NetShelter™

Aisle Containment System

Installation Manual

ACDC2000—ACDC2006, ACDC2015—ACDC2019, ACDC2100—ACDC2107, ACDC2200—ACDC2205, ACDC2300—ACDC2311, ACDC2400—ACDC2411, ACDC2500—ACDC2518, ACDC2550—ACDC2553, ACDC2575—ACDC2578

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General Information

Important Safety Information

Read the instructions carefully to become familiar with the equipment before trying to install, operate, service, or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

NOTICE

NOTICE addresses practices not related to physical injury including certain environmental hazards, potential damage or loss of data.

Documentation Information

All documentation is also available online at **www.apc.com** or **www.se.com**.

Cross-reference symbol used in this manual

See another section of this document or another document for more information on this subject.

Manual updates

Check for updates to this manual on the applicable product page of **www.apc.com**, or the Schneider Electric website. Go to **www.se.com/support**, select the **Product Documentation and Software Downloads** link under the **Support** tab and enter the manual part number or SKU for your equipment in the search field. See the back cover of this manual for the part number.

Unpacking and Inspecting

IMPORTANT: To avoid misplacing parts, do not open a box until those parts are ready to be installed. Follow the order of procedures in this manual to ensure proper installation.

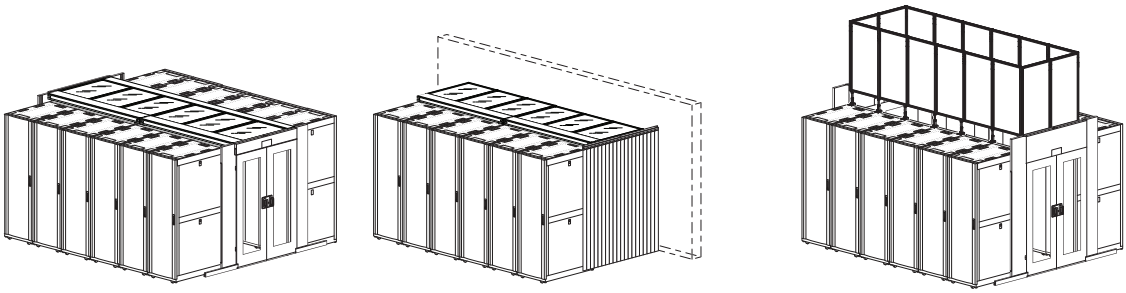
After opening a box, check the components in the box against the list of items in “Component Identification,” beginning on page 4. If any components are missing contact APC by Schneider Electric at **http://www.apc.com/support**.

Pictures of assemblies are also shown on the packaging for reference.

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

Systems Overview

Basic configurations



DUAL-AISLE CEILING CONTAINMENT

SINGLE-AISLE CEILING CONTAINMENT

VERTICALLY DUCTED CONTAINMENT

The NetShelter™ Aisle Containment System provides a barrier between the hot exhaust and cold intake air streams in the IT environment. The separation of the hot and cold air streams in the environment increases the efficiency and effectiveness of the cooling system that supports the critical IT equipment. The separation will also allow for an elevated supply-air temperature to be provided by the cooling system since the mixing of hot and cold air is eliminated.

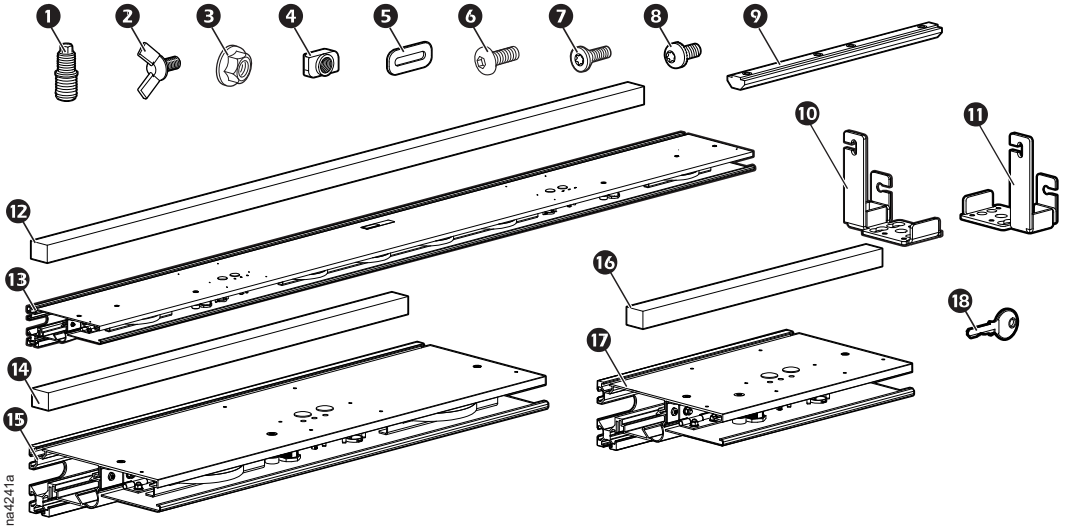
The NetShelter Aisle Containment System can be built using new or existing APC by Schneider Electric equipment. This containment system is compatible with row, room, or external cooling solutions and available for cold or hot aisle containment.

This manual is a guide for the basic installation procedures for creating a NetShelter Aisle Containment System. Refer to the documentation provided with each piece of equipment for specific installation and joining instructions.

Component Identification

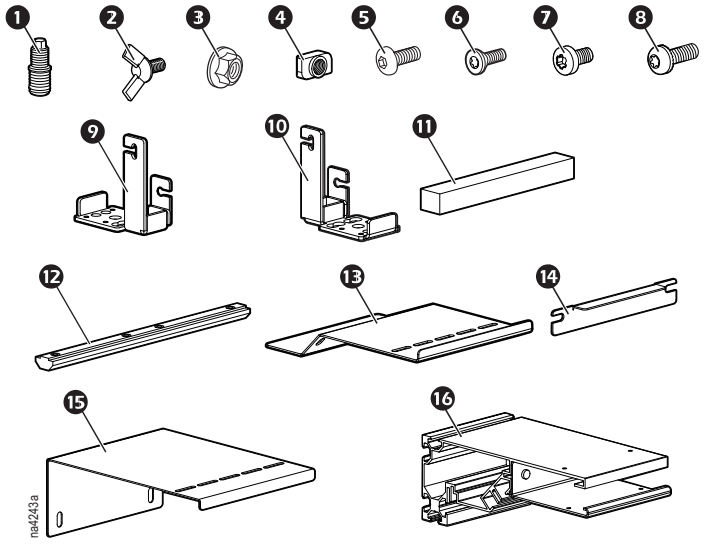
Ceiling and Duct Components

Ceiling panel mounting rail system—ACDC2000–ACDC2002



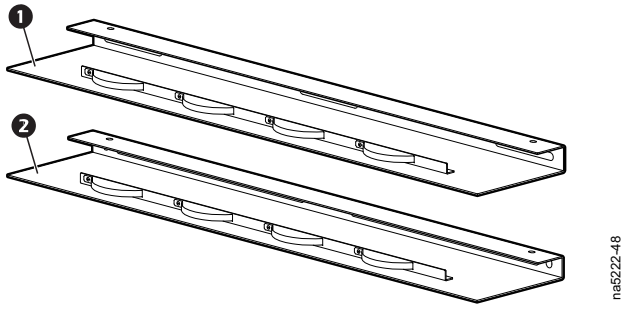
Item	Description	Quantity
❶	M12 × M10 adapter stud (ACDC2000) M12 × M10 adapter stud (ACDC2001, ACDC2002)	6 4
❷	M6 × 12 wing screw (ACDC2000) M6 × 12 wing screw (ACDC2001, ACDC2002)	6 4
❸	M10 nut with washer (ACDC2000) M10 nut with washer (ACDC2001, ACDC2002)	6 4
❹	M6 channel nut (ACDC2000) M6 channel nut (ACDC2001, ACDC2002)	12 8
❺	Joining bracket	2
❻	M10 × 16 M6 socket screw (ACDC2000) M10 × 16 M6 socket screw (ACDC2001, ACDC2002)	6 4
❼	M6 × 10 flathead T30 screw (ACDC2000) M6 × 10 flathead T30 screw (ACDC2001, ACDC2002)	6 4
❽	M4 × 8 TORX® pan head screw	4
❾	Slide-in connection frame, 180 mm (7.1 in.)	4
❿	Left hand, standard mounting bracket (SX/InRow RC front) (ACDC2000) Left hand, standard mounting bracket (SX/InRow RC front) (ACDC2001, ACDC2002)	3 2
⓫	Right hand standard bracket (SX/InRow RC front) (ACDC2000) Right hand standard bracket (SX/InRow RC front) (ACDC2001, ACDC2002)	3 2
⓬	Gasket, 1800 mm (72 in.) (ACDC2000)	2
⓭	Ceiling support, 1800 mm (72 in.) (ACDC2000)	2
⓮	Gasket, 600 mm (24 in.) (ACDC2001)	2
⓯	Ceiling support, 600 mm (24 in.) (ACDC2001)	2
⓰	Gasket, 300 mm (12 in.) (ACDC2002)	2
⓱	Ceiling support, 300 mm (12 in.) (ACDC2002)	2
⓲	Key (ACDC2000), Key (ACDC2001, ACDC2002)	8 4

Ceiling panel mounting rail—ACDC2003



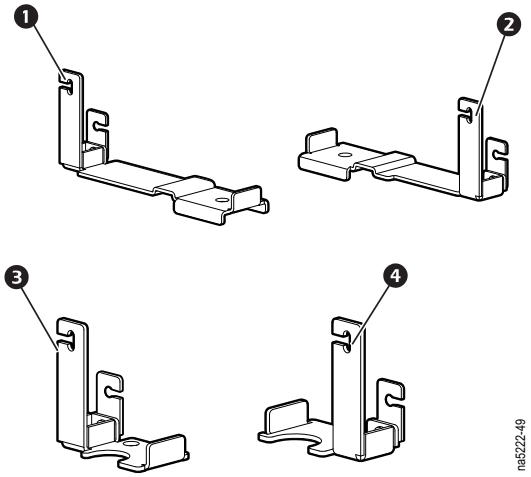
Item	Description	Quantity
❶	M12 × M10 adapter stud	2
❷	M6 × 12 wing screw	2
❸	M10 nut with washer	2
❹	M6 channel nut	12
❺	M10 × 16 M6 socket screw	2
❻	M6 × 10 flathead T30 screw	2
❼	M4 × 8 TORX pan head thread-forming screw	10
❽	M6 × 10 pan head T30 screw	8
❾	Left hand, standard mounting bracket (SX enclosure/InRow RC front)	1
❿	Right hand, standard mounting bracket (SX enclosure/InRow RC front)	1
⓫	Gasket, 396 mm (15.6 in.)	1
⓬	Slide-in connection frame, 180 mm (7.1 in.)	4
⓭	Bottom plate	2
⓮	Lower plate	2
⓯	Top cover plate	2
⓰	Aluminum extrusion,100 mm (3.9 in.)	2

Ceiling panel wall mount—single row—ACDC2004



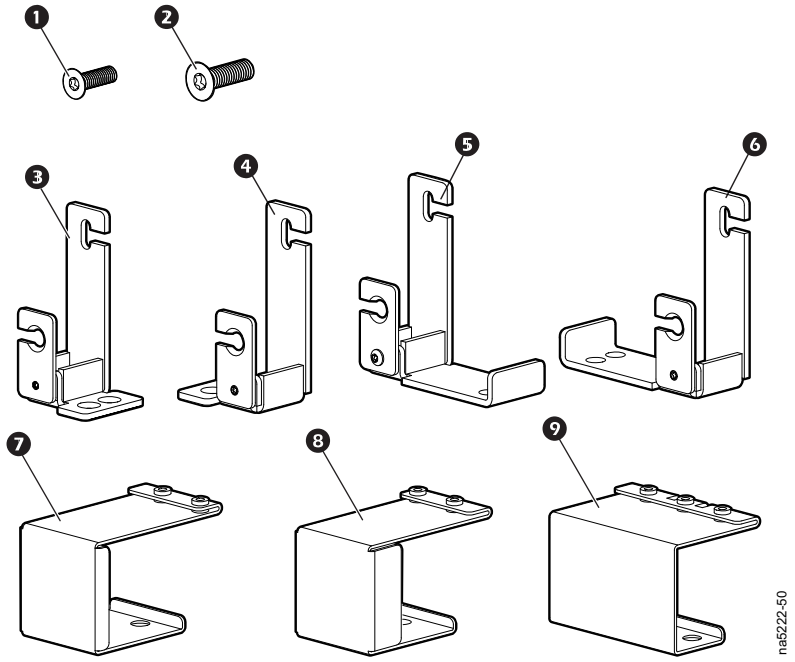
Item	Description	Quantity
1	Outer small spring channel	1
2	Inner spring channel	1

Ceiling panel rail mounting brackets (cooling/racks)—ACDC2005



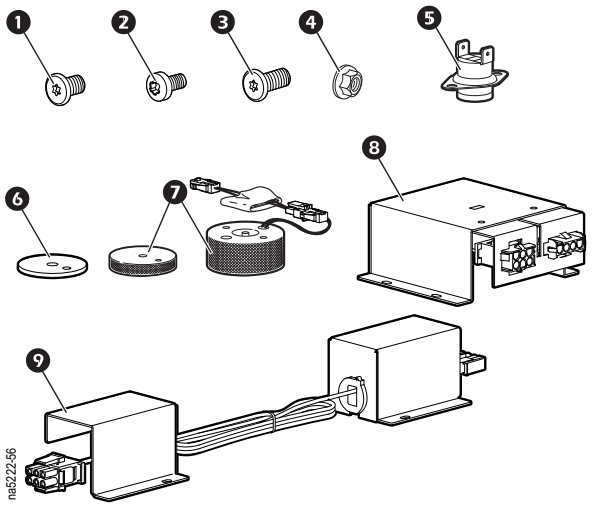
Item	Description	Quantity
❶	Airflow rack bracket, right hand	1
❷	Airflow rack bracket, left hand	1
❸	InRow RC/RD bracket, right hand rear	1
❹	InRow RA bracket, left hand rear	1

Ceiling panel rail mounting brackets (power)—ACDC2006



Item	Description	Quantity
❶	M4 × 12 TORX T20 countersink screw	8
❷	M6 × 20 TORX T30 flathead machine screw	4
❸	Left PDU/UPS bracket	1
❹	Right PDU/UPS bracket	1
❺	Left PDPM/PDU bracket	1
❻	Right PDPM/PDU bracket	1
❼	Left VX front mounting bracket	1
❽	Right VX front mounting bracket	1
❾	Rear VX rear mounting bracket	2

Ceiling panel lock system without power supply—ACDC2015



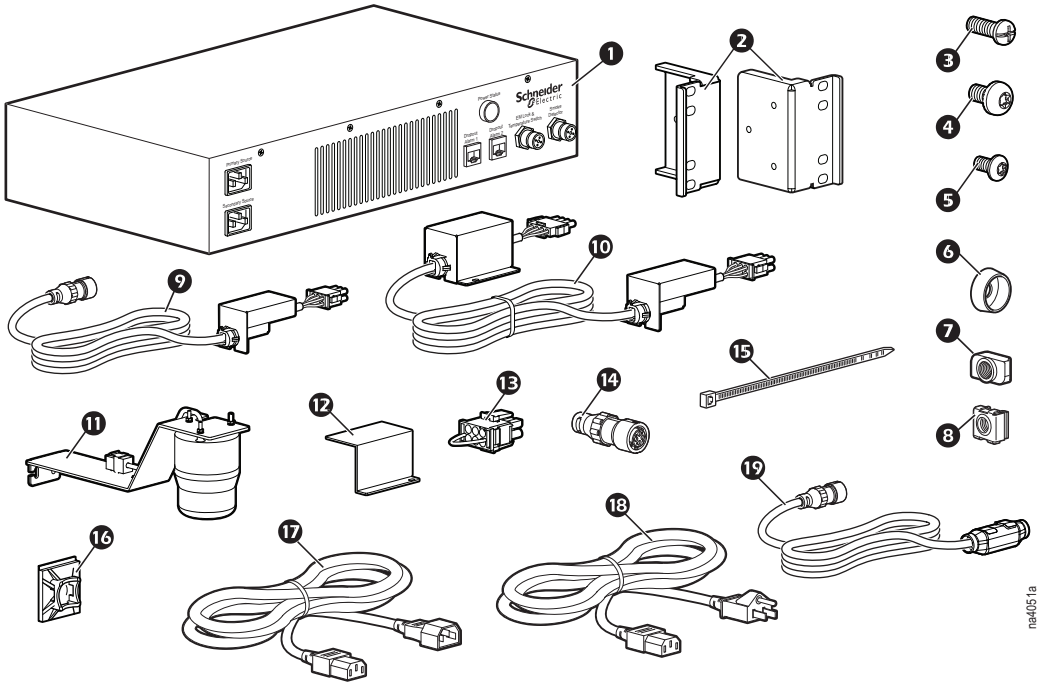
Item	Description	Quantity
❶	M5 × 8 mm flathead T15 screw	8
❷	M4 × 8 pan head T20 screw	24
❸	M5 × 10 mm flathead T15 screw	4
❹	M4 serrated hex flange nut	8
❺	135°F (57°C) temperature switch 24 VDC 3 A	4
❻	Electromechanical lock spacer	4
❼	Electromechanical lock assembly, 24 V 50 MA*	4
❽	Wiring box	4
❾	Box-to-box wire assembly	4

NOTE: This assembly contains 4 electromechanical locks, which are applied to ceiling supports.

- ACDC2000 contains two1800 mm supports. Use two electromechanical locks per 1800 mm section.
- ACDC2001 contains two 600 mm supports. Use one electromechanical lock per 600 mm section.
- ACDC2002 contains two 300 mm supports. Use one electromechanical lock per 300 mm section.
- ACDC2003 contains two 100 mm supports. Do not use any electromechanical locks.

NOTE: You can connect a maximum of 30 electromechanical locks to each ACDC2016/7 power supply.

Ceiling panel lock system with power supply—ACDC2016, ACDC2017



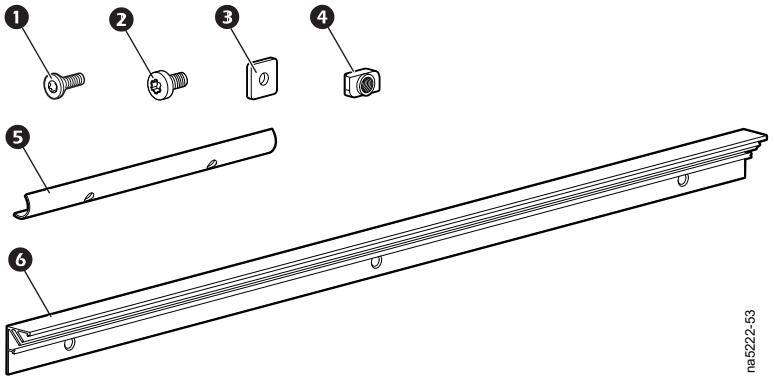
Item	Description	Quantity
❶	Dropout power supply control box, 110 V (ACDC2016)	1
	Dropout power supply control box, 220 V (ACDC2017)	1
❷	Bracket for power supply box	2
❸	M6 × 16 pan head Phillips screw	4
❹	M6 × 12 pan head T30 screw	4
❺	M4 × 8 mm button head T15 screw	6
❻	M6 plastic cup washer	4
❼	M6 channel nut	4
❽	M6 caged nut	4
❾	Wire harness—power supply to wiring box, 3.6 m (12 ft.)	1
❿	Across aisle wiring assembly, 4 m (13.1 ft.)	2
⓫	Alarm beacon	2
⓬	Wiring box cover	1
⓭	Terminal jumper	1
⓮	4-pin jumper	1
⓯	Wire tie	55
⓰	Cable holder	55
⓱	Power cord—CEE22 jump 2M 10A ROHS (ACDC2017)	2
⓲	Power cord—1.8 m (6 ft.) C13/15 DELL ROHS compliant (ACDC2016)	2
⓳	Smoke detector cable	1

Aisle containment lighting kit—ACDC2018, ACDC2019

ACDC2018 - Lighting kit with power supply
ACDC2019 - Lighting kit without power supply

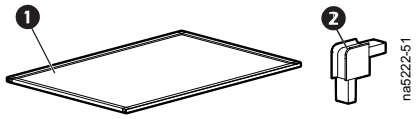
See documentation included with the components for parts lists.

Duct lighting mounting support without lights—ACDC2302



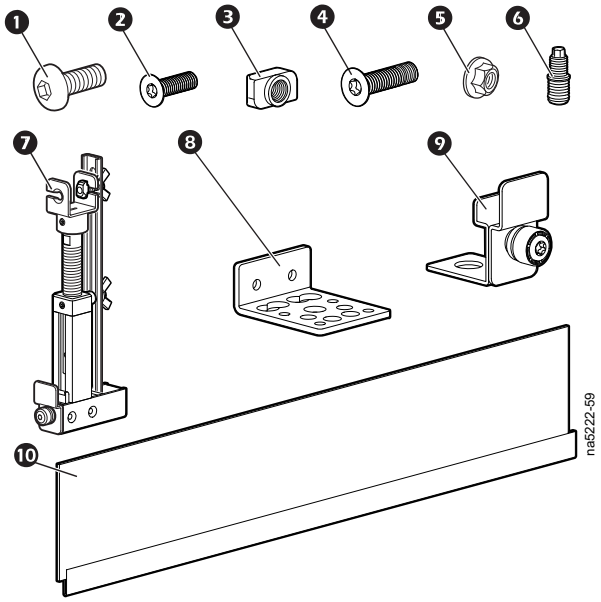
Item	Description	Quantity
❶	M6 × 10 flathead T30 screw	6
❷	M4 × 12 pan head T20 thread-forming screw	10
❸	M6 × 3 mm air block rail spacer	6
❹	M6 channel nut	6
❺	Aluminum wire cover extrusion, 300 mm (12 in.)	5
❻	Light mounting rail,1072 mm (42 in.)	2

Ceiling panel—ACDC2100 – ACDC2107



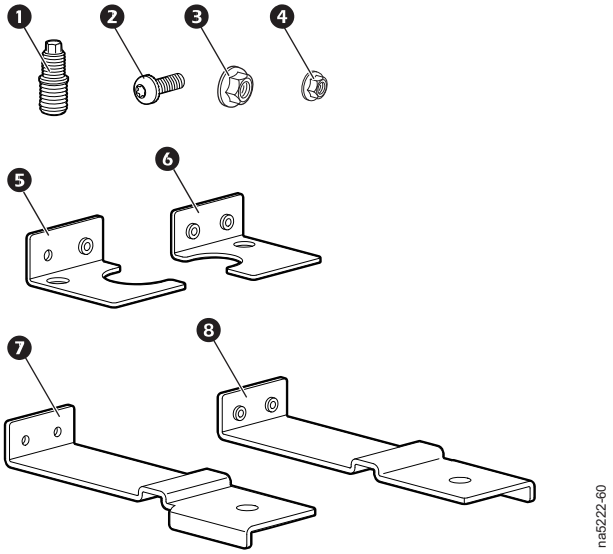
Item	Description	Quantity
❶	Ribbed ceiling panel, 900 mm (36 in.) (ACDC2100) Solid ceiling panel, 900 mm (36 in.) (ACDC2101) Ribbed ceiling panel, 1200 mm (48 in.) (ACDC2102) Solid ceiling panel, 1200 mm (48 in.) (ACDC2103) Ribbed ceiling panel, 1500 mm (60 in.) (ACDC2104) Solid ceiling panel, 1500 mm (60 in.) (ACDC2105) Ribbed ceiling panel, 1800 mm (72 in.) (ACDC2106) Solid ceiling panel, 1800 mm (72 in.) (ACDC2107)	1
❷	Spare ceiling frame corner connector (All kits)	2

Adjustable mounting kits components—ACDC2200–ACDSC2203



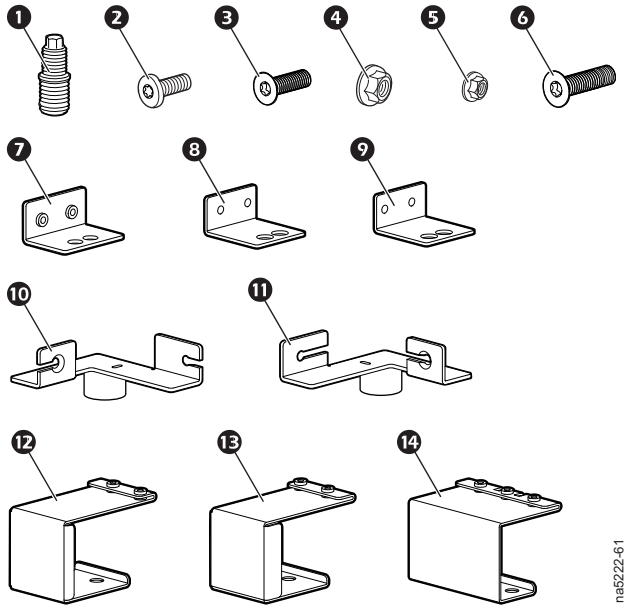
Item	Description	Quantity
❶	M10 × 16 M6 socket screw	6
❷	M6 × 10 flathead T30 screw	8
❸	M6 channel nut	8
❹	M4 × 32 flathead T20 thread-forming screw	8
❺	M10 nut with washer	2
❻	M12 × M10 adapter stud	2
❼	Rack mounting kit, 6 – 9.5 in. (152 – 241 mm) (ACDC2200, ACDC2201) Rack mounting kit, 9.5 – 16.5 in. (241 – 419 mm) (ACDC2202, ACDC2203)	4
❽	Standard mounting kit bracket	4
❾	Air block panel support	2
❿	Lexan® panel, 1200 × 246 mm (48 × 9.7 in.) (ACDC2200) Solid panel V0, 1200 × 252 mm (48 × 10 in.) (ACDC2201) Lexan panel,1200 × 424 mm (48 × 16.6 in.) (ACDC2202) Solid panel V0, 1200 × 430 mm (48 × 16.9 in.) (ACDC2203)	2 2 2 2

Mounting brackets, adjustable mounting support (cooling/racks)—ACDC2204



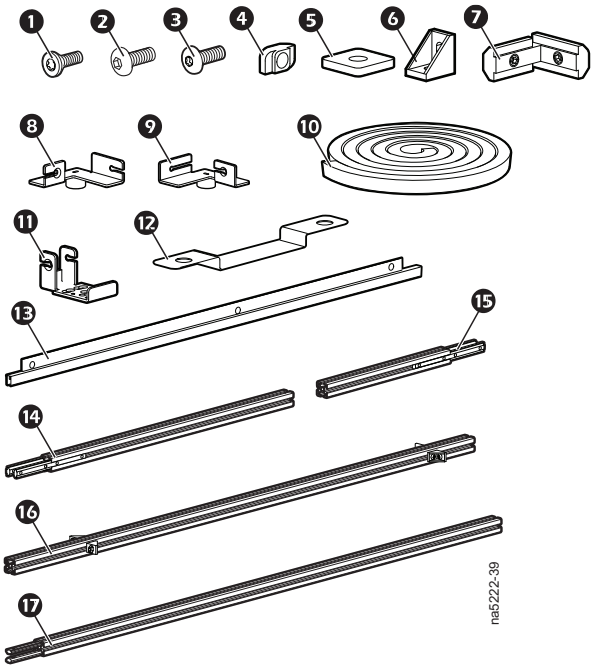
Item	Description	Quantity
❶	M12 to M10 adapter stud	2
❷	M6 × 12 pan head T30 screw	1
❸	M4 flanged serrated hex nut	1
❹	M10 nut with washer	2
❺	RA rear bracket, rack mount kit, 300 mm	1
❻	RC rear bracket, rack mount kit, 300 mm	1
❼	Airflow rack bracket, left	1
❽	Airflow rack bracket, right	1

Mounting brackets, adjustable mounting support (power)—ACDC2205



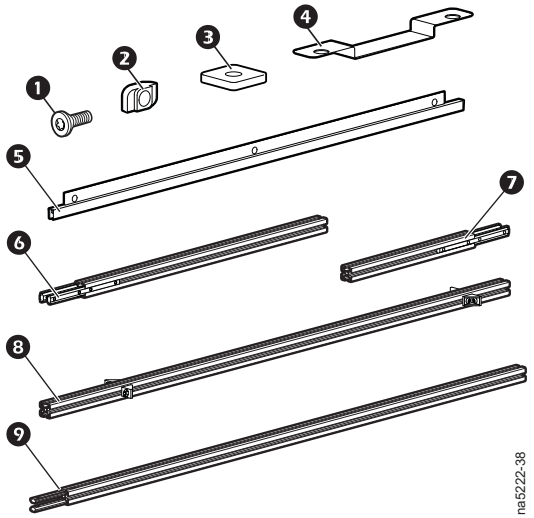
Item	Description	Quantity
❶	M12 to M10 adapter stud	2
❷	M6 × 12 flathead T30 screw	2
❸	M4 × 12 TORX countersink screw	4
❹	M10 nut with washer	2
❺	M4 flanged serrated hex nut	4
❻	M6-1 × 20 TORX flathead machine screw	2
❼	MPDU bracket, rack mount kit	2
❽	SPDU bracket, rack mount kit, left	1
❾	SPDU bracket, rack mount kit, right	1
❿	Offset bracket, left	1
⓫	Offset bracket, right	1
⓬	VX bracket rack mount, left front	1
⓭	VX bracket rack mount, right front	1
⓮	VX bracket rack mount, rear	2

Duct mounting rail—ACDC2300



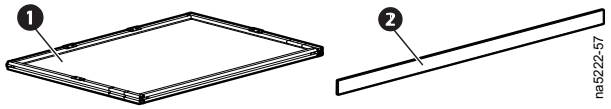
Item	Description	Quantity
❶	M6 × 10 flathead T30 screw	64
❷	M10 × 16 M6 socket screw	4
❸	M6 × 12 pan head T30 screw	12
❹	M6 channel nut	76
❺	M6 × 3 mm bracket for air block rail	24
❻	Duct system angle connector	6
❼	Duct corner bracket	4
❽	End aisle corner bracket, left	2
❾	End aisle corner bracket, right	2
❿	Gasket, 2.5 m (98.4 in.)	1
⓫	Horizontal panel mounting bracket	4
⓬	Wire cover	8
⓭	Air block mounting rail, 1072 mm (42.2 in.)	8
⓮	Cross-aisle support duct rail with 180 mm (7.1 in.) connectors, 610 mm (24 in.)	6
⓯	Cross-aisle support duct rail with 180 mm (7.1 in.) connector, 305 mm (12 in.)	6
⓰	Top of duct cross-aisle rail with angle connectors, 1012 mm (39.8 in.)	4
⓱	Base support duct rail with180 mm (7.1 in.) connectors, 1072 mm (42 in.)	10

Duct mounting rail expansion—ACDC2301 (used with ACDC2300)



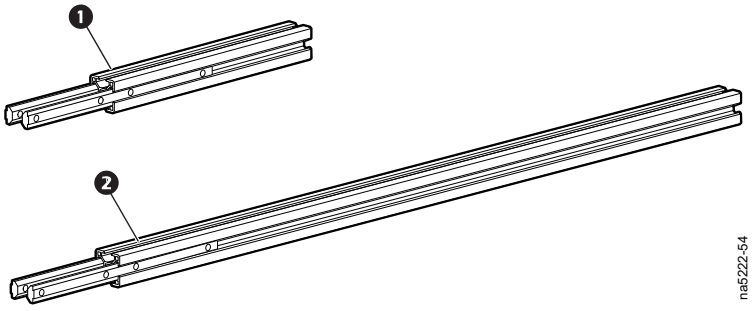
Item	Description	Quantity
❶	M6 × 10 flathead T30 screw	16
❷	M6 channel nut	16
❸	M6 × 3 mm bracket for air block rail	6
❹	Wire cover	2
❺	Air block mounting rail, 1072 mm (42.2 in.)	2
❻	Top of duct rail with 180 mm (7.1 in.) connector, 610 mm (24 in.)	1
❼	Top of duct rail with 180 mm (7.1 in) connector, 305 mm (12 in.)	1
❽	Top of duct cross-aisle rail with angle connector, 1012 mm (39.8 in.)	1
❾	Base duct rail with 180 mm (7.1 in.) connector, 1072 mm (42.2 in.)	2

Duct panel—ACDC2303 – ACDC2310



Item	Description	Quantity
❶	Ribbed duct panel, 1072 mm width × up to 787 mm height (42 × 31 in.) (ACDC2303) Solid duct panel, 1072 mm width × up to 787 mm height (42 × 31 in.) (ACDC2304) Ribbed duct panel, 1072 mm width × up to 1041 mm height (42 × 41 in.) (ACDC2305) Solid duct panel, 1072 mm width × up to 1041 mm height (42 × 41 in.) (ACDC2306) Ribbed duct panel, 1072 mm width × up to 1270 mm height (42 × 50 in.) (ACDC2307) Solid duct panel, 1072 mm width × up to 1270 mm height (42 × 50 in.) (ACDC2308) Ribbed duct panel, 1072 mm width × up to 1524 mm height (42 × 60 in.) (ACDC2309) Solid duct panel, 1072 mm width × up to 1524 mm height (42 × 60 in.) (ACDC2310)	1 each
❷	Duct frame gasket (Attached to panel)	

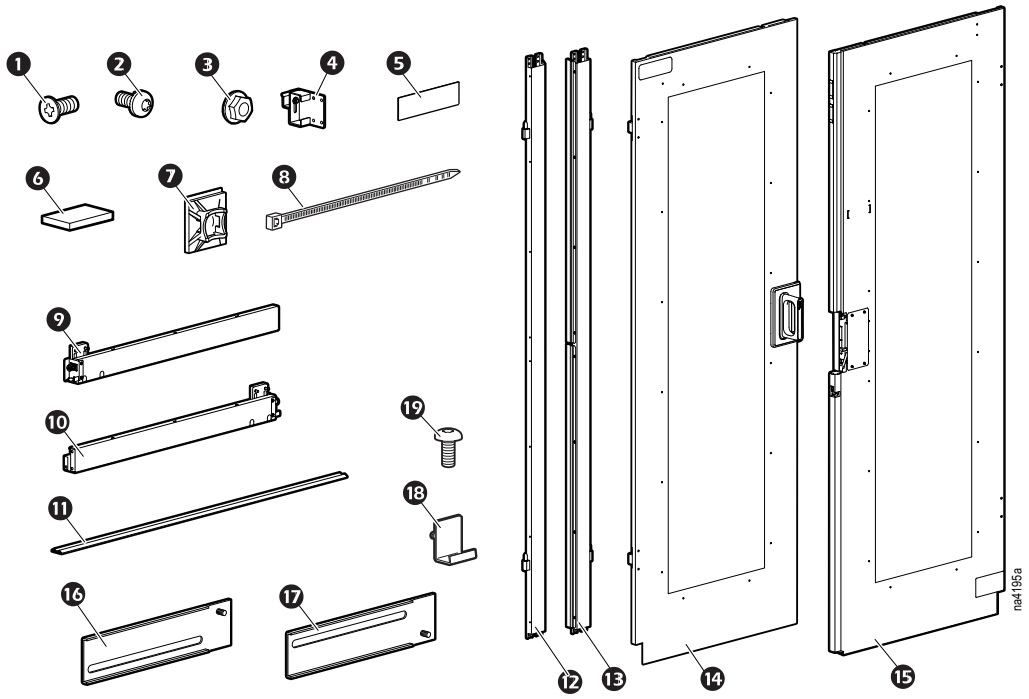
Duct panel frame extension, 1200–1800 mm (48–72 in.)—ACDC2311



Item	Description	Quantity
❶	Duct rail with 180 mm (7.1 in.) connectors, 152.5 mm (6 in.)	8
❷	Duct rail with 180 mm (7.1 in.) connectors, 628.5 mm (24.7 in.)	4

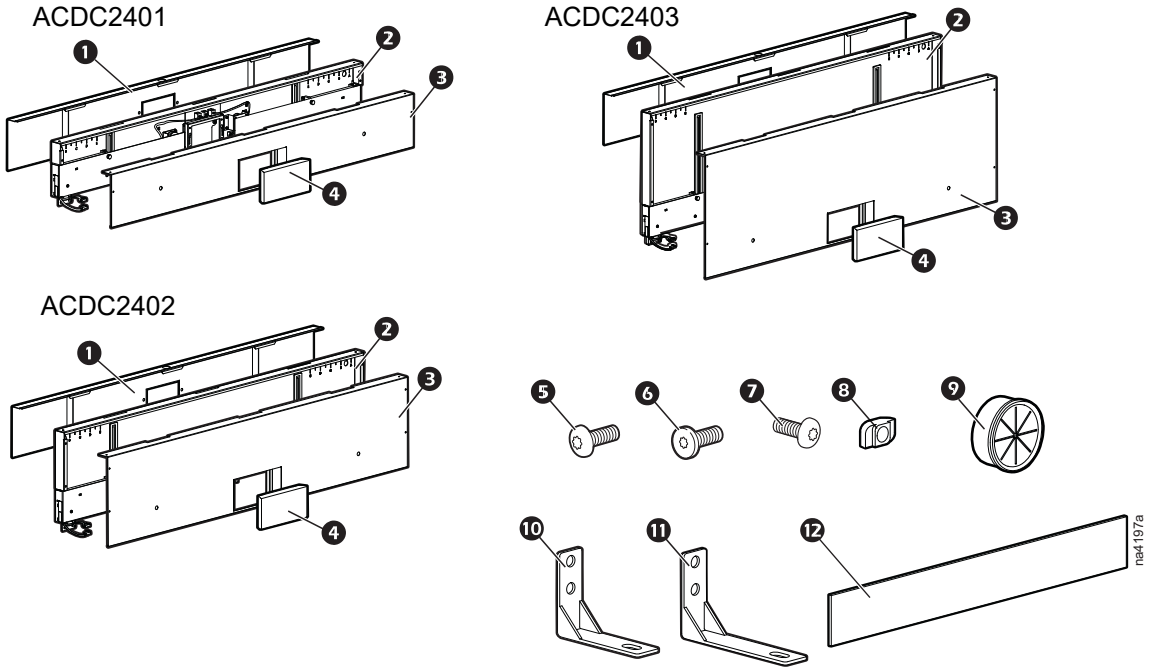
Door system components

Aisle containment door—ACDC2400



Item	Description	Quantity
❶	M5 × 12 Phillips screw	6
❷	M6 × 12 pan head T30 screw	4
❸	M6 serrated flange hex nut	12
❹	Standard lower guide rail mounting bracket	2
❺	Warning labels with and without electromechanical lock	1 each
❻	Guide rail spacer tape	4
❼	4-way cable tie adhesive mount	10
❽	Cable tie	10
❾	Lower guide rail, right	1
❿	Lower guide rail, left	1
⓫	Threshold	1
⓬	Hinge post, left	1
⓭	Hinge post, right	1
⓮	Door, left	1
⓯	Door, right	1
⓰	Lower guide rail mounting bracket for VX, left	1
⓱	Lower guide rail mounting bracket for VX, right	1
⓲	Lower guide rail mounting brackets, 600 mm Cooling	2
⓳	M8 × 12 screw, T30 black	2

