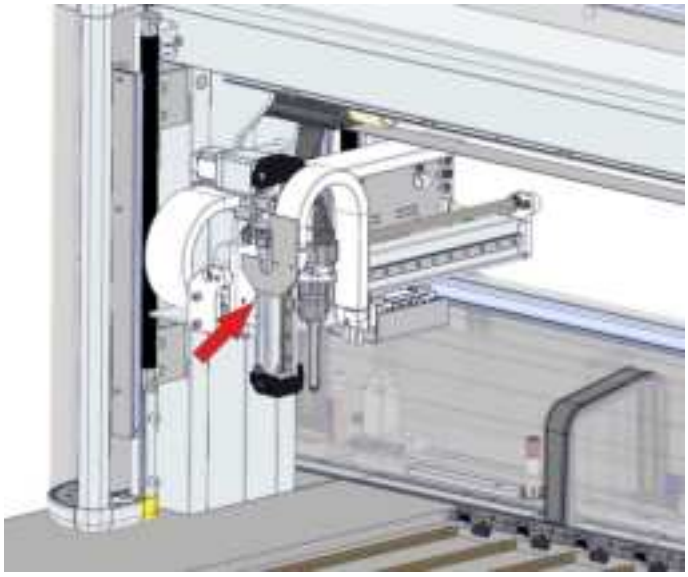
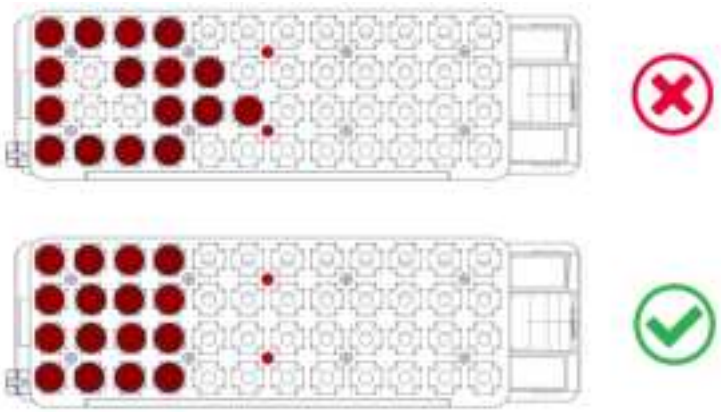
CAUTION

Do not move the robot by any cables, wires, or the gripper.



6. Clean the worktable with a lint-free cloth moistened with 0.1% sodium hypochlorite solution.
7. Lower the safety cover.
8. Reset the robot performing the following procedure:
   a. Click on `Overview` and select `Input/Output`
   b. Click on `Diagnostics – Robot` menu.
   c. Select `Init` function button.
   d. Wait until the robot initialization is completed, then select `On-line` function button and confirm.
9. Restore the racks to the lanes.
   - Reload to output lanes only empty racks. If the rack to be reload to output lanes contains tubes, manage the tubes accordingly to laboratory standard operating procedures .
   - Reload to input lanes the racks with no empty locations in rows.

Figure 129: Racks to be reloaded to input lanes



8.5.1.1.3 Verification steps

Verify that the Module is back online.

8.5.1.2 Clean the display bar

The following procedure describes how to clean the display bar.

8.5.1.2.1 Prerequisites

Authorized personnel:	Operator
Conditions:	None
Tools and materials:	• Lint-free cloth • 0.1% sodium hypochlorite solution
Procedures:	None

8.5.1.2.2 Task steps

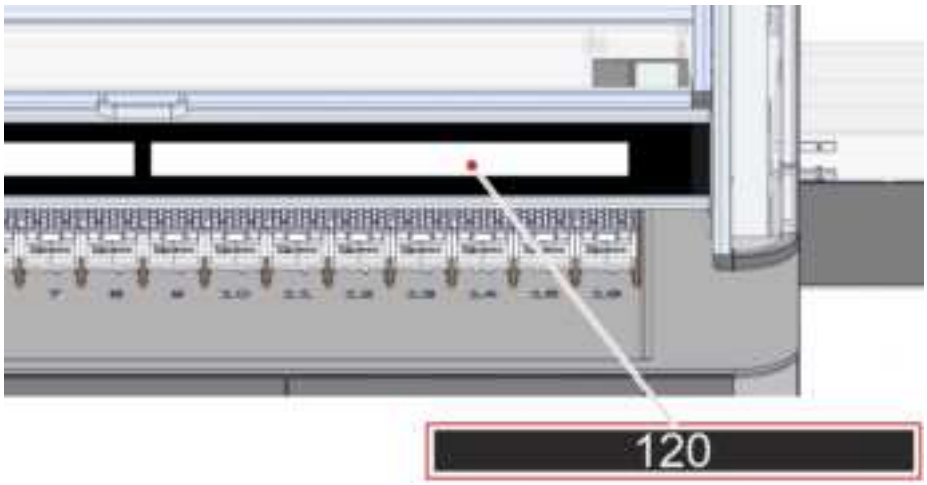
⚠ WARNING

Potential Biohazard.

Biohazardous material could be present on the surfaces.

Take appropriate precautions and follow laboratory standard operating procedures and guidelines when performing this procedure.

1. Swipe left or right on the touchscreen monitor of the display bar to freeze the screen.
2. A 2 minute countdown timer starts (120 seconds).



3. Clean the monitor with a lint-free cloth moistened with 0.1% sodium hypochlorite solution.
4. Press and hold the monitor of the display bar to unfreeze it. [57]
5. Repeat the above steps to the other monitor of the display bar.

8.5.1.2.3 Verification steps

None.

57. The monitor unfreezes after 120 seconds automatically.

8.5.1.3 Clean robot gripper

The following procedure describes how to clean the robot gripper.

8.5.1.3.1 Prerequisites

Authorized personnel:	Supervisor
Conditions:	Module Off-line
Tools and materials:	• Lint-free cloth • 0.1% sodium hypochlorite solution
Procedures:	None

8.5.1.3.2 Task steps

⚠ WARNING

Potential Biohazard.

Biohazardous material could be present on the surfaces.

Take appropriate precautions and follow laboratory standard operating procedures and guidelines when performing this procedure.

1. Set the Module to Off-line:
   a. Click on `Overview` and select `Input/Output`
   b. Click on `Status` menu.
   c. Select `Off-line` function button and select the option `Flush Carriers`.
   d. Wait until the Module is set to Off-line.

⚠ WARNING

Pinch Hazard.

Ensure the robot has stopped all movement before proceeding to the next step.

2. Extract all racks from the lanes. Refer to the procedure 5.2.6 *How to extract racks from the lanes of the Input/Output Module*, page 371. Ensure that all the lanes are completely free.

⚠ WARNING

Potential Biohazard.

Uncapped sample tubes are biohazardous.

When handling uncapped sample tubes, avoid splashing sample outside the sample tubes.

⚠ WARNING

Potential Biohazard.

Sample tubes are potentially biohazardous.

Follow laboratory standard procedures and guidelines when handling tubes.

