

Waters™

Alliance iS HPLC Systems Site Preparation Guide

General information

This section contains Waters contact information and links to additional sources of information available at www.waters.com.

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Contacting Waters

Contact Waters with technical questions regarding the use, transportation, removal, or disposal of any Waters product. You can reach us through the Internet, telephone, fax, or conventional mail.

Contact method	Information
www.waters.com	The Waters website includes contact information for Waters locations worldwide.
iRequest	iRequest is a secure Web service form that allows you to request support and service for Waters instruments and software or to schedule a planned service activity. These types of support and services may be included

Contact method	Information
	<p>as part of your maintenance plan or support plan. You may be charged for the requested service if you do not have appropriate plan coverage for your product.</p> <p>Note: In areas managed by authorized distributors, iRequest may not be available. Contact your local distributor for more information.</p>
Local office contact information	For worldwide locations, telephone, fax, and conventional mail information is available at the Local Offices website.
Corporate contact information	<p>Waters Corporation 34 Maple Street Milford, MA 01757 USA From the USA or Canada, phone 800-252-4752.</p>

Additional resources

Waters provides the following additional resources to ensure your continued success with its products.

Alliance iS System Support: Access product documentation for this system.

Knowledge base: Obtain quick answers to your troubleshooting questions. Access support articles on Waters instrumentation, informatics, and chemistry.

eLearning courses: Learn anytime, anywhere, and at your own pace with eLearning courses.

Customer education: Waters Educational services team is the leading training organization empowering scientists to maximize their skills in UPLC, HPLC, LC-MS, and data management.

Application notes: View our online digital library of application notes for advanced analytical technologies including chromatography, mass spectrometry, columns and sample preparation, and data management software, demonstrating impactful scientific and operational benefits.

How-to video library: View/download the latest product how-to videos.

Graphical parts locator: Identify and order parts using an interactive graphical navigator. Access maintenance procedures and reference documents.

Product selection tools and resources: A collection of wizards that help you pick the correct chemistry consumables to meet your separation requirements, including vials, plates, filters, column selectivity charts, and more.

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1 Responsibilities

The customer is responsible for ensuring that the laboratory meets the requirements specified in this document, and Waters is responsible for setting up the system.

1.1 Customer responsibilities

It is essential to prepare the site correctly and complete the checklist accurately. If a Waters engineer arrives on site to begin your installation and cannot proceed because of inadequate site preparation or lack of necessary supplies, you may be charged for all travel costs incurred. Contact Waters if you have questions about preparing your site. You can use the email address listed in Related topics for site preparation questions and completed forms. If necessary, Waters will arrange a site survey.

- Provide appropriate storage for Waters equipment before it is installed.
- Prepare your laboratory to meet the requirements specified in the site preparation guide.
- Verify that each requirement is met by completing the customer confirmation form and the verification check at the end of each section. After completing all check boxes, return the site preparation guide to Waters.
- Prior to scheduling the system installation, contact Waters and confirm the designated operator's name that you assigned to be present during the installation and to complete the basic system operation training.
- Ensure that the packaging is stored appropriately for future use or recycled in line with local recycling guidelines. Both the cardboard carton and the low-density polyethylene (LDPE) foam inserts are widely recycled.

Related topics:

- customer_communication@waters.com
- [Site preparation checklist \(Page 9\)](#)
- [Storage \(Page 17\)](#)

1.2 Waters responsibilities

A Waters representative must unpack and install your system modules. After you complete and return the site preparation documentation, a Waters engineer is scheduled to perform the following activities:

1. Unpack the system.
2. Install the system.
3. Test system performance.
4. Familiarize the customer with basic operation and maintenance of the system hardware and software.

2 Site preparation confirmation

The customer is responsible for printing, completing, and returning these sections to a Waters representative.

2.1 Site preparation checklist

You must complete this checklist and return it to your Waters representative when all site preparation requirements are met.