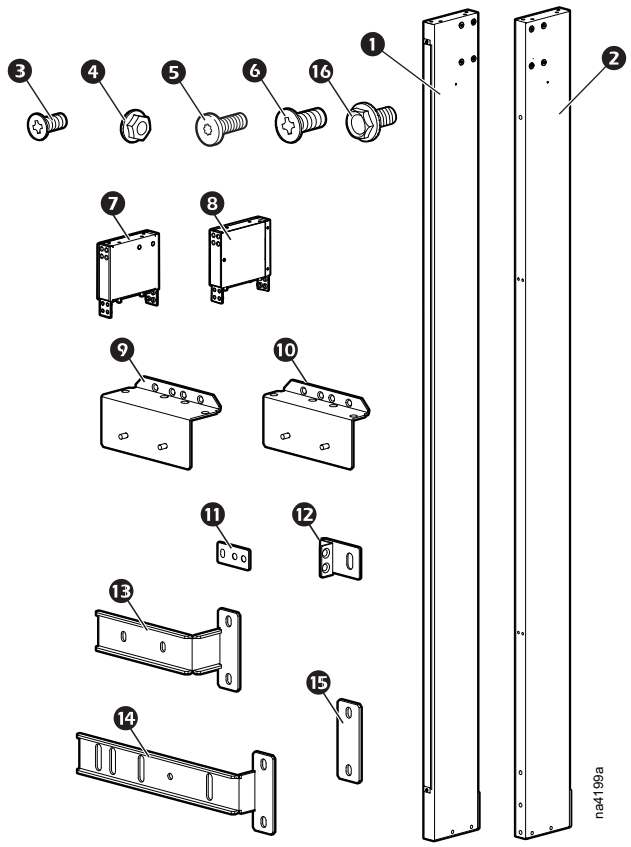
Door header—ACDC2401, ACDC2402, ACDC2403



Item	Description	Quantity
❶	Inner header cover	1
❷	Door header	1
❸	Outer header cover	1
❹	Blanking panel	1
❺	M4 × 6 mm TORX screw (ACDC2402, ACDC2403) M4 × 6 mm TORX screw (ACDC2401)	11 9
❻	M8 × 12 T30 screw	8
❼	M6 × 12 pan head T30 screw	6
❽	M6 channel nut	6
❾	Universal bushing	1
❿	Header adapter bracket	2
⓫	Header adapter bracket for 42 U (ACDC2401)	2
⓬	Foam seal	2

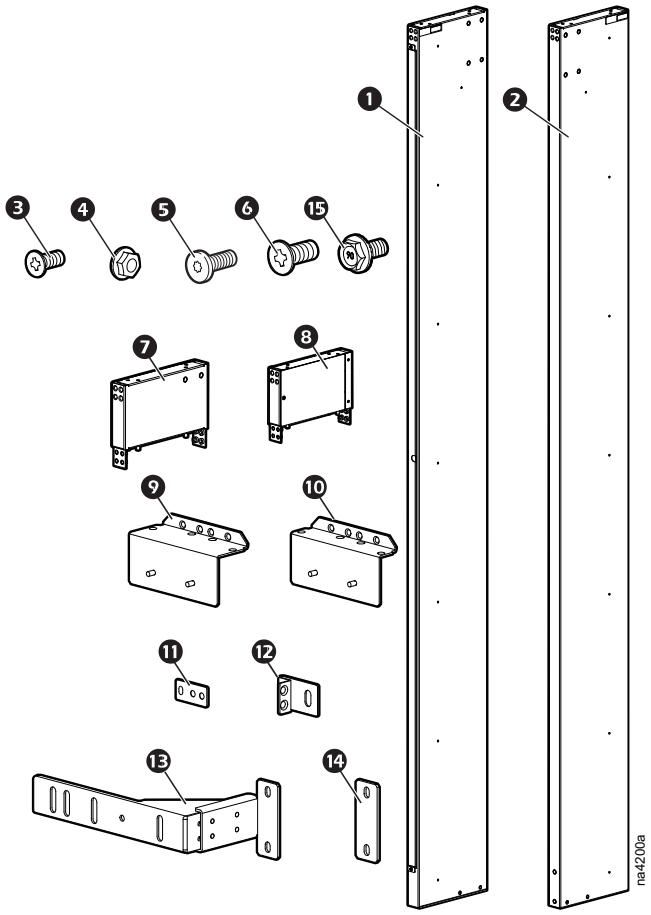
NOTE: Use each header with the following rack types:
ACDC2401: 42 U SX racks
ACDC2402: 45 U SX/42 U VX racks
ACDC2403: 48 U SX

Door post, 900–1200 mm (36–48 in.) aisle width—ACDC2404



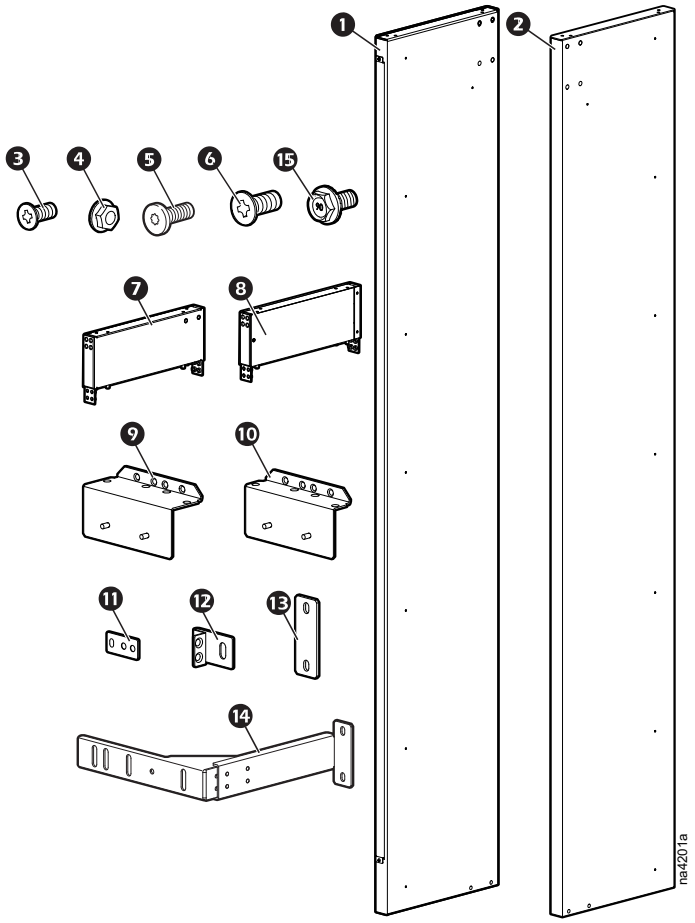
Item	Description	Quantity
❶	Left door post	1
❷	Right door post	1
❸	M5 × 12 screw, Phillips	12
❹	M6 serrated flange hex nut	28
❺	M8 × 12 T30 screw	6
❻	M6 × 12 screw, Phillips	44
❼	Left door post extension, 3 U	2
❽	Right door post extension, 3 U	2
❾	Bracket, VX front bottom frame. Use with VX racks with ⓭ and ⓯.	2
❿	Bracket, VX rear bottom frame, 55 mm. Use with VX with ⓮ and ⓯.	2
⓫	Joining bracket, SX enclosure	4
⓬	Joining bracket, 42 U VX enclosure	4
⓭	Joining bracket, VX front bottom frame. Use with VX racks with ❿ and ⓯.	2
⓮	Joining bracket, VX rear/SX bottom frame, 55 mm Use with VX racks from rear of the rack with ❿ and ⓯. Use with SX racks from front or rear of the rack.	2
⓯	6 mm spacer, VX	2
⓰	M8 × 16 hex screw	4

Door post, 1200–1500 mm (48–60 in.) aisle width—ACDC2405



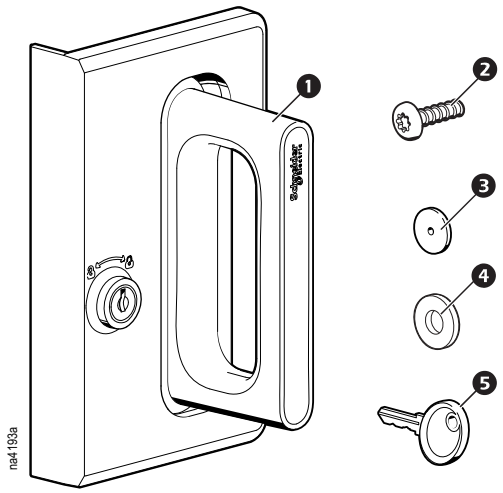
Item	Description	Quantity
❶	Left door post	1
❷	Right door post	1
❸	M5 × 12 screw, Phillips	12
❹	M6 serrated flange hex nut	28
❺	M8 × 12 T30 screw	6
❻	M6 × 12 screw, Phillips	44
❼	Left door post extension, 3 U	2
❽	Right door post extension, 3 U	2
❾	Bracket, VX front bottom frame	2
❿	Bracket, VX rear bottom frame, 55 mm	2
⓫	Joining bracket, SX enclosure	4
⓬	Joining bracket, 42 U VX enclosure	4
⓭	Joining bracket, VX and SX bottom frame (preset to SX)	2
⓮	6 mm spacer, VX	2
⓯	M8 × 16 hex screw	4

Door post, 1500–1800 mm (60–72 in.) aisle width—ACDC2406



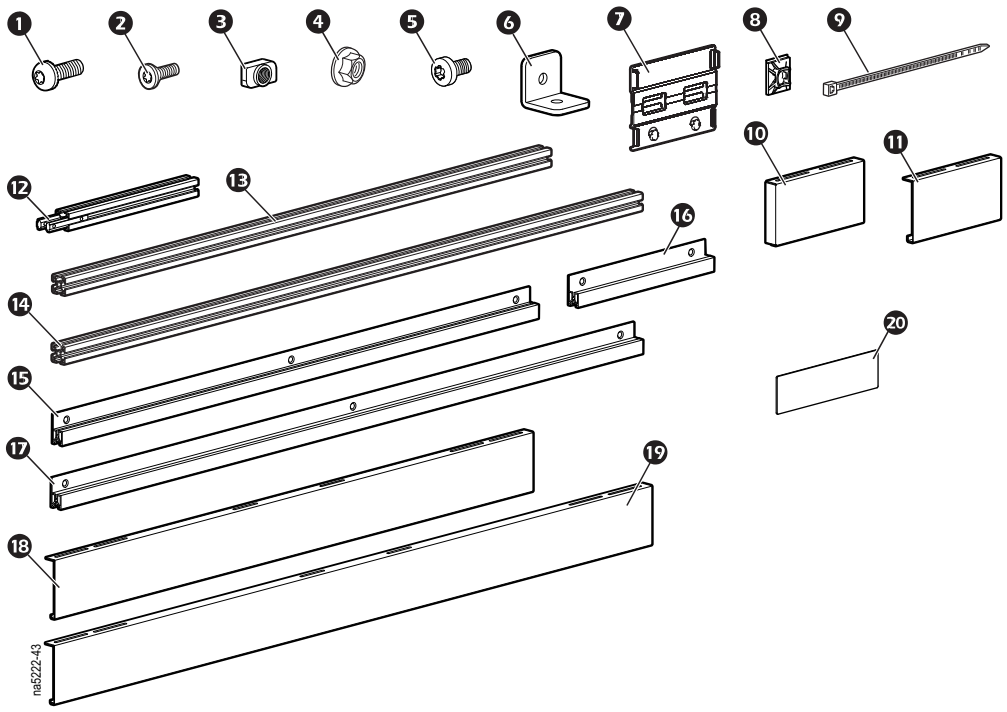
Item	Description	Quantity
❶	Left door post	1
❷	Right door post	1
❸	M5 × 12 screw, Phillips	12
❹	M6 serrated flange hex nut	28
❺	M8 × 12 screw	6
❻	M6 × 12 screw, Phillips	44
❼	Left door post extension, 3 U	2
❽	Right door post extension, 3 U	2
❾	Bracket, VX front bottom frame	2
❿	Bracket, VX rear bottom frame, 55 mm	2
⓫	Joining bracket, SX enclosure	4
⓬	Joining bracket, 42 U VX enclosure	4
⓭	6 mm spacer, VX	2
⓮	Joining kit, VX and SX bottom frame (preset to SX)	2
⓯	M8 × 16 hex Screw	4

Door handle lock—ACDC2408



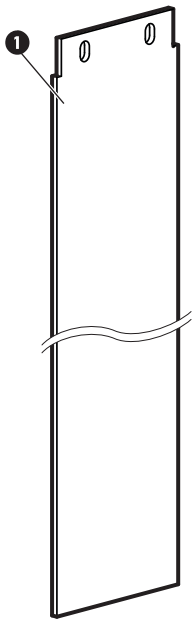
Item	Description	Quantity
❶	Right-hand door handle with mechanical lock	1
❷	M4 × 12.5 screw	4
❸	Hole plug	8
❹	M4 washer	4
❺	Key	3

Curtain door mounting rail—ACDC2410, ACDC2411



Item	Description	Quantity
❶	M6 × 12 pan-head T30 screws	4
❷	M6 × 10 screw, flathead T30	9
❸	M6 channel nut	9
❹	M6 hex flange nut	2
❺	M4 × 8 pan-head T20 screws	20
❻	Curtain door fixture	2
❼	Curtain hanger clips (ACDC2410) Curtain hanger clips (ACDC2411)	16 20
❽	Cable tie adhesive mount	10
❾	Wire tie	10
❿	Curtain door cover, left	1
⓫	Curtain door cover, right	1
⓬	Duct system rail, 305 mm (12 in.) with connector	1
⓭	Duct system rail, 1072 mm (42 in.) (ACDC2410)	1
⓮	Duct system rail, 1524 mm (5 ft.) (ACDC2411)	1
⓯	Curtain door rail, 914 mm (3 ft.) (ACDC2410)	1
⓰	Curtain door rail, 305 mm (1 ft.)	1
⓱	Curtain door rail, 1524 mm (5 ft.) (ACDC2411)	1
⓲	Curtain door cover (ACDC2410)	1
⓳	Curtain door cover, long (ACDC2411)	1
⓴	Warning label without electromechanical lock Warning label with electromechanical lock	1 1

Curtain door strip—ACAC11008, ACAC11009



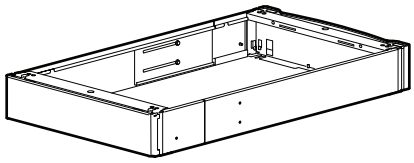
Item	Description	Quantity
1	Curtain strip - 42 U, (190 mm × 2228 mm) (7.5 × 88 in.) (ACAC11008)	14
	Curtain strip - 48 U, (190 mm × 2495 mm) (7.5 × 98 in.) (ACAC11009)	14

Height/Depth Adapters and Blanking Panels

See documentation included with these components for more information.

Height adapter kits components

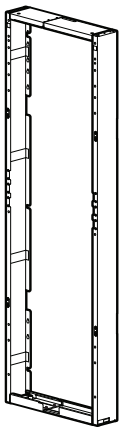
Roof height adapter—ACDC2500 – ACDC2518



Depth adapters

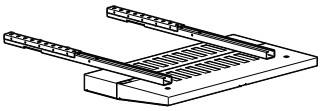
Depth adapter 1070–1200 mm (42–48 in.)

- SX 42 U, 300 mm wide (12 in.)—ACDC2550
- SX 42 U–SX 48 U, 600–750 mm width (24–30 in.)—ACDC2551



Depth adapter, 900–1200 mm (36–48 in.), VX 42 U

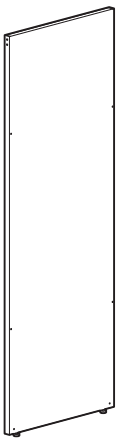
- 600 mm wide (24 in.)—ACDC2552
- 750 mm wide (30 in.)—ACDC2553



Blanking panel

Blanking panel, 42–48 U SX / 42 U VX

- 300 mm wide (12 in.)—ACDC2575
- 600 mm wide (24 in.)—ACDC2576
- 700 mm wide (28 in.)—ACDC2577
- 750 mm wide (30 in.)—ACDC2578



Planning the Installation

The NetShelter Aisle Containment System can be installed around units that are already installed in a building, or can be assembled from new units.

If you are installing the NetShelter Aisle Containment System around pieces of equipment that are already installed, consider using the PDU, UPS, or InRow unit as a starting point. If you have to move a PDU, a UPS, or an InRow unit, you must first disconnect the power to the unit.

NOTE: The data center floor must be within 0.075° from level for an 8-rack configuration, or within 0.035° from level for a 16-rack configuration.

See the System Installation Manual, available on the APC by Schneider Electric website, for proper system shut down procedures.

General guidelines for installation

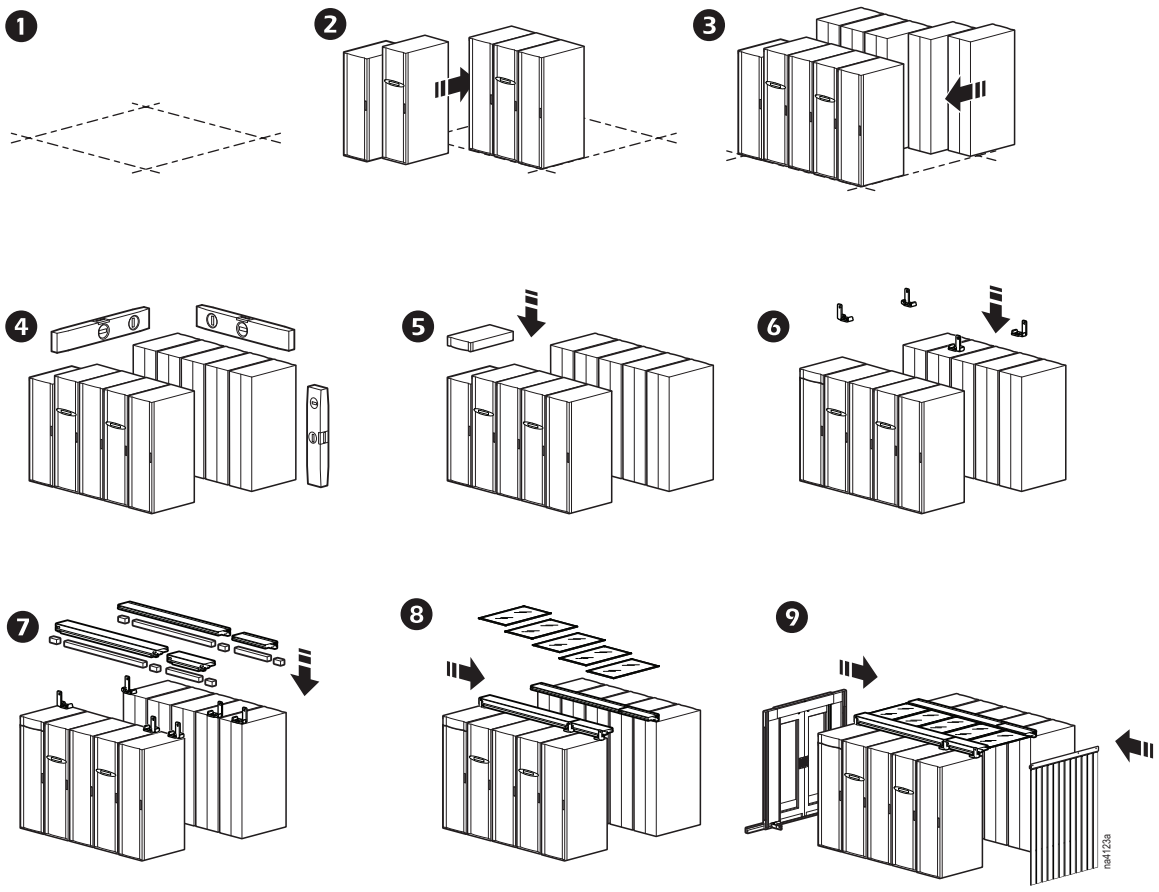
A NetShelter Aisle Containment System can be assembled from many different types of equipment, but these guidelines must be followed to ensure that it is assembled correctly:

- Join enclosures on 600 mm centers.
- If installing on a raised floor, plan the installation of the cooling unit to allow one of the floor tiles to be completely unobstructed to allow under-floor access to pipes and valves.

See the documentation provided with each APC by Schneider Electric unit for additional instructions on installation. All documentation is also available on the APC by Schneider Electric website, **www.apc.com**.

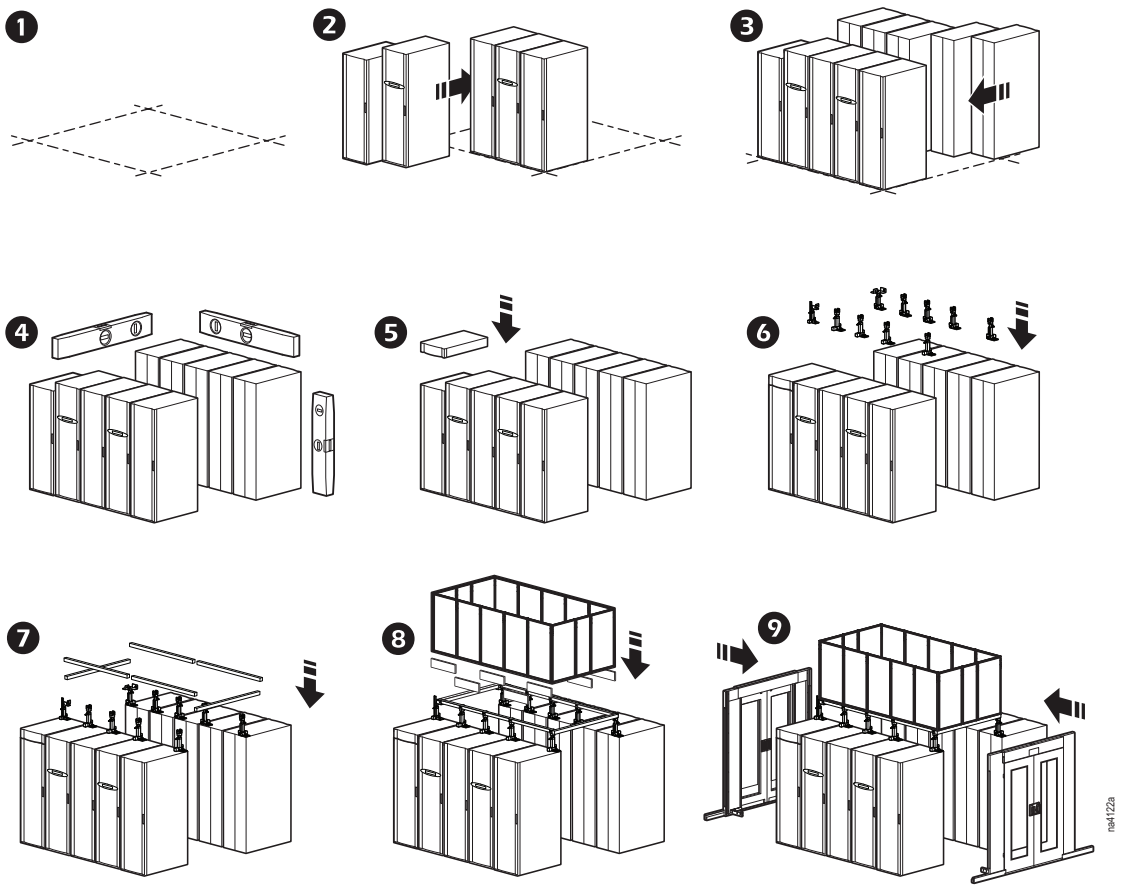
Installation Procedure Overview

Dual-row ceiling containment



1. Layout the position of the main components using the ISX Designer printout as a dimensional reference. Each enclosure must line up exactly with the enclosure directly across the aisle.
2. Assemble the first row of units. Position and join the main components working either from one end to the other, or starting from an InRow cooling unit, PDU, or UPS and work your way out to both ends.
3. Assemble the second row of units. Position and join the main components working either from one end to the other, or starting from an InRow cooling unit, PDU, or UPS and work your way out to both ends.
4. Finalize alignment of the racks and rack equipment. Make sure all of the panels line up on the top. Level the racks and equipment by deploying the leveling feet.
5. Install height adapters, depth adapters, and blanking panels as necessary.
6. Install the rail mounting brackets.
7. Install the ceiling panel mounting rails.
8. Install the ceiling panel frames.
9. Install the sliding door/curtain door on the ends of the aisle.

Dual-row ducted

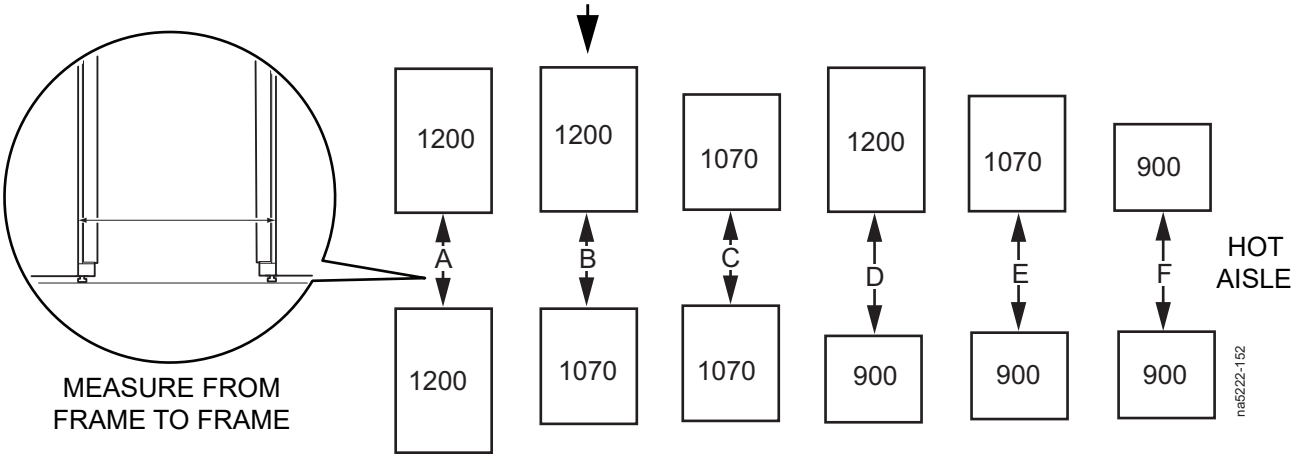


1. Layout the position of the main components using the ISX Designer printout as a dimensional reference. Each enclosure must line up exactly with the enclosure directly across the aisle.
2. Assemble the first row of units. Position and join the main components working either from one end to the other, or starting from an InRow cooling unit, PDU, or UPS and work your way out to both ends.
3. Assemble the second row of units. Position and join the main components working either from one end to the other, or starting from an InRow cooling unit, PDU, or UPS and work your way out to both ends.
4. Finalize alignment of the racks and rack equipment. Make sure all of the panels line up on the top. Level the racks and equipment by deploying the leveling feet.
5. Install height adapters, depth adapters, and blanking panels as necessary.
6. Install the duct panel mounting brackets.
7. Install the duct panel mounting rails.
8. Install the duct panels, power troughs, and data partitions.
9. Install the sliding door/curtain door on the ends of the aisle.

Critical Dimensions

Using the critical dimensions table

1. First, you need to determine the rack combination to use as a guide for all other aisle measurements. The deepest rack combination will be the guide for measurements in the aisle. Start on the left side of the image with ‘A’ and move to the right until you come to a unit combination that matches a unit combination in your row. For example, if your deepest unit combination is a 1200 mm unit and a 1070-mm unit, you will use measure ‘B’ as your guide and row ‘B’ for your measurements in the table.

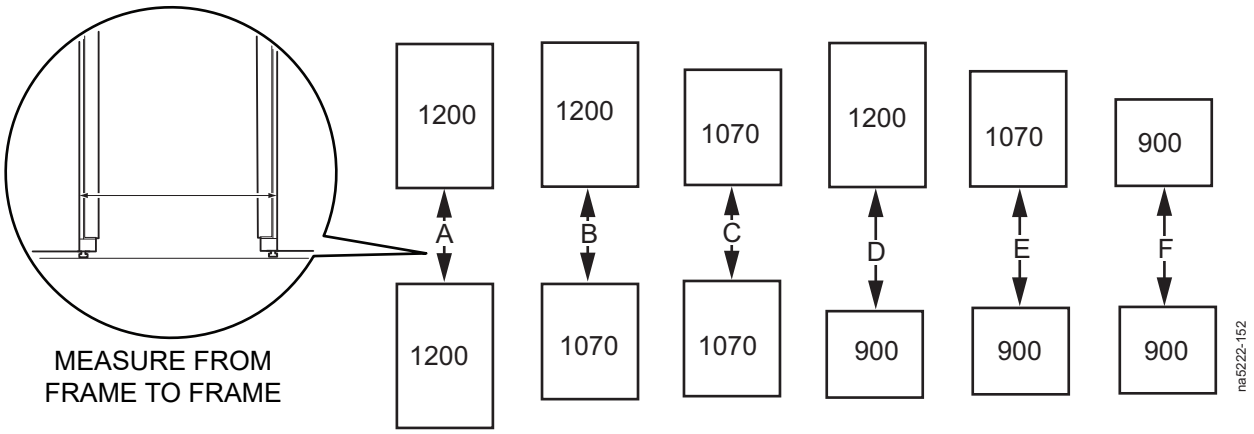


2. Select your “Nominal Aisle Width” and “Guide Measurement” to find your measurement to use for each unit combination in the row. For example, for a 4-foot aisle where our guide measurement is derived from unit combination ‘B’, and our unit combination that we need a measurement for is ‘D’ (a 1200 mm unit and a 900 mm unit), your measurement would be 1466 mm (57.75 in.).

Frame to Frame, With Depth Extenders

Nominal Aisle Width	Guide Measurement	Unit Combination A	B	C	D	E	F
3 ft. (900 mm)	A	991 (39.00)	991 (39.00)	991 (39.00)	1291 (50.83)	1291 (50.83)	1591 (50.83)
	B	--	991 (39.00)	991 (39.00)	1161 (45.71)	1161 (45.71)	1461 (45.71)
	C	--	--	991 (39.00)	1161 (45.71)	1161 (45.71)	1331 (52.40)
	D	--	--	--	--	--	--
	E	--	--	--	--	--	--
	F	--	--	--	--	--	
4 ft. (1200 mm)	A	1296 (51.02)	1296 (51.02)	1296 (51.02)	1596 (62.83)	1596 (62.83)	1896 (74.65)
	B →	--	1296 (51.02)	1296 (51.02)	1466 (57.75)	1466 (57.75)	1766 (69.53)
	C	--	--	1296 (51.02)	1466 (57.75)	1466 (57.75)	1636 (64.41)
	D	--	--	--	1296 (51.02)	1296 (51.02)	1596 (62.84)
	E	--	--	--	--	1296 (51.02)	1466 (57.75)
	F	--	--	--	--	--	1296 (51.02)

Hot aisle containment dimensions

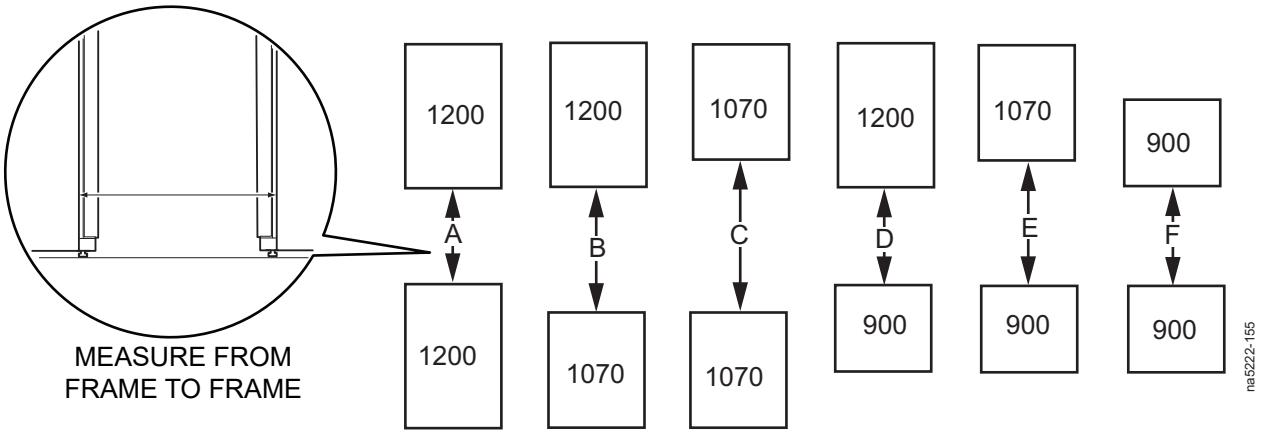


DIMENSIONS SHOWN IN MILLIMETERS

	Nominal Aisle Width	Guide Measurement	Unit Combination*					
			A	B	C	D	E	F
Hot Aisle - Middle or End of Aisle, Frame to Frame, With Depth Extenders	3 ft. (900 mm)	A	991 (39.00)	991 (39.00)	991 (39.00)	1291 (50.83)	1291 (50.83)	1591 (50.83)
		B	--	991 (39.00)	991 (39.00)	1161 (45.71)	1161 (45.71)	1461 (45.71)
		C	--	--	991 (39.00)	1161 (45.71)	1161 (45.71)	1331 (52.40)
		D	--	--	--	--	--	--
		E	--	--	--	--	--	--
		F	--	--	--	--	--	
	4 ft. (1200 mm)	A	1296 (51.02)	1296 (51.02)	1296 (51.02)	1596 (62.83)	1596 (62.83)	1896 (74.65)
		B	--	1296 (51.02)	1296 (51.02)	1466 (57.75)	1466 (57.75)	1766 (69.53)
		C	--	--	1296 (51.02)	1466 (57.75)	1466 (57.75)	1636 (64.41)
		D	--	--	--	1296 (51.02)	1296 (51.02)	1596 (62.84)
		E	--	--	--	--	1296 (51.02)	1466 (57.75)
		F	--	--	--	--	--	1296 (51.02)
	5 ft. (1500 mm)	A	1600 (63.00)	1600 (63.00)	1600 (63.00)	1900 (74.80)	--	--
		B	--	1600 (63.00)	1600 (63.00)	1770 (69.69)	1770 (69.69)	--
		C	--	--	1600 (63.00)	1770 (69.69)	1770 (69.69)	--
		D	--	--	--	1600 (63.00)	1600 (63.00)	1900 (74.80)
		E	--	--	--	--	1600 (63.00)	1770 (69.69)
		F	--	--	--	--	--	1600 (63.00)
	6 ft. (1800 mm)	A	1905 (75.00)	1905 (75.00)	1905 (75.00)	--	--	--
		B	--	1905 (75.00)	1905 (75.00)	--	--	--
		C	--	--	1905 (75.00)	--	--	--
		D	--	--	--	1905 (75.00)	1905 (75.00)	--
		E	--	--	--	--	1905 (75.00)	--
		F	--	--	--	--	--	1905 (75.00)

* All dimensions shown in millimeters (inches).

Cold aisle containment dimensions



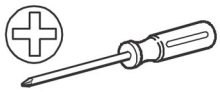
DIMENSIONS SHOWN IN MILLIMETERS

	Nominal Aisle Width	Guide Measurement	Unit Combination* A	B	C	D	E	F
Cold Aisle - Middle of Aisle, Frame to Frame, With Depth Extenders	3 ft (900 mm)	A	991 (39)	1121 (44.13)	1251 (49.25)	--	1121 (44.13)	--
		B	--	991 (39.00)	1121 (44.13)	--	1121 (44.13)	--
		C	--	--	991 (39.00)	--	--	--
		D	--	--	--	--	--	--
		E	--	--	--	--	--	--
		F	--	--	--	--	--	--
	4 ft (1200 mm)	A	1296 (51.02)	1426 (56.14)	1556 (61.26)	1296 (51.02)	1426 (56.14)	1296 (51.02)
		B	--	1296 (51.02)	1426 (56.14)	1296 (51.02)	1426 (56.14)	1296 (51.02)
		C	--	--	1296 (51.02)	1166 (45.91)	1296 (51.02)	1296 (51.02)
		D	--	--	--	1296 (51.02)	1426 (56.14)	1296 (51.02)
		E	--	--	--	--	1296 (51.02)	1296 (51.02)
		F	--	--	--	--	--	1296 (51.02)
	5 ft (1500 mm)	A	1600 (63.00)	1730 (68.11)	1860 (73.23)	1600 (63.00)	1730 (68.11)	1600 (63.00)
		B	--	1600 (63.00)	1730 (68.11)	1600 (63.00)	1730 (68.11)	1600 (63.00)
		C	--	--	1600 (63.00)	1470 (57.88)	1600 (63.00)	1600 (63.00)
		D	--	--	--	1600 (63.00)	1730 (68.11)	1600 (63.00)
		E	--	--	--	--	1600 (63.00)	1600 (63.00)
		F	--	--	--	--	--	1600 (63.00)
	6 ft (1800 mm)	A	1905 (75.00)	2035 (80.12)	2165 (85.24)	1905 (75.00)	--	1905 (75.00)
		B	--	1905 (75.00)	2035 (80.18)	1905 (75.00)	--	1905 (75.00)
		C	--	--	1905 (75.00)	1775 (69.88)	1905 (75.00)	1905 (75.00)
		D	--	--	--	1905 (75.00)	--	1905 (75.00)
		E	--	--	--	--	1905 (75.00)	1905 (75.00)
		F	--	--	--	--	--	1905 (75.00)

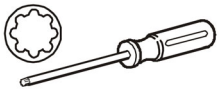
Cold Aisle - End of Aisle, Frame to Frame, No Depth Extenders	3 ft (900 mm)		991 (39.00)	991 (39.00)	991 (39.00)	--	--	--
	4 ft (1200 mm)		1296 (51.02)	1296 (51.02)	1296 (51.02)	1296 (51.02)	1296 (51.02)	1296 (51.02)
	5 ft (1500 mm)		1600 (63.00)	1600 (63.00)	1600 (63.00)	1600 (63.00)	1600 (63.00)	1600 (63.00)
	6 ft (1800 mm)		1905 (75.00)	1905 (75.00)	1905 (75.00)	1905 (75.00)	1905 (75.00)	1905 (75.00)

* All dimensions shown in millimeters (inches).