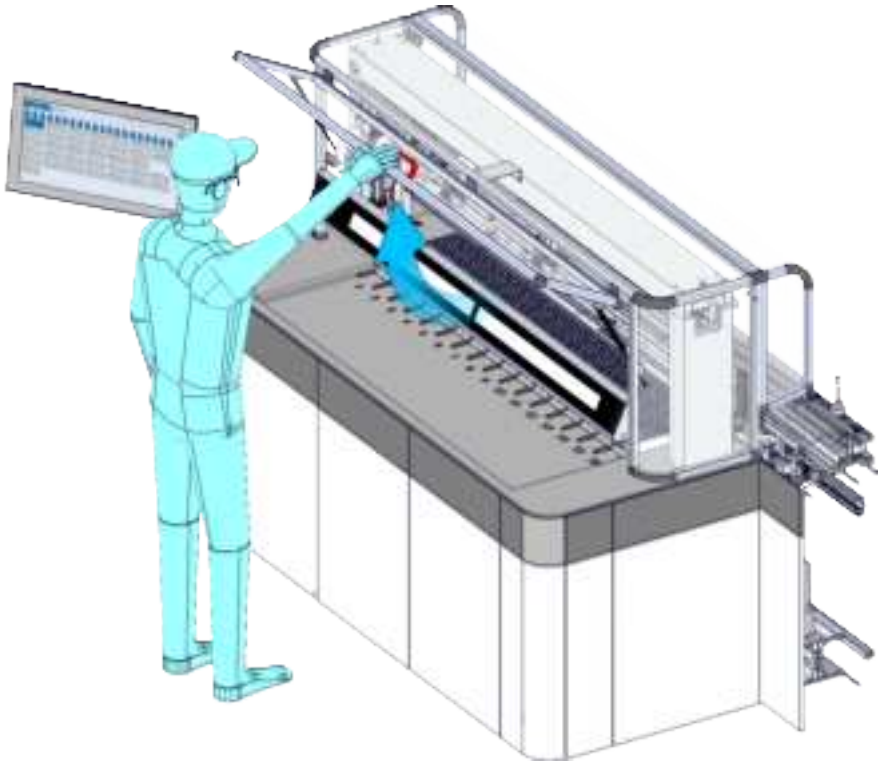
⚠ WARNING

Pinch Hazard.

Do not reach the area under the display bar. You could be injured if your hand enters the robot area.

Always use the rack handles to insert or remove a rack.

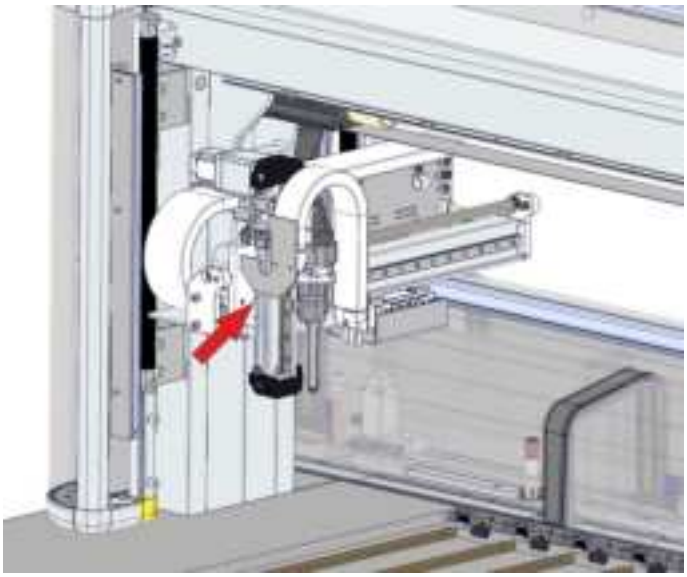
3. If present, move the Panel PC aside to allow the cover opening.
4. Lift up the safety cover by the handle.



5. Grasp the robot and manually slide it on the side of the Module to allow easy access to the area.

⚠ CAUTION

Do not move the robot by any cables, wires, or the gripper.



6. Clean the robot gripper with a lint-free cloth moistened with 0.1% sodium hypochlorite solution, taking care not to touch any wires, sensors, or other mechanisms.

⚠ WARNING

Biohazard.

Operator injury due to biological and microbiological (viral or bacterial) agent on the gripper surfaces.

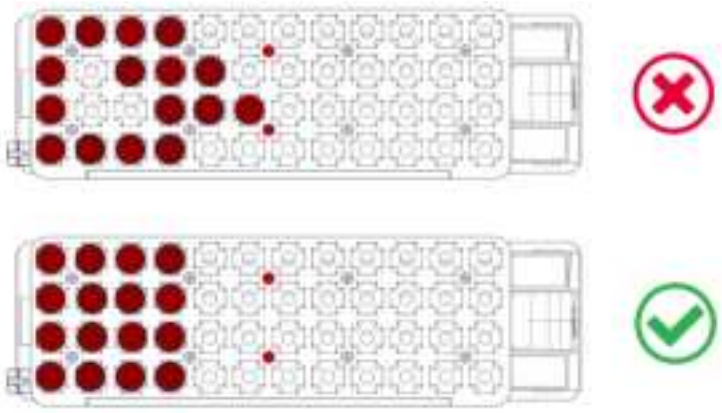
Take appropriate precautions when performing this procedure. Follow laboratory standard operating procedures and guidelines when performing this procedure.

7. Lower the safety cover.
8. Reset the robot performing the following procedure:
   a. Click on `Overview` and select `Input/Output`
   b. Click on `Diagnostics - Robot` menu.
   c. Select `Init` function button.

d. Wait until the robot initialization is completed, then select `On-line` function button and confirm.

9. Restore the racks to the lanes.
   - Reload to output lanes only empty racks. If the rack to be reload to output lanes contains tubes, manage the tubes accordingly to laboratory standard operating procedures .
   - Reload to input lanes the racks with no empty locations in rows.

   Figure 130: Racks to be reloaded to input lanes



8.5.1.3.3 Verification steps

Verify that the Module is back online.

8.5.1.4 Inspect racks

The following procedure describes how to check the racks for signs of wear or damage.

8.5.1.4.1 Prerequisites

Authorized personnel:	Operator
Conditions:	None
Tools and materials:	None
Procedures:	None

8.5.1.4.2 Task steps

1. Remove racks from the lanes. Follow the procedure for 5.2.6 *How to extract racks from the lanes of the Input/Output Module*, page 371.

⚠ WARNING

Potential Biohazard.

Biohazardous material could be present on the surfaces.

Take appropriate precautions and follow laboratory standard operating procedures and guidelines when performing this procedure.

⚠ WARNING

Pinch Hazard.

Do not reach the area under the display bar. You could be injured if your hand enters the robot area.

Always use the rack handles to insert or remove a rack.

2. Remove all sample tubes from the racks. Manage the removed sample tubes by following the good laboratory practice.

⚠ WARNING

Potential Biohazard.

Uncapped sample tubes are biohazardous.

When handling uncapped sample tubes, avoid splashing sample outside the sample tubes.

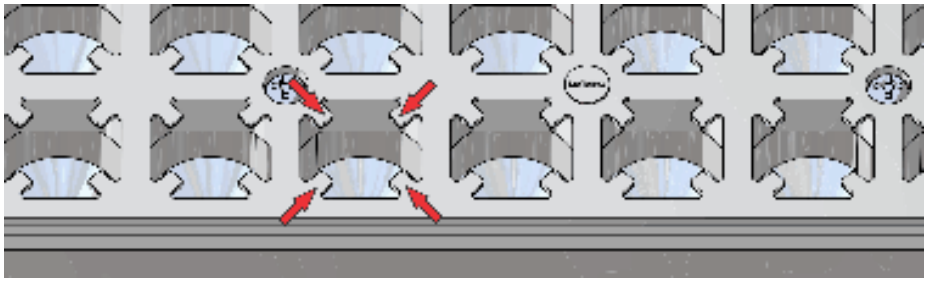
⚠ WARNING

Potential Biohazard.

Sample tubes are potentially biohazardous.

Follow laboratory standard procedures and guidelines when handling tubes.

