

USER REFERENCE MANUAL

RoboSep™-16

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Overview of Safety Symbols



The BIOHAZARD symbol indicates that special care is required to remain protected from biological hazard.



The WARNING symbol indicates where the operator must follow instructions to avoid personal injury or damage to the instrument.

Safety Information and Warnings

STEMCELL Technologies is not responsible for any injury or damage caused by the use of this instrument for purposes other than those for which it is intended, or by modifications of the instrument or software not performed by an authorized STEMCELL Technologies representative.



RoboSep™-16 must be operated by trained professionals and is intended for research use only.



RoboSep™-16 should be placed on a clean, flat surface free of any foreign objects or debris and insulated from excessive vibration. Provide adequate space in front of and above the system for opening the door and working with the instrument and reagents. Provide adequate space nearby to place the laptop and optional handheld barcode scanner.



Always connect the power supply to a 3-prong, grounded AC outlet rated 5A 100 - 240V using the AC power cord provided with RoboSep™-16. Do not use an adapter to a two-terminal outlet. Before plugging the instrument in, be sure that two T5AL 250V~ fuses are installed.



All electrical devices pose a risk of electric shock. To reduce this risk, do not open any covers that are fastened with screws. While RoboSep™-16 is designed to withstand spills, do not allow fluids to enter the interior of the instrument. In the event of such a spill, switch off RoboSep™-16 and disconnect the power cable before cleaning (section 8.0).



Operate RoboSep™-16 at 15 to 30°C, in a non-condensing environment with a relative humidity of 30 to 85% and at an altitude of 0 to 2000 m above sea level. RoboSep™-16 should be used indoors only. RoboSep™-16 is not specified for use inside an incubator or cold room. Protect the instrument against dust and moisture.

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EasySep™ magnets on the RoboSep™-16 deck generate strong magnetic fields. Keep away from pacemakers, watches, or other objects that respond to magnetic fields.



RoboSep™-16 weighs 122 kg (270 lb). Never move a fully assembled instrument by yourself. Use the moving straps attached to each leg of the instrument for moving. At least 4 people are required to move the instrument. Always remove labware and carriers prior to moving.



Proper installation and service of the instrument by an authorized STEMCELL representative is required to provide assurance that the instrument performs within the acceptable limits for its intended use.



In case of malfunction, call STEMCELL Technologies Inc. for service. Servicing performed by anyone other than an authorized STEMCELL Technologies representative will void the warranty associated with RoboSep™-16. There are no user-serviceable parts inside the instrument, and the outer casing should never be removed.

Safety Precautions

Operation



When using RoboSep™-16, good laboratory practices (GLP) must be observed. Suitable protective clothing, safety glasses, and protective gloves must be worn.



If working with biohazardous samples, observe and carry out the maintenance procedures, paying particular attention to cleaning and decontamination. Wear gloves when handling all parts of the instrument. Avoid direct contact with tips discarded into the waste bin. Any surfaces on which liquid is spilled must be decontaminated.



Ensure the instrument is fully opened and secured before accessing the contents on the deck of the instrument. This will prevent accidental closure of the door.



Waste may contain biohazardous or chemical-contaminated material.

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Empty the RoboSep™-16 waste bin (section 1.3.4) only after a run is complete or the instrument is paused. Before initiating a run, ensure there is adequate space remaining in the waste bin to hold tips that will be used during operation.



Do not overfill reagent containers, tubes, or other liquid containers. Promptly clean any spills around the instrument. Clean any spills in RoboSep™-16 only after a run is complete or the instrument is paused.



Do not remove the instrument side covers under any circumstances.



Always have the door closed when executing runs. During operation, the instrument arm may move suddenly, causing bodily harm.

Contact STEMCELL Technologies Technical Support anytime you believe the instrument has lost accuracy or precision in any motion axis.

Maintenance



If RoboSep™-16 becomes contaminated with biohazardous or chemical material, clean it as described in section 8.0.



Observe and carry out the maintenance procedures given in section 8.0. Failure to do so may impair the reliability and correct functioning of RoboSep™-16.



Preventive maintenance beyond daily and weekly maintenance, cleaning, and decontamination must only be performed by an authorized STEMCELL representative.



Do not use an isopropyl alcohol-based solution to clean the door.

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Computer



Take the necessary precautions to guard against software viruses.



Running other software in parallel to the RoboSep™-16 application may negatively affect the operation of the instrument.



Any manipulation of RoboSep™-16 application files can result in erroneous test results or instrument failure.



Only the RoboSep™-16 application may be used to control RoboSep™-16.



For reasons of data security and integrity, use of an uninterrupted power supply (UPS) is recommended, since a loss of power may cause data to be lost or corrupted.

Software

This manual is applicable to RoboSep™-16 software version 2.0.2.5. For other software versions, contact us at techsupport@stemcell.com for the applicable manual.

1.0 Introduction

RoboSep™-16 is a fully automated cell separation instrument that seamlessly integrates multi-sample cell isolation into any laboratory environment. Using EasySep™, the column-free immunomagnetic cell separation system, RoboSep™-16 isolates desired cells from a wide range of samples from different species, tissue sources or sizes, using either positive or negative selection. Through an intuitive user interface, RoboSep™-16 can be instructed to simultaneously isolate cells from up to 16 samples with minimal hands-on time. By automating all reagent- and sample-handling steps, and through the use of disposable pipette tips, RoboSep™-16 rapidly isolates all desired cells while minimizing the risk of sample cross-contamination.

After completion of the cell isolation procedure, cells of interest are immediately available for any downstream application.

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1.1 RoboSep™-16 System Overview

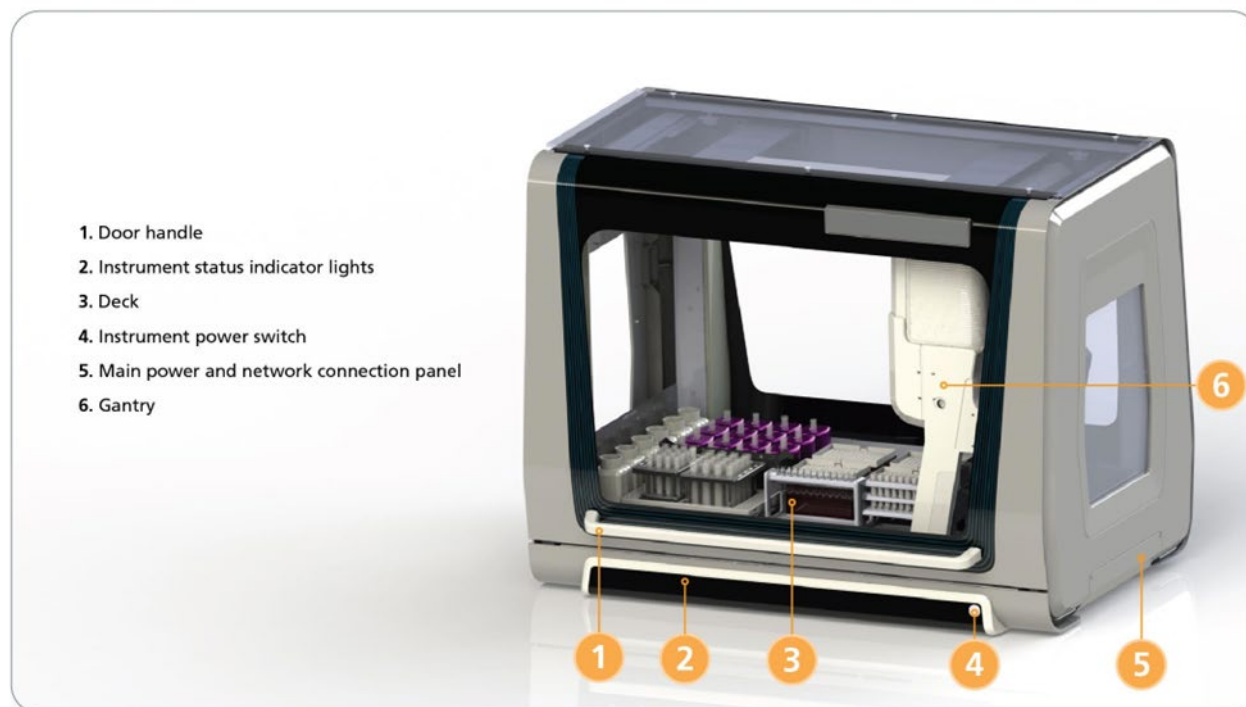


Figure 1. Front View of RoboSep™-16 with the Door Closed

RoboSep™-16 is a fully automated cell separation instrument utilizing the column-free immunomagnetic EasySep™ system.

The major components of the RoboSep™-16 system are:

- Liquid pipetting robot (gantry) (section 1.2)

- The deck (section 1.3)

- Barcode scanner (section 1.4)

- Computer controller (section 1.5)

With these systems acting in concert, RoboSep™-16 performs the following actions to automate EasySep™ cell separation:

- Accurately dispenses magnetic labeling reagents into cell samples using disposable 1 mL tips

- Mixes and transfers the sample between tubes using disposable tips

- Transfers buffer solution to sample tubes using disposable tips

- Tracks usage of disposable tips

- Scans and records reagent catalog and lot numbers

- Uses an alternate set of reagents if insufficient amounts are detected in the primary set

RoboSep™-16 automatically executes all actions required to process up to 16 samples, with the flexibility to perform different types of separations simultaneously.

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The indicator lights in the front indicate the instrument status as shown in Table 1.

Table 1. Indicator Lights and Instrument Status

INDICATOR LIGHTS	INSTRUMENT STATUS
Blinking	Instrument in error state
Pulsing	Gantry in motion
Slowly pulsing	Gantry is idle

1.2 Liquid Pipetting Robot

The four pipetting channels of the robot are mounted within the gantry arm (Figure 1), which moves all four channels simultaneously across the deck. The channels have independent spacing between each other, such that they can independently operate on four vials in parallel. The four channels will pick up every other tip in a row of the 96-tip rack. Each channel can aspirate, mix, or dispense up to 1 mL. At the end of each liquid transfer, the tips are disposed in a waste bin to avoid cross-contamination between samples.

1.3 The Deck

The deck components are shown in Figure 2.

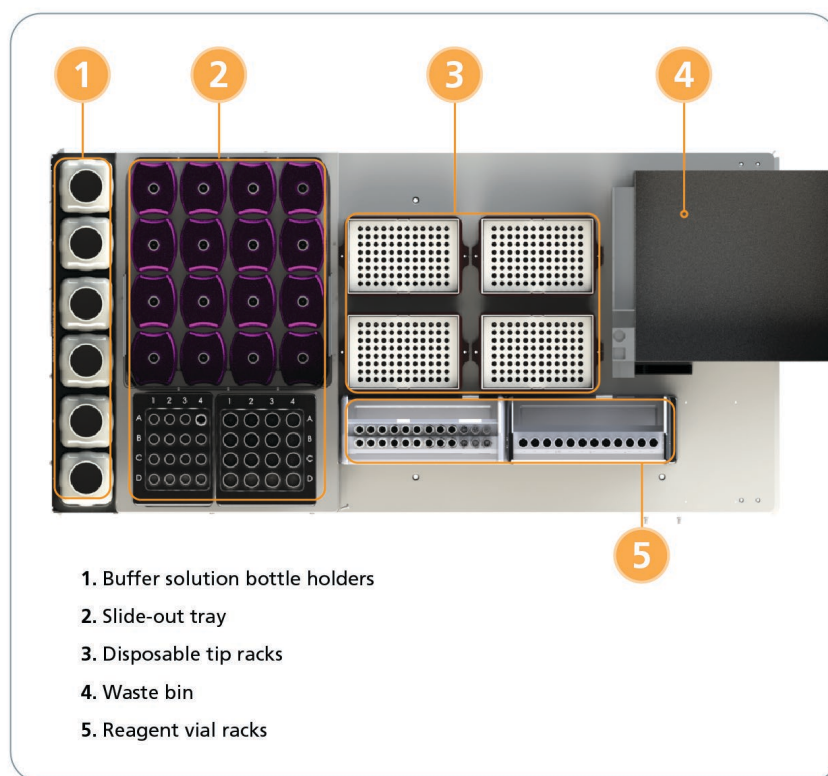


Figure 2. The Deck

To open the RoboSep™-16 door and access the deck:

1. Grasp the handle at the front of the RoboSep™-16 door (Figure 1).

2. Pull the door outward.
3. Move the door upward until it snaps into place. The deck will now be accessible.



The RoboSep™-16 door must be latched in the upper position to prevent accidental closure while accessing the deck.