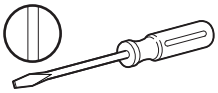
List of Recommended Tools



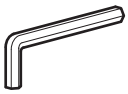
Screwdriver
P2 Phillips



Screwdriver
T-30, T-20, T-15
TORX

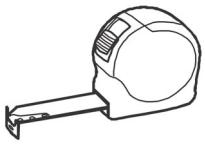


Standard
screwdriver



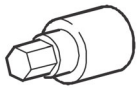
Hex wrench
3 mm, 6 mm

Wrench
6 mm, 7 mm,
8 mm, 13 mm,
14 mm

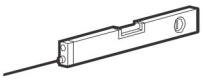


Tape measure

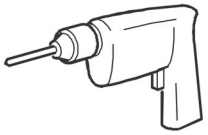
Chalk line



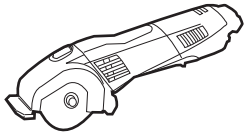
Hex socket
6.3 mm, 7 mm,
10 mm, 15 mm



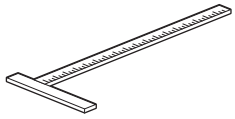
Level



Drill with
standard, Phillips,
and TORX bits

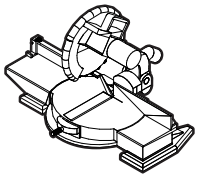


Rotary tool
(e.g. Dremel®)

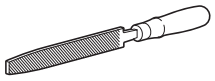


T-square
120 cm (48 in.)
minimum

Self-retracting knife

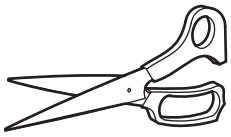


Miter saw



Metal files

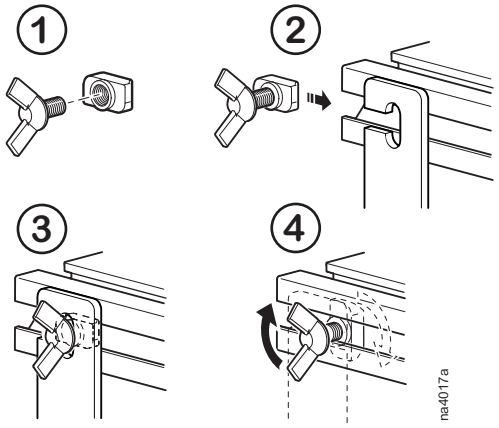
T-square



Scissors

Fastener Information

How to work with the channel nuts



Before You Begin

Safety

⚠ WARNING

SHARP EDGE HAZARD

- Be sure to read and follow the instructions that come with your power tools.
- Wear protective clothing and eye wear.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ CAUTION

FALLING HAZARD

- The working height for assembly can exceed 2.3 meters (7.5 feet). The use of stepladders or staging may be required to perform the assembly in a safe manner. Do not step on the top of any rack enclosure while assembling the enclosure.
- Ceiling panels are not designed to support weight. Do not lean or walk on the ceiling panels. DO NOT use ceiling panels to support power or data cables.

Failure to follow these instructions can result in serious injury or equipment damage.

⚠ CAUTION

HEAVY EQUIPMENT HAZARD

More than one person is required to install this enclosure. Some parts may be heavy or excessive in size. For items weighing more than 25 lbs (12 kg), use more than one person.

Failure to follow these instructions can result in serious injury or equipment damage.

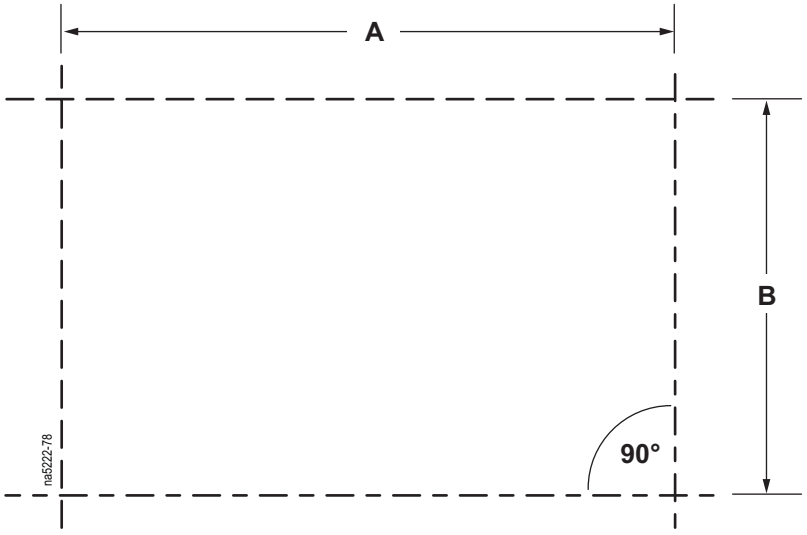
Main Components

Enclosures and Power Equipment

Refer to the instructions that come with your enclosures and power equipment for information on how to install them.

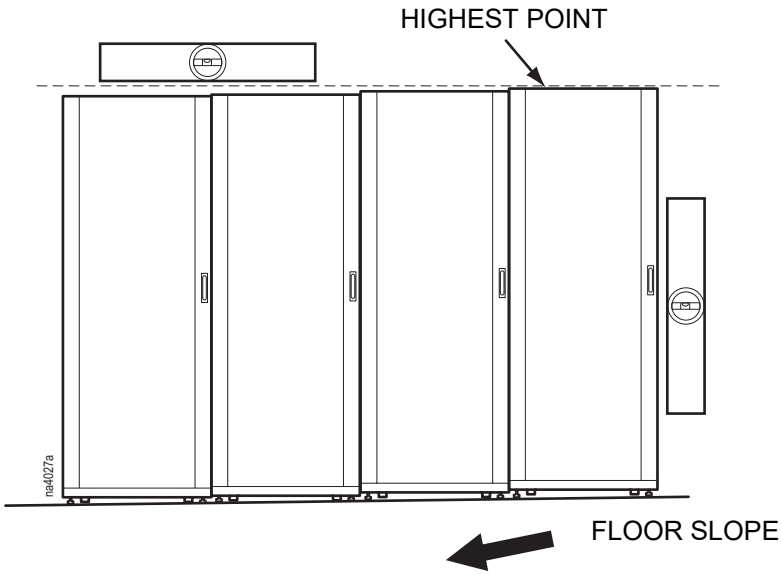
Layout and Positioning

Referencing the ISX Designer report, determine the position of the main components, the total length of the planned Aisle Containment System and the aisle width. Using a chalk line or similar, lay out the perimeter making sure all corners are square.



* Dimensions A and B will vary depending on the type and number of racks installed and the chosen width of the aisle.

Adjust enclosures taking into consideration floor slope. The tops of the enclosures should be aligned.



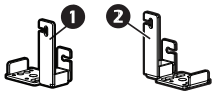
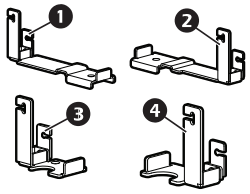
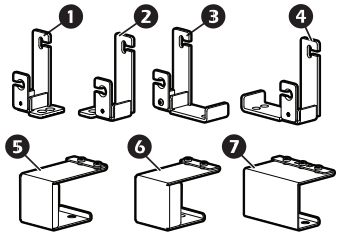
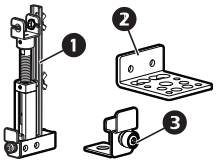
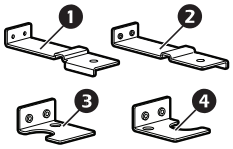
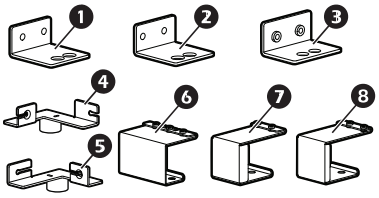
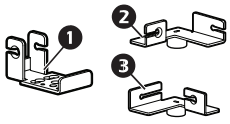
Height Adapter and Depth Extender

IMPORTANT: Before installing remaining components, make sure the height and depth extenders have been installed.

See the manuals provided with each of these kits for instructions on how to install them.

Ceiling and Duct System Support Brackets

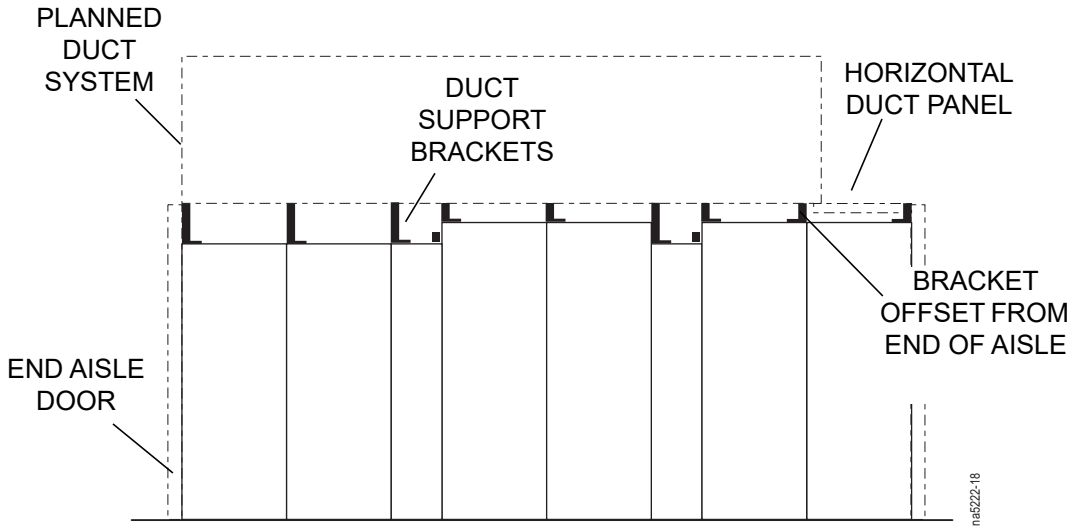
Support Bracket Types Overview

	SKU	Quantity	Image	Description
Ceiling system	ACDC2000 ACDC2001 ACDC2002 ACDC2003	❶ × 3, ❷ × 3 ❶ × 2, ❷ × 2 ❶ × 2, ❷ × 2 ❶ × 1, ❷ × 1		❶ Standard support bracket, right ❷ Standard support bracket, left
	ACDC2005	1 each		❶ Airflow rack, right ❷ Airflow rack, left ❸ InRow RC/RD,right rear, ❹ InRow RA, left rear
	ACDC2006	❶ × 1 ❷ × 1 ❸ × 1 ❹ × 1 ❺ × 1 ❻ × 1 ❼ × 2		❶ PDU, left ❷ PDPM and SYCFX, right ❸ PDPM, left ❹ PDPM, right ❺ VX front, left ❻ VX front, right ❼ VX rear
Ceiling or duct system, adjustable	ACDC2200 ACDC2201 ACDC2202 ACDC2203	4 each		❶ Adjustable support bracket ❷ Mounting bracket ❸ Lower air block support bracket
	ACDC2204	1 each		❶ Airflow rack, left ❷ Airflow rack, right ❸ InRow RC, rear ❹ InRow RA, rear
	ACDC2205	❶ × 1 ❷ × 1 ❸ × 2 ❹ × 1 ❺ × 1 ❻ × 2 ❼ × 1 ❽ × 1		❶ PDU, left ❷ PDU, right ❸ PDPM ❹ PDU - duct system, left ❺ PDU - duct system, right ❻ VX, rear ❼ VX front, right ❽ VX front, left
Duct system	ACDC2300	❶ × 4 ❷ × 2 ❸ × 2		❶ Horizontal panel - duct system ❷ Duct system, left ❸ Duct system, right

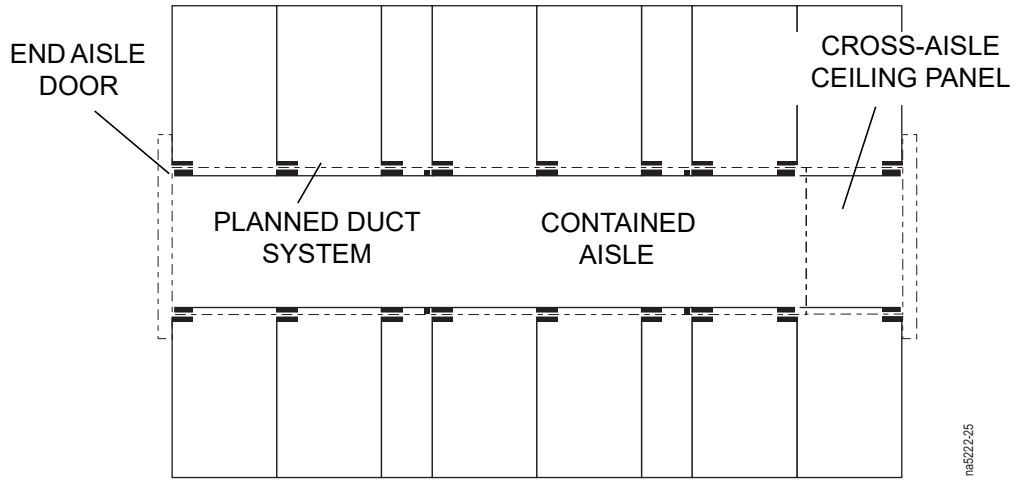
Support Bracket Installation

Install the ceiling or duct support brackets on the side of the enclosure closest to the planned contained aisle. Refer to the following instructions showing how to install each bracket type.

Typical bracket placement—side view (duct system shown)

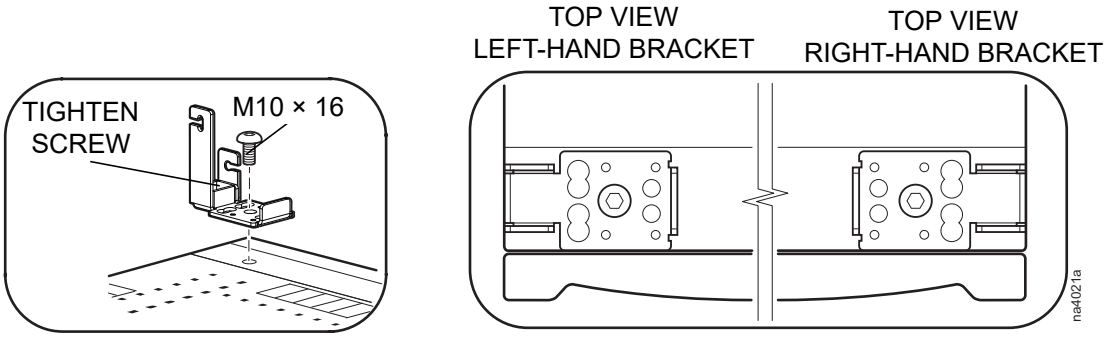


Typical bracket placement—top view (duct system shown)



SX enclosures and InRow RC, front

ACDC2000, ACDC2001, ACDC2002, ACDC2003

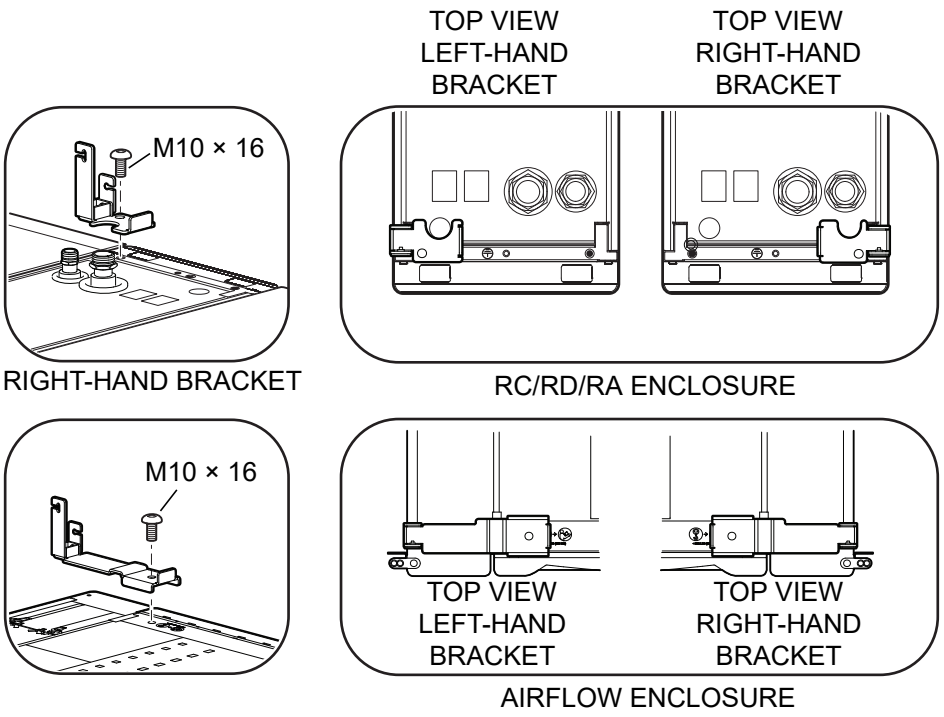


SX ENCLOSURE (REAR)

RC ENCLOSURE (FRONT)

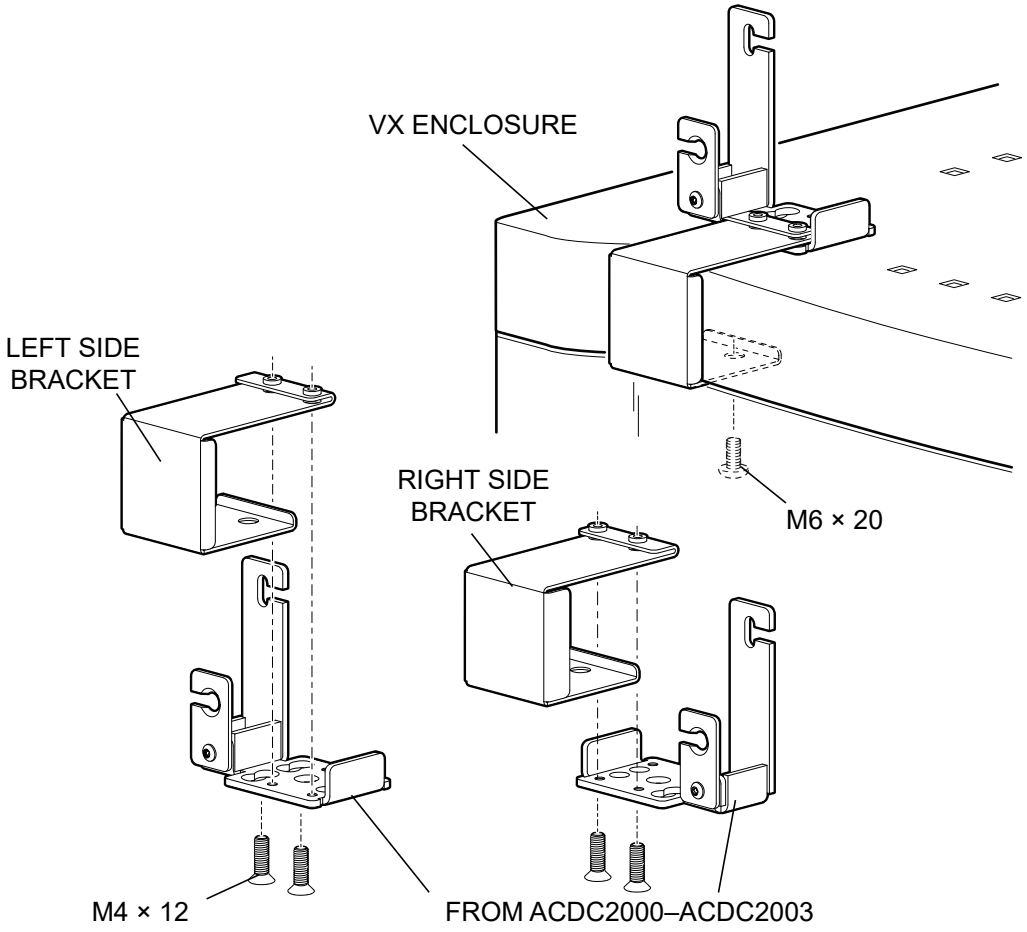
InRow RC/RD/RA rear and Airflow racks

ACDC2005

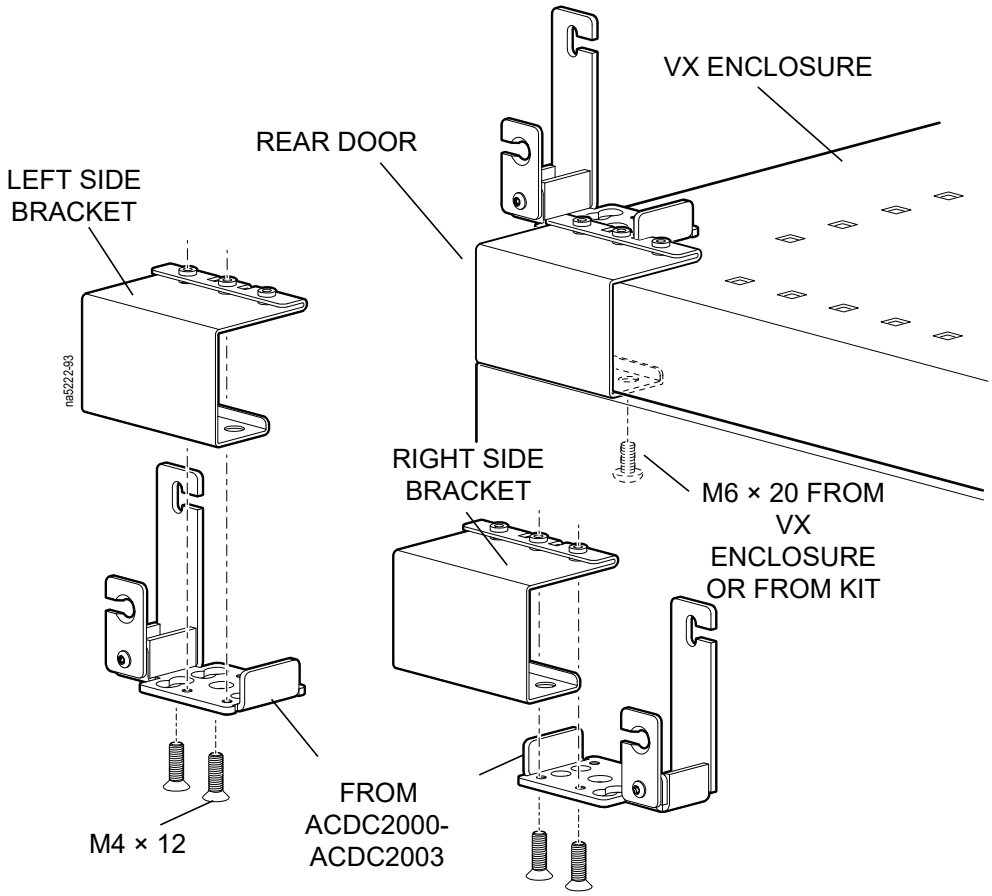


PDU, PDPM, VX enclosure

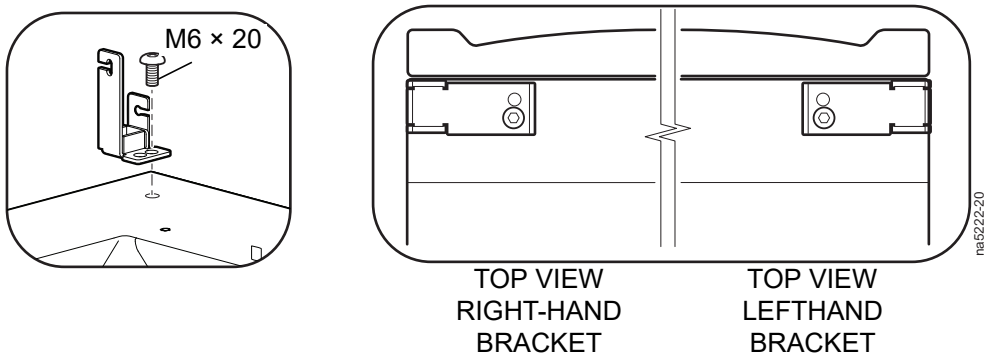
ACDC2006—VX enclosure, front



VX enclosure, rear

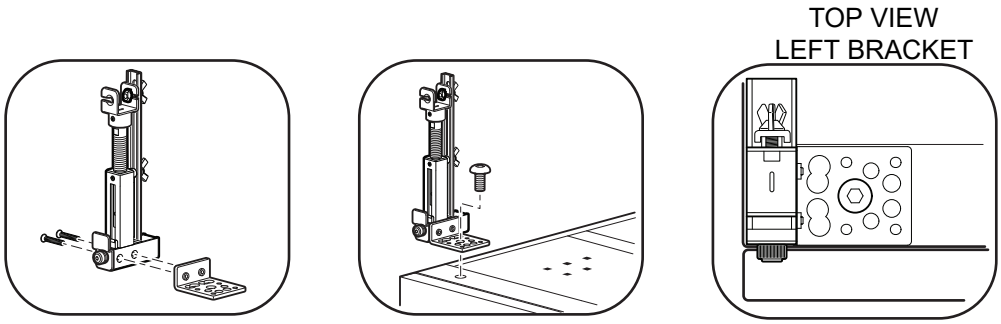


PDU/PDPM

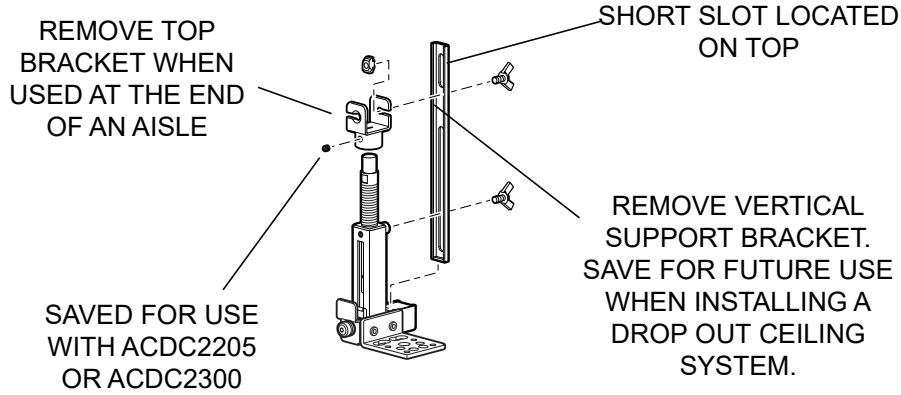


SX enclosures and InRow RC, front

ACDC2200 ACDC2201 ACDC2202 ACDC2203 - Adjustable support bracket

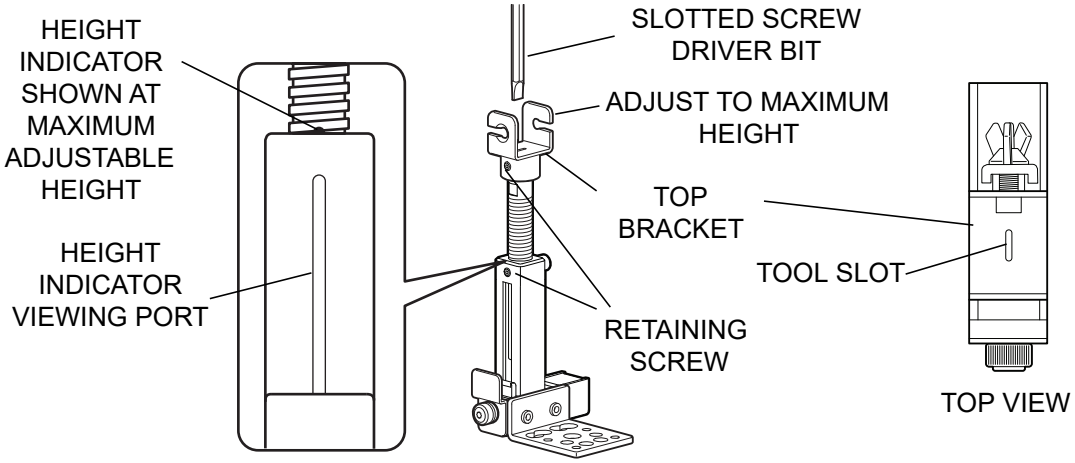


NOTE: If installing a ducted system, detach the vertical support bracket from the adjustable rack mounting bracket.



IMPORTANT: For a ducted system, extend the supports to their maximum height before installing.

1. Loosen the bottom retaining screw.
2. Insert a slotted screw driver bit into a tool slot at the top of the bracket and turn counter-clockwise to extend the bracket to its maximum height, shown by the height indicator.
   NOTE: Do not re-tighten the bottom retaining screw at this time. Height adjustments will need to be made later in the installation.

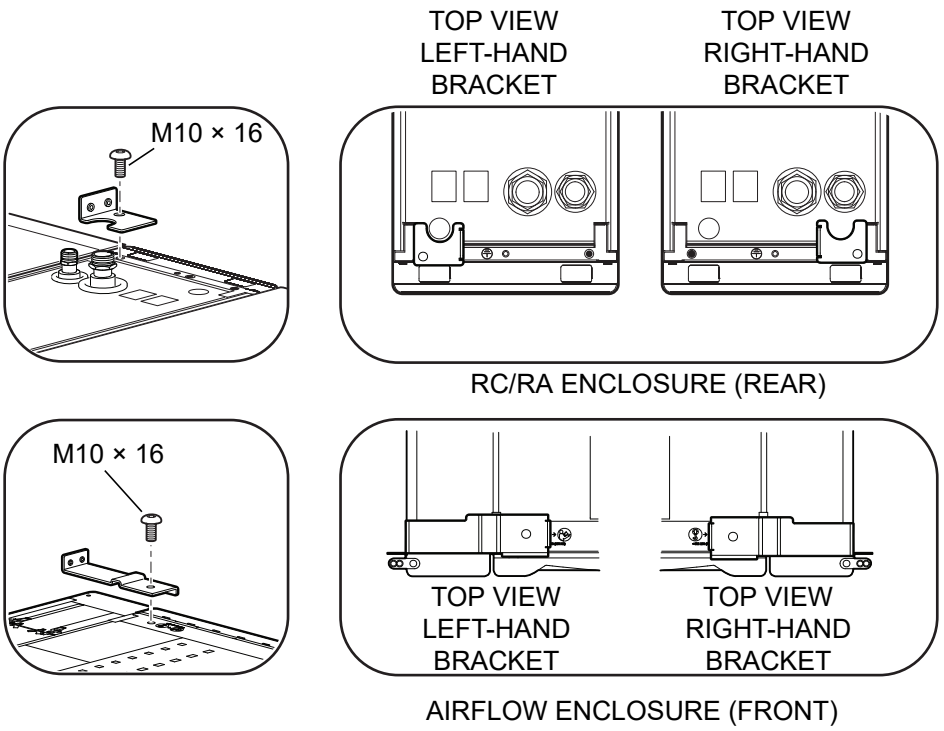


3. Loosen the top retaining screw and rotate the top bracket so that the retaining screw is facing inside the aisle. Do not re-tighten retaining screw at this time

NOTE: When positioning this adjustable bracket at the corner of ducted system, remove the top bracket. See ACDC2205 and ACDC2300 for further modifications.

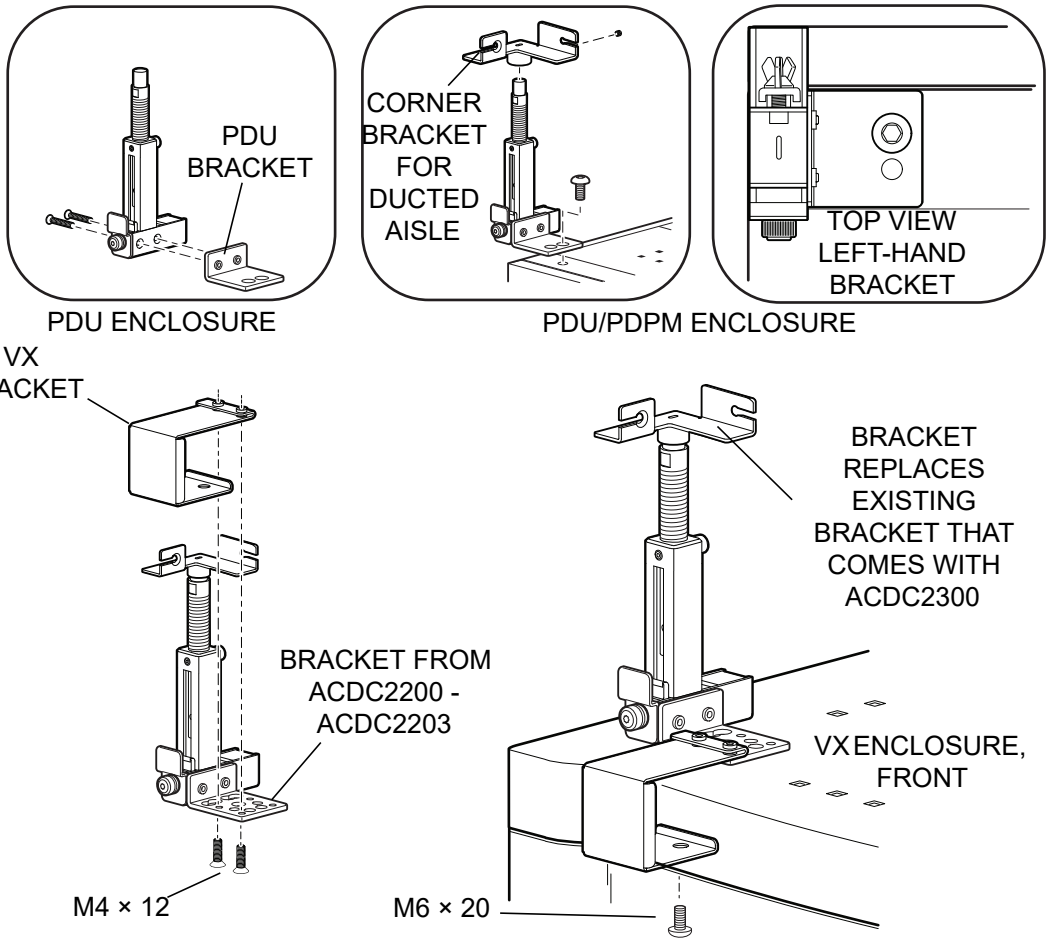
Airflow racks and InRow RC/RA rear

ACDC2204



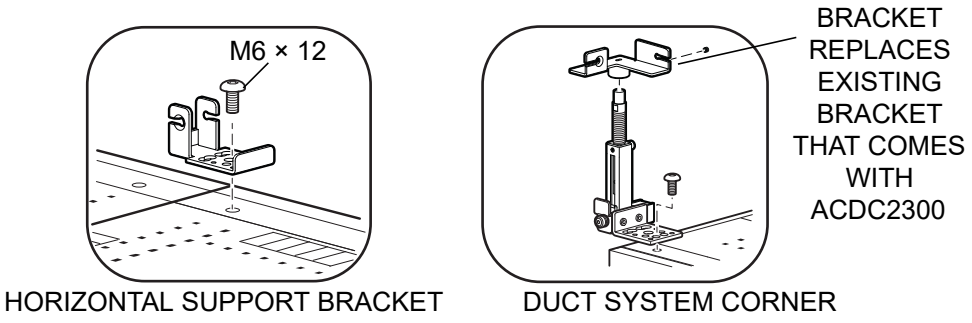
VX Enclosure, PDU duct system, PDU, and PDPM

ACDC2205



Horizontal panel support bracket and corners for duct system

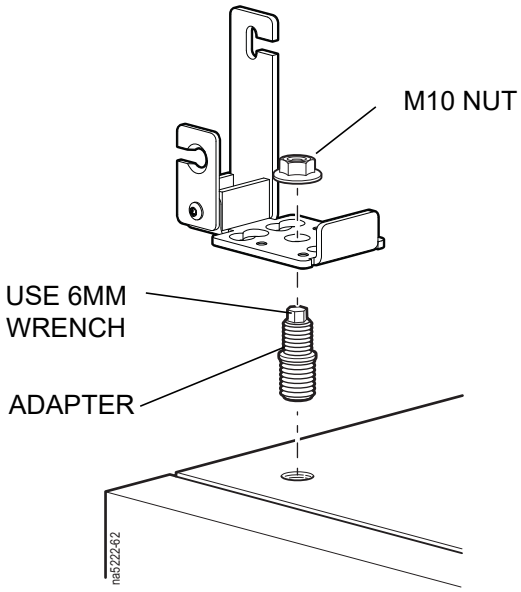
ACDC2300



For ACDA901 enclosures

ACDC2000–ACDC2003, ACDC2204, and ACDC2205

Use the M12 to M10 adapter and M10 nut (supplied in kits) to attach fixed or adjustable mounting brackets. For ACDC2204 and ACDC2205, install the bracket on the rack first then attach it to the adjustable support with two screws.



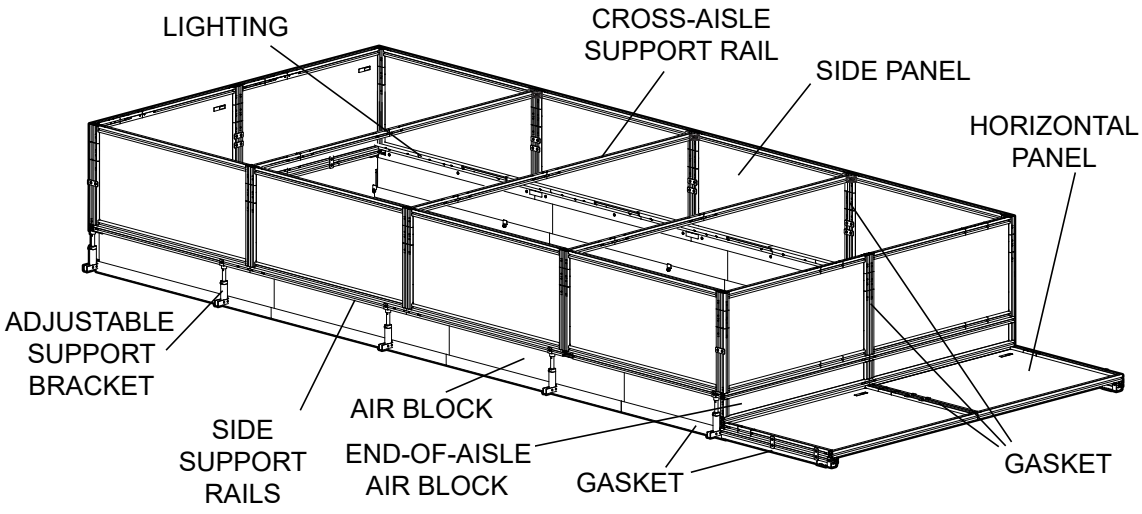
Duct System

Installation Overview

IMPORTANT: Before continuing this installation, be sure you have followed the Layout and Positioning section in this manual and that all equipment is properly aligned, level, and plumb.

