

Customer Start-Up Guide

Biomek NX^P

Laboratory Automation Workstation



B32334AB
March 2015



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Biomek NXP Customer Start-Up Guide

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Note: Changes that are part of the most recent revision are indicated in text by a bar in the margin of the amended page.

This document applies to the latest software listed and higher versions. When a subsequent software version affects the information in this document, a new issue will be released to the Beckman Coulter website. For labeling updates, go to www.beckmancoulter.com and download the latest version of the manual or system help for your instrument.

Safety Notice

Overview

Read all product manuals and consult with Beckman Coulter-trained personnel before attempting to operate the instrument. Do not attempt to perform any procedure before carefully reading all instructions. Always follow product labeling and manufacturer's recommendations. If in doubt as to how to proceed in any situation, contact your Beckman Coulter Representative.

Beckman Coulter, Inc. urges its customers and employees to comply with all national health and safety standards such as the use of barrier protection. This may include, but is not limited to, protective eyewear, gloves, and suitable laboratory attire when operating or maintaining this or any other automated laboratory instrumentation.



If the equipment is used in a manner not specified by Beckman Coulter, Inc., the protection provided by the equipment may be impaired.

Alerts for Warning, Caution, Important, and Note

All Warnings and Cautions in this document include an exclamation point, framed within a triangle.

The exclamation point symbol is an international symbol which serves as a reminder that all safety instructions should be read and understood before installation, use, maintenance, and servicing are attempted.



WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

IMPORTANT IMPORTANT is used for comments that add value to the step or procedure being performed. Following the advice in the Important adds benefit to the performance of a piece of equipment or to a process.

NOTE NOTE is used to call attention to notable information that should be followed during installation, use, or servicing of this equipment.

Instrument Safety Precautions

WARNING

Risk of operator injury if:

- All doors, covers and panels are not closed and secured in place prior to and during instrument operation.
- The integrity of safety interlocks and sensors is compromised.
- You contact moving parts.
- You mishandle broken parts.
- Doors, covers and panels are not opened, closed, removed and/or replaced with care.
- Improper tools are used for troubleshooting.

To avoid injury:

- Keep doors, covers and panels closed and secured in place while the instrument is in use.
- Take full advantage of the safety features of the instrument. Do not defeat safety interlocks and sensors.
- Acknowledge and act upon instrument alarms and error messages.
- Keep away from moving parts.
- Report any broken parts to your Beckman Coulter Representative.
- Use the proper tools when troubleshooting.

CAUTION

System integrity could be compromised and operational failures could occur if:

- This equipment is used in a manner other than specified. Operate the instrument as instructed in the Product Manuals.
- You introduce software that is not authorized by Beckman Coulter into your computer. Operate your system's computer only with software authorized by Beckman Coulter.
- You install software that is not an original copyrighted version. Use only software that is an original copyrighted version to prevent virus contamination.

 CAUTION

If you purchased this product from anyone other than Beckman Coulter or an authorized Beckman Coulter distributor, and, if it is not presently under a Beckman Coulter Service Maintenance Agreement, Beckman Coulter cannot guarantee that the product is fitted with the most current mandatory engineering revisions or that you will receive the most current information bulletins concerning the product. If you purchased this product from a third party and would like further information concerning this topic, contact your Beckman Coulter Representative.

Electrical Safety

To prevent electrically related injuries and property damage, properly inspect all electrical equipment prior to use and immediately report any electrical deficiencies. Contact a Beckman Coulter Representative for any servicing of equipment requiring the removal of covers or panels.

High Voltage



This symbol indicates the potential of an electrical shock hazard existing from a high-voltage source and that all safety instructions should be read and understood before proceeding with the installation, maintenance, and servicing of all modules.

Do not remove system covers. To avoid electrical shock, use supplied power cords only and connect to properly grounded (three-holed) outlets.

Laser Light



This symbol indicates that a potential hazard to personal safety exists from a laser source. When this symbol is displayed in this manual, pay special attention to the specific safety information associated with the symbol.

Laser Specifications

- **Laser Type:** Class II Laser Diode
- **Maximum Output:** 11 mW
- **Wavelength:** 670 nm

Disposal of Electronic Equipment

It is important to understand and follow all laws regarding the safe and proper disposal of electrical instrumentation.



The symbol of a crossed-out wheeled bin on the product is required in accordance with the Waste Electrical and Electronic Equipment (WEEE) Directive of the European Union. The presence of this marking on the product indicates:

- That the device was put on the European Market after August 13, 2005 and
- That the device is not to be disposed via the municipal waste collection system of any member state of the European Union.

For products under the requirement of WEEE directive, please contact your dealer or local Beckman Coulter office for the proper decontamination information and take back program which will facilitate the proper collection, treatment, recovery, recycling, and safe disposal of device.

Chemical and Biological Safety



If a hazardous substance such as blood is spilled onto the instrument, ALPs, or accessories, clean up the spill by using a 10% bleach solution, or use your laboratory decontamination solution. Then follow your laboratory procedure for disposal of hazardous materials.



Risk of chemical injury from bleach. To avoid contact with the bleach, use barrier protection, including protective eyewear, gloves, and suitable laboratory attire. Refer to the Safety Data Sheet for details about chemical exposure before using the chemical.

 WARNING

Before running with chemistry or any biological samples, new labware types will require testing to determine if labware offsets are necessary to move to or from the Peltier ALP, or to access the labware during pipetting operations while on the Peltier ALP. If you do not do the required testing, the labware could crash and the contents could spill if the offset is incorrect.

Normal operation of the instrument may involve the use of materials that are toxic, flammable, or otherwise biologically harmful. When using such materials, observe the following precautions:

- Handle infectious samples according to good laboratory procedures and methods to prevent the spread of disease.
- Observe all cautionary information printed on the original solutions' containers prior to their use.
- Dispose of all waste solutions according to your facility's waste disposal procedures.
- Operate the instrument in accordance with the instructions outlined in this manual and take all the necessary precautions when using pathological, toxic, or radioactive materials.
- Splashing of liquids may occur; therefore, take appropriate safety precautions, such as using safety glasses and wearing protective clothing, when working with potentially hazardous liquids.
- Use an appropriately-contained environment when using hazardous materials.
- Observe the appropriate cautionary procedures as defined by your safety officer when using flammable solvents in or near a powered-up instrument.
- Observe the appropriate cautionary procedures as defined by your safety officer when using toxic, pathological, or radioactive materials.

NOTE Observe all warnings and cautions listed for any external devices attached or used during operation of the instrument. Refer to applicable external device user's manuals for operating procedures of that device.

NOTE For Safety Data Sheets (SDS/MSDS) information, go to the Beckman Coulter website at www.beckmancoulter.com.

Moving Parts



Risk of personal injury. To avoid injury due to moving parts, observe the following:

- **Never attempt to exchange labware or reagents while the instrument is operating.**
- **Never attempt to physically restrict any of the moving components of the instrument.**
- **Keep the instrument work area clear to prevent obstruction of the movement.**

Cleaning

Observe the cleaning procedures outlined in the user's manual for the instrument. Prior to cleaning equipment that has been exposed to hazardous material:

- Contact the appropriate Chemical and Biological Safety personnel.
- Review the Chemical and Biological Safety information in the user's manual.

Maintenance

Perform only the maintenance described in the appropriate User's Manuals. Maintenance other than that specified in those manuals should be performed only by service engineers.

IMPORTANT It is your responsibility to decontaminate components of the instrument before requesting service by a Beckman Coulter Representative or returning parts to Beckman Coulter for repair. Beckman Coulter will NOT accept any items which have not been decontaminated where it is appropriate to do so. If any parts are returned, they must be enclosed in a sealed plastic bag stating that the contents are safe to handle and are not contaminated.

RoHS Notice

These labels and materials declaration table (the Table of Hazardous Substance's Name and Concentration) are to meet People's Republic of China Electronic Industry Standard SJ/T11364-2006 "Marking for Control of Pollution Caused by Electronic Information Products" requirements.

China RoHS Caution Label

This label indicates that the electronic information product contains certain toxic or hazardous substances. The center number is the Environmentally Friendly Use Period (EFUP) date, and indicates the number of calendar years the product can be in operation. Upon the expiration of the EFUP, the product must be immediately recycled. The circling arrows indicate the product is recyclable. The date code on the label or product indicates the date of manufacture.



China RoHS Environmental Label

This label indicates that the electronic information product does not contain any toxic or hazardous substances. The center "e" indicates the product is environmentally safe and does not have an Environmentally Friendly Use Period (EFUP) date. Therefore, it can safely be used indefinitely. The circling arrows indicate the product is recyclable. The date code on the label or product indicates the date of manufacture.



Safety Messages

Please read and observe all cautions and instructions. Remember, the most important key to safety is to operate the Biomek NX^P Laboratory Automation Workstation with care.

Biomek NX^P Workstation Safety Messages

This section contains the Warnings and Cautions found in the *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual*, the *Biomek NX and NX^P Laboratory Automation Workstations Multichannel Pod User's Manual*, the *Biomek NX^P Laboratory Automation Workstation Preinstallation Manual*, the *NX and NX^P Laboratory Automation Workstations - Version 3.3 Tutorial*, the *Biomek FX^P and NX^P Laboratory Automation Workstation 4.1 Software Migration Guide for Biomek 3.3 Methods*, the *Biomek Software User's Manual Version 4.1*, and the *Automated Labware Positioners (ALPs) Instructions for Use*.

NOTE Biomek Software Version 4.1 is not compatible with the Biomek NX workstation. Any occurrence of NX in this manual should be interpreted as NX^P only.

CAUTION

Do not change the pod settings in Hardware Setup after the system has been installed; changing the pod settings will necessitate a service call.

CAUTION

Make sure the proper port is selected in Hardware Setup. Simulate is used only when running methods on the Biomek Simulator. To run methods on the instrument, choose the com port to which the instrument is connected.

WARNING

If the equipment is used in a manner not specified by Beckman Coulter, Inc., the protection provided by the equipment may be impaired.

 WARNING

Dark non-reflective material affects the sensitivity of the light curtain and adversely impact its effectiveness. Typical lab dress, such as lab coats and latex gloves, do not degrade light curtain operation; however, it is advisable to test the impact of the all lab dress on light curtain sensitivity before operating the Biomek NX. Verify lab dress impact on light curtain sensitivity as follows: Use Manual Control in the software and insert the material no more than 1" past and approximately 21" above the light curtain panel. Make sure the solid amber indicator light changes to blinking amber.

 WARNING

To reduce the risk of personal injury, operate the Biomek NX instrument only with all protective shields in place.

 WARNING

To prevent injury, use proper decontamination procedures.

- Wipe up all spills on the deck immediately.
- Approximately every six to twelve months, schedule a Beckman Coulter service call to lubricate the linear rail.

 CAUTION

If service is required, contact a Beckman Coulter Service Engineer.

 WARNING

Do not remove tower covers to access electrical wiring or fuses. Change only the fuses that are accessed from the outside of the instrument, without removing covers. Contact a Beckman Coulter Service Engineer if further access is required.

 WARNING

Turn off and unplug power to the instrument before changing fuses. Failure to do so can cause electrical shock or equipment damage.

 WARNING

Use care when handling septa fluted tips; they are extremely sharp.

 CAUTION

Use care when handling septa fluted tips; they are extremely fragile.

 WARNING

When working with blood samples, observe the cautionary procedures as defined by your safety officer.

 CAUTION

Use labware and tip combinations labeled as 'Limited' with caution. Tips could become wedged inside labware, picking the labware up with the probe when the probe is raised.

 CAUTION

To prevent damage due to electrical static discharge (ESD), wear a wrist ground strap when working with tips on the Span-8 Pod.

 CAUTION

Do not perform aspirate or dispense operations without mandrels installed and tubing attached to fixed tips. To operate the system without the mandrels installed and the tubing attached to tips may cause corrosion in the tip interface.

 WARNING

SPILL HAZARD

 WARNING

Use an appropriately contained environment when using hazardous materials.

 WARNING

Do not spill liquids on or around the instrument. Wipe up any spills immediately according to the procedures outlined by the laboratory safety officer.

 WARNING

Observe cautionary procedures as defined by your safety officer when using toxic, pathologic, or radioactive materials.

 WARNING

Always wear protective gloves when removing the tips.

 CAUTION

Do not allow the tip mandrel to twist while fastening or removing the collar. The collar contains an O-ring which turns the tip mandrel if not secured, causing the tubing to get twisted or kinked.

 WARNING

Observe cautionary procedures as defined by your safety officer when using toxic, pathologic, or radioactive materials.

 WARNING

Always wear protective gloves when removing the tips.

 CAUTION

Do not run syringes more than a few cycles without fluid in the syringes.

 CAUTION

Tap water is not recommended due to high mineral content which could cause blockages in the tubing and increase the possibility of leaks at tubing connections.

 CAUTION

Do not kink tubing between the supply container, the Span-8 pumps, and the Purge Pump.

 CAUTION

Do not kink tubing between the waste container, the Span-8 Tip Wash ALP and drip tray.

 CAUTION

The system fluid must be degassed prior to use.

 CAUTION

Do not purge the system without mandrels installed and tubing attached to disposable or fixed tips. To purge the system without the mandrels installed and the tubing attached to tips may cause corrosion in the tip interface.

 CAUTION

To prevent damage to the gripper, do not forcefully move it by hand.

 CAUTION

To prevent damage due to electrical static discharge (ESD), wear a wrist ground strap when working with the factory-installed gripper.

 WARNING

To prevent injury, use proper decontamination procedures.

 WARNING

Do not connect or disconnect any cable while power is applied to the Biomek NX^P instrument.

 CAUTION

Do not make any changes to the pod axes limits in Hardware Setup without contacting a Beckman Coulter Service Engineer or Beckman Coulter Customer Technical Support.

 CAUTION

Do not use Correlate Z Axes in Hardware Setup without contacting a Beckman Coulter Service Engineer or Beckman Coulter Customer Technical Support.

 CAUTION

Do not choose Cancel; if testing is stopped before the probe sensitivities have been completed, liquid level sensing will not function and Find Sensitivities must be repeated. Do not choose Cancel; if testing is stopped before the probe sensitivities have been completed, clot detection will not function and Find Clot Detection Sensitivities must be repeated. It takes nearly 30 minutes to complete the testing.

 CAUTION

Before selecting OK to home all axes, the following conditions must be met:

- Make sure there is no liquid present in the tips
- Make sure there are no disposable tips loaded
- Make sure either disposable tip mandrels or fixed tips ARE installed on the Span-8 Pod.
- Make sure the span gripper is not holding any labware.
- Make sure the span gripper is not near the front, back, or side of the instrument.

 CAUTION

To prevent damage due to electrical static discharge (ESD), wear a wrist ground strap when working with tips on the Span-8 Pod.

 WARNING

Turn off power to the Biomek NX instrument before attaching or removing AccuFrame from the instrument deck.

 WARNING

Make sure the light curtain is not violated by the AccuFrame cable. If the light curtain is violated, the framing process halts immediately.

 WARNING

Make sure the AccuFrame cable does not interfere with pod movement.

 CAUTION

Always ensure that the gripper is closed before homing.

 WARNING

CLASS II LASER PRODUCT.

THIS PRODUCT CONFORMS TO APPLICABLE REQUIREMENTS OF 21 CFR 1040 AT THE DATE OF MANUFACTURE.

 CAUTION

To avoid serious damage to the instrument, make sure that the laboratory site voltage/frequency matches the voltage/frequency that was ordered for the instrument.

 WARNING

Do not attempt to remove or replace covers while the unit is powered on. Disconnect power before removing or replacing a cover.

 WARNING

Avoid direct exposure to the laser beam. Never look directly into the laser beam, and never leave the laser on, open, or unattended.

 WARNING

Always have the laser module access cover, located on the bar code reader, in place when operating or troubleshooting the laser module.

 CAUTION

If labware other than that specified in the Stacker Carousel User's Manual is used, an increase in bad reads or no reads may occur.

 CAUTION

To prevent damage to the shuttle, first place the AccuFrame into the Framing Tool Adaptor. Then place the AccuFrame with the attached adaptor on the shuttle.

 CAUTION

Turn off power to the Biomek NX^P instrument before attaching or removing AccuFrame from the instrument deck.

 WARNING

Make sure the light curtain is not violated by the AccuFrame cable. If the light curtain is violated, the framing process halts immediately.

 WARNING

Make sure the AccuFrame cable does not interfere with pod movement.

 CAUTION

Use Manual Control to move the probes in the Y-axis. Dragging the probes by hand may affect alignment and the ability to access labware.

 CAUTION

Do not make any changes to the pod axes limits in Hardware Setup without contacting a Beckman Coulter Representative.

 CAUTION

Do not use Correlate Z Axes in Hardware Setup without contacting a Beckman Coulter Representative.

 CAUTION

Do not choose Cancel; if testing is stopped before the probe sensitivities have been completed, liquid level sensing will not function and Find Sensitivities must be repeated.

 CAUTION

Do not make any changes to the axes limits or pod settings without consulting a Beckman Coulter Representative.

 CAUTION

Do not make any changes to the purge settings without consulting a Beckman Coulter Representative.

 CAUTION

Before selecting OK to home all axes, the following conditions must be met:

- Make sure there is no liquid present in the tips
- Make sure there are no disposable tips loaded
- Make sure the Framing Probe is NOT installed on the Multichannel Pod.
- Make sure the grippers on the Multichannel Pod are retracted.
- Make sure either disposable tip mandrels or fixed tips ARE installed on the Span-8 Pod.
- Make sure the span gripper is not holding any labware.
- Make sure the span gripper is not near the front, back, or side of the instrument.

 CAUTION

Use Shift deck only before other ALPs or positions are taught. Shift deck shifts all ALPs and positions, resulting in incorrect coordinates if applied to previously framed ALPs and positions.

 WARNING

CLASS II LASER PRODUCT. THIS PRODUCT CONFORMS TO APPLICABLE REQUIREMENTS OF 21 CFR 1040 AT THE DATE OF MANUFACTURE.

 CAUTION

If a label is applied by any means other than the Beckman Coulter Print and Apply device, an increase in bad reads or no reads may occur.

 WARNING

If the equipment is used in a manner not specified by Beckman Coulter, Inc., the protection provided by the equipment may be impaired.

 WARNING

Dark non-reflective material affects the sensitivity of the light curtain and adversely impact its effectiveness. Typical lab dress, such as lab coats and latex gloves, do not degrade light curtain operation; however, it is advisable to test the impact of the all lab dress on light curtain sensitivity before operating the Biomek NX^P Workstation. Verify lab dress impact on light curtain sensitivity as follows: Use Manual Control in Biomek Software and insert the material no more than 1" past and approximately 21" above the light curtain panel. Make sure the solid amber indicator light changes to blinking amber.

 WARNING

To reduce the risk of personal injury, operate the Biomek NX instrument only with all protective shields in place.

 WARNING

To prevent injury, use proper decontamination procedures.

- Wipe up all spills on the deck immediately.
- Approximately every six to twelve months, schedule a Beckman Coulter service call to lubricate the linear rail.

 CAUTION

If service is required, contact a Beckman Coulter Service Engineer.

 WARNING

Do not remove tower covers to access electrical wiring or fuses. Change only the fuses that are accessed from the outside of the instrument, without removing covers. Contact a Beckman Coulter Service Engineer if further access is required.

 WARNING

Turn off and unplug power to the instrument before changing fuses. Failure to do so can cause electrical shock or equipment damage.

 CAUTION

Always ensure that the gripper on a Multichannel Pod is retracted before homing.

 CAUTION

To prevent damage due to electrical static discharge (ESD), wear a wrist ground strap when handling a multichannel head.

 CAUTION

Before removing the fourth shoulder screw, take hold of the head firmly to make sure it does not fall once all screws are removed.

 WARNING

The gripper may bend if not taught (framed) properly with the AccuFrame.

 WARNING

To prevent injury, use proper decontamination procedures.

 WARNING

Do not connect or disconnect any cable while power is applied to the Biomek NX^P instrument.

 WARNING

Avoid all labware on the Biomek NX^P deck when removing or installing grippers. It is recommended that all labware in the vicinity of the pod be moved or removed to avoid spills and contact with labware.

 CAUTION

Use caution when removing gripper fingers. Since gripper fingers mount tightly into the Multichannel Pod, they pull free of the Multichannel Pod suddenly.

 CAUTION

Do not make any changes to the pod axes limits in Hardware Setup without contacting a Beckman Coulter Service Engineer or Beckman Coulter Customer Technical Support.

 CAUTION

If the hardware configuration is not updated using Hardware Setup, hardware crashes or inaccurate liquid transfer may occur.

 CAUTION

To avoid hardware crashes, a new D-axis limit must be established and the gripper framed in the Biomek Software after the head has been configured in Hardware Setup.

 CAUTION

Always ensure that the gripper is retracted before homing.

 CAUTION

Do not make any changes to the pod axes limits without contacting a Beckman Coulter Service Engineer or Beckman Coulter Customer Technical Support.

 CAUTION

Before selecting OK to home all axes, the following conditions must be met:

- Make sure there is no liquid present in the tips.
- Make sure there are no disposable tips loaded.
- Make sure the Framing Probe is NOT installed on the Multichannel Pod.
- Make sure the gripper on the Multichannel Pod is retracted.

 WARNING

Turn off power to the Biomek NX instrument before attaching or removing AccuFrame from the instrument deck.

 WARNING

Make sure the light curtain is not violated by the AccuFrame cable. If the light curtain is violated, the framing process halts immediately.

 WARNING

Make sure the AccuFrame cable does not interfere with pod movement.

 CAUTION

Use Shift deck only before other ALPs or positions are taught. Shift deck shifts all ALPs and positions, resulting in incorrect coordinates if applied to previously framed ALPs and positions.

 CAUTION

Select Move Z-Max to move the pod to its highest point before extending the gripper. To avoid breaking labware or bending the gripper fingers, make sure the gripper fingers will not hit any labware when extended.

 CAUTION

Do not retract gripper when it is holding labware.

 WARNING

CLASS II LASER PRODUCT. THIS PRODUCT CONFORMS TO APPLICABLE REQUIREMENTS OF 21 CFR 1040 AT THE DATE OF MANUFACTURE.

 CAUTION

To avoid serious damage to the instrument, make sure that the laboratory site voltage/frequency matches the voltage/frequency that was ordered for the instrument.

 WARNING

Do not attempt to remove or replace covers while the unit is powered on.
Disconnect power before removing or replacing a cover.

 WARNING

Avoid direct exposure to the laser beam. Never look directly into the laser beam, and never leave the laser on, open, or unattended.

 WARNING

Always have the laser module access cover, located on the bar code reader, in place when operating or troubleshooting the laser module.

 CAUTION

CAUTION: If a label is applied by any means other than the Beckman Coulter Print and Apply device, an increase in bad reads or no reads may occur.

 CAUTION

If labware other than that specified in the Stacker Carousel User's Manual is used, an increase in bad reads or no reads may occur.

 CAUTION

To prevent damage to the shuttle, first place the AccuFrame into the Framing Tool Adaptor. Then place the AccuFrame with the attached adaptor on the shuttle.

 WARNING

To reduce the risk of personal injury, safety shields and light curtain must be in place before operating. Safety shields and light curtain prevent entry into the work area during machine movement.

 CAUTION

An inaccurate Instrument Setup may result in pod and labware collisions, or in inappropriate pipetting.

 CAUTION

Do not place labware other than a tip box on a tip loader position (TL#).

 WARNING

To prevent possible injury, wear safety glasses or safety goggles when removing metal strapping, and use the steel strapping cutter with caution. Strapping may spring back when cut, causing injury.

 WARNING

To prevent possible injury, use the steel strapping cutter with caution to ensure the strap does not spring back.

 CAUTION

The Biomek NX^P instrument weighs 190 pounds (86.2 Kilograms). To avoid injury, follow your safety officer's instructions regarding lifting heavy objects.

 CAUTION

When lifting the Biomek NX^P instrument, grasp it only from positions on the base. Do not grasp the ends of the large cover at the top of the instrument.

 CAUTION

When lifting the Biomek NX^P instrument, grasp it only from positions on the base casting. Do not grasp the ends of the light curtain that extend across the front of the instrument.

 CAUTION

The back of the instrument is heavier than the front. Take care not to lift the front so high that it causes the instrument to fall backward.

 CAUTION

The Biomek NX^P instrument will overhang the edges of a 36 in. x 30 in. (92 cm x 77 cm) bench. Make sure there are no obstacles that will interfere with placement of the instrument.

 CAUTION

Make sure the bench can support the total installed weight of the system. Refer to Table 1.3 to determine the total weight of the system.

 CAUTION

When lifting the Biomek NX^P instrument, grasp it only from positions on the base. Do not grasp the ends of the large cover at the top of the instrument.

 CAUTION

To prevent hands from being pinched, carefully set the back of the instrument down first and then lower the front.

 CAUTION

The optical table is heavy and is cumbersome. To avoid injury, two people are needed to unpack the optical table from the shipping crate.

 CAUTION

The Cytomat weighs 110 - 331 pounds (50 - 150 kilograms). To avoid injury, follow your safety officer's instructions regarding lifting heavy objects.

 CAUTION

The Biomek NX^P instrument will overhang the edges of a 25" x 24" (63.5 cm x 61 cm) bench. Make sure there are no obstacles that will interfere with placement of the instrument.

 WARNING

To prevent the side panels from falling on the person unpacking a Cytomat device, a second person must hold each panel while the screws are removed.

 CAUTION

Make sure the correct ALP is chosen when configuring the deck setup in the Biomek Software "Deck Editor." ALPs vary in height, and failure to choose the correct ALP in the "Deck Editor" can result in collisions between pod(s) and ALPs during operation, causing equipment damage and/or hazardous waste spills.

 WARNING

Risk of contamination. Improper Biomek Software configuration of "Hardware Setup," the "Device Action" step, or AutoLatch "Position Properties" in the Deck Editor can cause tip boxes or tips to collide with labware containing biologically or chemically hazardous material, resulting in spills on the Biomek Instrument deck. Always test the system configuration and associated device operations with water before using biological or chemical agents.

 CAUTION

After new tips are added, the correct properties must be defined in the Biomek Software “Tip Type Editor” according to the manufacturer’s specifications. Inaccurate specifications may lead to collisions, resulting in equipment damage.

 CAUTION

Incorrect labware definitions in the Biomek Software “Labware Type Editor” can cause system crashes or hazardous waste spills. Verify definitions are correct prior to executing a method run.

 CAUTION

The correct well properties must be defined in the Biomek Software “Labware Type Editor” according to the manufacturer’s specifications. Inaccurate specifications may lead to inaccurate pipetting, especially when using Liquid Level Sensing.

 CAUTION

Risk of contamination or procedure failure. When transferring liquids using select liquid types, selecting an incorrect liquid type may result in poor pipetting performance. Use care when selecting liquid types.

 CAUTION

Risk of contamination. Ignoring the error and continuing the method when a clot exists may contaminate the deck.

 CAUTION

To avoid equipment damage and/or hazardous waste spills, no changes to the Biomek Instrument state are permitted while a method is paused. Changes can be made to the labware contents, but not the deck or the devices.

 WARNING

The light curtain is a safety device. Use it to stop a method only in an emergency.

 CAUTION

Always verify that the physical instrument setup matches the instrument setup in Biomek Software. Inaccurate instrument setup can result in inappropriate pipetting or pod collision, resulting in equipment damage or hazardous waste spills.

 CAUTION

To make sure the pod avoids all obstacles during its travel, in Biomek Software, always specify the labware, ALPs, and devices that are on the deck, and the deck position each occupies. Failure to do so can cause pod collision, resulting in equipment damage or hazardous waste spills.

 CAUTION

On FX^P instruments and NX^P instruments, do not place labware other than a tip box on a tip loader position (TL#).

 CAUTION

Inaccurate Biomek Software representation of tool placement in the tool rack can cause hardware crashes and instrument and/or tool damage. Ensure that Biomek Software is updated each time tool placement is physically changed on the deck.

 WARNING

The Liquid Waste Station can be contaminated from method solutions. Follow the appropriate decontamination procedures outlined by your laboratory safety officer.

 CAUTION

Risk of contamination or procedure failure. When transferring liquids using select patterns, selecting an incorrect pattern may result in transferring reagents to incorrect wells. Use care when selecting patterns at run time.

 CAUTION

Do not attempt to access a 96-Channel or 384-Channel Tip Wash ALP with a Multichannel Pod equipped with an HDR Tool Body. The gripper may crash and damage the pod, HDR Tool Body, or Tip Wash ALP.

 CAUTION

Do not access labware positioned on a 1 x 5 Passive ALP with the HDR Tool Body. The gripper may crash into the ALP.

 CAUTION

Do not access labware on a Stirring ALP with the HDR Tool Body. The magnetic stirrer may bend the pins or interfere with the liquid transfer performance of the pins.

 CAUTION

Make sure the correct ALP is chosen when configuring the deck setup in the Deck Editor. ALPs vary in height, and failure to choose each ALP correctly in the software may result in collisions between pod(s) and ALPs during operation.

 CAUTION

When setting the height for pipetting operations on the Stirring ALP, the presence of the stir bar must be taken into consideration. Pipetting operations that do not account for the height of the stir bar could damage the tips.

 CAUTION

Risk of Equipment Damage. Non-compliant labware might not be securely grasped by the ALP or might cause physical damage to the ALP. Only labware meeting the ANSI/SBS Microplate Standards listed below is recommended for use on the Orbital Shaker ALP.

- ANSI/SLAS 1-2004: Microplates - Footprint Dimension
- ANSI/SLAS 2-2004: Microplates - Height Dimensions
- ANSI/SLAS 3-2004: Microplates - Bottom Outside Flange Dimensions

 WARNING

Do not shake tip boxes, tip box lids, or reservoirs on the Orbital Shaker ALP. The clamps on the ALP cannot hold tip boxes, tip box lids, or reservoirs securely during a shaking procedure.

 WARNING

Risk of contamination. Do not exceed the recommended maximum shaking speed to ensure labware stays securely clamped on the Orbital Shaker ALP.

 WARNING

The type and amount of fluid being shaken will impact the maximum shaking speed for all types of labware. Conduct testing according to the procedures outlined by the laboratory safety officer to determine the safe maximum shaking speed for any type and amount of liquid.

 WARNING

Risk of personal injury or property damage. Always observe appropriate cautionary procedures as defined by your safety officer when using flammable solvents or toxic, pathological, or radioactive materials.

 WARNING

Risk of contamination. Uneven fluid distribution could compromise the ability of the clamping mechanism to securely hold the labware. Ensure liquid is distributed evenly prior to using the Orbital Shaker ALP. Maximum recommended shaking speed values in Table 22.3 assume fluid is distributed evenly throughout the plate.

 WARNING

The “Ignore” error recovery option in Biomek Software is potentially dangerous since almost every action depends upon the successful completion of previous actions. Choosing “Ignore” can lead to mishandled labware and reagents or collisions and instrument damage. Choose “Ignore” only when the error cause is known and corrected, and instrument actions following “Ignore” are fully understood.

 CAUTION

Resuming a method in Biomek Software assumes that the instrument is in the same state as when the error occurred. The pod may be moved to deal with a problem and changes can be made to labware contents, but no changes can be made to the instrument deck or devices in Biomek Software. Doing so can lead to instrument damage.

 CAUTION

The partially completed steps assume the pods are in the same position they were in when the method was halted. Removing the Recovery step without also removing these partially completed steps could result in a crash.

 WARNING

The light curtain is a safety device. Use it to stop a method only in an emergency. Restarting a method can change how pipetting occurs, potentially leading to decreased instrument performance.

 WARNING

The hardware STOP button is a safety device. Use it to stop a method only in an emergency. Restarting a method can change how pipetting occurs, potentially leading to decreased instrument performance.

 WARNING

To eliminate the possibility of replacing a Continuation method before corrections are made, it is recommended that a Continuation method be edited and run as soon as it is created.

 CAUTION

A Continuation method assumes that the instrument is in the same state as when the Continuation was snapped. If this is not true, the Continuation method must be edited to account for the changes.

 CAUTION

Always operate the Automated Tube Bar Code Reader (ATBCR) with the lid closed and all covers in place.

 WARNING

Only use the recommended containers in the Automated Tube Bar Code Reader. Sample containers not listed may damage the ATBCR or cause pipetting errors.

 CAUTION

Do not use sample container and tip combinations labeled NO. Tips could become wedged inside sample containers.

 WARNING

Handle and dispose of biohazard materials according to proper laboratory procedures. Proper hand, eye, and facial protection is required.

 WARNING

Use only the container type specified by the container type label on the sample rack. A rack is configured to accept only one type of sample container. Placing an incorrect container type in a rack may damage the instrument or cause pipetting errors.

 CAUTION

A sample rack is configured to accept only one type of sample container. Do not mix container types within a rack.

 CAUTION

Exceeding the maximum tilt speed for the labware type can cause the containers to fall out of the rack. Do not exceed the values given above. Do not use any tilt for the containers noted as “No tilt at any speed.” in the table above. See *Setting Tilting Parameters* for more information.

 CAUTION

Loading tube racks backwards in the input tray when the rack bar code error handling option “Use the configured rack default type” is selected may report improper results.

 WARNING

Do not place hands inside of the sample presentation point when the instrument is operating.

 WARNING

Make sure the sample containers placed in the sample rack match the type indicated by the sample rack bar code label. Mismatches may result in damage to equipment or pipetting errors.

 WARNING

The tubes contained in a rack should always match the expected tube type specified by the rack bar code.

 CAUTION

A mismatch between the Default Tube Rack type and the physical rack present when ignoring missed rack bar codes may result in damage to equipment, damage to labware, improper pipetting, and/or spilled samples.

 CAUTION

Tilting should only be used with sealed or capped tubes. Tilting unsealed or uncapped tubes may result in samples spilled inside the ATBCR.

 CAUTION

Using sealed or capped tubes requires proper tips to be used for piercing the seals or septa. Using tips that are not equipped for piercing may result in damage to equipment, damage to labware, improper pipetting, and/or spilled samples.

 CAUTION

Loading tube racks backwards in the input tray when the tube bar code error handling option “Ignore, use default bar code, and continue the method” is selected may report improper results.

 CAUTION

The default tilt positions are 45° and 135°. Depending on labware and tilt speed, changing the tilt positions may cause the sample rack to be dislodged from its carrier. Do not use a non-default tilt angle without prior verification.

 CAUTION

Not all tube types can be tilted at 100% speed. The default tilt speed for the instrument is 30%. Tilting larger tubes at 100% speed may result in the tube falling out of the carriage. The tilting speed must be limited to the largest tube type to be used in a method. See *Table 3.3* for recommended maximum tilt speeds.

 CAUTION

Make sure the probes of the Span-8 Pod are not positioned inside the sample rack at the presentation point prior to homing.

 CAUTION

The Labware Stacking ALP is for use with the Biomek NX^P Span-8 (with gripper) Laboratory Automation Workstation only.

 CAUTION

Do not attempt to install or remove the Labware Stacking ALP; it must be installed or removed by a Beckman Coulter Service Engineer.

 WARNING

Use only supported labware with the Labware Stacking ALP materials.

 CAUTION

Framing the Labware Stacking ALP sets the correct position for the current deck; it does not change framing information for other decks. If a different deck is used, this ALP must be reframed for that deck before it is used in a method.

 CAUTION

To move labware to and from the Labware Stacking ALP, use the Stack/Unstack Labware step. Using the Move Labware step from the Basic Step Palette will result in a validation error.

 CAUTION

Do not attempt to install or remove the Fly-By Bar Code Reader; it must be installed or removed by a Beckman Coulter Service Engineer.

 WARNING

Avoid direct exposure to the laser beam. Never look directly into the laser beam, and never leave the laser on, open, or unattended.

 WARNING

If labware other than that specified in the Labware Type Editor is used, an increase in bad reads or no reads may occur.

 WARNING

If a label is applied by any means other than a Print & Apply device, an increase in bad reads or no reads may occur.

 CAUTION

Framing a Fly-By Bar Code Reader sets the correct position for the current deck only; it does not change framing information for other decks. If a different deck is used, the Fly-By Bar Code Reader must be reframed for that deck before it is used in a method.

 WARNING

When using Home All Axes with a Fly-By Bar Code Reader on the deck, make sure the pod is not near the front, back, or side of the instrument.

 WARNING

Always have the laser module access cover, located on the Fly-By Bar Code Reader, in place when operating or troubleshooting the laser module.

 CAUTION

Do not kink the drainage or supply hose.

 WARNING

Use an appropriately contained environment when using hazardous materials.

 WARNING

The cleaning wells and reservoir of the 8-Channel Active Wash ALP may contain hazardous chemicals and fluids. Follow the appropriate disposal procedures outlined by the laboratory safety officer to dispose of the fluid.

 CAUTION

Always operate the Automated Tube Bar Code Reader (ATBCR) with the lid closed and all covers in place.

 WARNING

Only use the recommended containers in the Automated Tube Bar Code Reader. Sample containers not listed may damage the ATBCR or cause pipetting errors.

 CAUTION

Do not use sample container and tip combinations labeled NO. Tips could become wedged inside sample containers.

 WARNING

Handle and dispose of biohazard materials according to proper laboratory procedures. Proper hand, eye, and facial protection is required.

 WARNING

Use only the container type specified by the container type label on the sample rack. A rack is configured to accept only one type of sample container. Placing an incorrect container type in a rack may damage the instrument or cause pipetting errors.

 CAUTION

A sample rack is configured to accept only one type of sample container. Do not mix container types within a rack.

 CAUTION

Exceeding the maximum tilt speed for the labware type can cause the containers to fall out of the rack. Do not exceed the values given above. Do not use any tilt for the containers noted as “No tilt at any speed” in the table above. See *Setting Tilting Parameters* for more information.

 CAUTION

Failure to correctly label racks can result in damage to the instrument and loss of samples due to placement of incorrect container types in the rack or incorrect identification of rack type by the device.

 CAUTION

Do not use the Bar Code Reader step under the SILAS category in the Step Palette Builder. The Bar Code Reader Step from the Integrated Devices step palette must be used to ensure the Bar Code Reader operates properly.

 WARNING

Turn off power to the Biomek instrument before mounting any ALP.

 CAUTION

Do not place the Automatic Reservoir Controller or the supply container on the Biomek instrument deck.

 WARNING

Turn off the pump drive and disconnect the CAN cables before installing or removing the pump head or tubing.

 WARNING

Turn off power to the Biomek instrument before connecting CAN communication cables.

 CAUTION

A maximum of one long CAN cable can be used in each chain of ALPs. If more than one long CAN cable is used in a chain, CAN communication errors may occur.

 CAUTION

Do not push the “Mode” button. Doing so can modify the sensor configuration which will then require a service call to Beckman Field Services.

 CAUTION

Prior to running a method, make sure there is enough fluid for the method in the container.

 WARNING

The Drainable/Refillable Reservoir ALP may be contaminated from method solutions. Follow the appropriate decontamination and cleaning procedures outlined by the laboratory safety officer.

 WARNING

When using the Half-Position Disposal ALP, do not overfill the disposal bag. Tips may spill over onto the deck, possibly contaminating the deck with hazardous materials.

 CAUTION

The Half-Position Disposal ALP must be mounted on the outside columns of the Biomek deck to avoid collisions.

 CAUTION

Make sure the correct Disposal ALP is chosen when configuring the deck setup in the Deck Editor. Disposal ALPs vary in height and failure to choose each Disposal ALP correctly in the software may result in collisions between pod(s) and Disposal ALPs during operation.

 WARNING

Appropriately marked autoclavable biohazard bags are recommended for hazardous applications. The waste bags shipped with the Half-Position Disposal ALP are not biohazard bags. Contact the laboratory safety officer for appropriate biohazard bags and procedures.

 CAUTION

Make sure the bag is tight to tops of the flanges. The gripper tool must have enough room to move over the ALP.

 WARNING

The waste bag may be contaminated. Follow the appropriate decontamination and disposal procedures outlined by the laboratory safety officer.

 CAUTION

SPILL HAZARD.

 CAUTION

The Half-Position Disposal ALP with Slide must be mounted in the left or right outside columns of the Biomek NX deck to avoid collisions.

 WARNING

The Half-Position Disposal ALP may be contaminated. Follow the appropriate decontamination procedures outlined by the laboratory safety officer.

 WARNING

The Heating and Cooling ALP can reach extremely high temperatures. Allow the Heating and Cooling ALP to cool before removing it from the deck.

 CAUTION

Do not detach the hoses over the Biomek deck. Immediately wipe up any spills with a soft cloth.

 WARNING

High-Density ALPs may be contaminated from method solutions. Follow the appropriate decontamination procedures outlined by the laboratory safety officer.

 WARNING

The NX-S8 High-Density 4 x 3 ALP may be contaminated from method solutions. Follow the appropriate decontamination procedures outlined by the laboratory safety officer.

 CAUTION

The Labware Stacking ALP is for use with the Biomek NX^P Span-8 (with gripper) Laboratory Automation Workstation only.

 CAUTION

Do not attempt to install or remove the Labware Stacking ALP; it must be installed or removed by a Beckman Coulter Service Engineer.

 WARNING

Use only supported labware with the Labware Stacking ALP materials.

 WARNING

Disconnect main power before connecting or disconnecting CAN cables.

 CAUTION

A maximum of one long CAN cable (1 meter [39.37 in.], Part Number 717781) can be used in each chain of ALPs. If more than one long CAN cable is used in a chain, CAN communication errors may occur.

 CAUTION

A maximum of one device can be chained to a Magnetic Bead ALP. If more than one device is chained to a Magnetic Bead ALP, the Biomek instrument may not be able to supply sufficient electrical current to operate all devices on the chain.

 WARNING

Pinch Point! The clamps used to secure a microplate to the Magnetic Bead ALP could cause personal injury. Avoid interference with the clamps while a microplate is on the ALP.

 CAUTION

The Magnetic Bead ALP may be damaged if liquid is dispensed into an ALP that does not have labware positioned on it.

 CAUTION

Make sure the labware on the Magnetic Bead ALP matches the labware type specified. The clamps raise to a height set for the labware type before clamping and incorrect settings may result in inaccurate clamping.

 CAUTION

Set the shaking speed at the lowest setting and increase slowly to the desired setting. This helps prevent spills or splashing.

 WARNING

When using the self-contained Multichannel Disposal ALP without the slide, do not overfill the disposal bag. Tips can spill over onto the deck, possibly contaminating the deck with hazardous materials.

 CAUTION

When using the Multichannel Disposal ALP with Slide, remove the bagging extension to avoid collisions between the pod and the Multichannel Disposal ALP.

 CAUTION

The self-contained Multichannel Disposal ALP without Slide must be mounted on the back row of the Biomek deck to avoid collisions.

 CAUTION

Bagging extensions are not interchangeable between the Multichannel Disposal ALP and the Span-8 Disposal ALP. Each Disposal ALP must use the bagging extension designed for that ALP.

 WARNING

Appropriately marked autoclavable biohazard bags are recommended for hazardous applications. The waste bags shipped with the Multichannel Disposal ALP are not biohazard bags. Contact the laboratory safety officer for appropriate biohazard bags and procedures.

 CAUTION

The Multichannel Disposal ALP with Slide must be mounted in the 2nd or 3rd row in the left and right outside columns of the Biomek FX deck to avoid collisions.

 WARNING

To reduce risk of personal injury, operate only with all protective shields in place.

 WARNING

The waste bag may be contaminated. Follow the appropriate decontamination and disposal procedures outlined by the laboratory safety officer.

 WARNING

The Multichannel Disposal ALP may be contaminated. Follow the appropriate decontamination procedures outlined by the laboratory safety officer.

 WARNING

SPILL HAZARD.

 WARNING

Do not kink the hoses.

 CAUTION

Orient the Multichannel Tip Wash ALPs so the in and out connections face the back of the Biomek instrument.

 CAUTION

Use the 96-Channel Tip Wash ALP only with the 96 disposable tip head.

 CAUTION

Use the 384-Channel Tip Wash ALP only with the 384 disposable tip head.

 CAUTION

Turn off power to the Biomek instrument before attaching or removing AccuFrame from the instrument deck.

 WARNING

Always wear protective gloves when draining the tip wash fluid.

 CAUTION

Clamp all labware positioned on the Orbital Shaker ALP even when using the ALP as a standard deck position, such as a 1 x 1 or a swap space.

 WARNING

Do not chain Orbital Shaker ALPs together or to any other ALP.

 CAUTION

A maximum of four (4) Orbital Shaker ALPs may be used on a deck at one time.

 WARNING

Turn off power to the Biomek instrument before attaching or removing the AccuFrame.

 CAUTION

Make sure there are no tips on the head.

 CAUTION

When creating a method with an Orbital Shaker and a stack of labware, first move the labware to another ALP, preferably a passive ALP, and then move it to the Orbital Shaker. The offsets allowed with stacking may cause the labware to be gripped off center; however, moving labware from a passive ALP ensures it is gripped properly.

 CAUTION

Only labware compliant with the Society for Biomolecular Screening (SBS) proposed microplate standards is recommended for use on the Orbital Shaker ALP. Non-compliant labware may not be securely grasped by the ALP or may cause physical damage to the ALP.

 WARNING

Do not shake tip boxes, tip box lids, or reservoirs on the Orbital Shaker ALP. The clamps on the ALP cannot hold tip boxes, tip box lids, or reservoirs securely during a shaking procedure.

 WARNING

To ensure labware stays securely clamped on the Orbital Shaker ALP, do not exceed the recommended maximum shaking speed.

 WARNING

The type and amount of fluid being shaken will impact the maximum shaking speed for all types of labware. Conduct testing according to the procedures outlined by the laboratory safety officer to determine the safe maximum shaking speed for any type and amount of liquid.

 WARNING

Always observe appropriate cautionary procedures as defined by your safety officer when using flammable solvents or toxic, pathological, or radioactive materials.

 CAUTION

Clamp all labware positioned on the Orbital Shaker ALP even when using the ALP as a standard deck position, such as a 1 x 1 or a swap space.

 CAUTION

If using Biomek FX Software version 2.1c or prior, crashes may occur when executing a Continuation method. To avoid crashes, delete any partially completed Orbital Shaker ALP steps and reinsert them into the Continuation method.

 CAUTION

Orient the Positive Position ALP so the CAN connections are to the right of the ALP and the clamp is in the front right corner of the ALP when facing the Biomek instrument.

 CAUTION

A maximum of one long CAN cable can be used in each chain of ALPs. If more than one long CAN cable is used in a chain, CAN communication errors may occur.

 WARNING

Pinch Point! The clamps used to secure a microplate to the Positive Position ALP could cause personal injury. Avoid interference with the clamps while a microplate is on the ALP.

 CAUTION

Older versions of the Span-8 Disposal ALP must be modified with the new bagging extension when upgrading to Biomek Software 3.2. Failure to modify the ALP could result in Span-8 Pod crashes.

 WARNING

When using the Span-8 Disposal ALP without Slide, do not overfill the disposal bag. Tips may spill over onto the deck, possibly contaminating the deck with hazardous materials.

 CAUTION

The Span-8 Disposal ALP with Slide must be mounted on the outside columns of the Biomek deck to avoid collisions.

 WARNING

Appropriately marked autoclavable biohazard bags are recommended for hazardous applications. The waste bags shipped with the Span-8 Disposal ALP are not biohazard bags. Contact the laboratory safety officer for appropriate biohazard bags and procedures.

 WARNING

The Span-8 Disposal ALP may be contaminated. Follow the appropriate decontamination procedures outlined by the laboratory safety officer.

 WARNING

Do not kink the drainage hose.

 WARNING

Always wear protective gloves when draining the Span-8 Tip Wash ALP of fluid.

 WARNING

The waste fluid may be contaminated. Follow the appropriate disposal procedures outlined by the laboratory safety officer.

 WARNING

Follow the appropriate disposal procedures outlined by the laboratory safety officer to dispose of the fluid. The cleaning wells and reservoir of the Span-8 Tip Wash ALP may contain hazardous chemicals and fluids.

 WARNING

Standard Passive ALPs may be contaminated from method solutions. Follow the appropriate decontamination procedures outlined by the laboratory safety officer.

 CAUTION

The Stirring ALP continues to stir during a light curtain violation even though the method stops.

 CAUTION

Adjust the stirring speed using the software. Set the stirring speed only as high as absolutely necessary to avoid splashing.

 WARNING

Setting the stirring speed too high, or setting the speed too high with an inadequate amount of liquid in the reservoir, or ramping the stirring speed up too fast in a high viscosity liquid may force the stir bar off center. The stir bar would then have to be reset to the center position.

 CAUTION

The reservoir and stir bar may be contaminated following use. Follow the appropriate decontamination procedures outlined by the laboratory safety officer.

 CAUTION

Clean the reservoir before storing or filling with another substance.

 CAUTION

Different sizes of test tubes must not be mixed in one test tube rack. To avoid a collision between the pod and Test Tube Rack ALP, all of the test tubes in the Test Tube Rack must be a uniform height.

 WARNING

Test Tube Rack ALPs may be contaminated from method solutions. Follow the appropriate decontamination procedures outlined by the laboratory safety officer.

 CAUTION

Clean, dry air must be provided for proper operation of the Tip Loader ALP.

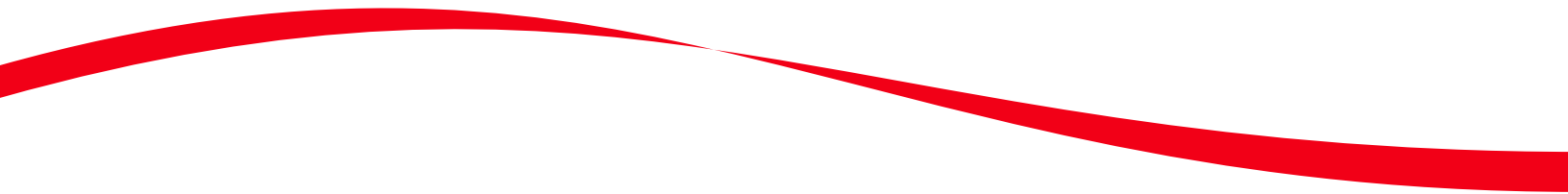
 WARNING

Stay clear of the pinch point when locking rods are moving up into the head/pod.

Safety Messages

Biomek NX^P Workstation Safety Messages

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Welcome to the Biomek NX^P Laboratory Automation Workstation

This guide provides an overview of the Biomek NX^P instrument, Biomek Software, ALPs, accessories, consumables, as well as instructions for completing basic procedures.

Included in this manual are references to other Biomek NX^P Workstation user's manuals to further investigate topics that are particularly relevant to you. For a complete list of Biomek NX^P Workstation user's manuals, see *Access to Biomek NXP Workstation Manuals*. Moving back and forth between this manual and the user's manuals, you will be able to begin to learn about the Biomek NX^P instrument and software and become familiar with the other manuals and how chapters are arranged.

First-Time Use Checklist

Preparing to run your instrument for the first time involves the following actions:

- ✓ **Installing and setting up the instrument.** For details, refer to:
 - [CHAPTER 1, Biomek NXP Laboratory Automation Workstation](#)
 - *Biomek NX^P Laboratory Automation Workstation Preinstallation Manual*
- ✓ **Configuring Biomek Software to match the hardware.** For details, refer to:
 - [CHAPTER 2, Configuring Biomek Software to Match the Physical Deck](#)
 - *Biomek Software User's Manual, Using the Basic Step Palette*
- ✓ **Setting up the system with labware and reagents.** For details, refer to:
 - [CHAPTER 2, Setting Up the Physical Deck](#)
 - *Biomek NX and NX^P Laboratory Workstations Multichannel Pod User's Manual, Framing Instructions*
 - OR
 - *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual, Framing Instructions*

- ✓ **Testing and refining the method.** For details, refer to:
 - [CHAPTER 3, Creating a Simple Method for NXP Multichannel](#)
 - OR
 - [CHAPTER 4, Creating a Simple Method for NXP Span-8](#)
 - *Biomek Software User's Manual, Creating and Using Methods*

Routine Operations Checklist

Routinely operating your instrument involves the following actions:

- ✓ **Ensuring the instrument hardware is ready to run.** For details, refer to:
 - [CHAPTER 2, Preparing to Run](#)
 - *Biomek NX and NX^P Laboratory Automation Workstations User's Manual*
 - *Automated Labware Positioners (ALPs) Instructions for Use*
- ✓ **Setting up the system with labware and reagents.** For details, refer to:
 - [CHAPTER 2, Setting Up the Physical Deck](#)
 - *Biomek NX and NX^P Laboratory Workstations Multichannel Pod User's Manual, Framing Instructions*
 - OR
 - *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual, Framing Instructions*
- ✓ **Loading a method.** For details, refer to:
 - [CHAPTER 3, Creating a Simple Method for NXP Multichannel](#)
 - OR
 - [CHAPTER 4, Creating a Simple Method for NXP Span-8](#)
 - *Biomek Software User's Manual, Creating and Using Methods*

Advancing Your Skills

We sincerely hope that you are pleased with your new Biomek NX^P workstation.

Biomek Software has many additional features and functions that are beyond the scope of this manual. To learn more about using your Biomek NX^P workstation, you have several options:

- Biomek Methods Programming Course
- Biomek Advanced Methods Programming Course

For further information about the available courses, please contact your sales representative or visit our website at: <http://www.beckmancoulter.com>

Contact Information

For additional technical support in the USA and Canada, call Beckman Coulter Customer Operations at 1-800-526-7694. Outside the USA and Canada, contact your Beckman Coulter Representative.

Please have your System ID# or Serial # to enable us to better serve you.

Access to Biomek NX^P Workstation Manuals

This manual should be used in conjunction with the other Biomek NX^P workstation manuals, which are listed in the table below. These documents can be found in the one or both of the following locations:

- **On your computer:** C:\Program Files (x86)\Common Files\Beckman Coulter\Manuals
- **Online:** www.beckmancoulter.com/ifu

User Manual	Objective
Biomek NX and NX ^P User's Manuals	Provides safety information, specifications and dimensions, instrument and component operating instructions, and troubleshooting and maintenance information for the instrument.
Biomek Software User's Manual	All-inclusive instructions for using Biomek Software.
Automated Labware Positioners (ALPs) Instructions For Use	Provides detailed instructions on hardware and software installation and operation of all varieties of automated labware positioners and accessories available on the Biomek NX ^P workstation.
Biomek FX ^P and NX ^P Laboratory Automation Workstation 4.1 Migration Guide for Biomek 3.3 Methods	A guide specifically written for current or former Biomek NX ^P or FX ^P workstation users. This guide provides information on the software improvements and provides instructions for migrating methods from a Biomek Software, version 3.3 to Biomek Software Version 4.1.
Biomek NX ^P and Biomek FX ^P Laboratory Automation Workstations User Manual Addendum	A document containing revised information regarding the Biomek FX and FX ^P Workstation User's Manual, Biomek NX ^P Multichannel Pod Workstation User's Manual, and the Biomek NX ^P Span-8 Pod User's Manual.
Biomek FX/FX ^P and NX/NX ^P Shaking Peltier ALP User Manual	Instructions for using the Shaking Peltier ALP with the Biomek FX ^P and NX ^P instrument.
Biomek FX/NX Laboratory Automation Workstations Static Peltier ALP User Manual	Instructions for using the Static Peltier ALP with the Biomek FX ^P and NX ^P instrument.

Introduction

Access to Biomek NX^P Workstation Manuals

Biomek NX^P Laboratory Automation Workstation

Overview



The Biomek NX^P instrument is a multi-axis instrument designed with an open architecture to allow expandability of the system. The design provides a foundation for interchangeable specific-use components, such as the 96-and 384-Channel Heads for NX^P-MC and a variety of ALPs. A gripper is installed on the Multichannel Pod for grasping and moving labware.

- Open frame design which simplifies integration of plate readers, washers, labware storage devices and robotic transport systems.

- Two Configurations:
 - The Biomek NX^P Multichannel Pod is a full-microplate replication tool incorporating a gripper and interchangeable heads to accommodate a variety of functions. It is available with 96- and 384-channel pipetting heads.
 - The Biomek NX^P Span-8 Pod allows liquid to be transferred between test tubes and other labware, as well as to perform liquid level sensing (LLS), clot detection, and septa piercing on test tubes.
- ➤ **NX^P-S8 only** — Optional 360 rotating gripper — picks up plates in different orientations, and saves deck space by moving titer lids while the span 8 is pipetting.
- Modular design, allowing expansion of the instrument capabilities to include additional operations such as heating and cooling, and plate shaking.
- Regardless of the configuration or operating components, the workstation is controlled through the powerful Biomek Software.

This chapter provides an overview the Biomek NX^P Laboratory Automation Workstation instrument, ALPs, accessories, and software. Topics include the following:

- [Lifting and Moving the Instrument](#)
- [Hardware](#)
- [Active ALPs and Accessories](#)
- [Passive ALPs](#)
- [Tips](#)
- [Biomek Software](#)

Detailed information on the topics covered in this chapter can be found in the following manuals:

- *Biomek NX and NX^P Multichannel Pod User's Manual*
- *Biomek NX and NX^P Span-8 Pod User's Manual*
- *Biomek Software User's Manual*
- *Automated Labware Positioners (ALPs) Instructions For Use*
- *Biomek FX/FX^P and NX/NX^P Shaking Peltier ALP User Manual*
- *Biomek FX/NX Static Peltier ALP User Manual*

Lifting and Moving the Instrument

Ensure the following precautions are observed when moving or lifting the instrument:

 CAUTION

When lifting the Biomek NX^P Laboratory Automation Workstation, grasp it only from positions on the base. Do not grasp the ends of the large cover at the top of the instrument.

 CAUTION

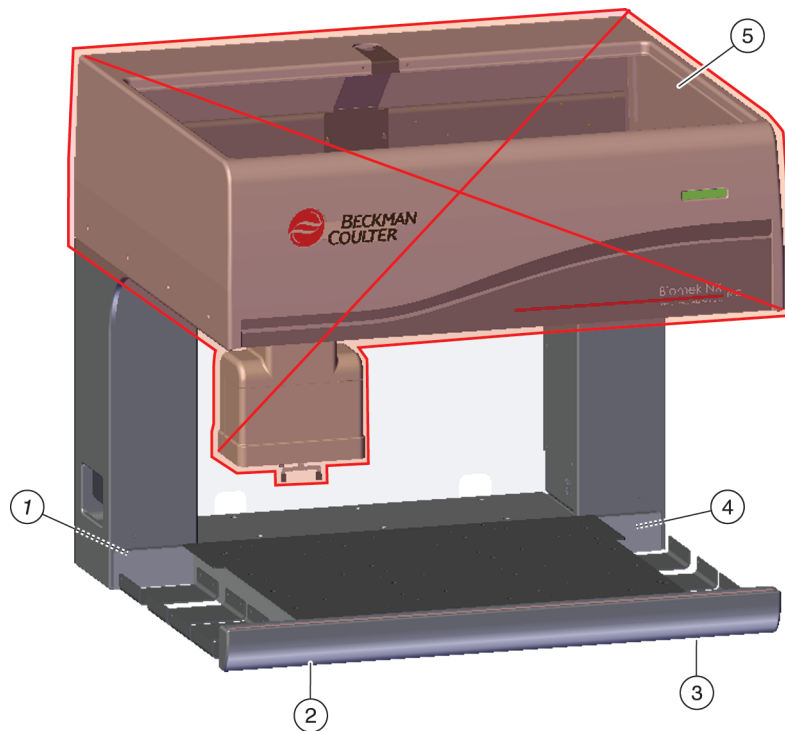
The Biomek NX^P Workstation weighs 190 pounds. At least two people are needed to lift the Biomek NX^P Laboratory Automation Workstation. Failure to do so could result in bodily injury and/or damage to the workstation. Always lift the workstation from positions on the base.

[Figure 1.1](#) shows the locations where each person needs to grasp when moving the instrument. See your safety officer for the correct number of people to lift the instrument.

 CAUTION

The back of the instrument is heavier than the front; when maneuvering the instrument into position by lifting from the front, take care not to lift the front so far that it causes the instrument to fall backward.

Figure 1.1 Lifting Points for Moving the Workstation



1. First Person Lift Point (back of leg)
2. Optional Second Person Lift Point
3. Optional Third Person Lift Point
4. Fourth Person Lift Point (back of leg)
5. Cover (**Do not use to lift.**)

Hardware

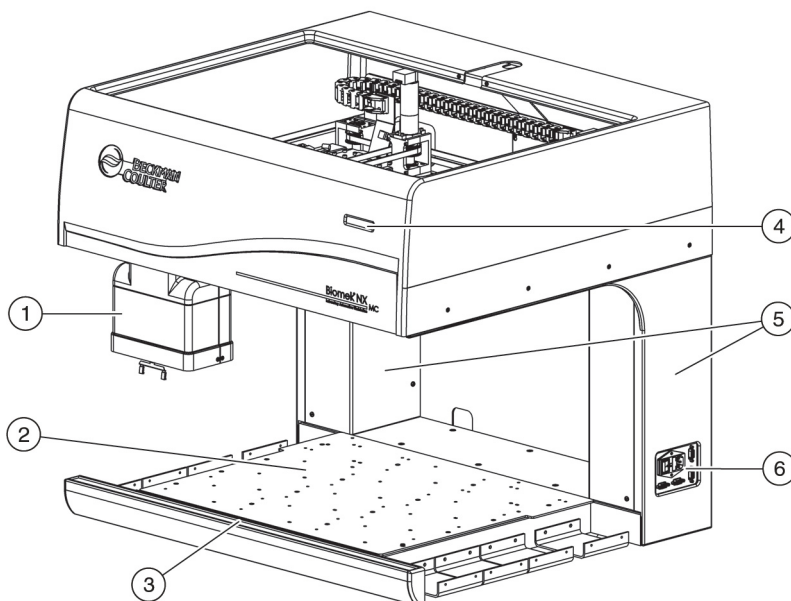
This section provides basic information regarding the Biomek NX^P Laboratory Automation Workstation, including:

- *Biomek NXP Multichannel Pod Main Components*
 - [Interchangeable Heads](#)
 - [Changing Heads](#)
 - [NXP Multichannel Connections](#)
- *Biomek NXP Span-8 Pod Main Components*
 - [Main Components of the Span-8 Pod](#)
 - [NXP Span-8 Connections](#)
- [X and Y Platform](#)
- [Powering On the Biomek NXP Instrument](#)
- [Home All Axes](#)
- [Light Curtain and Other Protective Barriers](#)
- [Light Curtain Protection System](#)

Biomek NX^P Multichannel Pod Main Components

The Multichannel Pod is a full microplate replication tool incorporating a gripper and interchangeable heads to accommodate a variety of functions.

Figure 1.2 Main Components of the Biomek NX^P Multichannel Pod Laboratory Automation Workstation



- 1. Multichannel Pod** — holds various removable and interchangeable heads that perform liquid handling operations, and a pair of grippers for labware movement operations.
- 2. Base** — The base is the work surface of the Biomek NX^P instrument and positions ALPs to be accessed by the Multichannel Pod
- 3. Light Curtain** — projects a diffused array of infrared light. When an object larger than 1" in diameter penetrates this zone, the instrument shuts down immediately.
- 4. Indicator Lights** — indicate the current operational status of the instrument.
- 5. Towers**
- 6. Power Switch, Fuse, Host Connection**

Interchangeable Heads

An interchangeable, multichannel head is attached to the bottom of the pod to perform a specific liquid-handling procedure. Depending on the head and the desired liquid-handling procedure, different tip types may be used.

Presently, there are three types of heads that can be attached to the Multichannel Pod:

- 96-Channel 20 μ L Head
- 96-Channel 200 μ L Head
- 384-Channel 30 μ L Head

Changing Heads

Each Multichannel head can be removed and replaced to accommodate the needs of a particular method (refer to *Biomek NX and NX^P Laboratory Automation Workstations Multichannel Pod User's Manual*, Changing Heads)

NOTE When a head is changed, the Hardware Setup must be changed appropriately. If the hardware configuration is not updated using Hardware Setup, inaccurate pipetting may occur (refer to *Biomek NX and NX^P Multichannel Laboratory Automation Workstations User's Manual*, Configuring a Multichannel Pod).

Instrument dimensions and deck configuration options are provided in the *Biomek NX^P Preinstallation Manual*, available on www.beckmancoulter.com/ifu.

NX^P Multichannel Connections

The Biomek NX^P Multichannel towers (Figure 1.6) form the two upright sections of the base unit along which the pod travels in the X-axis. The link for master control of the Biomek NX^P system, plus utility hook-ups and ALP connections, are on the towers. A status indicator panel with green and amber indicator lights is built into the main cover and keeps users aware of the current operational status of the Biomek NX^P (refer to *Biomek NX and NX^P Multichannel Pod User's Manual*, Chapter 1, Indicator Lights).

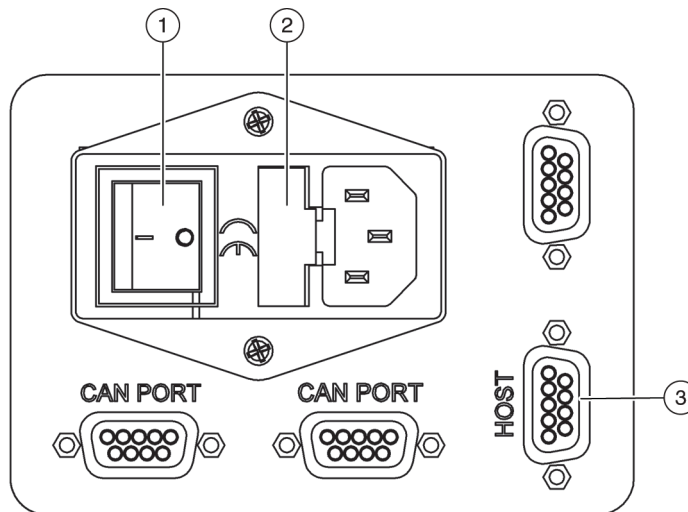
The towers house the following connections:

- Main power switch on the outside of the right tower (Figure 1.3).
- Communication hookup to host computer via RS232 on the outside of the right tower.
- Main power fuses for the instrument on the outside of the right tower.
- Pneumatically regulated air supply ports for active ALPs outside of the left tower (Figure 1.5).
- Electrical plug-ins and CAN connections for active ALPs on the outside of both towers and inside of the right tower (Figure 1.3, Figure 1.4, Figure 1.5).

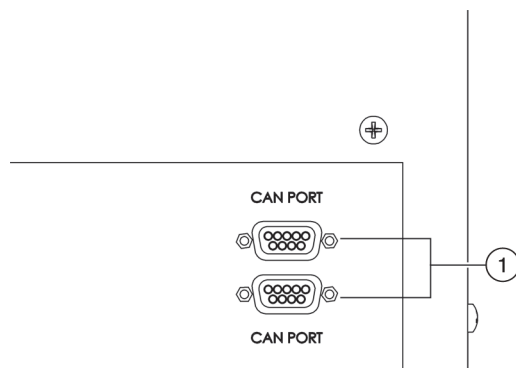
WARNING

Risk of equipment damage. Make sure to connect the correct devices to the communication ports. Failure to make the correct port connections can cause equipment damage.

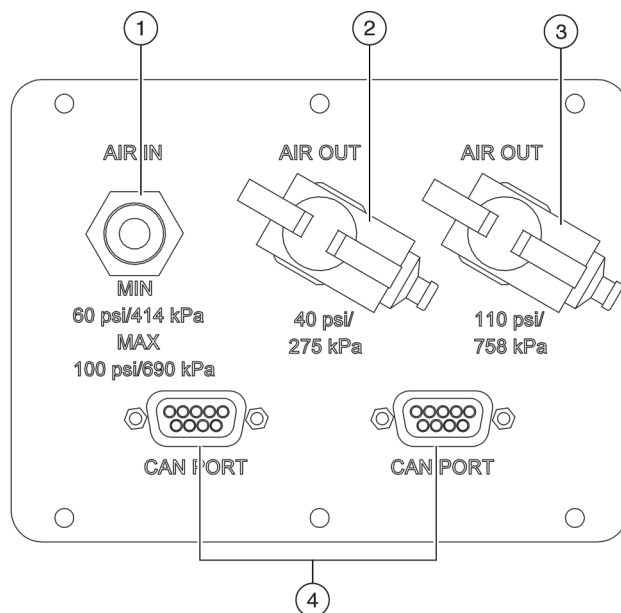
Figure 1.3 Biomek NX^P Right Tower Outside Connections



1. Main Power Switch
2. Fuses
3. Communication Connection to Host Computer

Figure 1.4 Biomek NX^P Multichannel Right Tower Inside Connections

1. CAN ports

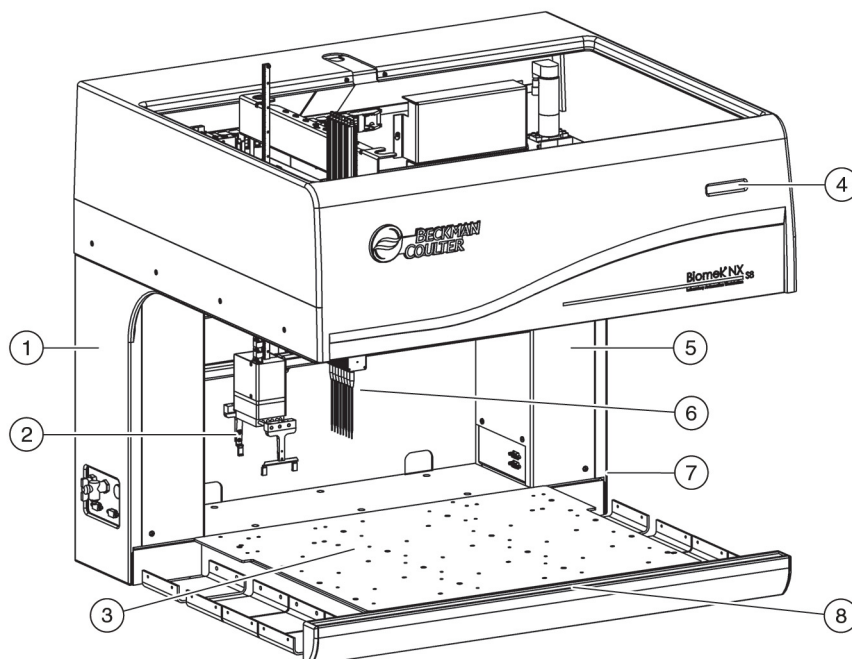
Figure 1.5 Biomek NX^P Multichannel Left tower Outside Connections

- | | |
|------------------------|--------------------|
| 1. Air In 60 - 100 psi | 3. Air Out 110 psi |
| 2. Air Out 40 psi | 4. CAN ports |

Biomek NX^P Span-8 Pod Main Components

The Span-8 Pod is a self-contained working unit installed on the Biomek NX^P instrument (Figure 1.6). The Span-8 Pod is a liquid-handling tool capable of performing liquid transfers from test tubes and large pieces of labware to smaller pieces of labware, or vice versa. The Span-8 Pod can also perform liquid level sensing (LLS) during liquid transfers when liquid level sensing enabled tips are attached to the probes, and clot detection (CD) during liquid transfers when conductive tips are attached to the probes.

Figure 1.6 Main Components of the Biomek NX^P Span-8 Laboratory Automation Workstation



- | | |
|--|--|
| <p>1. Tower</p> <p>2. Gripper — When ordered, a gripper is installed on the Span-8 Pod during instrument production</p> <p>3. Base — The base is the work surface of the Biomek NX^P instrument and positions ALPs to be accessed by the Span-8 Pod and optional gripper</p> <p>4. Indicator Light — indicates the current operational status of the instrument.</p> | <p>5. Tower</p> <p>6. Span-8 Pod — holds a series of eight probes that perform liquid handling operations independent of each other.</p> <p>7. Power Switch, Fuse, Host Connection (not visible)</p> <p>8. Light Curtain — projects a diffused array of infrared light. When an object larger than 1" in diameter penetrates this zone, the instrument shuts down immediately.</p> |
|--|--|

Main Components of the Span-8 Pod

- Probes** — Move independently in the Z-axis and pipette independently in the D-axis with the assistance of the pump assembly. Hold the tip interface for fixed or disposable tips, both Liquid Level Sensing (LLS) capable and non-LLS capable, used to perform liquid-handling operations (refer to *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual*, Main Components of the Span-8 Pod).
- Interchangeable Tips** — Fixed or disposable tips that are attached to the Span-8 probes, used to perform microplate-to-microplate, test tube-to-microplate, and test tube-to-test tube liquid transfers (refer to *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual*, Selecting Which Type of tips to Use).

- **Pump Assembly** — Houses the individual pumps and syringes which control the flow of system fluid to and from each of the eight probes by controlling the D-axis; located between the towers at the back of the Biomek NX^P instrument (refer to *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual*, Pump Assembly.)
- **Liquid System** — Stores and transports system fluid used to provide a vacuum for pipetting, washing tips, and performing bulk dispense operations (refer to *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual*, Liquid System).
- **Purge Pump** — Provides a means of forcefully purging bubbles from the tubing lines and forcefully washing fixed tips. The purge pump supply line is connected to the supply bottle to use the system fluid as the purge fluid. The purge pump pushes fluid through a manifold that splits the flow to each of the eight syringe pump valves. (refer to *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual*, Purge Pump).

NX^P Span-8 Connections

The Biomek NX^P Span-8 towers (Figure 1.6) form the two upright sections of the base unit along which the pod travels in the X-axis. The link for master control of the Biomek NX^P system, plus utility hook-ups and ALP connections, are on the towers. A status indicator panel with green and amber indicator lights is built into the main cover and keeps users aware of the current operational status of the Biomek NX^P instrument (refer to *Biomek NX and NX^P Span-8 Pod User's Manual*, Indicator Lights).

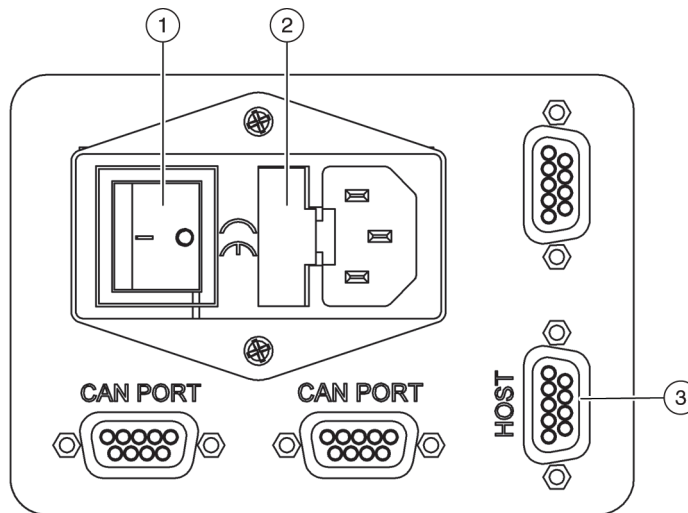
The towers house the following connections:

- Main power switch on the outside of the right tower (Figure 1.7).
- Communication hookup to host computer via RS232 on the outside of the right tower.
- Main power fuses for the instrument on the outside of the right tower.
- Pneumatically regulated air supply ports for active ALPs outside of the left tower (Figure 1.9).
- Electrical plug-ins and CAN connections for active ALPs on the outside of both towers and inside of the right tower (Figure 1.7, Figure 1.8, Figure 1.9).

WARNING

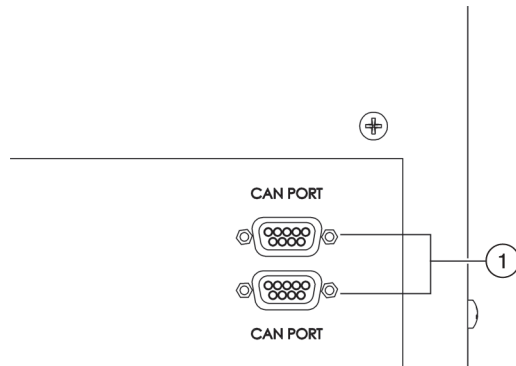
Risk of equipment damage. Make sure to connect the correct devices to the communication ports. Failure to make the correct port connections can cause equipment damage.

Figure 1.7 Biomek NX^P Span-8 Instrument Right Tower Outside Connections



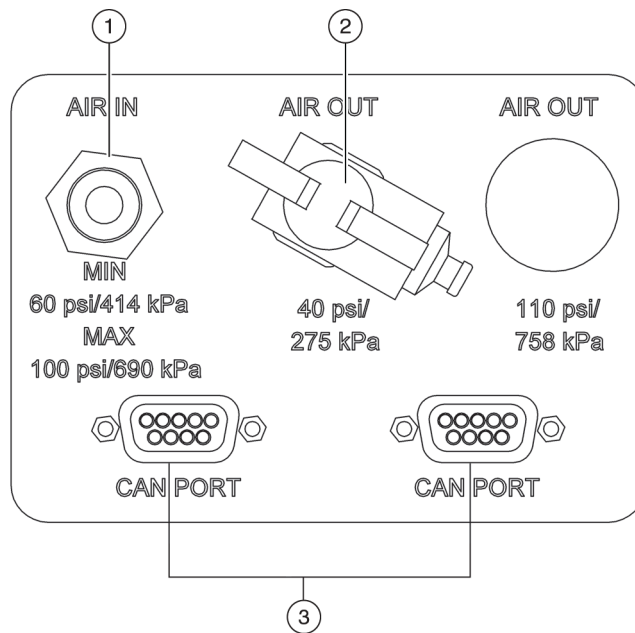
1. Main Power Switch
2. Fuses
3. Communication Connection to Host Computer

Figure 1.8 Biomek NX^P Span-8 Instrument Right Tower Inside Connections



1. CAN Ports

Figure 1.9 Biomek NX^P Span-8 Instrument Left tower Outside Connections

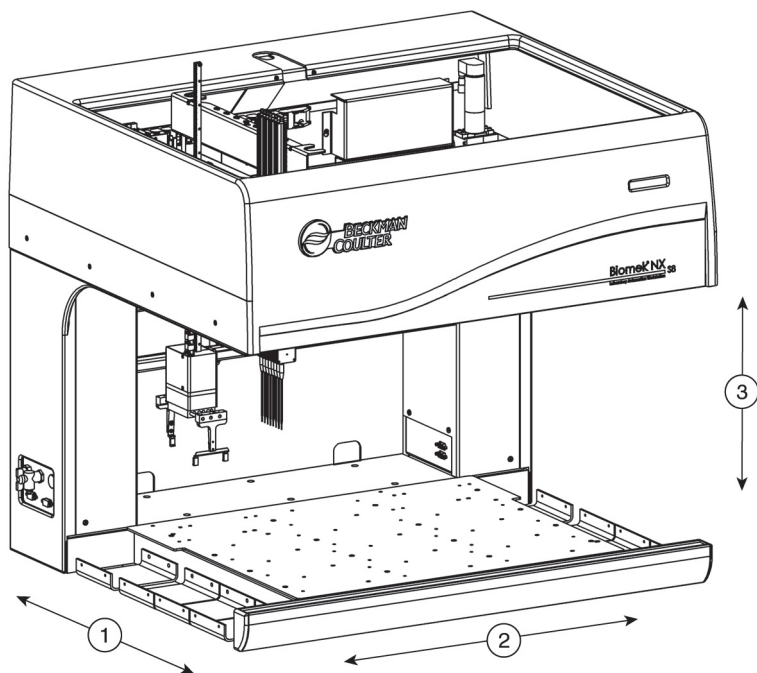


1. Air In 60 - 100 psi
2. Air Out - 40 psi
3. CAN ports

X and Y Platform

Use the X and Y Platform to position active and passive ALPs for liquid handling operations.

Figure 1.10 X and Y Platform (same for Multichannel and Span-8)



1. **Y axis:** Movement from back to front is in a *positive* direction.
Movement from front to back is in a *negative* direction.
2. **X axis:** Movement from left to right is in a *positive* direction.
Movement from right to left is in a *negative* direction.
3. **Z axis:** Movement upwards is in a *positive* direction.
Movement downwards is in a *negative* direction.

