

Voyager-DE™ Biospectrometry™ Workstation

**Voyager-DE, Voyager-DE PRO and
Voyager-DE STR Models**

Site Preparation and Safety Guide

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Introduction

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This chapter includes the following sections:

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Overview

Purpose This *Site Preparation and Safety Guide* provides the information you need to fully prepare your site for the arrival and installation of any of the following:

- Voyager-DE™ Biospectrometry™ Workstation
- Voyager-DE™ PRO Biospectrometry™ Workstation
- Voyager-DE™ STR Biospectrometry™ Workstation

Note: When presenting information that applies to any of the three models of the Voyager Workstation, this document uses the term “Voyager Workstation.” When presenting information that applies to a specific model, this document uses the specific model name.

Safety information pertinent to the site preparation process is also included in this guide.

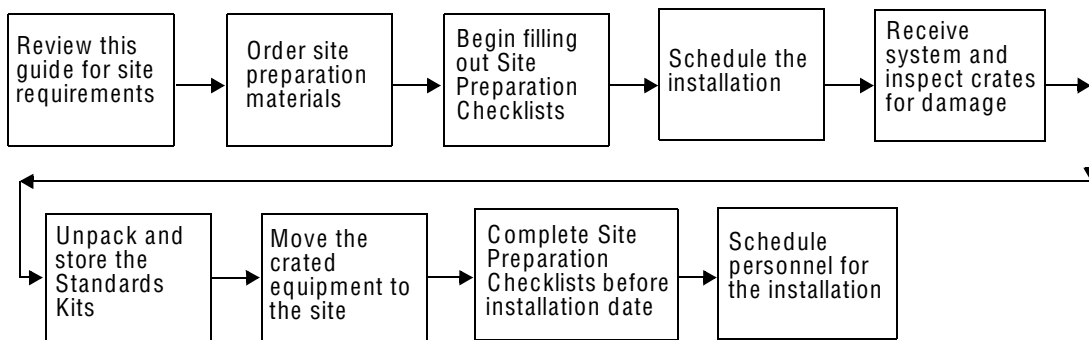
In This Guide This guide contains the following chapters:

Chapter	Description
Chapter 1, Introduction	Provides an overview of the site preparation process, describes safety conventions and information, and lists Technical Support contact information.
Chapter 2, Preparing the Site	Provides site preparation requirements you must fulfill before installation.
Chapter 3, Preparing for Installation	Explains the steps you must perform before the installation and the items you provide for the installation.
Chapter 4, Site Preparation Checklists	Includes checklists you must complete before the installation.

Safety Information Operational safety information for the Voyager Workstation can be found in the *Voyager™ Biospectrometry™ Workstation User Guide*.

Site Preparation Overview

The site preparation process is as follows:



Note: Do NOT unpack crates or computer boxes. Except for the Sequazyme™ Peptide Mass Standards Kit, the Sequazyme™ IgG1 Mass Standard Kit, and the Sequazyme™ BSA Test Standard Kit, do not unpack Voyager Workstation boxes. This protects you from liability if any damage occurred during shipping.

Note: Carefully inspect the boxes and report any damage to your Applied Biosystems service representative. Contact Applied Biosystems if the tip or shock indicators on the crates show evidence that the shipment was mishandled during transit.

As you complete the tasks in Chapter 2, Preparing the Site, and Chapter 3, Preparing for Installation, fill out the checklists in Chapter 4, Site Preparation Checklists. All checklists must be complete before the installation date.

About Safety

User Attention Words

Five user attention words appear in the text of all Applied Biosystems user documentation. Each word implies a particular level of observation or action as described below.

Note: Calls attention to useful information.

IMPORTANT: Indicates information that is necessary for proper instrument operation.

⚠ CAUTION Cautions the user that a potentially hazardous situation could occur, causing injury to the user or damage to the instrument if this information is ignored.

⚠ WARNING Warns the user that serious physical injury or death to the user or other persons could result if these precautions are not taken.

⚠ DANGER Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

Using the System Safely

Use this instrument or system as specified by the Applied Biosystems documentation included with the system.

About Material Safety Data Sheets (MSDSs)

Some of the chemicals used with this instrument or system may be listed as hazardous by their manufacturer. When hazards exist, warnings are prominently displayed on the labels of all chemicals.

Chemical manufacturers supply a current MSDS before or with shipments of hazardous chemicals to new customers and with the first shipment of a hazardous chemical after an MSDS update. MSDSs provide you with the information you need to store, handle, transport and dispose of the chemicals safely.

Applied Biosystems strongly recommends that you update the MSDSs in your files each time you receive an MSDS packaged with hazardous chemicals.

⚠ WARNING CHEMICAL HAZARD. Be sure to familiarize yourself with the MSDSs before using reagents or solvents.

Chemical Hazard Warning

⚠ WARNING CHEMICAL HAZARD. Some of the chemicals used with Applied Biosystems instruments are potentially hazardous and can cause injury, illness, or death.

- Read and understand the material safety data sheets (MSDSs) provided by the chemical manufacturer before you store, handle, or work with any chemicals or hazardous materials.
- Minimize contact with and inhalation of chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or clothing). For additional safety guidelines, consult the MSDS.
- Do not leave chemical containers open. Use only with adequate ventilation.
- Check regularly for chemical leaks or spills. If a leak or spill occurs, follow the manufacturer's cleanup procedures as recommended on the MSDS.
- Comply with all local, state/provincial, or national laws and regulations related to chemical storage, handling, and disposal.

Chemical Waste Hazard Warning

⚠ WARNING CHEMICAL WASTE HAZARD. Wastes produced by Applied Biosystems instruments are potentially hazardous and can cause injury, illness, or death.

- Read and understand the material safety data sheets (MSDSs) provided by the chemical manufacturer before you store, handle, or dispose of chemical waste.
- Provide primary and secondary waste containers.
- Handle chemical wastes in a fume hood.
- Minimize contact with and inhalation of chemical waste. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or clothing).
- Dispose of waste contents in accordance with good laboratory practices and local, state/provincial, or national environmental and health regulations.

Electrical Shock and Laser Hazard Warning

⚠ WARNING ELECTRICAL SHOCK AND LASER HAZARD.

