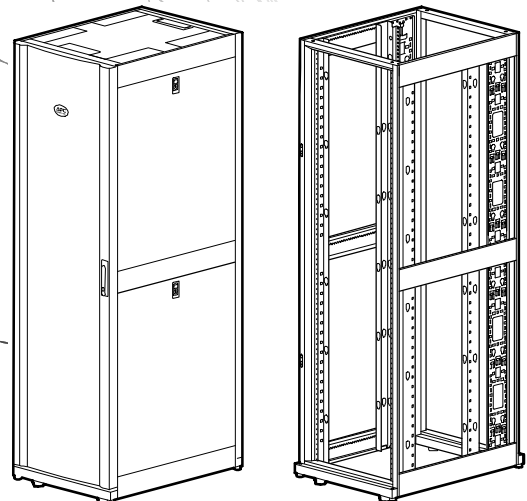


Unpacking, Installation, and Customization Manual

NetShelter[®] AV 42 U and 42 U Open-Frame Enclosures

AR3810
AR3812



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Introduction

The American Power Conversion (APC®) NetShelter® AV Enclosure is a high-quality enclosure for storage of industry-standard (EIA-310), 19-inch rack-mount hardware, which includes servers, voice, data, networking, security, audio-visual, and APC power protection equipment.

- The NetShelter AV 42 U Enclosure (AR3810) is a complete enclosure with all panels: front door, rear doors, side panels, and roof.
- The NetShelter AV 42 U Open-Frame Enclosure (AR3812) is a frame-only enclosure for which you can purchase side panels, roof, and doors as required for your unique needs. (See “Component Identification” on page 3.)

Various accessories are mentioned in this manual. For complete details on any accessory, see the APC Web site, www.apc.com. To quickly find a part on the APC Web site, enter the part number in the Search field.

For additional information about this product, see the product page on the APC Web site, www.apc.com

Safety Warnings and Cautions

Observe all Warnings and Cautions in this manual, plus the following.



Tip Hazard: This equipment is easily tipped. Use extreme caution when unpacking or moving.



Heavy: Use at least two people to unpack the enclosure.



Warning: To avoid damage or injury, do not use the roof as a walkway.

Unpacking the Enclosure

Disclaimer

American Power Conversion is not responsible for damage sustained during reshipment of this product.

Receiving inspection

Inspect the package and contents for shipping damage, and make sure that all parts were sent. Report any damage immediately to the shipping agent. Report missing contents, damage, or other problems immediately to APC or your APC reseller.

Please Recycle



The shipping materials are recyclable. Save them for later use, or dispose of them appropriately.

Procedure

1. Move the shipping pallet to a firm, level surface in an open area. Inspect for visible signs of shipping damage. If you detect shipping damage, contact APC Customer Support using the contact information on the back cover of this manual.
2. See the label on the packaging to determine where to cut the wrapping. Using sturdy shears or a utility knife, carefully remove the plastic stretch wrap surrounding the enclosure.
3. Remove the four cardboard corner protectors.
4. Remove and retain the two pallet-mounting brackets with mounting hardware that anchor the enclosure to the shipping pallet. Use a 13-mm wrench (not provided).



Note: Save the pallet-mounting brackets if you plan to bolt the enclosure to the floor.

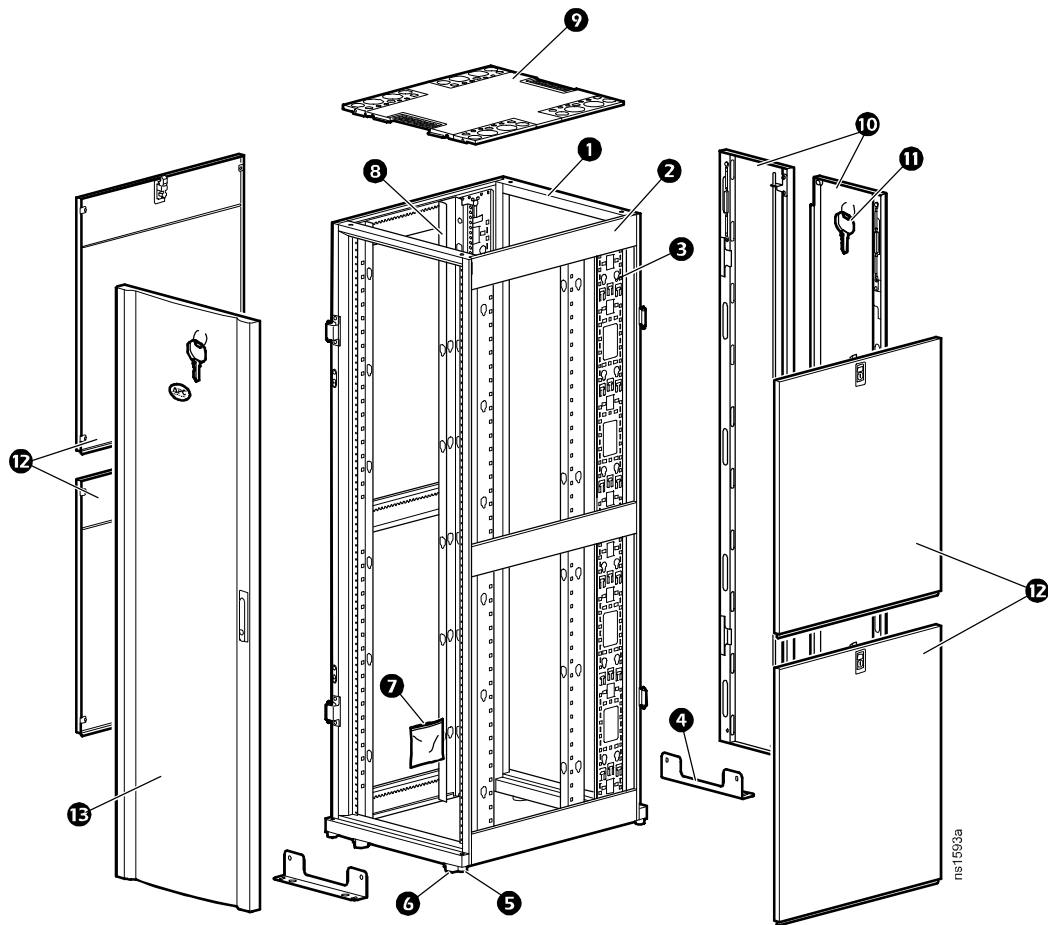
5. With one person on each side of the enclosure, carefully roll it toward the rear of the pallet until the rear casters clear the back edge of the pallet. Continue to slide the enclosure until the rear casters touch the floor.
6. While one person carefully tips the enclosure slightly away from the pallet, have the other person pull the pallet away from the enclosure. Set the enclosure gently on its casters.



Warning: Use caution when moving an empty enclosure on its casters; the enclosure may be unstable when pushed or pulled from the side. Push the enclosure from the front or back when moving it on its casters. For extra stability, load 158 kg (350 lbs) of equipment into the bottom of the enclosure before moving it on its casters.

