

Installation guide

Innova® S44i

English (EN)

This document complements the operating manual for the Innova S44i and does not replace it. Therefore, please also read the operating manual of the shaker before using the device for the first time. The current version of the operating manual for all available languages can be found on our webpage www.eppendorf.com/manuals.

1 Safety



CAUTION! Risk of injury when lifting and carrying heavy loads.

- ▶ Use a lifting aid when installing the device.



WARNING! Risk of injury when installing the device.

- ▶ Watch your hands and feet.



NOTICE! Material damage due to vibration.

- ▶ Always install the device on a base.
- ▶ Use stabilizing shims when you set up the base.



NOTICE! Damage to electronic components due to condensation.

Condensate can form in the device after it has been moved from a cool environment to a warmer environment.

- ▶ After installing the device, wait for at least 6 h. Only then connect the device to the mains/power line.



NOTICE! Damage to the refrigeration system due to tilting the device.

The refrigeration system can become damaged if the device is switched on when it is tilted or if the device is switched on right after it was tilted.

- ▶ Leave the device in the normal position for at least 24 hours before switching it on.
-

2 Installation

2.1 Important note



The prerequisites specified in this chapter, especially those regarding the floor, must be considered prior to installation.



A successful Balance Master calibration is not a prerequisite for operating the Innova S44i safely and properly.

The Balance Master calibration is described in the Innova S44i operating manual.

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2.2 Prerequisites**Location and space**

- A space of at least 12.5 cm (5 in) on the back side of the device is required for proper ventilation and to access the power cord socket.
- A space of 30 cm (12 in) on the left-hand side of the device is required to access the access port.
- A space of 60 cm (24 in) on the right-hand side of the device is required for service access.
- The device can be safely and easily operated at the selected location.
- The height of the ceiling measures more than 254.5 cm (100.2 in) to facilitate that the glide-up door of the top shaker in a triple stack configuration can be opened.
- In refrigerated units, the condensation water drain can be connected to either a house water drain or a container. If the house water drain is preferred, select a location with access to a house water drain.
- The location is protected from direct sunlight.
- The location of the device meets the requirements specified in the Technical data chapter in the Innova S44i operating manual.

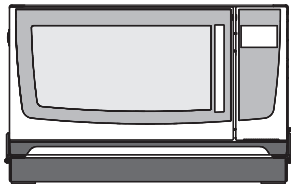
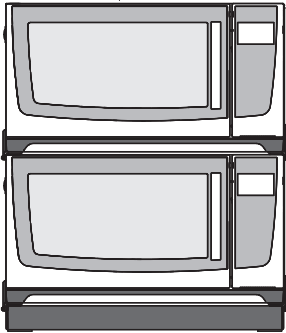
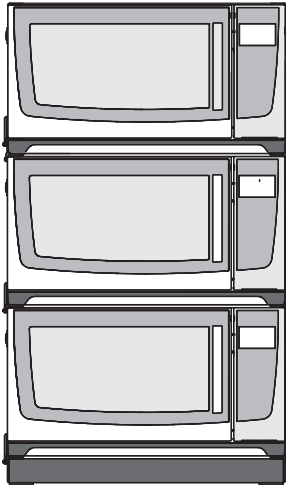
Floor

- The floor of the installation area has a stiffness equivalent to concrete slab-on-grade. This correlates to less than a 0.002 g vibration amplitude for excitation frequencies ≤ 14 Hz.
- The floor of the installation area has a floor flatness of $F_{\bar{F}25}$ per ASTM E1155.
- The floor of the installation area has a total load rating of at least 9 kN/m² (187 lb/ft.²). Confirm this with facility management.
- The floor of the installation area has no soft foam damping.

Device

- The device is unpacked according to the unpacking guide.
- The delivery matches the order and the packing list.

All configurations of the Innova S44i require a positioning base. The double and triple stack configurations also require stacking kits:

			
Positioning base, 10.5 cm (4.1 in), S44I041001	x	x	x
	or	or	
Positioning base, 30.7 cm (12.1 in), S44I041002	x	x	-
Stacking kit, double stack, S44I041005	-	x	-
Stacking kit, triple stack, S44I041003	-	-	x

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2.3 Installing the device on a base



NOTICE! Material damage due to vibration of device.

