

# AB SCIEX TripleTOF™ 5600 System

## *Site Planning Guide*



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# Contents

<b>Chapter 1 Customer and FSE Responsibilities</b> .....	<b>5</b>
Customer Responsibilities .....	5
FSE Responsibilities .....	5
Installation .....	6
Operator Training .....	6
<b>Chapter 2 Requirements</b> .....	<b>7</b>
Operating Environment Requirements .....	7
Standard Requirements .....	7
Optional Requirements .....	7
Noise and Heat Output Specifications .....	8
AC Mains Supply Requirements .....	8
AC Mains Supply Fluctuations .....	8
System Electrical Specifications .....	9
Protective Earth Conductor .....	10
AC Mains Supply Connections .....	10
UPS (Uninterruptible Power Supply) .....	11
Gas Supply Requirements .....	12
Optional Generators .....	15
Ventilation and Waste-Collection Requirements .....	15
Laboratory Ventilation System .....	16
Roughing Pump .....	16
Source Exhaust System .....	16
Network and Computer Equipment Requirements .....	17
General Requirements .....	17
Acquisition Computer .....	18
Processing Computers .....	18
Network Connection (Optional) .....	18
Physical Layout Requirements .....	19
Physical Dimensions .....	19
Site Clearances and Distances .....	20
Laboratory Layout .....	21
Laboratory Requirements .....	21
<b>Appendix A Checklists</b> .....	<b>23</b>
<b>Appendix B Equipment Safety Categories</b> .....	<b>29</b>



## Customer Responsibilities



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**Note:** The FSE cannot perform an installation unless the requirements outlined in this document are satisfied.

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- Carefully inspect the boxes and note any damage or mishandling on the shipping documents. Contact AB SCIEX if the trip or shock indicators on the crates show that the shipment was mishandled during transit. After all requirements are met, contact your AB SCIEX FSE and the LC vendor to schedule installation.
- Verify that the requirements for the operating environment are met. See [Operating Environment Requirements on page 7](#).
- Provide all required electrical receptacles. See [AC Mains Supply Requirements on page 8](#).
- Provide all required regulators, shut off valves, and gases. See [Gas Supply Requirements on page 12](#).
- Provide and install all required vents and ventilation devices. See [Ventilation and Waste-Collection Requirements on page 15](#).
- Select the desired configuration, and verify that adequate space is available. See [Physical Layout Requirements on page 19](#).
- Provide a printer and (optional) active, tested LAN connection. See [Network and Computer Equipment Requirements on page 17](#).
- If data processing software is to be installed, provide a computer that meets the system requirements. See [Network and Computer Equipment Requirements on page 17](#).
- Verify that all required solvents and laboratory supplies are available. See [Laboratory Requirements on page 21](#).
- Complete the checklists in [Appendix A](#).

## FSE Responsibilities

The FSE will:

- Supply all fittings, plugs, and cables required to connect the mass spectrometer to the electrical receptacles and regulators, provided they are within the maximum distances described in this guide.
- Test and qualify the system to the specifications in the *AB SCIEX TripleTOF™ 5600 System Data Log*.
- Set up LC equipment sold and supported by AB SCIEX. Integrate other supported LC equipment.
- Set up optional gas generator equipment sold by AB SCIEX only.

## Installation

After an FSE unpacks the system (with assistance from people at your site), it takes several hours for the FSE to set up the system and verify its operation. When the system reaches proper vacuum, the FSE will perform installation and site acceptance tests.

## Operator Training

During installation, the FSE provides a system and software overview, reviews data, and provides some basic operator training. Training for auxiliary equipment supplied by other manufacturers is not provided by the FSE.

## Operating Environment Requirements



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**DANGER! Explosion Hazard: Do not operate the mass spectrometer in an environment containing explosive gases. The mass spectrometer is not designed for operation in an explosive environment.**

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### Standard Requirements

- Ambient temperature of 15°C to 30°C  $\pm$ 2°C (59°F to 86°F  $\pm$ 3.6°F)



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**Note:** The rate of the change in temperature should not be more than 2°C per hour.

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- Relative humidity from 20% to 80%, non-condensing
- Cooling and venting for mass spectrometer and roughing pump: 18 000 Btu/hr

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**Caution: Potential Instrument Damage: Do not place the roughing pump in an enclosed unventilated area. Otherwise, the roughing pump will fail prematurely or shut down from overheating and may cause severe damage to the mass spectrometer.**

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**Note:** Ambient temperature fluctuations may result in mass shifts in spectra.

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**Note:** Operation of the mass spectrometer at altitudes higher than 2000 m (6400 ft) above sea level may impact mass spectrometer operation.

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### Optional Requirements

AB SCIEX recommends that you install a soft wall behind the mass spectrometer to reduce the reflection of sound generated by the equipment. Make sure that the wall meets all local safety requirements.



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**Note:** Peripheral devices may have different operating environment requirements. Check the operating environment requirements with the vendor of each peripheral device that will be used with the mass spectrometer.