Powering On the Biomek NX^P Instrument

To power on your instrument:

- 1 Power on your Automation Controller.
- 2 Locate the power switch on the right side of the instrument. Flip the switch to the **ON** position; this initiates communication between the instrument and the Automation Controller, which takes a moment to complete. The instrument beeps and the LED indicator light illuminates once the system is ready for use.
- 3 Complete the **Home All Axes** procedure (see [Home All Axes](#)).

Home All Axes

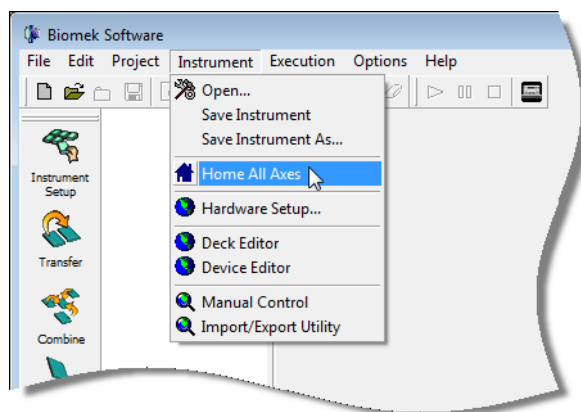
Home the pod each time the Biomek NX^P instrument is powered on. Homing the pod gives the system a point of reference from which to make subsequent moves. The home position is left, back, up.

NOTE When attempting to use the pod, error messages result until the pod is homed.

NOTE While it is necessary to home the pod after the Biomek NX^P instrument is powered on, it is not necessary to home the pod each time the host computer is turned on or the software is accessed.

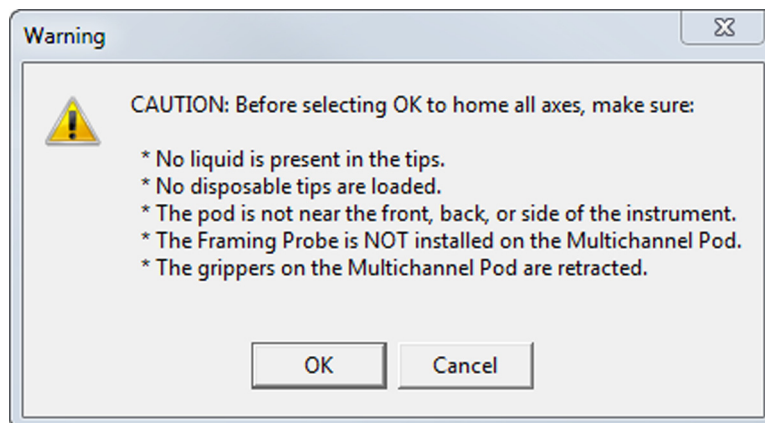
To home the Pod:

- 1 From the **Instrument** menu, choose **Home All Axes**.



A **Warning** appears:

Home All Axes Warning Message



NOTE Depending on the instrument configuration, different or additional warnings and information may appear,

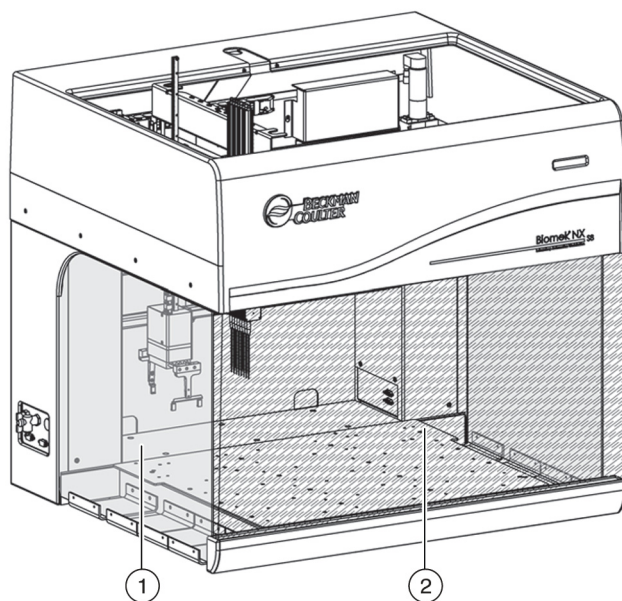
- 2 Address all warnings and choose **OK**. The pod is homed and the instrument is now ready for use.

Light Curtain and Other Protective Barriers

A perimeter protective safety system is standard for the Biomek NX^P instrument. This safety system helps protect against operator injury, damage to the equipment, and interruptions during the liquid-handling process. The standard Biomek NX^P instrument perimeter protective system includes a diffuse-reflective light curtain along the front of the instrument and protective side safety shields along the left and right sides of the instrument.

For more information about the Biomek NX^P instrument protective barriers, refer to the *Biomek NX and NX^P Multichannel Pod User's Manual*, Protective Barriers, or the *Biomek NX and NX^P Span-8 Pod User's Manual*, Protective Barriers.

Figure 1.11 Protective Barriers for the Biomek NX^P instrument



1. Protective side safety shield
2. Front light curtain

Light Curtain Protection System

WARNING

To reduce the risk of personal injury, the safety shields or light curtains must be in place before operating.

WARNING

Dark non-reflective material affects the sensitivity of the light curtain and adversely impact its effectiveness. Typical lab dress, such as lab coats and latex gloves, do not degrade light curtain operation; however, it is advisable to test the impact of the all lab dress on light curtain sensitivity before operating the Biomek NX^P system. Verify lab dress impact on light curtain sensitivity as follows: Use Manual Control in the software and insert the material no more than 1" past and approximately 21" above the light curtain panel. Make sure the solid amber indicator light changes to blinking amber.

WARNING

To reduce the risk of personal injury, operate the Biomek NX^P instrument only with all protective shields in place.

The light curtain projects a diffused array of infrared light, rather than a vertical laser-like beam (Figure 1.11). When a part of the human body or an object larger than approximately 1" in diameter (such as labware and large cables) penetrates this protective zone, the instrument shuts down immediately, stopping all pod and head operations. Some ALP operations, such as shaking or stirring, continue.

ALPs respond to a violation according to safety and operational requirements specific to each ALP. For example, a refilling reservoir may continue to operate if user safety is not compromised. ALPs that operate with a motion that could present a danger to the operator go to a safe state when the light curtain is violated.

NOTE It is important to become familiar with this protected zone. This reduces the possibility of causing the instrument to shut down accidentally during operation by unintentionally violating the light curtain zone.

NOTE When active ALPs or optional devices are operating and the light curtain is violated, an error message may not appear until after the ALP or optional device operation is complete.

When the instrument is sitting idle or in the paused mode, no violations are registered when the protective zone is penetrated. This allows full access to instrument components, ALPs, and labware on the Biomek NX^P deck during a pause or system idle time.

Protective Side Safety Shields

Side safety shields are installed by the Beckman Coulter Service Engineer on the Biomek NX^P instrument. If the instrument overhangs the table work surface on either side, a protective bottom shield is also installed on the side of the instrument overhanging the table work surface.

Active ALPs and Accessories

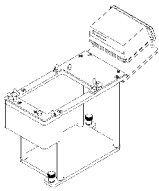
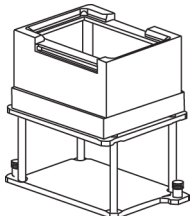
Active ALPs and accessories contain a mechanism connecting to power and/or air sources for operation, such as tip loading, tip washing, mixing/stirring, shaking, and precisely positioning labware. Described in this section are the active ALPs and accessories available to your Biomek NX^P Laboratory Automation Workstation.

IMPORTANT Most ALPs are installed by a Beckman Coulter Representative when the Biomek NX^P system is first installed. Some ALPs can be added later, and may not require a Beckman Coulter Representative for installation. See the *Automated Labware Positioners (ALPs) Instructions for Use* for installation instructions.

RS-232 Device

The devices in [Table 1.1](#) are connected to the **Automation Controller** through the RS-232 port.

Table 1.1 Biomek RS-232 Devices

Device	Image	Description
Barcode Reader ALP		An active ALP that scans barcode labels applied to the narrow sides of labware.
Solid Phase Extraction (SPE) Vacuum Manifold ALP		An active ALP used to filter fluid from samples using a filtered microplate, and disposing of the filtered fluid.

CAN Devices

The devices in [Table 1.2](#) are connected to the **instrument** through the CAN port. The location of the CAN port is shown in [Figure 1.3](#).

Table 1.2 Biomek NX^P CAN Devices

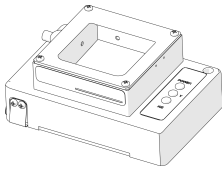
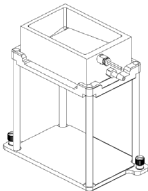
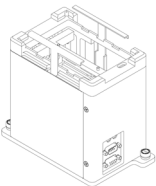
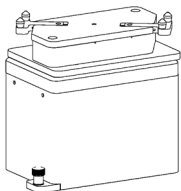
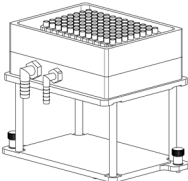
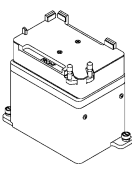
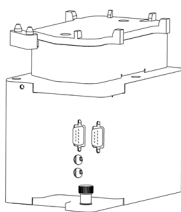
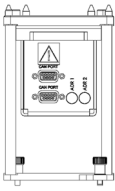
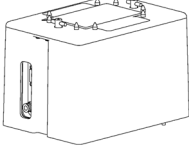
Device	Image	Description
AccuFrame		A device that automates the process of teaching Biomek Software the location of the labware positioners and devices positioned on the deck.
Drainable/Refillable Reservoir		A device that features a reservoir that can be drained and refilled automatically using steps in a Biomek Software method, or manually using Advanced Manual Control .
Magnetic Bead		A device that positions magnetic beads in microplates for pipetting operations. A magnet is used to position and release magnetic beads for re-suspension in a microplate.
Microplate Shaking		A device designed to mix solutions in microplates using a linear shaking motion.
Multichannel Tip Wash		A device that washes tips on the deck. The 96-Channel Tip Wash ALP is used with a 96-Channel Head and has 96 cleaning wells. The 384-Channel Tip Wash ALP is used with a 384-Channel Head and has 384 cleaning wells.
Orbital Shaker		An active ALP that shakes labware using an orbital shaking motion.
Positive Position		A device that verifies the presence or absence of a microplate on the ALP and precisely positions it for interaction with the Biomek Instrument.

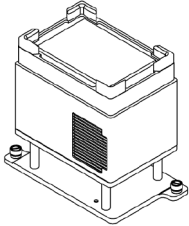
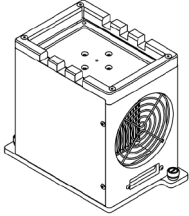
Table 1.2 Biomek NX^P CAN Devices

Device	Image	Description
Stirring		A device that stirs liquids in a reservoir at an adjustable speed, using a caplet shaped Teflon-coated stir bar placed in the reservoir.
Tip Loader		A device that loads disposable tips onto a 96-well head or a 384-well head mounted on a Multichannel Pod.

USB Devices

The devices in [Table 1.3](#) are connected to the instrument to the **Automation Controller** through the USB port.

Table 1.3 Biomek USB Devices

Device	Image	Description
Shaking Peltier ALP		A labware positioner with microplate shaking, heating, and cooling capabilities from a connected controller. Adapter plates are available for 96-well and 384-well thermocycler plates.
Static Peltier ALP		A labware positioner with heating and cooling capabilities from a connected controller. Adapter plates are available for flat-bottomed labware and for 96-well and 384-well thermocycler plates.

Passive ALPs

Some passive ALPs hold labware in place on the deck, while others act as receptacles for by-products from methods, such as system fluid and disposed tips, and tip boxes.

IMPORTANT Most ALPs are installed by a Beckman Coulter Representative when the Biomek NX^P system is first installed. Some ALPs can be added later, and may not require a Beckman Coulter Representative for installation. See the *Automated Labware Positioners (ALPs) Instructions for Use* for installation instructions.

Table 1.4 Biomek NX^P Passive ALPs

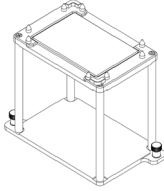
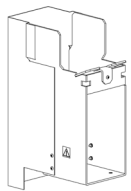
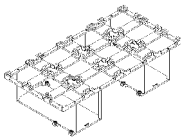
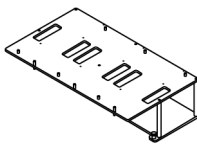
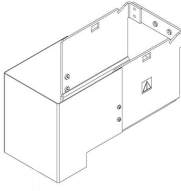
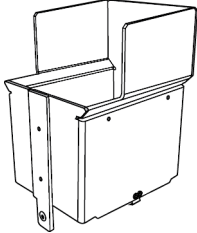
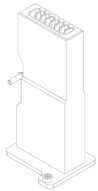
Item	Image	Description
1x1 ALP		An open structure that holds labware during liquid handling procedures. This ALP can be mounted on any deck position and ensures that labware is accessible by the pod at a predetermined height. 1 x 1 — occupies one position on the deck and holds one piece of labware. 1 x 3 — occupies three positions on the deck and holds up to three pieces of labware.
Half-Position ALP		NXP-Span-8 only — Provides a means to dispose of tips during a method. There are two configurations: the disposed tips are placed into a waste receptacle inside the ALP base, or an attached slide that extends beyond the edge of the Biomek deck directs used tips to slide into a receptacle placed below (shown with slide).
4 x 3 High-Density Passive ALP		NXP-Span-8 only — An open structure that holds multiple pieces of labware, allowing more labware on the Biomek deck at one time while using as few deck positions as possible.
Test Tube Rack ALP		Holds test tube racks or septum piercing tube racks on the Biomek deck during liquid handling procedures. Comes in two sizes: 1 x 2 — holds up to two racks of test tubes 1 x 3 — holds up to three racks of test tubes (shown)
Multichannel Disposal ALP		NXP Multichannel only — Provides a means to dispose of tips during a method. When the slide (shown) is attached, it extends beyond the deck. Disposed tips are directed down the slide into a receptacle placed below.

Table 1.4 Biomek NX^P Passive ALPs

Item	Image	Description
Span-8 Disposal ALP		Provides a means to dispose of tips during a method. When the slide (shown) is attached, it extends beyond the deck. Disposed tips are directed down the slide into a receptacle placed below.
Span-8 Tip Wash ALP		Provides a means to wash fixed tips on the probes of a Span-8 Pod. It uses a flow of system fluid from an off-deck supply container as wash fluid. Used wash fluid drains from the ALP via a tube connected to the waste port to an off-deck waste container.

Tips

The tips available to the Biomek NX^P instrument are listed in [Table 1.5](#).

NOTE Fixed tips do not have an associated tip box.

Table 1.5 Biomek NX^P Tips

Tip Type	Tip Box Name (Software)	MC or Span-8	LLS/CD Capable	Tip Volume
Fixed 60 (Coated ^a) Fixed 60 (Uncoated)	Fixed60	Span-8	Yes	Maximum of 1000 µL liquid and/or air capacity, depending on syringe size ^b
Fixed 100 (Coated ^a) Fixed 100 (Uncoated)	Fixed100	Span-8	Yes	Maximum of 1000 µL liquid and/or air capacity, depending on syringe size ^b
Disposable 20 µL LLS	AP96_20_LLS	Span-8	Yes	Maximum of 100 µL liquid capacity; up to 20 µL air capacity, depending on syringe size
Disposable 20 µL	Span_8_20uL	Span-8	No	
Disposable 20 µL barrier tips	Span_8_20uL_Barrier	Span-8	Yes	Maximum of 20 µL liquid and/or air capacity; depending on syringe size ^c
Disposable 50 µL (sterile and non-sterile)	P50	Both	No	Maximum 90 µL liquid and/or air capacity, depending on syringe size
Disposable 50 µL (barrier)	P50_Barrier	Both	No	Maximum of 60 µL liquid and/or air capacity, depending on syringe size

Table 1.5 Biomek NX^P Tips

Tip Type	Tip Box Name (Software)	MC or Span-8	LLS/CD Capable	Tip Volume
Disposable 50 µL LLS	P50_Barrier	Span-8	Yes	Maximum of 90 µl liquid and/or air capacity, depending on syringe size
Disposable 50 µL LLS (barrier)	P50_LLS_Barrier	Span-8	Yes	Maximum of 60 µL liquid and/or air capacity, depending on syringe size
Disposable 200 µL	Span_8_200uL	Span-8	No	Maximum of 220 µL liquid capacity; up to 240 µL air capacity, depending on syringe size, depending on syringe size
Disposable 200 µL_LLS	Span8_200uL_LLS	Span-8	Yes	
Disposable 200 µL barrier tips	Span8_200uL_Barrier	Span-8	Yes	Maximum of 125 µL liquid and/or air capacity, depending on syringe size ^c
Disposable P1000 µL (sterile and non-sterile)	Span8_P1000_LLS	Span-8	Yes	Maximum 500 µL liquid and/or air capacity, depending on syringe size
Disposable P1000 µL barrier tips	Span-8_P1000_LLS_Barrier	Span-8	Yes	Maximum of 1025 µl liquid and/or air capacity, depending on syringe size
Disposable 1000 µL (non-conductive)	Span-8_P1000	Span-8	No	Maximum of 1050 µL liquid and/or air capacity, depending on syringe size
Disposable 1000 µL (non-conductive Barrier)	Span-8_P1000_Barrier	Span-8	No	Maximum of 1025 µL liquid and/or air capacity, depending on syringe size
Disposable 1000 µL Wide Bore (non-conductive)	Span-8_p1000WB	Span-8	No	Maximum of 1050 µL liquid and/or air capacity, depending on syringe size
Disposable 1000 µL Wide Bore (non-conductive Barrier)	Span-8_P1000WB_Barrier	Span-8	No	Maximum of 1025 µl liquid and/or air capacity, depending on syringe size

- Coated refers to tips covered with a Teflon coating. The coating assists in preventing cross-contamination. Solutions are less likely to adhere to the Teflon coating than to uncoated stainless steel fixed tips and are easier to wash off, thereby reducing the potential for cross-contamination.
- To aspirate the maximum volume allowed with fixed tips, a 5 mL syringe is required. The Biomek NX^P currently supports 100 µL, 250 µL, 500 µL, 1 mL, 2.5 mL, and 5 mL syringes.
- Barrier tips are recommended when using disposable tips with liquids that are susceptible to contamination, such as blood.

Biomek Software

Biomek Software is designed to:

- Do a substantial amount of the method-building work for you.
- Allow you to take as much direct and precise control over the method-building process as you want.

NOTE A method is a series of steps controlling the operations of your Biomek NX^P Laboratory Automation Workstation.

Included in this section are the following topics:

- [Starting Biomek Software](#)
- [Biomek Software User Interface](#)
- [Biomek Software Menus](#)
- [Biomek Software Step Palettes](#)

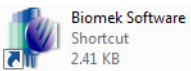
Starting Biomek Software

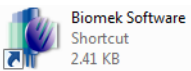
The instrument must be powered on before starting Biomek Software. For instructions on powering on the instrument, see *Powering On the Biomek NXP Instrument*.

To launch Biomek Software:

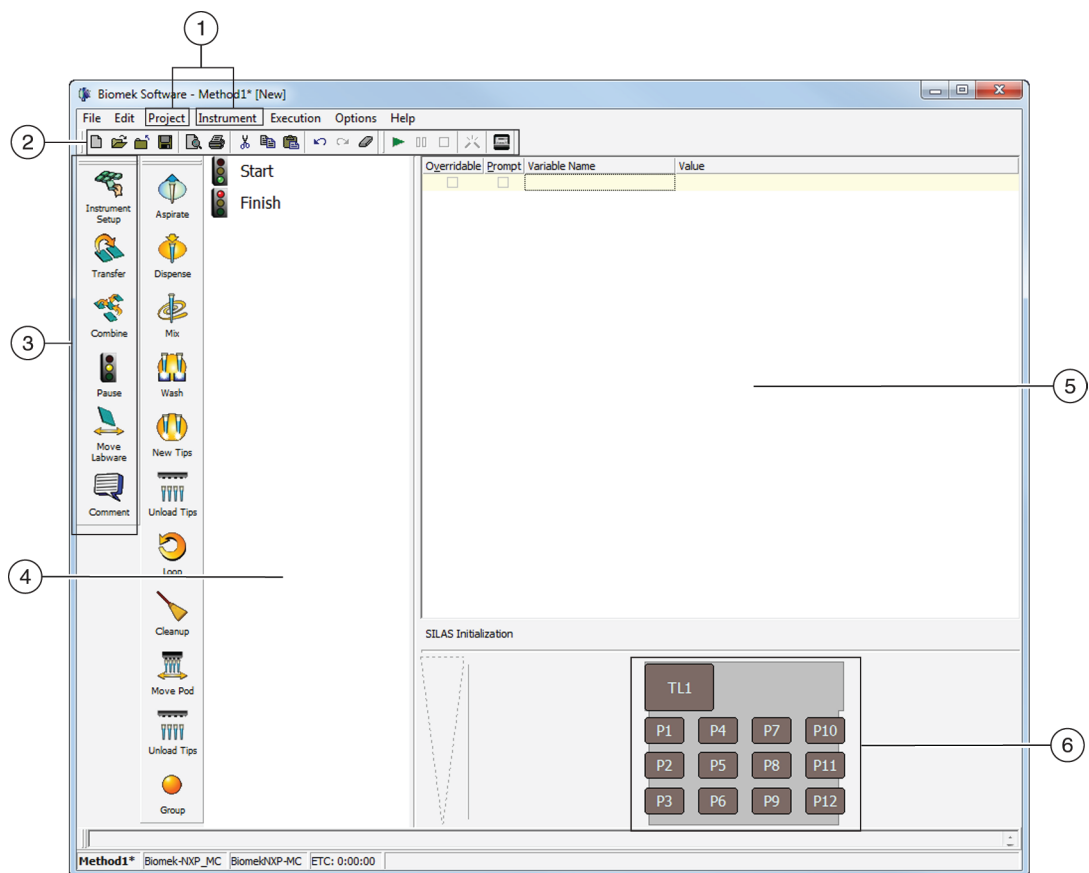
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- 1 Select the Windows **Start** button > **All Programs** > **Beckman Coulter** > **Biomek Software**.

OR

Double click the  shortcut on your desktop.



Biomek Software User Interface

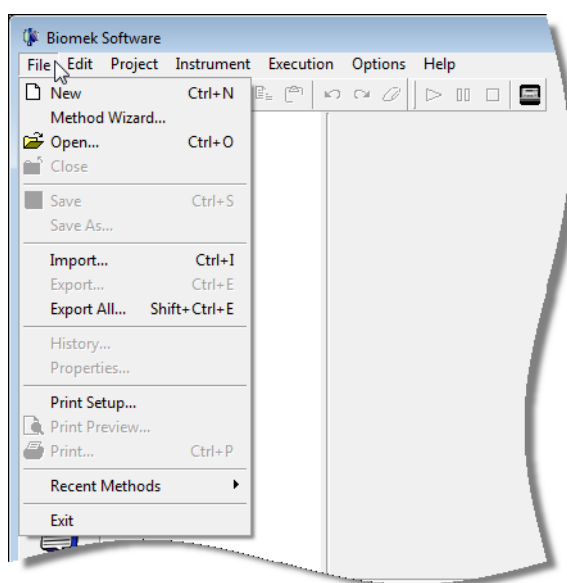


1. **Menus:** Editors and options are accessed through Biomek Software menus.
2. **Toolbar:** Allows quick-access to frequently-used software functions.
3. **Step Palette:** Displays the steps available for Biomek Software; changes depending on which palettes are displayed.
4. **Method View:** The method is built step by step in this area.
5. **Step Configuration Area:** When a step is highlighted in the Method View, the corresponding configuration appears in this area.
6. **Current Deck Display:** Displays the status of the deck upon completion of the previous step.

Biomek Software Menus

This section provides an overview of the options available in each menu in Biomek Software. For additional information, refer to the *Biomek Software User's Manual*.

File Menu



The **File** menu contains options to open, save, import, export, and print method files, as well as provides access to view method history and properties. Each menu option is described in [Table 1.6](#). Detailed information on the menu options described in this section can be found in the *Biomek Software User's Manual*.

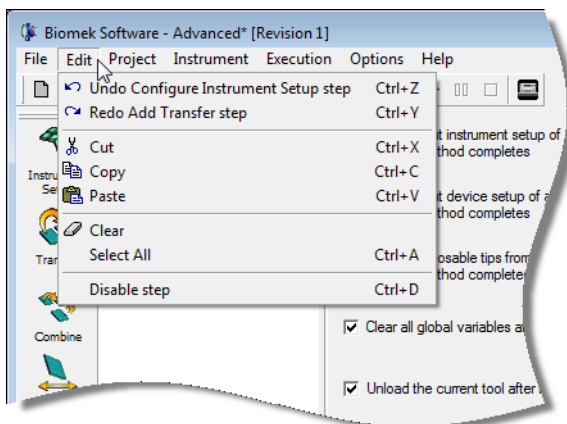
Table 1.6 File Menu Options

Menu Item	Description
New	Prompts a new method to open in Biomek Software. If a method is currently open, you have the option of saving or discarding the open method.
Open	Opens a saved method.
Close	Closes the active method without closing Biomek Software.
Save	Saves the active method.
Save As	Saves the active method with a new name.
Import	Imports a saved method, allowing you to specify the project items to import.
Export	Exports a method to the location of your choice.
Export All	Exports all methods in a project file to the location of your choice.
History	Provides the complete revision history that tracks each time the current method has been saved or validated; can be viewed when the method is open.

Table 1.6 File Menu Options

Menu Item	Description
Run History	View a validated method run history. A run history includes access to all dialog alerts, log reports, work lists, and other files associated with or generated by the method during the run.
Properties	Allows entry of a description of the method that can be viewed or modified.
Load Continuation	Available only if a Continuation method exists. A Continuation method is a temporary method created when Snap is chosen on an error message or when Snap Continuation is chosen from the toolbar during a method run.
Print Setup	Provides options for formatting the method for printing.
Print Preview	Allows viewing the method prior to printing.
Print	Prints a hard copy of a method. • Useful if a computer monitor is some distance from the instrument. • Allows someone away from the lab to see the method steps. • Recreating the method can be achieved using a hard copy.
Recent Methods	Provides a list of recent methods, allowing you easily open a recent method by selecting it from the list.
Sign	When Beckman Coulter Accounts & Permissions is enabled, methods that are saved or validated may be signed. Signing allows users to add comments with an electronic signature to the audit trail for the method open in the editor.
Validate	When Beckman Coulter Accounts & Permissions is enabled, methods may be validated. A validated method is a revision of a method that is saved, approved with an electronic signature, and protected from further modification.
Exit	Closes Biomek Software.

Edit Menu

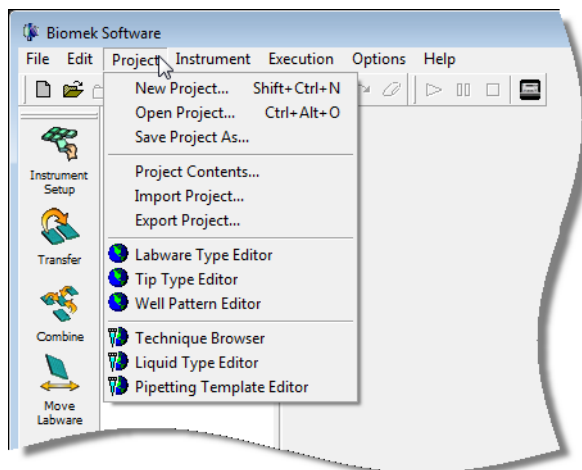


The **Edit** menu contains the tools for editing steps in a method. Each menu option is described in [Table 1.7](#). Detailed information on the menu options described in this section can be found in the *Biomek Software User's Manual*.

Table 1.7 Edit Menu Options

Menu Item	Description
Undo	Used to undo the most recent method-building action. Multiple actions may be undone by performing consecutive Undo actions; there is no limit to how many actions can be undone.
Redo	Used to redo an action that has been undone using the Undo feature. By performing consecutive Redo actions, multiple actions can be redone if multiple actions were undone.
Cut	Removes a step in a method, allowing you to place it in a different location.
Copy	Places a step on the Biomek Software clipboard, allowing it to be duplicated in a selected location within a method.
Paste	Places a copied or cut step in the selected location.
Clear	Deletes the selected step from a method.
Select All	Selects all of the steps in a method.
Disable step	Disables a step for execution. When a method is run, the step is ignored.

Project Menu



The **Project** menu contains options to access, create, save, view contents of, import, and export projects, as well as provides access to the editors to create, modify, and delete project items. Each menu option is described in [Table 1.8](#). Detailed information on the menu options described in this section can be found in the *Biomek Software User's Manual*.

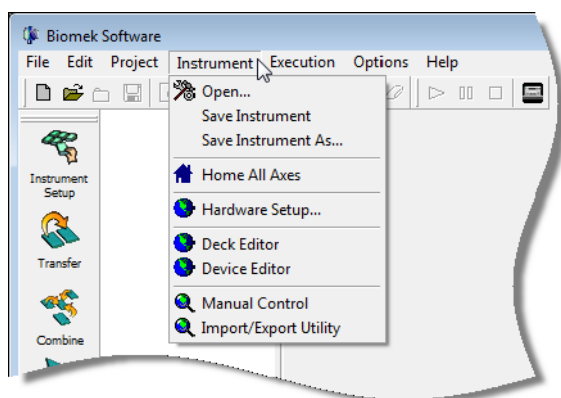
Table 1.8 Project Menu Options

Menu Item	Description
New Project	Creates a new, empty project.
Open Project	Closes the current active project and any methods that may be open and opens the selected project.
Save Project As	Saves a copy of the project file with a new name, and switches to the new project.
Project Contents	View the items contained in a project file and when each was last modified. • View the history of selected items. • Revert project items to a specific date. • Show deleted project items.
Import Project	Import a previously exported project file into the currently active project file.
Export Project	Export a project or individual records from a project file. • Use exported records to import into a different project file.
Labware Type Editor	• Add new labware types. • Copy, delete, and rename labware types. • Edit labware types.
Tip Type Editor	• Add new tip types. • Remove tip types. • Change tip properties.
Well Pattern Editor	• Create patterns for specific wells. • Copy, delete, and rename existing patterns.

Table 1.8 Project Menu Options

Menu Item	Description
Technique Browser	- Create new and customize current techniques. - Manage technique groups. - Copy techniques. - Edit technique properties.
Liquid Type Editor	- Create new, or modify existing, liquid types. - Rename, remove, copy, and paste liquid types.
Pipetting Template Editor	- Create and modify templates. - Copy and remove templates.

Instrument Menu



The **Instrument** menu contains options to open and save instrument files, as well as provides access to the editors to configure the instrument file. Each menu option is described in [Table 1.9](#). Detailed information on the menu options described in this section can be found in the *Biomek Software User's Manual*.

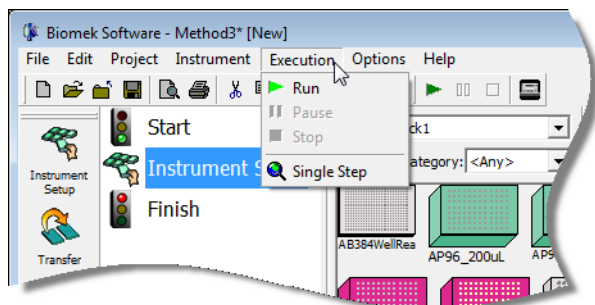
Table 1.9 Instrument Menu Options

Menu Item	Description
Open	Opens an existing instrument file. Allows for method development using a specific instrument configuration.
Save Instrument	Saves an instrument file. The instrument file is automatically saved when another instrument file is opened or Biomek Software is closed; however, to save the current instrument file without closing it, use Save Instrument.
Save Instrument As	Saves a new instrument file by saving the current active instrument file with a new file name. The new instrument file has the same settings as the active instrument when it was saved; however, any changes made to the active instrument file are saved as the new instrument and not with the original instrument file.

Table 1.9 Instrument Menu Options

Menu Item	Description
Home All Axes	Moves the pod(s) to the point of reference. You will need to Home All Axes at the following times: • Daily maintenance. • After cycling the power. • System error recovery. • After system crashes.
Hardware Setup	• Tells Biomek Software what devices and active ALPs to expect on the instrument by providing a connection between the instrument and the software. • Configure Probes • Correlate Pods • Correlate Z-Axis • Find Liquid Level Sensing Sensitivities • Find Clot Detection Sensitivities • Set Validation Time • Frame Gripper
Deck Editor	• Configures the type, location, and properties of devices and ALPs on the instrument. • Allows for changing decks and provides notification of positional errors. • Allows for creating, removing, and renaming decks. • Edits properties of ALPs and positions. • Contains alignment procedures: — Manual Teach • Wizard Prompt — AccuFrame • Place Position • Auto Teach
Device Editor	• Configures external devices for use with the instrument.
Manual Control	Moves or provides the following independent of a method: • Home All Axes • Active ALP and CAN device control • Pods • Gripper • Get version number for firmware on instrument and CAN devices
Import/Export Utility	Imports or exports deck layouts, framing tools, and pod settings. IMPORTANT Importing decks, framing tools, and pod settings should only be done in very limited circumstances. IMPORTANT Do not import instrument setting from previous version of Biomek Software. Doing so can lead to inaccurate framing and crashes.

Execution Menu

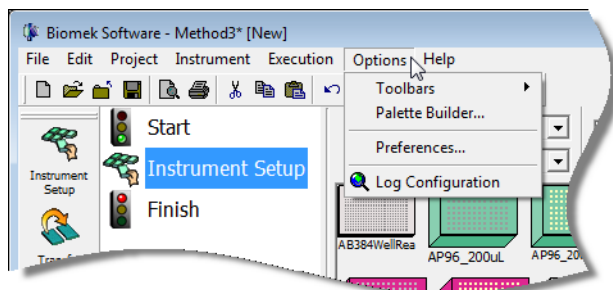


The **Execution** menu contains options for running a method, including run, pause, stop, snap continuation, and single step. Each menu option is in [Table 1.10](#). Detailed information on the menu options described in this section can be found in the *Biomek Software User's Manual*.

Table 1.10 Execution Menu Options

Menu Item	Description
Run	Initiates a method run.
Pause	Halts a method after the instrument has completed the move in progress. A run can be resumed by selecting Pause again.
Stop	Halts a method during its run when there is no intent to resume method execution.
Snap Continuation	Stops a method after Biomek instrument completes the move in progress and creates a Continuation method.
Single Step	Allows the unit to move one operation at a time by clicking the launch button for each move.

Options Menu

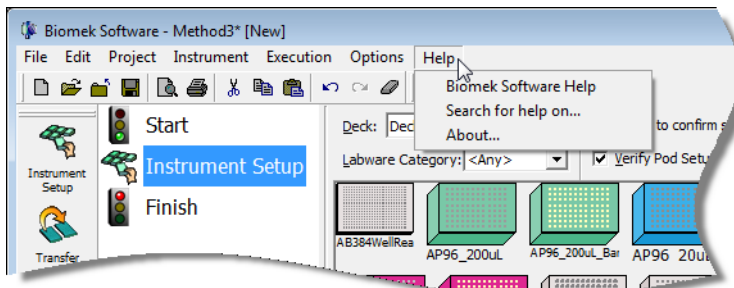


The **Options** menu contains options to set up the user interface and configure logs. Each menu option is described in [Table 1.11](#). Detailed information on the menu options described in this section can be found in the *Biomek Software User's Manual*.

Table 1.11 Options Menu Options

Menu Item	Description
Toolbars	Allows for selection of a step palette to display, and also allows you to show or hide the Execution, Files, User and Method Error toolbars.
Palette Builder	Used to create, delete, and modify step palettes.
Preferences	Allows for changes in the look of the main editor and sets method viewing and editing options. In addition, it includes options to look ahead in the method, and to specify actions to take on errors, such as playing a sound and launching a program.
Log Configuration	Used to select the type of logs that are generated during a method run.

Help Menu



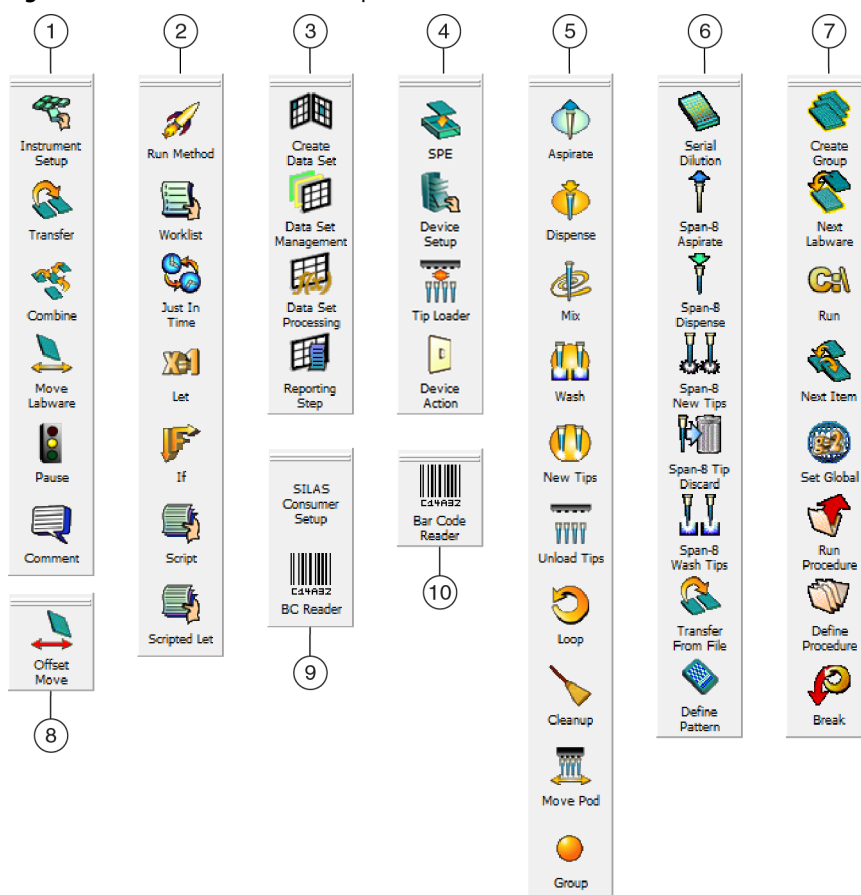
The **Help** menu provides access to information about Biomek Software, including the Biomek Software Online Help and information about the software. Each menu option is described in [Table 1.12](#). Detailed information on the menu options described in this section can be found in the *Biomek Software User's Manual*.

Table 1.12 Help Menu Options

Menu Item	Description
Biomek Software Help	Provides access to the Biomek Software Help.
Search for help on...	Used to gain quick access to search for a specific help topic.
About...	Provides information about the Biomek System, including the version number of the Software and serial number of the Instrument.

Biomek Software Step Palettes

Figure 1.12 Biomek Software Step Palettes



Step Palette	Description
1. Basic	The Basic step palette incorporates the basic steps that provide essential functionality for the Biomek NX^P system, including general instrument setup, pipetting operations, and labware manipulation. This palette consists of the following steps: - Instrument Setup - Transfer - Combine - Move Labware - Pause - Comment

Step Palette	Description
2. Advanced	The steps presented in the Advanced step palette provide tools for more complex management of methods. • Repeat a series of steps using a list of specified values without entering and configuring the steps repeatedly. • Access and run a method within a method. • Conditionally execute steps based on an aspect of the environment, such as the volume in a microplate. This palette consists of the following steps: • Run Method • Worklist • Just In Time • Let • If • Script • Scripted Let
3. DataSets	Steps on the DataSets step palette allow data sets to be created, managed, used, and reported in Biomek methods. Data sets allow sample tracking which means the contents of the plate or tube are known at any time in the method and decisions may be made during transfer or pipetting operations based on the contents of the plate or tube. This palette consists of the following steps: • Create Data Set • Data Set Management • Data Set Processing • Reporting
4. Devices	The steps presented in the Devices step palette integrate active ALPs and other devices with the instrument. The integration allows Biomek Software to control the device. After an active ALP or device is integrated, Biomek Software understands the attributes of the device, displays the configuration for the device, and receives information for operating the device. This palette consists of the following steps: • SPE • Device Setup • Tip Loader • Device Action
5. Intermediate	Steps on the Intermediate step palette provide individual control over liquid-handling functions outside the Transfer and Combine steps, including tip handling operations, flow of control, tip and tip box relocation options, and pod movement. This palette consists of the following steps: • Aspirate • Dispense • Mix • Wash • New Tips • Unload Tips • Loop • Cleanup • Move Pod • Group

Step Palette	Description
6. Span-8	Steps on the Span-8 step palette provide individual control over liquid-handling functions for the Span-8 Pod, including tip handling and pipetting operations outside the Transfer and Combine steps. Additional steps, such as Serial Dilution and Transfer From File, configure larger operations involving multiple liquid-handling functions. This palette consists of the following steps: • Serial Dilution • Span-8 Aspirate • Span-8 Dispense • Span-8 New Tips • Span-8 Tip Discard • Span-8 Wash Tips • Transfer From File • Define Pattern
7. Specialty	The steps presented in the Specialty step palette allow more control over methods. These steps are used to: • Set variables and make non-incremental changes to variables. • Break out of loops. • Create and use groups of labware. • Run executables. • Define and run procedures. This palette consists of the following steps: • Create Group • Next Labware • Run • Next Item • Set Global • Run Procedure • Define Procedure • Break
8. Custom (varies)	Displayed when a custom device and the software associated with it are installed on the system.
9. SILAS	Displayed when a SILAS device and the software associated with it is installed on the system.
10. Integrated Devices (varies)	Displayed when an Integrated Device and the software associated with it is installed on the system.

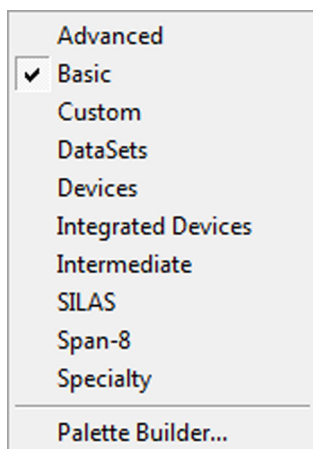
Toggling Step Palettes

The Biomek Software main editor provides step palettes to allow quick access to method-building tools.

To toggle step palettes on and off:

- 1 Right click in a gray area around the step palettes. A menu listing only the step palettes and access to Palette Builder appears (Figure 1.13).

Figure 1.13 Step Palette Menu



-
- 2** Choose the desired step palette to toggle it on or off. The corresponding step palette appears or is hidden from view.
-

Preparing to Run

Overview

Preparing to run the Biomek NX^P Laboratory Automation Workstation requires setting up the physical deck with devices and labware. After the workstation setup is completed, Biomek Software must be updated to match the physical instrument setup. In this chapter, you will learn the basics of setting up the hardware and software in preparation for running methods.

Setting Up the Physical Deck

This section provides an overview of the basic elements that make up the Biomek NX^P deck. Topics include setup information on the following:

- [ALPs and Accessories Setup](#)

ALPs and Accessories Setup

A Beckman Coulter Representative will likely install the ALPs and accessories on your instrument. If you need to install additional hardware to the instrument or need to make changes to the configuration settings, refer to the *Biomek Automated Labware Positioners Instructions for Use* for complete instructions.

Configuring Biomek Software to Match the Physical Deck

Configuring Biomek Software to match the instrument deck involves updating the following:

- [Hardware Setup](#)
- [Deck Editor](#)
- [Populating the Deck with Labware](#)

The instructions in this section are for general purposes. The procedure outlined in [CHAPTER 3, Creating a Simple Method for NXP Multichannel](#) or [CHAPTER 4, Creating a Simple Method for NXP Span-8](#) provides instructions for creating a simple method, from start to finish. Completing this procedure

is suggested to develop an understanding of the activities required to run a method. Additional tutorials are available in the *Biomek NX and NX^P Tutorial*.

Hardware Setup

While a Beckman Coulter Representative normally installs and configures new devices in **Hardware Setup**, it may be necessary for you to install, configure, and remove other devices using **Hardware Setup** if you change the configuration of your instrument.

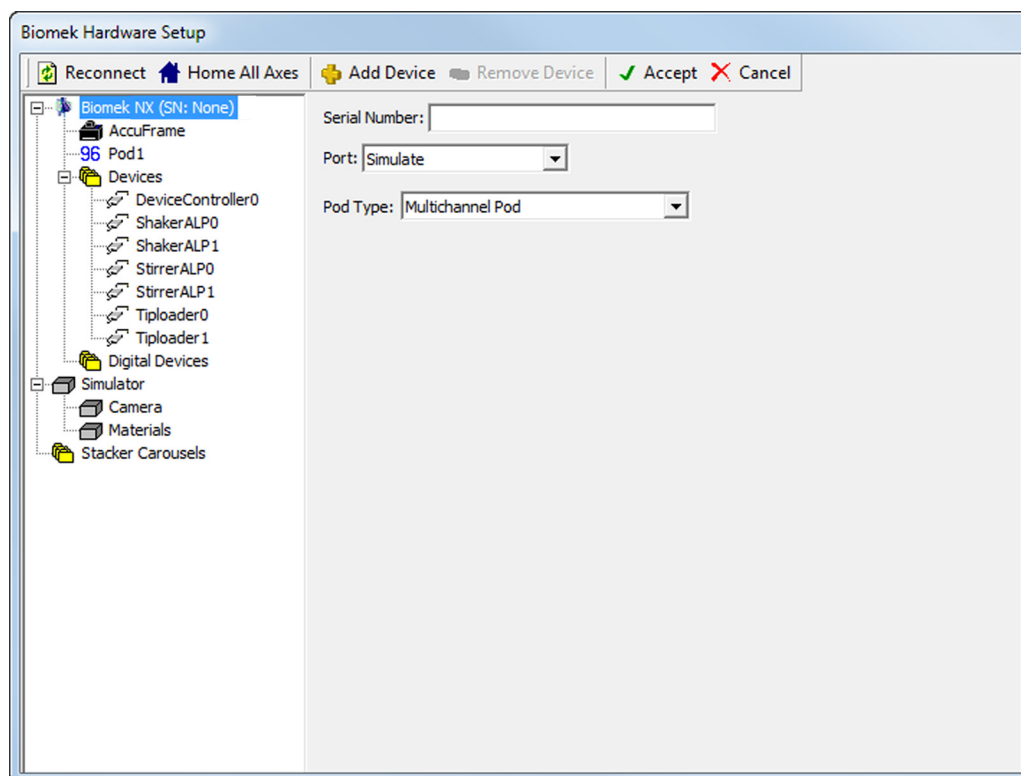
For additional information, refer to the *Biomek Software User's Manual*.

Adding Devices to the Software

To install new devices:

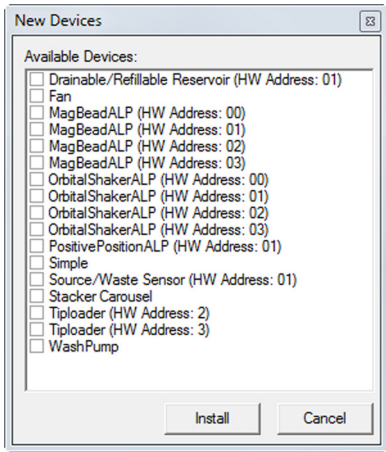
- 1 From the **Instrument** menu, select **Hardware Setup**. The **Biomek Hardware Setup** window opens (Figure 2.1).

Figure 2.1 Hardware Setup Window



- 2 Select **Add Device**. The **New Devices** window appears (Figure 2.2).

Figure 2.2 New Devices Dialog



- 3 Make the applicable selection(s) and select **Install**.
- 4 Configure the device if needed. See *Automated Labware Positioners (ALPs) Instructions For Use*.
- 5 Select  **Accept** in the **Biomek Hardware Setup** window to complete the process.
OR
Select  **Cancel** to discard the changes.

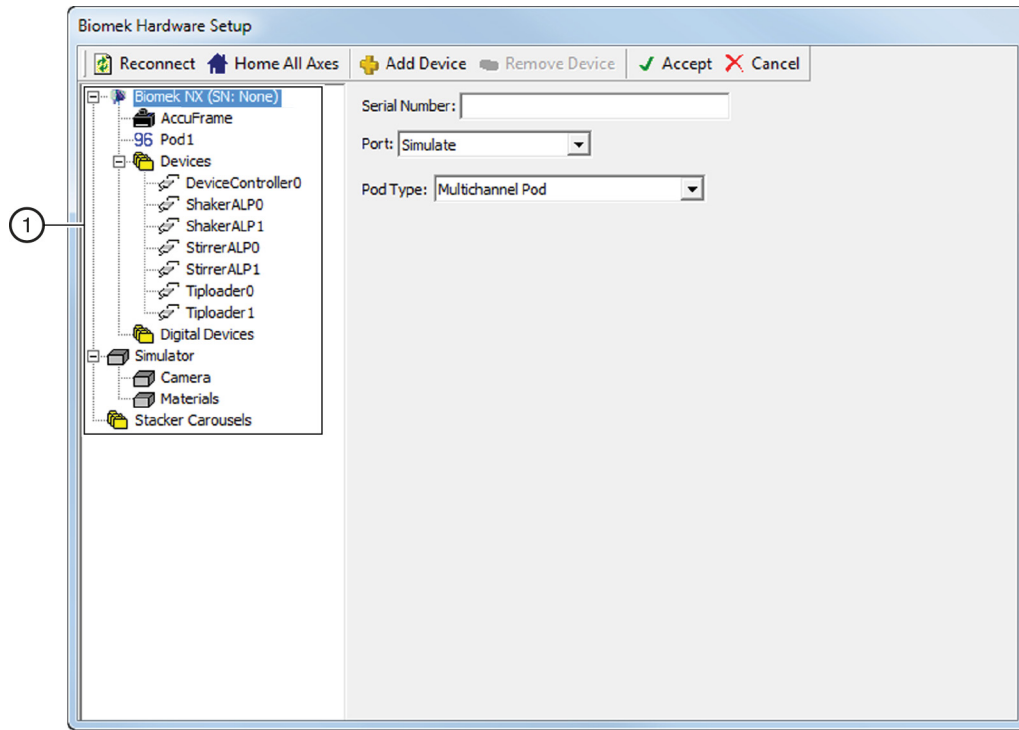
Removing Devices from the Software

To remove a device that had previously been added to Biomek Software:

- 1 From the **Instrument** menu, select **Hardware Setup**. The **Biomek Hardware Setup** window opens.

- 2 In the left-hand pane of the **Biomek Hardware Setup** window (Figure 2.3), select the device you wish to remove from Biomek Software.

Figure 2.3 Hardware Setup Window



1. List of available devices.

- 3 Select **Remove Device**.

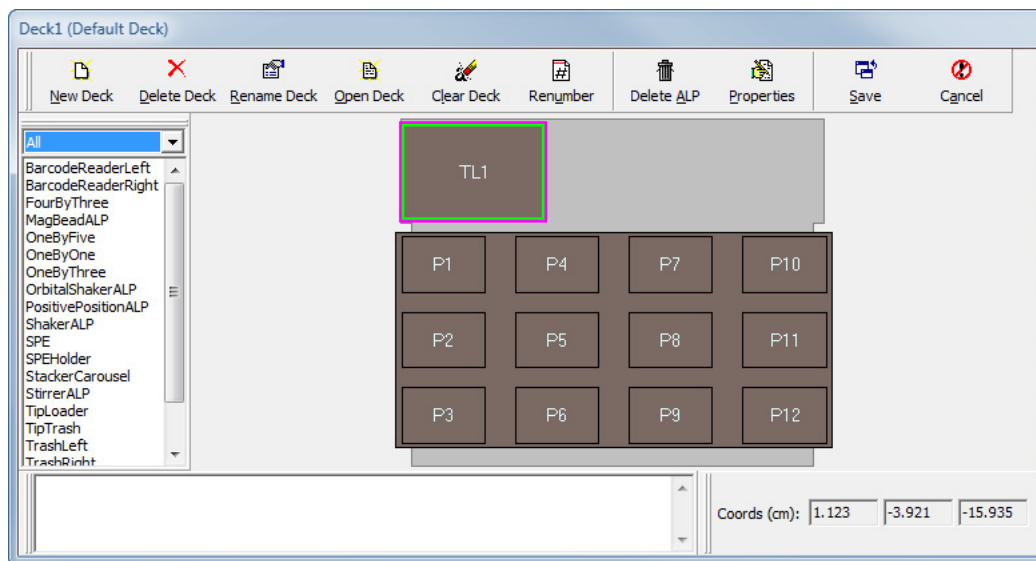
- 4 Select **Accept** in the **Biomek Hardware Setup** window to complete the process.

OR

Select **Cancel** to discard the changes.

Deck Editor

Figure 2.4 Standard Deck



Use the Deck Editor to:

- Define and change deck configurations and frame the deck.
- Determine the possible locations for a Biomek ALP.
- Notify the software of hardware changes.

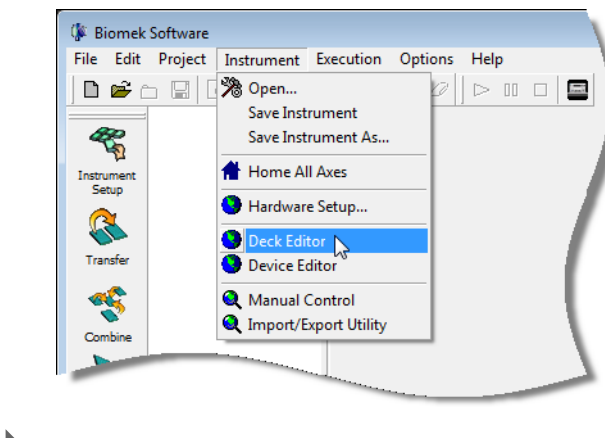
For additional details, refer to the *Biomek Software User's Manual*.

Opening the Deck Editor

To open the Deck Editor:

- 1 Select **Instrument > Deck Editor** (Figure 2.5).

Figure 2.5 Instrument Menu



Creating a Deck

To create a deck:

-
- 1 With the **Deck Editor** open, select . **Select a Deck** appears.
-

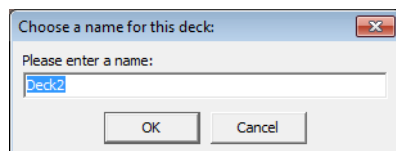
- 2 In **Select a Deck**, select **Standard**, which is located in the left-hand pane, and select **OK**.

NOTE The **Standard Deck** cannot be modified. This template will be used to create a new deck.

-
- 3 When the **Standard Deck** opens in the **Deck Editor**, select .
-

- 4 Enter a name in the **Select a name for this deck** dialog (Figure 2.6).

Figure 2.6 Deck Name



Deleting an ALP

To delete a Biomek NX^P ALP position:

-
- 1 With the **Deck Editor** open, click on an ALP to select it. In Figure 2.7, ALP **P9** is selected.

Figure 2.7 Selected ALP



2 Select . A warning appears asking you to confirm you are sure you want to delete the ALP.

3 Select **Yes** to confirm. In [Figure 2.8](#), ALP **P9** has been deleted.

NOTE This process can only be undone by cancelling **all** changes from the Deck Editor.

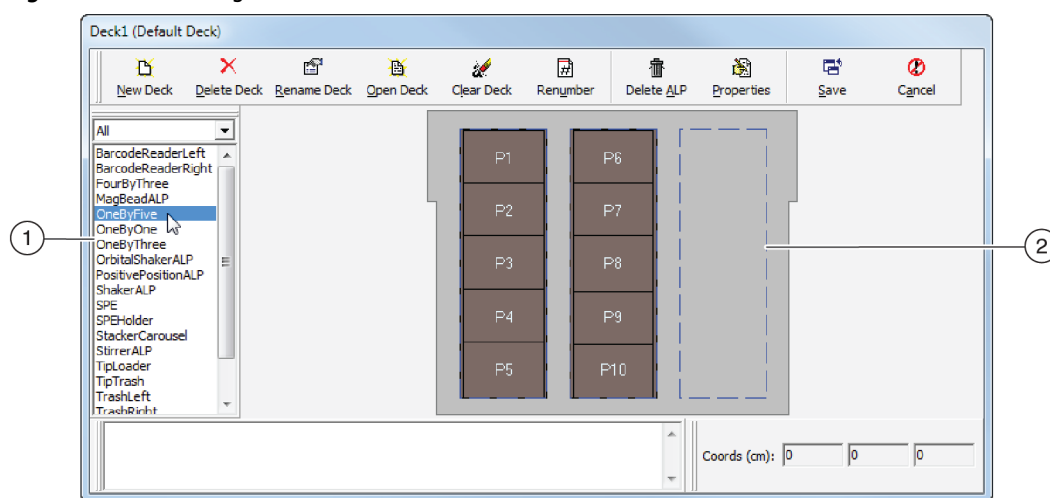
Figure 2.8 Deleted ALP



4 Continue to remove ALPs to match the physical configuration of your system.

Adding a Position

Figure 2.9 Positioning ALPs



1. ALPs list.
2. Available positions for each ALP are outlined in blue upon selecting on the ALPs list.

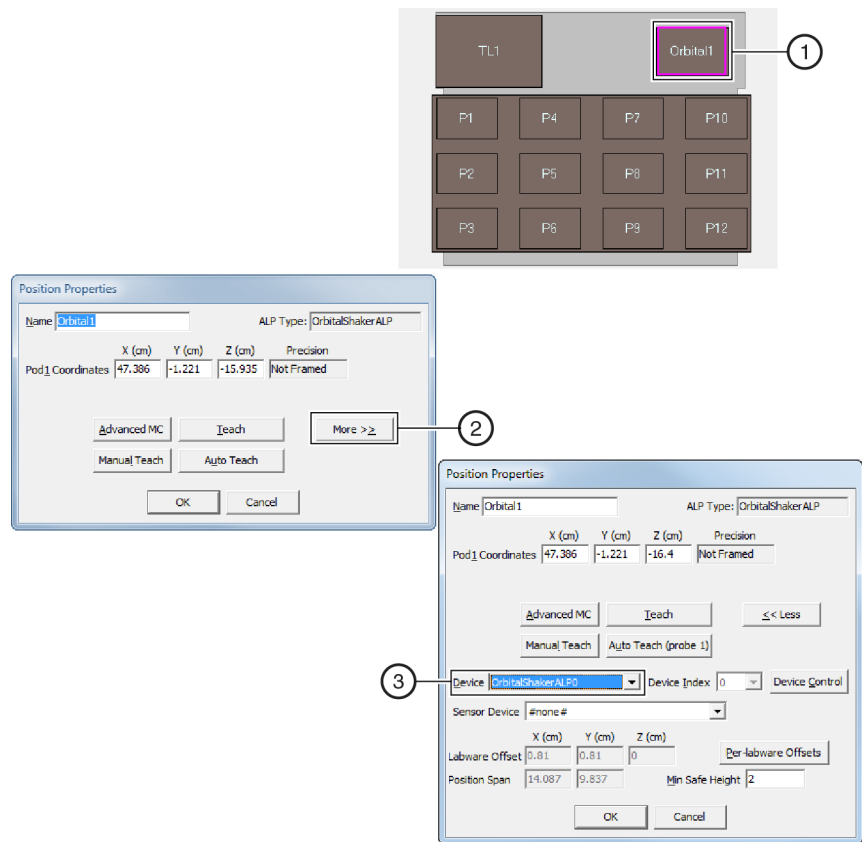
To add a position to your Biomek NX^P deck:

-
- 1 With the **Deck Editor** open, select and drag the desired ALP from the ALPs list. Available locations for the ALP are outlined in blue.

NOTE To create a new deck from scratch, click **New Deck**, then click the **Clear Deck** button.

Associating a Device With an ALP

Figure 2.10 Associating a Deck with ALPs Process



1. Double click on a position to open **Position Properties**.
2. Select **More >=>** to display all position properties.
3. Use the **Device** dropdown to associate a device to the position.

To associate a device with a position:

- 1 With the **Deck Editor** open, double click on the position.
- 2 Select **More >=>**.
- 3 From the **Device** drop-down, select the specific device to be associated with the position.
- 4 Select **OK**.

Renumbering the Deck

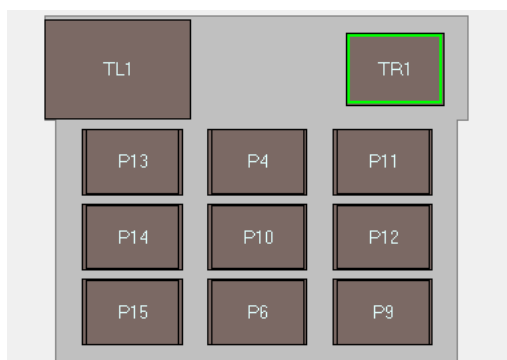
The **Renumber** feature renumbers the positions on the deck. Renumbering begins at the top left position, moves down the column, and then moves in this pattern to the right. Active Labware Positions will not be renumbered. This process cannot be undone.

NOTE You can manually rename each labware position.

To renumber the deck:

- 1 In **Deck Editor** with the appropriate deck open (Figure 2.11), select . A warning appears, asking you to confirm the process.

Figure 2.11 Deck Before Renumbering



- 2 Select **Yes** to confirm. The deck positions are renumbered (Figure 2.12).

Figure 2.12 Renumbered Deck



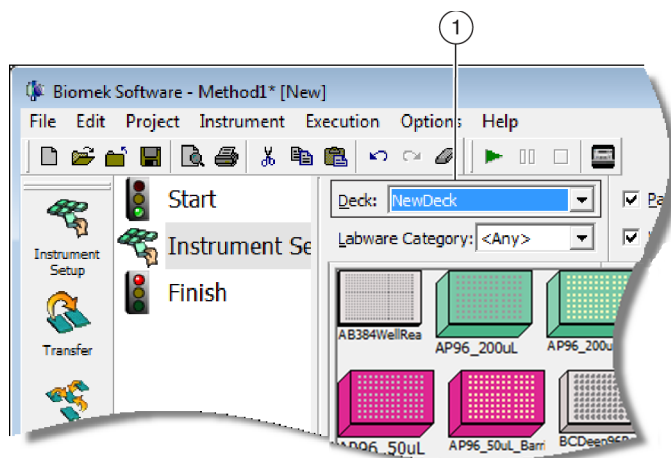
Saving the Deck

To save a deck:

- 1 With the **Deck Editor** open, select  to save settings and changes to the deck.

If you saved a newly-created deck, the name of the deck appears in the **Deck** drop-down located on the **Instrument Setup** step (Figure 2.13). See [Populating the Deck with Labware](#) for more information.

Figure 2.13 Instrument Setup Step — New Deck



1. Newly created decks are available in the **Deck** dropdown.

Framing the Deck



The Biomek NX^P instrument should be reframed following a crash. Failure to reframe the instrument can result in additional crashes.

Overview

Framing is the procedure of teaching Biomek Software the location of the ALPs and devices positioned on the deck. Biomek Software uses this framing information to move the pod to the appropriate positions to perform liquid-handling operations and manipulate labware.

A Beckman Coulter Service Engineer frames the Biomek NX^P instrument during system installation. It may be necessary to repeat the framing if:

- ALPs or devices are added, moved, or removed from the deck.

- the head on the Multichannel Pod is changed.
- OR
- the probes on the Span-8 Pod are changed.

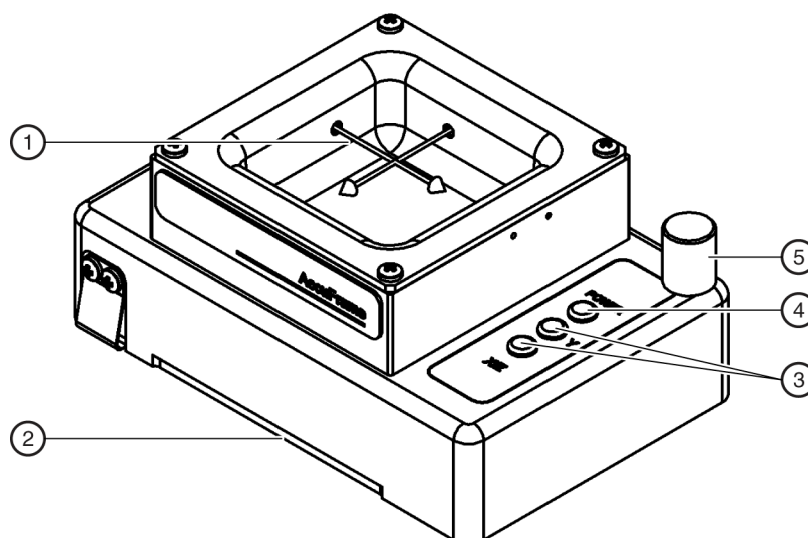
Framing deck positions can be performed automatically using the AccuFrame framing tool, or manually using a piece of labware to visually align the pod to the wells. The gripper on the Multichannel Pod may also be framed manually using the AccuFrame framing tool.

Framing the Biomek NX^P instrument includes:

- *Framing Deck Positions on the Biomek NXP Instrument Using the AccuFrame framing tool*
- *Manually Framing Deck Positions on the Biomek NXP Instrument with Multichannel Pod*
- *Manually Framing Deck Positions on the Biomek NXP Instrument with Span-8 Pod*
- [Framing the Gripper on a Multichannel Pod](#)
- [Framing the Gripper on a Span-8 Pod](#)

Framing Deck Positions on the Biomek NX^P Instrument Using the AccuFrame framing tool

The AccuFrame framing tool is used for framing ALP and labware positions on the Biomek NX^P deck. See [Figure 2.14](#). Framing using the AccuFrame tool requires no human judgment of alignment and is reproducible.

Figure 2.14 AccuFrame Framing Tool

- | | |
|--|----------------|
| 1. AccuFrame tool Light Beams | 4. Power Light |
| 2. Gripper Cutout – Gripper is framed in the cutout at the bottom of both sides of the frame tool. | 5. Hard Stop |
| 3. AccuFrame tool Light Beam Indicators | |

The AccuFrame tool fits snugly on an ALP, and a teaching process is performed through Biomek Software to obtain the coordinates for each deck position. The framing is completed by breaking two light sensors on the AccuFrame tool at their intersection point.

The coordinates for each ALP are generated automatically through the software based upon teaching one position; however, when precision is critical, as when using 384-well plates, each position must be framed before using the Biomek NX^P instrument. This ensures that the pod and gripper locate each position reliably.

The AccuFrame tool is equipped with three indicator lights:

- First light indicates that the AccuFrame tool is powered on.
- Middle light indicates the framing status of the Y-axis.
- Third light indicates the framing status of the X- and Z-axes.

NOTE The AccuFrame tool is calibrated by a Beckman Coulter Service Engineer. The calibration values are stored on the AccuFrame tool and read as necessary by Biomek Software.

Framing the deck positions of the Biomek NX^P instrument using AccuFrame tool is performed in the same manner for either a Multichannel Pod or Span-8 Pod, except a framing fixture is attached to the head of a Multichannel Pod, while a framing shaft is attached to a probe of a Span-8 Pod.

NOTE When framing multiple position ALPs such as the 1 X 3 Passive ALP, all positions on the ALP should be framed to increase precision.

To frame the deck positions of the Biomek NX^P instrument, the following operations must be completed:

- [Installing the AccuFrame Tool](#)
- [Homing all Axes of the Pod](#)
- [Attaching the Framing Fixture to the Pod](#)
- [Framing the Position](#)

NOTE Some ALPs require additional or slightly modified procedures to frame properly. Consult the *Automated Labware Positioners (ALPs) Instructions For Use* for the specific ALP for any special framing instructions.

NOTE Deck positions on the Biomek NX^P instrument can also be framed by selecting Manual Teach on Position Properties. Manual Teach involves loading tips and visually aligning them with the wells on a piece of labware, or moving a piece of labware from a framed position to the position to be framed. See *Manually Framing Deck Positions on the Biomek NX^P Instrument with Multichannel Pod*. Manual Teach is useful if specialized or very high density labware is used, or when Auto Teach yields unsatisfactory results. Some ALPs, such as the Span-8 Tip Wash ALP, must be framed manually.

Installing the AccuFrame Tool

The AccuFrame tool is used during the framing process of the Multichannel Pod, and the AccuFrame tool and Framing Shaft are used to frame the Span-8 pod. After these tools are attached to the ALP and Pod respectively, the framing process is completed through the software.



Turn off power to the Biomek NX^P instrument before attaching or removing the AccuFrame tool from the instrument deck.

To install the AccuFrame tool

- 1 Turn off power to the Biomek NX^P instrument before connecting the AccuFrame tool.
- 2 Plug the AccuFrame tool into an available CAN port on the Biomek NX^P tower.

**WARNING**

Ensure the light curtain is not violated by the AccuFrame cable. If the light curtain is violated, the framing process halts immediately.

**WARNING**

Ensure the AccuFrame cable does not interfere with pod movement.

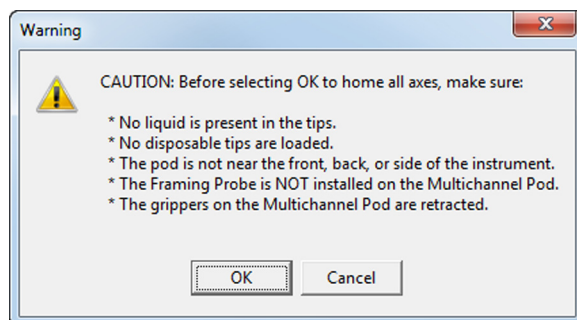
- 3 Turn on power to the Biomek NX^P instrument.

- 4 From the **Instrument** menu, select **Home All Axes**. Warning appears. See [Figure 2.16](#).

NOTE Additional Warnings and Information may appear, depending on the instrument configuration.

NOTE The Home All Axes function may also be accessed by selecting **Instrument > Manual Control > Home All Axes** or **Hardware Setup > Home All Axes**.

Figure 2.15 Warning to address before homing process begins (Biomek NX^P multichannel warning shown)



- 5 Select **OK** on each Warning and Information after confirming that the actions have been addressed appropriately.

Homing all Axes of the Pod



Before selecting OK to home all axes, the following conditions must be met:

- Ensure tips contain no liquid.
- Ensure no disposable tips are loaded.
- For Biomek NX^P instrument with multichannel pods only: Ensure the Framing Fixture is NOT installed on the Multichannel Pod.
- For Biomek NX^P instrument with multichannel pods only: Ensure the gripper on the Multichannel Pod is retracted.
- For Biomek NX^P instrument with Span-8 pods only: Ensure either disposable tip mandrels or fixed tips ARE installed on the Span-8 Pod.
- For Biomek NX^P instrument with Span-8 pods only: Ensure the Span gripper is not holding any labware.
- For Biomek NX^P instrument with Span-8 pods only: Ensure the Span gripper is not near the front, back, or side of the instrument.

Prior to framing the Biomek NX^P deck with either a Multichannel Pod or a Span-8 Pod, all axes must be homed. Homing the pods gives Biomek NX^P instrument a point of reference from which to make subsequent moves. The home position is left, back, and up.

NOTE Home the pod each time the Biomek NX^P instrument is powered on. When attempting to use the pod, error messages result until the pod is homed.

NOTE While it is necessary to home the pod after the Biomek NX^P instrument is powered on, it is not necessary to home the pod each time the host computer is turned on or the software is accessed.



Always ensure that the gripper on a Multichannel Pod is retracted before homing.

To home the pod

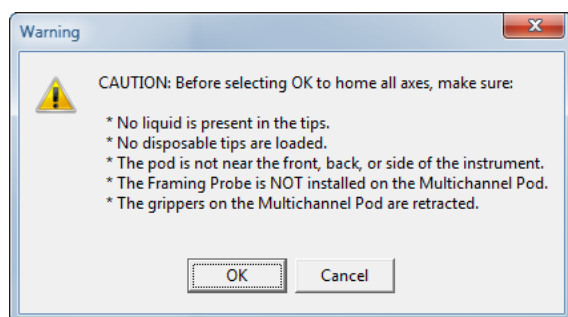
1 Select **Start > All Programs > Beckman Coulter > Biomek Software** to open the Biomek Software.

2 From the **Instrument** menu, select **Home All Axes**. Warning appears. See [Figure 2.16](#).

NOTE Additional Warnings and Information may appear, depending on the instrument configuration.

NOTE The Home All Axes function may also be accessed by selecting **Instrument > Manual Control > Home All Axes** or **Hardware Setup > Home All Axes**.

Figure 2.16 Warning to address before homing process begins (Biomek NX^P multichannel warning shown)



3 Select **OK** on each Warning and Information after confirming that the actions have been addressed appropriately.

Attaching the Framing Fixture to the Pod

After homing the pod, the appropriate framing fixture must be installed on the pod used for framing. The type of framing fixture required depends on the type of pod and head installed.

- [Attaching the Framing Fixture to the 96-Channel or 384-Channel Head of a Multichannel Pod](#)
- [Attaching the Framing Shaft to the Span-8 Pod](#)

Attaching the Framing Fixture to the 96-Channel or 384-Channel Head of a Multichannel Pod

When positioning the framing fixture, the framing probe must be pointed down and away from the mandrels of the head. From the front perspective, the framing guides on the framing fixture must be to the back and left.

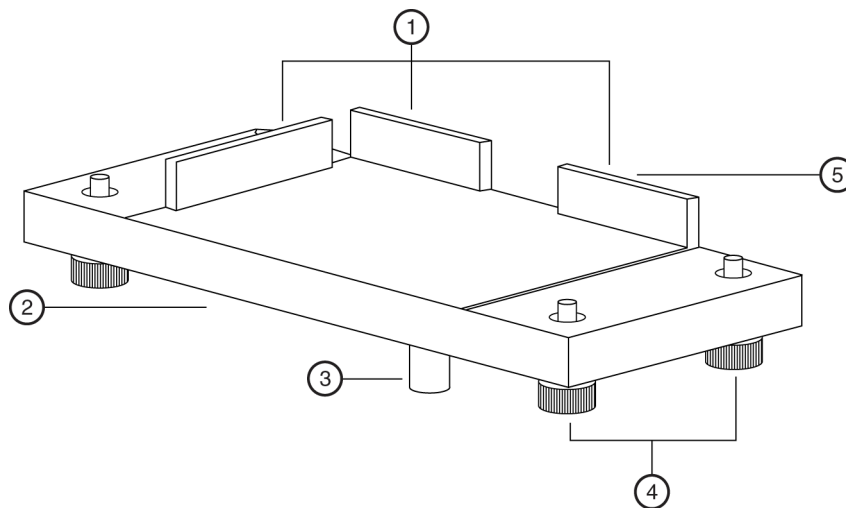
To install the framing fixture on the multichannel head:

- 1 Hold the framing fixture ([Figure 2.17](#)) against the head with the framing guides pressed to the outside of the back row and left column of mandrels.

NOTE Ensure the front of the framing fixture is to the front of the instrument, and the framing guides are to the back and left of the instrument ([Figure 2.17](#)).

- 2 Gently pull the framing fixture to the front and right. Verify the framing guides are touching the mandrels.
- 3 Tighten each thumb screw by turning to the right until the framing fixture is firmly attached to the head. The pod is now ready for framing.

Figure 2.17 Framing Fixture



- | | |
|-----------------------------|--|
| 1. Framing Guides | 4. Thumb Screws – Four thumb screws attach the framing fixture to the Multichannel head. |
| 2. Front of Framing Fixture | |
| 3. Framing Probe | 5. Back of Framing Fixture |

- 4 Install the AccuFrame tool in the position to frame (refer to [Installing the AccuFrame Tool](#)) and frame the Multichannel Pod according to the procedure [Framing the Position](#).

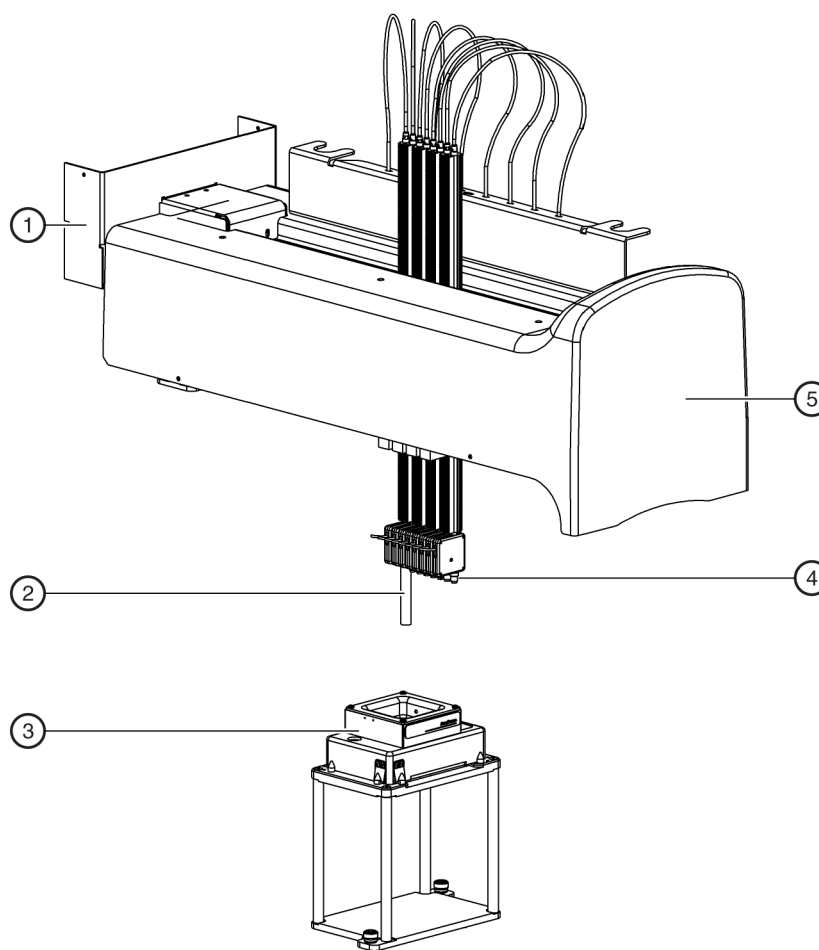
Attaching the Framing Shaft to the Span-8 Pod

After homing all axes of the pod and installing and positioning the AccuFrame tool, the framing shaft is attached to either probe #1 or probe #7 on the Span-8 Pod.

Attach the framing shaft to probe #1 when all positions, except those along the front of the deck, are framed ([Figure 2.18](#)). Because probe #1 is unable to reach the AccuFrame tool when it is placed in the front deck positions, probe #7 must be used to frame positions along the front of the deck.

NOTE Probes on the Span-8 Pod are numbered from back to front; more specifically, probe #1 is at the back of the Span-8 Pod and probe #8 is at the front of the pod.

