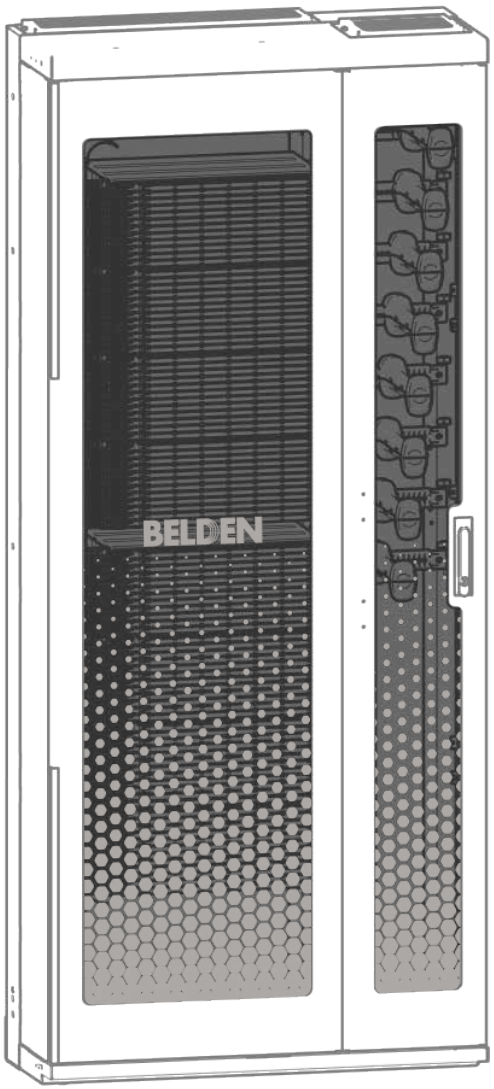


Table of Contents

1. Introduction 3
1.1. Safety Precautions 3
1.2. Glossary. 3
2. DCX product family and accessories 4-5
2.1. DCX Products family 4
2.2. DCX accessories. 4-5
3. DCX Cabinet and Patch Cord Slack Module installation 6-14
3.1. Bolt Cabinet/Module to the floor 6-7
3.2. Leveling Cabinet/Module Legs 8
3.3. Bolt Cabinets/Module Side-to-Side 9-11
3.4. Bolt Cabinets/Modules Back-to-Back 12-14
4.DCX Accessibility Components 15-20
4.1. Door removal/ installation 15-17
4.2. Side Panel removal/ installation 18-19
4.3. Rear Panel removal/ installation - optional 20

5. Cable Entrance bracket 21-22
5.1. Installation 21
5.2. Securing Cables 22
6. Cable Distribution Brackets 23-26
6.1. Installation 23
6.2. Features and cable securing 24-25
6.3.Cable operation and management 26
7. DCX Patch Cord Telescopic Spool 27-30
7.1. Installation 27-28
7.2. Features and manipulation 29
7.3. Cable operation and management 30
8. DCX Housing 31-39
8.1. Installation 31
8.2. Tray opening 32
8.3. Cable Guard operation 33
8.4. Tray installation and removal 33-34
8.5. Cassettes/Adapter Frames installation and removal 34-36
8.6. Strain Relief Operation 37-38
8.7. Labeling installation 39
9. DCX Horizontal Rear Channel kit installation 40-41
10. Horizontal In-Cabinet Channel Kit/ Patch Cord Bridge installation 42-44
10.1. Horizontal In-Cabinet Channel Kit (full length/ end of row) 42
10.2. In-Cabinet Patch Cord Bridge Installation - optional. 44
11. Fiber routing. 45-48
11.1. Cable limitation 45
11.2. Pre-term cables and Cassettes 46
11.3. Pre-term cables and Fiber Adapter Frames 47
11.4. Cable Distribution and Splice Cassettes 48

1. Introduction

This manual shows and provides complete instructions for:

- How to secure a DCX Cabinet or Patch Cord Slack Module and group products together.
- How to install the DCX Accessories and remove some components pre-assembled in a configured Cabinet.
- How to manage fibers in a Cabinet and pass them through other DCX products (Housing, Cassettes or Adapter Frames).

1.1. Safety Precautions

= General Information that is applicable in use of the DCX products family

= Includes related warnings to prevent damage to equipment and/ or personal injury.

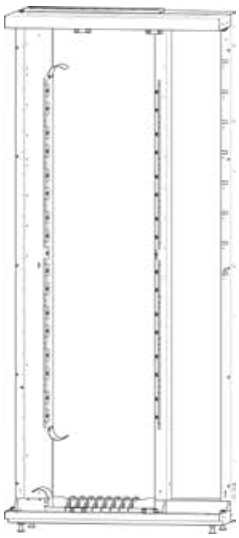
1.2. Glossary

ODF: *Optical Distribution Frame (also identified as DCX Cabinet)*

2. DCX product family and accessories

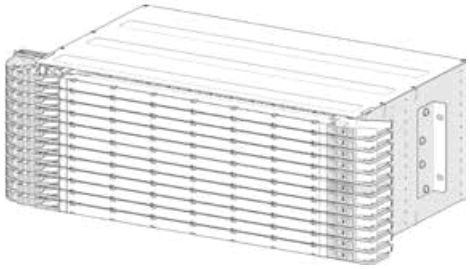
This section shows some of the available DCX products and all accessories that are used to equip a regular ***ODF*** (Cabinet) system.
Please take note that the following products may be required depending on your application.
For further information regarding DCX accessories, please visit our website at ***www.belden.com***

2.1. DCX Products family



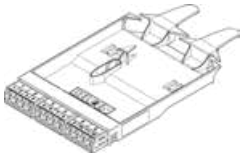
DCX ***ODF*** (or Cabinet) Left to Right, configured under code ***DCXS1x-00000-00***
(code is used only as reference)

To understand the Cabinet matrix configuration please refer to our ***Master Drawing.***



DCX Housing, Left to Right
DCX-04FM-LR
(shown as reference only)

Models are shown as reference only:



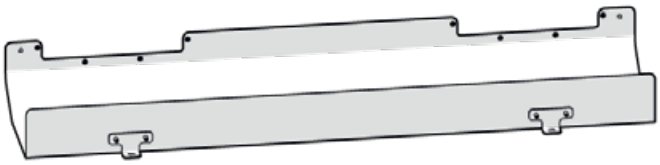
DCX Adapter Frames
FFxD06Lx

DCX Preterm Cassette
(***FCxD06LxFM***)

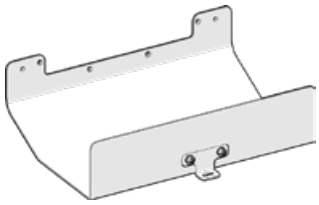
Splice cassettes
FCxD06LxFx

2.2. DCX accessories

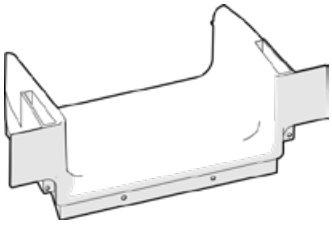
These products come with a configured Cabinet or can also be sold separately (depending on the application).
To understand the accessories configuration please refer to the ***Accessories Master Drawing.***



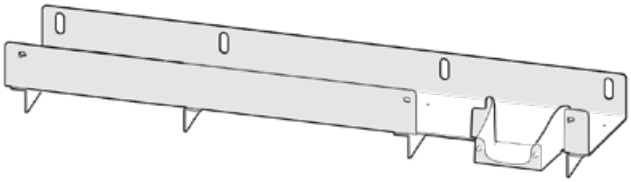
DCX Horizontal In-Cabinet Channel Kit
DCX-HINC-KIT01x



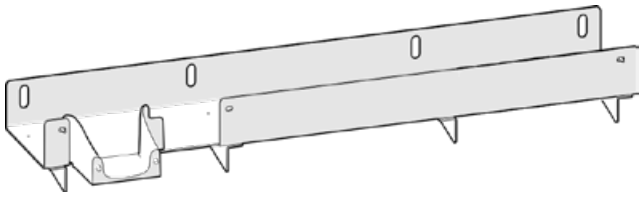
DCX Horizontal In-Cabinet Short Channel Kit (For End Cabinet)
DCX-HINC-KIT02x



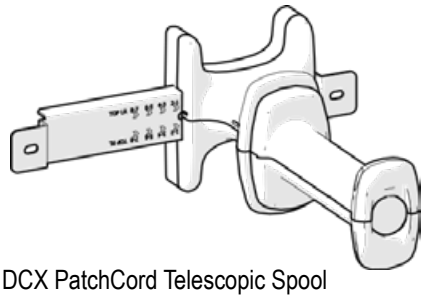
DCX Horizontal In-Cabinet Front-to-Back Patch Cord Bridge (2x)
DCX-HINB-KIT01B



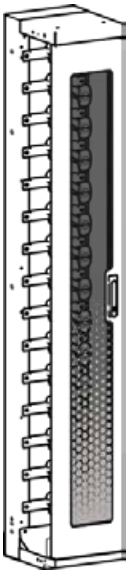
DCX Horizontal Rear Channel (4x) Left to Right
DCX-HRRC-LR01x



DCX Horizontal Rear Channel (4x) Right to Left
DCX-HRRC-RL01x



DCX PatchCord Telescopic Spool
DCX-SPOO-KIT02W



DCX Patch Cord Storage Module
DCX-PCST-MOD01x

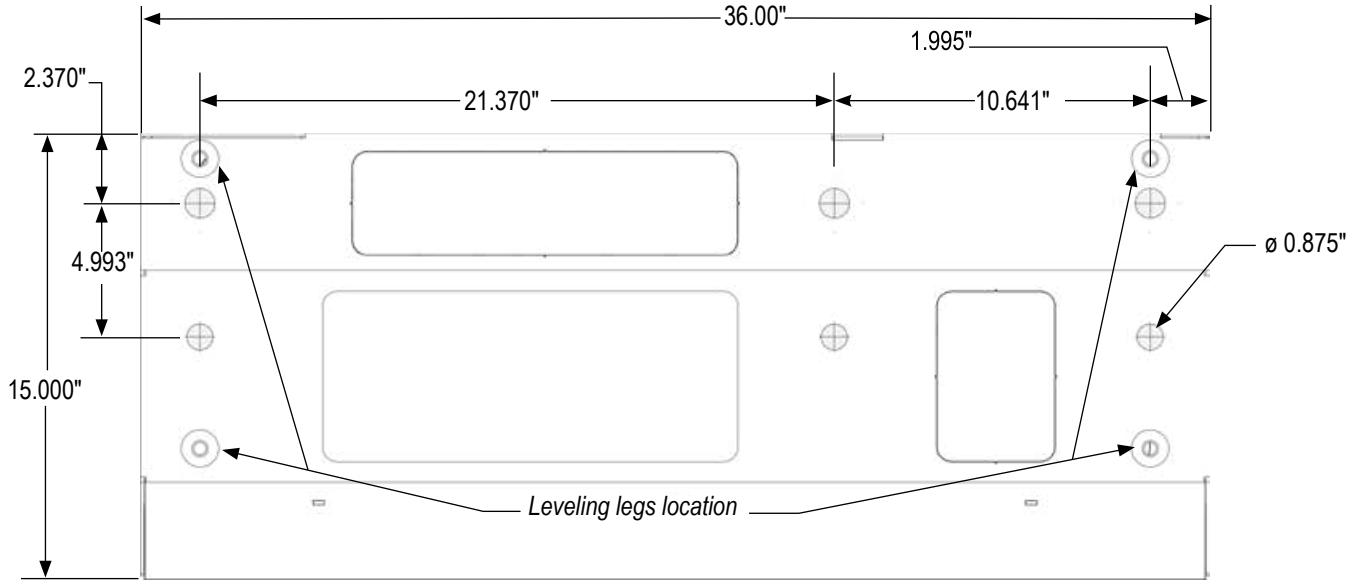
This document doesn't cover the procedures of how the components are assembled to the Module frame, for more details please refer to the Quick Start Guide ***PX106869****.*

3. DCX Cabinet and Patch Cord Slack Module installation

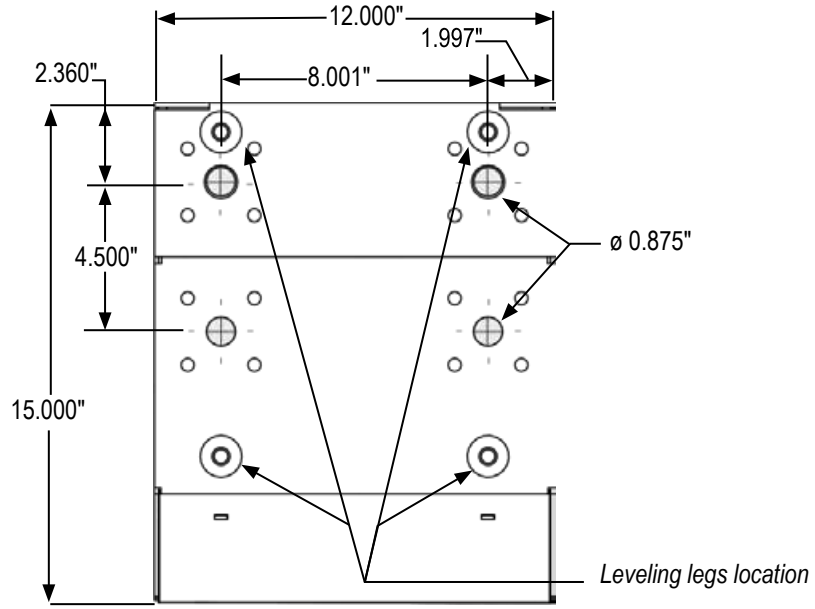
3.1. Bolt Cabinet/Module to the loor

1. Using provided dimensions, layout and drill 6 holes to secure the Cabinet (or 4, when securing the Module) to the floor. The hole size in Cabinet (or Module) is sized for clearance of 1/2 -13 bolts.

Bottom view of the cabinet



Bottom view of the module

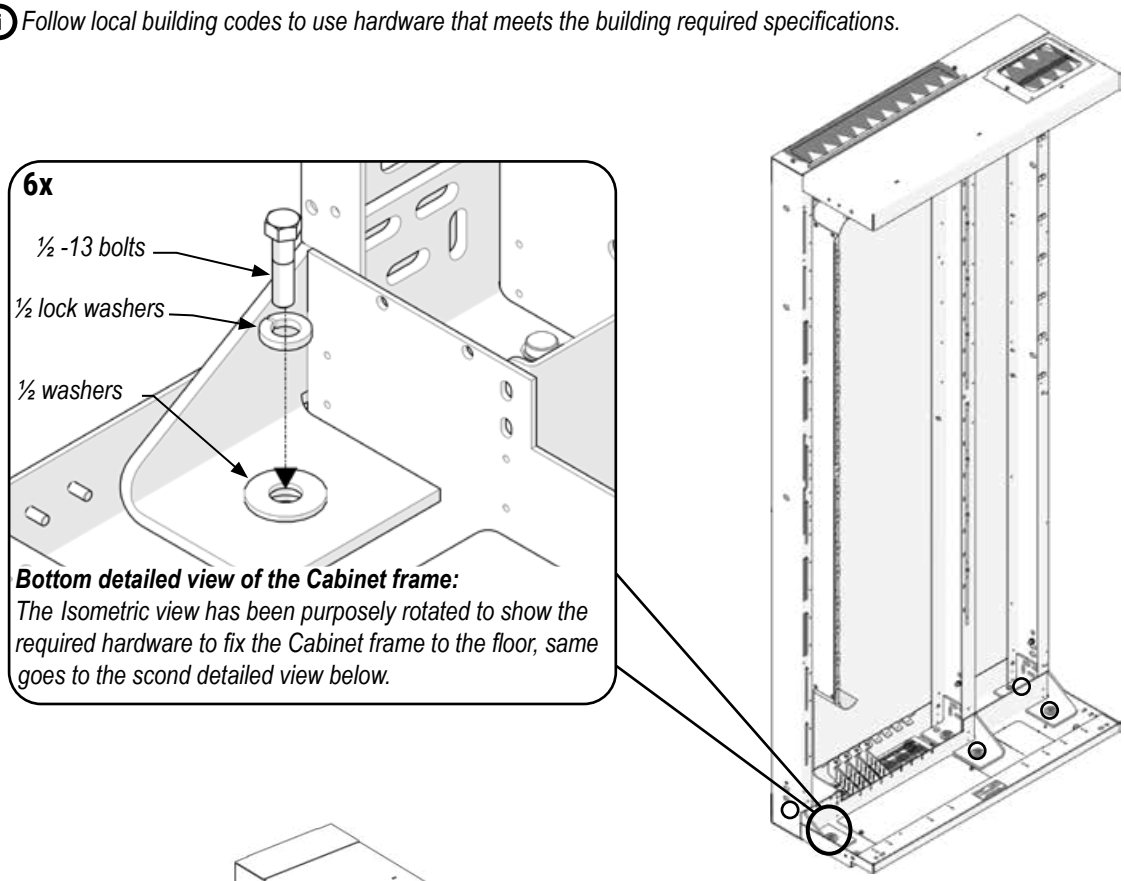


Be sure to consult the local building codes to ensure proper anchor hole size and anchor specifications that are to be used.

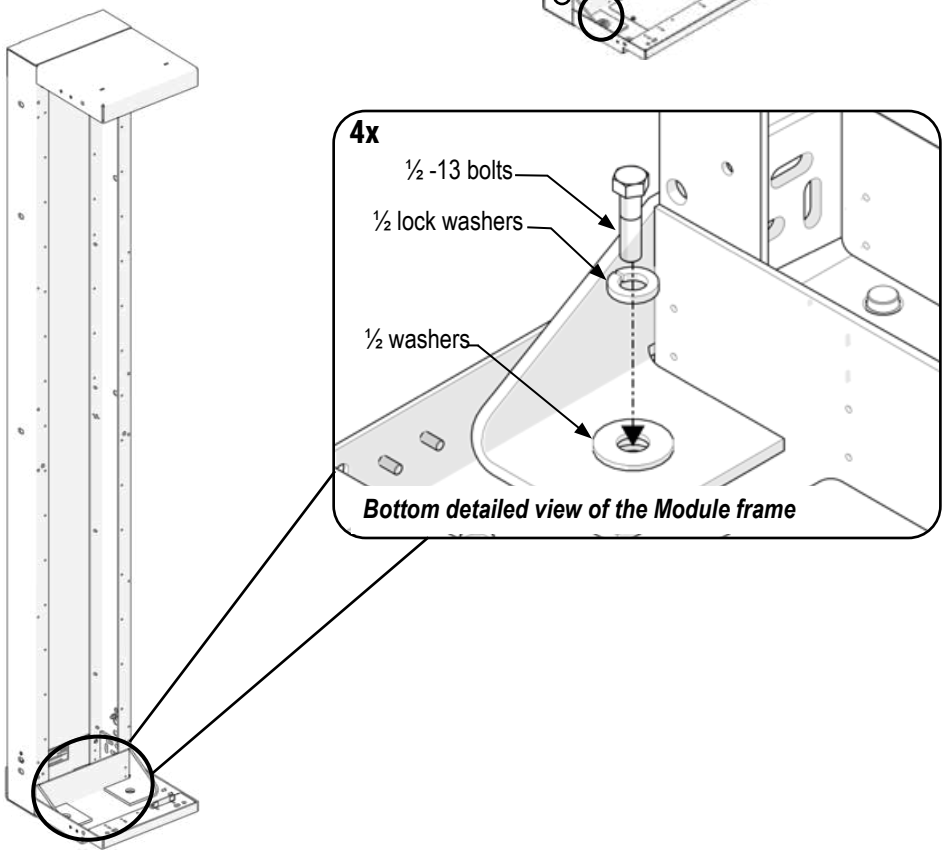
2. After holes are drilled and anchors are inserted (per local building code specifications) secure enclosures (Cabinet or Module) to anchors by using :

- 1/2 -13 bolts (6 per Cabinet/ 4 per Module)
- 1/2 lock washers (6 per Cabinet/ 4 per Module)
- 1/2 washer (6 per Cabinet/ 4 per Module)

Follow local building codes to use hardware that meets the building required specifications.



Bottom detailed view of the Cabinet frame:
The Isometric view has been purposely rotated to show the required hardware to fix the Cabinet frame to the floor, same goes to the scond detailed view below.

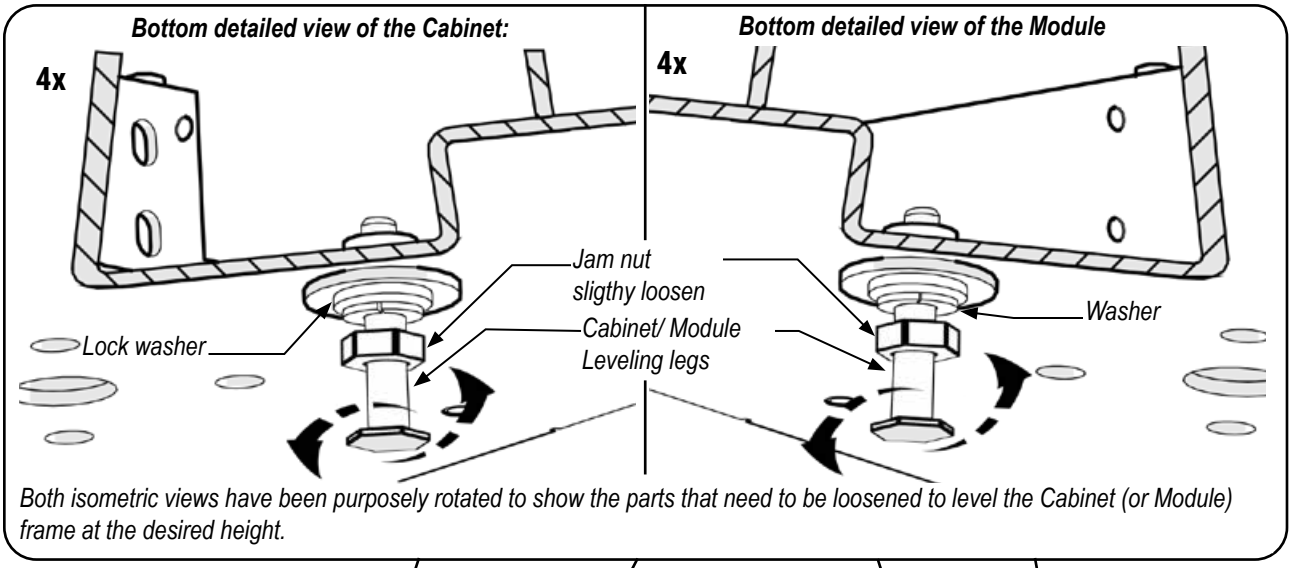


Bottom detailed view of the Module frame

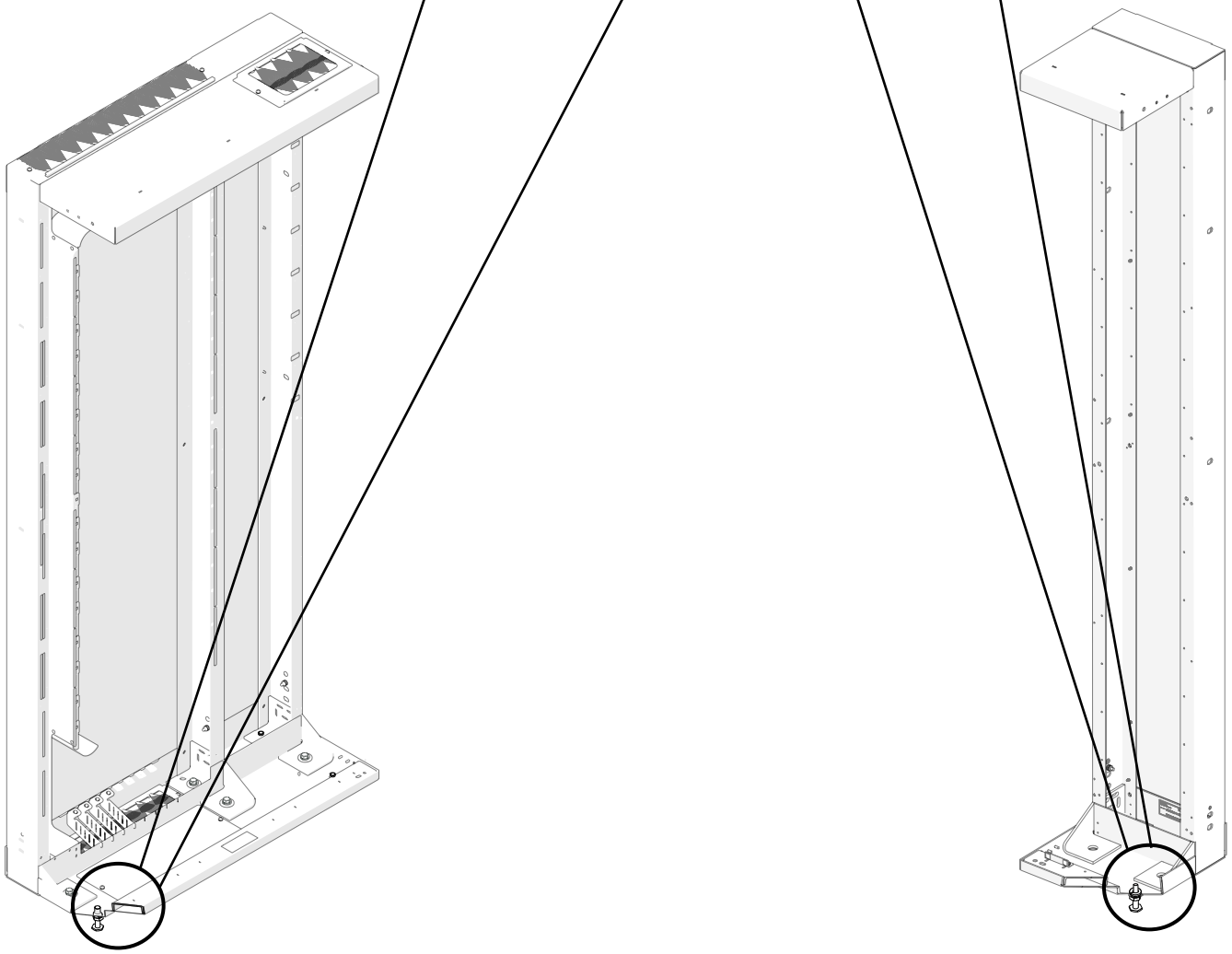
3.2. Leveling Cabinet/Module Legs

1. "Break loose" the jam nut and rotate away from the bottom of the Cabinet (or Module).
To lower the Cabinet (or Module), rotate the leveling leg counter-clockwise.
To raise the Cabinet (or Module), rotate the leveling leg clockwise.

2. Repeat for each leveling leg as needed.
Once the Cabinet (or Module) has been leveled/raised/lowered to the desired height, tighten the jam nuts up against the bottom of the Cabinet (or Module).



