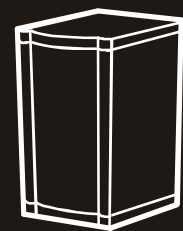


**NetShelter[®] VX
25U Enclosure**

Installation Manual





This manual is available in English on the enclosed CD.

Dieses Handbuch ist in Deutsch auf der beiliegenden CD-ROM verfügbar.

Este manual está disponible en español en el CD-ROM adjunto.

Ce manuel est disponible en français sur le CD-ROM ci-inclus.

Questo manuale è disponibile in italiano nel CD-ROM allegato.

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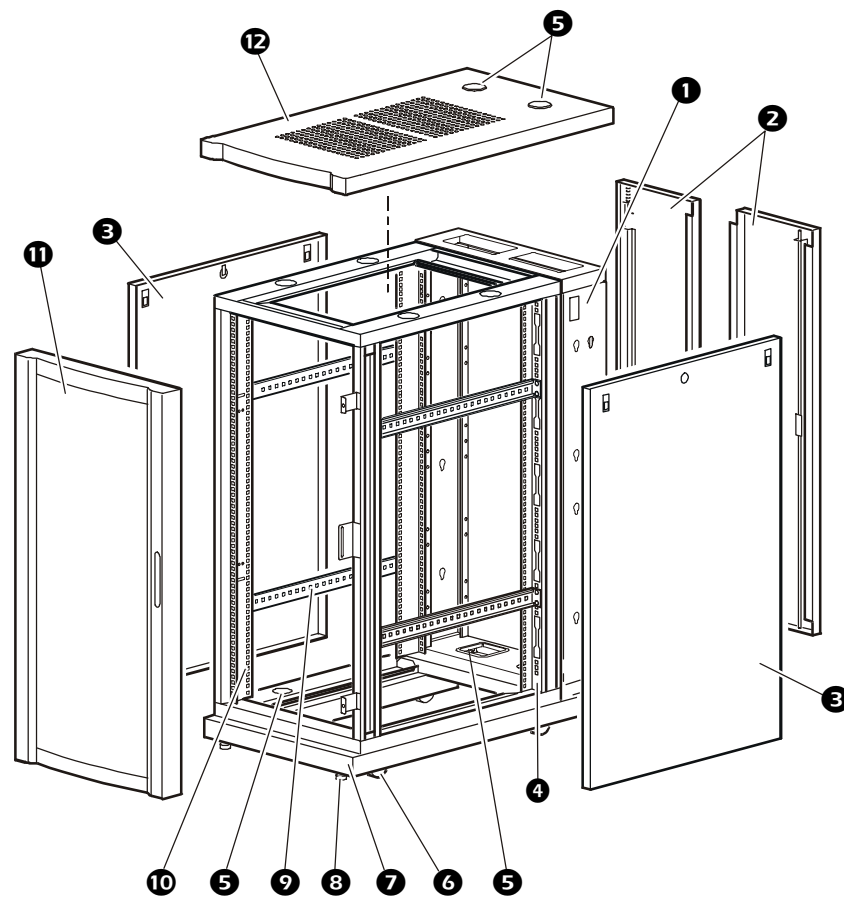
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Product Description

Product description

The NetShelter VX 25U is a high-quality enclosure for storage of industry-standard (EIA-310), 19-inch rack-mountable hardware, which includes servers, and voice, data, networking, internetworking, and APC power-protection equipment.

Product Inventory



- | | |
|--------------------------|--------------------------------|
| ① Rear cabling channel | ⑦ Front and rear skirts |
| ② Split rear doors | ⑧ Adjustable leveling feet |
| ③ Side panels with locks | ⑨ Adjustable horizontal braces |
| ④ Frame posts | ⑩ Vertical rails |
| ⑤ Cable access | ⑪ Reversible front door |
| ⑥ Casters | ⑫ Ventilated roof |

Product Description:

Mounting hardware

Item	Quantity
M6 × 16 pan-head, Phillips screws	60
Caged nut installation tool	1
M6 caged nuts	60
Plastic cup washers	60
Open-ended wrench (13 mm and 14 mm)	1
5-mm hex wrench	1
Door and side panel keys	2

Before Installation



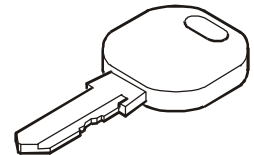
Warning

Read all instructions thoroughly. Warning symbols indicate important instructions that must be followed to prevent injury or damage.

- Use at least two people to unpack and assemble the enclosure.
- To prevent the enclosure from tipping over, stabilize the enclosure before installing the components.
- Do not extend more than one component from the enclosure at one time.
- Load the heaviest components first, and place them toward the bottom of the enclosure to prevent the enclosure from becoming top-heavy.

Location of keys and mounting hardware

The keys are packed inside the enclosure, fastened at the top of one of the mounting rails. The bag containing the mounting hardware is fastened to the floor of the enclosure.