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## Noise and Heat Output Specifications

Table 2-1 Noise and Heat Output Specifications

Specification	Value
<b>Noise level</b>	
Average noise level for the mass spectrometer with the roughing pump running	69 dbA
Average noise level for the mass spectrometer with the roughing pump running, inside the optional enclosure	60 dbA
<b>Heat output</b>	
Heat generated by the mass spectrometer	11 347 Btu
Heat generated by the mass spectrometer and roughing pump	15 886 Btu

## AC Mains Supply Requirements



**WARNING! Electrical Shock Hazard:** Use only qualified personnel for the installation of all electrical supplies and fixtures, and make sure that all installations adhere to local bylaws.



**WARNING! Electrical Shock Hazard:** Do not intentionally interrupt the protective earth conductor. Any interruption of the protective earth conductor is likely to make the installation dangerous.

The mass spectrometer power consumption is 2400 VA (50 Hz or 60 Hz) at 240 VAC. The roughing pump power consumption is 3360 VA at 240 VAC.

You do not need an external line transformer for the mass spectrometer or roughing pump.

**Caution: Potential Instrument Damage:** Do not unpack or connect any components. The FSE will unpack, connect, and configure the system for the proper operating voltage.

## AC Mains Supply Fluctuations

AB SCIEX recommends the use of a power conditioner. In areas where the AC mains supply is subject to voltage fluctuations exceeding  $\pm 10\%$  of the nominal value (240 VAC), a power conditioner is required. High or low voltages can adversely affect the electronic components of the mass spectrometer. For more information, see [Table 2-6](#).



**Note:** Peripheral devices may have different AC mains supply fluctuation limits. Check the AC mains supply fluctuation limit with the vendor of each peripheral device that will be used with the mass spectrometer.

## System Electrical Specifications

Table 2-2 to Table 2-5 contain the electrical specifications for the mass spectrometer, roughing pump, computer, and monitor.



**Note:** Specifications are subject to change without notice. Contact your FSE for the latest specifications.

**Table 2-2 Mass Spectrometer Electrical Specifications**

<b>Mass spectrometer</b>	<b>Value</b>
Nominal input voltage	200 V to 240 V
Frequency	50 Hz or 60 Hz
Max input current	10 A
Max input power	2400 VA

**Table 2-3 Roughing Pump Electrical Specifications**

<b>Leibold Sogevac roughing pump</b>	<b>Value</b>
Nominal input voltage	200 V to 240 V
Frequency	50 Hz or 60 Hz
Max input current	14 A
Max input power	3360 VA



**Tip!** We recommend the use of a 15 A external circuit breaker for the roughing pump.

**Table 2-4 Acquisition Computer Electrical Specifications**

<b>Specification</b>	<b>Value</b>
<b>Computer (Dell Precision T3500)</b>	
Nominal input voltage	115 V or 230 V
Frequency	50 Hz or 60 Hz
Max input current	6 A (115 V) or 3 A (230 V)
Max input power	690 VA
<b>Monitor (Dell UltraSharp U2311H 23" Widescreen Flat Panel)</b>	
Nominal input voltage	100 V to 240 V
Frequency	50 Hz to 60 Hz
Max input current	1.5 A
Max input power	360 VA

Table 2-5 Processing Computer Electrical Specifications

Specification	Value
<b>Computer (Dell OptiPlex 960) for Windows XP</b>	
Nominal input voltage	115 V to 230 V
Frequency	50 Hz to 60 Hz
Max input current	3.6 A (115 V) or 1.8 A (230 V)
Max input power	414 VA
<b>Computer (Dell Precision T5500) for Windows 7</b>	
Nominal input voltage	100 V to 240 V
Frequency	50 Hz to 60 Hz
Max input current	4.62 A
Max input power	1109 VA



**Note:** The Dell OptiPlex 960 computer is dedicated to the data processing add-on software. The Dell Precision T5500 computer is dedicated to the ProteinPilot software.

## Protective Earth Conductor

The AC mains supply should include a correctly installed protective earth conductor. A qualified electrician must install or inspect the earth conductor before the mass spectrometer is connected.

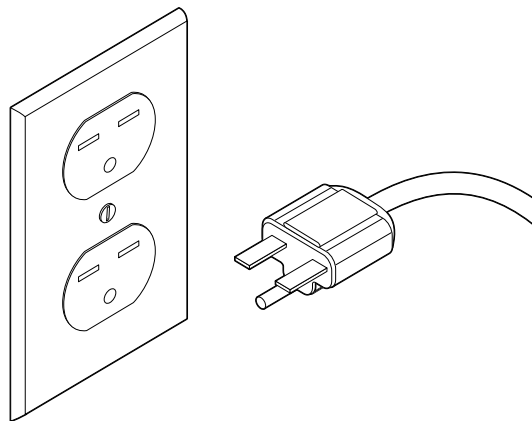
## AC Mains Supply Connections



**Note:** The AC mains supply outlets must be within 2 m (6 ft) of the mass spectrometer and roughing pump.

### North America Requirements

- For the mass spectrometer, a single 220 VAC, 15A branch circuit receptacle.
- For the roughing pump, a separate single 220 VAC, 15A branch circuit receptacle.
- Branch circuits equipped with NEMA 6-15R duplex straight-blade receptacles as shown in [Figure 2-1](#).



**Figure 2-1 NEMA 6-15 duplex receptacle and plug**

- For the acquisition computer, monitor, and printer, three 120/220 VAC receptacles.
- For the optional processing computer and monitor, and printer, two 120/220 VAC receptacles.
- For the optional NanoSpray<sup>®</sup> ion source, one 220 VAC receptacle.
- For the optional roughing pump enclosure, one 110 VAC receptacle.
- Additional receptacles, as required, for the optional LC equipment and gas generator (see the documentation provided by the manufacturer).

