

## Couplers: Overview

UEE quick-connect couplers reliably connect high-voltage supply feeds to shovels, drilling rigs and other open-pit and underground mining equipment. UEE couplers can also be used to connect low-voltage motors, fans, pumps or other mobile electrical equipment.

When cables are terminated with UEE couplers, a truly *plug-and-play* power distribution system is in effect, drastically reducing downtime when damaged cables need to be replaced or equipment has to be redeployed.

UEE couplers are available in the electrical ratings and wire sizes shown below in Table 1.



UEE 1kV couplers

Table 1: Coupler Ratings, Wire Size and Configurations.

Max Voltage Rating kV	Max Current Rating Amperes	Phase Wire Size AWG/MCM	Configurations Available						
			MC	FC	MF	FF	JF	JM	TC
1	160	#8 - #2	✓	✓	✓	✓	*	*	✓
1	240	#2 - 2/0	✓	✓	✓	✓	*	*	✓
1	320	1/0 - 250	✓	✓	✓	✓	*	*	✓
8	250	up to 2/0	✓	✓	✓	✓	✓	*	✓
8	400	up to 4/0	✓	✓	✓	✓	✓	*	✓
8	400 HA	#2 - 250	✓	✓	✓	✓	*	*	✓
8	600	250 - 500	✓	✓		✓	✓		✓
15	440	#2 - 300	✓	✓		✓	✓		✓
22	440	#4 - 250		✓	✓			✓	✓
25	440	#2 - 300		✓	✓			✓	✓
25	600	250 - 500		✓	✓			✓	✓

### Legend

MC = Male Coupler    FC = Female Coupler    MF = Male Flange, Equipment Mount  
 FF = Female Flange, Equipment Mount    JF = Junction Female    JM = Junction Male  
 TC = Termination Cover (Custom, Based on GFGC System)  
 \* = Available as Custom Manufactured Equipment

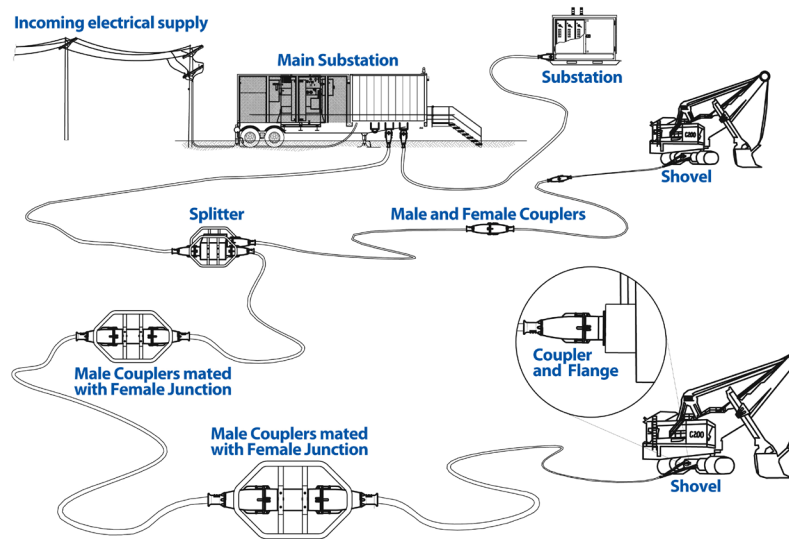


UEE couplers

## Reliability and Safety

It was once thought that safety could only be achieved with permanent, fixed, and inconvenient connections, especially in the 15 to 25 kV range. However, with UEE quick-connect couplers, there is now a better option. By properly utilizing the UEE quick-connect coupler system, you can have unsurpassed reliability and safety without compromising quick-connect convenience.

Here is an example of how UEE quick-connect connectors can be used to improve the efficiency and safety of a mine site:



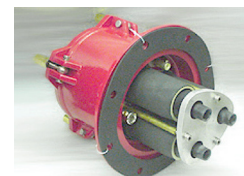
The UEE quick-connect connector system is perfect for reliably connecting high-voltage supply feeds to shovels, drilling rigs, and other open-pit and underground mining machines. They can also be used to connect low-voltage motors, fans, pumps, or other piece of mobile electrical equipment.

## Safety Features

UEE coupler products follow the stringent CSA standard CAN/CSA-M421, Use of Electricity in Mines.

In particular, our coupler products meet the Standard's specific requirements for quick-connect cable couplers by incorporating the following features:

- Mechanical fastening arrangements that join the connector to its cable with a tensile strength greater than that of the cable.
- Strain relief devices that are suitable for the intended portable cable.
- A means to seal out moisture.
- A means to mechanically lock the coupler.
- Ground conductors that connect before and disconnect after the phase conductors.
- Ground-check circuits that connect after and disconnect before the phase conductors.
- Covers which protect against damage and contamination when not in use.