Table 2–1: Customer confirmation

<input type="checkbox"/> I confirm that all required supplies are available.
<input type="checkbox"/> I confirm that all site preparation requirements were met and the requirement check boxes were completed for all of the following: <ul style="list-style-type: none"><input type="checkbox"/> Power requirements (Page 11)<input type="checkbox"/> Extraction and waste collection requirements (Page 16)<input type="checkbox"/> Shipping container handling requirements (Page 17)<input type="checkbox"/> Environmental requirements (Page 19)<input type="checkbox"/> Customer-supplied items requirements (Page 22)<input type="checkbox"/> Space and load requirements (Page 24)
<input type="checkbox"/> I confirm that an operator is available for demonstration and training by a Waters engineer during the installation. Indicate availability: <ul style="list-style-type: none"><input type="checkbox"/> During the entire installation<input type="checkbox"/> During part of the installation: approximately _____% of the time <p>Important: If the designated person cannot be present at the installation, notify your Waters representative so that we can reschedule the installation for a more convenient time.</p>
Customer signature:
Date:

2.2 Customer information

Complete the following summary table in block letters.

Table 2–2: Customer information

Job title:	
Name:	
Organization:	
Street:	
City/State:	
Zip/Postal code:	
Country:	
Instrument location:	
Telephone:	
Email:	

3 Power requirements

Your laboratory must meet the following power requirements before you can schedule your system installation.



Warning: Main power supply voltage fluctuations must not exceed $\pm 10\%$.

The data system typically requires two power sockets located adjacent to the system PC and monitor. You may require further outlets for optional equipment, such as a printer.

The system requires one power socket. Do not position the equipment in such a way that it is difficult to disconnect the power cord.

Waters recommends installing the system so that the supply cannot be inadvertently switched off.

Related topic:

- [Electrical specifications \(Page 14\)](#)

3.1 Electrical safety

Follow all local electrical safety requirements in preparing your laboratory.

Notes:

- Installations in Australia and New Zealand must comply with AS3000: Electrical Installations for Australia and New Zealand.
- Each branch circuit supplying power to the system and accessories must provide a protective earth ground and short circuit protection using a circuit breaker or a fuse rated for the load in accordance with the country's national electric code and/or local regulations. Multiple branch circuits are required.



Warning: To avoid electric shock, all system components require a dedicated, earthed (grounded) power source. The receptacles from this power source must be accessible to the system components, and they must share a common ground.

Notes: Waters recommends providing additional protection by means of the following:

- Residual current devices (RCDs) for UK and Europe
- Ground fault circuit interrupters (GFCIs) for the rest of the world

3.2 Uninterruptible power supply

To prevent local power instability from impacting system reliability and performance, Waters recommends using an uninterruptible power supply (UPS). In support of this recommendation, Waters supplies UPS systems configured and evaluated specifically for use with Waters MS systems. These UPS units can step up single-phase line voltage to 230 V ac, providing power conditioning and protection for the MS and LC system components.

Note: These UPS units are sized to protect the LC, MS, and data system hardware. To avoid damaging the UPS, do not connect any additional components (for example, nitrogen generators, water chillers, or gas chromatographs) to the output of the UPS. Your local Waters service engineer can provide further details on UPS units.

For North America, the UPS system requires one L6-30, 30-amp wall socket. In other areas, the UPS system typically connects to laboratory main power using the standard power cord and wall socket required for your instrument system.

3.3 Power outlet requirements

The system is shipped with the power cords requested at the point of order. The customer is responsible for ensuring that their power outlets are compatible with the power cords shipped with the product. The power cord sets must comply with local regulations. To ensure electrical safety, use only the power cord set included with your Waters product. Do not use the Waters-provided power cord for any other products. The power cord set is defined as the cable with plugs at both ends.

Note: If you want to install ancillary equipment (for example, compressors), you may need additional power outlets, possibly requiring 3-phase supplies. You must confirm such supplemental needs with the local Waters agent prior to the start of the installation.

To help determine the receptacles required for the components in your system, refer to the following table.