### International Requirements

For installations outside North America, use locally approved standard connections and cables.

## UPS (Uninterruptible Power Supply)

A pure sine-wave UPS or power conditioner can be used to maintain the system supply (mass spectrometer and acquisition computer and monitor) during power outages. If the voltage changes more than ten percent in 24 hours, use a power conditioner.

The UPS or power conditioner that you use to power the system must deliver the voltage required by the mass spectrometer and any other devices plugged into it. It must also meet the specifications in [Table 2-6](#).

**Table 2-6 UPS and Power Conditioner Requirements**

Condition	Requirements
Output voltage	200 VAC to 240 VAC True on line (double conversion)
Frequency	50 or 60 Hz
Waveform	Pure sine wave
Minimum peak current	3 × nominal current
Output voltage distortion	<3%
Output protection	Circuit breaker



**Note:** AB SCIEX does not supply an external UPS or power conditioner for the mass spectrometer, and the FSE is not responsible for configuring or connecting a UPS or power conditioner.

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**Note:** Capacity required varies depending on the components connected. Check the requirements for the individual components.

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## Gas Supply Requirements

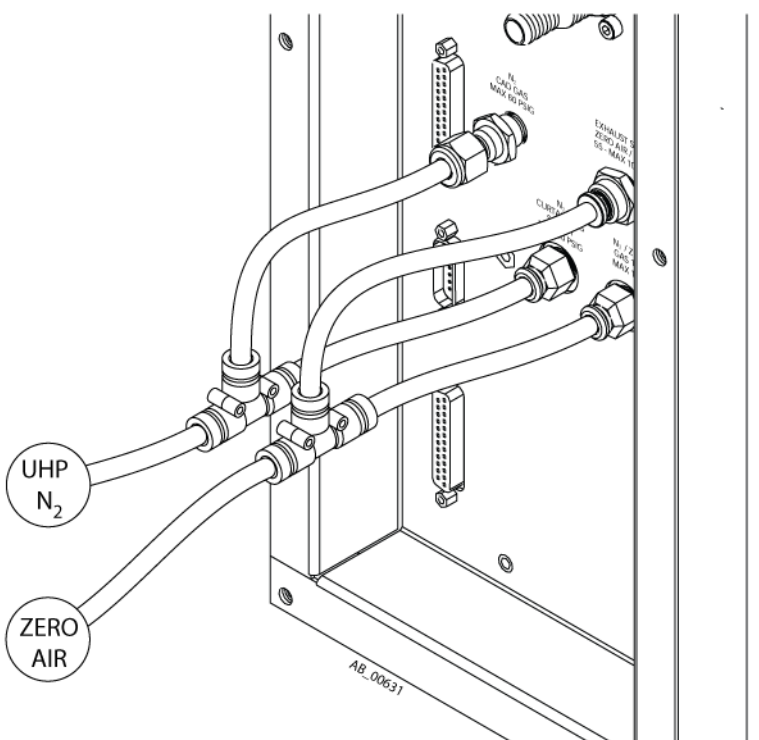
**Caution: Potential Instrument Damage:** When supplying house gases, make sure each supply is regulated before the mass spectrometer. Overpressure can damage gas controllers.

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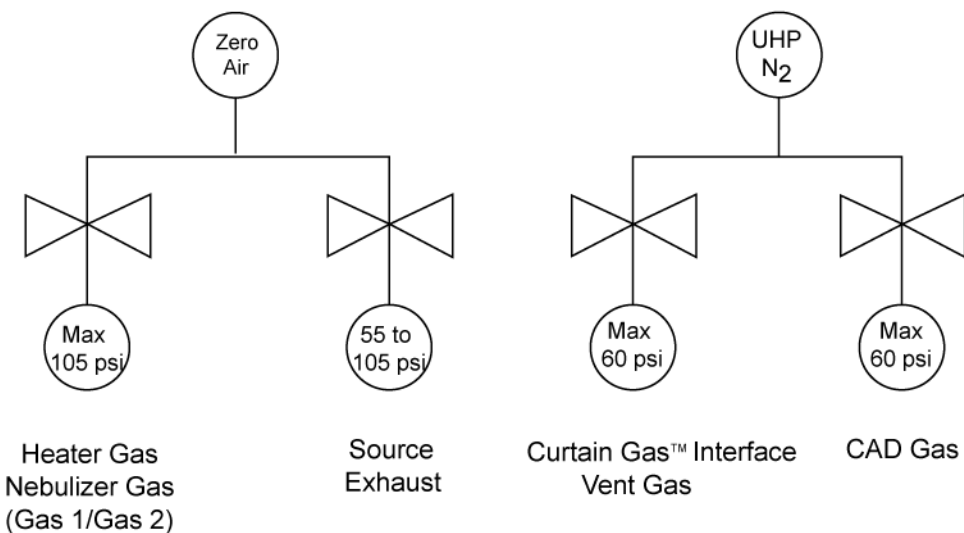
**Caution: Potential Instrument Damage:** Only use gas generators, regulators, and connectors approved by AB SCIEX. See [Table 2-8](#).