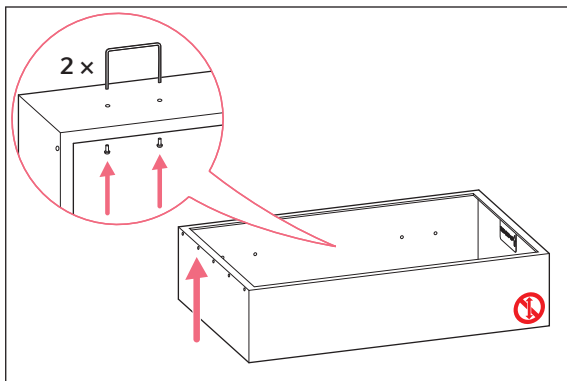
- ▶ If you are stacking devices with different orbit sizes, the device with the 5.1 cm (2 in) orbit must be at the bottom.

Accessories

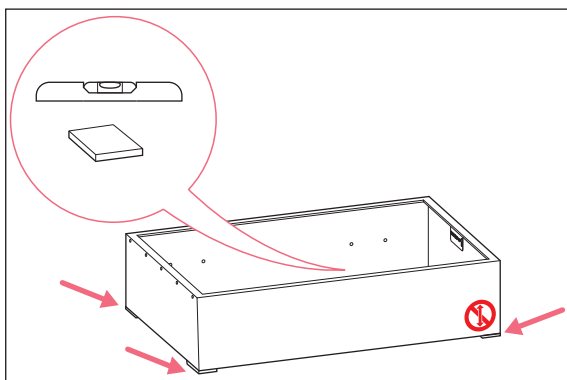
- Metal stabilizing shims – only use shims included in the base packaging
- Hexagonal torque wrench

Auxiliary equipment

- Hydraulic lift



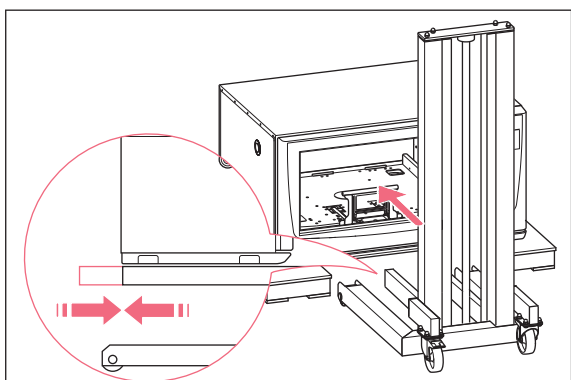
1. Install the 2 spacers supplied with the base kit using the provided screws and Phillips screwdriver.
2. Place the base in the position where the device is to be installed.
3. Align the base according to the attached stickers on the inside. Ensure that the spacers are oriented towards the wall. The spacers ensure adequate space between the wall and the device.



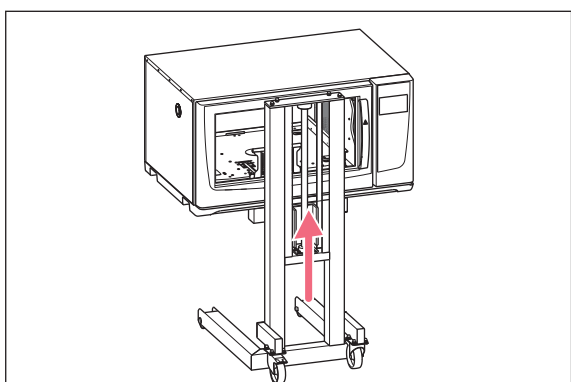
4. Ensure that the base is level. Check with spirit level.
5. Ensure that the base stands completely stable. Check each corner for vertical movement.
6. If there is rocking motion, stabilize with the provided metal stabilizing shims.



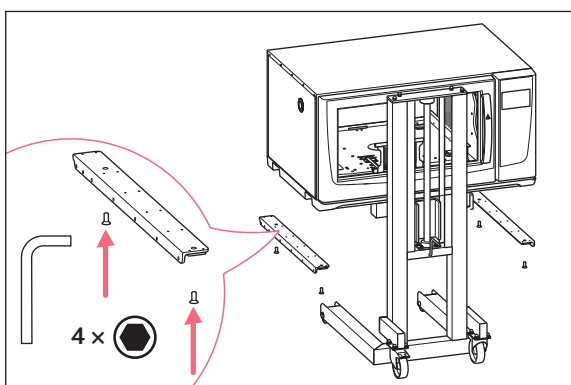
Floor contact of all four corners needs to be achieved even if this leads to minor reduction of levelness.



