

# HP 10000 G2 42U Rack Air Duct Installation Guide



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### **Intended audience**

This document is for the person who installs racks and rack products. This procedure is performed only by trained personnel. HP assumes you are qualified in performing installations and trained in recognizing hazards in rack products.

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# HP 10000 G2 42U Rack Air Duct

## About this kit

The HP 10000 G2 42U Rack Air Duct kit removes warm air from the rack by channeling the warm air into the data center ceiling return air plenum. The air duct sits on top of the rack, directly joined to the ceiling plenum, preventing the warm air from entering the data center aisle.

Three kits support this product.

Part number	Option kit name	Description
AF028A	HP 10642G2 Top Exhaust Extension Kit	This kit includes the rear extension assembly and rack air duct assembly.
AF029A	HP 10642G2 Top Exhaust Field Retrofit Kit	This kit includes a solid top and bottom rack plate, solid rear rack doors, and an airflow gasket, enabling you to convert your existing HP rack to accommodate the rack air duct assembly.
AF030A	HP 10642G2 Top Exhaust Rack	This factory custom-to-order rack arrives with a solid top and bottom rack plate preinstalled on the rack.

If you are converting your current HP rack to accommodate the HP 10000 G2 42U Rack Air Duct, you must install the AF029A kit prior to installing the AF028A kit.

If you ordered the AF030A rack, you must install the AF028A kit to the AF030A rack.

## Kit contents

The following items are included in your rack option kit:

### **AF028A HP 10642G2 Top Exhaust Extension Kit**

- Extension assembly
  - Extension left side (1)
  - Extension right side (1)
  - Extension top (1)
  - Extension base (1)
  - M5.5 self-tapping screw (6)
  - M6 machine screw (8)
- Air duct assembly
  - Upper air duct assembly (1)
    - M6 cap screw (4)
    - M6 star washer (4)
    - M6 flat washer (4)

- M6 nut (4)
- Draw latch assembly (1)
- Plastic push fastener (4)
- 510-mm foam gasket (2)
- 520-mm foam gasket (2)
- Lower air duct assembly (1)
  - M5.5 self-tapping screw (4)
- M3.5 self-drilling screw (2)
- M10 x 20 bolt (2)
- Baying gaskets
  - 876-mm foam gasket (2)
  - 1850-mm foam gasket (2)

#### **AF029A HP 10642G2 Top Exhaust Field Retrofit Kit**

- Top rack plate
- Base rack plate
  - Base plate (2)
  - Egress slot plate (2)
  - M5.5 self-tapping screw (4)
  - 6-mm plastic push fastener (2)
  - 10-mm plastic tree fastener (2)
- Solid rear rack doors (2)
- Airflow rail foam gasket (2)
- 600-mm plastic floor gasket (1)

#### **AF030A HP 10642G2 Top Exhaust Rack**

Factory custom-to-order HP 10642G2 rack with a solid top rack plate and a solid bottom rack plate

## Required tools

The following tools are required for installation:

- T-25 Torx driver
- T-30 Torx driver
- Adjustable wrench or 17-mm wrench
- Scissors
- Electric drill
- 2.38-mm (3/32-in) drill bit

## Rack warning



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**WARNING:** To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling feet are extended to the floor.
  - The full weight of the rack rests on the leveling feet.
  - The stabilizing feet are attached to the rack if it is a single-rack installation.
  - The racks are coupled together in multiple-rack installations.
  - Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.
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## Installation video

HP recommends watching the HP 10000 G2 42U Rack Air Duct Installation video. The video provides a demonstration of installation strategies and techniques that might be helpful while installing the air duct.

To access the video:

1. Go to the HP website (<http://www.hp.com/go/sml>).
2. In the Product category section, select **Options and Accessories**.
3. In the Product family section, select **Server Rack and Rack Options**.
4. In the Product series section, select **HP 10000 G2 Rack Air Duct Kit**.
5. In the Media selection and resources section, select either the *Air duct installation video* or the *Retrofit kit installation video*.

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# Installing the Top Exhaust Retrofit Kit

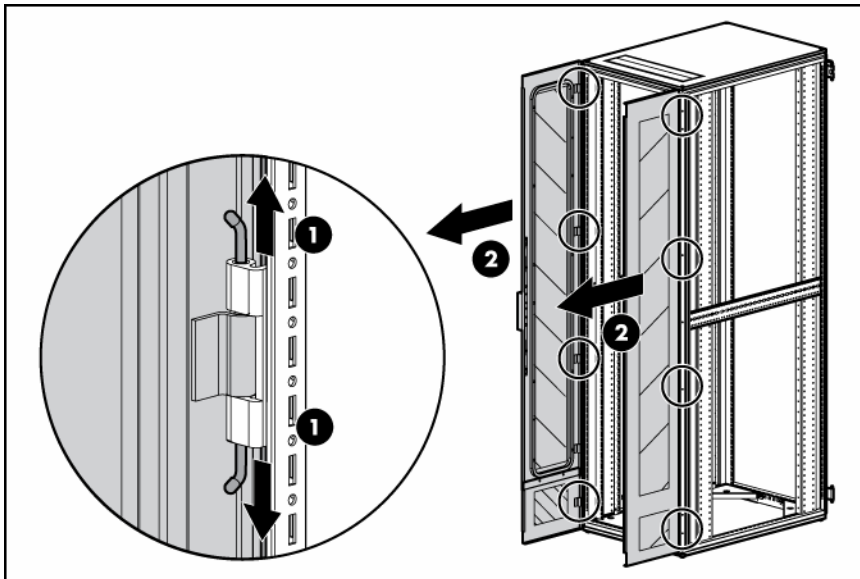
## Retrofit installation overview

Follow these instructions to convert your existing HP rack to accommodate the air duct.

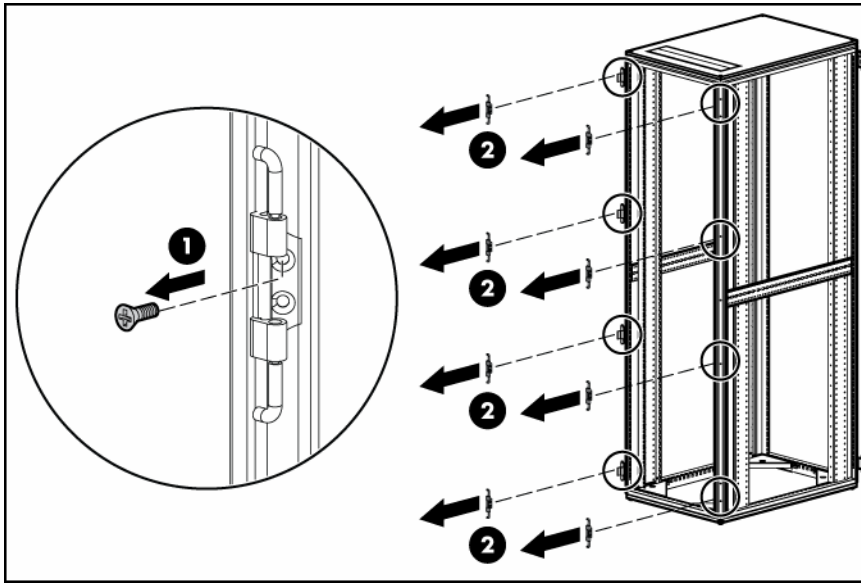
1. Remove the perforated rear doors of your rack.
2. Remove the perforated rack top plate and install the solid rack top plate ("[Installing the solid rack top plate](#)" on page 8).
3. If necessary, remove any installed components from the bottom two U spaces.
4. Install the solid rack base plate ("[Installing the solid rack base plate](#)" on page 9).
5. If necessary, replace the installed components in their original rack locations.
6. Install the airflow gasket to the inside of your rack ("[Installing the airflow gasket](#)" on page 10).
7. Install the floor gasket to your rack ("[Installing the floor gasket](#)" on page 12).