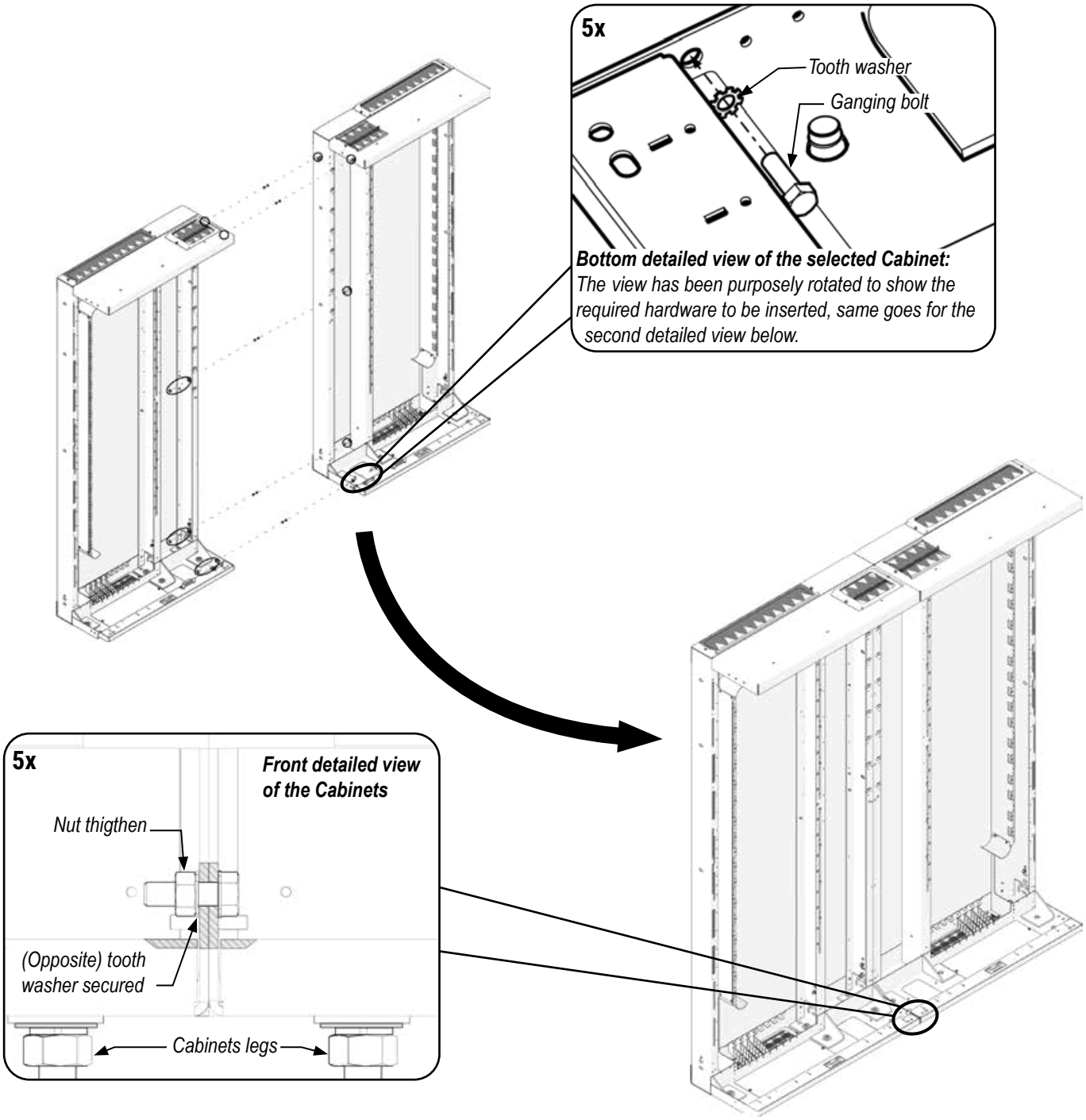
Both isometric views have been purposely rotated to show the parts that need to be loosened to level the Cabinet (or Module) frame at the desired height.



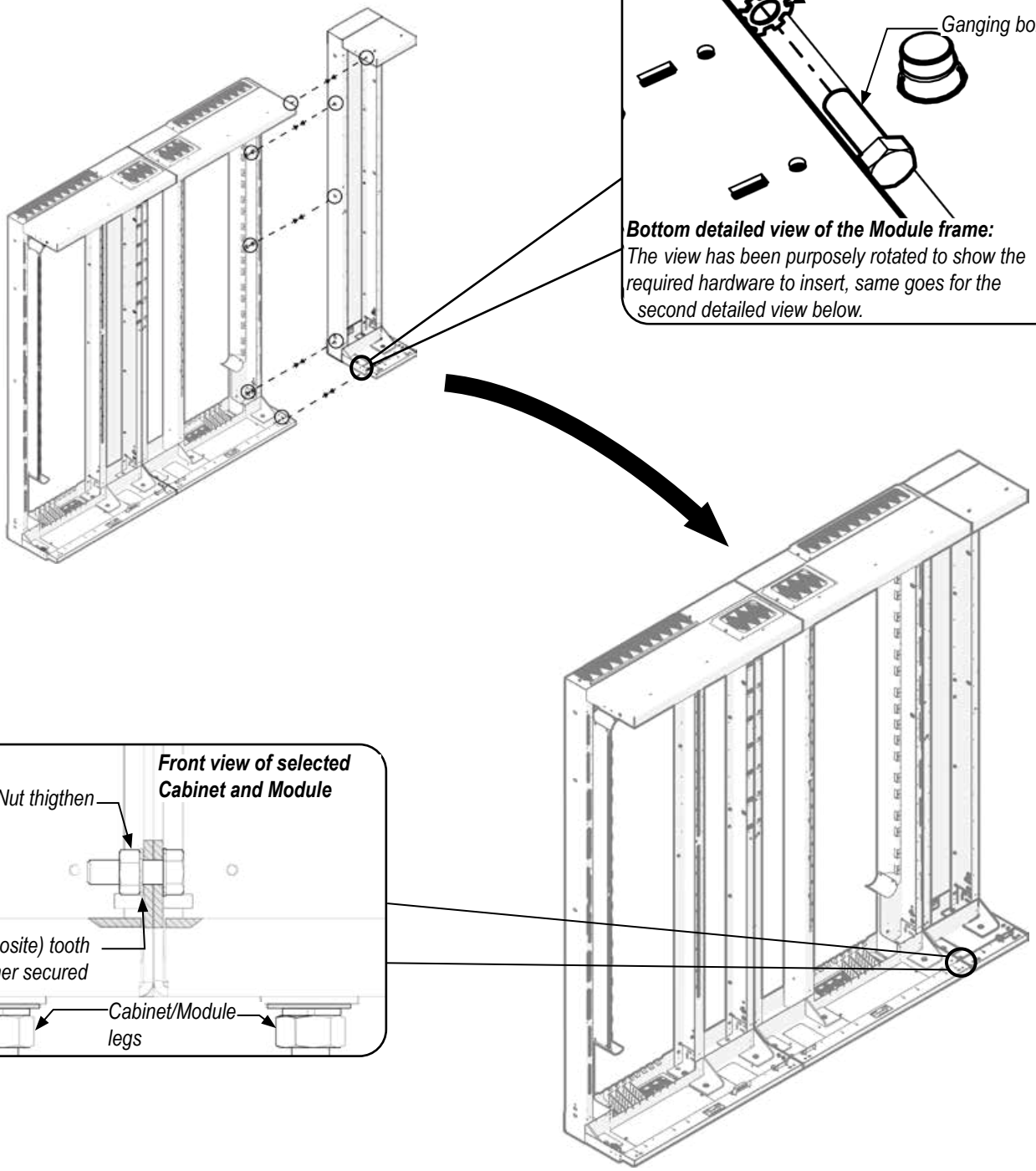
3.3. Bolt Cabinets/Module Side-to-Side

1. Place Cabinets (or the opposite Cabinet with Module) Side-to-Side making sure that the side ganging holes/slots are aligned (it is assumed that at this point the Cabinets and Module have been placed in position and leveled).
   Using the provided hardware kit (***DCX-GANG-KIT01***), place one 5/16 -18 bolts and tooth washer through one of the adjoined Cabinets (or the Module placed).
   Repeat this process through the remaining (5) holes on the perimeter of the Cabinet (or the Module).
2. On the opposite side of the Cabinet attach one 5/16 tooth washer and nut to the protruding bolts.
   Repeat this process for the (5) remaining bolts and tighten down the nuts, by drawing the two Cabinets (or the Cabinet and Module) flush together.
   Repeat this process for all Side-to-Side Cabinets and Modules installed in the same row.

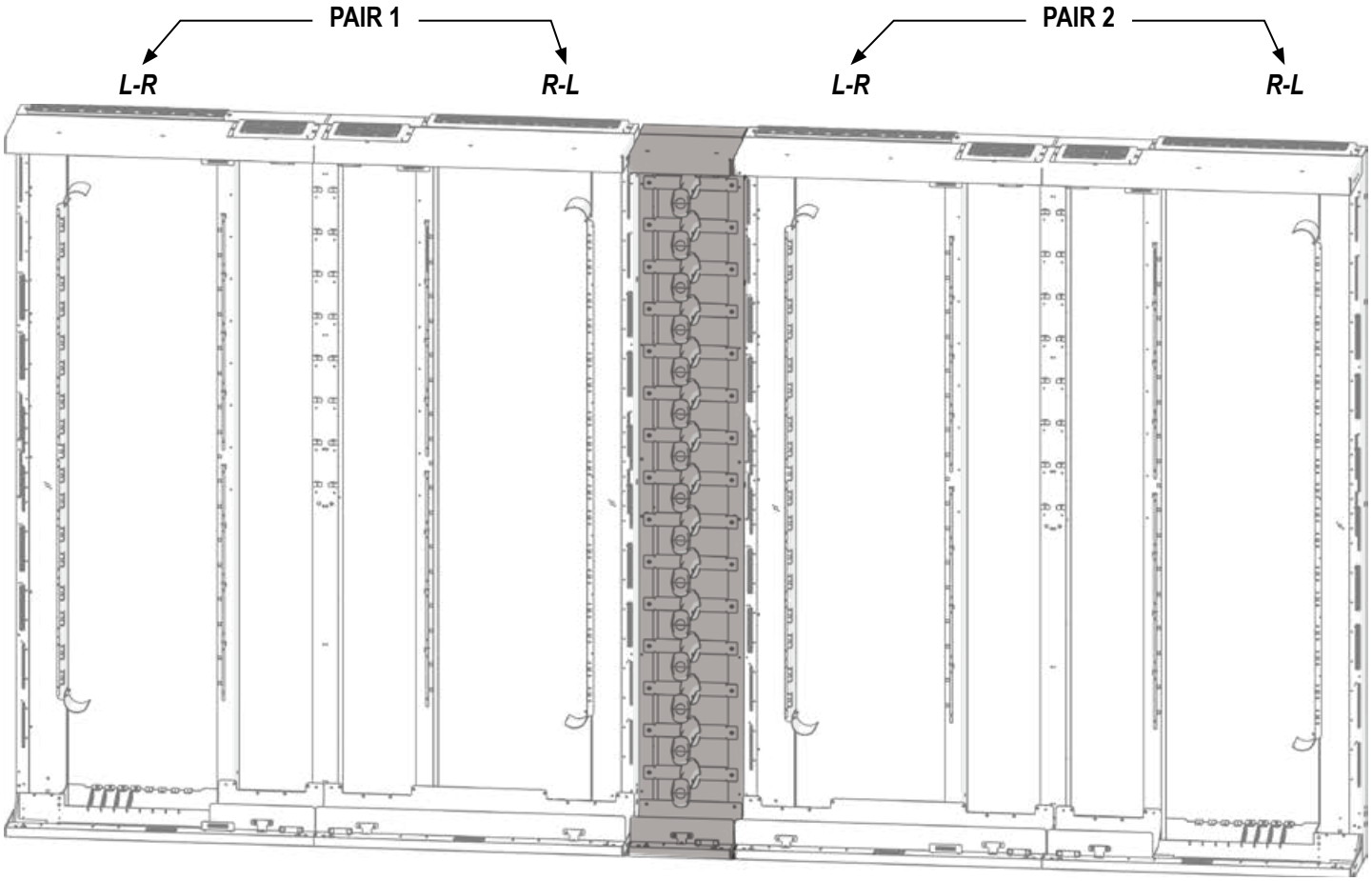
ⓘ *Refer to the next page to see how a Module is ganged to a pair of adjoined Cabinets.*



Example of a Module ganged to a pair of Cabinets in the same row.



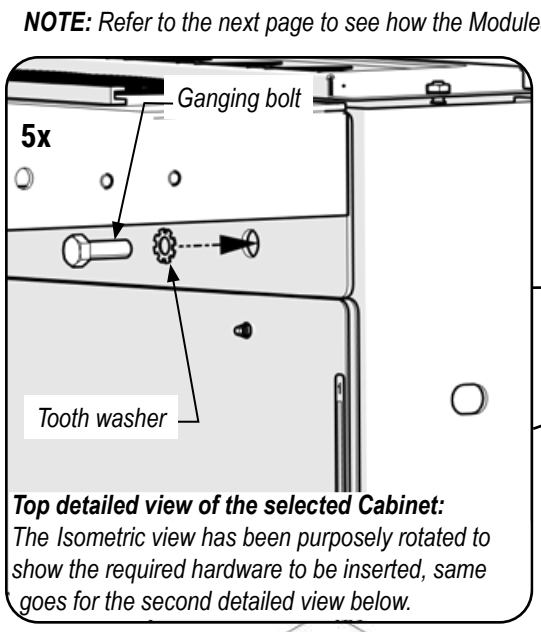
Example of a Module ganged with two pairs of Cabinets in the same row.



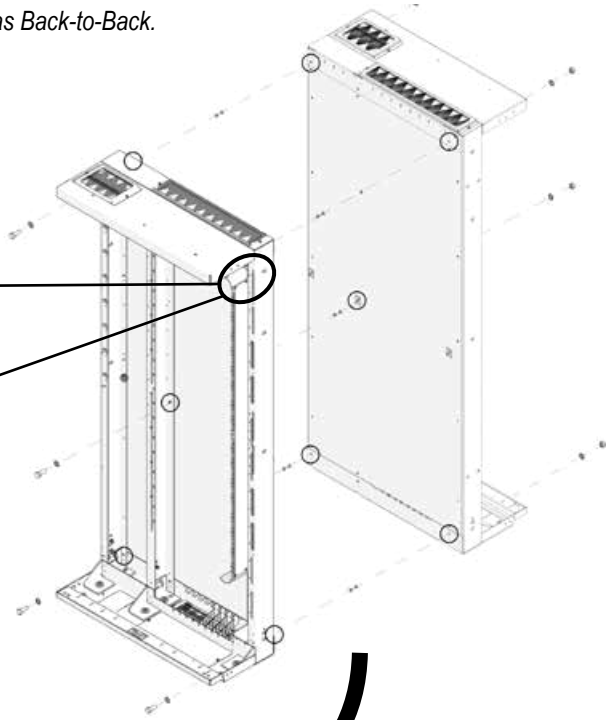
3.4. Bolt Cabinets/Modules Back-to-Back

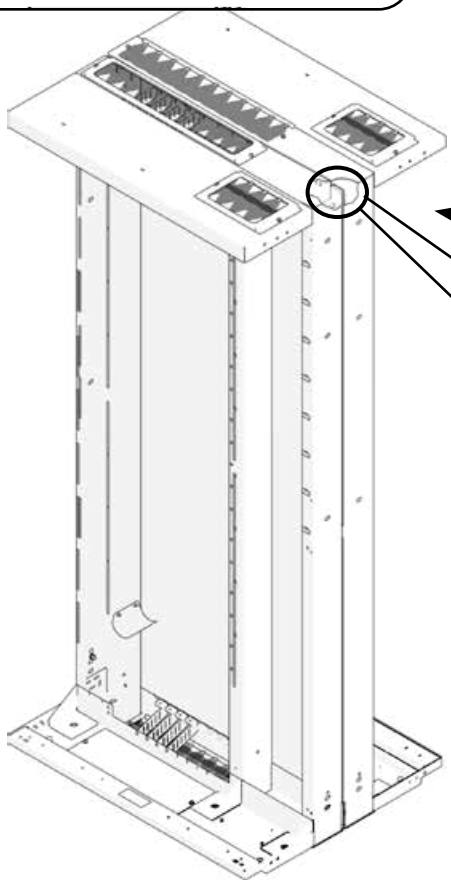
1. Place Cabinets (or Modules) Back-to-Back by making sure that the rear ganging holes are aligned (it is assumed that at this point the Cabinets or Modules have been placed in position and leveled).
   Using the provided hardware kit (***DCX-GANG-KIT01***), place one 5/16 -18 bolts and tooth washer through one of the adjoined Cabinets (or Modules placed at this position).
   Repeat this process through the remaining (5) holes on the perimeter of the Cabinet (or Module).
2. On the opposite Cabinet (or Module), attach one 5/16 tooth washer and nut to the protruding bolts.
   Repeat this process for the (5) remaining bolts and tighten down the nuts, by drawing the two cabinets flush together.
   Repeat this process for the (2) rows of Cabinets placed Back-to-Back that require the installation of the Modules (***see page 14***).

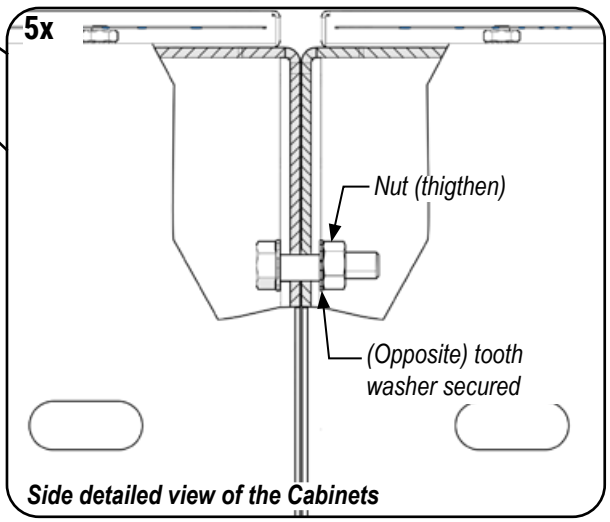
NOTE: *Refer to the next page to see how the Modules are ganged as Back-to-Back.*



Top detailed view of the selected Cabinet:
The Isometric view has been purposely rotated to show the required hardware to be inserted, same goes for the second detailed view below.

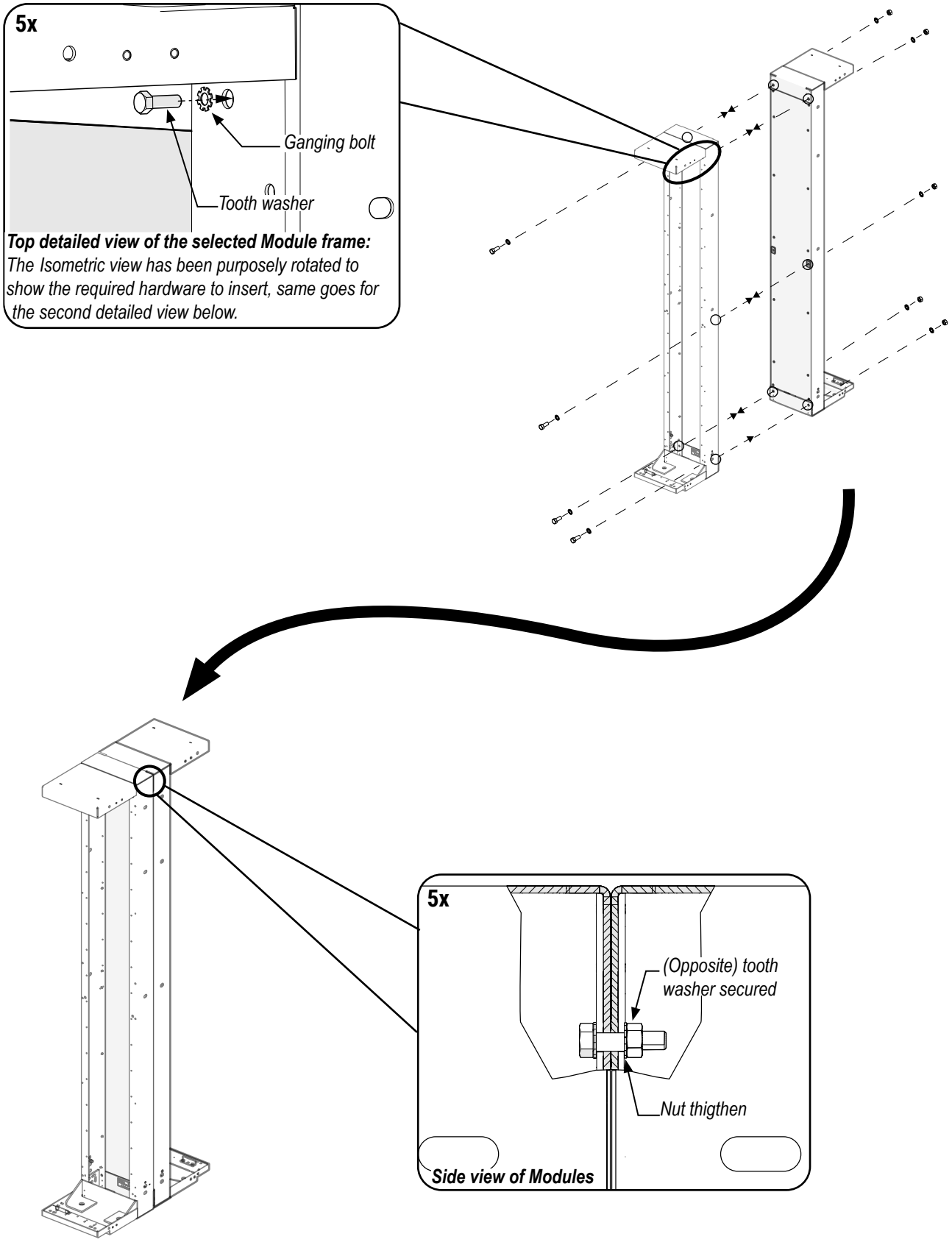






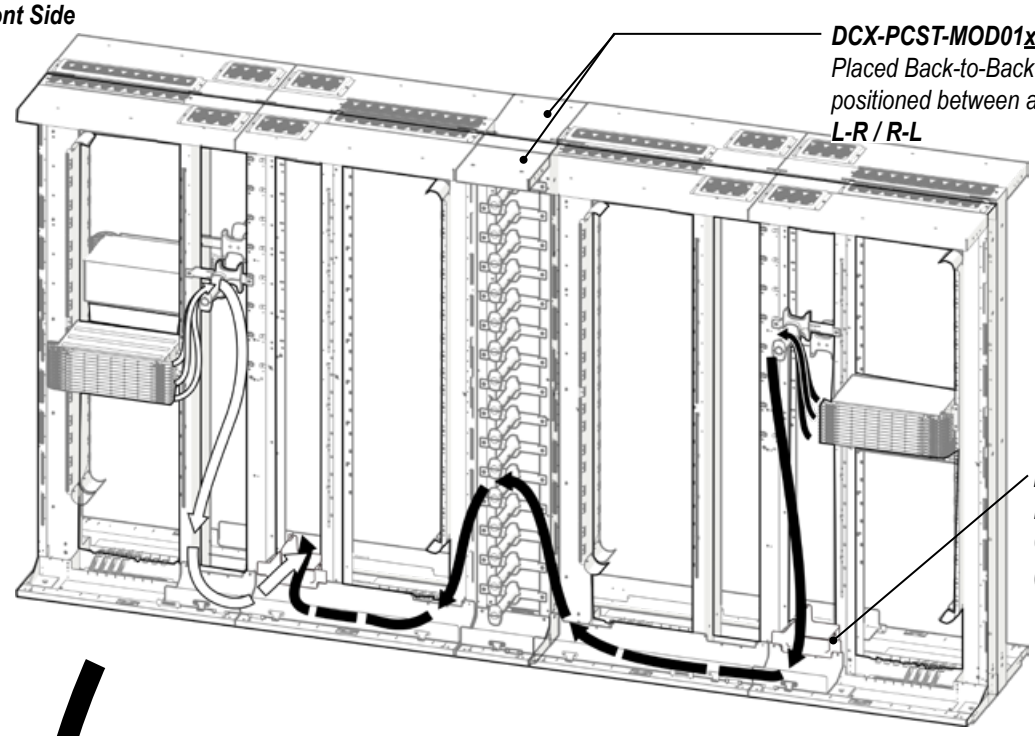
Side detailed view of the Cabinets

Example when grouping two Modules as Back-to-back.



Example of two rows of Cabinets and Modules grouped together as Back-to-Back.
For more details about the Cross-Connection of Cabinets between a point to another, please refer to the Installation Guide ***PX106863 (DCX Cabinet: Planning/Operation)****.*

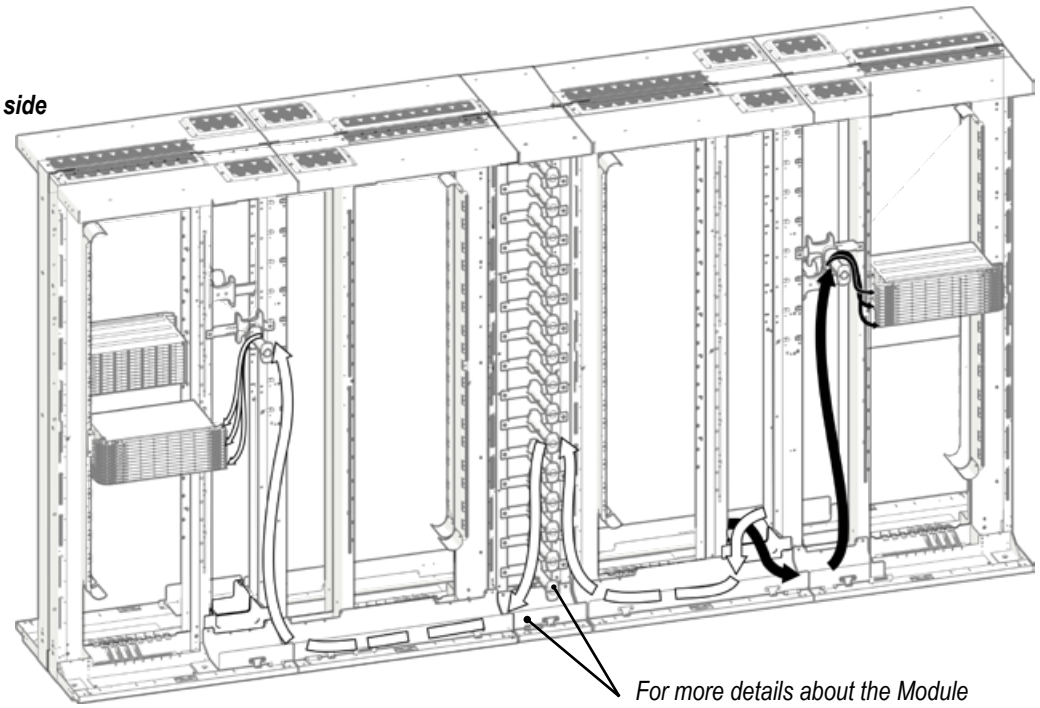
Front Side



DCX-PCST-MOD01x
Placed Back-to-Back and always positioned between a pair of Cabinets ***L-R / R-L***

DCX-HINB-KIT01B
*Interconnect the row of Cabinets on both sides (****section 10.2.****)*

Back side



For more details about the Module components assembly, please refer to the Quick Start Guide ***PX106869***

4.DCX accessibility components

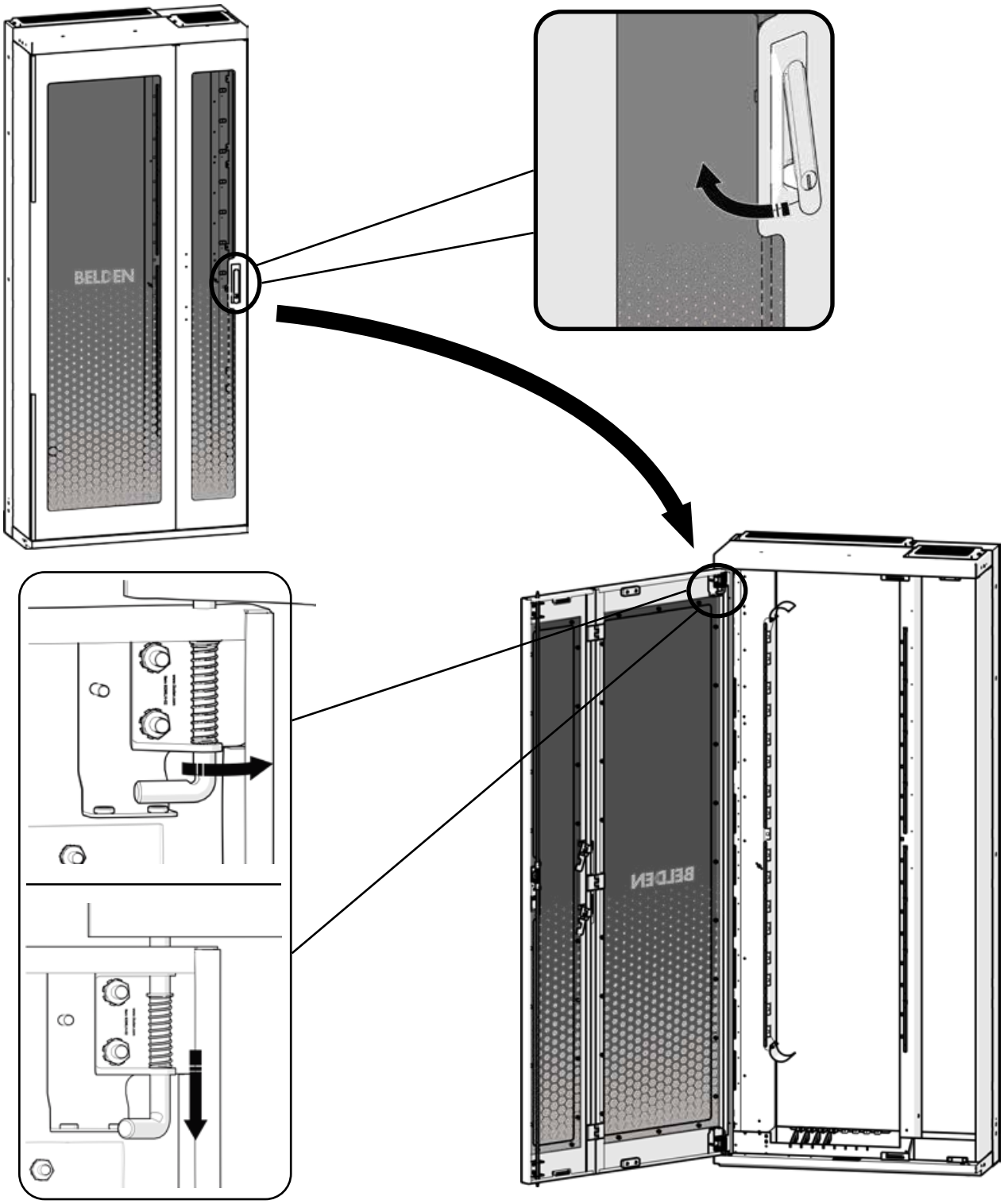
This section shows how to remove some components that come already pre-installed in configured Cabinets.