To close the RoboSep™-16 door:

1. Grasp the handle at the front of the RoboSep™-16 door (Figure 1).
2. Pull the door outwards.
3. Move the door downwards and push it back into place until fully closed.



The RoboSep™-16 door must be closed during the run.

1.3.1 Buffer Solution Bottle Holders

Up to six buffer solution bottles can be placed on the deck (Figure 2). Buffer bottles are used in sets of two to accommodate the simultaneous operation of all four pipetting channels.

For each run, two bottles should be filled with RoboSep™ buffer and placed in positions 1 and 2 of the buffer solution bottle holder. The holder can accommodate four spare bottles (positions 3, 4, 5, and 6) for use with custom protocols. Contact STEMCELL Technologies Technical Support for additional information.

1.3.2 Slide-Out Tray

The slide-out tray (Figure 3) can accommodate the following:

- 16 EasySep™ Magnets (each containing a 5 mL tube)
- Magnet shield
- Sample tube rack (containing up to 16 x 5 mL sample tubes)
- Negative fraction rack (containing up to 16 x 14 mL tubes)

Note: The magnet shield must be placed between the EasySep™ Magnets and the racks (Figure 3). Falcon® Round-Bottom Polystyrene Tubes are recommended (5 mL [Catalog #38007] and 14 mL [Catalog #38008]).

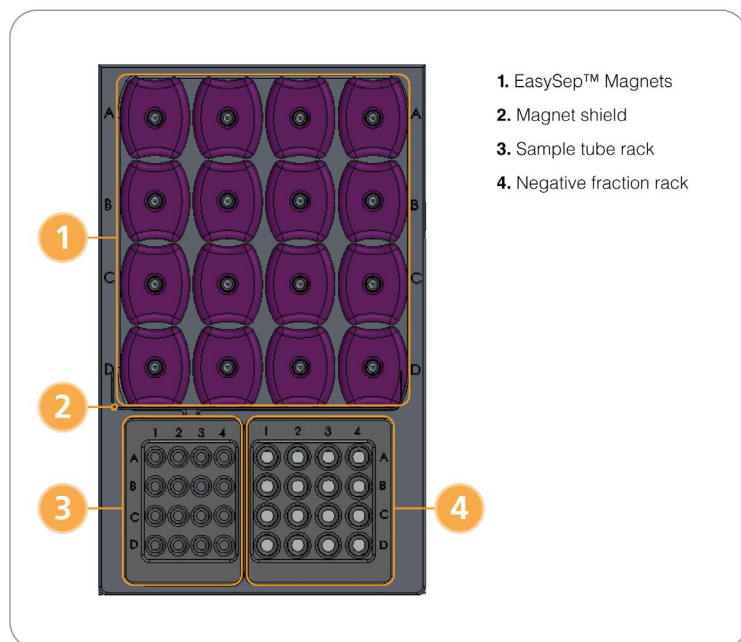


Figure 3. Slide-Out Tray

The sample tubes, magnets, and negative fraction tubes are all arranged in the same 4 x 4 configuration to facilitate locating the tubes corresponding to a particular sample and protocol. An alpha-numeric scheme is used for the identification of each of the 4 x 4 locations. The numbers 1 - 4 refer to the individual protocol groups, whereas the letters A - D refer to the sample used within each group. Thus, for protocol group 1, the sample tubes, magnets, and negative fraction tubes used will correspond to positions A1, B1, C1 and D1 in the deck. Up to 4 different protocols can be operated at once, and up to 4 different sample volumes can be set for each protocol. Refer to section 5.2 for additional information on setting up a run.

For ease of loading and unloading, the sample tube rack and negative fraction rack can be removed from the slide-out tray and placed onto the bench. Locating pins under the racks facilitate their correct placement and orientation when loading onto the slide-out tray.

To slide out the tray (Figure 4):

1. Remove the negative fraction rack.
2. Push down on the handle at the front of the tray.
3. Pull the tray outwards.

Note: The tray can only slide out if the negative fraction rack has been removed.

To slide the tray back into place:

1. Push the tray towards the back of the instrument.
2. Push down on the handle at the front of the tray.
3. While holding down the handle, continue pushing the tray until it is locked back into place.
4. Release the handle.

Note: The negative fraction rack should only be placed back onto the deck when the tray is fully stowed in place.

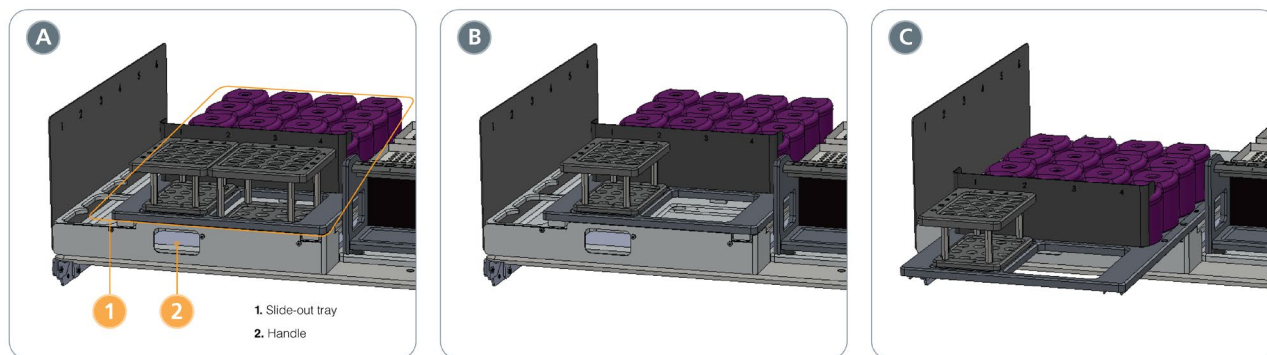


Figure 4. Sliding Out the Tray. (A) Tray loaded with racks and magnets. (B) Negative fraction rack removed. (C) After sliding out the tray.

1.3.3 Disposable Tip Racks



Filtered Conductive 1 mL Tips (Catalog # 23101 or 23102) must be used.

Up to four disposable tip racks can be placed on the deck's black carriers (Figure 2). Each tip rack contains 96 x 1 mL disposable tips. At the time of loading (section 5.2.4), RoboSep™-16 will prompt the user to load tips if the tip tracking system detects empty tip racks. After replacing a disposable tip rack, click on the associated rack number on the loading screen.

If loading a partially filled tip rack, the starting tip position must be specified by clicking the corresponding position on the Loading screen.

Note: Please ensure that the tip locations indicated on the Loading screen match those on the RoboSep™-16 deck.

In addition to transporting liquids, the disposable tips can be used to check whether caps are left on vials and bottles, and whether sufficient reagent and buffer volumes are provided. There are options to check for caps and volumes at the beginning of each run (section 4.1).

1.3.4 Waste Bin




If working with biohazardous samples, wear gloves when handling all parts of the instrument. Avoid touching tips discarded into the waste bin.

A waste bin is present on the deck (Figure 2) to collect used tips. A waste bag should be placed into the bin to collect used tips.

The waste bin can hold the equivalent of four racks of tips. Ensure that the waste bin has sufficient space to contain all tips used in a run.

To dispose and replace the waste bag:

1. Select  [Exit] on the Home screen and wait until the RoboSep™-16 application turns off.
2. Turn off the RoboSep™-16 system using the instrument power switch.

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3. Open the RoboSep™-16 door to access the gantry (section 1.3).
4. Move the gantry (Figure 1) by hand to the left side.
5. Remove the waste bin from the deck.
6. Remove the bag retainer from the bin and dispose of the used waste bag.
7. Place a new waste bag in the bin and secure it with the bag retainer.
8. Place the waste bin back on the deck.

Note: The gantry will automatically move back into position at the beginning of the next run. Do not move the gantry back manually.

1.3.5 Reagent Vial Racks

The RoboSep™-16 deck includes the EasySep™ reagent vial rack and the EasySep™ Direct vial rack, which accommodate the 2 mL and 3 mL reagent vials included with EasySep™ and EasySep™ Direct kits, respectively.

The EasySep™ reagent vial rack can hold up to 24 EasySep™ reagent vials (Figure 5). The rack is split into four groups (1 - 4), corresponding to the reagents required for each individual protocol group. Locating pins under the rack facilitate correct placement and orientation when loading onto the deck.

For each protocol group of the EasySep™ reagent vial rack, up to two sets of reagent vials can be placed in the rack. Each row on the rack is staggered at a different height to allow barcode scanning of all vials.

Note: For the EasySep™ reagent vial rack, ensure reagents are loaded in the primary (top) row of the rack (Figure 5). To ensure that sufficient reagents are available for a run, additional reagents can be placed in the backup (bottom) row of the rack.

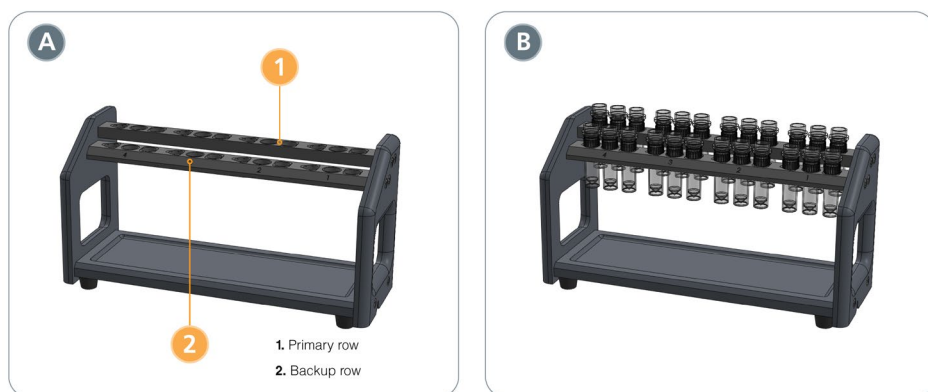


Figure 5. EasySep™ Reagent Vial Rack. (A) Empty and (B) loaded with EasySep™ vials. Note that the primary (top) row should always be loaded.

In 2023, the EasySep™ Direct reagent vial rack was introduced on the RoboSep™-16 to enable sample processing using EasySep™ Direct kits. The EasySep™ Direct reagent vial rack can hold up to 12 EasySep™ Direct reagent vials (Figure 6). The rack is split into four groups (1 - 4), corresponding to the reagents required for each individual protocol group. The EasySep™ Direct reagent vial rack is located to the right of the EasySep™ reagent vial rack, and locating pins under the rack facilitate correct placement and orientation when loading onto the deck. The EasySep™ Direct reagent vial rack requires software version 2.0.2.5 or later. Contact us at techsupport@stemcell.com for more information.



Figure 6. EasySep™ Direct Reagent Vial Rack. (A) Empty and (B) loaded with EasySep™ Direct vials. Note that there is only one row of reagent vials for the EasySep™ Direct reagent vial rack.