Tools provided

A 5-mm hex wrench and caged nut tool are in the bag with the mounting hardware, fastened to the floor of the enclosure. A leveling and unpacking wrench is in the document pouch.



5-mm hex wrench



Caged nut tool



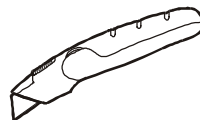
Leveling and
unpacking wrench

Tools required

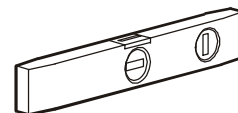
The following tools (not provided) are necessary to unpack and adjust the enclosure:



#2 Phillips screwdriver

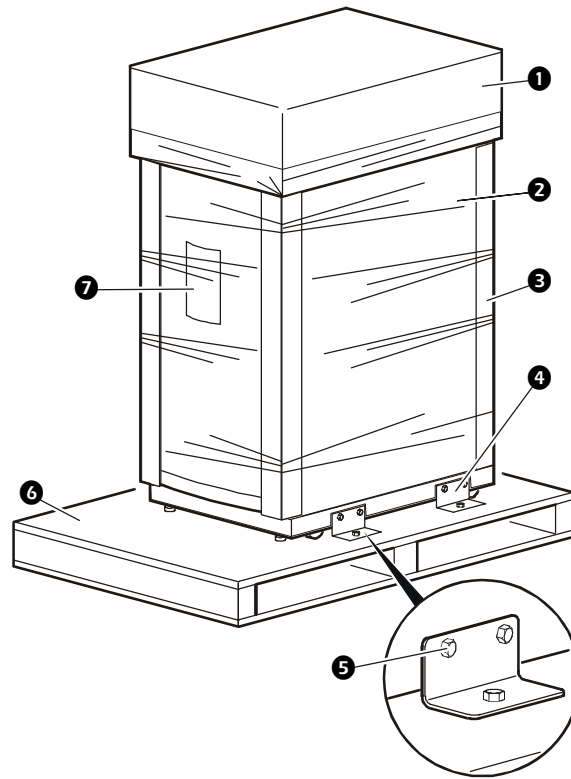


Utility knife



Level

Packaging of the enclosure



- | | |
|-------------------------------|---|
| ① Cardboard cover | ⑤ 13-mm bolts |
| ② Stretch wrap | ⑥ Shipping pallet |
| ③ Cardboard corner protectors | ⑦ Pouch containing the open-ended wrench, warranty card, and literature |
| ④ Pallet brackets | |

How to unpack the enclosure

1. Move the shipping pallet to a firm, level surface in an open area. Inspect the enclosure. If you detect shipping damage, contact APC Customer Support at the number on the yellow sticker on the front of the enclosure.
2. Remove the open-ended wrench from the pouch on the front of the packaging.
3. 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.
4. Remove the cardboard cover and the four cardboard corner protectors.
5. Remove the four brackets that anchor the enclosure to the shipping pallet. Use the 13-millimeter end of the open-ended wrench to remove the bolts that secure the brackets to the pallet.
6. 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 rearward until the rear casters touch the floor.
7. While one person carefully tips the enclosure slightly away from the pallet, have the other person pull the pallet away from the enclosure.



Save the pallet if you plan to reship the enclosure.

Note

Please recycle



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

Disclaimer

APC is not responsible for damage sustained during reshipment of this product.

Take inventory

After unpacking the enclosure, verify that all required components and hardware have been shipped with the enclosure. See “Product Inventory” on page 2.



If any items are missing, contact APC Customer Support at a number listed on the back cover of this manual.

Note

Configuration

Before installing your enclosure, plan the location of the equipment to be installed. Consider the space needed by the equipment and the ergonomics of keyboards and video monitors.

The NetShelter Configurator, available on the APC Web site, helps you plan your configuration to maximize the available U-space of your enclosures.



Warning

Improper airflow could damage installed components. To maintain proper airflow, cover any empty vertical enclosure space with optional blanking panels (not provided).

The following blanking kits (optional) are available from APC. Each kit includes the panels and the hardware to mount them.

SKU	Description
AR8101BLK	1 each of 1U, 2U, 4U, and 8U
AR8108BLK	2 each of 1U
AR8109BLK	2 each of 2U
AR8134BLK	2 each of 4U
AR8135BLK	2 each of 8U



Warning

To avoid damage or injury, level and stabilize the enclosure in its permanent location before loading equipment.

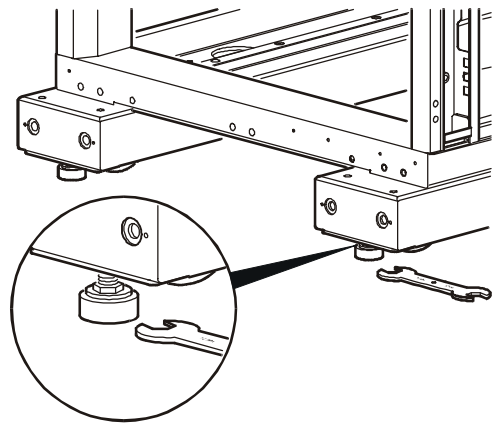
Installation

How to Install the NetShelter VX 25U Enclosure

How to level the enclosure

Leveling feet are attached under the enclosure at the corners. The leveling feet help provide a stable base if the floor is uneven, but they cannot compensate for a badly sloped surface. You can remove the casters and leveling feet to allow the base of the enclosure to rest directly on the floor.

1. Move the enclosure to a level location.
2. For each leveling foot, fit the 14-millimeter end of the open-ended wrench (provided) to the hex head just above the round pad on the bottom of the foot. Turn the wrench clockwise to extend the leveling foot until it makes firm contact with the floor.
3. Use a level to determine which feet need further adjustment to level the enclosure. Adjust them as needed.



How to remove the casters and leveling feet (optional)

Lay the enclosure on its side.



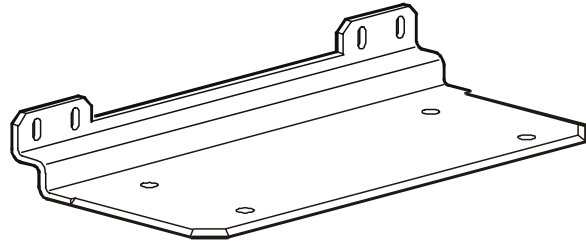
To avoid personal injury or damage to the enclosure, two people should support the enclosure.

1. Remove the four hex nuts from each of the casters and remove the casters.
2. For each leveling foot, fit the 14-millimeter end of the open-ended wrench (provided) to the hex head just above the round pad on the bottom of the leveling foot. Turn the wrench clockwise to extend and remove the leveling foot.

Stabilizing kits (optional)

APC offers additional products (not provided) for stabilizing the enclosure:

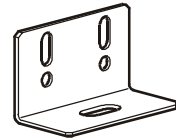
- Stabilizer Plate Kit (AR8115 or AR8115ABLK) includes one plate and mounting hardware for attaching it to the enclosure. Use up to three plate kits to provide stability to the front and sides. You can bolt stabilizer plates to the floor for additional stability.



To use the Stabilizer Plate Kit, remove the front skirt of the enclosure. See “How to remove the skirts” on page 19.

Note

- Bolt-Down Bracket Kit (AR8112BLK) includes four brackets and mounting hardware for attaching them to the interior or the exterior of the base of the enclosure. These brackets must be bolted to the floor to stabilize the enclosure.



How to Remove and Install the Side Panels

Remove the side panels to access the interior.

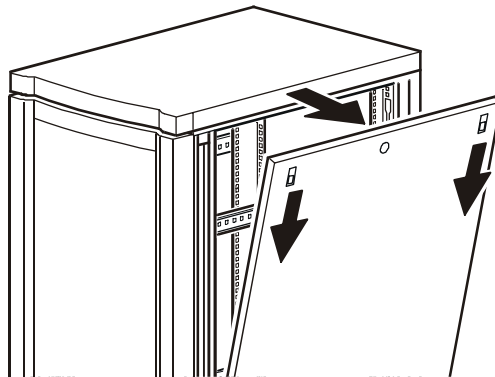


Warning

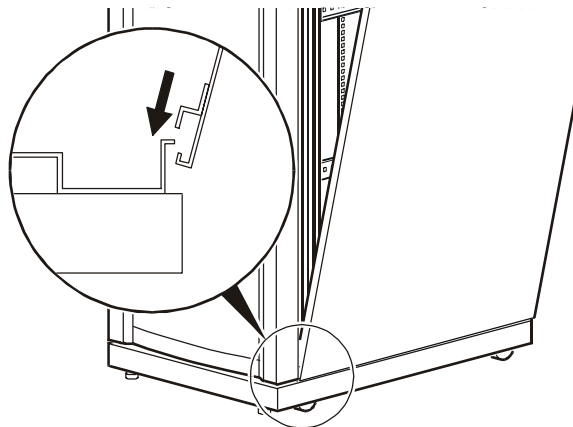
To avoid personal injury or damage to the enclosure, one person should support the side panel while another releases the side panel from its frame.

To remove the side panels:

1. Use the key to unlock the panel, if necessary.
2. Slide both panel latches down at the same time, and tip the top of the panel toward you.
3. Release the latches and lift the panel up and off the narrow horizontal lip at the bottom of the enclosure frame.

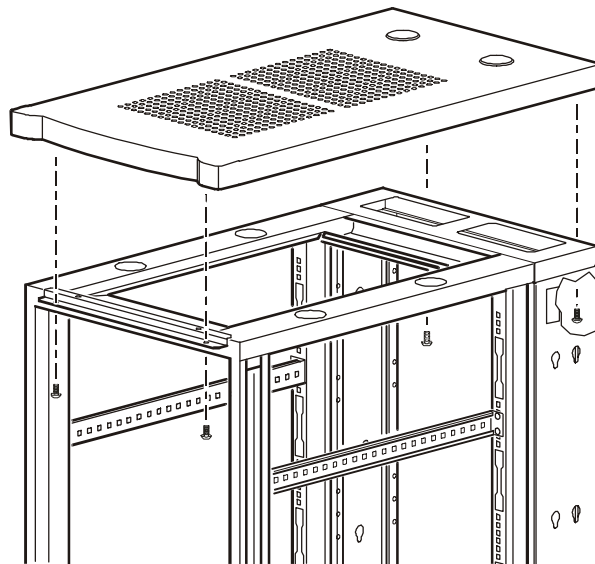


To reinstall the side panels: Engage the bottom of the panel securely with the lip before pushing the top of the panel forward into place.



How to Remove the Roof

To remove the roof from the enclosure, remove the four hex-head screws from the inside corners. Use the 5-mm hex wrench (provided).



How to Reverse the Front Door

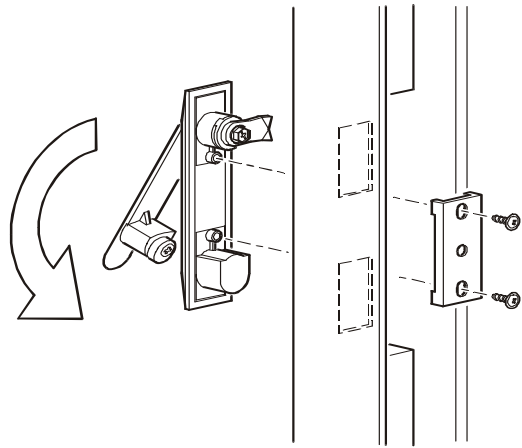
Remove the side panels:



See “How to Remove and Install the Side Panels” on page 9.

Reverse the door handle:

1. Remove the two Phillips-head screws from the rear of the door handle assembly, and remove the handle assembly from the door.
2. Rotate the door handle assembly 180° and reinstall it, using the hardware removed in step 1.



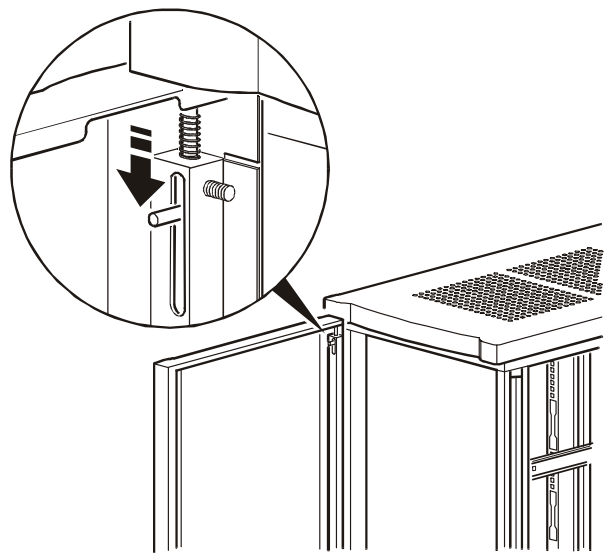
Remove the door:



Warning

To avoid personal injury or damage to the enclosure, one person should support the door while another removes the door from its frame.

Open the door and pull down on the spring-loaded hinge pin attached to the top of the door. Lift the door from its frame and set it aside.



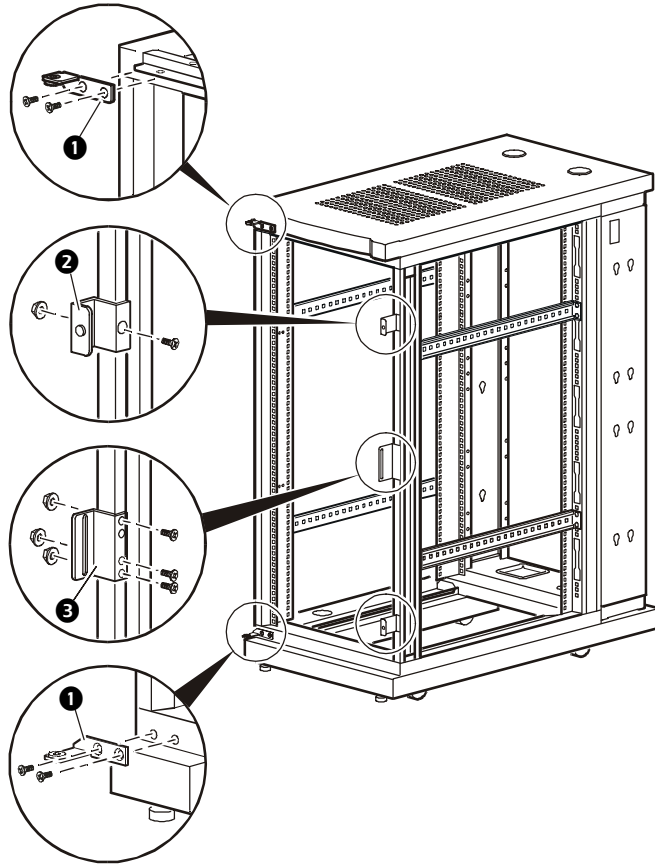
Remove brackets for hinge pin, bumper, and latch:



Note

Remember the location of and distance between all items so that you can reinstall them correctly.

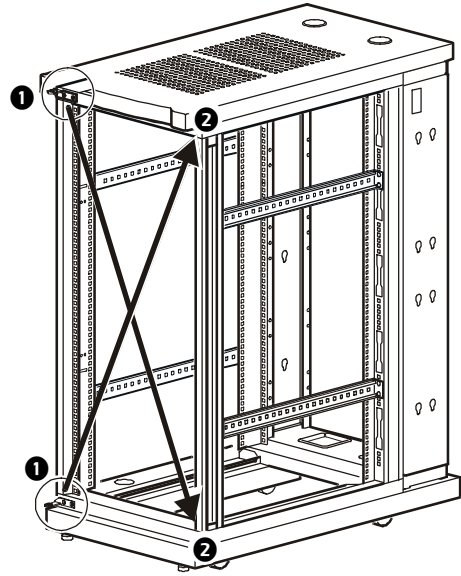
Use a Phillips screwdriver (not provided) to remove the hinge-pin brackets **1**, bumper brackets **2**, and latch bracket **3** from the enclosure frame.



Reinstall the hinge-pin brackets:

Reinstall the hinge-pin brackets on the opposite side of the enclosure.

1. Remove the small plastic plugs covering the insertion holes in the base and the top of the enclosure frame. Reinstall them in the holes on the opposite side of the enclosure.
2. Relocate the two hinge-pin brackets from their original position ❶ to their new position ❷. Partially tighten the screws.



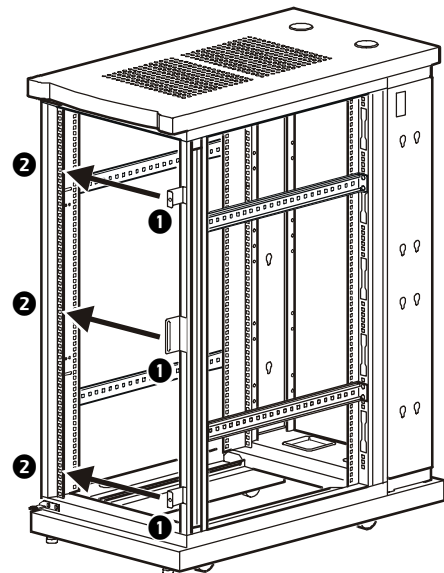
Reinstall the latch bracket and bumper brackets:

Relocate the latch bracket and the two door bumper brackets from their original position ❶ to their new position ❷.



Note

Maintain the original spacing between the latch bracket and bumper brackets and their vertical relationship with the enclosure frame.



Reinstall the door assembly:

1. Reinstall the door assembly.



Warning

To avoid personal injury or damage to the enclosure, one person should support the door while another removes the door from its frame.

- a. Align the lower door hinge pin with the hole in the bottom of the hinge-pin bracket, and slide the hinge pin into the hole.
 - b. Pull down the upper hinge pin.
 - c. Align the upper hinge pin with the hole in the upper hinge-pin bracket, and release the hinge pin into the hole.
 - d. Make sure that the door opens and closes properly.
2. Firmly tighten the countersunk screws to secure the hinge-pin brackets to the enclosure frame.
 3. Reinstall the side panels.

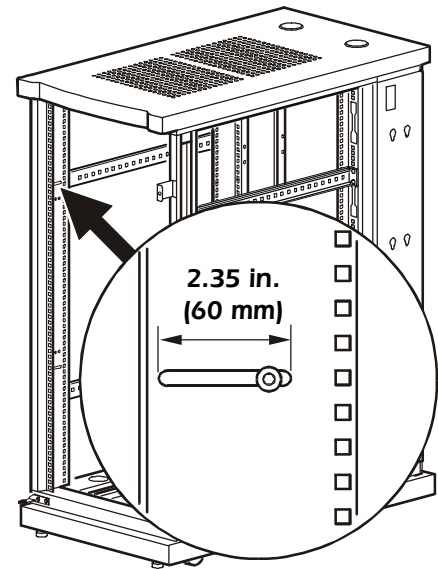


See “How to Remove and Install the Side Panels” on page 9.

Vertical Mounting Rails

The vertical mounting rails are factory-installed in the proper position for use with rack-mountable equipment that has a depth of 29.13 inches (740 millimeters).

To accommodate different rails or equipment with various depths, you can adjust each rail from front to rear over a range of 2.35 inches (60 millimeters).



How to adjust the mounting rails on the frame posts



To avoid personal injury or damage to the enclosure, perform this procedure with no equipment installed on the vertical mounting rails.

1. Use the 5-mm hex wrench (provided) to loosen—but not remove—the four pan-head screws in the slots of each vertical mounting rail.
2. Slide the rails forward or rearward. Use a level to make sure each mounting rail is vertical. Tighten each screw.

How to reposition the vertical rails using the horizontal braces

You can reposition the two front, the two rear, or all four vertical rails along the horizontal braces to accommodate your equipment. You can reposition the vertical rails even if they are configured for 19-inch equipment. The procedure is the same for all of the vertical rails.



Warning

When the vertical rails are attached to the side braces, no more than 1000 lb (453.6 kg) of equipment should be mounted in the enclosure.

1. Remove the side panels.



See “How to Remove and Install the Side Panels” on page 9.

2. Use the 5-mm hex wrench (provided) to remove the hex-head screws from the slots of the vertical rails.
3. Locate the new position for the vertical rails.



Note

If necessary, adjust the position of the horizontal braces up or down to align with the vertical rails.



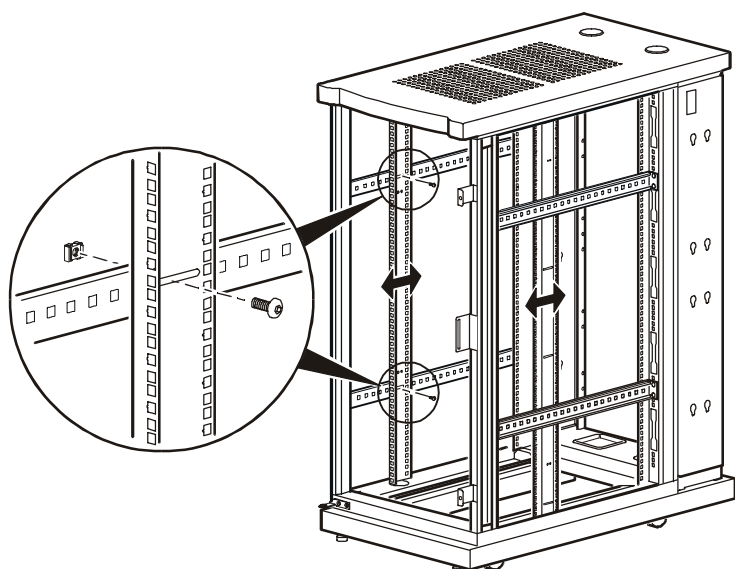
See “How to move a brace” on page 17.

4. Insert a caged nut into each appropriate hole at the new position on the upper and lower horizontal braces.



See “How to install and remove caged nuts” on page 18.

5. Place the mounting rail at the new position. Insert a hex-head screw through the rail into the caged nut, in the upper and lower horizontal brace. Tighten the screws to secure the vertical mounting rail to the horizontal braces.
6. Repeat steps 2 thru 5 for the opposite side of the enclosure.

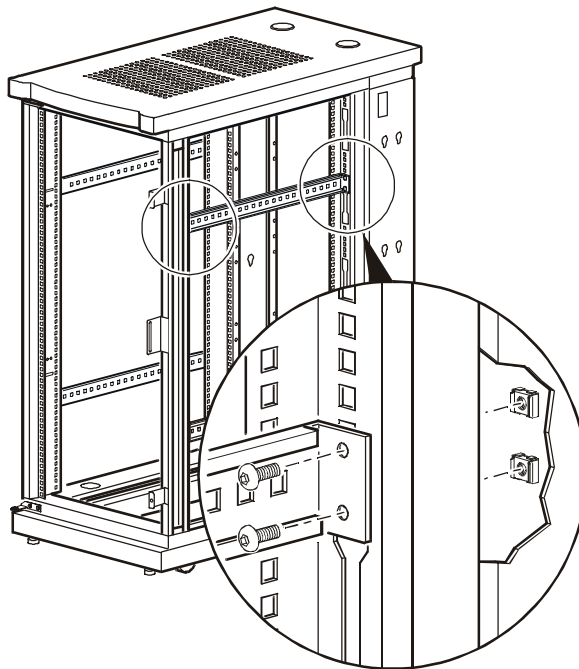


Horizontal Braces

Each side of the enclosure has two adjustable horizontal braces between the vertical frame posts to support the vertical mounting rails and to manage cables.

How to move a brace

1. Use the 5-mm hex wrench (provided) to remove the four hex-head screws that hold the brace to the frame posts.



2. Remove the caged nuts from the frame post.



See “How to install and remove caged nuts” on page 18.

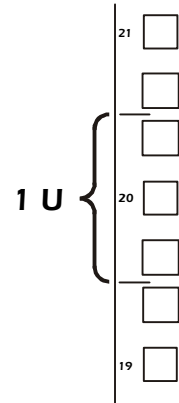
3. At the new position for the brace, secure the brace to the frame posts:
 - a. Insert a caged nut into each appropriate hole at the new position on the frame posts.
 - b. Insert a hex-head screw through the brace and frame post at each caged nut. Tighten the screws.

How to Install Equipment

This section provides general information on installing rack-mountable equipment in the enclosure. Read the instructions provided with the equipment you are installing for more specific instructions.

How to identify one U-space on the mounting rail

When installing equipment, locate the top and bottom of a U-space on the mounting rails. The number at every third hole on the mounting rails of a NetShelter enclosure indicates the middle of a U-space.



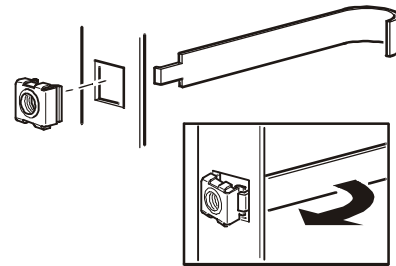
How to install and remove caged nuts

To install a caged nut:



Install the caged nut horizontally. Do not install the caged nut vertically with the sides of the caged nut engaging the top and bottom of the square hole.

1. Insert the caged nut into the square hole by hooking one side of the caged nut assembly through the far side of the hole.
2. Place the caged nut tool (provided) on the other side of the caged nut and pull to snap it into position.



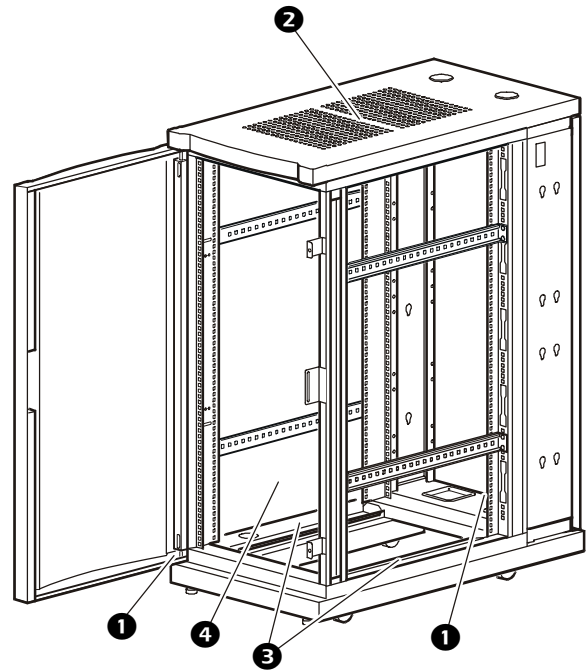
To remove a caged nut:

1. Remove any attached screw.
2. Grasp the caged nut and squeeze the sides to release it from the square hole.

Grounding studs

There are fourteen grounding studs on the enclosure, located on the doors **1**, the roof **2**, the frame **3**, and the side panels **4**.

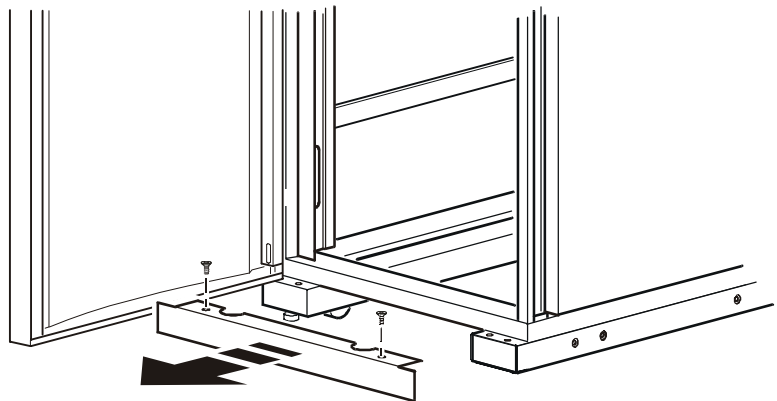
Number of studs	Location
4	Base
1	Rear cabling channel
1	Roof
2	Front door
4	Rear doors
2	Side panels



APC offers an optional grounding kit (AR8390) for grounding the enclosure.

How to remove the skirts

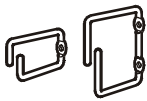
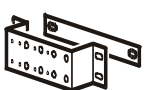
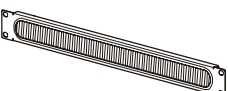
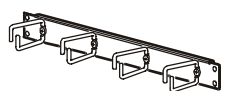
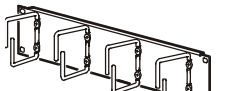
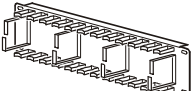
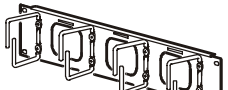
For additional cable access or to install the Stabilizer Plate, remove the skirts at the front and rear of the enclosure by removing the two countersunk screws in each skirt.



Cable Management

Cable management options

APC offers the following products for managing cables in your enclosure:

Product	SKU	Description	Figure
Cable management hoops	AR8113A	Fasten cables to posts, mounting rails, or braces.	
Cable containment kit	AR8116BLK	Fasten cables within the rear cabling channel.	
19-inch, 1U, black horizontal cable pass-through with brush strip	AR8429	Routes cables through enclosure while promoting proper airflow.	
19-inch, 1U horizontal cable organizer	AR8425A	Routes cables horizontally on the front or back of the 19-inch EIA rack.	
19-inch, 2U horizontal cable organizer	AR8426A	Routes cables horizontally on the front or back of the 19-inch EIA rack.	
19-inch, 2U patch-cord organizer	AR8427A	Routes cables horizontally on the front or back of the 19-inch EIA rack.	
19-inch, 2U horizontal cable organizer pass-through	AR8428	Routes cables horizontally, side to side or front to rear.	

Enclosure Specifications

Height	51.70 in. (1313 mm)
Width	23.50 in. (596.9 mm)
Depth	42.20 in. (901 mm)
Net weight	255 lb (115.9 kg)
Total open area (front door)	507.93 in ² (3277 cm ²)
Total open area (rear door)	480.03 in ² (3097 cm ²)
Open area per U (front door)	20.32 in ² (131.1 cm ²)
Open area per U (rear door)	19.2 in ² (123.9 cm ²)
Clearance (for wiring between front door and vertical rail)	3.30 in. (8.4 cm)
Weight rating: static load	2000 lb (907 kg)
Weight rating: dynamic load	2000 lb (907 kg)

Warranty and Service

Limited warranty

APC warrants the NetShelter VX 25U Enclosure to be free from defects in materials and workmanship for a period of five years from the date of purchase. Its obligation under this warranty is limited to repairing or replacing, at its own sole option, any such defective products. This warranty does not apply to equipment that has been damaged by accident, negligence, or misapplication or has been altered or modified in any way. This warranty applies only to the original purchaser.

Warranty limitations

Except as provided herein, APC makes no warranties, express or implied, including warranties of merchantability and fitness for a particular purpose. Some jurisdictions do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

Except as provided above, in no event will APC be liable for direct, indirect, special, incidental, or consequential damages arising out of the use of this product, even if advised of the possibility of such damage.

Specifically, APC is not liable for any costs, such as lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, costs of substitutes, claims by third parties, or otherwise. This warranty gives you specific legal rights and you may also have other rights, which vary according to jurisdiction.

Obtaining service

To obtain support for problems with your NetShelter VX 25U Enclosure:

1. Note the serial number and date of purchase. The serial number is on the top of the enclosure frame inside the rear door.
2. Contact Customer Support at a phone number on the back cover of this document. A technician will try to help you solve the problem by phone.
3. If you must return the product, the technician will give you a return material authorization (RMA) number. If the warranty expired, you will be charged for repair or replacement.
4. Pack the unit carefully. The warranty does not cover damage sustained in transit. Enclose a letter with your name, address, RMA number and daytime phone number; a copy of the sales receipt; and a check as payment, if applicable.
5. Mark the RMA number clearly on the outside of the shipping carton.
6. Ship by insured, prepaid carrier to the address provided by the Customer Support technician.



APC Worldwide Customer Support

Customer support for this or any other APC product is available at no charge in any of the following ways:

- Visit the APC Web site to find answers to frequently asked questions (FAQs), to access documents in the APC Knowledge Base, and to submit customer support requests.
 - **www.apc.com** (Corporate Headquarters)
Connect to localized APC Web sites for specific countries, each of which provides customer support information.
 - **www.apc.com/support/**
Global support with FAQs, knowledge base, and e-support.
- Contact an APC Customer Support center by telephone or e-mail.
 - Regional centers:

Direct InfraStruXure Customer Support	(1)(877)537-0607 (toll free)
APC headquarters U.S., Canada	(1)(800)800-4272 (toll free)
Latin America	(1)(401)789-5735 (USA)
Europe, Middle East, Africa	(353)(91)702055 (Ireland)
Japan	(0) 3 5434-2021
Australia, New Zealand, South Pacific	(61) (2) 9955 9366 (Australia)

- Local, country-specific centers: go to **www.apc.com/support/contact** for contact information.

Contact the APC representative or other distributor from whom you purchased your APC product for information on how to obtain local customer support.

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