3. Inspect the sample racks. Ensure the silicone tabs holding sample tubes upright and centered are not worn or broken. If tabs are worn or broken, discontinue use of the rack.



4. Restore the racks to the lanes.

8.5.1.4.3 Verification steps

None.

8.5.1.5 Clean racks

The following procedure describes how to clean the racks.

8.5.1.5.1 Prerequisites

Authorized personnel:	Operator
Conditions:	None
Tools and materials:	• Lint-free cloth • 0.1% sodium hypochlorite solution
Procedures:	None

8.5.1.5.2 Task steps

1. Remove racks from the lanes. Follow the procedure for 5.2.6 *How to extract racks from the lanes of the Input/Output Module*, page 371.

⚠ WARNING

Potential Biohazard.

Biohazardous material could be present on the surfaces.

Take appropriate precautions and follow laboratory standard operating procedures and guidelines when performing this procedure.

⚠ WARNING

Pinch Hazard.

Do not reach the area under the display bar. You could be injured if your hand enters the robot area.

Always use the rack handles to insert or remove a rack.

2. Remove all sample tubes from the racks. Manage the removed sample tubes by following the good laboratory practice.

⚠ WARNING

Potential Biohazard.

Uncapped sample tubes are biohazardous.

When handling uncapped sample tubes, avoid splashing sample outside the sample tubes.

⚠ WARNING

Potential Biohazard.

Sample tubes are potentially biohazardous.

Follow laboratory standard procedures and guidelines when handling tubes.

3. Clean the racks with a lint-free cloth moistened with 0.1% sodium hypochlorite solution in order to remove the material.
4. Allow racks to air-dry before returning them to the Module.
5. Restore the racks to the lanes.

8.5.1.5.3 Verification steps

None.

8.5.2 Rack Input Module

8.5.2.1 Clean the worktable

The following procedure describes how to clean the worktable.

8.5.2.1.1 Prerequisites

Authorized personnel:	Supervisor
Conditions:	Module off-line
Tools and materials:	• Lint-free cloth • 0.1% sodium hypochlorite solution
Procedures:	None.

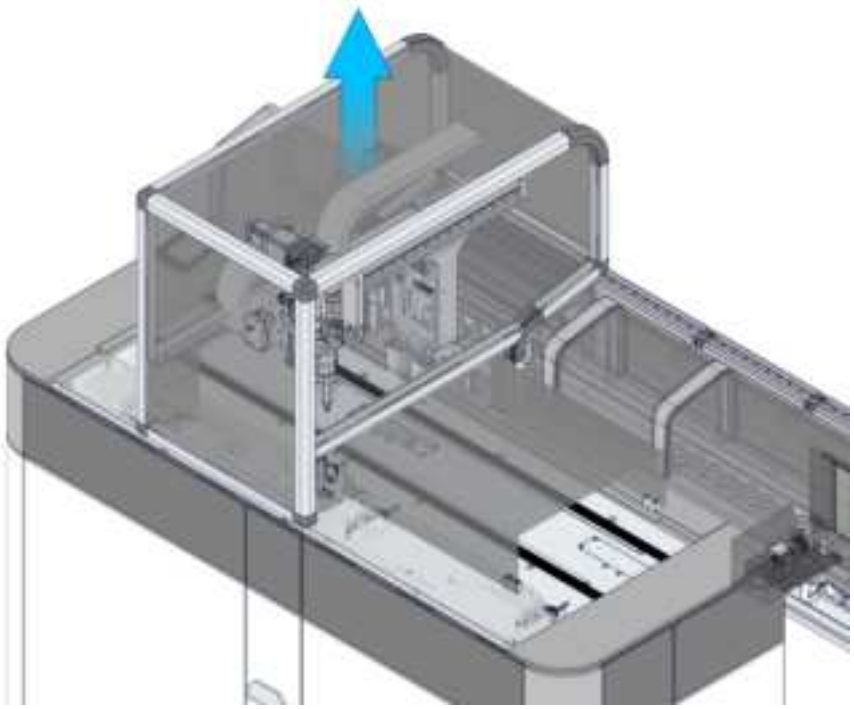
8.5.2.1.2 Task steps

⚠ WARNING

Biohazard.

Operator injury due to biological and microbiological (viral or bacterial) agent. Follow laboratory standard operating procedures and guidelines when handling racks.

1. Set the module off-line:
   a. Select `Rack Input` in `Overview` screen.
   b. In Status screen, click on `Off-line`/`Do not Flush` button, the Module changes to Offline without flushing out carriers of the buffer lane.
2. Remove all racks from the Rack Input Module worktable. If it is not possible to manually remove the racks, perform the following procedure to unlock the racks in process:
   a. Select `Rack Input` in `Overview` screen.
   b. Select `Lock/Unlock Rack` entry in the pop-up.
   c. Select `Unlock Rack` function button.
   d. Select `Stopper`.
   e. Select `Down` function button.
   f. Remove the cover over the robot.



g. Remove racks.

3. Move the robot apart manually in order to free the area.
4. Clean the worktable with a lint-free cloth moistened with 0.1% sodium hypochlorite solution.
5. Replace the safety shield.
6. Set the module on-line:
   a. Select `Rack Input` in `Overview` screen.
   b. In Status screen, click on `On-line` button

8.5.2.1.3 Verification steps

Verify that the Module is back online.

8.5.2.2 Clean Robot Gripper

The following procedure describes how to clean the robot gripper.

8.5.2.2.1 Prerequisites

Authorized personnel:	Supervisor
Conditions:	Module Off-line
Tools and materials:	• Lint-free cloth • 0.1% sodium hypochlorite solution
Procedures:	None.

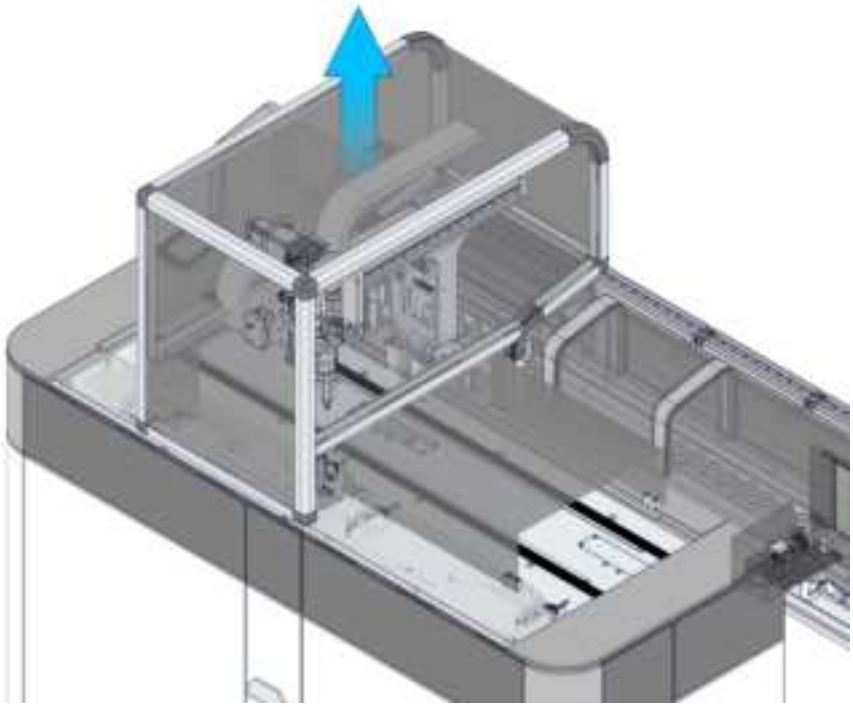
8.5.2.2.2 Task steps

⚠ WARNING

Biohazard.