Figure 2.18 Framing a Span-8 Pod



1. Back of the Biomek NX^P Instrument
2. The Framing Shaft is attached to Probe #1 to frame all deck positions, except those in the front row of the Biomek NX^P deck.
3. AccuFrame tool on ALP
4. The framing shaft is attached to probe #7 to frame positions in the front row of the Biomek NX^P deck.
5. Front of the Biomek NX^P Instrument

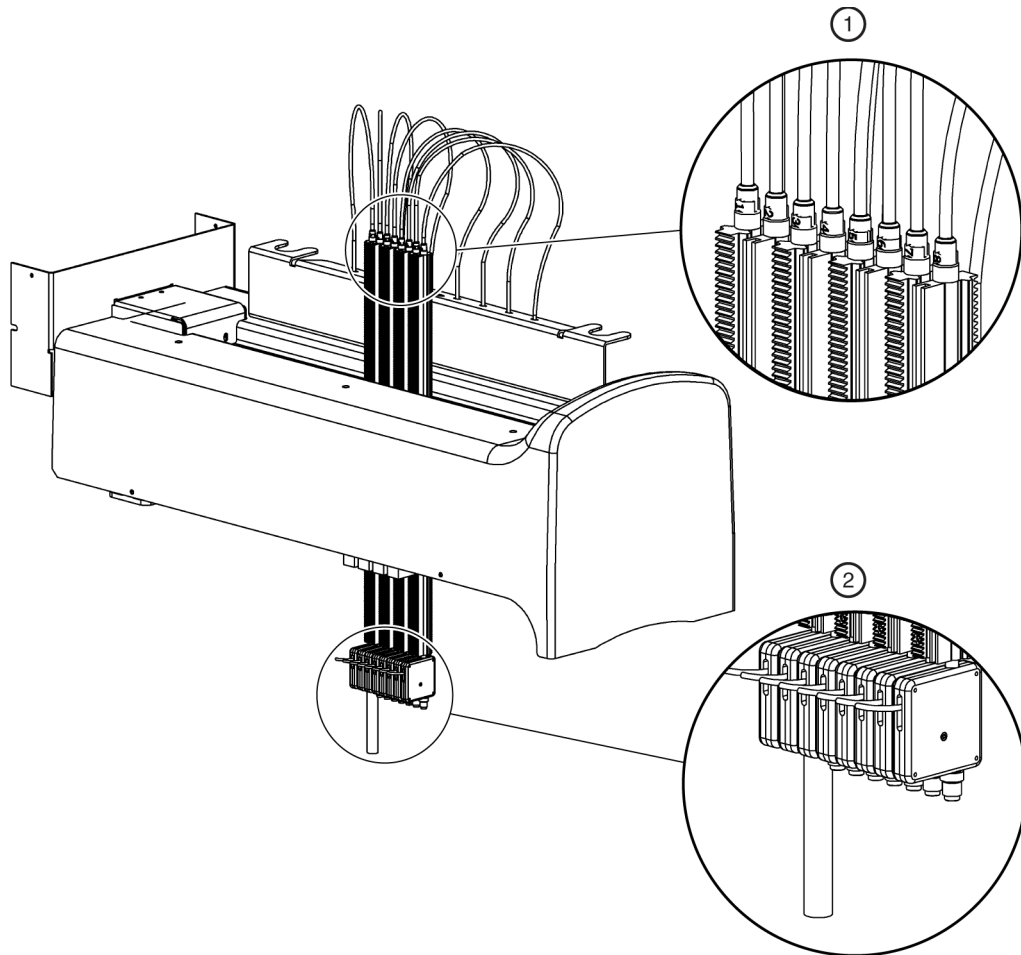


To prevent damage due to electrical static discharge (ESD), wear a wrist ground strap when working with tips on the Span-8 Pod.

To attach the framing shaft to a probe:

- 1 Remove the tip from the desired Span-8 probe (probe #1 or #7) see *Biomek NX^P Laboratory Automation Workstations Span-8 User's Manual*.
- 2 Screw the framing shaft onto the appropriate probe ([Figure 2.19](#)).

Figure 2.19 Framing a Span-8 Pod



1. Probes

2. Framing shaft

Framing the Position

NOTE Some ALPs require additional or slightly modified procedures to frame properly. Consult the *ALPs User's Manual* for the specific ALP for any special framing instructions.

To frame the Biomek NX^P deck position

- 1 Manually place the AccuFrame tool onto the ALP position that requires framing by placing the back right corner first and pushing the AccuFrame tool gently down onto the ALP position.

NOTE The deck is usually framed from left to right, starting at the back left position. However, ALPs may be framed in any order.

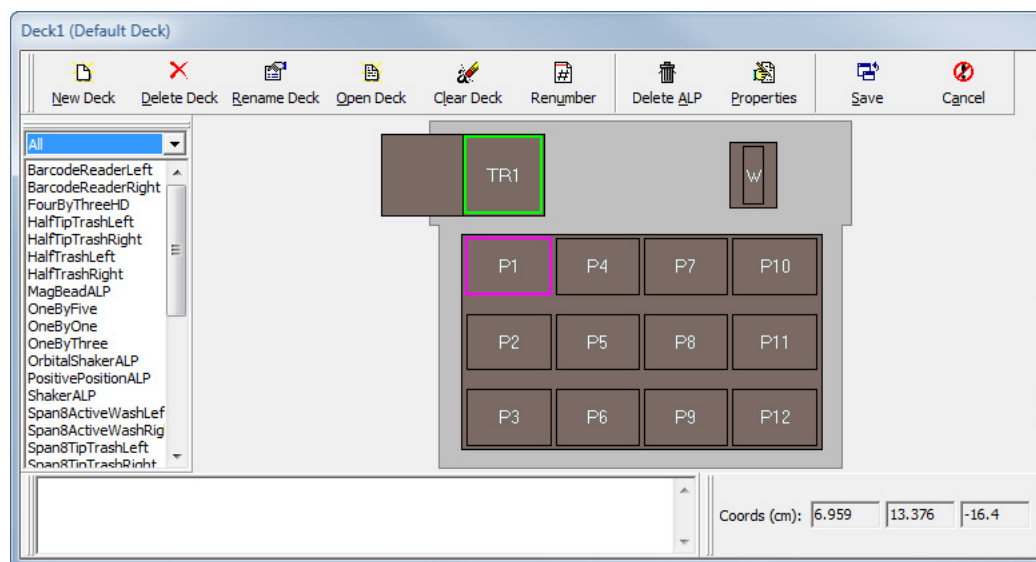
NOTE Install the AccuFrame tool so the blue lights are on the right.

- 2 Ensure that the AccuFrame tool is fully seated along the posts along the top and right sides of the position.

NOTE Some ALPs require a framing adaptor to accommodate using the AccuFrame tool to frame the position. Ensure the correct adaptor is used for each type of ALP. Framing proceeds as normal once the AccuFrame tool is placed on the appropriate adaptor.

- 3 In the Biomek Software, select **Instrument > Deck Editor**. Deck Editor appears ([Figure 2.20](#)).

Figure 2.20 Deck Editor

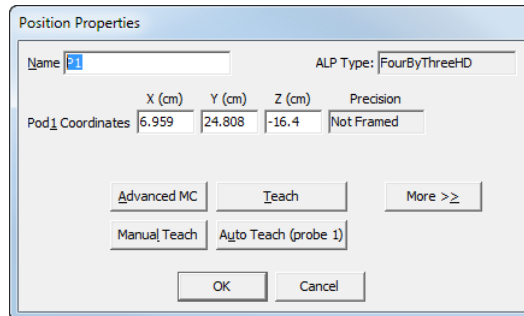


- 4 In the Biomek Software, open the deck that requires framing in the Deck Editor. Verify that it reflects the current configuration of ALPs on the physical deck. If it does not reflect the current physical deck configuration, place devices on the appropriate deck locations in the Deck Editor by dragging and dropping from the list onto the deck. When the Deck Editor reflects the configuration of the current physical deck, proceed to step 5.

- 5 Double-click on the deck position containing the AccuFrame tool. Position Properties appears (Figure 2.21).

NOTE The coordinates displayed are default values, so the software must be taught precisely where the position is on the physical deck.

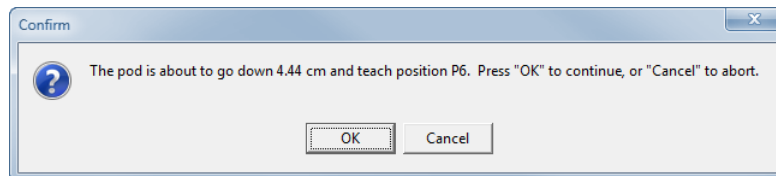
Figure 2.21 Position Properties



- 6 Select **Auto Teach**. A Confirm message similar to Figure 2.22 appears.

NOTE This moves the pod to the position being taught. The framing probe should be above the AccuFrame tool in that position.

Figure 2.22 Confirm Pod Movement



- 7 Visually verify that the framing probe is positioned to avoid hitting the wall of the AccuFrame tool and that it is positioned to lower within the AccuFrame tool.

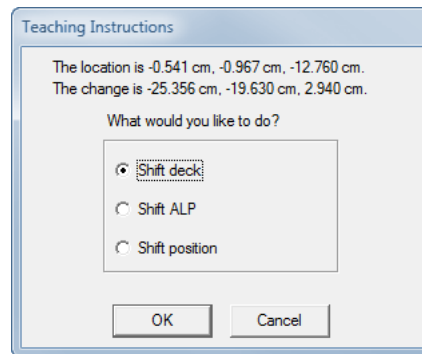
- 8 Select **OK**.

NOTE The pod lowers and moves around inside the AccuFrame tool automatically until it breaks both light beams (see Figure 2.14). The pod stops after teaching (framing) is completed, and the two light beam indicators are illuminated.

NOTE An error message appears if both light beams are not broken when the pod is lowered into the AccuFrame tool. If this occurs, using Advanced Manual Control (if necessary, refer to the *Biomek NX and NX^P Laboratory Automation Workstations User's Manual*), move the pod until the probe breaks both light beams and all the indicator lights are on. Select Teach, and the pod continues the teaching process. The pod may also be moved by hand until the probe breaks both light beams and all the indicator lights are on.

-
- 9 Wait until the pod stops moving and **Teaching Instructions** appears ([Figure 2.23](#)).

Figure 2.23 Teaching Instructions



-
- 10 Select from **Shift deck**, **Shift ALP**, or **Shift position** for appropriate teaching instructions (refer to [Selecting Appropriate Teaching Instructions](#)).
-
- 11 If the coordinates displayed appear reasonable, select **OK**. Position Properties appears again, and the position is framed for the pod.
-
- 12 Select **OK** to close Position Properties.
-
- 13 For framing additional positions, move the AccuFrame tool to the next position to frame (refer to [Installing the AccuFrame Tool](#)) and repeat steps 5 through 12.
- NOTE** When framing positions using the Span-8 Pod, the framing shaft must be moved to probe #7 to frame positions in the front row of the deck (refer to [Attaching the Framing Shaft to the Span-8 Pod](#)).
-
- 14 Select **Save** to save framing information for all positions and close the Deck Editor ([Figure 2.20](#)).
- NOTE** Choosing **Cancel** discards all changes to the deck, including framing information, since the Deck Editor was opened.
-
- 15 Remove the framing fixture from the head of the Multichannel Pod.
- OR
- Remove the framing shaft from the probe on the Span-8 Pod.
-

Selecting Appropriate Teaching Instructions

In Teaching Instructions (Figure 2.23), the entire deck, an ALP, or a deck position can be shifted by the teaching process. Determine what should be shifted using the following information:

- **Shift deck** — shifts all ALPs and positions associated with the deck by the change amounts shown. Select Shift deck when framing the first location of a new deck. The shift amount required typically is not large, but everything on the deck may need to move 1 cm, for example.
- **Shift ALP** — shifts the entire ALP and all deck positions associated with the ALP by the change amounts shown. Shift ALP typically is precise enough for using 96-well plates.
- **Shift position** — shifts only the deck position containing the AccuFrame tool by the amounts shown. Shift position is the most precise teaching procedure, and it is useful when 384-well microplates are used (especially on larger ALPs, such as the 4x4); otherwise, Shift ALP is usually sufficient.

NOTE When framing a multiple-position ALP (1x3, 1x5, 4x3, or 4x4), use the Shift ALP function on the first position, then use Shift position on the remaining positions.

Manually Framing Deck Positions on the Biomek NX^P Instrument with Multichannel Pod

Manual Teach is a wizard-type interface that is used manually to frame deck positions, primarily for using high-density labware, such as 384 round well plates. Since the wells of high-density labware are relatively small, using Manual Teach helps to ensure that the tips can access the wells without causing any damage to the tips, probes, pod, or ALP.

IMPORTANT Before manually framing a position, the Tip Loader position must be framed so the pod can load tips.

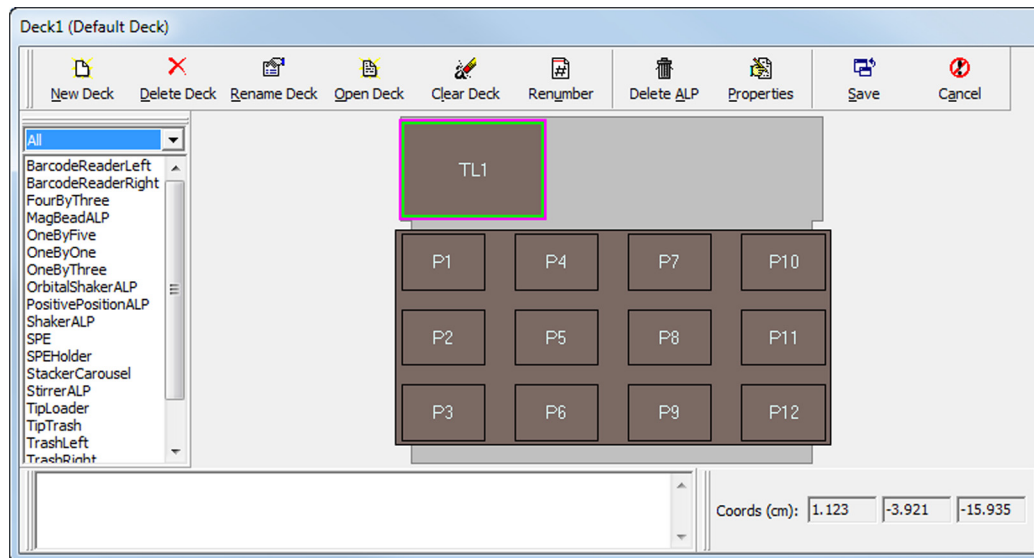
NOTE Some ALPs, such as the Positive Position ALP, must be framed using Manual Teach to improve pipetting accuracy to high-density labware.

NOTE When not using high-density labware, the standard framing procedure using the AccuFrame tool is likely acceptable. To frame using the AccuFrame tool, refer to *Framing Deck Positions on the Biomek NX^P Instrument Using the AccuFrame framing tool*

To manually frame a deck position

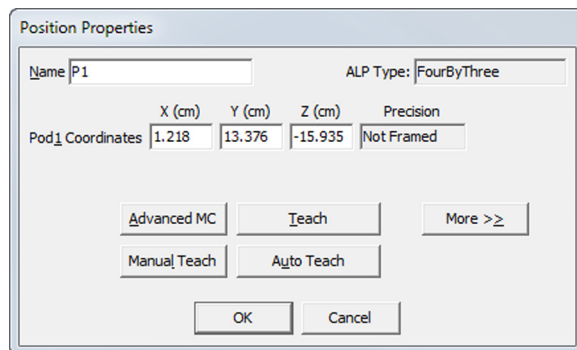
- 1 Select **Start > All Programs > Beckman Coulter > Biomek Software** to open the Biomek Software.
- 2 Select **Instrument > Deck Editor**. Deck Editor appears (Figure 2.24).

Figure 2.24 Deck Editor



- 3 Open **Position Properties** for the desired deck position by double-clicking on the deck position. Position Properties appears (Figure 2.25).

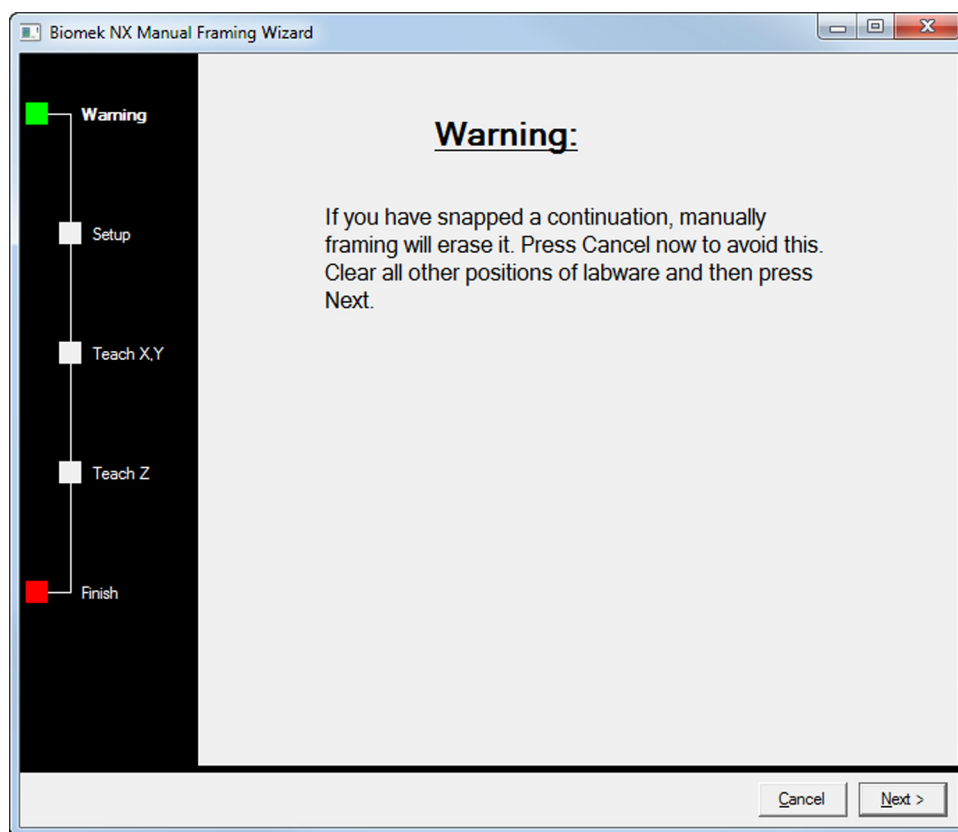
Figure 2.25 Position Properties for a position on a Four By Three ALP



- 4 Select **Manual Teach**. Manual Teaching opens with a Warning ([Figure 2.26](#)).

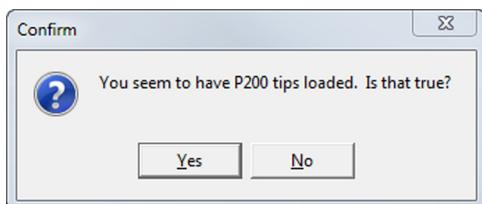
NOTE On the left side of Manual Teaching, a list of steps required to complete the teaching process is displayed. As the steps of Manual Teaching are accessed, the steps are highlighted on the left.

Figure 2.26 Manual Teaching Warning



- 5 Select **Next**. If tips are loaded, [Figure 2.27](#) appears. If no tips are loaded, or the user clicks **No**, [Figure 2.28](#) appears.

Figure 2.27 Confirm window



- 6 Depending on whether or not tips are already loaded onto the pod, either [Figure 2.28](#) or [Figure 2.29](#) appears.

Figure 2.28 Manual Teaching if Tips are NOT Already Loaded

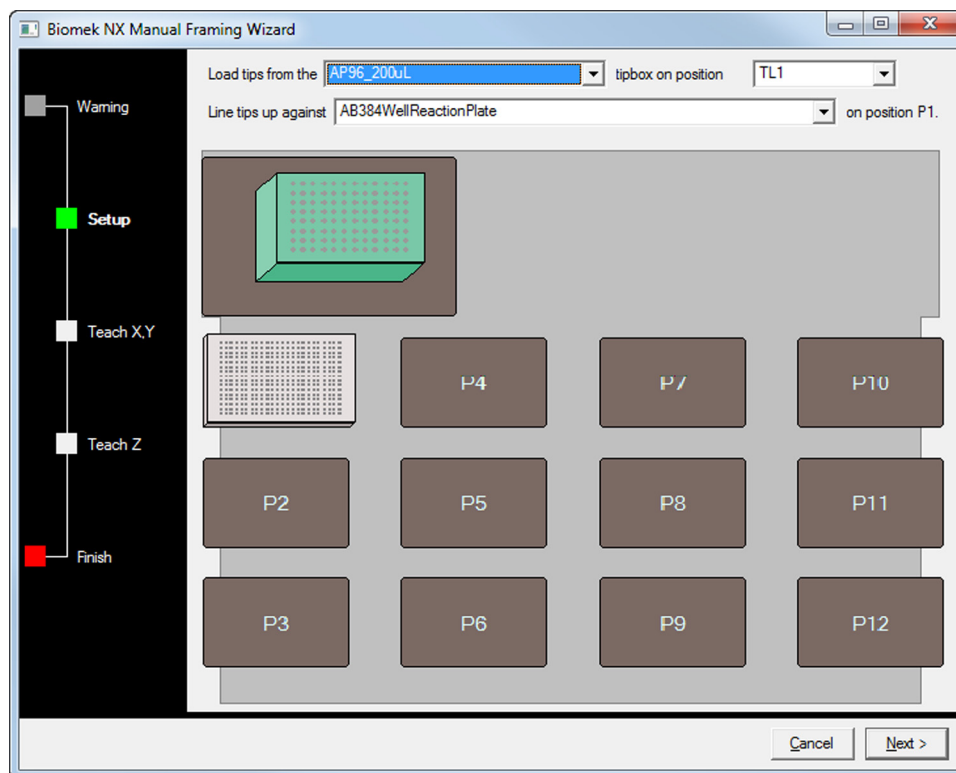
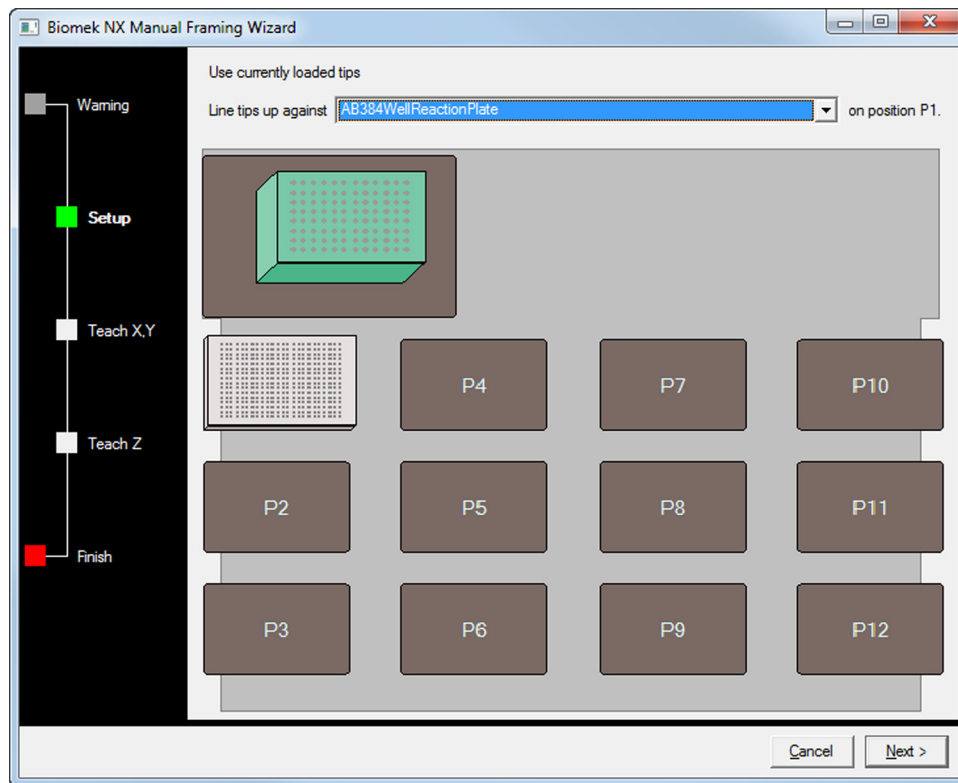


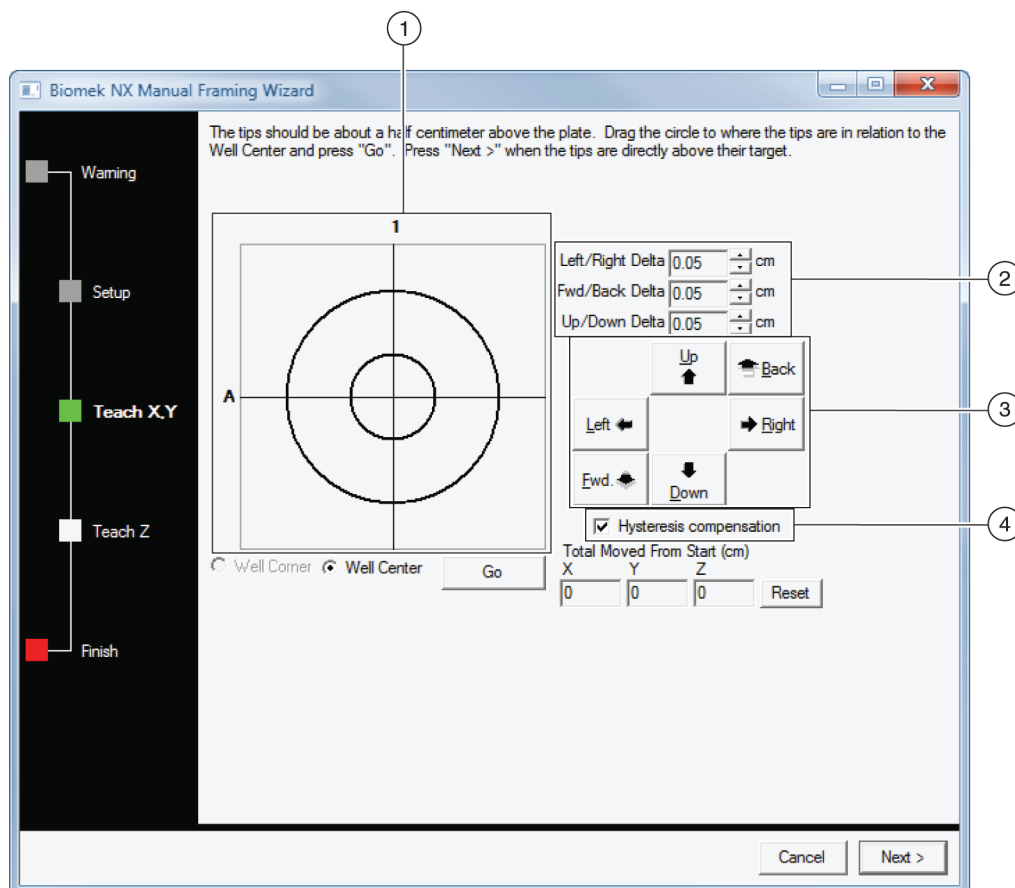
Figure 2.29 Manual Teaching if Tips are Loaded



- 7 In the field **Line tips up against**, select the appropriate labware type of the labware placed in the position to frame.

- 8 Select **Next**. Teach X,Y appears (Figure 2.30).

Figure 2.30 Framing to the center of a well



1. **Graphic Alignment Tool** – The graphic alignment tool is a visual representation of the tip (small circle) and the wells of the microplate (the large circle). The small circle is moved until it represents the tip's current physical location in relation to the wells of the microplate on the ALP.
2. **Delta value** – The magnitude of change applied to the tips each time a directional button is selected. There are three delta values - one for each axis.
3. **Directional Buttons** – The directional buttons move the pod by the amount shown in Delta with each press of a button.
4. **Hysteresis Compensation** – Leave Hysteresis compensation at the default setting of On. This compensates for any mechanical variance along the X-axis from the front of the bridge to the back of the bridge, based on the direction from which the movement was started. The Biomek NX^P system determines a pod's position in the X-axis based on the position of the bridge at the back of the Biomek NX^P instrument.

9 Select **Well Center** to align the tips to the center of the well.

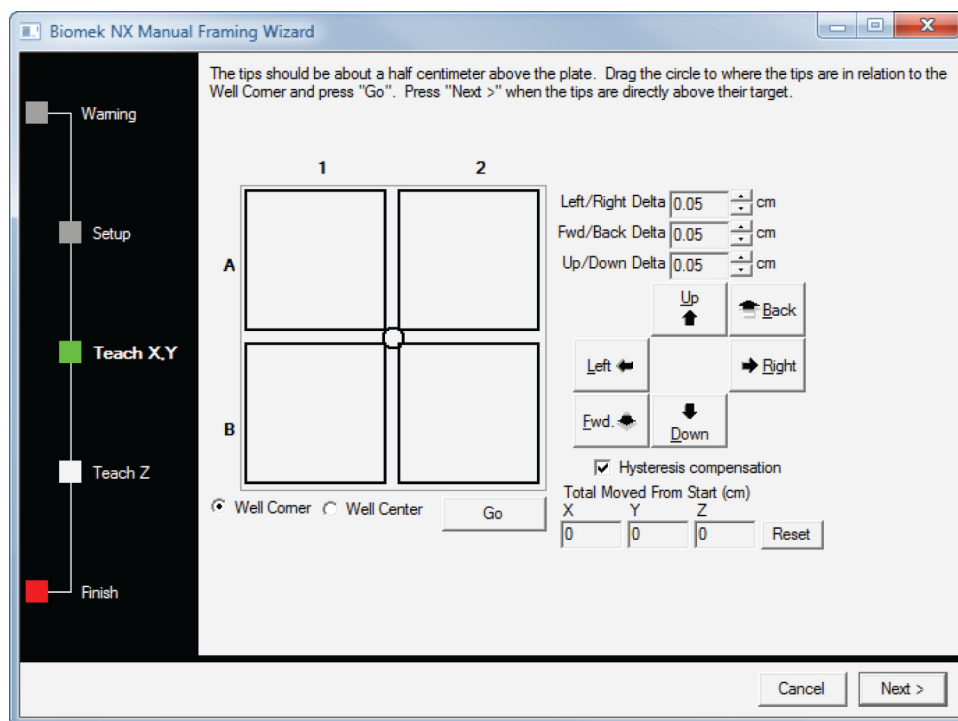
OR

Select **Well Corner** to align the tips to the corners, or junction, of four wells (Figure 2.31).

NOTE Well Corner is available only when framing to a deck position occupied by a piece of labware with square wells.

NOTE Position the tips about a half centimeter above the plate.

Figure 2.31 Framing to the corner of four wells



- See [Using the Graphic Alignment Tool](#).
- See [Using the Delta Values and Directional Buttons](#).

Using the Graphic Alignment Tool

The graphic alignment tool (Figure 2.30) is used to instruct Biomek Software of the current position of the tips relative to the physical position of the wells of the microplate on top of the ALP. Biomek Software uses the information it is given to move the pod so the tips are directly above the target position.

-
- 1 Drag the center (small) circle until it represents the tip's physical position in relation to the physical position of the wells of the microplate on top of the ALP.

NOTE The small circle represents the tip on the pod. The objective is to provide the software with a representation of the tip's position in relation to the physical position of the wells of the microplate on top of the ALP. The software uses this graphical representation to know approximately how far in any direction the pod must move to align the tips with the wells of the microplate on top of the ALP.

-
- 2 Select **Go**. The pod moves in accordance with the position of the small circle in relation to the large circle or square well intersection.

NOTE When the move is completed, the small circle resets itself to the center of the large circle or square well intersection. The values displayed in Total Moved from Start (cm) changes each time steps 1 and 2 are completed. If desired, the values in Total Moved from Start (cm) can be reset to zero by selecting Reset.

-
- 3 Visually verify the position of the tips on the pod in relation to the physical position of the wells of the microplate on top of the ALP. If the tips are still not accurately positioned above the target position on the microplate, repeat steps 1 and 2 until they are accurately positioned above the target position the microplate.

NOTE The tips may also be aligned with the microplate using the delta value and directional buttons (refer to [Using the Delta Values and Directional Buttons](#)).

-
- 4 Once the tip is aligned with the wells of the microplate on top of the ALP, choose **Next** to continue. The Wizard displays Teach Z (refer to [Framing the Z-Axis](#)).

NOTE Well Corner is available only when framing to a deck position occupied by a piece of labware with square wells.

Using the Delta Values and Directional Buttons

The tip can be positioned manually using the delta values and directional buttons to align it with the physical position of the wells of the microplate on top of the ALP. Pressing one of the directional buttons moves the pod in that direction by the distance specified in the Delta window for that axis. Position the tips above the wells of the microplate on top of the ALP, either centered above the well or above the intersection of four wells of a 384, square-well plate.

To use the delta value and directional buttons to position the tip

- 1 In Delta, select the magnitude of change applied to the tips each time a directional button is selected ([Figure 2.30](#)).

NOTE The default Delta value is 0.05 cm. If the tips are a considerable distance from the desired location, increase the distance traveled by increasing the Delta value (maximum setting is 1.0 cm). If the tips are almost to the desired location, reduce the Delta value to fine tune the position (minimum setting is 0.005 cm).

- 2 Select the **directional button** representing the motion required to physically move the tip into position over the target ([Figure 2.30](#)).

NOTE Each time a directional button is selected, the pod and tips move the distance specified in Delta in the indicated direction.

NOTE The tips can be physically positioned over the wells of a microplate using:

- the directional buttons in Manual Teach.
- the directional keys on the keyboard.
- the directional keys on the numeric keypad.

The directional buttons displayed in Manual Teach parallel the keys on the numeric keypad.

1 = Fwd	6 = Right
2 = Down	8 = Up
4 = Left	9 = Back

- 3 Visually verify the position of the tips on the pod in relation to the physical position of the wells of the microplate on top of the ALP. If the tips are still not accurately positioned above the target, repeat steps 1 and 2 until they are accurately positioned above the target position.

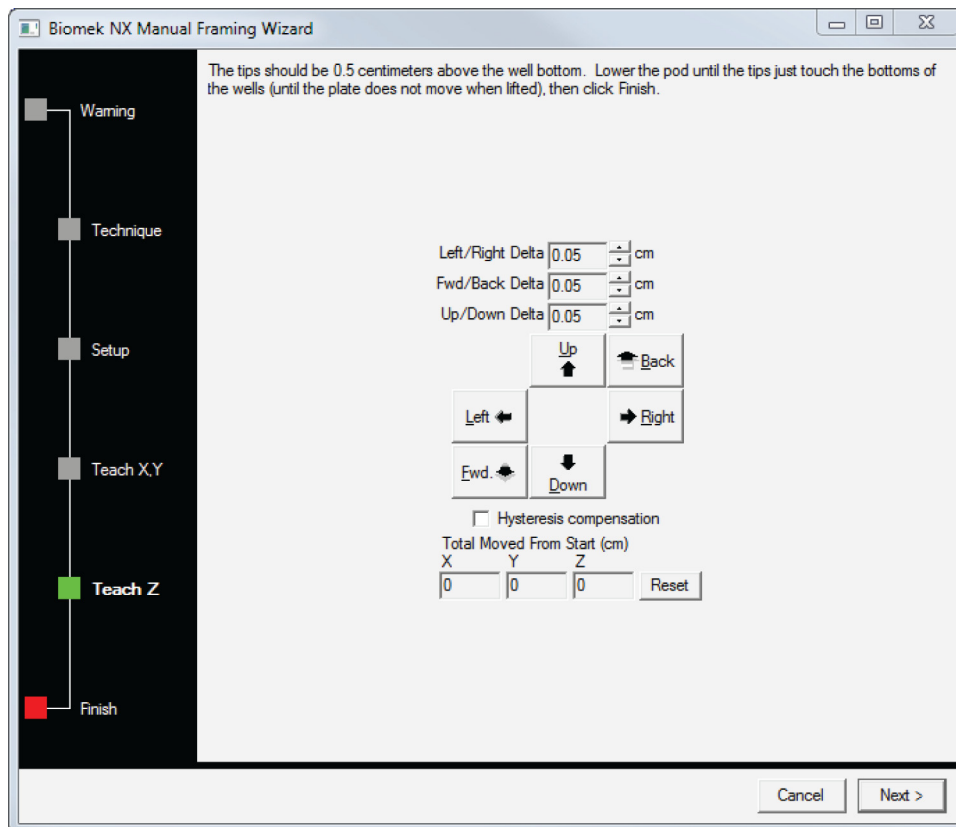
NOTE The tips may also be aligned with the target position using the graphic alignment tool (refer to [Using the Graphic Alignment Tool](#)).

- 4 Once the tips are aligned with the target position, choose **Next** to continue. The Framing Wizard displays **Teach Z** (refer to [Framing the Z-Axis](#)).
-

Framing the Z-Axis

After the X- and Y-axes are framed, the Z-axis must be framed to ensure aspirate and dispense operations are performed at the desired height. The final screen in the Framing Wizard is for framing the Z-axis (Figure 2.32).

Figure 2.32 Manual Teaching (Teach Z)



- 1 In **Delta**, select the magnitude of change applied to the tips each time a directional button is selected (Figure 2.32).

NOTE The default Delta value is 0.05 cm. If the tips are a considerable distance above the ALP, increase the distance traveled by increasing the Delta value (maximum setting is 1.0 cm). If the tips are almost to the desired location, reduce the Delta value (minimum setting is 0.005 cm).

NOTE Since the X and Y axes were framed previously, it is safe to move the pod in the X and Y axes if it makes framing the pod in the Z- axis easier.

-
- 2** Select the **directional button** representing the motion required to physically move the tip down into the wells of the microplate until the tips touch the bottom of the wells.

NOTE Each time a directional button is selected, the pod and tips move the distance specified in Delta in the indicated direction.

NOTE The tips can be physically positioned over the wells of a microplate using:

- the directional buttons in Manual Teach.
- the directional keys on the keyboard.
- the directional keys on the numeric keypad.

The directional buttons displayed in Manual Teach parallel the keys on the numeric keypad.

1 = Fwd	6 = Right
2 = Down	8 = Up
4 = Left	9 = Back

-
- 3** Once the tip is just touching the target position, select **Finish**. The pod moves up to its maximum height in the Z-axis, Manual Teaching closes, and Position Properties appears ([Figure 2.25](#)).

-
- 4** Select **OK** to save the framing information and close Position Properties.

-
- 5** Repeat the procedure to frame additional deck positions using manual teach.

-
- 6** Select **Save** to save framing information for all positions and close the Deck Editor ([Figure 2.25](#)).

NOTE Selecting **Cancel** loses all changes to the deck, including framing information, since the Deck Editor was opened.

Manually Framing Deck Positions on the Biomek NXP^P Instrument with Span-8 Pod

Manual Teach is a wizard-type interface that is used to manually frame deck positions, primarily for using high-density labware. Since the wells of high-density labware are relatively small, using Manual Teach helps to ensure that the tips can access the wells without causing any damage to the tips, probes, pod, or ALP.

Manual Teach can also be used to frame positions that cannot be accessed by the probes using the gripper, if installed.

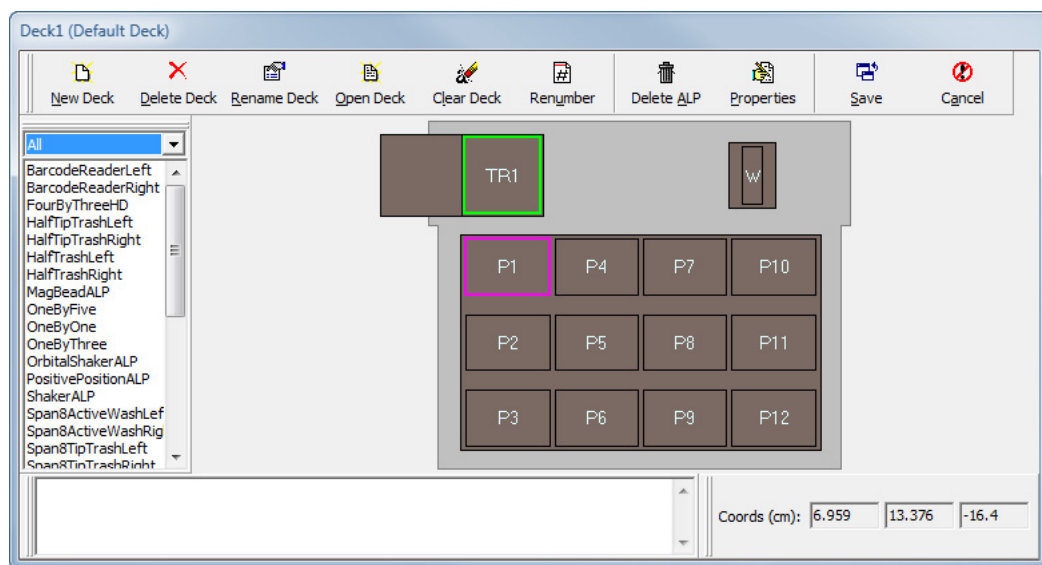
NOTE Some ALPs, such as the Positive Position ALP, must be framed using Manual Teach to improve pipetting accuracy to high-density labware.

NOTE When not using high-density labware, the standard framing procedure using the AccuFrame tool is acceptable. To frame using the AccuFrame tool, refer to *Framing Deck Positions on the Biomek NXP Instrument Using the AccuFrame framing tool*.

To manually frame a deck position

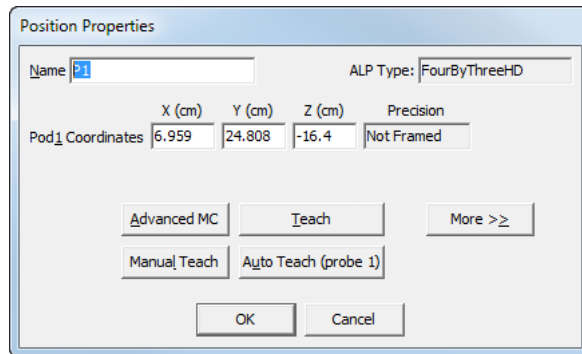
- 1 Select **Start > All Programs > Beckman Coulter > Biomek Software** to open the Biomek Software.
- 2 Select **Instrument > Deck Editor**. Deck Editor appears (Figure 2.33).

Figure 2.33 Deck Editor



- 3 Open **Position Properties** for the desired deck position by double-clicking on the deck position. Position Properties appears (Figure 2.25).

Figure 2.34 Position Properties for a position on a Four by Three HD ALP

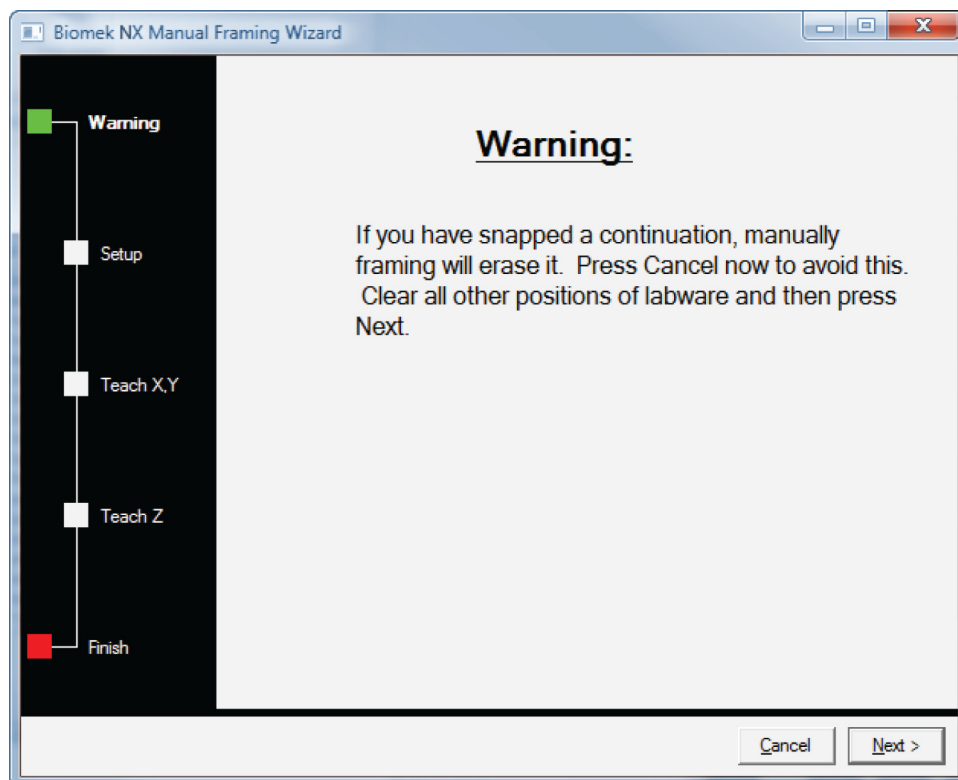


The Position Properties dialog box is shown. It has a title bar 'Position Properties'. Inside, there is a 'Name' field with a dropdown arrow and a value '1'. To its right is 'ALP Type' with a dropdown arrow and a value 'FourByThreeHD'. Below these are four input fields: 'X (cm)' with value '6.959', 'Y (cm)' with value '24.808', 'Z (cm)' with value '-16.4', and 'Precision' with value 'Not Framed'. At the bottom, there are five buttons: 'Advanced MC', 'Teach', 'More >=>', 'Manual Teach', and 'Auto Teach (probe 1)'. At the very bottom are 'OK' and 'Cancel' buttons.

- 4 Select **Manual Teach**. Manual Teaching opens with a Warning (Figure 2.35).

NOTE On the left side of Manual Teaching, a list of steps required to complete the teaching process is displayed. As the steps of Manual Teaching are accessed, the steps are highlighted on the left.

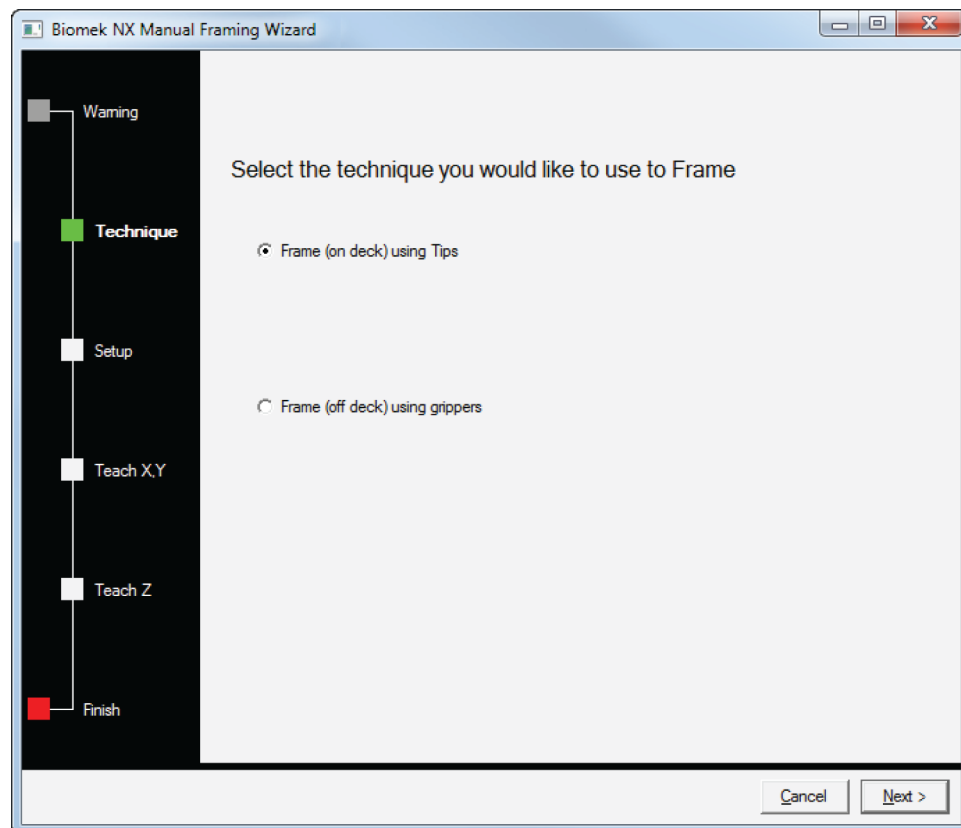
Figure 2.35 Manual Teaching Warning



The Biomek NX Manual Framing Wizard Warning dialog is shown. It has a title bar 'Biomek NX Manual Framing Wizard'. On the left is a vertical list of steps: 'Warning' (highlighted with a green square), 'Setup' (white square), 'Teach X,Y' (white square), 'Teach Z' (white square), and 'Finish' (red square). The main area contains the text: **Warning:**
If you have snapped a continuation, manually framing will erase it. Press Cancel now to avoid this.
Clear all other positions of labware and then press Next.
At the bottom right are 'Cancel' and 'Next >' buttons.

-
- 5 Select **Next** and the Manual Framing Wizard— Technique appears.

Figure 2.36 Manual Framing Wizard Technique Selection



-
- 6 Select **Frame (on deck) using Tips** to frame the position by aligning tips to the wells of a microplate.
OR
Select **Frame (off deck) using grippers** to frame the position by moving a piece of labware from a previously framed position to this position.
-
- 7 Select **Next**. The Manual Framing Wizard displays the Setup screen.
- refer to [Manually Framing Using Tips](#).
 - refer to [Manually Framing Using the Gripper](#).
-

Manually Framing Using Tips

When using high density labware, or greater precision is required than the AccuFrame tool is providing, manually frame the position using tips. Some positions, such as the Span-8 Tip Wash ALP or 8-Channel Active Wash ALP, cannot be framed using the AccuFrame tool and must be taught manually.

Manual framing deck positions using tips involves:

- loading disposable tips to the probes, if necessary.
- aligning disposable or fixed tips with the wells of a microplate.

When Biomek NX^P Manual Framing Wizard — Setup is displayed, either [Figure 2.37](#) or [Figure 2.38](#) appears, depending on whether or not tips are already loaded onto the pod.

Figure 2.37 Manual Framing Wizard if Tips are Already Loaded

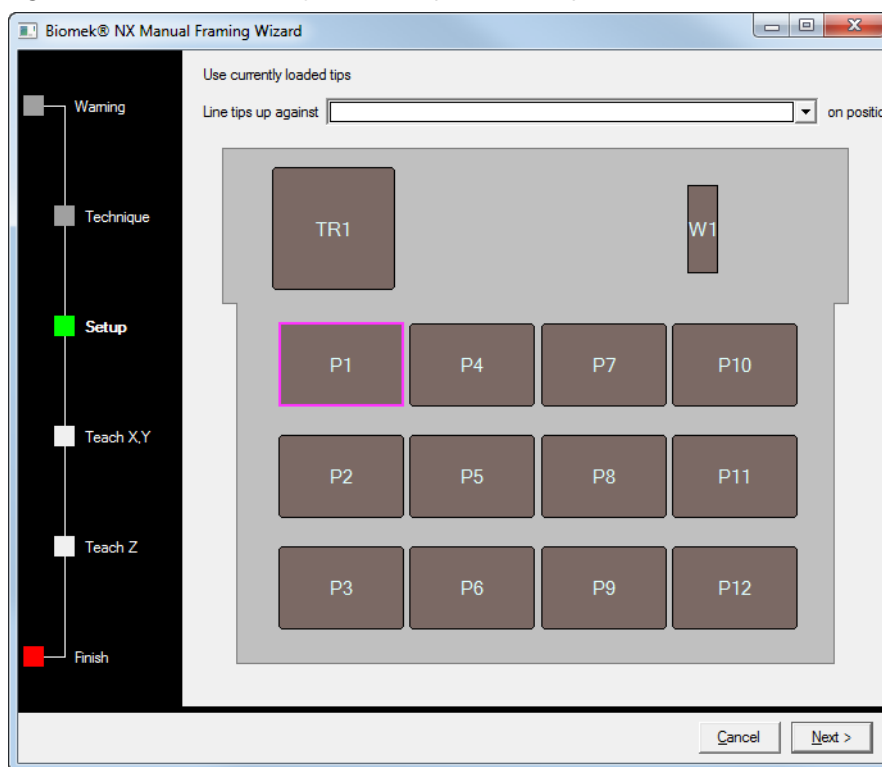
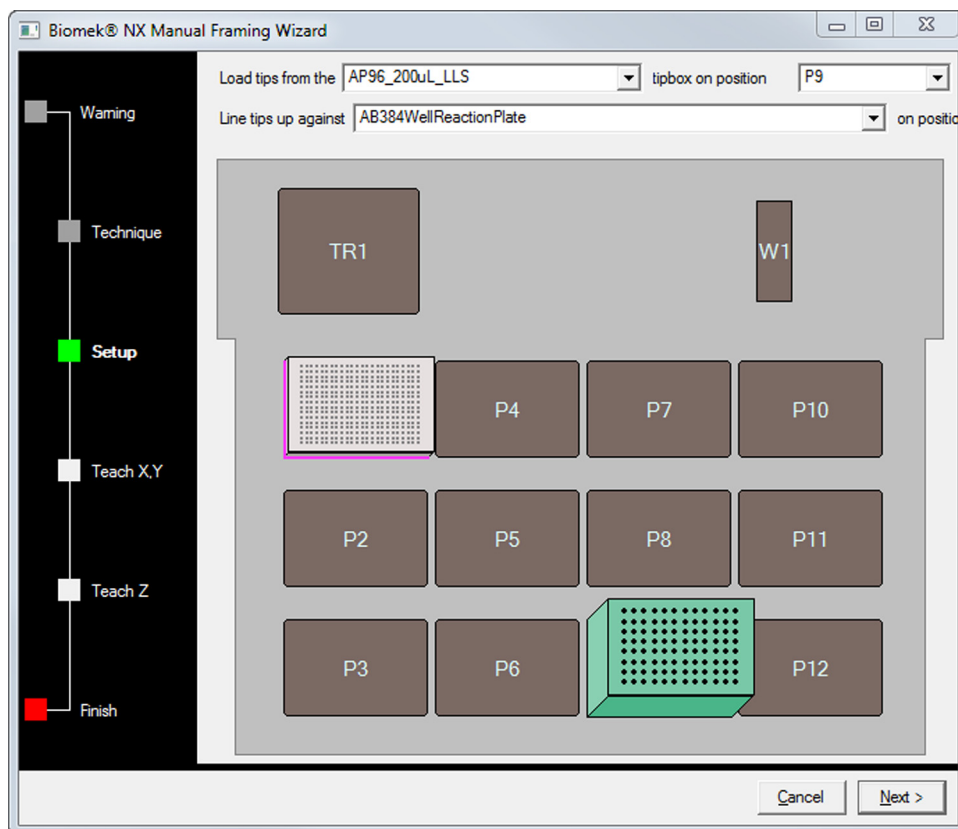
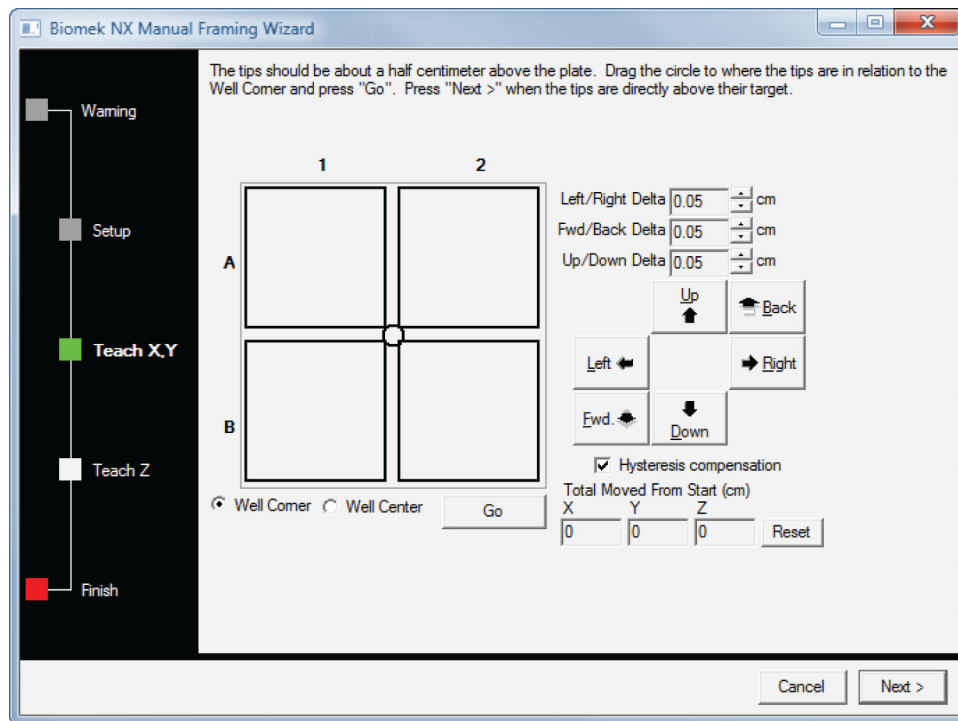


Figure 2.38 Manual Framing Wizard if Tips are NOT Already Loaded**To manually frame deck positions using tips:**

- 1 If no tips are loaded, in **Load tips from the** field, select the type of tips to load and the position on which the tip box is located (Figure 2.38).
- 2 In the **Line tips up against** field, select the appropriate labware type of the labware placed in the position to frame.
- 3 Select **Next** to continue to the next screen. Manual Framing Wizard — Teach X,Y appears.
- 4 Select **Well Corner** to align the tips to the corners, or junction, of four wells.

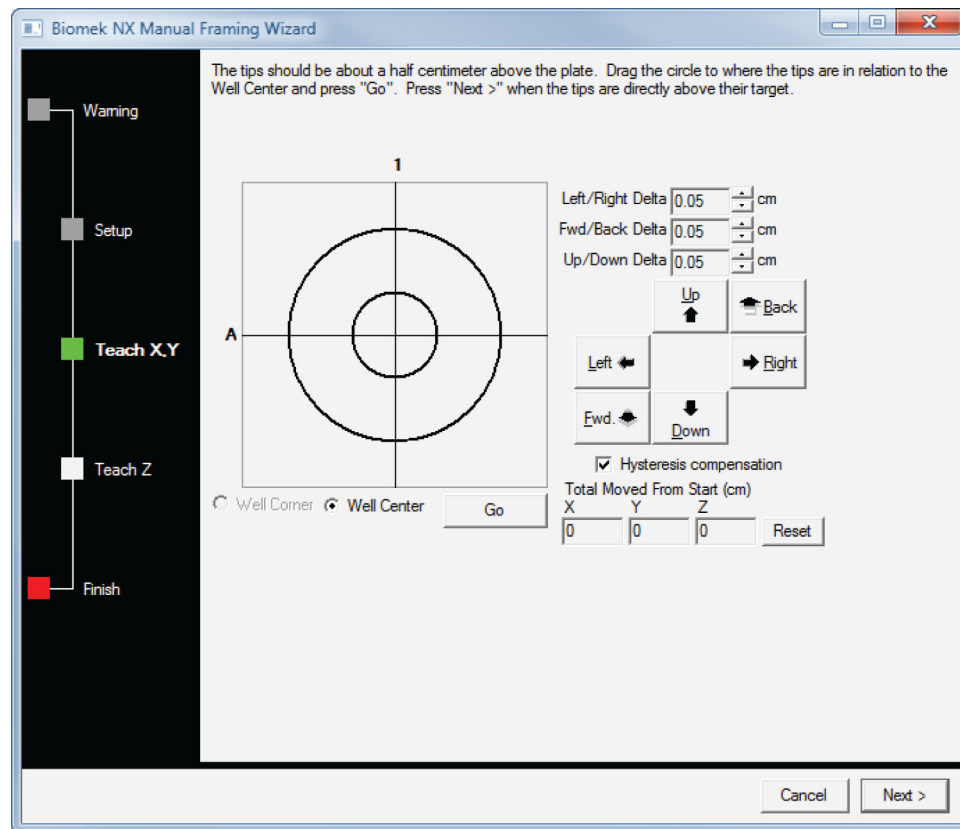
NOTE Well Corner is available only when framing to a deck position occupied by a piece of labware with square wells.

Figure 2.39 Framing to the Corner of Four Wells



OR

Select **Well Center** to align the tips to the center of the wells.

Figure 2.40 Framing to the Center of a Well

- 5 To align the tips in the X- and Y-axes with the wells of the microplate on top of the ALP, lower the tips in the Z-axis until they are approximately 1 mm above the top of the ALP.

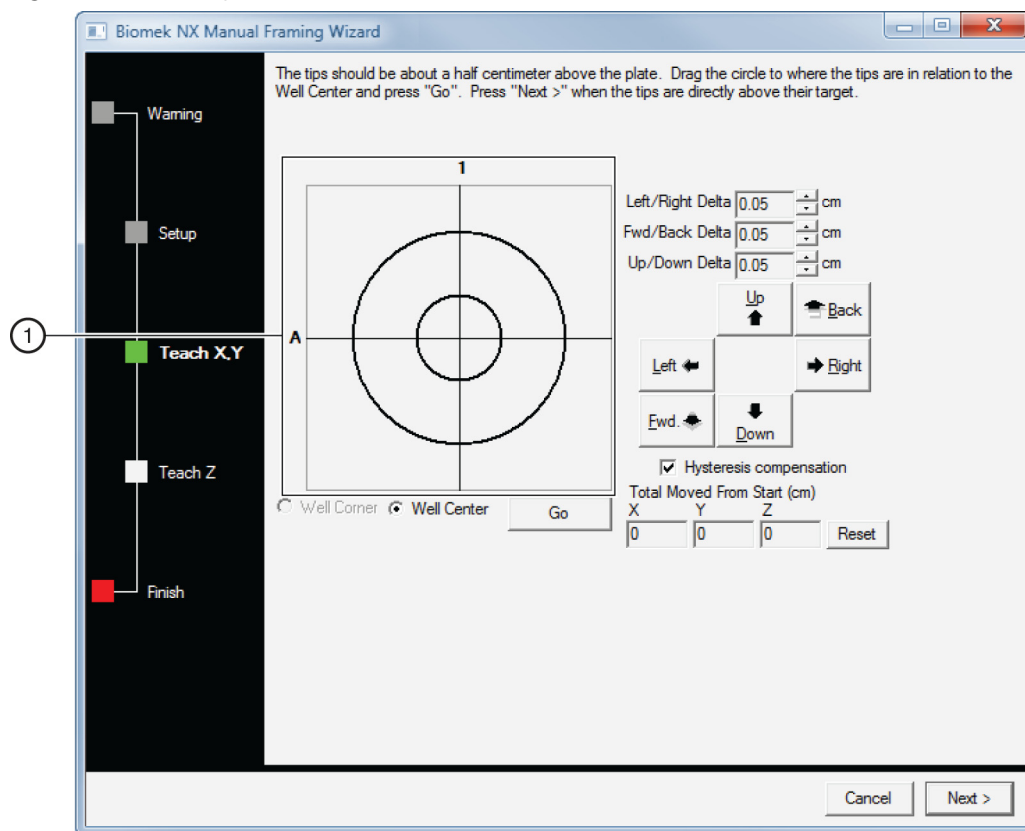
NOTE Since tip height is set in the next step in the Manual Teaching process, it is safe to move the pod to any height to make aligning the tips with the microplate easier.

- 6 Visually verify the physical position of the tips in relation to the physical position of the wells of the microplate on top of the ALP.
- 7 Adjust the position of the tip to align it with the microplate well or corner by either:
- *Using the Graphic Alignment Tool.*
 - *Using the Delta Value and Directional Buttons.*

Using the Graphic Alignment Tool

The graphic alignment tool (Figure 2.41) is used to instruct Biomek Software of the current position of the tips to the physical position of the wells of the microplate on top of the ALP. Biomek Software uses the information it is given to move the pod so the tips are directly above the target position.

Figure 2.41 Framing to the Center of a Well



1. Graphic Alignment Tool

To use the graphic alignment tool:

- 1 Drag the center (small) circle until it represents the tip's physical position in relation to the physical position of the wells of the microplate on top of the ALP.

NOTE The small circle represents the tip on the pod. The objective is to provide the software with a representation of the tip's position in relation to the physical position of the wells of the microplate on top of the ALP. The software uses this graphical representation to know approximately how far in any direction the pod must move to align the tips with the wells of the microplate on top of the ALP.

- 2 Select **Go**. The pod moves in accordance with the position of the small circle in relation to the large circle.

NOTE When the move is completed, the small circle resets itself to the center of the large circle. The values displayed in Total Moved from Start (cm) changes each time steps 1 and 2 are completed. If desired, the values in Total Moved from Start (cm) can be reset to zero by selecting Reset.

- 3 Visually verify the position of the tips on the pod in relation to the physical position of the wells of the microplate on top of the ALP. If the tips are still not accurately positioned above the target position on the microplate, repeat steps 1 and 2 until they are accurately positioned above the target position the microplate.

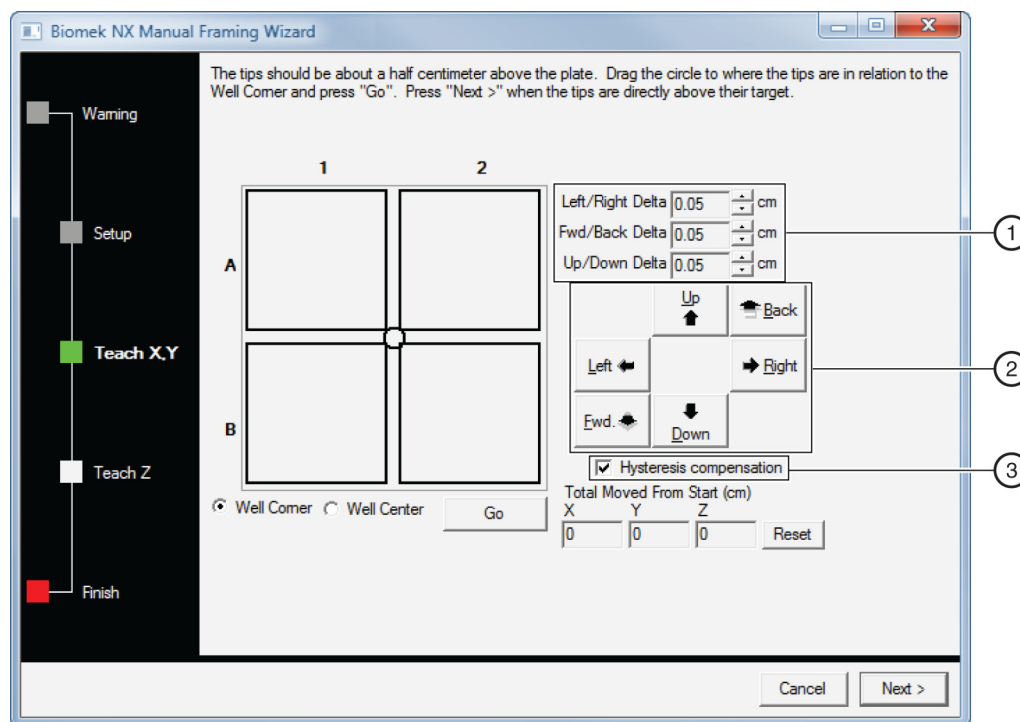
NOTE The tips may also be aligned with the microplate using the delta value and directional buttons (refer to [Using the Delta Value and Directional Buttons](#)).

- 4 Once the tip is aligned with the wells of the microplate on top of the ALP, choose **Next** to continue. The Manual Framing Wizard displays Teach Z (refer to [Framing the Z-Axis](#)).

Using the Delta Value and Directional Buttons

The tip can be positioned manually using the delta values and directional buttons to align it with the physical position of the wells of the microplate on top of the ALP. Pressing one of the directional buttons moves the pod in that direction by the distance specified in **Delta**. Position the tips above the wells of the microplate on top of the ALP.

Figure 2.42 Manual Teaching the X- and Y- Axes



-
- 1 In **Delta**, select the magnitude of change applied to the tips each time a directional button is selected ([Figure 2.42](#)).

NOTE The default Delta value is 0.05 cm. If the tips are a considerable distance from the desired location, increase the distance traveled by increasing the Delta value (maximum setting is 1.0 cm). If the tips are almost to the desired location, reduce the Delta value to fine tune the position (minimum setting is 0.005 cm).

-
- 2 Leave Hysteresis compensation at the default setting of On. This compensates for any variance along the X-axis from the front of the bridge to the back of the bridge. Biomek Software determines the pod's position in the X-axis based on the position of the bridge at the back of the Biomek NX^P instrument.

-
- 3 Select the directional button representing the motion required to physically move the tips into position over the wells of the microplate on top of the ALP ([Figure 2.42](#)).

NOTE Each time a directional button is selected, the pod and tips move the distance specified in Delta in the indicated direction.

NOTE The tips can be physically positioned over the wells of a microplate using:

- the directional buttons in Manual Teach.
- the directional keys on the keyboard.
- the directional keys on the numeric keypad.

The directional buttons displayed in Manual Teach parallel the keys on the numeric keypad.

1 = Fwd	6 = Right
2 = Down	8 = Up
4 = Left	9 = Back

-
- 4 Visually verify the position of the tips on the pod in relation to the physical position of the wells of the microplate on top of the ALP. If the tips are still not accurately positioned above the wells of the microplate on top of the ALP, repeat steps 1 and 2 until they are accurately positioned above the target position.

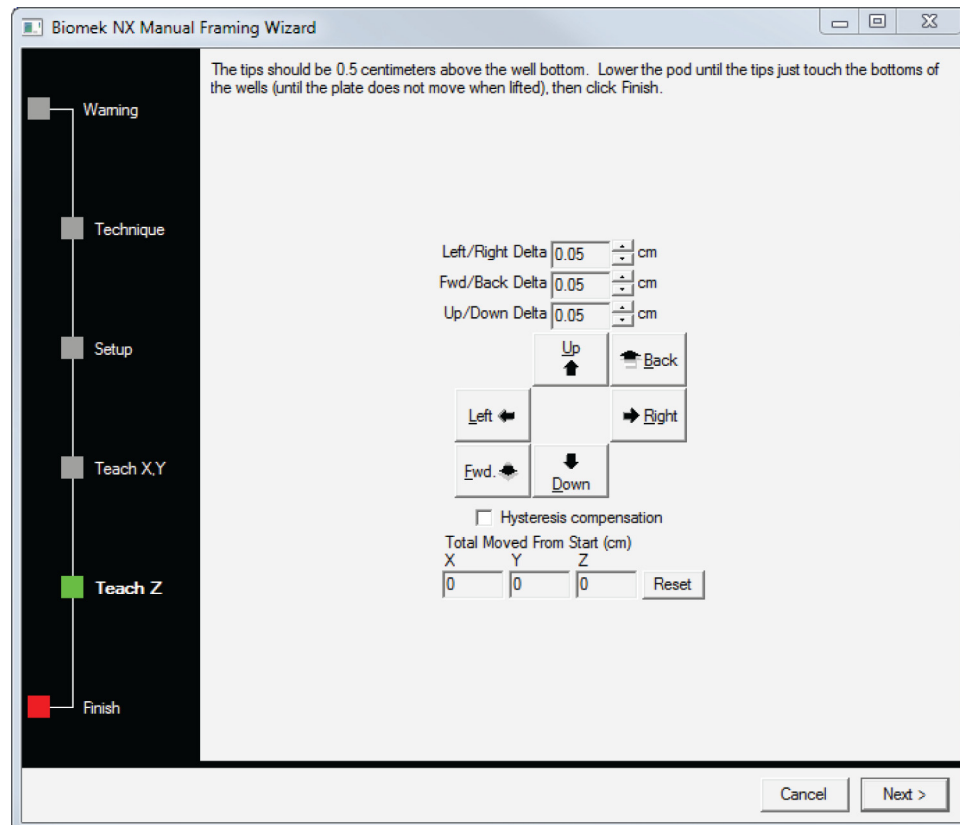
NOTE The tips may also be aligned with the target position using the graphic alignment tool (refer to [Using the Graphic Alignment Tool](#)).

-
- 5 Once the tips are aligned with the target position, choose Next to continue. Biomek NX^P Manual Framing Wizard displays Teach Z (refer to [Framing the Z-Axis](#)).
-

Framing the Z-Axis

- 1 In **Delta**, select the magnitude of change applied to the pod each time a directional button is selected (Figure 2.43).

Figure 2.43 Manual Teaching (Teach Z)



NOTE The default Delta value is 0.05 cm. If the tip is a considerable distance above the position, increase the distance traveled by increasing the Delta value (maximum setting is 1.0 cm). If the tip is almost to the desired location, reduce the Delta value (minimum setting is 0.005 cm).

NOTE Since the X- and Y-axes were framed previously, it is safe to move the pod in the X- and Y-axes if it makes framing the pod in the Z- axis easier.

-
- 2 Select the directional button representing the motion required to physically move the pod down until the tip just touches the microplate at the well corner or the bottom of the well.

NOTE Each time a directional button is selected, the pod and tips move the distance specified in Delta in the indicated direction.

NOTE The tips can be physically positioned over the wells of a microplate using:

- the directional buttons in Manual Teach.
- the directional keys on the keyboard.
- the directional keys on the numeric keypad.

The directional buttons displayed in Manual Teach parallel the keys on the numeric keypad.

1 = Fwd	6 = Right
2 = Down	8 = Up
4 = Left	9 = Back

-
- 3 Once the tip is just touching the target position, select **Finish**. The pod moves up to its maximum height in the Z-axis, Manual Teaching closes, and Position Properties appears.

-
- 4 Select **OK** to save the framing information and close Position Properties.

-
- 5 Repeat the procedure to frame additional deck positions using manual teach.

-
- 6 (Figure 2.33).

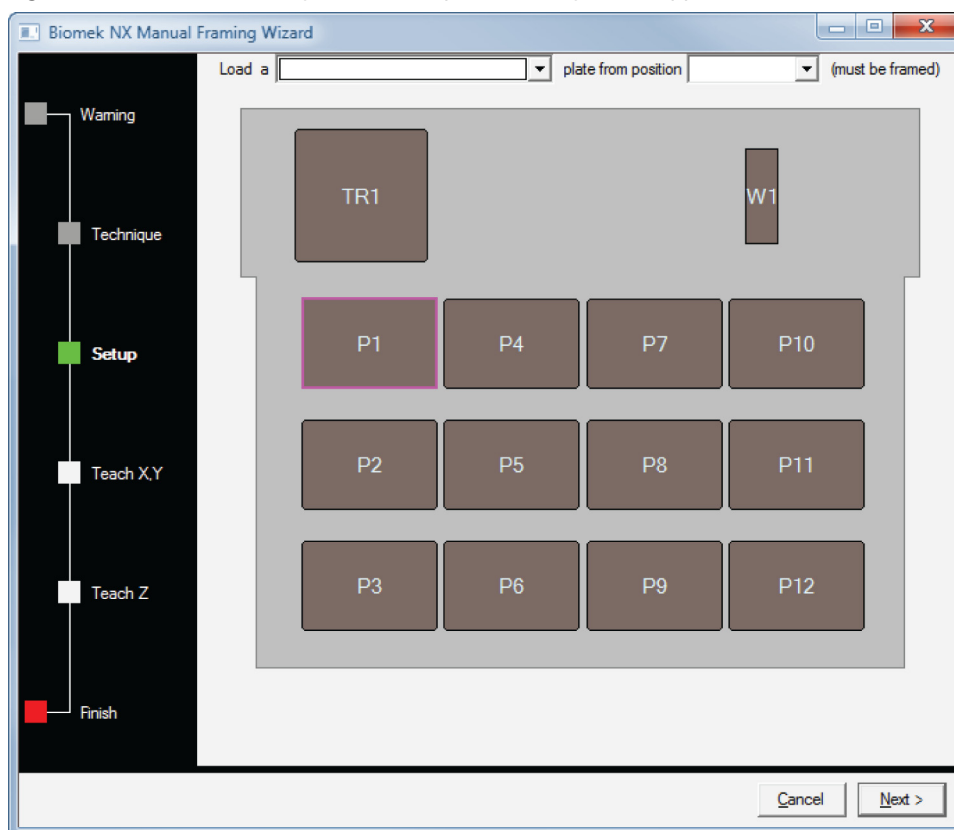
NOTE Choosing **Cancel** loses all changes to the deck, including framing information, since the Deck Editor was opened.

-
- 7 After all positions have been framed, remove the framing shaft from the Span-8 Pod.
-

Manually Framing Using the Gripper

When probes cannot descend far enough to access wells in labware for pipetting purposes, the labware positions may be framed manually for access by the gripper. This allows the labware to be moved from position to position. Manually framing using the gripper consists of picking up a piece of labware from a previously framed position and placing it on the desired position to frame. Positions that are framed via this process are accessible by the gripper only, and cannot be the source or destination of pipetting operations.

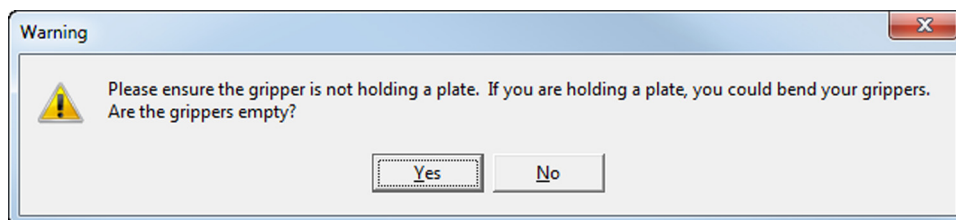
Figure 2.44 Manual Framing Wizard Setup for Framing with Gripper



To manually frame positions using the gripper:

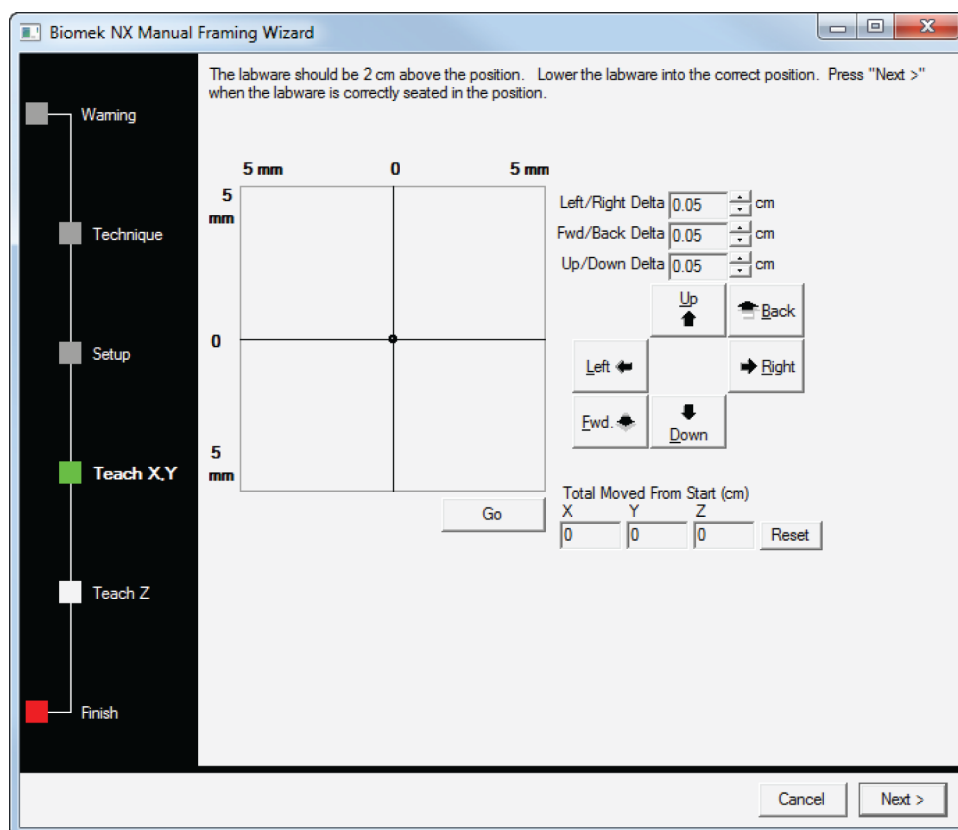
- 1 In the **Load a** field select the type of labware to move to the desired position to frame.
- 2 In the field **from position**, select a previously framed deck position for the starting position of the labware to move.
- 3 Choose **Next**. A warning message appears (Figure 2.45). Confirm there is no plate held by the grippers and click **Yes**.

Figure 2.45 Gripper Warning



- 4 The gripper picks up the labware from the framed position and moves it approximately 2 cm above the desired position to frame. Manual Framing Wizard — Teach X, Y appears (Figure 2.46).

