Waters ACQUITY QDa Detector

Site Preparation Guide

Notice

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Introduction

This document describes the environmental conditions, power supplies and gas supplies that are required for the operation of the ACQUITY™ QDa™ Detector. Operating the instrument in conformance with these conditions will enable the instrument to achieve its optimum performance.

Responsibilities

A Waters™ engineer will be responsible for installing and commissioning the system to ensure that the instrument is properly installed and operational. The laboratory must be prepared in advance to allow the engineer to carry out the installation efficiently. A site preparation checklist is included at the end of this document for you to fill in and return to Waters when the laboratory is ready.

Important: The installation of the system cannot begin until the checklist has been completed and returned to the sales support representative at your local Waters office.

The site preparation checklist must be completed as accurately as possible to help minimize installation time.

A major aspect of the system installation is the implementation of tests designed to evaluate the instrument functionality under specific operating conditions. At the completion of each test, the actual test result obtained is entered in the Installation Checklist or Instrument Qualification Workbook, whichever is appropriate.

Important: A user who has been designated to be responsible for the normal use and upkeep of the instrument must be present during the installation.

The user must be present during the functionality tests at installation; this allows the user to be trained in the basic system operation. If there are foreseen periods when the intended user cannot be present, notify us in advance; as this will enable us to schedule the installation for a more convenient time.

If you have questions regarding the information in this document or any specific site problems, contact your local Waters sales representative. If necessary, we will arrange a site survey.

Storage

The following storage conditions are required prior to installation:

- shipping crates must be opened in the presence of the Waters engineer
- crates stored away from heavy machinery such as compressors or generators, which generate excessive floor vibration
- storage area temperature -20 to 60 °C (-4 to 140 °F) and humidity <80%, non-condensing

Contact your local Waters representative if you need further advice regarding storage conditions.

Bench loading

Warning: The Waters engineer will require assistance lifting and positioning the instrument.

The bench must be able to support the combined weight of the data system and LC system. Nominal weights for the instrument and data system are shown in Table 1. Refer to the appropriate site preparation guides for specific weight information.

Note: When connecting the ACQUITY QDa Detector to a supported Agilent LC system, the QDa must be located beside the existing system, not placed directly in the stack.

Once unpacked, the instrument weights are approximately as shown in Table 1:

Table 1: Instrument weights

Instrument and crate	31 kg (68 lbs) (Performance) 36 kg (79 lbs) (Standard)
ACQUITY QDa Detector	29 kg (64 lbs) (Performance) 34 kg (75 lbs) (Standard)
Data system (computer, monitor, and optional printer)	<50 kg (110 lbs)
Syringe pump (standalone instruments only)	1.6 kg (3.6 lbs)
Diverter valve (option)	1.77 kg (3.9 lbs)
Solaris XE nitrogen generator (option)	15.1 kg (33.30 lbs)
Infinity NM32L nitrogen generator (option)	18 kg (39 lbs)
Genius NM32LA nitrogen generator (110 V or 230 V) (option)	102.5 kg (226 lbs)
Genius NM-3G nitrogen generator (option)	162 kg (357 lbs)
Genius SQ 24 nitrogen generator (option)	83 kg (182.6 lbs)
Genius XE 35 nitrogen generator (option)	92 kg (202.4 lbs)

Space requirements

Instrument

The ACQUITY QDa Detector has the following dimensions:

Table 2: Instrument dimensions

Dimensions	Standard system	Performance system
Width	374 mm (14.7 inches)	374 mm (14.7 inches)
Width (with diverter valve)	429 mm (16.9 inches)	429 mm (16.9 inches)
Length	761 mm (30 inches)	646 mm (25.4 inches)
Height	216 mm (8.5 inches)	216 mm (8.5 inches)

Install the instrument in an area that meets the requirements listed in Table 2. The instrument is a stackable unit and does not require extra bench space when installed in a single stack arrangement. Place the instrument close to the outlet of the column to minimize band broadening, which reduces the resolution of the chromatogram.

Important: Certain inlet configurations require a dual or triple stack arrangement. For example, for ACQUITY, refer to the relevant ACQUITY system site preparation guide for additional space requirements.

Caution: To avoid damage to the instrument, the amount of weight stacked on top of it must not exceed 85 kg (187 lbs).

Figure 1 - ACQUITY QDa Detector with diverter valve

The dimensions for the ACQUITY QDa Detector are shown in Figure 2.

Note: Location of feet on underside of instrument is shown.