Operator injury due to biological and microbiological (viral or bacterial) agent. Follow laboratory standard operating procedures and guidelines when handling racks.

1. Set the module off-line:
   a. Select `Rack Input` in `Overview` screen.
   b. In Status screen, click on `Off-line`/`Do not Flush` button, the Module changes to Offline without flushing out carriers of the buffer lane.
2. Remove all racks from the Rack Input Module worktable. If it is not possible to manually remove the racks, perform the following procedure to unlock the racks in process:
   a. Select `Rack Input` in `Overview` screen.
   b. Select `Lock/Unlock Rack` entry in the pop-up.
   c. Select `Unlock Rack` function button.
   d. Select `Stopper`.
   e. Select `Down` function button.
   f. Remove the cover over the robot.



g. Remove racks.

3. Grasp the robot and manually move it closer to allow easy access to the area.
4. Clean the robot gripper with a lint-free cloth moistened with 0.1% sodium hypochlorite solution, taking care not to touch any wires, sensors, or other mechanism.

⚠ WARNING

Biohazard.

Operator injury due to biological and microbiological (viral or bacterial) agent on the gripper surfaces. Take appropriate precautions when performing this procedure. Follow laboratory standard operating procedures and guidelines when performing this procedure.

5. Restore the cover.

6. Set the module on-line:
   a. Select `Rack Input` in `Overview` screen.
   b. In Status screen, click on `On-line` button

8.5.2.2.3 Verification steps

Verify that the Module is back online.

8.5.2.3 Inspect racks

The following procedure describes how to check the racks for signs of wear or damage.

8.5.2.3.1 Prerequisites

Authorized personnel:	Supervisor
Conditions:	Module off-line
Tools and materials:	None.
Procedures:	None.

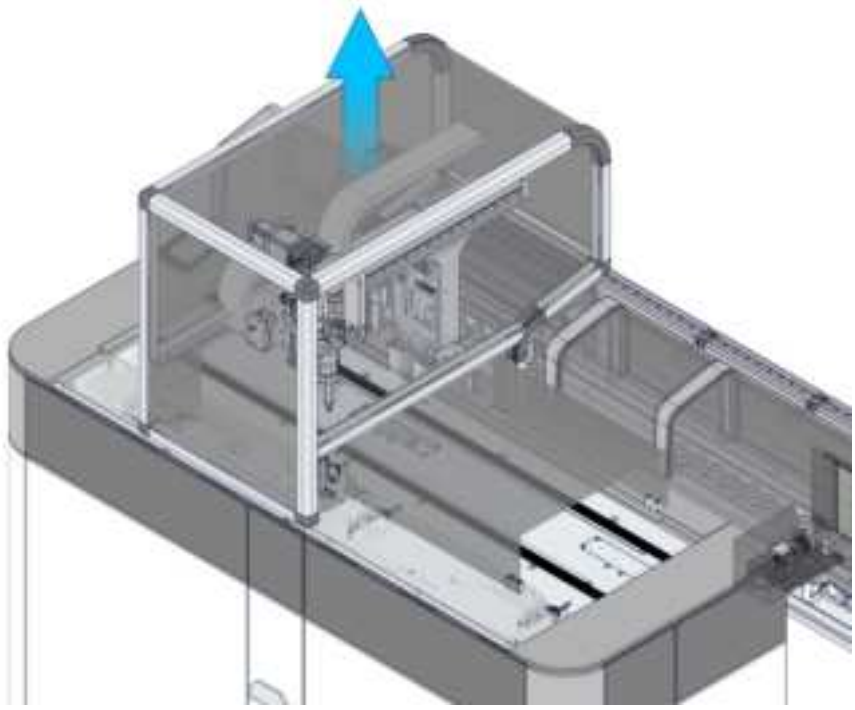
8.5.2.3.2 Task steps

⚠ WARNING

Biohazard.

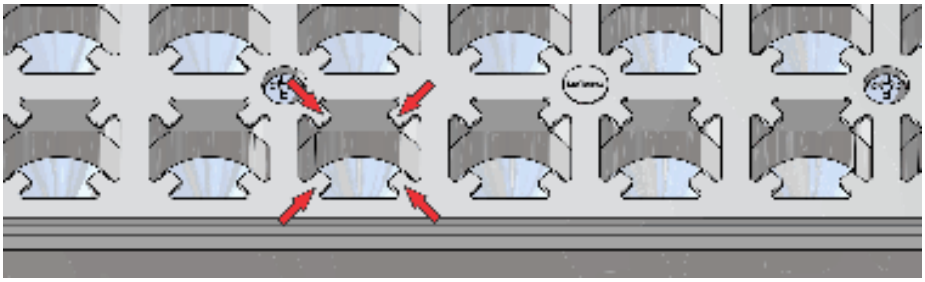
Operator injury due to biological and microbiological (viral or bacterial) agent. Follow laboratory standard operating procedures and guidelines when handling racks.

1. Set the module off-line:
   a. Select `Rack Input` in `Overview` screen.
   b. In Status screen, click on `Off-line`/`Do not Flush` button, the Module changes to Offline without flushing out carriers of the buffer lane.
2. Remove all racks from the Rack Input Module worktable. If it is not possible to manually remove the racks, perform the following procedure to unlock the racks in process:
   a. Select `Rack Input` in `Overview` screen.
   b. Select `Lock/Unlock Rack` entry in the pop-up.
   c. Select `Unlock Rack` function button.
   d. Select `Stopper`.
   e. Select `Down` function button.
   f. Remove the cover over the robot.



g. Remove racks.

3. Inspect the sample racks. Ensure the silicone tabs holding sample tubes upright and centered are not worn or broken. If tabs are worn or broken, discontinue use of the rack.



4. Set the module on-line:
   a. Select `Rack Input` in `Overview` screen.
   b. In Status screen, click on `On-line` button

8.5.2.3.3 Verification steps

Verify that the Module is back online.

8.5.2.4 Clean racks

The following procedure describes how to clean the racks.

8.5.2.4.1 Prerequisites

Authorized personnel:	Supervisor
Conditions:	Module off-line
Tools and materials:	• Lint-free cloth • 0.1% sodium hypochlorite solution
Procedures:	None.

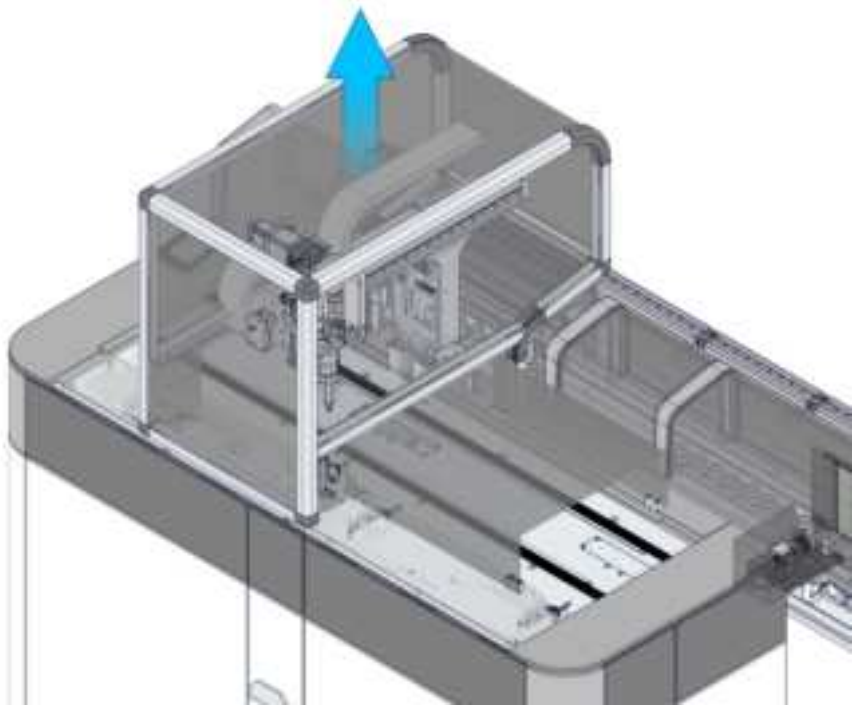
8.5.2.4.2 Task steps

⚠ WARNING

Biohazard.