Symbols on the reagent vial racks (Figure 7) correspond to the following:

- = Selection Cocktail
- = Primary Antibody (if required)
- Δ = Magnetic Particles

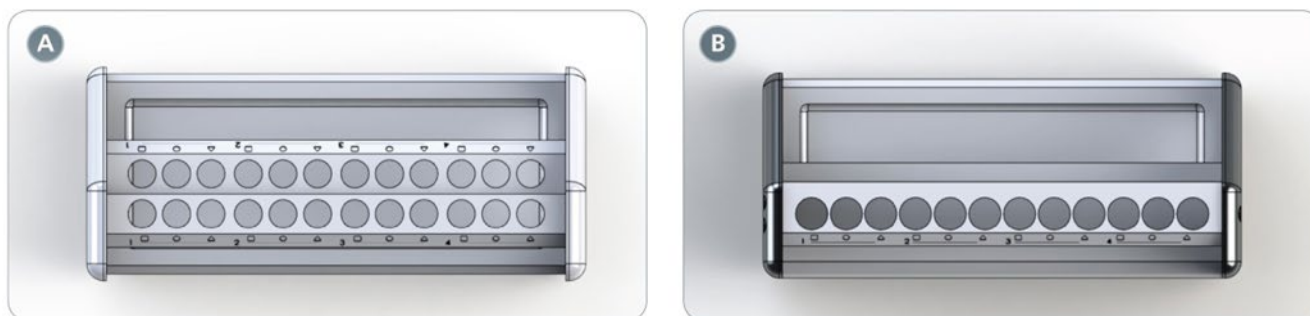


Figure 7. Reagent Symbols and Protocol Group Numbers on the Reagent Vial Rack. (A) EasySep™ reagent vial rack and (B) EasySep™ Direct reagent vial rack.

1.4 Barcode Scanner

The barcode scanner is used to record reagent-specific information such as catalog and lot numbers. This information is recorded in the End of Run Report available at the end of every run (section 6.0).

The barcode scanner is mounted on the front arm of the gantry (Figure 1). At the start of each run, the barcode scanner moves across the reagent vial rack and scans the 2D barcodes on each vial. The primary (top) row of the reagent vial rack will be scanned first.

Note: To remove the barcode scanning option, edit the user profile hardware preferences to disable the **Scan reagent barcodes prior to each run** option (section 4.1).

Optional: A handheld barcode scanner (Catalog #20501) can be connected to the computer via the USB portal. This can be used to scan User IDs, sample IDs, and buffer lot numbers, which are then recorded in the End of Run Reports for each protocol that is run (section 6.0). Contact us at techsupport@stemcell.com for more information.

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1.5 Computer Controller and RoboSep™-16 Application

The computer provided with RoboSep™-16 contains a graphical user interface that controls the operation of the instrument.



The computer provided with RoboSep™-16 does not contain anti-virus software. Users are encouraged to determine if anti-virus software is required at their institution.



During operation of the instrument, any user-installed anti-virus software should be turned off to prevent unnecessary interruption of the protocol run.

1.6 User Interface Overview

1.6.1 Screens

Five screens can be accessed using the task bar on the left of the application window, as shown in Figure 8.

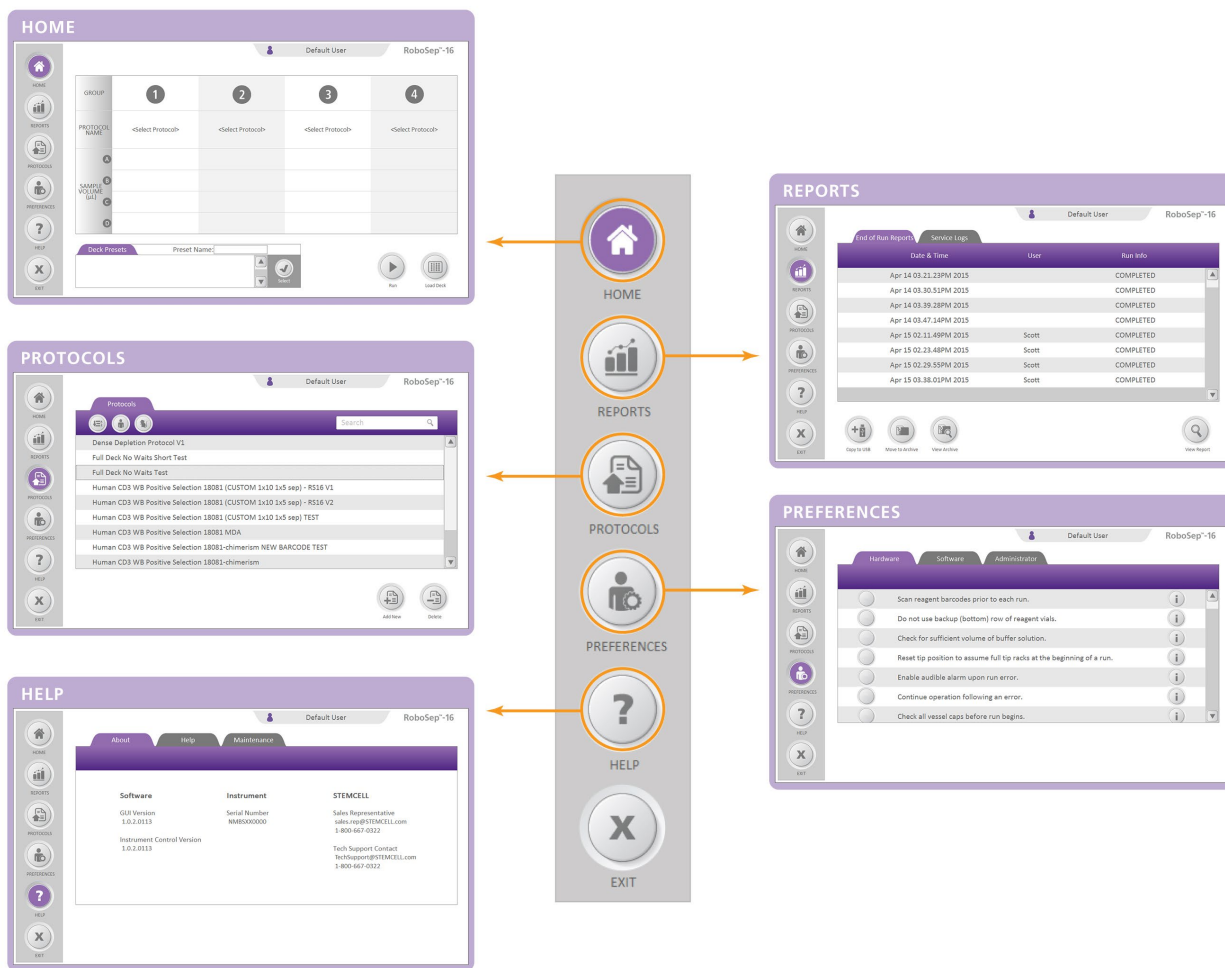











































Figure 8. Screens Accessed from the Home Screen

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1.6.2 Icons

Table 2. Icons Used in the RoboSep™-16 Application

ICON	DESCRIPTION
	Navigate to the Home screen
	Preference selected
	Preference unselected
	Move to next step/View other users
	Go to previous screen
	Sort from A to Z
	Sort from Z to A
	Save
	Delete
	Add user profile
	Copy user profile
	Delete user profile
	Edit user profile
	Change default user image
	Navigate to User Preferences screen
	List only EasySep™ Human protocols
	List only EasySep™ Mouse protocols
	Change password
	Navigate to the Protocols screen
	Add protocols
	Diagnostic Package

ICON	DESCRIPTION
	Remove protocols
	Add protocol presets
	Preview/View
	Run protocols
	Scan reagent barcodes
	Pause run
	Stop protocol
	Load deck
	Unload
	Copy to USB
	Additional information
	Navigate to the Reports screen
	Navigate to the Help screen
	Select option
	Exit or cancel operation
	Enter Admin mode
	Navigate to Maintenance section
	Navigate to service calibration screen
	Move to archive
	View archive

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1.7 Clean Air Protection (CAP) System Overview

The Clean Air Protection (CAP) System is a HEPA-filtered clean air hood that is available as an option for RoboSep™-16. Using a 99.99% 0.3 µm HEPA filter with two high-density pre-filters, the CAP system delivers clean air to the instrument's working environment (Figure 9). The monitoring system maintains flow in the RoboSep™-16 enclosure, creating a constant positive pressure whether the door is open or closed. The monitoring system also features a real-time temperature and humidity display with built-in customer-set alarm settings.

CAP system operation is described in section 6.0. For further information on the CAP system for RoboSep™-16, contact your STEMCELL sales representative.



Ensure that the use of positive pressure with biological samples is acceptable according to the institution's safety standards.

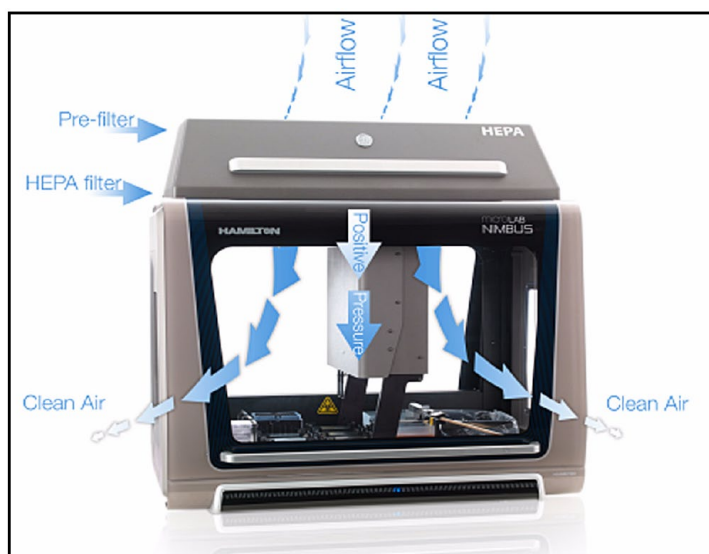


Figure 9. CAP System Air Flow

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2.0 Installation

Successful operation of RoboSep™-16 requires correct installation. An authorized STEMCELL Technologies representative will be present to help unpack, connect, and install the instrument as well as the computer. The STEMCELL representative will also provide laboratory staff with training on the proper operation of RoboSep™-16.



Proper installation and service of the instrument by an authorized STEMCELL representative is required to provide assurance that the instrument performs within the acceptable limits for its intended use.

2.1 Placement of the Instrument



RoboSep™-16 should be placed on a clean, flat surface, free of any foreign objects or debris and insulated from excessive vibration. The surface should be able to support a weight of 145 - 160 kg (320 - 350 lb). Provide adequate space in front of and above the system for opening the door and working with the instrument and reagents. Provide adequate space nearby to place the laptop and the optional handheld barcode scanner.



Never move a fully assembled instrument by yourself. At least four people are required to move the instrument. Always remove labware and carriers prior to moving. Use the moving straps placed on each corner of the instrument. Ensure that the moving straps are properly secured to each leg of the instrument before moving the instrument.

Prior to the first use, an authorized STEMCELL Technologies representative will ensure the instrument is level and the system is calibrated. See section 9.0 for detailed RoboSep™-16 specifications.

2.2 Power and Network Connections

The RoboSep™-16 power and network connections (Figure 10) are located behind the power and network connection panel cover on the right side of the instrument (Figure 1). Remove the panel cover by unscrewing the two screws holding it in place.

Plug the RoboSep™-16 power cord into the power supply located behind the power panel cover and connect it into a 3-prong, grounded AC outlet rated 5A 100 - 240V. Do not use an adapter to connect to a two-terminal outlet. Connect the Ethernet cable, barcode scanner USB cable, and camera USB cable (if present) directly to the computer. Turn on the main power switch next to the power cable socket.

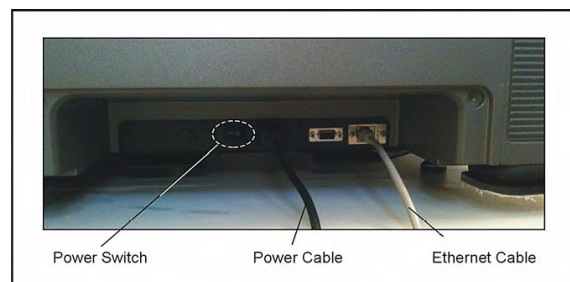


Figure 10. Power and Network Connections

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If power cable for laptop is USB-C format, plug into USB-C port with power plug symbol. Plug USB-C adapter into any other available USB-C port. Any other USB devices required for operation of the RoboSep™-16 (e.g. mouse, handheld barcode scanner, USB flash drives) can be plugged into the USB-C adapter. If you require a network connection for the laptop, a network cable can be plugged into the USB-C adapter as well.