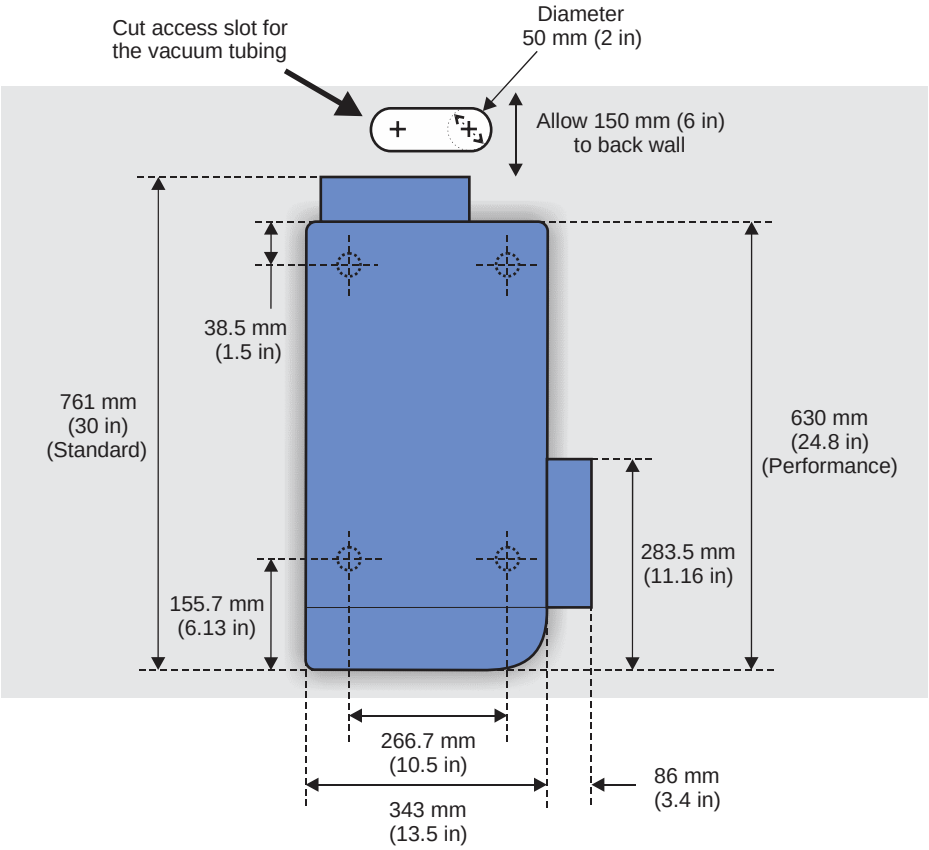


Figure 2 - Plan view, showing space requirements

Syringe pump

Standalone system

The standalone QDa system requires a syringe pump to deliver test solution during setup. The syringe pump must be positioned on a flat surface close enough to the system to allow the probe capillary to connect from the outlet of the syringe to the ESI source enclosure.

The syringe pump has the following dimensions:

- Width: 146 mm (5.75 inches)
- Length: 229 mm (8.75 inches)
- Height: 114 mm (4.5 inches)

Nitrogen generators

As the rate of nitrogen consumed is too high to be provided by nitrogen cylinders, use laboratory nitrogen supplies or nitrogen generators.

Where the laboratory provides a compressed air supply regulated at 8 to 10 bar, 90 L/minute (ISO8573 - 1:2010 Class 1.4.1), use the Solaris XE or Genius NM32L nitrogen generator.

Where there is no appropriate compressed air supply, use the Genius NM32LA or Genius NM-3G nitrogen generators, which have built-in compressors.

Solaris XE nitrogen generator

Position the Solaris XE nitrogen generator in the LC stack, underneath the QDa Detector. Confirm with Waters whether this is possible with the chosen LC configuration. Alternatively, mount the Solaris XE on the wall.

Caution: Do not stack more than 100 kg on top of the Solaris XE nitrogen generator.

The Solaris XE nitrogen generator has the following dimensions:

- Width: 343 mm (13.50 inches)
- Length: 650 mm (25.60 inches)
- Height: 156 mm (6.10 inches)

Infinity NM32L nitrogen generator

Stand the Infinity NM32L nitrogen generator on the floor or mount it on the wall.

The Infinity NM32L nitrogen generator has the following dimensions:

- Width: 250 mm (9.80 inches)
- Length: 160 mm (6.30 inches)
- Height: 750 mm (29.50 inches)

Note: The NM32L nitrogen generator is no longer available (discontinued Q4 2019).

Genius NM32LA nitrogen generator (110 V or 230 V)

Stand the Genius NM32LA nitrogen generator on the floor.

The Genius NM32LA nitrogen generator has the following dimensions:

- Width: 600 mm (23.60 inches)
- Length: 750 mm (29.50 inches)
- Height: 713 mm (28.10 inches)

Note: The NM32LA nitrogen generator is no longer available (discontinued Q4 2019).

Genius NM-3G nitrogen generator

Stand the Genius NM-3G nitrogen generator on the floor.

The Genius NM-3G nitrogen generator has the following dimensions:

- Width: 900 mm (35.40 inches)
- Length: 730 mm (28.70 inches)
- Height: 753 mm (29.60 inches)

Genius SQ 24 nitrogen generator (100 V, 120 V, or 230 V)

Stand the Genius SQ-24 nitrogen generator on the floor.

The Genius SQ-24 nitrogen generator has the following dimensions:

- Width: 600 mm (23.70 inches)
- Length: 750 mm (29.60 inches)
- Height: 610 mm (24.10 inches)

Genius XE 35 nitrogen generator (120 V or 230 V)

Stand the Genius XE-35 nitrogen generator on the floor.

The Genius XE-35 nitrogen generator has the following dimensions:

- Width: 570 mm (22.50 inches)
- Length: 710 mm (28.0 inches)
- Height: 650 mm (25.60 inches)

Vacuum pump

Standard system

The diaphragm pump is secured on the pump bracket on the rear of the instrument.

