Clarus Series GC and GC/MS Systems

PREPARING YOUR LAB

Gas Chromatography and Gas Chromatography/Mass Spectrometry

Preparation Checklist

- Safety requirements
- Environmental requirements
- Space requirements
- General electrical requiremets
- Specific electrical requirements
- Compressed gas requirements
- Ventilation requirements

Introduction

PerkinElmer® Clarus® Gas Chromatograph (GC) instruments are complete systems, with the exception of the following items, which must be provided by the customer: controlled operating environment (clean, dry and temperature controlled), supporting work surface (bench space), electrical power with correct voltage and current rating, compressed gas supplies with approved regulators and filters, ventilation and exhaust vents as needed.

Environmental Requirements

The laboratory in which the Clarus GC is located must meet the following conditions:

- Before the instrument is installed, the area around, under and behind the instrument's planned location must be cleared of any dirt and dust to prevent their entry into the instrument's interior, which could cause a negative effect on performance.
- The laboratory should be free of flammable, explosive, toxic, caustic or corrosive vapors or gases and should be relatively free of dust.
- Do not use the instrument in an area where explosion hazards may exist.
- This instrument will operate safely in environments that contain nonconductive foreign matter up to Pollution Degree 2 as defined in EN/IEC 61010-1.
- The laboratory temperature should be controlled to be in the range of 10 to 35 °C (50 - 95 °F). However, the GC can be operated safely between 5 °C and 40 °C (41 °F and 104 °F).
- For Clarus GC/MS diffusion pump models, the upper limit for the ambient temperature is 30 °C. For Clarus GC/MS models, the ambient laboratory temperature should be controlled to be in the range of 10 to 35 °C (50 - 95 °F).
- For optimum instrument performance, the room temperature should be controlled at 20° ±2 °C (68° ±4 °F).
- Relative humidity must be maintained between 20% and 80% with no condensation.
- Install the GC in an indoor laboratory environment on a sturdy operating support surface (lab bench) that is clean and is free of drafts, direct sunlight and free of excessive vibration.
- Altitude for operation in the range of -400 to 2,000 m (below sea level to 6,562 feet).

WARNING

The use of a Clarus Series GC without adequate ventilation to outside air may constitute a health hazard.

PerkinElmer®
For the Better

Safety Requirements

Table 1. **Specific Safety Issues for GC Installations.**

Gas Cylinders and Gas Delivery Lines:

All gas cylinders should be firmly clamped to a suitable surface. Care must be taken not to kink or overstress the gas delivery lines. It is recommended that compressed gas cylinders be stored outside of the laboratory.

Hydrogen:

Ensure that all hydrogen lines and connections are leak-free. When using a hydrogen tank, install an in-line hydrogen snubber (Part No. 0009-0038) between the tank regulator and the delivery tubing.

Ventilation:

Always provide adequate ventilation. When analyzing hazardous compounds, such as pesticides, it may be necessary to arrange for venting the detector effluent into a fume hood.

WARNING

The use of a Clarus Series GC without adequate ventilation to outside air may constitute a health hazard.

Laboratory Space Requirements

Table 2. **General Laboratory Space Requirements.**

Physical Configuration:

Single unit for use on standard laboratory bench.

Bench Space:

The laboratory bench should be sturdy enough to support the full weight of the GC as well as additional equipment. Expect the total weight of the GC and accessory equipment to be at least 91 kg (200 lb).

Allow a minimum clearance of 10.2 cm (4 in) on each side, 15.2 cm (6 in) at the rear of the GC, and 137.2 cm (54 in) at the top of the GC. If this is not possible, install the GC on a bench that has wheels.

Always leave at least 10 cm (4 in) around the instrument to allow adequate cooling.

Do not position the equipment so that it is difficult to operate the AC power switch.

Peripherals, Printers, etc.:

Allow at least 61 cm (24 in) on either side of the GC to accommodate additional equipment.

A desktop or laptop computer (PC) is not required to run any of the Clarus Series GCs. However, operation with a PC and TotalChrom® or other equivalent chromatography data handling software is recommended to serve the purpose of convenience in data collection and processing.

