

# Insulated Busbar in CENTERLINE 2100 Motor Control Centers

Bulletin Number 2100

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Allen-Bradley® CENTERLINE® low voltage motor control centers (MCC) have been in production since 1971. Over the course of its proven history of quality and reliability, many new features have been introduced to increase equipment and personnel safety. Many of the new features include ArcShield™ sections, SecureConnect™ units, and Network Safe Torque Off (STO) for the PowerFlex® 755 drives. These features are aimed at reducing the risk of injury to plant personnel by deploying an arc-resistant MCC or controlling a motor at a safe speed when the perimeter is broken or a condition is no longer met. A sound structural design and a well-supported, isolated bus system are critical for an MCC to withstand the effects of an arc flash event. The two side sheets on every MCC section and a robust bus support design significantly contribute to the ability of the equipment to contain and redirect the arc flash energy.

An arc flash event has the potential of expelling large amounts of energy that can have deadly consequences. The energy in the form of the Arc Flash can reach temperatures of 35,000 °F, which is hot enough to vaporize copper and aluminum cables and busbars. The explosion also creates high pressure and sound waves. These events can be triggered by equipment that could be underrated for the available fault current, by accidental contact with an energized conductor, or corroded equipment such as a busbar in an MCC. Insulating the busbar in an MCC and helping prevent the arc propagation or accidental contact is important for personnel and equipment safety.

## Insulated Bus Offering

The newest introduction to the CENTERLINE 2100 safety portfolio is insulated bus. The horizontal bus is insulated with a factory-installed polypropylene flame-retardant wrap that helps prevent arc propagation, and increases equipment longevity by creating a corrosion-resistant seal around the busbar. The Rockwell Automation solution leads to ease of installation and maintenance due to the unique design of the splices and do not require taping of the polypropylene wrap. Not only does the solution provide improved personnel safety, but it also offers reliability, protection, and increased electrical performance over time. The innovative and easy to install design of the insulated bus solution not only provides personnel safety due to the reduction of arc propagation but also helps to increase equipment life with the additional protection from harsh environments.

- Personnel Safety

If an arc occurs, the polypropylene wrap on the horizontal bus helps prevent the propagation down the line. The solution also protects against an arc caused by foreign objects (that is hand tools, animals) that can come into contact with the busbar.

- Reliability

The insulated bus reduces the probability of arc flash and short circuits that cause equipment damage in the facility, but also lead to costly downtime.

- Protection

The polypropylene wrap that surrounds the busbar helps protect the busbar when installed in facilities with air pollutants such as the following:

- High sulfur dioxide
- Trace materials like oils and lubrications
- Dust found in saw mills and other food processing facilities
- Moisture and other caustic materials prevalent in a manufacturing facility

- Improved Electrical Performance

Because the polypropylene wrap helps protect against foreign objects that can cause an arc or short circuit and works to reduce the impedance from surface corrosion, the current carrying capacity of the horizontal bus sees better performance over its lifetime and sees the lifetime extended.

- UL Rating

The insulated bus offering in the CENTERLINE 2100 MCCs is available for 600 A...1600 A horizontal bus ratings with a 65 kA and 100 kA short circuit withstand. The offering is available in both 15 in. and 20 in. deep sections and in 20 in., 25 in., 30 in., and 35 in. section widths, including frame mount and back-to-back sections.

The insulated bus offering meets UL 845, which is a harmonized standard consisting of Underwrites Laboratories (UL) 845, Canadian Standards Association (CSA) C22.2 No. 254-05, and Association of Standardization and Certification (ANCE) NMX-J-353-ANCE-2006.