Performance system

The rotary pump must be positioned on the floor, either behind or underneath the instrument and within 1 m (3.3 ft) of the rear of the chassis (an optional 4-m vacuum hose is available, allowing the pump to be placed further away). The pump is supplied with a 2.5-m (8-ft) power cord which plugs into an external main power supply relay box. The relay box allows the instrument to remotely control the backing pump. The relay box plugs into the pump control socket on the rear of the instrument through a 2.9-m (9.5-ft) control lead and is connected to the main power supply with a 2.5-m (8-ft) power cord (supplied).

The ACQUITY QDa Detector includes either an Edwards RV5 or a Vacuubrand RE6 as the external backing pump. The Edwards RV5 pump has the following dimensions and weight:

- Width: 158 mm (6.2 inches)
- Length: 430 mm (16.9 inches)
- Height: 225 mm (8.8 inches)
- Weight: 25 Kg (55.1 lbs) without oil

The Vacuubrand RE6 rotary pump has the following dimensions and weight:

- Width: 142 mm (5.6 inches)
- Length: 370 mm (14.6 inches)
- Height: 207 mm (8.1 inches)
- Weight: 15.8 kg (34.8 lbs) with oil and 15.4 kg (34.0 lbs) without oil

Data system

The data system can be positioned on the same bench as the instrument or on a separate desk (available as an option). A 3-m (10-ft) X-wire network cable connects the computer to the instrument. The two data system power cords for the PC and monitor are approximately 2.5 m (8 ft) in length.

Warning: To avoid damage to and/or risk of electric shock and fire, the data system and any ancillary equipment must not be exposed to dripping or splashing liquids; nor should objects filled with liquid, such as solvent bottles, be placed on them.

Empower installations support a maximum of three 3D data-generating Ethernet detectors for each LAC/E^{32} module, with the following restrictions:

- No more than one is an ACQUITY mass detector
- No more than two are PDA detectors

The ACQUITY QDa Detector is the only mass detector you can connect to a LAC/E^{32} module.

Power requirements

The ACQUITY QDa Detector, syringe pump, and rotary pump require one power socket each. The power supply sockets must be located within 2 m (6.5 ft) of the instrument. Do not position the equipment so that it is difficult to disconnect the power cords.

Refer to the appropriate system site preparation guide for specific data system power requirements.

Important: Main power supply voltage fluctuations should not exceed ±10% of the nominal device voltages indicated in Table 3.

Table 3: Summary of power requirements

	Rated voltage and frequency	Rated current	Typical power consumption	Power cord connector	Power sockets
ACQUITY QDa (Standard)	100 to 240 V 50/60 Hz	4 A	271 W	IEC 60320 C13 connector	1
ACQUITY QDa (Performance)	100 to 240 V 50/60 Hz	4 A	244 W	IEC 60320 C13 connector	1
Data system	100 to 127 V 50/60 Hz	9.4 A	200 W	IEC 60320 C13 connector	2
	200 to 240 V 50/60 Hz	4.7 A			
Diaphragm pump (Standard)	24 V DC	-	64 W	Power supplied by the ACQUITY QDa Detector	-
Vacuubrand pump (Performance)	100 to 127 V 50/60 Hz	5.4 A	391 W	IEC 60320 C13 connector	1
	200 to 240 V 50/60 Hz	2.7 A			
Edwards pump (Performance)	220 V to 240 V/50 Hz	3.4 A	450 W	IEC 60320 C13 connector	1
	230 V to 240 V/60 Hz	3.0 A	550 W		
	110 V/50 Hz	6.8 A	450 W		
	115 V to 120 V/60 Hz	6.9 A	550 W		
Syringe pump (Standalone)	100 to 240 V 50/60 Hz*	0.5 A	8 W	IEC 60320 C13 connector	1
Diverter valve (option)	100 to 250 V 50/60 Hz**	0.5 A	8 W	IEC 60320 C13 connector	1
Solaris XE nitrogen generator (option)	100 to 240 V 50/60 Hz	0.05 A	5 W	IEC 60320 C13 connector	1
Genius NM32LA 230 V nitrogen generator (option) ~	230 to 240 V 50/60 Hz***	7 A	1265 W	IEC 60320 C19 connector	1
Genius NM32LA 110 V nitrogen generator (option) ~	100 to 127 V 60 Hz	11 A	1265 W	IEC 60320 C19 connector	1
Genius NM-3G nitrogen generator (option)	230 V 50/60 Hz***	9.5 A	2185 W	IEC 60320 C19 connector	1
Genius SQ 24 nitrogen generator (option)	100 V 50/60 Hz	11 A	1100 VA	IEC 60320 C19 connector	1
	120 V 60 Hz	10 A	1200 VA	IEC 60320 C19 connector	1
	230 V 50/60 Hz***	6 A	1380 VA	IEC 60320 C19 connector	1
Genius XE 35 nitrogen generator (option)	120 V 60 Hz	12 A	960 VA	IEC 60320 C19 connector	1
	230 V 50/60 Hz***	8 A	1265 VA	IEC 60320 C19 connector	1

~ No longer available (discontinued Q4 2019).

* The syringe pump has a rated voltage of 12 V DC. The power supply for the syringe pump has a rated voltage of 100 to 240 V.

** The diverter valve has a rated voltage of 12 V DC. The power supply for the syringe pump has a rated voltage of 100 to 250 V.

