as the carrier gas or detector fuel gas, these exhausts must be vented to a fume hood.

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.

Instrument Description	Operating Temperature Range °C (F)	Operating Humidity Range %	Heat dissipation (BTU)
8890 Series GC	15 to 35 °C (59 to 95 °F)	5 to 95%	7681
8890Series GC (Fast ramp oven)	15 to 35 °C (59 to 95 °F)	5 to 95%	10,071

Heat Dissipation

Your facilities manager may wish to know the amount of heat that the system generates in order to establish its contribution to the overall room ventilation requirements.

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.

Refer to the "Heat Dissipation" section of the " Agilent 8890 Gas Chromatograph Site Preparation Guide " for more detail.

Oven Types	Heat Dissipation
Standard oven ramp	7,681 BTU / hour maximum
Fast oven ramp (options 002 and 003)	10,071 BTU / hour maximum

Venting the Oven -Oven Heat Deflector Option 306 or Part Number G3450-81650

The following is a picture that shows the back view of an installed 8890 GC - with the Oven Heat Deflector installed. The exhaust duct exit is 10 cm (4 inches) in diameter.



The connecting duct should provide unrestricted flow for the oven air and be as short and straight as possible.

With the exhaust deflector installed the exhaust is about 65 CFM (ft³/min /1.840 m³/min). Without the deflector, the exhaust rate is about 99 CFM (ft³/min /2.8 m³/min).

Allow at least 25 cm (10 in) clearance between back of GC and wall to dissipate heated air. Installing the optional oven heat deflector reduces the required clearance to 14 cm (5.5 in)

Although the deflector adds 14 cm (5.5 inches) to the back of the GC, the GC can be installed closer to the wall because hot air is vented up and away from the GC/wall.

Refer to the "Exhaust Venting" section of the " Agilent 8890 Gas Chromatograph Site Preparation Guide" for more detail.

Power Requirements

Refer to the table of Power Cord and Plug terminations for your specific location at the end of this document.

The GC power consumption and requirements depend on the type of oven that you ordered and the location the unit is shipping to. **All 8890 GC's require dedicated circuits.**

The following table Lists the AC Power requirements for various 8890 GC configurations:

Instrument Description	Line Voltage and Frequency (V, Hz)	Maximum Power Consumption (VA)	Power Outlet Current Rating
8890 Series GC (Standard Oven)	Americas: 120 VAC single phase (+/-10%) 48 - 63 Hz	2250	20 amp dedicated
8890 Series GC (Standard Oven)	220/230/240 VAC single/split phase (+/-10%) 48 - 63 Hz	2250	10 amp dedicated
8890 Series GC (Fast ramp oven)	220/230/240 VAC single/split phase (+/-10%) 48 - 63 Hz	2950	15 amp dedicated
8890Series GC (Fast ramp oven)	North America 240 VAC – Instrument option #002 208 VAC requires 220 VAC Instrument option # 003	2950	15 amp dedicated
8890 Series GC (Fast ramp oven)	Japan 200 VAC split phase (+/-10%) 48 - 63 Hz	2950	15 amp dedicated

Special notes

1. The number and type of electrical outlets depends on the size and complexity of your system. For example, in addition to the dedicated outlet for the GC, a system with a computer, monitor, printer, and HUB/Switch requires 4 additional outlets on a separate circuit.
2. The GC will have a label next to the power cord connector that describes the line voltage requirements.



3. Power line conditioners that contribute any power line distortion should not be used with the Agilent 8890 GC.

Refer to the "Power Consumption" section of the " Agilent 8890 Gas Chromatograph Site

Required Operating Supplies by Customer for Installation

Use the following checklist to ensure that the site is properly prepared for GC system installation.