Voyager Workstations use a standard nitrogen laser. Voyager-DE™ STR Biospectrometry™ Workstations can also use an optional Nd:YAG laser. Under normal operating conditions, the instrument laser is categorized as a Class I laser, which is not considered to be hazardous. Under certain conditions during servicing, when interlocks have been circumvented, the lasers fall into the following categories (can cause permanent eye damage):

- Nitrogen – Class IIIb
- Nd:YAG – Class IV

The Voyager complies with Title 21, U.S. Government DHEW/BRH Performance Standards, Chapter 1, Subchapter J, Section 1040, as applicable.

- Instrument panels must be installed during operation. When instrument panels are installed, there should be no detectable radiation present. If instrument panels are removed when the laser is operational, you may be exposed to laser emissions in excess of Class I rating.
- The system must be installed by an Applied Biosystems field service engineer.
- Post a laser warning sign if any panels are removed or if the laser is being serviced.
- Do not remove labels or disable safety interlocks.

Biological Hazard Warning

⚠ WARNING BIOHAZARD. Biological samples such as tissues and blood have the potential to transmit infectious diseases. Follow the U.S. Department of Health and Human Services guidelines published in *Biosafety in Microbiological and Biomedical Laboratories* (stock no. 017-040-00547-4) and in Occupational Safety and Health Standards, Toxic and Hazardous Substances (29 CFR §1910.1030) concerning the principles of risk assessment, biological containment, and safe laboratory practices for activities involving clinical specimens. You can obtain additional information by connecting to the government Web site <http://www.cdc.gov>.

Computer Workstation Safety

Correct ergonomic configuration of your workstation can prevent ailments such as fatigue, pain, and strain. To minimize these effects on your body, configure your workstation according to accepted ergonomic guidelines recommended at your company or work site.

Technical Support

Overview You can contact Applied Biosystems for technical support by e-mail, telephone, fax, or through the Internet. You can order Applied Biosystems user documents, MSDSs, certificates of analysis, and other related documents 24 hours a day. In addition, you can download user documents in PDF format from the Applied Biosystems Web site (see “Obtaining Technical Documents” on page 1-13).

By E-Mail You can contact technical support by e-mail for help in the product areas listed below.

Product/Product Area	E-Mail Address
Genetic Analysis (DNA Sequencing)	galab@appliedbiosystems.com
Sequence Detection Systems (Real-Time PCR) and PCR	pcrlab@appliedbiosystems.com
Protein Sequencing, Peptide and DNA Synthesis	corelab@appliedbiosystems.com
<ul style="list-style-type: none"> • Biochromatography (BioCAD[®], SPRINT[™], VISION[™], and INTEGRAL[®] Workstations and POROS[®] Perfusion Chromatography Products) • Expedite[™] 8900 Nucleic Acid Synthesis Systems • PNA Custom and Synthesis • Pioneer[™] Peptide Synthesizers • Proteomics Solution 1[™] (PS1) Systems • ICAT[™] Reagent • FMAT[™] 8100 HTS Systems • Mariner[™] ESI-TOF Mass Spectrometry Workstations • Voyager[™] MALDI-TOF Biospectrometry[™] Workstations • SymBiot[®] I Sample Workstation • CytoFluor[®] 4000 Fluorescence Plate Reader 	tsupport@appliedbiosystems.com
LC/MS (Applied Biosystems/MDS SCIEX)	support@sciex.com
Chemiluminescence (Tropix)	tropix@appliedbiosystems.com

By Telephone or Fax In North America

To contact Applied Biosystems Technical Support in North America, use the telephone or fax numbers in the table below.

Note: To schedule a service call for other support needs, or in case of an emergency, dial **1.800.831.6844**, then press **1**.

Product/Product Area	Telephone	Fax
ABI PRISM® 3700 DNA Analyzer	1.800.831.6844 , then press 8	1.650.638.5981
DNA Synthesis	1.800.831.6844 , press 2 , then press 1	1.650.638.5981
Fluorescent DNA Sequencing	1.800.831.6844 , press 2 , then press 2	1.650.638.5981
Fluorescent Fragment Analysis (including GeneScan® applications)	1.800.831.6844 , press 2 , then press 3	1.650.638.5981
Integrated Thermal Cyclers (ABI PRISM® 877 and Catalyst 800 instruments)	1.800.831.6844 , press 2 , then press 4	1.650.638.5981
ABI PRISM® 3100 Genetic Analyzer	1.800.831.6844 , press 2 , then press 6	1.650.638.5981
Peptide Synthesis (433 and 43x Systems)	1.800.831.6844 , press 3 , then press 1	1.650.638.5981
Protein Sequencing (Procise® Protein Sequencing Systems)	1.800.831.6844 , press 3 , then press 2	1.650.638.5981
Sequence Detection Systems (Real-Time PCR) and PCR	1.800.762.4001 , then press: 1 for PCR 2 for TaqMan® applications and Sequence Detection Systems including ABI Prism® 7700, 7900, and 5700 6 for the 6700 Automated Sample Prep System and the 6100 Nucleic Acid Prepstation or 1.800.831.6844 , then press 5	1.240.453.4613

Product/Product Area	Telephone	Fax
<ul style="list-style-type: none"> • Voyager™ MALDI-TOF Biospectrometry™ Workstations • Mariner™ ESI-TOF Mass Spectrometry Workstations • Proteomics Solution 1™ (PS1) Systems • SymBiot® I Sample Workstations • ICAT™ Reagent 	1.800.899.5858 , press 1 , then press 3 [†]	1.508.383.7855
Biochromatography (BioCAD®, SPRINT™, VISION™, and INTEGRAL® Workstations and POROS® Perfusion Chromatography Products)	1.800.899.5858 , press 1 , then press 4 [†]	1.508.383.7855
Expedite™ 8900 Nucleic Acid Synthesis Systems	1.800.899.5858 , press 1 , then press 5 [†]	1.508.383.7855
Pioneer™ Peptide Synthesizers	1.800.899.5858 , press 1 , then press 5 [†]	1.508.383.7855
PNA Custom and Synthesis	1.800.899.5858 , press 1 , then press 5 [†]	1.508.383.7855
<ul style="list-style-type: none"> • FMAT™ 8100 HTS Systems • CytoFluor® 4000 Fluorescence Plate Reader 	1.800.899.5858 , press 1 , then press 6 [†]	1.508.383.7855
Chemiluminescence (Tropix)	1.800.542.2369 (U.S. only), or 1.781.271.0045 [‡]	1.781.275.8581
LC/MS (Applied Biosystems/MDS SCIEX)	1.800.952.4716	1.508.383.7899

* 5:30 A.M. to 5:00 P.M. Pacific time.

