

Syro

Installation and Safety



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1 Installation

Notice

- The system shall be unpacked, installed, or re-located by an authorized Biotage service engineer.

1.1 Check the Delivery

Check the exterior of the container for damage during shipment:

- Water damage or discoloration.
- Cuts or gashes.
- Collapsed corners.
- Crushed top or sides.
- Other physical damage.

If the container has been damaged during shipment, please contact the shipping agent and Biotage immediately. See contact information on the back of this document or visit our website www.biotage.com.

1.2 Site Requirements

Before the system is installed by an authorized Biotage service engineer, the installation site should be prepared as follows:

1.2.1 Bench

The bench should be flat, stable, and able to support the weight of the system; see the technical specification in the “Syro User Manual”. The required dimensions are shown in the images below. Note that you also need space underneath the bench for the vacuum pump and waste containers.

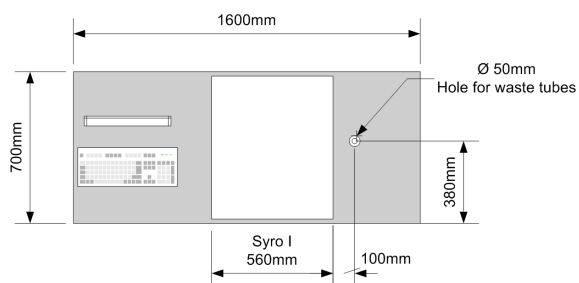


Figure 1. Syro I bench.

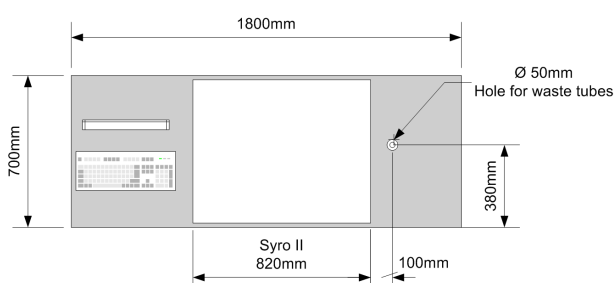


Figure 2. Syro II bench.

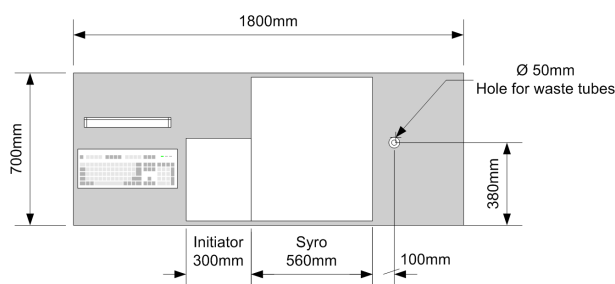


Figure 3. Biotage® Syro Wave™ bench.

Three persons are required when lifting the system parts. The system parts weigh between 12.2 kg (vacuum pump) and 85 kg (Syro II); see the technical specification in the “Syro User Manual”.

1.2.2 Fire Protection

External fire protection should be installed according to local regulations for equipment operating unattended.

1.2.3 Environment

The system must be used with its supplied hood connected to ventilation or placed in a well-ventilated fume hood or an equivalent enclosure to reduce the risk of exposure to harmful gases from the reaction in progress. The diameter of the tube to be connected between the outlet of Syro top-ventilation and exhaust must be 100 mm (3.94").

Biotage® Initiator must be positioned so that the ventilation outlets at the rear are not blocked.

Operating temperature	18°C to 32°C (64.4°F to 89.6°F)
Storage temperature	0°C to 50°C (32°F to 122°F)
Humidity	Minimum relative humidity 20% RH Maximum relative humidity 85% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C
Altitude	Up to 2000 m

1.2.4 Electrical Connections

The system must be electrically grounded (earthed). Connect only to a properly grounded outlet. Keep mains plugs easily accessible in case the system needs to be disconnected quickly from mains power.

The Initiator must be connected to the power outlet at the rear left side of the Syro (see the “Electrical Connections” section in the “Syro User Manual”). No equipment other than the Initiator must be connected to this outlet.