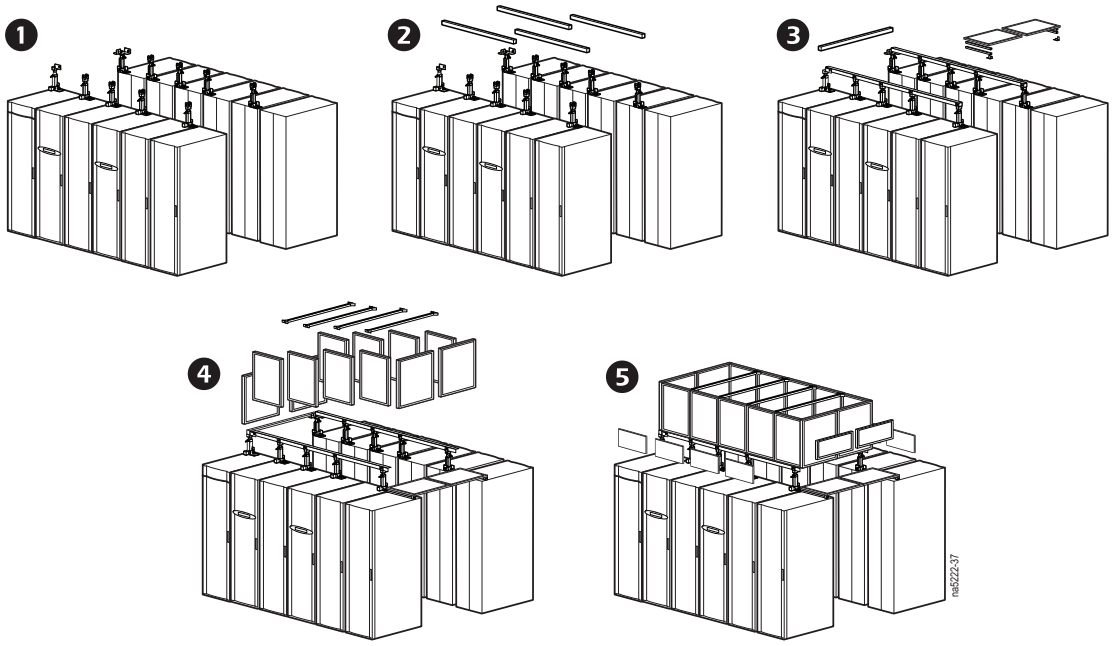
Component identification

The example below is shown with adjustable support brackets.



Typical order of installation

IMPORTANT: For ease of installation, please follow these instructions in the order in which they are presented.



How to cut material

⚠ WARNING

SHARP EDGE HAZARD

- Be sure to read and follow the instructions that come with your power tools.
- Wear protective clothing and eye wear.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Metal extrusions

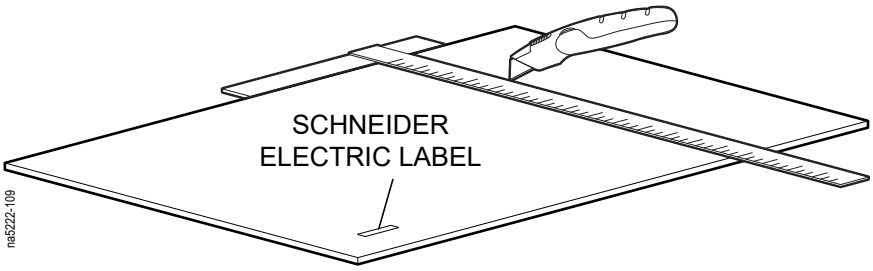
1. If necessary, disassemble components such as duct panels.
2. Measure and mark the material
3. With a metal cutting blade, cut the material making a straight perpendicular cut.
   IMPORTANT FOR DUCT PANELS: The rail channels must be removed before cutting the duct panel rails.
4. Clean or de-burr the edges.
   IMPORTANT: When installing a cut extrusion, position the cut end so that it cannot be seen.

Clear panels

1. Measure and mark the material.
2. Cut the material using a straight edge and the appropriate cutting tool.

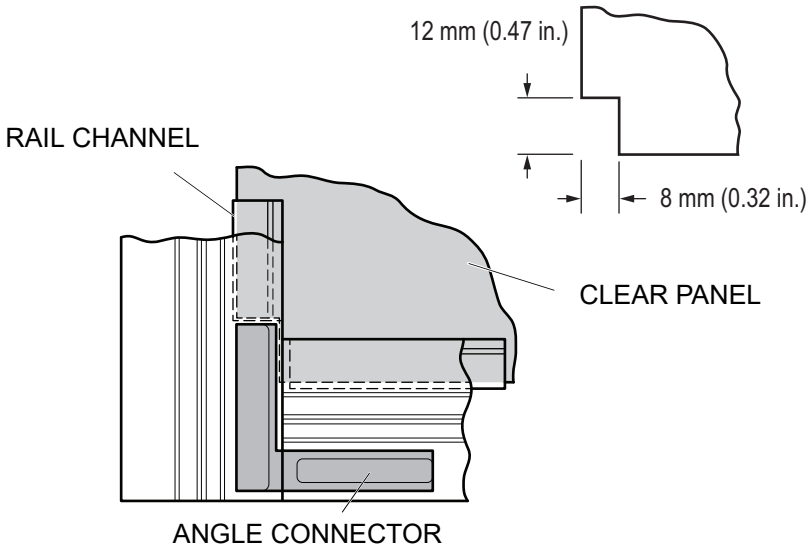
IMPORTANT:

- Do not remove the protective covering before cutting panels.
- DO NOT remove or cut off Schneider Electric label
- Use a straight edge to help guide the cut.



Duct panel corner detail

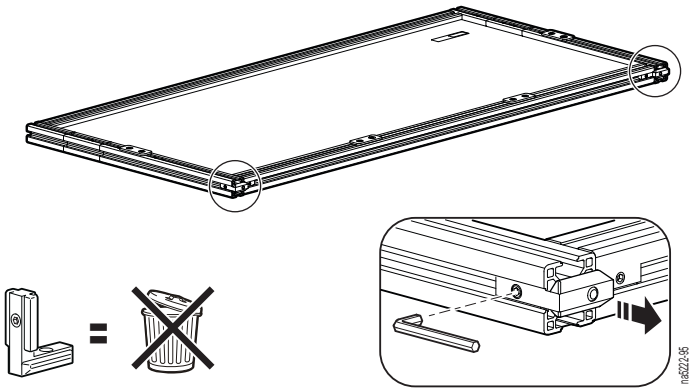
NOTE: Be sure to notch the corners of the clear panels to allow for the angle connectors.



Adjusting the Size Of the Duct Panels and Rails

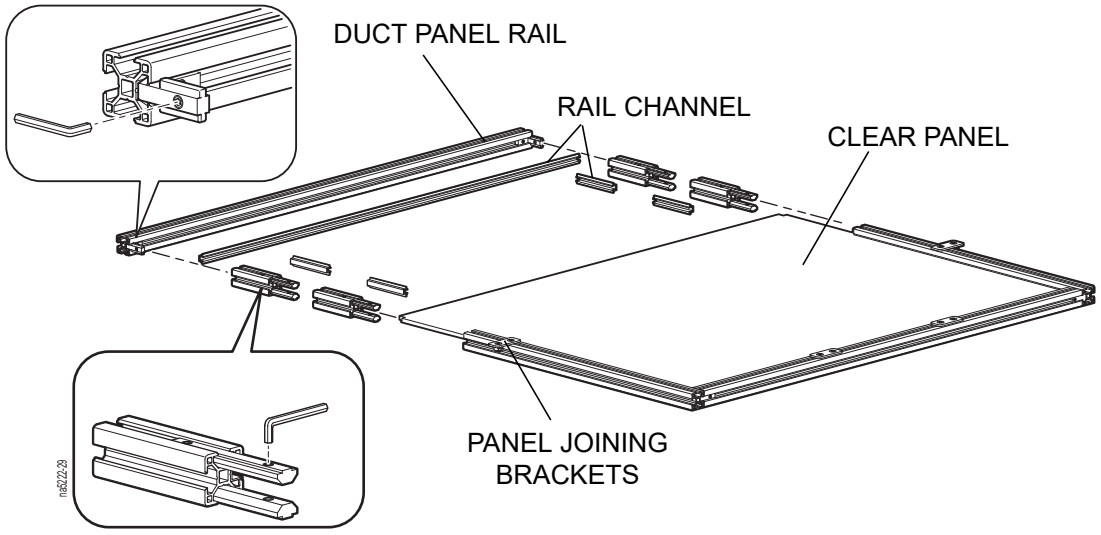
Depending on your ducting requirements the size of the panels may need to be adjusted. Refer to the information below for resizing information.

NOTE: Before proceeding remove any angle connectors connected to the duct panels. Save these to be reinstalled in a later step.

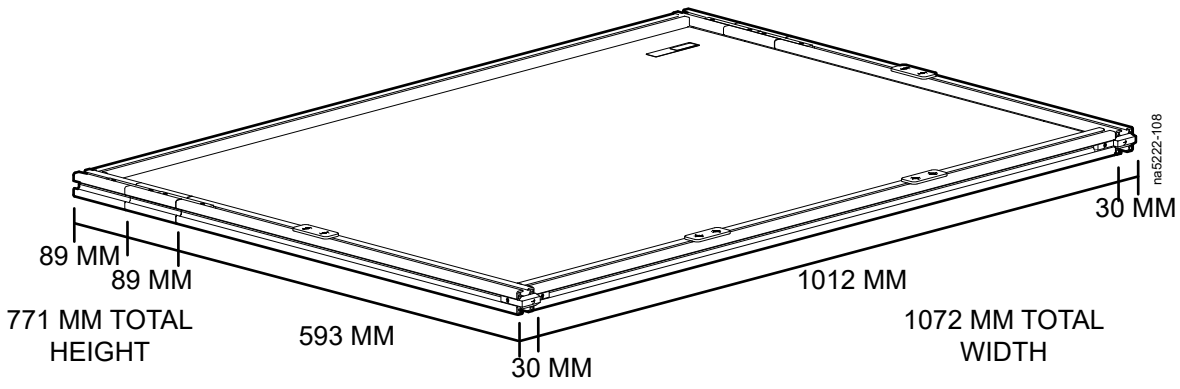


Horizontal and vertical duct panel size adjustment

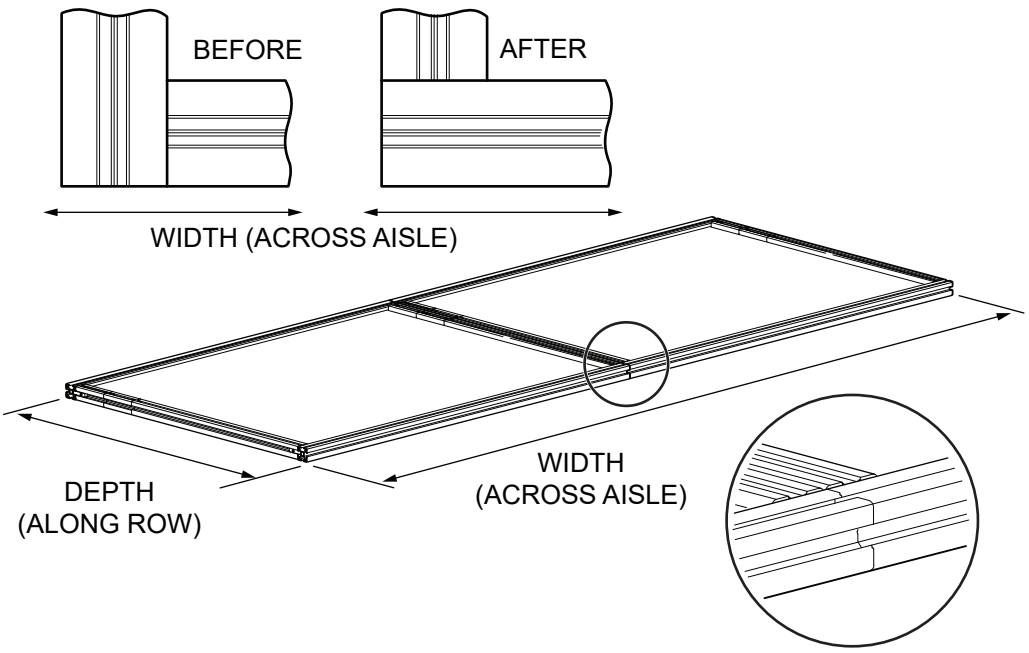
Disassemble the duct panels.



Horizontal panel resizing information



IMPORTANT: When calculating the size of the panels and identifying where to makes cuts, keep in mind that the position of the rails at the corners must be interchanged. This will create a continuous channel through the intersection where the panels meet and across the entire length of the aisle.



Standard aisle widths measurement calculations for horizontal panels

Nominal Aisle Width	Duct Width (Across Aisle)	Cut ACDC2305/ACDC2306 to		Number of Panels
		Panel Width	Panel Depth	
900 mm / 3 ft	1072 mm / 42 in.	N/A	No change required	1
1200 mm / 4 ft	1377 mm / 54 in.	688.5 mm / 27.1 in.	cut 593 mm rail to 533 mm (23.3 in. to 21 in.)	2
1500 mm / 5 ft	1682 mm / 66 in.	841 mm / 33.1 in.	cut 593 mm rail to 533 mm (23.3 in. to 21 in.)	2
1800 mm /6 ft	1987 mm / 78 in.	993.5 mm / 39.1 in.	cut 593 mm rail to 533 mm (23.3 in. to 21 in.)	2

Horizontal panel (ACDC2305, ACDC2306) and air block panel (ACDC2303, ACDC2304) adjustment calculations

If the nominal aisle width is 900 mm (3 ft) bypass this step and proceed to the *Horizontal Duct Panel Installation* section.

NOTE: To ensure symmetry, adjustments must be made to both panels.

1. Verify nominal aisle width.
2. Obtain the duct width (horizontal span) from the table above.
3. Disassemble the panel frame corner connector (there is no need to disassemble the three section length extrusion).
4. Cut 60 mm (2.4 in.) off of the 593 mm (23.3 in.) section of extrusion from the depth of both left and right panels.
5. Cut the 1012 mm (39.8 in.) section of extrusion from the width of both left and right panels to the extrusion width specified in the table for the nominal aisle width.

IMPORTANT: When resizing 1200–1800 mm (4–6 ft.) nominal aisle panels, the clear panel must be cut to size to allow reassembly of the frame around the panel.

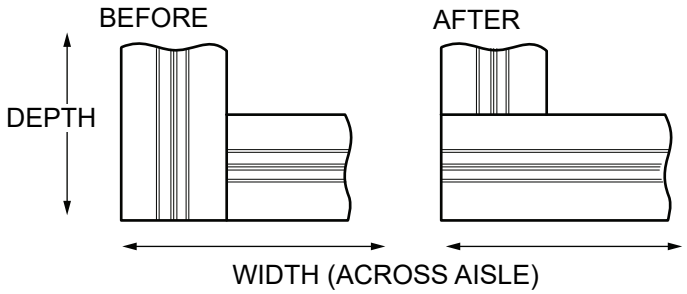
The width dimension of the panel is to be modified as follows:
NOTE: The depth of the panel requires no size modification.

Calculation to determine cut dimension of clear panel:
Cut value = 1012 mm (39.8 in.) – 60 mm (2.4 in.) – extrusion width in table

Example for a 1500 mm (5 ft.) nominal aisle:
Cut Value = 1012 mm (39.8 in.) – 60 mm (2.4 in.) – 841 mm (33.1 in.)
Cut Value = 111 mm (4.37 in.) removed from each of the two horizontal clear panel material

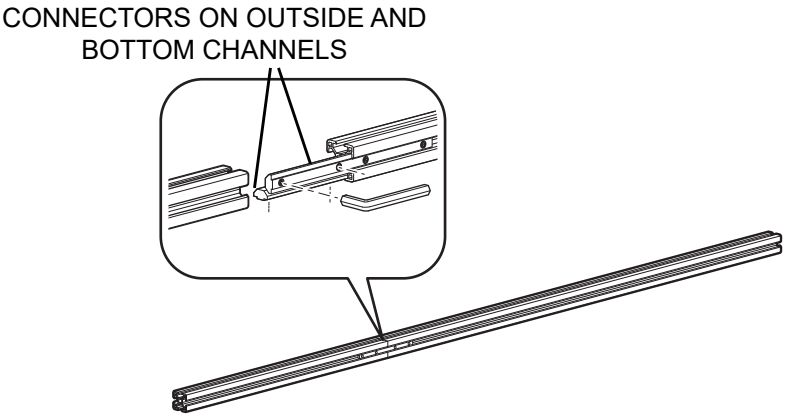
IMPORTANT: Remove material from the corner to allow the duct frame to be reassembled. Refer to the *How to cut material section* above.

Reassemble the duct panel positioning the depth rails (made of three sections) to the inside width rails.



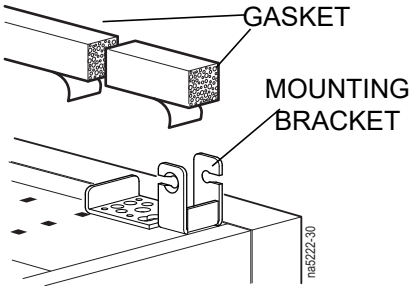
Adjusting the size of the duct mounting rails

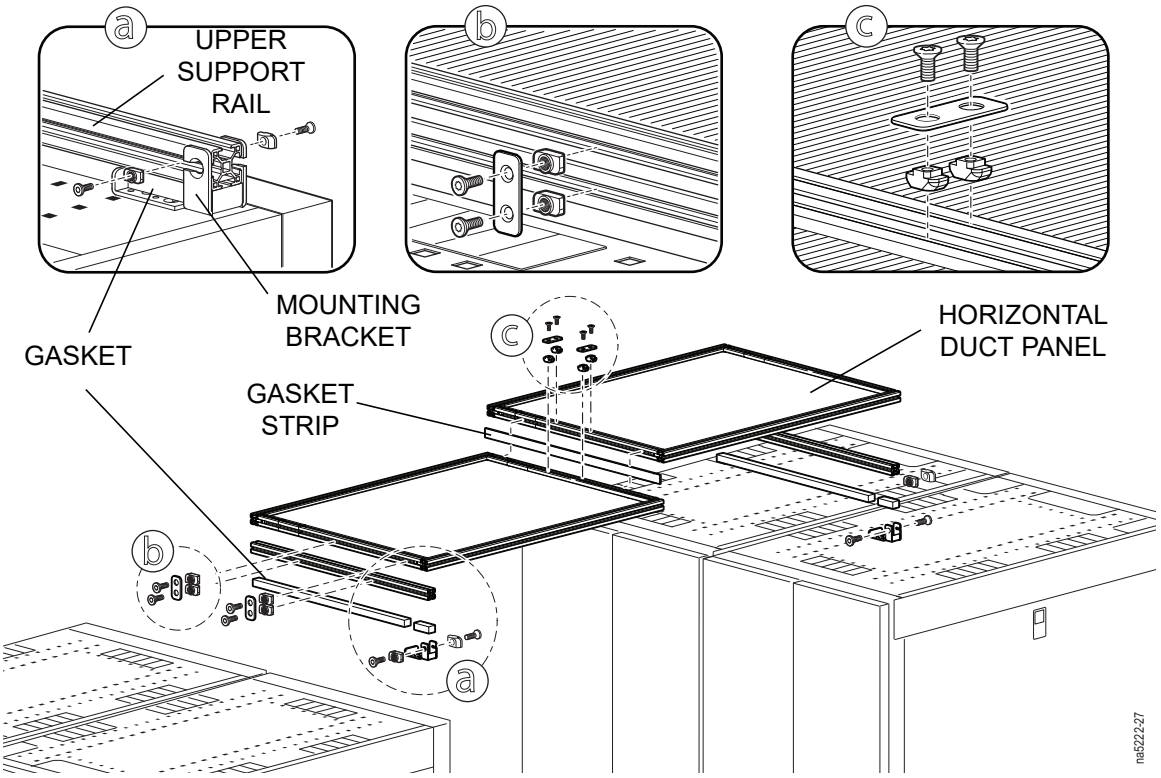
Length calculation: Overall rail length = length of row – 60 mm



Horizontal Duct Panel Installation

1. Identify the panels to be used for the horizontal panels (from ACDC2305 or ACDC2306). If necessary, adjust panel size to span the opening based on the aisle width.
2. Install mounting brackets on each side of the aisle. See “Support Bracket Installation” on page 40.
3. Install gasket material as shown on both the bracket and the enclosure. Cut two 771 mm sections of support rail from ACDC2300 or ACDC2301.
4. Install the support rails (a).
5. Install a gasket strip between the panels.
6. Attach the two horizontal panels together and then attach them to the upper support rails.





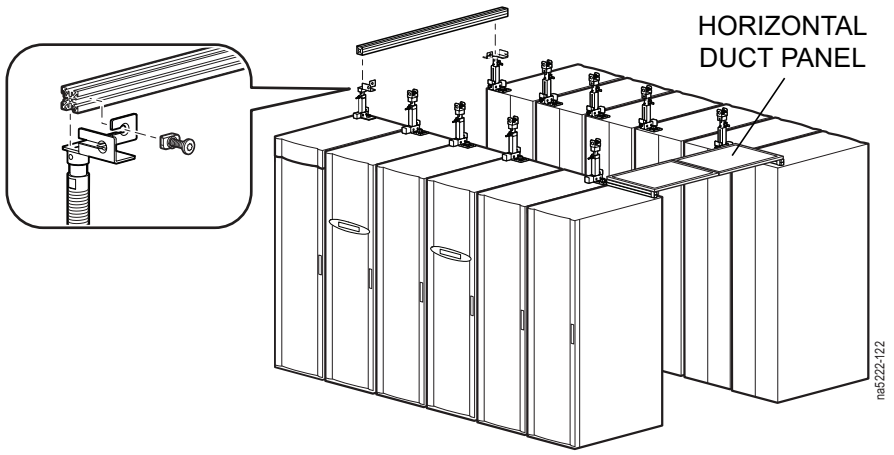
Duct System Installation

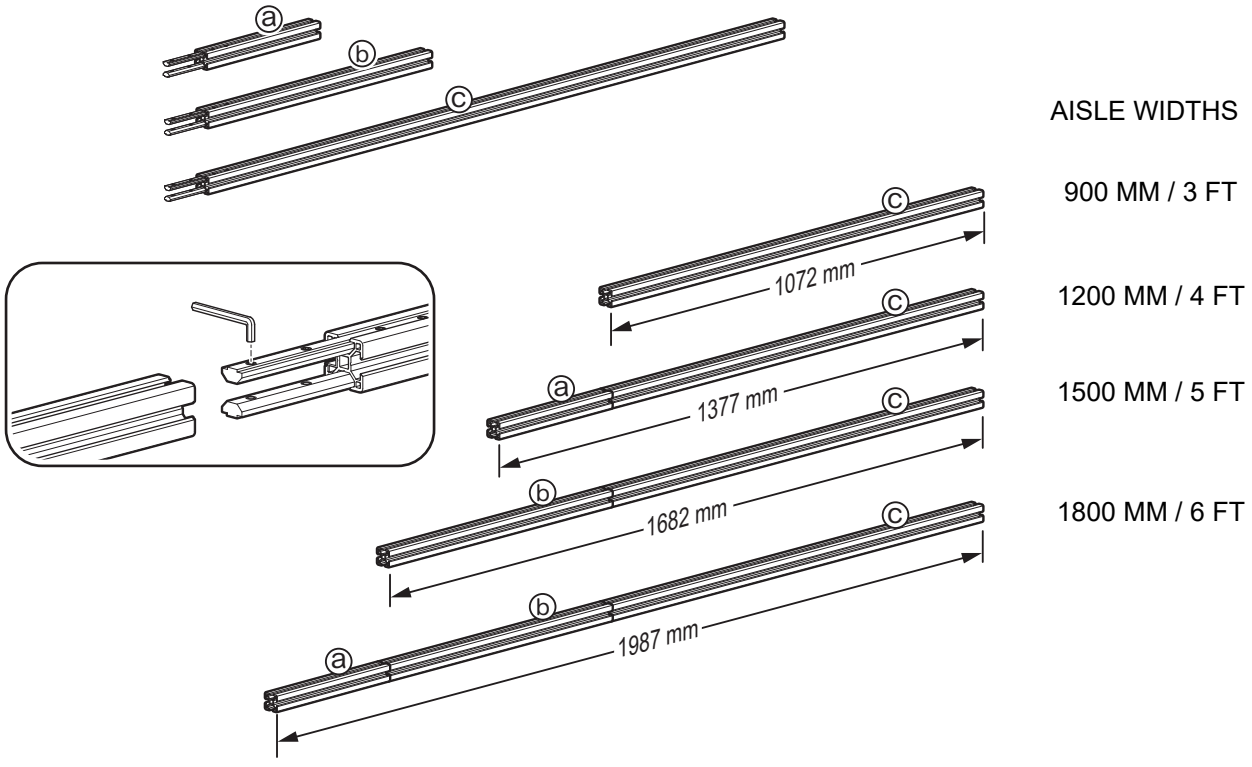
IMPORTANT: Install support brackets before proceeding with the remainder of this installation.

Refer to “Support Bracket Installation” on page 40 for instructions on how to install the support brackets.

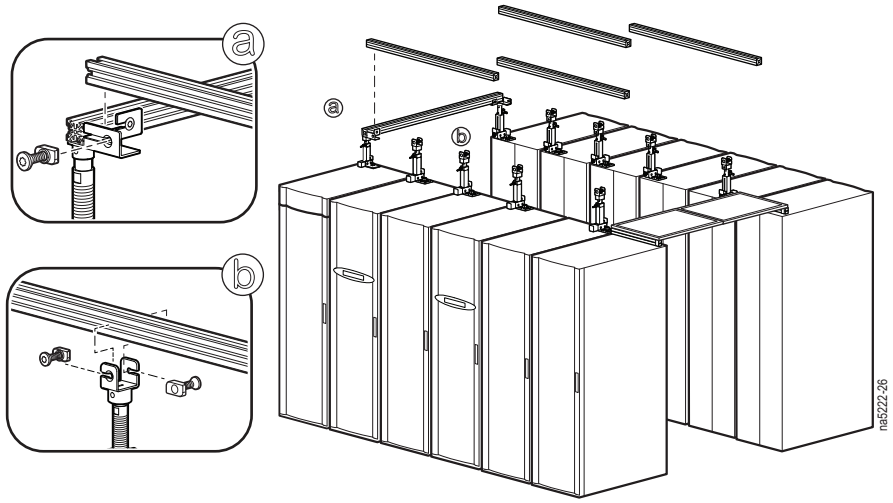
Rail supports

1. Install the cross aisle supports— ACDC2300, ACDC2301.
   NOTE: If horizontal panels have been installed start at the opposite end of the row.





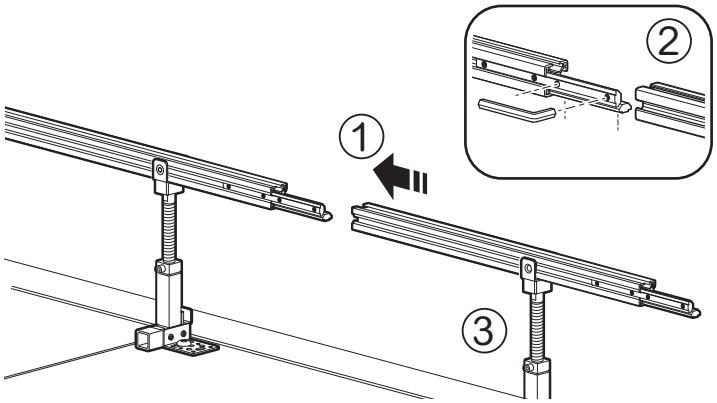
2. Attach the side support rails to the mounting brackets.



3. Continue to install the side support rails connecting them together as shown. Shorter side rail support pieces from additional kits may need to be installed to complete this step.

   Length calculation: Overall rail length = length of row – 60 mm

   NOTE: A gap may need to be left for wire routing for lighting.



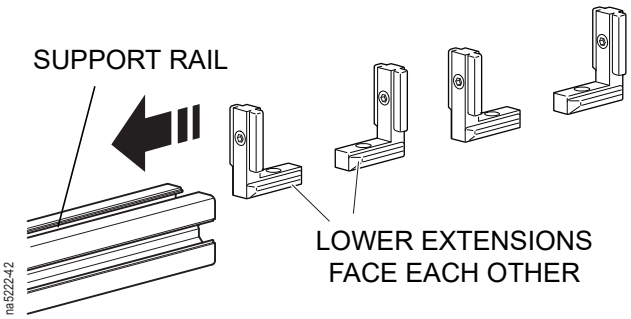
Duct panels and cross-bracing

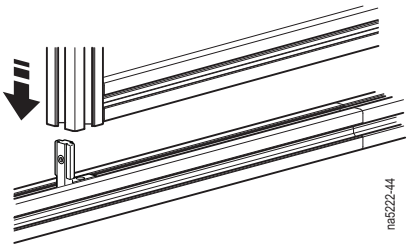
NOTE: It is important to install the duct panels in the proper order.

1. Insert the angle brackets, removed from the duct panels, into the end and side support rails. A set of two angle brackets are used per panel.
   NOTE: Position each set of angle brackets so the lower extensions face each other.
2. Following the order of installation shown in the illustration, start at one the end of the aisle and install the duct panels working towards the opposite end of the aisle.

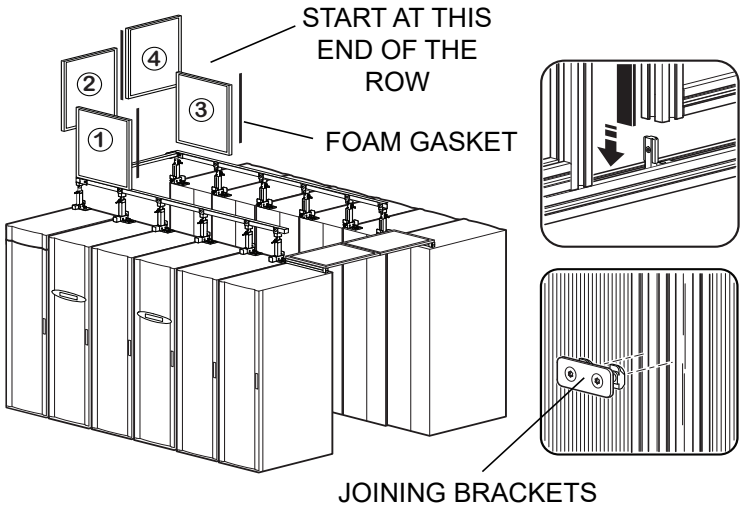
   NOTE: If cross-aisle horizontal panels have been installed start at the opposite end.

   a. Place the duct panels onto each set of angle brackets.
   b. Between each panel install the black foam gasket (provided with each panel).

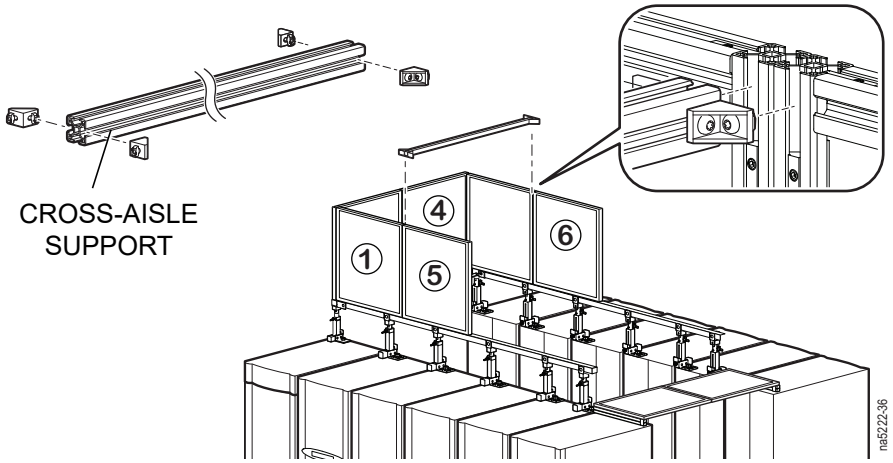




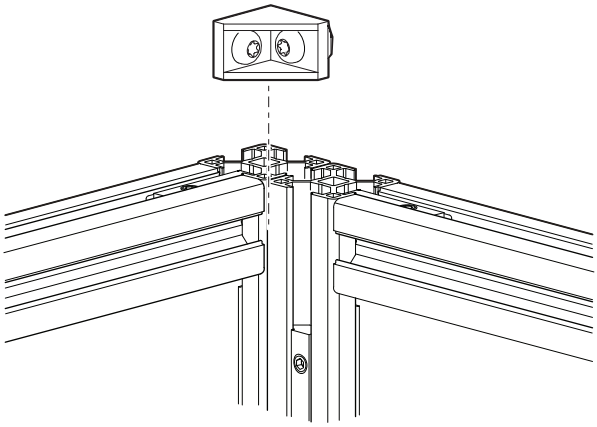
3. Connect each panel together using the supplied joining brackets.



4. As each pair of duct panels are installed, attach a cross-aisle support. Do this for each pair down the entire length of the row.



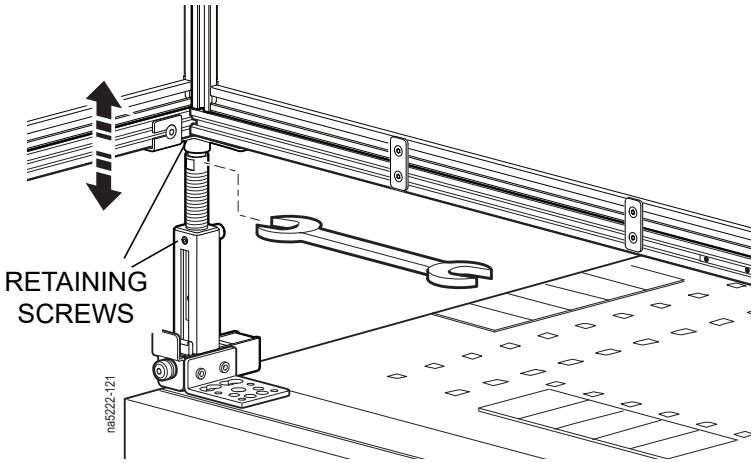
5. In certain configurations, you may not have access to the outer corner of the duct to install the outer joining brackets. Instead, install the provided corner brackets on the inner corner of the duct.



Adjust the height of the duct assembly

IMPORTANT: Before proceeding with these instructions, the final height adjustments must be made the duct assembly.

1. Loosen the retaining screws on the adjustable mounting brackets.
2. Using a 14 mm wrench adjust the height of the duct assembly positioning it at its desired height. Make sure the entire duct assembly is level and plumb.



3. Tighten all retaining screws.

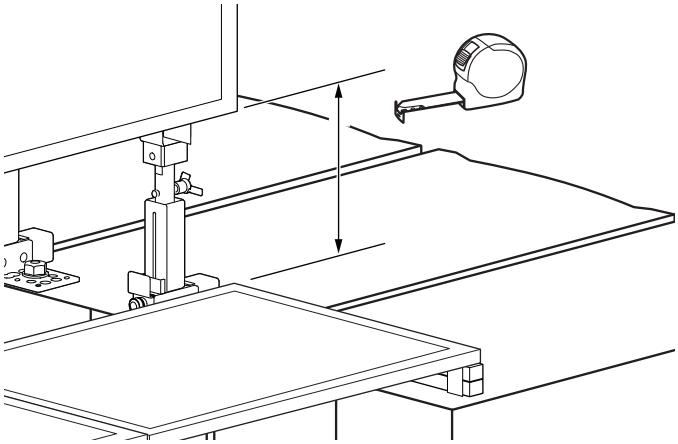
End-of-aisle air block panel—ACDC2303 and ACDC2304

IMPORTANT: Do not perform this step until you have completed the final adjustments to the duct assembly.

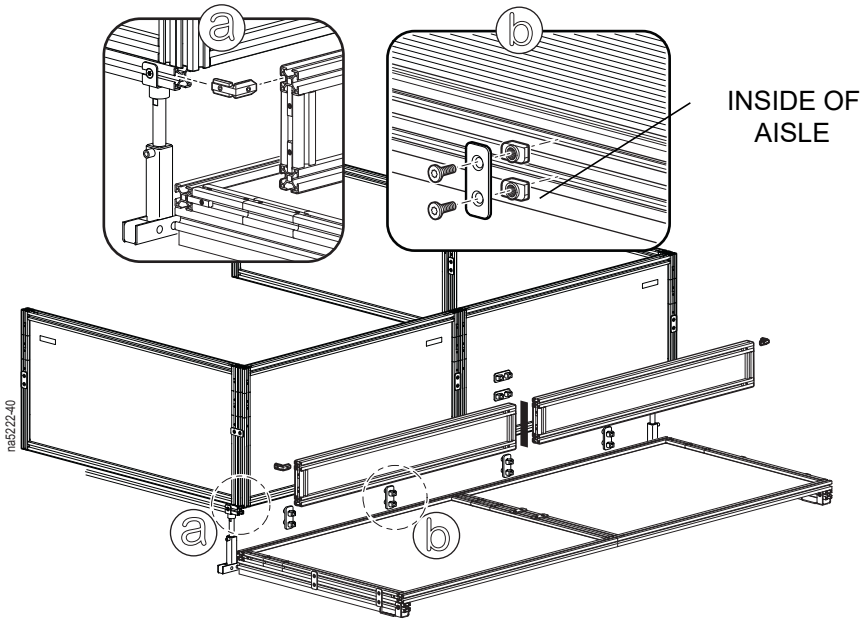
Standard aisle widths measurement calculations for air block panels:

Aisle Width	Duct Width	Cut ACDC2303/ACDC2304 to		Number of Panels
		Width	Height	
900 mm / 3 ft	1072 mm/ 42 in.	N/A	504 mm - gap	1
1200 mm / 4 ft	1377 mm / 54 in.	688.5 mm	504 mm - gap	2
1500 mm / 5 ft	1682 mm / 66 in.	841 mm	504 mm - gap	2
1800 mm / 6 ft	1987 mm / 78 in.	993.5 mm	504 mm - gap	2

1. Measure the distance between the bottom of the vertical duct panels and the top of the horizontal panel.

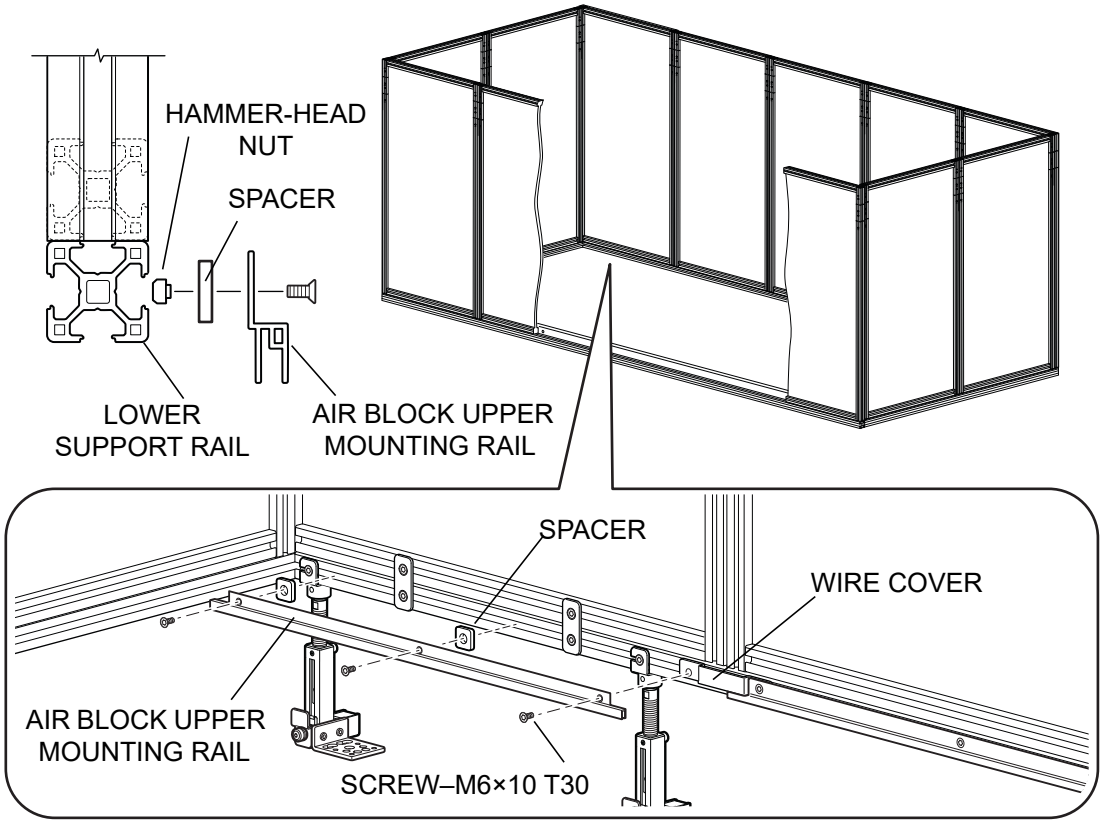


2. Adjust the size of the panels.
3. Insert duct corner brackets (a) into the air block panel and the duct panel mounting rail.
4. Attach the air block panels to the horizontal duct panels with joining brackets and channel nuts (b).