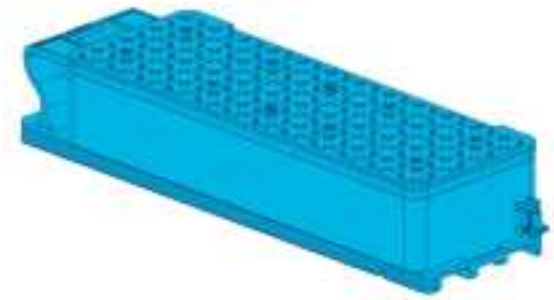
Operator injury due to biological and microbiological (viral or bacterial) agent. Follow laboratory standard operating procedures and guidelines when handling racks.

1. Set the module off-line:
   a. Select `Rack Input` in `Overview` screen.
   b. In Status screen, click on `Off-line`/`Do not Flush` button, the Module changes to Offline without flushing out carriers of the buffer lane.
2. Remove all racks from the Rack Input Module worktable. If it is not possible to manually remove the racks, perform the following procedure to unlock the racks in process:
   a. Select `Rack Input` in `Overview` screen.
   b. Select `Lock/Unlock Rack` entry in the pop-up.
   c. Select `Unlock Rack` function button.
   d. Select `Stopper`.
   e. Select `Down` function button.
   f. Remove the cover over the robot.



g. Remove racks.

3. Clean all racks with a lint-free cloth moistened with 0.1% sodium hypochlorite solution in order to remove the material.
4. Clean racks with a lint-free cloth moistened with 0.1% sodium hypochlorite solution in order to remove the material.



NOTICE

Only remove dust from barcode of racks with a dry lint-free cloth. Do not allow bleach, soapy water or other solutions to reach the barcode.

5. Allow racks to air-dry.
6. Set the module on-line:
   a. Select `Rack Input` in `Overview` screen.
   b. In Status screen, click on `On-line` button

8.5.2.4.3 Verification steps

Verify that the Module is back online.

8.5.3 Bulk Input Module

8.5.3.1 Clean the worktable

This procedure describes how to clean the worktable.

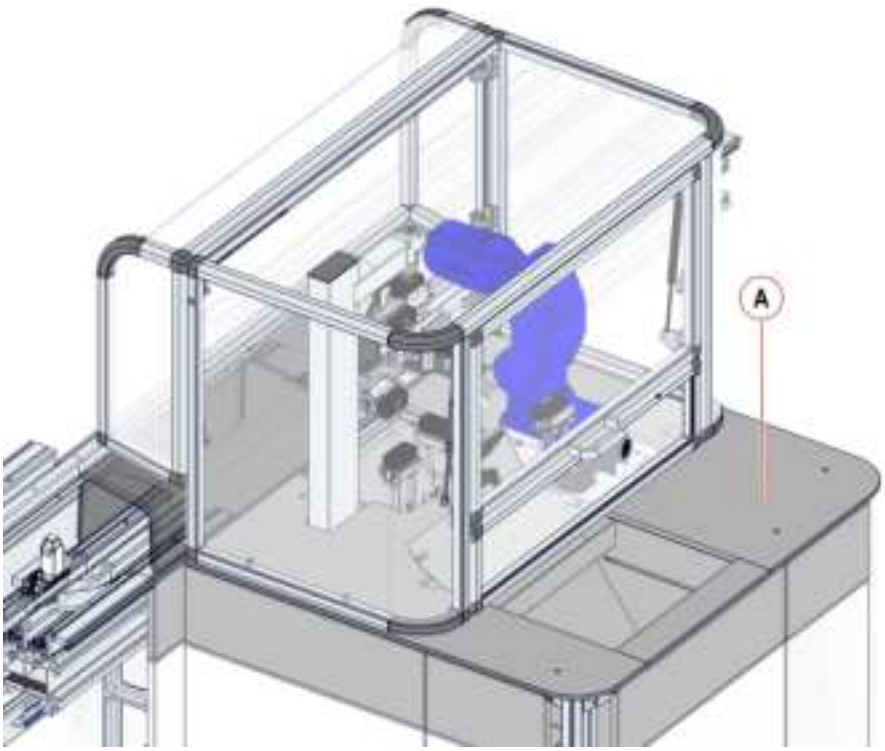
8.5.3.1.1 Prerequisites

Authorized personnel:	Supervisor
Conditions:	Module off-line
Tools and materials:	• Lint-free cloth • 0.1% sodium hypochlorite solution
Procedures:	none

8.5.3.1.2 Task steps

1. Clean the worktable (Figure 131 – A) with a lint-free cloth moistened with 0.1% sodium hypochlorite solution.

Figure 131:



⚠ WARNING

Potential Biohazard.

Only trained Users should perform the following maintenance procedures. Follow your laboratory standard operating procedures and guidelines for biohazardous materials handling.

8.5.3.1.3 Verification steps

None.

8.5.4 Centrifuge Module

⚠ WARNING

Biohazard, cross-contamination hazard, mechanical hazard.

Failure to maintain the Hettich centrifuge can cause sample tubes to break (resulting in sample leakage/contamination) and/or Operator risks. Follow the scheduled maintenance indicated in the Hettich manual.

NOTICE

Refer to the manufacturer's manual for specific maintenance operations aimed at the Hettich Centrifuge.

8.5.4.1 Inspect bucket inserts

The following procedure describes how to check the bucket inserts for signs of wear or damage.

8.5.4.1.1 Prerequisites

Authorized personnel:	Operator
Conditions:	Module Off-line
Tools and materials:	None.
Procedures:	None.

8.5.4.1.2 Task steps

1. Set the module off-line:
   a. Click on `Overview` and select `Centrifuge`.
   b. Click on `Status` menu.
   c. Select `Going Off-line` function button and select the option `Now`.
   d. Wait until the Module is set to Off-line.

   ⚠ WARNING

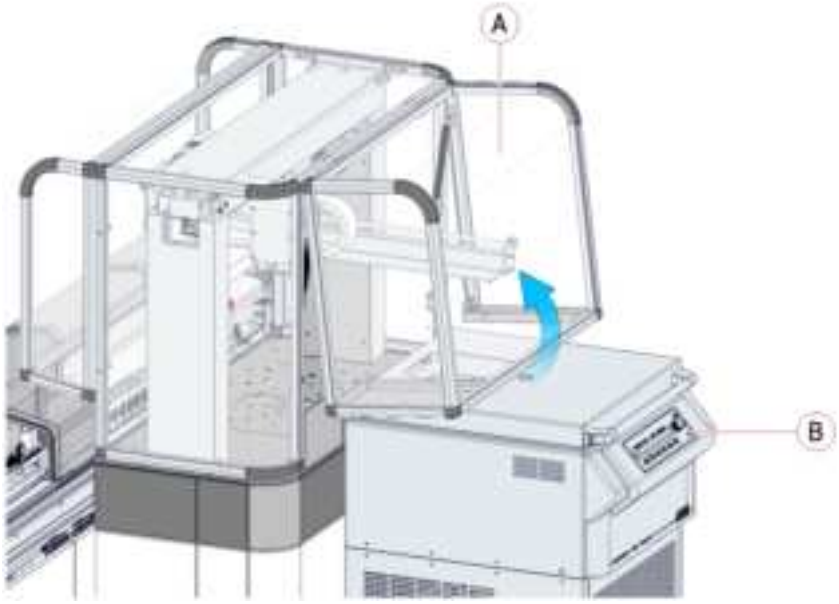
   Ensure the Centrifuge Module has stopped all movements before proceeding to the next step.