Electrical supply	<p>Syro I/II: Robot EU: 230 V~, 50 Hz (1.5 A), Robot US: 120 V~, 60 Hz (2.5 A) Robot JPN: 100 V~, 50/60 Hz (3.0 A) Vacuum pump EU: 230 V~, 50 Hz (1.4 A) Vacuum pump US: 120 V~, 60 Hz (3 A) Vacuum pump JPN: 100 V~, 50/60 Hz (3.8 A)</p> <p>Syro Wave: Robot EU: 230 V~, 50 Hz (3.4 A) Robot US: 120 V~, 60 Hz (6.7 A) Robot JPN: 100 V~, 50/60 Hz (8 A) Vacuum pump EU: 230 V~, 50 Hz (1.1 A) Vacuum pump US: 120 V~, 60 Hz (2.6 A) Vacuum pump JPN: 100 V~, 50/60 Hz (2.6 A)</p>
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2 Safety

It is the employer's responsibility to provide access to all applicable health and safety regulations. The employer must also ensure that all personnel involved in the operation and maintenance of the Syro system fulfill the following criteria:

- Have the necessary education, training, and competence required for the intended use of the system.
- Observe general and specific safety regulations for the use of the system and its accessories and consumables at all times, in order to reduce the risk of personal injury and fire.

2.1 *Intended Use*

Syro I, Syro II, and Syro *Wave* from Biotage are intended solely for peptide synthesis and have to be operated in a laboratory environment by trained professionals. All operations must be performed:

- According to the user documentation delivered with the system.
- According to instructions available at www.biotage.com.
- According to instructions provided through dialogs appearing on the screen.
- According to instructions given by the technical support staff from Biotage.
- Within limits set by the technical specification in the “Syro User Manual”.

Failure to follow those instructions and operate within the limits set by the technical specification may result in personal injury and/or equipment damage.

2.2 *Warranty and Liability*

See the “Biotage Terms & Conditions of Sale” document at www.biotage.com.

2.3 *Service and Maintenance*

All service or adjustments shall be performed by an authorized Biotage service engineer. Before handing over the system for service, it should be emptied of system solvent and cleaned from harmful residues as described in the “Maintenance” chapter in the “Syro User Manual”.

In order to maintain compliance, only consumables and accessories supplied by Biotage must be used in the system (see the “Syro User Manual”).

2.4 *Biotage® Syro Wave™ Safety Features*

When using a Syro *Wave* system, the magnetron, which generates microwaves, is switched off if:

- The time to reach the target temperature exceeds 100 seconds.
- The temperature in the reactor vial, after reaching the target temperature, decreases by more than 5°C (9°F) below the target temperature for more than 10 seconds.
- The temperature in the reactor vial exceeds 100°C (212°F).

2.5 Labels

Labels used on Syro I, Syro II, and Syro *Wave*:



In accordance with all the essential requirements of all applicable European product directives; see the Declaration of Conformity document.



In accordance with both U.S. and Canadian safety standards; see the Declaration of Conformity document.



Subject to the Waste Electrical and Electronic Equipment (WEEE) Directive; see “WEEE Compliance Statement” on page 7.



Manufacturer.



Consult accompanying user documentation.

Observe general as well as specific safety regulations for the use of the system and its accessories and consumables at all times, in order to reduce the risk of personal injury and fire; see “Warning Summary” on page 5.



Read and follow the specific precautions to avoid possible exposure to excessive microwave energy below. (This label is only used on Syro *Wave* systems.)

2.6 Precautions to Avoid Possible Exposure to Excessive Microwave Energy When Using Biotage® Syro Wave™

- Keep your hands away from the microwave cavity when the system generates microwaves. It is only safe to insert reactor vials etc into the microwave cavity when the green cavity LED is lit and the orange LED is not; see the LED description in the “Syro User Manual”.
- Do not operate a damaged system. If the system has been damaged and does not function properly, shut it down and contact Biotage® 1-Point Support™ immediately.
- Do not attempt to operate the system if the microwave cavity contains trapped objects or moisture. If this is the case, clean the microwave cavity as described in the “Maintenance” chapter in the “Syro User Manual”.
- Do not fill a reactor vial above or under the stated volume range; see the technical specification in the “Syro User Manual”.
- Ensure that the system is switched off and the power cord is disconnected before cleaning the microwave cavity, IR-sensor, and the exterior of the system, and before replacing the cavity lid seal.
- Service or adjustments, other than those described in the “Maintenance” chapter in the “Syro User Manual”, shall be made only by an authorized Biotage service engineer.