## Removing the rear doors

1. Open the hinge brackets by pulling up the top hinge pin and pulling down the bottom hinge pin (1).
2. Lift the rear doors off the hinge brackets, and then remove the doors from the rack (2).



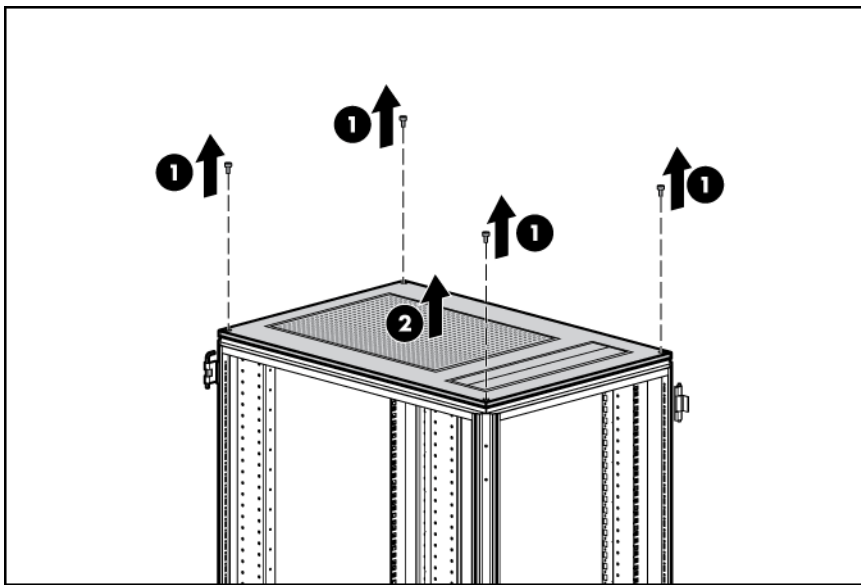
- Using a T-30 Torx screwdriver, remove the M6 flathead screw securing each hinge bracket to the rack (1), and then remove all of the hinge brackets from the rack (2). Retain the hinge brackets and screws for reinstallation.



**NOTE:** Install the solid rear rack doors after you have installed the AF028A kit.

## Installing the solid rack top plate

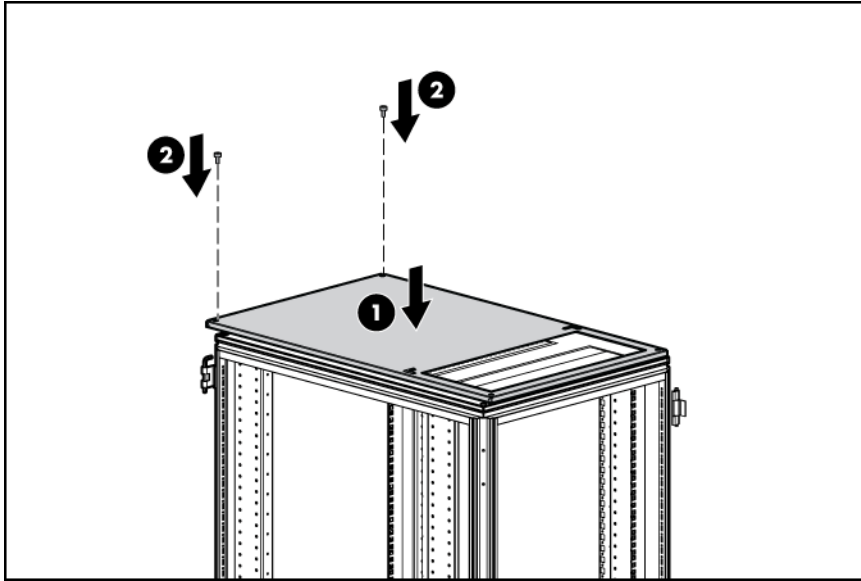
- Using a T-30 Torx screwdriver, remove the four M-12 bolts at each corner of the perforated top plate of the rack (1). Retain the bolts for future use.
- Remove the perforated top plate of the rack (2).



- Align the solid plate with the top of the rack (1).



4. Using a T-30 Torx screwdriver, insert and tighten two of the four M-12 bolts (from step 1) into the two corner holes at the front of rack (2).



## Installing the solid rack base plate

1. From the rear of the rack, insert the left side plate into the rack, and set the plate on the lip of the rack frame (1).

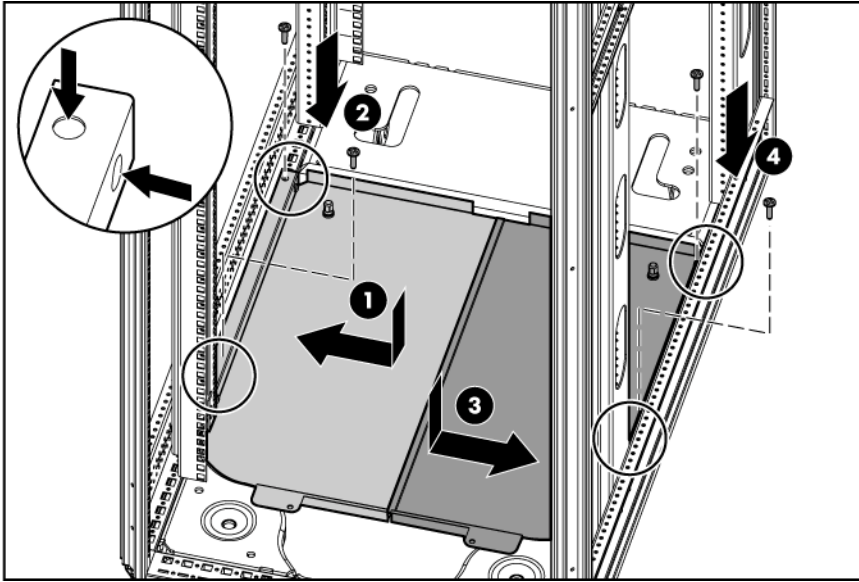
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**NOTE:** When you insert the sheet metal screws to secure the base plates, you can either use the top hole or the side hole, depending on your space allotment.