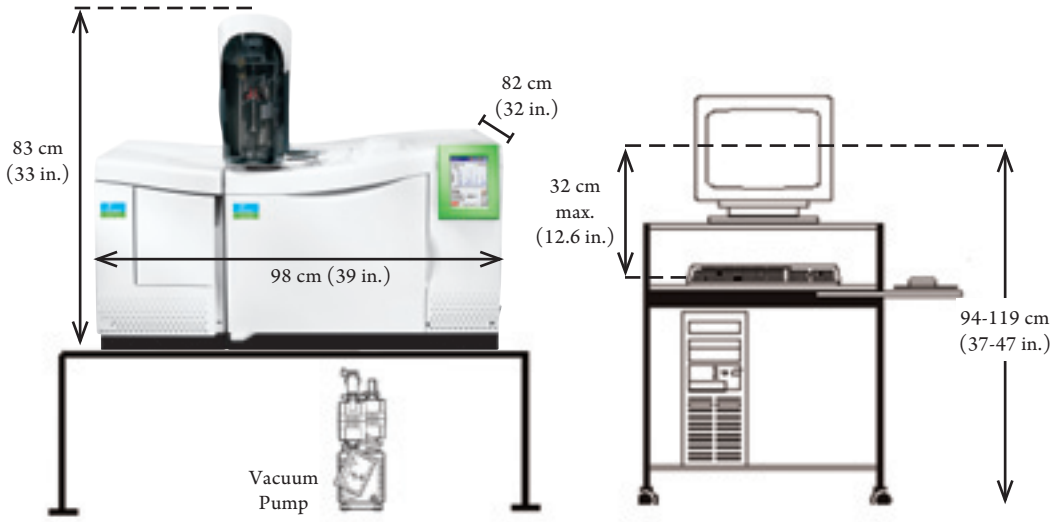


Figure 1. Traditional set-up of a GC/MS system.

Table 3. **Clarus Series GC Dimensions and Weights.**

Clarus GC Model	Width	Depth	Height	Weight
Clarus 400 and 480 GCs	67 cm (26 in)	72 cm (28 in)	54 cm (21 in)	49 kg (108 lbs)
Clarus 500 and 580 GCs	67 cm (26 in)	64 cm (25 in)	40 cm (19 in)	49 kg (108 lbs)
Clarus 600 and 680 GCs	67 cm (26 in)	82 cm (32 in)	53 cm (21 in)	64 kg (142 lbs)
Autosampler	13 cm (5 in)	24 cm (9.5 in)	36 cm (14 in)	4.5 kg (10 lbs)
Clarus 400/480 GCs with Autosampler	67 cm (26 in)	72 cm (28 in)	80 cm (32 in)	54 kg (118 lbs)
Clarus 500/580 GCs with Autosampler	67 cm (26 in)	72 cm (28 in)	80 cm (32 in)	54 kg (118 lbs)
Clarus 600/680 GCs with Autosampler	67 cm (26 in)	82 cm (32 in)	84 cm (33 in)	69 kg (152 lbs)

Table 4. **Clarus SQ 8 GC/MS System Dimensions and Weights.**

Width	Depth	Height	Weight	
Clarus MS	32 cm (13 in)	77 cm (30 in)	50 cm (20 in)	Depending on the pump option selected, the weight will range from 46.8 kg (102 lb) to 49.9 kg (110 lb)
Forepump	30.5 cm (12 in)	72 cm (28.4 in)	44 cm (17.3 in)	25.9 kg (57 lb)
Autosampler Tower	13 cm (5 in)	24 cm (9.5 in)	36 cm (14 in)	4.5 kg (10 lb)
Complete Clarus GC/MS System	98 cm (39 in)	82 cm (32 in)	83 cm (33 in)	Variable: 126.2 kg (277 lb) to 129.3 kg (285 lb). Will also depend on injectors and other detectors installed.
Physical Configuration	For use on standard laboratory bench that can be interfaced to a computer and printer.			
Bench Space	The laboratory bench should be sturdy enough to support the full weight of the GC/MS as well as additional equipment (for example, computer, and/or printer). Expect the total weight of the GC/MS and accessory equipment to weigh at least 159 kg (350 lb). Allow a minimum clearance of 15 cm (6 in) on each side, 22.9 cm (9 in) at the rear, and 137.2 cm (54 in) at the top of the GC/MS. If this is not possible, install the GC/MS on a bench that has wheels. The bench requires an area underneath for the forepump. Do not position the Clarus MS so that it is difficult to operate the AC power on/off switch on the lower left side of the instrument.			
Peripherals, Printers, etc.	Allow at least 94 cm (36 in) on either side of the GC/MS to accommodate additional equipment (for example, the computer).			

A desktop computer (PC) is required to operate the Clarus GC/MS system and is included with the system along with the Clarus MS operating software. The computer may be located to either the right or left side of the GC/MS instrument.