- Ensure that the appropriate installation hardware has been acquired.
- Ensure that the location in which the GC system is being installed meets the requirements for environmental conditions.
- Prepare bench space for the GC system. Ensure that the bench has the size and weight capacity to accommodate the GC and associated components.
- Ensure that system components are oriented so that they can be connected properly.
- If the system being installed includes an MSD, ensure that the bench allows for proper installation and connection of the fore-line pump.
- Ensure that appropriate venting is provided for the GC system.
- Ensure that a dedicated power circuit is available for each device in the system.
- Ensure that appropriate gas and reagent supplies are provided for the GC system.
- Ensure that appropriate gas plumbing is provided for the GC system.
- If the GC uses cryogenic cooling, ensure that appropriate cryogenic cooling supplies are provided for the GC.
- If the GC system being installed includes a data system, ensure that the PC meets the requirements necessary to properly support the GC system. For more information, see the site prep guide for your data system.
- If the GC being installed is to be connected to a site LAN, ensure that the appropriate cabling is available.

Special notes

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>

Special Requirements

Available Kits for 8890 GC system installation:

Kit	Part number	Contents
Recommended for GCs with FID, NPD, FPD		
GC Supply Gas Installation Kit with Gas Purifiers	19199N	Includes Gas Clean Filter system kit CP736530 (with 1 oxygen, 1 moisture, and 2 charcoal filters), 1/8-inch brass nuts and ferrules, copper tubing, 1/8-inch brass tees, tubing cutter, 1/8-inch brass caps, universal external split vent trap with replacement cartridges, and 1/8-inch ball valve
Recommended for GCs with TCD/ECD, MS, and MSD		
GC Supply Gas Installation Kit	19199M	Includes 1/8-inch brass nuts and ferrules (20), copper tubing, 1/8-inch brass tees, tubing cutter, 1/8-inch brass caps, 7-mm nut driver, T-10 Torx driver, T-20 Torx driver, 4 open-end wrenches, and 1/8-inch ball valve.
Gas Clean carrier gas filter kit, 1/8-inch	CP17974	

Available GC Pressure regulators:

All Agilent regulators are supplied with the 1/8-inch Swagelok® female connector.

Gas Type	CGA Number	Pressure Range	Part Number
Air (medical grade)	346	0-125 PSIG (8.6 Bar)	5183-4641
Hydrogen, Argon/Methane	350	0-125 PSIG (8.6 Bar)	5183-4642
Oxygen	540	0-125 PSIG (8.6 Bar)	5183-4643
Helium, Argon, Nitrogen	580	0-125 PSIG (8.6 Bar)	5183-4644
Air (Zero grade, for GC applications)	590	0-125 PSIG (8.6 Bar)	5183-4645

Instrument and System Dimensions and Gas Requirements

Typical GC System - 8890 GC with computer and printer.

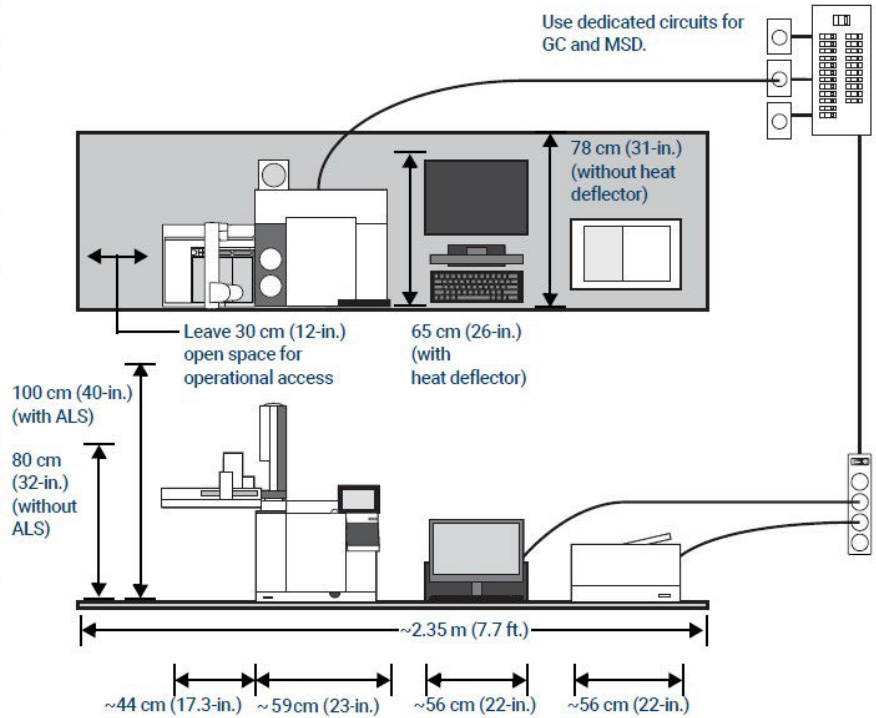
Application	Gas*	Purity	Supply Pressure (psi)†
Carrier	Helium	99.9995	50 - 80
	Hydrogen	99.9995	50 - 80
	Nitrogen	99.9995	50 - 80
Detectors			
TCD	Helium	99.9995	50 - 80
FID, NPD, FPD, TCD	Hydrogen	99.9995	50 - 80
ECD, FID, FPD, NPD, TCD	Nitrogen	99.9995	50 - 80
FID, NPD, FPD	Air	Zero grade	50 - 80