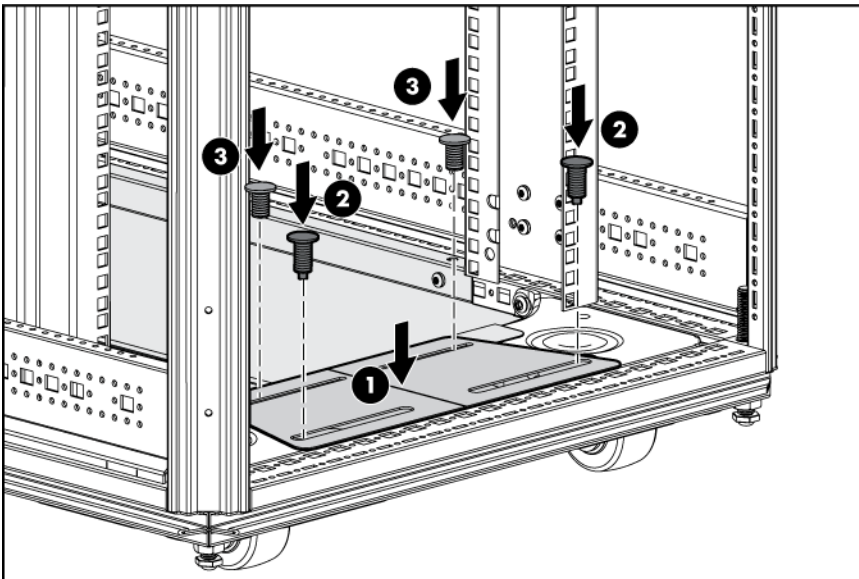
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2. Using a T-25 Torx screwdriver, insert and tighten one M5.5 self-tapping screw at the rear, left corner and one M5.5 self-tapping screw at the front, left corner to secure the left side plate to the rack frame (2).
3. Insert the right side plate into the rack, overlapping the left side plate, and set it on the lip of the rack frame (3).

- Using a T-25 Torx screwdriver, insert and tighten one M5.5 self-tapping screw at the rear, right corner and one M5.5 self-tapping screw at the front, right corner to secure the right side plate to the rack frame (4).



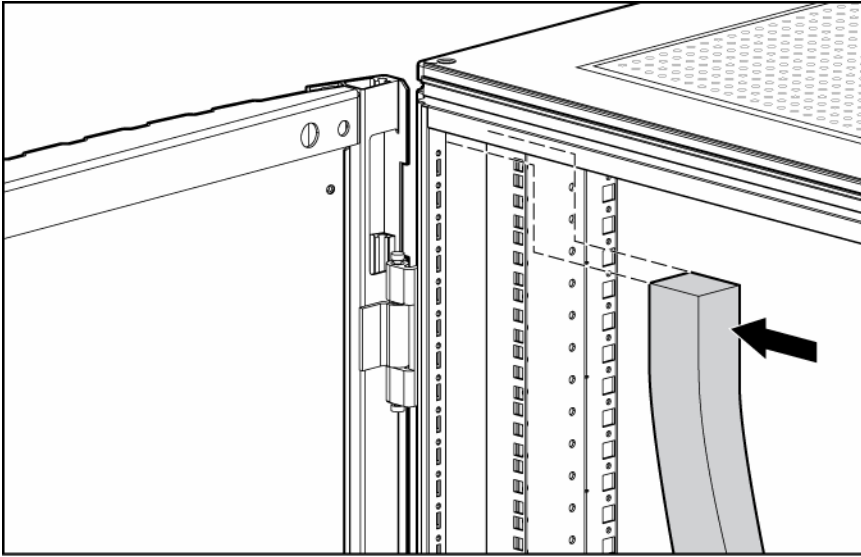
- From the rear of the rack, align the two egress cover plates with the egress slot at the rear of the rack (1).
- Secure the egress cover slot.
  - Insert two 10-mm plastic tree fasteners into the two rear holes, through the caster plate (2).
  - Insert two 6-mm plastic push fasteners into the two front holes, through the base plate (3).



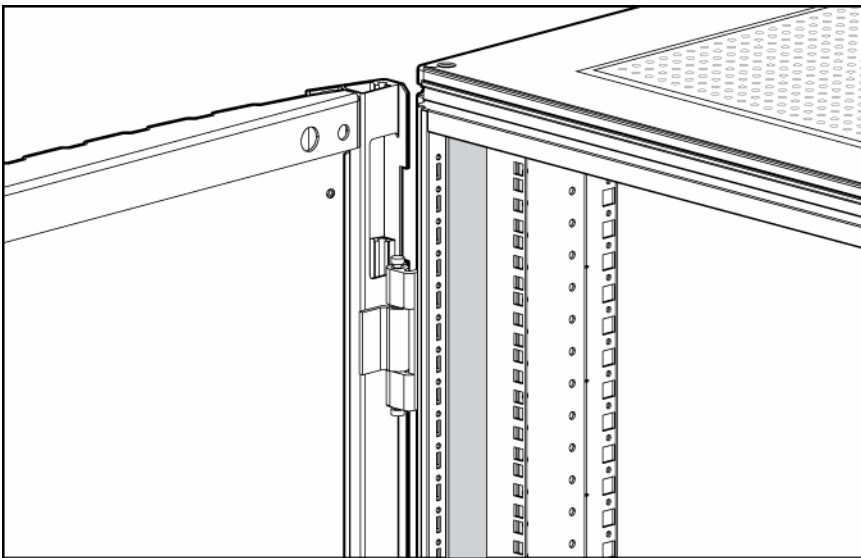
## Installing the airflow gasket

- Using scissors, cut the airflow rail gasket to fit the size of your rack.
- Insert the airflow rail gasket into the rack front door on both sides of the rack.

3. Insert the airflow rail gasket into the space between the 19-in mounting rails and the vertical frame on both sides of the rack, with the closed cell side of the airflow rail gasket facing the front of the rack.



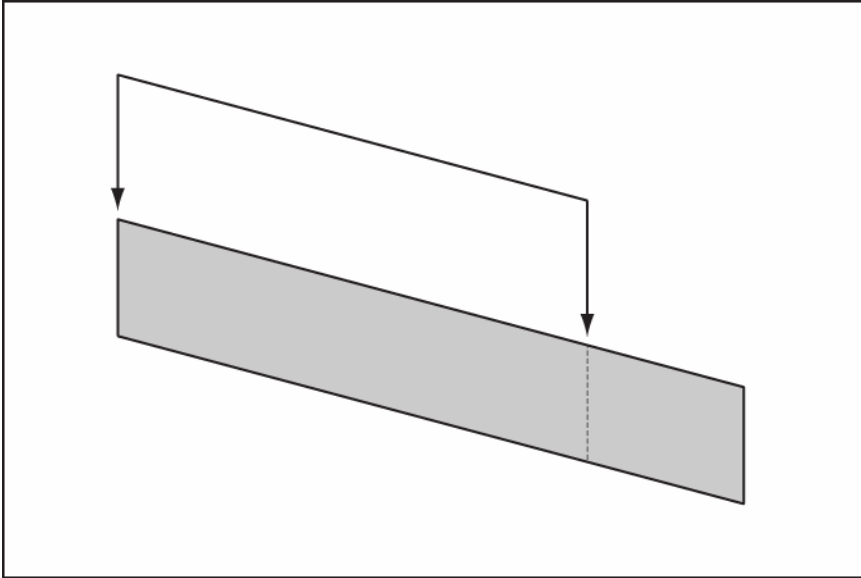
4. Gently push the airflow rail gasket into the space until it is flush with the vertical frame.