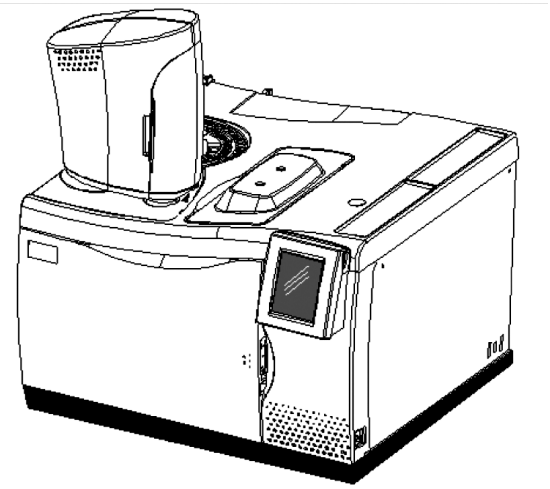


Figure 2. Clarus 680 – see dimensions in Table 3.

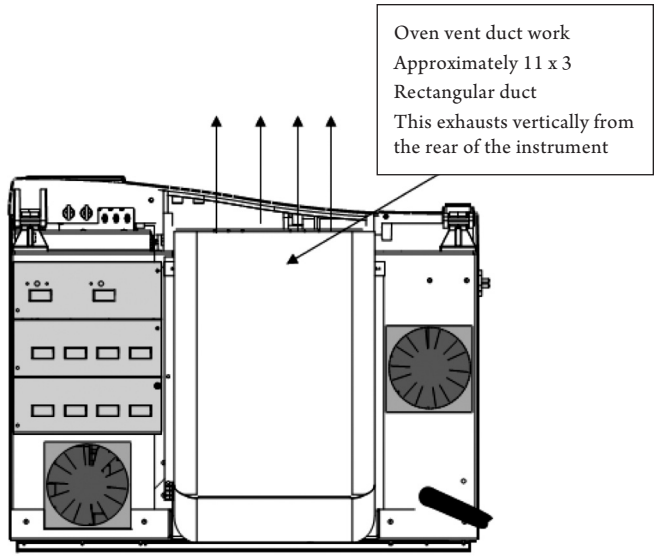


Figure 3. Clarus 680 GC oven vent duct work and rear cooling fans.

General Power Requirements

Electrical power must be made available in such a way that the GC and MS (if installed) can each be connected and operated on a dedicated AC power line of the proper volt-amp rating.

Table 5. **Fundamental Power Quality Requirements for All Clarus Series GC and GC/MS Systems.**

Power Specification: All electrical supplies must be smooth, clean and free of line transients greater than 40 V peak to peak and must meet and remain within the following tolerances:
120 VAC ±10% @ 50/60 Hz ±1%
220 VAC ±10% @ 50/60 Hz ±1%
230 VAC ±10% @ 50/60 Hz ±1%
240 VAC ±10% @ 50/60 Hz ±1%
Instruments and peripherals should not be connected to circuits with large inductive or large and frequent loads (i.e., large motors, discharge lamps, photocopy systems, radio transmitters, etc.).
Grounding circuit continuity is vital for the safe operation of all PerkinElmer instruments and their support equipment. All electrical outlets must have a properly wired protective earth connection.
Measured voltage between neutral and ground must not exceed 500 mV.
GC Power Outlets: A minimum of one dedicated 120 VAC outlet at 20 A or one 220-240 VAC outlet at 10 A (minimum) is required for the GC. For Clarus 600 GC with fast oven heating, a minimum of one dedicated 220-240 VAC outlet at 20 amp is required.
MS Power Outlets: A minimum of one dedicated 120 VAC outlet at 15 A or one 220-240 VAC outlet at 10 A (minimum) is required for the MS. This outlet must be separate from that for the Clarus 600 GC.

Specific GC Model Electrical Power Requirements

These GCs are designed for use only in an industrial environment.

Clarus 400/480 and 500/580 GC Power Outlets

A minimum of one dedicated 120 VAC outlet at 20 amps or one 220-240 VAC outlet at 10 amps is required for the GC. Additional equipment, such as computers, printers, etc., should be connected as directed by their respective specifications.

Clarus 600 GC electrical power must be made available such that the GC can be connected and operated on a dedicated AC power line of the proper volt-amp rating.

Do NOT attempt to operate photocopiers, discharge lamps, radio transmitters, stirrers and other equipment with large or frequent transient loads on the same supply circuit as the GC.

Clarus 600/680 GC Power Outlets

Clarus 600 or 680 GC with Standard Heating: One outlet specifically dedicated to Clarus 600 or 680 GC operation is required that is rated for GC operation to supply 20 A at 120 VAC or 10 A at 230 VAC.

Clarus 600 or 680 GC with Fast Heating: One outlet specifically dedicated to Clarus 600 or 680 GC operation is required that is rated to supply 15 A at 220 VAC, 16 A at 230 VAC and 13 A or 16 A at 240 VAC (in accordance with specific country specifications).