   ⚠ WARNING

   Make sure that all tubes have been downloaded to the Automation track prior to proceed.

2. Lift up the Centrifuge Module cover (Figure 137 – A).

Figure 132:



⚠ CAUTION

Lacerations, Punctures.

Entanglement due to User access to mechanical moving parts. Use caution when accessing parts of the module normally protected by safety shields.

⚠ WARNING

Potential Biohazard:

Biohazardous material may be present on the Interface Module and inside the Centrifuge. Take appropriate precautions when performing this procedure. Follow laboratory standard operating procedures and guidelines when performing this procedure.

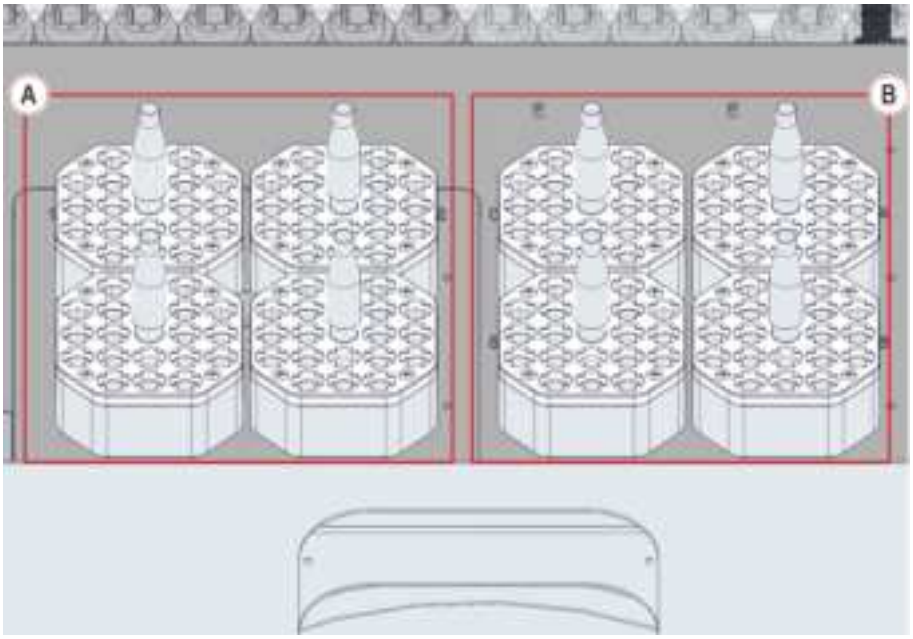
⚠ WARNING

Potential Biohazard:

If there is broken glass in the Centrifuge area, carefully remove all fragments. Residual glass could cause further breakage. Follow your laboratory standard operating procedures and guidelines when handling and disposing of broken glass.

3. Remove all bucket inserts from the input area (Figure 133 – A) and the output area (Figure 133 – B) and put them in safe place for inspection.

Figure 133:



4. Open the Centrifuge lid:
   a. Press the “Open/Stop” button on the Control Panel (Figure 132 – B) to request the Centrifuge lid opening. Wait until the lid unlocks and opens.
   b. Lift up the Centrifuge lid (Figure 134 – A).

⚠ WARNING

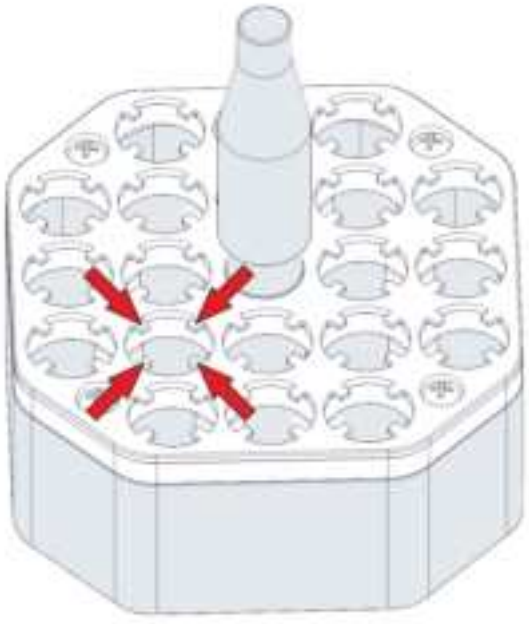
Potential Biohazard.

Aerosol particles generated through the sample centrifugation can be spread in the air and inhaled by the Operator when the centrifuge lid is open.

Use personal protective equipment (i.e. gloves, goggles and mask) prior to open the Centrifuge lid.

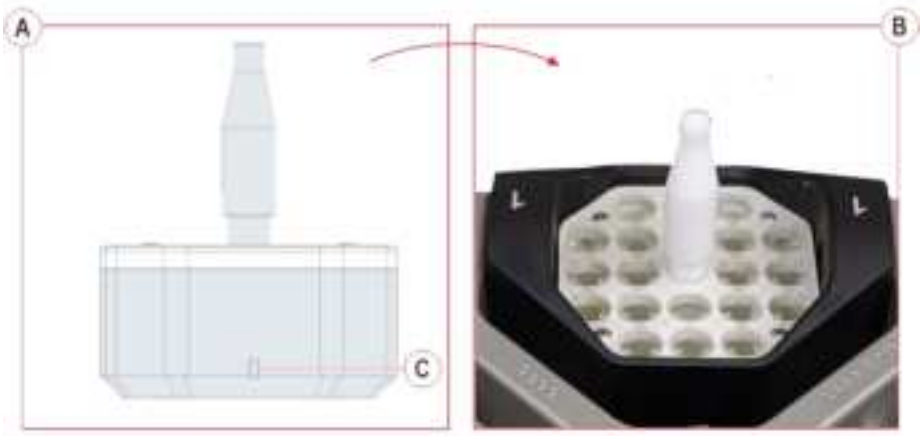
Figure 134:

5. Remove all bucket inserts from the rotor (Figure 134 – B) and put them in safe place for inspection.
6. Check all bucket inserts for cracks or corrosion. If any cracks or corrosion are observed, discontinue use of the bucket inserts.
7. Inspect the bucket inserts. Ensure the silicone tabs holding sample tubes upright and centered are not worn or broken. If tabs are worn or broken, discontinue use of the bucket inserts.