* Use 1/8-in Swagelok gas connections

† 1 psi = 6.89 kPa

Cryo Cooling (Liquid)	Tubing	Supply Pressure (psi)*
CO ₂	1/8-inch stainless tubing	700-900
N ₂	1/4-inch insulated tubing	20-25

* 1 psi = 6.89 kPa



Total weight: ~84 kg (186 lb)
 Maximum power consumption: ~3,950 VA (13,478 btu/hr)

Typical GC/MS System - 8890 GC, 5977 MSD, with computer and printer.

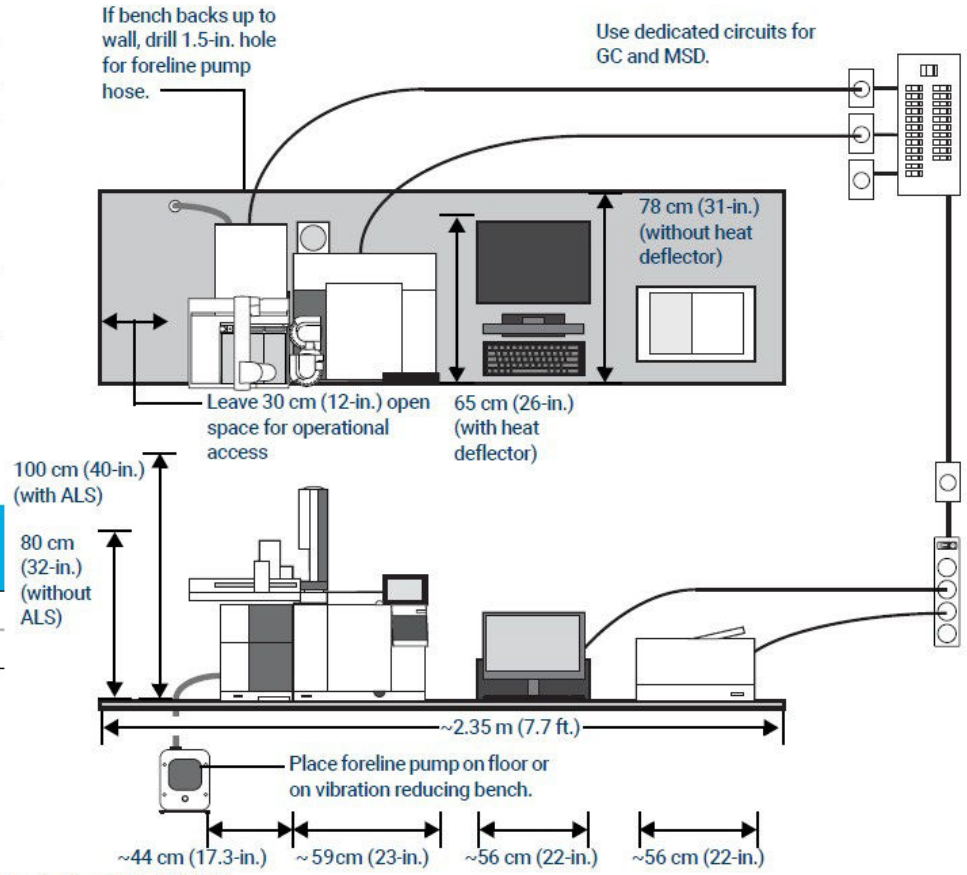
Application	Gas*	Purity	Supply Pressure (psi) [†]
Carrier	Helium	99.9995	50 - 80
	Hydrogen	99.9995	50 - 80
	Nitrogen	99.9995	50 - 80
Detectors			
TCD	Helium	99.9995	50 - 80
FID, NPD, FPD, TCD	Hydrogen	99.9995	50 - 80
ECD, FID, FPD, NPD, TCD	Nitrogen	99.9995	50 - 80
FID, NPD, FPD	Air	Zero grade	50 - 80