NOTE: *The removal of the following components may benefits the installation of certain accessories inside the* ***ODF****, ex:*

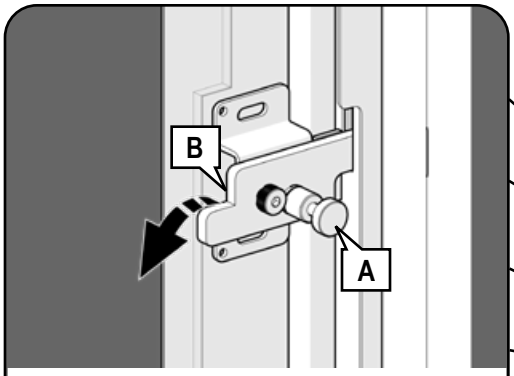
- *When removing side panels, it permits to secure fibers easily to the Cable Distribution Attachement (****refer to section 6.2.****)*
- *To Cross-Connect and feed other Cabinets located in the same row (as shown on the* ***previous page****).*

4.1. Door removal/ installation

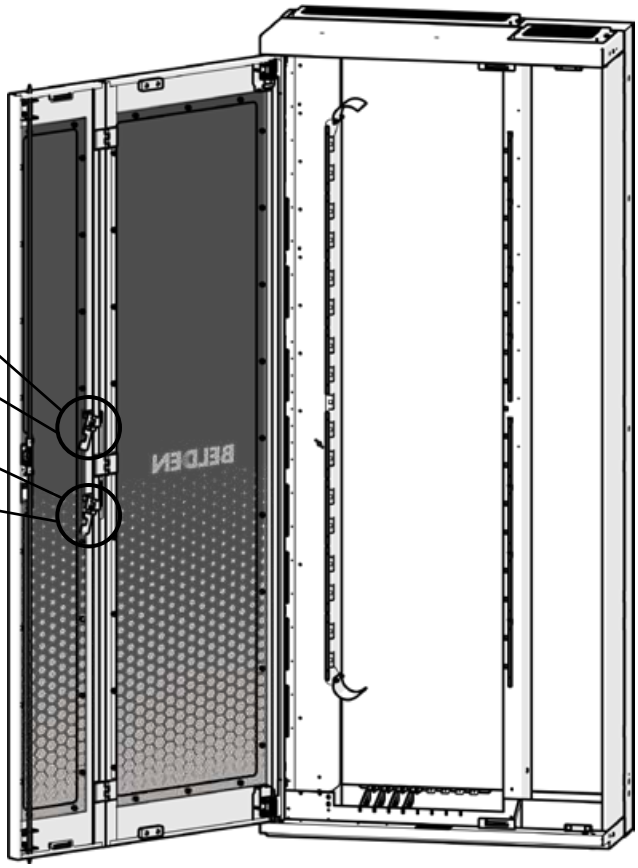
1. Begin by opening the Cabinet door.
Once the door is open, on the top hinge assembly, rotate the latch clockwise and pull downwards to disengage the door from the Cabinet.
Tilt slightly the door downwards and lift it from the Cabinet.

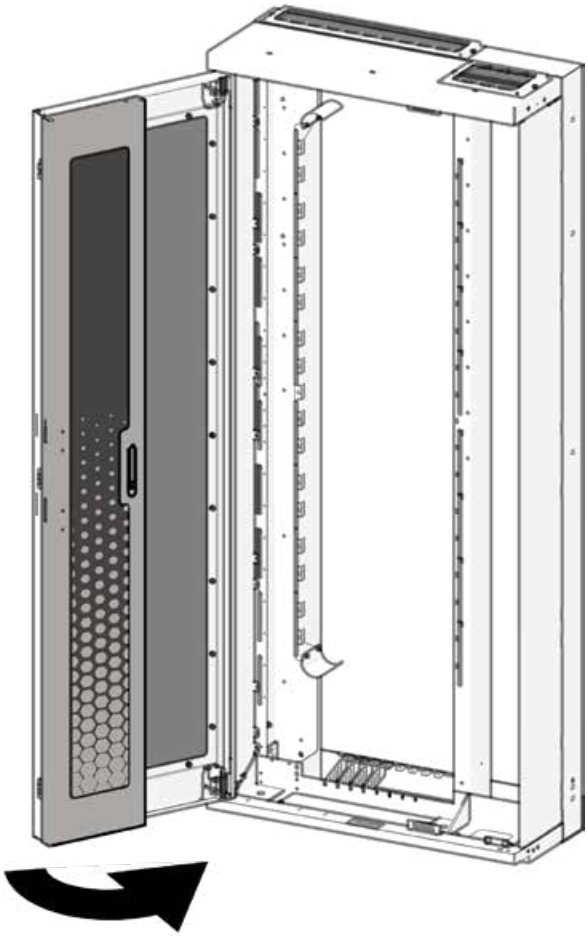


REMOVAL TIP: *To facilitate the door removal, it is possible to unlock the small door and fold it onto the big one.*

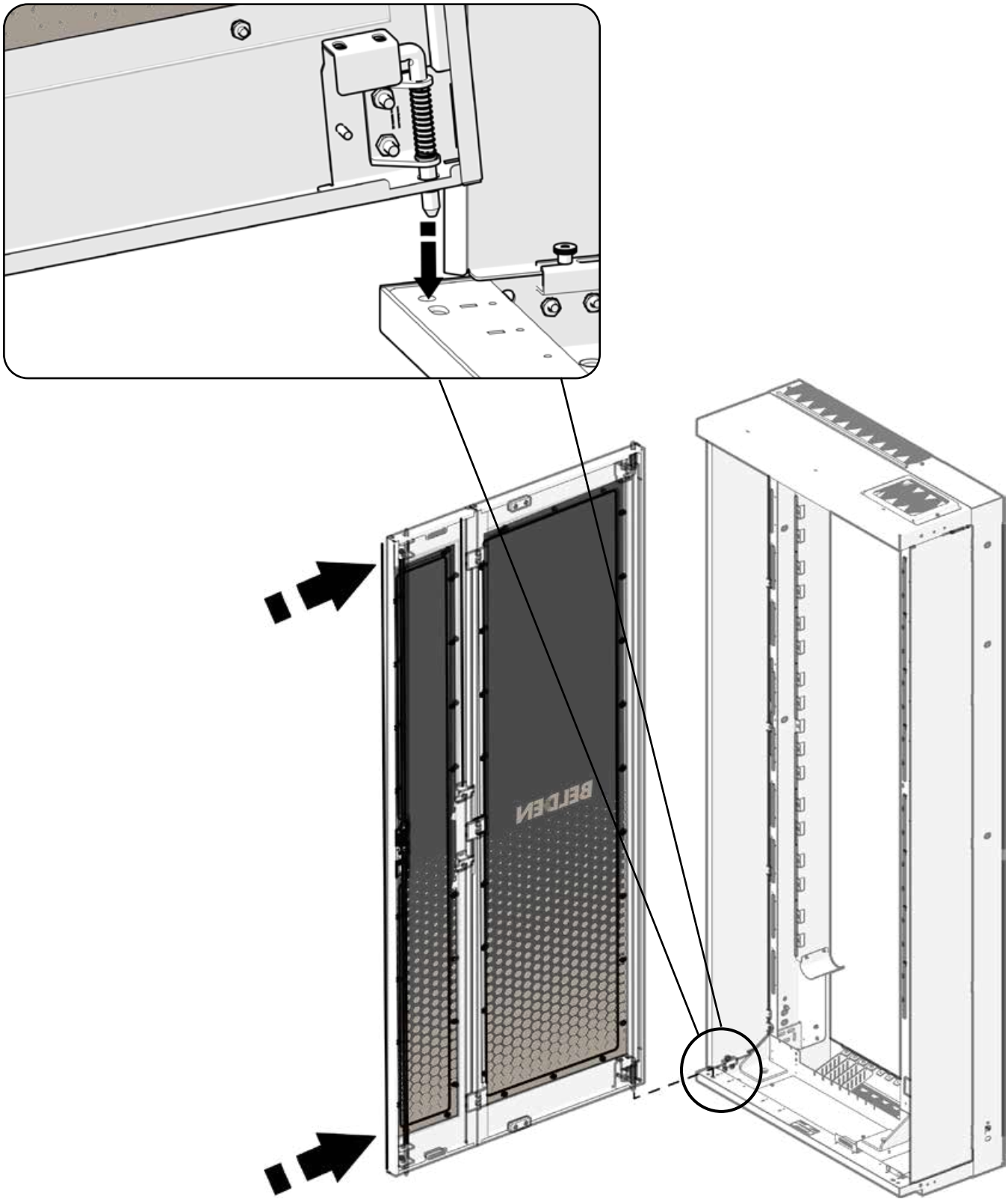


The door locks are disengaged by pulling the captive fastener and pushing the tab downwards.





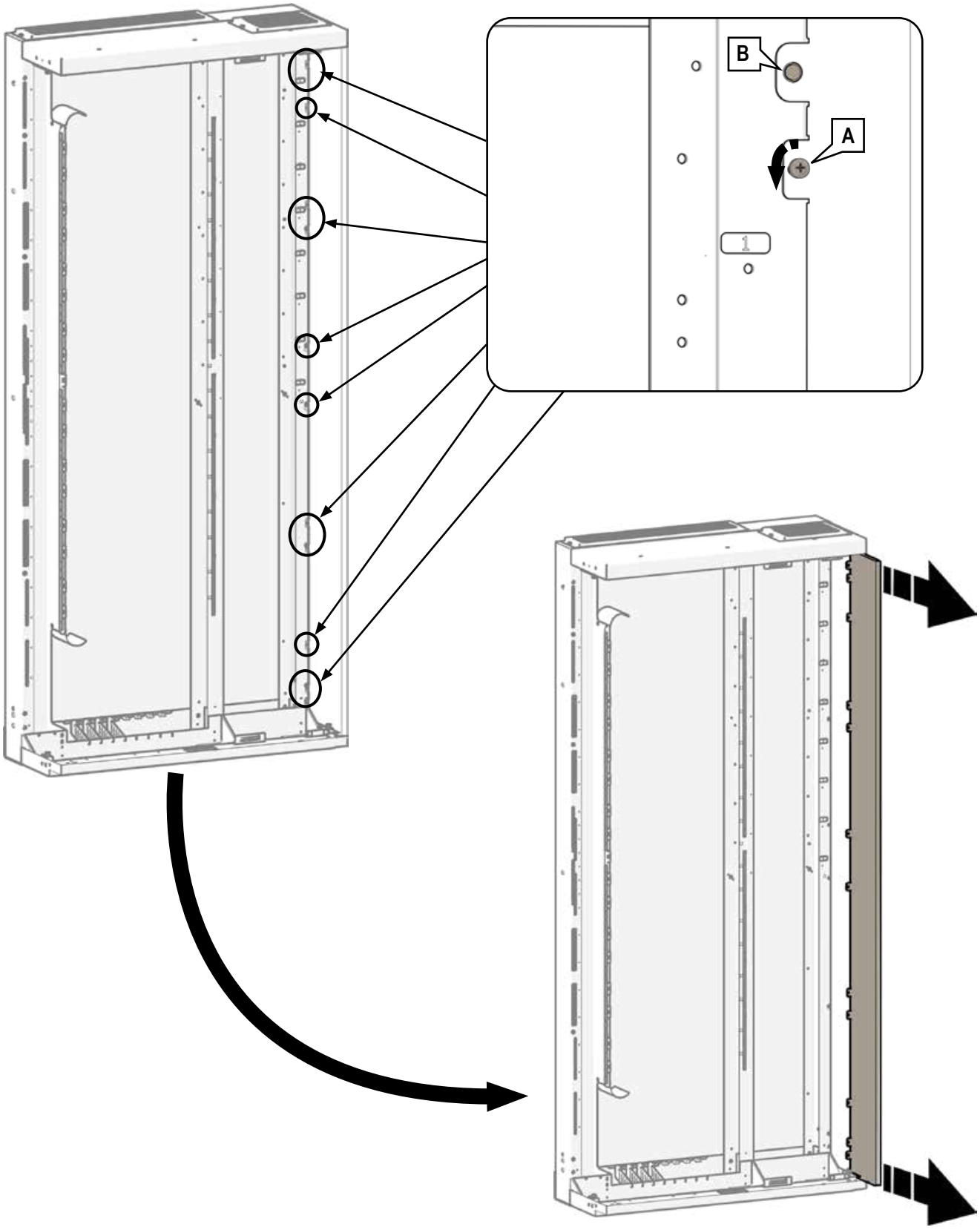
2. For the installation of the door align bottom hinge latch of the door in its respective place. Reverse the previous procedures shown at the ***step 1*** to secure the door top hinge.



4.2. Side Panel removal/ installation

1. Remove the screws tighten to the Side Panel.
Pull-out all fasteners to disengage the Side Panel.

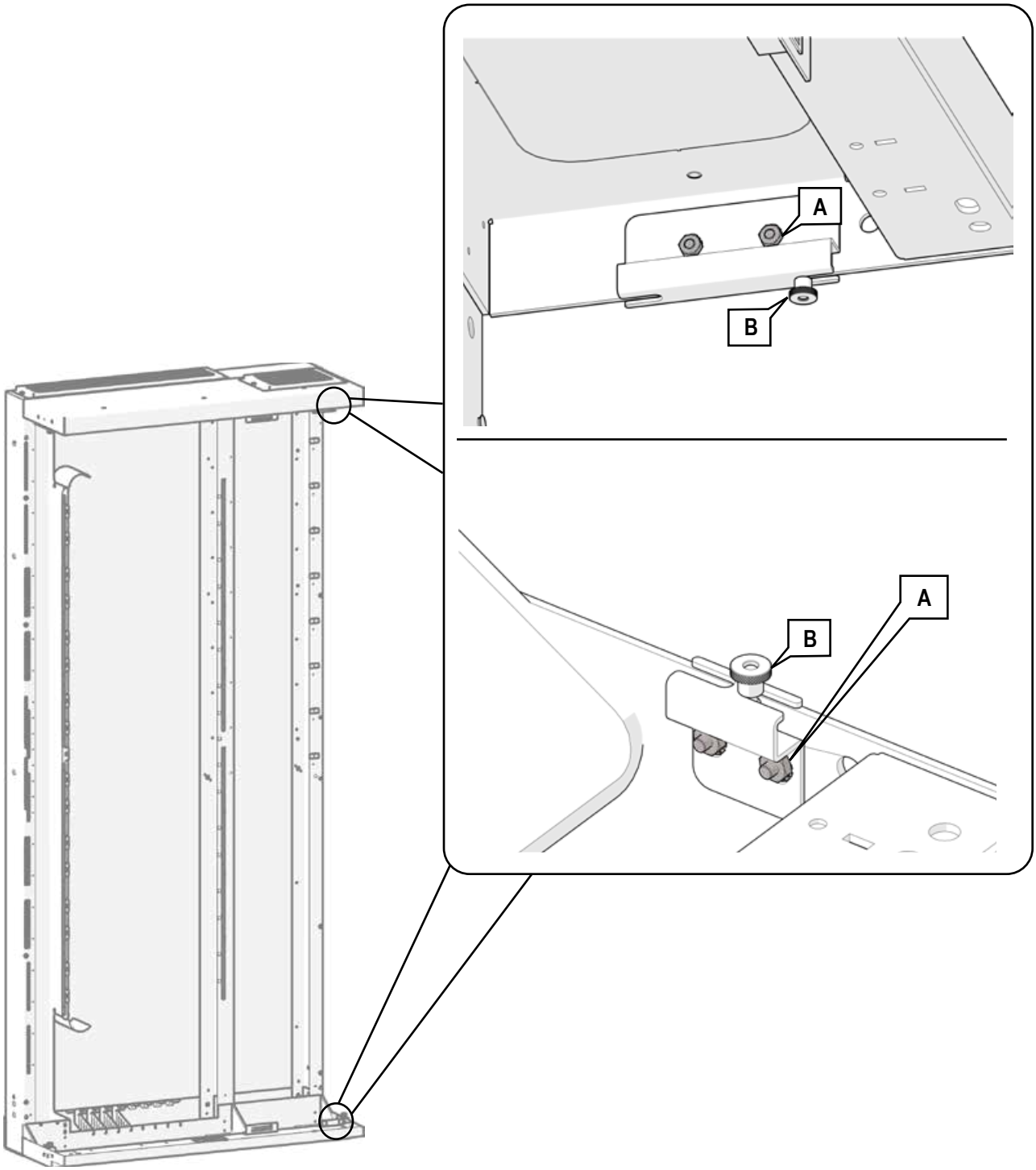
2. Slide the Side Panel outwards the Cabinet.



When moving the Side Panels to another Cabinet, the brackets (2) located at the top and bottom must be removed and placed in their new location.

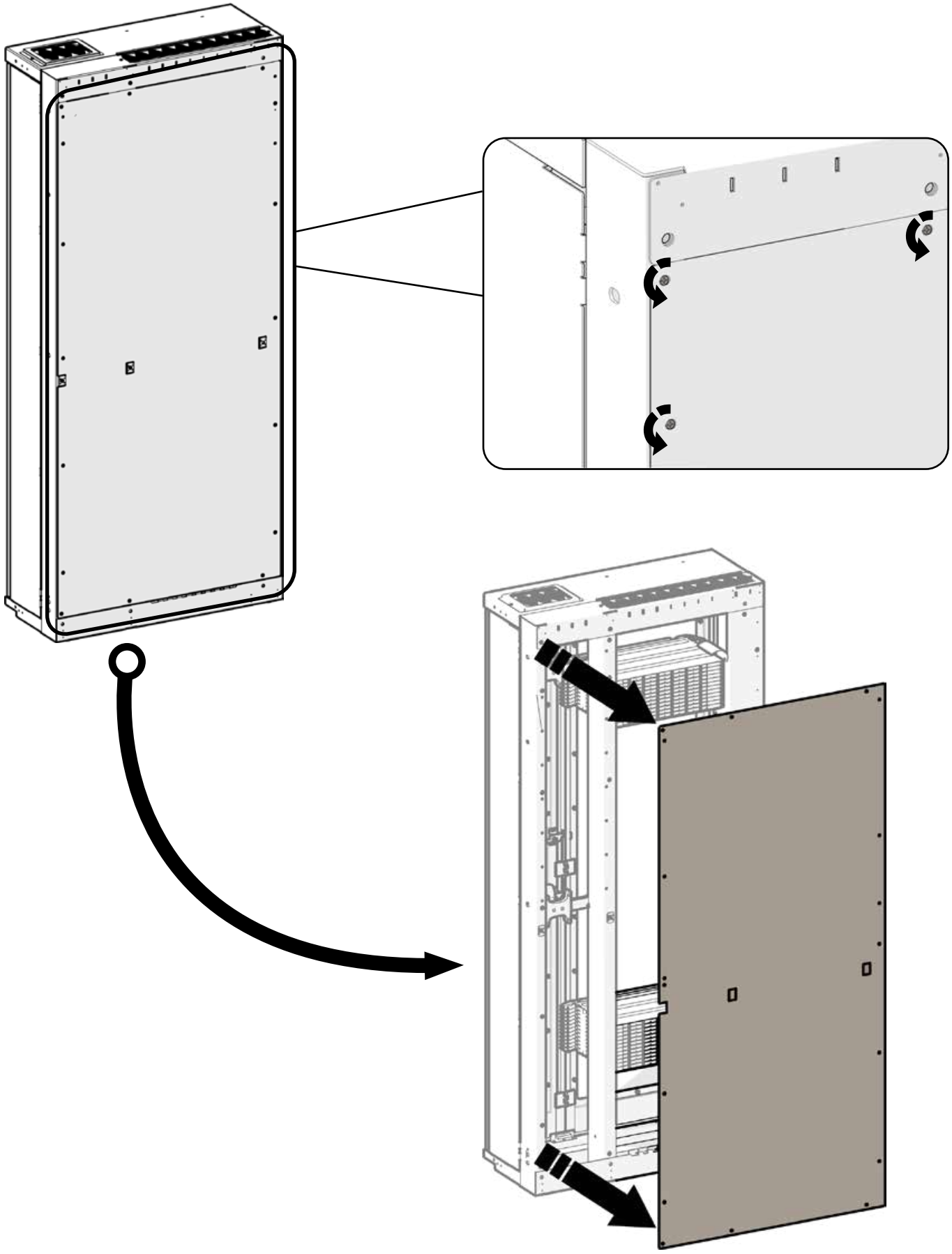
The brackets are removed by loosening the bolts and tooth washer and pulling the fastener outside.

These brackets are also removed when installing the In-Cabinet Channel accessories (refer to ***Section 10.1.*** *for more details).*



4.3. Rear Panel removal/ installation - optional

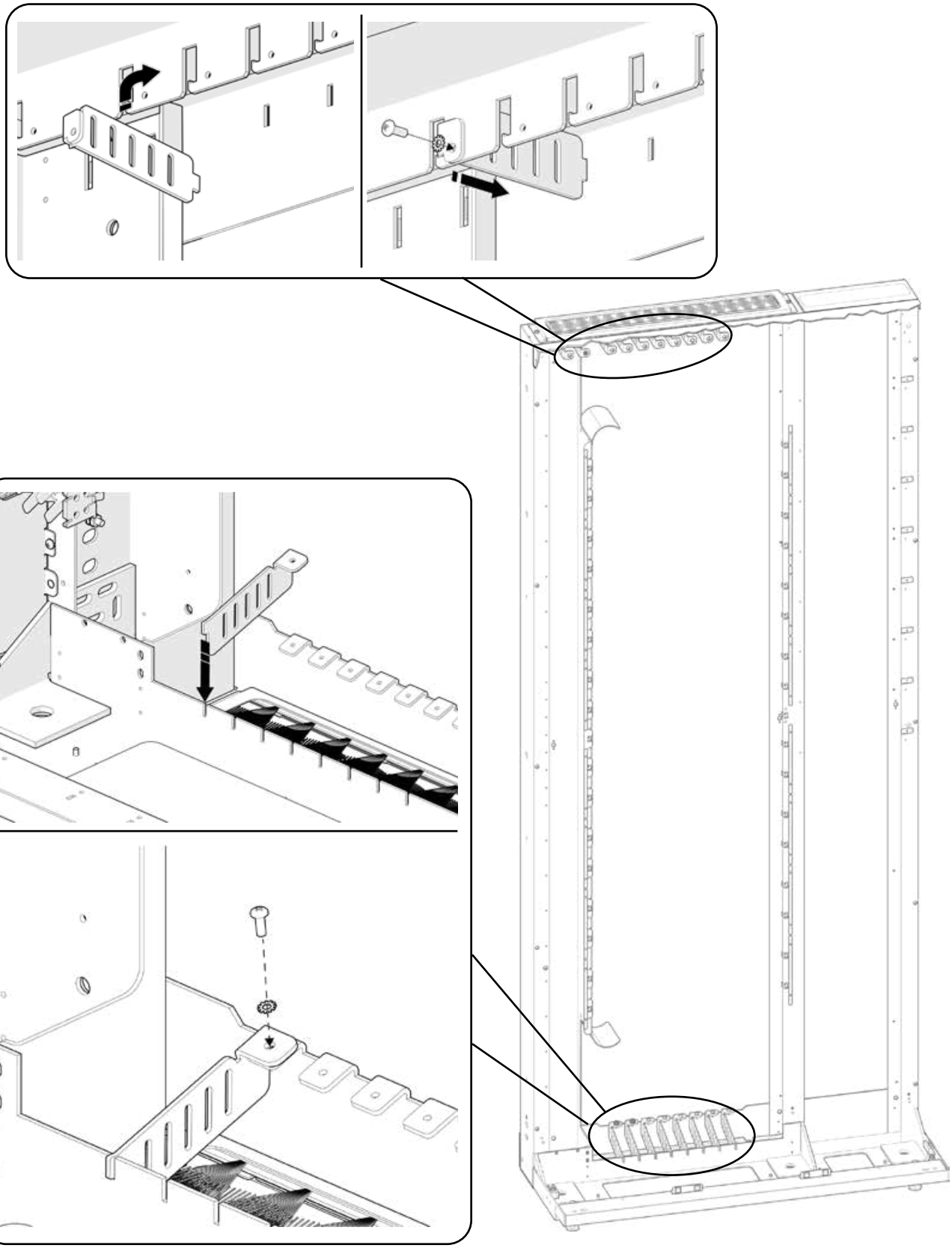
1. Locate the tighten screws installed all over the Rear Panel area and loosen them to remove the accessory from the Cabinet.