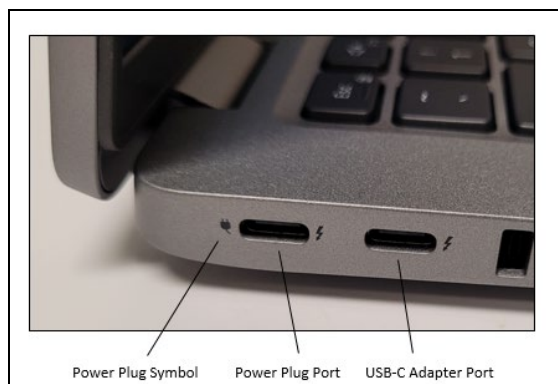


Figure 11. USB-C Ports on Laptop



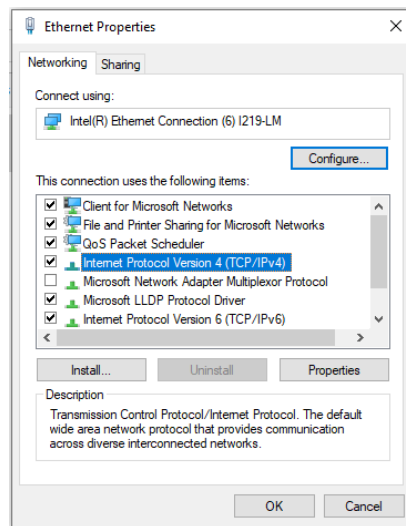
Figure 12. USB-C Adapter Plugged into Laptop

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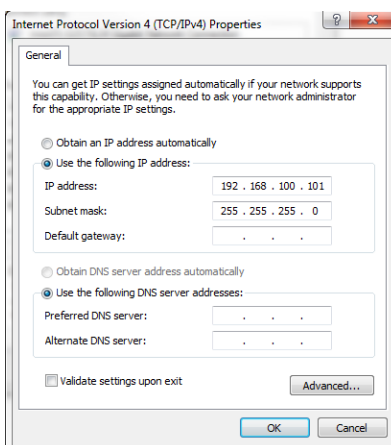
2.2.1 Configuring the Computer to Access RoboSep™-16

To control RoboSep™-16, the computer may need to be configured to the correct Instrument IP address. Use the following instructions to configure the computer network port:

1. Turn on the computer, click on the Windows Start icon and search for Control Panel.
2. Select Network and Internet, followed by Network and Sharing Center.
3. On the options listed on the left, click on **Change adapter settings**.
4. Double-click on **Ethernet**.
5. Double-click the connection **Internet Protocol Version 4 (TCP/IPv4)** on the Ethernet Properties dialog box.




6. Select **Use the following IP address** and type in the IP address 192.168.100.101. Once complete, place your cursor over the Subnet mask box and click once. The number 255.255.255.0 will automatically be generated.



7. Select OK to configure the settings.

2.3 Startup

Note: The first time RoboSep™-16 is used following installation, the STEMCELL Technologies representative will turn on the main power switch located behind the power panel cover, on the right side of the instrument (Figure 10), and will configure the system for use.

1. Turn ON the instrument power switch located on the front of the instrument (Figure 1).
Note: Indicator lights on the front of the instrument will light up, indicating that the instrument is turned on.
2. Turn ON the computer and log in to the system.
3. Start the RoboSep™-16 application on the computer by double-clicking the desktop icon . The Home screen will appear (Figure 13).

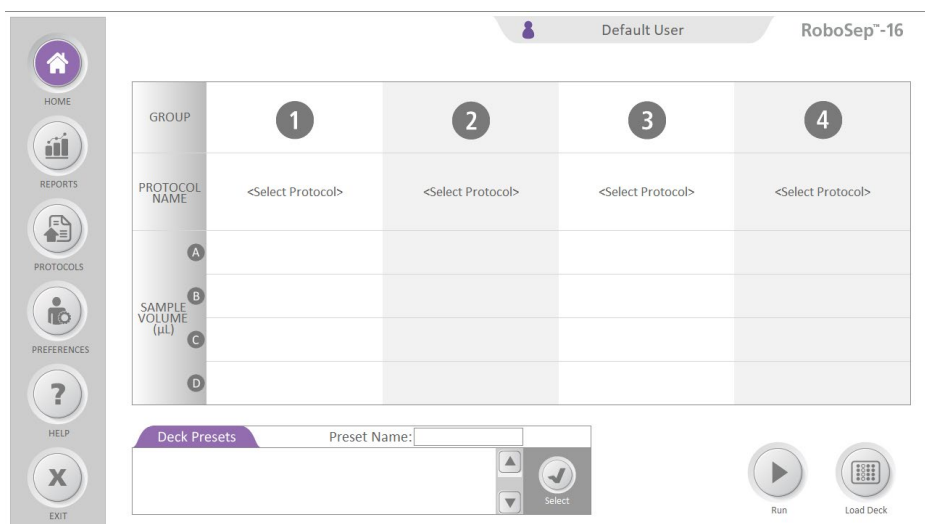



Figure 13. Home Screen

2.4 Shutdown

1. Turn OFF the instrument power switch located on the front of the instrument (Figure 1).
Note: Indicator lights on the front of the instrument will turn off.
2. Select  [Exit] on the Home screen and wait until the RoboSep™-16 application turns off.
3. Log off or shut down the computer.

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3.0 User Profiles

User profiles are used to organize RoboSep™ cell separation protocols (section 5.1) and set preferences (section 4.0) for each RoboSep™-16 user. Users can create their own custom profiles.

To access user profiles, select the User Profile tab on the Home screen. All RoboSep™-16 user profiles will be listed in the User Profile screen (Figure 14).

To choose a user profile, scroll through the list on the User Profile screen and select the desired profile. Once selected, the user name will appear on the User Profile tab in the Home screen.

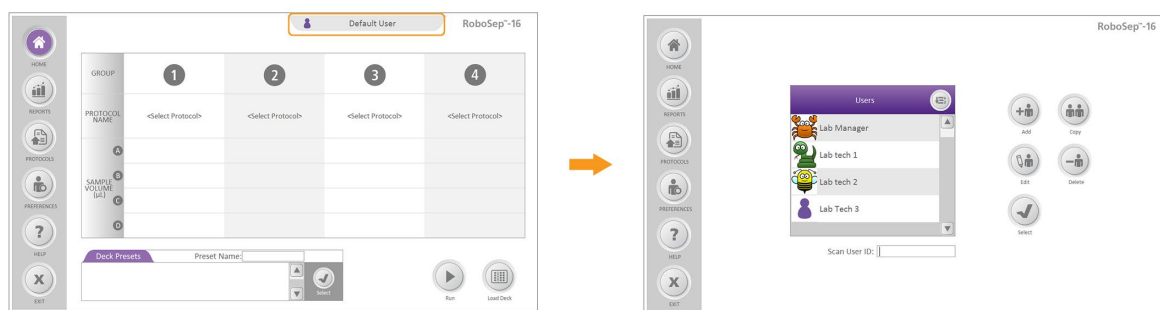



Figure 14. Accessing the User Profile Screen from the Home Screen

Note: Not all user profile editing features are available when the Default to Safe Mode preference is enabled (section 4.2).

3.1 Adding a User Profile

Note: A user profile name cannot exceed 30 characters.

New User Profile

1. Select  [Add] from the User Profile screen (Figure 14).
2. Type the name of the new user profile and press Enter.

Optional: To associate an image to the User Profile, click on  and upload the desired image.


3. Select  [Save]. The new user profile will be added to the list of all user profiles.

Note: A User ID can be manually entered or scanned into the RoboSep™-16 application using a handheld barcode scanner (section 1.4). This information is recorded in the End of Run Report (section 6.0).


Copying a User Profile

This allows a user profile to be copied under a new user name.


1. Select the user profile you want to copy from the User Profile screen (Figure 14). The user will be highlighted in purple.

2. Select  [Copy] and type the new name for the copied user profile.



Optional: To associate an image to the User Profile, click on  and upload the desired image.

3. Select  [Save]. The new copied user profile will be added to the list of all user profiles.

3.2 Deleting a User Profile

1. Select the user profile to be deleted from the User Profile screen (Figure 14). The user will be highlighted in purple.
2. Select  [Delete]. The user profile will be deleted from the list of all user profiles.

3.3 Editing a User Profile

1. Select the user profile to be edited from the User Profile screen (Figure 14). The user will be highlighted in purple.
2. Select  [Edit] from the User Profile screen and edit the user profile name, image, or User ID.
3. Select  [Save].

4.0 User Preferences

On the Preferences screen (Figure 15), there are 3 tabs that may be selected: Hardware, Software, or Administrator. These are described in sections 4.1 and 4.2.

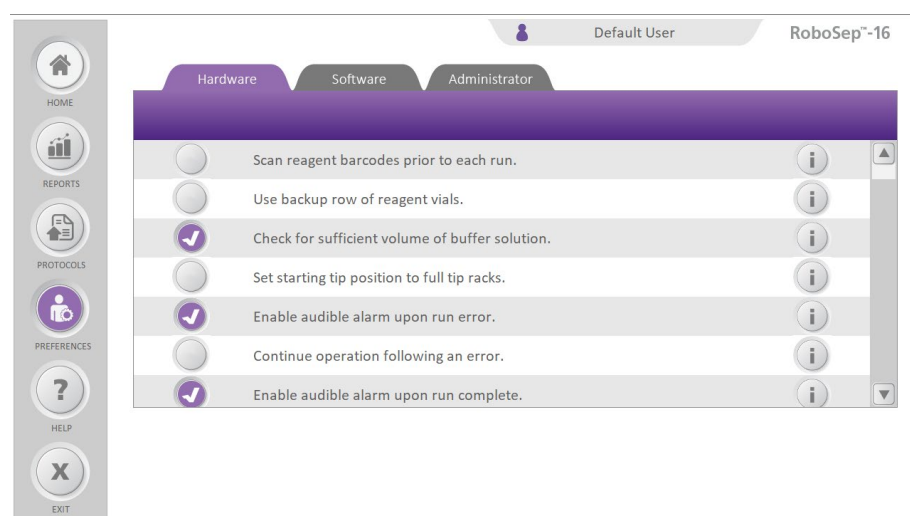





Figure 15. Preferences Screen

4.1 Hardware and Software Preferences

For each user profile, hardware and software preferences can be viewed by selecting the corresponding tab in the Preferences screen (Figure 15). Click on the  next to the desired preference, and a  will appear. See Table 3 for a description of all the preferences available.













Note: Once the desired user profile has been selected, the Preferences screen can be accessed directly from the Home screen by selecting  [Preferences].

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4.1.1 Shell Call

A shell call is a software feature that allows custom batch files to be executed upon occurrence of an event. Contact STEMCELL Technologies Technical Support for more information on how to set up a shell call.

Table 3. Hardware and Software Preferences

TAB	PREFERENCES	DEFAULT SETTING	DESCRIPTION OF INSTRUMENT FUNCTION WHEN PREFERENCE IS SELECTED
Hardware	Scan reagent barcodes prior to each run.		Instrument will scan reagent barcodes prior to each run.
	Use backup row of reagent vials.		Instrument will use the backup set of vials when insufficient reagents are available in the primary set.
	Check for sufficient volume of buffer solution.		Instrument will check the volumes in the buffer bottles and will notify the user when there is insufficient buffer solution to complete a run.
	Set starting tip position to full tip racks.		Instrument will require all tip racks to be fully loaded prior to each run. It will not keep track of tips used in the previous run.
	Enable audible alarm upon run error.		The computer will emit an audible tone when an error occurs during a run.
	Continue operation following an error.		Instrument will attempt to resume operation when no user response is detected within two minutes following an error.
	Enable audible alarm upon run complete.		The computer will emit an audible tone when the run is complete.
	Check all vessel caps before run begins.		Instrument will use tips to detect whether caps are left on the vials or bottles before the run begins. Program will stop and alert user if cap is found, or begin run if no caps are present.
	Check reagent and buffer volumes before run begins.		Instrument will check for sufficient liquid volumes in the reagent vials and buffer bottles prior to running the protocol.
	Enable camera recording of instrument run.		This setting will enable video recording of instrument runs.
	Enable Shell Call on Barcode Reading Error.		Instrument will execute a custom shell script upon occurrence of a barcode reading error.
	Enable Shell Call on Program Initialization Error.		Instrument will execute a custom shell script upon occurrence of a program initialization error.