- 7. Slide the hydraulic lift under the device.
- 8. Ensure that the ends of the forks do not protrude from under the device.



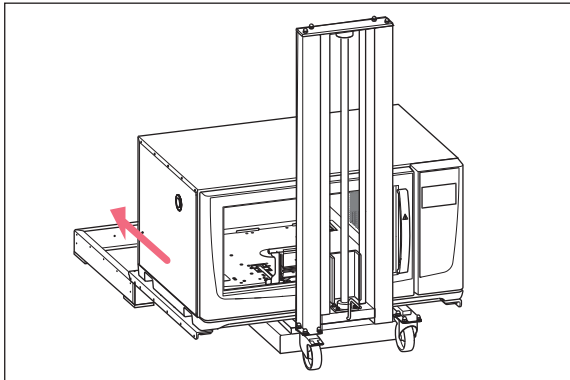
- 9. Lift the device to install the brackets.



- 10. Install the brackets on the underside of the device on the left and right. Use the provided Allen key and two screws for each side.

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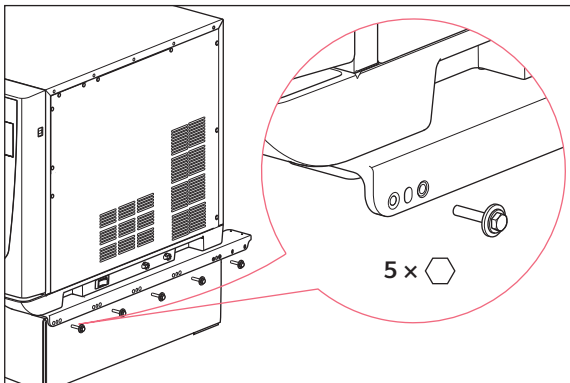


11. Position the device so that it is aligned with the front of the base.
12. Slide the device onto the base with one person on each side. The base must not move position.
13. Align the mounting holes of the brackets with the base.

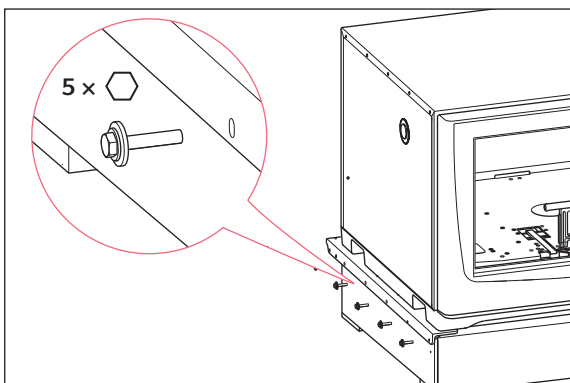


To attach the device to the brackets, it is necessary to tighten the hex head screws and set screws in the correct order.

The tightening is described in detail in the following steps.



14. Begin attaching the right-side bracket to the base by using the 5 hex head screws with illustrated hardware, installing by hand only 3 to 4 turns. The 2 mounting holes in the rear part of the bracket remain free.



15. Attach the left side bracket to the base by using 5 hex head screws with illustrated hardware. Tighten the 5 hex head screws fully by using the torque wrench. The 2 mounting holes in the rear part of the bracket remain free.

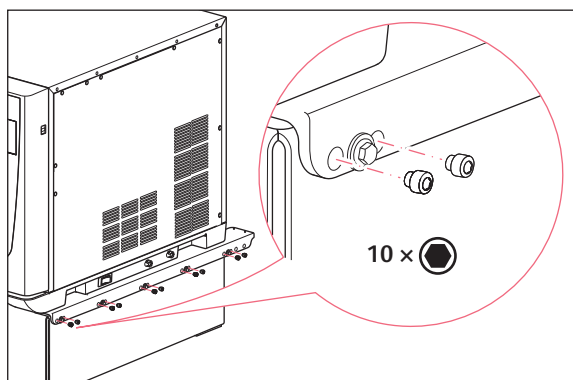


Set screw installation may require the use of significant force – this is appropriate and necessary for proper installation.