† 8:00 A.M. to 6:00 P.M. Eastern time.

‡ 9:00 A.M. to 5:00 P.M. Eastern time.

Outside North America

To contact Applied Biosystems Technical Support or Field Service outside North America, use the telephone or fax numbers below.

Region	Telephone	Fax
Eastern Asia, China, Oceania		
Australia (Scoresby, Victoria)	61 3 9730 8600	61 3 9730 8799
China (Beijing)	86 10 64106608 or 86 800 8100497	86 10 64106617
Hong Kong	852 2756 6928	852 2756 6968
Korea (Seoul)	82 2 5936470/6471	82 2 5936472
Malaysia (Petaling Jaya)	60 3 79588268	603 79549043
Singapore	65 896 2168	65 896 2147
Taiwan (Taipei Hsien)	886 2 2358 2838	886 2 2358 2839
Thailand (Bangkok)	66 2 719 6405	662 319 9788
Europe		
Austria (Wien)	43 (0)1 867 35 75 00	43 (0)1 867 35 75 11
Belgium	32 (0)2 532 4484	32 (0)2 582 1886
Denmark (Naerum)	45 45 58 60 00	45 45 58 60 01
Finland (Espoo)	358 (0)9 251 24 250	358 (0)9 251 24 243
France (Paris)	33 (0)1 69 59 85 85	33 (0)1 69 59 85 00
Germany (Weiterstadt)	49 (0) 6150 101 0	49 (0) 6150 101 101
Italy (Milano)	39 (0)39 83891	39 (0)39 838 9492
Norway (Oslo)	47 23 12 06 05	47 23 12 05 75
Portugal (Lisboa)	351.(0)22.605.33.14	351.(0)22.605.33.15
Spain (Tres Cantos)	34.(0)91.806.1210	34.(0)91.806.12.06

Region	Telephone	Fax
Sweden (Stockholm)	46 (0)8 619 4400	46 (0)8 619 4401
Switzerland (Rotkreuz)	41 (0)41 799 7777	41 (0)41 790 0676
The Netherlands (Nieuwerkerk a/d IJssel)	31 (0)180 392400	31 (0)180 392409 or 31 (0)180 392499
United Kingdom (Warrington, Cheshire)	44 (0)1925 825650	44 (0)1925 282502
European Managed Territories (EMT)		
Africa, English speaking (Johannesburg, South Africa)	27 11 478 0411	27 11 478 0349
Africa, French speaking (Paris, France)	33 1 69 59 85 11	33 1 69 59 85 00
India (New Delhi)	91 11 653 3743 91 11 653 3744	91 11 653 3138
Poland, Lithuania, Latvia, and Estonia (Warszawa)	48 22 866 4010	48 22 866 4020
For all other EMT countries not listed (Central and southeast Europe, CIS, Middle East, and West Asia)	44 1925 282481	44 1925 282509
Japan		
Japan (Hacchobori, ChuoKu, Tokyo)	81 3 5566 6230	81 3 5566 6507
Latin America		
Caribbean countries, Mexico, and Central America	52 55 35 3610	52 55 66 2308
Brazil	0 800 704 9004 or 55 11 5070 9654	55 11 5070 9694/95
Argentina	800 666 0096	55 11 5070 9694/95
Chile	1230 020 9102	55 11 5070 9694/95
Uruguay	0004 055 654	55 11 5070 9694/95

Through the Web Site

At the Applied Biosystems web site, you can search through frequently asked questions (FAQs) or a solution database, or you can submit a question directly to Technical Support.

Search FAQs

To search for FAQs:

1. Go to **www.appliedbiosystems.com**.
2. Click **Services & Support** at the top of the page, then click **Frequently Asked Questions**. The Frequently Asked Questions page opens.
3. Click your geographic region for the product area of interest.
4. Follow the instructions under the Frequently Asked Questions section (1) to display a list of FAQs for your area of interest.

Search the Solution Database

To search for solutions to problems using the Solution Database:

1. Perform steps 1 and 2 above.
2. Follow the instructions under the Search The Solution Database section (2) to find a solution to your problem.

Submit a Question

To submit a question directly to Technical Support:

1. Perform steps 1 and 2 as described above in the Search FAQs section.
2. In the Personal Assistance – E-Mail Support section (3), click **Ask Us RIGHT NOW**.
3. In the displayed form, enter the requested information and your question, then click **Ask Us RIGHT NOW**.

Within 24 to 48 hours, you will receive an e-mail reply to your question from an Applied Biosystems technical expert.

Obtaining Technical Documents

Overview

You can obtain technical documents, such as Applied Biosystems user documents, MSDSs, certificates of analysis, and other related documents for free, 24 hours a day. You can obtain documents:

- By telephone
- Through the Applied Biosystems Technical Support web site

Ordering Documents by Telephone



To order documents by telephone:

1. From the U.S. or Canada, dial **1.800.487.6809**, or from outside the U.S. and Canada, dial **1.858.712.0317**.
2. Follow the voice instructions to order documents (for delivery by fax).

Note: There is a limit of five documents per fax request.

Obtaining Documents Through the Web Site

To view, download, or order documents through the Applied Biosystems web site:

1. Access the Applied Biosystems Technical Support web site at **www.appliedbiosystems.com**.
2. Click **Services & Support** at the top of the page, then click **Documents on Demand**.
3. In the search form, enter or select search criteria, then click **Search at the bottom of the page**.
4. In the results screen, do any of the following:
 - Click  to view a PDF version of the document.
 - Right-click , then select **Save Target As** to download a copy of the PDF file.
 - Select the **Fax** check box, then click **Deliver Selected Documents Now** to have the document faxed to you.
 - Select the **Email** check box, then click **Deliver Selected Documents Now** to have the document (PDF format) e-mailed to you.

Note: There is a limit of five documents per fax request, but no limit on the number of documents per e-mail request.

**Obtaining
Customer
Training
Information**

To obtain Applied Biosystems training information, go to **www.appliedbiosystems.com**, click **Services & Support** at the top of the screen, then click **Training**.

**Contacting
Technical
Publications**

Applied Biosystems welcomes your comments and suggestions for improving our manuals. You can send us your comments by sending an e-mail to:

TechPubs@appliedbiosystems.com

Preparing the Site

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Site Preparation Tasks

The following table summarizes the site preparation tasks and suggested task assignments.

Person	Responsibilities*
Installation Coordinator	<ol style="list-style-type: none"> 1. Reviews the <i>Site Preparation and Safety Guide</i>. 2. Orders materials. 3. Chooses the site. 4. Ensures that the site is properly prepared. 5. Equips the site. 6. Reviews checklists with your personnel, then with the Applied Biosystems service representative.
Laboratory Safety Representative	Ensure that required safety practices and equipment are in place.
Facilities Personnel	<ol style="list-style-type: none"> 1. Verifies that electrical requirements are met. 2. Verifies that adequate space is available for the system. 3. Verifies that environmental requirements are met. 4. Ensures that ventilation is adequate for pump exhaust waste and system heat production.
Network or IT Specialist (if your system will be connected to the network)	<ol style="list-style-type: none"> 1. Ensures that one active, tested LAN connection is in place before the scheduled installation date. 2. Ensures that network hardware is compatible with an RJ45-type connector. 3. Supplies standard RJ45 cables for network connection.
Laboratory Personnel	Reviews safety information.

* A scheduled installation can be postponed if site preparation tasks are not complete when the Applied Biosystems field service engineer arrives.

Choosing a Location

When deciding where to install the instrument, keep in mind that you must:

- Be able to disconnect the main power supply to the instrument immediately if necessary.
- Be able to comply with local, state/provincial, or national air quality regulations while venting the exhaust from this instrument.
- Avoid placing the instruments adjacent to heaters or cooling ducts or in direct sunlight.

External Magnetic Field Effects

Magnetic fields of less than 500 milliGauss do not affect the operation or performance of the Voyager Workstation.

Safety Requirements

Required Safety Practices and Equipment

Your laboratory must have specific safety practices and policies designed to protect laboratory personnel from potential hazards. Applicable safety procedures must be followed at all times.

A safety representative from your facility must ensure that the following safety equipment is available at the installation site:

- Fire extinguisher (Halon)
- Eyewash
- Safety shower
- Safety glasses and lab coats
- Chemical-resistant disposable gloves
- Biohazard waste container
- First-aid equipment
- Spill cleanup equipment
- Protection from any sources of hazardous chemicals, radiation (lasers, radioisotopes, radioactive wastes, and so on) and potentially infectious biological material that may be present in the area where the Applied Biosystems field service engineer will be working.

Space Requirements

Dimensions and Weights The dimensions and weights of the components of your system are listed below.

Component	Width	Depth	Height	Weight
Voyager-DE mass spectrometer	25 inches (64 cm)	27 inches (69 cm)	61 inches (2 m)	363 pounds (165 kg)
Voyager-DE PRO mass spectrometer	25 inches (64 cm)	27 inches (69 cm)	65 inches (2 m)	490 pounds (223 kg)
Voyager-STR mass spectrometer	94 inches (239 cm)	32 inches (82 cm)	46 inches (117 cm)	1,107 pounds (503 kg)
Voyager video monitor (all models)	14.2 inches (36.1 cm)	16 inches (41 cm)	13.2 inches (34 cm)	35 pounds (16 kg)
Voyager computer (all models)	16.2 inches (41 cm)	18 inches (46 cm)	6 inches (15 cm)	40 pounds (18 kg)
Voyager computer monitor (all models)	19.2 inches (49 cm)	19.2 inches (49 cm)	19 inches (48 cm)	46 pounds (21 kg)
Voyager keyboard (all models)	18 inches (46 cm)	6.7 inches (17 cm)	2 inches (5 cm)	3 pounds (1.4 kg)
YAG laser bench (optional for STR model)	32 inches (82 cm)	20 inches (52 cm)	42 inches (107 cm)	254 pounds (115.2 kg)

Component Clearances and Locations

When setting up your laboratory for the Voyager Workstation, ensure the following requirements are met:

Requirement	Details
Clearance on all sides	<p>12-inch (31 cm) clearance for ventilation, service access, and cable routing.</p> <p>The Voyager-DE STR Workstation is constructed on a rolling base. For service, you must have enough space to pull the workstation forward 24 inches (61 cm) to allow access at the rear of the workstation.</p>
Additional clearance at back for optional YAG laser bench (Voyager-DE™ STR Biospectrometry™ Workstation)	18-inch (46 cm) clearance
Vertical clearance (Voyager-DE™ Biospectrometry™ Workstation and Voyager-DE™ PRO Biospectrometry™ Workstation)	At least 12 inches (31 cm) of unobstructed vertical clearance above the top of the Voyager mass spectrometer to lift the flight tube if service is needed.
Voyager Workstation computer location	<p>Within 5 feet (2 m) of the Voyager mass spectrometer.</p> <p>On STR models, the computer is located inside the mass spectrometer bench.</p> <p>Position the computer monitor and keyboard to allow for proper ergonomics during use.</p> <p>On STR models, place the computer monitor on the STR upper shelf and the keyboard on the STR benchtop (see Figure 2-4 on page 2-8).</p>
Video monitor location	<p>Next to the Voyager Workstation computer and within 4 feet (1 m) of the Voyager mass spectrometer.</p> <p>On STR models, place the video monitor on the STR upper shelf (see Figure 2-4 on page 2-8).</p>
Exhaust outlet location (Voyager-DE™ Biospectrometry™ Workstation Voyager-DE™ PRO Biospectrometry™ Workstation)	If you optionally vent the system (for example, in a clean-room environment), the mechanical pump exhaust outlet on the Voyager mass spectrometer is within 15 feet (4.6 m) of an appropriate chemical vent, fume hood, duct system, or organic trap.
Laboratory benches	Laboratory benches have the weight-bearing capacity and dimensions to accommodate the system components (see “Dimensions and Weights” on page 2-5).

System Layouts System layouts vary according to the Voyager Workstation model that will be installed.

Voyager-DE™ PRO Biospectrometry™ Workstation

Figure 2-1 shows a Voyager-DE™ PRO Biospectrometry™ Workstation. Figure 2-2 illustrates a typical layout for a Voyager-DE™ PRO Biospectrometry™ Workstation.

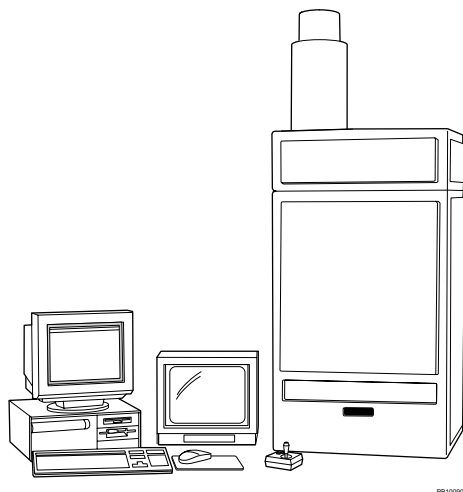


Figure 2-1 Voyager-DE™ Biospectrometry™ Workstation

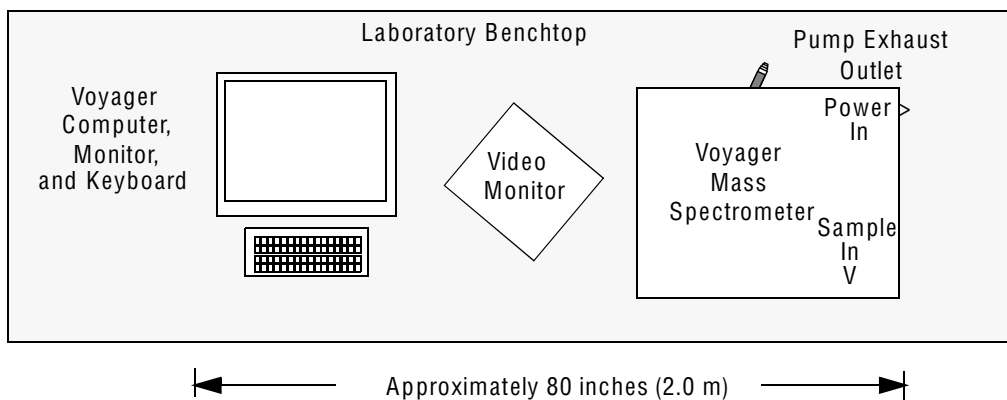


Figure 2-2 Typical Layout – Voyager-DE PRO Models

Voyager-DE™ STR Biospectrometry™ Workstation

Figure 2-3 shows a Voyager-DE™ STR Biospectrometry™ Workstation. Figure 2-4 illustrates a typical layout for a Voyager-DE™ STR Biospectrometry™ Workstation.

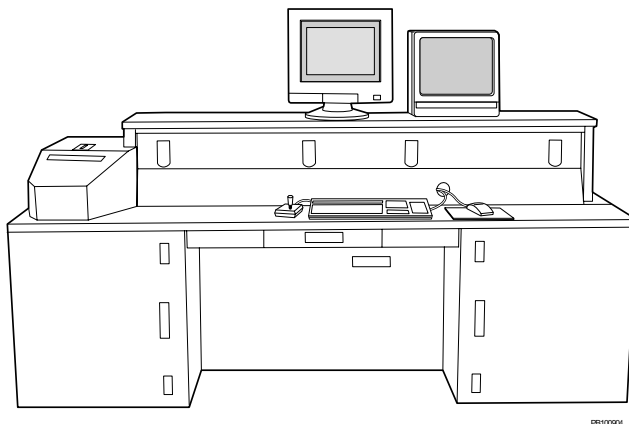


Figure 2-3 Voyager-DE™ STR Biospectrometry™ Workstation

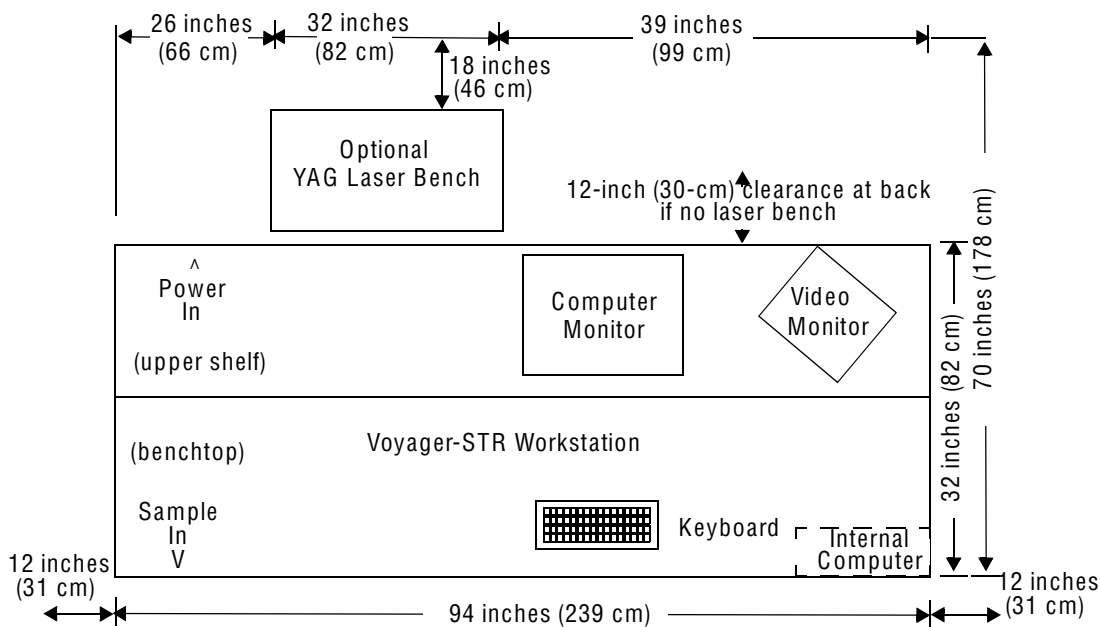


Figure 2-4 Typical Layout – Voyager-DE™ STR Biospectrometry™ Workstation

Waste and Ventilation Requirements

Voyager Workstation Pump Exhaust Waste

The Voyager-DE™ Biospectrometry™ Workstation and Voyager-DE™ PRO Biospectrometry™ Workstation include an outlet for pump exhaust to vent the system in a clean room environment, if needed.

Follow these guidelines when making the tubing connection from the Voyager mass spectrometer mechanical pump exhaust outlet to your ventilation system:

- Use the shortest, straightest possible length of braided clear plastic PVC tubing (1/2-inch ID × 3/4-inch OD, 1/8-inch wall thickness).
- Prevent low points that can trap residue or condensation.
- Place the tubing away from sources of potential damage, such as heat, flame, or points of contact with other objects.

Heat Production

Your laboratory ventilation system must be able to handle the maximum thermal output (the output for all components of the system) listed below. Consult your facilities department regarding ventilation requirements for this level of heat production.

Model	Input Voltage (VAC)	Thermal Output (BTU/h, ±10%)
Voyager-DE™ Biospectrometry™ Workstation and Voyager-DE™ PRO Biospectrometry™ Workstation	100	3,073–3,755
	120	3,687–4,507
	220	4,259–5,205
	240	3,687–4,507
Voyager-DE™ STR Biospectrometry™ Workstation	100	6,145–7,511
	120	7,374–9,013
	220	6,760–8,262
	240	7,374–9,013

Environmental Requirements and Emissions Statement

Altitude This system is designed for indoor use only and for altitudes not exceeding 2,000 m (6,500 feet) above sea level.

Temperature and Humidity The laboratory temperature should be maintained between 20 °C to 28 °C (68 °F to 82.4 °F), with a maximum change in temperature of 2 °C to 5 °C (3.6 °F to 9 °F) per hour.

Humidity should not exceed 90% Rh, noncondensing.

Avoid placing the instruments adjacent to heaters or cooling ducts, or in direct sunlight.

Overvoltage and Pollution Ratings This system has an installation category (overvoltage category) of II, and is classified as portable equipment. The system has a pollution degree rating of 2 and may be installed in an environment that has nonconductive pollutants only.

Emission/ Immunity Statement Products marked with the CE label meet the European EMC Directive 89/336/EEC and the Low Voltage Directive 72/23/EEC. The Voyager Workstation meets Class B emission limits.



Electrical Requirements

Disconnecting Power **IMPORTANT:** In case of emergency, you must be able to immediately disconnect the main power supply to each instrument.

Power Receptacles Required power receptacles are listed below.

Model	Thermal Output
Voyager-DE™ Biospectrometry™ Workstation	Includes standard 15-A power connector. Can use 15-A or 20-A wall receptacle.
Voyager-DE™ PRO Biospectrometry™ Workstation	
Voyager-DE™ STR Biospectrometry™ Workstation	Includes NEMA 5-20P power connectors. North American customers – Require NEMA 5-20R electrical receptacles (standard 20-A wall receptacles) with proper grounding. Do not use extension cords. International customers – Unit will be adapted to local power supply during installation.

Electric Shock Warning **⚠ WARNING ELECTRICAL SHOCK HAZARD.** Severe electrical shock, which could cause physical injury or death, can result from servicing an instrument when electrical power is present. To avoid electrical shock, disconnect power to the instrument, unplug the power cord, and wait at least 1 minute before working on the instrument.

Electrical Specifications

The following tables provide electrical specifications for the Voyager Workstation mass spectrometers and video monitor.

Table 2-1 Electrical Specifications – Voyager-DE™ Biospectrometry™ Workstation and Voyager-DE™ PRO Biospectrometry™ Workstation (Includes Video Monitor)

Input Voltage (VAC)	Voltage tolerance (±10%)	Current Draw (Amps)	Power (Watts) (±10%)	BTU/h (±10%)
100	90–110	10.00	900–1,100	3,073–3,755
120	108–132	10.00	1,080–1,320	3,687–4,507
220	198–242	6.30	1,247–1,525	4,259–5,205
240	216–264	5.00	1,080–1,320	3,687–4,507

Table 2-2 Electrical Specifications – Voyager-DE™ STR Biospectrometry™ Workstation (Includes Video Monitor)

Input Voltage (VAC)	Voltage tolerance (±10%)	Current Draw (Amps)	Power (Watts) (±10%)	BTU/h (±10%)
100	90–110	20.00	18,00–2,200	6,145–7,511
120	108–132	20.00	2,160–2,640	7,374–9,013
220	198–242	10.00	1,980–2,420	6,760–8,262
240	216–264	10.00	2,160–2,640	7,374–9,013

Table 2-3 Electrical Specifications – Other Components

Equipment	Input Voltage Range (VAC)	Frequency (Hz)	Maximum Power (Watts)
Voyager video monitor	115–230	60/50	180
Voyager computer	115–230	60/50	690
Voyager computer monitor	115–230	60/50	240

Networking Requirements

Network Specialist If your system will be connected to your network, a qualified network or IT specialist or administrator must be available during installation. The Applied Biosystems field service engineer is not responsible for connecting the system components to the network.

⚠ CAUTION Do *not* attempt to connect the system components to the network before the Applied Biosystems field service engineer arrives.

Operating System and Network Protocol The computers provided by Applied Biosystems include the Microsoft Windows NT[®] operating system version 4.0 with Service Pack 5. They are configured for the TCP/IP network protocol, and include Microsoft[®] Internet Explorer 5. Do not install additional software on these computers. Changes to the configured software could void the instrument warranty and cause the system to be nonoperational.

LAN Connections If your Voyager Workstation will be connected to your network, one active, tested LAN connection must be in place before the scheduled installation date. Cabling must support 10-BASE-T, 100-BASE-T, or 1 GHz operation and include RJ45-type connectors.

Factory-Supplied Hardware The Voyager Workstation computer includes a factory-installed 3COM[®] Fast Etherlink[®] XL NIC 3C905B-TX adapter, with an RJ45-type connector. The computer is factory configured for the TCP/IP protocol.

Preparing for Installation

This chapter includes the following sections:

Installation Tasks	3-2
Materials You Provide for Installation	3-4
Ordering Supplies and Consumables for Routine Operation	3-5
Scheduling Installation	3-5
Receiving and Inspecting the System	3-6
Unpacking and Storing the Standards Kits	3-6
Moving the Crated Instrument to the Laboratory	3-7
What Happens During Installation?	3-8

Installation Tasks

The following table summarizes the pre-installation and installation tasks and suggested task assignments.

Person	Responsibilities*
Installation Coordinator	<ol style="list-style-type: none"> 1. Coordinates personnel. 2. Verifies that the required materials are available. 3. Verifies that the location in which the system is to be installed is clear of unnecessary materials. 4. Schedules installation and informs appropriate personnel of the installation schedule. 5. Receives and inspects the system, and stores the Standards Kits. 6. Reviews the site with the field service engineer to ensure site preparation is complete. 7. Is available throughout installation.
Laboratory Safety Representative	Is present throughout installation.
Facilities Personnel	<ol style="list-style-type: none"> 1. Verify building clearances are sufficient to handle crate dimensions. 2. If possible, move the crated system to the site. 3. Are available throughout installation (see page 3-3 for the number of people needed to help the field service engineer move and position the system.)
Network or IT Specialist (if your system will be connected to the network)	Is available to connect the system to the network.
Laboratory Personnel	Primary users who will be responsible for training other users are available for approximately one-half day of training after the system is pumped down.

* A scheduled installation can be postponed if site preparation tasks are not complete when the field service engineer arrives.

**Personnel
Needed to Move
the System**

If hydraulic lifting equipment is available, you must provide one person to help the field service engineer lift and position the instruments.

If hydraulic lifting equipment is not available, you must provide the following number of people to help the field service engineer lift and position the instruments:

Model	Number of People Needed
Voyager-DE™ Biospectrometry™ Workstation	3
Voyager-DE™ PRO Biospectrometry™ Workstation	3
Voyager-DE™ STR Biospectrometry™ Workstation	2

Materials You Provide for Installation

- Chemicals and Supplies** You must provide the following materials for the installation:
- Safety glasses and lab coats
 - Chemical-resistant disposable gloves
 - Lint-free tissues
 - Methanol
 - Acetonitrile
 - HPLC-grade water
 - Glassware washing soap
 - Two micropipettors and tips:
 - 10 to 100 μ l
 - 0.1 to 1.0 μ l
 - Mini vortexer
- Network Cables** If your system is to be connected to your network, you must supply standard RJ45 cables.
- Pump Exhaust Tubing** If your system is to be optionally connected to the pump exhaust outlet, you must provide braided clear plastic PVC tubing (1/2-inch ID \times 3/4-inch OD, 1/8-inch wall thickness). Use the shortest, straightest possible length.
- Printer** The Voyager Workstation can be connected to a network printer or a dedicated printer.
- Gas Supply (CID Option)** If your system includes the CID (collision-induced dissociation) option, you can use room air for the collision gas, or you can use either of the following:
- Room air at ambient pressure
 - Collision gas – Compressed air, helium, argon, or xenon with:
 - Appropriate regulator (2 to 5 psi)
 - Gas connection compatible with the 1/8-inch Swagelock gas supply inlet on the Voyager mass spectrometer

⚠ WARNING EXPLOSION HAZARD. Pressurized gas cylinders are potentially explosive. Always cap the gas cylinder when it is not in use and attach it firmly to the wall or gas cylinder cart with approved brackets or chains.

⚠ CAUTION CHEMICAL HAZARD. Argon is a nonflammable high-pressure gas. Released argon gas reduces the oxygen available for breathing. Please read the MSDS, and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

Ordering Supplies and Consumables for Routine Operation

Before the system is installed, contact your Applied Biosystems sales representative to order the additional supplies and consumables necessary for routine operation of the Voyager Workstation.

Scheduling Installation

Before scheduling the installation, complete the site preparation checklists that start on page 4-1 of this guide.

An Applied Biosystems service representative will contact you to:

- Confirm that all checklists are complete before scheduling the installation date
- Review the order and ensure that all components and options have been considered in the site preparation

Receiving and Inspecting the System

- Shipping List** The following Voyager-DE™ Biospectrometry™ Workstation components are shipped to your site:
- Voyager-DE™, Voyager-DE PRO, or Voyager-DE STR Biospectrometry™ Workstation (includes mass spectrometer and video monitor, computer, computer monitor, keyboard, and accessories)
 - The following Test Standard Kits:
 - Sequazyme™ Peptide Mass Standards Kit
 - Sequazyme™ IgG1 Mass Standard Kit
 - Sequazyme™ BSA Test Standard Kit

Do Not Unpack Boxes or Crates Except for the Standards Kits, do *not* unpack Voyager Workstation or computer boxes. This protects you from liability if any damage occurred during shipping.

Inspecting Crates for Damage Carefully inspect the boxes and report any damage to your Applied Biosystems service representative. Also, contact Applied Biosystems if the tip indicators or shock indicators on the crates show evidence that the shipment was mishandled during transit.

Unpacking and Storing the Standards Kits

The Sequazyme™ Peptide Mass Standards Kit, the Sequazyme™ IgG1 Mass Standard Kit, and the Sequazyme™ BSA Test Standard Kit are boxed separately from the instrument components. When you receive your shipment, immediately unpack the Standards Kits. Store the components as specified in the operating instructions included with each kit.

⚠ WARNING CHEMICAL HAZARD. Some chemicals used with Applied Biosystems instruments are hazardous and can cause injury, illness, or death. Hazardous Chemical Warnings are prominently displayed on the labels of all hazardous materials.

Moving the Crated Instrument to the Laboratory

⚠ WARNING PHYSICAL INJURY HAZARD. Do not attempt to lift or move any boxed or crated items unless you have received related training. Incorrect lifting can cause painful and sometimes permanent back injury. Use proper lifting techniques when lifting or moving the instruments. The number of people required to move or lift the Voyager Workstation depends on the weight of the instrument.

Shipping Crate Size

Before moving the Voyager Workstation crate to your laboratory, ensure that there are sufficient building clearances to handle the crate dimensions listed below.

Model	Crate Dimensions
Voyager-DE™ Biospectrometry™ Workstation	Width – 34 inches (86 cm) Depth – 37 inches (94 cm)
Voyager-DE™ PRO Biospectrometry™ Workstation	Height – 76 inches (190 cm)
Voyager-DE™ STR Biospectrometry™ Workstation	Width – 104 inches (264 cm) Depth – 42 inches (107 cm) Height – 61 inches (155 cm)

If the crate dimensions exceed building clearances, contact your Applied Biosystems field service engineer. Do not unpack crates without authorization.

STR Shipping Crate Requirements

Do not tip the Voyager-DE™ STR Biospectrometry™ Workstation shipping crate on end. Tipping can damage the mass spectrometer hardware and electronics.

Moving Schedule

Move the crated equipment from the shipping area to the laboratory *before* the Applied Biosystems field service engineer arrives.

Do *not* unpack the crates. The Applied Biosystems field service engineer is responsible for unpacking and inspecting the equipment.

Clearing the Location

Before the field service engineer arrives, make sure the location in which the system is to be installed is cleared of all unnecessary materials.

What Happens During Installation?

After the system is uncrated (with assistance from people in your facility), it will take several hours for the field service engineer to set up the system and begin pumping down the mass spectrometer. It is not necessary for your lab personnel to be present at the installation site during this time.

While the mass spectrometer is pumping down, it must be left undisturbed to allow it to reach proper operating vacuum pressure.

When the mass spectrometer reaches proper operating vacuum pressure, the service engineer will return to perform installation qualification tests.

The service engineer will then review the test data with you and provide some basic operator training.

Site Preparation Checklists

This chapter provides the following checklists:

Laboratory Facility Requirements	4-2
Receipt of Shipment	4-3
Moving the Equipment	4-4
Personnel Requirements	4-5
Materials You Supply	4-6

Use the following site preparation checklists to ensure that you have made all preparations for installing your instrument, and that the appropriate personnel will be available for the installation. All checklists must be complete before the installation date.

Laboratory Facility Requirements

Check off each item as you verify that the laboratory meets the following requirements.

√	Date Confirmed	Requirement
Instrument Location		
		Sufficient laboratory space is available to accommodate the system components and instrument ventilation clearances. See "Space Requirements" on page 2-5.
		Instruments are positioned so that all sides are accessible to the field service engineer. See "Space Requirements" on page 2-5.
		Each laboratory bench has the weight-bearing capacity to accommodate the system components. See "Dimensions and Weights" on page 2-5.
		The workspace for computers allows for proper ergonomics during use.
Safety		
		All requirements specified in "Safety Requirements" on page 2-4 are met.
Ventilation and Waste		
		Room ventilation can accommodate the heat output indicated in "Heat Production" on page 2-9.
		If your system is to be vented, the requirements listed in "Waste and Ventilation Requirements" on page 2-9 are met.
Electrical		
		A disconnect from the main power supply to each instrument is provided.
		Required power receptacles are in place (see page 2-11).
		All requirements specified in "Electrical Requirements" on page 2-11 are met.

√	Date Confirmed	Requirement
Networking		
		If your system will be connected to your network, one active, tested LAN connection is available before the scheduled installation date.
		A network printer or a dedicated printer is available.
		If your system will be connected to your network, network hardware is 10-BASE-T or 100-BASE-T with RJ45-type connectors.

Receipt of Shipment

Check off the items below after completing the steps in the Action column.

√	Date Confirmed	Action
		Received the system and inspected the crates and boxes. IMPORTANT: Except for the Sequazyme™ Peptide Mass Standards Kit, the Sequazyme™ IgG1 Mass Standard Kit, and the Sequazyme™ BSA Test Standard Kit, do not open any crates or boxes.
		Opened and stored the Sequazyme™ Peptide Mass Standards Kit, the Sequazyme™ IgG1 Mass Standard Kit, and the Sequazyme™ BSA Test Standard Kit as specified in the kit operating instructions.
		Verified that instruments listed on the packing list are the same as ordered.
		Reported to your Applied Biosystems service representative any damage to the crates or boxes, discrepancies in the packing list, or evidence from the tip indicators or shock indicators of mishandling that occurred during transit.
		Read all sections of this <i>Site Preparation and Safety Guide</i> .

Moving the Equipment

Confirm that the following requirements are met before installation.

✓	Date Confirmed	Item
		Verified building clearances are sufficient to handle the Voyager Workstation crate dimensions (see "Shipping Crate Size" on page 3-7). If the crate dimensions exceed building clearances, contact your Applied Biosystems field service engineer. Do not unpack crates without authorization.
		Moved the crated equipment to the laboratory before the Applied Biosystems field service engineer arrives. ⚠ WARNING PHYSICAL INJURY HAZARD. Do not attempt to lift or move any crates unless you have received related training. Incorrect lifting can cause painful and sometimes permanent back injury. Use proper lifting techniques when lifting or moving the instruments.

Personnel Requirements

Check off the items below after confirming that the following personnel are available for site preparation and installation.

√	Date Confirmed	Action
		<p>Laboratory safety representative: Designated the laboratory safety representative. This person is familiar with laboratory safety procedures, knows the location of all safety equipment, and must be available to the Applied Biosystems field service engineer while the engineer is at your facility.</p>
		<p>Facilities personnel: Identified person who can provide electrical requirements, temperature and humidity control, and ventilation needs.</p>
		<p>Network or IT specialist: If your system will be connected to your network, designated a network or IT specialist.</p>
		<p>Laboratory personnel: Designated primary users who will be responsible for training other users for in-lab training.</p> <p>Plan on one-half day of training on basic Voyager Workstation operation immediately after the installation.</p>
		<p>Other personnel: Designated the required number of people to help the field service engineer lift and position the instruments (see "Personnel Needed to Move the System" on page 3-3).</p>

Materials You Supply

You must supply the following materials for installation. Check off each item as you verify its availability.

√	Date Confirmed	Item
		Safety glasses and lab coats
		Chemical-resistant disposable gloves
		Lint-free tissues
		Methanol
		Acetonitrile
		HPLC-grade water
		Glassware washing soap
		Two micropipettors and tips: <ul style="list-style-type: none"> • 10 to 100 µl • 0.1 to 1.0 µl
		Mini vortexer
		If your system is to be connected to your network – Standard RJ45 cables.
		If your system includes the CID option – Gas supply (see “Gas Supply (CID Option)” on page 3-4 for specifications).
		If your system is to be connected to the pump exhaust outlet – Braided clear plastic PVC tubing (1/2-inch ID × 3/4-inch OD, 1/8-inch wall thickness); shortest, straightest possible length.

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