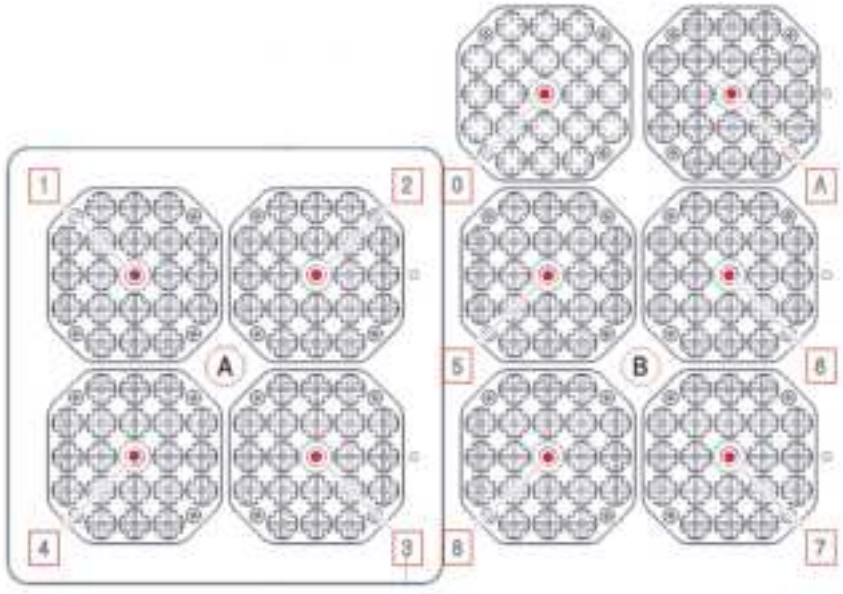
8. Place a bucket insert (Figure 135 – A) into each rotor bucket (Figure 135 – B), being sure to position all bucket inserts as shown in the figure below – see the position indicator (Figure 135 – C).

Figure 135:



9. Close the Centrifuge lid.
10. Place a bucket insert in each location of the input area (Figure 136 – A) and output area (Figure 136 – B), except the “0” and “A” locations of the output area. Be sure to position all bucket inserts with the positioning indicator in the right direction.

Figure 136:



11. Close the cover.
12. Set the Centrifuge Module to Online:
    a. In `Status` screen, click on `On-line` button
    b. Recover errors posted on UI.
    c. Wait until the Centrifuge completes its initialization and the Module sets to On-line.

8.5.4.1.3 Verification steps

Verify that the Module is back online.

8.5.4.2 Clean bucket inserts

8.5.4.2.1 Prerequisites

Authorized personnel:	Operator
Conditions:	Module Off-line
Tools and materials:	• Lint-free cloth • 0.1% sodium hypochlorite solution
Procedures:	None.

8.5.4.2.2 Task steps

1. Set the module off-line:
   a. Click on `Overview` and select `Centrifuge`.
   b. Click on `Status` menu.
   c. Select `Going Off-line` function button and select the option `Now`.
   d. Wait until the Module is set to Off-line.

⚠ WARNING

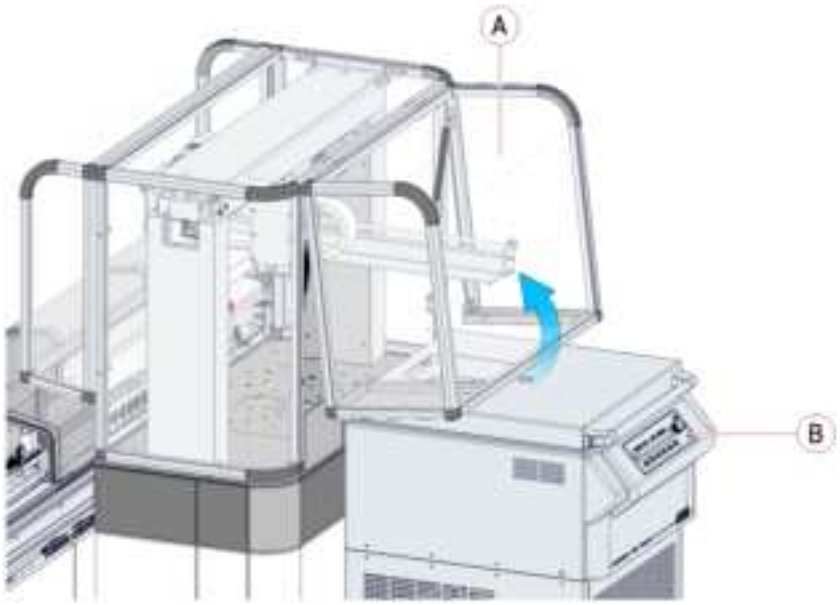
Ensure the Centrifuge Module has stopped all movements before proceeding to the next step.

⚠ WARNING

Make sure that all tubes have been downloaded to the Automation track prior to proceed.

2. Lift up the Centrifuge Module cover (Figure 137 – A).

Figure 137:



⚠ CAUTION

Lacerations, Punctures.

Entanglement due to User access to mechanical moving parts. Use caution when accessing parts of the module normally protected by safety shields.

⚠ WARNING

Potential Biohazard:

Biohazardous material may be present on the Interface Module and inside the Centrifuge. Take appropriate precautions when performing this procedure. Follow laboratory standard operating procedures and guidelines when performing this procedure.

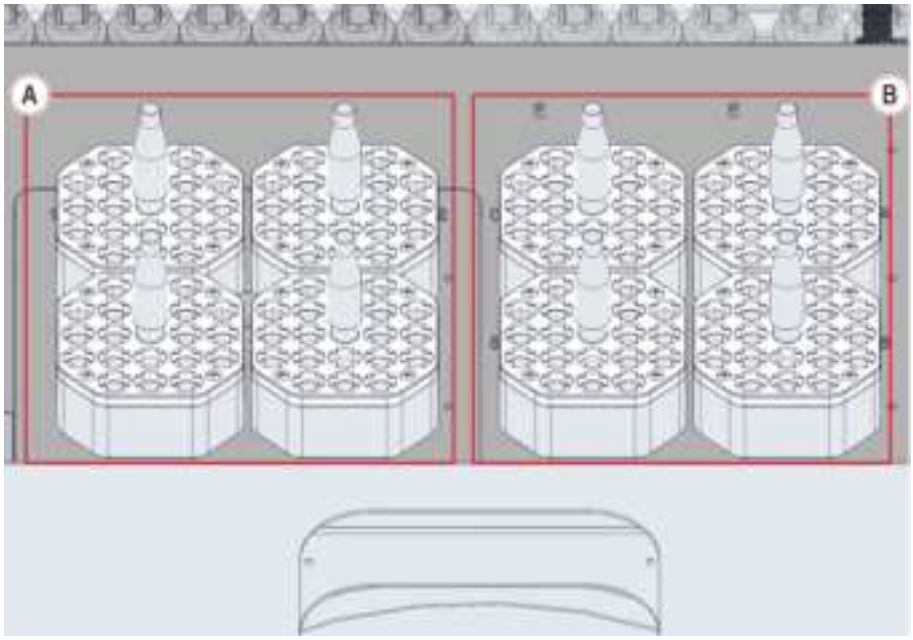
⚠ WARNING

Potential Biohazard:

If there is broken glass in the Centrifuge area, carefully remove all fragments. Residual glass could cause further breakage. Follow your laboratory standard operating procedures and guidelines when handling and disposing of broken glass.

3. Remove all bucket inserts from the input area (Figure 138 – A) and the output area (Figure 138 – B) and put them in safe place for the cleaning task.

Figure 138:



4. Open the Centrifuge lid:
   a. Press the “Open/Stop” button on the Control Panel (Figure 137 – B) to request the Centrifuge lid opening. Wait until the lid unlocks and opens.

b. Lift up the Centrifuge lid (Figure 139 – A).

⚠ WARNING

Potential Biohazard.