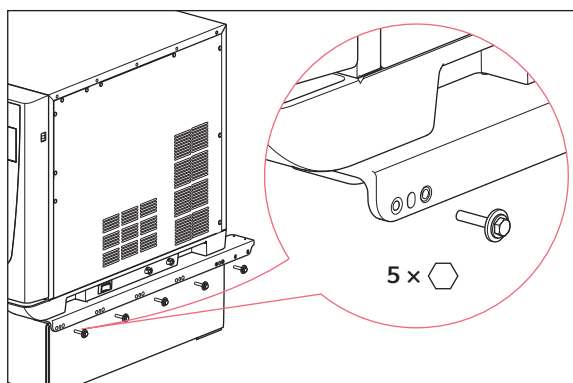


Proper set screw installation must be confirmed visually – the tip of the screw must be in direct contact with the mating surface without overtightening the set screw.

Tip: Use mirror or phone camera to see under bracket to track depth of set screw.



16. Mount the 10 set screws to the bracket on the right side by using the provided Allen key. Tighten the set screws according to the previously given information.



17. Tighten the 5 hex head screws with illustrated hardware on the right side fully by using the torque wrench.



If you want to install 2 or 3 devices, see chapter Stacking 2 or 3 devices.

Installation check and Balance Master calibration pre-check

18. Plug in and power on the device.
19. Set the counterweight adjustment knob to the determined setting, see Counterweight in chapter Technical data in the Innova S44i operating manual. Ensure the platform and contents are removed.
20. Set the top device to 300 rpm for 2.5 cm (1 in) orbit or 270 rpm for 5.1 cm (2 in) orbit.
21. Start agitation by tapping the *Start* button.
22. Detect any rocking motion by watching the motion of each corner of the positioning base. This can also be a tactile detection.
23. Check the set agitation speed.

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If the device cannot reach the set agitation speed:

- ▶ Stop agitation by tapping the *Stop* button.
- ▶ Shim as needed, typically under the diagonal set of corners with the most vertical motion.
- ▶ When installing shims, divide shims between opposite corners (i.e. 1 shim under each corner, instead of 2 shims under 1 corner).
- ▶ Restart agitation by tapping the *Start* button.
- ▶ Repeat if necessary.

Balance Master calibration

24. If desired, perform a Balance Master calibration.
The Balance Master calibration is described in
the Innova S44i operating manual.

2.4 Stacking 2 or 3 devices

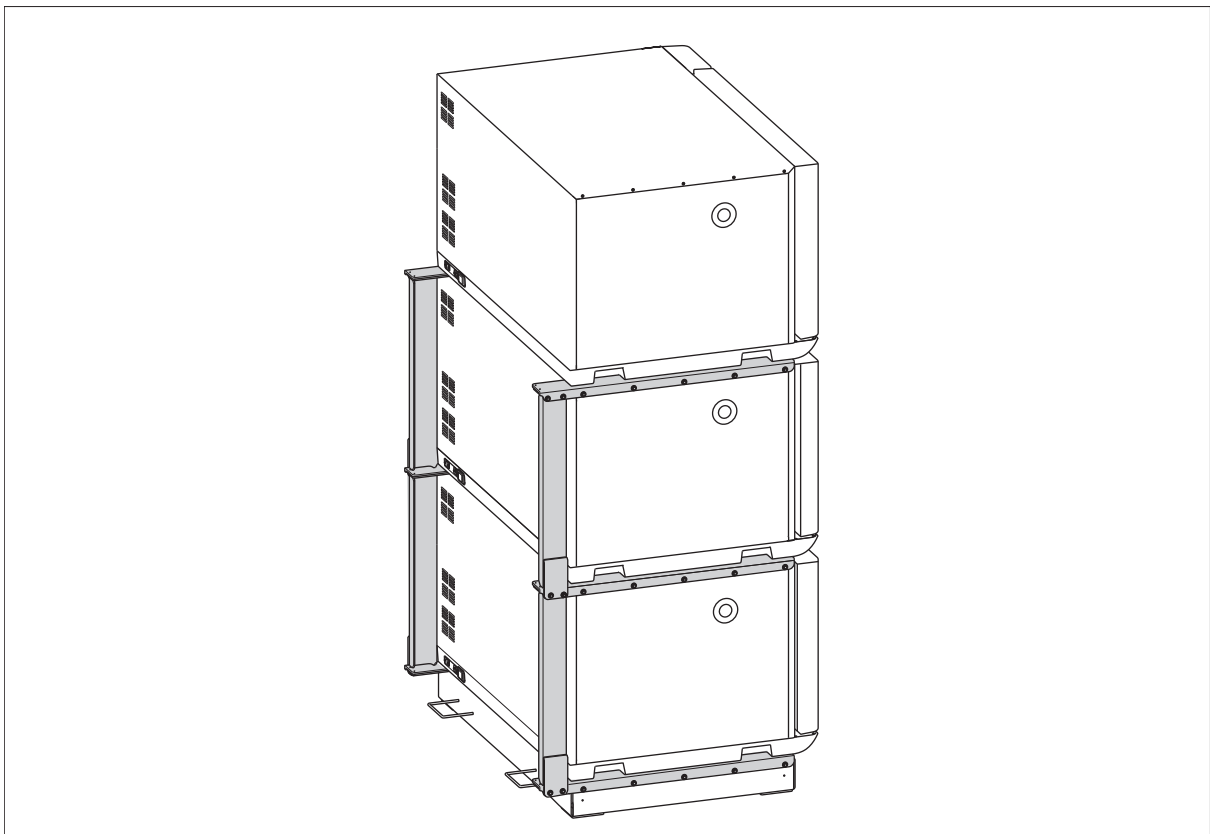
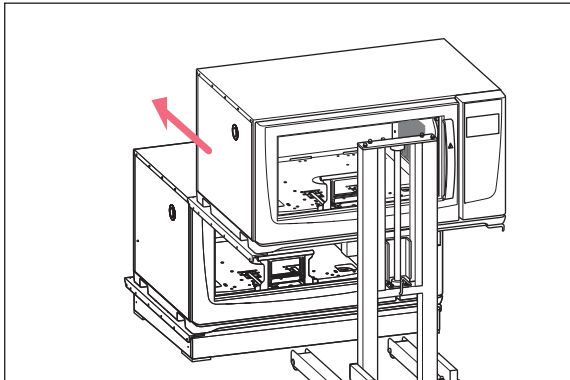