UEE 15kV couplers



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## Conductor Arrangement

When used with a suitable ground-check monitoring system, UEE quick-connect couplers are completely safe, even for high-voltage systems. The UEE conductor arrangement ensures that power cannot be turned on until the couplers are completely connected.

Should a coupler in a live circuit be disconnected, power shuts down at the source the instant the ground-check circuit is opened. This happens within the first few millimeters of movement, long before any of the conductors are accessible.

Phase and ground conductors remain in contact, allowing current to flow while the system de-energizes. The ground circuit is the last to open, ensuring that any residual fault current has a path to ground until the coupler is disconnected.

## Inter-Phase Ground Shield

To increase the safety and reliability of our medium to high-voltage couplers (8kV to 25kV), UEE has incorporated a comprehensive phase-isolating ground shield system to eliminate phase-to-phase faults. With the inter-phase ground shield, any fault current passes directly to ground, avoiding the possibility of a catastrophic phase-to-phase failure.

Inter-Phase Ground Shield  
8kV 400A



## Conducting Parts

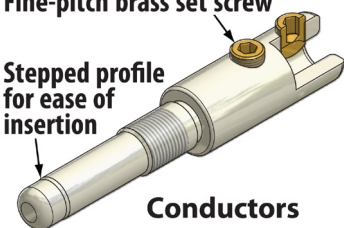
All major electrical conductors are manufactured out of 99.9% pure copper or high-quality copper alloy (brass) to ensure exceptional electrical, thermal, and physical traits, and are electroplated with a silver coating to maximize conductivity and minimize contact friction.

Non-magnetic, stainless-steel spring bands are used in appropriate coupler parts to increase contact pressure without inducing harmful currents.

Male, pin-type conductors have stepped profiles to ease insertion into female, socket-type conductors. Non-collet conductors utilize brass set screws to eliminate non-ideal thermal effects. They also have fine-pitch threads to limit loosening.

Fine-pitch brass set screw

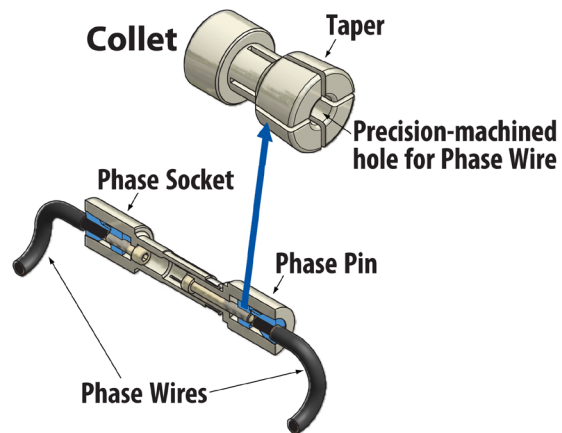
Stepped profile  
for ease of  
insertion



## Collet System

Select UEE couplers utilize our patented **Collet System** (Canadian Patent Number #2271589), a securing system that eliminates messy solder-type connections by uniformly and securely compressing phase wires for a simple, reliable and low-resistance connection.

In a collet-equipped coupler, as a phase wire inserts into the collet, a bolt draws the collet into the phase conductor. As the collet is drawn into the phase conductor, the phase wire is gripped for optimum connection.

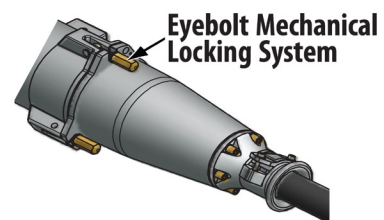
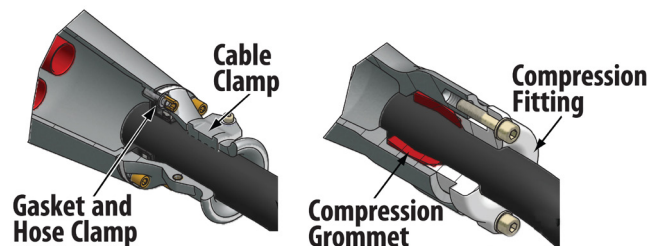


## Bodies and Fittings

UEE coupler bodies, covers and fittings are manufactured from high-quality aluminum alloy that is cast in our non-ferrous foundry and machined using CNC machinery, resulting in light, durable and economical couplers.

With the use of rubber cable grommets or compression grommets and clamps, UEE entrance fittings will provide an entirely watertight cable-to-coupler interface that also mechanically secures the coupler to the cable. All entrance fittings are customized to fit the characteristics of the customer's cable.

To ensure that all coupler connections meet the mechanical locking requirement of CAN/CSA-M421, stainless steel eyebolts and brass nuts secure parts while in use. The eye-bolt securing scheme is simple, easy to use, and more resistant to dirt contamination than couplers that utilize threaded bodies for their mechanical connection.



For additional technical details or specifications, call 1-250-497-5254 or visit [www.uee.com](http://www.uee.com).

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