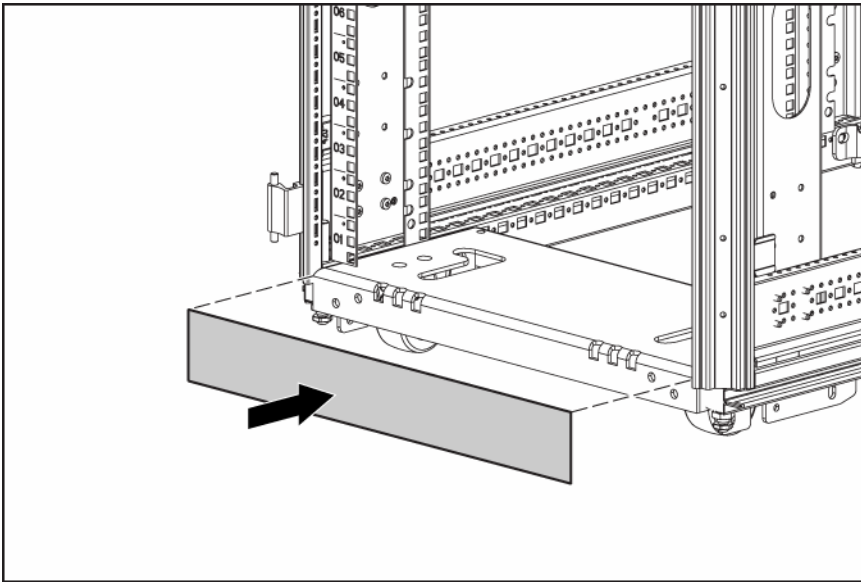
For more information, see the *HP Airflow Optimization Kit Installation Instructions (AF090A)*.

# Installing the floor gasket

1. Cut the floor gasket at the perforation to reduce the length from 800-mm (31-in) to 600-mm (24-in).



2. Remove the protective tape from the bottom edge of the floor gasket, and then apply it to the bottom of the rack with the adhesive strip facing the front of the rack.



Installation is complete.

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# Installing the Top Exhaust Extension Kit

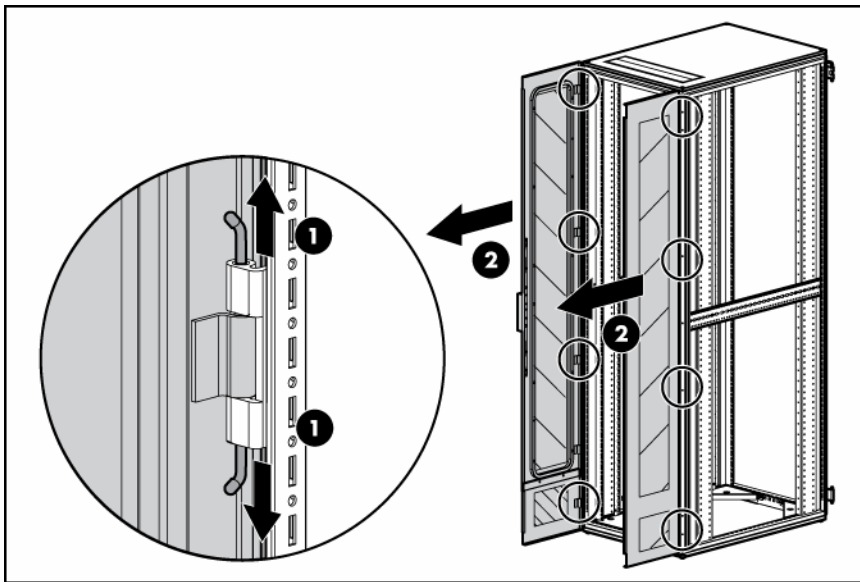
## Rack air duct installation overview

Follow these instructions to install the AF028A Top Exhaust Extension Kit, either to an AF030A Top Exhaust Rack or after you have installed the AF029A kit to an existing HP retrofit rack.

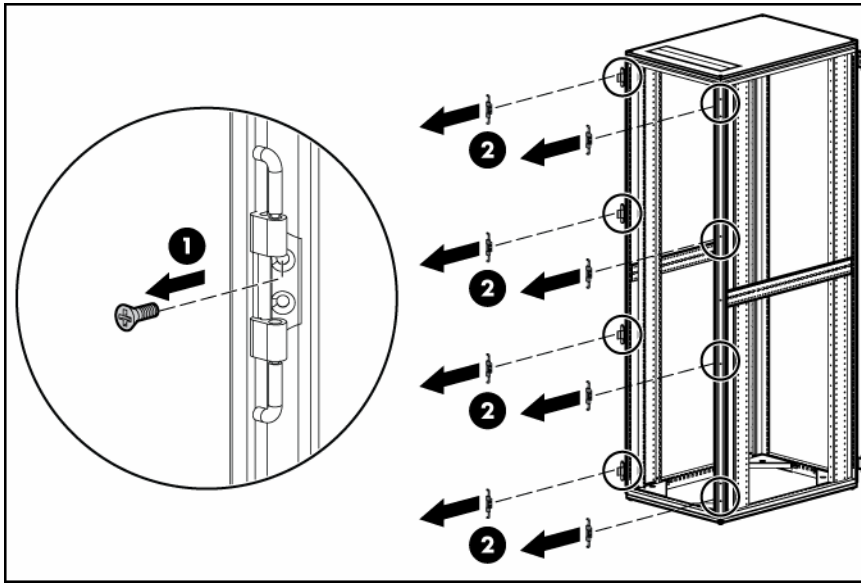
1. Remove the rear doors and door hinges from the rear of your rack.
2. Install the rear extension assembly to your rack.
3. Install the solid rear doors to the extension assembly.
4. Assemble the air ducts ("[Assembling the air ducts](#)" on page 17).
5. Install the air duct assembly to the top of your rack.
6. Adjust the height of the air duct.

## Removing the rear doors

1. Open the hinge brackets by pulling up the top hinge pin and pulling down the bottom hinge pin (1).
2. Lift the rear doors off the hinge brackets, and then remove the doors from the rack (2).



3. Using a T-30 Torx screwdriver, remove the M6 flathead screw securing each hinge bracket to the rack (1), and then remove all of the hinge brackets from the rack (2). Retain the hinge brackets and screws for reinstallation.