5. Cable Entrance bracket

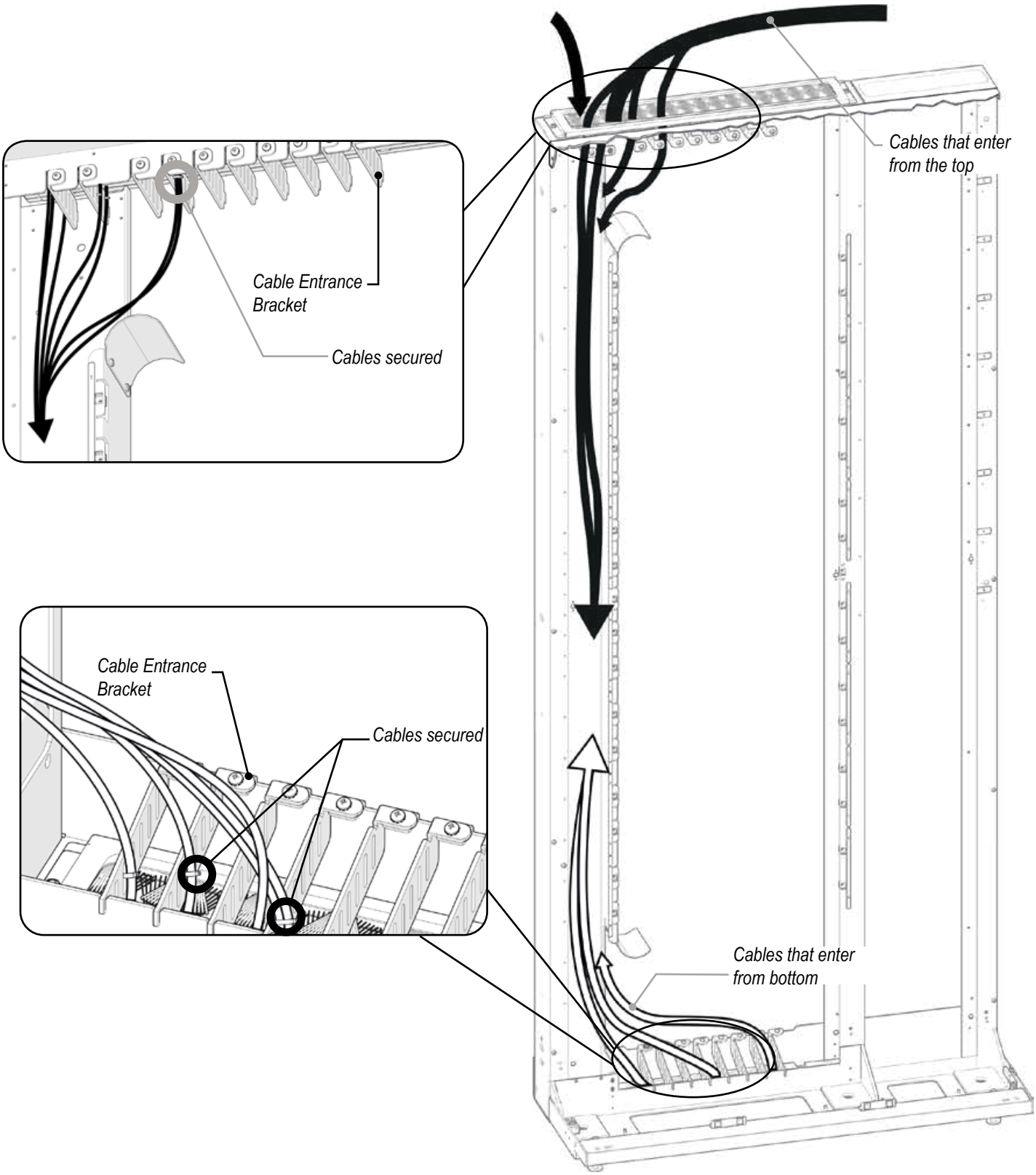
5.1. Installation

1. Select an area where to install the Cable Entrance Bracket (from the top, bottom or both).
Insert the Cable Entrance Bracket to the selected area and use the provided hardware to secure the accessory.



5.2. Securing Cables

1. Select an entrance in which cables will enter the Cabinet (from the top or bottom).
At the chosen entrance, secure the cables to the Entrance Brackets by using cable ties or Velcro.



6. Cable Distribution Brackets

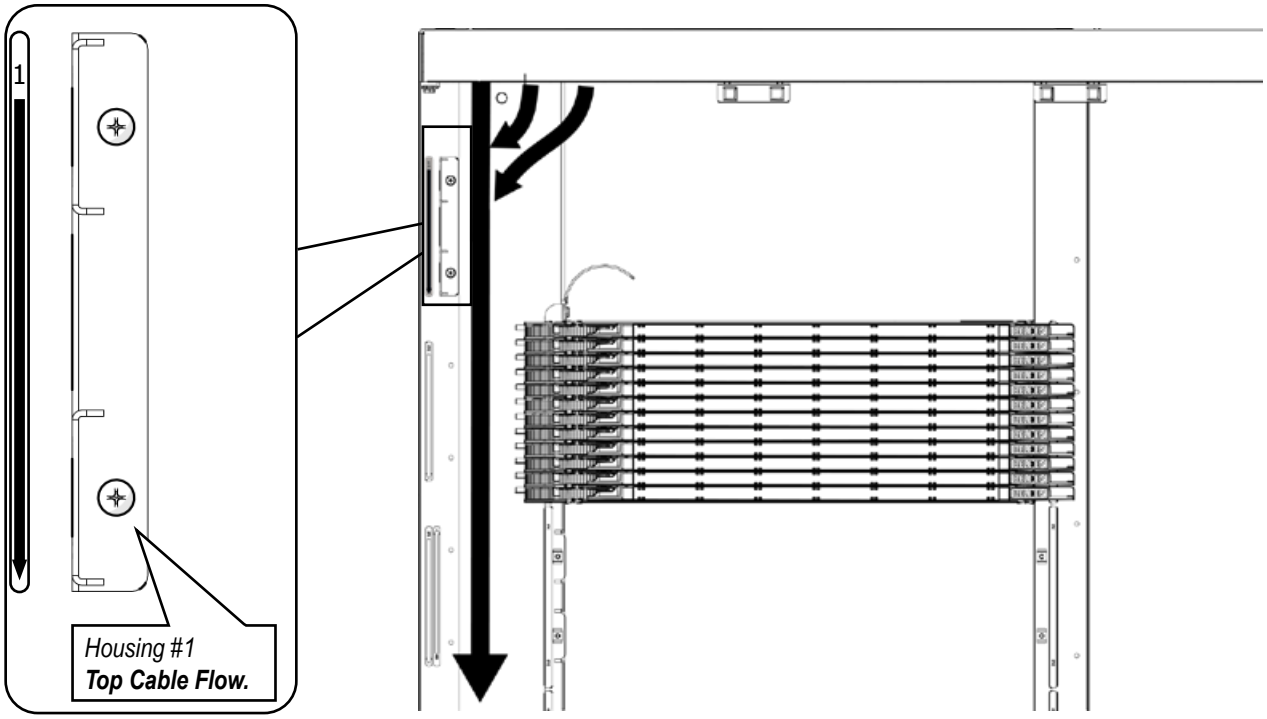
6.1. Installation

1. Install the Housing into the Cabinet and use the visual reference to determine the Cable Distribution Bracket position. Once the position is determined, install the Cable Distribution Bracket on the Cabinet by using the provided screws.

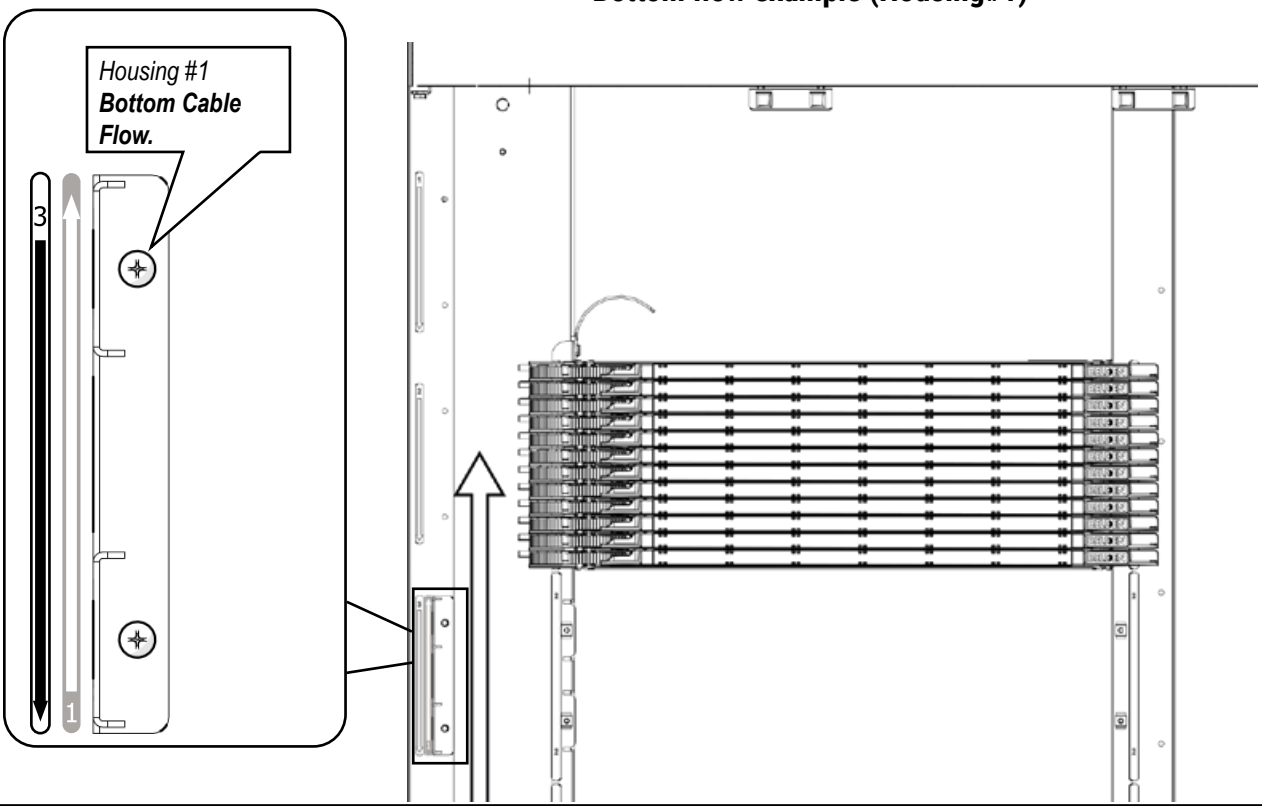
NOTE: *On the visual reference shown:*

- *The arrow color and direction represent the **cable flow** (**Black for Top**, **White for Bottom**).*
- *The number located below (or above) the arrow represents the Housing position.*

Top flow example (Housing#1)

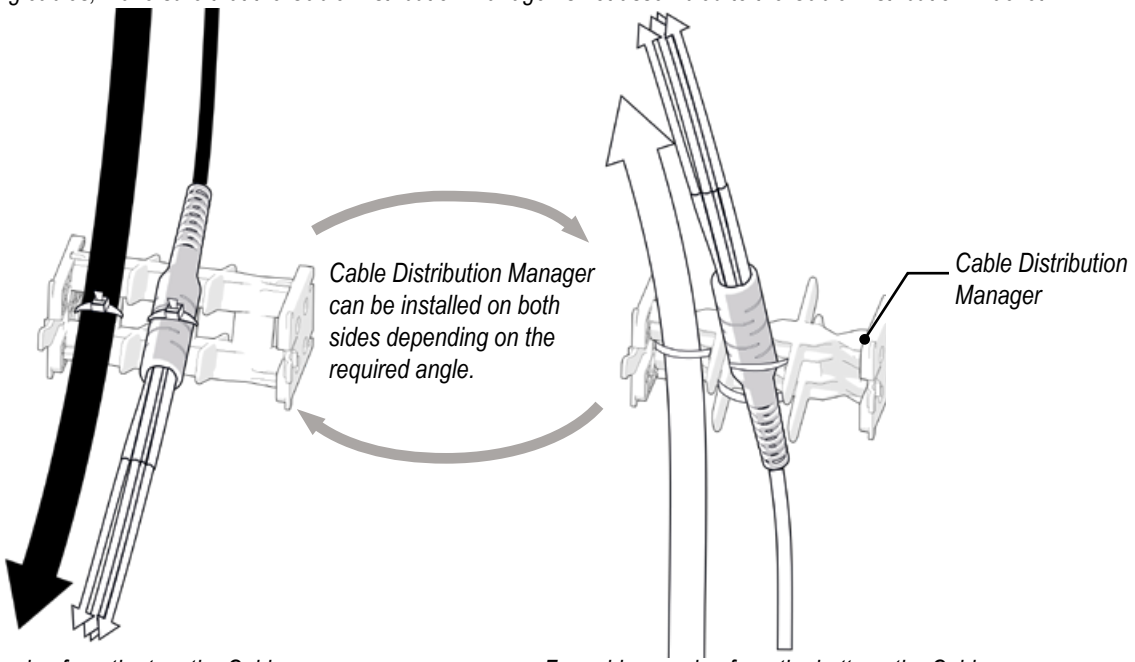


Bottom flow example (Housing#1)



6.2. Features and cable securing

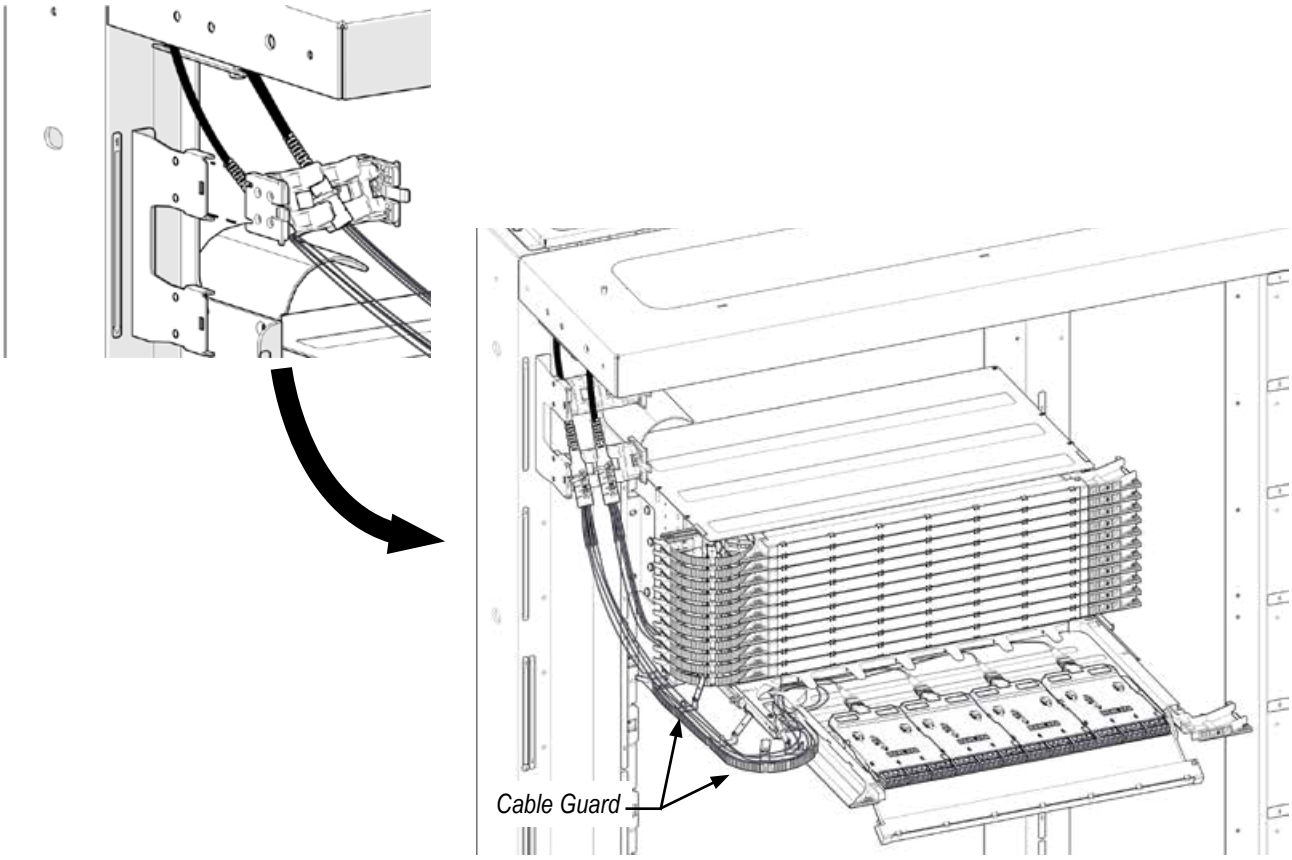
1. Determine the angle of the Cable Distribution Manager based on the cable flow.
Place the cables in the Cable Ditribution Manager and secure them with the provided cable ties.
NOTE: *When attaching cables, make sure that the Cable Distribution Manager is not assembled to the Cable Distribution Bracket.*



For cables coming from the top, the Cable Distribution Manager face towards this direction.

For cables coming from the bottom, the Cable Distribution Manager face towards this direction.

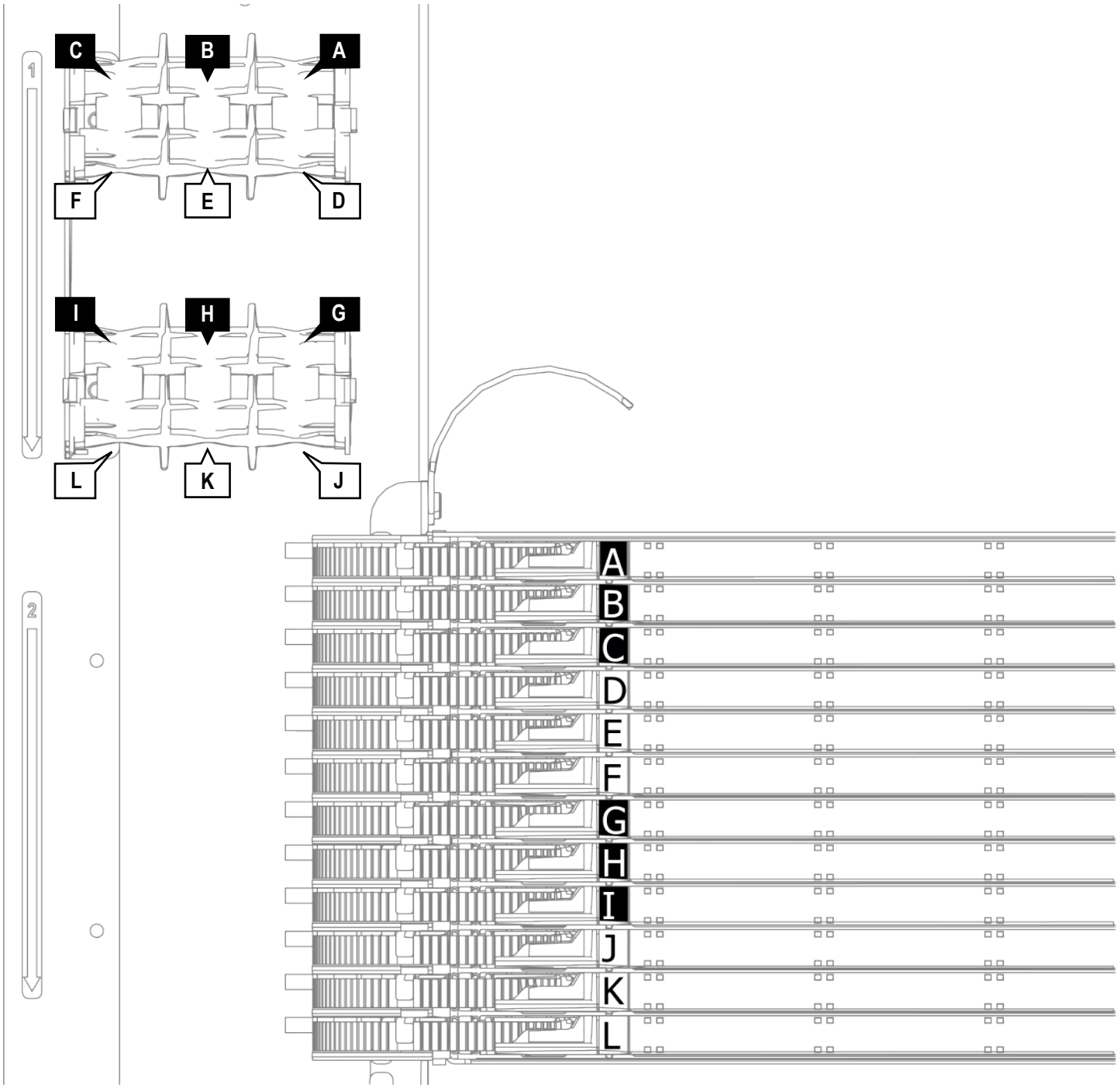
2 Slide the Cable Distribution Manager into the Bracket .
Place trunk cables into the Housing Cable Guard.
Repeat the previous steps to install the second Cable Distribution Manager on the Bracket.



ⓘ: *If the Cable Distribution Attachment Kit is fully loaded:*

- *The cables secured from the **First Cable Distribution Manager** will load the 6 Trays starting from letter **A** to **F**.*
- *The cables secured from the **Second Cable Distribution Manager** will load the 6 Trays starting from letter **G** to **L**.*

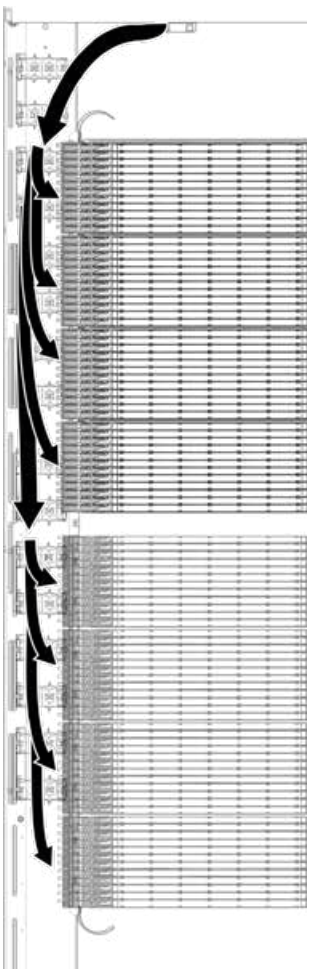
ⓘ: *The **black cases** below represent cables that are secured at the **front (or top)** of the **Cable Distribution Manager** and which **Housing Tray** the fibers will enter.*
*The **white cases** below represent cables that are secured at the **rear (or bottom)** of the **Cable Distribution Manager** and which **Housing Tray** the fibers will enter.*



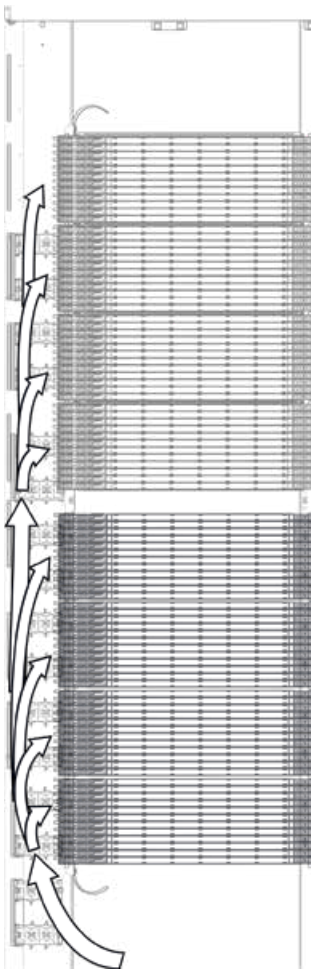
6.3.Cable operation and management

This section shows the available methods for managing incoming cables in a filled Cabinet.

Top

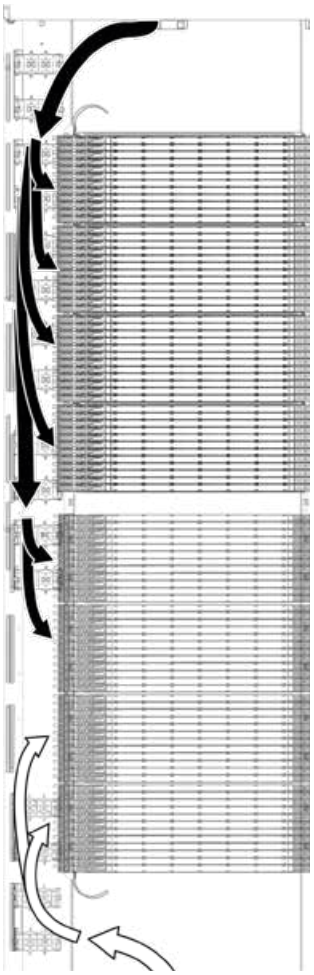


Bottom



50 Top/50 Bottom

80 Top/20 Bottom (or inverted)

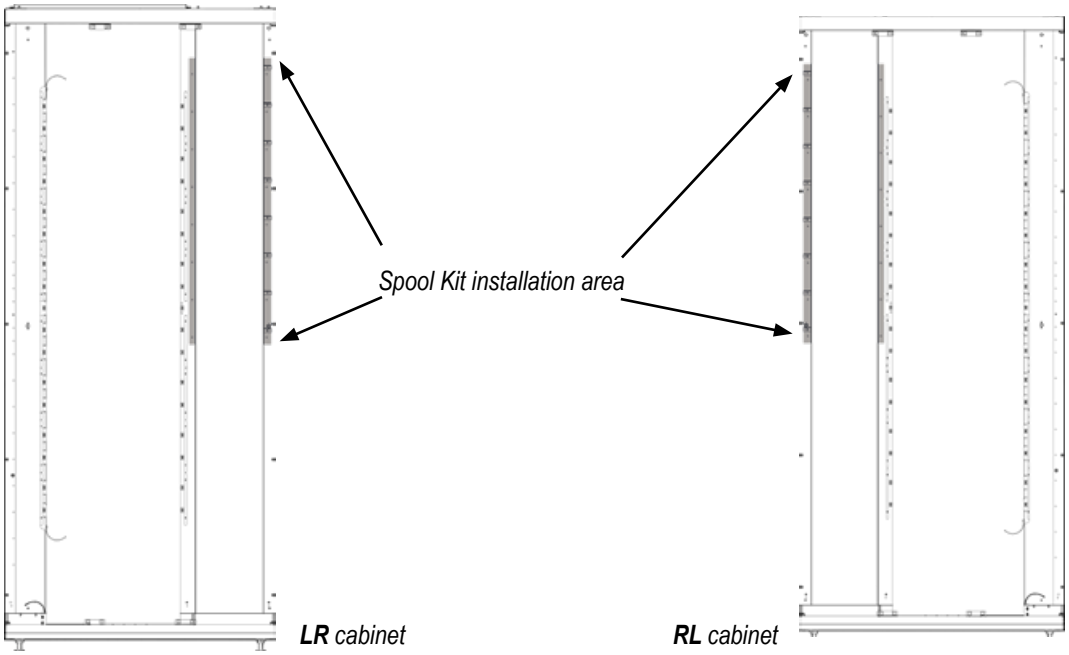


7. DCX Patch Cord Telescopic Spool

7.1. Installation

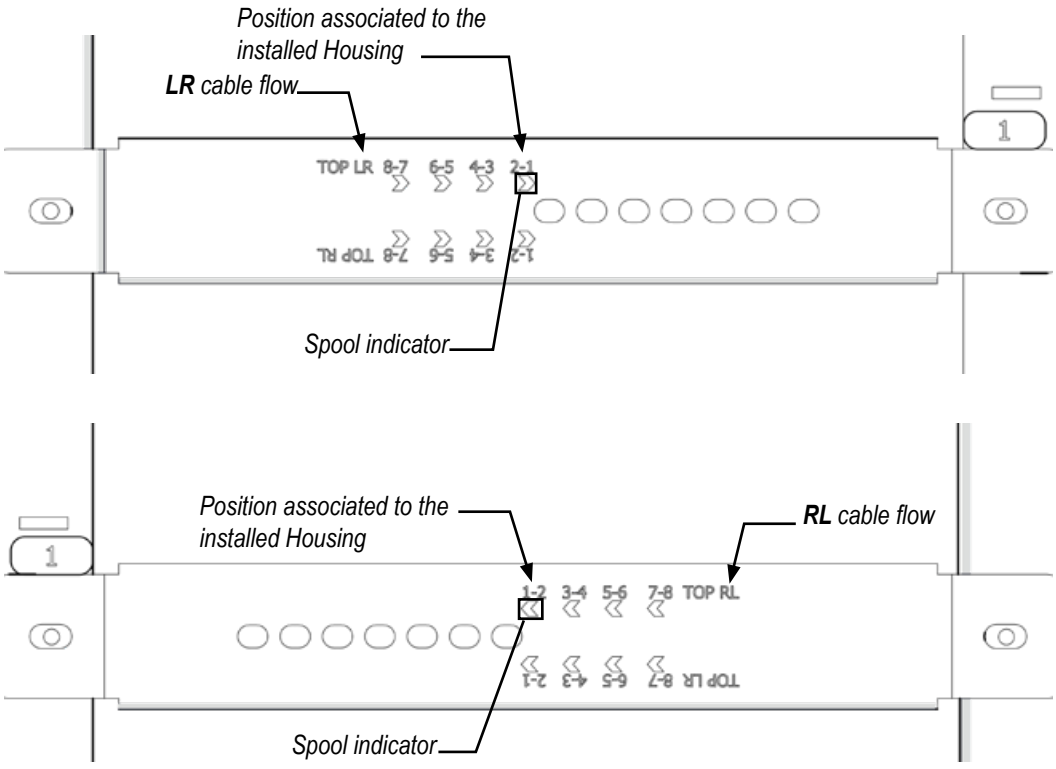
Before proceeding with the installation of the Telescopic Spool Kit, make sure to install (or determine the position of) the DCX Housings that will be used into the Cabinet.
The Housing positions will determine the location where to place and secure the Telescopic Spools.