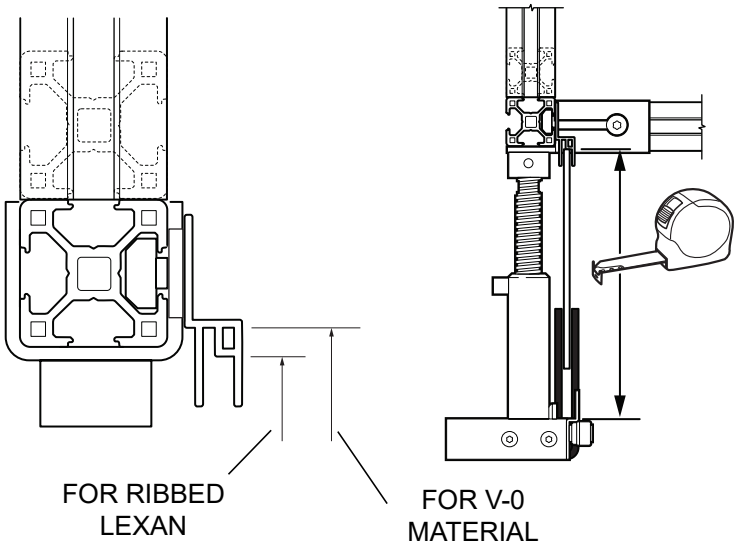
Side air block panels

1. Install the upper air block mounting rails and wire covers (if necessary) onto the lower support rails.

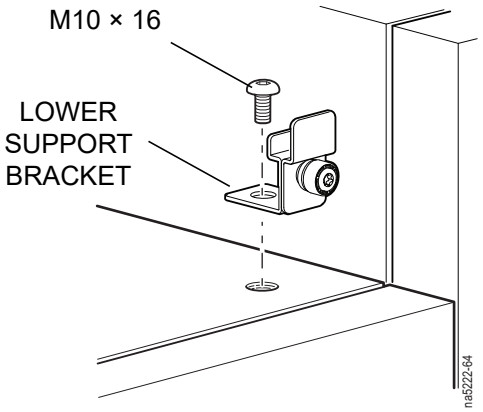


2. Measure the distance between the upper and lower air block mounting rails. Cut the air block to fit the opening.

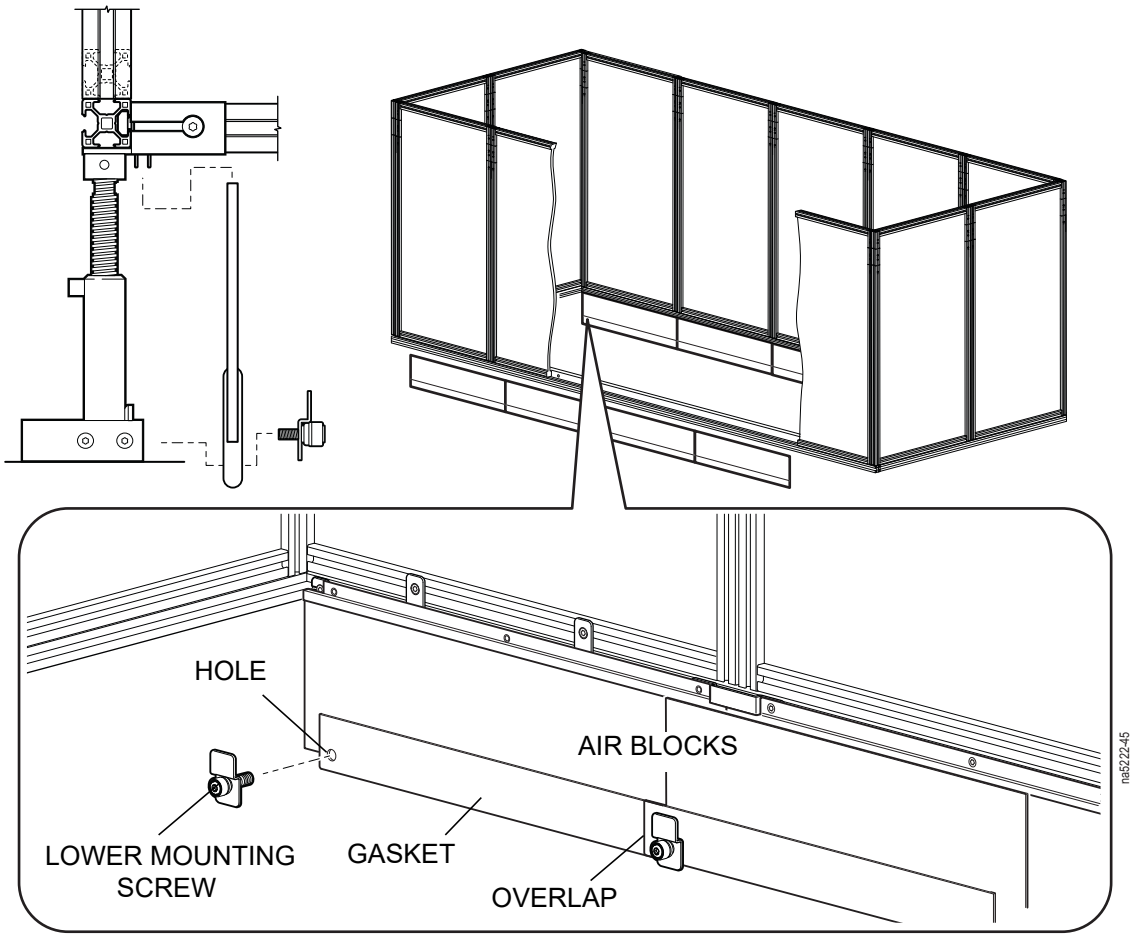
   IMPORTANT: Take into consideration the differences in channel sizes for the type of air block material used.



3. Install the lower support brackets (if applicable).
   NOTE: This bracket is used to help support the lower end of an air block where enclosures of two different heights meet. Reference ACDC2200–ACDC2203



4. Install the air blocks.
   NOTE: Create a hole in the gasket to allow the lower mounting screw to pass through.



5. Continue to install the side air blocks down the entire length of the row.
   NOTE: The gasket is offset to allow overlapping of the adjacent panel.

Ceiling Panel System

⚠ WARNING

SHARP EDGE HAZARD

• Be sure to read and follow the instructions that come with your power tools.

• Wear protective clothing and eye wear.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTICE

EQUIPMENT DAMAGE HAZARD

If a rack door is open when the dropout ceiling system activates, ceiling panels may be blocked by the rack door and not drop completely.

Failure to follow these instructions can result in equipment damage.

Order of Installation Overview

1. Install the mounting brackets.
   (Fixed or adjustable support brackets can be used with this system)
2. Install the ceiling panel mounting rails.
3. Connect the mounting rails together.
4. Insert the ceiling panels.
5. Install air blocks (adjustable mounting system only).

How to Cut Material

⚠ WARNING
SHARP EDGE HAZARD • Be sure to read and follow the instructions that come with your power tools. • Wear protective clothing and eye wear. **Failure to follow these instructions can result in death, serious injury, or equipment damage.**

Metal extrusions

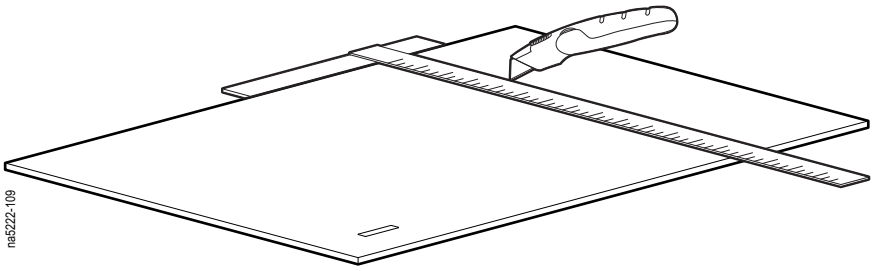
1. If necessary, disassemble components.
2. Measure and mark the material.
3. With a metal cutting blade, cut the material making a straight perpendicular cut.
4. Clean or de-burr the edges.

Clear panels

1. Measure and mark the material.
2. Cut the material using a straight edge and the appropriate cutting tool.

IMPORTANT:

- Do not remove the protective covering before cutting panels.
- Do not remove or cut off Schneider Electric or UL labels.
- Use a straight edge to help guide the cut.



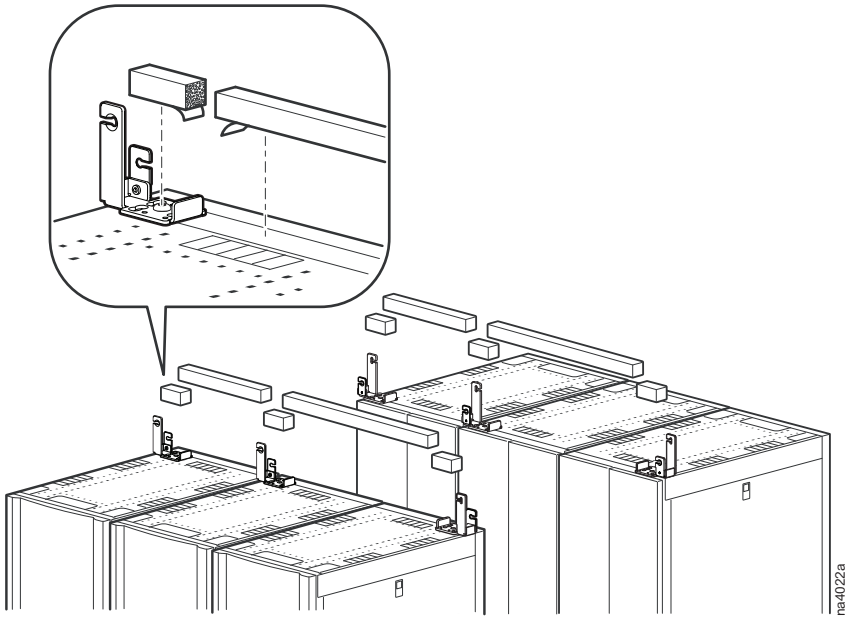
Installation

Install mounting brackets

Refer to “Support Bracket Installation” on page 40 for instructions on how to install the support brackets.

For non-adjustable mounting brackets only—install the gasket material inside the mounting brackets and along to the top of the enclosures.

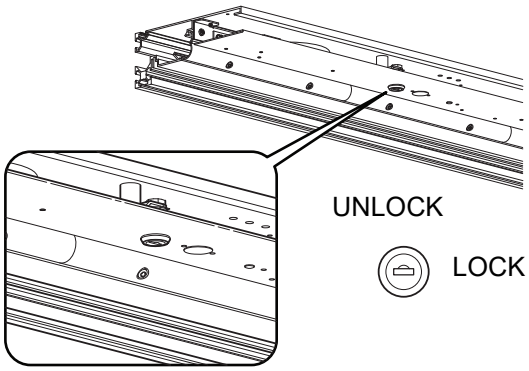
NOTE: When installing on top of some cooling equipment, a small gap will be required for the exit of the condensate line.



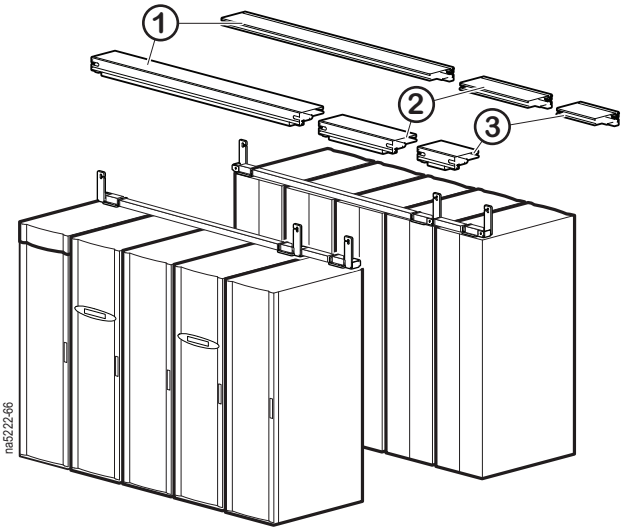
Install the ceiling panel mounting rails

When installing the mounting rails:

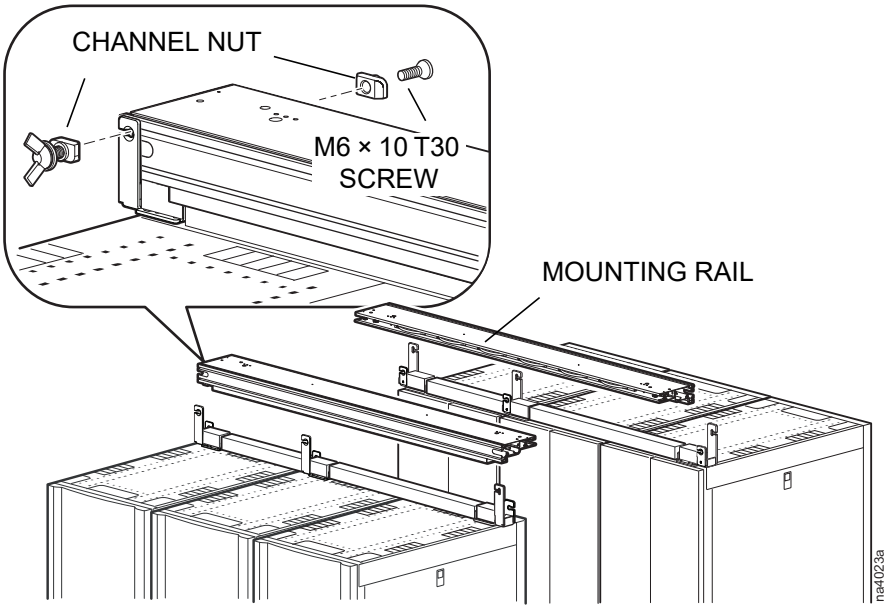
- Make sure the hinge flaps are in the locked position.
- Attach the rail sections together on the ground first, then lift into place.
  NOTE: To prevent damage or warping, do not exceed a length of 3600 mm for any pre-assembled section.
- When reaching the end of the aisle, there may be a gap. This gap will be covered using the end aisle cover. See the section called *End Aisle Cover—ACDC2003* later in this document.



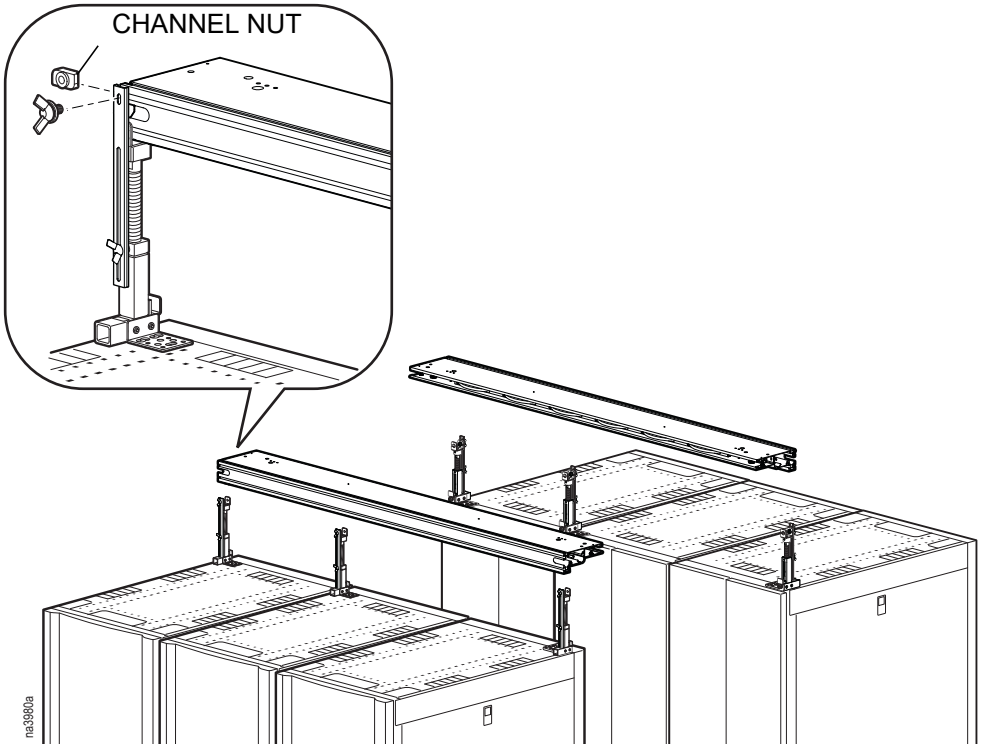
IMPORTANT: To prevent interference with the door assembly, ensure that the mounting rails do not extend beyond the end of the last enclosure of the row.



Fixed support bracket support installation

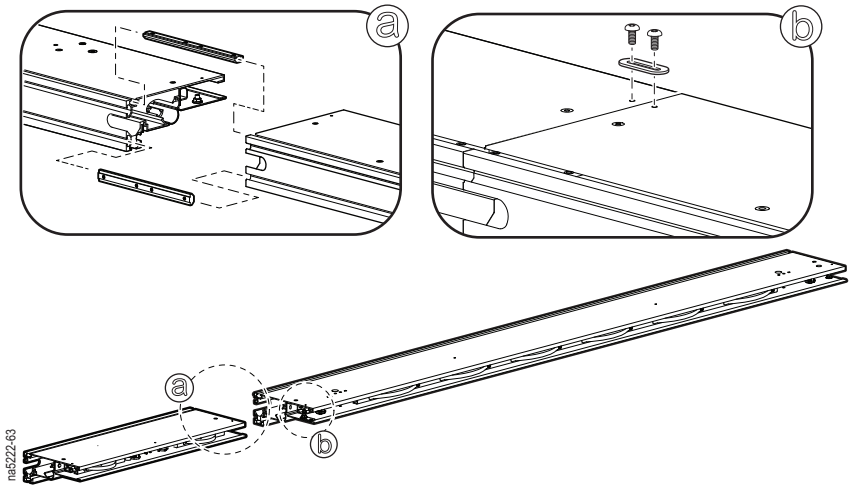


Adjustable mounting support installation

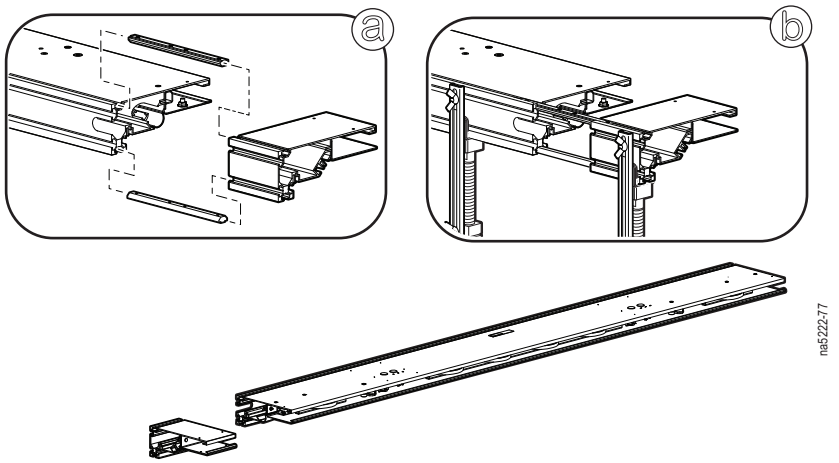


Connecting mounting rails together

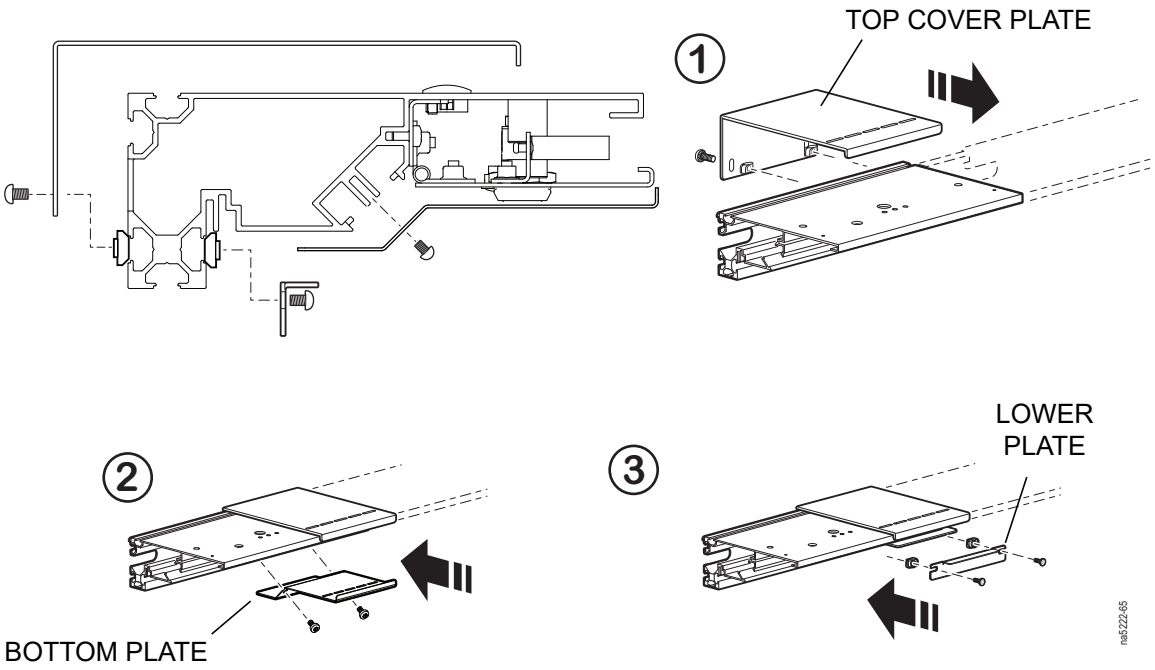
Main rail sections



End sections—ACDC2003



End aisle cover—ACDC2003.



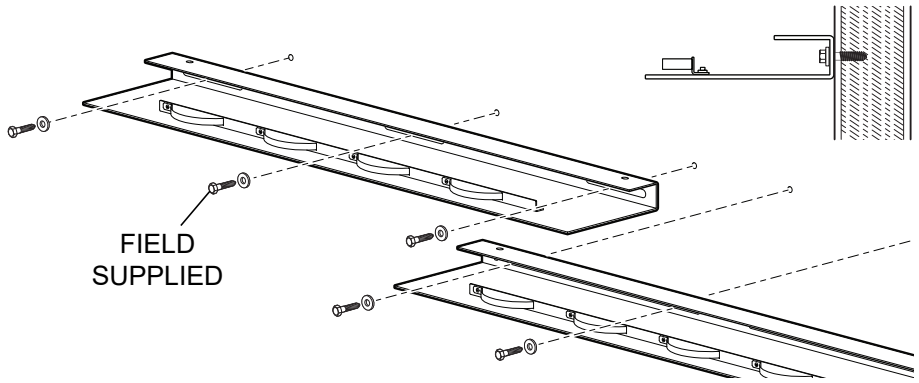
1. Attach the top cover by sliding into position covering the gap between the mounting rails.
2. Install the bottom plate.
3. Install the lower plate.

IMPORTANT: Before continuing the installation, check to ensure that the mounting rails are level both across the aisle and along the length of the row.

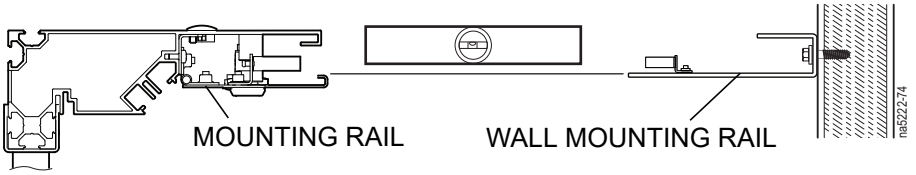
For a single row aisle —ACDC2004

Install the ceiling panel wall mounting rails, end-to-end, onto the wall opposite the ceiling panel mounting rail. Use the appropriate fasteners for the materials they are being installed on.

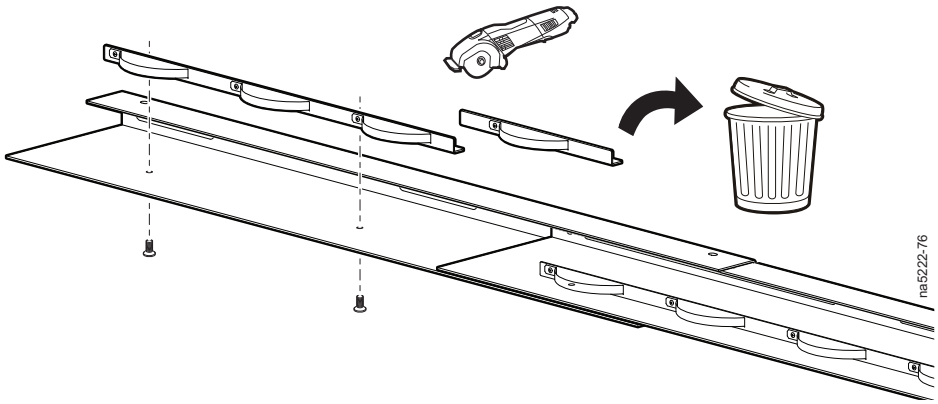
NOTE: Spacers may be needed between the mounting rails and the wall to accommodate uneven wall surfaces.



IMPORTANT: Ensure that the BOTTOM of the mounting rails are level both across the aisle and along the length of the row.

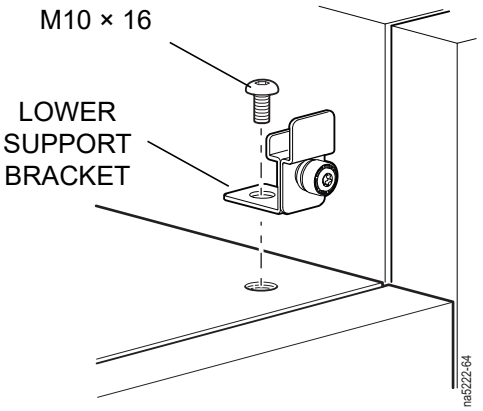


At the end of the row, overlap the mounting rails. If necessary reduce the length of one of the spring retainers.

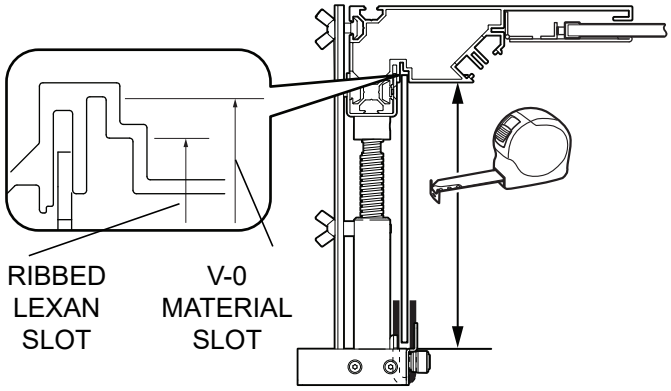


Install the air blocks—adjustable mounting brackets only

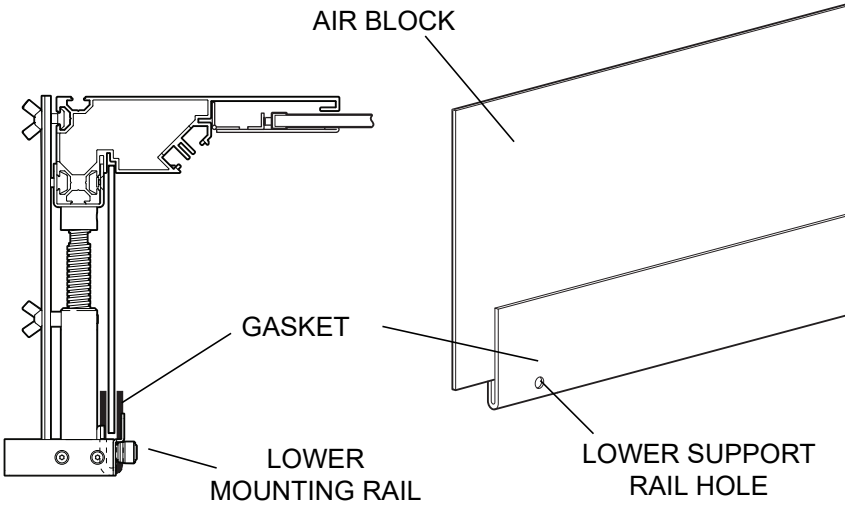
1. Install the lower support brackets (if applicable).
   NOTE: This bracket is used to help support the lower end of the air block where enclosures of two different heights meet. Reference ACDC2200–ACDC2203.



2. Measure the distance between the underside of the mounting rail and the top of the enclosure.
3. Cut the air block to fit the opening.
   IMPORTANT: Take into consideration the differences in channel size for the type of material used for the air blocks.

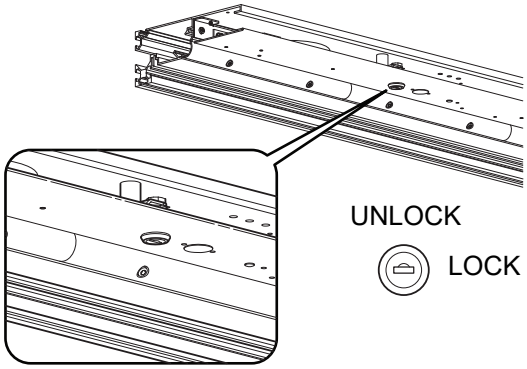


4. Install the air blocks. Create a hole in the gasket to allow the lower mounting screw to pass through.
5. Continue to install the side air blocks down the entire length of the row.
   NOTE: The gasket is offset to allow overlapping of the adjacent panel.



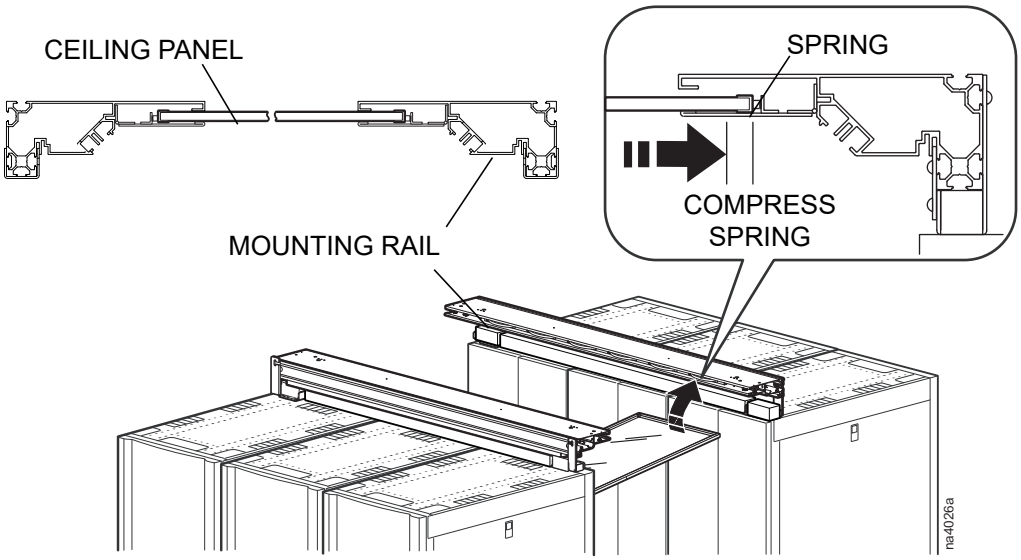
Install the ceiling panels

IMPORTANT: Ensure that the hinge flaps are locked in place before installing the ceiling panels.

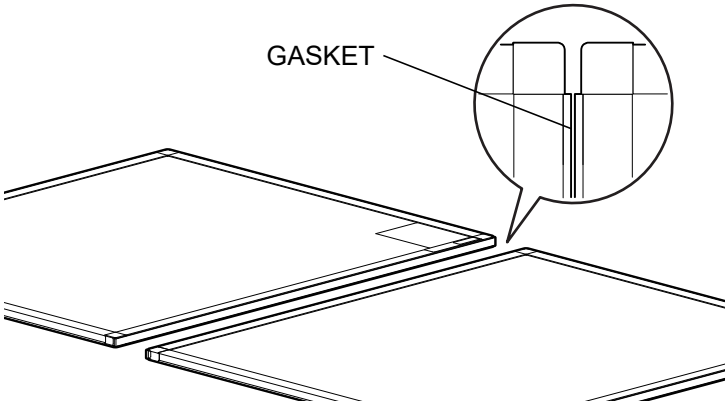


Install the ceiling panels:

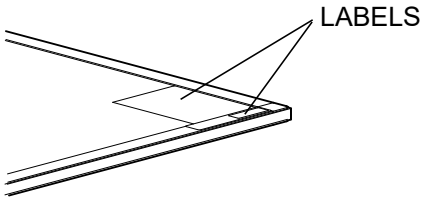
1. Remove the protective plastic.
2. Slide one edge into one of the mounting rails.
3. Push the panel in and compress the springs allowing room to insert the opposite end of the panel in the mounting rail on the opposite row.
4. Release the panel. The spring retainers will automatically center the panels within the aisle.
5. The size of the last panel may need to be modified to fit.



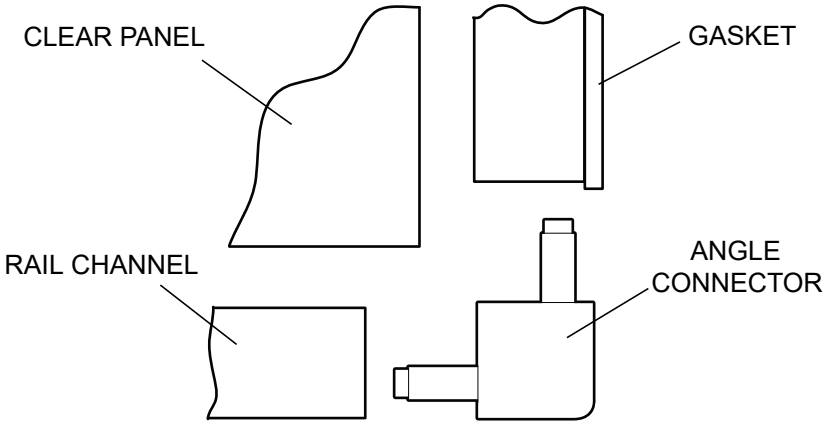
IMPORTANT: Position the gasket material so that it is between two adjacent panels.



NOTE: Do not remove labels.



CEILING PANEL CORNER DETAIL



Door Assembly

Installation

Safety

⚠ WARNING
HEAVY EQUIPMENT HAZARD Use at least two people when handling and installing this equipment. **Failure to follow these instructions can result in death, serious injury, or equipment damage.**

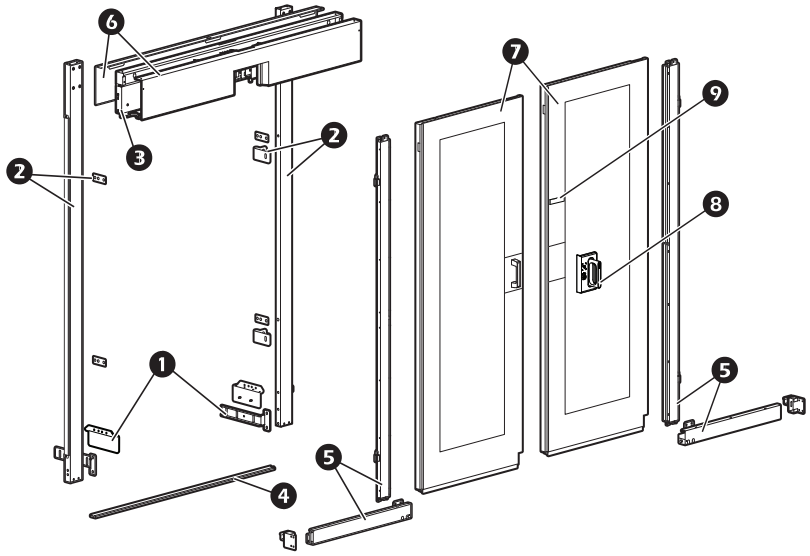
Before you begin

If necessary remove the doors of the enclosures located at the end of a row.

Refer to the *User Manual* that comes with the enclosures for more information.

Installation overview

1. Door post brackets
2. Door posts
3. Door header
4. Threshold
5. Hinge posts and guide rails
6. Door header covers
7. Doors
8. Handle and lock assembly
9. Apply warning labels



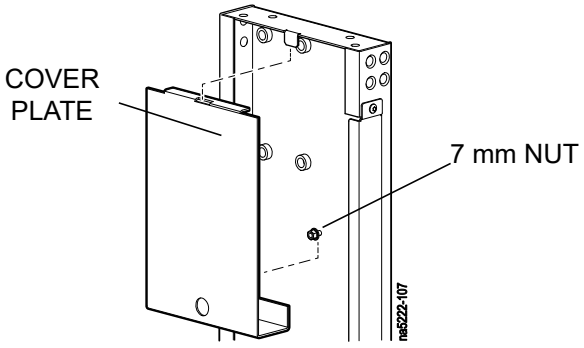
Door posts

Determine the required door post height. Install post extensions where necessary.