NOTE: The PerkinElmer Service Engineer may not install the electrical outlet at the site where the Clarus 600 or 680 GC is to be installed. The customer must arrange for a suitable outlet to be installed (if not already available) by a person qualified by the local regulations of the company site.

Important: Measure the nominal line voltage at the outlet from which the GC will be powered. This power connection is to be dedicated for use by the Clarus 600 GC only.

This measurement is important to ensure that the GC is ordered with the proper heater for the available line voltage. For locations with 208 VAC nominal (e.g., USA) the customer will need to provide either a step-up or autotransformer with output wired to an AC outlet (correct for the country of use) which will provide 230 VAC (±5%) and is rated for 15 amps minimum. Customers should enlist the services of a licensed electrician for assistance with electrical power upgrades.

Clarus 600/680 GC Power Cord Plug

Clarus 600/680 GC 220, 230 240 Volt Units: Customers must supply a power cord plug for Clarus 600/680 GC systems that operate on 220 to 240 VAC that matches the outlet type used in the location where the Clarus 600/680 GC will be installed.

NOTE: Clarus 600 and 680 GC systems purchased to operate on 220-240 VAC do not come with a plug installed on the end of the power cord due to the variability of the plugs used at this voltage range. The customer must provide a plug for the power cord that is compatible with the types of outlets used at the location where the Clarus 600/680 GC is to be installed.

Table 6. **Current draw ratings for Clarus Series GC at common line voltage ratings.**

Clarus GC Model	120 VAC	220 VAC	230 VAC	240 VAC
Clarus GC with Standard Heating	20 amp	10 amp	10 amp	10 amp
Clarus 680 GC with Fast Heating	N/A	15 amp	16 amp	16 amp

Table 7. **Power draw ratings for Clarus Series GC at common line voltage ratings.**

Clarus GC Model	120 VAC	220 VAC	230 VAC	240 VAC
Clarus GC with Standard Heating	2400 VA	2400 VA	2400 VA	2400 VA
Clarus 680 GC with Fast Heating	N/A	3120 VA	3120 VA	3120 VA

Add 200 VA (Watts) for the computer and 150 VA for the printer. NOTE: These additional electronic components must be supplied on a circuit different from that used for the GC.

The Clarus GC must have a 20 amp polarized receptacle (duplex recommended). The other two units can be plugged into 15 amp circuits and/or receptacles or separate 20 amp receptacles with no problem (Note: If you are having new circuits installed then it would be best to use 20 amp on all). A power strip that shares a duplex outlet for the computer/monitor and printer would be acceptable (three plugs for these items). All lines are 120 VAC and should be free of any spikes or transient voltages. No other devices including other instruments, lab ovens, heaters, copy machines, etc. should be on the same line.

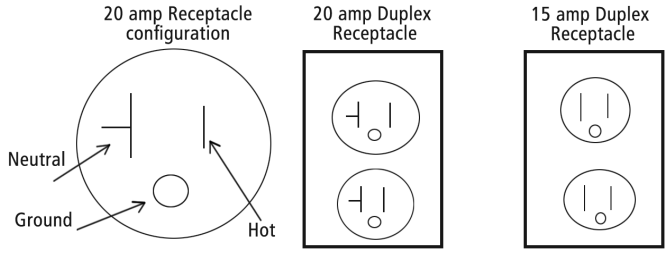


Figure 4. Differences between 20 amp and 15 amp receptacles for operation at 120 VAC.

Separate circuits are recommended for the complete system, including the computer and printer.

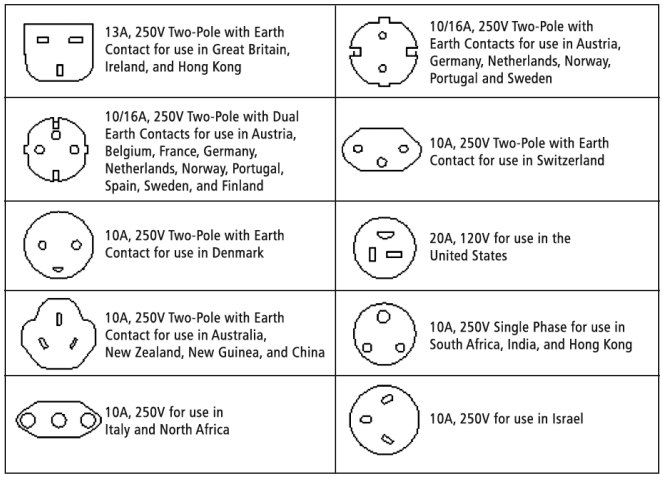


Figure 5. Line cord plugs used in various countries.