1. Determine the cable flow direction of the Cabinet.
For a left-to-right (***LR***) Cabinet, the Spool Kit will be installed at right.
For a right-to-left (***RL***) Cabinet, the Spool Kit will be installed at left.

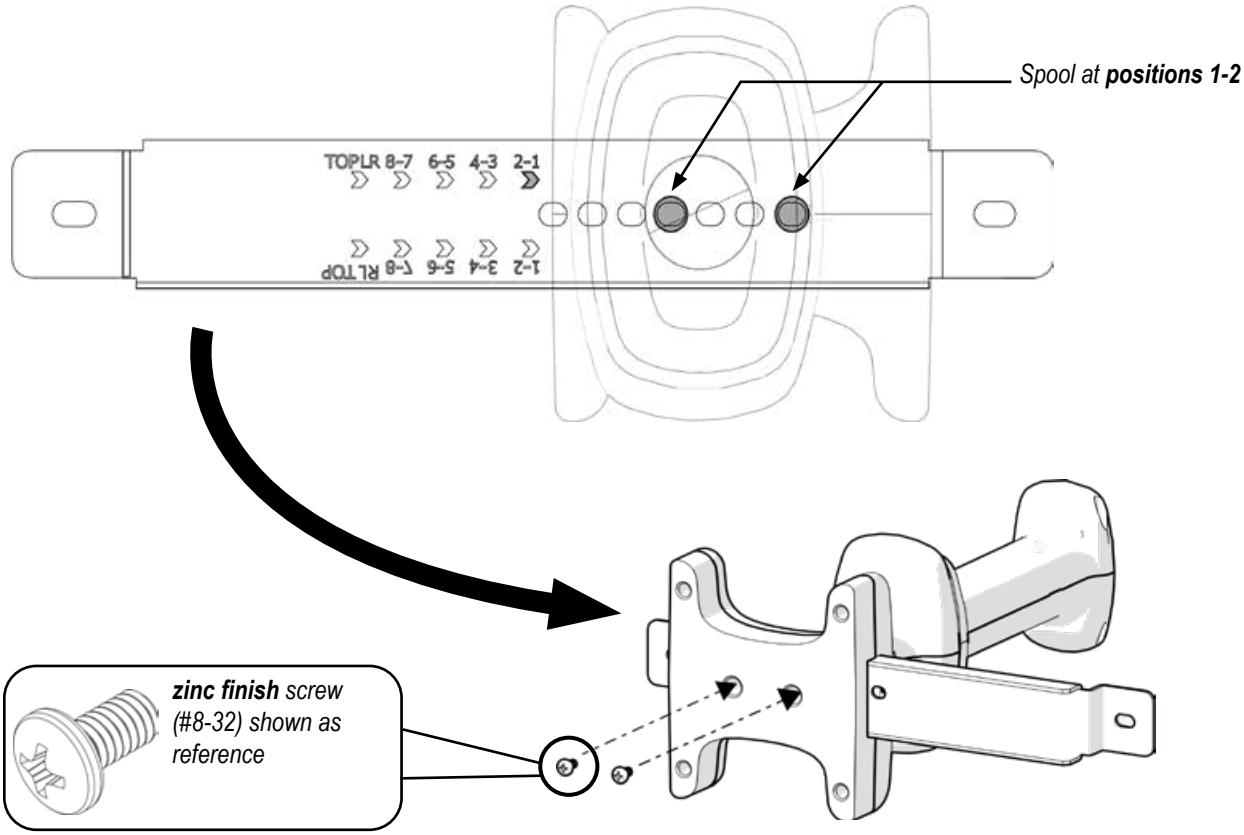


2. Depending on the required cable flow, determine the bracket orientation.

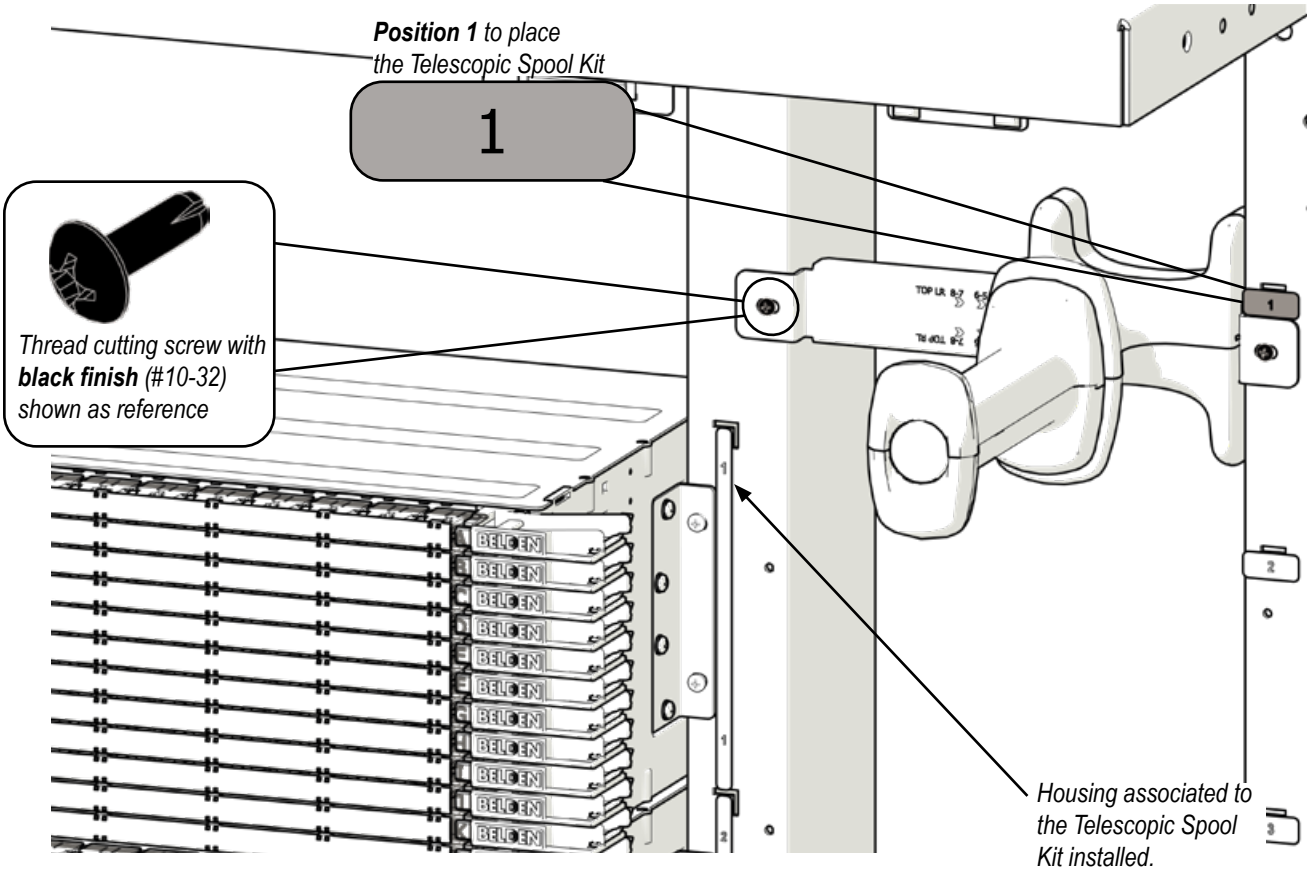
NOTE: On the images below, the Telescopic spool is hidden to explain the visual indicators marked on the Bracket.
Spools for ***Housing 1*** and ***2*** are at the same horizontal position on the brackets, same go for ***3-4***, ***5-6*** and ***7-8***.



3. Slide the Telescopic Spool to the associated position.
Secure the Telescopic Spool by using the provided ***zinc finish*** screws (#8-32).

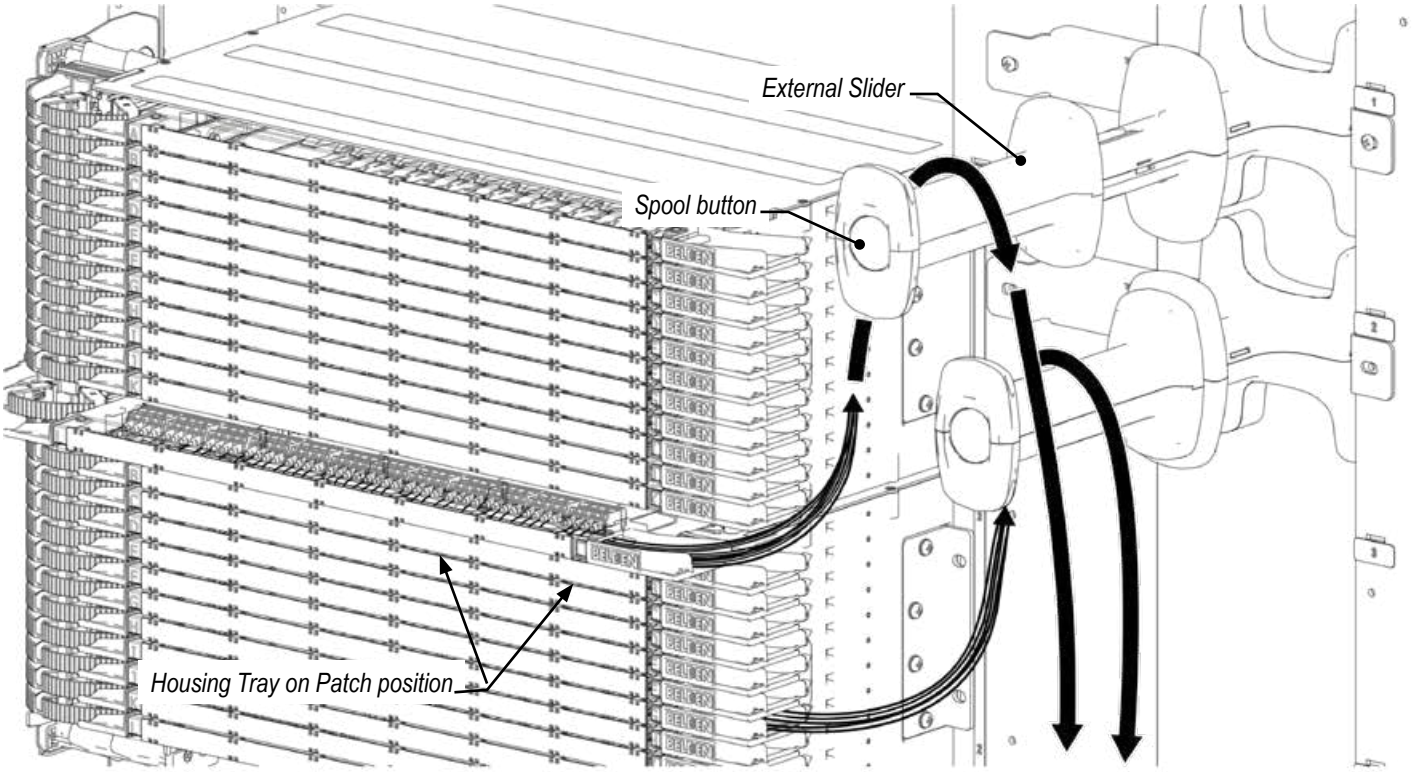


4.Locate the assembly position to the associated Housing and use the thread cutting screws with ***black finish*** (#10-32) to secure the bracket.



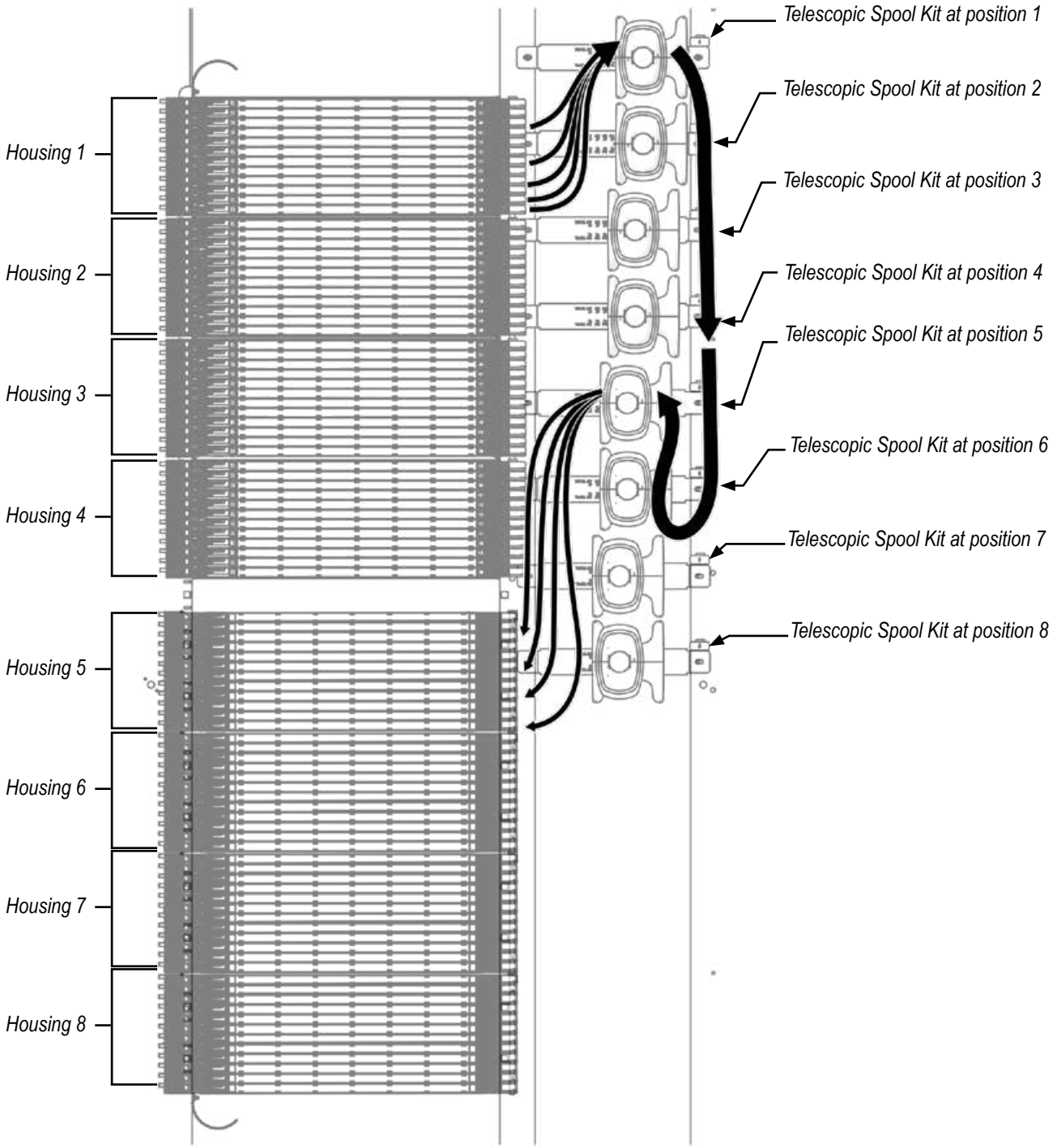
7.2. Features and manipulation

Prior to opening a Housing Tray, the Telescopic Spool can be extended to procure the necessary patch cord Slack for the Tray movement. The Telescopic Spool is extended by pushing the Spool Button and pulling the External Slider forward.



7.3. Cable operation and management

Example of a single Cross-Connection in the same Cabinet.
To see more details about the available Cross-Connecting methods between multiple Cabinets, please refer to the Installation Guide ***PX106863 (DCX Planning/Operations)****.*

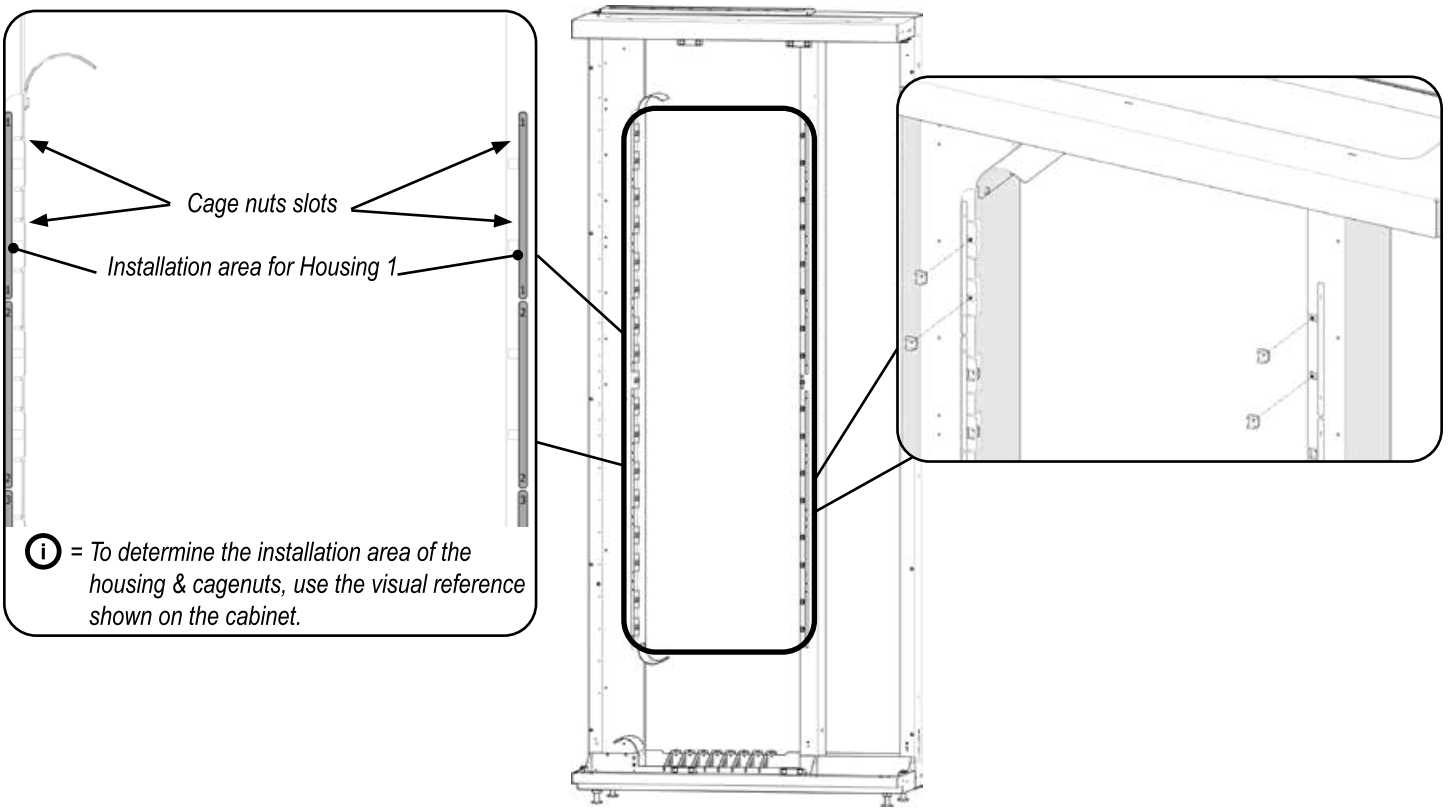


8. DCX Housing

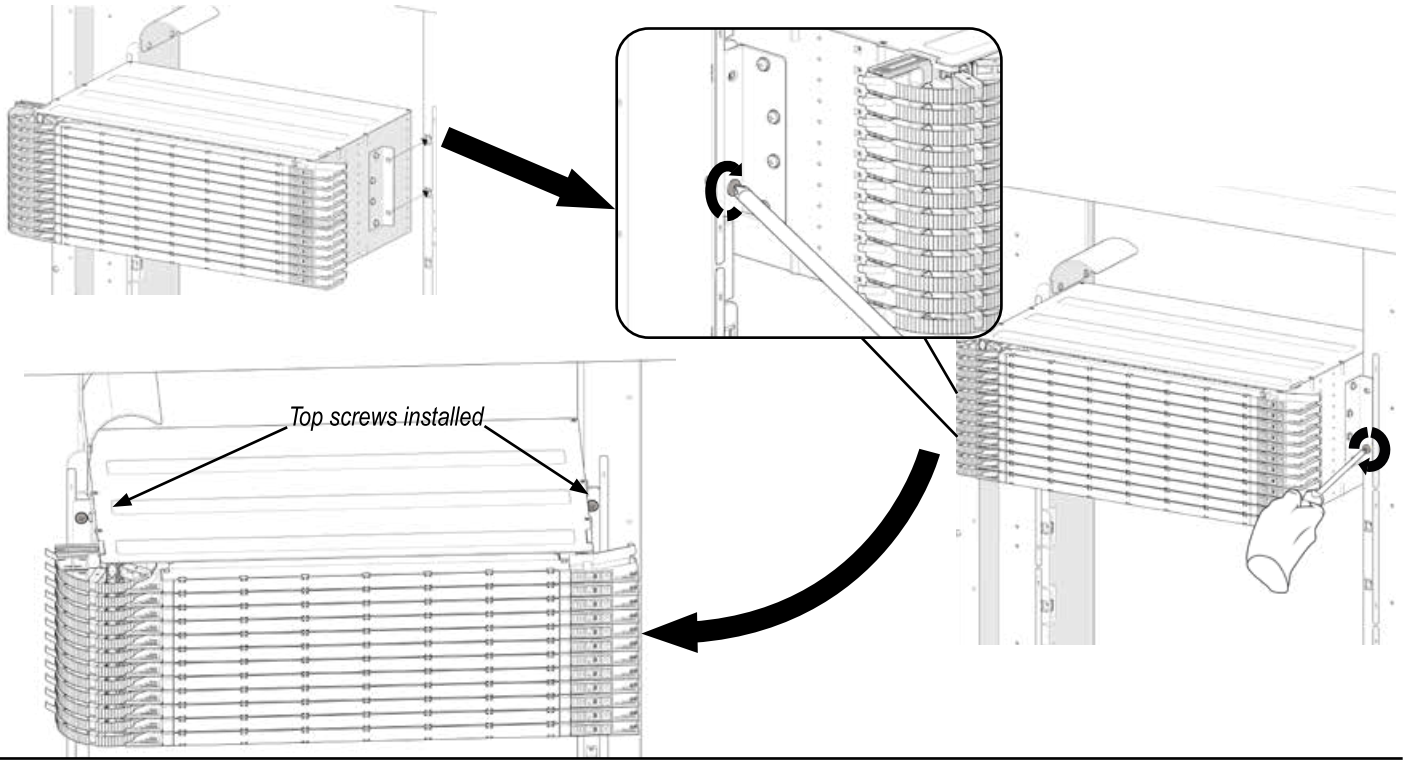
These sections will show how to install and manipulate the DCX Housing and its entire components.

8.1. Installation

1. Select an area to insert cage nuts into the Cabinet.

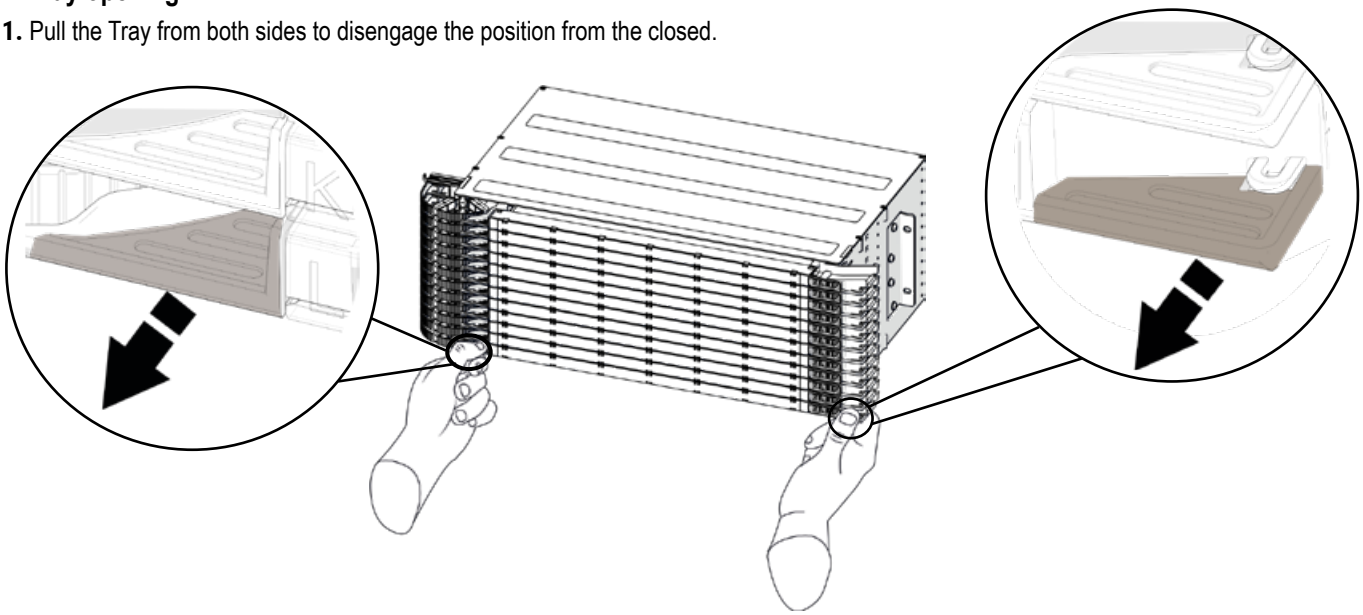


2. Once the installation area is determined, align the Housing brackets to the installed cage nuts.
Use the provided screws to secure the bottom (or top) of the brackets.
Repeat the previous procedure to secure the remaining sides of the brackets.