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Use high-pressure liquid nitrogen dewars or AB SCIEX-approved gas generators. [Figure 2-2](#) shows the gas connections on the mass spectrometer, and [Figure 2-3](#) shows the recommended configuration.



**Figure 2-2 Gas connections**



**Figure 2-3 Recommended gas connection configuration**



**Tip!** The quality of air for the source exhaust can be lower than the quality of air for Gas 1/Gas 2. To reduce cost, you can use a separate source of water- and oil-free air for the source exhaust.



**Tip!** To save space, gas supplies may be installed outside the laboratory, as long as the required outlet pressures and flow rates can be maintained, and as long as the plumbing does not contain solder or flux, which can contaminate the system.

Table 2-7 shows maximum gas flow rates and Table 2-8 describes the requirements for gas, regulators, and fittings.

**Table 2-7 Gas Flow Rates**

Gas	Maximum flow rate
Gas 1 and Gas 2	22.5 L/min
Curtain Gas™ supply	10 L/min
CAD gas	1 mL/min
Source exhaust	8 L/min



**Note:** If you are using the DuoSpray™ or Turbo V™ ion source, you can use UHP N<sub>2</sub> for Gas 1 and Gas 2. Do not use UHP N<sub>2</sub> with the NanoSpray ion source, as there is an increased risk of corona discharge, which can damage the emitter tip.

Table 2-8 Required Gas, Regulators, and Fittings

Gas	Gas type	Regulators	Fitting size	Suggested manufacturer	Cylinder/dewar gas regulator PN	House gas regulator PN
Gas 1 and Gas 2	Zero grade air	Maximum 105 psi (7.25 bar)	1/4 inch	Matheson	SP-3810-590 (air) or SP-3810-580 (N <sub>2</sub> )	SP-3231
Curtain Gas supply	UHP N <sub>2</sub>	Maximum 60 psi (4.13 bar)	1/4 inch	Matheson	SP-3810-580	SP-3231
CAD gas	UHP N <sub>2</sub>	Maximum 60 psi (4.13 bar)	1/4 inch	Matheson	SP-3810-580	SP-3231
Source exhaust	Zero-grade air, oil-free air or UHP N <sub>2</sub>	55 psi to 105 psi (3.79 bar to 7.25 bar) (Do not operate below 55 psi.)	1/4 inch	Matheson	SP-3810-590 (air) or SP-3810-580 (N <sub>2</sub> )	SP-3231



**Note:** All regulator output fittings are 1/4-inch Swagelok, shown in [Figure 2-4](#). For CAD gas, the input fitting on the instrument panel is 1/4-inch Swagelok. For all other gases, the input fitting is quick-connect, shown in [Figure 2-5](#).

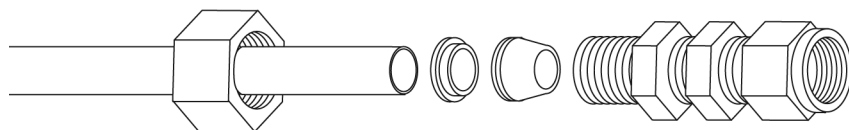


Figure 2-4 Swagelok connection and tubing

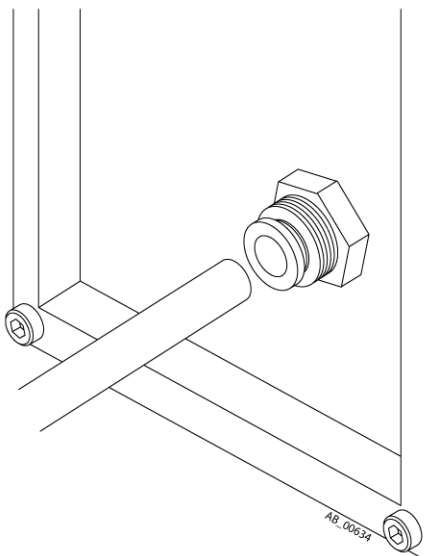


Figure 2-5 Quick-connect fitting on the instrument panel

## Optional Generators

Gas generators are available from AB SCIEX. See the manufacturer's documentation that comes with the generator for system specifications.

## Ventilation and Waste-Collection Requirements



**WARNING! Radiation Hazard, Biohazard, or Toxic Chemical Hazard:** Make sure that the laboratory is equipped with an appropriate ventilation system. Ventilation of the laboratory is vital for operator safety.



**WARNING! Radiation Hazard, Biohazard, or Toxic Chemical Hazard:** Use only qualified personnel for the installation of plumbing and ventilation fixtures, and make sure that all installations follow local bylaws and biohazard regulations.



**WARNING! Radiation Hazard, Biohazard, or Toxic Chemical Hazard:** Take extreme care to vent exhaust gases properly. Operating the mass spectrometer without adequate ventilation may constitute a health hazard. In addition, certain procedures required during the operation of the mass spectrometer may cause gases to be discharged into the exhaust stream; therefore, inadequate ventilation of exhaust gases may result in serious injury.



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**WARNING! Radiation Hazard, Biohazard, or Toxic Chemical Hazard: Be sure to use the source exhaust system to remove sample vapor exhaust pump exhaust from the laboratory environment.**

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## Laboratory Ventilation System

- Provide a laboratory ventilation system to vent exhaust from the roughing pump and ion source.