2.7 Precautions to Take When Planning and Preparing Reactions

- Before using any chemical, the user must be familiar with:
 - The hazards of the chemical.
 - How to use the chemical safely.
 - What to expect if the recommendations are not followed.
 - What to do if accidents occur.
 - How to recognize symptoms of overexposure and what to do if such incidents occur.

The relevant information can be found in the chemical's Material Safety Data Sheet (MSDS).

- Use only new reactor vials supplied by Biotage. If a reactor vial is accidentally scratched or damaged prior to heating, it is strongly recommended that this vial be discarded.
- Do not label or use metal objects of any kind inside or on the reactor vial, since arcing may occur.

2.8 Warning Summary

The following conventions are employed throughout the system:

1. **Warning** – Warns against potential hazards or cautions against unsafe practices.
2. **Notice** – Used where there is a need for general instructions and suggestions with respect to safety measures.

2.8.1 Warning

- If using a Syro *Wave* system, read and follow the specific precautions to avoid possible exposure to excessive microwave energy on page 4.
- Read and follow the specific precautions to take when planning and preparing reactions above.

Installation

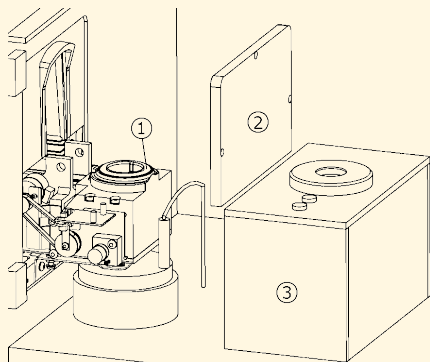
- The system must be electrically grounded (earthed). Connect only to a properly grounded outlet. Keep mains plugs easily accessible in case the system needs to be disconnected quickly from mains power.
- The Initiator must be connected to the power outlet at the rear left side of the Syro (see the “Electrical Connections” section in the “Syro User Manual”). No equipment other than the Initiator (when using Syro *Wave*) or the external fan supplied and installed by Biotage (when using Syro I or Syro II) must be connected to this outlet.
- External fire protection should be installed according to local regulations for equipment operating unattended.
- The system must be used with its supplied hood connected to ventilation or placed in a well-ventilated fume hood or an equivalent enclosure to reduce the risk of exposure to harmful gases from the reaction in progress.

In Case of Emergency and Maintenance

- If materials inside the system should ignite, keep the system doors closed, switch off the system, and disconnect the power cord or shut off the power at the fuse or circuit breaker panel.
- Pinch risk exists at the rear of the system where the robot arm(s) move. Exercise caution when working with the system and always shut it down before accessing the rear.
- Sharp corners may exist at the rear of the system. Exercise caution when working with the system.
- Reagent and solvent bottles should be positioned on or below the work surface. If leakage is observed, shut down the system as described in the “Syro User Manual”, disconnect the power cord, and follow the instructions for cleaning the exterior of the system in the “Maintenance” chapter in the “Syro User Manual”.
- When it is required that the system is switched off, check that the power switch or switches (Syro Wave has two) are switched off, or that the power cord is disconnected.
- Covers and safety shields may only be removed by an authorized Biotage service engineer. Potential electrical hazard exists due to high voltage circuits inside the system.
- The system uses double pole fusing. Use only exact replacement fuses. Incorrect fuses create a potential fire hazard.

Biotage® Syro Wave™

- In the event of a reactor vial breakage inside the microwave cavity, the cavity and the vortexer may contain harmful residues. Clean as described in the “Maintenance” chapter in the “Syro User Manual”.
- Ensure that the cavity lid seal (1), cavity wall panel (2), and cavity cover (3) are in position when the system is processing. If a reactor vial should be damaged or leak inside the microwave cavity, and the cavity lid seal, cavity wall panel, or cavity cover is not in its position, there is a risk of personal injury.



- Do not touch the reactor vial until the temperature has been reduced to a safe level (see the temperature readings on the touch screen).