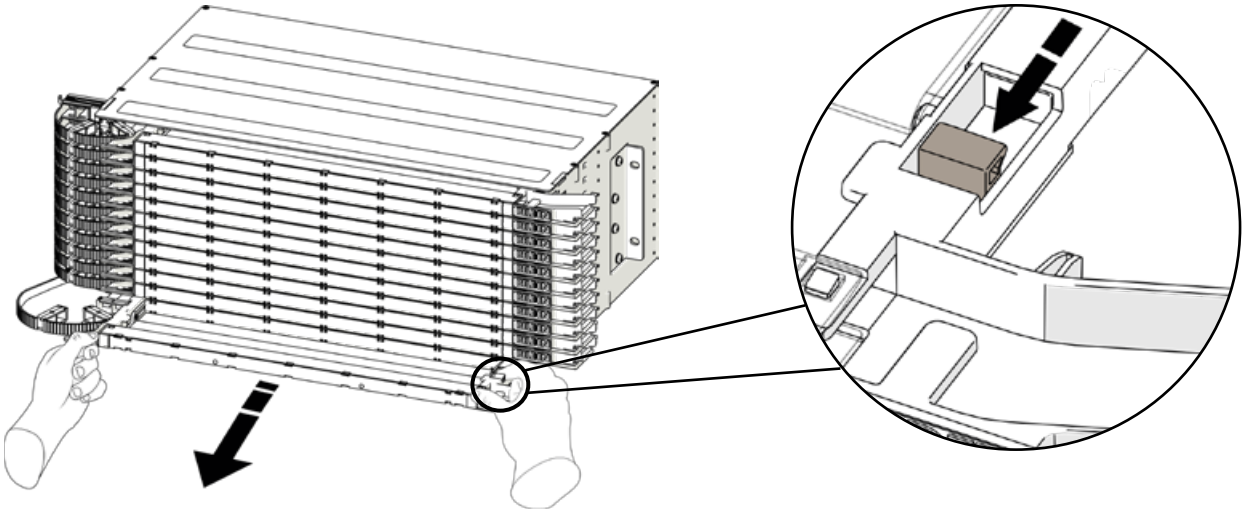


8.2. Tray opening

1. Pull the Tray from both sides to disengage the position from the closed.

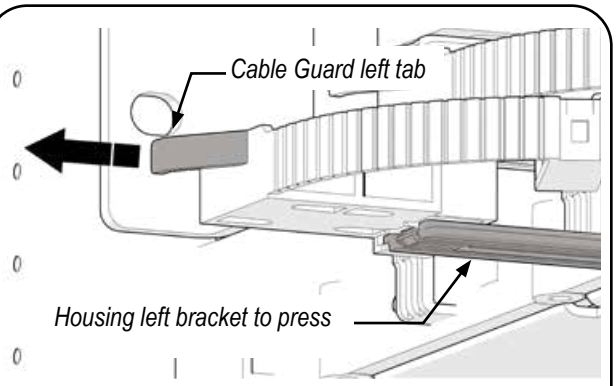


2. To open the Tray completely, squeeze the front latch and pull both sides of the tray.

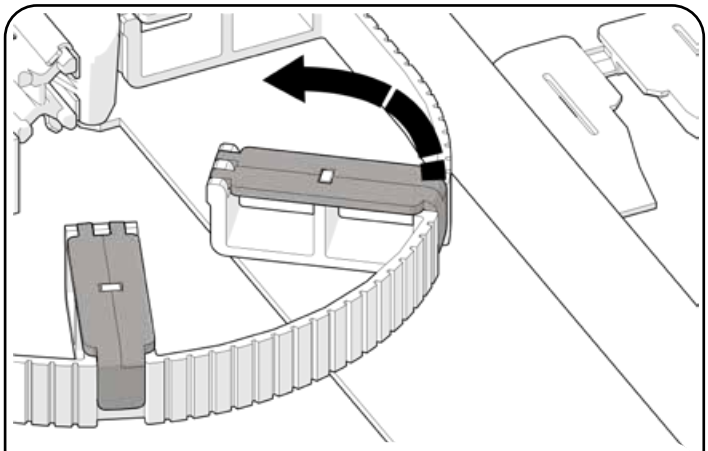


8.3. Cable Guard Operation

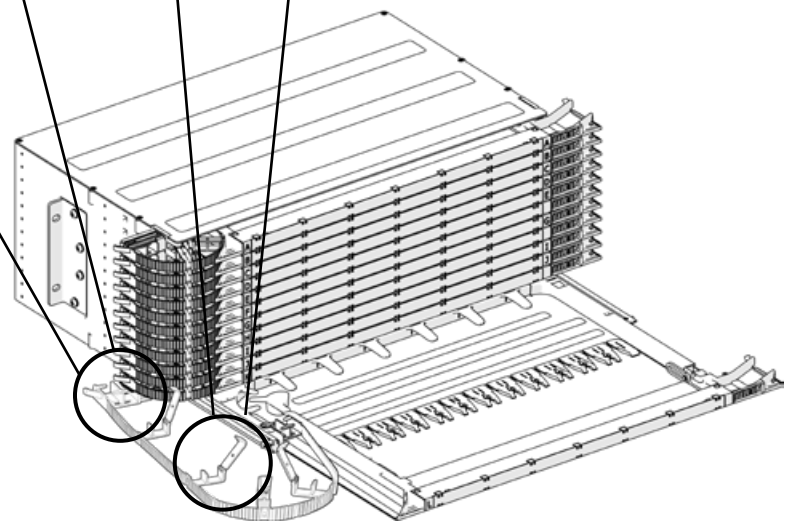
1. Open the Tray completely and slide the Cable Guide horizontally.



The Cable Guard is open by pulling the tab and can be disengaged from the Housing by lightly pressing the left bracket.



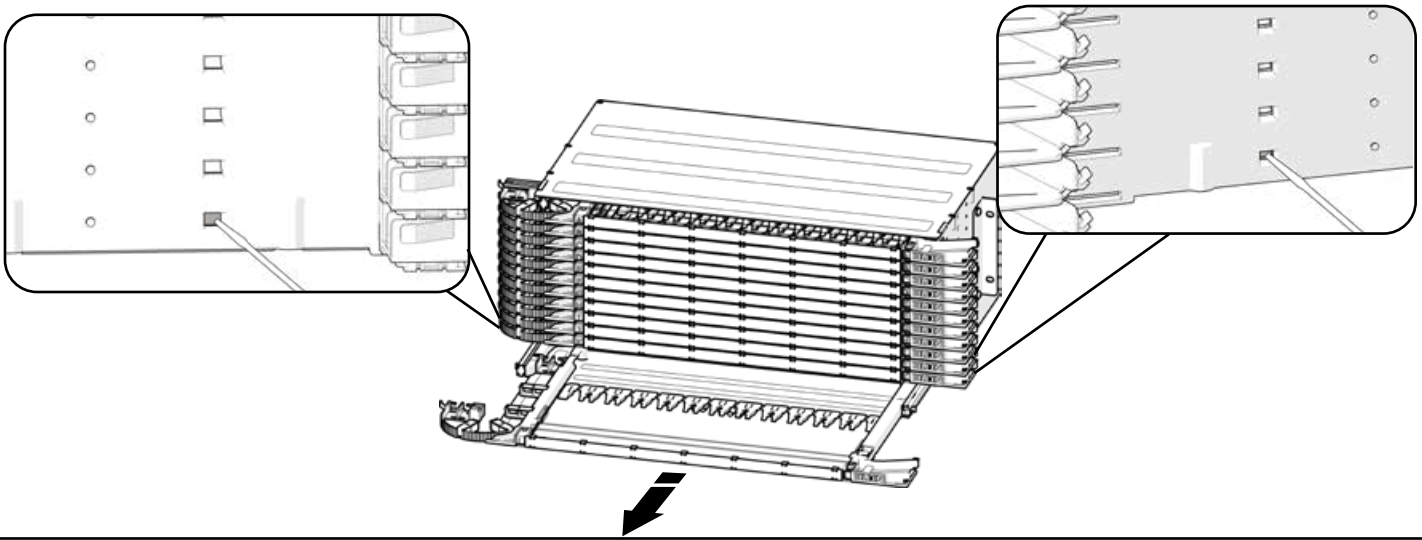
Cable Guard doors are opened by releasing the clipped tabs.



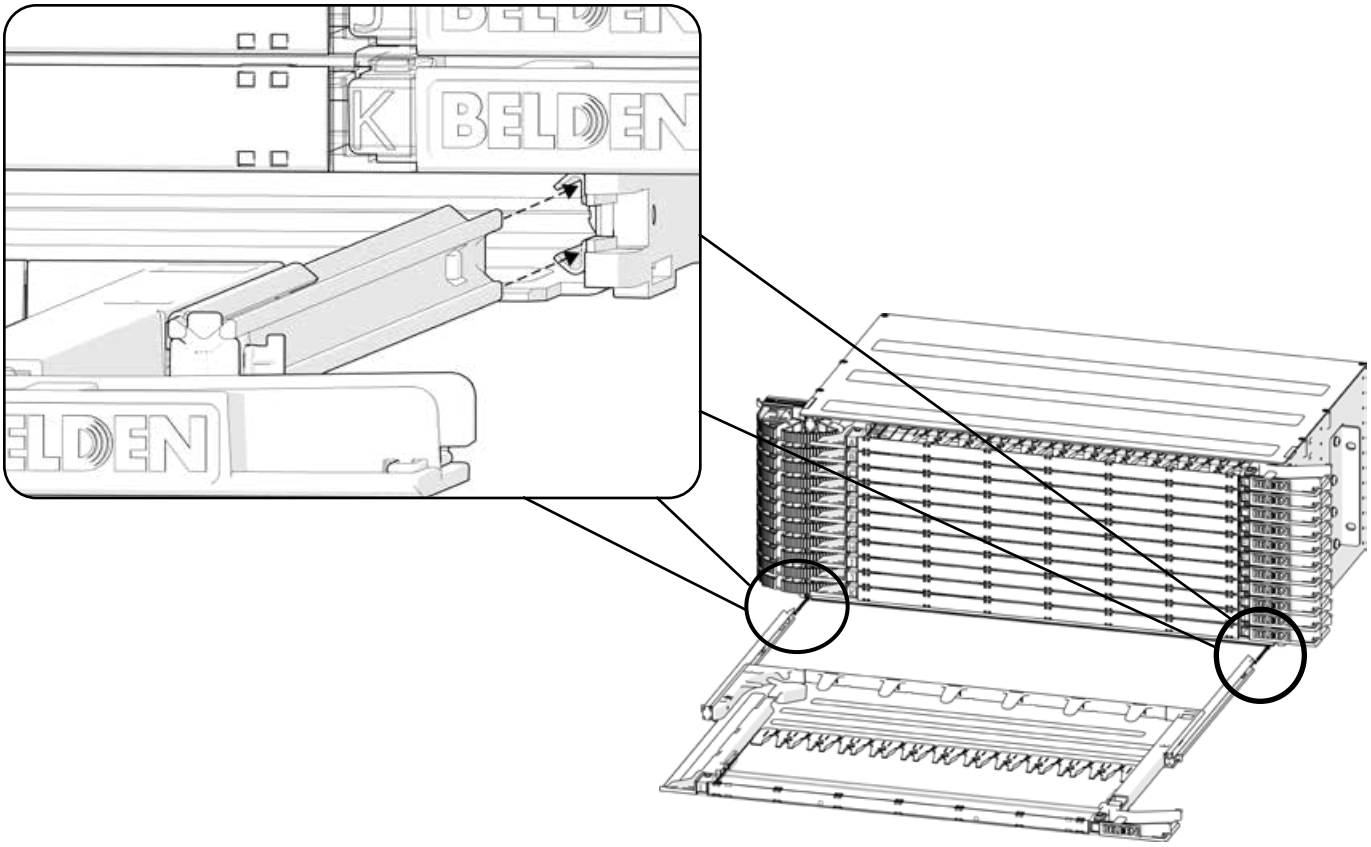
8.4. Tray installation and removal

ⓘ *Before detaching the Patch Cord Tray from the Housing, make sure that the selected Tray is completely opened and the Cable Guard is disengaged from the Housing.*

1. Press slightly into the Housing side slots to detach the Tray.
Remove the released Tray to the Housing.

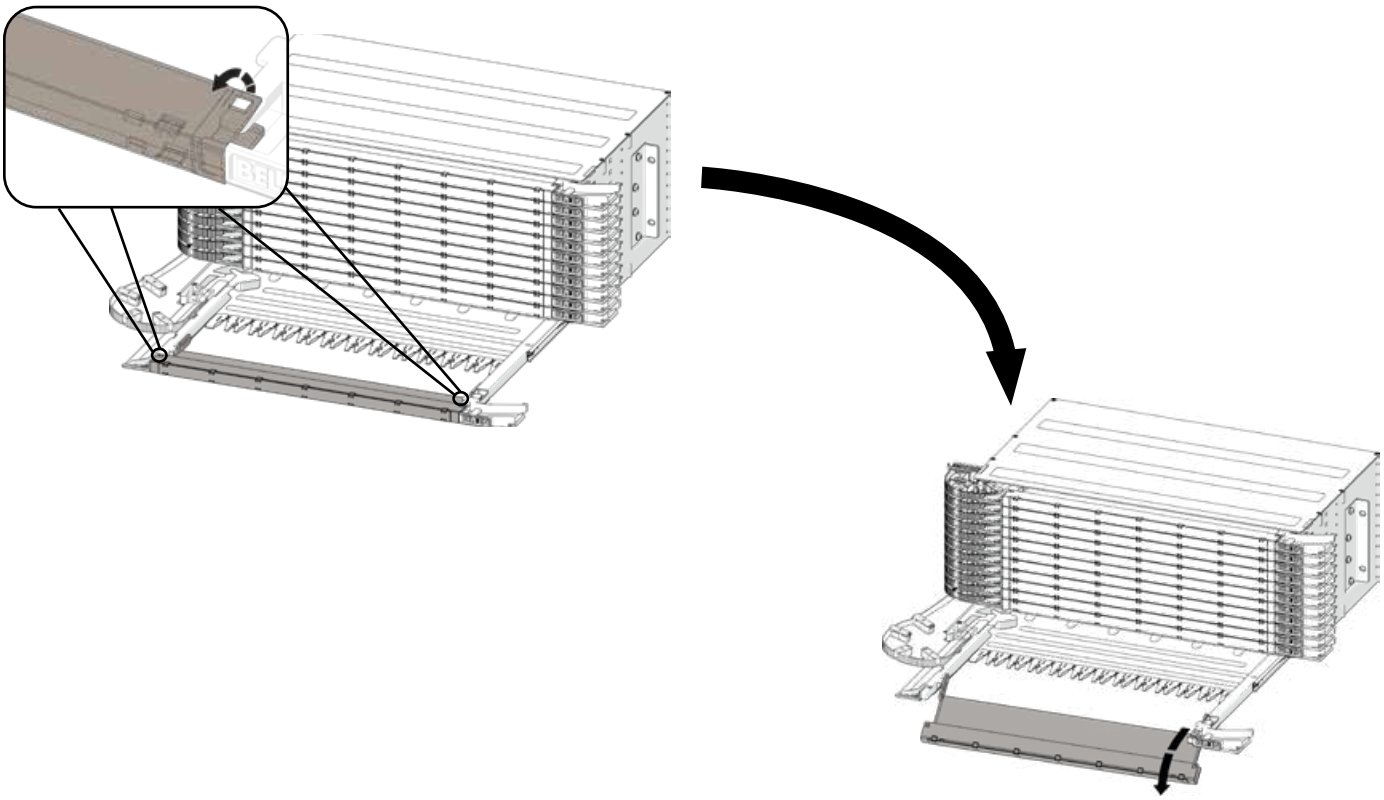


2. For installing the Tray to the Housing, align the Tray extension brackets to the Housing-rails from both sides. Reverse the procedure shown at ***section 8.2 (step 2)*** to close the tray.



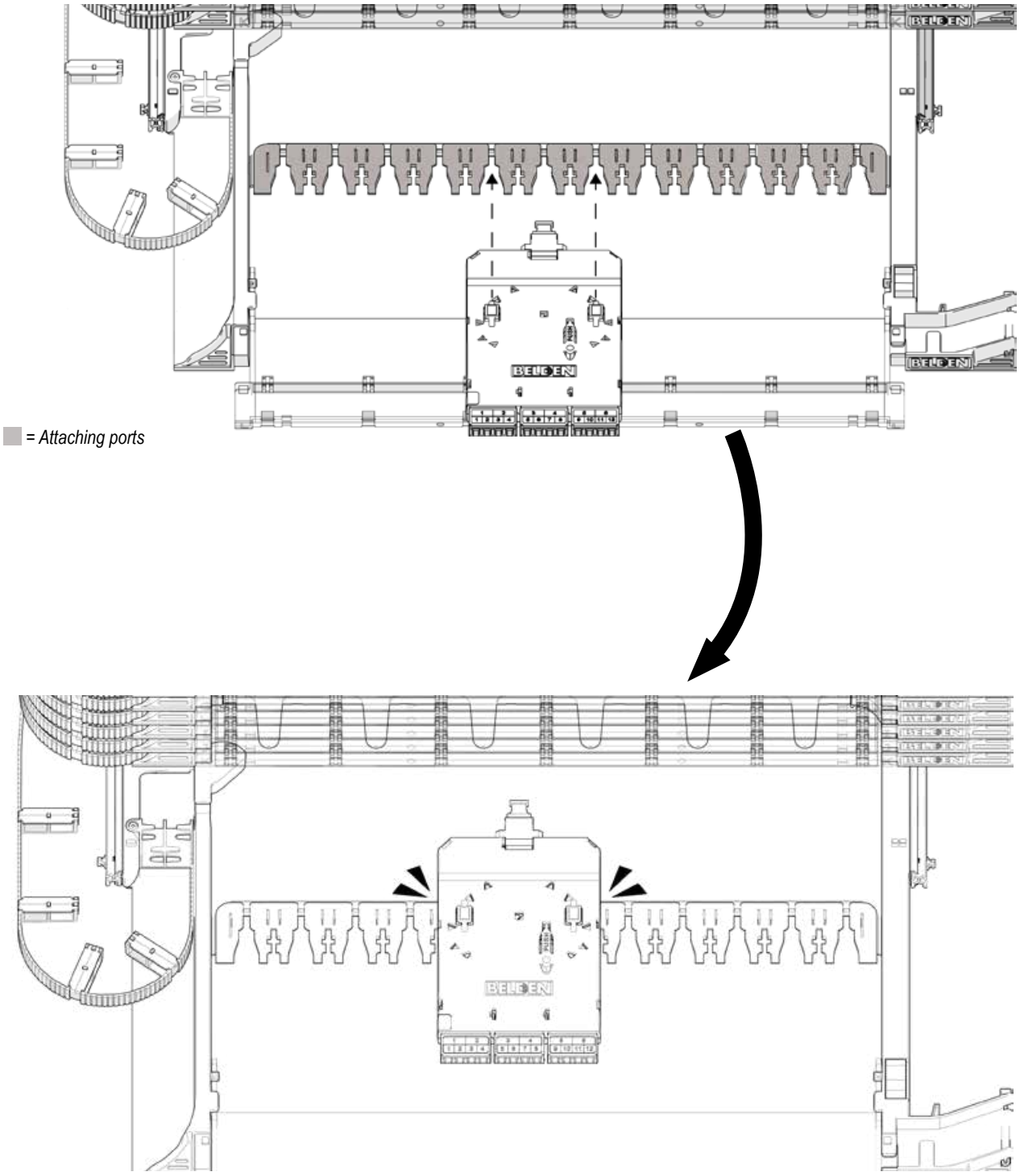
8.5. Cassettes/Adapter Frames installation and Removal

1. Release the Patch Cord Cover by lifting both sides of the cover and pull it outwards.

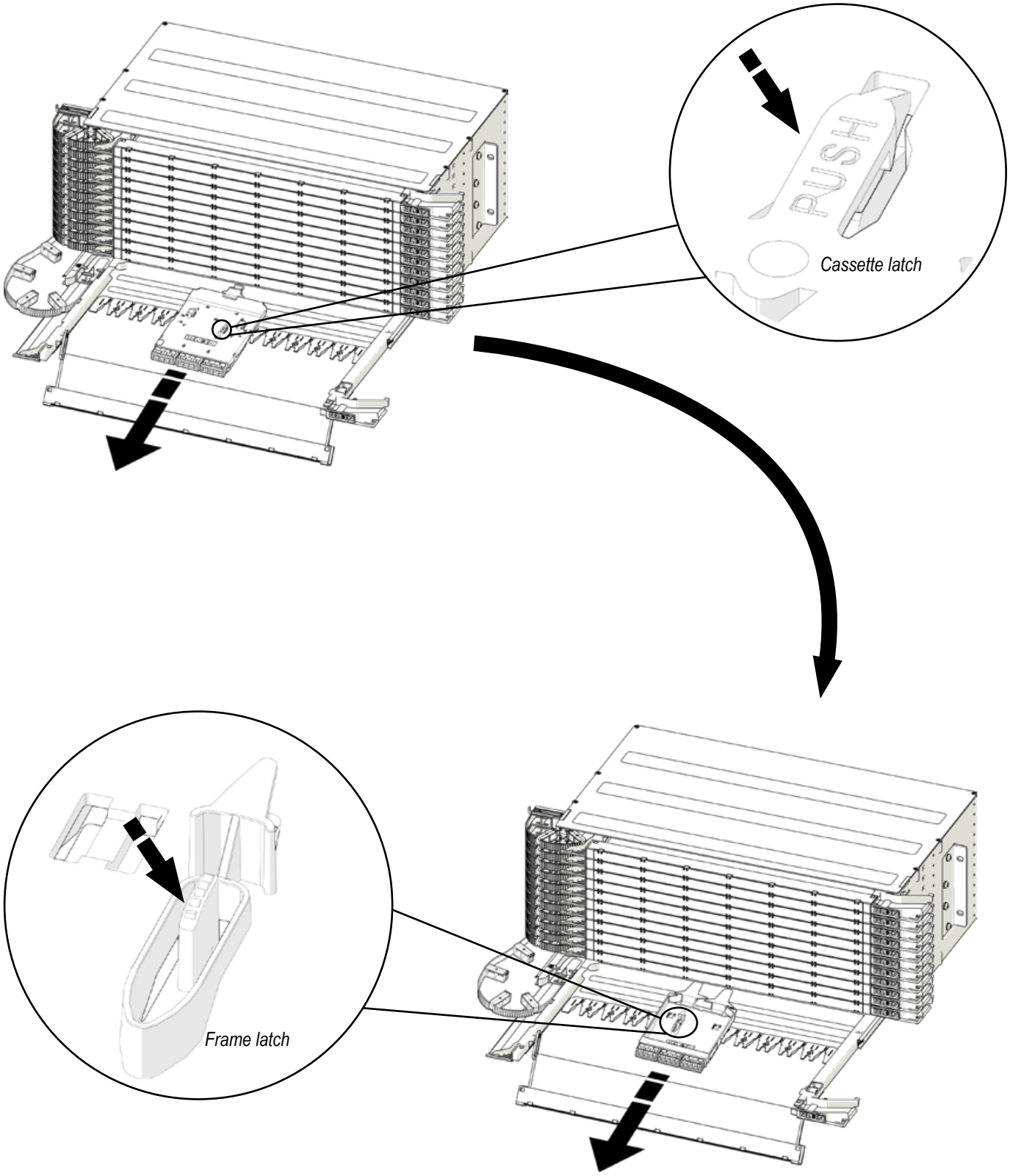


The installation procedures below are similar for DCX Adapter Frames & Splice Cassettes.