## Roughing Pump

- Provide a negative flow vent with a smooth fitting that has an outer diameter (o.d.) of 3.2 cm (1.25 inches). The vent must be within 1.5 m (5 ft) of the roughing pump, and must have a flow rate of at least 7 L/min (0.25 cubic feet/min). Position the exhaust vent at least 1 m (3 ft) above the floor.
- Use a length of vacuum hose between the roughing pump and the mass spectrometer that is less than 2 m (6 ft).

## Source Exhaust System

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**Caution: Potential Instrument Damage: Connect the source exhaust waste to the source exhaust drain bottle. Do not connect it directly to a negative flow vent. The additional vacuum created by a direct connection could trip the source exhaust pump pressure switch, falsely indicating that the source exhaust pump is working when it is not, and enable the instrument electronics.**

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- Minimize the length and number of bends in the hose from the mass spectrometer to the source drain bottle.
- Provide a negative flow vent with 3.2 cm (1.25 inch) o.d. and a minimum flow rate of at least 33 L/min (1.17 cubic feet/min).
- Use sufficient tubing with an inner diameter (i.d.) of 1.3 cm (0.5 inch) to fit onto the source exhaust drain vessel and loosely couple it to the vent. The connection to the vent should have an air gap.

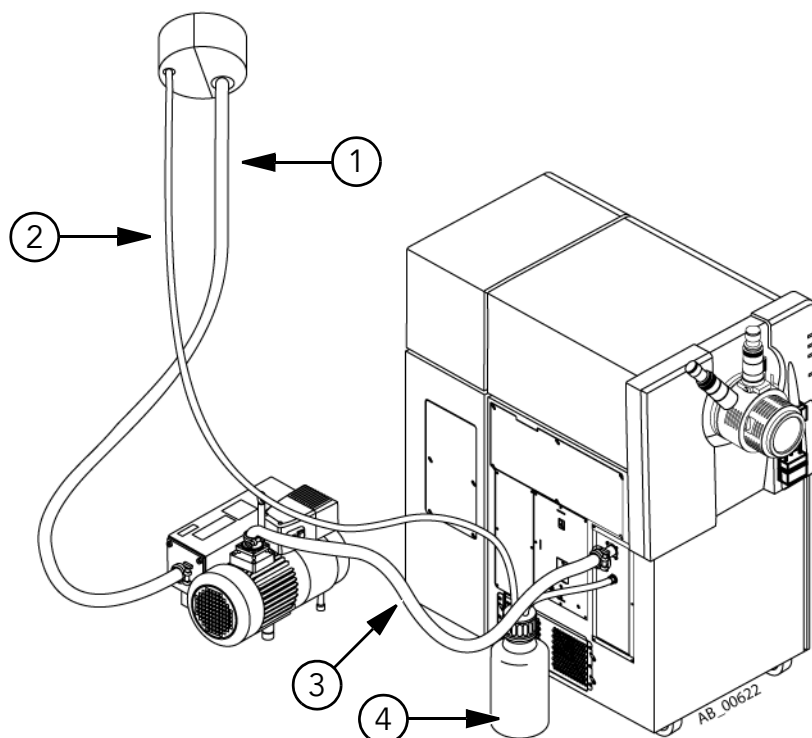


Figure 2-6 Vent connections

Item	Description
1	Roughing pump exhaust connection to vent.
2	Source exhaust output connection to vent
3	Vacuum hose
4	Source exhaust drain bottle

## Network and Computer Equipment Requirements

**Caution: Potential System Damage: Other than security software, do not install additional software on the acquisition computer. Changes to the configured software could void the mass spectrometer warranty and cause the system to stop operating.**

### General Requirements

- Make a network or IT specialist available to install the security software while the FSE is present.
- Provide a network or dedicated printer, along with any necessary print drivers.

## Acquisition Computer

The acquisition computer is provided with the instrument. It controls the mass spectrometer. This computer should be used exclusively for data acquisition.

- Provide a computer table for the acquisition computer, within 2 m (6 ft) of the mass spectrometer.

## Processing Computers

AB SCIEX highly recommends that you use a dedicated processing computer if you use the optional data processing software. For optimal support, use a processing computer supplied by AB SCIEX. Limited support is provided for a computer that is not supplied by AB SCIEX.\*

The ProteinPilot™ software runs under the Windows 7 64-bit operating system. AB SCIEX recommends that it be installed on the AB SCIEX-supplied Dell Precision T5500 computer. This computer should be dedicated to the ProteinPilot software.

With the exception of ProteinPilot™, all data processing software for the AB SCIEX TripleTOF™ 5600 system run under the Windows XP operating system. AB SCIEX recommends that they be installed on the AB SCIEX-supplied Dell Optiplex 960 computer. Optionally, you can run these applications in Window XP mode in Windows Virtual PC on the Dell Precision T5500 computer. Limited support is provided for this configuration.\*



**Note:** Newer computers may become available. Consult with your local sales representative for the latest information.

**Table 2-9 Processing Computer Minimum Requirements**

Requirement	Data processing software	ProteinPilot software
Processor	Pentium Core 2 Duo, 3.0 GHz	Multi-core, 2 or more GHz
Memory	4 GB RAM	2 GB RAM per core
Disk space	250 GB	1 TB
Screen resolution	1280 × 1024	1280 × 1024
Operating system	Windows XP (32-bit) with Service Pack 3	Windows 7 (64-bit) Professional

## Network Connection (Optional)

- Provide an active, tested LAN connection for the computers.
- Define a computer name for the computers on the appropriate domain.
- Make a network or IT specialist available to connect the computers to your LAN while the FSE is present.