Table 3–1: Regional power cords supplied by Waters



Region	Power connection (IEC 60320 C19 [16A rating]) 
US/Canada	NEMA 5-15P 
Australia	15A

Table 3–1: Regional power cords supplied by Waters (continued)








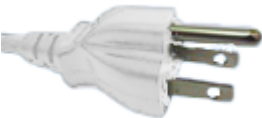



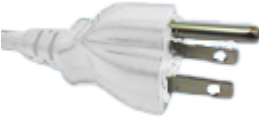

Region	Power connection (IEC 60320 C19 [16A rating]) 
	
Brazil	16A 
China	16A 
Denmark	DK 2-1a; 13A 
Europe	CEE 7/VII "Schuko"; 16A 
India	16A 
Japan	PSE approved JIS C 8303 15A 3 prong type B plug 
Korea	CEE 7/VII "Schuko"; 16A 
Switzerland	Type 23; 16A 

Table 3–1: Regional power cords supplied by Waters (continued)

Region	Power connection (IEC 60320 C19 [16A rating]) 
Taiwan	5-15; 15A 
UK	13A 

3.4 Electrical specifications

The following table summarizes component power requirements. For more information on socket types, see "Regional power cords supplied by Waters".

If the supply voltages do not meet the specified operating range under all conditions, you must use a transformer to change the supply voltage to the specified range. Main power supply conditioners or stabilizers are also available as an optional accessory. Contact Waters with advance notification and for additional advice if power supply problems are likely.

Related topics:

- [Contacting Waters \(Page ii\)](#)
- [Regional power cords supplied by Waters \(Page 12\)](#)

3.4.1 Electrical specifications for the LC system

Table 3–2: Electrical specifications for the LC system

Description	Rated voltage	Frequency	Power (max)	Connector	Comments
Alliance iS	100-240 VAC	50-60 Hz	775 VA	IEC 60320 C19	Includes the power for the column heater

Table 3–2: Electrical specifications for the LC system

Description	Rated voltage	Frequency	Power (max)	Connector	Comments
					cooler and the detector

3.5 Verifying power requirements

Select the check box to verify that all requirements are met. After completing all check boxes, return the site preparation guide to your Waters representative.

Important: Installation cannot proceed unless all site preparation requirements are met.

- All requirements for this section are met.

4 Extraction and waste collection requirements

The customer is responsible for ensuring that the laboratory is in compliance with the waste collection requirements specified in this document.

4.1 Liquid waste collection

The LC drip management system is a closed-architecture, gravity-driven drainage system that effectively collects and removes any solvent leaks, process waste from the needle and plunger seal washes, and system effluent.

Important: To maintain proper drainage and leak control, ensure that the system is level.

4.2 Liquid waste container

Position a suitable liquid waste container below the bench top, in accordance with your laboratory practice.

4.3 Exhaust outlets

! **Notice:** Exhaust venting must comply with all local safety and environmental regulations. The ANSI/AIHA Z9.2-2012 standard "Fundamentals governing the design and operation of local exhaust ventilation systems" provides guidance.

For the solvent manager, an in-line degasser, integral to the solvent manager, is routed to the system's waste management.

4.4 Verifying waste collection requirements

Select the check box to verify that all requirements are met. After completing all check boxes, return the site preparation guide to your Waters representative.

Important: Installation cannot proceed unless all site preparation requirements are met.

All requirements for this section are met.

5 Shipping container handling requirements

Follow the guidelines in this section to store, lift, and move shipping containers.

Important: Do not unpack the equipment before lifting or moving it.

Note: After the installation, it is the customer's responsibility to dispose of the cartons, crates, and packaging.

5.1 Storage

Ensure that the following storage conditions apply before Waters installs your system:

- Shipping containers remain unopened.
- Palletized cartons and crates are stored away from heavy machinery, such as compressors or generators, which generate excessive floor vibration.
- Storage area temperature is -30 to 60 °C (-22 to 140 °F) and humidity is <80%, non-condensing.

5.2 Lifting



Warning: The system weighs 69 kg (153 lbs) when it is unboxed. It is essential that you provide suitable equipment for lifting. Equipment lifting straps are supplied with the system. For detailed system weight information, see [Table 8–1: Dimensions and weight of the LC system \(Page 25\)](#)

Important: If suitable lifting equipment is not available, a four-person team may assist the Waters engineer in lifting the system using the handles attached to the ratcheting straps.

Before lifting, lowering, or moving the instruments, consider these precautions:

- Assess the risk of injury.
- Act to eliminate risk.
- Plan the operation in advance of the installation and in conjunction with a Waters engineer at the time of installation.
- Follow appropriate country and company regulations.

5.3 Moving

Note: To avoid damaging the system, do not bump or jolt it during transport. If you must transport the system across an uneven surface, carry it on a forklift truck or trolley.