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TAB	PREFERENCES	DEFAULT SETTING	DESCRIPTION OF INSTRUMENT FUNCTION WHEN PREFERENCE IS SELECTED
	Enable Shell Call on Program Running Error.		Instrument will execute a custom shell script upon occurrence of a program running error.
Software	Collect sample ID data prior to each run.		Sample ID data will be collected during the deck loading process and included in the End of Run Report.
	Enable user defined data field for sample.		User will be able to define a data field to record additional information for each sample in the deck loading/data entry screen.
	Collect buffer lot # data prior to each run.		Buffer lot # data will be collected during the deck loading process and included in the End of Run Report.

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4.2 Administrator Settings

Access Administrator Settings by selecting the Administrator tab on the Preferences screen (Figure 15). From the Administrator Settings screen, the user may enter Admin Mode (section 4.2.1) or change the Admin Password (section 4.2.2).

4.2.1 Admin Mode

Admin Mode must be enabled in order to enable/disable the setting Default to Safe Mode. Safe Mode limits the software functions available to users.

In Safe Mode, the following functions are not available:


Add/Copy/Edit/Delete User profiles

Copy/Archive/View Archive (on Reports page)

Add/Delete protocols

Note: In Admin Mode, all software functions are available.

To enable Admin Mode:

1. Click on  [Admin Mode].
2. Enter the Admin Password and select OK.

Note: The default Admin Password is “RoboSep-16”. You may change this to your preferred password. If you forget your password, contact us at techsupport@stemcell.com for assistance in recovering it.

Admin Mode Enabled will now appear on the upper left side of the screen.


To enable Safe Mode:

1. Select **Default to Safe Mode** by clicking the  next to it.

Note: Default to Safe Mode may only be selected if Admin Mode is enabled. Once Default to Safe Mode is selected, this setting will be active every time the application is opened.

2. To operate the software in Safe Mode, Admin Mode must be exited (see below).


To disable Admin Mode:

1. Click on  [Admin Mode].
2. Enter the Admin Password and select OK.

OR

Exit the application.

4.2.2 Change Admin Password

1. Click on  [Change Admin Password].
2. Enter the current Admin Password and select OK.

Note: The default Admin Password is “RoboSep-16”. You may change this to your preferred password. If you forget your password, contact us at techsupport@stemcell.com for assistance in recovering it.

3. Enter the new Admin Password and select OK.

4.2.3 Privacy Settings

RoboSep™-16 may have an internal video camera (including microphone) that can record sample handling. This monitoring device can be made active throughout protocol runs, and the recorded data is stored in the instrument's laptop. In the event your instrument malfunctions, this data can be retrieved and analyzed by STEMCELL Technologies Technical Support team to help get your RoboSep™-16 up and running again as quickly as possible. The camera can be configured during installation or modified at any time by the customer. To disable, edit the following Hardware Setting under the User Preferences (section 4.1):

- Hardware Setting – Enable camera recording of instrument run

Note: Video camera log files can be accessed and deleted at any time. Files are located in the following locations:

- 'C:\STI\RoboSep-16\Trace Files\Videos' for standard run files
- 'C:\STI\RoboSep-16\Trace Files\Errors' for runs with errors

Users are expected to follow region- and institution-specific privacy policies. It is the user's responsibility to protect sensitive information and to NOT make such information accessible to STEMCELL Technologies. Sensitive information includes any information concerning personal/material circumstances of an identified individual.

Users shall not hold STEMCELL Technologies liable for any data or sensitive information that is disclosed. To comply with your region and institution's privacy policies, update these settings as needed.

5.0 RoboSep™-16 Operation


5.1 RoboSep™ Protocols

RoboSep™ cell separation protocols involve a series of software commands and scheduling instructions designed to automate EasySep™ cell separation. Unless otherwise noted, all protocols have been optimized for use at room temperature (15 - 25°C).



5.1.1 Adding New Protocols to RoboSep™-16

New RoboSep™ protocols can be added to RoboSep™-16 using a USB flash drive. Contact STEMCELL Technologies Technical Support for more information on how to customize and add new protocols to RoboSep™-16.

To add a new RoboSep™ protocol to RoboSep™-16:

1. Transfer the new RoboSep™ protocol onto a USB flash drive.
2. Select a user profile (section 3.0) and then select  [Protocols] on the Home screen.
3. Insert a USB flash drive into the computer and navigate to the location of the new protocol on the USB flash drive.
4. Click on the new RoboSep™ protocol file and drag and drop it into the Protocols screen on the RoboSep™-16 application. The new protocol will be automatically added and saved to the protocol list.


5.1.2 Deleting Protocols from RoboSep™-16

1. Select a user profile (section 3.0) and then select  [Protocols] on the Home screen.
2. Select the protocol you want to delete under the Protocols tab. The protocol will be highlighted in purple.
3. Select  [Delete]. The selected protocol will be deleted from the protocol list.


5.2 Setting Up a Run

5.2.1 Selecting a Cell Separation Protocol

Note: Figure 16 represents an overall schematic of the detailed instructions described below.

1. Select a user profile (section 3.0).
2. From the Home screen, select <Select Protocol> from one of the protocol groups and choose the desired RoboSep™ protocol from the Protocols tab. The selected protocol will be highlighted in purple.
3. Select  [Select] and type the start sample volume (µL) for each sample. The sample volume range possible for each protocol will be listed at the top of the Sample Volume dialog box.

*Note: If using different start volumes for each sample, ensure that the **Use identical sample volumes?** option is not selected.*

4. Select  [Select]. The start volume for each sample will appear under the protocol group on the Home screen.

5. Optional: Repeat steps 1 - 4 to select protocols for additional protocol groups. Up to 4 RoboSep™ protocols can be selected.



Figure 16. Selecting a Protocol

Note: To remove a protocol from an assigned group (1, 2, 3, or 4) or to remove a row of sample volumes (A, B, C, or D), use the cursor to hover over the respective number or letter on the Home screen until an **X** appears. Click on the **X** to remove the protocol from an assigned group or an entire sample volume row. Removal of a protocol group is pictured in Figure 17.

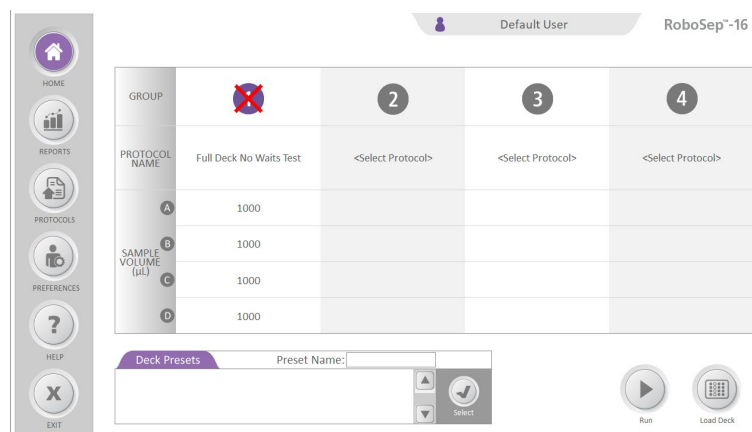



Figure 17. Removing a Protocol Group from the Home Screen

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5.2.2 Protocol Presets

Creating a Protocol Preset


If you regularly run the same protocol, you can set up a protocol preset for future runs. To do this, use the following steps:

1. Select the desired protocol(s).
2. Type the Preset Name on the Deck Presets tab.
3. Select  [Save]. The protocol preset will be saved under the selected user profile.


Note: Presets cannot be saved under the Default User profile; a user from the list must first be selected.

Selecting a Previously Created Protocol Preset

Note: Figure 18 represents an overall schematic of the detailed instructions described below.

1. Select a user profile (section 3.0).
2. Scroll through the list of Preset Names under the Deck Presets tab and select the desired protocol preset. The selected protocol preset will be highlighted in purple.
3. Select  [Select]. The previously saved presets will appear in the Home screen.

Note: The selected protocol preset can be altered. For example, sample volumes can be edited. Once updated, save the updated preset under a new name, by typing a new name in the Preset Name on the Deck Presets tab, and then selecting

Presets tab, and then selecting  *[Save].*

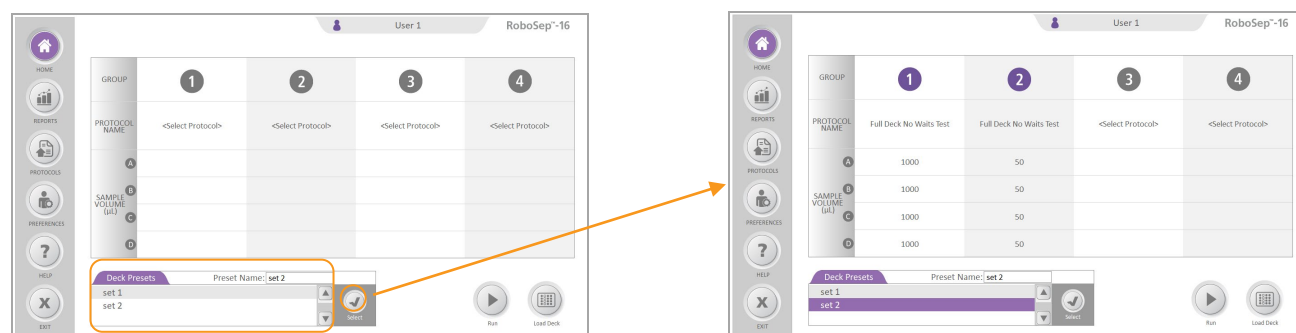





Figure 18. Selecting a Previously Created Protocol Preset



Copying a Protocol Preset

To copy protocol presets from one user profile to another:




1. Select the user profile to be edited from the User Profile screen (Figure 14). The user will be highlighted in purple.
2. Select  [Edit] from the User Profile screen.
3. Select  [View Other Users] and choose the user profile from which to copy the protocol presets.

4. Select the desired protocol preset under the other user's Deck Presets tab. The protocol preset will be highlighted in purple.

Optional: Select  [Preview] to view the protocols and sample volumes assigned to each protocol group of the selected preset.

5. Select  [Add Preset to My List]. The selected protocol preset will be added to the selected user profile.
6. Select  [Save].

Deleting a Protocol Preset from a User Profile


1. Select the user profile to be edited from the User Profile screen (Figure 14). The user will be highlighted in purple.
2. Select  [Edit] from the User Profile screen.
3. Select the protocol preset you want to delete under the Deck Presets tab. The preset will be highlighted in purple.
4. Select  [Delete]. The selected protocol preset will be deleted from the selected user profile.
5. Select  [Save].



5.2.3 Preparing the Cells

For instructions on how to prepare cells for separation, refer to the Product Information Sheet (PIS) for the EasySep™ cell separation kit.

5.2.4 Loading the Deck and Starting a Run

Use the following instructions to load resources (i.e. reagents, samples, tubes, and tips) on to the deck after selecting the desired protocols or presets (section 5.2.1):

1. Open the RoboSep™-16 door to access the deck (section 1.3).
2. Remove the negative fraction rack and slide out the tray (section 1.3.2).
3. Remove the sample tube rack and reagent vial rack.
4. Select  [Load Deck] on the Home screen. The position where each resource needs to be loaded for each protocol group is highlighted in purple.

Note: To move from one protocol group to another, use the  [Next] and  [Back] icons. The last screen will contain information regarding buffer solutions and disposable tip racks.