Clarus 400/480 GC country customized power cords for operation at 220-230 VAC:

- N6500280, Power Cord-Clarus 480 Switzerland
- N6500281, Power Cord-Clarus 480 Uk
- N6500282, Power Cord-Clarus 480 Europe
- N6500283, Power Cord-Clarus 480 Denmark
- N6500284, Power Cord-Clarus 480 Australia
- N6500285, Power Cord-Clarus 480 Italy
- N6500286, Power Cord-Clarus 480 India
- N6500287, Power Cord-Clarus 480 Israel
- N6500288, Power Cord-Clarus 480 China
- N6500289, Power Cord-Clarus 480 Argentina

Main installation part numbers are assigned:

- N0207032, Clarus GC Basic Installation
- N0207229, Clarus GC with TotalChrom Workstation

Gas Requirements

A. Carrier and Makeup Gas Supplies:

1. All gas supply resources and appropriate filters required for GC operation must be available at site prior to beginning GC installation.
2. Compressed gas cylinders should always be stored and operated in the vertical position securely fastened to a solid wall. Cylinders should be located outside of the laboratory whenever possible.
3. Always use copper tubing that is free of grease, oil and organic material for all gases delivered to the Clarus GC or associated external samplers. Minimum diameter tubing is 1/8 inch O.D., but 1/4 inch O.D. tubing can be used for longer delivery lines.
4. Any gas line made of 1/4 inch tubing will have to be terminated with a 1/4 to 1/8 inch reducing tube fitting in order to connect to gas line filters that need to be installed just before entry into the GC.
5. Gas delivery pressure should be 70 to 90 psig (480 to 620 kPa), but NEVER ABOVE 100 psig from any gas source connected to the GC.

   Any gas line with pressures exceeding 100 psig must first have an additional pressure regulation stage installed before the line is connected to the GC.
6. A size 1A gas cylinder (200 ft^3 capacity) should be used for all carrier gasses (helium, hydrogen or nitrogen). Alternatively for hydrogen, a size 2 compressed gas cylinder (62 ft^3 capacity) or hydrogen generator can be used. An alternative Carrier Gas Mixture (8.5% hydrogen/91.5% helium) may be used for TCD analysis of low level hydrogen in test samples.
7. Carrier Gas Minimum purity must be 99.995%.
8. The carrier gas minimum purity requirement increases to 99.999% purity when the GC is being operated with a mass spectrometer (MS) or electron capture detector (ECD).
9. Filter helium and nitrogen gases through a moisture filter and/or hydrogen trap and de-oxo filter. Hydrogen should be filtered through a moisture filter. Filters must be located near the GC and be the last component in the gas supply line before gas enters the GC.
10. Makeup carrier gas for electron capture detectors may be pure nitrogen or P5 Gas (95% argon/5% methane). Argon/methane should be filtered through a moisture filter and de-oxo filter. Gas delivery pressure to the GC should be 60-90 PSI.
11. A vent gas line must be provided for the mass spectrometer and should be pure nitrogen gas. Nitrogen gas delivery pressure to the mass spectrometer vent gas fitting should be regulated to a low pressure (3-5 psig).

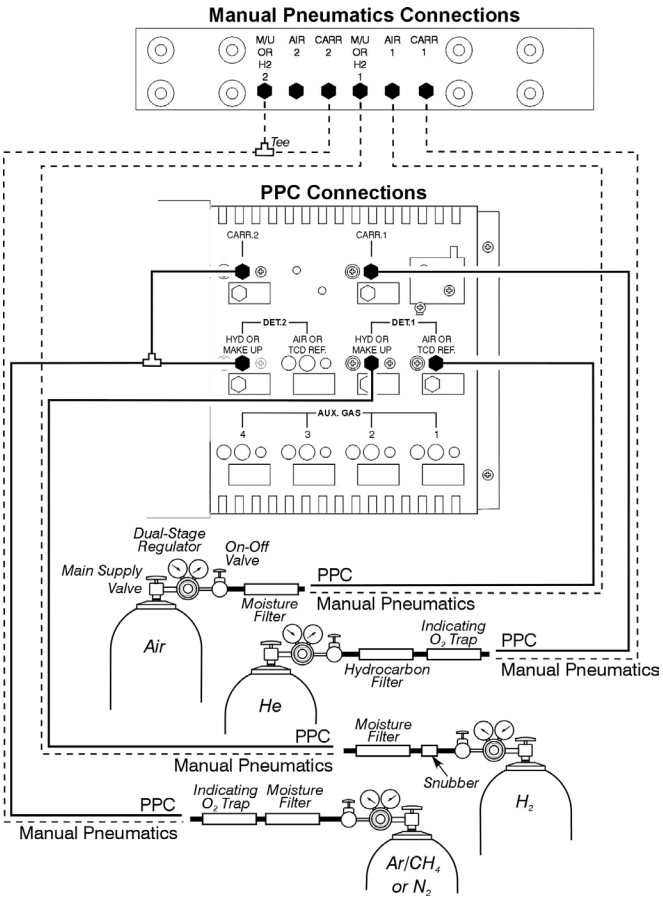


Figure 6. Example of possible plumbing connections for compressed gasses connected to PPC Mounting Plate on Clarus series instruments.