*** A transformer is required if the measured voltage is 195 to 219 V. Order the 06-3200 Dual Tap Transformer 200-230V directly from Peak Scientific.

The supplies must be wired with a protective earth, and fused or fitted with circuit-breakers, in accordance with local regulations.

It is recommended that additional protection is provided for the instrument by means of:

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

Electrical transformers

If there is a possibility that the supply voltages will not meet the specified operating range under all conditions, a transformer must be used to change the primary supply voltage to the specified range. Main power supply conditioners/stabilizers are also available as an optional accessory. Contact Waters with advance notification if power supply problems are likely to be experienced and for additional advice.

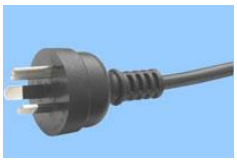
In the case of instruments fitted with a transformer, the RCD/GFCI must be fitted on the primary (supply) side of the transformer.

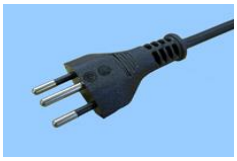
System plug options

The system is shipped with the power cords that were requested at the point of order. These power cords must only be used with the Waters system and not with any other products. You are responsible for ensuring that your power outlets are compatible with the power cords shipped with the product. If the available power outlets are incompatible with the power cords supplied, you must supply appropriate cord sets for the system. For example, in North America, if L6-15 power outlets are not available, L6-20 outlets and cord sets may be used instead. The cord sets must comply with local regulations.

Note: If ancillary equipment is to be installed (for example, compressors) additional power outlets, possibly requiring 3-phase supplies, may be needed. Such supplemental needs must be confirmed with the local Waters agent prior to the start of the installation.

Table 4: Power cords supplied by Waters

	IEC 60320 C13 (10-A rating)	**IEC 60320 C19 (16-A rating)**
Equipment end of cord		
Australia	 10 A	 15 A
Brazil	 16 A	 16 A
China	 10 A	 16 A
Denmark	 DK 2-5a "Data", 10 A	 DK 2-1a, 13 A

EU	 CEE 7/VII “Schuko”, 16 A	 CEE 7/VII “Schuko”, 16 A
India	 16 A	 16 A
Japan	 5-15P, 15 A	 L6-15, 15 A
Korea	 CEE 7/VII “Schuko”, 16 A	 CEE 7/VII “Schuko”, 16 A
Switzerland	 Type 12, 10 A	 Type 23, 16 A
Taiwan	 5-15P, 15 A	 13 A
UK	 13 A	 13 A
USA	 NEMA 5-15P	 NEMA L6-15P

Uninterruptible power supply

To prevent instabilities in local main power supply impacting system reliability and performance, Waters recommends the use of an uninterruptible power supply (UPS). In support of this recommendation, Waters supplies UPS units that have been specifically configured and evaluated for use with Waters MS systems. Your local Waters field sales representative can provide further details.

These UPS units step up single-phase line voltage to 230 V AC, provide power conditioning and protection for the MS system.

For North America, the UPS system requires one L6-30 (30 amp) wall socket. In other areas, the UPS system will typically connect to your laboratory main power supply using the standard MS instrument power cord and wall socket required for your system. See Table 3 and Table 4.

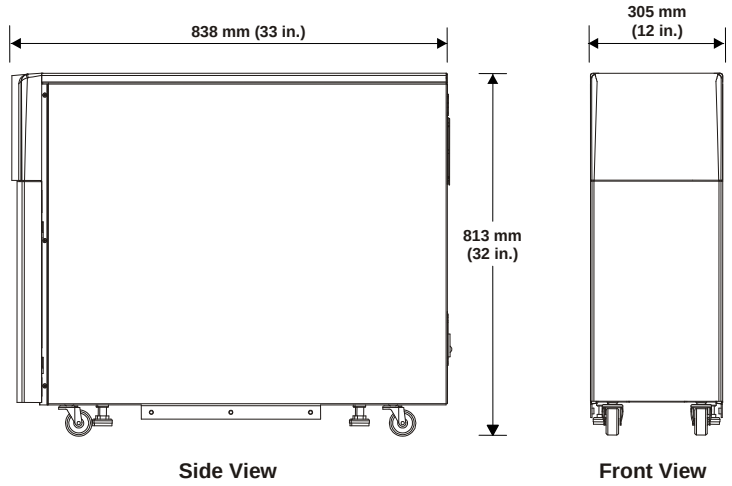


Figure 3 - Approximate maximum dimensions of the UPS

Environment requirements

Safety recommendations

Because of the operation of atmospheric pressure sources, the user must be aware of potential chemical hazards. In particular, the user must assess the risks associated with nitrogen gas (oxygen deficiency) and solvents vented into the laboratory. Note that because of the fluidic nature of the sample inlet, ionization, and exhaust system there is a potential for gas/liquid leaks to occur. The user must give due consideration to the laboratory environment (including volume and air changes) before installation and during operation of the system.

Warning: The source exhaust system is designed to be robust and leak-tight. Waters recommends you perform a hazard analysis, assuming a maximum leak into the laboratory atmosphere of 10% LC eluate, with an additional 0.5% leak for the Standard System.

Warning: To avoid risk of asphyxiation or exposure to toxic solvent vapors, ensure that the laboratory is adequately ventilated.