Component Identification

Enclosure



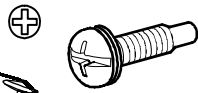
- ❶ Enclosure frame
- ❷ Side brace
- ❸ Adjustable vertical 0 U accessory channel
- ❹ Pallet/bolt-down bracket
- ❺ Adjustable leveling feet
- ❻ Casters
- ❼ Hardware bag (see page 4)
- ❽ Adjustable vertical mounting rails
- ❾ Roof with conduit knockouts and cable access (AR7213)†
- ❿ Removable rear split doors (AR7100)†
- ⓫ Key for doors and side panels†
- ⓬ Removable side panels with locks (AR7306)†
- ⓭ Removable and reversible front door (AR7000A)†

† Options for the NetShelter AV 42 U Open-Frame Enclosure (AR3812)

Hardware bag contents



TORX® T30/#2 Phillips
wrench (1)



#10-32
screws (60)



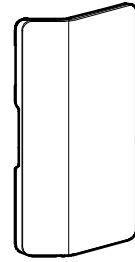
M5 x 12
screws (4)



7-mm hole
plugs (4)



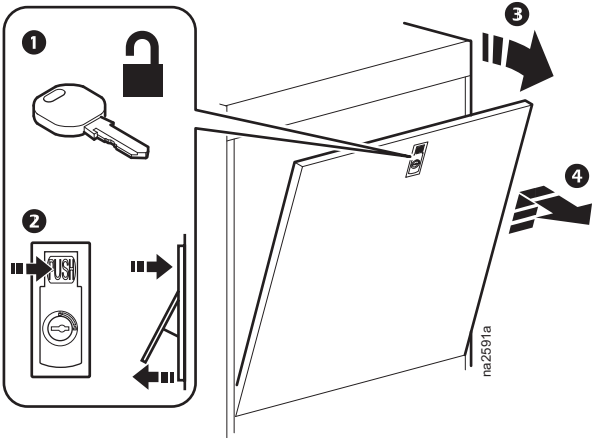
5-mm hole
plugs (5)



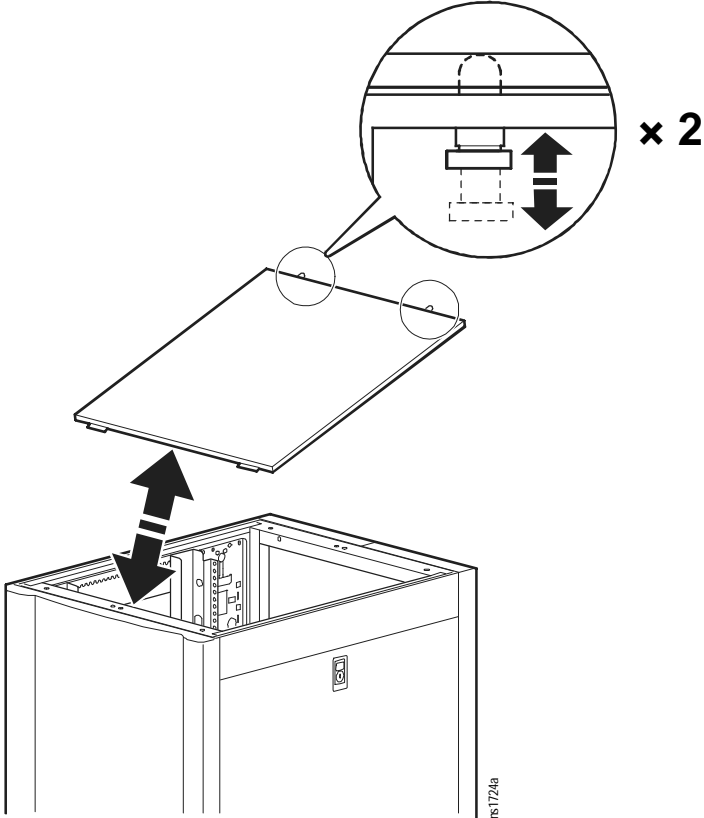
Frame handle
cutout
cover (2)

Removing and Reinstalling Side Panels, Roof, and Doors

Side Panels



Roof

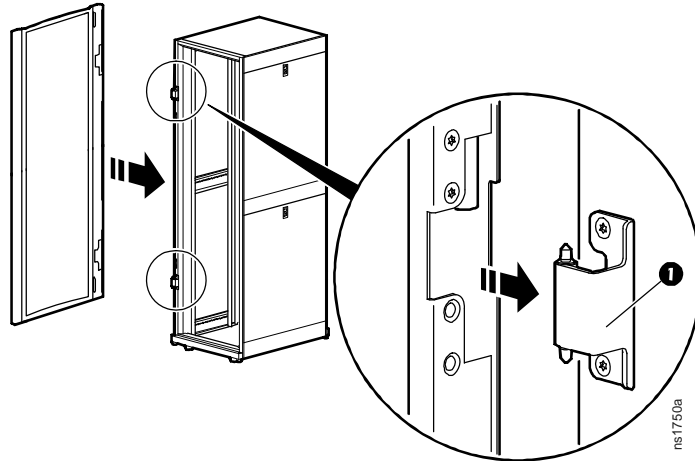


Doors

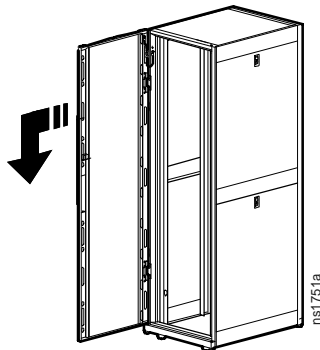


Note: Doors self-align on hinge pins when properly reinstalled.

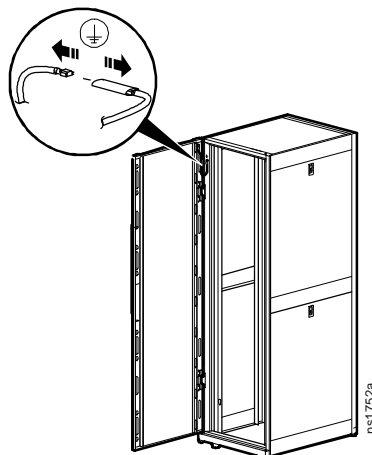
1. With the door at a 90-degree angle to the front of the enclosure, position the door over the hinge pins (1).



2. Use slight pressure to pull the door away from enclosure; then lower the door.



3. Connect the ground wire.



Enclosure Installation

Moving the Enclosure



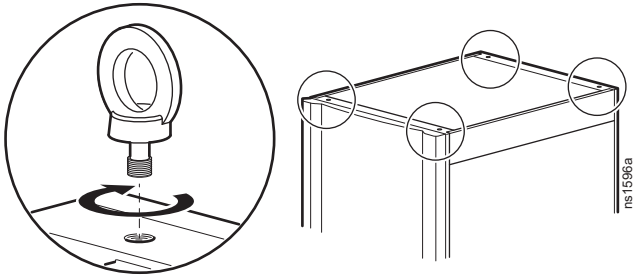
Caution: To avoid damaging the enclosure and causing a tip hazard, make sure the leveling feet are up before moving the enclosure.

Casters. The enclosure can be moved on its casters with up to 1021 kg (2,250 lbs) of equipment installed.



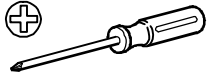
Tip Hazard: Use caution when moving an empty enclosure on its casters. Push the enclosure from the front or back only; the enclosure may be unstable if pushed or pulled from the side. For extra stability, load 158 kg (350 lbs) of equipment into the bottom of the enclosure before moving it on its casters.

Eye bolts. The enclosure can be lifted using eye bolts with up to 567 kg (1,250 lbs) of equipment installed. Use M10 eye bolts with a shoulder rated for 181 kg (400 lbs).

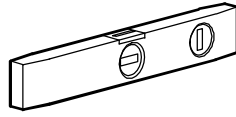


Leveling the Enclosure

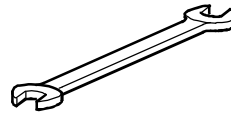
Required tools:



Phillips screwdriver



Level

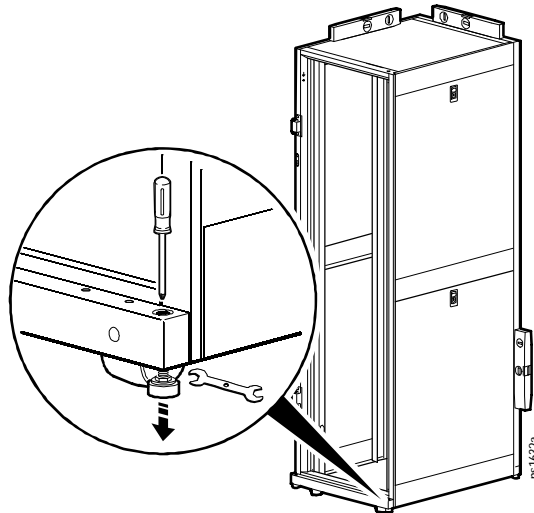


13-mm open-ended wrench



Warning: The leveling feet at the corners provide a stable base if the floor is uneven, but they cannot compensate for a badly sloped surface.

To adjust the leveling feet after equipment has been installed, use a 13-mm open-ended wrench (not provided).



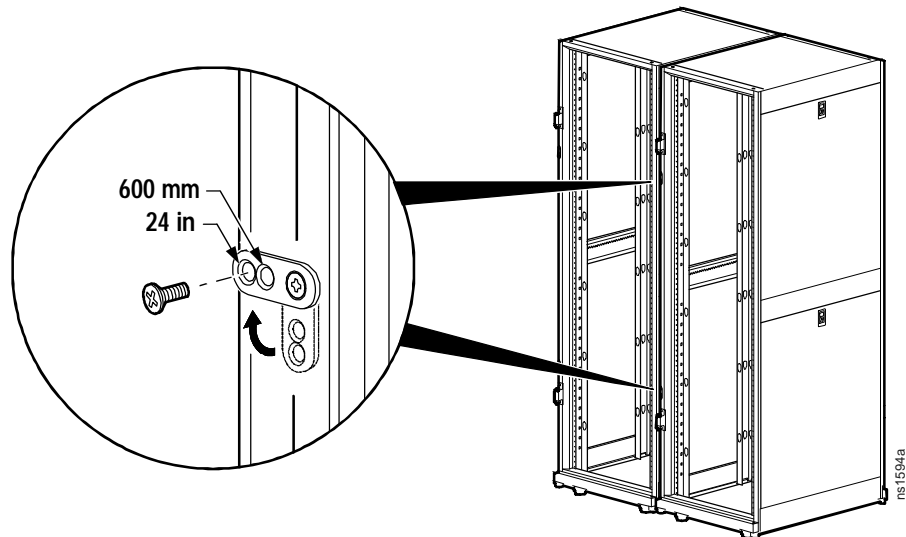
Joining Enclosures

Enclosures can be joined with or without side panels installed to provide for alignment and some stability.



Caution: Joining enclosures provides limited stability to the enclosures.

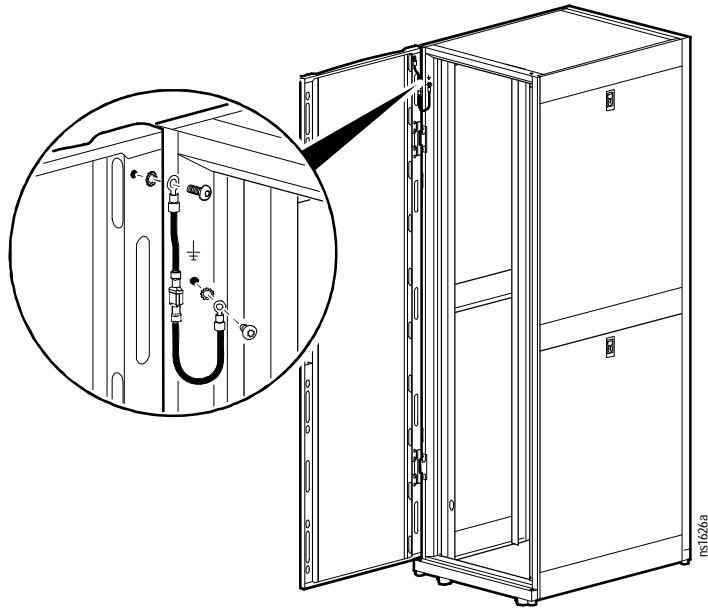
1. Make sure the leveling feet are down.
2. Remove the front and rear doors.
3. Choose between 24-in centers or 600-mm centers (see the detail view below). If enclosures are joined on 24-in centers, APC offers buying trim (AR7600) to cover the gap between the enclosures. The trim can be installed after the units are joined together.
4. Align the enclosures and join them using one M5 x 12 flat-head screw (provided in the hardware bag) per bracket—two brackets for the front and two brackets for the rear.
5. Reinstall the doors. (See “Moving the Enclosure” on page 7.)



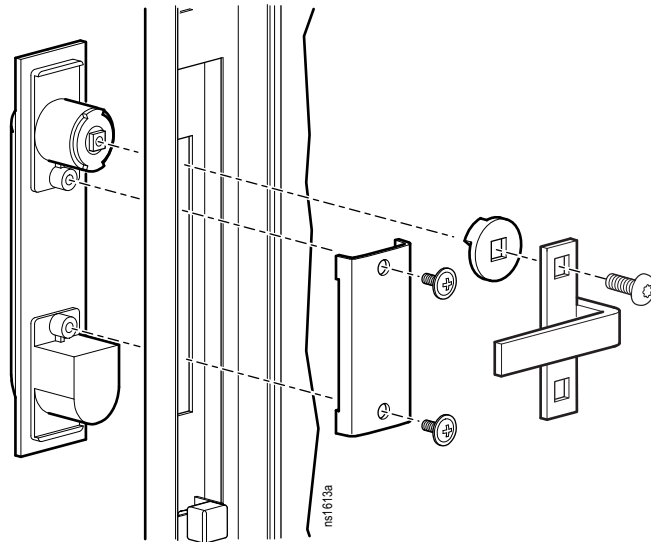
Reversing the Front Door

If desired, you can reverse the front door so the door opens from the opposite side of the enclosure.

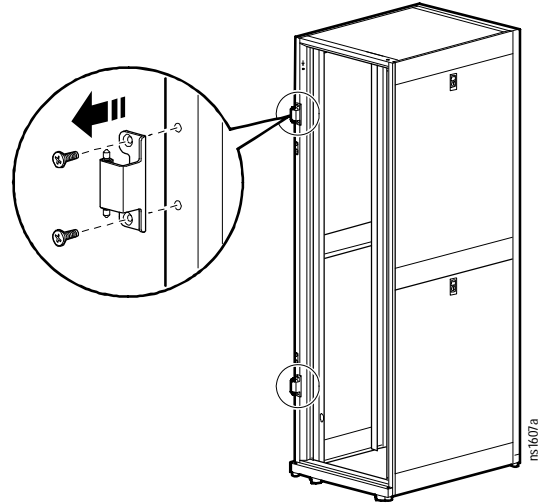
1. Remove the APC nameplate from the front door.
2. Remove the grounding wire using the TORX wrench (provided).



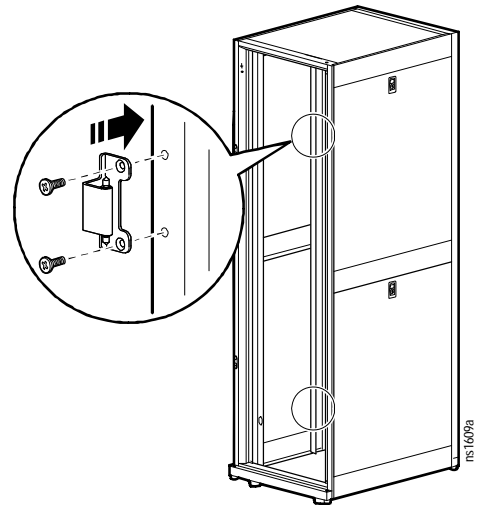
3. Remove the door handle assembly.



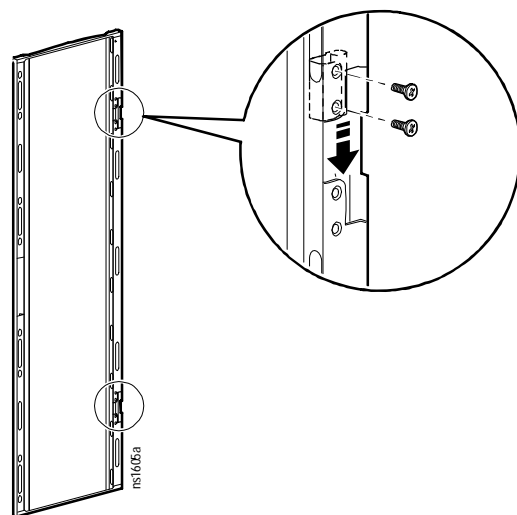
4. Remove the door.
5. Remove the hinges from the frame.



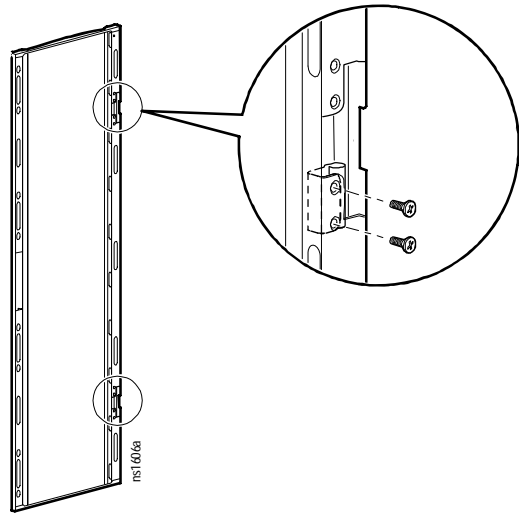
6. Reinstall the hinges on the opposite side of the enclosure.



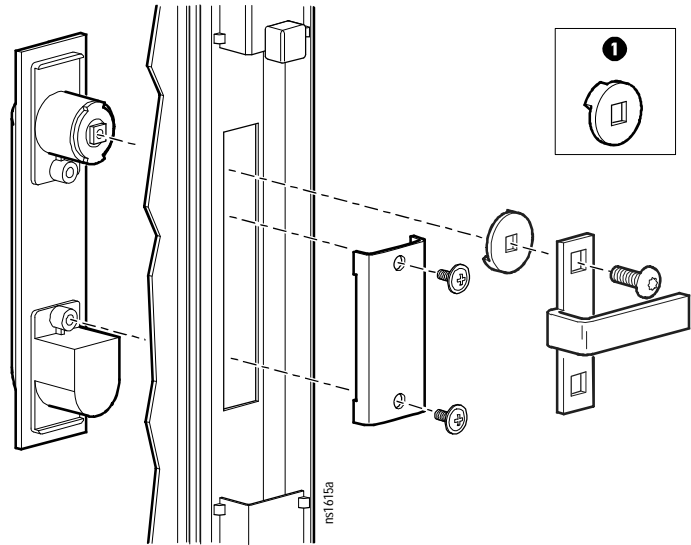
7. Remove screws securing the hinges in the door frame.



8. Reposition and reinstall hinge.
9. Reinstall the door.



10. Reinstall the door handle assembly with the washer and latch oriented as shown. **The washer is rotated 90 degrees from its original orientation (1).**
11. Reinstall the grounding wire with star washer. **The star washer must be installed under the grounding wire (see step 2).**
12. Reinstall the APC nameplate on the front door.

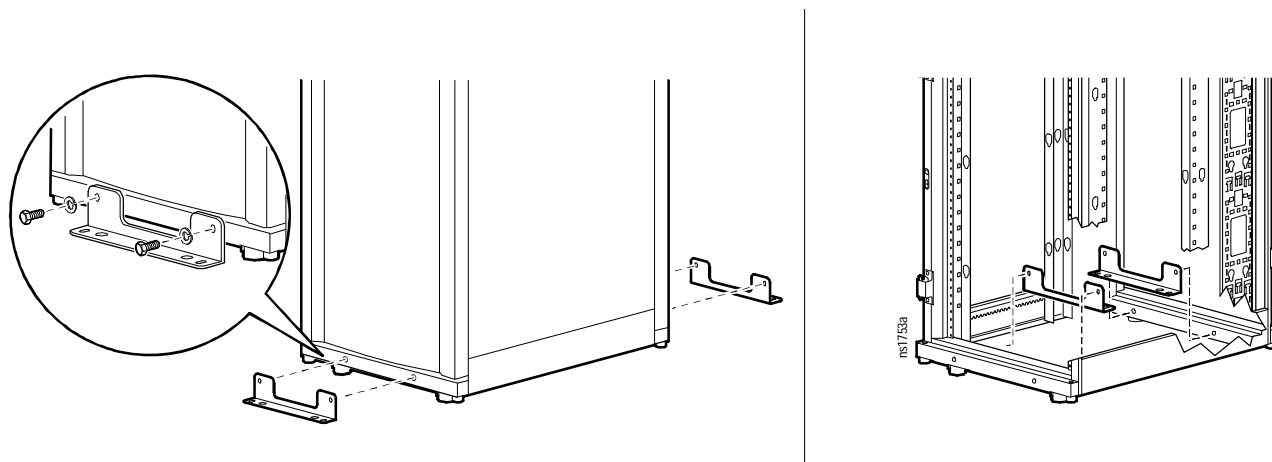


Securing the Enclosure

For additional stabilization, secure the enclosure to the floor. Use fastener locations on the outside or inside of the enclosure, and choose from the accessories shown below.

Accessory	SKU	Description
Pallet/bolt-down brackets	(provided with the enclosure; not available as a purchased part)	Attaches to rack and floor internally or externally to provide additional stability without blocking cable access.
NetShelter SX stabilizer plate	AR7700	Attaches externally to the rack and floor to provide additional stability.
Bolt-down kit	AR7701	Attaches to rack and floor internally or externally to provide additional stability without blocking cable access. With the appropriate mounting hardware, meets UBC Zone-4 seismic requirements.

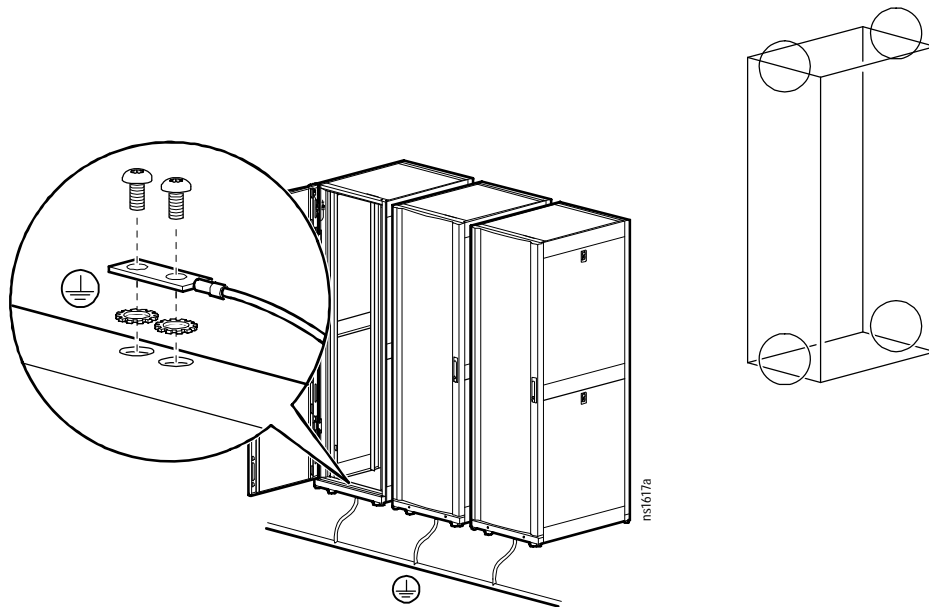
To secure the enclosure to the floor, use the fastener locations on the outside of the enclosure, as shown, or use the fastener locations on the inside of the enclosure.



Grounding the Enclosure

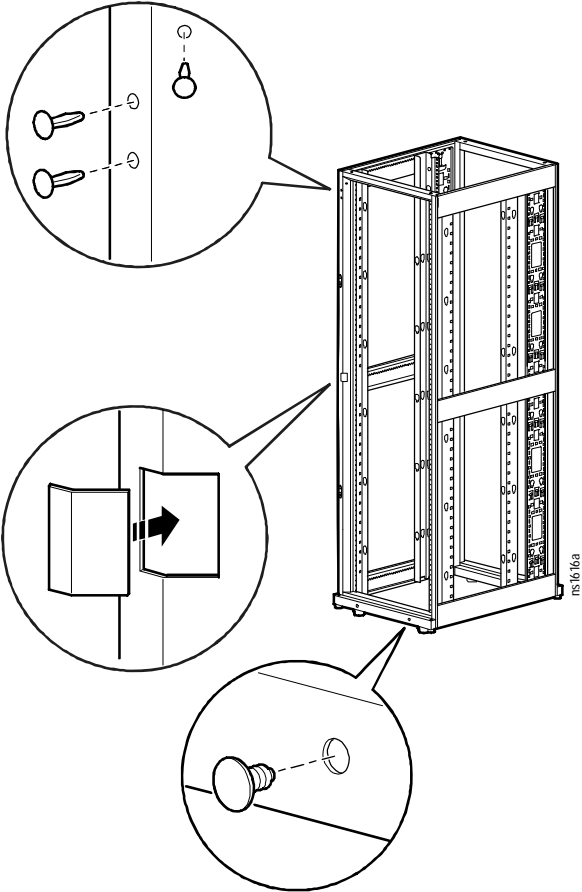
Each enclosure should be grounded directly to the building ground using one of the designated grounding locations (two M6 threaded inserts) at the top or bottom of the enclosure.

- Use a Common Bonding Network Jumper kit (for example, Listed [KDER] Panduit RGCBNJ660PY or equivalent).
- Use paint-piercing washers between ground terminal and enclosure frame or remove paint on frame under ground terminals per NEC NFPA 70 Article 250.12.
- Torque screws to 6.9 N-m (60 in-lb).
- Do not ground one enclosure to another enclosure in a cascading style.



Completing the Installation

Install plugs and covers included in the hardware bag, as needed.

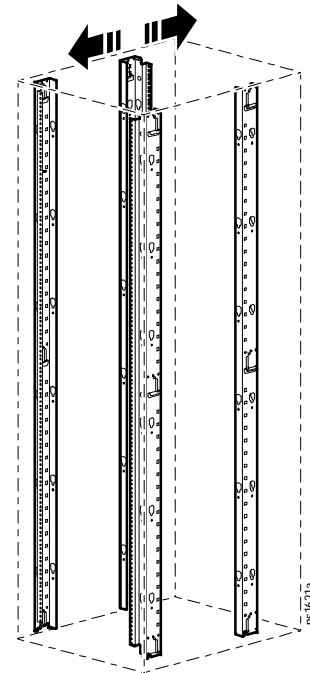


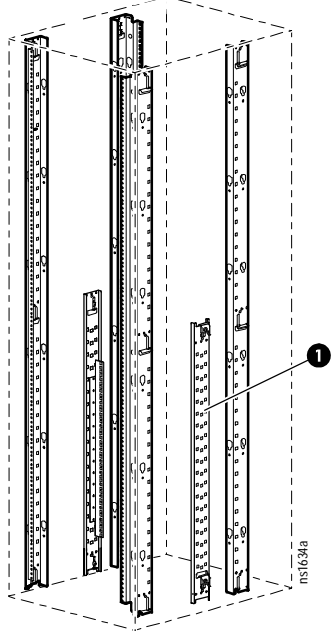
Equipment Installation

Installing equipment in the NetShelter AV Enclosure may require adjusting the vertical mounting rails to the correct depth for your equipment before installing equipment.

Adjusting the Vertical Mounting Rails

Audio-visual equipment is secured to the vertical mounting rails in the NetShelter AV Enclosure. The vertical mounting rails are adjustable to accommodate the depth of your AV equipment. The vertical mounting rails come factory-installed for use with AV equipment that has a depth of 508 mm (20 in). The vertical mounting rails can be adjusted to be as close together as 191 mm (7.5 in) or as far apart as 680 mm (26.8 in), when the vertical 0 U accessory channels have been removed.



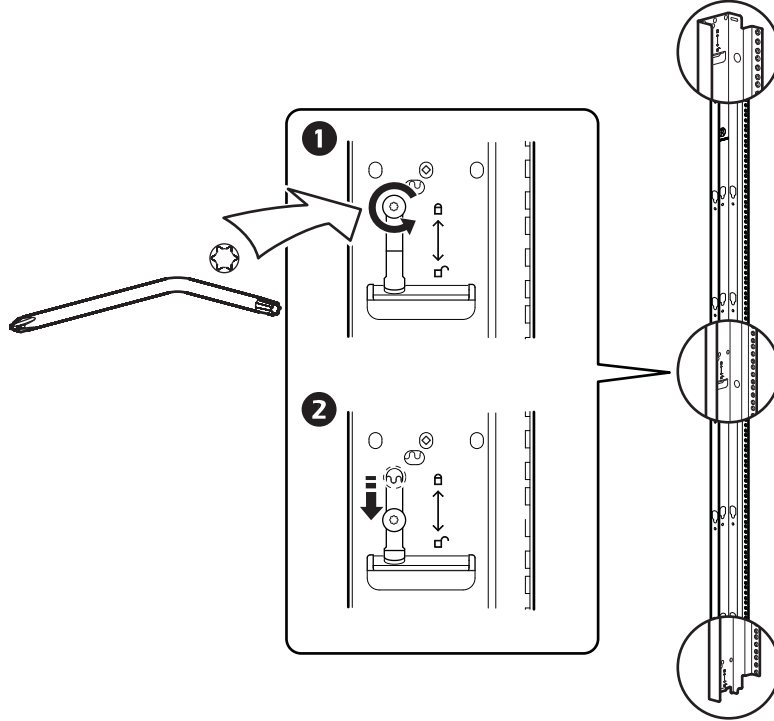
Accessory	SKU	Description
NetShelter SX recessed rail kit	AR7503	<p>Allows you to install another set of rails 1 in either the top or bottom of the enclosure. This allows equipment with two different depths to be installed in the enclosure.</p> 

Perform the following steps to adjust a vertical mounting rail:

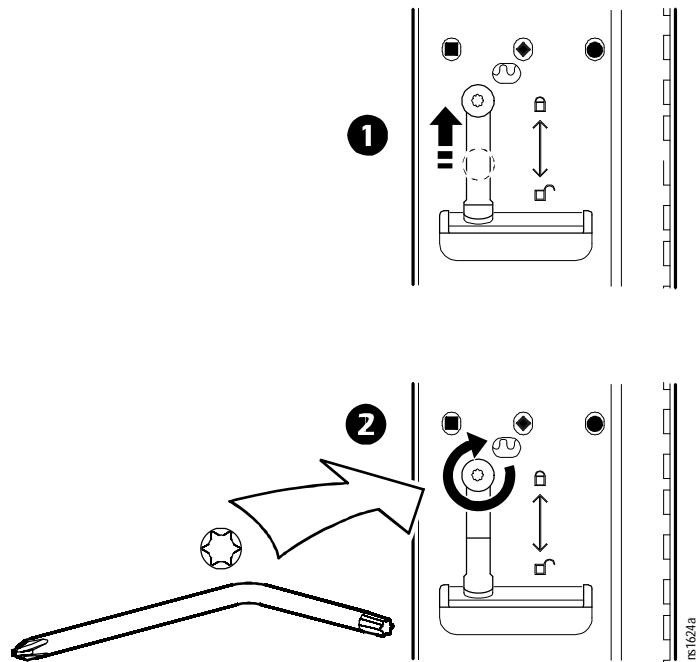
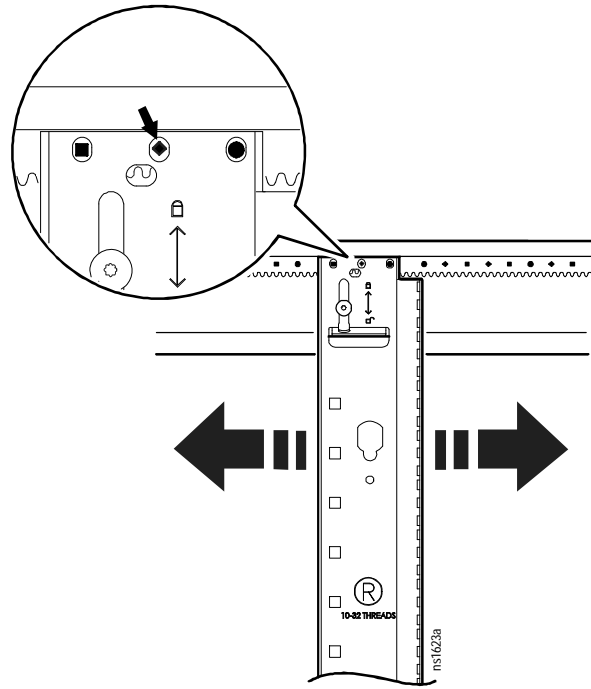


Warning: To avoid personal injury or damage to the enclosure, perform this procedure without any equipment installed on the vertical mounting rails.

1. Unlock the vertical mounting rail. Use the TORX wrench (provided in the hardware bag) to loosen the screw—but do not remove.



2. Move the vertical mounting rail to the desired location.
3. Check alignment. Note symbols (circle, triangle, and square) visible through the set of three holes at each location, and make sure the symbols match. If not, realign the vertical mounting rail.
 - Vertical mounting rails adjust in 6-mm (1/4-in) increments.
 - Make sure the vertical mounting rails on both sides of the enclosure are adjusted to the same depth. Verify that the same symbols are visible.
4. Lock the top, middle, and bottom of the vertical mounting rail.



Installing Equipment

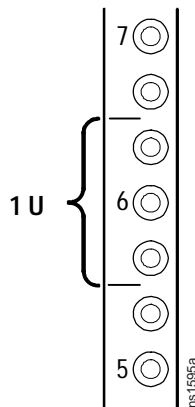


Warning: To prevent the enclosure from tipping over after equipment installation:

- Make sure you have secured the enclosure before installing equipment.
- Load the heaviest equipment first toward the bottom of the enclosure to prevent the enclosure from becoming top-heavy.
- Do not extend equipment on sliding rails until you have installed three or more pieces of similar-sized equipment or until you have installed the stabilizer plate or bolt-down brackets.
- Do not extend more than one piece of equipment on sliding rails at a time.

Before getting started, make sure you have adjusted the vertical mounting rails as needed. To install rack-mount equipment in the NetShelter AV Enclosure:

1. Review the equipment manufacturer's installation instructions.
2. Locate the top and bottom U-space on the vertical mounting rails. Every third hole on the mounting rails is numbered to indicate the middle of a U-space. A U-space consists of one of these numbered holes and one hole directly above and below it, as shown.

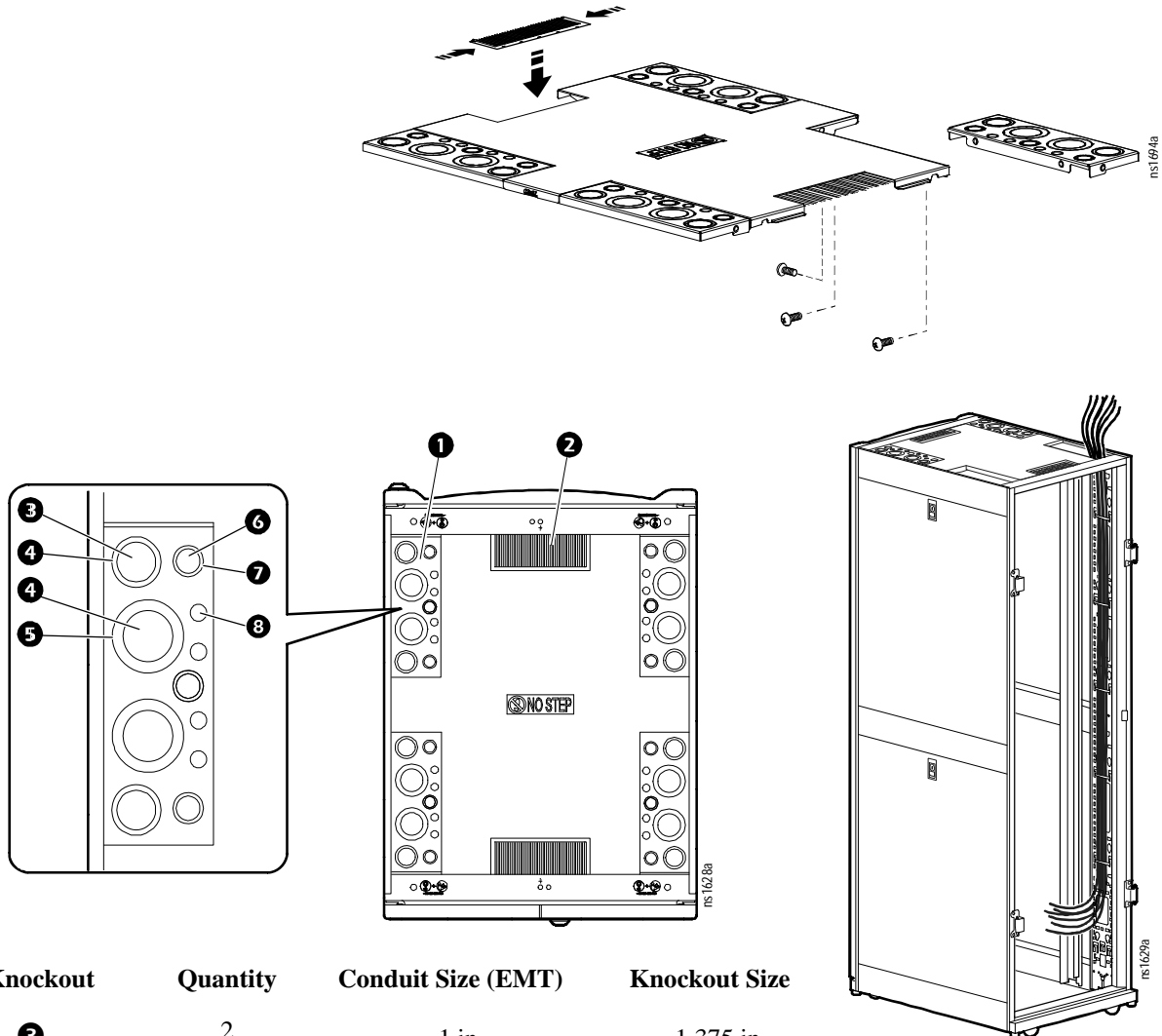


3. Install the equipment using the #10-32 screws (provided). See the manufacturer's instructions provided with the equipment for additional details.

Cable Routing and Cable Management

Roof

Four removable roof-top panels (❶) provide knockouts of varying dimensions for conduit. For larger cable volumes, remove the panels entirely. Brush strips (❷) cover cutouts in the front and rear of the roof panel which also provide openings for cable routing.

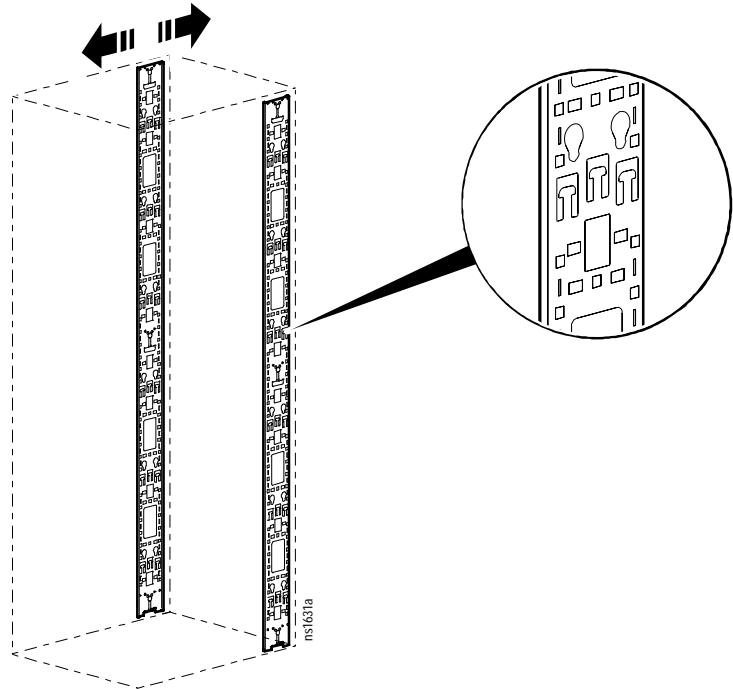


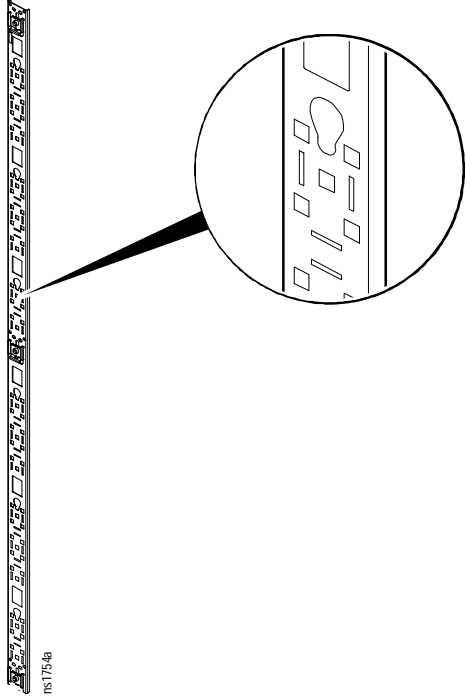
Knockout	Quantity	Conduit Size (EMT)	Knockout Size
❸	2	1 in	1.375 in
❹	4	1.25 in	1.734 in
❺	2	2 in	2.469 in
❻	3	0.5 in	0.875 in
❼	3	0.75 in	1.109 in
❽	4	-	0.625 in

Vertical 0 U Accessory Channels

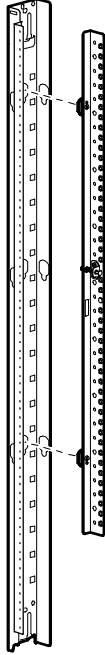
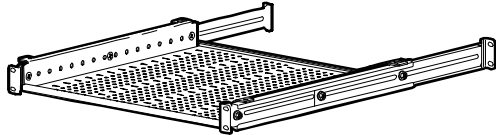
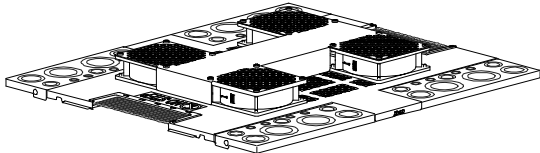
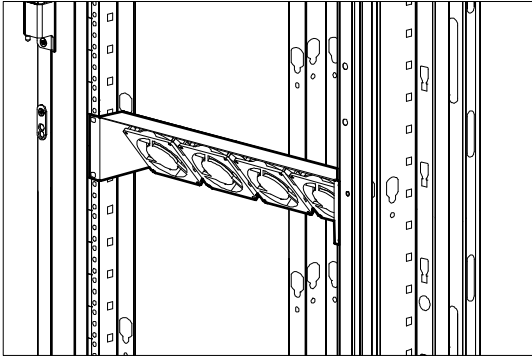
The vertical 0 U accessory channels provide toolless mounting capabilities for APC Rack Power Distribution Units (Rack PDU) and APC cable management accessories (see page 22). The vertical 0 U accessory channels also provide tie-off locations for cables.

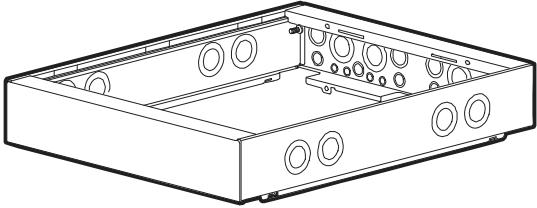
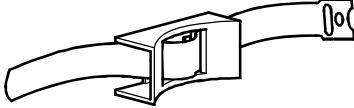
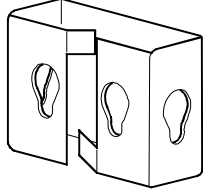
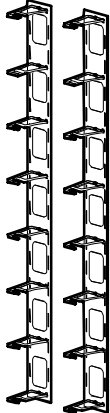
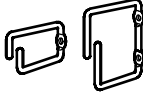
The vertical 0 U accessory channels can be located in the enclosure anywhere along the side braces. The standard position for the vertical 0 U accessory channels is in the rear of the enclosure, but they can be positioned anywhere along the side braces like the vertical mounting rails (see “Adjusting the Vertical Mounting Rails” on page 16).

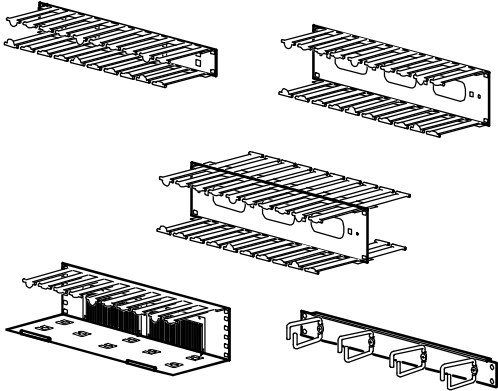
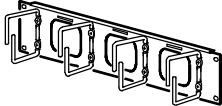
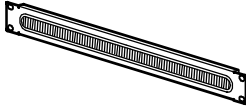
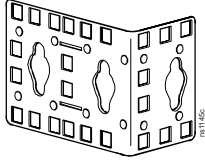
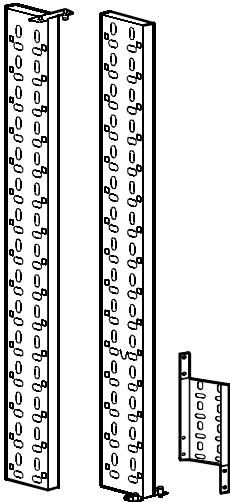


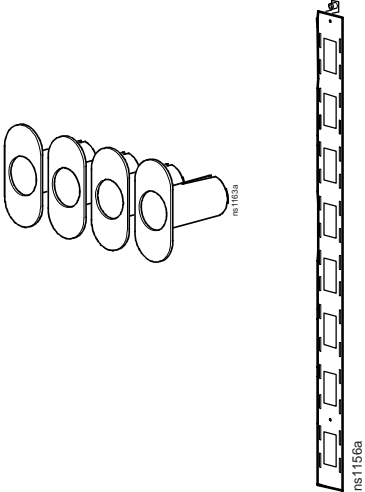
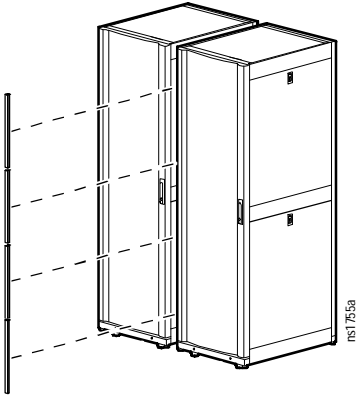
Accessory	SKU	Description
<p>NetShelter SX 42 U Narrow Vertical 0 U Cable Organizer</p>	<p>AR7511</p>	<p>Depending on the position of the vertical mounting rails and the vertical 0 U accessory channels, additional vertical 0 U accessory channels may be installed. The narrow vertical cable organizer complements the standard vertical cable organizer by offering additional cable management options. The narrow channel can be used in the front of the enclosure to mount fiber cable spools and vertical cable managers or can be used in the middle of the enclosure for cable tie off. In addition, keyholes are provided to mount one vertical Rack PDU per organizer.</p> 

Accessories

Accessory	SKU	Description
Copper busbar	AR8395	<p>20 U copper busbar for NetShelter AV enclosures. Toolless installation in vertical 0 U accessory channel or vertical mounting rail.</p> 
Shelf	AR8125	<p>Adjustable, reversible shelf.</p> 
115 VAC roof fan tray	ACF505	<p>Includes four fans to pull heated air out of the enclosure. Toolless installation.</p> 
NetShelter AV 2 U rack fan panel	ACF600	<p>Includes four fans for cooling AV equipment. Accessories include a temperature controller (ACF601), vent panel (ACAC40001), and vent panel with temperature display (ACAC40000).</p> 

Accessory	SKU	Description
Top mount conduit access adapter	AR7215	<p>Allows option to route cable into side of unit. Includes knock out panels for conduit. Toolless installation.</p> 
Toolless hook and loop cable manager (Qty. 10)	AR8621	<p>Includes ten 457-mm (18-in) hook and loop black cable straps that install in the square holes in the vertical 0 U accessory channel or the vertical mounting rail.</p> 
Cable containment brackets (Qty. 6)	AR7710	<p>Contains cables along the vertical 0 U accessory channel. Installs without tools.</p> 
Vertical cable organizer	AR8442	<p>Installs in a vertical 0 U accessory channels to facilitate vertical cable management and eliminate cable stress. Takes up zero U of space within the enclosure. Consists of two pieces of equal size that, when stacked, span the height of a 42-U enclosure. Can be used in any APC enclosure. Toolless installation.</p> 
Cable management rings (Qty. 5 large and 5 small)	AR8113A	<p>Fastens cables to posts, mounting rails, or braces.</p> 

Accessory	SKU	Description
19-inch horizontal cable organizers	AR8602 (1 U) AR8600 (2 U) AR8601 (2 U double sided) AR8603 (2 U high density) AR8425A (1 U) AR8426A (2 U)	Routes cables horizontally on the front or back of the 19-inch EIA enclosure. 
19-inch 2-U horizontal cable organizer pass-through	AR8428	Routes cables horizontally or front-to-rear. 
19-inch 1-U cable pass-through with brush strip	AR8429	Assists with containing air in the enclosure and providing an aesthetic solution for cable routing. 
Zero-U accessory mounting bracket (Qty. 2)	AR7711	Zero U multi-purpose accessory mounting bracket for 1 U and 2 U equipment, including Rack PDUs. 
Vertical cable organizer, center rear mount	AR7505	Routes cables or attaches rack PDUs vertically in the center of the back of the enclosure under the brush strips. Installs toollessly in a 42-U or 48-U enclosure. 

Accessory	SKU	Description
Vertical fiber organizer	AR8443A	<p>The vertical fiber organizer provides a method to manage fiber cabling within an enclosure and mounts toollessly into the vertical 0 U accessory channel.</p> 
42 U/48 U Baying Trim	AR7600	<p>Fills the gap between the enclosures, providing finished look.</p> 

Specifications

Specifications	NetShelter AV 42 U Enclosure (AR3810)	NetShelter AV 42 U Open-Frame Enclosure (AR3812)
Height	1991 mm (78.40 in)	1991 mm (78.40 in)
Width	600 mm (23.62 in)	600 mm (23.62 in)
Depth	825 mm (32.48 in)	753 mm (29.60 in)
Net weight	119.3 kg (263 lb)	71.7 kg (158 lb)
Total open area (front door)	593 018 mm ² (919.18 in ²)	n/a
Total open area (rear door)	669 276 mm ² (1,037.38 in ²)	n/a
Open area per U (front door)	14 129 mm ² (21.90 in ²)	n/a
Open area per U (rear door)	15 935 mm ² (24.70 in ²)	n/a
Perforation pattern percentage	69%	n/a
Percent of perforated area (front)	66%	n/a
Percent of perforated area (rear)	74%	n/a
Clearance (for wiring between front door and vertical rail)	60.96 mm (2.40 in)	n/a
Weight rating: static load [†]	1361 kg (3,000 lb)	1361 kg (3,000 lb)
Weight rating: rolling	1021 kg (2,250 lb)	1021 kg (2,250 lb)
Weight rating: shipping [‡]	567 kg (1,250 lb)	567 kg (1,250 lb)

[†] Lower the leveling feet if the static weight is over 1020.58 kg (2,250 lb).

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