

New 600 Amp Loadbreak Technology Provides Efficient, Reliable Visible Break and Visible Ground

Cooper Power Systems Clēer™ 600A Loadbreak Connector System cuts operating time in half and achieves visible break without requiring removal of 600A bolted terminations, or moving heavy cables.

Clēer Visible Break. Clēer Visible Ground. The Clēer Solution for Distribution Systems.

Providing uninterrupted service and improved reliability to energy consumers is a top priority in utility operations. The patented Clēer™ Loadbreak Connector reduces outages by providing reliable switching under load – as reliable as traditional 200A loadbreak connectors – and allows other circuits to remain energized, limiting the amount of downtime and inconvenienced customers.



No other 600 amp loadbreak connector system in the market today provides visible break and visible ground capability.

As the size and scale of the electrical grid continues to grow and load requirements increase, more utilities are migrating from 200A to 600A circuits. The increased demand for reliability is pushing utilities to have less of their 600A system off-line during operation, restoration, or expansion.

The new Cooper Power Systems Clēer Loadbreak is the only 600A/15 kV single-phase rated loadbreak connector system in the industry. This unique solution offers both a visible break and visible ground without having to de-energize, unbolt 600A terminations, or move heavy cables. This system offers an efficient and reliable visible break when used for sectionalizing, splicing, or in-line with vacuum switchgear. For operators working on a piece of energized equipment, the Clēer Connector System provides peace-of-mind through visible, circuit traceability.

Cooper Power Systems pioneered the 200A loadbreak systems in use today, and now has incorporated the same proprietary, superior switching capability of the POSI-BREAK™ technology into this new solution for 600A systems.



Clēer 600 Amp Loadbreak Connector System

Clēer Loadbreak Connector: The Ultimate Visible Break and Visible Ground

Once an underground circuit is sectionalized, for maximum safety, a visible break and visible ground must be achieved prior to performing any repair or maintenance. Distribution feeders can easily retrofit the Clēer Loadbreak Connector System into 600A applications, allowing operators confidence when working on a piece of underground equipment or cable as they can clearly see the open circuit.

Clēer Loadbreak Connectors allow the operator to safely pull the loadbreak interface while the system is energized to sectionalize the system into smaller segments to prevent taking longer outages. The Clēer 600A Loadbreak Connector makes this easy:

- C-shape Clēer Loadbreak Connector is tested for ten loadbreak and loadmake operations at 600A and receives a full 12 kA fault-closure; additionally Clēer Loadbreak Connector is tested for three 900A loadbreak and loadmake switching operations and receives a full 25 kA fault-closure.
 - The C-shaped connector breaks the circuit in two places for twice the contact separation.
- The new Clēer Loadbreak Connector incorporates field-proven Cooper Power Systems POSI-BREAK™ technology which provides:
 - Increased strike distance, greatly reducing the possibility of partial vacuum flashovers
 - Added dielectric strength along the probes for superior switching performance and reliability
- The remainder of this simple system consists of:
 - Two Cooper Power Systems 600A loadbreak interfaces
 - Two IEEE std 386™-2006 standard 600A deadbreak interfaces
- A yellow latch indicator is included to assure positive connection
- Fully submersible, and exceeds the applicable requirements of IEEE std 386™-2006 standard for use in above- and underground environments prone to flooding
- When using BT-TAP or T-OP II connectors a visible ground can be achieved by connecting a grounding elbow directly to a 200A loadbreak reducing tap plug.

Perfect Solution for Multiple Applications

The compact design of the Clēer 600A Loadbreak Connector System allows numerous configurations and applications, including use in space-constrained locations such as vaults, manholes, and sectionalizing cabinets:



In-line or Replacement of Oil/Vacuum Switches

- Easily retrofittable
- Provides a visible break, assuring a circuit is de-energized prior to performing maintenance for added safety
- The submersibility of this device makes it suitable for installations above- and underground



Sectionalizing

- Allows for isolating a circuit to perform maintenance
- Provides a visible break and grounding point for added safety



Separable Splicing for Long Cable Runs

- Provides loadbreak capability
- More efficient than other deadbreak splicing alternatives with quick and easy separation of circuits

Reliable Visible Break and Visible Ground

Loadbreak Sequence



1. **PUSH:** Simply thrust the clampstick forward until the connector moves further onto the bushings and the yellow latch indicator rings on the bushings are visible



2. **PULL:** Pull the clampstick and withdraw the connector from bushings with a fast, firm, straight motion.



3. **CAP:** Using a clampstick, place an insulated protective cap with ground wire on the exposed energized bushings. (Only one cap shown.)



4. **TEST & GROUND:** Using a clampstick, remove 200A loadbreak protective cap from 200A loadbreak reducing tap plug and test (step not shown) to verify circuit is de-energized. Then install grounding elbow on 200A interface of T-OP II or BT-TAP termination.