Positioning

It is recommended that the instrument is installed in an air-conditioned laboratory, in a draft-free position, away from excessive amounts of dust. Air conditioning units must not be positioned directly above the instrument. To avoid adverse operation, do not locate the instrument in direct sunlight.

The system is for indoor use only.

Air conditioning

Refer to Table 3 for the maximum overall heat dissipation into the room from the instrument, data system, and pumps. Air conditioning systems may have to be installed or upgraded to accommodate additional heat load into the room when these systems are installed.

Temperature

The ambient temperature range required for operation is 15 to 28 °C (59 to 82 °F).

Temperature stability must be better than 2 °C (3.5 °F) peak-to-peak in 1.5 hours.

Humidity

The relative humidity in which the instrument and pumps are to operate must be in the range of 20% to 80%, non-condensing.

Altitude

The instrument is designed and tested to operate below 2000 m (6500 ft).

Vibration

The instrument must not be placed close to heavy machinery such as compressors and generators, which may generate excessive floor vibration.

Magnetic fields

The instrument must be positioned away from magnetic fields of greater than 10 Gauss, such as those generated by NMR spectrometers and magnetic sector mass spectrometers.

Radio emissions

The instrument must not be placed within a Radio frequency (RF) field of greater than 1.0 V/m. Possible sources of RF emission include RF-linked alarm systems, Local Area Networks (LANs), mobile telephones, and hand-held transmitters.

EMC considerations

FCC radiation emissions notice

Changes or modifications not expressly approved by the party responsible for compliance, could void the user's authority to operate the equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canada spectrum management emissions notice

This class A digital product apparatus complies with Canadian ICES-001.

Cet appareil numérique de la classe A est conforme à la norme NMB-001.

ISM classification: ISM group 1 class A

This classification has been assigned in accordance with CISPR 11 Industrial Scientific and Medical (ISM) instruments requirements.

Group 1 products apply to intentionally generated or used conductively coupled radiofrequency energy that is necessary for the internal functioning of the equipment.

Class A products are suitable for use in all establishments other than residential locations and those directly connected to a low-voltage power supply network supplying a building for domestic purposes.

There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbances.

EMC emissions

Do not use the equipment in close proximity to sources of strong electromagnetic radiation (for example, unshielded intentional RF sources). The radiation can interfere with the equipment's proper operation.

This equipment complies with the emission and immunity requirements described in the relevant parts of IEC/EN 61326: Electrical equipment for measurement, control, and laboratory use - EMC requirements.

Gases and regulators

Nitrogen gas

The ACQUITY QDa Detector requires a supply of dry, oil-free nitrogen with a purity of at least 95%. The nitrogen must be regulated at 6.5 to 7 bar (94 to 102 psi) outlet pressure, using a two-stage gas regulator with an appropriate outlet range, for example, 0 to 11 bar (0 to 160 psi).

Important: It is the customer's responsibility to provide a two-stage regulator fitted with an adapter to connect to a 6-mm OD FEP tube, see Table 5.

Caution: If copper tubing is used for the nitrogen line, the copper must be chemically cleaned; if stainless steel tubing is used, the stainless steel must be medical grade. Ensure that there are no soldered or brazed joints in the line, as these may result in contamination of the instrument with tin or lead oxide. Any joints in the nitrogen line must be compression fittings.

During API operation, typical nitrogen usage is 1300 L/hour (at atmospheric pressure). As the rate of nitrogen consumed is too high to be provided by nitrogen cylinders, use laboratory nitrogen (liquid nitrogen Dewar) supplies or nitrogen generators.

If you have two QDa detectors, a common nitrogen supply must need to supply 2600 L/hour.

Note: The use of nitrogen cylinders is not recommended. Because of the high consumption, a cylinder is likely to empty during long sample runs. The supply must be constant to maintain signal reproducibility.

Exhaust outlets

Warning: Exhaust venting must comply with all local safety and environmental regulations. The ANSI/AIHA Z9.2-2001 standard for "Fundamentals governing the design and operation of local exhaust ventilation systems" provides guidance on compliant exhaust systems.

Note: Refer to the exhaust warnings in the Environment requirements section on page 17 for additional exhaust information.

Rotary pump exhaust (performance system only)

The rotary pump exhaust gases must be vented to the atmosphere outside the laboratory through a user-supplied fume hood or industrial vent. The exhaust may be connected to an existing laboratory vent carrying gases from other sources.

Five meters (16 ft) of 12-mm ID PVC tubing is supplied. If this length is insufficient, the user must supply an adapter and tubing with an internal diameter of at least 19 mm (0.75 inches) for the extra distance to the vent point.

Note: The fume hood/industrial vent must be equipped with an extraction fan system to enable adequate displacement of the exhaust gases.

Diaphragm pump exhaust (standard system only)

The diaphragm pump exhaust gases must be vented to a 2.5-L Winchester container in a convenient location underneath the instrument. Three meters (9.8 ft) of 6-mm OD FEP tubing is supplied.

Source exhaust (nitrogen)

The source exhaust line must be connected to either a laboratory fume hood, or to an active exhaust system. To ensure the correct functioning of the API source pressure monitoring system, vent the exhaust line so that the pressure at the outlet never exceeds atmospheric pressure.