Fig. 1: Stacking the Innova S44i

Auxiliary equipment

- Hydraulic lift

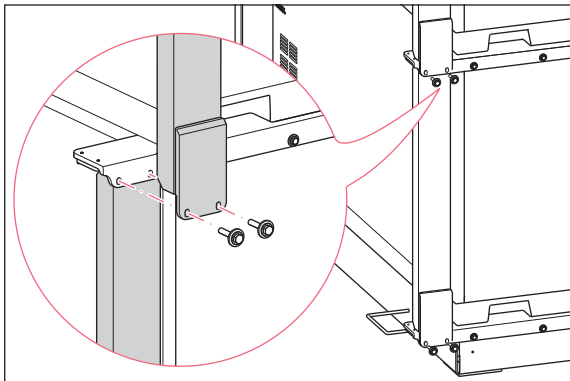


1. Lift the second device with the hydraulic lift.
2. Install the 2 brackets on the underside of the device on the left and right. Use the provided Allen key and 2 screws for each side.
3. Slide the second device onto the installed device.
4. Attach the brackets to the installed device using the provided torque wrench, the hex head screws and set screws. For more information, see chapter Installing the device on a base, steps 14 through 17.
5. If you want to install a third device, repeat steps 1 through 4.

Installing the support columns (triple stack only)



Plug in mains/power cord and ethernet cable of the middle device before installing support columns.



6. Attach the provided support columns to the rear part of the brackets with 6 hex head screws per side using the provided torque wrench. The lower part of each support column is attached on the outside of the bracket. The upper part of each support column is attached on the inside of the bracket.

Installation check and Balance Master calibration pre-check

7. Plug in and power on the top device, regardless of which configuration is used (double or triple stack).
8. Set the counterweight adjustment knob to the determined setting, see Counterweight in chapter Technical data in the Innova S44i operating manual. Ensure the platform and contents are removed.
9. Set the top device to 300 rpm for 2.5 cm (1 in) orbit or 270 rpm for 5.1 cm (2 in) orbit.
10. Start agitation by tapping the *Start* button.
11. Detect any rocking motion by watching the motion of each corner of the positioning base. This can also be a tactile detection.
12. Check the set agitation speed.

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If the device cannot reach the set agitation speed:

- ▶ Stop agitation by tapping the *Stop* button.
- ▶ Shim as needed, typically under the diagonal set of corners with the most vertical motion.
- ▶ When installing shims, divide shims between opposite corners (i.e. 1 shim under each corner, instead of 2 shims under 1 corner).
- ▶ Restart agitation by tapping the *Start* button.
- ▶ Repeat if necessary.