* Use 1/8-in Swagelok gas connections

† 1 psi = 6.89 kPa

Cryo Cooling (Liquid)	Tubing	Supply Pressure (psi)*
CO ₂	1/8-inch stainless tubing	700-900
N ₂	1/4-inch insulated tubing	20-25

* 1 psi = 6.89 kPa



Total weight: ~123 kg (271 lb)
Maximum power consumption: ~5,050 VA (17,232 btu/hr)

Typical GC/MS System - 8890 GC, 7000 or 7010 MSD, with computer and printer.

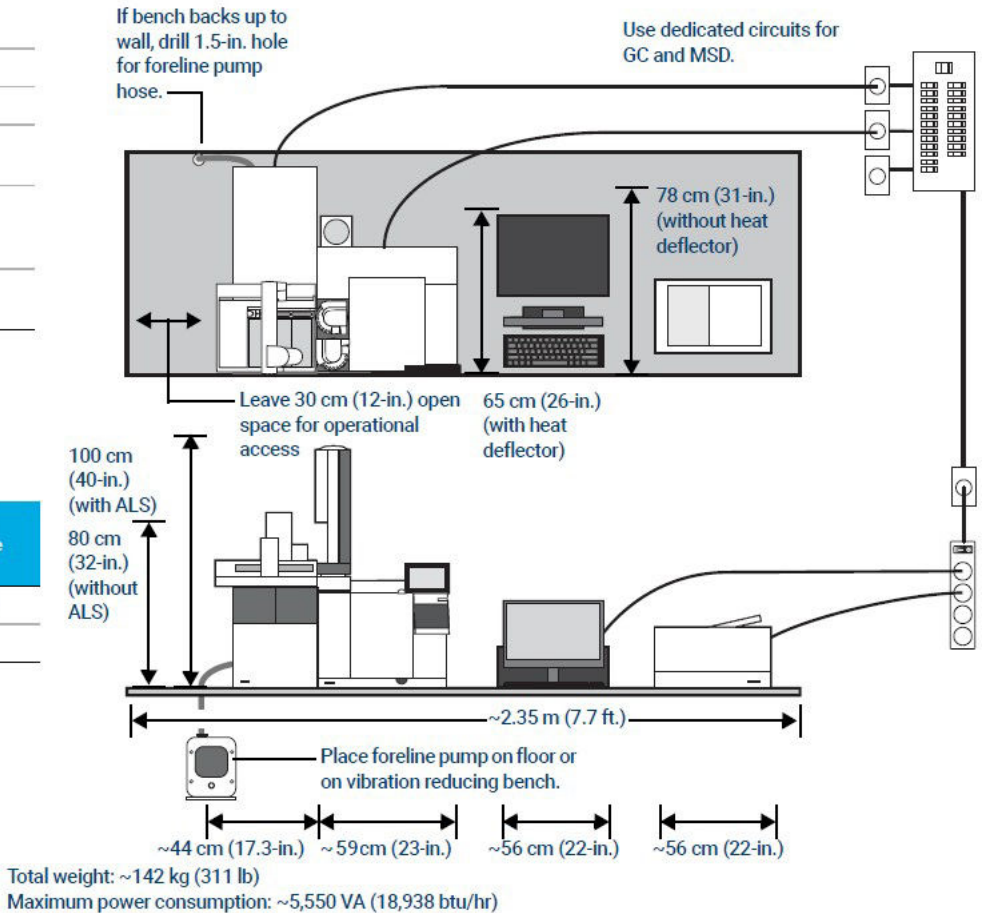
Application	Gas*	Purity	Supply Pressure (psi)†
Carrier	Helium	99.9995	50 - 80
	Hydrogen	99.9995	50 - 80
	Nitrogen	99.9995	50 - 80
Detectors			
TCD	Helium	99.9995	50 - 80
FID, NPD, FPD, TCD	Hydrogen	99.9995	50 - 80
ECD, FID, FPD, NPD, TCD	Nitrogen	99.9995	50 - 80
FID, NPD, FPD	Air	Zero grade	50 - 80