Caution: When running an LC with a high aqueous flow (≥60% water at ≥0.5 mL/min), liquid solvent may condense and accumulate in the laboratory exhaust system. To prevent this, Waters recommends that the exhaust system be capable of draining any solvent accumulation, or be designed to prevent condensation, such as an open system that can maintain a gas flow of at least 5000 L/hour.

Caution: The source exhaust waste tube must be installed with a downwards slope from the QDa to the bottle waste trap, positioned at the front, or rear of the instrument.

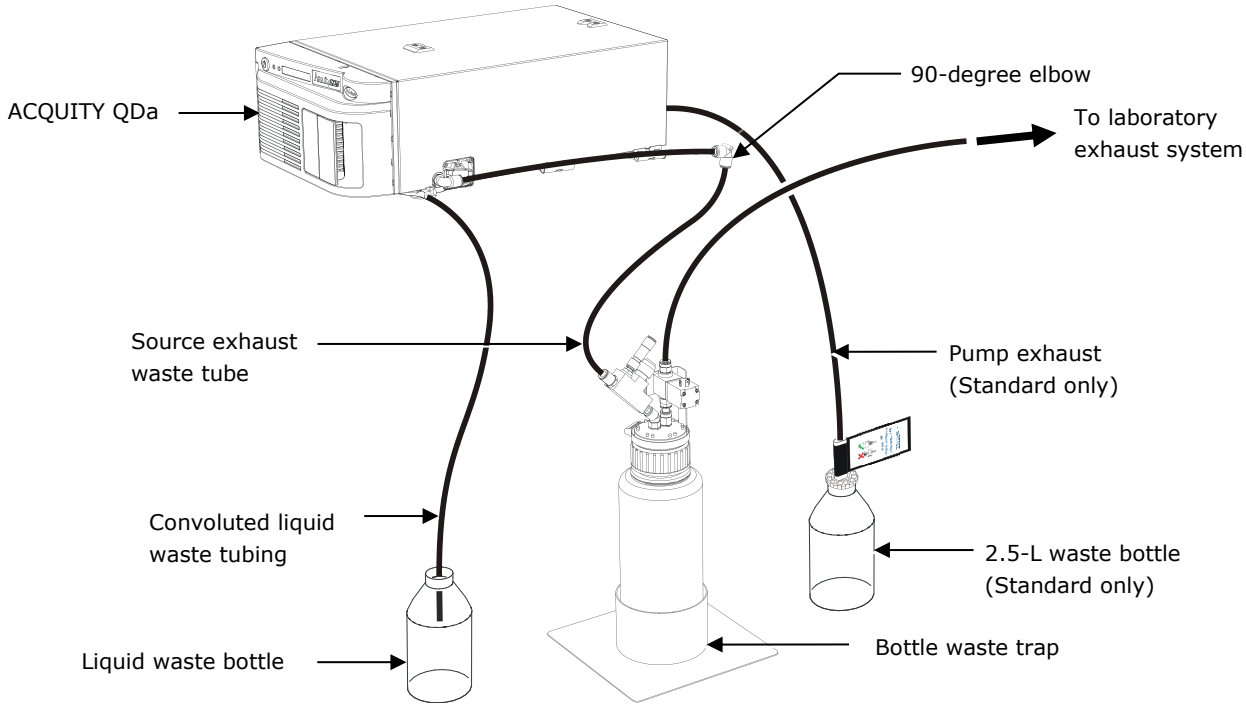


Figure 4 - Rear configuration

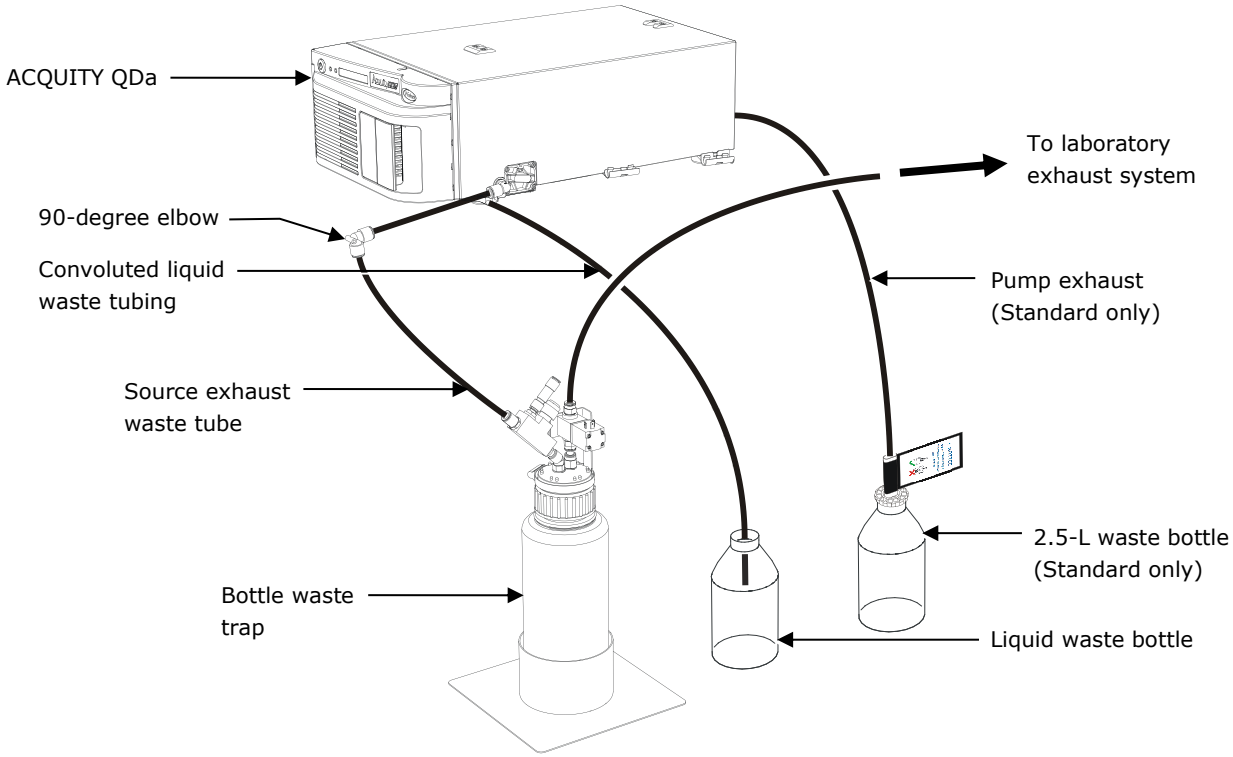


Figure 5 - Front configuration

Caution: To avoid instrument contamination, do not connect the source exhaust line to the backing pump exhaust. Damage can occur as a result of the backing pump exhaust being drawn into the source exhaust line.

Caution: The laboratory exhaust system must be capable of supporting a gas load of 2000 L/hour. The pressure within the laboratory exhaust must be less than atmospheric pressure, but not less than -10 mbar, while under gas load.

Three meters (9.8 ft) of 12-mm OD FEP tubing is supplied for connecting the source exhaust to the laboratory vent. If this length is insufficient, the user must supply an adapter and tubing with an ID of at least 16 mm (5/8 inch) for the extra distance to the vent point.

The instrument software can be configured to switch the LC system off if it detects that the nitrogen gas supply has failed. In the event that the nitrogen gas is switched off (or runs out) and the LC system continues to operate, excess solvent is drained through the liquid waste tube.

Liquid waste bottle

The instrument requires a liquid waste bottle, to capture waste from the drip tray. The customer must supply a waste bottle with a capacity of at least 1 liter, to connect to the instrument using the 1/4-inch ID convoluted tubing.

Test samples

Test samples are required for verifying the performance of instruments at the time of installation.

Note: A test sample kit is supplied with the instrument for the installation setup. It is the customer's responsibility, in conjunction with the local Waters sales representative, to ensure that any additional samples required for customer-specific tests and post-installation testing are available.

Note: The Waters engineer will not carry test samples to the installation. If the Waters engineer is unable to complete the installation because of a lack of facilities, costs incurred will be charged. The installation will be rescheduled when the chemicals are available.