Balance Master calibration

13. If desired, perform a Balance Master calibration on every device. Let it run on one device at a time.

The Balance Master calibration is described in the Innova S44i operating manual.

2.5 Stacking an Innova S44i on an Innova 44

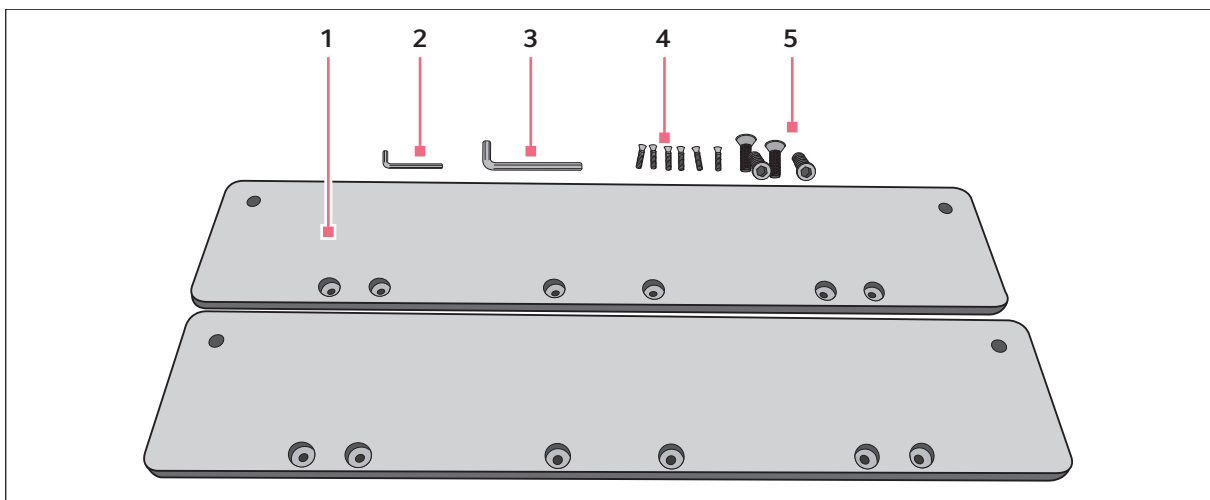


Fig. 2: Delivery package of the stacking kit

1 Brackets

2 Allen key

for small Allen screws

3 Allen key

for large Allen screws

4 Small Allen screws

The screws fasten the brackets to the Innova 44.

5 Large Allen screws

The screws fasten the brackets to the Innova S44i.



An Innova S44i cannot be stacked on an Innova 44 with feet. A stacking kit is required.

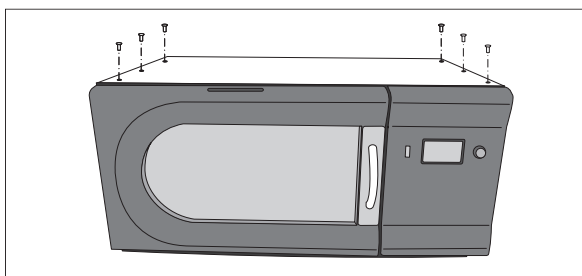
If you want to stack an Innova S44i and an Innova 44, always install the Innova S44i on top of the Innova 44.

Prerequisites

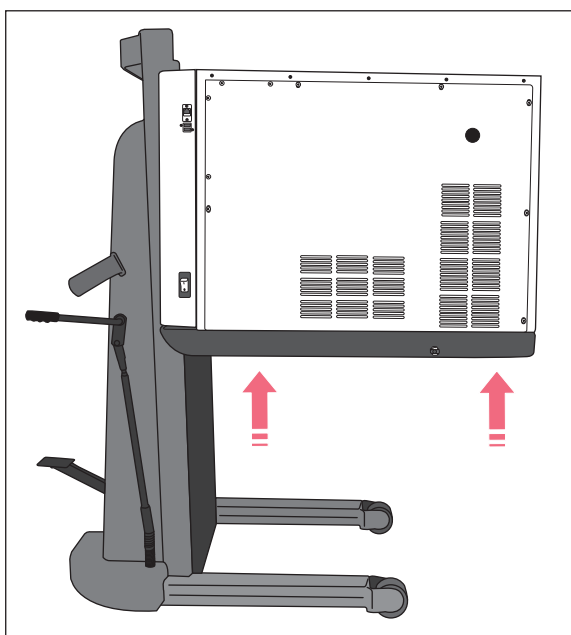
- Innova S44i is placed on the hydraulic lift. The ends of the forks do not protrude from under the device.