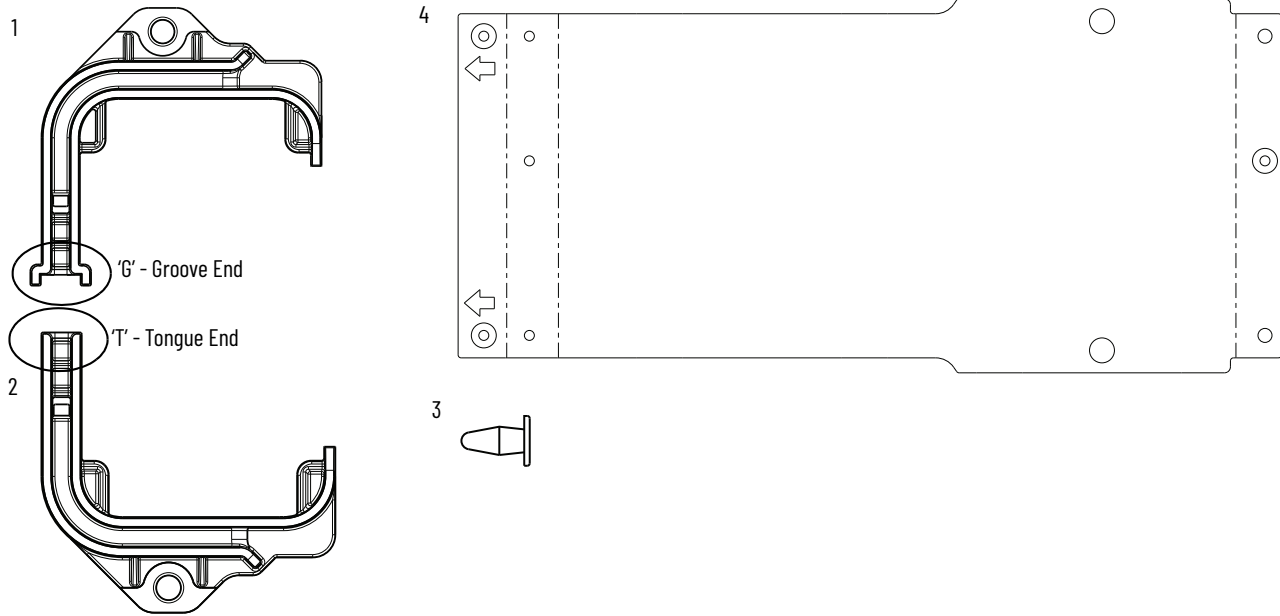
## Target Industries

Many industries around the world face challenges with corrosive environments, whether it is inside their facilities with air pollutants such as sulfur dioxide or outdoors with corrosive factors such as water and salt fog. Corrosion is attributed to the single largest cause of plant and equipment breakdown of machinery, structures, supports, and motor control equipment. The oil and gas industry, for example, can subject MCCs to harsh and corrosive environments. From harsh environments in the refineries to salt fog that is often experienced on offshore drilling platforms, the polypropylene wrap provides resistance to the severe environments. The increased resistance to corrosion that stems from the insulated busbar can lead to increased longevity and performance.

## Core Components

The insulated bus kit contains these items.

### Straight Splice Insulation Kit Contents



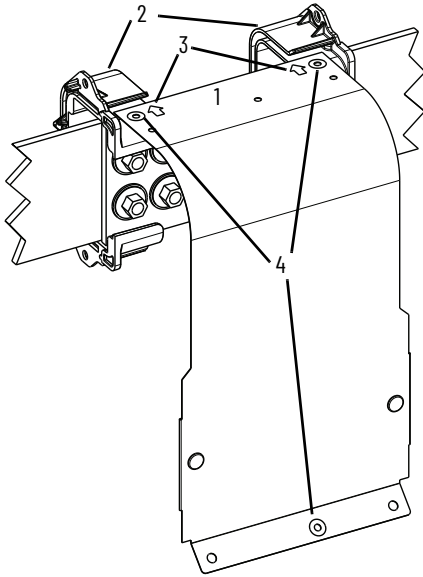
Item	Description	Quantity
1	Collar 'G' - Groove End	7
2	Collar 'T' - Tongue End	7
3	Canoe Clip Fasteners	50
4	Splice Insulator Sheet	3

## Splice Insulator Sheet Installation

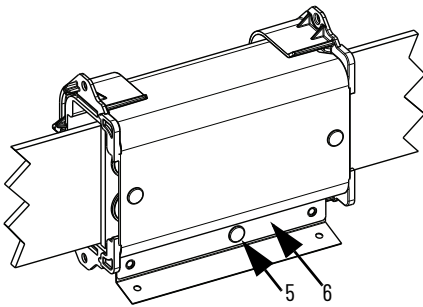
The polypropylene wrap on the horizontal bus is factory-installed. When the motor control center is on-site for commissioning, install split kits to join the shipping split sections (see publication [2100-IN010](#) for joining and splicing information).