Figure 2.46 Manual Framing Wizard — Teach X, Y with Gripper



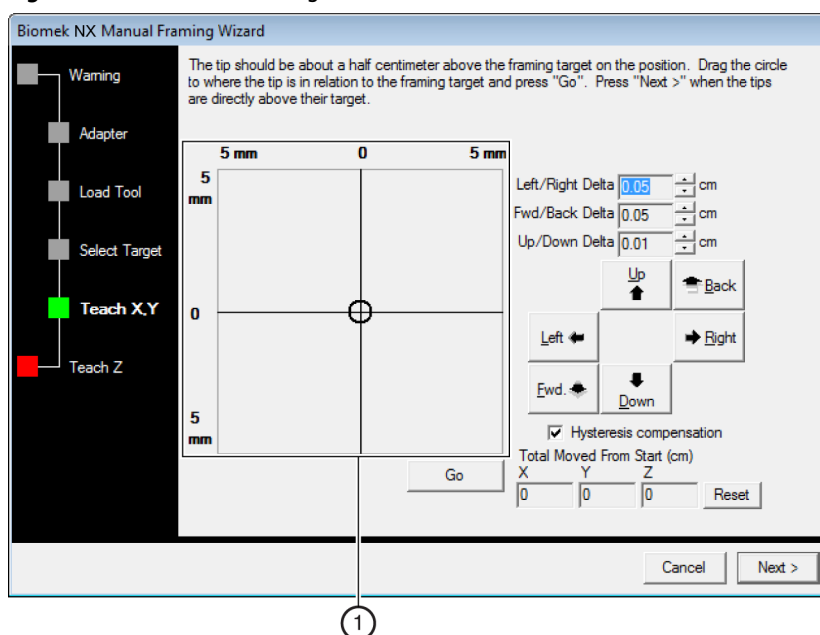
- 5 Adjust the X and Y positions of the gripper to position the microplate appropriately in the ALP by either:
 - *Using the Graphic Alignment Tool.*
 - *Using the Delta Value and Directional Buttons.*

- 6 Adjust the Z position (height) of the gripper to position the microplate appropriately in the ALP using the Up and Down directional buttons and delta value (refer to Using the [Using the Delta Value and Directional Buttons](#)).

Using the Graphic Alignment Tool

The graphic alignment tool (Figure 2.47) is used to instruct Biomek Software of the current position of the gripper in relation to the position being framed. Biomek Software uses the information it is given to move the pod so the gripper is directly above the target position.

Figure 2.47 Manual Teaching the X- and Y- with Axes



1. **Graphic Alignment Tool** – The graphic alignment tool is a visual representation of the back-left corner of the microplate (small circle) and the position being framed. The small circle is moved until it represents the microplate's current physical location in relation to the position being framed.

To use the graphic alignment tool:

- 1 Drag the center (small) circle until it represents the physical position of the microplate in relation to the position being framed. The small circle represents the back left corner of the microplate.

NOTE The software uses this graphical representation of the physical position of the microplate to know approximately how far in any direction the gripper must move.

-
- 2** Select **Go**. The gripper moves in accordance with the position of the small circle in relation to the large circle. When the move is completed, the small circle resets itself to the center of the large circle.

NOTE The values displayed in Total Moved from Start (cm) changes each time steps 1 and 2 are completed. If desired, the values in Total Moved from Start (cm) can be reset to zero by selecting **Reset**.

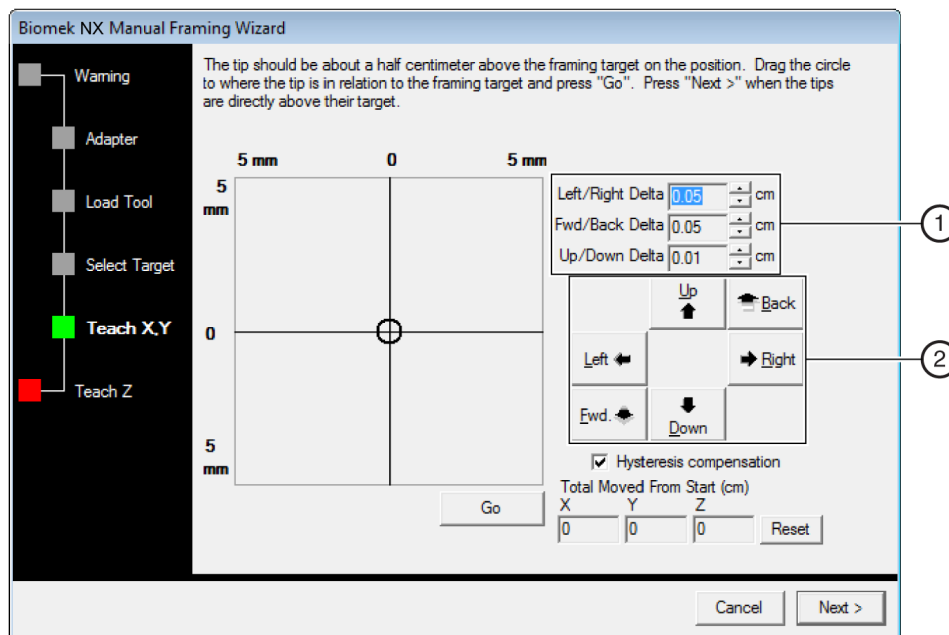
-
- 3** Visually verify the position of the microplate in relation to the position being framed. If the microplate is still not accurately positioned above the position being framed, repeat steps 1 and 2 until the appropriate position is obtained.

NOTE The microplate may also be aligned with the position using the delta value and directional buttons (refer to [Using the Delta Value and Directional Buttons](#)).

-
- 4** Once the microplate is aligned in the X- and Y-axes to the position being framed, align the Z-axis using the Up and Down directional buttons and delta value (refer to [Using the Delta Value and Directional Buttons](#)).
-

Using the Delta Value and Directional Buttons

The microplate can be positioned manually using the delta values and directional buttons to align it with the position being framed ([Figure 2.48](#)). Pressing one of the directional buttons moves the gripper in that direction by the distance specified in Delta. Use the directional buttons and delta values to place the microplate appropriately in the position being framed.

Figure 2.48 Using Delta Values and Directional Buttons to Position Microplate

1. **Delta Value** – The magnitude of change applied to the gripper each time a directional button is selected.
2. **Directional buttons** – The directional buttons move the gripper assembly by the amount shown in Delta with each press of a button.

To use the delta value and directional buttons to position the microplate:

- 1 In Delta, select the magnitude of change applied to the gripper each time a directional button is selected (Figure 2.48). The default Delta value is 0.05 cm.

NOTE If the microplate is a considerable distance from the desired location, increase the distance traveled by increasing the Delta value (maximum setting is 1.0 cm). If the microplate is almost to the desired location, reduce the Delta value to fine tune the position (minimum setting is 0.005 cm).

- 2 Select the directional button representing the motion required to physically move the microplate into the appropriate position at the position being framed (Figure 2.48).

NOTE Each time a directional button is selected, the gripper and microplate move the distance specified in Delta in the indicated direction.

NOTE The gripper can be physically positioned over the position being framed using:

- the directional buttons in Manual Teach.
- the directional keys on the keyboard.
- the directional keys on the numeric keypad.

The directional buttons displayed in Manual Teach parallel the keys on the numeric keypad.

1 = Fwd	6 = Right
2 = Down	8 = Up
4 = Left	9 = Back

-
- 3** Visually verify the position of the microplate in relation to the position being framed. If the microplate is still not accurately seated in the position being framed, repeat steps 1 and 2 until it is accurately positioned in the position being framed.

NOTE The microplate may also be aligned in the X- and Y-axes using the graphic alignment tool (refer to [Using the Graphic Alignment Tool](#)).

-
- 4** Once the microplate is properly seated in the position being framed, choose **Next** to complete the framing procedure. Biomek NX^P Manual Framing Wizard closes and **Position Properties** appears. Select **OK** to save the framing information and close **Position Properties**.
-

Framing the Gripper on a Span-8 Pod

A Beckman Coulter Service Engineer frames the gripper on a Span-8 Pod during system installation; however, it may be necessary to repeat the framing procedure if extraordinary circumstances occur, such as accidentally bending a gripper finger.

Before framing the gripper, ensure

- instrument is homed (refer to [Homing all Axes of the Pod](#)).
- deck position is framed prior to framing the gripper to that location (refer to *Framing Deck Positions on the Biomek NXP Instrument Using the AccuFrame framing tool*).
- AccuFrame tool is installed on the appropriate position (refer to [Installing the AccuFrame Tool](#)).

CAUTION

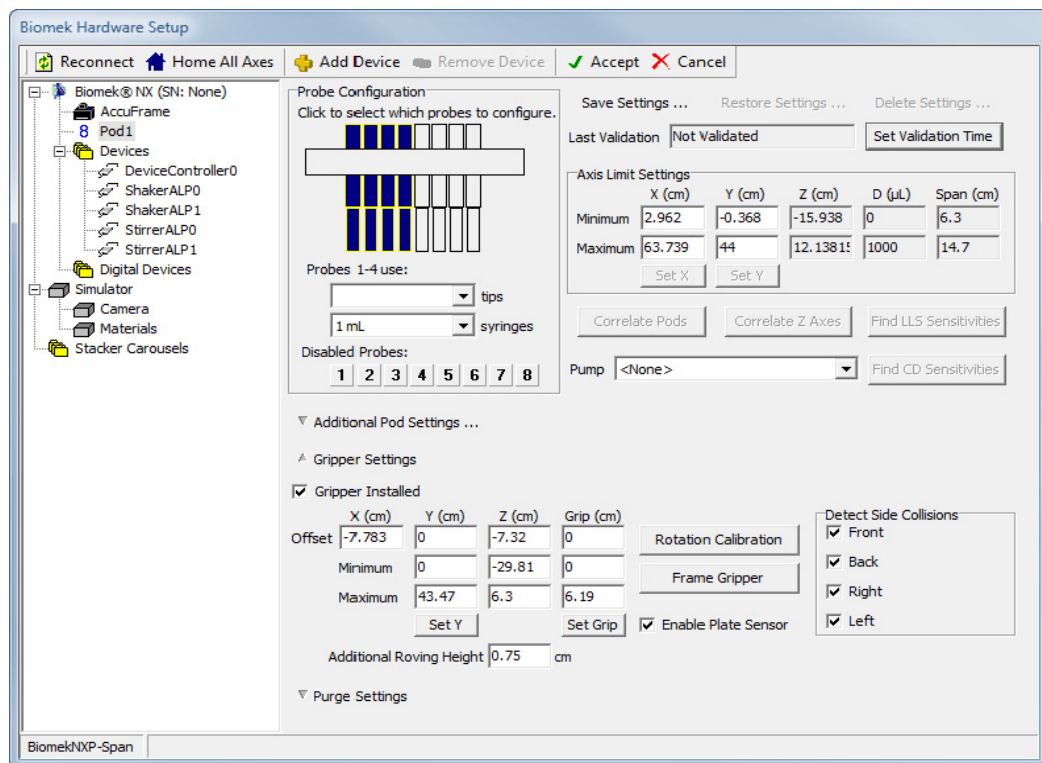
To prevent damage due to electrical static discharge (ESD), wear a wrist ground strap when working with the factory-installed gripper.

To frame the gripper

-
- 1** Select **Start > All Programs > Beckman Coulter > Biomek Software** to start the Biomek Software.
-
- 2** From the Instrument menu, select **Hardware Setup**. Hardware Setup appears.

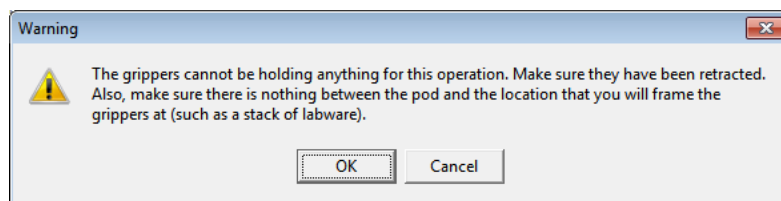
- 3 Choose the pod to display the configuration information for the pod.

Figure 2.49 Hardware Setup



- 4 Choose **Gripper Settings** to expand the gripper settings. The configuration of the gripper appears on the right (Figure 2.49).
- 5 Select **Frame Gripper**.
- 6 When a Warning appears, ensure the topics that appear in the Warning are addressed and select **OK** (Figure 2.50).

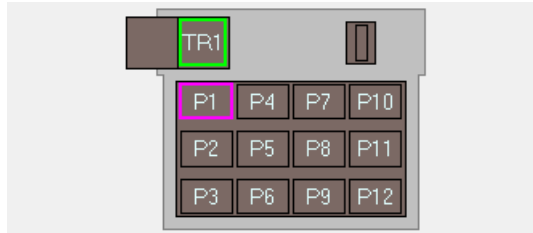
Figure 2.50 Warning to Ensure Gripper is Ready for Framing



- 7 In **Pick Position** (Figure 2.51), select a previously framed deck position and frame the gripper to that location. The deck position must be framed first and should be a small passive ALP, if possible.

NOTE Ensure that the AccuFrame tool is correctly placed on the selected position (refer to [Installing the AccuFrame Tool](#)).

Figure 2.51 Pick Previously Framed Deck Position to Frame the Grippers



- Select **OK**. This moves the pod to that position and opens the grippers. Advanced Manual Control (Figure 2.52) and Frame Gripper (Figure 2.53) appear side by side.

NOTE The gripper is lowered until it is 1 cm above the AccuFrame tool and opened at the end of the move initiated by step 8.

Figure 2.52 Manual Control for Moving Gripper During Framing

Manual Control

Home Z, XY

Move Z-Max

Move Gripper Z-Max

Purge Syringes

Set Valve States

Get Tip Status

Purge System

Absolute Move

Auto-Clear

Clear

Refresh

Vector Builder

Up

Back

Aspirate

Dispense

Left

Right

Widen

Narroww

Ewd.

Down

Current Position

	X (cm)	Y (cm)	Span (mm)	Y (cm)	Z (cm)	Spin (°)	Grip (cm)
Pod	21.126	15.9	9	Gripper	5	0	0
	1	2	3	4	5	6	7
Z (cm)	11.638	11.638	11.638	11.638	11.638	11.638	11.638
D (μL)	0	0	0	0	0	0	0

Gripper

Up

Back

Squeeze

Unsqueeze

Ewd.

Down

Rotate Left

Rotate Right

Movement Vector

	X (cm)	Y (cm)	Span (mm)	Y (cm)	Z (cm)	Spin (°)	Grip (cm)
Pod	0	0	0	Gripper	0	0	0
	1	2	3	4	5	6	7
Z (cm)	0	0	0	0	0	0	0
D (μL)	0	0	0	0	0	0	0

Delta

	X (cm)	Y (cm)	Span (mm)
Pod	0.1	0.1	1
Z (cm)	0.1		
D (μL)	1		

Speed 100 % ☐ LLS Z Move

	Y (cm)	Z (cm)	Spin (°)	Grip (cm)
Gripper	0.1	0.1	1	0.1

Go

Stop

Close

NOTE Do not select Close; if Advanced Manual Control closes, the framing process must be completed again, beginning with step 1.

Figure 2.53 Moving Pod into Gripping Position

Frame Gripper

Manually move the pod into gripping position, and hit "OK".

OK

Cancel

- 9** Use **Advanced Manual Control** to move the gripper fingers until they are aligned with the bottom of the AccuFrame tool (Figure 2.54), and squeeze the gripper fingers until they just touch the AccuFrame tool inside the notches at the bottom of the AccuFrame tool (Figure 2.55). (If necessary, refer to Chapter 6, Manually Controlling the Biomek NX^P instrument in Biomek Software in the *Biomek NX and NX^P Laboratory Automation Workstations User's Manual*.)

NOTE Both front and rear gripper fingers must touch at the same time when squeezing, which usually necessitates a move along the Y-axis.

NOTE Assessing the position of the gripper fingers in step 9 is a visual task.

Figure 2.54 Gripper Framing Position on the AccuFrame tool

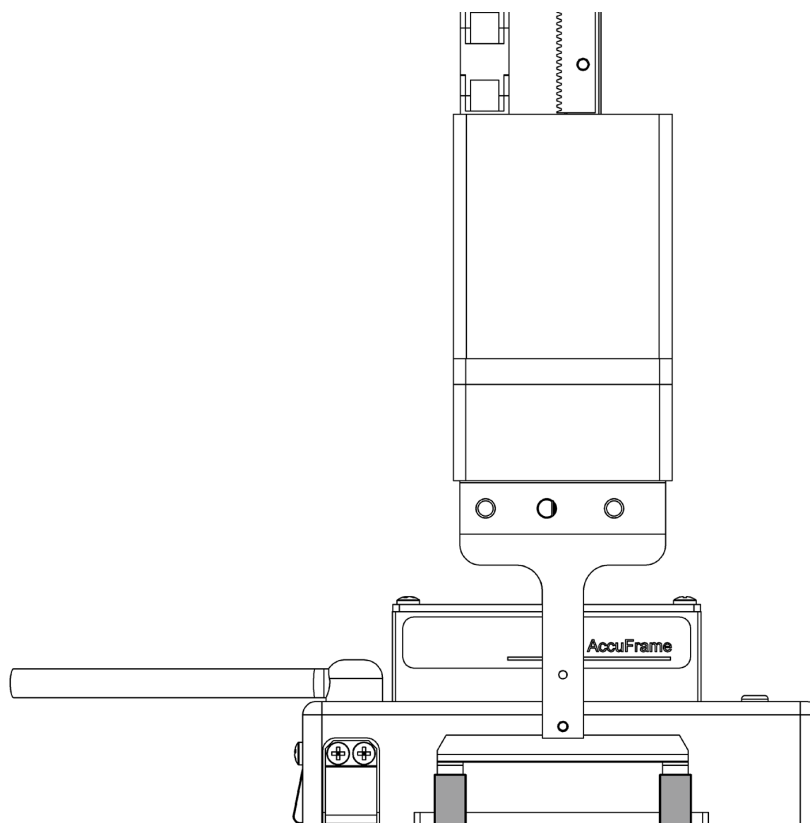
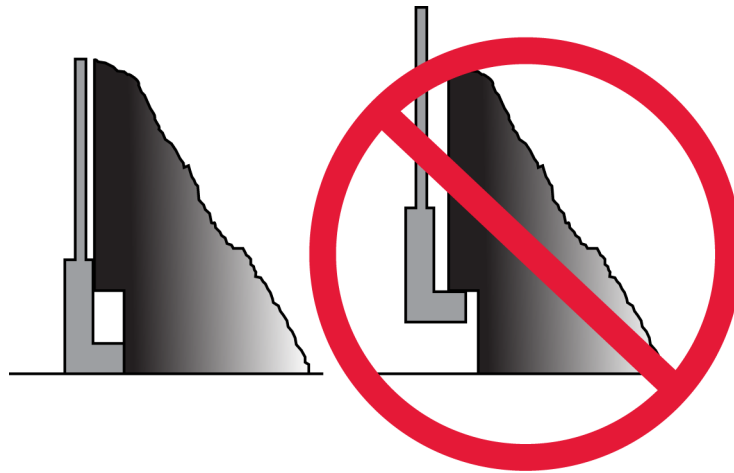


Figure 2.55 Correct and Incorrect Gripper Framing Alignment



1. **Correct Gripper Alignment** – Bottom of gripper finger aligned to bottom of AccuFrame tool and aligned to the inside of cut-out.
2. **Incorrect Gripper Alignment** – Top of gripper finger aligned to top of cut-out of AccuFrame tool without aligning to inside of cut-out.

-
- 10 Once the gripper fingers are properly aligned with the AccuFrame tool, in **Frame Gripper**, select **OK** (Figure 2.53).
-
- 11 From Hardware Setup, select **Accept**. Hardware Setup closes.
-
- 12 From the Instrument menu, select **Manual Control**. Manual Control appears.
-
- 13 Select **Advanced Controls** and select **Pod1**. Advanced Manual Control appears (Figure 2.52).
-
- 14 Select **Move Gripper Z-Max**.
NOTE Choosing Move Z-Max raises the pod to access the AccuFrame tool.
-
- 15 Select **Close** to close Advanced Manual Control.
-
- 16 Select **Exit** to close Manual Control.
-
- 17 Remove the AccuFrame tool from the ALP position.
-

Testing Gripper Framing Accuracy

To make sure the gripper works properly, create and run a method at reduced speed (around 10%) to move a piece of labware from one framed deck position to another. If problems occur, repeat the gripper framing process until the gripper is working correctly.

Framing the Gripper on a Multichannel Pod

A Beckman Coulter Service Engineer frames the gripper during system installation; however, it may be necessary to repeat the framing procedure if:

- the head is changed.
- gripper fingers are replaced.
- extraordinary circumstances occur, such as accidentally bending a gripper.

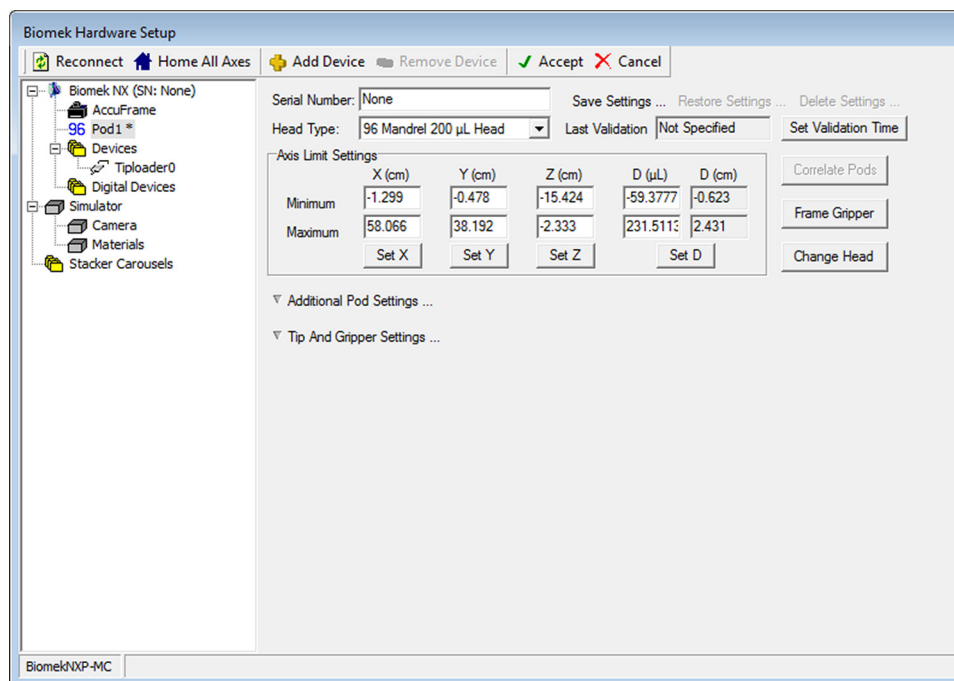
Before framing the grippers, ensure:

- instrument is homed (refer to [Homing all Axes of the Pod](#)).
- deck position is framed prior to framing the gripper to that location (refer to *Manually Framing Deck Positions on the Biomek NXP Instrument with Multichannel Pod*).
- AccuFrame tool is installed on the appropriate position (refer to [Installing the AccuFrame Tool](#)).
- framing fixture is not attached to the Multichannel Pod.

To frame the grippers:

- 1 Choose **Start > All Programs > Beckman Coulter > Biomek Software** to start the Biomek Software.
- 2 From the Instrument menu, choose **Hardware Setup**. Hardware Setup appears.
- 3 Choose the Multichannel pod. The Pod configuration appears on the right ([Figure 2.56](#)).

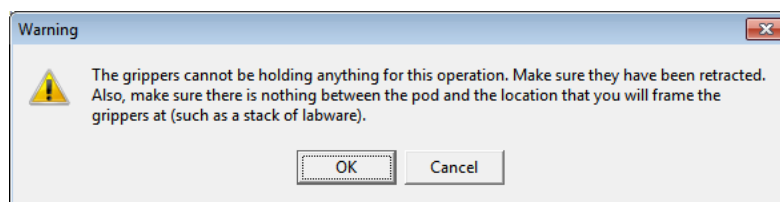
Figure 2.56 Hardware Setup



4 Select **Frame Gripper**.

5 When a Warning appears, make sure the topics that appear in the Warning are addressed and select **OK** (Figure 2.57).

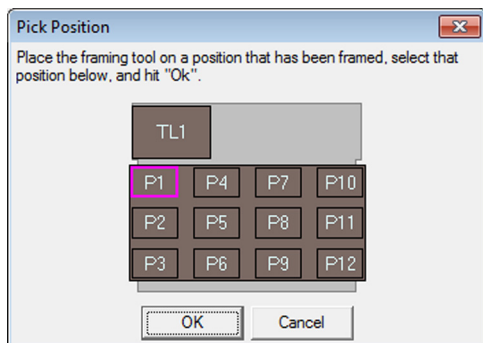
Figure 2.57 Warning to make sure gripper is ready for framing



6 In Pick Position (Figure 2.58), select a previously framed deck position and frame the gripper to that location. The deck position must be framed first and should be a small passive ALP, if possible.

NOTE Make sure that the AccuFrame tool is correctly placed on the selected position (refer to [Installing the AccuFrame Tool](#)).

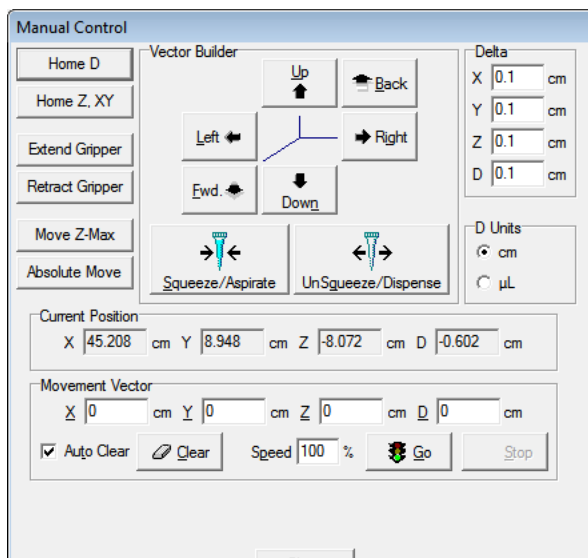
Figure 2.58 Pick previously framed deck position to frame the grippers



- 7 Select **OK**. This moves the pod to that position and extends the grippers. Advanced Manual Control (Figure 2.59) and Frame Gripper (Figure 2.60) appear side by side.

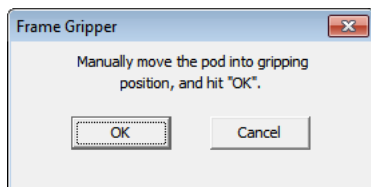
NOTE The gripper is extended a little high and opened a little wide at the end of the move initiated by step 6.

Figure 2.59 Advanced Manual Control for moving gripper during framing



NOTE Do not select Close; if Advanced Manual Control closes, the framing process must be completed again, beginning with step 1.

Figure 2.60 Moving pod into gripping position

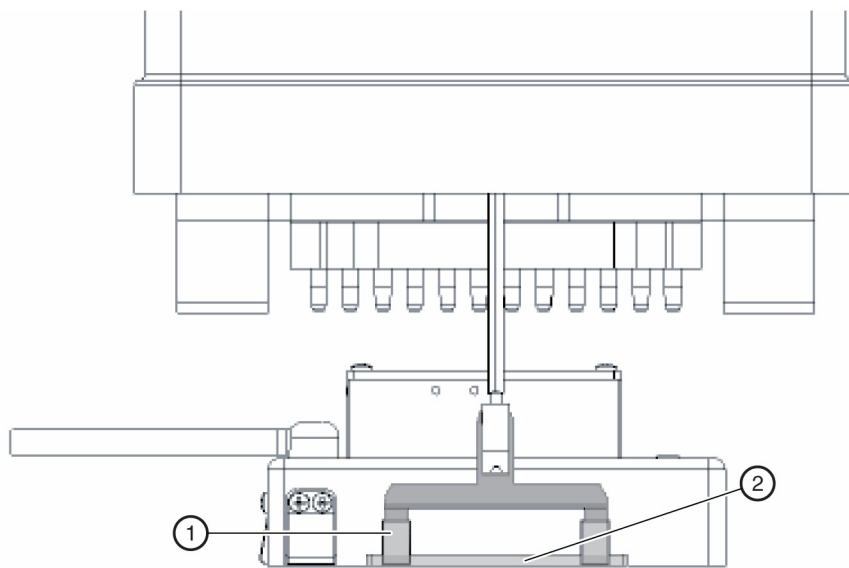


- 8 Use Advanced Manual Control to move the gripper fingers until they are aligned with the bottom of the AccuFrame tool (Figure 2.61), and squeeze the fingers until they firmly touch the AccuFrame tool inside the notches at the bottom of the AccuFrame tool (Figure 2.62). If necessary, refer to the *Biomek Software User's Manual* for instructions on moving the gripper.

NOTE Both front and rear gripper fingers must touch at the same time when squeezing, which usually necessitates a move along the Y-axis.

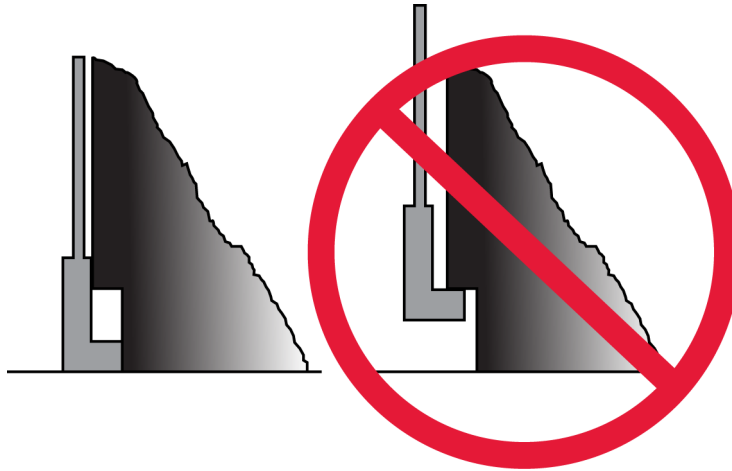
NOTE Assessing the position of the gripper fingers in step 8 is a visual task.

Figure 2.61 Gripper framing position on the AccuFrame tool



1. Gripper Finger
2. Bottom of AccuFrame tool

Figure 2.62 Correct and incorrect gripper framing alignment



1. **Correct Gripper Alignment** – Bottom of gripper finger aligned to bottom of AccuFrame tool and aligned to the inside of cut-out.
2. **Incorrect Gripper Alignment** – Top of gripper finger aligned to top of cut-out of AccuFrame tool without aligning to inside of cut-out.

-
- 9 In Frame Gripper, choose OK (Figure 2.60). The gripper is now framed.
 - 10 From Hardware Setup, select **Accept** to save changes and close Hardware Setup.
 - 11 From Biomek Software, select **Instrument > Manual Control**. Manual Control appears.
 - 12 Select **Advanced Controls** and select **Pod1**. Advanced Manual Control appears (Figure 2.59).
 - 13 Select **Move Z-Max**.
NOTE Selecting Move Z-Max raises the pod to allow access to the AccuFrame tool.
 - 14 Select **Close** to close Advanced Manual Control.
 - 15 Select **Exit** to close Manual Control.
 - 16 Remove the AccuFrame tool from the ALP position.
-

Testing Gripper Framing Accuracy

To make sure the gripper works properly, create and run a method at reduced speed (around 10%) to move a piece of labware from one framed deck position to another (refer to Setting Multichannel Pod Properties in the *Biomek NX^P User's Manual*). If problems occur, repeat the gripper framing process until the gripper is working correctly.

To troubleshoot gripper framing, see [Troubleshooting](#).

Calibrating Gripper Rotation

The gripper can rotate to access positions that are oriented at different angles in relation to the front of the Biomek NX^P instrument; however, controlling this feature in Biomek Software in a method is available only for custom integrations.

To ensure that the gripper rotates properly, they need to be calibrated to a 0 degree rotation.

To calibrate the gripper rotation:

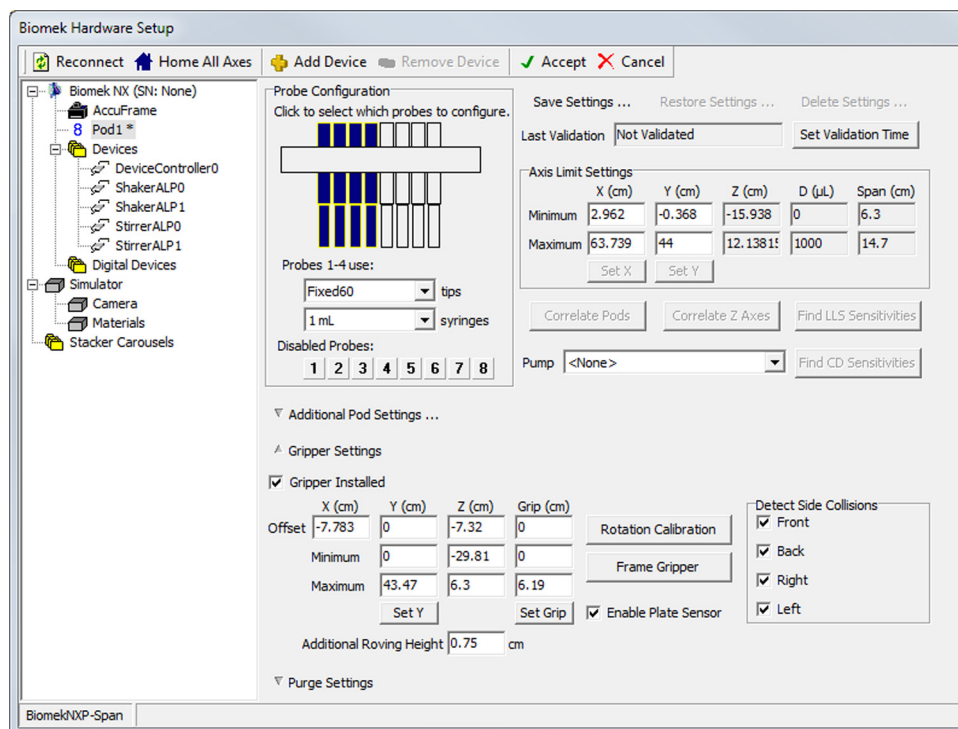
- 1** Choose **Start > All Programs > Beckman Coulter > Biomek Software** to start Biomek Software.

- 2** From the Instrument menu, select **Hardware Setup**. Hardware Setup appears.

- 3** Select **Pod1** to display the configuration information for the pod.

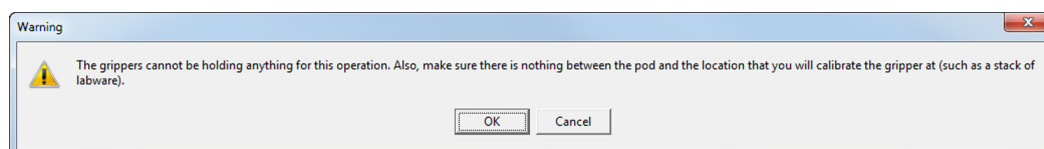
- 4 Choose **Gripper Settings** to expand the settings. The configuration for the gripper appears on the right (Figure 2.63).

Figure 2.63 Hardware Setup



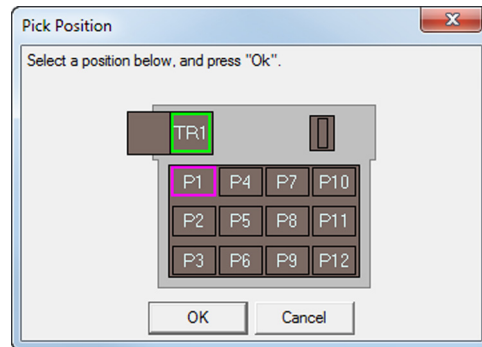
- 5 Choose **Rotation Calibration**. When a Warning appears, address the topics that appear in the Warning and choose OK (Figure 2.64).

Figure 2.64 Warning to Ensure Gripper is Ready for Calibration



- 6 In **Pick Position** (Figure 2.65), select a deck position to move the gripper over such that it will be easy to visually observe the gripper.

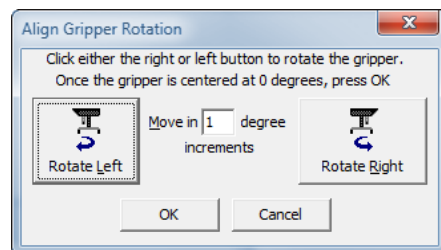
Figure 2.65 Pick Deck Position to Calibrate the Gripper



NOTE Make sure that the AccuFrame tool is correctly placed on the selected position (refer to [Installing the AccuFrame Tool](#)).

- 7 Choose **OK**. The gripper moves to the selected position and **Align Gripper Rotation** appears (Figure 2.66).

Figure 2.66 Align Gripper Rotation



- 8 In **Move in... degree increments**, enter how far the gripper should rotate with each movement.
- 9 Select **Rotate Left** to rotate the gripper to the left.
OR
Select **Rotate Right** to rotate the gripper to the right.

- 10 Repeat steps 8 and 9 until the gripper is centered at 0 degrees.

NOTE Centering the gripper is a visual task.

- 11 Select **OK** to complete the rotation calibration.

12 Select **Accept** to save the calibration and close **Hardware Setup**.

Troubleshooting

Perform the troubleshooting techniques provided in [Table 2.1](#) when necessary.

NOTE In the case of any other framing-related problems, contact a Beckman Coulter Service Engineer.

Table 2.1 Troubleshooting Framing

If	Then
AccuFrame tool power light is not on.	Check the CAN connection to ensure the AccuFrame tool is connected to the Biomek NX ^P instrument.
The Y-axis and the X/Z-axes Light Beams cannot be broken when moving a finger around the interior of AccuFrame tool.	Ensure the AccuFrame tool is receiving power.
One or both beam indicator lights on AccuFrame tool stay on when no objects are breaking the light beams.	May be an internal obstruction to sensors. Call a Beckman Coulter Service Engineer.

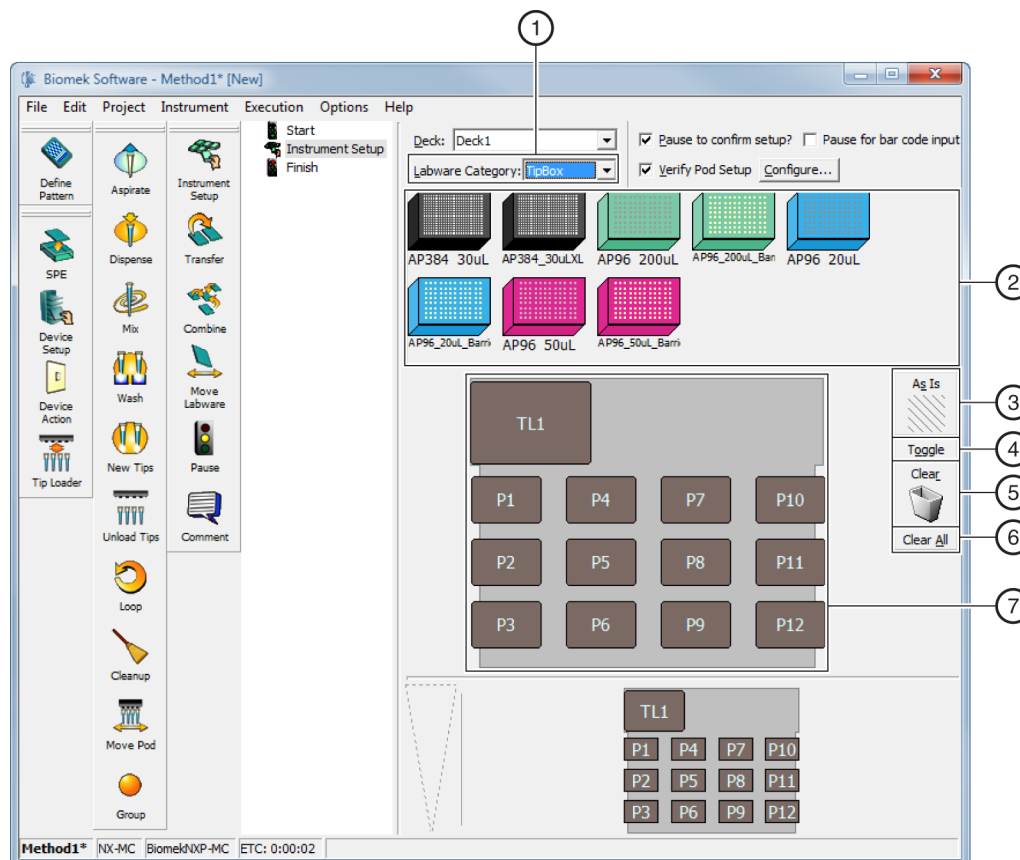
Populating the Deck with Labware

Populating the deck with labware and tips is done through the **Instrument Setup** step. To insert an **Instrument Setup** step into a method:

- From the **Basic** step palette, drag and drop the  icon into the Method View ([Figure 2.67](#)).

The labware available for selection is displayed graphically below **Labware Category** ([Figure 2.67](#)). A specific type of labware can be viewed in the graphical display, or all types of labware available can be viewed simultaneously, using the **Labware Category** filter.

Figure 2.67 Populating the Deck Layout



1. **Labware Category selection.**
2. **Labware Category Graphical Display:** Graphical representation of the types of labware available for populating the Deck Layout. The labware displayed here is based on the **Labware Category** selected above.
3. **As Is:** Individual deck positions retain their current state, whether empty or occupied by labware or a device.
4. **Toggle:** Toggles all empty deck positions to the **As Is** state and from the **As Is** state to their initial status, allowing those deck positions to retain their empty state.
5. **Clear:** Drag a piece of labware from the deck position to the trash to remove it.
6. **Clear All:** Clears all deck positions, whether empty or occupied by labware or a device.
7. **Instrument Setup Display:** Displays the setup of the deck. Once labware is added to the deck, it is displayed here. If names have been assigned to labware, the names are displayed.

Adding Labware to the Deck

To populate the Deck Layout with labware:

- 1 To display labware, select the type of labware desired in **Labware Category**. **Labware Category** choices include:
 - **Any** — Lists all types of labware available, including lids and deck positions reserved for swapping labware.
 - **Custom** — Lists any labware stored with defined properties.
 - **Lid** — Lists lids associated with labware available.
 - **Reservation** — Reserves deck positions for specific purposes; for example, to enable swapping of labware between positions.
 - **Reservoir** — Lists reservoirs available.
 - **TipBox** — Lists types of tips available.
 - **Titerplate** — Lists types of microplates available.
 - **Tuberack** — Lists types of tube racks available.

NOTE Labware types and their characteristics are defined in the **Labware Type Editor**. Refer to the *Biomek Software User's Manual*, for information using the **Labware Type Editor**. If the **Hide Labware** option was chosen while defining a labware type, it will not be displayed in the **Instrument Setup** step.

- 2 To place labware on the Deck Layout, drag and drop each desired labware graphic to the desired position on the Deck Layout display.

OR

Click on the labware graphic, and then on the desired position in Deck Layout display. The same type of labware can be added to as many deck positions as required by continuing to click on deck positions.

OR

Click on the labware graphic, and then click and drag the mouse over multiple deck positions in the Deck Layout display. This places the labware in all the highlighted positions.

NOTE To move labware to a different position, drag the desired labware to the new position in the Deck Layout.

- 3 To remove unwanted labware from the Deck Display during setup, drag and drop the labware to the **Clear** (trash) icon ([Figure 2.67](#)).

OR

Select **Clear** and then click on all the labware that needs to be removed.

OR

Right-click the unwanted labware and select **Delete** from the menu that displays.

Creating a Simple Method for NX^P Multichannel

Overview

In this chapter, you will learn how to create a simple method, where you will aspirate liquid from a reservoir and dispense it into a microplate. In addition to transferring liquid, this chapter also provides instructions for typical setup activities, as well as instructions for handling errors.

Topics covered in this chapter include:

- [Launching Biomek Software](#)
- [Beginning a Method](#)
- [Transferring Liquid](#)
- [Running the Method](#)
- [Saving a Method](#)
- [Responding to an Error Message](#)

Launching Biomek Software

To launch Biomek Software:

- 1 From the **Start** menu, select **All Programs > Beckman Coulter > Biomek Software**.

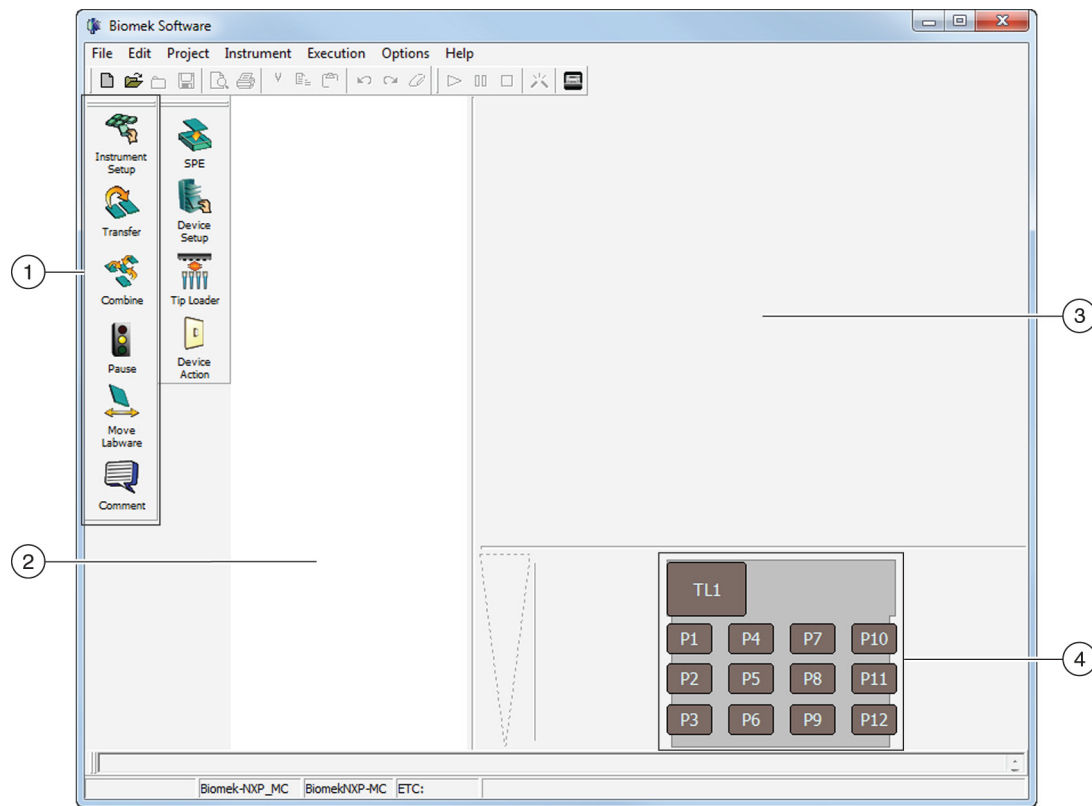
If Beckman Coulter Accounts & Permissions is enabled on your system, you must have an account established and log in using that account name and password. For more information, contact your system administrator.

NOTE Beckman Coulter Accounts & Permissions is an integrated set of features built into Biomek Software that assists users in complying with 21 CFR Part 11 requirements for closed systems. Permissions provide the ability to control user access to specific program operations. Refer to the *Biomek Software User's Manual* for additional details.

Viewing the Main Editor

The main editor (Figure 3.1) is your starting point for building liquid-handling methods for the Biomek NX^P Laboratory Automation Workstation. You will choose method steps from a step palette and place them into the Method View in a linear fashion. The configuration for each of these steps appears in the Configuration View.

Figure 3.1 Biomek Main Editor



1. **Step Palettes:** Icons representing predefined steps for building methods are displayed in this area.
2. **Method View:** Place in this area the steps you want your method to complete.
3. **Configuration View:** The configuration for each step appears in this area. The view changes to correspond to the step highlighted in the Method View.
4. **Current Deck Display:** This display changes dynamically to reflect the status of the deck upon completion of the previous step.

Beginning a Method

To begin a method, you have the option of creating a new method or opening an existing method you've completed, named, and saved. In this chapter, you'll create a new method.

But before you create a new method, get into the habit of ensuring you are using the correct Project File.

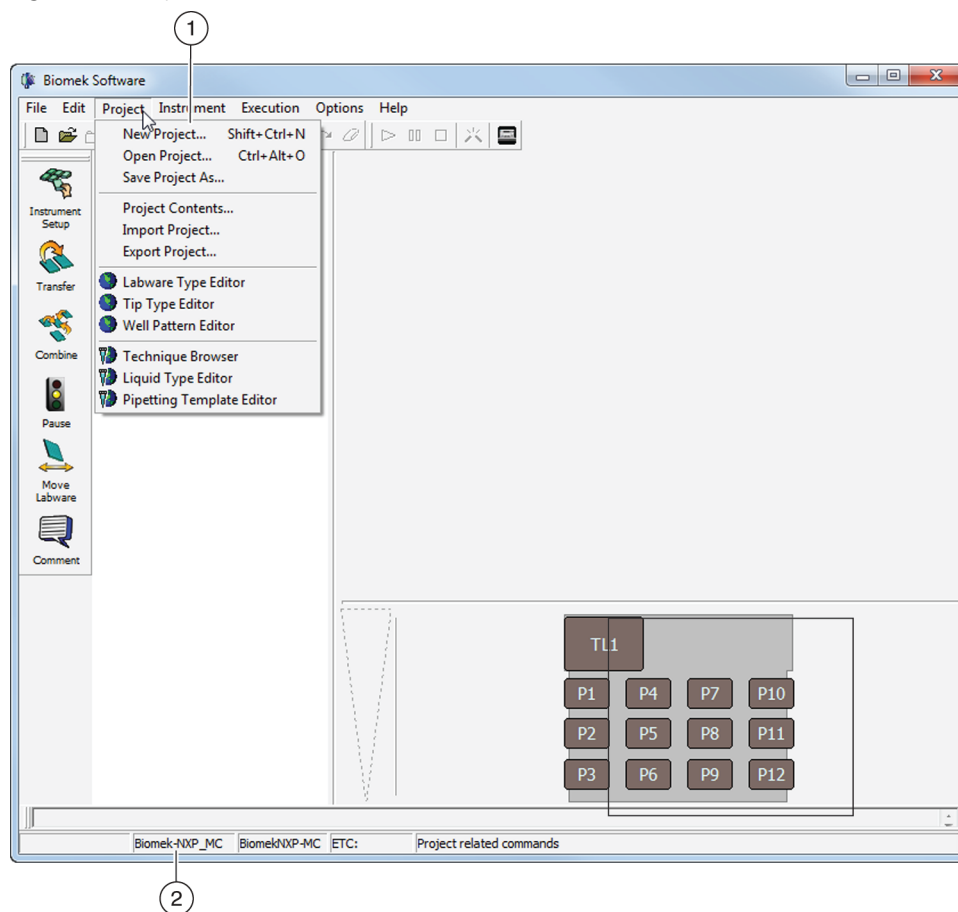
Introducing Project Files

While Project Files may be created, revised, deleted, imported, or exported, in this chapter you will use the Project File on your system that was created or imported when your instrument and Biomek Software were installed.

NOTE A Project File stores information about liquid types, labware and tip types, well patterns, and pipetting templates and techniques as revisions that are used by a method file to configure the actions of the instrument. Project Files store a history of all changes, additions, and deletions of items from the Project File. Methods are associated with projects and contain all of the items required to perform the method.

View [Figure 3.2](#) to learn where Project File information is accessed or viewed from the main editor.

Figure 3.2 Project File



1. The actions and editors associated with Project Files are displayed in the drop-down menu under **Project** on the toolbar.
2. **Project File:** The currently opened Project File is displayed here. The Project File displayed here is the default used when a Biomek NX^P instrument is chosen at the time Biomek Software is installed on the system.

Creating a New Method

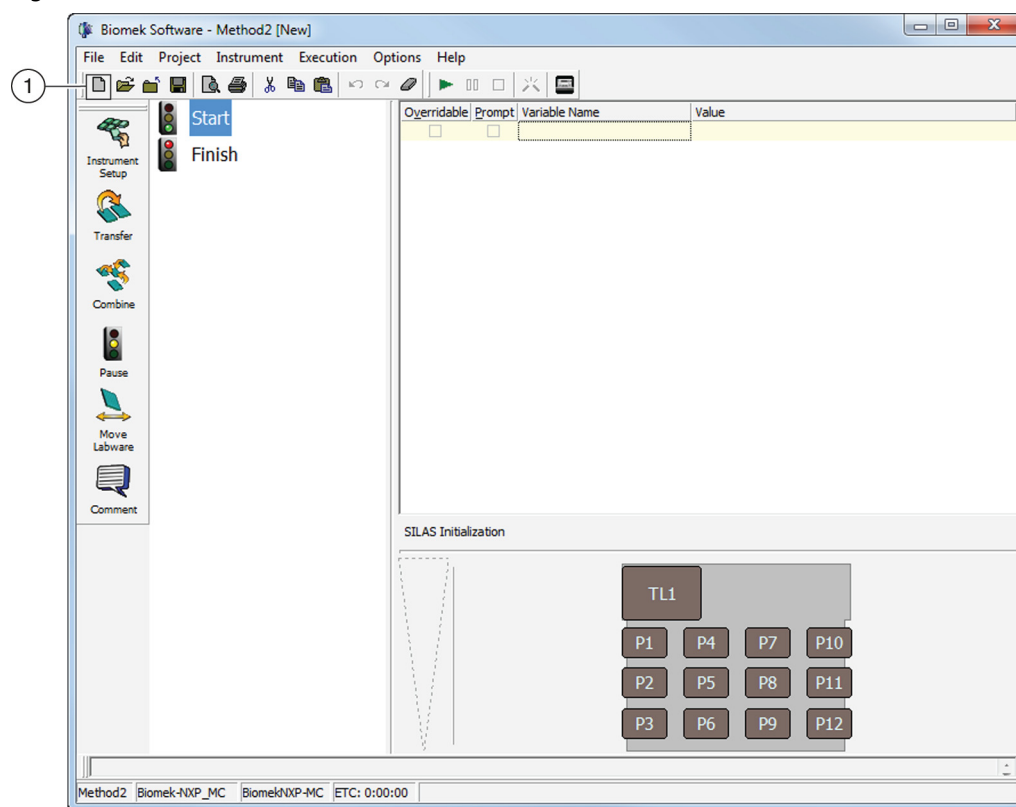
A method is a series of steps that control the operation of the instrument. The step palettes in the main editor present a group of icons representing the steps available for a method. To build a method, you simply select the step icon you want, and move it into the method-building space (Method View) in the main editor. Place and configure each step to perform the operations as desired.

To create a new method:

- 1 Select the **New Method** icon located on the toolbar (Figure 3.3).

This creates the beginning for your new method. It's a good idea to expand the Biomek editor to fill the entire screen.

Figure 3.3 Main Editor When a New Method is Created



1. New Method

Understanding the Start and Finish Steps

As you can see ([Figure 3.3](#)), the Method View of the main editor now contains the **Start** and **Finish** steps that appear automatically when you create a method. These two steps are always there and indicate the beginning and end of your method. You'll insert all the rest of the steps you want the instrument to complete between **Start** and **Finish**.

When the **Start** step is highlighted in the Method View, you are presented with the opportunity to create some variables in the Configuration View. Ignore this configuration in this brief introduction to method creation.

If you want to know more in-depth information on the **Start** configuration right now, refer to the *Biomek Software User's Manual*, Configuring the Start Step.

You'll learn more about using the **Finish** step in [Determining the Estimated Time of Completion \(ETC\) of the Method](#).

Setting Up the Deck

The **Deck Editor** is used to define and change the deck configurations stored in the current instrument file. A deck is a software visual representation of the Biomek instrument deck and can be stored and used for multiple methods; however, the software deck must always match the physical deck of the instrument used in the method. Refer to the *Biomek Software User's Manual*, Preparing and Managing the Deck.

Setting up the deck includes:

- ensuring the current deck used in Biomek Software via the **Deck Editor** matches the physical deck of the instrument.
- configuring the **Instrument Setup** step to tell the software what labware and what deck position each labware piece occupies on the deck.

Ensuring the Deck in Biomek Software is Correct

To avoid hardware crashes, it's important that the deck in Biomek Software matches the physical deck of your instrument. If you wish to run these methods on hardware rather than in simulation and your deck varies from what is shown, you may have to modify the methods to work with your hardware ([Figure 5-4](#)).

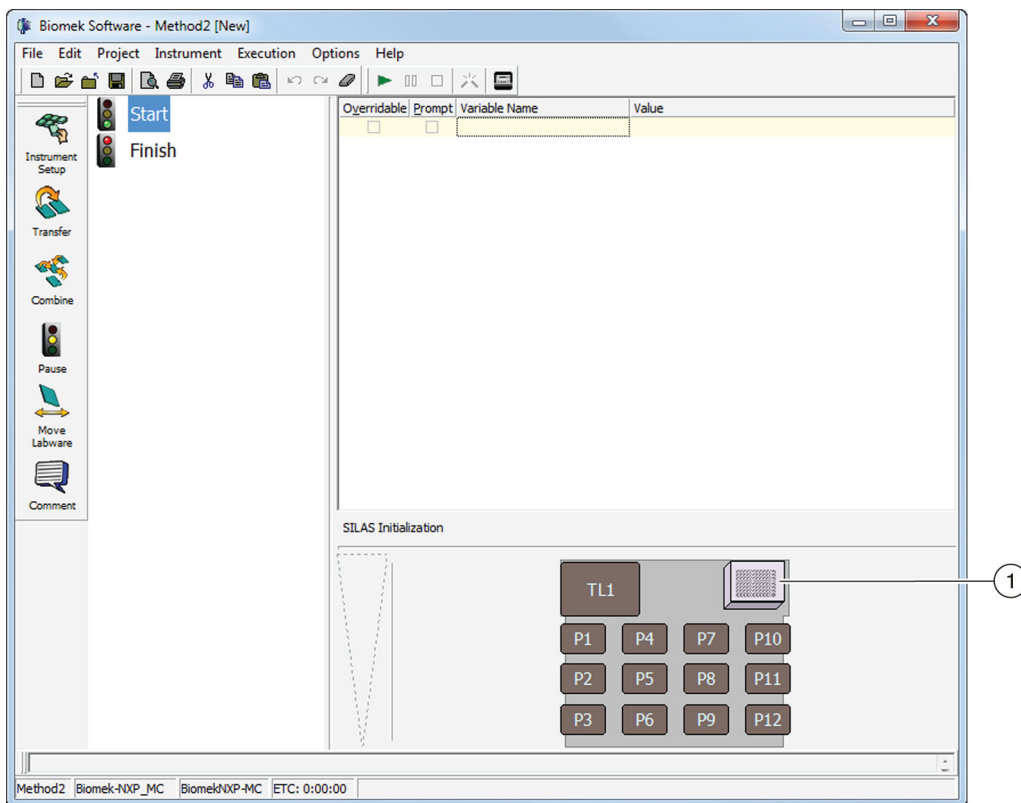
NOTE Automated Labware Positioners (ALPs) are removable and interchangeable platform structures installed on the deck to allow automated assays to be performed.

The steps in this chapter assume the current deck in the software includes a 96- Channel Tip Wash ALP on the right-most column of the back row since you will use this ALP later. You can also create a deck in the Deck Editor for use only when completing this chapter.

To add a 96-Channel Tip Wash ALP to your deck:

- 1 Choose **Instrument > Deck Editor**. The current deck appears.
- 2 From **All**, highlight **WashStation96** and drag it to the proper position.
NOTE You may have to delete an ALP from the deck before you add the **WashStation96**.
- 3 Choose **Renumber** to ensure your deck matches the deck on [Figure 3.4](#).
- 4 Choose **Save** to save the new deck layout and close the Deck Editor.
- 5 Ensure a 96-Channel Tip Wash ALP is placed on the position in the right-most column of the back row ([Figure 3.4](#)).

Figure 3.4 Current deck includes a 96-Channel Tip Wash ALP



1. Current deck includes a 96-Channel Tip Wash ALP

Configuring the Instrument Setup Step

The next activity of this chapter is to configure the **Instrument Setup** step for your liquid-transfer procedure. You will place on the deck:

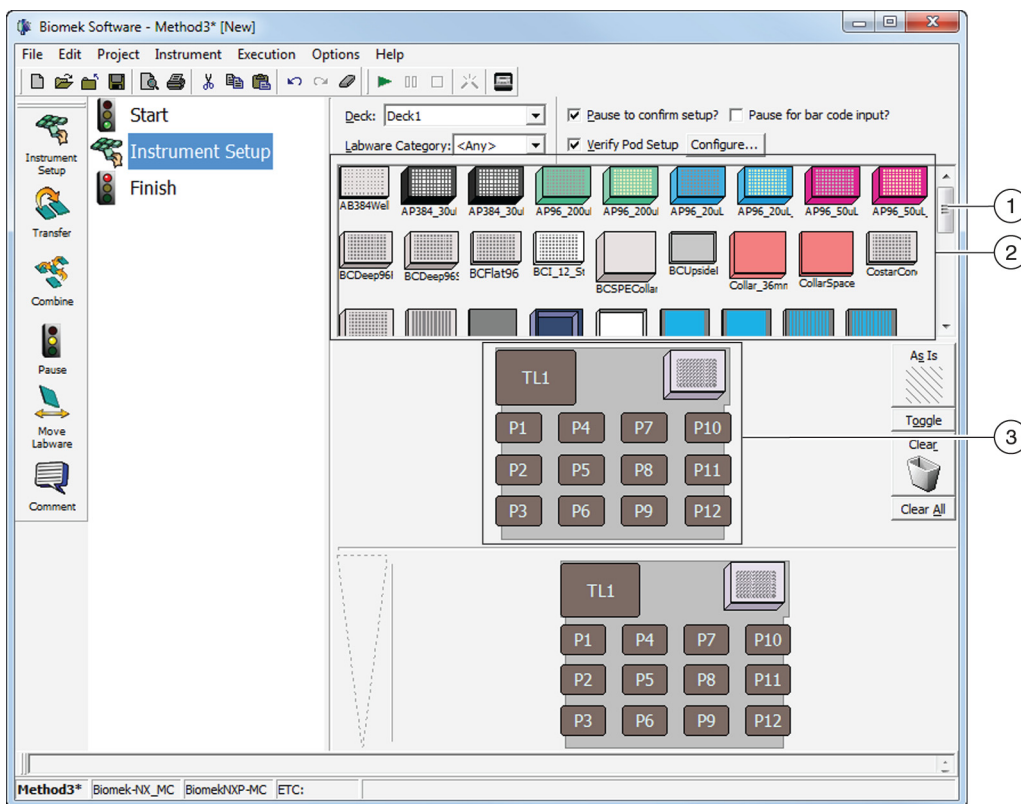
- Tips
- Source reservoir
- Destination microplate

TIP If the **Instrument Setup** step, or any step, is inserted into the wrong location in the Method View, you can drag and drop it to the proper location.

To insert the **Instrument Setup** step:

-
- 1 Choose (highlight) **Start** in the Method View.
-
- 2 Hover the mouse pointer over the **Instrument Setup** icon in the step palette. As you hover, look at the Method View and you'll see a black bar appear just below **Start**. This black bar indicates the insertion point where your next step will appear. In this case, it's where the **Instrument Setup** step will be inserted.
-
- 3 Click the **Instrument Setup** icon to insert the step. The **Instrument Setup** configuration appears ([Figure 3.5](#)).

Figure 3.5 Instrument Setup Step Configuration



1. Move this scroll bar down to display all the labware choices.
2. **Labware Available:** Represents the labware choices for your method. Move your selections onto the Deck Layout display.
3. **Deck Layout:** Represents the layout of your Biomek NX^P deck. Place your labware selections onto the desired deck layout positions.

Using the **Instrument Setup** step you just inserted, you'll learn how to select and place:

- **AP96 200 μ L** tips onto **TL1** (Tip Loader) deck position
- **BCUpsideDownTipBoxLid** onto **P4** deck position
- **BCFlat 96** microplate onto **P5** deck position

To select and place your tips and labware:

- 1 Click the **AP96 200 μ L** tips icon, then click on **TL1** deck position. Notice that when you hover the cursor over the tip box on the Deck Layout, a tool tip identifies the deck position and labware. This technique applies to all the labware you place on the deck.
- 2 Using the above procedure, place a **BCUpsideDownTipBoxLid** onto the **P4** deck position.

- 3 After you have positioned the **BCUpsideDownTipBoxLid** on the deck, double-click it or right-click and select **Properties**. This opens **Labware Properties** (Figure 3.6). Each piece of labware added to the Deck Layout is configured using Labware Properties. The information provided in Labware Properties is used when a pipetting technique is selected or when tips are loaded and unloaded.

NOTE A technique instructs the Biomek instrument in performing pipetting operations, such as an aspirate, dispense, and mix.

Figure 3.6 Labware Properties for **BCUpsideDownTipBoxLid**

The screenshot shows the 'Labware Properties' dialog box. At the top, it says 'Labware Properties'. Below that, there are several fields: 'Name:' with an empty text box, 'Labware Type:' with a dropdown menu showing 'BCUpsideDownTipBoxLid', and 'Maximum Volume: 160000 µL'. Below these is 'Bar Code:' with an empty text box. Then, 'Labware contains an' with a dropdown menu showing 'Unknown', followed by 'volume: 0' and a unit dropdown showing 'µL', and 'of liquid type: Water' with a dropdown menu. There are two radio buttons: the first is selected and labeled 'Sense the liquid level the first time a well with Unknown or Nominal volume is accessed "from the Liquid"', and the second is labeled 'Sense the liquid level every time a well is accessed "from the Liquid"'. Below the radio buttons is a checkbox labeled 'Show Well Properties'. At the bottom right are 'OK' and 'Cancel' buttons.

- 4 In **Labware Properties**, you can give the **BCUpsideDownTipBoxLid** a name. You'll name this one "Rsvr," but in general you can assign labware any name you want. Type **Rsvr** in the **Name** field. After configuration is complete, the name will appear over the **BCUpsideDownTipBoxLid** in the Current Deck display (Figure 3.7).

- 5 In **Labware** contains an, select **Known**.

- 6 In the **Volume** field, type 100000. This means you know you have 100,000 microliters of liquid in the source **BCUpsideDownTipBoxLid**.

- 7 Choose **Water** from the **Liquid Type** drop-down menu, or type **Water** into this field.

- 8 Leave **Bar Code** blank, but it can be used to identify a specific plate in certain methods.

- 9 Ignore the two options to **Sense the liquid level**.

NOTE Biomek NX^P-MC instrument cannot liquid level sense.

- 10 Choose **OK**.

- 11 Place a **BCFlat96** microplate onto the deck in position **P5**.

12 Double click on the **P5** microplate, or right click and select **Properties**.

13 Type **Dest** in the **Name** field.

14 In **Labware contains an**, select **Known**.

15 In the **Volume** field, leave this value at **0**.

16 Do not specify a **Liquid Type** for this destination plate since it is presently empty. The software defaults to **Water** as the **Liquid Type**. To remove the default liquid type, delete **Water** from the **Liquid Type** field.

NOTE All liquids specified in Biomek Software are tracked and will be listed in the **Liquid Type** drop-down once a new type is added.

17 Choose **OK**.

That's it. Your deck is now set up for transferring liquid, and the main editor should look like [Figure 3.7](#).

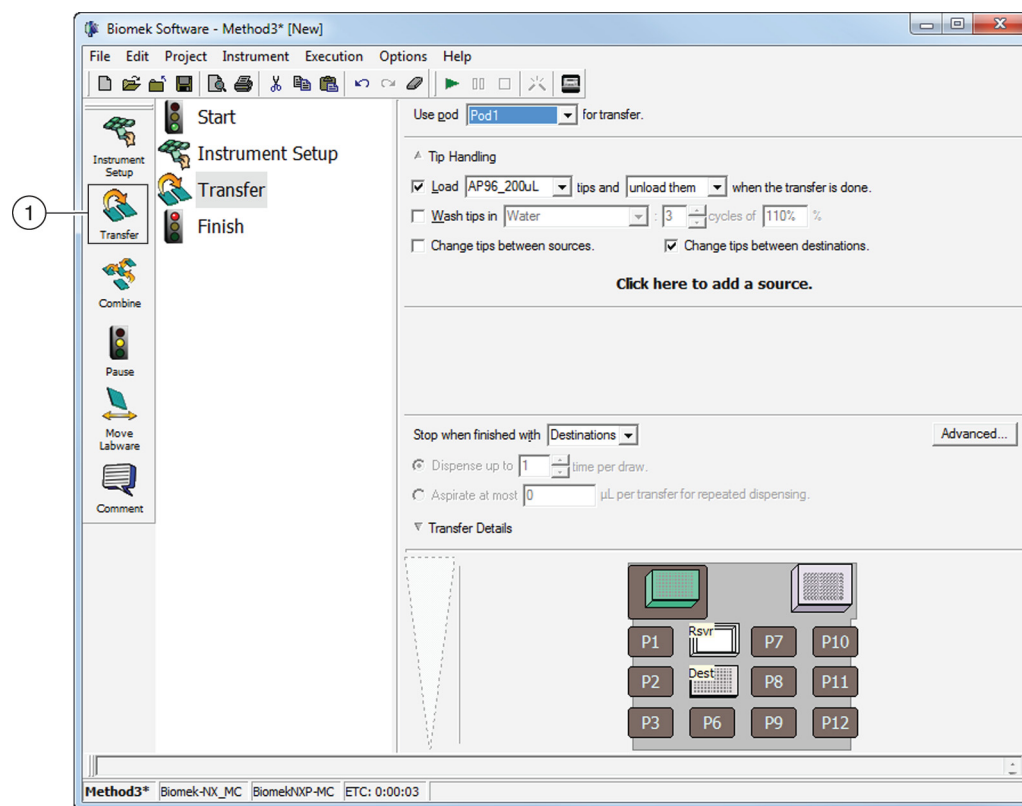
TIP You can set the properties (name, volume, and liquid type) as you've just done in these steps, then select the custom labware category, then drag the labware back up, and drop it into the Labware Available display. This labware will retain the properties you set and be available to use in other methods when you access **Instrument Setup**.

Configuring Tip Handling

To set up a liquid transfer, insert the **Transfer** step into the Method View in the main editor, and configure **Tip Handling** by completing the following:

- 1 Highlight the **Instrument Setup** step in the method view.
- 2 Choose the **Transfer** icon from the step palette, and insert it into the method by dragging and dropping it after the **Instrument Setup** step. The **Transfer** step configuration appears (Figure 3.8). Notice the Current Deck Display at the bottom of the editor is now populated to illustrate your deck setup since it changes dynamically to match the state of the deck at the start of the current step.

Figure 3.8 Transfer Step Inserted

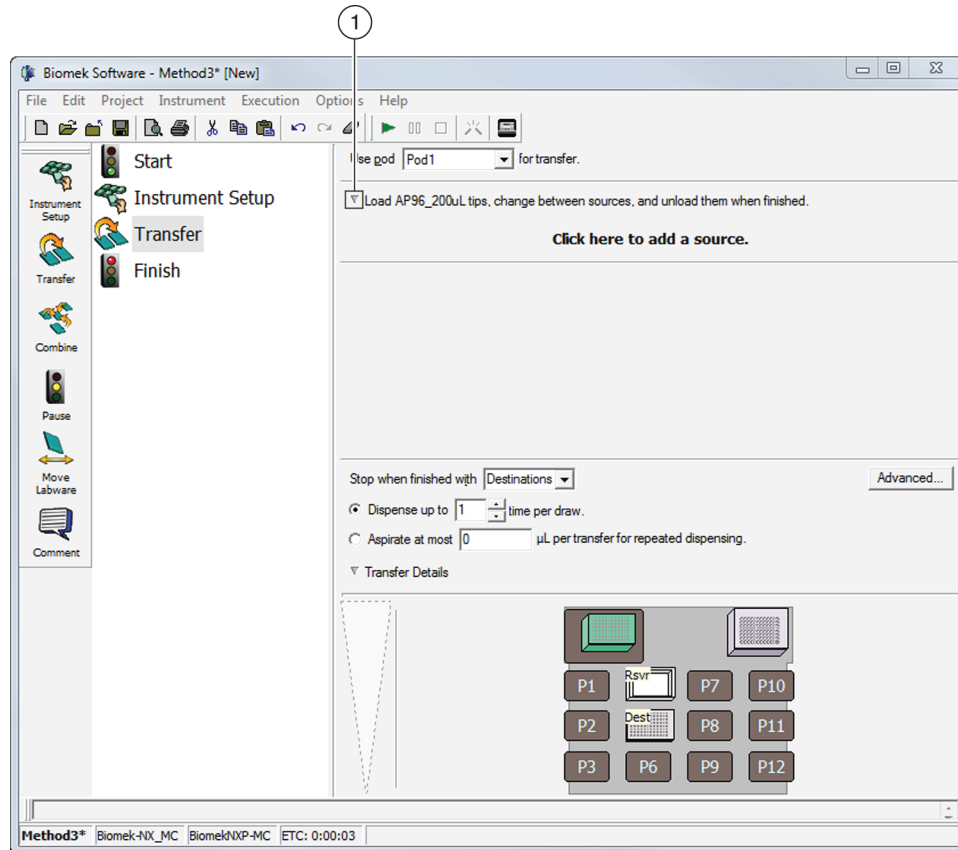


1. Transfer step icon

- 3 In **Tip Handling**, make sure **Load** is checked.
- 4 Make sure the type of tips displayed is **AP96_200µL**, the type of tips you configured in the **Instrument Setup** step.

- 5 Make sure **unload them** is selected in the next field.
- 6 Check **Change tips between sources**.
- 7 Uncheck **Change tips between destinations**.
- 8 Your tips are configured for your liquid transfer, so click the **up arrow** next to **Tip Handling** (Figure 3.8). This collapses the **Tip Handling** configuration to allow more room for labware configuration. A simple text description of the way tips will be handled is displayed in place of the expanded **Tip Handling** configuration. The editor now looks like Figure 3.9.

Figure 3.9 Tip Handling Configured and Collapsed



1. **Tip Handling** configured and collapsed

Configuring Source Labware

Now you will configure the source labware. Here you will specify from which labware liquid will be aspirated and the height to which the tip descends into the labware before aspirating.

To configure the **BCUpsideDownTipBoxLid** named **Rsvr** as the source labware:

- 1 Click on **Click here to add a source**.
- 2 Click on **Rsvr** labware on the **P4** position in the Current Deck display. As you can see, the information you supplied in the **Instrument Setup** step is displayed in the source labware configuration.
- 3 Right click on the large tip illustration next to the labware graphic in the configuration and choose **Measure from Bottom**.
TIP After you click on the tip, you can adjust the height more precisely by using the up or down arrow keys on your keyboard to change the height by 0.10 mm, or you can use the **Page Up** and **Page Down** keys to change the height by 1.0 mm with each press of the key. You can also right click on the graphic, then select **Custom Height** from the menu that appears.
- 4 To adjust and set the aspirate height to which the tip descends into the labware, place the mouse cursor over the tip illustration. When the cursor turns into a hand, hold the left mouse button down to move the hand up and down until the depth is as close to **1.00 mm from bottom** as you can get. Then, adjust the height precisely to 1.00 mm using the **Tip** described above. There is a slight break in the bottom of the source labware graphic with the large tip that indicates that the labware is wider than the graphic can display.

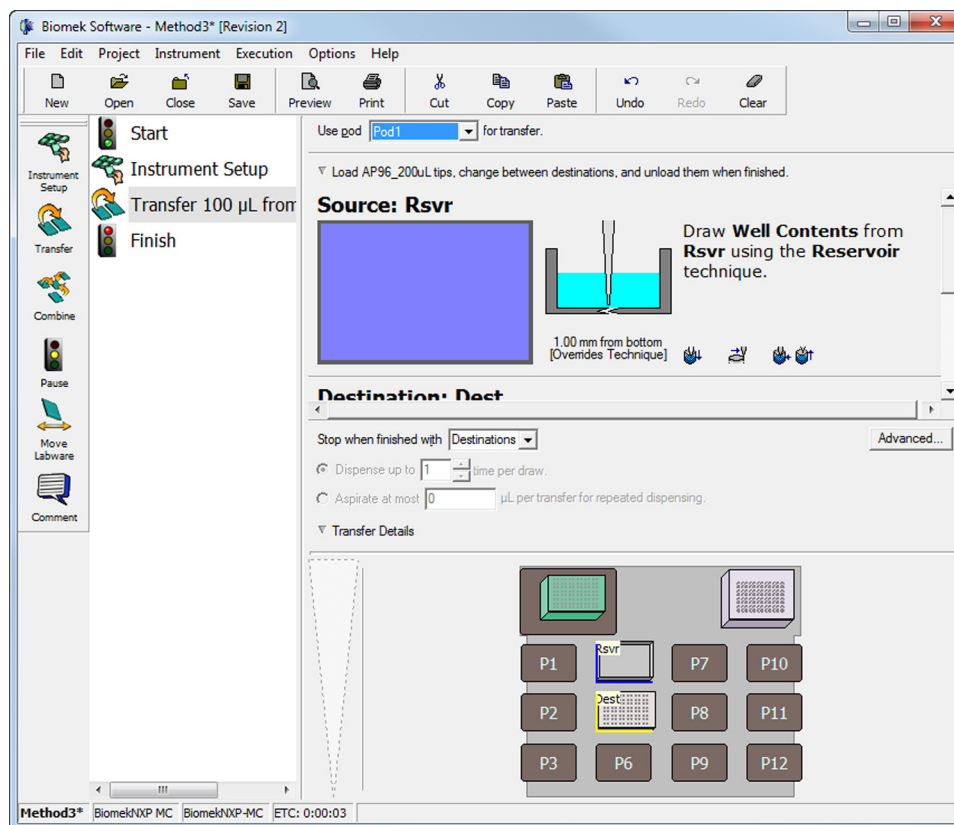
OR

To select a custom height, right click on the illustration and select **Custom Height**, and then select **Bottom** from the drop-down menu. Type **1.00** in the text box, and then click **OK**.

The source labware is complete, and the editor now looks like [Figure 3.10](#).

NOTE The default liquid is **Well Contents**. **Well Contents** allows the software to determine the liquid type to be transferred based on the content of each well, defined elsewhere in the method.

Figure 3.10 Configured Source Labware



Configuring Destination Labware

Here you will configure where you want the water from the source labware to be dispensed. In this case, you want to dispense water into the **BCFlat96** microplate on deck position **P5**. To do this:

- 1 Click on **Click here to add a destination**, and then click the **Dest** microplate in the current deck display. Notice that the source labware configuration fields are now replaced with a brief sentence summary of the setup. If you want to reopen this source configuration for any reason, click anywhere in the collapsed configuration area.

TIP If you accidentally open too many destination configurations, just right click on the title in the configuration. Click **Delete** from the popup menu and the entire configuration goes away.

- 2 The **Volume** field is highlighted in the destination configuration, which allows you to designate the amount of liquid to be dispensed. For this method, you're transferring 100 µL; so type **100** into the **Volume** field. This means you will be dispensing 100 µL into each of the 96 wells; so in this case, you're dispensing a total of 9600 µL into the 96-well microplate.