Clēer Exceptional Field Efficiency

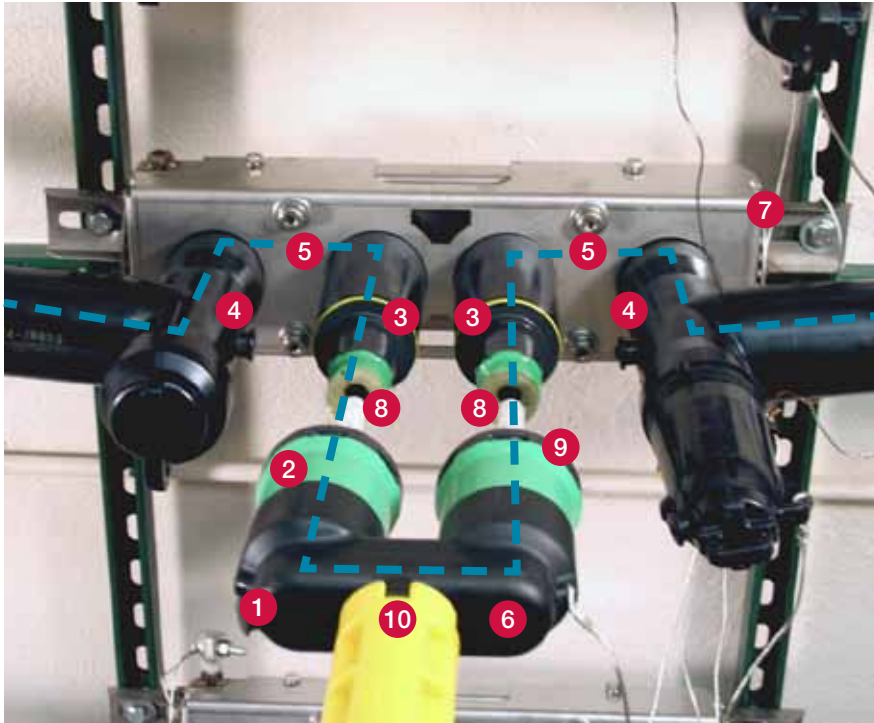
- Cut operating time in half and achieve visible break without requiring removal of 600A bolted terminations, or moving heavy cables
- Faster restoration of service with faster and easier sectionalizing
- Easy clampstick operation
 - Easy push-pull operation breaks surface adhesion and provides momentum during separation of the latch mechanism
 - Lightweight “C” connector –only five pounds – plus no heavy cables to move
 - 600A “C” connector requires just slightly more force than a 200A, 25 kV loadbreak
 - Metal-to-metal latch makes the latching forces less sensitive to extremes in temperature.
 - Reinforced, standard operating-eye on the C-shaped loadbreak connector for repeated use
- Adjustable in-line or compact square stainless steel brackets available for convenient positioning
 - Designed to be mounted inside a vault, directly to manhole wall, or inside an enclosure
 - Various in-line bracket angles provide easy access for underground applications from above ground with clampstick
 - Includes two grounding lugs for convenient grounding location



Compact square stainless steel bracket.

Clēer Loadbreak Made Easy

A reliable, visual, traceable method for loadbreaking 600 amp systems.



1. EPDM semi-conductive material and insulation
2. Green cuff and nose-piece for 600A 15kV loadbreak identification
3. Loadbreak Interface
4. Deadbreak Interface IEEE std 386™-2006 standard interfaces
5. Deadbreak/Loadbreak junction (2) (current path indicated by dotted line)
6. POSI-BREAK technology inside
7. Adjustable bracket
8. 600A Loadbreak Probes
9. Latch design and indication window
10. Standard operating eye

Performance Test Results - 15kV Class 600A Loadbreak Connector System Ratings per modified IEEE std 386™-2006 standard

600 A Loadbreak Interface	
Continuous Current	600 A rms
Loadbreak Switching	Ten make and break operations at 600 A at 14.4 kV Phase-Phase
	Three make and break operations at 900 A at 14.4 kV Phase-Phase
Fault Closure	16 kA rms symmetrical at 14.4 kV Phase-Phase after ten 600 A loadbreak switching operations for 0.17 seconds
	16 kA rms symmetrical at 14.4 kV Phase-Phase after three 900 A loadbreak switching operations for 0.17 seconds
4 Hour Overload Current	900 A rms
Short Time Current	16 kA rms symmetrical for 0.17 seconds (limited by fault closure rating)
	10 kA rms symmetrical for 3.0 seconds
IEEE Std 386™ -2006 standard 600 A, 15/25 kV Deadbreak Interface	
Continuous Current	600 A rms
4 Hour Overload Current	900 A rms
Short Time Current	16 kA rms symmetrical for 0.17 seconds
	10 kA rms symmetrical for 3.0 seconds

Current ratings and characteristics are in accordance with applicable IEEE Std 386™ -2006 standard requirements.

* IMPORTANT: Refer to the following service instructions for comprehensive information before attempting any operating procedures: S600-100-1, Clēer 600A Loadbreak Connector System Installation Instructions and S600-100-2, Clēer 600A Loadbreak Protective Cap Installation Instructions.

IEEE Std 386™-2006 standard is a trademark of the Institute of Electrical and Electronics Engineer, Inc., (IEEE). This publication/product is not endorsed or approved by the IEEE.

Cooper Power Systems
2300 Badger Drive
Waukesha, WI 53188
P: 877.CPS.INFO

COOPER Power Systems

One Cooper | www.cooperpower.com | Online