\*. The AB SCIEX Technical Support and Technical Assistance Centers provide their best efforts to help with software issues via telephone.

## Physical Layout Requirements



**WARNING! Electrical Shock Hazard: Make sure that the mass spectrometer can be disconnected from the AC mains supply outlet in an emergency. Do not block the AC mains supply outlet.**

### Physical Dimensions

Examine the weight and dimensions in [Table 2-10](#) and make sure that you can move the system to the installation site. Make sure that the installation site can accommodate the equipment dimensions, weight, and associated clearance.

**Table 2-10 Weights and Dimensions**

Equipment	Height	Width	Length	Weight
<b>Instrument</b>				
Mass spectrometer	135.9 cm; 53.5 inches	82.5 cm; 32.5 inches	140.8 cm; 56.5 inches	458 kg; 1010 lbs
Shipping crate (including instrument)	152 cm; 60 inches	123 cm; 49 inches	193 cm; 76 inches	778 kg; 1715 lbs
Accessories box	99 cm; 39 inches	109 cm; 43 inches	126 cm; 50 inches	97 kg; 214 lbs
<b>Roughing pump</b>				
Roughing pump	26.4 cm; 10.5 inches	34.9 cm; 13.75 inches	66.2 cm; 26 inches	65 kg; 143 lbs
Shipping crate (including pump)	62 cm; 24.5 inches	61 cm; 24 inches	96 cm; 37.75 inches	135 kg; 297 lbs
<b>Acquisition computer</b>				
Computer	44.8 cm; 18 inches	17.25 cm; 7 inches	46.8 cm; 19 inches	17.3 kg; 38.25 lbs
Monitor	46.36 cm; 18.5 inches	37.2 cm; 15 inches	18.2 cm; 7.25 inches	5.1 kg; 11.25 lbs
Shipping weight	The acquisition computer and monitor are included in the Accessories box.			
<b>Processing computer (optional)</b>				
Processing computer (Dell OptiPlex 960)	40.8 cm; 16 inches	18.7 cm; 7.4 inches	43 cm; 17 inches	11.5 kg; 25.3 lbs
Processing computer (Dell Precision T5500)	44.8 cm; 17.6 inches	17.1 cm; 6.7 inches	47.1 cm; 18.5 inches	17.7 kg; 39 lbs
<b>Roughing pump enclosure (optional)</b>				
Roughing pump enclosure	64 cm; 25.25 inches	52.5 cm; 20.75 inches	92 cm; 36 inches	13 kg; 28.7 lbs
Shipping crate (including enclosure)	76.1 cm 30.0 inches	61 cm 24 inches	101.6 cm 40 inches	46 kg; 101 lbs

Table 2-10 Weights and Dimensions (Continued)

Equipment	Height	Width	Length	Weight
<b>Other</b>				
Gas generator (optional)	See the documentation for the gas generator system.			

## Site Clearances and Distances

Make sure the installation site meets the required building clearances. See [Table 2-11](#) and [Table 2-12](#).

Table 2-11 Site Clearances

Clearance	Measurement
Left side	1 m (3 ft) for service access
Front	1 m (3 ft) for service access
Rear	0.7 m (2.25 ft) for service access
Top cover	1 m (3 ft) for service access

Table 2-12 Maximum Distances from the Mass Spectrometer

To	Measurement
AC mains supply outlet	1.6 m (5 ft)
Acquisition computer	2 m (6 ft)
Roughing pump	2 m (6 ft)

