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Pre-Installation Guide
Integra2



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2. Introduction

This pre-installation guide is issued to help users prepare a site for the installation of the Sercon Integra Wave prior to the arrival of the installation engineer on site. The guide gives details of the system's bench space, electrical, environmental and gas requirements. Observing the site requirements will avoid delays during installation.

When all the requirements have been met, please complete and return the pre-installation survey to Sercon and an installation date will be confirmed.

3. Bench space

The table below gives the dimensions and weight of the Integra Wave

System	Width	Height	Depth	Weight
Integra Wave	820 mm	800 mm	610 mm	120 kg
µCarbs	570 mm	520 mm	500 mm	100 kg

The bench needs to be sturdy. Access to the back of the units is required, so please ensure that the bench is not against the walls. A minimum clearance of 50cm is required at the back of unit.

Additional space is required for the PC, monitor and printer.

4. Power Requirements

All mass spectrometers require a clean, stable source of power.

The system should be connected to a separate single-phase, continuous duty, 220-240 VAC, 48-62 Hz power line, with a maximum break of 10 ms. 1500 VA minimum service is required for the system.

110V compatible instruments can also be supplied.

In the case of a differing mains voltage, a transformer must be used.

System	Power	Power Point
Integra Wave	1.5 kVA	1
µCarbs	2.5kVA	2



Additionally, power is required for the PC that controls the system plus the monitor and printer.

In situations where power breaks may exceed 10 milliseconds, a UPS is required. A UPS also helps to smooth out the power supply if it is not particularly stable.

When purchasing a UPS, we recommend a 2.1kVA unit to run the whole system (9 minute backup at full load). The run time can often be extended up to 66 minutes if you order more batteries. Alternatively you can get two 1.15KVA units to split up the system. These give 12 minute backups. Run time can often be extended to 30 minutes with the extra battery option.

No UPS can keep the Integra Wave running for a long period of time due to the power requirements of the furnaces.

5. Environmental Requirements

5.1 Room temperature

The permissible temperature range is 17°C - 30°C.

Approximately 20°C is preferable with temperature variations of less than ±2 °C/ hour.

5.2 Humidity

The relative humidity must not be lower than 20% and not exceed 70% at any temperature.

The optimum relative humidity level is 40%-60%.

5.3 Air conditioning

We recommend the installation of air conditioning, if the specified limits will be frequently exceeded on account of unfavourable climatic conditions. Direct sunlight on the system should be avoided.

6. Gases

The system requires gas cylinder connections with 1/8" compression fittings (Swagelok or similar) and 1/8" diameter GC grade stainless steel or copper tubing for all gases (except the compressed air). The length of the tubing will be entirely dependent upon where your gas

bottles are located in the lab. This should ideally be kept to a minimum. Standard 2-stage regulators that are capable of delivering a pressure of at least 3.5 Bar are required.

Helium

Carrier gas. 99.998% with 10vpm or less of N_2.

A large (10 m^3) cylinder should last at least 6 weeks.

Oxygen

Required for combustion and re-oxidising catalysts in some inlets.

99.998% with 0.5 - 5vpm or less of N_2.

A large (10 m^3) cylinder should last several years under normal operating conditions.

Compressed Air

A compressed air supply of 50 – 60 psi (approx. 3.5 Bar) is needed for pneumatic solenoid operations. This can be from a compressor or gas bottle (10m^3). Alternatively, the valves can be operated using the helium supply but this will increase helium consumption. The compressed air is connected to the instruments by 1/8" nylon tubing.

N.B. There is no need for additional "reference gases" – the Integra Wave uses Sercon's innovative trapping looptechnology to tune the source and reference materials are used to calculate delta values

7. Installation and Service

7.1 Instrument Arrival

When the instrument arrives, please make an immediate visual inspection for damage. If any damage is apparent, please take the following steps:

- Note the nature and extent of the damage, including photographs
- Request an inspection and written damage report from a representative of the carrier to signify their concurrence with your observation.
- Contact Sercon and report the damage.