5. Load the resources as indicated (highlighted in purple) on the Loading Deck screen. Ensure that all lids/caps have been removed from each resource before loading resources on to the deck.

*Note: In Hardware Preferences (section 4.1), select **Check all vessel caps before run begins** to have RoboSep™-16 automatically check that lids/caps have been removed before a run.*

Note: There is no need to remove the EasySep™ Magnets or the magnet shield from the slide-out tray at time of loading.

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Separation Magnets: Place an empty 5 mL tube into EasySep™ Magnet (Figure 3).

Sample Tubes: Place a 5 mL tube containing the indicated sample volume (µL) into the sample tube rack (Figure 3).

Negative Fractions: Place an empty 14 mL tube into the negative fraction rack (Figure 3).

Reagent Vials (EasySep™): Place corresponding EasySep™ reagent vials into the primary (top) row of the reagent vial rack and (optional) the backup (bottom) row (Figure 5). If using both rows, RoboSep™-16 will automatically use reagents in the backup (bottom) row if the primary (top) row does not contain the minimum reagent volume indicated on the Loading screen.

Reagent Vials (EasySep™ Direct): Place corresponding EasySep™ Direct vials into the one row of the EasySep™ Direct reagent vial rack (Figure 6).

*Note: When using both rows of the reagent vial rack, ensure that **Use backup row of reagent vials** preference is selected (section 4.1). The total volume contained in the primary (top) and backup (bottom) rows must meet or exceed the minimum volume indicated on the Loading screen.*

Buffer Solutions: Place two buffer bottles, each containing at least the minimum volume (mL) of solution as indicated on the screen, into buffer solution bottle holders (Figure 2), as indicated on the screen.

Disposable Tip Racks: RoboSep™-16 will indicate if tip racks are empty and need to be replaced.

Optional: User entries for Sample IDs, WBC count, and/or buffer lot numbers can be made available. This information will be recorded in the End of Run Report for each protocol that is run (section 6.0). A handheld barcode scanner (section 1.4) can be used to scan Sample IDs and buffer lot numbers. Please contact STEMCELL Technologies Technical Support for more information.


6. Verify that you have sufficient volume of reagents for each resource and ensure that each resource is loaded in the correct location.

*Note: In Hardware Preferences (section 4.1), select **Check reagent and buffer volumes before run begins** to have RoboSep™-16 automatically check for sufficient volume of reagents.*

Note: The protocol group numbers (1, 2, 3, and 4) are displayed on the Loading screen (Figure 19) and correspond to the same numbers on the sample tube rack, negative fraction rack, magnet shield, and reagent vial racks.

7. Place the sample tube rack and reagent vial racks back in the slide-out tray.
8. Push the tray back into place (section 1.3.1) and place the negative fraction rack back onto the tray.
9. Check if the waste bag needs to be replaced (section 1.3.4).
10. Close the RoboSep™-16 door (section 1.3).

Note: RoboSep™-16 will not run if the door is open.

11. Select  [Run] on the Loading Deck screen to start the protocols. A Run Progress screen will appear (Figure 20). RoboSep™-16 homing will occur as well as barcode scanning (section 1.4).

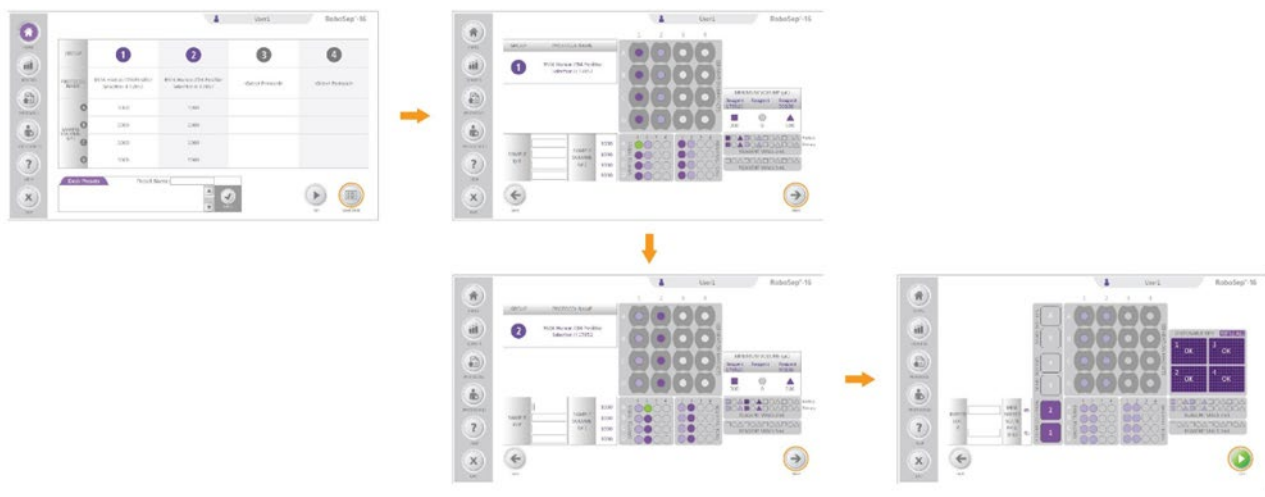





Figure 19. Loading the Deck and Running a Protocol

Note: Users can pause a run by selecting  [Pause] or stop a run altogether by selecting  [Stop]. In both cases RoboSep™-16 will complete the current action before coming to a stop. To resume a run after pausing, follow the prompts and select  [Resume]. RoboSep™-16 will resume the separation. If a run is stopped, it cannot be restarted and will need to be set up again from the start.

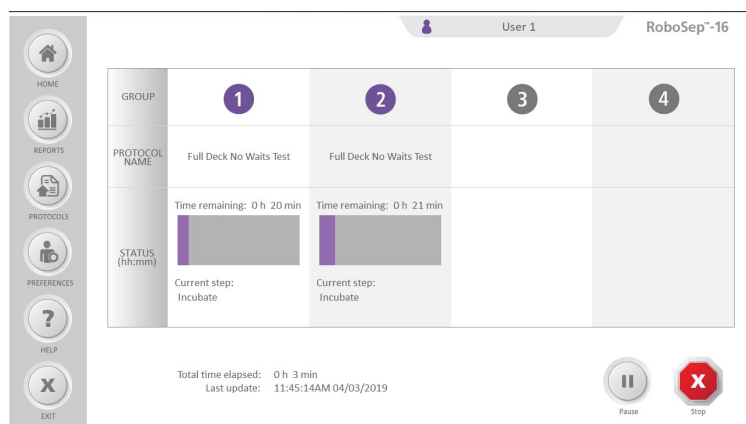



Figure 20. Run Progress Screen

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5.2.5 Collecting Isolated Cells

To collect the isolated cells once the run has been completed:

1. Select  [Unload] from the Completed dialog box (Figure 21).
2. Open the RoboSep™-16 door to access the deck (section 1.3).
3. The tubes containing the isolated cells are indicated on the Unloading screen (Figure 21) in dark purple.
4. Collect isolated cells and unload the deck. Store reagents appropriately and discard remaining tubes and the waste bag (section 1.3.4).

Note: Remove the negative fraction rack in order to slide out the tray (section 1.3.1).


5. Select  [Done].
6. Push the tray back into place (section 1.3.1) and place the negative fraction rack back onto the tray.
7. Close the RoboSep™-16 door (section 1.3).



Figure 21. Collecting Isolated Cells. The isolated cells are located in the tubes highlighted in dark purple under each protocol group of the Unloading screen.

6.0 CAP System Operation

6.1 Turning on the CAP System

The CAP system can be controlled manually through the Membrane Switch. The Membrane Switch gives two different options: turning the fans on/off and/or turning the LED lights on/off in the enclosure (Figure 22).

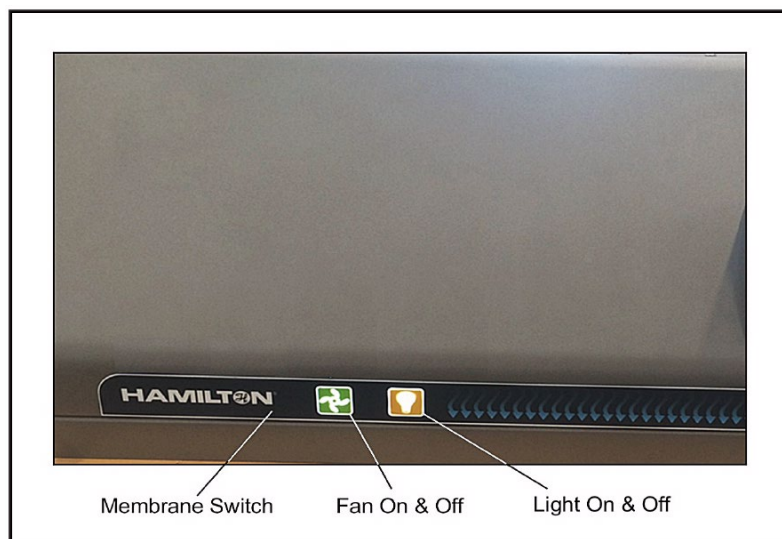


Figure 22. Membrane Switch Location

The CAP system is a dual fan system. To maintain a clean environment, it is important that the fans rotate at the same speed. When powering off the fans, the fan switch will blink and a message on the LCD touchscreen will appear (Figure 23). During this time, the CAP system cannot be turned back on. When the fan power button stops blinking, it is safe to turn the CAP system back on.



Figure 23. "The fans are currently busy" Message

6.2 User Interface

A 109 x 65.8 mm LCD touchscreen is integrated into the CAP system and is used to display various types of information to the CAP system user (Figure 24).

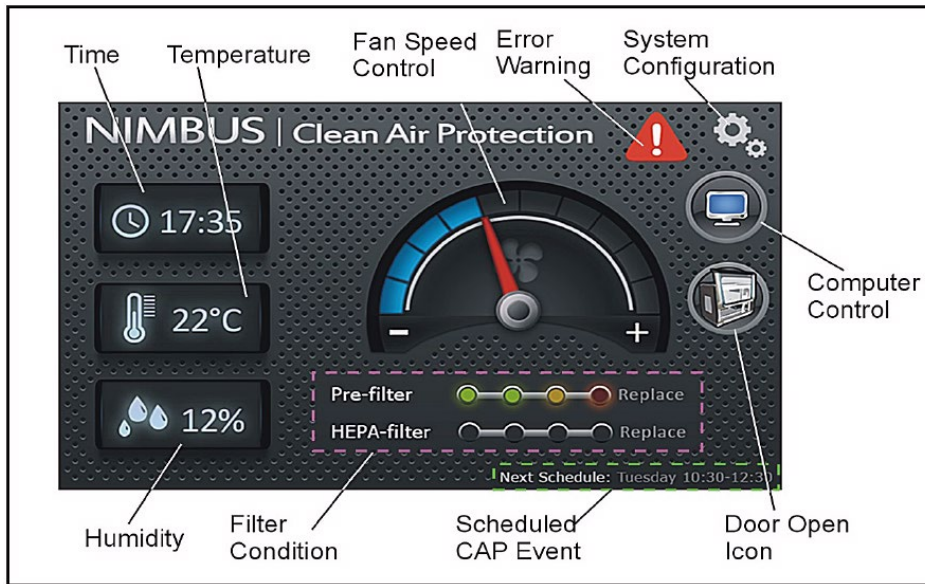


Figure 24. Touchscreen User Interface

6.3 System Configuration Options

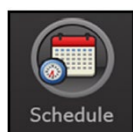
When the System Configuration Icon is selected (top right corner of the main screen in Figure 24), the System Configuration Options appear (Figure 25).



Figure 25. System Configuration Options

The four options—Schedule, Filter Change, System, and Alerts—are described below.

6.3.1 Schedule



The CAP system allows the user to schedule times when the system is on or off (CAP Event). This is useful if the system is required to be on at a certain time, and there are no users to turn it on manually. The scheduled time is aborted if a user selects the fan button from the membrane switch, or if the CAP system is used by the computer at the time it is scheduled to run.