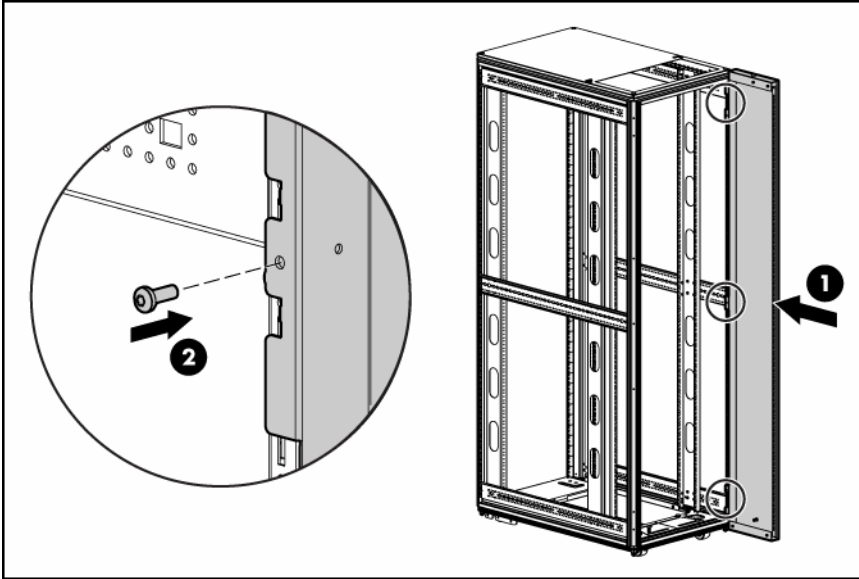


**NOTE:** Install the solid rear rack doors after you have installed the AF028A kit.

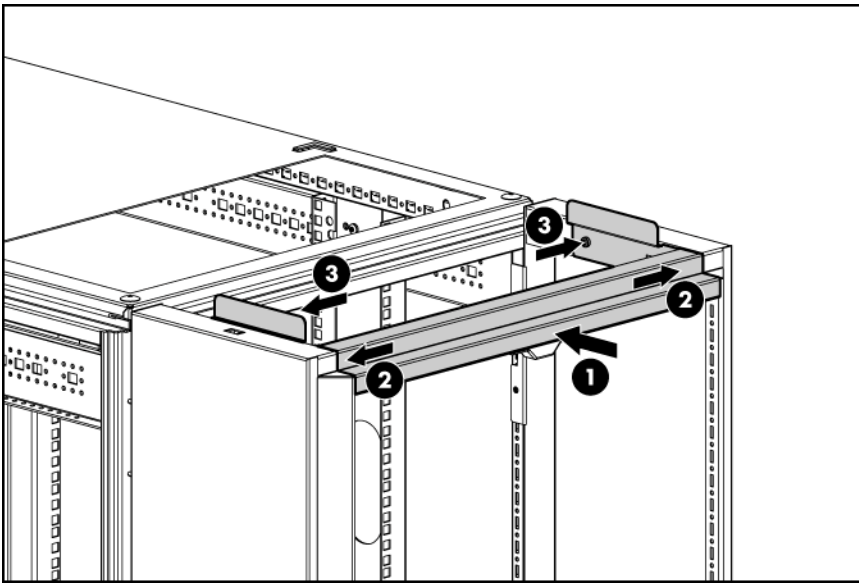
## Installing the rear extension assembly

1. Install the side assemblies of the rear extension assembly.
  - a. Align the right-side assembly with the rack frame (1).
  - b. Hook the extension into the rack frame at the three hook locations at the top, middle, and bottom of the rack.
  - c. Using a T-25 Torx screwdriver, insert and tighten one M5.5 self-tapping screws into each of the three hook locations to secure the side assembly to the rack frame (2).

- d. Repeat steps a through c for the left-side assembly.

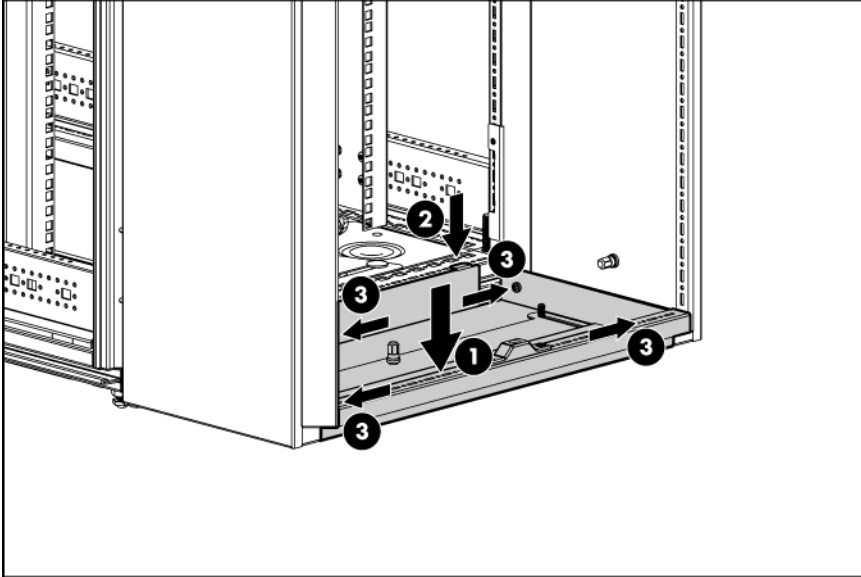


2. Install the top assembly of the rear extension assembly.
- a. Align the top assembly with the installed side assemblies (1).
  - b. Using a T-25 Torx driver, insert and tighten two M6 machine screws into the rear screw holes (2).
  - c. Using a T-25 Torx driver, insert and tighten two M6 machine screws into the front screw holes (3).



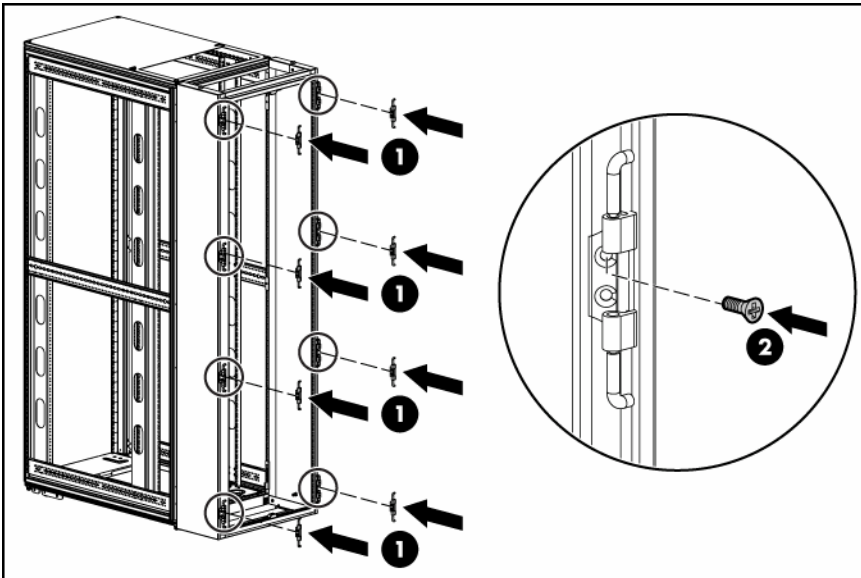
3. Install the bottom assembly of the rear extension assembly.
- a. Align the bottom assembly with the installed side assemblies (1), making sure to set the metal tab at the front of the assembly over the rear rack frame (2).