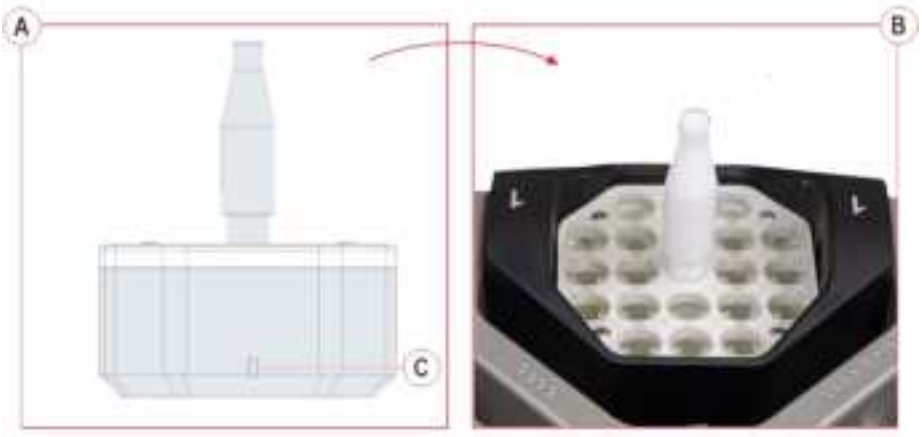
Aerosol particles generated through the sample centrifugation can be spread in the air and inhaled by the Operator when the centrifuge lid is open.

Use personal protective equipment (i.e. gloves, goggles and mask) prior to open the Centrifuge lid.

Figure 139:

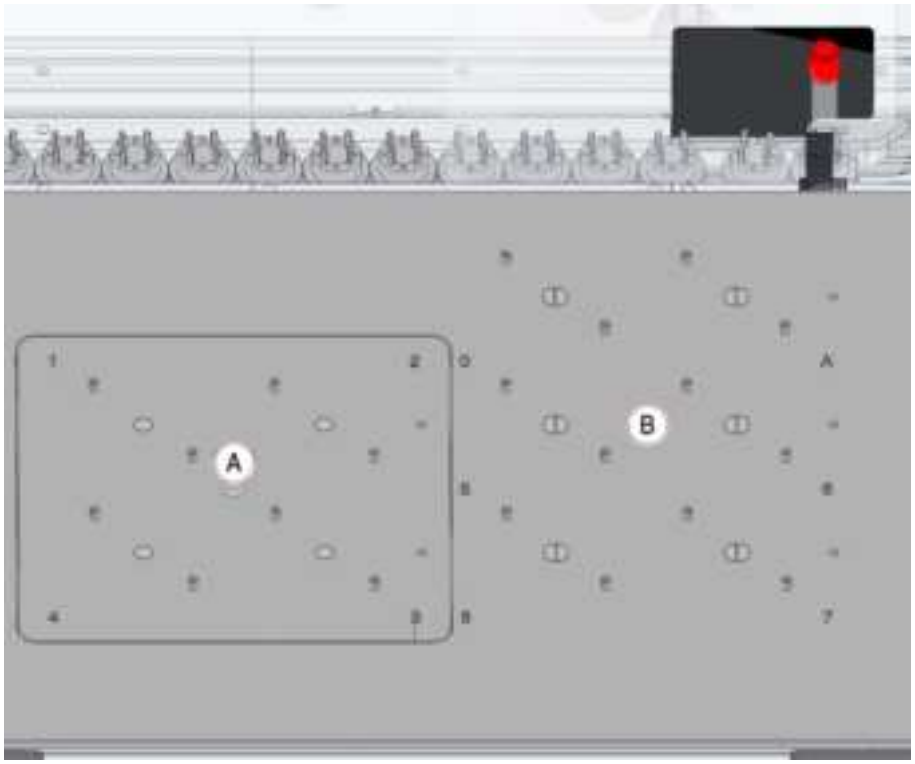
5. Remove all bucket inserts from the rotor (Figure 139 – B) and put them in safe place for the cleaning task.
6. Clean all bucket inserts with a lint-free cloth moistened with 0.1% sodium hypochlorite solution.
7. Place a bucket insert (Figure 140 – A) into each rotor bucket (Figure 140 – B), being sure to position all bucket inserts as shown in the figure below – see the position indicator (Figure 140 – C).

Figure 140:



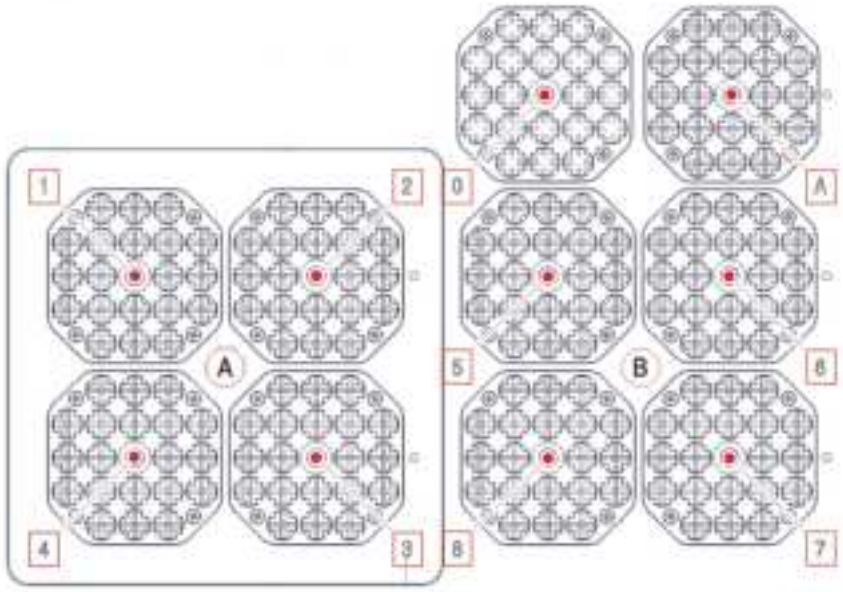
8. Close the Centrifuge lid.
9. Clean the input area (Figure 141 – A) and output area (Figure 141 – B) with a lint-free cloth moistened with 0.1% sodium hypochlorite solution.

Figure 141:



10. Place a bucket insert in each location of the input area (Figure 142 – A) and output area (Figure 142 – B), except the “0” and “A” locations of the output area. Be sure to position all bucket inserts with the positioning indicator in the right direction.

Figure 142:



11. Close the cover.
12. Set the Centrifuge Module to Online:
    a. In `Status` screen, click on `On-line` button
    b. Recover errors posted on UI.
    c. Wait until the Centrifuge completes its initialization and the Module sets to On-line.

8.5.4.2.3 Verification steps

Verify that the Module is back online.

8.5.5 Decapper Module

8.5.5.1 Clean Gripper Pads, Drip Tray and Cap Grip

The following procedure describes how to clean the gripper pads, drip tray and cap grip.

8.5.5.1.1 Prerequisites

Authorized personnel:	Operator
Conditions:	Module Off-line
Tools and materials:	• Lint-free cloth • 0.1% sodium hypochlorite solution
Procedures:	None

NOTICE

All sample tubes must be removed from the area before performing the following procedures. Failure to comply could cause erroneous results due to contamination of samples or physical injuries due to biohazard.

8.5.5.1.2 Task steps

1. Set the Module Off-line:
   a. Click on `Overview` and select `Decapper`
   b. Click on `Status` menu.
   c. Select `Off-line` entry in the pop-up, select `Flush Carriers` entry and confirm. The carriers are flushed out of the buffer lane, then the Module changes to Off-line.
2. Remove the Decapper Module cover.

⚠ WARNING

Potential Biohazard.

Biohazardous material may be present on the surfaces. Take appropriate precautions when performing this procedure. Follow laboratory standard operating procedures and guidelines when performing this procedure.