* Use 1/8-in Swagelok gas connections

† 1 psi = 6.89 kPa

Cryo Cooling (Liquid)	Tubing	Supply Pressure (psi)*
CO ₂	1/8-inch stainless tubing	700-900
N ₂	1/4-inch insulated tubing	20-25

* 1 psi = 6.89 kPa



Typical GC/MS System - 8890 GC, 7200 or 7250 Q-TOF MS, with computer and printer.

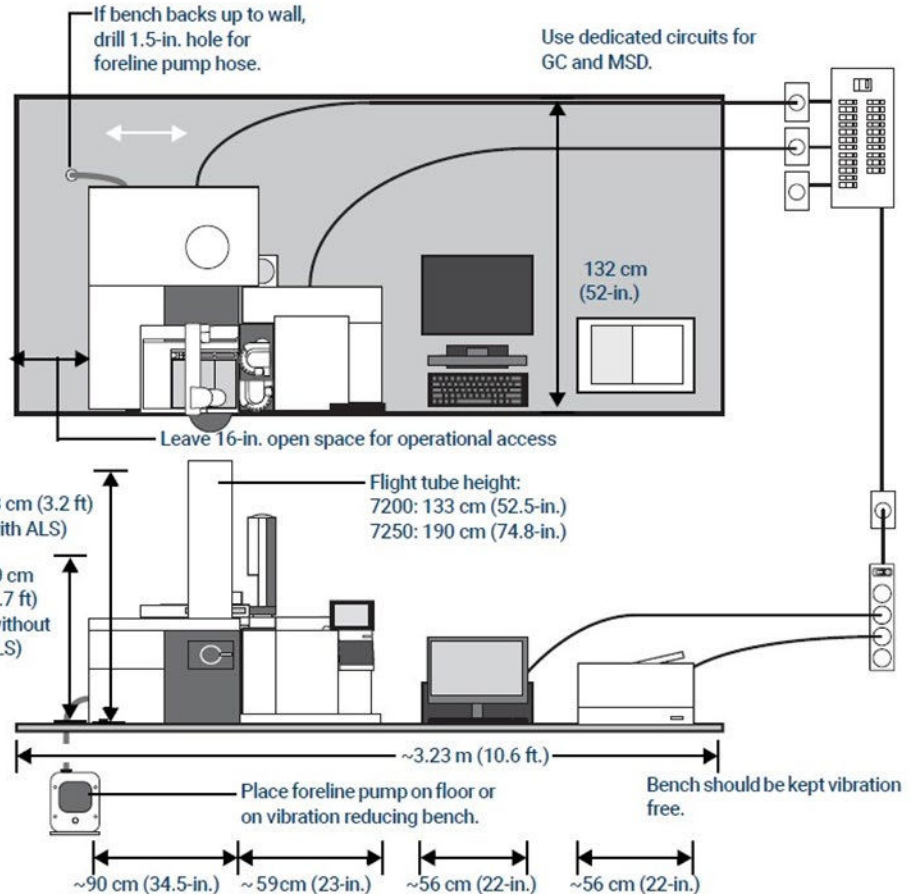
Application	Gas*	Purity	Supply Pressure (psi)†
Carrier	Helium	99.9995	50 - 80
	Hydrogen	99.9995	50 - 80
	Nitrogen	99.9995	50 - 80
Detectors			
TCD	Helium	99.9995	50 - 80
FID, NPD, FPD, TCD	Hydrogen	99.9995	50 - 80
ECD, FID, FPD, NPD, TCD	Nitrogen	99.9995	50 - 80
FID, NPD, FPD	Air	Zero grade	50 - 80