Note: Special handling arrangements may be necessary if access to the designated laboratory is available only through a staircase.

If you move the shipping container, transport it directly to the laboratory designated for system use and follow these guidelines:

- Ensure that all passageways accommodate the container and pallet.
- Keep the shipping container on the pallet.
- Doorways, elevators, and corridors (including corners) must be sufficiently wide for maneuvering the system.

The system is delivered in a palletized carton. The following table shows the size and weight of the crate:

Table 5–1: Size and weight of the shipping crate

Width	Depth	Height	Weight
66 cm (26 in)	80 cm (31.5 in)	105.4 cm (41.5 in)	94.8 kg (209 lbs)

Related topics:

- [Dimensions and weight of the LC system \(Page 25\)](#)
- [Dimensions and weight of the data system \(Page 25\)](#)
- [Clearances \(Page 25\)](#)

5.4 Verifying shipping container handling requirements

Select the check box to verify that all requirements are met. After completing all check boxes, return the site preparation guide to your Waters representative.

Important: Installation cannot proceed unless all site preparation requirements are met.

- All requirements for this section are met.

6 Environmental requirements

The customer is responsible for ensuring that the laboratory is in compliance with the environmental requirements specified in this document.

6.1 Environmental safety

Important: The laboratory environment must be pollution degree 2 (only non-conductive pollution is allowed).

6.2 Positioning

Note: To avoid adverse effects to operation, do not locate the system in direct sunlight. The system is for indoor use only.

Waters recommends that you install the system in an air-conditioned laboratory, in a draft-free location, away from excessive amounts of dust. Air conditioning units must not be located directly above the system. Ensure that air flow from heating or air conditioning diffusers is not directed on the system.

6.3 Air conditioning

To calculate the overall heat dissipation into the room, add together the applicable power consumption values given in the electrical specification section. You may need to install or upgrade air conditioning systems to accommodate the additional heat load into the room from these systems.

6.4 Ventilation

Notes:

- Because of the fluidic nature of the sample inlet, ionization, and exhaust system, there is potential for gas/liquid leaks to occur. You must give due consideration to the laboratory

environment (including volume and air changes) before installation and during operation of the system.

6.5 Temperature

The ambient temperature in the laboratory must be from 4 to 40 °C (39 to 104 °F). Short-term thermal variations should be no more than 2 °C (3.6 °F) per hour.

Note: Failure to operate in this range will compromise system performance and can result in instrument failure.

The optimum temperature range is 19 to 22 °C (66 to 72 °F).

6.6 Humidity

Ensure that the relative humidity of the laboratory is in the range of 10% to 90%, non-condensing.

6.7 Altitude

The system is designed and tested to operate at altitudes below 3500 m (11483 ft).

6.8 Vibration considerations

Do not place the system close to heavy machinery, such as compressors and generators, that can create excessive floor vibration.

6.9 Magnetic fields

The system must not be placed within a magnetic field of greater than 10 Gauss, such as those generated by NMR spectrometers and magnetic sector mass spectrometers.

6.10 Radio emissions

Note: If use of any of these devices causes interference, stop using the interfering device.

Do not place the system within a radio frequency (RF) field of greater than 1.0 V/m. The following items are possible sources of RF emission:

- Handheld transmitters
- Mobile telephones
- RF-linked alarm systems

6.11 Verifying environmental requirements

Select the check box to verify that all requirements are met. After completing all check boxes, return the site preparation guide to your Waters representative.

Important: Installation cannot proceed unless all site preparation requirements are met.

- All requirements for this section are met.

7 Customer-supplied items requirements

The customer is responsible for supplying the items specified in this document.

7.1 Customer-supplied items

It is the customer's responsibility to supply the following items for the installation:

- LC-MS-grade water
- LC-MS-grade acetonitrile

7.2 Sample preparation equipment

Ensure that facilities for preparing test samples are available at your site. Equipment typically required for sample preparation includes, but is not limited to:

- Calibrated pipettes - Eppendorf (or equivalent), 1 mL
- Measuring cylinders, spanning range 100 mL to 1 L
- Volumetric flasks - 10-mL, 20-mL, and 50-mL flasks
- Nitrile gloves

7.3 Cleaning test sample glassware

! **Notice:** To avoid contamination of glassware, ensure that supplied items have never been washed with detergent, washed with other glassware, or washed in facilities that might have detergent residue. Washing glassware in a common dishwashing facility can contaminate glassware with detergent residues, which may contain polyethylene glycol and other "sticky" substances. Vinyl-coated steel racks can be additional sources of contamination.