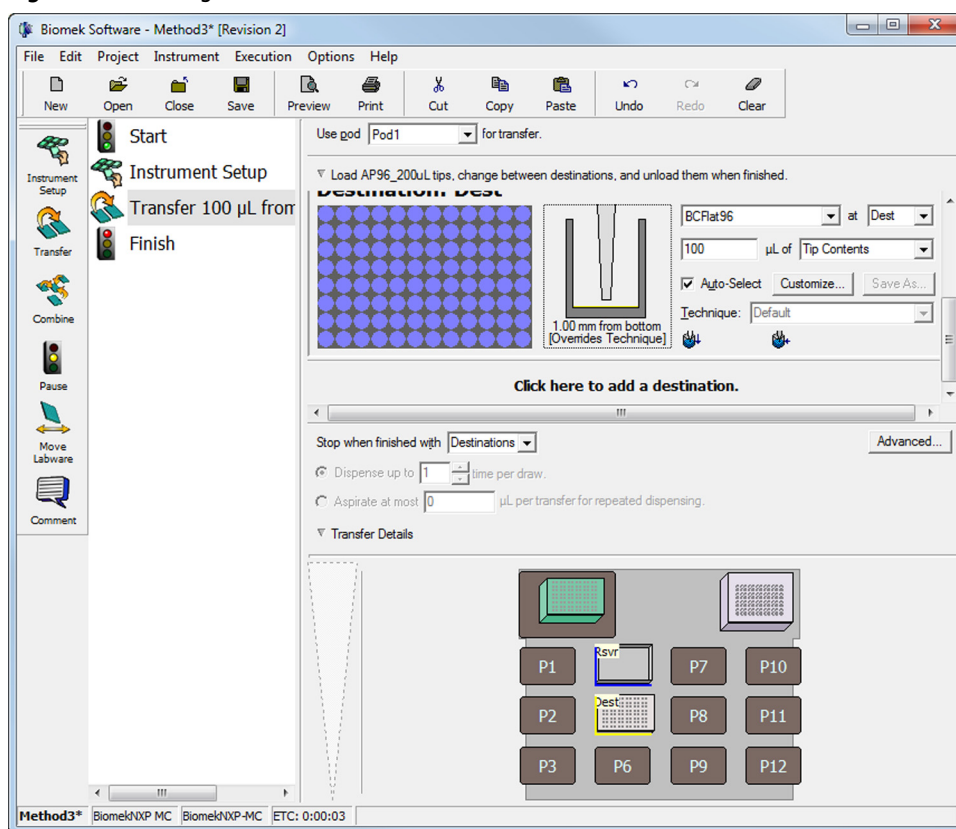
- 3 Right-click on the large tip illustration and choose **Measure from Bottom**.

NOTE The default liquid for destination is **Tip Contents**. **Tip Contents** allows the software to determine the liquid type to be dispensed based on the contents of the tips.

- 4 Set the dispense height in the large tip illustration to **1.00 mm from bottom**, using the same technique as you used for setting the aspirate height.

The destination labware is now configured and the editor looks like [Figure 3.11](#).

Figure 3.11 Configured destination labware



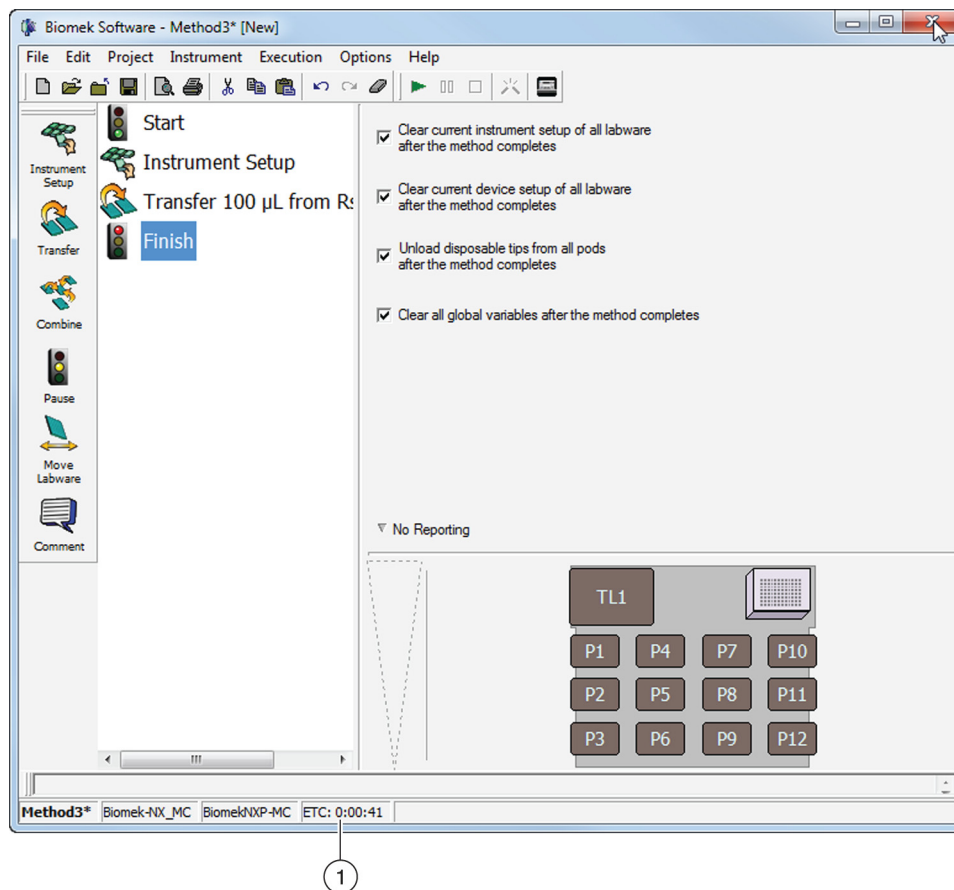
Determining the Estimated Time of Completion (ETC) of the Method

Your liquid transfer is set up, so let's see how long it will take to run the entire method by using the **Finish** step.

To do this:

- 1 Click on the **Finish** step in the Method View.
- 2 Check the status bar at the bottom of the editor for a display of the **ETC**. For this method, the **ETC** is approximately 0:41 (Figure 3.12). It's all right if your **ETC** varies slightly.

Figure 3.12 Finish Step Displaying the ETC



1. **ETC**: The Estimated Time of Completion for the method in the **Method View**.

Congratulations! You've just built a liquid transfer method using Biomek Software that:

- Prepared the main editor for a new method.
- Set up the deck and configured the labware you wanted to use using an **Instrument Setup** step.
- Added and configured a liquid transfer using a **Transfer** step.

Running the Method

Now that you've built a method, let's run it.

Validating the Method and Confirming the Deck Setup

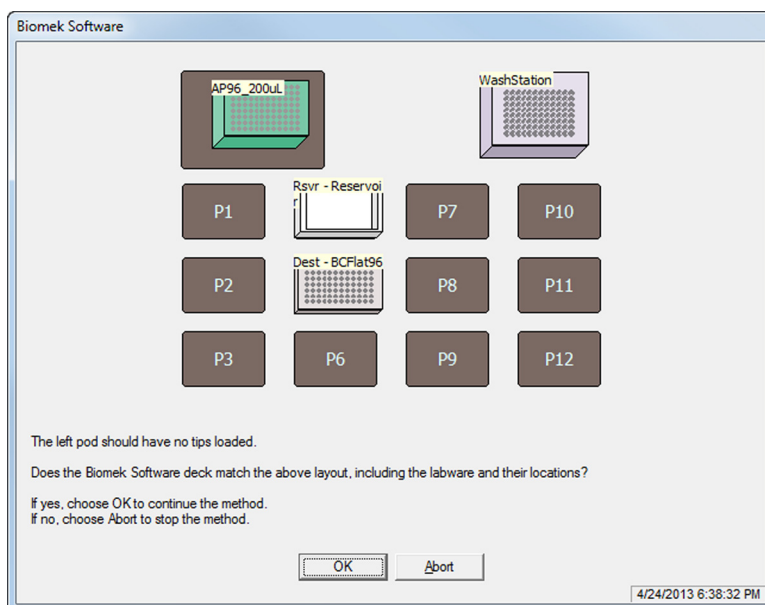
When you select **Run**, the method will be validated internally to check for errors. After this validation is complete, a deck confirmation prompt will appear over the main editor ([Figure 3.13](#)). This prompt displays the deck setup as interpreted by the software.

If you wish, you can also view the method in the Biomek Simulator. Refer to [Viewing the Method in the Biomek Simulator](#).

To confirm the deck setup:

- 1 Click on the **green arrow** button on the toolbar, or from the **Execution** menu, choose **Run**. A deck confirmation appears ([Figure 3.13](#)).

Figure 3.13 Deck Confirmation Prompt



- 2 Visually confirm the physical deck setup matches the deck confirmation, including labware placement and tip state on the pod, before continuing with the method.
- 3 If the physical deck does not match the deck shown, move or place labware on the deck so that it does match. Alternatively, you may choose **Abort** and adjust the Instrument Setup step to match your physical deck setup.

- 4 Choose **OK** if the deck confirmation matches the physical deck setup. The method runs as soon as you choose **OK**. You can visually follow the run in the Method View; steps are highlighted as the step is executed.

Viewing the Method in the Biomek Simulator

CAUTION

Make sure the proper port is selected in the “Hardware Setup” window within Biomek Software. “Simulate” is used only when running methods on the Biomek Simulator, and will not initiate the physical instrument to run. To run methods on the instrument, choose the COM port to which the instrument is connected.

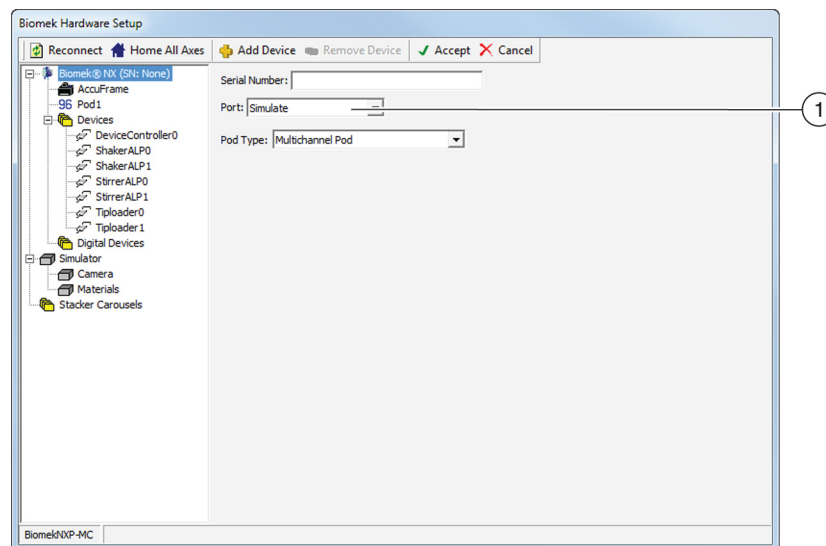
When a method is run in simulation, the Biomek Simulator appears, showing an animated 3-D model of the instrument performing the method. Setting the simulation mode is configured in **Hardware Setup** (Figure 3.14).

Hardware Setup is used to configure Biomek Software with the appropriate Biomek instrument information, including the Biomek Simulator. While the Beckman Coulter Representative normally installs and configures new devices, it may be necessary to install, configure, and remove other devices using **Hardware Setup**. Refer to the *Biomek Software User's Manual*.

If you wish to view the method in simulation:

- 1 From the toolbar, choose **Instrument > Hardware Setup**. **Hardware Setup** appears (Figure 3.14).

Figure 3.14 Hardware Setup



1. Choose **Simulate** here to allow methods to be run in the Biomek Simulator.

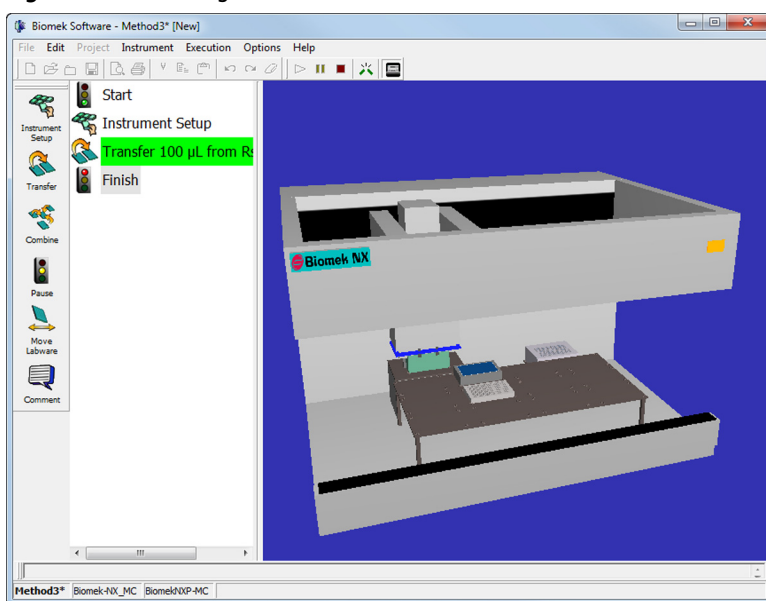
2 From **Port**, choose **Simulate**.

3 Choose **Accept**. Now, when a method is run, an animated 3-D model of the Biomek instrument is displayed (Figure 3.15). You can now watch a simulation of the Biomek instrument perform the steps in the method.

If you wish to run the method on hardware, you must go back to **Hardware Setup** and change the **Port** from **Simulate** to the appropriate **COM** port to connect your instrument to your PC.

TIP The simulator can be a useful tool to test methods to ensure that they are performing as expected without using up valuable reagents or tips, and can save time not only in set up, but also by running at an accelerated speed. Refer to the *Biomek Software User's Manual, Configuring the Biomek Simulator* for more information on the simulator.

Figure 3.15 Running a Method in Simulation



Saving a Method

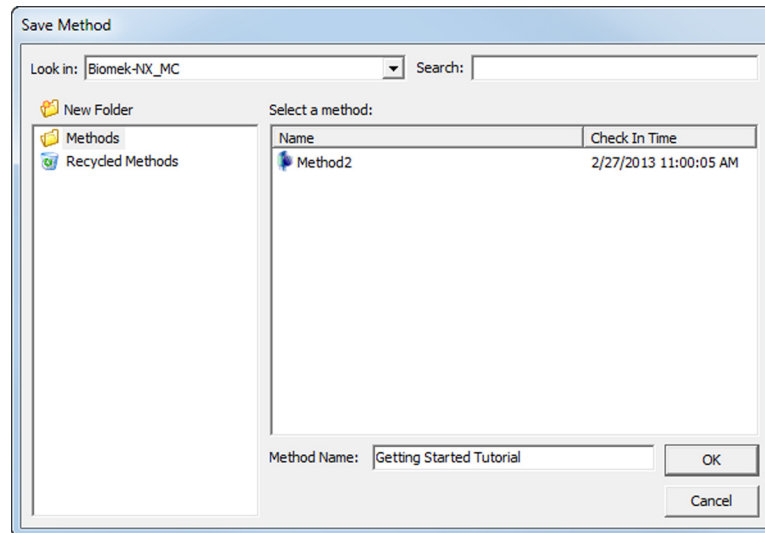
Methods can be saved at any time during their development. Saving a method automatically creates a record of the revision that preserves the method configuration at the time it was saved. Revisions may be accessed from the revision history at a later time. If any project items, such as labware definitions or techniques, change after the method is saved, when the method is opened next, the latest definitions are used. Refer to the *Biomek Software User's Manual* for additional details.

To save your method:

1 Choose  (**Save Method**) on the toolbar.

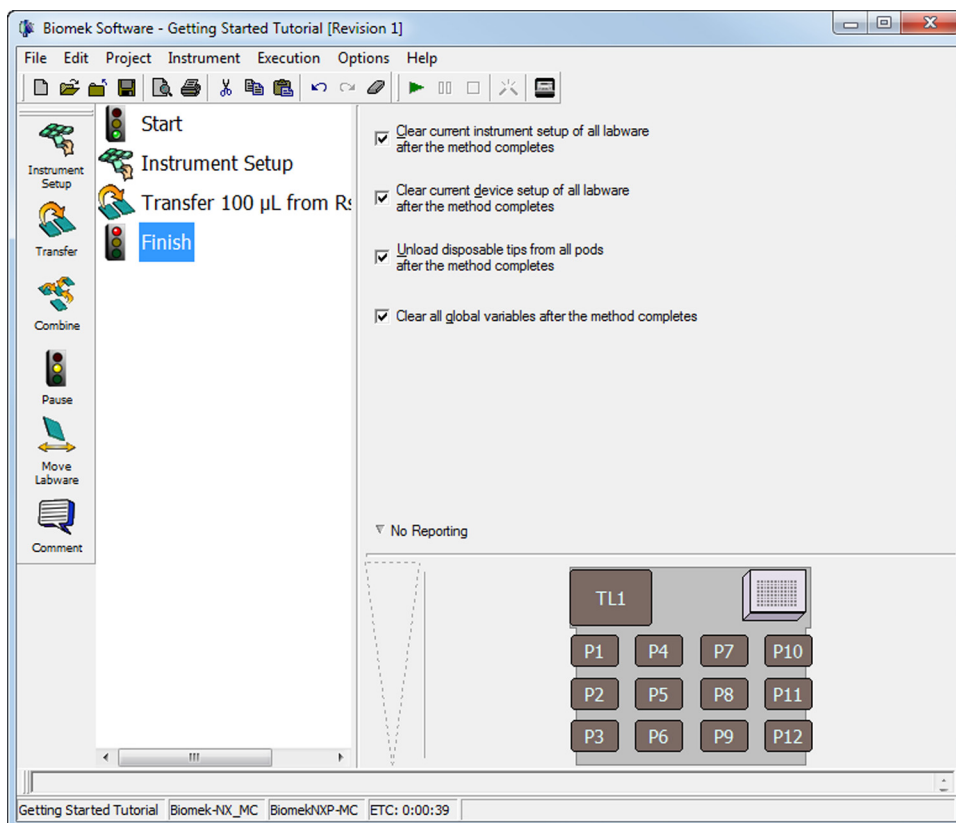
- 2 In **Method Name**, type the file name under which your method will be saved. For this chapter, type **Getting Started Tutorial** (Figure 3.16).

Figure 3.16 Save Method



- 3 Choose **OK**. Now notice how the method name in the Biomek main editor has changed to **Getting Started Tutorial [Revision 1]** (Figure 3.17).

Figure 3.17 Method Name Has Changed



Responding to an Error Message

Occasionally, you might receive an error during the process of creating a method. Biomek Software alerts you to errors in several ways, including:

- The step with the error appears in red in the Method View when any step following the error is highlighted.
- A tool tip describes the error when you hover the mouse pointer over the step causing the error.
- An associated red error message is displayed in the status bar at the bottom of the editor.
- The error is displayed in an error bar just above the status bar.

There are other errors that are displayed in error message boxes. These errors state the problem and display appropriate recovery options. Refer to the *Biomek Software User's Manual* for details on resolving errors.

Biomek Software continually validates the steps as you progress through building your methods. When you highlight any step, the steps above that point in the method will be validated. If an error is encountered, the step causing the error will be highlighted in red.

Creating a Simple Method for NX^P Span-8

Overview

In this chapter, you will learn how to create a simple method, where you will aspirate liquid from a reservoir and dispense it into a microplate. In addition to transferring liquid, this chapter also provides instructions for typical setup activities, as well as instructions for handling errors.

Topics covered in this chapter include:

- [Launching Biomek Software](#)
- [Beginning a Method](#)
- [Transferring Liquid](#)
- [Running the Method](#)
- [Saving a Method](#)
- [Responding to an Error Message](#)

Launching Biomek Software

To launch Biomek Software:

- 1 From the **Start** menu, select **All Programs > Beckman Coulter > Biomek Software**.

If Beckman Coulter Accounts & Permissions is enabled on your system, you must have an account established and log in using that account name and password. For more information, contact your system administrator.

NOTE Beckman Coulter Accounts & Permissions is an integrated set of features built into Biomek Software that assists users in complying with 21 CFR Part 11 requirements for closed systems. Permissions provide the ability to control user access to specific program operations. Refer to the *Biomek Software User's Manual* for additional details.

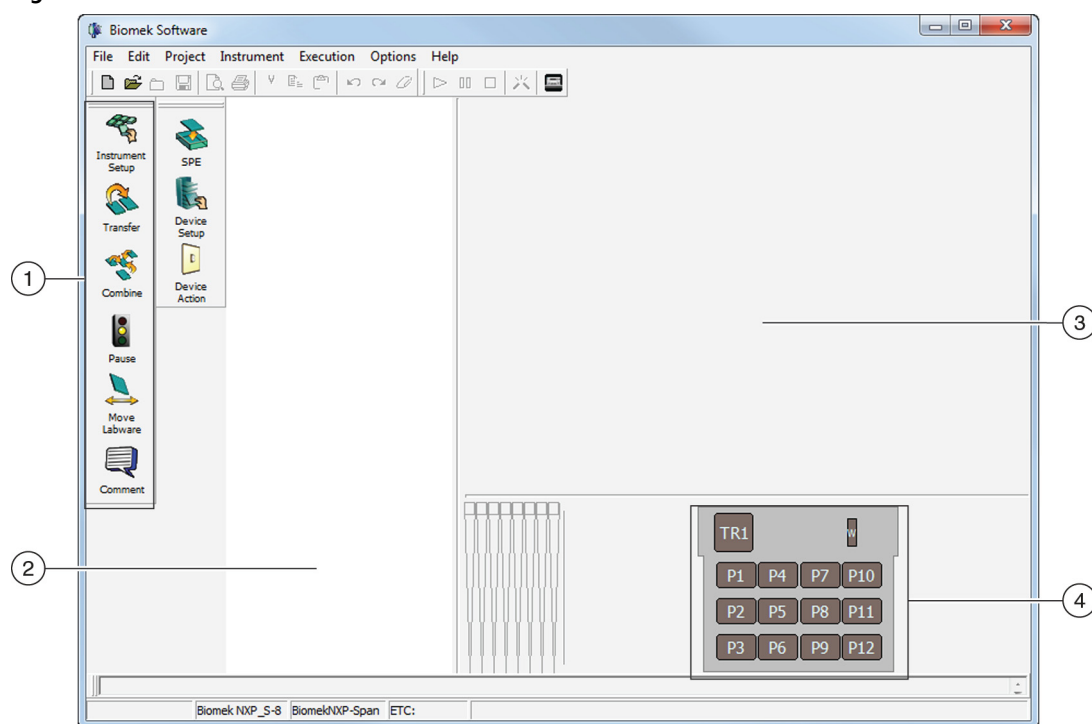
Viewing the Main Editor

The main editor (Figure 4.1) is your starting point for building liquid-handling methods for the Biomek NX^P Laboratory Automation Workstation. You will choose method steps from a step palette and place them into the Method View in a linear fashion. The configuration for each of these steps appears in the Configuration View.



Do not change the pod settings in Hardware Setup after the system has been installed; changing the pod settings will necessitate a service call.

Figure 4.1 Biomek Main Editor



1. **Step Palettes:** Icons representing predefined steps for building methods are displayed in this area.
2. **Method View:** Place in this area the steps you want your method to complete.
3. **Configuration View:** The configuration for each step appears in this area. The view changes to correspond to the step highlighted in the Method View.
4. **Current Deck Display:** This display changes dynamically to reflect the status of the deck upon completion of the previous step.

Beginning a Method

To begin a method, you have the option of creating a new method or opening an existing method you've completed, named, and saved. In this chapter, you'll create a new method.

But before you create a new method, get into the habit of ensuring you are using the correct Project File.

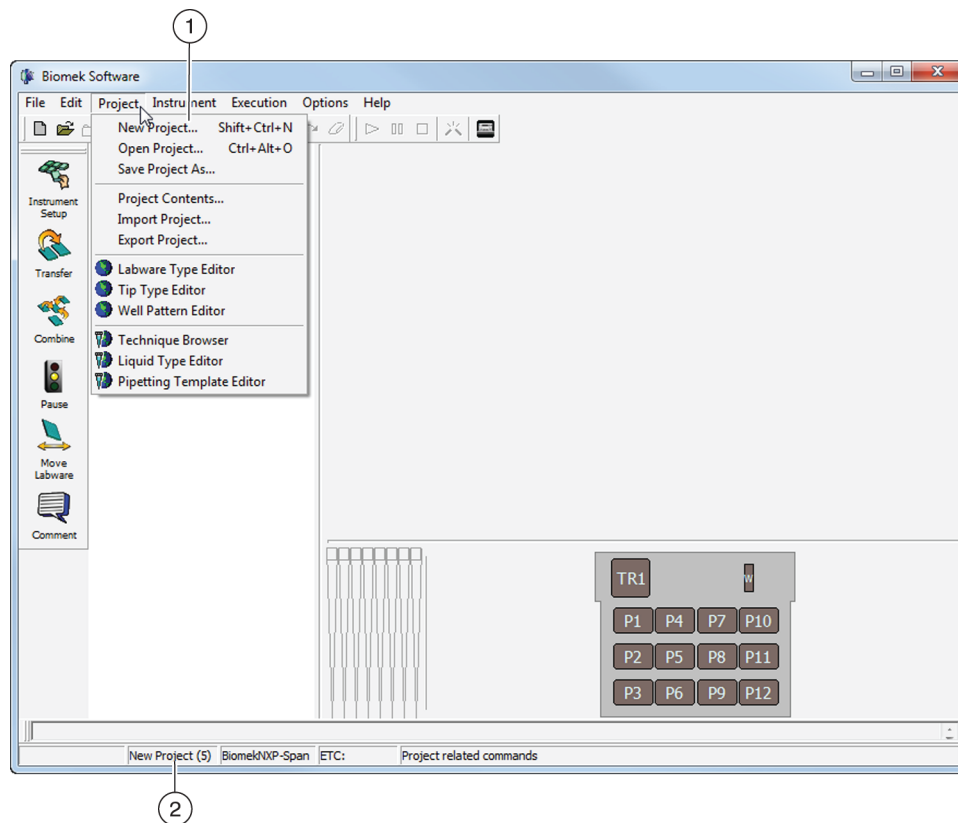
Introducing Project Files

While Project Files may be created, revised, deleted, imported, or exported, in this chapter you will use the Project File on your system that was created or imported when your instrument and Biomek Software were installed.

NOTE A Project File stores information about liquid types, labware and tip types, well patterns, and pipetting templates and techniques as revisions that are used by a method file to configure the actions of the instrument. Project Files store a history of all changes, additions, and deletions of items from the Project File. Methods are associated with projects and contain all of the items required to perform the method.

View [Figure 4.2](#) to learn where Project File information is accessed or viewed from the main editor.

Figure 4.2 Project File



1. The actions and editors associated with Project Files are displayed in the drop-down menu under **Project** on the toolbar.
2. **Project File:** The currently opened Project File is displayed here.

Creating a New Method

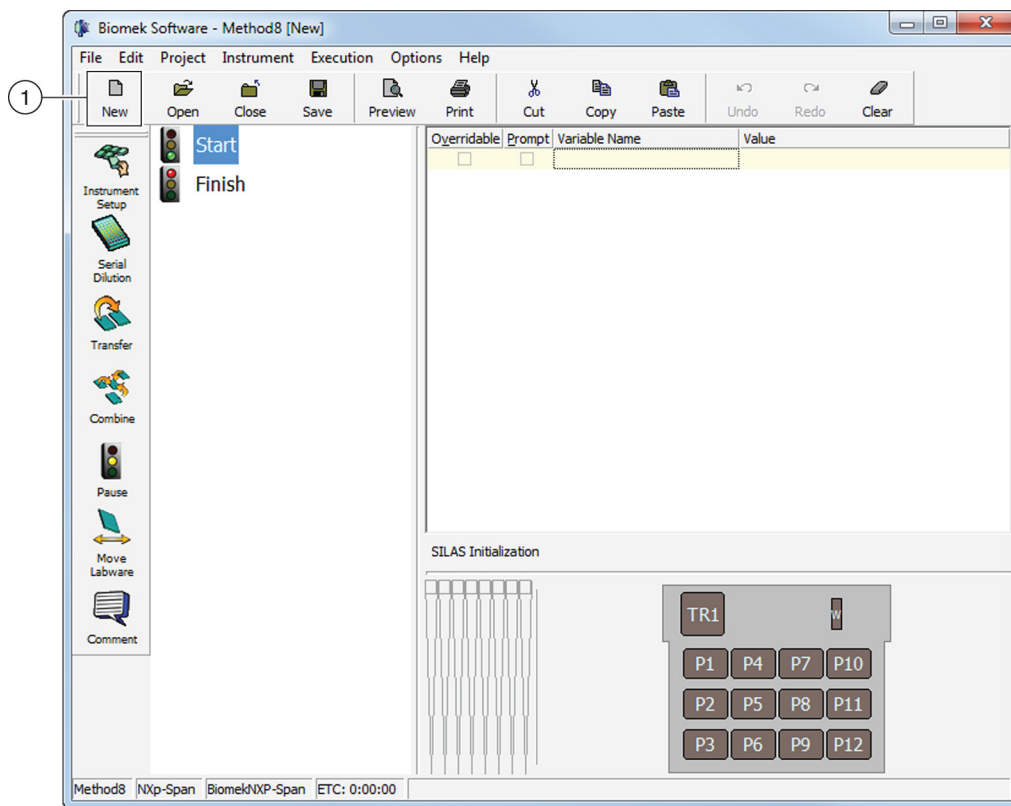
A method is a series of steps that control the operation of the instrument. The step palettes in the main editor present a group of icons representing the steps available for a method. To build a method, you simply select the step icon you want, and move it into the method-building space (Method View) in the main editor. Place and configure each step to perform the operations as desired.

To create a new method:

- 1 Select the **New Method** icon located on the toolbar (Figure 4.3).

This creates the beginning for your new method. It's a good idea to expand the Biomek editor to fill the entire screen.

Figure 4.3 Main Editor When a New Method is Created



1. New Method

Understanding the Start and Finish Steps

As you can see ([Figure 4.3](#)), the Method View of the main editor now contains the **Start** and **Finish** steps that appear automatically when you create a method. These two steps are always there and indicate the beginning and end of your method. You'll insert all the rest of the steps you want the instrument to complete between **Start** and **Finish**.

When the **Start** step is highlighted in the Method View, you are presented with the opportunity to create some variables in the Configuration View. Ignore this configuration in this brief introduction to method creation.

If you want to know more in-depth information on the **Start** configuration right now, refer to the *Biomek Software User's Manual*, Configuring the Start Step.

You'll learn more about using the **Finish** step in [Determining the Estimated Time of Completion \(ETC\) of the Method](#).

Setting Up the Deck

The **Deck Editor** is used to define and change the deck configurations stored in the current instrument file. A deck is a software visual representation of the Biomek instrument deck and can be stored and used for multiple methods; however, the software deck must always match the physical deck of the instrument used in the method. Refer to the *Biomek Software User's Manual*, Preparing and Managing the Deck.

Setting up the deck includes:

- ensuring the current deck used in Biomek Software via the **Deck Editor** matches the physical deck of the instrument.
- configuring the **Instrument Setup** step to tell the software what labware and what deck position each labware piece occupies on the deck.

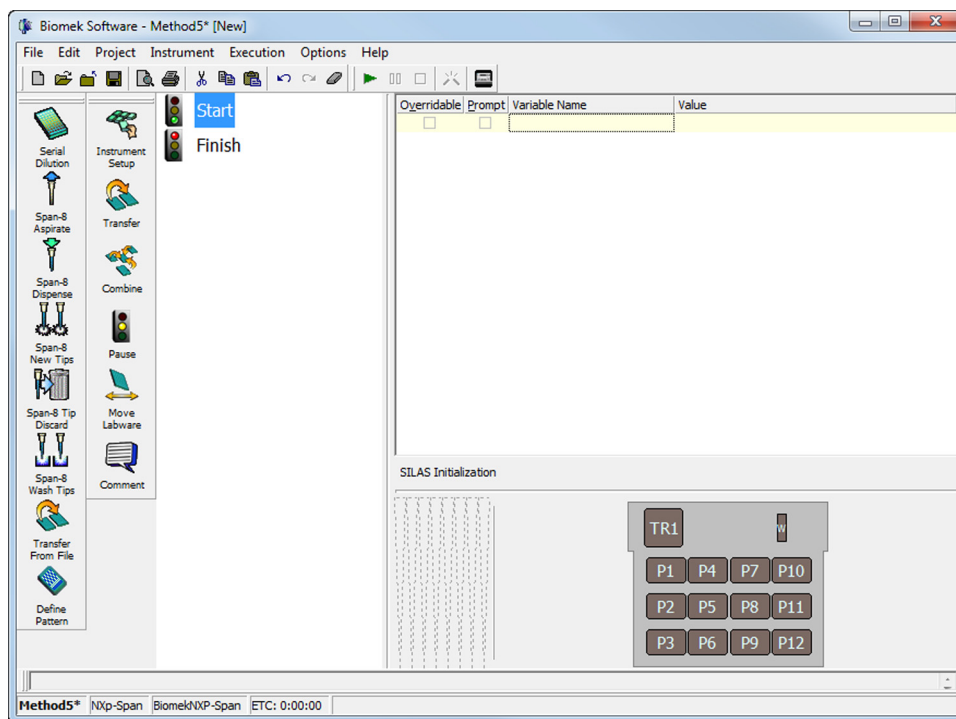
Ensuring the Deck in Biomek Software is Correct

To avoid hardware crashes, it's important that the deck in Biomek Software matches the physical deck of your instrument. If you wish to run these methods on hardware rather than in simulation and your deck varies from what is shown, you may have to modify the methods to work with your hardware ([Figure 5-4](#)).

NOTE Automated Labware Positioners (ALPs) are removable and interchangeable platform structures installed on the deck to allow automated assays to be performed.

NOTE If using fixed tips, a Span-8 Disposal is not necessary.

Figure 4.4 Current deck



Configuring the Instrument Setup Step

The next activity is to configure the **Instrument Setup** step for your liquid-transfer procedure. You will place on the deck:

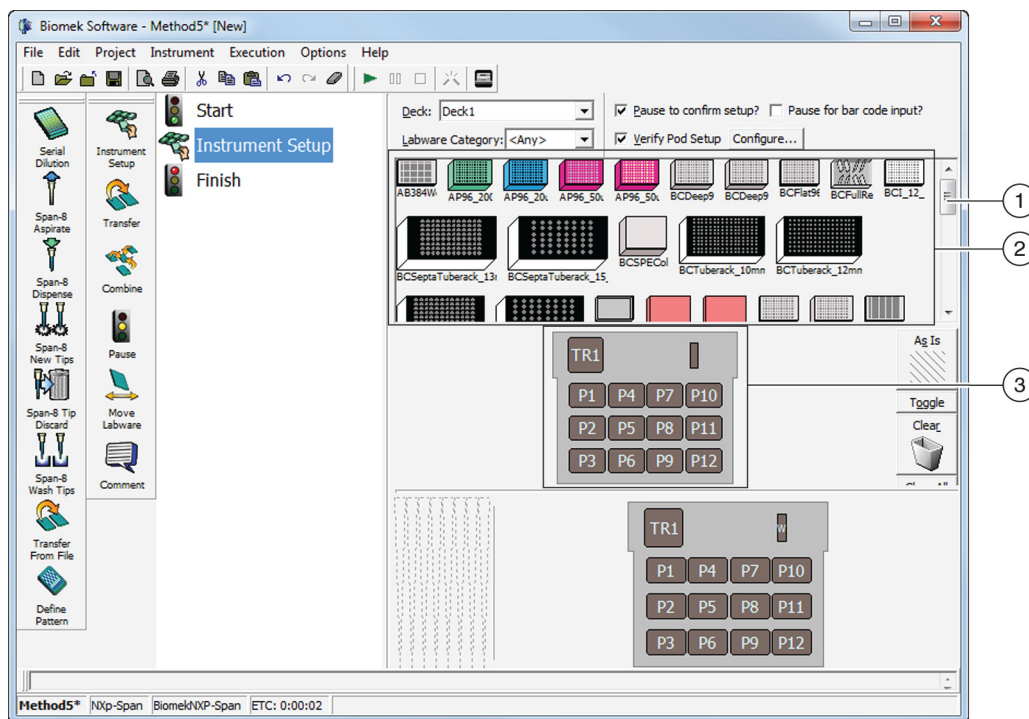
- Tips
- Source reservoir
- Destination microplate

TIP If the **Instrument Setup** step, or any step, is inserted into the wrong location in the Method View, you can drag and drop it to the proper location.

To insert the **Instrument Setup** step:

- 1 Choose (highlight) **Start** in the Method View.
- 2 Hover the mouse pointer over the **Instrument Setup** icon in the step palette. As you hover, look at the Method View and you'll see a black bar appear just below **Start**. This black bar indicates the insertion point where your next step will appear. In this case, it's where the **Instrument Setup** step will be inserted.
- 3 Click the **Instrument Setup** icon to insert the step. The **Instrument Setup** configuration appears (Figure 4.5).

Figure 4.5 Instrument Setup Step Configuration



1. Move this scroll bar down to display all the labware choices.
2. **Labware Available:** Represents the labware choices for your method. Move your selections onto the Deck Layout display.
3. **Deck Layout:** Represents the layout of your Biomek NX^P workstation deck. Place your labware selections onto the desired deck layout positions.

Using the **Instrument Setup** step you just inserted, you'll learn how to select and place:

- **Span_8_200uL** tips onto **P8** deck position
- **BCUpsideDownTipBoxLid** onto **P4** deck position
- **BCFlat96** microplate onto **P5** deck position

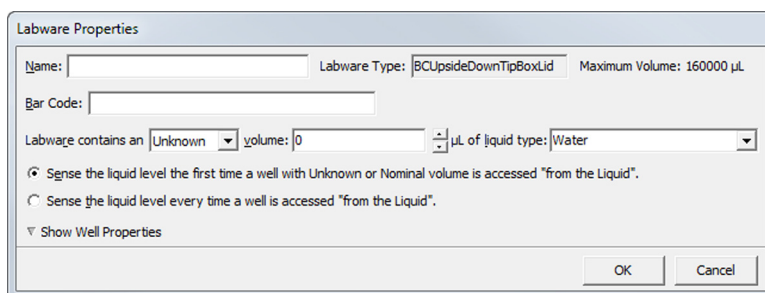
To select and place your tips and labware:

- 1 Click the **Span_8_200uL** tips icon, then click on **P8** deck position. Notice that when you hover the cursor over the tip box on the Deck Layout, a tool tip identifies the deck position and labware. This technique applies to all the labware you place on the deck.
- 2 Using the above procedure, place a **BCUpsideDownTipBoxLid** onto the **P4** deck position.

- 3 After you have positioned the **BCUpsideDownTipBoxLid** on the deck, double-click it or right-click and select **Properties**. This opens **Labware Properties** (Figure 4.6). Each piece of labware added to the Deck Layout is configured using Labware Properties. The information provided in Labware Properties is used when a pipetting technique is selected or when tips are loaded and unloaded.

NOTE A technique instructs the Biomek instrument in performing pipetting operations, such as an aspirate, dispense, and mix.

Figure 4.6 Labware Properties for BCUpsideDownTipBoxLid



The screenshot shows the 'Labware Properties' dialog box. It has a title bar 'Labware Properties'. Inside, there are several fields: 'Name:' with an empty text box, 'Labware Type:' with a dropdown menu showing 'BCUpsideDownTipBoxLid', and 'Maximum Volume: 160000 µL'. Below these is a 'Bar Code:' field. Further down is a section for liquid properties: 'Labware contains an' with a dropdown menu showing 'Unknown', 'volume:' with a text box showing '0', and 'µL of liquid type:' with a dropdown menu showing 'Water'. There are two radio button options: the first is selected and says 'Sense the liquid level the first time a well with Unknown or Nominal volume is accessed "from the Liquid".', the second is unselected and says 'Sense the liquid level every time a well is accessed "from the Liquid".'. At the bottom left is a link 'Show Well Properties'. At the bottom right are 'OK' and 'Cancel' buttons.

- 4 In **Labware Properties**, you can give the reservoir a name. You'll name this one "Rsvr," but in general you can assign labware any name you want. Type **Rsvr** in the **Name** field. After configuration is complete, the name will appear over the **BCUpsideDownTipBoxLid** in the Current Deck display (Figure 4.7).
- 5 In **Labware** contains an, select **Known**.
- 6 In the **Volume** field, type 100000. This means you know you have 100,000 microliters of liquid in the source reservoir.
- 7 Choose **Water** from the **Liquid Type** drop-down menu, or type **Water** into this field.
- 8 Leave **Bar Code** blank, but it can be used to identify a specific plate in certain methods.
- 9 Ignore the two options to **Sense the liquid level**. Since we have known volumes in the labware, we won't use liquid level sensing in this example.
- 10 Choose **OK**.
- 11 Place a **BCFlat96** microplate onto the deck in position **P5**.

12 Double click on the **P5** microplate, or right click and select **Properties**.

13 Type **Dest** in the **Name** field.

14 In **Labware contains an**, select **Known**.

15 In the **Volume** field, leave this value at **0**.

16 Do not specify a **Liquid Type** for this destination plate since it is presently empty. The software defaults to **Water** as the **Liquid Type**. To remove the default liquid type, delete **Water** from the **Liquid Type** field.

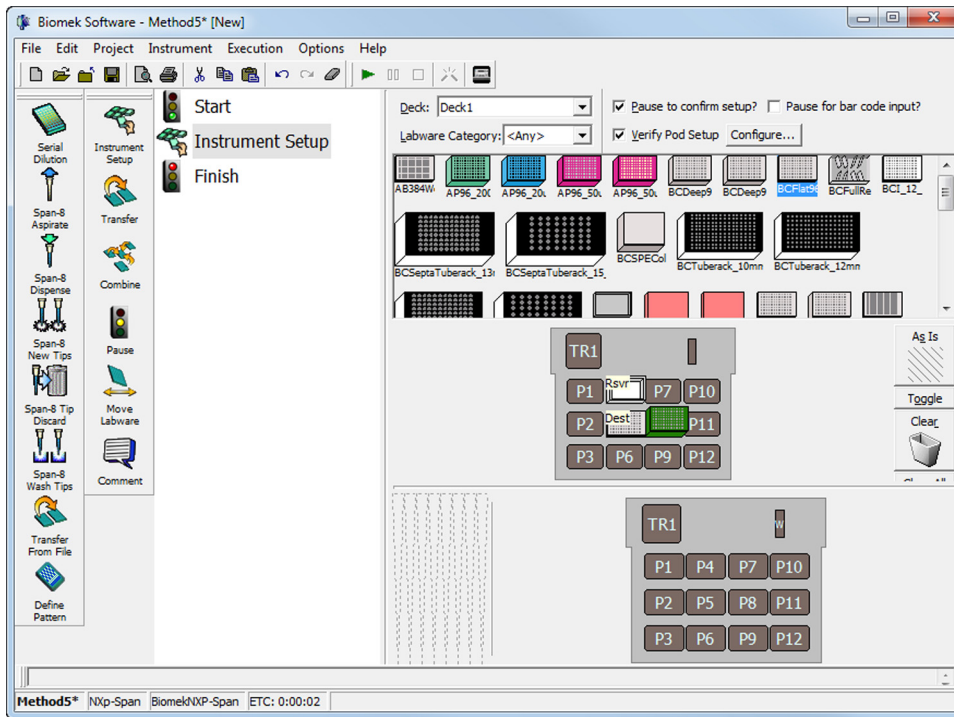
NOTE All liquids specified in Biomek Software are tracked and will be listed in the **Liquid Type** drop-down once a new type is added.

17 Choose **OK**.

That's it. Your deck is now set up for transferring liquid, and the main editor should look like [Figure 4.7](#).

TIP You can set the properties (name, volume, and liquid type) as you've just done in these steps, then select the custom labware category, then drag the labware back up, and drop it into the Labware Available display. This labware will retain the properties you set and be available to use in other methods when you access **Instrument Setup**.

Figure 4.7 Instrument Setup Step Completed



Transferring Liquid

Now you are ready to insert and configure your procedure to transfer liquid. Biomek Software provides a **Transfer** step on the **Basic** step palette that makes it easy to accomplish this task.

Configuring the **Transfer** step includes configuring:

- Tip handling
- Source labware
- Destination labware

NOTE The **Transfer** step for Span-8 Pod transfers liquid from one source to one or more destinations. The **Transfer** step will by default complete the following: load tips, aspirate liquid, dispense liquid, and unload tips. This concept eliminates the need to insert four separate steps, although occasionally a method may require these steps be performed individually.

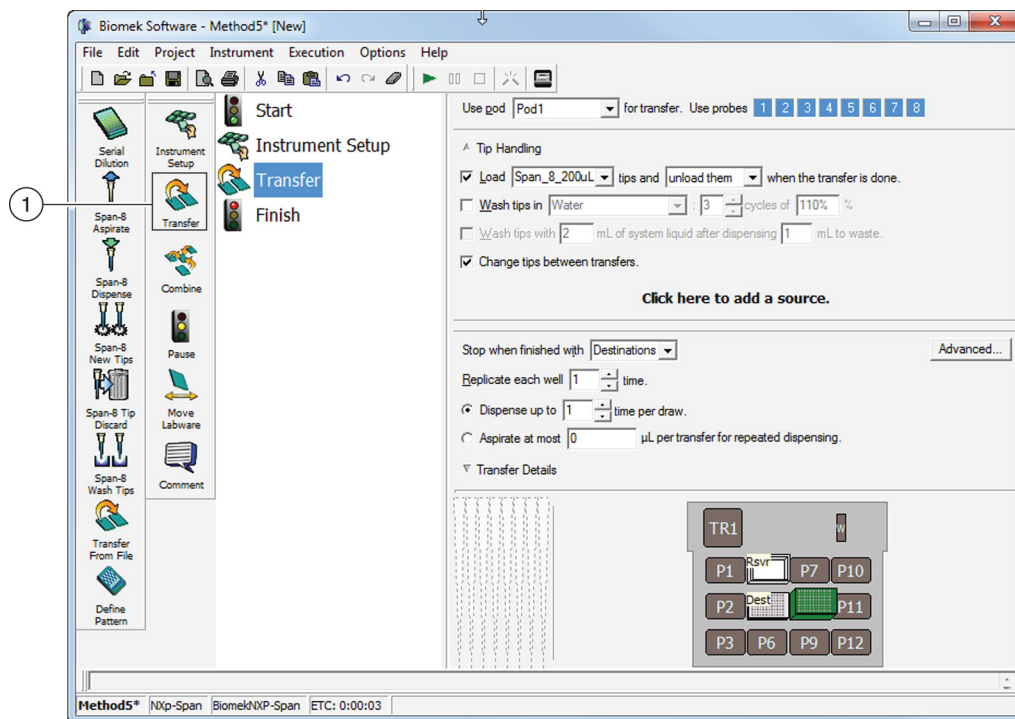
Configuring Tip Handling

To set up a liquid transfer, insert the **Transfer** step into the Method View in the main editor, and configure **Tip Handling** by completing the following:

- 1 Highlight the **Instrument Setup** step in the method view.

- 2 Choose the **Transfer** icon from the step palette, and insert it into the method by dragging and dropping it after the **Instrument Setup** step. The **Transfer** step configuration appears (Figure 4.8). Notice the Current Deck Display at the bottom of the editor is now populated to illustrate your deck setup since it changes dynamically to match the state of the deck at the start of the current step.

Figure 4.8 Transfer Step Inserted



1. Transfer step icon

- 3 Make sure the type of tips displayed is **Span_8_200uL**, the type of tips you configured in the **Instrument Setup** step.

NOTE If using fixed tips, this checkbox is disabled.

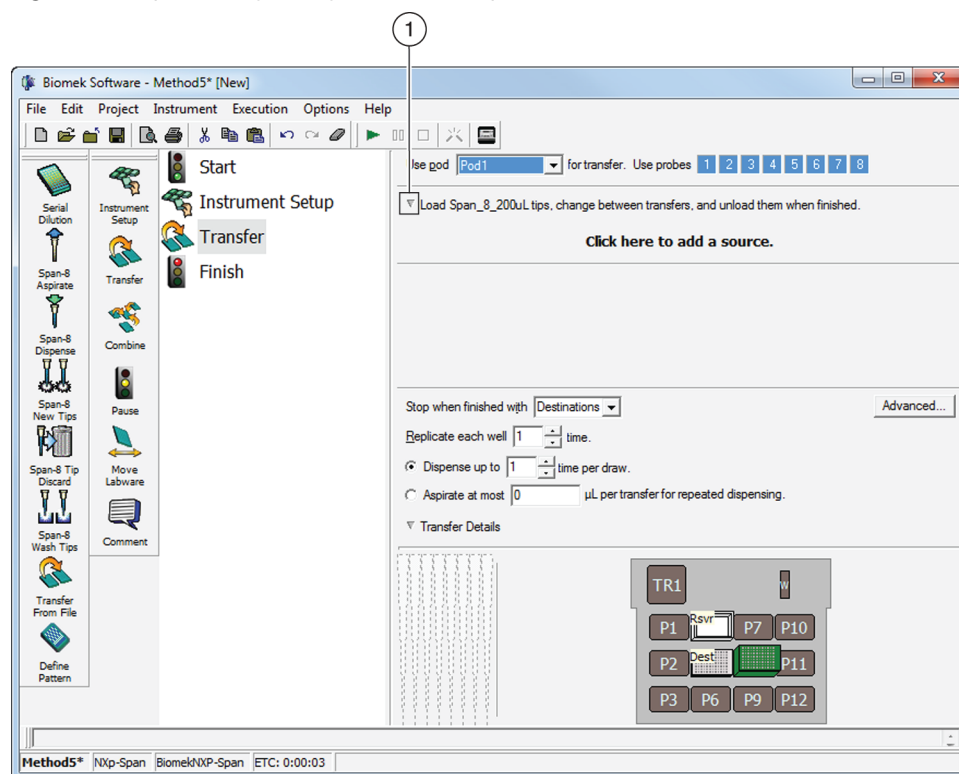
- 4 Make sure **unload them** is selected in the next field.

NOTE If fixed tips were chosen, it would be desirable to configure them to wash instead of change. Refer to the *Biomek Software User's Manual* for more information on washing tips.

- 5 Allow the default **Change tips between transfers** to be checked.

- 6 Your tips are configured for your liquid transfer, so click the **up arrow** next to **Tip Handling** (Figure 4.8). This collapses the **Tip Handling** configuration to allow more room for labware configuration. A simple text description of the way tips will be handled is displayed in place of the expanded **Tip Handling** configuration. The editor now looks like Figure 4.9.

Figure 4.9 Tip Handling Configured and Collapsed



1. **Tip Handling** configured and collapsed

Configuring Source Labware

Now you will configure the source labware. Here you will specify from which labware liquid will be aspirated and the height to which the tip descends into the labware before aspirating.

To configure the **BCUpsideDownTipBoxLid** named **Rsvr** as the source labware:

- 1 Click on **Click here to add a source.**
- 2 Click on **Rsvr** labware on the **P4** position in the Current Deck display. As you can see, the information you supplied in the **Instrument Setup** step is displayed in the source labware configuration.

- 3 Right click on the large tip illustration next to the reservoir graphic in the configuration and choose **Measure from Bottom**.

TIP After you click on the tip, you can adjust the height more precisely by using the up or down arrow keys on your keyboard to change the height by 0.10 mm, or you can use the **Page Up** and **Page Down** keys to change the height by 1.0 mm with each press of the key. You can also right click on the graphic, then select **Custom Height** from the menu that appears.

- 4 To adjust and set the aspirate height to which the tip descends into the reservoir, place the mouse cursor over the tip illustration. When the cursor turns into a hand, hold the left mouse button down to move the hand up and down until the depth is as close to **1.00 mm from bottom** as you can get. Then, adjust the height precisely to 1.00 mm using the **Tip** described above. There is a slight break in the bottom of the source reservoir graphic with the large tip that indicates that the reservoir is wider than the graphic can display.

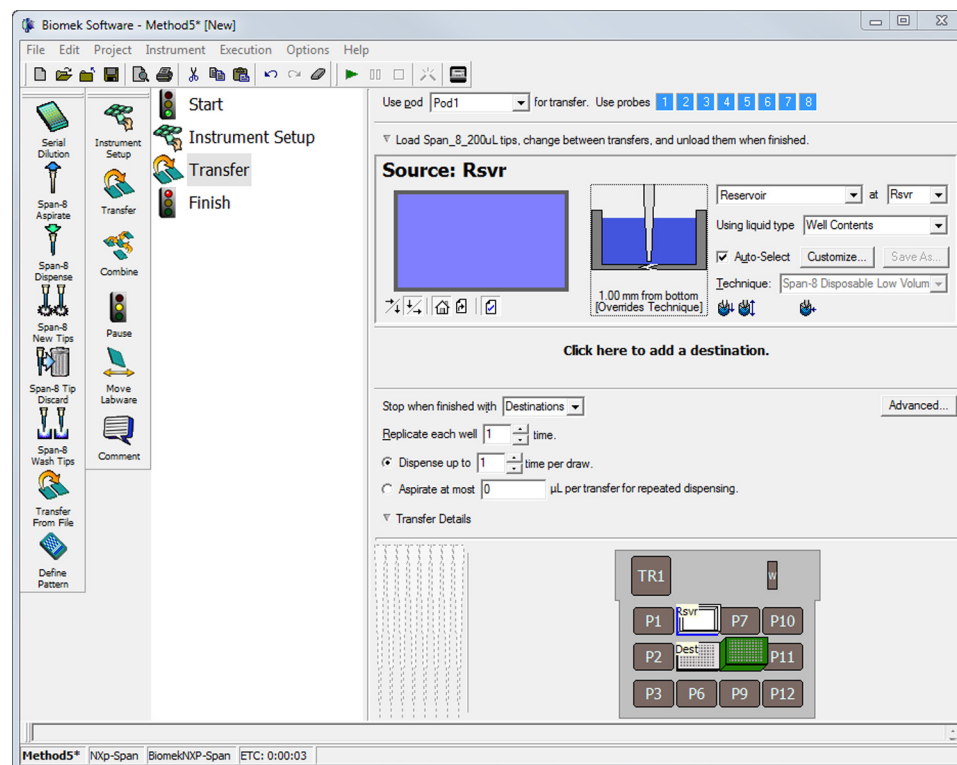
OR

To select a custom height, right click on the illustration and select **Custom Height**, and then select **Bottom** from the drop-down menu. Type **1.00** in the text box, and then click **OK**.

NOTE The default liquid is Well Contents. Well Contents allows the software to determine the liquid type to be transferred based on the content of each well, defined elsewhere in the method.

The source labware is complete, and the editor now looks like [Figure 4.10](#).

Figure 4.10 Configured Source Labware



Configuring Destination Labware

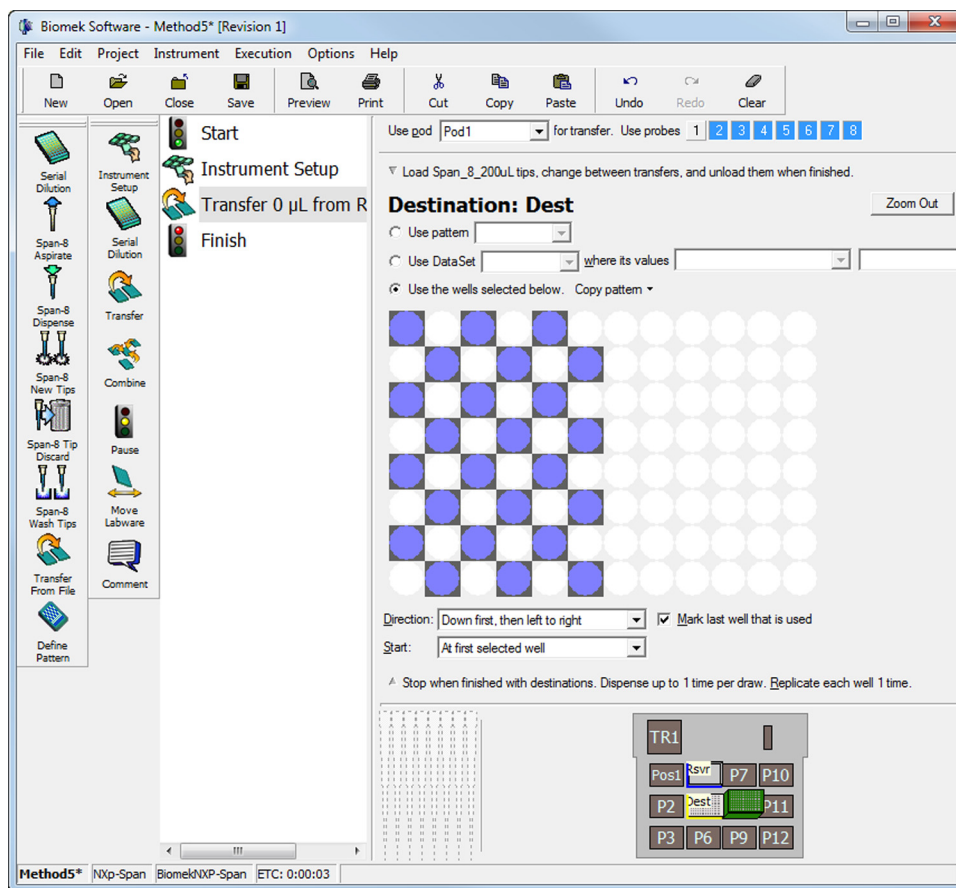
Here you will configure where you want the water from the source reservoir to be dispensed. In this case, you want to dispense water into the **BCFlat96** microplate on deck position **P5**. To do this:

- 1 Click the **Dest** microplate in the Current Deck display. This one operation accomplishes the same tasks as steps 1 and 2 of in [Configuring Source Labware](#). Notice that the source labware configuration fields are now replaced with a brief sentence summary of the setup. If you want to reopen this source configuration for any reason, click anywhere in the collapsed configuration area.

TIP If you accidentally open too many destination configurations, just right click on the title in the configuration. Click **Delete** from the popup menu and the entire configuration goes away.

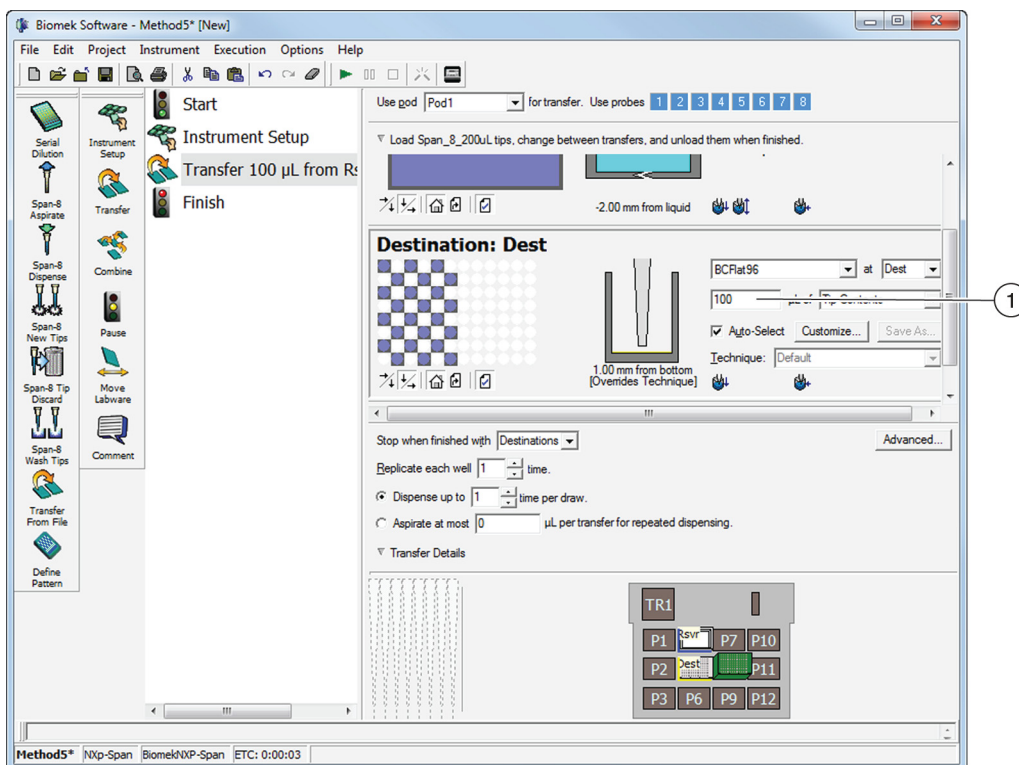
- 2 Double-click the **Destination Labware** in the step configuration to zoom in on the labware. All of the wells are selected by default.
- 3 Since all of the wells are selected by default, select the first well of the first column by clicking on the well. Now the only well that is selected is that first well that you just clicked; all the other wells are deselected. Then, select every other well of the first six columns by holding down **(Ctrl)** key and clicking the wells. Your pattern should look like [Figure 4.11](#). You have just configured which wells will be filled with water from the source reservoir Rsvr.

Figure 4.11 Destination labware zoomed in



- 4 Allow the default selections in **Direction**, **Start**, and **Mark last well that is used** to remain.
- 5 Choose **Zoom Out**.
- 6 Select the volume field, which allows you to designate the amount of liquid to be dispensed. For this method, you're transferring 100 μ L; so type **100** into the **Volume** field. This means you will be dispensing 100 μ L into each of the wells you selected.
- 7 Right-click on the large tip illustration and choose **Measure from Bottom**.
- 8 Set the dispense height in the large tip illustration to **1.00 mm from bottom**, using the same technique as you used for setting the aspirate height.
The destination labware is now configured and the editor looks like Figure 4.12.

Figure 4.12 Configured destination labware



1. Volume Field

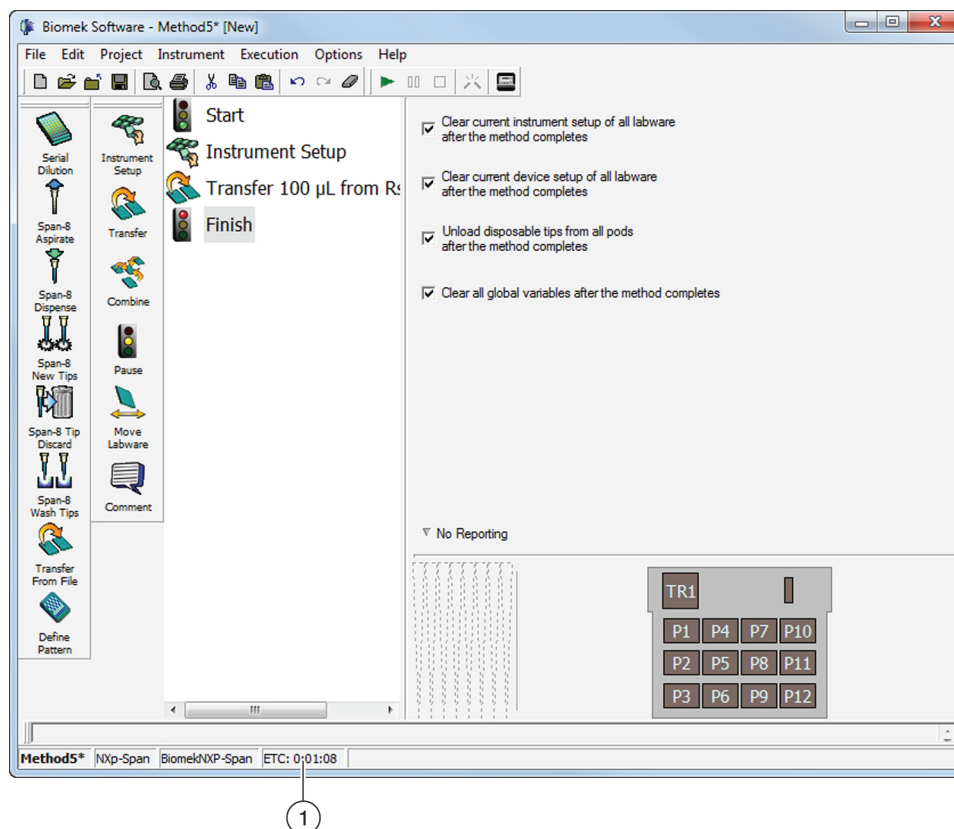
Determining the Estimated Time of Completion (ETC) of the Method

Your liquid transfer is set up, so let's see how long it will take to run the entire method by using the **Finish** step.

To do this:

- 1 Click on the **Finish** step in the Method View.
- 2 Check the status bar at the bottom of the editor for a display of the **ETC**. For this method, the **ETC** is approximately 1:08 (Figure 4.13). It's all right if your **ETC** varies slightly.

Figure 4.13 Finish Step Displaying the ETC



1. ETC: The Estimated Time of Completion for the method in the **Method View**.

Congratulations! You've just built a liquid transfer method using Biomek Software that:

- Prepared the main editor for a new method.
- Set up the deck and configured the labware you wanted to use using an **Instrument Setup** step.
- Added and configured a liquid transfer using a **Transfer** step.

Running the Method

Now that you've built a method, let's run it.

Validating the Method and Confirming the Deck Setup

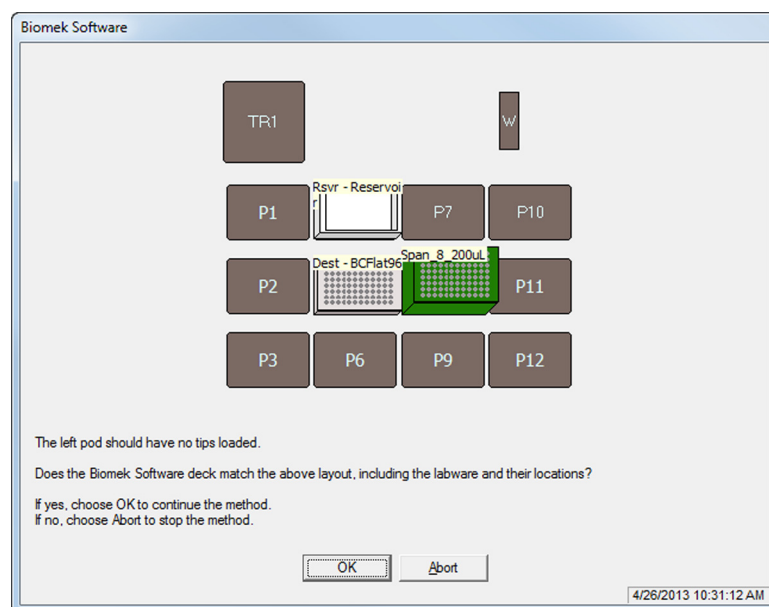
When you select **Run**, the method will be validated internally to check for errors. After this validation is complete, a deck confirmation prompt will appear over the main editor (Figure 4.14). This prompt displays the deck setup as interpreted by the software.

If you wish, you can also view the method in the Biomek Simulator. Refer to [Viewing the Method in the Biomek Simulator](#).

To confirm the deck setup:

- 1 Click on the **green arrow** button on the toolbar, or from the **Execution** menu, choose **Run**. A deck confirmation appears ([Figure 4.14](#)).

Figure 4.14 Deck Confirmation Prompt



- 2 Visually confirm the physical deck setup matches the deck confirmation, including labware placement and tip state on the pod, before continuing with the method.
- 3 If the physical deck does not match the deck shown, move or place labware on the deck so that it does match. Alternatively, you may choose **Abort** and adjust the Instrument Setup step to match your physical deck setup.
- 4 Choose **OK** if the deck confirmation matches the physical deck setup. The method runs as soon as you choose **OK**. You can visually follow the run in the Method View; steps are highlighted as the step is executed.

Viewing the Method in the Biomek Simulator

CAUTION

Make sure the proper port is selected in the “Hardware Setup” window within Biomek Software. “Simulate” is used only when running methods on the Biomek Simulator, and will not initiate the physical instrument to run. To run methods on the instrument, choose the COM port to which the instrument is connected.

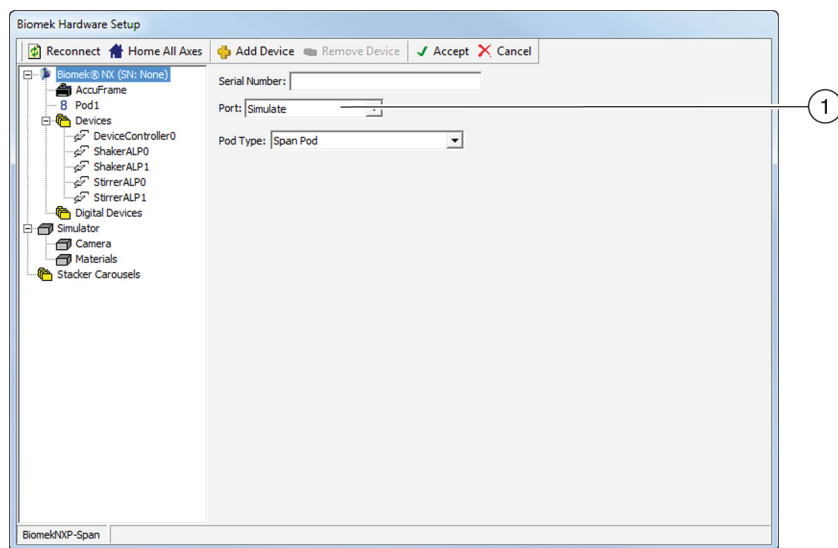
When a method is run in simulation, the Biomek Simulator appears, showing an animated 3-D model of the instrument performing the method. Setting the simulation mode is configured in **Hardware Setup** (Figure 4.15).

Hardware Setup is used to configure Biomek Software with the appropriate Biomek instrument information, including the Biomek Simulator. While the Beckman Coulter Representative normally installs and configures new devices, it may be necessary to install, configure, and remove other devices using **Hardware Setup**. Refer to the *Biomek Software User’s Manual, Accessing Hardware Setup*.

If you wish to view the method in simulation:

- 1 From the toolbar, choose **Instrument > Hardware Setup**. **Hardware Setup** appears (Figure 4.15).

Figure 4.15 Hardware Setup



1. Choose **Simulate** here to allow methods to be run in the Biomek Simulator.

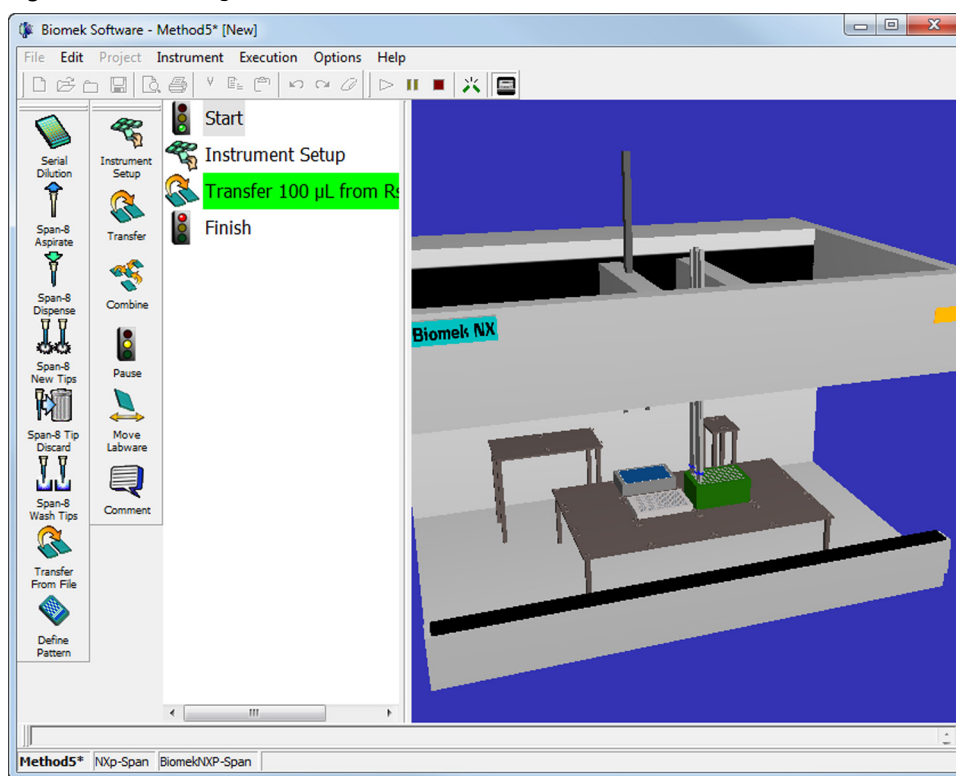
- 2 From **Port**, choose **Simulate**.

- 3 Choose **Accept**. Now, when a method is run, an animated 3-D model of the Biomek instrument is displayed (Figure 4.16). You can now watch a simulation of the Biomek instrument perform the steps in the method.

If you wish to run the method on hardware, you must go back to **Hardware Setup** and change the **Port** from **Simulate** to the appropriate **COM** port to connect your instrument to your PC.

TIP The simulator can be a useful tool to test methods to ensure that they are performing as expected without using up valuable reagents or tips, and can save time not only in set up, but also by running at an accelerated speed. Refer to the *Biomek Software User's Manual, Configuring the Biomek Simulator* for more information on the simulator.

Figure 4.16 Running a Method in Simulation



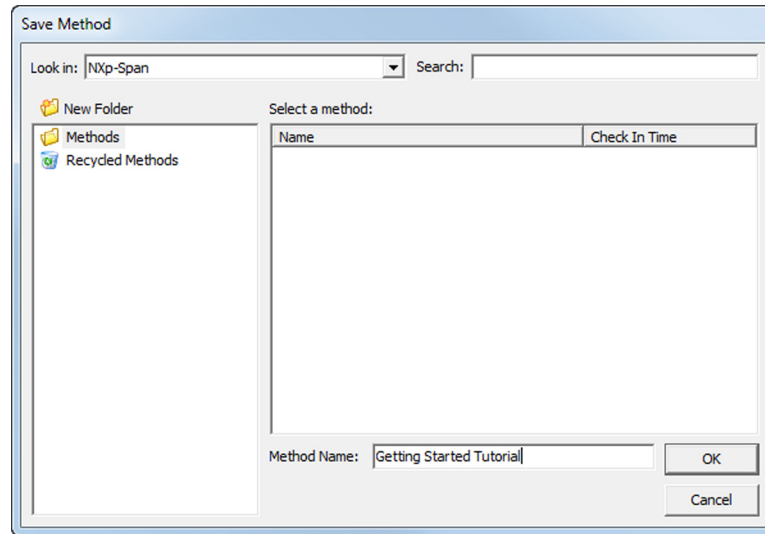
Saving a Method

Methods can be saved at any time during their development. Saving a method automatically creates a record of the revision that preserves the method configuration at the time it was saved. Revisions may be accessed from the revision history at a later time. If any project items, such as labware definitions or techniques, change after the method is saved, when the method is opened next, the latest definitions are used. Refer to the *Biomek Software User's Manual, Saving a Method*, and *Viewing Method History* for additional details.

To save your method:

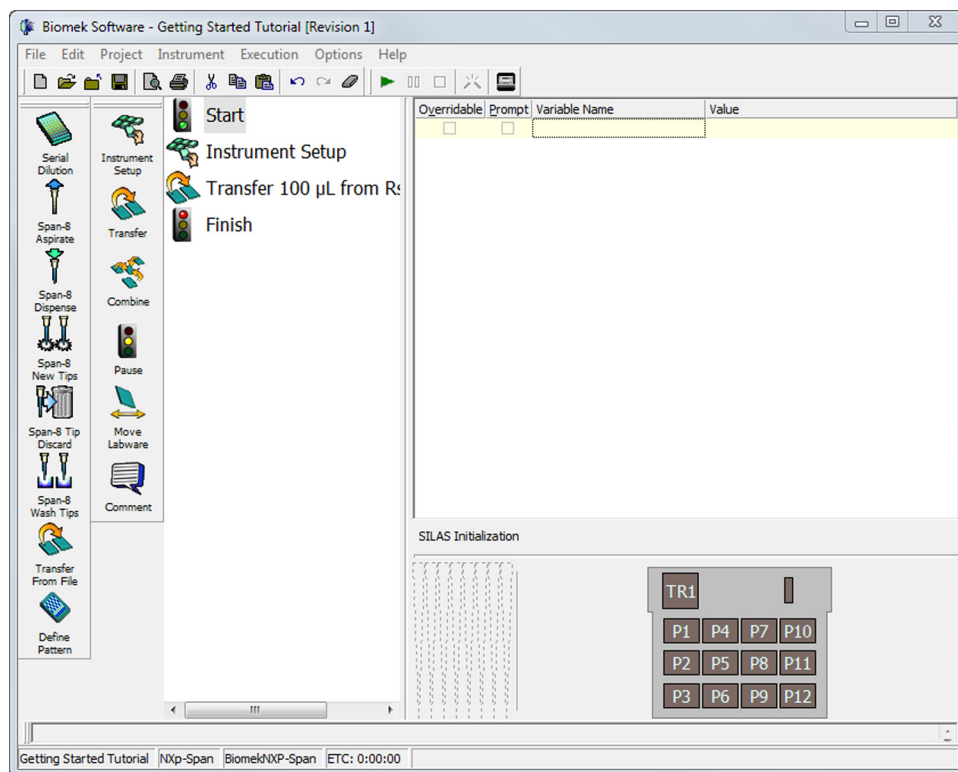
- 1 Choose  (**Save Method**) icon on the toolbar.
- 2 In **Method Name**, type the file name under which your method will be saved. For this chapter, type **Getting Started Tutorial** (Figure 4.17).

Figure 4.17 Save Method



- 3 Choose **OK**. Now notice how the method name in the Biomek main editor has changed to **Getting Started Tutorial [Revision 1]** (Figure 4.18).

Figure 4.18 Method Name Has Changed



Responding to an Error Message

Occasionally, you might receive an error during the process of creating a method. Biomek Software alerts you to errors in several ways, including:

- The step with the error appears in red in the Method View when any step following the error is highlighted.
- A tool tip describes the error when you hover the cursor over the step causing the error.
- An associated red error message is displayed in the status bar at the bottom of the editor.
- The error is displayed in an error bar just above the status bar.

There are other errors that are displayed in error message boxes. These errors state the problem and display appropriate recovery options. Refer to the *Biomek Software User's Manual* for details on resolving errors.

Biomek Software continually validates the steps as you progress through building your methods. When you highlight any step, the steps above that point in the method will be validated. If an error is encountered, the step causing the error will be highlighted in red.

Advanced Features

Overview

This chapter describes several advanced features of Biomek Software, including the following topics:

- *21 CFR Part 11 Compliance Support*
- *Importing/Exporting Methods*
- *Importing/Exporting Projects*

21 CFR Part 11 Compliance Support

Beckman Coulter Accounts & Permissions is an integrated set of features built into Beckman Coulter software that assists users in complying with electronic signature requirements (such as 21 CFR Part 11) for closed systems. With Biomek Software, support is extended only for the instrument; devices integrated with the instrument are not supported unless specified in separate documentation.

Accounts & Permissions provides support only for closed systems; networked systems are not supported. In a location where several Beckman Coulter systems are present, Accounts & Permissions must be installed and enabled separately for each system where compliance is desired.

Users require a separate account for each system they need to access. For each Beckman Coulter system, a single administrator sets up the level of support provided by Accounts & Permissions, creates, manages, and sets permissions for user accounts, and configures system parameters relating to Accounts & Permissions.

For more information on CFR 21 Part 11, please visit the following website:
<http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm135680.htm>

Supplemental information can be found in the *Biomek Software User's Manual*, Chapter 1, *Using Accounts and Permissions*.

Support Options

21 CFR Part 11 support options in Biomek Software include the following:

Option	Description
No Support	User accounts are not required to access Biomek Software. Users have access to all software operations and functionality.
Accounts and Permissions	Users must log in to use Biomek Software and may access only features and operations for which they have permission.
Accounts and Permissions, with password for signing and check-in	- Enables the use of user accounts and permissions with electronic signatures for Biomek Software. - Users must log in to use the software and may access only features and operations for which they have permission. - Support for 21 CFR Part 11 is provided by requiring password checks for operations such as saving, validating, and signing methods.

Account Management

System administration tasks for Beckman Coulter Accounts & Permissions are performed in Account Management, a separate application from Biomek Software. The system administrator sets up and configures user accounts, passwords, roles, and permissions, and configures system settings such as automatic password expiration and system logout time.

NOTE A single system administrator password is used on a system. System administration tasks may be performed only on the computer where Account Management is installed; access to Account Management over a network is not supported.

Administrative Functions

Administrative functions include the following:

Function	Description
Accounts	Displays user account information and allows the administrator to create, enable, and disable accounts, set account passwords, and change account roles.
Settings	Allows the administrator to configure several login and password options, as well as project specific access.
Audit	Displays an audit log of all administrator activity and failed attempts to log into Beckman Coulter software applications installed on the system.