- b. Using a T-25 Torx driver, insert and tighten four M6 machine screws into each corner hole (3).



## Installing the solid rear doors

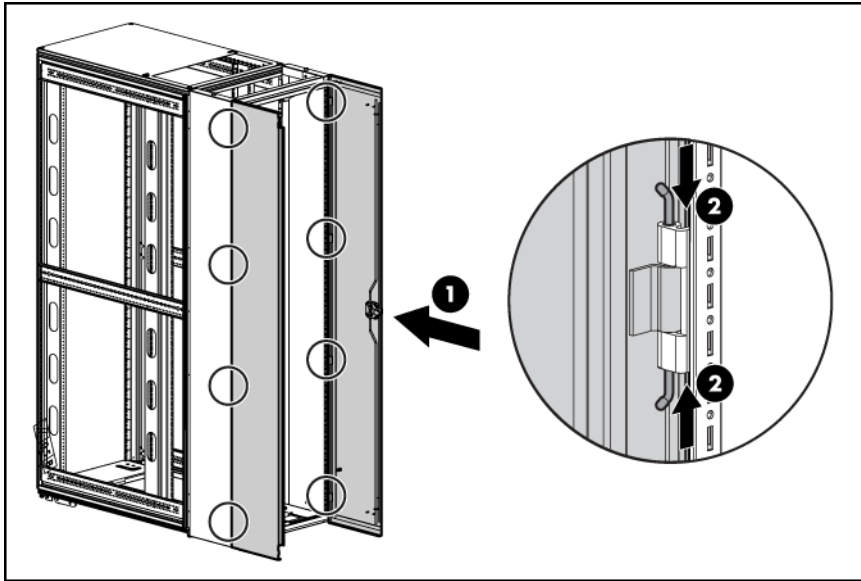
1. Install the hinges brackets.
  - a. Align the eight hinge brackets that you removed from the rear of your rack to the designated locations on the rear extension assembly (1).
  - b. Using a T-30 Torx driver, insert and tighten one M6 flathead screw to secure each hinge bracket to the rear extension assembly (2).



2. Lift the rear doors, aligning them with the hinge brackets on the rear extension assembly (1).

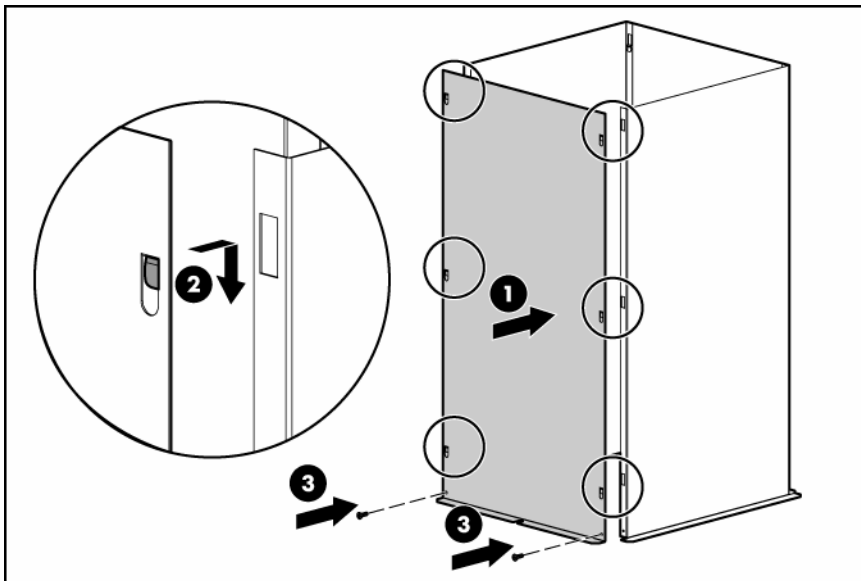


3. Push down the hinge pins, and then insert the hinge into the holes on the rear door (2).



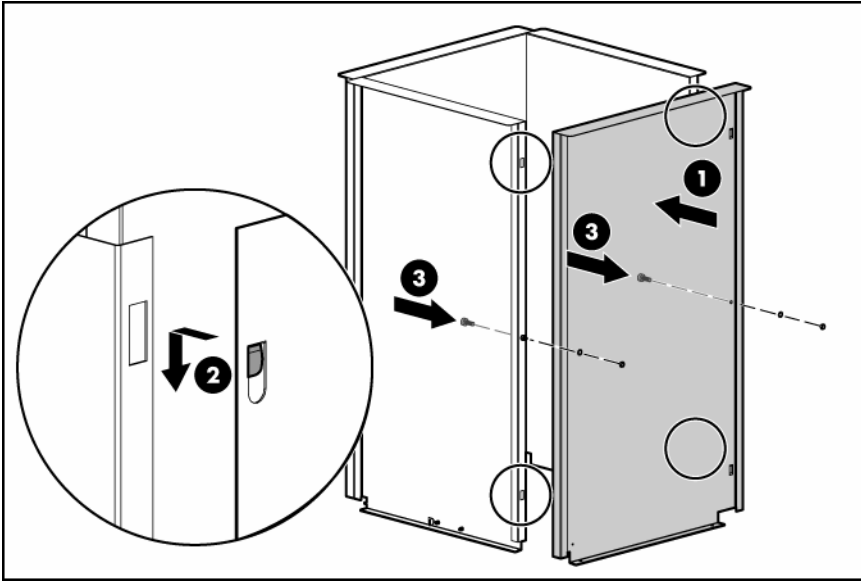
## Assembling the air ducts

1. Assemble the lower duct.
  - a. Align the hooks of the side panels with the slots of the front and back panels (1).
  - b. Slide the six hooks into the slots, and then slide the panel down until it locks in place (2).
  - c. Insert one M5.5 self-tapping screw into each bottom corner of the assembly (3).

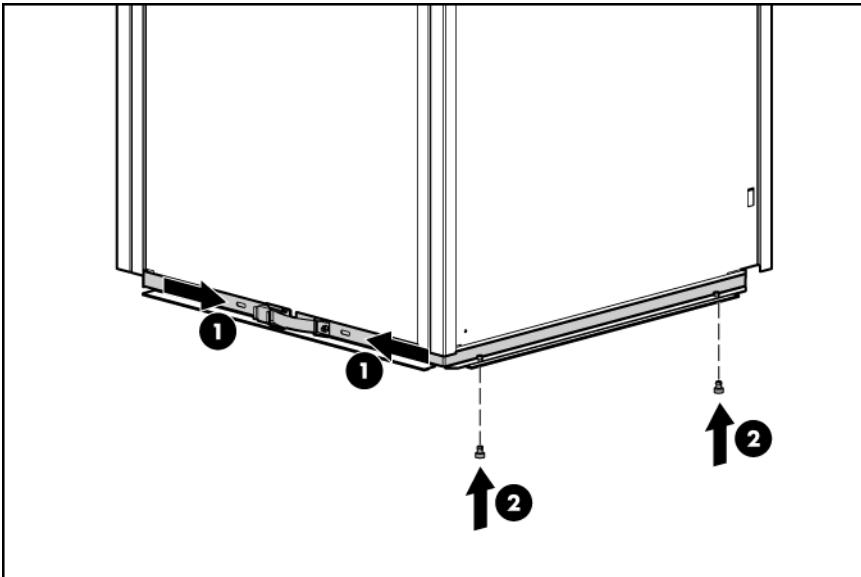


- d. Repeat steps a through c for the other side panel.
2. Assemble the upper duct.
  - a. Align the hooks of the side panels with the slots of the front and back panels (1).
  - b. Slide the six hooks into the slots, and then slide the panel down until it locks in place (2).