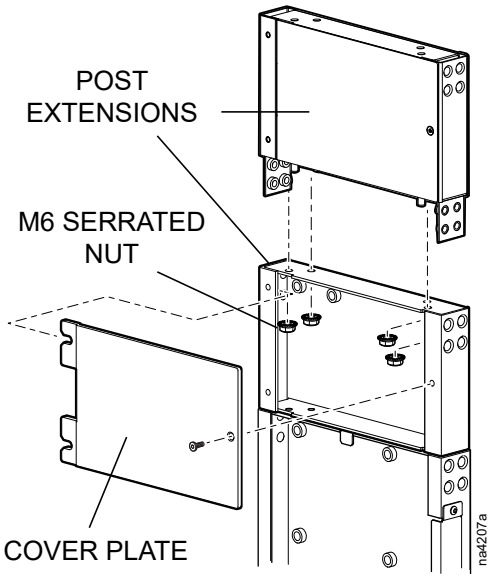
– 42 U SX, no extensions
– 42 U VX/45 U SX, one extension
– 48 U SX, two extensions

To install door posts:

1. On the door posts, loosen but do not remove, the 7 mm nut. Remove the cover plate.

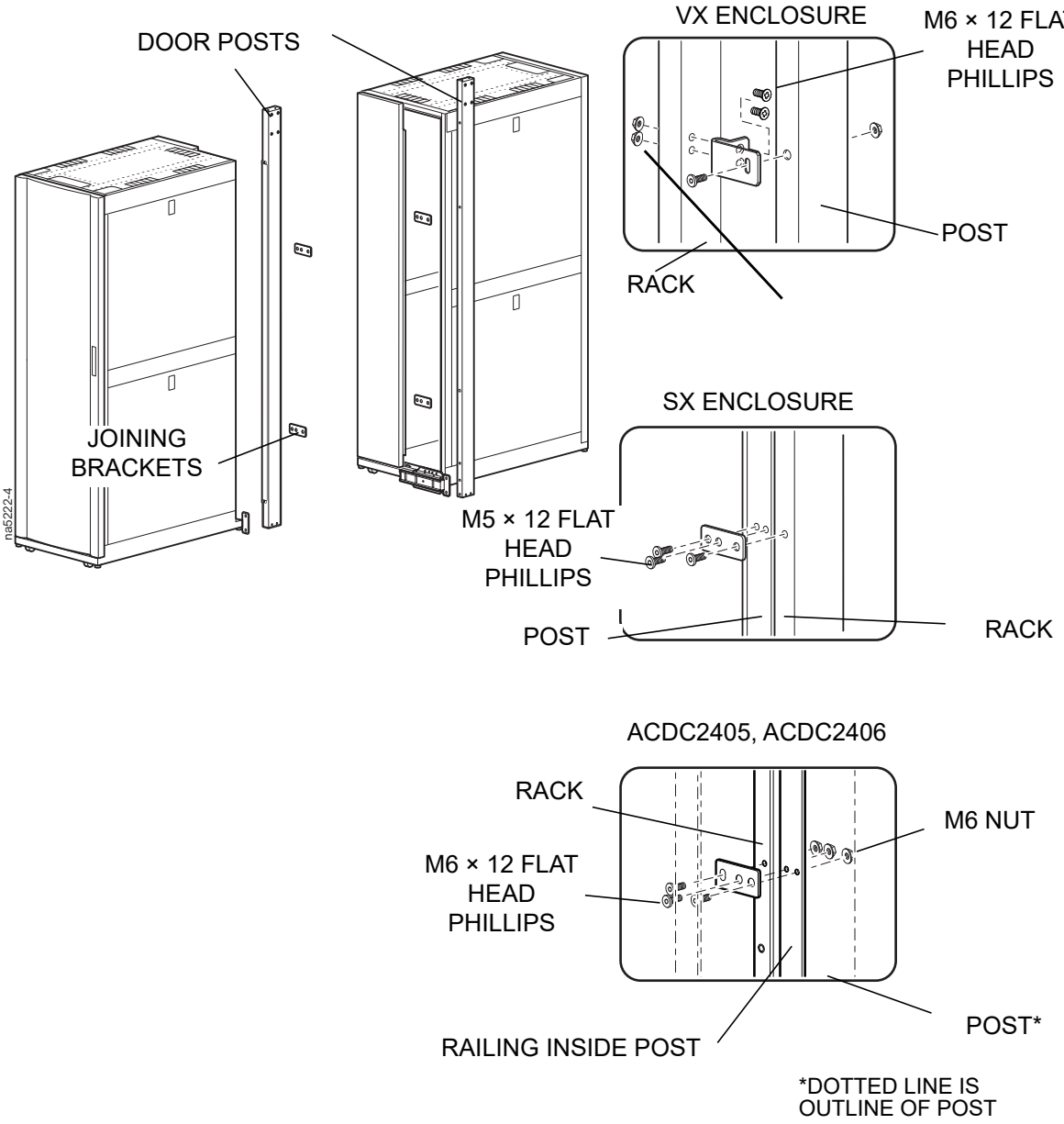


2. Install the necessary number of height extensions.
   NOTE: Install the same number of extensions on each side of the aisle.



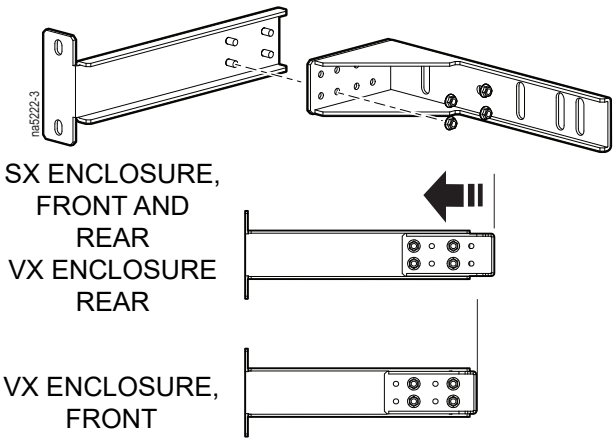
3. Reinstall all cover plates.
4. Install the joining brackets to the door posts.
   NOTE: For SX enclosures, remove any the existing joining bracket from the enclosure.

5. Attach the door posts to the enclosures using the joining brackets.
   NOTE: The holes in the top of the door posts should be positioned facing away from the aisle.

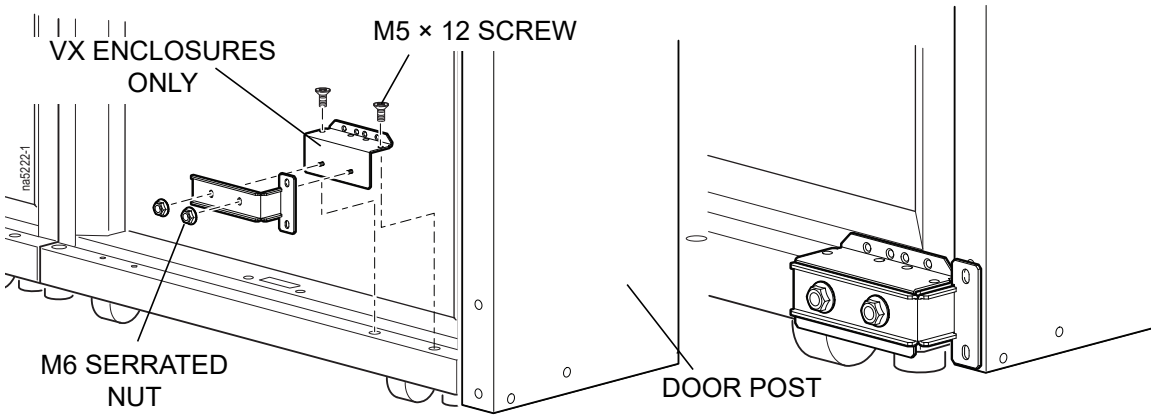


Lower door post brackets

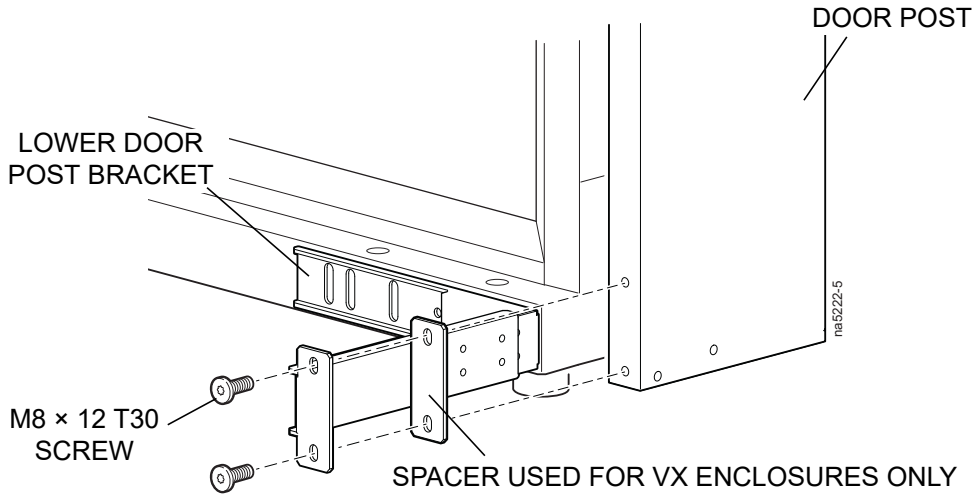
The adjustable lower door post brackets located in kits ACDC2405 and ACDC2406 are preset at the factory to fit the front and rear of an SX enclosure. When attaching to a VX enclosure, an adjustment must be made.



ACDC2404

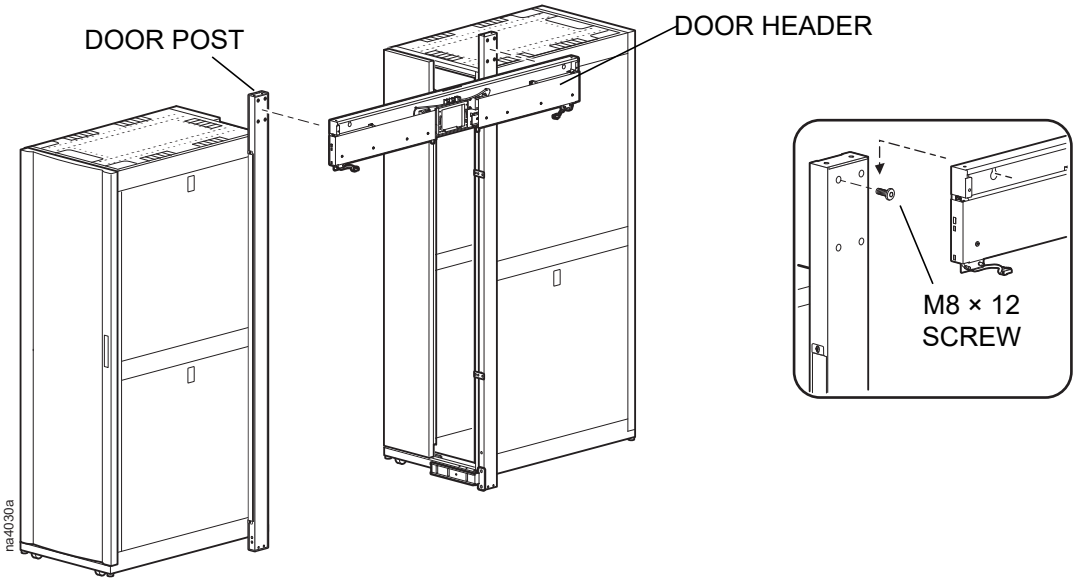


ACDC2405
ACDC2406

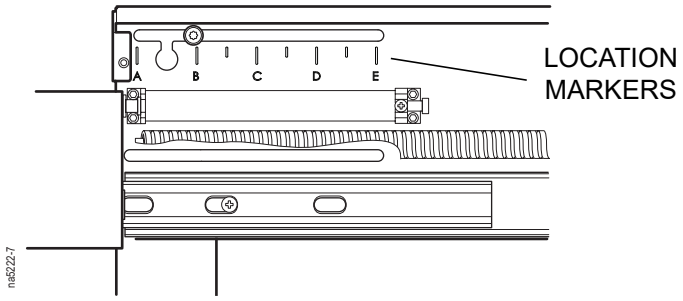


Door header

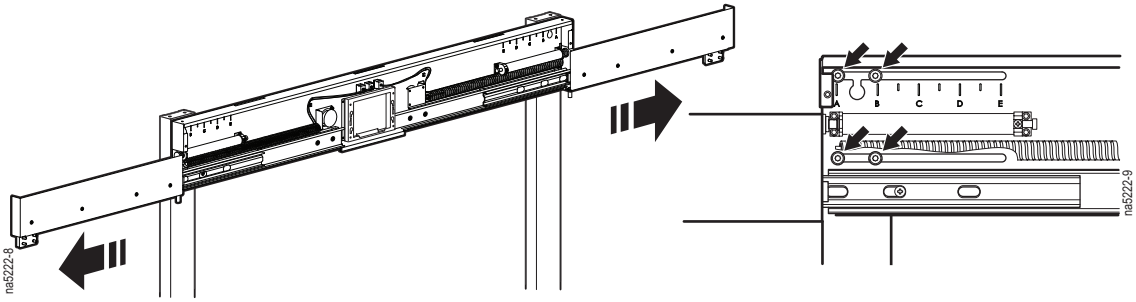
1. Install one M8 × 12 T30 screw into one of the door posts.
   NOTE: Do not tighten at this time.
2. Hang one side of the door header on the screw installed in step one. Using this screw as a support, attach the other end of the header to the door post on the opposite side of the aisle using an M8 × 12 T30 screw.
   NOTE: Do not tighten at this time.



3. Using the location markers located near the mounting holes as a guide, center the door header in the door opening.



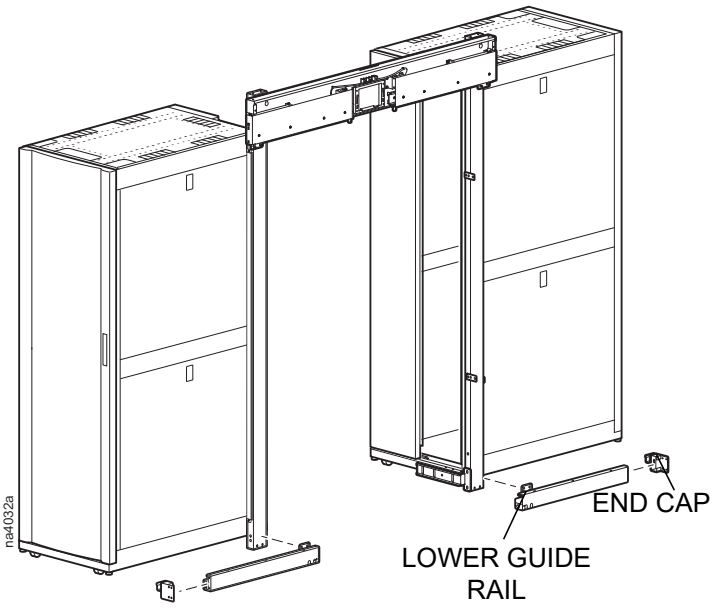
4. Slide the upper guide rails outward to access the remaining mounting holes. Install the M8 × 12 T30 screws, eight total.



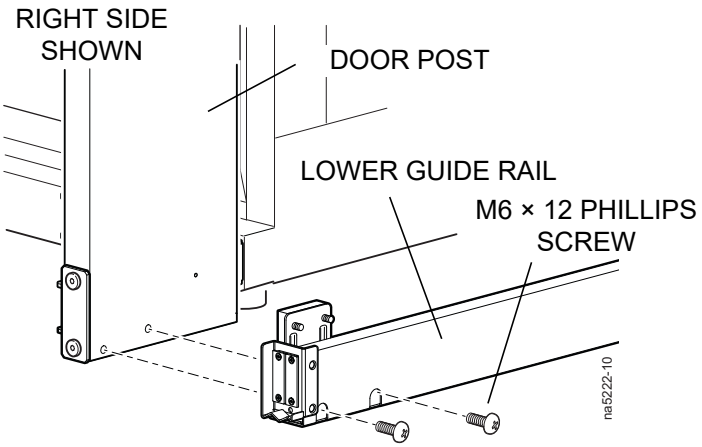
5. Tighten all M8 × 12 T30 screws.

Lower guide rails

Using M6 × 12 screws (ACDC2400), attach the lower guide rails to the bottom of the door posts. Install the lower guide rail end caps to the ends of the lower guide rails and under the enclosure of each side of the row.

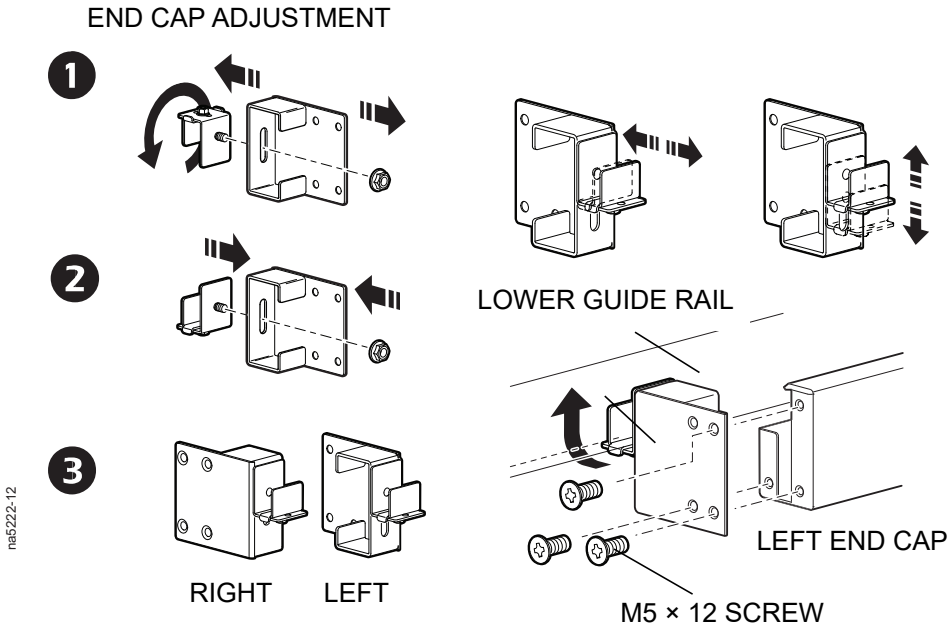


Attach the left and right lower guide rails to the door posts.

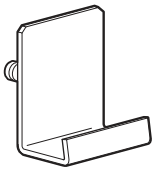


End caps—SX

NOTE: The end caps are of a universal design. To be installed properly, adjustments must be made.



1. Loosen the nut on both end caps.
2. Rotate the rack clip to the proper position and slip it under the side rail of the rack.
3. Attach the end cap to the lower guide rail with three M5 × 12 screws.
4. Ensure the lower guide rail is level.
5. Adjust the rack clip up or down to level and tighten the nut.

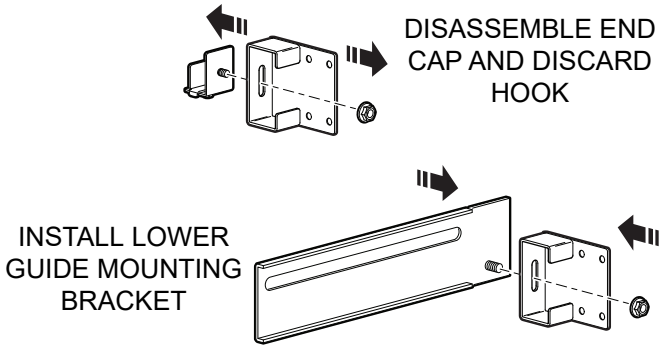


NOTE: When installing the door assembly to a 600 mm cooling product, replace the rack clip with the provided lower guide rail mounting brackets for 600 mm cooling.

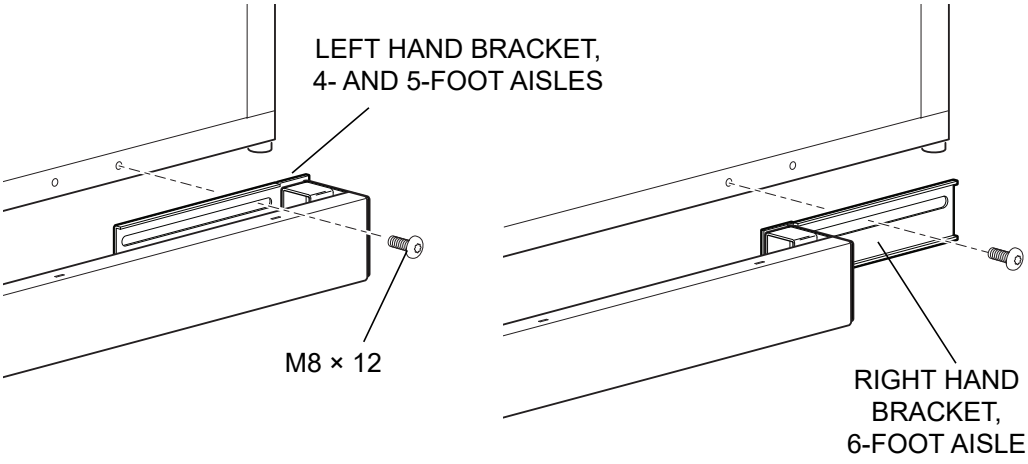
End caps—VX

When installing the door assembly to a VX enclosure:

1. Remove the rack clip from the end cap and replace with the lower guide rail mounting bracket for VX enclosures.
2. Attach the end cap and lower guide mounting rail assembly to the lower guide rail and the VX enclosure. Use the appropriate left or right side bracket, depending on aisle width. See example below.

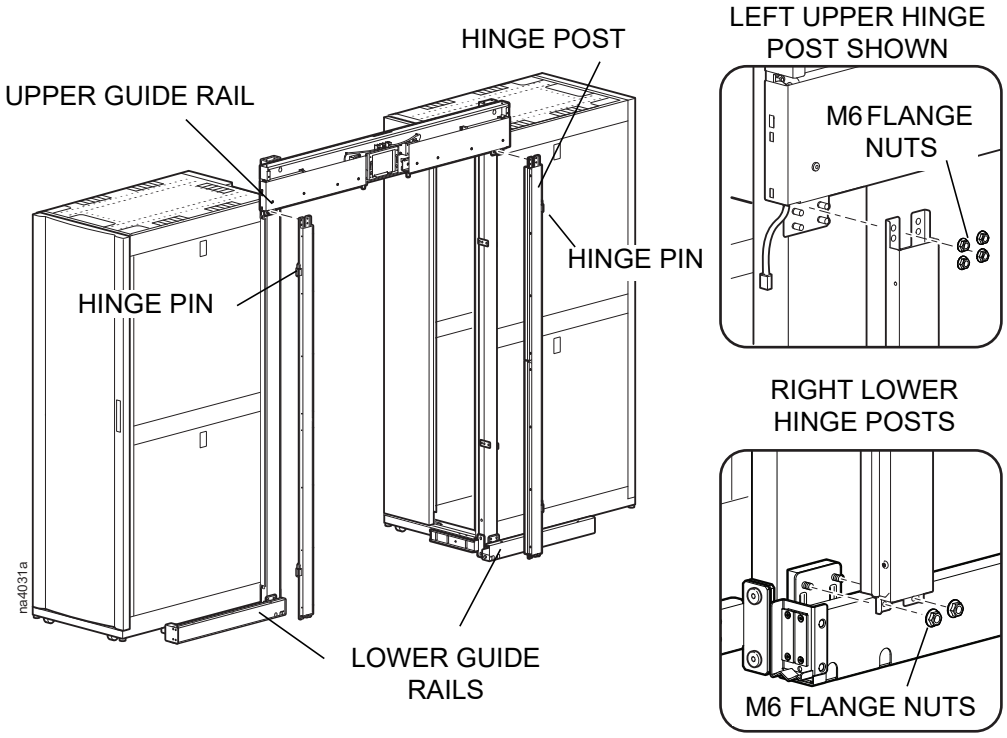


Install the VX end caps to lower guide rail and enclosure.



Hinge posts

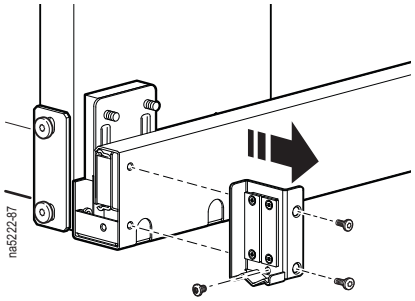
1. Attach the left and right hinge posts to the upper and lower guide rail assemblies. For each hinge post, install four M6 flange nuts for the top and two at the bottom.
   NOTE: Do not tighten at this time.
   IMPORTANT: Be sure to position the hinge pins so that they face towards the outside of the door frame.



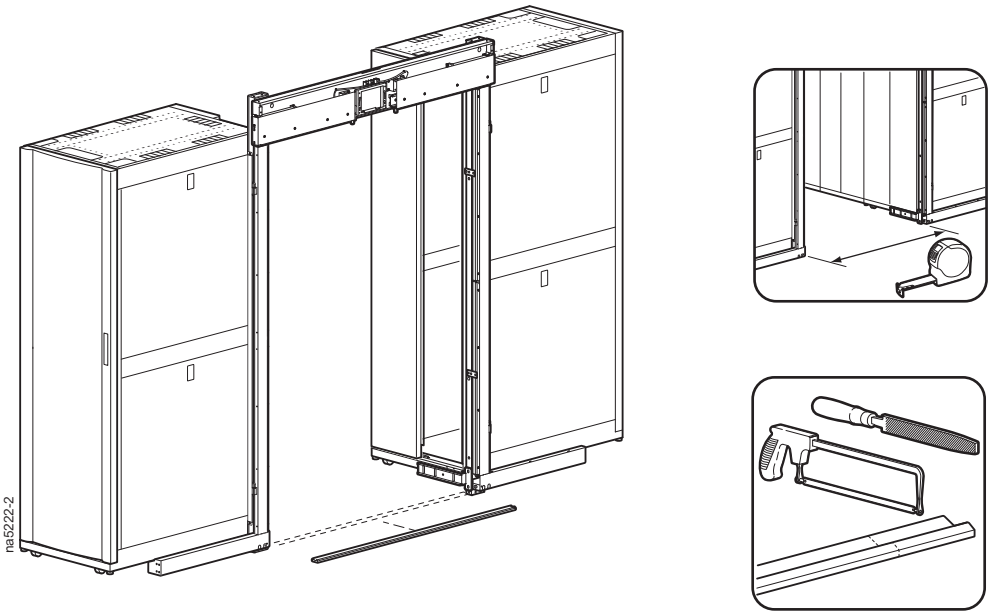
2. Tighten all of the fasteners.

Threshold

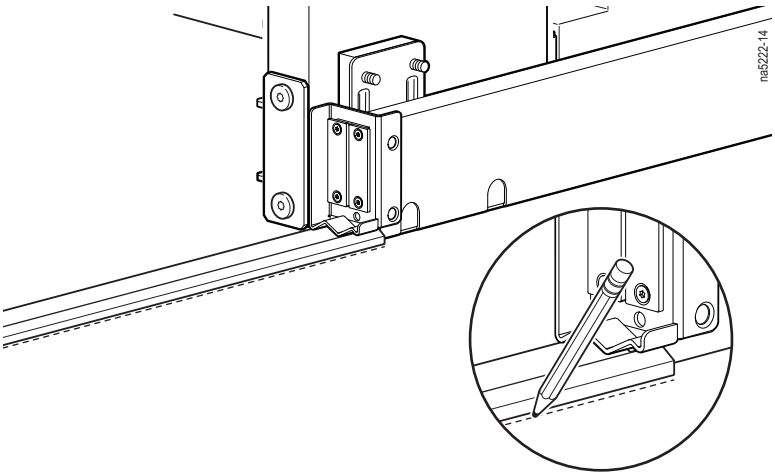
1. Remove the door stops on each lower guide rail.



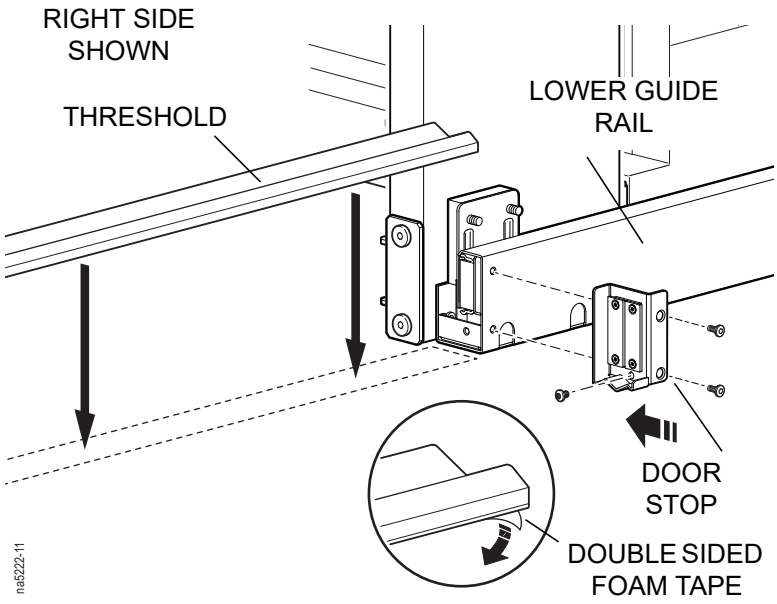
2. Measure the distance between the door post guides. Using a hacksaw or similar, cut the threshold to length and remove rough edges with a metal file.



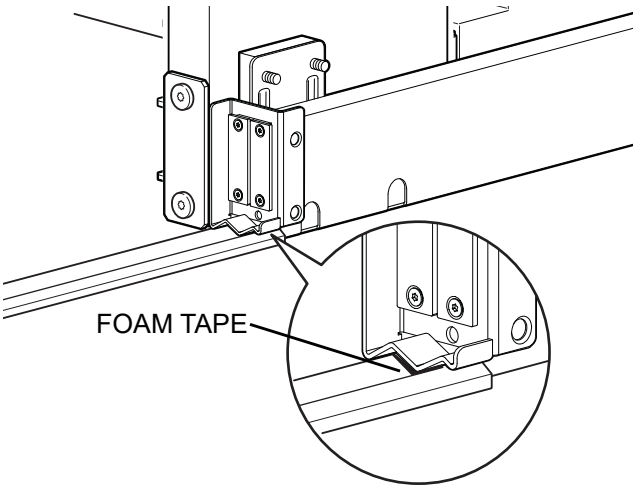
3. Using a mild cleaning agent, remove any dirt or residue that may prevent the threshold from sticking to the floor.
4. Use the door stops as a temporary placement guide. Place the threshold on the floor between the lower guide rails and mark its position.
5. Remove the double-stick foam tape on the bottom of the threshold and attach to the floor.



6. Reinstall the door stop.



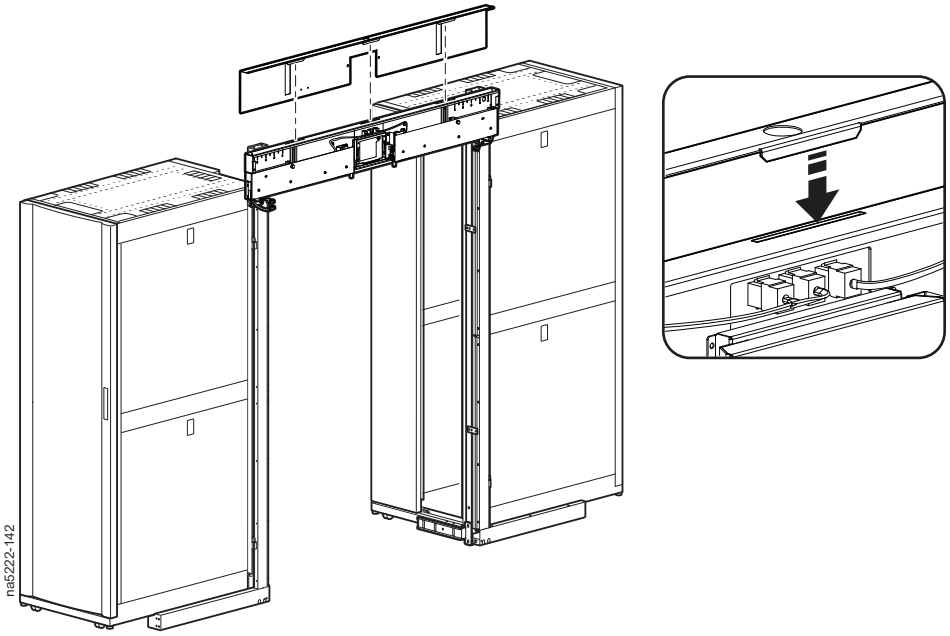
NOTE: Foam tape has been provided in kit ACDC2400 to fill any gaps that may exist between the door stop and the threshold.



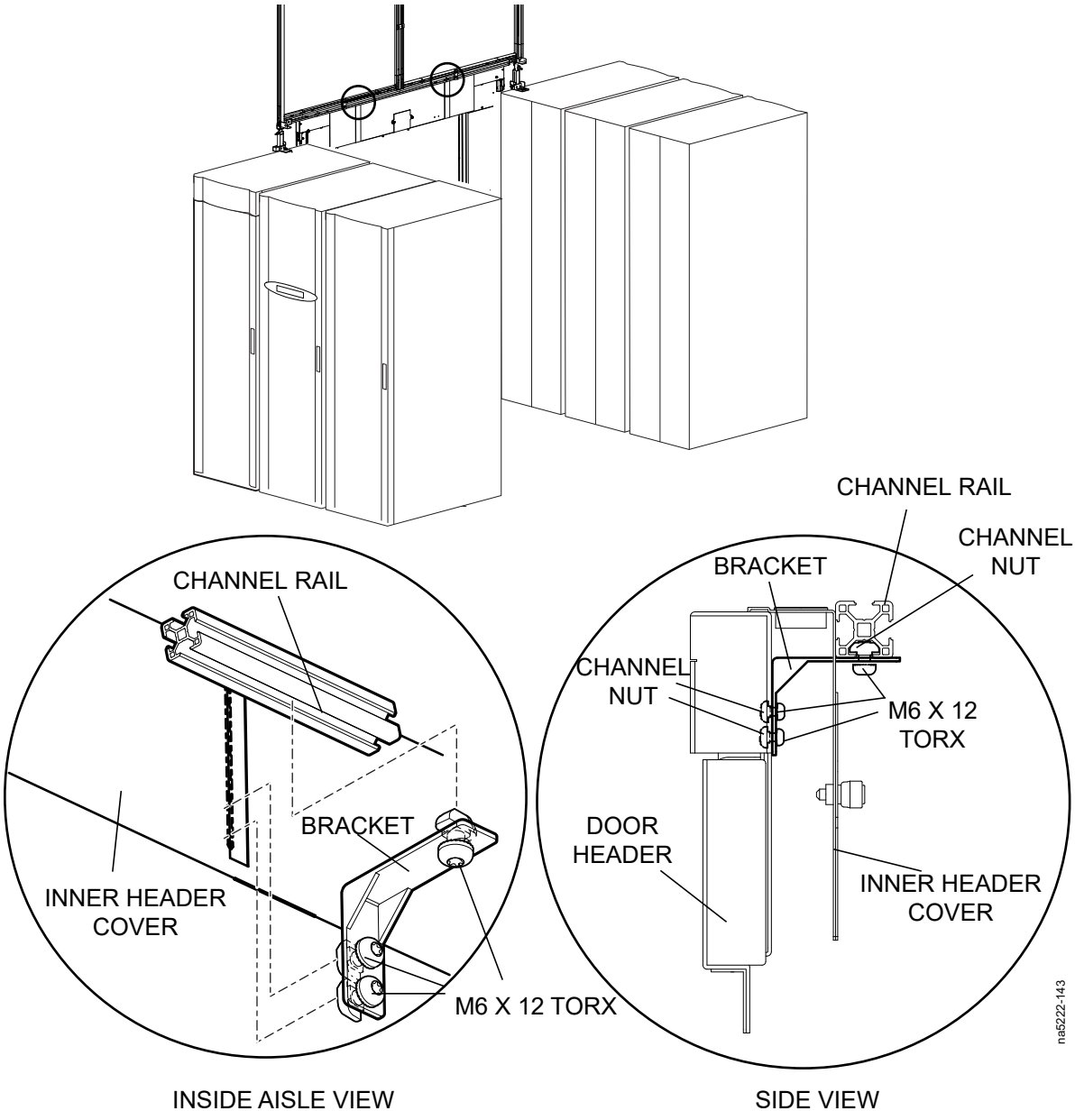
Securing door header to railing

Ducting system with vertical panels at end of row

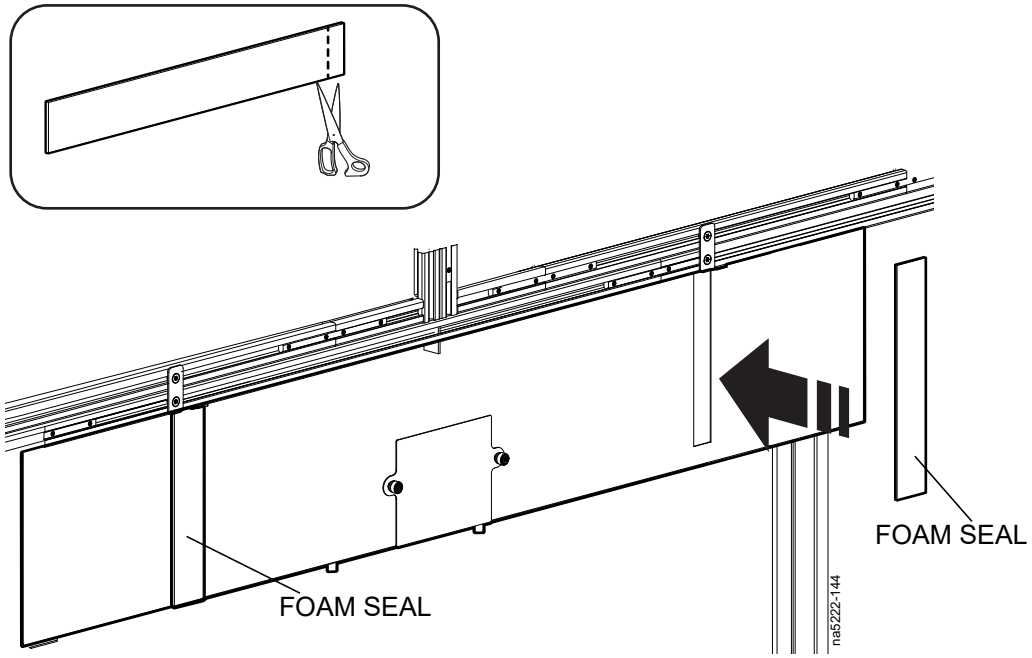
1. Attach the inner header cover.



2. Secure the header to the railing with the appropriate brackets using the six M6 x 12 TORX screws and M6 channel nuts.
   NOTE: Some components not shown for easier viewing.