Robot Arm

- Keep your hands out of range of the robot arm(s) and the needle(s) when the system is in use, and when pausing or stopping the processing, until the robot arm or arms have stopped moving. The robot arm operates without a warning signal. There is a risk of personal injury.
- Keep the system doors closed while the system is dispensing liquids. There is a risk of personal injury.

2.8.2 Notice

- Read all instructions before using the system.
- Use the system only for its intended purpose, as described in the user documentation delivered with the system and user documentation available at www.biotage.com.
- The system shall be unpacked, installed, or re-located only by an authorized Biotage service engineer.
- In order to maintain compliance, only consumables and accessories supplied by Biotage must be used in the system (see the “Syro User Manual”).
- If using a Syro *Wave* system and spillage inside the microwave cavity has occurred, clean it as described in the “Maintenance” chapter in the “Syro User Manual”.
- It is each user’s responsibility to study the Material Safety Data Sheet (MSDS) for each chemical used. Handle chemical and liquid waste according to the MSDS and to local/national guidelines on laboratory safety procedures. In case of spillage, the MSDS contains instructions for decontamination, including what decontamination agent to use for safe operation as well as information about any protective equipment required.
- The system must be located in an area where the ambient air is clean and dry. No emission of solid particles or smoke in the air by adjacent equipment is allowed. The level of dust and humidity should be comparable to that of normal laboratory spaces.
- Before operating the system, ensure that all connections are properly connected (see the “Syro User Manual”) and that the waste containers are not full.
- If running a random X/Y/Z test of a robot arm, remove all racks and bottles from the work surface to prevent damage to the robot arm or needle.

2.9 WEEE Compliance Statement



Valid for customers in EU countries

We are committed to being a good corporate citizen. As part of that commitment, we strive to maintain an environmentally conscious manufacturing operation. The European Union (EU) has enacted a directive on product recycling, Waste Electrical and Electronic Equipment (WEEE), and over time this directive will be implemented in the national laws of each EU member state.

Products falling under the scope of the WEEE Directive are identified with a crossed over “wheelie” bin symbol on the product label, as indicated to the left. To forward the products for recycling or proper disposal, use an authorized collection system or return them to Biotage Sweden AB.

2.10 Safety in Other Languages

Translated versions of the safety document are available on the User Documentation CD delivered with the equipment.

Oversatte udgaver af sikkerhedsdokumentet findes på den cd med brugervejledningen, der leveres med udstyret.

Vertaalde versies van het veiligheidsdocument zijn beschikbaar op de cd-rom met gebruikersdocumentatie die wordt meegeleverd met de apparatuur.

Turvallisuusasiakirjan käännösversiot ovat laitteen mukana toimitettavalla käyttäjädokumentaation sisältävällä CD-levyllä.

Des versions traduites du document Sécurité sont disponibles sur le CD de documentation utilisateur fourni avec l'appareil.

Übersetzte Versionen des Sicherheitsdokuments sind auf der Benutzerdokumentations-CD verfügbar, die im Lieferumfang des Geräts enthalten ist.

セーフティドキュメントの日本語訳は機器に付属されているユーザー・ドキュメンテーションCDでご確認いただけます。

Le versioni tradotte della documentazione di sicurezza sono disponibili sul CD di documentazione dell'utente in dotazione con lo strumento.

Las versiones traducidas del documento de seguridad están disponibles en el CD de documentación para el usuario que se entrega junto con el equipo.

Översatta versioner av säkerhetsdokumentet finns på cd:n med användardokumentation som levereras tillsammans med utrustningen.

3 General Information

3.1 Trademark Acknowledgement

A list of all trademarks owned by Biotage AB are available at www.biotage.com/legal.

Other product and company names mentioned herein may be trademarks or registered trademarks and/or service marks of their respective owners, and are used only for explanation and to the owners' benefit, without intent to infringe.

3.2 Copyright

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3.3 Consumables and Accessories

In order to maintain compliance, only consumables and accessories supplied by Biotage must be used in the system (see the "Syro User Manual"). To order consumables and accessories, see contact information on the back of this document or visit our website www.biotage.com.

3.4 Contact Us



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Please contact your local Biotage representative. See contact information on the back of this document or visit our website www.biotage.com.

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