2. Align the Cassette brackets to the tray attaching ports.
Make a slight push to attach the Cassette to the Tray.

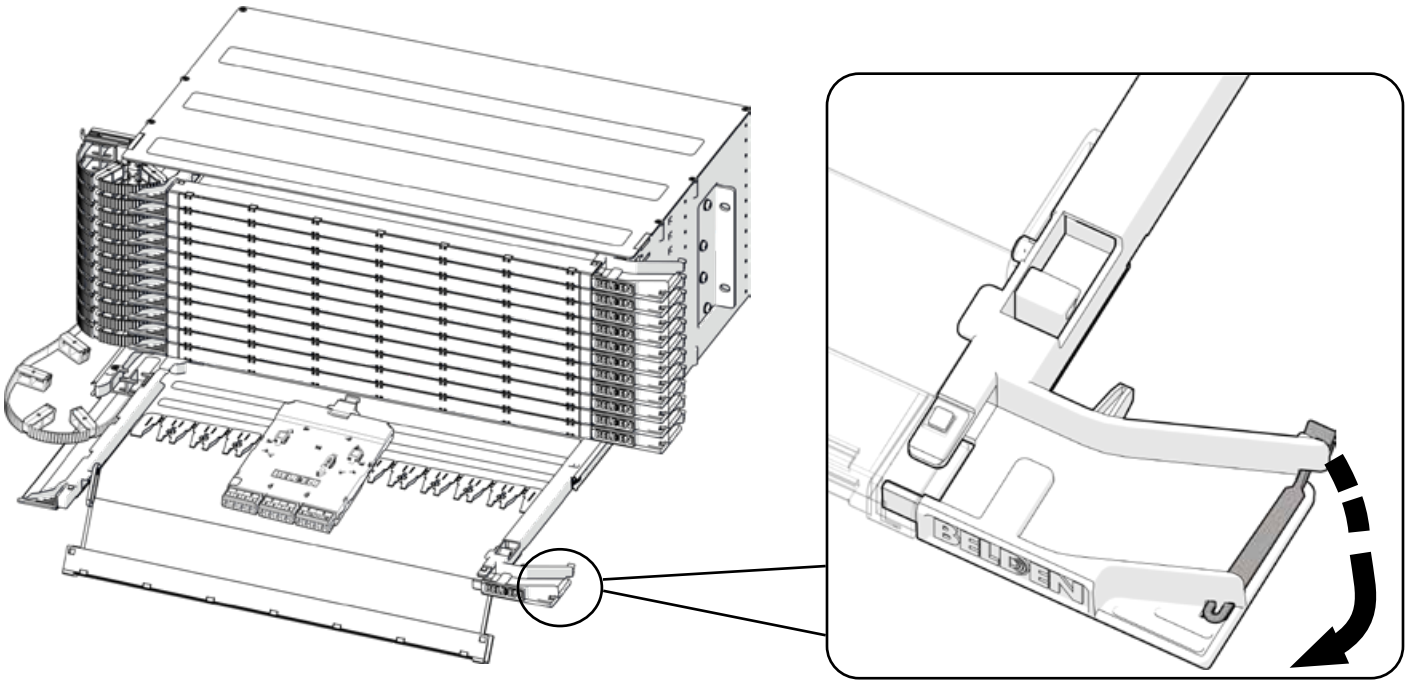


3. To remove the Cassette/Adapter Frame from the Tray, press on the latch and slide the component outward.

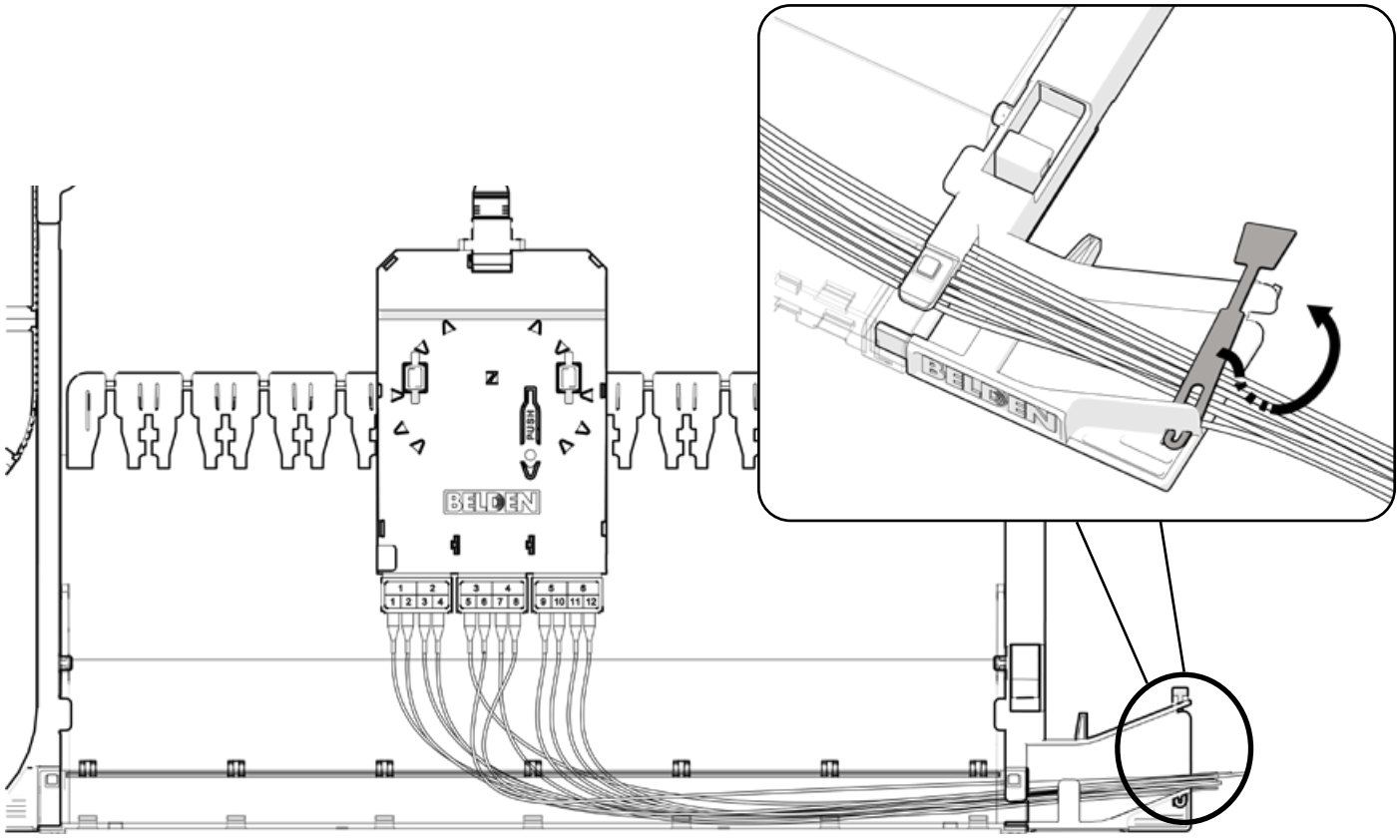


8.6. Strain Relief operation

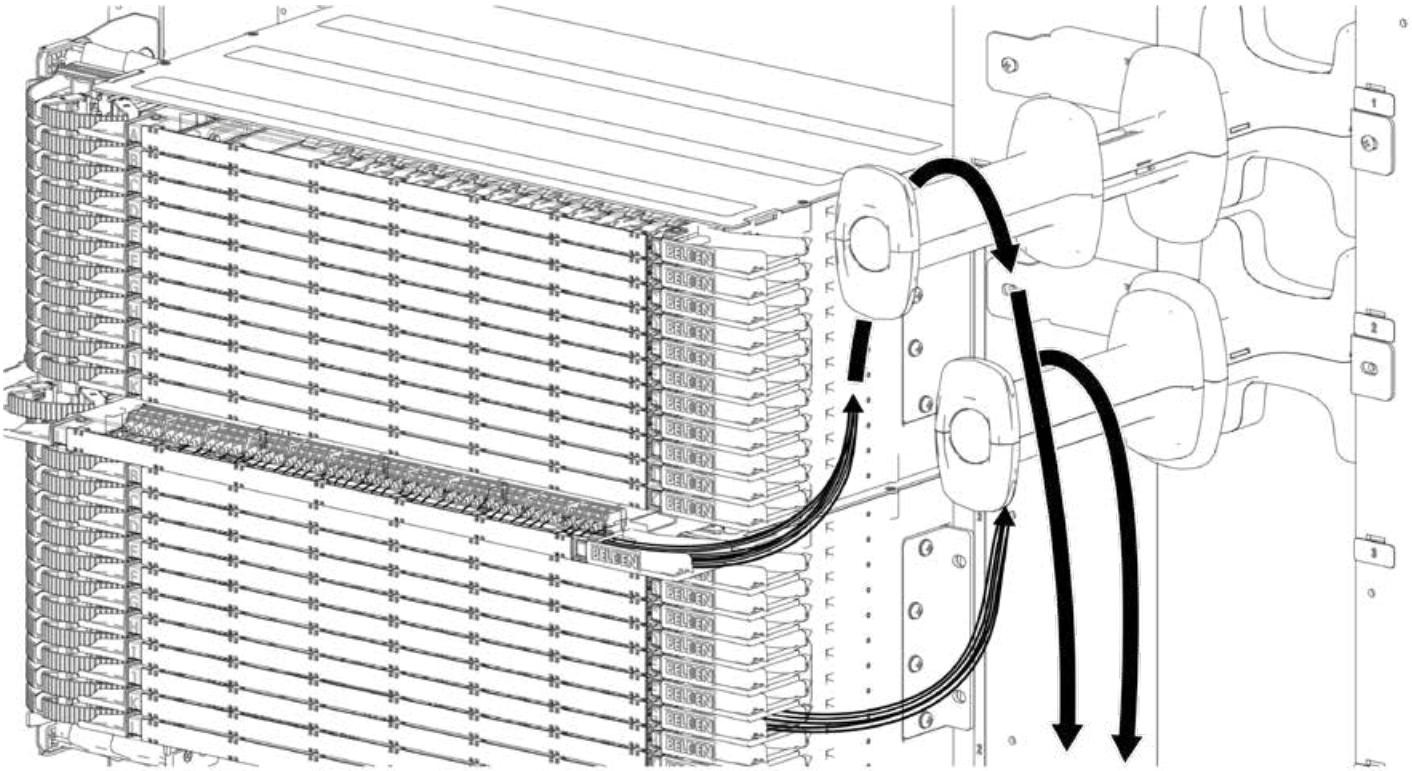
1. Begin by releasing the Patch Cord Cover
Release the anchored elastic from the Tray patch side.



2. Install the Patch Cord fibers to the desired Cassettes (or Adapter Frames) and secure the fibers by reversing the previous step shown.
Set the Patch Cord Cover to its closed position.

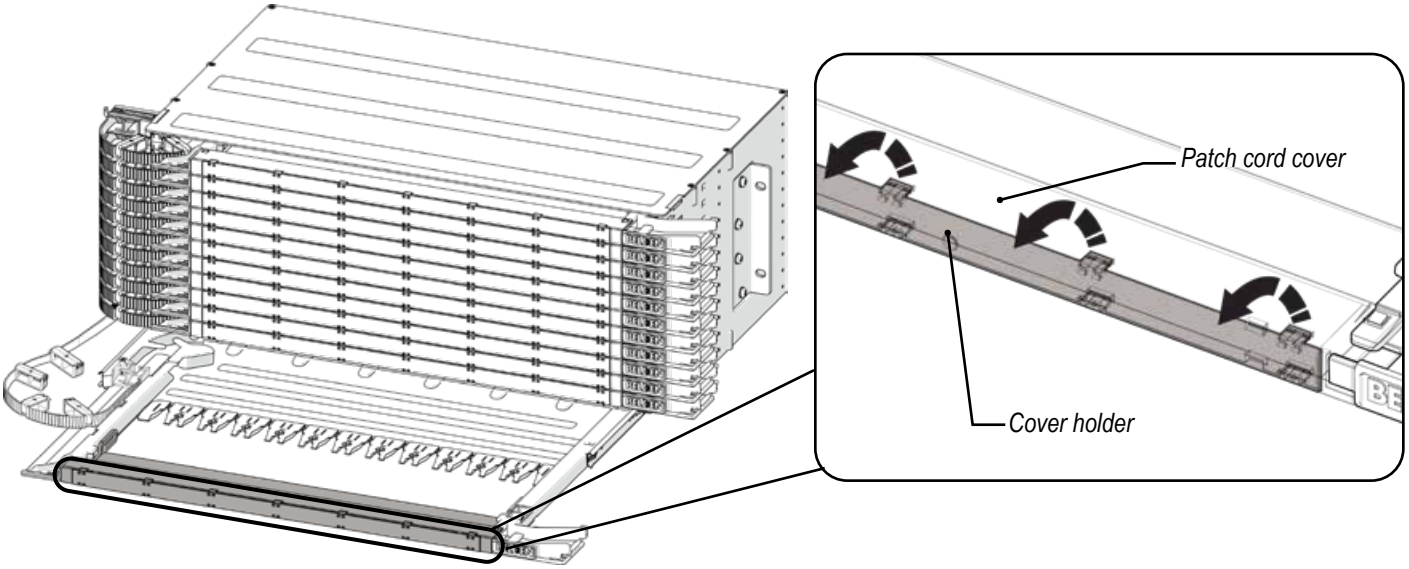


3. Place the fibers to its respective Spool.

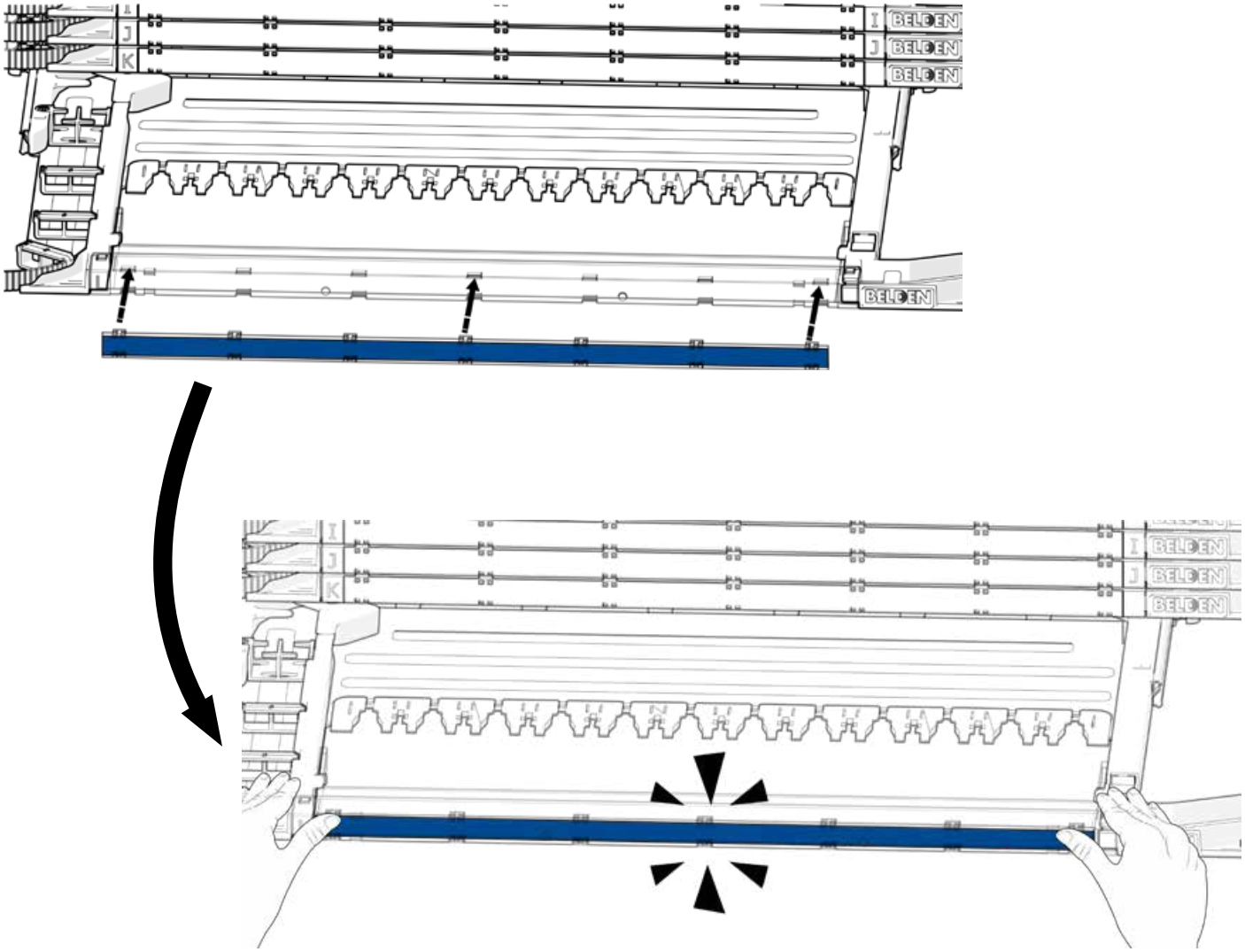


8.7. Labeling installation

1. Remove the front Holder from the Patch Cord Cover.



2. Insert the required I.D label behind the holder.
Align the holder tabs to the Patch Cord Cover slots.
Secure the holder by pressing on the entire surface.



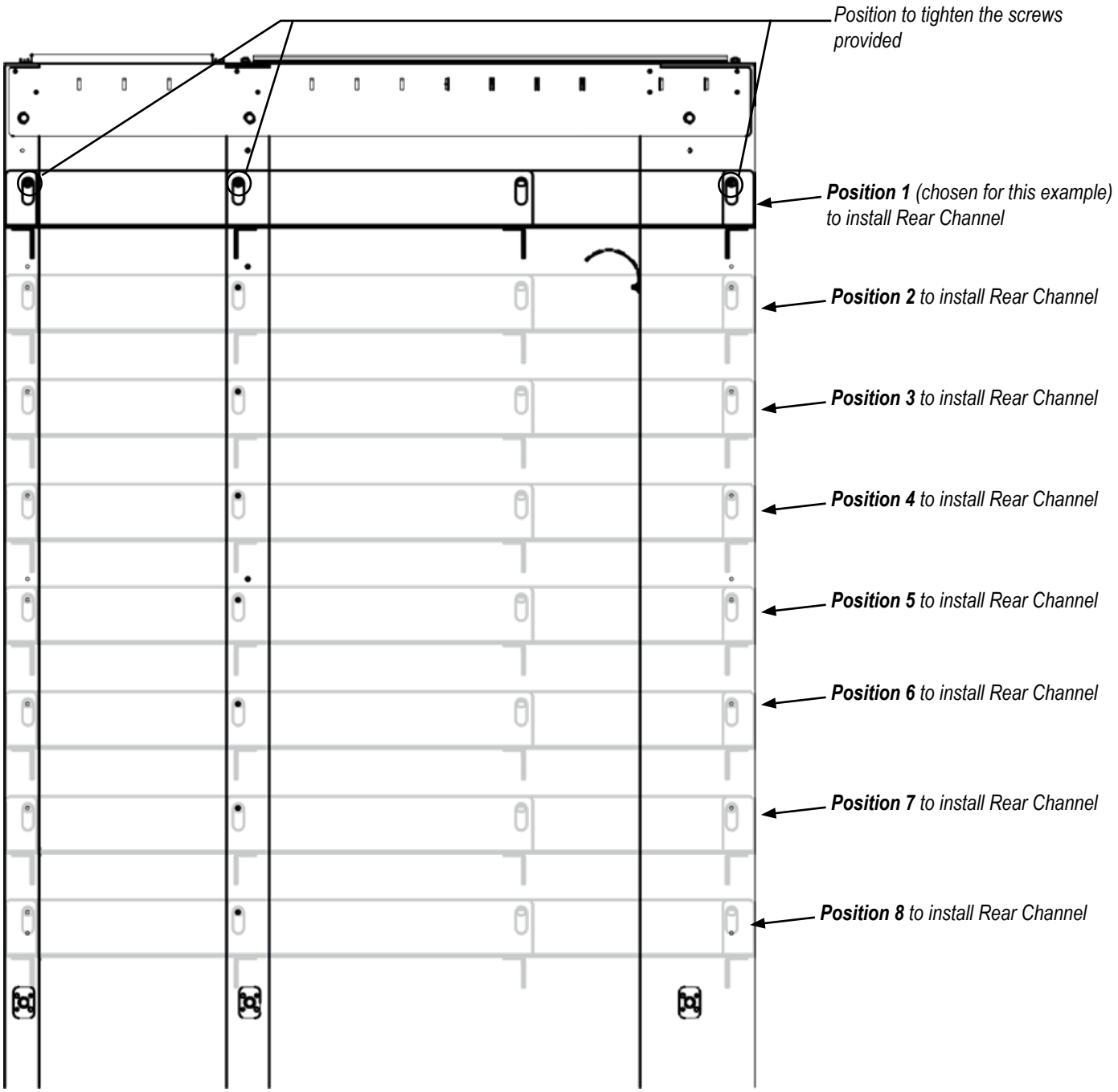
9.DCX Horizontal Rear Channel kit installation

Before proceeding with the installation of the Rear Channel Kit, make sure to install (or determine the position of) the DCX Housings that will be used into the Cabinet. For more information concerning on how to install the Housing, refer to the Quick Start Guide document ***PX106856*** *or visit our website at:* ***www.belden.com/dcx***

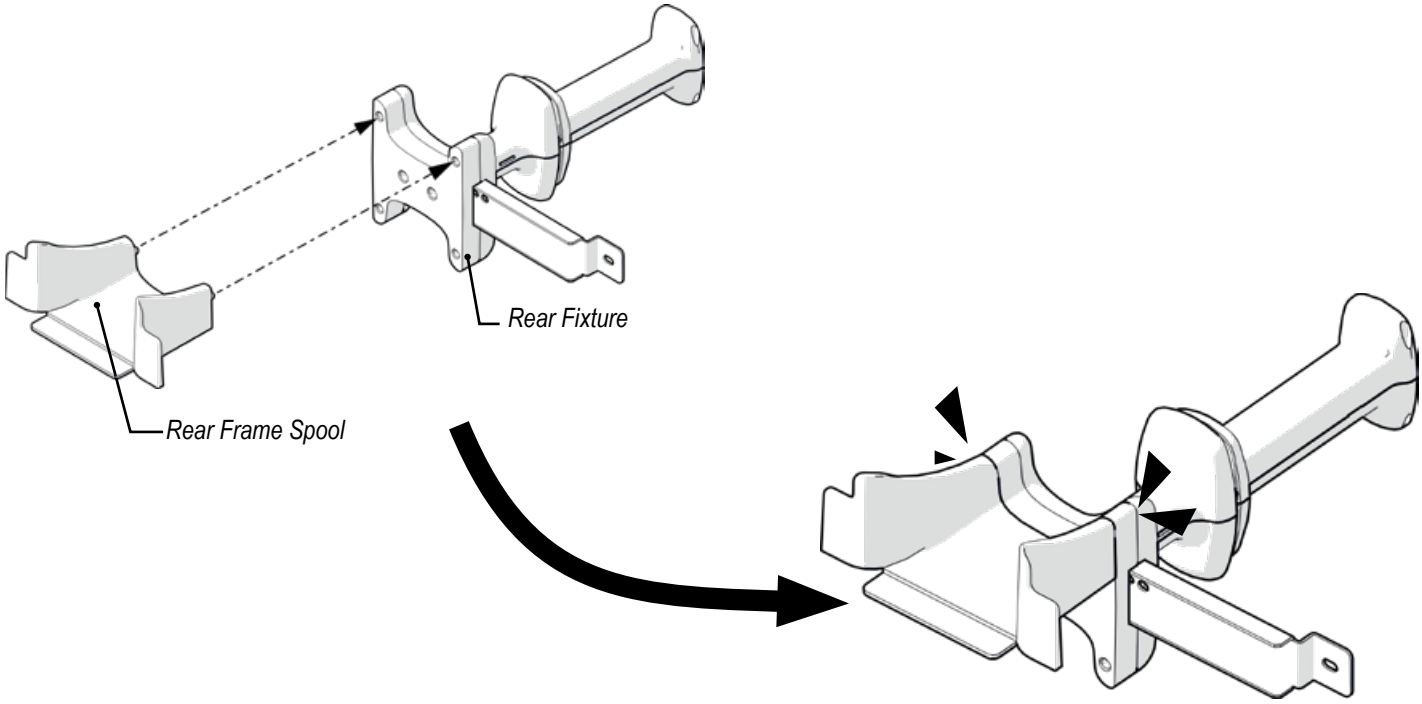
1. Depending on the cable flow of the Cabinet used, select the required Rear Channel Kit:
- For the left to right Cabinet (***LR***), the Rear Channel Kit to install is ***DCX-HRRC-LR01***
- For the right to left Cabinet (***RL***), the Rear Channel Kit to install is ***DCX-HRRC-RL01***

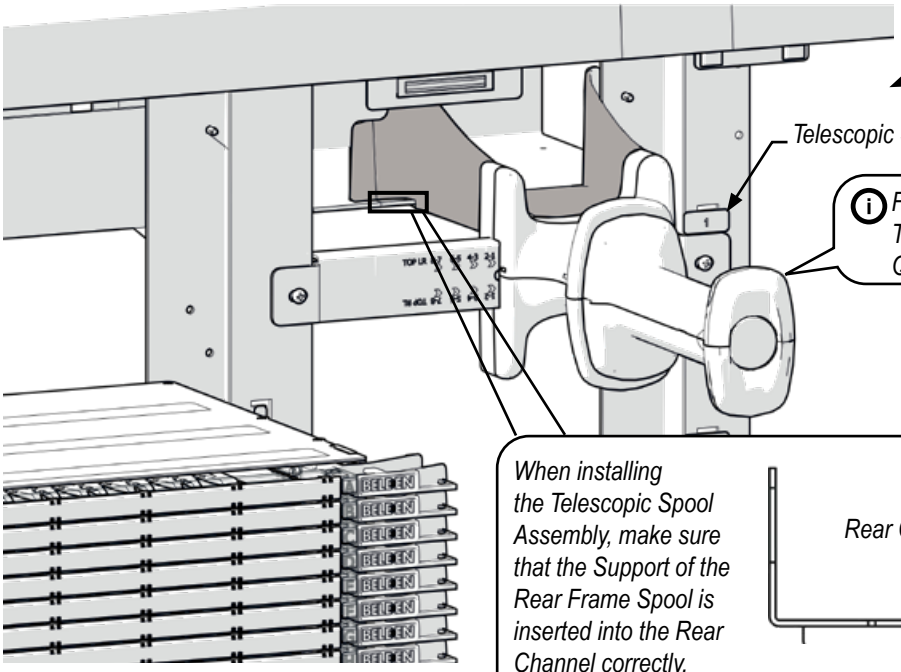
2. On the Housing installed determine the position to place the Rear Channel.
Place the Rear Channel to the associated position and secure the Rear Channel with the (3) provided screws.

Rear view of an ***LR*** Cabinet, Housings are not shown on this image.



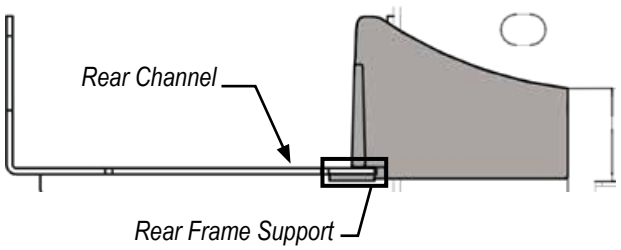
3. At the rear of the Telescopic Spool align the pins of the Rear Frame Spool with the Rear Fixture positioning holes.
Make a slight push to attach the Rear Frame Spool to the Telescopic Spool.
Install the Telescopic Spool Assembly into the Cabinet.





*For more information on how to install Telescopic Spool, please refer to the Quick Start Guide document **PX106862***

When installing the Telescopic Spool Assembly, make sure that the Support of the Rear Frame Spool is inserted into the Rear Channel correctly.