## Laboratory Layout

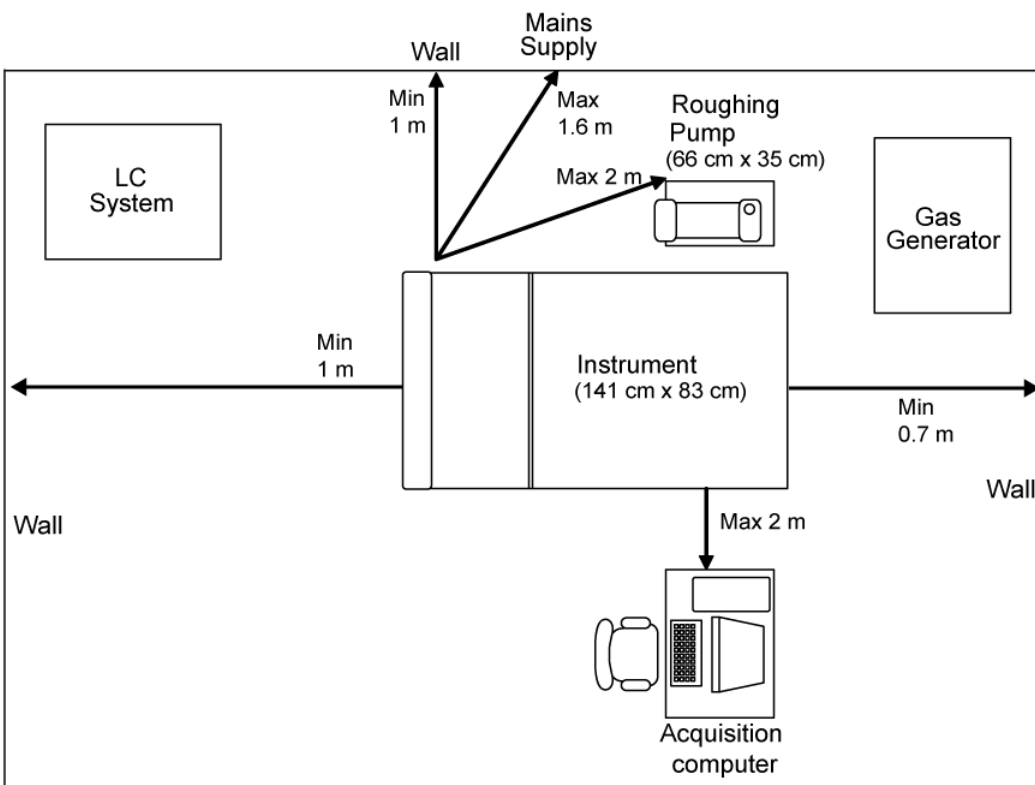


Figure 2-7 Laboratory layout

## Laboratory Requirements

- Pipettors (20  $\mu$ L, 100 or 200  $\mu$ L and 1 mL)
- Dilution vials (20 mL)
- Bottles (60 mL)
- HPLC-grade Ammonium acetate (100 mg)
- HPLC-grade or MS-grade methanol (2 L)
- HPLC-grade or MS-grade acetonitrile (2 L)
- HPLC-grade deionized water (2 L)
- Formic acid, 99% or higher (50 mL)
- Tubing and fittings required to connect LC equipment to the mass spectrometer



**Table A-1 Packaging Checklist**

	<b>Requirements</b>	<b>Comments</b>
<input type="checkbox"/>	Items on the packing list are those that were ordered; discrepancies, if any, have been reported to the FSE.	
<input type="checkbox"/>	The system has been received, and the crates and boxes inspected for mishandling or damage. Do not unpack the crate.	
<input type="checkbox"/>	Any of the following have been reported to the FSE: <ul style="list-style-type: none"> <li>• Damage to the crates or boxes</li> <li>• Trip indicators or shock indicators that show evidence of mishandling during transit.</li> </ul>	

**Table A-2 Environmental Requirements Checklist**

	<b>Requirements</b>	<b>Comments</b>
<input type="checkbox"/>	The ambient temperature is 15°C to 30°C ±2° (59°F to 86°F ±3.6°). <b>Note:</b> Peripheral devices may have different operating environment requirements. Check the operating environment requirements with the vendor of each peripheral device that will be used with the mass spectrometer.	
<input type="checkbox"/>	Relative humidity is 20% to 80%, non-condensing.	
<input type="checkbox"/>	Air conditioning provides a minimum of 16 000 Btu/h (mass spectrometer and roughing pump only).	

**Table A-3 Electrical Requirements Checklist**

	<b>Requirements</b>	<b>Comments</b>
<b>Mass spectrometer and roughing pump</b>		
<input type="checkbox"/>	One branch circuit (200 V to 240 V, at 50/60 Hz, with a maximum input power of 2400 VA) is provided for the mass spectrometer. The AC mains supply outlet must be less than 1.6 m (5.25 ft) from the mass spectrometer.	

Table A-3 Electrical Requirements Checklist (Continued)

	Requirements	Comments
<input type="checkbox"/>	One branch circuit (200 V to 240 V, at 50/60 Hz, with a maximum input power of up to 3360 VA) is provided for the roughing pump. The AC mains supply outlet must be less than 1.6 m (5.25 ft) from the roughing pump.	
<input type="checkbox"/>	The AC mains supply voltage does not fluctuate more than $\pm 10\%$ from the nominal voltage.  <b>Note:</b> Peripheral devices may have different AC mains supply fluctuation limits. Check the AC mains supply fluctuation limit with the vendor of each peripheral device that will be used with the mass spectrometer.	
<input type="checkbox"/>	(Optional) A UPS is provided for the system. The UPS must deliver 200 VAC to 240 VAC, 50/60 Hz, and must provide enough power to supply the mass spectrometer and any other connected devices.	
<input type="checkbox"/>	(Optional) A power conditioner is provided for the system. It must deliver 200 VAC to 240 VAC, 50/60 Hz, and must provide enough power to supply the mass spectrometer and any other connected devices.	
<input type="checkbox"/>	A qualified electrician has determined the appropriate AC mains supply configuration based on the system electrical specifications found in <a href="#">AC Mains Supply Requirements on page 8</a> .	
<b>Mass spectrometer and roughing pump — North America</b>		
<input type="checkbox"/>	Two separate branch circuits are provided: 15A 220 VAC 50/60 Hz.	
<input type="checkbox"/>	Branch circuits are terminated with NEMA 6-15R receptacles. Each branch circuit must have two outlets.	
<b>Mass spectrometer and roughing pump — International</b>		
<input type="checkbox"/>	Installation adheres to local requirements.	
<b>Additional accessories</b>		
<input type="checkbox"/>	Computer equipment (computer, monitor, printer): minimum of two AC mains supply outlets. North America: 120 VAC, 60 Hz. Europe: 230 VAC, 50 Hz; Japan: 100 VAC, 50/60 Hz.	