Function	Description
Roles	A role is a set of permissions defined by the administrator and assigned to user accounts as desired. Roles are created and edited in the Roles tab, which also lists existing roles and permissions available for each compatible software application installed on the system.
Repositories	All Accounts & Permissions data, including user accounts, administrator settings, and audit logs of system administration and user activity, is stored in a repository. The Repositories tab allows the administrator to create and delete repositories, change the active repository, and make backup and archive files of repository data.

For more information on using Beckman Coulter Accounts & Permissions, click on the [?] icon in the Account Management tool to access online help.

Importing/Exporting Methods

Methods can be transferred from one system to another by importing and exporting method files. This section provides instructions for:

- [Exporting a Method](#)
- [Exporting All Methods](#)
- [Importing a Method](#)

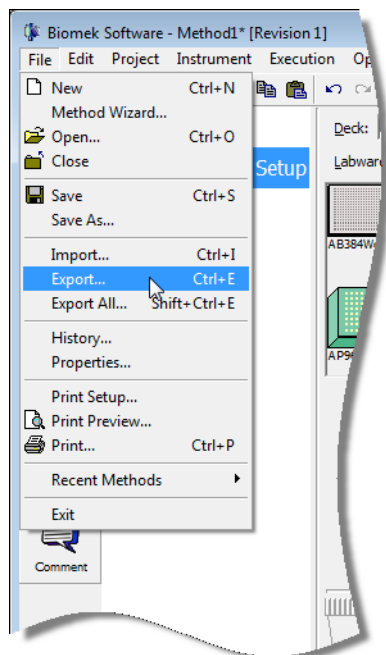
Additional information on importing and exporting method files can be found in the *Biomek Software User's Manual*, Chapter 12, *Creating and Using Methods*.

Exporting a Method

To export a method:

- 1 Open the method you wish to export.
- 2 From the **File** menu, select **Export** (Figure 5.1).

Figure 5.1 Export Method Option on the File Menu



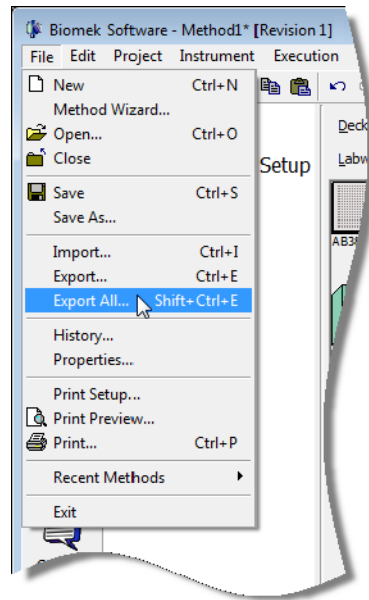
- 3 Navigate to the location where you wish to save the exported method file, and choose .

Exporting All Methods

To simultaneously export all methods in the current project:

- 1 From the **File** menu, select **Export All** (Figure 5.2).

Figure 5.2 Export All Methods Option on the File Menu



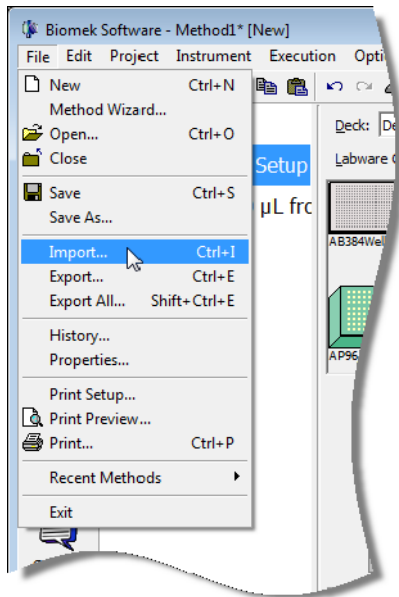
- 2 Browse to the folder location where you wish to save the exported methods.
- 3 Select the folder, and select **OK** to complete the process.

Importing a Method

To import a method:

- 1 From the **File** menu, select **Import** (Figure 5.3).

Figure 5.3 Import Option on the File Menu



- 2 Navigate to the location of the file that you wish to import and select it, and then select .
- 3 Select the project items you wish to import, and then select **OK** to complete the process.

Importing/Exporting Projects

System parameters (labware definitions, technique settings, etc.) can be transferred from one system to another. This section provides instructions for the following:

- [Exporting a Project](#)
- [Importing a Project](#)

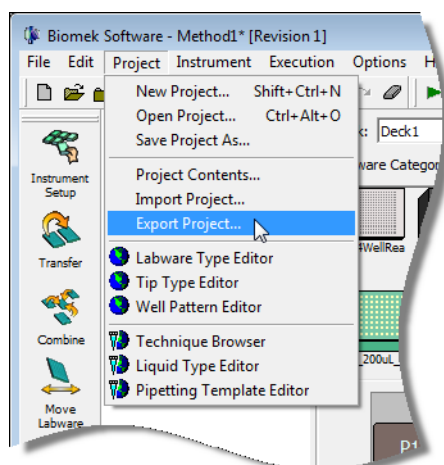
Additional information on importing and exporting project files can be found in the *Biomek Software User's Manual*, Chapter 6, *Understanding and Using Project Files*.

Exporting a Project

To export a project:

- 1 From the **Project** menu, select **Export Project...** (Figure 5.4)

Figure 5.4 Project Menu — Export Project



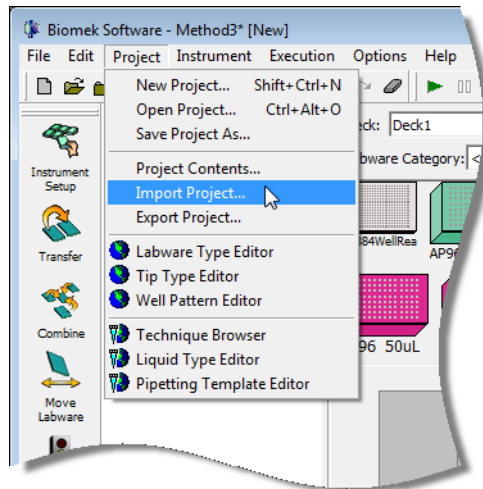
- 2 Select the items you wish to export, and then click **OK**.
- 3 In the **Save As** dialog, navigate to the location where you wish to save the exported project file.
- 4 Enter a file name for the exported project in the **File name** field, and then select to complete the process.

Importing a Project

To import a project file:

- 1 From the **Project** menu, select **Import Project...** (Figure 5.5).

Figure 5.5 Project Menu — Import Project



- 2 Navigate to the location of the project file that you wish to import and select it, and then select .
- 3 Select the project items you wish to import, and then select **OK** to complete the process.

Best Practices

Overview

This chapter provides tips for optimizing your methods in order to run as efficiently and accurately as possible. Topics include the following:

- [Automating An Assay](#)
- [Roving at Z-Max on the Multichannel Pod](#)
- [Roving at Z-Max on the Span-8 Pod](#)

Automating An Assay

This section explores converting an assay on paper into a Biomek NX^P instrument method. Specifically, the details described in [Table 6.1](#) need to be determined:

Table 6.1 Automating An Assay

Category	Action
1. Determine Labware	Determine the following labware details: • Types • Brand • Quantity of Each • Lids • Disposables • Tips
2. Determine Deck Setup	Determine the following deck setup details: • Automated Labware Positioners • Devices • Trash Disposals
3. Build a Method	First Pass (Non-Optimized): Create a first approximation of the method using your best guess at appropriate labware positions.

Table 6.1 Automating An Assay

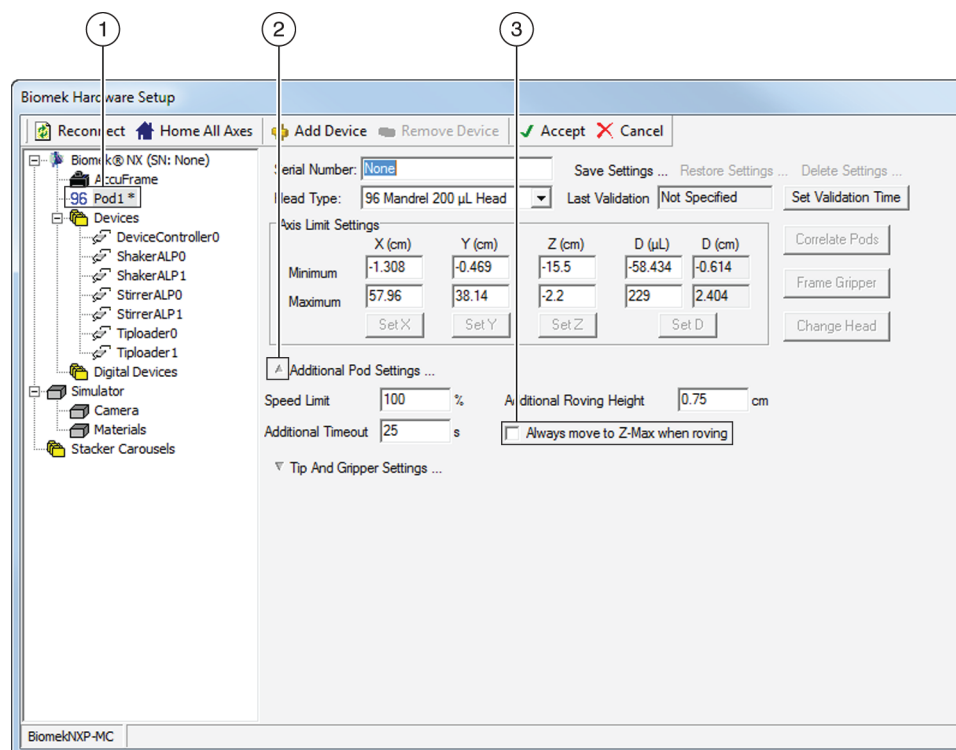
Category	Action
4. Optimize the method	Labware: Place labware at positions to minimize fly over, reduce travel time, and distance. Tip Usage: Specify tip usage options. • Automated Loading (Standard): Uses the closest available tip box. • Labeled Tip Boxes: Allows you to define which tip box to use for the defined task. • Reuse Tips: Allows tips to be reused. Devices: Determine varied device run time intervals.
5. Run without liquid (dry)	Without Labware: Observe to determine if anything unexpected occurs. NOTE Move Labware steps cannot be performed. With Labware: Observe to determine if the aspirate and dispense heights are ok, and if the labware was moved to correct positions.
6. Run with liquid (wet)	Run the Beckman Coulter Kit or application. Run the User Defined Method using dye or food coloring.

Roving at Z-Max on the Multichannel Pod

When **Roving at Z-Max** is enabled, the pods moves to their highest configured height while roving, which helps to avoid collisions when moving the pod around. **Roving at Z-Max** is not required for normal operation, but is useful to avoid crashes when errors are written into a method.

To enable **Roving at Z-Max** for the Multichannel Pod:

- 1 From the **Instrument** menu, select **Hardware Setup**.
- 2 In left pane of the **Hardware Setup** window, select **Pod1** to display the pod configuration (Figure 6.1).

Figure 6.1 Hardware Setup — Pod Settings Configuration for the Multichannel Pod

1. Pod1 selection.
2. Additional Pod Settings
3. Always move to Z-Max when roving checkbox.

3 Select the **Additional Pod Settings** down arrow to display the additional settings.

4 Select the **Always move to Z-Max when roving** check box (Figure 6.1).

5 Select **Accept** to complete the process and close the **Hardware Setup** window.

Roving at Z-Max on the Span-8 Pod

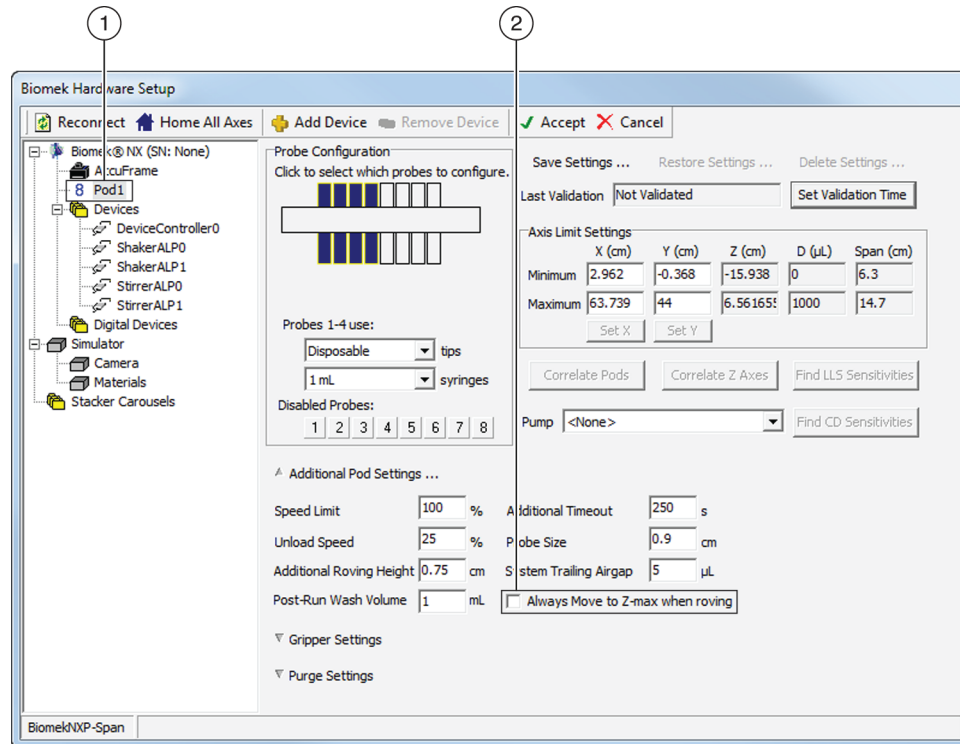
When **Roving at Z-Max** is enabled, the pods moves to their highest configured height while roving, which helps to avoid collisions when moving the pods around.

To enable **Roving at Z-Max** for the Span-8 Pod:

- 1 From the **Instrument** menu, select **Hardware Setup**.

- 2 In left pane of the **Hardware Setup** window, select **Pod1** to display the pod configuration (Figure 6.2).

Figure 6.2 Hardware Setup — Pod Settings Configuration for the Span-8 Pod



1. **Pod1** selection.
2. **Always move to Z-Max when roving** checkbox.

- 3 Select the **Additional Pod Settings** down arrow to display the additional settings.

- 4 Select the **Always move to Z-Max when roving** check box (Figure 6.2).

- 5 Select **Accept** to complete the process and close the **Hardware Setup** window.

ANHANG DE

Sicherheitshinweise

Bitte lesen und beachten Sie sämtliche Sicherheitsregeln und Anweisungen. Bitte beachten Sie: Die wichtigste Vorsichtsmaßnahme ist, die Biomek NX^P-Laborautomatisierungs-Arbeitsstation korrekt zu bedienen.

Sicherheitshinweise für die Biomek NX^P-Arbeitsstation

Dieser Abschnitt enthält die Warnhinweise und Sicherheitsvorkehrungen aus folgenden Handbüchern und Anleitungen: *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual*, *Biomek NX and NX^P Laboratory Automation Workstations Multichannel Pod User's Manual*, *Biomek NX^P Laboratory Automation Workstation Preinstallation Manual*, *NX and NX^P Laboratory Automation Workstations - Version 3.3 Tutorial*, *Biomek FX^P and NX^P Laboratory Automation Workstation 4.1 Software Migration Guide for Biomek 3.3 Methods*, *Biomek Software User's Manual Version 4.1*, *Automated Labware Positioners (ALPs) Instructions for Use*.

HINWEIS Version 4.1 der Biomek-Software ist nicht mit der Biomek NX-Arbeitsstation kompatibel. Wann immer in dieser Anleitung der Begriff „NX“ genannt wird, ist damit stets „NX^P“ gemeint.

 WARNUNG

Wird das Gerät abweichend von den Anweisungen von Beckman Coulter, Inc. betrieben, können die Schutzfunktionen des Gerätes blockiert sein.

 WARNUNG

In folgenden Situationen besteht für den Bediener Verletzungsgefahr:

- Vor und während der Bedienung des Geräts sind nicht alle Türen, Abdeckungen und Verkleidungen geschlossen und eingerastet.
- Die Integrität von Sicherheitsverriegelungen und Sensoren ist beeinträchtigt.
- Sie kommen mit beweglichen Teilen in Kontakt.
- Sie gehen mit beschädigten Teilen nicht richtig um.
- Türen, Abdeckungen und Verkleidungen werden nicht vorsichtig geöffnet/abgenommen und/oder geschlossen/aufgesetzt.
- Es werden falsche Werkzeuge zur Fehlersuche verwendet.

So vermeiden Sie Gefahren für den Bediener:

- Halten Sie Türen, Abdeckungen und Verkleidungen immer geschlossen und eingerastet, wenn das Gerät in Betrieb ist.
- Nutzen Sie alle Sicherheitsfunktionen des Geräts. Umgehen Sie keine Sicherheitssperren und -sensoren.
- Achten Sie auf Gerätealarme und Fehlermeldungen und reagieren Sie entsprechend darauf.
- Halten Sie sich fern von sich bewegenden Teilen.
- Melden Sie sämtliche beschädigten Teile dem Beckman Coulter-Vertreter.
- Verwenden Sie bei der Fehlersuche und -behebung ausschließlich dafür geeignete Werkzeuge.

 VORSICHT

Unter folgenden Umständen kann die Systemintegrität Schaden nehmen und es kann zu Fehlern im Betriebsablauf kommen:

- Das Gerät wird auf andere Weise als spezifiziert verwendet. Bedienen Sie das Gerät immer so, wie es in den Produkthandbüchern beschrieben wird.
- Sie installieren Software auf Ihrem Computer, die nicht von Beckman Coulter autorisiert ist. Installieren Sie ausschließlich Software auf Ihrem Systemcomputer, die von Beckman Coulter autorisiert wurde.
- Sie installieren Software, bei der es sich nicht um die Originalversion mit Copyright handelt. Verwenden Sie ausschließlich originale Softwareversionen mit Copyright, um Virenbefall zu vermeiden.

 VORSICHT

Falls Sie dieses Produkt aus anderen Bezugsquellen als direkt von Beckman Coulter oder einem autorisierten Beckman Coulter-Distributor erworben haben und für das Produkt derzeit keine Beckman Coulter-Wartungsvereinbarung besteht, kann Beckman Coulter nicht garantieren, dass die aktuellen, obligatorischen Technikrevisionen am Produkt vorgenommen wurden oder dass Sie die aktuellen Informationsrundschriften bezüglich des Produkts erhalten. Falls Sie dieses Produkt von einem Fremdanbieter erworben haben und mehr Informationen zu diesem Thema wünschen, wenden Sie sich an den für Ihre Region zuständigen Beckman Coulter-Vertreter.

 WARNUNG

Gefahr einer chemischen Verletzung durch Bleichlösung. Um Kontakt mit dem Bleichmittel zu vermeiden, verwenden Sie einen Barrierschutz, einschließlich Augenschutz, Handschuhen und geeigneter Laborkleidung. Das Sicherheitsdatenblatt enthält nähere Einzelheiten zur Exposition gegenüber Chemikalien und sollte vor der Verwendung des chemischen Stoffes eingesehen werden.

 WARNUNG

Vor einem Durchlauf mit chemischen oder biologischen Proben müssen neue Arten von Labormaterialien getestet werden, um feststellen, ob bei ihnen ein Abgleich durchgeführt werden muss, um sie vom oder auf den Peltier-ALP zu übertragen bzw. um während des Pipettiervorgangs auf dem Peltier-ALP auf die Labormaterialien zuzugreifen. Falls die erforderlichen Tests nicht durchgeführt werden und der Abgleich nicht korrekt ist, könnte das Labormaterial zerbrechen, sodass sein jeweiliger Inhalt austritt.

Während des normalen Betriebs des Gerätes können Materialien verwendet werden, die giftig, entzündlich oder anderweitig umweltschädlich sein können. Beachten Sie bei der Verwendung derartiger Materialien die folgenden Vorsichtsmaßnahmen:

- Halten Sie beim Umgang mit infektiösen Proben die Regeln der guten Laborpraxis ein, um die Verbreitung von Krankheiten zu vermeiden.
- Beachten Sie vor dem Gebrauch alle auf der Originalverpackung der Lösungen angegebenen Vorsichtshinweise.
- Entsorgen Sie alle gebrauchten Lösungen gemäß der Entsorgungsverfahren Ihrer Einrichtung.
- Betreiben Sie das Gerät gemäß der Anweisungen in diesem Handbuch und ergreifen Sie alle erforderlichen Vorsichtsmaßnahmen bei der Verwendung von pathologischem, toxischem oder radioaktivem Material.
- Flüssigkeiten können spritzen. Ergreifen Sie daher beim Umgang mit potentiell gefährlichen Flüssigkeiten geeignete Sicherheitsmaßnahmen wie das Tragen von Schutzbrillen und Schutzkleidung.

- Verwenden Sie beim Umgang mit Gefahrenstoffen ein geeignetes geschlossenes System.
- Ergreifen Sie beim Umgang mit entzündlichen Lösemitteln in oder nahe dem mit Strom versorgten Gerät die geeigneten Vorsichtsmaßnahmen gemäß den Vorgaben Ihres Sicherheitsbeauftragten.
- Ergreifen Sie bei der Verwendung von pathologischem, toxischem oder radioaktivem Material die geeigneten Vorsichtsmaßnahmen gemäß den Vorgaben Ihres Sicherheitsbeauftragten.

 WARNUNG

Gefahr von Personenschäden. Um Verletzungen durch angetriebene Teile zu vermeiden, beachten Sie Folgendes:

- Versuchen Sie nie, Labormaterial oder Reagenzien auszutauschen, während das Gerät in Betrieb ist.
- Versuchen Sie nie, angetriebene Teile des Gerätes in ihrer Bewegung zu behindern.
- Halten Sie den Arbeitsbereich des Gerätes sauber und frei von anderen Gegenständen, um eine ungehinderte Bewegung sicherzustellen.

 VORSICHT

Ändern Sie im Hardware-Setup nicht die Einstellungen für die Halterungen, nachdem das System installiert wurde, anderenfalls müssen Sie den Kundendienst kommen lassen.

 VORSICHT

Im Hardware-Setup muss immer der richtige Port ausgewählt sein. „Simulate“ (Simulieren) wird nur verwendet, wenn Sie Verfahren auf dem Biomek-Simulator durchlaufen lassen. Wenn Sie Verfahren auf dem Gerät laufen lassen, wählen Sie den Com-Port, mit dem das Gerät verbunden ist.

 VORSICHT

Gefahr einer Kontaminierung oder eines Abbruchs des Verfahrens. Wenn Flüssigkeiten nach einem im Vorfeld ausgewählten Muster transferiert werden, kann die Auswahl eines falschen Musters dazu führen, dass Reagenzien zu den falschen Wannen transferiert werden. Bitte lassen Sie bei der Auswahl des Musters zur Laufzeit besondere Sorgfalt walten.

 WARNUNG

Wird das Gerät abweichend von den Anweisungen von Beckman Coulter, Inc. betrieben, können die Schutzfunktionen des Gerätes blockiert sein.

 WARNUNG

Dunkles, nicht-reflektierendes Material beeinträchtigt die Sensibilität des Lichtvorhangs und kann nachteilige Auswirkungen auf seine Funktionalität haben. Die übliche Laborbekleidung, wie beispielsweise Laborkittel und Latex-Handschuhe, beeinträchtigen die Funktionsfähigkeit des Lichtvorhangs normalerweise nicht; dennoch wird empfohlen, die entsprechenden Tests durchzuführen, um den Einfluss von jedweder Laborbekleidung auf die Sensibilität des Lichtvorhangs festzustellen, ehe der Biomek NX in Betrieb genommen wird. Testen Sie den Einfluss von Laborbekleidung auf die Sensibilität des Lichtvorhangs wie folgt: Wählen Sie in der Software „Manual Control“ (Manuelle Kontrolle) und geben Sie das Material höchstens 1" (2,54 cm) hinter und etwa 21" (53,34 cm) über dem Lichtvorhangspanel ein. Achten Sie darauf, dass die durchgehend brennende gelbe Anzeigeleuchte zu blinken beginnt.

 WARNUNG

Um die Gefahr von Personenschäden zu minimieren, darf der Biomek NX nur betrieben werden, wenn sich sämtlich Schutzabdeckungen an Ort und Stelle befinden.

 WARNUNG

Bitte durchlaufen Sie die erforderlichen Dekontaminationsverfahren gewissenhaft, um das Gesundheits- und Verletzungsrisiko zu minimieren.

- Wischen Sie verschüttete oder ausgetretene Flüssigkeiten oder Materialien sofort von der Plattform.
- Planen Sie alle sechs bis zwölf Monate einen Wartungsanruf bei Beckman Coulter ein, um die Linearschiene durch einen unserer Mitarbeiter schmieren zu lassen.

 VORSICHT

Wenn eine Wartung erforderlich ist, kontaktieren Sie einen Servicetechniker von Beckman Coulter.

 WARNUNG

Entfernen Sie keine Abdeckungen, um auf elektrische Kabel oder Sicherungen zuzugreifen. Wechseln Sie lediglich diejenigen Sicherungen, die auf der Außenseite des Gerätes zugänglich sind, ohne dass Abdeckungen entfernt werden müssten. Bitte konsultieren Sie einen Servicetechniker von Beckman Coulter, wenn auf andere Bereiche zugegriffen werden muss.

 WARNUNG

Schalten Sie das Gerät aus und ziehen Sie den Netzstecker, ehe Sie eine Sicherung wechseln. Andernfalls kann es zu Stromschlägen oder zu Schäden am Gerät kommen.

 WARNUNG

Bitte seien Sie beim Umgang mit gefurchten Septa-Pipettierköpfen besonders vorsichtig, diese sind extrem scharf.

 VORSICHT

Bitte seien Sie beim Umgang mit gefurchten Septa-Pipettierköpfen besonders vorsichtig, diese sind extrem zerbrechlich.

 WARNUNG

Beachten Sie beim Umgang mit Blutproben die jeweiligen Vorsichtsmaßnahmen gemäß den Vorgaben Ihres Sicherheitsbeauftragten.

 VORSICHT

Seien Sie beim Umgang mit Labormaterialien und Spitzenkombinationen, die mit „Limited“ („Begrenzt“) beschriftet sind, besonders vorsichtig. Die Spitzen könnten sich in Labormaterialien verkeilen und diese mitsamt der Probe anheben.

 VORSICHT

Tragen Sie beim Umgang mit Spitzen auf dem Span-8-Pod eine Erdungshandgelenkschlaufe, um Beschädigungen durch elektrostatische Entladungen (ESD) zu vermeiden.

 VORSICHT

Führen Sie keine Aspirations- oder Abgabevorgänge durch, solange die Spanndorne nicht installiert und die Schläuche nicht an den fixierten Spitzen befestigt sind. Wenn das System betrieben wird, ohne dass die Spanndorne installiert und die Schläuche an den Spitzen angeschlossen sind, kann es zu einer Korrosion im Spitzen-Interface kommen.

 WARNUNG

GEFAHR BEIM VERSCHÜTTEN ODER BEIM AUSTRITT VON FLÜSSIGKEITEN

 WARNUNG

Verwenden Sie beim Umgang mit Gefahrstoffen ein geeignetes geschlossenes System.

 WARNUNG

Achten Sie darauf, dass auf dem Gerät oder in seiner unmittelbaren Umgebung keine Flüssigkeiten verschüttet werden oder austreten. Entfernen Sie jegliche verschütteten oder ausgetretenen Flüssigkeiten sofort gemäß den Vorgaben Ihres Laborsicherheitsbeauftragten.

 WARNUNG

Beachten Sie bei der Verwendung von pathologischem, toxischem oder radioaktivem Material die jeweiligen Vorsichtsmaßnahmen gemäß den Vorgaben Ihres Sicherheitsbeauftragten.

 WARNUNG

Tragen Sie beim Entfernen der Spitzen stets Schutzhandschuhe.

 VORSICHT

Verhindern Sie, dass sich der Spitzen-Spanndorn während des Schließens oder Entfernens der Manschette nicht verdreht. Die Manschette enthält einen O-Ring, der einen nicht gesicherten Spitzen-Spanndorn dreht und dadurch die Schläuche verdrehen oder abknicken kann.

 WARNUNG

Beachten Sie bei der Verwendung von pathologischem, toxischem oder radioaktivem Material die jeweiligen Vorsichtsmaßnahmen gemäß den Vorgaben Ihres Sicherheitsbeauftragten.

 WARNUNG

Tragen Sie beim Entfernen der Spitzen stets Schutzhandschuhe.

 VORSICHT

Lassen Sie Spritzen höchstens für einige Zyklen durchlaufen, falls sich keine Flüssigkeit in den Spritzen befindet.

 VORSICHT

Aufgrund seines hohen Mineralgehalts, der zu einem Verstopfen von Schläuchen und zu Lecks an Schlauchverbindungen führen könnte, ist Leitungswasser ungeeignet.

 VORSICHT

Knicken Sie die Schläuche zum Vorratsbehälter, zu den Span-8-Pumpen und zur Spülpumpe nicht ab.

 VORSICHT

Knicken Sie die Schläuche zum Abfallbehälter, zum Span-8-Spitzenwasch-ALP und zur Auffangvorrichtung nicht ab.

 VORSICHT

Die Systemflüssigkeit muss vor der Verwendung entgast werden.

 VORSICHT

Spülen Sie das System nicht, solange die Spanndorne nicht installiert und die Schläuche nicht an den fixierten Spitzen bzw. an den Einweg-Spitzen befestigt sind. Wenn das System gespült wird, ohne dass die Spanndorne installiert und die Schläuche an den Spitzen angeschlossen sind, kann es zu einer Korrosion im Spitzen-Interface kommen.

 VORSICHT

Bewegen Sie den Greifer nicht gegen einen Widerstand von Hand, da er dadurch beschädigt werden könnte.

 VORSICHT

Um Beschädigungen durch elektrostatische Entladungen (ESD) zu vermeiden, bitte beim Umgang mit dem ab Werk installierten Greifer eine Erdungshandgelenkschlaufe tragen.

 WARNUNG

Bitte durchlaufen Sie die erforderlichen Dekontaminationsverfahren gewissenhaft, um das Gesundheits- und Verletzungsrisiko zu minimieren.



WARNUNG

Schließen Sie keine Kabel an und trennen Sie keine Kabel vom Gerät, solange der Biomek NX^P mit Strom versorgt wird.



VORSICHT

Nehmen Sie keine Veränderungen an den Grenzwerten für die Halterungsachsen in den Hardware-Einstellungen vor, ohne zuvor einen Servicetechniker von Beckman Coulter oder den technischen Kundendienst von Beckman Coulter konsultiert zu haben.



VORSICHT

Wählen Sie im Hardware-Setup nicht „Correlate Z Axes“ (Z-Achsen korrelieren), ohne zuvor einen Servicetechniker von Beckman Coulter oder den technischen Kundendienst von Beckman Coulter konsultiert zu haben.



VORSICHT

Wählen Sie nicht „Cancel“ (Abbrechen). Wenn der Test abgebrochen wird, ehe die Probenuntersuchungen abgeschlossen sind, wird der Flüssigkeitsstand nicht erkannt, und die Funktion „Find Sensitivities“ (Untersuchungen finden) muss wiederholt werden. Wählen Sie nicht „Cancel“ (Abbrechen). Wenn der Test abgebrochen wird, ehe die Probenuntersuchungen abgeschlossen sind, wird die Gerinnselerkennung nicht funktionieren und „Find Clot Detection Sensitivities“ (Gerinnselerkennungsuntersuchungen finden) muss wiederholt werden. Es dauert etwa 30 Minuten, bis der Test abgeschlossen ist.



VORSICHT

Die folgenden Bedingungen müssen erfüllt sein, ehe Sie „OK“ wählen können, um eine Referenzsuche bei allen Achsen durchzuführen: 

- Es darf sich keine Flüssigkeit mehr in den Spitzen befinden.
- Das Gerät darf nicht mit Einweg-Spitzen bestückt sein.
- Auf der Span-8-Halterung müssen entweder Einweg-Spitzenspanndorne oder fixierte Spitzen installiert sein.
- Der Servogreifer darf keine Labormaterialien halten.
- Der Servogreifer darf sich seitlich, vorne und hinten nicht in der Nähe des Gerätes befinden.

 VORSICHT

Tragen Sie beim Umgang mit Spitzen auf dem Span-8-Pod eine Erdungshandgelenkschleife, um Beschädigungen durch elektrostatische Entladungen (ESD) zu vermeiden.

 WARNUNG

Trennen Sie den Biomek NX von der Stromversorgung, ehe Sie AccuFrame auf der Geräteplattform anbringen oder davon entfernen.

 WARNUNG

Stellen Sie sicher, dass der Lichtvorhang nicht durch das AccuFrame-Kabel beeinträchtigt wird. Wenn der Lichtvorhang gestört wird, wird der Aufnahmeprozess sofort unterbrochen.

 WARNUNG

Bitte achten Sie darauf, dass das AccuFrame-Kabel nicht mit sich bewegenden Teilen in Berührung kommt.

 VORSICHT

Der Greifer muss immer geschlossen sein, ehe eine Referenzsuche durchgeführt wird.

 WARNUNG

LASER KLASSE II.

DIESES PRODUKT ENTSPRICHT AM TAG DER HERSTELLUNG DEN GÜLTIGEN ANFORDERUNGEN DER NORM 21 CFR 1040.

 VORSICHT

Die in Ihrer Einrichtung zur Verfügung stehende Stromspannung und -frequenz muss mit der Stromspannung und -frequenz übereinstimmen, die für das Gerät empfohlen ist, da es anderenfalls zu schweren Schäden am Gerät kommen kann.

 WARNUNG

Versuchen Sie nicht, Abdeckungen zu entfernen oder wieder anzubringen, während das Gerät mit Strom versorgt ist. Unterbrechen Sie die Stromversorgung, ehe Sie eine Abdeckung entfernen oder wieder anbringen.

 WARNUNG

Nicht unmittelbar dem Laserstrahl aussetzen. Blicken Sie niemals direkt in den Laserstrahl und lassen Sie den Laser niemals an, offen oder unbeaufsichtigt.

 WARNUNG

Die auf dem Barcodelaser befindliche Abdeckung des Lasermoduls muss sich immer in der für sie vorgesehenen Position befinden, wenn das Laser-Modul betrieben oder gewartet wird.

 VORSICHT

Wenn andere als die im Stacker Carousel User's Manual angegebenen Labormaterialien verwendet werden, kann es häufiger zu Lesefehlern oder zu nicht lesbaren Ergebnissen kommen.

 VORSICHT

Platzieren Sie den AccuFrame im Framing-Tool-Adapter, um Schäden am Shuttle zu vermeiden. Platzieren Sie anschließend den AccuFrame mitsamt dem befestigten Adapter auf dem Shuttle.

 VORSICHT

Unterbrechen Sie die Stromversorgung des Biomek NX^P, ehe Sie AccuFrame von der Geräteplattform entfernen oder an der Geräteplattform anbringen.

 WARNUNG

Stellen Sie sicher, dass der Lichtvorhang nicht durch das AccuFrame-Kabel beeinträchtigt wird. Wenn der Lichtvorhang gestört wird, wird der Aufnahmeprozess sofort unterbrochen.

 WARNUNG

Bitte achten Sie darauf, dass das AccuFrame-Kabel nicht mit sich bewegenden Teilen in Berührung kommt.

 VORSICHT

Verwenden Sie „Manual Control“ (Manuelle Kontrolle), um die Proben auf der Y-Achse zu bewegen. Wenn die Proben von Hand repositioniert werden, kann dies die Ausrichtung und die Fähigkeit zum Zugriff auf die Labormaterialien beeinträchtigen.

 VORSICHT

Bitte ändern Sie nicht die Grenzwerte der Halterungsachsen im Hardware-Setup, ohne zuvor einen Beckman Coulter-Vertreter konsultiert zu haben.

 VORSICHT

Wählen Sie im Hardware-Setup nicht „Correlate Z Axes“ („Z-Achsen korrelieren“), ohne zuvor einen Servicetechniker von Beckman Coulter oder den technischen Kundendienst von Beckman Coulter konsultiert zu haben.

 VORSICHT

Wählen Sie nicht „Cancel“ (Abbrechen). Wenn der Test abgebrochen wird, ehe die Probenuntersuchungen abgeschlossen sind, wird der Flüssigkeitsstand nicht erkannt, und die Funktion „Find Sensitivities“ (Untersuchungen finden) muss wiederholt werden.

 VORSICHT

Bitte ändern Sie nicht die Grenzwerte der Halterungsachsen oder die Halterungseinstellungen, ohne zuvor einen Beckman Coulter-Vertreter konsultiert zu haben.

 VORSICHT

Bitte ändern Sie nicht die Reinigungseinstellungen, ohne zuvor einen Vertreter von Beckman Coulter konsultiert zu haben.

 VORSICHT

Die folgenden Bedingungen müssen erfüllt sein, ehe Sie „OK“ wählen können, um eine Referenzsuche bei allen Achsen durchzuführen:

- Es darf sich keine Flüssigkeit mehr in den Spitzen befinden.
- Das Gerät darf nicht mit Einweg-Spitzen bestückt sein.
- Bitte Stellen Sie sicher, dass die Framing-Nadel NICHT auf der Multichannel-Halterung installiert ist.
- Die Greifer auf der Multichannel-Halterung müssen eingefahren sein.
- Bitte stellen Sie sicher, dass auf der Span-8-Halterung entweder Einweg-Spitzenspanndorne oder fixierte Spitzen installiert sind.
- Der Servogreifer darf keine Labormaterialien halten.
- Der Servogreifer darf sich seitlich, vorne und hinten nicht in der Nähe des Gerätes befinden.

 VORSICHT

Verwenden Sie „Shift deck“ (Plattform verlagern) erst, wenn andere ALP oder Positionen festgezogen sind. „Shift deck“ (Plattform verlagern) verlagert alle ALP und Positionen; daher kann es zu fehlerhaften Koordinaten kommen, wenn die Funktion auf zuvor festgelegte ALP und Positionen angewendet wird.

 WARNUNG

LASER KLASSE II. DIESES PRODUKT ENTSPRICHT AM TAG DER HERSTELLUNG DEN GÜLTIGEN ANFORDERUNGEN DER NORM 21 CFR 1040.

 VORSICHT

Wenn ein Etikett auf andere Weise angebracht wird als unter Verwendung des für diesen Zweck entwickelten Gerätes von Beckman Coulter („Beckman Coulter Print and Apply device“), kann es häufiger zu Lesefehlern oder zu nicht lesbaren Ergebnissen kommen.

 WARNUNG

Wird das Gerät abweichend von den Anweisungen von Beckman Coulter, Inc. betrieben, können die Schutzfunktionen des Gerätes blockiert sein.

 WARNUNG

Dunkles, nicht-reflektierendes Material beeinträchtigt die Sensibilität des Lichtvorhangs und kann nachteilige Auswirkungen auf seine Funktionalität haben. Die übliche Laborbekleidung, wie beispielsweise Laborkittel und Latex-Handschuhe, beeinträchtigen die Funktionsfähigkeit des Lichtvorhangs normalerweise nicht; dennoch wird empfohlen, die entsprechenden Tests durchzuführen, um den Einfluss von jedweder Laborbekleidung auf die Sensibilität des Lichtvorhangs festzustellen, ehe der Biomek NX^P in Betrieb genommen wird. Testen Sie den Einfluss von Laborbekleidung auf die Sensibilität des Lichtvorhangs wie folgt: Wählen Sie in der Biomek-Software „Manual Control“ (Manuelle Kontrolle) und geben Sie das Material höchstens 1" (2,54 cm) hinter und etwa 21" (53,34 cm) über dem Lichtvorhangspanel ein. Achten Sie darauf, dass die durchgehend brennende gelbe Anzeigeleuchte zu blinken beginnt.

 WARNUNG

Um die Gefahr von Personenschäden zu minimieren, darf der Biomek NX nur betrieben werden, wenn sich sämtlich Schutzabdeckungen an Ort und Stelle befinden.

 WARNUNG

Bitte durchlaufen Sie die erforderlichen Dekontaminationsverfahren gewissenhaft, um das Gesundheits- und Verletzungsrisiko zu minimieren.

- Wischen Sie verschüttete oder ausgetretene Flüssigkeiten oder Materialien sofort von der Plattform.
- Planen Sie alle sechs bis zwölf Monate einen Wartungsanruf bei Beckman Coulter ein, um die Linearschiene durch einen unserer Mitarbeiter schmieren zu lassen.

 VORSICHT

Wenn eine Wartung erforderlich ist, kontaktieren Sie einen Servicetechniker von Beckman Coulter.

 WARNUNG

Entfernen Sie keine Abdeckungen, um auf elektrische Kabel oder Sicherungen zuzugreifen. Wechseln Sie lediglich diejenigen Sicherungen, die auf der Außenseite des Gerätes zugänglich sind, ohne dass Abdeckungen entfernt werden müssten. Bitte konsultieren Sie einen Servicetechniker von Beckman Coulter, wenn auf andere Bereiche zugegriffen werden muss.

 WARNUNG

Schalten Sie das Gerät aus und ziehen Sie den Netzstecker, ehe Sie eine Sicherung wechseln. Andernfalls kann es zu Stromschlägen oder zu Schäden am Gerät kommen.

 VORSICHT

Stellen Sie immer sicher, dass der Greifer auf einer Multichannel-Halterung vor dem Referenzabgleich eingefahren ist.

 VORSICHT

Um eine Beschädigung durch elektrostatische Entladung (ESD) zu vermeiden, müssen Sie beim Umgang mit dem Multichannel-Kopf eine Erdungshandgelenkschleife tragen.

 VORSICHT

Halten Sie den Kopf gut fest, wenn Sie die vierte Ansatzschraube lösen, damit er beim Entfernen der letzten Schraube nicht herunterfällt.

 WARNUNG

Der Greifer kann sich verbiegen, wenn er nicht ausreichend mit dem AccuFrame festgezogen (eingefasst) wurde.

 WARNUNG

Bitte durchlaufen Sie die erforderlichen Dekontaminationsverfahren gewissenhaft, um das Gesundheits- und Verletzungsrisiko zu minimieren.

 WARNUNG

Schließen Sie keine Kabel an und trennen Sie keine Kabel vom Gerät, solange der Biomek NX^P mit Strom versorgt wird.

 WARNUNG

Auf der Plattform des Biomek NX^P dürfen sich keinerlei Labormaterialien befinden, wenn Greifer entfernt oder installiert werden. Es wird empfohlen, alle Labormaterialien in der Nähe der Halterung zu entfernen oder außer Reichweite zu bewegen, um den Kontakt mit Labormaterialien bzw. einen Austritt oder ein Verschütten von Flüssigkeiten zu vermeiden.

 VORSICHT

Bitte seien Sie beim Entfernen von Greiferfingern besonders vorsichtig. Da die Greiferfinger eng an der Multichannel-Halterung anliegen, lösen sie sich unvermittelt von dieser.

 VORSICHT

Nehmen Sie keine Veränderungen an den Grenzwerten für die Halterungsachsen in den Hardware-Einstellungen vor, ohne zuvor einen Servicetechniker von Beckman Coulter oder den technischen Kundendienst von Beckman Coulter konsultiert zu haben.

 VORSICHT

Wenn die Konfiguration der Hardware nicht mit Hilfe des Hardware-Setups aktualisiert wird, kann es zu einem Absturz der Hardware oder zu einem fehlerhaften Flüssigkeitstransfer kommen.

 VORSICHT

Um einen Absturz der Hardware zu vermeiden, muss nach der Konfiguration des Kopfes im Hardware-Setup ein neuer Grenzwert für die D-Achse festgelegt und der Greifer in der Biomek-Software festgelegt werden.

 VORSICHT

Der Greifer muss immer eingefahren sein, ehe eine Referenzsuche durchgeführt wird.

 VORSICHT

Nehmen Sie keine Veränderungen an den Grenzwerten für die Halterungsachsen vor, ohne zuvor einen Servicetechniker von Beckman Coulter oder den technischen Kundendienst von Beckman Coulter konsultiert zu haben.

 VORSICHT

Die folgenden Bedingungen müssen erfüllt sein, ehe Sie „OK“ wählen können, um eine Referenzsuche bei allen Achsen durchzuführen:

- Es darf sich keine Flüssigkeit mehr in den Spitzen befinden.
- Das Gerät darf nicht mit Einweg-Spitzen bestückt sein.
- Bitte Stellen Sie sicher, dass die Framing-Nadel NICHT auf der Multichannel-Halterung installiert ist.
- Der Greifer auf der Multichannel-Halterung muss eingefahren sein.

 WARNUNG

Trennen Sie den Biomek NX von der Stromversorgung, ehe Sie AccuFrame auf der Geräteplattform anbringen oder davon entfernen.

 WARNUNG

Stellen Sie sicher, dass der Lichtvorhang nicht durch das AccuFrame-Kabel beeinträchtigt wird. Wenn der Lichtvorhang gestört wird, wird der Aufnahmeprozess sofort unterbrochen.

 WARNUNG

Bitte achten Sie darauf, dass das AccuFrame-Kabel nicht mit sich bewegenden Teilen in Berührung kommt.

 VORSICHT

Verwenden Sie „Shift deck“ (Plattform verlagern) erst, wenn andere ALP oder Positionen festgezogen sind. „Shift deck“ (Plattform verlagern) verlagert alle ALP und Positionen; daher kann es zu fehlerhaften Koordinaten kommen, wenn die Funktion auf zuvor festgelegte ALP und Positionen angewendet wird.

 VORSICHT

Wählen Sie „Move Z-Max“ (Z-Max bewegen), um die Halterung zu ihrem höchsten Punkt zu bewegen, ehe Sie den Greifer ausfahren. Damit keine Labormaterialien zerbrechen und sich die Greiferfinger nicht verbiegen, dürfen die Greiferfinger beim Ausfahren nicht mit Labormaterialien in Berührung kommen.

 VORSICHT

Fahren Sie den Greifer nicht ein, während er Labormaterialien hält.

 WARNUNG

LASER KLASSE II. DIESES PRODUKT ENTSPRICHT AM TAG DER HERSTELLUNG DEN GÜLTIGEN ANFORDERUNGEN DER NORM 21 CFR 1040.

 VORSICHT

Die in Ihrer Einrichtung zur Verfügung stehende Stromspannung und -frequenz muss mit der Stromspannung und -frequenz übereinstimmen, die für das Gerät empfohlen ist, da es anderenfalls zu schweren Schäden am Gerät kommen kann.

 WARNUNG

Versuchen Sie nicht, Abdeckungen zu entfernen oder wieder anzubringen, während das Gerät mit Strom versorgt ist. Unterbrechen Sie die Stromversorgung, ehe Sie eine Abdeckung entfernen oder wieder anbringen.

 WARNUNG

Nicht unmittelbar dem Laserstrahl aussetzen. Blicken Sie niemals direkt in den Laserstrahl und lassen Sie den Laser niemals an, offen oder unbeaufsichtigt.

 WARNUNG

Die auf dem Barcodelaser befindliche Abdeckung des Lasermoduls muss sich immer in der für sie vorgesehenen Position befinden, wenn das Laser-Modul betrieben oder gewartet wird.

 VORSICHT

VORSICHT: Wenn ein Etikett auf andere Weise angebracht wird als unter Verwendung des für diesen Zweck entwickelten Gerätes von Beckman Coulter („Beckman Coulter Print and Apply device“), kann es häufiger zu Lesefehlern oder zu nicht lesbaren Ergebnissen kommen.

 VORSICHT

Wenn andere als die im Stacker Carousel User's Manual angegebenen Labormaterialien verwendet werden, kann es häufiger zu Lesefehlern oder zu nicht lesbaren Ergebnissen kommen.

 VORSICHT

Platzieren Sie den AccuFrame im Framing-Tool-Adapter, um Schäden am Shuttle zu vermeiden. Platzieren Sie anschließend den AccuFrame mitsamt dem befestigten Adapter auf dem Shuttle.

 WARNUNG

Um die Gefahr von Personenschäden zu minimieren, müssen sich die Schutzabdeckungen bzw. der Lichtvorhang an Ort und Stelle befinden, ehe das Gerät eingeschaltet wird. Während sich im Gerät Teile bewegen, verhindern die Schutzabdeckungen bzw. der Lichtvorhang den Zugriff auf den Arbeitsbereich.

 VORSICHT

Wenn der Geräte-Setup nicht korrekt ausgeführt wurde, kann es zu Kollisionen der Halterungen und der Labormaterialien kommen, oder die Pipettierung wird möglicherweise nicht korrekt ausgeführt.

 VORSICHT

Platzieren Sie Labormaterialien nur in Form einer Spitzen-Box auf einem Spitzen-Bestückungsfeld (TL#).

 WARNUNG

Tragen Sie beim Entfernen von Metallbändern eine Schutzbrille und verwenden Sie die Stahlbandschere nur unter Vorsicht, um Verletzungen zu vermeiden. Die Metallbänder können beim Durchschneiden zurückschnellen und Verletzungen verursachen.

 WARNUNG

Verwenden Sie die Stahlbandschere nur unter **Vorsicht**, um durch ein Zurückschnellen der Metallbänder verursachte Verletzungen zu vermeiden.

 VORSICHT

Der Biomek NX^P wiegt 190 lbs (86,2 kg). Befolgen Sie die Anweisungen Ihres Sicherheitsbeauftragten, um Verletzungen beim Heben schwerer Objekte zu vermeiden.

 VORSICHT

Wenn Sie den Biomek NX^P anheben, dürfen Sie das Gerät nur an seiner Basis umfassen. Ergreifen Sie es nicht an den Enden der langen Abdeckung an der Oberseite des Gerätes.

 VORSICHT

Wenn Sie den Biomek NX^P anheben, dürfen Sie das Gerät nur an seinem Basisgehäuse umfassen. Ergreifen Sie das Gerät nicht an den Enden des Lichtvorhanges, die sich über die Vorderseite des Gerätes erstrecken.

 VORSICHT

Die Rückseite des Gerätes ist schwerer als seine Vorderseite. Heben Sie das Gerät an seiner Vorderseite nicht so weit an, dass es nach hinten umkippt.

 VORSICHT

Der Biomek NX^P steht an den Enden einer Abstellbank mit den Abmessungen 36 x 30" (92 x 77 cm) über. Bitte achten Sie darauf, dass bei der Platzierung des Gerätes keinerlei Hindernisse im Weg sind.

 VORSICHT

Die Abstellbank muss das Gesamtgewicht des installierten Systems tragen können. Das Gesamtgewicht des Systems ist in Tabelle 1.3 aufgeführt.

 VORSICHT

Wenn Sie den Biomek NX^P anheben, dürfen Sie das Gerät nur an seiner Basis umfassen. Ergreifen Sie es nicht an den Enden der langen Abdeckung an der Oberseite des Gerätes.

 VORSICHT

Setzen Sie zuerst die Rückseite und dann die Vorderseite des Gerätes vorsichtig ab, um sich nicht die Hände einzuklemmen.

 VORSICHT

Der optische Tisch ist schwer und etwas sperrig. Damit es nicht zu Verletzungen kommt, sollte der optische Tisch von zwei Personen aus seiner Beförderungskiste ausgepackt werden.

 VORSICHT

Der Cytomat wiegt 110 bis 331 lbs (50 bis 150 kg). Befolgen Sie die Anweisungen Ihres Sicherheitsbeauftragten, um Verletzungen beim Heben schwerer Objekte zu vermeiden.

 VORSICHT

Der Biomek NX^P steht an den Enden einer Abstellbank mit den Abmessungen 25 x 24" (63,5 x 61 cm) über. Bitte achten Sie darauf, dass bei der Platzierung des Gerätes keinerlei Hindernisse im Weg sind.

 WARNUNG

Damit die Seitenplatten nicht auf die Person fallen, die den Cytomat auspackt, muss eine zweite Person die Platten halten, während die Schrauben entfernt werden.

 VORSICHT

Beim Konfigurieren des Plattform-Setups in der Biomek-Software „Deck Editor“ (Plattform-Editor) muss der richtige ALP gewählt werden. Hinsichtlich der Höhe sind die ALP unterschiedlich, und wenn im „Deck Editor“ (Plattform-Editor) nicht der richtige ALP gewählt wird, kann dies während des Betriebs zu Kollisionen zwischen der/den Halterung/en und den ALP führen, sodass es zu Beschädigungen und/oder zum Austritt von gefährlichen Abfallstoffen kommen kann.

 WARNUNG

Gefahr einer Kontamination. Eine fehlerhafte Konfiguration der Biomek-Software im Hardware-Setup während des Schrittes „Device Action“ (Geräteaktion) oder beim AutoLatch „Position Properties“ (Positionseigenschaften) im Deck Editor (Plattform-Editor) kann dazu führen, dass Spitzen-Boxen oder Spitzen mit Labormaterialien kollidieren, welche gefährliche biologische oder chemische Materialien enthalten, sodass es zu Verunreinigungen der Biomek-Geräteplattform kommen kann. Testen Sie die Systemkonfiguration und die entsprechenden Geräte-Operationen immer mit Wasser, ehe Sie biologische oder chemische Materialien verwenden.

 VORSICHT

Nachdem neue Spitzen hinzugefügt wurden, müssen im „Tip Type Editor“ (Spizentyp-Editor) der Biomek-Software immer die richtigen Eigenschaften gemäß den Vorgaben des Herstellers definiert werden. Inkorrekte Spezifikationen können zu Kollisionen und damit zu Schäden am Gerät führen.

 VORSICHT

Fehlerhafte Definitionen bezüglich der Labormaterialien in der Biomek-Software „Labware Type Editor“ (Editor für die Art der Labormaterialien) können zu einem Systemabsturz oder zum Austritt von gefährlichen Abfallstoffen führen. Prüfen Sie, ob die Definitionen korrekt sind, ehe Sie einen Verfahrensdurchlauf ausführen.

 VORSICHT

Die richtigen Eigenschaften müssen im „Labware Type Editor“ (Editor für die Art der Labormaterialien) der Biomek-Software definiert werden gemäß den Vorgaben des Herstellers. Fehlerhafte Spezifikationen können zu einem inkorrekten Pipettieren führen, insbesondere dann, wenn die Funktion „Liquid Level Sensing“ (Flüssigkeitsstandserfassung) verwendet wird.

 VORSICHT

Gefahr einer Kontaminierung oder eines Abbruchs des Verfahrens. Wenn Flüssigkeiten mittels der Wahl des Flüssigkeitstyps transferiert werden, kann die Wahl des falschen Flüssigkeitstyps dazu führen, dass das Ergebnis des Pipettiervorgangs mangelhaft ist. Bitte legen Sie den Flüssigkeitstyp sorgfältig fest.

 VORSICHT

Gefahr einer Kontamination. Wenn sich ein Gerinnsel gebildet hat und das Problem ignoriert bzw. das Verfahren fortgesetzt wird, kann dies zu einer Kontamination der Plattform führen.

 VORSICHT

Um Schäden am Gerät und oder den Austritt von gefährlichen Abfallstoffen zu vermeiden, dürfen keine Änderungen am Status des Biomek -Gerätes vorgenommen werden, während ein Verfahren pausiert wird. Es können Änderungen am Inhalt der Labormaterialien vorgenommen werden, jedoch nicht an der Plattform oder an den Geräten.

 WARNUNG

Der Lichtvorhang ist eine Sicherheitsvorrichtung. Er darf nur im Notfall dazu verwendet werden, ein Verfahren zu stoppen.

 VORSICHT

Überprüfen Sie immer, ob die physischen Einstellungen des Gerätes mit den Einstellungen in der Biomek-Software übereinstimmen. Fehlerhafte Einstellungen des Gerätes können zu einem fehlerhaften Pipettiervorgang und zu Kollisionen der Halterungen führen, sodass das Gerät beschädigt wird oder gefährliche Abfallstoffe austreten.

 VORSICHT

Um sicherzugehen, dass die Halterung sämtlichen Hindernissen ausweicht, während sie bewegt wird, müssen in der Biomek-Software immer die Labormaterialien, die ALP, die auf der Plattform befindlichen Geräte und deren jeweilige Position auf der Plattform spezifiziert werden. Anderenfalls kann es zu einer Kollision der Halterungen kommen, sodass Schäden am Gerät auftreten oder gefährliche Abfallstoffe austreten.

 VORSICHT

Platzieren Sie bei FX^P- und NX^P-Geräten Labormaterialien nur in Form einer Spitzen-Box auf einem Spitzen-Bestückungsfeld (TL#).



VORSICHT

Wenn die Platzierung der Instrumente im Tool-Rack in der Biomek-Software nicht korrekt wiedergegeben wird, kann dies zu einem Absturz der Hardware und zu Schäden am Gerät und/oder den Instrumenten führen. Bitte stellen Sie sicher, dass die Einstellungen in der Biomek-Software jedes Mal aktualisiert werden, wenn physische Änderungen an den Instrumenten auf der Plattform vorgenommen werden.



WARNUNG

Die Flüssigabfallstation kann durch während des Verfahrens verwendete Lösungen kontaminiert werden. Bitte führen Sie geeignete Maßnahmen zur Dekontamination aus gemäß den Vorgaben Ihres Laborsicherheitsbeauftragten.



VORSICHT

Gefahr einer Kontaminierung oder eines Abbruchs des Verfahrens. Wenn Flüssigkeiten nach einem im Vorfeld ausgewählten Muster transferiert werden, kann die Auswahl eines falschen Musters dazu führen, dass Reagenzien zu den falschen Wannen transferiert werden. Bitte lassen Sie bei der Auswahl des Musters zur Laufzeit besondere Sorgfalt walten.



VORSICHT

Bitte versuchen Sie nicht, mit einer Multichannel-Halterung, die mit einem HDR Tool Body ausgestattet ist, auf einen 96-Channel- oder einen 384-Channel-Spitzenwasch-ALP zuzugreifen. Der Greifer kann abstürzen und die Halterung, den HDR Tool Body oder den Spitzenwasch-ALP beschädigen.



VORSICHT

Greifen Sie nicht mit dem HDR Tool Body auf Labormaterialien zu, die auf einem passiven 1x5-ALP positioniert sind. Der Greifer könnte mit dem ALP kollidieren.



VORSICHT

Greifen Sie nicht mit dem HDR Tool Body auf Labormaterialien zu, die sich auf einem Rühr-ALP befinden. Der Magnetrührer könnte die Nadeln verbiegen oder deren Flüssigkeitstransfer stören.

 VORSICHT

Bitte stellen Sie sicher, dass der richtige ALP ausgewählt ist, wenn Sie das Plattform-Setup im Deck Editor (Plattform-Editor) konfigurieren. Die ALP sind unterschiedlich hoch, daher kann es während des Betriebs zu Kollisionen zwischen einer bzw. mehreren Halterungen und ALP kommen, wenn nicht jeder ALP in der Software richtig ausgewählt wird.

 VORSICHT

Wenn auf dem Rühr-ALP die Höhe für Pipettier-Operationen festgelegt wird, muss auch der Rührstab bedacht werden. Im Laufe von Pipettieroperationen, bei denen die Höhe des Rührstabes nicht bedacht wurde, könnten die Spitzen beschädigt werden.

 VORSICHT

Gefahr von Materialschäden. Nicht geeignete Labormaterialien werden vom ALP unter Umständen nicht sicher erfasst oder könnten ihn beschädigen. Für die Verwendung mit dem Horizontalschüttler-ALP sind nur Labormaterialien zulässig, welche die unten aufgeführten ANSI/SBS-Mikrotiterplatten-Standards erfüllen.

- ANSI/SLAS 1-2004: Mikrotiterplatten – Abmessungen der Grundfläche
- ANSI/SLAS 2-2004: Mikrotiterplatten – Höhenabmessungen
- ANSI/SLAS 3-2004: Mikrotiterplatten – Abmessungen des unteren Außenflansches

 WARNUNG

Lassen Sie den Horizontalschüttler-ALP keine Reservoirs, Spitzen-Boxen und keine Spitzen-Boxen-Deckel schütteln. Die Klammern am ALP können Reservoirs, Spitzen-Boxen oder Spitzen-Boxen-Deckel während des Schüttelns nicht sicher halten.

 WARNUNG

Gefahr einer Kontamination. Die empfohlene Höchstgeschwindigkeit für den Schüttelvorgang darf nicht überschritten werden, um sicherzustellen, dass die Labormaterialien sicher festgeklemmt auf dem Horizontalschüttler-ALP verbleiben.

 WARNUNG

Art und Menge der zu schüttelnden Flüssigkeit haben bei allen Arten von Labormaterialien Einfluss auf die maximale Schüttelgeschwindigkeit. Führen Sie gemäß der von Ihrem Laborsicherheitsbeauftragten festgelegten Verfahren Tests durch, um die maximal zulässige Schüttelgeschwindigkeit für die verschiedenen Flüssigkeitsarten festzulegen.

 WARNUNG

Gefahr von Personen- oder Sachschäden. Ergreifen Sie bei der Verwendung von entzündlichen Lösungsmitteln oder pathologischem, toxischem oder radioaktivem Material immer die notwendigen Vorsichtsmaßnahmen gemäß den Vorgaben Ihres Sicherheitsbeauftragten.

 WARNUNG

Gefahr einer Kontamination. Eine ungleichmäßige Flüssigkeitsverteilung könnte die Fähigkeit der Klemmvorrichtung zum sicheren Halten der Labormaterialien beeinträchtigen. Bitte stellen Sie sicher, dass die Flüssigkeiten gleichmäßig verteilt sind, ehe Sie den Horizontalschüttler-ALP verwenden. Empfehlungen für die maximal zulässigen Schüttelgeschwindigkeiten finden Sie in Tabelle 22.3 (bei diesen Werten wird angenommen, dass die jeweilige Flüssigkeit gleichmäßig auf der Platte verteilt ist).

 WARNUNG

Die Fehlerbehandlungsoption „Ignore“ (Ignorieren) in der Biomek-Software birgt unter Umständen Gefahren, da beinahe jede Aktion vom erfolgreichen Abschluss der vorangegangenen Aktionen abhängig ist. Wenn die Option „Ignore“ (Ignorieren) gewählt wird, kann dies zu einem fehlerhaften Umgang mit Labormaterialien und Reagenzien führen bzw. zu Kollisionen und Schäden am Gerät. Wählen Sie nur dann „Ignore“ (Ignorieren), wenn die Fehlerursache bekannt und bereits korrigiert ist und wenn keine Zweifel darüber bestehen, welche Aktion das Gerät nach dem Auswählen von „Ignore“ (Ignorieren) ausführen wird.

 VORSICHT

Wenn ein Verfahren in der Biomek-Software wieder aufgenommen wird, muss sich das Gerät in demselben Zustand befinden wie zu dem Zeitpunkt, als der Fehler auftrat. Die Halterung kann bewegt werden, und es können Änderungen an den Inhalten der Labormaterialien vorgenommen werden, um ein Problem zu beheben; Änderungen an der Geräteplattform oder an Geräten können in der Biomek Software jedoch nicht mehr durchgeführt werden. Anderenfalls kann es zu Schäden am Gerät kommen.

 VORSICHT

Bei teilweise abgeschlossenen Schritten wird davon ausgegangen, dass sich die Halterungen in derselben Position befinden wie zu dem Zeitpunkt, als das Verfahren angehalten wurde. Wenn der Wiederherstellungsschritt zurückgenommen wird, ohne dass auch diese teilweise ausgeführten Schritte zurückgenommen werden, kann es zu einem Absturz kommen.

 WARNUNG

Der Lichtvorhang ist eine Sicherheitsvorrichtung. Er darf nur im Notfall dazu verwendet werden, ein Verfahren zu stoppen. Wenn ein Verfahren neu gestartet wird, werden Pipettiervorgänge daraufhin unter Umständen anders ausgeführt, sodass die Leistung des Gerätes beeinträchtigt sein kann.

 WARNUNG

Die Hardware-STOP-Taste ist eine Sicherheitsvorrichtung. Sie darf nur im Notfall dazu verwendet werden, ein Verfahren zu stoppen. Wenn ein Verfahren neu gestartet wird, werden Pipettiervorgänge daraufhin unter Umständen anders ausgeführt, sodass die Leistung des Gerätes beeinträchtigt sein kann.

 WARNUNG

Um die Möglichkeit auszuschließen, dass ein Fortsetzungsverfahren ersetzt wird, ehe die Korrekturen ausgeführt sind, wird empfohlen, das Fortsetzungsverfahren zu editieren und laufen zu lassen, sobald es erstellt wurde.

 VORSICHT

Bei einem Fortsetzungsverfahren wird davon ausgegangen, dass sich das Gerät im gleichen Zustand befindet wie zu dem Zeitpunkt, als die Fortsetzung abgebrochen wurde. Wenn dies nicht der Fall ist, muss das Fortsetzungsverfahren editiert werden, um an die Änderungen angepasst zu sein.

 VORSICHT

Betreiben Sie den automatisierten Röhrenbarcodeleser (Automated Tube Bar Code Reader, ATBCR) nur mit geschlossenem Deckel, alle seine Abdeckungen müssen sich an Ort und Stelle befinden.

 WARNUNG

Verwenden Sie im automatisierten Röhrenbarcodeleser nur die empfohlenen Behälter. Nicht gelistete Probenbehälter können den ATBCR beschädigen oder zu Pipettierfehlern führen.

 VORSICHT

Verwenden Sie keine Probenbehälter und Spitzenkombinationen, die mit „NO“ beschriftet sind. Die Spitzen könnten sich in den Probenbehältern verkeilen.

 WARNUNG

Gefährliche biologische Materialien entsprechend den Laborvorschriften behandeln und entsorgen. Es ist ein ordnungsgemäßer Schutz für Hand, Augen und Gesicht erforderlich.

 WARNUNG

Verwenden Sie nur den Behältertyp, der auf dem Behältertypenetikett auf dem Proben-Rack angegeben ist. Die Racks sind so konfiguriert, dass sie nur eine Art von Probenbehälter aufnehmen können. Wenn ein falscher Probenbehälter in einem Rack platziert wird, kann dies zu Schäden am Gerät oder zu Pipettierfehlern führen.

 VORSICHT

Die Proben-Racks sind so konfiguriert, dass sie nur eine Art von Probenbehälter aufnehmen können. Mischen Sie keine Probenbehälter innerhalb desselben Racks.

 VORSICHT

Wenn die maximale Neigungsgeschwindigkeit für einen Labormaterialtyp überschritten wird, kann dies dazu führen, dass Behälter aus dem Rack fallen. Überschreiten Sie die oben angegebenen Werte nicht. Verwenden Sie keine Neigungsfunktion bei denjenigen Behältern, die in der obigen Tabelle mit dem Vermerk „No tilt at any speed“ (Bei keiner Geschwindigkeit neigen) befindet. *Weitere Informationen finden Sie in den Setting Tilting Parameters (Parametern für die Neigungseinstellung).*

Sicherheitshinweise

Sicherheitshinweise für die Biomek NX^P-Arbeitsstation

APÉNDICE ES

Mensajes de seguridad

Lea y siga todas las precauciones e instrucciones. Recuerde: lo más importante para la seguridad es utilizar la estación de trabajo para robotización de laboratorio Biomek NX^P con cuidado.

Mensajes de seguridad de la estación de trabajo Biomek NX^P

Esta sección contiene las advertencias y precauciones que se encuentran en *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual*, *Biomek NX and NX^P Laboratory Automation Workstations Multichannel Pod User's Manual*, *Biomek NX^P Laboratory Automation Workstation Preinstallation Manual*, *NX and NX^P Laboratory Automation Workstations - Version 3.3 Tutorial*, *Biomek FX^P and NX^P Laboratory Automation Workstation 4.1 Software Migration Guide for Biomek 3.3 Methods*, *Biomek Software User's Manual Version 4.1* y *Automated Labware Positioners (ALPs) Instructions for Use*.

NOTA La versión 4.1 de software Biomek no es compatible con la versión de la estación de trabajo de Biomek NX. Cualquier aparición de NX en este manual debería interpretarse solo como NX^P.

ADVERTENCIA

Si el equipo se utiliza de manera diferente a la especificada por Beckman Coulter, Inc., la protección proporcionada por el equipo puede verse afectada.

 ADVERTENCIA

El operador puede sufrir lesiones en los siguientes supuestos:

- Todas las puertas, las cubiertas y los paneles no están cerrados y asegurados antes y durante el uso del instrumento.
- La integridad de los interbloques de seguridad y los sensores no está garantizada.
- Entra en contacto con piezas móviles.
- Manipula incorrectamente piezas rotas.
- La abertura, cierre, extracción y/o sustitución de las puertas, tapas y paneles no se realizan con cuidado.
- Se utilizan herramientas incorrectas para la solución de problemas.

Para evitar lesiones, tenga en cuenta lo siguiente:

- Cierre y mantenga sujetas todas las puertas, tapas y paneles mientras se utiliza el instrumento.
- Utilice todas las funciones de seguridad del instrumento. No modifique los interbloques de seguridad ni los sensores.
- Confirme y actúe en consecuencia cuando se emitan alarmas o se muestren mensajes de error del instrumento.
- Manténgase alejado de las piezas móviles.
- Notifique la rotura de piezas al representante local de Beckman Coulter.
- Utilice las herramientas adecuadas para solucionar problemas.

 ATENCIÓN

La integridad del sistema puede verse afectada y se pueden producir fallos operativos en los casos siguientes:

- Utiliza el equipo de una forma diferente a la especificada. Utilice el instrumento tal y como se indica en los manuales del producto.
- Instala software no autorizado por Beckman Coulter en el ordenador. Utilice únicamente el software autorizado por Beckman Coulter en el ordenador del sistema.
- Instala software cuya versión no tiene licencia original. Utilice únicamente software cuya versión tenga licencia original con el fin de evitar la contaminación viral.

 ATENCIÓN

Si ha adquirido este producto a través de un agente diferente de un distribuidor Beckman Coulter y no está cubierto por un contrato de mantenimiento de Beckman Coulter, Beckman Coulter no puede garantizar que el equipo incluya las últimas actualizaciones obligatorias de ingeniería o que recibirá los boletines informativos más actuales sobre el producto. Si ha adquirido este producto a través de otro agente y desea obtener más información sobre este tema, póngase en contacto con el representante de Beckman Coulter.

 ADVERTENCIA

Riesgo de lesión química debido a la lejía. Para evitar el contacto con la lejía, utilice protección de barrera, que incluye las gafas y guantes protectores y el atuendo adecuado para laboratorio. Consulte la Hoja de datos de seguridad para obtener detalles sobre la exposición química antes de utilizar productos químicos.

 ADVERTENCIA

Antes de procesar compuestos químicos o muestras biológicas, deberán probarse nuevos tipos de material de laboratorio para determinar si son necesarias desviaciones de dicho material para moverse a o desde el ALP de Peltier o para acceder al material de laboratorio durante las operaciones de pipeteo mientras se utiliza el ALP de Peltier. Si no realiza las pruebas necesarias, el material de laboratorio podría fallar y el contenido podría derramarse si la desviación ordenada no es correcta.

El funcionamiento normal del instrumento puede implicar el uso de materiales tóxicos, inflamables o de peligro biológico. Cumpla las precauciones siguientes cuando se utilicen estos materiales:

- Manipule las muestras infecciosas según los procedimientos y métodos de laboratorio adecuados para prevenir la extensión de la enfermedad.
- Observe toda la información preventiva impresa en los envases originales de soluciones antes del uso.
- Elimine todas las soluciones de desecho según los procedimientos de eliminación de desechos de la instalación.
- Utilice el instrumento de acuerdo con las instrucciones indicadas en este manual, y adopte todas las precauciones necesarias cuando utilice materiales patológicos, tóxicos o radioactivos.
- Es posible que se produzcan salpicaduras de líquidos, por lo que debe adoptar las medidas de seguridad adecuadas (por ejemplo usar gafas de seguridad y ropa de protección) cuando manipule líquidos potencialmente peligrosos.
- Trabaje en un entorno que disponga de la protección adecuada cuando manipule materiales peligrosos.
- Cumpla los procedimientos preventivos adecuados según indique el agente de seguridad cuando utilice disolventes inflamables dentro o cerca de un instrumento conectado.

- Cumpla los procedimientos preventivos adecuados según indique el agente de seguridad cuando utilice materiales tóxicos, patológicos o radioactivos.

 ADVERTENCIA

Riesgo de lesiones personales. Para evitar lesiones a causa de piezas móviles, cumpla las siguientes medidas:

- Nunca intente sustituir los equipos de laboratorio o los reactivos mientras el instrumento esté en funcionamiento.
- Nunca intente restringir físicamente los componentes móviles del instrumento.
- Mantenga despejada el área de trabajo del instrumento para impedir obstrucciones de movimientos.

 ATENCIÓN

No cambie los ajustes del receptáculo en Hardware Setup (Configuración de hardware) una vez instalado el sistema; para cambiar los ajustes del receptáculo necesitará contactar con el servicio técnico.

 ATENCIÓN

Asegúrese de seleccionar el puerto adecuado en Hardware Setup (Configuración de hardware). Simulate (Simular) se utiliza solo cuando se procesan métodos en el simulador de Biomek. Para procesar métodos en el instrumento, seleccione el puerto COM al que está conectado el instrumento.

 ATENCIÓN

Riesgo de contaminación o fallo del procedimiento. Al transferir líquidos con patrones específicos, si selecciona una patrón incorrecto, puede provocar que se transfieran reactivos a pocillos incorrectos. Tenga cuidado al seleccionar patrones en el tiempo de análisis.

 ADVERTENCIA

Si el equipo se utiliza de manera diferente a la especificada por Beckman Coulter, Inc., la protección proporcionada por el equipo puede verse afectada.

 ADVERTENCIA

Los materiales oscuros no reflectantes afectan a la sensibilidad de la cortina de luz y repercuten negativamente en su eficacia. La vestimenta de laboratorio habitual, como batas de laboratorio y guantes de látex, no merman el funcionamiento de la cortina de luz; sin embargo, se recomienda probar el impacto de toda la vestimenta de laboratorio en la sensibilidad de la cortina de luz antes de utilizar Biomek NX. Compruebe el impacto de la vestimenta de laboratorio en la sensibilidad de la cortina de luz de la siguiente manera: Utilice Manual Control (Control manual) en el software e inserte el material como máximo a 1 pulgada (2,54 cm) hacia dentro y aproximadamente 21 pulgadas (53,34 cm) por encima del panel de la cortina de luz. Asegúrese de que la luz indicadora en ámbar fijo pasa a mostrarse en ámbar parpadeante.

 ADVERTENCIA

Para reducir el riesgo de lesiones personales, utilice el instrumento de Biomek NX solo con las pantallas protectoras colocadas.

 ADVERTENCIA

Para evitar lesiones, utilice los procedimientos adecuados de descontaminación.

- Limpie de inmediato cualquier derrame producido sobre la plataforma.
- Aproximadamente cada seis a doce meses, programe una llamada al servicio técnico de Beckman Coulter para lubricar el riel lineal.

 ATENCIÓN

Si es necesario un servicio técnico, póngase en contacto con el personal de servicio de Beckman Coulter.

 ADVERTENCIA

No retire las tapas de la torre para acceder al cableado eléctrico o los fusibles. Cambie solo los fusibles a los que se puede acceder desde el exterior del instrumento, sin retirar las tapas. Póngase en contacto con el personal de servicio de Beckman Coulter si necesita acceso.

 ADVERTENCIA

Apague y desconecte la alimentación del instrumento antes de cambiar los fusibles. En caso contrario, puede producirse una descarga eléctrica o daños en el equipo.

 ADVERTENCIA

Tenga cuidado cuando manipule las puntas estriadas de membrana; son muy afiladas.

 ATENCIÓN

Tenga cuidado cuando manipule las puntas estriadas de membrana; son muy frágiles.

 ADVERTENCIA

Cuando trabaje con muestras de sangre, cumpla los procedimientos de precaución definidos por el agente de seguridad.

 ATENCIÓN

Utilice con cuidado el material de laboratorio y las combinaciones de puntas con la etiqueta “Limited” (Limitado). Las puntas podrían atascarse en el material de laboratorio, provocando el levantamiento del material de laboratorio con la sonda cuando la sonda está levantada.

 ATENCIÓN

Para evitar descargas de electricidad estática (ESD), utilice una pulsera con toma de tierra cuando trabaje con puntas en el receptáculo de 8 diferencias.

 ATENCIÓN

No realice operaciones de aspiración o dispensación sin los mandriles instalados y sin los tubos conectados a las puntas fijas. Utilizar el sistema sin los mandriles instalados y sin los tubos conectados a las puntas puede provocar corrosión en la interfaz de la punta.

 ADVERTENCIA

PELIGRO DE DERRAMES

 ADVERTENCIA

Trabaje en un entorno que disponga de la protección adecuada cuando manipule materiales peligrosos.

 ADVERTENCIA

No derrame líquidos sobre el instrumento ni en sus alrededores. Limpie los derrames de inmediato atendiendo a los procedimientos indicados por el agente de seguridad del laboratorio.

 ADVERTENCIA

Cumpla los procedimientos preventivos según indique el agente de seguridad cuando utilice materiales tóxicos, patológicos o radioactivos.

 ADVERTENCIA

Utilice siempre guantes de protección para quitar las puntas.

 ATENCIÓN

No permita que el mandril de la punta se gire al apretar o retirar el collarín. El collarín contiene una junta tórica que gira el mandril de la punta si no está fijado, provocando que el tubo se retuerza o se pliegue.

 ADVERTENCIA

Cumpla los procedimientos preventivos según indique el agente de seguridad cuando utilice materiales tóxicos, patológicos o radioactivos.

 ADVERTENCIA

Utilice siempre guantes de protección para quitar las puntas.

 ATENCIÓN

No analice jeringas más de unos cuantos ciclos sin fluido en su interior.

 ATENCIÓN

No se recomienda utilizar el agua del grifo debido a su alto contenido mineral que podría bloquear los tubos y aumentar la posibilidad de fugas en las conexiones de los tubos.

 ATENCIÓN

No pliegue la tubería entre el contenedor de suministro, las bombas de 8 diferencias y la bomba de purgado.

 ATENCIÓN

No pliegue la tubería entre el contenedor de residuos, el ALP de lavado de puntas de 8 diferencias y la bandeja de goteo.

 ATENCIÓN

Los fluidos del sistema deben desgasificarse antes de su uso.

 ATENCIÓN

No purgue el sistema sin los mandriles instalados y sin los tubos conectados a las puntas desechables o fijas. Purgar el sistema sin los mandriles instalados y sin los tubos conectados a las puntas puede provocar corrosión en la interfaz de la punta.

 ATENCIÓN

Para evitar daños en el agarrador, no lo mueva de forma forzada con la mano.

 ATENCIÓN

Para evitar descargas de electricidad estática (ESD), utilice una pulsera con toma de tierra cuando trabaje con el agarrador instalado en fábrica.

 ADVERTENCIA

Para evitar lesiones, utilice los procedimientos adecuados de descontaminación.

 ADVERTENCIA

No conecte ni desconecte ningún cable mientras el instrumento Biomek NX^P tenga corriente.

 ATENCIÓN

No realice cambios en los límites de los ejes del receptáculo en Hardware Setup (Configuración de Hardware) sin ponerse en contacto con el personal de servicio o el departamento de asistencia técnica de Beckman Coulter.

 ATENCIÓN

No utilice Correlate Z Axes (Correlacionar ejes X) en Hardware Setup (Configuración de hardware) sin ponerse en contacto con el personal de servicio o el departamento de asistencia técnica de Beckman Coulter.