Important: Storage instructions provided with the test samples must be adhered to; the use of inferior quality test chemicals caused by adverse storage conditions could impair the instrument installation.

Note: If your laboratory practices require full sample certification documentation, Waters Analytical Standards and Reagents provide ready-to-use reference materials and reagents that are fully traceable and certified (www.waters.com).

Solvents and reagents

Caution: Clean, high-purity solvents and reagents and clean glassware must be used to ensure the optimum performance of the LC system and mass detector. Significant delays to the installation may occur if clean solvents and glassware are not provided by the customer prior to commencing the installation.

High-purity solvents (LC/MS grade) are required for making up standard solutions for commissioning tests and for cleaning instrument components. For detail on controlling contamination, and information on solvent brands, refer to *Controlling Contamination in Ultra Performance UPLC™/MS and HPLC/MS Systems* (715001307), located in the Support area of the Waters website (www.waters.com).

Caution: If using a water purification system, it must be maintained regularly in accordance with the manufacturer's guidelines.

Note: A list of solvents and additives compatible with the ACQUITY QDa Detector is available in the *ACQUITY QDa Detector Overview and Maintenance Guide* (715003956), supplied with the instrument.

Sample preparation equipment

Facilities for making up test samples must be available at site. Typical equipment required for sample preparation includes (but is not limited to):

- Calibrated pipettes - 200-µL and 1-mL
- Measuring cylinders, spanning range 100-mL to 1-L
- Volumetric flasks - 10-mL flasks (up to 11 required); 50-mL flasks (up to 7 required); 100-mL flask (1 required)
- Nitrile gloves

Cleaning test sample glassware

For detailed information on properly cleaning glassware or other components, refer to *Controlling Contamination in Ultra Performance UPLC/MS and HPLC/MS Systems* (715001307), located in the Support area of the Waters website (www.waters.com).

Cleaning equipment

An ultrasonic bath is required for the routine cleaning of instrument parts. The bath must be at least 300 x 150 x 100 mm deep (12 x 6 x 4 inches).

Caution: Surfactants must not be used for cleaning glassware or other components. Refer to the document *Controlling Contamination in Ultra Performance UPLC/MS and HPLC/MS Systems* (715001307), located in the Support area of the Waters website (www.waters.com).