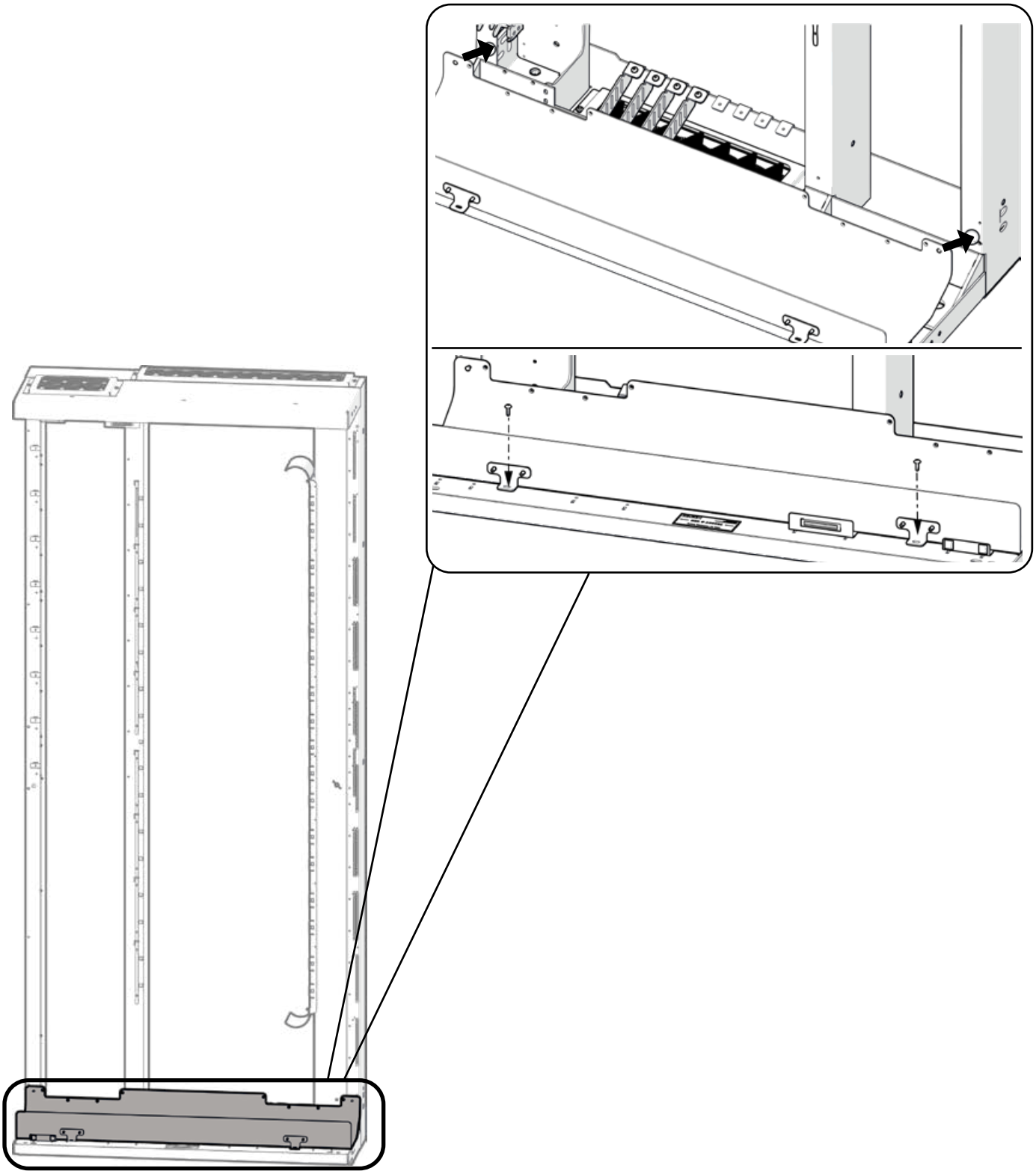


10. Horizontal In-Cabinet Channel Kit/ Patch Cord Bridge Installation

10.1. Horizontal In-Cabinet Channel Kit (full length/ end of row)

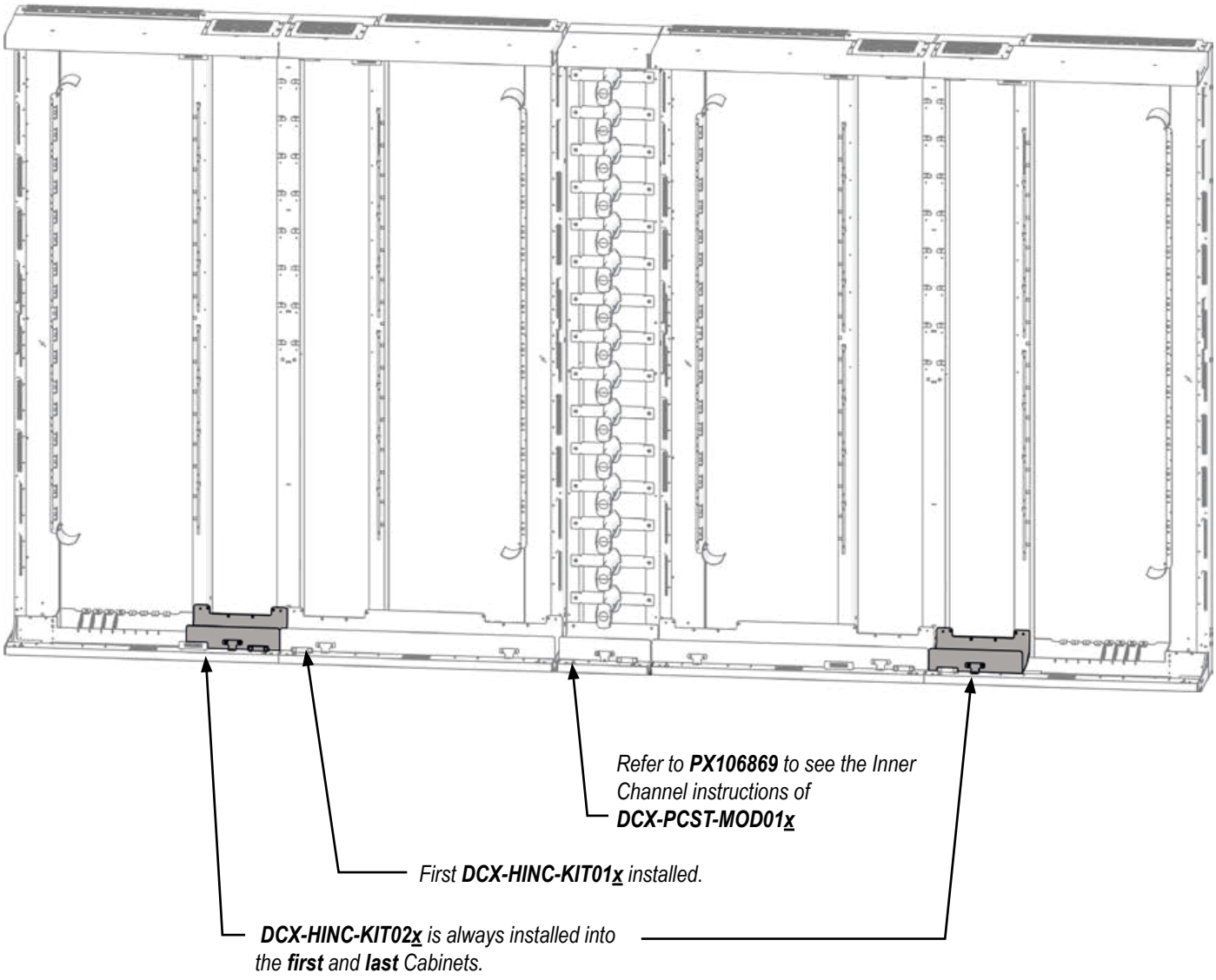
*Before proceeding with the installation of the In-Cabinet Channel, make sure to remove the side panel brackets installed in the cabinet (refer to **page 19** to see the brackets).*

1. Align the pins of the In-Cabinet Channel to their respective positions.
Insert the In-Cabinet Channel and use the (2) screws provided to secure the In-Cabinet Channel.



2. (If required) continue installing the In-Cabinet Channels to each Cabinet placed as Side-to-Side

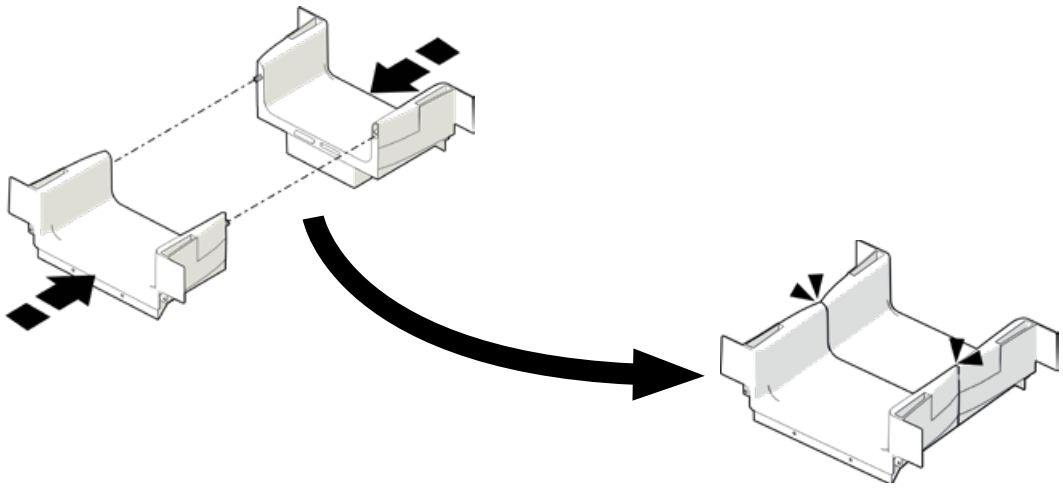
***NOTE: DCX-HINC-KIT02x** uses the same installation procedures shown at the **previous page**.*



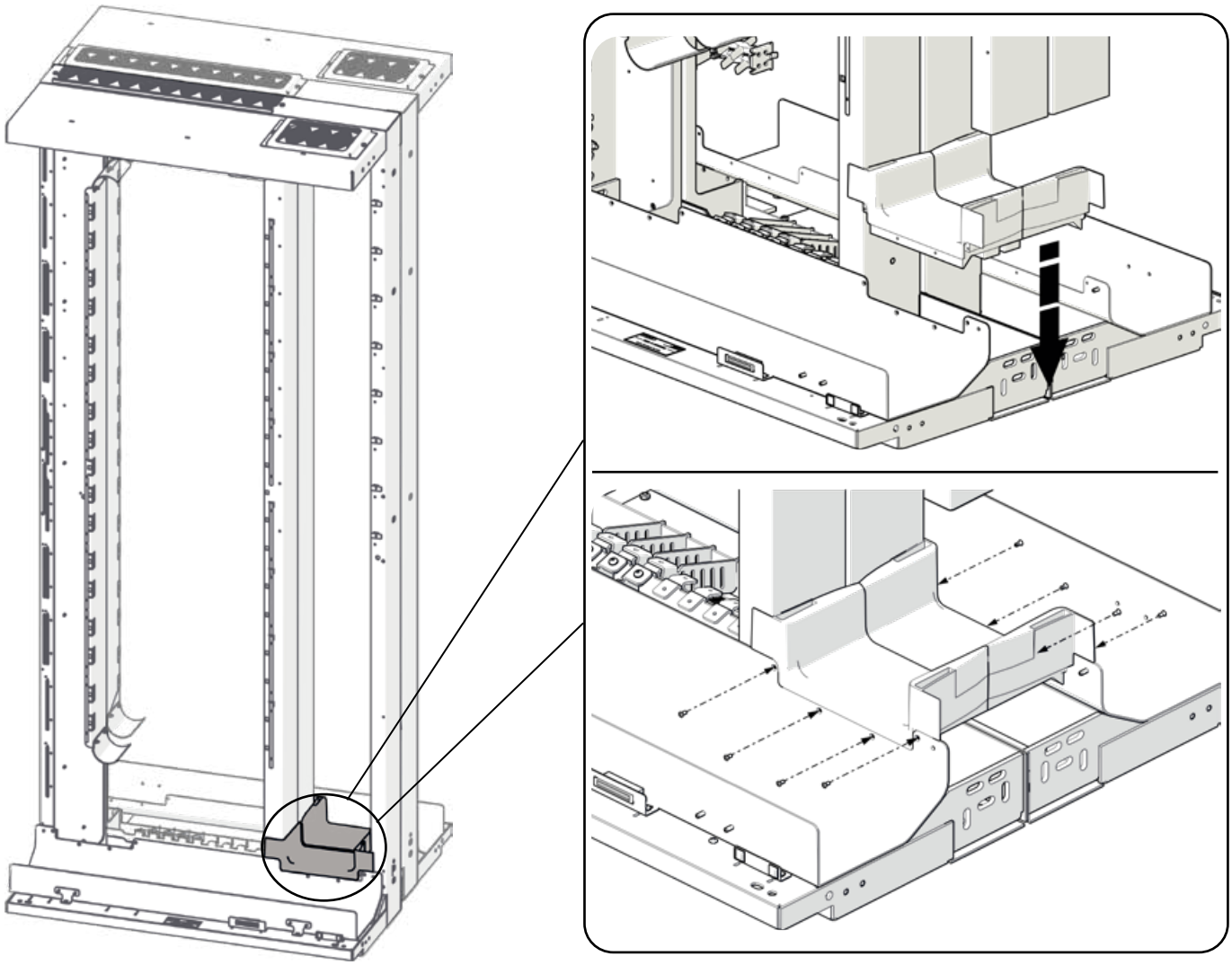
10.2. In-Cabinet Patch Cord Bridge installation - optional

*To proceed with the installation of this accessory, the In-Cabinet Channel (**DCX-HINC-KIT01/02x**) must be installed into a DCX Cabinet first.*

1. Align the pins of both Patch Cord accessories and make a slight push for grouping them together (and create the Patch Cord Bridge Assembly).



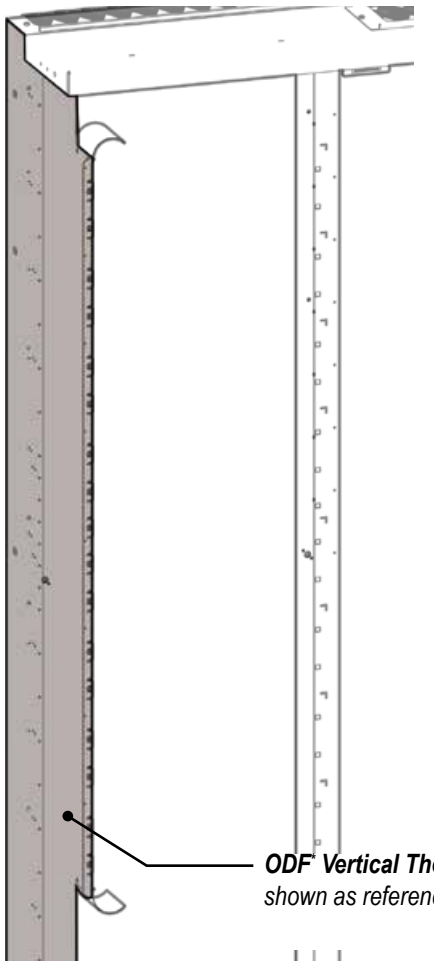
2. Place the Patch Cord Bridge Assembly between two In-Cabinet Channels at the patch cord management area. Insert the plastic screws provided (4 per side) to secure the Patch Cord Bridge from both sides (Front and Rear).



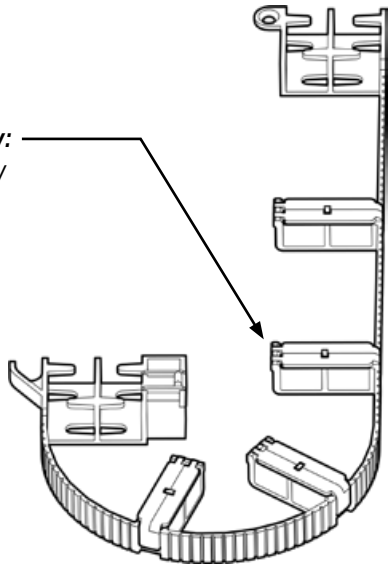
11. Fiber routing

11.1. Cable limitation

The information below informs about the maximum cable capacity that could enter in the Cabinet vertical through and the Housing Cable Guard assembly.



***ODF* Vertical Though**
shown as reference only



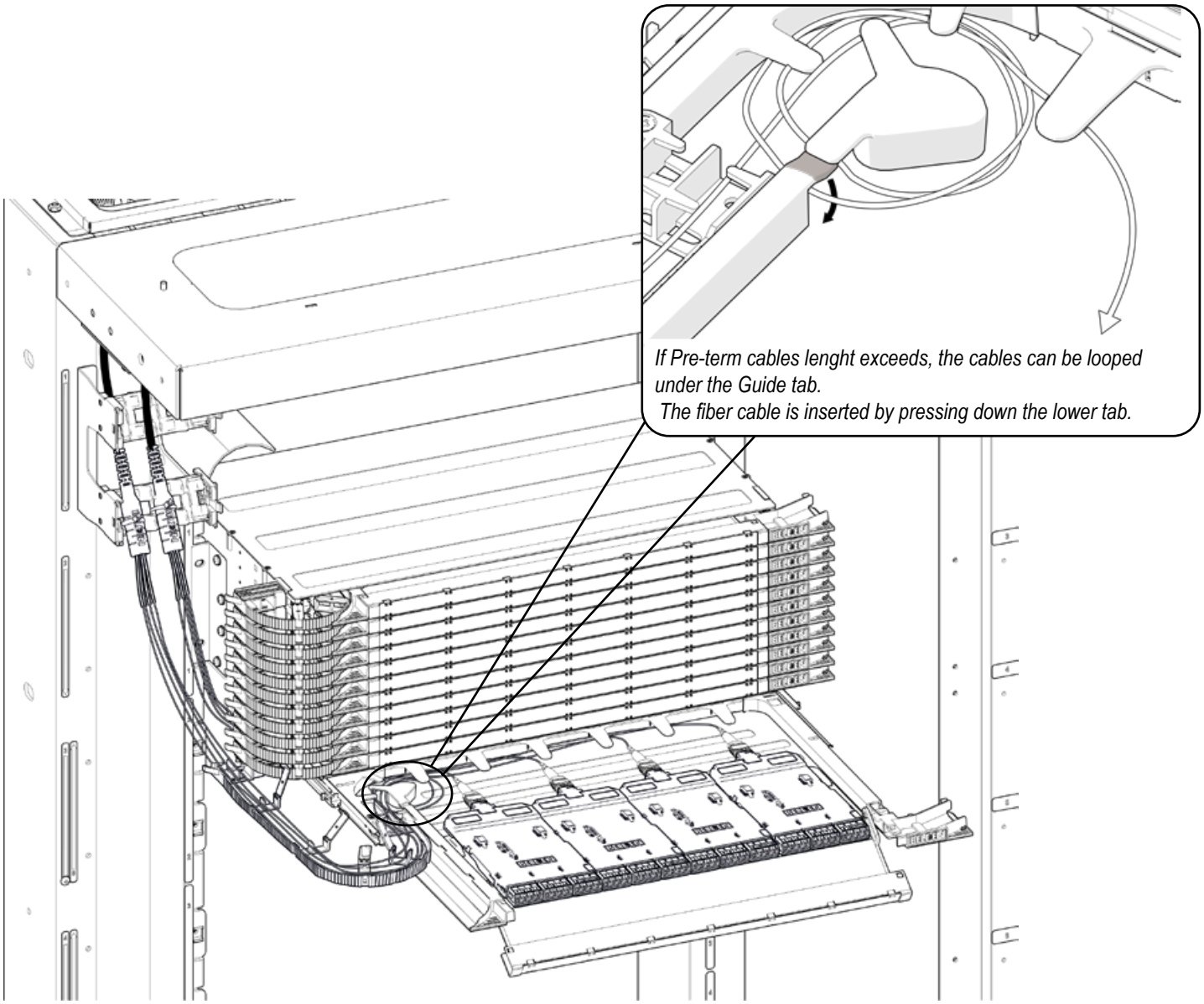
Cable Guard assembly:
shown as reference only

CROSS-CONNECT CABINET (VERTICAL THROUGH SECTIONS)	
CABLES / SUB-UNITS OD (MM)	MAX CABLE COUNT
2.00	2156
3.00	958
4.80	374
6.50	204
7.50	153
8.70	113
9.90	88
15.50	35
18.40	25
22.80	16
25.00	13

HOUSING CABLE GUARD	
SUB-UNITS OD (MM)	MAX CABLE COUNT
1.60 Duplex	16 to 24
2.00	
3.00	16

11.2. Pre-term cables and Cassettes

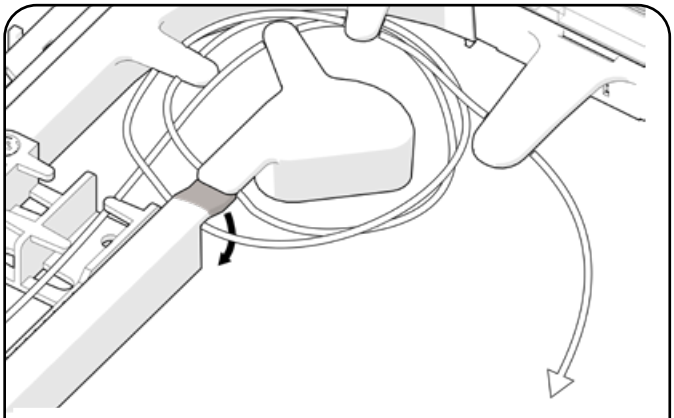
1. Begin by opening the Housing Tray completely and secure the Cassettes.
Secure the LPM transition in the Cable Distribution Manager route the trunk cables into the Housing Cable Guard.
Install the connector to the desired Cassette.



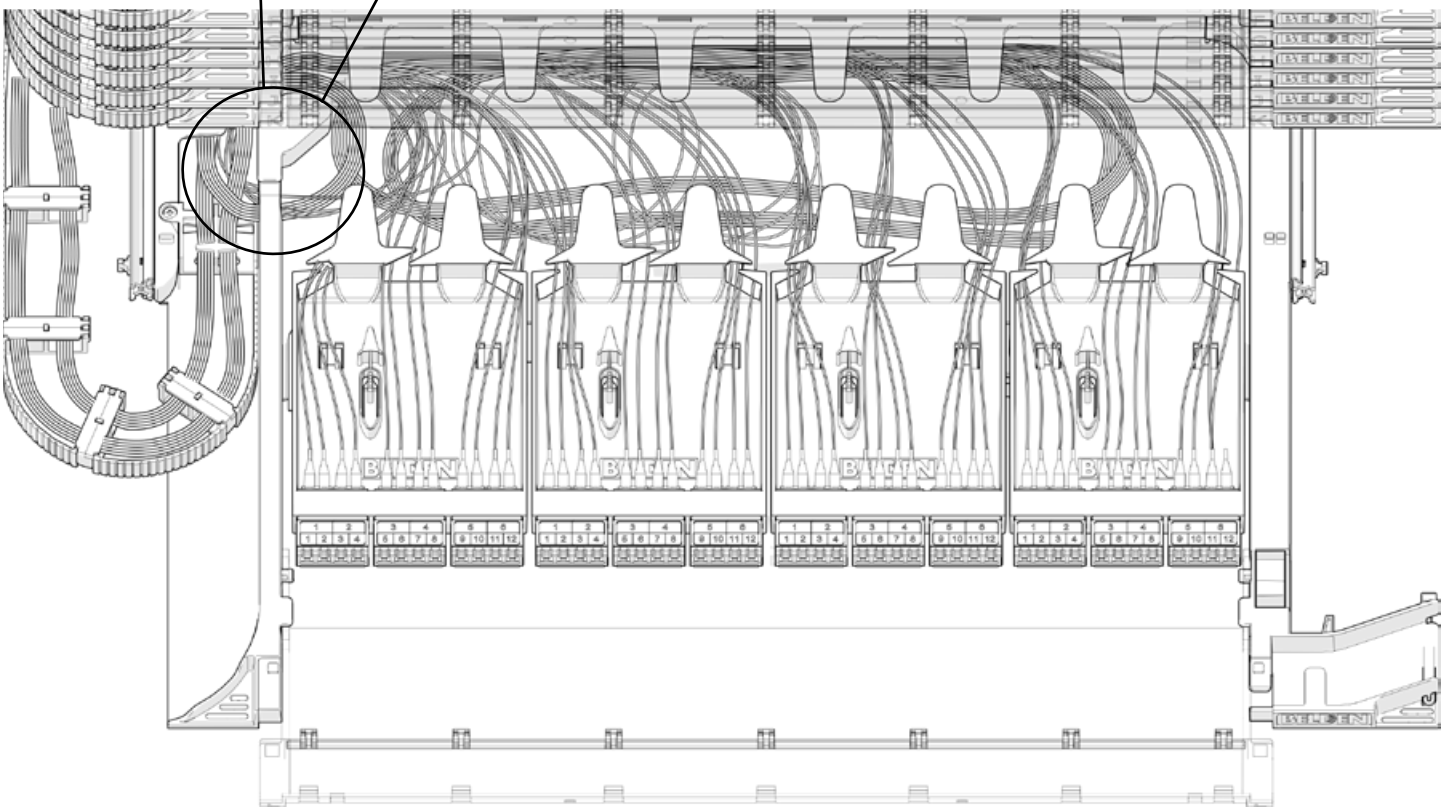
If Pre-term cables lenght exceeds, the cables can be looped under the Guide tab.
The fiber cable is inserted by pressing down the lower tab.

11.3. Pre-term cables and Fiber Adapter Frames

1. Begin by opening the Housing Tray completely and secure the Adapter Frames to the Housing Tray.
Secure the LPM transition in the Cable Distribution Manager and route the patch cord cables into the Housing Cable Guard.
Install the connectors to the desired Adapter Frames.



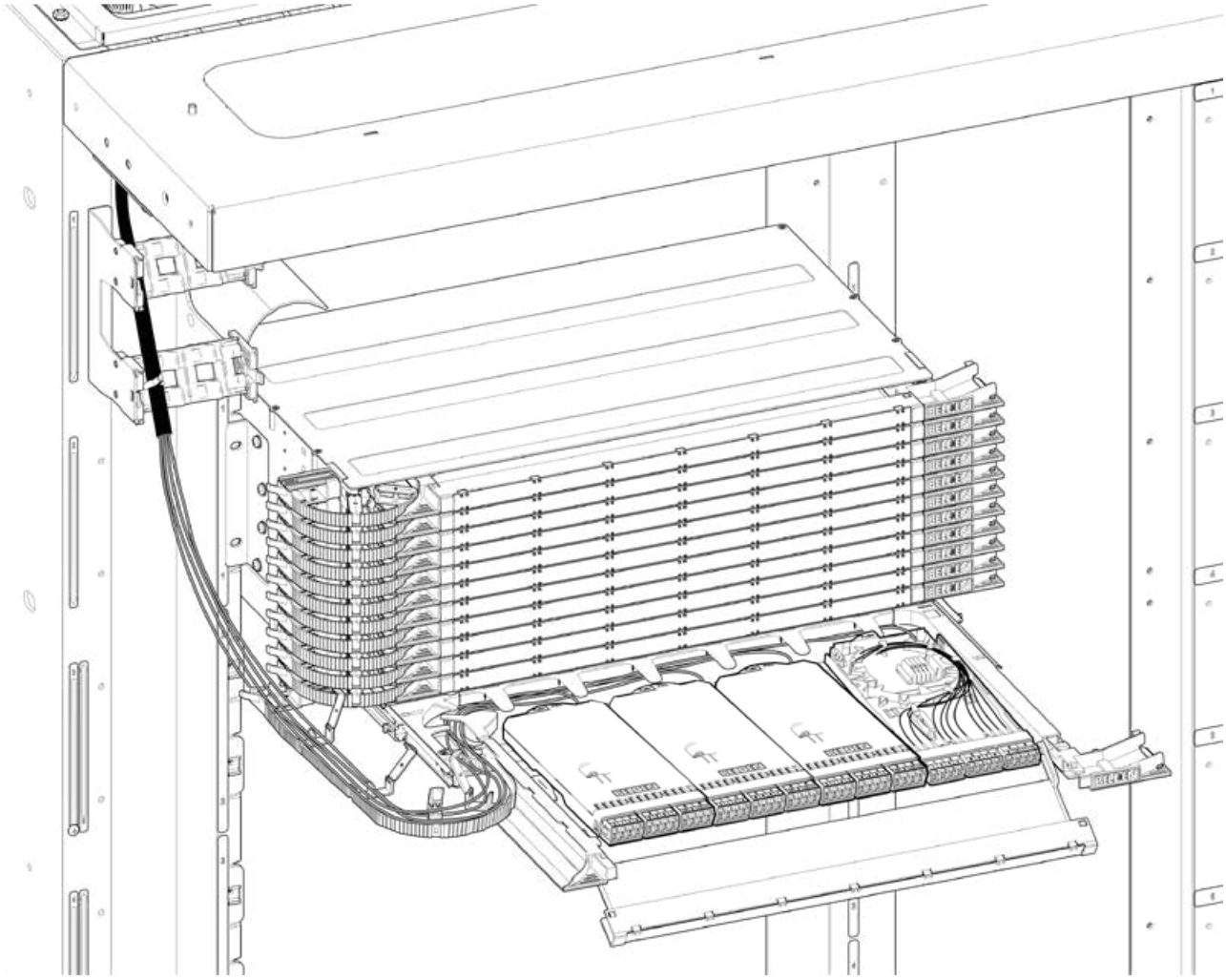
If Patch Cord cable length exceeds, the cables can be looped under the Guide tab or around the Tray as shown below.
The fiber cable is inserted by pressing down the lower tab.



11.4. Cable Distribution and Splice Cassettes

1. Prepare the entering cable (µMini-Distribution or distribution sub-unit) depending on the selected splice cassette.

µMini-Distribution or distribution sub-unit: ***25.59"*** (***65 cm)*** *This cable is used to load a 3-cutout cassette.*	***Optical (250µm) or tight buffer fiber (900µm) length***: *Refer to the Installation Guide DCX Cassettes/Adapter Frames.*

NOTE: *To see the other cable lengths required to feed smaller (2) and larger (4,6 cutouts) cassettes, please refer to the Installation Guide* ***DCX Cassettes/ Adapter Frames***

2. Secure the main cable on the Distribution Manager and route the µMini-Distribution or distribution sub-unit into the Housing Cable Guard to the installed cassettes.
If the cassette is loaded with a µMini-Distribution cable, secure the end of the cable by using the cable Retention Rubber.
If the Cassette is loaded with a distribution sub-unit, insert the end of the cable in the Cassette.
Continue the routing the tight buffer (900 µm) or optical fibers (250 µm) inside the Cassette by referring to the Installation Guide (***DCX Cassettes/ Adapter Frames***).