 ATENCIÓN

No seleccione Cancel (Cancelar), si la prueba se detiene antes de que se hayan completado las sensibilidades de la sonda, la detección del nivel de líquido no funcionará y deberá repetirse Find Sensitivities (Buscar sensibilidades). No seleccione Cancel (Cancelar), si la prueba se detiene antes de que se hayan completado las sensibilidades de la sonda, la detección de coágulos no funcionará y deberá repetirse Find Clot Detection Sensitivities (Buscar sensibilidades de detección de coágulos). Se tardan casi 30 minutos en completar la prueba.

 ATENCIÓN

Antes de seleccionar OK (Aceptar) para que los ejes vuelvan a su posición de inicio, deben cumplirse las siguientes condiciones: 

- Verifique que no hay líquido en las puntas
- Verifique que no haya puntas desechables cargadas.
- Verifique que los mandriles de puntas desechables o las puntas fijas **ESTÁN** instaladas en el receptáculo de 8 diferencias.
- Verifique que el agarrador de diferencias no sujete ningún material de laboratorio.
- Verifique que el agarrador de diferencias no esté cerca de la parte delantera, trasera o lateral del instrumento.

 ATENCIÓN

Para evitar descargas de electricidad estática (ESD), utilice una pulsera con toma de tierra cuando trabaje con puntas en el receptáculo de 8 diferencias.

 ADVERTENCIA

Desconecte el instrumento Biomek NX de la alimentación antes de conectar o retirar AccuFrame de la plataforma del instrumento.

 ADVERTENCIA

Verifique que el cable de AccuFrame no supone una molestia para la cortina de luz. Si supone una molestia para la cortina de luz, el proceso de amazonado se detiene inmediatamente.

 ADVERTENCIA

Verifique que el cable de herramienta de AccuFrame no interfiera con el movimiento del receptáculo.

 ATENCIÓN

Asegúrese siempre de que el agarrador está cerrado antes de volver a la posición de inicio.

 ADVERTENCIA

PRODUCTO LÁSER DE CLASE II.

ESTE PRODUCTO CUMPLE LOS REQUISITOS APLICABLES DE LA NORMA 21 CFR 1040 EN LA FECHA DE FABRICACIÓN.

 ATENCIÓN

Para evitar daños graves en el instrumento, asegúrese de que el voltaje/frecuencia de las instalaciones del laboratorio coincide con el voltaje/frecuencia que se solicitó para el instrumento.

 ADVERTENCIA

No intente retirar o sustituir las tapas mientras la unidad esté encendida. Desconecte la alimentación antes de retirar o sustituir una tapa.

 ADVERTENCIA

Evite la exposición directa al rayo láser. Nunca mire directamente el rayo láser y nunca deje el láser encendido, abierto o sin vigilancia.

 ADVERTENCIA

Mantenga siempre la tapa de acceso al módulo del láser, situado en el lector de códigos de barras, en su lugar cuando ponga en funcionamiento el módulo del láser o solucione problemas.

 ATENCIÓN

Si se utiliza material de laboratorio distinto del especificado en el Stacker Carousel User's Manual, puede producirse un aumento de lecturas erróneas o lecturas imposibles.

 ATENCIÓN

Para evitar daños en el shuttle, primero sitúe el AccuFrame en el Adaptador de herramienta de armazonado. A continuación, sitúe el AccuFrame con el adaptador instalado en el shuttle.

 ATENCIÓN

Desconecte el instrumento Biomek NX^P de la alimentación antes de conectar o retirar AccuFrame de la plataforma del instrumento.

 ADVERTENCIA

Verifique que el cable de AccuFrame no supone una molestia para la cortina de luz. Si supone una molestia para la cortina de luz, el proceso de amazonado se detiene inmediatamente.

 ADVERTENCIA

Verifique que el cable de herramienta de AccuFrame no interfiera con el movimiento del receptáculo.

 ATENCIÓN

Utilice Manual Control (Control manual) para mover las sondas en el eje Y. Arrastrar las sondas a mano puede afectar a la alineación y a la capacidad para acceder al material de laboratorio.

 ATENCIÓN

No realice cambios en los límites de los ejes del receptáculo en Hardware Setup (Configuración de hardware) sin ponerse en contacto con un representante de Beckman Coulter.

 ATENCIÓN

No utilice Correlate Z Axes (Correlacionar ejes X) en Hardware Setup (Configuración de hardware) sin ponerse en contacto con un representante de Beckman Coulter.

 ATENCIÓN

No seleccione Cancel (Cancelar), si la prueba se detiene antes de que se hayan completado las sensibilidades de la sonda, la detección del nivel de líquido no funcionará y deberá repetirse Find Sensitivities (Buscar sensibilidades).

 ATENCIÓN

No realice cambios en los límites de los ejes ni en los ajustes del receptáculo en Hardware Setup (Configuración de hardware) sin ponerse en contacto con un representante de Beckman Coulter.

 ATENCIÓN

No realice cambios en los ajustes de purga sin ponerse en contacto con un representante de Beckman Coulter.

 ATENCIÓN

Antes de seleccionar OK (Aceptar) para que los ejes vuelvan a su posición de inicio, deben cumplirse las siguientes condiciones:

- Verifique que no hay líquido en las puntas
- Verifique que no haya puntas desechables cargadas.
- Verifique que la sonda de amazonado NO está instalada en el receptáculo multicanal.
- Verifique que los agarradores en el receptáculo multicanal están retraídos.
- Verifique que los mandriles de puntas desechables o las puntas fijas **ESTÁN** instaladas en el receptáculo de 8 diferencias.
- Verifique que el agarrador de diferencias no sujete ningún material de laboratorio.
- Verifique que el agarrador de diferencias no esté cerca de la parte delantera, trasera o lateral del instrumento.

 ATENCIÓN

Utilice la Shift deck (plataforma de cambio) solo antes de que se instruyan otros ALP o posiciones. La Shift deck (plataforma de cambio) cambia todos los ALP y todas las posiciones, lo que provoca coordenadas incorrectas si se aplica a posiciones y APL amazonados previamente.

 ADVERTENCIA

PRODUCTO LÁSER DE CLASE II. ESTE PRODUCTO CUMPLE LOS REQUISITOS APLICABLES DE LA NORMA 21 CFR 1040 EN LA FECHA DE FABRICACIÓN.

 ATENCIÓN

Si se aplica una etiqueta por otro medio distinto al dispositivo de Imprimir y aplicar de Beckman Coulter, puede producirse un aumento de lecturas erróneas o lecturas imposibles.

 ADVERTENCIA

Si el equipo se utiliza de manera diferente a la especificada por Beckman Coulter, Inc., la protección proporcionada por el equipo puede verse afectada.

 ADVERTENCIA

Los materiales oscuros no reflectantes afectan a la sensibilidad de la cortina de luz y repercuten negativamente en su eficacia. La vestimenta de laboratorio habitual, como batas de laboratorio y guantes de látex, no merman el funcionamiento de la cortina de luz; sin embargo, se recomienda probar el impacto de toda la vestimenta de laboratorio en la sensibilidad de la cortina de luz antes de utilizar Biomek NX^P. Compruebe el impacto de la vestimenta de laboratorio en la sensibilidad de la cortina de luz de la siguiente manera: Utilice Manual Control (Control manual) en el software Biomek e inserte el material como máximo a 1 pulgada (2,54 cm) hacia dentro y aproximadamente 21 pulgadas (53,34 cm) por encima del panel de la cortina de luz. Asegúrese de que la luz indicadora en ámbar fijo pasa a mostrarse en ámbar parpadeante.

 ADVERTENCIA

Para reducir el riesgo de lesiones personales, utilice el instrumento de Biomek NX solo con las pantallas protectoras colocadas.

 ADVERTENCIA

Para evitar lesiones, utilice los procedimientos adecuados de descontaminación.

- Limpie de inmediato cualquier derrame producido sobre la plataforma.
- Aproximadamente cada seis a doce meses, programe una llamada al servicio técnico de Beckman Coulter para lubricar el riel lineal.

 ATENCIÓN

Si es necesario un servicio técnico, póngase en contacto con el personal de servicio de Beckman Coulter.

 ADVERTENCIA

No retire las tapas de la torre para acceder al cableado eléctrico o los fusibles. Cambie solo los fusibles a los que se puede acceder desde el exterior del instrumento, sin retirar las tapas. Póngase en contacto con el personal de servicio de Beckman Coulter si necesita acceso.

 ADVERTENCIA

Apague y desconecte la alimentación del instrumento antes de cambiar los fusibles. En caso contrario, puede producirse una descarga eléctrica o daños en el equipo.

 ATENCIÓN

Asegúrese siempre de que el agarrador de un receptáculo multicanal está retraído antes de volver a la posición de inicio.

 ATENCIÓN

Para evitar descargas de electricidad estática (ESD), utilice una pulsera con toma de tierra cuando manipule un cabezal multicanal.

 ATENCIÓN

Antes de retirar el cuarto tornillo de resalto, agarre el cabezal con firmeza para asegurarse de que no se cae una vez retire todos los tornillos.

 ADVERTENCIA

El agarrador puede doblarse si no se instruye (armazona) correctamente con AccuFrame.

 ADVERTENCIA

Para evitar lesiones, utilice los procedimientos adecuados de descontaminación.

 ADVERTENCIA

No conecte ni desconecte ningún cable mientras el instrumento Biomek NX^P tenga corriente.

 ADVERTENCIA

Evite que haya material de laboratorio sobre la plataforma de Biomek NX^P al retirar o instalar agarradores. Se recomienda mover o retirar todo el material de laboratorio de las cercanías del receptáculo para evitar derrames y contacto con el material de laboratorio.

 ATENCIÓN

Tenga cuidado al retirar los agarradores. Dado que los agarradores se montan bien ajustados en el receptáculo multicanal, se liberan de modo repentino del receptáculo multicanal.

 ATENCIÓN

No realice cambios en los límites de los ejes del receptáculo en Hardware Setup (Configuración de Hardware) sin ponerse en contacto con el personal de servicio o el departamento de asistencia técnica de Beckman Coulter.

 ATENCIÓN

Si la configuración de hardware no se actualiza con Hardware Setup (Configuración de hardware), puede que el hardware se bloquee o se transfiera líquido de forma inadecuada.

 ATENCIÓN

Para evitar que se bloquee el hardware, debe establecerse un nuevo límite de eje D y se ha configurado el agarrador amazonado en el software de Biomek a través de Hardware Setup (Configuración de hardware).

 ATENCIÓN

Asegúrese siempre de que el agarrador está retraído antes de volver a la posición de inicio.

 ATENCIÓN

No realice cambios en los límites de los ejes del receptáculo sin ponerse en contacto con el personal de servicio o el departamento de asistencia técnica de Beckman Coulter.

 ATENCIÓN

Antes de seleccionar OK (Aceptar) para que los ejes vuelvan a su posición de inicio, deben cumplirse las siguientes condiciones:

- Verifique que no haya líquido en las puntas.
- Verifique que no haya puntas desechables cargadas.
- Verifique que la sonda de amazonado NO está instalada en el receptáculo multicanal.
- Verifique que el agarrador en el receptáculo multicanal está retraído.

 ADVERTENCIA

Desconecte el instrumento Biomek NX de la alimentación antes de conectar o retirar AccuFrame de la plataforma del instrumento.

 ADVERTENCIA

Verifique que el cable de AccuFrame no supone una molestia para la cortina de luz. Si supone una molestia para la cortina de luz, el proceso de armazonado se detiene inmediatamente.

 ADVERTENCIA

Verifique que el cable de herramienta de AccuFrame no interfiera con el movimiento del receptáculo.

 ATENCIÓN

Utilice la Shift deck (plataforma de cambio) solo antes de que se instruyan otros ALP o posiciones. La Shift deck (plataforma de cambio) cambia todos los ALP y todas las posiciones, lo que provoca coordenadas incorrectas si se aplica a posiciones y APL armazonados previamente.

 ATENCIÓN

Seleccione Move Z-Max (Mover Z máx.) para mover el receptáculo a su punto más alto antes de extender el agarrador. Para evitar romper el material de laboratorio o doblar los agarradores, asegúrese de que los agarradores no golpeen el material de laboratorio cuando se extienda.

 ATENCIÓN

No retraiga el agarrador cuando está sujetando material de laboratorio.

 ADVERTENCIA

PRODUCTO LÁSER DE CLASE II. ESTE PRODUCTO CUMPLE LOS REQUISITOS APLICABLES DE LA NORMA 21 CFR 1040 EN LA FECHA DE FABRICACIÓN.

 ATENCIÓN

Para evitar daños graves en el instrumento, asegúrese de que el voltaje/frecuencia de las instalaciones del laboratorio coincide con el voltaje/frecuencia que se solicitó para el instrumento.

 ADVERTENCIA

No intente retirar o sustituir las tapas mientras la unidad esté encendida. Desconecte la alimentación antes de retirar o sustituir una tapa.

 ADVERTENCIA

Evite la exposición directa al rayo láser. Nunca mire directamente el rayo láser y nunca deje el láser encendido, abierto o sin vigilancia.

 ADVERTENCIA

Mantenga siempre la tapa de acceso al módulo del láser, situado en el lector de códigos de barras, en su lugar cuando ponga en funcionamiento el módulo del láser o solucione problemas.

 ATENCIÓN

PRECAUCIÓN: Si se aplica una etiqueta por otro medio distinto al dispositivo de Imprimir y aplicar de Beckman Coulter, puede producirse un aumento de lecturas erróneas o lecturas imposibles.

 ATENCIÓN

Si se utiliza material de laboratorio distinto del especificado en el Stacker Carousel User's Manual, puede producirse un aumento de lecturas erróneas o lecturas imposibles.

 ATENCIÓN

Para evitar daños en el shuttle, primero sitúe el AccuFrame en el Adaptador de herramienta de armazonado. A continuación, sitúe el AccuFrame con el adaptador instalado en el shuttle.

 ADVERTENCIA

Para reducir el riesgo de lesiones personales, los protectores de seguridad y las cortinas de luz deben estar colocados antes de poner en funcionamiento el instrumento. Los protectores de seguridad y las cortinas de luz evitan que se acceda al área de trabajo durante el movimiento de la máquina.

 ATENCIÓN

Una configuración inapropiada del instrumento puede provocar colisiones entre el receptáculo y el material de laboratorio o puede provocar un pipeteo inadecuado.

 ATENCIÓN

No sitúe material de laboratorio diferente de un contenedor de puntas en la posición del cargador de puntas (TL#).

 ADVERTENCIA

Para evitar posibles lesiones, lleve gafas de seguridad cuando retire flejes de metal y utilice las tenazas de acero para flejes con precaución. Los flejes pueden retroceder al cortarse y provocar lesiones.

 ADVERTENCIA

Para evitar posibles lesiones, utilice con cuidado las tenazas de acero para flejes para garantizar que el fleje no se retraiga.

 ATENCIÓN

El instrumento Biomek NX^P pesa 190 libras (86,2 kilogramos). Para evitar lesiones, siga las instrucciones del agente de seguridad sobre el levantamiento de objetos pesados.

 ATENCIÓN

Al levantar el instrumento de Biomek NX^P, agárrelo solo por las posiciones de la base. No agarre los extremos de la tapa más grande en la parte superior del instrumento.

 ATENCIÓN

Al levantar el instrumento de Biomek NX^P, agárrelo solo por las posiciones de la base. No agarre los extremos de la cortina de luz que se extiende por el frontal del instrumento.

 ATENCIÓN

La parte trasera del instrumento es más pesada que la delantera. Tenga cuidado de no levantar el frontal demasiado alto de forma que haga que el instrumento caiga hacia atrás.

 ATENCIÓN

El instrumento Biomek NX^P sobresaldrá con respecto a los bordes de un banco de 36 pulgadas × 30 pulgadas (92 cm × 77 cm). Verifique que no existen obstáculos que interfieran con la colocación del instrumento.

 ATENCIÓN

Verifique que el banco puede soportar el peso de la instalación total del sistema. Consulte la tabla 1.3 para determinar el peso total del sistema.

 ATENCIÓN

Al levantar el instrumento de Biomek NX^P, agárrelo solo por las posiciones de la base. No agarre los extremos de la tapa más grande en la parte superior del instrumento.

 ATENCIÓN

Para evitar que las manos queden enganchadas, ponga con cuidado primero la parte trasera del instrumento abajo y, a continuación, la parte delantera.

 ATENCIÓN

La mesa óptica es pesada y voluminosa. Para evitar lesiones, es necesario que dos persona desempaqueten la mesa óptica del paquete.

 ATENCIÓN

El Cytomat pesa 110–331 libras (50–150 kilogramos). Para evitar lesiones, siga las instrucciones del agente de seguridad sobre el levantamiento de objetos pesados.

 ATENCIÓN

El instrumento Biomek NX^P sobresaldrá con respecto a los bordes de un banco de 25 pulgadas × 24 pulgadas (63,5 cm × 61 cm). Verifique que no existen obstáculos que interfieran con la colocación del instrumento.

 ADVERTENCIA

Para evitar que los paneles laterales se caigan sobre la persona que está desempaquetando un dispositivo Cytomat, una segunda persona debe aguantar cada panel mientras se retiran los tornillos.

 ATENCIÓN

Verifique que se selecciona el ALP correcto al ajustar la configuración de la plataforma en Deck Editor (Editor de plataforma) en el software de Biomek. Los ALP varían en altura y si no se selecciona el ALP correcto en Deck Editor (Editor de plataforma), pueden darse colisiones entre los receptáculos y el ALP durante el funcionamiento, lo cual puede provocar daños en el equipo o derrames de residuos peligrosos.

 ADVERTENCIA

Riesgo de contaminación. Una configuración inadecuada del software Biomek de Hardware Setup (Configuración de hardware), el paso Device Action (Acción de dispositivo) o Positions Properties (Propiedades de posición) de AutoLach en el Deck Editor (Editor de plataforma) puede provocar que los contenedores de puntas o las puntas colisionen con el material de laboratorio que contiene material biológico o químicamente peligroso, y esto puede provocar derrames en la plataforma del instrumento de Biomek. Pruebe siempre la configuración del sistema y las operaciones del dispositivo asociadas con agua antes de utilizar agentes biológicos o químicos.

 ATENCIÓN

Tras añadir nuevas puntas, deben definirse las propiedades correctas en Tip Type Editor (Editor del tipo de punta) del software de Biomek, de acuerdo con las especificaciones del fabricante. Unas especificaciones imprecisas pueden provocar colisiones y, consecuentemente, dañar el equipo.

 ATENCIÓN

Una definiciones incorrectas del material de laboratorio en Labware Type Editor (Editor del tipo de material de laboratorio) del software de Biomek pueden provocar que el sistema falle o bien derrames de residuos peligrosos. Verifique que las definiciones son correctas antes de ejecutar un análisis de métodos.

 ATENCIÓN

Deben definirse las propiedades correctas del pocillo en Labware Type Editor (Editor del tipo de material de laboratorio) del software de Biomek, de acuerdo con las especificaciones del fabricante. Unas especificaciones imprecisas pueden provocar un pipeteo impreciso, especialmente cuando se utiliza la detección de nivel de líquido.

 ATENCIÓN

Riesgo de contaminación o fallo del procedimiento. Al transferir líquidos usando tipos de líquido seleccionados, si se selecciona un tipo de líquido incorrecto, es posible que se produzca un pipeteo con rendimiento deficiente. Tenga cuidado al seleccionar los tipos de líquidos.

 ATENCIÓN

Riesgo de contaminación. Si se ignora el error y se continúa con el método cuando existe un coágulo, puede contaminarse la plataforma.

 ATENCIÓN

Para evitar daños en el equipo o derrames de residuos peligrosos, no se permiten cambios en el estado del instrumento de Biomek cuando está en pausa un método. Se pueden realizar cambios en los contenidos del material de laboratorio, pero no en la plataforma o los dispositivos.

 ADVERTENCIA

La cortina de luz es un dispositivo de seguridad. Utilícela para detener un método solo en caso de emergencia.

 ATENCIÓN

Verifique siempre que la configuración del instrumento físico coincide con la configuración en el software de Biomek. Una configuración imprecisa del instrumento puede provocar un pipeteo inapropiado o la colisión del receptáculo y dañar el equipo o causar derrames de residuos peligrosos.

 ATENCIÓN

Para verificar que el receptáculo evita todos los obstáculos durante su trayectoria, en el software Biomek, especifique siempre el material de laboratorio, los ALP y los dispositivos que están en la plataforma, así como la posición que ocupa cada uno en la plataforma. En caso contrario, el receptáculo puede colisionar y causar daños en el equipo o derrames de residuos peligrosos.

 ATENCIÓN

En los instrumentos de FX^P y en los instrumentos de NX^P, no coloque un material de laboratorio diferente de un contenedor de puntas en una posición del cargador de puntas (TL#).

 ATENCIÓN

Una representación inadecuada de la colocación de la herramienta del software de Biomek en el soporte de herramientas puede provocar que el hardware falle y que se dañe el instrumento o la herramienta. Asegúrese de que el software Biomek está actualizado cada vez que la colocación de la herramienta se cambia físicamente en la plataforma.

 ADVERTENCIA

La estación de residuos líquidos se puede contaminar con las soluciones de métodos. Siga los procedimientos de descontaminación adecuados descritos por su agente de seguridad del laboratorio.

 ATENCIÓN

Riesgo de contaminación o fallo del procedimiento. Al transferir líquidos con patrones específicos, si selecciona una patrón incorrecto, puede provocar que se transfieran reactivos a pocillos incorrectos. Tenga cuidado al seleccionar patrones en el tiempo de análisis.

 ATENCIÓN

No intente acceder a un ALP lavado de puntas de 96 canales o de 384 canales con un receptáculo multicanal equipado con un cuerpo de la herramienta de replicación de alta densidad. El agarrador puede bloquearse y dañar el receptáculo, el cuerpo de la herramienta de replicación de alta densidad o el ALP de lavado de puntas.

 ATENCIÓN

No acceda a material de laboratorio posicionado en un ALP pasivo de 1 × 5 con el cuerpo de la herramienta de replicación de alta densidad. El agarrador puede colisionar con el ALP.

 ATENCIÓN

No acceda al material de laboratorio en un ALP de agitación con el cuerpo de la herramienta de replicación de alta densidad. El agitador magnético puede doblar las clavijas o interferir con el rendimiento de transferencia de los líquidos de las clavijas.

 ATENCIÓN

Verifique que se selecciona el ALP correcto al ajustar la configuración de la plataforma en Deck Editor (Editor de plataforma). Los ALP varían en altura y si no se selecciona el ALP correcto en el software, pueden provocarse colisiones entre los receptáculos y los ALP durante el funcionamiento.

 ATENCIÓN

Al definir la altura de las operaciones de pipeteo en el ALP de agitación, debe tenerse en cuenta la presencia de la barra agitadora. Las operaciones de pipeteo que no tienen en cuenta la altura de la barra agitadora podrían dañar las puntas.

 ATENCIÓN

Riesgo de dañar el equipo. Es posible que el ALP no agarre con firmeza el material de laboratorio que no cumple con las especificaciones o bien este material puede provocar daños físicos al ALP. Solo se recomienda el uso del material de laboratorio que cumpla con los estándares de microplacas ANSI/SBS indicados a continuación con el ALP de agitador orbital.

- ANSI/SLAS 1-2004: Microplacas — Dimensiones de la huella
- ANSI/SLAS 2-2004: Microplacas — Dimensiones de altura
- ANSI/SLAS 3-2004: Microplacas — Dimensiones del reborde inferior externo

 ADVERTENCIA

No agite contenedores de puntas, tapas de contenedores de puntas o receptáculos en el ALP de agitador orbital. Las mordazas en el ALP no agarran los contenedores de puntas, las tapas de contenedores de puntas ni los receptáculos con firmeza durante el procedimiento de agitación.

 ADVERTENCIA

Riesgo de contaminación. No supere la velocidad de agitación máxima recomendada para garantizar que el material de laboratorio permanece sujeto con firmeza en el ALP de agitador orbital.

 ADVERTENCIA

El tipo y la cantidad de fluido que se está agitando repercutirá en la velocidad de agitación máxima para todos los tipos de material de laboratorio. Realice pruebas de acuerdo con los procedimientos descritos por el agente de seguridad del laboratorio para determinar la velocidad de agitación máxima segura para cualquier tipo y cantidad de líquido.

 ADVERTENCIA

Riesgo de lesiones personales o daños materiales. Observe siempre los procedimientos preventivos adecuados según indique el agente de seguridad cuando utilice disolventes inflamables o materiales tóxicos, patológicos o radioactivos.

 ADVERTENCIA

Riesgo de contaminación. Una distribución de fluidos desigual podría comprometer la capacidad del mecanismo de fijación para agarrar con firmeza el material de laboratorio. Asegúrese de que el líquido se distribuye de forma uniforme con el ALP de agitador orbital. Los valores de velocidad de agitación máxima recomendada en la Tabla 22.3 asumen que el líquido está distribuido de forma uniforme por toda la placa.

 ADVERTENCIA

La opción “Ignore” (Ignorar) de recuperación de errores en el software Biomek es potencialmente peligrosa ya que todas las acciones dependen de que se hayan completado correctamente las acciones anteriores. Si selecciona “Ignore” (Ignorar), puede causar una manipulación incorrecta del material de laboratorio y de los reactivos o colisiones y daños en el instrumento. Seleccione “Ignore” (Ignorar) solo cuando se conozca la causa del error y se corrija, y cuando las acciones del instrumento posteriores a “Ignore” (Ignorar) se comprendan completamente.

 ATENCIÓN

La reanudación de un método en el software Biomek asume que el instrumento está en el mismo estado que cuando se produjo el error. Es posible mover el receptáculo para solucionar un problema y se pueden realizar cambios en los contenidos del material de laboratorio, pero no se pueden hacer cambios en la plataforma del instrumento ni en los dispositivos en el software Biomek. Si ignora estas directrices, puede dañar el instrumento.

 ATENCIÓN

Los pasos completados parcialmente asumen que los receptáculos están en la misma posición en la que estaban cuando se detuvo el método. Si elimina el paso de Recuperación sin eliminar estos pasos completados parcialmente podría causar un fallo.

 ADVERTENCIA

La cortina de luz es un dispositivo de seguridad. Utilícela para detener un método solo en caso de emergencia. Reiniciar un método puede cambiar el modo en que se realiza el pipeteo y puede causar una disminución del rendimiento del instrumento.

 ADVERTENCIA

El botón STOP (Parada) del hardware es un dispositivo de seguridad. Utilícelo para detener un método solo en caso de emergencia. Reiniciar un método puede cambiar el modo en que se realiza el pipeteo y puede causar una disminución del rendimiento del instrumento.

 ADVERTENCIA

Para eliminar la posibilidad de sustituir un método de continuación antes de realizar las correcciones, se recomienda que se edite y se ejecute el método de continuación en cuanto se cree.

 ATENCIÓN

Un método de continuación asume que el instrumento está en el mismo estado que cuando se interrumpió la continuación. En caso contrario, debe editarse el método de continuación para tener en cuenta los cambios.

 ATENCIÓN

Ponga siempre en funcionamiento el lector de códigos de barras de tubos automatizado (ATBCR) con la tapa cerrada y todas las cubiertas en su lugar.

 ADVERTENCIA

Utilice solo los contenedores recomendados en el lector de códigos de barras de tubos automatizado. Los contenedores de muestras no indicados pueden dañar el ATBCR o causar errores de pipeteo.

 ATENCIÓN

No utilice las combinaciones de contenedor de muestras y punta etiquetadas con NO. Las puntas se podrían atascar dentro de los contenedores de muestras.

 ADVERTENCIA

Manipule y deseche los materiales biopeligrosos siguiendo los procedimientos de laboratorio adecuados. Es necesario el uso de protección en las manos, los ojos y la cara.

 ADVERTENCIA

Utilice solo el tipo de contenedor especificado en la etiqueta del tipo de contenedor en la gradilla de muestras. Las gradillas están configuradas para aceptar solamente un tipo de contenedor de muestras. Si coloca un tipo de recipiente incorrecto en una gradilla, puede dañar el instrumento o causar errores de pipeteo.

 ATENCIÓN

Las gradillas de muestras están configuradas para aceptar solamente un tipo de contenedor de muestras. No mezcle tipos de contenedores en una gradilla.

 ATENCIÓN

Superar la velocidad de inclinación máxima para el tipo de material de laboratorio puede causar que los contenedores se caigan de la gradilla. No supere los valores indicados anteriormente. No aplique ninguna inclinación a los contenedores marcados con “No tilt at any speed” (No inclinar a ninguna velocidad) en la tabla anterior. Consulte *Setting Tilting Parameters (Configuración de los parámetros de inclinación)* para obtener más información.

ANNEXE FR

Messages de sécurité

Veillez lire et respecter toutes les précautions et instructions ci-après. N'oubliez pas que le plus important en matière de sécurité est d'utiliser la station de travail de laboratoire automatisée Biomek NXP avec le plus grand soin.

Messages de sécurité relatifs à la station de travail Biomek NX^P

Cette section présente les avertissements et précautions figurant dans les manuels suivants : *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual*, *Biomek NX and NX^P Laboratory Automation Workstations Multichannel Pod User's Manual*, *Biomek NX^P Laboratory Automation Workstation Preinstallation Manual*, *NX and NX^P Laboratory Automation Workstations - Version 3.3 Tutorial*, *Biomek FX^P and NX^P Laboratory Automation Workstation 4.1 Software Migration Guide for Biomek 3.3 Methods*, *Biomek Software User's Manual Version 4.1* et *Automated Labware Positioners (ALPs) Instructions for Use*.

REMARQUE La version 4.1 du logiciel Biomek n'est pas compatible avec la station de travail Biomek NX. Toute occurrence de NX dans le présent manuel doit être interprétée comme NX^P uniquement.

 AVERTISSEMENT

Si l'équipement est utilisé d'une manière non spécifiée par Beckman Coulter, Inc., la protection qu'il fournit risque d'être rendue inefficace.

 AVERTISSEMENT

Risque de blessures corporelles si :

- Tous les capots, panneaux et portes ne sont pas fermés et fixés solidement avant et pendant l'utilisation de l'instrument.
- L'intégrité des verrous de sécurité et des capteurs est compromise.
- Vous entrez en contact avec des pièces mobiles.
- Vous ne maniez pas avec précaution les pièces cassées.
- Les capots, panneaux et portes ne sont pas ouverts, fermés, retirés et/ou remplacés avec précaution.
- Des outils inadéquats sont utilisés pour le dépannage.

Pour éviter les blessures :

- Maintenez tous les capots, panneaux et portes fermés et fixés solidement pendant l'utilisation de l'instrument.
- Faites usage de toutes les fonctions de sécurité de l'instrument. Ne rendez pas inopérants les verrous de sécurité et les capteurs.
- Tenez compte des alarmes et des messages d'erreur de l'instrument.
- Tenez-vous à l'écart des pièces mobiles.
- Signalez toute pièce cassée à votre représentant Beckman Coulter.
- Utilisez des outils adéquats lors du dépannage.

 ATTENTION

L'intégrité du système peut être compromise et des pannes risquent de se produire si :

- Cet équipement est utilisé d'une manière autre que celle spécifiée. Utilisez cet instrument selon les instructions des manuels d'utilisation.
- Vous installez un logiciel non autorisé par Beckman Coulter dans votre ordinateur. N'utilisez l'ordinateur de votre système qu'avec des logiciels agréés par Beckman Coulter.
- Vous installez un logiciel qui n'est pas un original protégé par droits d'auteur. N'utilisez que des logiciels qui sont des versions d'origine protégées par droits d'auteur afin d'éviter toute contamination par virus informatique.

 ATTENTION

Si vous avez acheté ce produit ailleurs que chez Beckman Coulter ou un distributeur Beckman Coulter autorisé et s'il ne fait pas l'objet d'un contrat de maintenance Beckman Coulter, Beckman Coulter ne peut garantir que le produit a bénéficié des toutes dernières révisions techniques obligatoires ou que vous recevrez les bulletins d'information les plus récents concernant le produit. Si vous avez acheté ce produit à un tiers et souhaitez obtenir d'autres informations à ce sujet, contactez votre représentant Beckman Coulter.

 AVERTISSEMENT

Risque de blessure chimique due à l'eau de Javel. Pour éviter le contact avec de l'eau de Javel, portez des équipements de protection tels qu'une protection oculaire, des gants et un vêtement de laboratoire approprié. Avant d'utiliser des produits chimiques, reportez-vous à la fiche technique santé-sécurité pour plus d'informations sur l'exposition aux produits chimiques.

 AVERTISSEMENT

Avant d'analyser des échantillons chimiques ou biologiques, tout nouveau matériel de laboratoire doit être testé afin de déterminer s'il faut le décaler pour qu'il s'approche ou s'éloigne du positionneur automatique (ALP) Peltier, ou pour accéder au matériel de laboratoire pendant les opérations de pipetage sur l'ALP Peltier. Si vous ne procédez pas aux tests requis, le matériel de laboratoire pourrait planter et le contenu des échantillons pourrait se répandre en cas de décalage incorrect.

Le fonctionnement habituel de l'instrument peut impliquer l'utilisation de matériaux toxiques, inflammables ou présentant un danger biologique. Lors de l'utilisation de tels matériaux, veuillez suivre les précautions suivantes :

- Manipulez les échantillons infectieux conformément aux bonnes procédures et analyses de laboratoire pour éviter la transmission d'une maladie.
- Suivez toutes les mesures de précaution imprimées sur les emballages d'origine des solutions avant leur utilisation.
- Éliminez toutes les solutions usagées conformément aux procédures de mise au rebut des déchets de votre laboratoire.
- Faites fonctionner l'instrument conformément aux instructions présentées dans ce manuel, et prenez toutes les précautions nécessaires lors de l'utilisation de matériaux pathologiques, toxiques ou radioactifs.
- Des éclaboussures de liquides peuvent se produire ; par conséquent, prenez toutes les précautions de sécurité appropriées, comme le port de lunettes de sécurité et d'un vêtement de protection lors de la manipulation de liquides potentiellement dangereux.
- Utilisez un environnement contrôlé approprié lors de l'utilisation de matériaux dangereux.
- Suivez les mesures de précaution appropriées préconisées par le responsable de la sécurité lors de l'utilisation de solvants inflammables à l'intérieur ou à proximité d'un instrument sous tension.
- Suivez les mesures de précaution appropriées préconisées par le responsable de la sécurité lors de l'utilisation de matériaux pathologiques, toxiques ou radioactifs.

 AVERTISSEMENT

Risque de blessure corporelle. Pour éviter toute blessure provoquée par des pièces mobiles, veuillez suivre les consignes suivantes :

- Ne jamais tenter de remplacer un matériel de laboratoire ou des réactifs pendant le fonctionnement de l'instrument.
- Ne jamais tenter de restreindre physiquement les composants mobiles de l'instrument.
- Maintenir la zone de travail de l'instrument dégagée pour éviter toute obstruction de mouvement.

 ATTENTION

Ne modifiez pas les paramètres du module d'équipement dans Hardware Setup (Configuration du matériel) une fois le système installé, cela nécessiterait l'intervention du service de dépannage.

 ATTENTION

Veillez à sélectionner le port qui convient dans Hardware Setup (Configuration du matériel). « Simulate » (Simuler) n'est utilisée que lorsque l'on effectue des analyses sur le simulateur Biomek. Pour effectuer des analyses sur l'instrument, choisissez le port COM auquel est raccordé l'instrument.

 ATTENTION

Risque de contamination ou d'échec de la procédure. Lorsque vous transférez des liquides suivant des schémas sélectionnés, la sélection d'un schéma incorrect peut entraîner un transfert de réactif dans les mauvais puits. Sélectionnez soigneusement les schémas lors de l'analyse.

 AVERTISSEMENT

Si l'équipement est utilisé d'une manière non spécifiée par Beckman Coulter, Inc., la protection qu'il fournit risque d'être rendue inefficace.

 AVERTISSEMENT

Tout matériau sombre non réfléchissant affecte la sensibilité du rideau de lumière et compromet son efficacité. En règle générale, les vêtements de laboratoire, notamment les blouses et les gants en latex, n'altèrent pas le fonctionnement du rideau de lumière. Il est toutefois conseillé de tester l'impact de tout vêtement de laboratoire sur la sensibilité du rideau de lumière avant d'utiliser la Biomek NX. Pour vérifier l'impact des vêtements de laboratoire sur la sensibilité du rideau de lumière, procédez comme suit : utilisez Manual Control (Contrôle manuel) dans le logiciel puis introduisez le matériau, il ne doit pas dépasser de plus de 1 po (2,54 cm) à l'arrière et environ 21 po (53,34 cm) au-dessus du panneau du rideau de lumière. Vérifiez que le témoin fixement allumé en orange se met à clignoter.

 AVERTISSEMENT

Pour limiter le risque de blessure corporelle, utilisez l'instrument Biomek NX uniquement lorsque tous les écrans protecteurs sont en place.

 AVERTISSEMENT

Afin d'éviter toute blessure, appliquez les procédures de décontamination qui s'imposent.

- Essuyez immédiatement toutes les projections sur la plate-forme.
- Tous les six à douze mois environ, sollicitez le service de dépannage de Beckman Coulter pour la lubrification du rail linéaire.

 ATTENTION

Si un dépannage est nécessaire, contactez un ingénieur de maintenance Beckman Coulter.

 AVERTISSEMENT

Ne retirez pas les capots de la tour pour accéder au câblage électrique ou aux fusibles. Vous ne devez changer que les fusibles accessibles par l'extérieur de l'instrument, sans retirer les capots. Contactez un ingénieur de maintenance Beckman Coulter si vous devez accéder à l'intérieur de l'instrument.

 AVERTISSEMENT

Mettez l'instrument hors tension et débranchez-le avant de changer les fusibles. Le non-respect de cette consigne peut entraîner une décharge électrique ou endommager l'équipement.

 AVERTISSEMENT

Procédez avec soin en manipulant les embouts cannelés Septa, ils sont extrêmement coupants.

 ATTENTION

Procédez avec soin en manipulant les embouts cannelés Septa, ils sont extrêmement fragiles.

 AVERTISSEMENT

Lorsque vous manipulez des échantillons de sang, respectez les mesures de précaution appropriées préconisées par le responsable de la sécurité.

 ATTENTION

Utilisez avec soin le matériel de laboratoire et les embouts étiquetés « Limited » (Limité). Les embouts pourraient rester coincés dans le matériel de laboratoire, agrippant le matériel avec la sonde lorsque celle-ci se relève.

 ATTENTION

Pour éviter toute décharge d'électricité statique (DES) susceptible d'endommager l'équipement, portez un bracelet antistatique lorsque vous manipulez les embouts sur le module d'équipement à 8 positions.

 ATTENTION

N'effectuez pas d'opérations d'aspiration ni de distribution sans les mandrins installés et les tubulures raccordées aux embouts fixes. L'utilisation du système sans les mandrins installés et les tubulures raccordées aux embouts peut entraîner une corrosion au niveau de l'interface des embouts.

 AVERTISSEMENT

RISQUE DE DÉBORDEMENT

 AVERTISSEMENT

Utilisez un environnement contrôlé approprié lors de l'utilisation de matériaux dangereux.

 AVERTISSEMENT

Ne renversez aucun liquide sur ou autour de l'instrument. Essayez immédiatement toutes les projections conformément aux procédures préconisées par le responsable de la sécurité au sein de votre laboratoire.

 AVERTISSEMENT

Suivez les mesures de précaution préconisées par le responsable de la sécurité lors de l'utilisation de matériaux pathologiques, toxiques ou radioactifs.

 AVERTISSEMENT

Portez toujours des gants de protection lors du retrait des embouts.

 ATTENTION

Ne tordez pas le mandrin de l'embout lorsque vous fixez ou retirez le collier. Le collier contient un joint torique qui fait pivoter le mandrin de l'embout s'il n'est pas solidement fixé, ce qui entraîne la torsion ou le vrillage de la tubulure.

 AVERTISSEMENT

Suivez les mesures de précaution préconisées par le responsable de la sécurité lors de l'utilisation de matériaux pathologiques, toxiques ou radioactifs.

 AVERTISSEMENT

Portez toujours des gants de protection lors du retrait des embouts.

 ATTENTION

N'analysez pas les seringues plus de quelques cycles sans liquide dedans.

 ATTENTION

L'eau du robinet est déconseillée en raison de sa forte teneur en matières minérales susceptibles de boucher les tubulures et de favoriser les fuites au niveau des connexions des tubulures.

 ATTENTION

Ne vrillez pas la tubulure entre le récipient d'alimentation, les pompes à 8 positions et la pompe de purge.

 ATTENTION

Ne vrillez pas la tubulure entre le récipient à déchets, l'ALP de lavage des embouts à 8 positions et le plateau de récupération.

 ATTENTION

Il faut vidanger le système de tout liquide avant utilisation.

 ATTENTION

Ne vidangez pas le système sans les mandrins installés et les tubulures raccordées aux embouts jetables ou fixes. La vidange du système sans les mandrins installés et les tubulures raccordées aux embouts peut entraîner une corrosion au niveau de l'interface des embouts.

 ATTENTION

Afin de ne pas endommager la pince, ne forcez pas son déplacement à la main.

 ATTENTION

Pour éviter toute décharge d'électricité statique (DES) susceptible d'endommager l'équipement, portez un bracelet antistatique lorsque vous manipulez la pince préinstallée.

 AVERTISSEMENT

Afin d'éviter toute blessure, appliquez les procédures de décontamination qui s'imposent.

 AVERTISSEMENT

Ne branchez ni ne débranchez aucun câble lorsque l'instrument Biomek NX^P est sous tension.

 ATTENTION

Ne modifiez pas les limites d'axe du module d'équipement dans Hardware Setup (Configuration du matériel) sans contacter un ingénieur de maintenance Beckman Coulter ou le support d'assistance technique Beckman Coulter.

 ATTENTION

N'utilisez pas Correlate Z Axes (Corréler les axes Z) dans Hardware Setup (Configuration du matériel) sans contacter un ingénieur de maintenance Beckman Coulter ou le support d'assistance technique Beckman Coulter.

 ATTENTION

Ne choisissez pas Cancel (Annuler), si le test est arrêté avant la fin du test des sensibilités de la sonde, la détection du niveau de liquide ne fonctionnera pas et vous devrez répéter Find Sensitivities (Trouver des sensibilités). Ne choisissez pas Cancel (Annuler), si le test est arrêté avant la fin du test des sensibilités de la sonde, la détection des caillots ne fonctionnera pas et vous devrez répéter Find Clot Detection Sensitivities (Trouver des sensibilités de détection des caillots). Le test complet prend environ 30 minutes.

 ATTENTION

Avant de sélectionner OK pour initialiser tous les axes, les conditions suivantes doivent être réunies : 

- Assurez-vous qu'il n'y a pas de liquide dans les embouts.
- Assurez-vous qu'il n'y a pas d'embouts jetables chargés.
- Assurez-vous que les mandrins d'embouts jetables ou les embouts fixes SONT installés sur le module d'équipement à 8 positions.
- Assurez-vous que la pince ne retient aucun matériel de laboratoire.
- Assurez-vous que la pince ne se trouve pas à proximité de l'avant, de l'arrière ou du côté de l'instrument.

 ATTENTION

Pour éviter toute décharge d'électricité statique (DES) susceptible d'endommager l'équipement, portez un bracelet antistatique lorsque vous manipulez les embouts sur le module d'équipement à 8 positions.

 AVERTISSEMENT

Mettez l'instrument Biomek NX hors tension avant de fixer ou de retirer l'AccuFrame de la plate-forme de l'instrument.

 AVERTISSEMENT

Assurez-vous que le rideau de lumière n'est pas compromis par le câble de l'AccuFrame. Si le rideau de lumière est compromis, le processus d'encadrement s'arrête immédiatement.

 AVERTISSEMENT

Assurez-vous que le câble de l'AccuFrame n'entrave pas le mouvement du module d'équipement.

 ATTENTION

Assurez-vous toujours que la pince est fermée avant de l'initialiser.

 AVERTISSEMENT

LASER DE CLASSE II.

CE PRODUIT EST CONFORME AUX EXIGENCES APPLICABLES DE LA DIRECTIVE 21 CFR 1040 À LA DATE DE FABRICATION.

 ATTENTION

Pour ne pas endommager gravement l'instrument, veillez à ce que la tension/fréquence du laboratoire corresponde à la tension/fréquence exigée pour l'instrument.

 AVERTISSEMENT

N'essayez pas de retirer ou de replacer les capots alors que l'unité est sous tension. Mettez-la hors tension avant de retirer ou de replacer un capot.

 AVERTISSEMENT

Évitez toute exposition directe au faisceau laser. Ne regardez jamais directement dans le faisceau laser et ne laissez jamais le laser allumé, ouvert ou sans surveillance.

 AVERTISSEMENT

Laissez toujours le capot d'accès au module laser, situé sur le lecteur de codes-barres, en place lorsque vous utilisez ou dépannez le module laser.

 ATTENTION

Si du matériel de laboratoire autre que celui spécifié dans le Stacker Carousel User's Manual est utilisé, cela peut favoriser les lectures erronées ou impossibles.

 ATTENTION

Pour ne pas endommager la navette, commencez par placer l'AccuFrame dans l'adaptateur de l'outil d'encadrement. Placez ensuite l'AccuFrame muni de l'adaptateur sur la navette.

 ATTENTION

Mettez l'instrument Biomek NX^P hors tension avant de fixer ou de retirer l'AccuFrame de la plate-forme de l'instrument.

 AVERTISSEMENT

Assurez-vous que le rideau de lumière n'est pas compromis par le câble de l'AccuFrame. Si le rideau de lumière est compromis, le processus d'encadrement s'arrête immédiatement.

 AVERTISSEMENT

Assurez-vous que le câble de l'AccuFrame n'entrave pas le mouvement du module d'équipement.

 ATTENTION

Utilisez Manual Control (Contrôle manuel) pour placer les sondes sur l'axe Y. Le déplacement des sondes à la main peut compromettre l'alignement et l'accès au matériel de laboratoire.

 ATTENTION

Ne modifiez pas les limites d'axe du module d'équipement dans Hardware Setup (Configuration du matériel) sans contacter un représentant Beckman Coulter.

 ATTENTION

N'utilisez pas Correlate Z Axes (Corréler les axes Z) dans Hardware Setup (Configuration du matériel) sans contacter un représentant Beckman Coulter.

 ATTENTION

Ne choisissez pas Cancel (Annuler), si le test est arrêté avant la fin du test des sensibilités de la sonde, la détection du niveau de liquide ne fonctionnera pas et vous devrez répéter Find Sensitivities (Trouver des sensibilités).

 ATTENTION

Ne modifiez pas les limites d'axe ou les paramètres du module d'équipement sans consulter un représentant Beckman Coulter.

 ATTENTION

Ne modifiez pas les paramètres de purge sans consulter un représentant Beckman Coulter.

 ATTENTION

Avant de sélectionner OK pour initialiser tous les axes, les conditions suivantes doivent être réunies :

- Assurez-vous qu'il n'y a pas de liquide dans les embouts.
- Assurez-vous qu'il n'y a pas d'embouts jetables chargés.
- Assurez-vous que la sonde d'encadrement n'est PAS installée sur le module d'équipement multicanaux.
- Assurez-vous que les pinces sur le module d'équipement multicanaux sont rétractées.
- Assurez-vous que les mandrins d'embouts jetables ou les embouts fixes SONT installés sur le module d'équipement à 8 positions.
- Assurez-vous que la pince ne retient aucun matériel de laboratoire.
- Assurez-vous que la pince ne se trouve pas à proximité de l'avant, de l'arrière ou du côté de l'instrument.

 ATTENTION

Utilisez Shift deck (Décaler la plate-forme) uniquement avant que d'autres ALP ou positions soient intégrés. Shift deck (Décaler la plate-forme) décale tous les ALP et les positions, ce qui engendre des coordonnées incorrectes si elles sont appliquées à des ALP et des positions précédemment encadrés.

 AVERTISSEMENT

LASER DE CLASSE II. CE PRODUIT EST CONFORME AUX EXIGENCES APPLICABLES DE LA DIRECTIVE 21 CFR 1040 À LA DATE DE FABRICATION.

 ATTENTION

Si une étiquette est apposée par tout moyen autre que le dispositif d'impression et d'application Beckman Coulter, cela peut favoriser les lectures erronées ou impossibles.

 AVERTISSEMENT

Si l'équipement est utilisé d'une manière non spécifiée par Beckman Coulter, Inc., la protection qu'il fournit risque d'être rendue inefficace.

 AVERTISSEMENT

Tout matériau sombre non réfléchissant affecte la sensibilité du rideau de lumière et compromet son efficacité. En règle générale, les vêtements de laboratoire, notamment les blouses et les gants en latex, n'altèrent pas le fonctionnement du rideau de lumière. Il est toutefois conseillé de tester l'impact de tout vêtement de laboratoire sur la sensibilité du rideau de lumière avant d'utiliser la station de travail Biomek NX^P. Pour vérifier l'impact des vêtements de laboratoire sur la sensibilité du rideau de lumière, procédez comme suit : utilisez Manual Control (Contrôle manuel) dans le logiciel Biomek puis introduisez le matériau, il ne doit pas dépasser de plus de 1 po (2,54 cm) à l'arrière et environ 21 po (53,34 cm) au-dessus du panneau du rideau de lumière. Vérifiez que le témoin fixement allumé en orange se met à clignoter.

 AVERTISSEMENT

Pour limiter le risque de blessure corporelle, utilisez l'instrument Biomek NX uniquement lorsque tous les écrans protecteurs sont en place.

 AVERTISSEMENT

Afin d'éviter toute blessure, appliquez les procédures de décontamination qui s'imposent.

- Essuyez immédiatement toutes les projections sur la plate-forme.
- Tous les six à douze mois environ, sollicitez le service de dépannage de Beckman Coulter pour la lubrification du rail linéaire.

 ATTENTION

Si un dépannage est nécessaire, contactez un ingénieur de maintenance Beckman Coulter.

 AVERTISSEMENT

Ne retirez pas les capots de la tour pour accéder au câblage électrique ou aux fusibles. Vous ne devez changer que les fusibles accessibles par l'extérieur de l'instrument, sans retirer les capots. Contactez un ingénieur de maintenance Beckman Coulter si vous devez accéder à l'intérieur de l'instrument.

 AVERTISSEMENT

Mettez l'instrument hors tension et débranchez-le avant de changer les fusibles. Le non-respect de cette consigne peut entraîner une décharge électrique ou endommager l'équipement.

 ATTENTION

Assurez-vous toujours que la pince sur un module d'équipement multicanaux est rétractée avant l'initialisation.

 ATTENTION

Pour éviter toute décharge d'électricité statique (DES) susceptible d'endommager l'équipement, portez un bracelet antistatique lorsque vous manipulez une tête à plusieurs canaux.

 ATTENTION

Avant de retirer la quatrième vis à épaulement, saisissez fermement la tête afin qu'elle ne tombe pas une fois toutes les vis retirées.

 AVERTISSEMENT

La pince peut se tordre si elle n'est pas intégrée (encadrée) correctement avec l'AccuFrame.

 AVERTISSEMENT

Afin d'éviter toute blessure, appliquez les procédures de décontamination qui s'imposent.

 AVERTISSEMENT

Ne branchez ni ne débranchez aucun câble lorsque l'instrument Biomek NX^P est sous tension.

 AVERTISSEMENT

Retirez tout matériel de laboratoire de la plate-forme de la Biomek NX^P lorsque vous retirez ou installez les pinces. Il est recommandé de déplacer ou retirer tout matériel de laboratoire situé à proximité du module d'équipement afin d'éviter les projections et le contact.

 ATTENTION

Procédez avec prudence en retirant les doigts des pinces. Les doigts des pinces étant solidement fixés au module d'équipement multicanaux, ils s'en désolidarisent brusquement.

 ATTENTION

Ne modifiez pas les limites d'axe du module d'équipement dans Hardware Setup (Configuration du matériel) sans contacter un ingénieur de maintenance Beckman Coulter ou le support d'assistance technique Beckman Coulter.

 ATTENTION

Si la configuration du matériel n'est pas actualisée à l'aide de Hardware Setup (Configuration du matériel), le matériel peut planter ou un transfert de liquide incorrect peut se produire.

 ATTENTION

Pour ne pas faire planter le matériel, une nouvelle limite de l'axe D doit être définie et la pince encadrée dans le logiciel Biomek une fois la tête configurée dans Hardware Setup (Configuration du matériel).

 ATTENTION

Assurez-vous toujours que la pince est rétractée avant de l'initialiser.

 ATTENTION

Ne modifiez pas les limites d'axe du module d'équipement sans contacter un ingénieur de maintenance Beckman Coulter ou le support d'assistance technique Beckman Coulter.

 ATTENTION

Avant de sélectionner OK pour initialiser tous les axes, les conditions suivantes doivent être réunies :

- Assurez-vous qu'il n'y a pas de liquide dans les embouts.
- Assurez-vous qu'il n'y a pas d'embouts jetables chargés.
- Assurez-vous que la sonde d'encadrement n'est PAS installée sur le module d'équipement multicanaux.
- Assurez-vous que la pince sur le module d'équipement multicanaux est rétractée.

 AVERTISSEMENT

Mettez l'instrument Biomek NX hors tension avant de fixer ou de retirer l'AccuFrame de la plate-forme de l'instrument.

 AVERTISSEMENT

Assurez-vous que le rideau de lumière n'est pas compromis par le câble de l'AccuFrame. Si le rideau de lumière est compromis, le processus d'encadrement s'arrête immédiatement.

 AVERTISSEMENT

Assurez-vous que le câble de l'AccuFrame n'entrave pas le mouvement du module d'équipement.

 ATTENTION

Utilisez Shift deck (Décaler la plate-forme) uniquement avant que d'autres ALP ou positions soient intégrés. Shift deck (Décaler la plate-forme) décale tous les ALP et les positions, ce qui engendre des coordonnées incorrectes si elles sont appliquées à des ALP et des positions précédemment encadrés.

 ATTENTION

Sélectionnez Move Z-Max (Déplacer Z-max) pour déplacer le module d'équipement à son point le plus haut avant d'ouvrir la pince. Pour ne pas casser le matériel de laboratoire ou tordre les doigts des pinces, veillez à ce que ces derniers ne puissent toucher aucun matériel de laboratoire en s'ouvrant.

 ATTENTION

Ne rétractez pas une pince si elle tient du matériel de laboratoire.

 AVERTISSEMENT

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 ATTENTION

Pour ne pas endommager gravement l'instrument, veillez à ce que la tension/fréquence du laboratoire corresponde à la tension/fréquence exigée pour l'instrument.

 AVERTISSEMENT

N'essayez pas de retirer ou de replacer les capots alors que l'unité est sous tension. Mettez-la hors tension avant de retirer ou de replacer un capot.

 AVERTISSEMENT

Évitez toute exposition directe au faisceau laser. Ne regardez jamais directement dans le faisceau laser et ne laissez jamais le laser allumé, ouvert ou sans surveillance.

 AVERTISSEMENT

Laissez toujours le capot d'accès au module laser, situé sur le lecteur de codes-barres, en place lorsque vous utilisez ou dépannez le module laser.

 ATTENTION

ATTENTION : si une étiquette est apposée par tout moyen autre que le dispositif d'impression et d'application Beckman Coulter, cela peut favoriser les lectures erronées ou impossibles.

 ATTENTION

Si du matériel de laboratoire autre que celui spécifié dans le Stacker Carousel User's Manual est utilisé, cela peut favoriser les lectures erronées ou impossibles.

 ATTENTION

Pour ne pas endommager la navette, commencez par placer l'AccuFrame dans l'adaptateur de l'outil d'encadrement. Placez ensuite l'AccuFrame muni de l'adaptateur sur la navette.

 AVERTISSEMENT

Pour limiter le risque de blessure corporelle, les écrans protecteurs et le rideau de lumière doivent être en place avant utilisation. Les écrans protecteurs et le rideau de lumière empêchent toute pénétration dans la zone de travail pendant que la machine est en mouvement.

 ATTENTION

Une configuration d'instrument imprécise peut entraîner une collision entre le module d'équipement et le matériel de laboratoire, ou un pipetage incorrect.

 ATTENTION

Ne placez aucun matériel de laboratoire en dehors d'une boîte d'embouts sur une position du chargeur d'embouts (n° CE).

 AVERTISSEMENT

Pour éviter d'éventuelles blessures, portez des lunettes de protection ou de sécurité lorsque vous retirez un cerclage métallique et soyez prudent en le coupant. Les cerclages peuvent se détendre brusquement une fois coupés, cela peut occasionner des blessures.

 AVERTISSEMENT

Pour éviter d'éventuelles blessures, utilisez la pince coupante avec prudence afin que le cerclage ne se détende pas brusquement.

 ATTENTION

L'instrument Biomek NX^P pèse 86,2 kilogrammes (190 livres). Pour éviter toute blessure, respectez les consignes de sécurité appropriées préconisées par le responsable de la sécurité en matière de levage d'objets lourds.

 ATTENTION

Lorsque vous soulevez l'instrument Biomek NX^P, saisissez-le uniquement par la base. Ne saisissez pas les extrémités du grand capot supérieur de l'instrument.

 ATTENTION

Lorsque vous soulevez l'instrument Biomek NX^P, saisissez-le uniquement par la base moulée. Ne saisissez pas les extrémités du rideau de lumière qui traverse l'avant de l'instrument.

 ATTENTION

L'arrière de l'instrument est plus lourd que l'avant. Veillez à ne pas trop soulever l'avant de sorte que l'instrument ne bascule pas en arrière.

 ATTENTION

L'instrument Biomek NX^P dépasse les arêtes d'un banc de 92 cm x 77 cm (36 po x 30 po). Veillez à ce qu'aucun obstacle n'entrave le placement de l'instrument.

 ATTENTION

Assurez-vous que le banc peut supporter le poids total du système installé.
Consultez le tableau 1.3 pour déterminer le poids total du système.

 ATTENTION

Lorsque vous soulevez l'instrument Biomek NX^P, saisissez-le uniquement par la base. Ne saisissez pas les extrémités du grand capot supérieur de l'instrument.

 ATTENTION

Afin de ne pas vous coincer les mains, posez d'abord l'arrière de l'instrument puis l'avant.

 ATTENTION

Le tableau optique est lourd et encombrant. Pour éviter toute blessure, il faut être deux pour déballer le tableau optique et le sortir de sa caisse.

 ATTENTION

Le Cytomat pèse de 110 à 331 livres (50 à 150 kilogrammes). Pour éviter toute blessure, respectez les consignes de sécurité appropriées préconisées par le responsable de la sécurité en matière de levage d'objets lourds.

 ATTENTION

L'instrument Biomek NX^P dépasse les arêtes d'un banc de 63,5 cm x 61 m (25 po x 24 po). Veillez à ce qu'aucun obstacle n'entrave le placement de l'instrument.

 AVERTISSEMENT

Afin que les panneaux latéraux ne tombent pas sur la personne qui déballer le Cytomat, il faut qu'une deuxième personne tienne chaque panneau pendant le dévissage.

 ATTENTION

Veillez à choisir l'ALP qui convient lors de la configuration de la plate-forme dans le « Deck Editor » (Éditeur de plate-forme) du logiciel Biomek. La hauteur des ALP est variable, le choix d'un ALP incorrect dans le « Deck Editor » (Éditeur de plate-forme) peut donc entraîner des collisions entre les modules d'équipement et les ALP en cours de fonctionnement, ce qui peut endommager l'équipement et/ou répandre des déchets dangereux.

 AVERTISSEMENT

Risque de contamination. Une configuration incorrecte dans le logiciel Biomek de « Hardware Setup » (Configuration du matériel), de l'étape Device Action (Action du dispositif) ou de « Position Properties » (Propriétés de position) pour le verrouillage automatique dans le « Deck Editor » (Éditeur de plate-forme) peut entraîner une collision entre les boîtes d'embouts ou les embouts et le matériel de laboratoire contenant des substances présentant un danger biologique ou chimique susceptibles de se répandre sur la plate-forme de l'instrument Biomek. Avant d'utiliser des agents biologiques ou chimiques, testez toujours la configuration du système et le fonctionnement des dispositifs associés avec de l'eau.

 ATTENTION

Après l'ajout de nouveaux embouts, les propriétés correctes doivent être définies dans le « Tip Type Editor » (Éditeur de type d'embout) du logiciel Biomek dans le respect des spécifications du fabricant. Des spécifications imprécises pourraient entraîner des collisions et donc endommager l'équipement.

 ATTENTION

Des définitions incorrectes du matériel de laboratoire dans le « Labware Type Editor » (Éditeur de type de matériel de laboratoire) du logiciel Biomek peuvent faire planter le système ou répandre des déchets dangereux. Vérifiez que les définitions sont correctes avant d'effectuer une analyse.

 ATTENTION

Les propriétés correctes des puits doivent être définies dans le « Labware Type Editor » (Éditeur de type de matériel de laboratoire) du logiciel Biomek dans le respect des spécifications du fabricant. Des spécifications imprécises peuvent entraîner un pipetage imprécis, notamment en utilisant la détection du niveau de liquide.

 ATTENTION

Risque de contamination ou d'échec de la procédure. Lorsque vous transférez des liquides en utilisant des types de liquides sélectionnés, la sélection d'un type de liquide incorrect peut compromettre les performances du pipetage. Procédez avec prudence lorsque vous sélectionnez les types de liquides.

 ATTENTION

Risque de contamination. En cas de caillot, si vous ignorez l'erreur et poursuivez l'analyse, cela peut contaminer la plate-forme.

 ATTENTION

Pour ne pas endommager l'équipement et/ou répandre des déchets dangereux, aucune modification de l'état de l'instrument Biomek n'est autorisée lorsqu'une analyse est en pause. Vous pouvez modifier le contenu du matériel de laboratoire mais pas la plate-forme ni les dispositifs.

 AVERTISSEMENT

Le rideau de lumière est un dispositif de sécurité. Utilisez-le uniquement pour arrêter une analyse en cas d'urgence.

 ATTENTION

Vérifiez toujours que la configuration de l'instrument réel correspond à la configuration de l'instrument dans le logiciel Biomek. Une configuration imprécise de l'instrument peut engendrer un pipetage incorrect ou une collision avec le module d'équipement, ce qui peut endommager l'équipement ou répandre des déchets dangereux.

 ATTENTION

Afin que le module d'équipement évite tous les obstacles sur son trajet, vous devez toujours spécifier dans le logiciel Biomek le matériel de laboratoire, les ALP et les dispositifs qui se trouvent sur la plate-forme ainsi que leur position sur cette dernière. Le non-respect de cette consigne peut engendrer une collision avec le module d'équipement, ce qui peut endommager l'équipement ou répandre des déchets dangereux.

 ATTENTION

Sur les instruments FX^P et NX^P, ne placez aucun matériel de laboratoire en dehors d'une boîte d'embouts sur une position du chargeur d'embouts (n° CE [TL#]).

 ATTENTION

Une représentation inadéquate dans le logiciel Biomek du positionnement des outils dans le porte-outils peut faire planter le matériel et endommager les instruments et/ou les outils. Veillez à actualiser le logiciel Biomek chaque fois que le positionnement d'un outil est modifié sur la plate-forme.

 AVERTISSEMENT

La station de déchets liquides peut être contaminée par les solutions d'analyse. Respectez les procédures de décontamination appropriées préconisées par le responsable de la sécurité au sein de votre laboratoire.

 ATTENTION

Risque de contamination ou d'échec de la procédure. Lorsque vous transférez des liquides suivant des schémas sélectionnés, la sélection d'un schéma incorrect peut entraîner un transfert de réactif dans les mauvais puits. Sélectionnez soigneusement les schémas lors de l'analyse.

 ATTENTION

N'essayez pas d'accéder à un ALP de lavage des embouts à 96 canaux ou à 384 canaux avec un module d'équipement multicanaux muni d'un outil de HDR. La pince pourrait percuter et endommager le module d'équipement, l'outil de HDR ou l'ALP de lavage des embouts.

 ATTENTION

N'accédez pas au matériel de laboratoire placé sur un ALP passif 1 x 5 avec l'outil de HDR. La pince pourrait percuter l'ALP.

 ATTENTION

N'accédez pas au matériel de laboratoire placé sur un ALP agitateur avec l'outil de HDR. L'agitateur magnétique pourrait tordre les broches ou compromettre les performances de transfert de liquide des broches.

 ATTENTION

Veillez à choisir l'ALP qui convient lors de la configuration de la plate-forme dans le Deck Editor (Éditeur de plate-forme). La hauteur des ALP est variable, si vous ne choisissez pas correctement chaque ALP dans le logiciel, cela peut entraîner des collisions entre les modules d'équipement et les ALP en cours de fonctionnement.

 ATTENTION

Lorsque vous définissez la hauteur pour les opérations de pipetage sur l'ALP agitateur, vous devez tenir compte de la présence de la barre d'agitation. Les opérations de pipetage qui ne tiennent pas compte de la hauteur de la barre d'agitation peuvent endommager les embouts.

 ATTENTION

Risque de dommages à l'équipement. Il se peut que l'ALP ne puisse pas saisir correctement un matériel de laboratoire non conforme ou que celui-ci l'endommage. Seul le matériel de laboratoire répondant aux normes de microplaques ANSI/SBS indiquées ci-dessous peut être utilisé avec l'ALP agitateur orbital.

- ANSI/SLAS 1-2004 : microplaques — encombrement
- ANSI/SLAS 2-2004 : microplaques — hauteur
- ANSI/SLAS 3-2004 : microplaques — dimensions de la collerette extérieure inférieure

 AVERTISSEMENT

Ne secouez pas les boîtes d'embouts, leurs couvercles ou les réservoirs sur l'ALP agitateur orbital. Les dispositifs de serrage de l'ALP ne peuvent pas saisir les boîtes d'embouts, leurs couvercles ou les réservoirs en toute sécurité pendant une procédure d'agitation.

 AVERTISSEMENT

Risque de contamination. Ne dépassez pas la vitesse d'agitation maximale recommandée afin que le matériel de laboratoire reste bien dans les dispositifs de serrage de l'ALP agitateur orbital.

 AVERTISSEMENT

Le type et la quantité de liquide agité ont un impact sur la vitesse d'agitation maximale pour tous les types de matériel de laboratoire. Réalisez des tests conformes aux procédures préconisées par le responsable de la sécurité au sein de votre laboratoire afin de déterminer la vitesse d'agitation maximale sûre pour tout type et quantité de liquide.

 AVERTISSEMENT

Risque de dommage corporel ou matériel. Suivez les mesures de précaution appropriées préconisées par le responsable de la sécurité lors de l'utilisation de solvants inflammables ou de matériaux pathologiques, toxiques ou radioactifs.

 AVERTISSEMENT

Risque de contamination. Une distribution de liquide inégale pourrait compromettre la capacité du mécanisme de serrage à tenir fermement le matériel de laboratoire. Assurez-vous que le liquide a été distribué de façon égale avant d'utiliser l'ALP agitateur orbital. Les valeurs de vitesse d'agitation maximale recommandée figurant dans le tableau 22.3 supposent que le liquide a été distribué de façon égale sur toute la plaque.

 AVERTISSEMENT

L'option de reprise après erreur « Ignore » (Ignorer) dans le logiciel Biomek peut être dangereuse car presque toutes les actions dépendent de la réussite des précédentes. Choisir « Ignore » (Ignorer) peut entraîner une mauvaise manipulation du matériel de laboratoire et des réactifs ou des collisions et des dommages aux instruments. Choisissez « Ignore » (Ignorer) uniquement lorsque la cause de l'erreur est connue et corrigée, et que vous comprenez parfaitement les actions de l'instrument qui vont suivre.

 ATTENTION

La reprise d'une analyse dans le logiciel Biomek suppose que l'instrument est dans le même état qu'au moment où l'erreur est survenue. En cas de problème, vous pouvez déplacer le module d'équipement et modifier le contenu du matériel de laboratoire, mais vous ne pouvez pas modifier la plate-forme de l'instrument ou les dispositifs dans le logiciel Biomek. Le non-respect de cette consigne peut endommager l'instrument.

 ATTENTION

Les étapes partiellement complétées supposent que les modules d'équipement sont dans la position qu'ils avaient lors de l'arrêt de l'analyse. Supprimer l'étape de reprise sans supprimer également ces étapes partiellement complétées peut faire planter le système.

 AVERTISSEMENT

Le rideau de lumière est un dispositif de sécurité. Utilisez-le uniquement pour arrêter une analyse en cas d'urgence. La reprise d'une analyse peut modifier le pipetage, ce qui peut altérer les performances de l'instrument.

 AVERTISSEMENT

Le bouton STOP (ARRÊT) du matériel est un dispositif de sécurité. Utilisez-le uniquement pour arrêter une analyse en cas d'urgence. La reprise d'une analyse peut modifier le pipetage, ce qui peut altérer les performances de l'instrument.

 AVERTISSEMENT

Afin de ne pas avoir à remplacer une analyse continue avant que les corrections soient apportées, il est recommandé de modifier une analyse continue puis de la lancer dès qu'elle est créée.

 ATTENTION

Une analyse continue suppose que l'instrument est dans le même état que lorsque l'analyse continue a été interrompue. Si ce n'est pas le cas, l'analyse continue doit être modifiée pour tenir compte des changements.

 ATTENTION

Utilisez toujours le lecteur de codes-barres de tube automatisé (ATBCR) avec le couvercle fermé et tous les capots en place.

 AVERTISSEMENT

Utilisez exclusivement les récipients recommandés avec le lecteur de codes-barres de tube automatisé. Les récipients à échantillons non indiqués peuvent endommager l'ATBCR ou provoquer des erreurs de pipetage.

 ATTENTION

N'utilisez pas de récipients à échantillons et d'embouts étiquetés NO (NON). Les embouts pourraient rester coincés dans les récipients à échantillons.

 AVERTISSEMENT

Manipulez et éliminez les matériaux présentant des risques biologiques conformément aux procédures de laboratoire appropriées. Le port de protections appropriées pour les mains, les yeux et le visage est impératif.

 AVERTISSEMENT

Utilisez exclusivement le type de récipient spécifié sur l'étiquette apposée sur le portoir d'échantillons. Un portoir est configuré pour accepter un seul type de récipient à échantillons. Placer un type de récipient incorrect sur un portoir peut endommager l'instrument ou provoquer des erreurs de pipetage.



Un portoir d'échantillons est configuré pour accepter un seul type de récipient à échantillons. Ne mélangez pas plusieurs types de récipients sur un même portoir.



Si vous dépassez la vitesse d'inclinaison maximale pour le type de matériel de laboratoire, les récipients pourraient tomber du portoir. Ne dépassez pas les valeurs indiquées précédemment. N'appliquez aucune inclinaison pour les récipients indiqués « No tilt at any speed. » (Aucune inclinaison quelle que soit la vitesse.) dans le tableau ci-dessus. *Consultez la section **Setting Tilting Parameters** (Définition des paramètres d'inclinaison) pour plus d'informations.*

APPENDICE IT

Messaggi di sicurezza

Leggere e osservare tutti gli avvisi e le istruzioni. L'azione più importante per la sicurezza è utilizzare la workstation per l'automazione del laboratorio Biomek NX^P con cura.

Messaggi di sicurezza della workstation Biomek NX^P

Questa sezione contiene le Avvertenze e gli Avvisi presenti nei documenti *Biomek NX and NX^P Laboratory Automation Workstations Span-8 Pod User's Manual*, *Biomek NX and NX^P Laboratory Automation Workstations Multichannel Pod User's Manual*, *Biomek NX^P Laboratory Automation Workstation Preinstallation Manual*, *NX and NX^P Laboratory Automation Workstations – Version 3.3 Tutorial*, *Biomek FX^P and NX^P Laboratory Automation Workstation 4.1 Software Migration Guide for Biomek 3.3 Methods*, *Biomek Software User's Manual Version 4.1* e *Automated Labware Positioners (ALPs) Instructions for Use*.

NOTA Il software Biomek versione 4.1 non è compatibile con la workstation Biomek NX. Le occorrenze di NX in questo manuale devono essere interpretate solo come NX^P.

AVVERTENZA

L'utilizzo dell'apparecchiatura in modo diverso da quanto specificato da Beckman Coulter, Inc. può ridurre la protezione.

 AVVERTENZA

Rischio di lesioni all'operatore nei casi qui illustrati:

- Non tutti gli sportelli, i coperchi e i pannelli siano chiusi e bloccati al loro posto prima e durante il funzionamento dello strumento.
- Compromissione dell'integrità e della sicurezza dei dispositivi di blocco e dei sensori.
- L'operatore entra in contatto con parti mobili.
- Parti rotte vengono maneggiate in maniera non corretta.
- Sportelli, coperchi e pannelli non siano stati aperti, chiusi, rimossi e/o sostituiti con la dovuta cura.
- Per la procedura di individuazione e soluzione dei problemi sono stati usati utensili non adatti.

Per evitare lesioni personali:

- Tenere sportelli, coperchi e pannelli chiusi e bloccati al loro posto mentre lo strumento è in funzione.
- Sfruttare al massimo le funzionalità di sicurezza dello strumento. Non escludere i dispositivi di blocco e i sensori di sicurezza.
- Accettare gli allarmi e i messaggi di errore dello strumento e intraprendere le relative azioni.
- Tenersi lontani dalle parti in movimento.
- Riferire di eventuali parti guaste al rappresentante locale di Beckman Coulter.
- Usare utensili idonei durante le procedure di individuazione e soluzione dei problemi.

 ATTENZIONE

L'integrità del sistema può risultare compromessa e può verificarsi un malfunzionamento nei seguenti casi:

- L'apparecchiatura viene usata in modo non conforme a quanto specificato. Utilizzare lo strumento rispettando le istruzioni riportate sul manuale del prodotto.
- Nel computer è stato installato software non autorizzato da Beckman Coulter. Usare il computer unicamente con il software autorizzato da Beckman Coulter.
- La versione del software installato non corrisponde a quella originale protetta da copyright. Per evitare la contaminazione da virus, usare solo versioni software originali e protette da copyright.

 ATTENZIONE

Se questo prodotto è stato acquistato da un fornitore che non sia Beckman Coulter o un distributore di Beckman Coulter autorizzato e se non è coperto da un Accordo di Manutenzione di Servizio di Beckman Coulter, la Società non potrà garantire che il prodotto è stato sottoposto alle più recenti revisioni tecniche o che si riceveranno i bollettini informativi con gli aggiornamenti relativi al prodotto. Se il prodotto è stato acquistato presso terzi e si desiderano ulteriori informazioni su questo argomento, contattare il rappresentante Beckman Coulter locale.

 AVVERTENZA

Rischio di lesioni chimiche dovute alla candeggina. Per evitare il contatto con l'ipoclorito usare protezioni a barriera, inclusi occhiali di sicurezza, guanti e indumenti di laboratorio appropriati. Prima di impiegare il composto chimico, riferirsi alla Scheda dati sulla sicurezza per i dettagli sull'esposizione chimica.

 AVVERTENZA

Prima di essere utilizzati con campioni chimici o biologici, i nuovi tipi di articoli da laboratorio devono essere testati per verificare se sono necessari offset per lo spostamento verso o da l'ALP del peltier o per accedere agli articoli da laboratorio durante le operazioni di pipettamento sull'ALP del peltier. Se non si effettua il test richiesto, potrebbero verificarsi danni agli articoli da laboratorio e il contenuto potrebbe fuoriuscire qualora l'offset non fosse corretto.

Il normale funzionamento dello strumento può implicare l'uso di materiali tossici, infiammabili o altrimenti pericolosi dal punto di vista biologico. Quando si utilizzano tali materiali, osservare le precauzioni seguenti:

- Manipolare i campioni infettivi in conformità alle buone procedure e metodi di laboratorio, per evitare la diffusione della malattia.
- Osservare tutte le informazioni di avvertimento stampate sui contenitori originali delle soluzioni prima dell'uso.
- Smaltire tutte le soluzioni dei rifiuti in conformità alle procedure di smaltimento dei rifiuti della propria struttura.
- Utilizzare lo strumento in conformità alle istruzioni evidenziate in questo manuale e prendere tutte le precauzioni necessarie quando si utilizzano materiali radioattivi, tossici o patologici.
- I liquidi potrebbero schizzare; quindi, adottare le precauzioni di sicurezza appropriate, quali l'utilizzo di occhiali di sicurezza e di abbigliamento protettivo quando si utilizzano liquidi potenzialmente pericolosi.
- Utilizzare un ambiente appropriatamente protetto quando si manipolano materiali pericolosi.
- Osservare le procedure di avvertimento appropriate definite dal responsabile per la sicurezza quando si utilizzano solventi infiammabili nelle vicinanze di uno strumento acceso.

- Osservare le procedure di avvertimento appropriate definite dal responsabile per la sicurezza quando si utilizzano materiali radioattivi, patologici o tossici.

 AVVERTENZA

Rischio di lesione personale. Per evitare lesioni provocate dalle parti in movimento, osservare le indicazioni seguenti:

- Mai tentare di scambiare parti o reagenti quando lo strumento è in funzione.
- Mai tentare di limitare fisicamente uno dei componenti mobili dello strumento.
- Mantenere sgombra l'area di lavoro dello strumento, per evitare ostruzioni del movimento.

 ATTENZIONE

Non modificare le impostazioni pod in Hardware Setup (Configurazione hardware) dopo l'installazione del sistema; la modifica delle impostazioni pod richiederà un intervento dell'assistenza.

 ATTENZIONE

Accertarsi che la porta corretta sia selezionata in Hardware Setup (Configurazione hardware). L'opzione Simulate (Simula) viene utilizzata solo quando si eseguono metodi sul simulatore Biomek. Per eseguire metodi sullo strumento, scegliere la porta COM a cui è collegato lo strumento.

 ATTENZIONE

Rischio di contaminazione o errore di procedura. Quando si trasferiscono liquidi mediante modelli selezionati, la scelta di un modello non corretto può provocare il trasferimento di reagenti in pozzetti non adeguati. Selezionare con cautela i modelli al momento dell'esecuzione.

 AVVERTENZA

L'utilizzo dell'apparecchiatura in modo diverso da quanto specificato da Beckman Coulter, Inc. può ridurre la protezione.

 AVVERTENZA

Il materiale scuro non riflettente influisce sulla sensibilità della barriera fotoelettrica e ha effetti negativi sulla sua efficacia. L'abbigliamento da laboratorio comune, ad esempio grembiuli da laboratorio e guanti in lattice, non peggiora il funzionamento della barriera fotoelettrica; tuttavia, è consigliabile testare l'impatto dell'abbigliamento da laboratorio sulla sensibilità della barriera fotoelettrica prima di utilizzare lo strumento Biomek NX. Verificare l'impatto dell'abbigliamento da laboratorio sulla sensibilità della barriera fotoelettrica come segue: Utilizzare Manual Control (Controllo manuale) nel software e inserire il materiale non più di 1" (2,54 cm) oltre e circa 21" (53,34 cm) al di sopra del pannello della barriera fotoelettrica. Accertarsi che la spia gialla fissa dell'indicatore diventi gialla lampeggiante.

 AVVERTENZA

Per ridurre il rischio di lesione personale, utilizzare lo strumento Biomek NX solo con tutti gli schermi protettivi in sede.

 AVVERTENZA

Per evitare lesioni, utilizzare le procedure di decontaminazione corrette.

- Asciugare immediatamente tutte le fuoriuscite sul piano di lavoro.
- Pianificare un intervento dell'assistenza Beckman Coulter ogni sei mesi circa, al massimo ogni dodici mesi, per lubrificare la guida lineare.

 ATTENZIONE

Se è necessaria l'assistenza, contattare un tecnico di assistenza Beckman Coulter.

 AVVERTENZA

Non rimuovere le coperture delle torri per accedere al cablaggio elettrico o ai fusibili. Sostituire solo i fusibili a cui è possibile accedere dall'esterno dello strumento, senza rimuovere le coperture. Se è necessario un ulteriore accesso, contattare un tecnico di assistenza Beckman Coulter.

 AVVERTENZA

Spegnere e scollegare l'alimentazione allo strumento prima di sostituire i fusibili. In caso contrario, potrebbero verificarsi scosse elettriche o danni all'apparecchiatura.