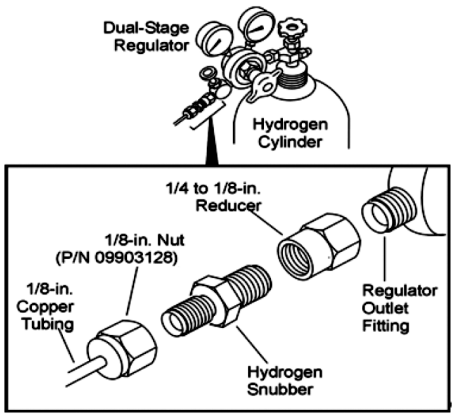


Figure 7. Installing a hydrogen snubber at the hydrogen gas tank regulator.

B. Air Supply

1. A clean, dry air supply is required for operation of some GC detectors (FID, NPD, FPD) and for pneumatically controlled gas sampling valves (GSVs). Separate gas pressure regulators are recommended to isolate GC detector air supplies from switching transients inherent in use of pneumatically controlled GSVs.
2. DO NOT USE "MEDICAL AIR" OR "BREATHING AIR".
3. A size 1A compressed gas cylinder (200 ft^3 capacity) is required. Alternatively, an air compressor can be used if proper filters are fitted to remove moisture or any other contaminants.
4. Any compressed air line must be fitted with a hydrocarbon filter and a moisture filter before it enters the GC. Gas delivery pressure should be 70 to 90 psig (480 to 620 kPa). Separate regulation may be required for detector air and pneumatic actuator air.

   When using manual pneumatics, gas delivery pressure to the GC must not exceed 30 psi (207 kPa). If this is not possible, secondary regulation will be required.

C. Cryogenic liquids: LN_2 and CO_2

LN_2:

For liquid nitrogen, use a supply with a liquid delivery pressure of 20 to 30 psi. Use the six foot length of 1/4" insulated tubing supplied to connect the AutoSystem XL to the dewar. Longer lengths will decrease pressure at the nozzle and will cause the liquid to heat up and boil.

CO_2:

For liquid carbon dioxide, use a size 1A cylinder equipped with a fitting containing a full-length dip (eductor) tube. The tank should contain approximately 60 lbs. of carbon dioxide. Protect the CO_2 supply system from undue heating. CO_2 is a gas above 31 ˚C (87.5 ˚F) at a pressure of 1069 psi. The pressure increases rapidly at temperatures above 31 ˚C. The CO_2 supply system contains liquid CO_2 pressurized at 6000 kPa (850 psi) at 20 ˚C.

Adequate ventilation must be provided, particularly if a liquid nitrogen or carbon dioxide sub ambient gas is in constant use. When analyzing hazardous compounds, such as pesticides, it may be necessary to arrange for venting of the detector effluent into a fume hood.

WARNING

The use of a Clarus Series GC without adequate ventilation to outside air may constitute a health hazard.

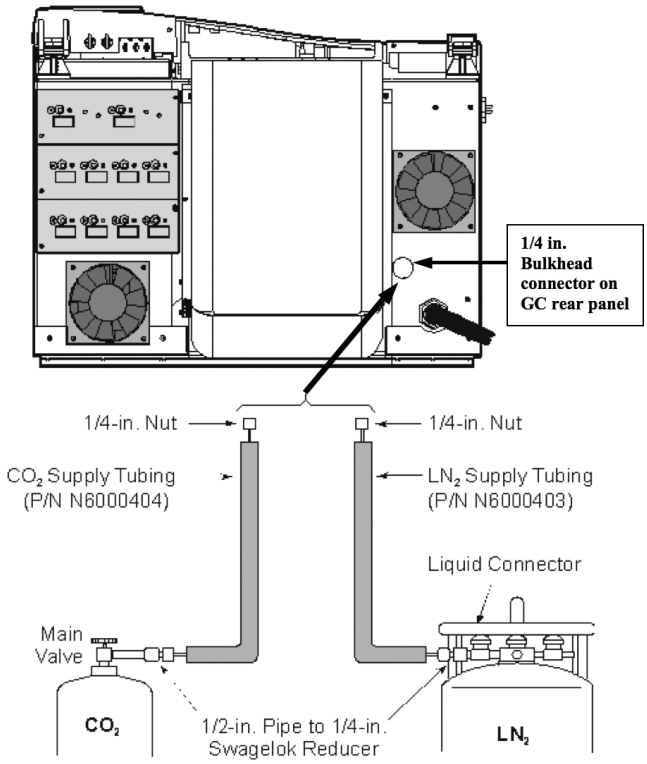


Figure 8. Illustration of connection of cryogenic materials for Clarus 600/680 GC subambient oven operation.