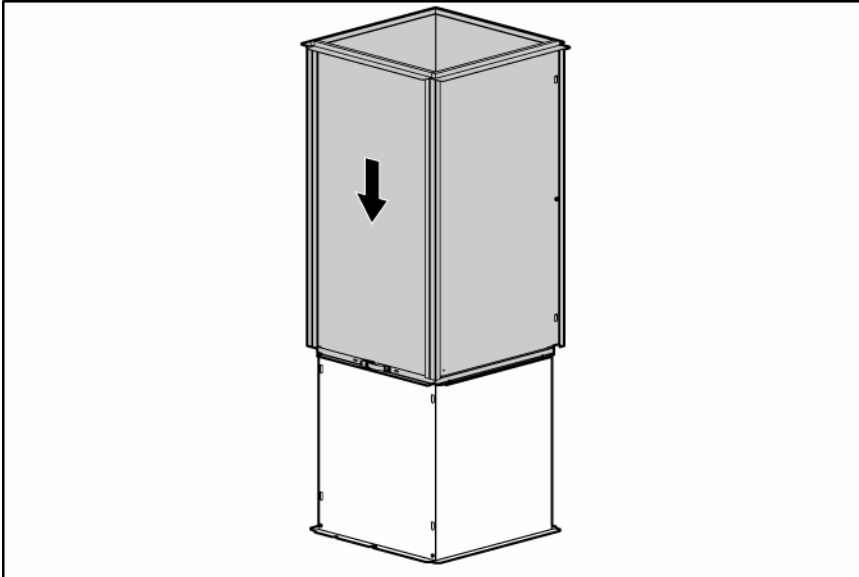
- c. From the inside of the assembly, insert two M6 cap screws in the middle of the assembly. Using an adjustable wrench, secure the screws from outside the assembly with an M6 star washer, an M6 flat washer, and a nut (3).



- d. Repeat steps a through c for the other side panel.
3. Install the draw-latch straps to the upper duct assembly.
- a. Slide the draw-latch strap around the bottom of the upper duct assembly (1).
  - b. Align the holes of the draw-latch strap with the holes of the upper duct assembly.
  - c. Insert two plastic push fasteners into the holes on both sides of the assembly to secure the draw-latch strap to the upper duct assembly (2).
  - d. Repeat steps a through c for the second draw-latch strap.



4. With the draw-latch straps in the loose position, slide the upper duct down over the lower duct.



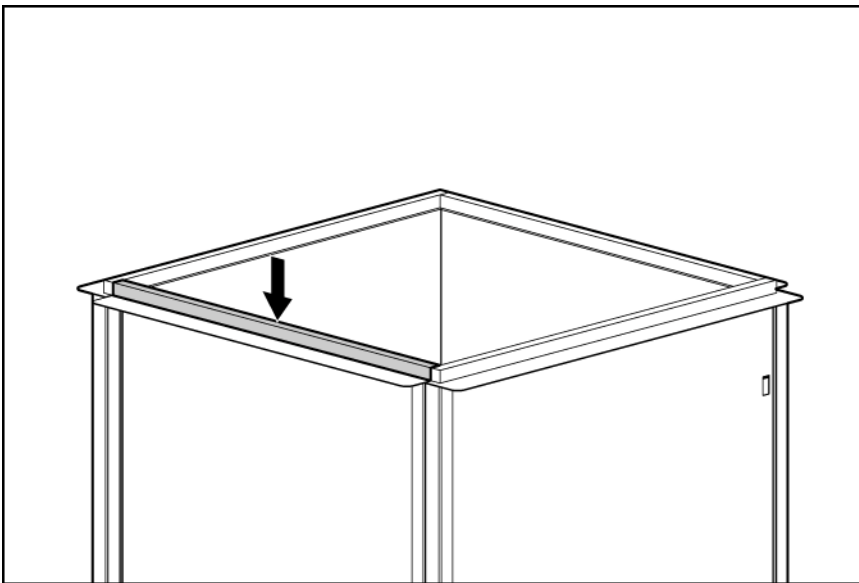
5. Lock the draw-latch straps.

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**NOTE:** The two 510-mm gaskets sit on the inside edges of the two 520-mm gaskets.

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6. Apply the foam gasketing to the top of the upper duct by peeling the adhesive backing and aligning the gasketing with the top edges of the upper duct.



## Installing the air duct assembly



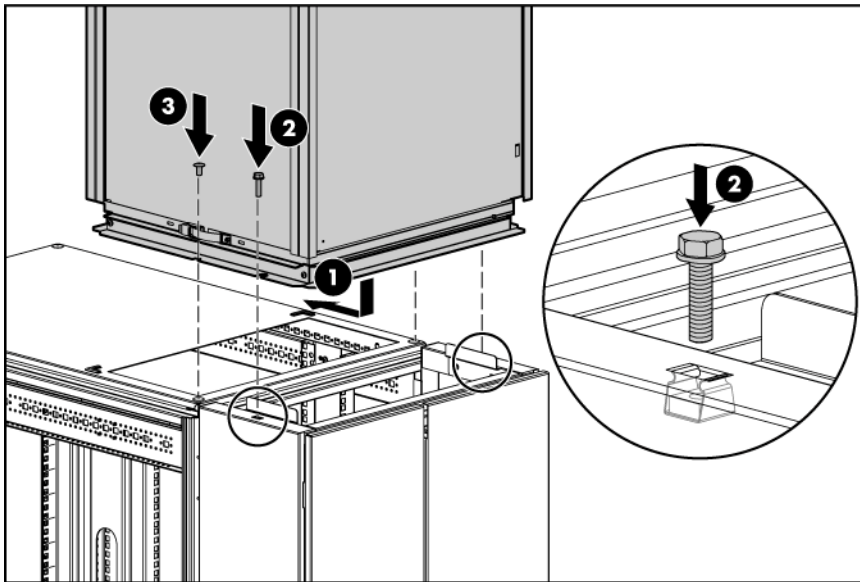
**WARNING:** The air duct weighs approximately 22.5 kg (50 lb). To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Use at least two people to lift and stabilize the product during installation or removal.
- Use step stools to install the product to the top of the rack. Do not lift the air duct over your head.