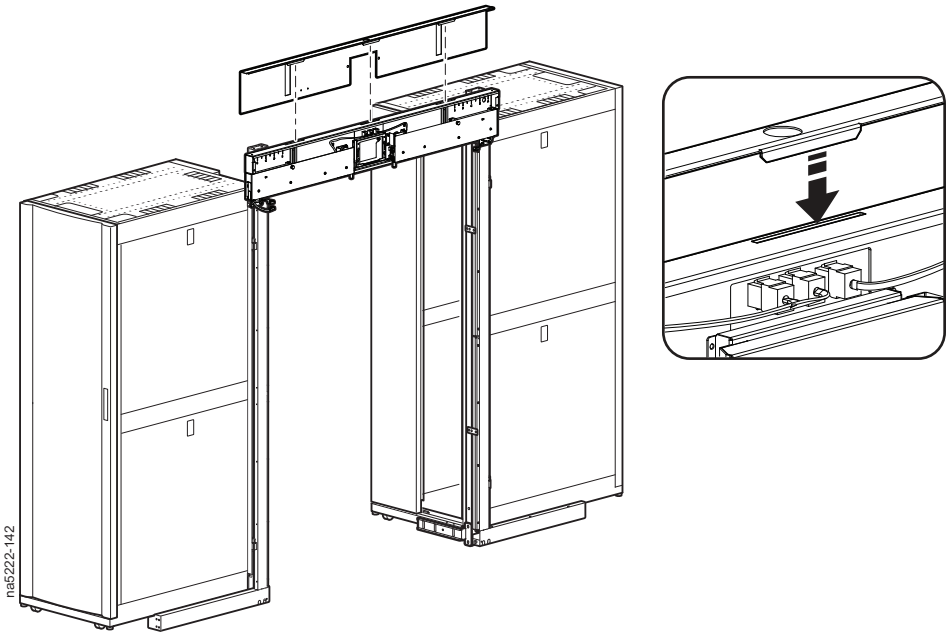


3. Cut the foam seal to fit and cover the openings.

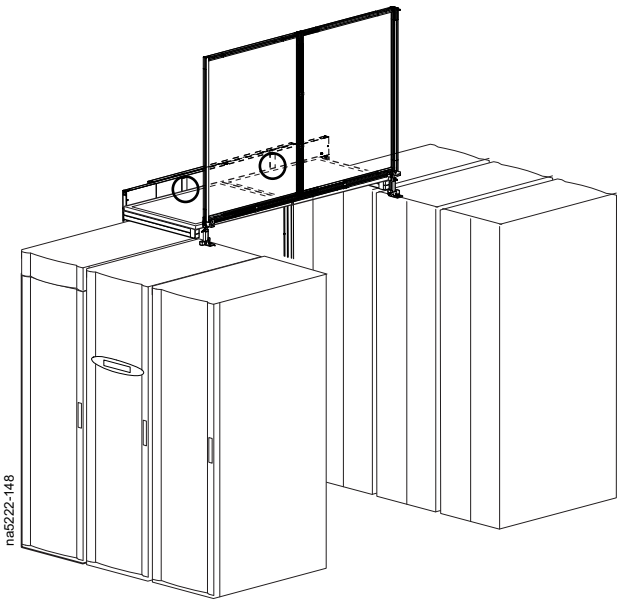


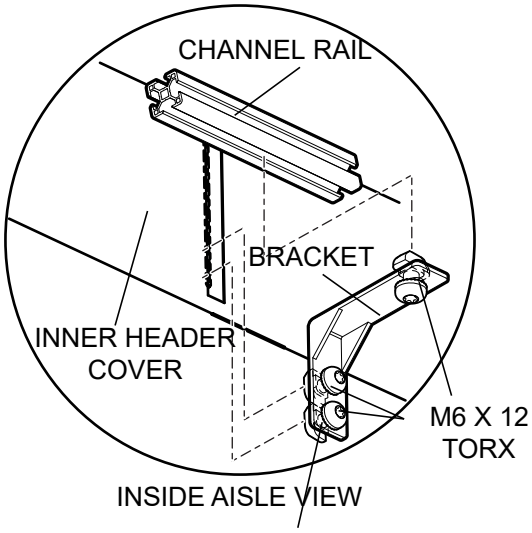
Ducting system with horizontal panels at end of row

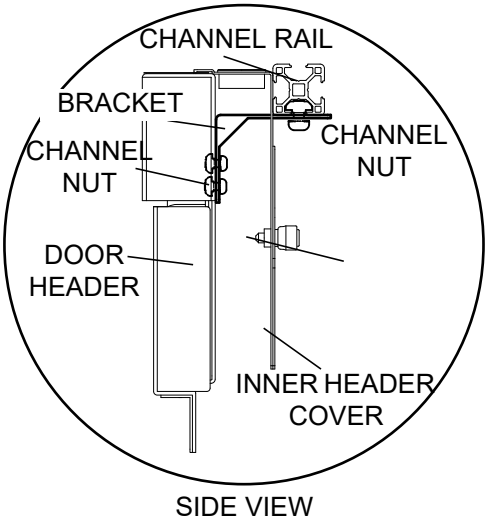
1. Attach the inner header cover.



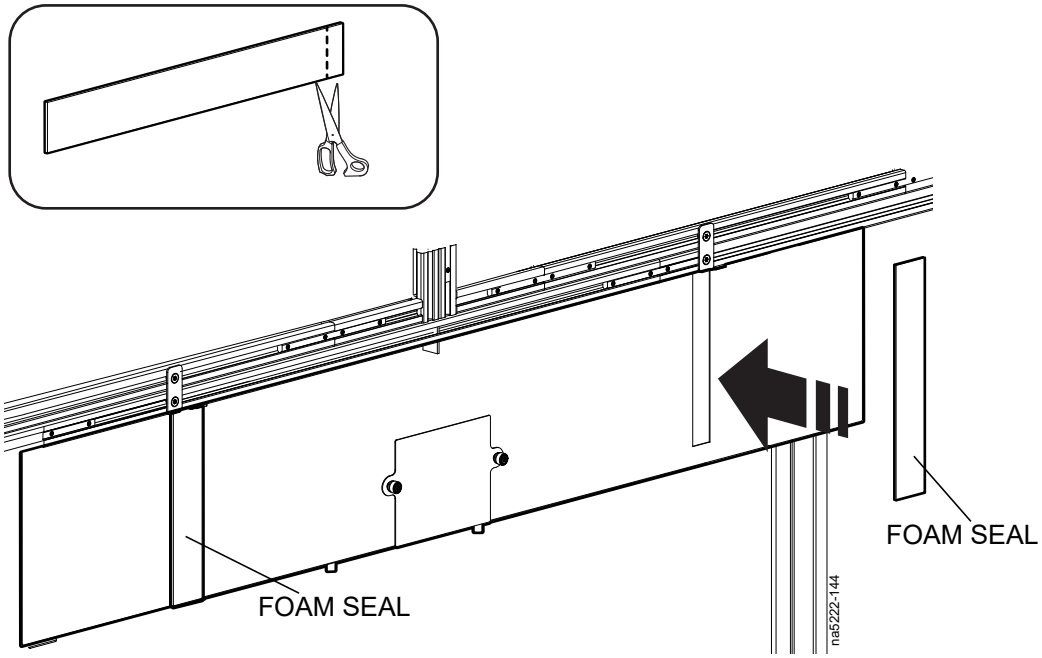
2. Secure the header to the railing with the appropriate brackets using the six M6 x 12 TORX screws and M6 channel nuts.
   NOTE: Some components not shown for easier viewing.





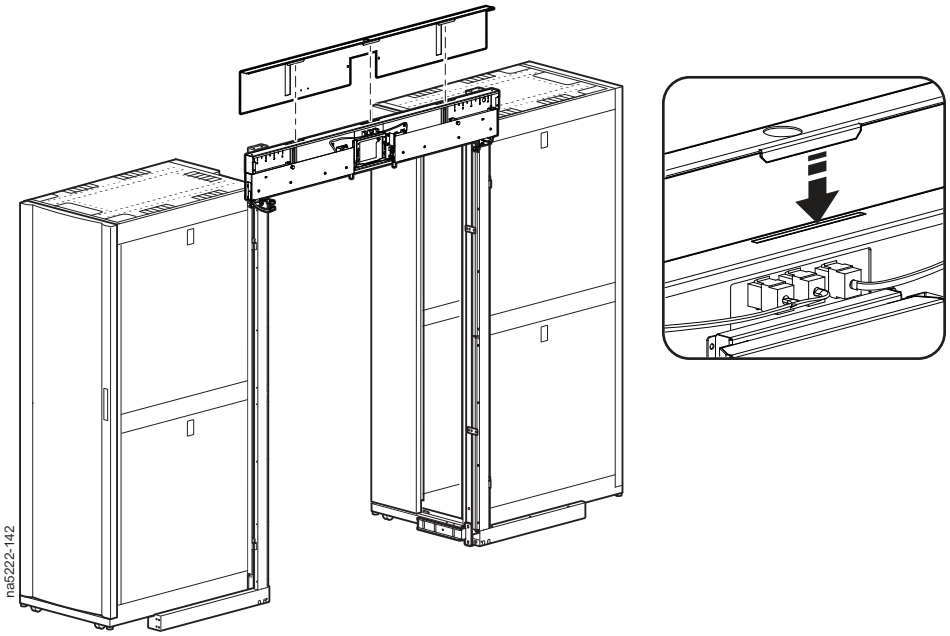


3. Cut the foam seal to fit and cover the openings.



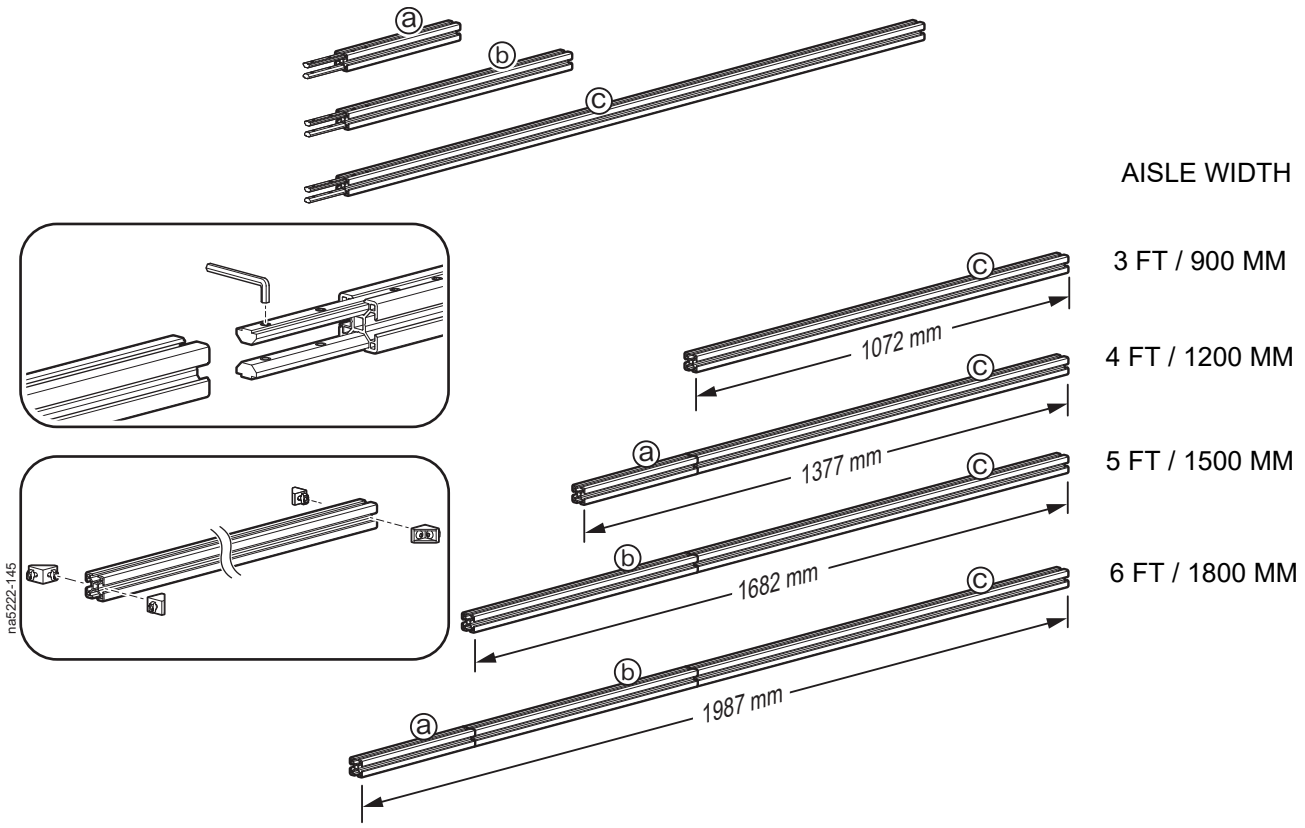
Ceiling system

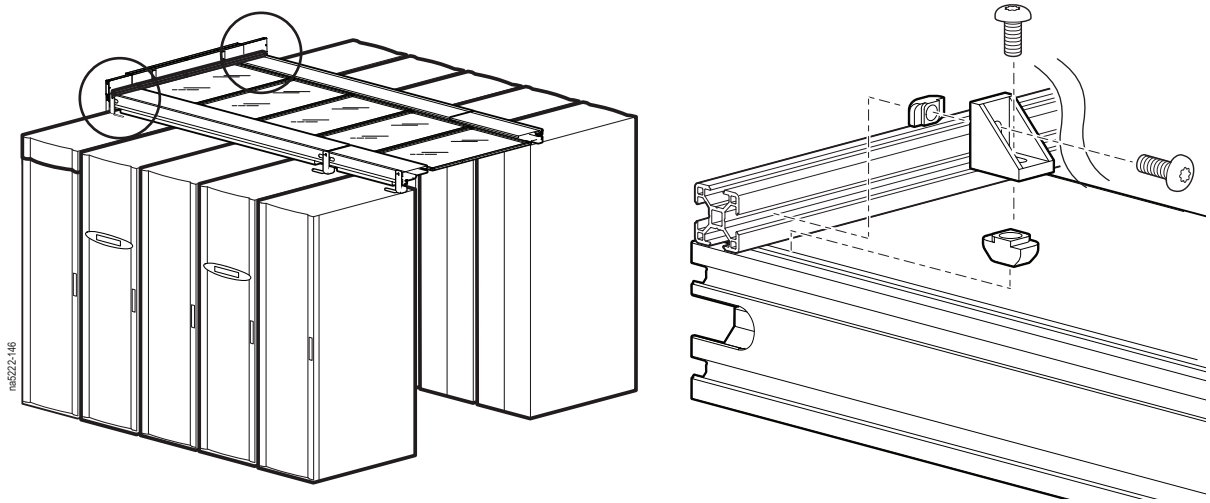
1. Attach the inner header cover.



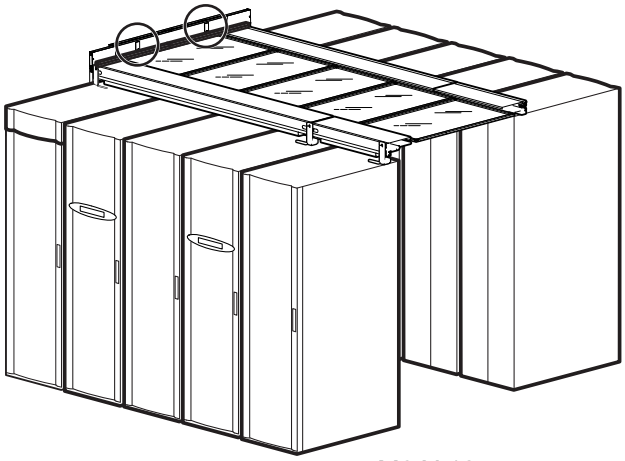
2. Using ACDC2301, place railing across the top of the ceiling support. Aisle width will determine which rails are used.

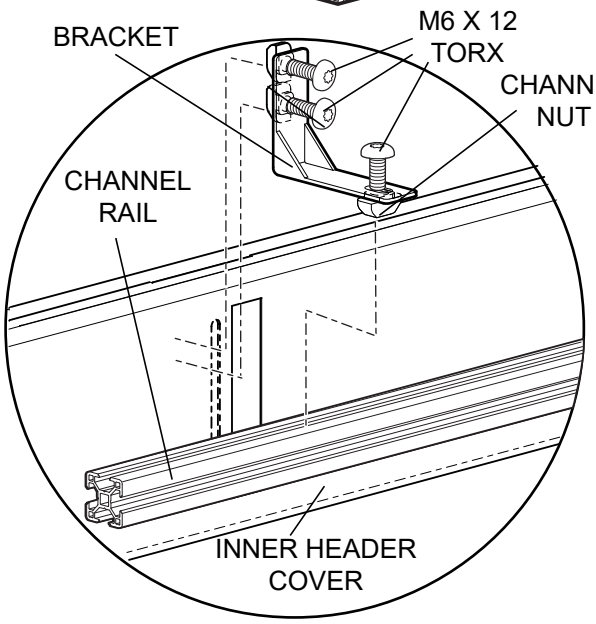
See “Adjusting the size of the duct mounting rails” on page 54 for information on cutting the rails.



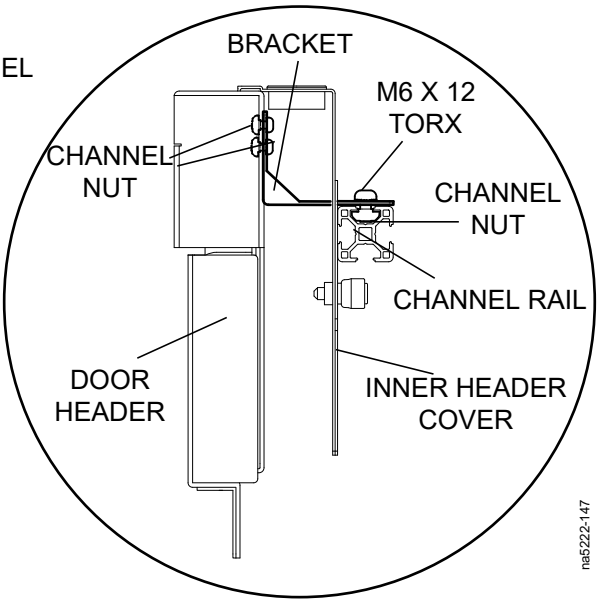


3. Secure the header to the railing with the appropriate brackets using the six M6 x 12 TORX screws and M6 channel nuts.
   NOTE: Some components not shown for easier viewing.



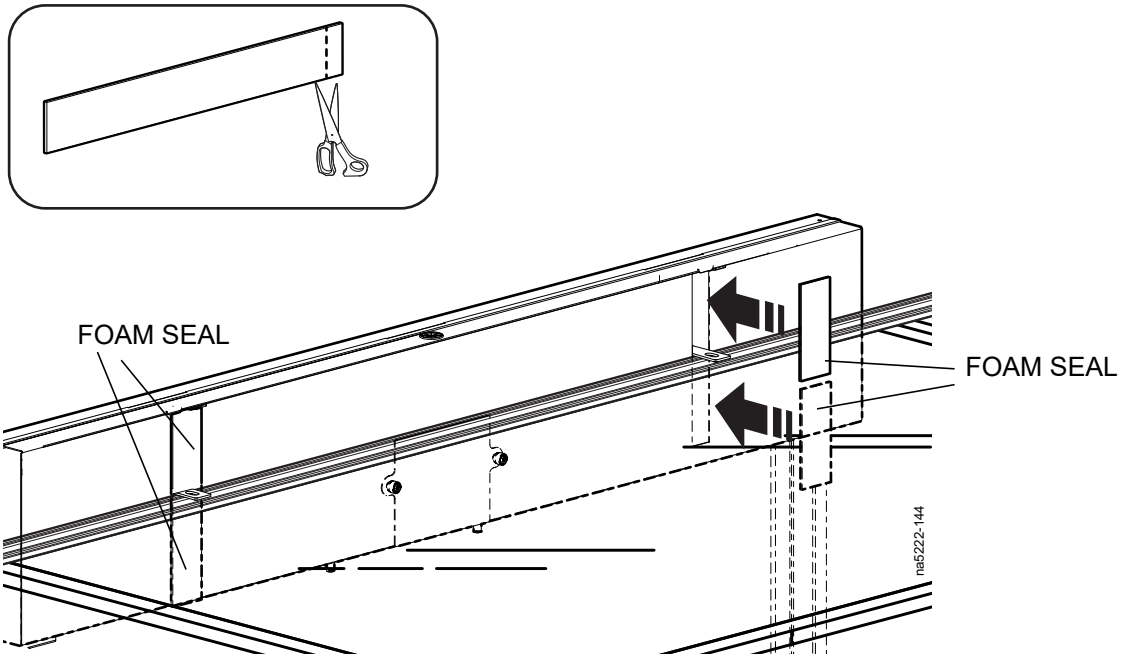


INSIDE AISLE VIEW



SIDE VIEW

4. Cut the foam seal to fit and cover the openings.

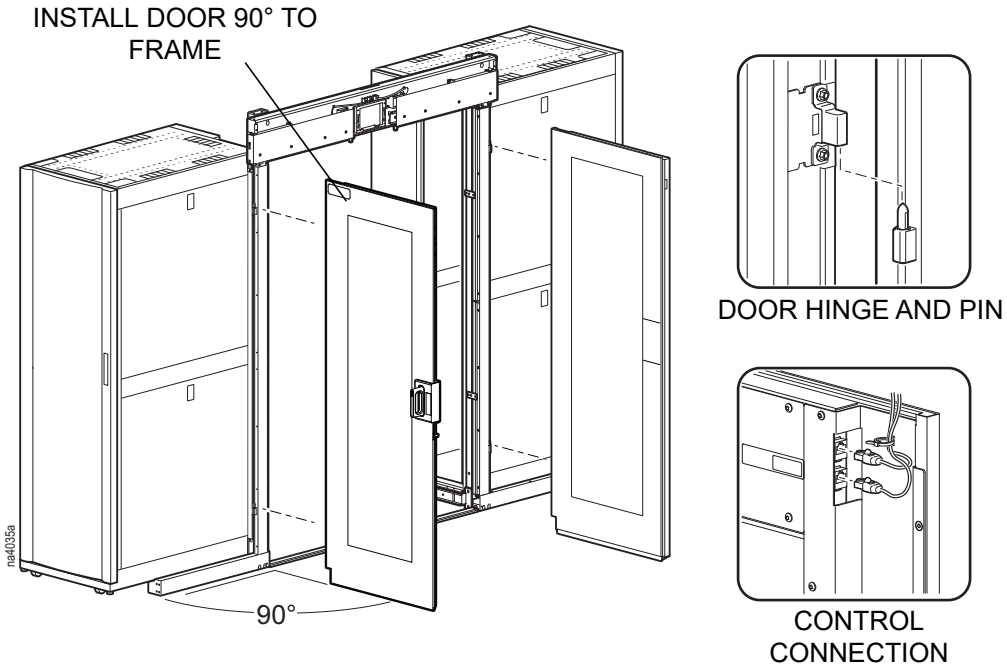


Doors

1. Hang the doors on the hinge pins.
   NOTE: Doors must be positioned 90° to the door frame when installing.

⚠ WARNING
HEAVY EQUIPMENT HAZARD Be sure to use two people when performing this operation. **Failure to follow these instructions can result in death, serious injury, or equipment damage.**

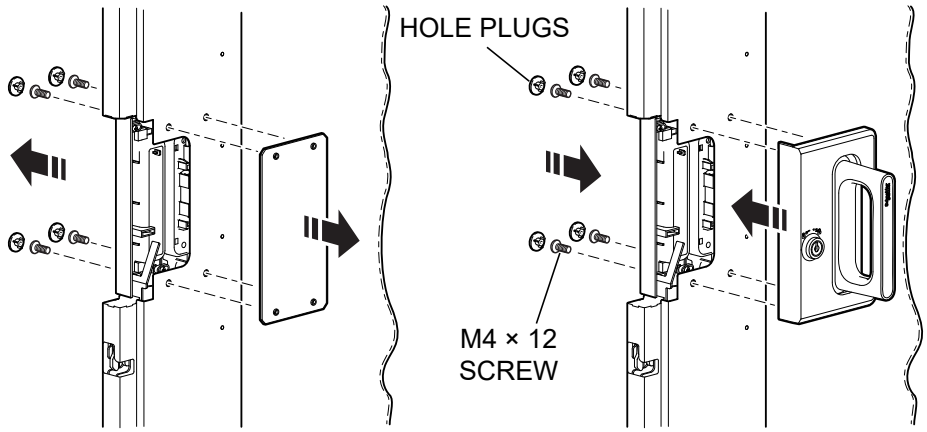
2. Make the control connection on each door.
   NOTE: NetBotz and AFC connections can connect to either port.



3. Close the doors by gently lifting the doors onto the door threshold. Push the top of the door in towards the header, securing them to the upper latch.

Door handle and lock assembly

1. Remove the cover plate located on the outside of the right-hand door.
2. Install the door handle and lock assembly using four M4 × 12 self-tapping screws.
3. Cover the screw holes on the inside of the door with hole plugs.



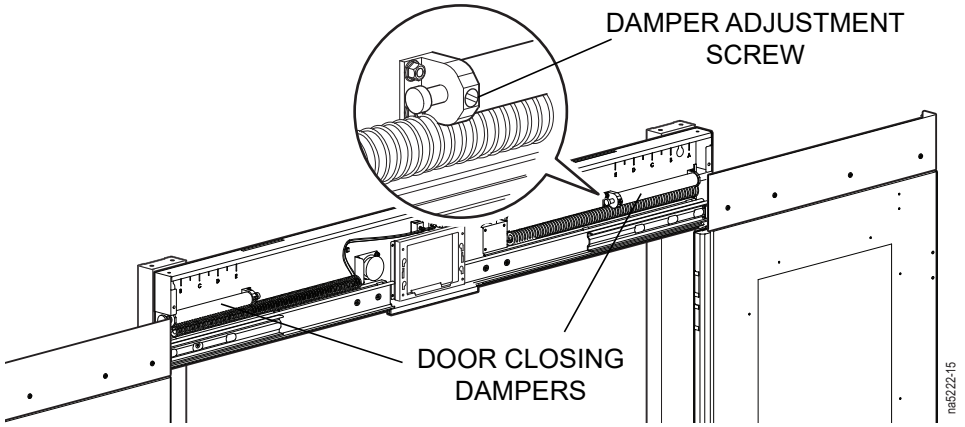
Adjust door closing dampers

Ensure that the doors close completely and the door handles latch securely.

Using the damper adjustment screw, adjust the dampers on both the left and right sides until the doors close smoothly and completely. Turning the adjustment screw to the right provides more resistance, to the left provides less.

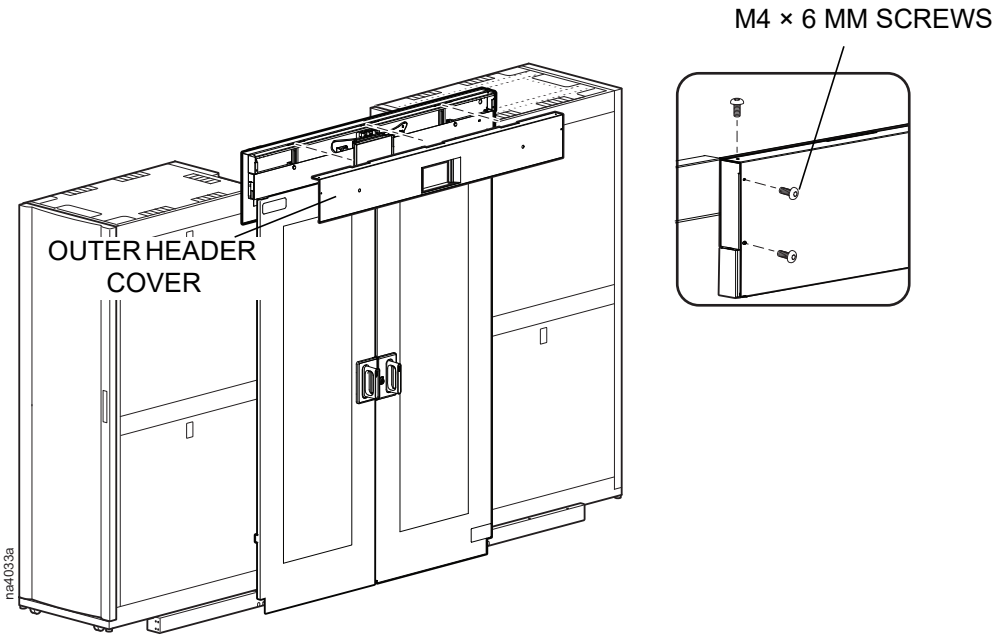
IMPORTANT:

- Before making this adjustment, check for obstructions that may prevent the door from closing properly.
- For proper operation, make sure the magnets on the dampeners are in contact with the magnets on their respective doors.

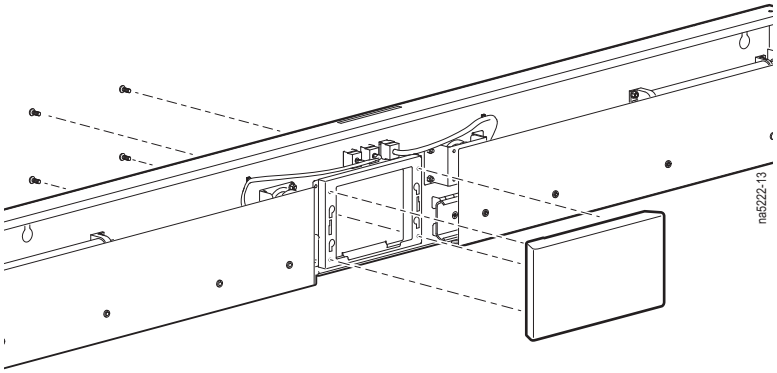


Outer door header cover and blanking panel

1. Install outer header cover and attach with M4 × 6 mm screws.

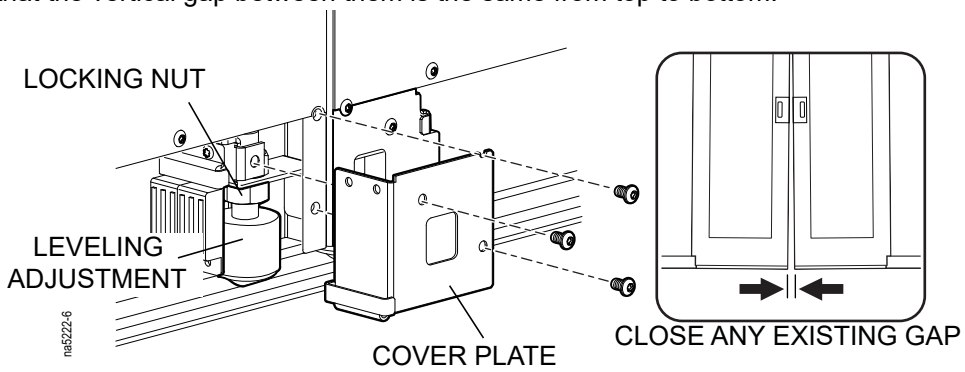


2. If no Active Flow Controller will be used, install a blanking panel in the door header using four screws.

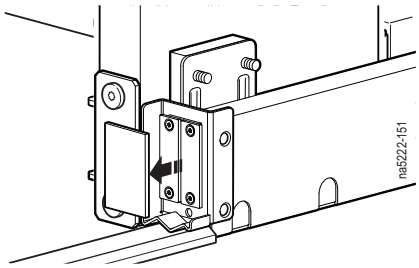


If using an Active Flow Controller, refer to the instructions that come with that device for installation instructions.

3. Check the alignment. If necessary, remove the leveling adjustment cover plate and adjust the doors so that the vertical gap between them is the same from top to bottom.



4. Remove the metal covers from magnets on lower guide rails.



5. Remove the plastic protection material from both sides of the door panels.
6. Attach the appropriate warning label to the outside of the door in the space provided.

Post-installation checklist

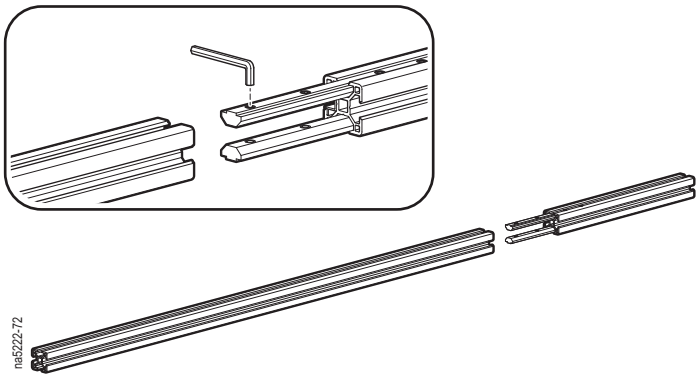
NOTICE
EQUIPMENT DAMAGE HAZARD • DO NOT pull doors closed manually. • When swinging the doors open on their hinges, do no open more then 90°. **Failure to follow these instructions can result in equipment damage.**

- Auto close feature on each door works properly
- Hold open feature on each door works properly
- Doors ride smoothly on floor track and there is no debris in the threshold
- Latch and lock functions properly
- Inside emergency release is functional

Door Curtain

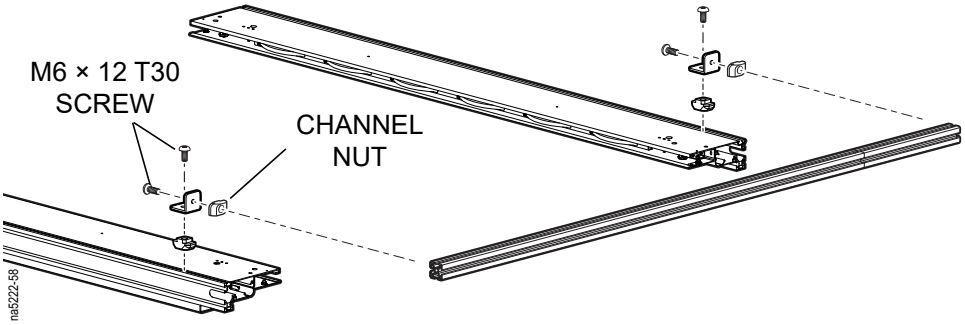
Installation—Ceiling System

1. Adjust the cross-aisle support length based on the aisle width.

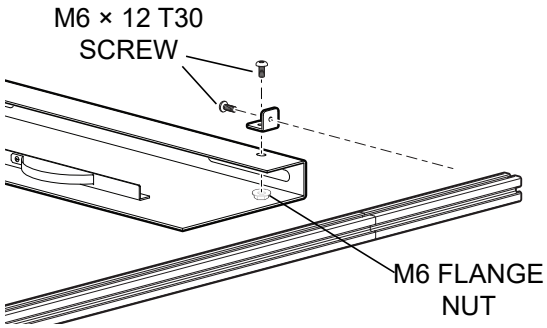


2. Attach the cross-aisle support to the support rails.

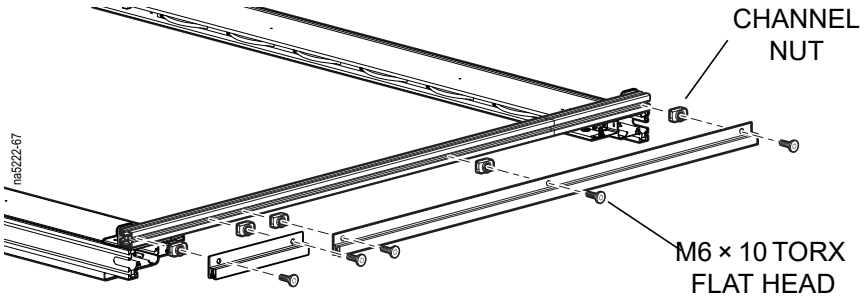
Dual row aisle



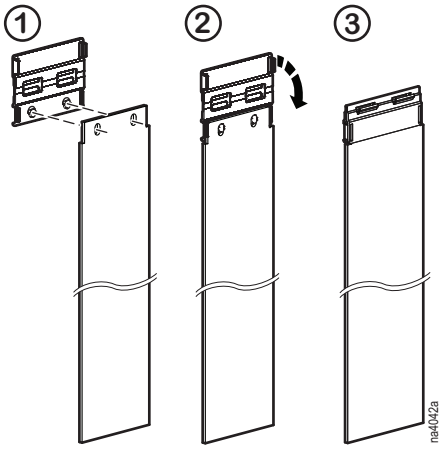
Single row aisle



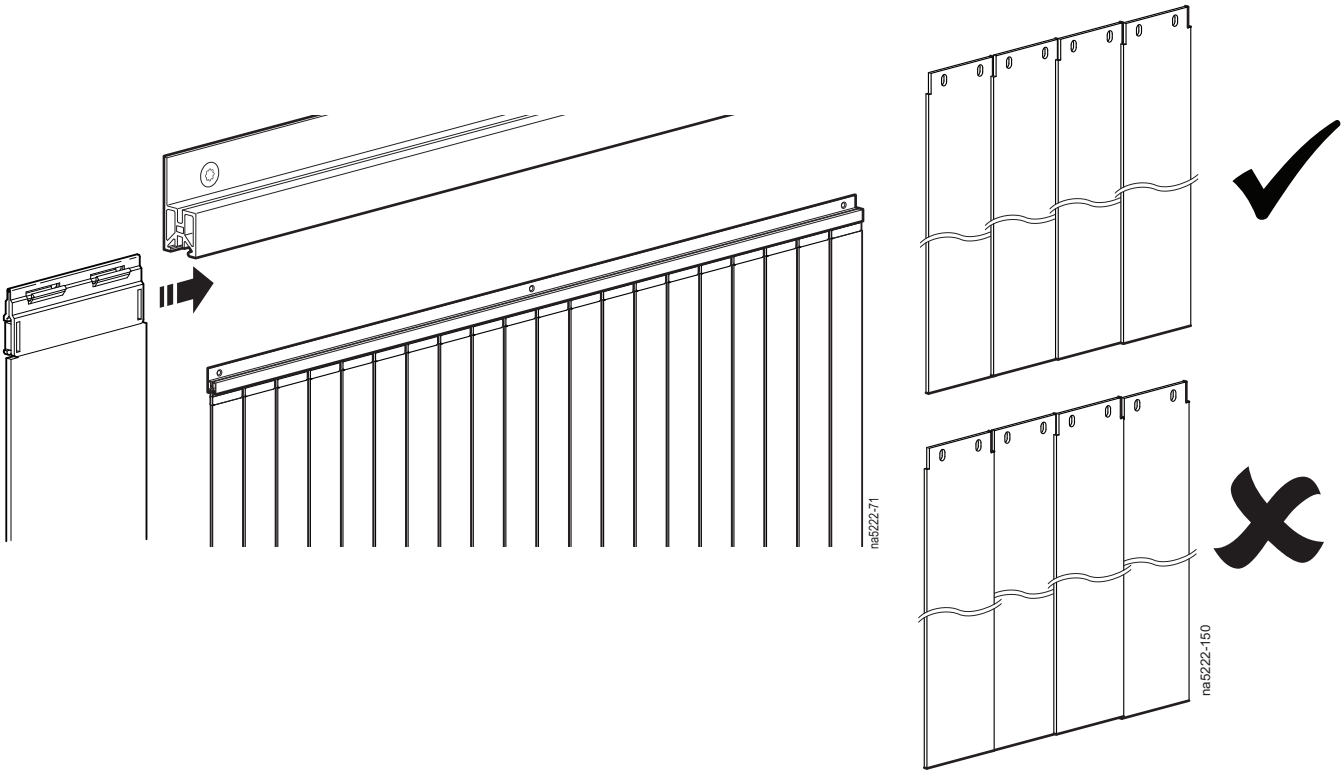
3. Attach the door curtain rails to the cross-aisle support.