Select the Schedule button from the System Configuration Options screen (Figure 25). The scheduled CAP Events will be displayed (Figure 26). To create or edit a CAP Event, click on the Edit Schedule button on the top left of the screen, then refer to Figure 27.

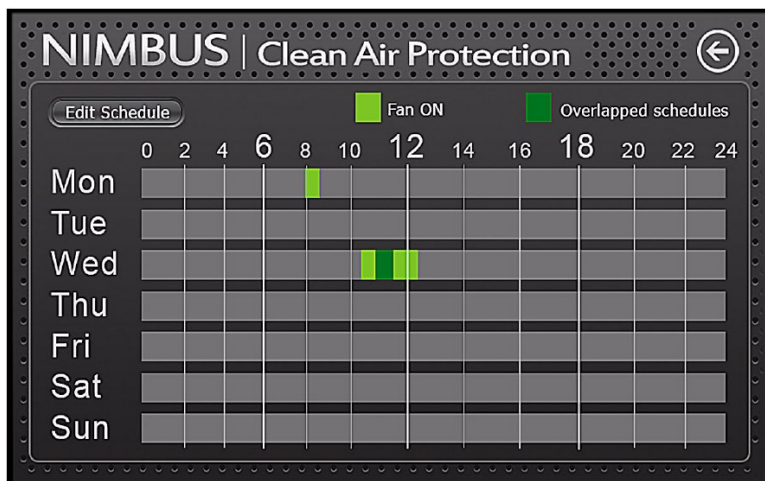


Figure 26. CAP Event Schedule

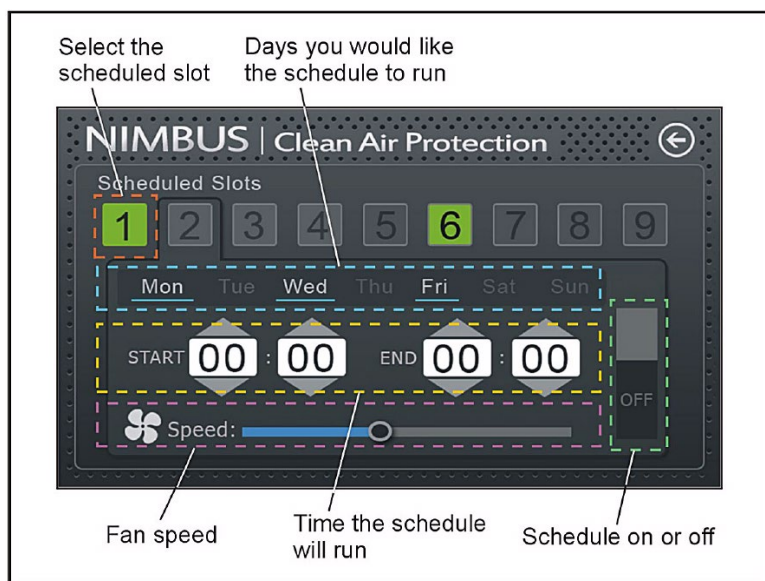


Figure 27. CAP Event Edit Schedule Screen

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6.3.2 Filter Change



When either the pre-filters or the HEPA filter is changed, the user needs to reset the filter change status. Select the Filter Change button in the System Configuration Options screen (Figure 25), then select the Reset button for either Pre-Filters or HEPA Filter (Figure 28).

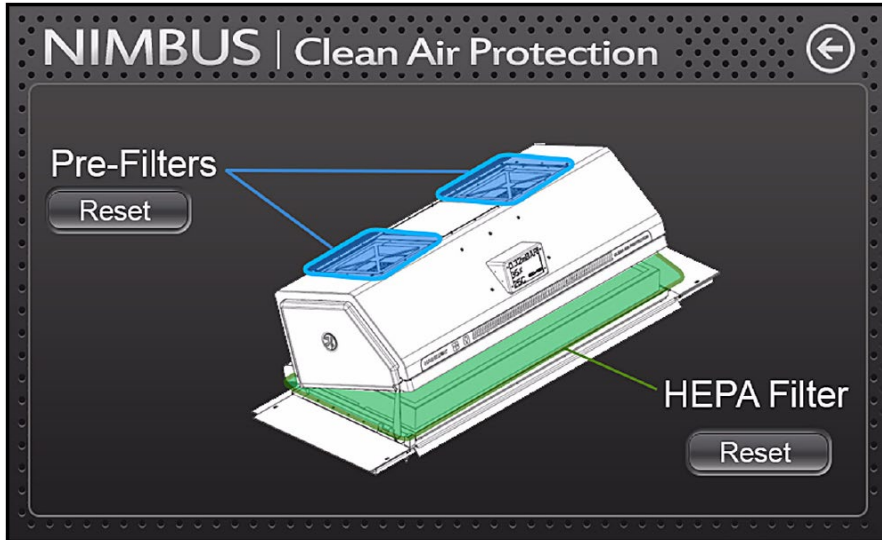


Figure 28. Filter Timer Reset Buttons

6.3.3 System



If the System requires service from a trained STEMCELL representative, this password-protected icon is used to look at the system diagnostics.

6.3.4 Alerts



If the error icon appears on the main screen, the user can press this icon to get a description of the problem.

6.4 Replacing Filters

Replace the pre-filters every 520 hours of use or after 3 months, whichever comes first (see section 6.4.1). Replace the HEPA filter every 2080 hours or after 12 months, whichever comes first (see section 6.4.2).

6.4.1 Replacing Pre-Filters

1. Remove used pre-filters by pulling them out from grooves.
2. Install new pre-filters in the grooves of the CAP system hood (Figure 29).
3. Update the filter change status for the pre-filter as described in section 6.3.2.

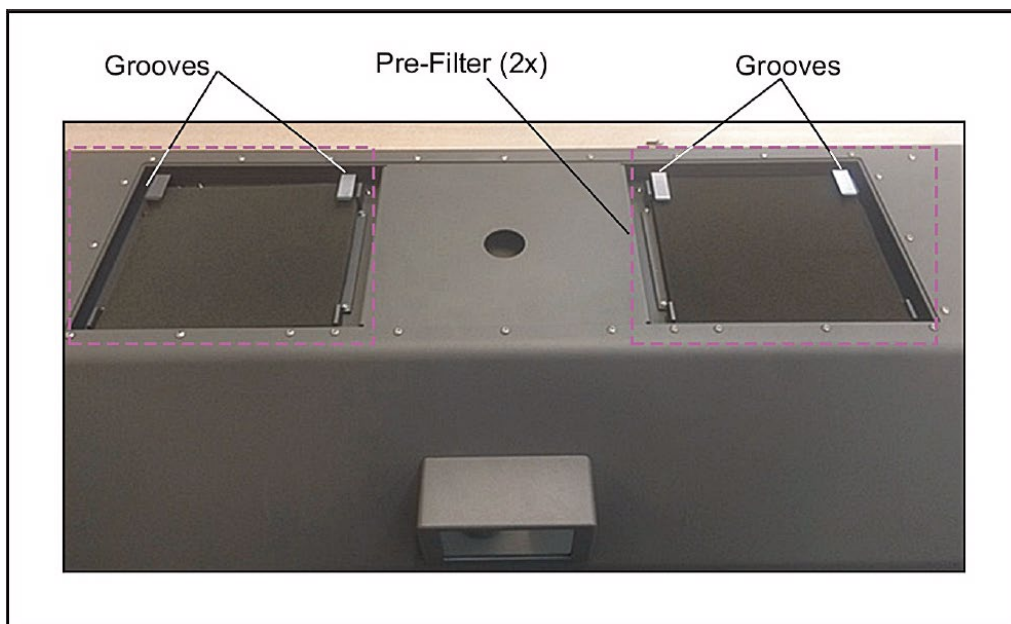


Figure 29. Pre-Filter Installation Locations

6.4.2 Replacing HEPA Filters

1. Lift up the hood with the Extended Handle and secure the Kickstand into the grooved bracket (Figure 30).



Figure 30. Secured Kickstand in Bracket with Handle Extended

2. Remove used HEPA filter by sliding filter out and dispose.

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Dispose used filters according to local regulations and guidelines

3. Remove the HEPA filter from the packaging, ensuring not to touch the white filter material or blue gel (Figure 31). **Note:** Blue gel is located in indent near the outside of the filter to make an airtight seal.



Figure 31. Unpackaged HEPA Filter

4. Using the groove, slide the HEPA filter into place (Figure 32).

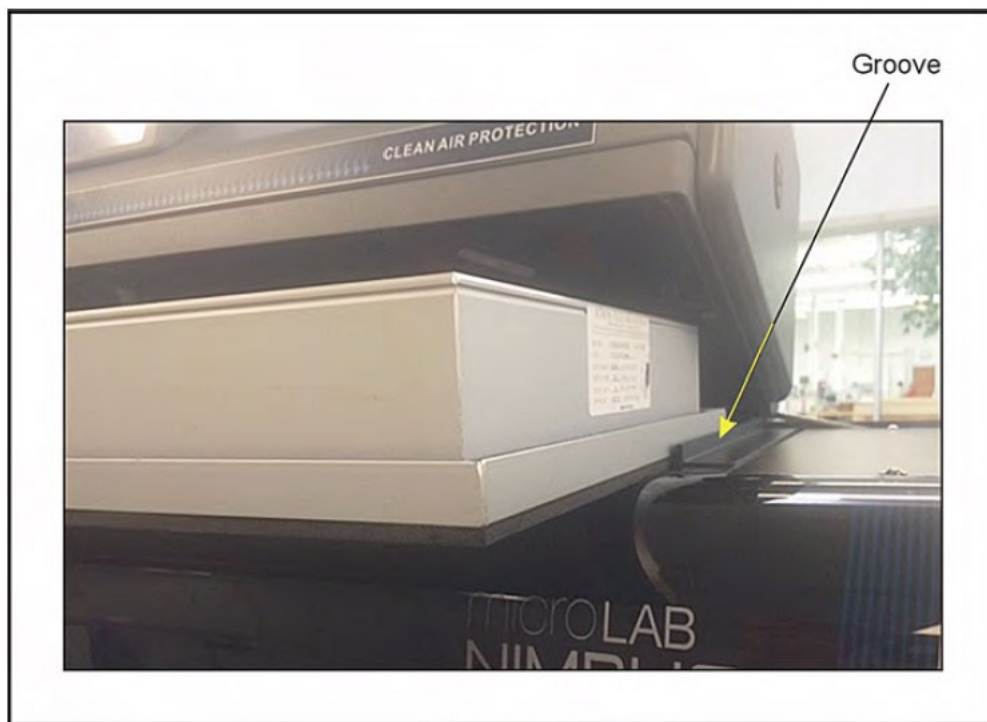




Figure 32. Sliding HEPA Filter in Against Groove




5. Update the filter change status for the HEPA filter as described in section 6.3.2.

7.0 End of Run Report Files

RoboSep™-16 End of Run Reports contain information such as the User ID, sample WBC count (optional), protocol name, run time, reagent lot numbers and usage volume, sample ID, and volumes.

To access RoboSep™-16 End of Run Reports:

1. Select  [Reports] from the Home screen.
2. Select the desired report you want to view. The selected report will be highlighted in purple.
3. Select  [View Report] to view a PDF version of the report.

Note: Reports can be selected and saved onto a USB flash drive by selecting  [Copy to USB]. To save computer disk space, compress old log files into a zip folder by selecting  [Move to Archive]. These files may be retrieved by selecting  [View Archive].

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8.0 Care and Maintenance

8.1 Maintenance

The following regular maintenance and cleaning steps are recommended to ensure optimal performance, reliability, and longevity of RoboSep™-16:

Daily - Recommended before shutdown at the end of the day.

Weekly - Recommended at the end of the week before shutdown.

Yearly - Recommended preventative maintenance (PM) by a trained STEMCELL representative. This PM includes replacement of the CO-RE O-rings and stop disks, system adjustments and calibration, and volume verification. Contact STEMCELL Technologies Technical Support for information on how to purchase this PM.