After the split kit is installed and the bus is connected across shipping splits, a collar is installed on both sides of the splice (see publications [2100-IN096](#), [2100-IN097](#), and [2100-IN098](#) for collar installation information). This collar provides a track and form for the polypropylene splice insulator sheet. After the collars are installed and secured, the splice insulator sheet is fed through and secured. This solution lets you remove the splice insulator sheet to provide access for preventative maintenance and to check the bolts that connect the splice kit for proper torque.

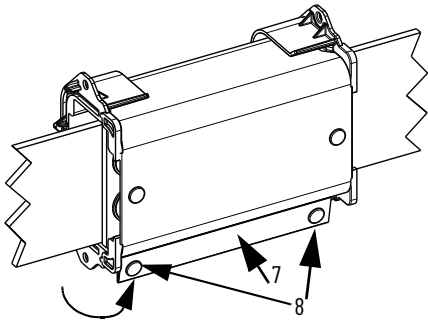
1. Orient the splice insulator sheet (1) as shown and align the end with the upper track of the collars (2). The arrows on the outer flap (3) indicate the feed direction. The circles (4) indicate the orientation of the head side of the canoe clip fasteners.



2. Assemble canoe clip fasteners (5) to center position of the inner flap (6), then connect to rear flap.



3. Fold outer flap (7) upward, assemble canoe clip fasteners (8) to the outboard positions, and then connect to inner flap (6).



## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
CENTERLINE 2100 Motor Control Centers Joining and Splicing Vertical Sections Instructions, publication <a href="#">2100-IN010</a>	Provides information for joining and splicing vertical sections.
CENTERLINE 2100 Motor Control Centers Insulated Bus Splice Instructions, publication <a href="#">2100-IN096</a>	Provides information for installing the insulated bus components.
Installation of Straight Splice Insulator Kit, publication <a href="#">2100-IN097</a>	Provides a 3D animation pdf of straight splice insulator kit installation. Must download local copy to open.
Installation of Z-Splice Insulator Kit, publication <a href="#">2100-IN098</a>	Provides a 3D animation pdf of z-splice insulator kit installation. Must download local copy to open.
CENTERLINE 2100 Motor Control Centers Selection Guide, publication <a href="#">2100-SG003</a>	Provides selection information for CENTERLINE 2100 motor control centers.
Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, <a href="http://rok.auto/certifications">rok.auto/certifications</a>	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at [rok.auto/literature](http://rok.auto/literature).

# Rockwell Automation Support

Use these resources to access support information.





<b>Technical Support Center</b>	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	<a href="http://rok.auto/support">rok.auto/support</a>
<b>Knowledgebase</b>	Access Knowledgebase articles.	<a href="http://rok.auto/knowledgebase">rok.auto/knowledgebase</a>
<b>Local Technical Support Phone Numbers</b>	Locate the telephone number for your country.	<a href="http://rok.auto/phonesupport">rok.auto/phonesupport</a>
<b>Literature Library</b>	Find installation instructions, manuals, brochures, and technical data publications.	<a href="http://rok.auto/literature">rok.auto/literature</a>
<b>Product Compatibility and Download Center (PCDC)</b>	Get help determining how products interact, check features and capabilities, and find associated firmware.	<a href="http://rok.auto/pcdc">rok.auto/pcdc</a>

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Rockwell Otomasyon Ticaret A.Ş. Kar Plaza İş Merkezi E Blok Kat:6 34752, İçerenköy, İstanbul, Tel: +90 (216) 5698400 EEE Yönetmeliğine Uygundur

Connect with us.    

**rockwellautomation.com** ————— expanding **human possibility**<sup>™</sup>

AMERICAS: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

EUROPE/MIDDLE EAST/AFRICA: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

ASIA PACIFIC: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846