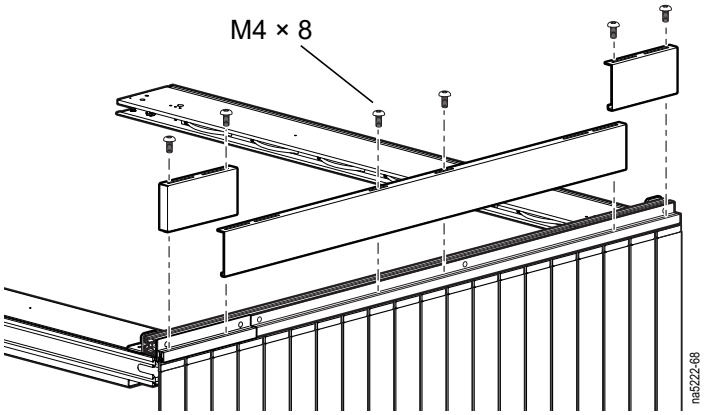
4. Attach the door hanger clips to the door curtains.



5. Install the door curtain assemblies.
   NOTE: Make sure curtains overlap in the same direction.



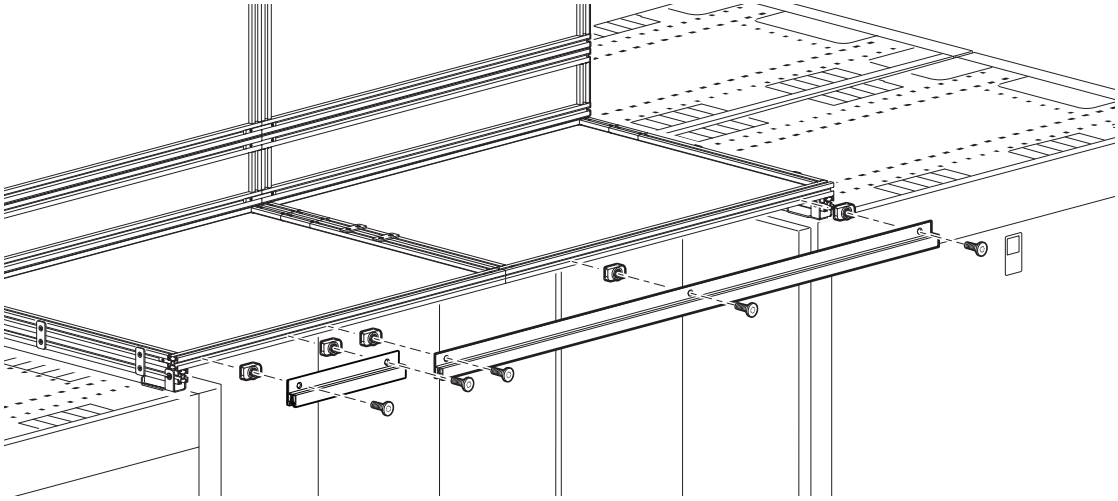
6. Attach the curtain door rail cover.



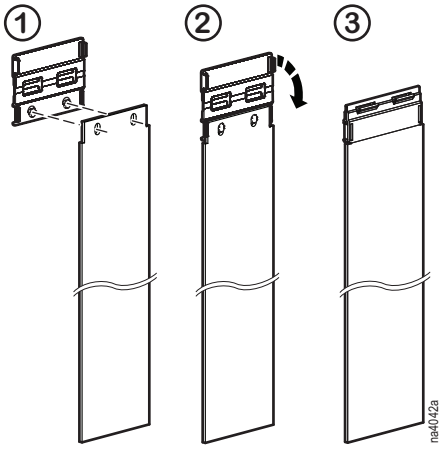
Installation—Duct System

Horizontal duct panel

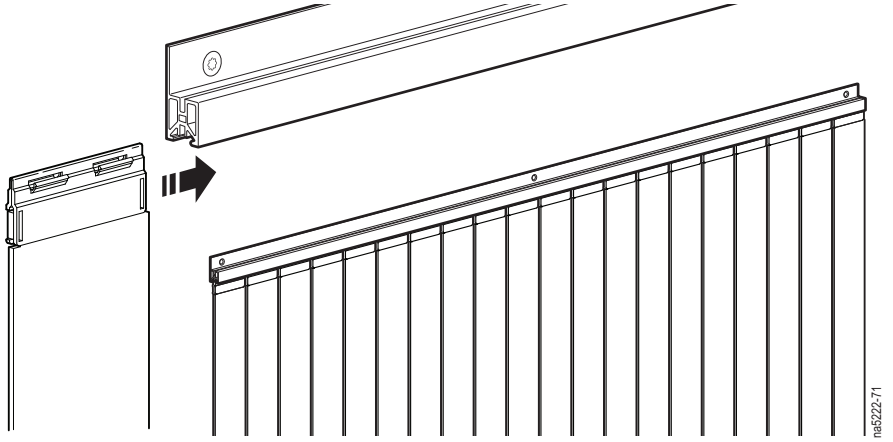
1. Attach the door curtain rail to the cross aisle ceiling frame.



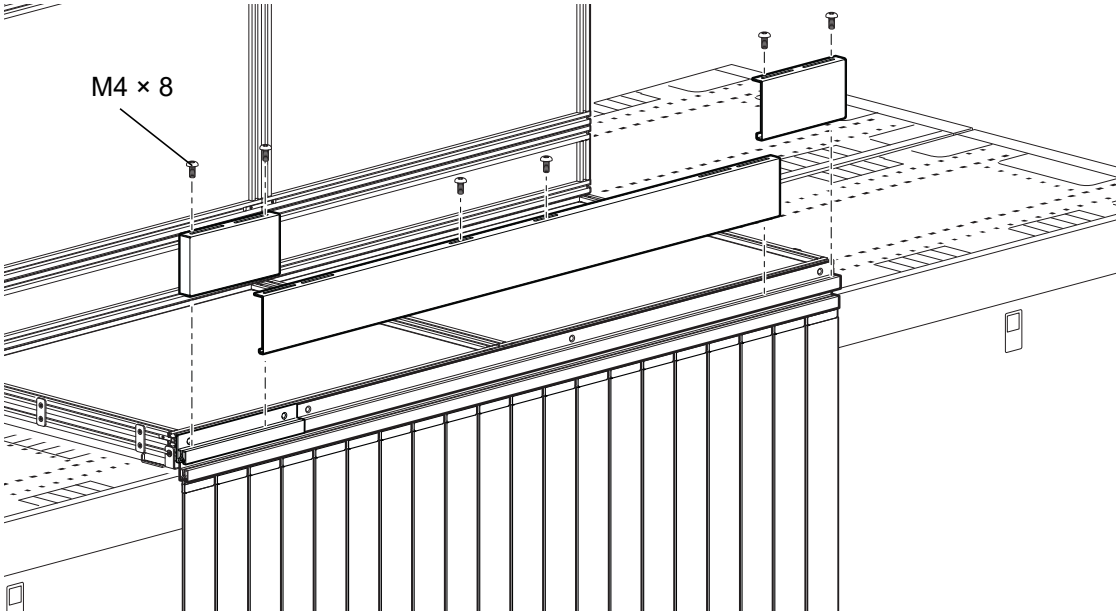
2. Assemble the door curtains.



3. Install the door curtain assemblies.



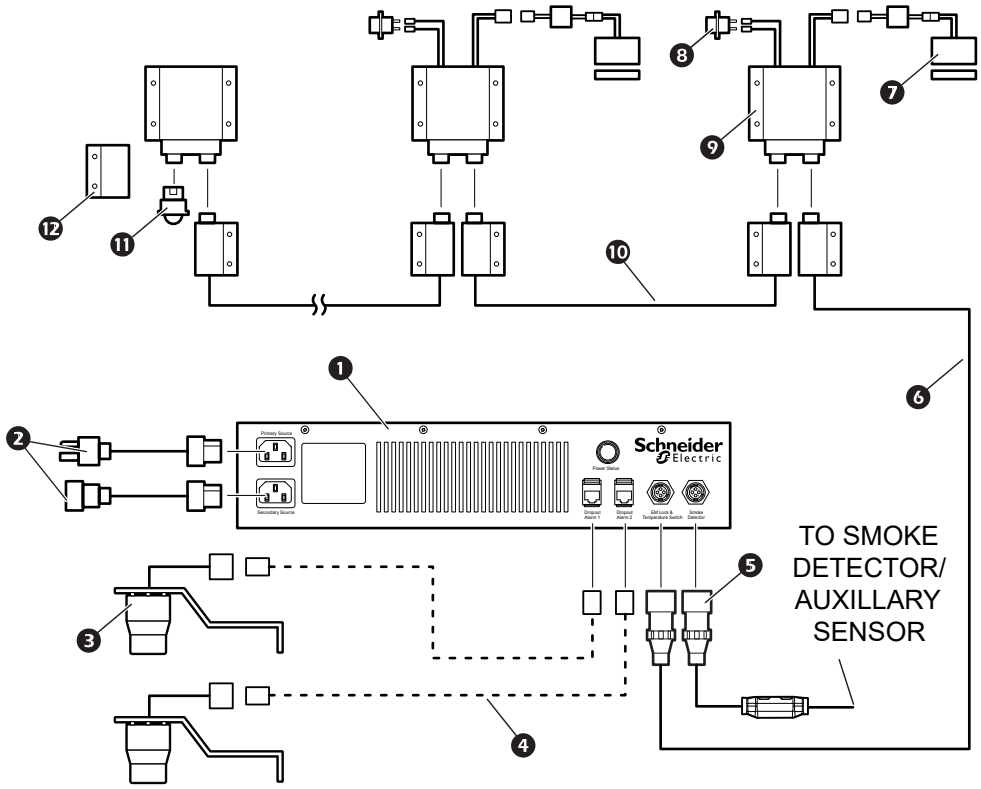
4. Attach the curtain door rail cover.



Ceiling Panel Dropout Control System

IMPORTANT: This system is designed to work with standard response sprinklers only.

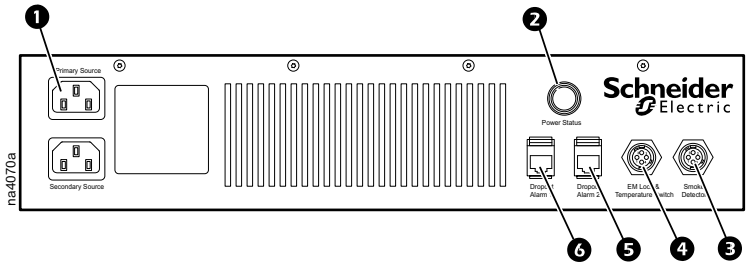
System Diagram



Item	Description
❶	Dropout power supply control box
❷	Power cord
❸	Alarm beacon
❹	Field supplied CAT-5 cable
❺	4-pin jumper (if no smoke detector is in use) Smoke detector cable (if smoke detector is in use)
❻	Wire assembly—power supply to wiring box
❼	Electromechanical lock—up to 30 per control box

Item	Description
❽	Temperature switch
❾	Wiring box
❿	Box-to-box wire harness Box-to-box wire harness, across aisle
⓫	Terminal jumper
⓬	Wiring box cover

Power Supply Component Identification



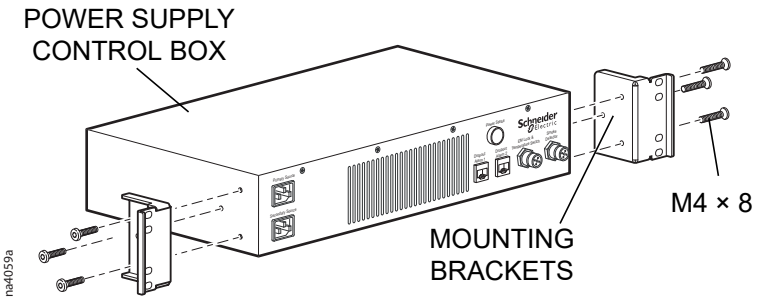
Item	Description
❶	AC line, primary/secondary
❷	Power status indicator light
❸	Smoke detector connection

Item	Description
❹	Electromechanical lock temp. switch connection
❺	Dropout alarm 2
❻	Dropout alarm 1

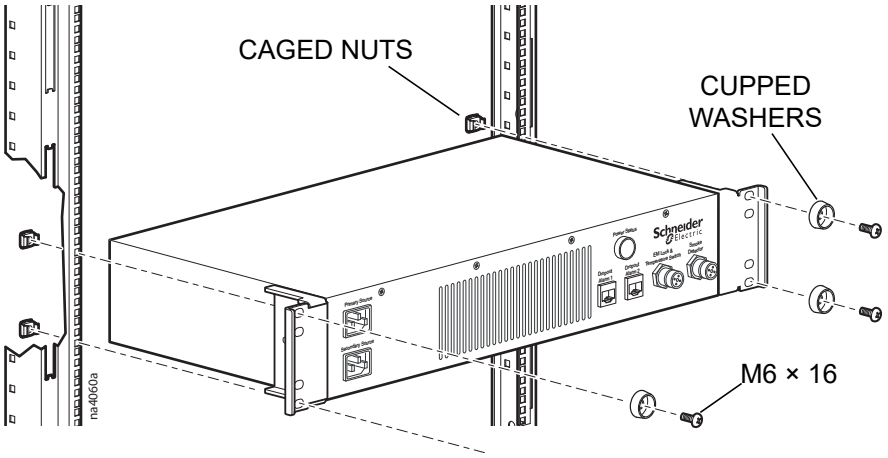
Installation

Power supply installation procedure

1. Attach the mounting brackets to the sides of the power supply.



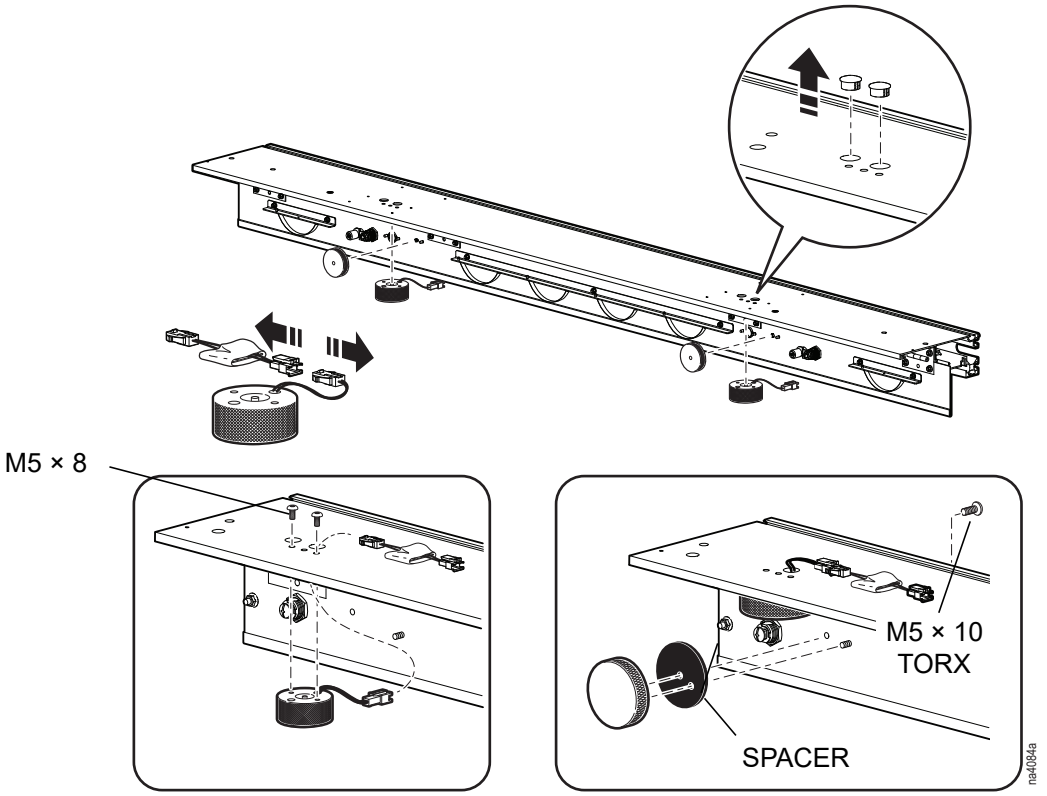
2. Install the power supply onto the mounting rails of the enclosure using four caged nuts, cup washers, and M6 × 16 screws.



Electromechanical locks

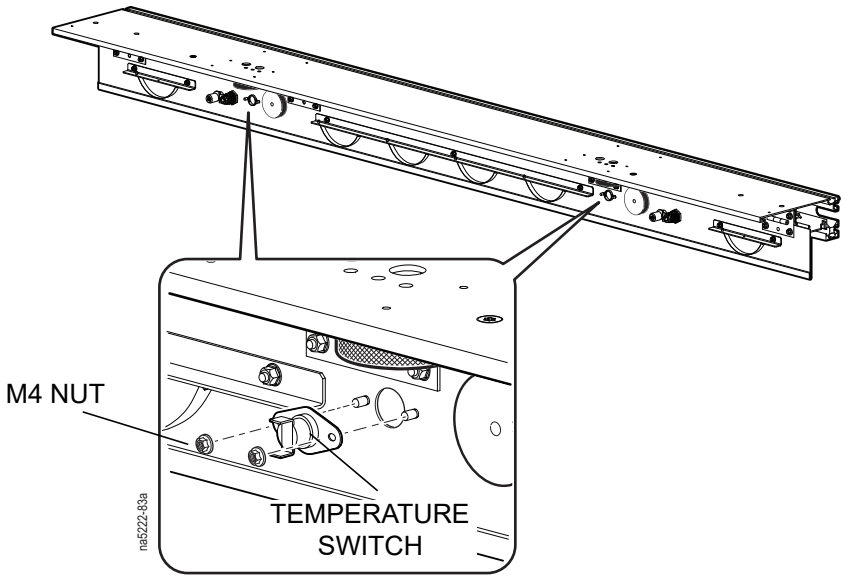
Attach the electromechanical lock onto the ceiling panel support rails.

1. Remove the two large hole plugs from the top of the ceiling panel supports.
2. Disconnect the electromechanical lock from the printed circuit board assembly.
3. Guide the wire connector from electromechanical lock through the hole in the top of the ceiling panel support.
4. Install the top half of the electromechanical lock to the top of the ceiling panel support rail with two M5 × 8 screws each. Place the printed circuit board assembly on top of the ceiling panel support rail and reconnect to the electromechanical lock.
5. Install the lower half of the electromechanical lock and spacer to the ceiling panel support rail hinged flap using one M6 × 10 screw each.



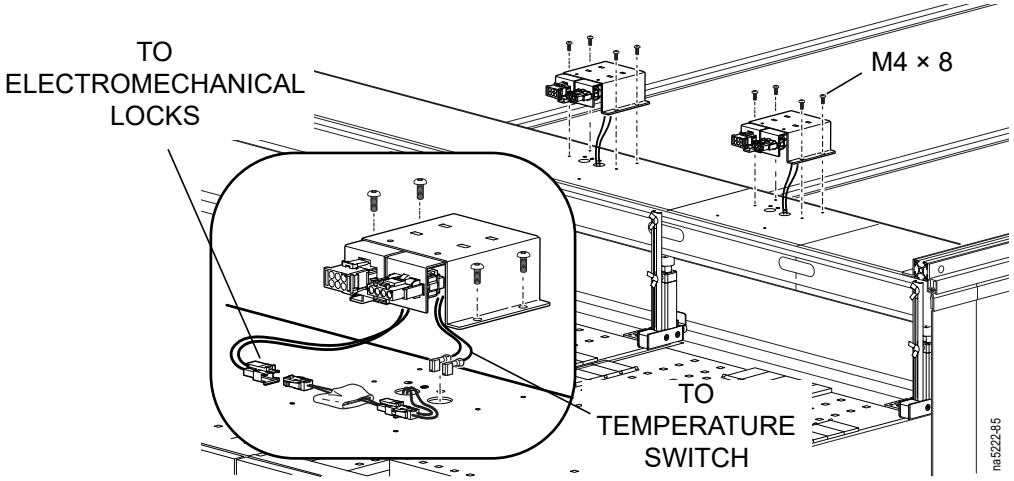
Temperature switches

Using two M4 nuts each, install the temperature switches to the ceiling panel support rail hinged flap.

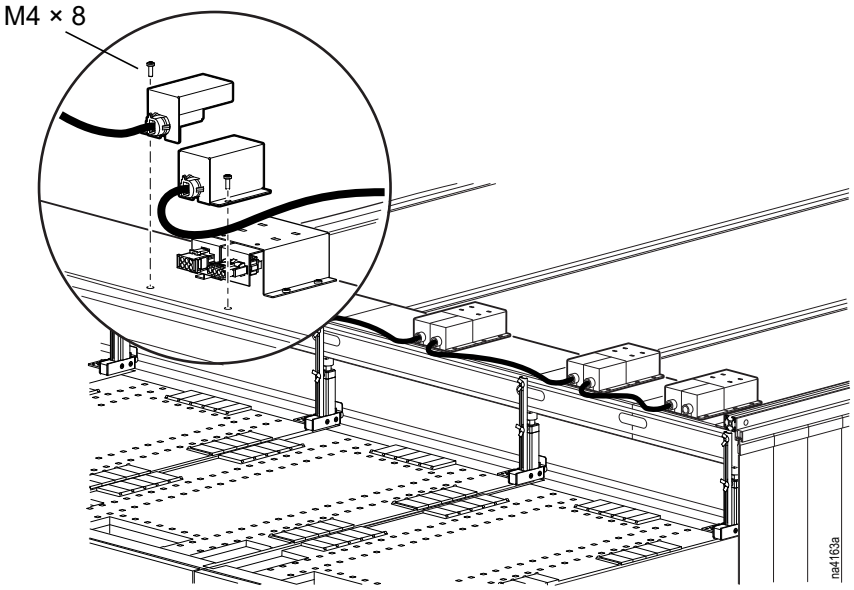


Electrical boxes and cable routing

1. Make the connection to the electromechanical locks and temperature switches.
   IMPORTANT: Position wires so they do not interfere with the closing of the hinge flap.
2. Install the wire boxes to the top of the ceiling panel mounting rails using four M4 × 8 screws each.

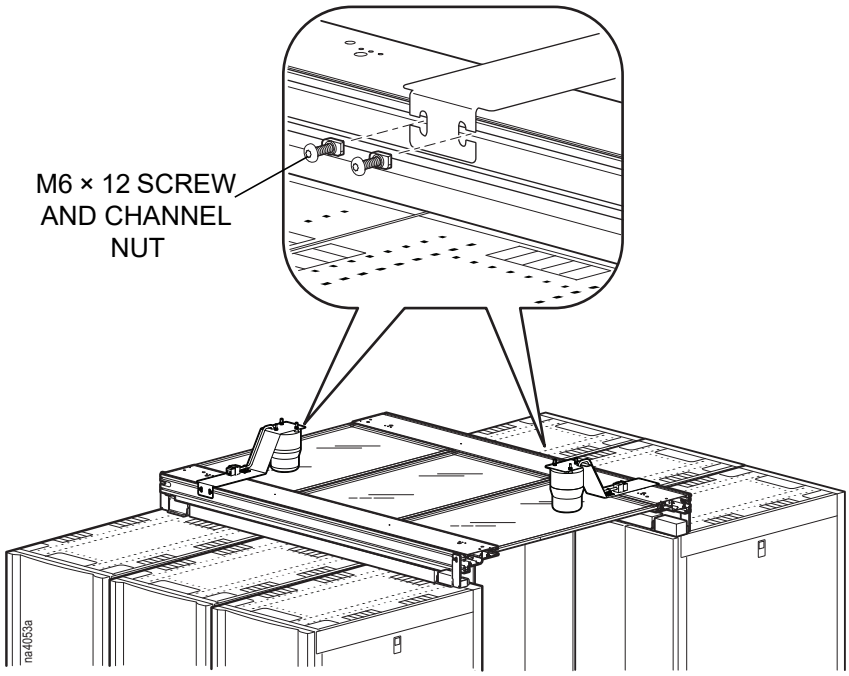


3. Connect the wiring boxes together with box-to-box wire assemblies and the cross-aisle wiring assembly.

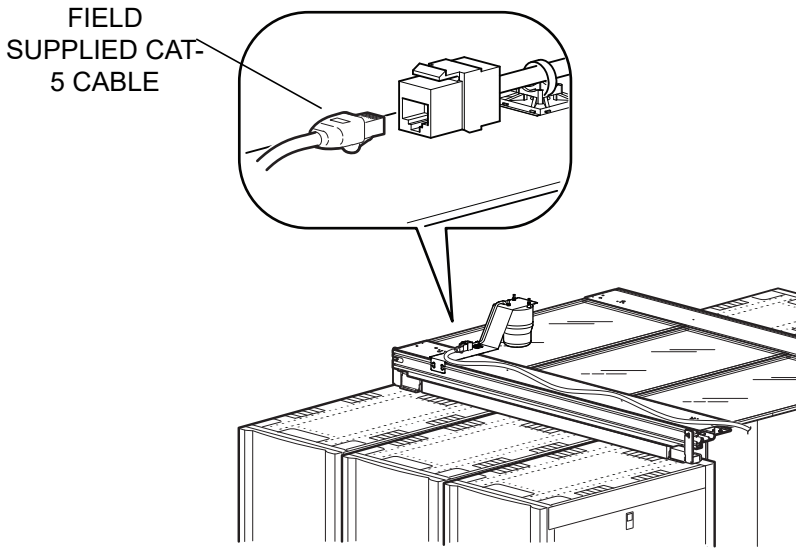


Alarm beacon installation

1. Using two M6 × 12 and channel nuts each, install two alarm beacons per power supply control box positioning them at opposite corners of the aisle.
   NOTE: For clarity electrical boxes and wires not shown.

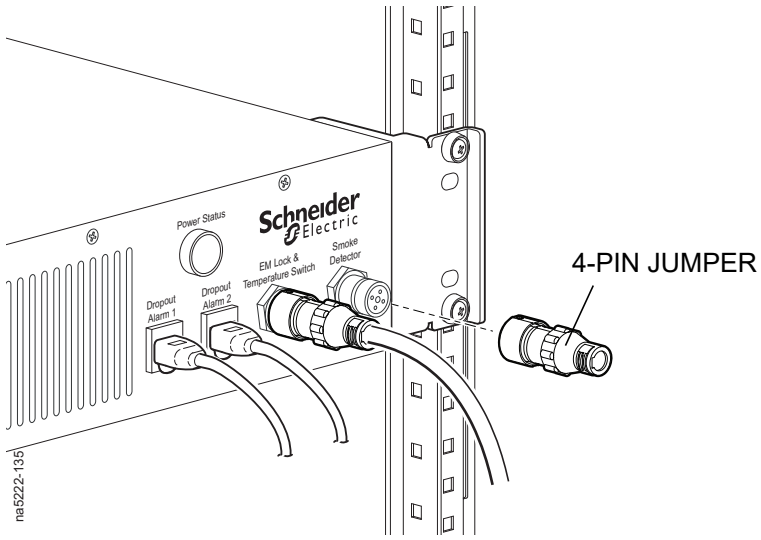


2. Connect the alarm beacons to the power supply control box using field supplied CAT-5 cable.



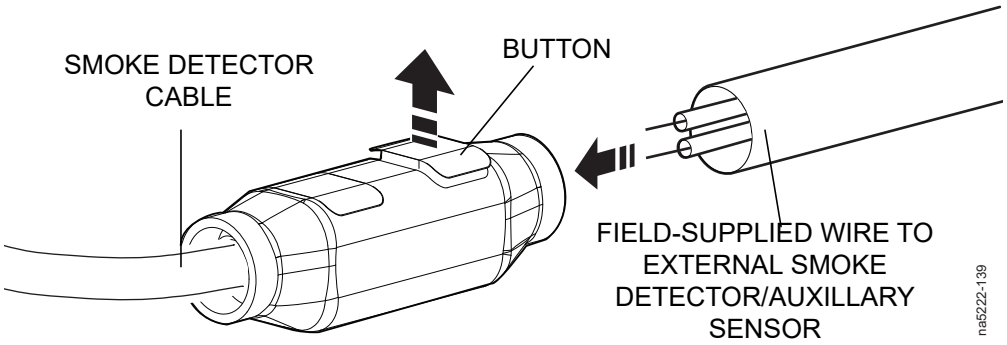
Smoke detector installation

Connect the 4-pin jumper to the Smoke Sensor connector if an external smoke detector is not being used.

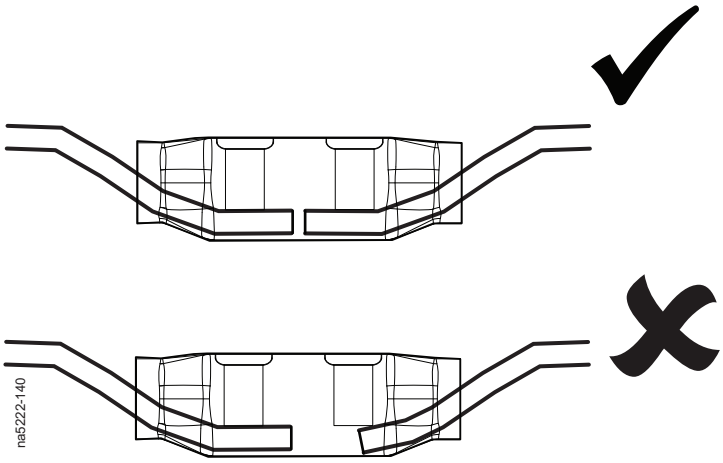


If an external smoke detector is being used:

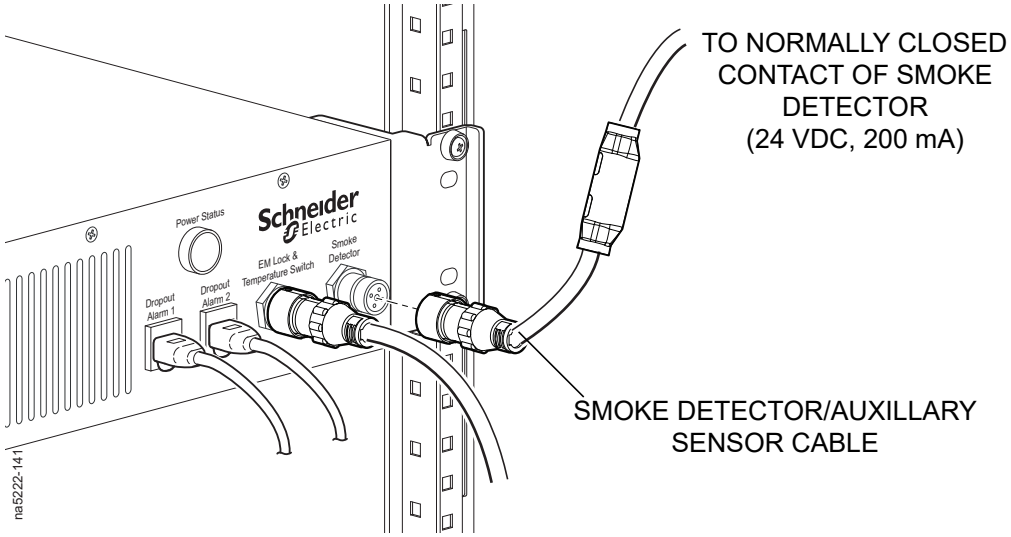
1. Strip the field-supplied wire to be used to connect to the building smoke detector. Leave a minimum of 15 mm of exposed wire.
2. Insert the wire into the open end of the smoke detector cable. Make sure the button on the connection end is in the open position.
   NOTE: Field-supplied wire needs to be shielded 20 AWG or network cable that is grounded at the customer end connection point. Maximum routing distance for the wire is 76 m (250 ft.). For best performance, avoid interference from high-voltage cables and devices such as a UPS or PDU.



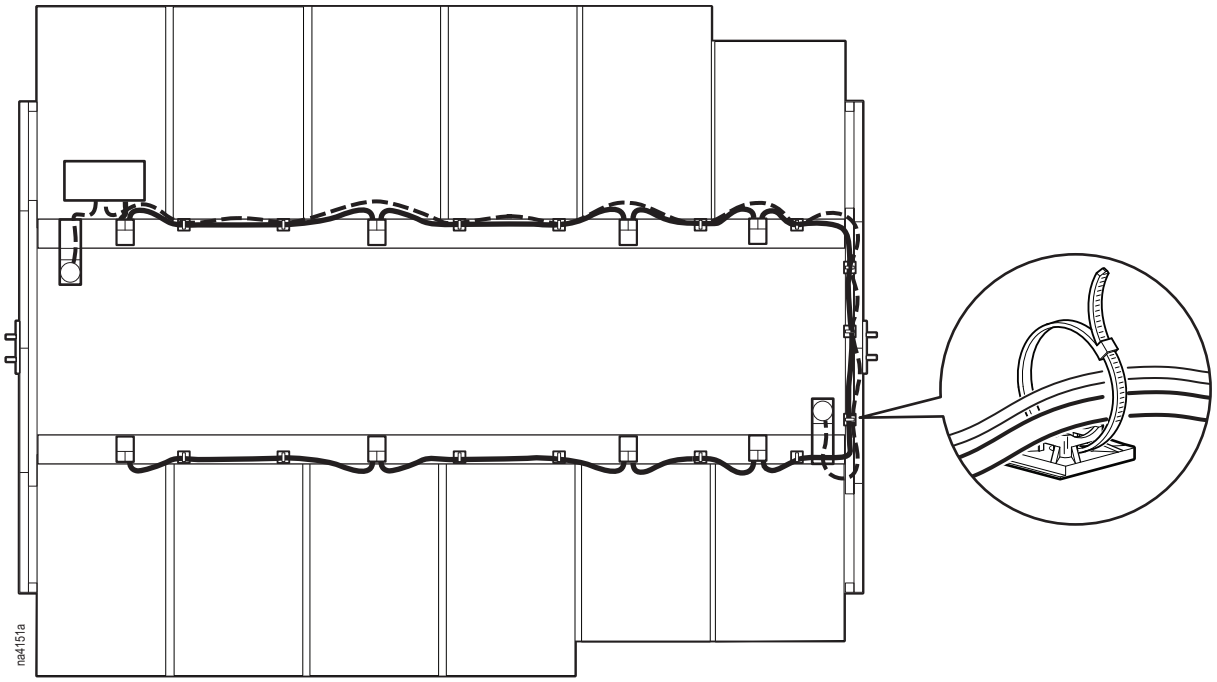
3. Use pliers to close the button and terminate the wires.



4. Connect the smoke detector cable to the Smoke Sensor connector.



Neatly bundle all cabling using tie wraps and cable holders.

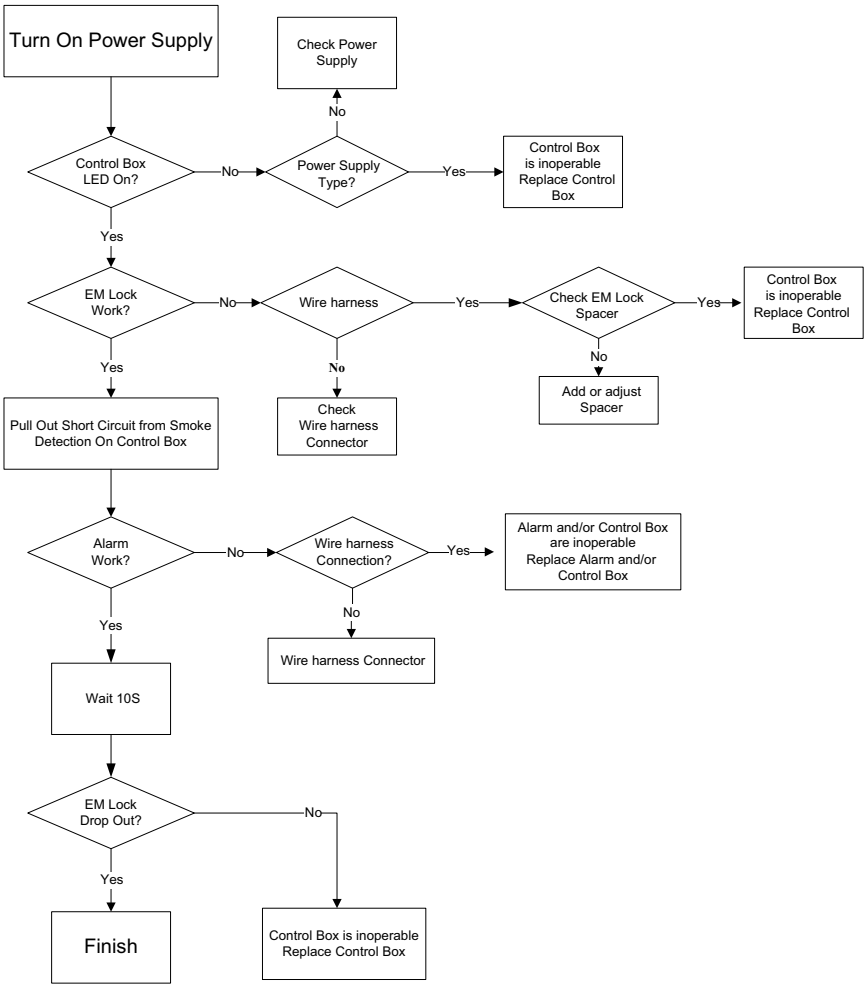


Ceiling Panel Dropout System Setup and Operation

Maintenance steps for dropout ceiling system

1. Lock hinge flaps using mechanical locks.
2. Turn OFF or remove power to the electromechanical locks.
3. Perform necessary maintenance.
4. Turn ON or provide power to the electromechanical locks.
5. Push each hinge flap upwards so that the lower half of the electromechanical lock engages with the upper half. A clicking sound will be heard when fully engaged.
6. Unlock the mechanical lock on hinge flaps.

Troubleshooting diagram



Five-Year Factory Warranty

The limited warranty provided by APC by Schneider Electric in this Statement of Limited Factory Warranty applies only to products you purchase for your commercial or industrial use in the ordinary course of your business.

Terms of warranty

APC by Schneider Electric warrants its products to be free from defects in materials and workmanship for a period of five years from the date of purchase. The obligation of APC by Schneider Electric under this warranty is limited to repairing or replacing, at its sole discretion, 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. Repair or replacement of a defective product or part thereof does not extend the original warranty period. Any parts furnished under this warranty may be new or factory- remanufactured.

Non-transferable warranty

This warranty extends only to the original purchaser who must have properly registered the product. The product may be registered at the APC by Schneider Electric website, **www.apc.com**.

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