Ventilation Requirements

Exhaust venting is important for the following reasons:

- It protects laboratory personnel from toxic vapors that may be produced by some samples.
- It helps to protect the instrument from corrosive vapors that may originate from the sample(s).
- It removes dissipated heat produced by the instrument and power supply.

NOTE: Local electrical codes do not allow PerkinElmer Service Engineers to install the blower and vent assembly.

The blower capacity depends on the duct length and number of elbows or bends used to install the system. If an excessively long duct system or a system with many bends is used, a stronger blower may be necessary to provide sufficient exhaust volume at the instrument.

Alternatively, smooth stainless-steel tubing should be used instead of flexible stainless steel tubing where flexibility is not required to reduce system friction loss or "drag". If smooth stainless steel is used, there must be a way to move the vent hood out of the way for servicing. A length of smooth stainless steel ducting has 20-30% less friction loss than a comparable length of flexible ducting. When smooth stainless steel tubing is used, elbows must be used to turn corners. These elbows should turn at a centerline radius of 150 mm with a maximum bend angle of 45 degrees to reduce friction losses, and the number of elbows should be minimized.

Additional recommendations on the venting system include the following items:

- Make sure the duct casing is installed using fireproof construction. Route ducts away from sprinkler heads.
- The duct casing and venting system should be made of materials suitable for temperatures greater than 70 °C (158 °F). It should be installed to meet local building code requirements.
- Locate the blower as close to the discharge outlet as possible. All joints on the discharge side should be air-tight, especially if toxic vapors are being carried.
- Equip the outlet end of the system with a back draft damper and take the necessary precautions to keep the exhaust outlet away from open windows or inlet vents. In addition, extend it above the roof of the building for proper dispersal of the exhaust.
- Equip the exhaust end of the system with an exhaust stack to improve the overall efficiency of the system.
- Make sure the length of the duct that enters into the blower is a straight length at least ten times the duct diameter. An elbow entrance into the blower inlet causes a loss in efficiency.
- Provide make-up air in the same quantity as is exhausted by the system. An "airtight" lab will cause an efficiency loss in the exhaust system.
- Ensure that the system is drawing properly by using an air flow meter.
- Equip the blower with a pilot light located near the instrument to indicate to the operator when the blower is on.

PLEASE NOTE: See pre-installation checklist on last page for signoff of site requirements.

USEFUL ACCESSORIES FOR GC TROUBLESHOOTING

Electronic Flow Meter

Measures volumetric flow for all gases across a range of 0.5-500 mL/min.

FlowMark™ Electronic Flowmeter	**N9307086**
Soft Carrying Case	**N9306142**

- NIST® traceable calibration
- Explosion-proof rating for flammable and explosive gases
- Accuracy of ±2% of flow or ±0.05 mL/min., whichever is greater
- Auto shut-off feature and over range indicator
- Ergonomic design and side grips for comfort
- Convenient storage case included
- CE, Ex (Compliance: WEEE, RoHS) certified
- Uses 2 AA batteries
- Data output via USB port
- Re-calibration service available
- Operating Temp. Range: 32-120 °F (0-48 °C)
- One year warranty

Electronic Gas Leak Detector

Battery: Rechargeable Ni-MH internal battery pack (6 hours normal operation).
Universal Power Adapter Set: U.S., UK, European, Australian plugs included.
Operating Temperature Range: 32-120 ˚F (0-48 ˚C)
Humidity Range: 0-97%
Warranty: 1 Year
Certifications: CE, Japan
Compliance: WEEE, ROHS

Portable Electronic Leak Detector	**N9306089**
Soft Carrying Case	**N9306142**
Probe (fine tip)	**N9306063**

IMPORTANT CONSUMABLES AND ACCESSORIES

GC Installation Kit

This kit must be ordered for new Clarus 400/480 GC installations.
This kit is included with Clarus 500/580 and 680 GC shipments.