Auxiliary equipment

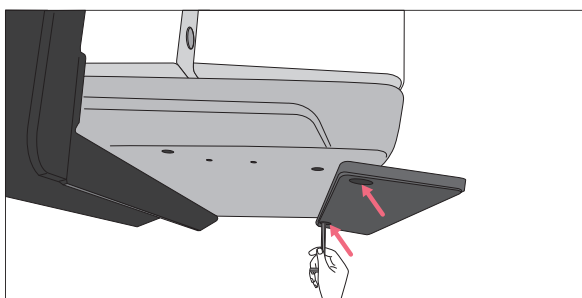
- Innova S44i - Innova 44 stacking kit
- Hydraulic lift
- Phillips screwdriver



1. Remove the 6 Phillips head screws on the top of the Innova 44.
2. Place the Innova 44 in the desired location.



3. Lift the Innova S44i with the hydraulic lift.

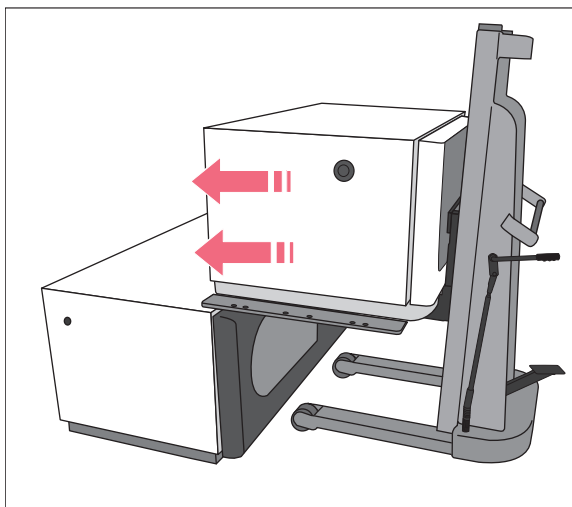


4. Install the 2 brackets on the bottom right and left of the Innova S44i. Use 2 large Allen screws on each side and the provided Allen key.

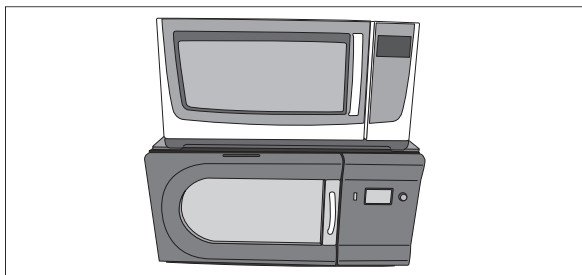
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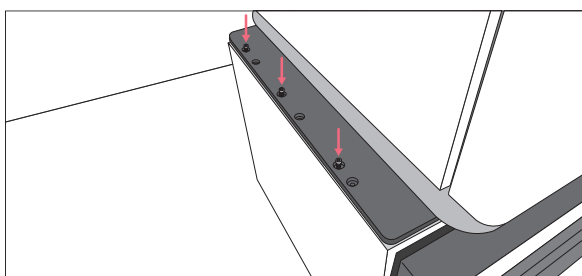
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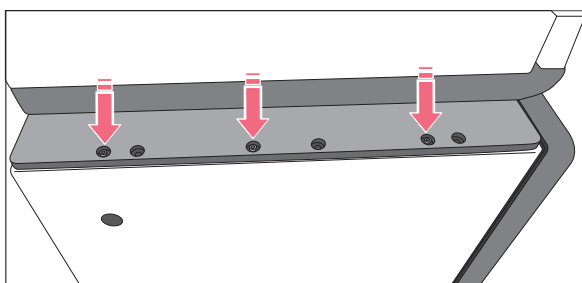
5. Move the Innova S44i to the Innova 44 with the hydraulic lift. Align the Innova S44i so that it is directly in front of the Innova 44.



6. Slide the Innova S44i on top of the Innova 44.



7. Align the rear holes in the bracket with the holes in the Innova 44.



8. Mount the 2 brackets to the Innova 44 with 3 small Allen screws on each side.



When stacking an Innova S44i on top of an Innova 44, a Balance Master calibration is not possible.

Your local distributor: www.eppendorf.com/contact

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