For detailed information on properly cleaning laboratory glassware, see *Controlling Contamination in LC/MS Systems* (715001307).

7.4 Verifying customer-supplied items requirements

Select the check box to verify that all requirements are met. After completing all check boxes, return the site preparation guide to your Waters representative.

Important: Installation cannot proceed unless all site preparation requirements are met.

- All requirements for this section are met.

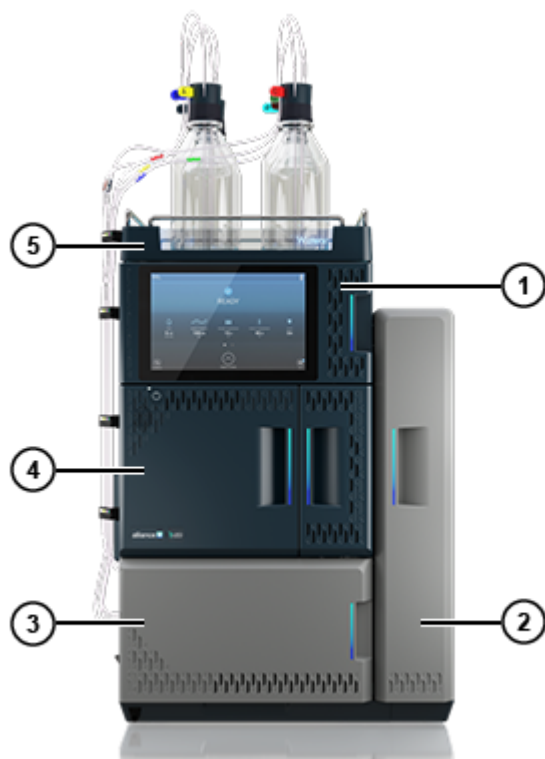
8 Space and load requirements

Ensure that the laboratory and bench have sufficient space and clearances for system configuration and installation and that the bench can support the weight of all components.

8.1 System configuration

The following image depicts the system configuration, including core modules and a detector.

Figure 8–1: System configuration



- ① Alliance iS Detector
- ② Alliance iS Column Heater/Cooler (CHC)
- ③ Alliance iS QSM
- ④ Alliance iS Sample Manager (SM)
- ⑤ Bottle tray

8.2 Dimensions and weights

The following sections detail the dimensions and weights of the LC system and the data system.

8.2.1 Dimensions and weight of the LC system

Table 8–1: Dimensions and weight of the LC system

Width	Depth	Height	Weight
49.66 cm (19.55 in)	63.47 cm (24.99 in)	74.24 cm (29.23 in)	72.57 kg (160 lbs) ^a

a. The system weighs 69 kg (153 lbs) when it is unboxed. After the bottle tray is installed, the system weighs 73 kg (160 lbs).

8.2.2 Dimensions and weight of the data system

Table 8–2: Typical dimensions and weight of the data system

Component	Width	Depth	Height	Weight
Dell 3650 Workstation	17.65 cm (6.95 in)	34.5 cm (13.6 in)	33.48 cm (13.18 in)	15.88 kg (35 lbs)

8.3 Clearances

Ensure that the laboratory space provides sufficient clearance (working space) for all necessary components. The system must be installed on a flat surface that is level to within $\pm 1^\circ$ in all directions. Allow for 3 inches of clearance on either side of the system.

8.3.1 LC system clearances

Refer to the [Typical system configurations \(Page 24\)](#) section.

8.3.2 Data system

The data system can be positioned on the same bench as the Alliance iS HPLC system or on a separate desk (available as an option). A 3-m (9.8-ft) LAN network cable connects the computer to the system. The two data system power cords for the PC and monitor are approximately 2.5 m (8 ft) in length.

8.4 Verifying space and load requirements

Select the check box to verify that all requirements are met. After completing all check boxes, return the site preparation guide to your Waters representative.

Important: Installation cannot proceed unless all site preparation requirements are met.

- All requirements for this section are met.