Surfactant-free glass vessels are required in which to place instrument components for cleaning. These vessels must be made available for use at the time of installation. The vessels must have a diameter of at least 120 mm (5 inches) and be approximately 120 mm (5 inches) high.

Summary of fittings

Table 5 shows a summary of the waste and gas connections for the installation of the detector.

Table 5: Summary of instrument fittings required

	Fittings on the system	Items supplied with the instrument	Items to be supplied by the customer
Pump exhaust (Performance)	12-mm OD tail pipe	5-m (16-ft) PVC tube, 12-mm ID, 19-mm OD	Industrial vent or fume hood
Pump exhaust (Standard)	6-mm push-in fitting	3-m (9.8-ft) FEP tube, 6-mm OD	Waste bottle, 2.5 L (minimum)
Source exhaust (nitrogen)	12-mm push-in fitting	3-m (9.8-ft) FEP tube, 12-mm OD	Industrial vent or fume hood
Liquid waste (drip tray)	6-mm OD barbed fitting	1.8-m (6-ft) convoluted tube, 1/4-inch ID	Waste bottle, 1 L (minimum)
Nitrogen supply (API)	6-mm push-in fitting	3-m (9.8-ft) FEP tube, 6-mm OD	Nitrogen supply, regulated to 6.5 to 7 bar (94 to 102 psi) through a 6-mm connector

Caution: It is essential that the pump exhaust (standard) is not submerged into solvent. The waste tube must be connected to a dedicated 2.5-L waste container, using the bottle stop.

ACQUITY QDa Detector site preparation checklist

Customers must confirm with their local Waters representatives that requirements were met by either completing and returning this checklist or by a site inspection where requested.

Note: If any items are on order, indicate this on the checklist and include the anticipated arrival date.

Note: It is the customer's responsibility to ensure that all the correct laboratory supplies are present. If you need any additional information or have difficulties acquiring parts or samples, contact your local Waters Sales representative.

Space requirements (see page 6)
The available bench space is adequate for the system ..... ❑

Power supply (see page 11)
An appropriate number of sockets with earth connections are available and they meet the stipulated power requirements ..... ❑

Positioning/air conditioning (see page 17)
There is no direct air conditioning flow onto the instrument ..... ❑

Temperature (see page 17)
The room temperature is as specified in this document ..... ❑

Humidity (see page 17)
The humidity is as specified in this document ..... ❑

Altitude (see page 17)
The instrument will be operated below 2000 m (6500 ft) ..... ❑

Floor vibration (see page 17)
The site is free from known vibration ..... ❑

Magnetic fields (see page 18)
The site is free from magnetic fields of greater than 10 Gauss ..... ❑

Radio emissions (see page 18)
The RF field strength is less than 1 V/m ..... ❑

EMC emissions (see page 18)
The instrument will be operated according to the EMC considerations ..... ❑

Gases and regulators (see page 19)
Dry, oil-free nitrogen ≥95% purity is available supplied at 6.5 to 7 bar (94 to 102 psi) with a 6-mm fitting ..... ❑

Source exhaust (see page 20)
A suitable fume hood or active exhaust system is available ..... ❑

A second exhaust system is available for the rotary pump (performance system only) ..... ❑

Ancillary equipment

If you plan to use any other equipment with the system (for example, Gilson Autosampler; UV Detector), give details below.

Make / Type	Model	Already commissioned	To be commissioned on

Test samples (see page 23)
All samples required for the installation are available ..... ❑

Solvents / reagents (see page 23)
Solvents are available ..... ❑

Sample preparation equipment (see page 24)
Sample preparation equipment, as specified in this document, is available ..... ❑

Cleaning (see page 24)
An ultrasonic bath is available ..... ❑

Vessels for cleaning components are available ..... ❑

I confirm all supplies are now available and all specified environmental conditions have been met*.

During the installation, the user intends to be available for demonstration and training by the Waters engineer:

At all times ..... ❑

Approximately _____% of the time ..... ❑

Not at all ..... ❑

During the likely period of installation, the following dates are NOT convenient:

_____

Signed: _____

***Important:** If an authorized Waters service engineer arrives on site to begin installation work and cannot complete the installation because of a lack of facilities (for example; lifting equipment, power, water, test samples, laboratory readiness), costs incurred will be charged to the customer.

Complete the following sections in block letters:

Name _____

Position _____

Organization _____

Street _____

City _____

ZIP/Postcode _____

Country _____

Telephone _____

Fax _____

E Mail _____

Important: The installation of your system cannot begin until pages 26 through 30 of this document have been fully completed and returned to the Sales Support Representative at your local Waters office.

Applications survey

As part of our commitment to provide greater customer service, we have found it necessary to obtain a little more information concerning our user base.

We would be grateful if you could take the time to complete the following questions to provide us with some information about how the instrument will be used.

This information will enable us to inform you of relevant current application notes and seminars and allows us to identify common interest groups so that we can promote cross transfer of information between customers.

What is your scientific field?
(for example, pharmaceutical, environmental, general)

_____

_____

Which classes of compounds will be analyzed?
(for example, carbohydrate, peptides, pesticides)

_____

_____

What is your application area?
(for example, quantitation, purity analysis, structural determination)

_____

_____

Our sales team often requires reference sites for specific applications.
Would you be willing to be used as a contact reference site for prospective customers?

_____

_____