* Use 1/8-in Swagelok gas connections

† 1 psi = 6.89 kPa

Cryo Cooling (Liquid)	Tubing	Supply Pressure (psi)*
CO ₂	1/8-inch stainless tubing	700-900
N ₂	1/4-inch insulated tubing	20-25

* 1 psi = 6.89 kPa



Total weight: ~244 kg (536 lb)
Maximum power consumption: ~5,750 VA (19,620 btu/hr)

Considerations for Hydrogen Carrier Gas

If planning to use hydrogen carrier gas, note that special considerations apply due to flammability and chromatographic properties of hydrogen. Refer to the to the "Hydrogen Carrier Gas" section in the "Agilent 8890 Gas Chromatograph Site Preparation Guide" for more detail.

Hydrogen Safety

Be sure that the Hydrogen gas supply is turned off until all connections are made and ensure the inlet and detector column fittings are always either connected to a column or capped when hydrogen gas is supplied to the instrument.

In any application using hydrogen, leak test all connections, lines, and valves before operating the instrument. Agilent highly recommends the G3388B Leak Detector or equivalent to safely check for leaks.

Supply tubing for Hydrogen Gas

Agilent recommends using NEW, chromatographic quality copper or stainless-steel tubing and fittings when using hydrogen.

Do not re-use old tubing when installing or switching to hydrogen carrier gas. Hydrogen gas tends to remove contaminants left on old tubing by previous gases (by helium, for example). These contaminants can appear in detector output as high background noise or hydrocarbon contamination for several weeks.

Do not use old copper tubing with hydrogen gas. Old copper tubing can become brittle and create a safety hazard.

Hydrogen Gas Supplies

Hydrogen can be supplied from a gas generator or from a cylinder.

Agilent recommends use of a high-quality, properly maintained hydrogen gas generator. A high-quality generator can consistently produce purity > 99.9999%, and the generator can include built-in safety features such as limited flow rates, and auto-shutdown.

If using a hydrogen gas cylinder, Agilent recommends use of Gas Clean Filters to purify the gas.

Consider additional safety equipment as recommended by your company safety personnel.

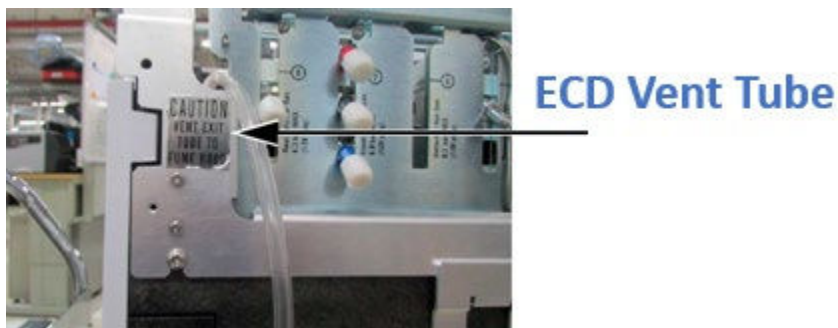
Venting the uECD, TCD or Split-Splitless Inlet Vent gas flows to a Fume Hood or venting manifold

If using hydrogen carrier gas with either a micro Electron Capture (uECD) or Thermal Conductivity (TCD) Detector the GC will vent uncombusted hydrogen from the detector exit. In addition, if a Split/Splitless or Multimode Inlet is used, hydrogen will dissipate from both the inlet split and septum purge vents. In both cases you must either safely vent the exhaust gas or operate the GC inside a fume hood.