 AVVERTENZA

Maneggiare con cautela i puntali scanalati septa in quanto sono estremamente affilati.

 ATTENZIONE

Maneggiare con cautela i puntali scanalati septa in quanto sono estremamente fragili.

 AVVERTENZA

Quando si utilizzano campioni di sangue, osservare le procedure di avvertimento definite dal responsabile per la sicurezza.

 ATTENZIONE

Utilizzare con attenzione combinazioni di articoli da laboratorio e puntali etichettati come “Limited” (Limitato). I puntali potrebbero incastrarsi all’interno degli articoli da laboratorio, che verrebbero prelevati insieme alla sonda quando la sonda viene sollevata.

 ATTENZIONE

Al fine di evitare i danni dovuti alle scariche elettrostatiche (ESD), quando si utilizzano puntali sul pod a 8 canali, indossare un cinturino di messa a terra.

 ATTENZIONE

Non eseguire operazioni di aspirazione o dispensazione senza i mandrini installati e i tubi collegati ai puntali fissi. L'uso del sistema senza i mandrini installati e i tubi collegati ai puntali può provocare corrosione nell'interfaccia del puntale.

 AVVERTENZA

RISCHIO DI FUORIUSCITA

 AVVERTENZA

Utilizzare un ambiente appropriatamente protetto quando si manipolano materiali pericolosi.

 AVVERTENZA

Evitare fuoriuscite di liquidi sopra o intorno allo strumento. Asciugare immediatamente tutte le fuoriuscite secondo le procedure indicate dal responsabile per la sicurezza del laboratorio.

 AVVERTENZA

Osservare le procedure di avvertimento definite dal responsabile per la sicurezza quando si utilizzano materiali radioattivi, patologici o tossici.

 AVVERTENZA

Indossare sempre guanti protettivi quando vengono rimossi i puntali.

 ATTENZIONE

Non consentire al mandrino del puntale di ruotare durante il fissaggio o la rimozione del collare. Il collare contiene un O-ring che gira il mandrino del puntale se non è fissato, provocando la rotazione o l'attorcigliamento dei tubi.

 AVVERTENZA

Osservare le procedure di avvertimento definite dal responsabile per la sicurezza quando si utilizzano materiali radioattivi, patologici o tossici.

 AVVERTENZA

Indossare sempre guanti protettivi quando vengono rimossi i puntali.

 ATTENZIONE

Utilizzare siringhe prive di liquido solo per pochi cicli.

 ATTENZIONE

L'acqua del rubinetto non è consigliata a causa dell'elevato contenuto di minerali, che potrebbero provocare ostruzioni nella tubazione e aumentare il rischio di perdite sulle connessioni.

 ATTENZIONE

Non attorcigliare i tubi tra il contenitore di alimentazione, le pompe a 8 canali e la pompa di spurgo.

 ATTENZIONE

Non attorcigliare i tubi tra il contenitore di scarico, l'ALP di lavaggio puntali a 8 canali e il vassoio gocciolamento.

 ATTENZIONE

I liquidi del sistema devono essere degassati prima dell'uso.

 ATTENZIONE

Non spurgare il sistema senza i mandrini installati e i tubi collegati ai puntali fissi o monouso. Lo spurgo del sistema senza i mandrini installati e i tubi collegati ai puntali può provocare corrosione nell'interfaccia del puntale.

 ATTENZIONE

Per evitare danni alla pinza, non muoverla con forza con le mani.

 ATTENZIONE

Al fine di evitare i danni dovuti alle scariche elettrostatiche (ESD), quando si utilizza la pinza integrata, indossare un cinturino di messa a terra.

 AVVERTENZA

Per evitare lesioni, utilizzare le procedure di decontaminazione corrette.

 AVVERTENZA

Non collegare o scollegare i cavi mentre lo strumento Biomek NX^P è alimentato.

 ATTENZIONE

Non apportare modifiche ai limiti degli assi del pod in Hardware Setup (Configurazione hardware) senza contattare un tecnico di assistenza Beckman Coulter o l'Assistenza clienti Beckman Coulter.

 ATTENZIONE

Non utilizzare gli assi Z di correlazione in Hardware Setup (Configurazione hardware) senza contattare un tecnico di assistenza Beckman Coulter o l'Assistenza clienti Beckman Coulter.

 ATTENZIONE

Non scegliere Cancel (Annulla); se il test viene arrestato prima che le sensibilità della sonda siano state completate, la rilevazione del livello di liquido non funziona e l'operazione Find Sensitivities (Trova sensibilità) deve essere ripetuta. Non scegliere Cancel (Annulla); se il test viene arrestato prima che le sensibilità della sonda siano state completate, il rilevamento dei coaguli non funziona e l'operazione Find Clot Detection Sensitivities (Trova sensibilità rilevamento coaguli) deve essere ripetuta. Il completamento del test richiede circa 30 minuti.

 ATTENZIONE

Prima di selezionare OK per spostare tutti gli assi in posizione Home, devono essere soddisfatte le seguenti condizioni:

- Accertarsi che non ci siano liquidi nei puntali
- Accertarsi che non siano caricati puntali monouso
- Accertarsi che i mandrini dei puntali monouso o i puntali fissi SIANO installati nel pod a 8 canali.
- Accertarsi che la pinza fissa non contenga alcun articolo da laboratorio.
- Accertarsi che la pinza fissa non si trovi vicino alla parte anteriore, posteriore o laterale dello strumento.

 ATTENZIONE

Al fine di evitare i danni dovuti alle scariche elettrostatiche (ESD), quando si utilizzano puntali sul pod a 8 canali, indossare un cinturino di messa a terra.

 AVVERTENZA

Spegnere lo strumento Biomek NX prima di collegare o di rimuovere lo strumento AccuFrame dal piano di lavoro degli strumenti.

 AVVERTENZA

Accertarsi che la barriera fotoelettrica non sia violata dal cavo AccuFrame. Se la barriera fotoelettrica viene violata, il processo di montaggio viene arrestato immediatamente.

 AVVERTENZA

Accertarsi che il cavo AccuFrame non interferisca con il movimento del pod.

 ATTENZIONE

Verificare sempre che la pinza sia chiusa prima di spostarla in posizione Home.

 AVVERTENZA

PRODOTTO LASER CLASSE II.

THIS PRODUCT CONFORMS TO APPLICABLE REQUIREMENTS OF 21 CFR 1040 AT THE DATE OF MANUFACTURE (Alla data di produzione, questo prodotto è conforme ai requisiti applicabili della normativa 21 CFR 1040).

 ATTENZIONE

Per evitare danni gravi allo strumento, accertarsi che la tensione/frequenza dell'ambiente del laboratorio corrisponda alla tensione/frequenza ordinate per lo strumento.

 AVVERTENZA

Non tentare di rimuovere o sostituire le coperture quando l'unità è accesa. Scollegare l'alimentazione prima di rimuovere o sostituire una copertura.

 AVVERTENZA

Evitare l'esposizione diretta al fascio laser. Non guardare direttamente verso il fascio laser e non lasciare il laser acceso, aperto o non custodito.

 AVVERTENZA

Fare in modo che la copertura di accesso del modulo laser, situata sul lettore di codice a barre, sia sempre in posizione quando si utilizza il modulo laser o si risolvono relativi problemi.

 ATTENZIONE

Se vengono utilizzati articoli da laboratorio diversi da quelli specificati in Stacker Carousel User's Manual potrebbe verificarsi un aumento di letture errate o di mancate letture.

 ATTENZIONE

Per evitare danni al trasportatore, inserire prima lo strumento AccuFrame nell'adattatore dello strumento di montaggio. Quindi, posizionare lo strumento AccuFrame con l'adattatore collegato sul trasportatore.

 ATTENZIONE

Spegnere lo strumento Biomek NX^P prima di collegare o di rimuovere lo strumento AccuFrame dal piano di lavoro degli strumenti.

 AVVERTENZA

Accertarsi che la barriera fotoelettrica non sia violata dal cavo AccuFrame. Se la barriera fotoelettrica viene violata, il processo di montaggio viene arrestato immediatamente.

 AVVERTENZA

Accertarsi che il cavo AccuFrame non interferisca con il movimento del pod.

 ATTENZIONE

Utilizzare Manual Control (Controllo manuale) per spostare le sonde nell'asse Y. Il trascinamento manuale delle sonde può influire sull'allineamento e sulla capacità di accesso agli strumenti da laboratorio.

 ATTENZIONE

Non apportare modifiche ai limiti degli assi del pod in Hardware Setup (Configurazione hardware) senza contattare un rappresentante Beckman Coulter.

 ATTENZIONE

Non utilizzare Correlate Z Axes (Correla assi Z) in Hardware Setup (Configurazione hardware) senza contattare un rappresentante Beckman Coulter.

 ATTENZIONE

Non scegliere Cancel (Annulla); se il test viene arrestato prima che le sensibilità della sonda siano state completate, la rilevazione del livello di liquido non funziona e l'operazione Find Sensitivities (Trova sensibilità) deve essere ripetuta.

 ATTENZIONE

Non apportare modifiche ai limiti degli assi o alle impostazioni del pod senza consultare un rappresentante Beckman Coulter.

 ATTENZIONE

Non apportare modifiche alle impostazioni di spurgo senza consultare un rappresentante Beckman Coulter.

 ATTENZIONE

Prima di selezionare OK per spostare tutti gli assi in posizione Home, devono essere soddisfatte le seguenti condizioni:

- Accertarsi che non ci siano liquidi nei puntali
- Accertarsi che non siano caricati puntali monouso
- Accertarsi che la sonda di montaggio NON sia installata nel pod multicanale.
- Accertarsi che le pinze nel pod multicanale siano ritratte.
- Accertarsi che i mandrini dei puntali monouso o i puntali fissi SIANO installati nel pod a 8 canali.
- Accertarsi che la pinza fissa non contenga alcun articolo da laboratorio.
- Accertarsi che la pinza fissa non si trovi vicino alla parte anteriore, posteriore o laterale dello strumento.

 ATTENZIONE

Utilizzare Shift deck (Sposta piano di lavoro) prima di fissare altri ALP o posizioni. Shift deck (Sposta piano di lavoro) sposta tutti gli ALP e le posizioni, determinando coordinate non corrette se applicato ad ALP e posizioni fissati in precedenza.

 AVVERTENZA

PRODOTTO LASER CLASSE II. THIS PRODUCT CONFORMS TO APPLICABLE REQUIREMENTS OF 21 CFR 1040 AT THE DATE OF MANUFACTURE (Alla data di produzione, questo prodotto è conforme ai requisiti applicabili della normativa 21 CFR 1040).

 ATTENZIONE

Se un'etichetta viene applicata mediante un dispositivo diverso da Print and Apply (Stampa e applica) di Beckman Coulter, potrebbe verificarsi un aumento di letture errate o di mancate letture.

 AVVERTENZA

L'utilizzo dell'apparecchiatura in modo diverso da quanto specificato da Beckman Coulter, Inc. può ridurre la protezione.

 AVVERTENZA

Il materiale scuro non riflettente influisce sulla sensibilità della barriera fotoelettrica e ha effetti negativi sulla sua efficacia. L'abbigliamento da laboratorio comune, ad esempio grembiuli da laboratorio e guanti in lattice, non peggiora il funzionamento della barriera fotoelettrica; tuttavia, è consigliabile testare l'impatto dell'abbigliamento da laboratorio sulla sensibilità della barriera fotoelettrica prima di utilizzare la workstation Biomek NX^P. Verificare l'impatto dell'abbigliamento da laboratorio sulla sensibilità della barriera fotoelettrica come segue: Utilizzare Manual Control (Controllo manuale) nel software Biomek e inserire il materiale non più di 1" (2,54 cm) oltre e circa 21" (53,34 cm) al di sopra del pannello della barriera fotoelettrica. Accertarsi che la spia gialla fissa dell'indicatore diventi gialla lampeggiante.

 AVVERTENZA

Per ridurre il rischio di lesione personale, utilizzare lo strumento Biomek NX solo con tutti gli schermi protettivi in sede.

 AVVERTENZA

Per evitare lesioni, utilizzare le procedure di decontaminazione corrette.

- Asciugare immediatamente tutte le fuoriuscite sul piano di lavoro.
- Pianificare un intervento dell'assistenza Beckman Coulter ogni sei mesi circa, al massimo ogni dodici mesi, per lubrificare la guida lineare.

 ATTENZIONE

Se è necessaria l'assistenza, contattare un tecnico di assistenza Beckman Coulter.

 AVVERTENZA

Non rimuovere le coperture delle torri per accedere al cablaggio elettrico o ai fusibili. Sostituire solo i fusibili a cui è possibile accedere dall'esterno dello strumento, senza rimuovere le coperture. Se è necessario un ulteriore accesso, contattare un tecnico di assistenza Beckman Coulter.

 AVVERTENZA

Spegnere e scollegare l'alimentazione allo strumento prima di sostituire i fusibili. In caso contrario, potrebbero verificarsi scosse elettriche o danni all'apparecchiatura.

 ATTENZIONE

Verificare sempre che la pinza sul pod multicanale sia ritratta prima di spostarla in posizione Home.

 ATTENZIONE

Al fine di evitare i danni dovuti alle scariche elettrostatiche (ESD), quando si maneggia una testina multicanale, indossare un cinturino di messa a terra.

 ATTENZIONE

Prima di rimuovere la quarta vite dalla spalla, afferrare la testina saldamente per fare in modo che non cada una volta rimosse tutte le viti.

 AVVERTENZA

La pinza può piegarsi se non serrata (montata) correttamente con lo strumento AccuFrame.

 AVVERTENZA

Per evitare lesioni, utilizzare le procedure di decontaminazione corrette.

 AVVERTENZA

Non collegare o scollegare i cavi mentre lo strumento Biomek NX^P è alimentato.

 AVVERTENZA

Evitare tutti gli articoli da laboratorio sul piano di lavoro Biomek NX^P quando si rimuovono o si installano le pinze. Si consiglia di spostare o di rimuovere tutti gli articoli da laboratorio nelle vicinanze del pod per evitare che eventuali fuoriuscite entrino in contatto con gli articoli da laboratorio.

 ATTENZIONE

Rimuovere le ganasce della pinza con cautela. Poiché le ganasce della pinza sono montate saldamente nel pod multicanale, vengono liberate dal pod multicanale improvvisamente.

 ATTENZIONE

Non apportare modifiche ai limiti degli assi del pod in Hardware Setup (Configurazione hardware) senza contattare un tecnico di assistenza Beckman Coulter o l'Assistenza clienti Beckman Coulter.

 ATTENZIONE

Se la configurazione dell'hardware non viene aggiornata mediante Hardware Setup (Configurazione hardware), possono verificarsi danni all'hardware o trasferimenti di liquidi non corretti.

 ATTENZIONE

Per evitare danni all'hardware, deve essere stabilito un nuovo limite dell'asse D e la pinza deve essere inserita nel software Biomek dopo che la testina è stata configurata in Hardware Setup (Configurazione hardware).

 ATTENZIONE

Verificare sempre che la pinza sia ritratta prima di spostarla in posizione Home.

 ATTENZIONE

Non apportare modifiche ai limiti degli assi del pod senza contattare un tecnico di assistenza Beckman Coulter o l'Assistenza clienti Beckman Coulter.

 ATTENZIONE

Prima di selezionare OK per spostare tutti gli assi in posizione Home, devono essere soddisfatte le seguenti condizioni:

- Accertarsi che non ci siano liquidi nei puntali.
- Accertarsi che non siano caricati puntali monouso.
- Accertarsi che la sonda di montaggio NON sia installata nel pod multicanale.
- Accertarsi che la pinza nel pod multicanale sia ritratta.

 AVVERTENZA

Spegnere lo strumento Biomek NX prima di collegare o di rimuovere lo strumento AccuFrame dal piano di lavoro degli strumenti.

 AVVERTENZA

Accertarsi che la barriera fotoelettrica non sia violata dal cavo AccuFrame. Se la barriera fotoelettrica viene violata, il processo di montaggio viene arrestato immediatamente.

 AVVERTENZA

Accertarsi che il cavo AccuFrame non interferisca con il movimento del pod.

 ATTENZIONE

Utilizzare Shift deck (Sposta piano di lavoro) prima di fissare altri ALP o posizioni. Shift deck (Sposta piano di lavoro) sposta tutti gli ALP e le posizioni, determinando coordinate non corrette se applicato ad ALP e posizioni fissati in precedenza.

 ATTENZIONE

Selezionare Move Z-Max (Sposta Z al massimo) per spostare il pod al suo punto più alto prima di estendere la pinza. Per evitare la rottura degli articoli da laboratorio o la piegatura delle ganasce della pinza, accertarsi che le ganasce della pinza non urtino contro gli articoli da laboratorio quando vengono estese.

 ATTENZIONE

Non ritrarre la pinza se contiene articoli da laboratorio.

 AVVERTENZA

PRODOTTO LASER CLASSE II. THIS PRODUCT CONFORMS TO APPLICABLE REQUIREMENTS OF 21 CFR 1040 AT THE DATE OF MANUFACTURE (Alla data di produzione, questo prodotto è conforme ai requisiti applicabili della normativa 21 CFR 1040).

 ATTENZIONE

Per evitare danni gravi allo strumento, accertarsi che la tensione/frequenza dell'ambiente del laboratorio corrisponda alla tensione/frequenza ordinate per lo strumento.

 AVVERTENZA

Non tentare di rimuovere o sostituire le coperture quando l'unità è accesa. Scollegare l'alimentazione prima di rimuovere o sostituire una copertura.

 AVVERTENZA

Evitare l'esposizione diretta al fascio laser. Non guardare direttamente verso il fascio laser e non lasciare il laser acceso, aperto o non custodito.

 AVVERTENZA

Fare in modo che la copertura di accesso del modulo laser, situata sul lettore di codice a barre, sia sempre in posizione quando si utilizza il modulo laser o si risolvono relativi problemi.

 ATTENZIONE

ATTENZIONE: Se un'etichetta viene applicata mediante un dispositivo diverso da Print and Apply (Stampa e applica) di Beckman Coulter, potrebbe verificarsi un aumento di letture errate o di mancate letture.

 ATTENZIONE

Se vengono utilizzati articoli da laboratorio diversi da quelli specificati in Stacker Carousel User's Manual potrebbe verificarsi un aumento di letture errate o di mancate letture.

 ATTENZIONE

Per evitare danni al trasportatore, inserire prima lo strumento AccuFrame nell'adattatore dello strumento di montaggio. Quindi, posizionare lo strumento AccuFrame con l'adattatore collegato sul trasportatore.

 AVVERTENZA

Per ridurre il rischio di lesione personale, schermi protettivi e barriera fotoelettrica devono essere in sede prima del funzionamento. Schermi protettivi e barriera fotoelettrica impediscono l'ingresso nell'area di lavoro durante il movimento della macchina.

 ATTENZIONE

Una configurazione imprecisa dello strumento può provocare collisioni del pod e degli strumenti da laboratorio o un pipettamento inappropriato.

 ATTENZIONE

Non posizionare articoli da laboratorio diversi da una confezione di puntali in una posizione di caricamento dei puntali (TL#).

 AVVERTENZA

Per evitare possibili lesioni, indossare occhiali di sicurezza o visiere di sicurezza quando si rimuovono le fascette metalliche e utilizzare la taglierina per fascette metalliche con cautela. Quando vengono tagliate, le fascette possono tornare indietro, causando lesioni.

 AVVERTENZA

Per evitare possibili lesioni, utilizzare la taglierina per fascette metalliche con cautela per assicurarsi che la fascetta non torni indietro.

 ATTENZIONE

Lo strumento Biomek NX^P pesa 86,2 chilogrammi (190 libbre). Per evitare lesioni, seguire le istruzioni del responsabile per la sicurezza relative al sollevamento di oggetti pesanti.

 ATTENZIONE

Quando si solleva lo strumento Biomek NX^P, afferrarlo solo dalle posizioni sulla base. Non afferrare le estremità della copertura di grandi dimensioni sulla parte superiore dello strumento.

 ATTENZIONE

Quando si solleva lo strumento Biomek NX^P, afferrarlo solo dalle posizioni sulla base sagomata. Non afferrare le estremità della barriera fotoelettrica che si estendono lungo la parte anteriore dello strumento.

 ATTENZIONE

La parte posteriore dello strumento è più pesante della parte anteriore. Fare attenzione a non sollevare eccessivamente la parte anteriore in quanto lo strumento potrebbe cadere all'indietro.

 ATTENZIONE

Lo strumento Biomek NX^P sporrà dai bordi di un banco di 36" x 30" (92 cm x 77 cm). Accertarsi che nessun ostacolo interferisca con il posizionamento dello strumento.

 ATTENZIONE

Accertarsi che il banco possa supportare il peso installato totale del sistema. Fare riferimento alla Tabella 1.3 per stabilire il peso totale del sistema.

 ATTENZIONE

Quando si solleva lo strumento Biomek NX^P, afferrarlo solo dalle posizioni sulla base. Non afferrare le estremità della copertura di grandi dimensioni sulla parte superiore dello strumento.

 ATTENZIONE

Per evitare che le mani vengano schiacciate, posizionare con attenzione prima la parte posteriore dello strumento e poi la parte anteriore.

 ATTENZIONE

La tabella ottica è pesante e ingombrante. Per evitare lesioni, sono necessarie due persone per estrarre la tabella ottica dalla cassa di imballaggio.

 ATTENZIONE

Lo strumento Cytomat pesa 50-150 chilogrammi (110-331 libbre). Per evitare lesioni, seguire le istruzioni del responsabile per la sicurezza relative al sollevamento di oggetti pesanti.

 ATTENZIONE

Lo strumento Biomek NX^P sposterà dai bordi di un banco di 25" x 24" (63,5 cm x 61 cm). Accertarsi che nessun ostacolo interferisca con il posizionamento dello strumento.

 AVVERTENZA

Per evitare che i pannelli laterali cadano sulla persona che disimballa un dispositivo Cytomat, una seconda persona deve mantenere ciascun pannello durante la rimozione delle viti.

 ATTENZIONE

Accertarsi che l'ALP corretto sia selezionato durante la configurazione del piano di lavoro in "Deck Editor" (Editor dei piani di lavoro) nel software Biomek. Gli ALP variano per altezza; se non viene selezionato l'ALP corretto in "Deck Editor" (Editor dei piani di lavoro) possono verificarsi collisioni tra i pod e gli ALP durante il funzionamento, provocando danni all'apparecchiatura e/o fuoriuscite di rifiuti pericolosi.

 AVVERTENZA

Rischio di contaminazione. La configurazione non corretta nel software Biomek di "Hardware Setup" (Configurazione hardware), dell'operazione "Device Action" (Azione del dispositivo) o di "Position Properties" (Proprietà della posizione) di AutoLatch in Deck Editor (Editor dei piani di lavoro) può provocare la collisione tra le confezioni dei puntali o i puntali e gli strumenti da laboratorio contenenti materiali biologicamente o chimicamente pericolosi, provocando fuoriuscite sul piano di lavoro degli strumenti Biomek. Testare sempre la configurazione del sistema e il funzionamento dei dispositivi associati con acqua prima di usare agenti chimici o biologici.

 ATTENZIONE

Dopo aver aggiunto nuovi puntali, le proprietà corrette devono essere definite nel software Biomek in “Tip Type Editor” (Editor dei tipi di puntale), in base alle specifiche del produttore. Specifiche imprecise possono provocare collisioni, causando danni all'apparecchiatura.

 ATTENZIONE

Definizioni non corrette degli articoli da laboratorio nel software Biomek in “Labware Type Editor” (Editor dei tipi di articoli da laboratorio) possono provocare crash di sistema o fuoriuscite di rifiuti pericolosi. Verificare che le definizioni siano corrette prima di avviare l'esecuzione di un metodo.

 ATTENZIONE

Le proprietà corrette devono essere definite nel software Biomek in “Labware Type Editor” (Editor dei tipi di articoli da laboratorio), in base alle specifiche del produttore. Specifiche imprecise possono determinare un pipettamento non corretto, soprattutto quando si utilizza Liquid Level Sensing (Rilevazione del livello di liquido).

 ATTENZIONE

Rischio di contaminazione o errore di procedura. Quando si trasferiscono liquidi utilizzando determinati tipi di liquido, la selezione di un tipo di liquido non corretto può determinare scarse prestazioni di pipettamento. Selezionare con cura i tipi di liquido.

 ATTENZIONE

Rischio di contaminazione. Ignorare l'errore e continuare il metodo qualora esista un coagulo che potrebbe contaminare il piano di lavoro.

 ATTENZIONE

Per evitare danni all'apparecchiatura e/o fuoriuscite di rifiuti pericolosi, non è consentita alcuna modifica allo stato dello strumento Biomek mentre il metodo è in pausa. Le modifiche possono essere effettuate al contenuto dell'articolo da laboratorio ma non al piano di lavoro o ai dispositivi.

 AVVERTENZA

La barriera fotoelettrica è un dispositivo di sicurezza. Utilizzarla per arrestare un metodo solo in caso di emergenza.

 ATTENZIONE

Verificare sempre che la configurazione dello strumento fisico corrisponda alla configurazione dello strumento nel software Biomek. Una configurazione imprecisa dello strumento può determinare pipettamento inappropriato o collisione del pod, provocando danni all'apparecchiatura o fuoriuscite di rifiuti pericolosi.

 ATTENZIONE

Per accertarsi che il pod eviti tutti gli ostacoli durante il suo viaggio, nel software Biomek, specificare sempre gli articoli da laboratorio, gli ALP e i dispositivi presenti sul piano di lavoro e la posizione occupata da ciascun elemento sul piano di lavoro. In caso contrario, potrebbe verificarsi la collisione del pod provocando danni all'apparecchiatura o fuoriuscite di rifiuti pericolosi.

 ATTENZIONE

Sugli strumenti FX^P e NX^P, non posizionare articoli da laboratorio diversi da una confezione di puntali in una posizione di caricamento dei puntali (TL#).

 ATTENZIONE

Una rappresentazione imprecisa nel software Biomek della posizione dello strumento nel rack strumenti potrebbe provocare danni all'hardware e danni allo strumento e/o all'apparecchiatura. Verificare che il software Biomek venga aggiornato ogni volta che la posizione dello strumento viene fisicamente modificata sul piano di lavoro.

 AVVERTENZA

La stazione dei rifiuti liquidi può essere contaminata dalle soluzioni dei metodi. Seguire le procedure di decontaminazione appropriate indicate dal responsabile per la sicurezza del laboratorio.

 ATTENZIONE

Rischio di contaminazione o errore di procedura. Quando si trasferiscono liquidi mediante modelli selezionati, la scelta di un modello non corretto può provocare il trasferimento di reagenti in pozzetti non adeguati. Selezionare con cautela i modelli al momento dell'esecuzione.

 ATTENZIONE

Non tentare di accedere a un ALP di lavaggio puntali a 96 canali o a 384 canali con un pod multicanale dotato di un corpo dello strumento HDR. La pinza potrebbe rompersi e danneggiare il pod, il corpo dello strumento HDR o l'ALP di lavaggio puntali.

 ATTENZIONE

Non accedere agli articoli da laboratorio posizionati su un ALP passivo 1 x 5 con il corpo dello strumento HDR. La pinza potrebbe rompersi nell'ALP.

 ATTENZIONE

Non accedere agli articoli da laboratorio su un ALP di agitazione con il corpo dello strumento HDR. L'agitatore magnetico potrebbe piegare i perni o interferire con le prestazioni di trasferimento liquidi dei perni.

 ATTENZIONE

Accertarsi che l'ALP corretto sia selezionato durante la configurazione del piano di lavoro in Deck Editor (Editor dei piani di lavoro). Gli ALP variano per altezza; se non vengono selezionati gli ALP corretti nel software possono verificarsi collisioni tra i pod e gli ALP durante il funzionamento.

 ATTENZIONE

Quando si imposta l'altezza per le operazioni di pipettamento sull'ALP di agitazione, deve essere presa in considerazione la presenza dell'agitatore. Le operazioni di pipettamento in cui non viene considerata l'altezza dell'agitatore potrebbero danneggiare i puntali.

 ATTENZIONE

Rischio di danni all'apparecchiatura. Articoli da laboratorio non conformi potrebbero non essere afferrati saldamente dall'ALP o potrebbero provocare danni fisici all'ALP. Sull'ALP dell'agitatore orbitale è consigliabile utilizzare solo articoli da laboratorio che rispondono agli ANSI/SBS Microplate Standards (Standard per micropiastre ANSI/SBS) elencati di seguito.

- ANSI/SLAS 1-2004: Microplates - Footprint Dimension (Micropiastre - Dimensioni superficie)
- ANSI/SLAS 2-2004: Microplates - Height Dimension (Micropiastre - Dimensioni altezza)
- ANSI/SLAS 3-2004: Microplates - Bottom Outside Flange Dimensions (Micropiastre - Dimensioni flangia esterna inferiore)

 AVVERTENZA

Non agitare i contenitori dei puntali, i coperchi dei contenitori dei puntali o i reservoir sull'ALP dell'agitatore orbitale. I morsetti dell'ALP non sono in grado di mantenere saldamente i contenitori dei puntali, i coperchi dei contenitori dei puntali o i reservoir durante una procedura di agitazione.

 AVVERTENZA

Rischio di contaminazione. Non superare la velocità di agitazione massima consigliata per garantire che gli articoli da laboratorio restino fissati saldamente sull'ALP dell'agitatore orbitale.

 AVVERTENZA

Il tipo e la quantità di fluido da agitare influisce sulla velocità massima di agitazione per tutti i tipi di articoli da laboratorio. Effettuare i test in base alle procedure indicate dal responsabile per la sicurezza del laboratorio per stabilire la velocità di agitazione massima sicura per qualsiasi tipo e quantità di liquido.

 AVVERTENZA

Rischio di lesioni personali o danni all'apparecchiatura. Osservare sempre le procedure di avvertimento appropriate definite dal responsabile per la sicurezza quando si utilizzano solventi infiammabili o materiali radioattivi, patologici o tossici.

 AVVERTENZA

Rischio di contaminazione. Una distribuzione di liquido non uniforme potrebbe compromettere la capacità del meccanismo dei morsetti di mantenere saldamente gli articoli da laboratorio. Accertarsi che il liquido sia distribuito in modo uniforme prima di utilizzare l'ALP dell'agitatore orbitale. I valori massimi consigliati per la velocità di agitazione riportati nella Tabella 22.3 presuppongono che il liquido sia distribuito in modo uniforme in tutta la piastra.

 AVVERTENZA

L'opzione di recupero degli errori "Ignore" (Ignora) nel software Biomek è potenzialmente pericolosa in quanto quasi tutte le azioni dipendono dal completamento corretto delle azioni precedenti. Se si sceglie "Ignore" (Ignora), articoli da laboratorio e reagenti possono essere maneggiati in maniera non corretta o possono verificarsi collisioni e danni allo strumento. Scegliere "Ignore" (Ignora) solo se la causa dell'errore è nota e l'errore è stato corretto e se si conoscono perfettamente le azioni dello strumento successive alla selezione di "Ignore" (Ignora).

 ATTENZIONE

La ripresa di un metodo nel software Biomek presuppone che lo strumento si trovi nello stesso stato in cui si trovava quando si è verificato l'errore. Il pod può essere spostato per risolvere un problema e modifiche possono essere effettuate al contenuto degli articoli da laboratorio. Tuttavia, nessuna modifica può essere effettuata al piano di lavoro degli strumenti o ai dispositivi nel software Biomek. In caso contrario, potrebbero verificarsi danni allo strumento.

 ATTENZIONE

Nelle operazioni completate parzialmente si presuppone che i pod si trovino nella stessa posizione in cui si trovavano quando il metodo è stato interrotto. La rimozione dell'operazione Recovery (Recupero) senza la rimozione delle operazioni completate parzialmente potrebbe provocare danni.

 AVVERTENZA

La barriera fotoelettrica è un dispositivo di sicurezza. Utilizzarla per arrestare un metodo solo in caso di emergenza. Il riavvio di un metodo può modificare la modalità con cui si verifica il pipettamento, riducendo potenzialmente le prestazioni dello strumento.

 AVVERTENZA

Il pulsante STOP (Arresto) dell'hardware è un dispositivo di sicurezza. Utilizzarlo per arrestare un metodo solo in caso di emergenza. Il riavvio di un metodo può modificare la modalità con cui si verifica il pipettamento, riducendo potenzialmente le prestazioni dello strumento.

 AVVERTENZA

Per eliminare la possibilità di sostituire un metodo di continuazione prima di effettuare le correzioni, è consigliabile modificare ed eseguire il metodo di continuazione non appena viene creato.

 ATTENZIONE

Un metodo di continuazione presuppone che lo strumento si trovi nello stesso stato in cui si trovava quando è scattata la continuazione. In caso contrario, le modifiche devono essere applicate al metodo di continuazione.

 ATTENZIONE

Utilizzare sempre il lettore automatico del codice a barre della provetta con il coperchio chiuso e tutte le coperture in posizione.

 AVVERTENZA

Utilizzare nel lettore automatico del codice a barre della provetta solo i contenitori consigliati. I contenitori dei campioni non elencati possono danneggiare il lettore automatico del codice a barre della provetta o provocare errori di pipettamento.

 ATTENZIONE

Non utilizzare combinazioni di contenitori dei campioni e puntali etichettati NO. I puntali potrebbero incastrarsi all'interno dei contenitori dei campioni.

 AVVERTENZA

Maneggiare e smaltire i materiali a rischio biologico secondo le procedure previste dal proprio laboratorio. È necessaria un'adeguata protezione di mani, occhi e faccia.

 AVVERTENZA

Utilizzare solo il tipo di contenitore specificato dall'etichetta del tipo di contenitore sul rack dei campioni. Un rack è configurato in modo da accettare un solo tipo di contenitore dei campioni. L'inserimento di un tipo di contenitore non corretto in un rack potrebbe danneggiare lo strumento o provocare errori di pipettamento.

 ATTENZIONE

Un rack dei campioni è configurato in modo da accettare un solo tipo di contenitore dei campioni. Non inserire in un rack tipi di contenitore diversi.

 ATTENZIONE

Se viene superata la velocità di inclinazione massima per il tipo di articolo da laboratorio i contenitori potrebbero cadere al di fuori del rack. Non superare i valori forniti in precedenza. Non utilizzare alcuna inclinazione per i contenitori indicati come "No tilt at any speed" (Nessuna inclinazione a qualsiasi velocità) nella precedente tabella. *Per ulteriori informazioni, vedere Setting Tilting Parameters (Impostazione dei parametri di inclinazione).*

 ATTENZIONE

Il caricamento all'indietro dei rack delle provette nel compartimento di input quando è selezionata l'opzione di gestione degli errori del codice a barre del rack "Use the configured rack default type" (Utilizza tipo predefinito di rack configurato) potrebbe provocare risultati errati.

 AVVERTENZA

Non inserire le mani nel punto di presentazione del campione quando lo strumento è in funzione.

 AVVERTENZA

Accertarsi che i contenitori dei campioni posizionati nel rack dei campioni corrispondano al tipo indicato sull'etichetta del codice a barre del rack dei campioni. Mancate corrispondenze potrebbero provocare danni all'apparecchiatura o errori di pipettamento.

 AVVERTENZA

Le provette contenute in un rack devono corrispondere sempre al tipo di provetta previsto specificato dal codice a barre del rack.

 ATTENZIONE

Una mancata corrispondenza tra il tipo di rack delle provette predefinito e il rack fisico presente quando si ignorano i codici a barre del rack mancante potrebbe provocare danni all'apparecchiatura, danni agli articoli da laboratorio, pipettamento non corretto e/o fuoriuscite di campioni.

 ATTENZIONE

L'inclinazione deve essere utilizzata solo con provette sigillate o tappate. L'inclinazione di provette non sigillate o prive di tappo potrebbe provocare la fuoriuscita dei campioni all'interno del lettore automatico del codice a barre della provetta.

 ATTENZIONE

L'uso di provette sigillate o tappate richiede puntali adeguati per la perforazione della guarnizione o del tappo septa. L'uso di puntali non equipaggiati per la perforazione potrebbe provocare danni all'apparecchiatura, danni agli articoli da laboratorio, pipettamento non corretto e/o fuoriuscite di campioni.

 ATTENZIONE

Il caricamento all'indietro dei rack delle provette nel compartimento di input quando è selezionata l'opzione di gestione degli errori del codice a barre della provetta "Ignore, use default bar code, and continue the method" (Ignora, utilizza codice a barre predefinito e continua il metodo) potrebbe provocare risultati errati.

 ATTENZIONE

Le posizioni di inclinazione predefinite sono 45° e 135°. A seconda dello strumento da laboratorio e della velocità di inclinazione, la modifica delle posizioni di inclinazione potrebbe provocare lo spostamento del rack dei campioni dal trasportatore. Non utilizzare un angolo di inclinazione non predefinito senza prima effettuare una verifica.

 ATTENZIONE

Non tutti i tipi di provetta possono essere inclinati ad una velocità del 100 %. La velocità di inclinazione predefinita per lo strumento è 30 %. L'inclinazione di provette più grandi ad una velocità del 100 % può provocare la caduta della provetta dal carrello. La velocità di inclinazione deve essere limitata per il tipo di provetta più grande da utilizzare in un metodo. Per le velocità di inclinazione massime consigliate vedere *Tabella 3.3*.

 ATTENZIONE

Accertarsi che le sonde del pod a 8 posizioni non siano posizionate all'interno del rack dei campioni sul punto di presentazione prima del ritorno in posizione Home.

 ATTENZIONE

L'ALP di caricamento nello stack degli articoli da laboratorio deve essere utilizzato solo con la workstation per l'automazione del laboratorio a 8 canali Biomek NX^P (con pinza).

 ATTENZIONE

Non tentare di installare o di rimuovere l'ALP di caricamento nello stack degli articoli da laboratorio; l'ALP deve essere installato o rimosso da un tecnico di assistenza Beckman Coulter.

 AVVERTENZA

Con i materiali dell'ALP di caricamento nello stack degli articoli da laboratorio utilizzare solo articoli da laboratorio supportati.

 ATTENZIONE

Il montaggio di un ALP di caricamento nello stack degli articoli da laboratorio consente di impostare la posizione corretta solo per il piano di lavoro corrente, ma non modifica le informazioni di montaggio relative ad altri piani di lavoro. Se viene utilizzato un piano di lavoro diverso, l'ALP deve essere rimontato per il piano di lavoro, prima che il piano di lavoro venga utilizzato in un metodo.

 ATTENZIONE

Per spostare gli articoli da laboratorio verso e da l'ALP di caricamento nello stack, utilizzare l'operazione Stack/Unstack Labware (Carica nello stack/Scarica dallo stack gli articoli da laboratorio). L'uso dell'operazione Move Labware (Sposta articoli da laboratorio) dalla palette delle operazioni di base causa un errore di convalida.

 ATTENZIONE

Non tentare di installare o di rimuovere il lettore di codice a barre Fly-By; tale lettore deve essere installato o rimosso da un tecnico di assistenza Beckman Coulter.

 AVVERTENZA

Evitare l'esposizione diretta al fascio laser. Non guardare direttamente verso il fascio laser e non lasciare il laser acceso, aperto o non custodito.

 AVVERTENZA

Se vengono utilizzati articoli da laboratorio diversi da quelli specificati in Labware Type Editor (Editor dei tipi di articoli da laboratorio), potrebbe verificarsi un aumento di letture errate o di mancate letture.

 AVVERTENZA

Se un'etichetta viene applicata mediante un dispositivo diverso da Print & Apply (Stampa e applica), potrebbe verificarsi un aumento di letture errate o di mancate letture.

 ATTENZIONE

Il montaggio di un lettore di codice a barre Fly-By consente di impostare la posizione corretta solo per il piano di lavoro corrente, ma non modifica le informazioni di montaggio relative ad altri piani di lavoro. Se viene utilizzato un piano di lavoro diverso, il lettore di codice a barre Fly-By deve essere rimontato per il piano di lavoro, prima che il piano di lavoro venga utilizzato in un metodo.

 AVVERTENZA

Quando si utilizza Home All Axes with a Fly-By Bar Code Reader (Riporta in posizione Home tutti gli assi con un lettore di codice a barre Fly-By), accertarsi che il pod non si trovi vicino alla parte anteriore, posteriore o laterale dello strumento.

 AVVERTENZA

Fare in modo che la copertura di accesso del modulo laser, situata sul lettore di codice a barre Fly-By, sia sempre in posizione quando si utilizza un modulo laser o si risolvono i relativi problemi.

 ATTENZIONE

Non attorcigliare i tubi di drenaggio o alimentazione.

 AVVERTENZA

Utilizzare un ambiente appropriatamente protetto quando si manipolano materiali pericolosi.

 AVVERTENZA

I pozzetti e il reservoir di pulizia dell'ALP di lavaggio attivo a 8 canali potrebbero contenere sostanze chimiche e liquidi pericolosi. Seguire le procedure di smaltimento appropriate indicate dal responsabile per la sicurezza del laboratorio per smaltire i liquidi.

 ATTENZIONE

Utilizzare sempre il lettore automatico del codice a barre della provetta con il coperchio chiuso e tutte le coperture in posizione.

 AVVERTENZA

Utilizzare nel lettore automatico del codice a barre della provetta solo i contenitori consigliati. I contenitori dei campioni non elencati possono danneggiare il lettore automatico del codice a barre della provetta o provocare errori di pipettamento.

 ATTENZIONE

Non utilizzare combinazioni di contenitori dei campioni e puntali etichettati NO. I puntali potrebbero incastrarsi all'interno dei contenitori dei campioni.

 AVVERTENZA

Maneggiare e smaltire i materiali a rischio biologico secondo le procedure previste dal proprio laboratorio. È necessaria un'adeguata protezione di mani, occhi e faccia.

 AVVERTENZA

Utilizzare solo il tipo di contenitore specificato dall'etichetta del tipo di contenitore sul rack dei campioni. Un rack è configurato in modo da accettare un solo tipo di contenitore dei campioni. L'inserimento di un tipo di contenitore non corretto in un rack potrebbe danneggiare lo strumento o provocare errori di pipettamento.

 ATTENZIONE

Un rack dei campioni è configurato in modo da accettare un solo tipo di contenitore dei campioni. Non inserire in un rack tipi di contenitore diversi.

 ATTENZIONE

Se viene superata la velocità di inclinazione massima per il tipo di articolo da laboratorio i contenitori potrebbero cadere al di fuori del rack. Non superare i valori forniti in precedenza. Non utilizzare alcuna inclinazione per i contenitori indicati come "No tilt at any speed" (Nessuna inclinazione a qualsiasi velocità) nella precedente tabella. Per ulteriori informazioni, vedere *Setting Tilting Parameters* (Impostazione dei parametri di inclinazione).

 ATTENZIONE

Se i rack non vengono etichettati correttamente, possono verificarsi danni allo strumento e perdita di campioni, a causa del posizionamento di tipi di contenitori errati nel rack o dell'identificazione non corretta del tipo di rack per il dispositivo.

 ATTENZIONE

Non utilizzare l'operazione Bar Code Reader (Lettore codice a barre), nella categoria SILAS, dalla palette delle operazioni Builder (Generatore). Per garantire che il lettore di codice a barre funzioni correttamente, è necessario utilizzare l'operazione Bar Code Reader (Lettore codice a barre) dall'operazione Integrated Devices (Dispositivi integrati).

 AVVERTENZA

Spegnere lo strumento Biomek prima di montare qualsiasi ALP.

 ATTENZIONE

Non posizionare il controllore reservoir automatico o il contenitore di alimentazione sul piano di lavoro degli strumenti Biomek.

 AVVERTENZA

Spegnere l'unità pompa e scollegare i cavi CAN prima di installare o di rimuovere la testina o la tubazione della pompa.

 AVVERTENZA

Spegnere lo strumento Biomek prima di collegare i cavi di comunicazione CAN.

 ATTENZIONE

Al massimo un cavo CAN lungo può essere utilizzato in ciascuna catena di ALP. Se più di un cavo CAN lungo viene utilizzato in una catena, possono verificarsi errori di comunicazione CAN.

 ATTENZIONE

Non premere il pulsante "Mode" (Modalità). In caso contrario, la configurazione del sensore potrebbe essere modificata, il che richiederà un intervento di assistenza da parte del servizio di assistenza Beckman Coulter.

 ATTENZIONE

Prima di eseguire un metodo, accertarsi che nel contenitore sia presente liquido sufficiente per il metodo.

 AVVERTENZA

L'ALP del reservoir drenabile/riempibile potrebbe essere contaminato dalle soluzioni del metodo. Seguire le procedure di decontaminazione e pulizia appropriate indicate dal responsabile per la sicurezza del laboratorio.

 AVVERTENZA

Quando si utilizza l'ALP di smaltimento in posizione mediana, non riempire eccessivamente il sacchetto di smaltimento. Eventuali perdite dei puntali sul piano di lavoro potrebbero contaminare il piano di lavoro con materiali pericolosi.

 ATTENZIONE

Per evitare collisioni, l'ALP di smaltimento in posizione mediana deve essere montato sulle colonne esterne del piano di lavoro Biomek.

 ATTENZIONE

Accertarsi che l'ALP di smaltimento corretto sia selezionato durante la configurazione del piano di lavoro in Deck Editor (Editor dei piani di lavoro). Gli ALP di smaltimento variano per altezza; se non vengono selezionati gli ALP di smaltimento corretti nel software possono verificarsi collisioni tra i pod e gli ALP di smaltimento durante il funzionamento.

 AVVERTENZA

Per le applicazioni pericolose sono consigliabili sacchetti per rifiuti a rischio biologico autoclavabili contrassegnati in modo appropriato. I sacchetti per rifiuti forniti con l'ALP di smaltimento in posizione mediana non sono sacchetti per rifiuti a rischio biologico. Per le procedure e i sacchetti per rifiuti a rischio biologico appropriati, contattare il responsabile per la sicurezza del laboratorio.

 ATTENZIONE

Accertarsi che il sacchetto sia serrato alle parti superiori delle flange. Lo strumento pinza deve avere spazio sufficiente per spostarsi sull'ALP.

 AVVERTENZA

Il sacchetto dei rifiuti potrebbe essere contaminato. Seguire le procedure di decontaminazione e smaltimento appropriate indicate dal responsabile per la sicurezza del laboratorio.

 ATTENZIONE

RISCHIO DI FUORIUSCITA.

 ATTENZIONE

Per evitare collisioni, l'ALP di smaltimento in posizione mediana con vetrino deve essere montato sulle colonne esterne di sinistra o di destra del piano di lavoro Biomek NX.

 AVVERTENZA

L'ALP di smaltimento in posizione mediana potrebbe essere contaminato. Seguire le procedure di decontaminazione appropriate indicate dal responsabile per la sicurezza del laboratorio.

 AVVERTENZA

L'ALP di riscaldamento e raffreddamento può raggiungere temperature estremamente alte. Lasciar raffreddare l'ALP di riscaldamento e raffreddamento prima di rimuoverlo dal piano di lavoro.

 ATTENZIONE

Non staccare i tubi sul piano di lavoro Biomek. Asciugare immediatamente eventuali fuoriuscite con un panno morbido.

 AVVERTENZA

Gli ALP ad alta densità potrebbero essere contaminati dalle soluzioni del metodo. Seguire le procedure di decontaminazione appropriate indicate dal responsabile per la sicurezza del laboratorio.

 AVVERTENZA

L'ALP 4 x 3 ad alta densità NX-S8 potrebbe essere contaminato dalle soluzioni del metodo. Seguire le procedure di decontaminazione appropriate indicate dal responsabile per la sicurezza del laboratorio.

 ATTENZIONE

L'ALP di caricamento nello stack degli articoli da laboratorio deve essere utilizzato solo con la workstation per l'automazione del laboratorio a 8 canali Biomek NX^P (con pinza).

 ATTENZIONE

Non tentare di installare o di rimuovere l'ALP di caricamento nello stack degli articoli da laboratorio; l'ALP deve essere installato o rimosso da un tecnico di assistenza Beckman Coulter.

 AVVERTENZA

Con i materiali dell'ALP di caricamento nello stack degli articoli da laboratorio utilizzare solo articoli da laboratorio supportati.

 AVVERTENZA

Scollegare l'alimentazione principale prima di collegare o scollegare i cavi CAN.

 ATTENZIONE

Al massimo un cavo CAN lungo (1 metro [39,37"], Codice 717781) può essere utilizzato in ciascuna catena di ALP. Se più di un cavo CAN lungo viene utilizzato in una catena, possono verificarsi errori di comunicazione CAN.

 ATTENZIONE

Al massimo un dispositivo può essere collegato a un ALP della sfera magnetica. Se più di un dispositivo è collegato a un ALP della sfera magnetica, lo strumento Biomek potrebbe non essere in grado di fornire corrente elettrica sufficiente per far funzionare tutti i dispositivi della catena.

 AVVERTENZA

Punto di schiacciamento! I morsetti utilizzati per fissare una micropiastra all'ALP della sfera magnetica potrebbero provocare lesioni personali. Evitare l'interferenza con i morsetti quando una micropiastra si trova sull'ALP.

 ATTENZIONE

L'ALP della sfera magnetica può essere danneggiato se il liquido viene dispensato in un ALP su cui non sono posizionati articoli da laboratorio.

 ATTENZIONE

Accertarsi che gli articoli da laboratorio sull'ALP della sfera magnetica corrispondano al tipo specificato. Prima di essere stretti, i morsetti vengono sollevati all'altezza impostata per il tipo di articoli da laboratorio e impostazioni errate potrebbero impedire di stringere accuratamente i morsetti.

 ATTENZIONE

Impostare la velocità di agitazione sul valore minimo e aumentarla lentamente fino all'impostazione desiderata. In questo modo si evitano fuoriuscite o schizzi.

 AVVERTENZA

Quando si utilizza l'ALP di smaltimento multicanale integrato senza vetrino, non riempire eccessivamente il sacchetto di smaltimento. Eventuali perdite dei puntali sul piano di lavoro potrebbero contaminare il piano di lavoro con materiali pericolosi.

 ATTENZIONE

Quando si utilizza l'ALP di smaltimento multicanale con vetrino, rimuovere la prolunga per sacchetti per evitare collisioni tra il pod e l'ALP di smaltimento multicanale.

 ATTENZIONE

Per evitare collisioni, l'ALP di smaltimento multicanale integrato senza vetrino deve essere montato sulla riga posteriore del piano di lavoro Biomek.

 ATTENZIONE

Le prolunghe per sacchetti non sono intercambiabili tra l'ALP di smaltimento multicanale e l'ALP di smaltimento a 8 canali. In ciascun ALP di smaltimento deve essere utilizzata la prolunga per sacchetti progettata per quell'ALP.

 AVVERTENZA

Per le applicazioni pericolose sono consigliabili sacchetti per rifiuti a rischio biologico autoclavabili contrassegnati in modo appropriato. I sacchetti per i rifiuti forniti con l'ALP di smaltimento multicanale non sono sacchetti per rifiuti a rischio biologico. Per le procedure e i sacchetti per rifiuti a rischio biologico appropriati, contattare il responsabile per la sicurezza del laboratorio.

 ATTENZIONE

Per evitare collisioni, l'ALP di smaltimento multicanale con vetrino deve essere montato nella seconda o nella terza riga nelle colonne esterne di sinistra o di destra del piano di lavoro Biomek FX.

 AVVERTENZA

Per ridurre il rischio di lesione personale, operare unicamente con tutti gli schermi protettivi in sede.

 AVVERTENZA

Il sacchetto dei rifiuti potrebbe essere contaminato. Seguire le procedure di decontaminazione e smaltimento appropriate indicate dal responsabile per la sicurezza del laboratorio.

 AVVERTENZA

L'ALP di smaltimento multicanale potrebbe essere contaminato. Seguire le procedure di decontaminazione appropriate indicate dal responsabile per la sicurezza del laboratorio.

 AVVERTENZA

RISCHIO DI FUORIUSCITA.

 AVVERTENZA

Non attorcigliare i tubi.

 ATTENZIONE

Orientare gli ALP di lavaggio puntali multicanale in modo che le connessioni interne ed esterne siano rivolte verso la parte posteriore dello strumento Biomek.

 ATTENZIONE

Utilizzare l'ALP di lavaggio puntali a 96 canali solo con la testina del puntale monouso 96.

 ATTENZIONE

Utilizzare l'ALP di lavaggio puntali a 384 canali solo con la testina del puntale monouso 384.

 ATTENZIONE

Spegnere lo strumento Biomek prima di collegare o di rimuovere lo strumento AccuFrame dal piano di lavoro degli strumenti.

 AVVERTENZA

Indossare sempre guanti protettivi durante il drenaggio dei fluido di lavaggio dei puntali.

 ATTENZIONE

Fissare tutti gli articoli da laboratorio posizionati sull'ALP dell'agitatore orbitale anche se si usa l'ALP in una posizione standard sul piano di lavoro, ad esempio 1 x 1 o uno spazio di scambio.

 AVVERTENZA

Non collegare gli ALP dell'agitatore orbitale insieme o ad un altro ALP.

 ATTENZIONE

Massimo quattro (4) ALP dell'agitatore orbitale possono essere utilizzati contemporaneamente su un piano di lavoro.

 AVVERTENZA

Spegnere lo strumento Biomek prima di collegare o di rimuovere lo strumento AccuFrame.

 ATTENZIONE

Accertarsi che non siano presenti puntali sulla testina.

 ATTENZIONE

Quando si crea un metodo con un agitatore orbitale e uno stack di articoli da laboratorio, spostare prima gli articoli da laboratorio su un altro ALP, preferibilmente un ALP passivo, quindi spostarli sull'agitatore orbitale. A causa degli offset consentiti con lo stack, gli articoli da laboratorio potrebbero non essere afferrati dal centro. Tuttavia, lo spostamento da un ALP passivo garantisce che gli articoli da laboratorio vengano afferrati correttamente.

 ATTENZIONE

Si consiglia di utilizzare sull'ALP dell'agitatore orbitale solo articoli da laboratorio conformi agli standard delle micropiastre proposti dalla Società per lo screening biomolecolare (Society for Biomolecular Screening, SBS). Articoli da laboratorio non conformi potrebbero non essere afferrati saldamente dall'ALP o potrebbero provocare danni fisici all'ALP.

 AVVERTENZA

Non agitare i contenitori dei puntali, i coperchi dei contenitori dei puntali o i reservoir sull'ALP dell'agitatore orbitale. I morsetti dell'ALP non sono in grado di mantenere saldamente i contenitori dei puntali, i coperchi dei contenitori dei puntali o i reservoir durante una procedura di agitazione.

 AVVERTENZA

Per accertarsi che gli articoli da laboratorio restino fissati saldamente sull'ALP dell'agitatore orbitale, non superare la velocità di agitazione massima consentita.

 AVVERTENZA

Il tipo e la quantità di fluido da agitare influisce sulla velocità massima di agitazione per tutti i tipi di articoli da laboratorio. Effettuare i test in base alle procedure indicate dal responsabile per la sicurezza del laboratorio per stabilire la velocità di agitazione massima sicura per qualsiasi tipo e quantità di liquido.

 AVVERTENZA

Osservare sempre le procedure di avvertimento appropriate definite dal responsabile per la sicurezza quando si utilizzano solventi infiammabili o materiali radioattivi, patologici o tossici.

 ATTENZIONE

Fissare tutti gli articoli da laboratorio posizionati sull'ALP dell'agitatore orbitale anche se si usa l'ALP in una posizione standard sul piano di lavoro, ad esempio 1 x 1 o uno spazio di scambio.

 ATTENZIONE

Se si utilizza il software Biomek FX versione 2.1c o precedente, potrebbero verificarsi danni quando si esegue un metodo di continuazione. Per evitare danni, eliminare tutte le operazioni dell'ALP dell'agitatore orbitale completate parzialmente e reinserirle nel metodo di continuazione.

 ATTENZIONE

Orientare l'ALP di posizione positiva in modo che le connessioni CAN si trovino a destra dell'ALP e il morsetto si trovi nell'angolo anteriore destro quando l'ALP è posizionato di fronte allo strumento Biomek.

 ATTENZIONE

Al massimo un cavo CAN lungo può essere utilizzato in ciascuna catena di ALP. Se più di un cavo CAN lungo viene utilizzato in una catena, possono verificarsi errori di comunicazione CAN.

 AVVERTENZA

Punto di schiacciamento! I morsetti utilizzati per fissare una micropiastra all'ALP di posizione positiva potrebbero provocare lesioni personali. Evitare l'interferenza con i morsetti quando una micropiastra si trova sull'ALP.

 ATTENZIONE

Le versioni precedenti dell'ALP di smaltimento a 8 canali devono essere modificate con la nuova prolunga per sacchetti quando si esegue l'aggiornamento alla versione 3.2 del software Biomek. In caso contrario, potrebbero verificarsi danni del pod a 8 canali.

 AVVERTENZA

Quando si utilizza l'ALP di smaltimento a 8 canali senza vetrino, non riempire eccessivamente il sacchetto di smaltimento. Eventuali perdite dei puntali sul piano di lavoro potrebbero contaminare il piano di lavoro con materiali pericolosi.

 ATTENZIONE

Per evitare collisioni, l'ALP di smaltimento a 8 canali con vetrino deve essere montato sulle colonne esterne del piano di lavoro Biomek.

 AVVERTENZA

Per le applicazioni pericolose sono consigliabili sacchetti per rifiuti a rischio biologico autoclavabili contrassegnati in modo appropriato. I sacchetti per rifiuti forniti con l'ALP di smaltimento a 8 canali non sono sacchetti per rifiuti a rischio biologico. Per le procedure e i sacchetti per rifiuti a rischio biologico appropriati, contattare il responsabile per la sicurezza del laboratorio.

 AVVERTENZA

L'ALP di smaltimento a 8 canali potrebbe essere contaminato. Seguire le procedure di decontaminazione appropriate indicate dal responsabile per la sicurezza del laboratorio.

 AVVERTENZA

Non attorcigliare il tubo di drenaggio.

 AVVERTENZA

Indossare sempre guanti protettivi durante il drenaggio di fluido sull'ALP di lavaggio puntali a 8 canali.

 AVVERTENZA

Il fluido di scarico potrebbe essere contaminato. Seguire le procedure di smaltimento appropriate indicate dal responsabile per la sicurezza del laboratorio.

 AVVERTENZA

Seguire le procedure di smaltimento appropriate indicate dal responsabile per la sicurezza del laboratorio per smaltire i liquidi. I pozzetti e il reservoir di pulizia dell'ALP di lavaggio puntali a 8 canali potrebbero contenere sostanze chimiche e liquidi pericolosi.

 AVVERTENZA

Gli ALP passivi standard potrebbero essere contaminati dalle soluzioni del metodo. Seguire le procedure di decontaminazione appropriate indicate dal responsabile per la sicurezza del laboratorio.

 ATTENZIONE

L'ALP di agitazione continua l'agitamento durante la violazione di una barriera fotoelettrica anche se il metodo viene arrestato.

 ATTENZIONE

Regolare la velocità di agitazione mediante il software. Impostare la velocità di agitazione su un valore tanto elevato quanto è necessario per evitare schizzi.

 AVVERTENZA

L'impostazione della velocità di agitazione su un valore troppo elevato o l'impostazione della velocità su un valore troppo elevato con una quantità di liquido inadeguata nel reservoir o l'aumento troppo rapido della velocità di agitazione in un liquido ad elevata viscosità potrebbero forzare lo spostamento dell'agitatore dalla posizione centrale. L'agitatore deve essere quindi reimpostato nella posizione centrale.

 ATTENZIONE

Il reservoir e l'agitatore potrebbero essere contaminati dopo l'uso. Seguire le procedure di decontaminazione appropriate indicate dal responsabile per la sicurezza del laboratorio.

 ATTENZIONE

Pulire il reservoir prima di conservarlo o di riempirlo con un'altra sostanza.

 ATTENZIONE

Provette di dimensioni diverse non devono essere utilizzate contemporaneamente in un rack delle provette. Per evitare una collisione tra il pod e l'ALP del rack delle provette, tutte le provette nel rack delle provette devono essere di altezza uniforme.

 AVVERTENZA

Gli ALP dei rack delle provette potrebbero essere contaminati dalle soluzioni del metodo. Seguire le procedure di decontaminazione appropriate indicate dal responsabile per la sicurezza del laboratorio.

 ATTENZIONE

Per il corretto funzionamento dell'ALP di caricamento dei puntali deve essere fornita aria pulita e secca.

 AVVERTENZA

Mantenere le distanze dal punto di schiacciamento quando i pistoni di bloccaggio si spostano verso l'alto nella testina o nel pod.

Messaggi di sicurezza

Messaggi di sicurezza della workstation Biomek NX^P

Abbreviations

% — percent

°C — degrees Celsius

°F — degrees Fahrenheit

μL — microliter

ALP — Automated Labware Positioner

ANSI — American National Standards Institute

BC — Beckman Coulter

CAN — controller area network

CFR — Code of Federal Regulations

COM — communication port

cm — centimeter

ETC — estimated time of completion

ID — identification

SPE — Solid Phase Extraction

USPTO — United States Patent and Trademark Office

WEEE — Waste Electrical and Electronic Equipment

Glossary

21 CFR Part 11 — Outlines the technical and procedural FDA requirements to implement electronic records and/or electronic signatures for computer systems.

Absolute Moves — Low level, position-to-position moves along one or more axes.

AccuFrame tool — A device that automates the process of teaching Biomek Software the location of the labware positions and devices positioned on the deck.

Address Switch — Address switches allow Biomek Software to identify the device being used with hexadecimal numbering. Address switches are manually set on active ALPs.

Axis — The Biomek NX^P instrument has four axes (X-, Y-, Z-, and D-).

Barcode Reader ALP — Active ALP that scans barcode labels applied to labware.

Bearing Blocks or Bearing Carriage Blocks — Rectangular blocks that glide on the linear rails for both X- and Y- axes.

Beckman Coulter Accounts & Permissions — An integrated set of features built into Beckman Coulter software that assists users in complying with 21 CFR Part 11 requirements for closed systems. With Biomek Software, support is extended only for the instrument; devices integrated with the instrument are not supported unless specified in separate documentation.

Biomek NX^P Multichannel Laboratory Automation Workstation — The Biomek NX^P Multichannel is a multi-axis instrument designed with an open architecture to allow expandability of the system. The design provides a foundation for interchangeable specific-use components, such as the 96-and 384-Channel Heads and a variety of ALPs, and for integrating additional devices, such as detectors and washers.

Biomek NX^P Span-8 Laboratory Automation Workstation — The Biomek NX^P Span-8 is a multi-axis instrument designed with an open architecture to allow expandability of the system. The Span-8 Pod and probes allow liquid to be transferred between test tubes and other labware, as well as to perform liquid level sensing (LLS), clot detection, and septa piercing on test tubes.

Blowout — Process in which extra air is aspirated into tips before aspirating liquid and then dispensed after dispensing liquid to ensure all liquid has been dispensed from the tips.

Bridge — The Biomek NX^P bridge is the structure that moves along the rear support and front rails. The bridge holds the pod and enables movement of the pod in the Y- (front to back) and Z-axes (up and down). The Biomek NX^P instrument supports only one bridge.

Called Method — Method opened and run from a **Run Method** step.

Called Procedure — Procedure opened and run from a **Run Procedure** step.

CAN (Controller Area Network) — Controller Area Network speaks to multiple microprocessors.

Circulating Reservoir — An active ALP which provides a flow of wash fluid from a supply container for pin washing. It may be placed on any open-centered deck position.

Collar (SPE Vacuum Manifold ALP) — Device that supports the source microplate and encloses the receiver filter microplate during filtration operations using the SPE Vacuum Manifold ALP.

Combine Step — Biomek Software step that aspirates from multiple sources and dispenses to a single destination.

Communications Cable — Cable used to link the instrument or other devices to the host computer.

Configuration View — Part of Biomek Software main editor where the configuration for each step appears. The view changes to correspond to the highlighted step in the Method View.

Conic Length — Lowest triangular section of a tip.

Connections — Located on each side of the rear support panel. Connection include power and communications.

Coordinate — Any set of numbers used to specify the location of a point in space. The instrument has four axes (X-, Y-, Z-, and D).

Current Deck Display — Display located at bottom of the main editor showing the location of labware on the deck during a method run. Also shown in the **Deck Editor**.

D- axis — Axis that allows for aspirate, dispense, tip shucking, and gripping operations. Movement along axis is vertical.

Data Set — Stores specific information about wells or tubes. Using data sets, information about a sample in an individual well or tube is tracked along with the sample when it is moved to another well or tube.

Deck — Workspace on the software. Physical deck of the instrument. The Biomek NX^P deck is the worksurface of the instrument and provides twelve standard positions for ALPs and devices. The deck contains predrilled locating holes used to place Automated Labware positioners precisely.

Deck Layout — Current configuration of the deck.

Deck Position — Specific place on the instrument deck. Positions may be named automatically or may be given custom names.

Define Procedure — Step used to create a series of steps that may be used multiple times in a method. A procedure is created by adding and configuring steps within a **Define Procedure** step.

Delta — Used for **Manual Control**. Change value for manual movement of pods.

Device Controller — Provides a means to control a number of high voltage and low voltage digital outputs and inputs. Digital IO devices on the deck that must be connected to the device controller must be configured to use the device controller through **Hardware Setup**.

Diluent — Inert substance used to dilute a sample during serial dilution.

DMSO — Reagent used to solubilize compounds. Irritating to eyes, skin, and the respiratory system.

Drainable/Refillable Reservoir ALP — Active ALP featuring a reservoir that can be drained and refilled automatically using steps in a Biomek Software method or manually using Advanced Manual Control.

Encoder — Tracks the absolute position of an axis.

Enqueue — Used internally by software and firmware to establish the order of operations of the instrument.

Expression — One-line combination of alphanumeric characters and/or variables combined using mathematical operations. May be used anywhere a variable can be used.

Filter Microplate — Labware through which fluids are separated from solids in the SPE Vacuum Manifold ALP.

Filtration System — Includes a vacuum valve unit that is connected to the instrument via RS-232 communication, and a manifold system with interchangeable collars to allow collection of filtrates to microplates or waste. The filtration system is used to run screening assays which require filtration, such as receptor binding and cell-based assays, and plasmid DNA purification applications on the Biomek NX^P workstation.

Follow Liquid — When chosen, the tips will follow the liquid level during aspirate or dispense. If no liquid levels are defined in the labware when **Follow Liquid** is active, an error will occur. The error will read “Cannot move relative to liquid level if liquid amounts are not defined for specified labware.”

Framing — Process of providing exact coordinates of positions on the deck or exact offsets for the gripper. Also called teaching.

Framing Tools — Tools used in the process of framing the deck or grippers.

Gripper — On the Biomek NX^P workstation, the gripper has gripper fingers (two in front and one in back) that grasp labware along the long side and move the labware from one location on the deck to another.

Hardware Error — Error resulting from problems with the hardware.

Home Position — Origin of an axis or coordinate system. This position is where the pod goes when it is homed. The home position is located toward the upper back left corner of the instrument. Also known as the Zero (0) point.

Homing — Process of locating the home position. This process must be done every time the instrument is powered up. Instrument homes Z-, Y-, X- and D- axes.

If Step — Step controlling actions in a method based upon a condition, such as liquid volume in labware or aspirate amount.

Import File — File that contains settings from a workspace.

Import/Export Utility — Utility that allows settings from a workspace to be recovered or shared.

Initialization — This process sets the instrument to its starting configuration.

Instrument File — Stores information about the hardware configuration and deck layout of the instrument. Instrument files can represent different Biomek instruments, or different hardware configurations for the same instrument.

Instrument Setup — Step which specifies the configuration of the instrument deck and pods. Includes labware and labware contents for items on the deck.

Just in Time (JIT) — Step which synchronizes the execution of its substeps. Steps within the **Just In Time** block are enqueued in the order in which they appear in the Method View, but it may be possible to execute two or more steps simultaneously.

Labware Class Type — Groups of labware, such as microplates, available for use with the instrument. Labware class types may be added, modified, or deleted as needed.

Labware Properties — Characteristics of labware for use in a method. Accessed from either **Device Setup** or **Instrument Setup** steps.

Liquid Level Sensing — The Biomek NX^P Span-8 Pod can determine the liquid level using Liquid Level Sensing tips during liquid transfers. LLS tips are used to determine the liquid level in a piece of labware by detecting a shift in the capacitance. The LLS tip moves to a specified height within a well and then slowly moves down into the well. When the tip contacts liquid, there is a large change in the capacitance detected. The liquid level is sensed by determining the height at which this change in capacitance occurs.

Liquid Type — Liquid characteristics and properties. Edited in the **Liquid Type Editor**.

Locating Holes — Predrilled holes in the base that are used to position ALPs or devices on a Biomek deck or an off-deck position.

Logs — Files that provide text record of a method run. Biomek Software offers six types of logs: **Span-8 Logs, Details, Errors, Pipetting, UnifiedPipetting, and UnifiedTransfer**.

Loop — Step that repeats a sequence of steps a number of times during a method.

Main Editor — Main window in Biomek Software for building liquid-handling methods for a Biomek instrument. Includes the Step Palettes, Method View, Configuration View, Current Deck Display, menu bar, toolbar, and status bar.

Mandrel — Part of a probe that holds a disposable tip and is used during aspirating and dispensing functions.

Manual Control — Allows pods to be moved manually via a software interface.

Marks — A method of keeping track of pipetting operations that extend over multiple steps. For Biomek FX^P and NX^P systems, a single mark is used to identify only the last well accessed in a given pipetting operation. For Biomek 4000 systems, each well that is accessed can be identified by a mark.

Method — Sequentially ordered list of steps comprising a liquid-handling procedure.

Method View — Pane in the main editor displaying the steps in a method.

Microplate — Labware used in liquid-handling procedures. Also referred to as a microtiter or titer plate.

Microtiter Plate — Labware used in liquid-handling procedures. Also referred to as a microplate or titer plate.

Nested Steps — Steps residing within another step, such as **Loop, If, or Let**.

Observed Error — Error observed during a method run not resulting in an error message.

Orbital Shaker ALP — Active ALP that shakes labware using an orbital shaking motion. Thumbscrews attach the ALP to the Biomek deck and a clamping mechanism anchors and positions labware for shaking and pipetting operations.

Offset — Distance from one point to another point.

Open Architecture — Philosophy used when designing the various Biomek platforms. Expansible and open to many uses. Users may pick the equipment that will be most beneficial to their liquid handling needs. The system is expandable in use and configuration so that as users' needs change, the unit can be changed to facilitate those needs.

Parameters — Configuration values that are part of a method or step.

Pipetting Template — Controls the pipetting actions and movements of a pod within the wells of labware.

Plasmids — Circular double-stranded DNA molecules that exist independently from the bacterial chromosome. They are used extensively in DNA cloning procedures.

Pod — The pod is supported and positioned by the bridge and moves in the Y- and Z-axes. The pod may be either a Span-8 pod, or a Multichannel Pod, which perform liquid-handling and labware manipulation.

Preferences — Dialog allowing for changes in the look of the main editor and sets method viewing options.

Prewet — Aspirates and dispenses a specific amount of liquid before performing actual pipetting procedures.

Project File — Stores information about liquid types, labware and tip types, and pipetting techniques as revisions that are used by a method file to configure the actions of the instrument. Project files store a history of all changes, additions, and deletions of items from the project file.

Properties — Characteristics of objects and operations used within Biomek Software. For example, labware has properties for well volume and liquid type, and a pod has properties for speed limit and axes limit.

PSI — Pounds per square inch. Measurement used when setting air pressure for pneumatic lines.

Record — Any item stored in a project file that has been saved. Examples include labware types, method revisions, and deleted items.

Relative Moves — Moves made relative to the current pod location. These are used in the **Advanced Manual Control** dialog to move a pod.

Reservoir — Labware receptacle for holding bulk reagents to be used in a method.

RS-232 Communication — Serial communication standard used for PC to Biomek NX^P workstation.

Run Method Step — Step that executes a method within the current method.

Run Procedure Step — Step that executes a procedure within the current method.

Run Time — Any period when a method is executing.

Sample — Substance diluted during serial dilution. The sample may be expensive or valuable; therefore, the lowest concentration of the sample required to achieve the desired result is necessary.

Sample Tracking — Capabilities built into the functionality of Biomek Software that allow per-well and per-tube sample information to move with the labware during the method run. Information is attached to the labware and travels from the source labware to the destination well/tube. The desired data output is defined and set before the method run begins, and is reported as desired at the completion of the run.

Serial Dilution — Laboratory process that serially dilutes a sample to determine the lowest concentration of the sample required to achieve the desired result. Serial dilution is often used to achieve desired concentrations prior to conducting an assay.

Shaking Peltier ALP — A labware positioner with microplate shaking and heating and cooling capabilities from a connected controller.

Shucking — Removal of tips from mandrels.

SILAS — Open-standard protocol for inter-process messaging designed by Beckman Coulter. Allows independent development and modification of software modules used to control devices such as a barcode reader.

SILAS Module — Software module used to control the operation of a device.

Single Step — Allows the performance of single operations within Biomek steps, such as **Aspirate** or **New Tips**. **Single Step** pauses the Biomek instrument between each operation in a step, allowing visual verification that the operation is correct.

Software Error — Error resulting from inconsistencies between the software and instrument or between configuration items.

SPE Stack — SPE Vacuum Manifold components that are stacked during a method to create the SPE Vacuum Manifold ALP.

SPE Vacuum Manifold ALP — Active ALP that filters fluid from samples by pulling the fluid through a filter microplate.

Speed Limit — Percentage of maximum speed at which an instrument move should occur.

Static Peltier ALP — A labware positioner with heating and cooling capabilities from a connected controller.

Status Bar — Bar located along the bottom of the main editor that shows the current method, project file, instrument file, estimated method time, and error messages.

Step Configuration — Pane in the main editor allowing for configuration of a highlighted step.

Step Palette — Panes in the main editor showing steps available for insertion in a method. Located on the main editor.

Steps (in Biomek Software) — User-configurable actions that may be included in a method and executed during a method run.

String — Series of contiguous characters used as the value of a variable or step parameter.

Substep — Nested step in another step, such as **Loop** or **If**.

Teaching — Process of providing exact coordinates of positions on the Biomek deck or exact offsets for grippers. Also called framing.

Technique — Pre-programmed and automatically selected ways to pipette based upon properties and values.

Technique Properties — Specific items, such as labware type and liquid type, associated with a technique. The number of properties that match a method determine the technique that is selected.

Terminal Block — Group of connection points for similar types of connections.

Thermal Exchange Unit — Heats or cools a reservoir or microplate on the Biomek NX^P deck. The temperature is controlled by a user-supplied circulating bath.

Timed Resource — Allows a method to be paused at the desired deck position for a specified period of time.

Tip Touch — Touching of the tip against the side of the well to remove residual drops of liquid before the tip leaves the well.

TiterPlate — Labware used in liquid-handling procedures. Also referred to as microplate, microtiter plate, or plate.

Trailing Air Gap — Aspirates air into tips after aspirating fluid to help prevent liquid leaks during liquid transfer.

Transfer Step — Biomek Software step that aspirates from a single source and dispenses to single or multiple destinations.

Validate (the current method before running it) — Option which signals the software to simulate the method prior to a run in order to allow errors to be detected before a method starts.

Validated Method — Revision of a method that is saved, approved with an electronic signature, and protected from further modification. Revisions of project items required to run the validated method are also saved and protected from further modification. This ensures that validated method runs are reproducible. When Beckman Coulter Accounts & Permissions is enabled, methods may be validated. Only users with Validate Methods permission can validate methods.

Vector — Quantity specified by direction and magnitude.

Well Depth — Distance in centimeters from the top of the well to the most bottom point of the well.

Worklist — External file containing names and related values. The names are symbolic identifiers used to represent the values.

Wrist ground strap — Device worn about the wrist and attached to the instrument deck to disperse electrostatic charges.

X-axis — Pod horizontal axis oriented along tower. Smaller X coordinates are to the left and larger ones are to the right.

Y-axis — Pod horizontal axis oriented along bridge. Smaller Y coordinates are to the back and larger ones are to the front.

Yoke Adapter Plate — The interconnect between the pod and the bridge.

Z-axis — Pod vertical axis. Smaller Z coordinates are downward and larger ones are upward.

Beckman Coulter, Inc.

Warranty and Returned Goods Requirements

All standard Beckman Coulter, Inc. policies governing returned goods apply to this product. Subject to the exceptions and upon the conditions stated below, the Company warrants that the products sold under this sales agreement shall be free from defects in workmanship and materials for one year after delivery of the products to the original Purchaser by the Company, and if any such product should prove to be defective within such one year period, the Company agrees, at its option, either (1) to correct by repair or at the Company's election by replacement, any such defective product provided that investigation and factory inspection discloses that such defect developed under normal and proper use, or (2) to refund the purchase price. The exceptions and conditions mentioned above are as follows:

1. Components or accessories manufactured by the Company which by their nature are not intended to and will not function for one year are warranted only to reasonable service for a reasonable time. What constitutes a reasonable time and a reasonable service shall be determined solely by the Company. A complete list of such components and accessories is maintained at the factory.
2. The Company makes no warranty with respect to components or accessories not manufactured by it. In the event of defect in any such component or accessory, the Company will give reasonable assistance to Purchaser in obtaining the manufacturer's own warranty.
3. Any product claimed to be defective must, if required by the Company, be returned to the factory, properly decontaminated of any chemical, biological, or radioactive hazardous material, transportation charges prepaid, and will be returned to the Purchaser with transportation charges collect unless the product is found to be defective.
4. The Company shall be released from all obligations under all warranties, either expressed or implied, if any product covered hereby is repaired or modified by persons other than its own authorized service personnel, unless such repair by others is made with the written consent of the Company.
5. If the product is a reagent or the like, it is warranted only to conform to the quantity and content and for the period (but not in excess of one year) stated on the label at the time of delivery.

It is expressly agreed that the above warranty shall be in lieu of all warranties of fitness and of the warranty of merchantability, and that the company shall have no liability for special or consequential damages of any kind or from any cause whatsoever arising out of the manufacture, use, sale, handling, repair, maintenance, or replacement of any of the products sold under the sales agreement.

Representatives and warranties made by any person, including dealers and representatives of the Company, which are consistent or in conflict with the terms of this warranty, shall not be binding upon the Company unless reduced in writing and approved by an expressly authorized officer of the Company.

Parts replaced during the warranty period are warranted to the end of the instrument warranty.

NOTE

Performance characteristics and specifications are only warranted when Beckman Coulter replacement parts are used.

Except as provided in writing signed by an officer to Beckman Coulter, Inc., this system and any related documentation are provided “as is” without warranty of any kind, expressed or implied, including that the system is “error free.” This information is presented in good faith, but Beckman Coulter does not warrant, guarantee, or make any representations regarding the use or the results of the use of this system and related documentation in terms of correctness, accuracy, reliability, currentness, omissions, or otherwise. The entire risk as to the use, results, and performance of this system and related documentation is assumed by the user.

Related Documents

**Biomek NX^P and Biomek FX^P
Laboratory Automation
Workstations User Manual
Addendum**

PN B30029

**Biomek Software User's
Manual**

PN B30026

**Biomek NX^P Preinstallation
Manual**

PN B20063

**Biomek NX and NX^P
Laboratory Automation
Workstations Multichannel
Pod User's Manual**

PN 987892

**Biomek NX and NX^P
Laboratory Automation
Workstations Span-8 Pod
User's Manual**

PN 987887

**Automated Labware
Positioners (ALPs)
Instructions For Use**

PN 987836

**Circulating Reservoir Tip Box
ALP User's Manual**

PN 989299

**Static Peltier ALP Biomek
FX/NX Laboratory
Automation Workstations
User Manual**

PN A93392

**Shaking Peltier ALP Biomek
FX/FX^P and NX/NX^P
Laboratory Automation
Workstations**

A93393

**Stacker Carousel User's
Manual**

PN 148598