**Table A-3 Electrical Requirements Checklist (Continued)**

	<b>Requirements</b>	<b>Comments</b>
<input type="checkbox"/>	For optional devices: as necessary for the NanoSpray <sup>®</sup> ion source, sound-proof roughing pump enclosure, processing computer, LC pump, autosampler, diode array detector, and gas generator depending on equipment requirements and installation location. For more information, see the documentation that comes with the device.	

**Table A-4 Gas Supply Requirements Checklist**

	<b>Requirements</b>	<b>Comments</b>
<input type="checkbox"/>	Gas 1/Gas 2: <ul style="list-style-type: none"> <li>• Zero grade air.</li> <li>• Delivery pressure of up to 105 psi (7.25 bar) with flows up to 22.5 L/min.</li> </ul>	
<input type="checkbox"/>	Curtain Gas <sup>™</sup> supply and CAD gas supply: <ul style="list-style-type: none"> <li>• UHP (ultra-high purity) nitrogen (99.99%)*</li> <li>• Delivery pressure up to 60 psi (4.13 bar) with flows up to 10 L/min.</li> </ul> * or AB SCIEX-approved gas generator	
<input type="checkbox"/>	Source exhaust gas: <ul style="list-style-type: none"> <li>• Clean, dry, water- and oil-free air or nitrogen.</li> <li>• Delivery pressure of 55 psi to 105 psi (7.25 bar) with flows up to 8 L/min.</li> </ul>	
<input type="checkbox"/>	If an optional wall-mounted gas generator is used, a supply of compressed oil-free air with a delivery pressure of 110 to 130 psi.	
<input type="checkbox"/>	Liquid nitrogen generators, if used, secured to meet local safety standards and regulations. Use only regulators and connectors that comply with local regulations.	
<input type="checkbox"/>	Gas delivery lines installed as required by local safety standards and regulations.	

**Table A-5 Ventilation and Waste Collection Requirements Checklist**

	<b>Requirements</b>	<b>Comments</b>
<input type="checkbox"/>	Roughing pump: one negative flow vent with 3.2 cm (1 1/4 inch) o.d. smooth fitting located within 1.5 m (5 feet) of the roughing pump.	
<input type="checkbox"/>	Source exhaust drain vessel supplied by AB SCIEX: One negative flow vent with 3.2 cm (1.25 inch) o.d. Sufficient length of tubing with 1.3 cm (0.5 inch) i.d. to connect the source exhaust drain vessel and loosely couple it to the vent.	
<input type="checkbox"/>	The maximum flow rate volume for the pump and source exhaust drain vessel combined is 40 L/min (1.41 cubic ft/min).	
<input type="checkbox"/>	Source exhaust output and roughing pump output are connected to separate vents.	
<input type="checkbox"/>	Installation of plumbing and ventilation fixtures complies with local bylaws and biohazard regulations.	

**Table A-6 Network and Computer Equipment Requirements Checklist**

	<b>Requirements</b>	<b>Comments</b>
<input type="checkbox"/>	The network or IT specialist is available to install the security software while the FSE is present.	
<input type="checkbox"/>	A network printer or a dedicated printer is available, along with any necessary print drivers.	
<input type="checkbox"/>	A computer table is available for the data acquisition computer, within 2 m (6 ft) of the mass spectrometer.	
<b>Network</b>		
<input type="checkbox"/>	An active, tested LAN connection is available.	
<input type="checkbox"/>	A computer name has been defined for the acquisition computer on the appropriate domain.	
<input type="checkbox"/>	The network or IT specialist is available to connect the computer to the LAN while the FSE is present.	

**Table A-7 Site Layout Requirements Checklist**

	<b>Requirements</b>	<b>Comments</b>
<input type="checkbox"/>	The measured building clearances can accommodate the equipment and crate dimensions. If the dimensions exceed building clearances, contact the FSE. Do not unpack the crate.	

**Table A-8 General Laboratory Requirements Checklist**

	<b>Requirements</b>	<b>Comments</b>
<input type="checkbox"/>	Required polypropylene bottles and pipettors are available: <ul style="list-style-type: none"> <li>• Pipettors (20 <math>\mu</math>L, 100 or 200 <math>\mu</math>L and 1 mL)</li> <li>• Dilution vials (20 mL)</li> <li>• Bottles (60 mL)</li> </ul>	
<input type="checkbox"/>	All required solutions are available: <ul style="list-style-type: none"> <li>• HPLC-grade Ammonium acetate (100 mg)</li> <li>• HPLC-grade or MS-grade methanol (2 L)</li> <li>• HPLC-grade or MS-grade acetonitrile (2 L)</li> <li>• HPLC-grade deionized water (2 L)</li> <li>• Formic acid (50 mL)</li> </ul>	
<input type="checkbox"/>	Tubing and fittings required to connect the supported LC equipment to the mass spectrometer are available.	



**Table B-1 Equipment Safety Categories**

<b>Description</b>	<b>Category</b>
Equipment pollution degree	Pollution Degree 2
Mains supply transient overvoltage	Overvoltage Category II

For more information, see the International Electrotechnical Commission standards IEC 61010-1 and IEC 60364.

