

DCF™ Optimized Rack System

User Manual



IMPORTANT SAFETY GUIDELINES

SAVE THESE INSTRUCTIONS

This manual contains important instructions that should be closely followed during installation and maintenance of this unit. Read all safety instructions before attempting to assemble and install the DCF Optimized Rack System. Adhere to all warnings on the unit and in this manual. Follow all instructions.

Read all warnings, cautions and instructions in this before attempting to move, lift, remove packaging from or preparing unit for installation.

This product is designed for commercial / industrial use only. This product is not intended for use with life support or other U.S. FDA designated “critical” devices. Maximum load rating for DCF Optimized Rack System can be found in the DCF Guide Spec SL-11392. User must not exceed the static load rating.

Operate this product in a clean, indoor environment that is free of moisture, flammable liquids, gases and corrosive substances.

Ensure that the DCF Optimized Rack System has proper ventilation. Never block or insert objects into the ventilation holes or other openings. Maintain a minimum clearance of 12 inches (305mm) in front, rear and top of the DCF Optimized Rack System for proper air flow and cooling.

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1.0 INTRODUCTION

The highly versatile DCF Optimized Rack System provides an organized, secure, controlled environment in a single system for sensitive electronic equipment.

The DCF Optimized Rack System is available in two heights—42U and 48U (78.1" and 88.6"; 1985mm and 2251mm). Those cabinet heights are available in these widths and depths:

Table 1 Rack dimensions

Rack Size	Dimensions, in (mm)					
	Height			Width	Depth	
	Frame Only	With Leveling Feet	With Casters	With and Without Side Panels	Without Doors	With Doors
42U	76.2 (1936.6)	77 (1956.2)	78.1 (1984.7)	23.6 (600)	41.8 (1062.5)	43.3 (1100)
48U	86.7 (2203.3)	87.5 (2222.9)	88.6 (2251.4)	31.5 (800)	45.8 (1162.5)	47.2 (1200)

Height, width, and depth dimensions are independent.

Depth with door is measured from the front door frame to the rear door frame.

Assembly instructions in this manual cover the various configurations of the DCF Optimized Rack System, either a single rack for simple equipment organization or a suite of DCF Optimized Rack System racks.

2.0 MAJOR COMPONENTS

DCF Optimized Rack System will have all of the components addressed in this section. All components are finished with a textured powder coat, color is RAL 7021.

2.1 Frame

The DCF Optimized Rack System is constructed of hot and cold rolled steel. Frame is light weight and strong with a 3000lb static load rating.

2.1.1 Adjustable Rails

The DCF Optimized Rack System ships with 2 sets of 19" (EIA310-E) compliant rails. The 19" rails have U marking labels on both sides of the rails. Front and rear mount rails are installed in the DCF at 29.13" (740mm).

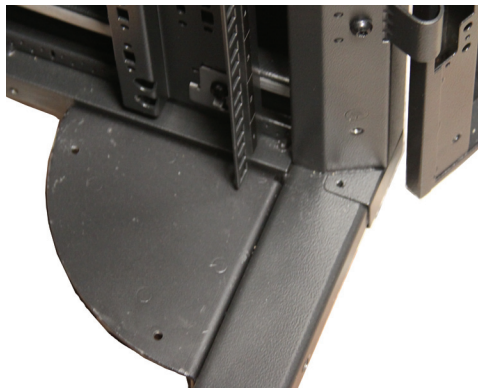
2.1.2 Full Height Rack PDU/Cable Management Bracket

Each DCF rack leaves the factory with two full height rack pdu/cable management brackets installed. The brackets are installed in the rear of the rack, flush against the frame, one bracket installed on each side of rack.

2.1.3 Casters

DCF Optimized Rack System ships standard with 4 swivel, non-locking casters installed.

Figure 1 Caster plate



2.2 Enclosure

Exterior components of the DCF Optimized Rack System are finished in textured powder coat, color RAL 7021.

2.2.1 Doors

All doors for the DCF are framed from sheet metal and have hexagonal perforations leaving 75% open for airflow and efficient cooling. All doors have a single point latch system and come standard with lock. The DCF rack ships with a single contoured perforated front door and split perforated rear doors designed for easy access. All doors can easily be removed and the single contoured front door is designed for reversibility (left/right) hinging in the field. (See 3.4.2 for door removal and reverse.)

Each door opens to 135 degrees.

Table 2 Door dimensions, single door

Frame Size		Door Dimensions, in (mm)		Part Number
		Height	Width	
42U	78.1 x 23.6 (2000 x 600)	76 (1931.5)	23 (586)	Part # 546053G1L
	78.1 x 31.5 (2000 x 800)		31 (768)	Part # 546053G2L
48U	83.4 x 23.6 (2100 x 600)	87 (2198.2)	23 (586)	Part # 546053G3L
	83.4 x 31.5 (2100 x 800)		31 (768)	Part # 546053G4L

Table 3 Door dimensions, split doors

Frame Size		Door Dimensions, in (mm)		Part Number
		Height	Width Each Door	
42U	78.1 x 23.6 (2000 x 600)	76 (1931.5)	11.5 (293)	Part # 546054G1L
	78.1 x 31.5 (2000 x 800)		15.5 (384)	Part # 546054G2L
48U	83.4 x 23.6 (2100 x 600)	87 (2198.2)	11.5 (293)	Part # 546054G3L
	83.4 x 31.5 (2100 x 800)		15.5 (384)	Part # 546054G4L

2.2.2 Side Panels

Side panels for the DCF Optimized Rack System are a split side panel design constructed of sheet metal. Each side panel section comes with a lock for security which is installed in the center top of each panel. Two keys ship with the side panels; the side panel keys are the same keys that are used for the doors.