1. Using a T-30 Torx screwdriver, remove the two rear M-12 bolts from the top plate of the rack. Retain the bolts for future use.
2. Align the open slots of the lower air duct to the mounting holes on the top of the rack.
3. Slide the air duct toward the front of the rack, until the front edge slides under the metal slots on the top plate of the rack (1).

**NOTE:** You might need to slightly raise the upper duct to access the bolts.

4. Using an adjustable wrench, insert and tighten two M-10 bolts through the holes of the air duct assembly and into the cage nut holes on top the side assemblies (2).
5. Using a T-30 Torx screwdriver, insert and tighten two M-12 bolts (from step 1) through the holes of the air duct assembly and into the two rear holes of the rack (3).

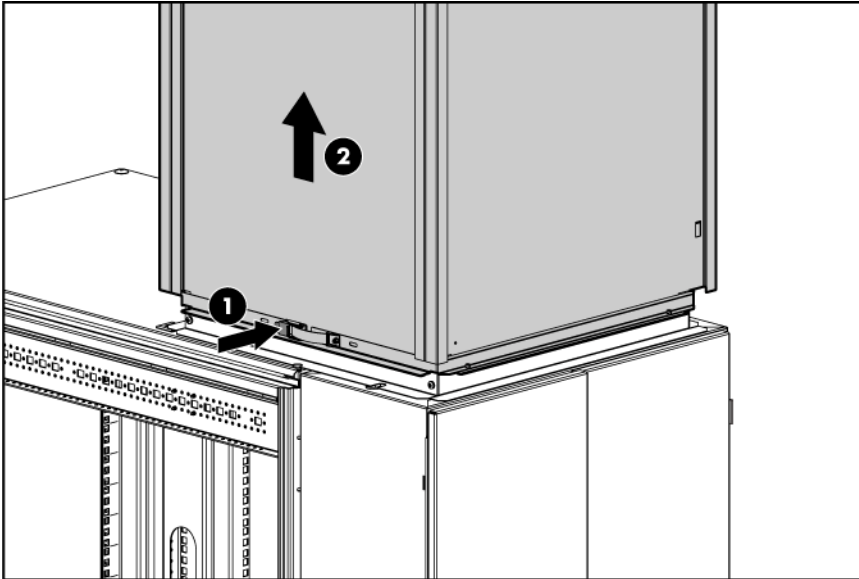


## Adjusting the air duct

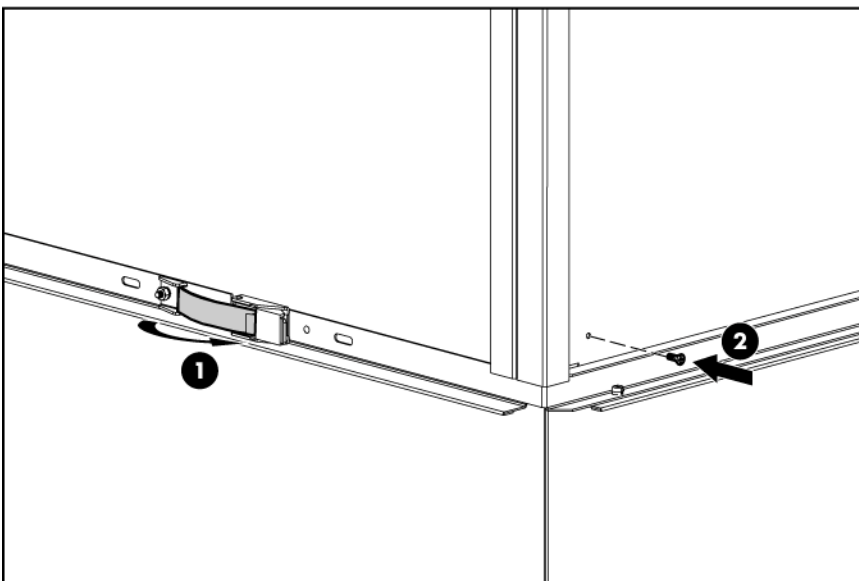
After you have installed the air duct to the top of your rack:

1. Loosen both draw-latch straps (1).

2. Raise the upper duct until it reaches the ceiling opening, and the gasketing is pressed firmly against the ceiling (2).



3. Tighten and lock both draw-latch straps to hold the upper duct in place (1).
4. To lock the air duct in the raised position:
  - a. Mark through the pre-drilled hole on the upper duct, so you know where the hole should be on the lower duct.
  - b. Using an electric drill, drill one 2.38-mm (3/32-in) hole through the lower duct, in the location you marked.
  - c. Insert one M3.5 self-drilling screw through the holes in both the upper and lower ducts (2).



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# Baying options

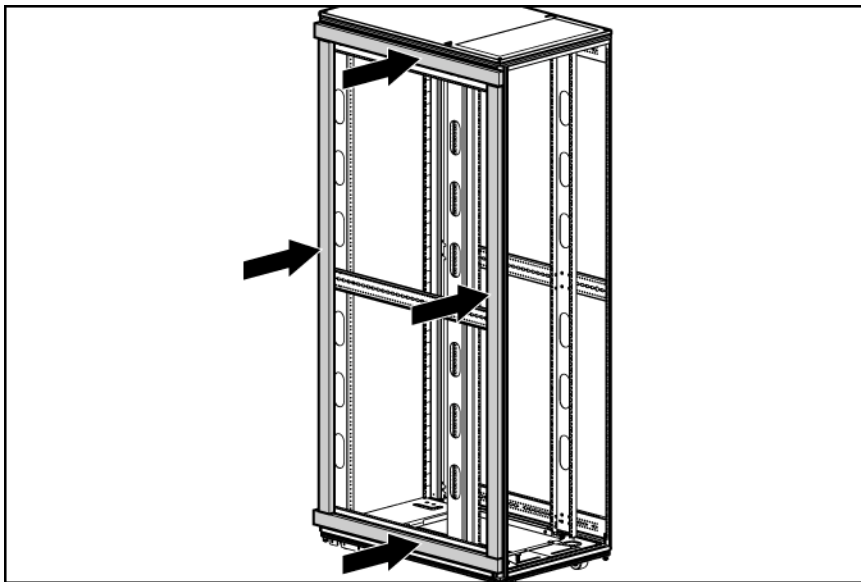
## Baying options

You can order the HP Baying Rack Option Kit to bay your HP 10000 G2 42U Rack Air Duct to another HP 10000 G2 42U Rack Air Duct. You cannot bay an HP 10000 G2 42U Rack Air Duct to a standard rack.

You must install the included gaskets to your HP 10000 G2 42U Rack Air Duct prior to baying, in order to ensure that the air continues to be channeled up the air duct, and not out the sides of the bayed rack.

To install the gasket strips to your rack:

1. Remove the liner backing from each of the four gasket strips.
2. Attach the two 876-mm gasket strips to the top and bottom frames of the side of the rack.
3. Attach the two 1875-mm gasket strips to the front and rear frames of the side of the rack.



For more information, see the *HP Baying Rack Option Kit Installation Instructions (24829-B21)*.

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# Acronyms and abbreviations

G2

Generation 2