Caution:

Damage discovered 15 days after delivery of the equipment generally cannot be recovered. Such damage will be at the expense of the customer.

If the delivery receipt indicates that material has been received in apparent good order and condition and no exceptions are taken, Sercon will not accept liability for damage

7.2 Moving the equipment

Do not drop or mishandle the shipping containers. The equipment should be left in the shipping crates and, upon delivery, be taken by a forklift or a hydraulic pallet mover to the installation site.

7.3 Installation

When the instrument is on site and ready for installation, please contact Sercon who will arrange for an engineer to install it if arrangements have not already been made.

During the installation, the engineer will train the customer in the fundamentals of mass spectrometer operation and routine maintenance as well as application and software training. To receive maximum benefit from this onsite training opportunity, the instrument operator(s) should be available during the entire installation.

Additional training courses are available at our factory - please contact us for details.

8. Reference Materials

The Integra Wave measures stable isotope abundances in your samples and compares them to reference materials of known isotopic composition. We suggest that you obtain a variety of suitable working reference materials. An effective reference compound is one that closely matches your samples in both elemental composition and isotopic enrichment.

Sercon is a supplier of reference materials. Please see
https://serconlimited.com/sercon_systems/standards/

9. Consumables

New systems are supplied with appropriate start-up kits to allow system specification tests during installation. Further consumable supplies are available from Sercon. Please contact consumables@sercongroup.com or browse our online catalogue at sercon-consumables.com



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10. Pre-Installation Survey

To ensure an efficient, trouble-free, installation of your Sercon instrument, could you please complete the attached questionnaire.

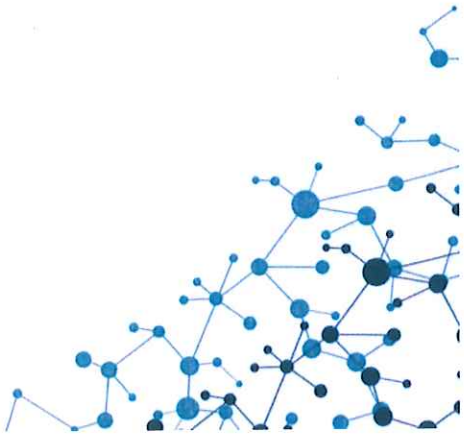
Simply answer each of these brief questions to confirm compliance with the pre-installation requirements, and return to service@sercongroup.com

Pre-Installation Checklist

1. Bench and storage space is sufficient ☑
2. Main power 110V or 220-240V ☑
3. There are enough electricity plugs for the system ☑
4. Room temperature and humidity is adequate ☑
5. Gases, regulators & connecting tubing are on site ☑
6. All relevant safety precautions are complied with ☑
7. Sercon instrument has arrived on site ☒
8. Sercon instrument has been inspected for shipping damage ☒
9. System moved to installation site ☒

Gas Requirement Check List for Sercon Instruments

Please check you have all of the required gases necessary for analysis



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Gas	Grade	Use	
Integra Wave			
Helium	99.998	Carrier	☐
Oxygen	99.998	Combustion	☐
Compressed Air	4 bar / 60 psi	Solenoid Operation	☐
µCarbs* **			
Helium	99.998	Carrier	☐

*** Phosphoric acid is required for carbonate / DIC measurements

Contact Name:	NANCY ASHWORTH-CLEMENTS		
Customer Name:	MINERVA SCIENTIFIC LTD.		
Address:	UNIT 2,		
	STONEY GATE ROAD,		
	SPONDON, DERBY		
	DE21 7RY		
Tel No:	01332 890384	Email:	nancy@minervascientific.co.uk
Fax:	01332 666040		
Date of delivery:	TBC		
Customer Signature	N. Ashworth-Clements		
Date:	08/06/21		

Please return to service@sercongroup.com

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