Materials Required for Daily and Weekly Maintenance

Personal protective equipment (gloves, eyewear, lab coat)

Paper towels



Lint-free paper towels

Deionized water

A cleaner and broad-spectrum disinfectant for use on instruments (e.g. diluted Microcide SQ).

Note: Do not use cleaning or disinfecting solutions that contain hypochlorite, such as bleach.

To perform daily and weekly maintenance tasks:

1. Select  [Help] from the Home screen.
2. Select  [Maintenance] from the Maintenance tab.
3. Select Daily or Weekly from the Nimbus Channel Maintenance dialog box.
4. Perform each task as directed and check off the task box when completed. Continue until all tasks have been completed.

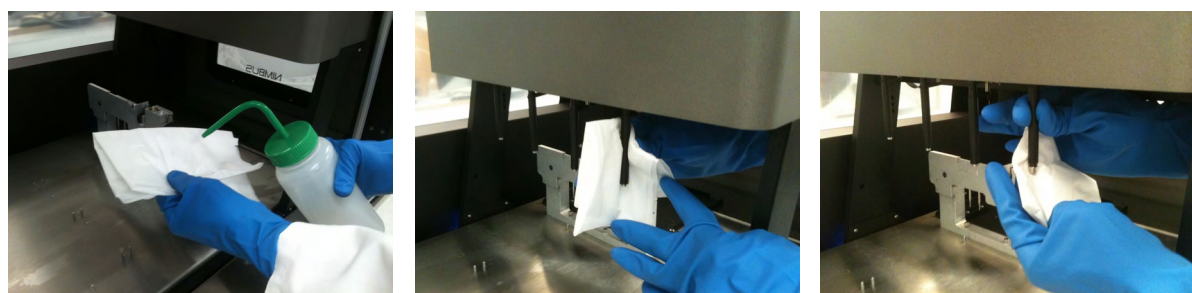
Note: Refer to Table 4 for a summary of daily and weekly tasks.

Note: The silver tip eject plate is located on the waste bar (near the waste bin).

Note: A newer version of the eject plate has an access hole that allows access to the maintenance needles. This version of the eject plate does not require removal to perform maintenance tasks.

Table 4. Daily and Weekly Maintenance Tasks

	TASK	DESCRIPTION
Daily	Inspect the deck and carriers for cleanliness	Wipe up any spills. Spray a non-abrasive cleaner (e.g. Microcide SQ) where required and wipe dry with paper towels.
	Empty the waste bin	Empty the waste bin (section 1.3.4). Dispose of the tip waste bag according to laboratory procedures.
	Check tightness of pipetting channels	Remove the silver tip eject plate from the waste bar (near the waste bin) to reveal the maintenance needles. Clean the tip eject plate with soap and water or with a non-abrasive cleaner. Dry thoroughly. Do not replace the tip eject plate until maintenance is complete. The instrument will perform the rest of this task once selected on the computer.
	Check cLLD (capacitance-based liquid level detection)	Ensure the above task is done before starting this one. The instrument will perform the rest of this task once selected on the computer.
Weekly	Clean the deck and carriers	Remove the carriers from the deck. Spray them with a non-abrasive cleaner (e.g. Microcide SQ) and wipe dry with paper towels. Carriers must be completely dry before reuse. Spray the deck with a non-abrasive cleaner and wipe down with paper towels. Do not spray any devices mounted to the deck. To clean devices, spray a non-abrasive cleaner onto a paper towel and then wipe the device with the towel.
	Check the condition of carriers and other devices	Inspect the carriers for damage as they are placed back onto the deck. Replace damaged carriers.
	Empty and clean the tip waste	Empty the waste bin (section 1.3.4). Dispose of the tip waste bag according to laboratory procedures. Spray the waste bin and waste bin frame with a non-abrasive cleaner and wipe with a paper towel.
	Clean each channel: stop disk, o-ring, and tip eject sleeve	Gently pull each pipette head down from the gantry. Spray deionized water onto a lint-free paper towel (Figure 33). For each channel, wipe down the tip eject sleeve (the black outer part) of the pipette head with the wetted towel. Then lift up the tip eject sleeve and wipe the o-ring and stop disk. The stop disk is the very bottom part of the pipette head.
	Clean the side covers	Spray the outer covers of RoboSep™-16 with a non-abrasive cleaner and wipe dry with a paper towel. Wipe the inner covers and gantry cover with a paper towel wetted with a non-abrasive cleaner and wipe dry.
	Check tightness of pipetting channels	Remove the silver tip eject plate from the waste bar (near the waste bin) to reveal the maintenance needles. Clean the tip eject plate with soap and water or with a non-abrasive cleaner. Dry thoroughly. Do not replace the tip eject plate until maintenance is complete. The instrument will perform the rest of this task once selected on the computer.
	Check cLLD	Ensure the above task is done before starting this one. The instrument will perform the rest of this task once selected on the computer.

**Figure 33. Cleaning Pipette Channels**

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8.2 Replacing the Fuses

If RoboSep™-16 does not turn on after plugging it in and following the startup procedure (section 2.3), the fuses may need to be replaced.

Two fuses are located behind the power panel, on the right side of the instrument, next to the power supply outlet and the main power switch (Figure 10). To replace the fuses:

1. Ensure that the main power switch located behind the power panel, on the right side of the instrument (Figure 10), is turned OFF.
2. Unplug the instrument and open the fuse box.
3. Examine the fuses and replace any faulty fuse with a T5 AL 250V~.
4. Reinsert the fuse box containing the new fuse(s) in the slot. Press gently until it snaps back into place.
5. Plug in the instrument and start up RoboSep™-16 (section 2.3) to ensure it turns back on.

9.0 Specifications

9.1 RoboSep™-16

Capacity	Labels and separates up to 16 samples simultaneously Sample volume from 200 µL to 2 mL for each sample
Dimensions (with door closed)	102.9 cm W x 70.6 cm D x 87.9 cm H 40.5" W x 27.8" D x 34.6" H
Dimensions (with door opened)	102.9 cm W x 70.6 cm D x 123 cm H 40.5" W x 27.8" D x 48.4" H
Weight	122 kg (270 lb) dry weight 150 kg (330 lb) shipping weight
Power Requirements	100 - 240 V~, 50/60 Hz, 5A 2 x fuses: T5 AL 250 V~
Optimal Operating Conditions	15 to 35°C 10 to 90% relative humidity (non-condensing) 0 to 2000 m above sea level Not specified for use inside an incubator or cold room Indoor use only
Storage and Shipping Conditions	-20°C to 70°C 10 to 90% relative humidity (non-condensing)
Applied Standards	Certified to CAN/CSA - 22.2 No. 61010-1-04 (2 nd edition) Certified to CAN/CSA - 22.2 No. 61010-2-081-04 Conforms to UL STD 61010-1 (2 nd edition) Conforms to EN 61010-1:2010 (3 rd edition) Conforms to EN 61010-2-081:2001 +A1:2003 Conforms to EN 61326-2-6:2012 Class A FCC Part 15 Class A
Meets all the Provisions of the Indicated EC Directives	2006/95/EC (low-voltage directive) and 2004/108/EC

RoboSep™-16 is designed and manufactured so that it does not endanger the safety of operators when properly installed, maintained, and used in applications for which it was intended.



RoboSep™-16 unit has the following symbol affixed to the inside upper back cover:

This waste electrical and electronic equipment (WEEE) directive symbol denotes that the device should not be disposed of in municipal waste collection centers. RoboSep™-16 has been designed for easy dismantling and recycling. Contact STEMCELL Technologies regarding end-of-life care for RoboSep™-16.

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9.2 CAP System

Power Requirements	100 - 230 V~, 50/60 Hz, 2.5A
Physical Dimensions	102.3 cm W x 44.2 cm D x 25.9 cm H 40.3" W x 17.4" D x 10.2" H
Weight	HEPA filter: 8.6 kg (19 lb) CAP system: 18.6 kg (41 lb) CAP system shipping weight: 69.4 kg (153 lb)
Sound Level Readings (measured at 45.7 cm (1.5 ft) from RoboSep™-16 and 155.4 cm (5.1 ft) from floor)	RoboSep™-16 alone (base line): 50 db Fan at 950 rpm (door closed): 51 db Fan at 1980 rpm (door open): 61 db Fan at 2800 rpm (max speed): 75 db
HEPA Filter	99.99% @.3 micron, 96.5 cm W x 38.6 cm D x 7.6 cm H (38" W x 15.2" D x 3" H)
Pre-Filter	Polyurethane open-cell 60 PPI washable, 1.3 cm thick x 20.3 cm x 20.3 cm (0.5" thick x 8" x 8")
Optimal Conditions	15 to 35°C 30 to 85% relative humidity (non-condensing) 0 to 2000 m above sea level Indoor use only
Storage Conditions	-20 to 70°C 10 to 90% relative humidity (non-condensing)
CSA Certification	Installation category II Pollution degree 2



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10.0 Troubleshooting

Contact STEMCELL Technologies Technical Support for troubleshooting assistance.

10.1 Service Logs



To assist with troubleshooting and diagnostics, a STEMCELL Technologies representative may ask to receive the Service Logs. To access RoboSep™-16 Service Logs and save them on a USB flash drive:

1. Select  [Reports] from the Home screen.
2. Insert a USB flash drive into one of the USB ports on the computer.
3. Select the log file to be saved. The file will be highlighted in purple.
4. Select  [Copy to USB] and navigate to the USB flash drive folder where you want to save the service log files. The files will automatically be transferred onto the USB flash drive.
5. Remove the USB flash drive.

Note: To save computer disk space, compress old Service Logs into a zip folder by selecting  [Move to Archive]. Select  [View Archive] to retrieve these files or to copy these files to a USB flash drive.

10.2 Diagnostic Package

If more in-depth information is required for troubleshooting and diagnostics, a STEMCELL Technologies representative may ask to receive the Diagnostic Package. It contains the Service/Maintenance logs, Machine trace, COM files, and error video log files. To save this package to a USB flash drive:

1. Select  [Reports] from the Home screen.
2. Insert a USB flash drive into one of the USB ports on the computer.
3. Select  [Diagnostic Package]. A dialogue will ask to confirm that the Service/Maintenance logs, Machine trace, and COM files will be gathered. Click OK to continue.
4. Navigate to the USB flash drive folder where you want to save the service log files. The files will automatically be transferred onto the USB flash drive.
5. Remove the USB flash drive.

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11.0 Software Updates

The following table outlines the new functionality and/or fixes to RoboSep™-16 software versions.

ROBOSEP™-16 SOFTWARE VERSION	NEW FUNCTIONALITY/FIX
2.0.2.5	<ul style="list-style-type: none"> • Implementation of EasySep™ Direct reagent vial rack • Bug fixes
1.3.4.0	<ul style="list-style-type: none"> • Camera integration • Implementation of shell call capabilities for run errors • End of Run Report template updates • Display reagent catalog numbers on Loading Deck screen • Hardware error handling updates • Bug fixes
1.2.2.0	<ul style="list-style-type: none"> • Barcode scanning updates to accommodate future changes to catalog number format • Bug fixes
1.2.1.0	<ul style="list-style-type: none"> • Addition of ability to create Diagnostic Package for easier troubleshooting • Branding updates • Protocol time estimation improvement and progress bar animation updates to more accurately reflect experiment progress • Bug fixes

12.0 Related Products

PRODUCT	CATALOG #
RoboSep™-16 Waste Bag (100 units)	23103
Filtered Conductive Tips 1mL, Case (case 3840 tips)	23102
Sterile Filtered Conductive Tips 1mL, Case (case 3840 tips)	23101
RoboSep™ Buffer (250 mL)	20104
RoboSep™ Buffer 5X Concentrate (250 mL)	20124
Empty Bottles	23003
RoboSep™ Barcode Scanner	20501
HEPA Filter for CAP system	23107
Pre-Filter for CAP system	23108

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USER REFERENCE MANUAL

RoboSep™-16



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