Installation Kit – Clarus (Service) N6500123

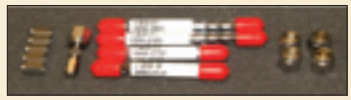
Item	Part Identification	Qty.	Units	Part No.
1	Restrictor Air Assay (for Snubber)	1	PC	00090038
2	Tag Warning (for Snubber)	1	PC	00091216
3	Tag-Snubber (for Snubber)	1	PC	00091360
4	50 ft. 1/8" Copper Tubing Kit (pre-cleaned)	1	PC	N9300077
5	Female Nut 1/8" Brass (gas supply)	6	EA	09903128
6	Fittings Tube (Ferrule) (gas supply)	6	EA	09903129
7	Tube-Fitting (Ferrule) (gas supply)	6	EA	09903130
8	Tee Connection (gas supply)	3	EA	09903170
9	Fitting (for Snubber)	1	PC	09903212
10	Fitting-Tube/Female 1/4 NPT (gas supply)	3	PC	09903795
11	Carton-Dante Shipping Kit	1	PC	N6541081

N6120104 Detector Fittings Kit

(Additional purchase recommended for GC operation).

Autosampler Starter Kit N6120105

Crimper Tool 11 mm Hand Crimper		00090699
Syringe-9000 5.0 uL .63 Lndl Dyna		N6101390
Rack For 50 Vials-12 mm		N9301303
11 mm Crimp Top Vial, 2 L mL	Pk/100	N9301385
Decapper-11 mm Tool		N9301390
Vial-Crimp Top 2.0 mL Amber	Pk/100	N9302680
Cap-11 mm Crimp Green w/Septa		N9302684
Cap-11 mm Crimp Red w/Septa	Pk/100	N9302685
Cap-11 mm Crimp Blue w/Septa	Pk/100	N9302686
Septa Waste/Wash	Pk/50	N9302780
Cap-11 mm Crimp Red Rubber/PTFE	Pk/100	N9306015



General Ferrules List

Size	Column i.d.	Graphite/Ferrule i.d. Part No.	Graphite/Vespel Part No.
1/16 in	0.18 – 0.25 mm/0.4 mm		09920104
1/16 in	0.18 – 0.32 mm/0.5 mm	09903700	09920105
1/16 in	0.18 – 0.32 mm/0.5 mm*	N9306001	N9306000
1/16 in	0.18 – 0.53 mm/0.8 mm	09920141	09920107
1/8 in	0.18 – 0.53 mm/1.0 mm	09903394	
1/8 in	0.18 – 0.32 mm/0.5 mm*	09903395	
1/8 in	0.18 – 0.32 mm/0.5 mm	09903981	
* Two hole ferrules			

General Injector Septa List

Thermogreen® Injector Septa 50	N6621028
Low Bleed Injector Septa 25	N9303343
PTFE/ Silicone Injector Septa 50	00090652
Green Injection Port Septa 10	N9306218
Green Injection Port Septa 50	N9306219
Orange Injection Port Septa 50	N9302972

See PerkinElmer Gas Chromatography Reference Guide (Document 008535_01) for other recommended consumables, accessories and starter kits.

For additional support on Preparing Your Lab for PerkinElmer GC Installation, please call 1-800-762-4000.

Pre-Installation Checklist

Model: _____ Date: _____

SPO#: _____ Company: _____

Location: _____ Operator: _____

Alternate Contact: _____ Lab Manager: _____

Telephone: _____ Email: _____

Intallation Requirements	Completed, Yes/No	If Not Completed, Additional Needs Prior to Installation
Safety Requirements		
Environmental Requirements		
Space Requirements for Instrument and Accessories, including External Samplers and External Detectors (i.e. MS) if Part of GC Analysis System		
Lab Space Requirements for Peripherals (Computers, Printers, etc.)		
Electrical Power Requirements		
Compressed Gas Requirements		
Ventilation Requirements		

Please complete both sides of this form, detach at perforation and return to PerkinElmer Service Manager.

Pre-Installation Checklist

Additional Recommended Operating Resources	Completed, Yes/No	If Not Completed, Additional Needs Prior to Installation
Sample Preparation Equipment and Facilities (Customer Responsibility)		
Additional Cooling Equipment (Water Cooling if Installed) and Miscellaneous		
Phone Line Near Instrument		
Internet Access Near Instrument for Remote Support		

Please be aware that signoff on this document is a requirement for scheduling installation of the instrument.

An installation scheduled after signoff of this document will be treated as a Billable Service Call if the site is not ready when the Service Engineer arrives to perform the scheduled installation.

Signatures:

Operator: _____ Date: _____

Alternate Contact: _____ Date: _____

Lab Manager: _____ Date: _____

Service Manager: _____ Date: _____

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