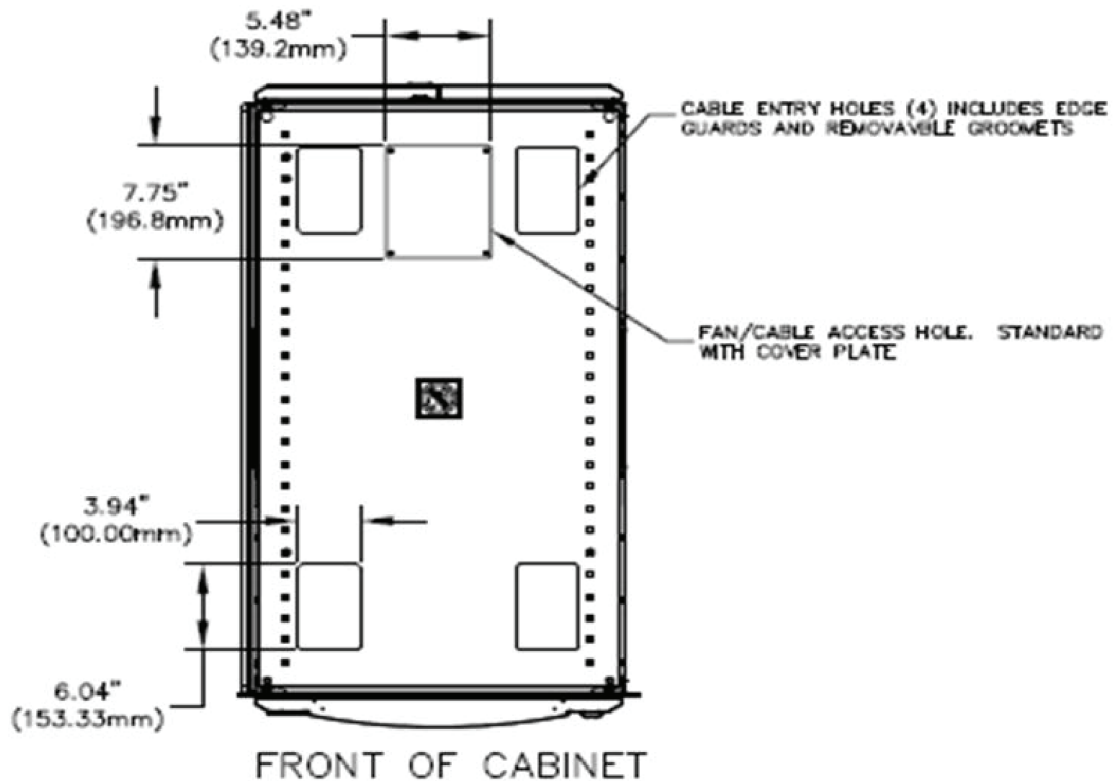
Table 4 Side panel sizes and part numbers

Rack Height, in (mm)	Rack Depth, in (mm)	Side Panel Part Numbers
78.1 (2000)	43.3 (1100)	546055G1L
	47.2 (1200)	546055G2L
88.6 (2250)	43.3 (1100)	546055G3L
	47.3 (1200)	546055G4L

2.2.3 Top Cover

All DCF racks ship with top cover constructed of sheet metal. The top cover has cutouts for fan mounting, cabling, and cagenut installation which allows mounting of certain DCF accessories.

Figure 2 Top cover for DCF Optimized Rack System 1100mm and 1200mm deep



2.3 Mounting Hardware & Tools

Hardware to install additional accessories ships with the DCF rack. A bag of 50 M6 cagenuts, 50 M6x12 pan head screws, 50 nylon washers, 1 cagenut insertion tool, 1 #13/14 wrench, 1 L Key with a T30 torx head and Phillips head, 9FT of black edge guard, and 1 baying kit.

3.0 INSTALLATION

3.1 Inspection

Upon receiving a DCF Optimized Rack System, examine the packaging for any signs of mishandling or damage. If any damage is noted, notify your local Emerson® representative and your carrier immediately.

Figure 3 DCF Optimized Rack System as shipped



3.2 Required Setup equipment

Each DCF Optimized Rack System ships with all the tools necessary to adjust supplied components. The tool kit contains the following tools:

- cagenut tool
- 13/14mm wrench
- combination T30 Torx L-key with Phillips head

The following tools are required to set up a DCF Optimized Rack System:

- pallet jack or forklift
- utility knife or scissors
- 14mm socket and ratchet or 14mm wrench

3.3 Unloading the DCF Optimized Rack System

Before unloading a DCF Optimized Rack System, note the weight of the model (see **5.0 - Specifications**). Use at least two people when moving the unit.

1. Using a pallet jack or forklift, move the DCF Optimized Rack System on its pallet to the installation location.
2. Cut the shrink wrap and remove all packaging.
3. Use a 14mm socket or a 14mm wrench to remove the lag bolts securing each shipping bracket to the shipping pallet. There are two brackets, one in the front and one at the rear of the rack. Each bracket is secured by four bolts (see **Figure 4**).

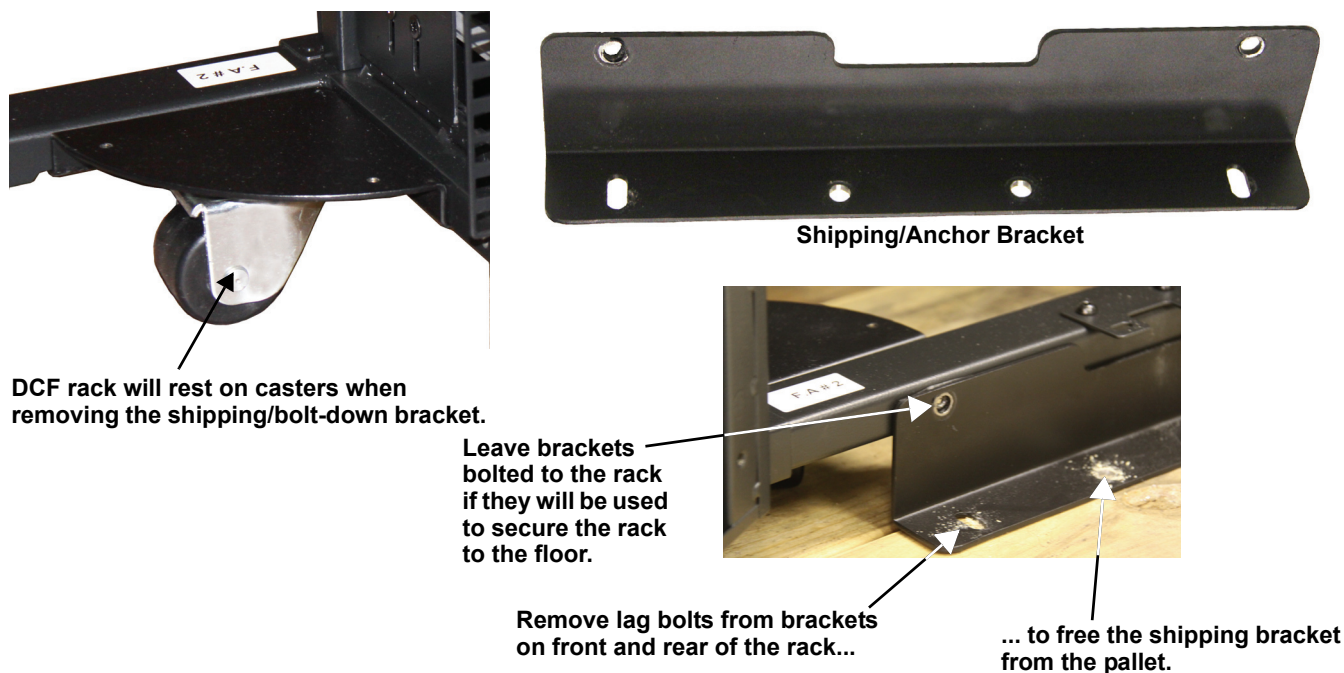
Shipping bracket can also be used as an anchor bracket once unit is at final resting place. Leave the shipping brackets attached if they will be used to secure the rack to the floor.

4. Use a pallet jack or forklift to raise the DCF Optimized Rack System off the shipping pallet.
5. Slide the shipping pallet out from under the rack.

The DCF Optimized Rack System may be positioned for installation either with the forklift, by two or more people carrying it or by rolling the rack on its casters.

If the casters are to be used to move the rack, the leveling feet must be raised. Position the rack and either lower the leveling feet or bolt the rack to the floor with the shipping/anchoring brackets.

Figure 4 Removing rack from shipping pallet



3.4 Equipment Layout, Repositioning, Removal and Installation

To keep the unit's center of gravity as low as possible, install equipment from the bottom up, starting with the heavier units. Leave any unused space at the top of the rack.



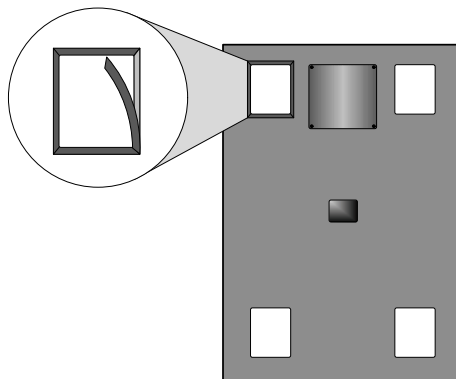
CAUTION

After equipment is installed, the DCF Optimized Rack System may have a high center of gravity. Avoid tipping the unit when it is being moved.

3.4.1 Installing the Edge Guard

1. Press edge guard to top cover cut outs by pressing along the edge of the cut out opening.
2. Trim excess edge guard with a pair of scissors after the edge guard has been completely applied around the opening.
3. Repeat **Steps 1** and **2** for remaining cut outs.

Figure 5 Applying the edge guard



3.4.2 Front- and Rear-Mount 19" EIA Rails—Position and Attach

Front- and rear-mount 19" EIA rails are installed in DCF racks at the factory at 29.13 inches (740mm). They are attached to the cabinet frame at top and bottom, attach in center to the DCF support member using M6x12 torx head screw into a rail adjustment bracket. 19" EIA rails in 800mm wide racks are attached using node brackets. The node brackets attach to the top and bottom of the DCF frame and in the center to the DCF support member. The 19" EIA rails are attached to the node brackets and move as a unit if they need to be repositioned.



NOTE

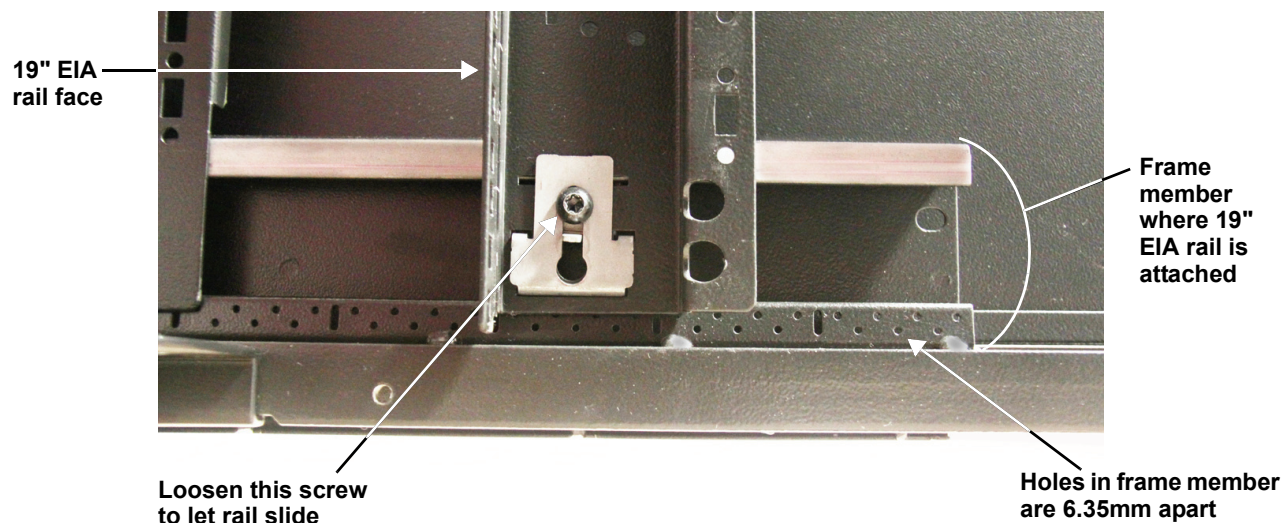
The front and rear 19" EIA rails must be kept at a 90-degree angle to the upper and lower frame members. The left and right front vertical rails must be the same distance from the front of the rack; the left and right rear vertical rails must be the same distance from the rear of the rack.

If those conditions are not met, equipment and optional features will be difficult to install.

Position 19" EIA Rails

1. Determine the desired location of the 19" EIA rails.
2. Loosen the M6x12 screws in the rail adjustment brackets securing the 19" EIA rails to the frame member (see **Figure 6**).
Rails in both the 600 and 800mm wide racks are attached at the top, center and bottom.
3. Slide the rail adjustment brackets either up or down, depending on their orientation in the rack.
4. Slide the 19" EIA rail to the desired position, making sure it is kept square as described in the **Note** above. The frame member and support have small holes spaced on 6.35mm centers to assist in properly positioning the 19" EIA rails.
5. Hold the rail in position, then tighten the M6x12 screws into the rail adjustment brackets.
6. Repeat **Steps 2** through **5** for the corresponding 19" EIA rail.

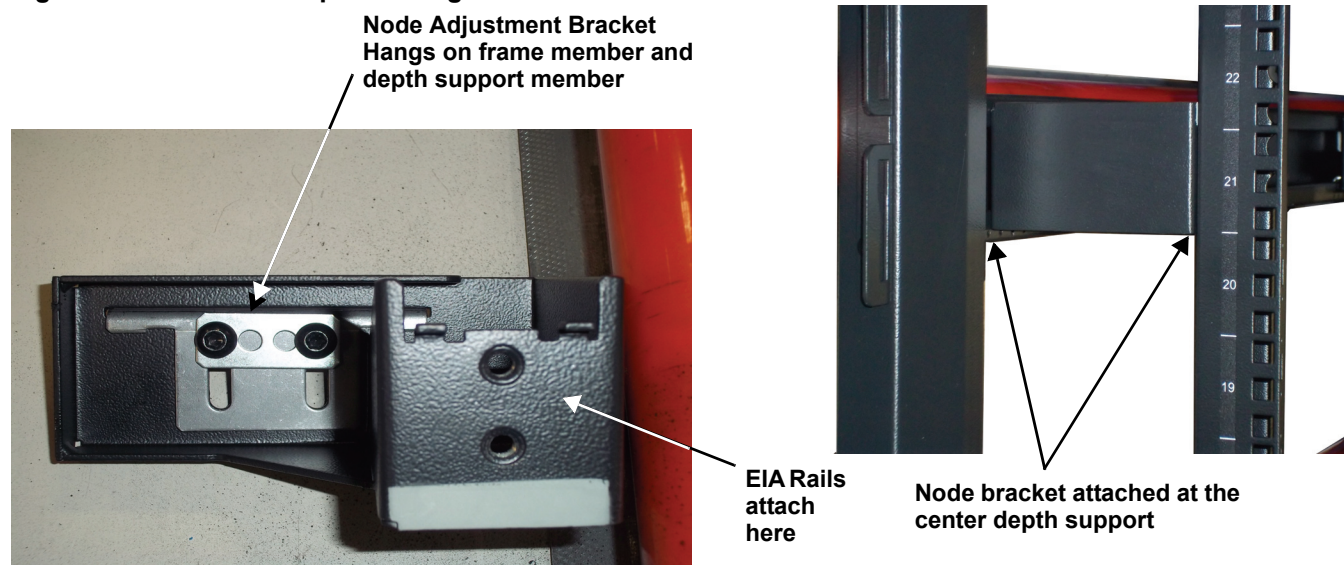
Figure 6 19" EIA rail repositioning



Position 19" EIA Rails on 800mm Cabinets

1. Determine the proper location of the 19" EIA rails.
2. Loosen the two screws that secure the node adjustment brackets to the bottom frame member, then slide the bracket down.
Repeat on the other two node adjustment brackets attached to the frame and center support member.
3. Slide the 19" EIA rails to their new location. The rails will bind if they are not kept at a right angle to the frame.
4. Tighten all hardware.

Figure 7 19" EIA rail repositioning—800mm cabinets



3.4.3 Door—Remove and Reverse

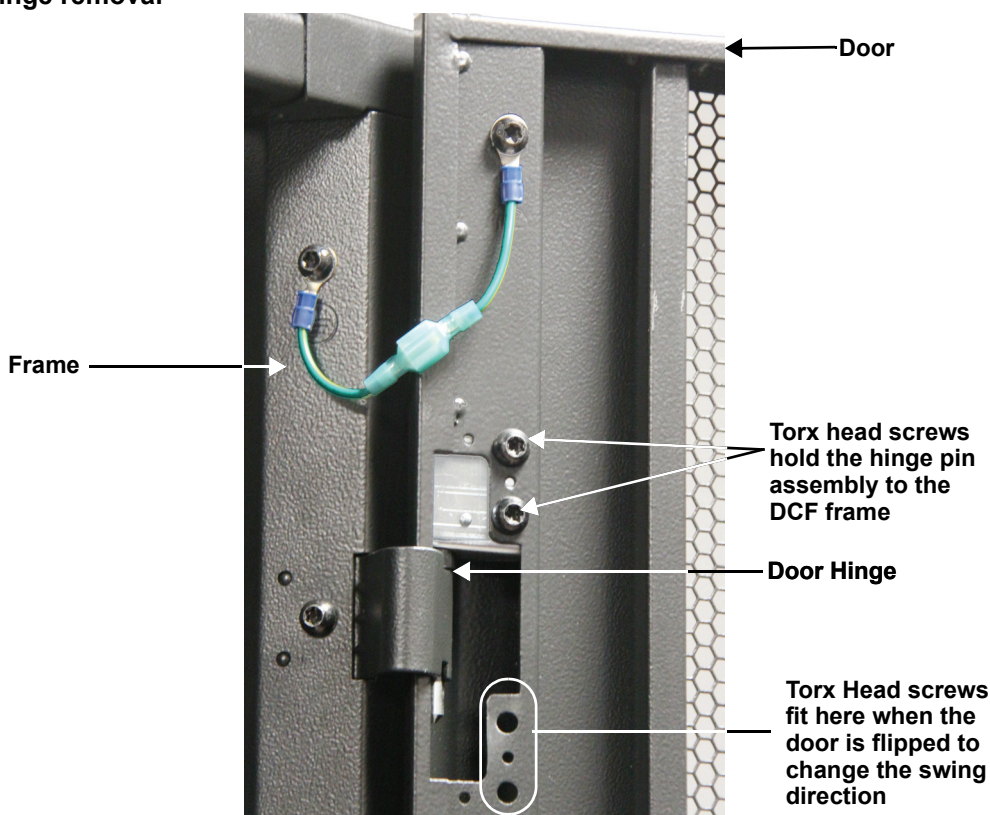
DCF doors are removable for convenience when installing or maintaining equipment. The DCF front door is also reversible, so the single-door may be opened in a more convenient direction if the rack is near a wall or other equipment.

Doors are supported by two hinges and held in place by gravity. They can be lifted off and reinstalled without tools (see **Figure 8**).

**NOTE**

Doors are easier to remove if they are open at a 90° angle to the DCF cabinet.

Figure 8 Door hinge removal

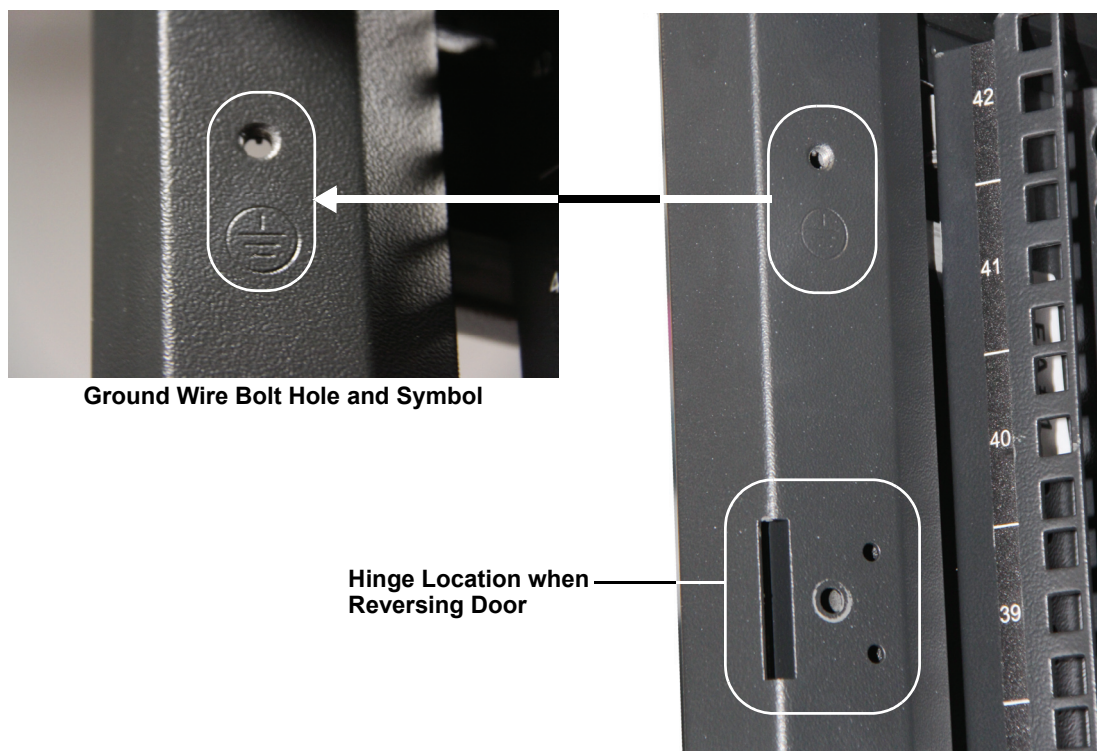


Reverse the Door

**NOTE**

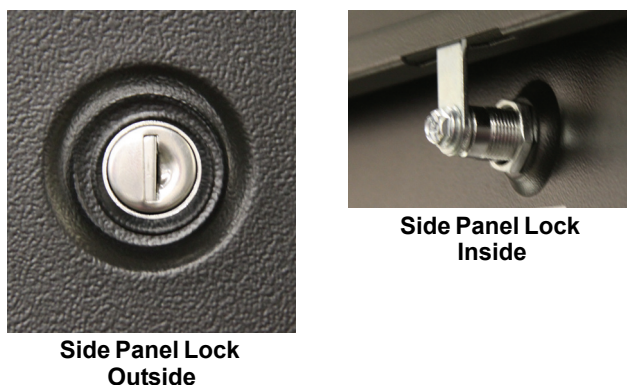
The door handle cannot be reversed.

1. Lift the door off the DCF.
2. Loosen and remove screws from both the top and bottom hinges.
3. Remove the hinges and place them on the opposite side of the frame in the slots provided.
4. Reinsert and tighten the screws.
5. Remove the hardware from the door catch and install the catch on the opposite side of the frame.
6. Flip the door.
The hinge pin assemblies will now be at bottom of the hinge pin attachment point.
7. Remove the hardware, flip the hinge pin and reinsert it in the hinge pin attachment point.
8. Reattach the hinge pin with hardware.
9. Hang the door on the newly positioned hinges.

Figure 9 Alternate door hinge position and grounding wire location

3.4.4 Side Panels

The DCF uses dual split side panels fashioned from sheet metal. The lower panel hangs on a frame member and the upper panel hangs on the rack frame. Each panel is secured with a lock. The arrangement makes the panels simple to remove and replace, making it easier to install equipment. Panel removal also eases maintenance and replacing equipment.

Figure 10 Side panel installation

Remove a Panel

To remove a panel, insert the key in the side panel lock and turn it clockwise to unlock it. Lift the panel up and away from the rack. Set it aside. Repeat for other panels being removed.

Replace a Side Panel

To install the Side Panel:

1. Insert the bottom panel into cutouts.
2. Move the top of the panel toward the rack.
3. Turn the key counterclockwise to lock the panel in place.
4. Repeat **Steps 1** through **3** for other panels being replaced.

3.5 Power Distribution Unit Mounting

Power distribution units may be mounted multiple ways in the DCF Optimized Rack System rack. They may be mounted on the rails or attached to mounting brackets:

- 42U full height PDU/cable management mounting brackets (4"W) (**Part # 546076G1L**)
- 48U full height PDU/cable management mounting brackets (4"W) (**Part # 546077G1L**)

3.6 Full-Height PDU/Cable Management Brackets

3.6.1 Install a Full-Height PDU/Cable Management Bracket

1. Position the full-height PDU mounting bracket for installation; refer to **Figure 11** for placement. The inside bottom flange of the PDU hanging bracket should rest on the flange of the frame member at the top and bottom.
2. Hold the PDU bracket in place and insert and tighten the screws.

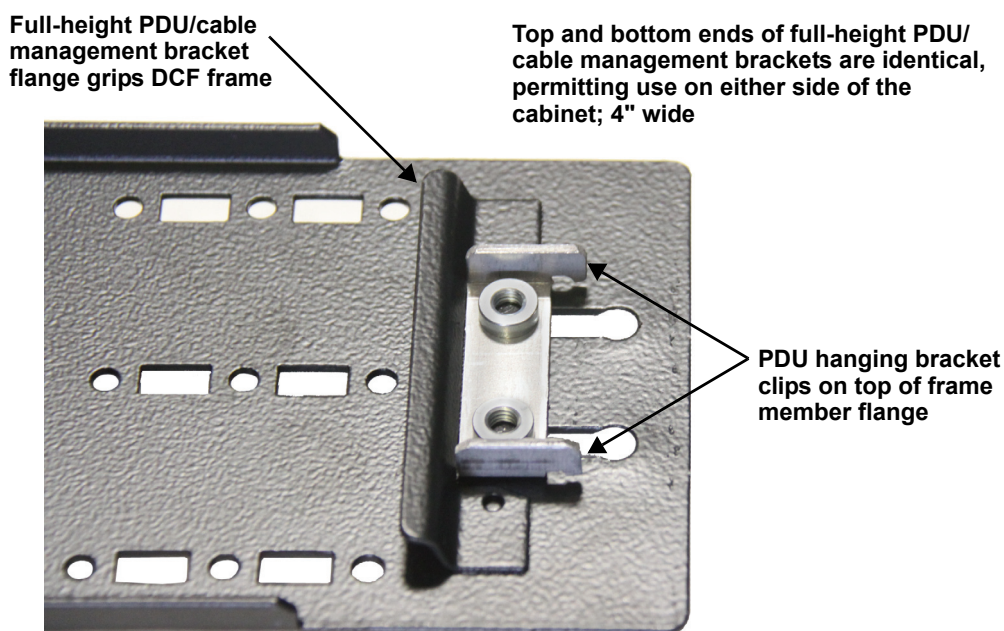
3.6.2 Reposition a Full-Height PDU/Cable Management Bracket

1. Loosen the screws in the top and bottom PDU hanging bracket.
2. Slide the full height pdu/cable management bracket along the frame member to the desired location and tighten the screws.

3.6.3 Remove a Full-Height PDU/Cable Management Bracket

1. Loosen the screws in the top and bottom PDU hanging bracket.
2. Lift the bracket up so the hanging bracket clears the frame member and remove the full-height PDU/cable management bracket from the DCF.

Figure 11 Full-height PDU/cable management brackets

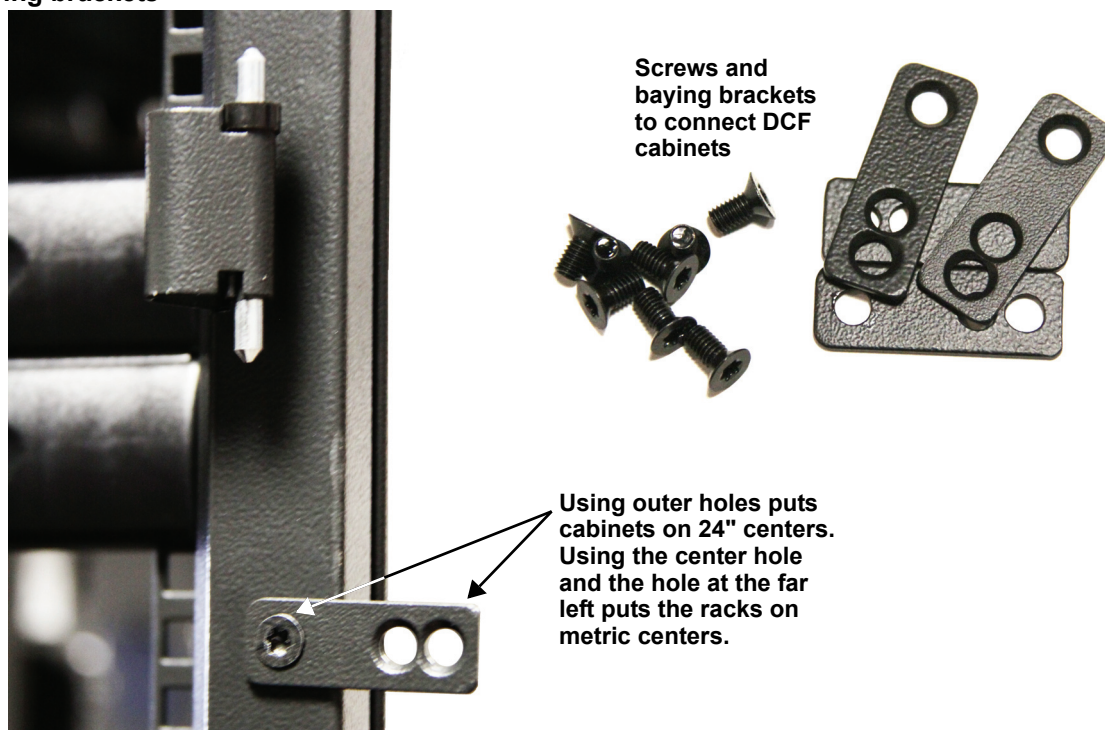


3.7 Baying Configuration

Two or more DCF cabinets of the same height can be bayed with the supplied baying brackets. The brackets have three holes: one that connects to the DCF, one that puts the cabinets on 24" (609.6mm) centers and one that puts the cabinets on metric centers.

Connecting DCF racks is easier if the units have been moved to their final installation position before beginning to attach them in a cluster.

Figure 12 Baying brackets



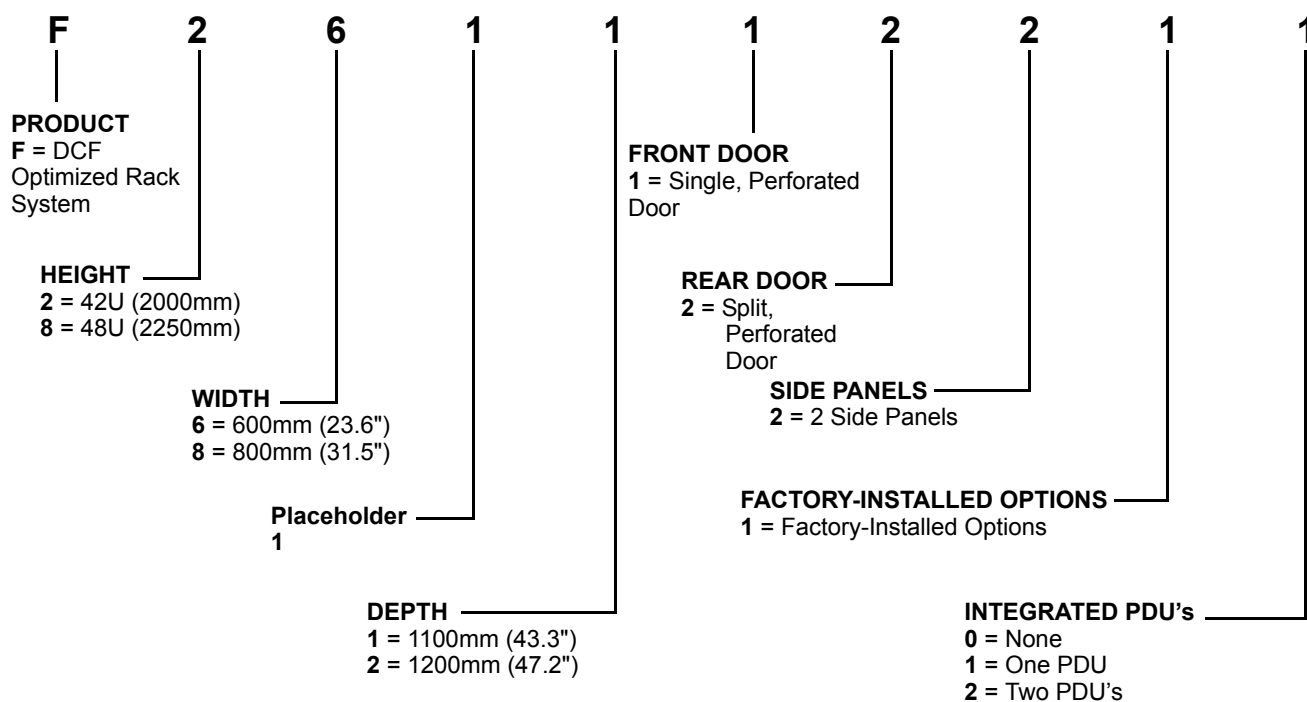
4.0 PERIODIC MAINTENANCE

Your DCF Optimized Rack System cabinet requires no special maintenance. It should be cleaned periodically, more frequently if the air in the vicinity is not filtered for particulates.

Dust should be cleaned from installed equipment according to the manufacturer's recommendations. Clean the interior of the cabinet with a dry cloth.

5.0 SPECIFICATIONS

Figure 13 DCF Optimized Rack System model numbers



F 2 6 1 1 1 2 2 1 1

The sample part number above and at the top of the page specifies a DCF Optimized Rack System with these characteristics:

- Height—2000mm (42U)
- Width—600mm (23.6")
- Depth—1100mm (43.3")
- Front Door—single, perforated
- Rear Door—split, perforated door
- Side Panels—2
- Factory-Installed Options
- Integrated PDU's—1

Table 5 DCF pre-configured optimized rack systems

Part #	Description
F2611	42U X 24" W X 44"D With Sides
F2612	42U X 24" W X 48" D With Sides
F2811	42U X 32" W X 44" D With Sides
F2812	42U X 32" W X 48" D With Sides
F8611	48U X 24" W X 44" D With Sides
F8612	48U X 24" W X 48" D With Sides
F8811	48U X 32" W X 44" D With Sides
F8812	48U X 32" W X 48" D With Sides

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