The uECD exhaust vents through a stainless-steel tube, connected to a length of large I.D. tubing that exits the back panel. This should be routed to a fume hood or appropriate venting system. Agilent Technologies recommends a vent line internal diameter of 6 mm (1/4-inch) or greater. With a line of this diameter, the length is not critical.

Make sure that the venting system does not put a direct negative pressure on the vent tube from the GC.

Below is a picture that shows the back view of an 8890 GC with the micro Electron Capture Detector vent tube exiting the back of the instrument.



Power Cord and Plug Terminations

Part Number	Location	Voltage	Amps	Length-m	Type	Wall Termination	Plug Termination
8121-0675	Argentina	240	16	4.5	C19	AS 3112	
8120-1369	Australia, New Zealand	240	10	2.5	C13	AS 3112	
8120-8619	Australia	240	16	2.5	C19	AS 3112	
8121-1787	Brazil	240	16	2.5	C19	IEC 60906-1	
8121-1809	Brazil	240	10	2.5	C13	IEC 60906-1	
8120-6978	Chile	240	10	2.5	C13	CEI 23-16	
8121-0070	China	220	16	2.5	C19	GB 1002	
8121-0723	China	220	10	2.5	C13	GB 1002	

Part Number	Location	Voltage	Amps	Length-m	Type	Wall Termination	Plug Termination
8120-3997	Denmark, Greenland	230	10	2.5	C13	AFSNIT 107-2-01	
8120-8622	Denmark, Switzerland	230	16	2.5	C19	Swiss/Denmark 1302	
8120-8621	Europe	220/ 230/ 240	16	2.5	C19	CEE/7/V11	
8121-1222	Korea	220/ 230/ 240	16	2.5	C19	CEE/7/V11	
8121-1226	Korea	220/ 230/ 240	16	2.5	C13	CEE/7/V11	
8121-0710	India, South Africa	240	15	2.5	C19	AS 3112	
8120-5182	Israel	230	10	2.5	C13	Israeli SI32	
8120-0161	Israel	230	16,16 AWG	2.5	C19	Israeli SI32	

Part Number	Location	Voltage	Amps	Length-m	Type	Wall Termination	Plug Termination
8120-6903	Japan	200	20	4.5	C19	NEMA L6-20P	
8120-8620	United Kingdom, Hong Kong, Singapore, Malaysia	240	13	2.5	C19	BS1363/A	
8120-8705	United Kingdom, Hong Kong, Singapore, Malaysia	240	10	2.3	C19	BS1363/A	
8120-6894	North America Canada, Mexico, United States	120	20	2.5	C19	NEMA 5-20P	
8121-0075	North America Canada, Mexico, United States	240 (Option 002) Also for 208 VAC Power – the GC is configured for 220 VAC (Option 003)	15	2.5	C19	NEMA L6-15P	
8120-6360	Taiwan, South America	120	20	2.5	C19	NEMA 5-20P	
8121-1301	Thailand	220	15	1.8	C19		

Refer to the "Power Consumption" section - "Common Instrument Power Cord Plugs" - of the "Agilent 8890 Gas Chromatograph Site Preparation Guide" for more detail.

Required Operating Supplies by Customer for Installation

Special notes

For information on Agilent consumables, accessories, and laboratory operating supplies, please visit: <https://www.agilent.com/en-us/products/lab-supplies>

Tools

Your Agilent instrument comes with a few basic tools and consumables which are relevant to the specific configuration of your system.

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: