



PowerFlex 755TM IP00 Open Type Kits

Catalog Numbers 20-750-x

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This document provides instructions for the installation of PowerFlex® 755TM IP00 / Open Type kits in customer-sourced enclosures. The available IP00 / Open Type kits (catalog numbers 20-750-x) support the full range of PowerFlex 750-Series products with TotalFORCE® technology solutions.

All PowerFlex 755TM IP00 / Open Type kits are designed for installation in Rittal TS8 enclosures, which are shown in this manual. For a list of Rittal TS8 enclosures recommended by Rockwell Automation for use with PowerFlex 755TM IP00 / Open Type kits, see Recommended Enclosures on page [39](#).

The information that is provided in this manual is intended for qualified installers only. See Qualified Personnel on page [3](#).

PowerFlex 750-Series products with TotalFORCE technology offer precise motor control along with solutions for harmonic mitigation, regeneration, and common-bus system configurations. The PowerFlex 755T products use TotalFORCE technology, our patented field-oriented control for accurate torque control. With TotalFORCE, the PowerFlex 755T products deliver fast, precise, responsive control of position, velocity, and torque.

Designed and built using a modular approach, the PowerFlex 755T products offer a full range of ratings and capabilities that are suited to your application needs. The modular construction also offers the added advantage of fast and easy parts replacement and simplified management of a common set of spares.

- **PowerFlex 755TL Drive** - Provides harmonic mitigation and power factor correction by using active front-end technology.
- **PowerFlex 755TR Drive** - Features built-in regeneration capability that helps reduce energy consumption by delivering regenerative energy from motors back to the incoming supply. Line regeneration can reduce the need for braking resistors and associated cooling equipment and helps avoid wasteful dissipation of energy. The drive also offers harmonic mitigation.
- **PowerFlex 755TM Drive System** - Select from a series of predesigned configurations for regenerative and non-regenerative bus supplies and common bus inverters to optimize your system design and power consumption. Gain energy efficiency with motors that share energy between regenerating and motoring loads. A common bus drive system offers advantages such as design flexibility, energy optimization, and reduced installation costs.
 - **PowerFlex 755TM Regenerative Supply** - Converts incoming AC energy to DC energy and supplies it to the common DC bus. Compatible with 755TM common bus inverters and other DC input PowerFlex drives. Provide harmonic mitigation and built-in regeneration capability.
 - **PowerFlex 755TM Non-Regenerative Supply** - Rectifies incoming AC energy to DC energy and supplies it to the common DC bus. Compatible with 755TM common bus inverters and other DC input PowerFlex drives. Provides a cost-effective solution for non-regenerative common bus applications.
- **PowerFlex 755TM Common Bus Inverter** - Controls AC motors, using energy from the common DC bus.

Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

Topic	Page
Updated information about 20-750-MN-DCLINK2-CD and 20-750-MN-DCLINK2-EF kits.	333

Product Advisories

Qualified Personnel



ATTENTION: Only qualified personnel, which are trained and approved to install PowerFlex 755TM products and familiar with associated machinery, should plan or implement the installation, start-up, and subsequent maintenance of the system. Failure to comply can result in personal injury and/or equipment damage.

Personal Safety



ATTENTION: The information that is contained in this publication is merely a guide for proper installation. Rockwell Automation, Inc. cannot assume responsibility for the compliance or the noncompliance to any code, national, local or otherwise for the proper installation of this drive or associated equipment. A hazard of personal injury and/or equipment damage exists if codes are ignored during installation.



ATTENTION: To avoid an electric shock hazard, the installer must provide guarding to shield exposed electrical equipment against accidental contact. Exposed electrical components that carry potentially hazardous voltages are identified in this manual. When installing this equipment, consider the design and placement of guarding to help prevent personal injury or equipment damage.



ATTENTION: A possible hazard of personal injury due to prolonged exposure to high sound levels. Follow applicable local, national, and international codes, standards, regulations, or industry guidelines for hearing protection when exposed to potentially damaging noise hazards.

Product Safety



ATTENTION: An incorrectly applied or installed drive system can result in component damage or a reduction in product life. Wiring or application errors such as an under-sized motor, incorrect or inadequate AC supply, or excessive surrounding air temperatures can result in malfunction of the system.



ATTENTION: Installation and startup of a PowerFlex 755TM IP00 system can result in equipment damage if the sourced enclosures do not meet the requirements that are specified in this manual. All PowerFlex 755TM IP00 kits must be installed in enclosures that meet the requirements that are specified in Customer-sourced Enclosure Requirements on page [60](#).



ATTENTION: Incorrect power wiring, power cable terminations, and final torque of power connections can result in equipment damage. Power wiring, cable connections, and final torque must be completed as identified in the Wire the System section on page [115](#) of this manual.



ATTENTION: This product contains Electrostatic Discharge (ESD) sensitive parts and assemblies. Static control precautions are required when you install these assemblies. Component damage can result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference any applicable ESD protection handbook.

Class 1 Light-emitting Diode Product



ATTENTION: A hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into module ports or fiber-optic cable connectors.

Installation Requirements

Use the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#), to make your IP00 kit selections and to complete the following items for your application and installation:

- Verify the voltage, output current, power (Hp or kW), duty rating (LD/ND/HD), and electromagnetic interference (EMI) or reflective wave filtering requirements of your application.
- Verify that your IP00 kit selections are correct for your application.
 - Review the IP00 / Open Type Kit Selection by Equivalent Frame Size in the PowerFlex 755TM IP00 Open Type Kits Technical Data publication.
 - Review the PowerFlex 755T Product Frame Size Explanation section on page [5](#) of this publication to understand how IP00 kits are combined and packaged to determine your enclosure options.
 - Review the PowerFlex 755TM Non-Regenerative Supply Module Configurations section on page [27](#) of this publication to understand how kits can be combined and packaged to determine your enclosure options.
- Verify that your modular IP00 kit and accessory selections meet any agency certification requirements. To meet UL certification, see System Module and Components Required for UL Compliance on page [36](#).

Review the following installation requirements to help prepare for your PowerFlex 755TM IP00 / Open Type kits installation solution:

- Plan for and fabricate or procure any customer-sourced components, including system ingress protection. See Customer-sourced Components on page [54](#).
- Review the considerations for CE compliance, if applicable. See CE Conformity on page [56](#).
- Plan for proper heating, ventilation, and air conditioning capabilities and determine your site, enclosure, and environmental installation requirements. See:
 - Approximate Watts Loss information in the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#).
 - Industry Installation Guidelines for Pulse Width Modulated (PWM) AC Drives Application Technique, publication [DRIVES-AT003](#).
 - Installation Site Requirements on page [60](#).
 - Enclosure Installation Requirements on page [60](#).
 - Customer-sourced Enclosure Requirements on page [60](#).
 - See Module Airflow Requirements and Enclosure Ventilation on page [61](#).
- Determine the power cable entry/exit scheme (wire bay), power cable size, and routing provisions. See Install Power and Ground Cables on page [127](#).
- Determine the supply source and method to connect the required control power to the applicable modules and components. See 240V AC/24V DC Control Power Requirements on page [137](#).
- Determine the control pod installation location. The control pod can be installed directly in a control bay or input bay or can be remotely mounted in an IP21, Type 1 enclosure. See Control Pod Installation and Control Wiring and Fiber-optic Cable Routing on page [181](#) for more information.
- Review the schematic diagrams for your product in the appropriate publication:
 - PowerFlex 750-Series Products with TotalFORCE Control Hardware Service manual, publication [750-TG100](#).
 - PowerFlex 755TM Non-Regenerative Supply User Manual, publication [750-UM100](#).

PowerFlex 755T Product Frame Size Explanation

PowerFlex 750-Series products with TotalFORCE control are assigned frame size designators. These frame size designations represent the various configurations of modules and hardware components that are packaged in a specific manner to obtain the full range of product offerings and power ratings. The products that are made possible through the combination of modular components and the assigned frame size designators are explained and illustrated in this section. The major component placement within the enclosures, as shown in the illustrations, is required for proper airflow, cooling, and electrical interconnections. Each product configuration that is contained in this section requires the specific enclosure types, quantities, and dimensions that are shown in the illustrations.

For frame 8...12, wire entry and exit bays are optional and can be used for input and output wiring connections, respectively. For frame 13...15, wire entry and exit bays and DC voltage balance bays are required and must be installed. Wire bays are not shown in all configuration illustrations. The illustrations show the PowerFlex 755T products that are installed in the recommended Rittal TS8 enclosures. For the overall dimensions of the available Rittal TS8 enclosures, see Recommended Enclosures on page 39.

The PowerFlex 755T products in this section are shown in left-to-right orientations. In left-to-right orientations, the control or input bays is installed at the left end of the enclosure lineup. The PowerFlex 755T products can also be installed in right-to-left orientations, by using the optional right-to-left bus bar and backpanel and stab receptacle IP00 kits, where applicable. In right-to-left orientations, the control or input bay is installed at the right end of the enclosure lineup. For frame 8 and 9 configurations, see IP00 Kits Required for Right-to-Left Orientations on page 39.

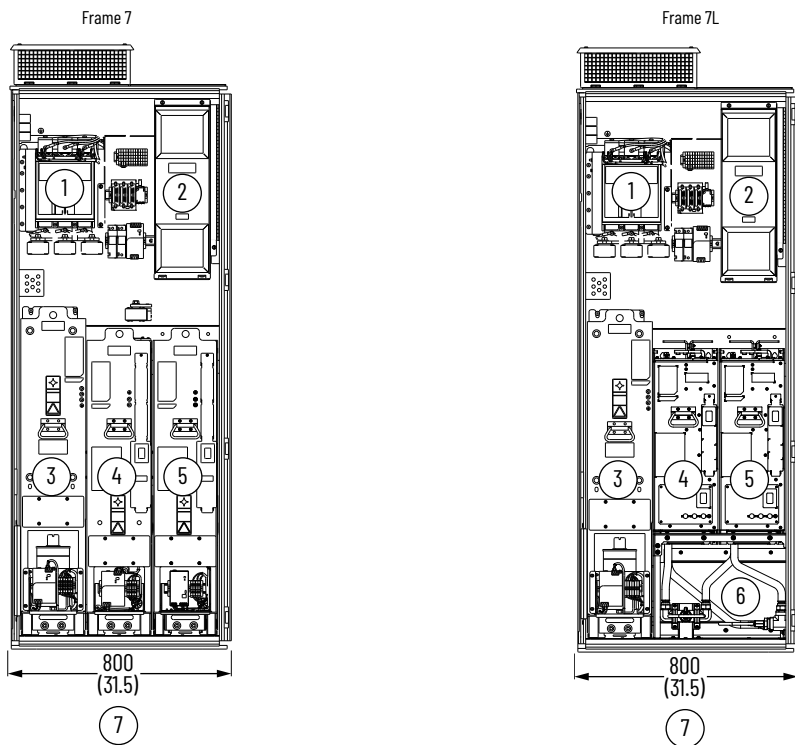


For non-regenerative supply product information See the PowerFlex 755TM Non-Regenerative Supply Module Configurations section on page 27.

PowerFlex 755TL and 755TR Drives

The drive products are assigned frame sizes 7...15 and 7L and contain the major IP00 components that are shown in these illustrations.

Frame 7 and 7L PowerFlex 755TR Drive Major Components - Front View



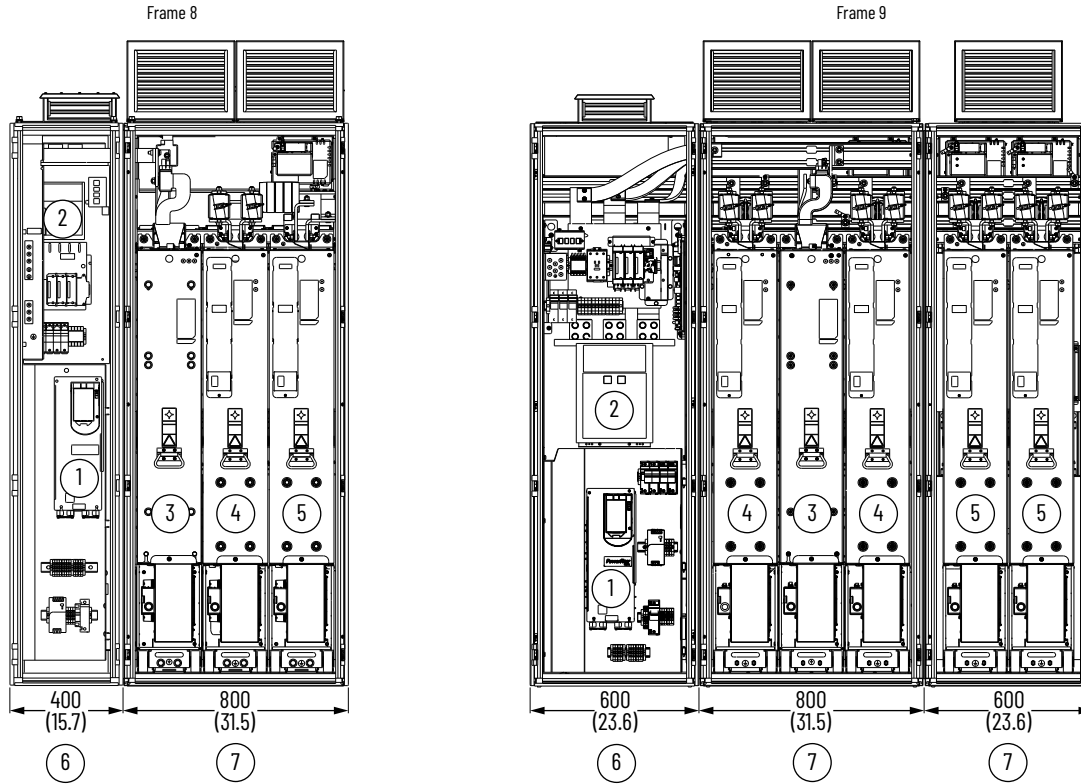
Enclosure is 600 mm (23.6 in.) deep. IP54, Type 12 enclosure shown.

Item	Description
1	AC precharge section
2	Control pod
3	LCL filter
4	Line side converter

Item	Description
5	Motor side inverter
6	Cooling loop and brackets ⁽¹⁾
7	Power bay

(1) The cooling loop components are customer sourced. See [Frame 7L Liquid Cooling Loop Application Guidelines on page 73](#) and [Drive Coolant Requirements on page 73](#) for more information.

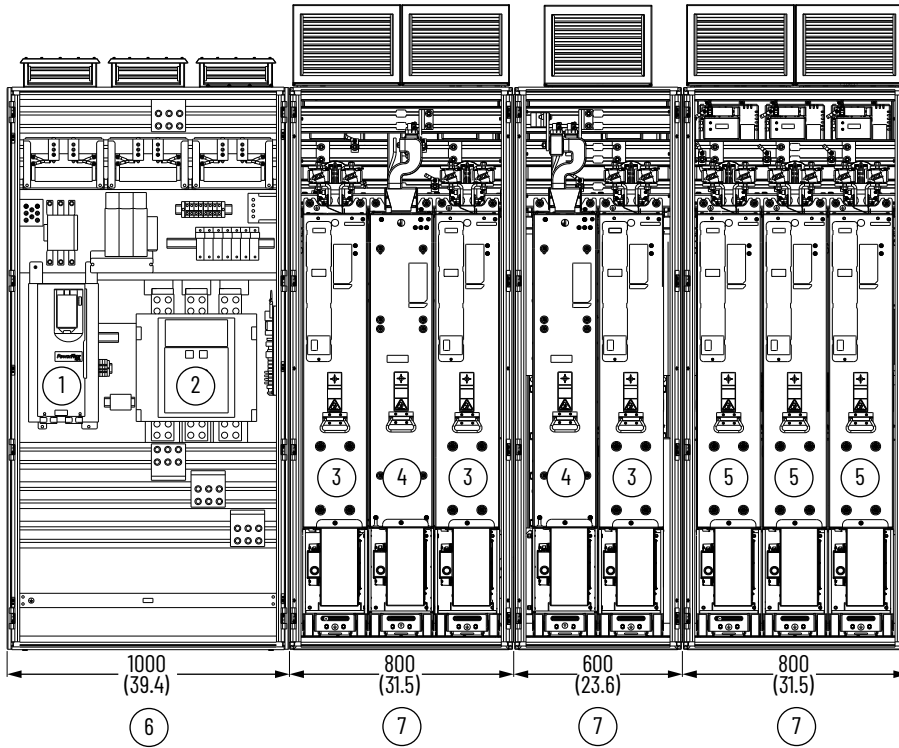
Frames 8 and 9 PowerFlex 755TL or 755TR Drive Major Components - Front View



Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 enclosure shown.

Item	Description	Item	Description
1	Control pod	5	Motor side inverter
2	AC precharge module	6	Input bay
3	LCL filter	7	Power bay
4	Line side converter		

Frame 10 PowerFlex 755TL or 755TR Drive Major Components - Front View

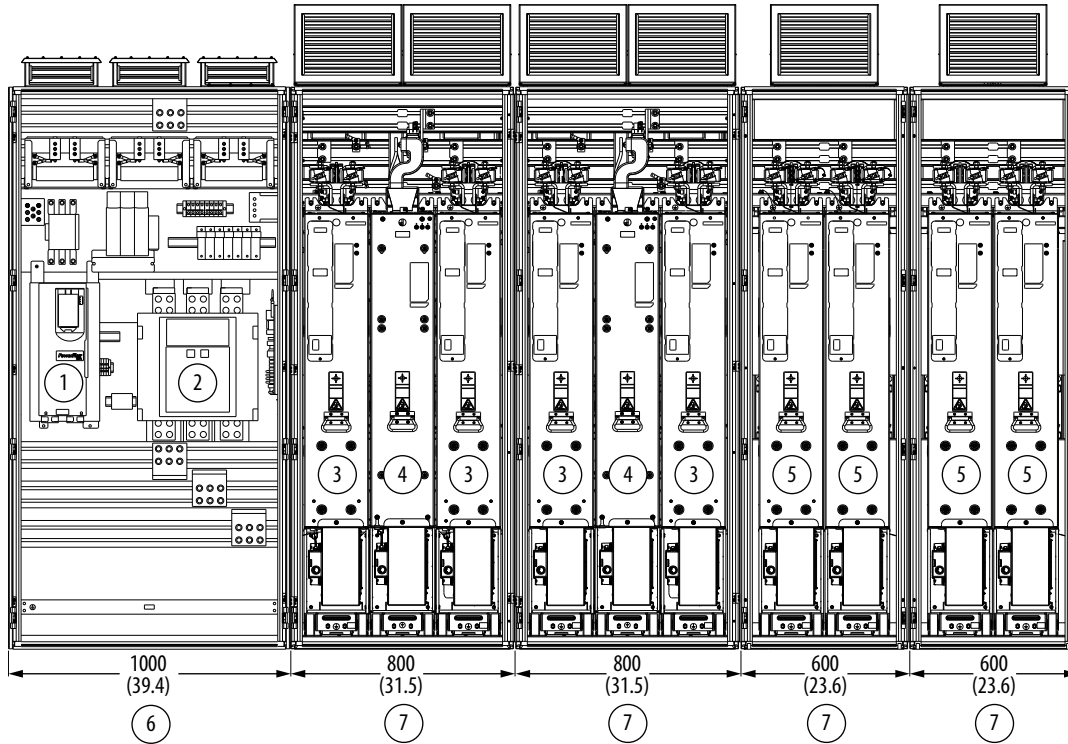


Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure Shown.

Item	Description
1	Control pod
2	AC precharge section
3	Line side converter
4	LCL filter

Item	Description
5	Motor side inverter
6	Input bay
7	Power bay

Frame 11 PowerFlex 755TR Drive Major Components - Front View



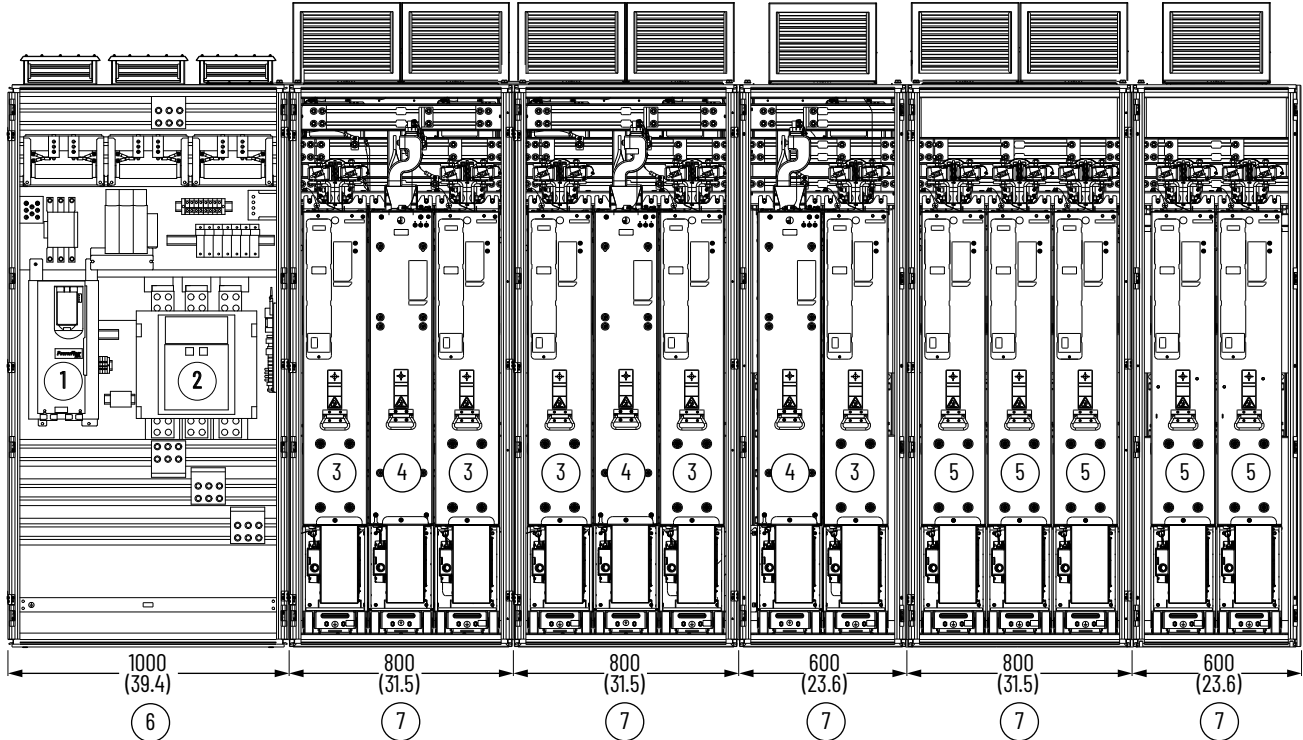
Left-to-Right Orientation

Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure

Item	Description
1	Control pod
2	AC precharge section
3	Line side converter
4	LCL filter

Item	Description
5	Motor side inverter
6	Input bay
7	Power bay

Frame 12 PowerFlex 755TR Drive Major Components - Front View



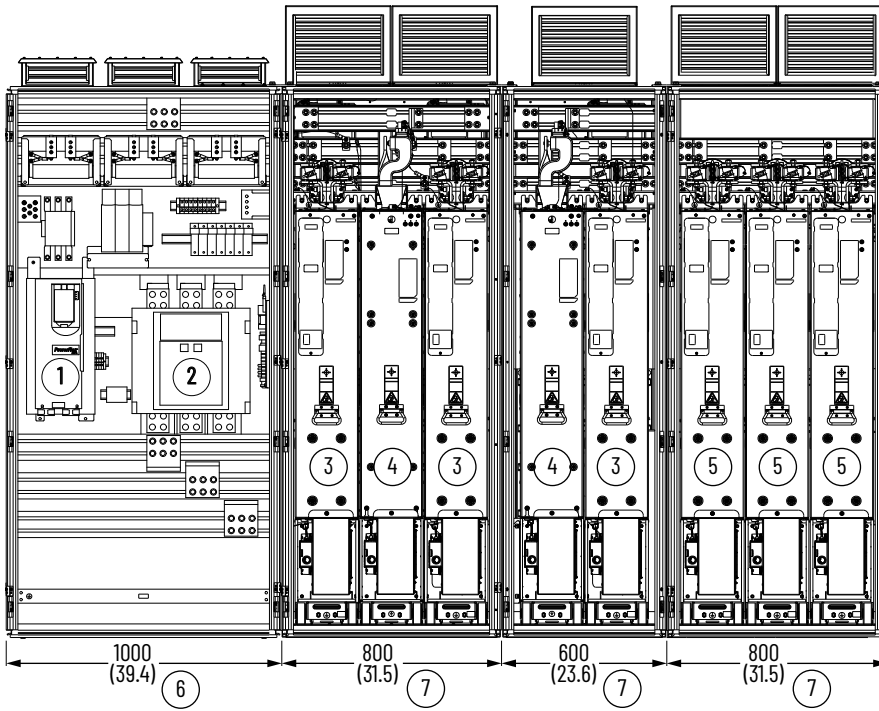
Left-to-Right Orientation

Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure

Item	Description
1	Control pod
2	AC precharge section
3	Line side converter
4	LCL filter

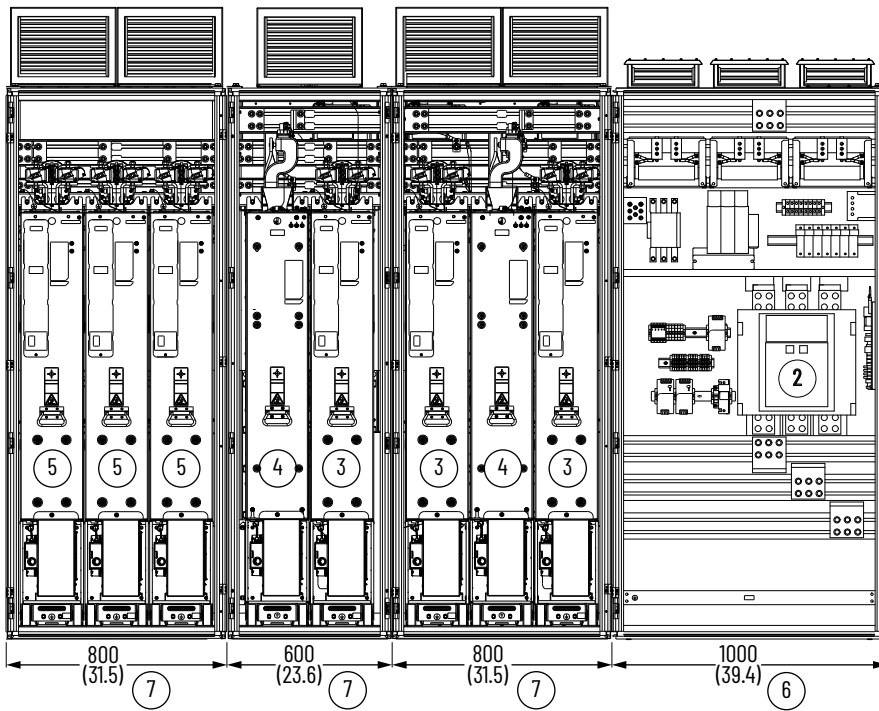
Item	Description
5	Motor side inverter
6	Input bay
7	Power bay

Frame 13 PowerFlex 755TR Drives Major Components - Front Views



Left-to-Right Orientation
See Note 1

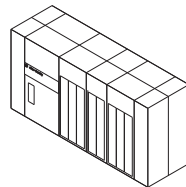
Enclosures are 600 mm (23.6 in.) deep.
IP54, Type 12 Enclosure Shown.



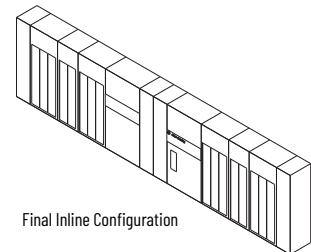
Right-to-Left Orientation
See Note 1. See recommended PowerFlex 755TM
DC Voltage Balance and Wire Bay Kits (Supplier:
Rockwell Automation or Rittal) on page 42.

Note 1: 400 mm (15.7 in.) entry and exit wire bays are omitted from this illustration.

Item	Description	Item	Description
1	Control pod	5	Motor side inverter
2	AC precharge section	6	Input bay
3	Line side converter	7	Power bay
4	LCL filter		

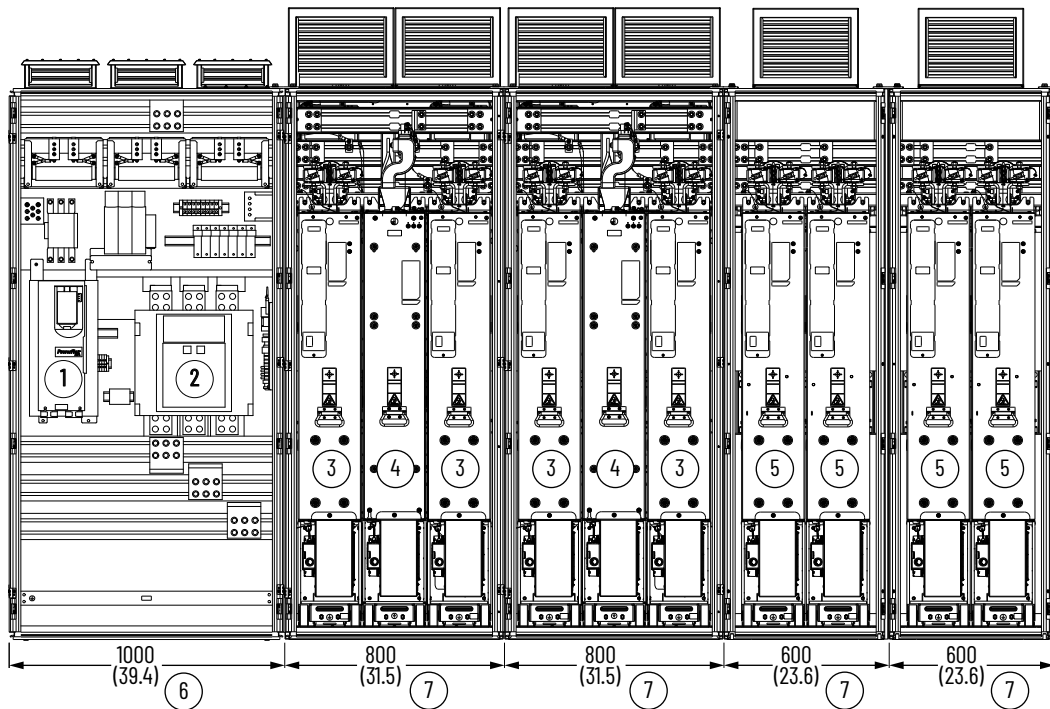


Final Back-to-Back Configuration



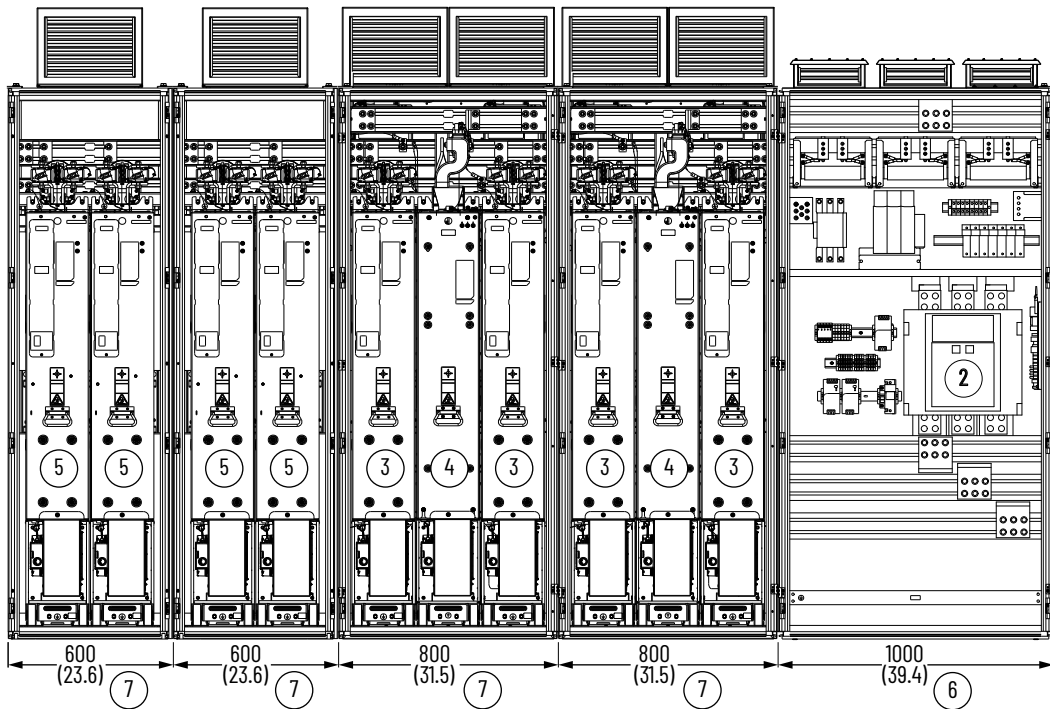
Final Inline Configuration

Frame 14 PowerFlex 755TR Drive Major Components - Front Views



Left-to-Right Orientation
See Note 1

Enclosures are 600 mm (23.6 in.) deep.
IP54, Type 12 Enclosure Shown.

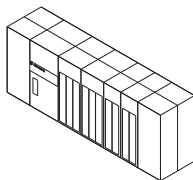


Right-to-Left Orientation
See Note 1

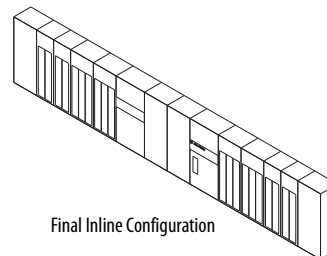
Note 1: 800 mm (31.5 in.) entry and exit wire bays are omitted from this illustration.

Item	Description
1	Control pod
2	AC precharge section
3	Line side converter
4	LCL filter

Item	Description
5	Motor side inverter
6	Input bay
7	Power bay

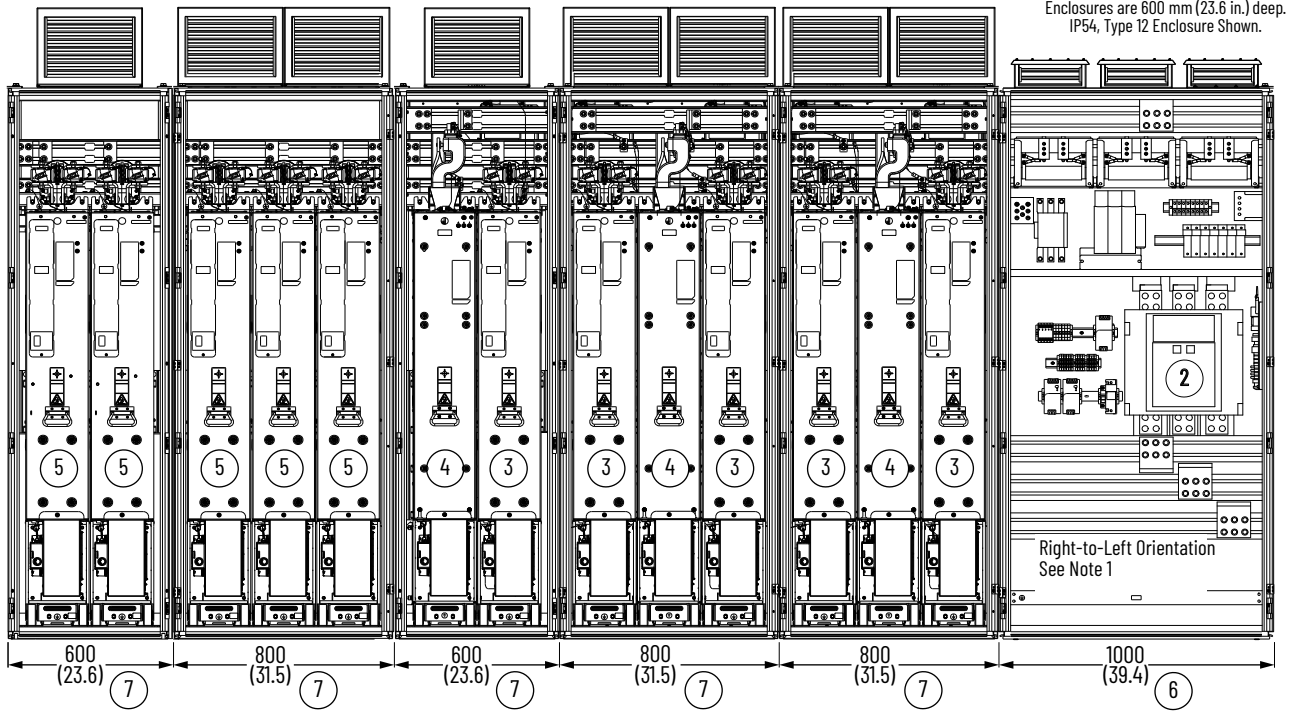
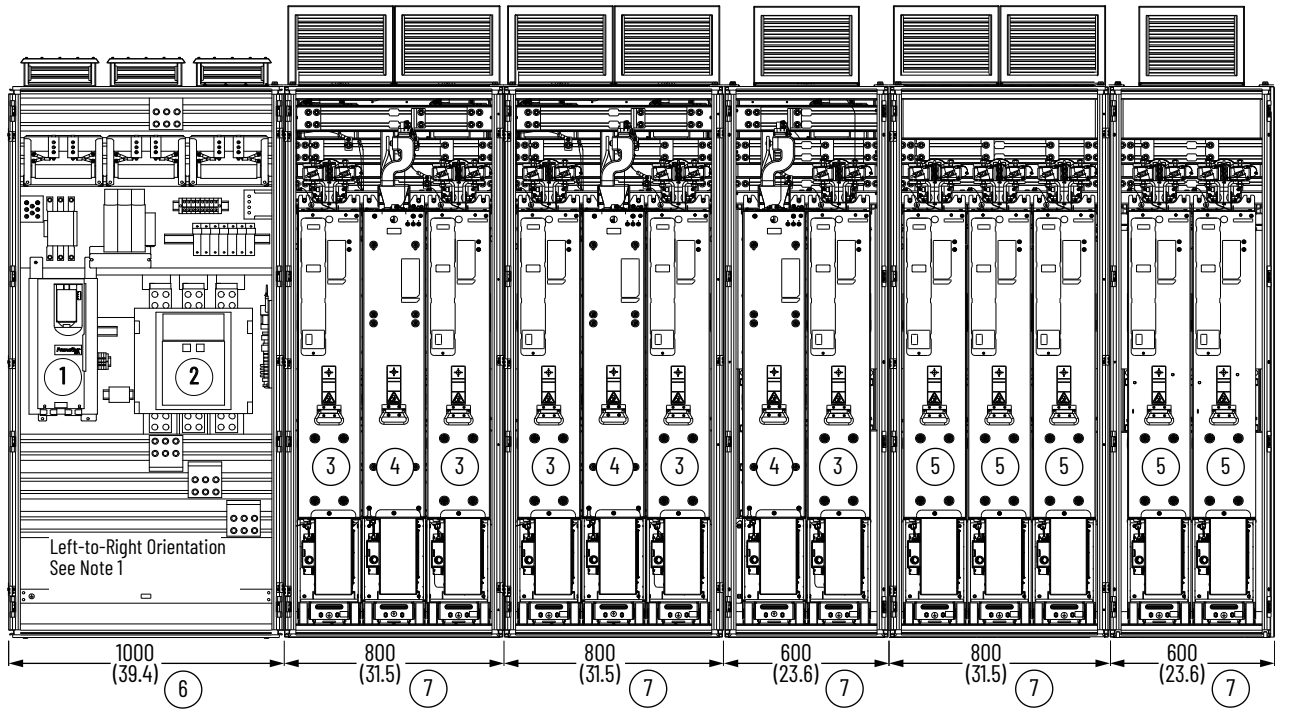


Final Back-to-Back Configuration



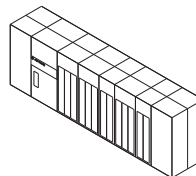
Final Inline Configuration

Frame 15 PowerFlex 755TR Drive Major Components - Front Views

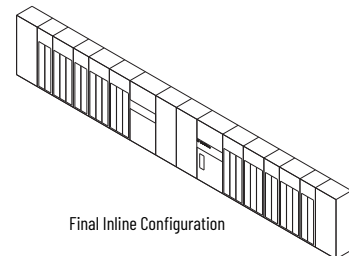


Note 1: 800 mm (31.5 in.) entry and exit wire bays are omitted from this illustration.

Item	Description	Item	Description
1	Control pod	5	Motor side inverter
2	AC precharge section	6	Input bay
3	Line side converter	7	Power bay
4	LCL filter		



Final Back-to-Back Configuration

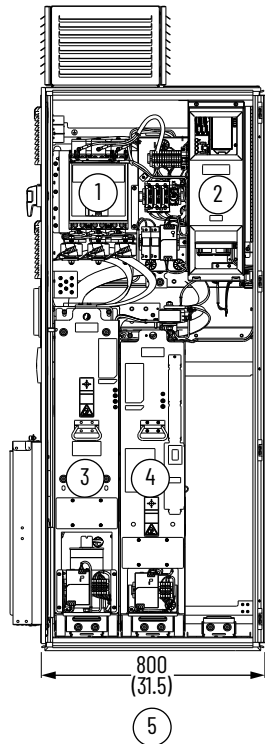


Final Inline Configuration

PowerFlex 755TM Bus Supplies

The bus supply products are assigned frame sizes 7...15 and contain the major IP00 components that are shown in these illustrations.

Frame 7 PowerFlex 755TM Bus Supply Major Components - Front View

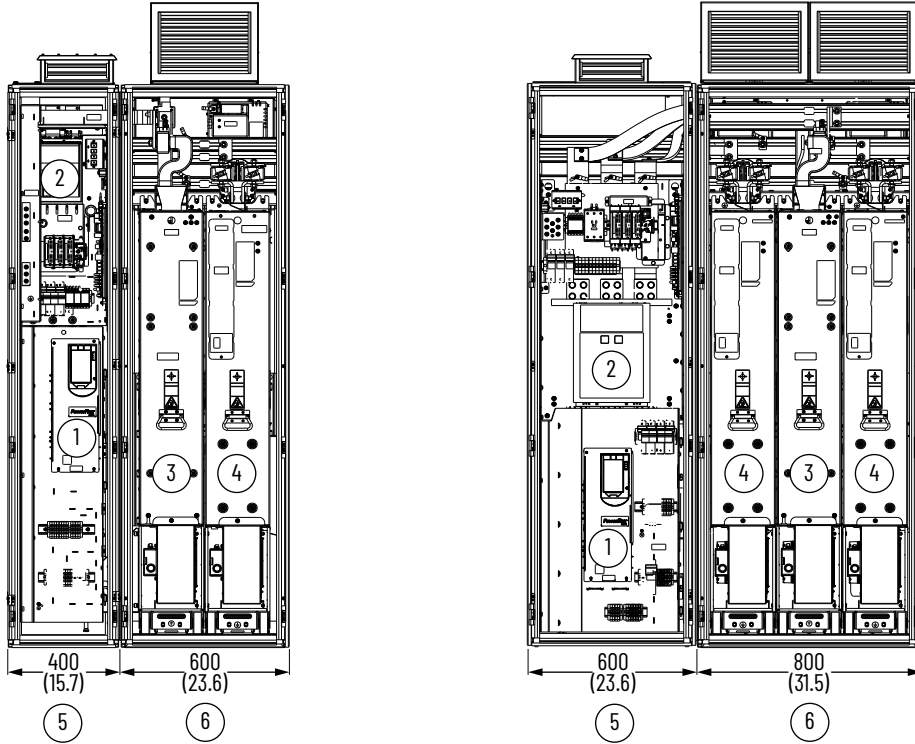


Enclosure is 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure

Item	Description
1	AC precharge section
2	Control pod
3	LCL filter

Item	Description
4	Line side converter
5	Power bay

Frames 8 and 9 PowerFlex 755TM Bus Supply Major Components - Front View

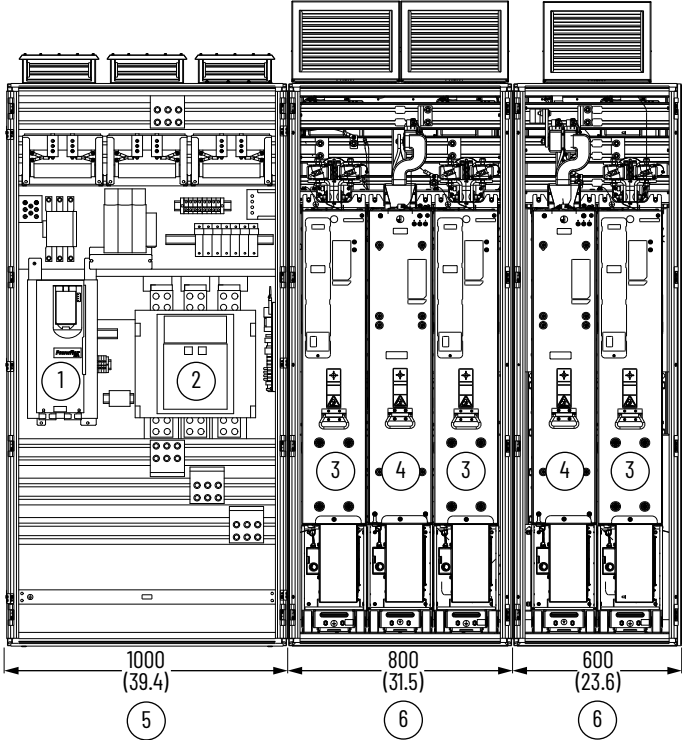


Left-to-Right Orientation

Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure

Item	Description	Item	Description
1	Control pod	4	Line side converter
2	AC precharge module	5	Input bay
3	LCL filter	6	Power bay

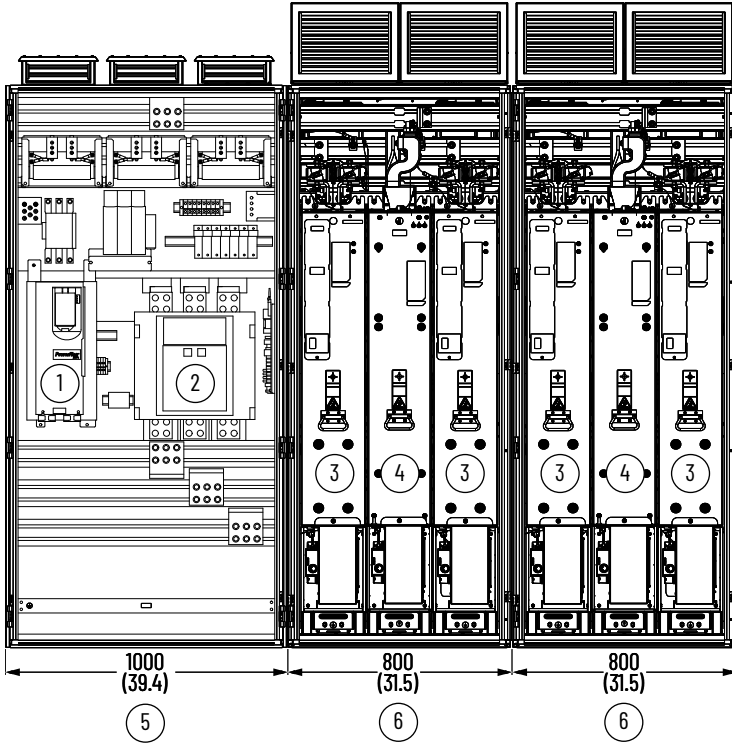
Frame 10 PowerFlex 755TM Bus Supply Major Components - Front View



Left-to-Right Orientation
 Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure

Item	Description	Item	Description
1	Control pod	4	LCL filter
2	AC precharge section	5	Input bay
3	Line side converter	6	Power bay

Frame 11 PowerFlex 755TM Bus Supply Major Components - Front View

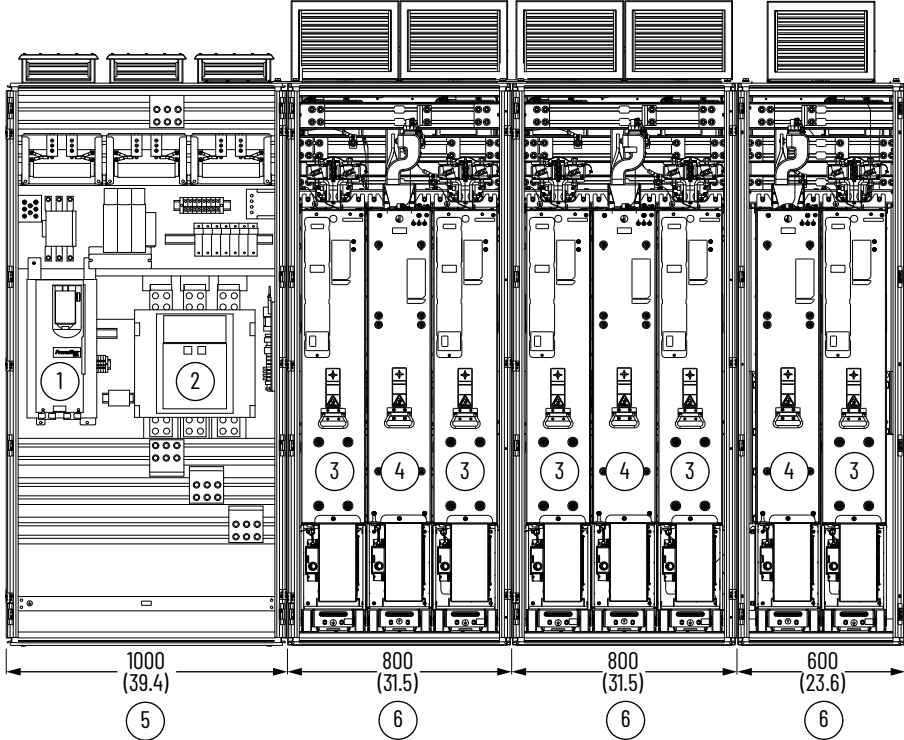


Left-to-Right Orientation

Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure

Item	Description	Item	Description
1	Control pod	4	LCL filter
2	AC precharge section	5	Input bay
3	Line side converter	6	Power bay

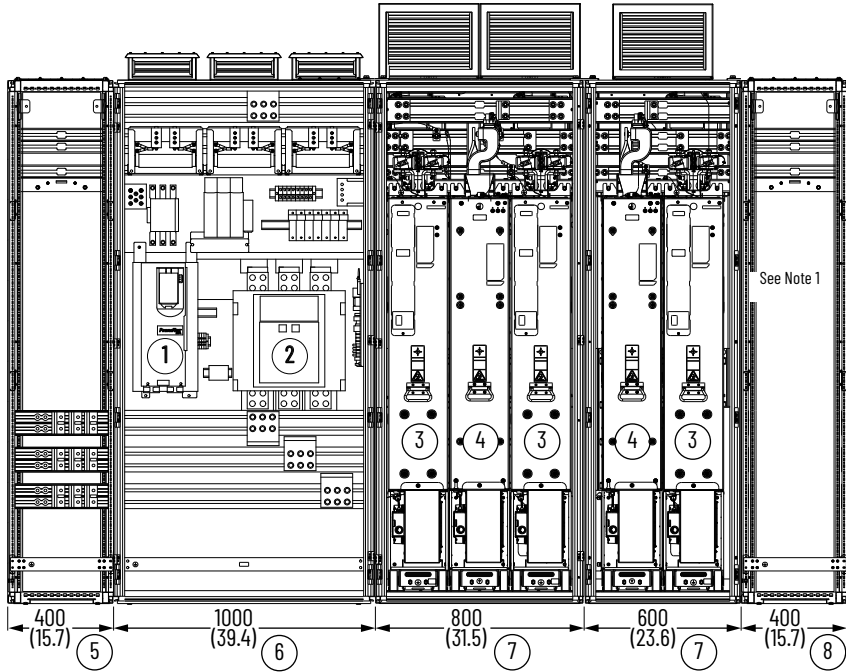
Frame 12 PowerFlex 755TM Bus Supply Major Components - Front View



Left-to-Right Orientation
 Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure

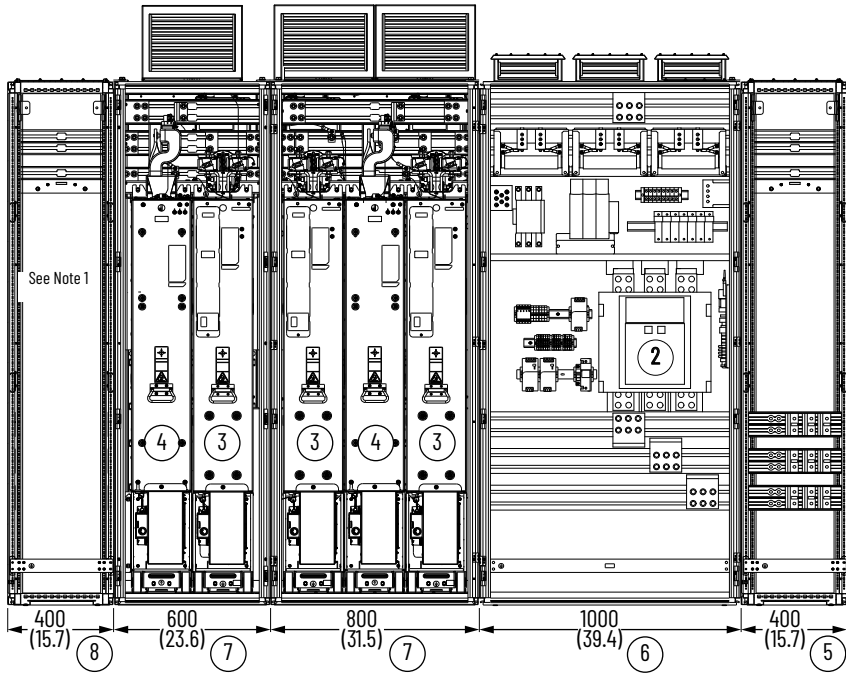
Item	Description	Item	Description
1	Control pod	4	LCL filter
2	AC precharge module	5	Input bay
3	Line side converter	6	Power bay

Frame 13 PowerFlex 755TM Bus Supply Major Components - Front Views



Left-to-Right Orientation

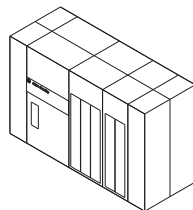
Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure Shown.



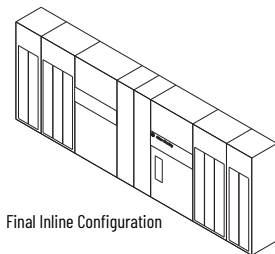
Right-to-Left Orientation

Note 1: 400 mm (15.7 in.) voltage balance bay only used with back-to-back configuration.

Item	Description	Item	Description
1	Control pod	5	Entry wire bay
2	AC precharge section	6	Input bay
3	Line side converter	7	Power bay
4	LCL filter	8	Voltage balance bay

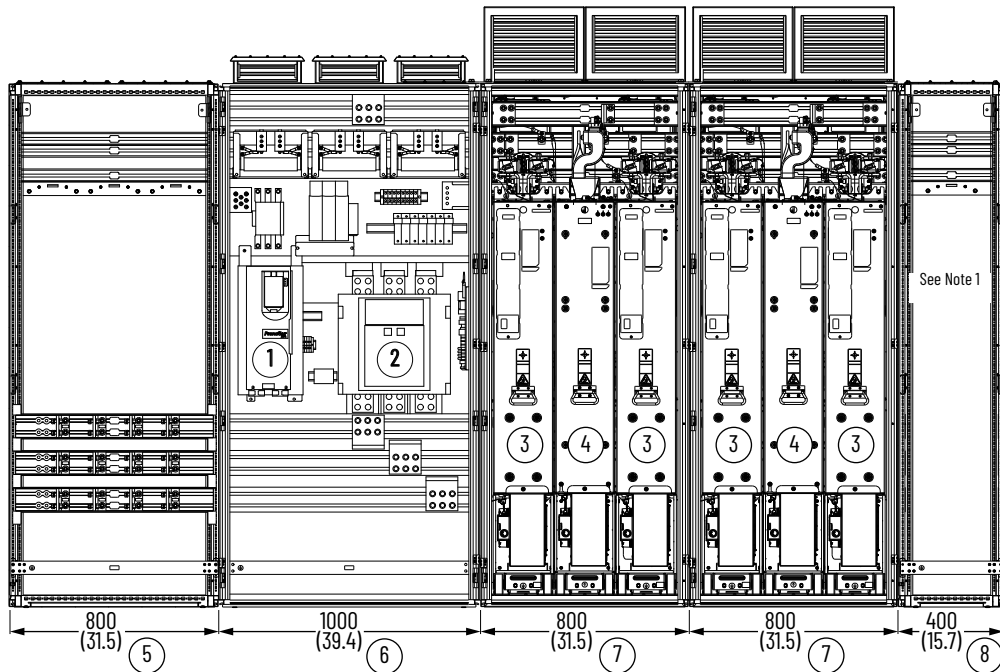


Final Back-to-Back Configuration



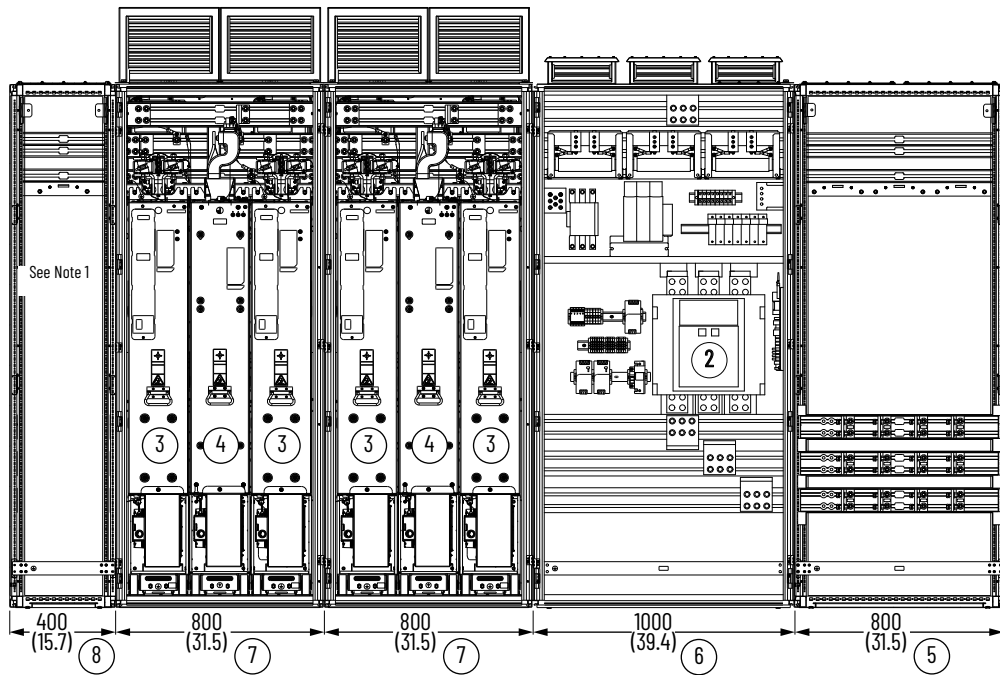
Final Inline Configuration

Frame 14 PowerFlex 755TM Bus Supply Major Components - Front Views



Left-to-Right Orientation

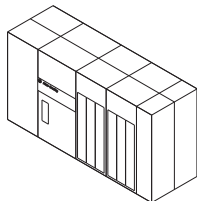
Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure Shown.



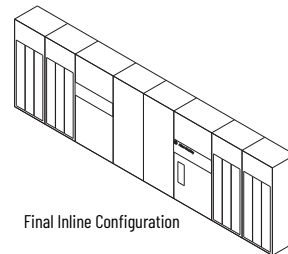
Right-to-Left Orientation

Note 1: 400 mm (15.7 in.) voltage balance bay only used with back-to-back configuration.

Item	Description	Item	Description
1	Control pod	5	Entry wire bay
2	AC precharge section	6	Input bay
3	LCL filter	7	Power bay
4	Line side converter	8	Voltage balance bay

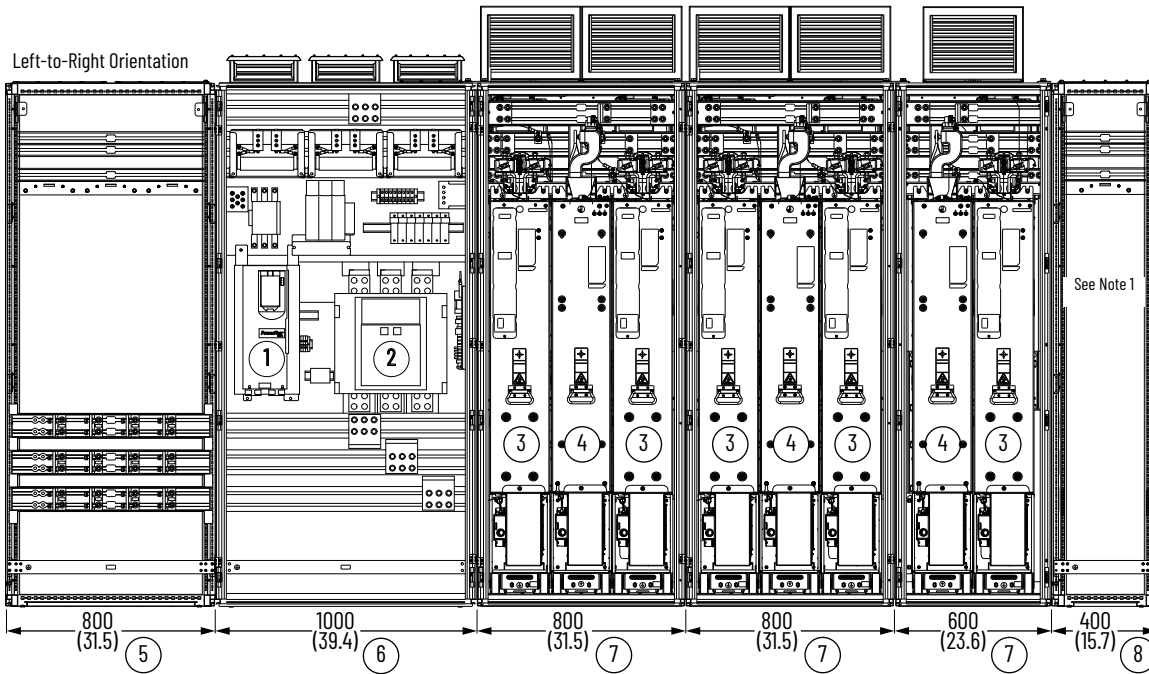


Final Back-to-Back Configuration

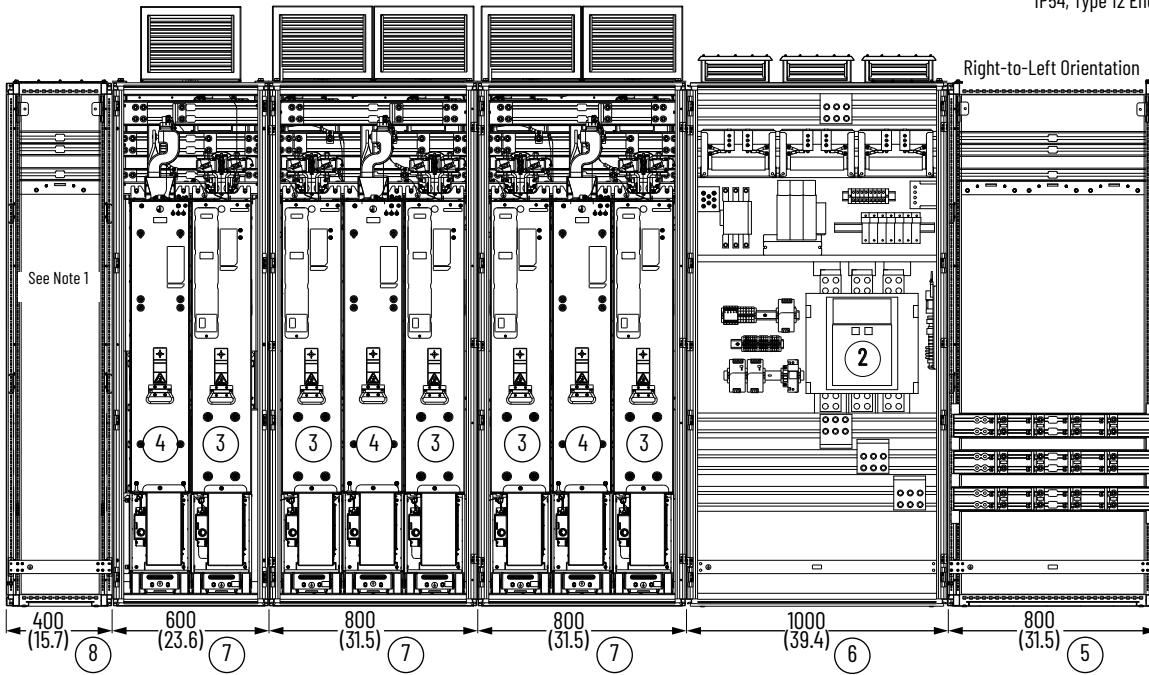


Final Inline Configuration

Frame 15 PowerFlex 755TM Bus Supply Major Components - Front Views

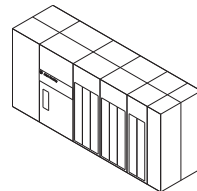


Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure Shown.

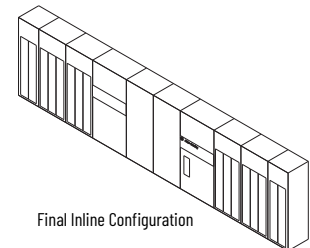


Note 1: 400 mm (15.7 in.) voltage balance bay only used with back-to-back configuration.

Item	Description	Item	Description
1	Control pod	5	Entry wire bay
2	AC precharge section	6	Input bay
3	Line side converter	7	Power bay
4	LCL filter	8	Voltage balance bay



Final Back-to-Back Configuration

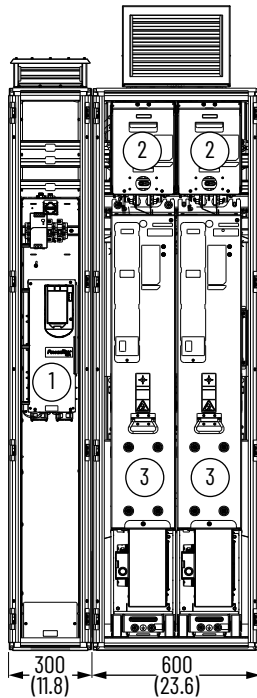
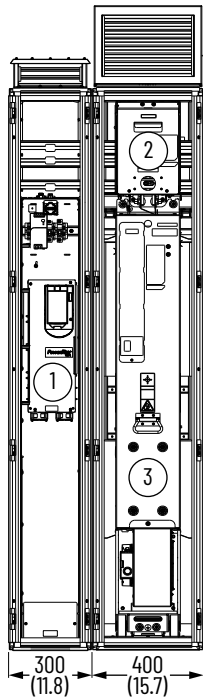


Final Inline Configuration

PowerFlex 755TM Common Bus Inverters

The common bus inverter products are assigned frame sizes 8...15 and contain the major IP00 components that are shown in these illustrations.

Frames 8 and 9 PowerFlex 755TM Common Bus Inverter Major Components - Front Views



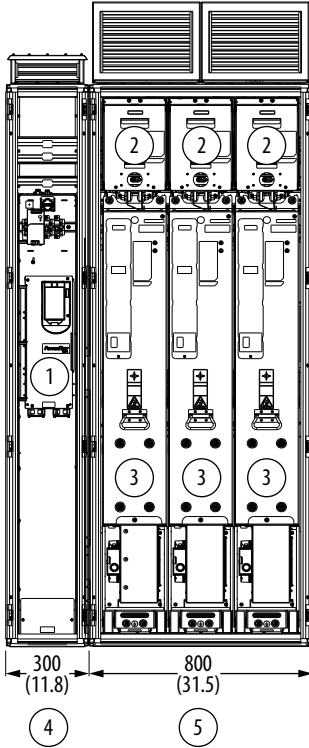
Left-to-Right Orientation

Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure

Item	Description
1	Control pod
2	DC precharge module
3	Motor side inverter

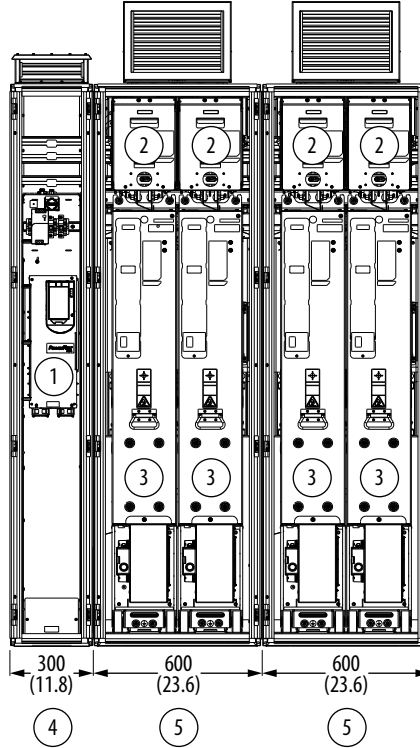
Item	Description
4	Control bay
5	Power bay

Frames 10 and 11 PowerFlex 755TM Common Bus Inverter Major Components - Front View



Left-to-Right Orientation

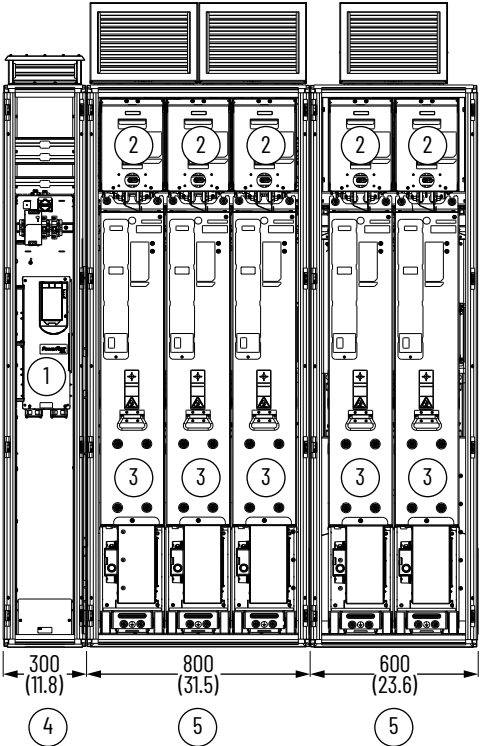
Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure



Item	Description
1	Control pod
2	DC precharge module
3	Motor side inverter

Item	Description
4	Control bay
5	Power bay

Frame 12 PowerFlex 755TM Common Bus Inverter Major Components - Front View

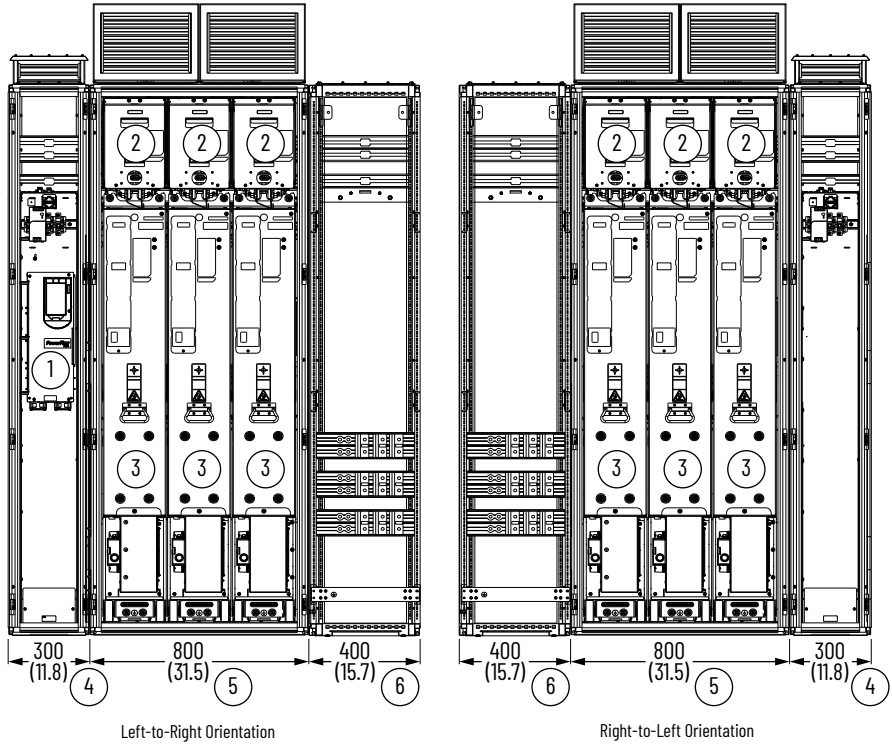


Left-to-Right Orientation
 Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure

Item	Description
1	Control pod
2	DC precharge module
3	Motor side inverter

Item	Description
4	Control bay
5	Power bay

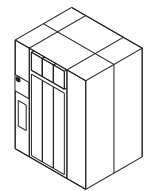
Frame 13 PowerFlex 755TM Common Bus Inverter Major Components - Front View



Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure Shown.

Item	Description
1	Control pod
2	DC precharge module
3	Motor side inverter

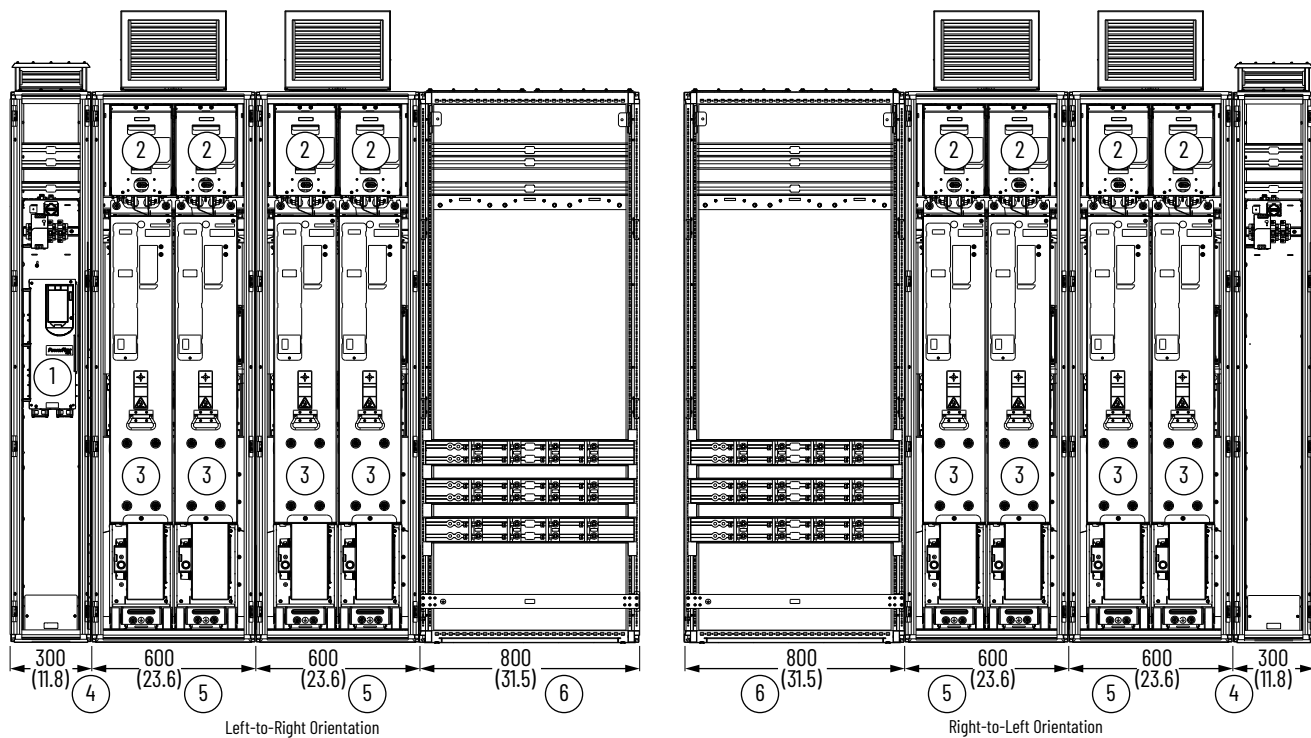
Item	Description
4	Control bay
5	Power bay
6	Voltage balance bay



Final Back-to-Back Configuration

Note: Inline Configuration Not Recommended. See Frames 13...15 Input and Output Power Wiring Application on page 131 for more information.

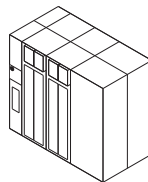
Frame 14 PowerFlex 755TM Common Bus Inverter Major Components - Front Views



Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure Shown.

Item	Description
1	Control pod
2	DC precharge module
3	Motor side inverter

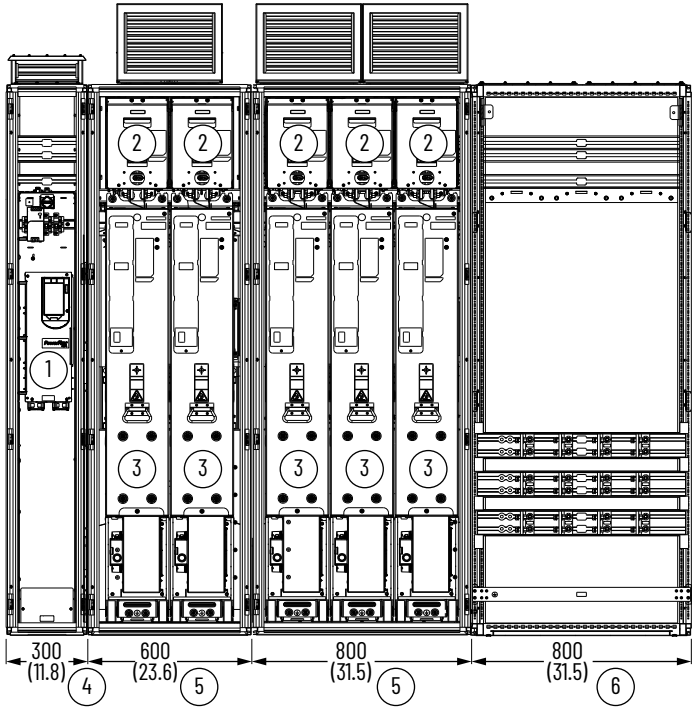
Item	Description
4	Control bay
5	Power bay
6	Voltage balance bay



Final Back-to-Back Configuration

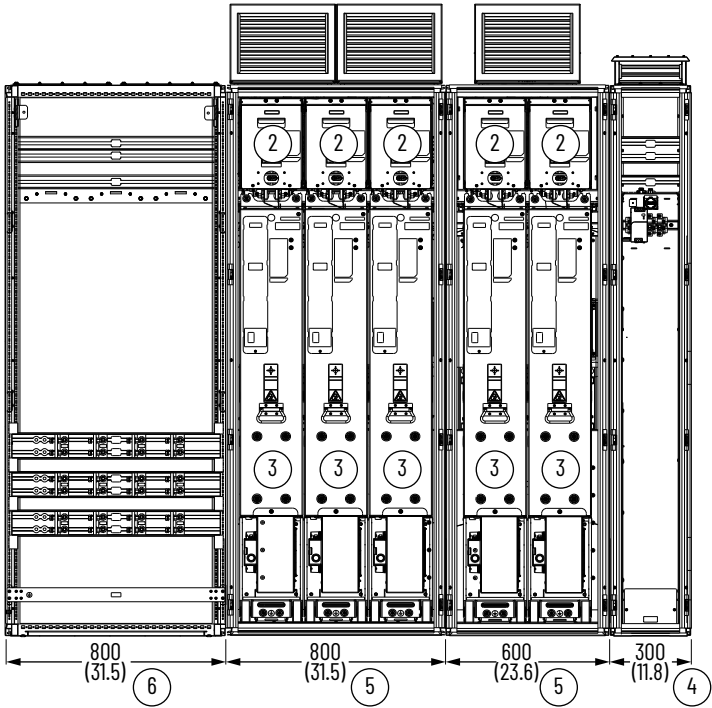
Note: Inline Configuration Not Recommended. See Frames 13...15 Input and Output Power Wiring Applications on page 131 for more information.

Frame 15 PowerFlex 755TM Common Bus Inverter Major Components - Front Views



Left-to-Right Orientation

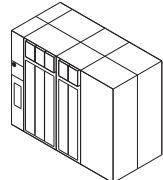
Enclosures are 600 mm (23.6 in.) deep. IP54, Type 12 Enclosure Shown.



Right-to-Left Orientation

Item	Description
1	Control pod
2	DC precharge module
3	Motor side inverter

Item	Description
4	Control bay
5	Power bay
6	Voltage balance bay



Final Back-to-Back Configuration

Note: Inline Configuration Not Recommended. See Frames 13...15 Input and Output Power Wiring Applications on page 131 for more information.

PowerFlex 755TM Non-Regenerative Supply Module Configurations

PowerFlex 755TM Non-Regenerative Supply (NRS) modules are assigned single density (1X) or dual density (2X) designators. "Single density" and "dual density" refers to the power output capability of the available power modules. NRS dual-density modules support approximately twice the power output of a single-density module and standard PowerFlex 755TM power module with the same physical module size. See the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#), for the possible NRS system configurations and NRS module ratings.

NRS System Considerations

Plan for the following important installation considerations for parallel NRS module systems:

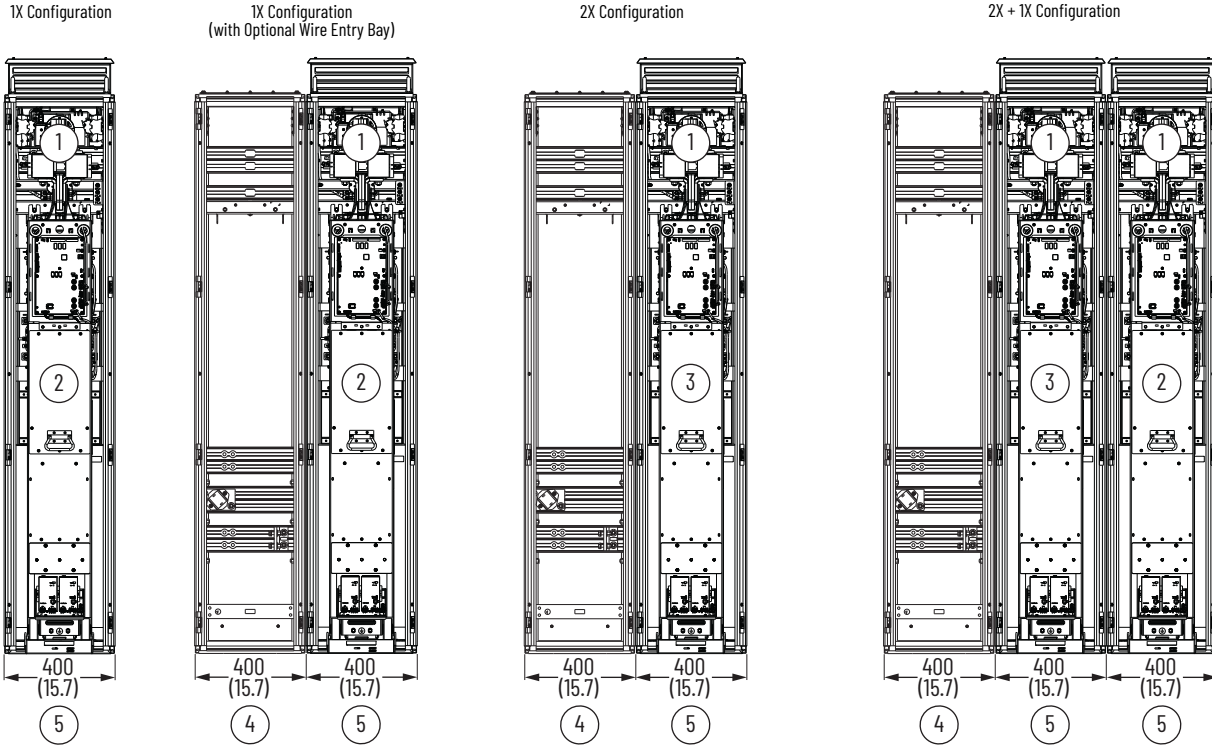
- Determine your common bus system power needs. Use the data in the NRS System Configurations and NRS Module Selection tables in the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#), to plan your NRS system and choose NRS modules to meet your power needs.
- The actual current consumed by the bus supply system must not exceed the current rating of the AC bus bars and the actual output current must not exceed the current rating of the DC bus bars. See the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#) for DC bus bar ratings.
- Common bus systems that use Rockwell Automation provided IP00 bus bar and bus splice kits and combine four or more NRS modules in parallel at the ratings listed here require a back-to-back or inline cabinet configuration with two entry wire bays and two exit wire bays (see NRS System Example Configurations on page [28](#)):
 - 400/480V above 4100 A (ND)
 - 600/690V above 3300 A (ND)
- Systems that include multiple NRS modules in parallel require IP00 interconnect wire harness kits, which enable module-to-module communication for precharge and fault coordination. Systems that consist of a single NRS module require a loop-back jumper on each side of the power bay. See NRS System Interconnection Wire Harnesses on page [33](#) for more information.
- Each NRS module must be installed in a 400 mm (15.75 in.) wide NRS power bay. See PowerFlex 755TM Power Bays (Supplier: Rittal) on page [40](#).
- Coordinated precharge and status communication capabilities support up to six NRS modules in parallel only. For details on precharge settings and status indicators, see the PowerFlex 755TM Non-Regenerative Supply User Manual, publication [750-UM100](#).

NRS System Example Configurations

This section provides example configurations for NRS modules and IP00 kit selection information. The configurations shown in the tables represent configurations with the recommended Rittal TS8 wire bays and power bays. Enclosures can be customer sourced, but must meet installation requirements. Modules listed in parenthesis throughout this document indicates that those modules are installed in individual 400 mm (15.75 in.) wide power bays that are installed next to each other to one side of a wire entry bay. It is recommended, but not required, that you install the 2X NRS modules closest to the power input source when installed in parallel with 1X NRS modules.

See NRS System Cabinet Topologies in the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#), for more information on NRS module and cabinet configurations.

1X, 2X, and 2X + 1X NRS Module Configurations



Enclosure is 600 mm (23.6 in.) deep. IP54, UL Type 12 Enclosure Shown.

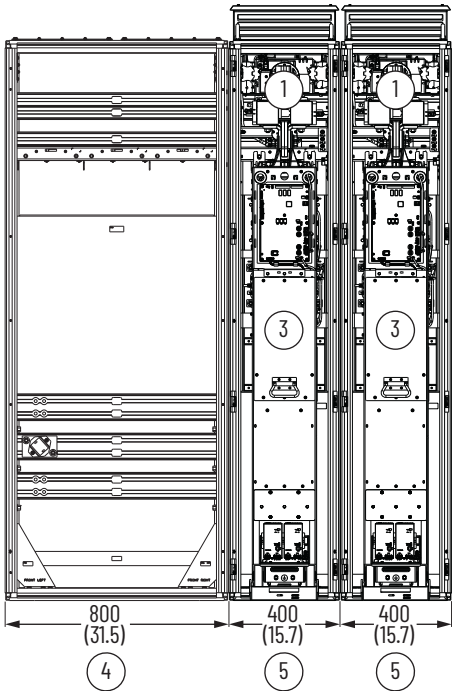
Item	Description
1	DC link/fuse assembly
2	Single density module
3	Dual density module

Item	Description
4	Wire bay ⁽¹⁾
5	Power bay

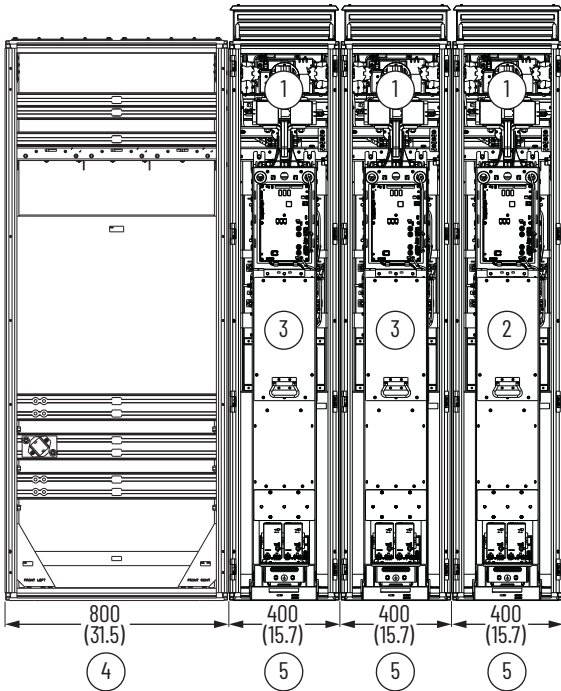
(1) A wire entry bay is optional for 1X configurations.

2X + 2X and 2X + 2X + 1X NRS Module Configurations

2X + 2X Configuration



2X + 2X + 1X Configuration



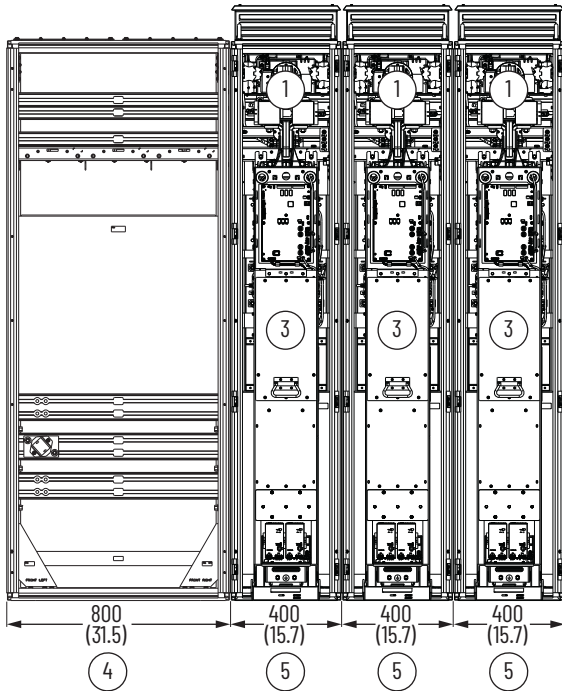
Enclosure is 600 mm (23.6 in.) deep. IP54, UL Type 12 Enclosure Shown.

Item	Description
1	DC link/fuse assembly
2	Single density module
3	Dual density module

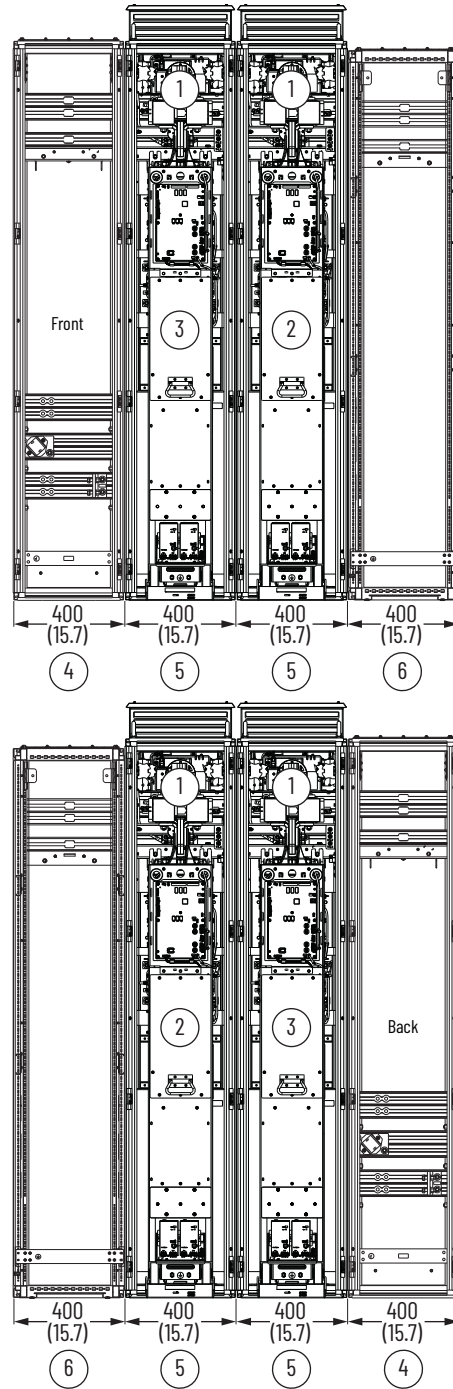
Item	Description
4	Wire bay
5	Power bay

2X + 2X + 2x and 2 (2X + 1X) NRS Module Configurations

2X + 2X + 2X Configuration



2 (2X + 1X) Shown in Back-to-Back Configuration (Inline Configuration Not Shown)



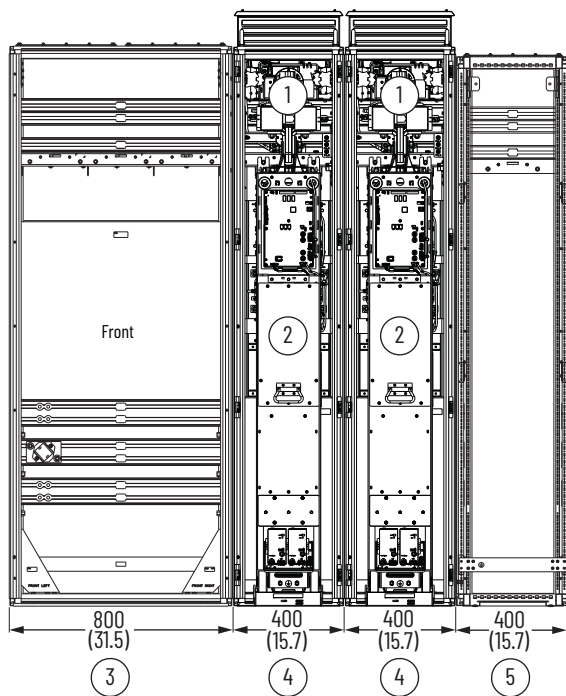
Enclosure is 600 mm (23.6 in.) deep. IP54, UL Type 12 Enclosure Shown.

Item	Description
1	DC link/fuse assembly
2	Single density module
3	Dual density module

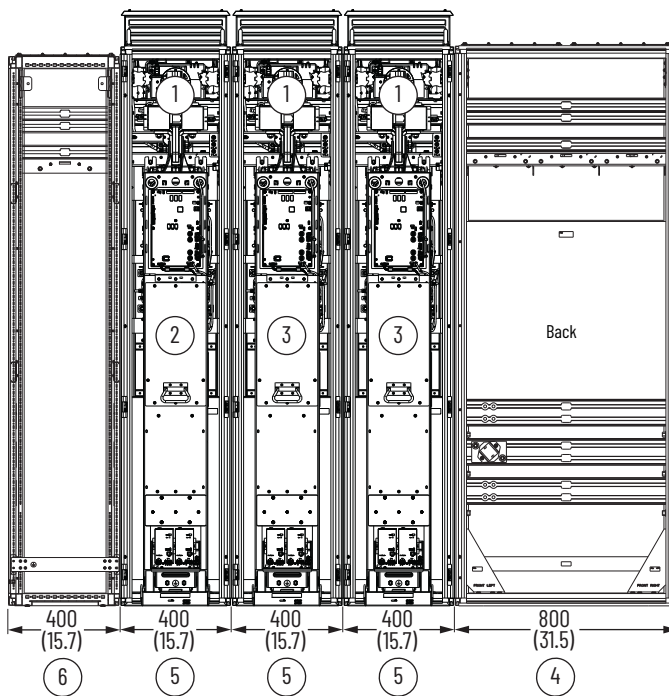
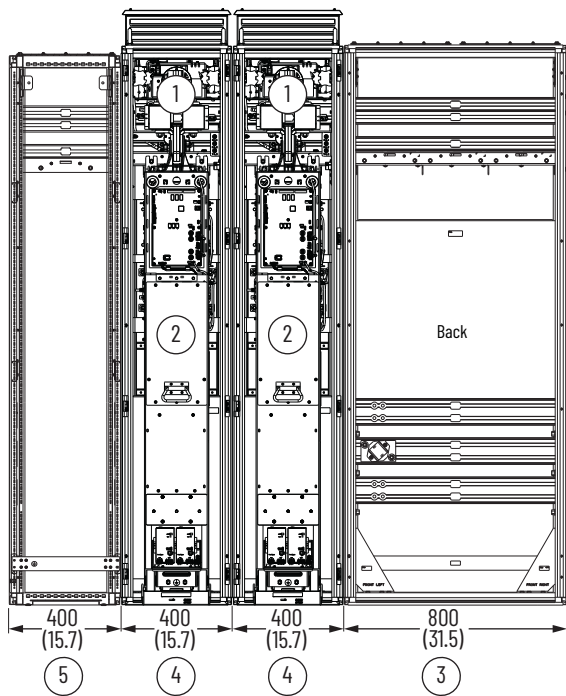
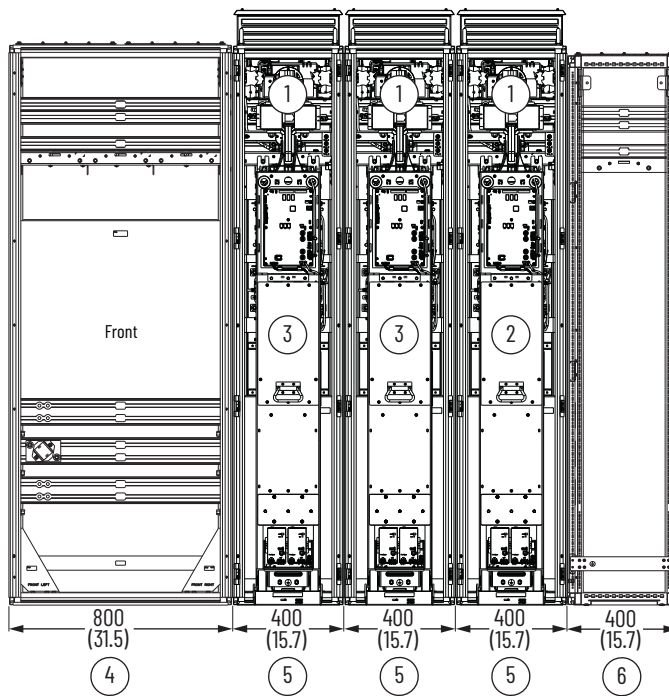
Item	Description
4	Wire bay
5	Power bay
6	DC voltage balance bay

2 (2X + 2X) and 2 (2X+2X+1X) NRS Module Configurations

2 (2X + 2X) Shown in Back-to-Back Configuration
(Inline Configuration Not Shown)



2 (2X + 2X + 1X) Shown in Back-to-Back Configuration
(Inline Configuration Not Shown)



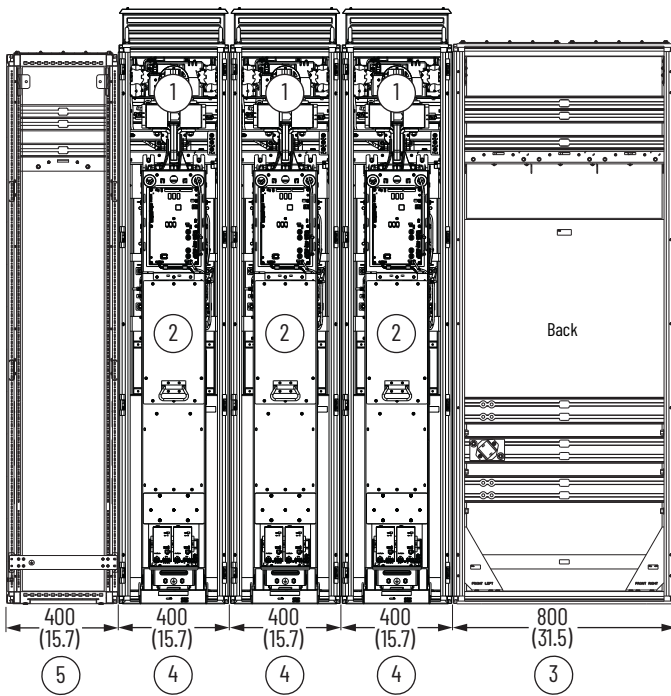
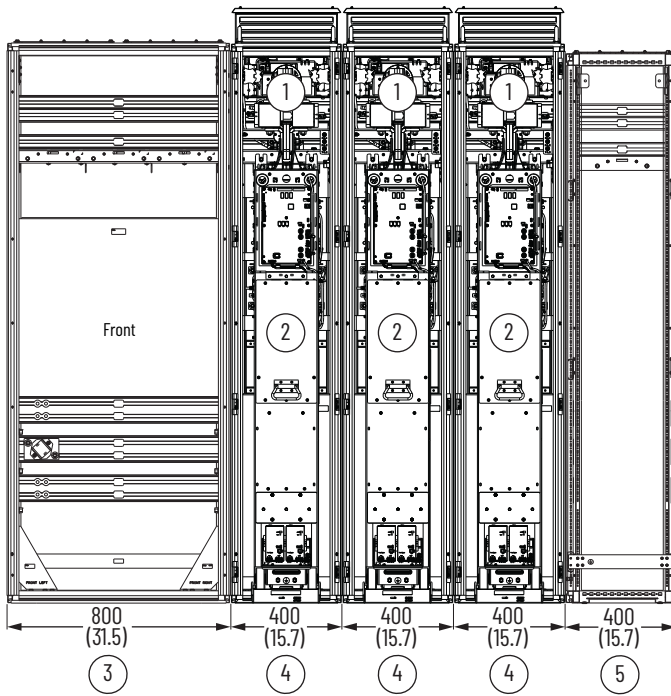
Enclosure is 600 mm (23.6 in.) deep. IP54, UL Type 12 Enclosure Shown.

Item	Description
1	DC link/fuse assembly
2	Single density module
3	Dual density module

Item	Description
4	Wire bay
5	Power bay
6	DC voltage balance bay

2 (2X+2X+2X) NRS Module Configurations

2 (2X + 2X + 2X) Shown in Back-to-Back Configuration
(Inline Configuration Not Shown)



Enclosure is 600 mm (23.6 in.) deep. IP54, UL Type 12 Enclosure Shown.

Item	Description
1	DC link/fuse assembly
2	Single density module
3	Wire bay

Item	Description
4	Power bay
5	DC voltage balance bay

NRS System Interconnection Wire Harnesses

NRS system interconnection wire harnesses are required to provide module-to-module communication for pre-charge and fault coordination. This table lists the interconnection wire harness kits that are used with the recommended Rittal TS8 wire entry, power, and DC voltage balance bays. Use this table and the interconnection harness diagram examples to understand where each harness is used.

The NRS DC link/fuse assembly support bracket (cat. no. 20-750-MN-DCLST-400) is used with the Rittal TS8 400 mm wide power bay and provides fittings to secure the interconnection harness connectors. For the NRS DC link/fuse support bracket installation details, see page [33](#).

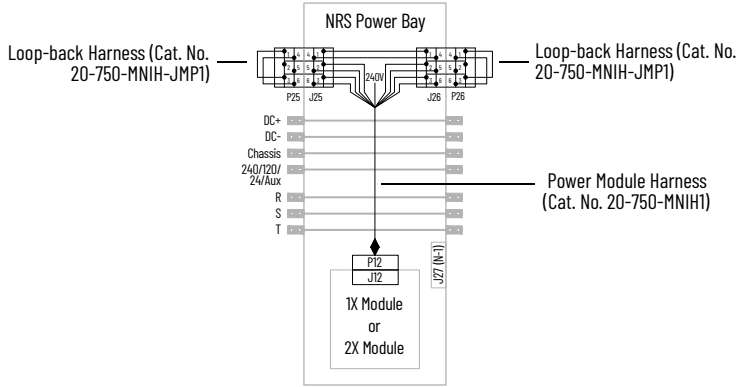
Non-Regenerative Supply System Interconnection Harness Kits

Cat. No.	Wire Harness Description	From Wire Harness Connector	Connection in Bay	To Connector	Connection in Bay
20-750-MNIH1	NRS module signal to power bay interconnect harness. This wire harness contains connector P12, which includes two open wires that require connection to the 240V AC source provided by the 1 kVA control transformer for the NRS module. See page 140 for 240V AC power connection details.	P12	Power bay	J12 or J27 (N-1) ⁽¹⁾	Main control board on the NRS module or N-1 jumper in power bay
		J25 / J26		P25 / P26	Same power bay
		TB1-L1 (black wire and TB1-N2 (white wire)		TB1	
20-750-MNIH3	Wire bays to power bays thermal switch and signal interconnect harness (back-to-back configurations).	P28	Wire entry bay (front lineup)	J28	Same wire bay (front)
		P28	Wire entry bay (rear lineup)	J28	Same wire bay (rear)
		P25	Power bay (next to wire bay in front lineup)	J25	Same power bay
		P26	Power bay (next to wire bay in rear lineup)	J26	Same power bay
20-750-MNIH4	Wire bays to power bays thermal switch and signal interconnect harness (in-line configurations).	P28	Wire entry bay (left)	J28	Same wire bay (left)
		P28	Wire entry bay (right)	J28	Same wire bay (right)
		P26	Power bay (left side of wire entry bay)	J26	Same power bay (left)
		P25	Power bay (right side of wire entry bay)	J25	Same power bay (right)
20-750-MNIH-JMP1	NRS module signal loop-back harness. When an NRS system is comprised of a power bay only, this harness must be installed on both sides of the power bay.	P26	Power bay	J25 / J26	Same power bay
20-750-MNIH-JMP2	NRS module to module signal interconnect harness. Use this wire harness to connect one NRS module in a power bay to an NRS module in the next power bay.	P25	Power bay	J25	Same power bay
		P26	Next power bay	J26	Same 'next' power bay
20-750-MNIH-JMP3	Wire bay to power bay thermal switch and signal interconnect harness for single wire bay systems.	P25	Power bay	J25	Same power bay
		P28	Wire entry bay	J28	Same wire entry bay

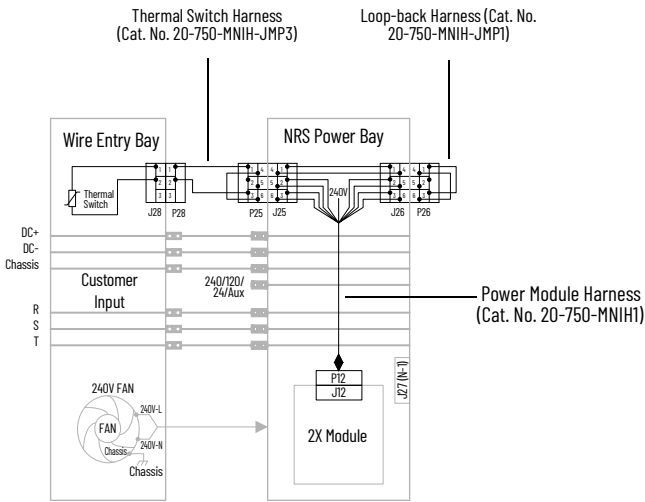
(1) For NRS system reduced-capacity operation, see NRS System N-1 Operation on page [36](#) for details.

These illustrations provide NRS component interconnection examples. For interconnection wire harness routing, see page 335.

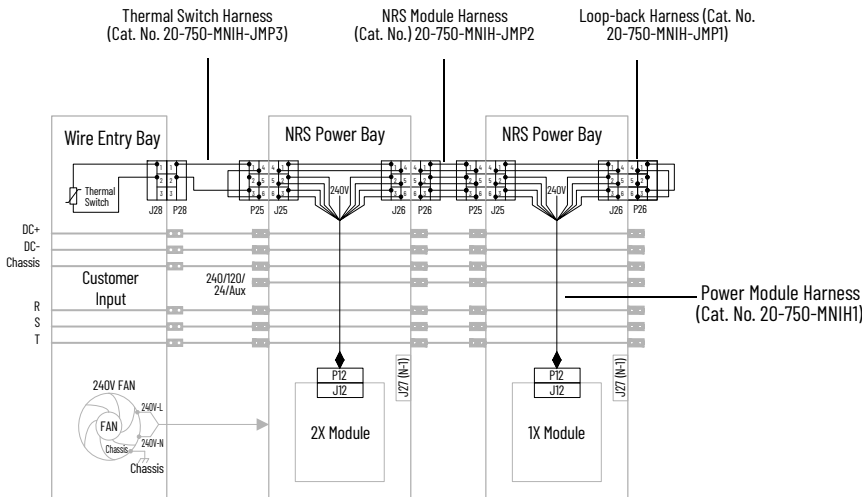
One Power Bay Interconnection Harnesses Diagram Example



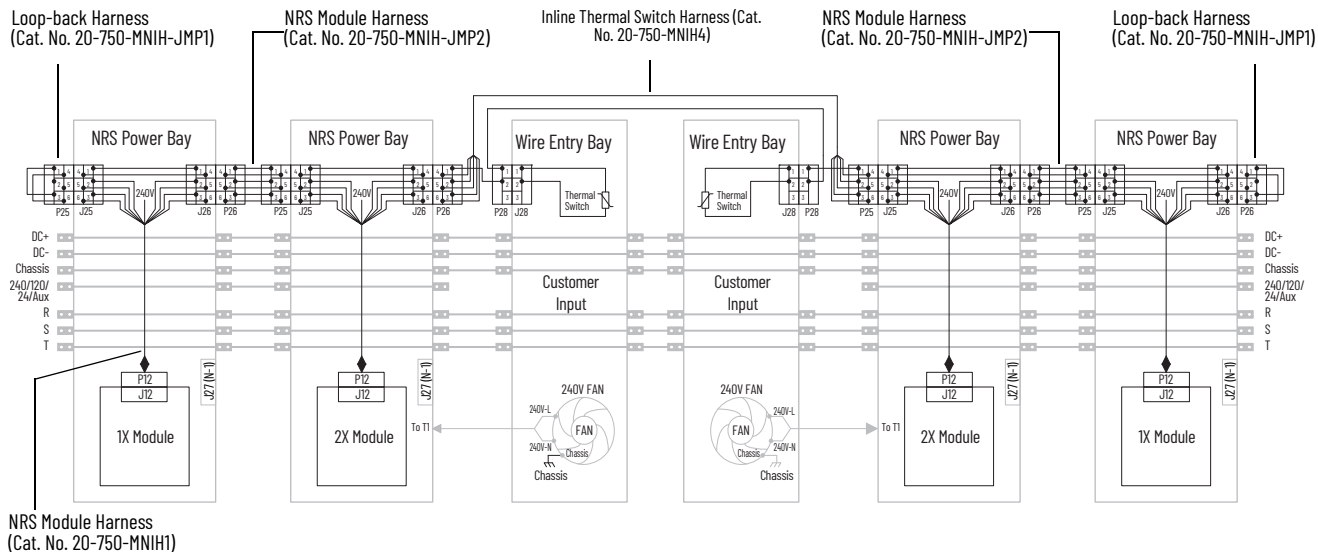
Wire Bay and One Power Bay Interconnection Harnesses Diagram Example



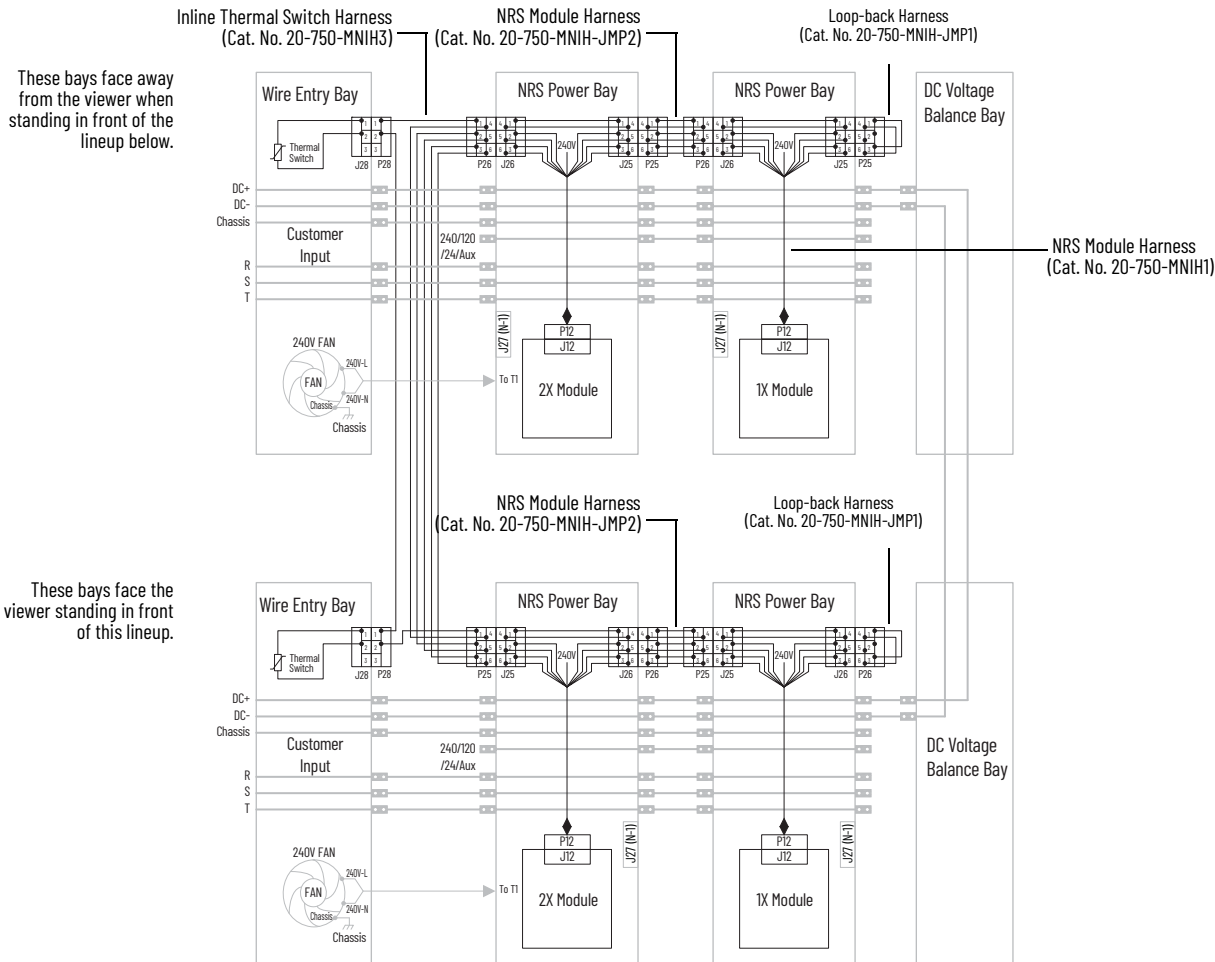
Wire Bay and Two Power Bay Interconnection Harnesses Diagram Example



Inline Interconnection Harnesses Diagram Example



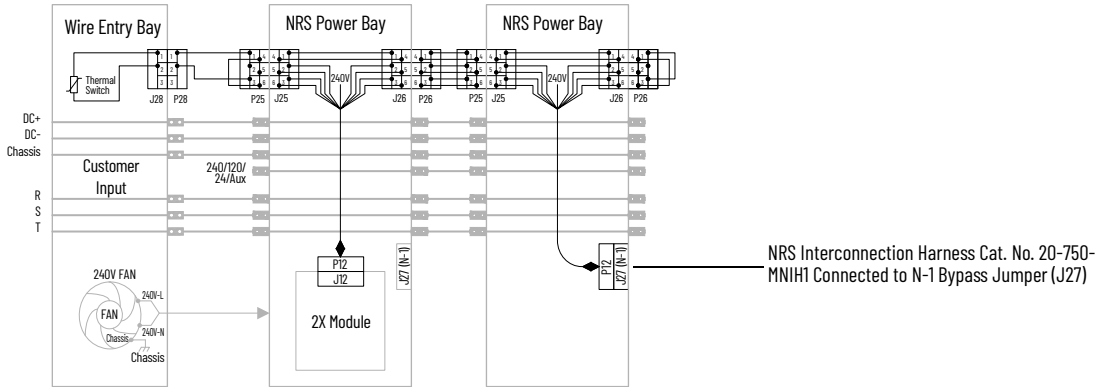
Back-to-Back Interconnection Harnesses Diagram Example



NRS System N-1 Operation

An NRS system can operate at a reduced capacity when one or more of the NRS modules is removed (N-1 operation). When an NRS module is removed, the NRS module interconnection wire harness (cat. no. 20-750-MNIH1) must be connected to the N-1 bypass jumper (J27) terminal block in the NRS power bay to complete the module-to-module communication for pre-charge and fault coordination.

NRS System N-1 Operation Interconnection Wire Harness Diagram Example



The N-1 bypass jumper (J27) must be customer-sourced (see N-1 Jumper Wire Harness (NRS Only) on page 386). Kit catalog number 20-750-PNL4-NRS provides a sheet metal bracket on which to mount the N-1 jumper wire harness (see page 338 for installation details). If kit catalog number 20-750-PNL4-NRS is not used, a mounting plate for the N-1 jumper must be customer sourced. To meet UL compliance, the customer-source mounting plate must be installed in the exact location shown on page 338.

IP00 Kits Overview

The PowerFlex 755TM IP00 / Open Type kits (IP00 kits) must be installed in floor-mounted enclosures that meet specific PowerFlex 755TM product design requirements. Independently sourced enclosures must meet agency certifications (if applicable) and all operational specifications. Rockwell Automation recommends using the enclosures that are specified in Recommended Enclosures on page 39. Modular system kits are available for either IP21 / Type 1 or IP54 / Type 12 installations. For detailed information on kit selection, module ratings and specifications, and option specifications, see the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication 750-TD101.

System Module and Components Required for UL Compliance

This table lists the IP00 modules and components that are required for UL compliance.

UL Required Modules/Components by Product Installation Type

Module / Component	Regenerative Drive Frame Sizes	Regenerative Bus Supply Frame Sizes	Common Bus Inverter Frame Sizes	Non-Regenerative Supply
Control pod (includes the main control circuit board and fiber interface circuit board)	7...15, and 7L	7...15	8...15	—
Fiber transceiver circuit board	7...15, and 7L	7...15	8...15	—
Power module (line side converter)	7...15, and 7L	7...15	—	—
Power module (motor side inverter)	7...15, and 7L	—	8...15	—
LCL filter module	7...15, and 7L	7...15	—	—
NRS module, interconnection wire harnesses and jumper harness	—	—	—	Yes
Control transformers, fuse holders, and fuses	—	—	—	Yes
DC link/fuse assembly	7...15, and 7L	7...15	8...15 ⁽¹⁾	Yes
DC precharge module	—	—	8...15 ⁽¹⁾	—
Stab receptacle ⁽²⁾	8...15	8...15	8...15	Yes
AC precharge module	8, 9	8, 9	—	—
AC precharge system	AC precharge control board	7, 10...15, and 7L	7, 10...15	—
	AC precharge circuit breaker ⁽³⁾	7, 10...15, and 7L	7, 10...15	—
	AC precharge fused disconnect ⁽⁴⁾	7, 10...15, and 7L	7, 10...15	—
	AC precharge contactor ⁽⁵⁾	7, 10...15, and 7L	7, 10...15	—
	AC precharge time delay relay ⁽⁶⁾	7, 10...15, and 7L	7, 10...15	—
	AC precharge resistor bank	7, 10...15, and 7L	7, 10...15	—
AC precharge TVSS module	7, 10...15, and 7L	7, 10...15	—	—

(1) Use either a DC link/fuse assembly or a DC precharge module.
 (2) You must use the stab receptacle that is provided in the kit. However, you can fabricate your own back panel or bus bar assembly. See Bus Bars Specifications on page 136.
 (3) Use the applicable AC precharge circuit breaker kit for your system or independently source a circuit breaker that is identified in the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication 750-TD101.
 (4) A fused disconnect switch is required for the AC precharge circuit and must be customer sourced. See Fused Disconnect Connections on page 169 for specifications.
 (5) A precharge contactor is required for the AC precharge circuit and must be customer sourced. See AC Precharge Contactor Connections on page 172 for specifications.
 (6) Use the AC precharge time delay relay kit (20-750-MACPC-TDR) or independently source a time delay relay module that is specified in Time Delay Relay Connections on page 173.

UL Listed Accessories

This table lists the IPOO components that are recommended for UL compliance.

Accessory	Regenerative Drive Frame Sizes	Regenerative Bus Supply Frame Sizes	Common Bus Inverter Frame Sizes	Non-Regenerative Supply
Control bus assembly, control bus splice, and control bus connectors	8...15	8...15	8...15	Yes
AC input bus bars ⁽¹⁾	7...15, and 7L	7...15	—	Yes
AC output bus bars ⁽¹⁾	7, 13...15, and 7L	—	13...15	—
AC bus bar splices	8...15	8...15	—	Yes
AC input/output link bus bar and fuse assembly	7...15, and 7L	7...15	—	—
AC precharge circuit breaker bus bars	7...15, and 7L	7...15	—	—
DC bus bars	7...15	7...15	8...15	Yes
DC bus bar splices	8...15	8...15	8...15	Yes
Input/output power cable L bracket	10...15	10...15	10...15	Yes
DC bus conditioner ⁽²⁾	7...15	7...15	—	Yes
Torque accuracy module	7...15, and 7L	—	8...15	—
Marine discharge circuit board	7	7	—	—
Ventilation kits (that contain fans)	8...15	8...15	8...15	Yes
Wire entry bays ⁽³⁾	8...15	8...15	—	Yes
DC voltage balance / wire bays (back-to-back configurations)	13...15	13...15	13...15	Yes

(1) For frame 7 and 7L drives and bus supplies, this requirement includes the corresponding flexible bus bars kits.

(2) Frame 7 power modules include a DC bus conditioner. The frame 7 DC bus conditioner must be configured for the applicable ground scheme. See Power Jumper Configuration on page 119 for details.

(3) A wire entry bay is optional for NRS 1X configurations.

IPOO Open Type Kits with Corrosive Gas Protection (XT)

All PowerFlex 755TM IPOO Open Type kits with corrosive gas protection (XT) meet the corrosive atmosphere specification as defined by Rockwell Automation. For details on the corrosive atmosphere specification, see the PowerFlex 755TM Open Type Kits Technical Data, publication [750-TD101](#).

The IPOO Open Type kits that are listed in this table do not meet the corrosive atmosphere specification. Do not install these kits in a PowerFlex 755T product installed in a corrosive environment. The kit catalog number and series are contained on the kit package label and/or nameplate.

IPOO Open Type kits that do not provide corrosive gas protection

Catalog Number	Module	Series
20-750-MCPOD1-FnM, 20-750-MCPOD2-FnM	Control pods	All
20-750-MI1-xnnnxxxx, 20-750-MI2-xnnnxxxx, 20-750-MI3-xnnnxxxx, 20-750-MI4-xnnnxxxx,	Frames 7...15 power modules	A
20-750-MI5-C650D650 ⁽¹⁾	Frame 7L power module	
20-750-ML1-xnnnxxxx, 20-750-ML4-xnnnxxxx	LCL filter modules	
20-750-MDCP1-xx-F8M	DC precharge modules	
20-750-MACP-x-FnM	AC precharge modules	
20-750-MACPC1-xx or 20-750-MACPC1-xx-F7M	AC precharge control board	
20-750-MFTB1-F8	Fiber transceiver board	
20-750-MDCBUS-COND	DC bus conditioner (frames 8...15)	
20-750-MDCBUS1-COND	DC bus conditioner (frames 8...12, marine)	
20-750-MDCBUS-COND-F7M	DC bus conditioner (frame 7)	
20-750-MBSCD-DB	Marine discharge board (frame 7)	
20-750-MEMCC2-F8910	EMC C2 Filter, IPOO, Frame 8...10	
20-750-MVENTC1-F11M	Input bay vent kit	
20-750-MFOC-nxn	Fiber-optic cable	
20-750-MDCLn-xx-F8M	DC link/fuse assembly	
20-750-MTAM1-xx	Torque accuracy module	B and earlier

(1) Corrosive atmosphere rating is Severity Level G3. Consult the factory for more information.

Protective Covers on IP00 Open Type Kits with XT

Some IP00 Open Type kits with XT use protective covers to seal wire harness connectors, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports. The covers protect against contamination and corrosion in corrosive gas environments. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation.

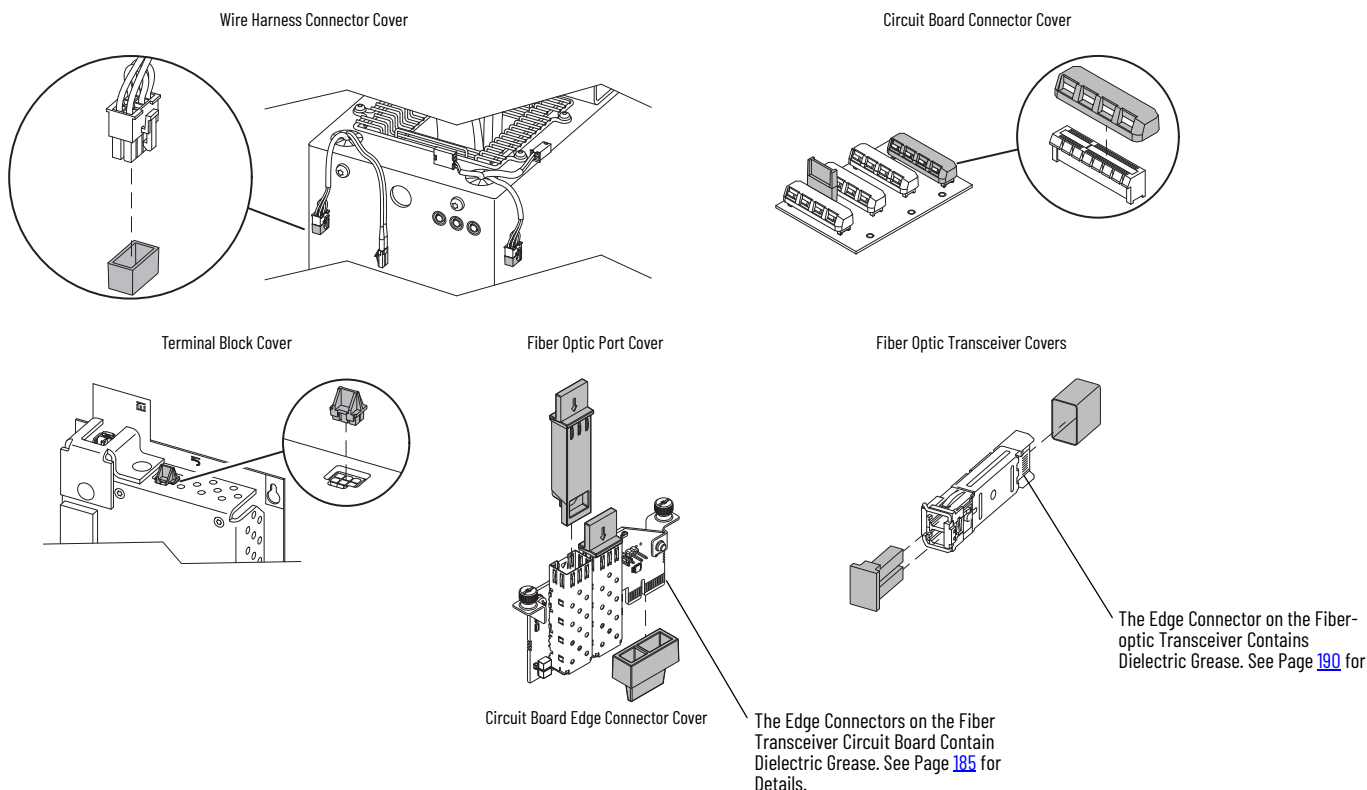
Take these actions for kits with protective covers:

- Do **not** remove a protective cover from an unused connection or kit in storage.
- Remove a protective cover when a connection must be made during installation only.



Retain protective covers for power and LCL filter modules for reuse. Install protective covers on connectors when a module is removed and stored.

Examples of Protective Covers on IP00 Open Type Kits with XT



These sections contain the **XT** icon to identify kits that contain protective covers:

- IP00 Module and Component Connections beginning on page [157](#)
- IP00 Kit Installation Instructions beginning on page [201](#)

IMPORTANT

For IP00 Open Type kits installed in an environment that contains volatile, conductive, or corrosive liquid, gases, and/or solids these conditions must be met:

- Kits must be installed in enclosures that provide for protection against solid and liquid ingress (IP21 / Type 1 or IP54 / Type 12)
- Kits must have corrosive gas protection (XT)
- Protective covers must be installed on unused connections

For IP00 Open Type kits with XT that are stored before installation these conditions must be met:

- Kits must remain in the original packaging until the time of installation
- Kits must be stored in an area where exposure to corrosive atmosphere and humidity is minimized
- Kits must not be stored in environments that contain conductive pollutants

See the Industry Installation Guidelines for Pulse Width Modulated (PWM) AC Drives, publication [DRIVES-AT003](#) for more information on environmental considerations.

IP00 Kits Required for Right-to-Left Orientations

The PowerFlex 755T products can be installed in right-to-left orientations. Frame 8 and 9 orientations require the right-to-left bus bar and backpanel and stab receptacle kits listed here.

Cat. No.	Kit Description	Product	Voltage	Frame Size	Installation Details
20-750-MADR2-F8M	Right-to-left option, power bay back panel with stab receptacles	PowerFlex 755TL Drive or PowerFlex 755TR Drive	All	8	See page 228
20-750-MACR2-F8M	Right-to-left option, power bay back panel with stab receptacles	PowerFlex 755TL Bus Supply or PowerFlex 755TR Bus Supply	All	8	See page 230
20-750-MTESPL2-F8M	Right-to-left bus splice, exit wire bay	All	All	8	See page 246
20-750-MDCL3-CD-F8M	Right-to-left option, DC link/fuse	PowerFlex 755TL Drive or PowerFlex 755TR Drive	400/ 480V	8	See page 258
20-750-MDCL3-EF-F8M	Right-to-left option DC link/fuse	PowerFlex 755TL Drive or PowerFlex 755TR Drive	600/ 690V	8	See page 258
20-750-MACSPL3-F8M	Right-to-left AC bus splice	PowerFlex 755TL Bus Supply or PowerFlex 755TR Bus Supply	All	8	See page 273
20-750-MACSPL3-F9M	Right-to-left AC bus splice	PowerFlex 755TL Bus Supply or PowerFlex 755TR Bus Supply	All	9	See page 275

Recommended Enclosures

The Rittal TS8 enclosures that are specified in the tables in this section are the only enclosures recommended for PowerFlex 755TM IP00 / Open Type kit installations. These tables provide the overall enclosure dimensions and Rittal part number by enclosure type (as defined in the PowerFlex 755T Product Frame Size Explanation on page [5](#)).

The enclosures listed in these tables are designed to meet EN61800-3 Category C3 EMC requirements. Rockwell Automation is evaluating the ability to meet Category C2 compliance. Contact the factory for more information. The PowerFlex 755TM EMC C2 filter wire bay (on page [42](#)) is used only with the EMC C2 filter kits used for PowerFlex 755T product installations that require compliance with CE EN61800-3 Category C2 for conducted emissions only. See EMC C2 Filter Kits on page [58](#) for more information.

These enclosures contain the roof and floor panels, side rails, and door accessory and ventilation openings, unless noted otherwise. Some enclosures include the vents and fans that are required to meet PowerFlex 755TM product specifications. For roof vent dimensions, see page [53](#).

Use the joining hardware kit, catalog number 20-750-MEXTBAY1, to join all Rittal TS8 enclosures only. Kits for seismic qualified installations are available for use with the recommended Rittal TS8 enclosures listed here. See the Kits for Seismic-qualified Installations of PowerFlex 755T Products (Supplier: Rockwell Automation) table on page [42](#) for kit certifications and details.

PowerFlex 755TM Control Bay (Supplier: Rittal)

PowerFlex 755TM control bays were designed for use with equivalent frame 8...15 common bus inverters. These control bays include an IP21/IP54 door vent with filter media. The IP21/IP54 roof ventilation kit (cat. no. 20-750-MVENTC2-F8M) used with a control bay must be purchased separately.

Description	Enclosure Type	Width [mm (in.)]	Depth [mm (in.)]	Height [mm (in.)] ⁽¹⁾	Rittal Part Number	Frame Size
Control Bay	EMC Enclosure	300 (11.8)	600 (23.6)	2000 (78.7)	9977450	8...15
Control Bay	Standard Enclosure	300 (11.8)	600 (23.6)	2000 (78.7)	9977400	8...15

(1) Excludes the roof vent.

PowerFlex 755TM Input Bays (Supplier: Rittal)

400 mm and 600 mm wide input bays include two IP21/IP54 door vents with filter media. The IP21/IP54 roof ventilation kit (cat. no. 20-750-MVENTC2-F8M) used with 400 mm and 600 mm input bays must be purchased separately. The IP21 door and roof ventilation kit (cat. no. 20-750-MVENTC1-F11M) and IP54 door and roof ventilation kit (cat. no. 20-750-MVENTC2-F11M) used with 1000 mm wide input bays must be purchased separately.

Description	Enclosure Type	Width [mm (in.)]	Depth [mm (in.)]	Height [mm (in.)] ⁽¹⁾	Rittal Part Number	Frame Size
Input Bay	EMC Enclosure	400 (15.7)	600 (23.6)	2000 (78.7)	9961353	8
Input Bay	EMC Enclosure	600 (23.6)			9961354	9
Input Bay	EMC Enclosure	1000 (39.4)			9956612	10...15
Input Bay	Standard Enclosure	400 (15.7)	600 (23.6)	2000 (78.7)	9977401	8
Input Bay	Standard Enclosure	600 (23.6)			9977402	9
Input Bay	Standard Enclosure	1000 (39.4)			9970000	10...15

(1) Excludes the roof vent.

PowerFlex 755TM Power Bays (Supplier: Rittal)

The following IP21 door and roof ventilation kits used with power bays must be purchased separately:

- Cat. no. 20-750-MVENT1-F7M, 20-750-MVENT1-F8M, 20-750-MVENT1-F9M, and 20-750-MVENT1-F10M (used with frames 7...15)
- Cat. no. 20-750-MVENT1-F7L (used with frame 7L only)
- Cat. no. 20-750-MNVENT1 (used with the NRS power bay only)

The following IP54 door and roof ventilation kits used with power bays must be purchased separately:

- Cat. no. 20-750-MVENT2-F7M, 20-750-MVENT2-F8M, 20-750-MVENT2-F9M, and 20-750-MVENT2-F10M (used with frames 7...15)
- Cat. no. 20-750-MNVENT2 (used with the NRS power bay only)

Description	Enclosure Type	Width [mm (in.)]	Depth [mm (in.)]	Height [mm (in.)] ⁽¹⁾	Rittal Part Number	Frame Size	NRS Module Configuration
Common Bus Inverter Only Power Bay	EMC Enclosure	400 (15.7)	600 (23.6)	2000 (78.7)	9977451	8	—
Common Bus Inverter Only Power Bay	EMC Enclosure	600 (23.6)			9977452	9, 11, 12, 14, 15	—
Regenerative Drive or Bus Supply Power Bay	EMC Enclosure	800 (31.5)			9956610	8, 10, 12, 13, 15	—
Power Bay	EMC Enclosure				9961400	7	—
Common Bus Inverter Only Power Bay	EMC Enclosure				9977453	10, 12, 13, 15	—
Regenerative Drive or Bus Supply Power Bay	EMC Enclosure				9956611	8...15	—
Common Bus Inverter Only Power Bay	Standard Enclosure	400 (15.7)	600 (23.6)	2000 (78.7)	9977405	8	—
NRS Power Bay ⁽²⁾	Standard Enclosure	600 (23.6)			9977404	—	All
Common Bus Inverter Only Power Bay	Standard Enclosure				9977407	9, 11, 12, 14, 15	—
Regenerative Drive or Bus Supply Power Bay	Standard Enclosure	9977406			8, 10, 12, 13, 15	—	
Power Bay	Standard Enclosure	800 (31.5)			9961399	7	—
Power Bay	Standard Enclosure				9840564 ⁽³⁾	7L	—
Common Bus Inverter Only Power Bay	Standard Enclosure				9977409	10, 12, 13, 15	—
Regenerative Drive or Bus Supply Power Bay	Standard Enclosure	9977408			8...15	—	

(1) Excludes the roof vent.

(2) A door cutout is required to view the NRS main control circuit board status indicators. The NRS cabinet door window and overlay labels kit (cat. no. 20-750-MN-OVR-NRS) is available to provide a clear, sealed window. If the door window is cut and kit cat. no. 20-750-MN-OVR-NRS is not used, the opening must be sealed against air and debris ingress. See page 65 for the door window location and dimensions.

(3) This enclosure contains additional side braces that are required to support the frame 7L power modules.

PowerFlex 755TM Top Entry/Exit Wire Bays (Supplier: Rittal)

The 400 mm wide entry/exit wire bays include one IP21/IP54 door vent with filter media and one door vent with filter media and a fan. This fan can be purchased directly from Rittal. Order part number 3241.100 (quantity 1).

The 800 mm wide entry/exit wire bays include two IP21/IP54 door vents with filter media and one door vent with filter media and a fan. This fan can be purchased directly from Rittal. Order part number 3243.100 (quantity 1) for 800 mm, wide C3 compliant wire bays and 3243.600 (quantity 1) for 800 mm wide, C2 compliant wire bays.

Description	Enclosure Type	Width [mm (in.)]	Depth [mm (in.)]	Height [mm (in.)]	Rittal Part Number	Frame Size
Entry/Exit Wire Bay	EMC Enclosure	400 (15.7)	600 (23.6)	2000 (78.7)	9961356	8, 13 ⁽¹⁾
Entry/Exit Wire Bay	EMC Enclosure	800 (31.5)			9961357	9...15 ⁽²⁾
Entry/Exit Wire Bay	Standard Enclosure	400 (15.7)	600 (23.6)	2000 (78.7)	9970001	8, 13 ⁽¹⁾
Entry/Exit Wire Bay	Standard Enclosure	800 (31.5)			9970002	9...15 ⁽²⁾

(1) Used with frame 13 inline configurations only.

(2) Used with frame 14 and 15 inline configurations only.

PowerFlex 755TM Wire Entry Bays (Supplier: Rockwell Automation)

The 400 mm wide wire entry bays include one IP21/IP54 door vent with filter media and one door vent with filter media and a fan. This fan can be purchased directly from Rittal. Order part number 3241.100 (quantity 1).

The 800 mm wide wire entry bays include two IP21/IP54 door vents with filter media and one door vent with filter media and a fan. These fans can be purchased directly from Rittal. Order part number 3243.100 (quantity 1).

These IP00 kits include two door fan power wire harnesses. Use the wire harness labeled PN-392223 with a PowerFlex 755T products. Use the wire harness labeled PN-625780 with a PowerFlex 755TM Non-Regenerative Supply.

Description	Enclosure Type	Width [mm (in.)]	Depth [mm (in.)]	Height [mm (in.)]	Catalog Number	Product / Frame Size	NRS Module Configuration (Inline)
Wire Entry Bay	Standard Enclosure	400 (15.7)	600 (23.6)	2000 (78.7)	20-750-MN-WBAY1-400	755TL/TR Drive and 755TM Bus Supply / 8...10 (Qty 1) 13 in-line (Qty 2)	1X, 2X, 1X+2X (Qty 1) 2X+2X+2X, 2 (2X+1X) (Qty 2)
Wire Entry Bay	Standard Enclosure				20-750-MN-WBAY2-400	755TL/TR Drive and 755TM Bus Supply / 8...10 (Qty 1) 13 in-line (Qty 2)	1X, 2X, 1X+2X (Qty 1) 2X+2X+2X, 2 (2X+1X) (Qty 2)
Wire Entry Bay	Standard Enclosure	800 (31.5)	600 (23.6)	2000 (78.7)	20-750-MN-WBAY1-800	755TL/TR Drive and 755TM Bus Supply / 11 and 12 (Qty 1) 14 and 15 in-line (Qty 2)	2X+2X, 2X+2X+1X (Qty 1) 2 (2X+2X), (2X+2X+2X) + (2X+2X), 2 (2X+2X+1X) in-line (Qty 2)
Wire Entry Bay	Standard Enclosure				20-750-MN-WBAY3-800 ⁽¹⁾	755TL/TR Drive and 755TM Bus Supply / 11 and 12 (Qty 1) 14 and 15 in-line (Qty 2)	2X+2X, 2X+2X+1X (Qty 1) 2 (2X+2X), (2X+2X+2X) + (2X+2X), 2 (2X+2X+1X) in-line (Qty 2)

(1) This wire bay does not contain DC bus bars or splices.

PowerFlex 755TM DC Voltage Balance and Wire Bay Kits (Supplier: Rockwell Automation or Rittal)

The DC voltage balance and wire bay kits listed in this table are required for power wire connections for back-to-back frame 13...15 and NRS system installations. These enclosures are factory joined and contain the required bus bars, fans, control bus assemblies, and gaskets (where applicable). See the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD10](#), for IP00 kit content details.

Rockwell Automation Cat. No.	Frame Size	NRS Configuration (Back-to-Back)	Description	Width [mm (in.)]	Depth [mm (in.)]	Height [mm (in.)]	Rittal Part Number
20-750-DCVBB-400	13	2 (2X + 1X), 2 (2X+2X), (2X+2X+2X) + (2X+2X), 2 (2X+2X+1X)	Drive - DC Bus Voltage Balance Bay	400 (15.7)	2 x 600 (24)	2000 (78.7)	9961371 and 9961372
20-750-DCVBB-400C ⁽¹⁾	13	2 (2X+1X), 2 (2X+2X), (2X+2X+2X) + (2X+2X), 2 (2X+2X+1X).	Drive and Common Bus Inverter - DC Bus Voltage Balance Bay	400 (15.7)	2 x 600 (24)	2000 (78.7)	9961371 and 9961372
20-750-DCVBB-400-FBR	13	2 (2X+1X), 2 (2X+2X), (2X+2X+2X) + (2 X+2X), 2 (2X+2X+1X)	Drive Wire Entry Bay - DC Bus Voltage Balance Bay	400 (15.7)	2 x 600 (24)	2000 (78.7)	9961371 and 9961372
20-750-DCVBB-400C-FBR ⁽¹⁾	13	2 (2X+1X), 2 (2X+2X), (2X+2X+2X) + (2X+2X), 2 (2X+2X+1X)	Drive and Bus Supply - Wire Entry Bay	400 (15.7)	2 x 600 (24)	2000 (78.7)	9961371 and 9961372
20-750-DCVBB-BS	13...15	2 (2X+1X), 2 (2X+2X), (2X+2X+2X) + (2X+2X), (2X+2X+1X)	Bus Supply - DC Voltage Balance Bay	400 (31.5)	2 x 600 (24)	2000 (78.7)	9961364 and 9961365
20-750-DCVBB-800	14, 15	2 (2X+1X), 2 (2X+2X), (2X+2X+2X) + (2X+2X), 2 (2X+2X+1X)	Drive and Common Bus Inverter	800 (31.5)	2 x 600 (24)	2000 (78.7)	9961364 and 9961365
20-750-DCVBB-800-FBR	14, 15	2 (2X+1X), 2 (2X+2X), (2X+2X+2X) + (2X+2X), 2 (2X+2X+1X)	Drive and Bus Supply Wire Entry Bay	800 (31.5)	2 x 600 (24)	2000 (78.7)	9961364 and 9961365

(1) 'C' in this catalog number identifies copper DC bus bars and splice bus bars.

PowerFlex 755TM EMC C2 Filter Wire Bay and Required Accessories (Supplier: Rockwell Automation or Rittal)

This enclosure is used with the EMC C2 filter kits for PowerFlex 755T product installations that require compliance with CE EN61800-3 Category C2 for conducted emissions only. See EMC C2 Filter Kits on page [58](#) for more information.

Description	Enclosure Type	Width [mm (in.)]	Depth [mm (in.)]	Height [mm (in.)]	Rittal Model Number	Rockwell Automation Cat. No.
EMC C2 Filter Wire Bay ⁽¹⁾	Standard Enclosure	800 (31.5)	600 (23.6)	2000 (78.7)	8806.500	20-750-MPBAY-800
Side Panels (Qty 2) ⁽²⁾	Standard Enclosure	—	600 (23.6)	2000 (78.7)	8106.235	—
Gland Plate ⁽³⁾	Standard Enclosure	220 (8.7)	90 (3.5)	—	1158.500	—
Gland Plate ⁽³⁾	Standard Enclosure	160 (6.3)	70 (2.8)	—	2560.400	—
Gland Plate ⁽³⁾	Standard Enclosure	330 (13.0)	90 (3.5)	—	2561.400	—
Gland Plate ⁽³⁾	Standard Enclosure	339 (13.3)	249 (9.8)	—	2562.400	—
Gland Plate ⁽³⁾	Standard Enclosure	534 (21.0)	149 (5.9)	—	2563.150	—

(1) Customer must provide appropriate guards to prevent electric shock hazard.

(2) Must be ordered with the optional wire bay (8806.500). Only one side panel is used in the installation.

(3) Must be ordered with the optional wire bay (8806.500). Order the appropriate gland plate(s) based on input wiring needs.

Kits for Seismic-qualified Installations of PowerFlex 755T Products (Supplier: Rockwell Automation)

Use the kits in this table with the recommended Rittal TS8 enclosures for seismic qualified installations. Enclosures must be rigidly mounted according to local standards and codes. The installation must comply with any guidance that is provided by a qualified structural engineer. See the PowerFlex 755T Products - Seismic Certificate, publication [755T-CT001](#) for details. See the PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication [750-IN100](#), for seismic qualified installation instructions.

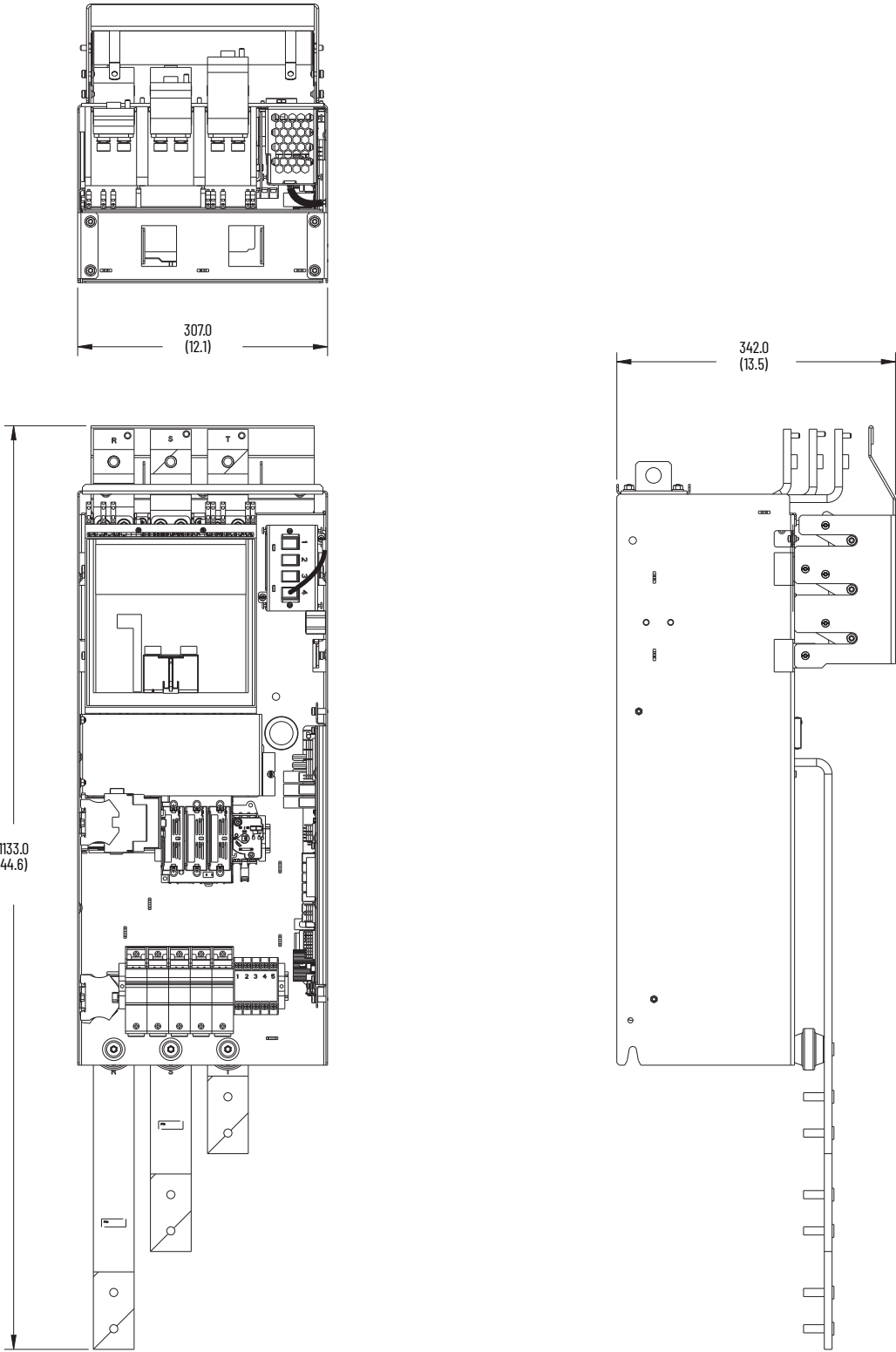
Cat No.	Enclosure Types ⁽¹⁾	Equivalent Frame Size
20-750-MOSHDP-F7M	Power Bay	7
20-750-MOSHDP-F8M	Input Bay, and Power Bay, Exit Wire Bay	8
20-750-MOSHDP-F9M	Input Bay, Power Bay, Exit Wire Bay	9
20-750-MOSHDP-F10M	Entry Wire Bay, Input Bay, Power Bay, and Exit Wire Bay	10
20-750-MOSHDP-F11M	Entry Wire Bay, Input Bay, Power Bay, and Exit Wire Bay	11
20-750-MOSHDP-F12M	Entry Wire Bay, Input Bay, Power Bay, and Exit Wire Bay	12

(1) Each kit includes parts for the largest possible enclosure lineup for the specified frame size. Therefore, in some cases, not all parts in the kit will be installed.

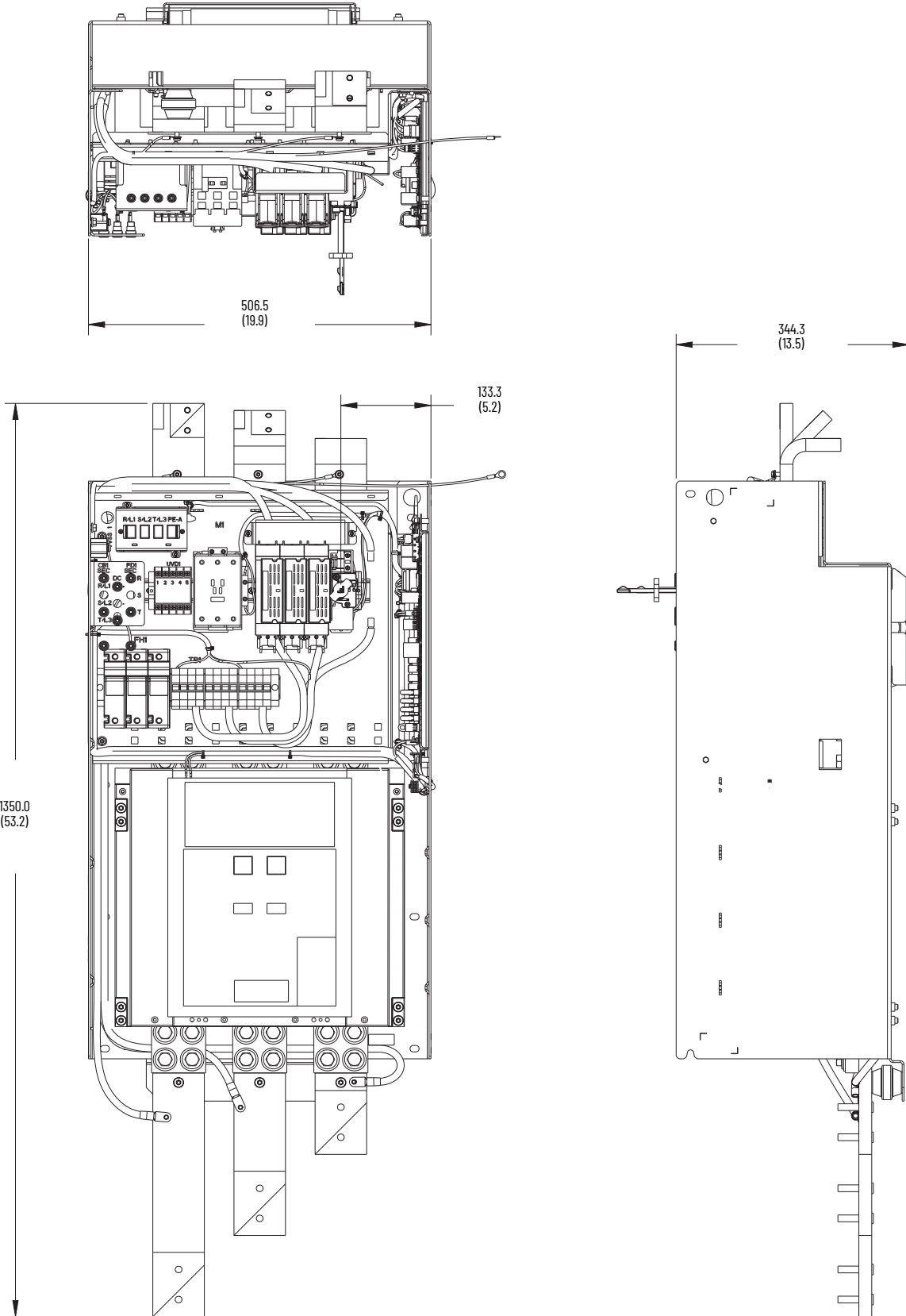
Approximate IP00 Module Dimensions

The section contains the approximate dimensions for the primary modules only. All dimensions are shown in millimeters and (inches).

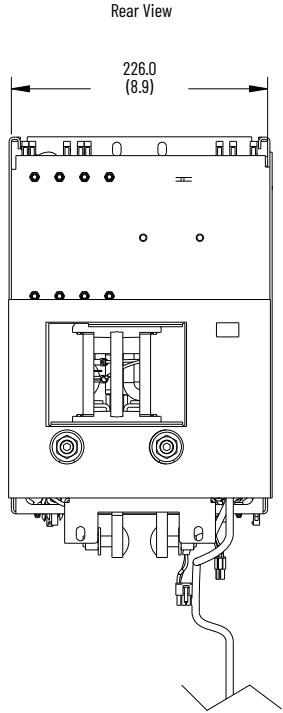
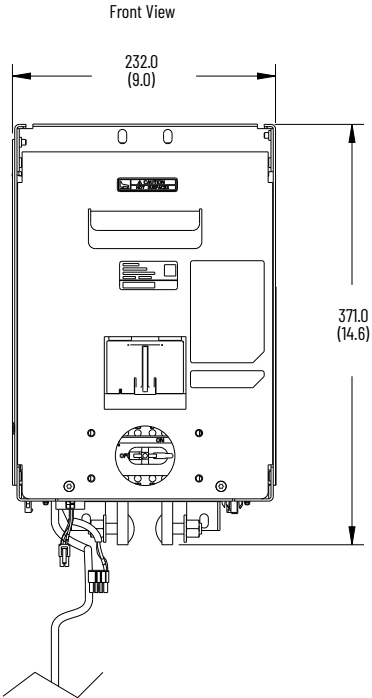
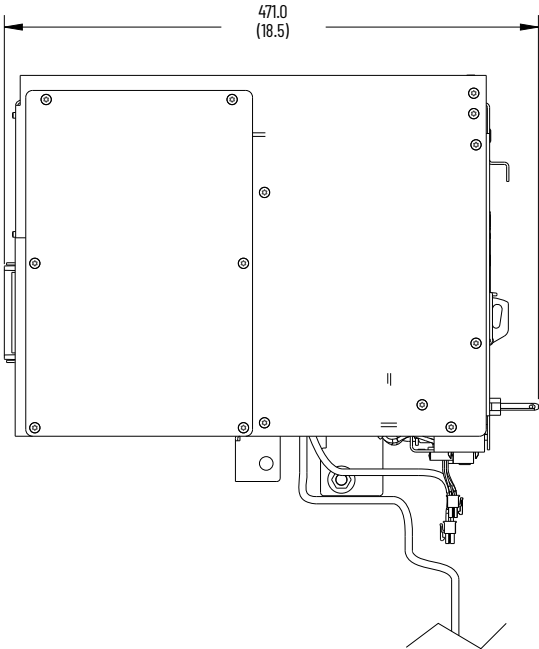
Frame 8 AC Precharge Module (Cat. No. 20-750-MACP-xx-F8M)



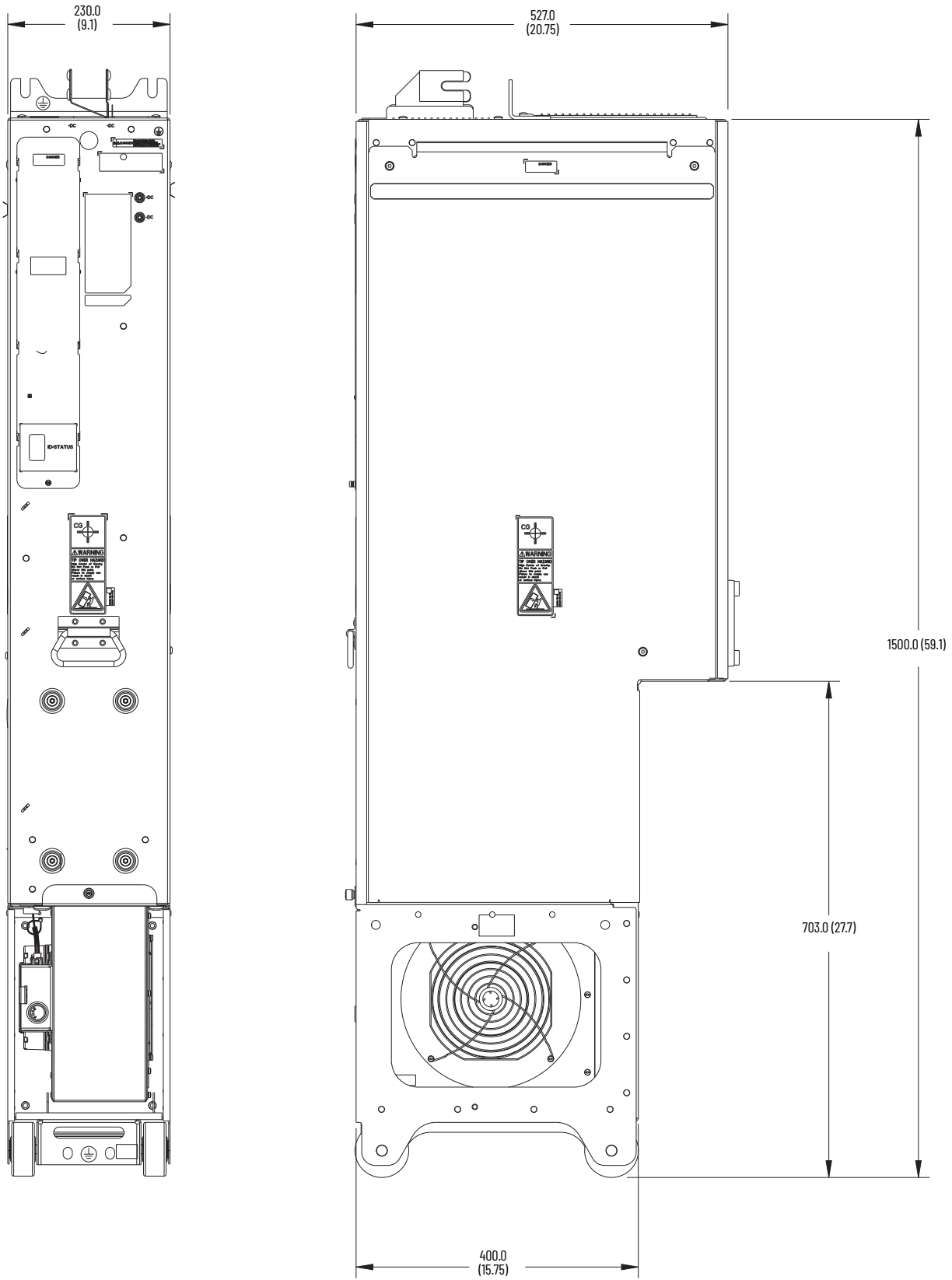
Frame 9 AC Precharge Module (Cat. No. 20-750-MACP-xx-F9M)



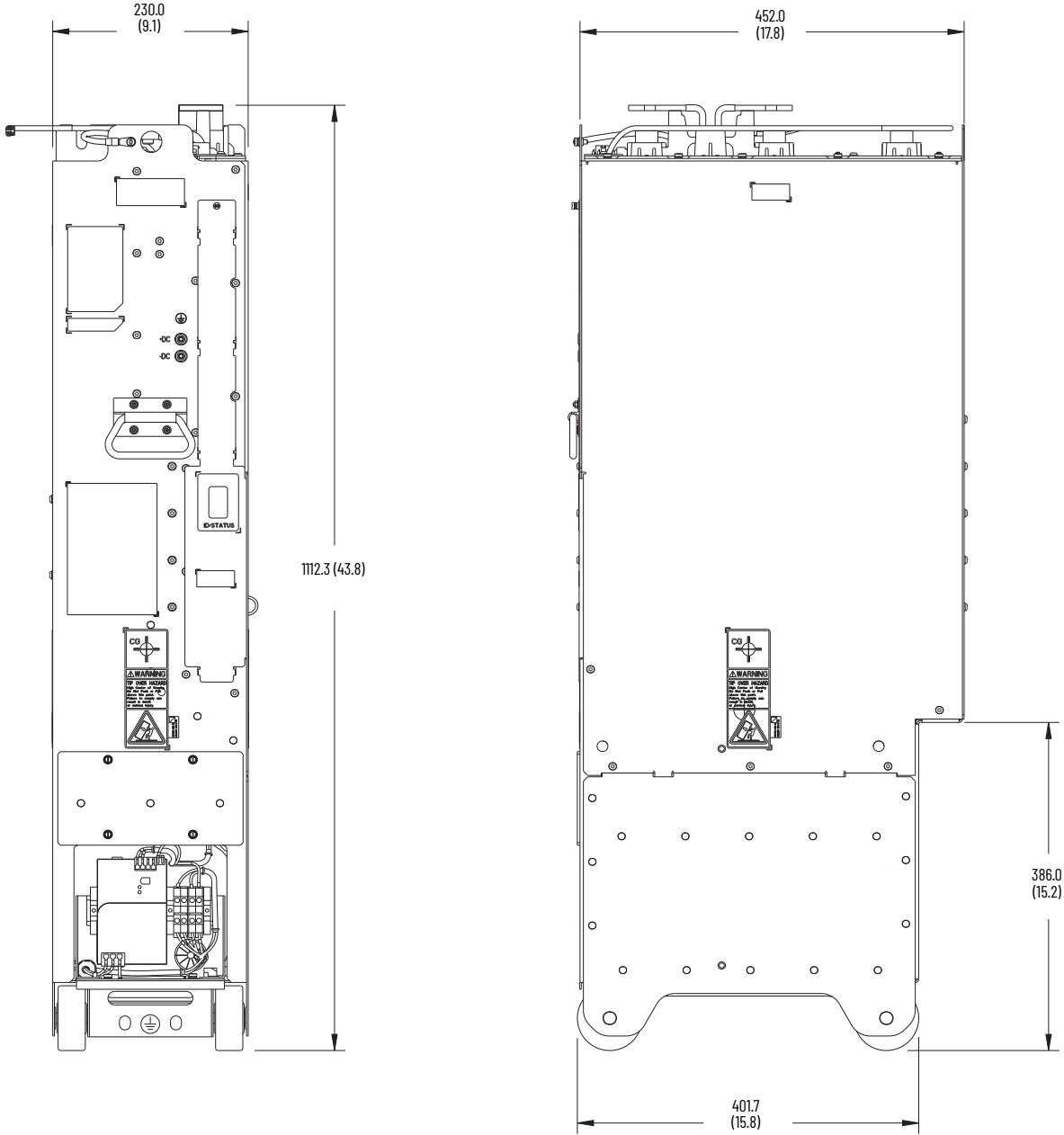
DC Precharge Modules (Cat. No. 20-750-MDCPn-xx-F8M)



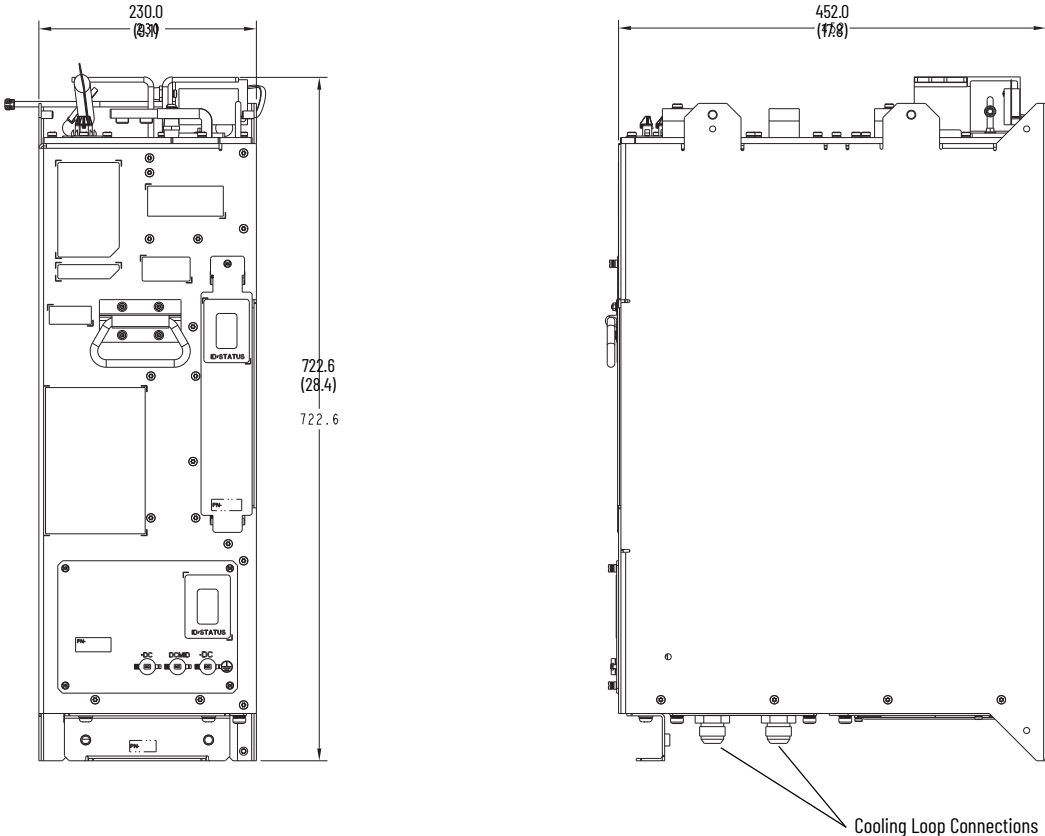
Power Module (Cat. No. 20-750-M11-xnnnxxxx, 20-750-M12-xnnnxxxx, 20-750-M13-xnnnxxxx)



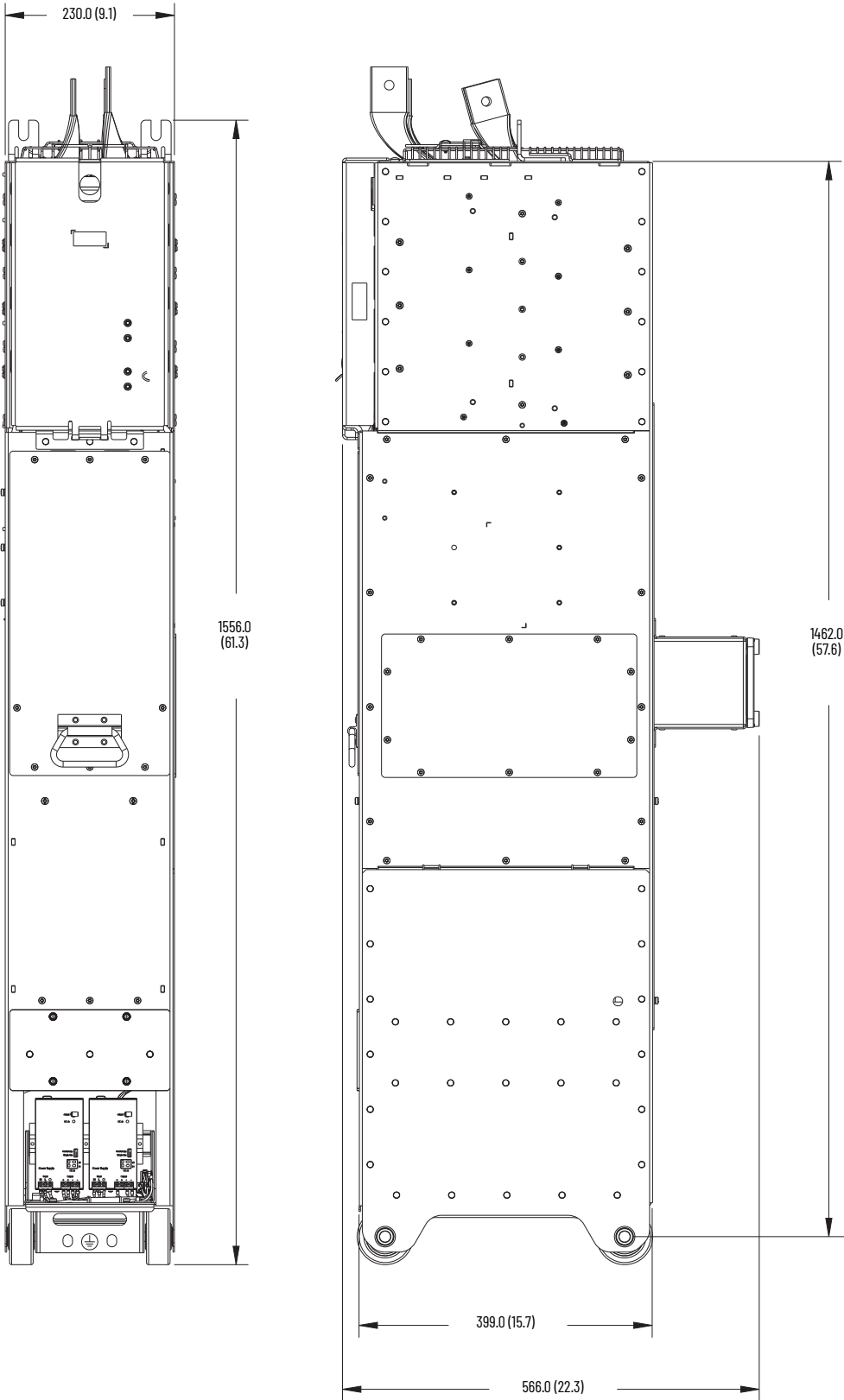
Power Module (Cat. No. 20-750-MI4-xnnnxnnn)



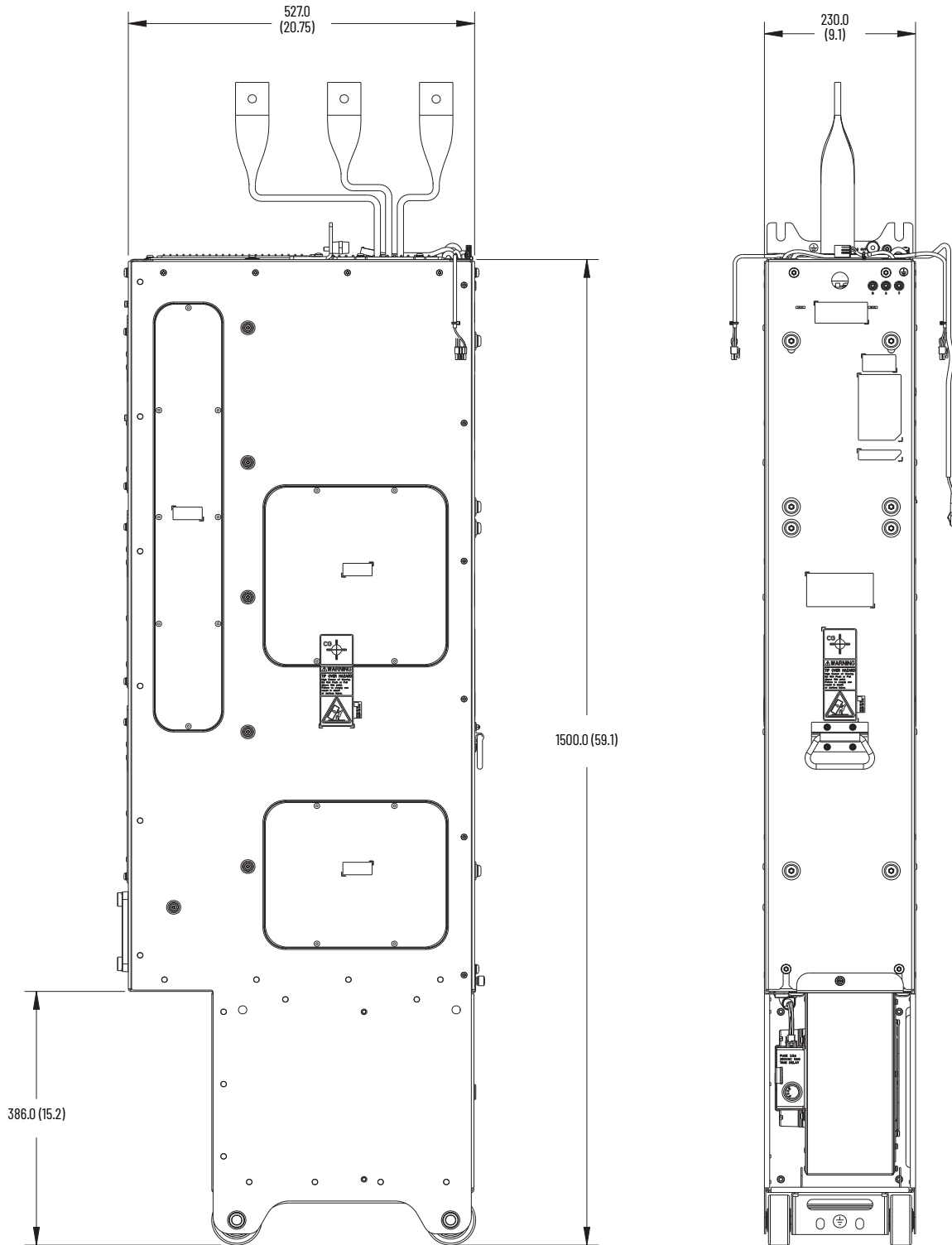
Power Module (Cat. No. 20-750-M15-C650D650)



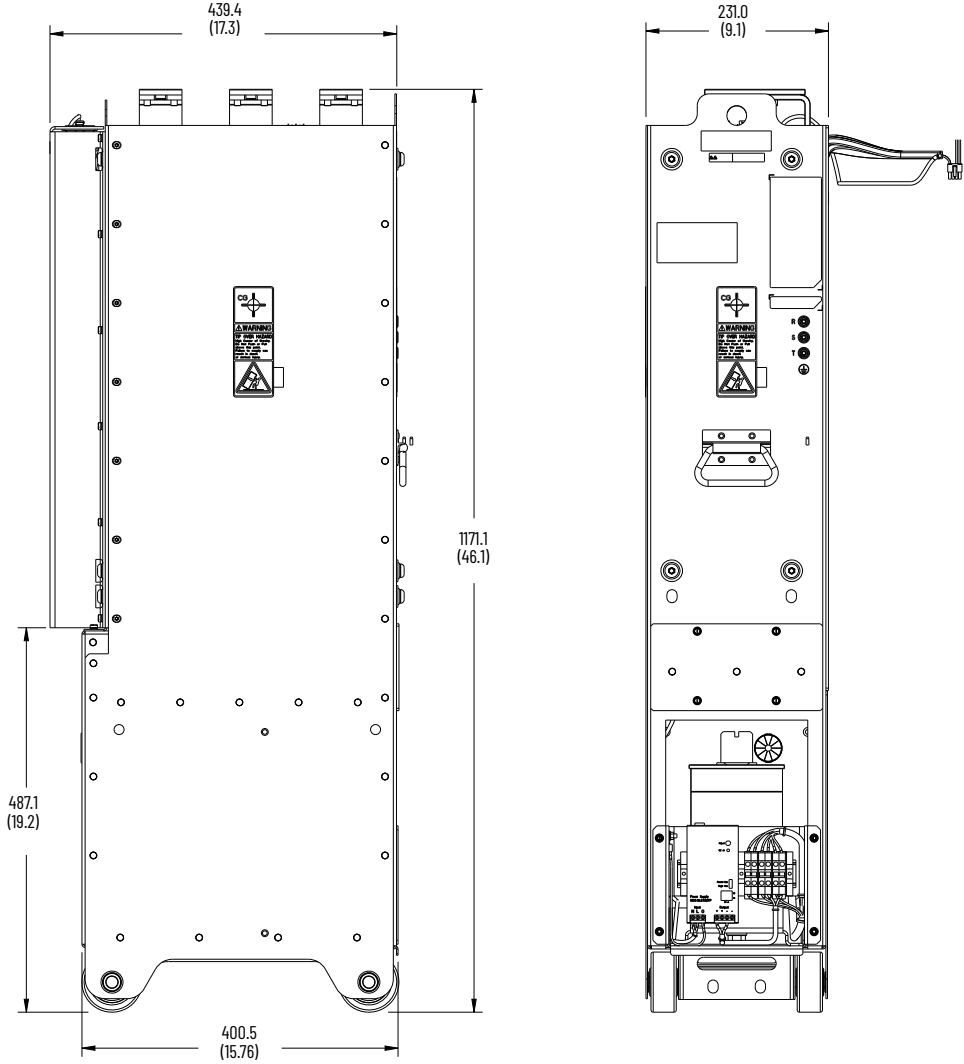
NRS Module (Cat. No. 20-750-MNn-xnnnxxxx)



LCL Filter Module (Cat. No. 20-750-ML1-xnnnxxxx)

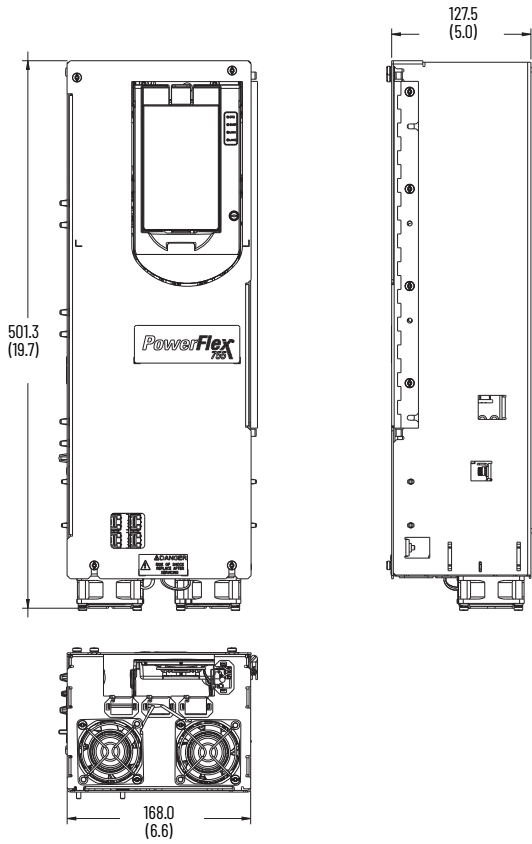


LCL Filter Module (Cat. No. 20-750-ML4-xnnnxnnn)

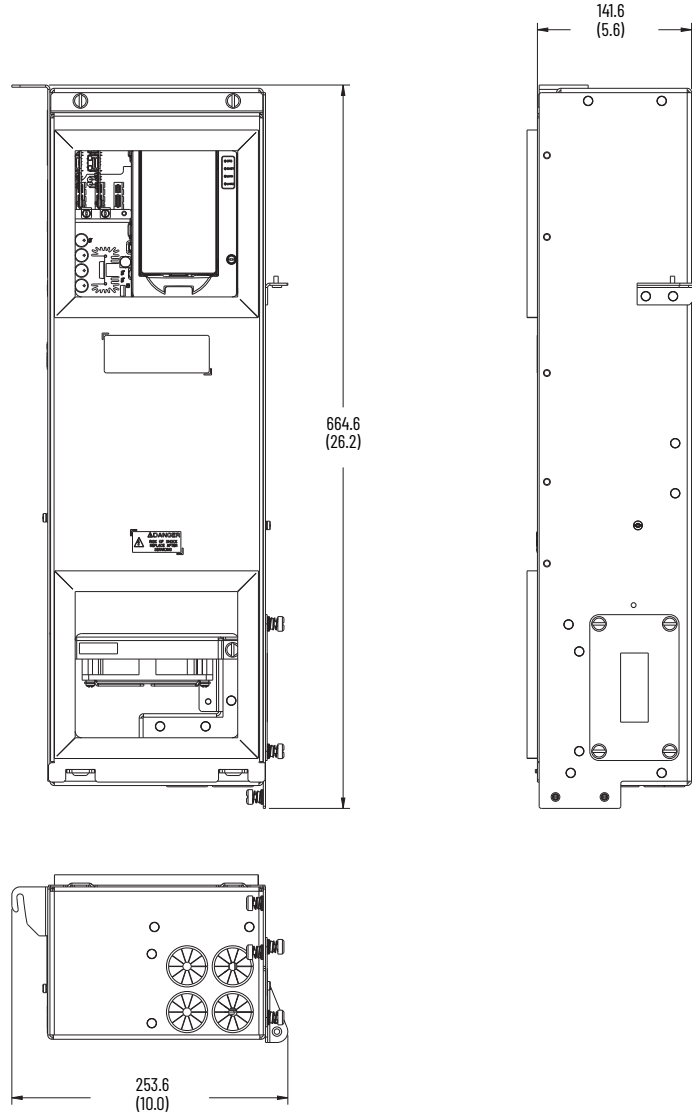


Control Pod (Cat. No. 20-750-MCPODn-F8M and 20-750-MCPODn-F7M)

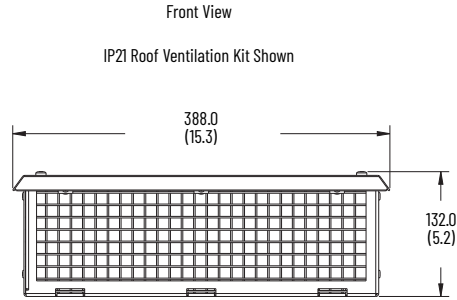
Cat. No. 20-750-MCPODn-F8M



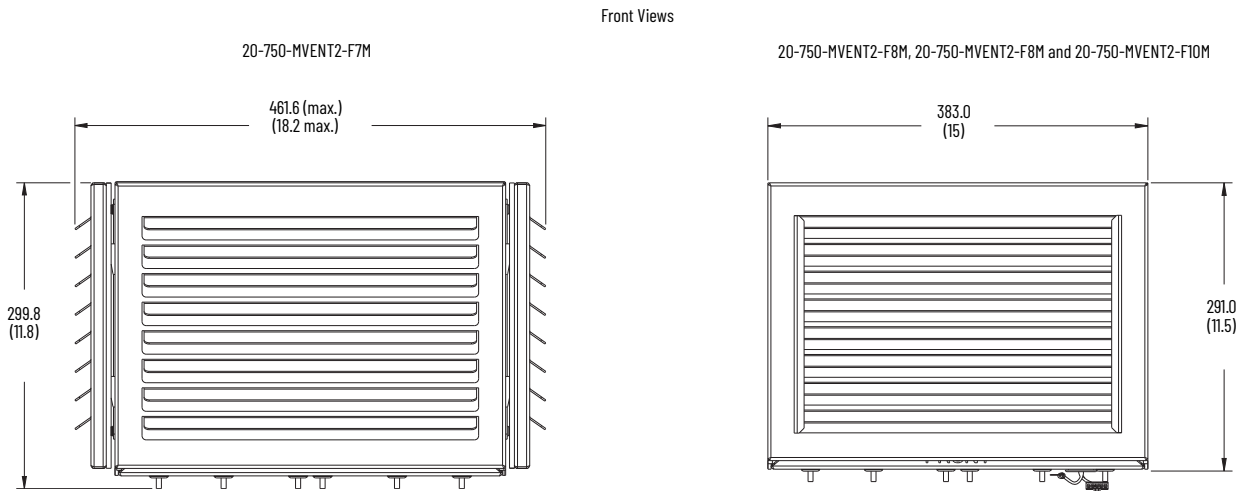
Cat. No. 20-750-MCPODn-F7M



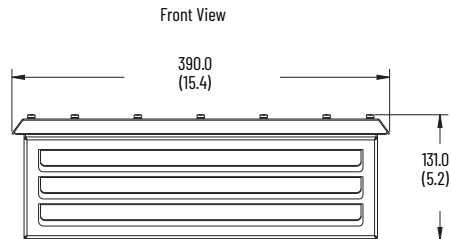
IP21 and IP21/IP54 Power Bay Roof Vent (Included with Kit Cat. No. 20-750-MVENT1-F7M, 20-750-MVENT1-F7L, 20-750-MVENT1-F8M, 20-750-MVENT1-F9M, 20-750-MVENT1-F10M, 20-750-MVENTC1-F11M, 20-750-MVENTC2-F8M)



IP54 Power Bay Roof Vent (Included with Kit Cat. No. 20-750-MVENT2-F7M, 20-750-MVENT2-F8M, 20-750-MVENT2-F9M, 20-750-MVENT2-F10M)



NRS IP21/IP54 Power Bay Roof Vent (Included with Kit Cat. No. 20-750-MNVENT1, 20-750-MNVENT2)



Before You Begin Installation

Review these topics to prepare your site and enclosures for installation:

- Customer-sourced Components on page [54](#)
- CE Conformity on page [56](#)
- Installation Site Requirements on page [60](#)
- Enclosure Installation Requirements on page [60](#)
- Enclosure Environmental Integrity Requirements on page [60](#)
- Customer-sourced Enclosure Requirements on page [60](#)
- Module Airflow Requirements on page [61](#)
- Enclosure Ventilation on page [62](#)
- Installation Tools on page [75](#)


Customer-sourced Components

This section contains lists of required and optional customer-sourced components. Procure any components that are required for your system and equivalent frame size before installation.

Required Components - Customer Must Source

The following required system components are **not** provided as or with an IPO0 kit and **must** be customer-sourced:

Frames 7...15 and 7L

Component	Details
Door vents for these enclosures (when the recommended Rittal TS8 enclosures are not used): <ul style="list-style-type: none"> • Control bay • Frame 8 and 9 input bays • Wire entry/exit bays • DC voltage balance bays 	See Customer-sourced Enclosure Requirements on page 60 for details.
Structural angles for lifting and transporting assembled Rittal TS8 enclosure sections.	See Create Structural Angles on page 88 .
Ground bus bars.	See Ground Bus Bar Installation on page 118 for details.
Control power wire harnesses for the control pod.	See Fiber Interface and Fiber Transceiver Circuit Board Connections on page 185 .
Electrical component guards. All exposed electrical equipment must be properly shielded against accidental contact according to the requirements of national and local industrial safety regulations and/or electrical codes.	<p>This precautionary statement is included in the installation illustrations for IPO0 kits that contain exposed electrical components that carry potentially hazardous voltages. Installation illustrations begin on page 201.</p> <div style="border: 1px solid black; padding: 5px;">  <p>ATTENTION: To avoid an electric shock hazard, the installer must provide guarding to shield exposed electrical equipment against accidental contact. When installing this equipment, consider the design and placement of guarding to help prevent personal injury or equipment damage.</p> </div>

Frame 7 and 7L Only

Component	Details
AC precharge control circuit board wire harnesses.	See AC Precharge Control Circuit Board Connections on page 168 for details.
AC precharge fused disconnect, wire harnesses, operator handle shaft, and operator handle.	See Fused Disconnect Connections on page 169 for details.
AC precharge contactor and wire harnesses.	See AC Precharge Contactor Connections on page 172 for details.
AC precharge time delay relay wires.	See Time Delay Relay Connections on page 173 for details.
AC precharge resistor bank wires to the AC precharge contactor.	See Frame 7 and 7L AC Precharge Resistor Bank Connections on page 174 for details.
AC precharge TVSS module wire harnesses.	See AC Precharge TVSS Module Connections on page 178 for details.
Marine discharge board (if used) wire harness.	See DC Bus Conditioner and Marine Discharge Circuit Board Connections on page 178 for connection details.
Sheet-metal mounting panel for the AC input power and DC power components.	<p>When fabricated to Rockwell Automation specifications, the AC input power components mounting panel is used with these IPO0 kits and customer-sourced components:</p> <ul style="list-style-type: none"> • Control power transformer (if used, customer sourced) • AC precharge resistors and circuit breaker mounting panel (customer sourced) • AC input bus bars • DC output bus bars (if used) <p>See page 387 for dimensions and specifications.</p>
Sheet-metal and insulated mounting panels for the AC output power components.	<p>When fabricated to Rockwell Automation specifications, the AC output power components mounting panel is used with these IPO0 kits:</p> <ul style="list-style-type: none"> • AC output bus bars • Torque accuracy module (if used) <p>For frame 7, see page 388 for dimensions and specifications. For frame 7L see pages 389 and 390 for dimensions and specifications.</p>

Frame 7 and 7L Only (Continued)

Component	Details
Sheet-metal mounting bracket and fasteners for the AC input precharge components.	When fabricated to Rockwell Automation specifications, the AC input precharge components mounting bracket is used with these IP00 kits and customer-sourced components: <ul style="list-style-type: none"> AC precharge resistors AC precharge circuit breaker AC precharge contactor (customer sourced) AC precharge terminal blocks (if used, customer sourced) AC precharge components mounting panel (customer sourced) See page 393 for dimensions and specifications.
Sheet-metal mounting panel and fasteners for the AC precharge components.	When fabricated to Rockwell Automation specifications, the AC precharge components mounting panel is used with these IP00 kits and customer-sourced components: <ul style="list-style-type: none"> AC precharge control circuit board AC precharge time delay relay TVSS module AC precharge fused disconnect (customer sourced) Control power supply (if used, customer sourced) AC precharge control circuit fuse blocks (if used, customer sourced) AC precharge control power terminal blocks and DIN rails (if used, customer sourced) See page 396 for dimensions and specifications. See page 397 for an example panel layout.
Sheet-metal mounting panel and bracket and fasteners for the AC precharge components mounting panel and DC bus marine discharge circuit board.	When fabricated to Rockwell Automation specifications, this mounting panel is used with these IP00 kits and customer-sourced components: <ul style="list-style-type: none"> DC bus marine discharge circuit board (if used) AC precharge components mounting panel (customer-sourced) See page 391 and 392 for dimensions and specifications.

Frame 7L Only

Component	Details
Power module AC bus terminals and fasteners.	When fabricated to Rockwell Automation specifications, these terminals are used to connect from the LCL filter module or to the AC output bus bars. See page 308 for installation and page 399 for a drawing. See page 136 for bus bar specifications.
AC output bus bar terminal insulator sheets and fasteners for kit cat. no. 20-750-MACIOT-F7L.	When fabricated to Rockwell Automation specifications, these insulator sheets are used between the AC output bus bar terminals. See page 236 for installation and page 400 for a drawing.
Power module support bracket and beam and fasteners.	When fabricated to Rockwell Automation specifications, this support bracket and beam are used to provide support for the frame 7L power modules. See pages 307 for installation and pages 401 and 402 for drawings.
Liquid cooling loop system and components.	See the Liquid Cooling Loop Requirements section in the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication 750-TD101 , for cooling loop requirements and a list of recommended components compatible with frame 7L liquid cooled drives.

Frames 8 and 9 Only

Component	Details
DC bus conditioner (if used) sheet metal mounting panel and interconnection cables.	See DC Bus Conditioner and Marine Discharge Circuit Board Connections on page 178 .

Frames 10...15 Only

Component	Details
AC precharge control circuit board wire harnesses.	See AC Precharge Control Circuit Board Connections on page 168 for details.
AC precharge fused disconnect, wire harnesses, and operator handle.	See Fused Disconnect Connections on page 169 for details.
AC precharge contactor and wire harnesses.	See AC Precharge Contactor Connections on page 172 for details.
AC precharge time delay relay wires to the AC precharge control circuit board.	See Time Delay Relay Connections on page 173 for details.
AC precharge TVSS module wire harnesses.	See AC Precharge TVSS Module Connections on page 178 for details.
AC precharge resistor bank wires.	See Frame 10...15 AC Precharge Resistor Bank Connections on page 175 for details.
DC bus conditioner (if used) sheet metal mounting panel and interconnection cables.	See DC Bus Conditioner and Marine Discharge Circuit Board Connections on page 178 .

NRS Systems

Component	Details
DC bus conditioner (if used) sheet metal mounting panel and interconnection cables.	See DC Bus Conditioner and Marine Discharge Circuit Board Connections on page 178 .
The following components used with the test point bracket included with kit cat. no. 20-750-PLN4-NRS: <ul style="list-style-type: none"> R, S, and T test point sockets and wire harness N-1 bypass jumper wire harness 	See: <ul style="list-style-type: none"> Test points to AC Bus Wire Harness (NRS Only) on page 385. N-1 Jumper Wire Harness (NRS Only) on page 386.
Structural angles for lifting and transporting assembled Rittal TS8 enclosure sections.	See Create Structural Angles on page 88 .
Ground bus bars.	See Ground Bus Bar Installation on page 118 for details.

Required Components - Optionally Customer-sourced 240V AC/24V DC Control Power Requirements

The following required system components are available as an IP00 kit, but **can** be customer-sourced:

Frames 7...15, 7L, and NRS Systems

Component	Details
AC and DC power bus bars, terminals, and splice bus bars.	See Bus Bars Specifications on page 136 for details.
Ground bus bar splice.	See Bus Bars Specifications on page 136 for details.

Optional Components - Customer Must Source

The following optional system components are **not** provided as an IP00 kit, and if used, **must** be customer-sourced:

Frames 7...15 and 7L

Component	Details
Control transformers with primary and secondary fuses.	See 240V AC/24V DC Control Power Requirements on page 137 . See PowerFlex 755T Products Control Transformers (Frames 7...15 and 7L) on page 144 for details.
Torque accuracy module wire harnesses (frame 7 and 7L only), fiber-optic cable, and sheet metal mounting plate and hardware. The torque accuracy module kits include the required wire harnesses for frames 8...15 products only.	See Torque Accuracy Module Connections on page 177 .
Control power wiring terminal blocks.	See the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication 750-TD101 .
120V / 240V AC control power fuse holders and fuses.	See the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication 750-TD101 .

CE Conformity

Compliance with the Low Voltage Directive and Electromagnetic Compatibility (EMC) Directive has been demonstrated using harmonized European Norm (EN) standards that are published in the Official Journal of the European Communities. PowerFlex 755TM products comply with the EN standards that are listed in this section when installed according to the installation instructions in this document.

EU Declarations of Conformity are available online at: <http://www.rockwellautomation.com/global/certification/overview.page>

Low Voltage Directive (LVD)

- EN 61800-5-1 Adjustable speed electrical power drive systems – Part 5-1 Safety requirements – Electrical, thermal, and energy.

EMC Directive

- EN 61800-3 Adjustable speed electrical power drive systems – Part 3: EMC requirements and specific test methods.

General Considerations

- For EU compliance, PowerFlex 755T products must satisfy installation requirements that are related to both EN 61800-5-1 and EN 61800-3 provided in this document.
- PowerFlex 755T products comply with the EMC requirements of EN 61800-3 when installed according to good EMC practices and the instructions that are provided in this document. However, many factors can influence the EMC compliance of an entire machine or installation, and compliance of the drive itself does not verify compliance of end user applications.
- PowerFlex 755T products are not intended to be used on public low voltage networks that supply domestic premises. Without additional mitigation, radio frequency interference is expected if used on such a network. The installer is responsible to take measures such as supplementary line filters and enclosures to help prevent interference, and the installation requirements of this document.
- Requirements for supplementary mitigation that is related to specific high-frequency emission limits are provided in the PowerFlex 755T Input Product RF Emission Compliance and Installation Requirements table on page [57](#).
- PowerFlex 755T products generate harmonic current emissions on the AC supply system. When operated on a public low-voltage network it is the responsibility of the installer or user to ensure that applicable requirements of the distribution network operator have been met. Consult with a network operator and Rockwell Automation if necessary.



ATTENTION: PowerFlex 755T products produce DC current in the protective earthing conductor which can reduce the ability of residual current-operated devices (RCDs) or residual current-operated monitoring devices (RCMs) of type A or AC to provide protection for other equipment in the installation. Where an RCD or RCM is used for protection in case of direct or indirect contact, only an RCD or RCM of Type B is allowed on the supply side of this product.

Installation Requirements Related to EN 61800-5-1 and the Low Voltage Directive

- Voltage classes up to 690V PowerFlex 755T products are compliant with the CE LV Directive when used on center-grounded, corner-grounded, high-resistance grounded, and ungrounded supply systems for altitudes up to and including 2000 m (6562 ft).
- When used at altitudes above 2000 m (6562 ft) up to a maximum of 4800 m (15,748 ft), PowerFlex 755T products of voltage classes up to 480V cannot be powered from a “corner-grounded” supply system to maintain compliance with the CE LV Directive. Altitude derating curves are provided in the PowerFlex 755T IP00 Open Type Kits Technical Data, publication [750-TD101](#). An altitude derating curve for the PowerFlex 755TM Non-Regenerative Supply is provided in the PowerFlex 755TM Non-Regenerative Supply Specifications Technical Data, publication [750-TD103](#).
- UL Open Type / IP00 modules must be installed in a recommended enclosure to be compliant with CE regarding protection against electrical shock. See Recommended Enclosures on page [39](#).
- PowerFlex 755T products produce leakage current in the protective earthing conductor, which exceeds 3.5 mA AC and/or 10 mA DC. The minimum size of the protective earthing (grounding) conductor that is used in the application must comply with local safety regulations for high-protective earthing conductor current equipment.

Installation Requirements Related to EN 61800-3 and the EMC Directive

- The regenerative drive, bus supply, and common bus inverter must be earthed (grounded) as described on page [15](#).
- The regenerative drive, bus supply, and common bus inverter must be powered from an earthed supply system such as a TN or TT system and the PE-A and PE-B jumpers in the product must be installed as directed in the Power Jumper Configuration tables on page [19](#).
- Shielded AC input power wire is recommended for regenerative drives and bus supplies.
- Output power wiring to the motor must meet one of these requirements or provide equivalent shielding:
 - Cables must be braided shield, providing 75% or greater coverage
 - Cables must be housed in metal conduit
- Continuous shielding must be provided on output power wires, from the drive enclosure to the motor enclosure.
 - Both ends of the motor cable shield (or conduit) must terminate with a low-impedance connection to earth.
 - At the regenerative drive and common bus inverter end of the motor cable, terminate the shield at the PE ground bar.
 - At the motor end, the motor cable shield or conduit must terminate in a shielded connector. The connector must be properly installed in an earthed motor wiring box that is attached to the motor. The motor-wiring box cover must be installed and connected to earth ground.
- For control (I/O) and signal wire, use cable with a braided shield that provides 75% or greater coverage. Or, control and signal wire must be housed in metal conduit or an equivalent shield must be provided. When shielded cable is used, terminate the drive end of the cable shield only with a low-impedance connection to earth. Terminate the cable by using either a shielded connector with a conduit plate or conduit box, or clamped to an EMC plate.
- Motor cabling must be separated from control and signal wiring wherever possible.
- Maximum motor-cable length must not exceed the maximum length that is indicated in the PowerFlex 755T Input Product RF Emission Compliance and Installation Requirements table for compliance with radio-frequency emission limits for the specific standard and installation environment.
- The PowerFlex 755TM Non-Regenerative Supply meets EN61800-3 Category C3 only.
- EN61800-3 Category C2 for conducted emissions is available for frame 8...10 regenerative drives and bus supplies only. The EMC C2 filter kits must be installed in the appropriately rated enclosure and EMC cores must be installed on the AC input power terminals on LCL filter modules to meet Category C2 for conducted emissions. See EMC C2 Filter Kits on page [58](#) for more information. See page [309](#) for installation instructions for the AC common mode cores kit (cat. no 20-750-MACCM1-F8M).
- Verify that appropriate system design or filtering is used so that fault number 14118 'CapOvrResonance' does not occur during standard operation. See Power System Resonance Conditions on page [59](#).
- Rockwell Automation IP00 ventilation kits must be used with the recommended Rittal TS8 enclosures to meet CE compliance. See the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-10101](#) for a complete list of IP00 ventilation kits.

PowerFlex 755T Input Product RF Emission Compliance and Installation Requirements

Frame Size	EN61800-3 Category C3 I > 100 A	
	EN61800-3 Category C2 EN61000-6-4 CISPR11 Group 1 Class A (Input Power ≤ 20 kVA)	
Frame 7 AC input products	150 m (492 ft) motor cable limit. ⁽¹⁾	A C2 solution is not offered for frame 7 regenerative drives and bus supplies and frame 7L liquid cooled drives.
Frame 7L AC input products		
Frame 8 AC input product		EN61800-3 Category C2 for conducted emissions only is available for frame 8...10 regenerative drives and bus supplies only. See EMC C2 Filter Kits on page 58 for more information.
Frame 9 AC input product		
Frame 10 AC input product		
Frame 11 AC input product		A C2 solution is not offered for frame 11...15 regenerative drives and bus supplies.
Frame 12 AC input product		
Frame 13 AC input product		
Frame 14 AC input product		
Frame 15 AC input product		

(1) Intended to be powered from an industrial power network that is supplied by a dedicated power transformer or generator and not from low voltage power lines that supply other customers.

EMC C2 Filter Kits

The EMC C2 filter kits are used for PowerFlex 755T product installations that require compliance with CE EN61800-3 Category C2 for conducted emissions only.

To meet compliance, these conditions must be met:

- All EMC C2 filter kits (for the applicable equivalent frame size) and components must be installed in the recommended Rittal TS8 enclosure and connected to the appropriate PowerFlex 755T products. Certification does not apply if the EMC C2 filter kit is installed in any other configuration. See Recommended Enclosures beginning on page 39 for the Rittal TS8 enclosure and accessories that must be used with the EMC C2 filter kits listed in the IP00 EMC C2 Filter Kits table.
- The three ferrite cores, supplied with the EMC C2 filter kit, must be installed in the appropriate locations identified in the Ferrite Cores for EMC C2 Filter Installation table.
- The EMC C2 filter solution requires customer-provided short circuit protection.



ATTENTION: The EMC C2 filter requires customer-provided short circuit protection. Installation must comply with national codes and standards and local codes and specifications regarding branch circuit protection and disconnect devices. Failure to do so can result in personal injury and/or equipment damage.



ATTENTION: The EMC C2 filter kits cannot be used for ungrounded/high resistance ground or marine ungrounded/high resistance ground applications.

The following IP00 kits are used for the EMC C2 filter solution. These kits are used with PowerFlex 750-Series Products with TotalFORCE Control (catalog numbers 20G, 20J). The EMC filter kits can only be installed in left-to-right orientations, with the enclosure that contains the EMC C2 filter kits at the left side of the enclosure lineup.

IP00 EMC C2 Filter Kits

Cat. No.	Kit Description	Required for Equivalent Frame Size	Voltage Rating	Product Rating (ND) Amps ⁽¹⁾	For Kit Installation, see Page
20-750-MEMCC2-IPBB ⁽²⁾	EMC C2 Filter Input Bus Bars	8...10	600/690	237...2156	316 and 317
20-750-MEMCC2-F8910 ⁽³⁾	EMC C2 Filter	8...10	600/690	237...2156	316
20-750-MEMCC2-F8 ⁽⁴⁾	EMC C2 Filter Output Bus Bars	8	600/690	237...770	318
20-750-MEMCC2-F9 ⁽⁵⁾	EMC C2 Filter Output Bus Bars	9	600/690	640...1685	319
20-750-MEMCC2-F10 ⁽⁶⁾	EMC C2 Filter Output Bus Bars	10	600/690	1045...2156	320

(1) See the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#), for catalog numbers applicable to the equivalent frame size.

(2) This kit includes a ground bus bar that must be installed in the wire bay to meet EMC C2 compliance for conducted emissions.

(3) This kit includes three ferrite cores and the hardware required for connecting to the EMC C2 bus bar kits included in this table. See the Ferrite Cores for EMC C2 Filter Installation table.

(4) To meet EMC C2 compliance for conducted emissions, the plastic airflow baffle and ground cable (included with this kit) and the frame 8 AC input bus bar assembly (20-750-MCNCCTAC-F8) must be installed with this kit.

(5) To meet EMC C2 compliance for conducted emissions, the plastic airflow baffle and ground bus splice (included with this kit) and the frame 9 AC input bus bar assembly (20-750-MCNCCTAC-F9) must be installed with this kit.

(6) To meet EMC C2 compliance for conducted emissions, the ground bus splice (included with this kit) and the frame 10...12, 1000 mm wide AC input bus bars (20-750-MACBUS10-3KO or 20-750-MACBUS10-4K7) must be installed with this kit.

IMPORTANT The EMC C2 Filter kit (cat. no. 20-750-MEMCC2-F8910) weighs approximately 31.75 kg (70 lb). Equipment suitable for lifting and moving the EMC C2 filter is required. See the PowerFlex 755TM IP00 EMC C2 Filter Unpacking and Lifting Instructions, publication [750-IN109](#), for instructions.

Ferrite Cores for EMC C2 Filter Installation

Vendor (Fair-rite) Part Number	Quantity	Frame Size	Installation Location	Placement Details	For Installation, see Page
0444176451	2	8 and 9	AC Precharge Module	Install one core on the wires that connect to connector P6, as close as possible to the AC precharge circuit board. Install one core on the wires that connect to connector P7, as close as possible to the AC precharge circuit board.	321
		10	Input Bay		
0431176451	1	8 and 9	AC Precharge Module	Install the core on all output wires that connect the fused disconnect (FD1) to a power distribution terminal block (TB1). The core must be located as close as possible to TB1. ⁽¹⁾	321
		10	Input Bay		

(1) TBI is included in Rockwell Automation enclosed product solutions for distribution of 240V AC control power. Customer distribution method for 240V AC control power may vary.

Power System Resonance Conditions

Power system harmonics and system resonance conditions present challenges for industrial electrical systems with non-linear loads (for example, diode rectifiers, thyristor phase-controlled front-end converters, and so forth). Capacitive and inductive filters on a shared AC power source interact with source harmonics to create resonant current flows. This condition causes component stress, excess heating, and leads to unexpected or premature product failure. Because the interaction of each load must be considered, system resonance conditions are challenging to predict.

For detailed information about power system resonance conditions and mitigation techniques, see Knowledgebase Answer ID [1093310](#).

PowerFlex 755T Resonance Detection Capabilities

PowerFlex 755T active front-end products monitor for line-side resonance currents. Detection is a key to help prevent unexpected power system resonance failures.

When system resonance is detected, PowerFlex 755T active front end drives and bus supplies continue operation and provide an early-warning of line-side resonance through alarm 14117 'CapHighResonance'.

When power system resonance levels surpass thresholds for reliable operation, 14118 'CapOverResonance' provides a fault. You can configure the desired response to a system over resonance condition using parameter 0:453 [CapOvrRsncActn]. See the PowerFlex Drives with TotalFORCE Control Programming Manual, publication [750-PM100](#) (firmware revision 6.xxx and earlier) or [750-PM101](#) (firmware revision 10.xxx and later) for more information.

Energy Pause Mode

If line-side resonance occurs while the line side converter is not modulating, commonly connected equipment is likely the cause. The energy pause feature is a useful way to disconnect the line side converter from the AC source when converter modulation is not required. Additionally, the energy pause feature shuts down peripheral devices to save energy during standby periods.

Installation Site Requirements

For detailed environmental and derating specifications, see these publications:

- PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#).
- Industry Installation Guidelines for Pulse Width Modulated (PWM) AC Drives, publication [DRIVES-AT003](#).

The installation site must meet all of these environmental conditions and requirements. Proper heating, ventilation and air conditioning, and airflow, coolant (where applicable), and exhaust capabilities are critical to proper PowerFlex 755T product operation.

- The system must be installed indoors or in an enclosure that is rated for outdoor use and environmentally controlled to meet operating temperature requirements.
- The system must be installed in an environment that meets Pollution Degree 2 or better, according to EN 61800-5-1.
- The installation surface must be flat and level so that all enclosures in a line-up are vertically aligned within +/- 0.25 mm (0.010 in.).
- The cooling air must be clean without significant concentrations of sand, corrosive, or conductive dust (defined by IEC 721-1 as being less than 0.2 mg/m³ of dust), or corrosive or explosive gas.
- For frames 7...15 and NRS installations, the minimum ambient air temperature must not be less than -20 °C (-4 °F). The maximum ambient air temperature, without derating, must not exceed 40 °C (104 °F). For installations in environments above 40 °C (104 °F), see Derating Guidelines in the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#).
- For frame 7L liquid cooled drives, the minimum ambient air temperature must not be less than 0 °C (32 °F). The maximum ambient air temperature, without derating, must not exceed 40 °C (104 °F). For installations in environments above 40 °C (104 °F), see Derating Guidelines in the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#).
- The elevation above sea level, without derating, must be less than 2000 m (5662 ft). For altitude derating guidelines applicable to installations above 2000 m (5662 ft), see the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#).
- The relative operational humidity must be less than 95%, noncondensing.
- Shock and vibration must not exceed the specified rating.

Enclosure Installation Requirements

Follow these guidelines when mounting enclosures.

- Mount the enclosures upright on a flat, vertical, and level surface, within ± 0.25 mm (± 0.010 in.).
- Verify that the enclosures are square, vertical, and stable.
- Make sure that the enclosures make full contact with the mounting surfaces.
- Protect the enclosure from moisture and direct sunlight (unless rated for outdoor use).

Enclosure Environmental Integrity Requirements

To maintain the environmental integrity of the product, follow all guidance from the enclosure manufacturer, and local standards and regulatory compliance for your environmental rating. Some general precautions include these items:

- Intake and exhaust screens and air filters must be installed. For Rittal TS8 installations, see Join the Rittal TS8 Enclosures on page [88](#).
- Gaskets and proper clamping must be used at all enclosure joints. For Rittal TS8 installations, see Join the Rittal TS8 Enclosures on page [88](#).
- Doors must be clamped shut with a latch mechanism present on the enclosure.
- All conduit or gland plates must be installed and properly fastened (top and bottom of enclosure).

Customer-sourced Enclosure Requirements

Customer-sourced enclosures must meet these requirements:

- Constructed according to EN60529 and/or UL50, based on the region and desired certification.
- Meet the environmental conditions of the final installation location.
- Meet the enclosure dimensions that are specified in the tables that are provided in Recommended Enclosures on page [39](#).
- Provide the airflow and ventilation characteristics that are specified in Module Airflow Requirements on page [61](#) and Enclosure Ventilation on page [62](#).
- Support the total equipment weight for the equivalent frame size. Specific module/component weights are identified in on page [76](#). Enclosures must also support the weight of any additional installed components (bus bars, customer-sourced components, and so on).

Module Airflow Requirements

The following airflow requirements must be met to achieve sufficient cooling of the modules included in this section.



ATTENTION: Excessive heat can cause equipment damage. To guard against excessive heat, proper enclosure ventilation and airflow must be provided and maintained.

Power, LCL Filter, NRS, and DC Precharge Modules

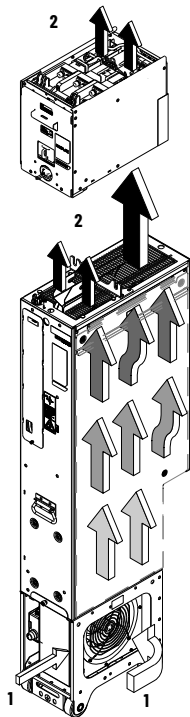
The PowerFlex 755TM power, LCL filter, and NRS modules contain a high-velocity fan or fans at the base to cool the power components. The fans draw air through the opening in the bottom of the module and pushes it through the module chassis. For specific module airflow rates, see Required Enclosure Airflow Rates on page 69.

The DC precharge module does not contain a fan. Therefore, the DC precharge module must be installed above a power module for proper cooling. See page 264 for details of the DC precharge module installation location.

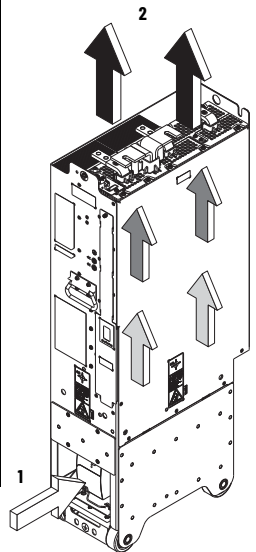
The heat dissipation for these modules is included in the overall enclosure watts loss calculations. See the Approximate Watts Loss information in the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication 750-TD101.

ID	Description
1	Cooling (intake) air
2	Exhaust (discharge) air

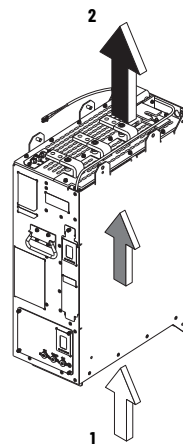
Power Modules (20-750-M11-xnnxn, 20-750-M12-xnnxn, and 20-750-M13-xnnxn) and LCL Filter Modules (20-750-ML1-xnnxn). Power Module with Optional DC Precharge Module Shown.



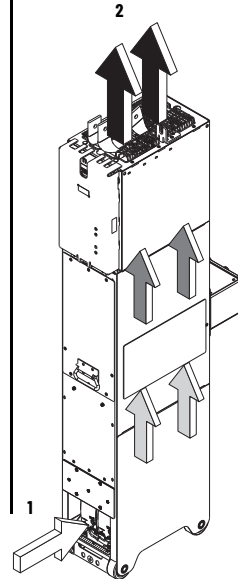
Power Modules (20-750-M14-xnnxn) and LCL Filter Modules (20-750-ML4-xnnxn). Power Module Shown.



Power Modules (20-750-M15-C650D650)



NRS Modules (20-750-MNn-xnnxn)



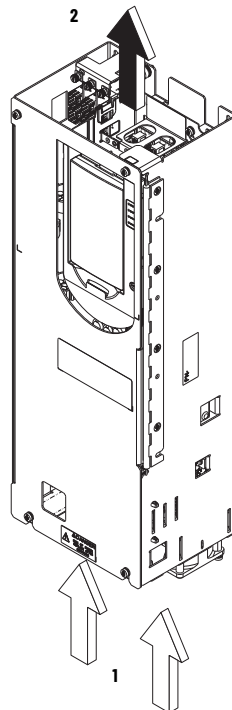
Control Pods

The control pod kits have these airflow requirements:

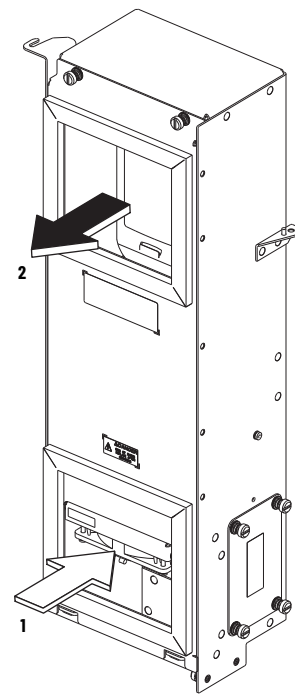
- Control pod catalog number 20-750-MCPODn-F8M contains two fans at the base and requires an airflow rate of 40 CFM. The fans draw air through the opening at the bottom of the pod and push it through the pod chassis. The heat dissipation for this control pod is included in the overall enclosure watts loss calculations for frames 8...15.
- Control pod catalog number 20-750-MCPODn-F7M contains one fan at the base and requires an airflow rate of 150 CFM. The heat dissipation for this control pod is not included in the overall watts loss calculations for a frame 7 and 7L drive or bus supply. Ventilation openings in the enclosure door must be provided for this control pod. See 800 mm (31.5 in.) Wide Power Bay Door and Roof Opening Locations and Dimensions (Frame 7 and 7L) on page 66 for equivalent frame 7 and 7L enclosure door and roof ventilation opening requirements.

ID	Description
1	Cooling (intake) air
2	Exhaust (discharge) air

Control Pod (20-750-MCPODn-F8M)



Control Pod (20-750-MCPODn-F7M)



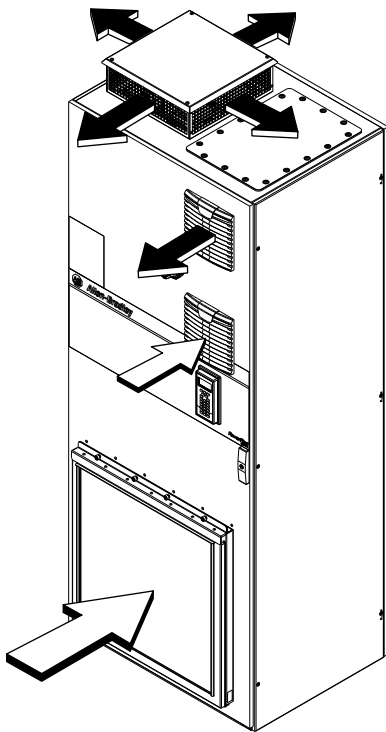
Enclosure Ventilation

To accommodate the required airflow and achieve sufficient cooling of the equipment inside an enclosure, these conditions must be met:

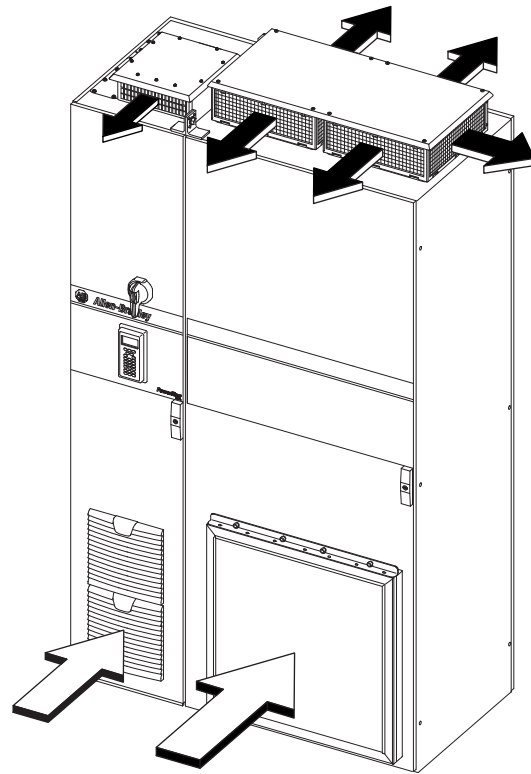
- The appropriate enclosure dimensions must be provided to allow heat dissipation, which is generated through watts loss. See the Approximate Watts Loss information in the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#).
- Openings for cooling (intake) air and exhaust (discharge) air must be provided in all enclosures. Air intake and discharge openings must contain the vents and screens or filter media appropriate to meet any applicable agency installation requirements. IP21 / Type 1 and IP54 / Type 12 ventilation kits are available to fit the Rittal TS8 enclosures that are specified in this manual. For a complete list of ventilation kits, see the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#). If the recommended enclosures and ventilation kits are not used, see Enclosure Ventilation Requirements on page [63](#) for details on vent locations and sizes.
- Roof and door ventilation fans must be provided for control, input, power, and entry and exit wire bay enclosures. If the recommended enclosures and ventilation kits are not used, the roof and door fans must meet the airflow rates that are identified in the tables in the Required Enclosure Airflow Rates section on page [69](#).
- All enclosure panels and doors must include gaskets to provide a proper seal against air leakage.
- The interior of the enclosure must be configured properly so that hot exhaust air does not mix with incoming cooling air. Installations must meet these interior airflow restriction requirements:
 - Interior baffle and side sheet kits are available to fit all equivalent frame 8...15 enclosure sizes that are specified in this manual. If the recommended baffle and side sheet kits are not used, components to restrict airflow and leakage must be provided. See Required Airflow Restriction System (Frames 8...15) on page [71](#) for baffle placement when used with LCL filter and power modules.
 - An airflow restriction panel is included with the frame 7 ventilation kits, catalog numbers 20-750-MVENTn-F7M. If one of these recommended ventilation kits is not used, an airflow restriction panel must be customer-sourced. See Frame 7 and 7L Enclosure Door Airflow Restriction Panels on page [71](#).
 - An airflow restriction panel is included with the frame 7L ventilation kit, catalog number 20-750-MVENT1-F7L. If this recommended ventilation kit is not used, an airflow restriction panel must be customer-sourced. See Frame 7 and 7L Enclosure Door Airflow Restriction Panels on page [71](#).

Example Roof and Door Ventilation Openings

Frame 7 and 7L Equivalent, IP21 Enclosure Shown



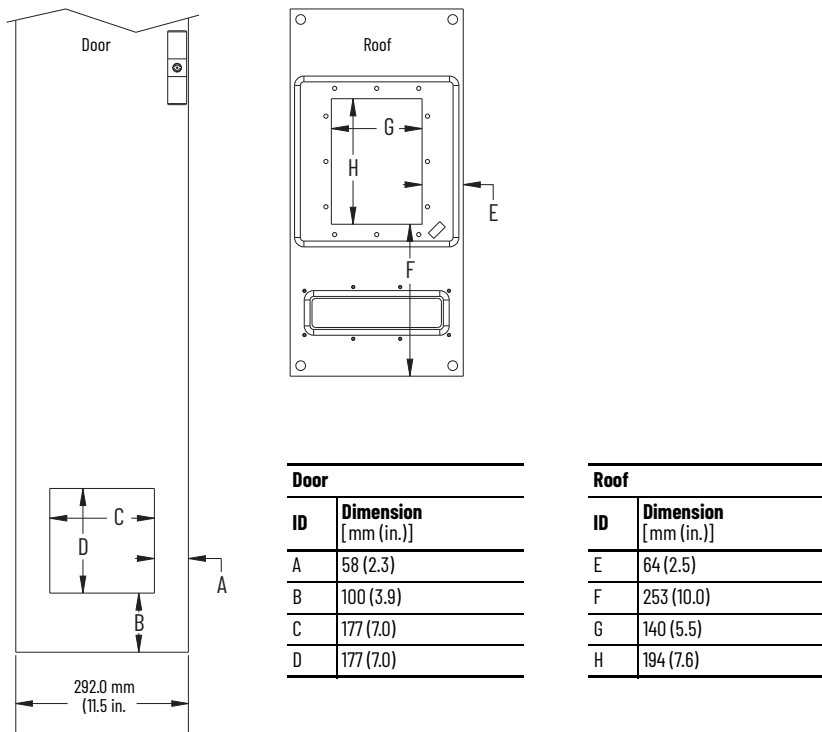
Frame 8 Equivalent, IP21 Enclosures Shown



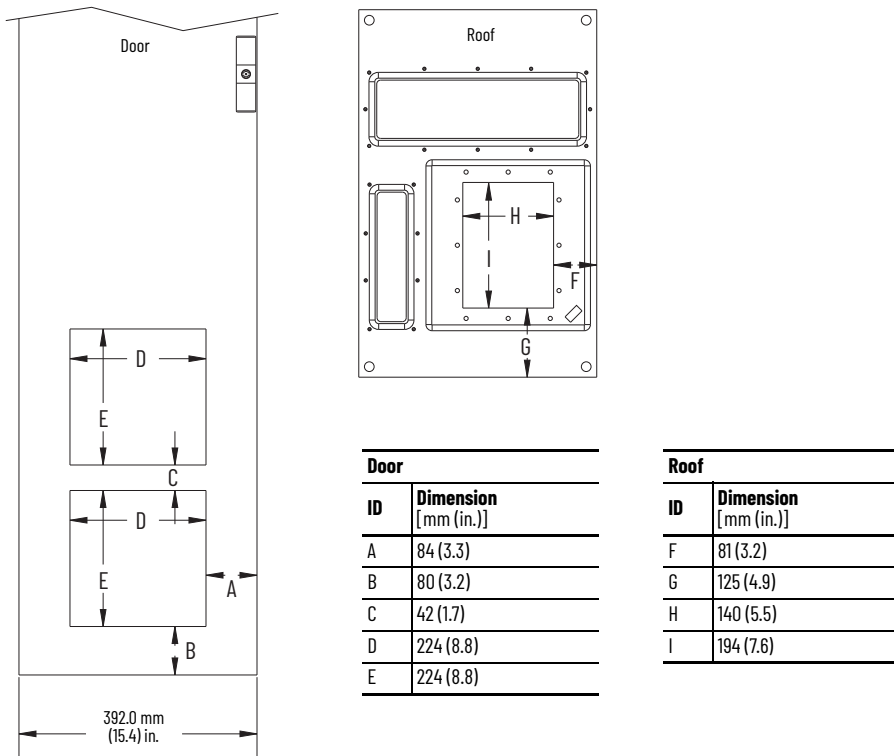
Enclosure Ventilation Requirements

The locations and dimensions of the openings in the enclosure door and roof panels provide proper air flow for the internal modules and components that require cooling. The door and roof sections that are shown in this section are for all available Rittal TS8 enclosures. If an enclosure other than a Rittal TS8 is used, the locations of the openings can change based on the position of the internal components/modules.

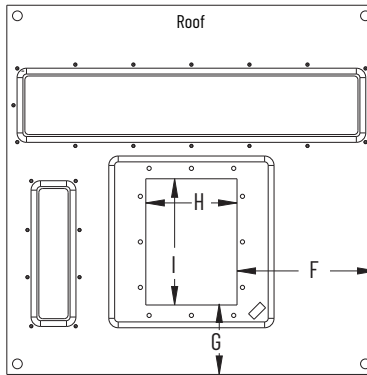
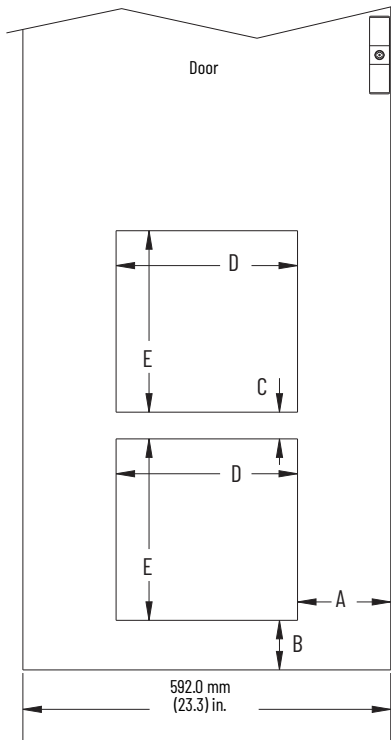
300 mm (11.8 in.) Wide Control Bay Door and Roof Opening Locations and Dimensions



400 mm (15.7 in.) Wide Input Bay Door and Roof Opening Locations and Dimensions



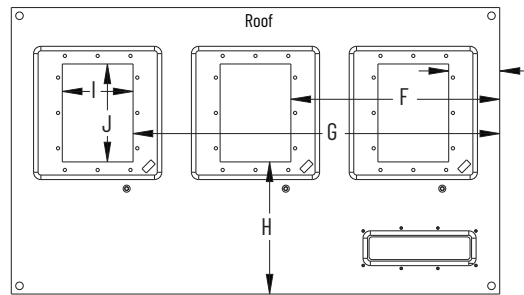
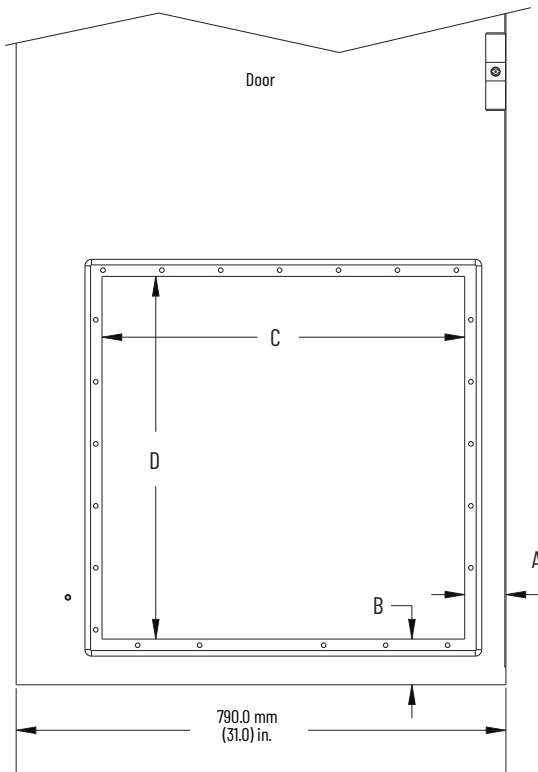
600 mm (23.6 in.) Wide Input Bay Door and Roof Opening Locations and Dimensions



Door	
ID	Dimension [mm (in.)]
A	150 (5.9)
B	80 (3.2)
C	43 (1.7)
D	292 (11.5)
E	292 (11.5)

Roof	
ID	Dimension [mm (in.)]
F	227 (8.9)
G	125 (4.9)
H	140 (5.5)
I	194 (7.6)

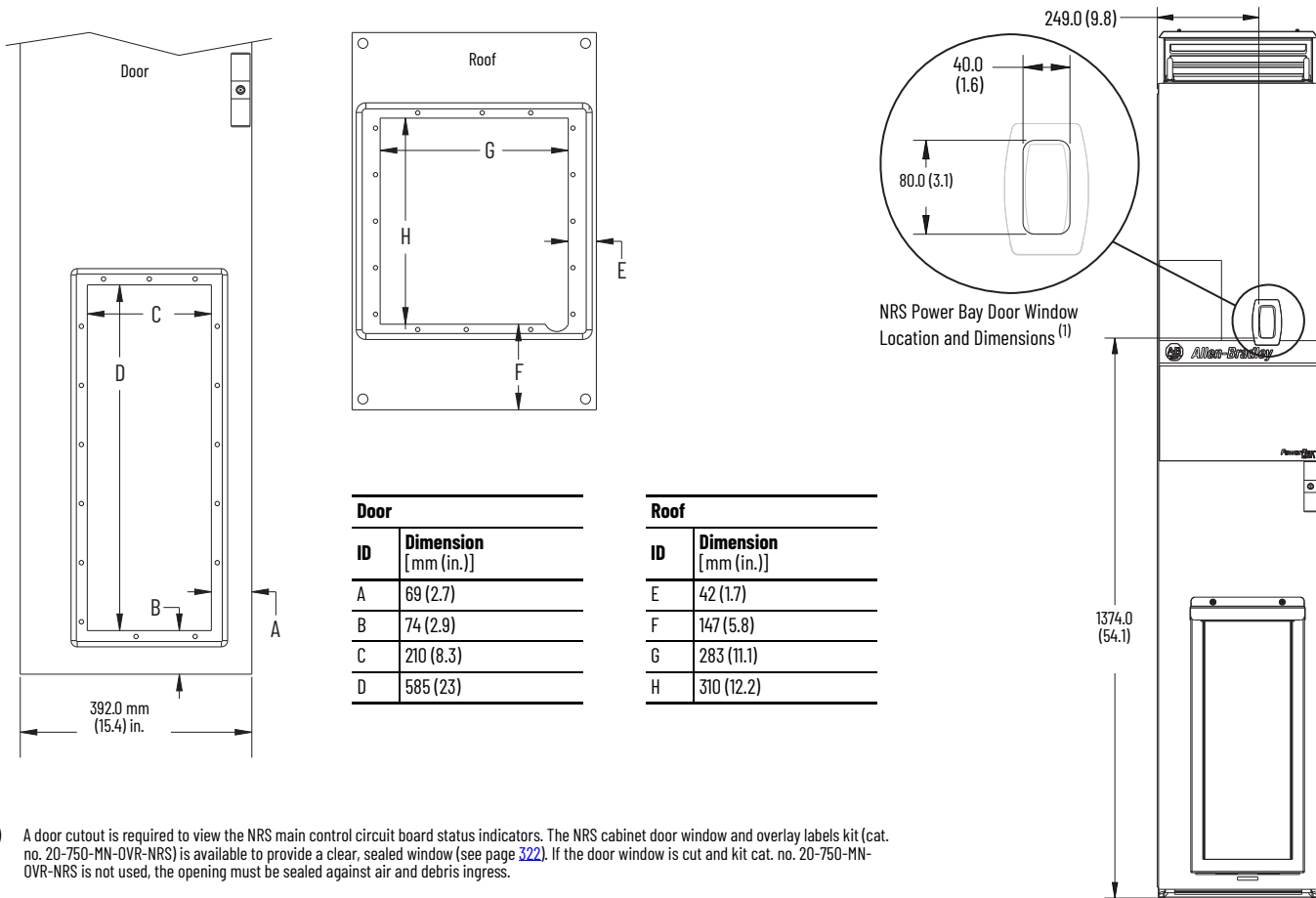
1000 mm (39.4 in.) Wide Input Bay Door and Roof Opening Locations and Dimensions



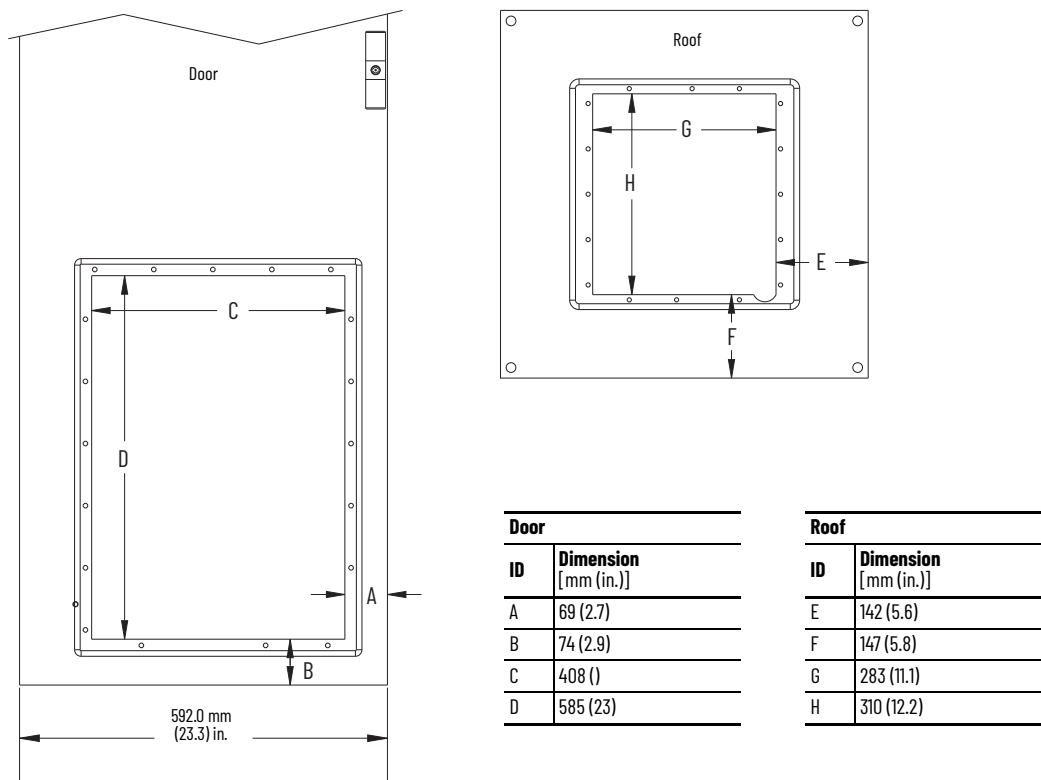
Door	
ID	Dimension [mm (in.)]
A	69 (2.7)
B	74 (2.9)
C	585 (23)
D	585 (23)

Roof	
ID	Dimension [mm (in.)]
E	115 (4.5)
F	428 (16.9)
G	740 (29.1)
H	280 (11.0)
I	140 (5.5)
J	194 (7.6)

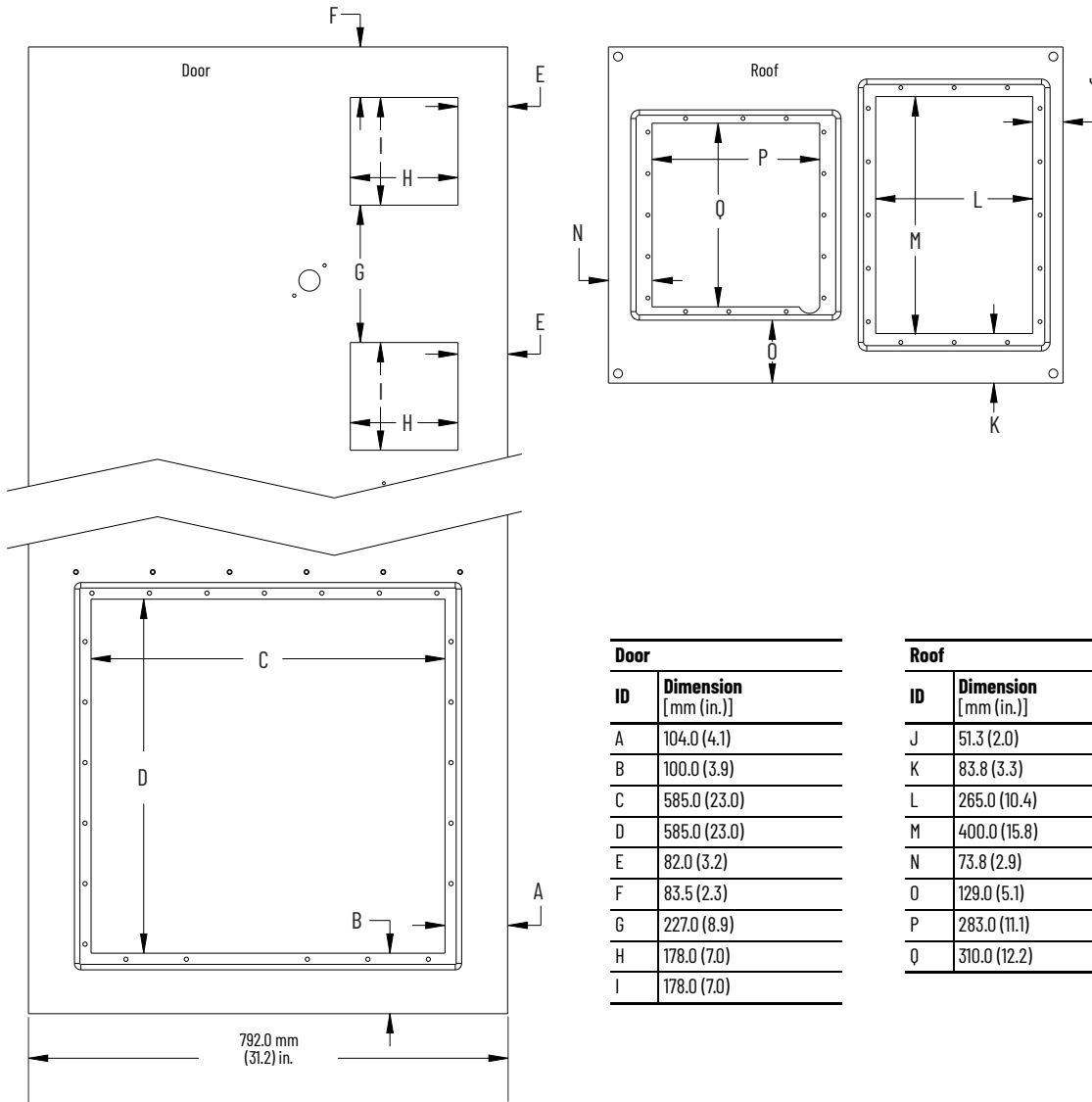
400 mm (15.7 in.) Wide Power Bay Door and Roof Opening Locations and Dimensions



600 mm (23.6 in.) Wide Power Bay Door and Roof Opening Locations and Dimensions



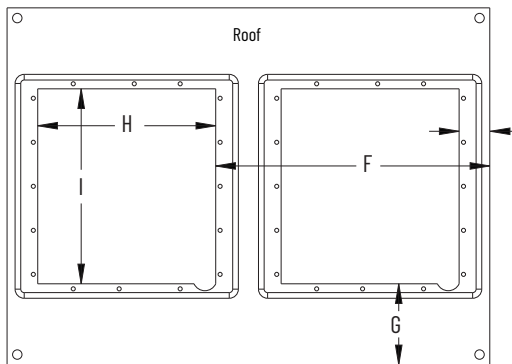
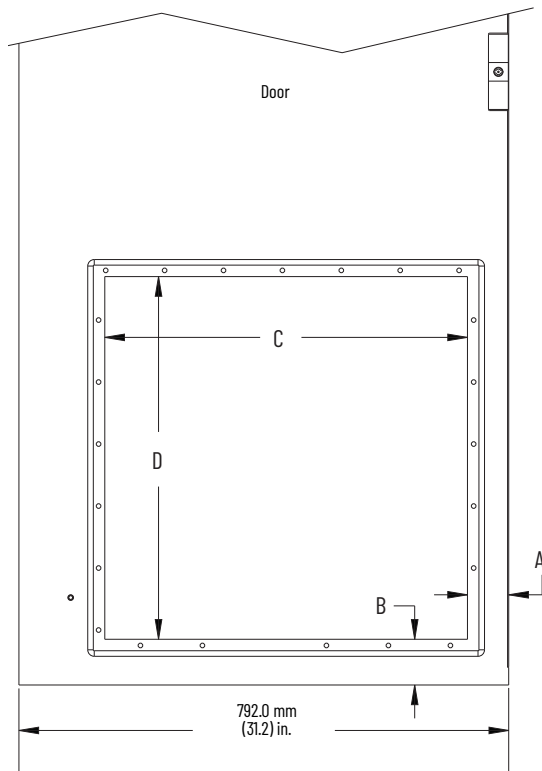
800 mm (31.5 in.) Wide Power Bay Door and Roof Opening Locations and Dimensions (Frame 7 and 7L)



Door	
ID	Dimension [mm (in.)]
A	104.0 (4.1)
B	100.0 (3.9)
C	585.0 (23.0)
D	585.0 (23.0)
E	82.0 (3.2)
F	83.5 (2.3)
G	227.0 (8.9)
H	178.0 (7.0)
I	178.0 (7.0)

Roof	
ID	Dimension [mm (in.)]
J	51.3 (2.0)
K	83.8 (3.3)
L	265.0 (10.4)
M	400.0 (15.8)
N	73.8 (2.9)
O	129.0 (5.1)
P	283.0 (11.1)
Q	310.0 (12.2)

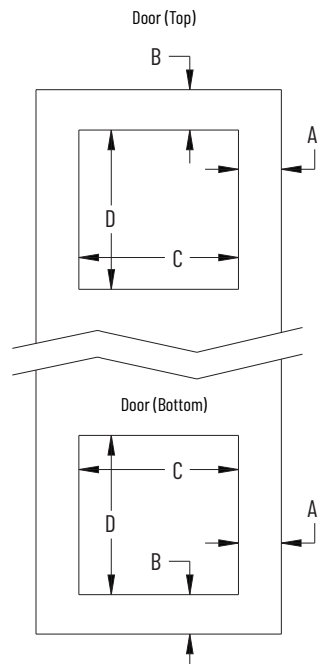
800 mm (31.5 in.) Wide Power Bay Door and Roof Openings and Dimensions (Frames 8...15)



Door	
ID	Dimension [mm (in.)]
A	69 (2.7)
B	74 (2.9)
C	585 (23)
D	585 (23)

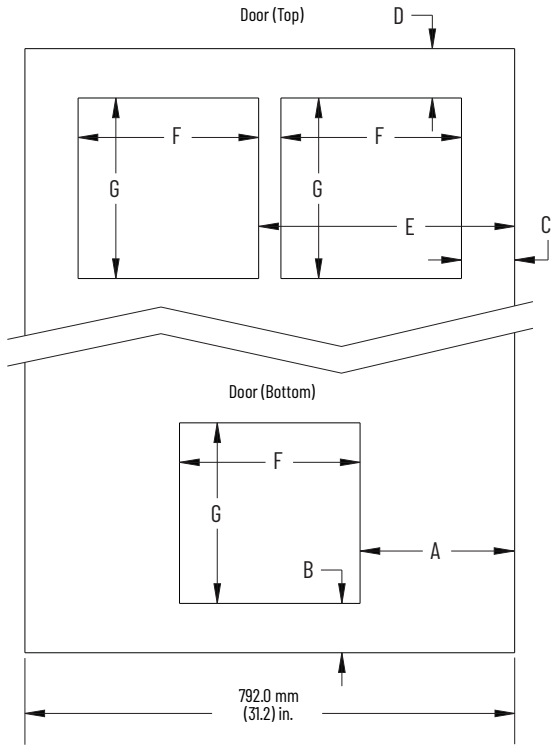
Roof	
ID	Dimension [mm (in.)]
E	49 (1.9)
F	436 (17.2)
G	147 (5.8)
H	283 (11.1)
I	310 (12.2)

400 mm (15.7 in.) Wide Entry/Exit Wire Bay and DC Voltage Balance Bay Door Opening Locations and Dimensions



Door	
ID	Dimension [mm (in.)]
A	84 (3.3)
B	80 (3.2)
C	224 (8.8)
D	224 (8.8)

800 mm (31.5 in.) Wide Entry/Exit Wire Bay and DC Voltage Balance Bay Door Opening Locations and Dimensions



Door	
ID	Dimension [mm (in.)]
A	250 (9.8)
B	80 (3.2)
C	85 (3.4)
D	80 (3.2)

Door	
ID	Dimension [mm (in.)]
E	415 (16.3)
F	292 (11.5)
G	292 (11.5)

Required Enclosure Airflow Rates

The tables in this section provide the required airflow rates for each equivalent PowerFlex 755T and PowerFlex 755TM NRS product. For an explanation of PowerFlex 755T product frame sizes and product enclosure and module configurations, see PowerFlex 755T Product Frame Size Explanation on page 5. For an explanation of NRS system configurations see on PowerFlex 755TM Non-Regenerative Supply Module Configurations page 27.

Low Harmonic / Regenerative Drive (IP21 and IP54)

Frame Size	Quantity of Input Bay Fans ⁽¹⁾	Total Airflow Rate for Input Bay Fans [CFM (CMS)]	Static Pressure (inH ₂ O)	Quantity of Modules (LCL Filter + Line Side Converter + Motor Side Inverter)	Airflow Rate Per Module Fan [CFM (CMS)]	Total Airflow Rate ⁽²⁾ [CFM (CMS)]
7	—	—	—	3 (contained in one power bay)	LCL Filter Module: 810 (0.38) Power Module: 825 (0.39)	2460 (1.16)
7L	—	—	—	3 (contained in one power bay)	LCL Filter Module: 810 (0.38) Power Module: 365 (0.17)	1540 (0.73)
8	1	275 (0.13)	0.5	3 (contained in one power bay)	700 (0.33)	2375 (1.11)
9				5 (contained in two power bays)		3775 (1.78)
10	2	700 (0.33)	2.25	8 (contained in three power bays)		6300 (2.97)
11				10 (contained in four power bays)		7700 (3.63)
12				13 (contained in five power bays)		9800 (4.63)
13				16 (contained in six power bays)		12,600 (5.95)
14	4	1400 (0.66)	2.25	20 (contained in eight power bays)		15,400 (7.27)
15				26 (contained in ten power bays)		19,600 (9.25)

(1) Frame 8 and 9 input bays contain a roof vent fan. Frames 10...12 input bays contain door fans.

(2) Airflow rates for power bay IP54 roof vent fans are not included in the Total Airflow Rate CFM and CMS airflow values. See IP54 Roof Vent Fans (Frames 8...15) in this section.

Regenerative Bus Supply (IP21 and IP54)

Frame Size	Quantity of Input Bay Fans ⁽¹⁾	Total Airflow Rate for Input Bay Fans [CFM (CMS)]	Static Pressure (inH ₂ O)	Quantity of Modules (LCL Filter + Line Side Converter)	Airflow Rate Per Module Fan [CFM (CMS)]	Total Airflow Rate ⁽²⁾ [CFM (CMS)]
7	—	—	—	2 (contained in one power bay)	LCL Filter Module: 810 (0.38) Power Module: 825 (0.39)	1635 (0.77)
8	1	275 (0.13)	0.5	2 (contained in one power bay)	700 (0.33)	1675 (0.79)
9				3 (contained in one power bay)		2375 (1.12)
10	2	700 (0.33)	2.25	5 (contained in two power bays)		4200 (1.98)
11				6 (contained in two power bays)		4900 (2.31)
12				8 (contained in three power bays)		6300 (2.97)
13				10 (contained in four power bays)		8400 (3.96)
14	4	1400 (0.66)	2.25	12 (contained in four power bays)		9800 (4.63)
15				16 (contained in six power bays)		12,600 (5.95)

(1) Frame 8 and 9 input bays contain a roof vent fan. Frames 10...12 input bays contain door fans.

(2) Airflow rates for power bay IP54 roof vent fans are not included in the Total Airflow Rate CFM and CMS airflow values. See IP54 Roof Vent Fans (Frames 8...15) in this section.

Common Bus Inverter (IP21 and IP54)

Frame Size	Quantity of Control Bay Roof Fans	Total Airflow Rate for Control Bay Fans [CFM (CMS)]	Static Pressure (inH ₂ O)	Quantity of Modules (Motor Side Inverter Only)	Airflow Rate Per Module Fan [CFM (CMS)]	Total Airflow Rate ⁽¹⁾ [CFM (CMS)]
8	1	275 (0.13)	0.5	1 (contained in one power bay)	700 (0.33)	975 (0.46)
9				2 (contained in one power bay)		1675 (0.79)
10				3 (contained in one power bay)		2375 (1.12)
11				4 (contained in two power bays)		3075 (1.45)
12				5 (contained in two power bays)		3775 (1.78)
13	2	550 (0.26)	0.5	6 (contained in two power bays)		4750 (2.24)
14				8 (contained in four power bays)		5600 (2.90)
15				10 (contained in four power bays)		7550 (3.56)

(1) Airflow rates for power bay IP54 roof vent fans are not included in the Total Airflow Rate CFM and CMS airflow values. See IP54 Roof Vent Fans (Frames 8...15) in this section.

Non-Regenerative Supply (IP21 and IP54)⁽¹⁾

NRS System Configuration	Quantity of NRS Modules	Total Airflow Rate for 1X Module Fans [CFM (CMS)]	Total Airflow Rate for 2X Module Fans [CFM (CMS)]	Total Module Airflow Rate [CFM (CMS)]
1X	1	412.5 (0.19)	—	412.5 (0.19)
2X	1	—	825 (0.39)	825 (0.39)
1X+2X	2	412.5 (0.19)	825 (0.39)	1237.5 (0.58)
2X+2X	2	—	1650 (0.78)	1650 (0.78)
2X+2X+1X	3	412.5 (0.19)	1650 (0.78)	2062.5 (0.97)
2X+2X+2X	3	—	2475 (1.17)	2475 (1.17)
2 (2X+1X)	4	825 (0.39)	1,650 (0.78)	2475 (1.17)
2 (2X+2X)	4	—	3,300 (1.56)	3,300 (1.56)
2 (2X+2X+1X)	6	825 (0.39)	3,300 (1.56)	4,125 (1.95)
2 (2X+2X+2X)	6	—	4,950 (2.34)	4,950 (2.34)

(1) IP54 NRS power bays do not require roof vent fans.

Entry/Exit Wire Bay (IP21/IP54)⁽¹⁾

Frame Size	NRS System Configurations	Number of Door Fans	Wire Bay Width (mm)	Static Pressure (inH ₂ O)	Airflow Rate Per Wire Bay Fan [CFM (CMS)]	Total Airflow Rate [CFM (CMS)]
8...10, 13	1X, 2X, 1X + 2X	1 per enclosure	400	0.12	59 (0.03)	59 (0.03)
11, 12, 14, 15	2X + 2X, 2X + 2X + 1X, 2X+2X+2X, 2 (2X+1X), 2 (2X+2X), (2X+2X+2X) + (2X+2X), 2 (2X+2X+1X)		800	0.8	177 (0.08)	177 (0.08)

(1) Entry and exit wire bays are used in equivalent frame size 13...15 inline configurations only.

DC Voltage Balance Bay (IP21/IP54)⁽¹⁾

Frame Size ⁽²⁾	NRS System Configurations	Number of Door Fans	Wire Bay Width (mm)	Static Pressure (inH ₂ O)	Airflow Rate Per Wire Bay Fan [CFM (CMS)]	Total Airflow Rate [CFM (CMS)]
13	2 (2X+1X)	1 per enclosure	400	0.12	59 (0.03)	118 (0.06)
14, 15	2 (2X+2X), 2 (2X+2X+1X)		800	0.8	177 (0.08)	354 (0.17)

(1) DC voltage balance bays are used in equivalent frame size 13...15 back-to-back configurations only.

(2) DC voltage balance bay door fans for equivalent frame size 13...15 bus supplies are optional.

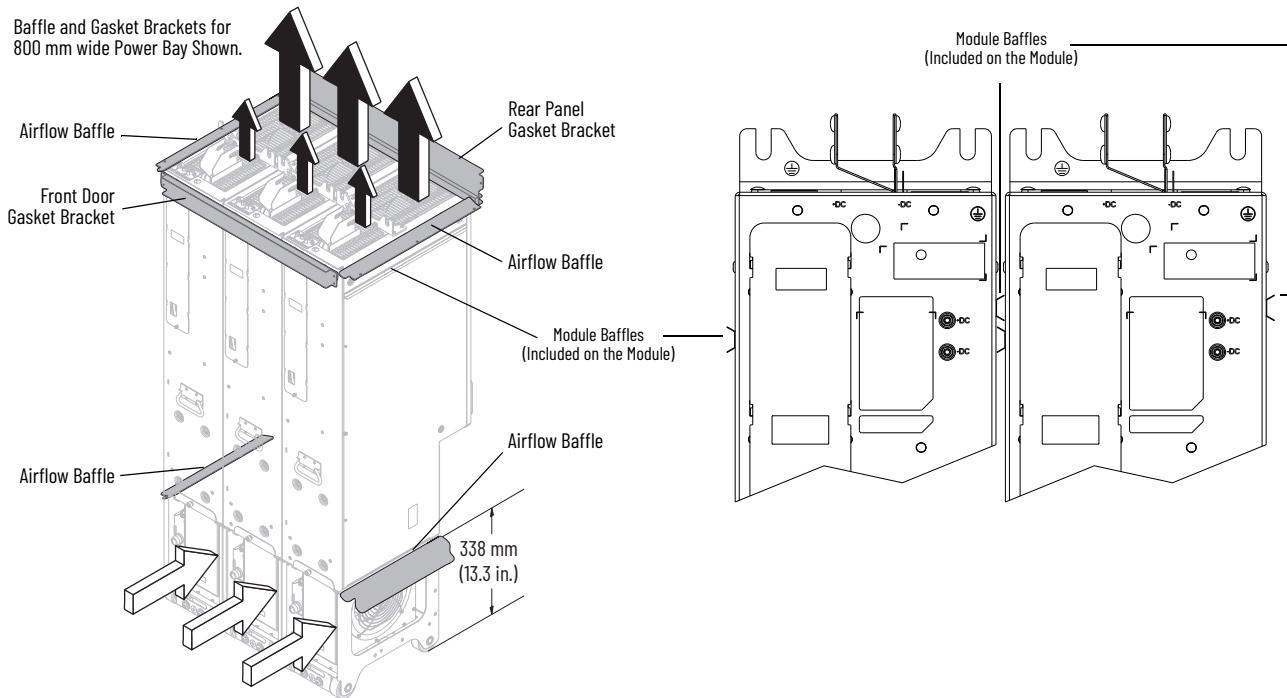
IP54 Roof Vent Fans (Frames 8...15)

When installed on an IP54 rated power bay, the IP54 roof vent fan kits assist the LCL filter and power module fans to sustain the correct rate of airflow. The IP54 roof vent fans are required due to the high-resistance dust filter media in the IP54 door and roof vents. The airflow rates and number of roof vent kits that are required for power bays are included in this table. NRS IP54 power bays do not require roof vent fans.

Power Bay Width (mm)	Number of Required IP54 Roof Vent Kits/Fans	CFM per Fan at 1.75 in-H ₂ O	Total CFM	m ³ /hr per Fan at 435 Pa	Total m ³ /hr
400	1	1400	1400	2379	2379
600	1	1400	1400	2379	2379
800	2	1400	2800	2379	4758

Required Airflow Restriction System (Frames 8...15)

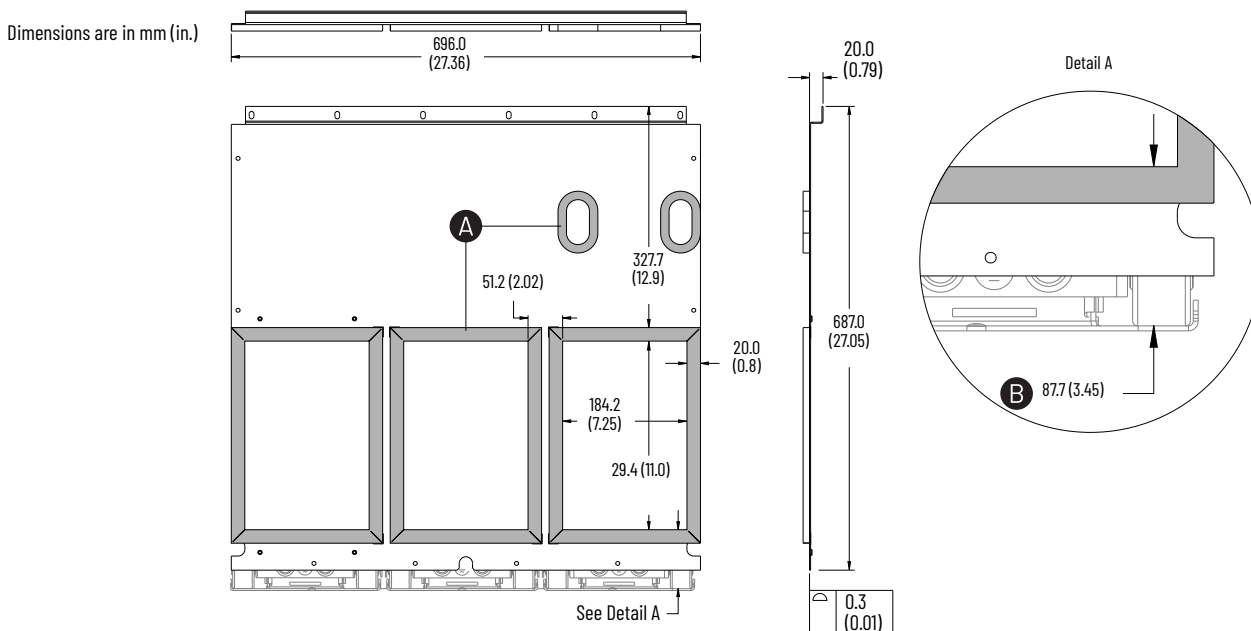
Airflow must be restricted inside the enclosures that contain LCL filter and power modules to help prevent the interchange of cooler intake air and hot exhaust air. To restrict air interchange, frame 8...15 power and LCL filter module baffles must overlap and baffles and door and panel gasket brackets must be installed and make consistent contact with the modules and enclosure side sheets, doors, and guards. Interior baffle and gasket brackets kits (cat. no. 20-750-MIBAF1-FnM) are available to fit all Rittal TS8 enclosure sizes that are specified in this manual. A baffle must be installed below DC precharge modules to direct the airflow from power modules through the DC precharge module to cool the circuit board and bus bars properly. The baffle is supplied as part of the DC precharge mounting kit (cat. no. 20-750-MDCMNT1-FnM) as shown on page 262.



Frame 7 and 7L Enclosure Door Airflow Restriction Panels

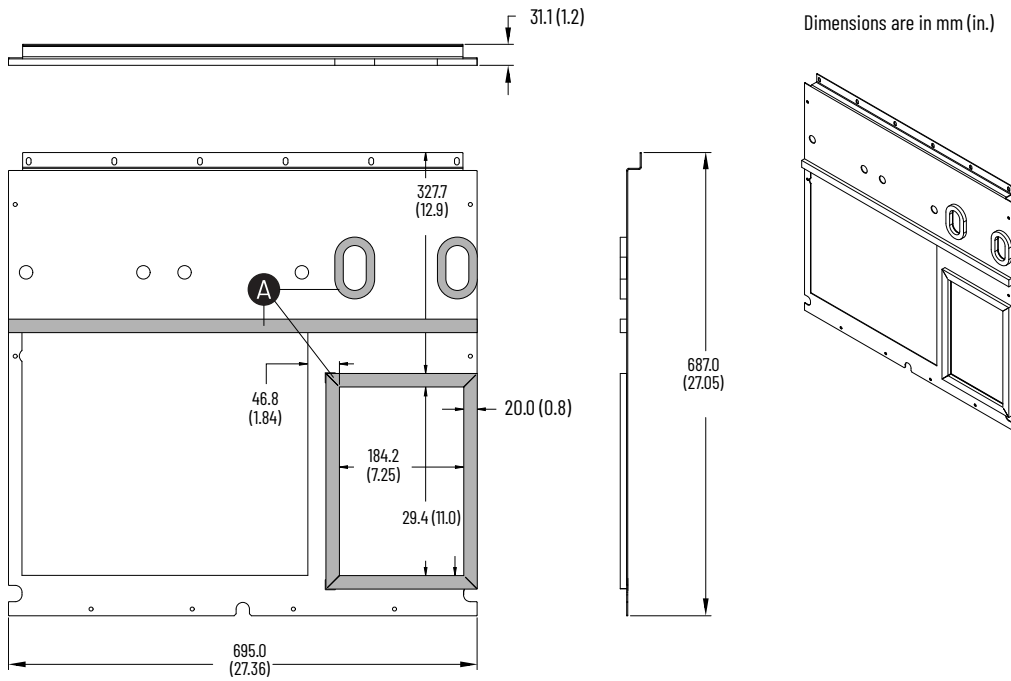
The frames 7 and 7L enclosure door airflow restriction panels are designed to direct intake air into the LCL filter and power module cooling fans. The panel is included in the frame 7 ventilation kits (catalog numbers 20-750-MVENTn-F7M) and frame 7L ventilation kit (catalog number 20-750-MVENT1-F7L). When a ventilation kit is not used, a panel and gaskets must be installed to provide proper internal airflow and cooling in equivalent frame 7 and 7L enclosures. For frame 7 bus supplies, where no motor side inverter power module is installed, the right-most opening in the panel (as you face the enclosure) must be blocked to prevent air from entering the enclosure.

Frame 7 Airflow Restriction Panel Dimensions and Details



Item	Description
A	Vendor: Rogers Poron, part number: 4701-50-15375-04. Gasket material thickness: 9.53 mm (0.375 in.). Adhesive material thickness: 0.14 mm (0.005 in.).
B	This dimension is from the bottom of the vent opening to the top of the module floor mount bracket.

Frame 7L Airflow Restriction Panel Dimensions and Details



Item	Description
A	Vendor: Rogers Poron, part number: 4701-50-15375-04. Gasket material thickness: 9.53 mm (0.375 in.). Adhesive material thickness: 0.14 mm (0.005 in.).

Frame 7L Liquid Cooling Loop Application Guidelines



ATTENTION: Risk of equipment damage exists. Do not use ferrous and plated-ferrous materials for pipe-treated water to the power modules and drive. Use of ferrous materials degrades the performance of the power module chillplate.

This section provides guidelines for applying the cooling loop and coolant requirements. For an overview of a typical drive cooling loop, cooling loop specifications, and recommended components for the frame 7L liquid-cooled drive, see the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#).

- The frame 7L allowable drive coolant temperature range is 0...40 °C (32...104 °F).
- When using coolant at a temperature below the dew point of the surrounding air, condensation can accumulate on the drive heatsink and/or circuit boards, which can damage the drive. In this situation, install a coolant flow regulating device and tube/hose insulation. A flow regulating device modulates the coolant flow rate to a level that permits the drive heatsink temperature to rise above the dew point. Insulation for customer side tube or hose can be closed-cell foam insulation with a minimum 12.7 mm (0.50 in.) wall thickness.
- Include a flow switch in the cooling loop on the connection to the drive inlet to turn off the drive if coolant flow drops below the minimum flow required by the drive (see Table 37).
- Circulate coolant through the drive only when the drive is also powered. Failure to do this can result in condensation accumulating on the drive heatsink and/or circuit boards, which could damage the drive.
- Use an interlock from the cooling loop to stop the drive when the cooling loop is faulted.
- For applications requiring a closed loop coolant system, vent the system to remove air that can otherwise degrade the performance of the drive heatsink.
- Install a flow measuring device at the inlet of each complete drive.
- We recommend the following types of pipe for cooling loop connections:
 - Copper tubing, type L
 - Brass pipe
 - Stainless steel, 300 series

IMPORTANT Do not use galvanized pipe.

- Provide a method in the cooling loop for draining and replacing the coolant.

IMPORTANT Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

Drive Coolant Requirements

Because coolant performance slowly degrades over time, we recommend replacing the drive loop coolant every 2 years and whenever the loop is drained for servicing.

For the drive coolant, we recommend that you use a 50/50 pre-mix of either ethylene or propylene glycol and water with a corrosion inhibitor for the wet drive loop materials. The levels of corrosion inhibitor need to be maintained according to the manufacturer's instructions.

If a pre-mix is not used, the drive coolant must be 50/50 mix of ethylene or propylene glycol mix to **distilled** water with an appropriate corrosion inhibitor for the wet drive loop materials. **Deionized water is prohibited.** The water must have less than 50 ppm concentrations of these chemical compounds:

- Sulfate and chloride
- Hard water ions such as Mg⁺⁺ and Ca⁺⁺

Use of common silicate-containing, automotive-type ethylene glycol solutions are prohibited as they can damage the heat exchanger and drive and cooling module equipment.



ATTENTION: The pH level, maintenance interval, and adjustment level must be followed according to the coolant and inhibitor manufacturer's recommendation. A pH level outside the range of 4...8 can cause significant damage to wetted aluminum surfaces.

Regardless of whether you use pre-mixed or not, the drive coolant and corrosion inhibitor must be compatible with the following materials:

- Copper
- Brass
- Aluminum
- Arimid fiber gasket with nitrile binder (Garlock, Inc. Blue-Gard 3000)
- (Blue-Guard 3000 is a registered trademark of Garlock, Inc.)
- Synthetic rubber hose (Parker Hannifan Corp 801 general purpose hose)
- Viton seal (only complete drive)

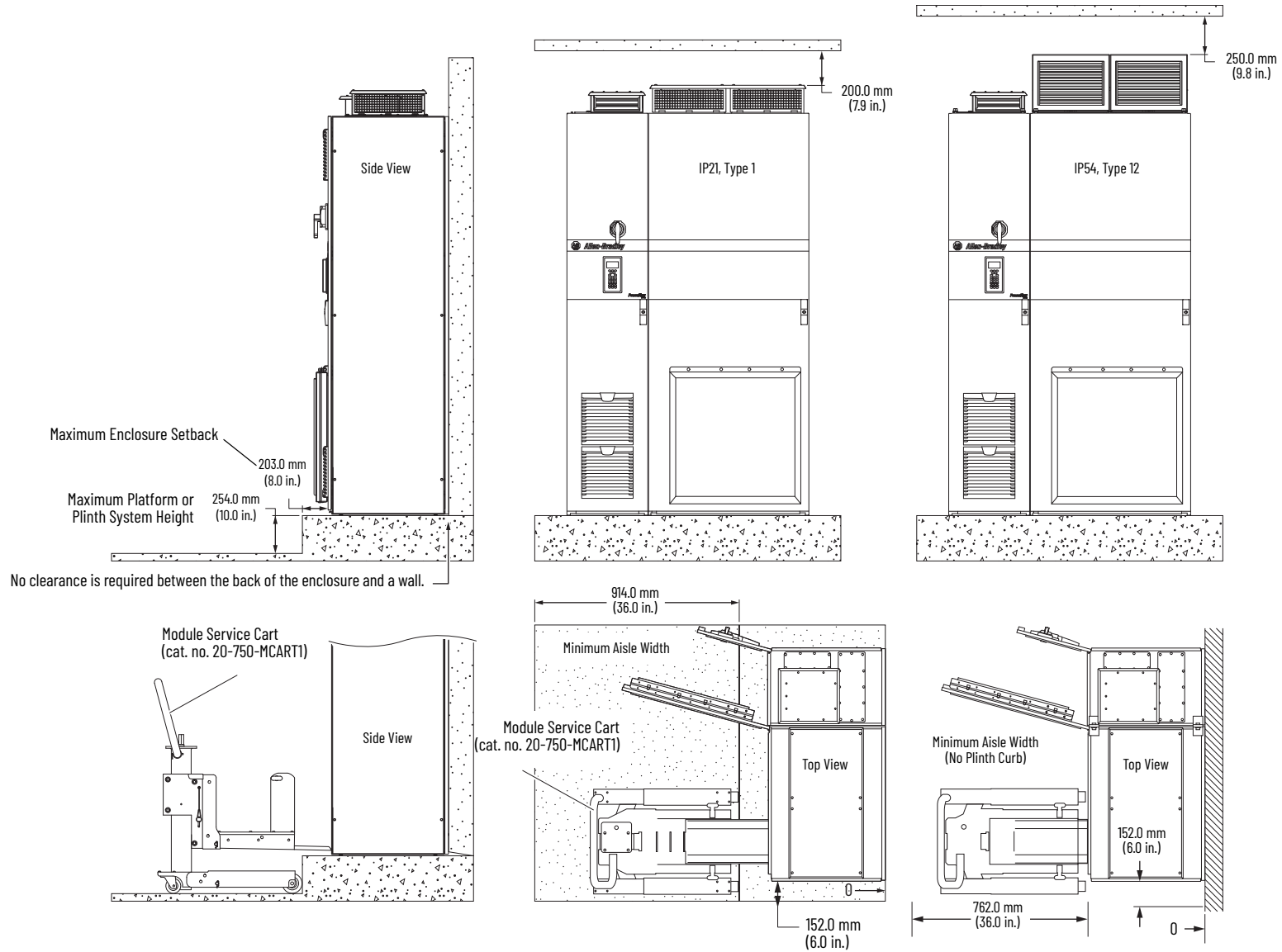
Biocide

A biocide may be needed to control biological growth. Use of a biocide is permitted. For specific recommendations, consult a reputable water treatment company.

IMPORTANT Do not mix different brands or types of coolants. The coolant, corrosion inhibitor, and any biocide used must be compatible.

Minimum Mounting Clearances

The product must be mounted in a vertical orientation as shown and must make full contact with the mounting surface. The overhead clearance requirements that are indicated in this illustration allow access to the exhaust vents and cooling fan housings. PowerFlex 755T products can be mounted on a service pad or platform. The platform or plinth height and enclosure setback measurements that are indicated in this illustration are the maximum that is allowed for by the PowerFlex 750-Series service cart (20-750-MCART1). The platform height measurement is also an installation limit per NEC requirements for the disconnect switch.



Installation Tools

This list contains the tools that are required for drive installation.

Tool Description	Details
Allen socket wrench	4 mm, 5 mm
Allen socket wrench extension	254 mm (10 in.)
Crimping tools	Use the tool that is required for the crimp lug used
ESD-protected place of work	Working surface, floor cover, seat, and ground connections
ESD-protective clothing	Wrist wrap, shoes, overall clothing (coat)
Flashlight	-
Flat nose screwdriver	3 mm (0.12 in.), 5 mm (0.19 in.), 6.4 mm (0.25 in.), 9.5 mm (0.375 in.)
Hexalobular, star, or Torx screwdriver/bit	T15, T20, T25, T30, T40, T45
Hexagonal socket / ratcheting gear wrench	7 mm, 8 mm, 10 mm, 12 mm, 13 mm, 17 mm, 19 mm
Level	-
Lifting strap	5/16 in. J-hook style, 15 in. long (for frame 7L power module) 24 in. long, 1000 lb minimum
Module service cart	The optional module service cart (20-750-MCART1) is recommended to handle and transport power and filter modules.
Module service lift	The optional module service lift (20-750-MCART2) is used in combination with the module service cart and is recommended to remove or install the DC precharge modules.
Module service ramp	The optional module service ramp (20-750-MRAMP1) is used to remove power modules only from enclosures mounted at floor level.
Module storage hardware	Module storage hardware (20-750-MINV-ATIP) helps to stabilize power and filter modules during temporary storage after removal.
Phillips screw driver/bit	#2
Torque wrench	1...12 N•m (8.8...106 lb•in)
Torque wrench	6...50 N•m (53...443 lb•in)
Ratcheting Wrench	1...12 N•m (8.8...106 lb•in)

Approximate Module Weights

The tables that are provided in this section contain the approximate maximum weights for modules that require lifting equipment and hardware for transportation and installation. See Additional Resources on page [405](#) for a list of publications that include instructions for how to unpack and lift these modules.

Power Modules

Module	Cat. No.	Module Weight [kg (lb)]	Module Weight with Packaging [kg (lb)]
Power Module	20-750-MI1-xnnnxnnn	87 (192)	138 (304)
Power Module with a Paralleling Inductor	20-750-MI2-xnnnxnnn	98 (217)	149 (329)
Power Module with a Reflected Wave Filter	20-750-MI3-xnnnxnnn	141 (312)	192 (424)
Power Module	20-750-MI4-xnnnxnnn	113.4 (250)	164.2 (362)
Power Module	20-750-MI5-C650D650	55.0 (122.0)	68.5 (152.0)

NRS Modules

Module	Cat. No.	Module Weight [kg (lb)]	Module Weight with Packaging [kg (lb)]
1X NRS Module with bus capacitors	20-750-MN1-C770D740, 20-750-MN1-E545F505	134 (295)	157 (345)
1X NRS Module without bus capacitors	20-750-MN2-C770D740, 20-750-MN2-E545F505	125 (275)	147 (325)
2X NRS Module with bus capacitors	20-750-MN1-C1K4D1K3, 20-750-MN1-E980F920	204 (450)	227 (500)
2X NRS Module without bus capacitors	20-750-MN2-C1K4D1K3, 20-750-MN2-E980F920	186 (410)	209 (460)

LCL Filter Modules

LCL Filter Module Rating	Cat. No.	Module Weight [kg (lb)]	Module Weight with Packaging [kg (lb)]
400V 600 A, 480V 600 A	20-750-ML4-C585D617	175 (385)	226 (497)
400V 540 A, 480V 505 A	20-750-ML1-C540D505	213 (470)	264 (582)
400V 770 A, 480V 740 A	20-750-ML1-C770D740	213 (470)	264 (582)
400V 1100 A, 480V 1000 A	20-750-ML1-C1K1D1K0	322 (710)	374 (822)
400V 1400 A, 480V 1300 A	20-750-ML1-C1K4D1K3	322 (710)	374 (822)
600V 395 A, 690V 370 A	20-750-ML4-E395F370	175 (385)	226 (497)
600V 395 A, 690V 370 A	20-750-ML1-E395F370	213 (470)	264 (582)
600V 545 A, 690V 505 A	20-750-ML1-E545F505	213 (470)	264 (582)
600V 760 A, 690V 735 A	20-750-ML1-E760F735	322 (710)	374 (822)
600V 980 A, 690V 920 A	20-750-ML1-E980F920	322 (710)	374 (822)

Precharge Modules

Unit	Cat. No.	Module Weight [kg (lb)]	Module Weight with Packaging [kg (lb)]
AC Precharge	20-750-MACP-x-F8M 20-750-MACP-xx-F8M	43 (95)	88.5 (195)
AC Precharge	20-750-MACP-x-F9M 20-750-MACP-xx-F9M	130 (287)	177 (392)
DC Precharge	20-750-MDCP1-xx-F8M 20-750-MDCP2-xx-F8M	41 (90)	44 (97)

Approximate Accessory Weights

The Accessories table contains the approximate maximum weights for the IPOO kits that are equal to or exceed 22.7 kg (50 lb) only. When lifting and handling any IPOO kit, follow all applicable local, national, and international codes, standards, regulations or industry guidelines for safe practices.

Accessories

Description / Cat. No.	Weight [kg (lb)]
AC Bus Bars	
20-750-MACBUS6-4K7	38.1 (84.0)
20-750-MACBUS8-4K7	57.6 (127.0)
20-750-MACBUS10-3K0	25.0 (55.0)
20-750-MACBUS10-4K7	66.2 (146.0)
20-750-MEMCC2-F8	30.5 (68.0)
20-750-MEMCC2-F9	23.2 (52.0)
20-750-MEMCC2-IPBB	34 (75.0)
AC Bus Bars Top Cable Exit/Entry	
20-750-MTEBUS1-4K7	53.0 (117.0)
AC Precharge Circuit Breaker Bus Bar Kits	
20-750-MCBBUS1-2K0	73.0 (160.0)
20-750-MCBBUS1-2K5	73.0 (160.0)
20-750-MCBBUS1-3K0	81.7 (180.0)
20-750-MCBBUS2-5K0	152.0 (335.0)
20-750-MCBBUS2-3K0	63.5 (140.0)
DC Bus Bars	
20-750-MDCBUS3-4K7	25.0 (55.0)
20-750-MDCBUS4-4K7	35.0 (77.0)
20-750-MDCBUS6-4K7	25.4 (56.0)
20-750-MDCBUS8-4K7	39.5 (87.0)
20-750-MDCBUS10-4K7	48.0 (106.0)
Back Panel with Bus Bars and Stab Receptacles	
20-750-MIR1-F9M	29.5 (65.0)
20-750-MIR1-F10M	30.0 (66.0)
20-750-MIR2-F9M	29.5 (65.0)
20-750-MIR2-F10M	43.5 (96.0)
20-750-MACR1-F8M	30 kg (66.1)
20-750-MACR2-F8M	30 kg (66.1)
20-750-MACR1-F9M	39.0 (86.0)
20-750-MADR1-F8M	32.0 (70.0)
20-750-MADR2-F8M	32.0 (70.0)
NRS Control Transformers	
20-750-MN-XMFR2-CD	26.5 (58.3)
20-750-MN-XMFR2-n	26.5 (58.3)
Circuit Breaker Mounting Panels	
20-750-MIBPNL2-F10M	42.2 (93.0)
20-750-MIBPNL2-F11M	40.8 (90.0)
Divider Panels	
20-750-MIBPNL2-F8M	23.1 (51.0)
Ventilation Kits	
20-750-MVENT2-F10M	60.8 (134.0)
20-750-MVENT2-F9M	33.1 (73.0)
20-750-MVENT2-F8M	30.8 (68.0)
20-750-MVENTC2-F11M	26.0 (57.0)
20-750-MVENTC1-F11M	25.0 (55.0)
Wire Entry Bay Kits	
20-750-MN-WBAYn-400	126.0 (278.0)
20-750-MN-WBAYn-800	242.0 (534.0)

Assemble the System

The following basic steps provide guidance for how to install PowerFlex 755TM IP00 kits into your system enclosures and transport and mount the assembled enclosures at the final installation location. Review the information in each of the referenced sections before you perform any of these steps.

1. Review the general handling instructions (see page 78).
2. Join the system enclosures (see page 78).
3. Review the information on handling IP00 modules and kits (see page 91).
4. Assemble the IP00 kits and customer-sourced components into the system enclosures (see page 92).
5. Transport and mount the assembled enclosure sections (see page 105).
6. Commission the system (see the PowerFlex Drives with TotalFORCE Control Programming Manual, publication [750-PM100](#), firmware revision 6.001 and earlier, or [750-PM101](#), firmware revision 10.001 and later, for more information).

General Handling Instructions

Rockwell Automation recommends that you follow these handling instructions for empty or assembled enclosures and modules:

- Use properly rated equipment and hardware to lift and move the enclosure/module.
- Qualified professionals must inspect all lifting equipment before it is used to move the enclosure/module.
- Keep the enclosure/module in an upright position. Some enclosures with installed modules and components are top-heavy and can fall over if tilted.
- All lifting cables or straps must meet or exceed the maximum weight capacity requirements.
- Close and secure all enclosure doors before lifting or moving the equipment.



ATTENTION: A hazard of personal injury exists when lifting assembled enclosure sections. Restrict access of unauthorized personnel to areas where assembled enclosures are lifted overhead. Do not stand near or underneath equipment that is being lifted overhead.

Join the System Enclosures

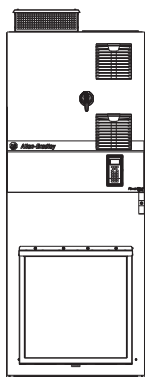
Prepare your system enclosures for IP00 kit and customer-sourced component installation:

- If you are using Rittal TS8 enclosures, follow the instructions that begin with the Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures section.
- For all other enclosure types, follow the manufacturer instructions for how to lift, transport, and join the enclosures that are required for your installation. Once the enclosures have been joined, continue with Handle IP00 Modules and Kits on page 91.

Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures

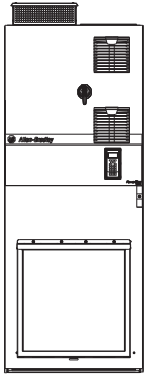
For lifting and transportation purposes, Rockwell Automation recommends that you join Rittal TS8 enclosures as detailed in this section for your specific product and equivalent frame size. The approximate weight of each recommended section and assembled product is listed in the illustrations and tables on pages 78...86. The listed weights account for a fully assembled product with all available IP00 kits and customer-sourced components installed. To enable transportation of assembled sections by using a forklift, join and secure enclosures on pallets capable of supporting the weight of the assembled sections. Install angle channel on the roof panels to prevent damage from deflection while lifting the assembled enclosures on pallets. See Create Structural Angles on page 88 for more information.

Approximate Maximum Weights - Frame 7 Drives and Bus Supplies



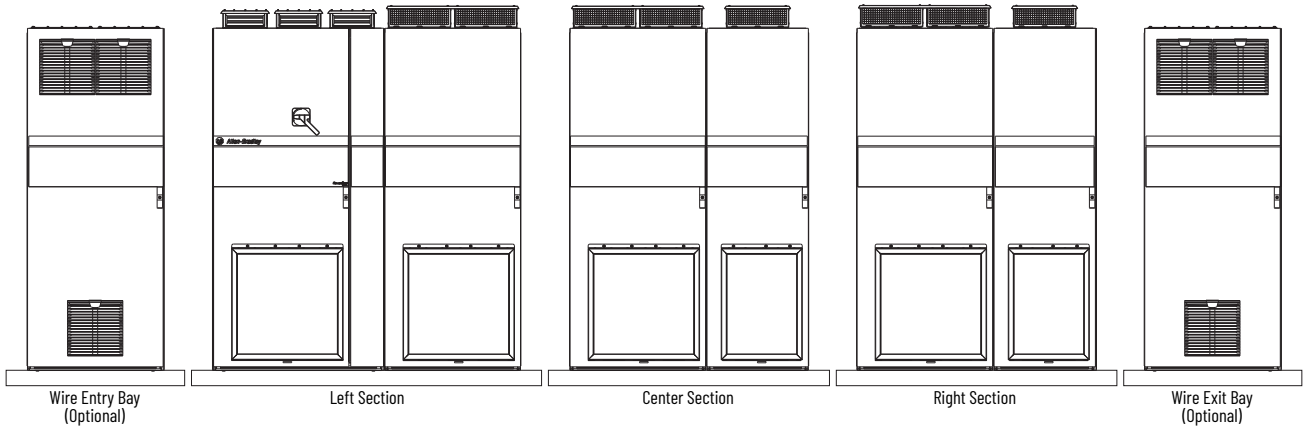
Device	Approximate Maximum Weight [kg (lb)]
755TL drives	567 (1250)
755TR drives	567 (1250)
755TM bus supplies	454 (1000)

Approximate Maximum Weights - Frame 7L Drive



Device	Approximate Maximum Weight [kg (lb)]
755TL and 755TR drives	580 (1271)

Recommended Sections Frames 8...12 Drives and Bus Supplies



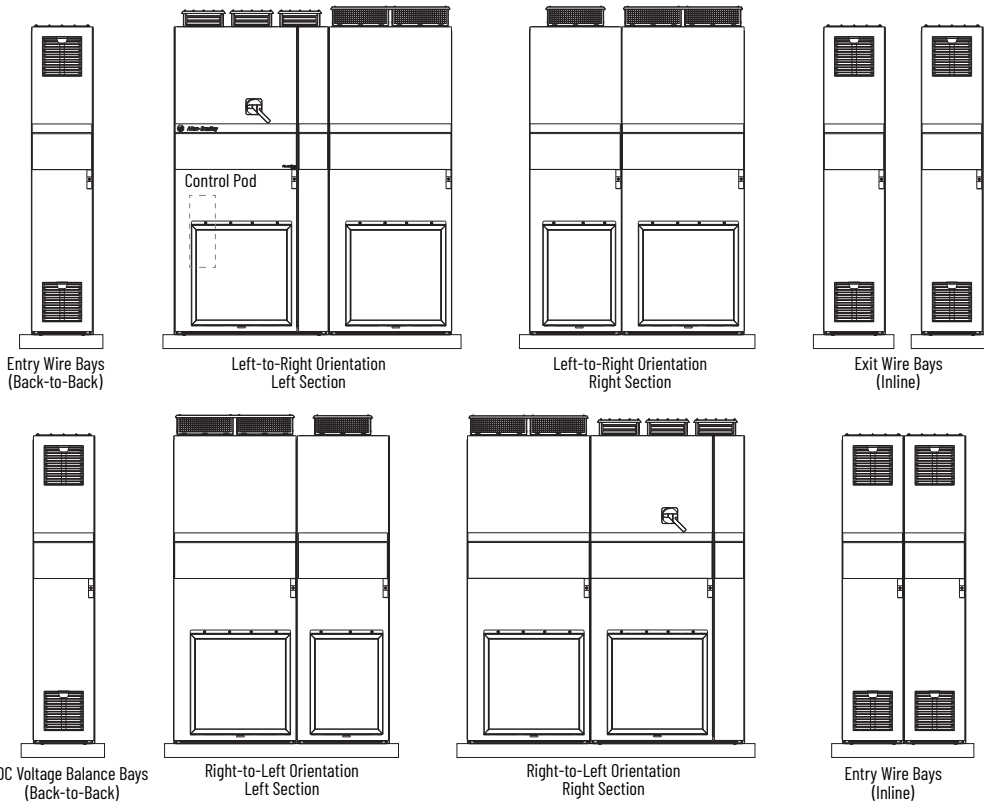
Approximate Maximum Unit Weights - Frames 8...12 Drives and Bus Supplies

Device	Frame Size	Approximate Maximum Weight							
		Input and Power Bay		with Entry Wire Bay		with Exit Wire Bay		with Entry and Exit Wire Bay	
		Description	Weight [kg (lb)]	Description	Weight [kg (lb)]	Description	Weight [kg (lb)]	Description	Weight [kg (lb)]
755TL drives	8	Total:	900 (1984)	--	--	Total:	987 (2176)	--	--
	9	Total:	1683 (3710)	--	--	Total:	1770 (3902)	--	--
	10	Left section: Right section: Total:	1553 (3423) 1370 (3021) 2923 (6444)	Left section: Right section: Total:	1630 (3593) 1370 (3021) 3000 (6614)	Left section: Right section: Total:	1553 (3423) 1457 (3213) 3010 (6636)	Left section: Right section: Total:	1640 (3616) 1457 (3213) 3097 (6829)
755TR drives	8	Total:	900 (1984)	--	--	Total:	987 (2176)	--	--
	9	Total:	1683 (3710)	--	--	Total:	1770 (3902)	--	--
	10	Left section: Right section: Total:	1553 (3423) 1370 (3021) 2923 (6444)	Left section: Right section: Total:	1630 (3593) 1370 (3021) 3000 (6614)	Left section: Right section: Total:	1553 (3423) 1457 (3213) 3010 (6636)	Left section: Right section: Total:	1640 (3616) 1457 (3213) 3097 (6829)
	11	Left section: Right section: Total:	1642 (3621) 2018 (4449) 3660 (8070)	Wire bay: Left section: Right section: Total:	242 (533) 1642 (3621) 2018 (4449) 3902 (8603)	Wire bay: Left section: Right section: Total:	242 (533) 1642 (3621) 2018 (4449) 3902 (8603)	Each wire bay: Left section: Right section: Total:	242 (533) 1642 (3621) 2018 (4449) 4144 (9136)
	12	Left section: Center section: Right section: Total:	1642 (3621) 1419 (3128) 1363 (3004) 4424 (9753)	Wire bay: Left section: Center section: Right section: Total:	242 (533) 1642 (3621) 1419 (3128) 1363 (3004) 4666 (10286)	Wire bay: Left section: Center section: Right section: Total:	242 (533) 1642 (3621) 1419 (3128) 1363 (3004) 4666 (10286)	Each wire bay: Left section: Center section: Right section: Total:	242 (533) 1642 (3621) 1419 (3128) 1363 (3004) 4908 (10819)

Approximate Maximum Unit Weights - Frames 8...12 Drives and Bus Supplies (Continued)

Device	Frame Size	Approximate Maximum Weight							
		Input and Power Bay		with Entry Wire Bay		with Exit Wire Bay		with Entry and Exit Wire Bay	
		Description	Weight [kg (lb)]	Description	Weight [kg (lb)]	Description	Weight [kg (lb)]	Description	Weight [kg (lb)]
755TM bus supplies	8	Total:	709 (1563)	-	-	-	-	-	-
	9	Total:	1180 (2601)	-	-	-	-	-	-
	10	Total:	2106 (4643)	Wire bay:	126 (278)	-	-	-	-
				Right section:	2106 (4643)	-	-	-	-
				Total:	2232 (4921)	-	-	-	-
	11	Left section:	1642 (3621)	Wire bay:	242 (533)	-	-	-	-
		Right section:	889 (1959)	Left section:	1642 (3621)	-	-	-	-
		Total:	2531 (5580)	Right section:	889 (1959)	-	-	-	-
				Total:	2773 (6113)	-	-	-	-
	12	Left section:	1642 (3621)	Wire bay:	242 (533)	-	-	-	-
		Right section:	1443 (3182)	Left section:	1642 (3621)	-	-	-	-
		Total:	3085 (6803)	Right section:	1443 (3182)	-	-	-	-
				Total:	3327 (7336)	-	-	-	-

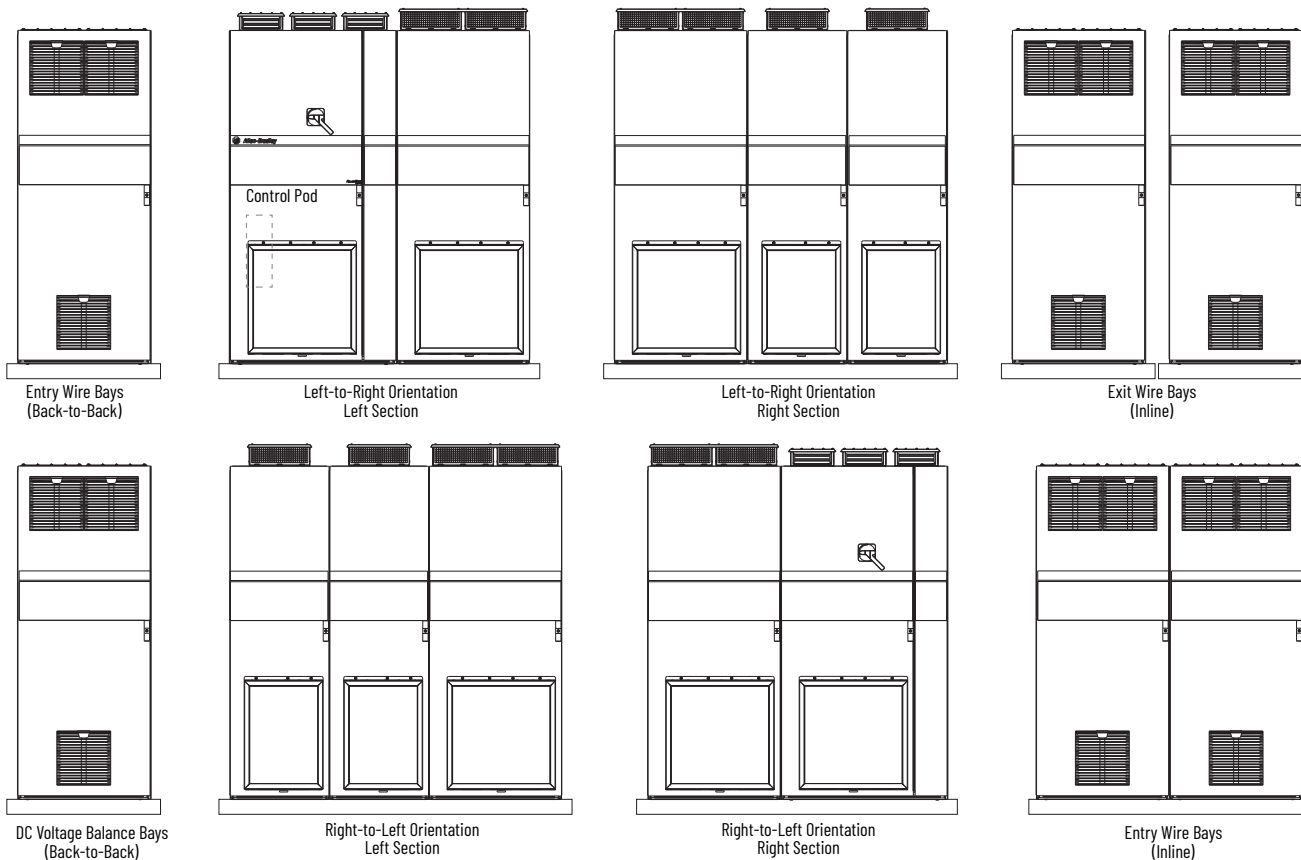
Recommended Sections Frame 13 Drives



Approximate Maximum Weights - Frame 13 Drives

Device	Frame Size	Approximate Maximum Weight					
		Back-to-Back Configuration			Inline Configuration		
		Description	Weight [kg (lb)]	Section No.	Description	Weight [kg (lb)]	Section No.
755TR drives	13	Left-to-right orientation			Left-to-right orientation		
		Left section:	1553 (3423)	2 of 6	Left section:	1553 (3423)	5 of 7
		Right section:	1370 (3021)	3 of 6	Right section:	1370 (3021)	6 of 7
		Right-to-left orientation			Right-to-left orientation		
		Left section:	1370 (3021)	4 of 6	Left section:	1370 (3021)	2 of 7
		Right section:	1553(3423)	5 of 6	Right section:	1553 (3423)	3 of 7
		Wire bays			Wire bays		
		Fiber routing and entry wire bays:	291 (642)	1 of 6	Entry wire bays:	252 (556)	4 of 7
		DC voltage balance and exit wire bays:	291 (642)	6 of 6	Left exit wire bay:	126 (278)	1 of 7
		Total:	6428 (14,172)		Right exit wire bay:	126 (278)	7 of 7
					Total:	6350 (14,000)	

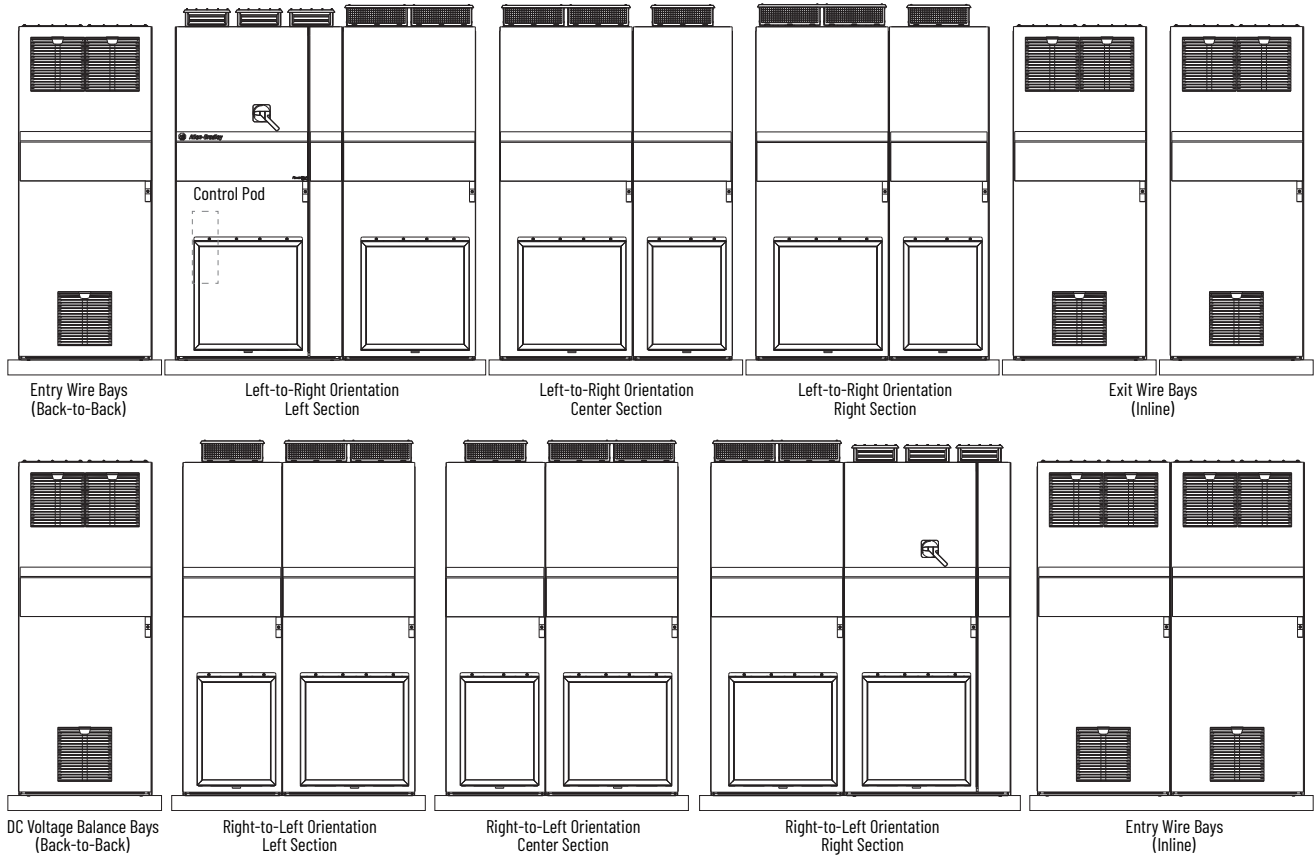
Recommended Sections Frame 14 Drives



Approximate Maximum Weights - Frame 14 Drives

Device	Frame Size	Approximate Maximum Weight					
		Back-to-Back Configuration			Inline Configuration		
		Description	Weight [kg (lb)]	Section No.	Description	Weight [kg (lb)]	Section No.
755TR drives	14	Left-to-right orientation			Left-to-right orientation		
		Left section:	1642 (3621)	2 of 6	Left section:	1642 (3621)	5 of 7
		Right section:	2018 (4449)	3 of 6	Right section:	2018 (4449)	6 of 7
		Right-to-left orientation			Right-to-left orientation		
		Left section:	2018 (4449)	4 of 6	Left section:	2018 (4449)	2 of 7
		Right section:	1642(3621)	5 of 6	Right section:	1642 (3621)	3 of 7
Wire bays			Wire bays				
Fiber routing and entry wire bays:	523 (1154)	1 of 6	Entry wire bays:	484 (1066)	4 of 7		
DC voltage balance and exit wire bays:	523 (1154)	6 of 6	Left exit wire bay:	242 (533)	1 of 7		
Total:	8366 (18,448)		Right exit wire bay:	242 (533)	7 of 7		
			Total:	8288 (18,272)			

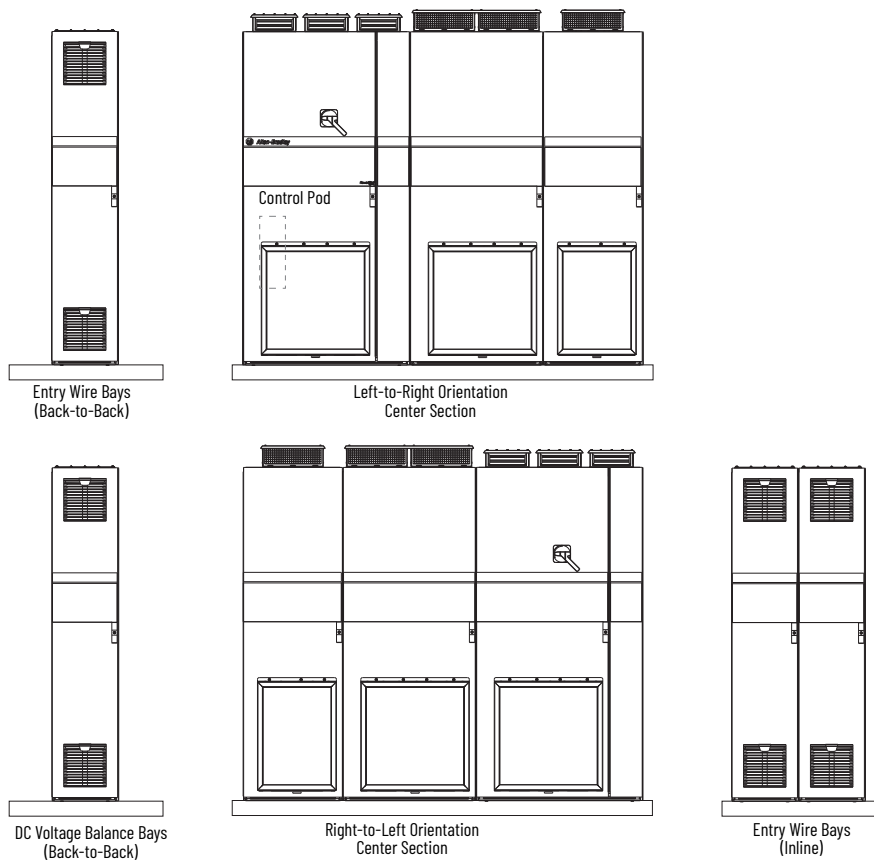
Recommended Sections Frame 15 Drives



Approximate Maximum Weights - Frame 15 Drives

Device	Frame Size	Approximate Maximum Weight					
		Back-to-Back Configuration			Inline Configuration		
		Description	Weight [kg (lb)]	Section No.	Description	Weight [kg (lb)]	Section No.
755TR drives	15	Left-to-right orientation			Left-to-right orientation		
		Left section:	1642 (3621)	2 of 8	Left section:	1642 (3621)	6 of 9
		Center section:	1419 (3128)	3 of 8	Center section:	1419 (3128)	7 of 9
		Right section:	1363 (3004)	4 of 8	Right section:	1363 (3004)	8 of 9
		Right-to-left orientation			Right-to-left orientation		
Left section:	1363 (3004)	5 of 8	Left section:	1363 (3004)	2 of 9		
Center section:	1419 (3128)	6 of 8	Center section:	1419 (3128)	3 of 9		
Right section:	1642 (3621)	7 of 8	Right section:	1642 (3621)	4 of 9		
Wire bays			Wire bays				
Entry wire bays:	523 (1154)	1 of 8	Entry wire bays:	484 (1066)	5 of 9		
DC voltage balance and exit wire bays:	523 (1154)	8 of 8	Left exit wire bay:	242 (533)	1 of 9		
	9894 (21,814)		Right exit wire bay:	242 (533)	9 of 9		
Total:			Total:	9816 (21,638)			

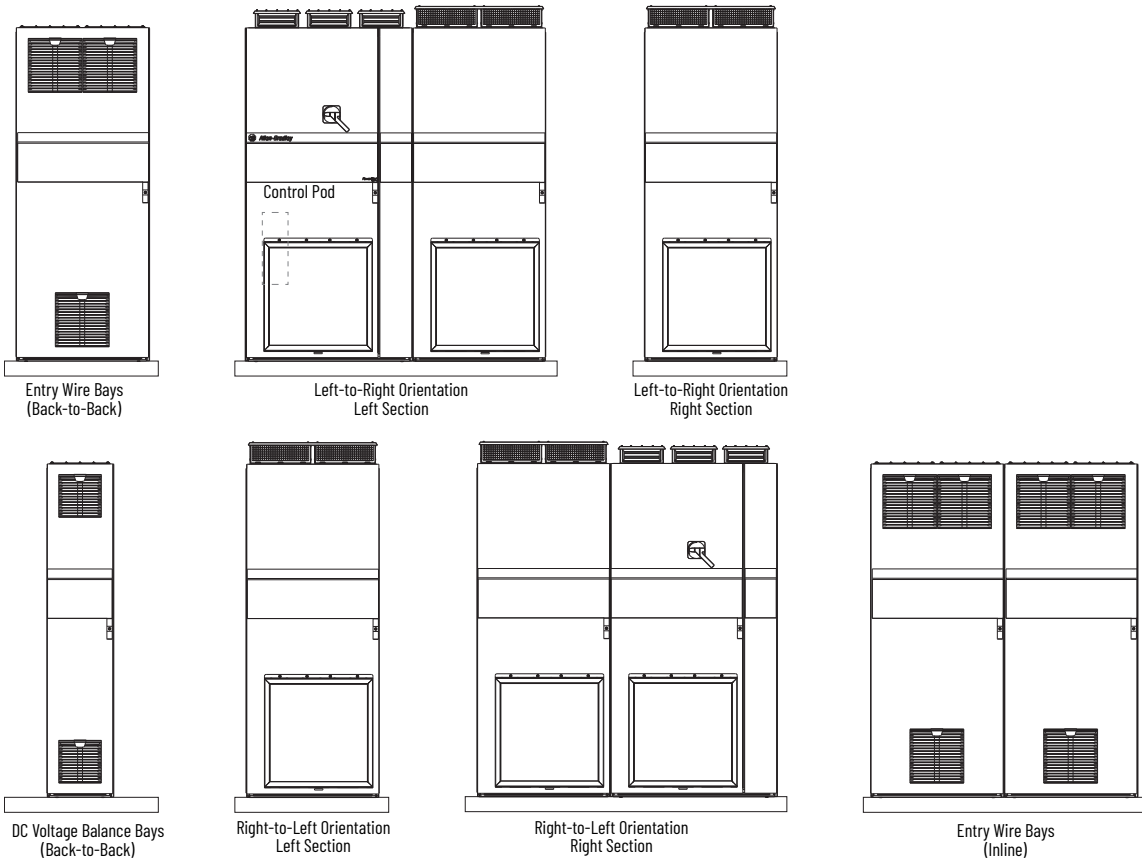
Recommended Sections Frame 13 Bus Supplies



Approximate Maximum Weights - Frame 13 Bus Supplies

Device	Frame Size	Approximate Maximum Weight					
		Back-to-Back Configuration			Inline Configuration		
		Description	Weight [kg (lb)]	Section No.	Description	Weight [kg (lb)]	Section No.
755TM bus supplies	13	Left-to-right orientation	2106 (4643)	2 of 4	Left-to-right orientation	2106 (4643)	1 of 3
		Center section:			Center section:		
		Right-to-left orientation	2106 (4643)	3 of 4	Right-to-left orientation	2106 (4643)	3 of 3
		Center section:			Center section:		
		Wire bays	252 (556)	1 of 4	Wire bays	252 (556)	2 of 3
Fiber routing and entry wire bays:	Fiber routing and entry wire bays:						
DC voltage balance bays:	DC voltage balance bays:						
Total:	4716 (10,398)	4 of 4	Total:	4464 (9842)			

Recommended Sections Frame 14 Bus Supplies



Approximate Maximum Weights - Frame 14 Bus Supplies

Device	Frame Size	Approximate Maximum Weight					
		Back-to-Back Configuration			Inline Configuration		
		Description	Weight [kg (lb)]	Qty.	Description	Weight [kg (lb)]	Qty.
755TM bus supplies	14	Left-to-right orientation			Left-to-right orientation		
		Left section:	1642 (3621)	2 of 6	Left section:	1642 (3621)	4 of 5
		Right Section:	889 (1959)	3 of 6	Right section:	889 (1959)	5 of 5
		Right-to-left orientation			Right-to-left orientation		
		Left section:	889 (1959)	4 of 6	Left section:	889 (1959)	1 of 5
		Right section:	1642 (3621)	5 of 6	Right section:	1642 (3621)	2 of 5
		Wire bays			Wire bays		
		Fiber routing and entry wire bays:	484 (1066)	1 of 6	Entry wire bays:	484 (1066)	3 of 5
		DC voltage balance bays:	252 (556)	6 of 6	Total:	5546 (12,226)	
		Total:	5798 (12,782)				

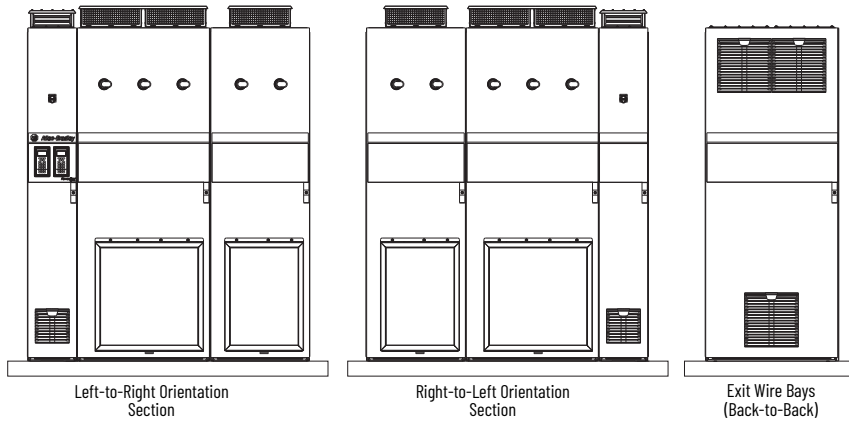
Recommended Sections Frame 15 Bus Supplies



Approximate Maximum Weights - Frame 15 Bus Supplies

Device	Frame Size	Approximate Maximum Weight					
		Back-to-Back Configuration			Inline Configuration		
		Description	Weight [kg (lb)]	Section No.	Description	Weight [kg (lb)]	Section No.
755TM bus supplies	15	Left-to-right orientation			Left-to-right orientation		
		Left section:	1642 (3621)	2 of 6	Left section:	1642 (3621)	4 of 5
		Right Section:	1443 (3182)	3 of 6	Right section:	1443 (3182)	5 of 5
		Right-to-left orientation			Right-to-left orientation		
		Left section:	1443 (3182)	4 of 6	Left section:	1443 (3182)	1 of 5
Right section:	1642 (3621)	5 of 6	Right section:	1642 (3621)	2 of 5		
Wire bays			Wire bays				
Fiber routing and entry wire bays:	484 (1066)	1 of 6	Entry wire bays:	484 (1066)	3 of 5		
DC voltage balance bays:	252 (556)	6 of 6	Total:	6654 (14,672)			
Total:	6906 (15,228)						

Recommended Sections Frame 8...15 Common Bus Inverters



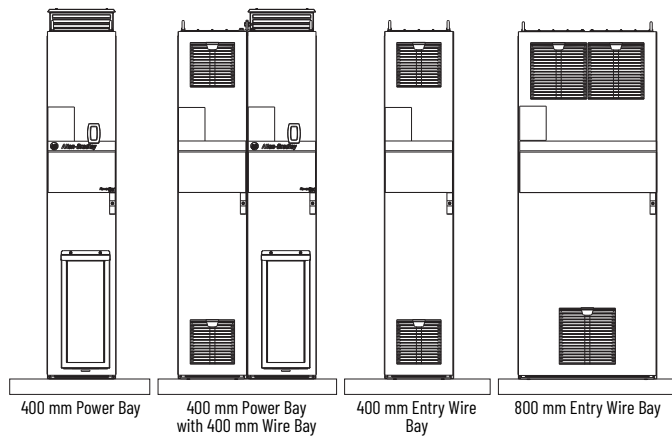
Approximate Maximum Unit Weights - Frame 8...12 Common Bus Inverters

Device	Frame Size	Approximate Maximum Weight, [kg (lb)]			
		Power Bay	with Control Bay	with Exit Wire Bay	with Control and Exit Wire Bay
755TM common bus inverters	8	374 (825)	455 (1004)	477 (1052)	588 (1231)
	9	611 (1348)	692 (1527)	714 (1575)	796 (1754)
	10	873 (1924)	954 (2103)	954 (2103)	1057 (2331)
	11	1284 (2830)	1365 (3009)	1503 (3313)	1584 (3492)
	12	1580 (3483)	1542 (3400)	1799 (3966)	1880 (4145)

Approximate Maximum Weights - Frame 13...15 Common Bus Inverters

Device	Frame Size	Approximate Maximum Weight		
		Back-to-Back Configuration		
		Description	Weight [kg (lb)]	Section No.
755TM common bus inverters	13	Left-to-right orientation	Section: 954 (2103)	1 of 3
		Right-to-left orientation		2 of 3
		Wire bays Fiber routing, DC voltage balance, and exit wire bays: Total: 2199 (4848)	291 (642) 2199 (4848)	3 of 3
	14	Left-to-right orientation	Section: 1365 (3009)	1 of 3
		Right-to-left orientation		2 of 3
		Wire bays Fiber routing, DC voltage balance, and exit wire bays: Total: 3253 (7172)	523 (1154) 3253 (7172)	3 of 3
	15	Left-to-right orientation	Section: 1542 (3400)	1 of 3
		Right-to-left orientation		2 of 3
		Wire bays Fiber routing, DC voltage balance, and exit wire bays: Total: 3607 (7954)	523 (1154) 3607 (7954)	3 of 3

Recommended Sections NRS Systems



Approximate Maximum Weights NRS Sections

Description	Approximate Maximum Weight, <i>kg (lb)</i>	
	Weight [kg (lb)]	Weight with Packaging [kg (lb)]
Power bay, single-density	295 (650)	490 (1080)
Power bay, single-density with integral bus capacitors	304 (670)	533 (1175)
Power bay, single-density with optional 3 kVA control transformer	332 (732)	561 (1237)
Power bay, single-density with integral bus capacitors and optional 3 kVA control transformer	341 (752)	604 (1332)
Power bay, dual-density with entry wire bay	553 (1219)	828 (1825)
Power bay, dual-density with integral bus capacitor	571 (1259)	880 (1940)
Power bay, dual-density with optional 3 kVA control transformer	590 (1301)	899 (1982)
Power bay, dual-density with integral bus capacitor and optional 3 kVA control transformer	608 (1340)	951 (2097)
400 mm entry wire bay	126 (278)	188 (414)
800 mm entry wire bay	242 (534)	309 (681)

Create Structural Angles

Empty Rittal TS8 enclosures can be lifted by using the eye bolts that are installed in the roof, as shipped from the manufacturer. However, Rittal TS8 enclosures are not rigid enough to lift by the eye bolts when fully assembled with IP00 kits without damaging the enclosures or kits installed within the enclosure. Therefore, it is recommended that you fabricate and install structural angles to add rigidity to the assembled enclosures and provide lifting points for proper handling. For structural angle material and dimensions and recommended combinations of assembled Rittal TS8 enclosures, see Structural Angle Material and Dimensions on page 404. All structural angles must be secured to the enclosures using M12 hexagonal bolts and a final torque of 38 N•m (336 lb•in). Do not torque, bend, or twist the assembled enclosures when handling.

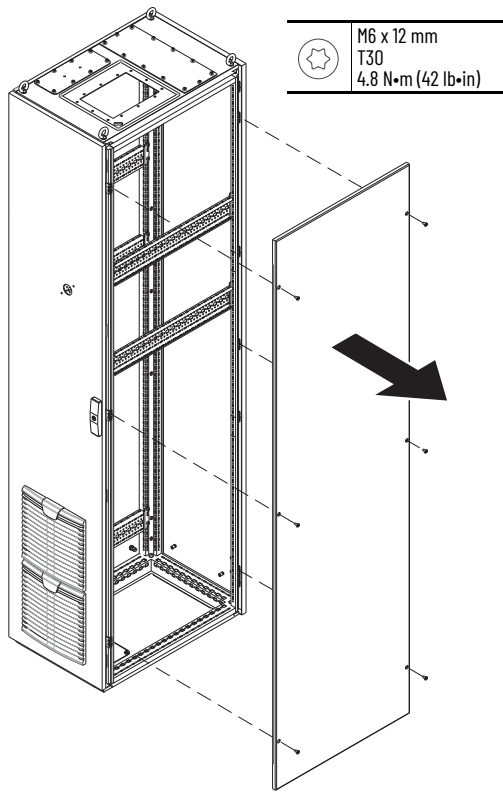
Join the Rittal TS8 Enclosures

Use the joining hardware kit, catalog number 20-750-MEXTBAY1, to join all Rittal TS8 enclosures. The joining hardware kit contains the hardware and gasket material that is required to join two Rittal TS8 enclosures only. It is recommended that you have a means to clamp the enclosures together temporarily before final assembly with the joining hardware kits.

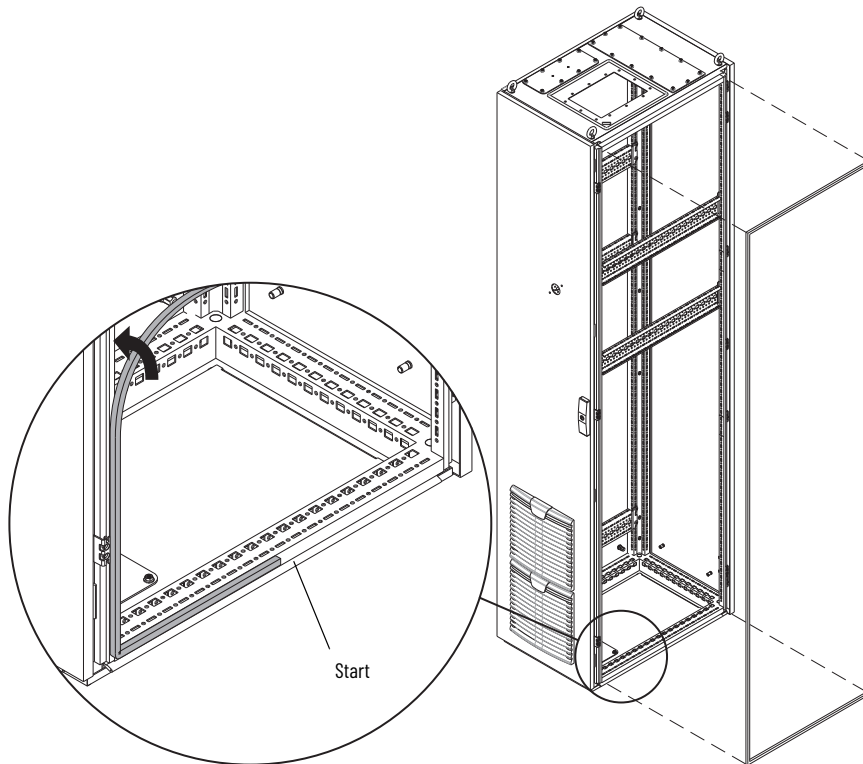
IMPORTANT To meet EN61800-3 Category C3 compliance, a conductive path is required between all enclosures. The joining hardware provides the conductive path when used on unpainted or painted steel surfaces. The entire clamp must be used as supplied to provide the conductive path.

Follow these steps to join enclosures before IP00 kit installation and after assembled sections have been transported to the final installation location.

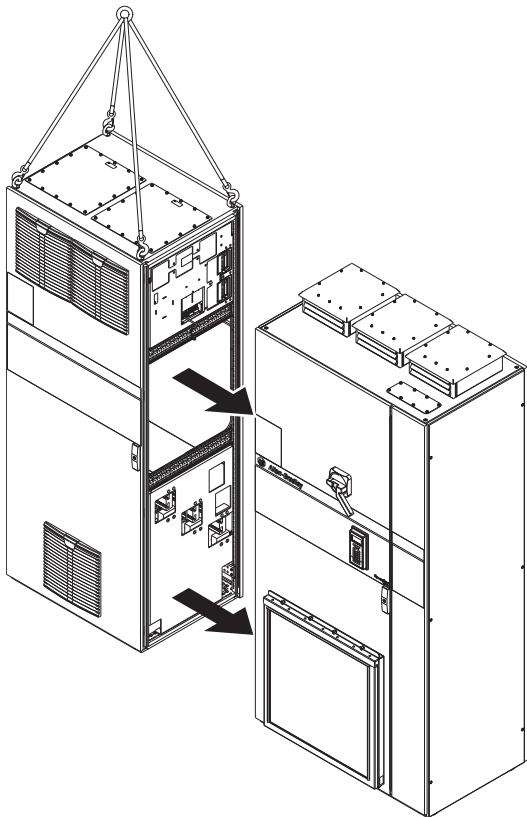
1. As necessary, remove the exterior side sheets from between the enclosures that are joined. Save the side sheets for installation on the enclosures at the ends of a lineup.



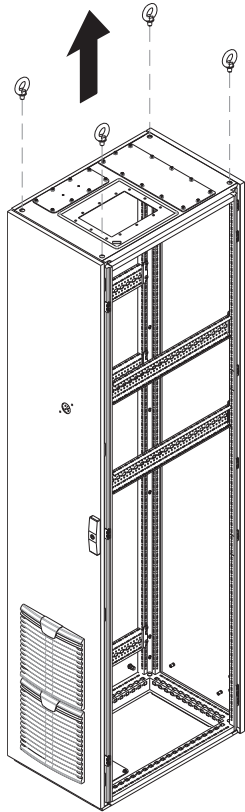
2. Apply the gasket in one continuous strip around the mating surface of the enclosure. Begin the application at the bottom, middle of the enclosure.



3. By using the eye bolts that are installed in the roof panels, align the empty enclosures and, if necessary, temporarily clamp the enclosures together.



- Unscrew the eye bolts from the roof panels. When the enclosures have been fully assembled, you must install a M12 hexagonal screw with a paint piercing rubber washer in the four corner holes of each enclosure.





- Install the joining hardware on the front and rear adjoining rails of the enclosures. Install five clamps on the front rails and four clamps on the rear rails. For exact placement of clamps that are installed on the vertical rails, see Clamp Spacing Dimensions on page 91.


Top Bracket Sets

Flat Washer

Paint-piercing Rubber Washer

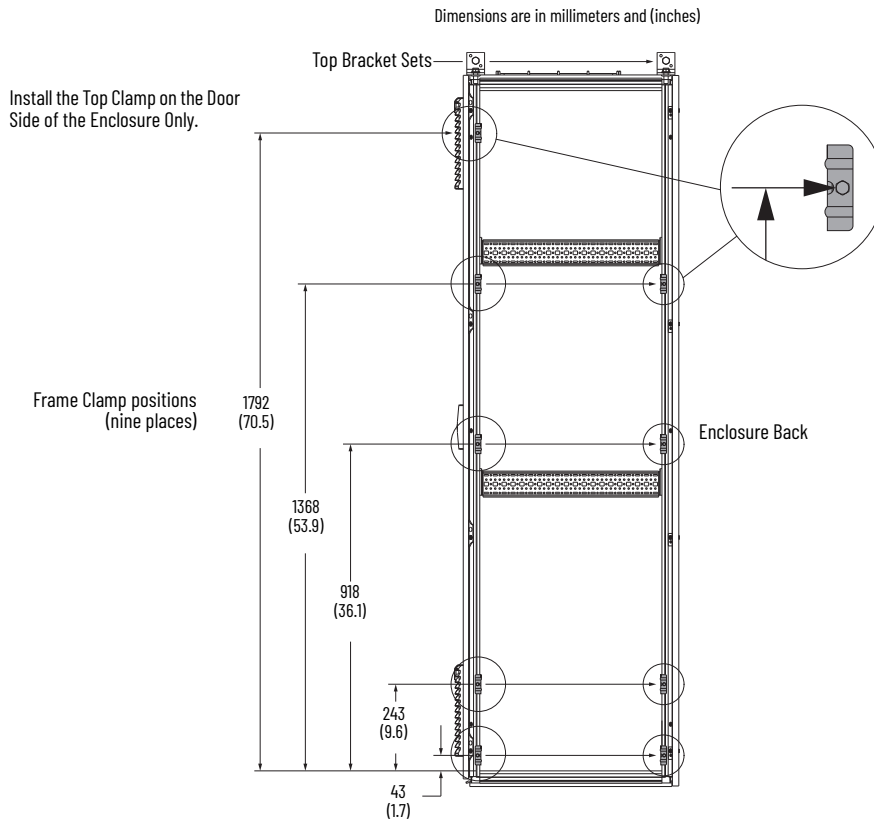
Both pieces of the frame clamps must be installed to provide a conductive path - see Important Statement on page 88.

A		M12 19 mm 20 N•m (177 lb•in)
B		M12 19 mm 42.4 N•m (375 lb•in)

3		9 N•m (79 lb•in)
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Enclosure Doors Omitted for Clarity.

Clamp Spacing Dimensions



Handle IP00 Modules and Kits

It is recommended that you unpack and handle IP00 kits only when needed for installation. For instructions on how to unpack and lift the power, LCL filter, AC precharge, and DC precharge modules, see these publications:

- PowerFlex 755TM AC Precharge Modules Unpacking and Lifting Instructions, publication [750-IN102](#).
- PowerFlex 755TM DC Precharge Modules Unpacking and Lifting Instructions, publication [750-IN103](#).
- PowerFlex 755TM Power and Filter Modules Unpacking and Lifting Instructions, publication [750-IN104](#).
- PowerFlex 755TM IP00 EMC C2 Filter Unpacking and Lifting Instructions, publication [750-IN109](#).

For instructions on accessory kits that are used to transport power, LCL filter, and DC precharge modules for installation, see these publications:

- PowerFlex 750-Series Service Cart and DCPC Module Lift Installation Instructions, publication [750-IN105](#). The service cart (cat. no. 20-750-MCART1) can only be used to install LCL filter and power modules into enclosures that include the IP00 floor mounting bracket kits. The DC precharge service lift (cat. no. 20-750-MCART2) can only be used with the module service cart.
- PowerFlex 755TM Power and Filter Module Storage Hardware Instructions, publication [750-IN106](#). The module storage hardware (cat. no. 20-750-MINV-ATIP) can be used to store power and LCL filter modules temporarily. The storage hardware must be used when removing modules from the service cart.

IMPORTANT The module storage hardware is not compatible with NRS modules.

- PowerFlex 755T Module Service Ramp Installation Instructions, publication [750-IN108](#). The service ramp (cat. no. 20-750-MRAMP1) can only be used to install or remove power modules only (not LCL filter modules) with enclosures that have the floor mounting bracket kits that are installed.

IPO0 Module Storage

The LCL filter, power, and frame 8 and 9 AC precharge modules are contained in plastic to help prevent dirt and dust from entering the module.



ATTENTION: LCL filter, power, and AC precharge modules are designed for indoor applications and do not have sufficient packaging for outdoor storage. Store the modules in a heated building that offers adequate air circulation and protection from dirt and moisture.

If you must store the modules after you receive them, take the following precautions:

- Do not remove the protective plastic wrap.
- Do not store the product outdoors.
- Do not store the product in an area where it is exposed to a corrosive atmosphere.
- Store the product in an area that is clean and dry and in a conditioned building with adequate air circulation.
- Maintain a storage temperature of -40...+70 °C (-40...+158 °F).
- Maintain a relative humidity of 5...95% non-condensing.
- Heating and moisture protection devices must be used if the rate of change in relative humidity and/or ambient temperature may lead to condensation on the stored equipment.

Assemble the IPO0 Kits and Customer-sourced Components Into the System Enclosures

This section contains step-by-step instructions for the assembly of the IPO0 kits and customer-sourced components for each PowerFlex 755T product by frame sizes and enclosure type. Each step provides a reference to the applicable mechanical and electrical installation information. It is recommended that you read the entire list of instructions for the applicable product and enclosures before you begin installation. Before you begin installation, verify that you have the required IPO0 kits, customer-sourced components, and are familiar with all installation requirements included in this manual.

IMPORTANT The assembly instructions that are provided in this section exclude the installation of input and output power and ground connections. For input and output power connection instructions, see [Install Power and Ground Cables on page 127](#). For grounding requirements, see [Grounding Requirements on page 115](#).

To install the IPO0 kits and customer-sourced components for your system, follow the applicable instructions:

Drive Installations:

- Install Frame 7 Drive Components on page [93](#).
- Install Frame 7L Liquid Cooled Drive Components on page [94](#).
- Install Frame 8 and 9 Drive Input Bay Components on page [95](#) and Install Frame 8 and 9 Drive Power Bay Components on page [95](#).
- Install Frames 10...15 Drive Input Bay Components on page [96](#) and Install Frames 10...15 Drive Power Bay Components on page [97](#).

Bus Supply Installations:

- Install Frame 7 Bus Supply Components on page [98](#).
- Install Frame 8 and 9 Bus Supply Input Bay Components on page [99](#) and Install Frame 8 and 9 Bus Supply Power Bay Components on page [99](#).
- Install Frame 10...15 Bus Supply Input Bay Components on page [100](#) and Install Frame 10...15 Bus Supply Power Bay Components on page [101](#).

Common Bus Inverter Installations:

- Install Frame 8...15 Common Bus Inverter Control Bay Components on page [102](#) and Install Frame 8...15 Common Bus Inverter Power Bay Components on page [102](#).

Non-Regenerative Supply Installations:

- Install Non-Regenerative Supply Power Bay Components on page [103](#) and Install a Non-Regenerative Supply Wire Entry Bay for In-line Configurations on page [103](#).

Entry Wire, Exit Wire, and DC Voltage Balance Bay Installations:

- Install Entry Wire Bay Components (Frames 10...15) on page [104](#).
- Install Exit Wire Bay Components on page [104](#).
- Install Back-to-Back Wire Entry and DC Voltage Balance Bay Components on page [105](#).

Install Frame 7 Drive Components

See the frame size explanation for PowerFlex 755TL and 755TR Drives on page [5](#) and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page [78](#) for details.

Follow this recommended sequence to install frame 7 drive component kits into a power bay.

1. Install the floor mounting bracket (see page [206](#)).
2. Install the enclosure roof exhaust vent:
 - For IP21 see page [209](#)
 - For IP54 see page [210](#)
3. Install the enclosure door vent.
 - For IP21 see page [209](#)
 - For IP54 see page [210](#)
4. Install the control pod door vents (see Recommended Enclosures on page [39](#) or Customer-sourced Components on page [54](#)).
5. Install the upper and lower ground bus bars (customer sourced – see Ground Bus Bar Installation on page [118](#) and Bus Bars Specifications on page [136](#)).
6. Install an upper right sheet metal support panel (customer sourced – see page [391](#)).
7. Install a sheet metal AC input and DC bus bar mounting panel (customer sourced – see page [387](#)).
8. Install a sheet metal AC output bus bar mounting panel (customer sourced – see page [388](#)).
9. Install the AC input bus bar terminals on the bus bar mounting panel (see page [235](#)).
10. Install the AC output bus bar terminals on the bus bar mounting panel (see page [235](#)).
11. If used, install the torque accuracy module (TAM) (see page [303](#)).
12. Install the DC bus bars on the bus bar mounting panel (see page [237](#)).
13. Install the sheet metal LCL filter and power module mounting bracket (see page [223](#)).
14. If used, install the marine discharge circuit board on the upper right support panel (see page [251](#)).
15. If used, install a control power transformer (customer sourced – see PowerFlex 755T Products Control Transformers (Frames 7...15 and 7L) on page [144](#)).
16. Install a sheet metal resistor and circuit breaker support bracket (customer sourced, see page [393](#)).
17. Install the AC precharge resistors on the resistor and circuit breaker support bracket (customer sourced – see page [298](#)).
18. Install an AC precharge contactor on the resistor and circuit breaker support bracket (customer sourced – see page [298](#)).
19. Install the AC precharge circuit breaker on the resistor and circuit breaker support bracket (see page [278](#)).
20. Install the AC precharge circuit breaker input bus bar terminals and flexible bus bars (see page [279](#)).
21. Install the AC precharge circuit breaker output bus bar terminals (see page [280](#)).
22. Install the AC precharge circuit breaker output fuses (see step 1 on page [281](#)).
23. Install the motor side inverter output flexible bus bars on the AC output bus bar terminals and a customer-sourced guard (see page [282](#)).
24. Install the DC output flexible bus bars on the DC output bus bar terminals (see step 2 on page [286](#)).
25. Install the following AC precharge components on an AC precharge components mounting panel (customer sourced – see page [396](#)):
 - AC precharge circuit board (see page [296](#).)
 - AC precharge TVSS module (see page [300](#))
 - AC precharge time delay relay (see page [301](#))
 - Fused disconnect (customer sourced – see page [169](#))
26. Install the AC precharge components mounting panel.
27. Install the control pod assembly, mechanically only (see page [313](#)).
28. Install the disconnect handle on the enclosure door (customer sourced).
29. Install the LCL filter module, mechanically (see page [306](#)).
30. Install the circuit breaker AC output flexible bus bars and fuses (see steps 2...6 on page [283](#)).
31. Install the power modules, mechanically (see page [305](#)).
32. Install the DC link bus bars and fuses on the power modules (see page [284](#)).
33. Connect the DC output flexible bus bars to the DC link fuses (see steps 1 and 3 on page [286](#)).
34. Make the following electrical connections for the LCL filter and power modules (for frame 7 LCL filter modules, see page [162](#), for frame 7 power modules, see page [157](#)):
 - Connect the AC link fuse harness connector P1 to connector J1 on the LCL filter module.
 - Connect the 240V AC supply connector P2 to J2 on the LCL filter module.
 - Connect the 24V DC supply from the LCL filter module harness connector P3 to J3 on the line side converter power module.
 - Connect the fiber-optic cable from the LCL filter module to the PDI port on the line side converter power module.
 - Connect the DC link fuse harness connector P1 to J1 on the line side converter power module.
 - Connect the 240V AC / 24V DC supply from the control power connector P4 to J4 on the power modules.
 - Connect the fiber-optic cable from port CTL on the power layer interface (PLI) board on the line-side converter power module to port LO on the fiber transceiver board in the control pod (see page [185](#)).
 - Connect the fiber-optic cable from port CTL on the power layer interface (PLI) board on the motor-side converter power module to port MO on the fiber transceiver board in the control pod (see page [185](#)).

Install Frame 7L Liquid Cooled Drive Components

See the frame size explanation for PowerFlex 755TL and 755TR Drives on page 5 and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page 78 for details.

Follow this recommended sequence to install frame 7L Liquid Cooled drive component kits into a power bay.

1. Install the LCL filter module floor mounting bracket (see page 207).
2. Install the IP21 enclosure roof exhaust vent (see page 211).
3. Install the IP21 enclosure door vent (see page 211).
4. Install the control pod door vents (see Recommended Enclosures on page 39 or Customer-sourced Components on page 54).
5. Install the upper and lower ground bus bars (customer sourced – see Ground Bus Bar Installation on page 118 and Bus Bars Specifications on page 136).
6. Install an upper right sheet metal support panel (customer sourced – see page 391).
7. Install an AC input bus bar mounting panel (customer sourced – see page 387).
8. Install an upper AC output bus bar mounting panel (customer sourced – see page 389).
9. Install a lower AC output bus bar mounting panel (customer sourced – see page 390).
10. Install the AC input bus bar terminals on the bus bar mounting panel (see page 236).
11. Install the AC output bus bar terminals on the bus bar mounting panel (see page 236).
12. If used, install the torque accuracy module (see page 304).
13. Install the sheet metal LCL filter and power module mounting brackets (see page 231).
14. If used, install a control power transformer (customer sourced – see PowerFlex 755T Products Control Transformers (Frames 7...15 and 7L) on page 144).
15. Install a sheet metal resistor and circuit breaker support bracket (customer sourced, see page 393).
16. Install the AC precharge resistors on the resistor and circuit breaker support bracket (customer sourced – see page 298).
17. Install an AC precharge contactor on the resistor and circuit breaker support bracket (customer sourced – see page 298).
18. Install the AC precharge circuit breaker on the resistor and circuit breaker support bracket (see page 278).
19. Install the AC precharge circuit breaker input bus bar terminals and flexible bus bars (see page 279).
20. Install the AC precharge circuit breaker output bus bar terminals (see page 280).
21. Install the AC precharge circuit breaker output fuses (see step 1 on page 281).
22. Install the motor side inverter output flexible bus bars on the AC output bus bar terminals and a customer-sourced guard (see page 283).
23. Install the lower power module support bracket (customer-sourced – see page 401).
24. Install the following AC precharge components on an AC precharge components mounting panel (customer sourced – see page 396):
 - AC precharge circuit board (see page 296.)
 - AC precharge TVSS module (see page 300)
 - AC precharge time delay relay (see page 301)
 - Fused disconnect (customer sourced – see page 169)
25. Install the AC precharge components mounting panel (for an example installation, see page 398).
26. Install the control pod assembly, mechanically only (see page 313).
27. Install the disconnect handle on the enclosure door (customer sourced).
28. Install the LCL filter module, mechanically (see page 308).
29. Install the circuit breaker AC output flexible bus bars and fuses (see steps 2...6 on page 283).
30. Install the power module support beam (customer-sourced – see page 402).
31. Install the power modules, mechanically (see page 307).
32. Install the DC link bus bars and fuses on the power modules (see page 285).
33. Make the following electrical connections for the LCL filter and power modules (for frame 7L LCL filter modules, see page 162, for frame 7L power modules, see page 158).
 - Connect the AC link fuse harness connector P1 to connector J1 on the LCL filter module.
 - Connect the 240V AC supply connector P2 to J2 on the LCL filter module.
 - Connect the 24V DC supply from the LCL filter module harness connector P3 to J3 on the line side converter power module.
 - Connect the fiber-optic cable from the LCL filter module to the PDI port on the line side converter power module.
 - Connect the DC link fuse harness connector P1 to J1 on the line side converter power module.
 - Connect the 240V AC / 24V DC supply from the control power connector P4 to J4 on the power modules.
 - Connect the fiber-optic cable from port CTL on the power layer interface (PLI) board on the line-side converter power module to port LO on the fiber transceiver board in the control pod (see page 185).
 - Connect the fiber-optic cable from port CTL on the power layer interface (PLI) board on the motor-side converter power module to port MO on the fiber transceiver board in the control pod (see page 185).
34. Install the customer-sourced cooling loop components. See [Customer-sourced Components on page 54](#). And see [Frame 7L Liquid Cooling Loop Application Guidelines on page 73](#) and [Drive Coolant Requirements on page 73](#).
35. Once you have mounted the assembled drive enclosure in the final installation location, connect the internal drive cooling loop to the external cooling loop system.

Install Frame 8 and 9 Drive Input Bay Components

Frame size 8 and 9 drives require one input bay. See the frame size explanation for PowerFlex 755TL and 755TR Drives on page 5 and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page 78 for details.

Follow this recommended sequence to install frame 8 and 9 drive power input and control component kits into an input bay.

1. Install the enclosure roof exhaust vent and, where applicable, route and secure the vent fan power harness on the inside of the enclosure (see page 208).
2. Install the enclosure door vent (see Recommended Enclosures on page 39 or Customer-sourced Components on page 54).
3. Install the upper left and right side sheet-metal bus support panels (see page 217).
4. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page 136).
5. Install the control transformers (customer-sourced - see PowerFlex 755T Products Control Transformers (Frames 7...15 and 7L) on page 144).
6. Install the control bus assembly (see pages 253).
7. Install the back panel, insulator sheet and bus bar supports only from the AC input bus bar assembly kit:
 - For frame 8 see page 265
 - For frame 9 see page 266
8. Install the AC precharge module:
 - For frame 8 see page 267
 - For frame 9 see page 269
9. Install the three AC input bus bars from the AC input bus bar assembly kit and connect the bus bars to the lower terminals (R/L1, S/L2, and T/L3) on the AC precharge module:
 - For frame 8 see pages 265 and 268
 - For frame 9 see pages 266 and 270
10. For IP00 kit installed roof vents, connect the 240V AC power supply wire harness to the roof exhaust vent fan connector P2 (see page 208).
11. Install the control pod assembly, mechanically only (see page 314).
12. Install the disconnect handle on the enclosure door (customer sourced).

Install Frame 8 and 9 Drive Power Bay Components

Frame 8 drives require one power bay. Frame 9 drives require two power bays. See the frame size explanation for PowerFlex 755TL and 755TR Drives on page 5 and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page 78 for details.

Follow this recommended sequence to install frame 8 and 9 drive power component kits into a power bay.

1. Install the LCL filter and power module floor mounting-brackets:
 - For frame 8 see page 205
 - For frame 9 see page 204 and 205
2. Install the enclosure roof exhaust vents:
 - For IP21 see page 214
 - For IP54 see page 215 (route and secure the fan power harnesses on the inside of the enclosure)
3. Install the enclosure door vents:
 - For IP21 see page 214
 - For IP54 see page 215
4. Install the right and left upper, sheet-metal bus support panels:
 - For frame 8 see page 216
 - For frame 9 see page 217
5. Install the lower sheet-metal side panels:
 - For frame 8 drives, see page 218
 - For frame 9 drives, see pages 218 and 219.
6. Install the power module upper support-bracket (see page 232).
7. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page 136) and, for frame 9 drives, the splice bus bar (optionally customer sourced, or see page 249).
8. If used, install the DC bus conditioner and route the wires (a mounting plate must be customer-sourced - see pages 178 and 250).
9. For frame 8 drives, install the AC bus backpanel and stab assembly:
 - For left-to-right orientation, see page 227
 - For right-to-left orientation, see page 228
10. For frame 8 drives, verify that the AC precharge module is installed and install the AC input bus bars and fuses:
 - For left-to-right orientation, see page 271 or 272
 - For right-to-left orientation, see page 273
11. For frame 9, install the DC slotted bus bars and splice bus bars (see pages 238 and 239).
12. For frame 9 drives, install the appropriate AC bus backpanel and stab assembly:
 - To combine an LCL filter and two line-side converters in a bay, see page 231
 - To combine two motor-side inverters in a bay, see page 233

13. For frame 9 drives, install the upper AC slotted bus bars and splice bus bars (see pages [241](#) and [243](#)).
14. For frame 9 drives, install the AC input link bus bars and fuses (see page [276](#)).
15. For frame 9 drives, verify that the AC precharge module is installed and install the AC input splice bus bars:
 - For left-to-right orientation, see page [274](#)
 - For right-to-left orientation, see page [275](#)
16. Install the control bus assembly and, when required, control bus splice (see pages [254](#) and [255](#), respectively).
17. If an IP00 IP54 roof exhaust vent kit is installed, connect the control bus wire harness and connector P12 or customer-sourced 240V AC power supply wire harness to the fan power harnesses connector P1 (see pages [215](#) and [347](#)).
18. Install the DC link/fuse assembly with optional common mode cores. The wire harness connections cannot be made at this time.
 - For frame 8 left-to-right orientation, see pages [257](#) and [260](#)
 - For frame 8 right-to-left orientation, see pages [258](#) and [260](#)
 - For frame 9, see pages [259](#) and [261](#)
19. If used, install the torque accuracy module (see page [302](#)).
20. Install the airflow baffles (see page [277](#)).
21. Install the LCL filter and power modules (for LCL filter modules, see pages [163](#) and [310](#), for power modules, see pages [159](#) and [312](#)).
 - Connect the 240V AC supply from the control bus connector P4 to P2 on the LCL filter module.
 - Connect the AC link fuse harness connector P5 to P1 on the LCL filter module.
 - Connect the DC link fuse harness connector P1 to J1 on the power module.
 - If used, connect the DC bus conditioner connector P2 to J2 on the power module (see pages [178](#) and [250](#)).
 - Connect the 24V DC supply from the LCL filter module harness connector P3 to J3 on the power module.
 - Connect the 240V AC / 24V DC supply from the control bus connector P4 to J4 on the power module (see page [257](#), [258](#), or [259](#)).
 - Connect the fiber-optic cables from the LCL port on the LCL filter module to the PDI port on the corresponding power module.
 - Connect the fiber-optic cables from port CTL on the power layer interface (PLI) board on the line-side converter power modules to ports Lx on the fiber transceiver board in the control pod (see page [185](#)).
 - Connect the fiber-optic cables from port CTL on the power layer interface (PLI) board on the motor-side converter power modules to ports Mx on the fiber transceiver board in the control pod (see page [185](#)).

Install Frames 10...15 Drive Input Bay Components

Frame size 10...12 drives require one input bay. Frame size 13...15 drives require two input bays and two entry wire bays. See the frame size explanation for PowerFlex 755TL and 755TR Drives on page [5](#) and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page [78](#) for details.

Follow this recommended sequence to install frames 10...15 drive power input and control components kits into an input bay.

1. Install the enclosure roof exhaust and door vents:
 - For IP21 see page [212](#)
 - For IP54 see page [213](#)
2. Install the upper left and right side sheet-metal bus support panels (see page [217](#)).
3. Install the upper AC slotted bus bars (see pages [241](#)).
4. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page [136](#)).
5. Install the lower left and right side sheet-metal AC input bus support panels and AC input bus bars (see pages [220](#)).
6. Install the left and right side circuit breaker sheet-metal support panels (see pages [221](#) or [222](#)). It is recommended that you do not install the transformer mounting panel (upper-most panel of the kit) until after the circuit breaker and circuit breaker bus bars have been installed.
7. Install the control bus assembly (see page [253](#)).
8. Install the control bus connector, catalog number 20-750-MCTRLBUS-CONN2 (see pages [156](#) and [256](#)).
9. Install the circuit breaker and bus bars (See page [288](#), [290](#), [292](#), or [294](#)).
10. If used, install the thermal switch on the circuit breaker S/L2 output bus bar (see page [176](#)).
11. If used, install the transformer mounting panel from the kit that is installed in step 7 (see page [221](#) or [222](#)).
12. Install the control transformers (customer-sourced - see PowerFlex 755T Products Control Transformers (Frames 7...15 and 7L) on page [144](#)).
13. Install the following AC precharge system components, mechanically only:
 - AC precharge circuit board (see page [297](#))
 - AC precharge resistor banks (see page [299](#))
 - AC precharge TVSS module (see page [300](#))
 - AC precharge time delay relay (see page [301](#))
 - Fused disconnect (customer sourced - see page [169](#))
 - AC precharge contactor (customer sourced - see page [172](#))
14. Install the control pod assembly, mechanically only (see page [314](#)).

15. Make the following AC precharge system components electrical connections:
 - AC precharge circuit board (see page [168](#))
 - AC precharge resistor banks (see pages [174](#) and [299](#))
 - AC precharge TVSS module (see pages [178](#) and [300](#))
 - AC precharge time delay relay (see pages [173](#) and [301](#))
 - Fused disconnect (customer-sourced, see page [169](#))
 - AC precharge contactor (customer-sourced, see page [172](#))
16. Install the lower guard and fan assembly:
 - For IP21, see page [212](#)
 - For IP54, see page [213](#)
17. Install the disconnect handle on the enclosure door (customer sourced).

Install Frames 10...15 Drive Power Bay Components

Frame size 10...15 drives require multiple power bays. Frame size 13...15 drives require two exit wire bays. See the frame size explanation for PowerFlex 755TL and 755TR Drives on page [5](#) and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page [78](#) for details.

Follow this recommended sequence to install frames 10...15 drive power component kits into power bays.

1. Install the LCL filter and power module floor mounting-brackets (see pages [204](#) and [205](#)).
2. Install the enclosure roof exhaust vents:
 - For IP21, see page [214](#)
 - For IP54, see [215](#) (route and secure the fan power harnesses on the inside of the enclosure)
3. Install the enclosure door vents:
 - For IP21, see page [214](#)
 - For IP54, see page [215](#)
4. Install the right and left upper, sheet-metal bus support panels (see page [217](#)).
5. Install the lower sheet-metal side panels (see pages [218](#) and [219](#)).
6. Install the power module upper support-bracket (see page [232](#)).
7. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page [136](#)) and splice bus bar (optionally customer sourced, or see page [249](#)).
8. If used, install the DC bus conditioner and route the wires (a mounting plate must be customer-sourced - see pages [178](#) and [250](#)).
9. Install the DC slotted bus bars and splice bus bars (see pages [238](#) and [239](#)).
10. Install the appropriate AC bus backpanel and stab assembly:
 - To combine an LCL filter and line-side converter in a bay, see page [229](#)
 - To combine an LCL filter and two line-side converters in a bay, see page [231](#)
 - To combine two motor-side inverters in a bay, see page [233](#)
 - To combine three motor-side inverters in a bay, see page [234](#)
11. Install the lower AC slotted bus bar splice bus bars (see page [244](#)).
12. Install the upper AC slotted bus bars and splice bus bars (see pages [241](#) and [243](#)).
13. Install the AC input link bus bars and fuses (see page [276](#)).
14. Install the control bus assembly and control bus splice (see pages [254](#) and [255](#), respectively).
15. If an IP54 roof exhaust vent is installed, install the control bus connector (cat. no. 20-750-MCTRLBUS-CONN1) and connect the wire harness connector P12 or customer-sourced 240V AC power supply wire harness to the fan power harnesses connector P1 (see page [215](#)).
16. Install the DC link/fuse assembly (see page [259](#)).
17. If used, install the torque accuracy module (see page [302](#)).
18. Install the airflow baffles (see page [277](#)).
19. Install the power and LCL filter modules (for power modules, see pages [159](#) and [312](#), for LCL filter modules, see pages [163](#) and [310](#)).

IMPORTANT LCL filter module placement within the drive power bays is based on specific module catalog numbers. See pages [7](#) through [12](#) for details.

- Connect the 240V AC supply from the control bus connector P4 to P2 on the LCL filter module.
- Connect the fuse harness connector P5 to P1 on the LCL filter module.
- Connect the fuse harness connector P1 to J1 on the power module.
- If used, connect the DC bus conditioner connector P2 to J2 on the power module (see pages [178](#) and [250](#)).
- Connect the 24V DC supply from the LCL filter module harness connector P3 to J3 on the power module.
- Connect the 240V AC / 24V DC supply from the control bus connector P4 to J4 on the power module (see page [257](#), [258](#), or [259](#)).
- Connect the fiber-optic cables from the LCL port on the LCL filter module to the PDI port on the corresponding power module.
- Connect the fiber-optic cables from port CTL on the power layer interface (PLI) board on the line-side converter power modules to ports Lx on the fiber transceiver board in the control pod (see page [185](#)).
- Connect the fiber-optic cables from port CTL on the power layer interface (PLI) board on the motor-side converter power modules to ports Mx on the fiber transceiver board in the control pod (see page [185](#)).

Install Frame 7 Bus Supply Components

See the frame size explanation for PowerFlex 755TM Bus Supplies on page [13](#) and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page [78](#) for details.

Follow this recommended sequence to install frame 7 bus supply component kits into a power bay.

1. Install the floor mounting bracket (see page [206](#)).
2. Install the enclosure roof exhaust vent:
 - For IP21 see page [209](#)
 - For IP54 see page [210](#)
3. Install the enclosure door vent.
 - For IP21 see page [209](#)
 - For IP54 see page [210](#)
4. Install the control pod door vents (see Recommended Enclosures on page [39](#) or Customer-sourced Components on page [54](#)).
5. Install the upper and lower ground bus bars (customer sourced - see Bus Bars Specifications on page [136](#)).
6. Install a sheet metal AC input and DC bus bar mounting panel (customer sourced - see page [387](#)).
7. Install the sheet metal LCL filter and power module support bracket (see page [223](#)).
8. Install a sheet metal AC output bus bar mounting panel (customer sourced - see page [388](#)).
9. Install the AC input bus bar terminals on the bus bar mounting panel (see page [235](#)).
10. Install the DC bus bars on the bus bar mounting panel (see page [237](#)).
11. Install a upper right sheet metal support panel (customer sourced - see page [391](#)).
12. If used, install the marine discharge circuit board on the upper right support panel (see page [251](#)).
13. If used, install a control power transformer (customer sourced - see PowerFlex 755T Products Control Transformers (Frames 7...15 and 7L) on page [144](#)).
14. Install a sheet metal resistor and circuit breaker support bracket (customer sourced, see page [393](#)).
15. Install the AC precharge resistors on the resistor and circuit breaker support bracket (customer sourced, see page [298](#)).
16. Install an AC precharge contactor on the resistor and circuit breaker support bracket (customer sourced - see page [298](#)).
17. Install the AC precharge circuit breaker on the resistor and circuit breaker support bracket (see page [278](#)).
18. Install the AC precharge circuit breaker input bus bar terminals and flexible bus bars (see page [279](#)).
19. Install the AC precharge circuit breaker output bus bar terminals (see page [280](#)).
20. Install the AC precharge circuit breaker output fuses (see step 1 on page [281](#)).
21. Install the DC output flexible bus bars on the DC output bus bar terminals (see step 3 on page [287](#)).
22. Install the following AC precharge components on an AC precharge components mounting panel (customer sourced - see page [396](#)):
 - AC precharge circuit board (see page [296](#)).
 - AC precharge TVSS module (see page [300](#))
 - AC precharge time delay relay (see page [301](#))
 - Fused disconnect (customer sourced - see page [169](#))
23. Install the AC precharge components mounting panel.
24. Install the control pod assembly, mechanically only (see page [313](#)).
25. Install the disconnect handle on the enclosure door (customer sourced).
26. If used, install the torque accuracy module (see page [303](#)).
27. Install the LCL filter module, mechanically (see page [306](#)).
28. Install the AC out flexible bus bars (see steps 2...6 on page [281](#))
29. Install the power module, mechanically (see page [305](#)).
30. Install the DC output fuses and flexible bus bars on the line side converter (see steps 1, 2 and 4...6 on page [287](#)).
31. Make the following electrical connections for the LCL filter and power modules (for frame 7 LCL filter modules, see page [163](#), for frame 7 power modules, see page [159](#)):
 - Connect the AC link fuse harness connector P1 to connector J1 on the LCL filter module.
 - Connect the 240V AC supply connector P2 to J2 on the LCL filter module.
 - Connect the 24V DC supply from the LCL filter module harness connector P3 to J3 on the line side converter power module.
 - Connect the fiber-optic cable from the LCL filter module to the PDI port on the line side converter power module.
 - Connect the DC link fuse harness connector P1 to J1 on the line side converter power module.
 - Connect the 240V AC / 24V DC supply from the control power connector P4 to J4 on the power modules.
 - Connect the fiber-optic cable from port CTL on the power layer interface (PLI) board on the line-side converter power module to port LO on the fiber transceiver board in the control pod (see page [185](#)).

Install Frame 8 and 9 Bus Supply Input Bay Components

Frame size 8 and 9 bus supplies require one input bay. See the frame size explanation for PowerFlex 755TM Bus Supplies on page [13](#) and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page [78](#) for details.

Follow this recommended sequence to install frame 8 and 9 bus supply power input and control components into an input bay.

1. Install the enclosure roof exhaust vent and, where applicable, route and secure the vent fan power harness on the inside of the enclosure (see page [208](#)).
2. Install the enclosure door vent (see Recommended Enclosures on page [39](#) or Customer-sourced Components on page [54](#)).
3. Install the upper left and right side sheet-metal bus support panels (see page [217](#)).
4. For frame 9 bus supplies only, install the LCL filter module plastic AC flexible bus bar support (see page [217](#)).
5. Install the DC slotted bus bars (see page [238](#)).
6. Install a DC bus protective guard (customer sourced).
7. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page [136](#)).
8. Install the control transformers (customer-sourced - see PowerFlex 755T Products Control Transformers (Frames 7...15 and 7L) on page [144](#)).
9. Install the control bus assembly (see pages [253](#)).
10. Install the back panel, insulator sheet and bus bar supports only from the AC input bus bar assembly kit:
 - For frame 8, see page [265](#)
 - For frame 9, see page [266](#)
11. Install the AC precharge module:
 - For frame 8 see page [267](#)
 - For frame 9 see page [269](#)
12. Install the three AC input bus bars from the AC input bus bar assembly kit and connect the bus bars to the lower terminals (R/L1, S/L2, and T/L3) on the AC precharge module:
 - For frame 8 see page [268](#)
 - For frame 9 see page [270](#)
13. For IP00 kit installed roof vents, connect the 240V AC power supply wire harness to the roof exhaust vent fan connector P2 (see page [208](#)).
14. Install the control pod assembly, mechanically only (see page [314](#)).
15. Install the disconnect handle on the enclosure door (customer sourced).

Install Frame 8 and 9 Bus Supply Power Bay Components

Frame size 8 and 9 bus supplies require one power bay. See the frame size explanation for PowerFlex 755TM Bus Supplies on page [13](#) and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page [78](#) for details.

Follow this recommended sequence to install frame 8 and 9 bus supply power components kits into a power bay.

1. Install the LCL filter and power module floor mounting-brackets:
 - For frame 8, see page [204](#)
 - For frame 9, see page [205](#)
2. Install the enclosure roof exhaust vents:
 - For IP21, see page [214](#)
 - For IP54, see [215](#) (route and secure the fan power harnesses on the inside of the enclosure)
3. Install the enclosure door vents:
 - For IP21, see page [214](#)
 - For IP54, see page [215](#)
4. Install the right and left upper, sheet-metal bus support panels:
 - For frame 8, see page [216](#)
 - For frame 9, see page [217](#)
5. Install the lower sheet-metal side panels (see page [218](#)).
6. Install the power module upper support-bracket (see page [232](#)).
7. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page [136](#)) and splice bars (optionally customer sourced, or see page [249](#)).
8. If used, install the DC bus conditioner and route the wires (a mounting plate must be customer-sourced - see pages [178](#) and [250](#)).
9. Install the DC slotted bus bars and splice bus bars (see page [238](#) and [239](#)).
10. For frame 8 bus supplies, install the AC bus backpanel and stab assembly for an LCL filter and single line-side converter:
 - For left-to-right orientations, see page [229](#)
 - For right-to-left orientations, see page [230](#)
11. For frame 8 bus supplies, verify that the AC precharge module is installed and install the AC input bus bars and fuses:
 - For left-to-right orientation, see page [271](#) or [272](#)
 - For right-to-left orientation, see page [273](#)
12. For frame 9 bus supplies, install the AC bus backpanel and stab assembly for an LCL filter and two line side converters (see page [231](#)).
13. For frame 9 bus supplies, install the upper AC slotted bus bars (see page [241](#)).
14. For frame 9 bus supplies, install the AC input link bus bars and fuses (see page [276](#)).

15. For frame 9 bus supplies, verify that the AC precharge module must be installed and install the AC input splice bus bars:
 - For left-to-right orientation, see page [274](#)
 - For right-to-left orientation, see page [275](#)
16. Install the control bus assembly and control bus splice (see pages [254](#) and [255](#), respectively).
17. If an IP00 IP54 roof exhaust vent kit is installed, connect the control bus wire harness connector P12 or customer-sourced 240V AC power supply wire harness to the fan power harnesses connector P1 (see page [215](#)).
18. Install the DC link/fuse assembly with optional common mode cores (see pages [259](#) and [261](#), respectively).
19. If used, install the torque accuracy module (see page [302](#)).
20. Install the airflow baffles (see page [277](#)).
21. Install the line side converter power modules and LCL filters modules (for power modules, see pages [159](#) and [312](#), and for LCL filter modules, see pages [163](#) and [310](#)).
 - Connect the 240V AC supply from the control bus connector P4 to P2 on the LCL filter module.
 - Connect the fuse harness connector P5 to P1 on the LCL filter module.
 - Connect the fuse harness connector P1 to J1 on the power module.
 - If used, connect the DC bus conditioner connector P2 to J2 on the power module (see pages [178](#) and [250](#)).
 - Connect the 24V DC supply from the LCL filter module harness connector P3 to J3 on the power module.
 - Connect the 240V AC / 24V DC supply from the control bus connector P4 to J4 on the power module (see page [257](#), [258](#), or [259](#)).
 - Connect the fiber-optic cables from the LCL port on the LCL filter module to the PDI port on the corresponding power module.
 - Connect the fiber-optic cables from port CTL on the power layer interface (PLI) board on the line-side converter power modules to ports Lx on the fiber transceiver board in the control pod (see page [185](#)).

Install Frame 10...15 Bus Supply Input Bay Components

Frame size 10...12 bus supplies require one input bay. Frame size 13...15 bus supplies require two input bays and two wire entry bays. See the frame size explanation for PowerFlex 755TM Bus Supplies on page [13](#) and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page [78](#) for details.

Follow this recommended sequence to install frame 10...15 bus supply power input and control components into an input bay.

1. Install the enclosure roof exhaust vents:
 - For IP21, see page [212](#)
 - For IP54, see page [213](#)
2. Install one or more door vents:
 - For IP21, see page [212](#)
 - For IP54, see page [213](#)
3. Install the upper left and right side sheet-metal bus support panels (see page [217](#)).
4. Install the DC slotted bus bars (see page [238](#)).
5. Install a DC bus protective guard (customer sourced).
6. Install the upper AC slotted bus bars (see page [241](#)).
7. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page [136](#)).
8. Install the lower left and right side sheet-metal AC input bus support panels and AC input bus bars (see page [220](#)).
9. Install the left and right side circuit breaker sheet-metal support panels (see page [221](#) or [222](#)). It is recommended that you do not install the transformer mounting panel (upper-most panel of the kit) until after the circuit breaker and circuit breaker bus bars have been installed.
10. Install the control bus assembly and control bus splice (see pages [253](#) and [255](#), respectively).
11. Install the control bus connector, catalog number 20-750-MCTRLBUS-CONN2 (see pages [156](#) and [256](#)).
12. Install the circuit breaker and bus bars (See page [288](#), [290](#), [292](#), or [294](#)).
13. If used, install the thermal switch on the circuit breaker S/L2 output bus bar (see page [176](#)).
14. If used, install the transformer mounting panel from the kit that is installed in step 9 (see pages [221](#) and [222](#)).
15. Install the control transformers (customer-sourced - see PowerFlex 755T Products Control Transformers (Frames 7...15 and 7L) on page [144](#)).
16. For frames 10...12, install the following AC precharge system components, mechanically only:
 - AC precharge circuit board (see page [297](#))
 - AC precharge resistor banks (see page [299](#))
 - AC precharge TVSS module (see page [300](#))
 - AC precharge time delay relay (see page [301](#))
 - Fused disconnect (customer sourced - see page [169](#))
 - AC precharge contactor (customer sourced - see page [172](#))
17. Install the control pod assembly, mechanically only (see page [314](#)).
18. For frames 10...12, make the following AC precharge system components electrical connections:
 - AC precharge circuit board (see page [168](#))
 - AC precharge resistor banks (see pages [174](#) and [299](#))
 - AC precharge TVSS module (see pages [178](#) and [300](#))
 - AC precharge time delay relay (see pages [173](#) and [301](#))
 - Fused disconnect (customer-sourced, see page [169](#))

- AC precharge contactor (customer-sourced, see page [172](#))
19. For frames 10...12, install the lower guard and fan assembly:
 - For IP21, see page [212](#)
 - For IP54, see page [213](#)
 20. Install the disconnect handle on the enclosure door (customer sourced).

Install Frame 10...15 Bus Supply Power Bay Components

Frame size 10...15 bus supplies require multiple power bays. Frame size 13...15 bus supplies require two wire exit bays. See the frame size explanation for PowerFlex 755TM Bus Supplies on page [13](#) and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page [78](#) for details.

Follow this recommended sequence to install frame 10...15 bus supply power components kits into power bays.

1. Install the LCL filter and power module floor mounting-brackets (see pages [204](#) and [205](#)).
2. Install the enclosure roof exhaust vents:
 - For IP21, see page [214](#)
 - For IP54, see [215](#) (route and secure the fan power harnesses on the inside of the enclosure)
3. Install the enclosure door vents:
 - For IP21, see page [214](#)
 - For IP54, see page [215](#)
4. Install the right and left upper, sheet-metal bus support panels (see page [217](#)).
5. Install the lower sheet-metal side panels (see page [218](#)).
6. Install the power module upper support-bracket (see page [232](#)).
7. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page [136](#)) and splice bars (optionally customer sourced, or see page [249](#)).
8. If used, install the DC bus conditioner and route the wires (a mounting plate must be customer-sourced - see pages [178](#) and [250](#)).
9. Install the DC slotted bus bars and splice bus bars (see pages [238](#) and [239](#)).
10. Install the appropriate AC bus backpanel and stab assembly:
 - To combine an LCL filter and single line-side converter (see page [229](#)).
 - To combine an LCL filter and two line side converters (see page [231](#)).
11. Install the AC slotted bus bars and splice bus bars (see pages [241](#) and [243](#)).
12. Install the AC input link bus bars and fuses (see page [276](#)).
13. Install the control bus assembly and control bus splice (see pages [254](#) and [255](#), respectively).
14. If an IP54 exhaust vent is installed, connect the control bus connector P12 or 240V AC power supply source to the fan power harnesses connector P1 (see page [215](#)).
15. Install the DC link/fuse assembly with optional common mode cores (see page [259](#)).
16. If used, install the torque accuracy module (see page [302](#)).
17. Install the airflow baffles (see page [277](#)).
18. Install the line side converter power modules and LCL filter modules (for power modules, see pages [159](#) and [312](#), and for LCL filter modules, see pages [163](#) and [310](#)).

IMPORTANT LCL filter module placement within the bus supply power bays is based on specific module catalog numbers. See pages [15](#) through [20](#) for details.

- Connect the 240V AC supply from the control bus connector P4 to P2 on the LCL filter module.
- Connect the fuse harness connector P5 to P1 on the LCL filter module.
- Connect the fuse harness connector P1 to J1 on the power module.
- If used, connect the DC bus conditioner connector P2 to J2 on the power module (see pages [178](#) and [250](#)).
- Connect the 24V DC supply from the LCL filter module harness connector P3 to J3 on the power module.
- Connect the 240V AC / 24V DC supply from the control bus connector P4 to J4 on the power module (see page [257](#), [258](#), or [259](#)).
- Connect the fiber-optic cables from the LCL port on the LCL filter module to the PDI port on the corresponding power module.
- Connect the fiber-optic cables from port CTL on the power layer interface (PLI) board on the line-side converter power modules to ports Lx on the fiber transceiver board in the control pod (see page [185](#)).

Install Frame 8...15 Common Bus Inverter Control Bay Components

Frame size 8...12 common bus inverters require one control bay. Frame size 13...15 common bus inverters require two control bays. See the frame size explanation for PowerFlex 755TM Common Bus Inverters on page [21](#) and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page [78](#) for details.

Follow this recommended sequence to install common bus inverter power input and control components into a control bay.

1. Install the enclosure roof exhaust vent and route and secure the fan power harnesses on the inside of the enclosure (see page [208](#)).
2. Install the enclosure door vent (if customer sourced, see page [60](#)).
3. Install the upper sheet-metal bus support panels (see page [245](#)).
4. Install the DC slotted bus bars (see page [238](#)).
5. If used, install the control bus assembly (see page [252](#)).
6. Install a DC bus protective guard (customer sourced).
7. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page [136](#)).
8. Install the control wire /cable supports and guides (customer sourced).
9. Connect the 240V AC power supply to the exhaust vent fan connector P2.
10. Install the control pod assembly (see page [314](#)).

Install Frame 8...15 Common Bus Inverter Power Bay Components

Frame size 8...10 common bus inverters require one power bay. Frame 11...15 common bus inverters require multiple power bays. Frame size 13...15 common bus inverters require two wire exit bays. See the frame size explanation for PowerFlex 755TM Common Bus Inverters on page [21](#) and Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page [78](#) for details.

Follow this recommended sequence to install common bus inverter power components into a power bay(s).

1. Install the LCL filter and power module floor mounting-brackets (see pages [203...205](#)).
2. Install one or more roof exhaust vents:
 - For IP21, see page [214](#)
 - For IP54, see page [215](#) (route and secure the fan power harness on the inside of the enclosure)
3. Install one or more door ventilation filters:
 - For IP21, see page [214](#)
 - For IP54, see page [215](#)
4. Install the upper sheet-metal bus support panels (see page [217](#)).
5. Install the lower sheet-metal side panels (see page [219](#)).
6. Install the power module upper support-bracket (see page [232](#)).
7. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page [136](#)) and, when required, splice bus bars (optionally customer sourced, or see page [249](#)).
8. Install the back panel and stab assembly:
 - For frame 8, see page [232](#)
 - For frame 9, 11, 12, 14, or 15 see page [233](#)
 - For frame 10, 12, 13, or 15 see page [234](#)
9. For frames 11, 12, 14, and 15 install the lower AC slotted bus bar splice bus bars (see page [244](#)).
10. If used, install the DC bus conditioner and route the wires (a mounting plate must be customer-sourced - see pages [178](#) and [250](#)).
11. Install the DC slotted bus bars and, when required, splice bus bars (see pages [238](#) and [239](#)).
12. If a DC link/fuse assembly is used, install the DC link/fuse assembly and optional common mode cores (see pages [259](#) and [261](#), respectively).
13. If a DC precharge module is used, install the DC precharge top and front mounting support brackets (see page [262](#)).
14. If a DC precharge module is used, install the DC precharge stab assembly (see page [263](#)).
15. Install the control bus assembly and, when required, control bus splice (see pages [254](#) and [255](#), respectively).
16. If used, install the torque accuracy module (see page [302](#)).
17. Install the DC precharge module 240V AC power supply harness (see page [264](#)).
18. Install the enclosure airflow baffles (see page [277](#)).
19. Install the DC precharge module (see pages [164](#) and [264](#)).
20. Connect the 240V AC power supply harness to the DC precharge unit, if installed (see pages [164](#) and [264](#)).
21. Install one or more motor side inverter power modules (see pages [159](#) and [312](#)).

Install Non-Regenerative Supply Power Bay Components

The number of power bays, wire bays and/or DC voltage balance bays depends on your NRS system configuration. See PowerFlex 755TM Non-Regenerative Supply Module Configurations on page 27 for details. See Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page 78 for details.

Follow this recommended sequence to install non-regenerative supply components into a power bay(s).

1. If used, install the enclosure door window and overlay labels (see page 322).
2. Install the enclosure door intake and roof exhaust vent: IP21 or IP54.
 - For IP21, Type 1 installations, see page 323.
 - For IP54, Type 12 installations, see page 324.
3. Install the air seal panel on the inside of the NRS power bay door (see page 338).
4. Install the NRS module floor mounting-bracket (see page 203).
5. Install the 1 kVA control transformer fuse holder bracket, fuse holders with fuses and terminals blocks on the upper left sheet-metal support panel (see page 330).
6. If used, install the 3 kVA control transformer fuse holder bracket, fuse holders with fuses and terminals blocks on the upper right sheet-metal support panel (see page 329).
7. Install the upper sheet-metal bus support panels (see page 325).
8. If used, install the DC bus conditioner and route the wires (see page 178 and 326).
9. Install the DC slotted bus bars and support brackets (see page 238).
10. If used, connect the DC bus conditioner +DC and -DC wire leads to the +DC and -DC slotted bus bars, respectively (see page 178 and 326).
11. Install the lower sheet-metal side panels (see page 219).
12. Install the ground bus bar (customer sourced – see Bus Bars Specifications on page 136).
13. When multiple NRS power bays are joined, install the ground splice bus bars (optionally customer sourced, or see page 249).
14. Install the stab receptacles with back panel and bus bar assembly (see page 327).
15. When multiple NRS power bays are joined, install the AC bus bar splices (see page 244 or 328).
16. If used, install the 3kVA (T2) control transformer (see page 329) and wire harness connections (see page 145).
17. Install the 1 kVA (T1) control transformer (see page 330) and wire harness connections (see page 145).
18. Install the control bus assembly and, when required, control bus splice (see page 254).
19. When multiple NRS power bays are joined, install the control bus splice (see page 255).
20. If used, connect the 240V AC supply from the 3 kVA (T2) control transformer to the control bus (see page 329).
21. Install the DC link/fuse assembly support bracket (see page 331).
22. Install the DC link/fuse assembly.
 - For single-density module installations see page 332).
 - For dual-density module installations see page 333).
23. If used, complete these steps to install the test point and N-1 bypass jumper bracket (see page 338).
 - a. Install the customer-supplied N-1 bypass jumper harness into the socket on the bracket (for wire harness details, see page 386).
 - b. Install the test point and N-1 bypass jumper bracket.
 - c. Install the customer-supplied test point sockets into the R, S, and T holes on the bracket.
 - d. Connect the customer-supplied R, S, and T test point wire harness to the R, S, and T AC input bus bars and test point sockets on the panel (for wire harness details, see page 385).
24. Install the NRS module (see page 334).
25. Remove the protective cover from the front of the NRS module and make these connections to the main control board (see page 160):
 - Connect the DC link fuse harness connector P2 to J2 on the main control board.
 - If used, connect the DC bus conditioner harness connector P13 to J13 on the main control board.
 - Install and connect the NRS module interconnect wire harness connector P12 to J12 on the main control board.
 - Connect the 240V AC power line and neutral wires on the NRS module interconnection wire harness connector P12 to the 1 kVA control transformer secondary terminal block TB1 (L1 and N2 – see page 140 for details).
 - If used, route and connect input and output control signal connections to connectors P10/J10 and P11/J11 on the main control board.
26. Install the appropriate NRS module interconnection harnesses for your NRS system configuration (see page 33, 335, 336, and 337).
27. When all connections are made, prior to operation of the supply, install the upper protective cover (see page 338).

Install a Non-Regenerative Supply Wire Entry Bay for In-line Configurations

Wire entry bays are optional for single-density (1X) NRS module configurations and required for all other in-line configurations. For back-to-back configurations, see Install Back-to-Back Wire Entry and DC Voltage Balance Bay Components on page 105.

Follow this recommended sequence to install components into an NRS entry wire bay for in-line configurations.

1. If used, install the DC splice bus bars (see page 239).
2. If used, install the control bus splice (see page 255).
3. Install the AC splice bus bars (see page 243).
4. Connect the door fan power wire harness to a 240V AC source (see page 143).
5. Connect the appropriate thermal switch signal interconnection harnesses for your NRS system configuration (see page 338).

Install Entry Wire Bay Components (Frames 10...15)

Entry wire bays are optional for frames 10...12. Entry wire bays are required for frame 13...15 inline configurations. See Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page 78 for details.

Follow this recommended sequence to install components into an entry wire bay.

1. Install the upper sheet-metal bus support panels (see page 242).
2. If used, install the DC slotted bus bars and splice bus bars (see pages 238 and 239, respectively).
3. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page 136) and, when required, splice bus bars (optionally customer sourced, or see page 249).
4. If used, install the control bus assembly and control bus splice (see pages 253 and 255, respectively).
5. Install the lower left and right side sheet-metal AC input bus support panels (see page 242).
6. Install the AC slotted bus bars and splice bus bars (see pages 242 and 243, respectively).
7. When the recommended enclosure is not used, install the door vents and fan (in the lower vent location).
8. If used, install the thermal switch on the S/L2 phase bus bar (see page 176).

Install Exit Wire Bay Components

Exit wire bays are optional for frames 8...12. Exit wire bays are required for frame 13...15 inline configurations. See Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page 78 for details.

Follow this recommended sequence to install components into an exit wire bay.

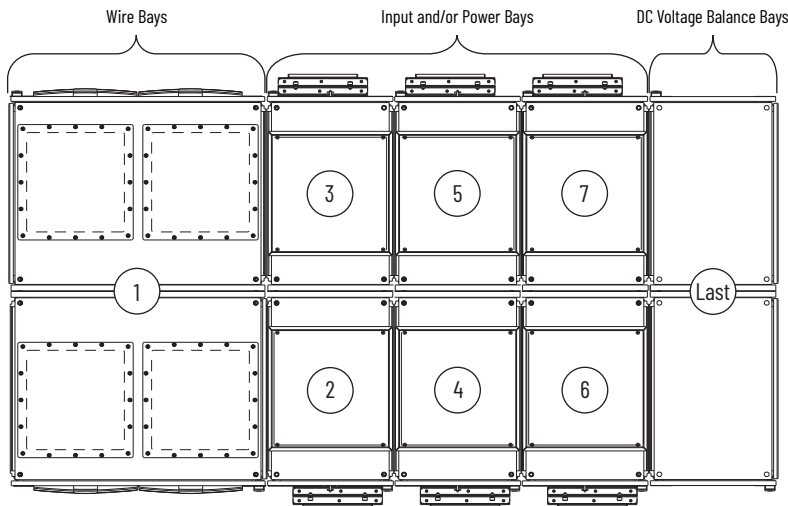
1. Install the upper sheet-metal bus support panels (see page 242).
2. If used, install the DC slotted bus bars and splice bus bars (see pages 238 and 239, respectively).
3. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page 136) and, when required, splice bus bars (optionally customer sourced, or see page 249).
4. If used, install the control bus assembly and control bus splice (see pages 253 and 255, respectively).
5. Install the lower left and right side sheet-metal AC input bus support panels (see page 242).
6. For frame 8 drives and common bus inverters, remove the R/L1, S/L2, and T/L3 terminals from the backpanel:
 - For a drive, see page 227 (left-to-right), or page 228 (right-to-left).
 - For a common bus inverter, see page 232.
7. For frame 8 drives and common bus inverters, install the AC bus bar splice:
 - For left-to-right orientations, see page 245.
 - For right-to-left orientations, see page 246.
8. For frame 9...15 drives and common bus inverters, install the AC slotted bus bars (see page 242).
9. For frame 9...15 drives and common bus inverters, install the AC bus splice bars:
 - For frames 9, 10, and 13 see page 247.
 - For frames 11, 12, 14, and 15 see page 248.
10. When the recommended enclosure is not used, install the door vents and fan (in the lower vent location).
11. If used, install the thermal switch on the V/T2 phase bus bar (see page 176).

Install Back-to-Back Wire Entry and DC Voltage Balance Bay Components

Wire entry and DC voltage balance bays are required for frame 13...15 back-to-back installations. The IP00 kits for these enclosures must be used for installations that require UL certification. See PowerFlex 755TM DC Voltage Balance and Wire Bay Kits (Supplier: Rockwell Automation or Rittal) on page 42. See Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page 78 for details.

Follow this recommended sequence to install components into a DC voltage balance bay.

1. Install airflow baffles on the back wall of the enclosure (customer-sourced).
2. Install the upper sheet-metal bus support panels (see page 242).
3. Where used, install the DC slotted bus bars and splice bus bars (see pages 238 and 239, respectively).
4. Install the ground bus bar (customer sourced - see Bus Bars Specifications on page 136) and, when required, splice bus bars (optionally customer sourced, or see page 249).
5. If used, install the control bus assembly and control bus splice (see pages 253 and 255, respectively).
6. Install the lower left and right side sheet-metal AC input bus support panels (see page 242).
7. Where used, install the AC slotted bus bars (see page 242).
8. Where used, install the AC bus splice bars:
 - For frames 13, see page 247.
 - For frames 14 and 15, see page 248.
9. When the recommended enclosure is not used, install the door vents and fan (in the lower vent location).
10. If used, install the thermal switch on the V/T2 phase bus bar (see page 176).
11. For DC voltage balance bays, install the DC bus bar splice (see page 240).
12. Follow this example sequence to install all bays in a back-to-back installation.



Transport and Mount the Assembled Enclosure Sections

This section provides instructions for the transport and installation of the PowerFlex 755T products that are installed in Rittal TS8 enclosures. Before you transport any enclosure sections, see Recommended Sections and Approximate Weights for Lifting and Transportation of Assembled Rittal TS8 Enclosures on page 78.

For other enclosure types, follow the manufacturer instructions for transporting and mounting assembled enclosure sections.

Handling Instructions



ATTENTION: Follow local codes and guidelines, and your company safety procedures, when you handle assembled enclosure sections. To avoid personal injury and structural damage to the assembled enclosure sections, never attempt to lift or move the equipment by any means other than the methods listed in this publication.

The following guidelines are provided to help avoid personal injury and equipment damage during handling and to help stabilize the product during transport to the installation site.

- Secure structural angles to the top of the enclosure sections to minimize flexing. See Create Structural Angles on pages 88 for details.
- Handle the enclosure sections carefully to avoid damage to the enclosures and assembled product.
- Keep the enclosure sections in an upright position. PowerFlex 755T products are not to be tipped or laid flat during handling.
- Before moving enclosure sections, verify that the route is clear of all obstructions and that other workers are not in the way of the route.

Lift Truck Instructions

To use a lift truck to transport assembled enclosure sections, you must secure the enclosures to a suitable pallet that can support the full weight of the assembled product.



ATTENTION: Verify that the lift truck can handle the weight and size of the assembled enclosure sections safely.

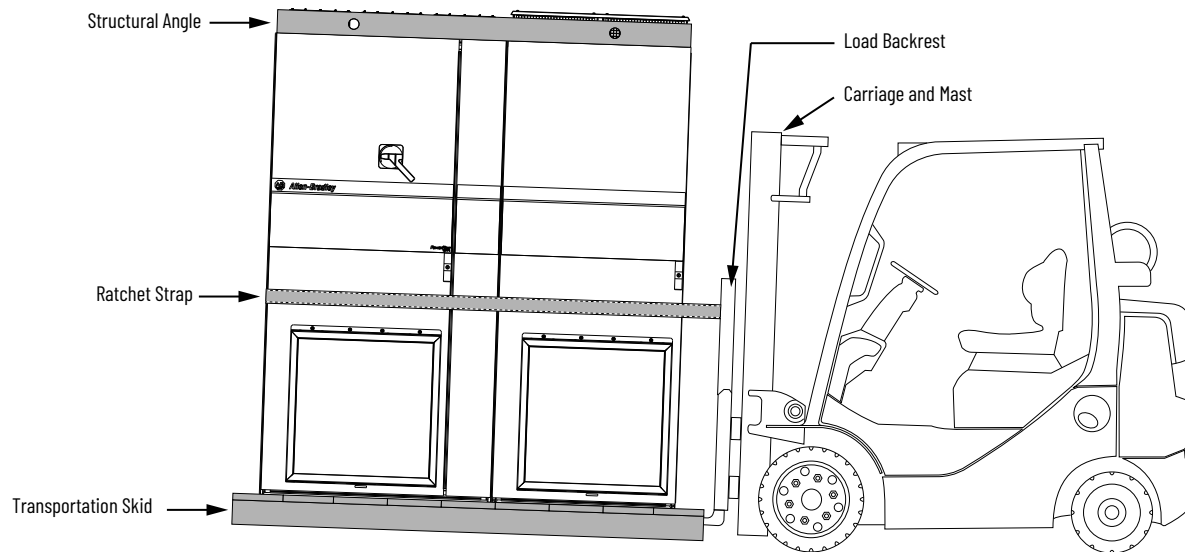
See Use a Lift Truck to Transport a PowerFlex 755T Enclosure on page 106 for an illustration.

1. Read the Handling Instructions in the previous section before you use a lift truck to transport assembled enclosures.
2. Position the assembled enclosures on the forks so that the load is balanced and does not tilt. Lift only from underneath the transport skid.
3. Position the lift truck so that the load is against the backrest of the lift truck.
4. Secure the assembled enclosure section to the lift truck backrest by using a suitable ratchet strap. To provide maximum support and not damage air intake vents, position the strap at or above the approximate center of the enclosure height.

IMPORTANT The use of a strap is to help prevent the load from slipping forward during a sudden stop. Do not excessively tighten the strap. Belt tension must not bend, buckle, or otherwise distort the cabinet.

5. To make sure that the load does not tilt the lift truck forward, lift the load slightly off the ground.
6. Tilt the load a few degrees backward toward the lift truck mast.
7. Start and stop the lift truck gradually and slowly and avoid quick movements. When traveling with the load, drive slowly, with the forks positioned as low as possible.

Use a Lift Truck to Transport a PowerFlex 755T Enclosure



Overhead Lifting (Crane or Hoist)

All lifting equipment and lifting components (hooks, bolts, lifts, straps, chains, and so forth) must be properly sized and rated to lift and hold the weight of the equipment in a safe manner. Approximate assembled enclosure section weights are listed on page 78. Structural angles are affixed to the top of either side the assembled enclosures.

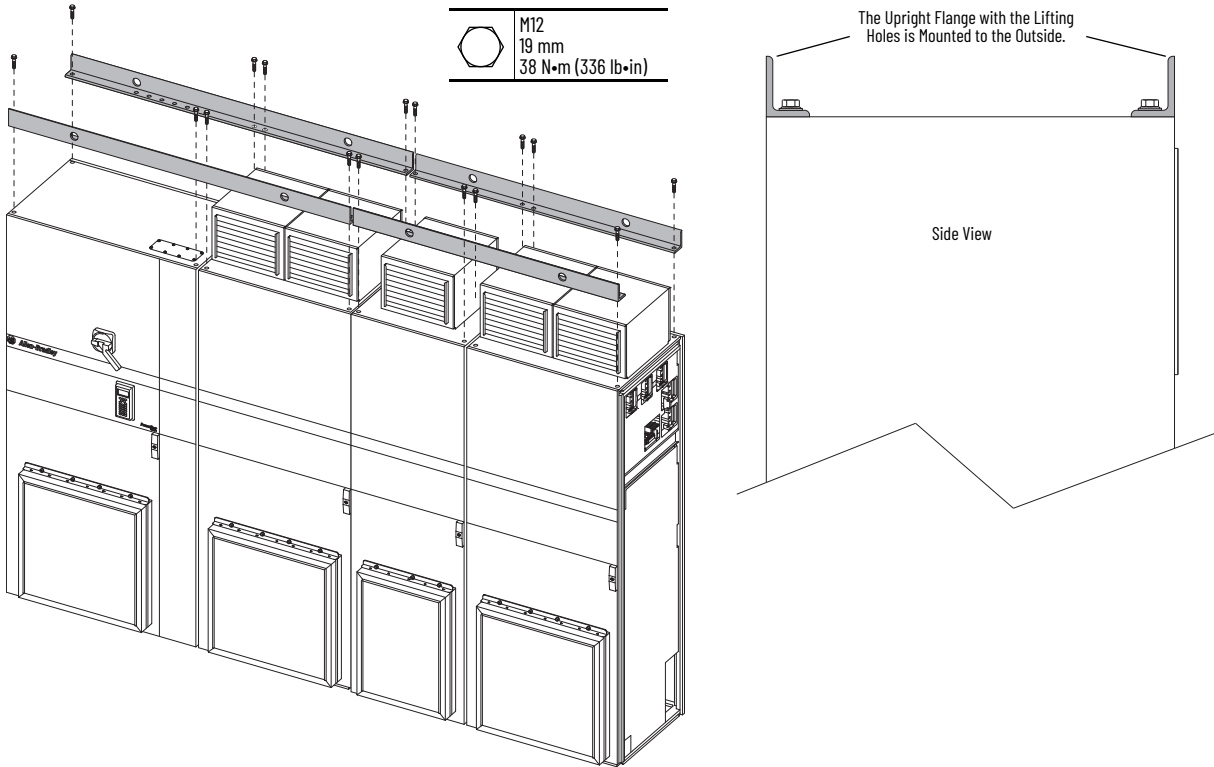


ATTENTION: To guard against possible personal injury and/or equipment damage:

- Inspect all lifting hardware for proper attachment before lifting the equipment.
- Do not allow any part of the equipment or lifting mechanism to contact electrically charged conductors or components.
- Do not subject the equipment to high rates of acceleration or deceleration while transporting to the installation site or when lifting.
- Do not allow personnel or their limbs directly underneath the equipment when it is being lifted and mounted.

Attach the Structural Angles and Hardware

- 1. Install the structural angles in the orientation as shown in the side view. The quantity and overall length of the Rittal enclosures you transport determines the length of the structural angle and number of installed bolts.

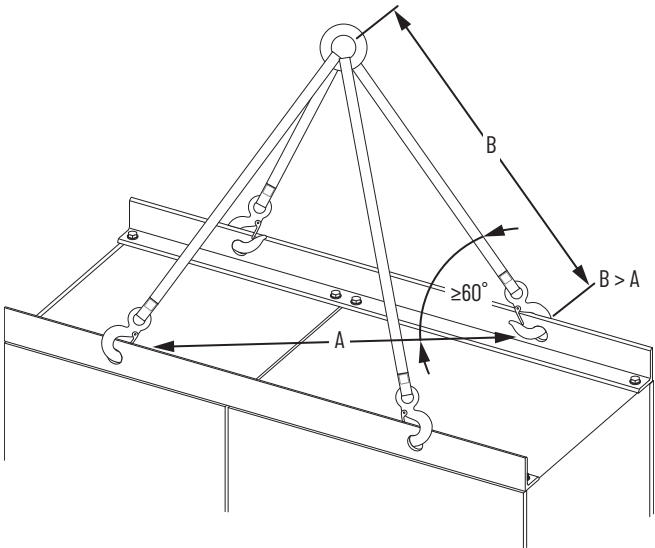


- 2. Attach the lifting straps or chains to overhead crane, hoist, or similar lifting device. Use straps with load-rated hooks or shackles.

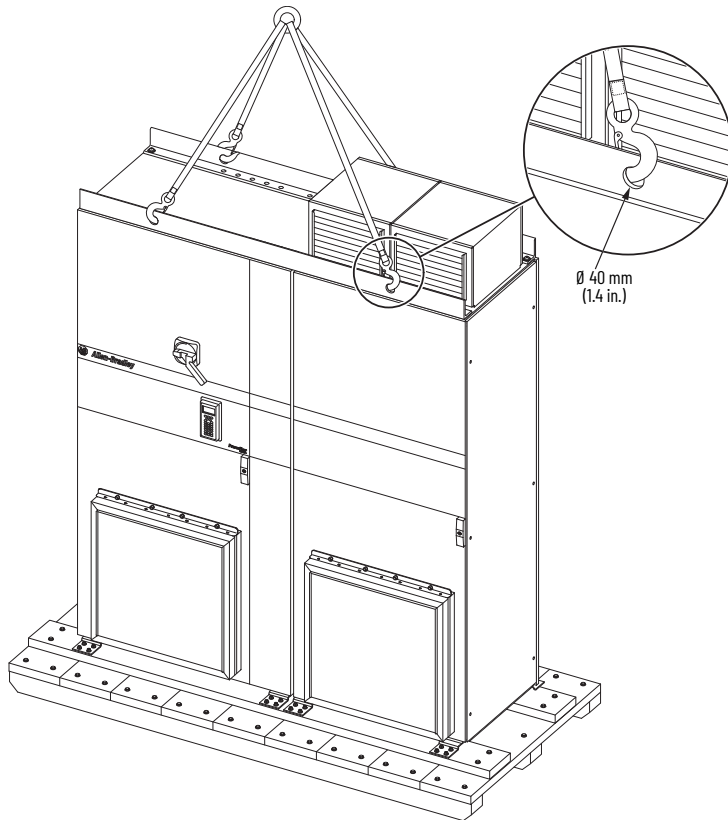
IMPORTANT Do not pass straps or cables through the support holes in the structural angle.

- 3. To compensate for any unequal weight distribution of the load and support the assembled enclosure section in an upright position, adjust the lengths of straps or chains.
- 4. To reduce tension on the straps or chains and compression on the structural angle, verify that the angle between the lifting cables and horizontal plane is greater than 60°.

Typical Lifting Strap/Chain Angles



Typical Lifting Points

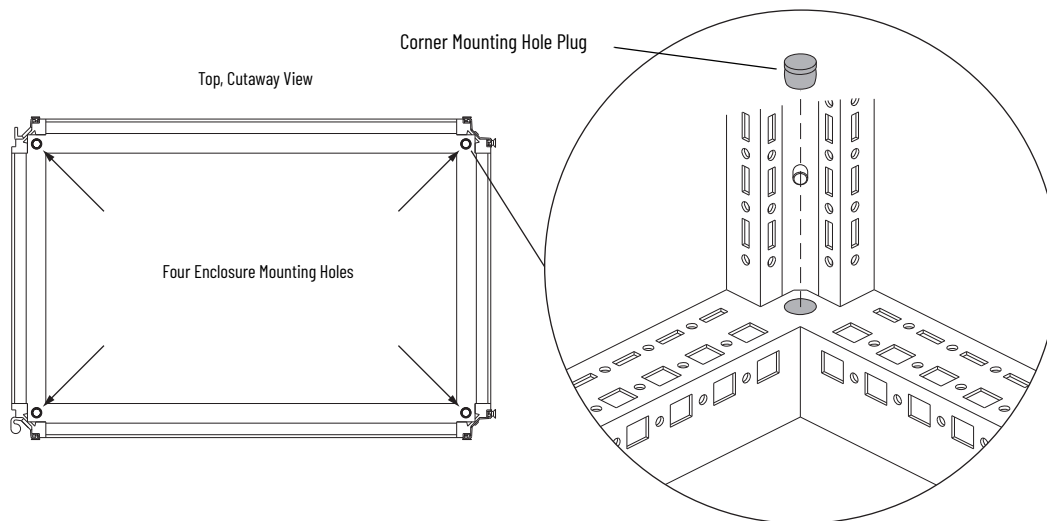


Rittal TS8 Enclosure Anchoring Methods

The following methods are recommended to anchor enclosures to a plinth system, structural steel, or floor at the final installation location:

- Rittal Base/Plinth System (see [109](#))
- Structural Steel Systems (see [110](#))
- Anchor Bolt System (see page [111](#))
- Concrete Screw System (see page [112](#))

Each Rittal enclosure must be secured by using all four of the corner mounting holes identified in this illustration. A debris plug is located in the correct mounting hole in each corner of the enclosure. Do not use any other holes in the enclosure floor to mount an enclosure. After the enclosures have been secured, replace the plugs.



Rittal Base/Plinth System

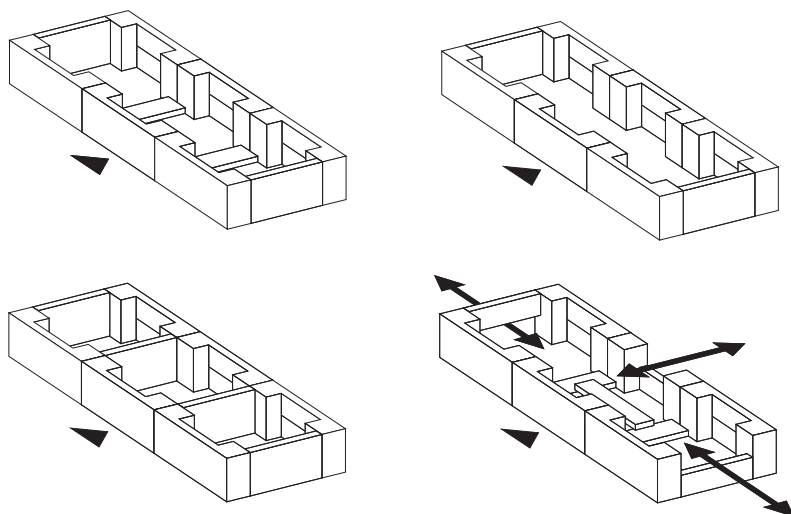
The Rittal VX25 base/plinth system is available from Rittal Corporation in 100 mm (4.0 in.) and 200 mm (8.0 in.) heights. This mounting system provides a base/plinth for each corner of a Rittal TS8 enclosure. Use four corner bases to support each bay, including each individual bay. Optional trim panels can be used along the perimeter of the lineup. Each corner base attaches to a corner of the enclosure using an M12 screw that is included with the system. Hardware for attaching the corner base to the mounting surface is not included. The recommended hardware for attaching a corner base to the mounting surface is an M12 anchor bolt.

This table shows some configurations of the base system under a single bay. The arrow on the left side of each illustration indicates the front side of the enclosure. For images of the actual base system, see rittal.com.

Example Base Systems for a Single Bay

Base Height	Basic Form	Example Cable Entry Options		
100 mm (4 in.)				
200 mm (8 in.)				

Examples of Adjacent Base Systems Under a Bay Lineup



Follow the installation instructions provided with the base system. For a list of base system components, see Rittal Base System Components on page [110](#).

Rittal Base System Components

Components	Height of Bottom of Bay Off of Mounting Surface [mm (in.)]	Length of Side of Bay Component is Used With ⁽¹⁾ [mm (in.)]
Corner base (required for base/plinth system)	100 (4.0)	—
	200 (8.0)	—
Trim panels for between adjacent corner bases where bays are joined (optional)	100 (4.0)	—
	200 (8.0)	—
Trim panels to cover the corner bases (optional)	100 (4.0)	—
	200 (8.0)	—
Trim panels for front, back, and sides of bay (optional)	100 (4.0)	300 (11.8)
		400 (15.7)
		600 (23.6) ⁽²⁾
		800 (31.5)
		1000 (39.4)
	200 (8.0)	300 (11.8)
		400 (15.7)
		600 (23.6) ⁽²⁾
		800 (31.5)
		1000 (39.4)

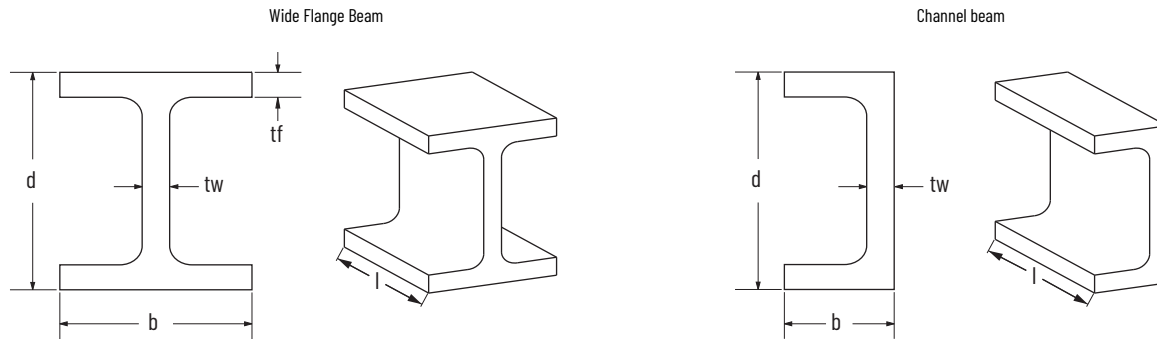
(1) The trim panels along the sides of the bay are not the full length of the side of the bay they are used for because part of that length can be covered by corner panels over the corner bases.

(2) All bays in the PowerFlex 755TM IP00 Open Type Kits use the 600 mm (23.6 in.) side length panels for the sides of the bay.

Structural Steel Systems

Enclosures can be mounted to structural steel that is anchored to concrete and meet the following specifications and minimum dimensions.

- Material: ASTM A-36 / ASME SA36, or equivalent



Steel Beam Dimensions

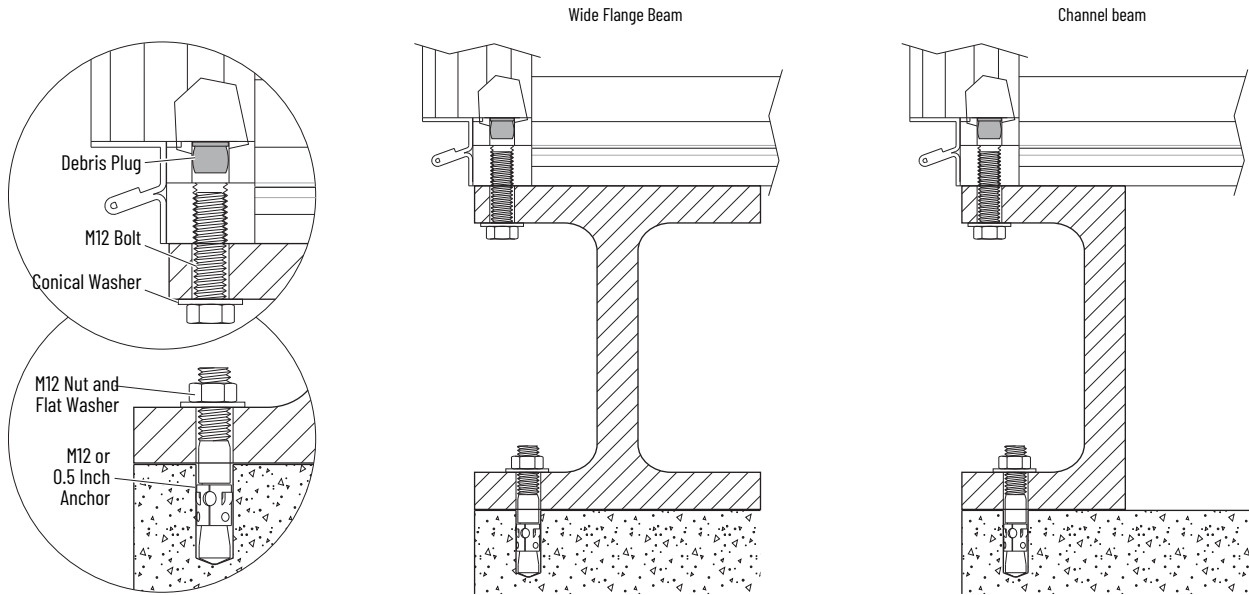
Style	Depth (d) [mm (in.)]	Width (b) [mm (in.)]	Thickness (tw) [mm (in.)]	Flange (tf) [mm (in.)]	Length ⁽¹⁾ (l) [mm (in.)]
Wide Flange Beam	100 (4.0)	100 (4.0)	7.6 (0.3)	10.2 (0.4)	100 (4.0)
Channel Beam	100 (4.0)	43 (1.7)	7.6 (0.3)	7.6 (0.3)	100 (4.0)

(1) The minimum length of beam under each corner of the bay. Using the minimum length of beam provides a block shaped base under each corner. Alternatively, you can use two beams running parallel, each spanning from one corner to another.

Structural Steel Mounting Configurations

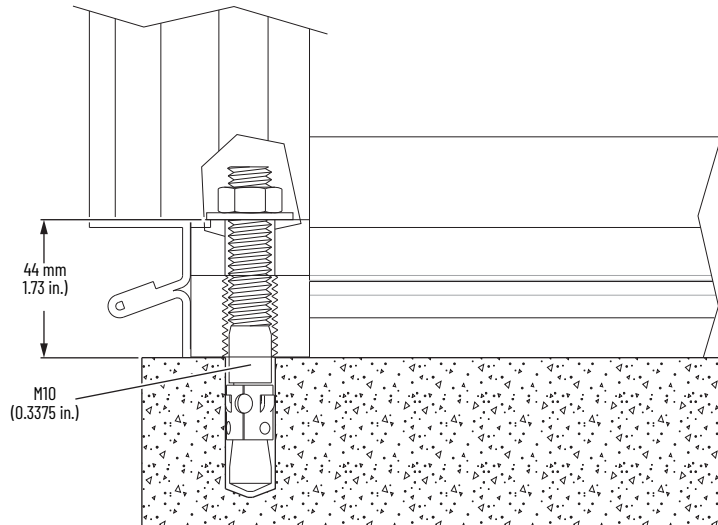
Enclosures can be mounted directly to structural steel beams by using M12-1.75 x 40 mm screws with conical washers threaded into the corner holes. The enclosures must be secured to the structural steel beams in all four corners by using M12 nuts and lock washers. Secure the steel beam to the concrete floor by using M12 or 0.5 inch anchors.

We recommend that you orient the beams so that the "I" shape of the I beam or the "C" shape of the C beam is visible when viewing the beam from the side of the bay, not the front of the bay. This orientation allows for the removal of the bay from the lineup using a forklift.



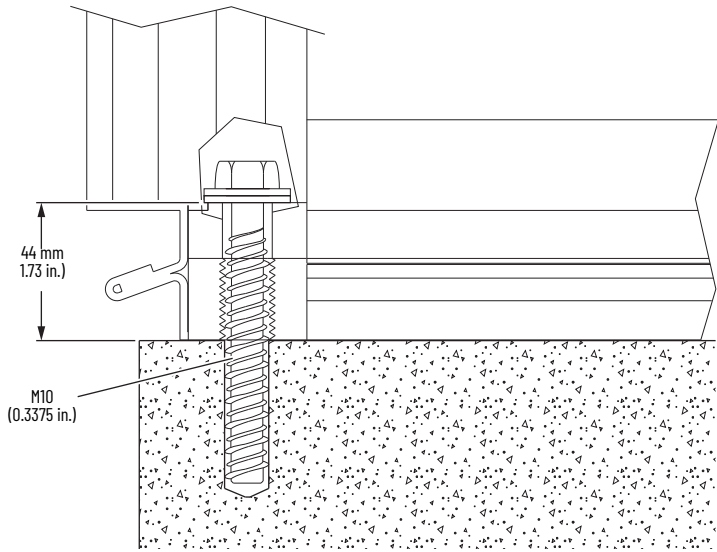
Anchor Bolt System

Enclosures can be mounted directly to a level concrete surface by using M10 (0.375 in.) anchor bolts. The enclosures must be secured to the anchor bolts in all four corners by using M10 nuts and conical washers.



Concrete Screw System

Enclosures can be mounted directly to a level concrete surface by using M10 (0.375 in.) concrete screws and washers. Secure the enclosures with concrete screws in all four corners.



Recommended Mounting Hardware

Fastener Size	Usage	Notes
M10 (0.375 in.)	Passes through the mounting hole.	Property Class 8.8 (Minimum)
M12 (0.5 in.)	Threads into the mounting hole.	Property Class 8.8 (Minimum)

Prepare the Enclosure Sections for Final Installation

Access to the enclosure interior is required during final product installation to complete the following tasks:

- Join the enclosures with the mounting hardware kit (cat. no. 20-750-MEXTBAY1)
- Anchor all corners of each enclosure to the mounting surface
- Make electrical interconnections
- Make power and ground connections

To allow access to interior structural features and electrical and power and ground connections, remove the LCL filter and power modules from the enclosure.

LCL Filter, Power, and NRS Module Handling

Follow these instructions for proper LCL filter, power, and NRS module handling.



ATTENTION: LCL filter modules, power modules, and NRS modules have a high center of gravity and a tip-over hazard exists. To guard against death, serious personal injury, or equipment damage, do not subject the module to high rates of acceleration or deceleration while transporting. Do not push or pull above the points that are indicated on the module.

The tip-over hazard label is affixed to the module chassis. The label identifies the center of gravity of the module.



Use the PowerFlex 750-Series service cart (20-750-MCART1) to move and install power, NRS, and LCL filter modules during installation. Use the PowerFlex 750-Series power and LCL filter module storage hardware (20-750-MINV-ATIP) to store modules temporarily before installation. See the following publications for detailed information on these accessories.

- PowerFlex 750-Series Service Cart Installation Instructions, publication [750-IN105](#)
- PowerFlex 755TM Power and Filter Module Storage Hardware Installation Instructions, publication [750-IN106](#)

IMPORTANT The module storage hardware is not compatible with NRS modules.

Follow these steps to prepare the assembled enclosure sections for mounting.

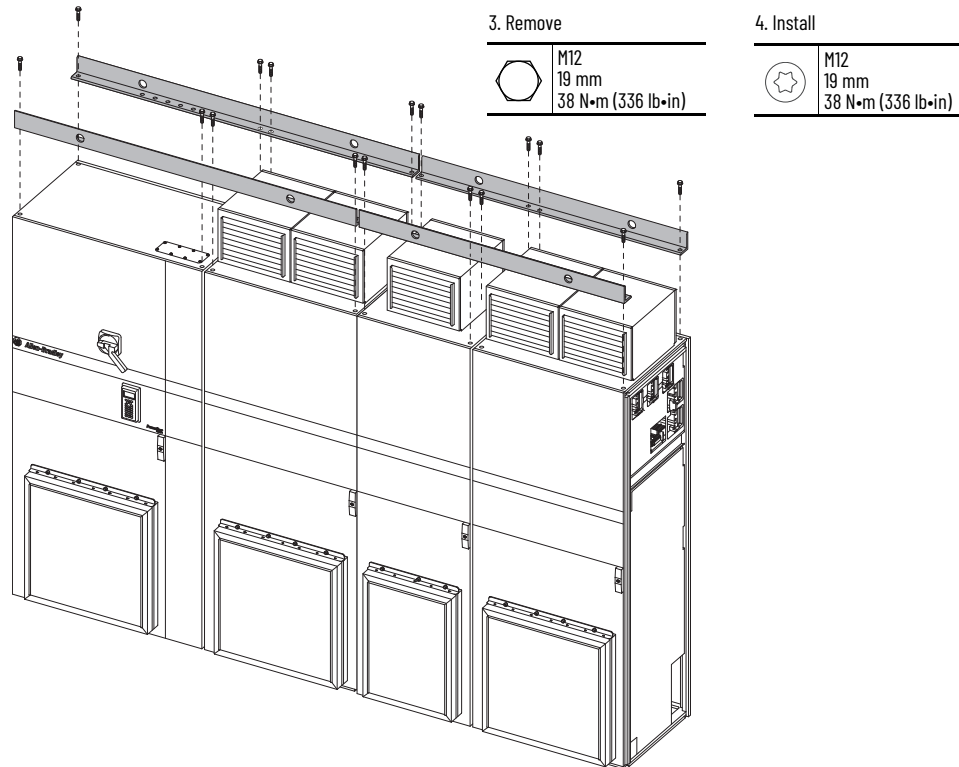
1. Open the enclosure doors and remove the protective guards, if present.
2. To gain access to the corner mounting holes in the enclosures, remove the LCL filter modules. For LCL filter module electrical and mechanical connections, see page [310](#).
3. To gain access to the corner mounting holes in the enclosures, remove the power modules. For power module electrical and mechanical connections, see page [312](#).

Final Assembled Enclosure Installation

Follow these steps to install the assembled enclosures in the final installation location.

1. Transport and lift the assembled enclosures into the final installation location. See Lift Truck Instructions on page [106](#) and Overhead Lifting (Crane or Hoist) on page [106](#).
2. Join the enclosures. For Rittal TS8 enclosures, see page [88](#).
3. Remove the structural angles.
4. Install an M12 hexagonal screw with a paint piercing rubber washer in the four corner holes of each enclosure.

IMPORTANT The paint-piercing rubber washers are required for both grounding purposes and to meet the enclosure rating.



5. Anchor the enclosures to the mounting surface. See Rittal TS8 Enclosure Anchoring Methods on page [108](#).
6. Install the DC bus bar splices to connect the DC bus bars between enclosures (see page [239](#)).
7. For frames 8 and 9, connect the upper terminals (R/L1, S/L2, and T/L3) on the AC precharge module to the AC bus bars in the power bay enclosure (for frame 8 see pages [268](#) and [271](#) or [273](#), for frame 9, see pages [270](#) and [274](#) or [275](#)).
8. For frames 10...12, install the AC bus bar splices to connect the AC bus bars between enclosures (see page [243](#)).
9. For an NRS system with multiple power bays, install the AC bus bar splices to connect the AC bus bars between bays (see page [244](#) or [328](#)).
10. If used, install the control bus splices to connect control bus assemblies between enclosures (see page [255](#)).
11. Install the ground splice bus bars to connect PE ground bus bars between enclosures (optionally customer sourced, or see page [249](#)). See Grounding Requirements on page [115](#).
12. Install all AC input and output and ground connections as described in the Wire the System section, which begins on page [115](#).
13. Install and route all control power connections as described in the Install Control Power section, which begins on page [136](#).
14. Install and route all fiber-optic cables as described in the Control Pod Installation and Control Wiring and Fiber-optic Cable Routing section, which begins on page [181](#).
15. Once all AC input and output, ground, and control power connections have been completed, replace the LCL filter and power modules. For electrical and mechanical connections.
 - For frame 7 and 7L LCL filter modules, see page [162](#) and [306](#).
 - For frame 7 power modules, see page [157](#) and [305](#).
 - For frame 7L power modules, see page [158](#) and [307](#).
 - For frame 8...15 LCL filter modules, see page [163](#), [310](#), and [311](#).
 - For frames 8...15 power modules see page [159](#) and [312](#).
 - For NRS modules, see page [160](#) and [334](#).
16. Install all protective guards (customer-sourced - see page [54](#)).
17. Close and secure all enclosure doors before placing the system into service.

Wire the System

This section contains these main topics:

Topic	Page
Grounding Requirements	115
Install Power and Ground Cables	127
Install Control Power	136
Control Pod Installation and Control Wiring and Fiber-optic Cable Routing	181

Grounding Requirements

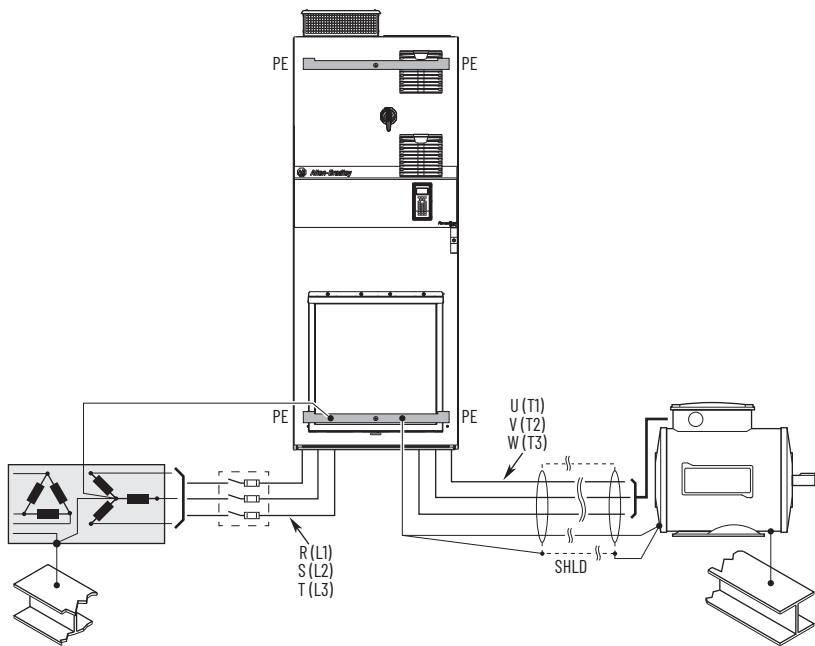
The final assembly Safety Ground-PE must be connected to system ground. Ground impedance must conform to the requirements of national and local industrial safety regulations and/or electrical codes. Periodically check the integrity of all ground connections. Ground bus bars must be customer-sourced. See Ground Bus Bar Installation and Bus Bars Specifications on page [118](#) for details.

Recommended Ground Scheme

Use a single-point (PE only) grounding scheme. Some applications can require alternate grounding schemes. See the Wiring and Grounding Guidelines for Pulse-Width Modulated (PWM) AC Drives, publication [DRIVES-IN001](#), for more information. These applications include installations with long distances between drives or drive line-ups, which could cause large potential differences between the drive or line-up grounds.

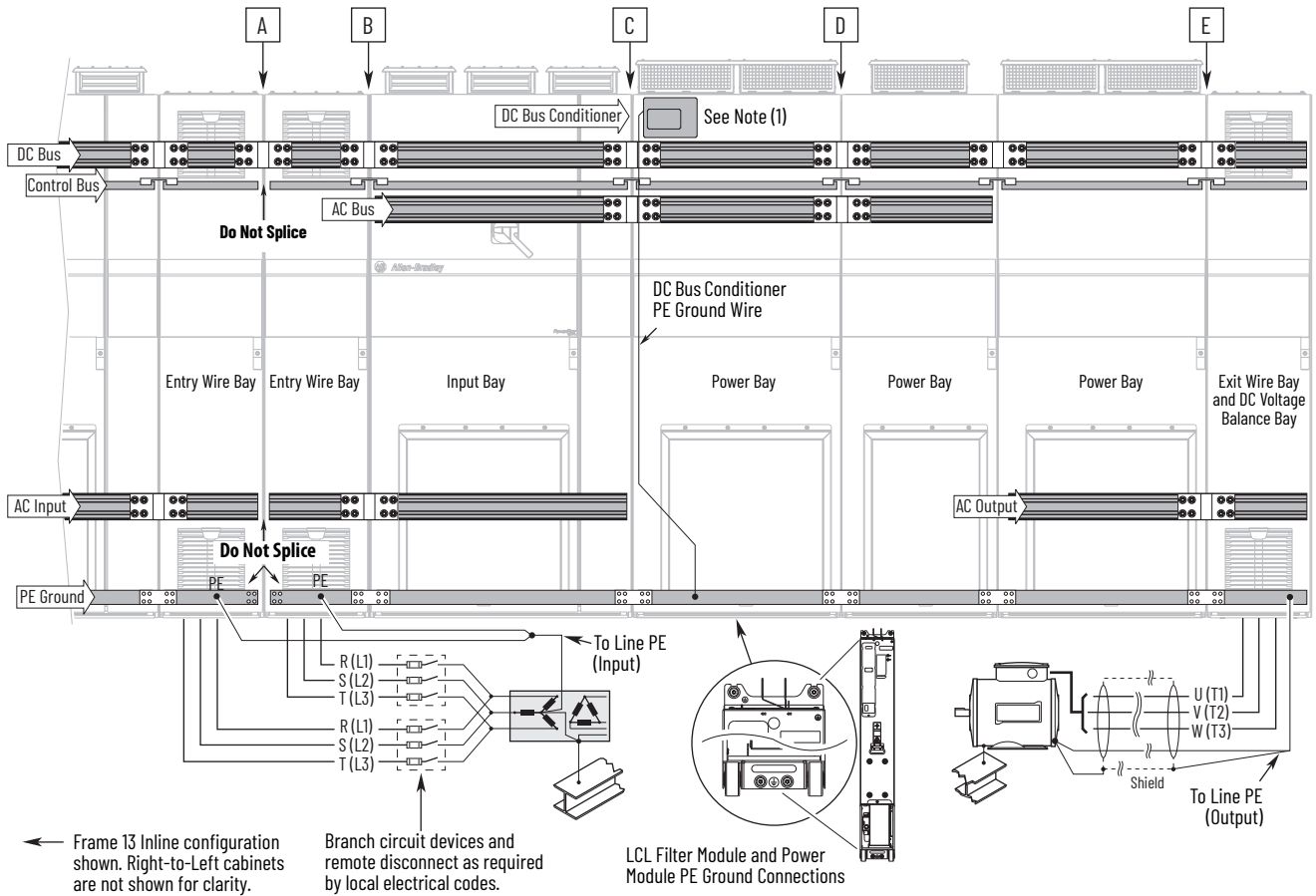
For installations within an enclosure, use one safety ground point or ground bus bar connected directly to structural steel. Independently ground all circuits, including the AC input ground conductor, with copper cable, directly to this point/bar. The contact surfaces where the PE ground bus bar is fastened to the enclosure must be unpainted or include a conductive coating or material. Joining hardware connection points between enclosures must provide a conductive path to PE ground.

Typical Ground - PowerFlex 755T Products, Frame 7 and 7L



Typical Grounding - PowerFlex 755T Products, Frames 8...15

This diagram shows the product connected to a solid ground power source. See the Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication [DRIVES-IN001](#), for information on other power sources.



← Frame 13 Inline configuration shown. Right-to-Left cabinets are not shown for clarity.

Branch circuit devices and remote disconnect as required by local electrical codes.

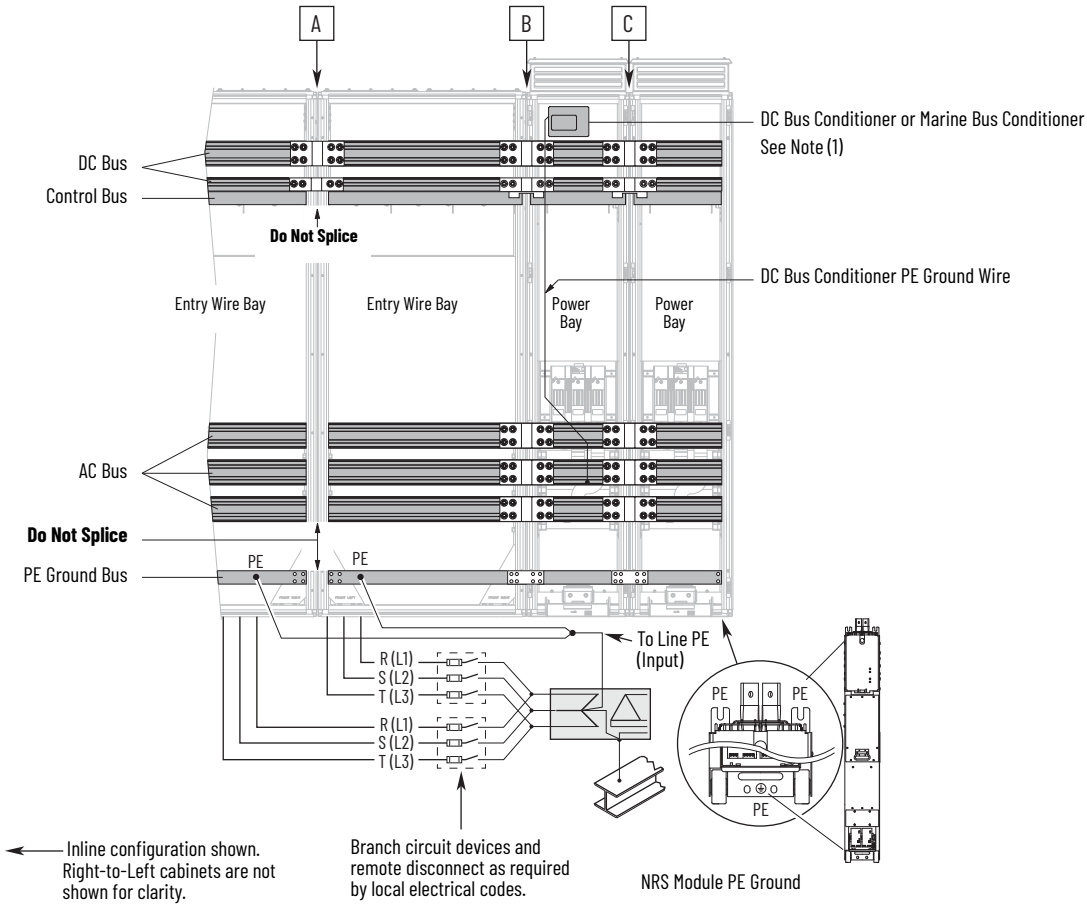
LCL Filter Module and Power Module PE Ground Connections

A	B	C	D	E
Frames 13...15	Frames 10...15 (Entry wire bay is optional for frames 10...12)	Frames 8...15	Frames 10...15	Frames 8...15 (Exit wire bay is optional for frames 8...12)
Entry Wire Bay to Entry Wire Bay	Entry Wire Bay to Input Bay	Input Bay to Power Bay	Power Bay to Power Bay	Power Bay to Exit Wire Bay
<p>Inline Configuration</p> <ul style="list-style-type: none"> DC bus bars must be spliced Control bus must not be spliced AC input bus bars must not be spliced PE ground bar must not be spliced <p>Back-to-Back Configuration</p> <ul style="list-style-type: none"> DC bus bars must not be spliced Control bus must not be spliced AC input bus bars must not be spliced PE ground bar must not be spliced <p>Important: No additional connections other than those listed in section 'A' are to be made at installation.</p>	<p>Inline Configuration</p> <ul style="list-style-type: none"> AC bus bars must not be spliced DC bus bars must be spliced Control bus must be spliced AC input bus bars must be spliced PE ground bar must be spliced <p>Back-to-Back Configuration</p> <ul style="list-style-type: none"> AC bus bars must not be spliced DC bus bars must be spliced Control bus must be spliced AC input bus bars must be spliced PE ground bar must be spliced 	<p>All Configurations</p> <ul style="list-style-type: none"> AC bus bars must be spliced DC bus bars must be spliced Control bus must be spliced AC input bus bars must not be spliced PE ground bar must be spliced 	<p>All Configurations</p> <ul style="list-style-type: none"> AC bus bars must be spliced DC bus bars must be spliced Control bus must be spliced AC input or AC output bus bars are not present PE ground bar must be spliced 	<p>Inline Configuration</p> <ul style="list-style-type: none"> AC bus bars are not present DC bus bars must be spliced Control bus must be spliced AC output bus bars must be spliced PE ground bar must be spliced <p>Power Bay to Exit Wire Bay and DC Voltage Balance Bay Back-to-Back Configuration</p> <ul style="list-style-type: none"> AC bus bars are not present DC bus bars must be spliced Control bus must be spliced AC output bus bars must be spliced PE ground bar must be spliced

(1) **DC Bus Conditioners** - For a solid ground source, connect all DC bus conditioners to the PE ground bar with a single ground wire and clamp. The number of DC bus conditioners that are installed depends on input voltage class and the AC supply ground scheme. See DC Bus Conditioner and Marine Discharge Circuit Board Connections on page 178.

Typical Grounding - PowerFlex 755TM Non-Regenerative Supply

This diagram shows the product connected to a solid ground power source. See the Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication [DRIVES-IN001](#), for information on other power sources.



A	B	C
Wire Bay to Wire Bay	Wire Bay to Power Bay	Power Bay to Power Bay
Splice Configuration <ul style="list-style-type: none"> Splice the DC buses Do not splice the control bus Do not splice the AC buses Do not splice the PE ground bus bar <p>Important: An electrical connection between the PE ground bars in two wire bays is not allowed.</p>	Splice Configuration <ul style="list-style-type: none"> Splice the DC buses Splice the control bus Splice the AC buses Splice the PE ground bus bar 	Splice Configuration <ul style="list-style-type: none"> Splice the DC buses Splice the control bus Splice the AC buses Splice the PE ground bus bar

(1) DC Bus Conditioners - For a solid ground source, connect all DC bus conditioners to the PE ground bar with a single ground wire and clamp. The number of DC bus conditioners that are installed depends on input voltage class and the AC supply ground scheme. See DC Bus Conditioner and Marine Discharge Circuit Board Connections on page 178.

The final assembly Safety Ground-PE must be connected to system ground. Ground impedance must conform to the requirements of national and local industrial safety regulations and/or electrical codes. Periodically check the integrity of all ground connections. For more information on grounding requirements, see the Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication [DRIVES-IN001](#).

Shield Termination - SHLD

The shield terminal provides a grounding point for the motor cable shield. The motor cable shield terminal must be connected to an earth ground by a separate continuous lead. Connect the motor cable shield to this terminal on the drive end and the motor frame (motor end). Use a shield terminating or EMI clamp to connect shield to this terminal.

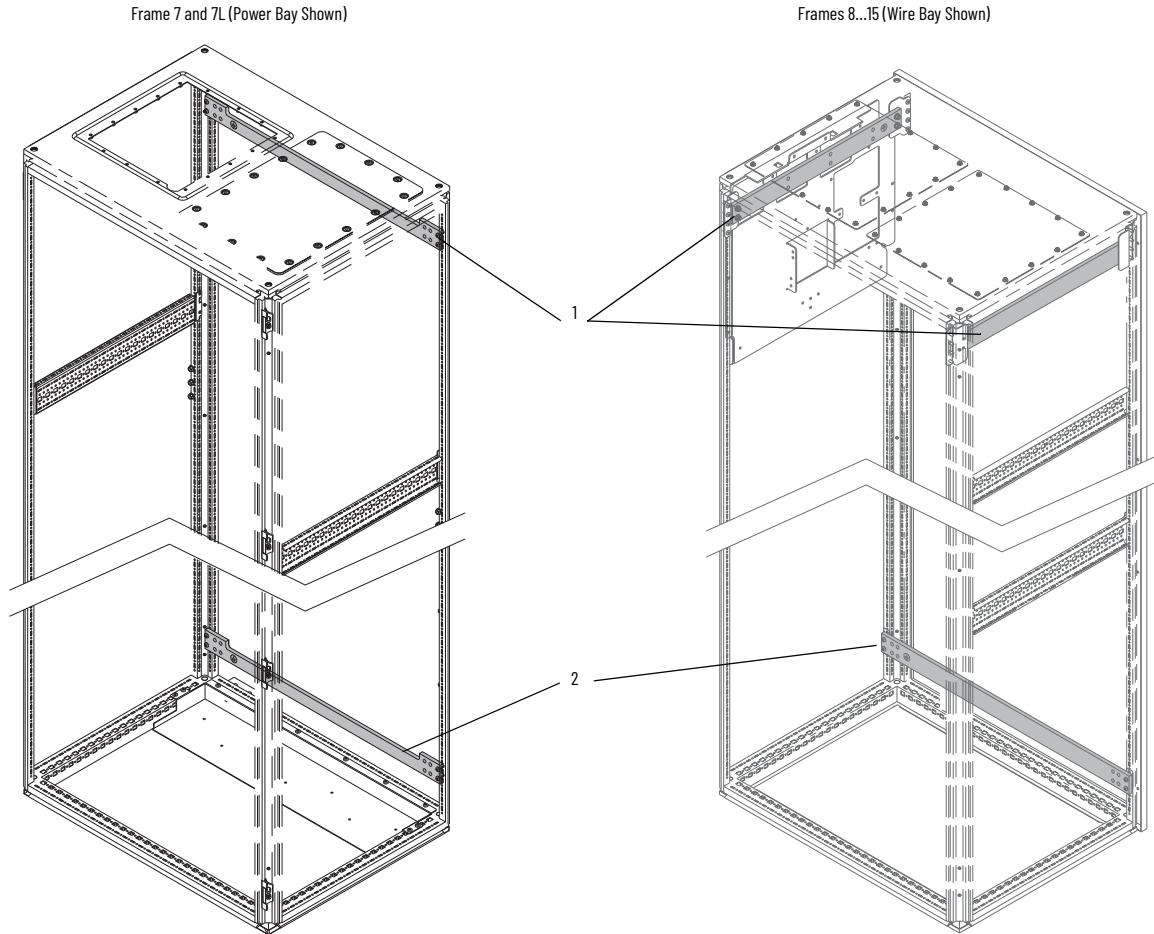
Radio Frequency Interference (RFI) Filter Grounding

Installed RFI filters can result in relatively high ground leakage currents. Therefore, the filter must only be used in installations with grounded AC supply systems and be permanently installed and solidly grounded (bonded) to the building power distribution ground. Be sure that the incoming supply neutral is solidly connected (bonded) to the same building power distribution ground. Grounding must not rely on flexible cables and must exclude any form of plug or socket that would permit inadvertent disconnection. Some local codes can require redundant ground connections. Periodically check the integrity of all connections. See the instructions that are supplied with the filter.

Ground Bus Bar Installation

It is recommended that customer-sourced ground bus bars are installed in the locations that are shown in the Recommended Ground Bus Bar Installation Locations illustration. Connect ground wires to the ground bus bar closest to the wire entry or exit point. See Bus Bars Specifications on page 136 for ground bus bar specifications.

Recommended Ground Bus Bar Installation Locations



ID	Description
1	Ground bus bar location for top cable-entry connection points
2	Ground bus bar for bottom cable-entry connection points

The clamp kits listed here are available for PE ground bar cable connections. These kits are rated for only one conductor per ground clamp.

Ground Clamp Kits

Ground Kit Example Installation	Kit Catalog Number	Conductor Cross-sections		Tightening Torque [N•m (lb•in)]
		ISO (mm ²)	AWG/MCM	
	SK-RM-GRNDCLMP-16	2.5...16	14...6 AWG	3 (27)
	SK-RM-GRNDCLMP-50	16...50	6...0 AWG	8 (71)
	SK-RM-GRNDCLMP-75	35...75	2...00 AWG	12 (106)
	SK-RM-GRNDCLMP-185	70...185	00 AWG...350 MCM	15 (133)

Power Jumper Configuration

This section provides information on power jumper configuration for PowerFlex 755TL/TR drives and PowerFlex 755TM bus supplies and common bus inverters. For PowerFlex 755TM Non-Regenerative Supplies, see NRS Power Jumper Configuration on page 126.

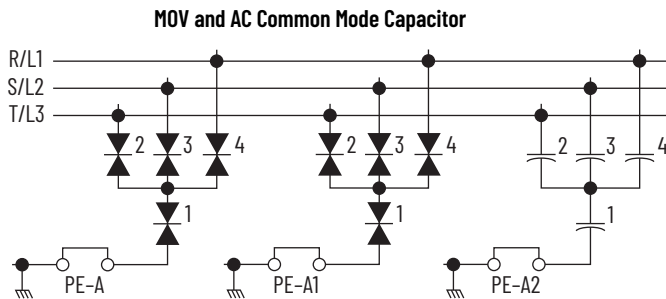
PowerFlex 755T Products Power Jumper Configuration

PowerFlex 755T products contain protective MOVs, common mode capacitors, and discharge resistors. To guard against product damage and operational problems, these devices must be properly configured according to the tables in this section. To connect or disconnect these devices, refer to the tables on page 120 and the jumper locations and diagrams that are shown in the figures on pages 121..124.

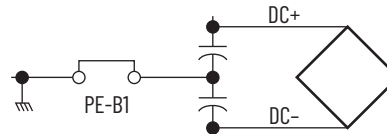
The following power jumpers are discussed in this section:

- PE-A - MOV on the AC precharge circuit board
- PE-A1 - MOV on the TVSS module
- PE-A2 - Common mode capacitors on the AC common mode filter circuit board
- Note: The PE-A, PE-A1, and PE-A2 jumpers are not used with PowerFlex 755TM common bus inverters.
- PE-B1 - Common mode capacitors on the line side and motor side power interface circuit boards (frame 8...15 products only)
- DR - Discharge resistor on the DC bus conditioner circuit board (frame 7 products only)

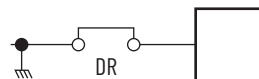
MOV and AC EMI, Common Mode Capacitor, and Discharge Resistor Circuits



DC Common Mode Capacitor (Frame 8...15)



DC Bus Conditioner Discharge Resistor (Frame 7)



IMPORTANT

- The default power jumper settings are:
- PE-A, PE-A1, PE-A2, and DR jumpers are installed in the connected (IN) position.
 - PE-A, PE-A1, PE-A2, and DR jumpers are installed in the disconnected (OUT) position when the bus conditioner for marine applications is installed.
 - PE-B1 jumper is installed in the disconnected (OUT) position. If necessary, reconfigure this jumper as determined by the power source type available.



ATTENTION: Risk of equipment damage exists. The drive power source type must be accurately determined. The power jumpers must be configured for the power source type according to the recommendations in the PowerFlex 755T Input Product RF Emission Compliance and Installation Requirements table on page 57.

PowerFlex 755TL/TR Drive Jumpers (Frames 7...15 and 7L)

Grounding Scheme	EMC Option	PE-A	PE-A1	PE-A2 (Frames 8...15 Only)	PE-B1 (Frames 8...15 Only)		DR (Frame 7 Only)
		MOV on the AC Precharge Control Circuit Board	MOV in the TVSS Module	Common Mode Caps on All AC Common Mode Filter Circuit Boards	Y-Caps on Line Side Converter Power Interface Circuit Boards	Y-Caps on Motor Side Inverter Power Interface Circuit Boards	Discharge Resistor on the DC Bus Conditioner Circuit Board
Factory Default	C3	Connected (In)	Connected (In)	Connected (In)	Disconnected (Out)	Disconnected (Out)	Connected (In)
Grounded	C2 ⁽¹⁾	Connected (In)	Connected (In)	Connected (In)	Disconnected (Out)	Disconnected (Out)	Connected (In)
	C3	Connected (In)	Connected (In)	Connected (In)	Disconnected (Out)	Disconnected (Out)	Connected (In)
Ungrounded/High-resistance Ground ⁽²⁾ • AC fed ungrounded • Impedance grounded • B phase ground	—	Disconnected (Out)	Disconnected (Out)	Disconnected (Out)	Disconnected (Out)	Disconnected (Out)	Connected (In)
Marine Ungrounded / High Resistance Ground ⁽¹⁾	—	Disconnected (Out)	Disconnected (Out)	Disconnected (Out)	Disconnected (Out)	Disconnected (Out)	Disconnected (Out)

(1) Meets EN61800-3 Category C2 for conducted emissions. Frame 7L cannot be used in marine applications.
 (2) Ungrounded and high-resistance ground systems do not meet the EMC Directive due to the disconnected jumper positions.

PowerFlex 755TM Regenerative Bus Supplies Jumpers (Frames 7...15)

Grounding Scheme	EMC Option	PE-A	PE-A1	PE-A2 (Frames 8...15 Only)	PE-B1 (Frames 8...15 Only)		DR (Frame 7 Only)
		MOV on the AC Precharge Control Circuit Board	MOV in the TVSS Module	Common Mode Caps on All AC Common Mode Filter Circuit Boards	Y-Caps on Line Side Converter Power Interface Circuit Boards	Y-Caps on Motor Side Inverter Power Interface Circuit Boards	Discharge Resistor on the DC Bus Conditioner Circuit Board
Factory Default	C3	Connected (In)	Connected (In)	Connected (In)	Disconnected (Out)	—	Connected (In)
Grounded	C2 ⁽¹⁾	Connected (In)	Connected (In)	Connected (In)	Disconnected (Out)	—	Connected (In)
	C3	Connected (In)	Connected (In)	Connected (In)	Disconnected (Out)	—	Connected (In)
Ungrounded/High-resistance Ground ⁽²⁾ • AC fed ungrounded • Impedance grounded • B phase ground	—	Disconnected (Out)	Disconnected (Out)	Disconnected (Out)	Disconnected (Out)	—	Connected (In)
Marine Ungrounded / High Resistance Ground ⁽¹⁾	—	Disconnected (Out)	Disconnected (Out)	Disconnected (Out)	Disconnected (Out)	—	Disconnected (Out)

(1) Meets EN61800-3 Category C2 for conducted emissions.
 (2) Ungrounded and high-resistance ground systems do not meet the EMC Directive due to the disconnected jumper positions.

PowerFlex 755TM Common Bus Inverter Jumpers (Frames 8...15)

Supply Source Type	Grounding Scheme	EMC Option	PE-A	PE-A1	PE-A2	PE-B1	
			MOV on the AC Precharge Control Circuit Board	MOV in the TVSS Module	Common Mode Caps on All AC Common Mode Filter Circuit Boards	Y-Caps on Line Side Converter Power Interface Circuit Boards	Y-Caps on Motor Side Inverter Power Interface Circuit Boards
Regenerative	Factory Default	C3	—	—	—	—	Disconnected (Out)
	Grounded	C2 ⁽¹⁾	—	—	—	—	Disconnected (Out)
		C3	—	—	—	—	Disconnected (Out)
	Ungrounded/High-resistance Ground ⁽²⁾	—	—	—	—	—	Disconnected (Out)
	Marine Ungrounded / High Resistance Ground	—	—	—	—	—	Disconnected (Out)
Non-Regenerative (third-party)	Factory Default	C3	—	—	—	—	Disconnected (Out)
	Grounded	C2 ⁽²⁾	—	—	—	—	Disconnected (Out) ⁽³⁾
		C3	—	—	—	—	Disconnected (Out) ⁽³⁾
	Ungrounded/High-resistance Ground ⁽¹⁾	—	—	—	—	—	Disconnected (Out)
	Marine Ungrounded / High Resistance Ground	—	—	—	—	—	Disconnected (Out)

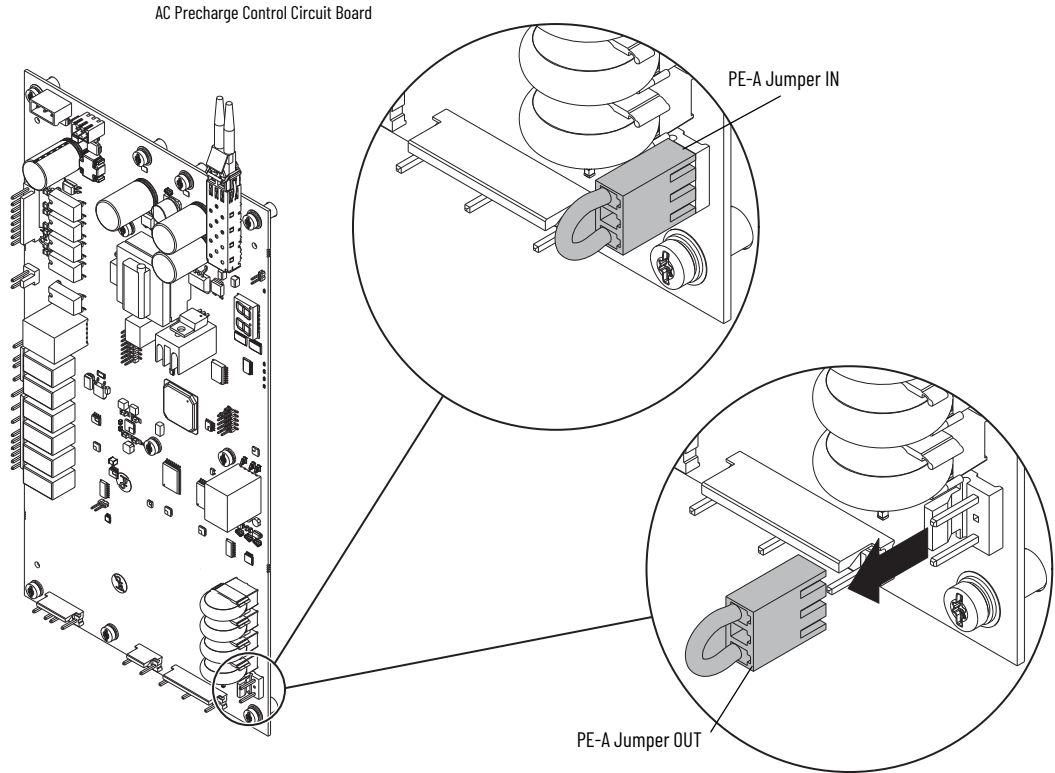
(1) Full compliance requires an optional EMC solution that is mounted in a dedicated enclosure. Meets EN61800-3 Category C2 for conducted emissions.
 (2) Ungrounded and high-resistance ground systems do not meet the EMC Directive due to the disconnected jumper positions.
 (3) This jumper can be moved to the Connected (In) position, if desired.



ATTENTION: Hazard of equipment damage exists if jumpers are not properly disconnected or are set differently between all installed power and LCL filter modules. Secure a disconnected jumper in the socket or on the insulated spacer that is provided and verify that all modules are configured identically.

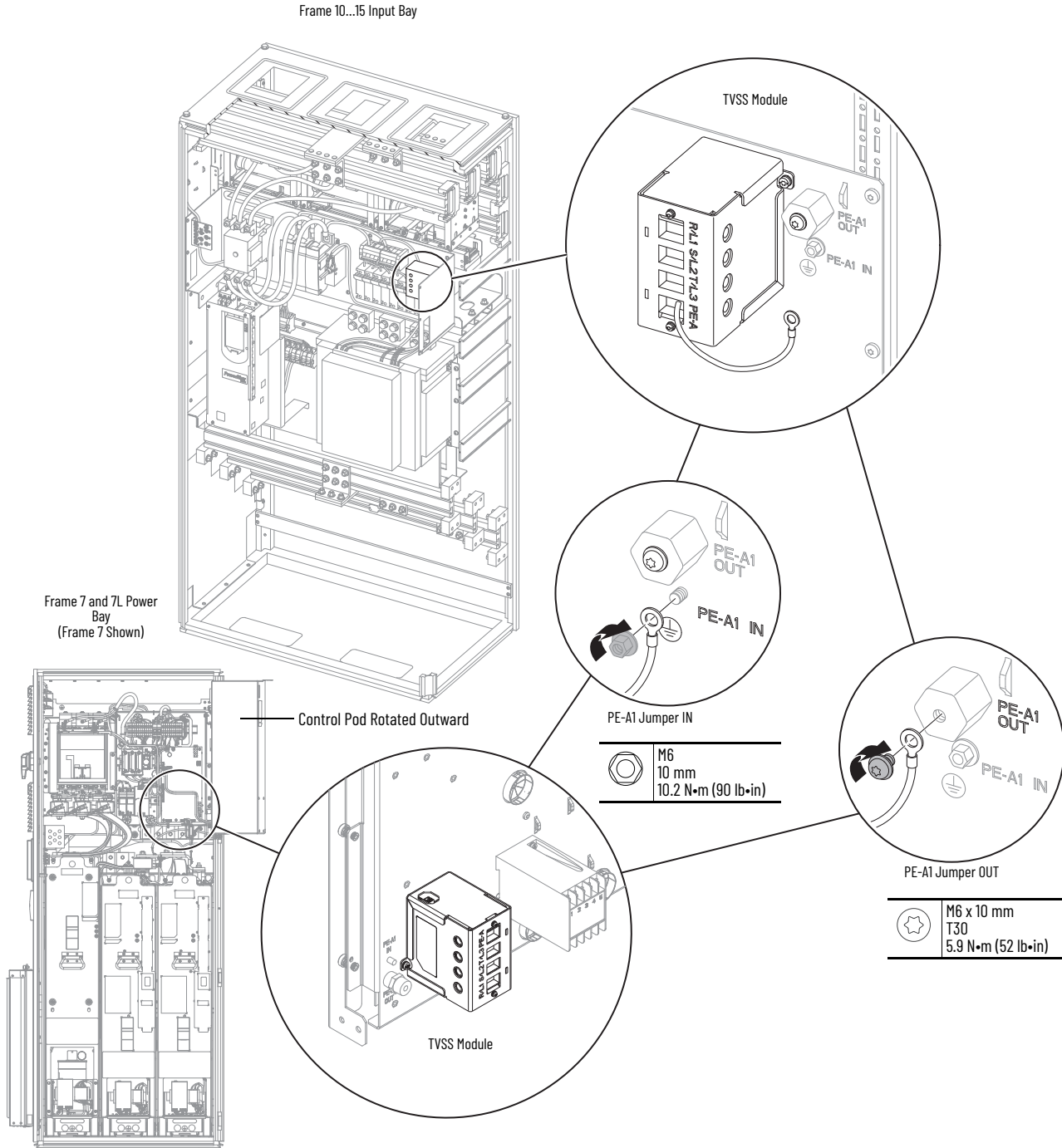
Recommended PE-A Jumper Configuration

The PE-A power jumper (connector P8) connects to J8 on the AC precharge control circuit board (cat. no. 20-750-MACPC1-xx-F7M and 20-750-MACPC1-xx). The Frame 8 and 9 AC precharge modules and the AC precharge control circuit board kit include the jumper on the circuit board. For more information, see AC Precharge Control Circuit Board Connections on page [168](#).




Recommended PE-A1 Jumper Configuration

The PE-A1 power jumper is connected to the TVSS module (cat. no. 20-750-MACP-xx-TVSS). Typical installation locations are shown here. The Frame 8 and 9 AC precharge modules include an insulated spacer and hardware for the PE-A1 jumper OUT position and hardware for the PE-A1 jumper IN position. For frames 7, 7L, and 10...15, if a TVSS module is installed independently from an AC precharge system, the insulated spacer (PE-A1 OUT position) and connection that is referenced to ground (PE-A1 IN position) must be customer-supplied.

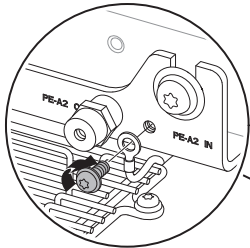


Recommended PE-A2 Jumper Configuration (Frames 8...15)

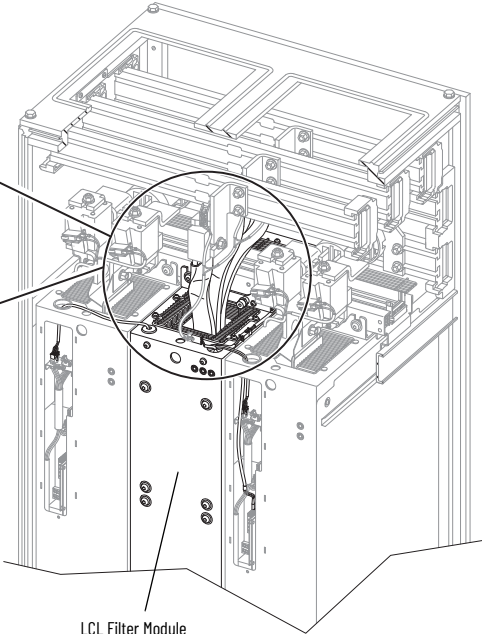
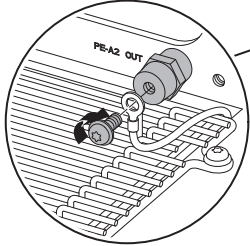
The PE-A2 power jumper is connected to the AC common mode filter circuit board in the LCL filter modules.

	M6 x 20 mm T30 5.2 N•m (46 lb•in)
---	---

PE-A2 Jumper IN



PE-A2 Jumper OUT



Recommended PE-B1 Jumper Configuration (Frames 8...15)

The PE-B1 power jumper on equivalent frame 8...15 products is connected to the power interface circuit board in the power modules. Jumper position configuration labels (not shown in the illustration) are included on the circuit board. Remove the I/O panel from the power module to access the jumper. The protective cover must be installed in the unused jumper connector as shown in the illustration.



ATTENTION: A hazard of equipment damage exists. The PE-B1 power jumper is not applicable to frame 7 power modules. Do not install a jumper in either of the PE-B1 positions.

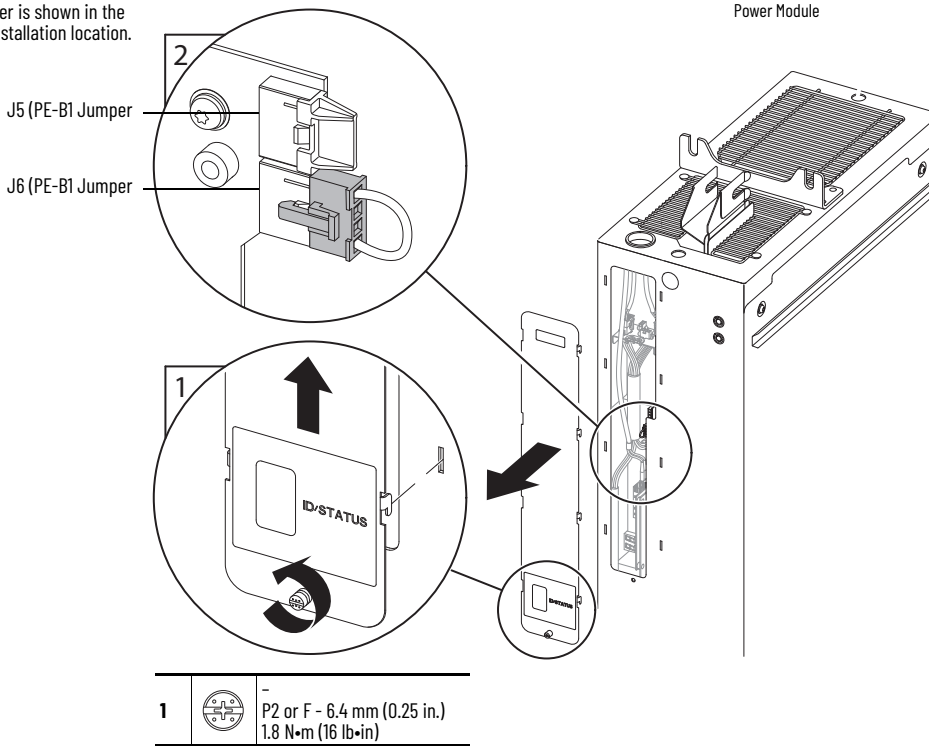


ATTENTION: Equipment damage can occur if the PE-B1 jumper is installed in the connected (IN) position for these applications:

- The power module is used as a regenerative front-end converter. Do not install the PE-B1 jumper in the connected (IN) position for this application.
- The power module is used as a common bus inverter with a regenerative front-end converter. Do not install the PE-B1 jumper in the connected (IN) position for this application.

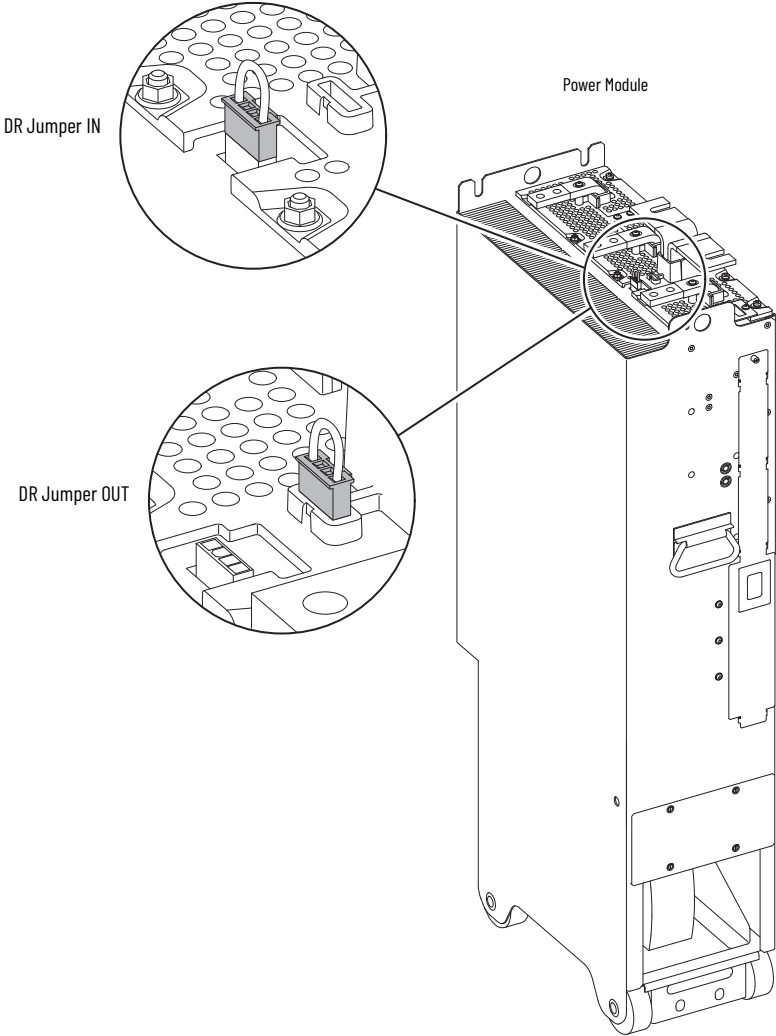
The PE-B1 jumper can be installed in the connected (IN) position when the power module is used as a common bus inverter with a non-regenerative front-end converter.

The jumper is shown in the default installation location.



Recommended DR Power Jumper Configuration (Frame 7)

The DR jumper on frame7 power modules is connected to the discharge resistor on the DC bus conditioner circuit board.



NRS Power Jumper Configuration

The PowerFlex 755TM Non-Regenerative Supply contains protective MOVs and AC and DC common mode capacitors. To guard against product damage and operational problems, these devices must be properly configured according to this table. To connect or disconnect these devices, refer to this table and the jumper locations and diagrams that are shown in this figure.

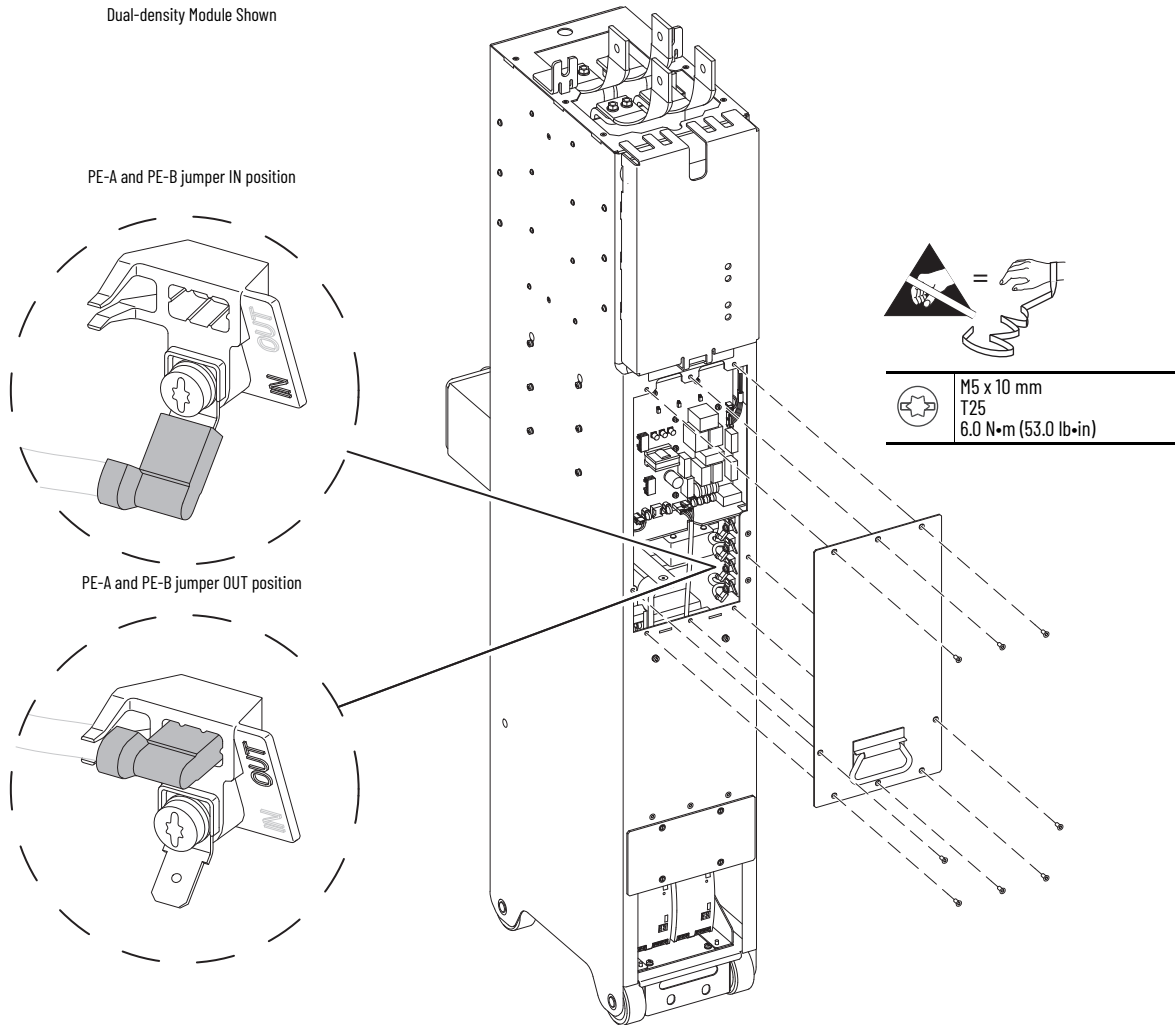
PowerFlex 755TM Non-Regenerative Supply Jumpers

Grounding Scheme	EMC Option	PE-A	PE-B
		MOV and AC common mode capacitors on the NRS Module Power Circuit Board	DC Common Mode Caps on the NRS Module Power Circuit Board
Factory Default	C3	Connected (In)	Connected (In)
Grounded	C3	Connected (In)	Connected (In)
Ungrounded / High-resistance Ground ⁽¹⁾ • AC fed ungrounded • Impedance grounded • B phase ground	—	Disconnected (Out)	Disconnected (Out)
Marine Ungrounded / High Resistance Ground ⁽¹⁾	—	Disconnected (Out)	Disconnected (Out)

(1) Ungrounded and high-resistance ground systems do not meet the EMC Directive due to the disconnected jumper positions.

Recommended PE-A and PE-B Jumper Configuration

Single-density NRS modules contain one PE-A (connector P8) and one PE-B (connector P9) jumper that connect to J8 and J9, respectively, on the power circuit board. Dual-density NRS modules contain two PE-A (connector P8) and two PE-B (connector P9) jumpers that connect to J8 and J9, respectively, on the power circuit boards. Jumper position configuration labels are included on the jumper connection fixtures on the chassis (as shown in this image). Remove the panel from the front of the module to access the jumpers.



AC Supply Source Considerations

PowerFlex 755T drives and bus supplies are suitable for use on a circuit capable of delivering up to a maximum of 100,000 rms symmetrical amperes at 400/480V and 65,000 rms symmetrical amperes at 600/690V.

PowerFlex 755T drives and bus supplies must not be used on undersized or high-impedance supply systems. The supply system kVA must be equal to or greater than the product-related kW, and the system impedance must be less than 10%. Operation outside these limits can cause instability and product shutdown.

$$\text{System Impedance} = (\text{PowerFlex 755T kVA} \div \text{Transformer kVA}) \times \text{Transformer \% Impedance}$$

You must account for the kVA of all PowerFlex 755T drives and bus supplies on the distribution system and the system impedance of upstream transformers.



ATTENTION: To guard against personal injury and/or equipment damage that is caused by improper fusing or circuit breaker selection, use only the recommended line fuses/circuit breakers that are specified in the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#).

If a Residual Current Detector (RCD) is used as a ground fault monitor, use only Type B (adjustable) devices to avoid nuisance tripping.

Install Power and Ground Cables

Follow these guidelines to install all power and ground cable connections.

Power Cable Types Acceptable for 400...600 Volt Installations

For detailed information on various cable types that are acceptable for drive installations, refer to Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drive, publication [DRIVES-IN001](#).



ATTENTION: National Codes and standards (NEC, BSI, and so forth) and local codes outline provisions for safely installing electrical equipment. Installation must comply with specifications regarding wire types, conductor sizes, branch circuit protection, and disconnect devices. Failure to do so can result in personal injury and/or equipment damage.

Power Cable Recommendations

Type		Description	Min. Insulation Rating
Input Power ^{(1) (2)}	Standard	All frame sizes: <ul style="list-style-type: none"> Three tinned copper conductors with XLPE insulation. Copper braid/aluminum foil combination shield and tinned copper drain wire, three drain wires per cable assembly. PVC jacket. Frame 7 <ul style="list-style-type: none"> Maximum 350 MCM dual conductor per phase. Maximum 500 MCM single conductor per phase. Frame 7L <ul style="list-style-type: none"> Maximum 300 MCM single conductor per phase. Frame 8...15 <ul style="list-style-type: none"> Maximum 500 MCM conductors. 	600V, 75 °C (167 °F) ⁽³⁾
Motor Power ⁽¹⁾			400...600V systems: 600V, 75 °C (167 °F) 690V systems: 2000V, 90 °C (194 °F)

(1) Signal wires should be separated from power wires by at least 0.3 meters (1 foot).

(2) The use of shielded wire for AC input power may not be necessary but is always recommended.

(3) The minimum insulation rating for input power wire must be at least equal to the nominal system voltage rating.

Follow these guidelines for power cable entry and exit when using the recommended Rittal TS8 enclosures.

Input Power Cable Connections

- Frame 7 drives and bus supplies provide for power cable entry through either the top or the bottom of the cabinet.
- Frame 7L drives provide for power cable entry through the top of the cabinet only.
- Frame 8...12 drives and bus supplies provide for power cable entry through the bottom of the input bay.
- Optional entry wire bays are available to accommodate power cable top entry for frame 10...12 drives and bus supplies.
- Frame 13...15 drives and bus supplies require entry wire bays.

Motor Cable Connections

- Frame 7 drives and bus supplies provide for power cable exit through either the top or the bottom of the cabinet.
- Frame 7L drives provide for power cable exit through the bottom of the cabinet only.
- Frame 8...12 drives and common bus inverters provide for power cable exit through the bottom of the power bay (inverter).
- Optional exit wire bays are available to accommodate motor cable top exit for all drives and common bus inverters, frames 8...12.
- Frame 13...15 inline and back-to-back configurations require either exit wire bays or DC voltage balance bays.

Input and Output Power Cable Connections



ATTENTION: To guard against personal injury or equipment damage, connect input and output power cables to only the slotted bus bar and backpanel and stab receptacle assemblies that are listed in the Bus Bar and Back Panel and Stab Assembly Kits Used for Power Connections table.

Connect input and output power cables to the slotted bus bar and backpanel and stab receptacle assemblies that are listed the Bus Bar and Back Panel and Stab Assembly Kits Used for Power Connections table only.

Bus Bar and Back Panel and Stab Assembly Kits Used for Power Connections

Catalog Number	Type	Width [mm (in)]	Install in Cabinet Type	Modules	Compatible with L-Bracket	Connection Details
AC Input Connection Kits						
20-750-MTEBUS2-3KO	Slotted Bus Bars	400 (16)	Wire Bay	–	Yes ⁽¹⁾	Page 242
20-750-MTEBUS1-4K7	Slotted Bus Bars	800 (31)	Wire Bay	–	Yes ⁽¹⁾	Page 242
20-750-MACIOT-F7M	Solid Bus Bars	800 (31)	Power Bay (frame 7)	–	No	Page 235
20-750-MACIOT-F7L	Solid Bus Bars	800 (31)	Power Bay (frame 7L)	–	No	Page 236
20-750-MACBUS10-3KO	Slotted Bus Bars	1000 (39)	Input Bay	–	Yes ⁽¹⁾	Page 241
20-750-MACBUS10-4K7	Slotted Bus Bars	1000 (39)	Input Bay	–	Yes ⁽¹⁾	Page 241
AC Output Connection Kits						
20-750-MTEBUS2-3KO	Slotted Bus Bars	400 (16)	Wire bay	–	Yes ⁽¹⁾	Page 242
20-750-MTEBUS1-4K7	Slotted Bus Bars	800 (31)	Wire Bay	–	Yes ⁽¹⁾	Page 242
20-750-MACIOT-F7M	Solid Bus Bars	800 (31)	Power Bay (frame 7)	–	No	Page 235
20-750-MACIOT-F7L	Solid Bus Bars	800 (31)	Power Bay (frame 7L)	–	No	Page 236
20-750-MIR1-F8M	Back Panel with Stab Receptacles	400 (16)	Power Bay	Single Motor Side Inverter	No	Page 232
20-750-MIR1-F9M	Slotted Bus Bars	600 (24)	Power Bay	Motor Side Inverters (two in parallel)	No	Page 233
20-750-MIR2-F9M	Slotted Bus Bars	600 (24)	Power Bay	Motor Side Inverters (two in parallel)	No	Page 233
20-750-MADR1-F8M	Back Panel with Stab Receptacles	800 (31)	Power Bay	LCL filter/Line Side Converter/Motor Side Inverter	No	Page 227
20-750-MADR2-F8M	Back Panel with Stab Receptacles (Right-to-Left Orientation)	800 (31)	Power Bay	LCL filter/Line Side Converter/Motor Side Inverter	No	Page 228
20-750-MIR1-F10M	Slotted Bus Bars	800 (31)	Power Bay	Motor Side Inverters (three in parallel)	No	Page 234
20-750-MIR2-F10M	Slotted Bus Bars	800 (31)	Power Bay	Motor Side Inverters (three in parallel)	No	Page 234
20-750-MNIR1	Back Panel with Stab Receptacles	400 (16)	NRS Power Bay	Single-density or Dual-density Module	No	Page 327
20-750-MNIR2	Back Panel with Stab Receptacles	400 (16)	NRS Power Bay	Single-density or Dual-density Module	No	Page 327
DC Output Connection Kits						
20-750-MDCOT-F7M	Solid Bus Bars	800 (31)	Power Bay (frame 7)	–	No	Page 237

(1) L-brackets can be used to connect power wire to bus bar assemblies only when LCL filter and/or power module are not present. See Movable L-bracket Power Connections on page [130](#).

UL Listed Barrel Lugs

Power cable connections must be made directly to the bus bars or L-brackets (where applicable) by using customer-supplied lugs and customer-supplied M10 hexagonal bolts and nuts. Use UL Listed barrel lugs to make AC line input power and output motor connections to bus bars and L-brackets.

- Barrel lugs are customer-supplied.
- Use only copper barrel lugs with tin or zinc plating.
- Barrel lugs can be either crimp or mechanical type.
- Use the vendor-recommended tooling to fasten crimp type terminals to power cables.
- Torque mechanical type terminals according to vendor instructions.

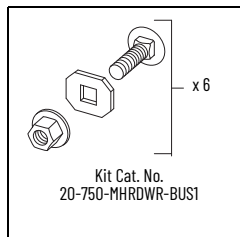
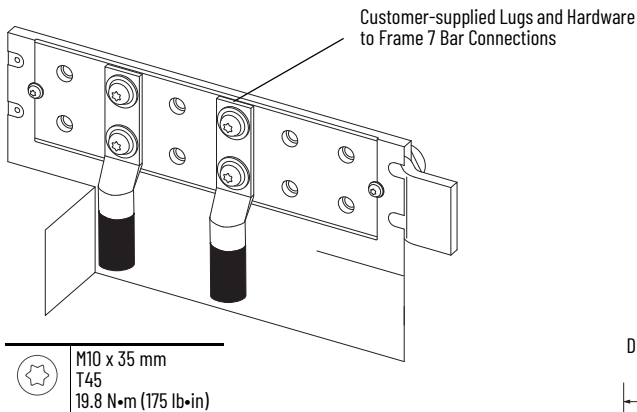
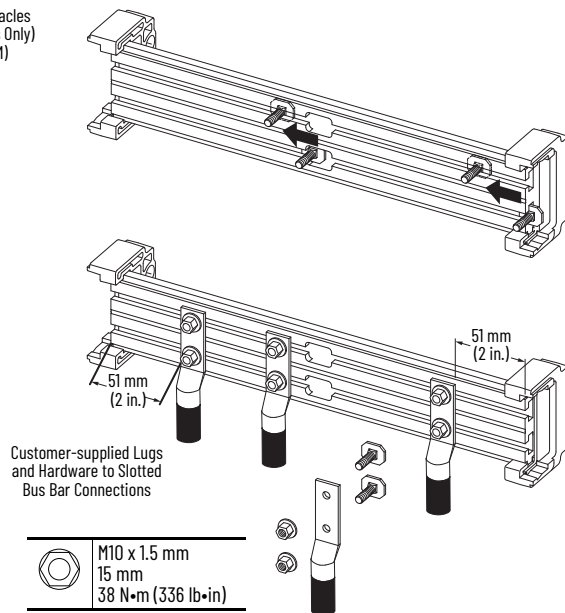
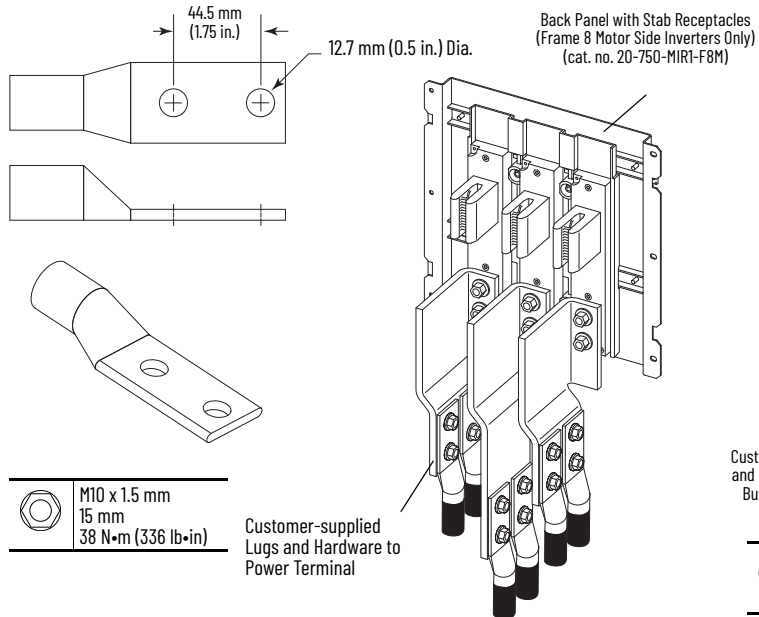
See UL Listed Barrel Lug Dimensions and Connections to Bus Bars and Power Terminals on page [129](#) and Typical Barrel Lug Connection to L-Bracket Options on page [130](#) for details.

Terminal and Barrel Lug Power Connections

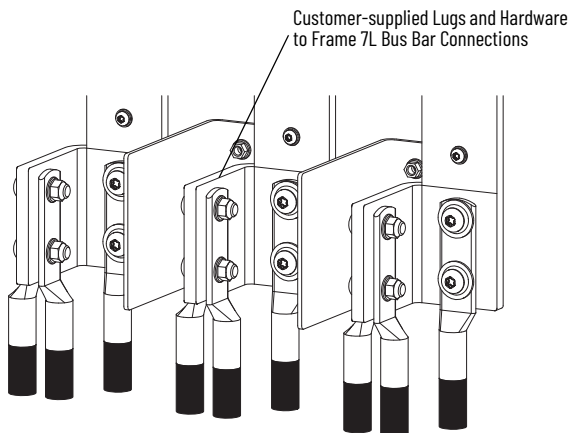
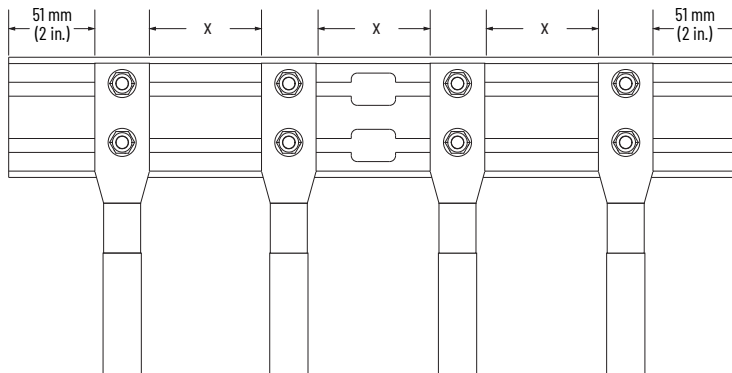
When using mechanical type terminals, which can be large, be sure to maintain adequate spacing to adjacent wires, terminals, and other parts. Conductors with appropriate barrel lugs can be connected directly to the slotted or solid bus bars. Hardware kit catalog number 20-750-MHRDWR-BUS1 is available to make lug connections to slotted bus bar kits. Dual or single-holed lugs are acceptable.

IMPORTANT Power conductor connections must be at least 51 mm (2 in.) away from the ends of the slotted bus bars and must be uniformly distributed across bus bars.

UL Listed Barrel Lug Dimensions and Connections to Bus Bars and Power Terminals



Distance "x" must be the same between each power cable connection.

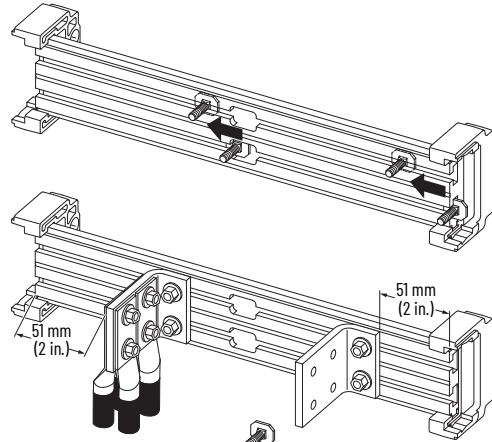
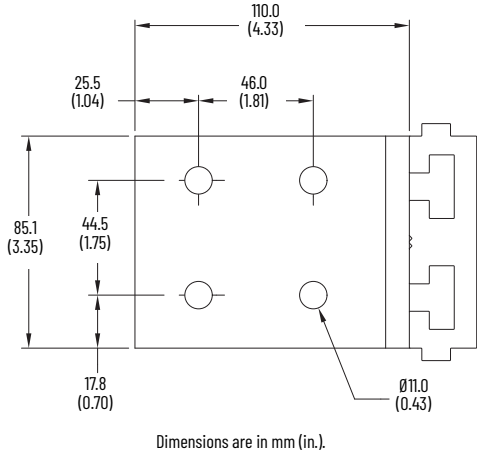



Movable L-bracket Power Connections

Movable L-bracket with hardware kit (cat. no. 20-750-MLBRKT-F8M) can be used to connect power conductors to the slotted bus bar kits identified in the Bus Bar and Back Panel and Stab Assembly Kits Used for Power Connections table on page 128. A maximum of two conductors, with appropriate barrel lugs, can be bolted to each side of an L-bracket, if necessary. The hardware kit (cat. no. 20-750-MHRDWR-BUS1) is available to make lug connections to the L-bracket. Or, attach the conductors to the L-brackets using M12 or 0.5 in. diameter bolts, nuts, and washers. Belleville spring washers, or equivalent, are recommended.

IMPORTANT Power conductor connections must be at least 51 mm (2 in.) away from the ends of the slotted bus bars and must be uniformly distributed across bus bars.

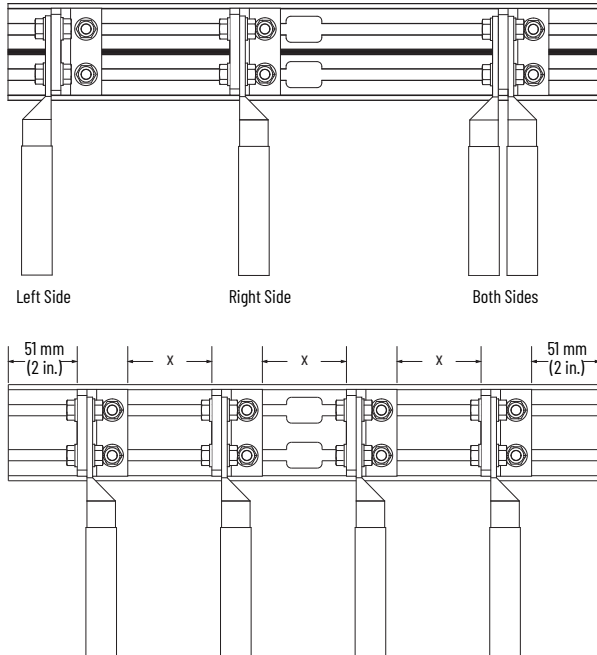
L-Bracket Connections to Slotted Bus Bars



	M10 x 1.5 mm
	15 mm
	38 N•m (336 lb•in)

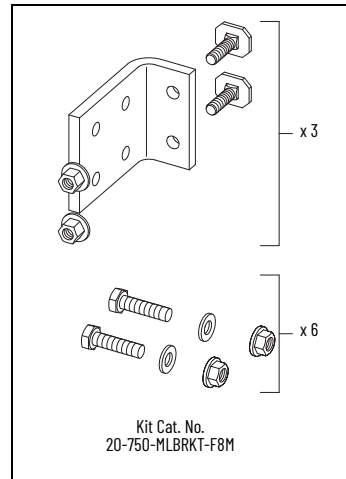


Typical Barrel Lug Connection to L-Bracket Options



Lug and Conductor Connections to L-brackets

L-bracket spacing on slotted bus bars. Distance "x" must be the same between each power cable connection.



Frames 13...15 Input and Output Power Wiring Applications

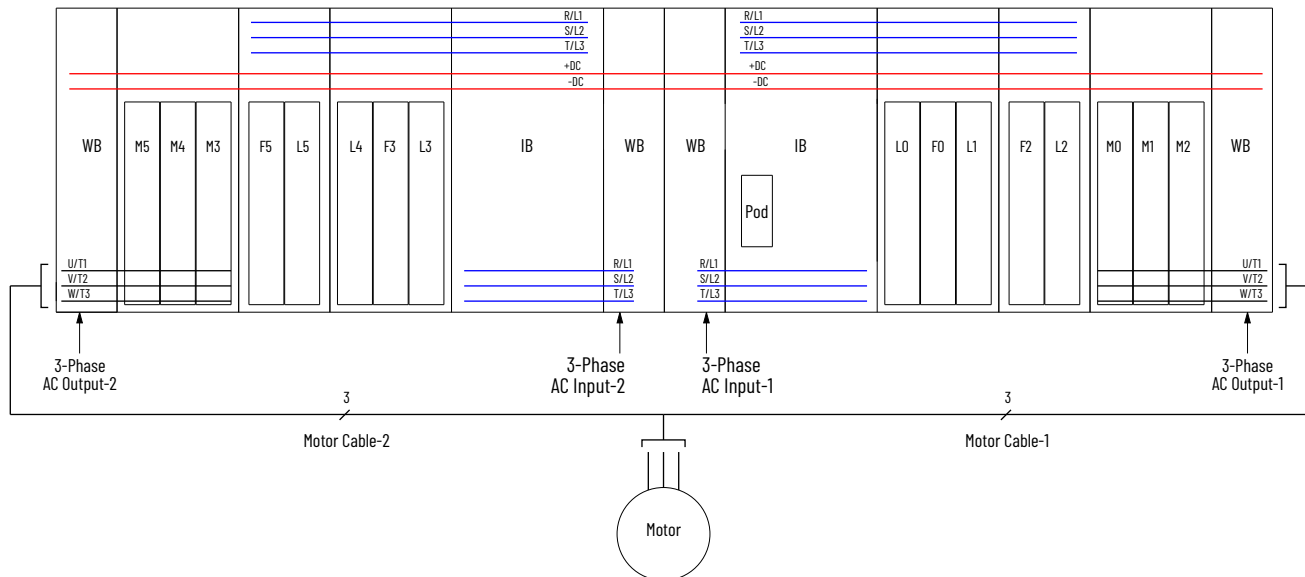
The information contained in this section provides strict guidance for input and output power sources and wiring for equivalent frame sizes 13...15 products. Use the tables and diagrams in this section to verify that your product and application meets these requirements.

- For bus supply power wiring requirements, see page 132.
- For common bus inverter power wiring requirements, see page 134.

Frames 13...15 Drives Power Wiring Requirements

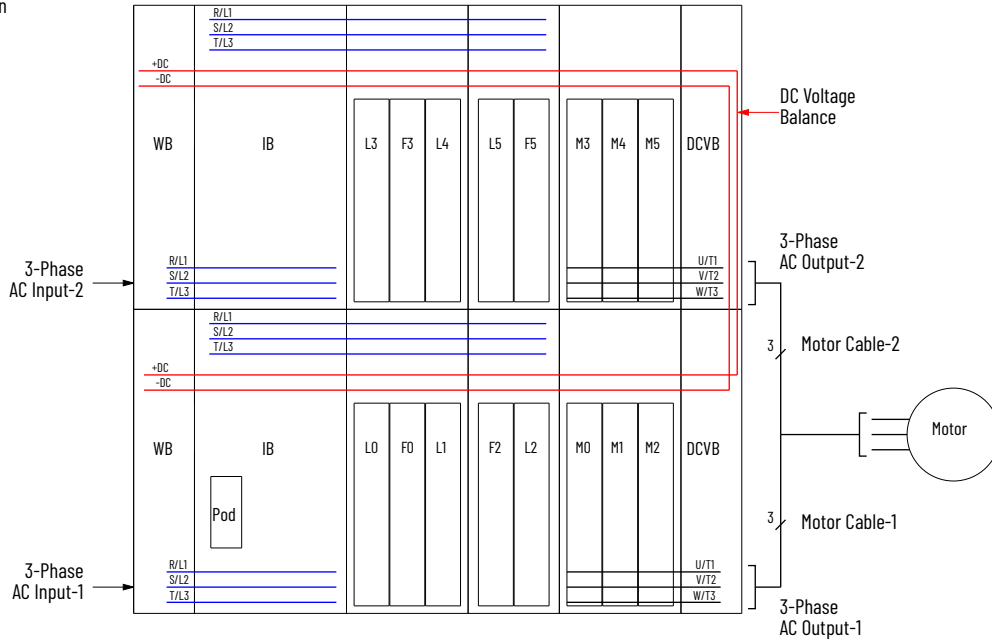
Power Connection	Configuration	Rule
AC Input	Inline or Back-to-Back	Two entry wire bays (WB) must be used for independent three-phase AC input power connections (AC Input-1 and AC Input-2).
		AC Input-1 and AC Input-2 must have the same power source and phase sequence.
		The cable length and impedance from the AC power source to AC Input-1 and AC Input-2 must be the same.
DC Bus	Inline	Must be continuous.
	Back-to-Back	A single balance connection must be provided at the motor end of the shared DC bus.
AC Output	Inline or Back-to-Back	Two exit wire bays (WB) must be used for independent three-phase AC output power connections (AC Output-1 and AC Output-2).
		Motor cables (Motor Cable-1 and Motor Cable-2) from the AC output connections (AC Output-1 and AC Output-2), respectively, to the motor must be the same length and impedance.
		Both sets of motor cables (Motor Cable-1 and Motor Cable-2) must be connected to a single motor only.

Frame 13 Drive Shown



Frame 13...15 Drive, Back-to-Back Configuration Power Wiring Diagram

Frame 13 Drive Shown

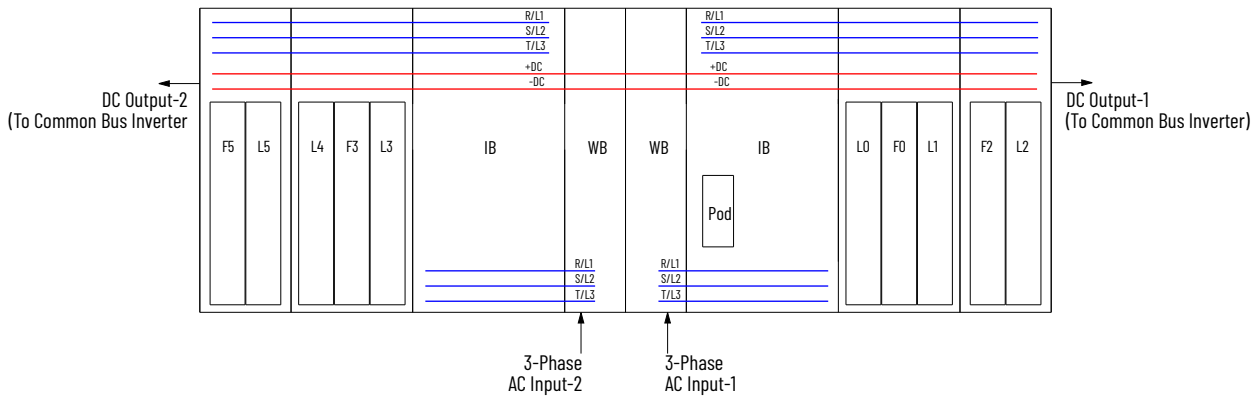


Frames 13...15 Bus Supply Power Wiring Requirements

Power Connection	Configuration	Rule
AC Input	Inline or Back-to-Back	Two entry wire bays (WB) must be used for independent three-phase AC input power connections (AC Input-1 and AC Input-2).
		AC Input-1 and AC Input-2 must have the same power source and phase sequence.
		The cable length and impedance from the AC power source to AC Input-1 and AC Input-2 must be the same.
DC Bus	Inline	Must be continuous.
	Back-to-Back	A single balance connection must be provided at the motor end of the shared DC bus. This balance connection must be removed from the bus supply DC bus output when a DC balance connection is used at the motor end of a common bus inverter running a single motor.
DC Output	Back-to-Back	A DC voltage balance bay (DCVBB) must be used.
	Inline or Back-to-Back	The DC bus bar or cable length and impedance from the DC bus output (DC Output-1 and DC Output-2) to the common bus inverter DC input (where applicable) must be the same.
		All connected common bus inverters must have a common DC bus.
		The load on DC Output-1 or DC Output-2 must not exceed 55% of the total bus supply rating.
		The total load must not exceed 100% of the bus supply rating.

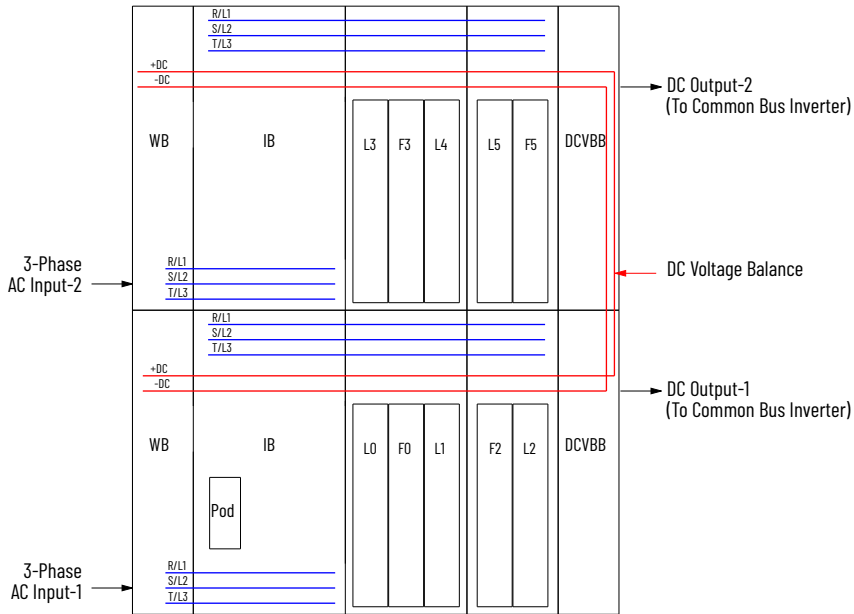
Frame 13...15 Bus Supply, Inline Configuration Power Wiring Diagram

Frame 13 Bus Supply Shown



Frame 13...15 Bus Supply, Back-to-Back Configuration Power Wiring Diagram

Frame 13 Bus Supply Shown



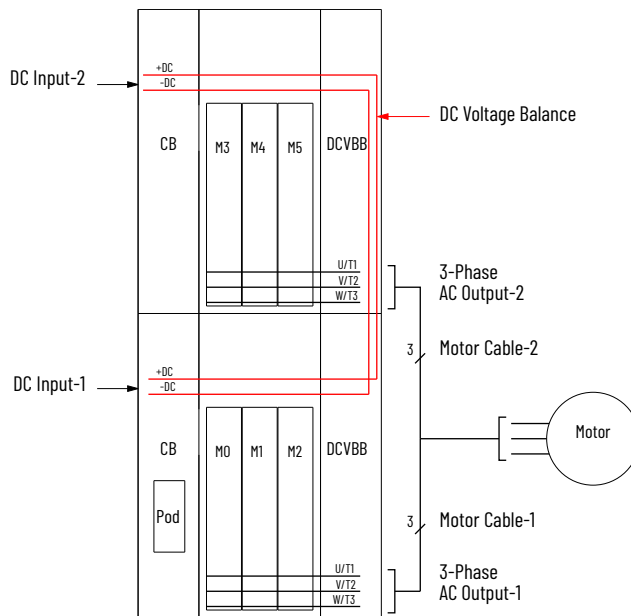
Frames 13...15 Common Bus Inverter Power Wiring Requirements

Power Connection	Configuration	Rule
DC Input	Back-to-Back	Two control bays (CB) must be used for DC input power connections (DC Input-1 and DC Input-2).
DC Bus		The DC bus bar or cable length and impedance from the DC output power source to the common bus inverter DC Input-1 and DC Input-2 must be the same.
AC Output		A single balance connection must be provided at the motor end of the shared DC bus. This balance connection must be removed from the common bus inverter DC bus when a DC balance connection is used at the motor end of a bus supply.
		A DC voltage balance bay (DCVBB) must be used.
		Motor cables (Motor Cable-1 and Motor Cable-2) from the AC output connections (AC Output-1 and AC Output-2), respectively, to the motor must be the same length and impedance.
		Both sets of motor cables (Motor Cable-1 and Motor Cable-2) must be connected to a single motor only.

IMPORTANT Do not install frame 13...15 common bus inverters in inline configurations or supply DC power to a single input connection. A single DC input power connection can exceed the DC bus current rating and cause an AC output current imbalance.

Frame 13...15 Common Bus Inverter, Back-to-Back Configuration Power Wiring Diagram

Frame 13 Common Bus Inverter Shown



Non-Regenerative Supply System Input and Output Power Wiring Requirements

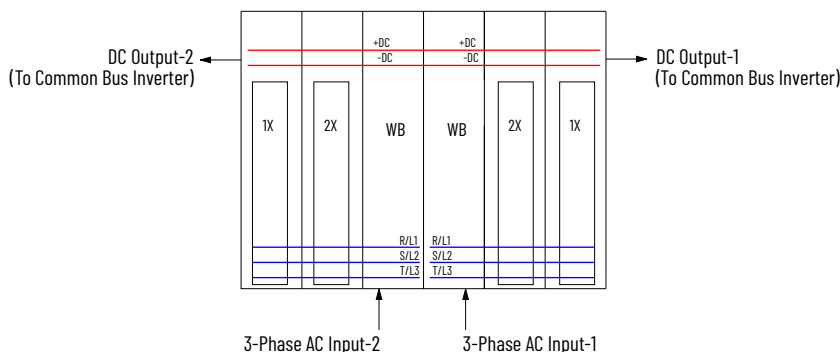
The information contained in this section provides strict guidance for input and output power sources and wiring for NRS systems installed in inline and back-to-back topologies. Use the table and diagrams in this section to verify that your product and application meets these requirements.

NRS System Power Wiring Requirements

Power Connections	Configuration	Rule
AC Input	Inline or Back-to-Back	Two entry wire bays (WB) must be used for independent three-phase AC input power connections (AC Input-1 and AC Input-2). AC Input-1 and AC Input-2 must have the same power source and phase sequence. The cable length and impedance from the AC power source to AC Input-1 and AC Input-2 must be the same.
	Inline	Must be continuous.
DC Bus	Back-to-Back	A single balance connection must be provided at the motor end of the shared DC bus. This balance connection must be removed from the bus supply DC bus output when a DC balance connection is used at the motor end of a common bus inverter running a single motor.
	Back-to-Back	A DC voltage balance bay (DCVBB) must be used.
DC Output	Inline or Back-to-Back	The DC bus bar or cable length and impedance from the DC bus output (DC Output-1 and DC Output-2) to the common bus inverter DC input (where applicable) must be the same. All connected common bus inverters must have a common DC bus. The load on DC Output-1 or DC Output-2 must not exceed 55% of the total bus supply rating. The total load must not exceed 100% of the bus supply rating.
	Back-to-Back	
	Back-to-Back	
	Back-to-Back	

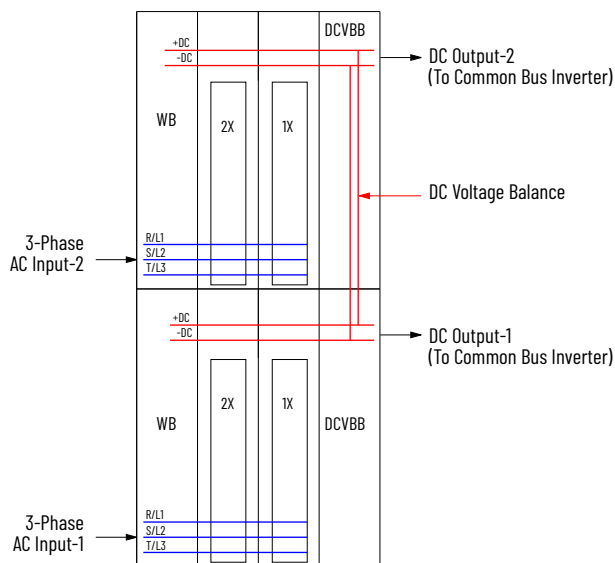
NRS System Inline Power Wiring Diagram

2 (2X +1X) Shown



NRS System Back-to-Back Configuration Power Wiring Diagram

2 (2X +1X) Shown



Bus Bars Specifications

Customer-sourced bus bars must meet the specifications that are listed in this table.

Type	Tin-plated Copper ⁽²⁾	Tin-plated Aluminum ⁽³⁾
Power ⁽¹⁾	53.5 mm ² (0.083 in. ²) per each 100 A of bus bar current	80.7 mm ² (0.125 in. ²) per each 100 A of bus bar current
Ground	483 mm ² (0.75 in. ²)	483 mm ² (0.75 in. ²)
Frame 8 AC Input	-	950 mm ² (1.47 in. ²)
Frame 9 AC Input	-	1189 mm ² (1.84 in. ²)

(1) Includes all AC and DC bus bars and the DC voltage balance bus splice (cat. no. 20-750-DCVBB-SPLICE) used in DC voltage balance bays for back-to-back configurations.

(2) UNS C11000 ETP tin-plated Copper

(3) 1100-H12, 1100-H14, 6063-T5, or 6101-T61, tin-plated aluminum

Install Control Power

This section provides I/O wiring and control power requirements.

I/O Wiring Requirements

Important points to remember about I/O wiring:

- Always use copper wire.
- Wire with an insulation rating of 600V or greater is recommended.
- Separate control and signal wires from power wires by at least 0.3 meters (1.0 foot).
- For CE compliance, 115 volt digital input wiring must be shielded or must not exceed 30 meters (98.4 feet) in length.
- Follow these guides to maintain electrical safety for all user-accessible low voltage circuits for I/O terminals that are designated for 24V or lower voltage. Standards are safety extra low voltage (SELV) and protective extra low voltage (PELV). SELV is as defined in IEC 61010-2-201 and PELV is as defined in IEC 61131-2.
 - Do not connect to a circuit of higher voltage.
 - Do not connect to a circuit that is not adequately insulated from dangerous voltages with double or reinforced insulation within other connected equipment or wiring.
- Provide a common earth reference for all equipment that is connected to the drive. This common earth reference is to provide electrical safety for user-accessible low voltage I/O circuits that are referenced to earth (PELV circuits) and that can be touched simultaneously.
- If the wires are short and contained within a cabinet that has no sensitive circuits, the use of shielded wire is not necessary, but is always recommended.

IMPORTANT I/O terminals labeled “(-)” or “Common” are not referenced to earth ground and are designed to reduce common mode interference. Grounding these terminals is likely to cause signal noise and is not recommended.



ATTENTION: Hazard of personal injury or equipment damage exists when using bipolar input sources. Noise and drift in sensitive input circuits can cause unpredictable changes in motor speed and direction. Use speed command parameters to help reduce input source sensitivity.

I/O Wire Recommendations

Type		Wire Type	Description	Min. Insulation Rating
Signal	Standard Analog I/O	-	0.750 mm ² (18 AWG), twisted pair, 100% shield with drain.	300V, 75...90 °C (167...194 °F)
	Remote Potentiometer	-	0.750 mm ² (18 AWG), 3 conductor, shielded.	
	Encoder/Pulse I/O <30 m (100 ft)	Combined	0.196 mm ² (24 AWG) individually shielded pairs.	
	Encoder/Pulse I/O 30...152 m (100...500 ft)	Signal	0.196 mm ² (24 AWG) individually shielded pairs.	
		Power	0.750 mm ² (18 AWG) individually shielded pairs	
		Combined	0.330 mm ² (22 AWG), power is 0.500 mm ² (20AWG) individually shielded pairs.	
	Encoder/Pulse I/O 152...259 m (500...850 ft.)	Signal	0.196 mm ² (24 AWG) individually shielded pairs.	
		Power	0.750 mm ² (18 AWG) individually shielded pairs.	
		Combined	0.750 mm ² (18 AWG) individually shielded pairs.	
Digital I/O, Safety Inputs, Homing Inputs	Shielded	Multi-conductor shielded cable	0.750 mm ² (18 AWG), 3 conductor, shielded.	300V, 60 °C (140 °F)
Digital I/O, Homing Inputs	Unshielded	-	Per US NEC or applicable national or local code.	

Overcurrent Protective Devices for Control Power

- 24V DC control logic circuits must be fed from a UL Class 2 or limited energy or limited current/voltage supply.
- 240V AC control power must be protected in compliance with national and local industrial safety regulations and/or electrical codes.

240V AC/24V DC Control Power Requirements

Single-phase, 240V AC power, with neutral connected to PE ground at source, is required for specific PowerFlex 755T product IP00 modules and components. Optional customer-sourced control transformers can provide this power (see page [144](#) for details). A 1 kVA control transformer with fuse holders and fuse kit is required to provide 240V AC control power for NRS modules (see page [145](#) for details).

Optionally, an external 24V DC power supply can be used to provide control power to circuit boards when the PowerFlex 755T product is not energized. Rockwell Automation recommends an Allen-Bradley® switched mode power supply, catalog number 1606-XLS240EC. See the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-ID101](#) for selection information.

To facilitate a UL-compliant installation for frame 8...15 products, provide 240V AC/24V DC control power to the necessary system modules and components by using the control bus assembly and control bus connector and wire harness kits (where provided). See Control Bus Assembly and Control Bus Connectors on page [155](#), for more information.

The 240V AC / 24V DC Control Power Connections table on page [138](#) contains the modules and components that require 240V AC and 24V DC control power, and the specific connections. Regardless of the source, some wire harnesses must be customer-sourced. If a control bus assembly and control bus connectors are not used, the corresponding 240V AC and/or 24V DC wire harnesses and connectors that are shown in the table must be customer-sourced. For details on control power source load requirements, see Device Control-power Usage on page [147](#).

For detailed schematic diagrams of PowerFlex 755T products, see the PowerFlex 750-Series Products with TotalFORCE Control Hardware Service Manual, publication [750-IG100](#).

This table provides a list of modules and components that require a 240V AC or 24V DC control power source.

Module / Component	Connection Details	Module / Component	Connection Details
DC Precharge Module	138	Frames 8...15 Control Pod (cat. no. 20-750-MCPODn-F8M)	141
Frames 8...15 Power Modules (cat. no. 20-750-MI1-xnnnxxxx, 20-750-MI2-xnnnxxxx, 20-750-MI3-xnnnxxxx)	139	Frame 7 and 7L Control Pod (cat. no. 20-750-MCPODn-F7M)	141
Frame 7 Power Module (cat. no. 20-750-MI4-xnnnxxxx) and Frame 7L Power Module (cat. no. 20-750-M5-C650D650)	139	Power Bay IP54 Roof Fan	142
Frames 8...15 LCL Filter Module (cat. no. 20-750-ML1-xnnnxxxx)	140	Entry Wire, Exit Wire, or DC Voltage Balance Bay Door Fan	143
Frame 7 and 7L LCL Filter Module (cat. no. 20-750-ML4-xnnnxxxx)	140	Control Bay and Input Bay (Frame 8 and 9) Roof Fan	143
NRS Module (cat. no. 20-750-MN1-xnnnxxxx, 20-750-MN2-xnnnxxxx)	140	Input Bay (Frames 10...15) Door Fans	143
AC Precharge Module / AC Precharge Control Circuit Board	141	Torque Accuracy Module	144

240V AC / 24V DC Control Power Connections

Module / Component	Connections	Wire Harness Connection Example
<p>DC Precharge Module</p> <p>All required wire harnesses are included with the DC precharge module. For connection details, see page 264.</p> <ul style="list-style-type: none"> Connect the control bus wire harness with connector P13 to connector J13 on the DC precharge module. When a control bus assembly is not used, see Control Bus to DC Precharge Module Connector P13 Wire Harness on page 339. Connect the DC precharge module wire harness with connector P4 to connector J4 on the power module. Connect the DC precharge module wire harness with connector P3 to connector J3 on the power module. 		<p>The diagram illustrates the wiring connections between several components:</p> <ul style="list-style-type: none"> DC Precharge Module: Shows connectors J13 and P13. J13-2 (24V DC) and J13-4 (240V NEUTRAL) connect to P4. DCPC-TB1-2 (240V AC Line) and DCPC-TB2-2 (24V DC Com) connect to P4. DCPC-PCBA1-P10-1 (24V DC Com) and DCPC-PCBA1-P10-3 (24V DC) connect to P3. Power Module: Shows +DC and -DC terminals. U/T1, V/T2, and W/T3 are also indicated. I/O Panel: Shows connectors J3 and J4. J3-1 (24V DC Com) and J3-2 (24V DC) connect to P3. J4-1 (24V DC Com) and J4-2 (24V DC) connect to P4. Control Bus Assembly* and Control Bus Connector*: Shows a terminal block with wires for 240V AC Line, 240V AC Neutral, 120/240V AC Line, 120/240V AC Neutral, Aux 24V DC, and Aux 24V DC Com. These connect to the P3 and P4 terminals. <p>Legend:</p> <ul style="list-style-type: none"> 1. 240V AC Neutral 2. 24V DC Com 3. 240V AC Line 4. 24V DC <p>*Optional Component</p>

240V AC / 24V DC Control Power Connections (Continued)

Module / Component	Connections	Wire Harness Connection Example
<p>Frames 8...15 Power Modules (cat. no. 20-750-M11-xnnnxxxx, 20-750-M12-xnnnxxxx, 20-750-M13-xnnnxxxx)</p>	<p>All required wire harnesses are included with the connecting module/kit.</p> <p>When a DC precharge module is installed:</p> <ul style="list-style-type: none"> Connect the DC precharge module wire harness with connector P4 to connector J4 on the power module. ⁽¹⁾ Connect the DC precharge module wire harness with connector P3 to connector J3 on the module. For DC precharge to power module connection details, see page 264. <p>When a DC/Link fuse assembly is installed:</p> <ul style="list-style-type: none"> Connect the control bus wire harness with connector P4 to connector J4 on power module. When a control bus assembly is not used, see Control Bus to Power and LCL Filter Module Connector P4 Wire Harness on page 342. ⁽¹⁾ For details, see page 257 or 259. <p>(1) To protect the DC bus capacitor balance resistors in a motor side inverter power module, the customer-supplied 240V AC control power must be energized and all power module blowers must be functioning before DC bus voltage is applied to a PowerFlex 755TM common bus inverter system.</p>	<p>DC Precharge Module to Power Module J4 (Motor Side Inverter)</p> <p>Control Bus to Power Module J4 (Line Side Converter Shown)</p>
<p>Frame 7 Power Module (cat. no. 20-750-M14-xnnnxxxx) and Frame 7L Power Module (cat. no. 20-750-M5-C650D650)</p>	<p>The required wire harnesses must be customer sourced.</p> <ul style="list-style-type: none"> Connect the control power wire harness with connector P4 to connector J4 on power module. See Control Power to Power Module Connector P4 Wire Harness (Frame 7 and 7L) on page 340. 	

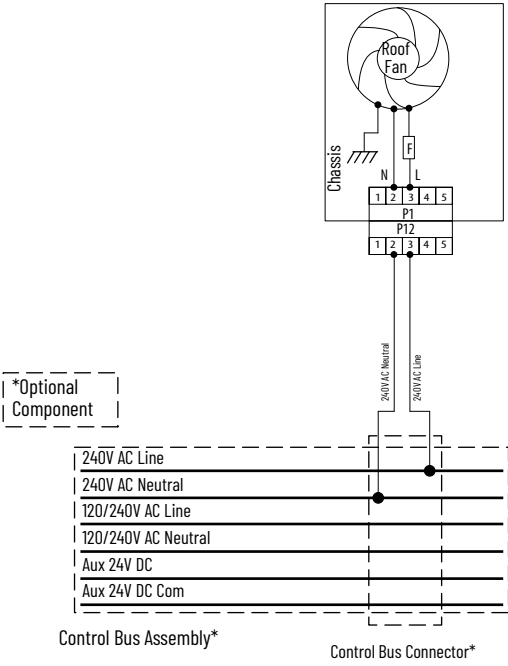
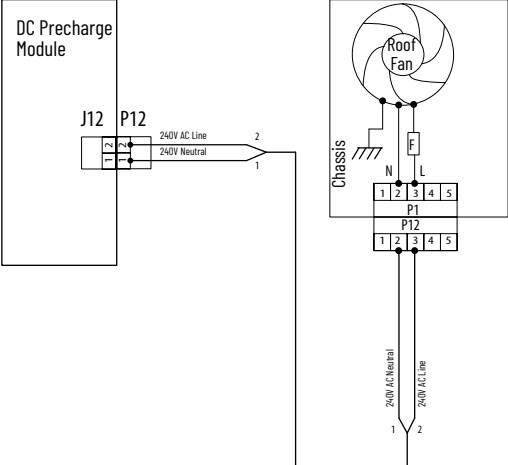
240V AC / 24V DC Control Power Connections (Continued)

Module / Component	Connections	Wire Harness Connection Example
<p>Frames 8...15 LCL Filter Module (cat. no. 20-750-ML1-xnnnxnnn)</p>	<ul style="list-style-type: none"> Connect the 240V AC control bus wire harness with connector P4 to connector P2 on the module. See Control Bus to Power and LCL Filter Module Connector P4 Wire Harness on page 342. Connect the provided 24V DC wire harness with connector P3 to connector J3 on the adjoining line side converter power module. For connection details, see page 311. 	
<p>Frame 7 and 7L LCL Filter Module (cat. no. 20-750-ML4-xnnnxnnn)</p>	<ul style="list-style-type: none"> Connect the customer-sourced 240V AC control power wire harness with connector P2 to connector J2 on the module. See Control Power to LCL Filter Module Connector P4 Wire Harness (Frame 7 and 7L) on page 341. Connect the provided 24V DC wire harness with connector P3 to connector J3 on the adjoining line side converter power module. For connection details, see page 306. 	
<p>NRS Module (cat. no. 20-750-MN1-xnnnxnnn, 20-750-MN2-xnnnxnnn)</p>	<p>The required wire harness is provided as IP00 kit cat. no. 20-750-MNIH1. See NRS System Interconnection Wire Harnesses on page 33 for details.</p> <ul style="list-style-type: none"> Connect the two labeled open wires on wire harness kit cat. no. 20-750-MN-XMFR1-x to a 240V AC control power source. 	

240V AC / 24V DC Control Power Connections (Continued)

Module / Component	Connections	Wire Harness Connection Example
AC Precharge Module / AC Precharge Control Circuit Board	<p>For frames 7, 7L and 10...15, all required wire harnesses must be customer sourced. All required wire harnesses are included with frame 8 and 9 AC precharge modules.</p> <ul style="list-style-type: none"> Connect the 240V AC wire harness with connector P5 to connector J5 on the AC precharge control circuit board. See 240V AC Control Power to AC Precharge Control Circuit Board Connector P5 Wire Harness on page 359. Connect the 24V DC wire harness with connector P1 to connector J1 on the AC precharge control circuit board. See 24V DC Supply to AC Precharge Control Circuit Board Connector P1 Wire Harness on page 350. Optionally, connect the 24V DC wire harness with connector P12 to connector J12 on the AC precharge control circuit board. See 24V DC Supply to AC Precharge Control Circuit Board Connector P12 Wire Harness on page 388. For connection details and additional customer-sourced wire harness requirements, see AC Precharge Control Circuit Board Connections on page 168. 	
Frames 8...15 Control Pod (cat. no. 20-750-MCPODn-F8M)	<p>The required and optional harnesses must be customer sourced.</p> <ul style="list-style-type: none"> Connect the required 24V DC wire harness with connector P14 to connector J14 on the fiber interface circuit board in the control pod. See 24V DC Control Power to Control Pod Connector P14 Wire Harness (Frames 8...15) on page 343. Connect the optional auxiliary 24V DC wire harness with connector P13 to connector J13 on the fiber interface circuit board. See Auxiliary 24V DC to Control Pod Connector P13 Wire Harness (Frames 8...15) on page 344. 	<div style="display: flex; justify-content: space-around;"> <div> <p>24V DC (Required)</p> </div> <div> <p>Aux. 24V DC (Optional)</p> </div> </div>
Frame 7 and 7L Control Pod (cat. no. 20-750-MCPODn-F7M)	<p>All required and optional harnesses must be customer sourced.</p> <ul style="list-style-type: none"> Connect the required 24V DC wire harness with connector P14 to connector J14 on the fiber interface circuit board in the control pod. See 24V DC Control Power to Control Pod Connector P14 and Auxiliary 24V DC to Control Pod Connector P13 Wire Harness (Frame 7 and 7L) on page 345. Connect the required 24V DC wire harness with connector P1 to connector J1 on the control pod fan. See 24V DC Control Power to Control Pod Fan Connector P1 Wire Harness (Frame 7 and 7L) on page 346. Connect the optional auxiliary 24V DC wire harness with connector P13 to connector J13 on the fiber interface circuit board. See 24V DC Control Power to Control Pod Connector P14 and Auxiliary 24V DC to Control Pod Connector P13 Wire Harness (Frame 7 and 7L) on page 345. 	<div style="display: flex; justify-content: space-around;"> <div> <p>24V DC (Required)</p> </div> <div> <p>Fan (Required)</p> </div> <div> <p>Aux. 24V DC (Optional)</p> </div> </div>

240V AC / 24V DC Control Power Connections (Continued)

Module / Component	Connections	Wire Harness Connection Example
Power Bay IP54 Roof Fan	<p>The required wire harness is included with the respective kit.</p> <ul style="list-style-type: none"> Connect the 240V AC control bus or DC precharge wire harness with connector P12 to connector P1 on the fan assembly. For connection details, see page 215. When a control bus assembly is not used, see Control Bus to IP54 Exhaust Vent Fan Connector P12 Wire Harness on page 347. 	<p>Control Bus to IP54 Roof Fan P1</p>  <p>*Optional Component</p> <ul style="list-style-type: none"> 240V AC Line 240V AC Neutral 120/240V AC Line 120/240V AC Neutral Aux 24V DC Aux 24V DC Com <p>Control Bus Assembly* Control Bus Connector*</p> <p>DC Precharge to IP54 Roof Fan P1</p> 

240V AC / 24V DC Control Power Connections (Continued)

Module / Component	Connections	Wire Harness Connection Example
<p>Entry Wire, Exit Wire, or DC Voltage Balance Bay Door Fan</p>	<p>The required wire harness is included with the fan/enclosure.</p> <ul style="list-style-type: none"> Connect the 240V AC control bus wire harness to connector P1 on the fan assembly. When a control bus assembly is not used, see Control Bus Wire Entry/Exit Bay Door Fan Connector P1 Wire Harness on page 348. For NRS systems, when the control transformer kit (cat. no. 20-750-MN-XYFR1-x) is used, connect the fan wire harness leads to TB1 in the NRS power bay. For connection details, see page 215. 	<p style="text-align: center;">Control Bus Connector*</p> <p style="text-align: center;">*Optional Component</p>
<p>Control Bay and Input Bay (Frame 8 and 9) Roof Fan</p>	<p>The required wire harness is included with the kit.</p> <ul style="list-style-type: none"> Connect the 240V AC wire harness with connector P12 to connector P2 on the fan assembly. For connection details, see page 208. See 240V AC to Control Bay or Input Bay Vent Fan Connector P12 Wire Harness on page 349. 	
<p>Input Bay (Frames 10...15) Door Fans</p>	<p>The required wire harness is included with the kit.</p> <ul style="list-style-type: none"> Connect the 48V DC wire harness with connectors P12 and P13 to connectors P1 on the fan assemblies. The wire harness provided in the kit is used with two 24V DC power supplies used in parallel (as shown to the right). For connection details, see page 212 or 213. See 48V DC Control Power to Door Fan Connectors P12 and P13 Wire Harness on page 360. 	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>48V DC Source - Two 24V DC Power Supplies in Parallel</p> </div> <div style="text-align: center;"> <p>Customer-supplied 48V DC Source - Direct to Fan</p> </div> </div>

240V AC / 24V DC Control Power Connections (Continued)

Module / Component	Connections	Wire Harness Connection Example
Torque Accuracy Module	<p>For frame 7 and 7L, the required wire harness must be customer-sourced. The torque accuracy module kits for frames 8...15 include the required wire harnesses. Either 240V AC or 24V DC must be provided.</p> <ul style="list-style-type: none"> Connect the control bus wire harness with connector P1 to connector J1 on the module. For connection details, see page 177. For frame 7 and 7L, see 240V AC to Torque Accuracy Module (TAM) Connector P1 Wire Harnesses (Frame 7 and 7L) on page 378. 	<p>The diagram illustrates the wiring for a Torque Accuracy Module. At the top, the module is shown with two connectors: J1 and P1. Below these, a wire harness is depicted with four wires labeled 1 through 4. Wire 1 is 24V DC, wire 2 is 24V DC Com, wire 3 is 240V AC Line, and wire 4 is 240V AC Neutral. These wires connect to a Control Bus Connector with terminals 1, 2, 3, and 4. The Control Bus Connector is then connected to a Control Bus Assembly, which has terminals for 240V AC Line, 240V AC Neutral, 120/240V AC Line, 120/240V AC Neutral, Aux 24V DC, and Aux 24V DC Com. A legend indicates that the Control Bus Assembly and Control Bus Connector are optional components.</p>

Multiple Disconnects Requirements

The modules that are identified in the Device Control-power Usage section in page 147 can be supplied by multiple power sources. For example, 480V AC line power and 240V AC control power. Final assemblies that are supplied by multiple power sources, must be marked in compliance with national and local industrial safety regulations and/or electrical codes.

PowerFlex 755T Products Control Transformers (Frames 7...15 and 7L)

Control transformers for frame 7...15 and 7L PowerFlex 755T products are not provided as IP00 kits and, if used, must be customer sourced. When control transformers are used in parallel, the impedance of the transformers should be within 10% of each other. A failure to match the impedance of the transformers may lead to improper current balance in the transformer supply. Install customer-sourced primary and secondary control transformer fuses according to national and local electrical codes.

For a list of recommended control transformers and primary and secondary fuses and fuse holders, see the PowerFlex 755TM IP00 Open Type Kits Technical Data, publication [750-TD101](#).

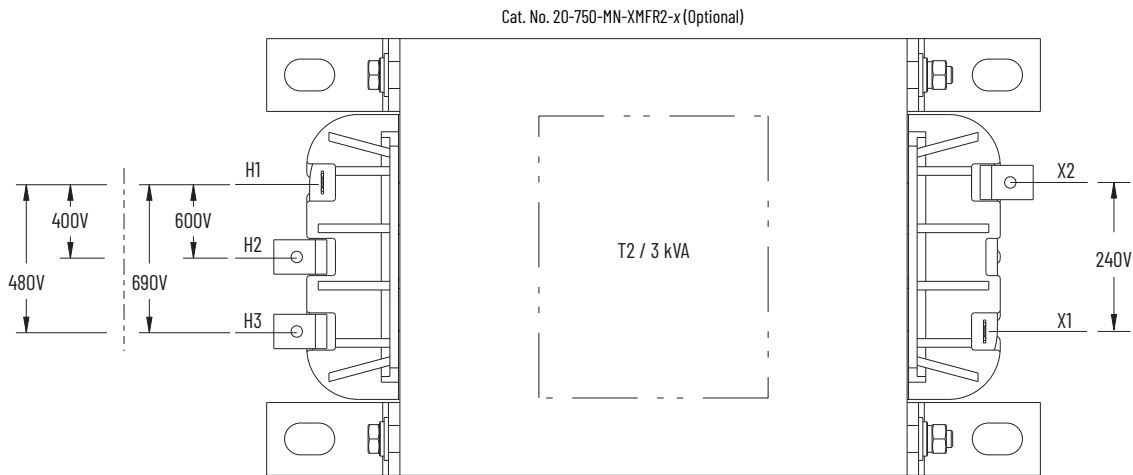
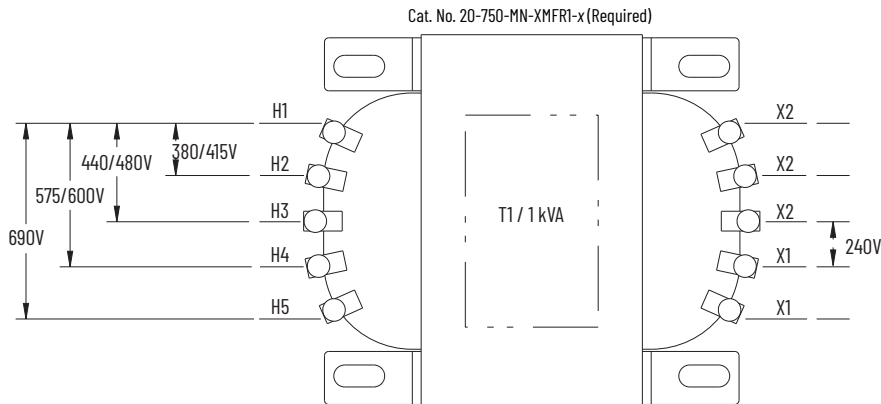
NRS System Control Transformer with Fuse Holders and Fuses Kits

The NRS system control transformer kits provide 240V AC control power to NRS modules and system components. The 1 kVA control transformer with fuse holders and fuses kit must be used to provide 240V AC control power to the entry wire bay fan (when used) and an NRS module. The optional 3 kVA control transformer with fuse holders and fuses kit is used to provide 240V AC control power for additional NRS system components by using the IP00 control bus, control bus splice, and control bus connector kits (see Control Bus Assembly and Control Bus Connectors on page 155). All primary, secondary and ground control transformer wire harnesses are provided with the kits.

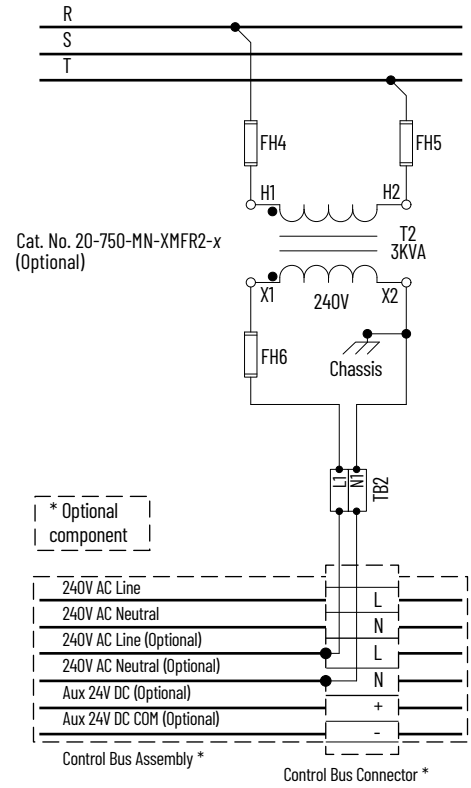
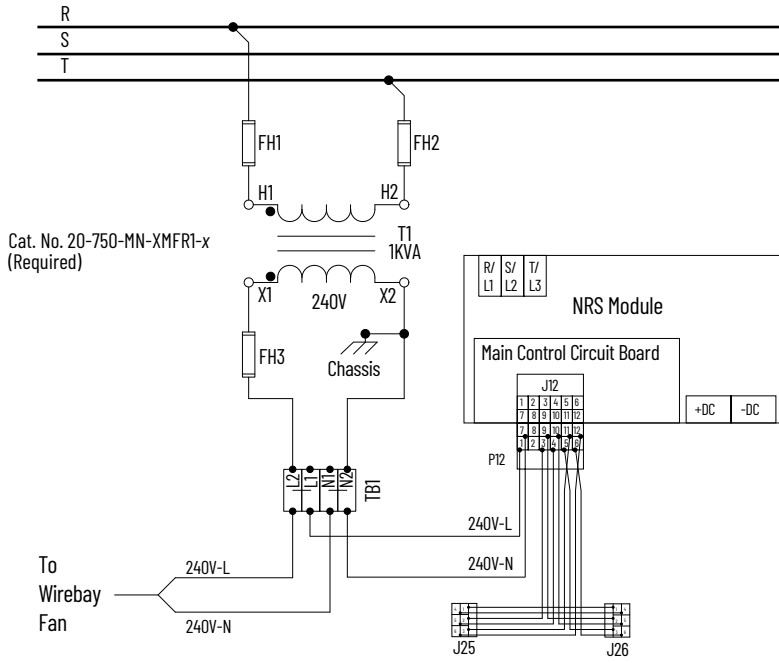
NRS Control Transformer with Fuse Holders and Fuses Kits (Supplier Rockwell Automation)

Control Transformer					Primary Fuses (Bussman)			Primary Fuse Holder (Bussman)		Secondary Fuse (Bussman)			Secondary Fuse Holder (Bussman)	
Cat. No.	Voltage	Rating (KVA)	Primary (A)	Secondary (A)	Cat. No.	Rating (V / A)	Fuse Qty. (ID)	Cat. No.	Qty.	Cat. No.	Rating (V / A)	Fuse Qty. (ID)	Cat. No.	Qty.
20-750-MN-XMFR1-C	400V	1	1.0	2.0	LP-CC-6	600 / 6	2 (FH1, FH2)	CHCC2DU	1	LP-CC-6	600 / 6	1 (FH3)	CHCC1DU	1
20-750-MN-XMFR1-D	480V		1.2											
20-750-MN-XMFR1-E	600V		0.8											
20-750-MN-XMFR1-F	690V		0.7											
20-750-MN-XMFR2-C	400V	3	7.5	12.5	LP-CC-20	600 / 20	2 (FH4, FH5)	CHCC2DU	1	LP-CC-15	600 / 15	1 (FH6)	CHCC1DU	1
20-750-MN-XMFR2-D	480V		6.25											
20-750-MN-XMFR2-E	600V		5.0											
20-750-MN-XMFR2-F	690V		4.35											

NRS System Control Transformer Schematics



NRS System Control Transformer Wiring Examples



Device Control-power Usage

The following table provides the current load that is used by each IP00 module or component at each applicable control-power input voltage level. Use the information in the table to determine the total load (amps) required for your control power sources. For control-power current load application examples based on product and frame size, see Device Control-power Usage Examples on page 148.

IP00 Module and Component Control-power Current Load Usage

IP00 Module / Component	Catalog Numbers	240V AC Input (Amps)	48V DC Input (Amps)	24V DC Input (Amps)	24V DC Auxiliary Input (Amps) ⁽¹⁾
Power module	20-750-M1n-xnnnxxxx	2.9	–	–	1.4
LCL filter module	20-750-MLn-xnnnxxxx	2.9	–	–	0.9 ⁽²⁾
DC precharge module	20-750-MDCP1-CD-F8M 20-750-MDCP1-EF-F8M 20-750-MDCP2-CD-F8M 20-750-MDCP2-EF-F8M	2.0	–	–	0.5 ⁽¹⁾
Frame 8 and 9 AC precharge module (includes an AC precharge control circuit board, circuit breaker, time delay relay, and contactor)	20-750-MACP-CD-F8M 20-750-MACP-E-F8M 20-750-MACP-F-F8M 20-750-MACP-CD-F9M 20-750-MACP-E-F9M 20-750-MACP-F-F9M	2.0	–	1.1	1.1
Frame 7 and 7L AC precharge control circuit board	20-750-MACP1-CD-F7M 20-750-MACP1-EF-F7M ⁽³⁾	2.0	–	1.1	1.1
10...15 AC precharge control circuit board	20-750-MACP1-CD 20-750-MACP1-EF	2.0	–	1.1	1.1
AC precharge circuit breaker and time delay relay	20-750-MACPCCB-E-2K0 20-750-MACPCCB-F-2K0 20-750-MACPCCB-CDE-3K0 20-750-MACPCCB-F-3K0 20-750-MACPCCB1-CD-5K0 20-750-MACPCCB1-CD-4K0 20-750-MACPC-TDR	1.5 ⁽⁴⁾	–	–	–
AC precharge contactor ⁽⁵⁾	100-C85KA10 100-D115KA00 ⁽⁶⁾ 100-D140EA00 ⁽⁶⁾ 100-D180EA00 ⁽⁶⁾	0.5 ⁽⁴⁾	–	–	–
IP54 power bay roof ventilation fan	20-750-MVENT2-F8M 20-750-MVENT2-F9M	2	–	–	–
	20-750-MVENT2-F10M (2 fans)	4	–	–	–
Frame 8 and 9 IP21/IP54 input bay roof ventilation fan	20-750-MVENTC2-F8M	0.3	–	–	–
Frame 10...15, IP21/IP54 input bay door fan (single fan)	20-750-MVENTC1-F11M	–	3.2	–	–
Frame 7 and 7L control pod	20-750-MCP0D3-F7M 20-750-MCP0D4-F7M ⁽³⁾	–	–	7.2	7.2
	20-750-MCP0D3-F8M 20-750-MCP0D4-F8M	–	–	5.2	5.2
400 mm (15.7 in.) wide entry/exit wire bay door fan	_ ⁽⁷⁾	0.3	–	–	–
800 mm (31.5 in.) wide entry/exit wire bay door fan	_ ⁽⁷⁾	0.4	–	–	–
Torque accuracy module	20-750-MTAM1-CD 20-750-MTAM1-EF	0.2 ⁽²⁾	–	–	0.2 ⁽⁸⁾
IP21/IP54 control-bay roof ventilation fan	20-750-MVENTC2-F8M	0.3	–	–	–

(1) This control power source is optional. Provides auxiliary power to the control pod control circuits when main power has been removed.

(2) This control power source is provided by the connected power module.

(3) This catalog number is not used with frame 7L liquid cooled drives.

(4) This control power source is provided by the AC precharge control circuit board.

(5) The listed catalog numbers are included with frame 8 and 9 AC precharge modules. An AC precharge contactor must be customer-sourced for frame 10...12 AC precharge systems.

(6) This catalog number is no longer available for purchase. Consult the factory for a solution.

(7) This fan is provided with the Rittal TS8 entry/exit wire bays only. If a Rittal TS8 entry/exit wire bay is not used, see Required Enclosure Airflow Rates on page 69 for details on fan requirements for entry/exit wire bays. These fans can be purchased directly from Rittal. Order part number 3241.100 (quantity 1) for 400 mm wide C2 and C3 compliant wire bays. Order part number 3243.100 (quantity 1) for 800 mm wide, C2 compliant wire bays and 3243.600 (quantity 1) for 800 mm wide, C3 compliant wire bays.

(8) This value is the current load for either a 240V AC or 24V DC control power source. Only one control power source is required.

Device Control-power Usage Examples

These examples represent the typical control-circuitry current load present for the components that are typically used in an equivalent frame size of PowerFlex 755T enclosed products. The current loads that are identified in the tables are used to calculate the total ampacity and rating of the fuses that are used to help protect the control circuits of these modules. The total ampacity cannot exceed the maximum rating of the customer-sourced control power circuit fuse. The total current load that is drawn from the control power sources vary depending on the devices that are installed in your equivalent product that receive power from these sources, including any device that is not listed in these tables. Additionally, to help ensure the accuracy of the control power loads, Rockwell Automation recommends that you use Allen-Bradley® components only.

Frame 7, IP21/IP54 Drive

Quantity / Power Source	Power Bay							
	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Control Board	AC Precharge Circuit Breaker and Time Delay Relay	AC Precharge Contactor	LCL Filter Module	Converter Power Module	Inverter Power Module
Quantity	1	1	1	1	1	1	1	1
Current at 240V AC (Amp)	–	1.0 ⁽²⁾	2.0	1.5 ⁽³⁾	0.5 ⁽³⁾	2.9	2.9	2.9
Current at 24V DC (Amp)	7.2 ⁽⁴⁾	–	1.1 ⁽⁴⁾	–	–	0.9 ⁽⁵⁾	–	–
Aux Current at 24V DC (Amp) ⁽⁶⁾	7.2	–	1.1	–	–	–	1.4	1.4

- (1) The 24V DC current draw value for the control pod does not include any option modules, if installed.
- (2) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.
- (3) This control power source is provided by the AC precharge control circuit board.
- (4) This control power source is provided by a Bulletin 1606 power supply.
- (5) This control power source is provided by the connected power module.
- (6) This control power source is optional.

Frame 7, IP21/IP54 Bus Supply

Quantity / Power Source	Power Bay						
	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Control Board	AC Precharge Circuit Breaker and Time Delay Relay	AC Precharge Contactor	LCL Filter Module	Converter Power Module
Quantity	1	1	1	1	1	1	1
Current at 240V AC (Amp)	–	1.0 ⁽²⁾	2.0	1.5 ⁽³⁾	0.5 ⁽³⁾	2.9	2.9
Current at 24V DC (Amp)	7.2 ⁽⁴⁾	–	1.1 ⁽⁴⁾	–	–	0.9 ⁽⁵⁾	–
Aux Current at 24V DC (Amp) ⁽⁶⁾	7.2	–	1.1	–	–	–	1.4

- (1) The 24V DC current draw value for the control pod does not include any option modules, if installed.
- (2) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.
- (3) This control power source is provided by the AC precharge control circuit board.
- (4) This control power source is provided by a Bulletin 1606 power supply.
- (5) This control power source is provided by the connected power module.
- (6) This control power source is optional.

Frame 7L, IP21 Liquid Cooled Drive

Quantity / Power Source	Power Bay							
	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Control Board	AC Precharge Circuit Breaker and Time Delay Relay	AC Precharge Contactor	LCL Filter Module	Converter Power Module	Inverter Power Module
Quantity	1	1	1	1	1	1	1	1
Current at 240V AC (Amp)	–	1.0 ⁽²⁾	2.0	1.5 ⁽³⁾	0.5 ⁽³⁾	2.9	1.5	1.5
Current at 24V DC (Amp)	7.2 ⁽⁴⁾	–	1.1 ⁽⁴⁾	–	–	0.9 ⁽⁵⁾	–	–
Aux Current at 24V DC (Amp) ⁽⁶⁾	7.2	–	1.1	–	–	–	1.4	1.4

- (1) The 24V DC current draw value for the control pod does not include any option modules, if installed.
- (2) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.
- (3) This control power source is provided by the AC precharge control circuit board.
- (4) This control power source is provided by a Bulletin 1606 power supply.
- (5) This control power source is provided by the connected power module.
- (6) This control power source is optional.

Frame 8, IP21 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bay		Control Bay		Inverter Power Bay			Exit Wire Bay
	Roof Fan	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	ACPC Module ⁽²⁾	Power Module	LCL Filter Module	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾	Door Fan
Quantity	1	1	1	1	1	1	1	1	1	1	1	1
Current at 240V AC (Amp)	0.3	—	0.35 ⁽⁴⁾	2.0	2.9	2.9	0.3	—	2.9	2.0	0.2 ⁽⁵⁾	0.3
Current at 24V DC (Amp)	—	5.2	—	1.1	—	0.9 ⁽⁶⁾	—	5.2	—	0.5 ⁽⁶⁾	—	—
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	1.1	1.4	—	—	5.2	1.4	—	0.2 ⁽⁵⁾	—

(1) The 24V DC current draw value for the control pod does not include any option modules, if installed.

(2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.

(3) This module is optional.

(4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.

(5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.

(6) This control power source is provided by the connected power module.

(7) This control power source is optional.

Frame 8, IP54 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bay			Control Bay		Inverter Power Bay				Wire Bay (Entry / Exit) Fan
	Roof Fan	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	ACPC Module ⁽²⁾	Power Module	LCL Filter Module	IP54 Vent Fan	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾	IP54 Vent Fan	Wire Bay (Entry / Exit) Fan
Quantity	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Current at 240V AC (Amp)	0.3	—	0.35 ⁽⁴⁾	2.0	2.9	2.9	2.0	0.3	—	2.9	2.0	0.2 ⁽⁵⁾	2.0	0.3
Current at 24V DC (Amp)	—	5.2	—	1.1	—	0.9 ⁽⁶⁾	—	—	5.2	—	0.5 ⁽⁶⁾	—	—	—
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	1.1	1.4	—	—	—	5.2	1.4	—	0.2 ⁽⁵⁾	—	—

(1) The 24V DC current draw value for the control pod does not include any option modules, if installed.

(2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.

(3) This module is optional.

(4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.

(5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.

(6) This control power source is provided by the connected power module.

(7) This control power source is optional.

Frame 9, IP21 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bay		Control Bay		Inverter Power Bay			Wire Bay (Entry / Exit) Fan
	Roof Fan	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	ACPC Module ⁽²⁾	Power Module	LCL Filter Module	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾	Wire Bay (Entry / Exit) Fan
Quantity	1	1	1	1	2	1	1	1	2	2	1	1
Current at 240V AC (Amp)	0.3	—	0.35 ⁽⁴⁾	2.0	5.8	2.9	0.3	—	5.8	4.0	0.2 ⁽⁵⁾	0.4
Current at 24V DC (Amp)	—	5.2	—	1.1	—	0.9 ⁽⁶⁾	—	5.2	—	1.0 ⁽⁶⁾	—	—
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	1.1	2.8	—	—	5.2	2.8	—	0.2 ⁽⁵⁾	—

(1) The 24V DC current draw value for the control pod does not include any option modules, if installed.

(2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.

(3) This module is optional.

(4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.

(5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.

(6) This control power source is provided by the connected power module.

(7) This control power source is optional.

Frame 9, IP54 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bay			Control Bay		Inverter Power Bay				Wire Bay (Entry / Exit) Fan
	Roof Fan	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	ACPC Module ⁽²⁾	Power Module	LCL Filter Module	IP54 Vent Fan	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾	IP54 Vent Fan	
Quantity	1	1	1	1	2	1	2	1	1	2	2	1	1	1
Current at 240V AC (Amp)	0.3	—	0.35 ⁽⁴⁾	2.0	5.8	2.9	4.0	0.3	—	5.8	4.0	0.2 ⁽⁵⁾	2.0	0.4
Current at 24V DC (Amp)	—	5.2	—	1.1	—	0.9 ⁽⁶⁾	—	—	5.2	—	1.0 ⁽⁶⁾	—	—	—
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	1.1	2.8	—	—	—	5.2	2.8	—	0.2 ⁽⁵⁾	—	—

- (1) The 24V DC current draw value for the control pod does not include any option modules, if installed.
- (2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.
- (3) This module is optional.
- (4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.
- (5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.
- (6) This control power source is provided by the connected power module.
- (7) This control power source is optional.

Frame 10, IP21 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bays		Control Bay		Inverter Power Bay				Wire Bay (Entry / Exit) Fan
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾		
Quantity	2	1	2	1	3	2	1	1	3	3	1	1	
Current at 240V AC (Amp)	—	—	0.7 ⁽⁴⁾	2.0	8.7	5.8	0.3	—	8.7	6.0	0.2 ⁽⁵⁾	0.4	
Current at 48V DC (Amp)	6.4	—	—	—	—	—	—	—	—	—	—	—	
Current at 24V DC (Amp)	—	5.2	—	1.1	—	1.8 ⁽⁶⁾	—	5.2	—	1.5 ⁽⁶⁾	—	—	
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	1.1	4.2	—	—	5.2	4.2	—	0.2 ⁽⁵⁾	—	

- (1) The 24V DC current draw value for the control pod does not include any option modules, if installed.
- (2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.
- (3) This module is optional.
- (4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.
- (5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.
- (6) This control power source is provided by the connected power module.
- (7) This control power source is optional.

Frame 10, IP54 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bays			Control Bay		Inverter Power Bay				Wire Bay (Entry / Exit) Fan
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	IP54 Vent Fan	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾	IP54 Vent Fan	
Quantity	2	1	2	1	3	2	3	1	1	3	3	1	2	1
Current at 240V AC (Amp)	—	—	0.7 ⁽⁴⁾	2.0	8.7	5.8	6.0	0.3	—	8.7	6.0	0.2 ⁽⁵⁾	4.0	0.4
Current at 48V DC (Amp)	6.4	—	—	—	—	—	—	—	—	—	—	—	—	—
Current at 24V DC (Amp)	—	5.2	—	1.1	—	1.8 ⁽⁶⁾	—	—	5.2	—	1.5 ⁽⁶⁾	—	—	—
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	1.1	4.2	—	—	—	5.2	4.2	—	0.2 ⁽⁵⁾	—	—

- (1) The 24V DC current draw value for the control pod does not include any option modules, if installed.
- (2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.
- (3) This module is optional.
- (4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.
- (5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.
- (6) This control power source is provided by the connected power module.
- (7) This control power source is optional.

Frame 11, IP21 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bays		Control Bay		Inverter Power Bays				Wire Bay (Entry / Exit) Fan
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾		
Quantity	2	1	2	1	4	2	1	1	4	4	1	1	
Current at 240V AC (Amp)	–	–	0.7 ⁽⁴⁾	2.0	11.6	5.8	0.3	–	11.6	8.0	0.2 ⁽⁵⁾	0.4	
Current at 48V DC (Amp)	6.4	–	–	–	–	–	–	–	–	–	–	–	
Current at 24V DC (Amp)	–	5.2	–	1.1	–	1.8 ⁽⁶⁾	–	5.2	–	2.0 ⁽⁶⁾	–	–	
Aux Current at 24V DC (Amp) ⁽⁷⁾	–	5.2	–	1.1	5.6	–	–	5.2	5.6	–	0.2 ⁽⁵⁾	–	

(1) The 24V DC current draw value for the control pod does not include any option modules, if installed.

(2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.

(3) This module is optional.

(4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.

(5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.

(6) This control power source is provided by the connected power module.

(7) This control power source is optional.

Frame 11, IP54 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bays			Control Bay		Inverter Power Bays				Wire Bay (Entry / Exit) Fan
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	IP54 Vent Fan	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾	IP54 Vent Fan	
Quantity	2	1	2	1	4	2	4	1	1	4	4	1	2	1
Current at 240V AC (Amp)	–	–	0.7 ⁽⁴⁾	2.0	11.6	5.8	8.0	0.3	–	11.6	8.0	0.2 ⁽⁵⁾	4.0	0.4
Current at 48V DC (Amp)	6.4	–	–	–	–	–	–	–	–	–	–	–	–	–
Current at 24V DC (Amp)	–	5.2	–	1.1	–	1.8 ⁽⁶⁾	–	–	5.2	–	2.0 ⁽⁶⁾	–	–	–
Aux Current at 24V DC (Amp) ⁽⁷⁾	–	5.2	–	1.1	5.6	–	–	–	5.2	5.6	–	0.2 ⁽⁵⁾	–	–

(1) The 24V DC current draw value for the control pod does not include any option modules, if installed.

(2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.

(3) This module is optional.

(4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.

(5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.

(6) This control power source is provided by the connected power module.

(7) This control power source is optional.

Frame 12, IP21 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bays		Control Bay		Inverter Power Bays				Wire Bay (Entry / Exit) Fan
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾		
Quantity	2	1	2	1	5	3	1	1	5	5	1	1	
Current at 240V AC (Amp)	–	–	0.7 ⁽⁴⁾	2.0	14.5	8.7	0.3	–	14.5	10.0	0.2 ⁽⁵⁾	0.4	
Current at 48V DC (Amp)	6.4	–	–	–	–	–	–	–	–	–	–	–	
Current at 24V DC (Amp)	–	5.2	–	1.1	–	2.7 ⁽⁶⁾	–	5.2	–	2.5 ⁽⁶⁾	–	–	
Aux Current at 24V DC (Amp) ⁽⁷⁾	–	5.2	–	1.1	7.0	–	–	5.2	7.0	–	0.2 ⁽⁵⁾	–	

(1) The 24V DC current draw value for the control pod does not include any option modules, if installed.

(2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.

(3) This module is optional.

(4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.

(5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.

(6) This control power source is provided by the connected power module.

(7) This control power source is optional.

Frame 12, IP54 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bays			Control Bay		Inverter Power Bays				Wire Bay (Entry / Exit) Fan
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	IP54 Vent Fans	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾	IP54 Vent Fans	
Quantity	2	1	2	1	5	3	5	1	1	5	5	1	3	1
Current at 240V AC (Amp)	—	—	0.7 ⁽⁴⁾	2.0	14.5	8.7	10.0	0.3	—	14.5	10.0	0.2 ⁽⁵⁾	6.0	0.4
Current at 48V DC (Amp)	6.4	—	—	—	—	—	—	—	—	—	—	—	—	—
Current at 24V DC (Amp)	—	5.2	—	1.1	—	2.7 ⁽⁶⁾	—	—	5.2	—	2.5 ⁽⁶⁾	—	—	—
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	1.1	7.0	—	—	—	5.2	7.0	—	0.2 ⁽⁵⁾	—	—

- (1) The 24V DC current draw value for the control pod does not include any option modules, if installed.
- (2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.
- (3) This module is optional.
- (4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.
- (5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.
- (6) This control power source is provided by the connected power module.
- (7) This control power source is optional.

Frame 13, IP21 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bays				Converter Power Bays		Control Bays		Inverter Power Bays			
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾	
Quantity	4	1	4	2	6	4	2	1	6	6	1	
Current at 240V AC (Amp)	—	—	1.4 ⁽⁴⁾	4.0	17.4	11.6	0.6	—	17.4	12.0	0.2 ⁽⁵⁾	
Current at 48V DC (Amp)	12.8	—	—	—	—	—	—	—	—	—	—	
Current at 24V DC (Amp)	—	5.2	—	2.2	—	3.6 ⁽⁶⁾	—	5.2	—	3.0 ⁽⁶⁾	—	
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	2.2	8.4	—	—	5.2	8.4	—	0.2 ⁽⁵⁾	

- (1) The 24V DC current draw value for the control pod does not include any option modules, if installed.
- (2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.
- (3) This module is optional.
- (4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.
- (5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.
- (6) This control power source is provided by the connected power module.
- (7) This control power source is optional.

Frame 13, IP54 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bays				Converter Power Bays			Control Bays		Inverter Power Bays			
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	IP54 Vent Fans	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾	IP54 Vent Fans
Quantity	4	1	4	2	6	4	6	2	1	6	6	1	4
Current at 240V AC (Amp)	—	—	1.4 ⁽⁴⁾	4.0	17.4	11.6	12.0	0.6	—	17.4	12.0	0.2 ⁽⁵⁾	8.0
Current at 48V DC (Amp)	12.8	—	—	—	—	—	—	—	—	—	—	—	—
Current at 24V DC (Amp)	—	5.2	—	2.2	—	3.6 ⁽⁶⁾	—	—	5.2	—	3.0 ⁽⁶⁾	—	—
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	2.2	8.4	—	—	—	5.2	8.4	—	0.2 ⁽⁵⁾	—

- (1) The 24V DC current draw value for the control pod does not include any option modules, if installed.
- (2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.
- (3) This module is optional.
- (4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.
- (5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.
- (6) This control power source is provided by the connected power module.
- (7) This control power source is optional.

Frame 14, IP21 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bays		Control Bay		Inverter Power Bays		
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾
Quantity	4	1	4	2	8	4	2	1	8	8	1
Current at 240V AC (Amp)	—	—	1.4 ⁽⁴⁾	4.0	23.3	11.6	0.6	—	23.3	16.0	0.2 ⁽⁵⁾
Current at 48V DC (Amp)	12.8	—	—	—	—	—	—	—	—	—	—
Current at 24V DC (Amp)	—	5.2	—	2.2	—	3.6 ⁽⁶⁾	—	5.2	—	4.0 ⁽⁶⁾	—
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	2.2	11.2	—	—	5.2	11.2	—	0.2 ⁽⁵⁾

(1) The 24V DC current draw value for the control pod does not include any option modules, if installed.

(2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.

(3) This module is optional.

(4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.

(5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.

(6) This control power source is provided by the connected power module.

(7) This control power source is optional.

Frame 14, IP54 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bays			Control Bay		Inverter Power Bays			
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	IP54 Vent Fan	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾	IP54 Vent Fan
Quantity	4	1	4	2	8	4	8	2	1	8	8	1	4
Current at 240V AC (Amp)	—	—	1.4 ⁽⁴⁾	4.0	23.3	11.6	16.0	0.6	—	23.3	16.0	0.2 ⁽⁵⁾	8.0
Current at 48V DC (Amp)	12.8	—	—	—	—	—	—	—	—	—	—	—	—
Current at 24V DC (Amp)	—	5.2	—	2.2	—	3.6 ⁽⁶⁾	—	—	5.2	—	4.0 ⁽⁶⁾	—	—
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	2.2	11.2	—	—	—	5.2	11.2	—	0.2 ⁽⁵⁾	—

(1) The 24V DC current draw value for the control pod does not include any option modules, if installed.

(2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.

(3) This module is optional.

(4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.

(5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.

(6) This control power source is provided by the connected power module.

(7) This control power source is optional.

Frame 15, IP21 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bays		Control Bay		Inverter Power Bays		
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾
Quantity	4	1	4	2	10	6	2	1	10	10	1
Current at 240V AC (Amp)	—	—	1.4 ⁽⁴⁾	4.0	29.0	17.4	0.6	—	29.0	20.0	0.2 ⁽⁵⁾
Current at 48V DC (Amp)	12.8	—	—	—	—	—	—	—	—	—	—
Current at 24V DC (Amp)	—	5.2	—	2.2	—	5.4 ⁽⁶⁾	—	5.2	—	5.0 ⁽⁶⁾	—
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	2.2	14.0	—	—	5.2	14.0	—	0.2 ⁽⁵⁾

(1) The 24V DC current draw value for the control pod does not include any option modules, if installed.

(2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.

(3) This module is optional.

(4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.

(5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.

(6) This control power source is provided by the connected power module.

(7) This control power source is optional.

Frame 15, IP54 Bus Supply and Common Bus Inverter

Quantity / Power Source	Input Bay				Converter Power Bays			Control Bay		Inverter Power Bays			
	Door Fans	Control Pod ⁽¹⁾	Power Supply Bulletin 1606	AC Precharge Devices ⁽²⁾	Power Module	LCL Filter Module	IP54 Vent Fans	Roof Fan	Control Pod ⁽¹⁾	Power Module	DCPC Module ⁽³⁾	Torque Accuracy Module ⁽³⁾	IP54 Vent Fans
Quantity	4	1	4	2	10	6	10	2	1	10	10	1	6
Current at 240V AC (Amp)	—	—	1.4 ⁽⁴⁾	4.0	29.0	17.4	20.0	0.6	—	29.0	20.0	0.2 ⁽⁵⁾	12.0
Current at 48V DC (Amp)	12.8	—	—	—	—	—	—	—	—	—	—	—	—
Current at 24V DC (Amp)	—	5.2	—	2.2	—	5.4 ⁽⁶⁾	—	—	5.2	—	5.0 ⁽⁶⁾	—	—
Aux Current at 24V DC (Amp) ⁽⁷⁾	—	5.2	—	2.2	14.0	—	—	—	5.2	14.0	—	0.2 ⁽⁵⁾	—

- (1) The 24V DC current draw value for the control pod does not include any option modules, if installed.
- (2) Includes an AC precharge control board, circuit breaker, time delay relay, and contactor.
- (3) This module is optional.
- (4) This value is the minimum current draw of the Bulletin 1606 power supply only. The maximum current draw of the Bulletin 1606 power supply on the 240V AC line is calculated based on the total current draw [values shown in the Current at 24V DC (Amp) row] of the components that require 24V DC power provided by the power supply.
- (5) This value is the current load for either a 240V AC or auxiliary 24V DC control power source. Only one control power source is required.
- (6) This control power source is provided by the connected power module.
- (7) This control power source is optional.

Control Bus Assembly and Control Bus Connectors

The control bus assembly (cat. no. 20-750-MCBUS1-xx-xnx), control bus splice (cat. no. 20-750-MCTRLBUS-SPL), and control bus connector (cat. no. 20-750-MCTRLBUS-CONN1 and 20-750-MCTRLBUS-CONN2) kits are used to provide 240V AC, optional 24V DC, and optional 240/120V AC power to the various modules and components in the system enclosures. For a list of modules and components that require 240V AC power and use 24V DC control power, see 240V AC/24V DC Control Power Requirements on page 137.

Use the control bus connector kits with the control bus assembly kits to provide control power to the various modules and components in your system.

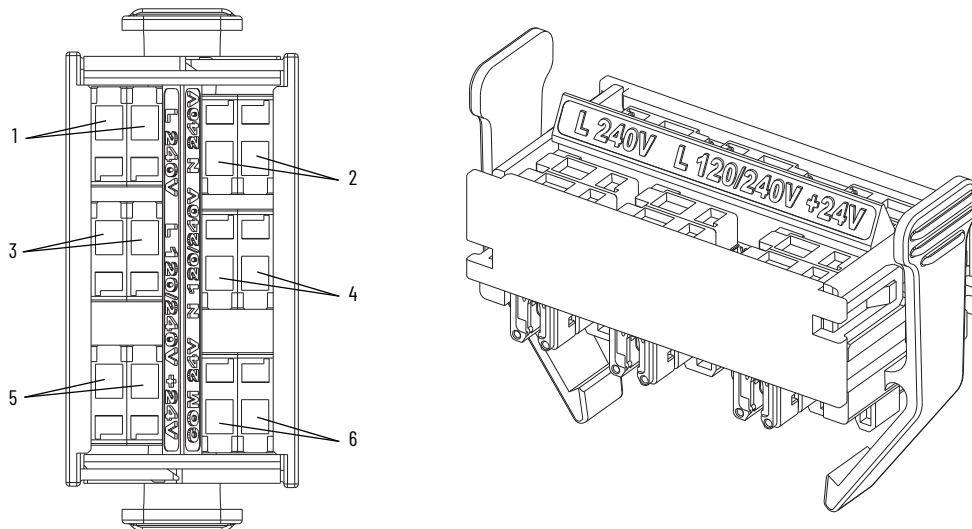
Control Bus Connector Ratings

Cat. No.	Max. Voltage	Max. Amps	No. of Terminals Per Pole
20-750-MCTRLBUS-CONN1 ⁽¹⁾	240	10 per terminal	2
20-750-MCTRLBUS-CONN2	240	100	—

(1) Up to five 20-750-MCTRLBUS-CONN1 connectors can be used in parallel on the control bus assembly to reach a maximum of 100 amps per circuit (240V AC, 240/120V AC, or 24V DC).

Control Bus Connector (Cat. No. 20-750-MCTRLBUS-CONN1)

This connector is used with the control bus assembly kits (cat. no. 20-750-MCBUS1-IB-FxxM) to provide 240V AC, optional 24V DC, and optional 240/120V AC power to various modules and components. This connector provides tension clamp terminals.



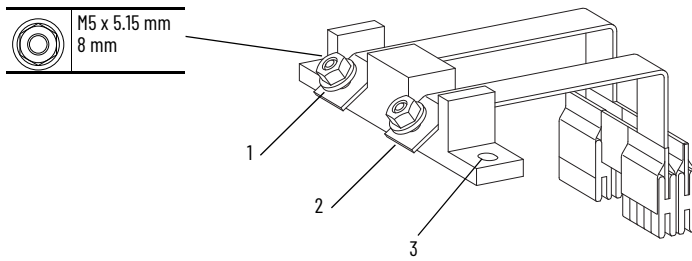
Control Bus Connector 20-750-MCTRLBUS-CONN1 Connections

tem	Name	Description	Conductor Cross Sections ⁽¹⁾		
			ISO (mm ²)	AWG	Strip Length
1	L 240V	240V AC Line	0.2...1.5	26...14	7 mm (0.28 in.)
2	N 240V	240V AC Neutral			
3	L 120V/240V	120/240V AC Line ⁽²⁾			
4	N 120V/240V	120/240V AC Neutral ⁽²⁾			
5	+24V	24V DC Power			
6	COM 24V	24V DC Common			

(1) Use minimum 90 °C (194 °F) insulation.
 (2) Used for optional 240V AC only for the PowerFlex 755TM Non-Regenerative Supply.

Control Bus Connector (Cat. No. 20-750-MCTRLBUS-CONN2)

This connector is required to connect 240V AC power to the 1000 mm (39.4 in.) wide input bay control bus assembly kit cat. no. 20-750-MCBUS1-IB-F10M.



Control Bus Connector 20-750-MCTRLBUS-CONN2 Connections

Item	Name	Description	Recommended Conductor Cross Sections		Terminal Specifications	Torque N•m (lb•in)
			ISO (mm ²)	AWG		
1	240V L	240V AC Line	(1)	(1)	Stud: M5 Pad Area: 19 mm ²	4.8 N•m (42 lb•in)
2	240V N	240V AC Neutral (connected to PE)				
3	-	Hardware connection to control bus assembly				For installation information, see page 256 .

(1) Size according to US NEC or applicable national or local codes.

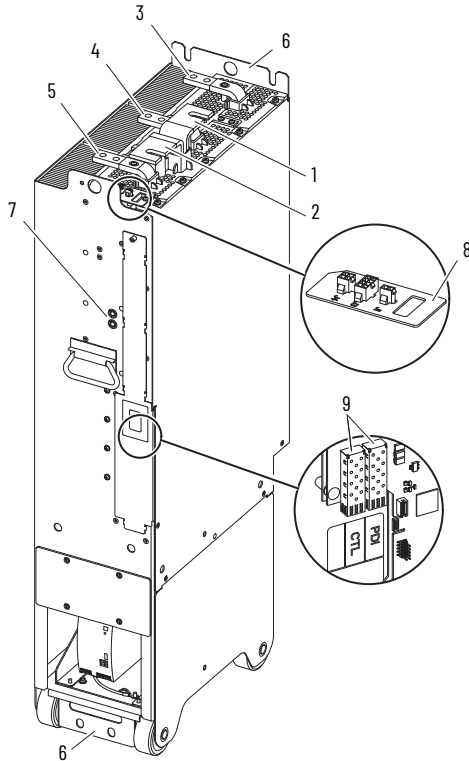
IP00 Module and Component Connections

This section identifies the power and control connections for each applicable IP00 module and component.

Frame 7 Power Module Connections

Frame 7 power module kit catalog numbers: 20-750-MI4-CnnnDnnn, 20-750-MI4-EnnnFnnn

The frame 7 power module connections are identified in this illustration and table.



Protective connection covers not shown for clarity only.

IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

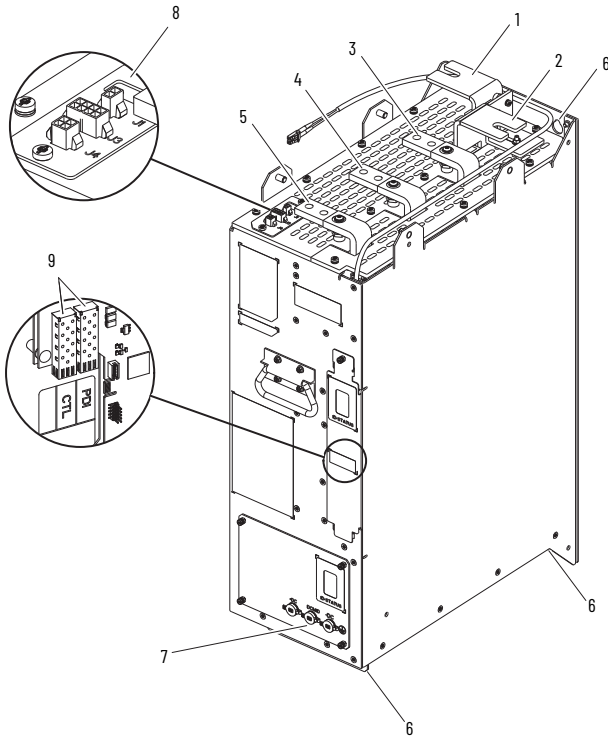
Frame 7 Power Module Connections

Item	Connection	Description
1	+DC	+DC bus connection to/from DC/link bus bar and fuse.
2	-DC	-DC bus connection to/from DC/link bus bar and fuse.
3	R/L1, U/T1	AC bus connection from LCL filter module or to AC output bus bars, respectively.
4	S/L2, V/T2	AC bus connection from LCL filter module or to AC output bus bars, respectively.
5	T/L3, W/T3	AC bus connection from LCL filter module or to AC output bus bars, respectively.
6	GND	PE chassis ground connection.
7	+DC, -DC	+DC and -DC bus test points.
8	J1	DC fuse condition signal from connector P1 on the DC link fuses, converter module only. This connection contains a jumper on inverter modules.
	J3	24V DC signal from connector P3 on the LCL filter module.
	J4	240V AC and optional 24V DC control power supply from control power connector P4.
9	CTL	Fiber optic connection from LO or MO on the fiber transceiver board in the control pod.
	PDI	Fiber optic connection from the LCL filter module.

Frame 7L Power Module Connections

Frame 7L power module kit catalog number: 20-750-M15-C650D650

The frame 7L power module connections are identified in this illustration and table.



Protective connection covers not shown for clarity only.

IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

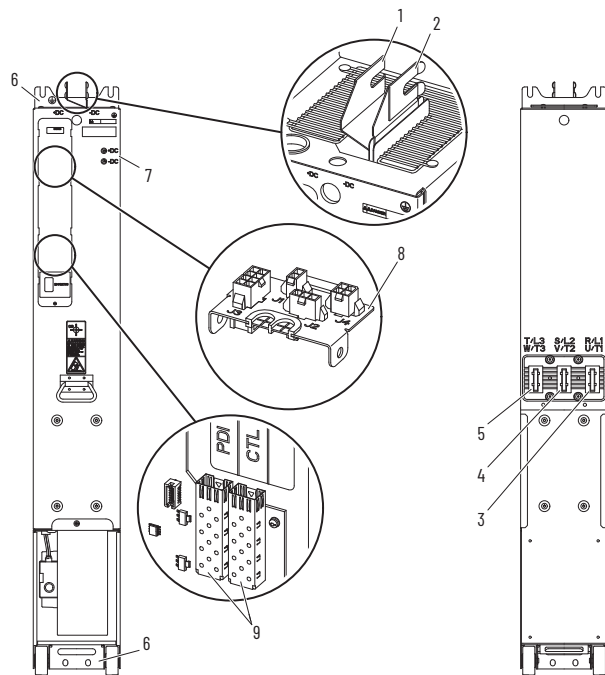
Frame 7L Power Module Connections

Item	Connection	Description
1	+DC	+DC bus connection to/from DC/link bus bar and fuse.
2	-DC	-DC bus connection to/from DC/link bus bar and fuse.
3	R/L1, U/T1	AC bus connection from LCL filter module or to AC output bus bars, respectively.
4	S/L2, V/T2	AC bus connection from LCL filter module or to AC output bus bars, respectively.
5	T/L3, W/T3	AC bus connection from LCL filter module or to AC output bus bars, respectively.
6	GND	PE chassis ground connection.
7	+DC, DC MID, -DC	+DC, DC MID point, and -DC bus test points.
8	J1	DC fuse condition signal from connector P1 on the DC link fuses, converter module only. This connection contains a jumper on inverter modules.
	J3	24V DC signal from connector P3 on the LCL filter module.
	J4	240V AC and optional 24V DC control power supply from control power connector P4.
9	CTL	Fiber optic connection from LO or MO on the fiber transceiver board in the control pod.
	PDI	Fiber optic connection from the LCL filter module.

Frames 8...15 Power Module Connections

Frame 8...12 power module kit catalog numbers: 20-750-M11-CnnnDnnn, 20-750-M11-EnnnFnnn, 20-750-M12-CnnnDnnn, 20-750-M12-EnnnFnnn, 20-750-M13-CnnnDnnn, 20-750-M13-EnnnFnnn

The frames 8...15 power module connections are identified in this illustration and table.



Front View Protective connection covers not shown for clarity Rear View

IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IPOO Open Type Kits with XT on page 38 for details.

Frames 8...15 Power Module Connections

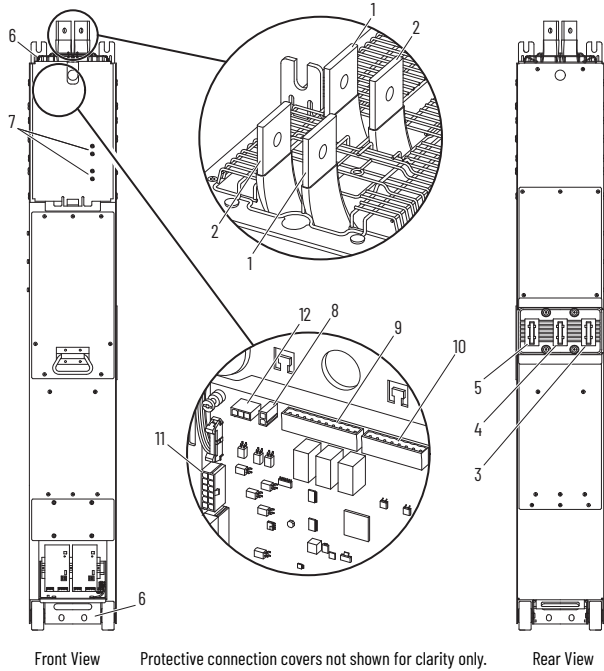
Item	Connection	Description
1	+DC	+DC bus connection from DC precharge module or DC/link fuses.
2	-DC	-DC bus connection from DC precharge module or DC/link fuses.
3	R/L1	AC bus connection from the stab receptacle assembly.
4	S/L2	AC bus connection from the stab receptacle assembly.
5	T/L3	AC bus connection from the stab receptacle assembly.
6	GND	PE chassis ground connection.
7	+DC, -DC	+DC and -DC bus test points.
8	J1	DC fuse condition signal from connector P1 on the DC/link fuse assembly.
	J2	DC bus conditioner signals from connector P2 on the DC bus conditioner (when used). Signals from a thermal switch (when used in an exit wire bay. See Thermal Switch Connections on page 176).
	J3	24V DC signal from connector P3 on the DC precharge module (when present).
	J4	240V AC and optional 24V DC control power supply from connector P4 on the DC precharge module (when present) or customer-supplied source. ⁽¹⁾
9	CTL	Fiber-optic connection from Lx or Mx on the fiber transceiver board in the control pod. For more information, see Fiber Interface and Fiber Transceiver Circuit Board Connections on page 185.
	PDI	Fiber-optic connection from the LCL filter module for line side converter power modules or DC precharge module for motor side inverter power modules.

(1) To protect the DC bus capacitor balance resistors in a motor side inverter power module, the customer-supplied 240V AC control power must be energized and all power module blowers must be functioning before DC bus voltage is applied to a PowerFlex 755TM common bus inverter system.

NRS Module Connections

NRS module kit catalog numbers: 20-750-MI1-xnnnxxx and 20-750-MI2-xnnnxxx

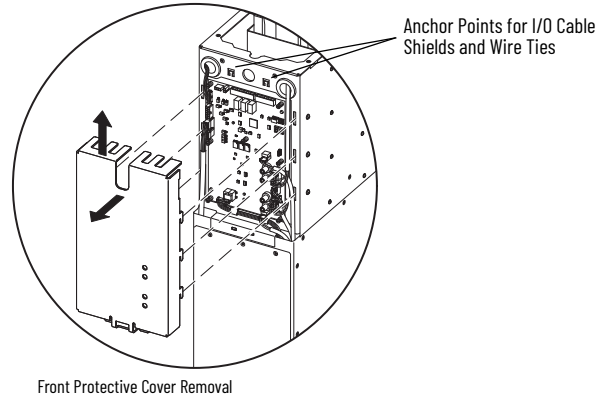
The NRS module connections are identified in this illustration and table. See NRS Main Control Board on page 161 for connection details.



IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

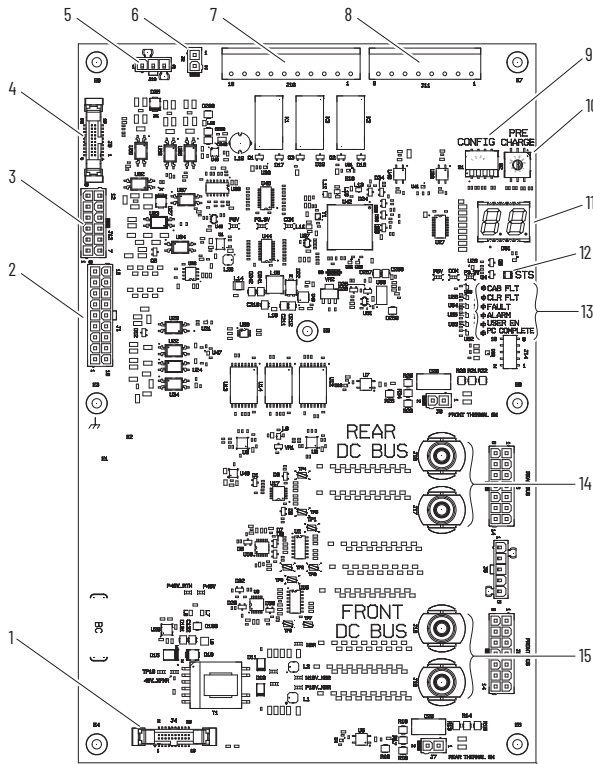


Item	Connection	Description
1	+DC	+DC bus connection to DC/link bus bar and fuse.
2	-DC	-DC bus connection to DC/link bus bar and fuse.
3	R/L1	AC bus connection from the stab receptacle assembly.
4	S/L2	AC bus connection from the stab receptacle assembly.
5	T/L3	AC bus connection from the stab receptacle assembly.
6	GND	PE chassis ground connection.
7	+DC, -DC	+DC and -DC bus test points.
8	J2	DC fuse condition signal from connector P2 on the DC link fuses.
9	J10	Customer output connections for power module precharge complete, fault, and alarm signals. See Customer Output (P10) Terminal Block Connection Details on page 161 for details.
10	J11	Customer input connections for power module clear faults and precharge enable signals. See Customer Output (P10) Terminal Block Connection Details on page 161 for details.
11	J12	240V AC and module configuration, precharge, fault, and thermal switch control signals from cabinet harness connector P12. See NRS System Interconnection Wire Harnesses on page 33 for details.
12	J13	DC bus conditioner signals from connector P13 on the DC bus conditioner (when present).

NRS Main Control Board

See the PowerFlex Non-Regenerative Supply User Manual, publication [750-UM100](#) for details on these main control board components:

- S1 and S2 switch configuration for precharge, user enable inputs, and AC line settings
- Status indicator, fault, and alarm descriptions



Item	Description
1	J4 power board (front) connector
	J1 power board, power supply, and fan power board connector
	J12 NRS module interconnection harness connector
2	J3 power board (rear) connector
3	J13 DC bus conditioner and marine discharge module option connector
4	J2 DC fuse connector
5	J10 10-pin I/O connector for customer connection
6	J11 8-pin I/O connector for customer connection
7	S1 interface configuration rocker DIP switches (default position = all up)
8	S2 precharge configuration selector rotary switch (default position = 2)
9	DS1 7-segment condition display
10	STS (Status) indicator
11	Alarm and fault indicators (CAB FLT, CLR FLT, FAULT, ALARM) and customer input connection status indicators (USER EN, PC COMPLETE)
12	Rear DC bus test points
13	Front DC bus test points (dual-density NRS modules only)

Customer Output (P10) Terminal Block Connection Details

Pin	Name	Description
1	Precharge Complete Normally Open	There is continuity between this terminal and terminal 2 when the NRS module has completed the precharge function.
2	Precharge Complete Common	This is the common terminal between the normally open contact and normally closed contact on the internal Precharge Complete relay.
3	Precharge Complete Normally Closed	There is continuity between this terminal and terminal 2 when the NRS module has NOT completed the precharge function.
4	Not Fault Normally Open	There is continuity between this terminal and terminal 5 when a fault is NOT present in the NRS module.
5	Not Fault Common	This is the common terminal between the normally open contact and normally closed contact on the internal Fault relay.
6	Not Fault Normally Closed	There is continuity between this terminal and terminal 5 when a fault is present in the NRS module.
7	Not Alarm Normally Open	There is continuity between this terminal and terminal 8 when an alarm is NOT present in the NRS module.
8	Not Alarm Common	This is the common terminal between the normally open contact and normally closed contact on the internal Alarm relay.
9	Not Alarm Normally Closed	There is continuity between this terminal and terminal 8 when an alarm is present in the NRS module.
10	—	This terminal has no connection.

Customer Input (P11) Terminal Block Connection Details

Pin	Name	Description
1	P24V Clear Faults Input	Clears latched faults and clears the fault and alarm queue.
2	Clear Faults Input Com	
3	120V AC Clear Faults Input	
4	—	This terminal has no connection.
5	—	This terminal has no connection.
6	P24V User Enable Input +	Enables the bus supply when the signal is applied. De-energizes the bus supply when the signal is removed. This input is ignored when the main control board configuration S1 CONFIG switch 1 is in the down (closed) position.
7	User Enable Input Com	
8	120V AC User Enable Input	

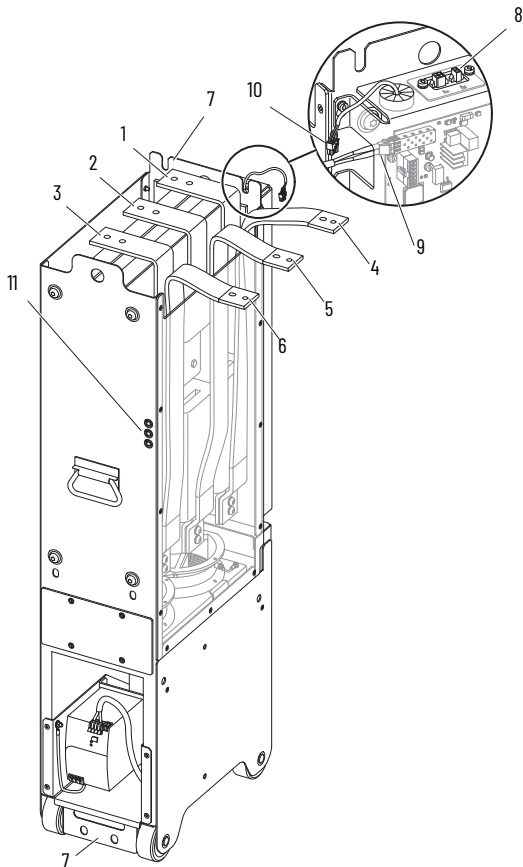
NRS Main Control Circuit Board Customer Output/Input Terminal Block Specifications

Wire Size Range		Terminal Torque		Wire Strip Length
Maximum	Minimum	Maximum	Recommended	
3.3 mm ² (12 AWG)	0.05 mm ² (30 AWG)	0.6 N•m (5.3 lb•in)	0.5 N•m (4.4 lb•in)	7 mm (0.28 in.)

Frames 7 and 7L LCL Filter Module Connections

- Frame 7 LCL filter module kit catalog numbers: 20-750-ML4-CnnnDnnn, 20-750-ML4-EnnnFnnn
- Frame 7L drives only use LCL filter module catalog number 20-750-ML4-C585D617

The frames 7 and 7L LCL filter module connections are identified in this illustration and table.



Protective connection covers not shown for clarity only.

IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

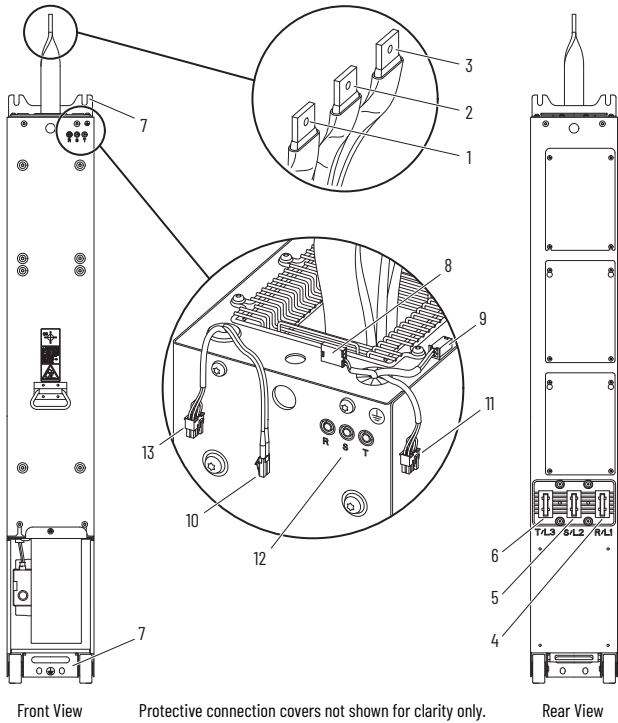
Frames 7 and 7L LCL Filter Module Connections

Item	Connection	Description
1	R/L1	AC bus connection from the AC input link bus bar and fuse assembly.
2	S/L2	AC bus connection from the AC input link bus bar and fuse assembly.
3	T/L3	AC bus connection from the AC input link bus bar and fuse assembly.
4	U/T1	AC bus connection to the line side converter power module.
5	V/T2	AC bus connection to the line side converter power module.
6	W/T3	AC bus connection to the line side converter power module.
7	GND	PE chassis ground connection.
8	J1	AC input fuses condition signal from connector P1.
	J2	240V AC supply from control power connector P2.
9	PDI	Fiber optic cable connection to the power layer interface board in the line side converter power module.
10	P3	24V DC signal connection to J3 on the power module IO panel.
11	R, S, T	AC bus test points.

Frames 8...15 LCL Filter Module Connections

Frame 8...15 LCL filter module kit catalog numbers: 20-750-ML1-CnnnDnnn, 20-750-ML1-EnnnFnnn

The frames 8...15 LCL filter module connections are identified in this illustration and table.



IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

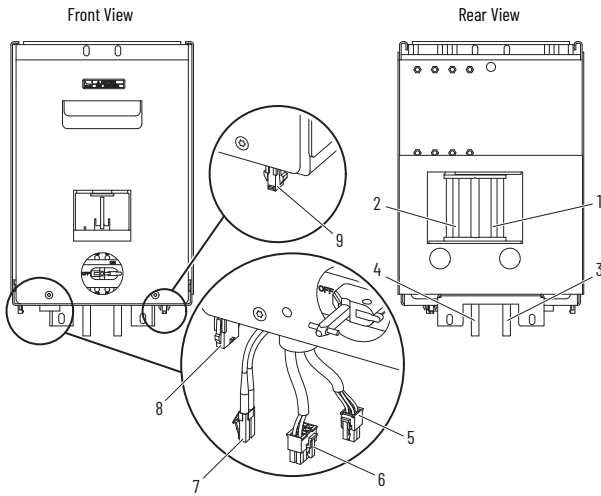
Frames 8...15 LCL Filter Module Connections

Item	Connection	Description
1	R	AC bus connection from the AC link bus bar and fuse assembly.
2	S	AC bus connection from the AC link bus bar and fuse assembly.
3	T	AC bus connection from the AC link bus bar and fuse assembly.
4	R/L1, U/T1	AC bus connection to the stab receptacle assembly.
5	S/L2, V/T2	AC bus connection to the stab receptacle assembly.
6	T/L3, W/T3	AC bus connection to the stab receptacle assembly.
7	GND	PE chassis ground connection.
8	P1	AC fuse condition signal from connector P5 on the AC bus bar assembly fuses.
9	P2	240V AC supply from connector P4 on the control bus connector (when present) or customer-supplied source.
10	PDI	Fiber-optic cable connection to port PDI on the power layer interface board in the adjoining power module.
11	P3	24V DC signal connection to J3 on the power module I/O panel.
12	R, S, T	AC bus test points.
13	P3	24V DC signal connection to J3 on a second power module I/O panel (larger LCL filter modules only).

DC Precharge Module Connections

DC precharge module kit catalog numbers: 20-750-MDCP1-CD-F8M, 20-750-MDCP2-CD-F8M, 20-750-MDCP1-EF-F8M, 20-750-MDCP2-EF-F8M

The DC precharge module connections are identified in this illustration and table.



Protective connection covers not shown for clarity only.

IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

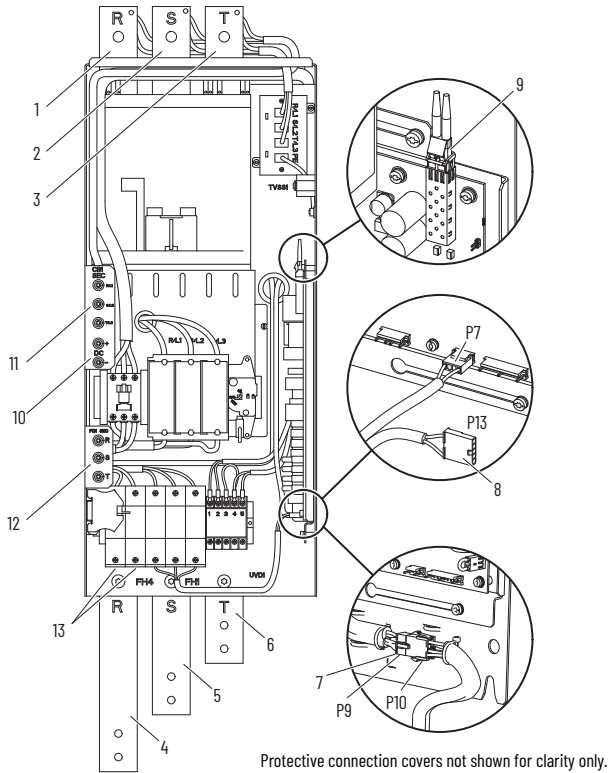
DC Precharge Module Connections

Item	Connection	Description
1	+DC	+DC bus connection from stab receptacle assembly.
2	-DC	-DC bus connection from stab receptacle assembly.
3	+DC	+DC bus connection to power module +DC bus terminal.
4	-DC	-DC bus connection to power module -DC bus terminal.
5	P4	240V AC and optional 24V DC control power supply to connector J4 on the power module I/O panel.
6	P3	24V DC signal to connector J3 on the power module.
7	DCP	Fiber-optic cable connection to PDI on the power layer interface board in the power module.
8	J13	240V AC and optional 24V control power supply from control bus connection or customer-supplied source.
9	J12	240V AC power supply to connector P1 on the IP54 roof fan (if present).

Frame 8 AC Precharge Module Connections

Frame 8 AC precharge module kit catalog numbers: 20-750-MACP-CD-F8M, 20-750-MACP-E-F8M, 20-750-MACP-F-F8M

The frame 8 AC precharge module connections are identified in this illustration and table.



IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IPO0 Open Type Kits with XT on page 38 for details.

Frame 8 AC Precharge Module Connections

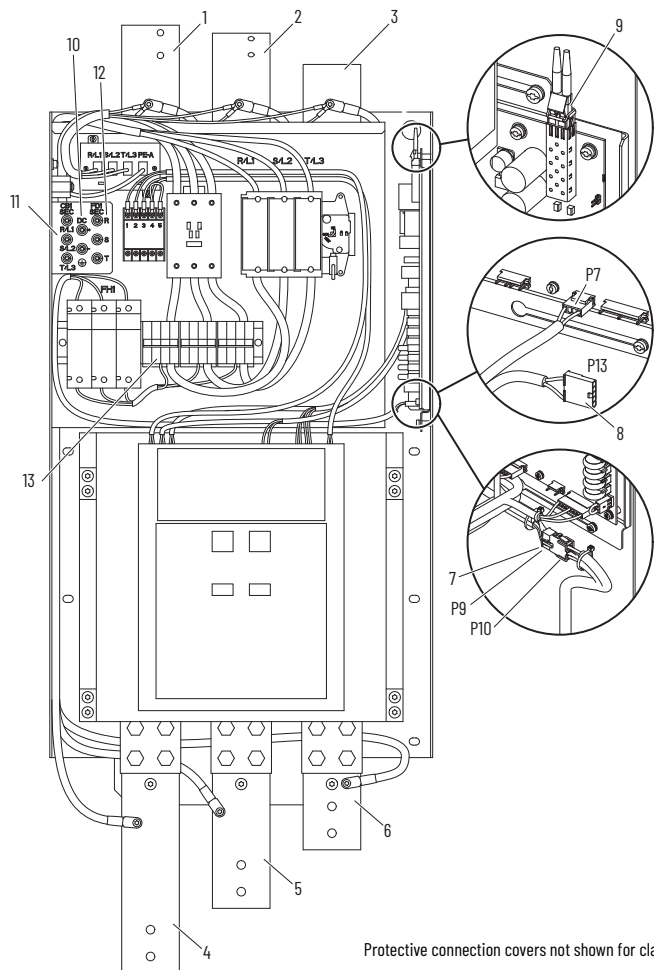
Item	Connection	Description
1	R/L1	AC output connection to the AC link bus bar and fuse assembly.
2	S/L2	AC output connection to the AC link bus bar and fuse assembly.
3	T/L3	AC output connection to the AC link bus bar and fuse assembly.
4	R/L1	AC input connection from the AC input bus bar.
5	S/L2	AC input connection from the AC input bus bar.
6	T/L3	AC input connection from the AC input bus bar.
7	P9	240V AC and 24V DC internal and external control power connections from connector P10 on the optional wire harness included with this module.
8	P13	+DC and -DC bus connections from connector P14 to the +DC and -DC test points. See page 351 for wire harness diagram.
9	ACP	Fiber-optic cable connection to ACP0 on the fiber interface board in the control pod. For more information, see Fiber Interface and Fiber Transceiver Circuit Board Connections on page 185.
10	+DC, -DC	+DC and -DC test point connections to connector P7 on the AC precharge board.
11	R/L1, S/L2, T/L3	AC bus test point connections.
12	R/L1, S/L2, T/L3	AC line test point connections.
13	FH4	Fused connection to customer-sourced control transformer. ⁽¹⁾

(1) For fuse specifications, see the PowerFlex 755TM IPO0 Open Type Kits Product Information, publication 750-PC101.

Frame 9 AC Precharge Module Connections

Frame 9 AC precharge module kit catalog numbers: 20-750-MACP-CD-F9M, 20-750-MACP-E-F9M, 20-750-MACP-F-F9M

The frame 9 AC precharge module connections are identified in this illustration and table.



IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

Protective connection covers not shown for clarity only.

Frame 9 AC Precharge Module Connections

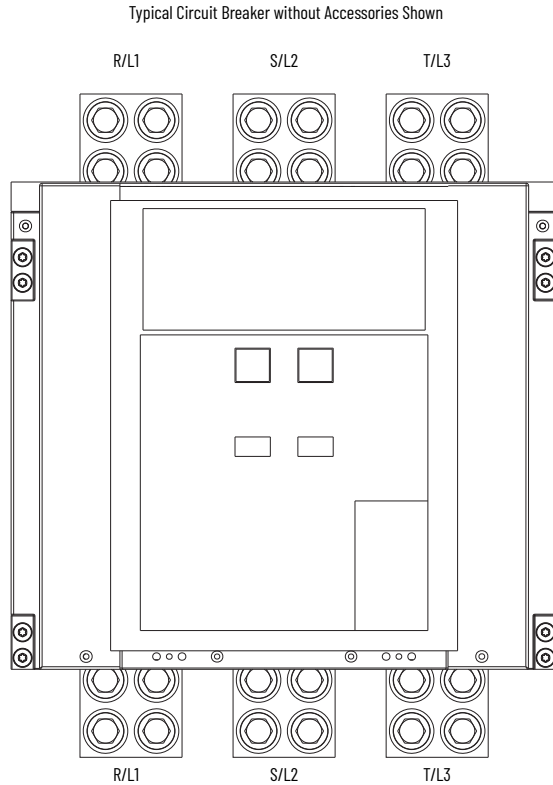
Item	Connection	Description
1	R/L1	AC output connection to the AC link bus bar and fuse assembly.
2	S/L2	AC output connection to the AC link bus bar and fuse assembly.
3	T/L3	AC output connection to the AC link bus bar and fuse assembly.
4	R/L1	AC input connection from the AC input bus bar.
5	S/L2	AC input connection from the AC input bus bar.
6	T/L3	AC input connection from the AC input bus bar.
7	P9	240V AC and 24V DC internal and external control power connections from connector P10 on the optional wire harness included with this module.
8	P13	+DC and -DC bus connections from connector P14 to the +DC and -DC test points. See page 351 for wire harness diagram.
9	ACP	Fiber-optic cable connection to ACP0 on the fiber interface board in the control pod. For more information, see Fiber Interface and Fiber Transceiver Circuit Board Connections on page 185.
10	+DC, -DC	+DC and -DC test point connections to connector P7 on the AC precharge board.
11	R/L1, S/L2, T/L3	AC bus test point connections.
12	R/L1, S/L2, T/L3	AC line test point connections.
13	TB1	Customer-sourced connections to customer-sourced fused holders FH4 and FH5 and customer-sourced control transformer. ⁽¹⁾

(1) For fuse specifications, see the PowerFlex 755TM IP00 Open Type Kits Product Information, publication 750-PC101.

AC Precharge Circuit Breaker Connections

AC precharge circuit breaker kit catalog numbers: 20-750-MACPCCB-1KO, 20-750-MACPCCB-CDE-3KO, 20-750-MACPCCB-E-2KO, 20-750-MACPCCB-E-2K5, 20-750-MACPCCB-F-2KO, 20-750-MACPCCB-F-2K5, 20-750-MACPCCB-F-3KO, 20-750-MACPCCB1-CD-5KO, 20-750-MACPCCB1-CD-4KO

The AC precharge circuit breaker mains connections are identified in this illustration and table. The AC precharge circuit breaker kits exclude most of the wire-harnesses that are required for connections to other IP00 kits and components that are used in an AC precharge control circuit and must be customer-sourced. The wire harness diagrams for these connections are identified in AC Precharge Circuit Breaker Connections table.



AC Precharge Circuit Breaker Connections

Connection	Description	Wire Harness Diagram Page	
		Frames 7 and 7L	Frames 10...15
R/L1, S/L2, T/L3	AC Input and output power connections	—	—
U1, U2 ⁽¹⁾	Spring charge coil (motor operator) connections to AC precharge control circuit board connector J4.	357	358
95, 98 ⁽¹⁾	Main circuit breaker bell alarm connections to AC precharge control circuit board connector J2.	352	353
R1, R2 ⁽¹⁾	Trip release unit connections to AC precharge control circuit board connector J3.	355	356
C1, C2 ⁽¹⁾	Closing coil shunt release connections to AC precharge control circuit board connector J4.	357	358
C11, C12 ⁽¹⁾	Shunt release connections to AC precharge control circuit board connector J4.	357	358
D1, D2 ⁽¹⁾	Undervoltage release connections to the time delay relay terminals 3, 4, and 5. With the exception of circuit breaker catalog numbers 20-750-MACPCCB1-CD-5KO and 20-750-MACPCCB1-CD-4KO, this wire harness is included with the circuit breaker kits.	376	
23, 24 ⁽¹⁾	CB1 auxiliary contact connections to AC precharge control circuit board connector J2. ⁽²⁾ Used for 400/480V AC input frame 11 and 12 AC precharge systems only.	352	353
31, 34 ⁽¹⁾	CB1 auxiliary contact connections to AC precharge control circuit board connector J2. ⁽²⁾ Used for 400/480V and 600/690V AC input frame 10 AC precharge systems. Use for 600/690V AC input frame 11 and 12 AC precharge systems only.	352	354

(1) Terminals not shown in the illustration. Auxiliary terminal connections for Rockwell Automation IP00 circuit breaker kits are at the top of the device. Typical terminal locations may vary based on the circuit breaker manufacturer.

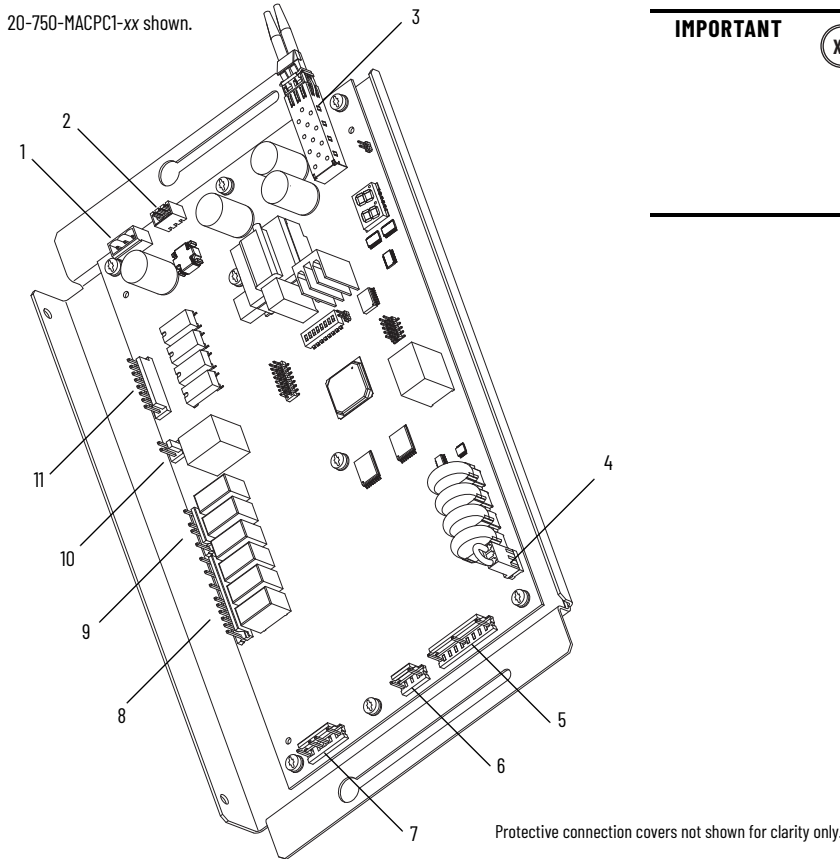
(2) This circuit and wire harness includes terminal connections for an optional thermal switch. If a thermal switch is not used, a closed circuit must be maintained with continuous wiring in this circuit, or installation of a suitable jumper. See Thermal Switch Connections on page [176](#) for more information.

AC Precharge Control Circuit Board Connections

Frames 7 and 7L AC precharge control circuit board kit catalog numbers: 20-750-MACPC1-CD-F7M, 20-750-MACPC1-EF-F7M (20-750-MACPC1-EF-F7M is not used with frame 7L)

Frames 8...15 AC precharge control circuit board kit catalog numbers: 20-750-MACPC1-CD, 20-750-MACPC1-EF

The AC precharge control circuit board kit excludes the wire harnesses and fiber-optic cable that are required for connections to other IP00 kits and components that are used in an AC precharge circuit and must be customer-sourced. The wire harness diagrams for these connections are identified in AC Precharge Control Circuit Board Connections table.



IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

AC Precharge Control Circuit Board Connections

Item	Connection	Description	Wire Harness Diagram Page	
			Frames 7 and 7L	Frames 10...15
1	J1	Required, internal 24V DC, 1.5 A power supply from connector P2.	350	
2	J12	Optional 24V DC, 1.5 A power supply	368	
3	ACP	Fiber transceiver port for fiber-optic connection ACPO on the fiber transceiver board in the control pod. For more information, see Fiber Interface and Fiber Transceiver Circuit Board Connections on page 185.	—	—
4	J8	Chassis MOV jumper (PE-A), installed on the circuit board, by default. See Power Jumper Configuration on page 119.	—	—
5	J6	R, S, and T signals from a fused disconnect.	361	362 ⁽¹⁾
6	J7	DC bus feedback signals.	363	364
7	J5	Customer-supplied 240V AC power source at 1.2 A.	359	
8	J4	240V AC power to motor operator and circuit breaker close, shunt release, and AC precharge coils.	357	358
9	J3	240V AC power to circuit breaker trip release and time delay relay.	355	356
10	J11	TVSS module status from connector P15.	367	
11	J2	Status signals from the circuit breaker, fused disconnect, and AC precharge contactor.	352	353 or 354 ⁽²⁾

(1) The fuses that are required to protect the AC precharge circuit board for these signals are customer supplied. For 400V, 480V, and 600V applications, each signal requires a Class J TD 600V, 1A fuse. For 690V applications, each signal requires a Class J TD 690V, 1A fuse.

(2) This circuit and wire harnesses includes terminal connections for an optional thermal switch. If a thermal switch is not used, a closed circuit must be maintained with continuous wiring in this circuit, or installation of a suitable jumper. See Thermal Switch Connections on page 176 for more information.

Fused Disconnect Connections

Rockwell Automation fused disconnect catalog numbers: 194R-D32-1753-PBS1, 194R-D125-1753, 194R-D250-1753, 194R-J30-1753-PBS1, 194R-J100-1753, 194R-J200-1753

For equivalent frame sizes 7, 7L, and 10...15, a fused disconnect must be customer-sourced and requires connections to a circuit breaker and the AC precharge control circuit board. The recommended fused disconnects specifications are listed in the Fused Disconnect Specifications table. The wire harness diagrams for these connections are identified in the Frames 10...15 Fused Disconnect Connections table on page 170 and the Frame 7 and 7L Fused Disconnect Connections table on page 171.

Fused disconnect catalog numbers 194R-D125-1753, 194R-D250-1753, 194R-J100-1753, and 194R-J200-1753 require a customer-sourced operator handle shaft and operator handle.

- Rockwell Automation disconnect handle shaft catalog number: 194R-R7
- Rockwell Automation IP66 disconnect handle catalog number: 194R-HM4

Fused Disconnect Specifications

Rating / Specification	Catalog Number					
	194R-D32-1753-PBS1 ⁽¹⁾	194R-D125-1753 ⁽²⁾	194R-D250-1753 ⁽³⁾	194R-J30-1753-PBS1 ⁽⁴⁾	194R-J100-1753 ⁽⁵⁾	194R-J200-1753 ⁽⁶⁾
Device Rating (V)	690	690	690	600	600	600
Device Rating (Amps)	32	125	160	30	100	200
Fuse Type	DIN	DIN	DIN	Class J	Class J	Class J
Frame Size	7	10, 11, 13, 14	12, 13	7, 7L	9, 10, 13	10...15

(1) Used with frame 7 690V AC input drives and bus supplies.

(2) Used with frame 10 and frame 11 690V AC input drives and bus supplies.

(3) Used with frame 12, 690V AC input drives and bus supplies.

(4) Used with frame 7 400/480/600V AC input drives and bus supplies and frame 7L 400/480V AC input drives.

(5) Used with frame 10, 600V AC input drives and bus supplies.

(6) Used with frame 10, 400/480V, frame 11 and frame 12, 400/480/600V AC input drives and bus supplies.

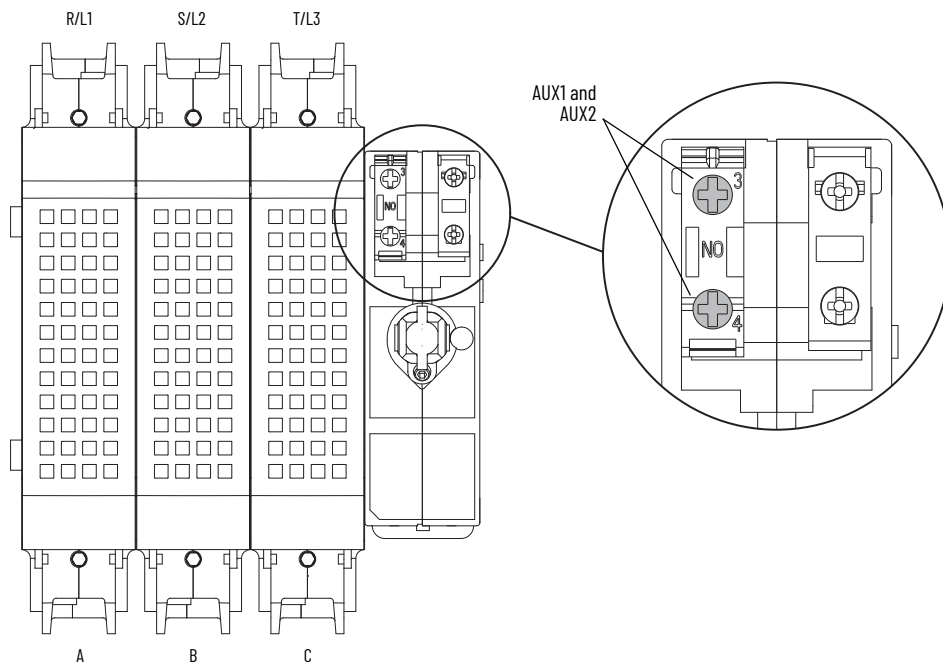
Fused Disconnect Switch Fuses⁽¹⁾

Input Voltage	Frame Size	Fuse Specification	Quantity
400/480/600	7, 7L	Class J - 600V, 30 A	3
690	7	Class gG - 690V, 32 A	3
400/480	10	Class J - 600V, 110 A	3
600	10	Class J - 600V, 80 A	3
690	10	Class gG - 690V, 80 A	3
400/480	11	Class J - 600V, 150 A	3
600	11	Class J - 600V, 110 A	3
690	11	Class gG - 690V, 125 A	3
400/480	12	Class J - 600V, 200 A	3
600	12	Class J - 600V, 150 A	3
690	12	Class gG - 690V, 160 A	3

(1) Fuse specifications are for the Rockwell Automation fused disconnects listed in the Fused Disconnect Specifications table.

IMPORTANT Terminal labels in the example image and connections table correspond to product schematics.

Example Frames 10...15 Fused Disconnect and Terminal Designations

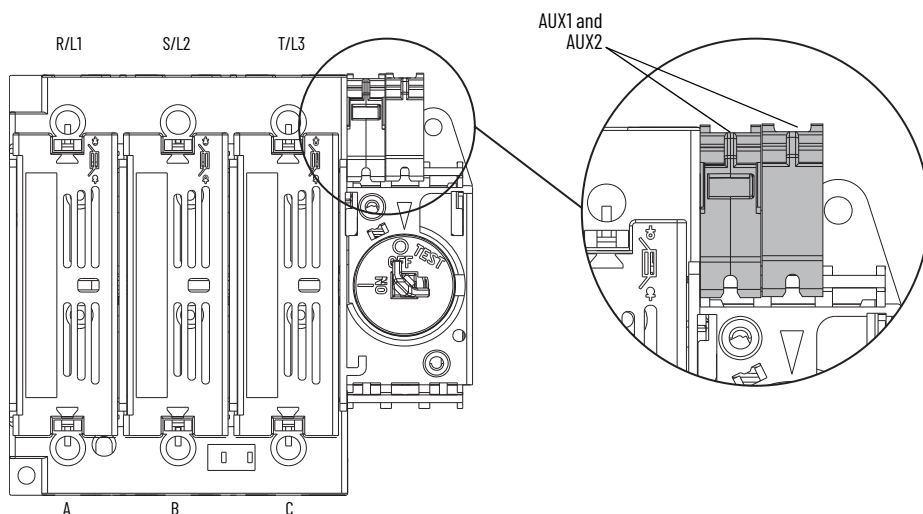


Frames 10...15 Fused Disconnect Connections

Terminal	Description	Wire Harness Diagram Page
R/L1	Connection to AC precharge contactor terminal L1.	377
S/L2	Connection to AC precharge contactor terminal L2.	
T/L3	Connection to AC precharge contactor terminal L3.	
A	Connection to circuit breaker input terminal CB1-R/L1.	373
B	Connection to circuit breaker input terminal CB1-S/L2.	
C	Connection to circuit breaker input terminal CB1-T/L3.	
AUX1	Connects to pin 3 of connector P2, connected to J2 on the AC precharge control circuit board. See AC Precharge Control Circuit Board Connections on page 168 for details.	—
AUX2	Connects to pin 4 of connector P2, connected to J2 on the AC precharge control circuit board. See AC Precharge Control Circuit Board Connections on page 168 for details.	—

IMPORTANT Terminal labels in the example image and connections table correspond to product schematics.

Example Frame 7 and 7L Fused Disconnect and Terminal Designations



Frame 7 and 7L Fused Disconnect Connections

Terminal	Description	Wire Harness Diagram Page
R/L1	Connection to circuit breaker input terminal CB1-R/L1.	369
S/L2	Connection to circuit breaker input terminal CB1-S/L2.	
T/L3	Connection to circuit breaker input terminal CB1-T/L3.	
A	Connection to AC precharge contactor terminal T1.	370
B	Connection to AC precharge contactor terminal T2.	
C	Connection to AC precharge contactor terminal T3.	
AUX1	Connects to pin 3 of connector P2, connected to J2 on the AC precharge control circuit board. See AC Precharge Control Circuit Board Connections on page 168 for details.	—
AUX2	Connects to pin 4 of connector P2, connected to J2 on the AC precharge control circuit board. See AC Precharge Control Circuit Board Connections on page 168 for details.	—

AC Precharge Contactor Connections

Rockwell Automation AC precharge contactor catalog numbers: 100-C30T10, 100-C85KA10, 100-D115KA00, 100-D140EA00, 100-D180EA00

For frame 7, 7L, and 10...15, an AC precharge contactor and one normally open auxiliary contact must be customer-sourced and requires connections to an AC precharge resistor bank, fused disconnect, and the AC precharge control circuit board. The recommended AC precharge contactors and specifications are listed in the AC Precharge Contactor Specifications table. The wire harness diagrams for these connections are identified in the Frames 10...15 AC Precharge Contactor Connections table and the Frame 7 and 7L AC Precharge Contactor Connections table on page 172.

AC Precharge Contactor Specifications

Rating / Specification	Catalog Number				
	100-C30T10 ⁽¹⁾	100-C85KA10 ⁽²⁾	100-D115KA00 ⁽³⁾	100-D140EA00 ⁽⁴⁾	100-D180EA00 ⁽⁵⁾
Device Rating (A)	30	85	115	140	180
Coil Voltage	240V AC	240V AC	240V AC	24V DC	24V DC
Number of Auxiliary Contacts	1	1	0	0	0
Frame Size	7, 7L	10, 13	10, 11, 13, 14	12, 15	11, 12, 14, 15

(1) Used with frame 7 400/480/600/690V AC input drives and bus supplies and 400/480V frame 7L drives.

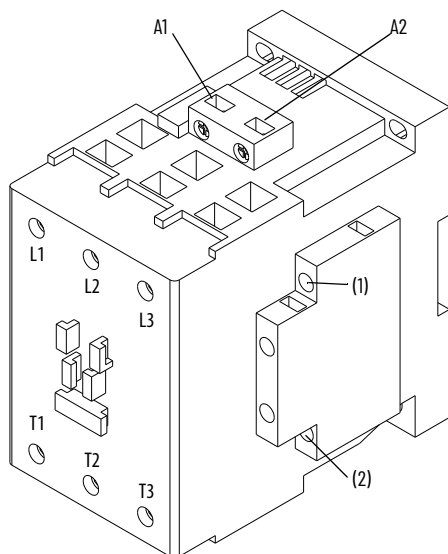
(2) Used with frame 10, 600/690V AC input drives and bus supplies.

(3) Used with frame 10, 400/480V, frame 11, 600/690V AC input drives and bus supplies.

(4) Used with frame 12, 600/690V AC input drives and bus supplies.

(5) Used with frame 11 and frame 12, 400/480V AC input drives and bus supplies.

Example AC Precharge Contactor Terminal Designations



Frames 10...15 AC Precharge Contactor Connections

Terminal	Description	Wire Harness Diagram Page
T1	Connection to AC precharge resistor bank terminal R1-1.	373
T2	Connection to AC precharge resistor bank terminal R2-1.	
T3	Connection to AC precharge resistor bank terminal R3-1.	
L1	Connection to fused disconnect terminal FD1-R/L1.	373
L2	Connection to fused disconnect terminal FD1-S/L2.	
L3	Connection to fused disconnect terminal FD1-T/L3.	
A1	Connection to pin 4 of connector P4, connected to connector J4 on the AC precharge control circuit board. For details, see AC Precharge Control Circuit Board Connections on page 168 .	—
A2	Connection to pin 12 of connector P4, connected to connector J4 on the AC precharge control circuit board. For details, see AC Precharge Control Circuit Board Connections on page 168 .	—
(1)	Auxiliary contact - Normally Open. Connection to pin 1 of connector P2, connected to connector J2 on the AC precharge control circuit board. For details, see AC Precharge Control Circuit Board Connections on page 168 .	—
(2)	Auxiliary contact - Normally Open. Connection to pin 2 of connector P2, connected to connector J2 on the AC precharge control circuit board. For details, see AC Precharge Control Circuit Board Connections on page 168 .	—

Frame 7 and 7L AC Precharge Contactor Connections

Terminal	Description	Wire Harness Diagram Page
T1	Connection to fused disconnect terminal FD1-A.	370
T2	Connection to fused disconnect terminal FD1-B.	
T3	Connection to fused disconnect terminal FD1-C.	

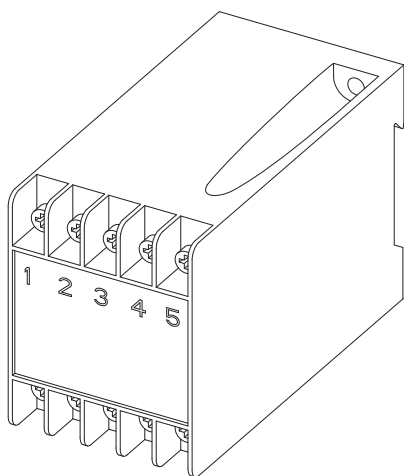
Frame 7 and 7L AC Precharge Contactor Connections

Terminal	Description	Wire Harness Diagram Page	
		Frame 7 and 7L	Frames 10...15
L1	Connection to AC precharge resistor bank terminal R1-1.	371	
L2	Connection to AC precharge resistor bank terminal R2-1.		
L3	Connection to AC precharge resistor bank terminal R3-1.		
A1	Connection to pin 4 of connector P4, connected to connector J4 on the AC precharge control circuit board. For details, see AC Precharge Control Circuit Board Connections on page 168.	-	
A2	Connection to pin 12 of connector P4, connected to connector J4 on the AC precharge control circuit board. For details, see AC Precharge Control Circuit Board Connections on page 168.	-	
(1)	Auxiliary contact - Normally Open. Connection to pin 1 of connector P2, connected to connector J2 on the AC precharge control circuit board. For details, see AC Precharge Control Circuit Board Connections on page 168.	-	
(2)	Auxiliary contact - Normally Open. Connection to pin 2 of connector P2, connected to connector J2 on the AC precharge control circuit board. For details, see AC Precharge Control Circuit Board Connections on page 168.	-	

Time Delay Relay Connections

Time delay relay kit catalog number: 20-750-MACPC-TDR

The time delay relay kit excludes the required connection wires. The wire diagrams for these connections are identified in the Time Delay Relay Connections table.



Time Delay Relay Connections

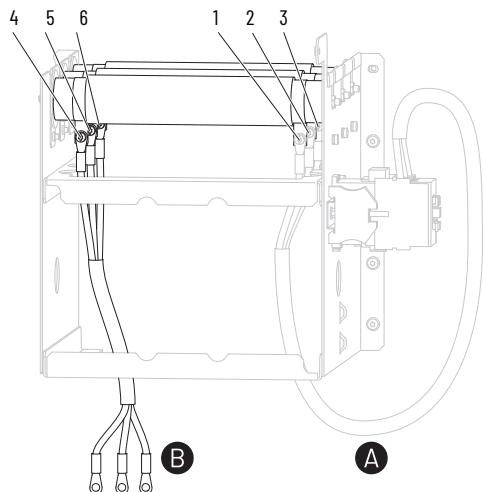
Terminal	Description	Wire Harness Diagram Page	
		Frame 7 and 7L	Frames 10...15
1	240V AC release connection to pin 1 of connector P3, connected to connector J3 on the AC precharge control circuit board.	355	356
2	240V AC neutral connection to pin 3 of connector P3, connected to connector J3 on the AC precharge control circuit board.		
3	O/P jumper to time delay relay terminal 4 (UDV1-4). The wire connection for this terminal is integrated into the wire harness that is included with most of the circuit breaker kits. See AC Precharge Circuit Breaker Connections on page 167 for details.	376	
4	Undervoltage release connection (UDV1-4) to AC precharge circuit breaker (CB1-D1). The wire connection for this terminal is integrated into the wire harness that is included with most of the circuit breaker kits. See AC Precharge Circuit Breaker Connections on page 167 for details.		
5	Undervoltage release connection (UDV1-5) to AC precharge circuit breaker (CB1-D2). The wire connection for this terminal is integrated into the wire harness that is included with most of the circuit breaker kits. See AC Precharge Circuit Breaker Connections on page 167 for details.		

Frame 7 and 7L AC Precharge Resistor Bank Connections

Frame 7 and 7L AC precharge resistor bank kit catalog numbers: 20-750-MACPR-CD-F7M

The frame 7 and 7L AC precharge resistor bank kits exclude the mounting bracket and wire harness (A) that is required for connections to the AC precharge contactor and must be customer-sourced. The wire harness (B) from the resistor bank to the circuit breaker output terminals is included with the kit. The wire harness diagrams for these connections are identified in the Frame 7 and 7L AC Precharge Resistor Bank Connections table. See page 393 for a drawing of the mounting bracket.

Frame 7 and 7L AC Precharge Resistor Bank Terminal Identification



1...6		T30 6.0 N•m (53 lb•in)
--------------	--	---------------------------

Frame 7 and 7L AC Precharge Resistor Bank Connections

Wire Harness ID	Item	Connection	Description	Terminal Torque N•m (lb•in)	Recommended Conductor Cross Section		Wire Harness Diagram Page
					ISO (mm ²)	AWG	
A	1	R1-1	Resistor bank terminal R1-1 to AC precharge contactor terminal L1	6.0 (53.0)	8.36	8	371
	2	R2-1	Resistor bank terminal R2-1 to AC precharge contactor terminal L2				
	3	R3-1	Resistor bank terminal R3-1 to AC precharge contactor terminal L3				
B	4	R1-2	Resistor bank terminal R1-2 to circuit breaker output terminal R/L1				
	5	R2-2	Resistor bank terminal R2-2 to circuit breaker output terminal S/L2				
	6	R3-2	Resistor bank terminal R3-2 to circuit breaker output terminal T/L3				

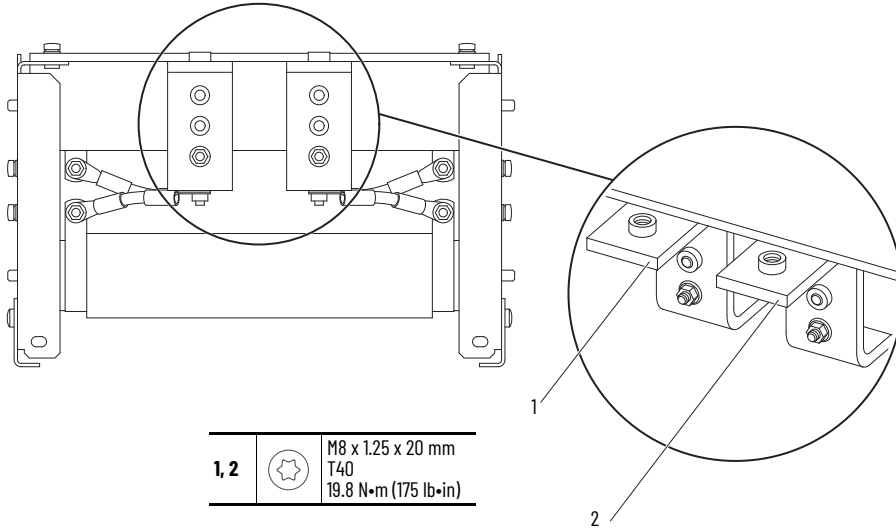
Frame 10...15 AC Precharge Resistor Bank Connections

Frame 10...15 AC precharge resistor bank kit catalog numbers: 20-750-MACPR-CD-F10M, 20-750-MACPR-CD-F11M, 20-750-MACPR-CD-F12M, 20-750-MACPR-EF-F10M, 20-750-MACPR-EF-F11M, 20-750-MACPR-EF-F12M

The frame 10...15 AC precharge resistor bank kits exclude the wires that are required for connections to the AC precharge circuit breaker output terminals and AC precharge contactor and must be customer-sourced.

The wire harness diagrams for these connections are identified in the Frames 10...15 AC Precharge Resistor Bank Connections table.

Frames 10...15 AC Precharge Resistor Bank Terminal Identification



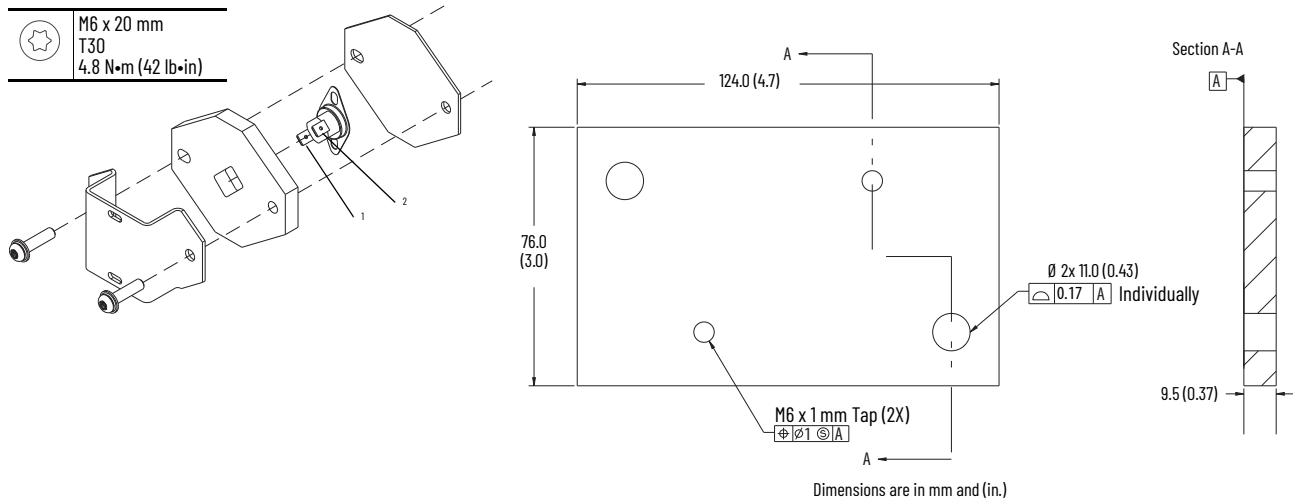
Frames 10...15 AC Precharge Resistor Bank Connections

Item	Connection	Description	Terminal Torque [N•m (lb•in)]	Recommended Conductor Cross Section		Terminal Specifications [mm (in.)]	Wire Harness Diagram Page
				ISO (mm ²)	AWG		
1	Left terminal	Resistor bank terminal R1-1 to AC precharge contactor terminal T1.	19.8 (175.0)	42.4	1	Pad Area: 38.1 (1.5) x 50.0 (2)	373
		Resistor bank terminal R2-1 to AC precharge contactor terminal T2.					
		Resistor bank terminal R3-1 to AC precharge contactor terminal T3.					
2	Right terminal	Resistor bank terminal R1-2 to circuit breaker output terminal R/L1.	19.8 (175.0)	42.4	1	Pad Area: 38.1 (1.5) x 50.0 (2)	373
		Resistor bank terminal R2-2 to circuit breaker output terminal S/L2.					
		Resistor bank terminal R3-2 to circuit breaker output terminal T/L3.					

Thermal Switch Connections

Thermal switch kit catalog number: SK-RM-THRMSW-WB

An optional thermal switch can be installed in the input bay for frame 10...15 PowerFlex 755TM drives or bus supplies and the optional entry/exit wire bays. The thermal switch can be used to detect an over temperature condition in the respective enclosure and signal an operational alarm or fault. The optional thermal switch kits excludes the required interconnection wires and mounting plate and must be customer-sourced. The mounting plate must be constructed from UNS C1100 copper. The thermal switch connection, installation locations and wire harness details are identified in the Thermal Switch Connections table.



Thermal Switch Connections

Thermal Switch Installation Location	Thermal Switch Terminal	Thermal Switch Wire Harness Connection	Description	Wire Harness Diagram Page
Input Bay - S/L2 Phase Circuit Breaker Output Bus Bar	1	THR1-1	Connects to J2 on the AC precharge control circuit board.	353 or 354 ⁽¹⁾
	2	THR1-2	Connects to CB1 auxiliary contact 24 or 34 on the AC precharge circuit breaker.	
Entry Wire Bay - S/L2 Phase AC Input Bus Bar	1	P11	Connects to P9 on the AC precharge control circuit board.	365 ⁽²⁾
	2			
Exit Wire Bay - V/T2 Phase AC Output Bus Bar	1	P2	Connects to J2 on the nearest motor side inverter power module in the adjacent power bay. ⁽²⁾	366
	2			

(1) This circuit and wire harness includes terminal connections for an optional thermal switch. If a thermal switch is not used, a closed circuit must be maintained with continuous wiring in this circuit, or installation of a suitable jumper.
 (2) Terminal J2 does not require a jumper when a thermal switch is not installed in an exit wire bay.

Torque Accuracy Module Connections

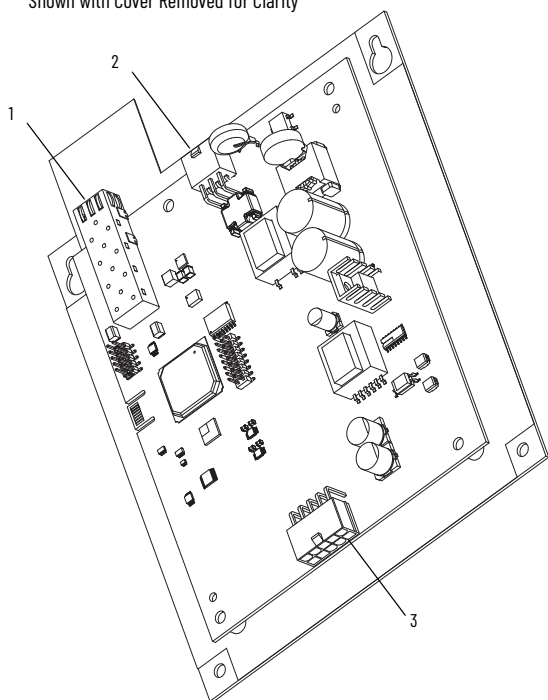
Torque accuracy module kit catalog numbers: 20-750-MTAM1-CD, 20-750-MTAM1-EF

The torque accuracy module provides motor-side inverter AC output voltage feedback for torque regulation. The module is connected to the AC bus after the last motor side inverter power module. The torque accuracy module kit excludes the wire harnesses (frame 7 and 7L only), fiber-optic cable, and sheet metal mounting panel and must be customer-sourced. The torque accuracy module kits include the required wire harnesses for frames 8...15 products only. The wire harness diagrams for these connections are identified in the Torque Accuracy Module Connections table.

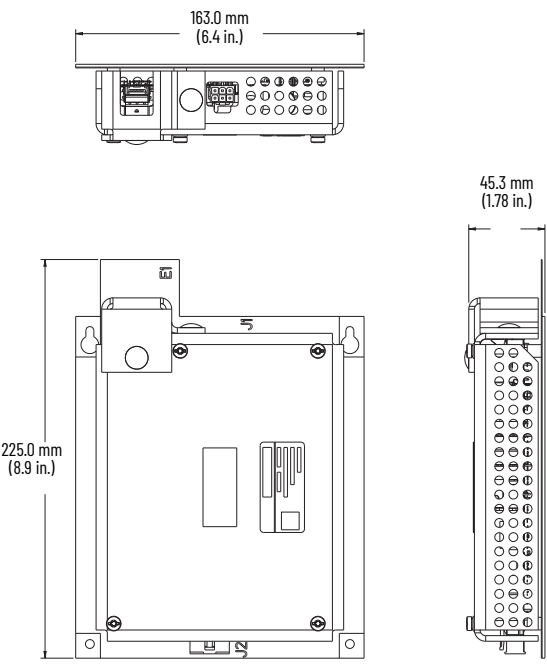


ATTENTION: A shock hazard exists. The fiber-optic transceiver cage that is labeled TAM on the torque accuracy module is at AC bus potential. Do not remove the cover.

Shown with Cover Removed for Clarity



Protective connection covers not shown for clarity only.



IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

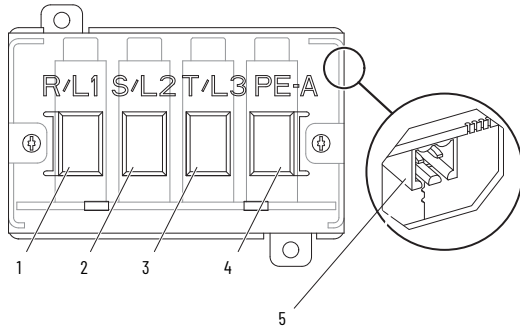
Torque Accuracy Module Connections

Item	Connection	Description	Wire Harness Diagram Page	
			Frame 7 and 7L	Frames 8...15
1	J3	Fiber transceiver port for fiber-optic connection to ACP1/TAM on the fiber transceiver board in the control pod. For more information, see Fiber Interface and Fiber Transceiver Circuit Board Connections on page 185.	—	—
2	J1	Control bus or customer-supplied 240V AC, 0.1 A and optional 24V DC, 0.5 A control power supply connection from connector P1.	378	380
3	J2	AC bus connections U/T1, V/T2, W/T3 from connector P2.	379	381

AC Precharge TVSS Module Connections

AC precharge TVSS module kit catalog numbers: 20-750-MACP-CD-TVSS, 20-750-MACP-EF-TVSS

The AC precharge TVSS module kit excludes some of the required connection wires. The wire harness diagrams for these connections are identified in the AC Precharge TVSS Module Connections table.



AC Precharge TVSS Module Connections

Item	Connection	Description	Terminal Torque	Wire Harness Diagram Page	
				Frame 7 and 7L	Frames 10...15
1	R/L1	Connection to circuit breaker output terminal CB1-R/L1.	4.0 N•m (35.0 lb•in)	374	375
2	S/L2	Connection to circuit breaker output terminal CB1-S/L2.			
3	T/L3	Connection to circuit breaker output terminal CB1-T/L3.			
4	PE-A1	Power jumper PE-A2. See Power Jumper Configuration on page 119 .	—	—	—
5	P15	TVSS status signal connection to J11 on the AC precharge control board.	—	367	

DC Bus Conditioner and Marine Discharge Circuit Board Connections

This table contains the kit catalog numbers for the frame 7 marine discharge circuit board and DC bus conditioner modules.

Cat. No.	Equivalent Frame Size	Used with NRS	Description
—	7	—	A DC bus conditioner is included in frame 7 power modules and must be configured for the applicable ground scheme. See Power Jumper Configuration on page 119 for jumper configuration.
20-750-MBSCD-DB		—	Marine discharge circuit board, suitable for use on a high-resistance ground or ungrounded distribution system in a marine application that requires low leakage current to ground (for example, ship or marine vessel).
20-750-MDCBUS-COND	8...15	Yes	DC bus conditioner, suitable for use on solid ground and a standard, "non-marine" high-resistance ground or ungrounded distribution system.
20-750-MDCBUS1-COND	8...15	Yes	Marine DC bus conditioner, suitable for use on a high-resistance ground or ungrounded distribution system in a marine application that requires low leakage current to ground (for example, ship or marine vessel).

The DC bus conditioner kit is used to reduce voltage stress levels on components such as optos, circuit boards, and magnetics. A reduced voltage level increases the reliability of components. The frame 7 marine discharge circuit board is used with the frame 7 DC bus conditioner to obtain low leakage current to ground in ungrounded systems, such as marine applications.

The Recommended DC Bus Conditioner Modules table on page [179](#) provides the recommended quantity of DC bus conditioner modules and marine discharge boards to install. The recommended quantity of DC bus conditioners is based on the ground scheme and the frame size of the regenerative drive or bus supply. DC bus conditioner modules are not used with PowerFlex 755TM common bus inverters.

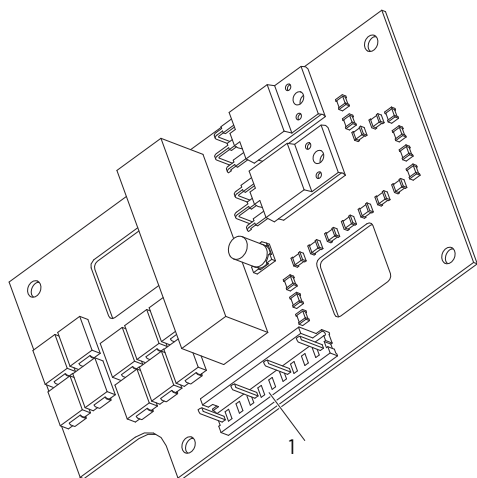
Recommended DC Bus Conditioner Modules

Ground Scheme	Input Voltage Class	Frame Size	Quantity Required	Installation Location	NRS System Configuration	NRS Quantity Required	NRS Installation Location
Solid Ground	400/480 600/690	7	1 or 2	One DC bus conditioner is included in each power module.	—	—	—
		8	1	Above the first line side converter.	1X	1	Above the first module.
		9			2X		
		10			1X+2X		
		11			2X+2X		
		12			2X+2X+1X		
		13	2	Above the first line side converter in the left-to-right orientation and above the first line side converter in the right-to-left orientation.	2X+2X+2X or 2(2X+1X)	1 or 2	Above the first module in the left-to-right orientation and above the first module in the right-to-left orientation.
		14			2(2X+2X)	2	
		15			(2X+2X+2X) + (2X+2X) or 2(2X+2X+1X)	1 or 2	
		High-Resistance Ground, Ungrounded (Marine), or Ungrounded with Zig-Zag Transformer to Convert to High-Resistance Ground	400/480 600/690	7	1 or 2	One DC bus conditioner is included in each power module. Install one marine discharge board for marine applications only.	—
8	2			One above the line side converter and one above motor side inverter.	1X	1	Above the module.
9	2			Above each line side converter.	2X	1	Above each module.
10	3				1X+2X	2	
11	4				2X+2X	2	
12	5				2X+2X+1X	3	
13	6				2X+2X+2X or 2(2X+1X)	3 or 4	
14	8				2(2X+2X)	4	
15	10				(2X+2X+2X) + (2X+2X) or 2(2X+2X+1X)	5 or 6	

Marine Discharge Circuit Board (Frame 7)

Marine discharge board kit catalog number: 20-750-MBSCD-DB

The marine discharge board kit excludes the wire harness that connects to the +DC and -DC bus and PE ground and must be customer-sourced. The wire harness diagram is identified in the Marine Discharge Circuit Board (Frame 7) table.



Protective connection covers not shown for clarity only.

IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

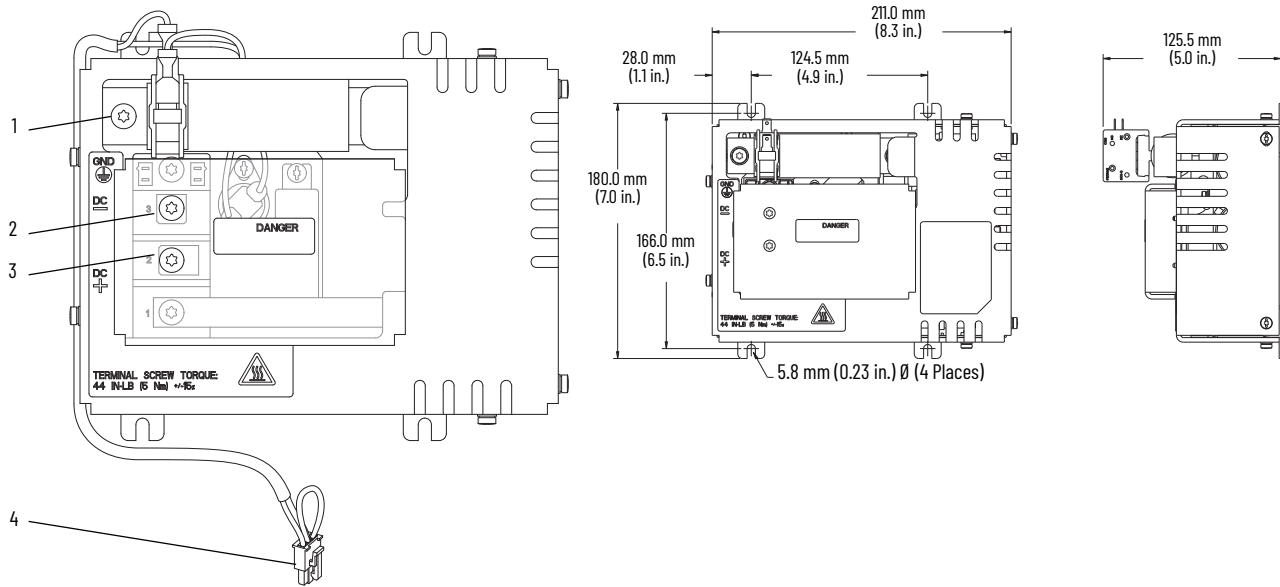
Marine Discharge Circuit Board (Frame 7)

No.	Name	Description	Wire Harness Diagram Page
1	J1	Connects to +DC and -DC bus bars and PE ground on chassis.	382

DC Bus Conditioner

DC bus conditioner kit catalog numbers: 20-750-MDCBUS-COND and 20-750-MDCBUS1-COND

The DC bus conditioner kits exclude the +DC and -DC bus and ground connection cables and sheet metal mounting panel and must be customer-sourced. The cable diagrams for these connections are identified in the DC Bus Conditioner Connections table. The hardware to connect the +DC and -DC bus connection cables to the slotted DC bus bars or DC link/fuse assembly is included in the kit.



Protective connection covers not shown for clarity only.

DC Bus Conditioner Connections

Item	Connection	Description	Terminal Torque	Cable Diagram Page
1	GND	Connection to PE ground. ⁽¹⁾	5.0 N•m (44.0 lb•in)	383
2	-DC	Connection to -DC.		
3	+DC	Connection to +DC.		
4	P2	DC bus conditioner status signal connection to J2 on the power module I/O panel (wire harness is included with the module). When two DC bus conditioners are used with an equivalent frame 8 drive or bus supply only, an additional customer-sourced wire harness must be installed to connect both modules to the line side converter power module connector J2.	—	384
	P13	DC bus conditioner status signal connection to J13 on the NRS power module main control board.	—	—

(1) When multiple DC bus conditioner modules are installed, the ground wire length must be the same for all modules.

Control Pod Installation and Control Wiring and Fiber-optic Cable Routing

Control Pod (XT) Kit catalog numbers: 20-750-MCPOD3-F7M, 20-750-MCPOD4-F7M, 20-750-MCPOD3-F8M, 20-750-MCPOD4-F8M

These control pod kits contains the main control and fiber interface circuit boards only. All other components must be purchased as separate kits.

The control pod installation must meet these requirements:

- Clearance to other objects above and below the pod must be a minimum of 76.2 mm (3.0 in.)
- The frame 7 and 7L control pod, catalog numbers 20-750-MCPODn-F7M, requires an airflow rate of 150 CFM (maximum heat dissipation of the control pod is 133 W)
- The frame 8...15 control pod, catalog numbers 20-750-MCPODn-F8M, requires an airflow rate of 40 CFM (maximum heat dissipation of the control pod is 133 W)

These control pod kits contain protective covers on circuit board connectors, terminal blocks, and fiber optic ports.

IMPORTANT

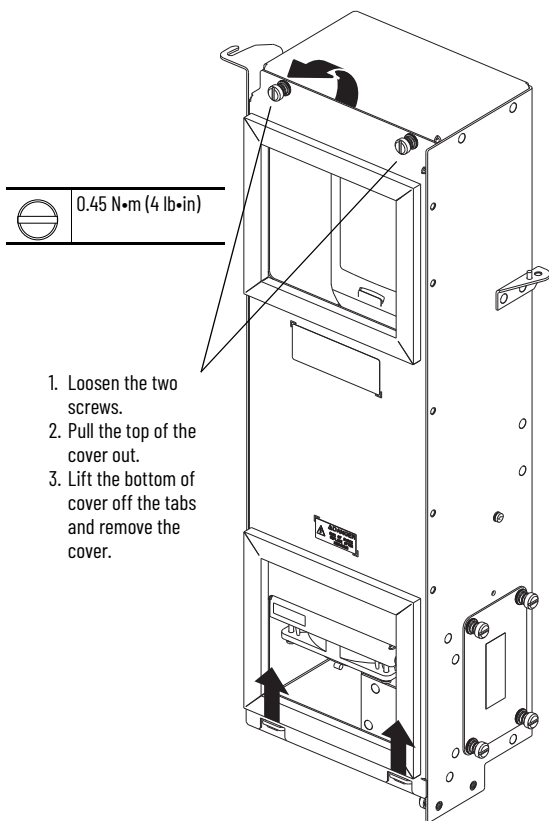


Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

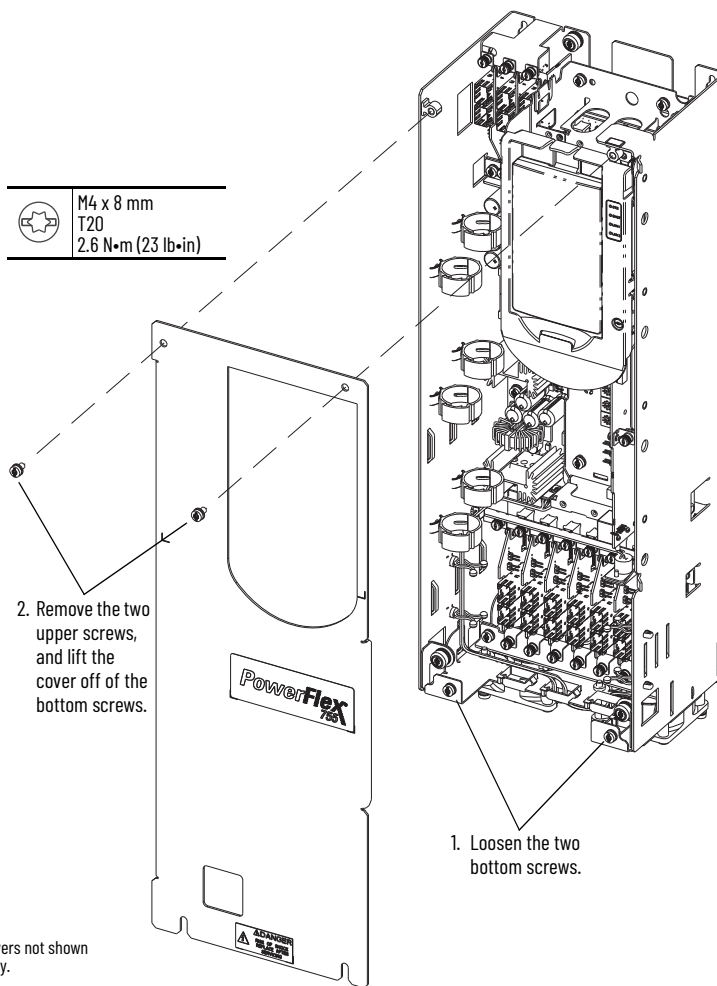
Control Pod Cover Removal

20-750-MCPODn-F7M

20-750-MCPODn-F8M



1. Loosen the two screws.
2. Pull the top of the cover out.
3. Lift the bottom of cover off the tabs and remove the cover.



2. Remove the two upper screws, and lift the cover off of the bottom screws.

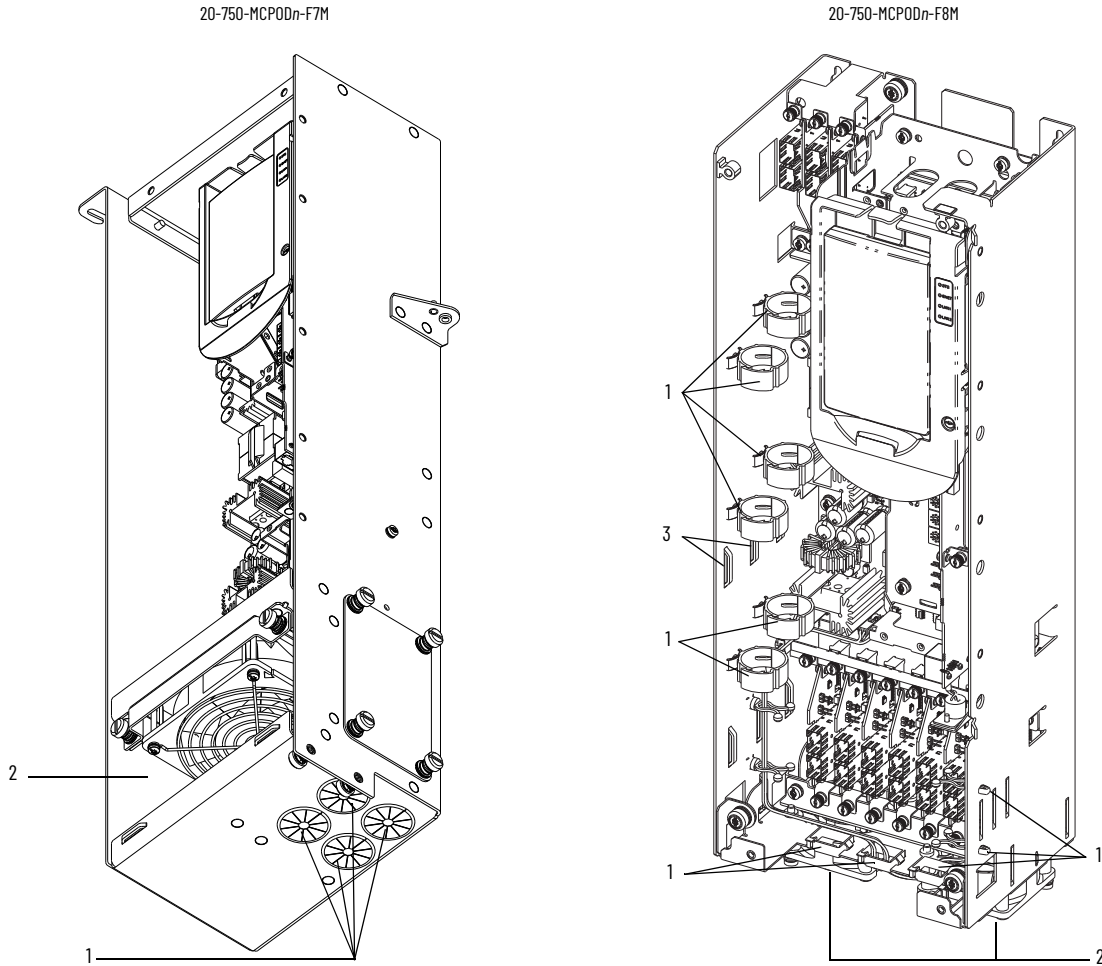
1. Loosen the two bottom screws.

Protective connection covers not shown for clarity only.

Control Pod Cable Routing

The frame 8...15 control pod (cat. no. 20-750-MCP0Dn-F8M) includes supports, clips, and cable ties to help route and secure cabling inside the control pod. The frame 7 and 7L control pod (cat. no. 20-750-MCP0Dn-F7M) provides four rubber grommets for cable entry at the bottom of the control pod chassis. For interconnection information, see Control Pod Connection Instructions on page 200. For detailed control pod installation instructions, see page 314.

IMPORTANT Do not ground shield wires to inner sheet metal chassis that contains the main control or option module circuit boards.



Item	Description
1	Cable management and routing devices that are provided with control pod.
2	Fan inlet. Keep clear to help maintain proper cooling.
3	Ground I/O signal cable shield wires to the outer sheet metal wall. Strip cable insulation 25 mm (1 in.) to expose braid. Attach cable ties around shield and through slots. Pull tight.

Control Pod DPI Port 2/3 Cable Connection

Control Pod kit catalog numbers: 20-750-MCPOD3-F7M, 20-750-MCPOD4-F7M, 20-750-MCPOD3-F8M, 20-750-MCPOD4-F8M

These control pods contain a DPI connector Port 2/3 at the bottom of the HIM cradle as shown in this illustration. Port 3 is used when a DPI splitter cable (cat. no. 1203-S03) is connected to this port.

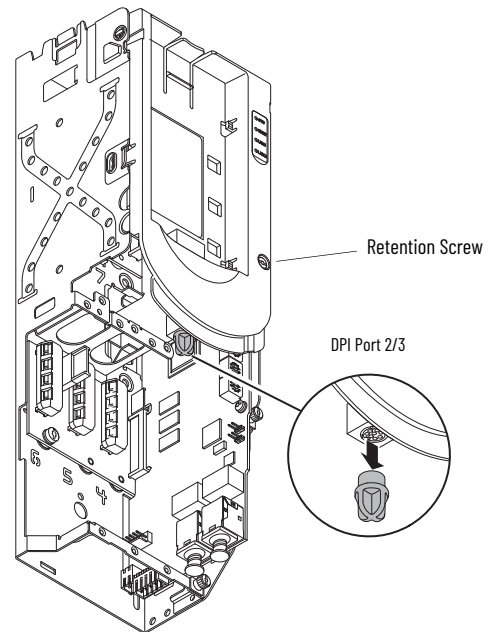
IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

Follow these steps to connect a DPI cable to Port 2/3.

1. Remove the control pod cover. See Control Pod Cover Removal on page 181.
2. Loosen the retention screw on the HIM cradle.
3. Lift the cradle enough to access the DPI connector.
4. Remove the protective cover from the DPI connector.
5. Route the DPI cable through the bottom of the control pod.
6. Insert the DPI cable into the connector.
7. Lower the HIM cradle and secure the retention screw.
8. Replace the control pod cover.



Inner control pod chassis shown for clarity only.

Main Control Circuit Board Connections

Included with Control Pod Catalog Numbers:
20-750-MCPOD3-FnM and 20-750-MCPOD4-FnM

IMPORTANT Change the main control board jumper configurations only when the control pod is de-energized.

Main Control Circuit Board Connections

Item	Name	Description
1	HIM Connector (DPI Port 1) and DPI Ports 2/3 Connector	Terminal block connector for the DPI port cable connection.
2	Control Selector	Rotary switch for setting the programming mode.
3	Embedded EtherNet/IP™ Address Selectors ⁽¹⁾	Rotary switches for setting lowest octet of EtherNet address (forces address to 192.168.1.xxx). See the PowerFlex Drives with TotalFORCE Control Programming Manual, publication 750-PM100 (firmware revision 6.xxx and earlier) or 750-PM101 (firmware revision 10.xxx and later) for instructions on setting the IP address.
4	SAFETY Jumper	Safety enable jumper. Removed when a safety option module is installed.
5	ENABLE Jumper	Hardware enable jumper. TB1 becomes an Enable when this jumper is removed.
6	Built-in EtherNet/IP Connectors	EtherNet/IP network cable connections.
7	TB1	I/O terminal block. See Main Control Board TB1 tables for details.
8	Door Switch Connector	Power supply for the door switch. See the Door Switch Connector Specifications table for details.

(1) See the PowerFlex Drives with TotalFORCE Control Built-in EtherNet/IP Adapter User Manual, publication [750COM-UM009](#).

Main Control Board TB1 Terminal Designations

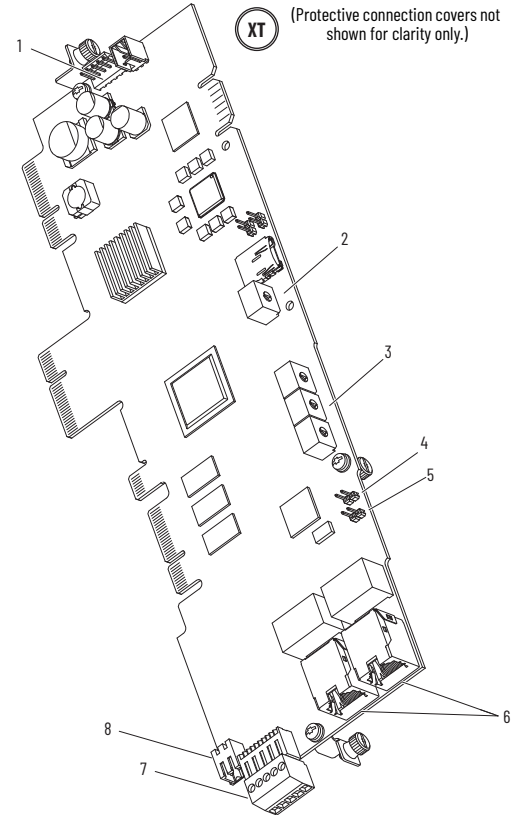
Terminal	Name	Description
Di Oac	Digital Input 0 (120V AC)	Connections for AC power supply. High State: 100...132V AC Low State: 0...30V AC 10 mA maximum
Di C	Digital Input Common	Digital input common
Di Odc	Digital Input 0 (24V DC)	Connections for DC power supply. High State: 20...24V DC Low State: 0...5V DC 9 mA maximum
+24V	+24V DC Power	Connections for drive supplied 24V power. 150 mA maximum
24VC	24V Common	

Main Control Board TB1 Terminal Block Specifications

Wire Size Range		Terminal Torque		Wire Strip Length
Maximum	Minimum	Maximum	Recommended	
2.5 mm ² (14 AWG)	0.3 mm ² (28 AWG)	0.25 N•m (2.2 lb•in)	0.2 N•m (1.8 lb•in)	6 mm (0.24 in.)

Door Switch Connector Specifications

Name	Description
P9	Connection for door switch. 5 mA maximum



Fiber Interface and Fiber Transceiver Circuit Board Connections

This section provides details for the fiber interface and fiber transceiver circuit board connections. The number of fiber transceiver boards required depends on the number of power modules and other modules installed. The fiber interface circuit board shown in this illustration includes the maximum number of fiber transceiver boards that can be installed for illustrative purposes only. The fiber-optic cables and transceivers are sold as separate kits. See Fiber-optic Cables on page 190 for details.

IMPORTANT

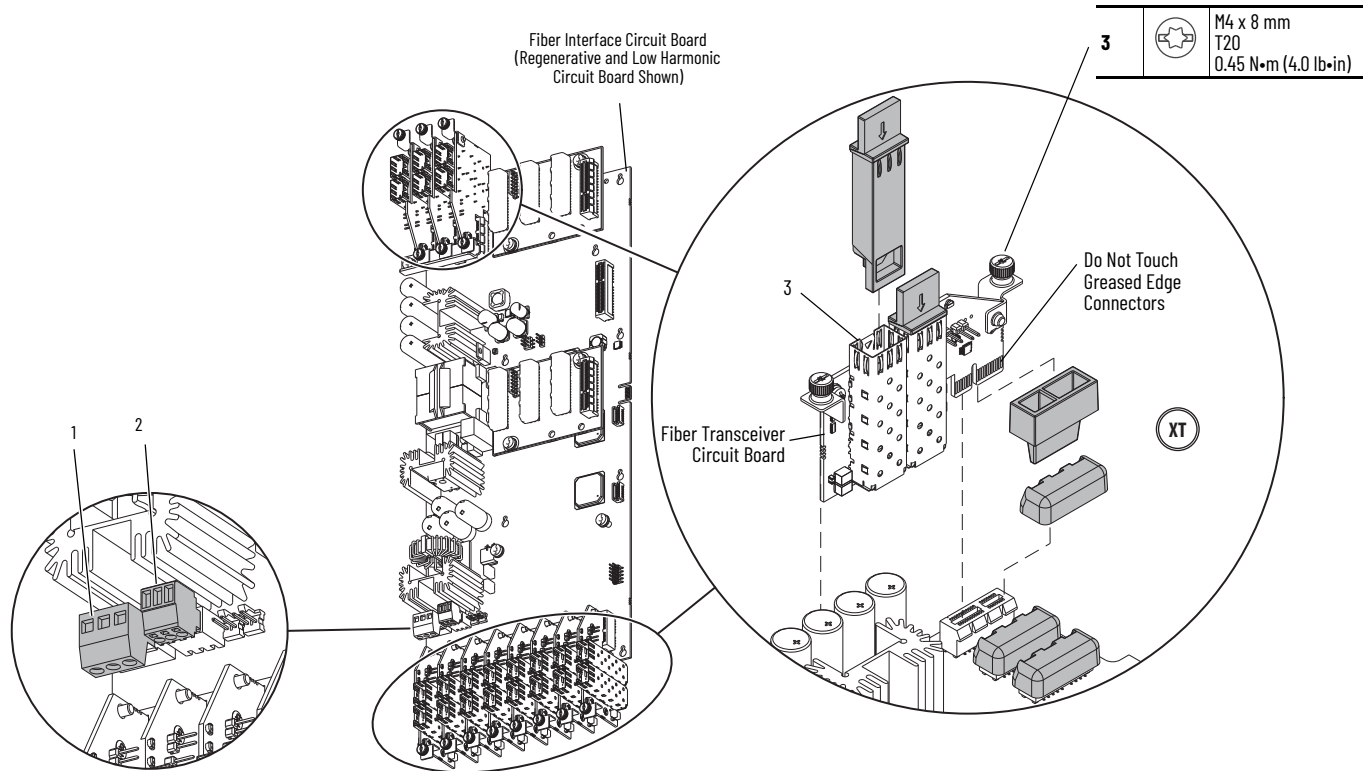


Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

IMPORTANT

The fiber transceiver circuit board with XT contains dielectric grease on the board edge connectors. Do not touch or allow the grease on the edge connectors to become contaminated with any form of debris or particulate matter. Debris or particulate matter on a greased connector can lead to premature failure of the circuit board. See Dielectric Grease Application in the PowerFlex 750-Series Products with TotalFORCE™ Control Hardware Service Manual, publication 750-TG100, for details.

Fiber Interface and Fiber Transceiver Circuit Boards



ID	Description
1	Terminal block P14 on the fiber interface circuit board
2	Terminal block P13 on the fiber interface circuit board
3	Fiber interface circuit board with fiber-optic transceiver ports

Fiber Interface Board Connections

Terminal block P14 on the fiber interface board is used to provide 24V DC control power to the control pod circuit boards. This source is required to provide power to the control pod control circuits when main power is connected. The wire harness must be customer sourced and is identified in the P14 Terminal Designations table.

P14 Terminal Designations

Terminal	Name	Description	Wire Harness Diagram Page	
			Frame 7 and 7L	Frames 8...15
MD +24V	+24 Volt Power	Connections for customer-supplied power supply: 24V DC \pm 10%, 10 A, PELV (Protective Extra Low Voltage) or SELV (safety extra low voltage)	345	343
SD +24V	(Not used)			
Com	Power Common			

Terminal block P13 on the fiber interface board can be used to provide optional, auxiliary 24V DC control power to the control pod. This source provides auxiliary power to the control pod control circuits when main power has been removed. The wire harness must be customer sourced and is identified in the P13 Terminal Designations table.

P13 Terminal Designations

Terminal	Name	Description	Wire Harness Diagram Page	
			Frame 7 and 7L	Frames 8...15
AP+	+24 Volts Auxiliary Power	Connections for an optional, auxiliary power supply: 24V DC \pm 10%, 10 A, PELV (Protective Extra Low Voltage) or SELV (safety extra low voltage)	345	344
AP-	Auxiliary Power Common			
Sh	Shield	Termination point for wire shields		

Fiber Transceiver Circuit Board Connections

Fiber transceiver circuit board kit catalog number: 20-750-MFTB1-F8

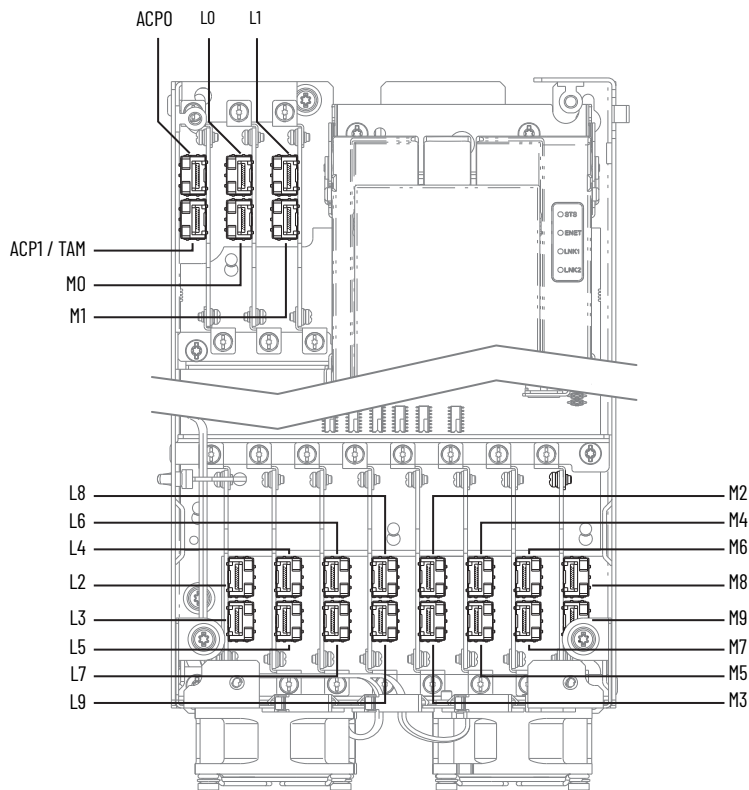
The fiber transceiver circuit boards are connected to the fiber interface circuit board in the control pod. The fiber transceiver boards contain the fiber-optic ports that provide the connections that are described in this table. The transceivers required for a fiber-optic cable connection to a transceiver port are provided with the fiber optic cable kits. Most of the fiber-optic cables and transceivers required to connect an IPO0 module to a fiber transceiver board are not included with the IPO0 module and must be customer supplied. See Fiber-optic Cables on page 190.

Fiber Transceiver Board Connections

Port Name		Description
Frame 7 and 7L	Frames 8...15	
ACPO	ACPO	Fiber transceiver port for the fiber-optic connection from ACP on the AC precharge control board.
TAM	ACP1 / TAM	Fiber transceiver port for the fiber-optic connection from ACP on the second AC precharge control board (frames 13...15 only) or TAM on the torque accuracy module (when used).
L0	L0...L9	Fiber transceiver ports for the fiber-optic connections from CTL on the power layer interface board in power modules that are used as a line side converter.
M0	M0...M9	Fiber transceiver ports for the fiber-optic connections from CTL on the power layer interface board in power modules that are used as a motor side inverter.

The fiber-transceiver board installation locations and individual port designations are shown here. All port locations are shown with a fiber-transceiver board installed for example only. A label of this diagram is included on the inside of the front cover of the control pod for reference. See LCL Filter and Power Module Position Designations on page 188 for an explanation of how LCL filter and power modules are identified.

Fiber Transceiver Circuit Board and Port Locations



LCL Filter and Power Module Position Designations

LCL filter and power modules are assigned a position designation to help make point-to-point fiber-optic connections and troubleshooting easier. The position designations are designed to match parameter display names in Rockwell Automation® software applications. For example, the voltage rating of the line side converter power module designated "L0" can be found in parameter 14:100 [LO Rated Volts].

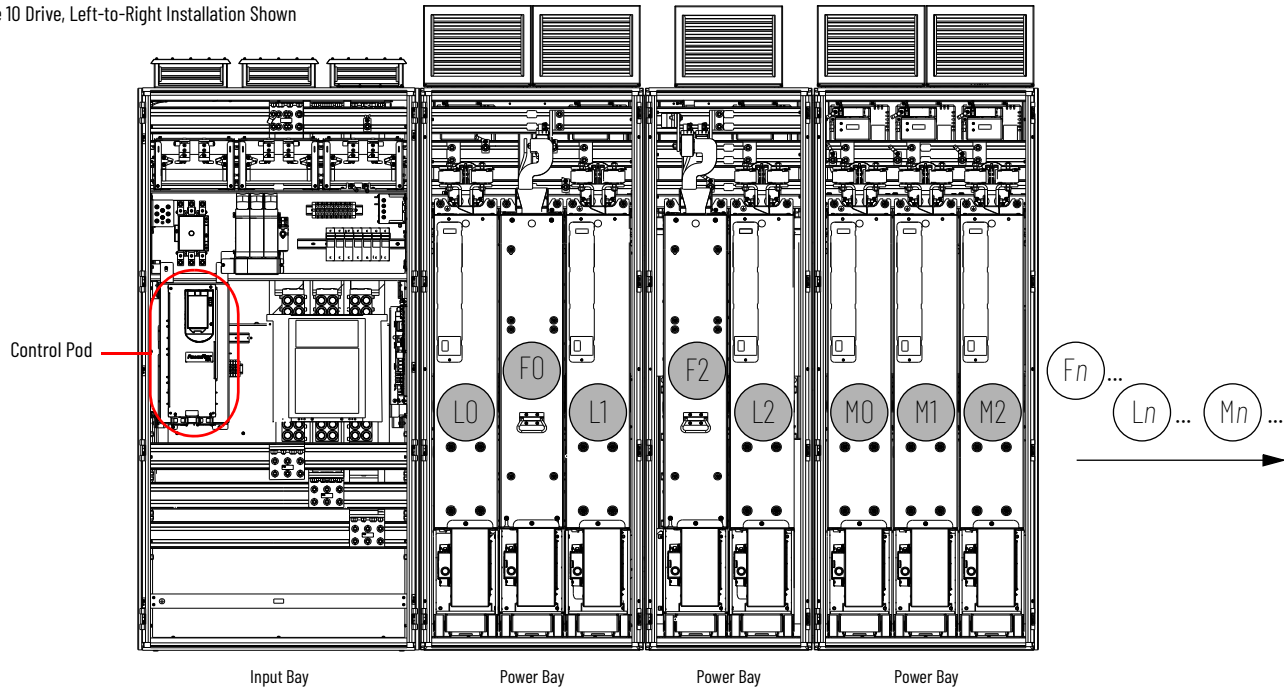
Line side converter power modules are designated "L." Motor side inverter power modules are designated "M." Power modules are numbered 0...9 based on the installation position relative to the control pod when it is installed in a control bay or input bay, as shown in this example. The power module closest to the control pod is numbered "0." For example, in this illustration the line side converter power module closest to the control pod is designated "L0."

LCL filter modules are designated "F." LCL filter modules are numbered based on the position of the lowest numbered line side converter power module to which the LCL filter module fiber-optic cable is connected. For example, in this illustration the first LCL filter module fiber-optic cable is connected to both power modules L0 and L1. Therefore, the first LCL filter module is designated "F0."

Module designation labels are provided with all control pod kits. Depending on the date of the control pod purchase, the labels for LCL filter module are either LCLn or Fn. See the LCL Filter Module Labels for Frame Size table for a list of LCL filter module labels.

LCL Filter and Power Module Designations Example

Frame 10 Drive, Left-to-Right Installation Shown

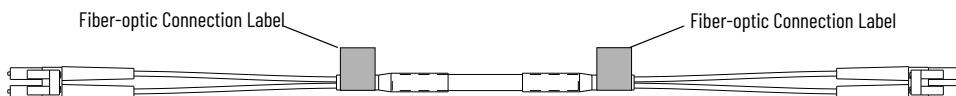


LCL Filter Module Labels for Frame Size

Frame Size								
7 and 7L	8	9	10	11	12	13	14	15
LCL0 or F0	LCL0 or F0	LCL0 or F0	LCL0 or F0	LCL0 or F0	LCL0 or F0	LCL0 or F0	LCL0 or F0	LCL0 or F0
-	-	-	LCL1 or F2	LCL1 or F2	LCL1 or F2	LCL1 or F2	LCL1 or F2	LCL1 or F2
-	-	-	-	-	LCL2 or F4	LCL2 or F3	LCL2 or F4	LCL2 or F4
-	-	-	-	-	-	LCL3 or F5	LCL3 or F6	LCL3 or F5
-	-	-	-	-	-	-	-	LCL4 or F7
-	-	-	-	-	-	-	-	LCL5 or F9

Fiber-optic Cable Label Installation

Each IP00 control pod kit includes two sheets of adhesive labels: one for regenerative drives and bus supplies and one for common bus inverters. The labels on these sheets correspond to the required fiber-optic connections between the fiber transceiver boards and circuit boards on the specific modules in the system. It is recommended that you apply these labels to the interconnecting fiber-optic cables (as shown here) to help identify and troubleshoot connections. See Module Designations for Fiber-optic Connections on page 189 for label designation details.



Module Designations for Fiber-optic Connections

An alpha or alpha-numeric designator is used to identify the IP00 modules that have a fiber-optic connection to a fiber transceiver circuit board or circuit board in another system module. The designators correspond to the fiber-optic ports on the transceiver circuit boards that the module must be connected to in the control pod or port in another system module. This table identifies the designator and labels for each module and fiber-optic connection in the system. 'n' in the table indicates the sequential number of the module based on its location relative to the control pod. See LCL Filter and Power Module Position Designations on page 188 for an explanation of how LCL filter and power modules are identified.

Module Fiber-optic Connection Labels

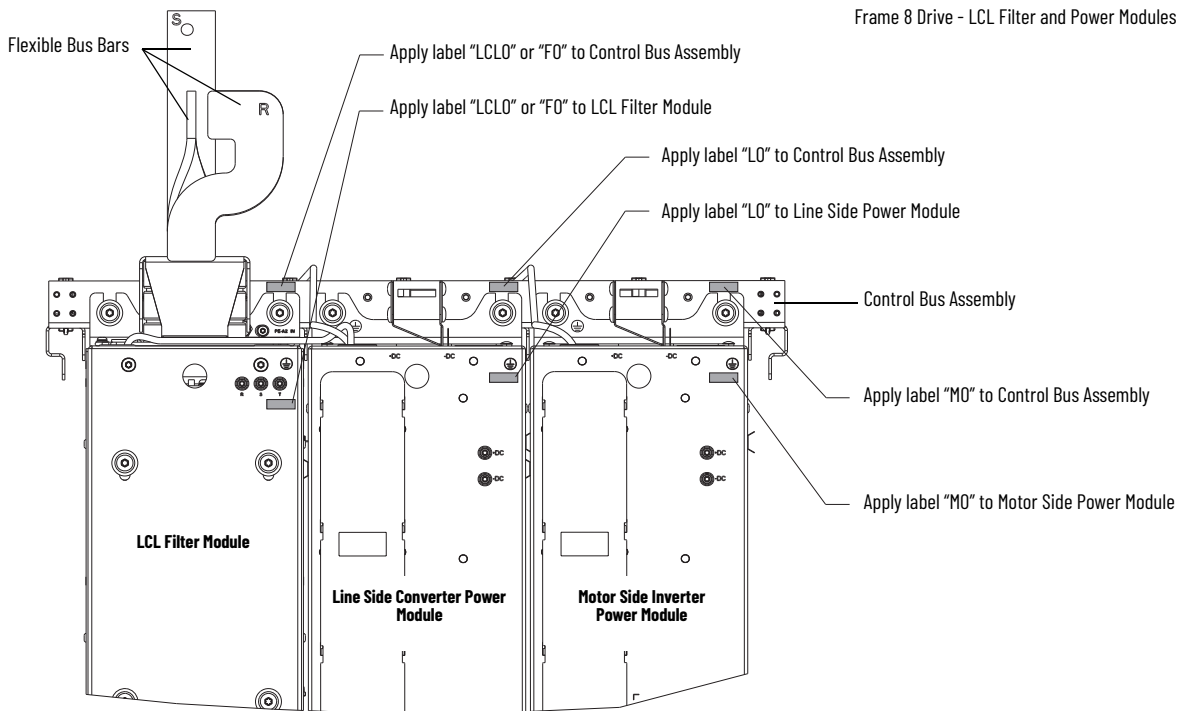
Module	Module Designator	From		To	
		Circuit Board	Port Label	Module / Circuit Board	Port Label
LCL Filter Module	LCLn or Fn	Current Sense Board (internal to the module) ⁽¹⁾	LCLn	Line-side Converter Power Module / Power Layer Interface Board	Ln-PDI
Line-side Converter Power Module	Ln	Power Layer Interface Board	Ln-CTL	Control Pod / Fiber Transceiver Board	POD-Ln
Motor-side Inverter Power Module	Mn	Power Layer Interface Board	Mn-CTL	Control Pod / Fiber Transceiver Board	POD-Mn, or PODn-Mn ⁽²⁾
AC Precharge Module	ACPn	AC Precharge Circuit Board	ACP	Control Pod / Fiber Transceiver Board	POD-ACPn
Torque Accuracy Module	TAM	Torque Accuracy Board	TAM	Control Pod / Fiber Transceiver Board	POD-TAM
DC Precharge Module	DCP	DC Precharge Board (internal to the module) ⁽¹⁾	DCP	Motor-side Inverter Power Module / Power Layer Interface Board	Mn-PDI

(1) The fiber-optic cable is provided with the module and does not require a customer-applied label.

(2) Up to two control pods can be installed in a control bay when used with a Common Bus Inverter. The upper installed pod is POD1. The lower installed pod is POD2.

LCL Filter and Power Module Label Placement Example

Frame 8 Drive - LCL Filter and Power Modules Shown



Fiber-optic Cables

Fiber-optic cables must be sourced separately from IP00 modules and components. The tables in this section contain the required quantity of fiber-optic cables by length for each frame size, PowerFlex 755T product, and module. Fiber-optic kits lengths are sized to match the specific module placement and cable routing in the control bus assemblies used in Rockwell Automation factory-built PowerFlex 755T products. If the interconnecting modules are not installed in Rittal TS8 enclosures and per the placement that is identified in this manual, different fiber-optic lengths can be required for your installation.

Fiber-optic Cable Kits

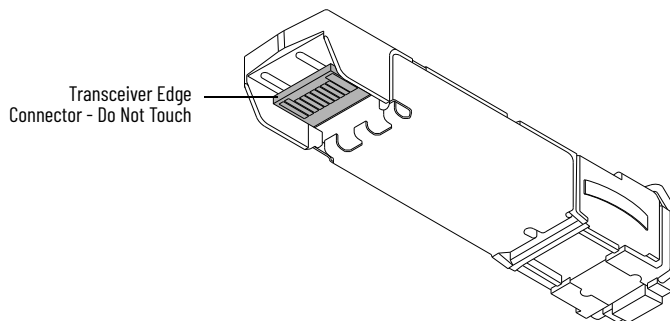
Each fiber optic cable kit listed in the Fiber-optic Cable Kit Lengths table contains a fiber optic cable and two transceivers.

IMPORTANT The edge connector in the fiber-optic transceiver with XT contains dielectric grease. Do not touch or allow the grease on the edge connector to become contaminated with any form of debris or particulate matter. Debris or particulate matter on a greased connector can lead to premature failure of the transceiver. See Dielectric Grease Application in the PowerFlex 750-Series Products with TotalFORCE™ Control Hardware Service Manual, publication [750-TG100](#), for details.

Fiber-optic Cable Kit Lengths

Catalog Number	Length [mm (in.)]
20-750-MFOC-1K3 ⁽¹⁾	1300 (51)
20-750-MFOC-1K5 ⁽²⁾	1500 (59)
20-750-MFOC-2K0	2000 (79)
20-750-MFOC-2K2	2200 (87)
20-750-MFOC-2K7	2700 (106)
20-750-MFOC-3K2	3200 (126)
20-750-MFOC-4K0	4000 (157)
20-750-MFOC-4K6	4600 (181)
20-750-MFOC-5K4	5400 (213)
20-750-MFOC-6K0	6000 (236)
20-750-MFOC-6K8	6800 (268)
20-750-MFOC-7K4	7400 (291)
20-750-MFOC-7K8	7800 (307)
20-750-MFOC-8K3	8300 (327)

- (1) Included with frames 8...15 LCL filter module for connection to the adjoining converter power module.
- (2) Included with frame 7 and 7L, LCL filter module for connection to the converter power module.



Customer-source Fiber-optic Cables

Customer-sourced fiber-optic cables must meet the specifications that are listed in this table.

Fiber-optic Cable Specifications

Category	Specification
Type	Duplex multimode LC-LC
Fiber type	62.5/125 micrometers
Number of fibers	2
Core diameter	62.5 ± 2.0 micrometers
Outer jacket	Core-locked polyurethane
Operating temperature	-55...+85 °C (-67...+185 °F)
Strain relief boots	Straight

These tables provide the quantity of each fiber-optic kit and cable length required for each equivalent frame size and product.

Frame 7 and 7L Regenerative and Low Harmonic Drive

Connection	Cat. No. / Cable Length [mm (in.)]	
	20-750-MFOC-2K0	20-750-MFOC-2K2
	2000 (79)	2200 (87)
AC Precharge Control Board to Control Pod (ACPO)	–	1
Line Side Converter Power Module to Control Pod (LO)	1	–
Motor Side Inverter Power Module to Control Pod (MO)	1	–
Torque Accuracy Module to Control Pod (TAM - Optional)	–	1

Frame 7 Regenerative Bus Supply

Connection	Cat. No. / Cable Length [mm (in.)]	
	20-750-MFOC-2K0	20-750-MFOC-2K2
	2000 (79)	2200 (87)
AC Precharge Control Board to Control Pod (ACPO)	–	1
Line Side Converter Power Module to Control Pod (LO)	1	–

Frame 8 Regenerative and Low Harmonic Drive, Left-to-Right Orientation

Connection	Cat. No. / Cable Length [mm (in.)]		
	20-750-MFOC-1K5	20-750-MFOC-2K2	20-750-MFOC-3K2
	1500 (59)	2200 (87)	3200 (126)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–
Power Module to Control Pod (LO, MO)	–	2	–
Torque Accuracy Module to Control Pod (TAM - Optional)	–	–	1

Frame 8 Regenerative and Low Harmonic Drive, Right-to-Left Orientation

Connection	Cat. No. / Cable Length [mm (in.)]	
	20-750-MFOC-1K5	20-750-MFOC-3K2
	1500 (59)	3200 (126)
AC Precharge Control Board to Control Pod (ACPO)	1	–
Power Module to Control Pod (LO, MO)	–	2
Torque Accuracy Module to Control Pod (TAM - Optional)	–	1

Frame 8 Regenerative Bus Supply, Left-to-Right Orientation

Connection	Cat. No. / Cable Length [mm (in.)]	
	20-750-MFOC-1K5	20-750-MFOC-2K0
	1500 (59)	2000 (79)
AC Precharge Control Board to Control Pod (ACPO)	1	–
Power Module to Control Pod (LO)	–	1

Frame 8 Regenerative Bus Supply, Right-to-Left Orientation

Connection	Cat. No. / Cable Length [mm (in.)]	
	20-750-MFOC-1K5	20-750-MFOC-3K2
	1500 (59)	3200 (126)
AC Precharge Control Board to Control Pod (ACPO)	1	–
Power Module to Control Pod (LO)	–	1

Frame 8 Common Bus Inverter

Connection	Cat. No. / Cable Length [mm (in.)]	
	20-750-MFOC-2K2	20-750-MFOC-3K2
	2200 (87)	3200 (126)
Power Module to First Control Pod - Upper Location (M0)	1	–
Power Module to Second Control Pod - Lower Location (M0)	–	1
Torque Accuracy Module to First Control Pod - Upper Location (TAM - Optional)	1	–
Torque Accuracy Module to Second Control Pod - Lower Location (TAM - Optional)	–	1

Frame 9 Regenerative and Low Harmonic Drive, Left-to-Right Orientation

Connection	Cat. No. / Cable Length [mm (in.)]			
	20-750-MFOC-1K5	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0
	1500 (59)	2200 (87)	3200 (126)	4000 (157)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–
Power Module to Control Pod (L0, L1, M0, M1)	–	1	3	–
Torque Accuracy Module to Control Pod (TAM - Optional)	–	–	–	1

Frame 9 Regenerative and Low Harmonic Drive, Right-to-Left Orientation

Connection	Cat. No. / Cable Length [mm (in.)]			
	20-750-MFOC-1K5	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4
	1500 (59)	3200 (126)	4000 (157)	5400 (213)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–
Power Module to Control Pod (L0, L1, M0, M1)	–	1	2	1
Torque Accuracy Module to Control Pod (TAM - Optional)	–	–	1	–

Frame 9 Regenerative Bus Supply, Left-to-Right Orientation

Connection	Cat. No. / Cable Length [mm (in.)]		
	20-750-MFOC-1K5	20-750-MFOC-2K2	20-750-MFOC-3K2
	1500 (59)	2200 (87)	3200 (126)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–
Power Module to Control Pod (L0, L1)	–	1	1

Frame 9 Regenerative Bus Supply, Right-to-Left Orientation

Connection	Cat. No. / Cable Length [mm (in.)]		
	20-750-MFOC-1K5	20-750-MFOC-3K2	20-750-MFOC-4K0
	1500 (59)	3200 (126)	4000 (157)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–
Power Module to Control Pod (L0, L1)	–	1	1

Frame 9 Common Bus Inverter

Connection	Cat. No. / Cable Length [mm (in.)]	
	20-750-MFOC-2K2	20-750-MFOC-3K2
	2200 (87)	3200 (126)
Power Module to First Control Pod - Upper Location (M0, M1)	2	–
Power Module to Second Control Pod - Lower Location (M0, M1)	–	2
Torque Accuracy Module to First Control Pod - Upper Location (TAM - Optional)	–	1
Torque Accuracy Module to Second Control Pod - Lower Location (TAM - Optional)	–	1

Frame 10 Regenerative and Low Harmonic Drive, Left-to-Right Orientation

Connection	Cat. No. / Cable Length [mm (in.)]				
	20-750-MFOC-1K5	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4
	1500 (59)	2200 (87)	3200 (126)	4000 (157)	5400 (213)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–
Power Module to Control Pod (L0...L2, M0...M2)	–	1	1	3	1
Torque Accuracy Module to Control Pod (TAM - Optional)	–	–	–	–	1

Frame 10 Regenerative and Low Harmonic Drive, Right-to-Left Orientation

Connection	Cat. No. / Cable Length [mm (in.)]					
	20-750-MFOC-1K5	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4
	1500 (59)	2000 (79)	2200 (87)	3200 (126)	4000 (157)	5400 (213)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–
Power Module to Control Pod (L0...L2, M0...M2)	–	1	1	2	2	–
Torque Accuracy Module to Control Pod (TAM - Optional)	–	–	–	–	–	1

Frame 10 Regenerative Bus Supply, Left-to-Right Orientation

Connection	Cat. No. / Cable Length [mm (in.)]			
	20-750-MFOC-1K5	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0
	1500 (59)	2200 (87)	3200 (126)	4000 (157)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–
Power Module to Control Pod (L0...L2)	–	1	1	1

Frame 10 Regenerative Bus Supply, Right-to-Left Orientation

Frame	Cat. No. / Cable Length [mm (in.)]			
	20-750-MFOC-1K5	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-3K2
	1500 (59)	2000 (79)	2200 (87)	3200 (126)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–
Power Module to Control Pod (L0...L2)	–	1	1	1

Frame 10 Common Bus Inverter

Connection	Cat. No. / Cable Length [mm (in.)]		
	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0
	2200 (87)	3200 (126)	4000 (157)
Power Module to First Control Pod - Upper Location (MO...M2)	3	–	–
Power Module to Second Control Pod - Lower Location (MO...M2)	–	2	1
Torque Accuracy Module to First Control Pod - Upper Location (TAM - Optional)	–	1	–
Torque Accuracy Module to Second Control Pod - Lower Location (TAM - Optional)	–	1	–

Frame 11 Regenerative and Low Harmonic Drive, Left-to-Right Orientation

Connection	Cat. No. / Cable Length [mm (in.)]					
	20-750-MFOC-1K5	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4	20-750-MFOC-6K0
	1500 (59)	2200 (87)	3200 (126)	4000 (157)	5400 (213)	6000 (236)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–
Power Module to Control Pod (LO...L3, MO...M3)	–	1	1	4	2	–
Torque Accuracy Module to Control Pod (TAM - Optional)	–	–	–	–	–	1

Frame 11 Regenerative and Low Harmonic Drive, Right-to-Left Orientation

Connection	Cat. No. / Cable Length Usage, [mm (in.)]						
	20-750-MFOC-1K5	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4	20-750-MFOC-6K0
	1500 (59)	2000 (79)	2200 (87)	3200 (126)	4000 (157)	5400 (213)	6000 (236)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–	–
Power Module to Control Pod (LO...L3, MO...M3)	–	1	1	1	3	2	–
Torque Accuracy Module to Control Pod (TAM - Optional)	–	–	–	–	–	–	1

Frame 11 Regenerative Bus Supply, Left-to-Right Orientation

Connection	Cat. No. / Cable Length Usage, [mm (in.)]			
	20-750-MFOC-1K5	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0
	1500 (59)	2200 (87)	3200 (126)	4000 (157)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–
Power Module to Control Pod (LO...L3)	–	1	1	2

Frame 11 Regenerative Bus Supply, Right-to-Left Orientation

Connection	Cat. No. / Cable Length Usage, [mm (in.)]				
	20-750-MFOC-1K5	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0
	1500 (59)	2000 (79)	2200 (87)	3200 (126)	4000 (157)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–
Power Module to Control Pod (LO...L3)	–	1	1	1	1

Frame 11 Common Bus Inverter

Connection	Cat. No. / Cable Length Usage, [mm (in.)]		
	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0
	2200 (87)	3200 (126)	4000 (157)
Power Module to First Control Pod - Upper Location (MO...M3)	2	2	–
Power Module to Second Control Pod - Lower Location (MO...M3)	–	2	2
Torque Accuracy Module to First Control Pod - Upper Location (TAM - Optional)	–	–	1
Torque Accuracy Module to Second Control Pod - Lower Location (TAM - Optional)	–	–	1

Frame 12 Regenerative and Low Harmonic Drive, Left-to-Right Orientation

Connection	Cat. No. / Cable Length Usage, [mm (in.)]							
	20-750-MFOC-1K5	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4	20-750-MFOC-6K0	20-750-MFOC-6K8	
	1500 (59)	2200 (87)	3200 (126)	4000 (157)	5400 (213)	6000 (236)	6800 (268)	
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–	–	
Power Module to Control Pod (LO...L4, MO...M4)	–	1	1	2	3	3	–	
Torque Accuracy Module to Control Pod (TAM - Optional)	–	–	–	–	–	–	1	

Frame 12 Regenerative and Low Harmonic Drive, Right-to-Left Orientation

Connection	Cat. No. / Cable Length Usage, [mm (in.)]							
	20-750-MFOC-1K5	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4	20-750-MFOC-6K8	
	1500 (59)	2000 (79)	2200 (87)	3200 (126)	4000 (157)	5400 (213)	6800 (268)	
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–	–	
Power Module to Control Pod (LO...L4, MO...M4)	–	1	1	1	2	5	–	
Torque Accuracy Module to Control Pod (TAM - Optional)	–	–	–	–	–	–	1	

Frame 12 Regenerative Bus Supply, Left-to-Right Orientation

Connection	Cat. No. / Cable Length Usage, [mm (in.)]				
	20-750-MFOC-1K5	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4
	1500 (59)	2200 (87)	3200 (126)	4000 (157)	5400 (213)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–
Power Module to Control Pod (LO...L4)	–	1	1	2	1

Frame 12 Regenerative Bus Supply, Right-to-Left Orientation

Connection	Cat. No. / Cable Length Usage, [mm (in.)]				
	20-750-MFOC-1K5	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0
	1500 (59)	2000 (79)	2200 (87)	3200 (126)	4000 (157)
AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–
Power Module to Control Pod (LO...L4)	–	1	1	1	2

Frame 12 Common Bus Inverter

Connection	Cat. No. / Cable Length Usage, [mm (in.)]		
	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0
	2200 (87)	3200 (126)	4000 (157)
Power Module to First Control Pod - Upper Location (MO...M4)	3	2	–
Power Module to Second Control Pod - Lower Location (MO...M4)	–	2	3
Torque Accuracy Module to First Control Pod - Upper Location (TAM - Optional)	–	–	1
Torque Accuracy Module to Second Control Pod - Lower Location (TAM - Optional)	–	–	1

Frame 13 Regenerative and Low Harmonic Drive, Back-to-Back Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]									
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-2K7	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-4K6	20-750-MFOC-5K4	20-750-MFOC-6K0	20-750-MFOC-6K8	
	2000 (79)	2200 (87)	2700 (106)	3200 (126)	4000 (157)	4600 (181)	5400 (213)	6000 (236)	6800 (268)	
First AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–	–	–	–	
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	1	–	–	–	–	–	–	
Power Module to Control Pod (L0...L5, MO...M5)	–	1	–	1	3	2	3	1	1	

Frame 13 Regenerative and Low Harmonic Drive, In-Line Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]							
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4	20-750-MFOC-6K0	20-750-MFOC-6K8	
	2000 (79)	2200 (87)	3200 (126)	4000 (157)	5400 (213)	6000 (236)	6800 (268)	
First AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–	–	
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	–	1	–	–	–	
Power Module to Control Pod (L0...L5, MO...M5)	–	1	1	3	3	1	3	

Frame 13 Regenerative and Low Harmonic Bus Supply, Back-to-Back Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]							
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-2K7	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-4K6	20-750-MFOC-5K4	
	2000 (79)	2200 (87)	2700 (106)	3200 (126)	4000 (157)	4600 (181)	5400 (213)	
First AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–	–	
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	1	–	–	–	–	
Power Module to Control Pod (L0...L5)	–	1	–	1	1	2	1	

Frame 13 Regenerative and Low Harmonic Bus Supply, In-Line Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]						
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4	20-750-MFOC-6K0	
	2000 (79)	2200 (87)	3200 (126)	4000 (157)	5400 (213)	6000 (236)	
First AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–	
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	–	1	–	–	
Power Module to Control Pod (L0...L5)	–	1	1	1	2	1	

Frame 13 Common Bus Inverter, Back-to-Back Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]			
	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-4K6
	2200 (87)	3200 (126)	4000 (157)	4600 (181)
Power Module to Control Pod (MO...M5)	3	–	1	2
Torque Accuracy Module to Control Pod (TAM - Optional)	–	1	–	–

Frame 14 Regenerative and Low Harmonic Drive, Back-to-Back Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]									
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-2K7	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-4K6	20-750-MFOC-5K4	20-750-MFOC-6K0	20-750-MFOC-6K8	
	2000 (79)	2200 (87)	2700 (106)	3200 (126)	4000 (157)	4600 (181)	5400 (213)	6000 (236)	6800 (268)	
First AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–	–	–	–	
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	1	–	–	–	–	–	–	
Power Module to Control Pod (LO...L7, MO...M7)	–	1	–	1	4	2	4	2	2	

Frame 14 Regenerative and Low Harmonic Drive, In-Line Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]									
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4	20-750-MFOC-6K0	20-750-MFOC-6K8	20-750-MFOC-7K4	20-750-MFOC-7K8	
	2000 (79)	2200 (87)	3200 (126)	4000 (157)	5400 (213)	6000 (236)	6800 (268)	7400 (291)	7800 (307)	
First AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–	–	–	–	
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	–	1	–	–	–	–	–	
Power Module to Control Pod (LO...L7, MO...M7)	–	1	1	4	4	1	3	1	1	

Frame 14 Regenerative and Low Harmonic Bus Supply, Back-to-Back Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]							
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-2K7	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-4K6	20-750-MFOC-5K4	
	2000 (79)	2200 (87)	2700 (106)	3200 (126)	4000 (157)	4600 (181)	5400 (213)	
First AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–	–	
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	1	–	–	–	–	
Power Module to Control Pod (LO...L7)	–	1	–	1	2	2	2	

Frame 14 Regenerative and Low Harmonic Bus Supply, In-Line Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]							
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4	20-750-MFOC-6K0	20-750-MFOC-6K8	
	2000 (79)	2200 (87)	3200 (126)	4000 (157)	5400 (213)	6000 (236)	6800 (268)	
First AC Precharge Control Board to Control Pod (ACPO)	1	–	–	–	–	–	–	
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	–	1	–	–	–	
Power Module to Control Pod (LO...L7)	–	1	1	2	2	1	1	

Frame 14 Common Bus Inverter, Back-to-Back Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]				
	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-4K6	20-750-MFOC-5K4
	2200 (87)	3200 (126)	4000 (157)	4600 (181)	5400 (213)
Power Module to Control Pod (MO...M7)	2	2	–	2	2
Torque Accuracy Module to Control Pod (TAM - Optional)	–	–	1	–	–

Frame 15 Regenerative and Low Harmonic Drive, Back-to-Back Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]									
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-2K7	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-4K6	20-750-MFOC-5K4	20-750-MFOC-6K0	20-750-MFOC-6K8	20-750-MFOC-7K4
	2000 (79)	2200 (87)	2700 (106)	3200 (126)	4000 (157)	4600 (181)	5400 (213)	6000 (236)	6800 (268)	7400 (291)
First AC Precharge Control Board to Control Pod (ACP0)	1	–	–	–	–	–	–	–	–	–
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	1	–	–	–	–	–	–	–
Power Module to Control Pod (LO...L9, MO...M9)	–	1	–	1	2	2	5	4	2	3

Frame 15 Regenerative and Low Harmonic Drive, In-Line Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]									
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4	20-750-MFOC-6K0	20-750-MFOC-6K8	20-750-MFOC-7K4	20-750-MFOC-7K8	20-750-MFOC-8K3
	2000 (79)	2200 (87)	3200 (126)	4000 (157)	5400 (213)	6000 (236)	6800 (268)	7400 (291)	7800 (307)	8300 (327)
First AC Precharge Control Board to Control Pod (ACP0)	1	–	–	–	–	–	–	–	–	–
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	–	1	–	–	–	–	–	–
Power Module to Control Pod (LO...L9, MO...M9)	–	1	1	2	5	4	2	2	1	2

Frame 15 Regenerative and Low Harmonic Bus Supply, Back-to-Back Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]							
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-2K7	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-4K6	20-750-MFOC-5K4	20-750-MFOC-6K0
	2000 (79)	2200 (87)	2700 (106)	3200 (126)	4000 (157)	4600 (181)	5400 (213)	6000 (236)
First AC Precharge Control Board to Control Pod (ACP0)	1	–	–	–	–	–	–	–
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	1	–	–	–	–	–
Power Module to Control Pod (LO...L9)	–	1	–	1	2	2	3	1

Frame 15 Regenerative and Low Harmonic Bus Supply, In-Line Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]							
	20-750-MFOC-2K0	20-750-MFOC-2K2	20-750-MFOC-2K7	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-5K4	20-750-MFOC-6K0	20-750-MFOC-6K8
	2000 (79)	2200 (87)	2700 (106)	3200 (126)	4000 (157)	5400 (213)	6000 (236)	6800 (268)
First AC Precharge Control Board to Control Pod (ACP0)	1	–	–	–	–	–	–	–
Second AC Precharge Control Board to Control Pod (ACP1)	–	–	1	–	–	–	–	–
Power Module to Control Pod (LO...L9)	–	1	–	1	2	3	1	2

Frame 15 Common Bus Inverter, Back-to-Back Configuration

Connection	Cat. No. / Cable Length Usage, [mm (in.)]				
	20-750-MFOC-2K2	20-750-MFOC-3K2	20-750-MFOC-4K0	20-750-MFOC-4K6	20-750-MFOC-5K4
	2200 (87)	3200 (126)	4000 (157)	4600 (181)	5400 (213)
Power Module to Control Pod (MO...M9)	3	2	–	2	3
Torque Accuracy Module to Control Pod (TAM - Optional)	–	–	1	–	–

PowerFlex Option Modules

For a complete listing and description of available communication, feedback, I/O, and safety option modules see the PowerFlex 750-Series Products with TotalFORCE Control Technical Data, publication [750-TD100](#).

Control Pod Connection Instructions

Remove the control pod cover to make the following connections to the fiber interface circuit board and main control circuit board. See Control Pod Cover Removal on page 181 for control pod cover removal instructions. For an example of fiber-optic cable routing and support requirements, see page 315.

IMPORTANT



Do not remove protective covers from wire harnesses, circuit board connectors, terminal blocks, and fiber-optic transceivers and ports unless used at the time of installation. For the product to meet the corrosive atmosphere rating, protective covers must remain installed in unused connectors during storage and operation. See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

Fiber Interface and Fiber Transceiver Circuit Board Connections - see Fiber Interface and Fiber Transceiver Circuit Board Connections on page 185 for details. Follow these steps (and illustration) to install the fiber transceiver circuit boards, fiber transceivers, and fiber optic cables.

1. When used, remove the protective cover from the connector on the fiber transceiver circuit board for these ports:
 - ACPO - fiber-optic cable from the AC precharge circuit board (frames 7...15 and 7L)
 - ACPI - fiber-optic cable from the second AC precharge board (frames 13...15)
 - TAM - fiber-optic cable from the torque accuracy module
 - LO...L9 - fiber-optic cable from the line side converters
 - MO...M9 - fiber-optic cable from the motor side inverters

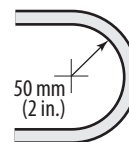
IMPORTANT

The end of the transceiver that connects to the inside of the fiber port contains dielectric grease. Do not touch the end of the transceiver.

2. Remove the protective covers from both ends of the fiber transceiver.

IMPORTANT

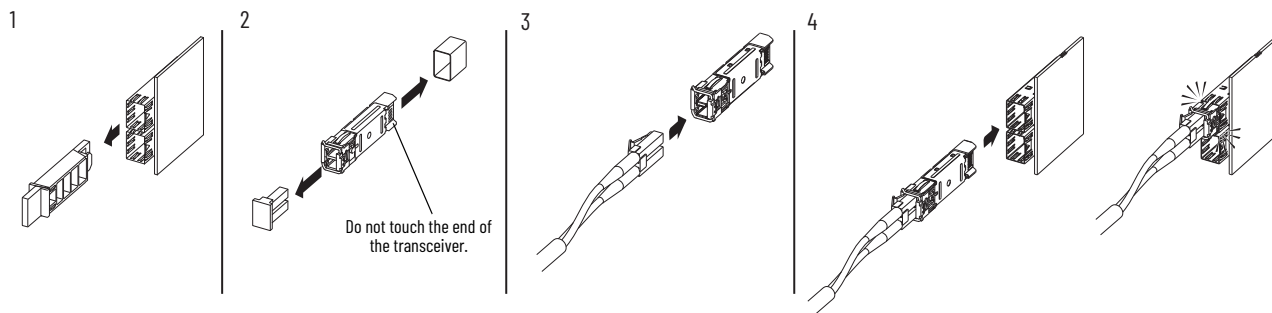
Minimum inside bend radius for fiber-optic cable is 50 mm (2 in.). Any bends with a shorter inside radius can permanently damage the fiber-optic cable. Signal attenuation increases as inside bend radius is decreased.



3. Without bending the cable to a radius less than 50 mm (2 in.), fully insert the fiber-optic cable into a transceiver.
4. Insert the transceiver with fiber-optic cables into the appropriate port on the fiber transceiver circuit board until you hear an audible 'click.'



Retain the transceiver protective covers for reuse.



5. Remove the protective cover from connector J14 on the board.
6. By using the three position P14 terminal block that is supplied with the board, connect the 24V DC power supply to connector J14 on the fiber interface circuit board in the control pod.
7. Remove the protective cover from connector J13 on the board.
8. By using the three position P13 terminal block supplied with the board, connect an optional, 24V DC power supply to connector J13 on the fiber interface circuit board in the control pod.

Main Control Circuit Board Connections - for connection details, see Main Control Circuit Board Connections on page 184.

Remove the protective cover from each of the connections points on the main control board, if used.

- Connect I/O wiring to the main control-board terminal block TB1
- Connect Ethernet cables to the built-in Ethernet ports
- Connect the remote HIM DPI cable to the DPI Port 2 connector

IP00 Kit Installation Instructions

This section contains guidance on the installation for each IP00 kit.

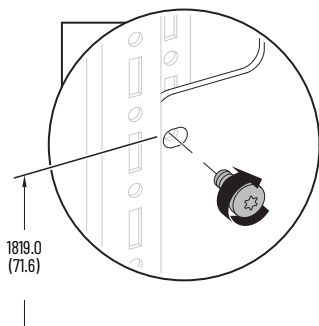
The illustrated kit installation guidelines that are contained in this section use the following conventions:

- All kits are shown installed in the recommended Rittal TS8 enclosures. See Recommended Enclosures on page 39.
- Dimensional references are used, when required, to identify a specific location within an enclosure for kit installation. See Dimensional References for details.
- Hardware installation diagrams are used to identify the fastener type and size, tool type and size, and assembly torque that is used to install a specific kit component. For details, see Hardware Installation Diagrams on page 202.
- Specific numeric and visual conventions are used in the installation illustrations to identify installation sequence, step repetition, part placement, and final assembly torque. For details, see Illustration Conventions on page 202.

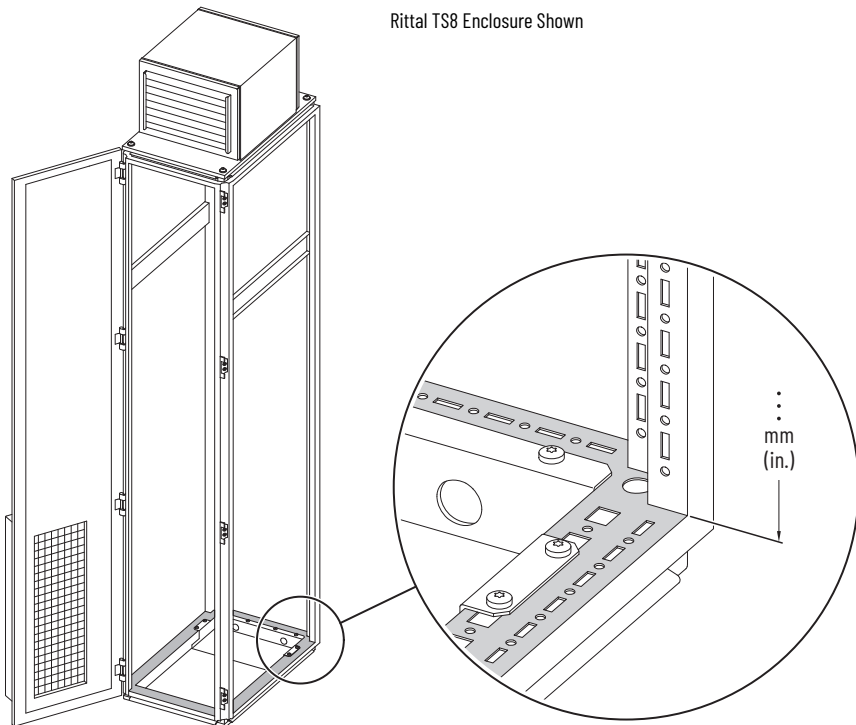
Dimensional References

When a kit is required to be positioned in a specific location within an enclosure, a dimensional reference is included as shown in this example. Dimensions are shown in millimeters and (inches).

Example Dimensional Reference



The dimensional references that are shown in the installation instructions originate from the mounting surface of the enclosure floor, as identified by the shaded area in this illustration.




Hardware Installation Diagrams

The IP00 kit installation illustrations that are found in this section contain diagrams (as shown here) that identify the corresponding sequence number (if necessary), type of fastener, fastener size, tool type and size, and final assembly torque.

Sequence Number

1











Fastener Type

M4 x 16 mm
T20 or F - 6.4 mm (0.25 in.)
1.4 N·m (12 lb·in)

Fastener Size

Final Assembly Torque

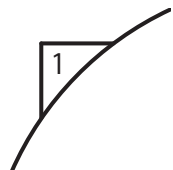
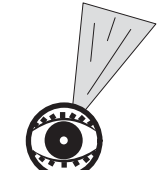

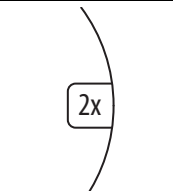

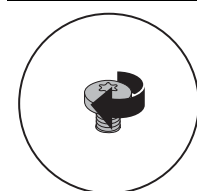
Fastener Type	
	Flat-head screw
	Hexagonal bolt
	Hexagonal nut or standoff
	Hexagonal screw
	Torx screw
	Phillips screw
	Pozidriv screw
	Slotted Torx screw

Fastener Size		Tool Type and Size	
F	Flat-nose screwdriver		
Px	Phillips screwdriver/bit and size		
PZx	Pozidriv screwdriver/bit and size		
Txx	Torx screwdriver/bit and size		
xx mm	Hexagonal socket wrench		

IMPORTANT Observe all final assembly torque specifications as detailed in this manual. Do not reuse damaged fasteners.

Illustration Conventions

The following numeric and visual conventions are used in the IP00 kit installation illustrations throughout this manual:

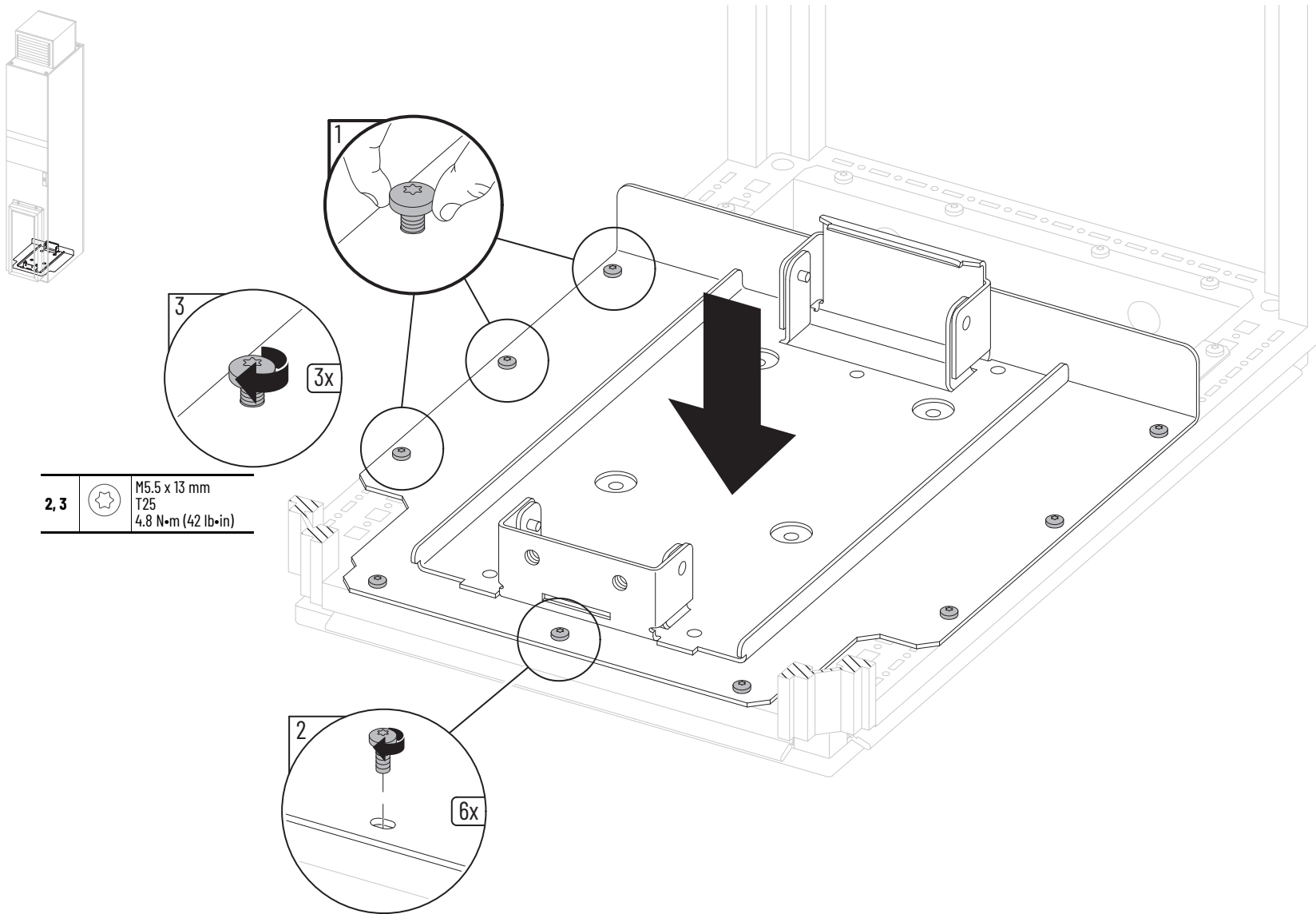
Convention	Description	Convention	Description	Convention	Description
	Installation step number. Step 1 is always shown in a thicker circle.		Identifies where to look for the view shown in the associated step.		Finger tighten only.
	The number of times the <u>step</u> is performed. (This convention does <u>not</u> identify the quantity of hardware.)		Identifies placement of a part or assembly (arrow directions vary).		Apply final assembly torque.




Electrostatic Discharge (ESD) sensitive parts and assemblies are identified in this section by this image. Take static control precautions when you install an assembly that is identified as ESD sensitive.

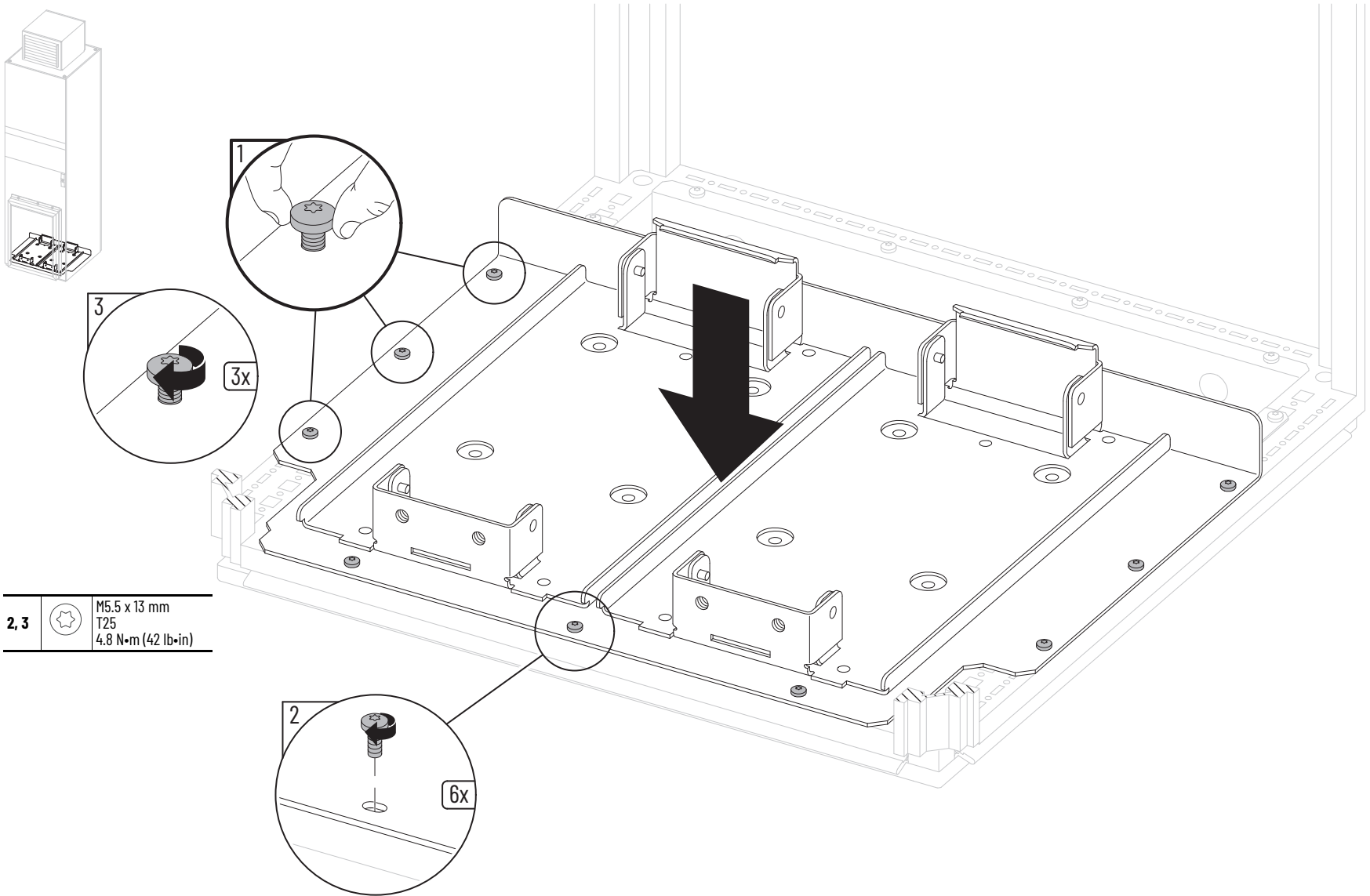
The applicable installation diagrams in this section contain the  icon to help identify kits that contain protective covers.


Kit Cat. No.	Kit Description/Installation
20-750-MMNT1-F8M 20-750-MN-PNL4-NRS	Power and LCL Filter Module Floor Mounting Bracket, 400 mm Wide Power Bay Note: Kit cat. no. 20-750-MN-PNL4-NRS also includes the NRS air seal, test point and N-1 jumper bracket, and power bay upper protective guard. For NRS upper protective guard installation, see page 338 .



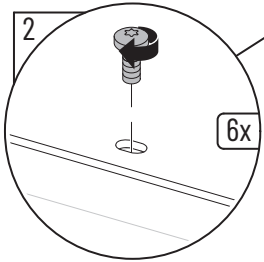
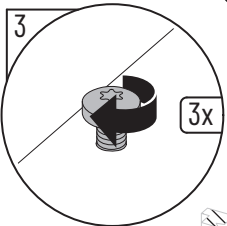
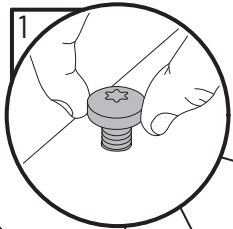
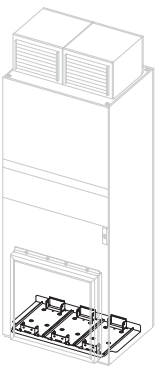
2, 3	 M5.5 x 13 mm T25 4,8 N•m (42 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MMNT1-F9M	Power and LCL Filter Module Floor Mounting Bracket, 600 mm Wide Power Bay

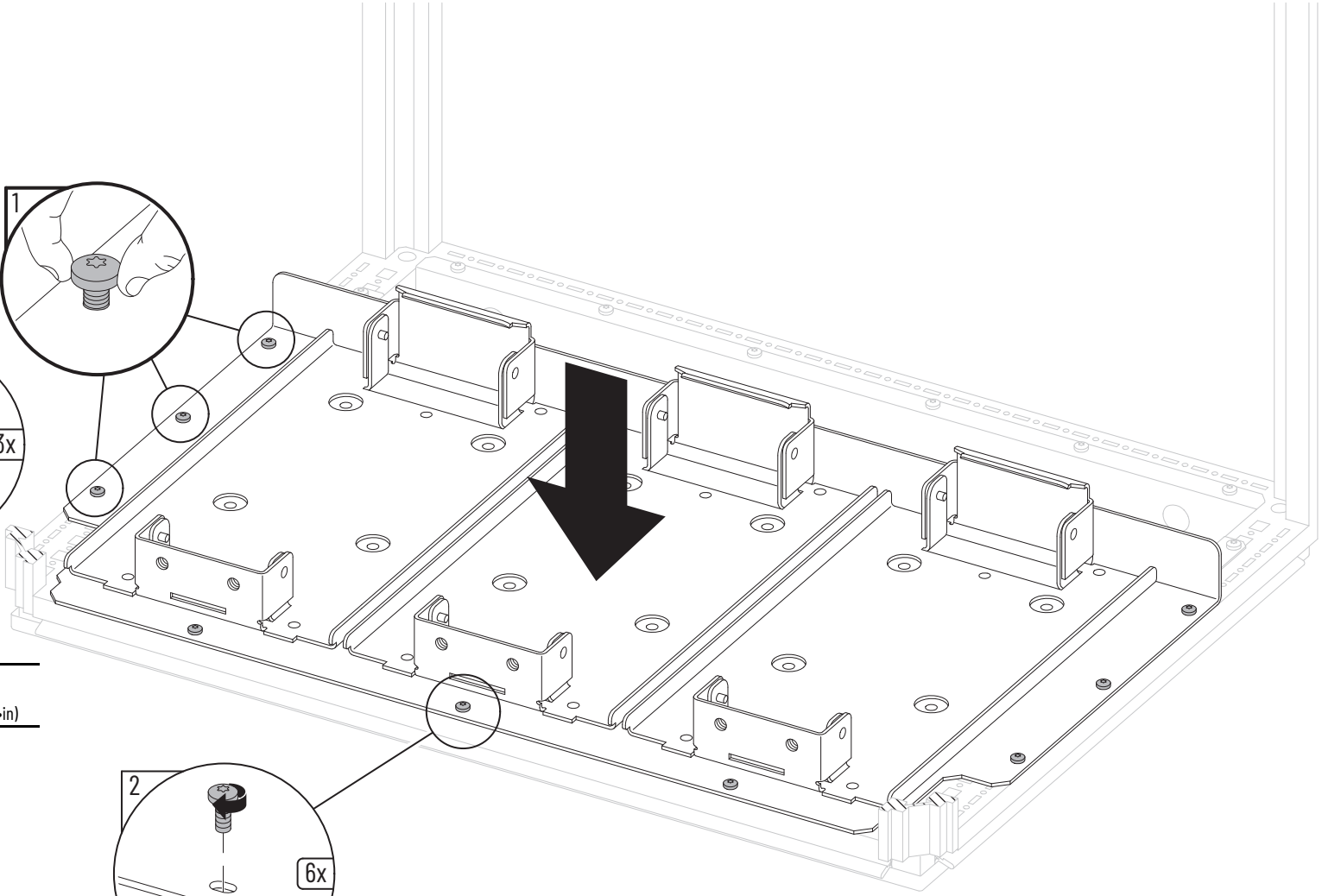


2, 3		M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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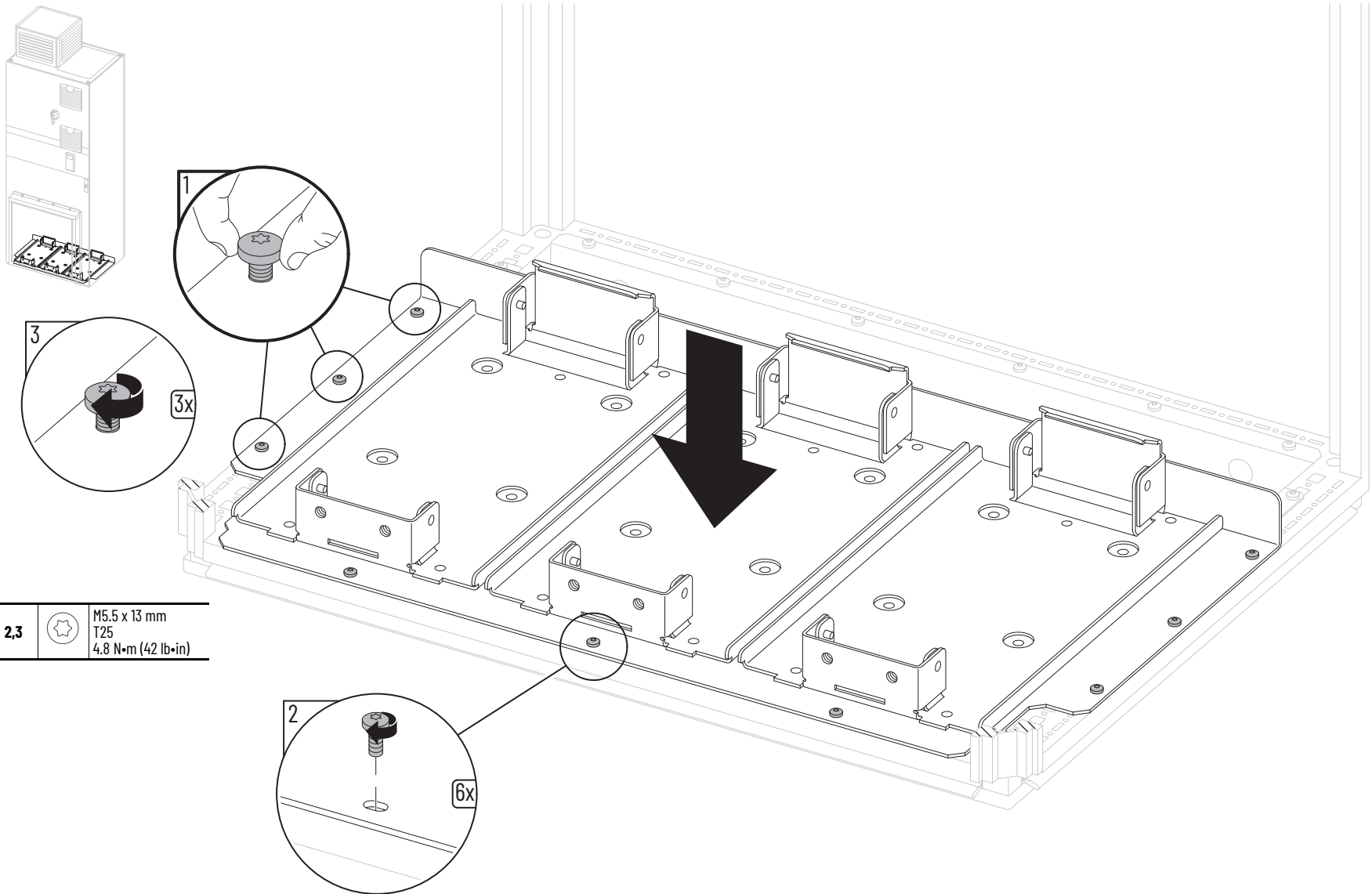
Kit Cat. No.	Kit Description/Installation
20-750-MMNT1-F10M	Power and LCL Filter Module Floor Mounting Bracket, 800 mm Wide Power Bay




2,3		M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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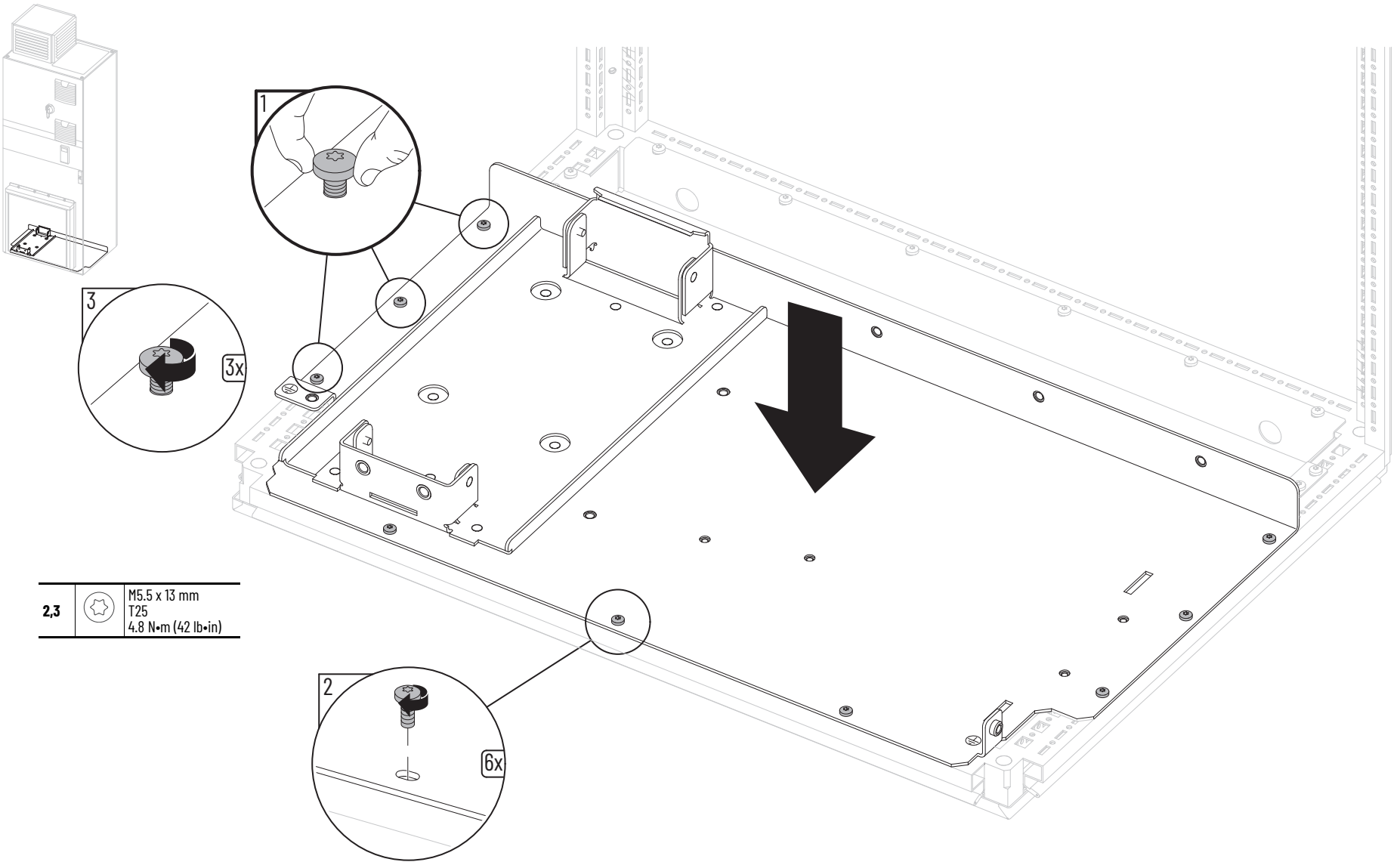



Kit Cat. No.	Kit Description/Installation
20-750-MMNT1-F7M	Power and LCL Filter Module Floor Mounting Bracket, 800 mm Wide Frame 7 Bay. For additional components in this kit, see LCL Filter / Power Module Upper Mounting Bracket, Frame 7 (800 mm) on page 223 .



2,3		M5.5 x 13 mm T25 4.8 N·m (42 lb·in)
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Kit Cat. No.	Kit Description/Installation
20-750-MMNT1-F7L	LCL Filter Module Floor Mounting Bracket, 800 mm Wide Frame 7L Bay. For additional components in this kit, see LCL Filter / Power Module Upper and Lower Mounting Brackets, Frame 7L (800 mm) on page 231 .

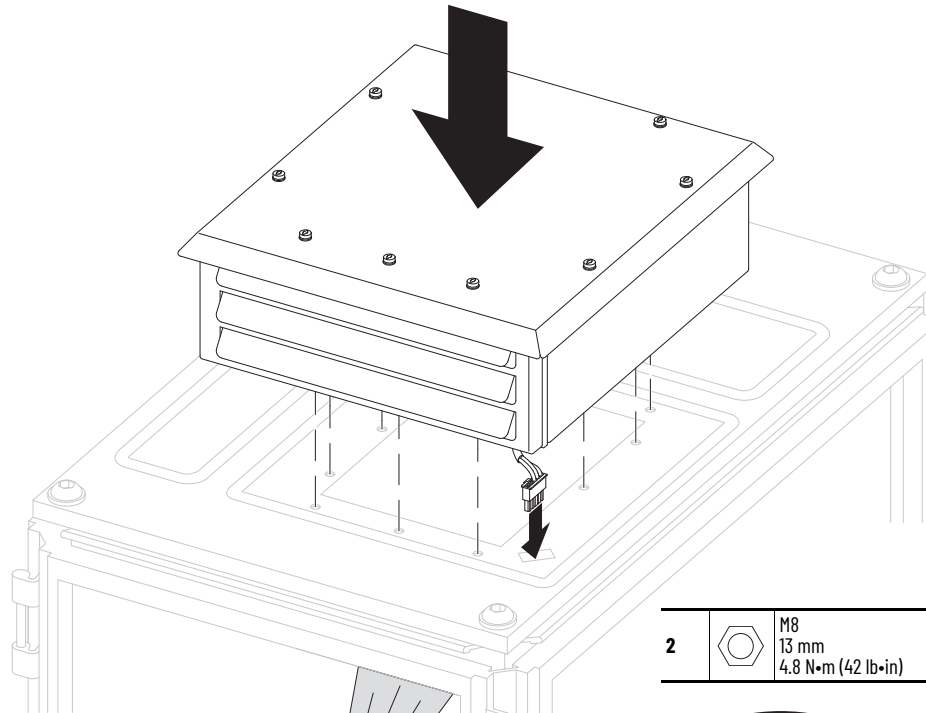


2,3		M5.5 x 13 mm T25 4.8 N·m (42 lb·in)
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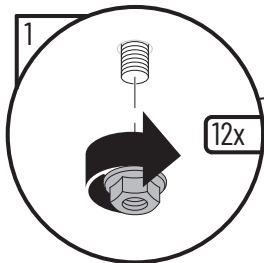
Kit Cat. No.	Kit Description/Installation
20-750-MVENTC2-F8M	IP21, Type 1 and IP54, Type 12, 300 mm Wide Control Bay and 400 mm and 600 mm Wide Input Bay Ventilation

IMPORTANT

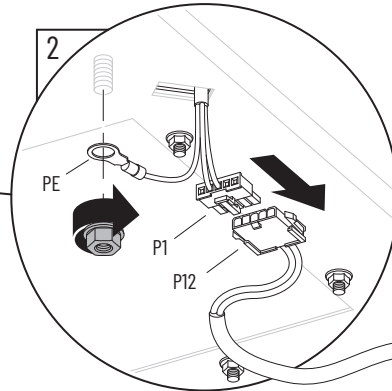
The serrated nuts provided with the kit must be used to provide a ground connection with the enclosure.



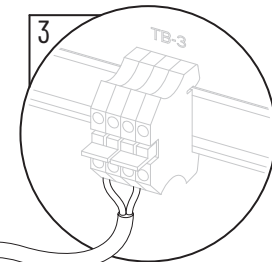
1		M5 8 mm 4.8 N•m (42 lb•in)
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2		M8 13 mm 4.8 N•m (42 lb•in)
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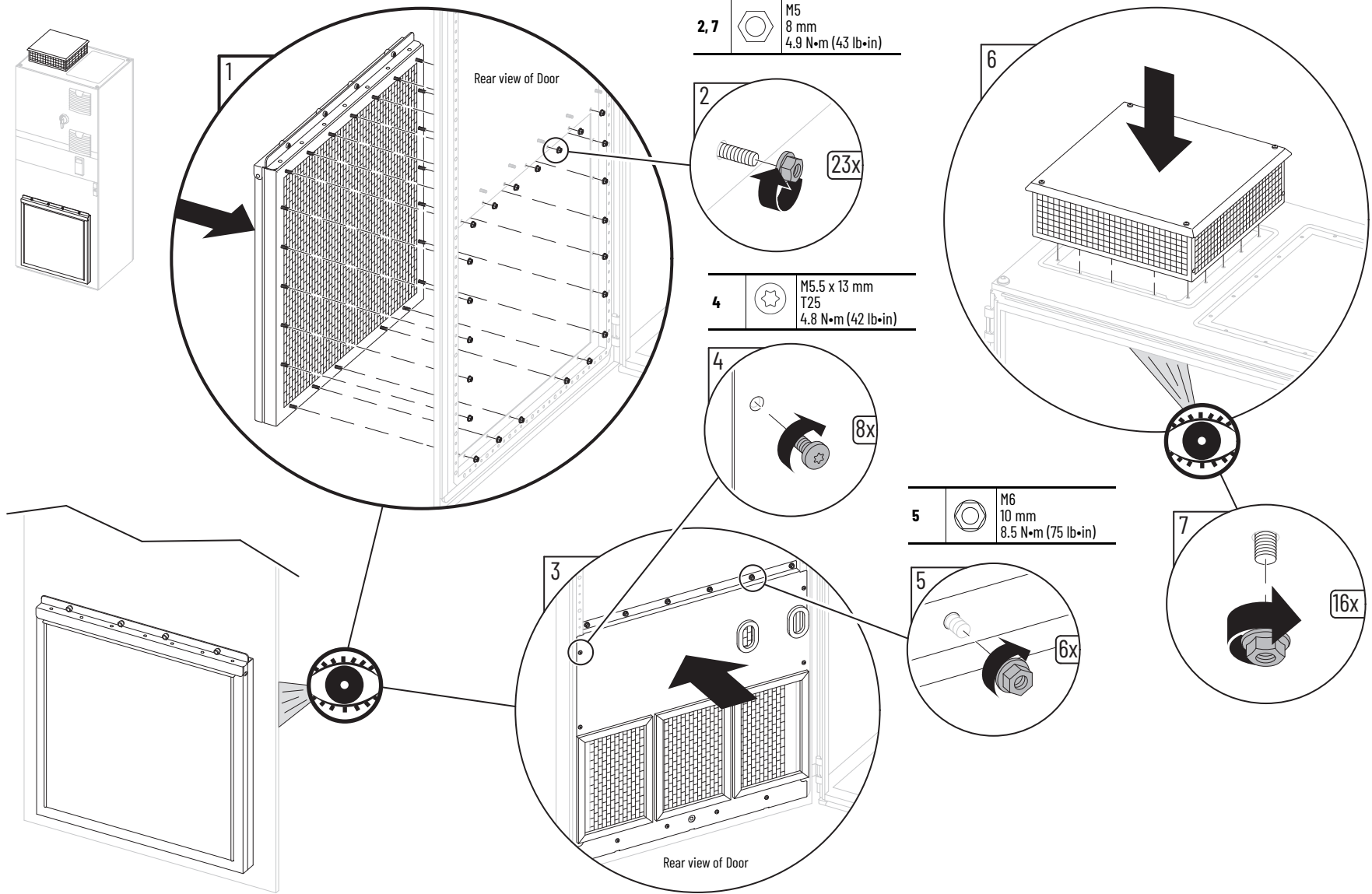


Customer-supplied 240V AC source



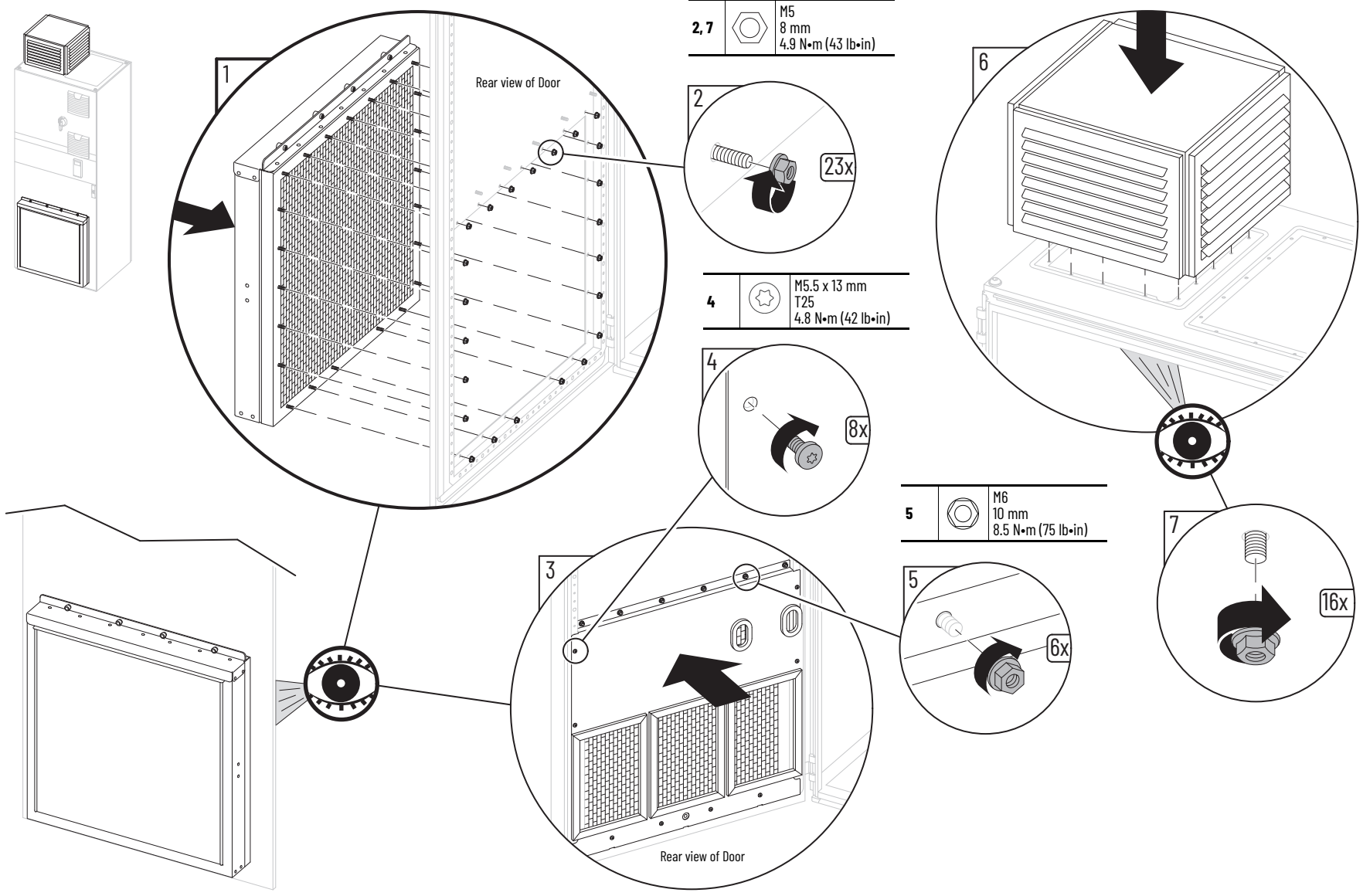
Kit Cat. No.	Kit Description/Installation
20-750-MVENT1-F7M	IP21, Type 1 Frame 7 Ventilation

IMPORTANT The serrated nuts provided with the kit must be used to provide a ground connection with the enclosure.



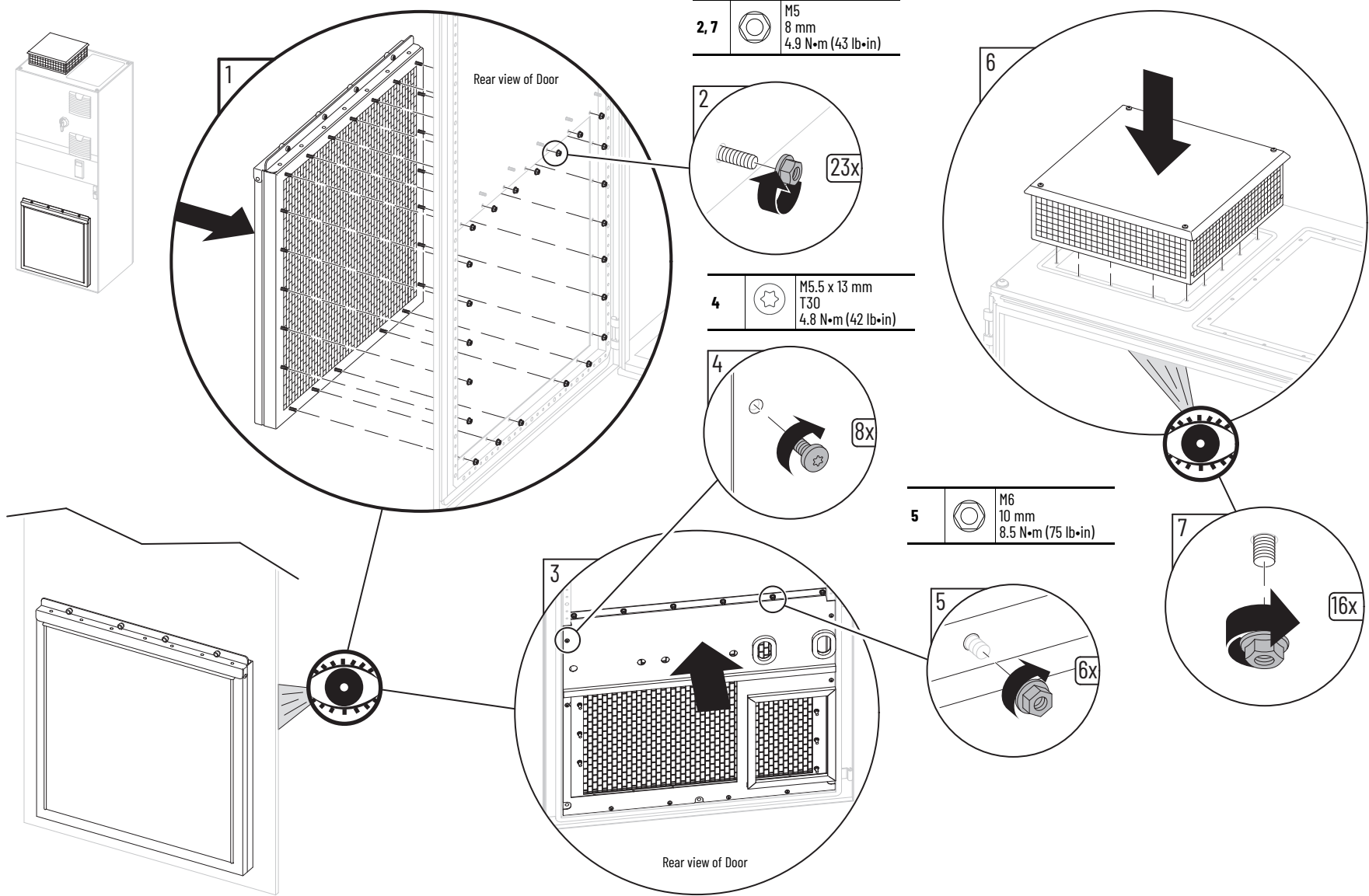
Kit Cat. No.	Kit Description/Installation
20-750-MVENT2-F7M	IP54, Type 12 Frame 7 Ventilation

IMPORTANT The serrated nuts provided with the kit must be used to provide a ground connection with the enclosure.



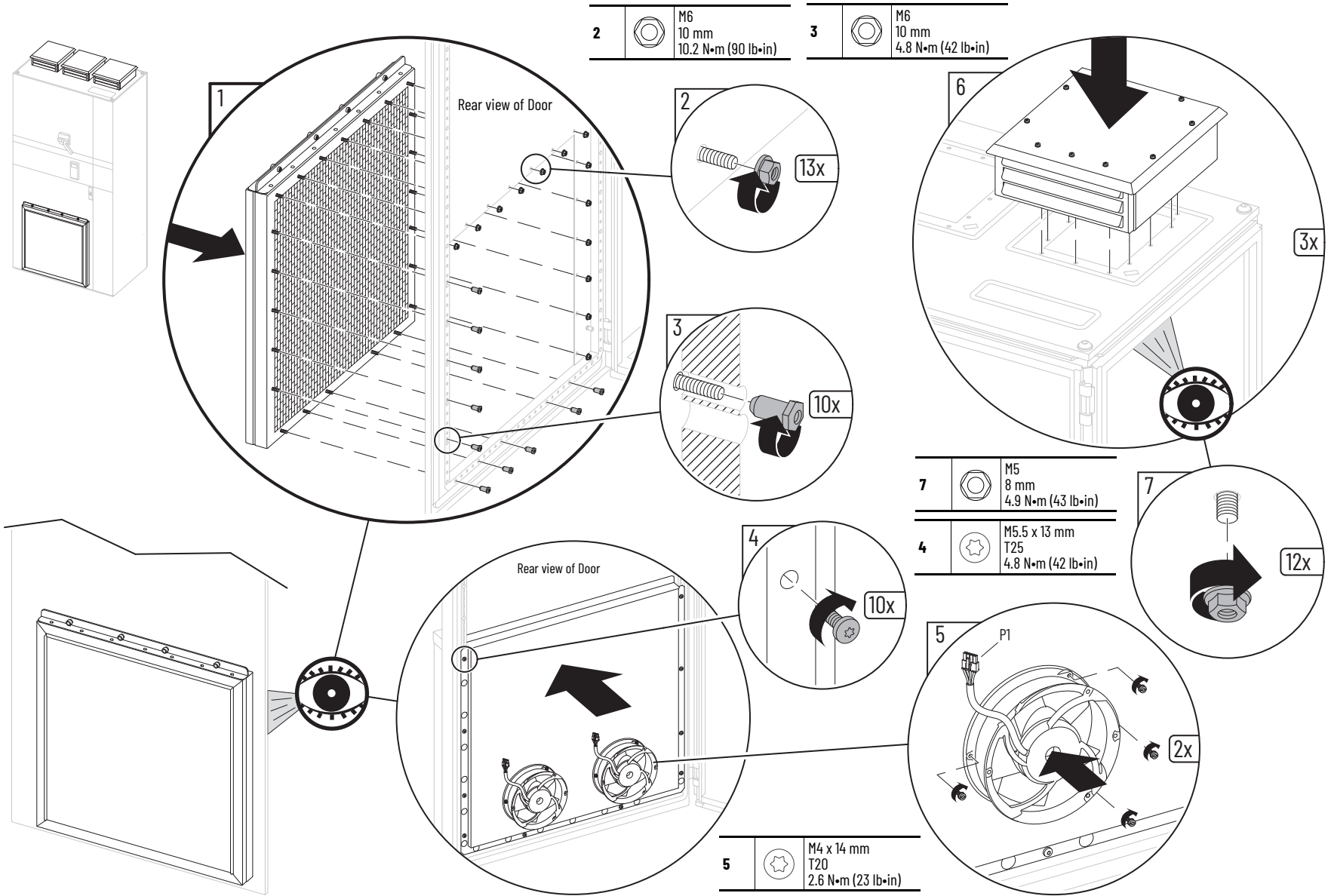
Kit Cat. No.	Kit Description/Installation
20-750-MVENT1-F7L	IP21, Type 1 Frame 7L Ventilation

IMPORTANT The serrated nuts provided with the kit must be used to provide a ground connection with the enclosure.



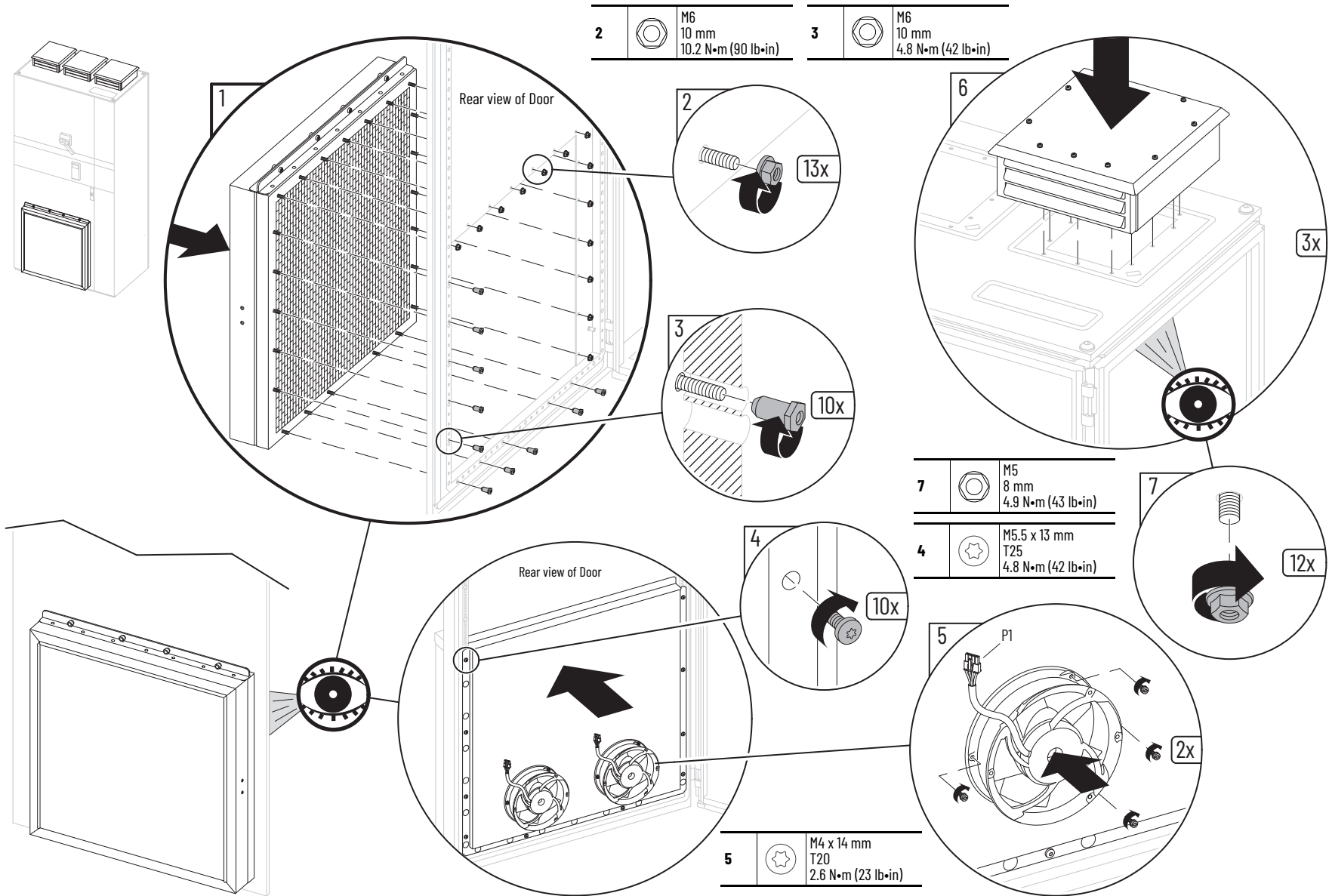
Kit Cat. No.	Kit Description/Installation
20-750-MVENTC1-F11M	IP21, Type 1, 1000 mm Wide Input Bay Ventilation

IMPORTANT The serrated nuts provided with the kit must be used to provide a ground connection with the enclosure.



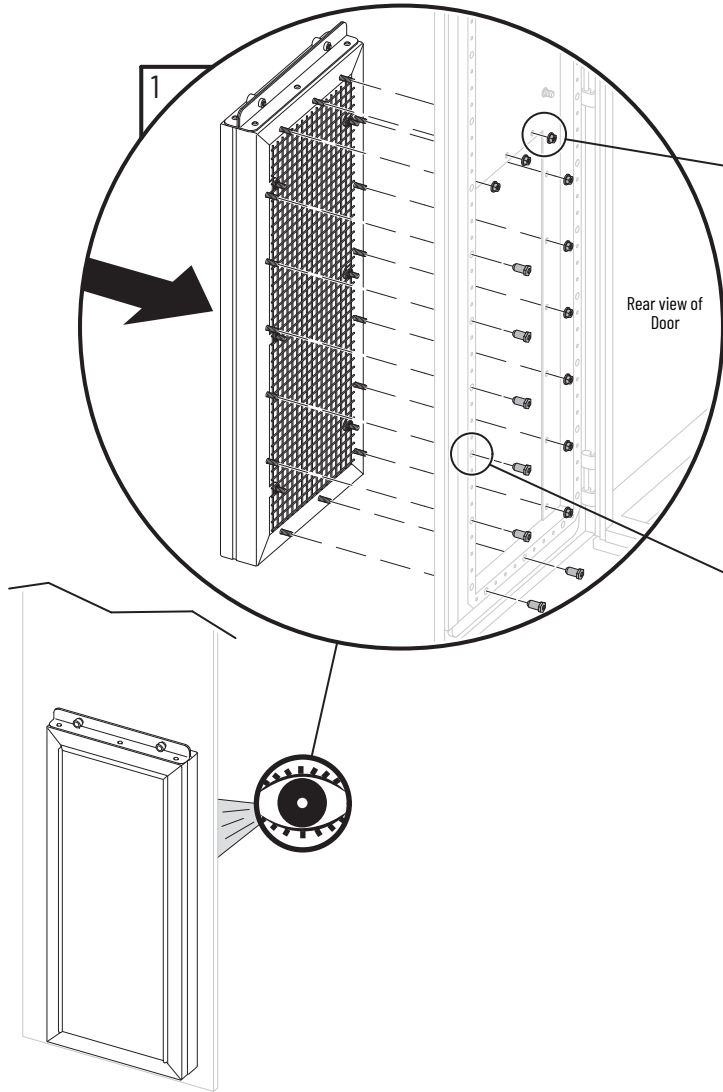
Kit Cat. No.	Kit Description/Installation
20-750-MVENTC2-F11M	IP54, Type 12, 1000 mm Wide Input Bay Ventilation

IMPORTANT The serrated nuts provided with the kit must be used to provide a ground connection with the enclosure.

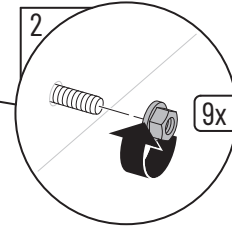


Kit Cat. No.	Kit Description/Installation
20-750-MVENTI-F8M (400 mm) 20-750-MVENTI-F9M (600 mm) 20-750-MVENTI-F10M (800 mm)	IP21, Type 1 Power Bay Ventilation 800 mm Wide Kit Contains Two Roof Exhaust Vents.

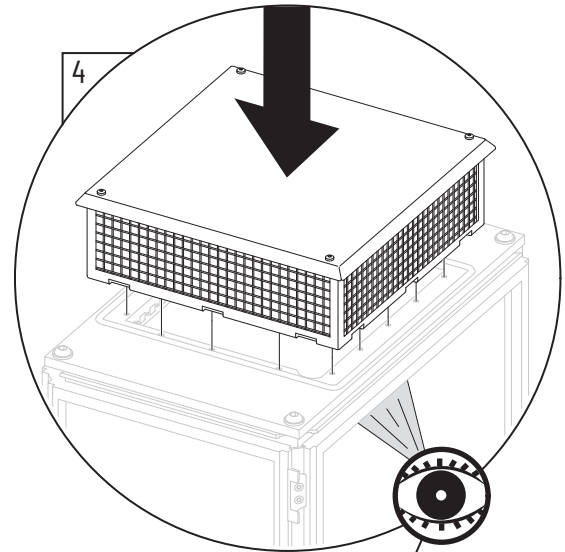
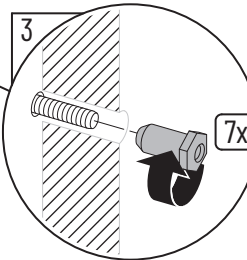
IMPORTANT The serrated nuts provided with the kit must be used to provide a ground connection with the enclosure.




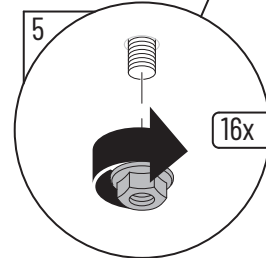
2	 M6 10 mm 10.2 N•m (90 lb•in)
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3	 M6 10 mm 4.8 N•m (42 lb•in)
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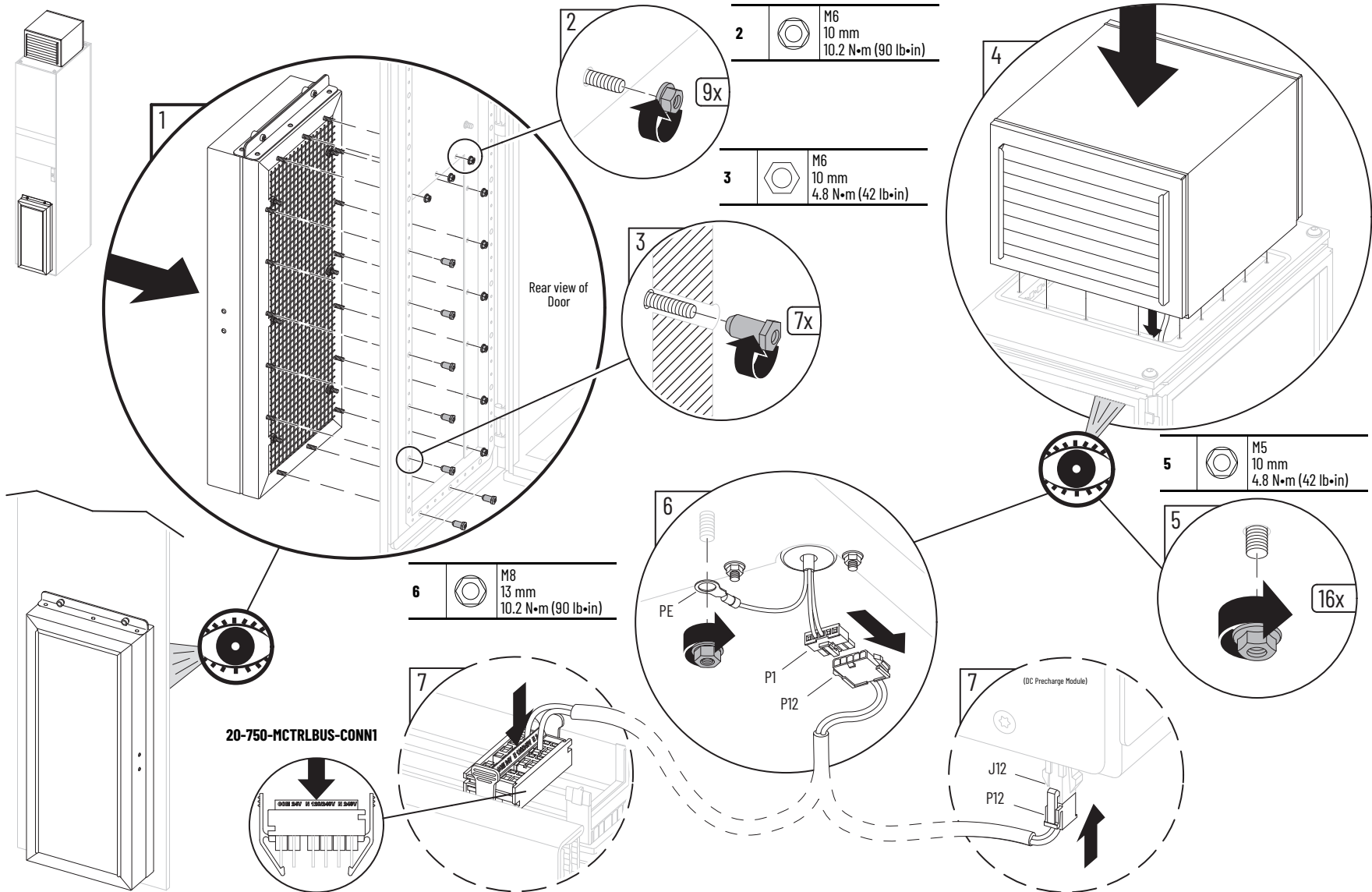


5	 M5 8 mm 4.8 N•m (42 lb•in)
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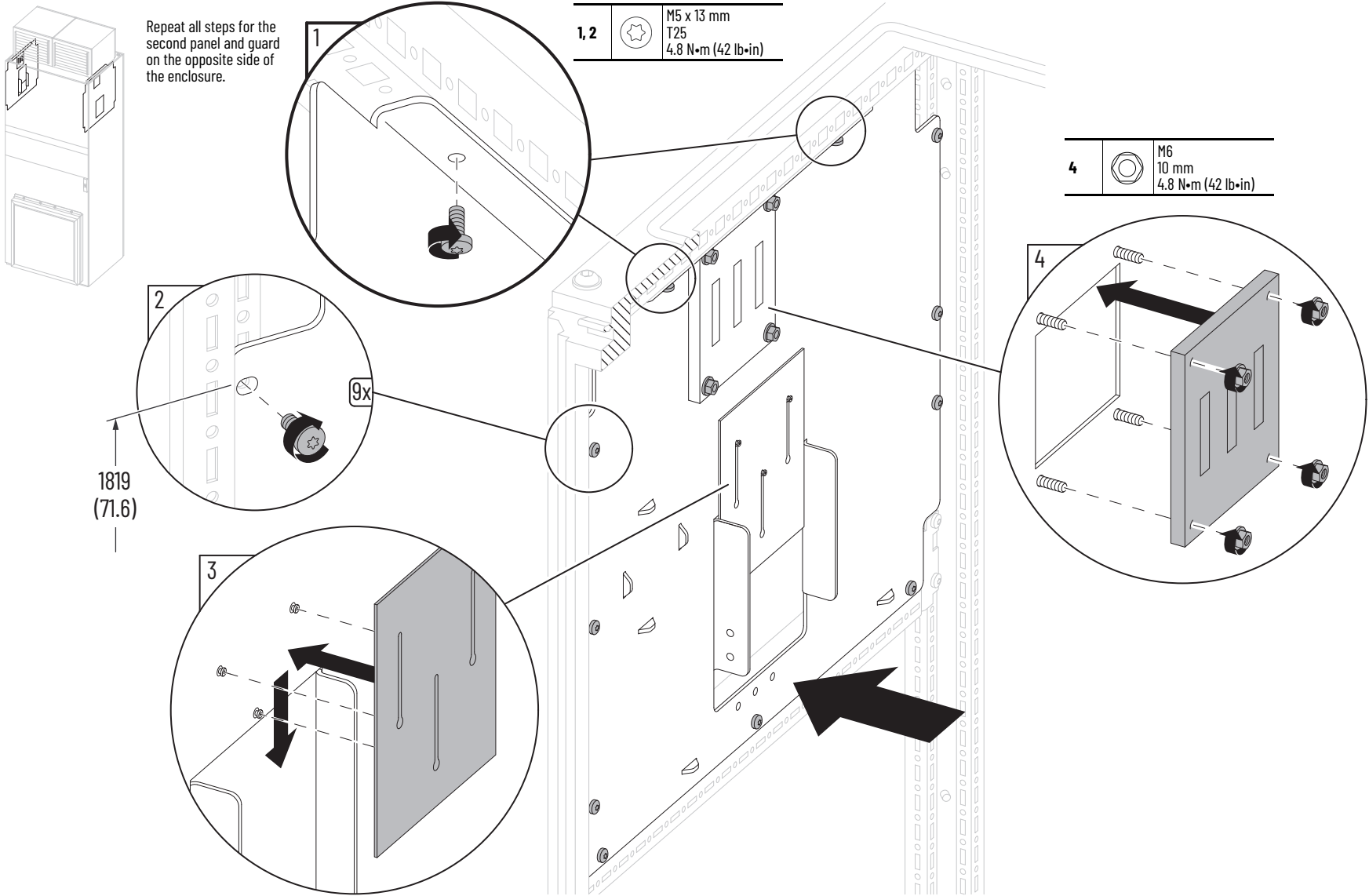


Kit Cat. No.	Kit Description/Installation
20-750-MVENT2-F8M (400 mm) 20-750-MVENT2-F9M (600 mm) 20-750-MVENT2-F10M (800 mm)	IP54, Type 12, 400 mm, 600 mm, and 800 mm Wide Power Bay Ventilation (800 mm kit contains two roof exhaust vents)

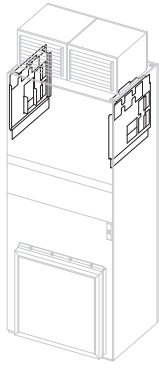
IMPORTANT The serrated nuts provided with the kit must be used to provide a ground connection with the enclosure.



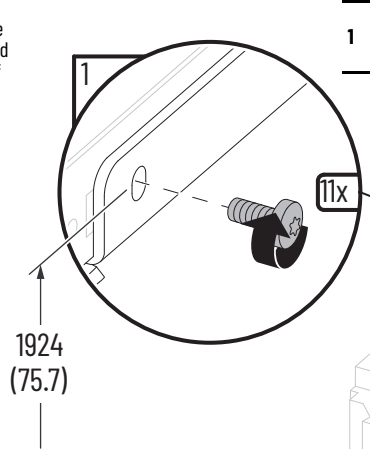
Kit Cat. No.	Kit Description/Installation
20-750-MIPNL3-F8M	Right and Left, Upper Bus Support Panel and Control Bus Guards (Frame 8 Regenerative Drive only)




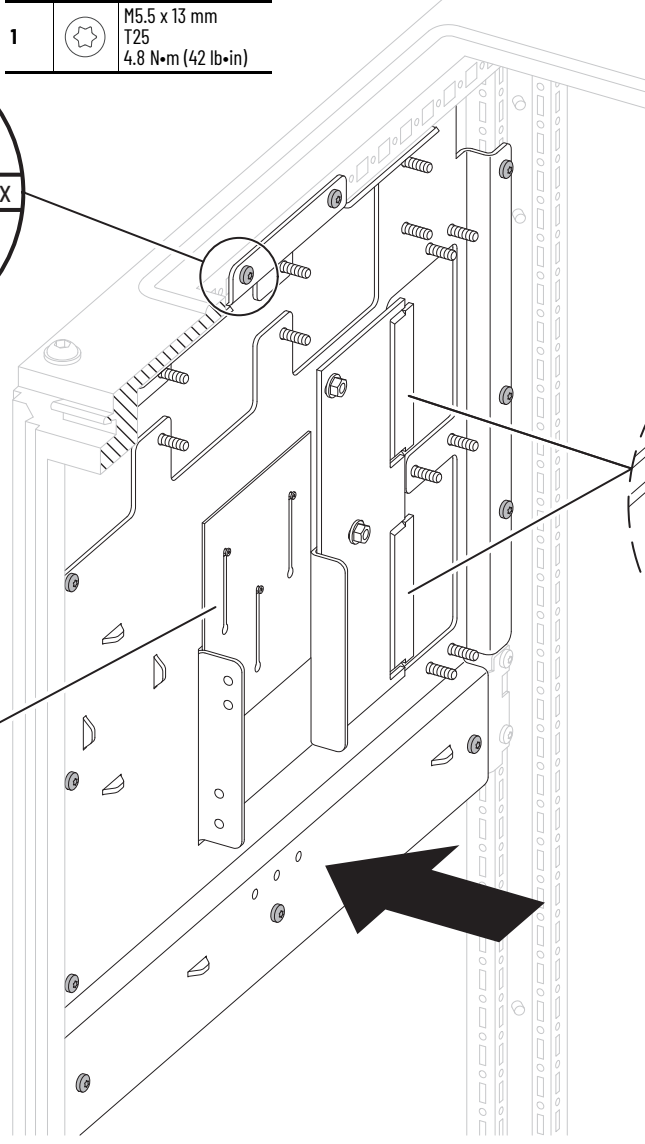
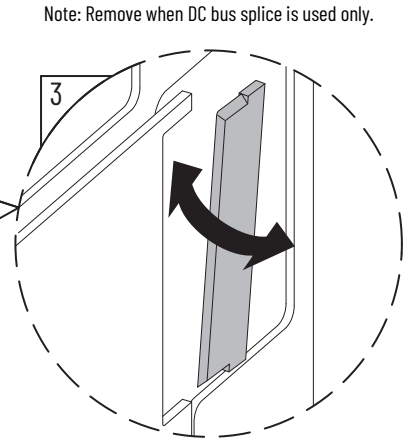
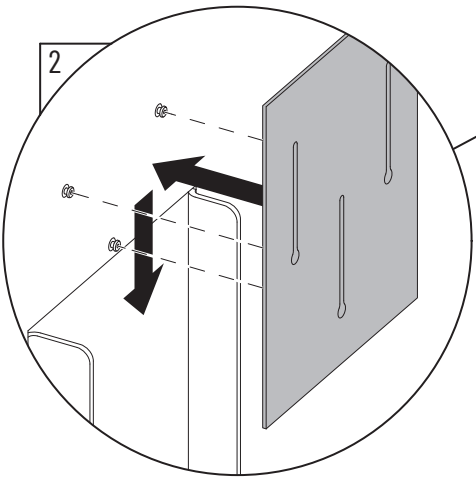
Kit Cat. No.	Kit Description/Installation
20-750-MIPNL1-F8M 20-750-MIPNL2-F8M	Right and Left, Upper Bus Support Panels, Power Bays. Kit cat. no. 20-750-MIPNL2-F8M includes the right and left, lower motor-side inverter power bay divider panels. See page 219 for installation instructions.



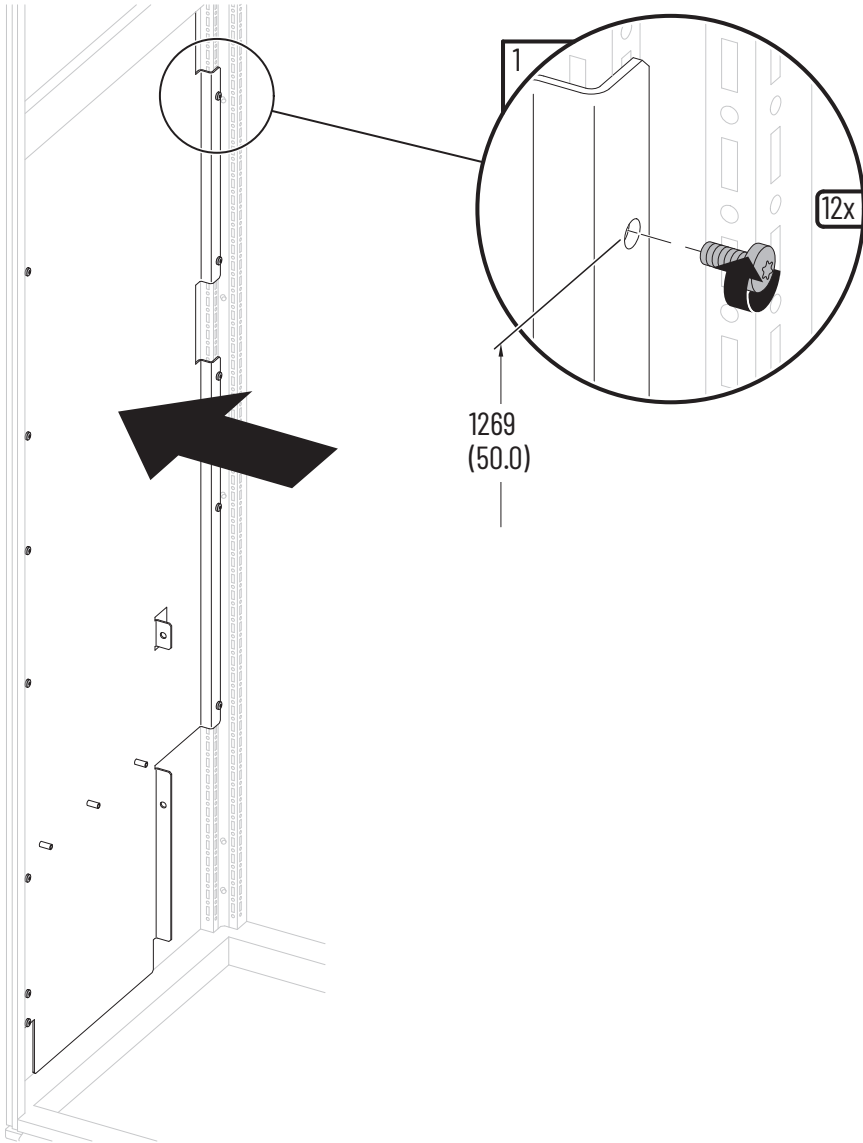
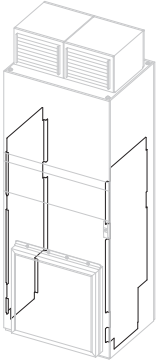
Repeat all steps for the second panel and guard on the opposite side of the enclosure.




1	 M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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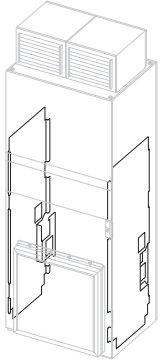
Kit Cat. No.	Kit Description/Installation
20-750-MCPNL1-F8M	Line Side Converter Power Bay Divider Panel



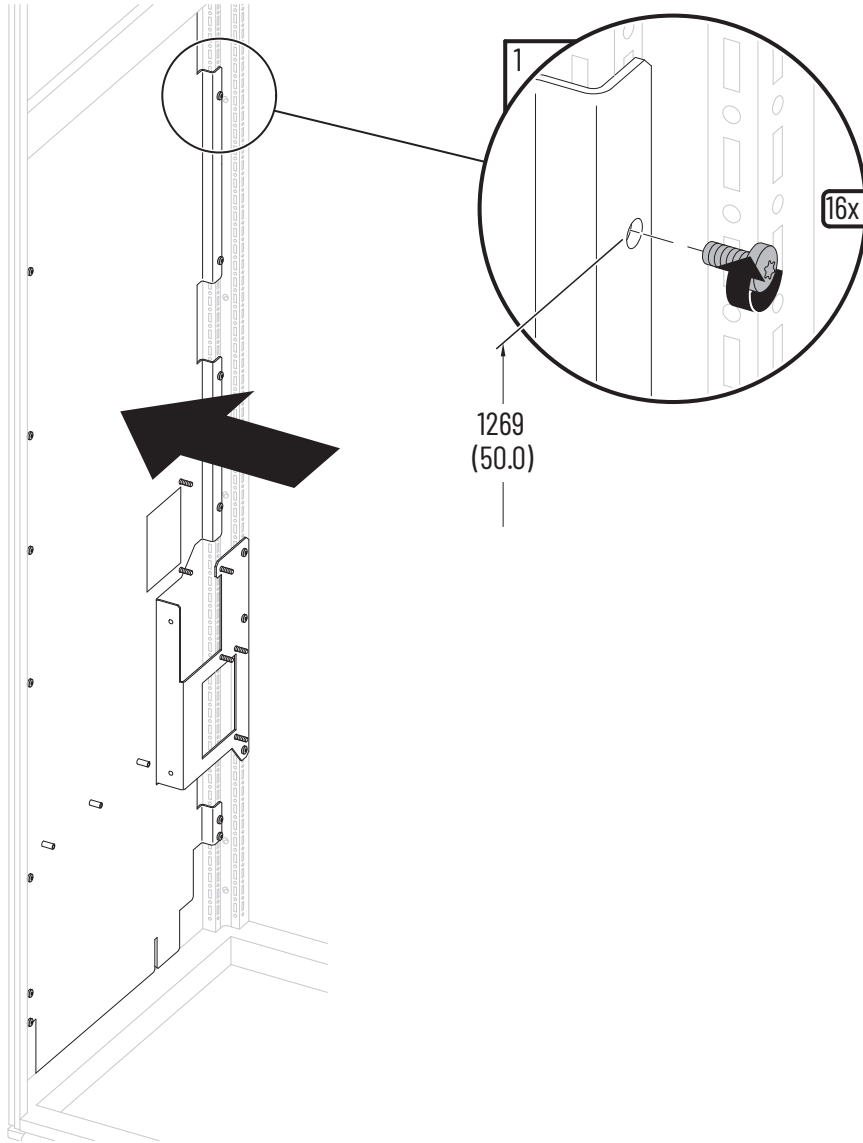
1		M5 x 13 mm T25 4.8 N•m (42 lb•in)
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Repeat for the second panel on the opposite side of the enclosure.

Kit Cat. No.	Kit Description/Installation
20-750-MIPNL2-F8M, 20-750-MN-PNL1-NRS	Right and Left, Lower Motor Side Inverter Power Bay Divider Panels. Kit cat. no. 20-750-MIPNL2-F8M includes the upper bus support panels. See page 217 for installation. Kit cat. no. 20-750-MN-PNL1-NRS includes the right and left, upper divider panels for NRS power bays. See page 325 for installation instructions.



Repeat for the second panel on the opposite side of the enclosure.

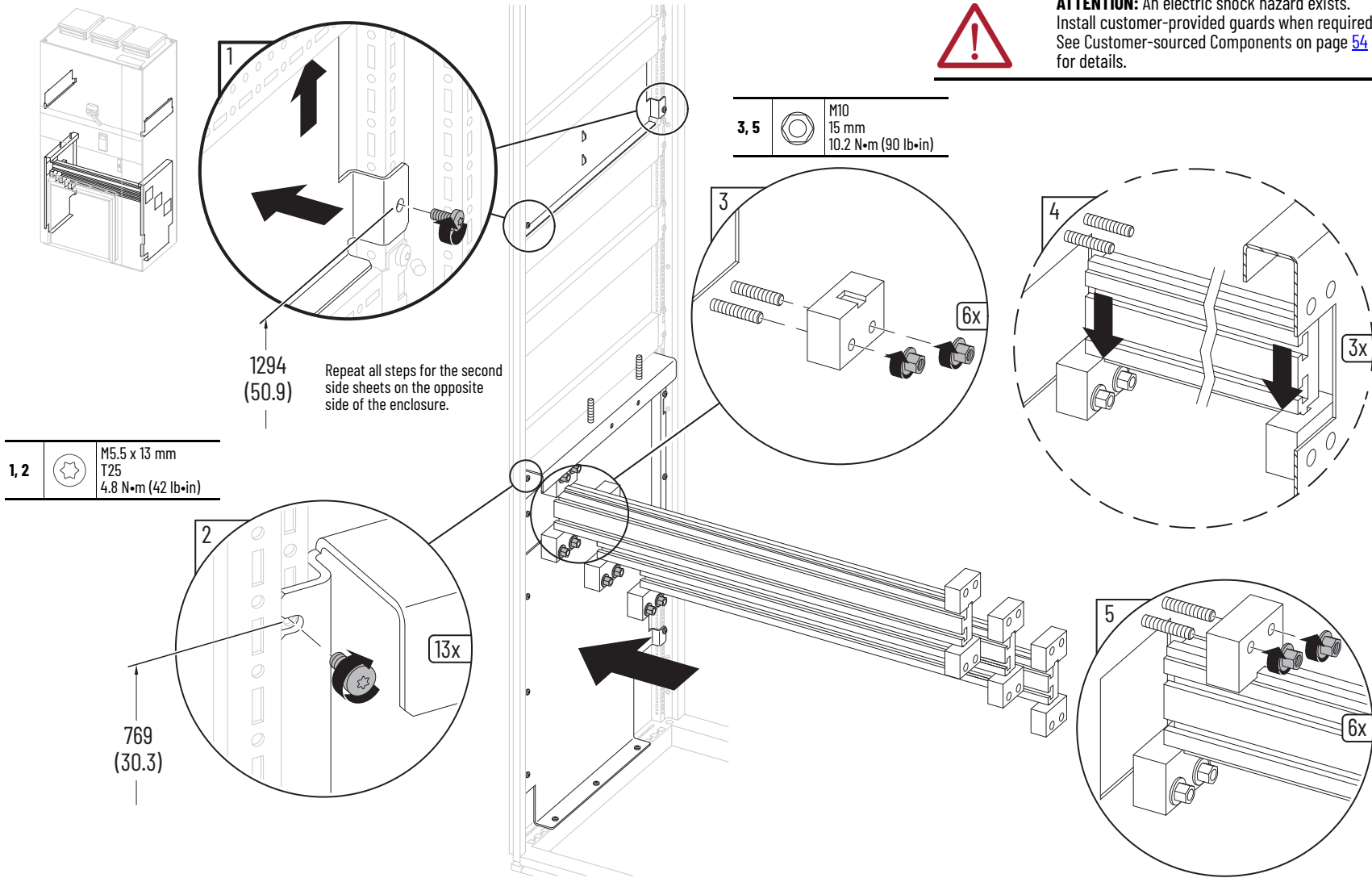


1		M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MIBPNL1-F10M	1000 mm Wide Input Bay AC Input Bus Support Side Sheets, Right and Left Side
20-750-MACBUS10-3K0 (1000 mm)	Lower AC Bus Bars
20-750-MACBUS10-4K7 (1000 mm)	20-750-MACBUS10-4K7 Weight: 65.7 kg (146 lb)



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.




Kit Cat. No.


20-750-MIBPNL2-F10M

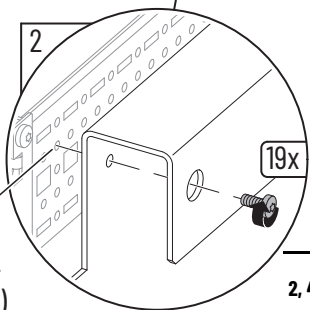
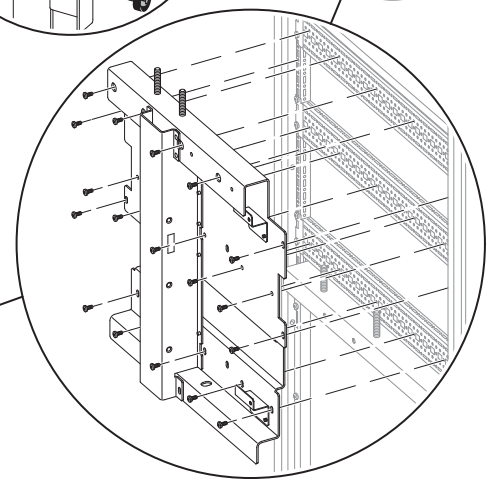
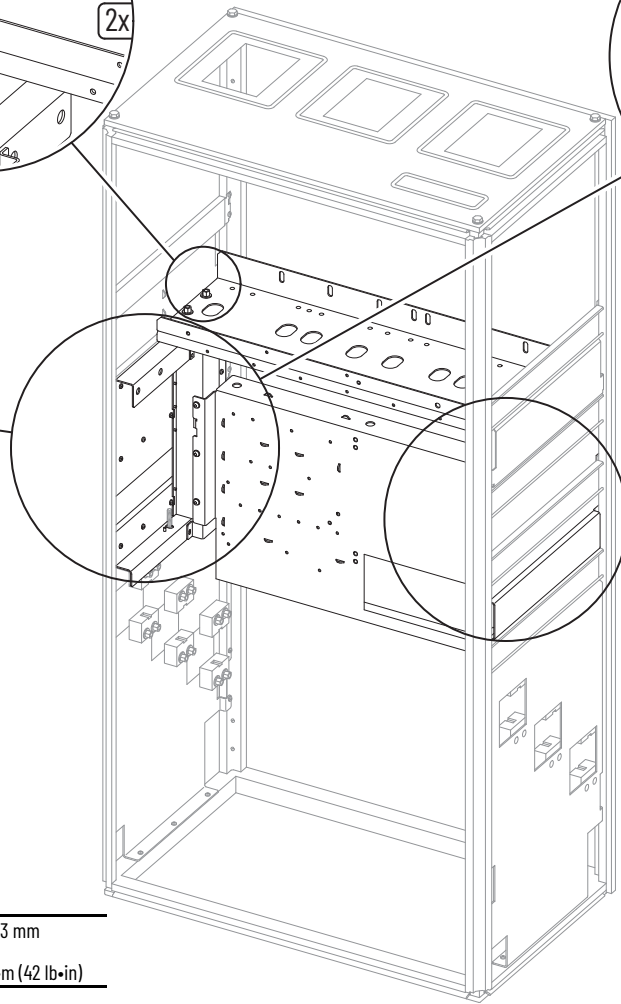
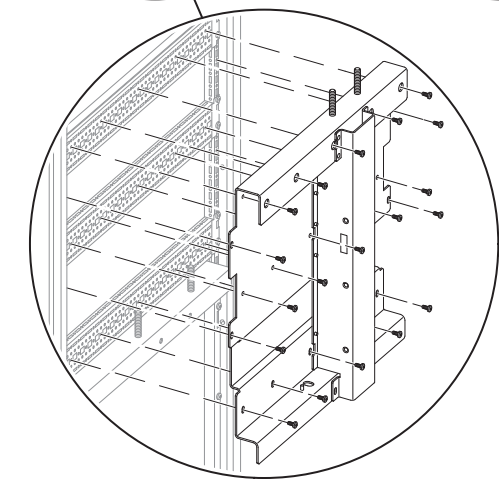
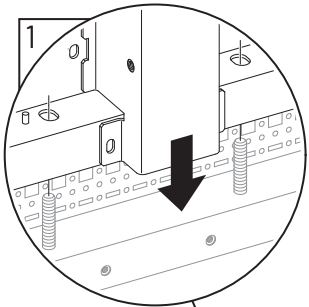
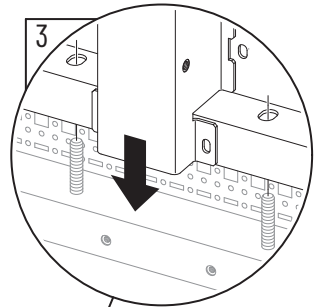
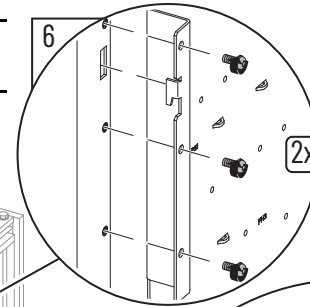
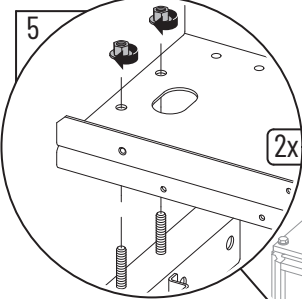
Kit Description/Installation


Input Bay T8 Circuit Breaker/Transformer Mounting Panels

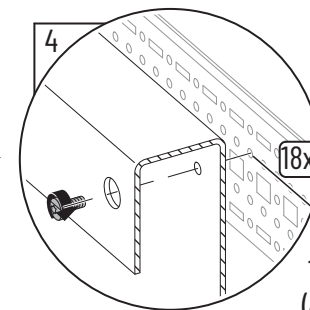
5		M10
		15 mm
		38 N•m (336 lb•in)

IMPORTANTInstall the panel in **step 5** after the circuit breaker has been installed.

6		M8 x 16 mm
		T40
		19.8 N•m (175 lb•in)

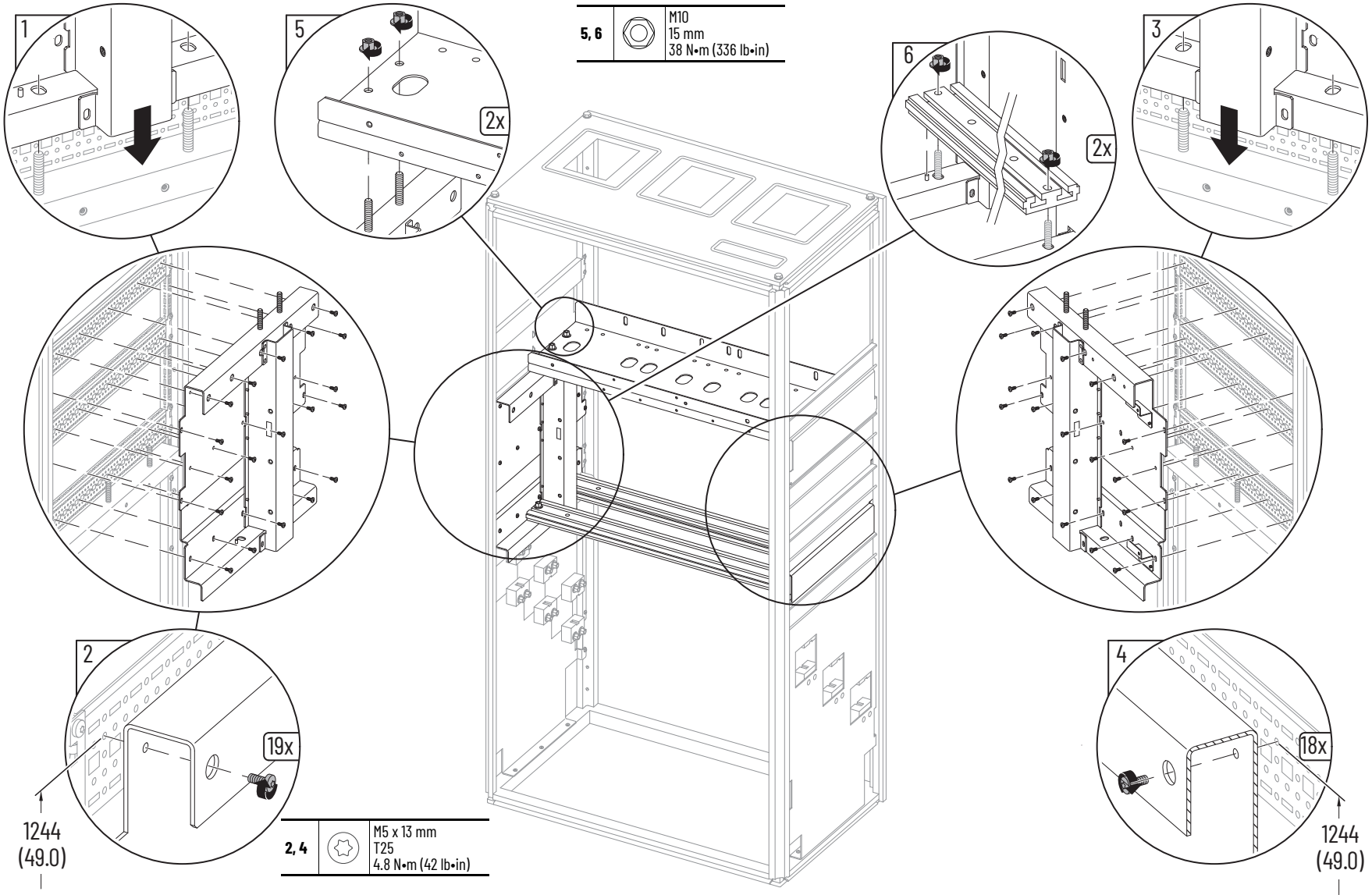


2, 4		M5 x 13 mm
		T25
		4.8 N•m (42 lb•in)

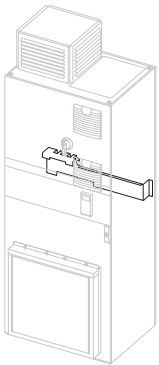



Kit Cat. No.	Kit Description/Installation
20-750-MIBPNL2-F11M	Input Bay E6 Circuit Breaker/Transformer Mounting Panels

IMPORTANT Install the panel in **step 5** after the circuit breaker has been installed.

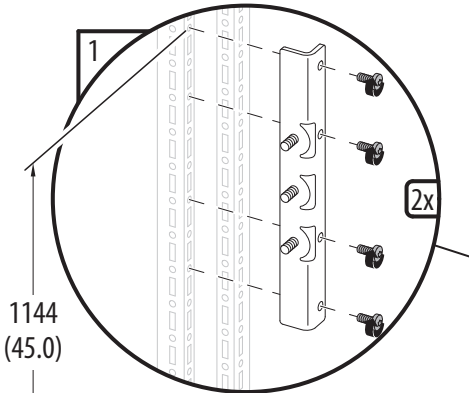


Kit Cat. No.	Kit Description/Installation
20-750-MMNTI-F7M	LCL Filter / Power Module Upper Mounting Bracket, Frame 7 (800 mm). For additional components in this kit, see Power and LCL Filter Module Floor Mounting Bracket, 800 mm Wide Frame 7 Bay on page 206 .

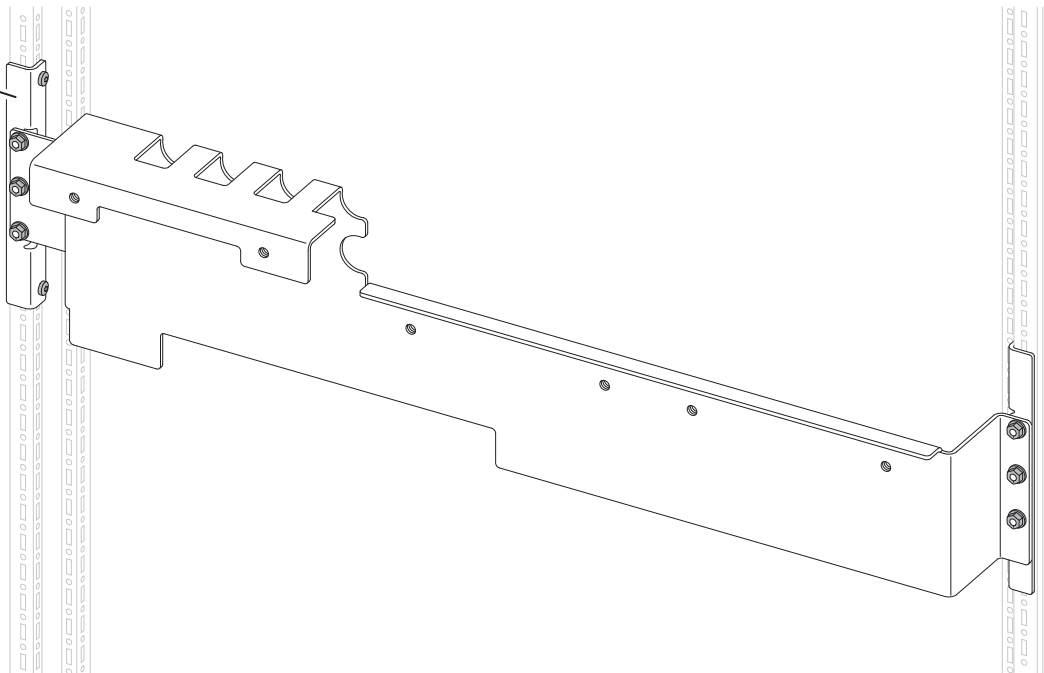
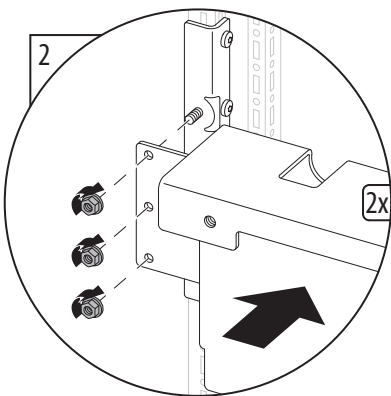


1  M5.5 x 13 mm
T25
4.8 N•m (42 lb•in)

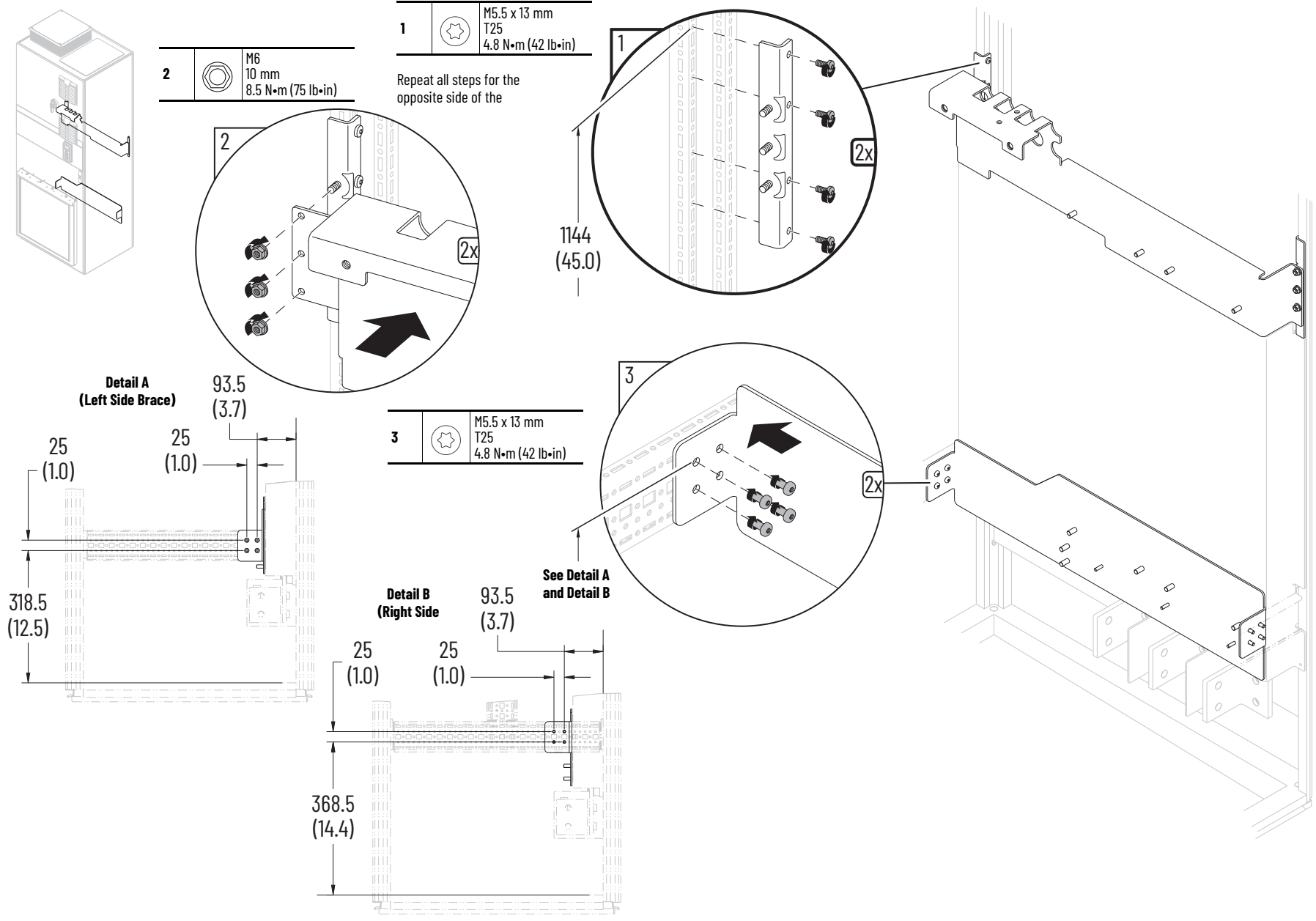
Repeat all steps for the opposite side of the enclosure.



2  M6
10 mm
8.5 N•m (75 lb•in)




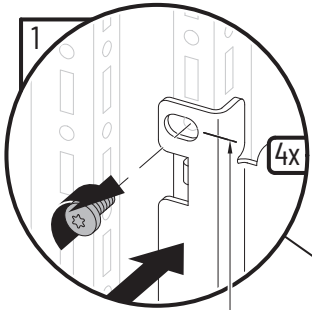
Kit Cat. No.	Kit Description/Installation
20-750-MMNT1-F7L	LCL Filter / Power Module Upper and Lower Mounting Brackets, Frame 7L (800 mm). For additional components in this kit, see Power and LCL Filter Module Floor Mounting Bracket, 800 mm Wide Frame 7L Bay on page 207 .




Kit Cat. No.	Kit Description/Installation
20-750-MMNT1-F8M (400 mm) 20-750-MMNT1-F9M (600 mm) 20-750-MMNT1-F10M (800 mm)	LCL Filter / Power Module Mounting Bracket (400 mm, 600 mm, 800 mm)

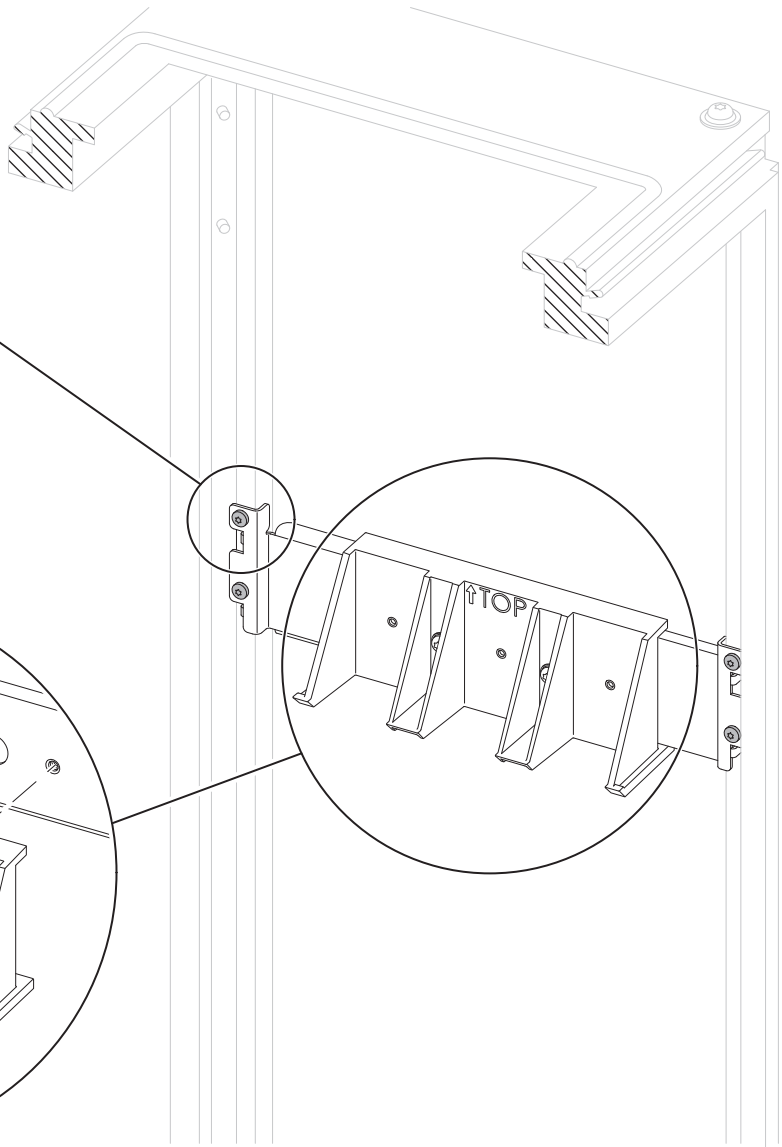
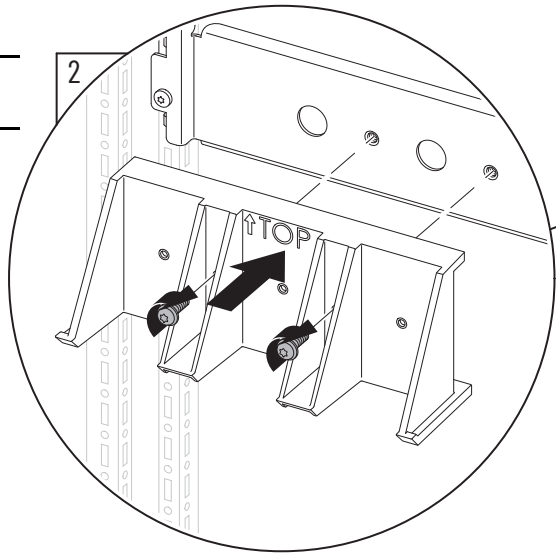


1	 M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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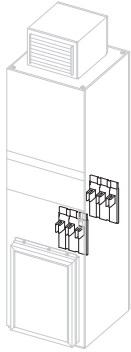



1594
(62.7)

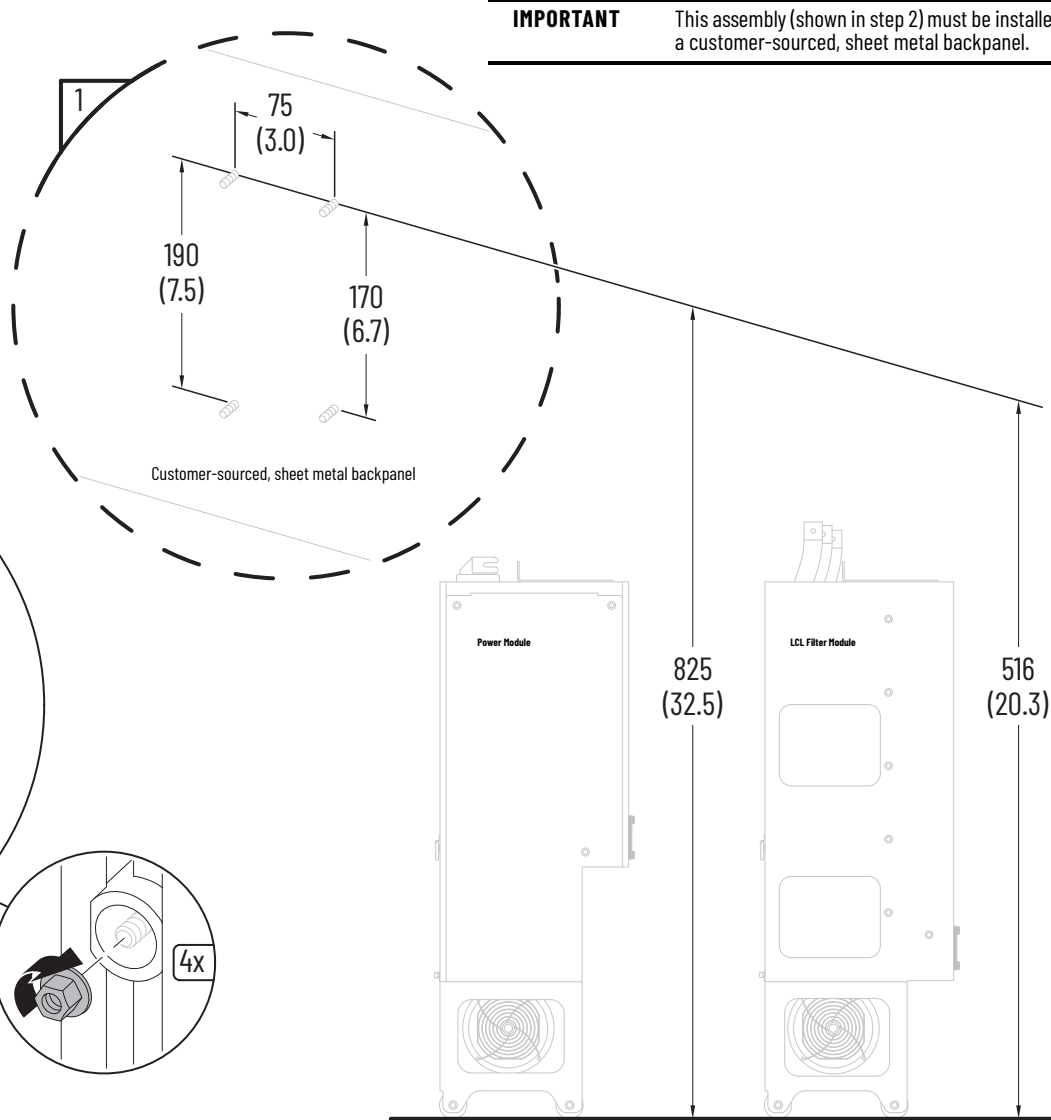
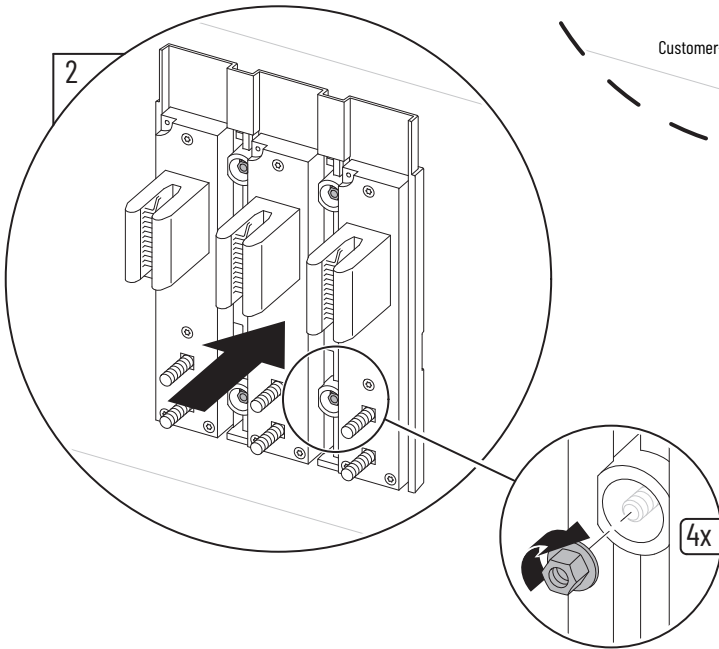
2	 M6 x 20 mm T30 4.8 N•m (42 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MREC1-F8M 20-750-MREC1-F8MC	Stab Receptacle Assembly for a Single LCL Filter or Power Module



2	 M6 10 mm 10.2 N•m (90 lb•in)
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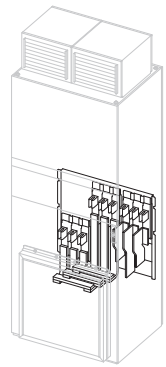


Kit Cat. No.	Kit Description/Installation
20-750-MADR1-F8M	Frame 8 Regenerative Drive Back Panel With Stab Receptacles (800 mm Wide). Weight: 32 kg (70 lb)

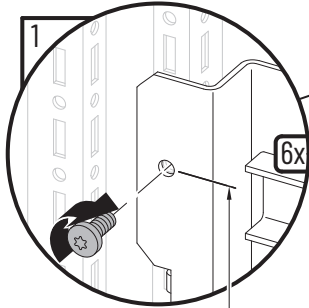
IMPORTANT Secure the left side of the backpanel first.



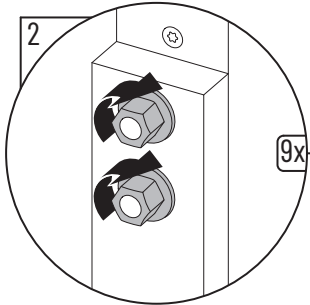
ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.



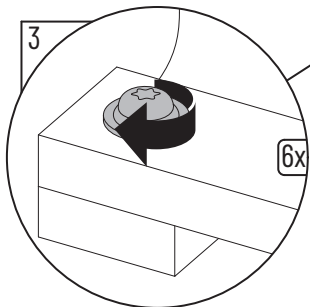
1		M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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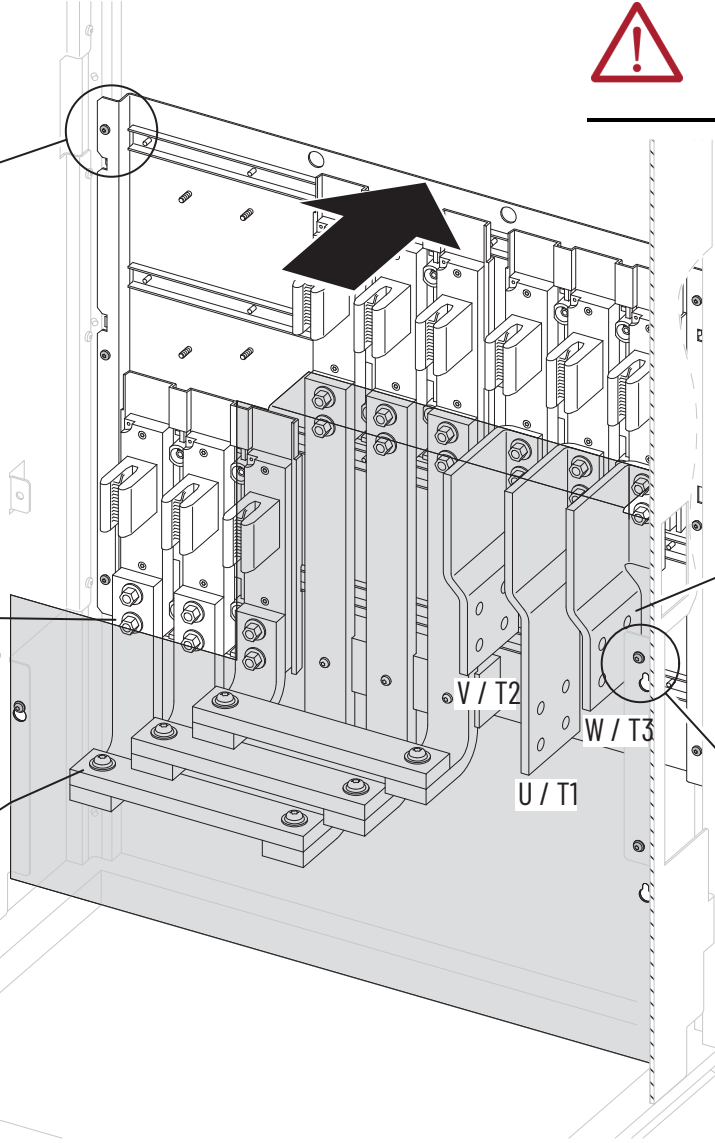
2, 4		M10 15 mm 38 N•m (336 lb•in)
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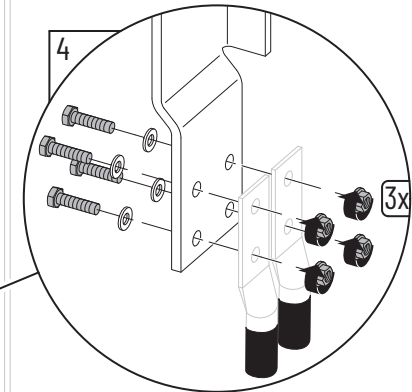
3		M10 x 40 mm T45 19.8 N•m (175 lb•in)
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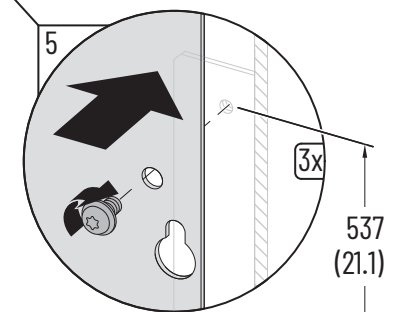
894
(35.2)



Power wire connection lugs and hardware is customer-supplied.

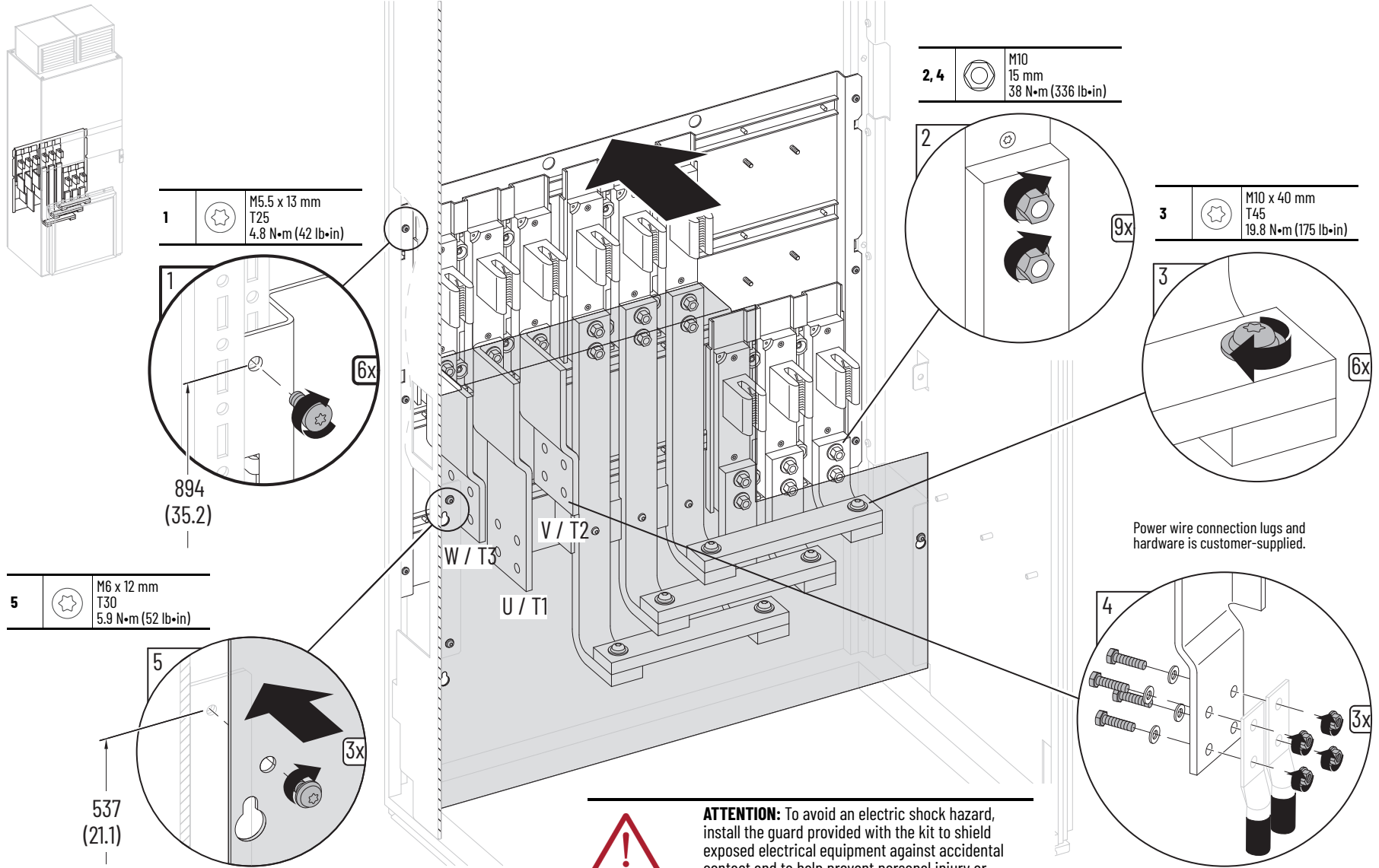


5		M6 x 12 mm T30 5.9 N•m (52 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MADR2-F8M	Frame 8 Regenerative Drive Back Panel With Stab Receptacles - Right-to-Left (800 mm Wide). Weight: 32 kg (70 lb)

IMPORTANT Secure the left side of the backpanel first.



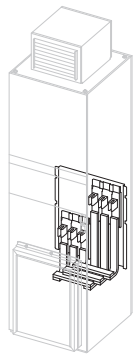
Power wire connection lugs and hardware is customer-supplied.



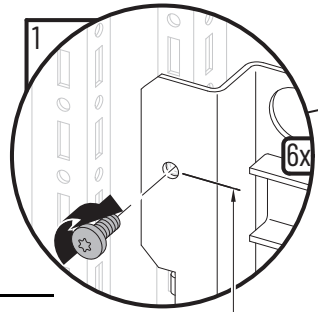
ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.

Kit Cat. No.	Kit Description/Installation
20-750-MACR1-F8M	LCL Filter and Single Line-side Converter Back Panel With Stab Receptacles (600 mm Wide) Weight: 30 kg (66.1)

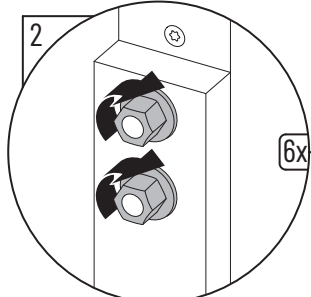
IMPORTANT Secure the left side of the backpanel first.



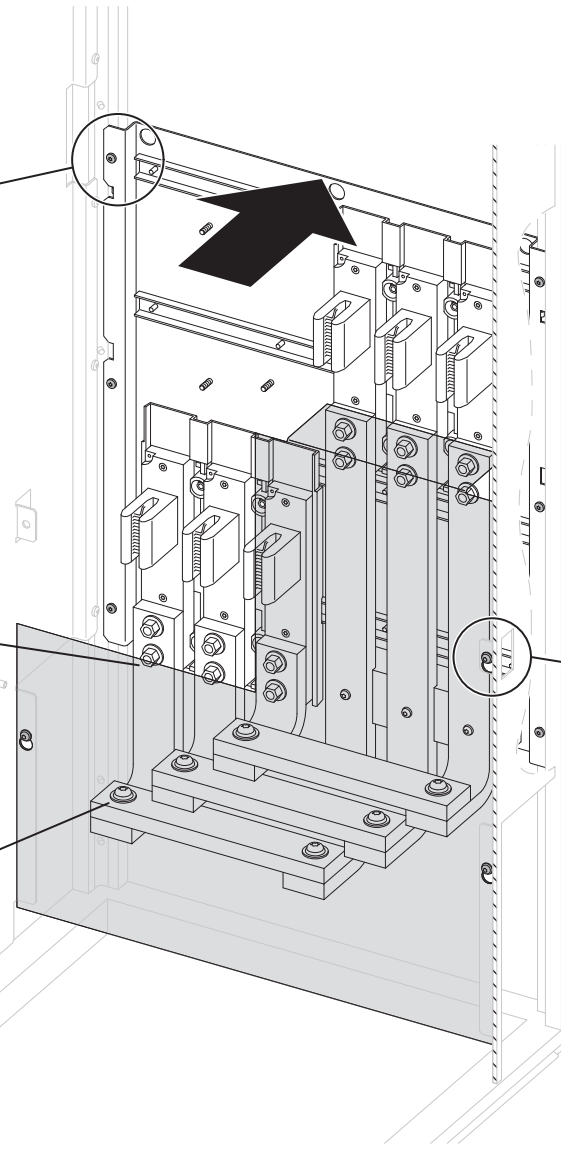
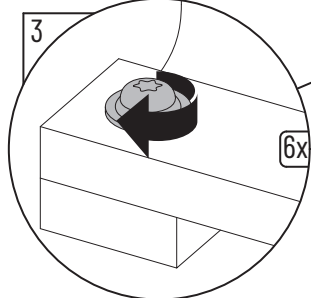
1		M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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2		M10 15 mm 38 N•m (336 lb•in)
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3		M10 x 40 mm T45 19.8 N•m (175 lb•in)
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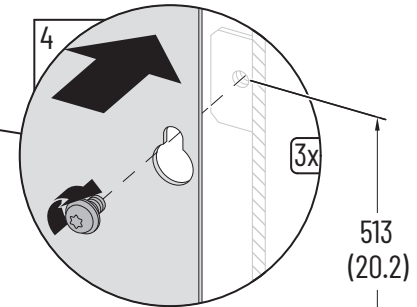


ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.

IMPORTANT


Do not connect power cables to this assembly.

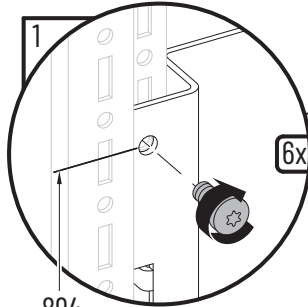
4		M6 x 12 mm T30 5.9 N•m (52 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MACR2-F8M	LCL Filter and Single Line-side Converter Back Panel With Stab Receptacles - Right-to-Left (600 mm Wide) Weight: 30 kg (66.1)

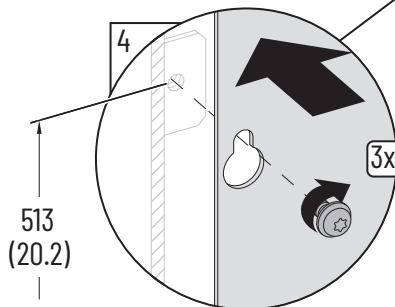
IMPORTANT Secure the left side of the backpanel first.

1		M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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(35.2)

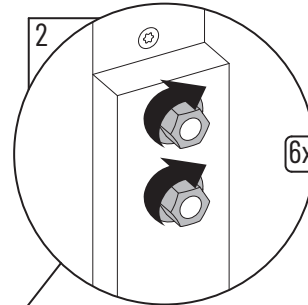
4		M6 x 12 mm T30 5.9 N•m (52 lb•in)
---	--	---




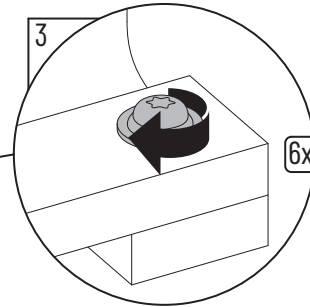
513
(20.2)

IMPORTANT Do not connect power cables to this assembly.

2		M10 15 mm 38 N•m (336 lb•in)
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3		M10 x 40 mm T45 19.8 N•m (175 lb•in)
---	---	--



ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.

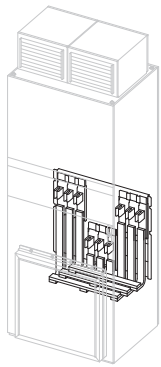
Kit Cat. No.	Kit Description/Installation
20-750-MACR1-F9M	LCL Filter and Two Line-side Converters Back Panel With Stab Receptacles (800 mm Wide). Weight: 39 kg (86 lb)

IMPORTANT Secure the left side of the backpanel first.

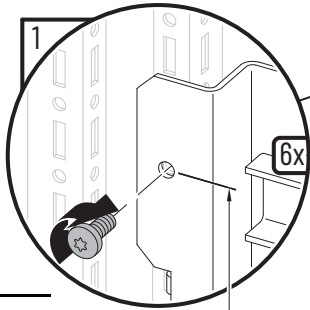


ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.

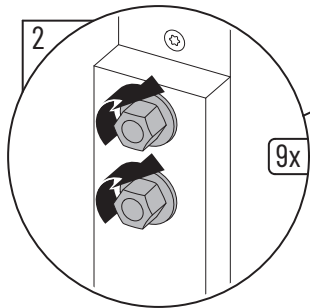
IMPORTANT Do not connect power cables to this assembly.



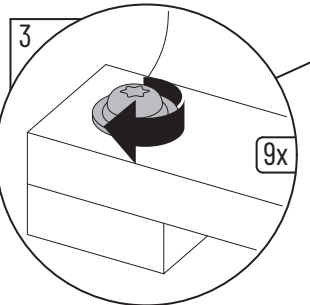
- | | | |
|---|--|---|
| 1 | | M5.5 x 13 mm
T25
4.8 N•m (42 lb•in) |
|---|--|---|



- | | | |
|---|--|------------------------------------|
| 2 | | M10
15 mm
38 N•m (336 lb•in) |
|---|--|------------------------------------|

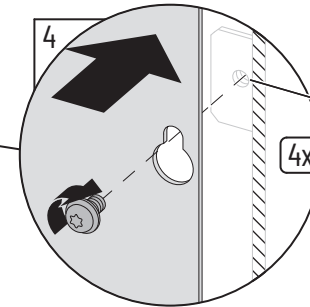


894
(35.2)



- | | | |
|---|--|--|
| 3 | | M10 x 40 mm
T45
19.8 N•m (175 lb•in) |
|---|--|--|

- | | | |
|---|--|---|
| 4 | | M6 x 12 mm
T30
5.9 N•m (52 lb•in) |
|---|--|---|

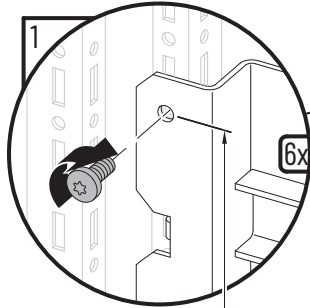


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(20.2)


Kit Cat. No.	Kit Description/Installation
20-750-MIRI-F8M	Single Motor-side Inverter Back Panel With Stab Receptacles (400 mm Wide)

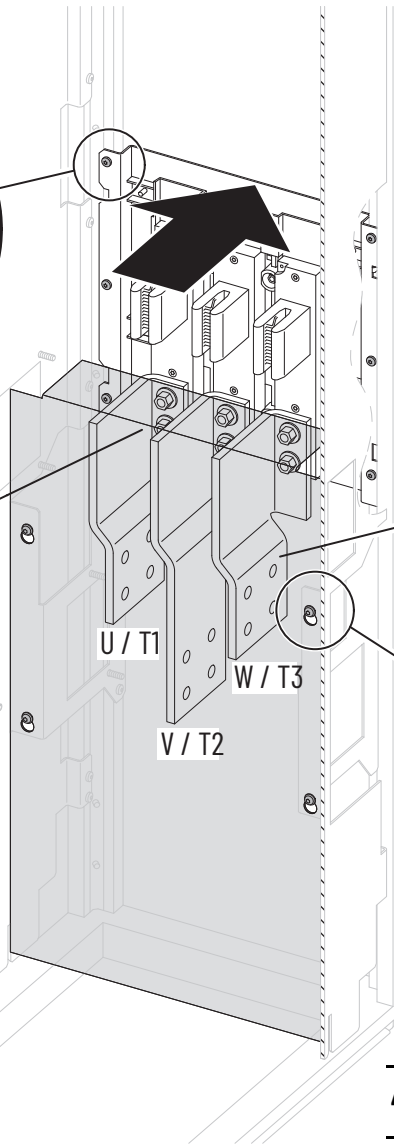
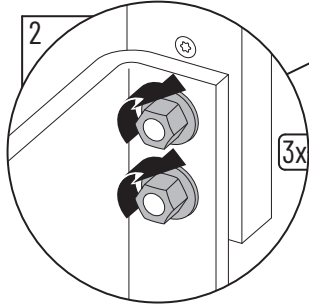
IMPORTANT Secure the left side of the backpanel first.

1		M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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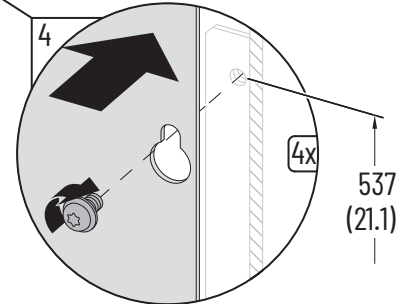
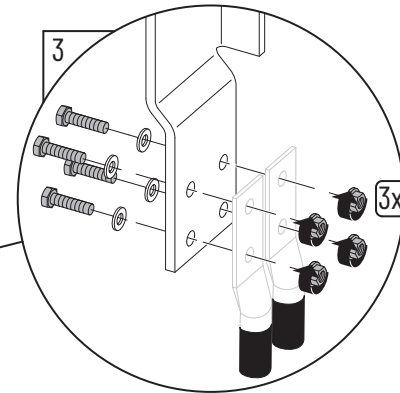
919
(36.2)


2, 3		M10 15 mm 38 N•m (336 lb•in)
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ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.

Power wire connection lugs and hardware is customer-



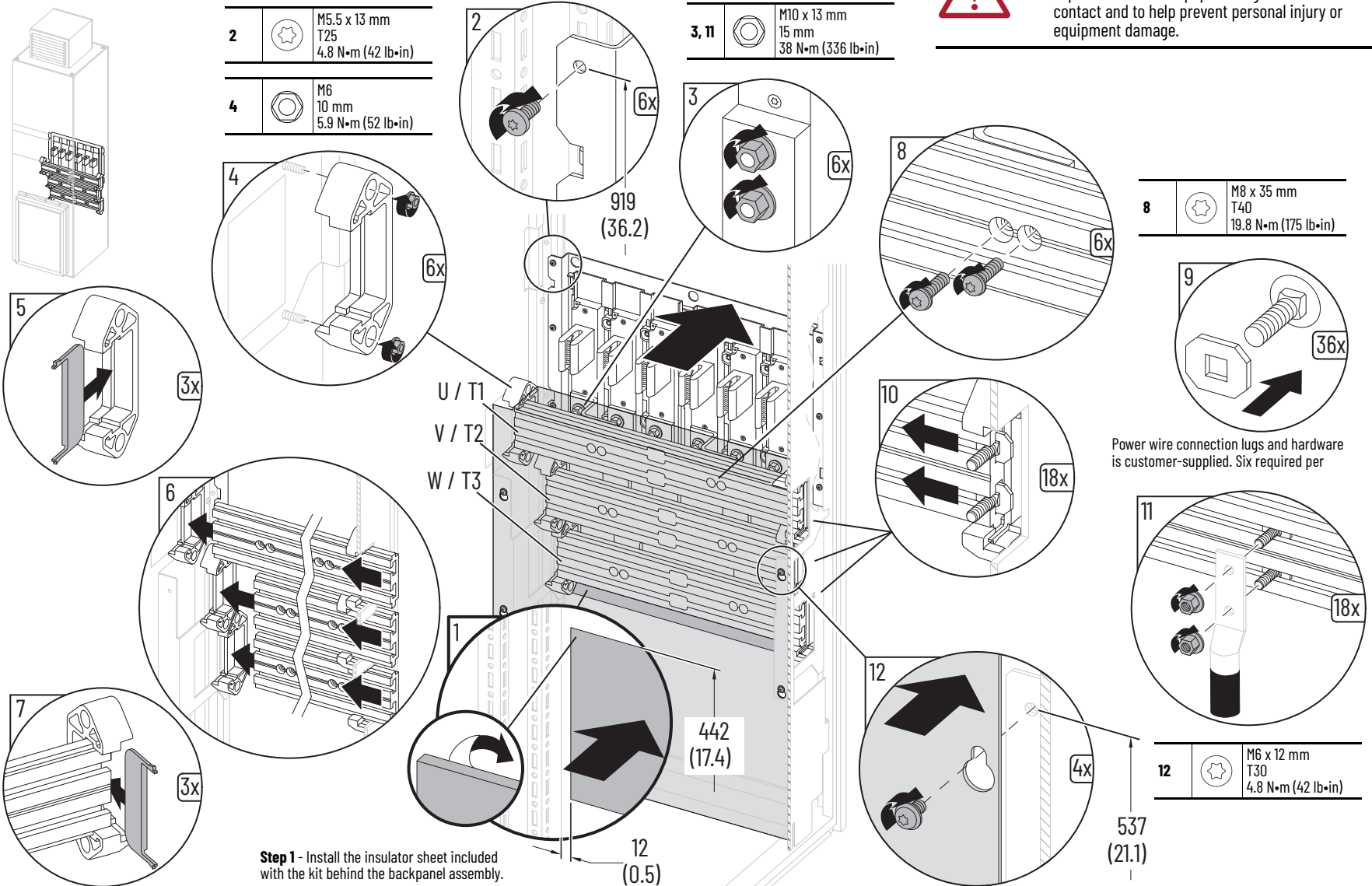
4		M6 x 12 mm T30 4.8 N•m (42 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MIR1-F9M 20-750-MIR2-F9M	Two Motor-side Inverters Back Panel With Stab Receptacles (600 mm Wide) 20-750-MIR2-F9M Weight: 29 kg (65 lb)

IMPORTANT Secure the left side of the backpanel first.



ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.

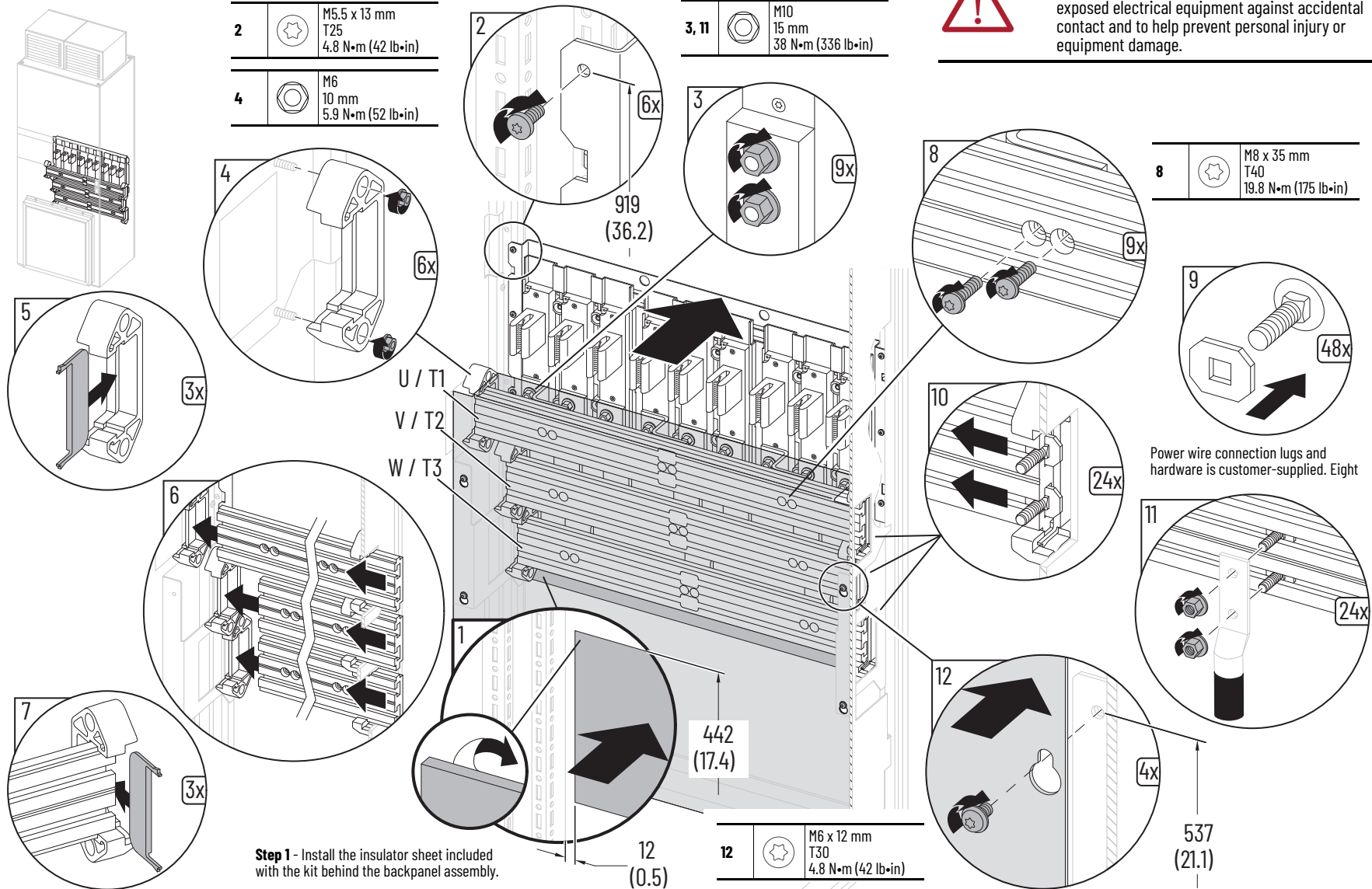


Kit Cat. No.	Kit Description/Installation
20-750-MIR1-F10M 20-750-MIR2-F10M	Three Motor-side Inverters Back Panel With Stab Receptacles (800 mm Wide) 20-750-MIR1-F10M Weight 30 kg (66 lb) 20-750-MIR2-F10M Weight: 43 kg (96 lb)

IMPORTANT Secure the left side of the backpanel first.



ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.



Step 1 - Install the insulator sheet included with the kit behind the backpanel assembly.

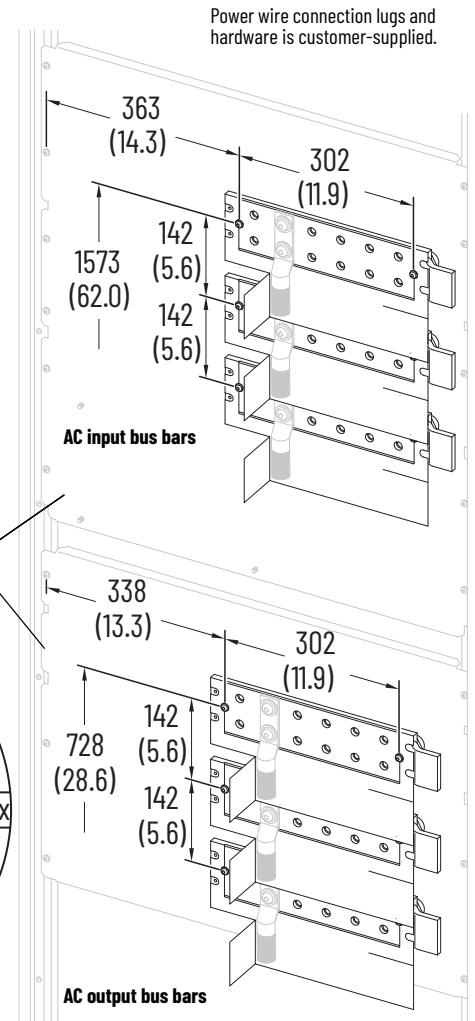
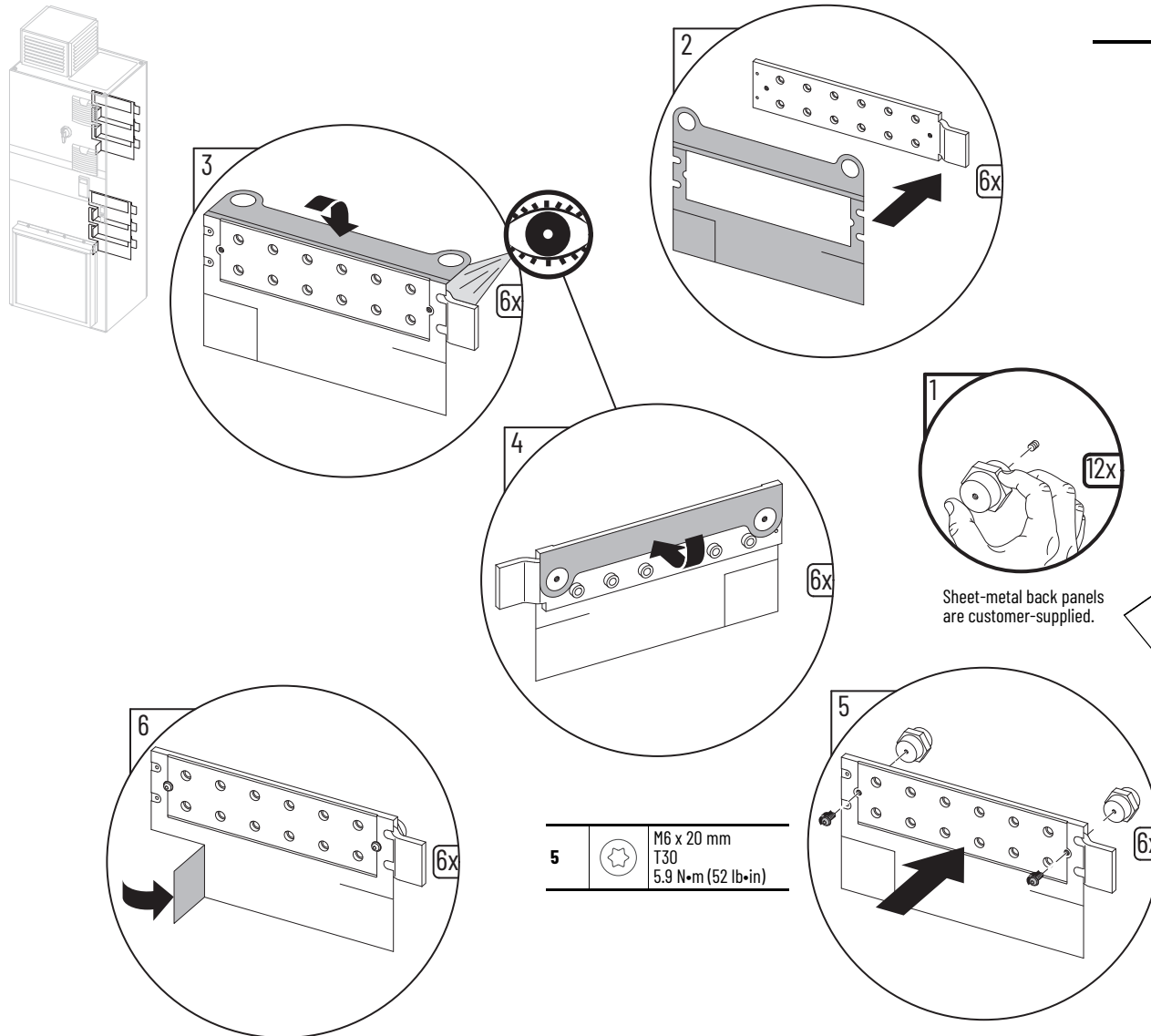
Kit Cat. No.	Kit Description/Installation
20-750-MAC10T-F7M	Frame 7 AC Input/Output Bus Bar Terminals

IMPORTANT

Step 2 is the installation of an insulator sheet on each bus bar terminal. When power cables enter the enclosure from the bottom, the insulator sheet must overlap the bus bar below, as shown in the overall view at the right side of this illustration. When power cables enter the enclosure from the top, the insulator sheet must overlap the bus bar above.



ATTENTION: To avoid an electric shock hazard, the installer must provide guarding to shield exposed electrical equipment against accidental contact. When installing this equipment, consider the design and placement of guarding to help prevent personal injury or equipment damage.

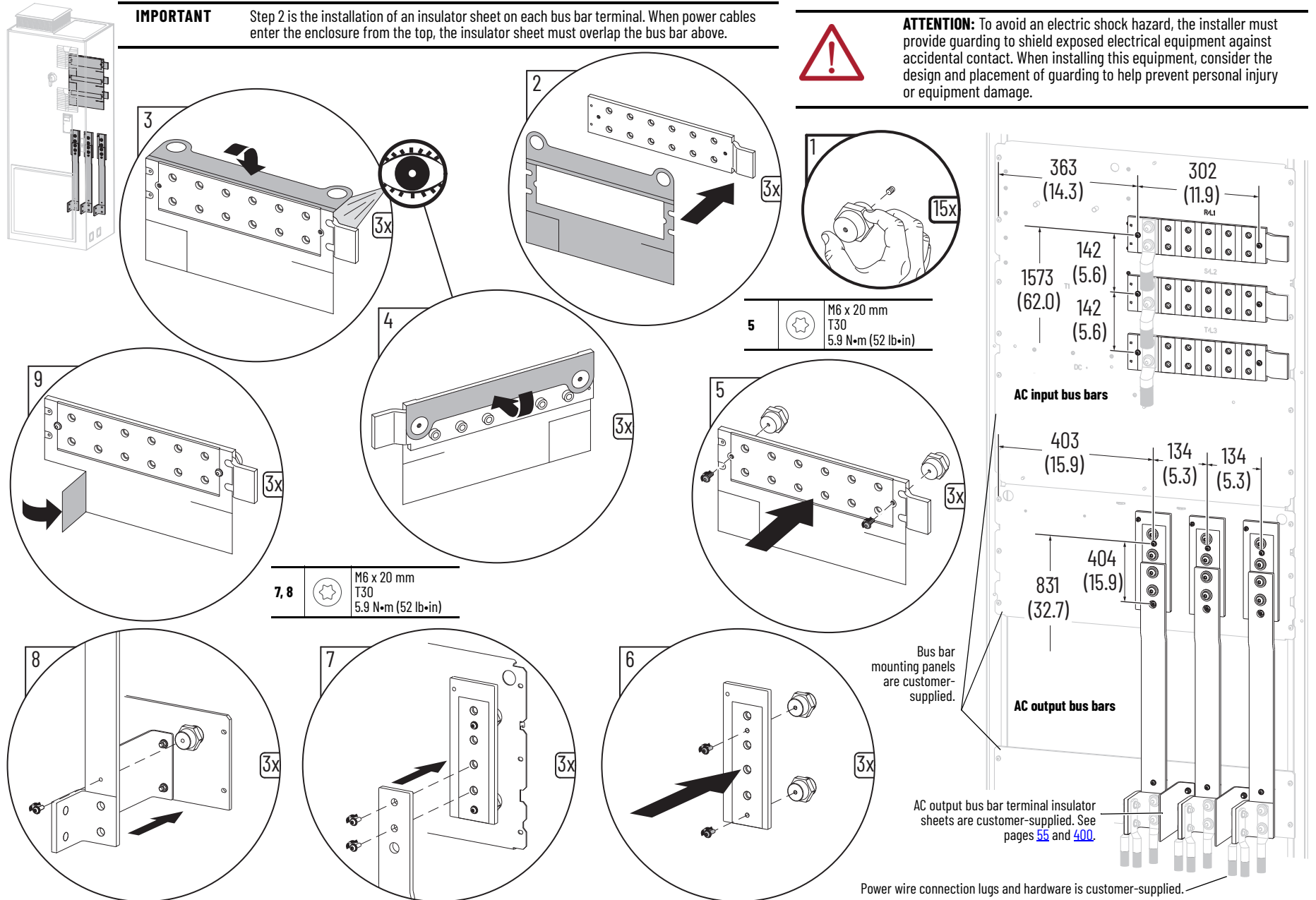


Kit Cat. No.	Kit Description/Installation
20-750-MAC10T-F7L	Frame 7L AC Input/Output Bus Bar Terminals

IMPORTANT Step 2 is the installation of an insulator sheet on each bus bar terminal. When power cables enter the enclosure from the top, the insulator sheet must overlap the bus bar above.



ATTENTION: To avoid an electric shock hazard, the installer must provide guarding to shield exposed electrical equipment against accidental contact. When installing this equipment, consider the design and placement of guarding to help prevent personal injury or equipment damage.

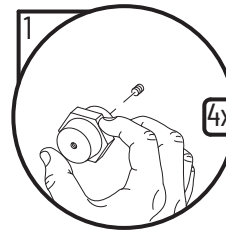
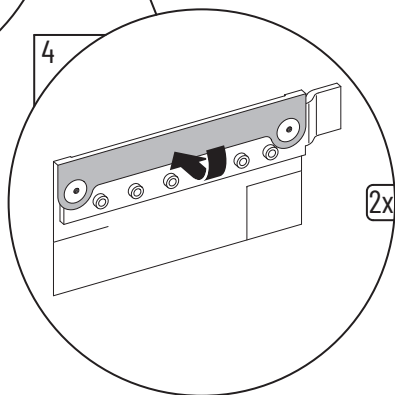
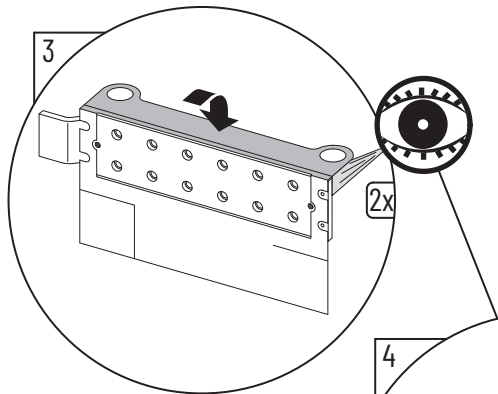
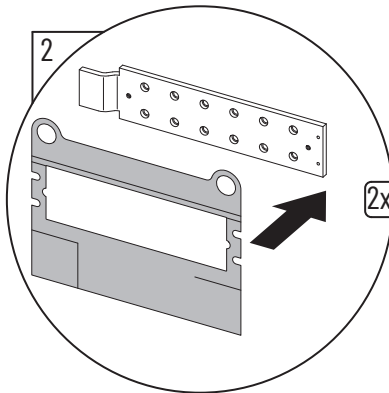
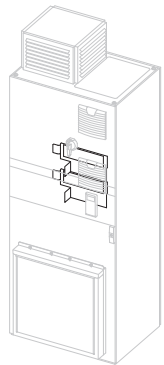



Kit Cat. No.	Kit Description/Installation
20-750-MDCOT-F7M	Frame 7 DC Output Bus Bar Terminals

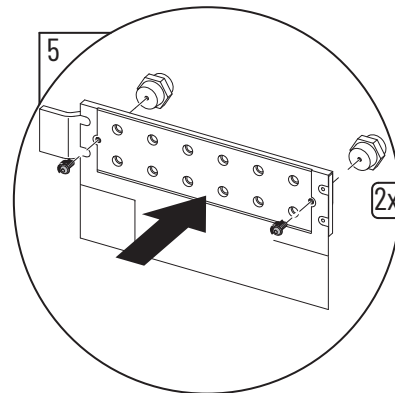
Step 2 - Install the insulator sheet included with the kit over the bus bar. The insulator sheet must overlap the bus bar below, as shown in the overall view at the right side of this illustration.



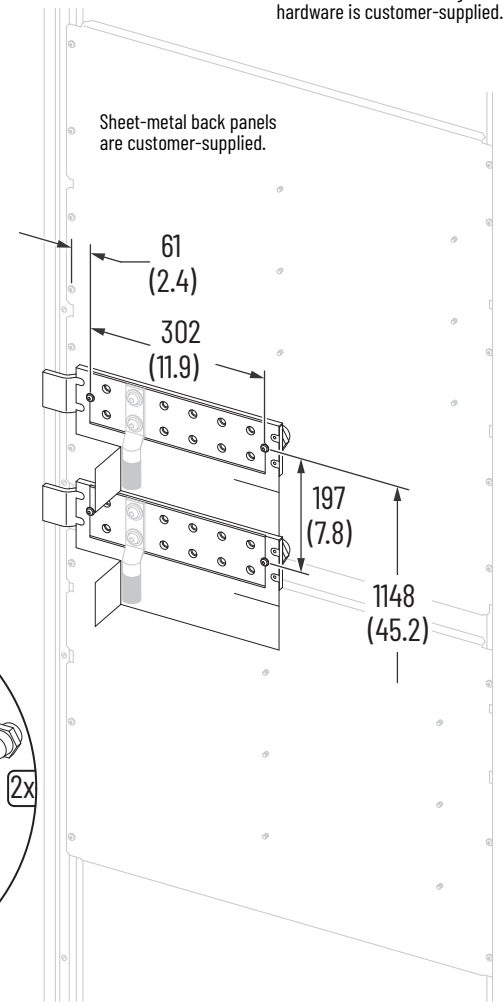
ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.



5		M6 x 20 mm T30 5.9 N•m (52 lb•in)
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Power wire connection lugs and hardware is customer-supplied.

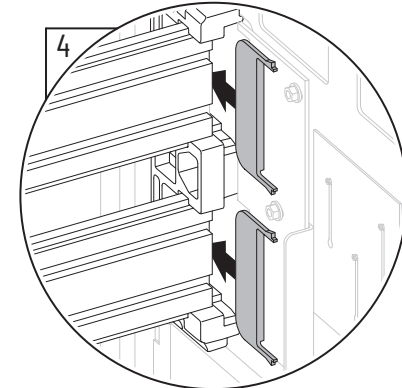
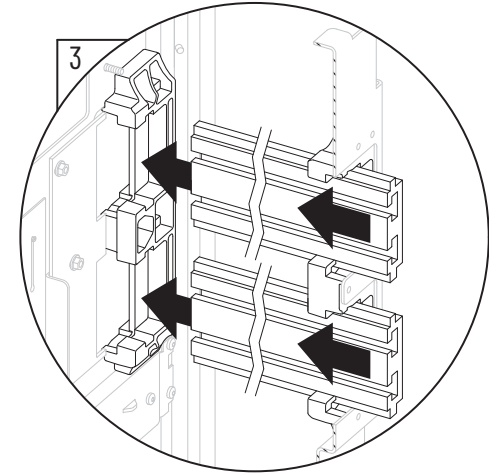
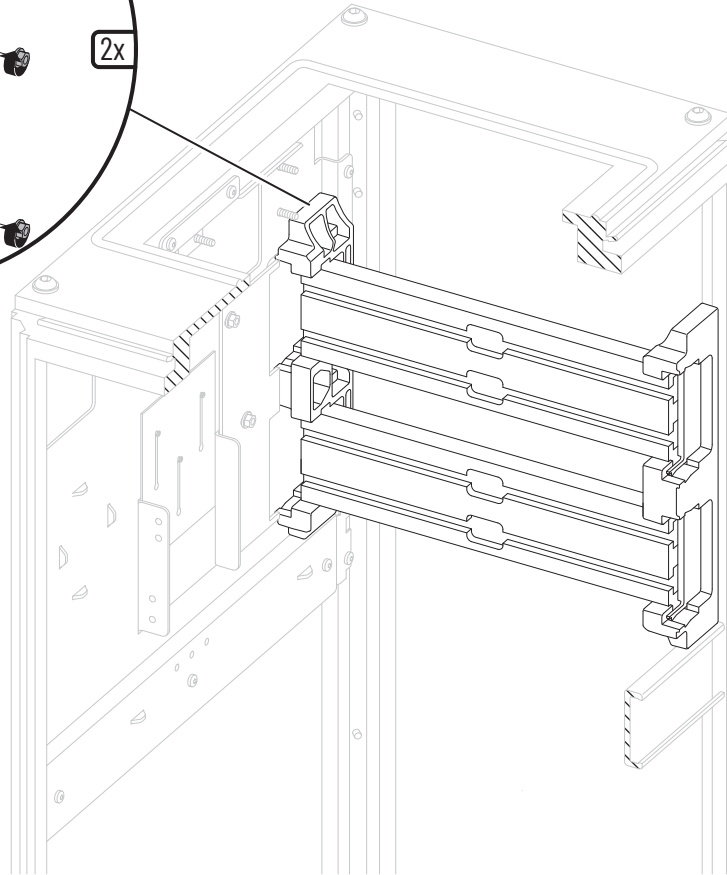
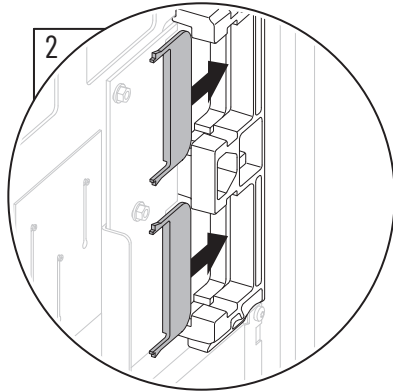
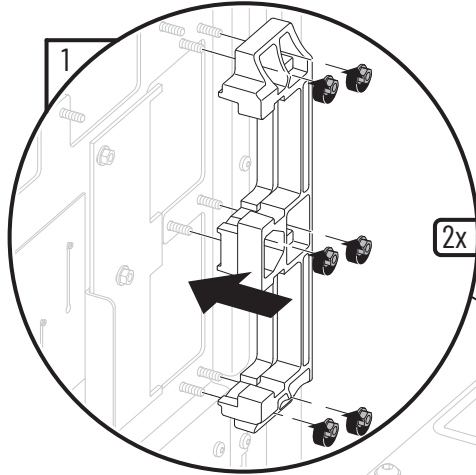


Kit Cat. No.			Kit Description/Installation
20-750-MDCBUS3-3K0 (300 mm)	20-750-MDCBUS6-3K0 (600 mm)	20-750-MDCBUS10-3K0 (1000 mm)	DC Bus Bars 20-750-MDCBUS6-4K7 Weight: 25.2 kg (56 lb) 20-750-MDCBUS8-4K7 Weight: 39.5 kg (87 lb) 20-750-MDCBUS10-4K7 Weight: 48.0 kg (106 lb)
20-750-MDCBUS3-4K7 (300 mm)	20-750-MDCBUS6-4K7 (600 mm)	20-750-MDCBUS10-4K7 (1000 mm)	
20-750-MDCBUS4-3K0 (400 mm)	20-750-MDCBUS8-3K0 (800 mm)		
20-750-MDCBUS4-4K7 (400 mm)	20-750-MDCBUS8-4K7 (800 mm)		

1		M6 10 mm 10.2 N•m (90 lb•in)
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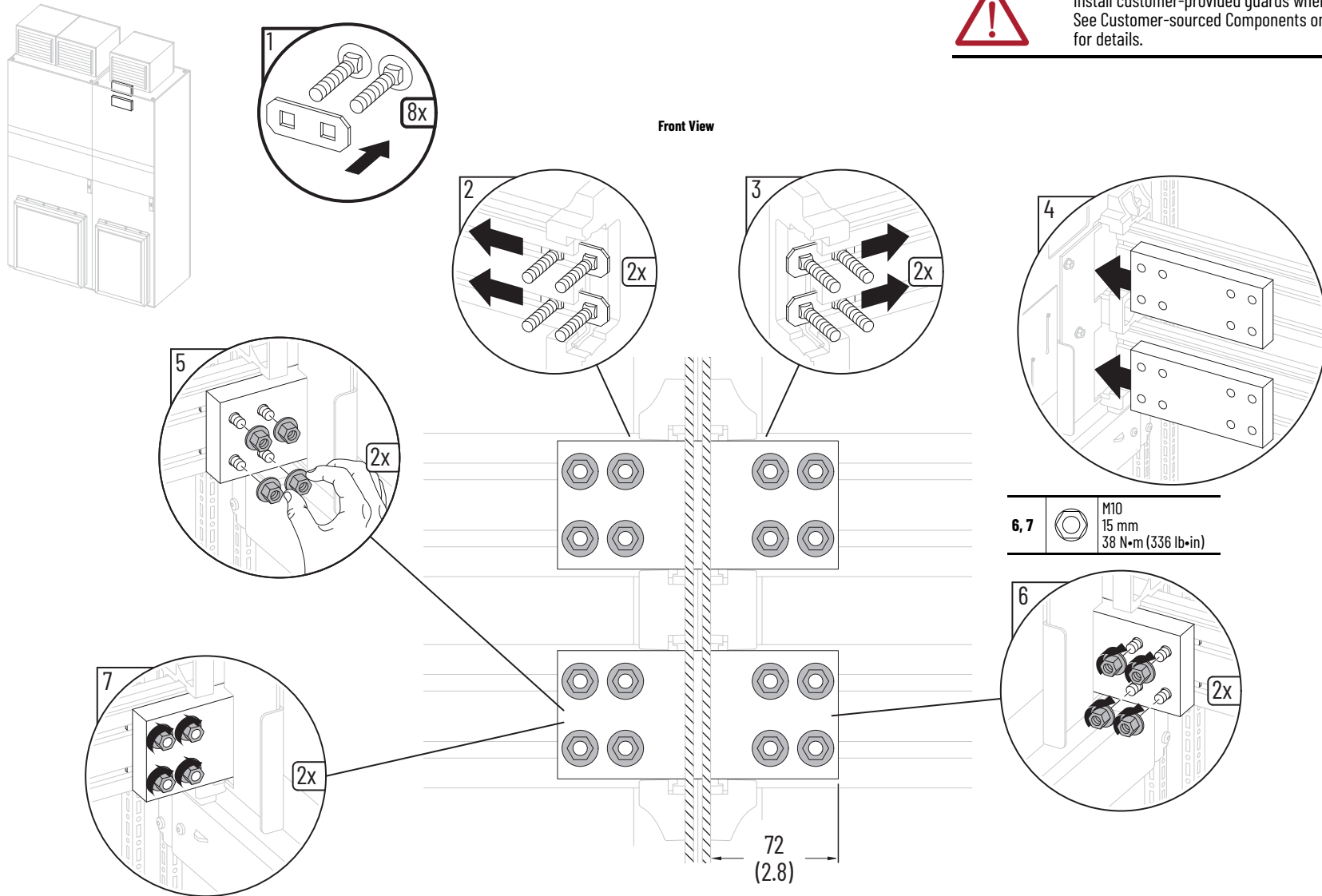
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



Kit Cat. No.	Kit Description/Installation
20-750-MDCSPL1-3K0 20-750-MDCSPL1-4K7	DC Bus Bar Splice



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

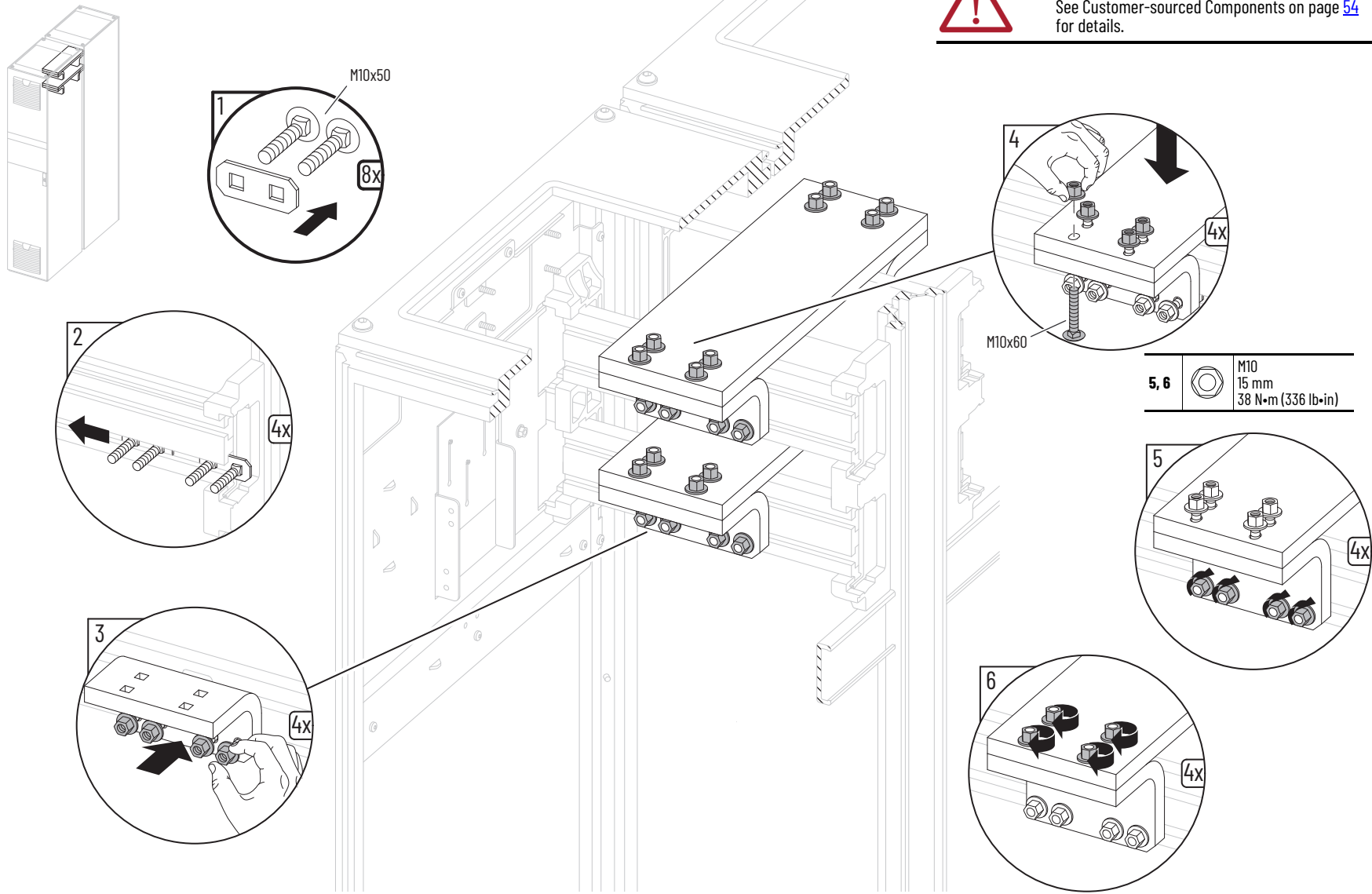


6.7		M10 15 mm 38 N•m (336 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-DCVBB-SPLICE	DC Bus Bar Splice, DC Voltage Balance Bays (Back-to-Back Orientation)



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

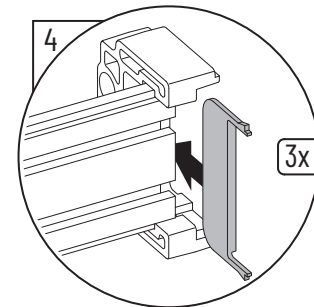
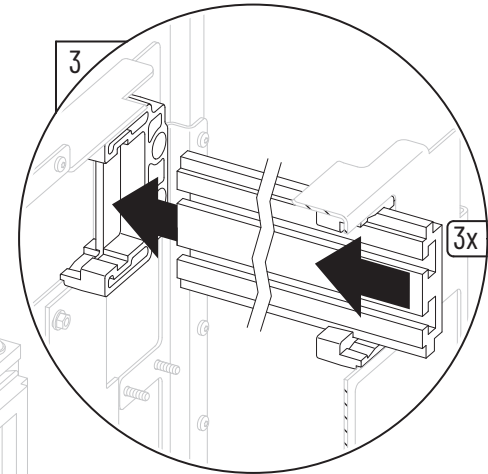
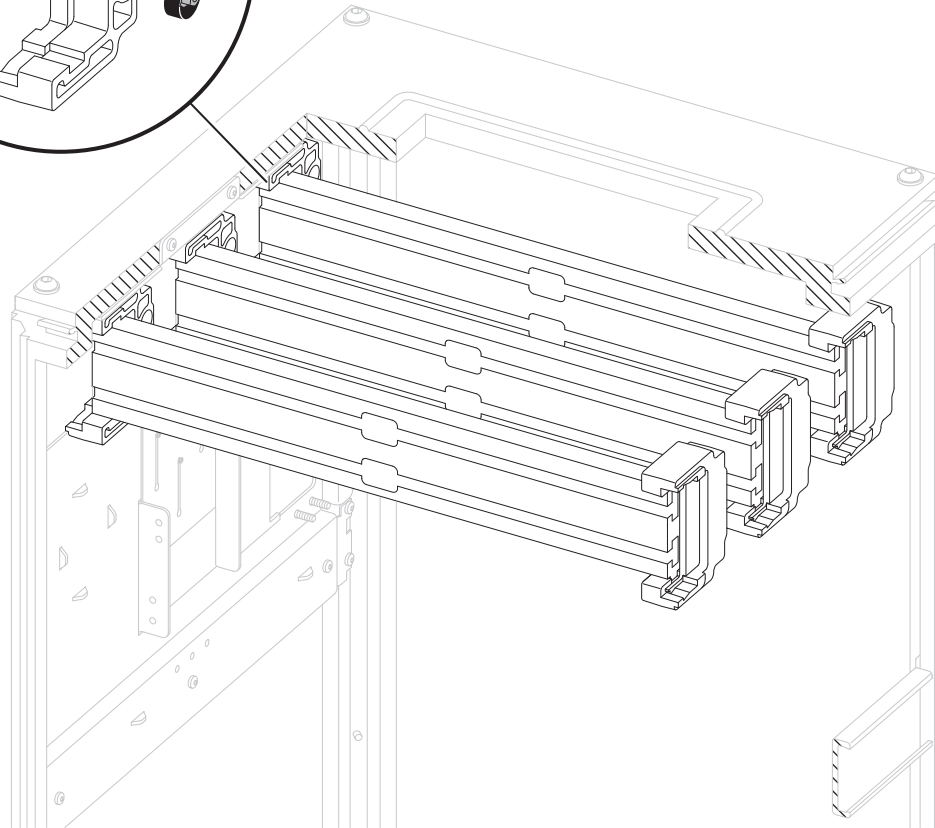
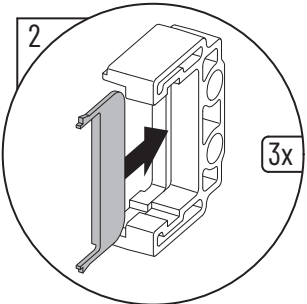
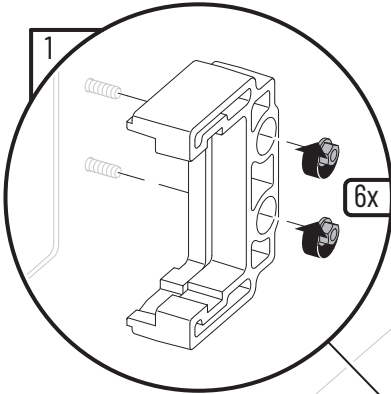
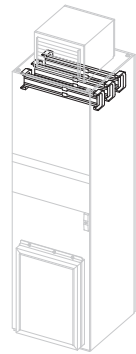


Kit Cat. No.			Kit Description/Installation
20-750-MACBUS6-3K0 (600 mm) 20-750-MACBUS6-4K7 (600 mm)	20-750-MACBUS8-3K0 (800 mm) 20-750-MACBUS8-4K7 (800 mm)	20-750-MACBUS10-3K0 (1000 mm) 20-750-MACBUS10-4K7 (1000 mm)	AC Input Bus Bars 20-750-MACBUS6-4K7 Weight: 37.8 kg (84 lb) 20-750-MACBUS8-4K7 Weight: 57.2 kg (127 lb)

1		M6 10 mm 4.8 N•m (42 lb•in)
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ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page [54](#) for details.

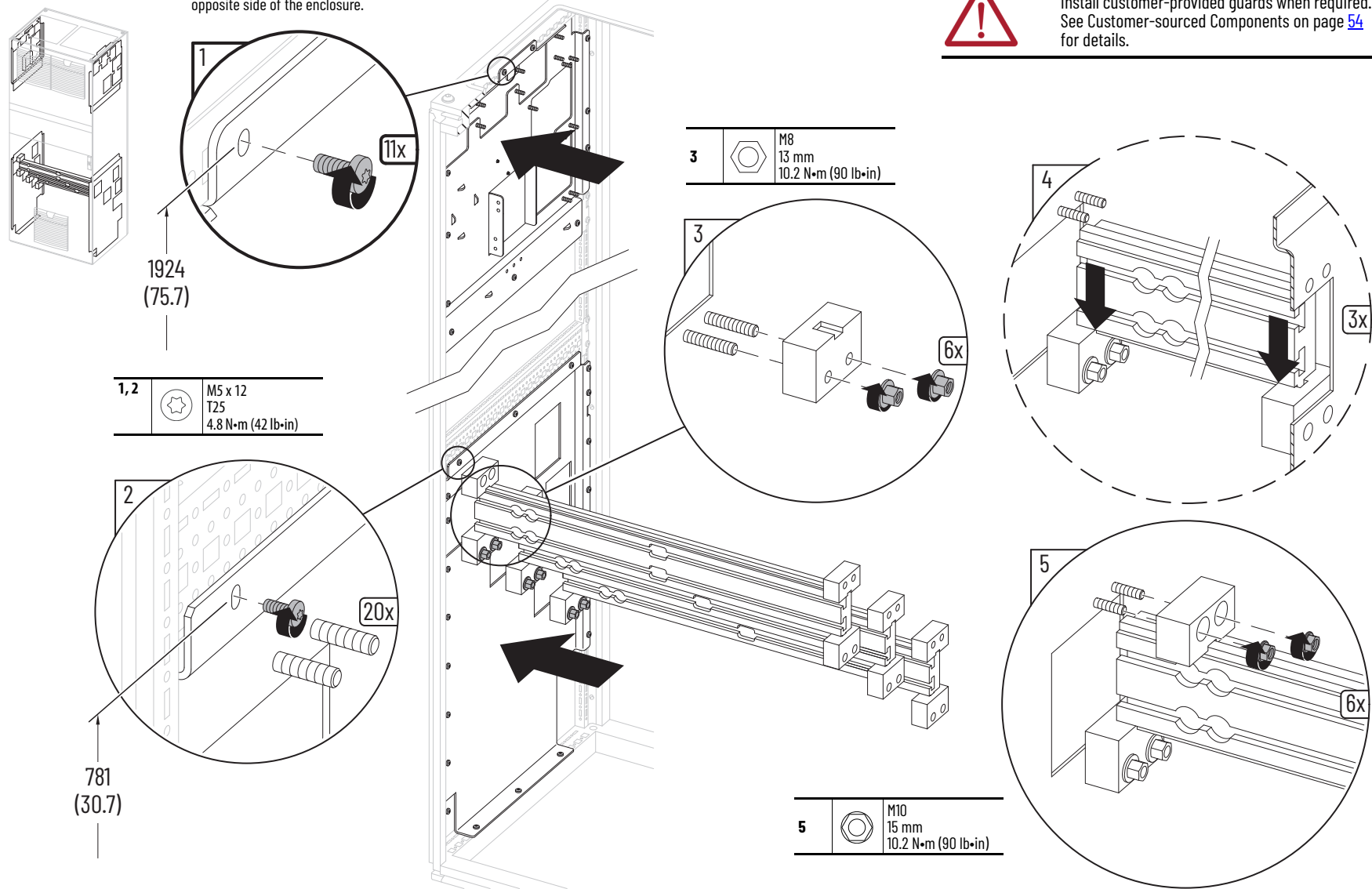


Kit Cat. No.	Kit Description/Installation
20-750-MTEBUS2-3K0 (400 mm) 20-750-MTEBUS1-4K7 (800 mm) 20-750-MWBPNL1-F8M	AC Bus Bars, Top Cable Entry/Exit Wire Bay: 20-750-MTEBUS1-4K7 Weight 52.65 kg (117 lb) Entry/Exit Wire Bay Bus Support Panels, Right and Left Side

Repeat all steps for the second panels on the opposite side of the enclosure.



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



1, 2		M5 x 12 T25 4.8 N•m (42 lb•in)
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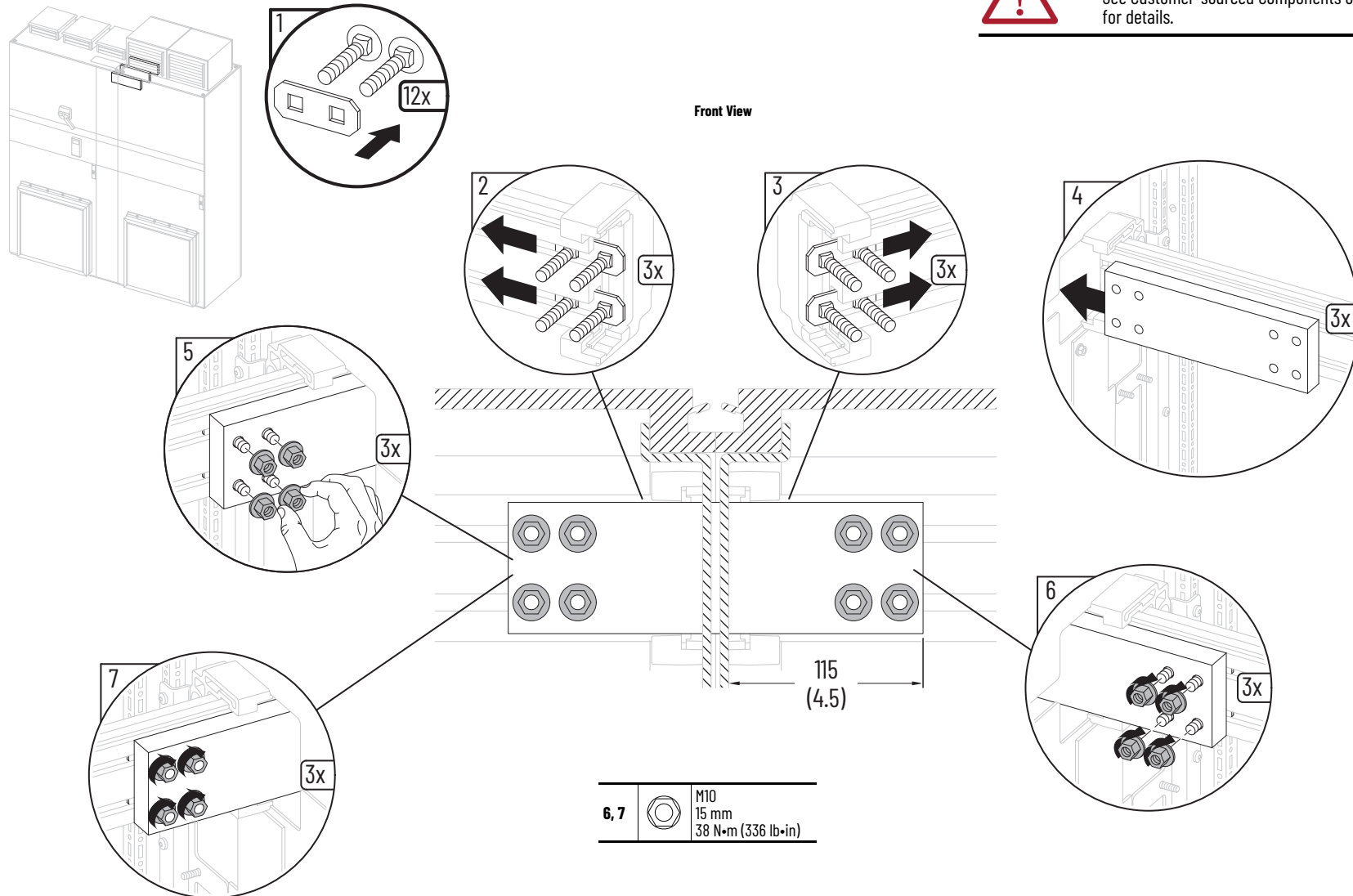
3		M8 13 mm 10.2 N•m (90 lb•in)
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5		M10 15 mm 10.2 N•m (90 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MACSPL2-3K0 20-750-MACSPL2-4K7	AC Bus Bar Splice, AC Input Bus Bars



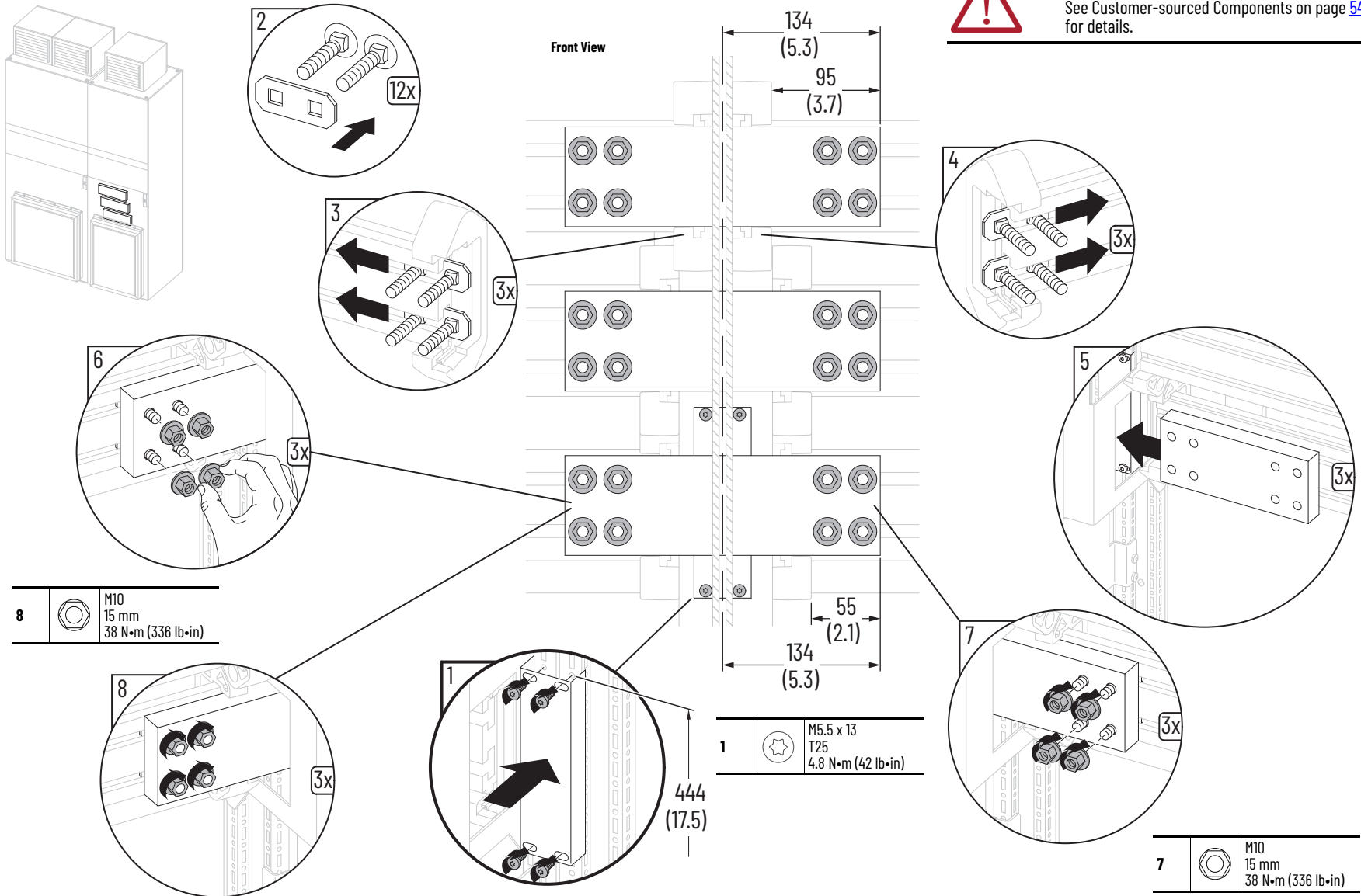
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



Kit Cat. No.	Kit Description/Installation
20-750-MACSPL1-F10M 20-750-MACSPL1-F11M	AC Bus Bar Splice, AC Output Bus Bars (Inverter Power Bays)



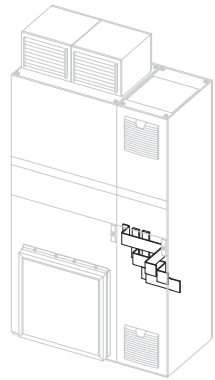
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



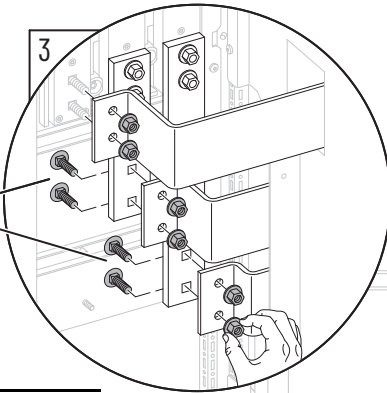
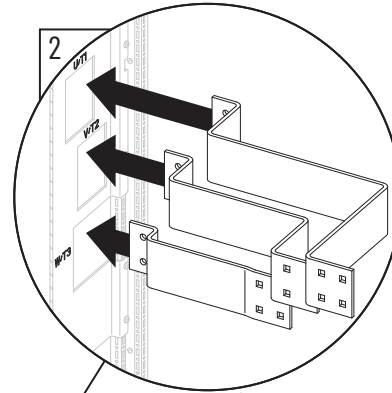
Kit Cat. No.	Kit Description/Installation
20-750-MTESPL1-F8M	AC Bus Bar Splice, Exit Wire Bay (Frame 8)



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

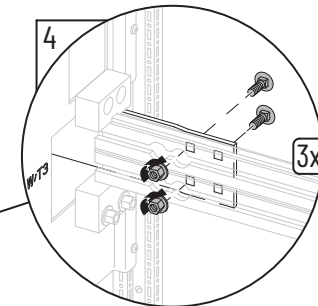


1		M10 15 mm 38 N•m (336 lb•in)
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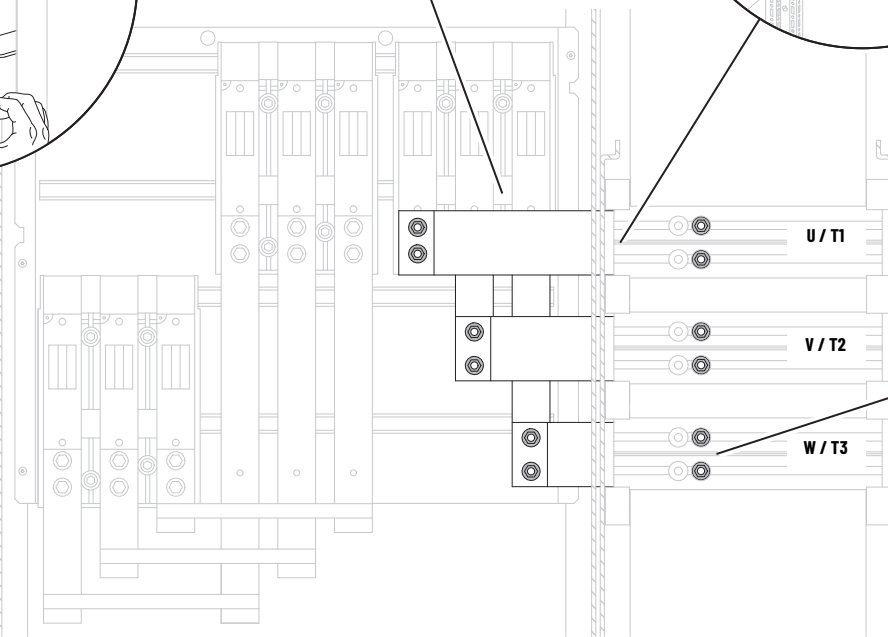
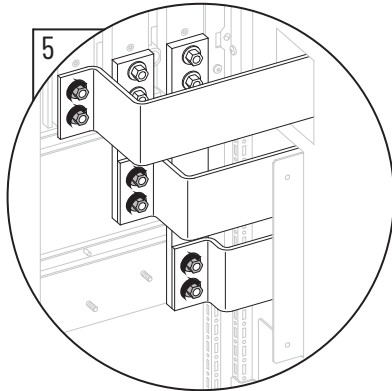


Front View

4		M10 15 mm 38 N•m (336 lb•in)
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5		M10 15 mm 38 N•m (336 lb•in)
---	--	------------------------------------

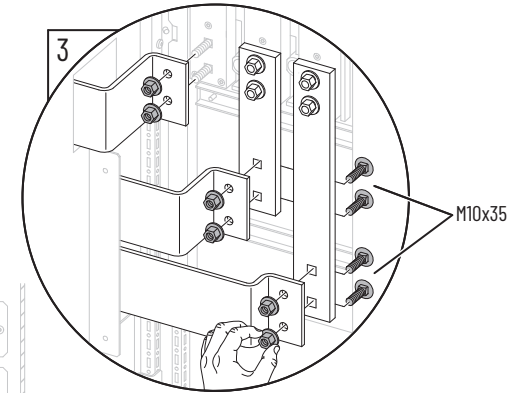
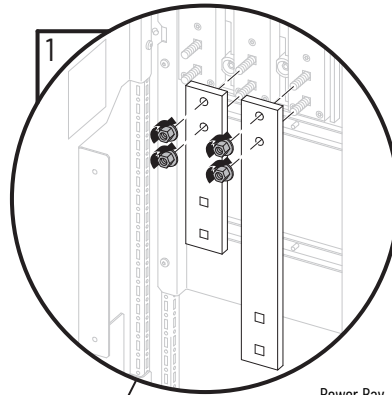
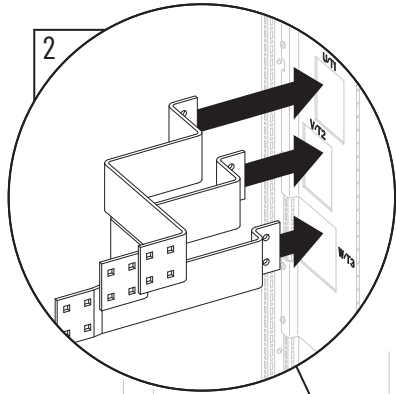
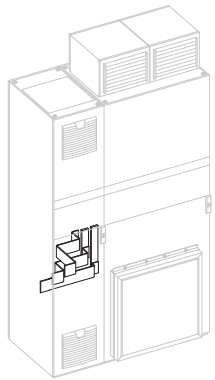



Kit Cat. No.	Kit Description/Installation
20-750-MTESPL2-F8M	AC Bus Bar Splice, Exit Wire Bay - Right-to-Left (Frame 8)

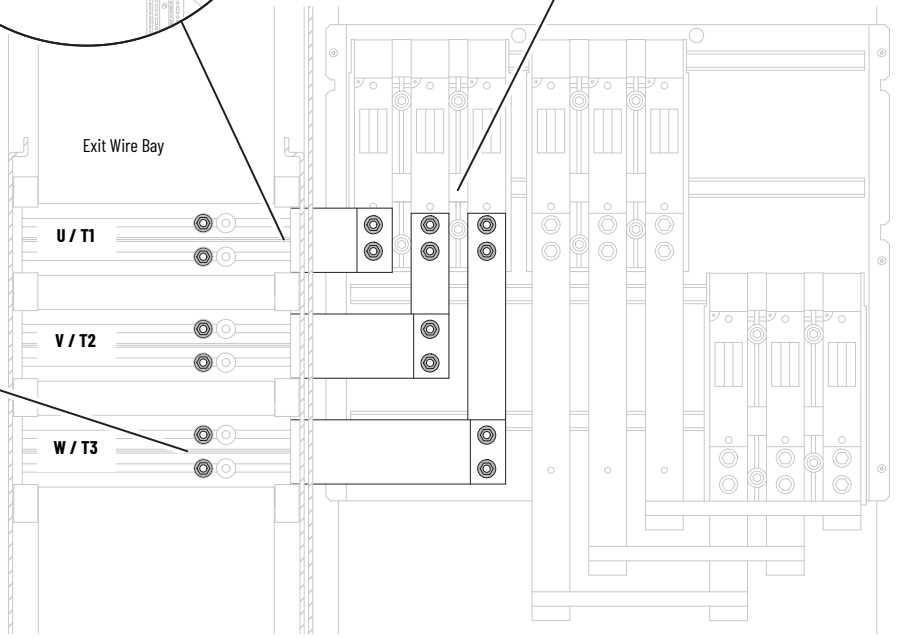
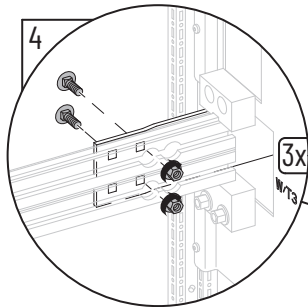



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

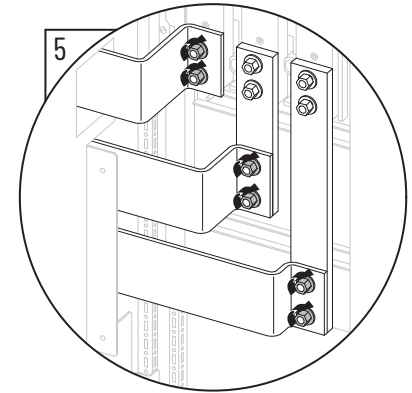
1		M10 15 mm 38 N•m (336 lb•in)
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4		M10 15 mm 38 N•m (336 lb•in)
---	---	------------------------------------



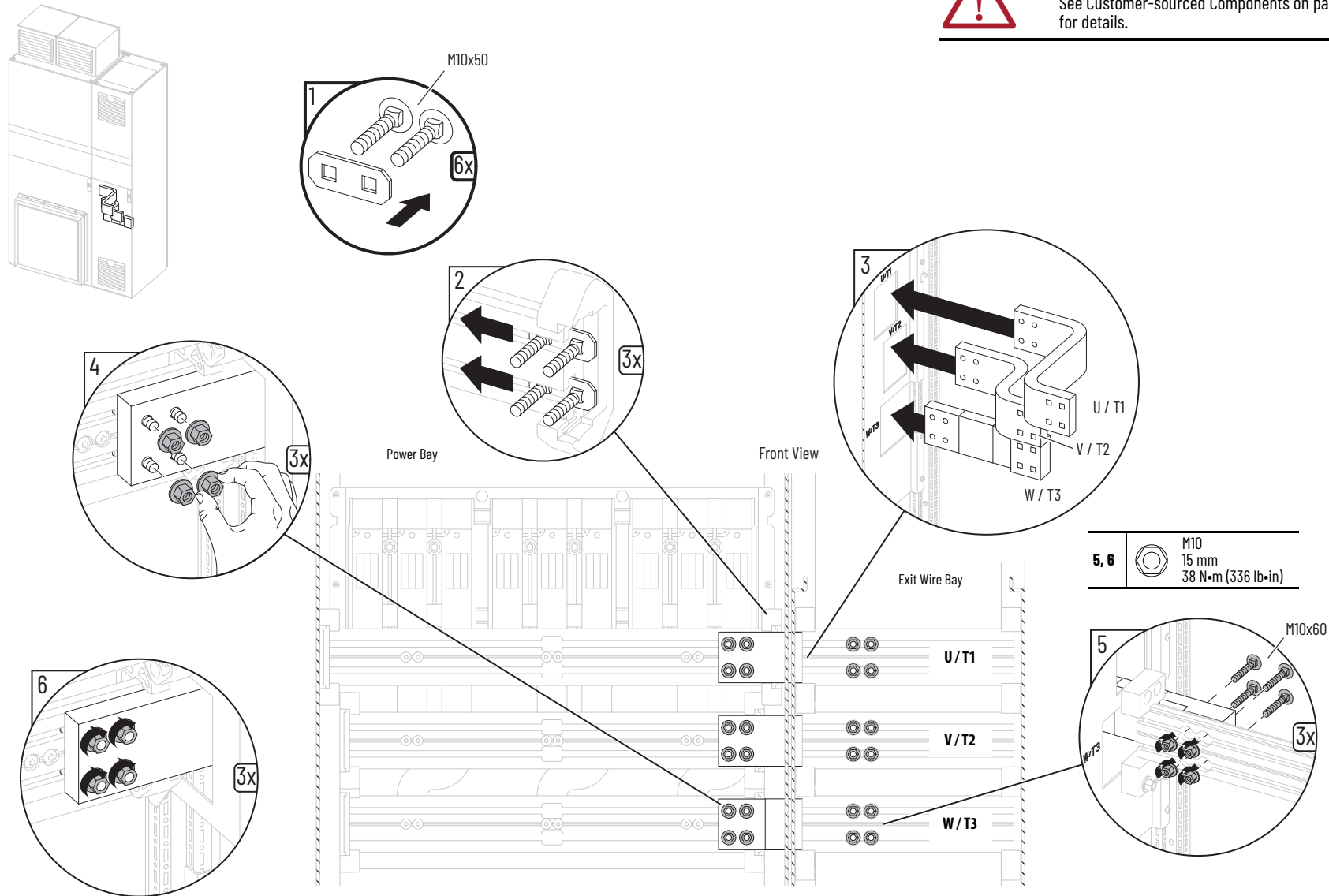
5		M10 15 mm 38 N•m (336 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MTESPL2-F10M	AC Bus Bar Splice, Exit Wire Bay - (Frames 9, 10, and 13)

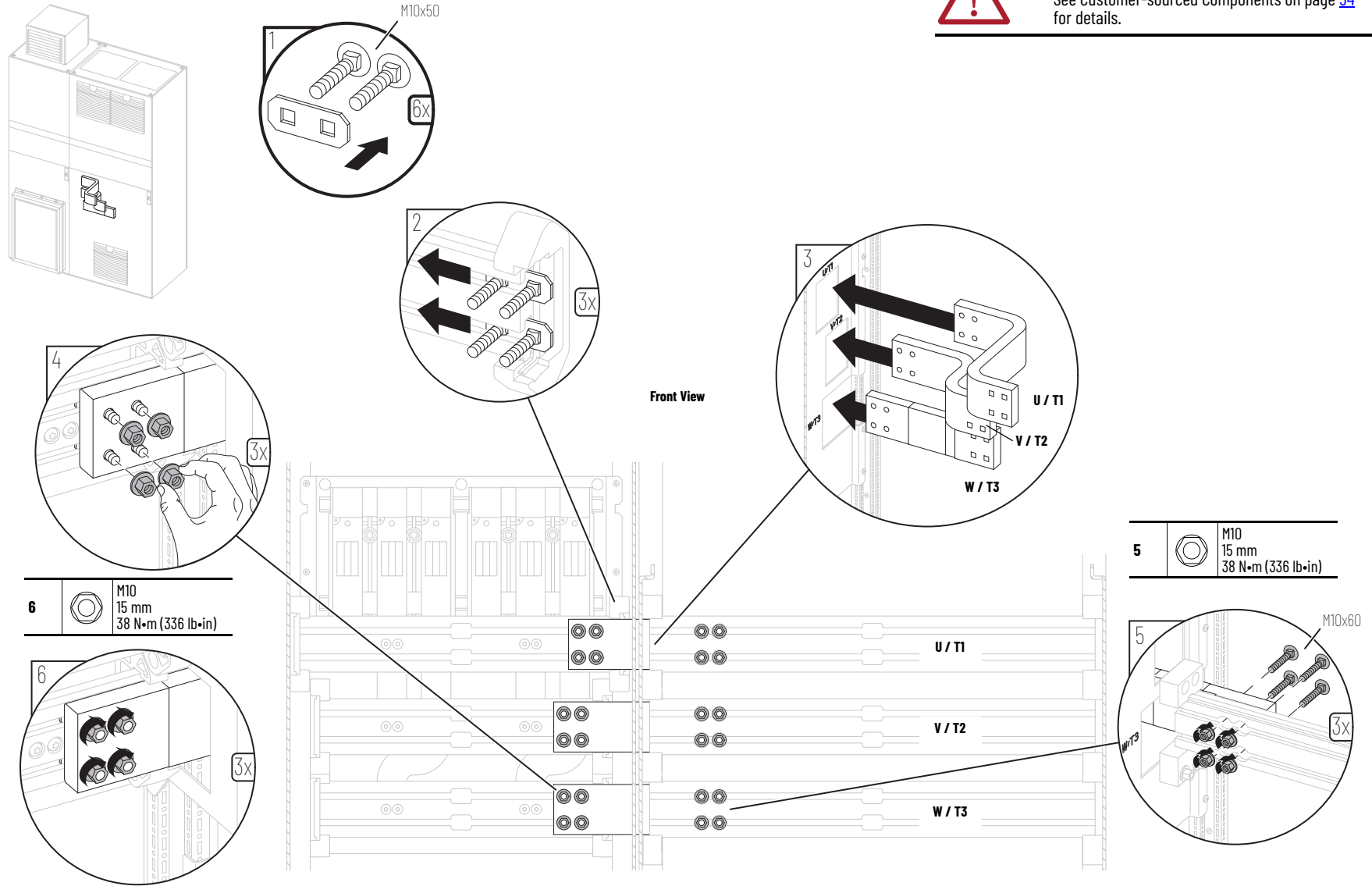


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



Kit Cat. No.	Kit Description/Installation
20-750-MTESPL3-F12M	AC Bus Bar Splice, Exit Wire Bay - (Frames 11, 12, 14, and 15)

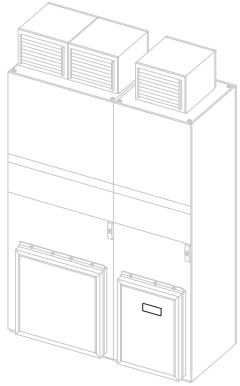
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.




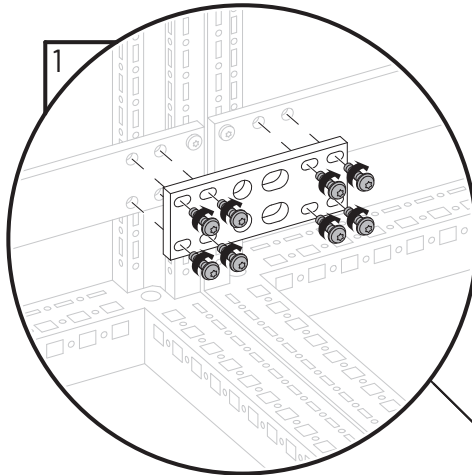
Kit Cat. No.	Kit Description/Installation
20-750-MGNDSP1	Ground Bus Bar Splice



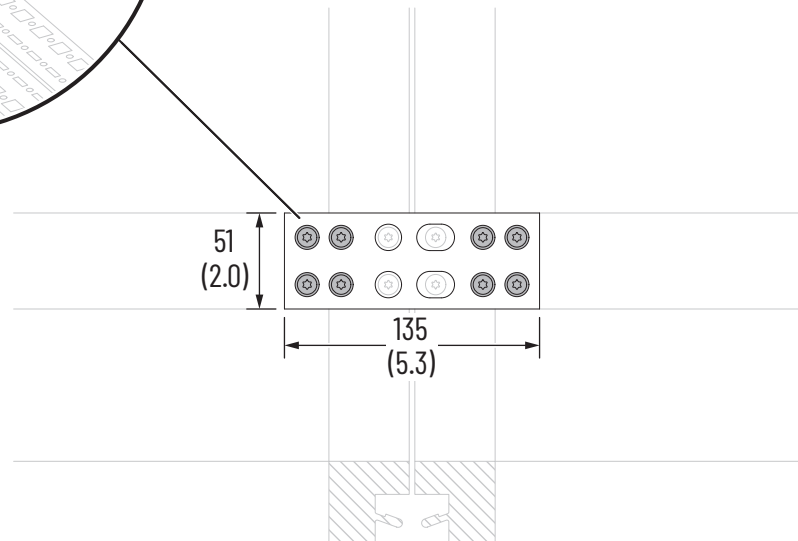
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page [54](#) for details.



1	 M6 x 25 mm T30 10.2 N•m (90 lb•in)
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Front View

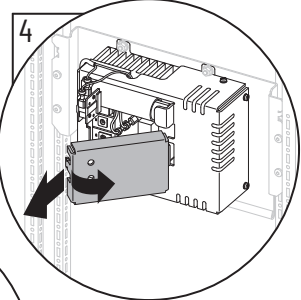
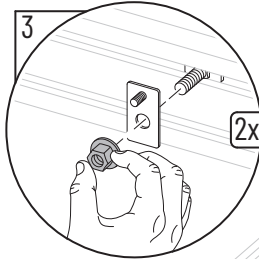
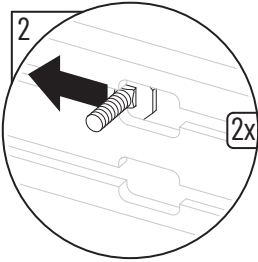
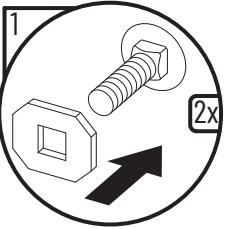
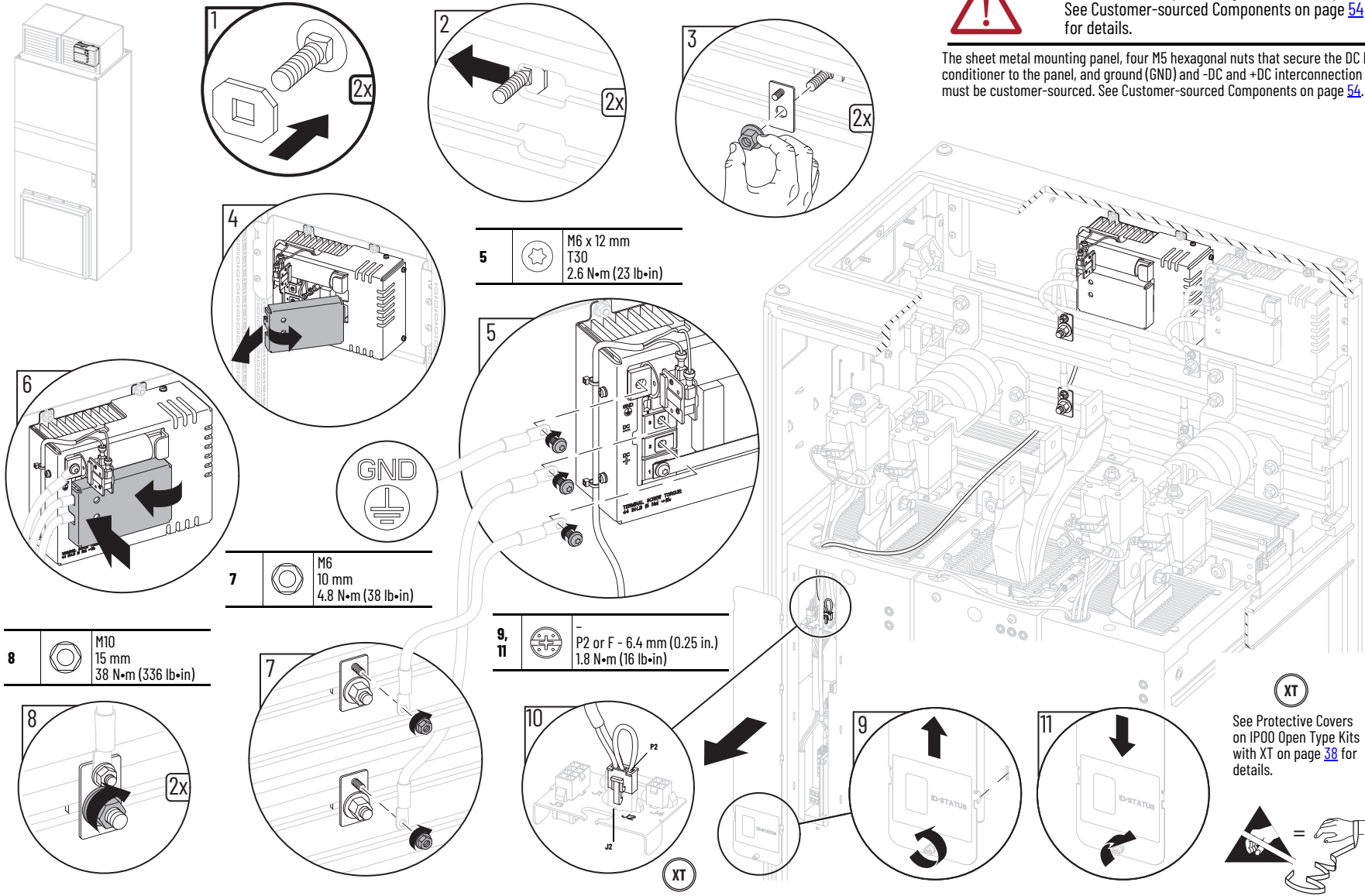


Kit Cat. No.	Kit Description/Installation
20-750-MDCBUS-COND 20-750-MDCBUS1-COND	DC Bus Conditioner Marine DC Bus Conditioner (not certified for use in marine applications for frames 13...15.)



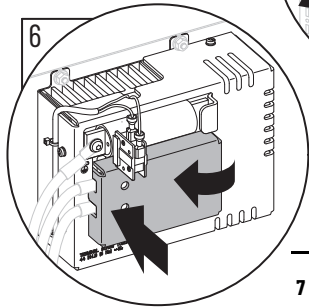
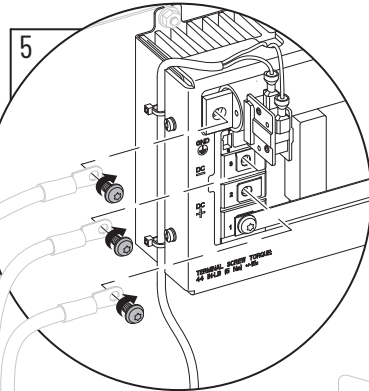
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

The sheet metal mounting panel, four M5 hexagonal nuts that secure the DC bus conditioner to the panel, and ground (GND) and -DC and +DC interconnection wires must be customer-sourced. See Customer-sourced Components on page 54.



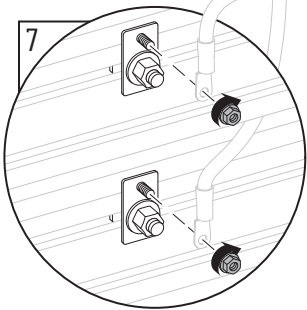
5

M6 x 12 mm
T30
2.6 N•m (23 lb•in)



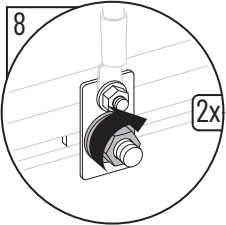
7

M6
10 mm
4.8 N•m (38 lb•in)



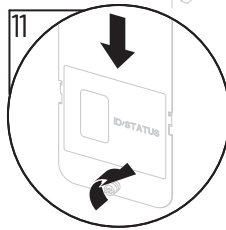
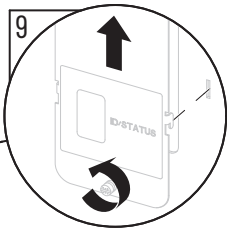
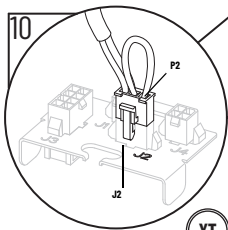
8

M10
15 mm
38 N•m (336 lb•in)



9, 11

-
P2 or F - 6.4 mm (0.25 in.)
1.8 N•m (16 lb•in)




XT

See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.




Kit Cat. No.	Kit Description/Installation
20-750-MBSCD-DB	Frame 7 Marine Discharge Circuit Board

1	 M4 x 10 mm T20 1.6 N·m (23 lb·in)
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The sheet metal mounting panel, wire harness, and two M6 x 10 mm Torx screws (shown in steps 3 and 4) that secure the wire harness connections to the +DC and -DC bus bars must be customer sourced. See Customer-sourced Components on page 54.




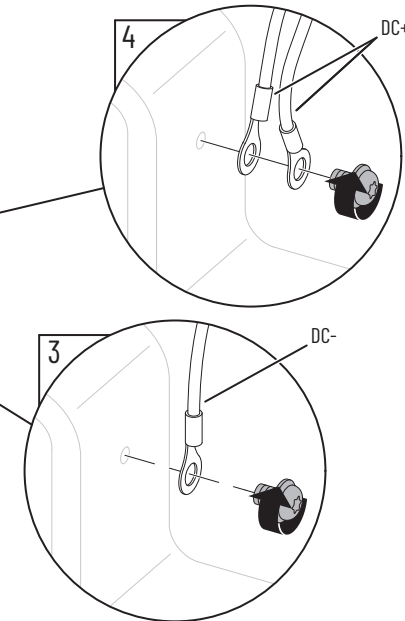
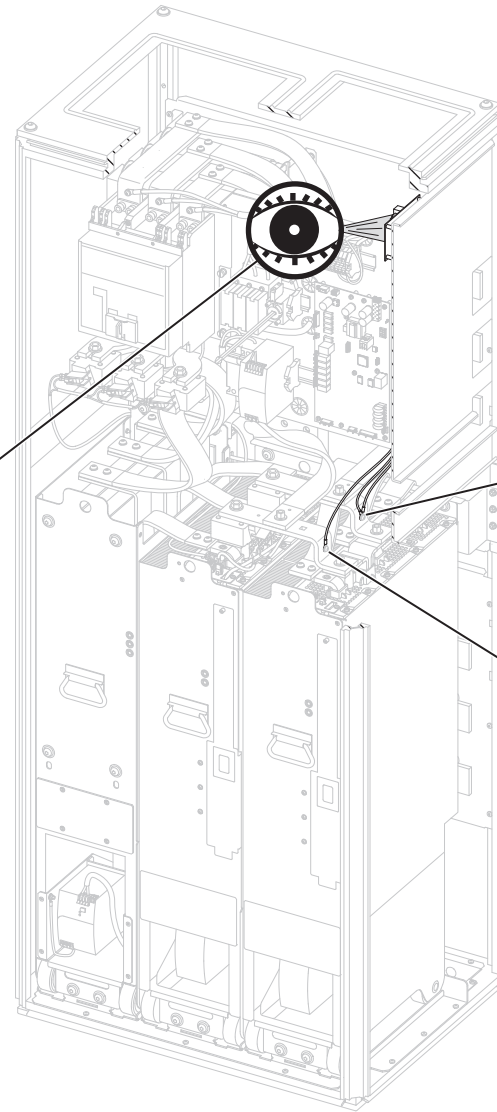
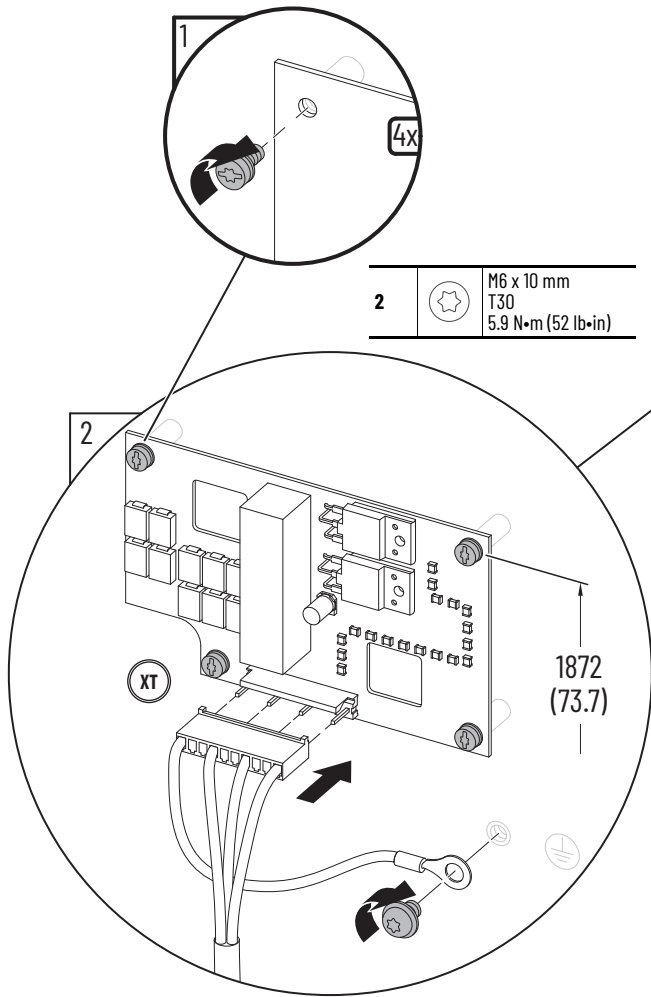
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

 See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.



2	 M6 x 10 mm T30 5.9 N·m (52 lb·in)
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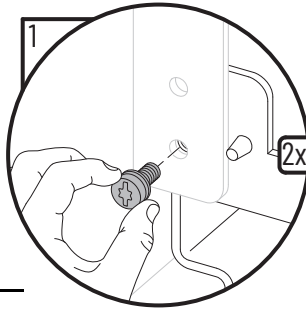
3, 4	 M6 x 12 mm T30 5.9 N·m (52 lb·in)
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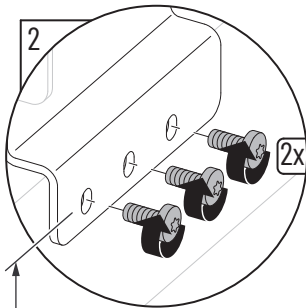
Kit Cat. No.	Kit Description/Installation
20-750-MCBUS1-CB-F8M	Control Bus Assembly, 300 mm Wide Control Bay




ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

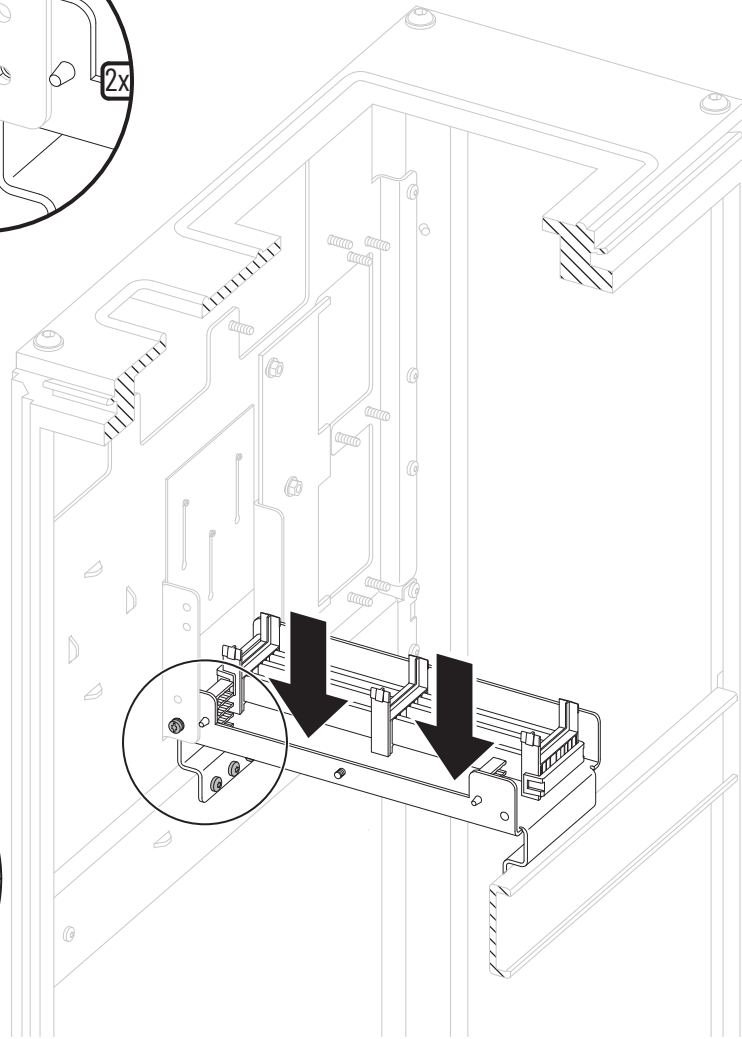
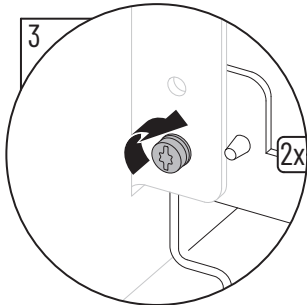


2	 M5.5 x 13 mm T30 4.8 N•m (42 lb•in)
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1481
(58.3)

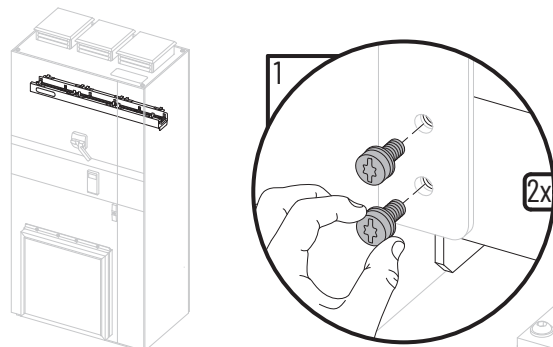
3	 M5 x 12 mm T25 7.9 N•m (70 lb•in)
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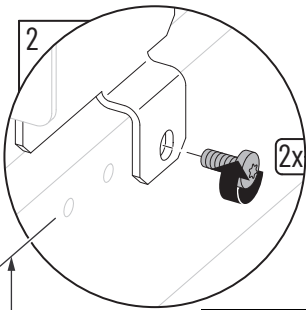
Kit Cat. No.	Kit Description/Installation
20-750-MCBUS1-IB-F8M (400 mm) 20-750-MCBUS1-IB-F9M (600 mm) 20-750-MCBUS1-IB-F10M (1000 mm)	Control Bus Assembly, Input Bays The Control Bus Connector (1) kit catalog number 20-750-MCTRLBUS-CONN2 is sold as a separate kit and is compatible with only the 1000 mm wide control bus assembly. See Control Bus Assembly and Control Bus Connectors on page 155 for more information.




ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

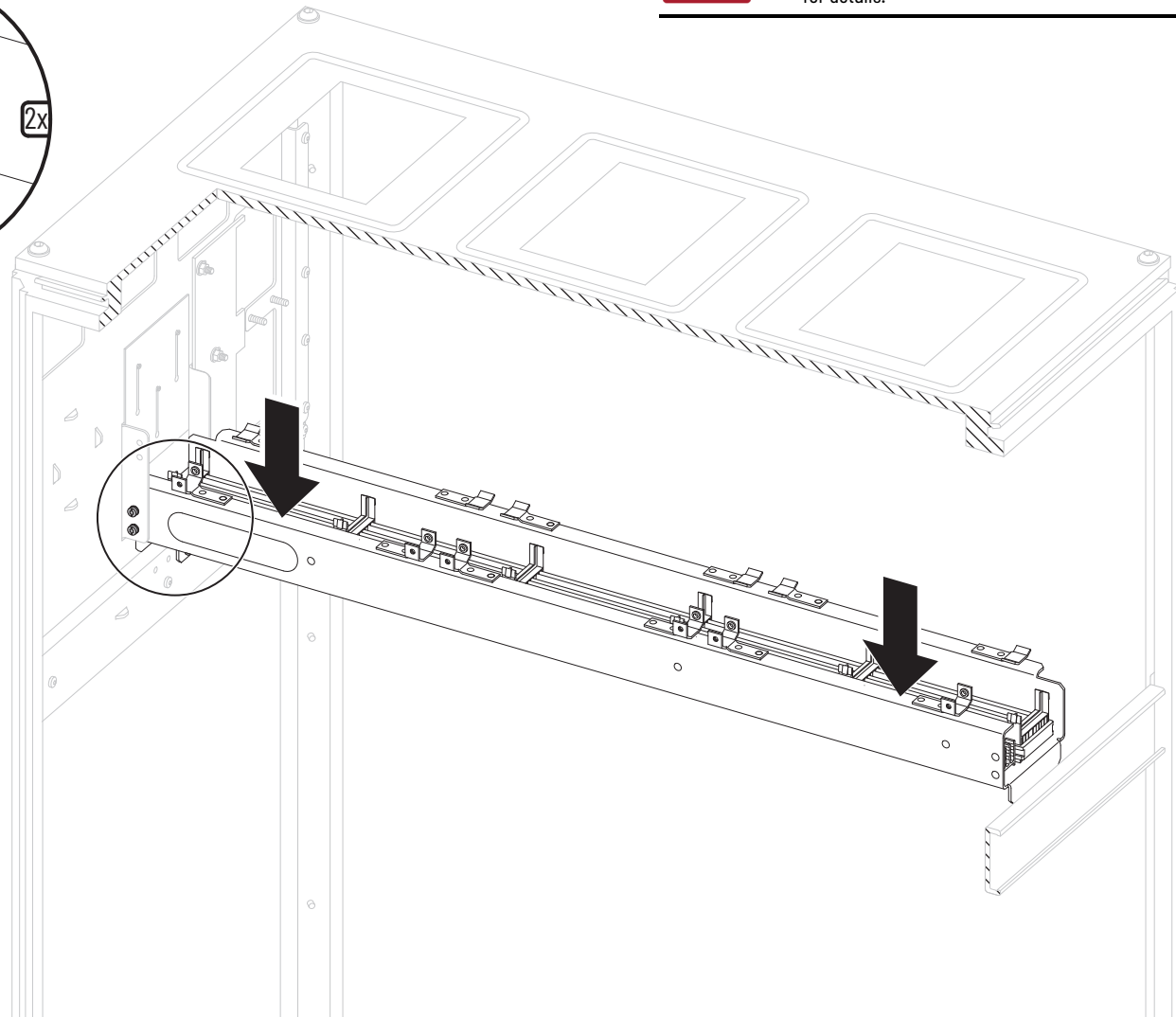
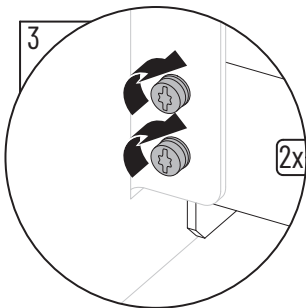


2	 M5.5 x 13 mm T30 4.8 N•m (42 lb•in)
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3	 M5 x 12 mm T25 7.9 N•m (70 lb•in)
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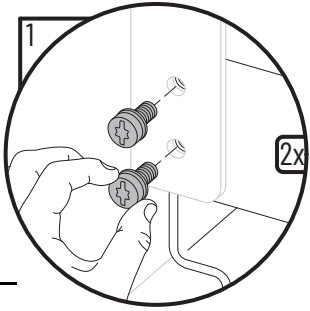
1481
(58.3)



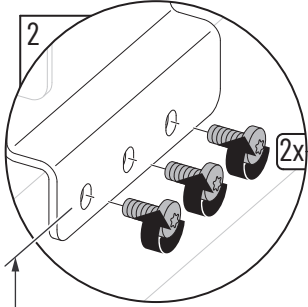
Kit Cat. No.	Kit Description/Installation
20-750-MCBUS1-PB-F8M (400 mm) 20-750-MCBUS1-PB-F9M (600 mm) 20-750-MCBUS1-PB-F10M (800 mm)	Control Bus Assembly, Power Bays



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

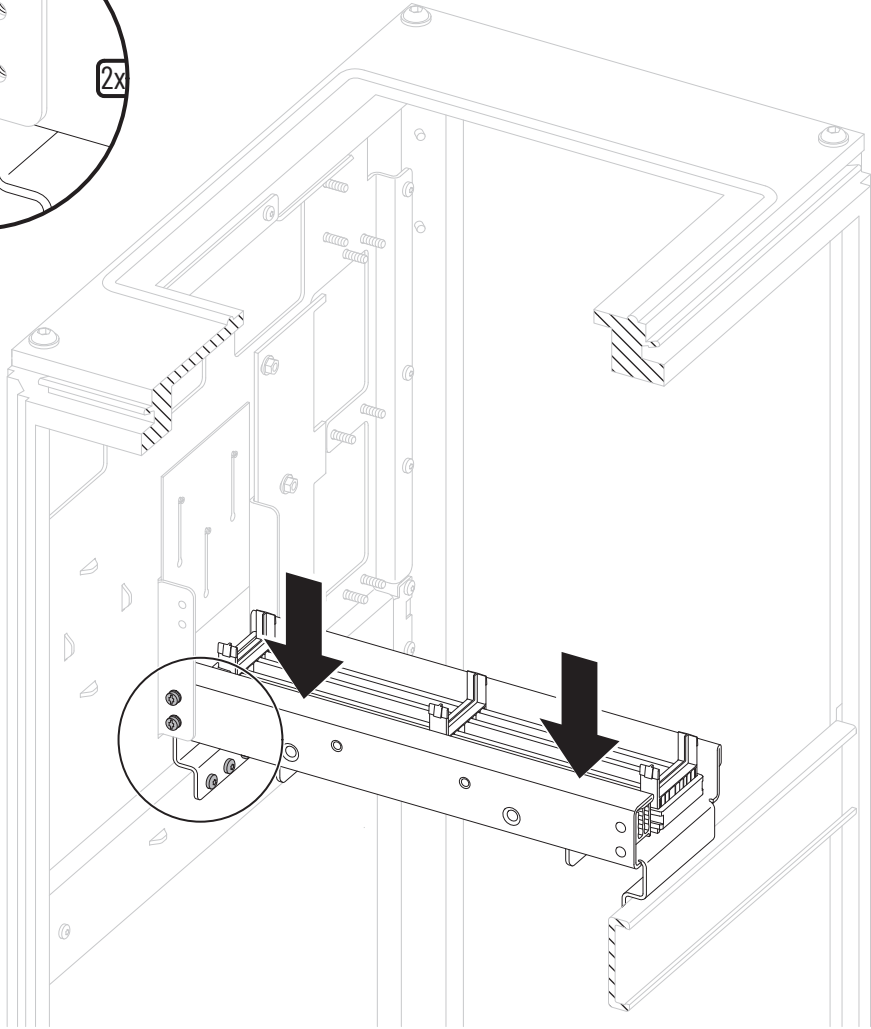
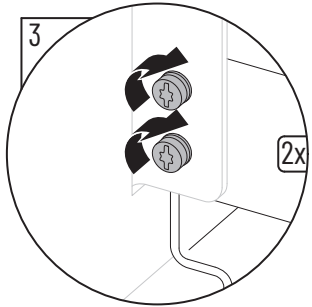


2		M5.5 x 13 mm T30 4.8 N•m (42 lb•in)
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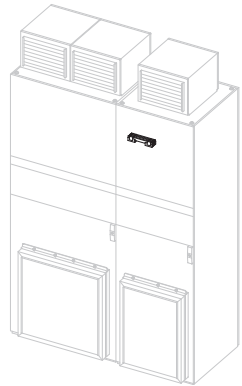


1481
(58.3)

3		M5 x 12 mm T25 7.9 N•m (70 lb•in)
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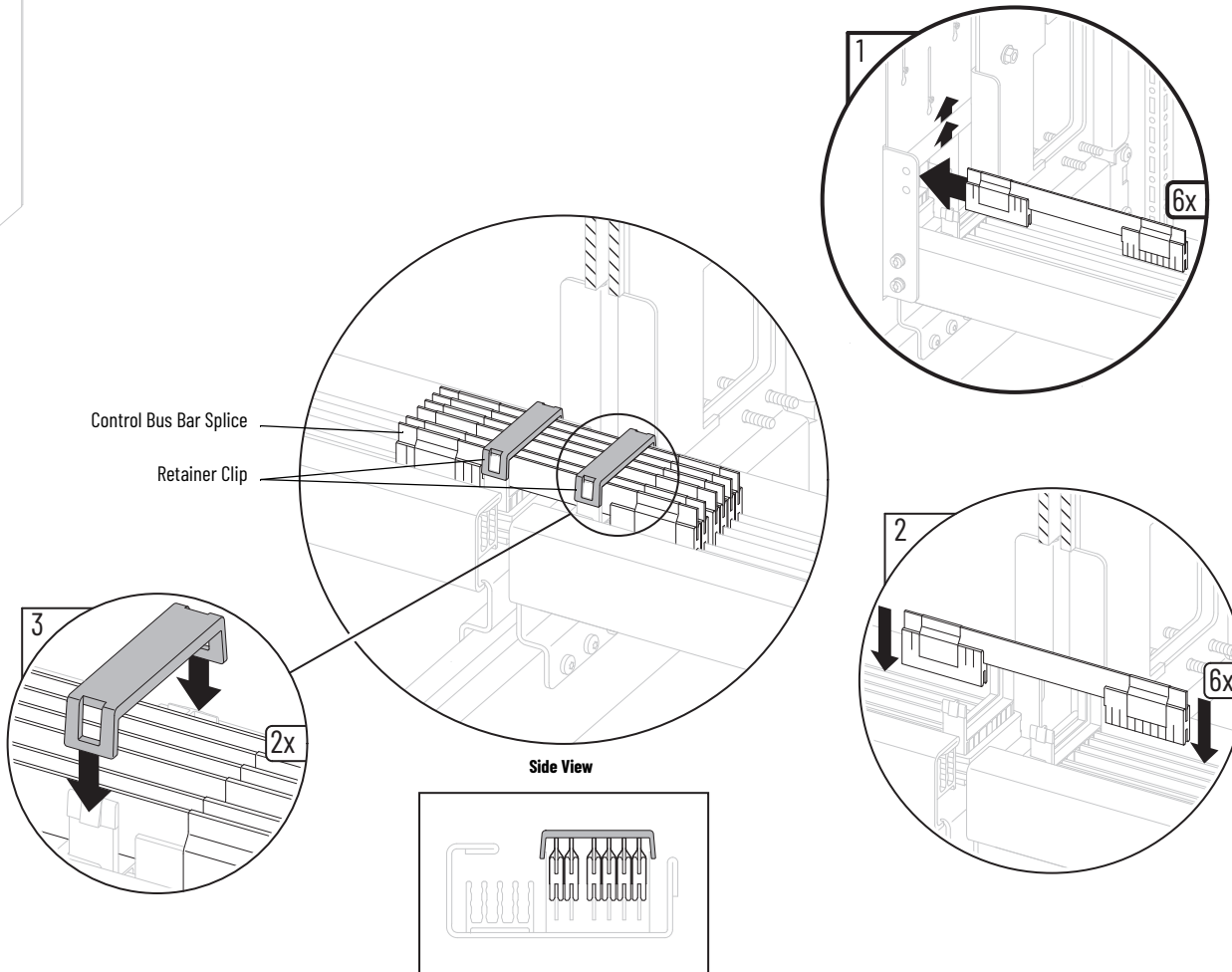
Kit Cat. No.	Kit Description/Installation
20-750-MCTRLBUS-SPL	Control Bus, Bus Bar Splice



IMPORTANT Verify that the control bus bar splice is fully seated. The retainer clips cannot engage unless the control bus bar splice is fully seated against the control bus bars and is level.



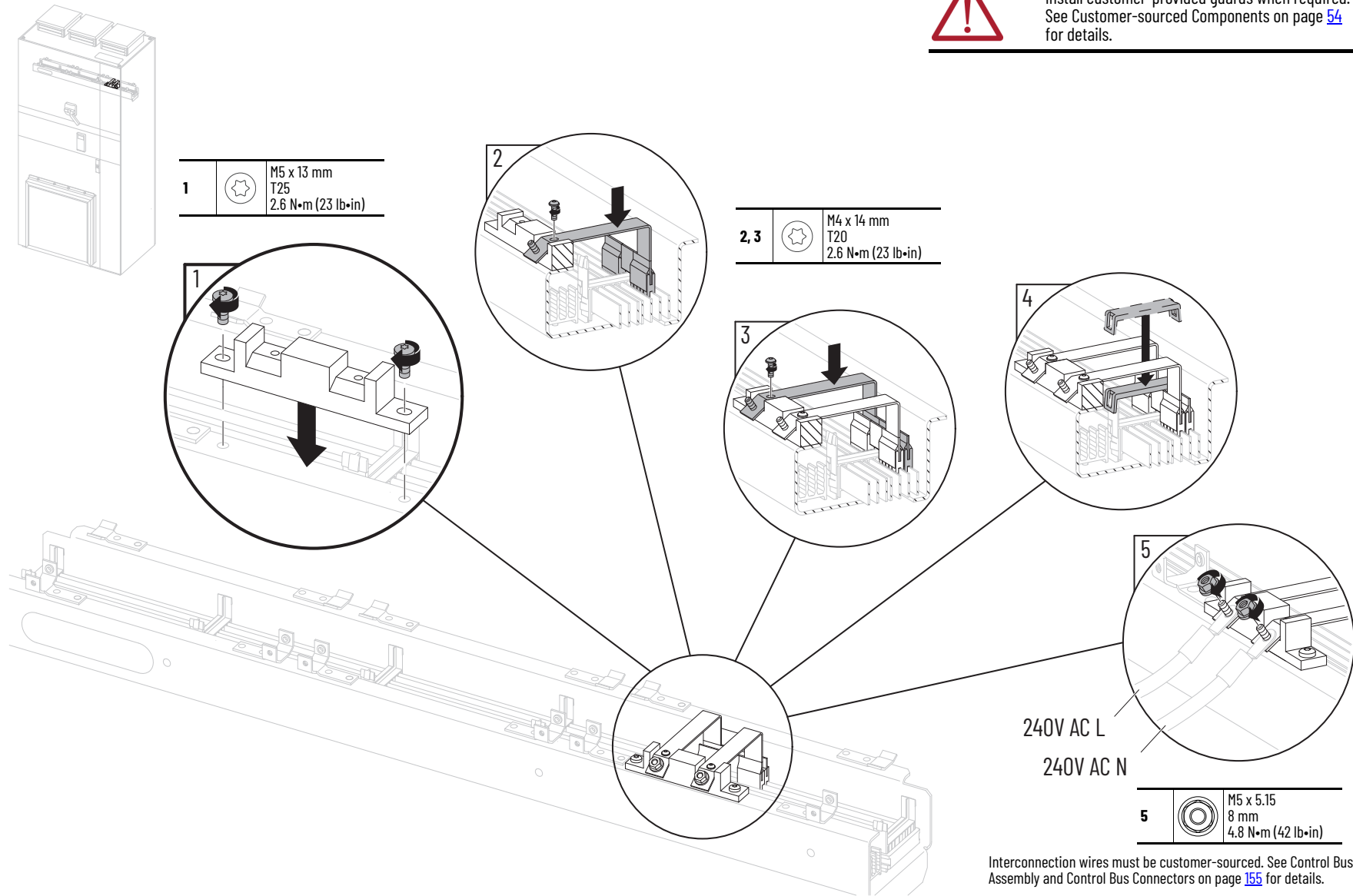
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



Kit Cat. No.	Kit Description/Installation
20-750-MCTRLBUS-CONN2	Control Bus Connector

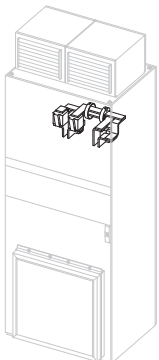


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



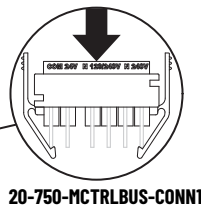
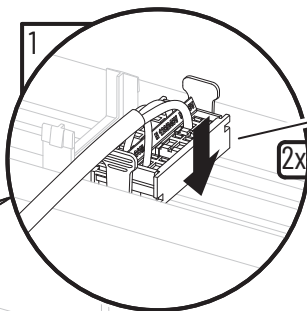
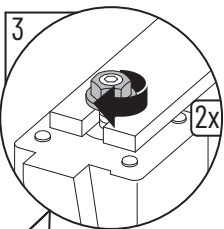
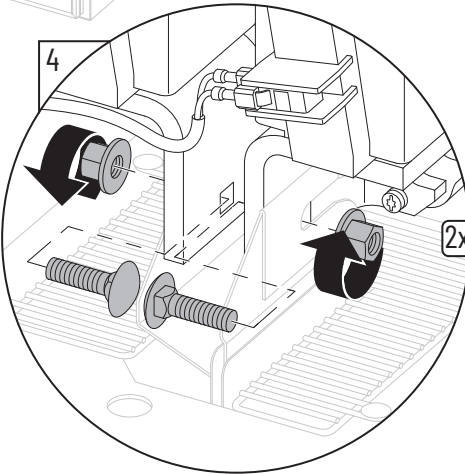
Kit Cat. No.	Kit Description/Installation
20-750-MDCL2-CD-F8M (400/480V) 20-750-MDCL2-EF-F8M (600/690V)	DC Link/Fuse Assembly for Frame 8 Regenerative Drive (Left-to-Right Installation).

ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

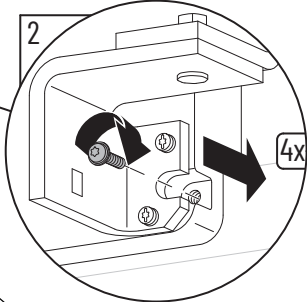


4		M10 15 mm 38 N•m (336 lb•in)
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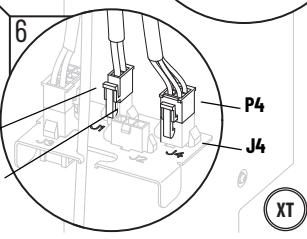
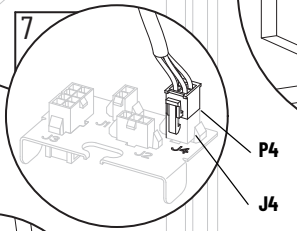
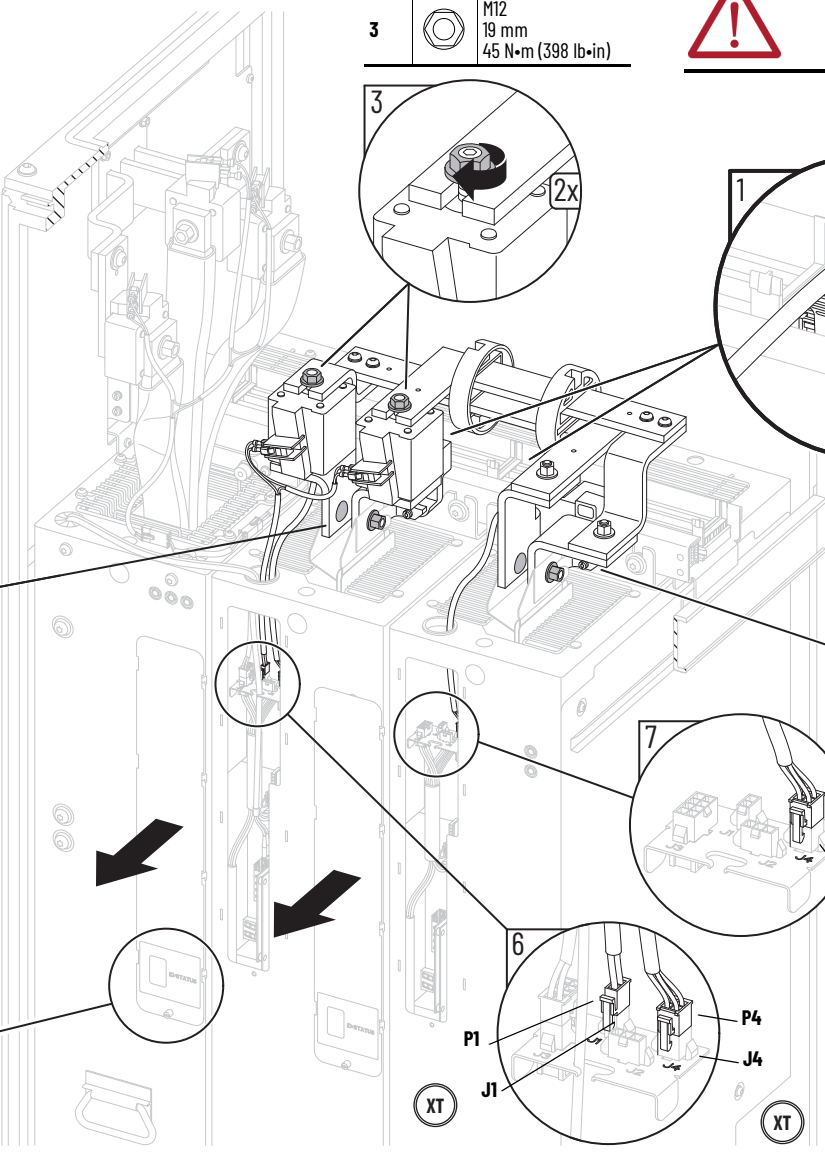
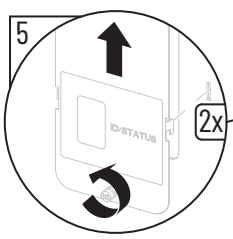
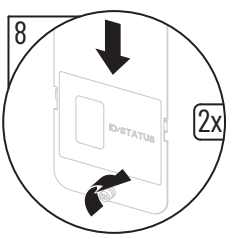
3		M12 19 mm 45 N•m (398 lb•in)
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2		M6 x 25 mm T30 10.2 N•m (90 lb•in)
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5, 8		P2 or F - 6.4 mm (0.25 in.) 1.8 N•m (16 lb•in)
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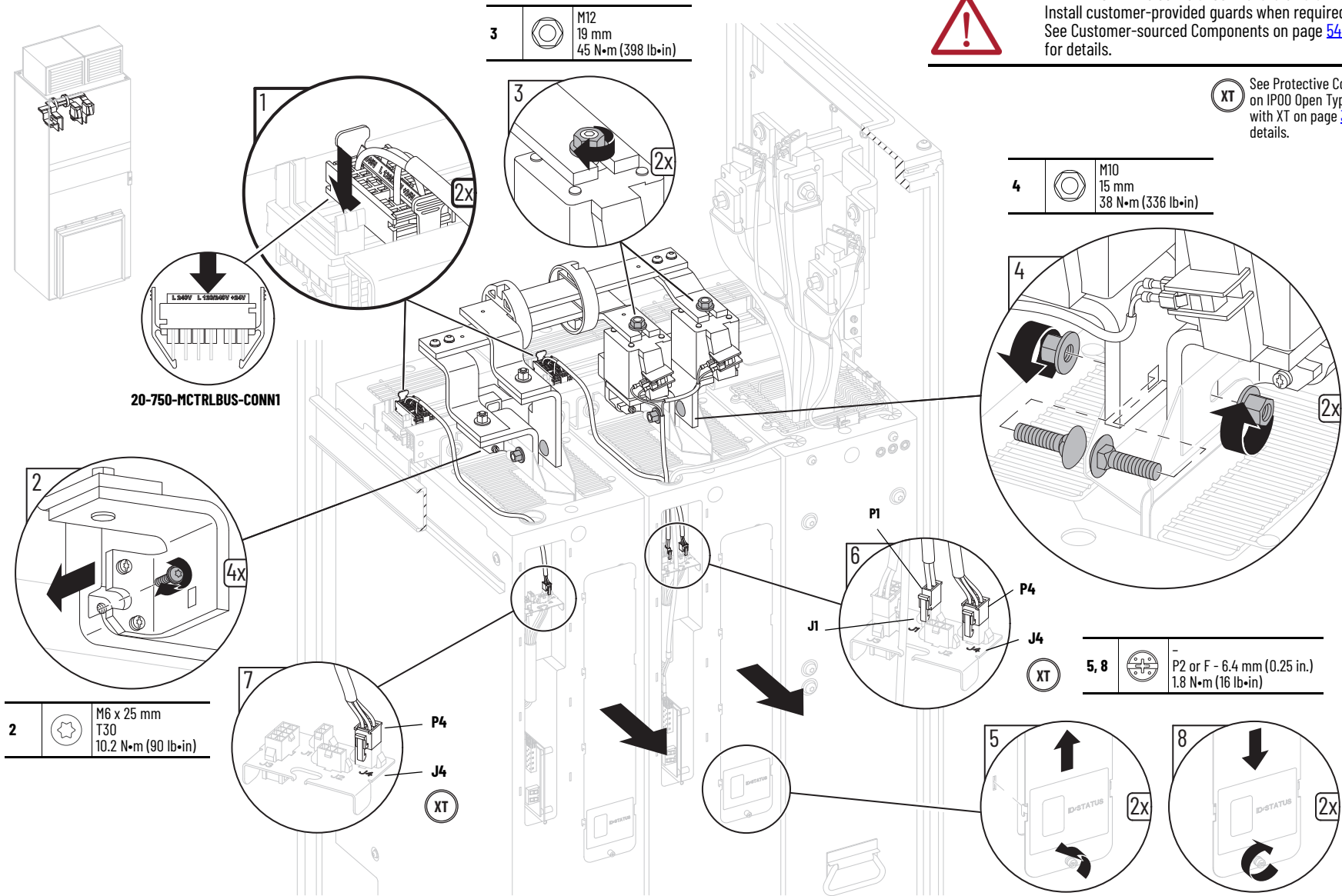
XT See Protective Covers on IPO0 Open Type Kits with XT on page 38 for details.

Kit Cat. No.	Kit Description/Installation
20-750-MDCL3-CD-F8M (400/480V) 20-750-MDCL3-EF-F8M (600/690V)	DC Link/Fuse Assembly for Frame 8 Regenerative Drive (Right-to-Left Installation).



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

XT See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.



3		M12 19 mm 45 N•m (398 lb•in)
---	--	------------------------------------

4		M10 15 mm 38 N•m (336 lb•in)
---	--	------------------------------------

2		M6 x 25 mm T30 10.2 N•m (90 lb•in)
---	--	--

5, 8		P2 or F - 6.4 mm (0.25 in.) 1.8 N•m (16 lb•in)
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XT

XT

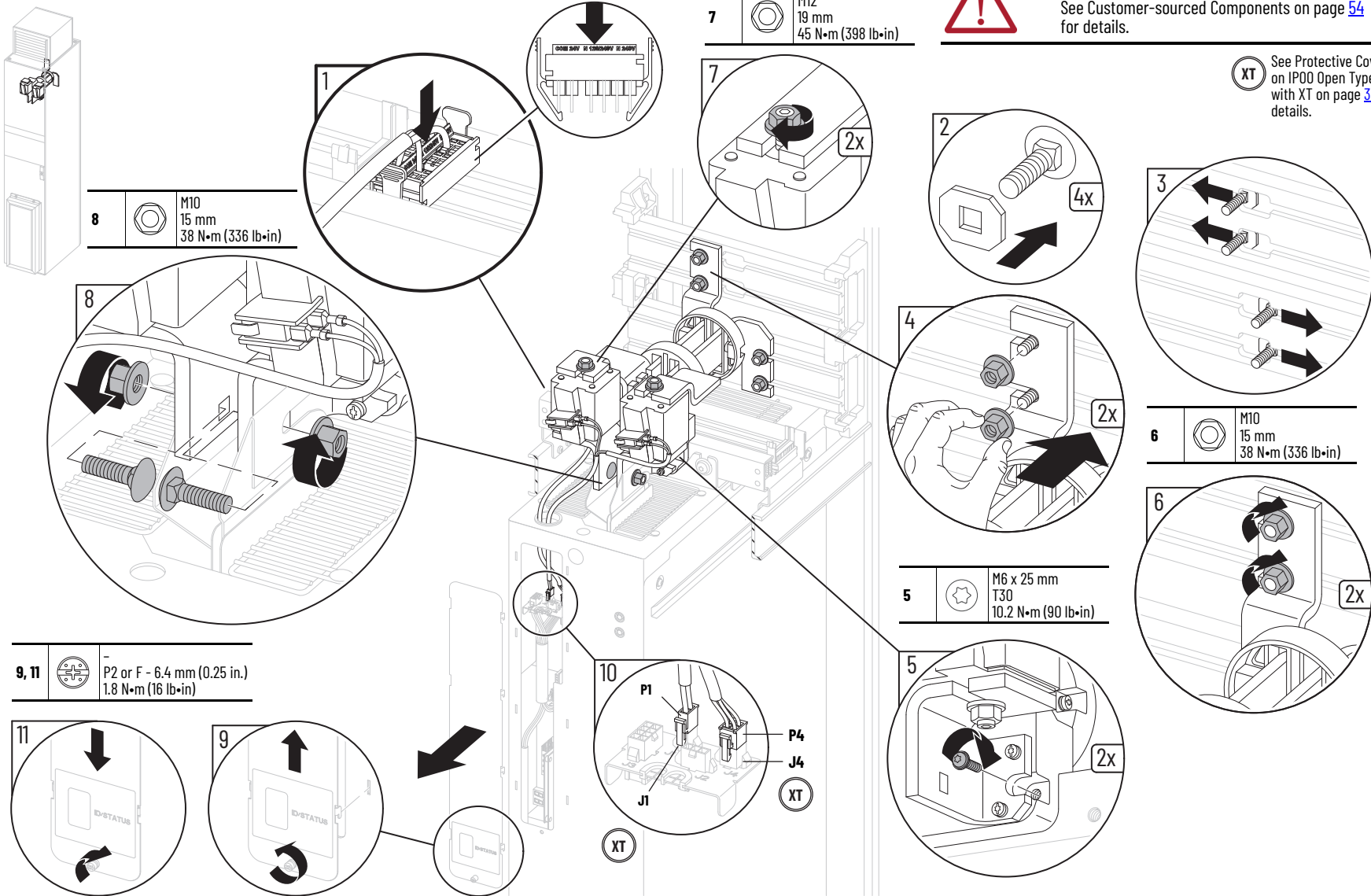
Kit Cat. No.	Kit Description/Installation
20-750-MDCL1-CD-F8M (400/480V) 20-750-MDCL1-EF-F8M (600/690V)	DC Link/Fuse Assembly

20-750-MCTRLBUS-CONN1





ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.


XT See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.




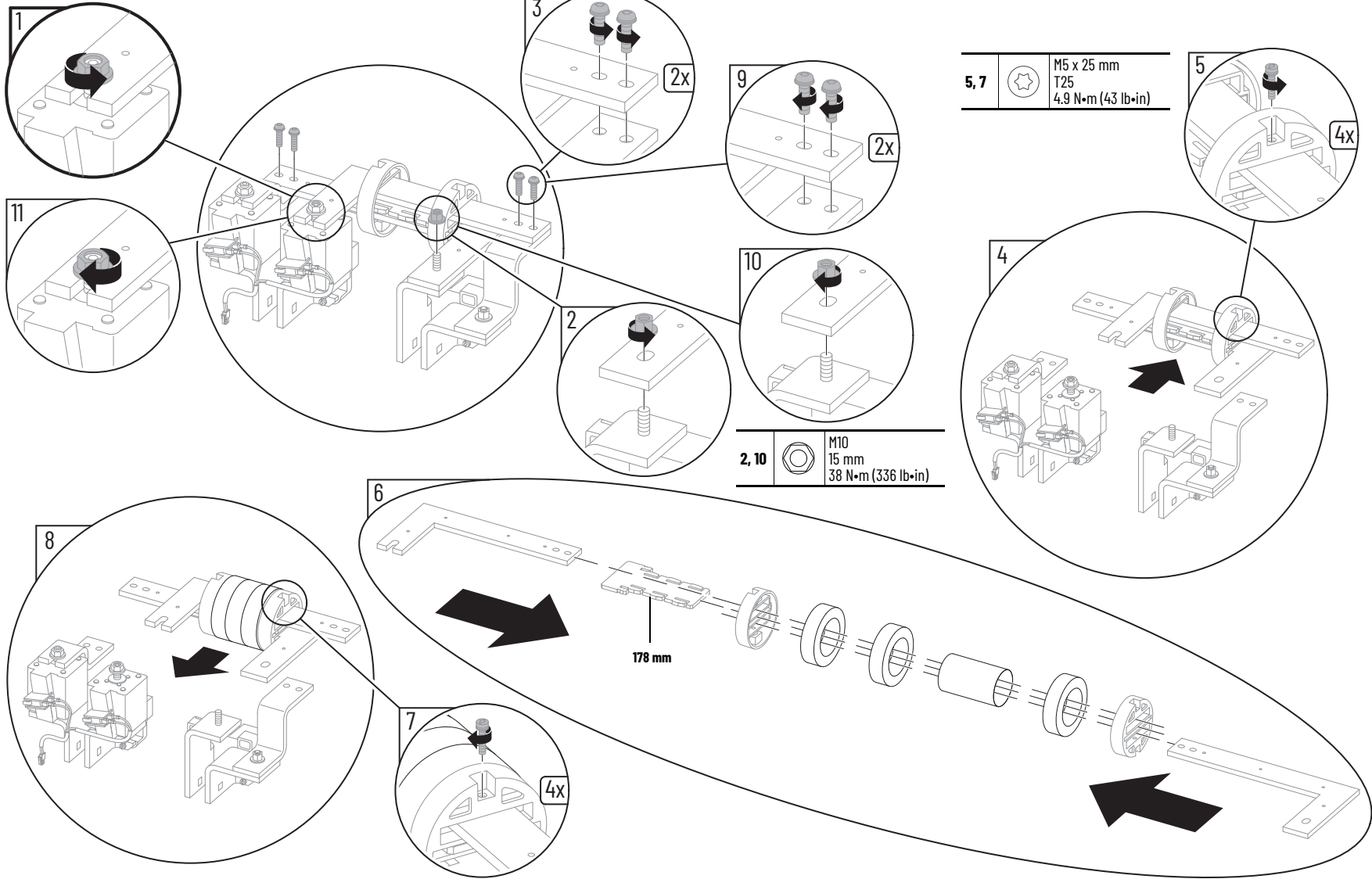
Kit Cat. No.	Kit Description/Installation
20-750-MDCCM1-F8M	DC Common Mode Core (for DC Link/Fuse assembly cat. no. 20-750-MDCL2-CD-F8M and 20-750-MDCL2-EF-F8M)

1, 11	 M12 19 mm 45 N•m (398 lb•in)
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3, 9	 M8 x 30 mm T40 19.8 N•m (175 lb•in)
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5, 7	 M5 x 25 mm T25 4.9 N•m (43 lb•in)
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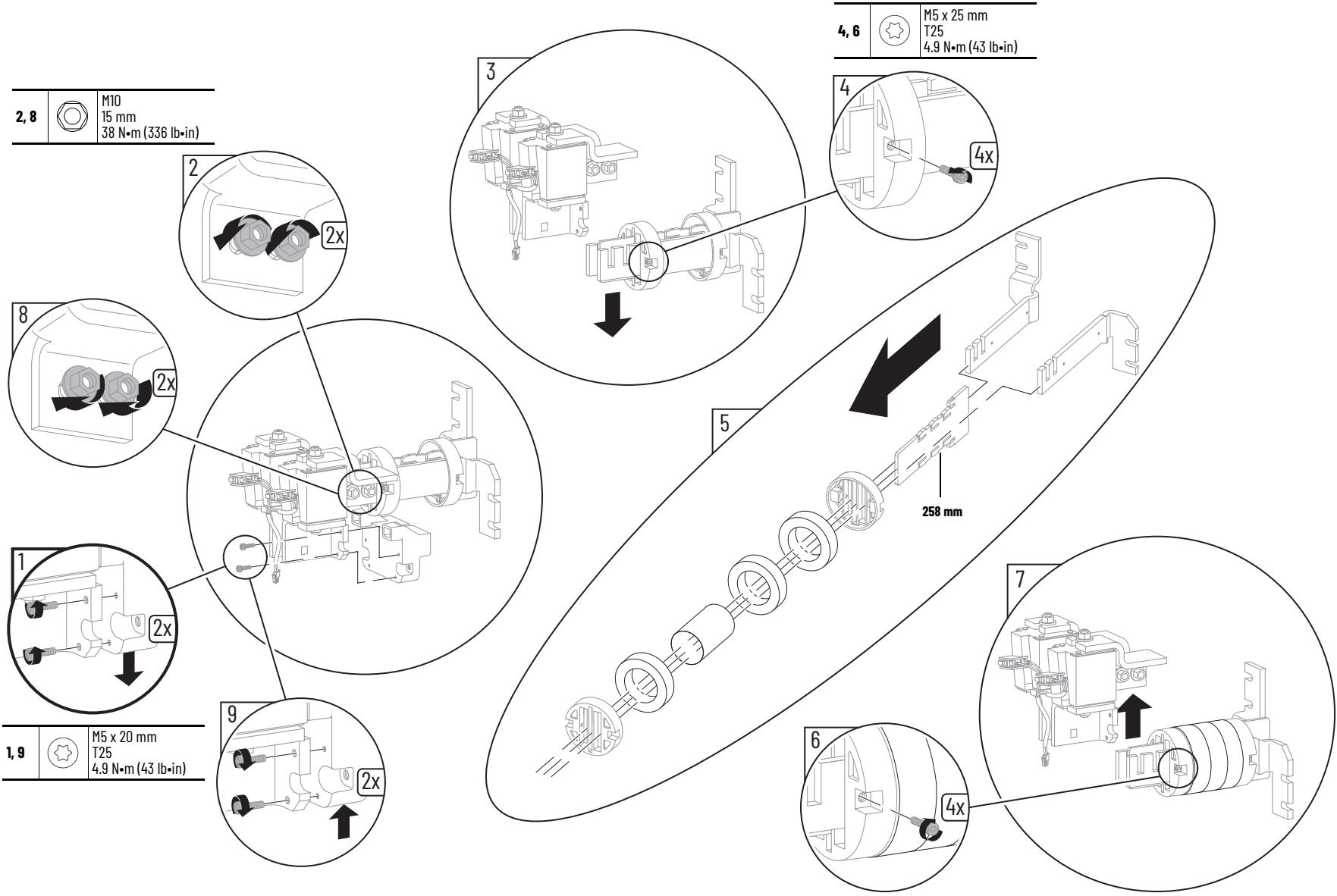
2, 10	 M10 15 mm 38 N•m (336 lb•in)
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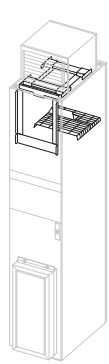
Kit Cat. No.	Kit Description/Installation
20-750-MDCCM1-F8M	DC Common Mode Core (for DC Link/Fuse assembly cat. no. 20-750-MDCL1-CD-F8M and 20-750-MDCL1-EF-F8M)

2, 8	 M10 15 mm 38 N•m (336 lb•in)
------	--

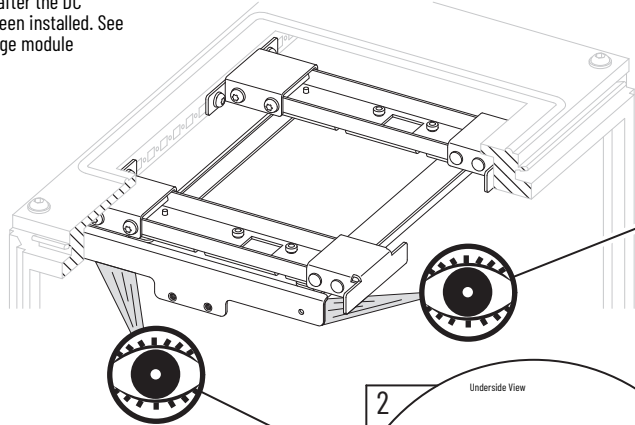
4, 6	 M5 x 25 mm T25 4.9 N•m (43 lb•in)
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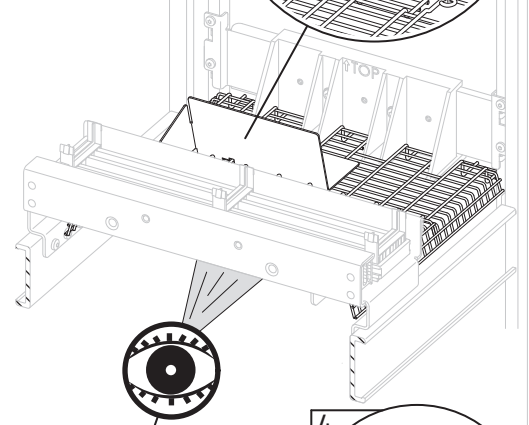
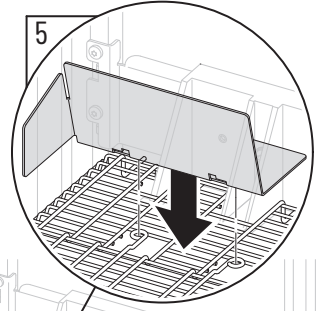
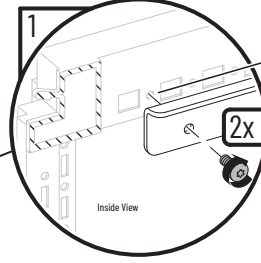
Kit Cat. No.	Kit Description/Installation
20-750-MDCMNT1-F8M (400 mm) 20-750-MDCMNT1-F9M (600 mm) 20-750-MDCMNT1-F10M (800 mm)	DC Precharge Mounting Bracket.




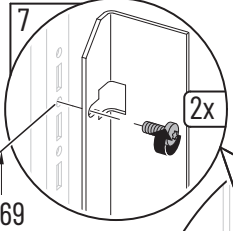
Complete steps 7 and 8 after the DC precharge module has been installed. See page 264 for DC precharge module installation.




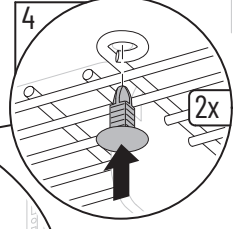
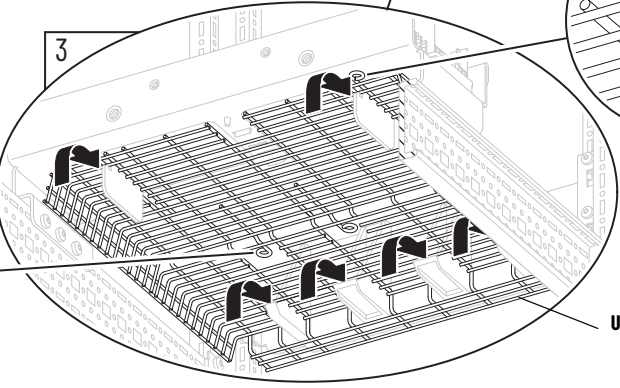
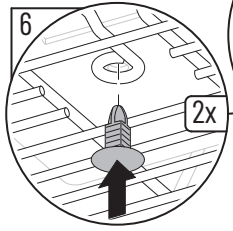
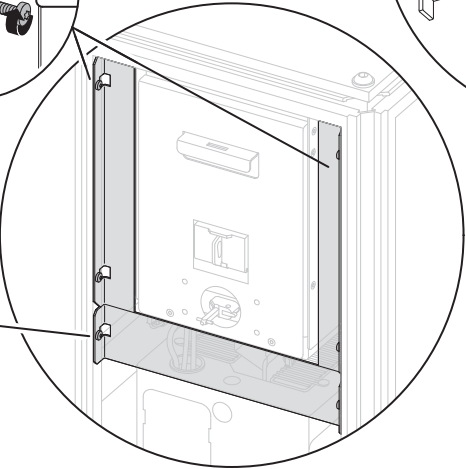
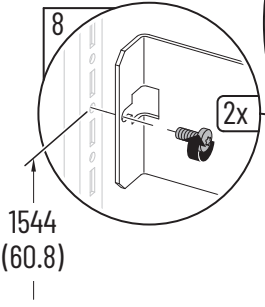
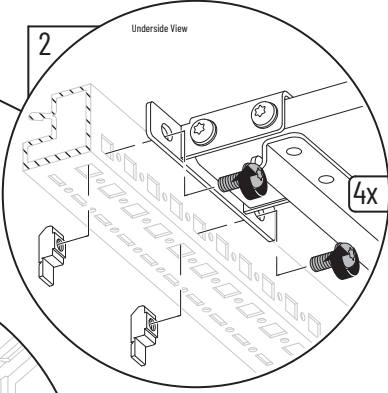
1	 M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
---	---



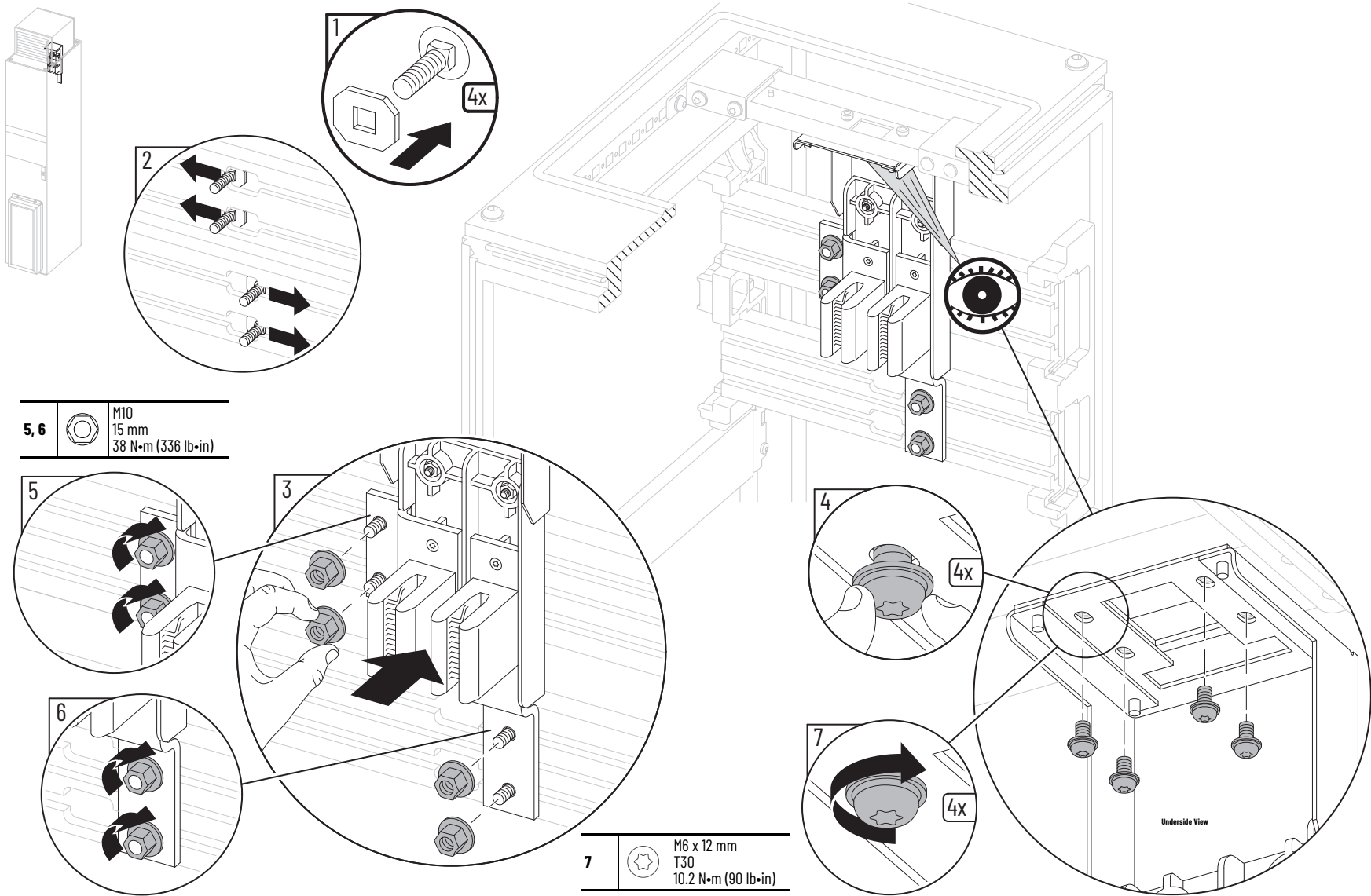
7, 8	 M5 x 13 mm T25 2.6 N•m (23 lb•in)
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2	 M8 x 20 mm T40 19.8 N•m (175 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MDCRECI-F8M 20-750-MDCRECI-F8MC	DC Precharge Stab Receptacle Assembly



5, 6	 M10 15 mm 38 N·m (336 lb·in)
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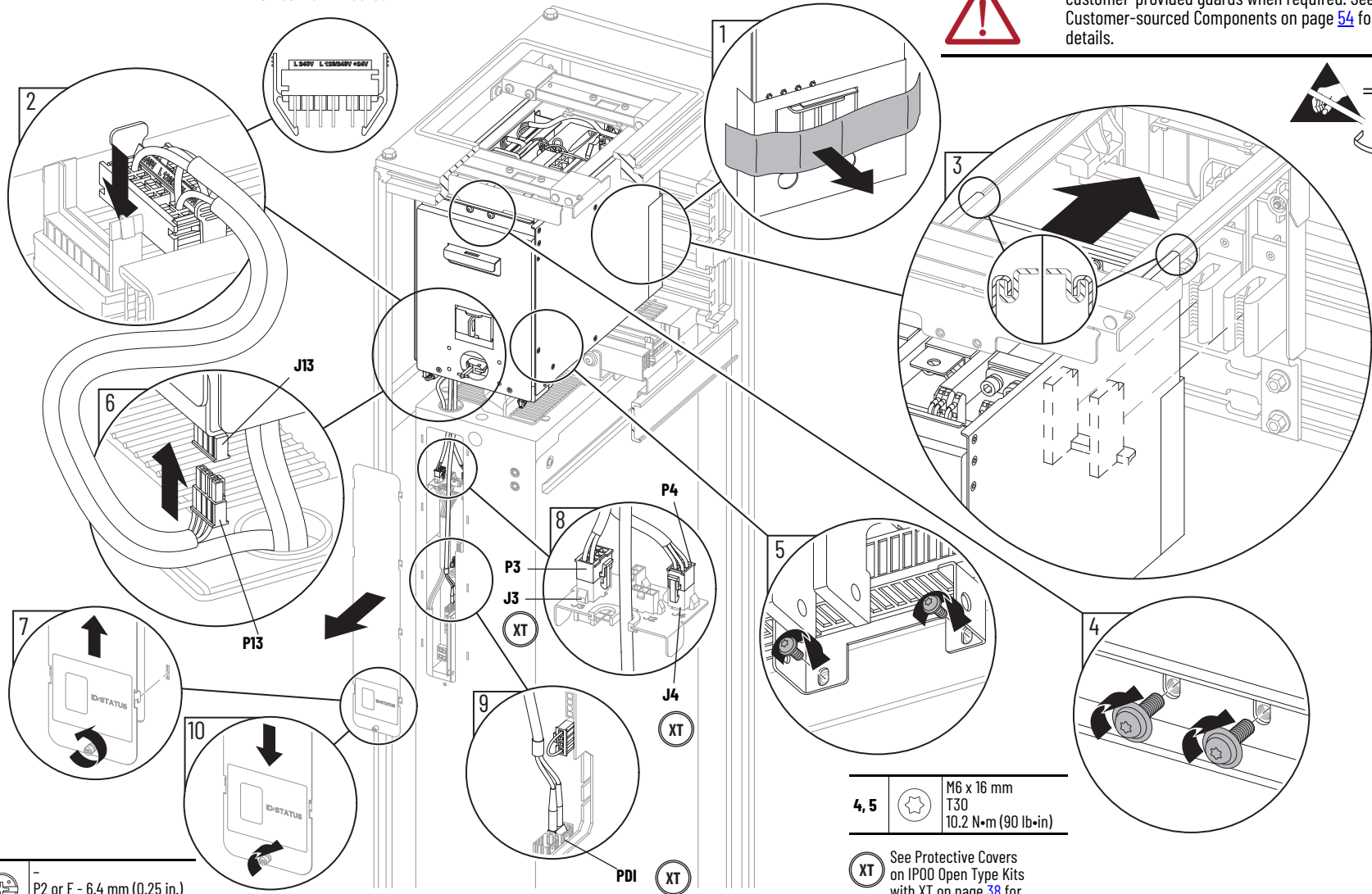
7	 M6 x 12 mm T30 10.2 N·m (90 lb·in)
---	---

Kit Cat. No.		Kit Description/Installation
20-750-MDCP1-CD-F8M (400/480V) 20-750-MDCP1-EF-F8M (600/690V)	20-750-MDCP2-CD-F8M (400/480V w/Common Mode Core) 20-750-MDCP2-EF-F8M (600/690V w/Common Mode Core)	DC Precharge Module See the PowerFlex 750-Series Service Cart and DCPC Module Lift Installation Instructions, publication 750-IN105 .

20-750-MCTRLBUS-CONN1



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



4, 5		M6 x 16 mm T30 10.2 N•m (90 lb•in)
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XT See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

10		P2 or F - 6.4 mm (0.25 in.) 1.8 N•m (16 lb•in)
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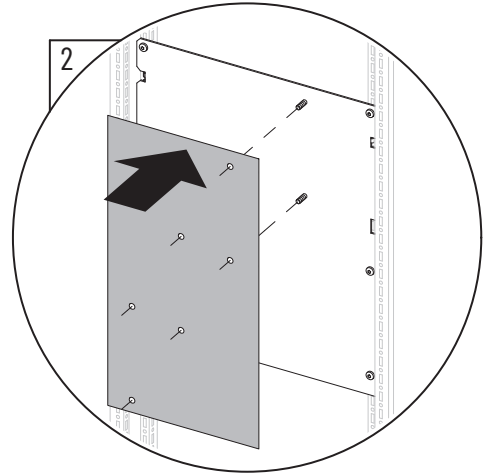
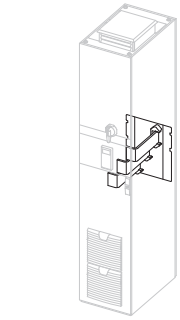
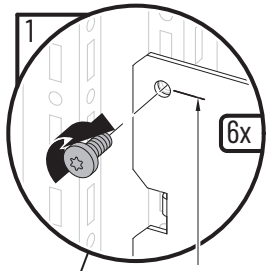
Kit Cat. No.	Kit Description/Installation
20-750-MCNCTAC-F8	AC Input Bus Bar Assembly (Frame 8)

IMPORTANT Secure the left side of the backpanel first.



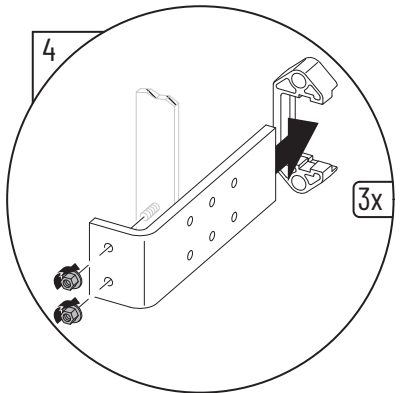
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

1		M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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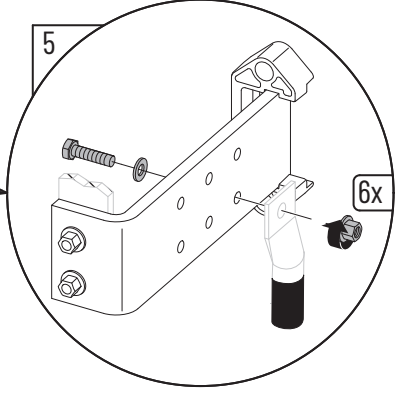
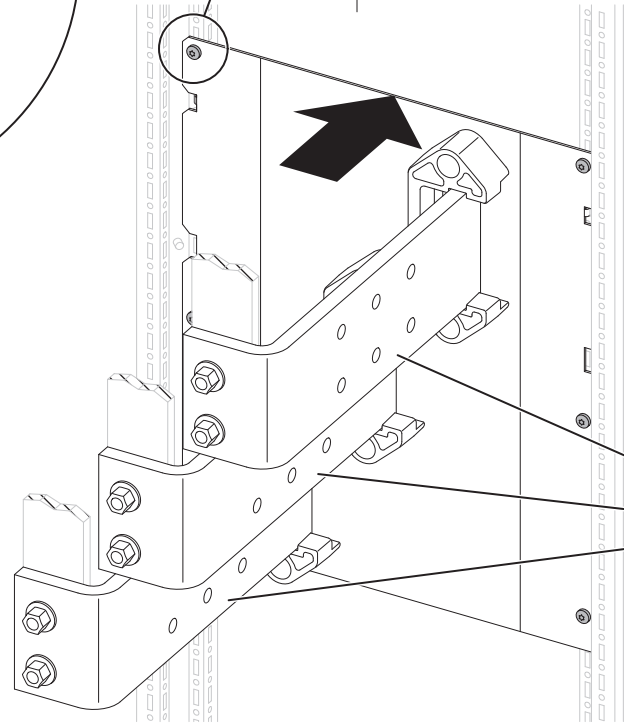
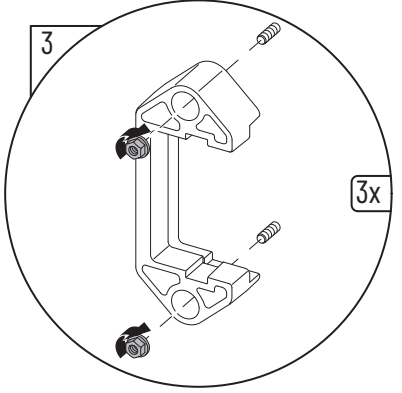
Complete steps 4 and 5 after the AC precharge module has been installed. See page 268 for the frame 8 AC precharge module installation.

4, 5		M10 15 mm 38 N•m (336 lb•in)
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Power wire connection lugs and hardware are customer-supplied.

3		M6 10 mm 4.8 N•m (42 lb•in)
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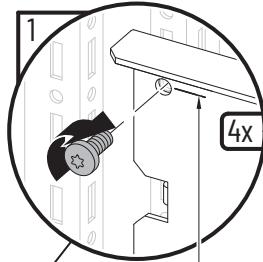
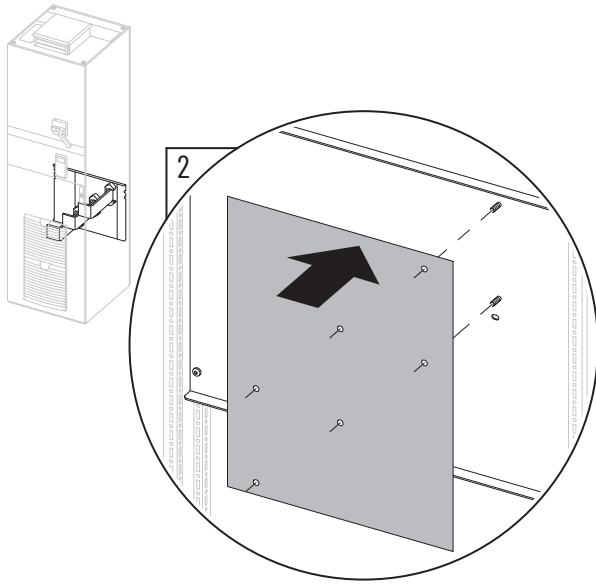
Kit Cat. No.	Kit Description/Installation
20-750-MCNCTAC-F9	AC Input Bus Bar Assembly (Frame 9)

IMPORTANT Secure the left side of the backpanel first.


1	 M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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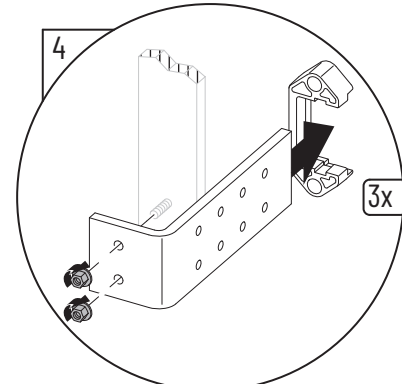


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.




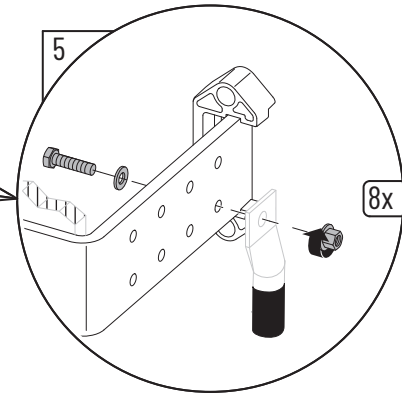
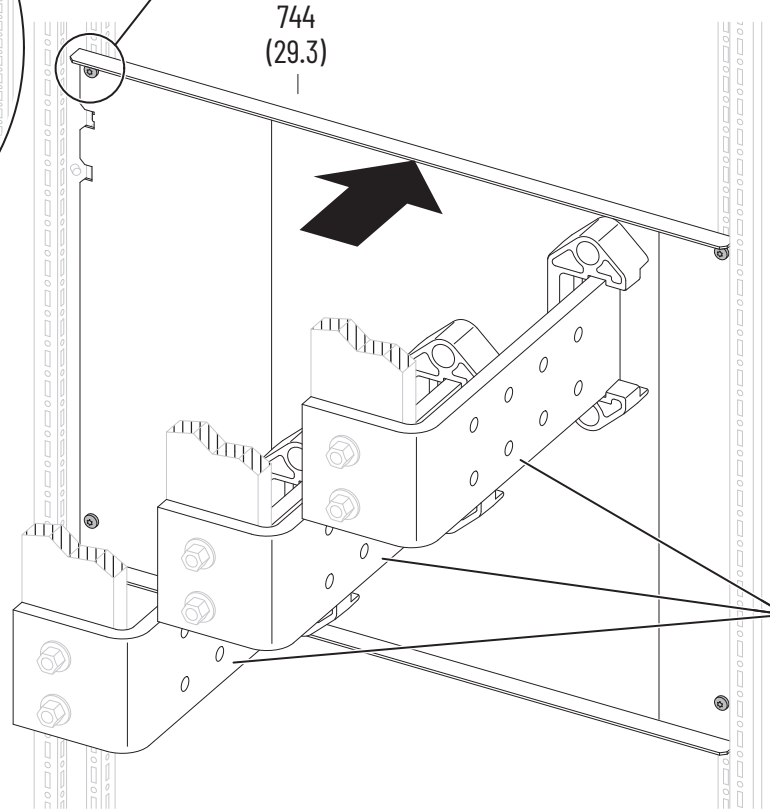
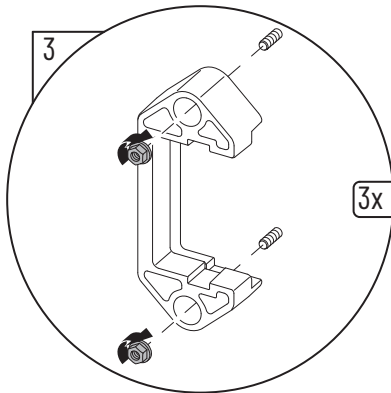
Complete steps 4 and 5 after the AC precharge module has been installed. See page 270 for the frame 8 AC precharge module installation.

4, 5	 M10 15 mm 38 N•m (336 lb•in)
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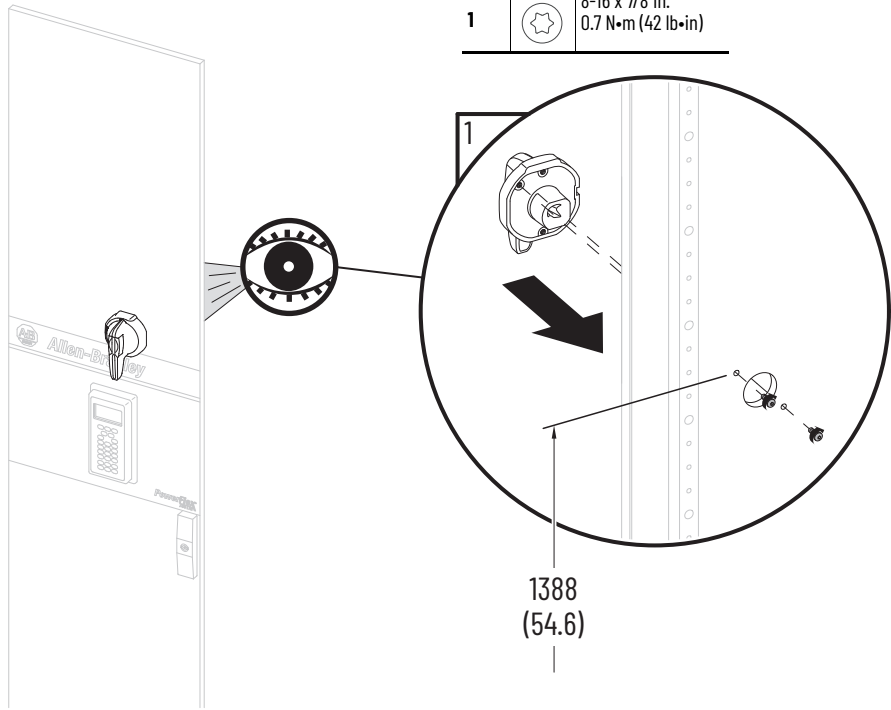


Power wire connection lugs and hardware are customer-supplied.

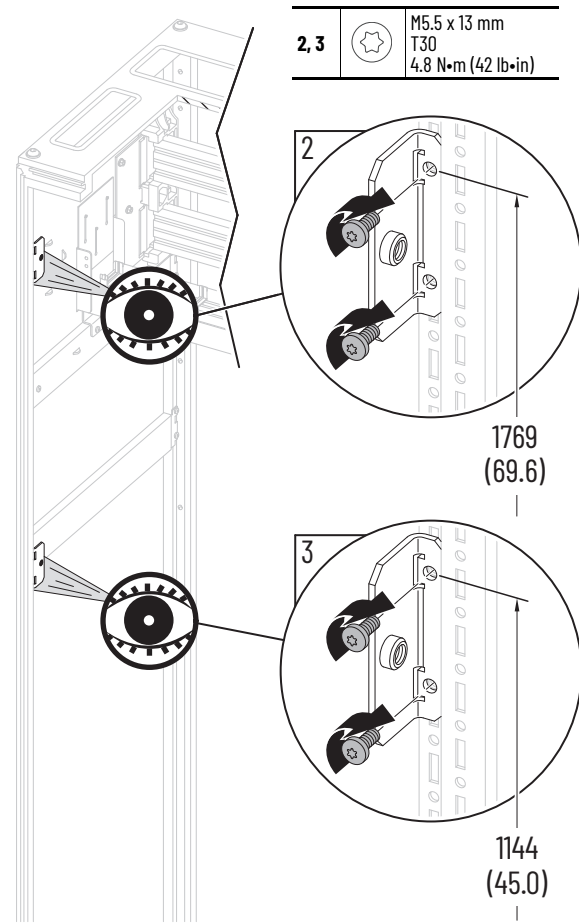
3	 M6 10 mm 4.8 N•m (42 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MACP-CD-F8M (400/480V) 20-750-MACP-E-F8M (600V) 20-750-MACP-F-F8M (690V)	AC Precharge Module (Frame 8). Sheet 1 of 2. See Sheet 2 of 2 on page 268 for final installation.



Complete steps 2 and 3 on both sides of the enclosure.

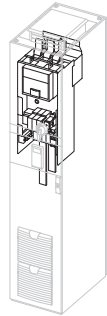


Kit Cat. No.	Kit Description/Installation
20-750-MACP-CD-F8M (400/480V) 20-750-MACP-E-F8M (600V) 20-750-MACP-F-F8M (690V)	AC Precharge Module (Frame 8) For lifting instructions, see the PowerFlex 755TM AC Precharge Modules Unpacking and Lifting Instructions, publication 750-IN102 . Sheet 2 of 2. Complete the installation instructions on Sheet 1 of 2 on page 267 before completing these instructions.




ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page [54](#) for details.

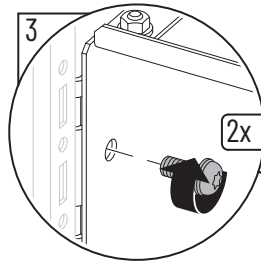
XT See Protective Covers on IP00 Open Type Kits with XT on page [38](#) for details.




AC Precharge Module Chassis

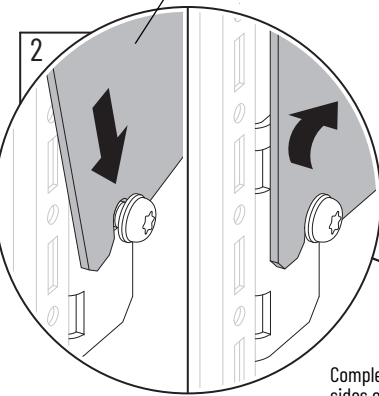
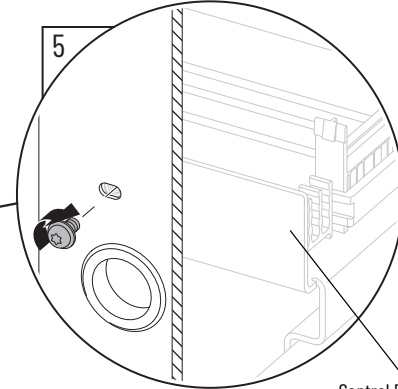
Complete step 3 on both sides of the enclosure.

3, 4	 M8 x 20 mm T40 19.8 N•m (175 lb•in)
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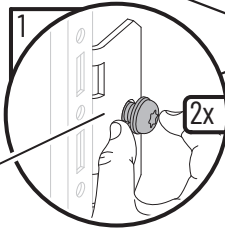


Complete step 5 on both sides of the enclosure.

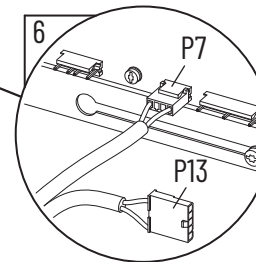
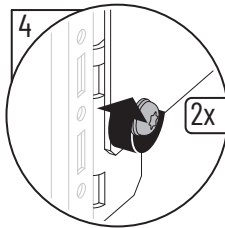
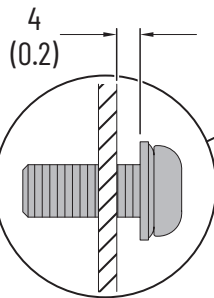
5	 M6 x 12 mm T30 10.2 N•m (90 lb•in)
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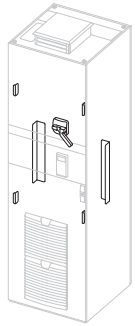
Complete step 1 on both sides of the enclosure.




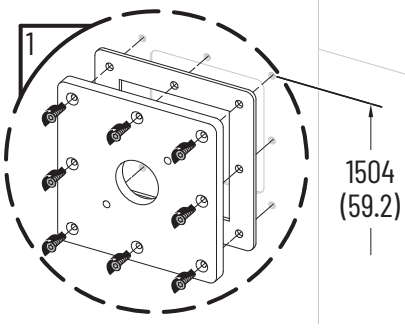
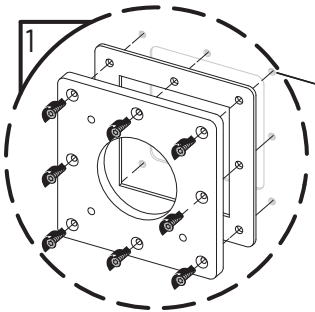
Complete step 4 on both sides of the enclosure.




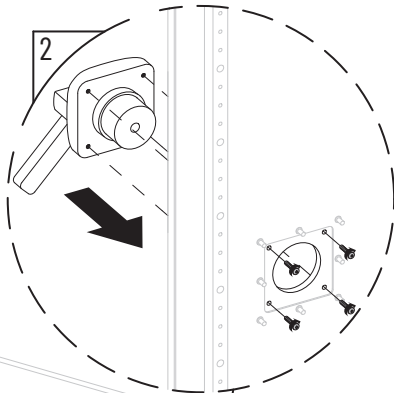
Kit Cat. No.	Kit Description/Installation
20-750-MACP-CD-F9M (400/480V) 20-750-MACP-E-F9M (600V) 20-750-MACP-F-F9M (690V)	AC Precharge Module (Frame 9) Sheet 1 of 2. See Sheet 2 of 2 on page 270 for final installation instructions.




1	 M4 x 16 mm T20 2.6 N•m (23 lb•in)
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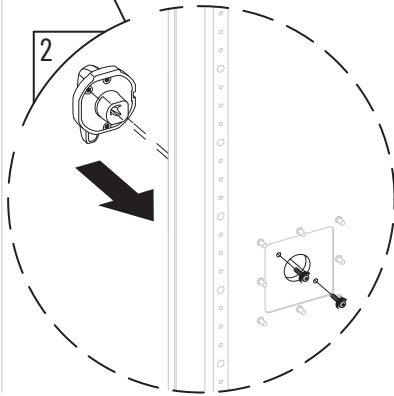
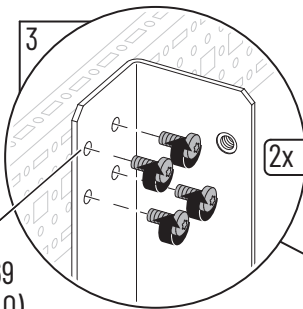


2	 8-16 x 1 in. 0.8 N•m (7 lb•in)
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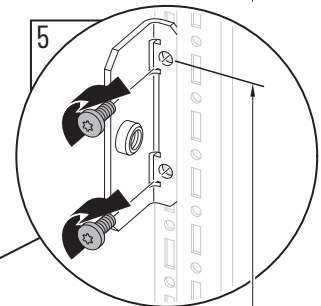
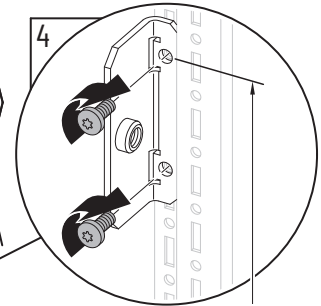


3, 4, 5	 M5.5 x 13 mm T30 4.8 N•m (42 lb•in)
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Complete step 3 on both sides of the enclosure.



Complete steps 4 and 5 on both sides of the enclosure.

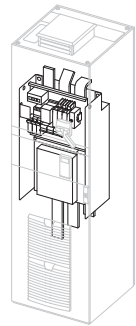


Kit Cat. No.	Kit Description/Installation
20-750-MACP-CD-F9M (400/480V) 20-750-MACP-E-F9M (600V) 20-750-MACP-F-F9M (690V)	AC Precharge Module (Frame 9) For lifting instructions, see the PowerFlex 755TM AC Precharge Modules Unpacking and Lifting Instructions, publication 750-IN102 . Sheet 2 of 2. Complete the installation instructions shown on Sheet 1 of 2 on page 269 before completing these instructions.



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page [54](#) for details.

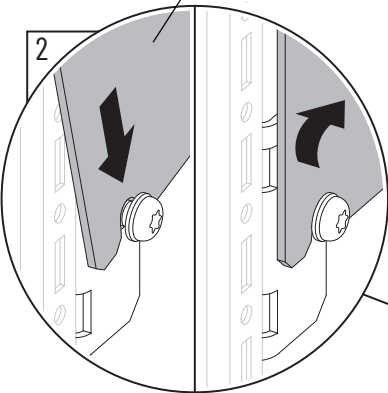
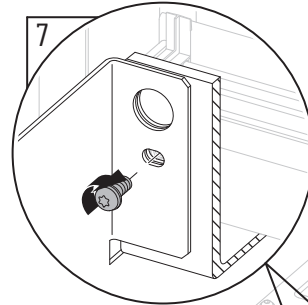
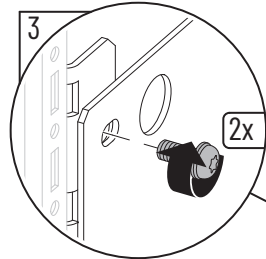
XT See Protective Covers on IP00 Open Type Kits with XT on page [38](#) for details.



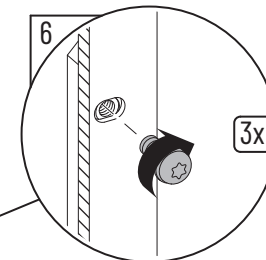
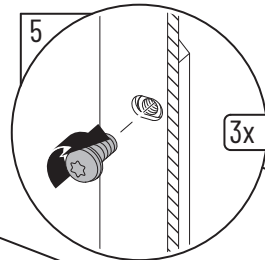
AC Precharge Module Chassis

3, 4, 5, 6	M8 x 20 mm T40 19.8 N•m (175 lb•in)
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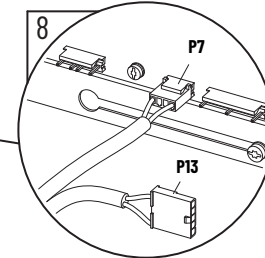
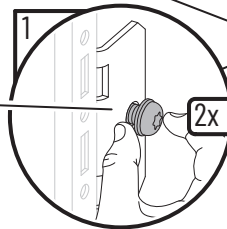
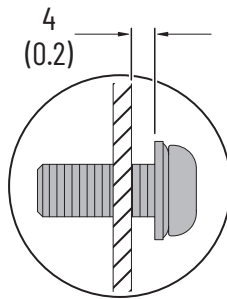
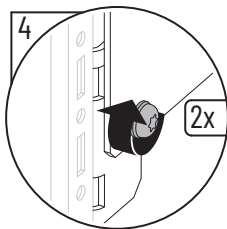
Complete step 3 on both sides of the enclosure.



Complete step 5 on both sides of the enclosure.



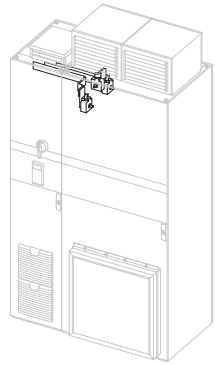
Complete step 4 on both sides of the enclosure.



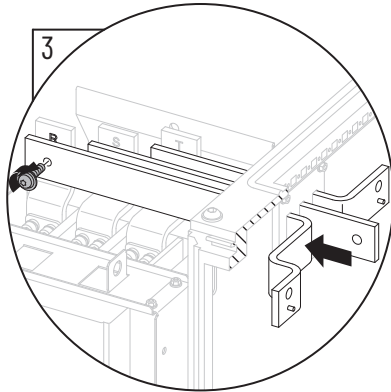
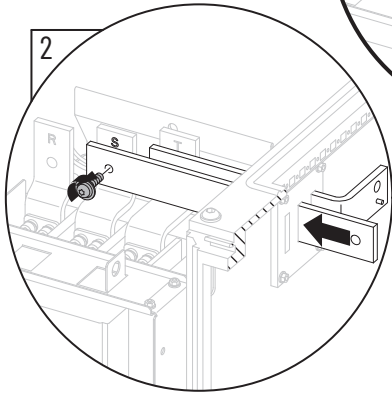
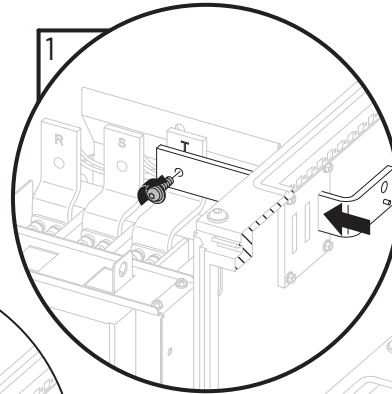
Kit Cat. No.	Kit Description/Installation
20-750-MACL1-F8M	AC Input Link Bus Bar and Fuse (Frame 8)



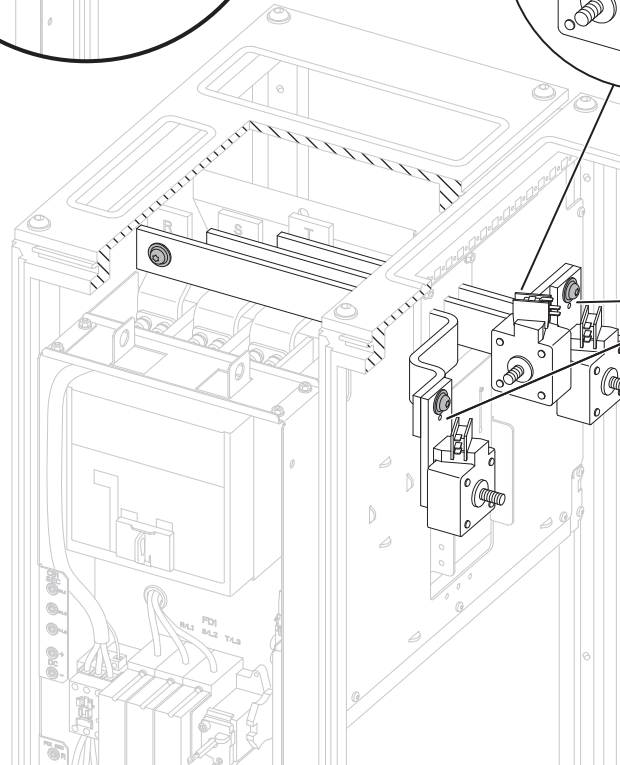
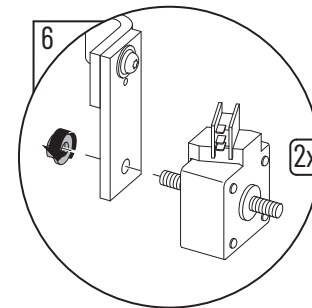
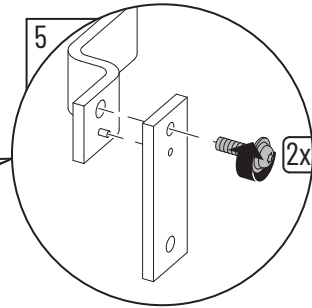
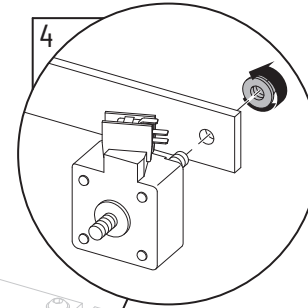
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



1, 2,		M10 x 40 mm
3, 5		T45 42 N•m (375 lb•in)



4, 6		M12
		19 mm 45 N•m (398 lb•in)

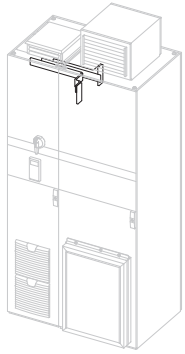


Kit Cat. No.	Kit Description/Installation
20-750-MACSP2-F8M	AC Bus Bar Splice (Frame 8). See PowerFlex 755TM UL Listed Accessories, Product Information, publication 750-PC102 , for a list of fuses required for installation of this kit.

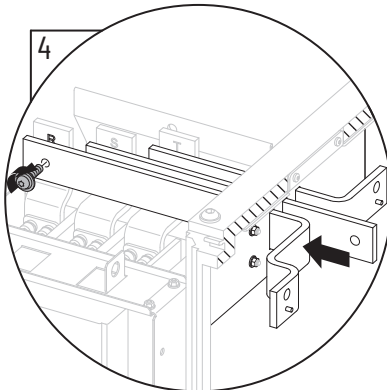
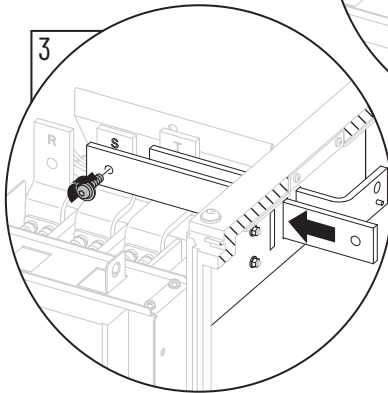
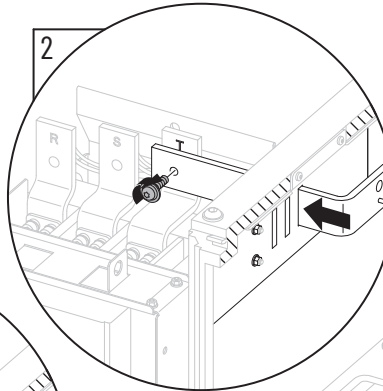
IMPORTANT The AC link fuses must be customer-sourced.



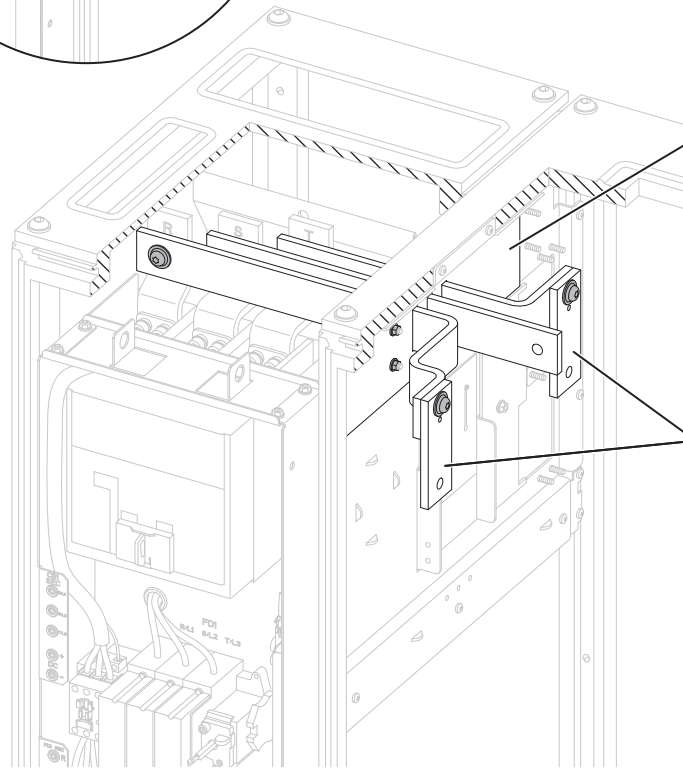
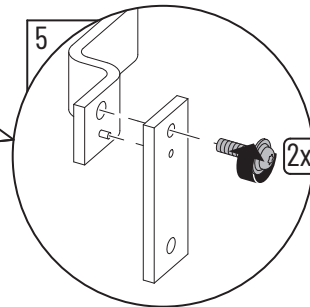
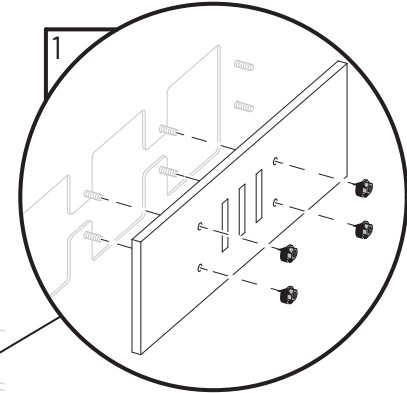
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



2, 3, 4, 5		M10 x 40
		T45 42 N•m (375 lb•in)



1		M6
		10 mm 4.8 N•m (42 lb•in)

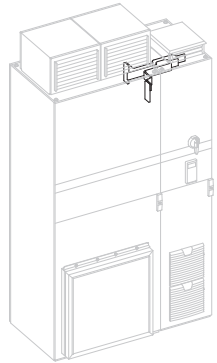


Kit Cat. No.	Kit Description/Installation
20-750-MACSPL3-F8M	AC Bus Splice - Right-to-Left (Frame 8). See PowerFlex 755TM UL Listed Accessories, Product Information, publication 750-PC102 , for the fuses required for installation of this kit.

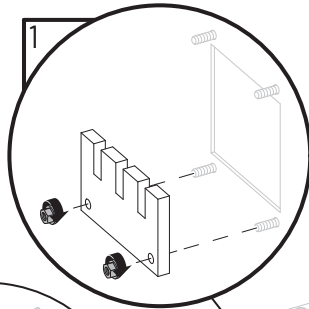


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

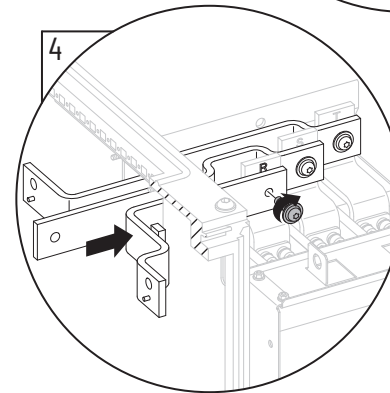
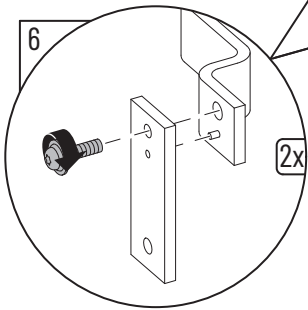
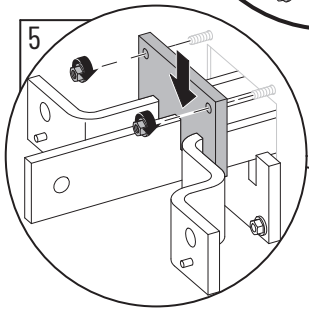
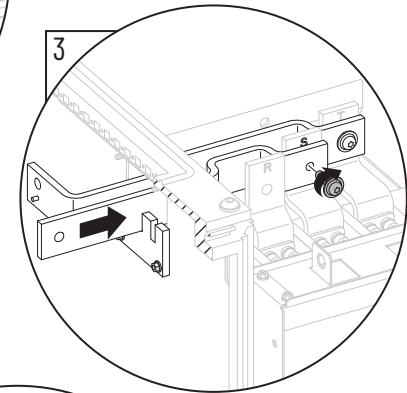
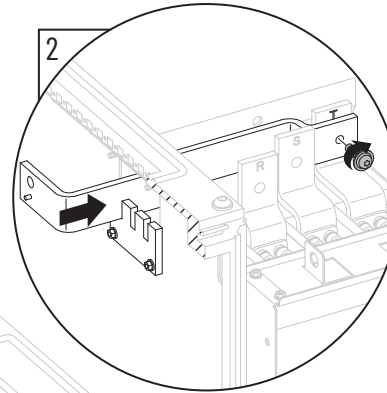
IMPORTANT The AC link fuses must be customer-sourced.



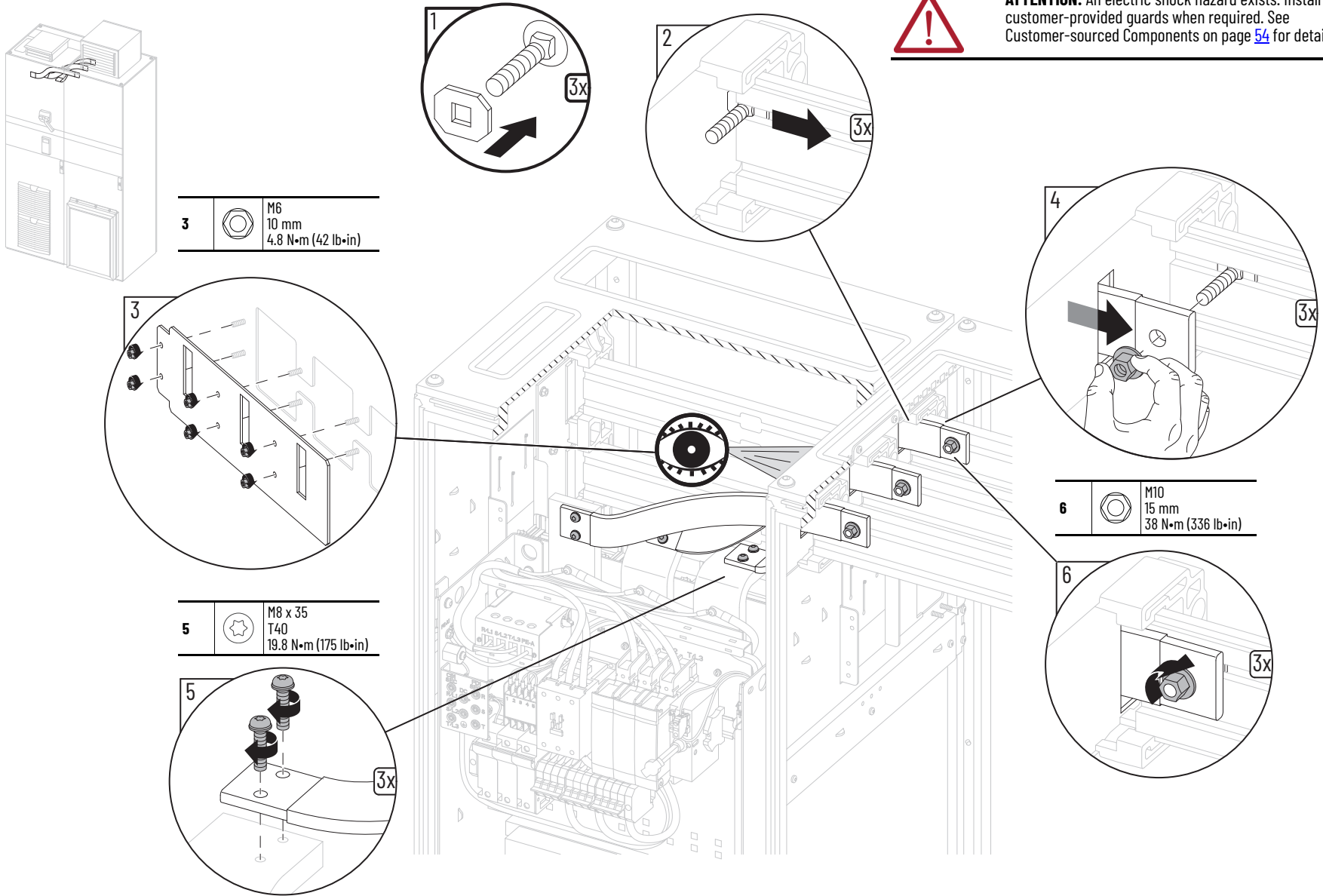
1, 5		M6 10 mm 4.8 N•m (42 lb•in)
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2, 3, 4, 6		M10 x 40 T45 42 N•m (375 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MACSPL2-F9M	AC Bus Bar Splice (Frame 9)



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

3		M6 10 mm 4.8 N·m (42 lb·in)
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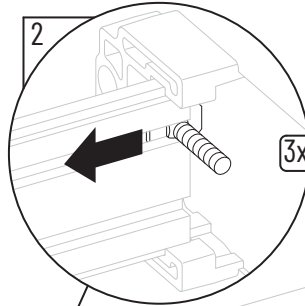
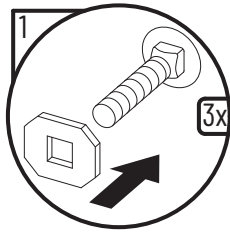
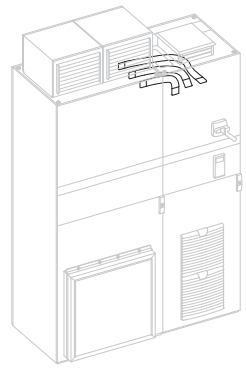
5		M8 x 35 T40 19.8 N·m (175 lb·in)
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6		M10 15 mm 38 N·m (336 lb·in)
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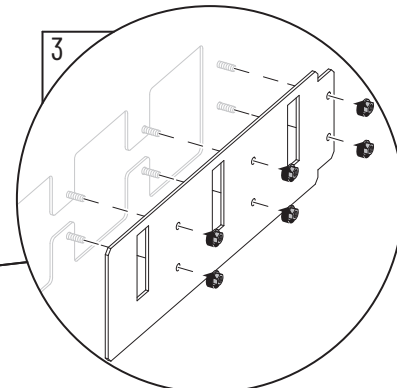
Kit Cat. No.	Kit Description/Installation
20-750-MAC SPL3-F9M	AC Bus Bar Splice - Right-to-Left (Frame 9)



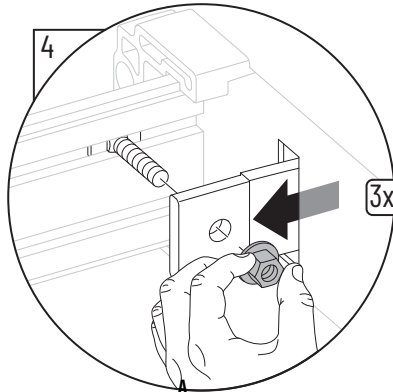
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



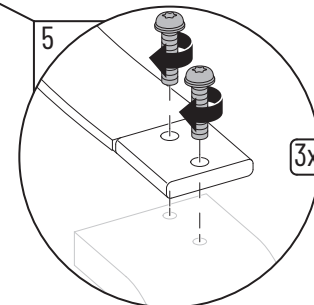
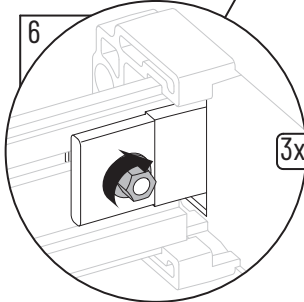
3		M6 10 mm 4.8 N•m (42 lb•in)
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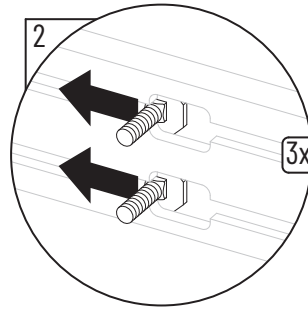
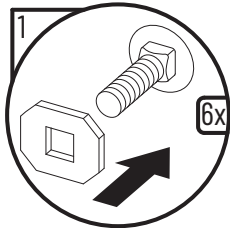
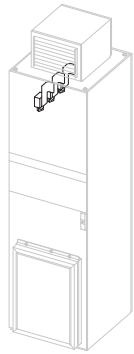
5		M8 x 35 T40 19.8 N•m (175 lb•in)
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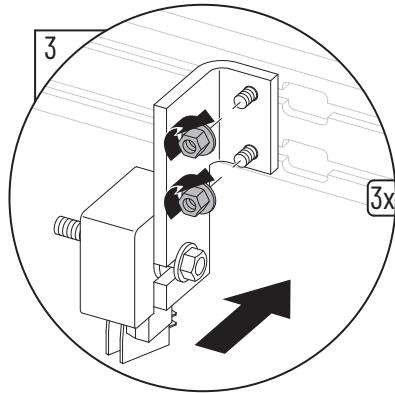
6		M10 15 mm 38 N•m (336 lb•in)
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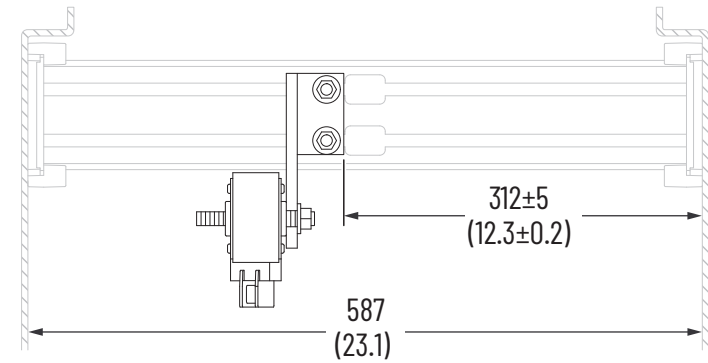
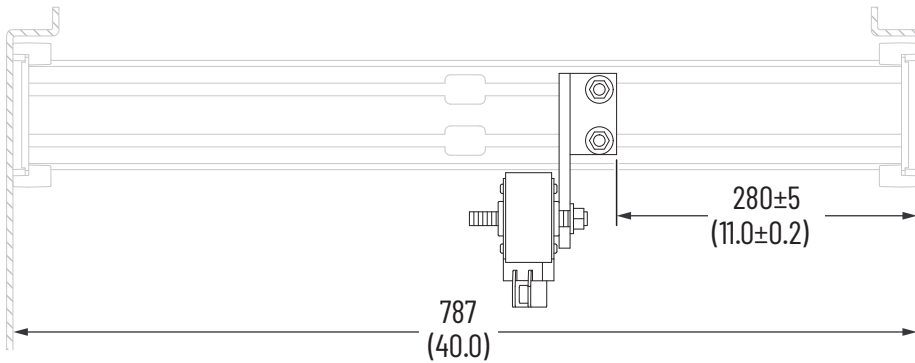
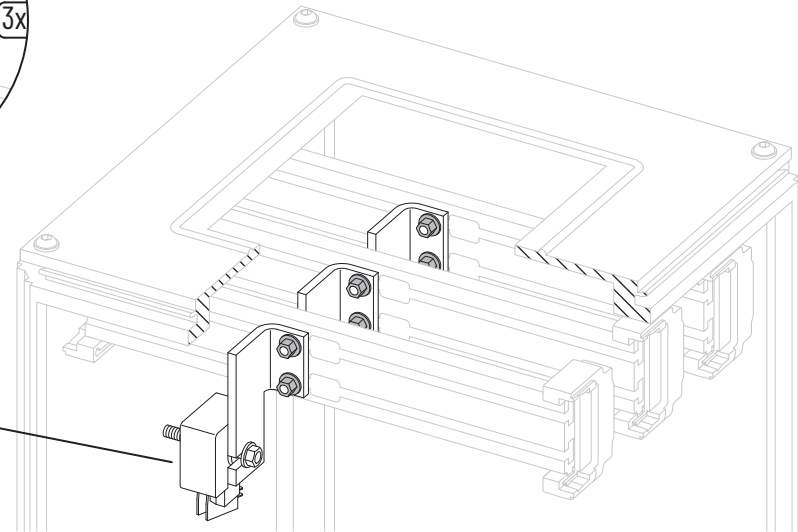
Kit Cat. No.		Kit Description/Installation
20-750-MACL2-F8M (400/480V) 20-750-MACL1-F9M (400/480V) 20-750-MACL2-F9M (400/480V)	20-750-MACL2-F8M (600/690V) 20-750-MACL3-F8M (600/690V) 20-750-MACL3-F9M (600/690V)	AC Input Link Bus Bar and Fuse (for 600 mm and 800 mm wide AC bus bars)



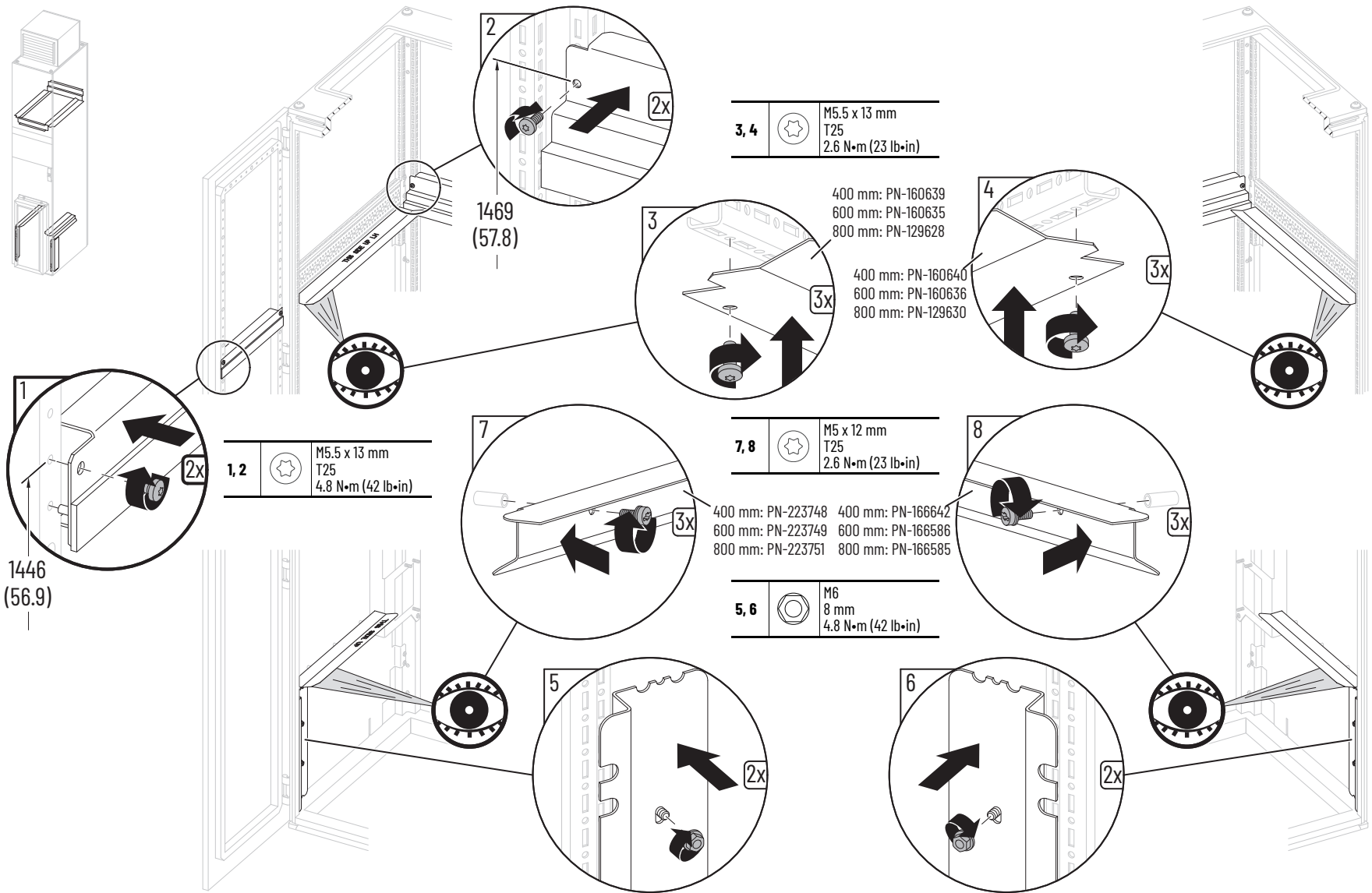
3	 M10 15 mm 38 N•m (336 lb•in)
---	--



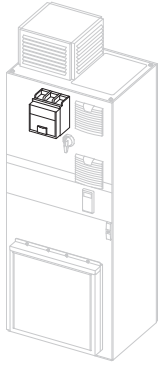
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



Kit Cat. No.	Kit Description/Installation
20-750-MIBAF1-F8M	Baffle, 400 mm Wide (Common Bus Inverter Only) Power Bay
20-750-MIBAF1-F9M	Baffle, 600 mm Wide Power Bay
20-750-MIBAF1-F10M	Baffle, 800 mm Wide Power Bay

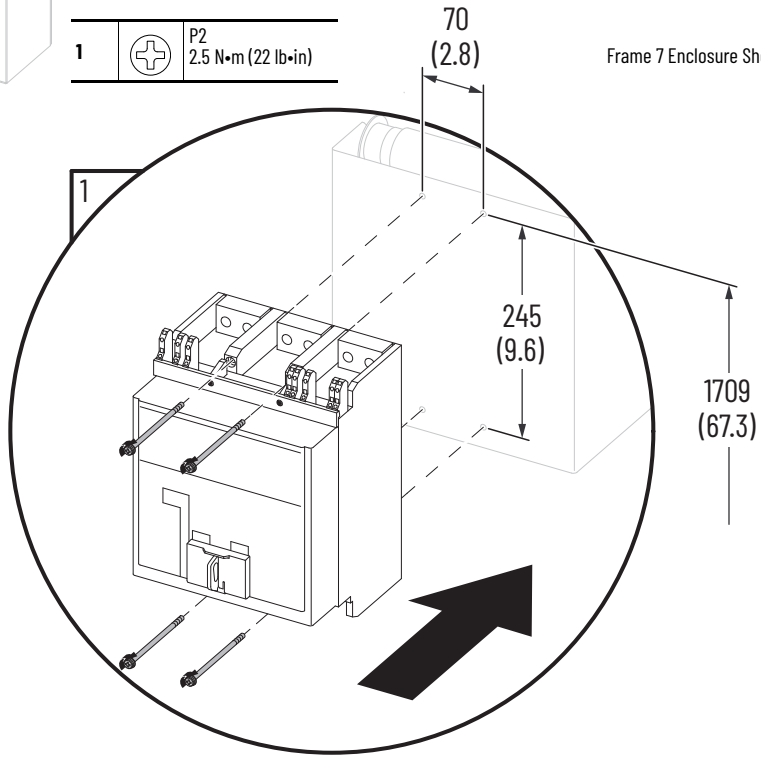


Kit Cat. No.	Kit Description/Installation
20-750-MACPCCB-IK0	Frame 7 and 7L AC Precharge Circuit Breaker

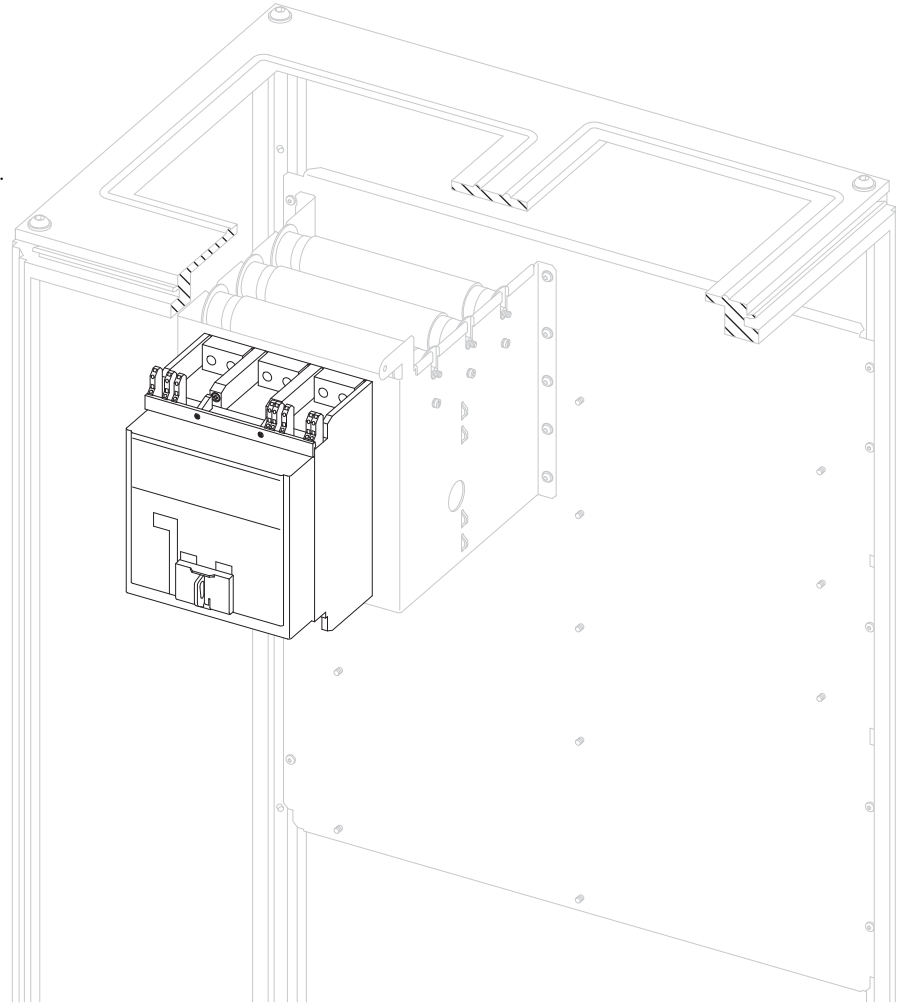


The auxiliary terminals and mounting plate must be installed after the circuit breaker is installed in the customer-supplied mounting panel.

1		P2 2.5 N•m (22 lb•in)
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Frame 7 Enclosure Shown.



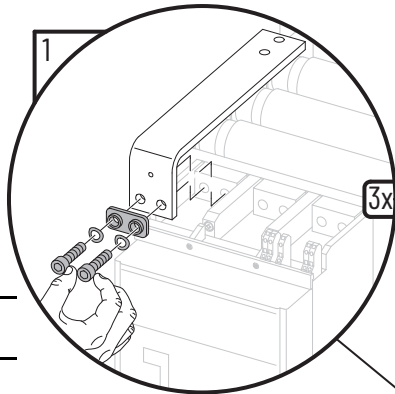
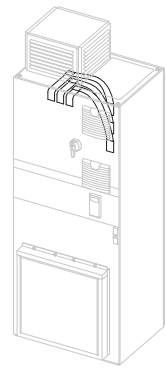
Kit Cat. No.	Kit Description/Installation
20-750-MACINP-F7	Frame 7 and 7L AC Precharge Circuit Breaker Input Bus Bar Terminals and Flexible Bus Bars




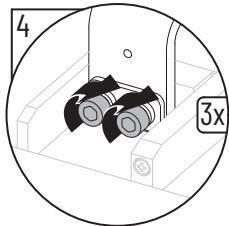
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.


Mounting hardware for the circuit breaker terminals shown in steps 1 and 4 are included with circuit

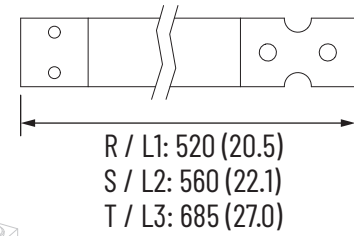
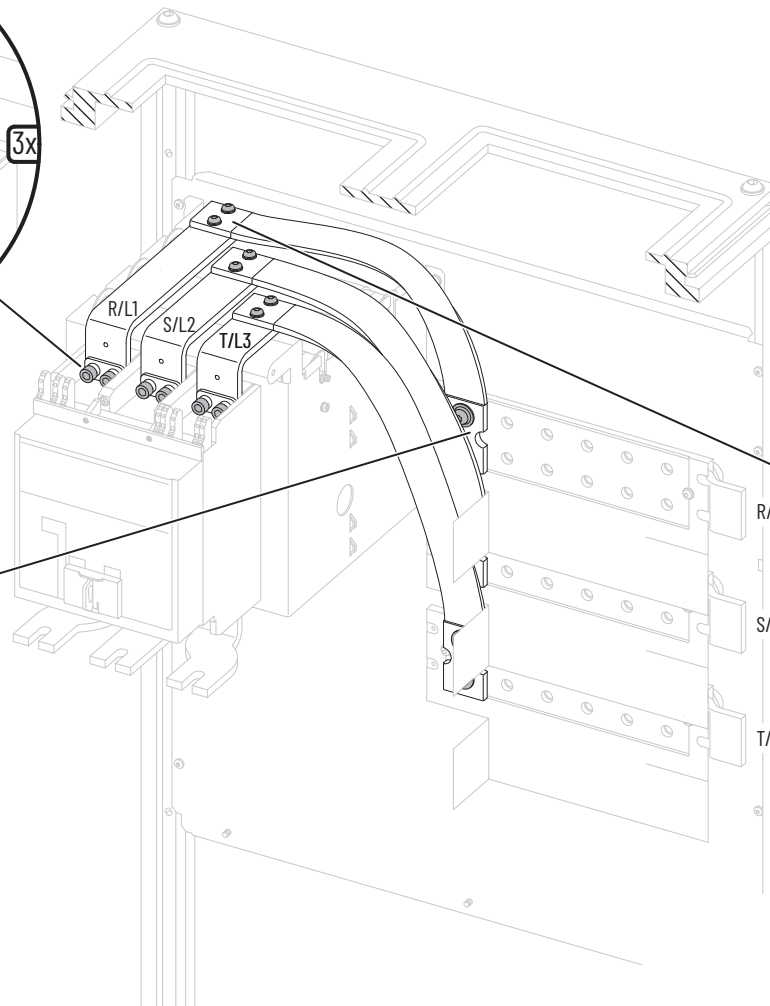
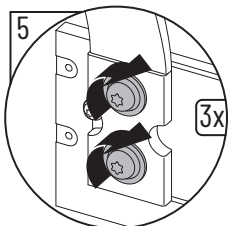
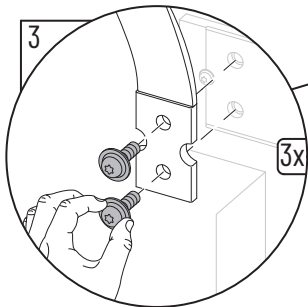
Frame 7 Enclosure Shown.




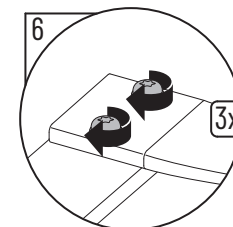
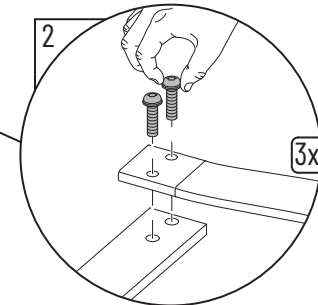
4		18 N•m (159 lb•in)
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3, 5		M10 x 35 mm T45 8.8 N•m (75 lb•in)
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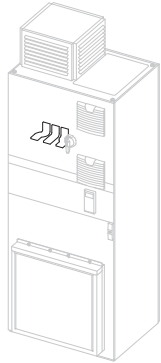
2, 6		M8 x 30 mm T40 19.8 N•m (175 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MPCCB-F7M	Frame 7 and 7L AC Precharge Circuit Breaker Output Bus Bar Terminals



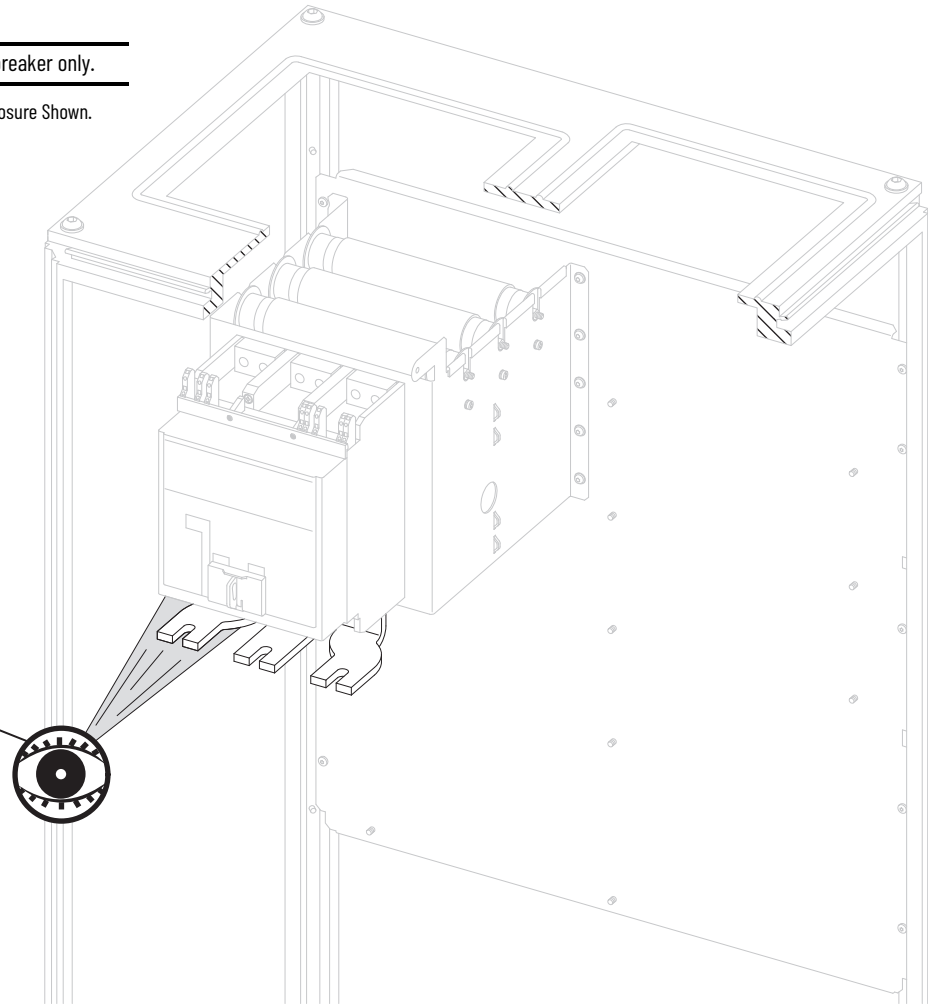
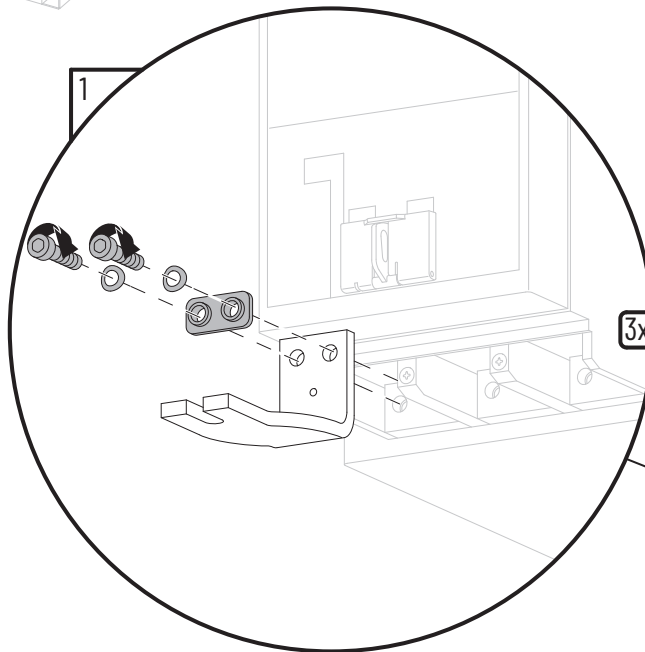
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



IMPORTANT Hardware shown in step 1 is included with the circuit breaker only.

1		M5.5 x 13 mm T25 18 N•m (159 lb•in)
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Frame 7 Enclosure Shown.



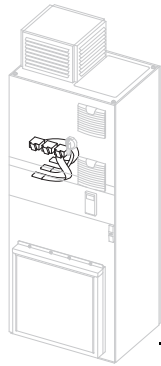
Kit Cat. No.	Kit Description/Installation
20-750-MACL2-CD-F7M, 20-750-MACL2-EF-F7M	Frame 7 Circuit Breaker AC Output Flexible Bus Bars and Fuses (400/480V)
20-750-MACL2-CD-F7L	Frame 7L Circuit Breaker AC Output Flexible Bus Bars and Fuses (400/480V)


IMPORTANT

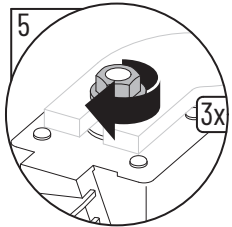
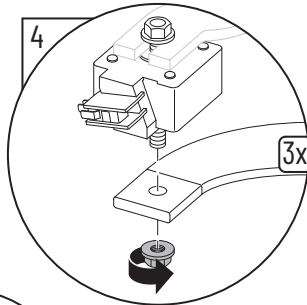
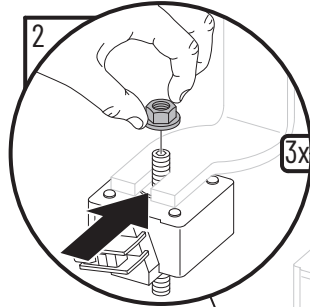
Complete step 1 of these instructions before the LCL filter module has been fully secured to the mounting bracket. Complete steps 2...6 of these instructions after the LCL filter module installation has been completed. See page 306 for LCL filter module installation.




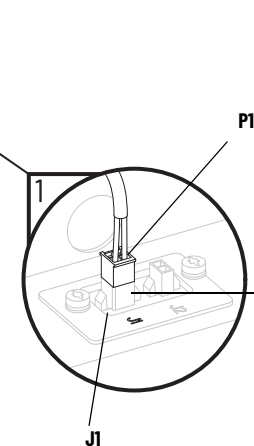
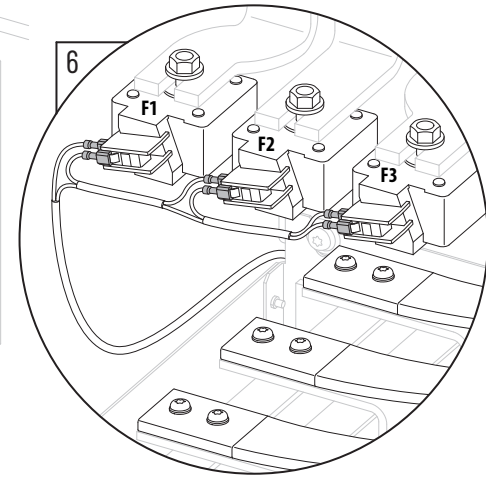
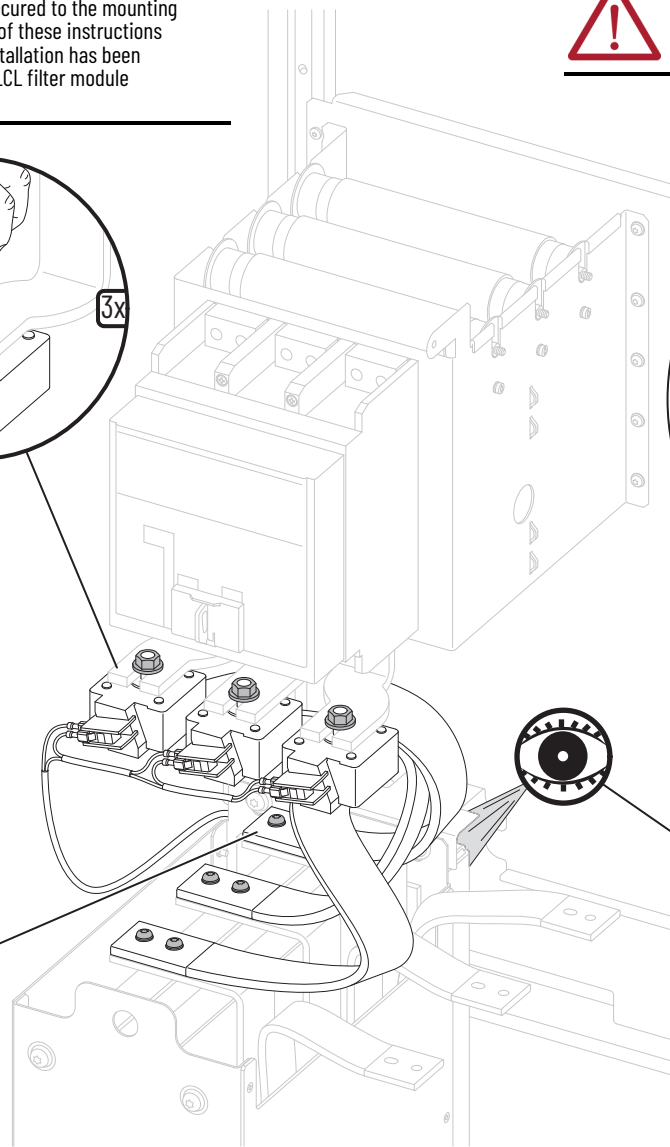
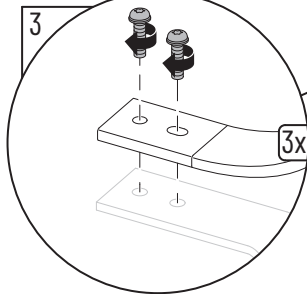
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



2, 4, 5	 M12 19 mm 45 N•m (398 lb•in)
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3	 M8 x 30 mm T40 19,8 N•m (175 lb•in)
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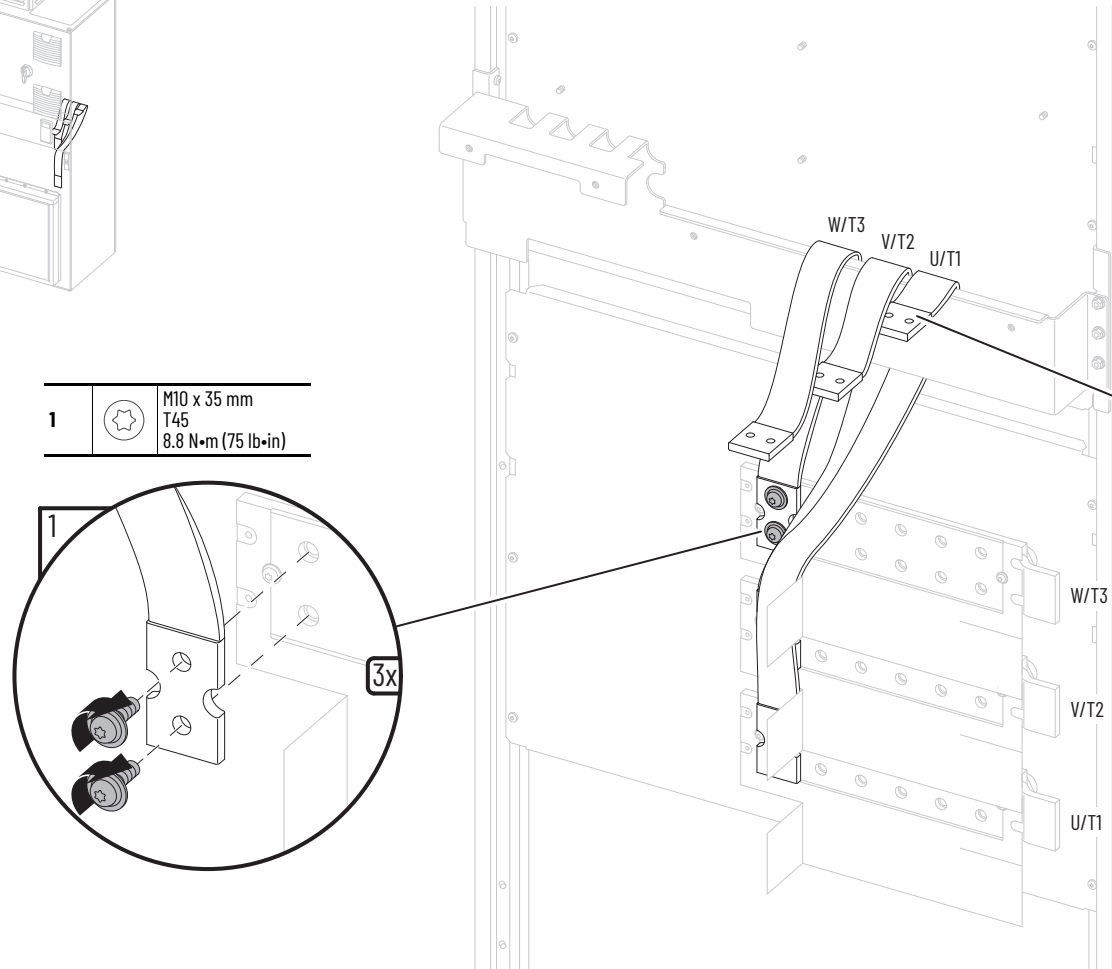
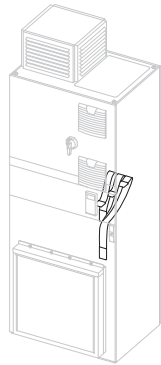


See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

Kit Cat. No.	Kit Description/Installation
20-750-MSOF-F7	Frame 7 AC Motor Side Output Flexible Bus Bars

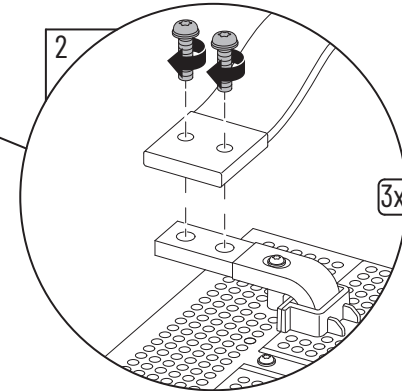


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

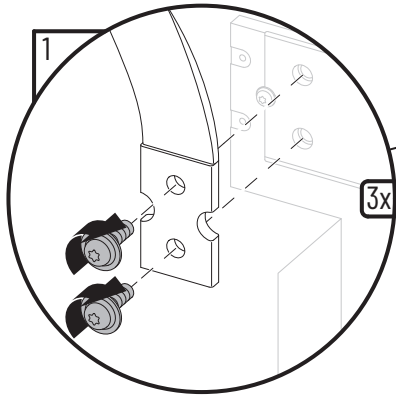


Install the motor side inverter power module before completing step 2. See page 305 for power module installation instructions.

2		M8 x 30 mm
		T40
		19.8 N•m (175 lb•in)



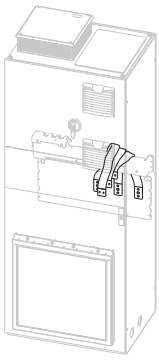
1		M10 x 35 mm
		T45
		8.8 N•m (75 lb•in)




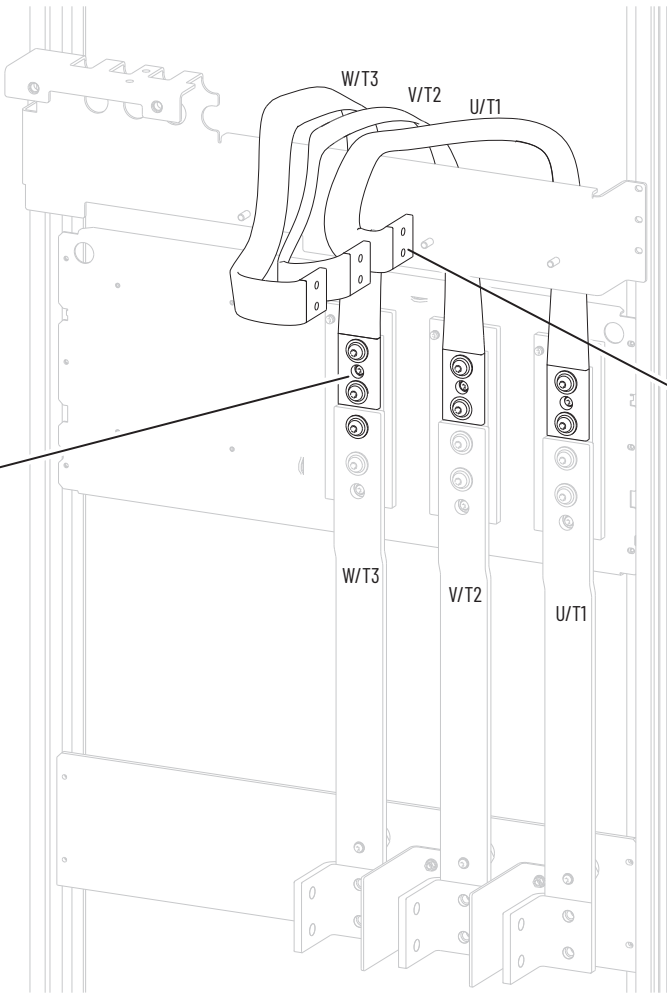
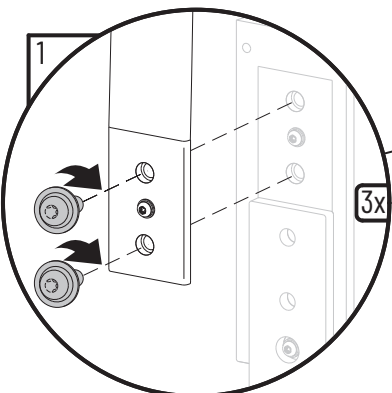
Kit Cat. No.	Kit Description/Installation
20-750-MSOF-F7L	Frame 7L AC Motor Side Output Flexible Bus Bars




ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

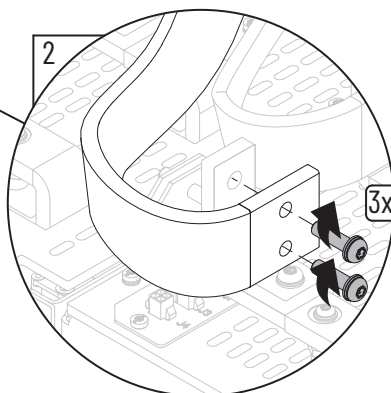


1		M10 x 35 mm T45 8.8 N•m (75 lb•in)
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Install the motor side inverter power module before completing step 2. See page 307 for power module installation instructions.

2		M8 x 30 mm T40 19.8 N•m (175 lb•in)
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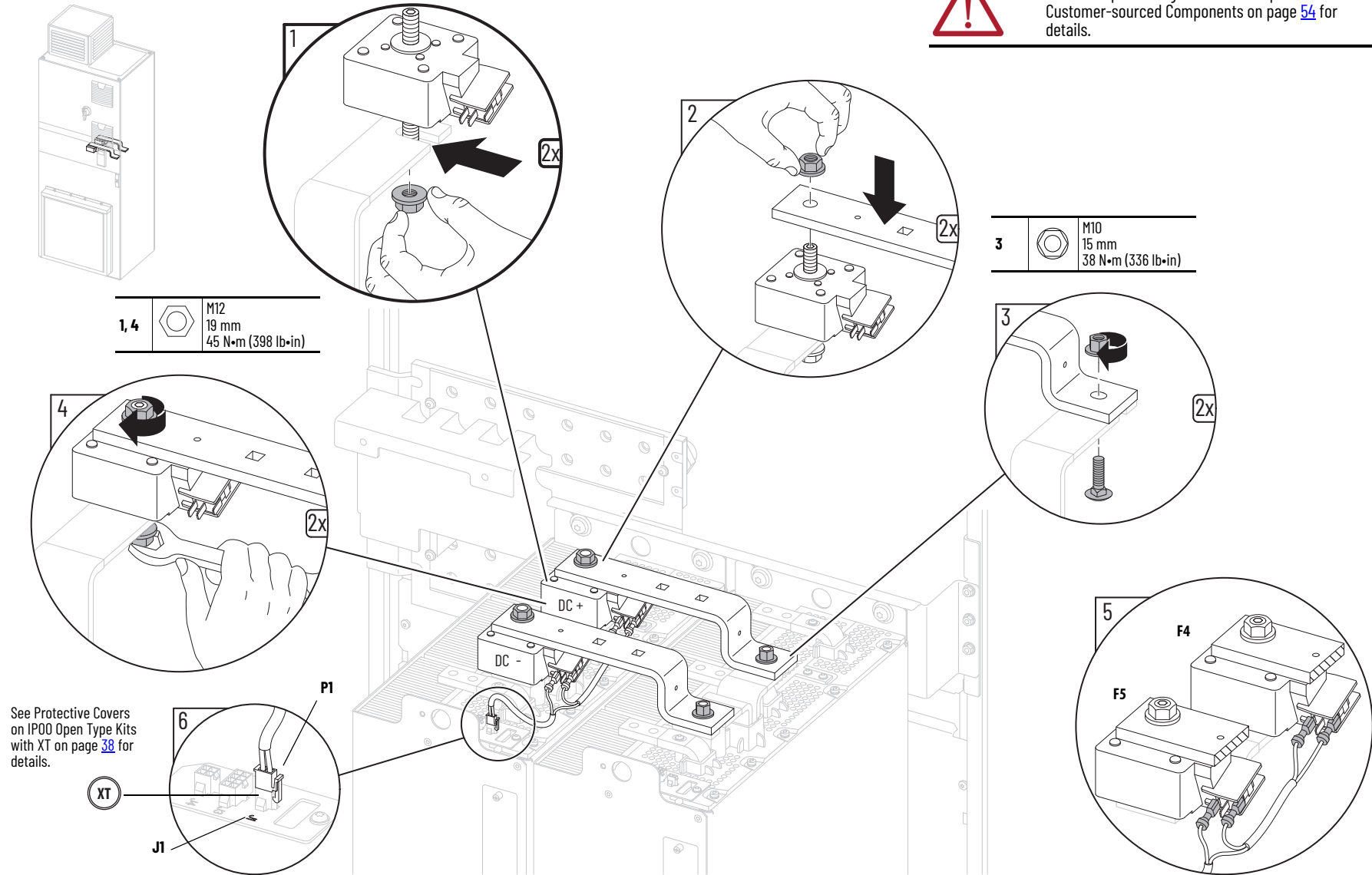


Kit Cat. No.	Kit Description/Installation
20-750-MDCL1-CD-F7M (400/480V) 20-750-MDCL1-EF-F7M (600/690V)	DC Link/Fuse Assembly for Frame 7 Regenerative Drive

Install the power modules before completing these installation instructions. See page 305 for power module installation instructions.



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

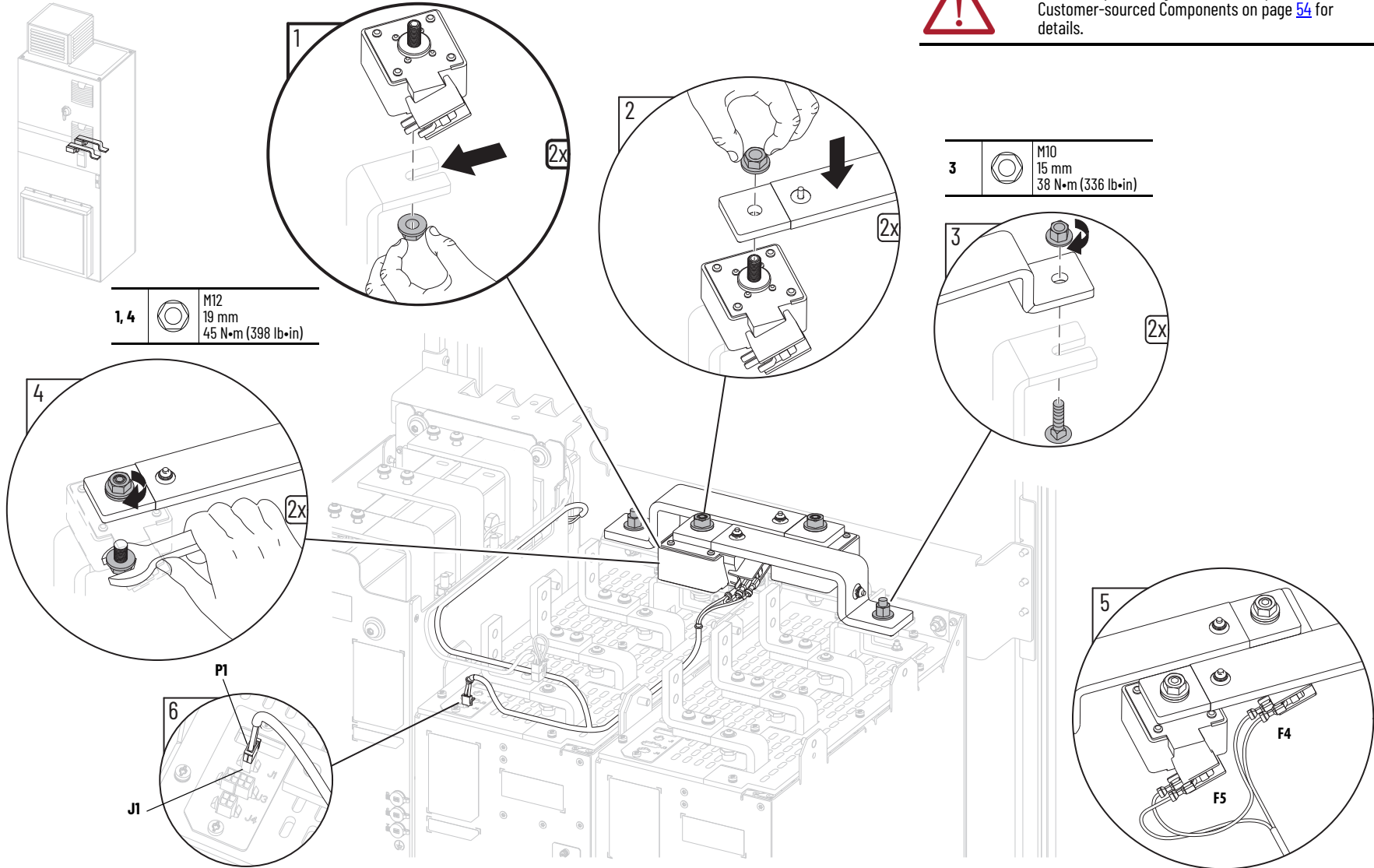


Kit Cat. No.	Kit Description/Installation
20-750-MDCL1-CD-F7L (400/480V)	DC Link/Fuse Assembly for Frame 7L Regenerative Drive

Install the power modules before completing these installation instructions. See page 307 for power module installation



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

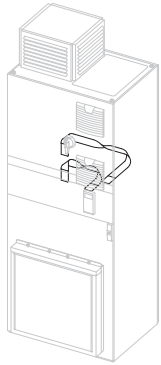


1, 4		M12 19 mm 45 N•m (398 lb•in)
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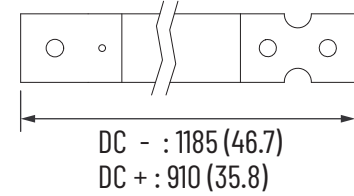
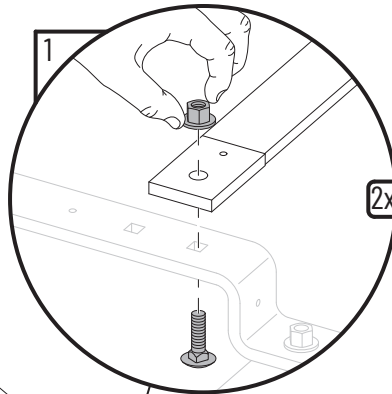
3		M10 15 mm 38 N•m (336 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MDRFB-F7M	Frame 7 Drive DC Fuse/Output Flexible Bus Bars


Install the power modules and DC link/fuse assembly before completing these installation instructions. See page 305 for power module installation instructions. See page 284 for DC link/fuse assembly installation instructions.

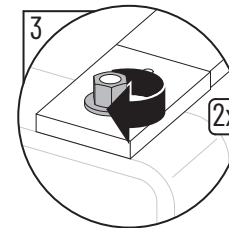
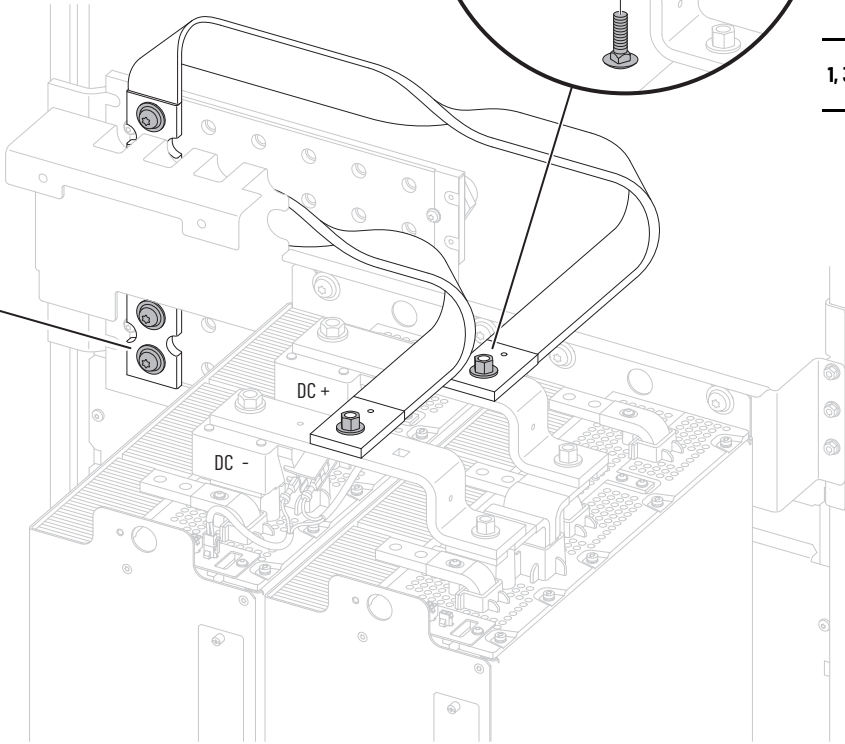
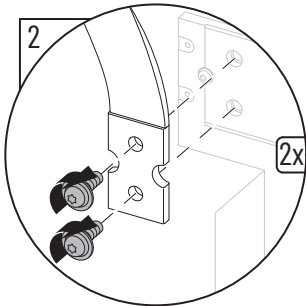


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



2	 M10 x 35 mm T45 8.8 N•m (75 lb•in)
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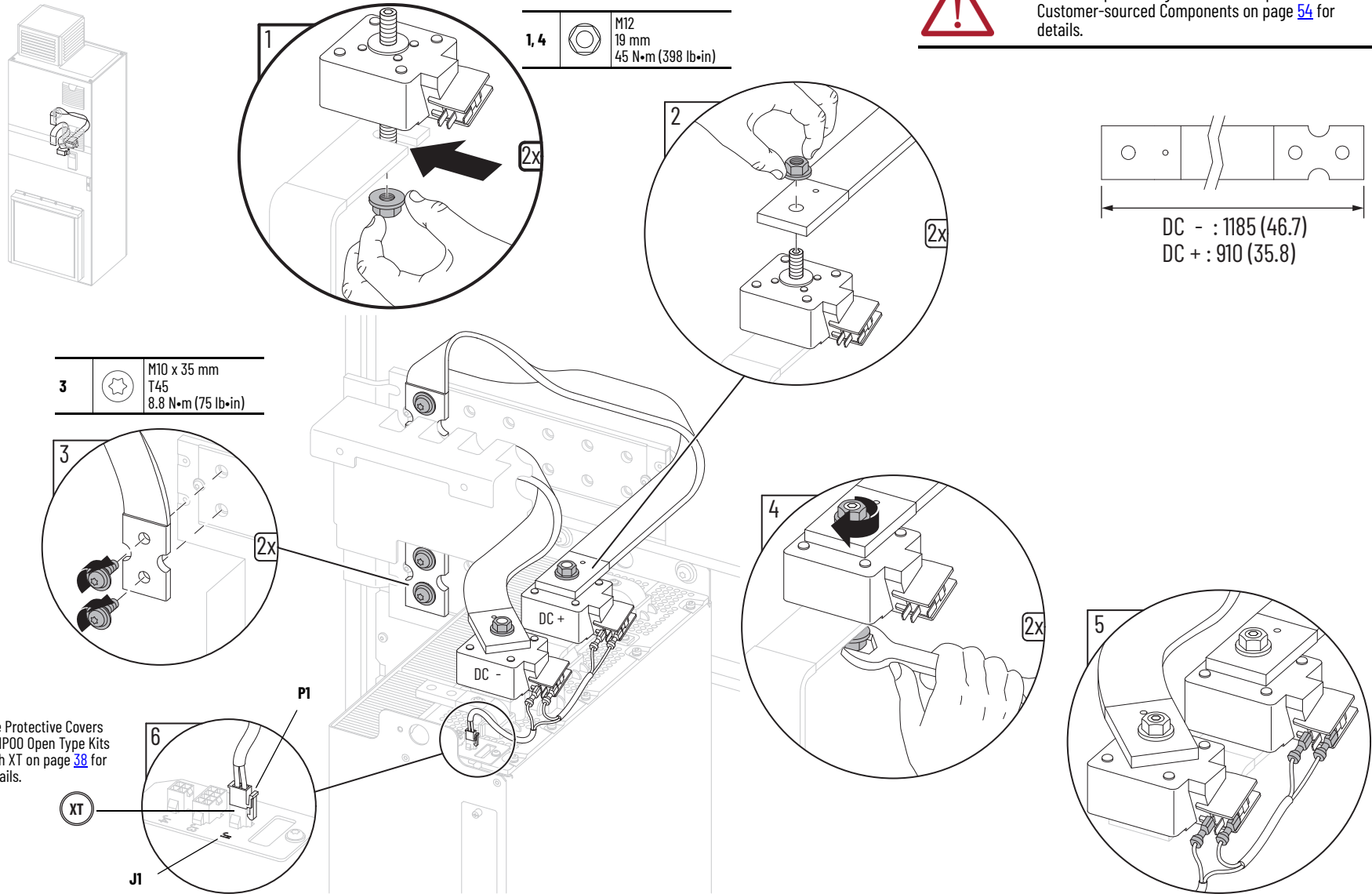
1, 3	 M10 15 mm 37.9 N•m (336 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MDCFB-CD-F7M, 20-750-MDCFB-EF-F7M	Frame 7 Bus Supply DC Fuse/Output Flexible Bus Bars

Install the line side converter power module before completing these installation instructions. See page 305 for power module installation instructions.

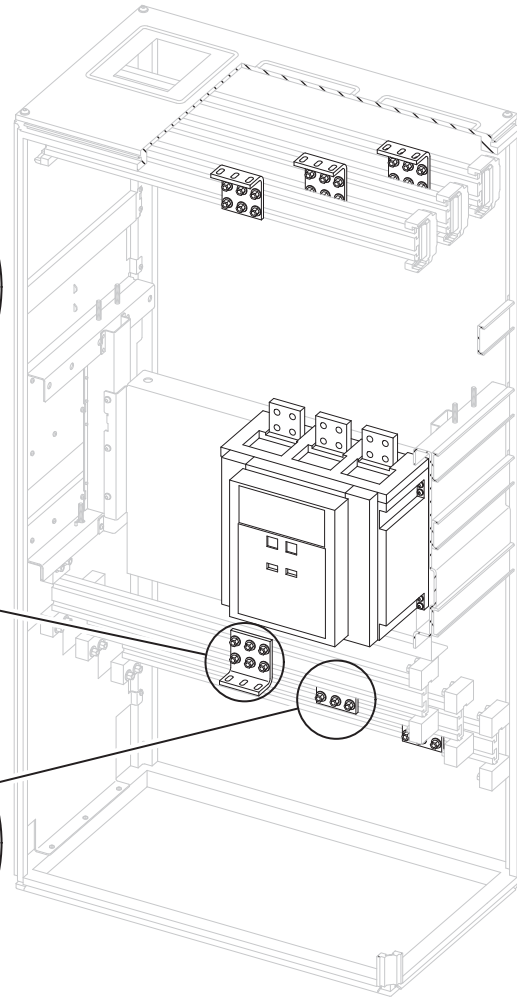
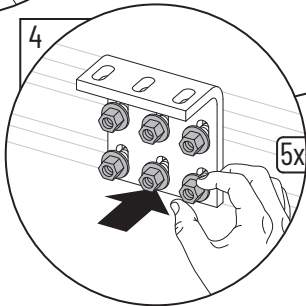
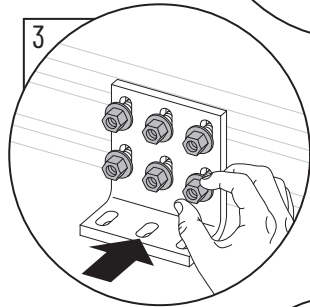
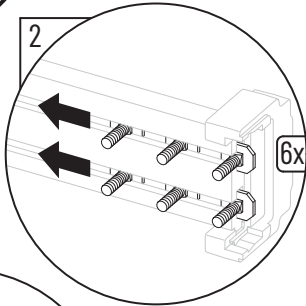
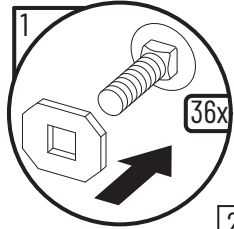
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



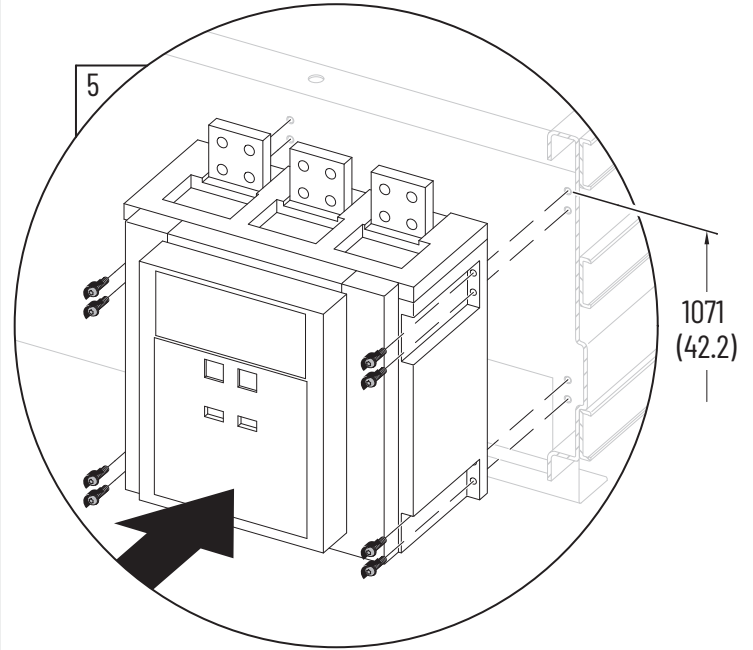
Kit Cat. No.	Kit Cat. No.	Kit Description/Installation
Circuit Breakers: 20-750-MACPCCB-E-2K0 [72.6 kg (160 lb)] 20-750-MACPCCB-F-2K0 [72.6 kg (160 lb)] 20-750-MACPCCB-E-2K5 [72.6 kg (160 lb)] 20-750-MACPCCB-F-2K5 [72.6 kg (160 lb)]	Bus Bars: 20-750-MCBBUS1-2K0 [72.6 kg (160 lb)] 20-750-MCBBUS1-2K5 [72.6 kg (160 lb)]	AC Precharge Circuit Breaker and Bus Bars, 400/480V, 600/690V, 2000/2500 A. Sheet 1 of 2. See Sheet 2 of 2 on page 289 for final installation instructions.



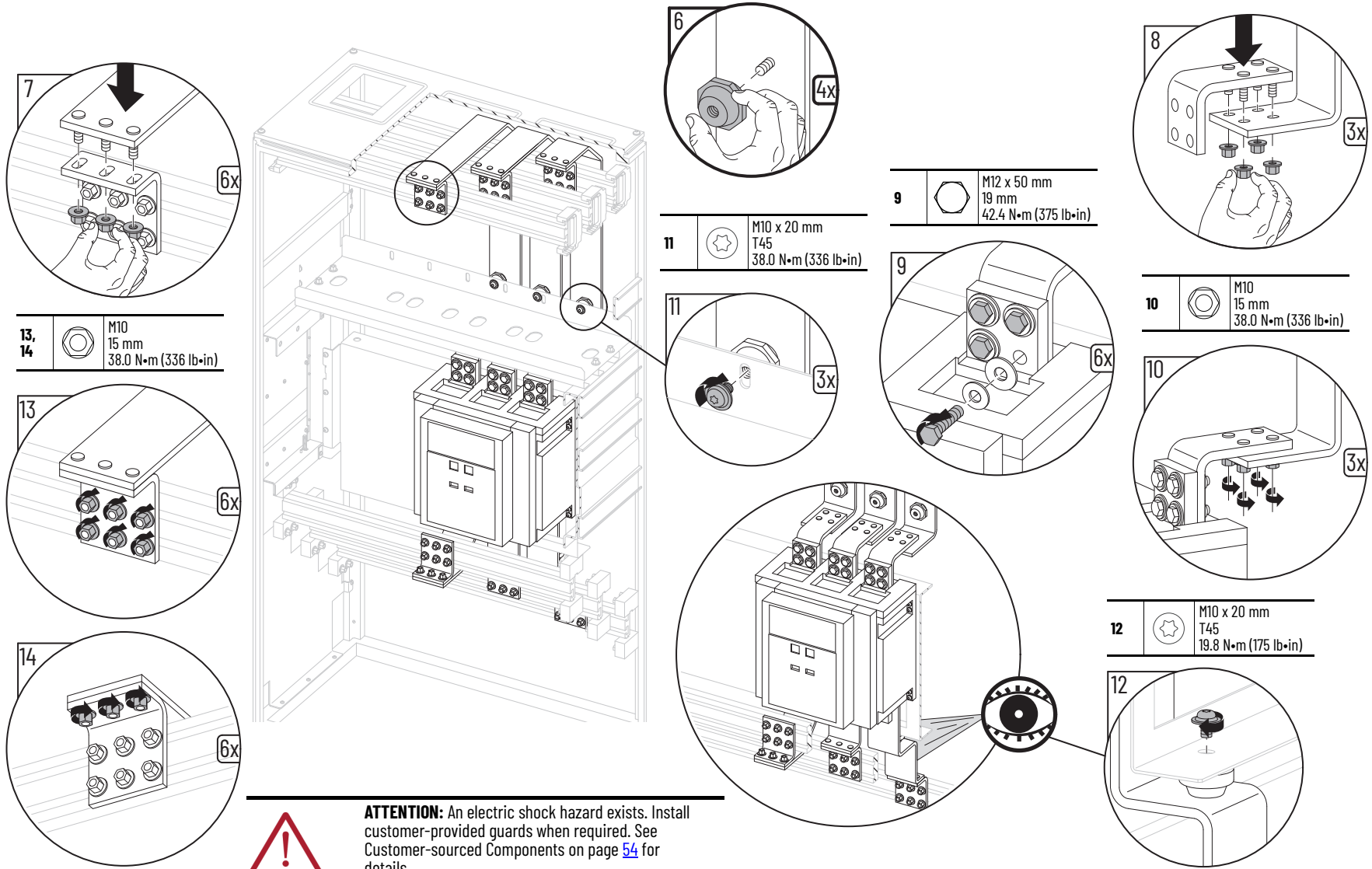
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



5		M8 x 35 mm T40 4.8 N•m (42 lb•in)
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Kit Cat. No.	Kit Cat. No.	Kit Description/Installation
Circuit Breakers: 20-750-MACPCCB-E-2K0 [72.6 kg (160 lb)] 20-750-MACPCCB-F-2K0 [72.6 kg (160 lb)] 20-750-MACPCCB-E-2K5 [72.6 kg (160 lb)] 20-750-MACPCCB-F-2K5 [72.6 kg (160 lb)]	Bus Bars: 20-750-MCBBUS1-2K0 [72.6 kg (160 lb)] 20-750-MCBBUS1-2K5 [72.6 kg (160 lb)]	AC Precharge Circuit Breaker and Bus Bars, 400/480V, 600/690V, 2000/2500 A. Sheet 2 of 2. Complete the installation instructions shown on Sheet 1 of 2 on page 288 before completing these instructions.



13, 14 M10
15 mm
38.0 N•m (336 lb•in)

11 M10 x 20 mm
T45
38.0 N•m (336 lb•in)

9 M12 x 50 mm
19 mm
42.4 N•m (375 lb•in)

10 M10
15 mm
38.0 N•m (336 lb•in)

12 M10 x 20 mm
T45
19.8 N•m (175 lb•in)

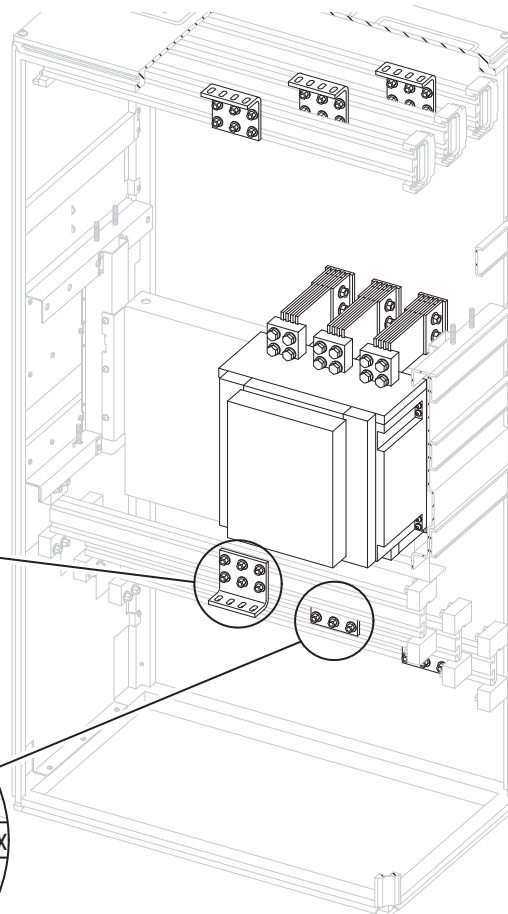
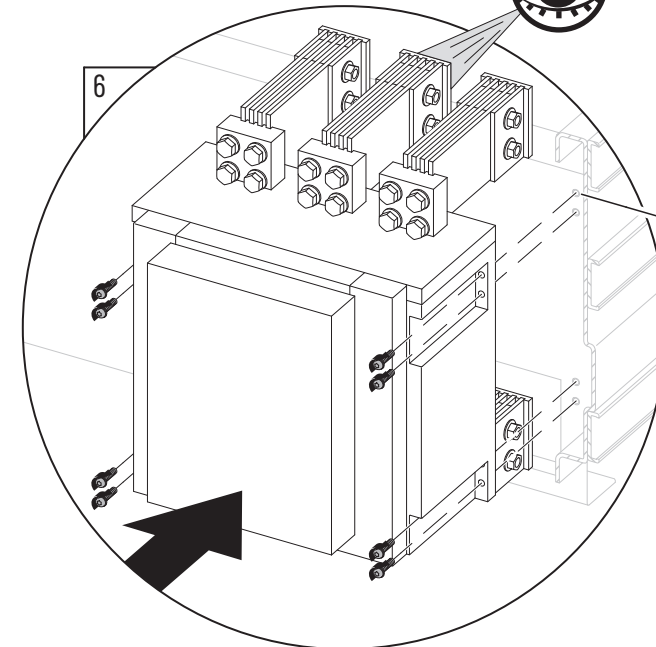
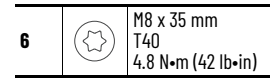
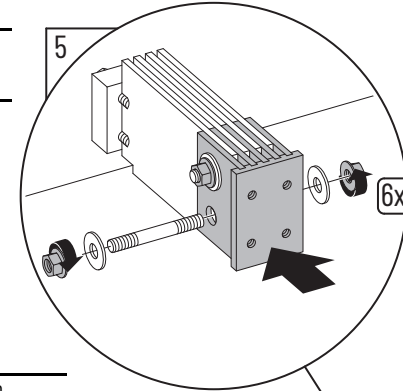
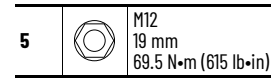
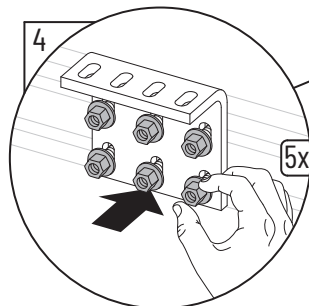
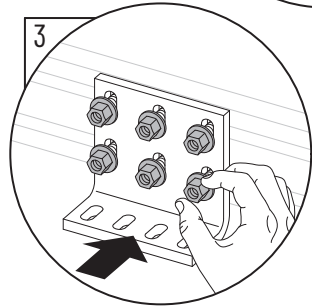
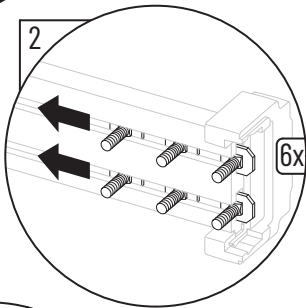
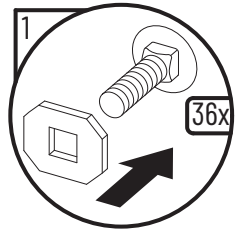


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

Kit Cat. No.	Kit Cat. No.	Kit Description/Installation
Circuit Breaker: 20-750-MACPCCB-CDE-3K0 [73 kg (160 lb)]	Bus Bars: 20-750-MCBBUS1-3K0 [82 kg (180 lb)]	AC Precharge Circuit Breaker and Bus Bars, 400/480/600V, 3000 A. Sheet 1 of 2. See Sheet 2 of 2 on page 291 for final installation instructions.

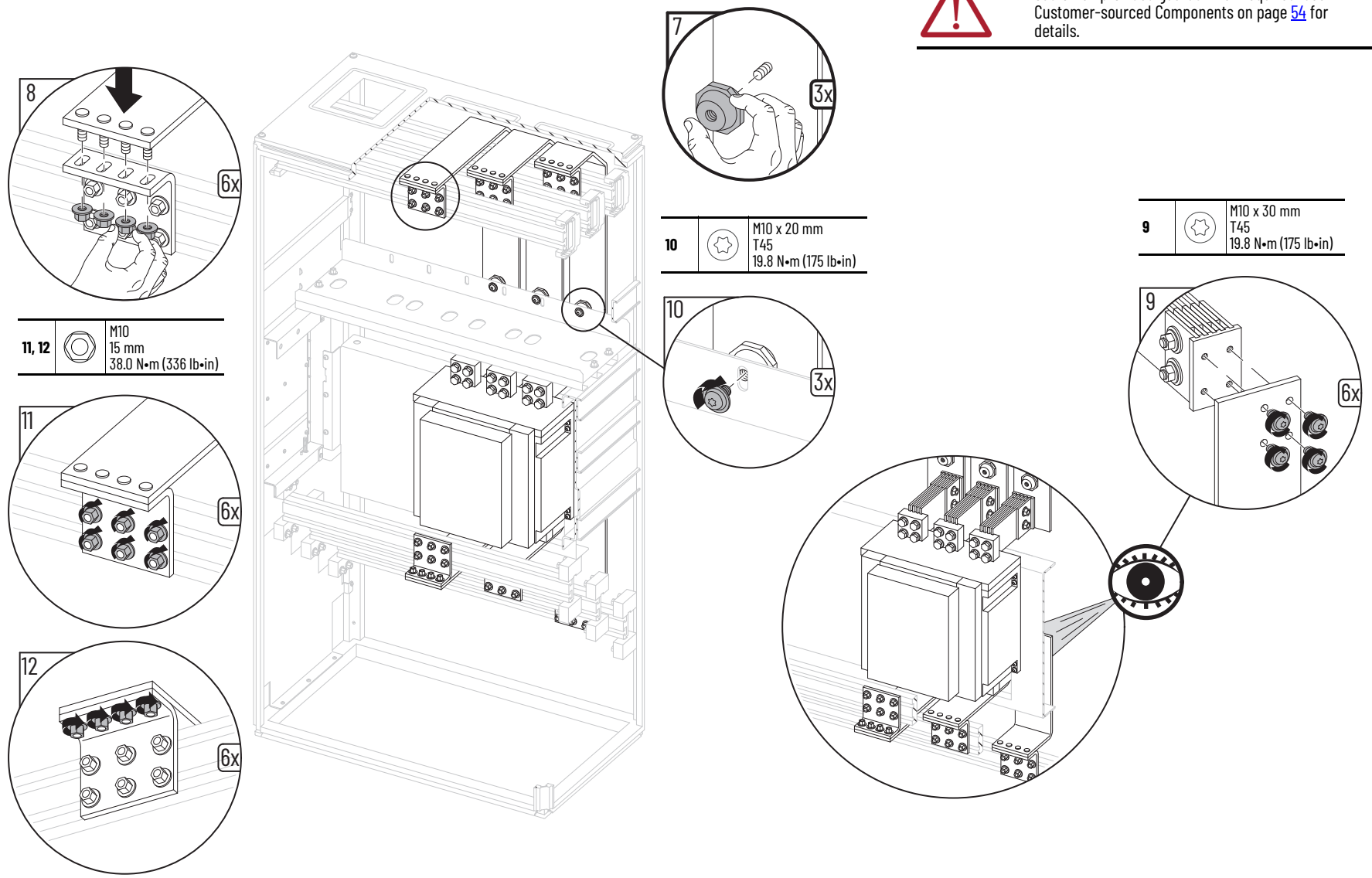


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



Kit Cat. No.	Kit Cat. No.	Kit Description/Installation
Circuit Breaker: 20-750-MACPCCB-CDE-3K0 [73 kg (160 lb)]	Bus Bars: 20-750-MCBBUS1-3K0 [82 kg (180 lb)]	AC Precharge Circuit Breaker and Bus Bars, 400/480/600V, 3000 A. Sheet 2 of 2. Complete the installation instructions shown on Sheet 1 of 2 on page 290 before completing these instructions.

ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page [54](#) for details.



11, 12		M10 15 mm 38.0 N•m (336 lb•in)
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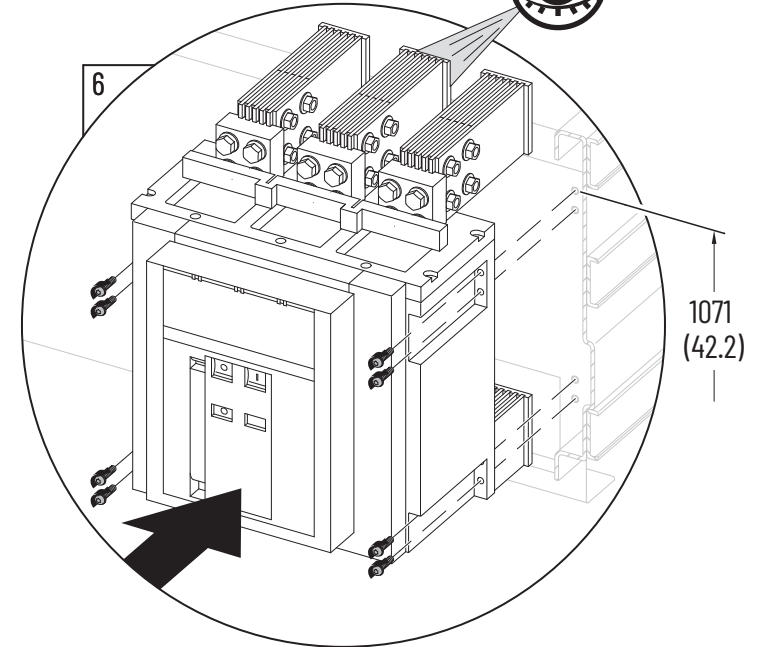
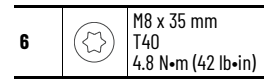
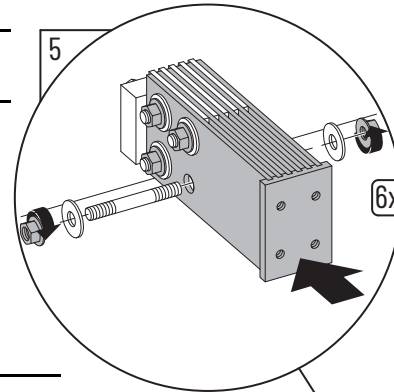
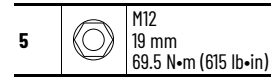
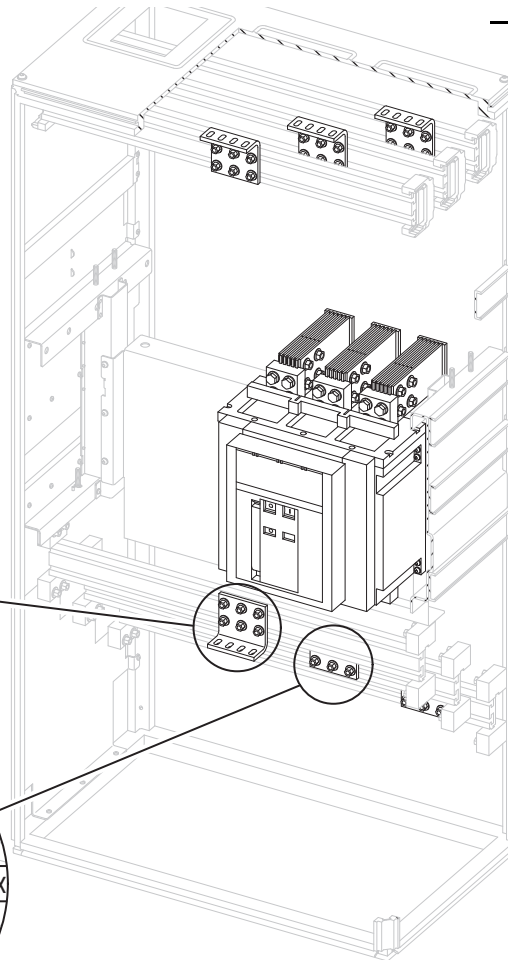
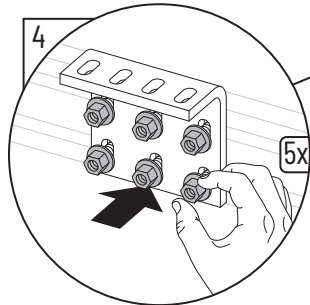
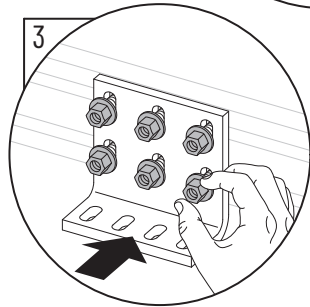
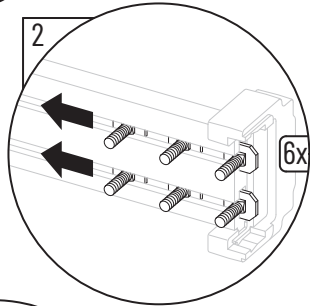
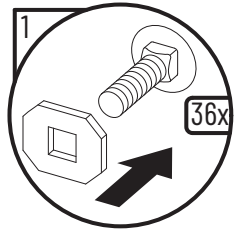
10		M10 x 20 mm T45 19.8 N•m (175 lb•in)
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9		M10 x 30 mm T45 19.8 N•m (175 lb•in)
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Kit Cat. No.	Kit Cat. No.	Kit Description/Installation
Circuit Breaker: 20-750-MACPCCB-F-3K0 [73 kg (160 lb)]	Bus Bars: 20-750-MCBBUS2-3K0 [61 kg (140 lb)]	AC Precharge Circuit Breaker and Bus Bars - 3000 A. Sheet 1 of 2. See Sheet 2 of 2 on page 293 for final installation instructions.



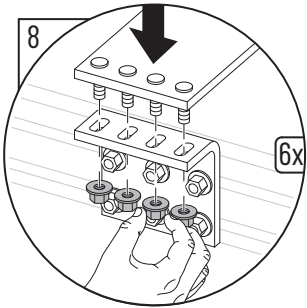
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page [54](#) for details.



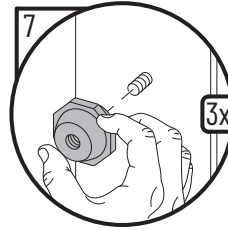
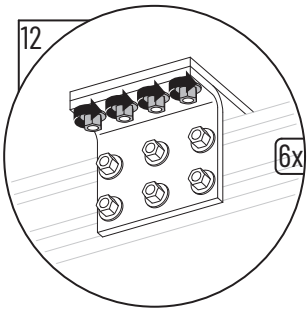
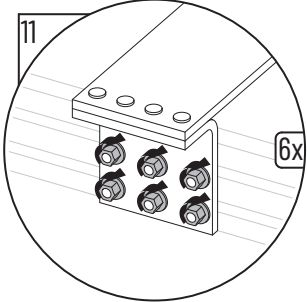
Kit Cat. No.	Kit Cat. No.	Kit Description/Installation
Circuit Breaker: 20-750-MACPCCB-F-3K0 [73 kg (160 lb)]	Bus Bars: 20-750-MCBBUS2-3K0 [61 kg (140 lb)]	AC Precharge Circuit Breaker and Bus Bars - 3000 A. Sheet 2 of 2. Complete the installation instructions shown on Sheet 1 of 2 on page 292 before completing these instructions.



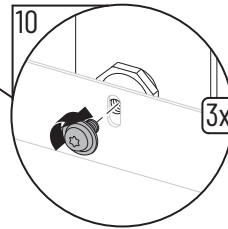
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



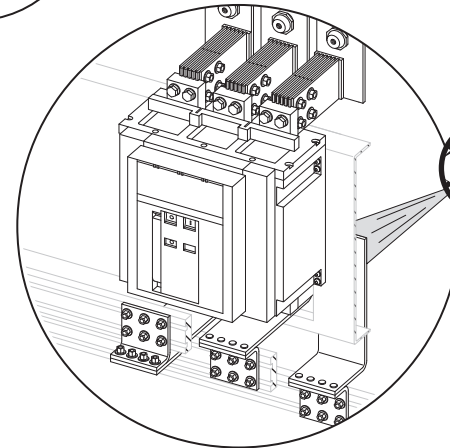
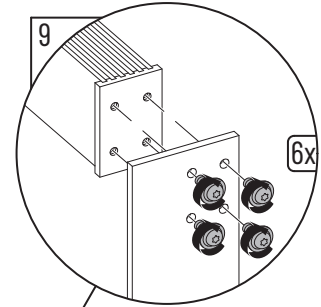
11, 12		M10 15 mm 38.0 N•m (336 lb•in)
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10		M10 x 20 mm T45 19.8 N•m (175 lb•in)
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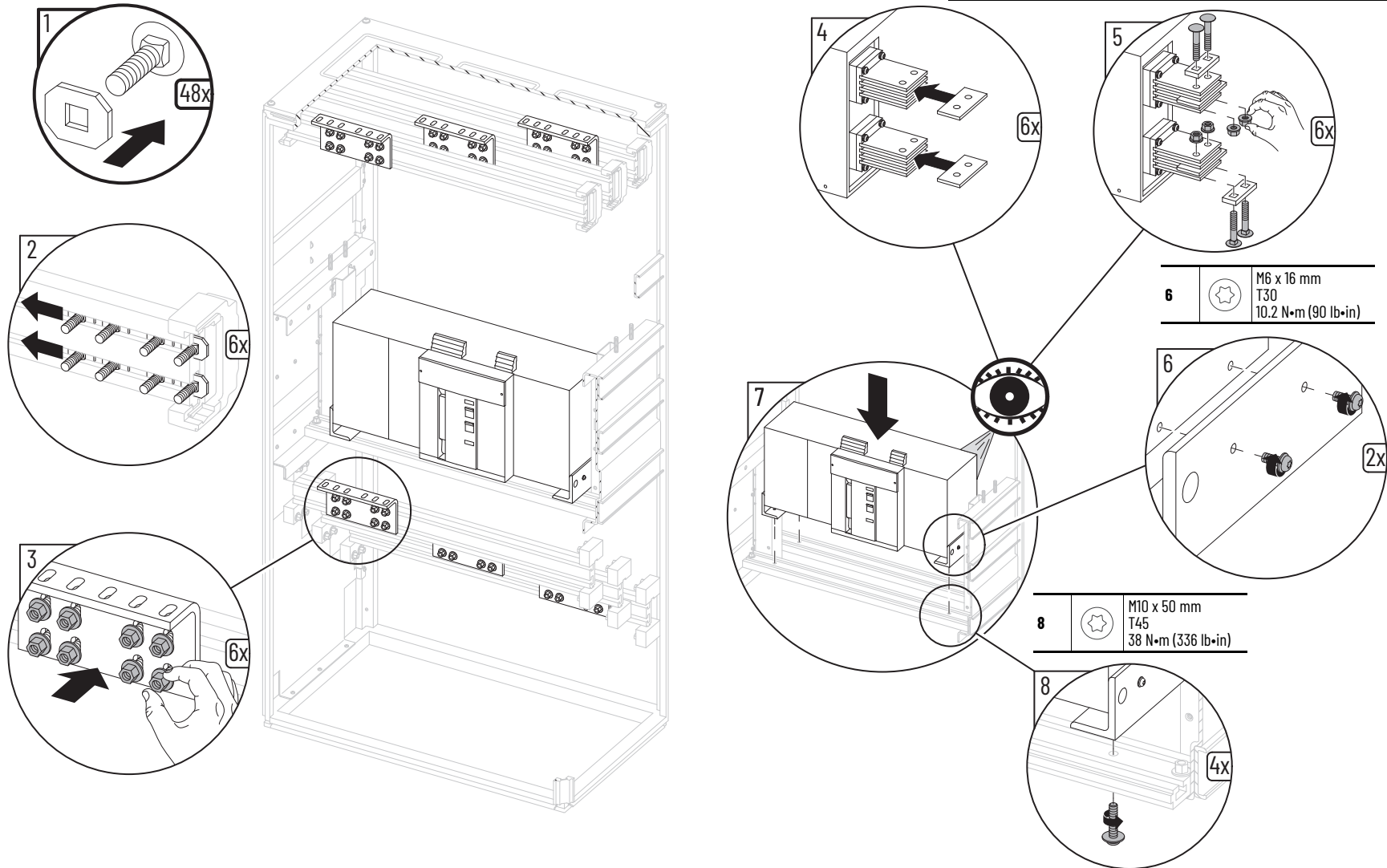
9		M10 x 30 mm T45 19.8 N•m (175 lb•in)
---	--	--



Kit Cat. No.	Kit Cat. No.	Kit Description/Installation
Circuit Breakers: 20-750-MACPCCB1-CD-5K0 [142 kg (313.1 lb)] 20-750-MACPCCB1-CD-4K0 [142 kg (313.1 lb)]	Bus Bars: 20-750-MCBBUS2-5K0 [152 kg (335 lb)]	AC Precharge Circuit Breaker and Bus Bars - 400/480V, 4000 A/5000 A. Sheet 1 of 2. See Sheet 2 of 2 on page 295 for final installation Instructions.



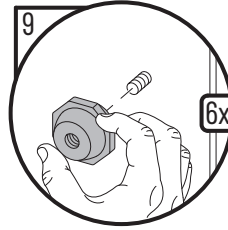
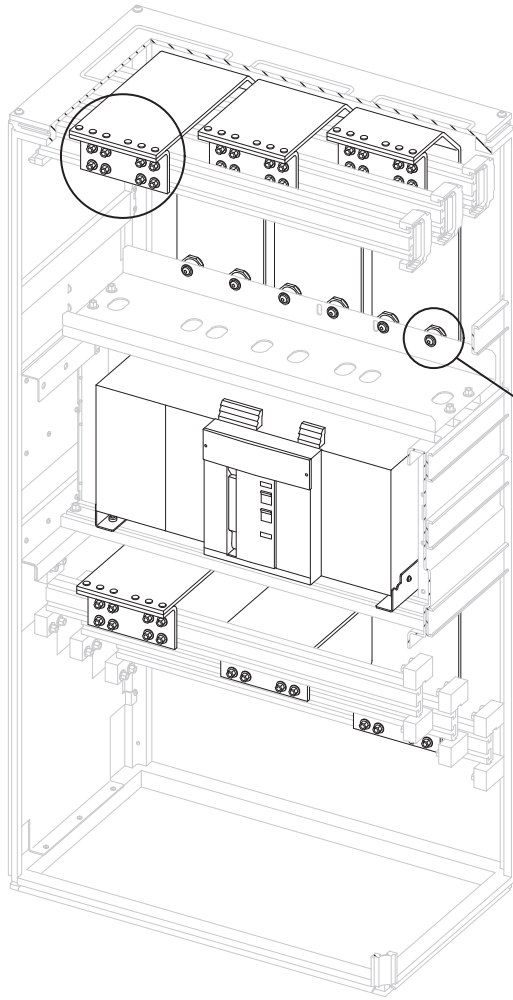
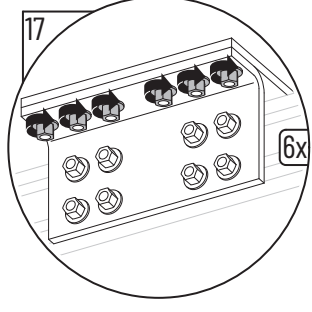
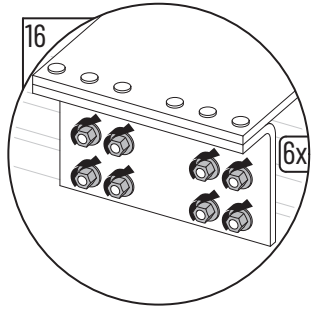
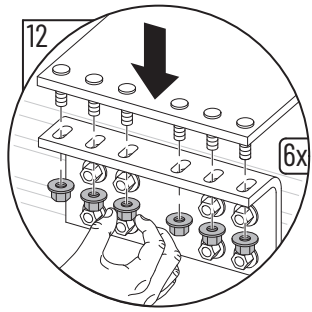
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page [54](#) for details.




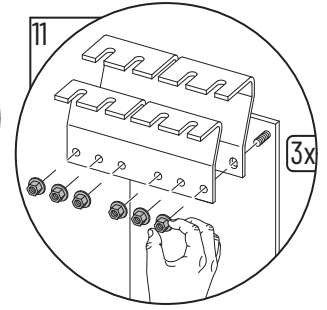
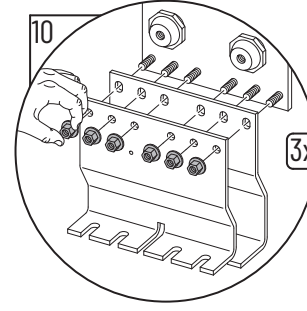
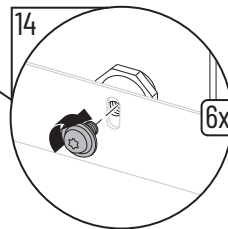
Kit Cat. No.	Kit Cat. No.	Kit Description/Installation
Circuit Breakers: 20-750-MACPCCB1-CD-5K0 [142 kg (313.1 lb)] 20-750-MACPCCB1-CD-4K0 [142 kg (313.1 lb)]	Bus Bars: 20-750-MCBBUS2-5K0 [152 kg (335 lb)]	AC Precharge Circuit Breaker and Bus Bars - 400/480V, 4000 A/5000 A. Sheet 2 of 2. Complete the installation instructions shown on Sheet 1 of 2 on page 294 before completing these instructions.




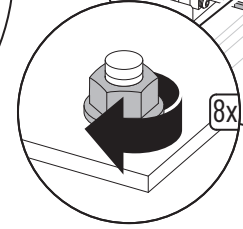
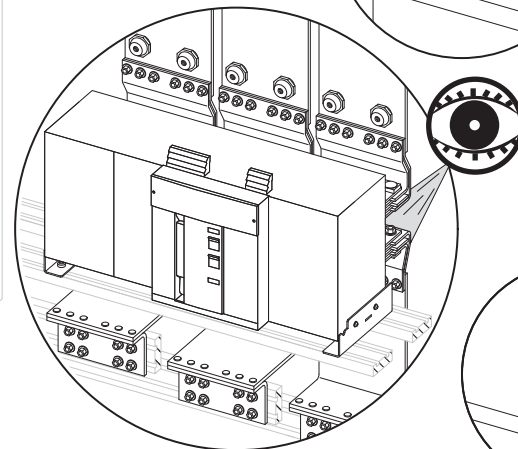
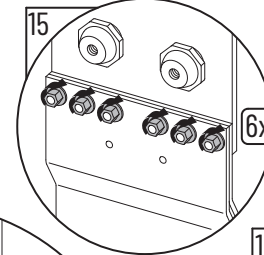
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



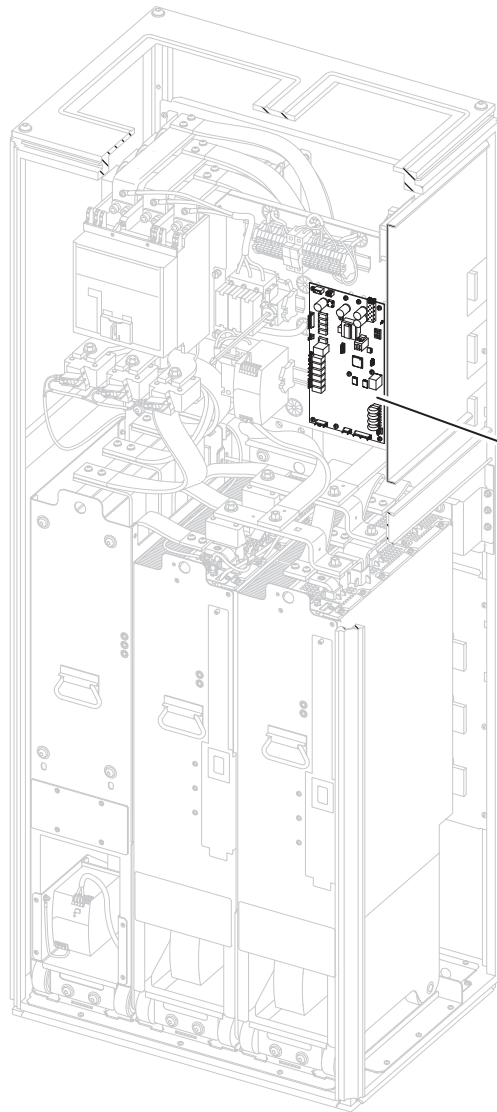
14  M10 x 20 mm
T40
38 N•m (336 lb•in)




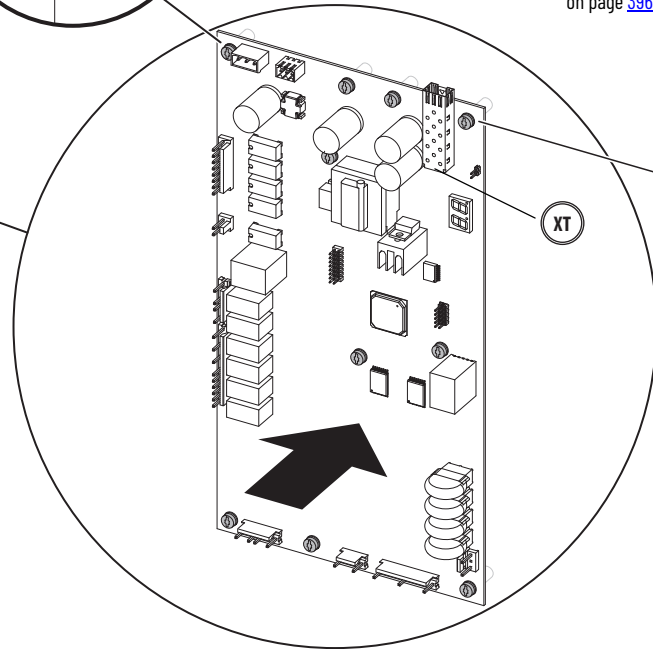
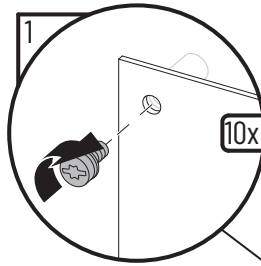
15...
17  M10
15 mm
38.0 N•m (336 lb•in)



Kit Cat. No.	Kit Description/Installation
20-750-MACPC1-CD-F7M (400/480V) 20-750-MACPC1-EF-F7M (600/690V)	Frame 7 and 7L AC Precharge Control Circuit Board. Cat. No. 20-750-MACPC1-CD-F7M (400/480V) is used with frame 7L liquid cooled drives only.



1		M4 x 16 mm T20 2.6 N•m (23 lb•in)
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ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



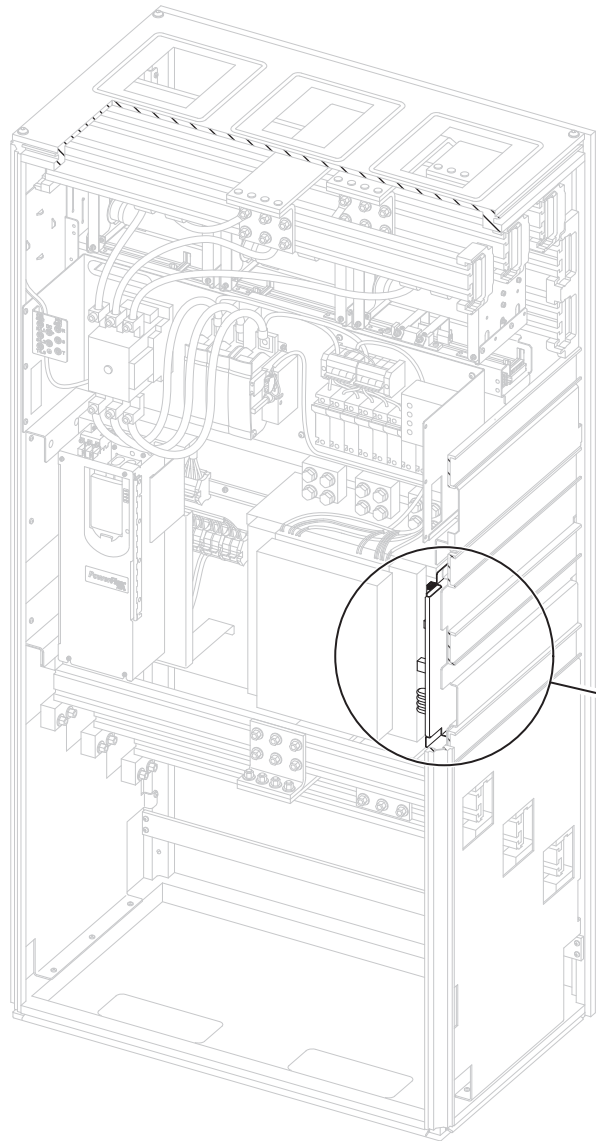
See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.



The interconnection wire harnesses must be customer sourced. See AC Precharge Control Circuit Board Connections on page 168 for details.

A sheet-metal mounting panel must be customer sourced. See Sheet-metal Mounting Panel for AC Precharge Components (Frame 7 and 7L) on page 396 for details.

Kit Cat. No.	Kit Description/Installation
20-750-MACPC1-CD (400/480V) 20-750-MACPC1-EF (600/690V)	AC Precharge Control Circuit Board

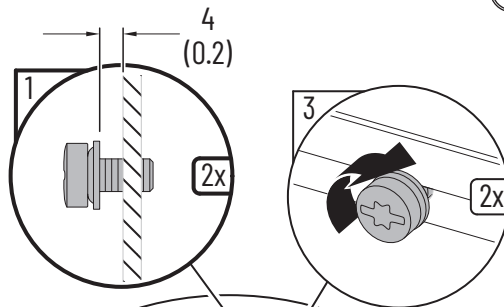


1, 3		M5 x 12 mm T25 7.9 N•m (70 lb•in)
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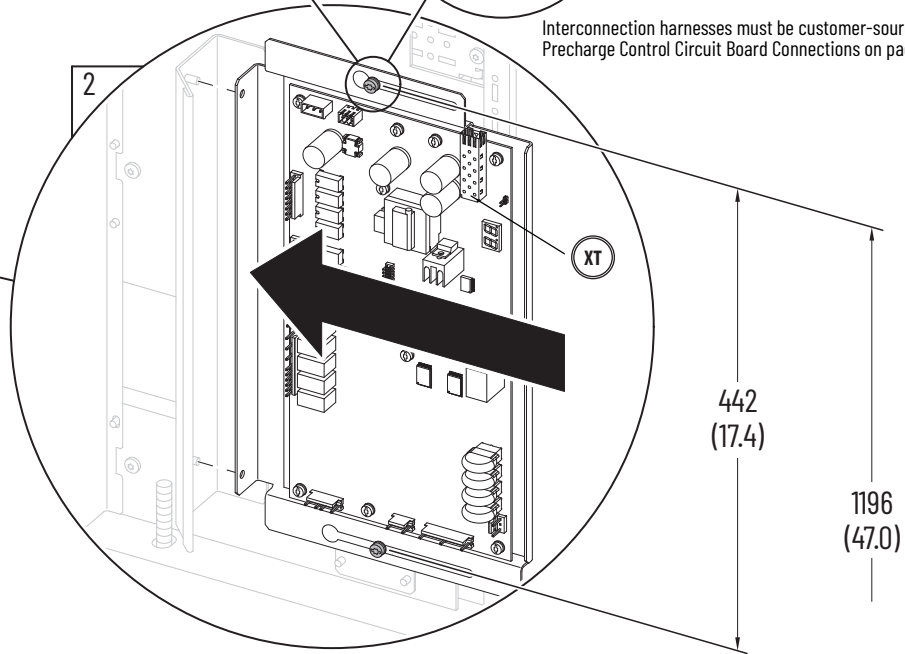


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

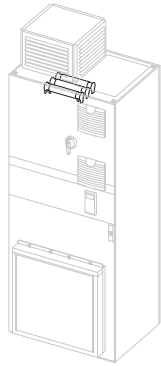
XT See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.



Interconnection harnesses must be customer-sourced. See AC Precharge Control Circuit Board Connections on page 168 for details.




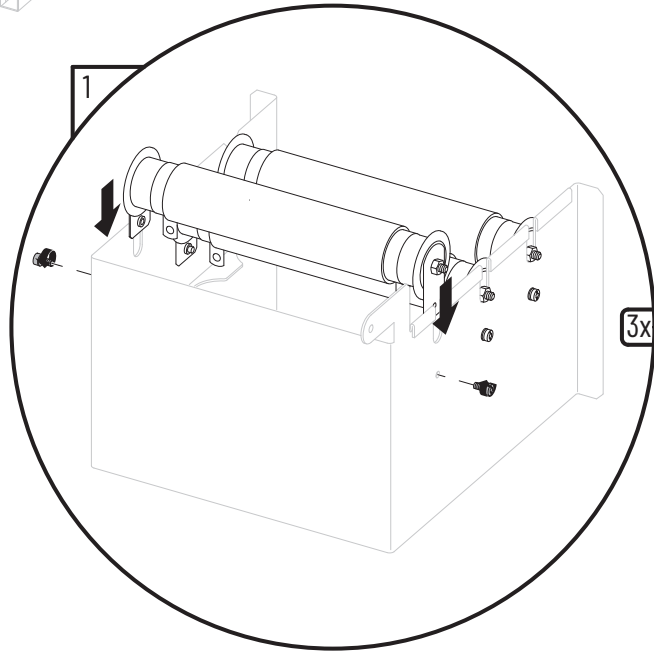
Kit Cat. No.	Kit Description/Installation
20-750-MACPR-CD-F7M (400/480V)	AC Precharge Resistors, Frame 7 and 7L



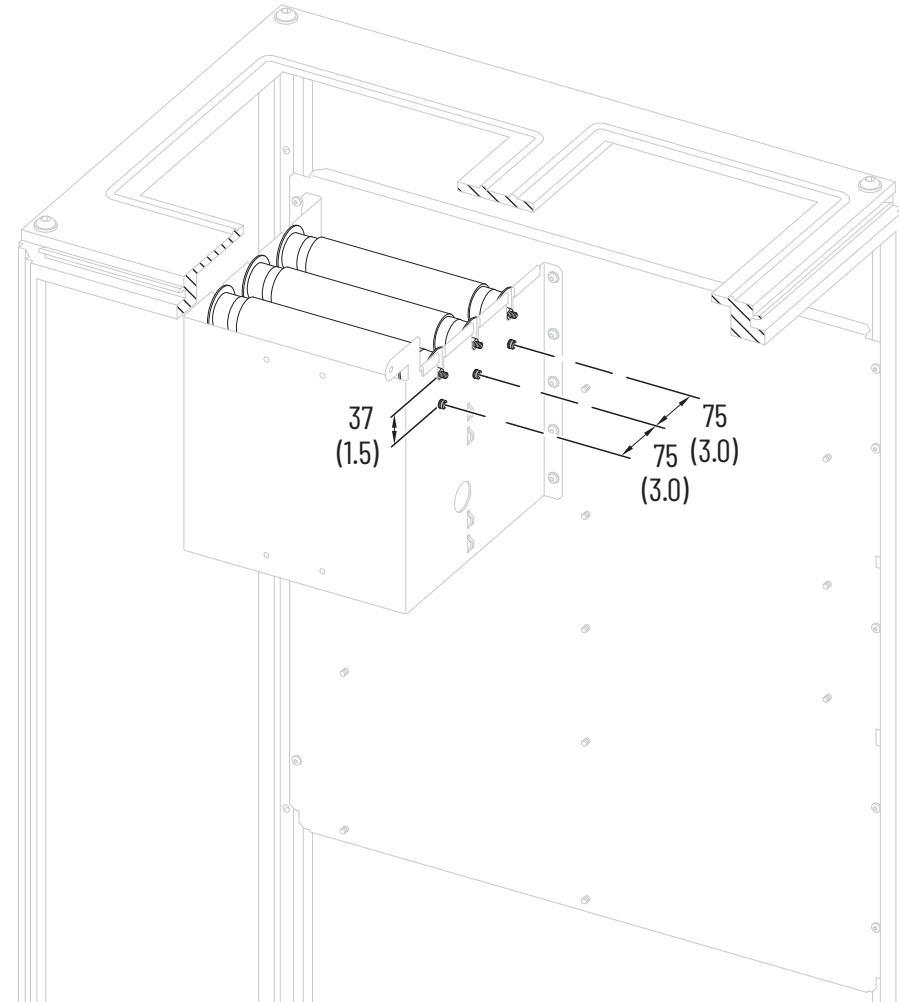
The AC precharge resistor bank mounting bracket must be customer-sourced. See Sheet-metal Mounting Panel for AC Input Precharge Components (Frame 7 and 7L) - Sheet 1 of 3 on page [393](#) for details. This bracket can also be used to mount a customer-sourced AC precharge contactor.

The interconnection harness that connects to the AC precharge contactor must be customer-sourced. See Frame 7 and 7L AC Precharge Resistor Bank Connections on page [174](#) for details.

1		M5 x 12 mm T25 6.0 N•m (53 lb•in)
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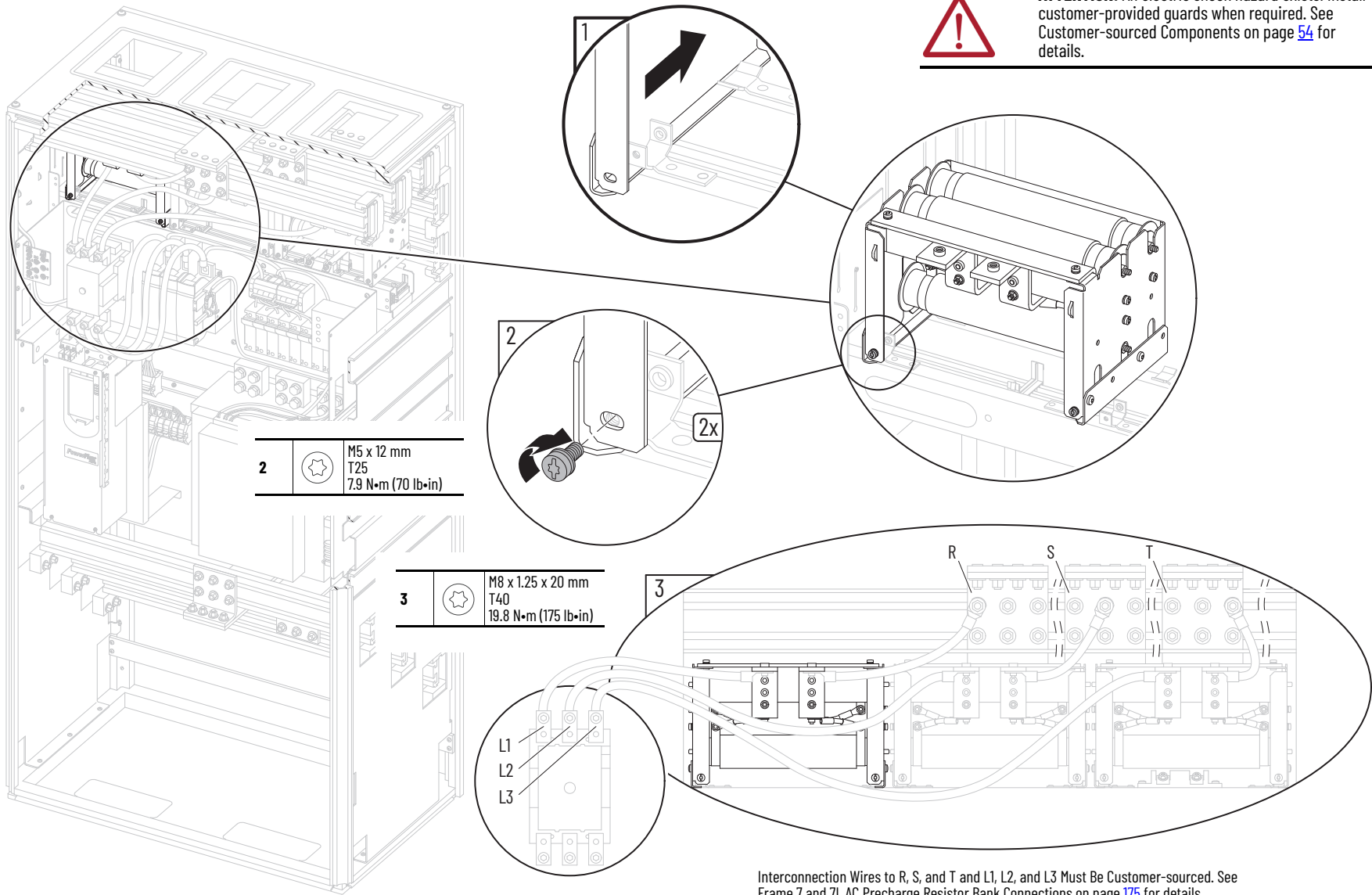
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page [54](#) for details.



Kit Cat. No.			Kit Description/Installation
Frame 10: 20-750-MACPR-CD-F10M (400/480V) 20-750-MACPR-EF-F10M (600/690V)	Frame 11 20-750-MACPR-CD-F11M (400/480V) 20-750-MACPR-EF-F11M (600/690V)	Frame 12 20-750-MACPR-CD-F12M (400/480V) 20-750-MACPR-EF-F12M (600/690V)	AC Precharge Resistor Bank



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

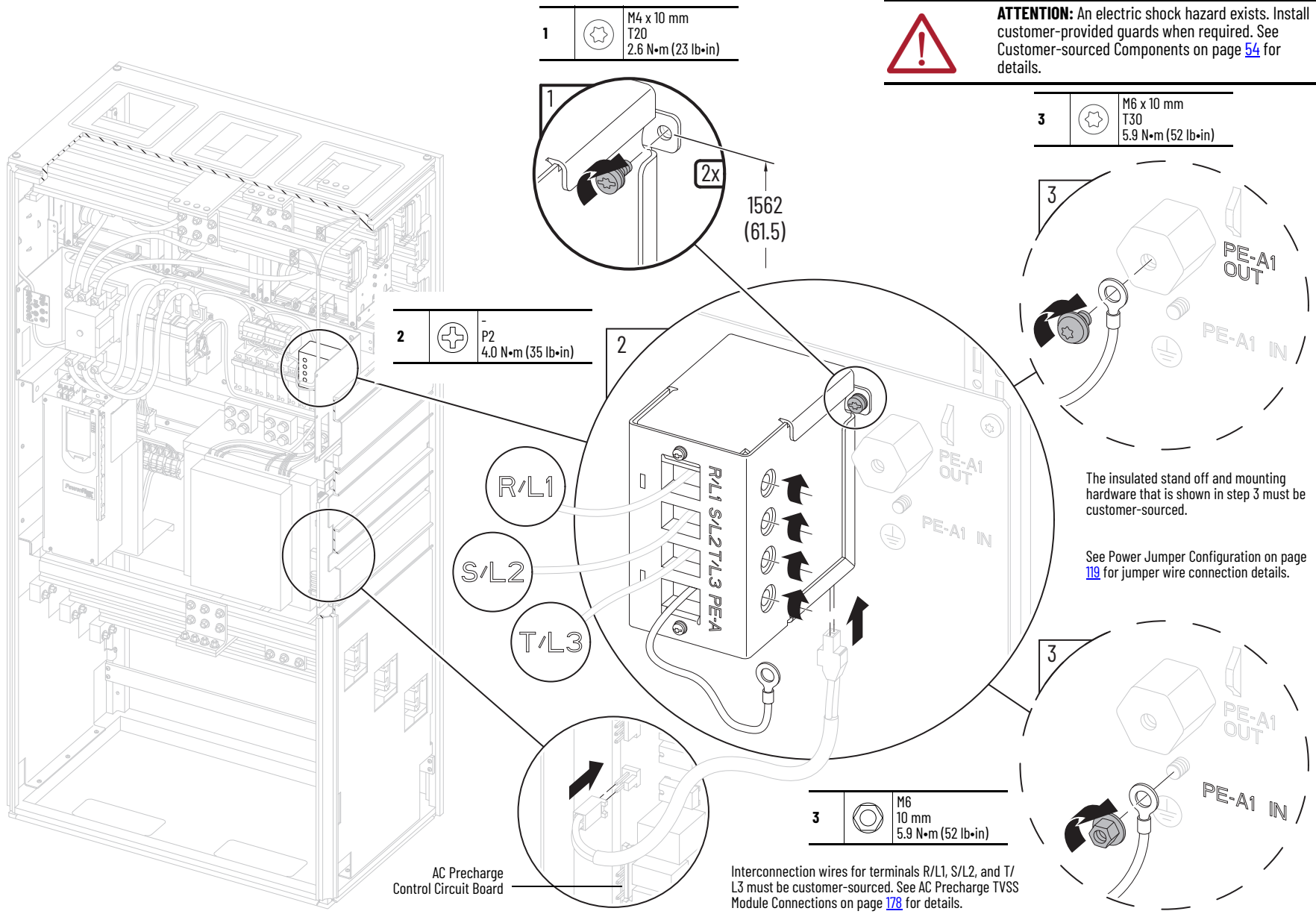


2		M5 x 12 mm T25 7.9 N•m (70 lb•in)
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3		M8 x 1.25 x 20 mm T40 19.8 N•m (175 lb•in)
---	--	--


Interconnection Wires to R, S, and T and L1, L2, and L3 Must Be Customer-sourced. See Frame 7 and 7L AC Precharge Resistor Bank Connections on page 175 for details.


Kit Cat. No.	Kit Description/Installation
20-750-MACP-CD-TVSS (400/480V) 20-750-MACP-EF-TVSS (600/690V)	AC Precharge TVSS Module (The TVSS module is shown mounted on kit catalog numbers 20-750-MIBPNL2-F1xM.)




ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

1	 M4 x 10 mm T20 2.6 N·m (23 lb·in)
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3	 M6 x 10 mm T30 5.9 N·m (52 lb·in)
---	---

2	 P2 4.0 N·m (35 lb·in)
---	--

3	 M6 10 mm 5.9 N·m (52 lb·in)
---	---

The insulated stand off and mounting hardware that is shown in step 3 must be customer-sourced.

See Power Jumper Configuration on page 119 for jumper wire connection details.

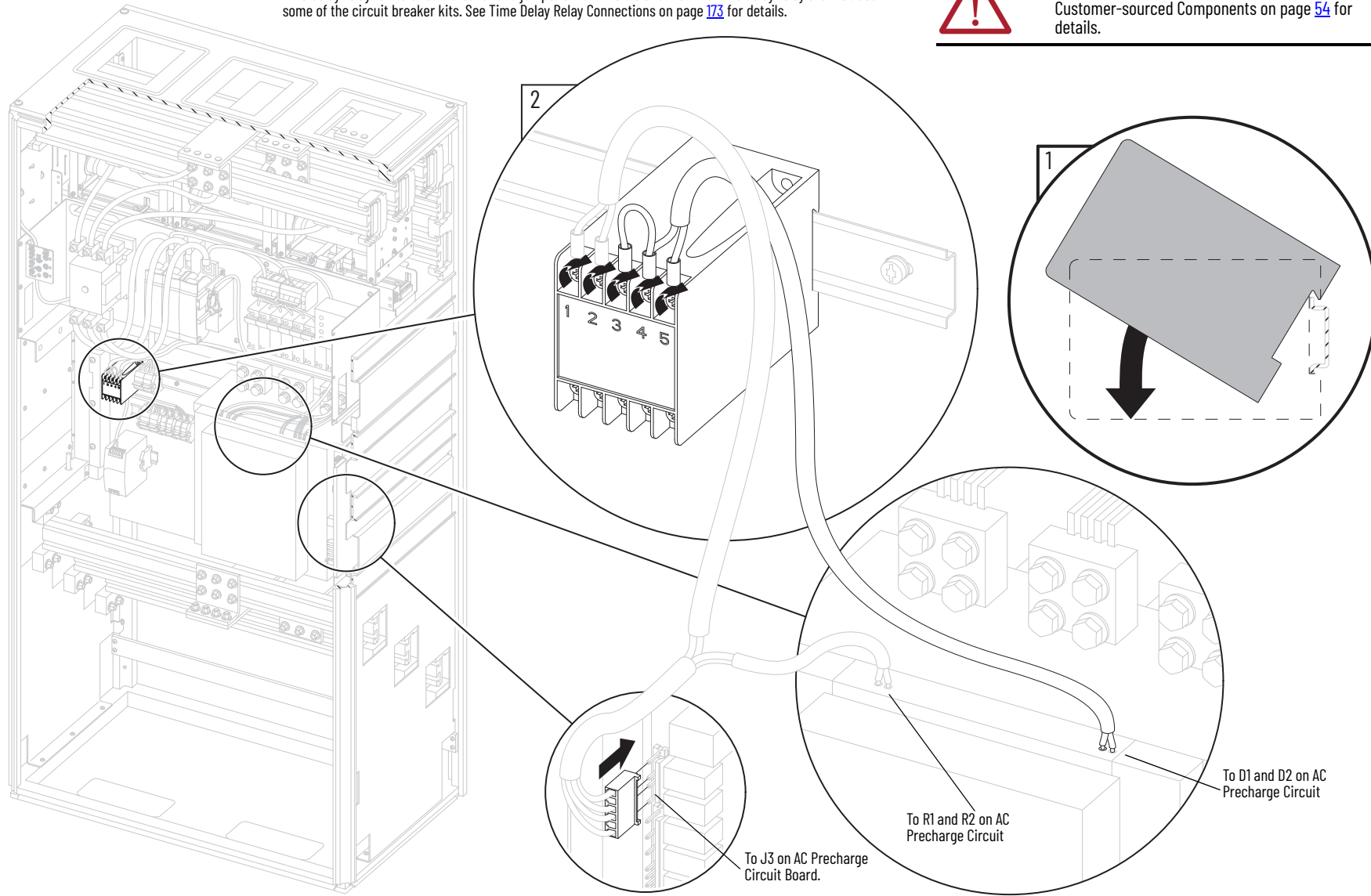
Interconnection wires for terminals R/L1, S/L2, and T/L3 must be customer-sourced. See AC Precharge TVSS Module Connections on page 178 for details.

Kit Cat. No.	Kit Description/Installation
20-750-MACPC-TDR	AC Precharge Time Delay Relay, 400/480/600/690V

The interconnection wire harness that connects the time delay relay to the AC precharge control circuit board is not included with this kit and must be customer sourced. The interconnection wire harness that connects the time delay relay to the circuit breaker and jumper at terminals 3 and 4 on the time delay relay are included with some of the circuit breaker kits. See Time Delay Relay Connections on page 173 for details.



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



Kit Cat. No.	Kit Description/Installation
20-750-MTAM1-CD (400/480V) 20-750-MTAM1-EF (600/690V)	Torque Accuracy Module, 400/480/600/690V for Frames 8...15

IMPORTANT

Minimum inside bend radius for fiber-optic cable is 50 mm (2 in.). Any bends with a shorter inside radius can permanently damage the fiber-optic cable. Signal attenuation increases as inside bend radius is decreased.

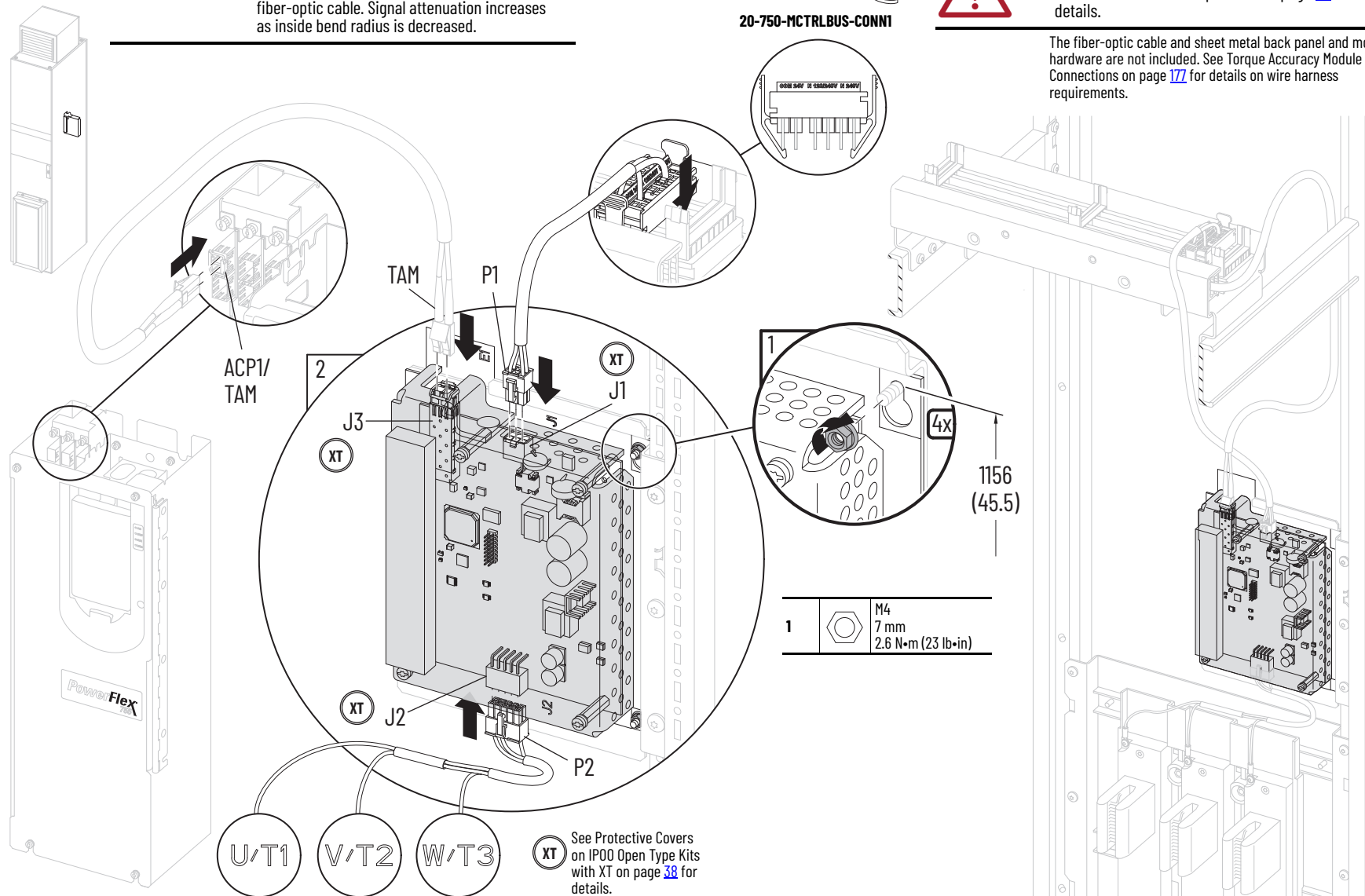


20-750-MCTRLBUS-CONN1



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

The fiber-optic cable and sheet metal back panel and mounting hardware are not included. See Torque Accuracy Module Connections on page 177 for details on wire harness requirements.



XT See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

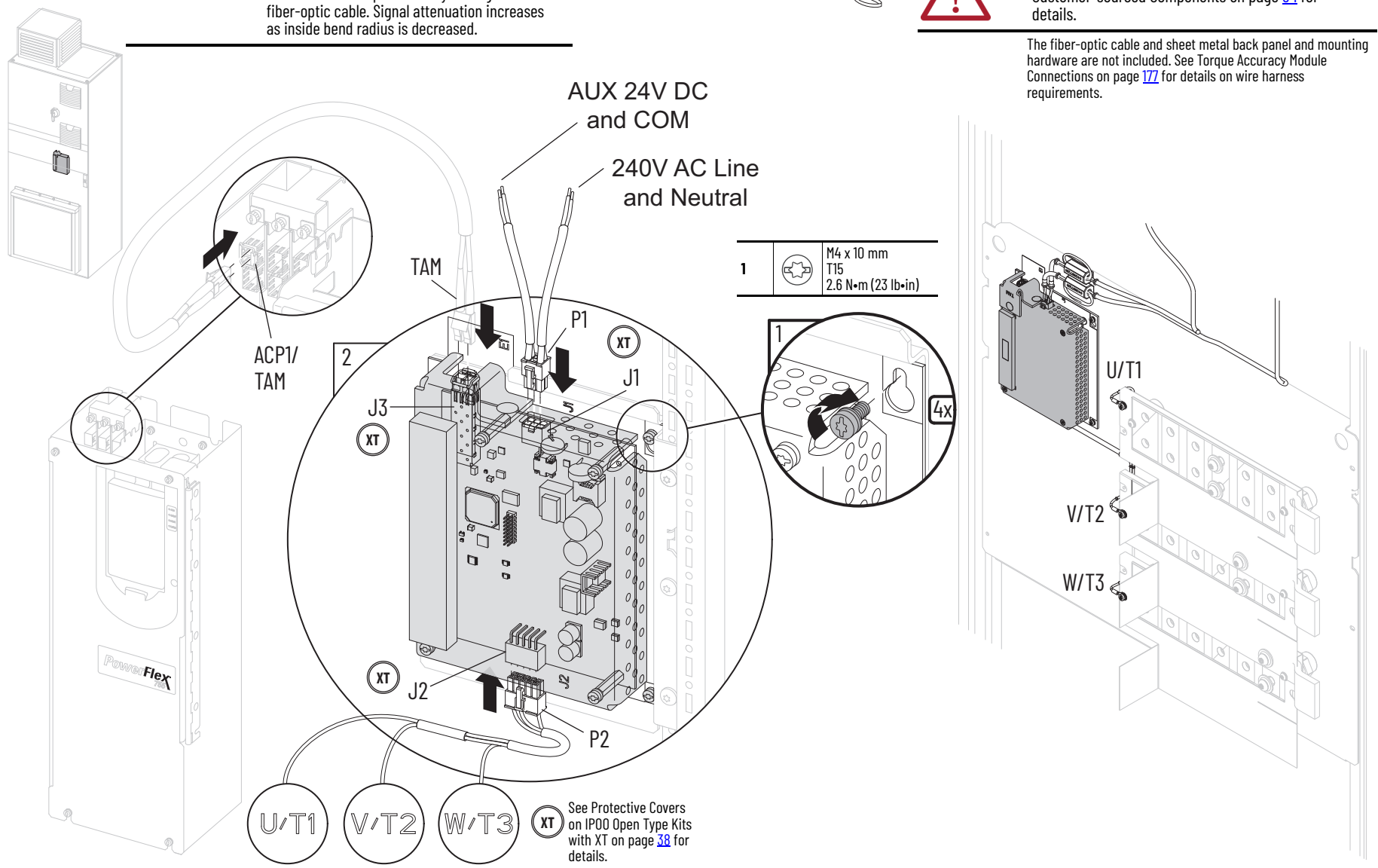
Kit Cat. No.	Kit Description/Installation
20-750-MTAM1-CD (400/480V) 20-750-MTAM1-EF (600/690V)	Torque Accuracy Module, 400/480/600/690V for frame 7

IMPORTANT Minimum inside bend radius for fiber-optic cable is 50 mm (2 in.). Any bends with a shorter inside radius can permanently damage the fiber-optic cable. Signal attenuation increases as inside bend radius is decreased.

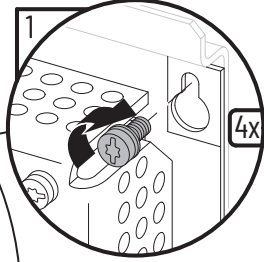


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

The fiber-optic cable and sheet metal back panel and mounting hardware are not included. See Torque Accuracy Module Connections on page 177 for details on wire harness requirements.



1		M4 x 10 mm T15 2.6 N·m (23 lb·in)
---	--	---



XT See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

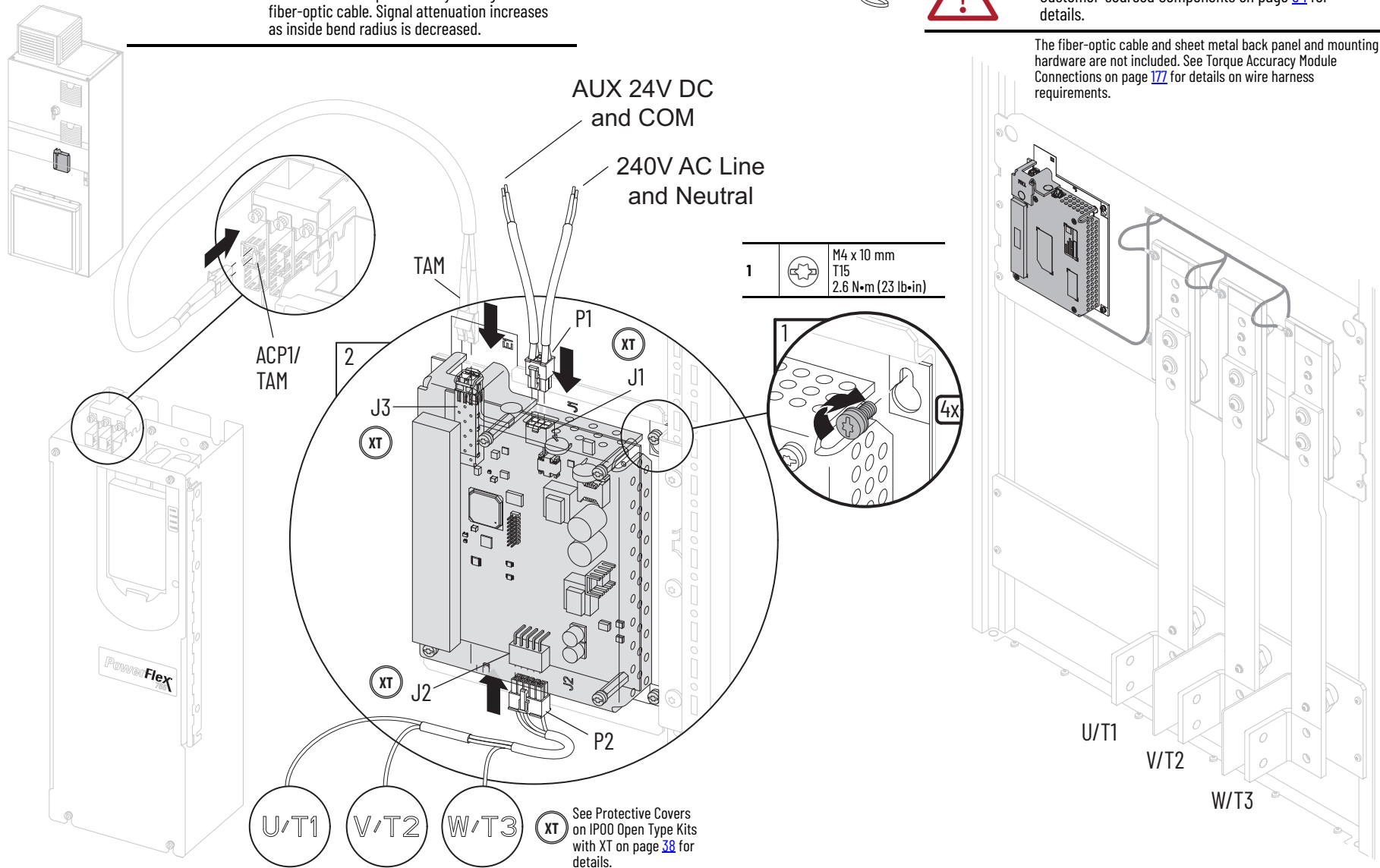
Kit Cat. No.	Kit Description/Installation
20-750-MTAM1-CD (400/480V)	Torque Accuracy Module, 400/480V for frame 7L

IMPORTANT Minimum inside bend radius for fiber-optic cable is 50 mm (2 in.). Any bends with a shorter inside radius can permanently damage the fiber-optic cable. Signal attenuation increases as inside bend radius is decreased.



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

The fiber-optic cable and sheet metal back panel and mounting hardware are not included. See Torque Accuracy Module Connections on page 177 for details on wire harness requirements.



1		M4 x 10 mm T15 2.6 N•m (23 lb•in)
---	--	---

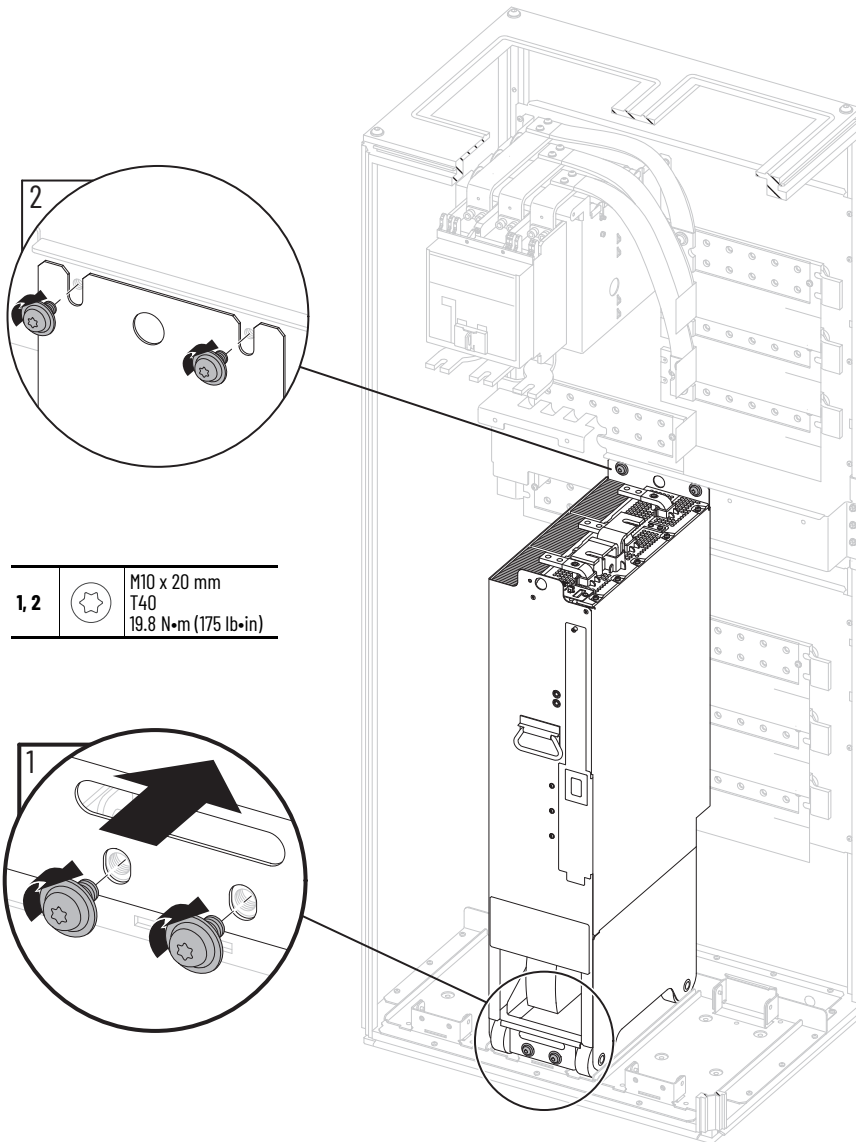
See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.

U/T1
V/T2
W/T3

Kit Cat. No.	Kit Description/Installation
20-750-M14-xnnnxxxx	Frame 7 Power Module. See Handle IP00 Modules and Kits on page 91 for important information on installing power modules.



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



Kit Cat. No.	Kit Description/Installation
20-750-ML4-xnnnxxxn	LCL Filter Module with Frame 7 Power Module. See Handle IP00 Modules and Kits on page 91 for important information on how to prepare LCL filter modules for installation.

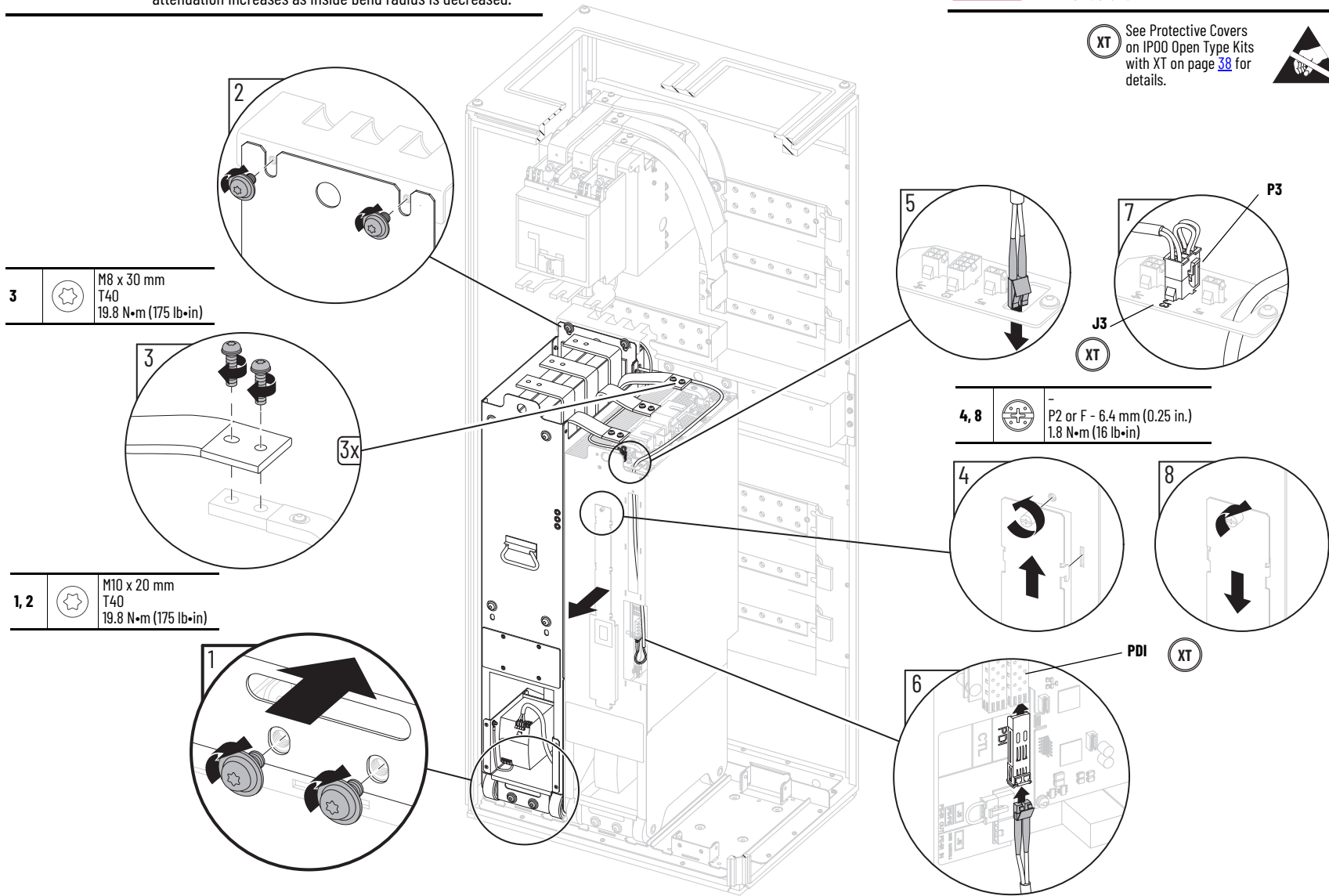
IMPORTANT


Minimum inside bend radius for fiber-optic cable is 50 mm (2 in.). Any bends with a shorter inside radius can permanently damage the fiber-optic cable. Signal attenuation increases as inside bend radius is decreased.





ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

XT See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.



3	 M8 x 30 mm T40 19.8 N•m (175 lb•in)
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1, 2	 M10 x 20 mm T40 19.8 N•m (175 lb•in)
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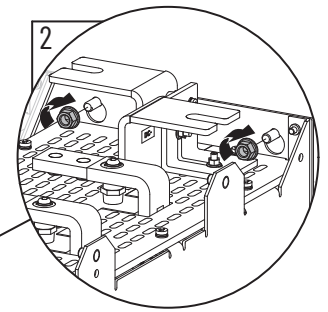
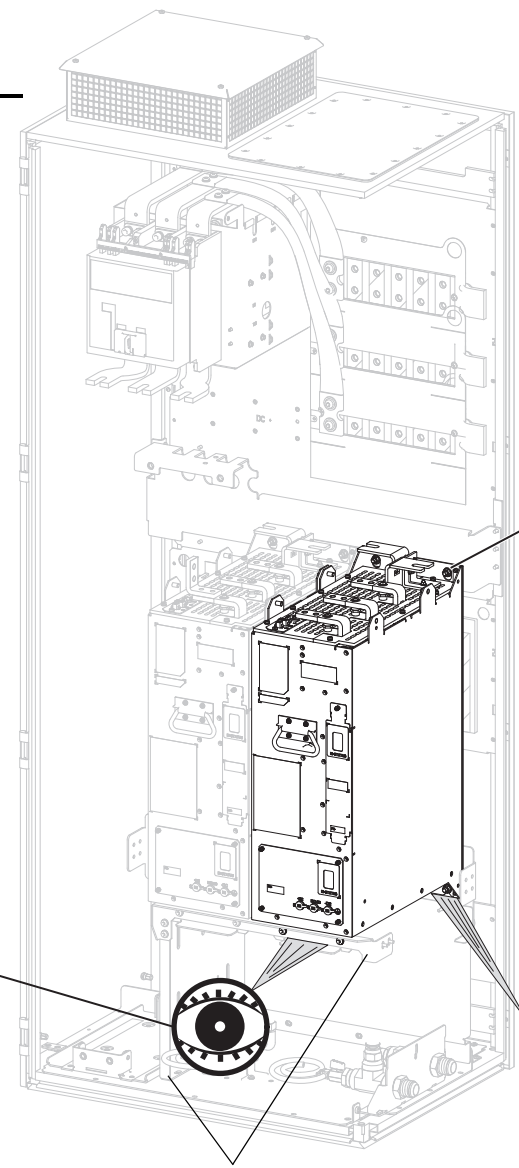
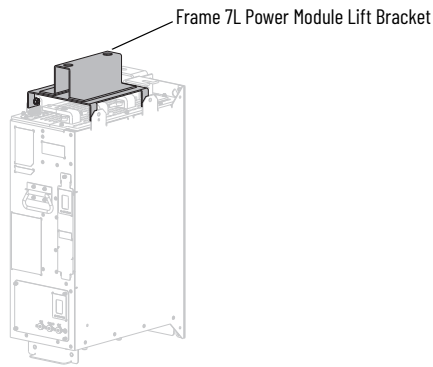
4, 8	 - P2 or F - 6.4 mm (0.25 in.) 1.8 N•m (16 lb•in)
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
Kit Cat. No.	Kit Description/Installation
20-750-M15-C650-D650	Frame 7L Power Module. See Handle IP00 Modules and Kits on page 91 for important information on installing power modules.

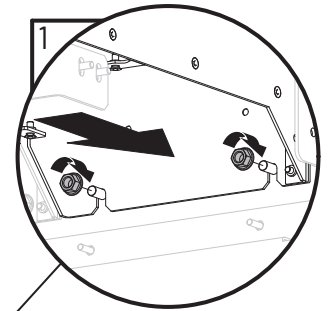
IMPORTANT The lift bracket must be used to lift and install the power modules in the enclosure. The lift bracket is customer sourced. See the PowerFlex 755TM Power and Filter Modules Unpacking and Lifting Instructions, publication 750-IN104, for details.




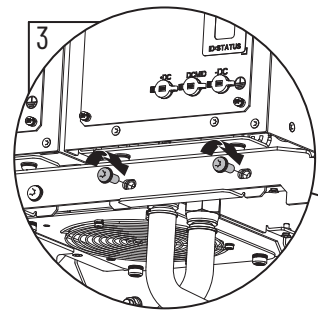
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



1, 2		M10 x 20 mm T40 19.8 N•m (175 lb•in)
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3		M8 x 20 mm T40 15.0 N•m (132 lb•in)
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This power module support bracket and beam are customer sourced. See pages 55, 401, and 402.

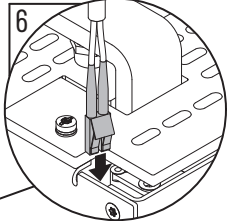
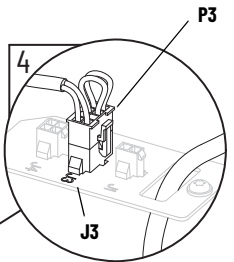
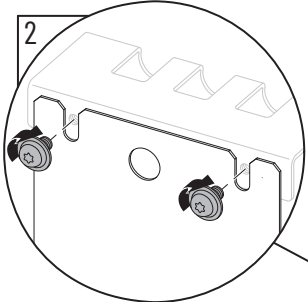
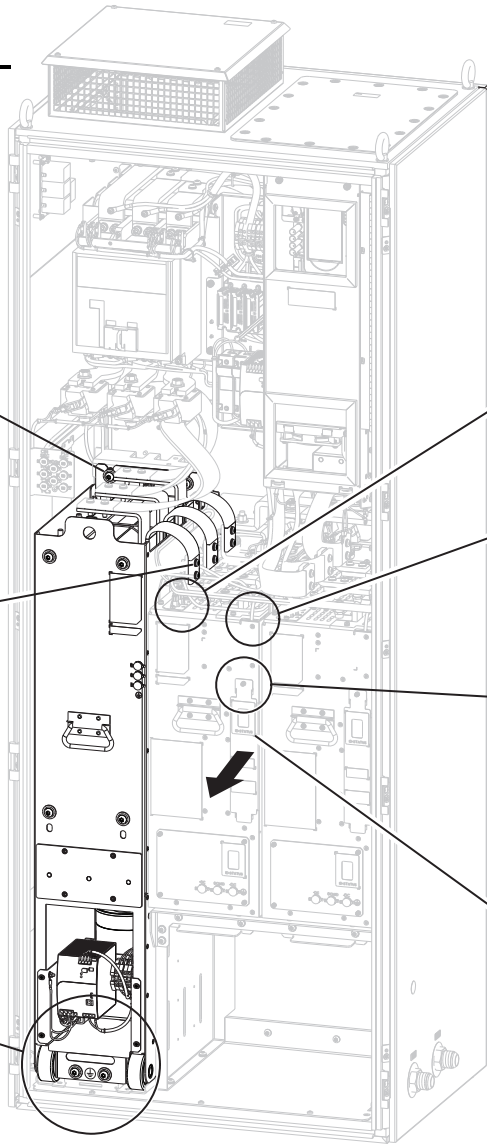
Kit Cat. No.	Kit Description/Installation
20-750-ML4-C585D617	LCL Filter Module with Frame 7L Power Module. See Handle IP00 Modules and Kits on page 91 for important information on how to prepare LCL filter modules for installation.

IMPORTANT

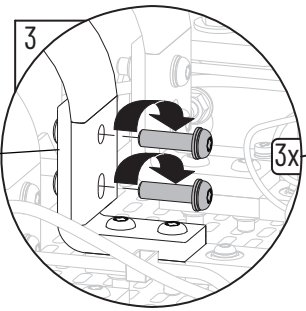
Minimum inside bend radius for fiber-optic cable is 50 mm (2 in.). Any bends with a shorter inside radius can permanently damage the fiber-optic cable. Signal attenuation increases as inside bend radius is decreased.



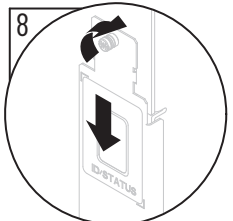
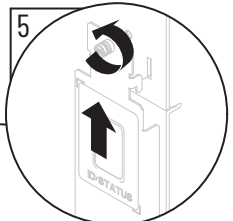
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



3		M8 x 30 mm T40 19.8 N•m (175 lb•in)
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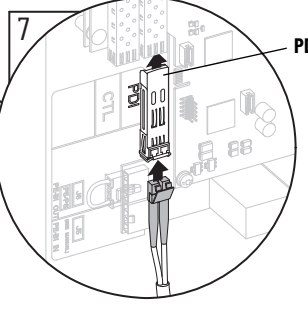
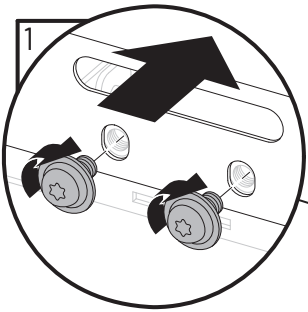


4, 8		- P2 or F - 6.4 mm (0.25 in.) 1.8 N•m (16 lb•in)
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The AC bus terminals are customer sourced. See pages 55 and 399.

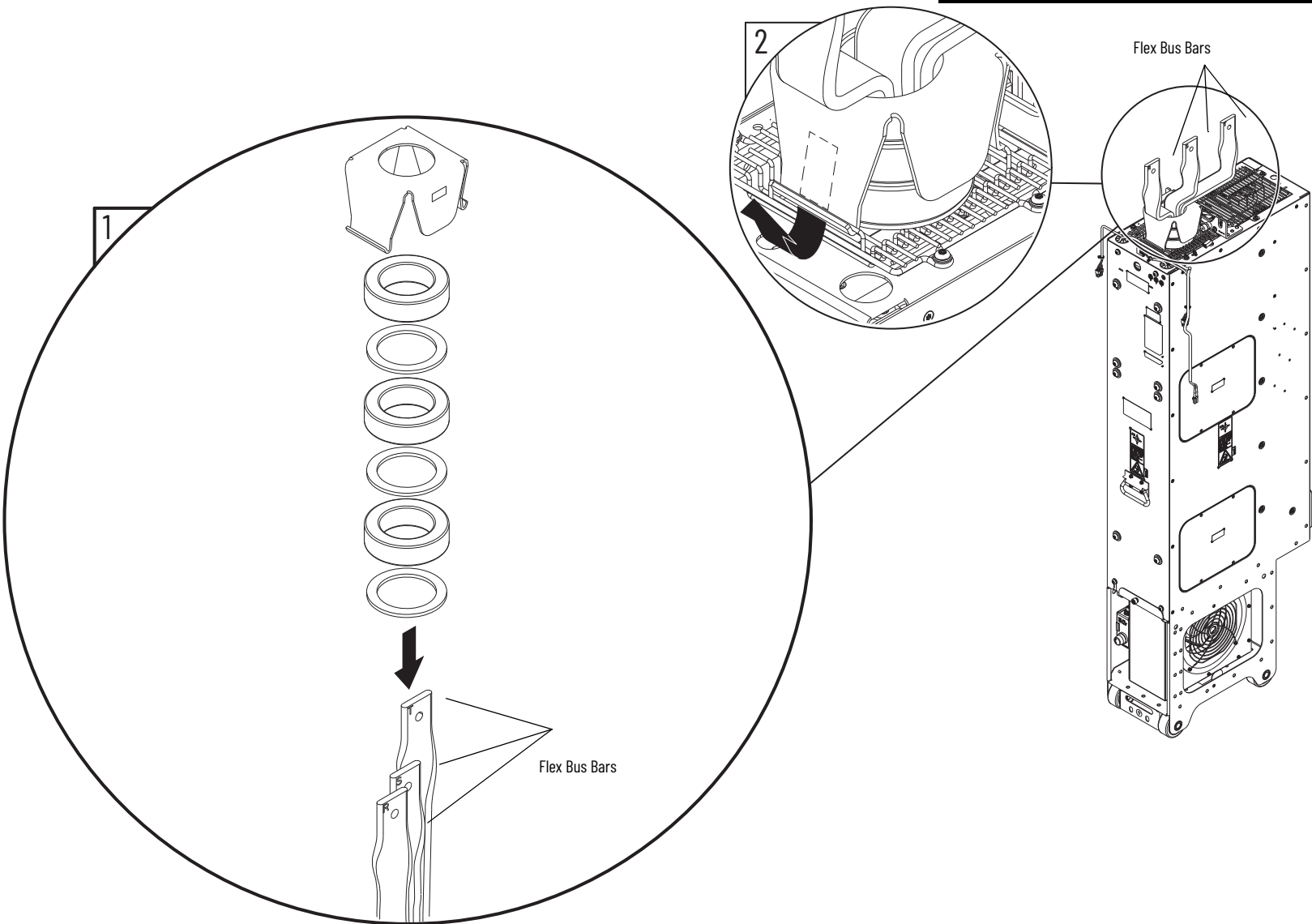
1, 2		M10 x 20 mm T40 19.8 N•m (175 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MACCM1-F8M	AC Common Mode Cores

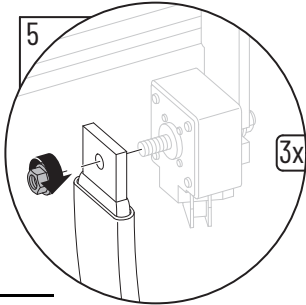



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

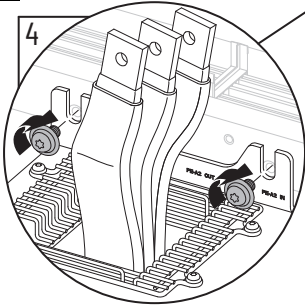



Kit Cat. No.	Kit Description/Installation
20-750-ML1-xnnxnnn	LCL Filter Module. Sheet 1 of 2. See Sheet 2 of 2 on page 311 for final installation instructions. See Handle IP00 Modules and Kits on page 91 for important information on how to prepare LCL filter modules for installation. Important: LCL filter module placement within a power bay is based on specific module catalog numbers. See LCL Filter and Power Module Position Designations on page 188 for details.

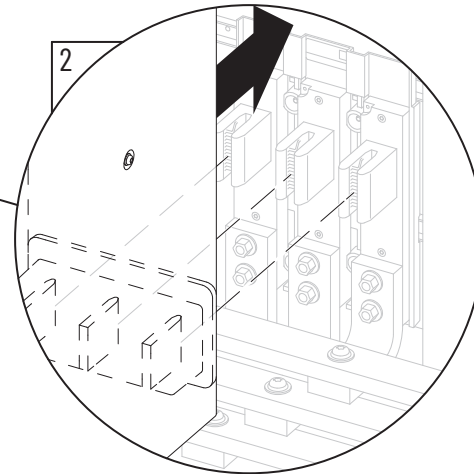
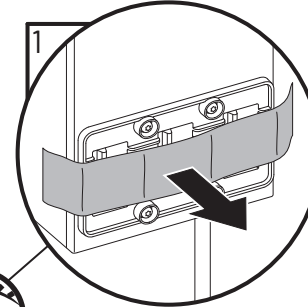
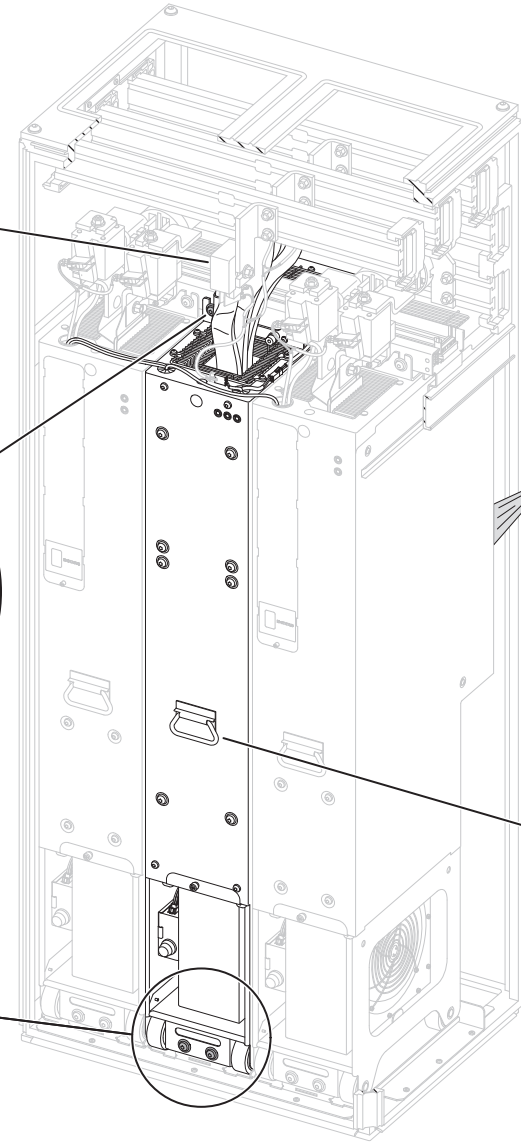
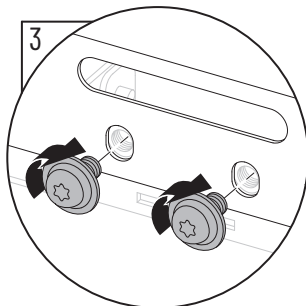
5	 M12 19 mm 45 N•m (398 lb•in)
---	--



4	 M10 x 20 mm T45 42.4 N•m (375 lb•in)
---	--



3	 M10 x 20 mm T45 42.4 N•m (375 lb•in)
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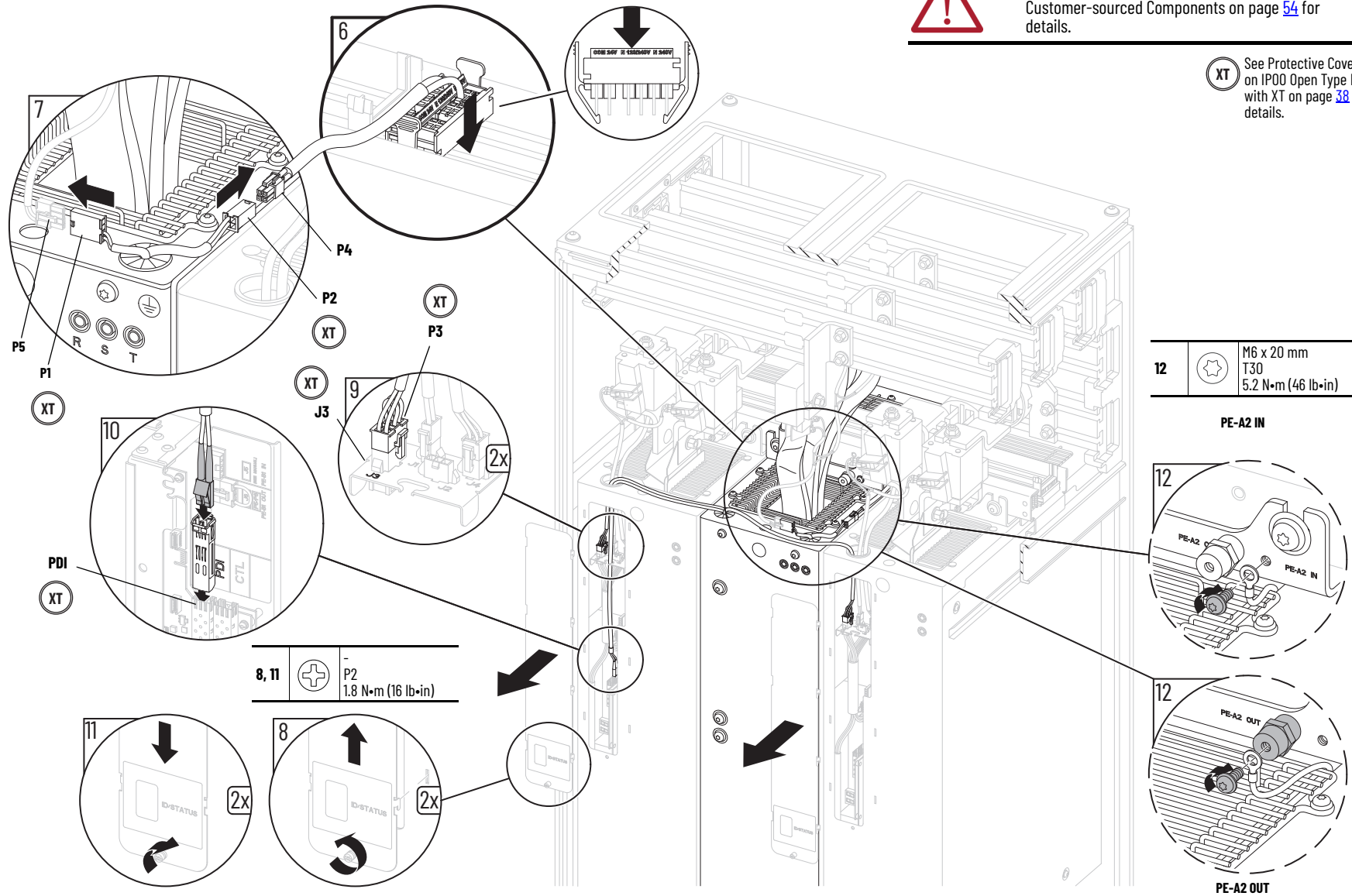
Kit Cat. No.	Kit Description/Installation
20-750-ML1-xnnnxxxx	LCL Filter Module. Sheet 2 of 2. Complete the installation instructions shown on page 310 before completing these procedures.

20-750-MCTRLBUS-CONN1



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

XT See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.



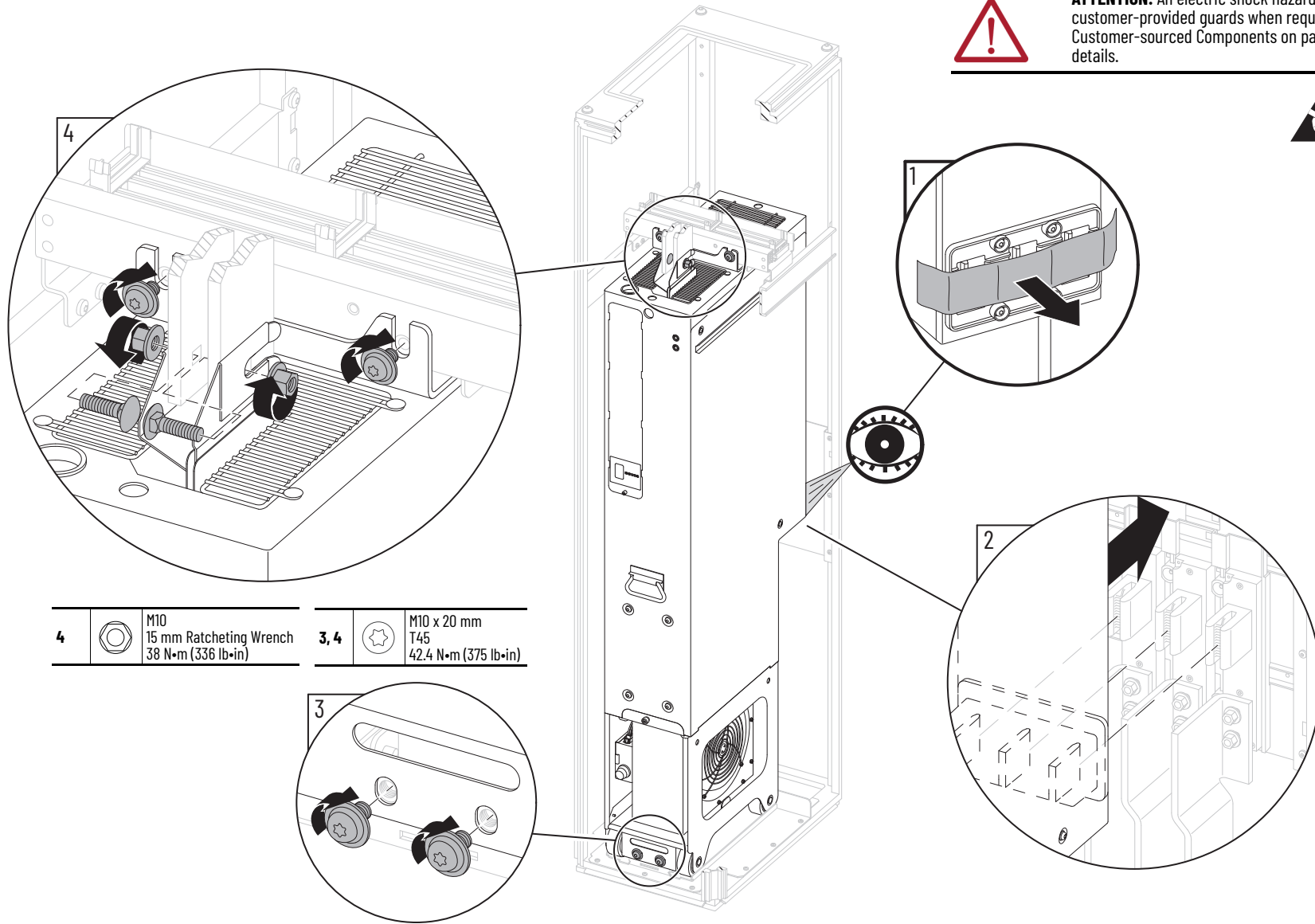
8, 11		P2 1.8 N•m (16 lb•in)
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12		M6 x 20 mm T30 5.2 N•m (46 lb•in)
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PE-A2 IN

PE-A2 OUT

Kit Cat. No.	Kit Description/Installation
20-750-M11-xnnnxxxx, 20-750-M12-xnnnxxxx, 20-750-M13-xnnnxxxx	Power Module. See Handle IP00 Modules and Kits on page 91 for important information on installing power modules.



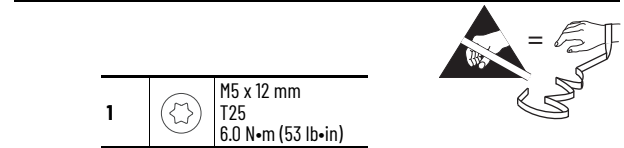
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



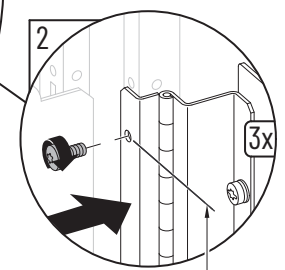
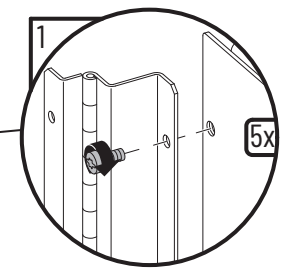
4	 M10 15 mm Ratcheting Wrench 38 N•m (336 lb•in)	3, 4	 M10 x 20 mm T45 42.4 N•m (375 lb•in)
---	--	------	--

Kit Cat. No.	Kit Description/Installation
20-750-MCPOD3-F7M (XT) or 20-750-MCPOD4-F7M (XT)	Frame 7 and 7L Control Pod Assembly, for Regenerative Drive and Bus Supply (the frame 7L product is not available as a bus supply) Frame 7 Control Pod Assembly, for Low Harmonic Drive

ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



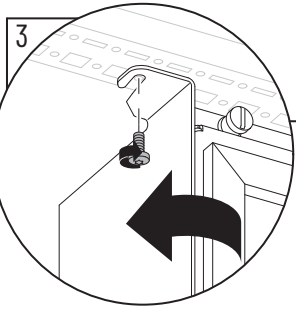
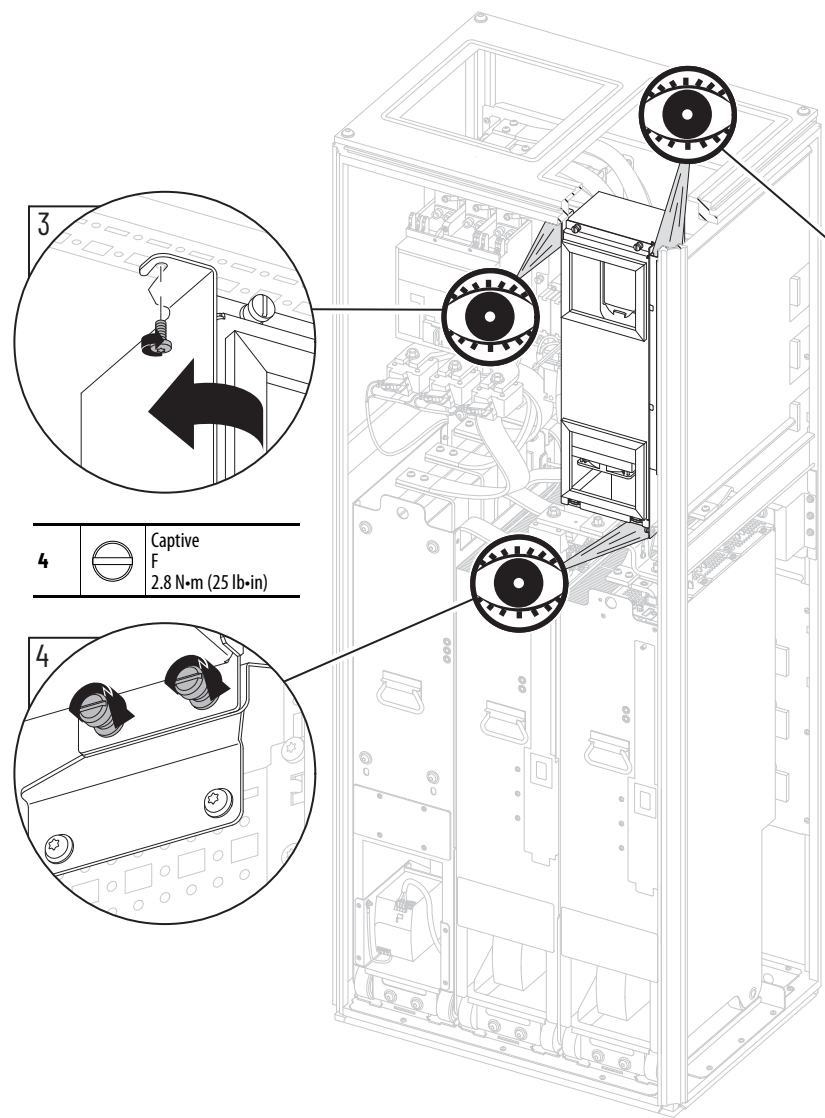
1		M5 x 12 mm T25 6.0 N•m (53 lb•in)
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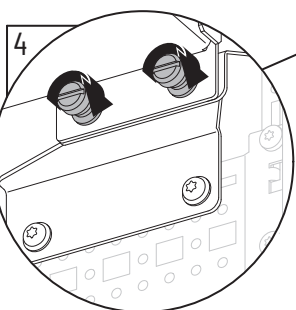
2 ⁽¹⁾ , 3		M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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1869
(73.6)

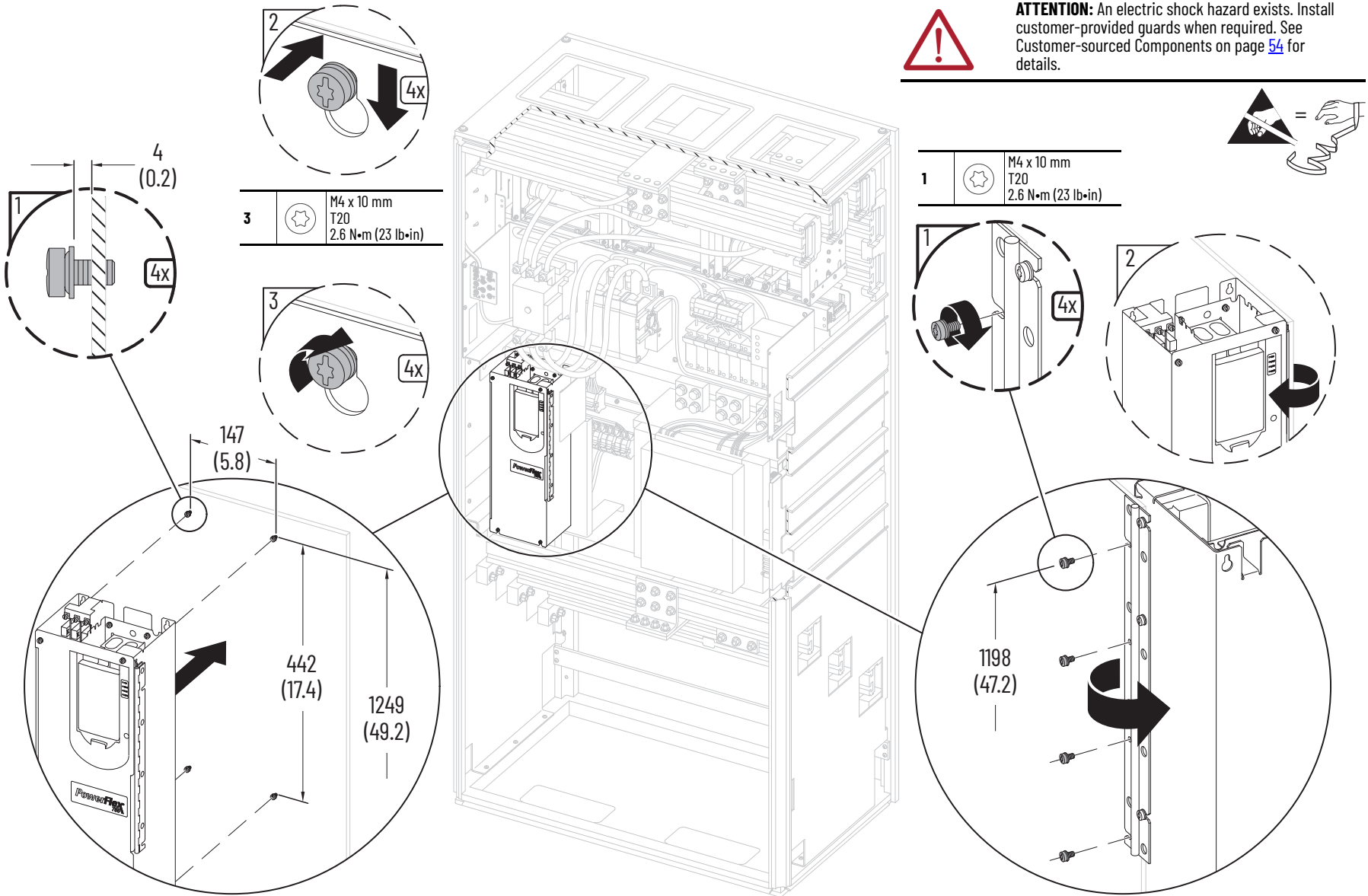
⁽¹⁾ The sheet metal screws required for step 2 are not included with the kit and must be customer sourced.



4		Captive F 2.8 N•m (25 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MCPOD3-F8M (XT) or 20-750-MCPOD4-F8M (XT)	Control Pod Assembly, for Regenerative Drive and Bus Supply and Common Bus Inverter, or Control Pod Assembly, for Low Harmonic Drive

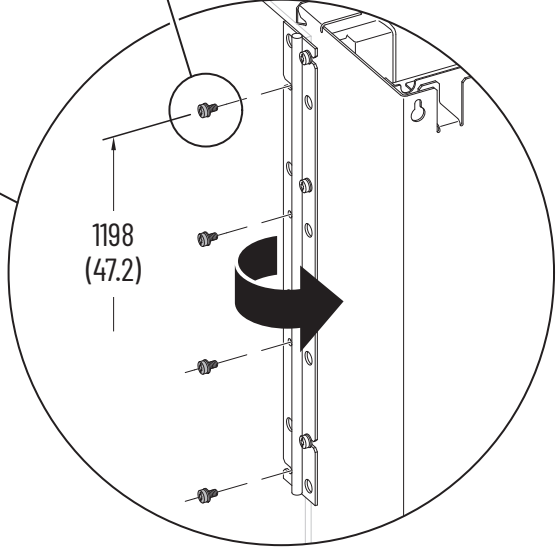
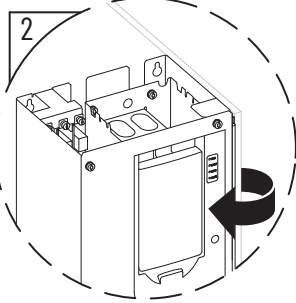
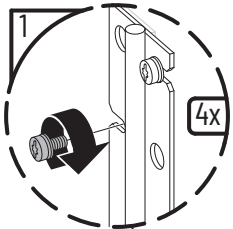
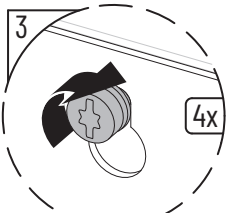
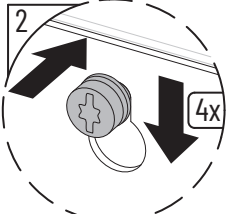
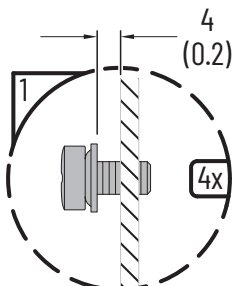


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



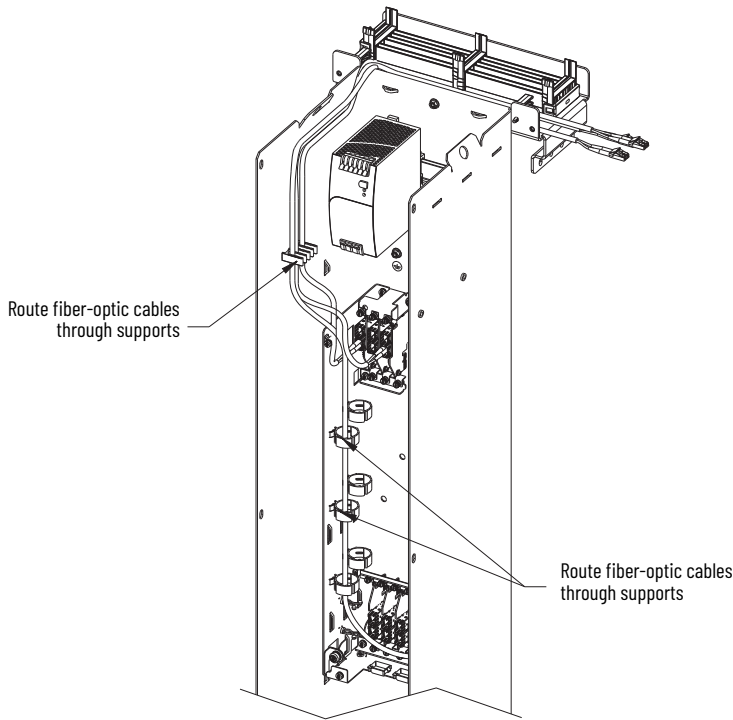
3  M4 x 10 mm
T20
2.6 N•m (23 lb•in)

1  M4 x 10 mm
T20
2.6 N•m (23 lb•in)

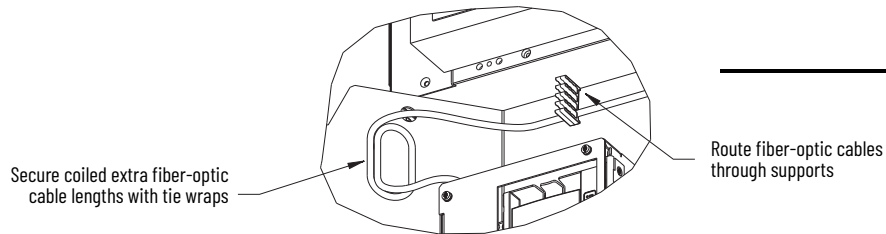
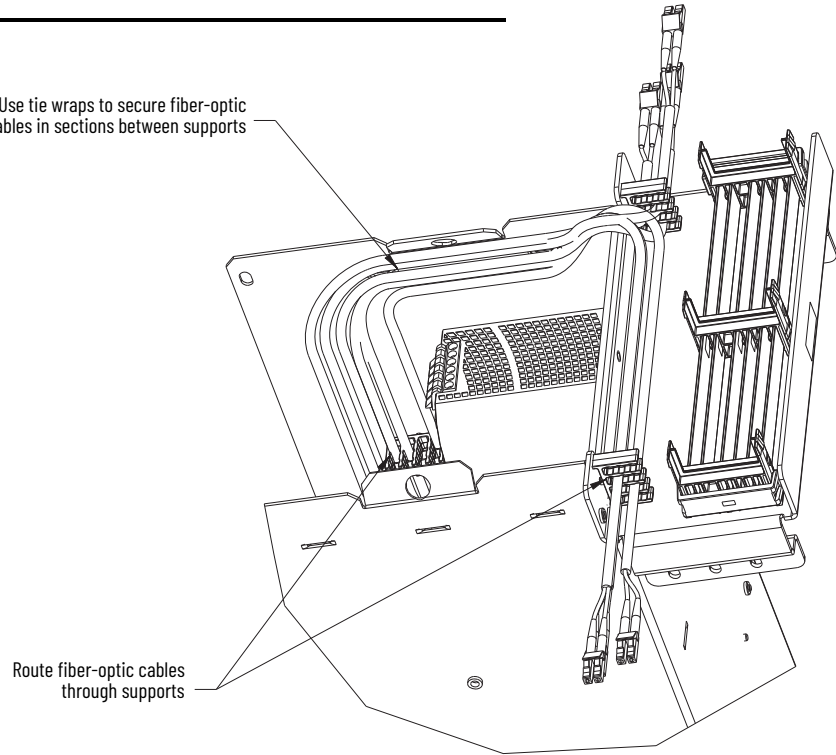


Kit Cat. No.	Kit Description/Installation
20-750-MFOC-nKn	Fiber-optic Cable, 1500 mm, 2000 mm, 2200 mm, 2700 mm, 3200 mm, 4000 mm, 4600 mm, 5400 mm, 6000 mm, 6800 mm, 7400 mm, 7800 mm, 8300 mm

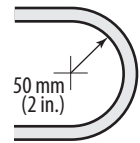
IMPORTANT Fiber-optic cable supports and routing provisions are provided with the control pod and control bus assembly kits only. If a control bus assembly is not used, equivalent fiber-optic cable routing provisions and supports must be customer supplied.



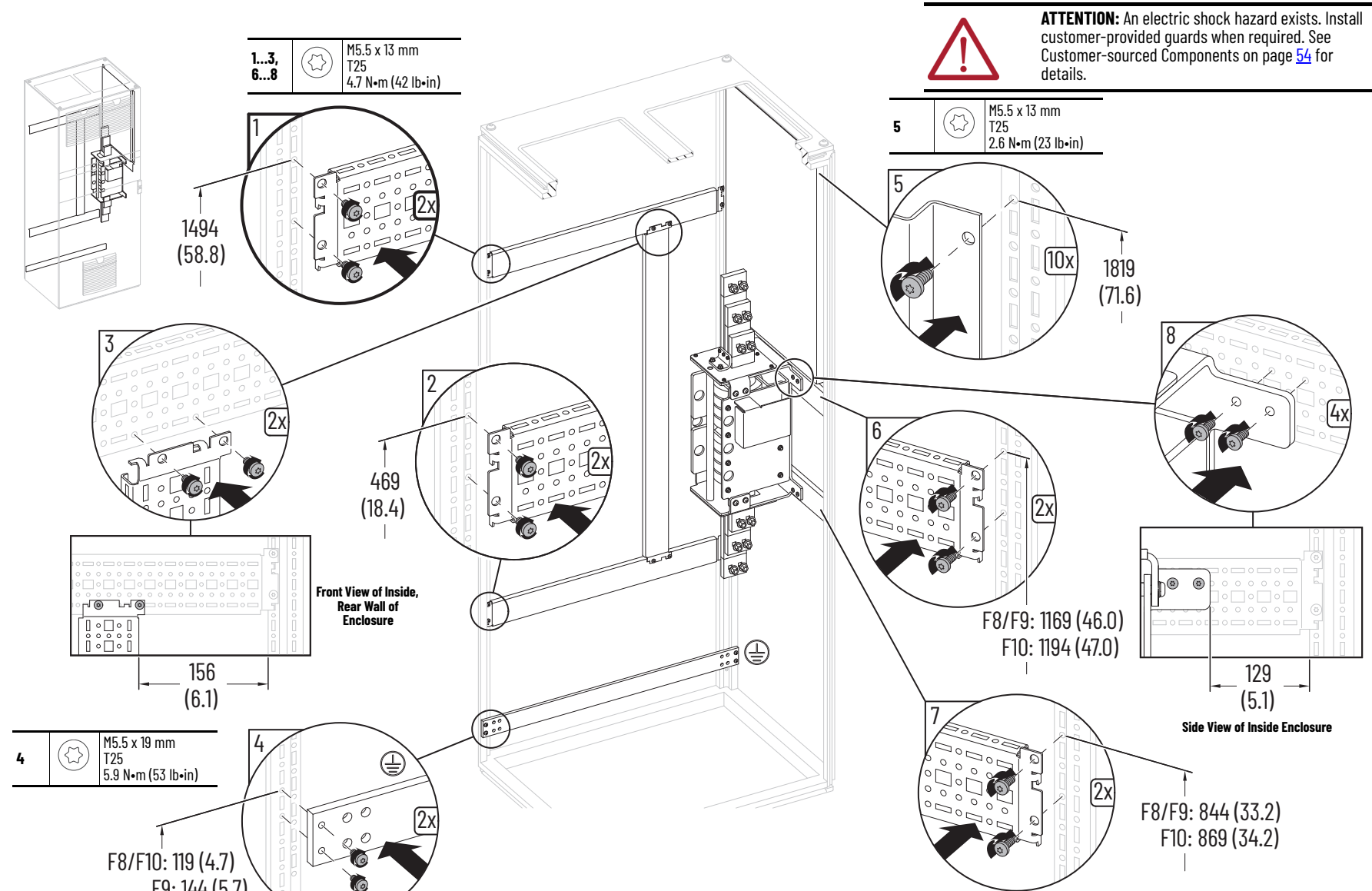
Use tie wraps to secure fiber-optic cables in sections between supports



IMPORTANT Minimum inside bend radius for fiber-optic cable is 50 mm (2 in.). Any bends with a shorter inside radius can permanently damage the fiber-optic cable. Signal attenuation increases as inside bend radius is decreased.



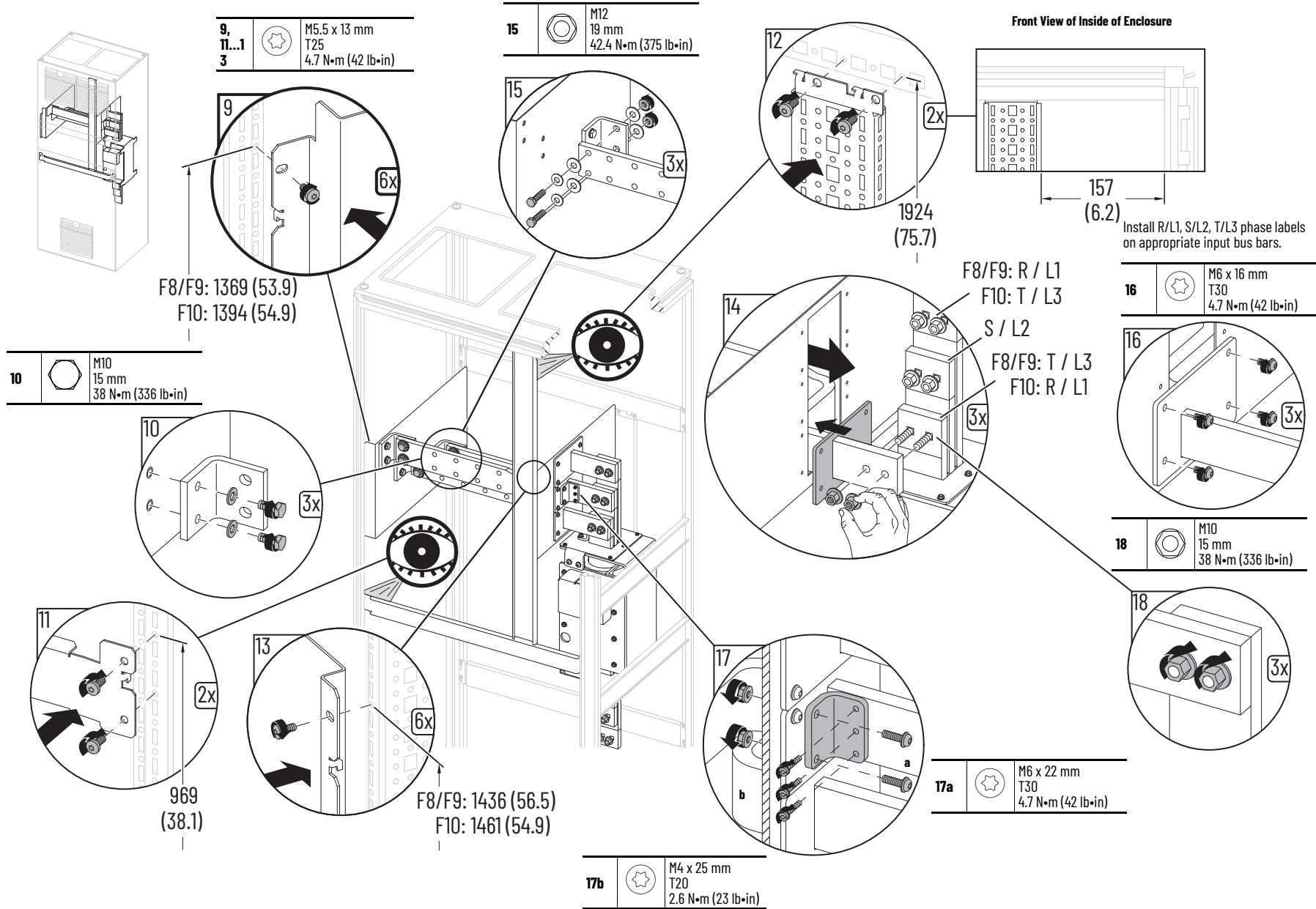
Kit Cat. No.	Kit Description/Installation
20-750-MEMCC2-IPBB 20-750-MEMCC2-F8910	EMC C2 Filter Input Bus Bars, Frame 8...12: Weight 34 kg (75 lbs) Sheet 1 of 2. See Sheet 2 of 2 on page 317 for final installation instructions. EMC C2 Filter: Weight 31.75 kg (70 lb). See the PowerFlex 755TM IP00 EMC C2 Filter Unpacking and Lifting Instructions, publication 750-IN109, for lifting details.



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

IMPORTANT The enclosure that contains the EMC C2 filter and connected components is top heavy and can fall over if tilted.

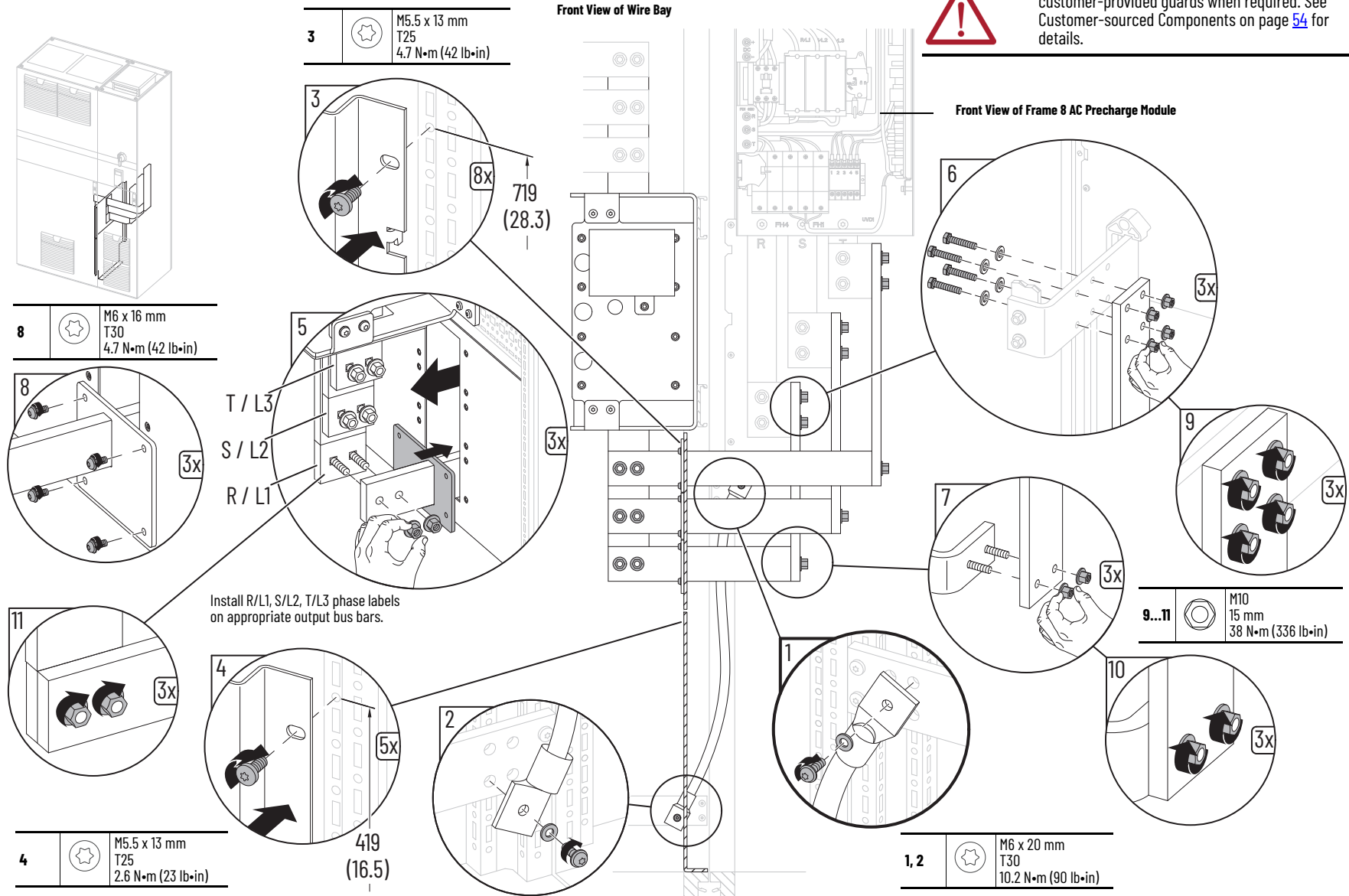
Kit Cat. No.	Kit Description/Installation
20-750-MEMCC2-IPBB	EMC C2 Filter Input Bus Bars, Frame 8...12 Weight: 34 kg (75 lbs) - Sheet 2 of 2. Complete the instructions shown on Sheet 1 of 2 on page 316 before completing these instructions.



Kit Cat. No.	Kit Description/Installation
20-750-MEMCC2-F8	EMC C2 Filter Output Bus Bars, Frame 8 Weight: 30.5 kg (68 lbs)



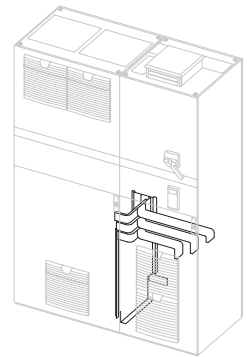
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



Kit Cat. No.	Kit Description/Installation
20-750-MEMCC2-F9	EMC C2 Filter Output Bus Bars, Frame 9 Weight: 23.2 kg (52 lbs)

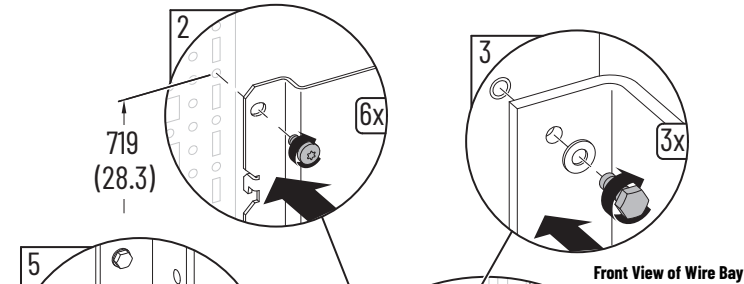


ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.



2		M5.5 x 13 mm T25 4.7 N•m (42 lb•in)
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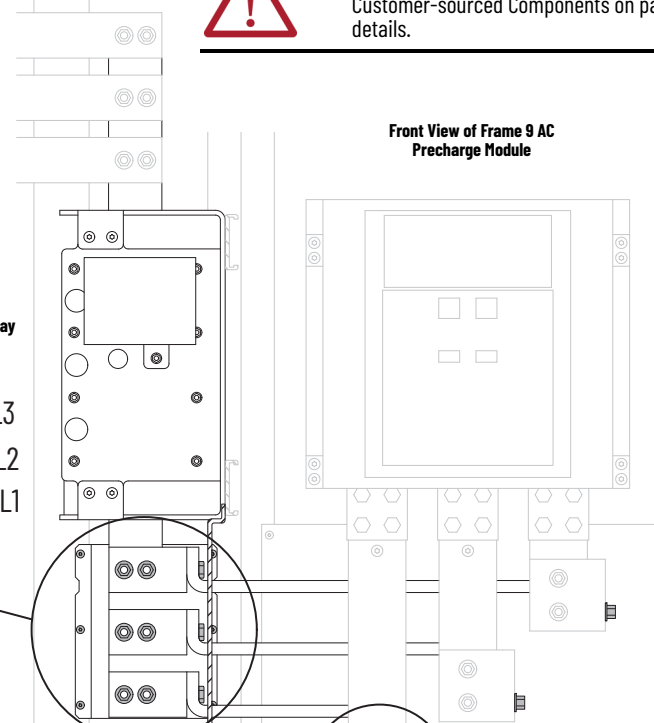
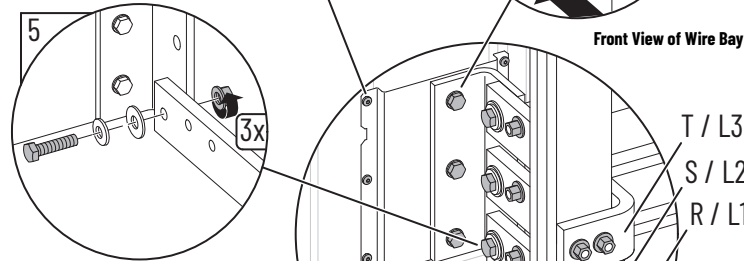
3		M10 x 25 mm 15 mm 38 N•m (336 lb•in)
---	--	--



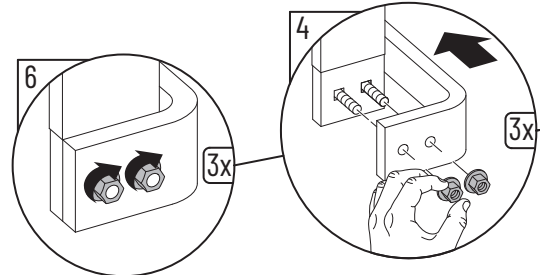
Front View of Wire Bay

5		M12 19 mm 42.4 N•m (375 lb•in)
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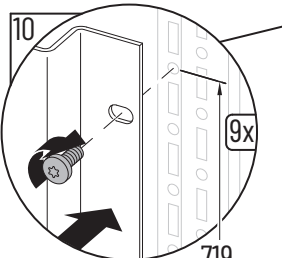
6, 8, 9		M10 15 mm 38 N•m (336 lb•in)
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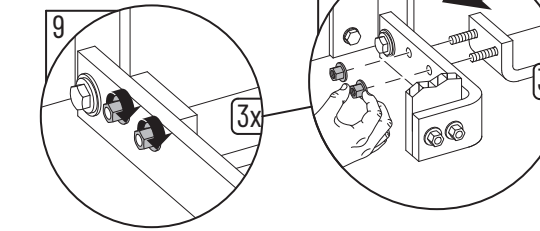
Front View of Frame 9 AC Precharge Module



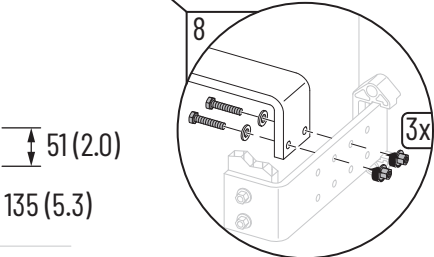
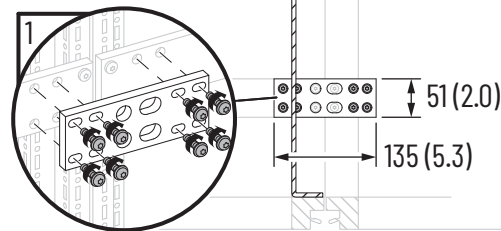
10		M5.5 x 13 mm T25 2.6 N•m (23 lb•in)
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Install R/L1, S/L2, T/L3 phase labels on appropriate output bus bars.



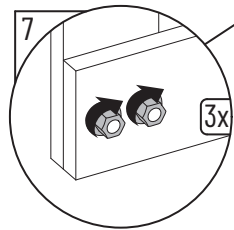
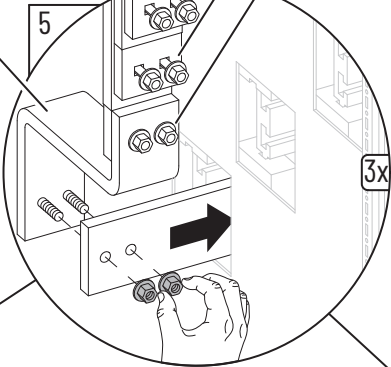
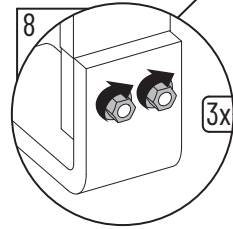
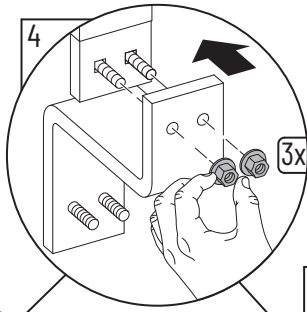
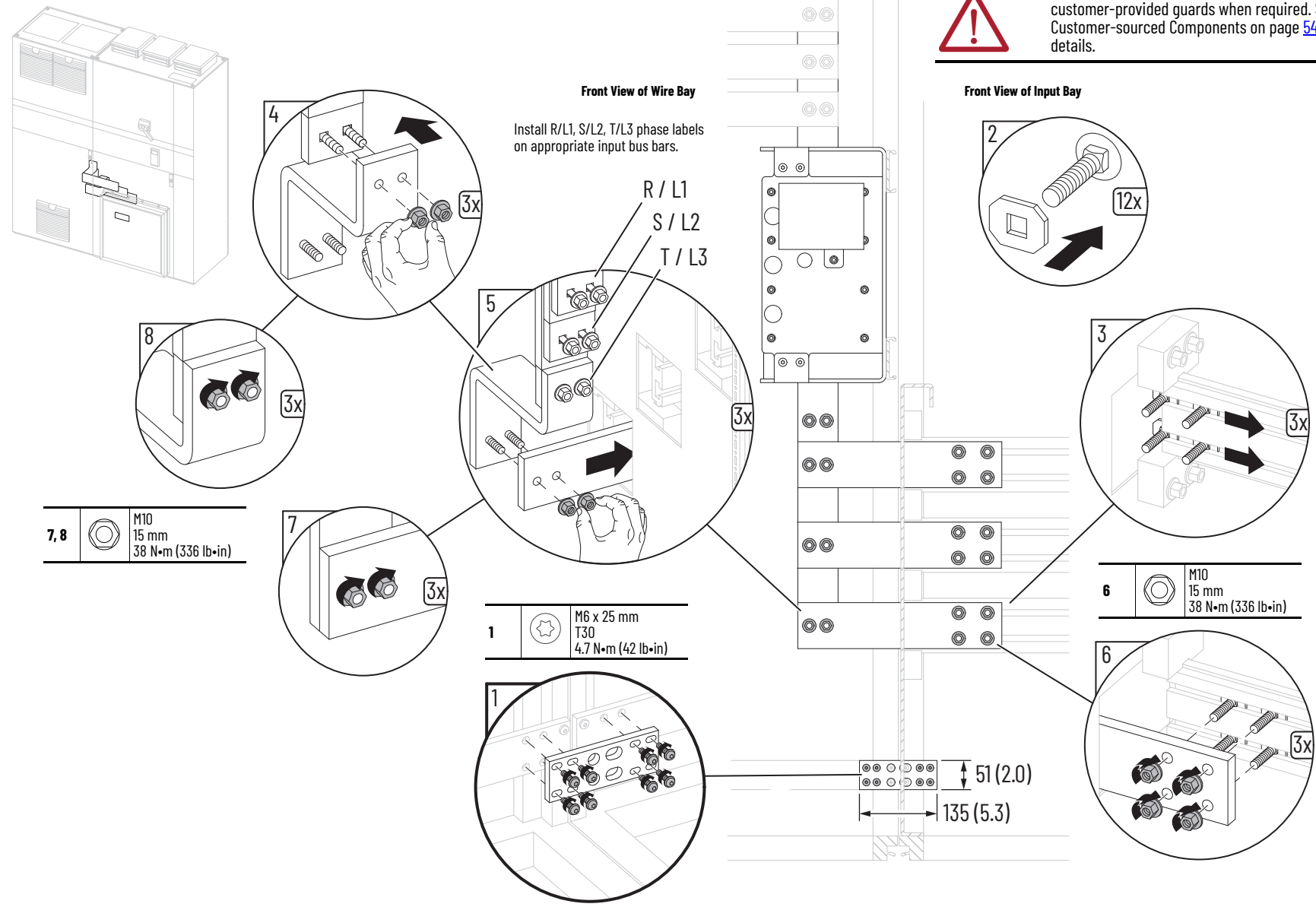
1		M6 x 25 mm T30 4.7 N•m (42 lb•in)
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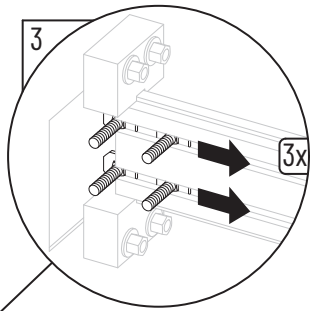
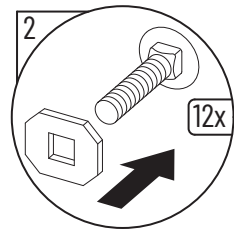
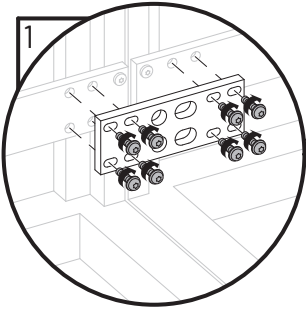
Kit Cat. No.	Kit Description/Installation
20-750-MEMCC2-F10	EMC C2 Filter Output Bus Bars, Frame 10 Weight: 21.6 kg (48 lbs)




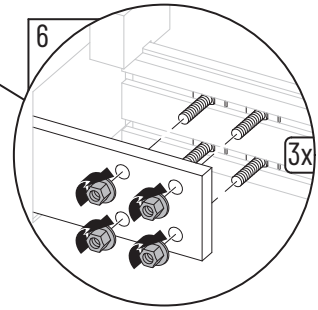
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.




1	 M6 x 25 mm T30 4.7 N•m (42 lb•in)
---	---



6	 M10 15 mm 38 N•m (336 lb•in)
---	--



7, 8	 M10 15 mm 38 N•m (336 lb•in)
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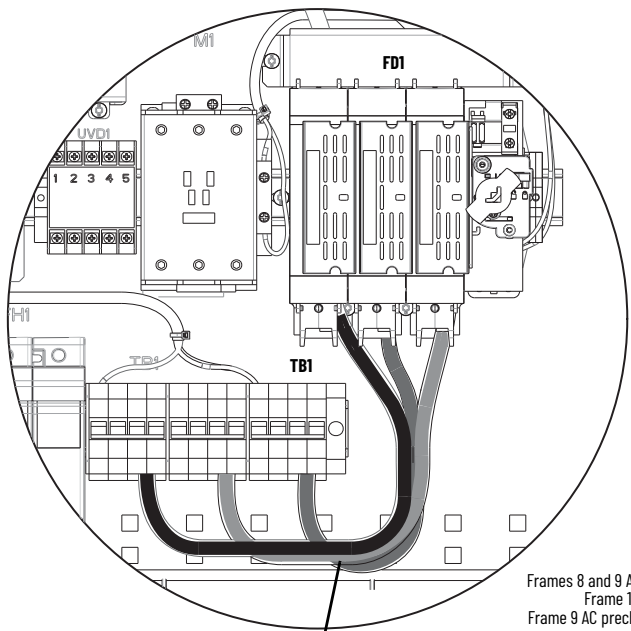
Kit Cat. No.

Kit Description/Installation

Ships with 20-750-MEMCC2-F8910

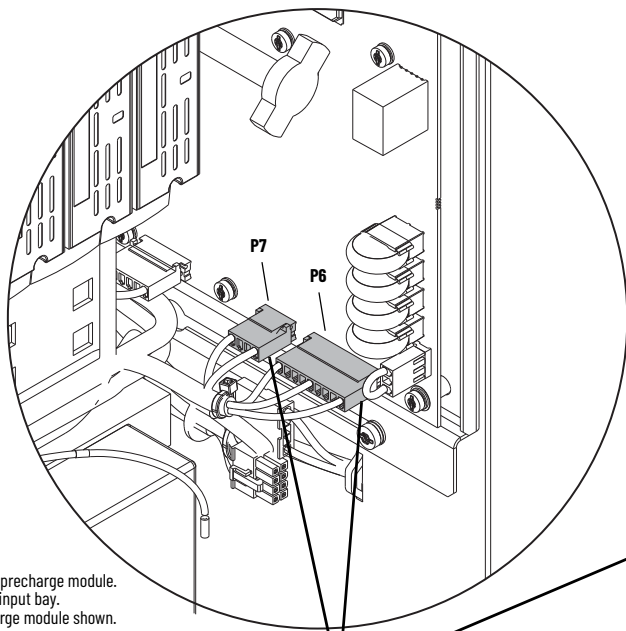
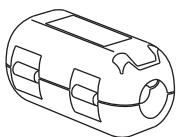
Ferrite Cores for EMC C2 Filter

Rockwell Automation Publication 750-IN101U-EN-P - May 2026

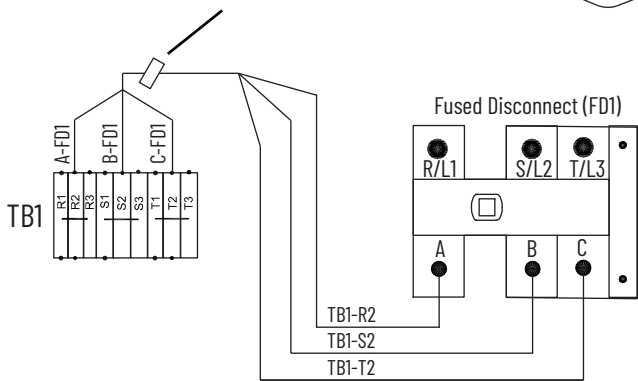
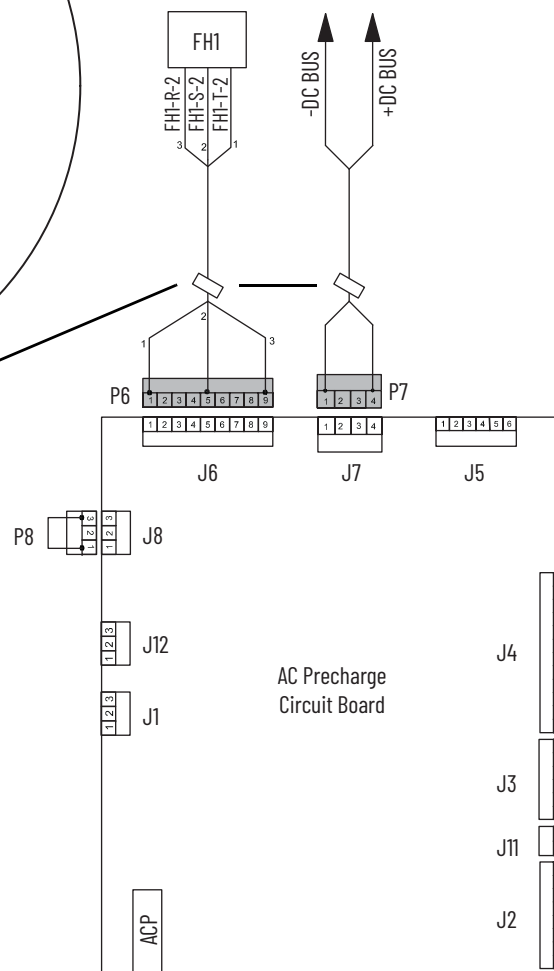


Frames 8 and 9 AC precharge module.
Frame 10 input bay.
Frame 9 AC precharge module shown.

Part number 0431176451.
Install ferrite core as close to TB1 as possible.
TB1 is included in Rockwell Automation
enclosed product solutions for distribution of
240V AC control power. Customer distribution
method for 240V AC control power may vary.

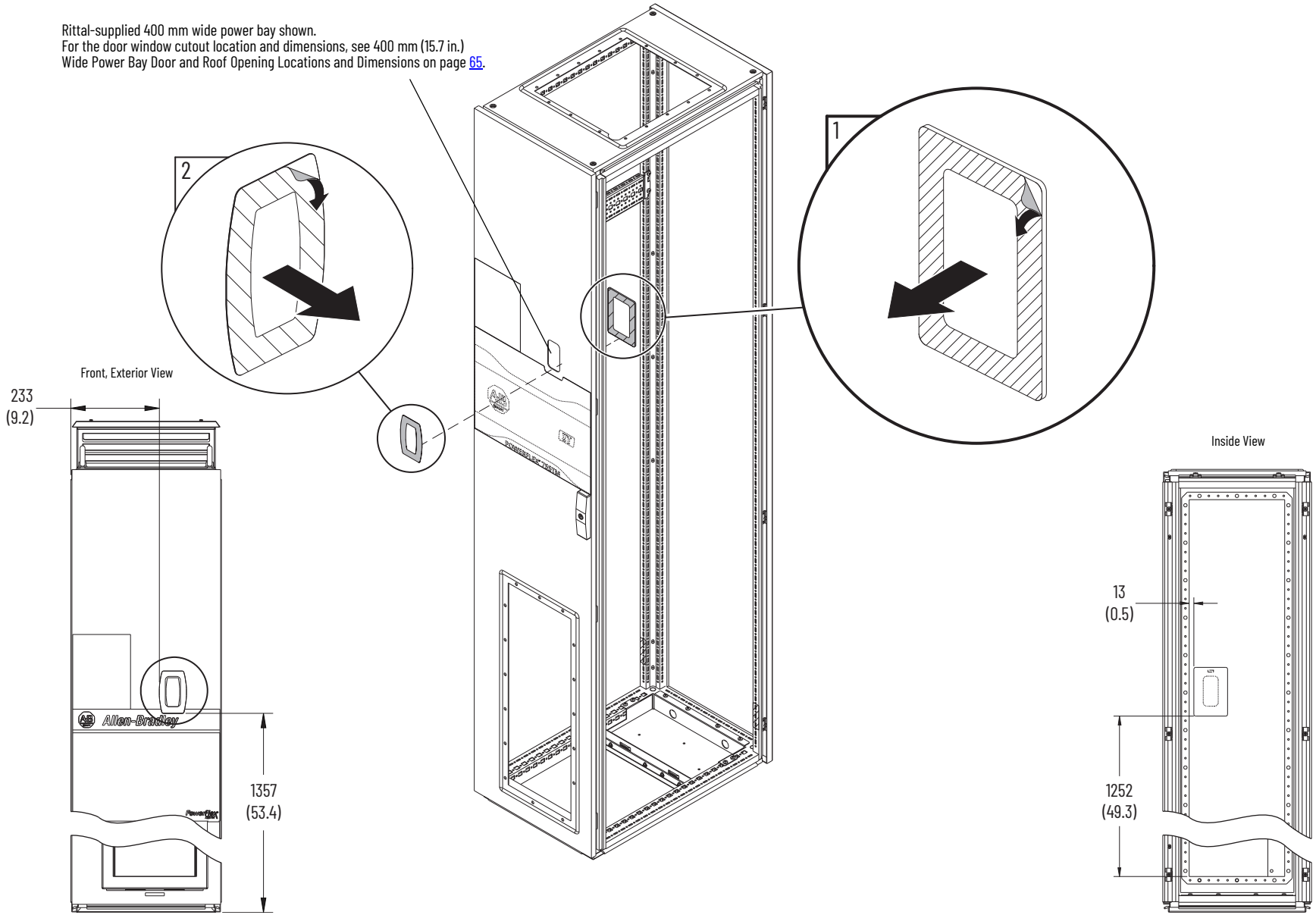


Part number 0444176451.
Install ferrite cores on wires as close as
possible to AC precharge board connectors
P6 and P7. Secure cores to AC precharge
board mounting panel with tie wraps.

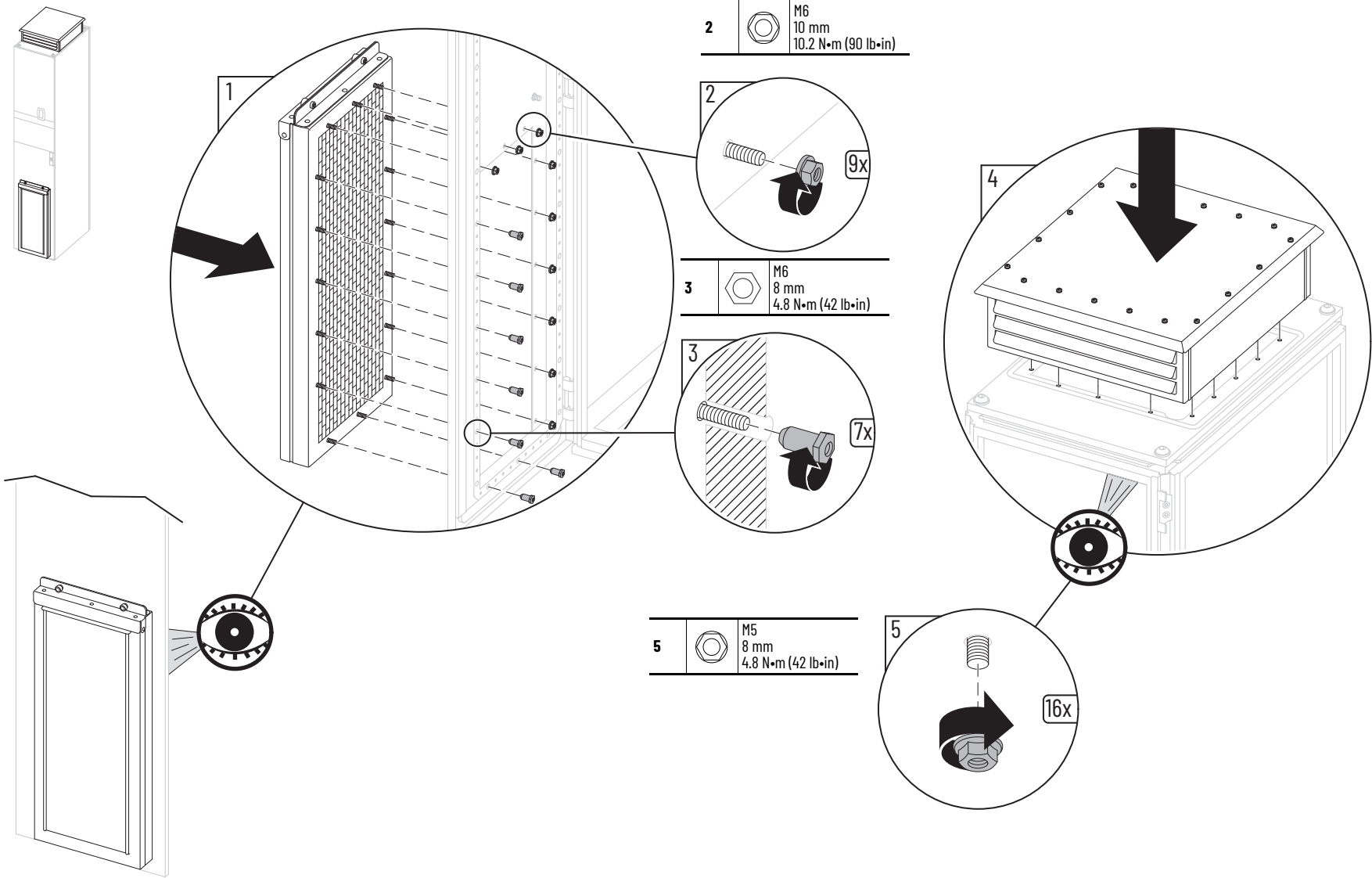


Kit Cat. No.	Kit Description/Installation
20-750-MN-OVR-NRS	NRS cabinet door window and overlay labels

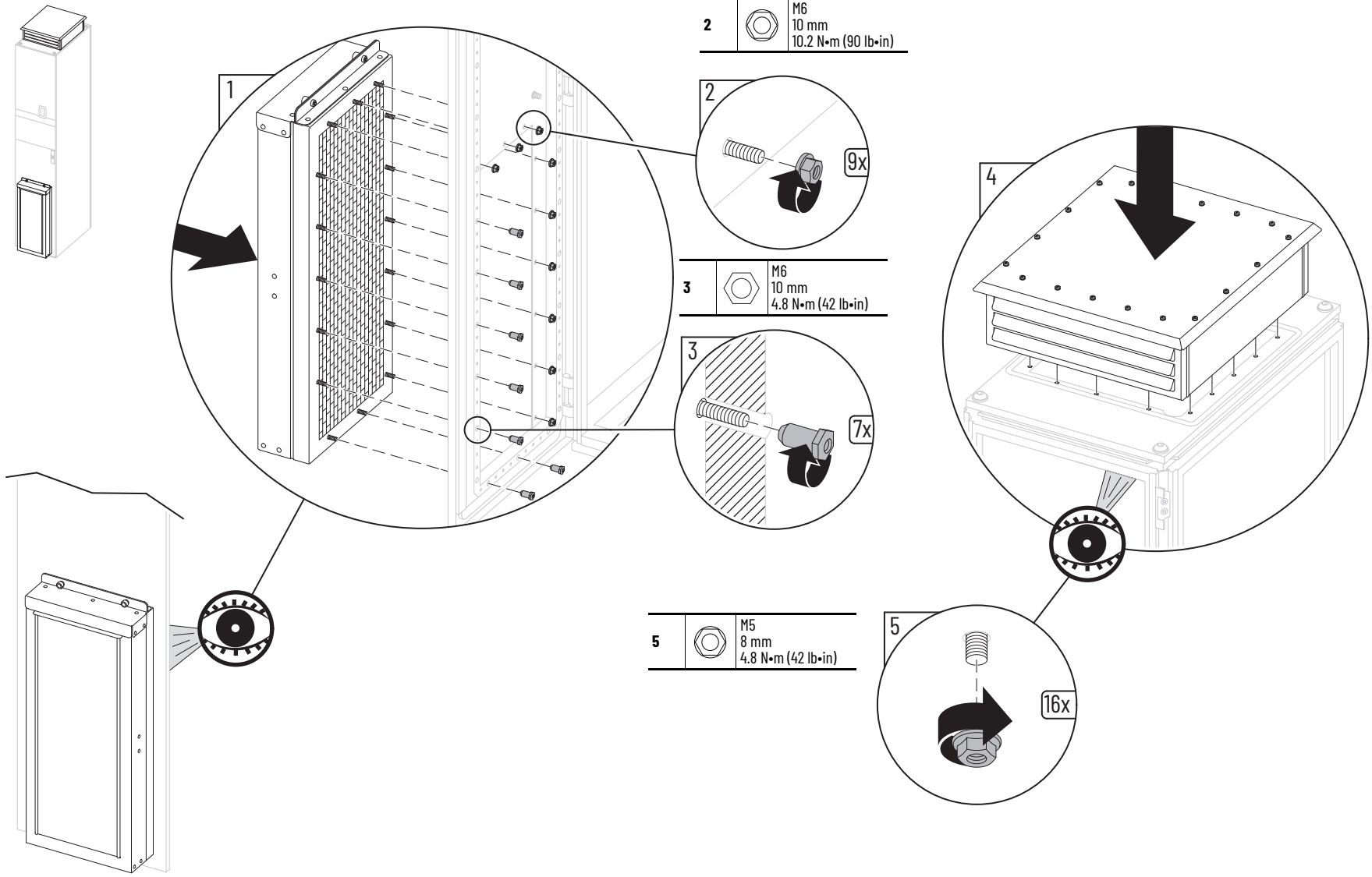
Rittal-supplied 400 mm wide power bay shown.
 For the door window cutout location and dimensions, see 400 mm (15.7 in.)
 Wide Power Bay Door and Roof Opening Locations and Dimensions on page 65.



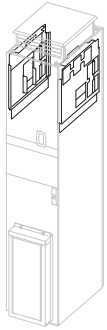
Kit Cat. No.	Kit Description/Installation
20-750-MNVENT1	IP21, Type 1 NRS Power Bay Ventilation



Kit Cat. No.	Kit Description/Installation
20-750-MNVENT2	IP54, Type 12 NRS Power Bay Ventilation




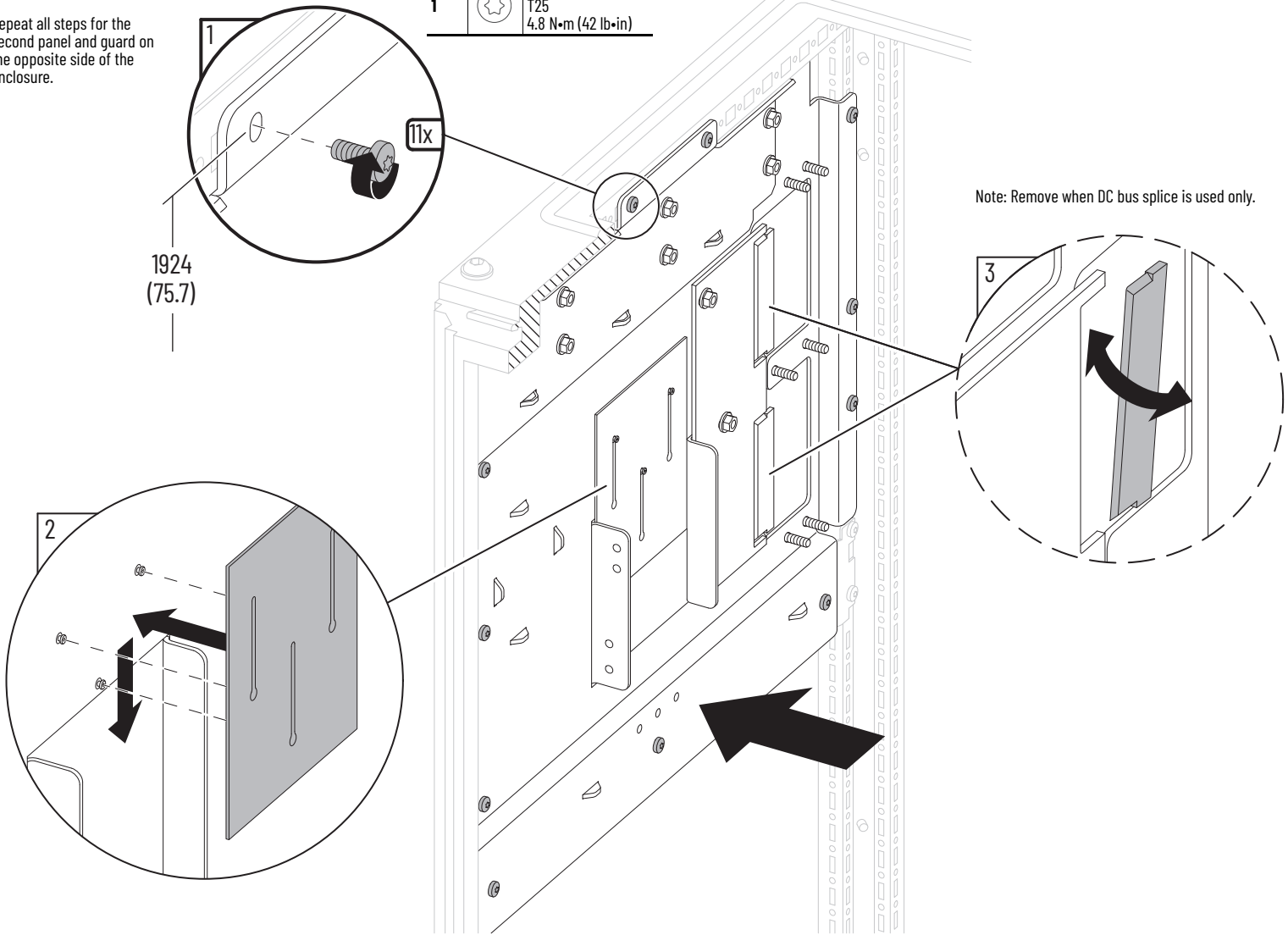
Kit Cat. No.	Kit Description/Installation
20-750-MN-PNL1-NRS 20-750-MN-PNL3-NRS	Upper Bus Support Panels, Left and Right, NRS Power Bays Kit cat. no. 20-750-MN-PNL1-NRS also includes the right and left, lower NRS power bay divider panels. See page 219 for installation instructions.



Repeat all steps for the second panel and guard on the opposite side of the enclosure.

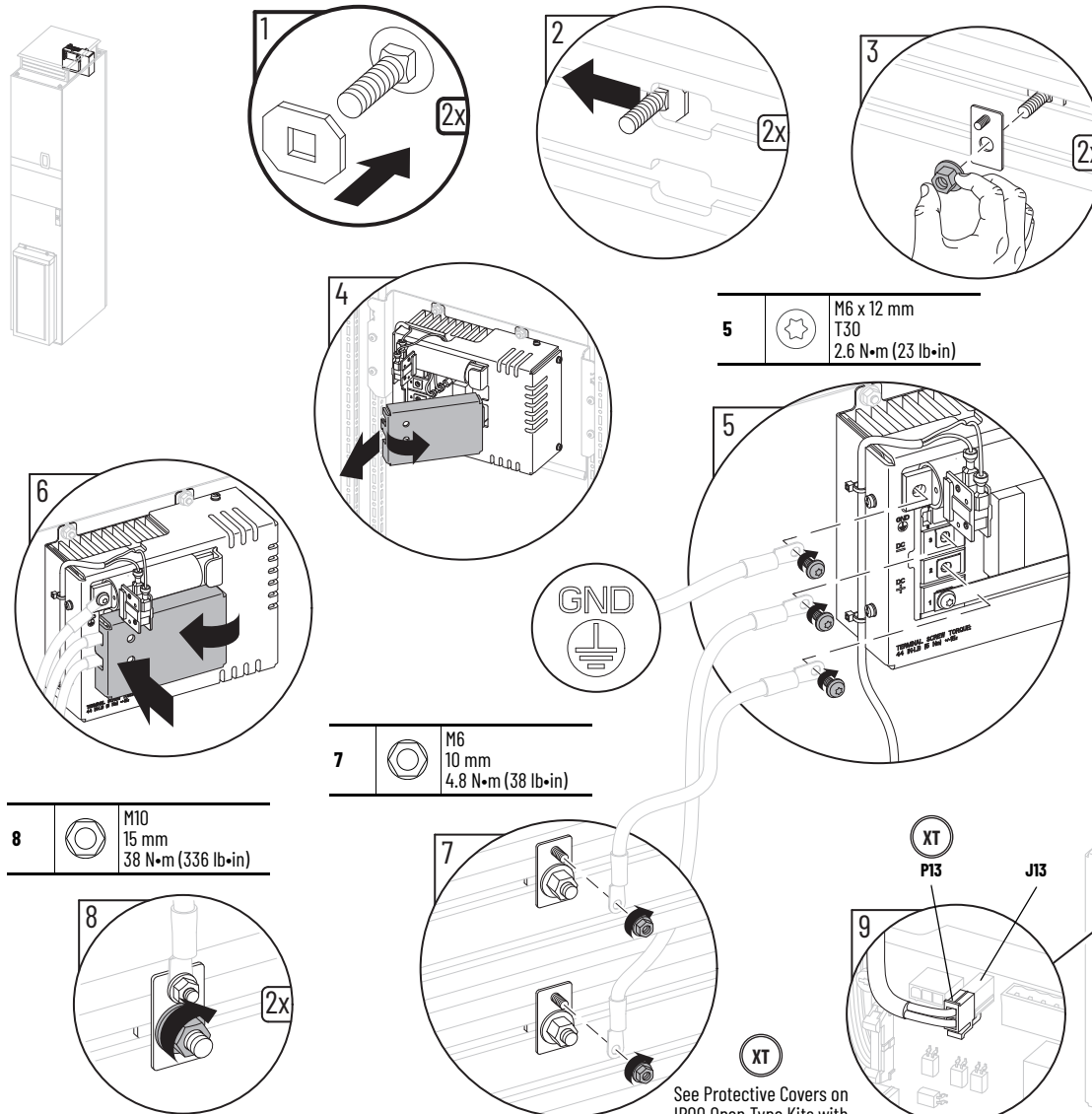
1924
(75.7)

1	 M5.5 x 13 mm T25 4.8 N•m (42 lb•in)
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Note: Remove when DC bus splice is used only.


Kit Cat. No.	Kit Description/Installation
20-750-MDCBUS-COND 20-750-MDCBUS1-COND	DC Bus Conditioner (NRS installation) Marine DC Bus Conditioner (NRS installation)




ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

The sheet metal mounting panel, four M5 hexagonal nuts that secure the DC bus conditioner to the panel, and ground (GND) and -DC and +DC interconnection wires must be customer-sourced. See Customer-sourced Components on page 54.

5  M6 x 12 mm
T30
2.6 N•m (23 lb•in)

7  M6
10 mm
4.8 N•m (38 lb•in)

8  M10
15 mm
38 N•m (336 lb•in)

XT

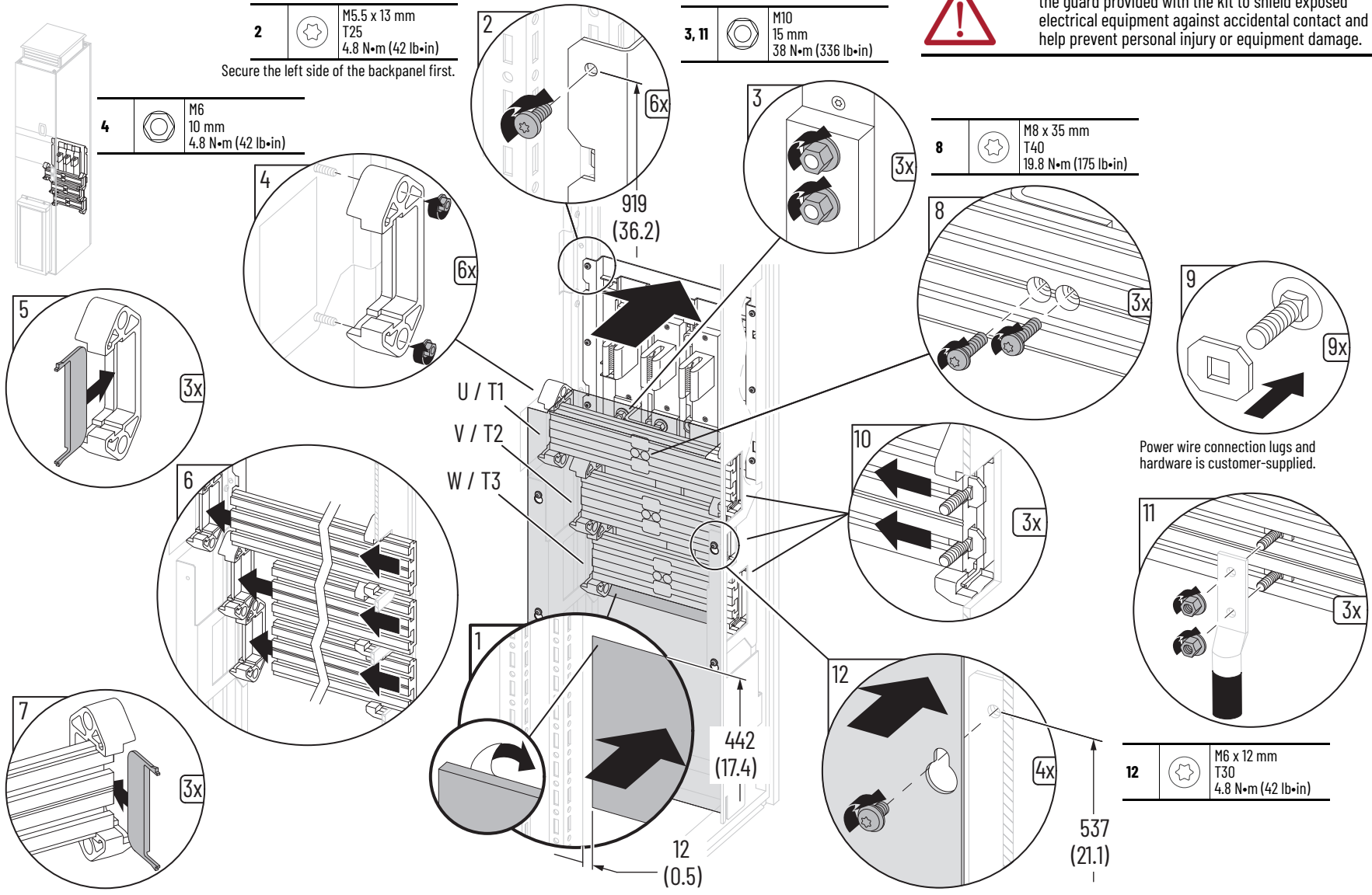
See Protective Covers on IP00 Open Type Kits with XT on page 38 for details.




Kit Cat. No.	Kit Description/Installation
20-750-MNIR1, 20-750-MNIR2	NRS Stab Receptacles with Back Panel Bus Bars (400 mm Wide)





ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.





2	 M5,5 x 13 mm T25 4.8 N•m (42 lb•in)
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Secure the left side of the backpanel first.

3, 11	 M10 15 mm 38 N•m (336 lb•in)
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8	 M8 x 35 mm T40 19.8 N•m (175 lb•in)
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9	 
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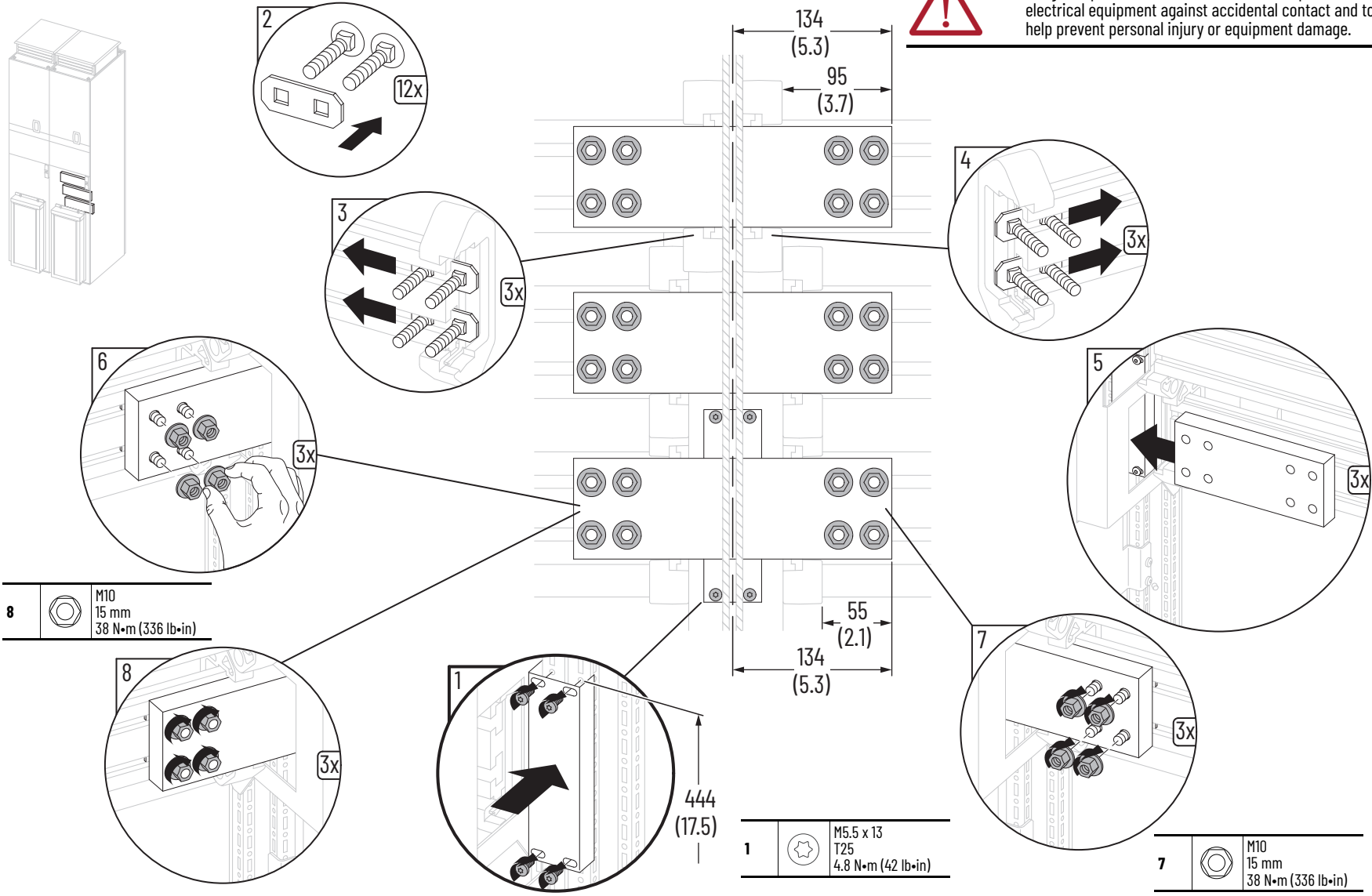
Power wire connection lugs and hardware is customer-supplied.


12	 M6 x 12 mm T30 4.8 N•m (42 lb•in)
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Kit Cat. No.	Kit Description/Installation
20-750-MAC SPL3-3K0	AC Bus Bar Splice (NRS Power Bays)




ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.



8	 M10 15 mm 38 N•m (336 lb•in)
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1	 M5.5 x 13 T25 4.8 N•m (42 lb•in)
---	--

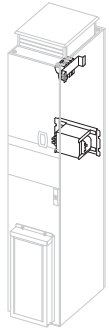
7	 M10 15 mm 38 N•m (336 lb•in)
---	--

Kit Cat. No.	Kit Description/Installation	
20-750-MN-XMFR2-C, 20-750-MN-XMFR2-D	20-750-MN-XMFR2-E, 20-750-MN-XMFR2-F	NRS Control Transformer, 3 kVA (T2)

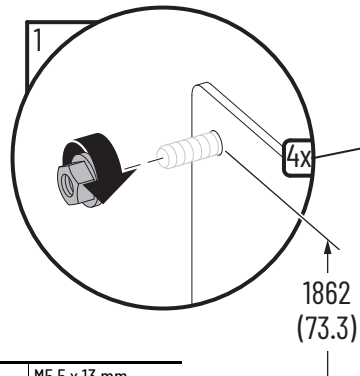
See the NRS System Control Transformer with Fuse Holders and Fuses Kits on page 145 for wiring details.



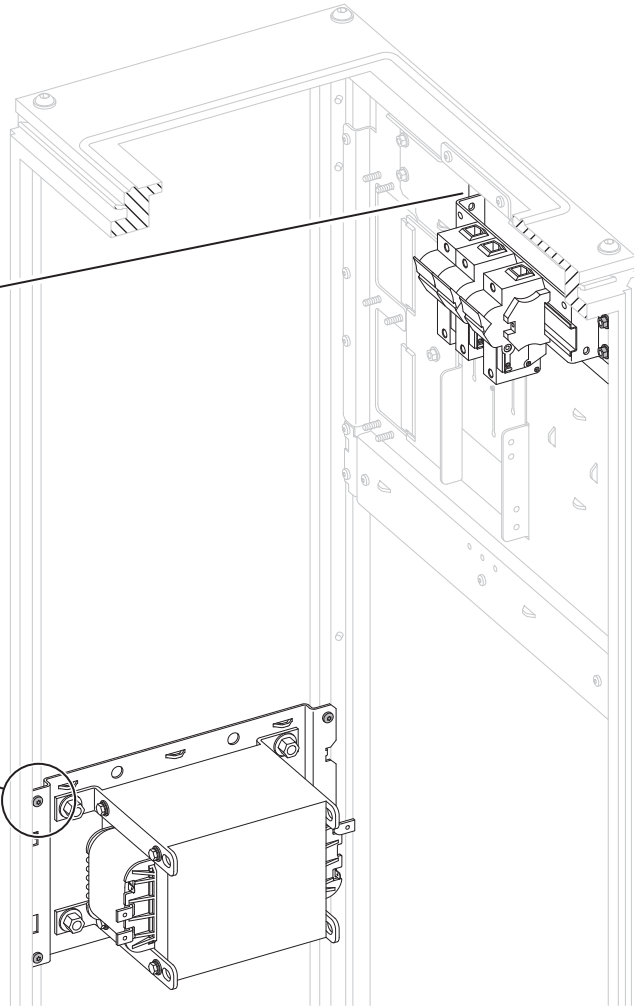
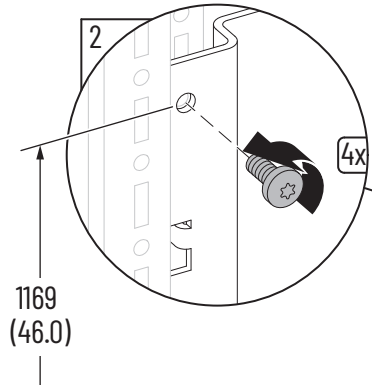
ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.



1		M6
		10 mm
		10.2 N•m (90 lb•in)



2		M5.5 x 13 mm
		T25
		4.8 N•m (42 lb•in)

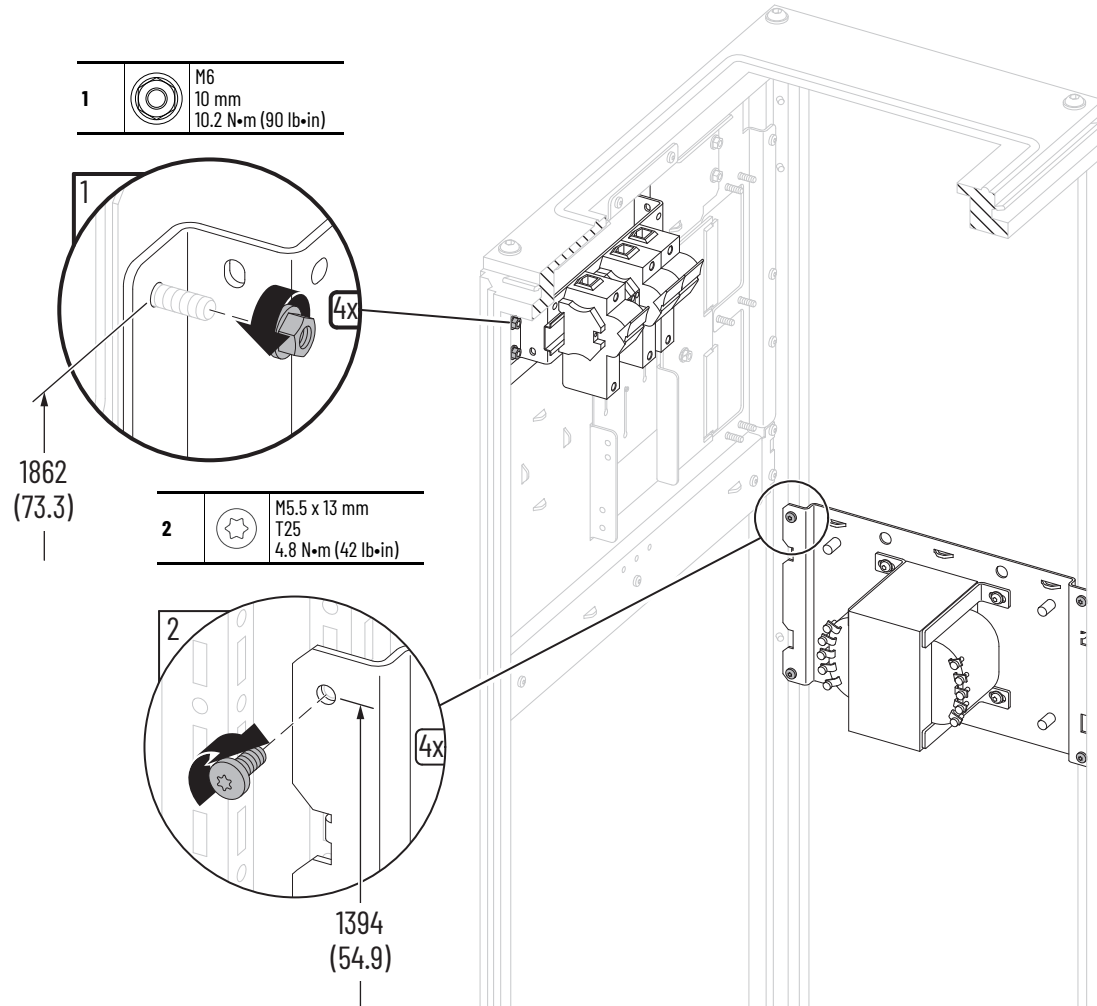
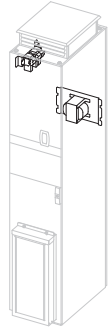


Kit Cat. No.	Kit Description/Installation
20-750-MN-XMFRI-C, 20-750-MN-XMFRI-D	20-750-MN-XMFRI-E, 20-750-MN-XMFRI-F
NRS Control Transformer, 1 kVA (T1)	

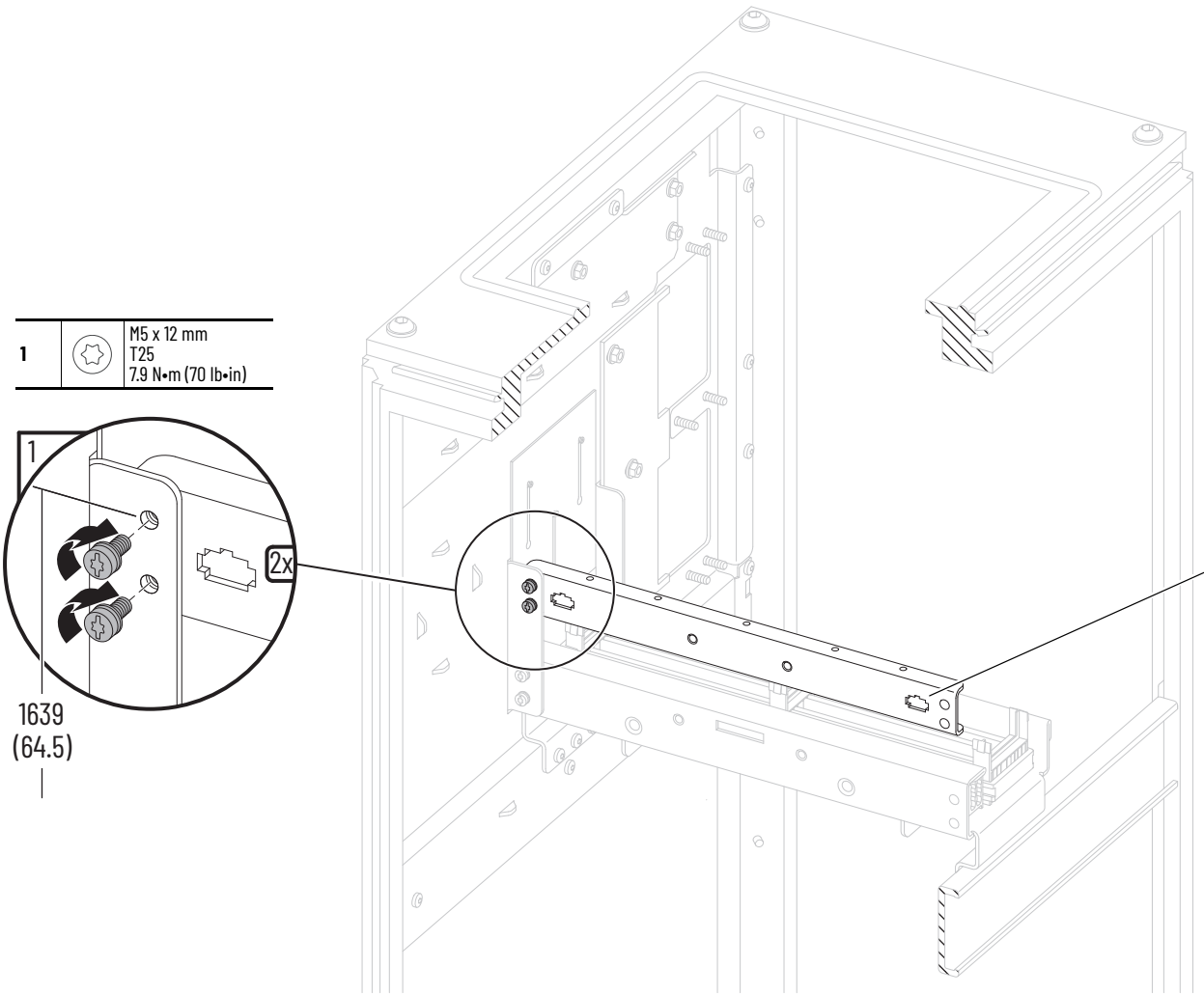
See the NRS System Control Transformer with Fuse Holders and Fuses Kits on page [145](#) for wiring details.




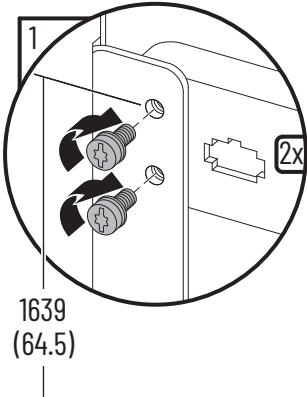
ATTENTION: To avoid an electric shock hazard, install the guard provided with the kit to shield exposed electrical equipment against accidental contact and to help prevent personal injury or equipment damage.



Kit Cat. No.	Kit Description/Installation
20-750-MN-DCLSI-400	NRS DC Link/Fuse Assembly Support Bracket



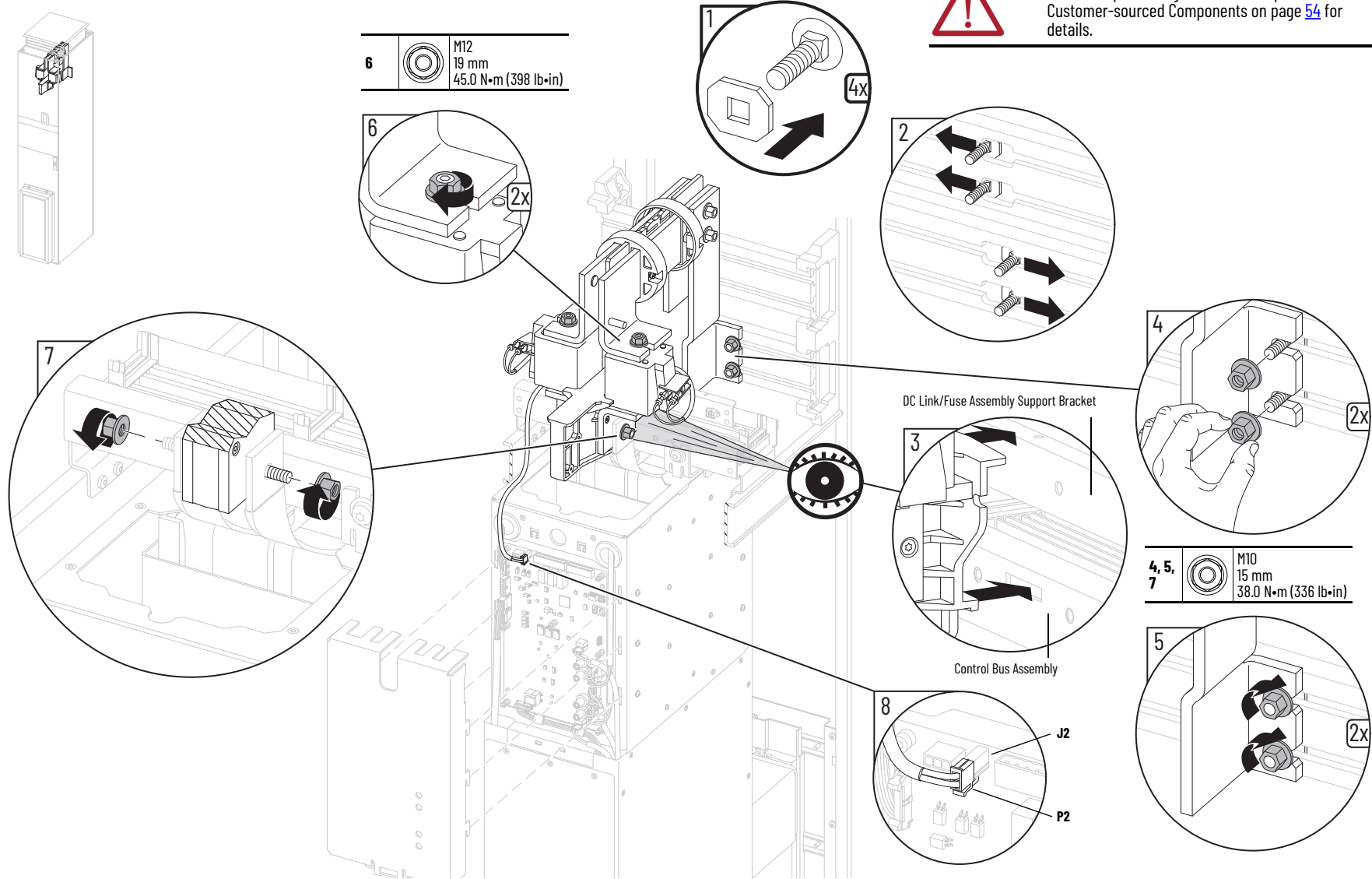
1		M5 x 12 mm T25 7.9 N•m (70 lb•in)
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Use the fittings in the support bracket to secure NRS system interconnection wire harness connectors.

Kit Cat. No.	Kit Description/Installation
20-750-MN-DCLINK1-CD 20-750-MN-DCLINK1-EF	DC Link/Fuse Assembly for Single-density NRS Modules

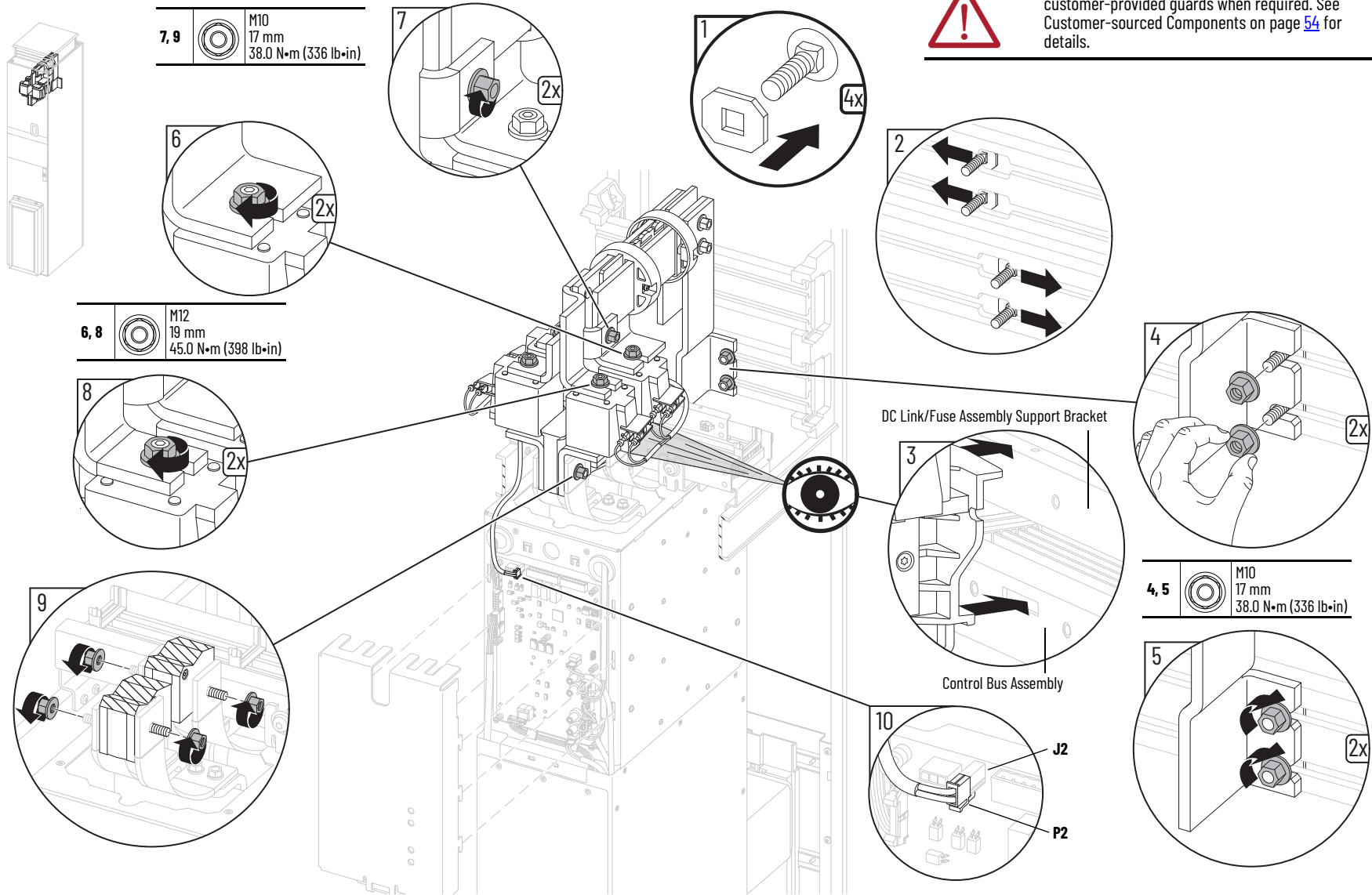
ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.




Kit Cat. No.	Kit Description/Installation
20-750-MN-DCLINK2-CD 20-750-MN-DCLINK2-EF	DC Link/Fuse Assembly for Single-density NRS Modules



ATTENTION: An electric shock hazard exists. Install customer-provided guards when required. See Customer-sourced Components on page 54 for details.

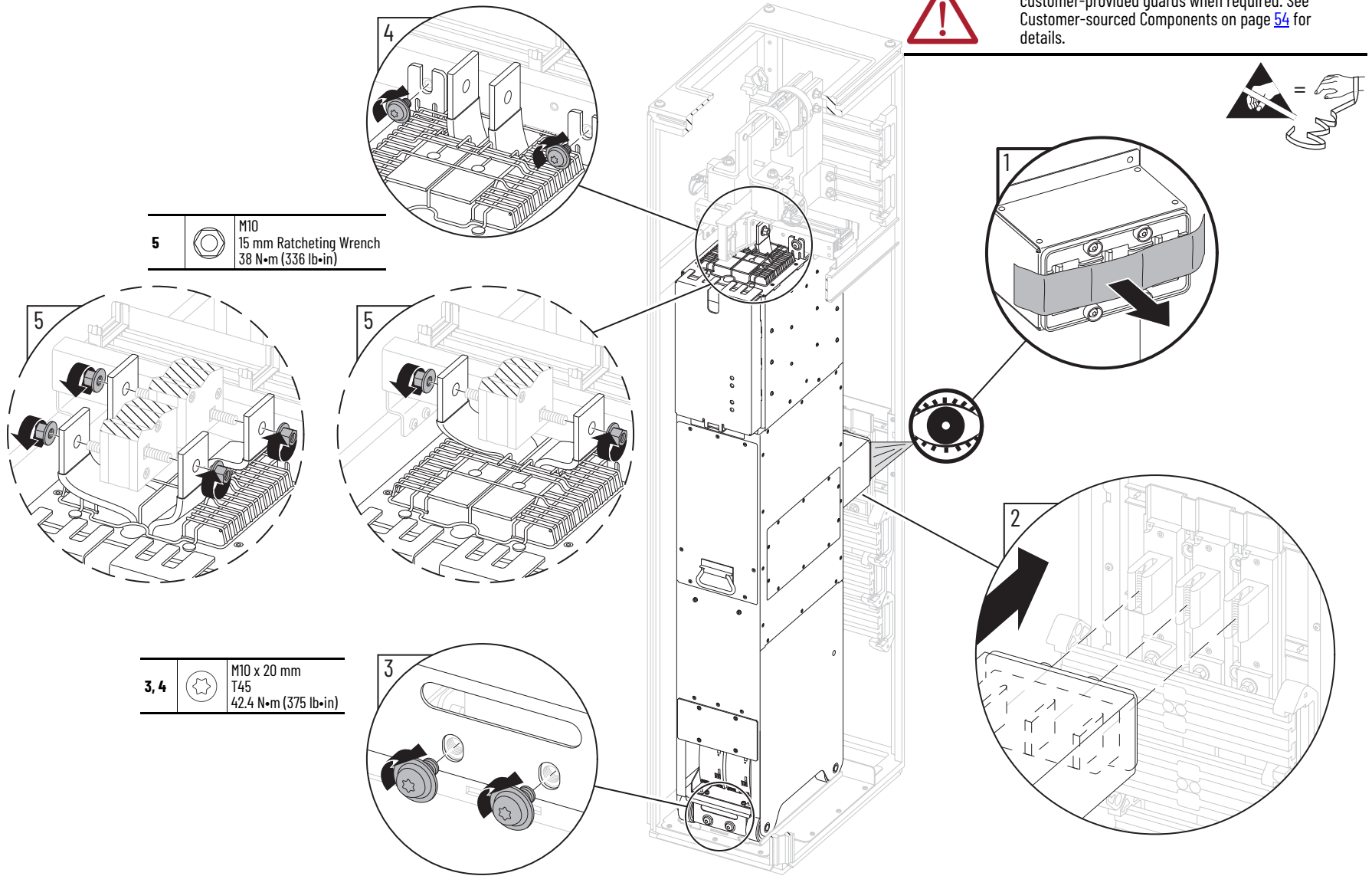



7, 9  M10
17 mm
38.0 N•m (336 lb•in)


6, 8  M12
19 mm
45.0 N•m (398 lb•in)

4, 5  M10
17 mm
38.0 N•m (336 lb•in)

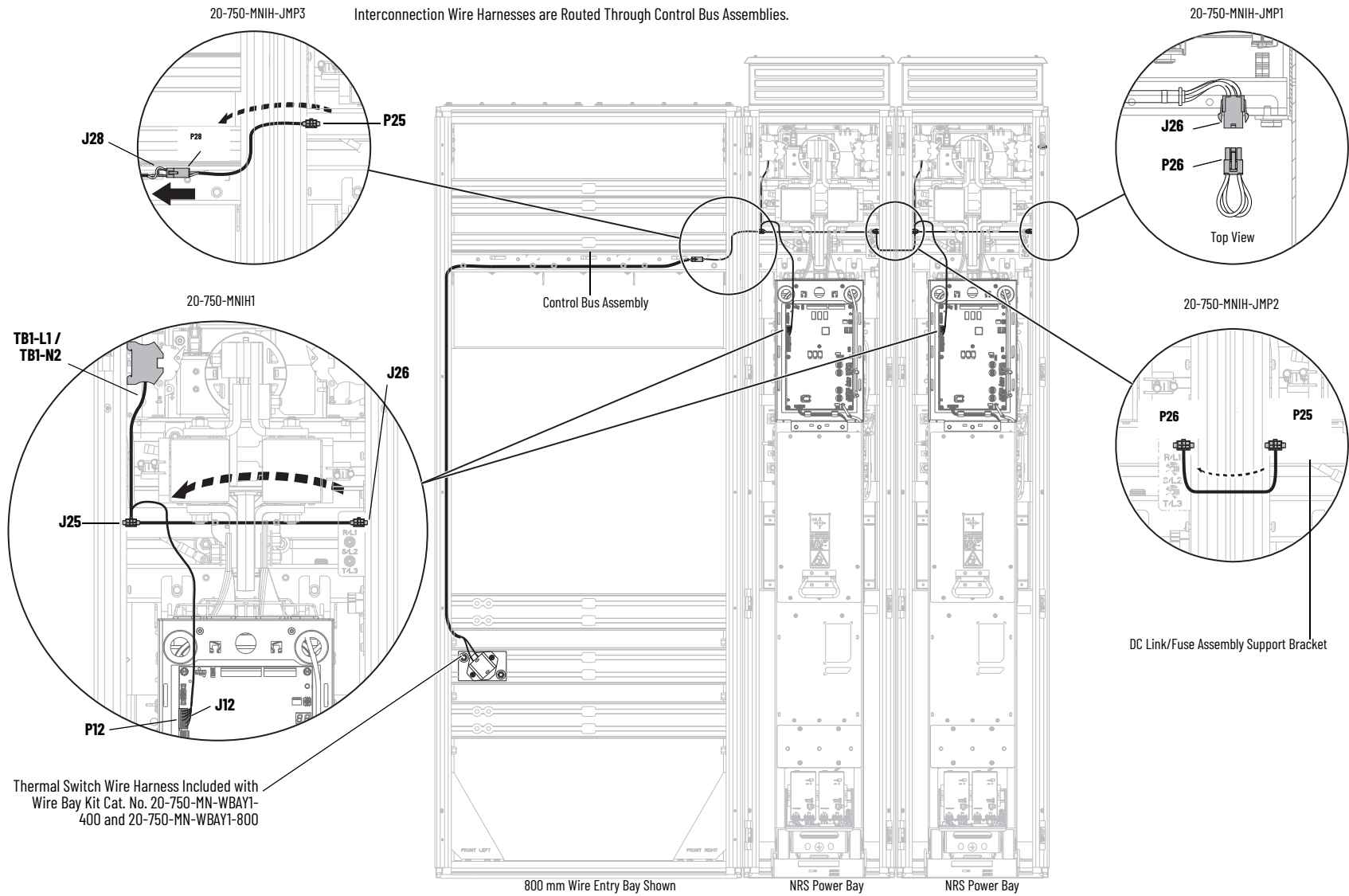
Kit Cat. No.	Kit Description/Installation
20-750-MN1-xnnxnxxn, 20-750-MN2-xnnxnxxn	NRS Module. See Handle IPOO Modules and Kits on page 91 for important information on installing NRS modules.



5		M10 15 mm Ratcheting Wrench 38 N·m (336 lb·in)
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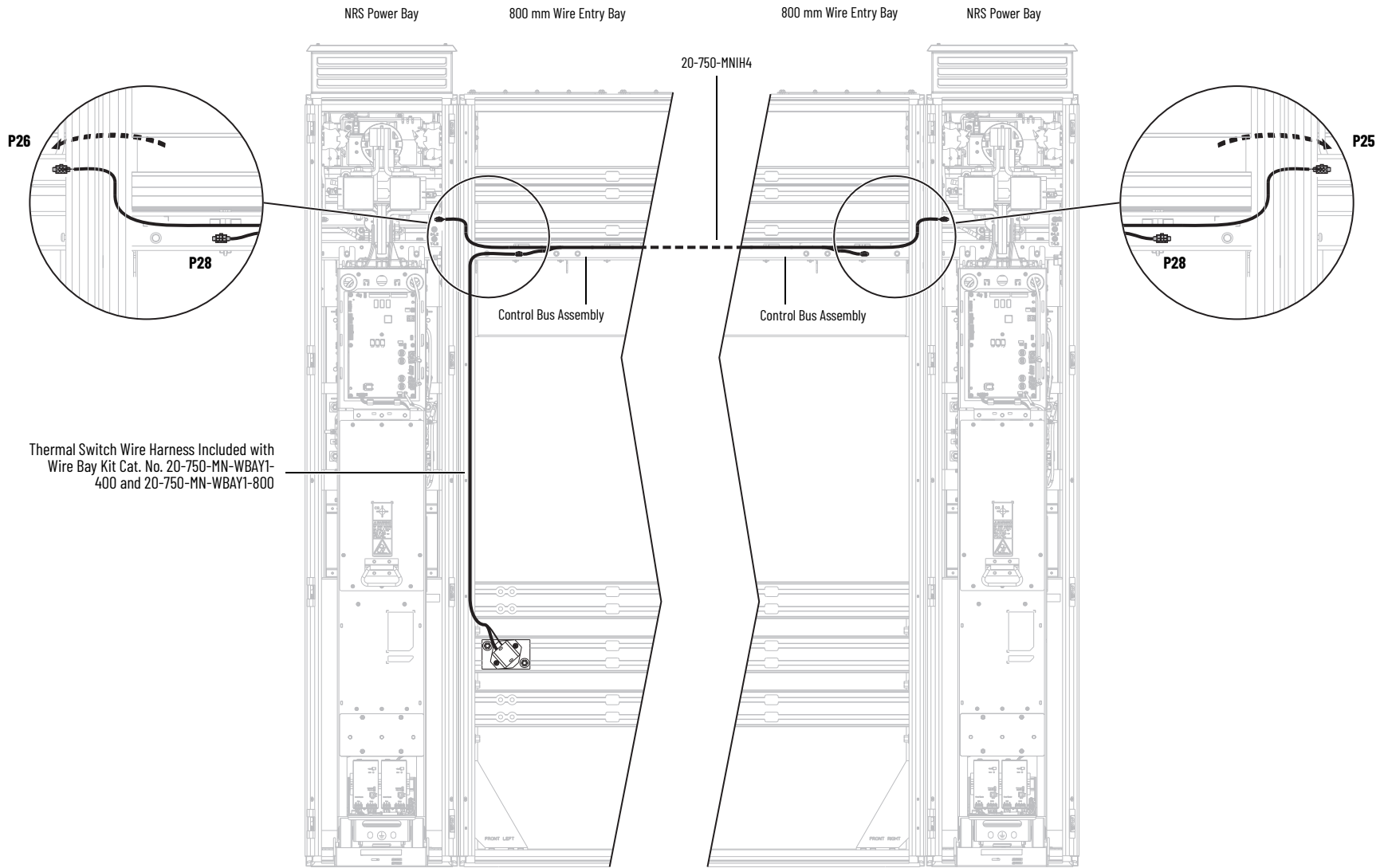
3, 4		M10 x 20 mm T45 42.4 N·m (375 lb·in)
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Kit Cat. No.	Kit Description/Installation
20-750-MNIH1, 20-750-MNIH-JMP1, 20-750-MNIH-JMP2, 20-750-MNIH-JMP3	NRS System Interconnection Harness. See NRS System Interconnection Wire Harnesses on page 33 for details on required interconnection harnesses.

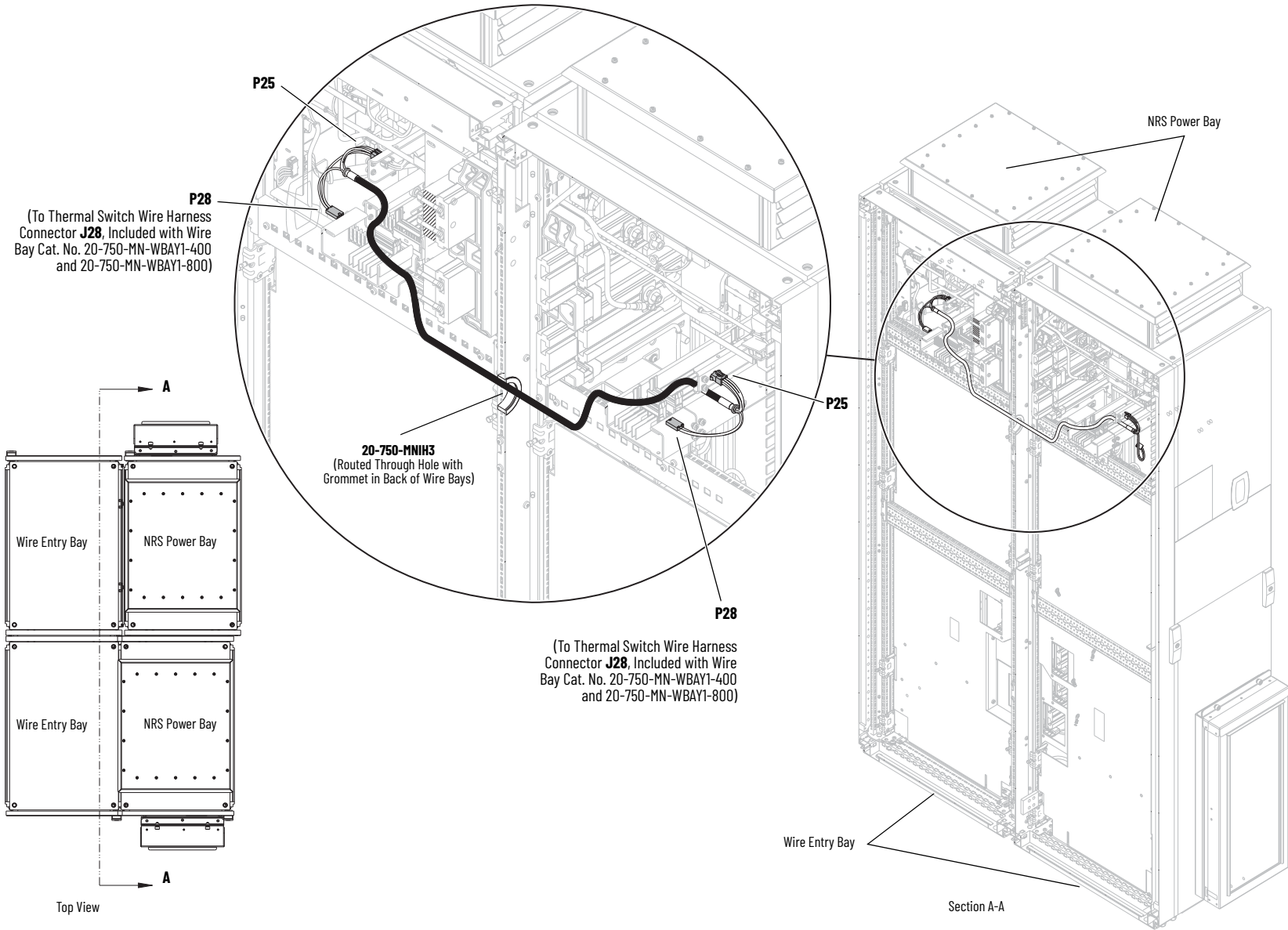


Kit Cat. No.	Kit Description/Installation
20-750-MNIH4	NRS System Interconnection Harness - Inline Configuration. See NRS System Interconnection Wire Harnesses on page 33 for details on required interconnection harnesses.

Interconnection Wire Harnesses are Routed Through Control Bus Assemblies.



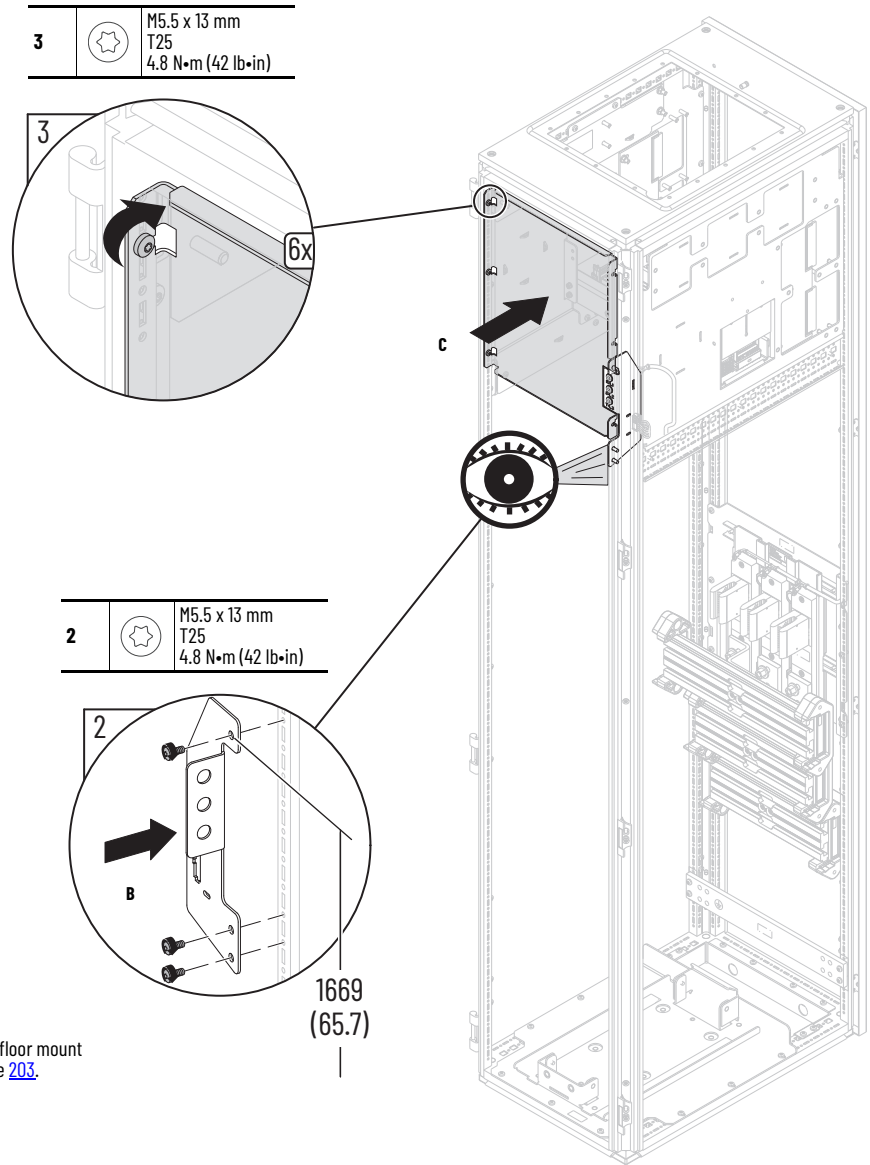
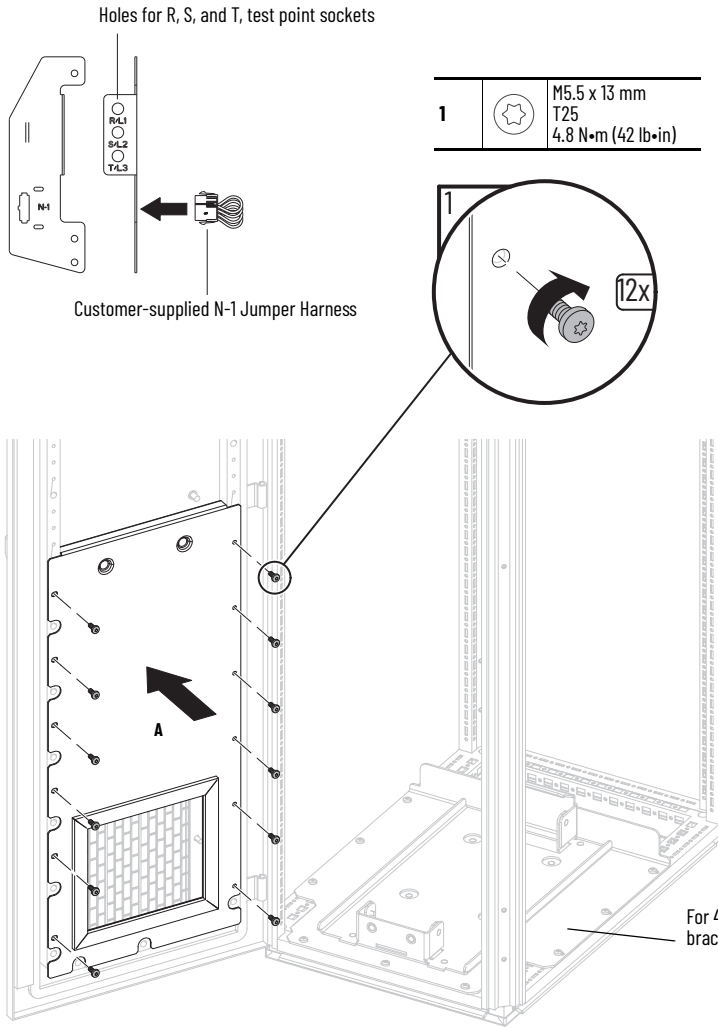
Kit Cat. No.	Kit Description/Installation
20-750-MNIH3	NRS System Interconnection Harness - Back-to-Back Configuration. See NRS System Interconnection Wire Harnesses on page 33 for details on required interconnection harnesses.



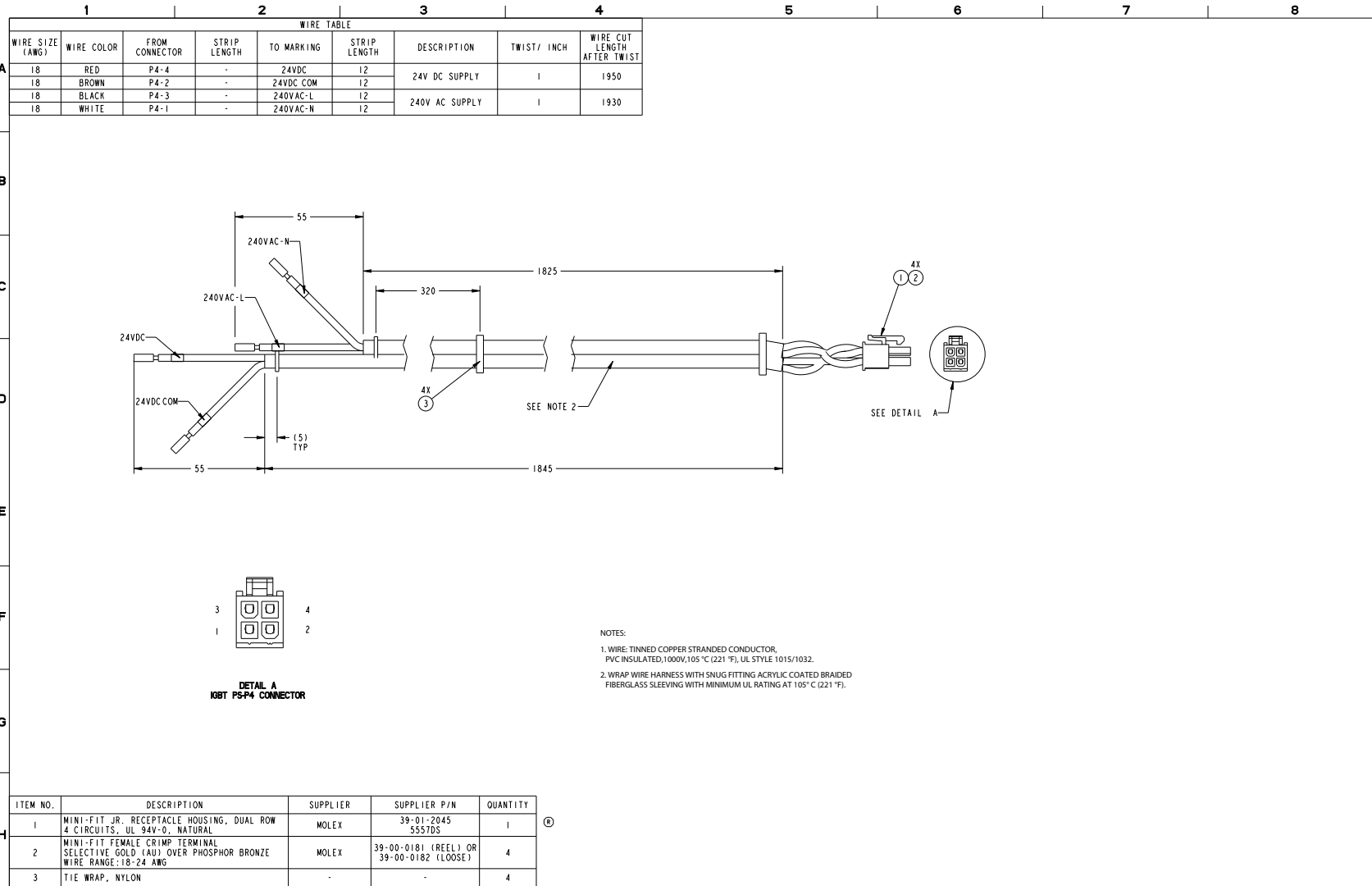
Kit Cat. No.	Kit Description/Installation
20-750-MN-PNL4-NRS	Air Seal (A), Test Point and N-1 Jumper Bracket (B), and DC Link/Fuse Assembly Guard (C) NRS Power Bays.

Kit cat. no. 20-750-MN-PNL4-NRS does not contain these components that must be customer-sourced:

- Wire harness and test point sockets. See the wire harness diagram on page 385 for details.
- N-1 jumper wire harness. See the wire harness diagram on page 386 for details.

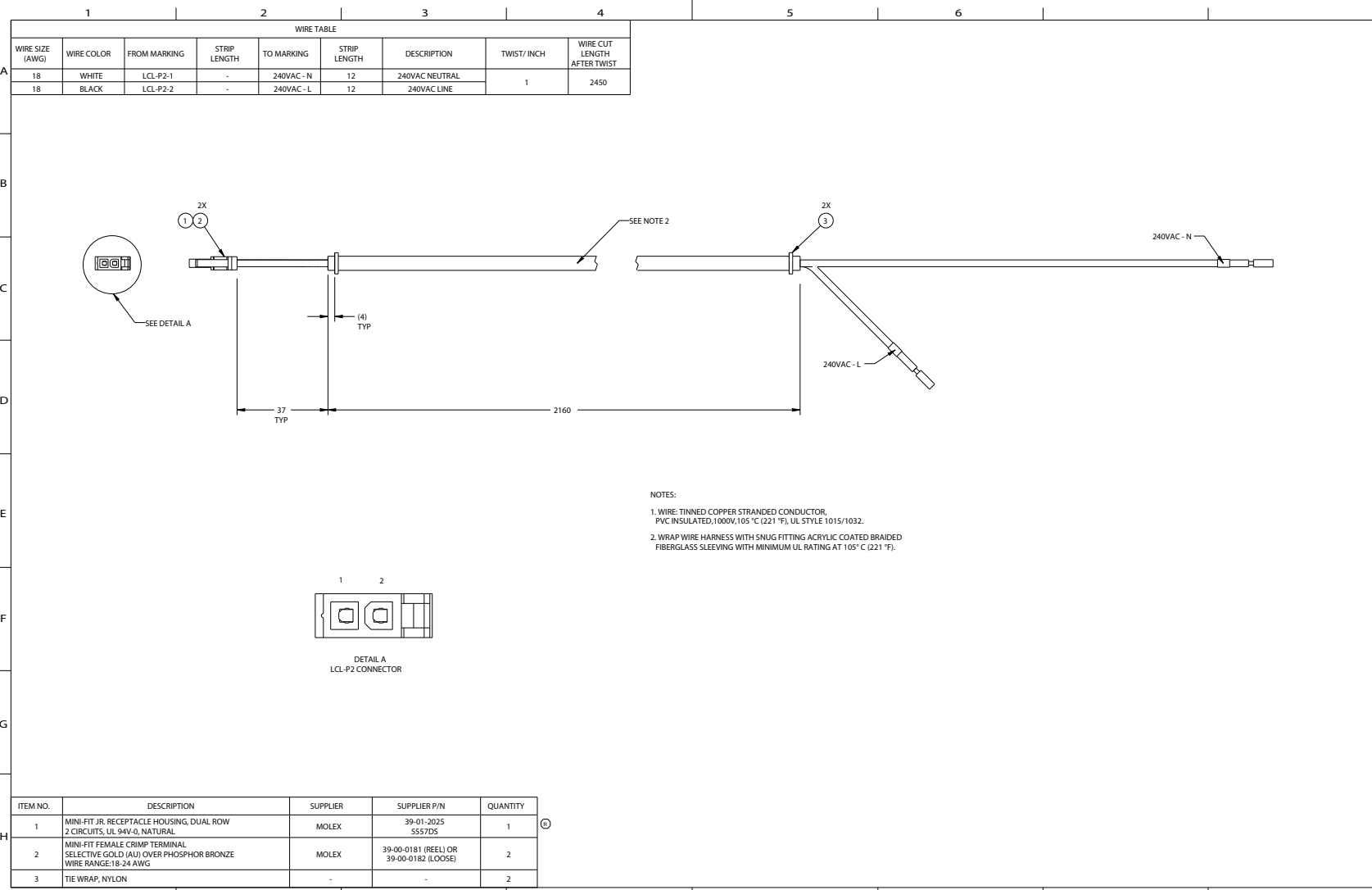


IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



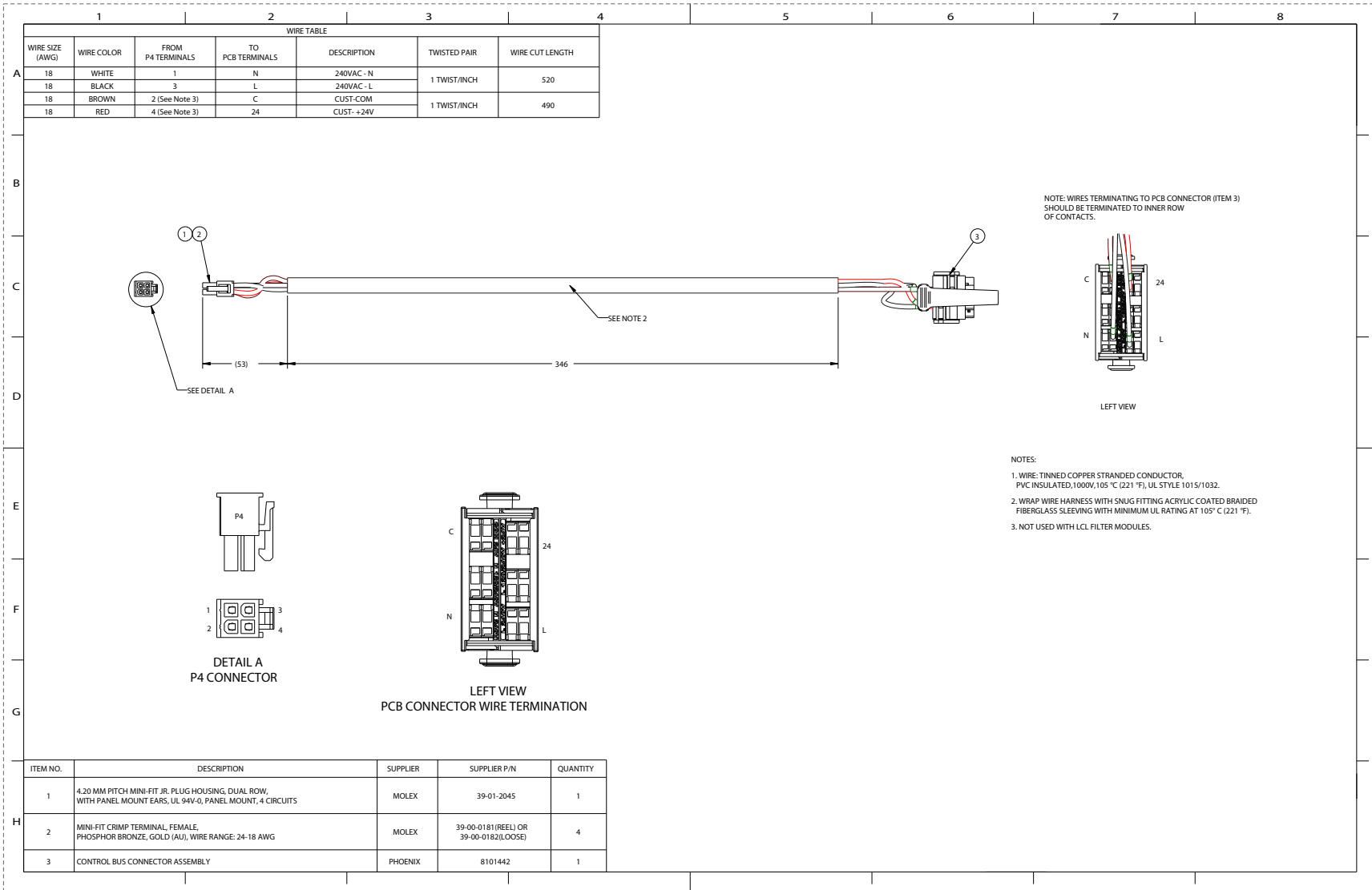
Control Power to LCL Filter Module Connector P4 Wire Harness (Frame 7 and 7L)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



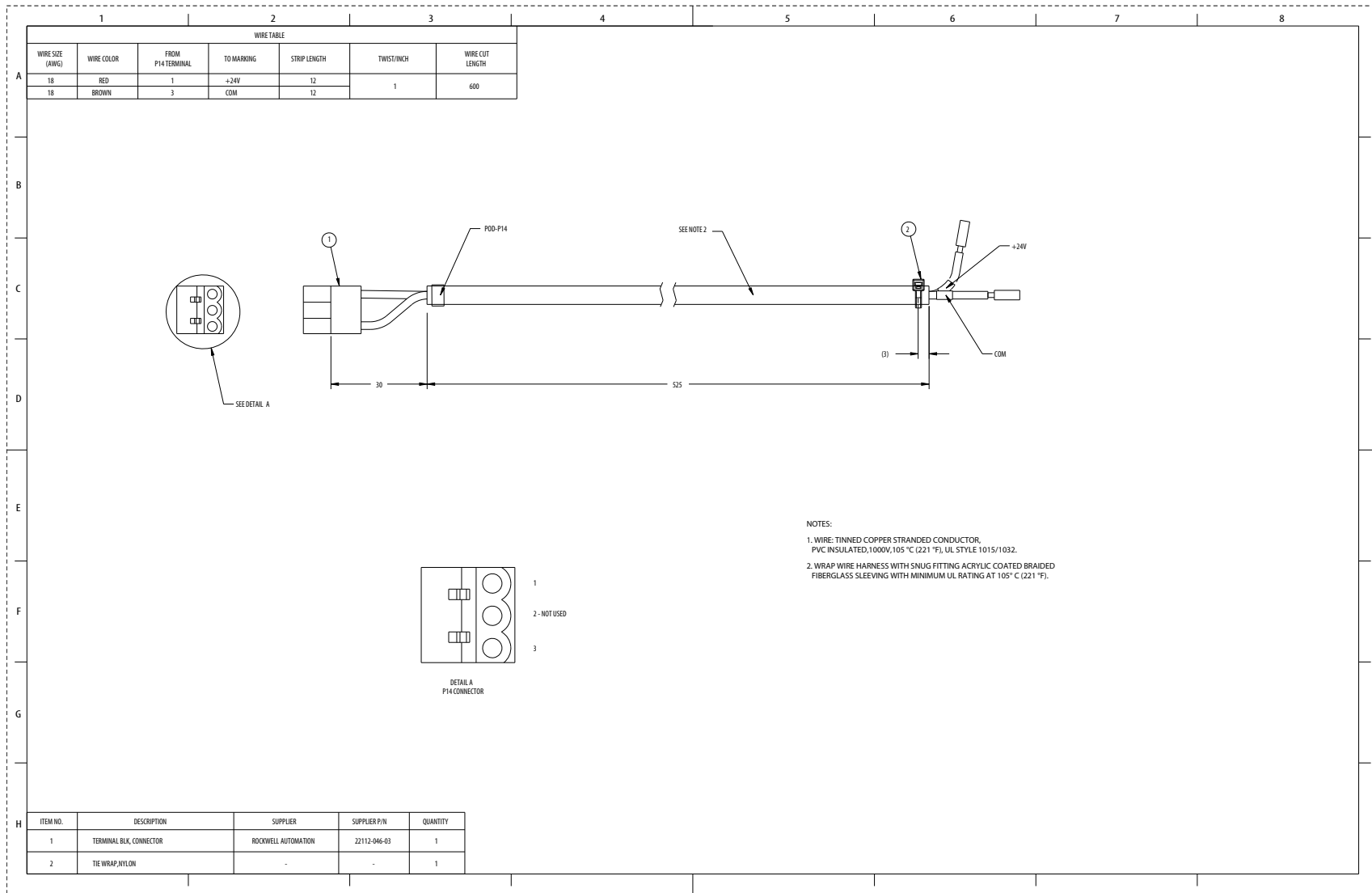
Control Bus to Power and LCL Filter Module Connector P4 Wire Harness

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



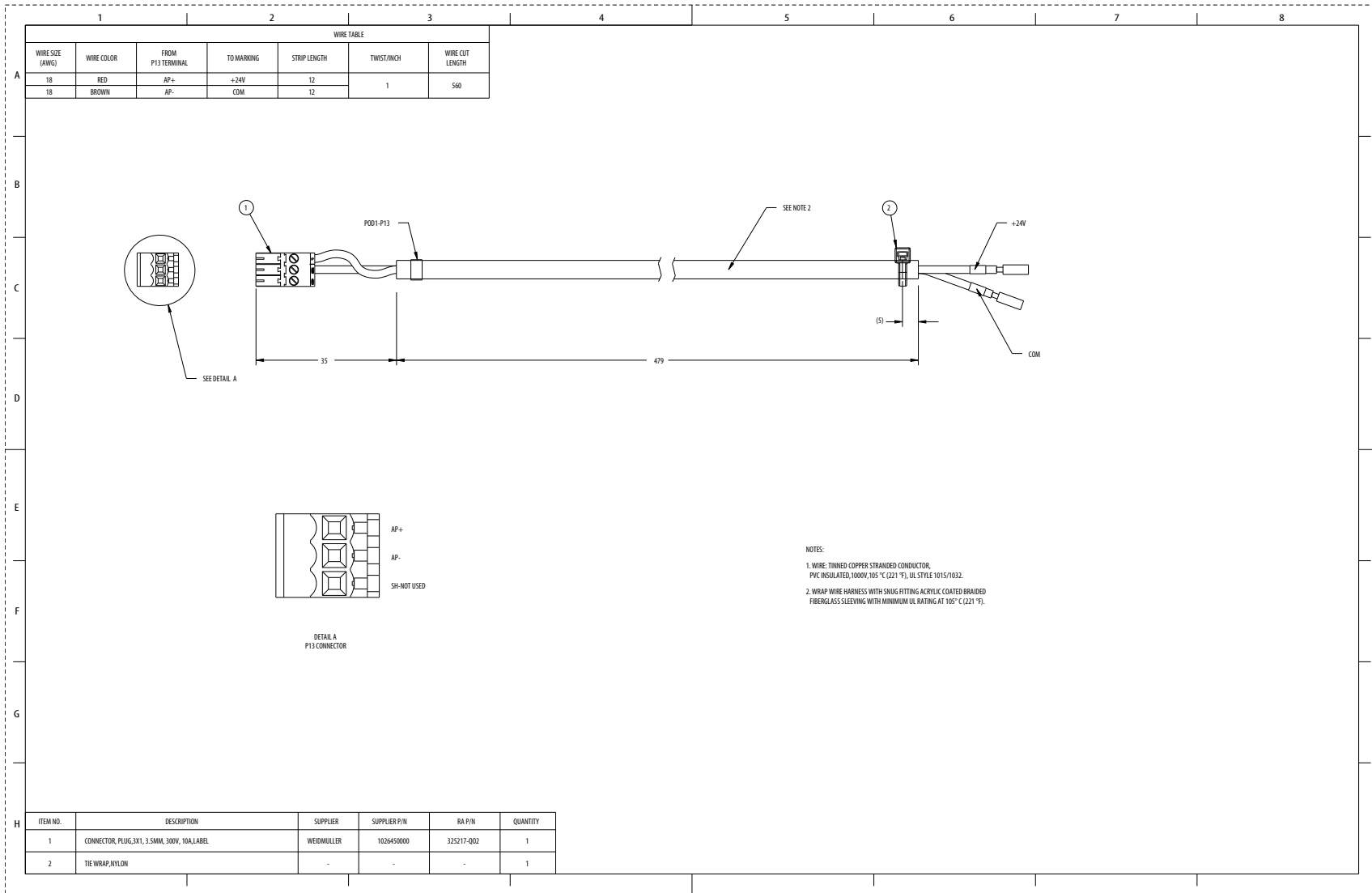
24V DC Control Power to Control Pod Connector P14 Wire Harness (Frames 8...15)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



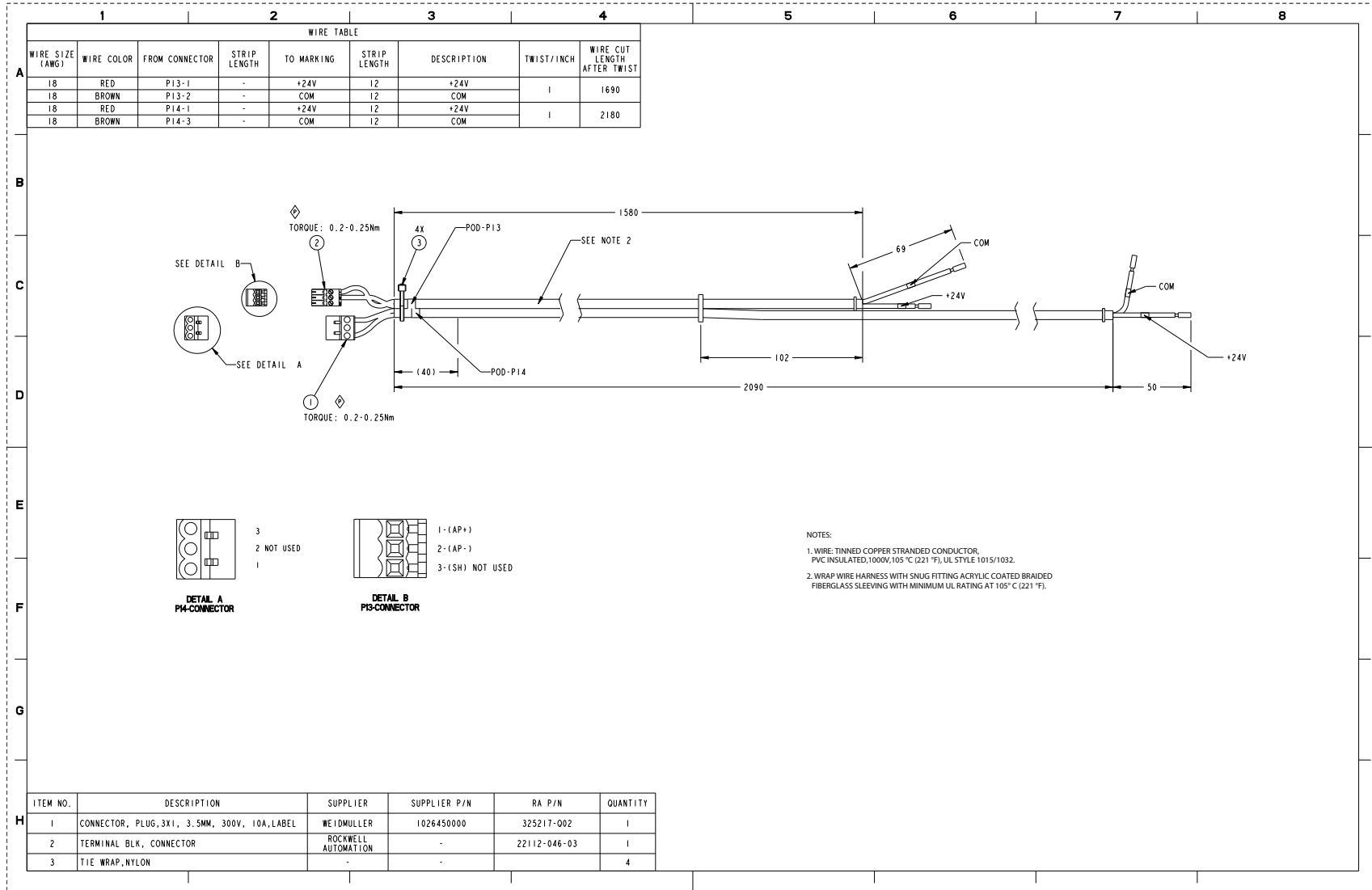
344 Auxiliary 24V DC to Control Pod Connector P13 Wire Harness (Frames 8...15)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



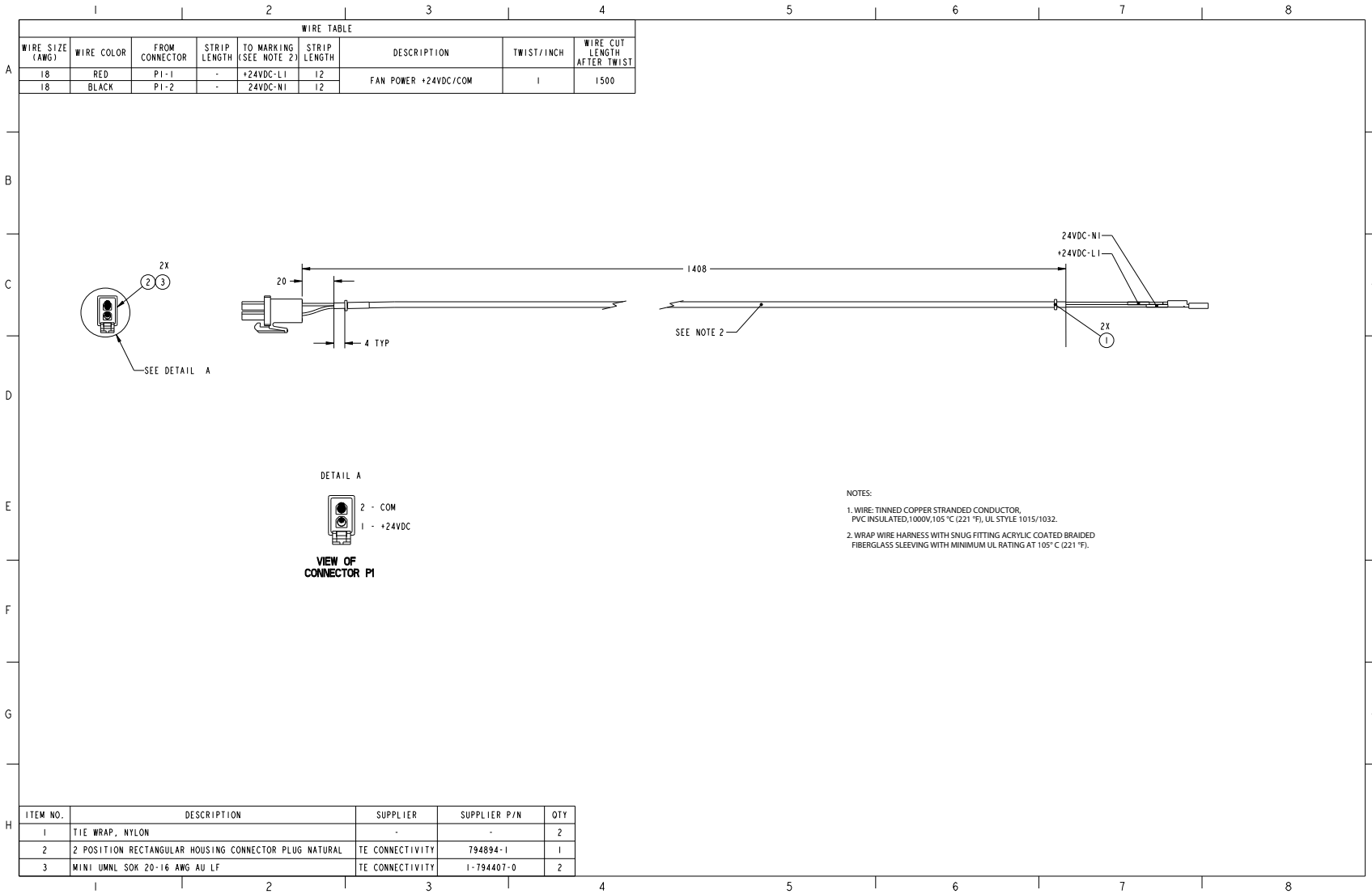
24V DC Control Power to Control Pod Connector P14 and Auxiliary 24V DC to Control Pod Connector P13 Wire Harness (Frame 7 and 7L)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



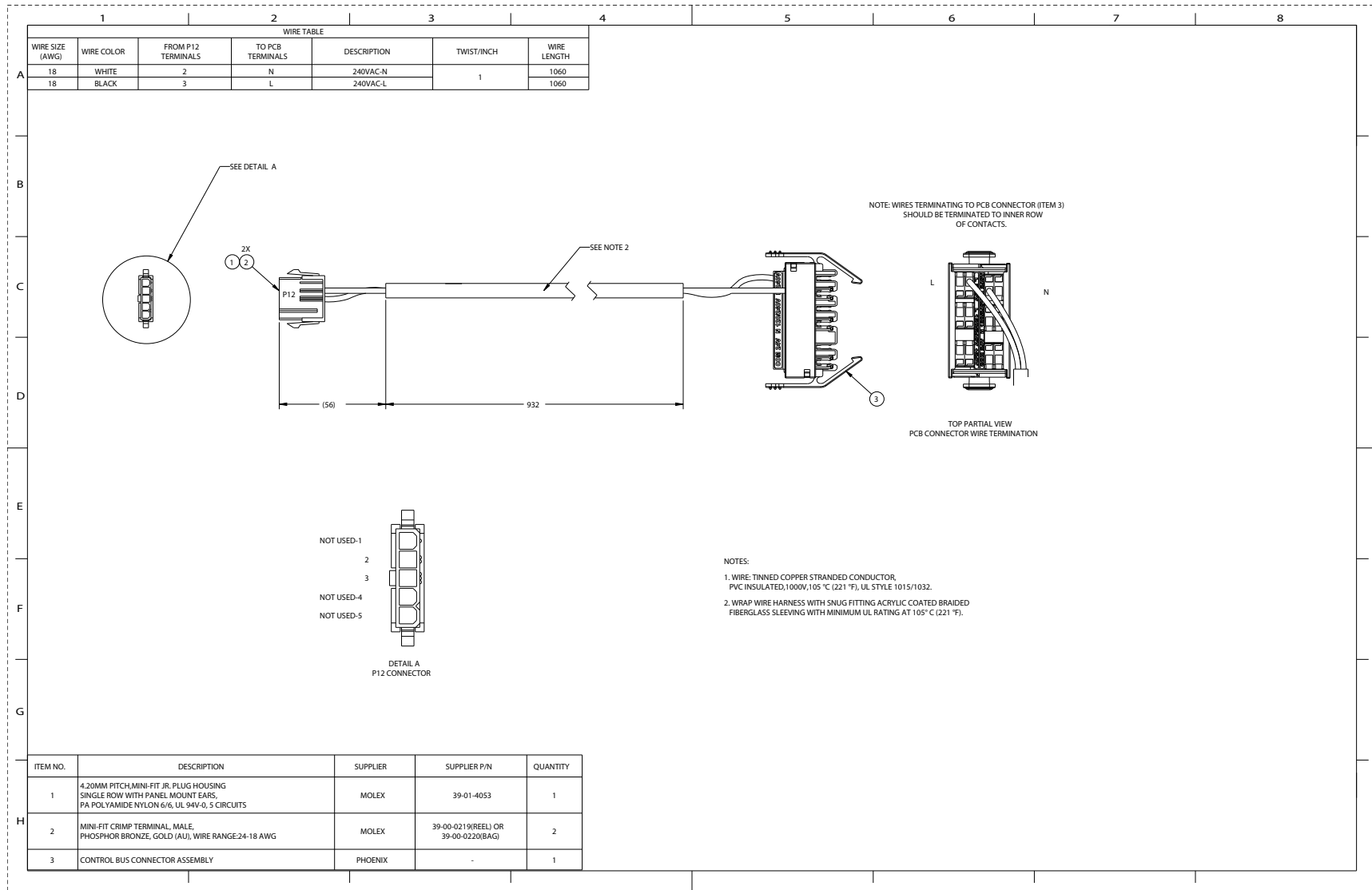
346 **24V DC Control Power to Control Pod Fan Connector P1 Wire Harness (Frame 7 and 7L)**

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



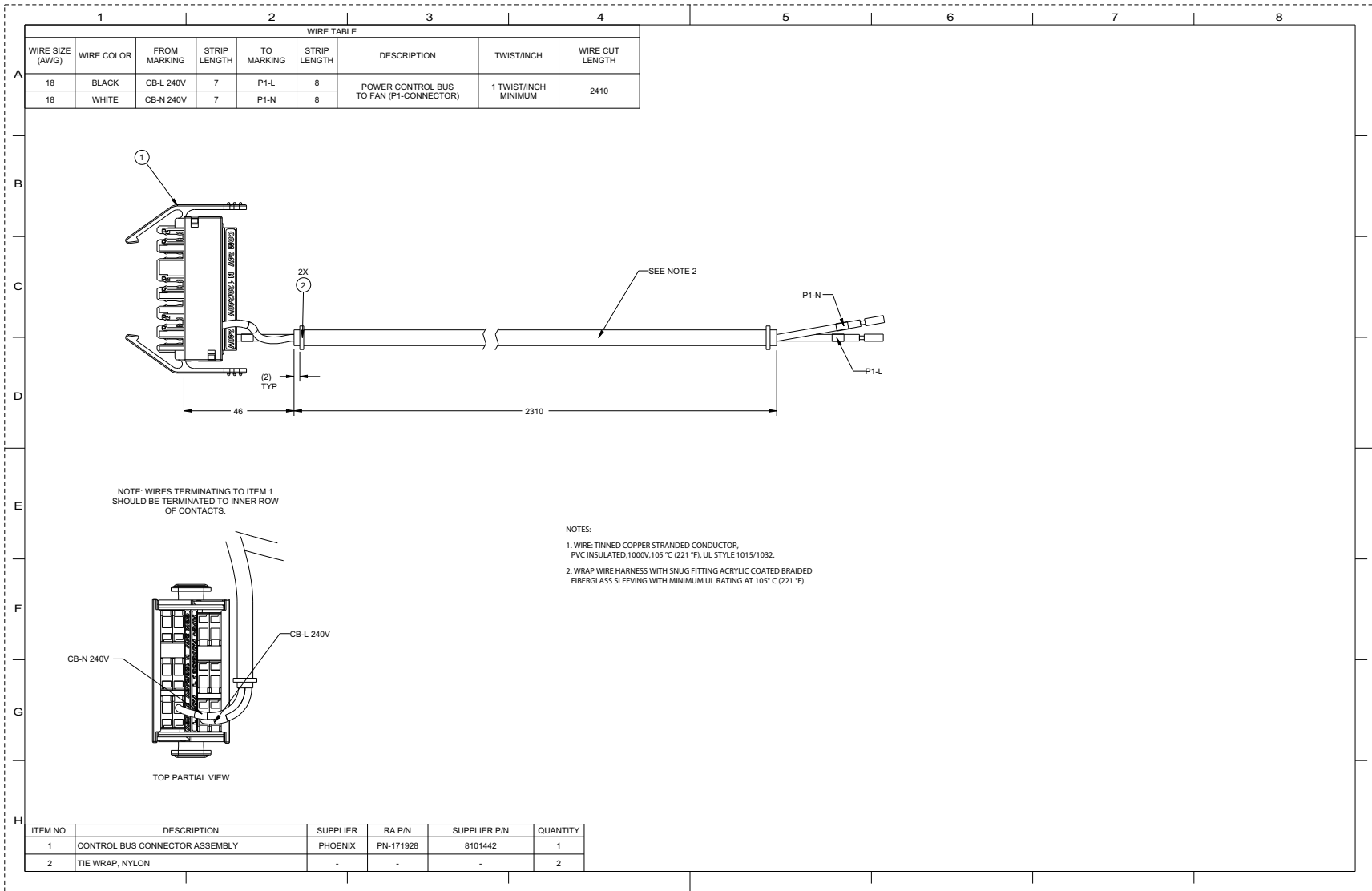
Control Bus to IP54 Exhaust Vent Fan Connector P12 Wire Harness

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



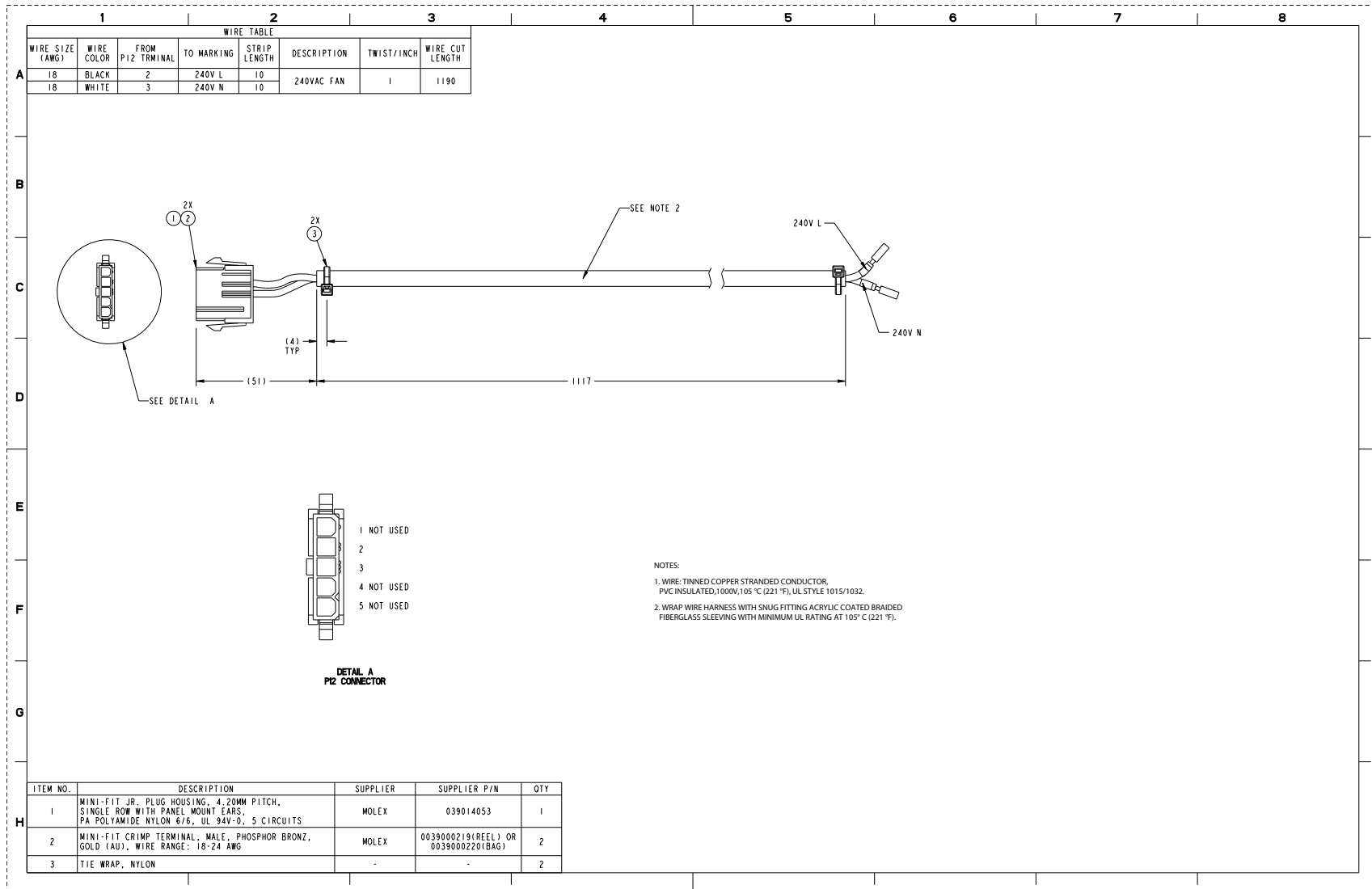
Control Bus to Wire Entry/Exit Bay Door Fan Connector P1 Wire Harness

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

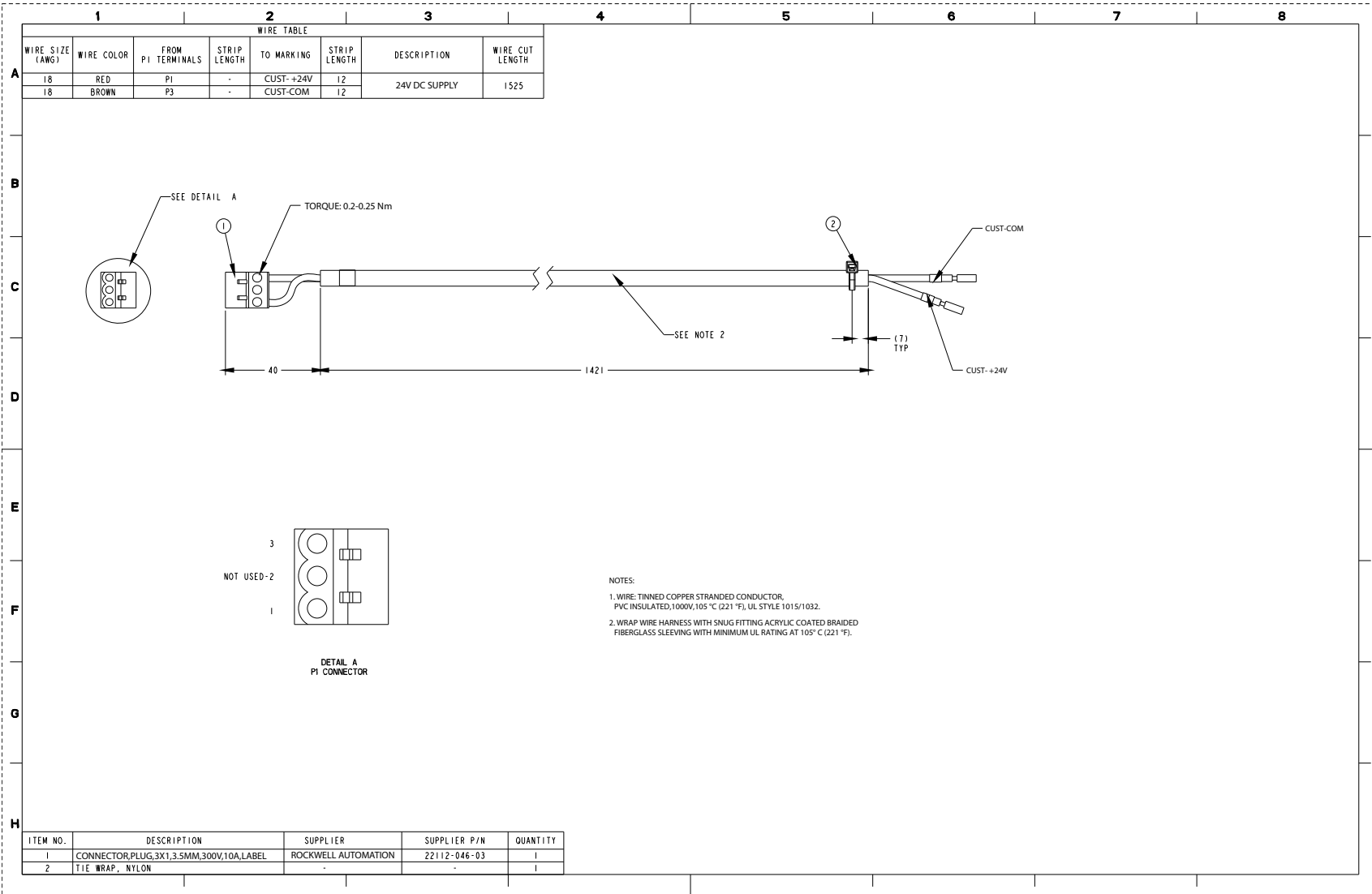


240V AC to Control Bay or Input Bay Vent Fan Connector P12 Wire Harness

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

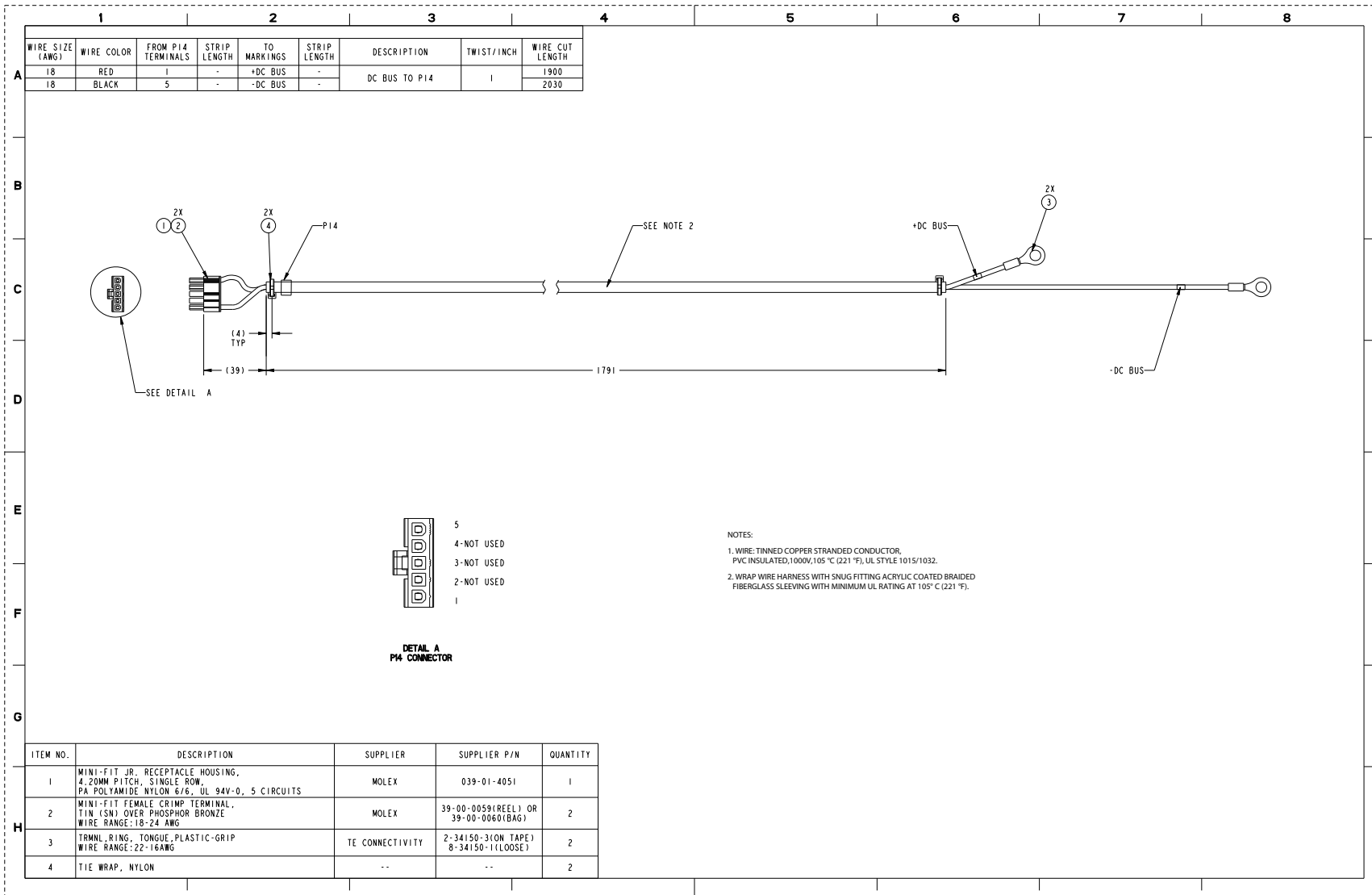


IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



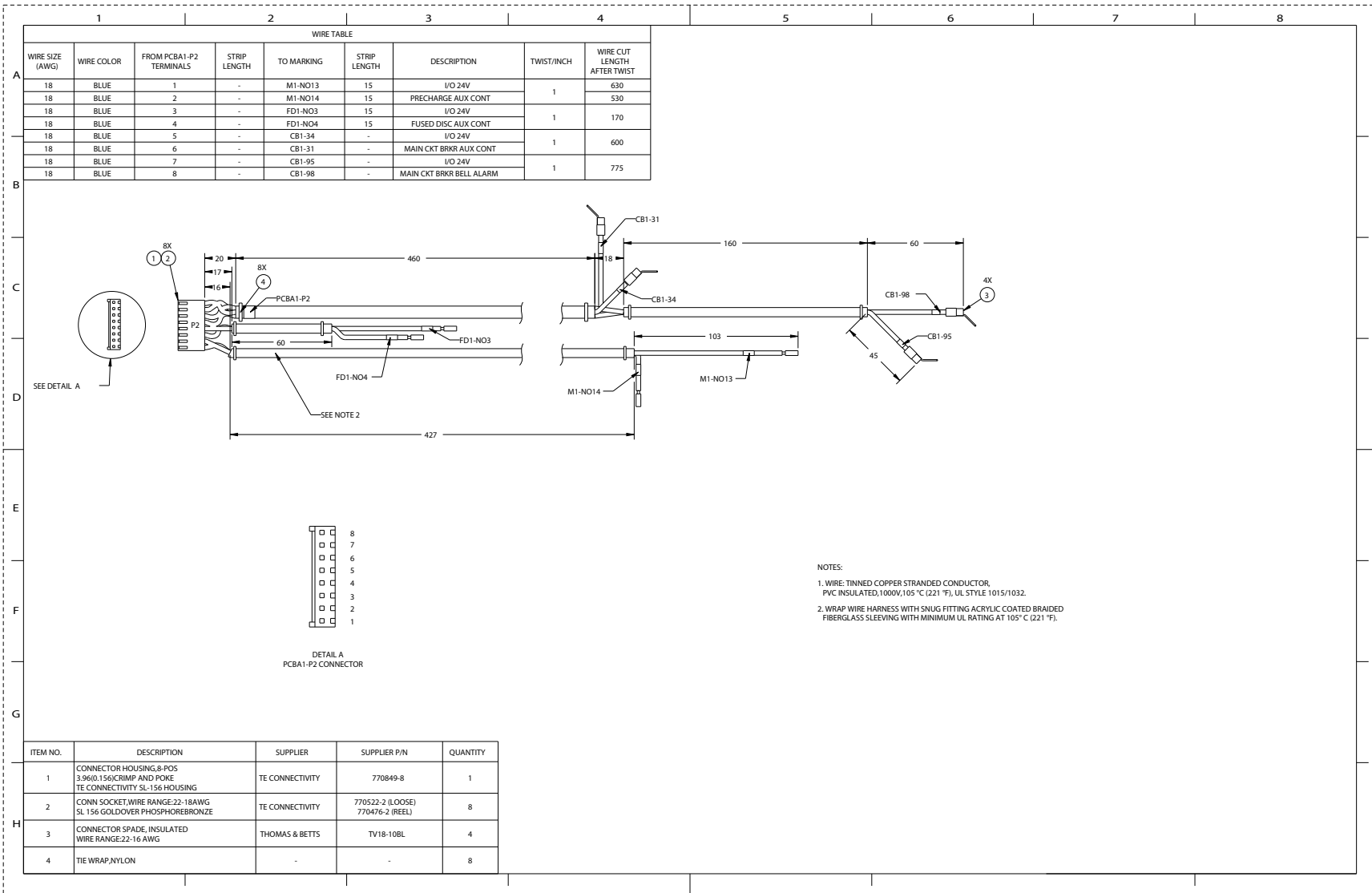
DC Bus to Connector P14 Wire Harness

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



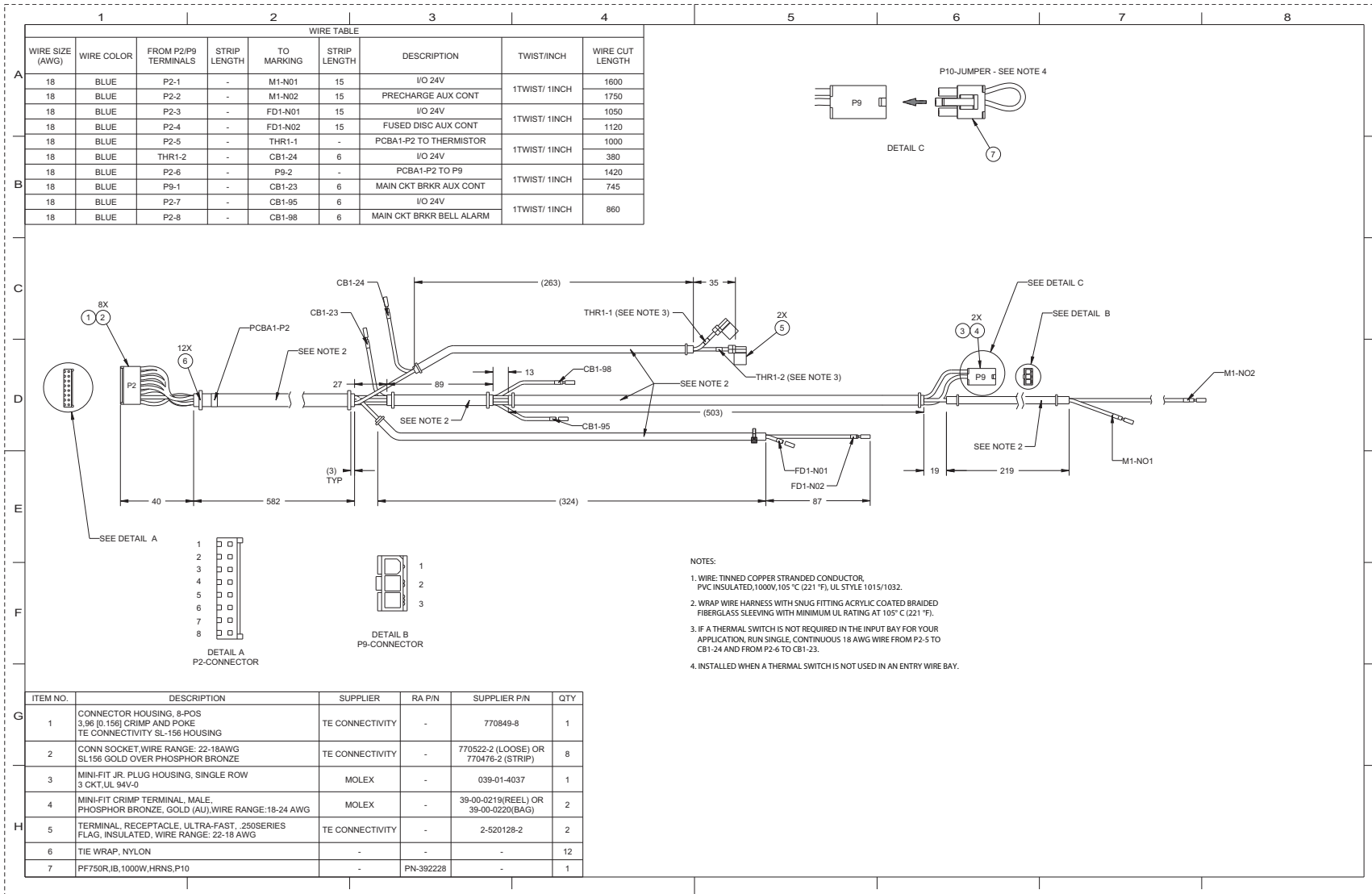
Circuit Breaker, Contactor, and Fused Disconnect to AC Precharge Control Circuit Board Connector P2 Wire Harness (Frames 7 and 7L)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



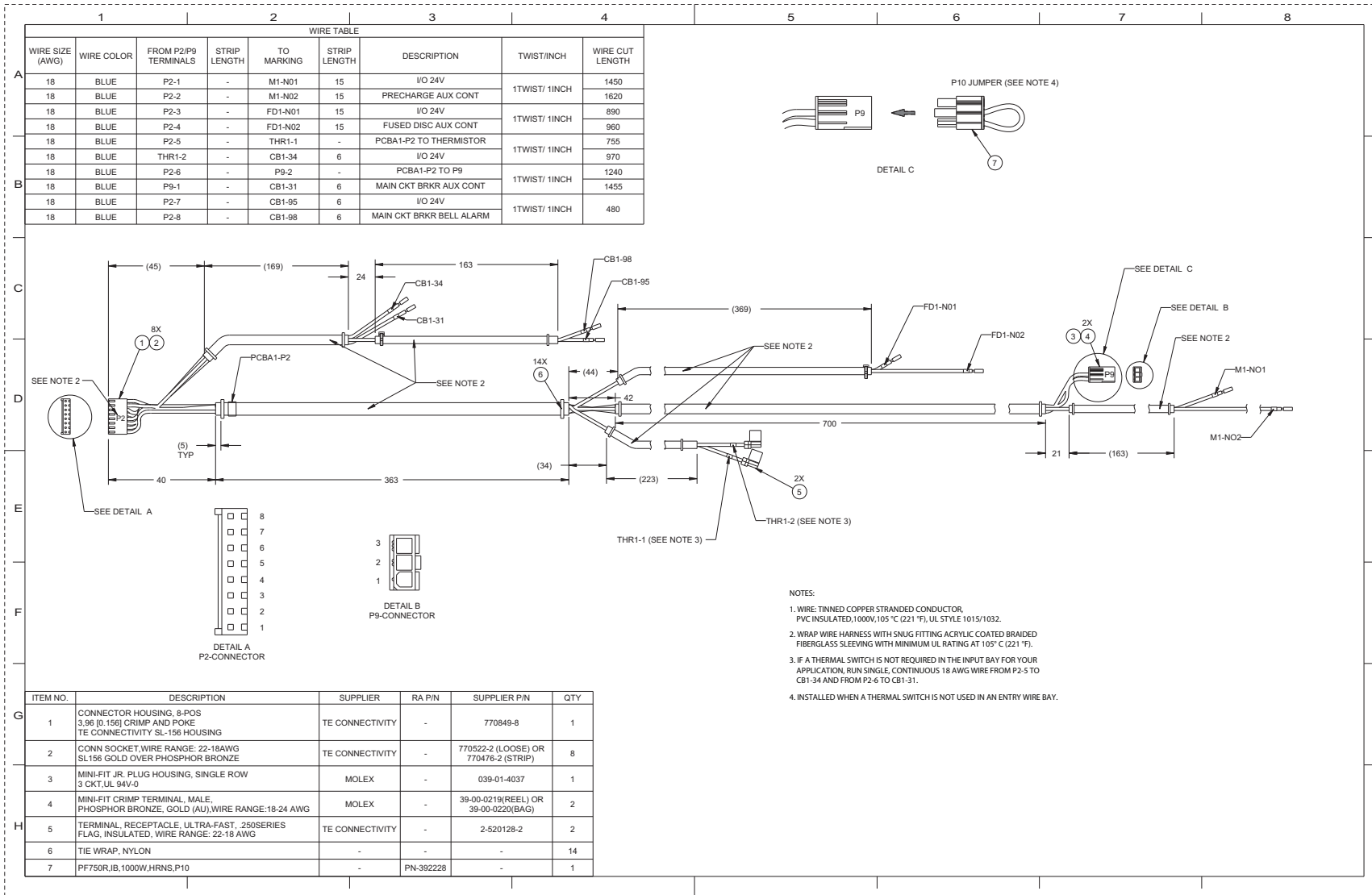
Circuit Breaker, Contactor, and Fused Disconnect to AC Precharge Control Circuit Board Connector P2 Wire Harness (400/480V AC Input Frame 11 and 12 AC Precharge Systems)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



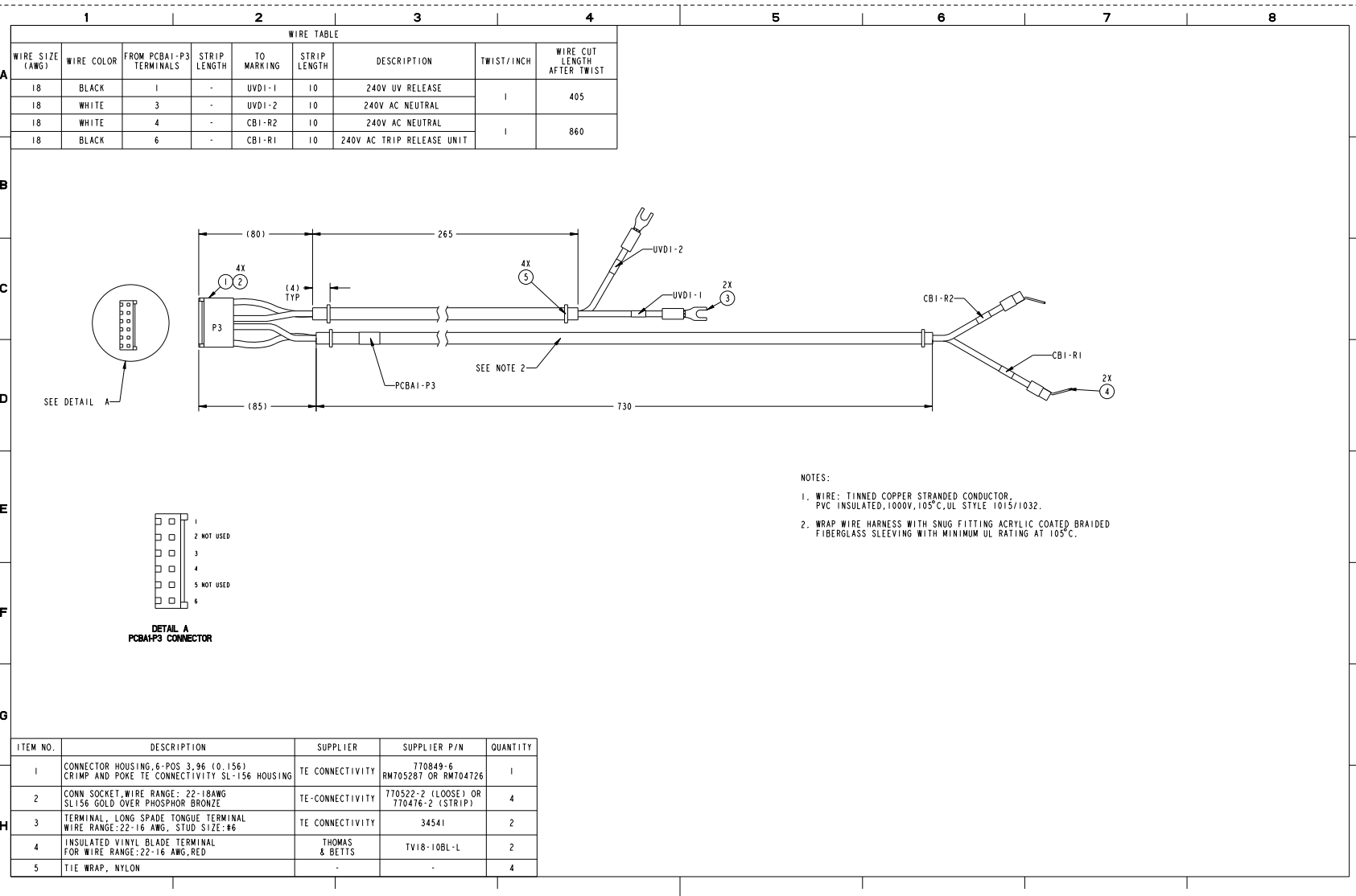
Circuit Breaker, Contactor, and Fused Disconnect to AC Precharge Control Circuit Board Connector P2 Wire Harness (400/480V and 600/690V AC Input Frame 10 and 600/690V AC Input Frame 11 and 12 AC Precharge Systems)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



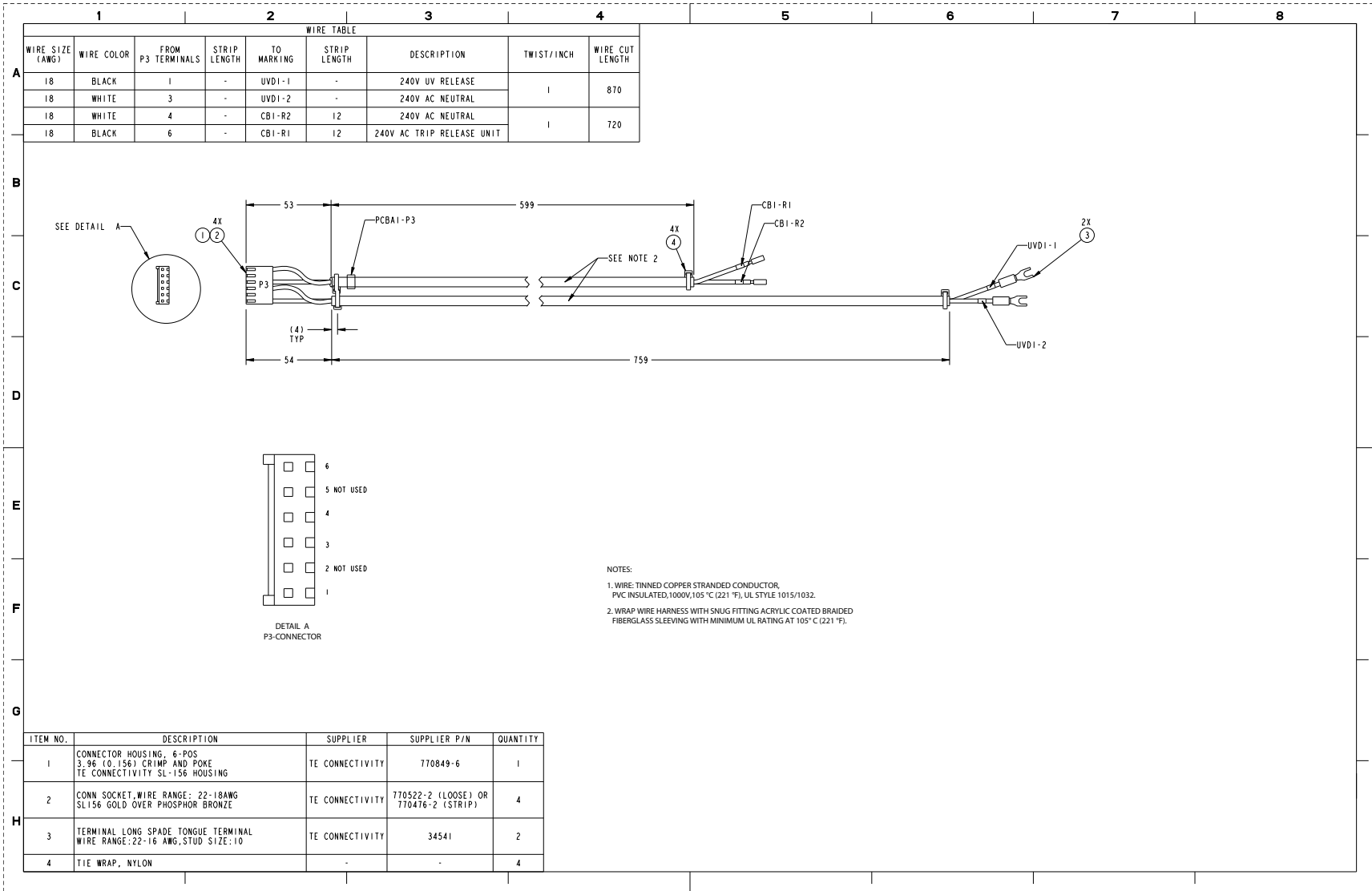
Circuit Breaker and Time Delay Relay to AC Precharge Control Circuit Board Connector P3 Wire Harness (Frames 7 and 7L)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



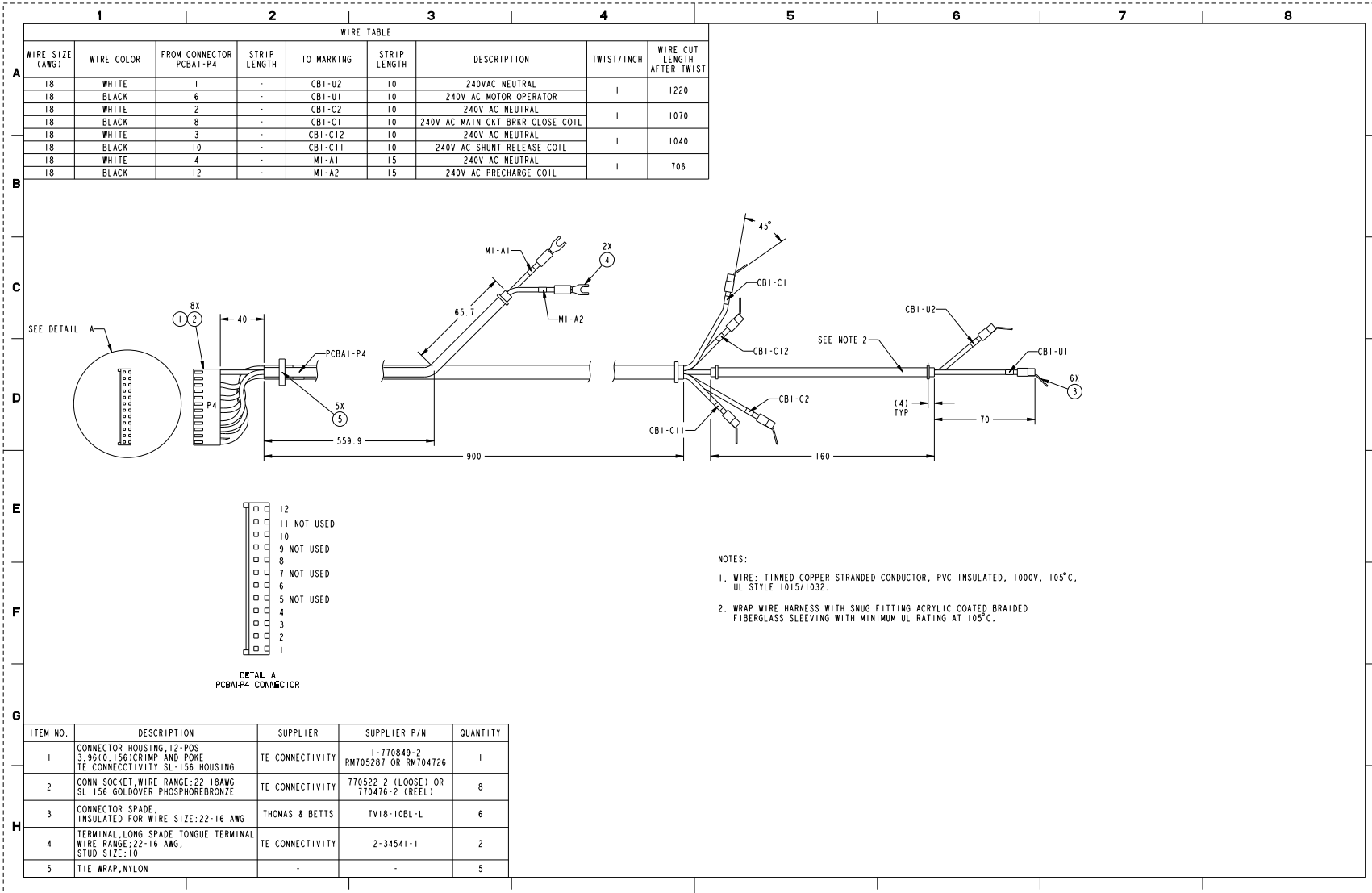
Circuit Breaker and Time Delay Relay to AC Precharge Control Circuit Board Connector P3 Wire Harness

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

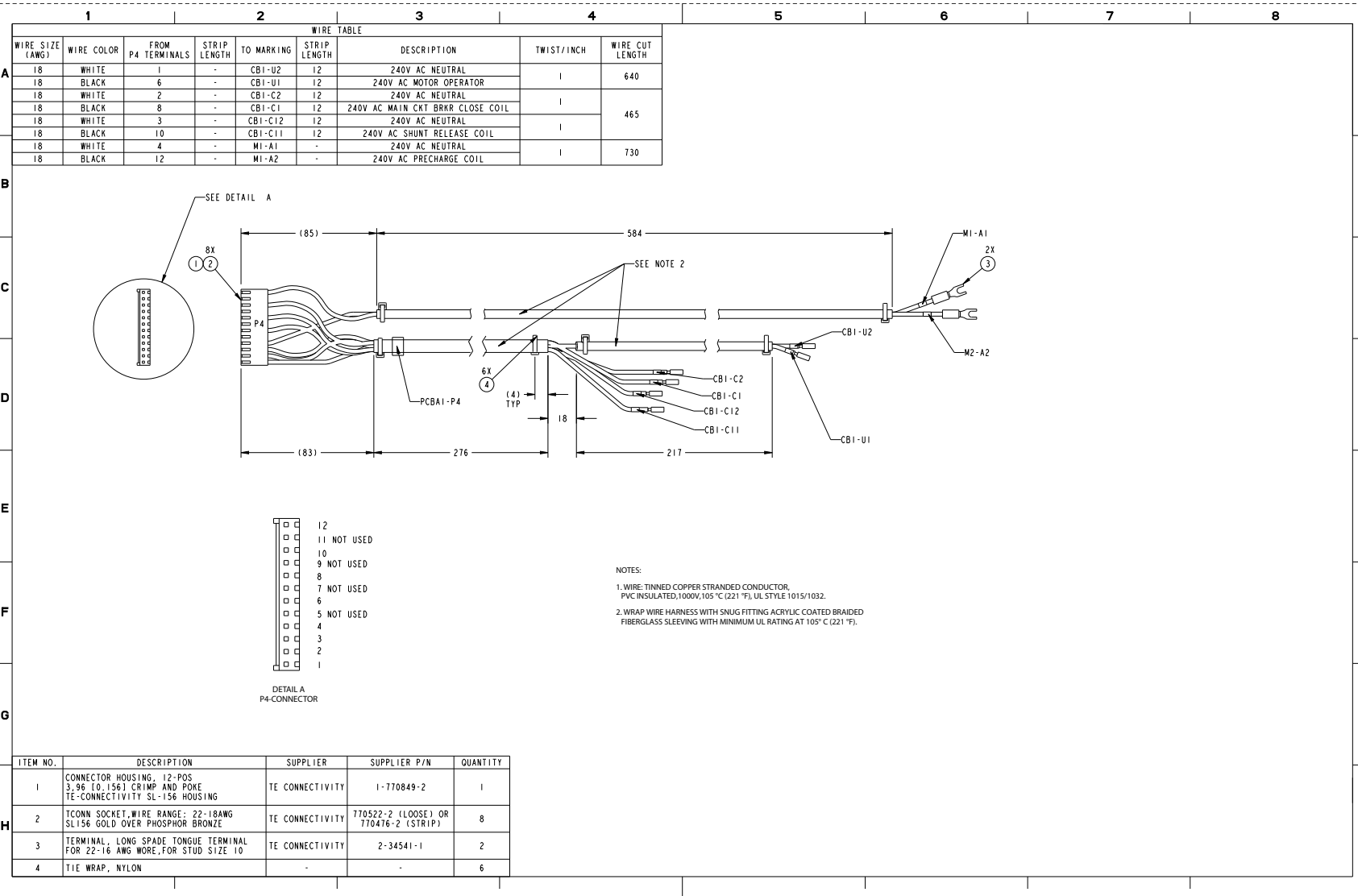


240V AC Circuit Breaker Supply to AC Precharge Control Circuit Board Connector P4 Wire Harness (Frames 7 and 7L)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

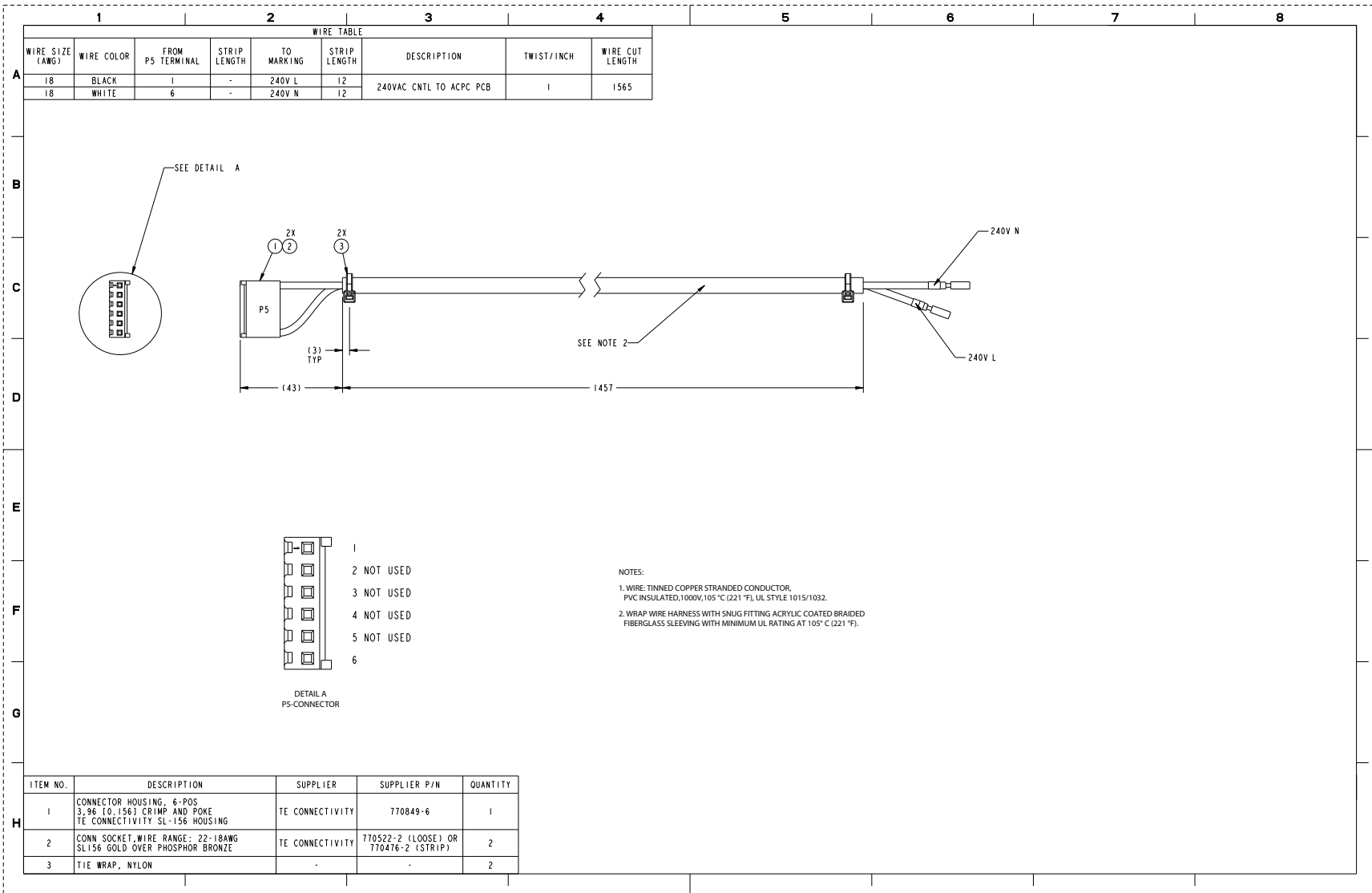


IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



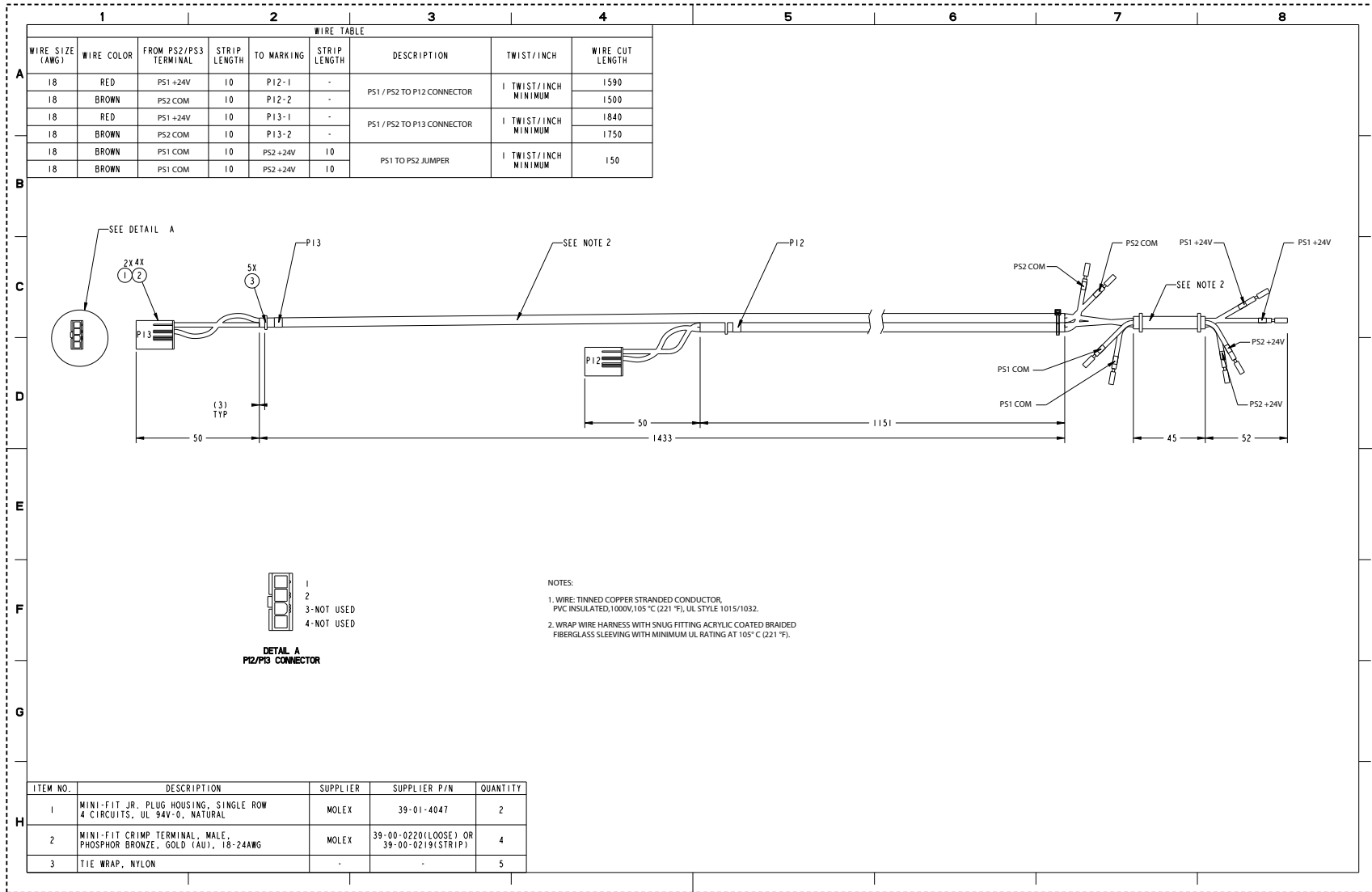
240V AC Control Power to AC Precharge Control Circuit Board Connector P5 Wire Harness

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



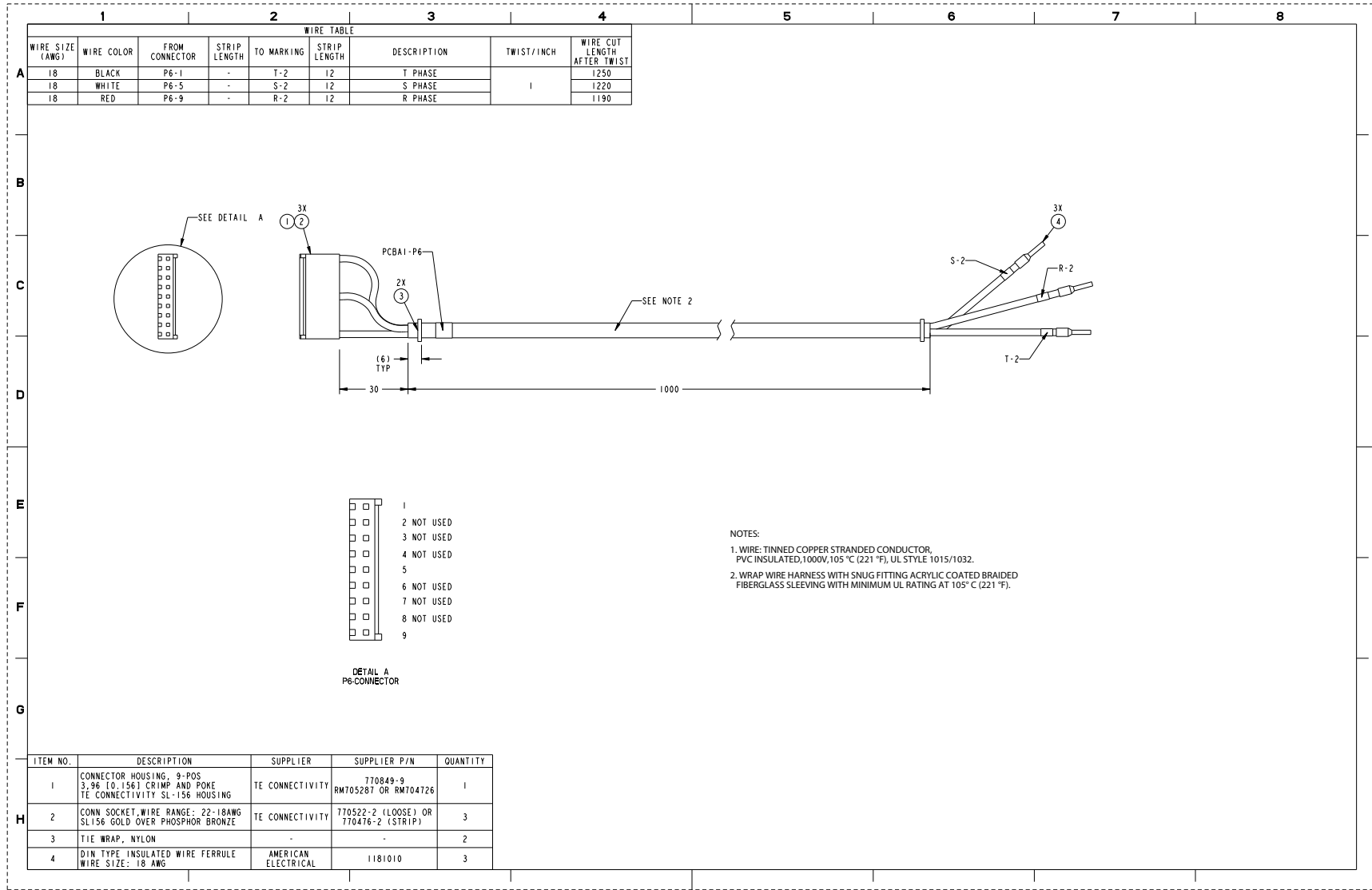
48V DC Control Power to Door Fan Connectors P12 and P13 Wire Harness

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

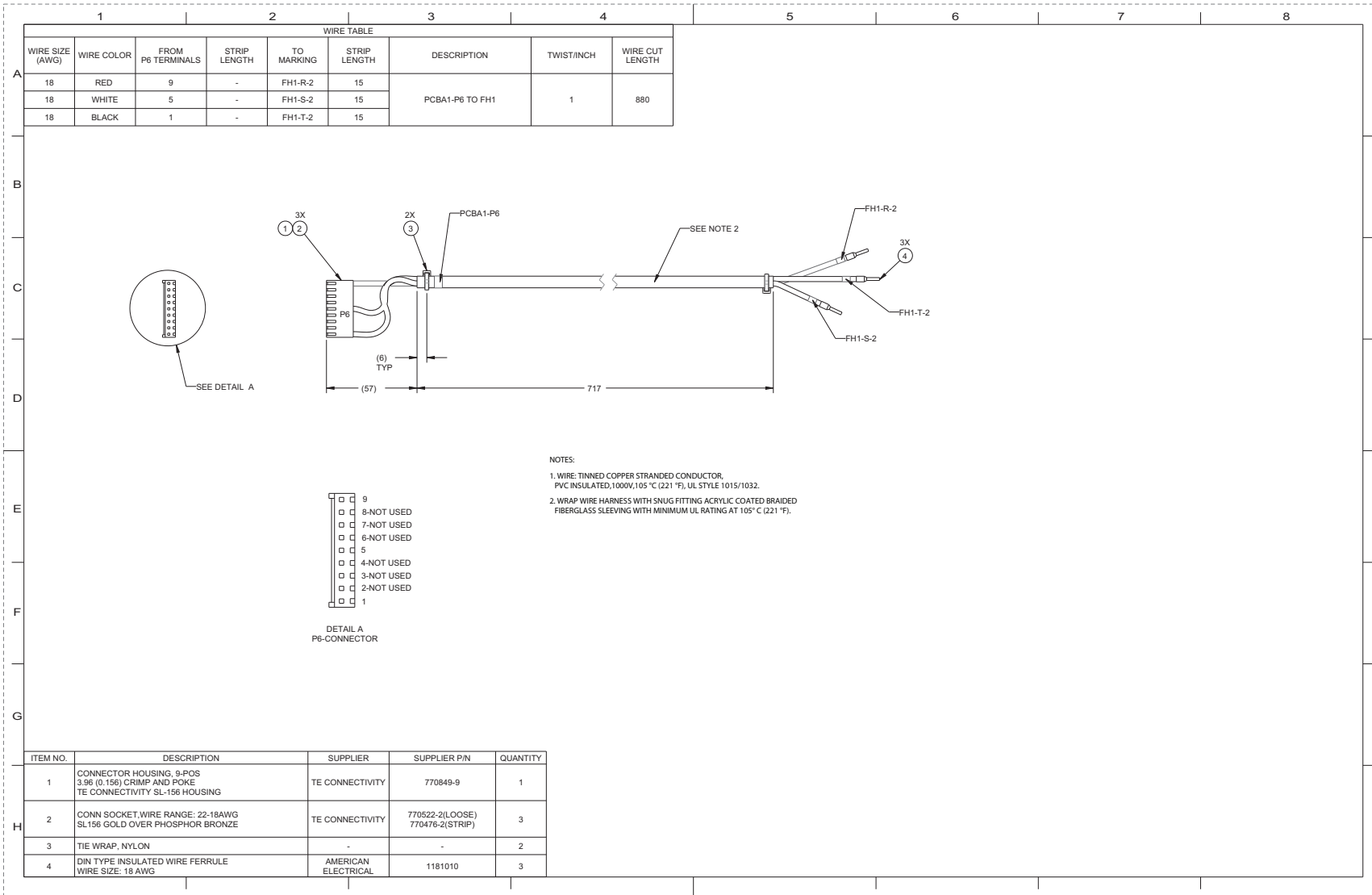


Contactor Status to AC Precharge Control Circuit Board Connector P6 Wire Harness (Frames 7 and 7L)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

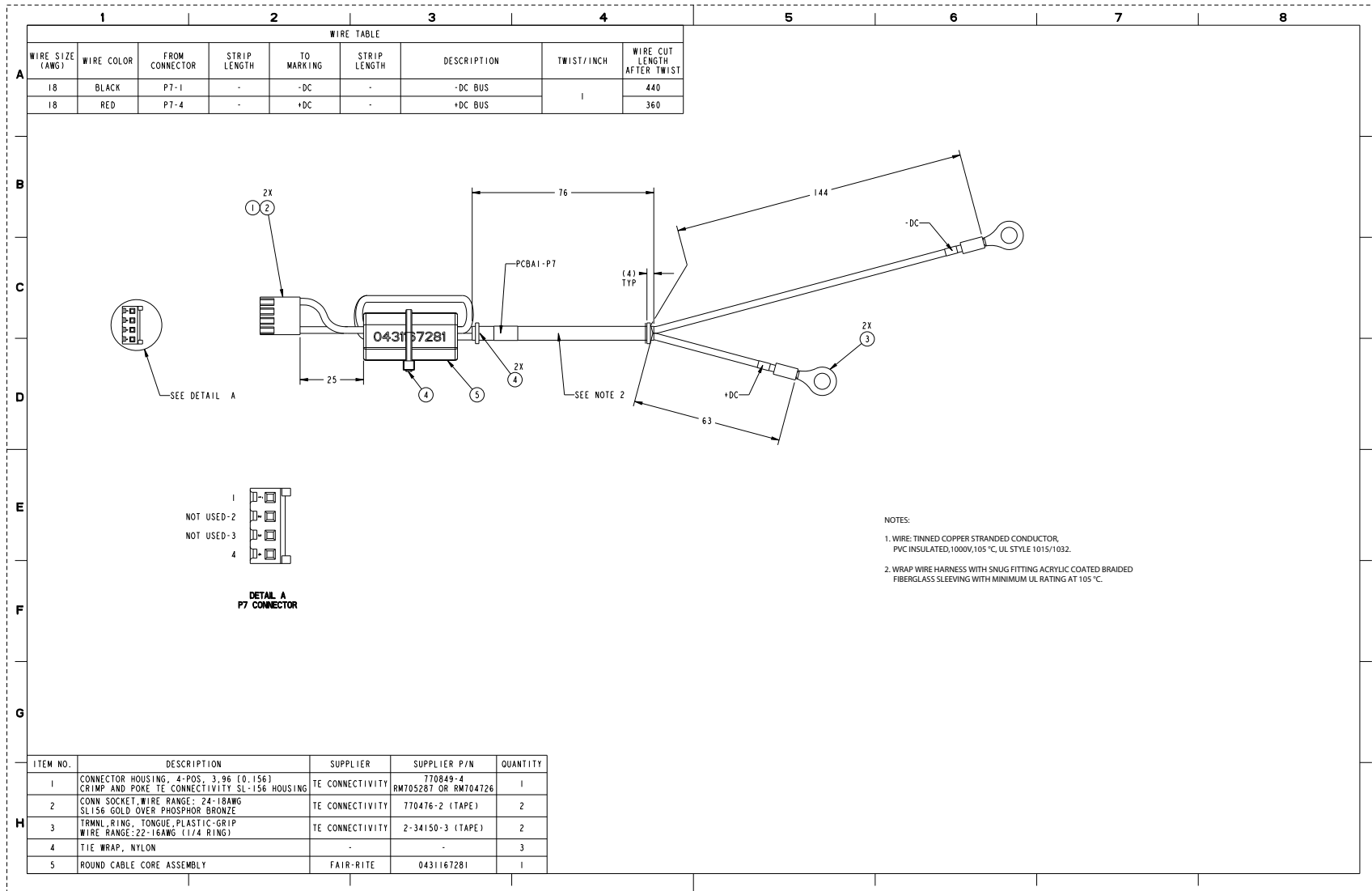


IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



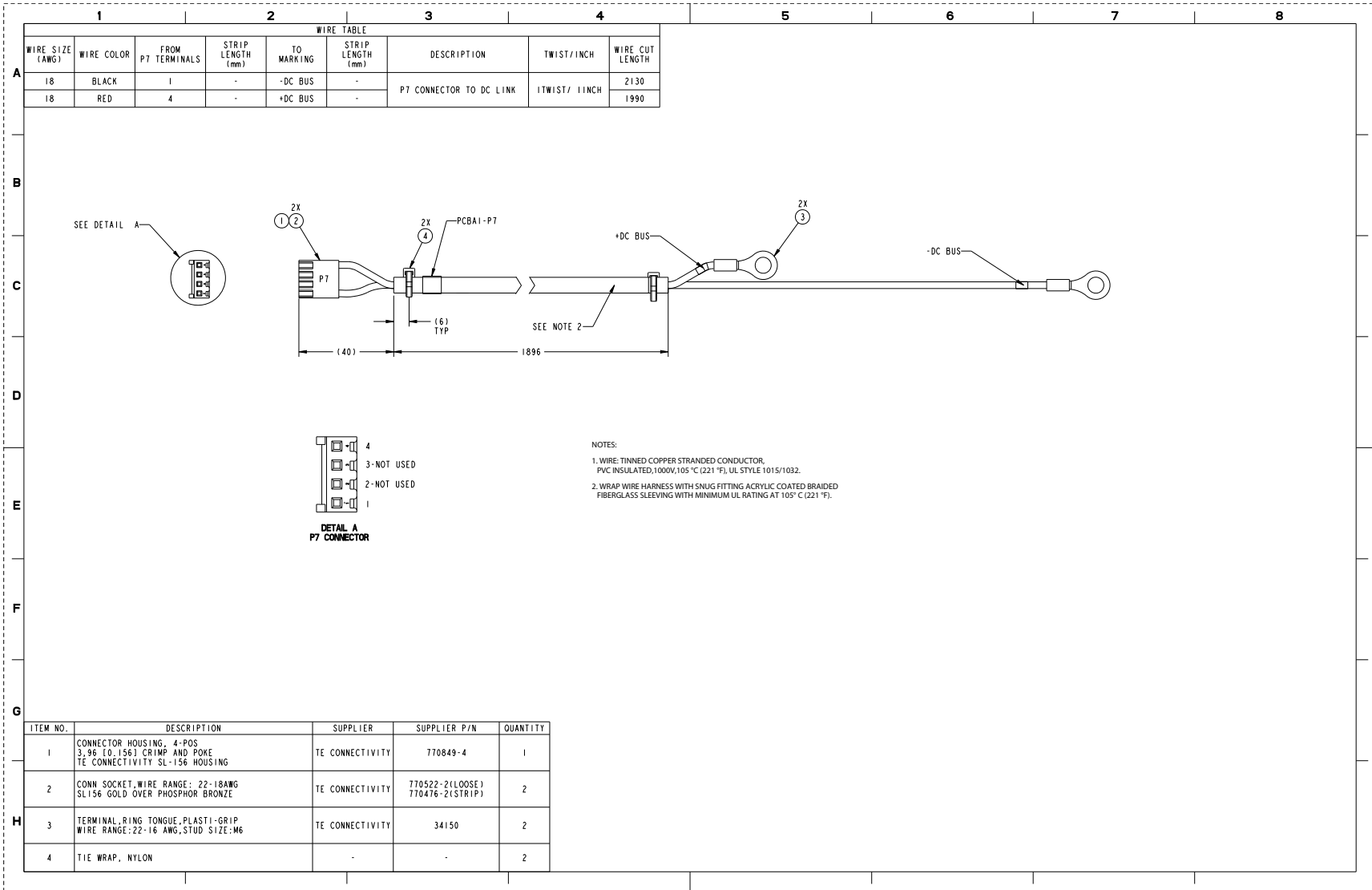
DC Bus to AC Precharge Control Circuit Board Connector P7 Wire Harness (Frames 7 and 7L)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



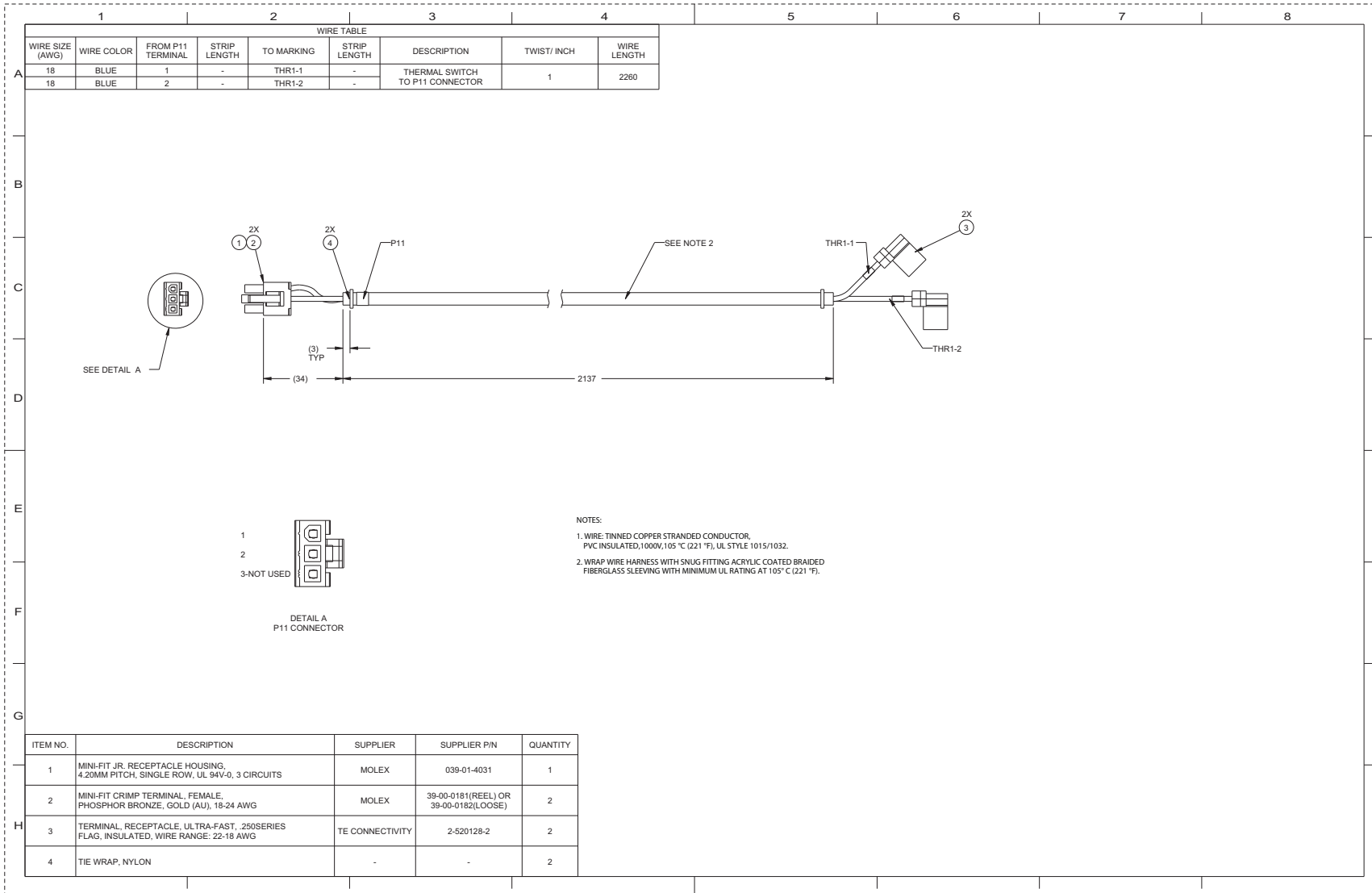
DC Bus to AC Precharge Control Circuit Board Connector P7 Wire Harness

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

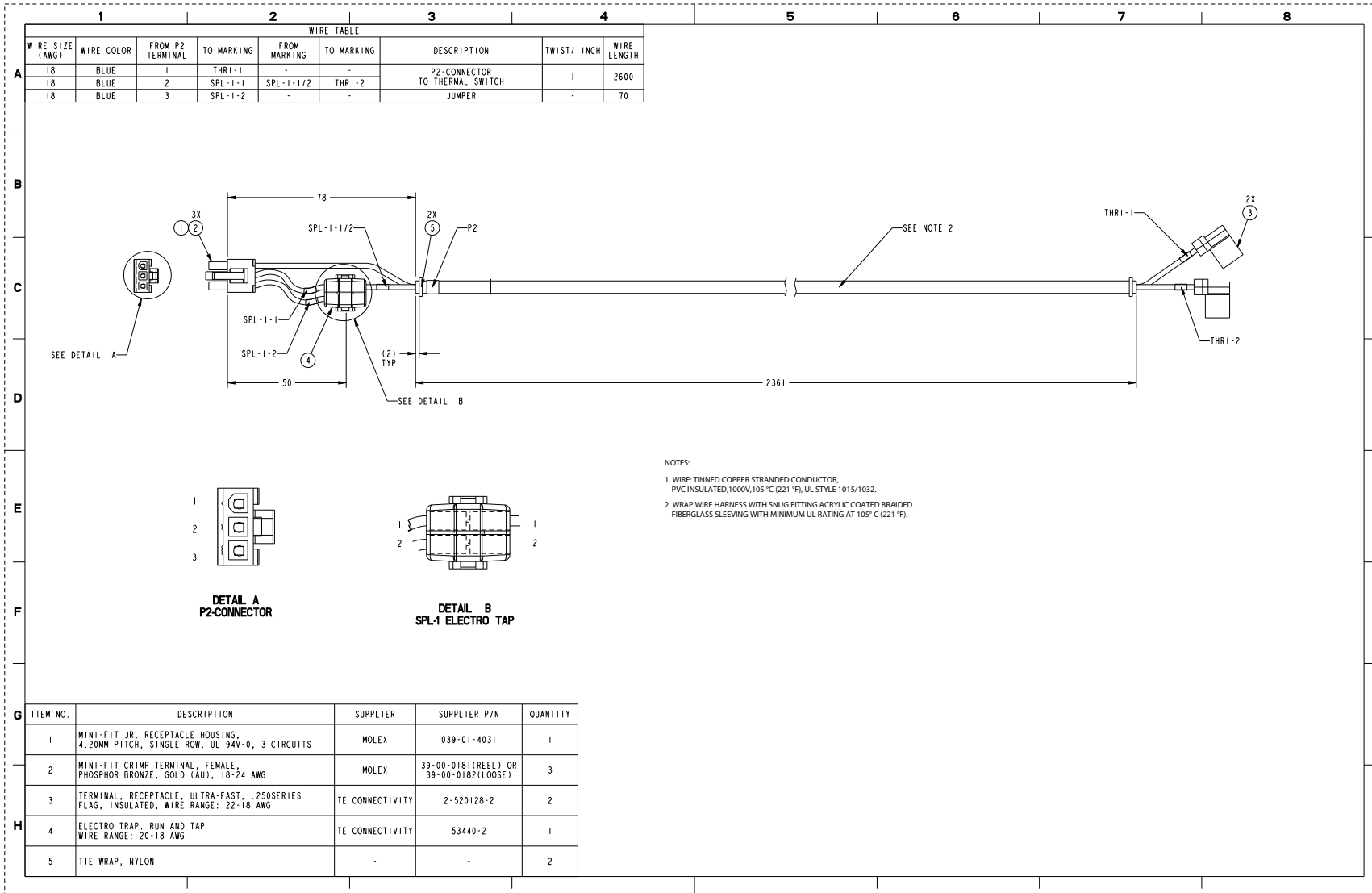


Entry Wire Bay Thermal Switch to AC Precharge Circuit Connector P10 Wire Harness

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

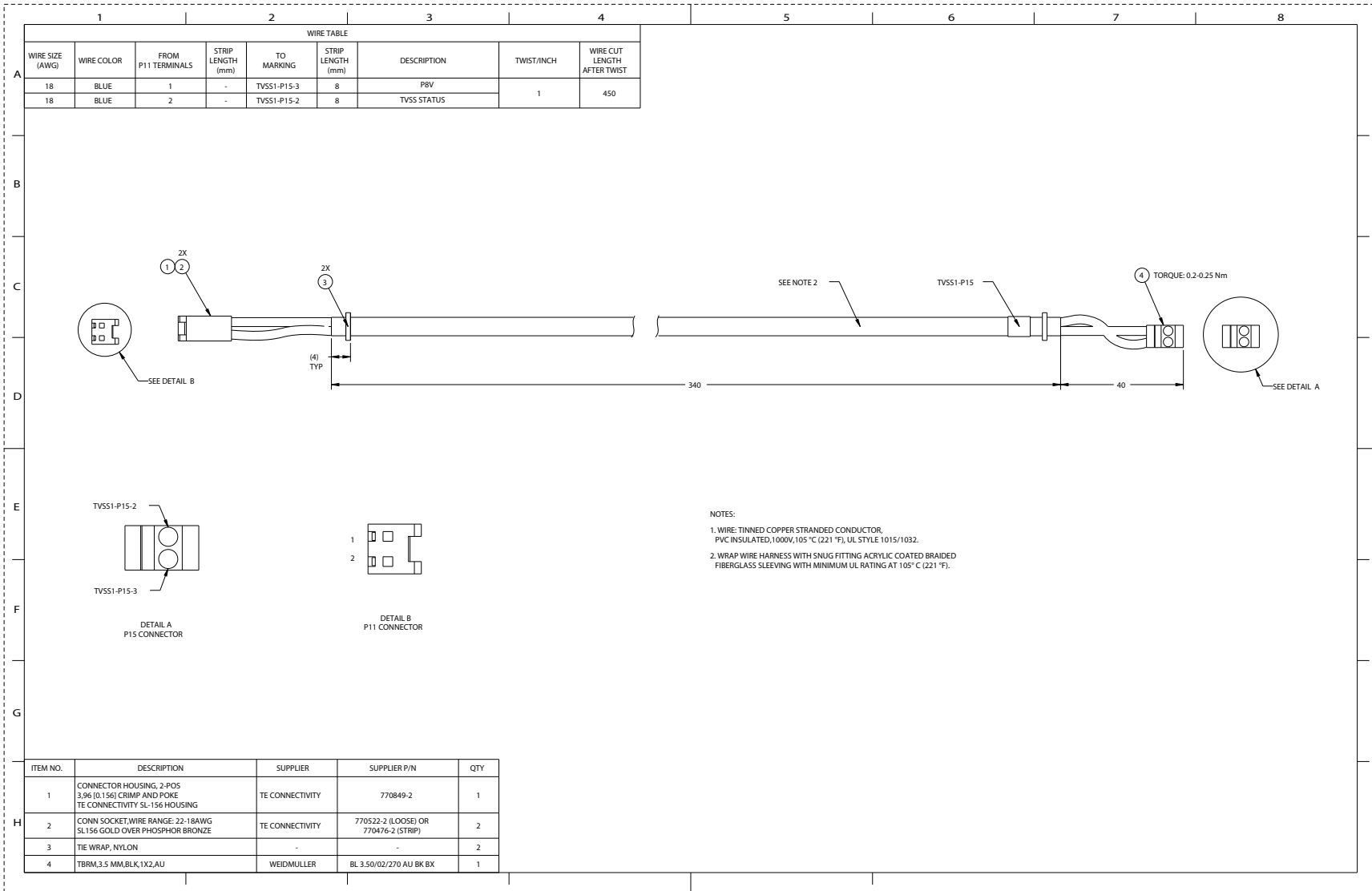


IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

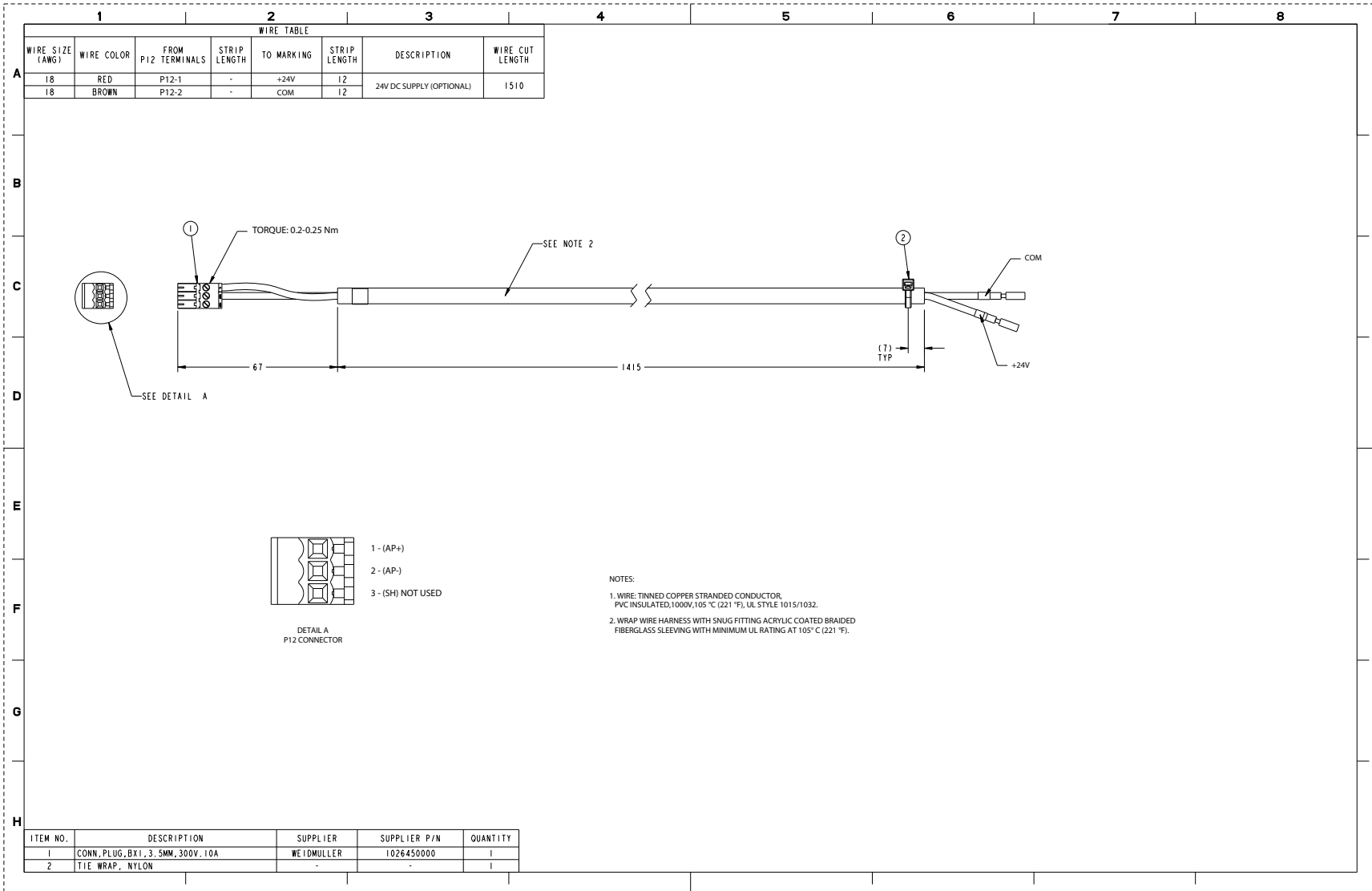


TVSS Connector P15 to AC Precharge Control Circuit Board Connector P11 Wire Harness

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

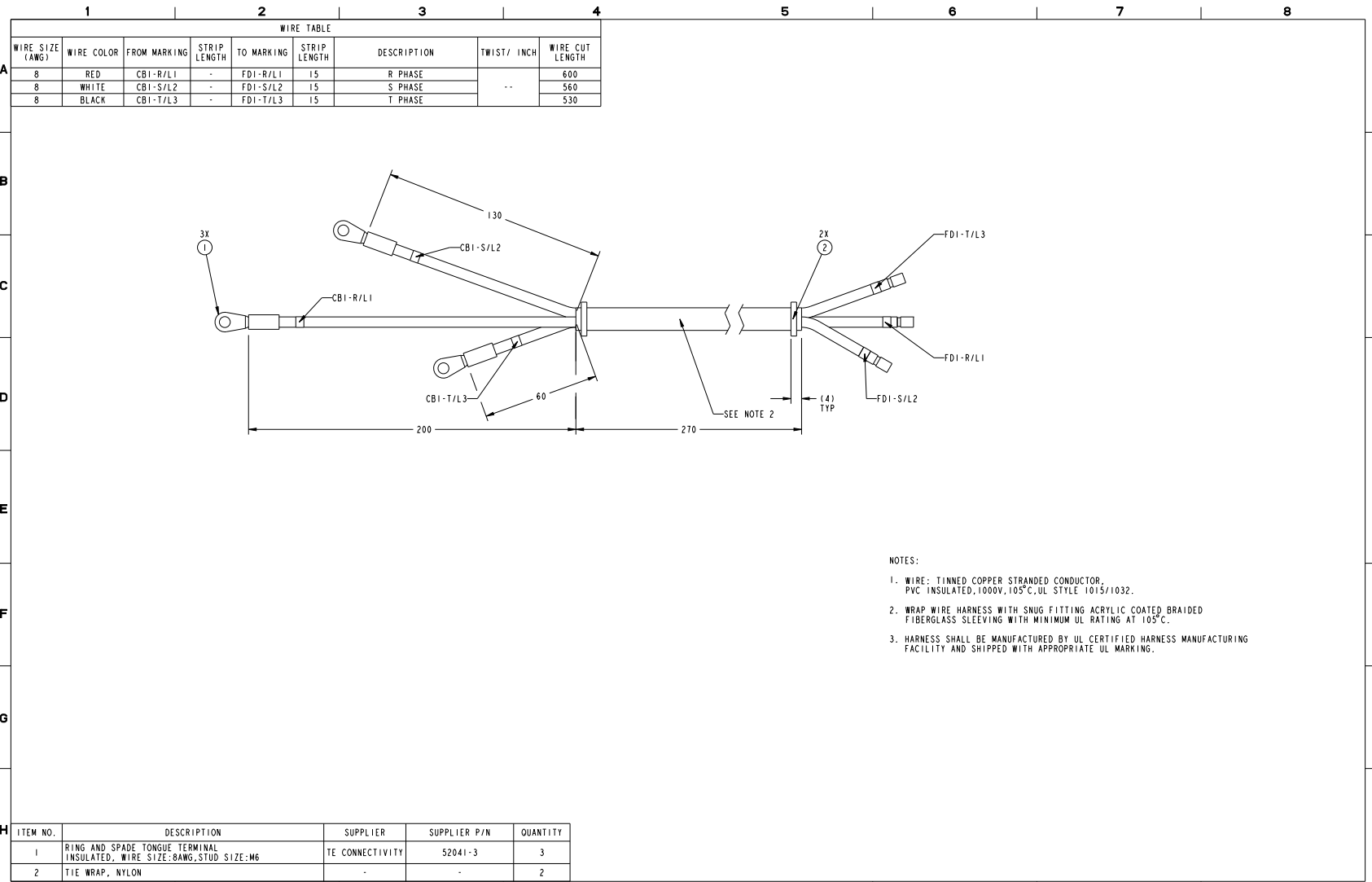


IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



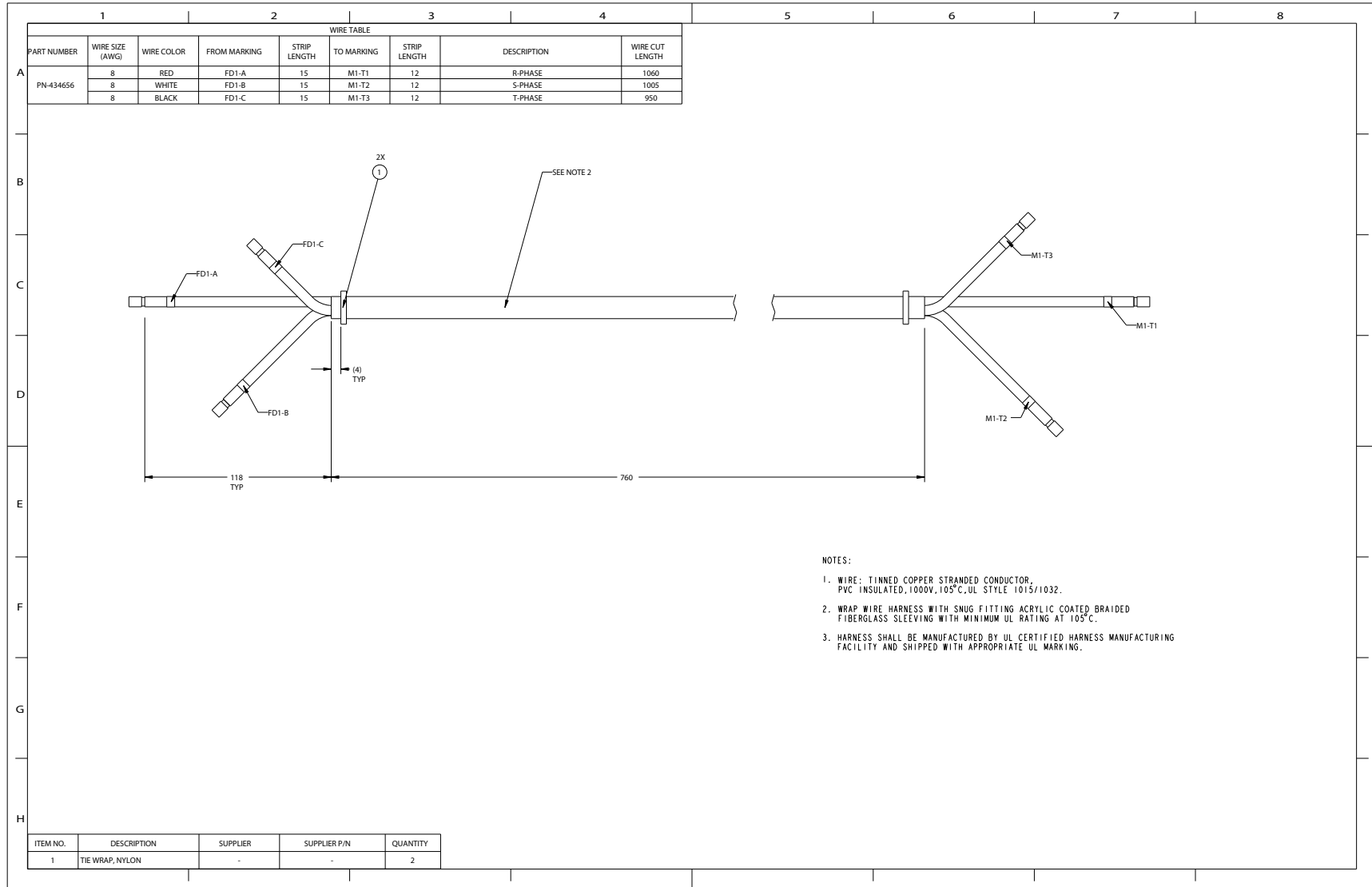
AC Precharge Circuit Breaker to Fused Disconnect Interconnections Wire Harness (Frame 7 and 7L)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



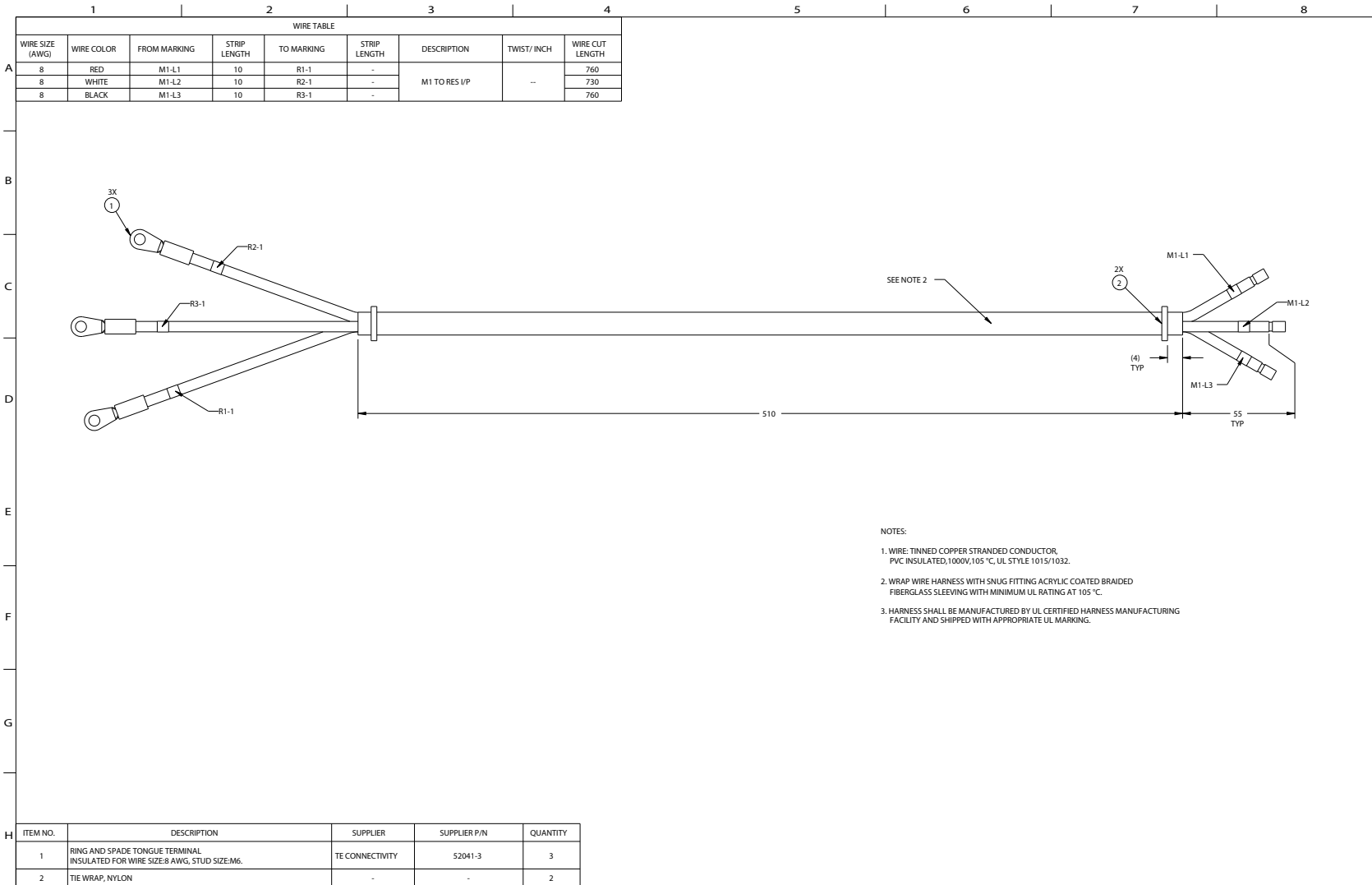
AC Precharge Fused Disconnect to AC Precharge Contactor Interconnection Wire Harnesses (Frame 7 and 7L)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



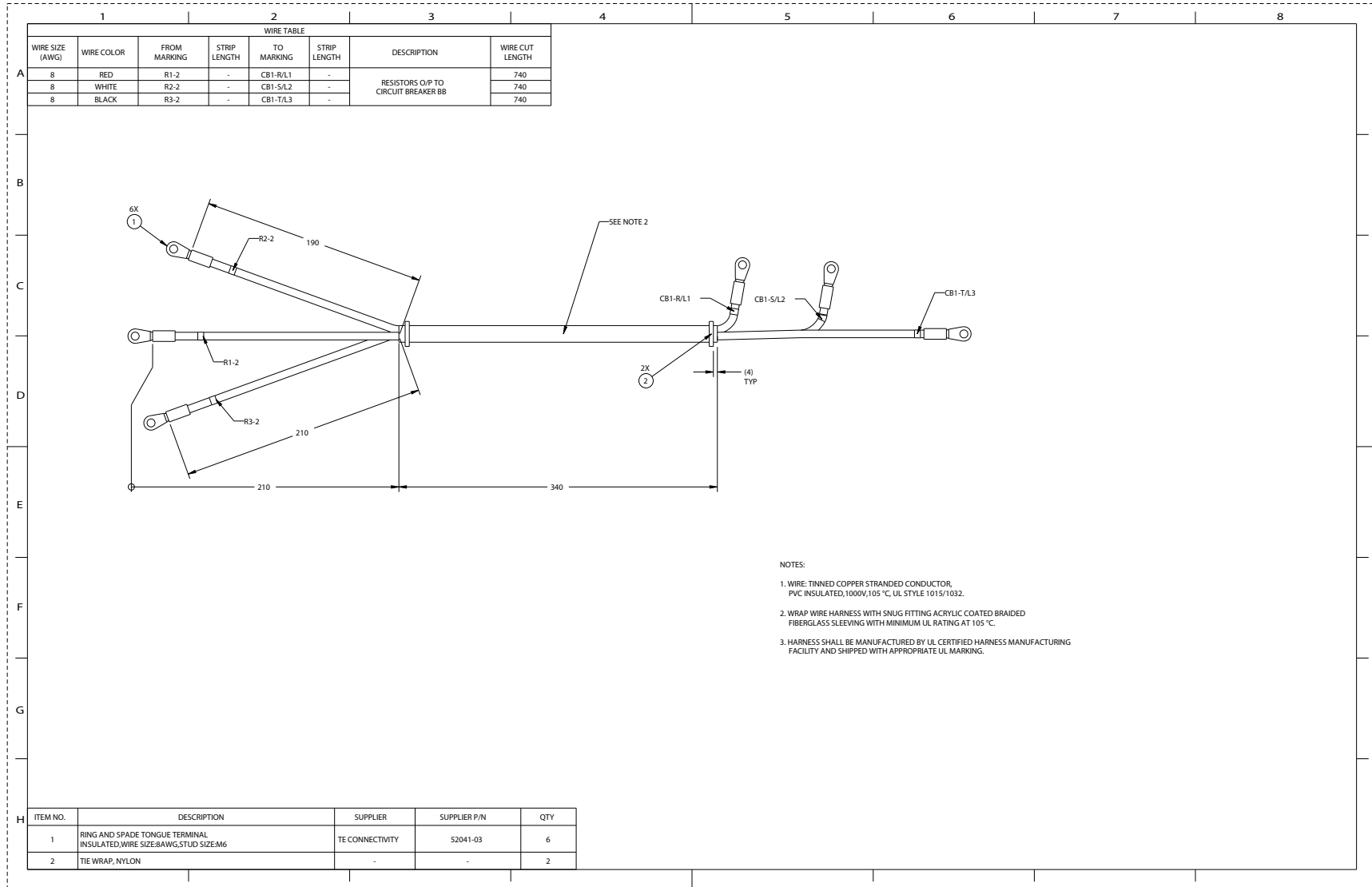
AC Precharge Contactor to AC Precharge Resistors Interconnection Wire Harnesses (Frame 7 and 7L)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



AC Precharge Circuit Breaker to AC Precharge Resistors Interconnection Wire Harnesses (Frame 7 and 7L)

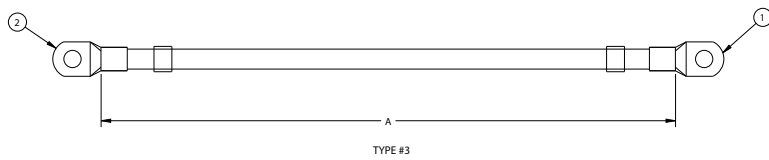
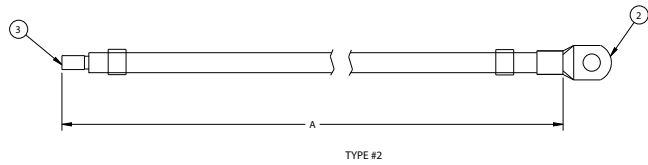
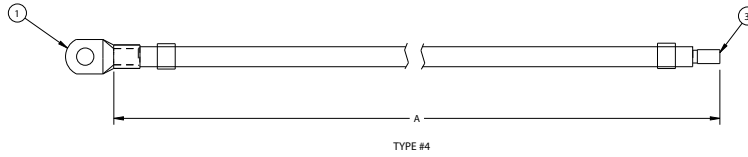
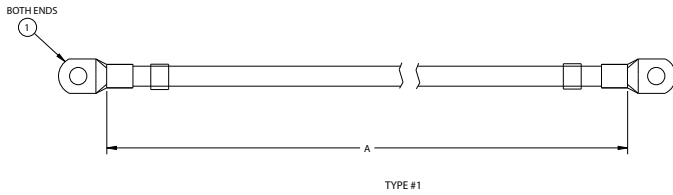
IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



AC Precharge Circuit Breaker, Fused Disconnect, Contactor, and AC Precharge Resistor Bank Interconnections Wire Harnesses (Frames 10...15)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

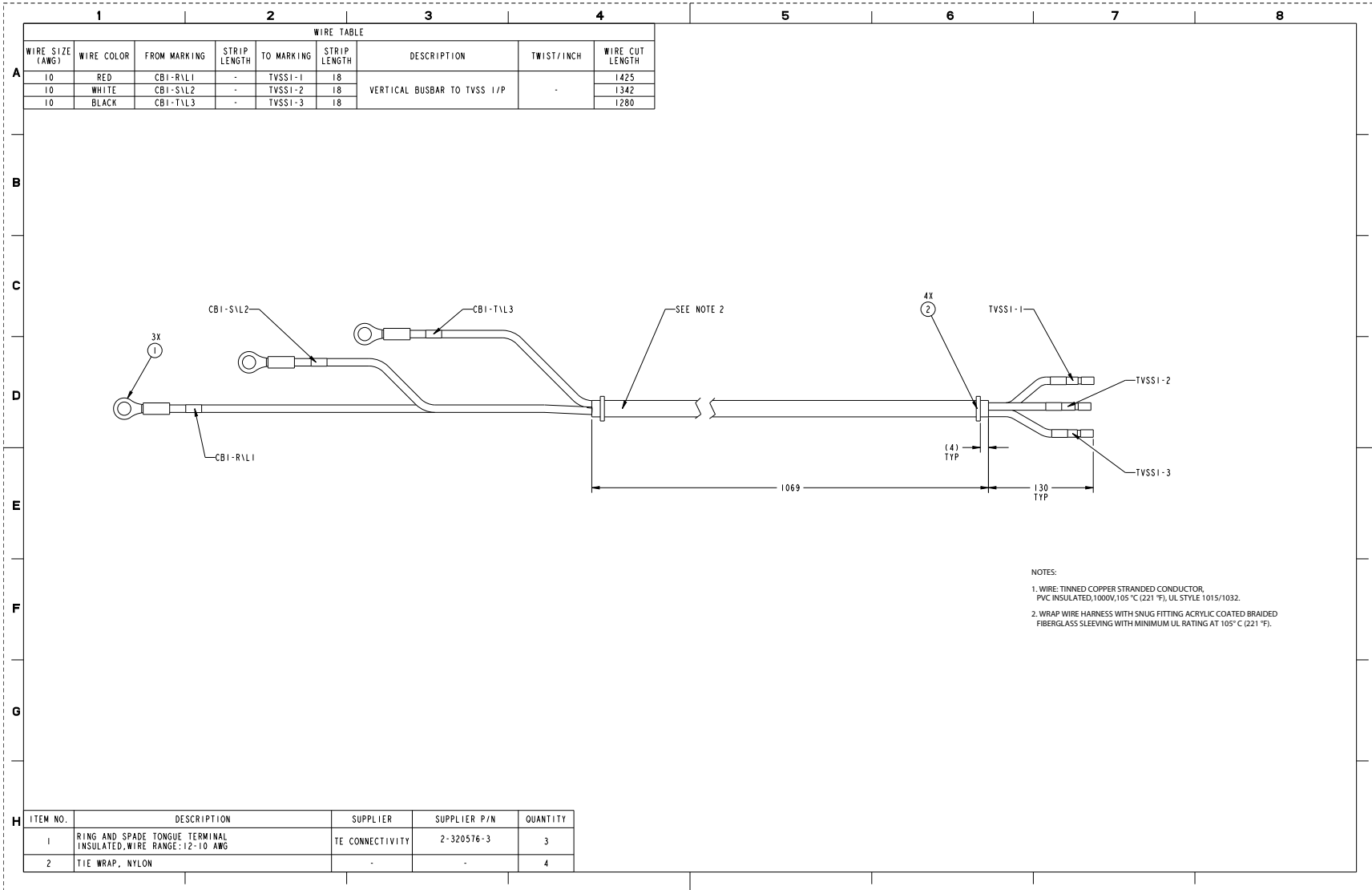
TABLE-1										
WIRE SIZE (AWG)	WIRE COLOR	FROM MARKING (SEE NOTE 2)	STRIP LENGTH (mm)	TO MARKING (SEE NOTE 2)	STRIP LENGTH (mm)	TYPE	DESCRIPTION	WIRE CUT LENGTH A	ASSY DIR #	PART #
A	1	RED	CB1-R/L1	-	FD1-A	-	PF750R,IB,1000W,HRNS,CB1-R/L1 TO FD1-A	1720	10001025184	PN-242349
	1	WHITE	CB1-S/L2	-	FD1-B	-	PF750R,IB,1000W,HRNS,CB1-S/L2 TO FD1-B	1630		PN-242351
	1	BLACK	CB1-T/L3	-	FD1-C	-	PF750R,IB,1000W,HRNS,CB1-T/L3 TO FD1-C	1630		PN-242352
B	1	RED	M1-T1	15	R1-1	-	PF750R,IB,1000W,HRNS,M1-T1 TO R1-1	400	10001025209	PN-242370
	1	WHITE	M1-T2	15	R2-1	-	PF750R,IB,1000W,HRNS,M1-T2 TO R2-1	680		PN-242373
	1	BLACK	M1-T3	15	R3-1	-	PF750R,IB,1000W,HRNS,M1-T3 TO R3-1	1020		PN-242374
C	1	RED	R1-2	-	CB1-R/L1	-	PF750R,IB,1000W,HRNS,R1-2 TO CB1-R/L1	300	10001025213	PN-242375
	1	WHITE	R2-2	-	CB1-S/L2	-	PF750R,IB,1000W,HRNS,R2-2 TO CB1-S/L2	200		PN-242376
	1	BLACK	R3-2	-	CB1-T/L3	-	PF750R,IB,1000W,HRNS,R3-2 TO CB1-T/L3	400		PN-242377
D	1	RED	CB1-R/L1	-	FD1-A	-	PF750R,IB,1000W,HRNS,CB1-R/L1 TO FD1-A	1780	10001546907	PN-302667
	1	WHITE	CB1-S/L2	-	FD1-B	-	PF750R,IB,1000W,HRNS,CB1-S/L2 TO FD1-B	1640		PN-302670
	1	BLACK	CB1-T/L3	-	FD1-C	-	PF750R,IB,1000W,HRNS,CB1-T/L3 TO FD1-C	1630		PN-302671



NOTES:
1. WIRE: TINNED COPPER STRANDED CONDUCTOR, PVC INSULATED, 1000V, 105 °C (221 °F), UL STYLE 1015/1032.

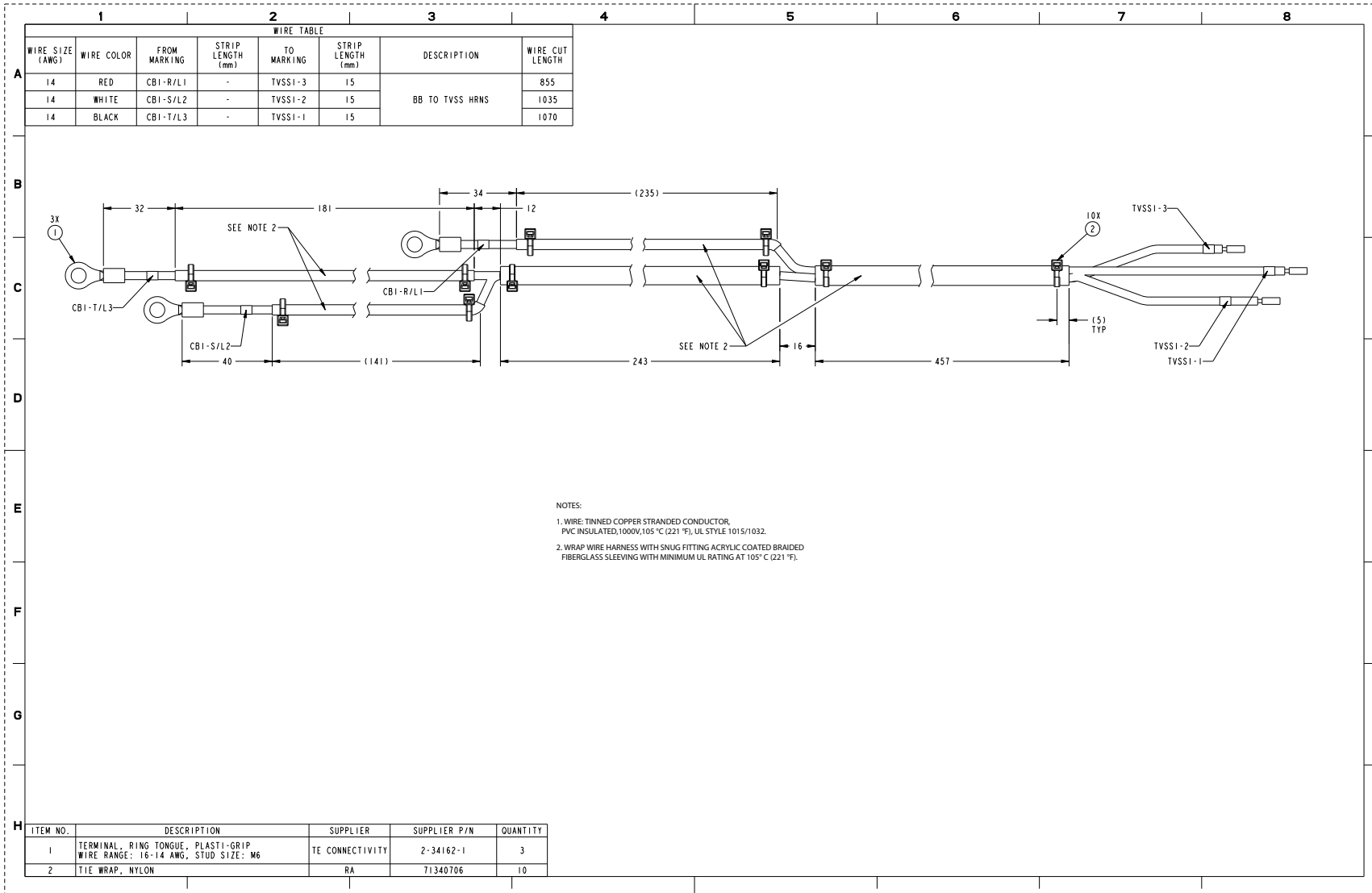
TABLE-2			
ITEM NO.	DESCRIPTION	SUPPLIER	SUPPLIER P/N
1	TERMINAL, RING TONGUE STUD SIZE: M10, FOR 1AWG	THOMAS & BETTS	H973
		MOLEX	191930612
2	TERMINAL, RING TONGUE STUD SIZE: M8, FOR 1AWG	THOMAS & BETTS	H972
		MOLEX	191930333
3	FERRULE, 1AWG	PANDUIT	F87-18
		AIE	1218150

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



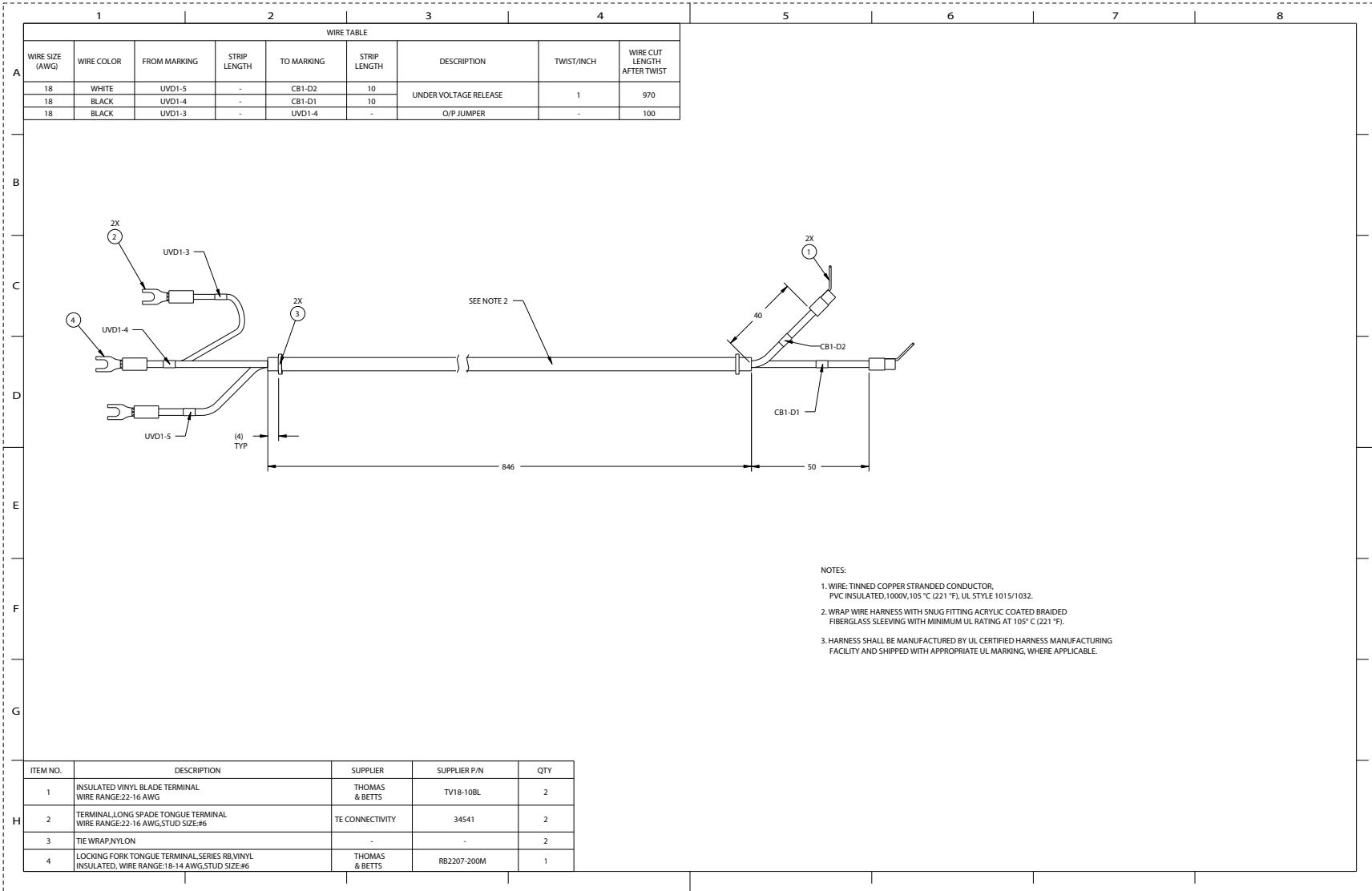
AC Precharge TVSS Module R/L1, S/L2, T/L3 Wire Harnesses (Frames 10...15)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



Time Delay Relay to Circuit Breaker (CB1) Wire Harnesses

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



Fused Disconnect to AC Precharge Contactor Wire Harnesses (Frames 10...15)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

WIRE TABLE																		
TYPE	CAD MODEL	PN	ITEM 3	WIRE COLOR	FROM MARKING	WIRE GAUGE (AWG)	STRIP LENGTH	TO MARKING 'A'	STRIP LENGTH	WIRE GAUGE (AWG)	TO MARKING 'B'	STRIP LENGTH	WIRE GAUGE (AWG)	TO MARKING 'C'	DESCRIPTION	WIRE CUT LENGTH		
																X	Y	Z
TYPE 1	10001413586	PN-287960	23.3060.22	RED	FDI-R/L1	-	-	M1-L1	-	-	TBI-R	18	-	R	FDI TO M1, TBI AND TP R	330	670	1200
				WHITE	FDI-S/L2	-	-	FH1-S-1	11	S	FDI TO M1, FH1 AND TP S	600						
				BLACK	FDI-T/L3	-	-	TBI-T	18	T	FDI TO M1, TBI AND TP T	300						
				RED	FDI-R/L1	-	-	TBI-R	18	R	FDI TO M1, TBI AND TP R	350						
TYPE 2	10001410753	PN-287784	23.3060.22	RED	FDI-R/L1	-	-	M1-L1	-	-	TBI-R	18	-	R	FDI TO M1, TBI AND TP R	350	620	1200
				WHITE	FDI-S/L2	-	-	FH1-S-1	11	S	FDI TO M1, FH1 AND TP S	600						
				RED	FDI-R/L1	-	-	TBI-R	18	R	FDI TO M1, TBI AND TP R	350						
				BLACK	FDI-T/L3	-	-	TBI-T	18	T	FDI TO M1, TBI AND TP T	330						

TYPE 1 - SEE DETAIL A

TYPE 2 - SEE DETAIL B

DETAIL B

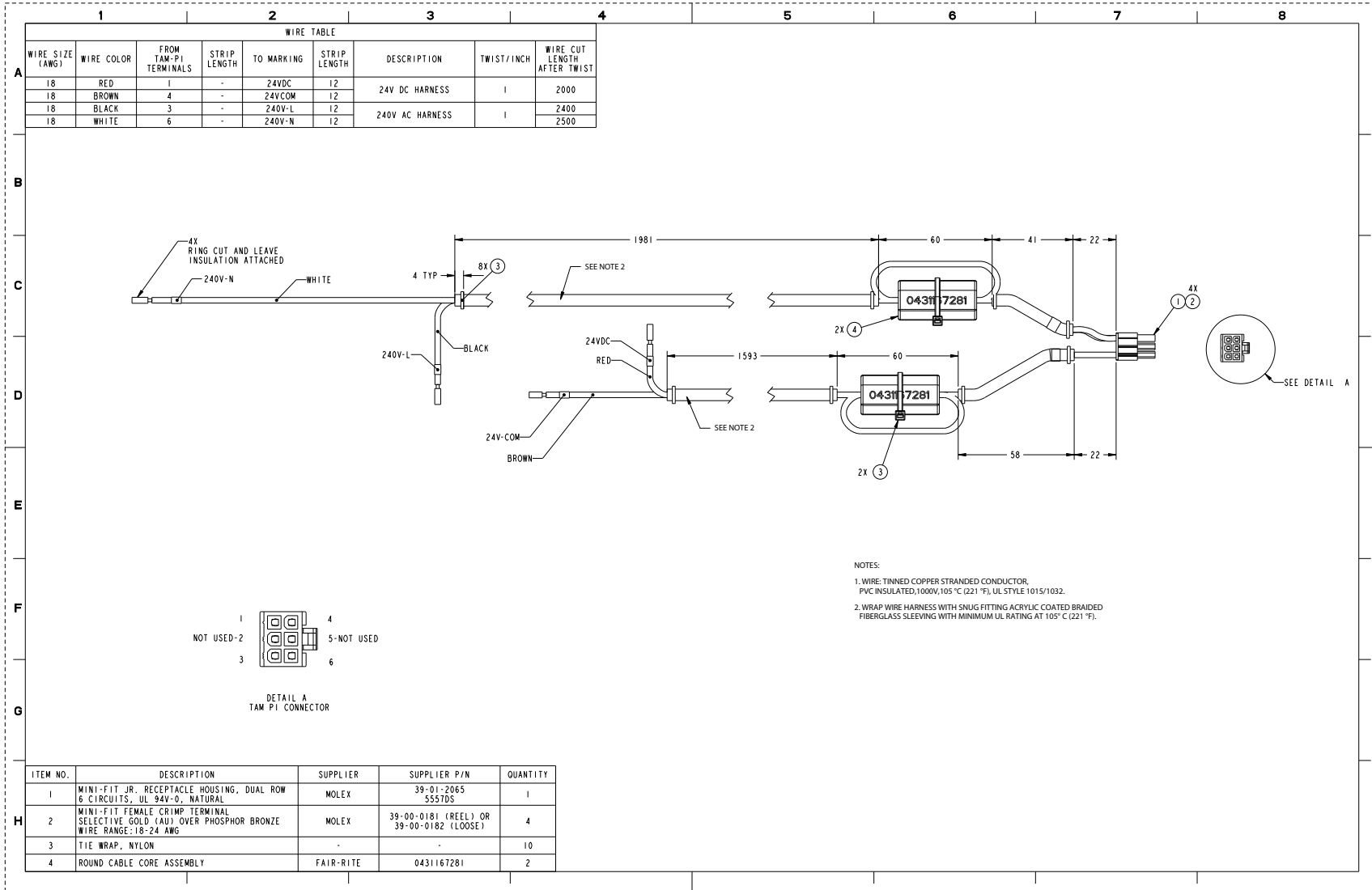
DETAIL A

NOTES:

- WIRE: TINNED COPPER STRANDED CONDUCTOR, PVC INSULATED, 1000V, 105°C (221°F), UL STYLE 1015/1032.
- WRAP WIRE HARNESS WITH SNUG FITTING ACRYLIC COATED BRAIDED FIBERGLASS SLEEVING WITH MINIMUM UL RATING AT 105°C (221°F).
- THIS WIRE CONNECTION IS NOT REQUIRED IF A TESTPOINT (TP) IS NOT USED.
- THIS WIRE CONNECTION IS NOT REQUIRED IF A CONNECTION TO A CONTROL TRANSFORMER VIA A TERMINAL BLOCK (TBI) AND FUSE BLOCK (FH1) IS NOT USED.

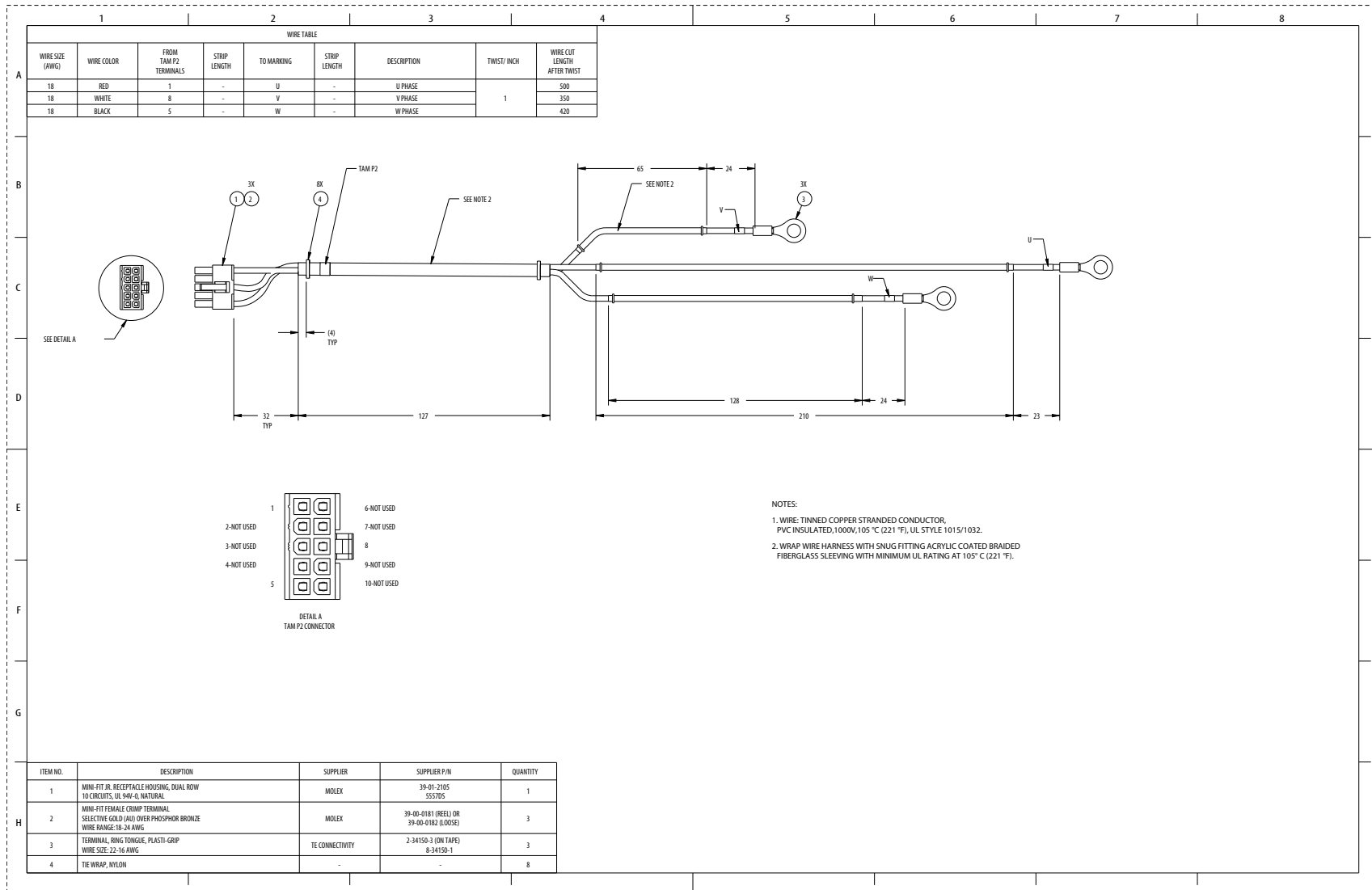
ITEM NO.	DESCRIPTION	SUPPLIER	SUPPLIER P/N	QTY
1	CUSTOM RING TERMINAL 20.6 x 24, DIA 11	TRITON	NA	1
2	CUSTOM FERRULE	TRITON	NA	1
3	SOCKET, PANEL MOUNT (1/4 X 1/32 TAB)	MULTI-CONTACT	SEE TABLE ABOVE	1
4	RECEPTABLE ASSY, ULTRA-FAST, SERIES .250 WIRE RANGE: 22-18 AWG	TE CONNECTIVITY	2-520183-2	1

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



AC Bus to Torque Accuracy Module (TAM) Connector P2 Wire Harnesses (Frame 7 and 7L)

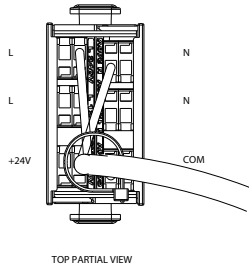
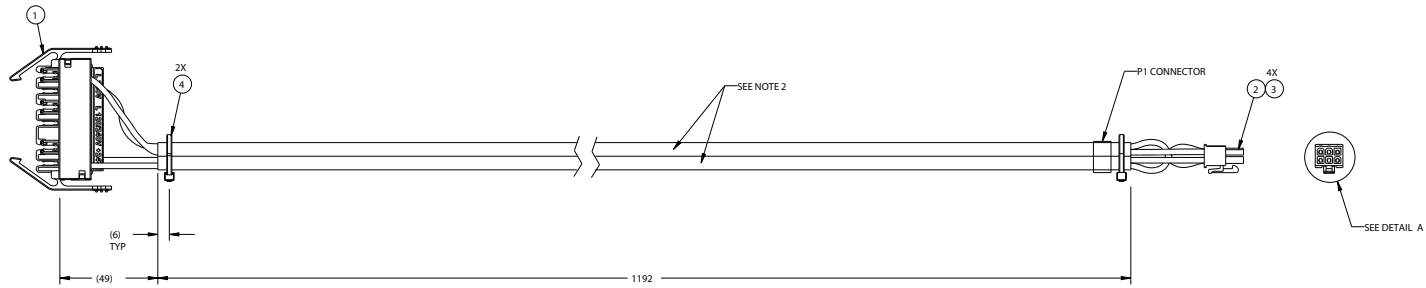
IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



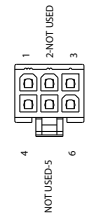
240V AC to Torque Accuracy Module (TAM) Connector P1 Wire Harnesses (Frame 8...15)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

WIRE TABLE								
WIRE SIZE (AWG)	WIRE COLOR	FROM MARKING	STRIP LENGTH	TO P1 CONNECTOR	STRIP LENGTH	DESCRIPTION	TWIST/INCH	WIRE CUT LENGTH
18	RED	L	7	3	-	240VAC HRNS	1	1320
18	BLUE	N	7	6	-			
18	BROWN	+24V	7	1	-	27V DC HRNS	1	1300
18	ORANGE	COM	7	4	-			



NOTE: WIRE TERMINATING TO ITEM 1 SHOULD BE TERMINATED TO INNER ROW OF CONTACTS.



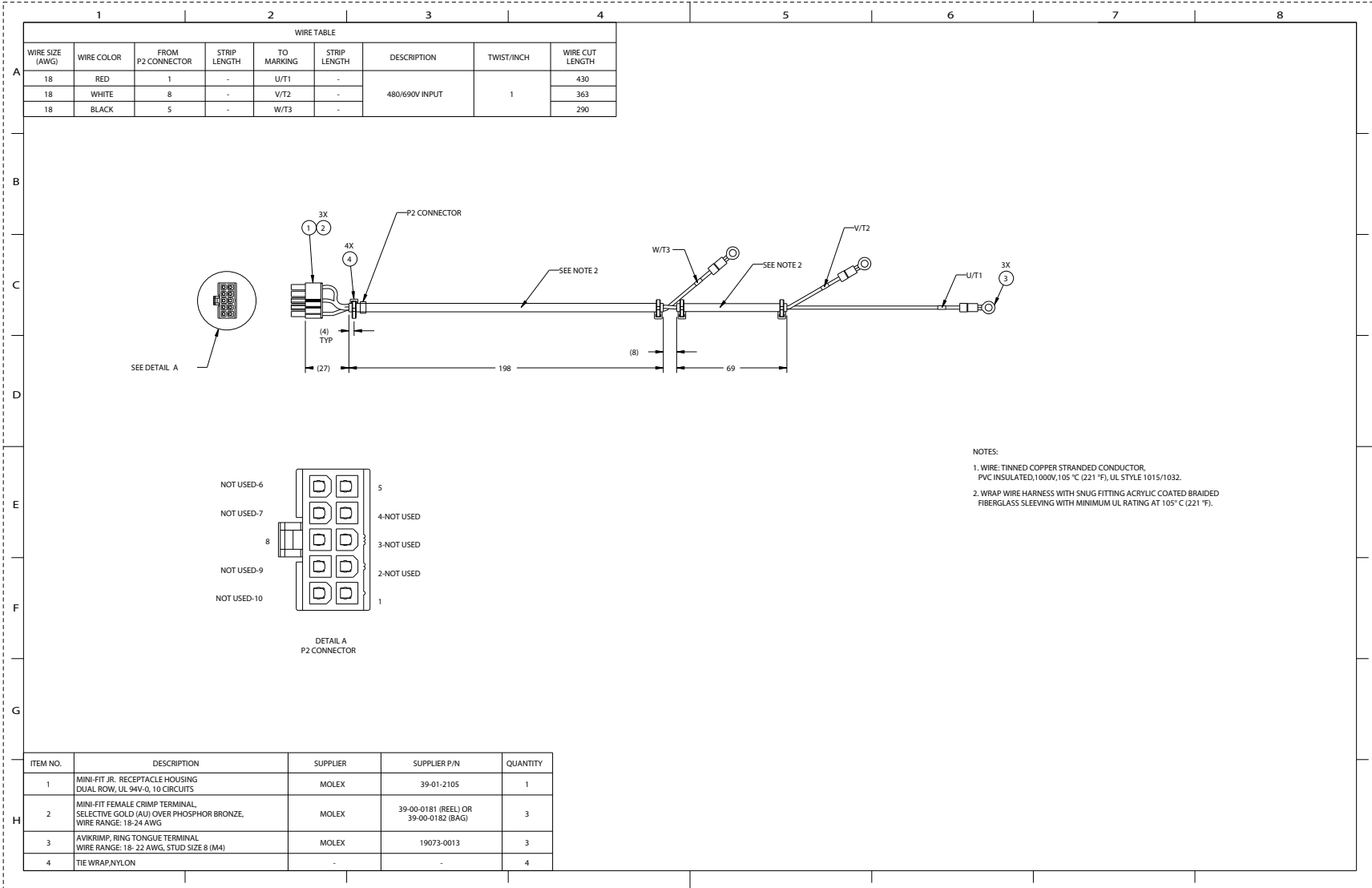
DETAIL A P1 CONNECTOR

- NOTES:
1. WIRE: TINNED COPPER STRANDED CONDUCTOR, PVC INSULATED, 1000V, 105° C (221° F), UL STYLE 1015/1032.
 2. WRAP WIRE HARNESS WITH SNUG FITTING ACRYLIC COATED BRAIDED FIBERGLASS SLEEVING WITH MINIMUM UL RATING AT 105° C (221° F).

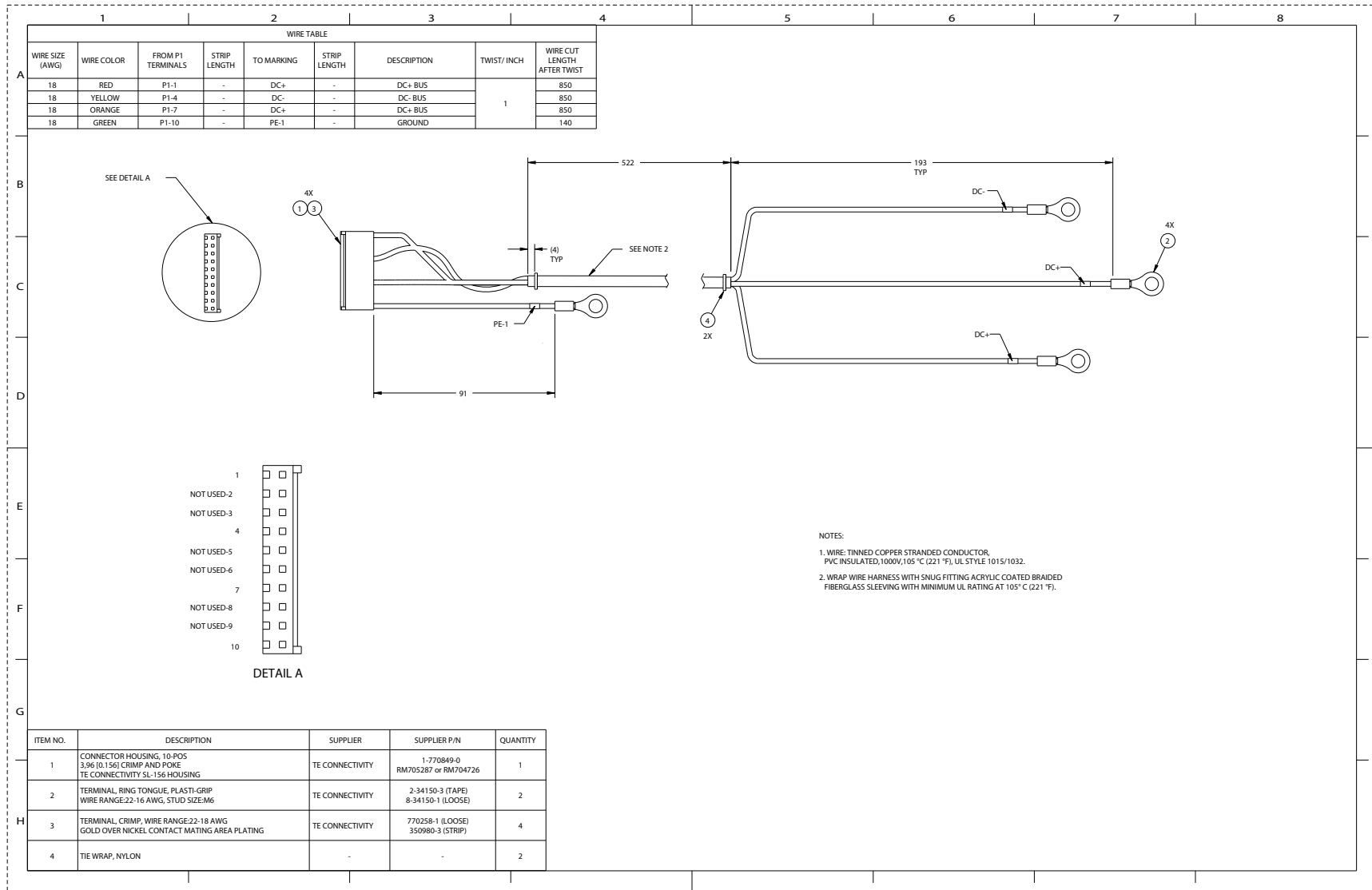
ITEM NO.	DESCRIPTION	SUPPLIER	SUPPLIER P/N	QUANTITY
1	CONTROL BUS CONNECTOR ASSEMBLY	PHOENIX	8101442	1
2	MINI-FIT JR. RECEPTACLE HOUSING DUAL ROW, UL 94V-0, 6 CIRCUITS	MOLEX	39-01-2065	1
3	MINI-FIT CRIMP TERMINAL, FEMALE, PHOSPHOR BRONZE, GOLD(AU), WIRE RANGE:24-18 AWG	MOLEX	39-00-0181 (REEL) OR 39-00-0182 (BAG)	4
4	TIE WRAP NYLON	-	-	2

AC Bus to Torque Accuracy Module (TAM) Connector P2 Wire Harnesses (Frame 8...15)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



DC Bus Conditioner DC Bus Wire Harnesses (Frames 8...15)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

WIRE TABLE								
PART NUMBER	CAD DIR	WIRE SIZE (AWG)	WIRE COLOR	FROM MARKING	TO MARKING	TYPE	DESCRIPTION	WIRE CUT LENGTH
PN-206002	10000873786	6	BLACK	+ DC	+ DC	STYLE1	DC BUS CONDITIONER TO DC BUS JUMPER	125
PN-206007	10000873791	6	BLACK	- DC	- DC			275
PN-206011	10000873792	6	GREEN-YELLOW	PE GND	PE GND	STYLE 2	DC BUS CONDITIONER TO GROUND	2150

STYLE 1

6 AWG STRANDED WITH INSULATING SLEEVE
SEE NOTE 2

NOTES:

1. WIRE: TINNED COPPER STRANDED CONDUCTOR, PVC INSULATED, 1000V, 105 °C (221 °F), UL STYLE 1015/1032.
2. WRAP WIRE HARNESS WITH SNUG FITTING ACRYLIC COATED BRAIDED FIBERGLASS SLEEVING WITH MINIMUM UL RATING AT 105° C (221° F).

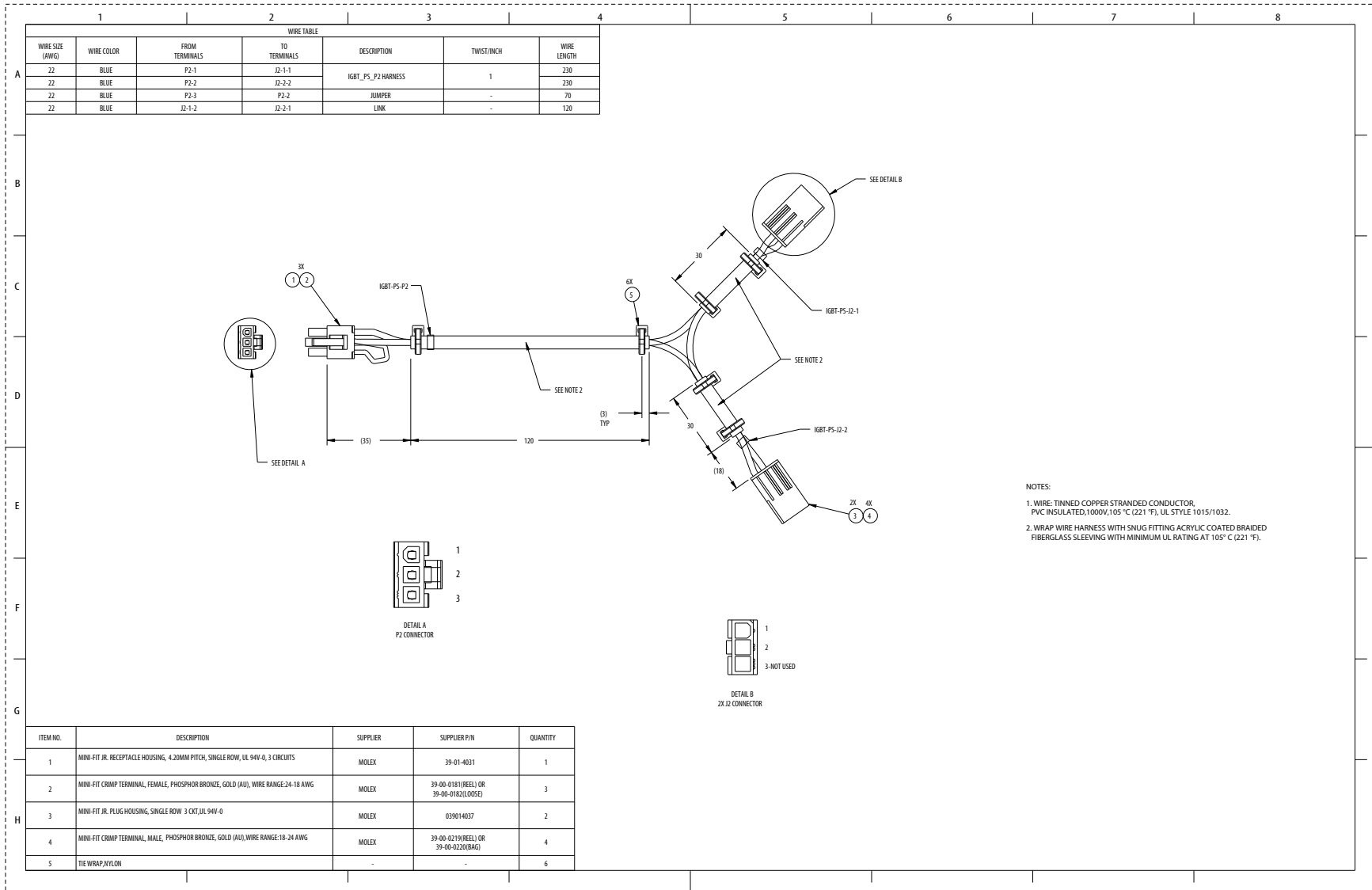
STYLE 2

6 AWG STRANDED

ITEM NO.	DESCRIPTION	SUPPLIER	SUPPLIER P/N
1	TERMINAL RING TONGUE, PLASTIC GRIP WIRE SIZE 6 AWG STRANDED, STUD SIZE = 1/4" INSULATION SLEEVE-PVC, COLOR-BLUE	TE CONNECTIVITY	S2042-3

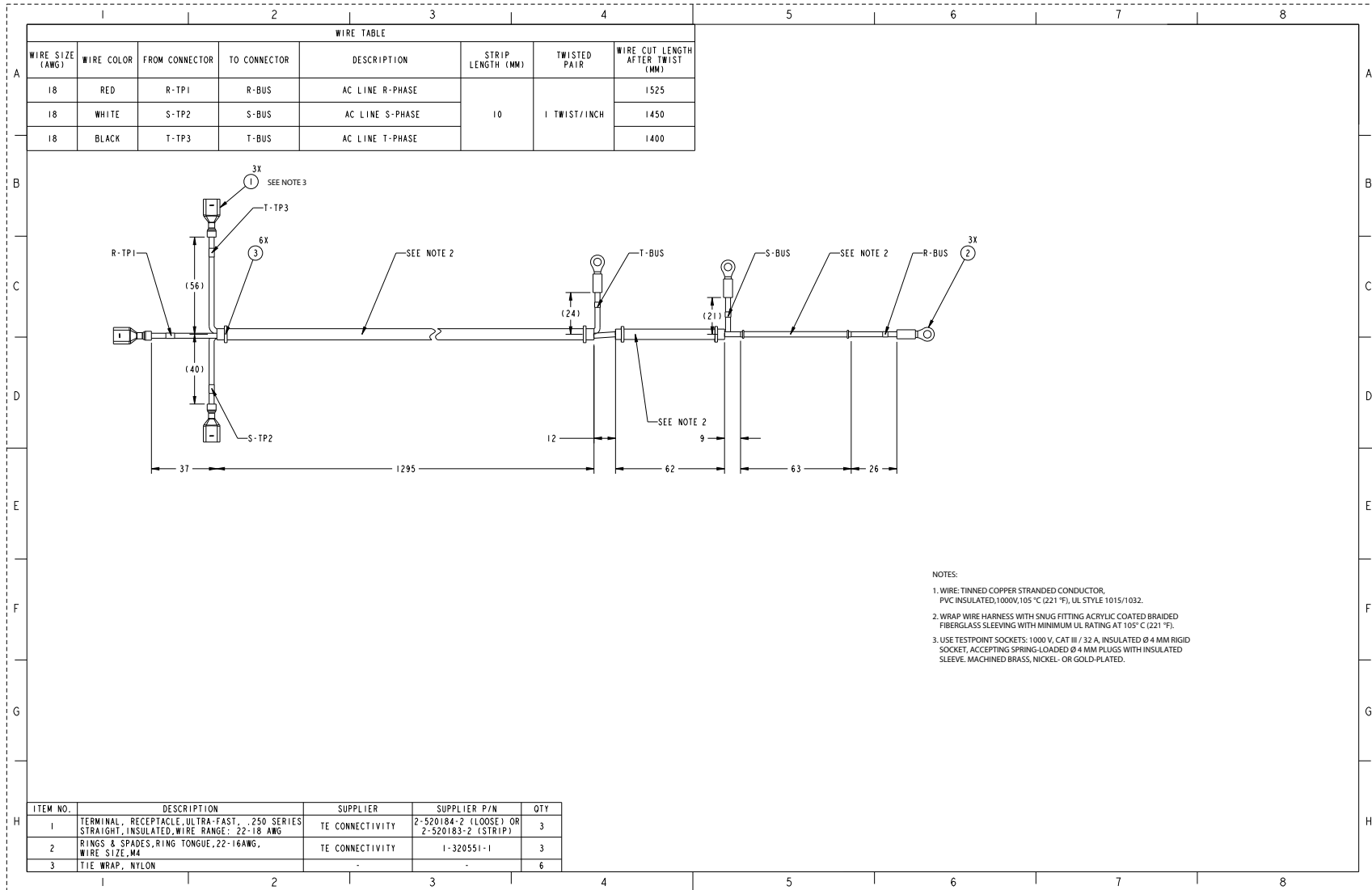
DC Bus Conditioner P2 Splice Wire Harness (Frame 8 Only)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

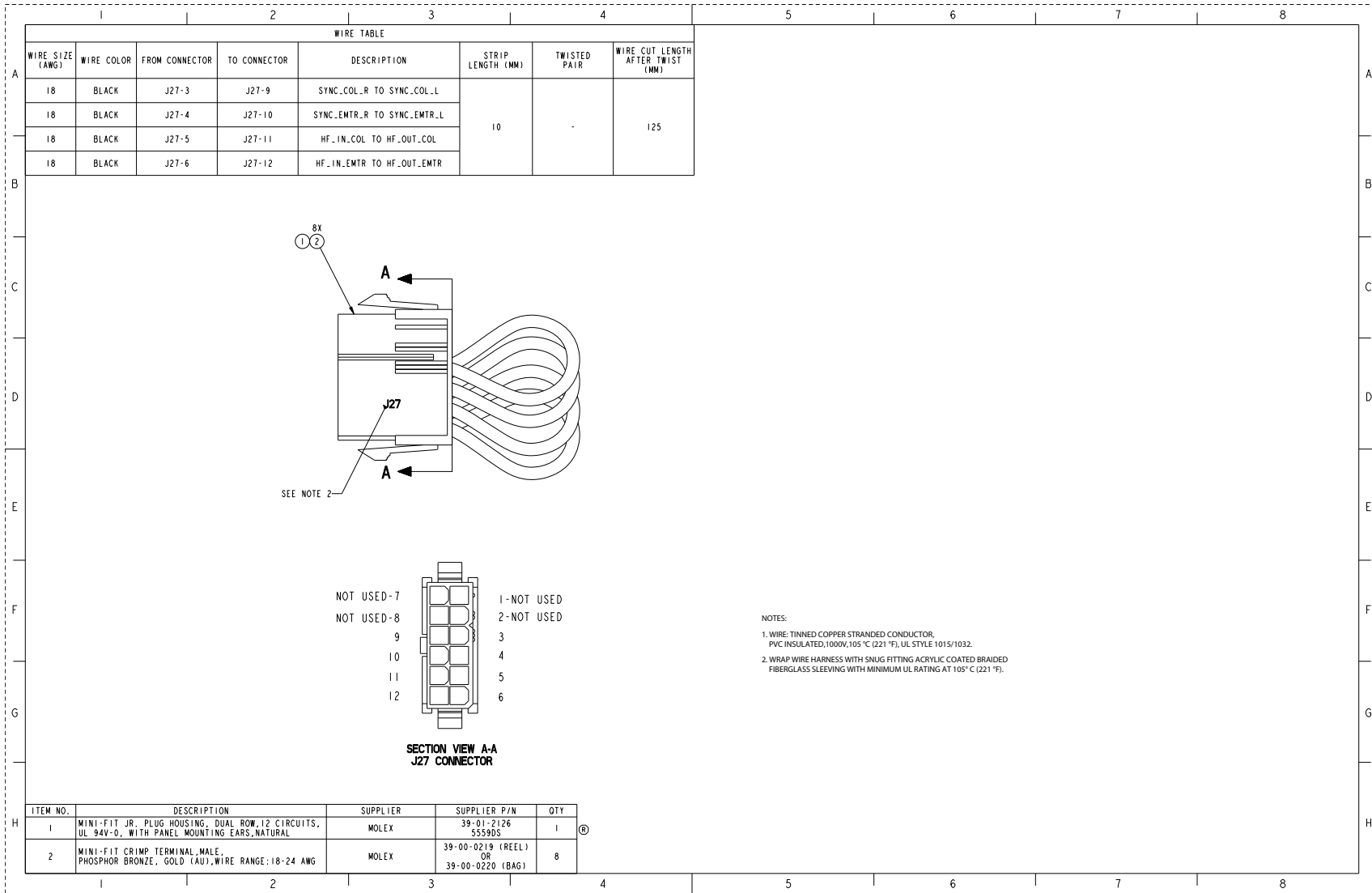


Test points to AC Bus Wire Harness (NRS Only)

IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.

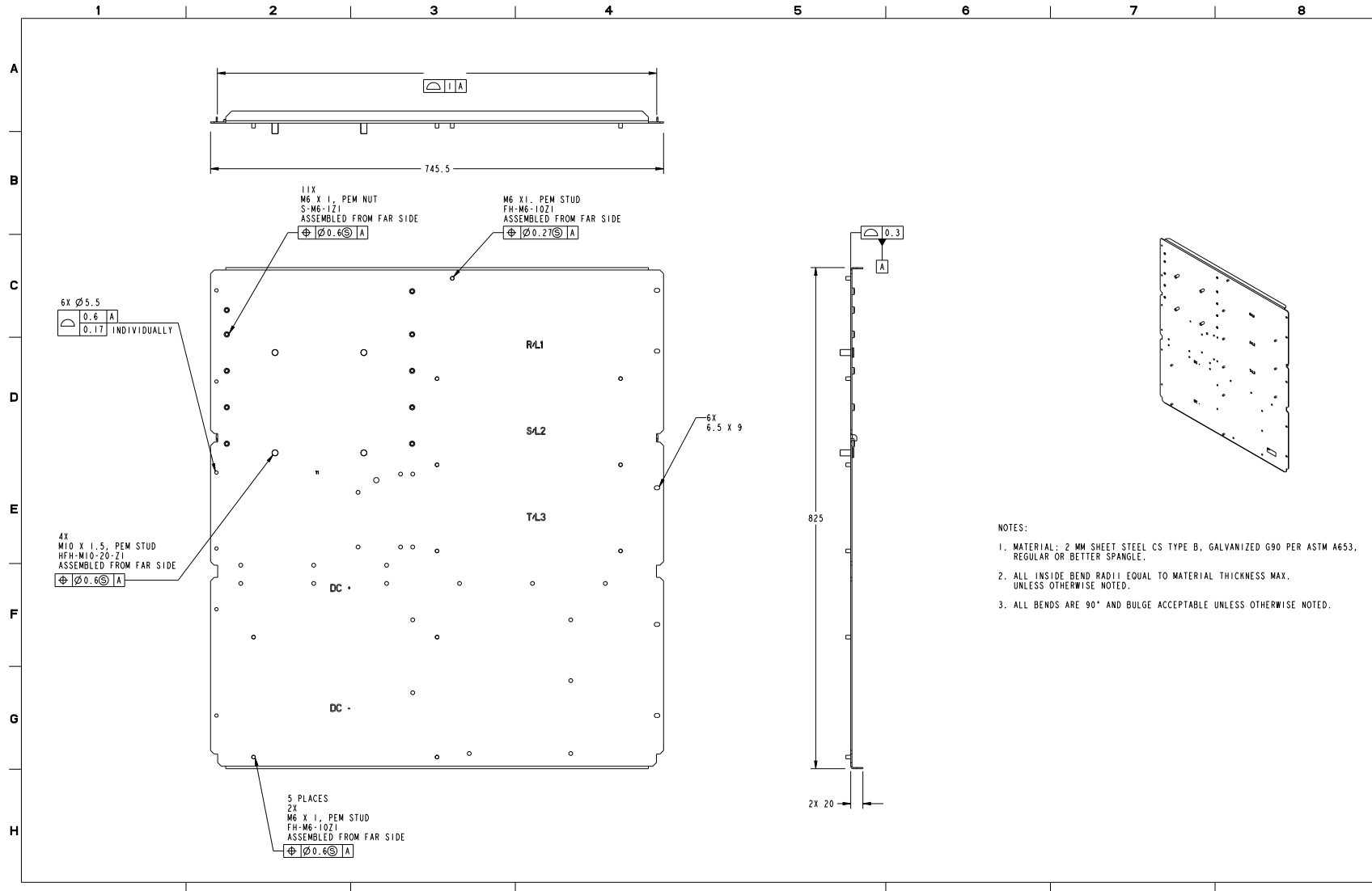


IMPORTANT Wire harness length can vary from the value that is listed in the drawing depending on the installed location of the connection sources. Wire cut length is shown in millimeters only.



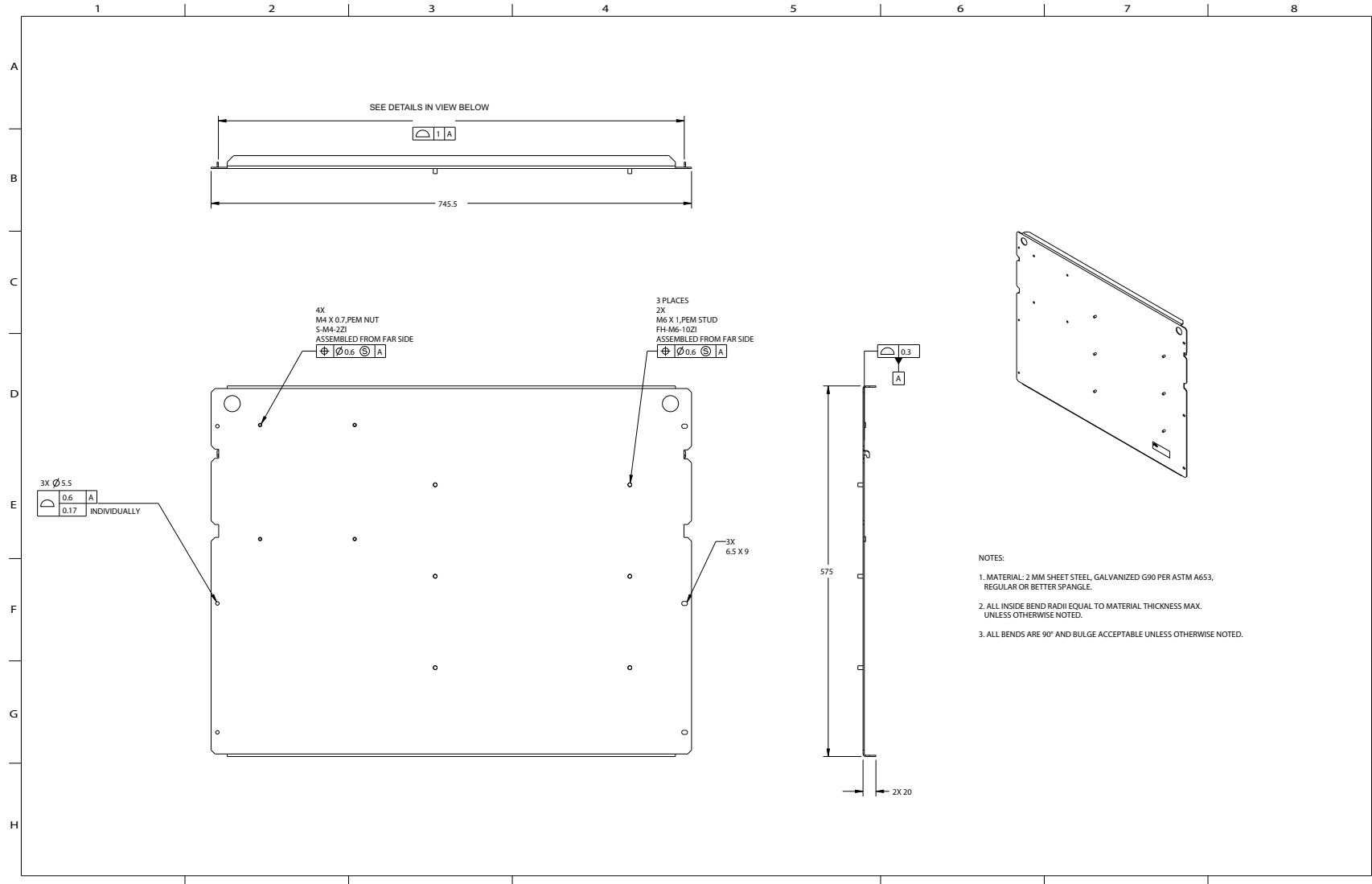
Sheet-metal Mounting Panel for AC Input Power Components (Frame 7 and 7L)

Dimensions are shown in millimeters only.



Sheet-metal Mounting Panel for AC Output Power Components (Frame 7)

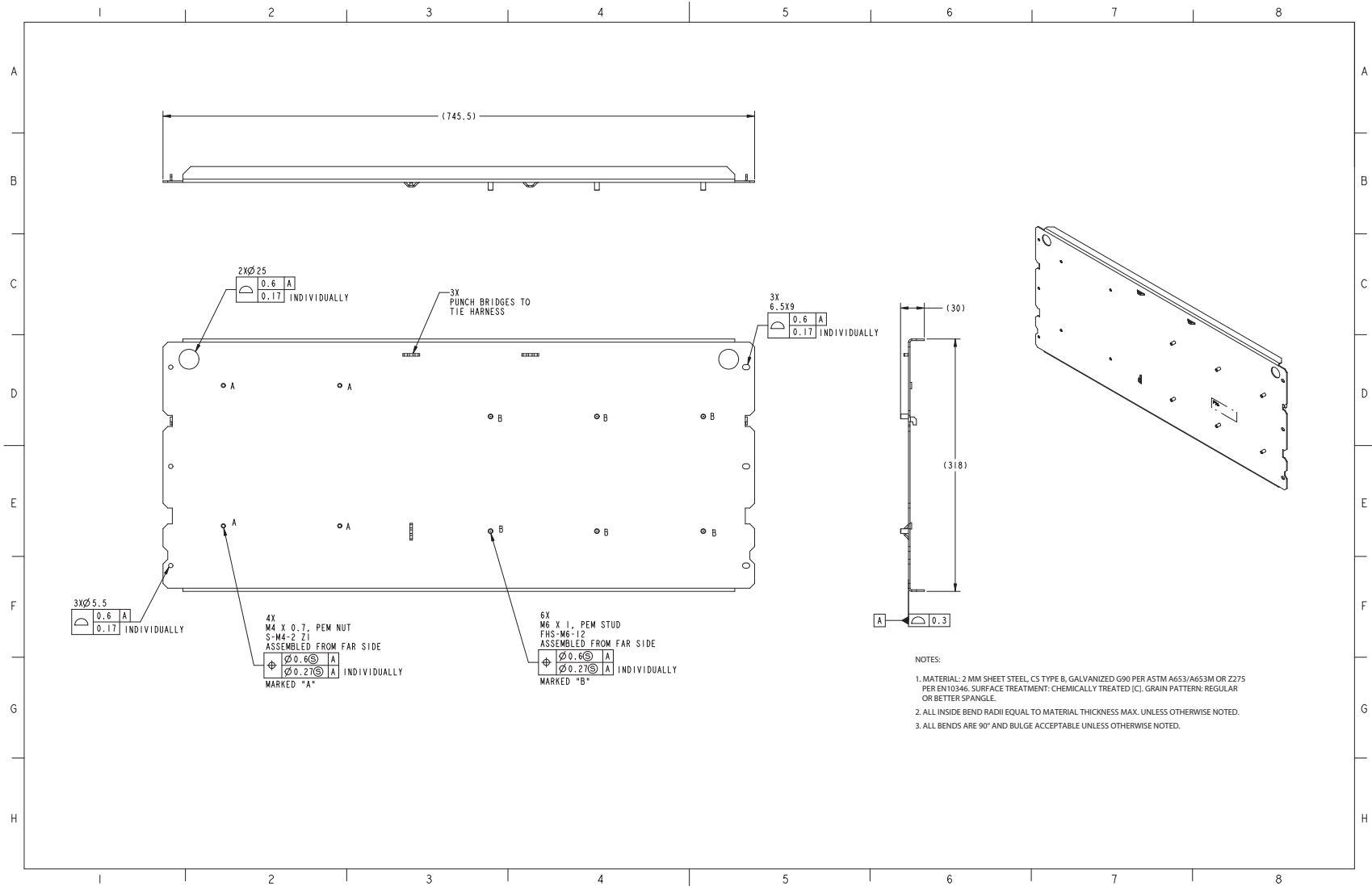
Dimensions are shown in millimeters only.



- NOTES:
1. MATERIAL: 2 MM SHEET STEEL, GALVANIZED G90 PER ASTM A653, REGULAR OR BETTER SPANGLE.
 2. ALL INSIDE BEND RADII EQUAL TO MATERIAL THICKNESS MAX. UNLESS OTHERWISE NOTED.
 3. ALL BENDS ARE 90° AND BULGE ACCEPTABLE UNLESS OTHERWISE NOTED.

Sheet-metal Mounting Panel (Upper) for AC Output Power Components (Frame 7L)

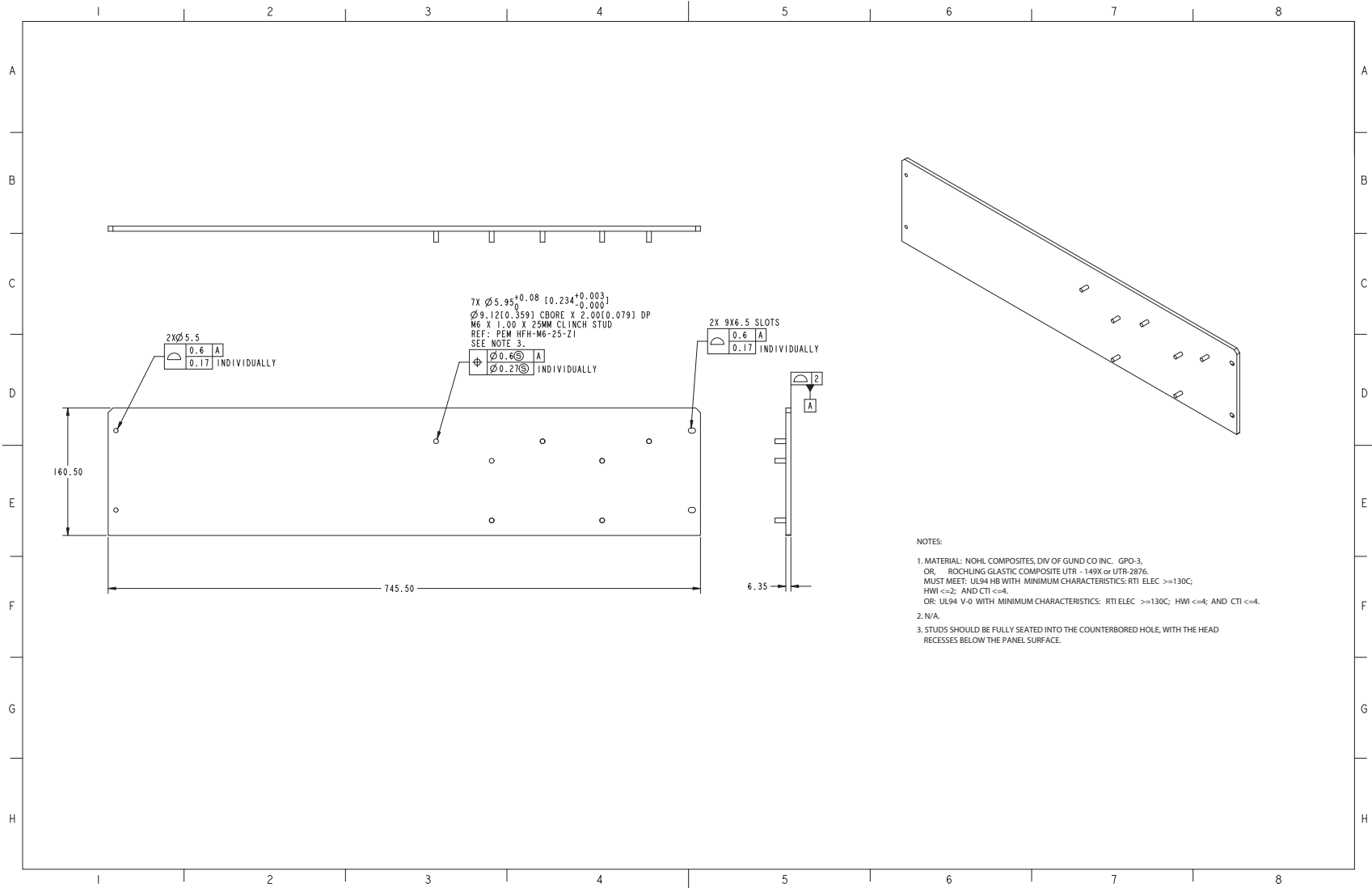
Dimensions are shown in millimeters only.



- NOTES:
1. MATERIAL: 2 MM SHEET STEEL, CS TYPE B, GALVANIZED G90 PER ASTM A653/A653M OR Z275 PER EN10346. SURFACE TREATMENT: CHEMICALLY TREATED (C), GRAIN PATTERN: REGULAR OR BETTER SPANGLE.
 2. ALL INSIDE BEND RADI EQUAL TO MATERIAL THICKNESS MAX. UNLESS OTHERWISE NOTED.
 3. ALL BENDS ARE 90° AND BULGE ACCEPTABLE UNLESS OTHERWISE NOTED.

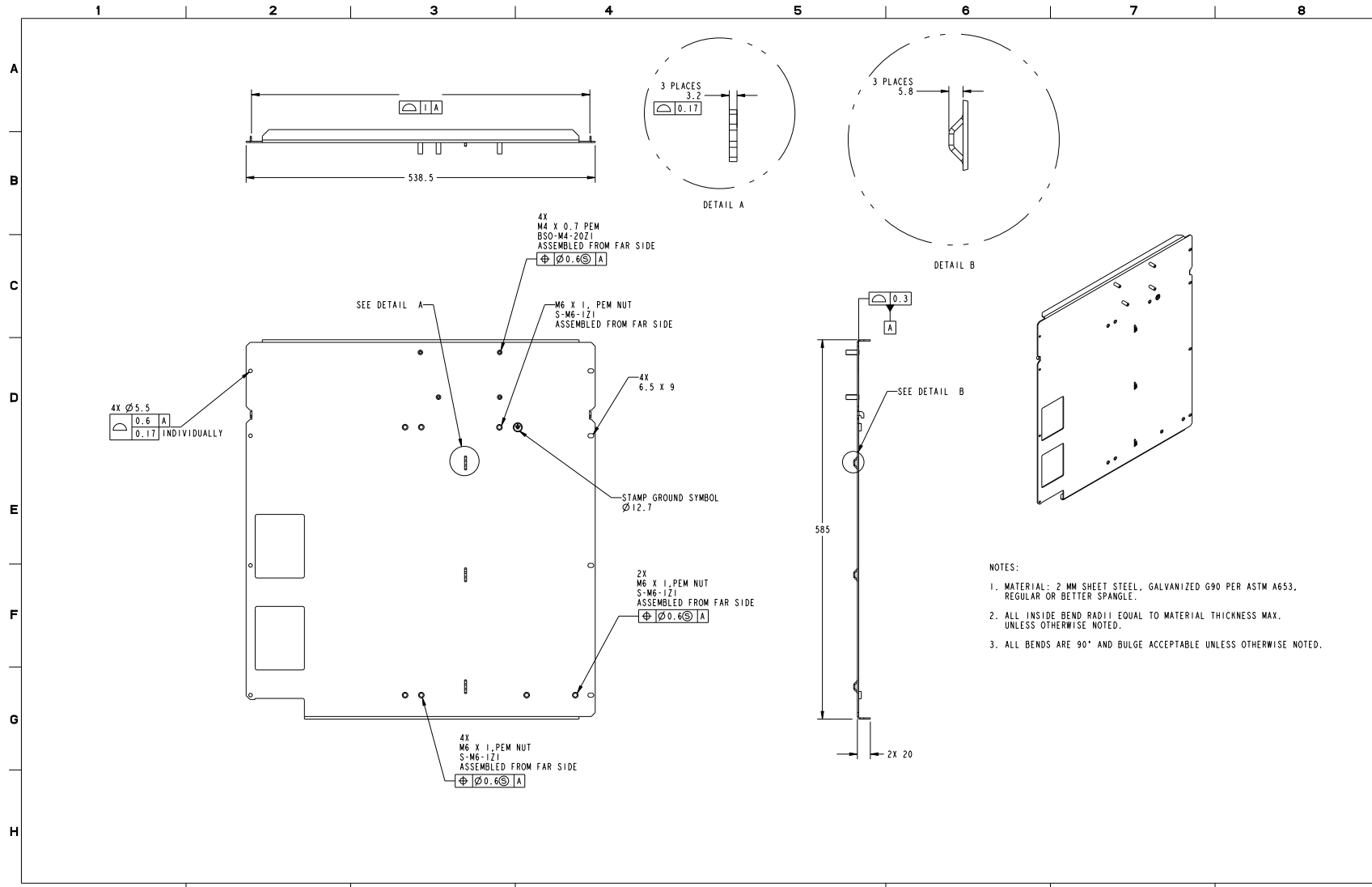
Mounting Panel (Lower) for AC Output Power Components (Frame 7L)

Dimensions are shown in millimeters only.



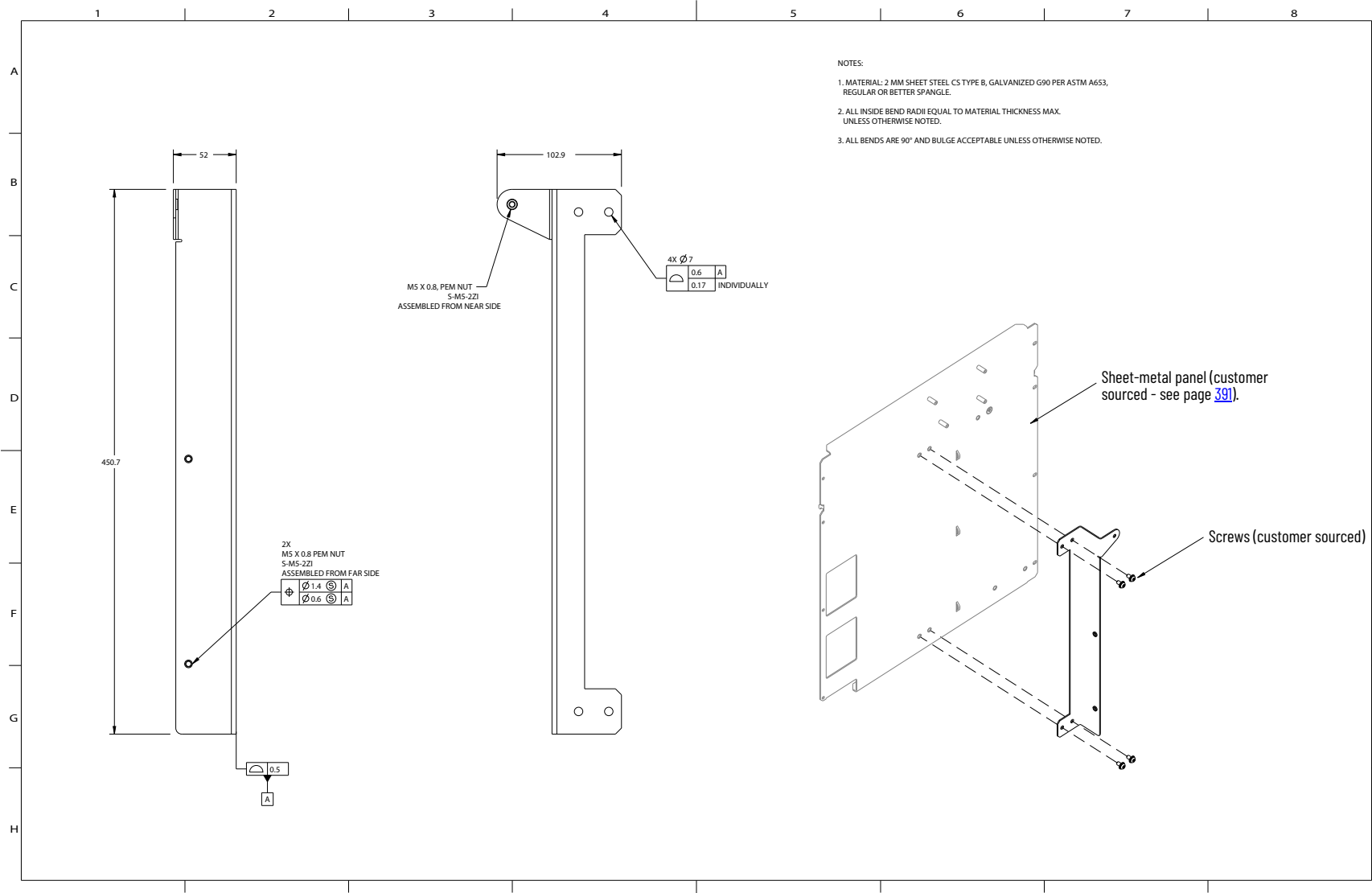
Upper-right, Sheet-metal Panel (Frame 7 and 7L)

Dimensions are shown in millimeters only.

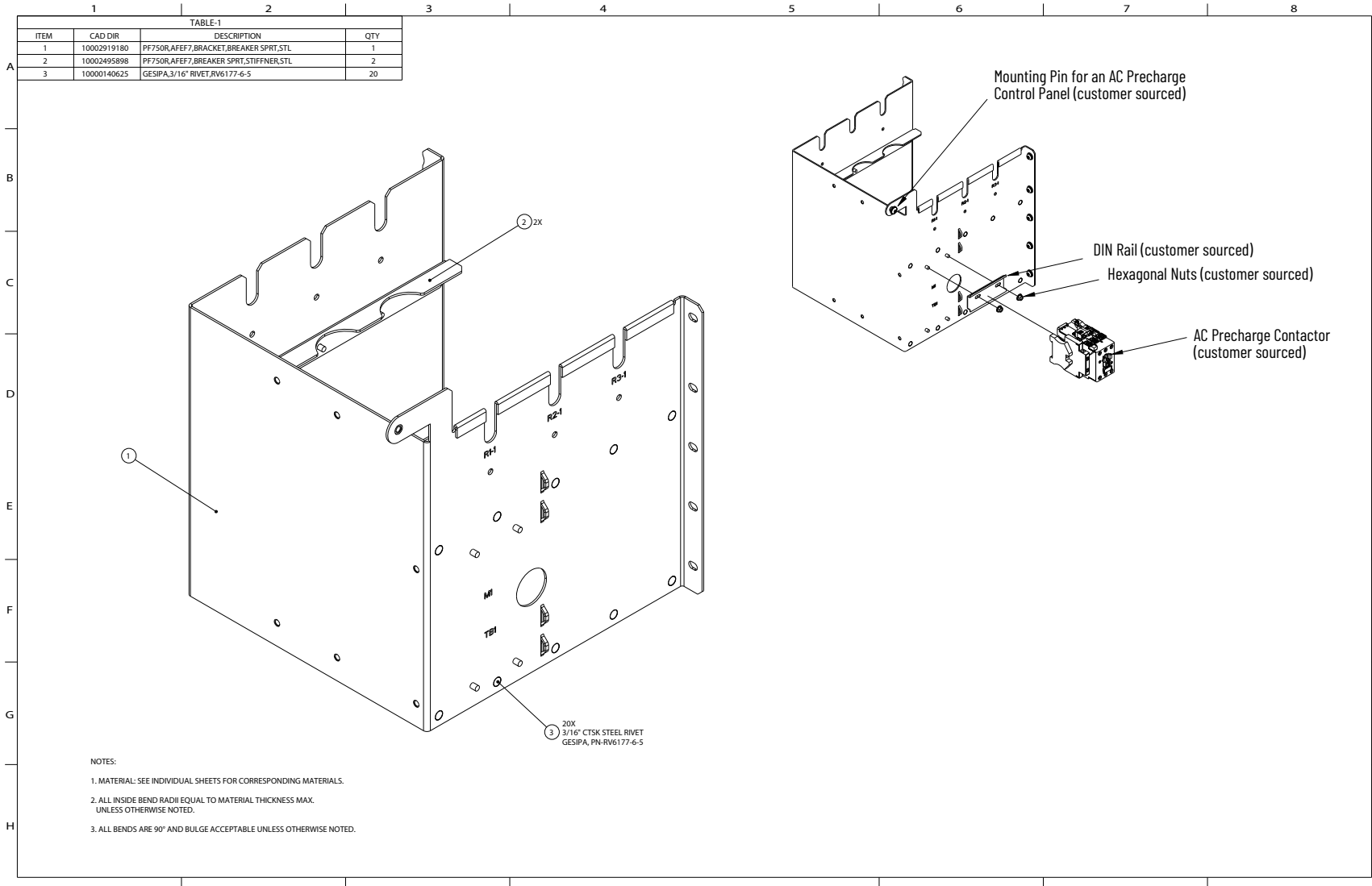


AC Precharge Control Panel Sheet-metal Bracket (Frame 7 and 7L)

Dimensions are shown in millimeters only. This bracket mounts to the upper-right, sheet-metal panel for frames 7 and 7L (see page 391).

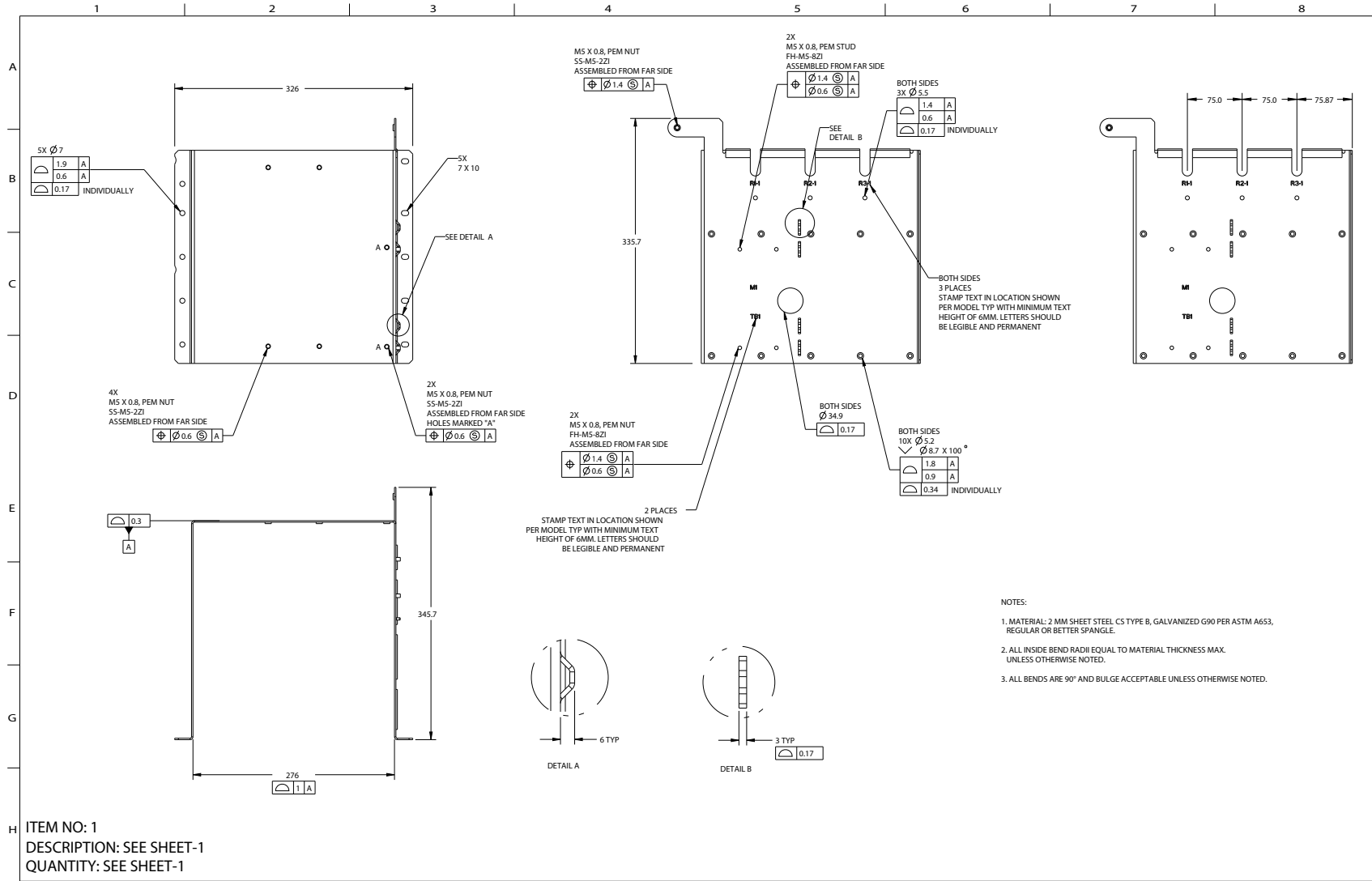


Sheet-metal Mounting Panel for AC Input Precharge Components (Frame 7 and 7L) - Sheet 1 of 3



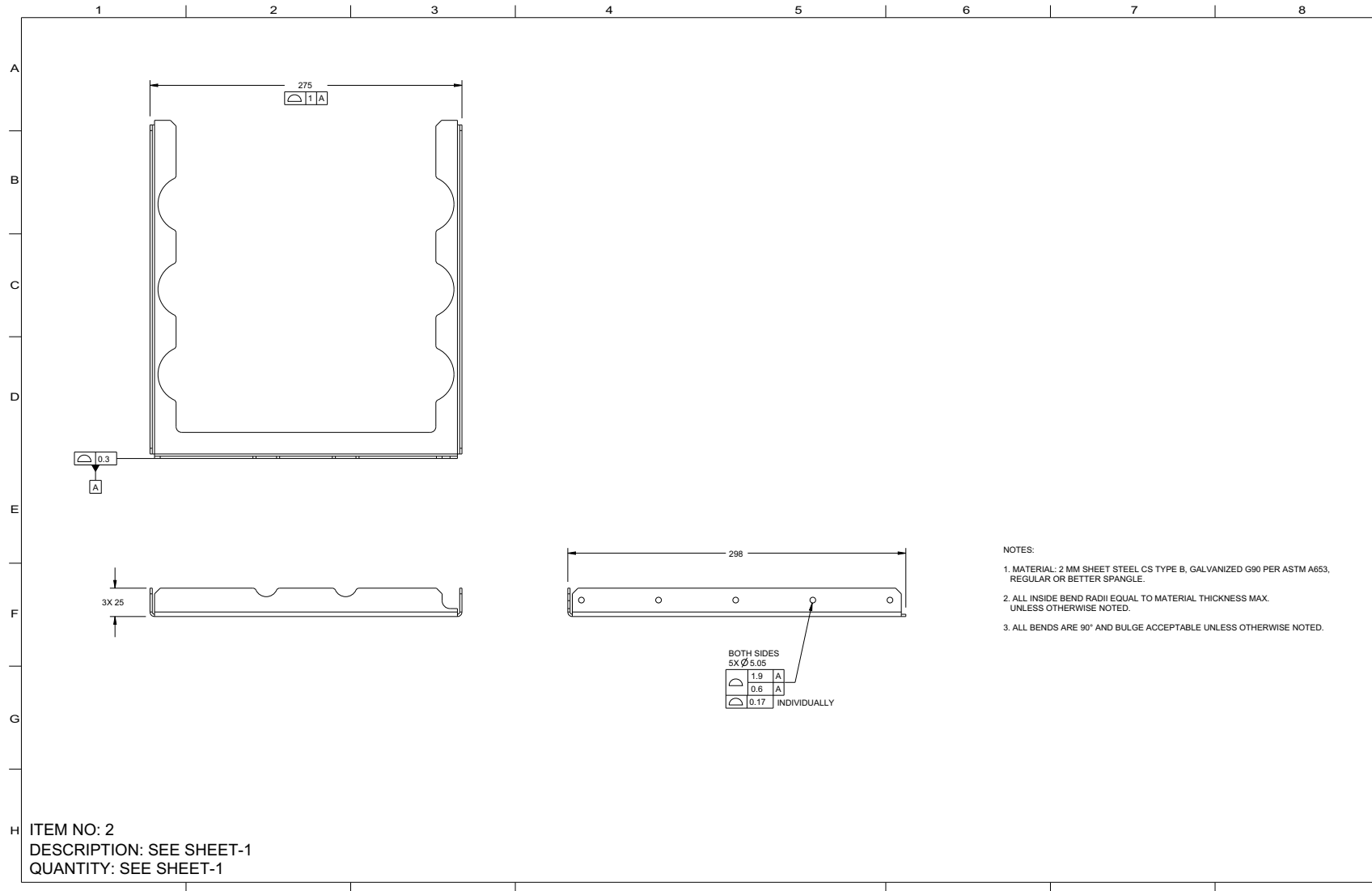
394 Sheet-metal Mounting Panel for AC Input Precharge Components (Frame 7 and 7L) - Sheet 2 of 3

Dimensions are shown in millimeters only.



Sheet-metal Mounting Panel for AC Input Precharge Components (Frame 7and 7L) - Sheet 3 of 3

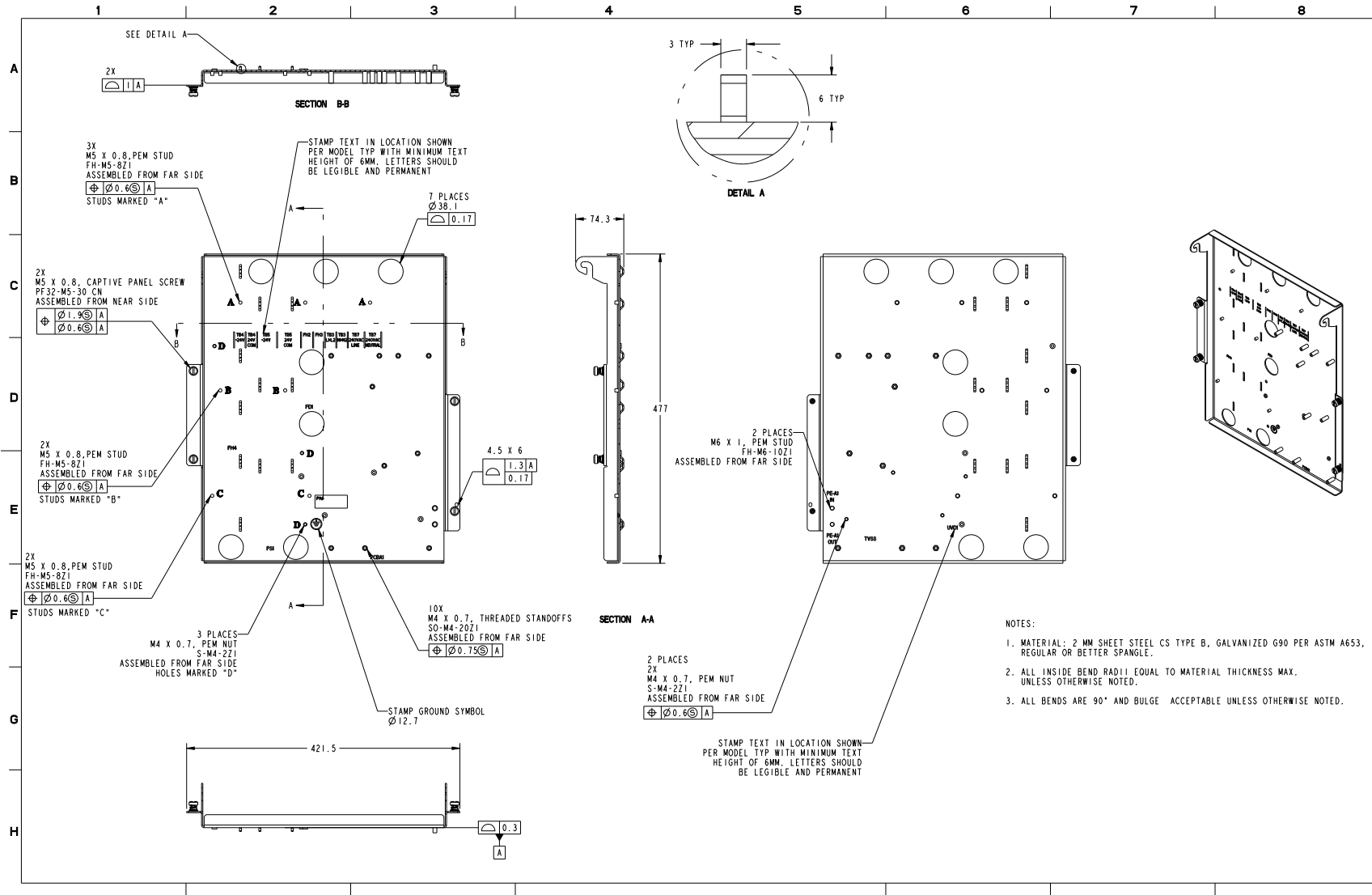
Dimensions are shown in millimeters only.



396 Sheet-metal Mounting Panel for AC Precharge Components (Frame 7 and 7L)

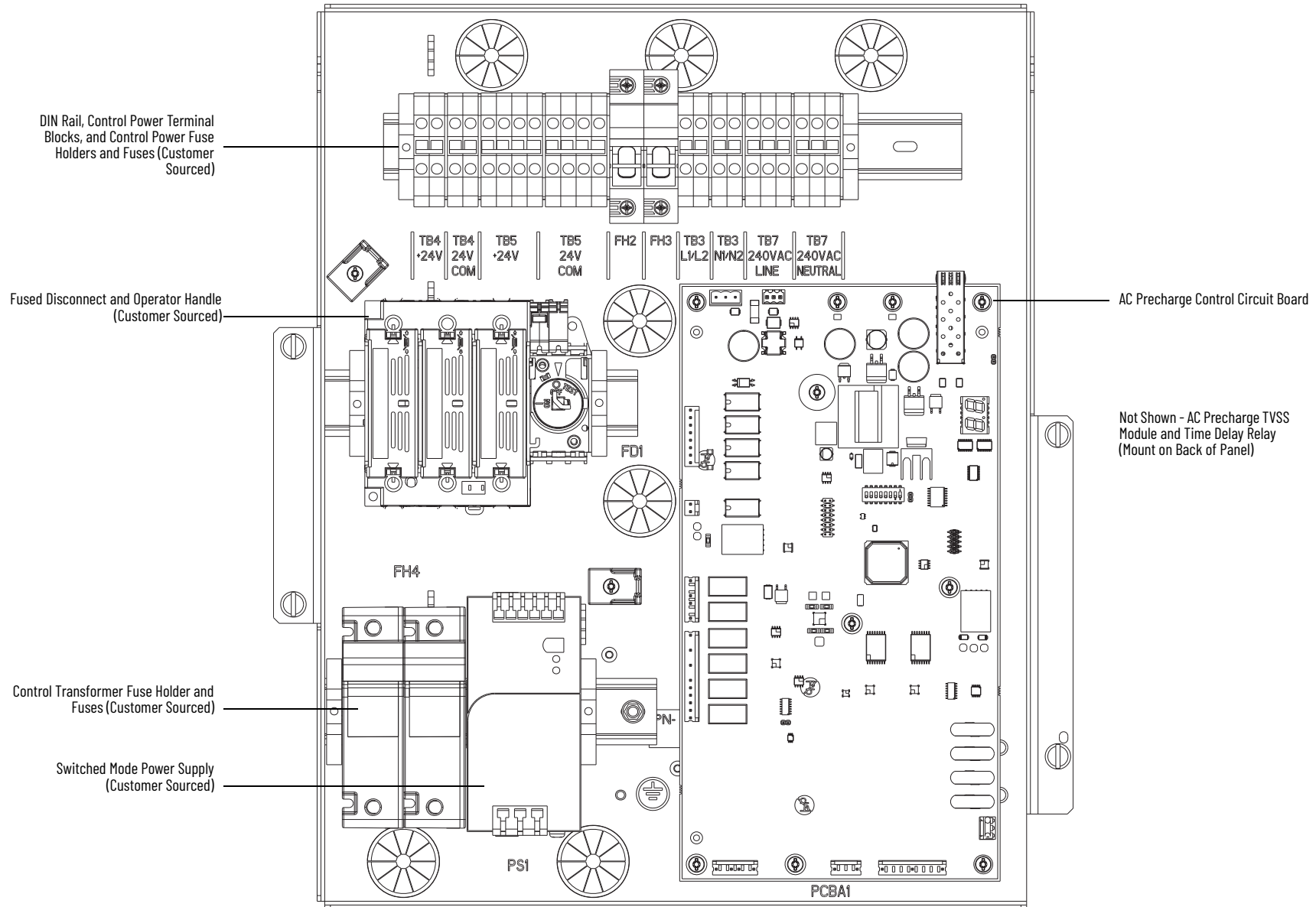
See page 397 for an example layout of AC precharge components on the sheet-metal mounting panel. Dimensions are shown in millimeters only. This panel is designed to mount on a sheet-metal bracket (see page 392) and the AC precharge resistor and circuit breaker support bracket (see page 393).

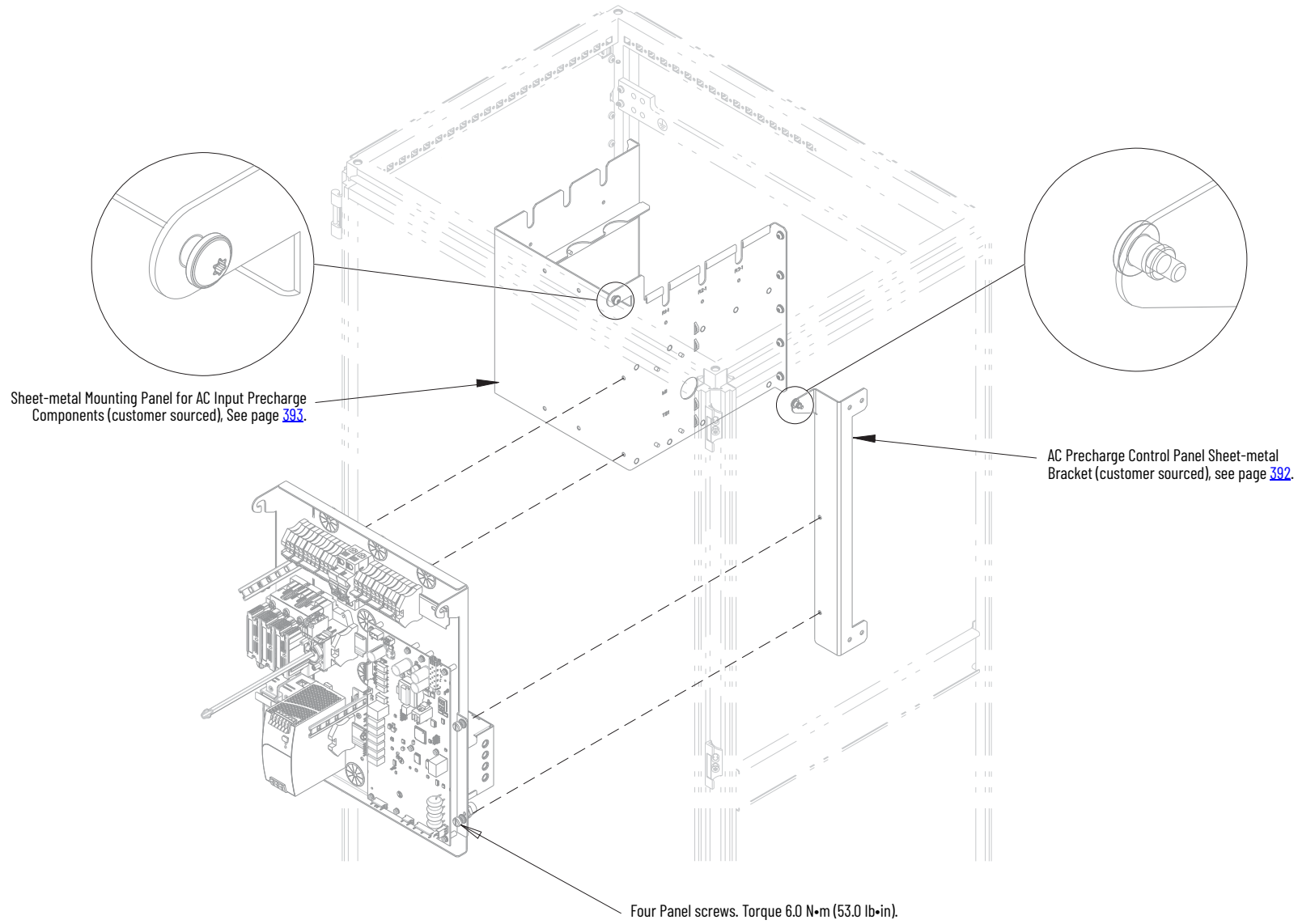
Rockwell Automation Publication 750-IN10U-EN-P - May 2026



Example AC Precharge Components Sheet-metal Mounting Panel Layout (Frame 7 and 7L)

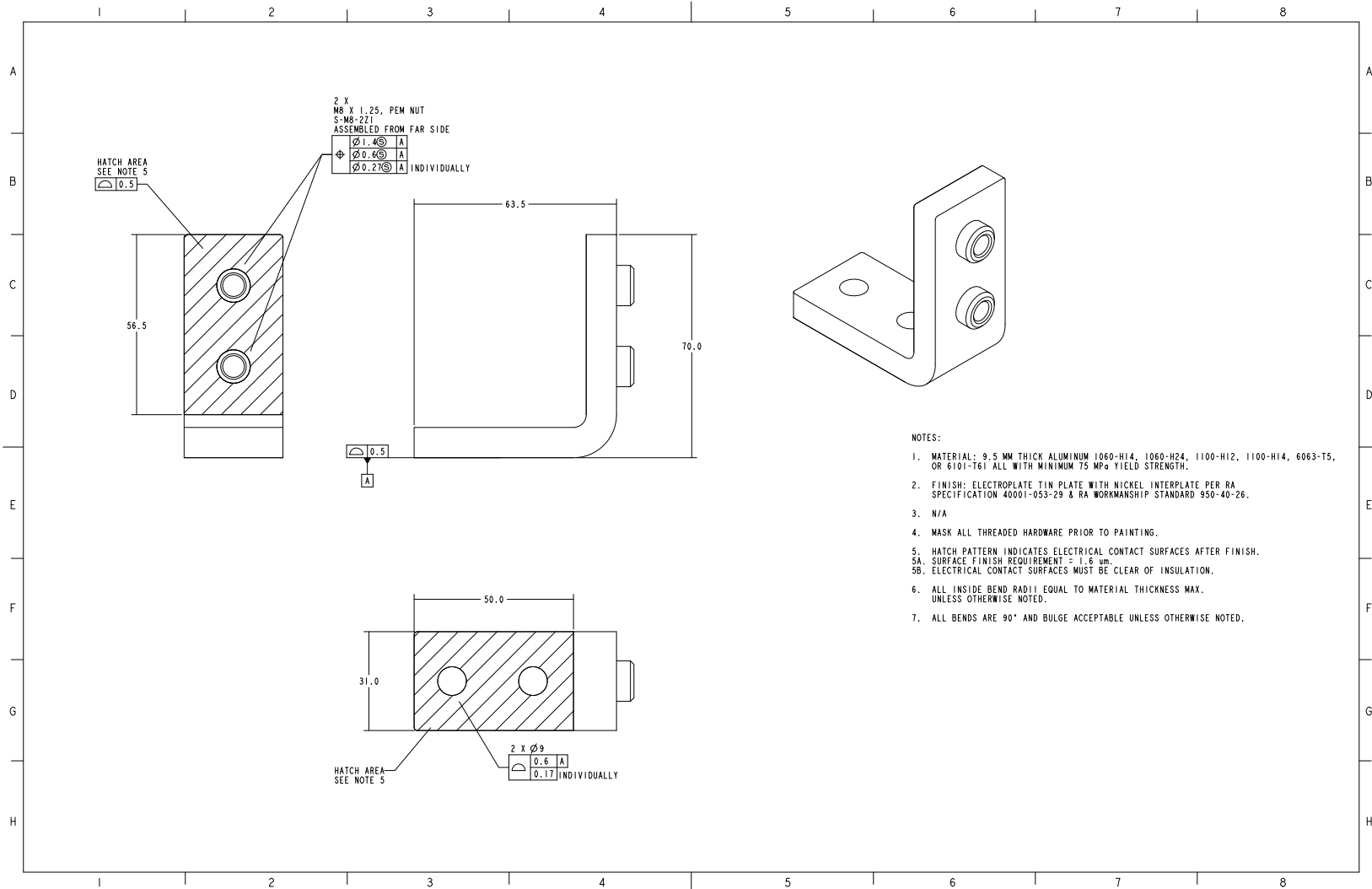
See page 396 for a dimension drawing of the Sheet-metal Mounting Panel for AC Precharge Components.





Power Module AC Bus Terminals (Frame 7L)

Dimensions are shown in millimeters only.

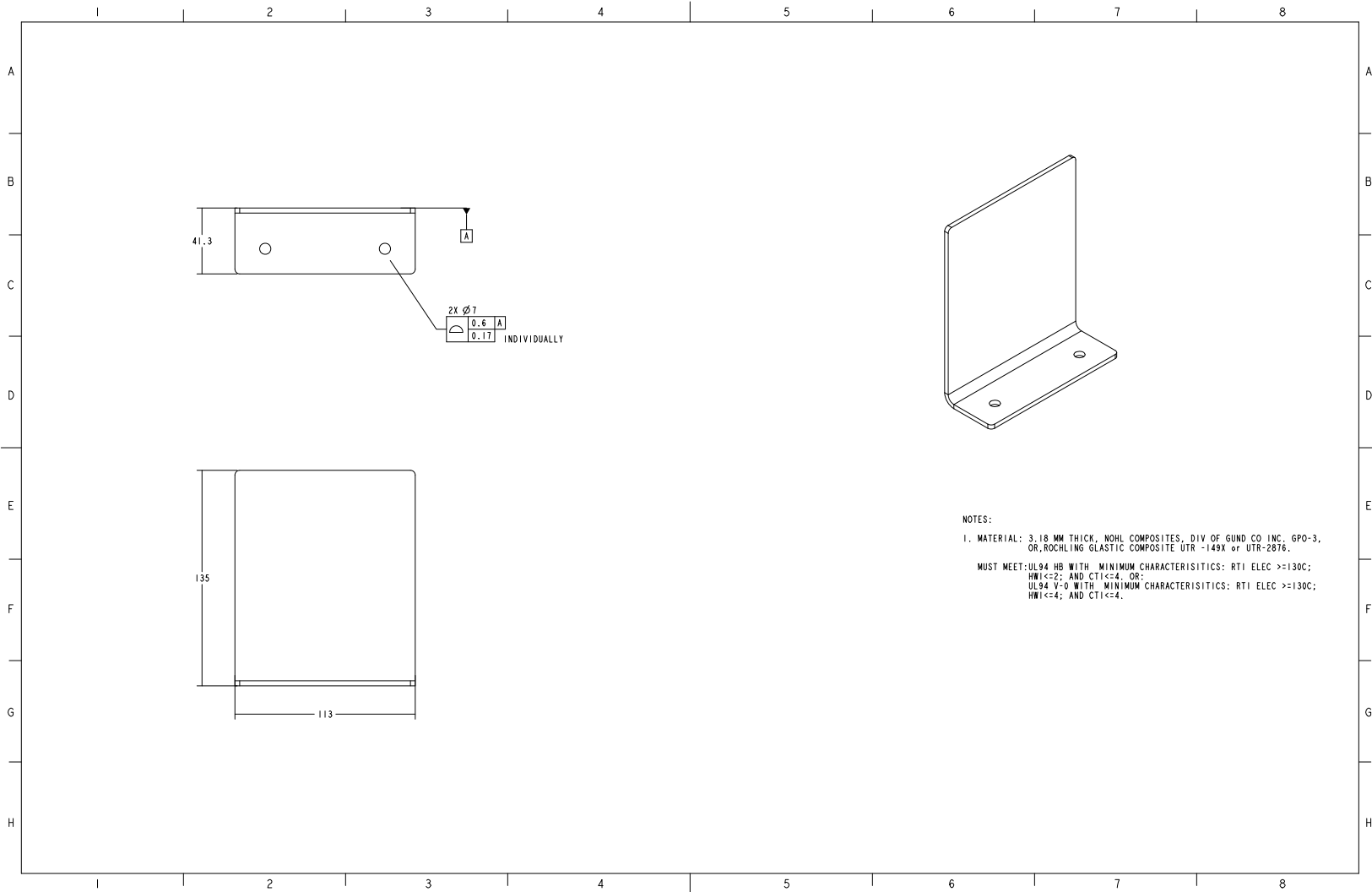


NOTES:

1. MATERIAL: 0.5 MM THICK ALUMINUM 1060-H14, 1060-H24, 1100-H12, 1100-H14, 6063-T5, OR 6101-T61 ALL WITH MINIMUM 75 MPa YIELD STRENGTH.
2. FINISH: ELECTROPLATE TIN PLATE WITH NICKEL INTERPLATE PER RA SPECIFICATION 40001-053-29 & RA WORKMANSHIP STANDARD 950-40-26.
3. N/A
4. MASK ALL THREADED HARDWARE PRIOR TO PAINTING.
5. HATCH PATTERN INDICATES ELECTRICAL CONTACT SURFACES AFTER FINISH.
- 5A. SURFACE FINISH REQUIREMENT = 1.6 µm.
- 5B. ELECTRICAL CONTACT SURFACES MUST BE CLEAR OF INSULATION.
6. ALL INSIDE BEND RADII EQUAL TO MATERIAL THICKNESS MAX. UNLESS OTHERWISE NOTED.
7. ALL BENDS ARE 90° AND BULGE ACCEPTABLE UNLESS OTHERWISE NOTED.

AC Output Bus Bar Terminals Insulator Sheet (Frame 7L)

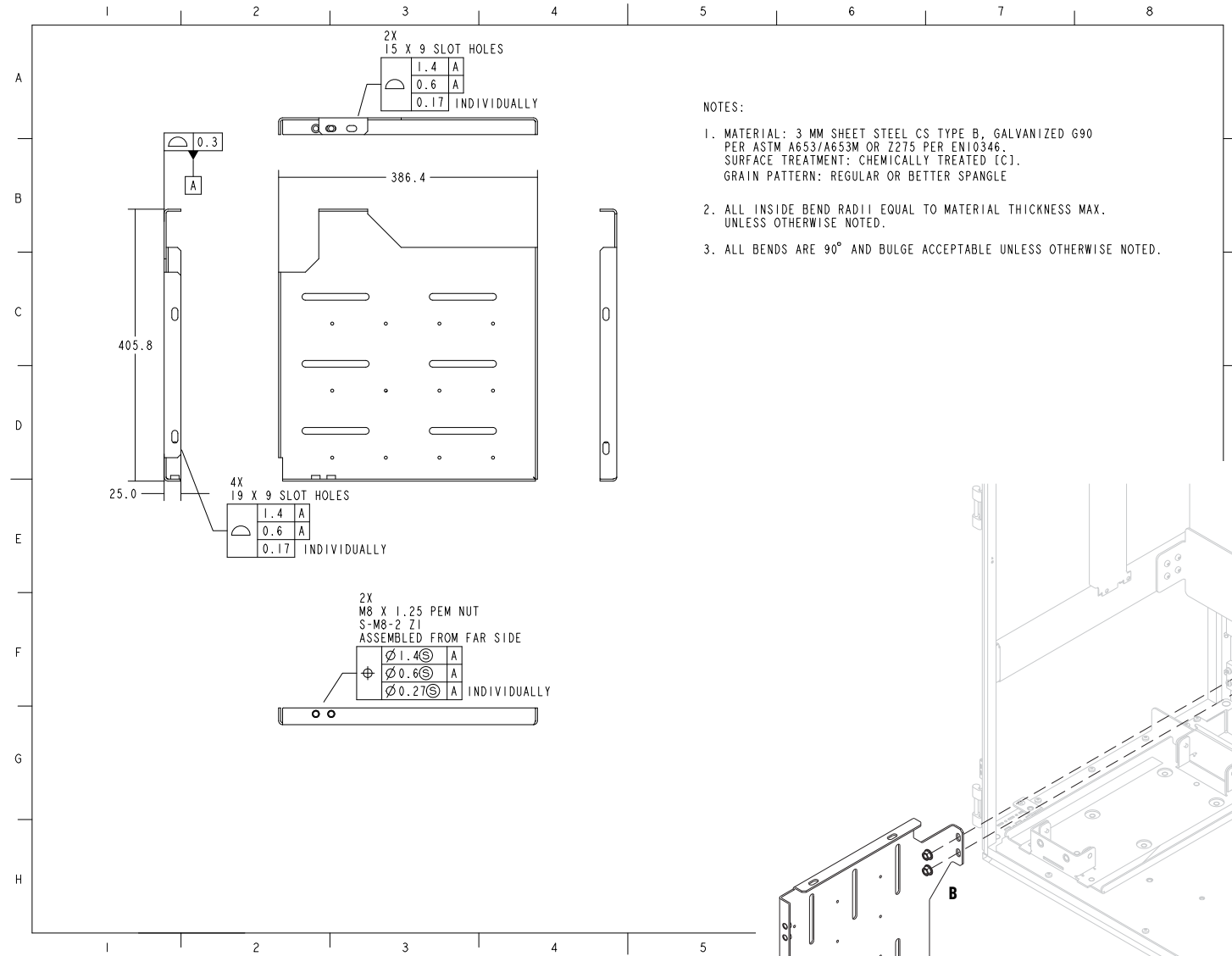
Dimensions are shown in millimeters only.



NOTES:
 1. MATERIAL: 3.18 MM THICK, NOHL COMPOSITES, DIV OF GUND CO INC. GPO-3,
 OR, ROCHLING GLASTIC COMPOSITE UTR -149X or UTR-2876.
 MUST MEET: UL94 HB WITH MINIMUM CHARACTERISTICS: RTI ELEC >=130C;
 HWI<2; AND CTI<=4. OR:
 UL94 V-0 WITH MINIMUM CHARACTERISTICS: RTI ELEC >=130C;
 HWI<4; AND CTI<=4.

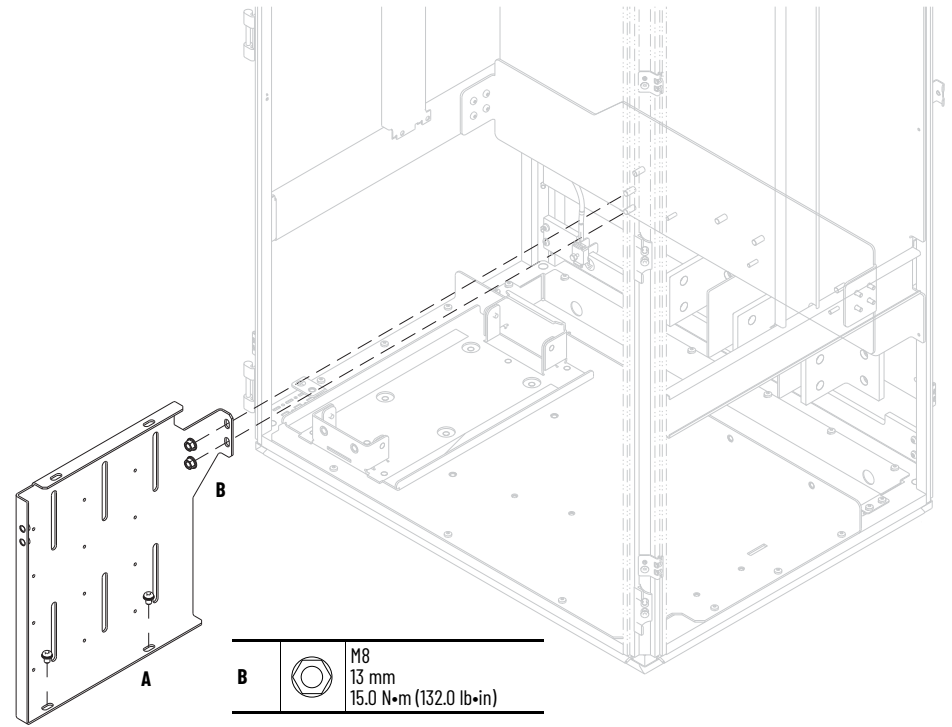
Power Module Lower Support Bracket (Frame 7L)

Dimensions are shown in millimeters only.



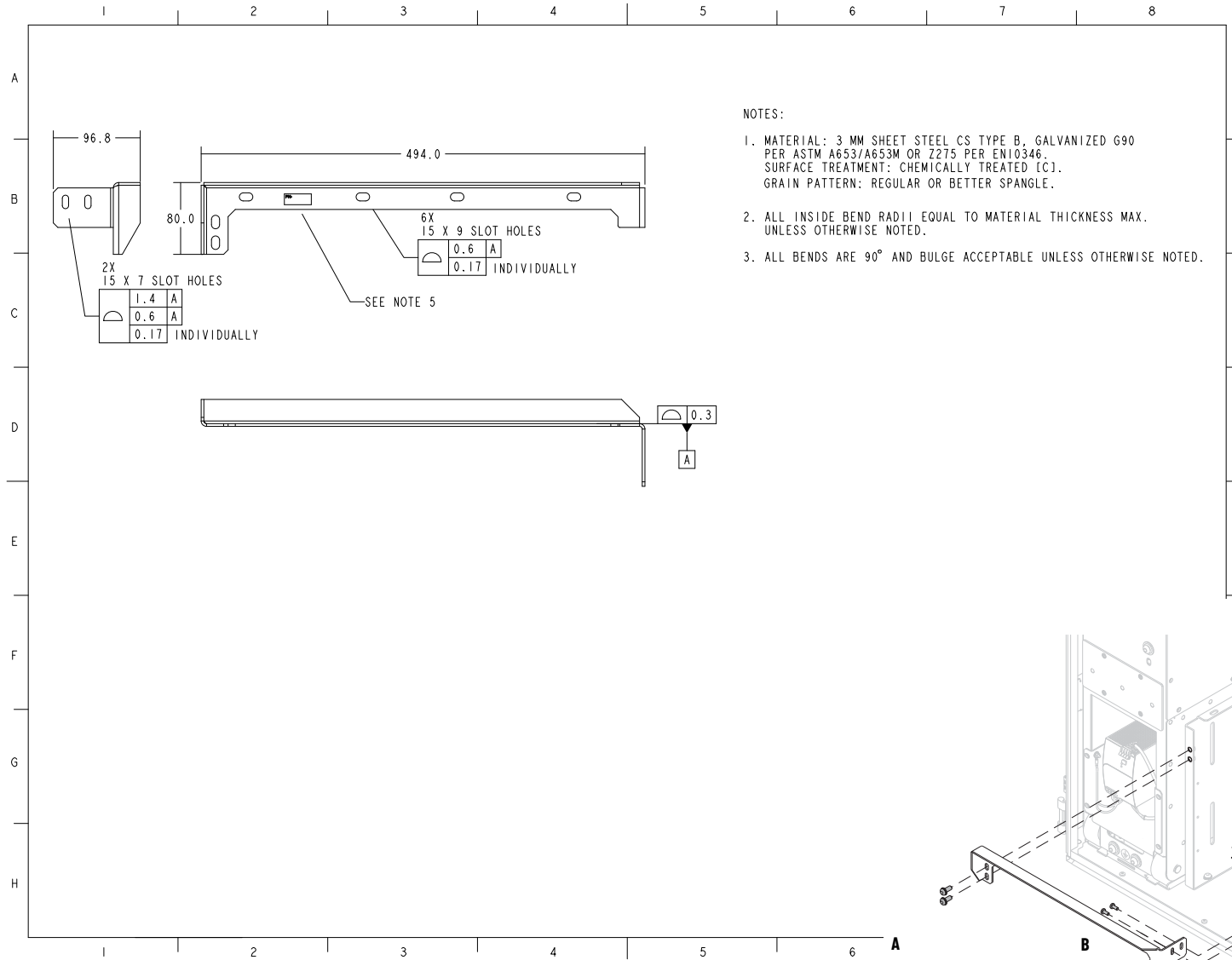
A		M8 x 12 mm T40 15.0 N•m (132.0 lb•in)
----------	--	---

B		M8 13 mm 15.0 N•m (132.0 lb•in)
----------	--	---------------------------------------



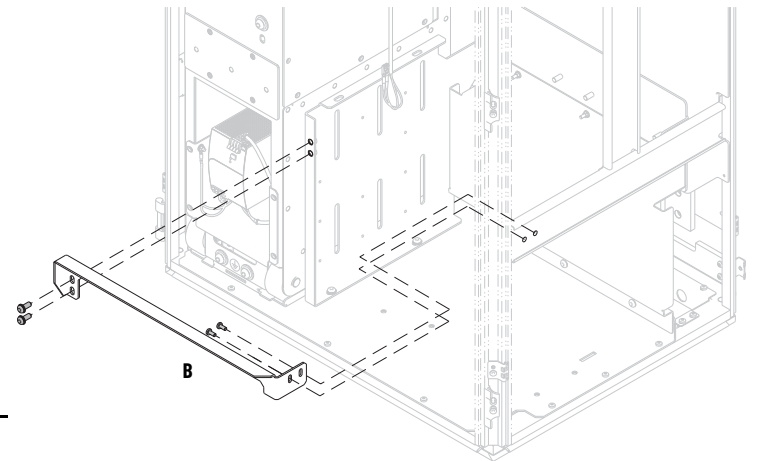
Power Module Lower Support Beam (Frame 7L)

Dimensions are shown in millimeters only.



NOTES:

1. MATERIAL: 3 MM SHEET STEEL CS TYPE B, GALVANIZED G90 PER ASTM A653/A653M OR Z275 PER EN10346. SURFACE TREATMENT: CHEMICALLY TREATED [C]. GRAIN PATTERN: REGULAR OR BETTER SPANGLE.
2. ALL INSIDE BEND RADIi EQUAL TO MATERIAL THICKNESS MAX. UNLESS OTHERWISE NOTED.
3. ALL BENDS ARE 90° AND BULGE ACCEPTABLE UNLESS OTHERWISE NOTED.

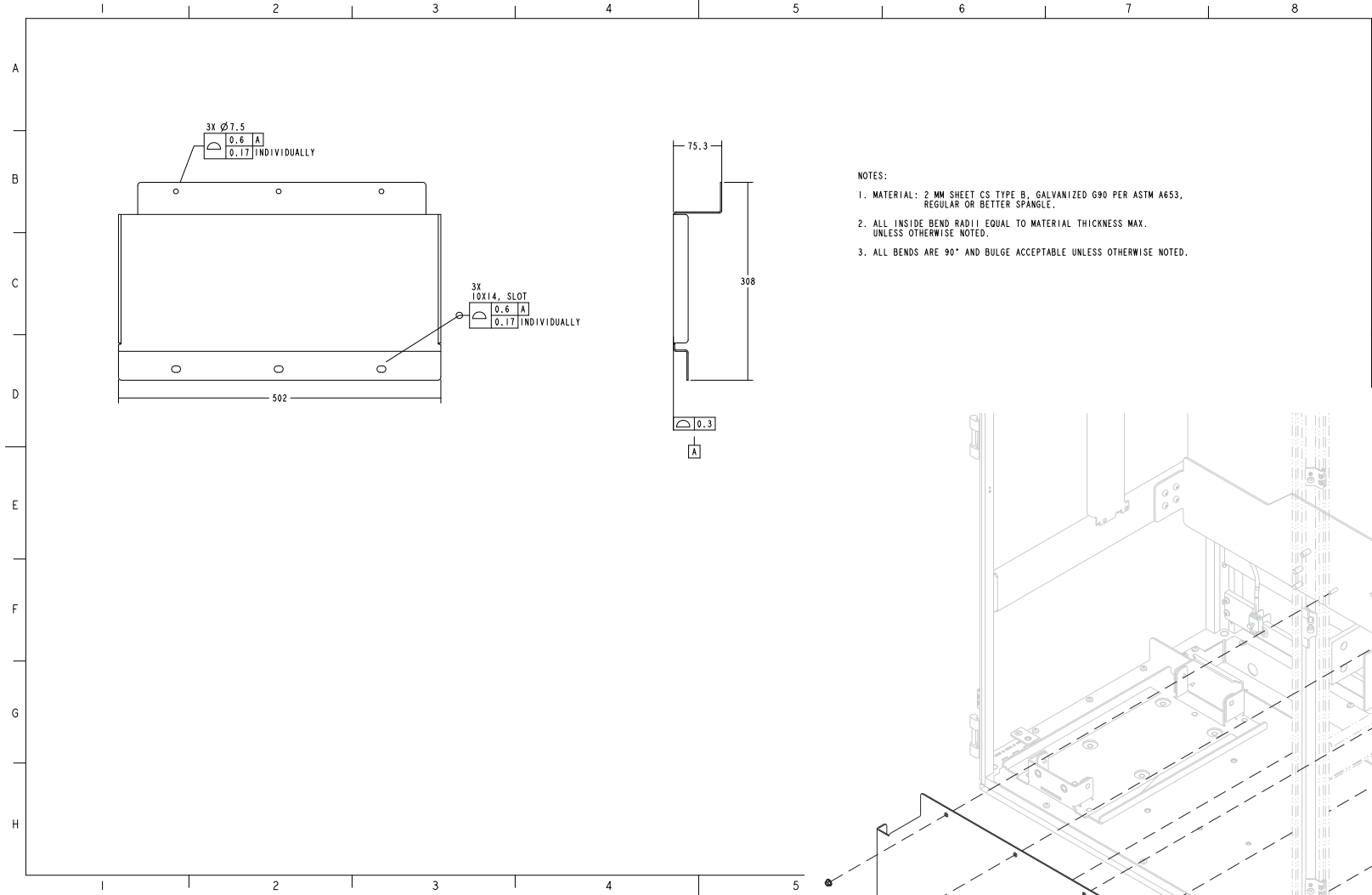


A		M8 x 20 mm T40 15.0 N•m (132.0 lb•in)
----------	--	---

B		M5.5 x 13 mm T30 4.8 N•m (42.0 lb•in)
----------	--	---

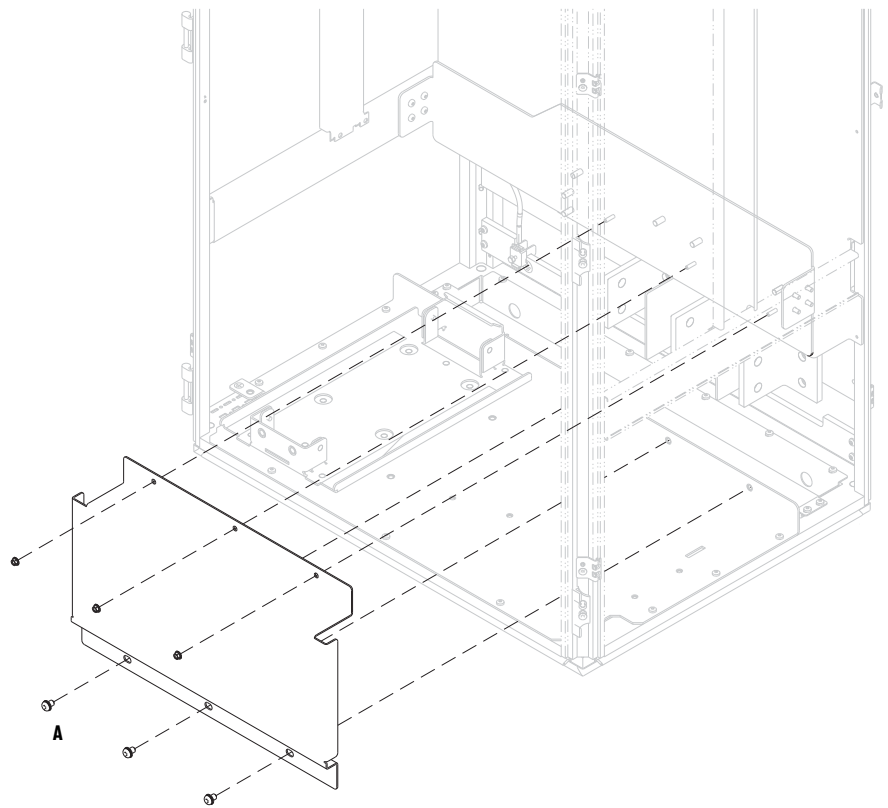
AC Output Bus Bar Terminals Guard (Frame 7L)


Dimensions are shown in millimeters only.



NOTES:

1. MATERIAL: 2 MM SHEET CS TYPE B, GALVANIZED G90 PER ASTM A653, REGULAR OR BETTER SPANGLE.
2. ALL INSIDE BEND RADII EQUAL TO MATERIAL THICKNESS MAX. UNLESS OTHERWISE NOTED.
3. ALL BENDS ARE 90° AND BULGE ACCEPTABLE UNLESS OTHERWISE NOTED.

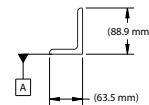
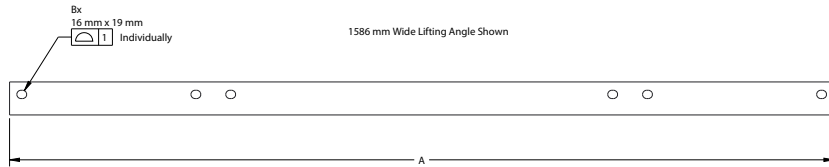
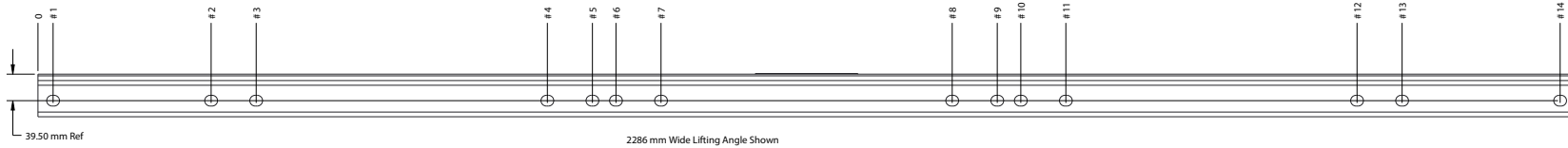


A		M5.5 x 13 mm T30 4.8 N•m (42.0 lb•in)
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Structural Angle Material and Dimensions

Fits Enclosure(s) of Width	Slot Count B	Hole Locations: From Left (mm) +/- 1.5 mm																Width A (mm)
		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	
400 mm	2	25.5	360.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	386
600 mm	2	25.5	560.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	586
700 mm	6	24.5	259.5	326.5	359.5	426.5	661.5	-	-	-	-	-	-	-	-	-	-	686
800 mm	4	24.5	359.5	426.5	761.5	-	-	-	-	-	-	-	-	-	-	-	-	786
900 mm	6	24.5	259.5	326.5	559.5	626.5	861.5	-	-	-	-	-	-	-	-	-	-	886
1000 mm	6	24.5	359.5	426.5	559.5	626.5	961.5	-	-	-	-	-	-	-	-	-	-	986
1100 mm	10	24	259	326	358.5	425.5	660.5	727.5	760	827	1062	-	-	-	-	-	-	1086
1200 mm	8	24.5	359.5	426.5	559.5	626.5	759.5	826.5	1161.5	-	-	-	-	-	-	-	-	1186
1300 mm	10	23.5	258.5	325.5	358.5	425.5	860.5	927.5	960.5	1027.5	1262.5	-	-	-	-	-	-	1286
1400 mm	6	24.5	559.5	626.5	759.5	826.5	1361.5	-	-	-	-	-	-	-	-	-	-	1386
1500 mm	14	23.5	258.5	325.5	358.5	425.5	558.5	625.5	860.5	927.5	1060.5	1127.5	1160.5	1227.5	1462.5	-	-	1486
1600 mm	6	23.5	358.5	425.5	1160.5	1227.5	1562.5	-	-	-	-	-	-	-	-	-	-	1586
1700 mm	10	23.5	258.5	325.5	558.5	625.5	1060.5	1127.5	1360.5	1427.5	1662.5	-	-	-	-	-	-	1686
1800 mm	16	24.5	358.5	425.5	492	558.5	625.5	759.5	826.5	959.5	1026.5	1160.5	1227.5	1294	1360.5	1427.5	1761.5	1786
2000 mm	10	23.5	558.5	625.5	758.5	825.5	1160.5	1227.5	1360.5	1427.5	1962.5	-	-	-	-	-	-	1986
2200 mm	12	23.5	358.5	425.5	758.5	825.5	893	1293	1360.5	1427.5	1760.5	1827.5	2162.5	-	-	-	-	2186
2300 mm	14	22.5	257.5	324.5	757.5	824.5	859.5	926.5	1359.5	1426.5	1461.5	1528.5	1961.5	2028.5	2263.5	-	-	2286
2400 mm	12	23.5	491	558.5	625.5	958.5	1025.5	1360.5	1427.5	1760.5	1827.5	1895	2362.5	-	-	-	-	2386
2500 mm	14	22.5	257.5	324.5	757.5	824.5	1059.5	1126.5	1359.5	1426.5	1661.5	1728.5	2161.5	2228.5	2463.5	-	-	2486

List Angle Material: 0.375 x 2.5 x 3.5 inch L Angle (Structural) Steel, ASTM A36, ASTM A6/A6M.



Additional Resources

These documents contain additional information concerning related products from Rockwell Automation. You can view or download publications at rok.auto/literature.

Resource	Description
Drives in Common Bus Configurations with PowerFlex 755TM Bus Supplies Application Techniques, publication 750-AT005	Provides basic information to properly wire and ground the following products in common bus applications: <ul style="list-style-type: none"> PowerFlex 755TM drive system for common bus solutions PowerFlex 750-Series AC and DC input drives Kinetix® 5700 servo drives
PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication 750-IN100	Provides the basic steps to install PowerFlex 755TL drives, PowerFlex 755TR drives, and PowerFlex 755TM bus supplies.
PowerFlex 755TM AC Precharge Modules Unpacking and Lifting Instructions, publication 750-IN102	These publications provide detailed information on: <ul style="list-style-type: none"> Component weights Precautions and recommendations Hardware attachment points Lifting the component out of the packaging
PowerFlex 755TM DC Precharge Modules Unpacking and Lifting Instructions, publication 750-IN103	
PowerFlex 755TM Power and Filter Modules Unpacking and Lifting Instructions, publication 750-IN104	
PowerFlex 750-Series Service Cart and DCPC Module Lift Installation Instructions, publication 750-IN105	Provides detailed set-up and operating instructions for the module service cart and lift extension option.
PowerFlex 755TM Power and Filter Module Storage Hardware Instructions, publication 750-IN106	Provides detailed installation and usage instructions for this hardware accessory.
PowerFlex 755TM IP00 EMC C2 Filter Unpacking and Lifting Instructions, publication 750-IN109	Provides unpacking and lifting instructions for the IP00 / Open Type EMC C2 filter.
PowerFlex 750-Series I/O, Feedback, and Power Option Modules Installation, publication 750-IN111	Provides instructions to install and wire 750-Series option modules.
PowerFlex TotalFORCE Firmware Documentation Set: <ul style="list-style-type: none"> PowerFlex Drives with TotalFORCE Control Programming Manual (firmware revision 6.xxx and earlier), publication 750-PM100 PowerFlex Drives with TotalFORCE Control Conditions Reference Data, publication 750-RD100 	Provides detailed information for firmware revisions 6.xxx and earlier on: <ul style="list-style-type: none"> I/O, control, and feedback options Parameters and programming Faults, alarms, and troubleshooting
PowerFlex TotalFORCE Firmware Documentation Set: <ul style="list-style-type: none"> PowerFlex Drives with TotalFORCE Control Programming Manual (firmware revision 10.xxx and later), publication 750-PM101 PowerFlex Drives with TotalFORCE Control Parameters Reference Data, publication 750-RD101 PowerFlex Drives with TotalFORCE Control Conditions Reference Data, publication 750-RD102 	Provides detailed information for firmware revisions 10.xxx and later on: <ul style="list-style-type: none"> I/O, control, and feedback options Parameters and programming Faults, alarms, and troubleshooting
PowerFlex 750-Series Products with TotalFORCE Control Technical Data, publication 750-TD100	Provides detailed information on: <ul style="list-style-type: none"> Drive and bus supply specifications Option specifications Fuse and circuit breaker ratings
PowerFlex 755TM IP00 Open Type Kits Technical Data, publication 750-TD101	Provides detailed information on: <ul style="list-style-type: none"> Kit selection Kit ratings and specifications Option specifications
PowerFlex 750-Series Products with TotalFORCE Control Hardware Service Manual, publication 750-TG100	Provides detailed information on: <ul style="list-style-type: none"> Preventive maintenance Component testing Hardware replacement procedures
PowerFlex® 755TM Non-Regenerative Supply User Manual, publication 750-UM100	Provides detailed information on: <ul style="list-style-type: none"> Receiving, handling, and storage Installation steps Setup and commissioning Basic troubleshooting and maintenance
PowerFlex 750-Series Safe Speed Monitor Option Module Safety Reference Manual, publication 750-RM001	These publications provide detailed information on installation, set-up, and operation of the 750-Series safety option modules.
PowerFlex 750-Series Safe Torque Off Option Module User Manual, publication 750-UM002	
PowerFlex 750-Series ATEX Option Module User Manual, publication 750-UM003	
Industry Installation Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-AT003	Provides basic information for different enclosure systems and environmental/location considerations (to help protect against environmental contaminants), and power and grounding considerations needed to properly install a Pulse Width Modulated (PWM) AC drive.
Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001	Provides basic information to properly wire and ground PWM AC drives.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, Knowledgebase, and product notification updates.	rok.auto/support
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Technical Documentation Center	Quickly access and download technical specifications, installation instructions, and user manuals.	rok.auto/techdocs
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

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Your comments help us serve your documentation needs better. If you have any suggestions on how to improve our content, complete the form at rok.auto/docfeedback.





Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

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